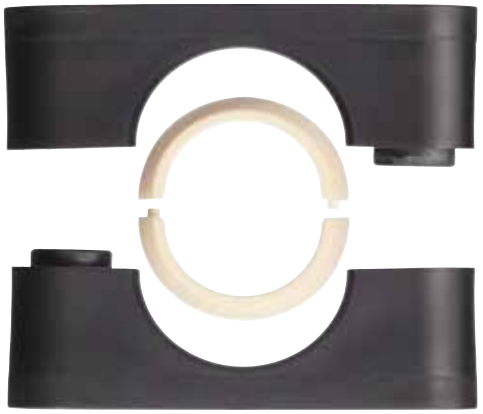
polymer...

igus®.co.uk...iglidur®.igubal®.xiros®.DryLin®...04.2011...plastics.for.longer.life®...

...



...and ball bearings...

bearings

10,200 products ex stock

igus® – plastics for longer life®

On the following pages you will find application examples, design specifications, and more than 7,000, 1,405 igubal®, 50 xiros® and 1,840 DryLin® parts, which are ready for delivery to you from stock. They are indexed to allow quick location.

The most important innovations of this catalogue are:

- More selection in all product lines, includes selected specialists for food products, clean room, and noise reduction, etc.
- More accessories
- More solutions and practical tips
- More detailled selection possibilities
- “Quicklinks” for additional details on the Internet for your product (3D-CAD data, configurations, pdf downloads)

www.igus.co.uk

This catalog by no means covers the entire igus® product range. Visit our website www.igus.co.uk to discover further products, new developments and benefit from our online range – 24 hours a day.

* in this catalog

NEW*

NEW* NEW* NEW* NEW* NEW* NEW*

Overview with all new products, which are in this catalog for first time. With page reference to detailled pages with technical data and more.

▶ page 16

iglidur®

Polymer Plain Bearings

NEW*

Improve technology and reduce costs: Polymer plain bearings – economical, lubrication-free, maintenance-free, predictable. A choice of 34 different iglidur® materials.

NEW: 6 new materials, e.g. for endurance run, food...

▶ page 21

1

Additional iglidur® products

NEW* NEW*

Polymer plain bearings in the most diverse special designs: Clip bearings for sheet metal, flange bearings, slewing rings or stock bars – lubrication- and maintenance-free, long service life. NEW: Slewing ring bearing with toothed outer ring, piston rings...

▶ page 502

2

igubal®

Spherical Bearings

NEW*

Whether as an upright, pivot or flange bearing – lubrication- and maintenance-free igubal spherical bearings suits all requirements and are more economical and lighter than conventional spherical bearings. NEW: detectable Clevis joints, splitting pillow block...

▶ page 563

3

NEW*: xiros®

Polymer Ball Bearings

NEW* NEW* NEW* NEW* NEW*

Lubrication-free groove ball bearings and other ball bearing types made from igus® tribo polymers, for maximum service life and reduce coefficient of friction.

NEW: groove ball bearings, axial, multi-axis, polymer ball transfer unit...

▶ page 679

4

DryLin®

linear guidance systems

NEW*

Lubrication- and maintenance-free plastic linear bearings for nearly all types of application. Wheather miniature or self-adjusting, wether round or angular. NEW: hybrid bearing, plastic linear bearings, guide carriages, slide pads...

▶ page 707

5

DryLin®

drive technology

NEW* NEW*

Lubrication-free leadscrew modules with different material- and shaftcombinations, linear guide units for easy adjustments and cogged-belt axis for quick positioning.

NEW: Fast-Forward, high helix threads, accessories, ready-for-connection...

▶ page 885

6

Service

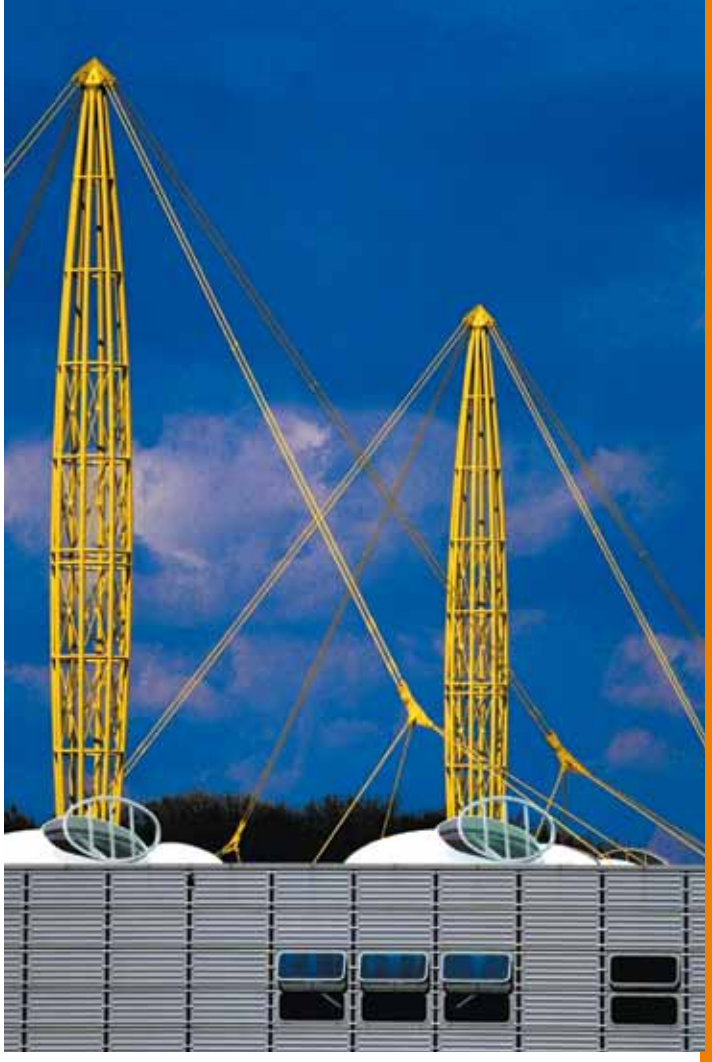
About igus®, table of chemicals, fax form, index of addresses ▶ page 957

Plastics for longer life® – make your machines more durable with plastics

No lubrication, less maintenance, lower costs, longer life cycles, always available ex stock – these key principles formulated by us apply to all igus® products, systems and services.
Tried and tested in terms of durability, friction properties and stability, igus® plastics are the technological core of the igus® range. This catalog lists more than 10,200 Polymer Bearing products available ex stock.
We are looking forward to your phone call or e-mail.

Improve technology and reduce costs

For years the igus® motto has been “plastics for longer life”. By this we mean the production of innovative plastic products which reduce maintenance work, achieve technical improvements, at the same time as reducing costs and increasing service life, everything delivered immediately from stock.



igus® headquarters in Cologne – research, development and production from a single location.

From stock.
Delivery time 24h or today or on request*.
* Delivery time means time until shipping of goods.

No minimum order value!
No surchages!
You can find our prices online at
www.igus.co.uk

“8 to 8 plus saturday” service
Monday till Friday 8:00 am to 8:00 pm and
Saturday from 8:00 am to 12:00 pm

Hotline
Phone +44 (0) 16 04-67 72 40
Fax +44 (0) 16 04-67 72 42

Onlineshop
Go to **www.igus.co.uk** and find online catalogs, useful online tools and many more.
Order around-the-clock!

Do you have any questions?
For questions and more informations call us or use our online productfinder at
www.igus.co.uk

Orders can be placed until 8:00 pm local time.
Phone +44 (0) 16 04-67 72 40
“Emergency-Service” around the clock.
No minimum order quantity, no surcharges.
10,200 polymer bearings from stock.
No lubrication. No maintenance.
No downtime.

igus® is accredited to DIN EN ISO 9001:2008 and to TS16949,
ISO 14001 and ISO 9001.

/8:00 pm
.../
/9001
/16949

Longer life cycles, lower costs

Innovations with high-performance plastics

igus® polymer plain bearings constitute the step from a simple plastic bushing to a tested, predictable and available machine component.
Our research is essentially aimed at precise forecasts of bearing properties – especially life cycle – achieved by continuous advancements in materials.

Predictable life cycle – no lubricant necessary

Lubrication-free operation is something every designer strives for.
igus® polymer plain bearings make this dream a reality. Decades of research now permit precise calculations of a polymer plain bearing's life cycle.

Fit and forget – matching solutions ex stock

- Innovative, quickly assembled and economicalproducts
- Delivery ex stock – lower storage costs
- Large product selection – find the right solution at once
- Time-saving tools on the Internet
- We deliver customized, ready-to-fit units
- Quick reaction customer service with many local representatives in Germany and worldwide.

igus® maintenance-free polymer plain bearings help improve your products and reduce costs at the same time.

Many sample applications can be found at
► www.igus.co.uk

Resistant to dirt with igus®

Zero-maintenance and high dirt resistance are not the only advantages of DryLin®. Longer life cycles – lower costs!

No maintenance with igus®

Various iglidur® materials for a wide variety of operating conditions. Large program of dimensions compatible with nearly all environments. Predictable life cycle!

No lubrication with igus®

The lubrication-free design of iglidur® also permits its use in the food and pharmaceutical industries. Don’t wait any longer!

Corrosion-free with igus®

Low weight, corrosion resistance as well as zero maintenance and lubrication achieve solutions for nearly all types of applications. Fit and forget!

Lubrication-free bearing with igus® – good for the environment and the wallet

Lubrication-free and light weight

The tribo-optimised iglidur® plastic plain bearings from igus® require neither oil nor grease. Due to continuous advanced developments the bearings specialist igus® now supplies alternatives more in line with environmental considerations for more and more applications that work with lubricated metallic plain and rolling bearings. The energy balance for the manufacture of plastics is very positive. Whereas the energy from 15 litres of oil is necessary to produce 1 litre of aluminum, and 1 litre of steel requires 11 litres of oil, the production of 1 litre of plastic only needs an average of 1.8 to 2.3 litres of oil.

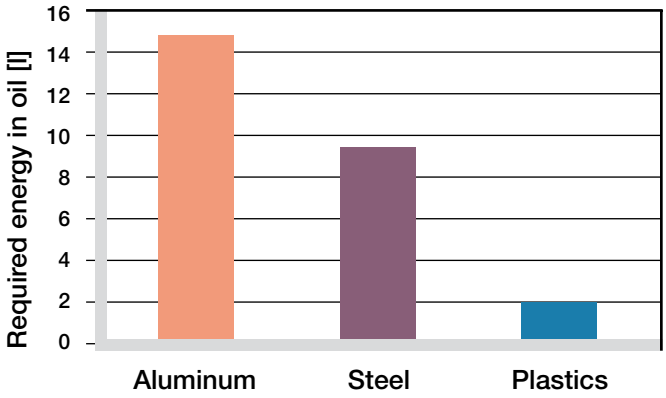
Do you allready know, that the production of plastics only requires 4 percent of annual worldwide oil requirements?

Good for the environment

iglidur® bearings are lubricantfree, so that no contaminants escape into the environment. The lightweight bearings will also help to reduce fuel consumption and carbon dioxide output in, for example, vehicles or aircrafts. Basically the reduced weight leads to lower masses and subsequently lower energy consumption.

Exciting applications
► www.igus.co.uk/plastics

A study has found that no less than half of all machine lubricants currently used in Germany seeps into soil and waters or evaporates into the atmosphere. According to a research team of chemists, mechanical engineers and environmentalists from the RWTH in Aachen, the estimates for Germany alone consume 250,000 tonnes per year. This corresponds to the amount required to fill 8,000 tankers.



The energy required to produce one volume litre of material (converted to litres of oil).
Source: Clausthal University of Technology

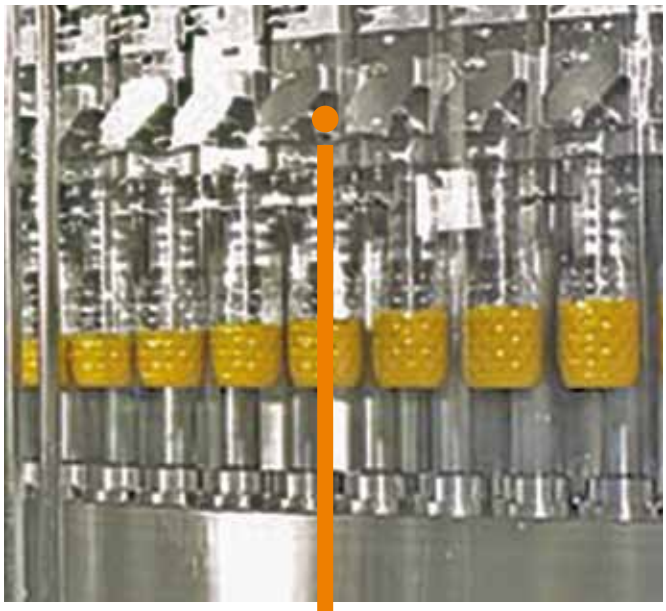
In contrast to metallic plain and rolling bearings, iglidur® plastic plain bearings from igus® require no oil or grease for lubrication.

iglidur® plain bearings are listed from page 21

Excellent polymers, improved through precise additions of reinforcements and solid lubricants, testedthousands of times, and proved millions of times – that is iglidur®. Every year, igus® engineers develop more than 100 new plastic compounds and conduct more than 5,000 tests on maintenance-free plain bearings. Over the years, this has made it possible to establish a large database of polymers' tribological properties. In addition to their general properties, every iglidur® bearing material possesses a number of special features making it suitable for particular applications and requirements

Practical example

igus® bearings and linear sliding films made of iglidur® material, which meets all demands of aseptic filling, are used here. Low adhesion and attrition factors against different kinds of stainless steel, negligible moisture absorp tion, very good stability against PES-cleaners, lubricant-free, all of that means no contamination of products of the aseptic atmosphere.



Lifetime calculation online
▶ www.igus.co.uk/iglidur-expert

product finder iglidur®
▶ www.igus.co.uk/iglidur-productfinder

igubal® spherical bearings are listed from page 563

igubal® spherical bearings are self-aligning components made entirely of high-performance plastics.

The igubal® series provides designers with a complete system of self aligning bearings: Rod ends, clevis joints, flange bearings, pivot bearings and pillow blocks. Self-adjusting bearings are easy to fit, adaptable to wide angular ranges and have been used to replace special housings in many cases.

igubal® offers all the advantages of high-performance plastics, including dry-running capability combined with very good vibration damping. igubal® spherical bearings are insensitive to dirt, liquids, chemicals and fully corrosion-proof. Bearings from the igubal® range are very light, compact and economical on two fronts:

- Low purchase price
- Low maintenance and installation costs

Practical example

TRIPENDO GmbH Bicycle Manufacturing

The reclining wheel's curve inclination is realized by means of rod ends in the journal link. The high top speed and rapid acceleration are partly due to the rod ends' low weight. The bearing points do not require any elaborate sealing measures.

Lifetime calculation online
▶ www.igus.co.uk/igubal-expert

product finder igubal®
▶ www.igus.co.uk/igubal-productfinder

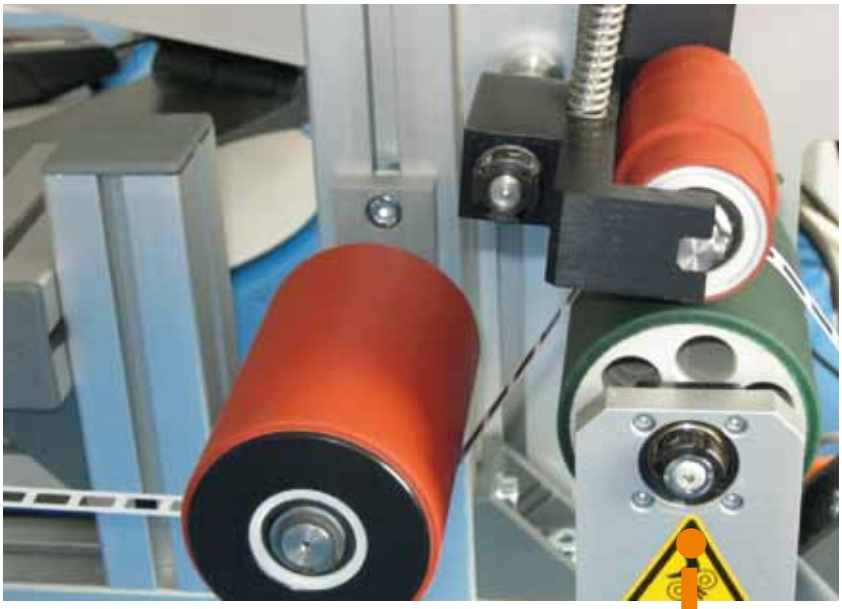
xiros® polymer ball bearings are listed from page 679

The xiros® plastic ball bearings are single-row grooved ball bearings based on DIN 625. The lubricant-free and maintenance-free ball bearings consist of four components:

- The outer ring
- The inner ring
- The cage
- And the balls

The inner and outer rings are made of igus® tribopolymers to maximize service life and minimize coefficients of friction. In contrast to metallic ball bearings, xiros® plastic ball bearings manage absolutely without lubrication. For this reason they are suited for a multitude of applications that depend not on extreme rotary speeds or loads, but just on lubricant-free application in contrast to permanently lubricated metallic ball bearings. These areas are for example food and medical industries, packaging and textile industries, or the chemical industry and cleanroom applications as well as electronics and office technology.

Practical example



tesa scribos GmbH

The xiros® plastic ball bearings B180 are used in coated guide rollers of different machines and provides the material guidance. The xiros® polymer ball bearings used now are cheaper by one-half and are supplied faster than the previously used bearings. Moreover, the low weight, low friction and the freedom from lubricants are congenial for the application.

Lifetime calculation online
▶ **www.igus.co.uk/xiros-expert**

Exciting applications can be viewed online
www.igus.co.uk/xiros-applications

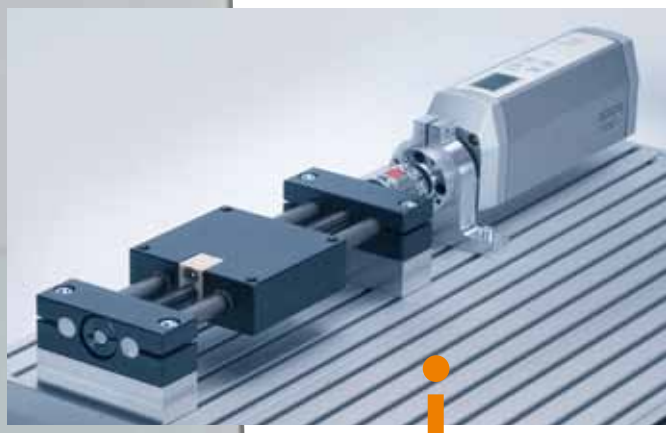
DryLin® linear plain bearings, linear slide modules and drive technology are listed from page 707

DryLin® linear plain bearings are solid state, a totally different approach when compared with traditional recirculating ball bearing systems. These sliding plain bearings can basically be made of any high-performance polymer of the iglidur® series. This blends the advantages of DryLin® linear technology with those of all the various iglidur® bearing materials. DryLin® linear bearing systems are designed for dry-running. These systems are thus protected against exposure to greases and oils. As a result, ambient dust and abraded material cannot cling to the bearing surfaces. Unlike recirculating-ball bushings, DryLin® bearings have no restrictions in terms of minimum stroke length and are almost inaudible during operation. The flat, compact Leadscrew linear table for variable formats and handling tasks is extremely rigid due to the hardanodized aluminum profile. All bearing points are furnished with dry-running iglidur® materials.

Practical example

FESTO AG & Co. KG Electrical Servo Drives

For a wide variety of formats in printing, paper, packaging, transmission and wood processing systems, Festo demonstrates the use of the SHT DryLin® Leadscrew linear table in conjunction with its electrical servo drive.



reddot design award
winner 2006

DryLin® expert with service life calculation
▶ www.igus.co.uk/drylin-expert

DryLin® CAD configurator
▶ www.igus.co.uk/drylin-cad-expert

NEW in this catalog

News and line extensions iglidur® polymer bearings

iglidur® K

Versatile, wear-resistant universal material

▶ page 175

iglidur® J260

Suitable for plastic shafts

▶ page 209

iglidur® J3

Runs up to three time longer than iglidur® J

▶ page 219

News and line extensions iglidur® – more Products

iglidur® PRT

Slewing ring bearing with toothed outer ring

▶ page 550

iglidur® PRT

Slewing ring bearing in a new low-cost design

▶ page 552

iglidur® Stock Bars

iglidur® materials as round material

▶ page 555

igubal® Clevis Joints

Clevis joint, detectable

▶ page 614

igubal® Clevis Joints

Spring-loaded pin, detectable

▶ page 616

igubal® Clevis Joints

Clevis joint with spring-loaded pin, detectable

▶ page 617

igubal® Pillow Block Bearings

Pillow block bearing with split housing and split ball

▶ page 628

igubal® Spherical Bearings

Cost-effective made of iglidur® J4

▶ page 675

New Chapter: xiros® polymer ball bearings made of tribopolymers

xirodur® B180

Radial deep-groove ball bearings, PA cage, glass balls

▶ page 690

xirodur® B180

Radial deep-groove ball bearings, PA cage, stainless steel balls

▶ page 690

iglidur® J350

Extremely wear-resistant in rotation

▶ page 229

iglidur® X6

Runs up to six times longer than iglidur® X

▶ page 289

iglidur® A350

FDA-compliant and wear-resistant at high temperatures

▶ page 397

iglidur® speedigus

iglidur® materials as customized molded parts

▶ page 558

iglidur® Piston Rings

Easy clipping!

▶ page 559

News and line extensions igubal® rod ends

igubal® Rod Ends

Low-cost ball and socket joint

▶ page 599

igubal® Pillow Block Bearings

Adapter for pillow block bearings of series E

▶ page 630

igubal® Spherical Bearings

Pivoting bearing “Soft Touch” – for precise run

▶ page 653

igubal® Pivoting Bearings

Variable double joint

▶ page 660

igubal® Pivoting Bearings

Variable double joint

▶ page 661

xirodur® B180

with shield
PA cage/glass balls

▶ page 692

xirodur® A500

Radial deep-groove ball bearings, PEEK cage, stainless steel balls

▶ page 693

xirodur® A500

Radial deep-groove ball bearings, PEEK cage, glass balls

▶ page 694

xirodur® A500

Radial deep-groove ball bearings, PA cage, stainless steel balls

▶ page 695

NEW in this catalog

xirodur® A500

Radial deep-groove ball bearings, PEEK cage, PAI balls

▶ page 696

xirodur® C160

Radial deep-groove ball bearings, PP cage, Glass balls

▶ page 697

xirodur® C160

Radial deep-groove ball bearings, PP cage, Stainless steel balls

▶ page 697

xirodur® B180

Axial ball bearing, glass/stainless steel balls

▶ page 698

xirodur® ESTM

Pillow block bearing, pivoting, glass/stainless steel balls

▶ page 703

xirodur® EFSM

EFSM flange bearing, 4-hole, glass/stainless steel balls

▶ page 704

xirodur® EFOM

EFOM flange bearing, 2-hole, glass/stainless steel balls

▶ page 705

News and line extensions DryLin® rail guide systems

DryLin® W

Double rail, reduced weight

▶ page 782

DryLin® W

Accessories: manual clamping, for simple positioning tasks

▶ page 784

DryLin® R

Solid polymer bearing, long type, precise

▶ page 807

DryLin® – Specialists

Telescopic rails with locking mechanism

▶ page 866

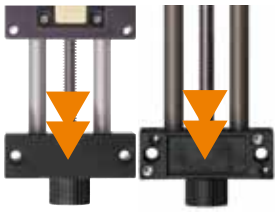
DryLin® Stainless Steel

Compact XY-table, stainless steel

▶ page 884/921

News and line extensions DryLin® drive technology

DryLin® SHT Drive Technology



Tables with quick release mechanism

▶ page 903/910

DryLin® SHT Drive Technology

Linear slide, preload

▶ page 905

xirodur® B180

Polymer ball transfer unit,
POM balls

▶ page 699

xirodur® B180

Multi-axis plastic bearing,
PP balls

▶ page 700

xirodur® B180

Slewing ring ball bearing, glass/stainless steel balls

▶ page 701

xirodur® ESTM

Pillow block bearing, rigid, glass/stainless steel balls

▶ page 702

DryLin® T

Clear anodised guide rails

▶ page 734

DryLin® T

Clamping elements for quick positioning

▶ page 738

DryLin® N

New carriage

▶ page 754

DryLin® W

Hybrid linear bearing – roll and slide

▶ page 778/870

DryLin® – Specialists

Measuring system with external signal output

▶ page 868

DryLin® – Specialists

DryLin® Q – torque-resistant square guide

▶ page 869

DryLin® – Specialists

Round slide disks made of iglidur® J

▶ page 872

DryLin® Stainless Steel

Linear slide table “Hygienic Design”

▶ page 883/912

DryLin® SHT Drive Technology

Linear slide table with ball-bearing-mounted leadscrew

▶ page 907

DryLin® SHT Drive Technology

High temperature up to +180 °C

▶ page 911

DryLin® SHT Drive Technology

Compact linear slide module with high helix leadscrew

▶ page 915

DryLin® SHT Drive Technology

EasyTube with lasered scale

▶ page 918

NEW in this catalog

DryLin® SHT Drive Technology

Accessories: angular drive, 2 styles

▶ page 925

DryLin® SHT Drive Technology

Accessories: stainless steel angle kit for linear leadscrew tables

▶ page 926

DryLin® SHT Drive Technology

Opposite belt drive

▶ page 934

DryLin® SHT Drive Technology

Belt drive – specialists

▶ page 935

DryLin® SHT Drive Technology

NEMA motor flange

▶ page 937

DryLin® SHT Drive Technology

Ready to use with stepper motor

▶ page 939

DryLin® SHT Drive Technology

Accessories: spacer, motor flange, and coupling

▶ page 942

DryLin® TR Linear Screw Drives

Trapezoidal leadscrew nuts, cylindrical, made of iglidur® J

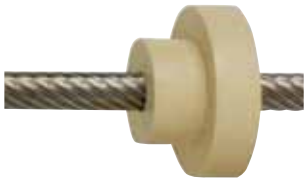
▶ page 950

DryLin® TR Linear Screw Drives

Anti-backlash thread nuts, made of iglidur® J

▶ page 952

DryLin® TR Linear Screw Drives



Leadscrews and nuts with high helix thread

▶ page 953

DryLin® TR Linear Screw Drives

Leadscrew support blocks

▶ page 954

DryLin® TR Linear Screw Drives

Quick release nuts – Fast Forward

▶ page 955

1. iglidur®...

Polymer bearings...35 materials split into 7 groups...

...plastics

Application Examples: iglidur®

Exciting applications can be viewed online at ▶ **www.igus.co.uk/iglidur-applications**

SIX FLAGS THEME PARKS
(Rollercoaster)

Here iglidur® Z bearings led to significant reduction of the costs. This was achieved by eliminating the maintenance work completely during the season. With iglidur® Z bearings it is not necessary to check or relubricate the units and shafts. Also it was possible to reduce the weight.

SURGICAL LIGHT
The motor-powered swiveling LED wings are adjusted with the aid of iglidur® JVFM bearings. Lubrication- and maintenance-free.
(Trumpf iLED Medical Systems Inc.)

WASHING CHAIN BEARINGS
Reduction of the drive power for bottle washing machines by using iglidur® under the most difficult conditions in a 2–3 % caustic soda and temperature of +80 °C. (Krones AG)

SPREADERS
Main reasons for iglidur® bearings: The special design to complement the centrifugal arm results in a significant reduction of manufacturing costs. It is also maintenance-free and has high wear resistance.
(Fella Werke GmbH & Co. KG)

TOOL CHANGER CHAIN
Main reasons for iglidur® bearings: Enormous cost advantages in comparison to standard metallic rolled bearings as well as low coefficient of friction also with soft shaft materials.
(Deckel Maho Seebach GmbH)

AXLE BOX ARRANGEMENT
The edge load is usually a deciding factor for or against the use of bearings. iglidur® G bearings solve this, also giving high wear resistance, low costs, resistance to corrosion and dirt.
(Zunhammer GmbH Gülletechnik)

TUBULAR BAG MACHINES
The continuous operating temperature in the bonding arms frequently reach +160 °C and higher. These requirments are met by iglidur® Z bearings which also offer particularly high resistance to wear.
(Affeldt Verpackungsmaschinen GmbH)

iglidur® Selection | Materials Overview

iglidur® Standards from Stock

Standards
▶ from page 57

iglidur® G
The General Purpose Bearing: most popular iglidur® material worldwide
▶ page 61

iglidur® J
The Fast and Slow Motion Specialist: used in long-life applications, also with soft shafts
▶ page 89

iglidur® M250
Thick and tough: excellent vibration dampening
▶ page 107

iglidur® Specialists from Stock

General Purpose
▶ from page 171

NEW!*

iglidur® K
Versatile, wear-resistant universal material
▶ page 175

iglidur® P
Versatile, waterproof
▶ page 185

For Long Service Life
▶ from page 171

NEW!*

iglidur® J260
Suitable for plastic shafts
▶ page 209

NEW!*

iglidur® J3
Runs up to three time longer than iglidur® J
▶ page 219

NEW!*

iglidur® J350
Extremely wear-resistant in rotation
▶ page 229

High Temperatures
up to +250 °C
▶ from page 274

iglidur® V400
High chemical- and temperature resistance
▶ page 279

NEW!*

iglidur® X6
Runs up to six times longer than iglidur® X
▶ page 289

iglidur® Z
Wear-resistant at high loads and temperatures
▶ page 299

High Media Resistance
temperatures up to +200 °C
▶ from page 320

iglidur® H
The standard for wet and hot conditions
▶ page 325

iglidur® H1
Long life operation
▶ page 337

iglidur® H370
Wear resistant under water
▶ page 347

Applications with Food Contact
▶ from page 366

iglidur® A180
FDA-general purpose waterproof material
▶ page 371

iglidur® A200
FDA-compliant and vibration-dampening, absorbs moisture
▶ page 381

NEW!*

iglidur® A350
FDA-compliant and wear-resistant at high temperatures
▶ page 397

Special Application Areas
▶ from page 434

iglidur® F
Electrically conductive and strong
▶ page 439

iglidur® H4
The automotive under bonnet standard
▶ page 451

iglidur® Q
Wear-resistant at high loads
▶ page 461

* in this catalog

iglidur® W300
The Marathon Runner: long service life, also for soft shafts

▶ page 131

iglidur® X
The High-Tech Problem Solver: chemical- and temperature resistant up to +250 °C

▶ page 153

iglidur® Specialists on Request

iglidur® GLW
Strong and low-cost material for high quantities

▶ page 197

iglidur® L250
For high speed

▶ page 239

iglidur® R
Low-cost material, low wear

▶ page 249

iglidur® D
Low-cost material with silicone

▶ page 259

iglidur® J200
Suitable for anodized aluminum shafts

▶ page 267

iglidur® UW500
For use in hot liquids

▶ page 313

iglidur® H2
Low-Cost high temperature material

▶ page 359

iglidur® A500
FDA-material for high temperatures and high load

▶ page 407

iglidur® A290
The robust general purpose material

▶ page 417

iglidur® T220
Suitable for the tobacco industry

▶ page 427

iglidur® UW
For fast rotation under water

▶ page 475

iglidur® B
The flexible material

▶ page 485

iglidur® C
Free from PTFE and silicone

▶ page 493

iglidur® | Standards

iglidur® G

The General Purpose Bearing

▶ page 61

most popular iglidur® material worldwide

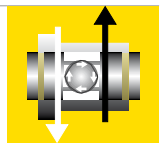
from stock

iglidur® J

The Fast and Slow Motion Specialist

▶ page 89

used in long-life applications, also with soft shafts



from stock

iglidur® M250

Thick and Tough

▶ page 107

excellent vibration dampening

from stock

iglidur® W300

The Marathon Runner

▶ page 131

long service life, also for soft shafts

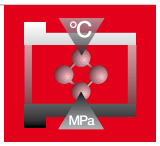
from stock

iglidur® X

The High-Tech Problem Solver

▶ page 153

chemical- and temperature resistant up to +250 °C



from stock

iglidur® Specialists | General Purpose

NEW!*

iglidur® K

▶ page 175

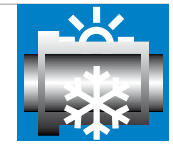
versatile, wear-resistant universal material

from stock

iglidur® P

▶ page 185

versatile, waterproof

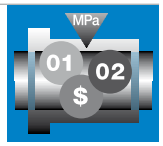


from stock

iglidur® GLW

▶ page 197

strong and low-Cost material for high quantities



on request

* in this catalog

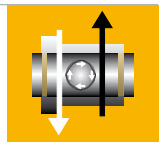
iglidur® Specialists | Long Service Life

NEW!*

iglidur® J260

▶ page 209

suitable for plastic shafts



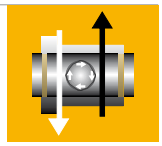
from stock

NEW*

iglidur® J3

▶ page 219

runs up to three time longer than iglidur® J



from stock

NEW!*

iglidur® J350

▶ page 229

extremely wear-resistant in rotation

from stock

iglidur® L250

▶ page 239

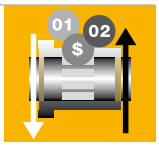
for high speed

from stock

iglidur® R

▶ page 249

low-cost material, low wear

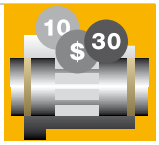


from stock

iglidur® D

▶ page 259

low-cost material with silicone

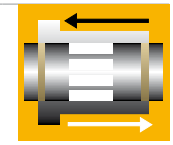


on request

iglidur® J200

▶ page 267

suitable for anodized aluminum shafts



on request

More iglidur® materials and iglidur® special designs (slewing ring bearings, clip bearings, flange bearings, thrust bearings) on the next pages.

* in this catalog

iglidur® Specialists | High Temperatures

iglidur® V400

▶ page 279

high chemical- and temperature resistance

from stock

NEW!*

iglidur® X6

▶ page 289

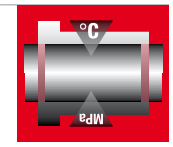
runs up to six times longer than iglidur® X

from stock

iglidur® Z

▶ page 299

wear-resistant at high loads and temperatures

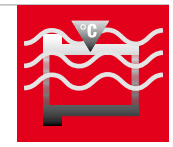


from stock

iglidur® UW500

▶ page 313

for use in hot liquids



on request

iglidur® Specialists | High Media Resistance

iglidur® H

▶ page 325

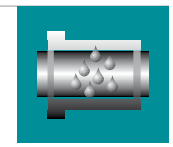
the standard for wet and hot conditions

from stock

iglidur® H1

▶ page 337

long life operation



from stock

iglidur® H370

▶ page 347

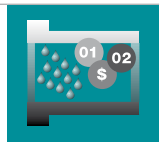
wear resistant under water

from stock

iglidur® H2

▶ page 359

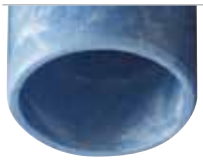
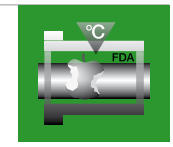
low-cost high temperature material



on request

* in this catalog

iglidur® Specialists | Applications with Food Contact

	**iglidur® A180** ▶ page 371	FDA-general purpose waterproof material	 from stock
	**iglidur® A200** ▶ page 381	FDA-compliant and vibration-dampening, absorbs moisture	 from stock
	NEW!* **iglidur® A350** ▶ page 397	FDA-compliant and wear-resistant at high temperatures	 from stock
	**iglidur® A500** ▶ page 407	FDA-material for high temperatures and high load	 from stock
	**iglidur® A290** ▶ page 417	the robust general purpose material	 from stock
	**iglidur® T220** ▶ page 427	suitable for the tobacco industry	 on request

More iglidur® materials and iglidur® special designs (slewing ring bearings, clip bearings, flange bearings, thrust bearings) on the next pages.

* in this catalog

iglidur® Specialists | Special Application Areas

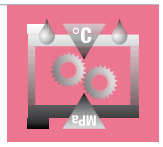
iglidur® F
▶ page 439

electrically conductive and strong

on request

iglidur® H4
▶ page 451

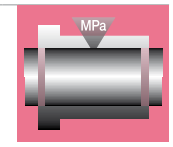
the automotive under bonnet standard



from stock

iglidur® Q
▶ page 461

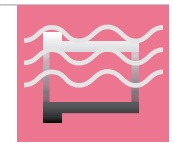
wear-resistant at high loads



from stock

iglidur® UW
▶ page 475

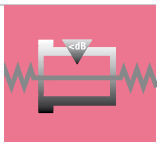
for fast rotation under water



from stock

iglidur® B
▶ page 485

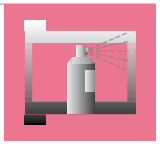
the flexible material



on request

iglidur® C
▶ page 493

free from PTFE and silicone



on request

iglidur® | Additional Products

iglidur® Clip Bearings
▶ page 503

standard bearing for sheet metal

from stock

iglidur® Clips2
▶ page 509

easy assembly due to angle slot

from stock

iglidur® MKM
▶ page 513

double flanged bearing

from stock

iglidur® | Additional Products

iglidur® MDM
▶ page 517

flanged at both ends, easy assembly

from stock

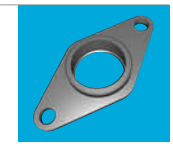
iglidur® JVSM/JVFM
▶ page 521

pre-tensioned, no clearance

from stock

iglidur® Flange Bearings
▶ page 525

for every application: made from iglidur® G, J, X or A180



from stock

iglidur® PEP
▶ page 529

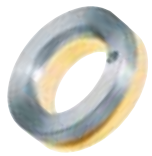
independent of shaft material and surface

from stock

Polysorb
▶ page 533

compensation of axial clearances and manufacturing tolerances

from stock



iglidur® JATM/VATM
▶ page 537

maintenance-free high performance thrust bearing

from stock

iglidur® Sealed Bearing
▶ page 541

polymer bearing with lip seal

from stock

iglidur® PRT Slewing Ring Bearings
▶ page 545

ready-to-fit and maintenance-free in different designs

from stock

iglidur® Stock Bars and speedigus
▶ page 555

iglidur® materials as round material or customized molded parts

from stock

NEW!*

iglidur® Piston Rings
▶ page 559

easy clipping

from stock

* in this catalog

iglidur® | Selection According to Four Main Criteria

	Standards					General purpose			Long service life							High	
iglidur®	G	J	M250	W300	X	K	P	GLW	J260	J3	J350	L250	R	D	J200	V400	X6
Long life dry running	●	●	●	●	●	●	●		●	●	●	●	●		●	●	●
For high loads	●				●			●			●						●
For high temperatures					●						●					●	●
Low friction/high speed		●		●		●			●	●	●	●	●	●	●	●	●
Dirt resistant	●		●	●			●	●							●		
Chemical resistant					●												
		●				●	●		●	●	●		●	●		●	●
			●														
		●	●	●						●	●	●	●	●	●	●	
					●												
	●	●	●	●		●	●	●		●			●	●			
Page	61	89	107	131	153	175	185	197	209	219	229	239	249	259	267	279	289

temperatures		High media resistance				Applications with food contact						Special application areas					
Z	UW500	H	H1	H370	H2	A180	A200	A350	A500	A290	T220	F	H4	Q	UW	B	C
●			●			●		●					●	●			
●			●						●	●		●	●	●			
●	●	●	●	●	●			●	●				●				
●			●	●		●		●					●	●			
							●				●						
●	●	●	●	●	●				●				●				
●	●	●	●	●	●	●		●	●				●		●		
						●	●	●	●	●							
							●									●	
●			●			●	●	●	●		●		●			●	●
	●	●	●	●	●			●	●				●		●		
					●	●				●			●		●		
299	313	325	337	347	359	371	381	397	407	417	427	439	451	461	475	485	493

Low water absorption

Vibrations dampening

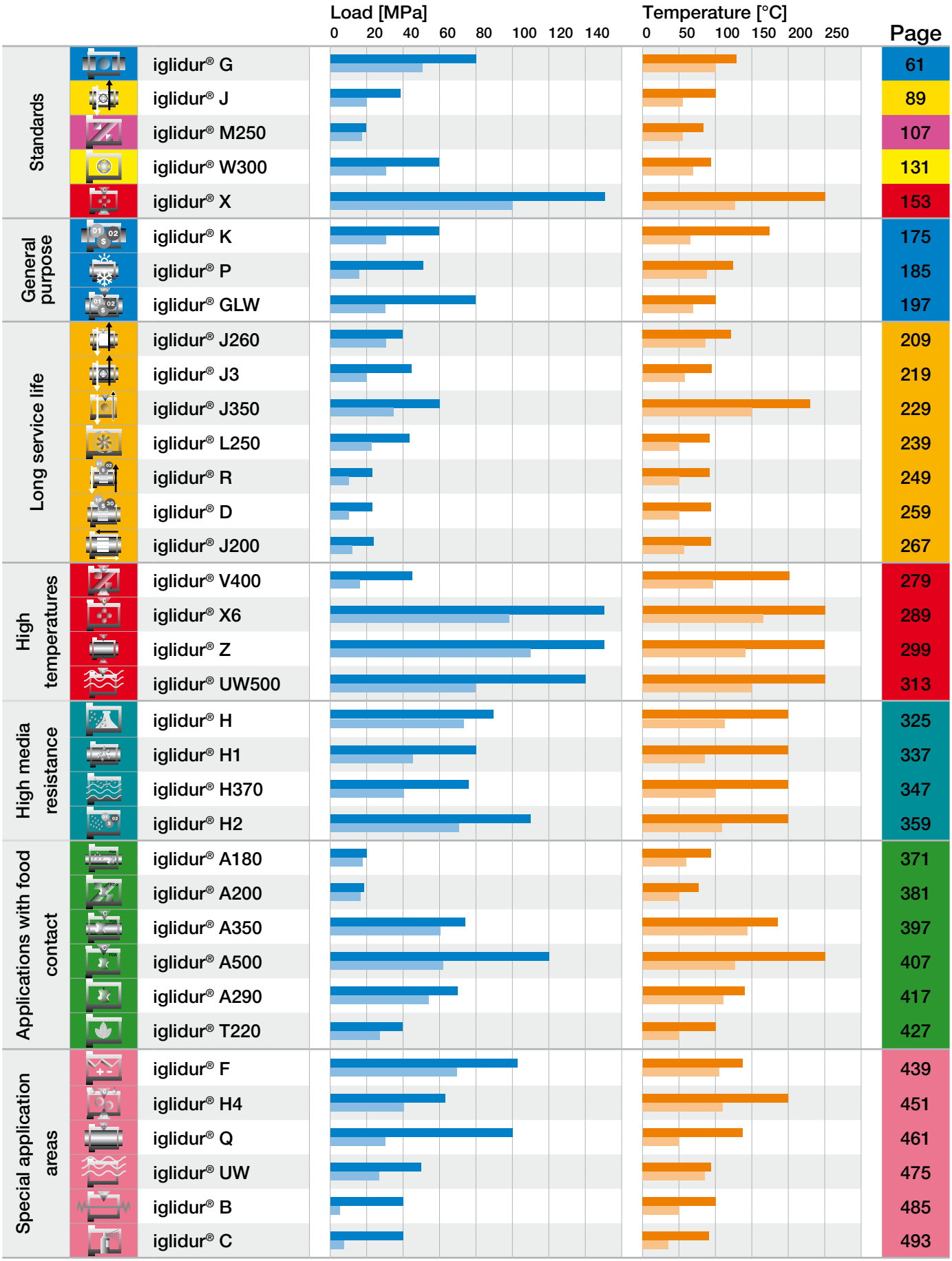
For under water use

Food suitable

Edge pressure

Economic

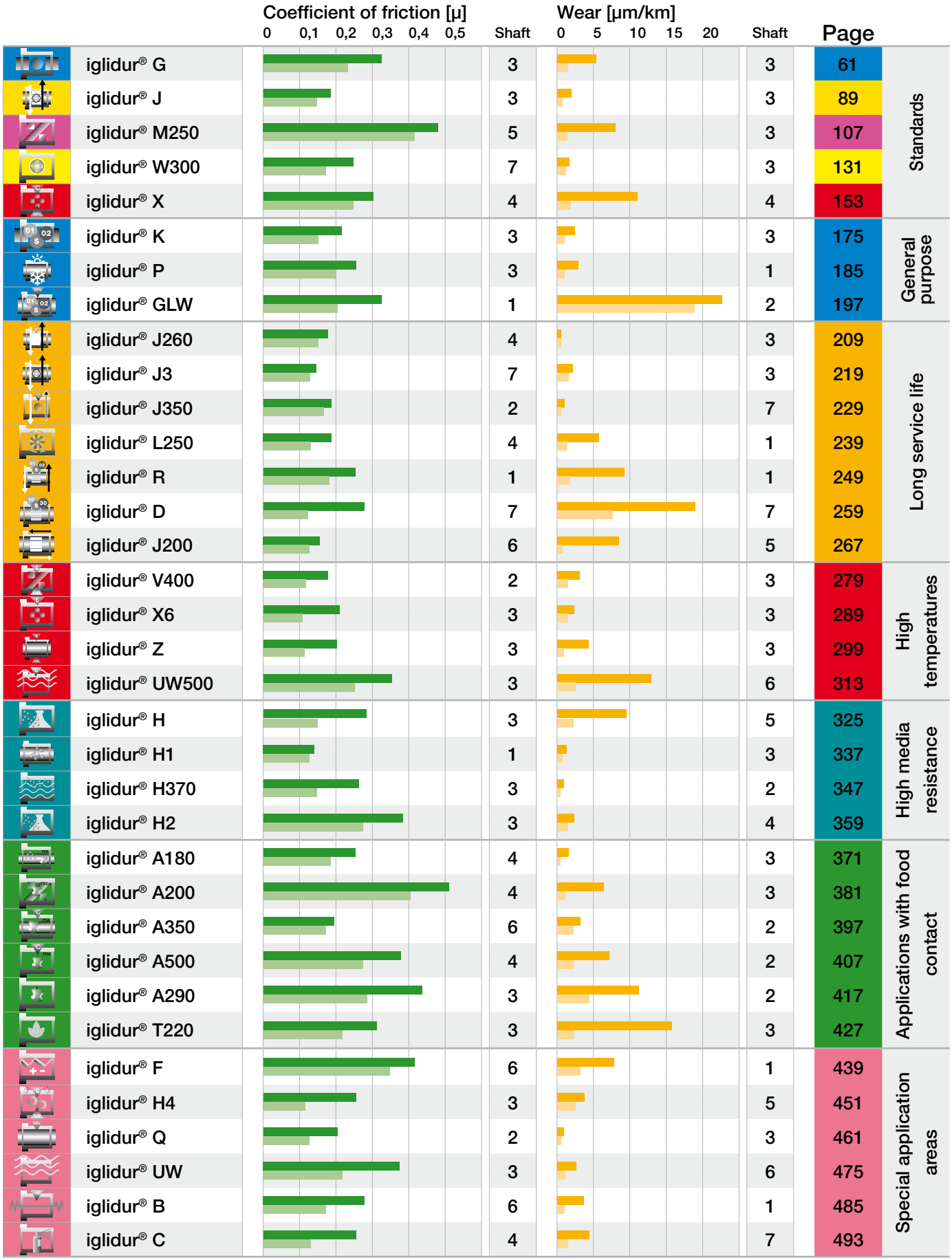
iglidur® | Selection According To Four Main Criteria



Maximum permissible radial load of iglidur® bearings at
- +20 °C
- +120 °C

Important temperatur limits of iglidur® bearings
- Maximum permissible application temperature, continous
- Temperature where bearings need to be secured against radial or axial movement in the housing

iglidur® | Selection According To Four Main Criteria



	Shaft	Shaft	Page	
iglidur® G	3	3	61	Standards
iglidur® J	3	3	89	
iglidur® M250	5	3	107	
iglidur® W300	7	3	131	
iglidur® X	4	4	153	
iglidur® K	3	3	175	General purpose
iglidur® P	3	1	185	
iglidur® GLW	1	2	197	
iglidur® J260	4	3	209	Long service life
iglidur® J3	7	3	219	
iglidur® J350	2	7	229	
iglidur® L250	4	1	239	
iglidur® R	1	1	249	
iglidur® D	7	7	259	
iglidur® J200	6	5	267	
iglidur® V400	2	3	279	High temperatures
iglidur® X6	3	3	289	
iglidur® Z	3	3	299	
iglidur® UW500	3	6	313	
iglidur® H	3	5	325	High media resistance
iglidur® H1	1	3	337	
iglidur® H370	3	2	347	
iglidur® H2	3	4	359	
iglidur® A180	4	3	371	Applications with food contact
iglidur® A200	4	3	381	
iglidur® A350	6	2	397	
iglidur® A500	4	2	407	
iglidur® A290	3	2	417	
iglidur® T220	3	3	427	
iglidur® F	6	1	439	Special application areas
iglidur® H4	3	5	451	
iglidur® Q	2	3	461	
iglidur® UW	3	6	475	
iglidur® B	6	1	485	
iglidur® C	4	7	493	

Coefficients of friction of iglidur® bearings sliding against steel, p = 1.2 MPa, v = 0.3 m/s
- Average coefficient of all the seven sliding combinations tested
- Coefficient of friction of best combination

Wear of iglidur® bearings sliding against steel, p = 1 MPa
- Average wear of all the seven sliding combination tested
- Wear of best combination

Shaft material:
1 = Cf53
2 = Hard chromed
3 = Alu. hc
4 = Free-cutting Steel
5 = St37
6 = V2A
7 = X90

iglidur® | Material Table

If you are unsure which material you need, please go back to relevant selection tables, or call us

▶ According to main properties, page 32
▶ According to performance, page 34

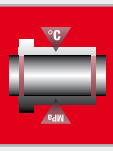
	Standards					General
						
iglidur®	**G**	**J**	**M250**	**W300**	**X**	**K**
General properties						
Density (g/cm³)	1.46	1.49	1.14	1.24	1.44	1.52
Colour	dark grey	yellow	charcoal	yellow	black	yellow-beige
Max. moisture absorption at +23 °C/50 % r. h. (% weight)	0.7	0.3	1.4	1.3	0.1	0.1
Max. moisture absorption (% weight)	4.0	1.3	7.6	6.5	0.5	0.6
Coefficient of sliding friction. dynamic against steel (μ)	0.08–0.15	0.06–0.18	0.18–0.40	0.08–0.23	0.09–0.27	0.06–0.2
pv value. max. (dry) against a steel shaft. +20 °C. wall thickness 1 mm MPa · m/s	0.42	0.34	0.12	0.23	1.32	0.3
Mechanical properties						
Modulus of elasticity (MPa)	7,800	2,400	2,700	3,500	8,100	3,500
Tensile strenght at +20 °C (MPa)	210	73	112	125	170	80
Compressive strength (axial) (MPa)	78	60	52	61	100	60
Max. permissible static surface pressure (+20 °C) (MPa)	80	35	20	60	150	60
Shore-D-hardness	81	74	79	77	85	72
Physical and thermal properties						
Max. long term application temperature (°C)	+130	+90	+80	+90	+250	+170
Max. short term application temperature (°C)	+220	+120	+170	+180	+315	+240
Min. application temperature (°C)	–40	–50	–40	–40	–100	–40
Thermal conductivity [W/m · K]	0.24	0.25	0.24	0.24	0.60	0.25
Coefficient of thermal expansion (+23 °C) [$K^{-1} \cdot 10^{-5}$]	9	10	10	9	5	3
Electrical properties						
Specific volume resistance (Ωcm)	$> 10^{13}$	$> 10^{13}$	$> 10^{13}$	$> 10^{13}$	$< 10^{5}$	$> 10^{12}$
Surface resistance (Ω)	$> 10^{11}$	$> 10^{12}$	$> 10^{11}$	$> 10^{12}$	$< 10^{3}$	$> 10^{12}$
Page	**61**	**89**	**107**	**131**	**153**	**175**

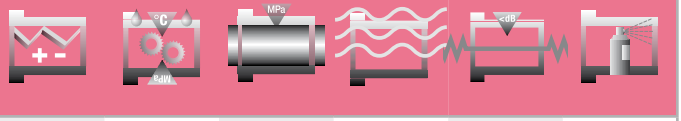
	purpose		Long service life							High temperatures	
											
	P	GLW	J260	J3	J350	L250	R	D	J200	V400	X6
	1.58	1.36	1.35	1.42	1.44	1.5	1.39	1.4	1.72	1.51	1.53
	black	black	yellow	yellow	yellow	beige	dark red	green	dark grey	white	blue/grey
	0.2	1.3	0.2	0.3	0.3	0.7	0.2	0.3	0.2	0.1	0.1
	0.4	5.5	0.4	1.3	1.6	3.9	1.1	1.1	0.7	0.2	0.5
	0.06–0.21	0.1–0.24	0.06–0.2	0.06–0.2	0.08-0.2	0.08–0.19	0.09–0.25	0.08–0.26	0.11–0.17	0.15–0.20	0.09–0.25
	0.39	0.3	0.35	0.5	0.45	0.4	0.27	0.27	0.3	0.5	1.35
	5,300	7,700	2,200	2,700	2,000	1,950	1,950	2,000	2,800	4,500	16,000
	120	235	60	70	55	67	70	72	58	95	290
	66	74	50	60	60	47	68	70	43	47	190
	50	80	40	45	60	45	23	23	23	45	150
	75	78	77	73	80	68	77	78	70	74	89
	+130	+100	+120	+90	+180	+90	+90	+90	+90	+200	+250
	+200	+160	+140	+120	+220	+180	+110	+110	+120	+240	+315
	–40	–40	–100	–50	–100	–40	–50	–50	–50	–50	–100
	0.25	0.24	0.24	0.25	0.24	0.24	0.25	0.25	0.24	0.24	0.55
	4	17	13	13	7	10	11	11	8	3	1
	$> 10^{13}$	$> 10^{11}$	$> 10^{12}$	$> 10^{12}$	$> 10^{13}$	$> 10^{10}$	$> 10^{12}$	$> 10^{14}$	$> 10^{8}$	$> 10^{12}$	$< 10^{5}$
	$> 10^{12}$	$> 10^{11}$	$> 10^{10}$	$> 10^{12}$	$> 10^{10}$	$> 10^{11}$	$> 10^{12}$	$> 10^{14}$	$> 10^{8}$	$> 10^{12}$	$< 10^{5}$
	185	**197**	**209**	**219**	**229**	**239**	**249**	**259**	**267**	**279**	**289**

iglidur® | Material Table

If you are unsure which material you need, please go back to relevant selection tables, or call us

▶ According to main properties, page 32
▶ According to performance, page 34

	High temperatures		High media resistance			
						
iglidur®	**Z**	**UW500**	**H**	**H1**	**H370**	**H2**
General properties						
Density (g/cm³)	1.4	1.49	1.71	1.53	1.66	1.72
Colour	brown	black	grey	cream	grey	brown
Max. moisture absorption at +23 °C/50 % r.h. (% weight)	0.3	0.1	0.1	0.1	0.1	0.1
Max. moisture absorption (% weight)	1.1	0.5	0.3	0.3	0.1	0.2
Coefficient of sliding friction. dynamic against steel (µ)	0.06–0.14	0.20–0.36	0.07–0.2	0.06–0.2	0.07–0.17	0.07–0.30
pv value. max. (dry) against a steel shaft. +20 °C. wall thickness 1 mm MPa · m/s	0.84	0.35	1.37	0.80	0.74	0.58
Mechanical properties						
Modulus of elasticity (MPa)	2,400	16,000	12,500	2,800	11,100	10,300
Tensile strenght at +20 °C (MPa)	95	260	175	55	135	210
Compressive strength (axial) (MPa)	65	140	81	78	79	109
Max. permissible static surface pressure (+20 °C) (MPa)	150	140	90	80	75	110
Shore-D-hardness	81	86	87	77	82	88
Physical and thermal properties						
Max. long term application temperature (°C)	+250	+250	+200	+200	+200	+200
Max. short term application temperature (°C)	+310	+300	+240	+240	+240	+240
Min. application temperature (°C)	–100	–100	–40	–40	–40	–40
Thermal conductivity [W/m · K]	0.62	0.6	0.6	0.24	0.5	0.24
Coefficient of thermal expansion (+23 °C) [$K^{-1} \cdot 10^{-5}$]	4	4	4	6	5	4
Electrical properties						
Specific volume resistance (Ωcm)	$> 10^{11}$	$< 10^{9}$	$< 10^{5}$	$> 10^{12}$	$< 10^{5}$	$> 10^{15}$
Surface resistance (Ω)	$> 10^{11}$	$< 10^{9}$	$< 10^{2}$	$> 10^{11}$	$< 10^{5}$	$> 10^{14}$
Page	**299**	**313**	**325**	**337**	**347**	**359**

	Applications with food contact						Special application areas					
												
	A180	A200	A350	A500	A290	T220	F	H4	Q	UW	B	C
	1.46	1.14	1.42	1.28	1.41	1.28	1.25	1.79	1.4	1.52	1.15	1.1
	white	white	blue	brown	white	white	black	brown	black	black	grey	white
	0.2	1.5	0.6	0.3	1.7	0.3	1.8	0.1	0.9	0.2	1.0	1.0
	1.3	7.6	1.9	0.5	7.3	0.5	8.4	0.2	4.9	0.8	6.3	6.9
	0.05–0.23	0.10–0.40	0.09-0.2	0.26–0.41	0.13–0.40	0.20–0.32	0.1–0.39	0.08–0.25	0.05–0.15	0.15–0.35	0.18–0.28	0.17–0.25
	0.31	0.09	0.40	0.28	0.23	0.28	0.34	0.70	0.55	0.11	0.15	0.10
	2,300	2,500	2,000	3,600	8,800	1,800	11,600	7,500	4,500	9,600	1,800	1,900
	88	116	110	140	250	65	260	120	120	90	55	60
	78	54	78	n. b.	91	55	98	50	89	70	20	30
	28	18	60	120	70	40	105	65	100	40	40	40
	76	81	76	83	88	76	84	80	83	78	69	72
	+90	+80	+180	+250	+140	+100	+140	+200	+135	+90	+100	+90
	+110	+170	+210	+300	+180	+160	+180	+240	+155	+110	+130	+130
	–50	–40	–100	–100	–40	–40	–40	–40	–40	–50	–40	–40
	0.25	0.24	0.24	0.24	0.24	0.24	0.65	0.24	0.23	0.6	0.24	0.24
	11	10	8	9	7	11	12	5	5	6	12	15
	$> 10^{12}$	$> 10^{13}$	$> 10^{11}$	$> 10^{14}$	$> 10^{11}$	$> 10^{10}$	$< 10^{3}$	$> 10^{13}$	$> 10^{15}$	$< 10^{5}$	$> 10^{10}$	$> 10^{10}$
	$> 10^{11}$	$> 10^{12}$	$> 10^{11}$	$> 10^{13}$	$> 10^{11}$	$> 10^{10}$	$< 10^{2}$	$> 10^{12}$	$> 10^{12}$	$< 10^{5}$	$> 10^{9}$	$> 10^{9}$
	371	**381**	**397**	**407**	**417**	**427**	**439**	**451**	**461**	**475**	**485**	**493**

iglidur® | High Performance Polymer – Properties

Lifetime-predictable plain bearing without lubrication at low cost

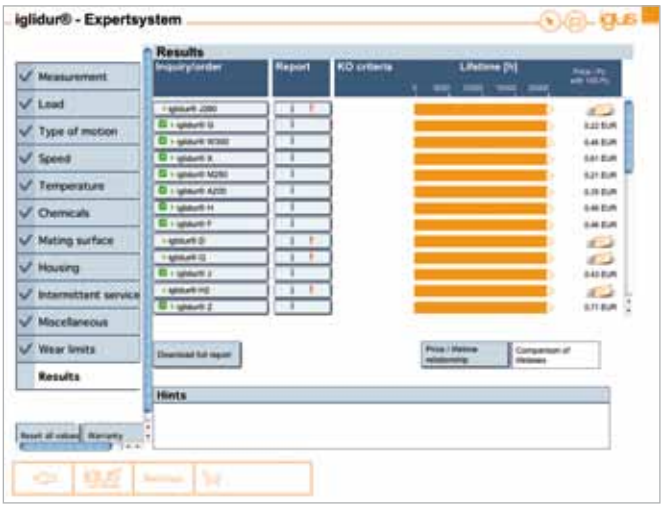
iglidur® – Plain Bearings Made of High Performance Polymers

Excellent polymers, improved by precise additions of reinforcing materials and lubricants, tested a thousand times and proven a million times.

Each year, igus® engineers develop more than one hundred new plastic compounds and test maintenance free plain bearings in more than 5,000 experiments per year. That's how in recent years they have built an extensive database of the tribological properties of polymers.

This database makes it possible for us to better assess most of the applications in advance, to calculate the expected service life, and provide our customer with confidence during use.

Plain bearing laboratory for tribological tests



www.igus.co.uk/iglidur-expert

iglidur® plain bearings: the right material for every application

General Properties of iglidur® Plain Bearings

- High dimensional accuracy
- Corrosion resistance
- High compressive strength
- High vibration dampening
- Good heat dissipation
- Low heat relaxation
- Maintenance-free
- High dirt resistance
- Very low tendency to creep

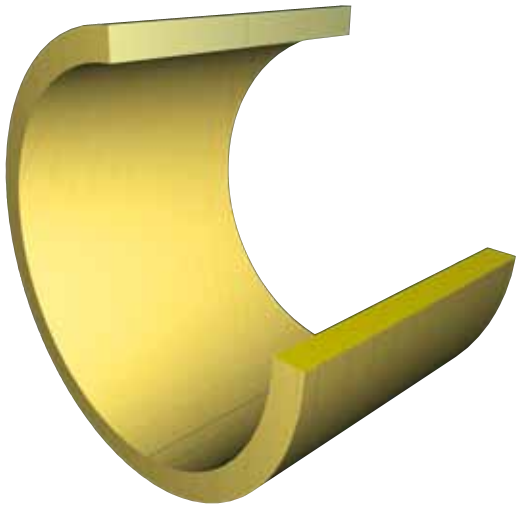
Above and beyond the general properties, each iglidur® bearing material has a series of particular properties that makes it suitable for certain applications and requirements. You'll find a detailed description of the materials in the following chapters together with a complete list of existing dimensions.

iglidur® | Assembling

Bearings have to absorb – some over years – high loads while giving at the same time low friction and resistance to wear.

The Traditional Solution

Hard shells with soft coating. Every lubricated bearing works according to this principle, and also a number of maintenance-free bearings that are equipped with special slide layers. However, this soft slide layer is not strong enough. For high loads, edge pressure or oscillations, it is easily removed.



The iglidur® Solution: The Self-Lubricating Effect

The high performance polymers of the iglidur® plain bearing are composed of:

- Base polymer
- Fibres and filling materials
- Solid lubricants

These components are not applied in layers, but instead are mixed together homogeneously. The advantage of this design is clear when the requirements are studied:

1. The coefficient of friction, which is determined especially by the surface of the bearing, should be as low as possible.
2. The surface cannot be removed by forces that act on the bearing.
3. The wearing force acts especially on the surface of the bearing, for this the bearing must be capable of high resistance.

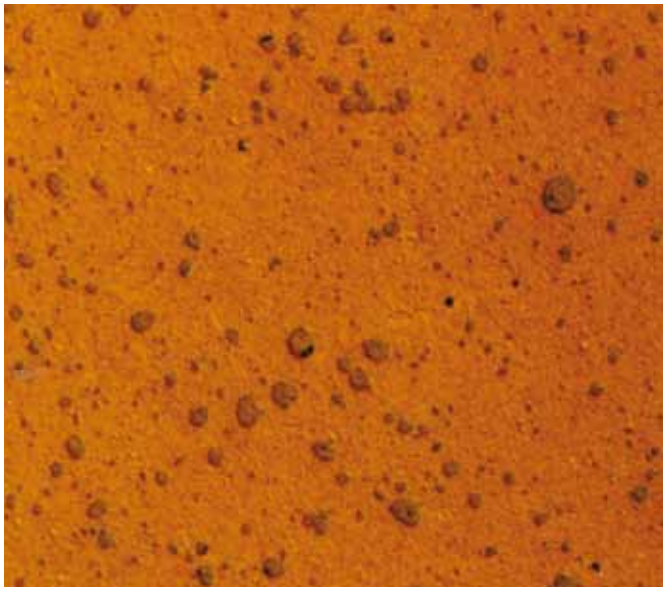
There is no such thing as a single, universal material that performs all of these functions well.
One component of the iglidur® materials acts for each function of the bearing:

- The base polymers are responsible for the resistance to wear.
- Fibres and filling materials reinforce the bearing so that high forces or edge loads are possible.
- Solid lubricants lubricate the bearing independently and prevent friction of the system.

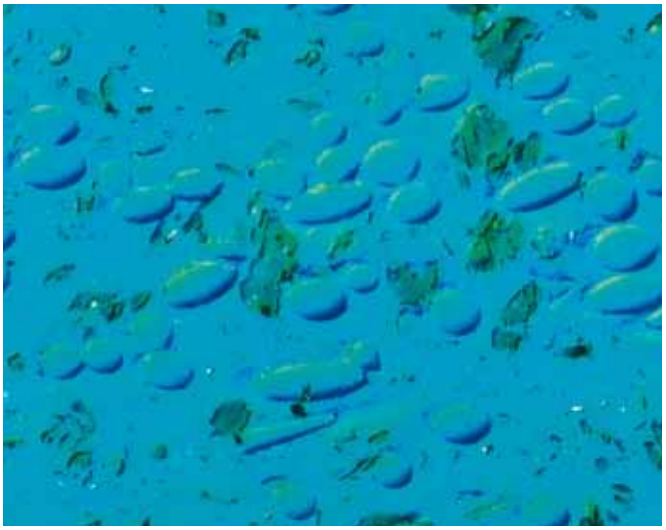
Injection molded iglidur® plain bearings are homogeneously structured. Base polymer, bonding materials and solid lubricants mutually complement each other.

Base Polymers and Technical Fibres

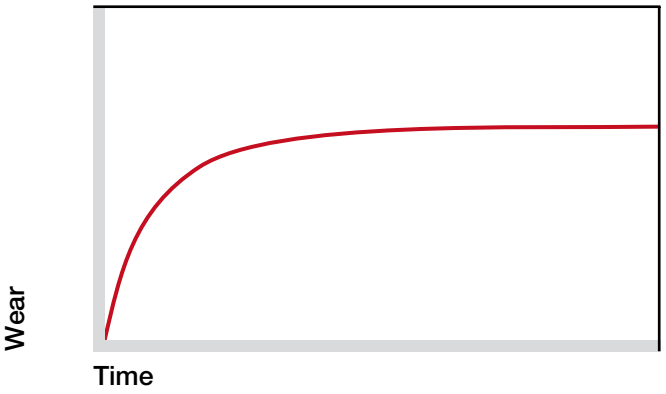
The radial pressure with which the bearings are loaded is received by the polymer base material. In the contact area, this material provides a support to the shaft. The polymer base material ensures that the lubricants do not receive a surface pressure that is too high. The base material is also reinforced by technical fibres or filling materials. These additional materials stabilize the bearing especially in cases of continuous load.



Base polymers without reinforcing materials with solid lubricants, magnified 50 times, dyed



Base polymers with fibres and solid lubricants, magnified 200 times, dyed.



Graph 01: During the start-up phase, the wear rate drops significantly, and then stabilises.

Incorporated Self-Lubrication

The solid lubricants are, as microscopically small particles, embedded in millions of tiny chambers of the mostly fibre reinforced material. From these chambers, the plain bearings release tiny amounts of solid lubricants during movement. The solid lubricants help to lower the coefficient of friction of the iglidur® bearing. Since they are embedded in the tiny chambers, they cannot be pressed out. They are always there as soon as the bearing or the shaft is set in motion.

The Start-Up Phase

In the starting phase, the shaft and the iglidur® plain bearing engage with each other. During this phase, the surfaces of both materials are adjusted to each other. The specific pressure of the system drops since the contact surfaces of the shaft and bearing expand during the start-up. At the same time, the rate of wear decreases and approaches a linear curve. In this phase, the coefficients of friction are changing until finally reaching a value that to a large extent is constant.

Surface Pressure

The load of a plain bearing is expressed by the surface pressure [p] in MPa. For this purpose, the radial load is determined on the projected surface of the bearing.

Radial bearing:

$$p = \frac{F}{d1 \cdot b1}$$

For thrust bearings, the load is produced accordingly.

Thrust bearing:

$$p = \frac{F}{(d2^2 - d1^2) \cdot \frac{\pi}{4}}$$

In these equations:

F load in N
d1 bearing inner diameter in mm
b1 bearing length in mm
d2 outer diameter of the bearing in mm

Max. Recommended Surface Pressure

A comparative value of the iglidur® material is the recommended maximum static surface pressure [p] at +20 °C. The values of the individual iglidur® plain bearings differ greatly on this point. The value [p] indicates the pressure limit of a plain bearing. The plain bearing can carry this pressure permanently without damage. The given value applies to static operation; only very slow speeds up to 0.01 m/s are tolerated under this pressure. Higher pressures than those indicated are possible if the duration of the load is short. Please call us if you have questions.

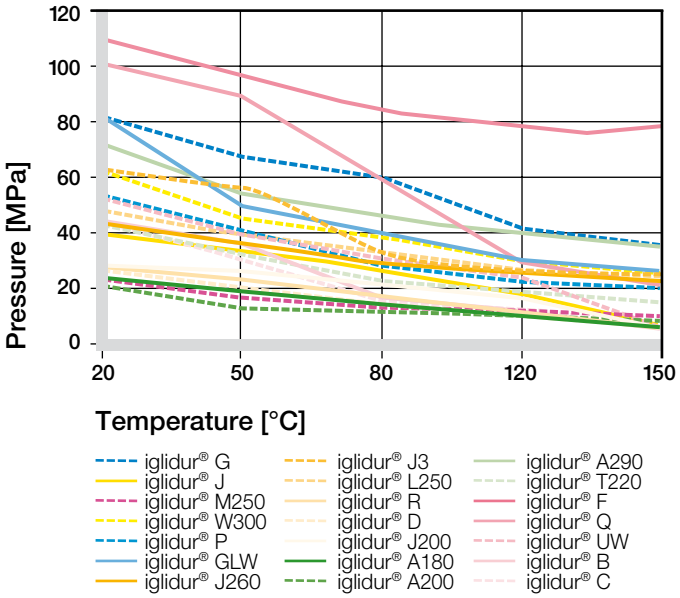
▶ Material Table, **page 36**

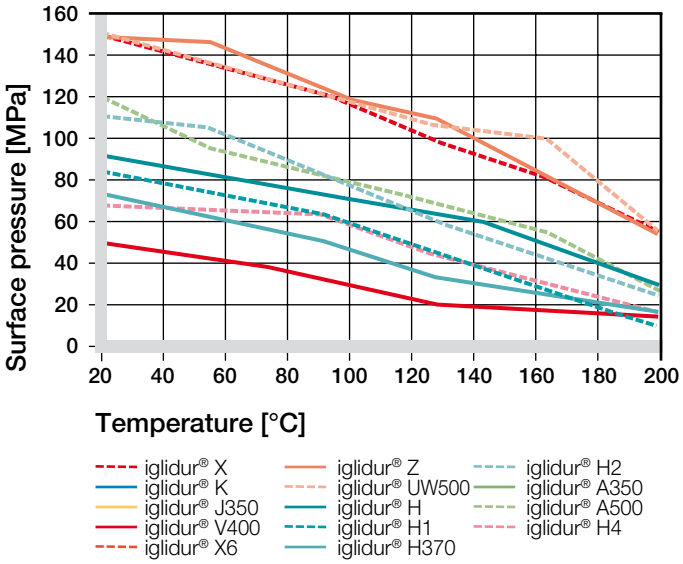
Load and Temperature

Graph 02 and 03 shows the recommended maximum static surface pressure [p] of the iglidur® plain bearing as a function of temperature. When using the plain bearing, the bearing temperature can be higher than the ambient temperature, due to friction. Take advantage of the opportunity presented by the predictability of the iglidur® plain bearing to record these effects in advance, or determine the effective temperatures in the test.

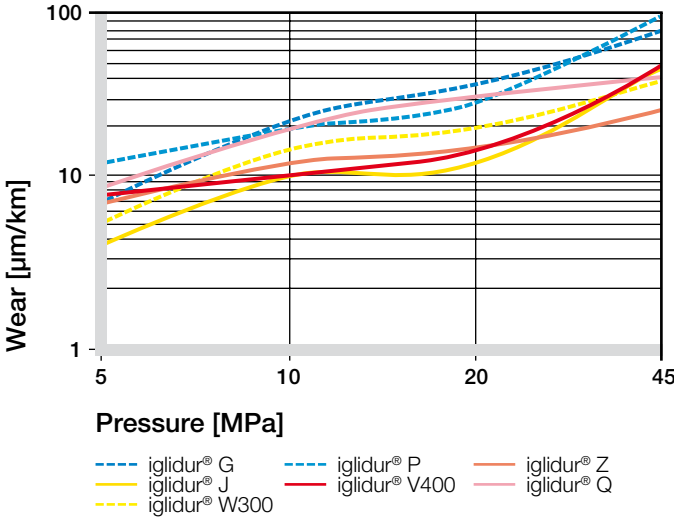
Pressure and Speed

With decreasing radial load on the plain bearing, the permissible surface speed increases. The product of the pressure [p] and speed [v] can be understood as a measurement for the frictional heat of the bearing. This relationship is shown by the pv graph that is the first in the respective chapter for each iglidur® material.





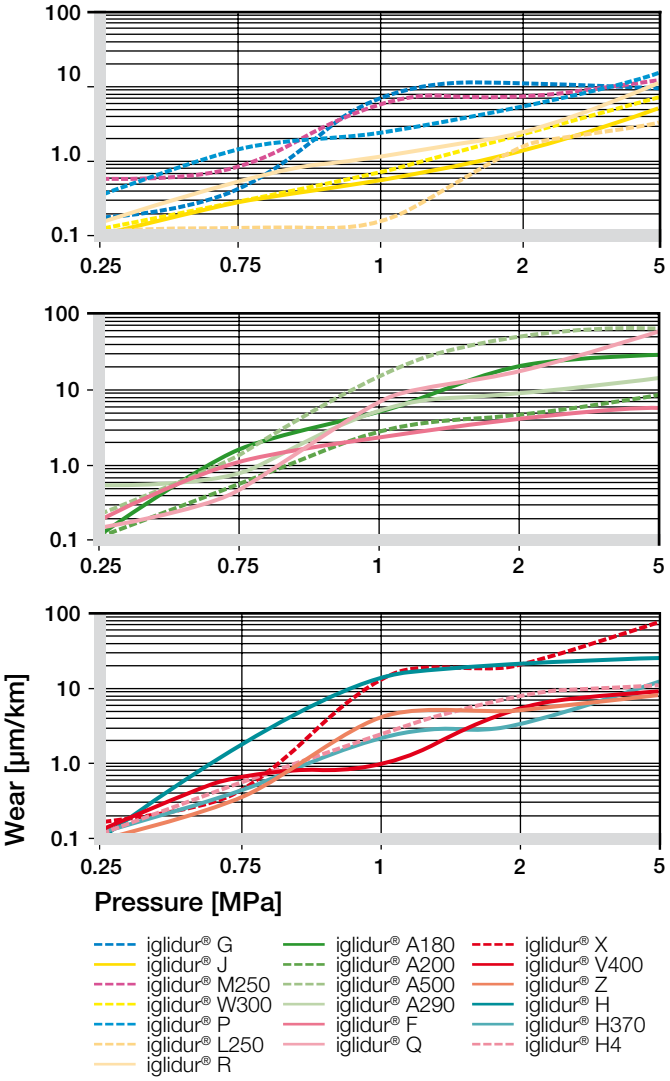
Graph 02 and 03: Recommended maximum surface pressure of iglidur® plain bearings as a function of temperature



Graph 04: Wear of iglidur® plain bearings under medium and high pressures

Pressure and Wear

The load of the plain bearing has an effect on the wear of the bearing. The following graphs show the wear behaviour of the iglidur® bearing materials. It is easily recognized that for each pressure, there is an optimal plain bearing available. The wear is shown as a wear rate in [µm/km].

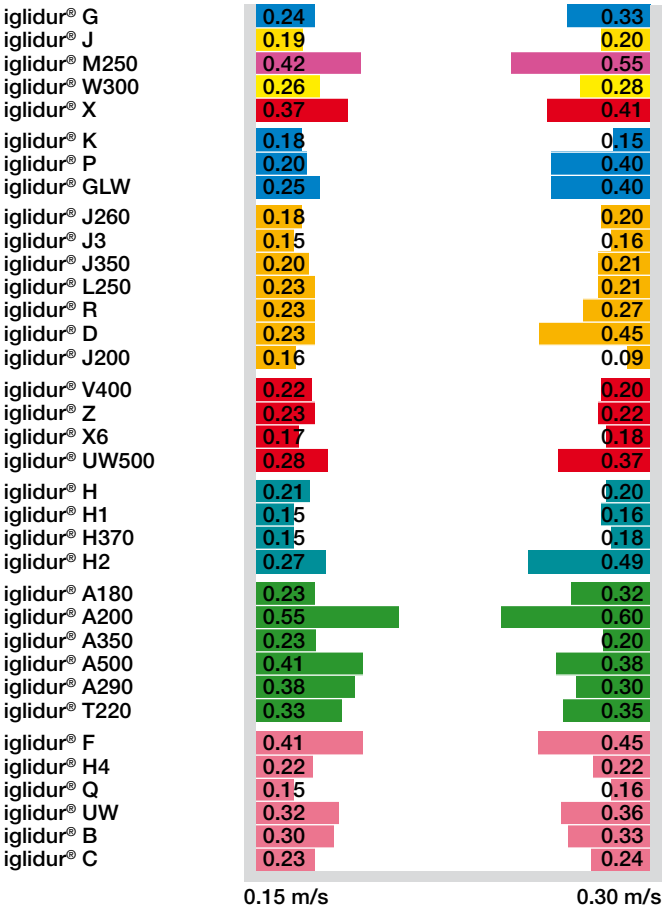


Graph. 05-07: Wear of iglidur® plain bearings under low pressures

Pressure and Coefficient of Friction

With increasing load, the coefficient of friction of the plain bearing typically decreases. In this context, shaft materials and the surface finish are also significant.

▶ Coefficient of Friction, **page 48**



Graph 08: Coefficients of friction of iglidur® materials for different surface speeds (shaft Cf53)

Surface Speed

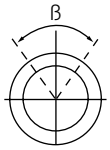
With increasing load, the coefficient of friction of the plain bearing typically decreases. In this context, shaft materials and the surface finish are also significant.

Rotational motion $v = \frac{n \cdot d1 \cdot \pi}{60 \cdot 1.000} \left[\frac{m}{s}\right]$

Oscillating motion $v = d1 \cdot \pi \cdot \frac{2 \cdot ß}{360} \cdot \frac{f}{1.000} \left[\frac{m}{s}\right]$

In these equations

d1 = Shaft diameter [mm]
f = frequency in Hertz
ß = angle of motion per cycle [°]
n = rpm



With varying speed like seen for example with oscillating movements, the value needed is the average speed (see above formula)

Permissible Surface Speeds

iglidur® plain bearings were primarily developed for low to average running speeds in continuous operation. Table 1.1 shows the permissible surface speed of iglidur® plain bearings for rotating, oscillating, and linear movements. These surface speeds are limit values assuming minimum pressure loading of the bearing. In practice, these limit values are rarely reached due to an inverse relationship between load and speed. All increases of the pressure leads unavoidably to a reduction of the allowable surface speeds and vice versa. The speed limit is determined by the thermal properties of the bearing. This is also the reason why different running speeds can occur for the different movement types. For linear movements, more heat can be dissipated via the shaft, since the bearing uses a longer surface area on the shaft.

Surface Speed and Wear

Considerations regarding the permissible surface speeds should also include the wear resistance of the plain bearing. High running speeds automatically bring correspondingly high wear rates with them. With higher sliding speed, not only the wear rate rises but also the absolute wear.

Surface Speed and Coefficient of Friction

In practice the coefficient of friction of plain bearings is a result of the surface speed. High surface speeds have a higher coefficient of friction than low surface speeds. Graph 1.8 shows this relationship by using the example of a Cold Rolled Steel shaft (Cf53) with a load of 0.7 MPa.

pv Value

For plain bearings, the product is given a new value depending on the pressure [p] and the surface speed The pv value can be considered a measure of the frictional heat and can be used as an analytical tool to answer questions concerning the proper application of a plain bearing. For this purpose, the actual pv value is a function of the shaft material of the ambient temperature and the operating time.

Material	Rotating		Oscillating		Linear	
	Continuous	Short term	Continuous	Short term	Continuous	Short term
Standards						
iglidur® G	1	2	0.7	1.4	4	5.3
iglidur® J	1.5	3	1.1	2.1	8	10
iglidur® M250	0.8	2	0.6	1.4	2.5	5
iglidur® W300	1	2.5	0.7	1.8	4	6
iglidur® X	1.5	3.5	1.1	2.5	5	10
General purpose						
iglidur® K	1	2	0.7	1.4	3	4
iglidur® P	1	2	0.7	1.4	3	4
iglidur® GLW	0.8	1	0.6	0.7	2.5	3
Long service life						
iglidur® J260	1	2	0.7	1.4	3	4
iglidur® J3	1.5	3	1.1	2.1	8	10
iglidur® J350	1.3	3	1	2.3	4	8
iglidur® L250	1	1.5	0,7	1.1	2	3
iglidur® R	0.8	1.2	0.6	1	3.5	5
iglidur® D	1.5	3	1.1	2.1	8	10
iglidur® J200	1	1.5	0,7	1.1	10	15
High temperatures						
iglidur® V400	0.9	1.3	0.6	0.9	2	3
iglidur® X6	1.5	3.5	1.1	2.5	5.4	10
iglidur® Z	1.5	3.5	1.1	2.5	5	6
iglidur® UW500	0.8	1.5	0.6	1.1	2	3
High media resistance						
iglidur® H	1	1.5	0.7	1.1	3	4
iglidur® H1	2	2.5	1	1.5	5	7
iglidur® H370	1.2	1.5	0.8	1.1	4	5
iglidur® H2	0.9	1	0.6	0.7	2.5	3
Applications with food contact						
iglidur® A180	0.8	1.2	0.6	1	3.5	5
iglidur® A200	0.8	1.5	0.6	1.1	2	3
iglidur® A350	1	1.2	0.8	0.9	2.5	3
iglidur® A500	0.6	1	0.4	0.7	1	2
iglidur® A290	1	2	0.7	1.4	3	4
iglidur® T220	0.4	1	0.3	0.7	1	2
Special application areas						
iglidur® F	0.8	1.5	0.6	1.1	3	5
iglidur® H4	1	1.5	0.7	1.1	1	2
iglidur® Q	1	2	0.7	1.4	5	6
iglidur® UW	0.5	1.5	0.4	1.1	2	3
iglidur® B	0.7	1	0.5	0.7	2	3
iglidur® C	1	1.5	0.7	1.1	2	3

Table 01: Surface speeds of iglidur® bearings in m/s; continous and short term

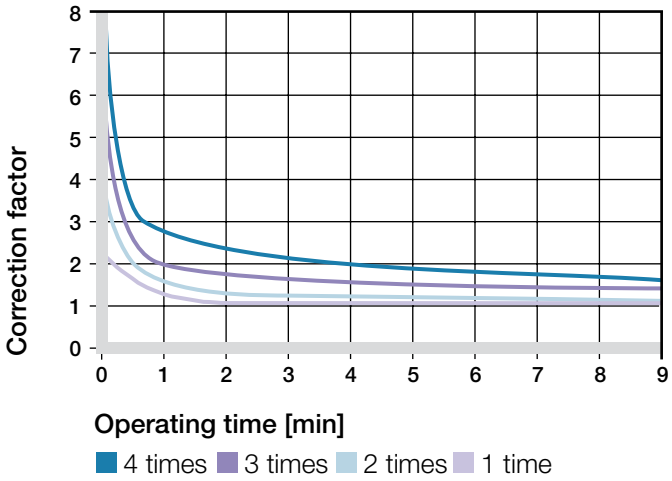
$$pv_{zul.} = \left(\frac{[K1 \cdot \pi \cdot \lambda k \cdot \Delta T]}{\mu \cdot s} + \frac{[K2 \cdot \pi \cdot \lambda s \cdot \Delta T]}{\mu \cdot b1 \cdot 2} \right) \cdot 10^{-3}$$

where

K1, K2 = constant for heat dissipation (K1 = 0,5, K2 = 0,042)
s = bearing wall thickness [mm]
b1 = bearing length [mm]
μ = coefficient of friction
λs = thermal coductivity of the shaft
λk = thermal coductivity of the bearing
ΔT = (T_a – T_u)
T_u = ambient temperature [°C]
T_a = max. application temperature [°C]

Material	Thermal conductivity [W/m · k]
Steel	46
Aluminum	204
Grey cast iron	58
303 Stainless	16
Ceramics	1.4
Plastics	0.24

Table 02: Heat conductivity values of shaft or housing materials



Graph 09: Correction factor for p · v

Type of lubrication	Correction factor
Dry run	1
During installation	1.3
Continous, grease	2
Continous, water	4
Continous, oil	5

Table 03: Correction of the tolerated p · v value by means of lubrication

Correction Factor

The permissible pv value can be increased in practical operation if the bearing temperature never reaches the maximum limit because of the short operating time. Tests have shown that this is true for operating times below 10 minutes. An important qualifier here is the ratio of the operating time and dwell times. It is known that a longer dwell time makes a greater contribution to re-cooling. The different curves of graph 09 represent different ratios (3 x means that the dwell time is three times longer than the operating time).

Lubrication

Although iglidur® plain bearings are designed to run dry, they are quite compatible with standard oils and greases. A single lubrication during the installation improves the start-up behaviour and the coefficient of friction, thus reducing the frictional heat. Due to this effect, the permissible loads for plain bearings can be increased by lubrication. For further information, please contact us. Table 03 shows the correction factors for pv value using lubrication

Temperatures

The temperature resistance of high performance polymer plain bearings is usually underestimated. Who would believe that plastic bearings can be used over +300 °C Data is often found in the literature about the continuous use temperature. The continuous use temperature is the highest temperature, which the plastic can withstand for a period of time without a reduction in the tensile strength of the material above or below a prespecified value. Please note, these standard test results have limited applications, since bearings are almost always under load.

Application Temperatures

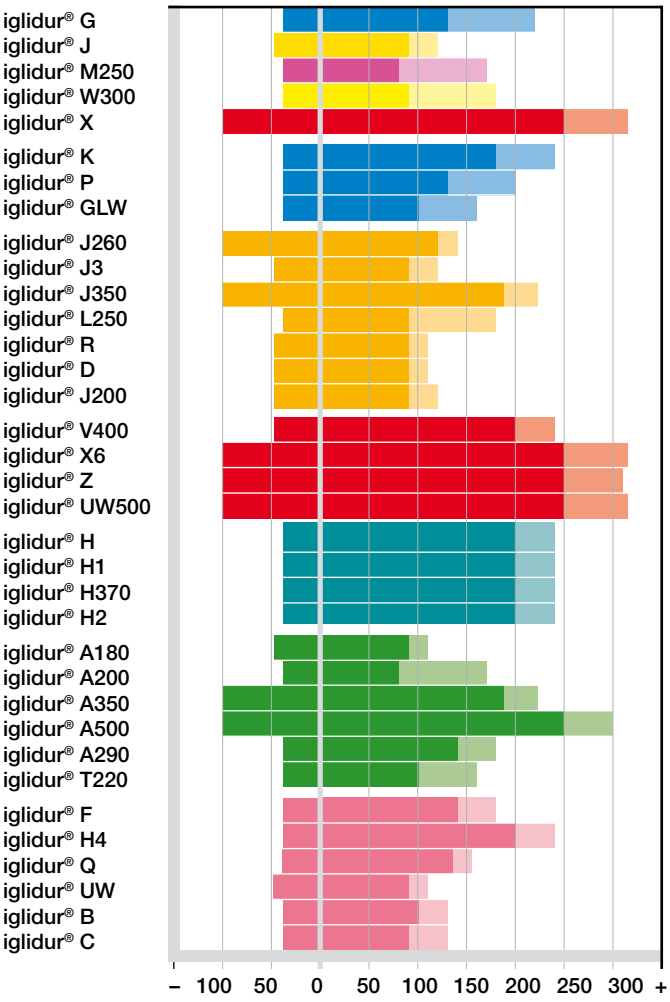
The minimum application temperature is the temperature below which the material is so rigid and hard that it becomes too brittle for standard applications. The maximum continuous application temperature is the temperature which the material can endure without the properties changing considerably. The maximum, short-term application temperature is the temperature above which the material becomes so soft, that it can only withstand small external loads.

"Short term" is defined as a period of a few minutes. If the plain bearings are moved axially or axial forces occur, there is more opportunity for the bearing to lose pressfit. In these cases, axial securing of the bearing is necessary in addition to the pressfit.

Coefficient of Thermal Expansion

The thermal expansion of polymers is approximately 10 to 20 times higher than metals. In contrast to metal, this expansion is non linear in plastics. The coefficient of thermal expansion of the iglidur® plain bearing is a significant reason for the required play in the bearing. At the given application clearance, seizing of the bearing to the shaft does not occur at high temperatures. The coefficient of thermal expansion of iglidur® plain bearings was examined for significant temperature ranges and the results are given in the individual materials tables, at the start of each chapter.

Material tests are possible up to +250 °C



Graph 10: Comparison of the continous and short term upper application temperature limits [°C]

Material	Temp. [°C]	Material	Temp. [°C]
iglidur® G	+100	iglidur® UW500	+150
iglidur® J	+60	iglidur® H	+120
iglidur® M250	+60	iglidur® H1	+80
iglidur® W300	+60	iglidur® H370	+100
iglidur® X	+135	iglidur® H2	+110
iglidur® K	+70	iglidur® A180	+60
iglidur® P	+90	iglidur® A200	+50
iglidur® GLW	+80	iglidur® A350	+140
iglidur® J260	+80	iglidur® A500	+130
iglidur® J3	+60	iglidur® A290	+110
iglidur® J350	+150	iglidur® T220	+50
iglidur® L250	+55	iglidur® F	+105
iglidur® R	+50	iglidur® H4	+110
iglidur® J200	+60	iglidur® Q	+50
iglidur® D	+50	iglidur® UW	+80
iglidur® V400	+100	iglidur® B	+50
iglidur® X6	+160	iglidur® C	+40
iglidur® Z	+145		

Table 04: Temperature at which additional securing of the iglidur® plain bearing is required

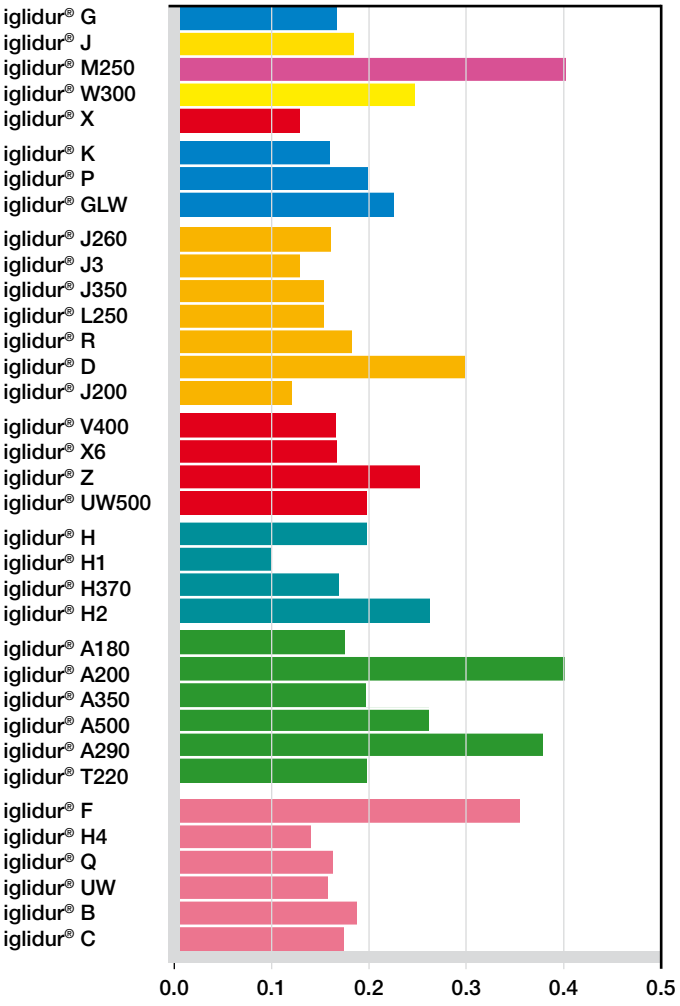
Coefficient of Friction

iglidur® plain bearings are self-lubricating by the addition of solid lubricants. The solid lubricants lower the coefficient of friction of the plain bearings and thus increase the wear resistance. The coefficient of friction μ is proportional to the normal force and describes which force is needed to move a body in relation to another.

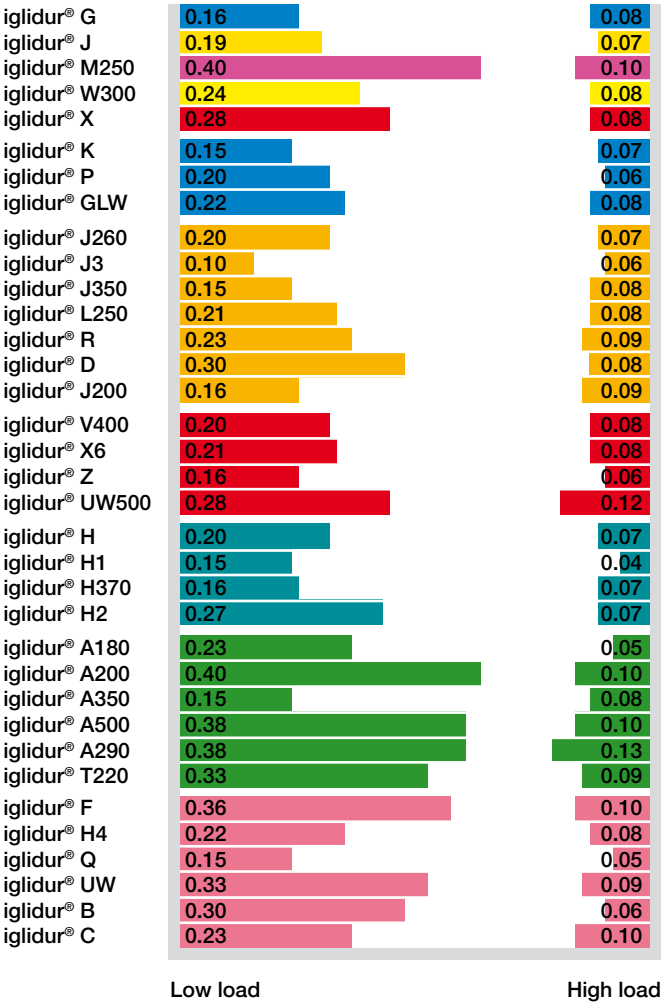
Depending on whether an application is starting from a stationary position or the movement is in progress and needs to be maintained, a choice is made between static friction coefficient and the dynamic friction coefficient.

Coefficients of Friction and Surfaces

At study here is the relationship between coefficients of friction and surface roughness of shaft materials. It is clearly shown that the amount of friction is composed of different factors. If the shaft is too rough, abrasion levels play an important role. Small areas of unevenness that can interlock with each other must be worn off the surface. When the surfaces are too smooth, however, higher adhesion results, i. e. the surfaces stick to each other. Higher forces are necessary to overcome the adhesion, which results from an increased coefficient of friction. Stick-slip can be the result of a large difference between static and dynamic friction and of a higher adhesive tendency of mating surfaces. Stick-slip also occurs due to intermittent running behaviour and can result in loud squeaking. Stick slip thus represents a cause for malfunction of plain bearings. Over and over again, it is observed that these noises do not occur or can be eliminated with rough shafts. Thus for applications that have a great potential for stick slip – slow movements, large resonance of the housing – attention must be paid to the optimal roughness of the shafts.



Graph 11: Coefficients of friction of the iglidur® plain bearings at the recommended shaft surface roughness and low load, p = 0,75 MPa



Graph 12: Frictional values of iglidur® materials under different loads

Wear Resistance

The wear of components depends on many different factors, therefore it is difficult to make general statements about the wear behaviour. In many experiments and tests, the measurement of the wear is a primary factor. In testing, it has become clear what variances are possible between different material pairings. For given loads and surface speeds, the wear resistance can easily vary by a factor of 10 between materials pairings that run well together.

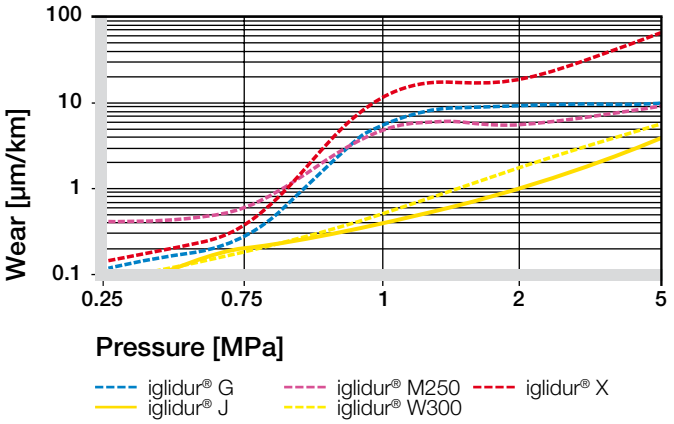
▶ Shaft Materials, **page 51**

Wear and Pressure

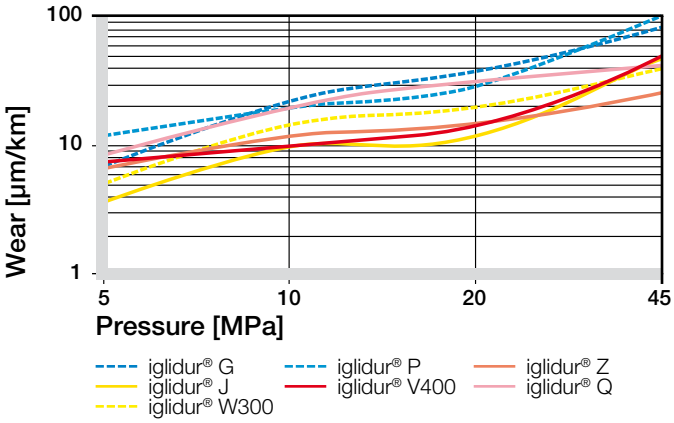
Different loads greatly influence the bearing wear. Among the iglidur plain bearings, certain materials are optimized for low loads, while others are better suited for high or extremely high loads.

Wear and Temperature

Within wide temperature ranges, the wear resistance of the iglidur® plain bearings shows little change. In the maximum temperature range, however, the temperature increases and the wear of the plain bearing increases. The table on the following page compares the “wear limits”. One particular exception is represented by iglidur® X. The wear resistance of iglidur® X increases greatly as temperature increases and reaches the optimum wear resistance at a temperature of + 160 °C. Then resistance decreases again, gradually.



Graph 13: Wear of iglidur® plain bearings under low pressures



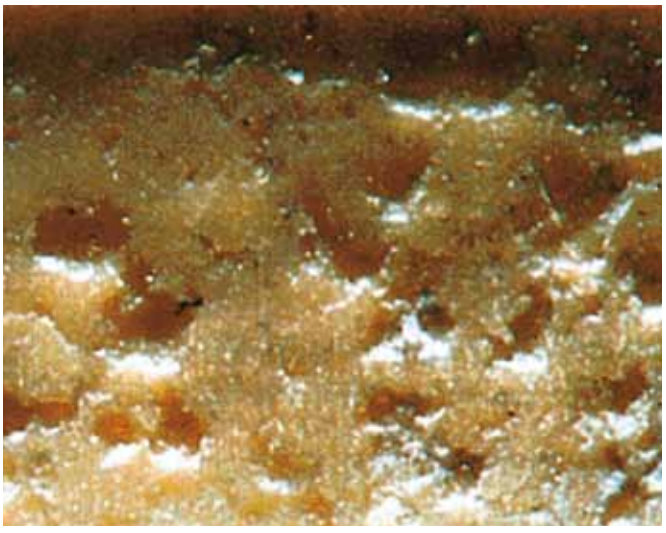
Graph 14: Wear of iglidur® plain bearings, shaft: Cf53, v = 0,1 m/s

Material	Wear limit [°C]	Material	Wear limit [°C]
iglidur® G	+120	iglidur® UW500	+190
iglidur® J	+70	iglidur® H	+120
iglidur® M250	+80	iglidur® H1	+170
iglidur® W300	+120	iglidur® H370	+150
iglidur® X	+210	iglidur® H2	+120
iglidur® K	+90	iglidur® A180	+70
iglidur® P	+100	iglidur® A200	+80
iglidur® GLW	+100	iglidur® A350	+120
iglidur® J260	+80	iglidur® A500	+190
iglidur® J3	+70	iglidur® A290	+120
iglidur® J350	+140	iglidur® T220	+90
iglidur® L250	+120	iglidur® F	+130
iglidur® R	+70	iglidur® H4	+120
iglidur® D	+70	iglidur® UW	+70
iglidur® J200	+70	iglidur® Q	+80
iglidur® X6	+210	iglidur® B	+70
iglidur® V400	+130	iglidur® C	+70
iglidur® Z	+200		

Table 06: Wear limits of iglidur® plain bearings

High wear resistance: Plain bearing in contact with sand

Wear experiments with aluminum shafts



Erosion damage due to shafts that are too smooth

Wear During Abrasive Dirt Accumulation

Special wear problems frequently occur if abrasive dirt particles get into the bearing. iglidur® plain bearings can clearly improve the operating time of machines and systems in these situations. The high wear resistance of the materials and the self lubrication process result in the highest service life time. As no oil or grease is on the bearing, dirt particles can not penetrate as easily into the bearing. Most debris simply falls away from the bearing thus limiting potential damage. If however, a hard particle penetrates into the bearing area, then an iglidur® plain bearing can absorb this particle. The foreign body becomes embedded in the wall of the bearing. Up to a certain point, operation can be maintained at optimal levels even when there is extreme dirt accumulation.

However, it is not just hard particles that can damage bearings and shafts. Soft dirt particles such as for example, textile or paper fibres, are frequently the cause for increased wear. In this instance, the dry run capability and the dust resistance of the iglidur® plain bearings go into action. In the past, this helped save costs in many applications.

Wear and Surfaces

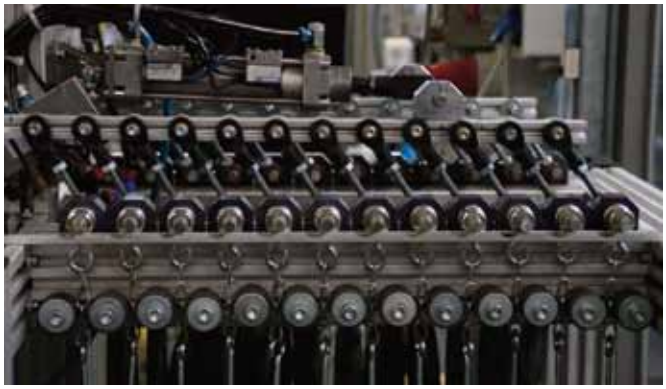
Shaft surfaces are important for the wear of bearing systems. Similar to the considerations for coefficients of friction, a shaft can be too rough in regard to the bearing wear, but it can also be too smooth. A shaft that is too rough acts like a file and during movement separates small particles from the bearing surface. For shafts that are too smooth, however, higher wear can also occur. An extreme increase in friction results due to adhesion. The forces that act on the surfaces of the sliding face can be so large that regular material blow-outs occur. It is significant to note that wear by erosion is non linear. Moreover, it is random and can not be accurately predicted.

Wear and Shaft Materials

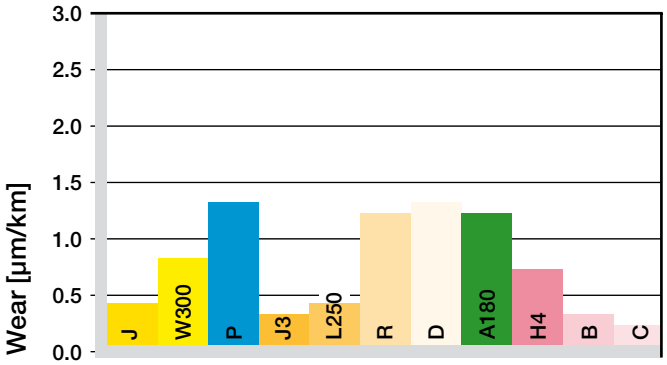
The shaft is, next to the plain bearing itself, the most important parameter in a bearing system. It is in direct contact with the bearing, and like the bearing, it is affected by relative motion. Fundamentally, the shaft is also worn, however, modern bearing systems are designed in a way that the wear of the shafts is so small that it can not be detected with traditional methods of measurement technology. Shafts can be distinguished and classified according to their hardness and according to the surface roughness.

▶ Coefficient of Friction, **page 48**
▶ Wear Resistance, **page 49**

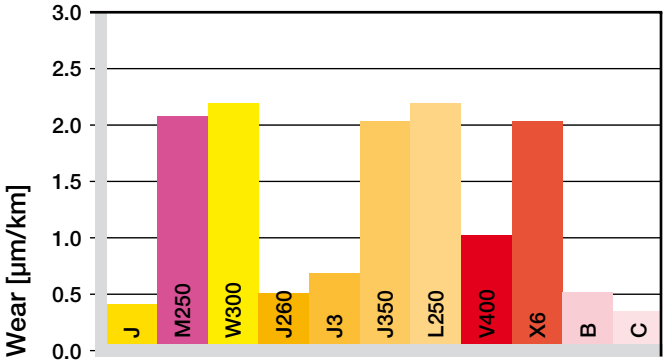
The hardness of the shaft also plays an important role. When the shafts are less hard, the shaft is worn smooth during the break-in phase. Abrasive points are worn off and the surface is rebuilt. For some materials, this effect has positive influences, and the wear resistance of the polymer bearing increases.
In the following graphs, the most common shaft materials are listed and the iglidur® materials that are best suited are compared.
For easier comparison, the scaling of the wear axis is the same in all graphs. The small wear results of the systems with hard-chromed shafts are especially impressive. This very hard, but also smooth shaft gives excellent results on the wear behaviour in many bearing pairs. The wear of many iglidur® plain bearings is lower on this shaft than on any other shaft material tested. However, it should be pointed out that because of the typically small surface roughness, the danger of stick slip on hard chromed shafts is especially high.



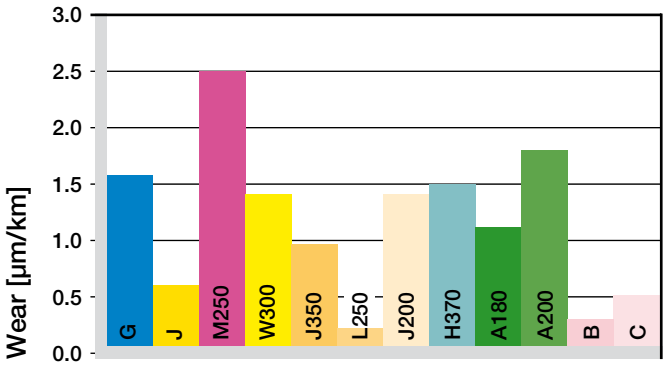
Oscillating wear test rig for testing the wear in oscillating movements at low loads



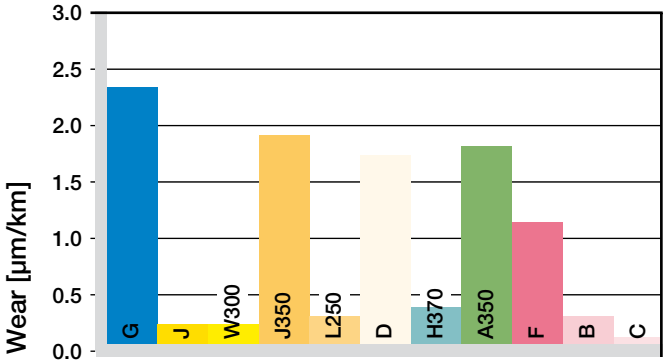
Graph 15: Wear with shaft Cf53,
p = 0.75 MPa, v = 0.50 m/s Ra = 0.20 µm



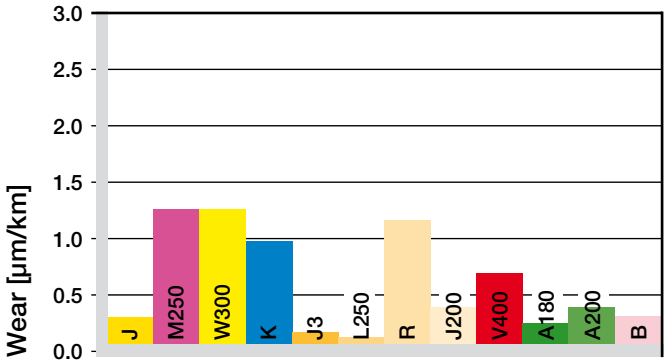
Graph 16: Wear with shaft V2A,
p = 0.75 MPa, v = 0.50 m/s Ra = 0,20 µm



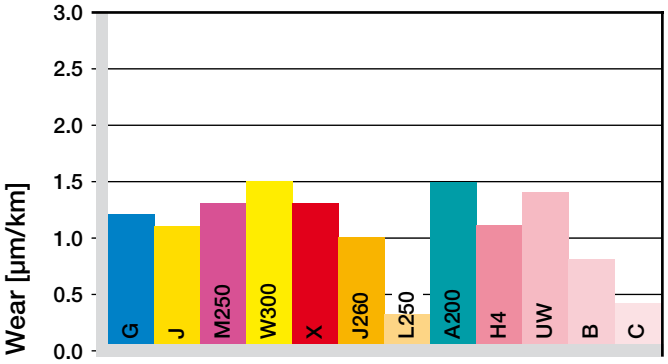
Graph 17: Wear with shaft St37,
p = 0.75 MPa, v = 0,50 m/s Ra = 0.20 µm



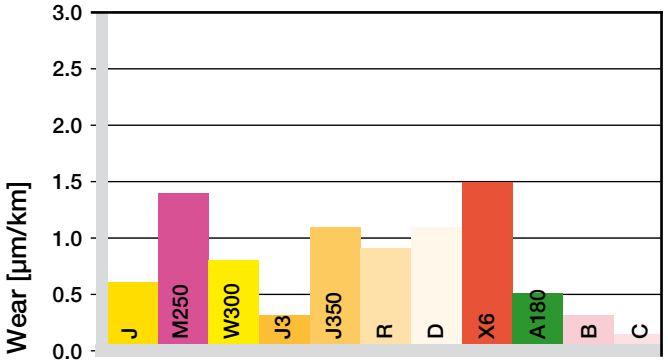
Graph 18: Wear with hard chromed shaft,
p = 0.75 MPa, v = 0.50 m/s Ra = 0.20 µm



Graph 19: Wear with a silver steel shaft, p = 0.75 MPa, v = 0.50 m/s Ra = 0.20 µm



Graph 20: Wear with a machine steel shaft, p = 0.75 MPa, v = 0.50 m/s Ra = 0.20 µm



Graph 21: Wear with shaft X90, p = 0.75 MPa, v = 0.50 m/s Ra = 0.20 µm

With high-grade stainless steel 1.4112, a similarly good result is obtained. Case-hardened steel shafts (material key 1.1213) give very good results, too. With other shaft materials, the wear results vary considerably. For example, in tests with soft stainless steel (1.4301) at low load, good to very good results can be found with the right bearing material. It must be said on the other side, that no other shaft material shows a bigger variation of wear results with different bearing materials. Therefore, the choice of the most suitable bearing material is particularly important with the shaft materials soft stainless steel (1.4301) and soft standard steel (1.0037).

The test results give only a sample of the existing data. All of the results shown were made with same loads and speeds.

Oscillating wear test rig for testing the wear in oscillating movements at medium loads

Chemical Resistance

iglidur® plain bearings can come into contact with many chemicals during their use. This contact can lead to changes of the structural properties. The behaviour of plastics towards a certain chemical is dependent on the temperature, the length of exposure, and the type and amount of the mechanical loading. If iglidur® plain bearings are resistant against a chemical, they can be used in these media. Sometimes, the surrounding media can even take on the role of a lubricant.

With the most resistant iglidur® material iglidur® X the lubricant can even be hydrochloric acid. All iglidur® plain bearings can be used in diluted acids and diluted alkalines. Differences can result at higher concentrations or higher temperatures. For all iglidur® plain bearings, the resistance against traditional lubricants applies in the same way. Therefore plain bearings may also be used lubricated. However, in dirty environments, a traditional lubricant can decrease the wear resistance when compared to running dry. The following overview should quickly assist you: If it is not completely clear in a design application which of the different chemicals can occur or in which concentration, plain bearings made out of iglidur® X should be used. This has the best resistance and is only attacked by a few concentrated acids. You'll find a detailed list of chemical resistances in the rear of the catalogue.

▶ Table of Chemicals, **page 974**

Applications in the Food Industry

The iglidur® program with 5 specially developed bearing materials is prepared for the special requirements in machines and equipment for the food industry. iglidur® A180, A200, A350 and A500 materials are made according to the requirements of the American Food and Drugs Administration (FDA). iglidur® A290 material is according to the requirements of the BfR.

Material	Hydro-carbon	Greases, oils without additives	Weak acids	Weak alkaline
Standards				
iglidur® G	+	+	0 to –	+
iglidur® J	+	+	0 to –	+
iglidur® M250	+	+	0 to –	+
iglidur® W300	+	+	0 to –	+
iglidur® X	+	+	+	+
General purpose				
iglidur® P	–	+	0	–
iglidur® K	+	+	0 to –	+
iglidur® GLW	+	+	0 to –	+
Long service life				
iglidur® J260	+	0 to –	–	+ to 0
iglidur® J3	+	+	0 to –	+
iglidur® J350	+ to 0	+	+	+
iglidur® L250	+	+	0 to –	+
iglidur® R	+	+	0 to –	+
iglidur® D	+	+	0 to –	+
iglidur® J200	+	+	0 to –	+
High temperatures				
iglidur® V400	+	+	+	+
iglidur® X6	+	+	+	+
iglidur® Z	+	+	+	+
iglidur® UW500	+	+	+	+
High media resistance				
iglidur® H	+	+	+ to 0	+
iglidur® H1	+	+	+ to 0	+
iglidur® H370	+	+	+ to 0	+
iglidur® H2	+	+	+ to 0	+
Application with food contact				
iglidur® A180	+	+	0 to –	+
iglidur® A200	+	+	0 to –	+
iglidur® A350	+ to 0	+	+	+
iglidur® A500	+	+	+	+
iglidur® A290	+	+	0 to –	+
iglidur® T220	–	+	0	–
Special application areas				
iglidur® F	+	+	0 to –	+
iglidur® H4	+	+	+ to 0	+
iglidur® Q	+	+	0 to –	+
iglidur® UW	+	+	0 to –	+
iglidur® B	–	–	0 to –	–
iglidur® C	+	+	0 to –	+

+ resistant 0 conditionally resistant – not resistant
All data given concerns the chemical resistance at room temperature [+20 °C]

Table 07: Chemical resistance of iglidur®

Material	Radiation resistance
iglidur® X, Z, UW500	$1 \cdot 10^5$ Gy
iglidur® X6, A500	$2 \cdot 10^5$ Gy
iglidur® M250, J3, A200	$1 \cdot 10^4$ Gy
iglidur® L250	$3 \cdot 10^4$ Gy
iglidur® V400, C	$2 \cdot 10^4$ Gy
iglidur® K, P	$5 \cdot 10^2$ Gy
iglidur® G, J, W300, J260, J200, R, D, A180, A290, T220, F, Q, UW, B, GLW	$3 \cdot 10^2$ Gy
iglidur® J350, H, H1, H370, H2, H4, A350	$2 \cdot 10^2$ Gy

Table 08: Radiation resistance of iglidur® plain bearings

Material	UV resistance	Material	UV resistance
iglidur® G	+++++	iglidur® UW500	+++++
iglidur® J	+++	iglidur® H	++
iglidur® M250	++++	iglidur® H1	++
iglidur® W300	+++	iglidur® H370	+++++
iglidur® X	+++++	iglidur® H2	+
iglidur® K	++++	iglidur® A180	+++
iglidur® P	+++++	iglidur® A200	++++
iglidur® GLW	+++++	iglidur® A350	++++
iglidur® J260	+	iglidur® A500	+++
iglidur® J3	+++	iglidur® A290	++++
iglidur® J350	++	iglidur® T220	++
iglidur® L250	+++	iglidur® F	+++++
iglidur® R	++++	iglidur® H4	+
iglidur® D	+++++	iglidur® UW	+++
iglidur® J200	+++	iglidur® Q	++
iglidur® V400	+++	iglidur® B	+
iglidur® X6	+++++	iglidur® C	+
iglidur® Z	+++		

Table 09: UV resistance of iglidur® plain bearings
+ low resistance +++++ high resistance

Material	Surface resistance [Ω]
iglidur® X	$< 10^3$
iglidur® X6	$< 10^5$
iglidur® UW500	$< 10^9$
iglidur® H	$< 10^2$
iglidur® H370	$< 10^5$
iglidur® F	$< 10^2$
iglidur® UW	$< 10^5$

Table 10: Electrical properties of conductive iglidur® plain bearings

Radioactive Radiation

A comparison of the resistance to radioactive radiation is shown in table 08. By a wide margin iglidur® X, UW500, A500 and Z are the most resistant materials.

UV Resistance

Plain bearings can be exposed to constant weathering when they are used outside. The UV resistance is an important measurement and indicates whether a material is attacked by UV radiation. The effects can extend from slight changes in colour to brittleness of the material. A comparison of the materials to each other is shown in the following table. The results show that iglidur® plain bearings are suitable for outside use. Only for a few iglidur® materials are any changes expected.

Vacuum

iglidur® plain bearings can be used in a vacuum to a limited extent. Only a small amount of outgassing takes place. In most iglidur® plain bearings, the outgassing does not change the material properties.

Electrical Properties

In the product range of the maintenance-free, self lubricating iglidur plain bearings, there are both insulating as well as electrically conductive materials. The most important electrical properties are given in detail in the individual material descriptions. The adjacent table compares the most important electrical properties of conductive iglidur® plain bearings. The iglidur® plain bearings not mentioned here are usually electrically insulating. Please observe that for some materials the properties can be changed by the absorption of moisture. In experiments, it should be tested whether the desired properties are also stable when the conditions are changing.

Tolerances and Measurement System

The installation dimensions and tolerances of the iglidur® plain bearings are a function of the material and wall thicknesses. For each material, the moisture absorption and the thermal expansion are imperative. Plain bearings with low moisture absorption can be designed with a minimal amount of tolerance. For wall thickness, the rule is: The thicker the bearings are, the larger the tolerances must be. Thus, different tolerance classes exist for iglidur® plain bearings: Within these tolerances, iglidur® plain bearings can operate in the permissible temperature range and in humidity conditions up to 70 % according to the installation recommendations. Should higher air moisture levels be present, or the bearing is used under water, we provide advice with regard to applications, in order to help you use your bearings correctly.

Testing Methods

iglidur® plain bearings are pressfit bearings for bores machined to our recommendations. This pressfitting of the bearing fixes the bearing in the housing, and the inner diameter of the plain bearing is also formed upon pressfit. The bearing test is performed when the bearing is installed in a bore with the minimum specified dimension; both using an 3 point probe and a Go No-Go gauge.

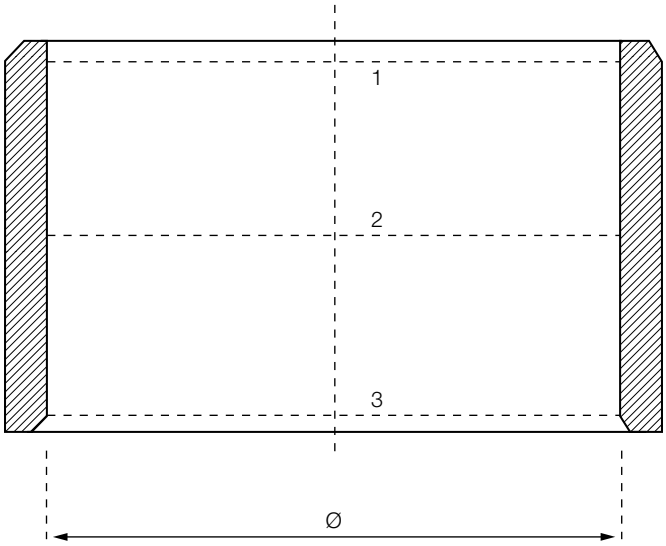
- The "Go-Side" of the Go-No-Go gauge, pressed into the bore, must pass easily through the bearing
- With the 3 point probe, the inner diameter of the bearing after pressfit must lie within the prescribed tolerance on the measurement plane.

Troubleshooting

In spite of careful manufacturing and assembly of the bearings, differences and questions regarding the recommended installation dimensions and tolerances can result. For this reason, we have compiled a list of the most frequent reasons for differences. In many cases, with this troubleshooter, the reasons for the differences can be found quickly.

- The bore is not chamfered correctly, so the bearing material is removed upon press-fitting. The correct chamfer should be 25 to 30 degrees, not 45 degrees.
- A centering pin was used which expanded the inside diameter of the bearing during pressfit.
- The bore does not meet the recommended housing bore specifications (usually H7).
- The housing is made out of a soft material that was expanded by the bearing installation.
- The shaft is not within recommended tolerances.
- The bearing is being measured by a different method than the igus® standard.

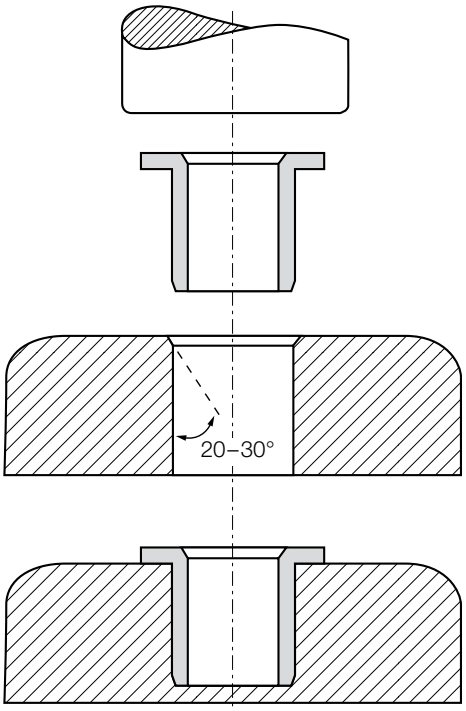
Measurement of the inner diameter of a pressfit plain bearings



Graph 21: Positions of the measurement planes

iglidur® | Installation

The bearing should be press fitted using a flat press.



Graph 22: Section view: pressfit of the bearing

Process	Turning	Boring	Milling
Tool material	SS	SS	SS
Feed [mm]	0.1…0.5	0.1…0.5	to 0.5
Tool relief angle	5…15	10…12	3
Tool rake angle	0…10	3…5	
Cutting speed [m/min]	200…500	50…100	to 1,000

Table 11: Guidelines for machining

Installation

iglidur® plain bearings are produced oversized as standard. The inner diameter adjusts only after pressfit in the proper housing bore with a recommended tolerance. The before pressfit oversized dimension can be up to 2 % of the inner diameter. In this manner, the secure pressfitting of the bearing is achieved. Axial or radial shifts in the housing are also prevented. The bore in the housing should be finished in the recommended tolerance (usually H7) for all bearings and be as smooth, flat, and chamfered when possible with an angle of 25 to 30 degrees.
The bearing should be press fitted using a flat press. The use of centering or calibrating pins can cause damage to the bearing and create a larger amount of clearance.

Adhesion

Using an adhesive to fit an iglidur bearing is not usually necessary. If the pressfit of the bearing could be lost because of high temperatures, the use of a plain bearing having a higher temperature resistance is recommended. If however, the securing of the bearing by adhesives is planned, individual tests are necessary in each case. The transfer of successful results to other application cases is not possible.

Machining

iglidur® plain bearings are delivered ready to fit. The extensive product line makes it possible to use a standard dimension in most cases. If for some reason, a subsequent machining of the plain bearing is necessary, table 11 shows the machining standard values. The subsequent machining of the running surfaces is to be avoided if possible. Higher wear rate is most often the result. An exception is the iglidur® M250 which is very suitable for secondary machining. In other iglidur® plain bearings, disadvantages of a sliding surface machining can be counteracted by lubrication during installation. Please also remember that igus® manufacture a range of stock bar materials which are designed for machining.

iglidur® G – The General Purpose Bearing:

most popular iglidur® material worldwide

► from page 61

iglidur® J – The Fast and Slow Motion Specialist:

used in long-life applications, also with soft shafts

► from page 89

iglidur® M250 – Thick and Tough:

excellent vibration dampening

► from page 107

iglidur® W300 – The Marathon Runner:

long service life, also for soft shafts

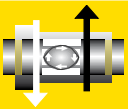
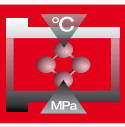
► from page 131

iglidur® X – The High-Tech Problem Solver:

chemical- and temperature-resistant up to +250 °C

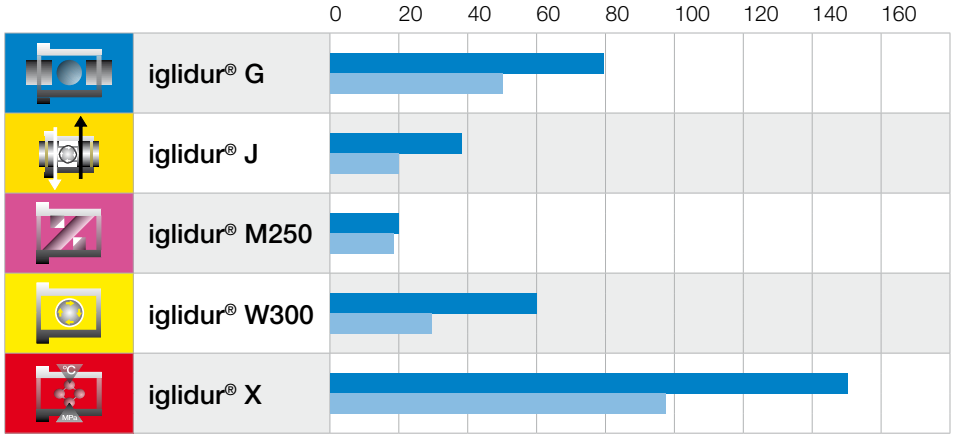
► from page 153

iglidur® Standards | Selection According to Main Criteria

Standard Plain bearings, available from stock					
	iglidur® G	iglidur® J	iglidur® M250	iglidur® W300	iglidur® X
Long life dry running	●	●	●	●	●
For high loads	●				●
For high temperatures					●
Low friction/high speed		●		●	
Dirt resistant	●		●	●	
Chemicals resistant					●
Low water absorption		●			●
Food-suitable					
Vibration-dampening			●		
Egde pressure		●	●	●	
For under water use					●
Cost-effective	●	●	●	●	
from page	61	89	107	131	153

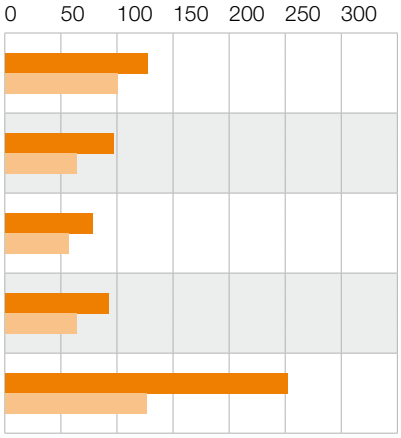
iglidur® Standards | Selection According to Main Criteria

Load [MPa]



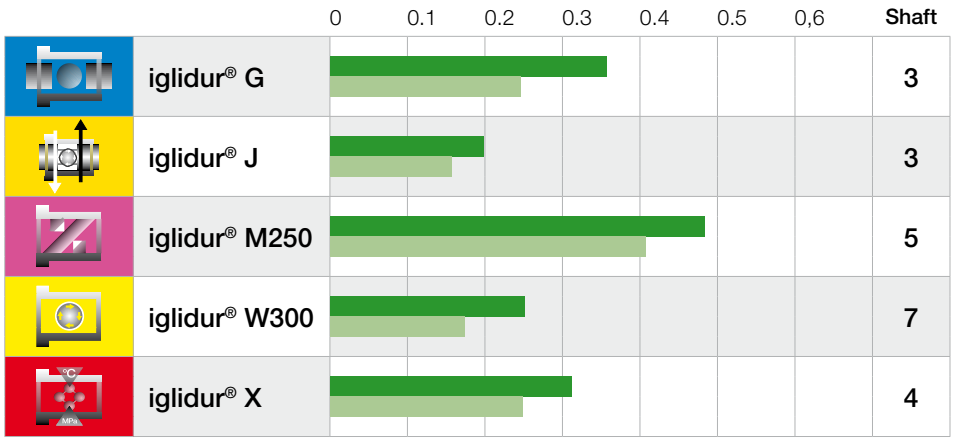
Maximum permissible radial load of iglidur® bearings at
- +20 °C
- +120 °C

Temperature [°C]



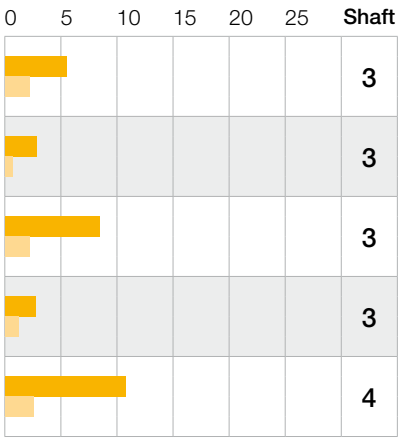
Important temperatur limits of iglidur® bearings
- Maximum permissible application temperature, continous
- Temperature where bearings need to be secured against radial or axial movement in the housing

Coefficient of Friction [µ]



Coefficients of friction of iglidur® bearings sliding against steel, p = 1.2 MPa, v = 0.3 m/s
- Average coefficient of all the seven sliding combinations tested
- Coefficient of friction of best combination

Wear [µm/km]



Wear of iglidur® bearings sliding against steel, p = 1 MPa
- Average wear of all the seven sliding combination tested
- Wear of best combination

Shaft material:

1 = Cf53
2 = hard chromed
3 = Aluminum, hc
4 = Automatic screw steel
5 = HR carbon steel
6 = 304 SS
7 = High grade steel

iglidur®-Standards | Material Data

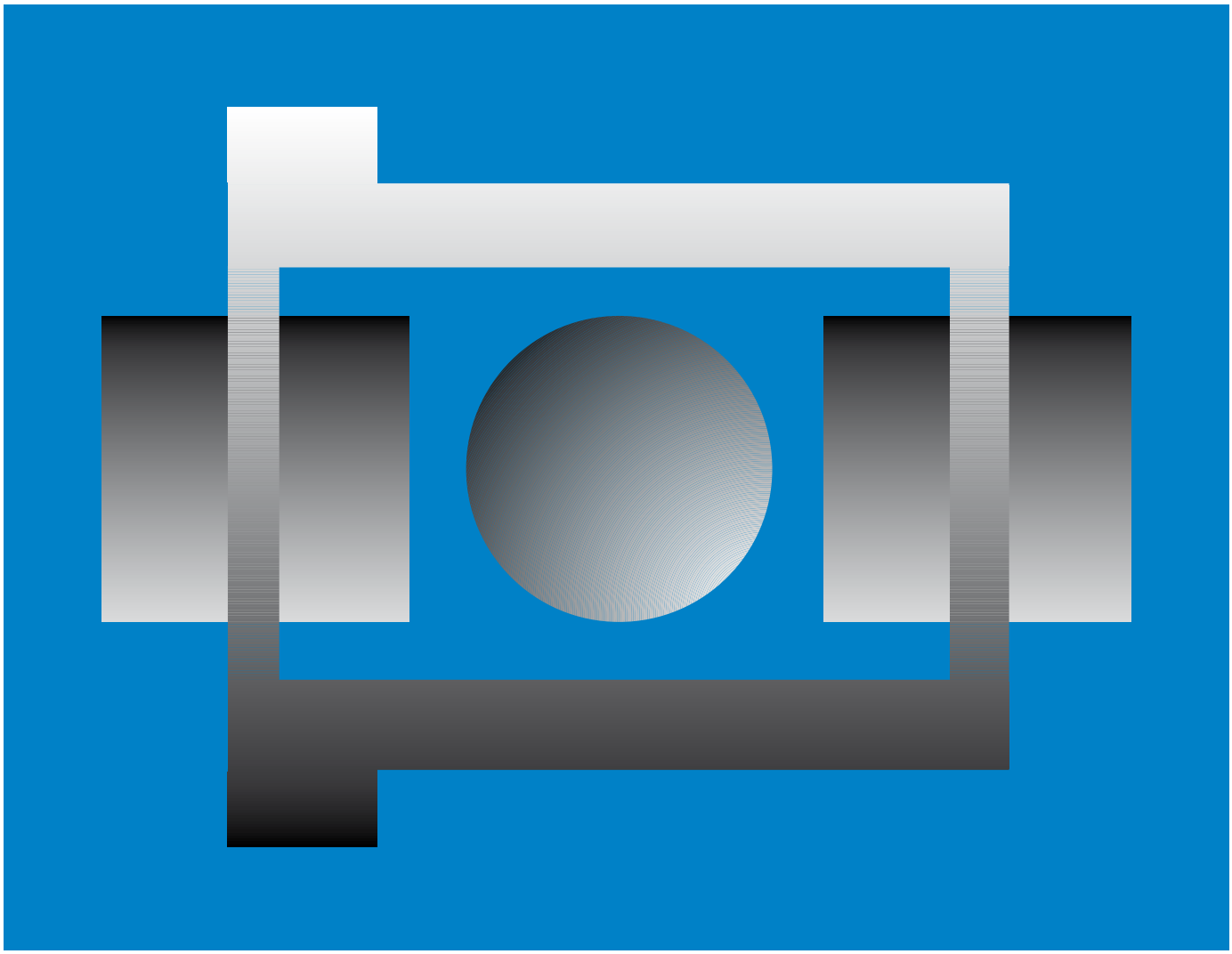
Material data

General properties	Unit	iglidur® G	iglidur® J	iglidur® M250	iglidur® W300	iglidur® X
Density	g/cm³	1.46	1.49	1.14	1.24	1.44
Colour		dark grey	yellow	anthracite	yellow	black
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.7	0.3	1.4	1.3	0.1
Max. moisture absorption	% weight	4.0	1.3	7.6	6.5	0.5
Coefficient of sliding friction. dynamic against steel	µ	0.08–0.15	0.06–0.18	0.18–0.40	0.08–0.23	0.09–0.27
pv value. max. (dry)	MPa · m/s	0.42	0.34	0.12	0.23	1.32
Mechanical properties						
Modulus of elasticity	MPa	7,800	2,400	2,700	3,500	8,100
Tensile strength at +20 °C	MPa	210	73	112	125	170
Compressive strength	MPa	78	60	52	61	100
Max. recommended surface pressure (+20 °C)	MPa	80	35	20	60	150
Shore D hardness		81	74	79	77	85
Physical and thermal properties						
Max. long term application temperature	°C	+130	+90	+80	+90	+250
Max. short term application temperature	°C	+220	+120	+170	+180	+315
Min. application temperature	°C	–40	–50	–40	–40	–100
Thermal conductivity	W/m · K	0.24	0.25	0.24	0.24	0.6
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	9	10	10	9	5
Electrical properties						
Specific volume resistance	Ωcm	> 10^{13}	> 10^{13}	> 10^{13}	> 10^{13}	< 10^{5}
Surface resistance	Ω	> 10^{11}	> 10^{12}	> 10^{11}	> 10^{12}	< 10^{3}

Material resistance (at +20 °C)

Chemical resistance	iglidur® G	iglidur® J	iglidur® M250	iglidur® W300	iglidur® X
Alcohol	+ to 0	+	+ to 0	+ to 0	+
Hydrocarbons	+	+	+	+	+
Greases, oils without additives	+	+	+	+	+
Fuels	+	+	+	+	+
Diluted acids	0 to –	0 to –	0 to –	0 to –	+
Strong acids	–	–	–	–	+
Diluted alkalines	+	+	+	+	+
Strong alkalines	0	+ to 0	0	0	+
Radiation resistance [Gy] to	3 · 10^{2}	3 · 10^{2}	1 · 10^{4}	3 · 10^{2}	1 · 10^{5}

+ resistant 0 conditionally resistant – not resistant



iglidur® G – The General Purpose Bearing: most popular iglidur® material worldwide

- Over 650 sizes available ex stock
- Maintenance-free, dry running
- High wear resistance
- Resistance to dust and dirt
- Cost-effective

iglidur® G | The General Purpose Bearing

Most popular iglidur® material worldwide. iglidur® G bearings cover an extremely wide range of different requirements – they are truly “all round”. Typical applications cover medium to high loads. medium sliding speeds and medium temperatures.

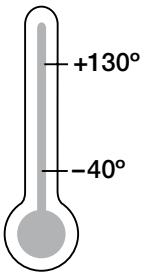
When to use it?

- Economical all-round performance bearing
- Maintenance-free, dry running
- Vibration dampening
- High wear resistance
- Resistance to dust and dirt
- Over 900 sizes available from stock
- Cost-effective
- For above average loads
- For low to average running speeds
- When the bearing needs to run on different shaft materials
- For oscillating and rotational movements

When not to use it?

- When mechanical reaming of the wall surface is necessary
  ▶ **iglidur® M250, page 107**
- When the highest wear resistance is required
  ▶ **iglidur® W300, page 131**
- If temperatures are constantly greater than +130 °C
  ▶ **iglidur® H, page 325**
  iglidur® X, page 153
  iglidur® H370, page 347
- For underwater use
  ▶ **iglidur® H370, page 347**

Temperature



Product range

3 types
> 650 dimensions
Ø 1–150 mm

iglidur® G | Application Examples

Typical sectors of industry and application areas

● Agricultural machines ● Construction machinery ● Machine building ● Sports and leisure ● Automotive etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

▶ www.igus.co.uk/hay-spreader

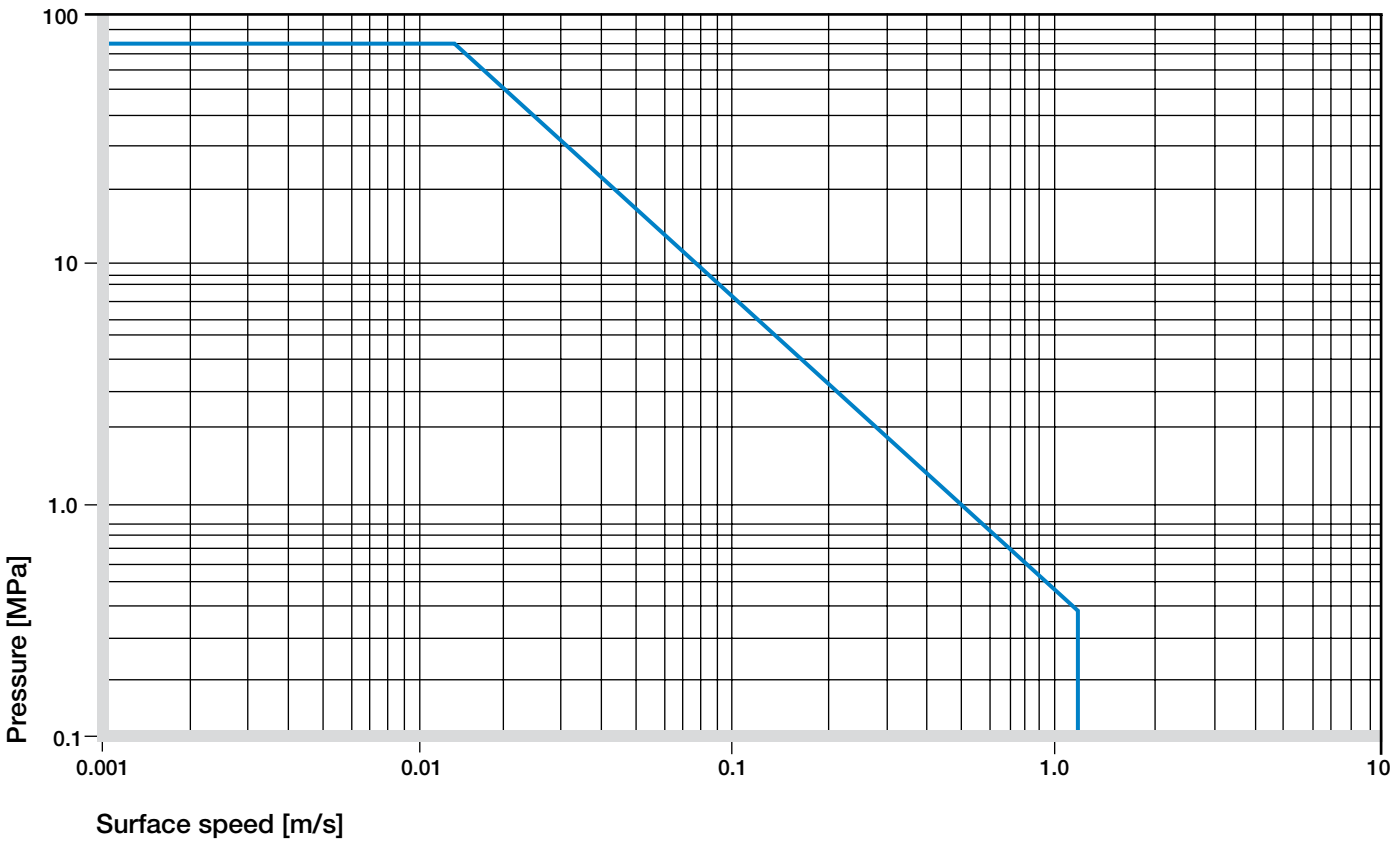
▶ www.igus.co.uk/vehicle-construction

▶ www.igus.co.uk/swing-arm

▶ www.igus.co.uk/veneer-assembling

Material data			
General properties	**Unit**	**iglidur® G**	**Testing method**
Density	**g/cm³**	1.46	
Colour		dark grey	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.7	DIN 53495
Max. moisture absorption	**% weight**	4.0	
Coefficient of sliding friction, dynamic against steel	**µ**	0.08–0.15	
pv value, max. (dry)	**MPa · m/s**	0.42	
Mechanical properties			
Modulus of elasticity	**MPa**	7,800	DIN 53457
Tensile strength at +20 °C	**MPa**	210	DIN 53452
Compressive strength	**MPa**	78	
Max. recommended surface pressure (+20 °C)	**MPa**	80	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+130	
Max. short term application temperature	**°C**	+220	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	9	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{13}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{11}$	DIN 53482

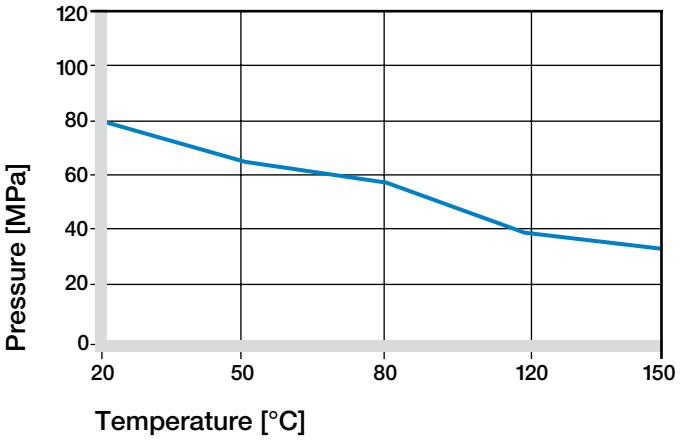
Table 01: Material data



Graph 01: Permissible pv values for iglidur® G with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

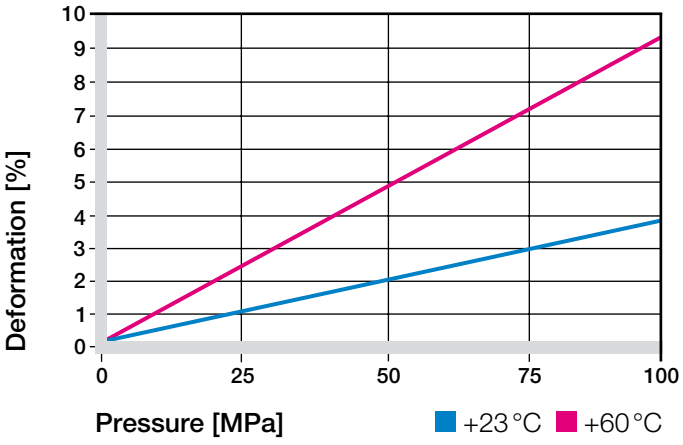
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® G plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +130° C the permissible surface pressure is almost 40 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (80 MPa at +20 °C)

Graph 03 shows the elastic deformation of iglidur® G during radial loading. At the recommended maximum surface pressure of 80 MPa the deformation is less than 5 %. The plastic deformation is minimal up to a pressure of approximately 100 MPa. However, it is also dependant on the cycle time.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® G has been developed for low to medium surface speeds.

The maximum values shown in table 02 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached. due to varying application conditions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	4
Short term	2	1.4	5

Table 02: Maximum running speed

Temperatures

Application temperatures greatly affect the properties of plain bearings.

The short term maximum temperature is +220 °C, this allows the use of iglidur® G plain bearings in heat treating applications in which the bearings are not subjected to additional loading.

The temperature in an application also has an effect on the bearing wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +120 °C.

▶ Application Temperatures, **page 46**

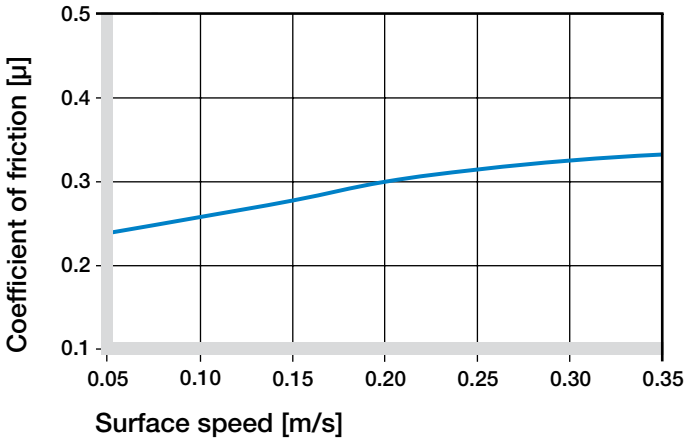
iglidur® G	Application temperature
Minimum	−40 °C
Max. long term	+130 °C
Max. short term	+220 °C
Add. securing is required from	+100 °C

Table 03: Temperature limits

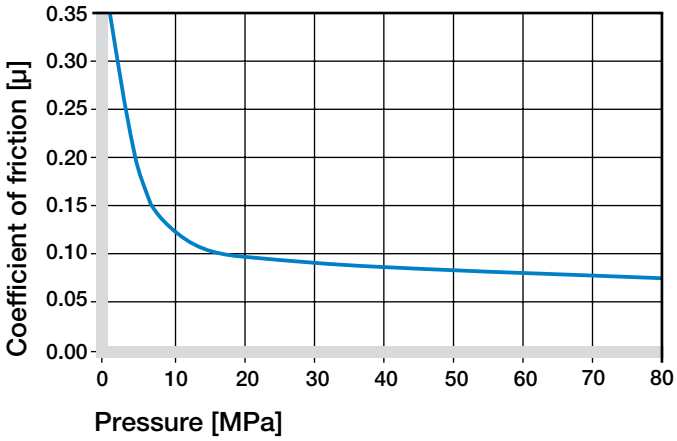
Friction and Wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction decreases with increasing pressures, whereas an increase in surface speed causes an increase of the coefficient of friction. This relationship explains the excellent results of iglidur® G plain bearings for high loads and low speeds (Graphs 04 und 05).

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

The friction and wear are also dependent. to a large degree. on the shaft material. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. For iglidur® G a ground surface with an average roughness Ra = 0.8 μm is recommended (Graph 06).

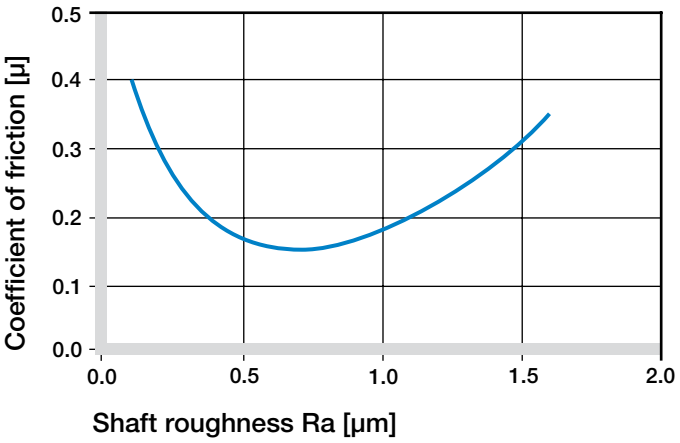
Graphs 07 to 09 show results of testing different shaft materials with plain bearings made of iglidur® G. In Graph 07 it shows that iglidur® G can be combined with various shaft materials. The simple shaft materials of free-cutting steel and HR carbon steel have proven best at low loads. This helps to design cost-effective systems, since both iglidur® G and the shaft are economically priced. It is important to notice that with increasing loads, the recommended hardness of the shaft increases. The “soft” shafts tend to wear more easily and thus increase the wear of the overall system. If the loads exceed 2 MPa it is important to recognize that the wear rate (the gradient of the curves) clearly decreases with the hard shaft materials. The comparison of rotational movements to oscillating movements shows that iglidur® G provides advantages in oscillating movements. The wear of the bearing is smaller for equivalent conditions. The higher the load, the greater the difference.

If the shaft material you plan on using is not shown in these test results, please contact us.

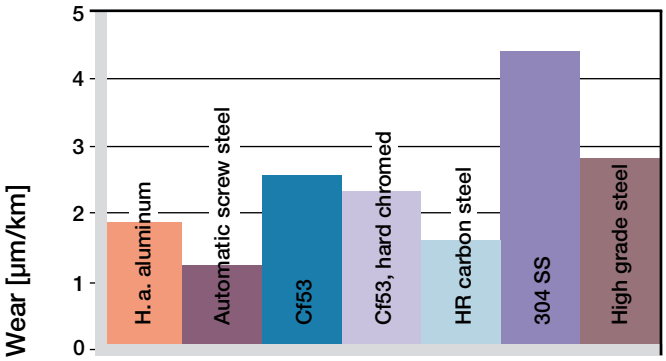
▶ Shaft Materials, **page 51**

iglidur® G	Dry	Greases	Oil	Water
C. o. f. μ	0.08–0.15	0.09	0.04	0.04

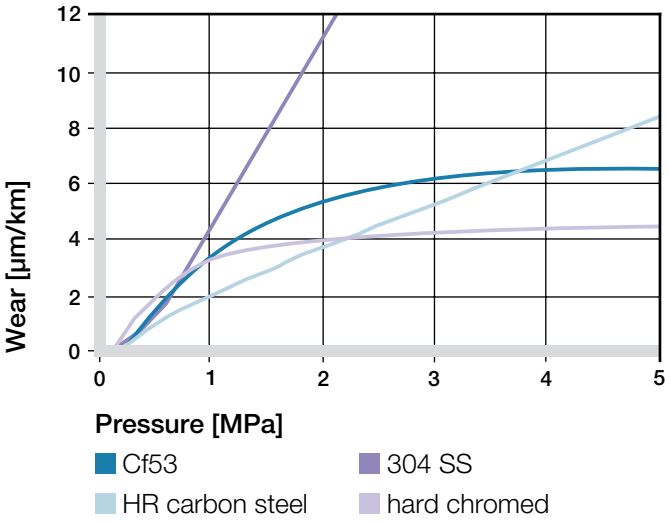
Table 04: Coefficient of friction against steel (Ra = 1 μm, 50 HRC)



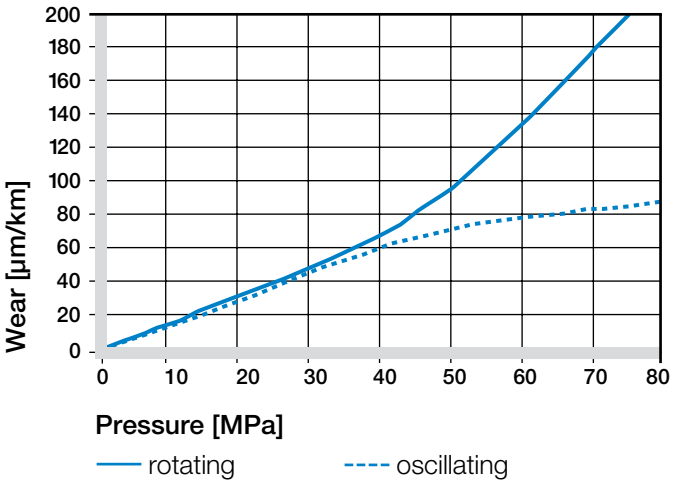
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

Additional Properties

Chemical Resistance

iglidur® G plain bearings have strong resistance to chemicals. They are also resistant to most lubricants.
iglidur® G plain bearings are not attacked by most weak organic or inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases. oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® G are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® G plain bearings are permanently resistant to UV radiation.

Vacuum

iglidur® G plain bearings outgas in a vacuum. Use in a vacuum environment is only possible with dehumidified bearings.

Electrical Properties

iglidur® G plain bearings are electrically insulating.

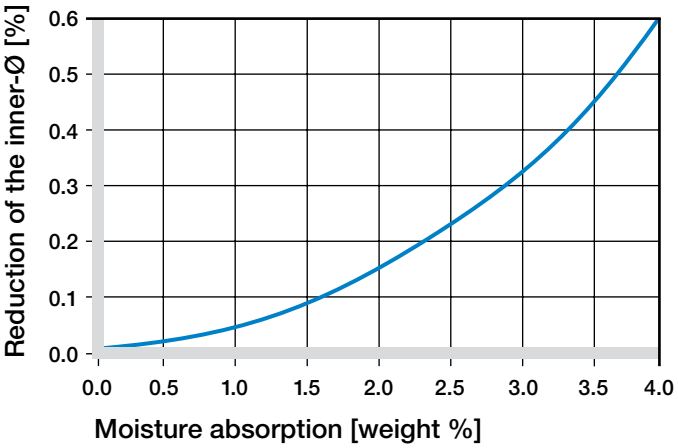
Volume resistance	$> 10^{13}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

Moisture Absorption

The moisture absorption of iglidur® G plain bearings is approximately 1 % in standard atmosphere. The saturation limit submerged in water is 4 %. This must be taken into account for these types of applications.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.7 % weight
Max. moisture absorption	4.0 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® G plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

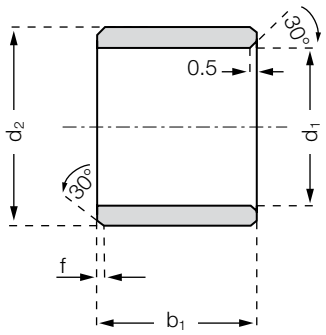
▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® G E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® G | Product Range

Sleeve Bearing



Order key

GSM-0103-02

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® G

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
GSM-0103-02	1.5	+0.014 +0.054	3.0	2.0
GSM-0203-03	2.0	+0.014 +0.054	3.5	3.0
GSM-02504-05	2.5	+0.014 +0.054	4.5	5.0
GSM-0304-03	3.0	+0.014 +0.054	4.5	3.0
GSM-0304-05	3.0	+0.014 +0.054	4.5	5.0
GSM-0304-06	3.0	+0.014 +0.054	4.5	6.0
GSM-0405-04	4.0	+0.020 +0.068	5.5	4.0
GSM-0405-06	4.0	+0.020 +0.068	5.5	6.0
GSM-0406-08	4.5	+0.020 +0.068	6.0	8.0
GSM-0407-05	4.0	+0.020 +0.068	7.0	5.5
GSM-0506-05	5.0	+0.010 +0.040	6.0	5.0
GSM-0506-07	5.0	+0.010 +0.040	6.0	7.0
GSM-0507-05	5.0	+0.020 +0.068	7.0	5.0
GSM-0507-08	5.0	+0.020 +0.068	7.0	8.0
GSM-0507-10	5.0	+0.020 +0.068	7.0	10.0
GSM-0607-06	6.0	+0.010 +0.040	7.0	6.0
GSM-0607-17.5	6.0	+0.010 +0.040	7.0	17.5
GSM-0608-015	6.0	+0.020 +0.068	8.0	1.5
GSM-0608-025	6.0	+0.020 +0.068	8.0	2.5
GSM-0608-04	6.0	+0.020 +0.068	8.0	4.0
GSM-0608-05	6.0	+0.020 +0.068	8.0	5.0
GSM-0608-055	6.0	+0.020 +0.068	8.0	5.5
GSM-0608-06	6.0	+0.020 +0.068	8.0	6.0
GSM-0608-08	6.0	+0.020 +0.068	8.0	8.0
GSM-0608-09	6.0	+0.020 +0.068	8.0	9.5

Part number	d1	d1-Tolerance*	d2	b1 h13
GSM-0608-10	6.0	+0.020 +0.068	8.0	10.0
GSM-0608-11	6.0	+0.020 +0.068	8.0	11.8
GSM-0608-13	6.0	+0.020 +0.068	8.0	13.8
GSM-0708-10	7.0	+0.013 +0.049	8.0	10.0
GSM-0708-19	7.0	+0.013 +0.049	8.0	19.0
GSM-0709-08	7.0	+0.025 +0.083	9.0	8.0
GSM-0709-09	7.0	+0.025 +0.083	9.0	9.0
GSM-0709-10	7.0	+0.025 +0.083	9.0	10.0
GSM-0709-12	7.0	+0.025 +0.083	9.0	12.0
GSM-0809-05	8.0	+0.013 +0.049	9.0	5.0
GSM-0809-06	8.0	+0.013 +0.049	9.0	6.0
GSM-0809-08	8.0	+0.013 +0.049	9.0	8.0
GSM-0809-12	8.0	+0.013 +0.049	9.0	12.0
GSM-0810-05	8.0	+0.025 +0.083	10.0	5.0
GSM-0810-06	8.0	+0.025 +0.083	10.0	6.0
GSM-0810-07	8.0	+0.025 +0.083	10.0	6.8
GSM-0810-08	8.0	+0.025 +0.083	10.0	8.0
GSM-0810-10	8.0	+0.025 +0.083	10.0	10.0
GSM-0810-12	8.0	+0.025 +0.083	10.0	12.0
GSM-0810-13	8.0	+0.025 +0.083	10.0	13.8
GSM-0810-15	8.0	+0.025 +0.083	10.0	15.0
GSM-0810-16	8.0	+0.025 +0.083	10.0	16.0
GSM-0810-20	8.0	+0.025 +0.083	10.0	20.0
GSM-0810-22	8.0	+0.025 +0.083	10.0	22.0
GSM-0911-06	9.0	+0.025 +0.083	11.0	6.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/g | order example part number GSM-0103-02

iglidur® G | Product Range

Sleeve Bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
GSM-1011-06	10.0	+0.013 +0.049	11.0	6.0
GSM-1011-10	10.0	+0.013 +0.049	11.0	10.0
GSM-1011-25	10.0	+0.013 +0.049	11.0	25.0
GSM-1011-30	10.0	+0.013 +0.049	11.0	30.0
GSM-1012-04	10.0	+0.025 +0.083	12.0	4.0
GSM-1012-045	10.0	+0.025 +0.083	12.0	4.5
GSM-1012-05	10.0	+0.025 +0.083	12.0	5.0
GSM-1012-06	10.0	+0.025 +0.083	12.0	6.0
GSM-1012-07	10.0	+0.025 +0.083	12.0	7.0
GSM-1012-08	10.0	+0.025 +0.083	12.0	8.0
GSM-1012-09	10.0	+0.025 +0.083	12.0	9.0
GSM-1012-10	10.0	+0.025 +0.083	12.0	10.0
GSM-1012-12	10.0	+0.025 +0.083	12.0	12.0
GSM-1012-14	10.0	+0.025 +0.083	12.0	14.0
GSM-1012-15	10.0	+0.025 +0.083	12.0	15.0
GSM-1012-17	10.0	+0.025 +0.083	12.0	17.0
GSM-1012-20	10.0	+0.025 +0.083	12.0	20.0
GSM-1213-12	12.0	+0.016 +0.059	13.0	12.0
GSM-1213-15	12.0	+0.016 +0.059	13.0	15.0
GSM-1214-04	12.0	+0.032 +0.102	14.0	4.0
GSM-1214-05	12.0	+0.032 +0.102	14.0	5.0
GSM-1214-06	12.0	+0.032 +0.102	14.0	6.0
GSM-1214-08	12.0	+0.032 +0.102	14.0	8.0
GSM-1214-10	12.0	+0.032 +0.102	14.0	10.0
GSM-1214-12	12.0	+0.032 +0.102	14.0	12.0
GSM-1214-14	12.0	+0.032 +0.102	14.0	14.0
GSM-1214-15	12.0	+0.032 +0.102	14.0	15.0
GSM-1214-20	12.0	+0.032 +0.102	14.0	20.0
GSM-1214-25	12.0	+0.032 +0.102	14.0	25.0
GSM-1215-06	12.0	+0.032 +0.102	15.0	6.0
GSM-1215-22	12.0	+0.032 +0.102	15.0	22.0
GSM-1216-10	12.0	+0.050 +0.160	16.0	10.0
GSM-1216-20	12.0	+0.050 +0.160	16.0	20.0
GSM-1315-070	13.0	+0.032 +0.102	15.0	7.0
GSM-1315-075	13.0	+0.032 +0.102	15.0	7.5
GSM-1315-10	13.0	+0.032 +0.102	15.0	10.0
GSM-1315-15	13.0	+0.032 +0.102	15.0	15.0
GSM-1315-20	13.0	+0.032 +0.102	15.0	20.0
GSM-1315-25	13.0	+0.032 +0.102	15.0	25.0
GSM-1416-03	14.0	+0.032 +0.102	16.0	3.0
GSM-1416-06	14.0	+0.032 +0.102	16.0	6.0
GSM-1416-08	14.0	+0.032 +0.102	16.0	8.0
GSM-1416-10	14.0	+0.032 +0.102	16.0	10.0
GSM-1416-12	14.0	+0.032 +0.102	16.0	12.0
GSM-1416-15	14.0	+0.032 +0.102	16.0	15.0
GSM-1416-20	14.0	+0.032 +0.102	16.0	20.0
GSM-1416-25	14.0	+0.032 +0.102	16.0	25.0
GSM-1516-15	15.0	+0.016 +0.059	16.0	15.0
GSM-1517-04	15.0	+0.032 +0.102	17.0	4.0
GSM-1517-10	15.0	+0.032 +0.102	17.0	10.0
GSM-1517-12	15.0	+0.032 +0.102	17.0	12.0
GSM-1517-15	15.0	+0.032 +0.102	17.0	15.0
GSM-1517-20	15.0	+0.032 +0.102	17.0	20.0
GSM-1517-25	15.0	+0.032 +0.102	17.0	25.0
GSM-1618-055	16.0	+0.032 +0.102	18.0	5.5
GSM-1618-08	16.0	+0.032 +0.102	18.0	8.0
GSM-1618-10	16.0	+0.032 +0.102	18.0	10.0
GSM-1618-12	16.0	+0.032 +0.102	18.0	12.0
GSM-1618-13.5	16.0	+0.032 +0.102	18.0	13.5
GSM-1618-15	16.0	+0.032 +0.102	18.0	15.0
GSM-1618-20	16.0	+0.032 +0.102	18.0	20.0
GSM-1618-25	16.0	+0.032 +0.102	18.0	25.0
GSM-1618-30	16.0	+0.032 +0.102	18.0	30.0
GSM-1618-50	16.0	+0.032 +0.102	18.0	50.0
GSM-1820-10	18.0	+0.032 +0.102	20.0	10.0
GSM-1820-12	18.0	+0.032 +0.102	20.0	12.0
GSM-1820-15	18.0	+0.032 +0.102	20.0	15.0
GSM-1820-20	18.0	+0.032 +0.102	20.0	20.0
GSM-1820-25	18.0	+0.032 +0.102	20.0	25.0
GSM-1820-45	18.0	+0.032 +0.102	20.0	45.0
GSM-1922-06	19.0	+0.040 +0.124	22.0	6.0
GSM-1922-28	19.0	+0.040 +0.124	22.0	28.0
GSM-1922-35	19.0	+0.040 +0.124	22.0	35.0
GSM-2021-20	20.0	+0.020 +0.072	21.0	20.0
GSM-2022-03	20.0	+0.040 +0.124	22.0	3.0
GSM-2022-08	20.0	+0.040 +0.124	22.0	8.0
GSM-2022-105	20.0	+0.040 +0.124	22.0	10.5
GSM-2022-15	20.0	+0.040 +0.124	22.0	15.0
GSM-2022-20	20.0	+0.040 +0.124	22.0	20.0
GSM-2022-22	20.0	+0.040 +0.124	22.0	22.0
GSM-2022-30	20.0	+0.040 +0.124	22.0	30.0
GSM-2023-10	20.0	+0.040 +0.124	23.0	10.0
GSM-2023-15	20.0	+0.040 +0.124	23.0	15.0
GSM-2023-20	20.0	+0.040 +0.124	23.0	20.0

* after pressfit. Testing methods ▶ page 55

iglidur® G | Product Range

Sleeve Bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
GSM-2023-23	20.0	+0.040 +0.124	23.0	23.0
GSM-2023-24	20.0	+0.040 +0.124	23.0	24.0
GSM-2023-25	20.0	+0.040 +0.124	23.0	25.0
GSM-2023-30	20.0	+0.040 +0.124	23.0	30.0
GSM-2224-10	22.0	+0.040 +0.124	24.0	10.0
GSM-2224-15	22.0	+0.040 +0.124	24.0	15.0
GSM-2224-17	22.0	+0.040 +0.124	24.0	17.0
GSM-2224-20	22.0	+0.040 +0.124	24.0	20.0
GSM-2224-30	22.0	+0.040 +0.124	24.0	30.0
GSM-2225-15	22.0	+0.040 +0.124	25.0	15.0
GSM-2225-20	22.0	+0.040 +0.124	25.0	20.0
GSM-2225-25	22.0	+0.040 +0.124	25.0	25.0
GSM-2225-30	22.0	+0.040 +0.124	25.0	30.0
GSM-2427-06	24.0	+0.040 +0.124	27.0	6.0
GSM-2427-15	24.0	+0.040 +0.124	27.0	15.0
GSM-2427-20	24.0	+0.040 +0.124	27.0	20.0
GSM-2427-25	24.0	+0.040 +0.124	27.0	25.0
GSM-2427-30	24.0	+0.040 +0.124	27.0	30.0
GSM-2526-25	25.0	+0.020 +0.072	26.0	25.0
GSM-2528-15	25.0	+0.040 +0.124	28.0	15.0
GSM-2528-20	25.0	+0.040 +0.124	28.0	20.0
GSM-2528-24	25.0	+0.040 +0.124	28.0	24.0
GSM-2528-25	25.0	+0.040 +0.124	28.0	25.0
GSM-2528-30	25.0	+0.040 +0.124	28.0	30.0
GSM-2528-35	25.0	+0.040 +0.124	28.0	35.0
GSM-2528-50	25.0	+0.040 +0.124	28.0	50.0
GSM-2630-16	26.0	+0.040 +0.124	30.0	16.0
GSM-2730-05	27.0	+0.040 +0.124	30.0	5.0
GSM-2832-105	28.0	+0.040 +0.124	32.0	10.5
GSM-2832-12	28.0	+0.040 +0.124	32.0	12.0
GSM-2832-15	28.0	+0.040 +0.124	32.0	15.0
GSM-2832-20	28.0	+0.040 +0.124	32.0	20.0
GSM-2832-23	28.0	+0.040 +0.124	32.0	23.0
GSM-2832-25	28.0	+0.040 +0.124	32.0	25.0
GSM-2832-30	28.0	+0.040 +0.124	32.0	30.0
GSM-3031-12	30.0	+0.020 +0.072	31.0	12.0
GSM-3031-30	30.0	+0.020 +0.072	31.0	30.0
GSM-3034-15	30.0	+0.040 +0.124	34.0	15.0
GSM-3034-20	30.0	+0.040 +0.124	34.0	20.0

Part number	d1	d1-Tolerance*	d2	b1 h13
GSM-3034-24	30.0	+0.040 +0.124	34.0	24.0
GSM-3034-25	30.0	+0.040 +0.124	34.0	25.0
GSM-3034-30	30.0	+0.040 +0.124	34.0	30.0
GSM-3034-35	30.0	+0.040 +0.124	34.0	35.0
GSM-3034-40	30.0	+0.040 +0.124	34.0	40.0
GSM-3034-525	30.0	+0.040 +0.124	34.0	52.5
GSM-3236-20	32.0	+0.050 +0.150	36.0	20.0
GSM-3236-30	32.0	+0.050 +0.150	36.0	30.0
GSM-3236-40	32.0	+0.050 +0.150	36.0	40.0
GSM-3539-14	35.0	+0.050 +0.150	39.0	14.0
GSM-3539-20	35.0	+0.050 +0.150	39.0	20.0
GSM-3539-25	35.0	+0.050 +0.150	39.0	25.0
GSM-3539-30	35.0	+0.050 +0.150	39.0	30.0
GSM-3539-40	35.0	+0.050 +0.150	39.0	40.0
GSM-3539-50	35.0	+0.050 +0.150	39.0	50.0
GSM-3640-20	36.0	+0.050 +0.150	40.0	20.0
GSM-3741-20	37.0	+0.050 +0.150	41.0	20.0
GSM-4044-10	40.0	+0.050 +0.150	44.0	10.0
GSM-4044-16	40.0	+0.050 +0.150	44.0	16.5
GSM-4044-20	40.0	+0.050 +0.150	44.0	20.0
GSM-4044-30	40.0	+0.050 +0.150	44.0	30.0
GSM-4044-40	40.0	+0.050 +0.150	44.0	40.0
GSM-4044-50	40.0	+0.050 +0.150	44.0	50.0
GSM-4246-40	42.0	+0.050 +0.150	46.0	40.0
GSM-4550-22	45.0	+0.050 +0.150	50.0	22.0
GSM-4550-235	45.0	+0.050 +0.150	50.0	23.5
GSM-4550-30	45.0	+0.050 +0.150	50.0	30.0
GSM-4550-38	45.0	+0.050 +0.150	50.0	38.0
GSM-4550-40	45.0	+0.050 +0.150	50.0	40.0
GSM-4550-50	45.0	+0.050 +0.150	50.0	50.0
GSM-5055-20	50.0	+0.050 +0.150	55.0	20.0
GSM-5055-25	50.0	+0.050 +0.150	55.0	25.0
GSM-5055-30	50.0	+0.050 +0.150	55.0	30.0
GSM-5055-40	50.0	+0.050 +0.150	55.0	40.0
GSM-5055-50	50.0	+0.050 +0.150	55.0	50.0
GSM-5257-20	52.0	+0.060 +0.180	57.0	20.0
GSM-5560-20	55.0	+0.060 +0.180	60.0	20.0
GSM-5560-40	55.0	+0.060 +0.180	60.0	40.0
GSM-5560-50	55.0	+0.060 +0.180	60.0	50.0

* after pressfit. Testing methods ▶ page 55

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iglidur® G | Product Range

Sleeve Bearing

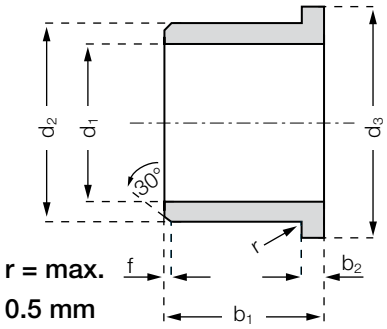
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
GSM-5560-60	55.0	+0.060 +0.180	60.0	60.0
GSM-6065-30	60.0	+0.060 +0.180	65.0	30.0
GSM-6065-40	60.0	+0.060 +0.180	65.0	40.0
GSM-6065-50	60.0	+0.060 +0.180	65.0	50.0
GSM-6065-60	60.0	+0.060 +0.180	65.0	60.0
GSM-6267-35	62.0	+0.060 +0.180	67.0	35.0
GSM-6570-30	65.0	+0.060 +0.180	70.0	30.0
GSM-6570-50	65.0	+0.060 +0.180	70.0	50.0
GSM-7075-60	70.0	+0.060 +0.180	75.0	60.0
GSM-7277-76	72.0	+0.060 +0.180	77.0	76.0
GSM-7580-40	75.0	+0.060 +0.180	80.0	40.0
GSM-7580-60	75.0	+0.060 +0.180	80.0	60.0
GSM-8085-60	80.0	+0.060 +0.180	85.0	60.0
GSM-8085-100	80.0	+0.060 +0.180	85.0	100.0

Part number	d1	d1-Tolerance*	d2	b1 h13
GSM-8590-100	85.0	+0.072 +0.212	90.0	100.0
GSM-9095-100	90.0	+0.072 +0.212	95.0	100.0
GSM-95100-100	95.0	+0.072 +0.212	100.0	100.0
GSM-100105-30	100.0	+0.072 +0.212	105.0	30.0
GSM-100105-100	100.0	+0.072 +0.212	105.0	100.0
GSM-110115-100	110.0	+0.072 +0.212	115.0	100.0
GSM-120125-100	120.0	+0.072 +0.212	125.0	100.0
GSM-125130-100	125.0	+0.085 +0.245	130.0	100.0
GSM-130135-100	130.0	+0.085 +0.245	135.0	100.0
GSM-135140-80	135.0	+0.085 +0.245	140.0	80.0
GSM-140145-100	140.0	+0.085 +0.245	145.0	100.0
GSM-150155-100	150.0	+0.085 +0.245	155.0	100.0

* after pressfit. Testing methods ▶ page 55

Flange Bearing



Order key

GFM-0304-02

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
GFM-0304-02	3.0	+0.014 +0.054	4.5	7.5	2.0	0.5
GFM-0304-0275	3.0	+0.014 +0.054	4.5	7.5	2.7	0.75
GFM-0304-03	3.0	+0.014 +0.054	4.5	7.5	3.0	0.75
GFM-0304-05	3.0	+0.014 +0.054	4.5	7.5	5.0	0.75
GFM-030407-05	3.0	+0.014 +0.054	4.5	7.0	5.0	0.75
GFM-0405-03	4.0	+0.020 +0.068	5.5	9.5	3.0	0.75
GFM-0405-04	4.0	+0.020 +0.068	5.5	9.5	4.0	0.75
GFM-0405-06	4.0	+0.020 +0.068	5.5	9.5	6.0	0.75
GFM-04050-04	4.0	+0.010 +0.040	5.0	9.5	4.0	0.5
GFM-04050-06	4.0	+0.010 +0.040	5.0	9.5	6.0	0.5
GFM-040508-10	4.0	+0.020 +0.068	5.5	8.0	10.0	1.0
GFM-0506-035	5.0	+0.010 +0.040	6.0	10.0	3.5	0.5
GFM-0506-04	5.0	+0.010 +0.040	6.0	10.0	4.0	0.5
GFM-0506-05	5.0	+0.010 +0.040	6.0	10.0	5.0	0.5
GFM-0506-06	5.0	+0.010 +0.040	6.0	10.0	6.0	0.5
GFM-0506-15	5.0	+0.010 +0.040	6.0	10.0	15.0	0.5
GFM-0507-03	5.0	+0.020 +0.068	7.0	11.0	3.5	1.0
GFM-0507-04	5.0	+0.020 +0.068	7.0	11.0	4.0	1.0
GFM-0507-05	5.0	+0.020 +0.068	7.0	11.0	5.0	1.0
GFM-0507-30	5.0	+0.020 +0.068	7.0	11.0	30.0	1.0
GFM-050709-05	5.0	+0.020 +0.068	7.0	9.5	5.0	1.0
GFM-050715-04	5.0	+0.020 +0.068	7.0	15.0	4.0	1.0
GFM-0607-024	6.0	+0.010 +0.040	7.0	11.0	2.4	0.5
GFM-0607-045	6.0	+0.010 +0.040	7.0	11.0	4.5	0.5
GFM-0607-06	6.0	+0.010 +0.040	7.0	11.0	6.0	0.5

* after pressfit. Testing methods ▶ page 55

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order example part number GFM-0304-02

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Flange Bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3 d13	b1 h13	b2 –0.14
GFM-0607-10	6.0	+0.010 +0.040	7.0	11.0	10.0	0.5
GFM-0608-025	6.0	+0.020 +0.068	8.0	12.0	2.5	1.0
GFM-0608-04	6.0	+0.020 +0.068	8.0	12.0	4.0	1.0
GFM-0608-048	6.0	+0.020 +0.068	8.0	12.0	4.8	1.0
GFM-0608-05	6.0	+0.020 +0.068	8.0	12.0	5.0	1.0
GFM-0608-06	6.0	+0.020 +0.068	8.0	12.0	6.0	1.0
GFM-0608-07	6.0	+0.020 +0.068	8.0	12.0	7.0	1.0
GFM-0608-08	6.0	+0.020 +0.068	8.0	12.0	8.0	1.0
GFM-0608-10	6.0	+0.020 +0.068	8.0	12.0	10.0	1.0
GFM-0608-25	6.0	+0.020 +0.068	8.0	12.0	25.0	1.0
GFM-0608-35	6.0	+0.020 +0.068	8.0	12.0	35.0	1.0
GFM-060814-12	6.0	+0.020 +0.068	8.0	14.0	12.0	1.0
GFM-060814-028	6.0	+0.020 +0.068	8.0	14.0	2.8	1.0
GFM-0708-03	7.0	+0.013 +0.049	8.0	12.0	3.0	0.5
GFM-0708-08	7.0	+0.013 +0.049	8.0	12.0	8.0	0.5
GFM-0709-06	7.0	+0.025 +0.083	9.0	15.0	6.0	1.0
GFM-0709-10	7.0	+0.025 +0.083	9.0	15.0	10.0	1.0
GFM-0709-12	7.0	+0.025 +0.083	9.0	15.0	12.0	1.0
GFM-0709-035	7.0	+0.025 +0.083	9.0	15.0	3.5	1.0
GFM-070919-10	7.0	+0.025 +0.083	9.0	19.0	10.0	1.0
GFM-0809-03	8.0	+0.013 +0.049	9.0	15.0	3.0	0.5
GFM-0809-055	8.0	+0.013 +0.049	9.0	13.0	5.5	0.5
GFM-0809-08	8.0	+0.013 +0.049	9.0	13.0	8.0	0.5
GFM-0809-12	8.0	+0.013 +0.049	9.0	13.0	12.0	0.5
GFM-0810-03	8.0	+0.025 +0.083	10.0	15.0	3.0	1.0
GFM-0810-04	8.0	+0.025 +0.083	10.0	15.0	4.0	1.0
GFM-0810-05	8.0	+0.025 +0.083	10.0	15.0	5.5	1.0
GFM-0810-065	8.0	+0.025 +0.083	10.0	15.0	6.5	1.0
GFM-0810-07	8.0	+0.025 +0.083	10.0	15.0	7.5	1.0
GFM-0810-09	8.0	+0.025 +0.083	10.0	15.0	9.5	1.0
GFM-0810-10	8.0	+0.025 +0.083	10.0	15.0	10.0	1.0
GFM-0810-15	8.0	+0.025 +0.083	10.0	15.0	15.0	1.0
GFM-0810-25	8.0	+0.025 +0.083	10.0	15.0	25.0	1.0
GFM-0810-30	8.0	+0.025 +0.083	10.0	15.0	30.0	1.0
GFM-081012-125	8.0	+0.025 +0.083	10.0	12.0	12.5	1.0
GFM-081013-08	8.0	+0.025 +0.083	10.0	13.0	8.0	1.0
GFM-081014-06	8.0	+0.025 +0.083	10.0	14.0	6.0	1.0
GFM-081014-08	8.0	+0.025 +0.083	10.0	14.0	8.0	1.0
GFM-081014-10	8.0	+0.025 +0.083	10.0	14.0	10.0	1.0
GFM-081016-11	8.0	+0.025 +0.083	10.0	16.0	11.5	1.5
GFM-081016-15	8.0	+0.025 +0.083	10.0	16.0	15.5	1.5
GFM-081017-15	8.0	+0.025 +0.083	10.0	17.0	15.0	1.0

* after pressfit. Testing methods ▶ page 55

Flange Bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
GFM-0910-17	9.0	+0.013 +0.049	10.0	15.0	17.5	0.5
GFM-0910-065	9.0	+0.013 +0.049	10.0	15.0	6.5	0.5
GFM-1011-026	10.0	+0.013 +0.049	11.0	15.0	2.6	0.5
GFM-1011-044	10.0	+0.013 +0.049	11.0	15.0	4.4	0.5
GFM-1011-10	10.0	+0.013 +0.049	11.0	15.0	10.0	0.5
GFM-1012-035	10.0	+0.025 +0.083	12.0	18.0	3.5	1.0
GFM-1012-04	10.0	+0.025 +0.083	12.0	18.0	4.0	1.0
GFM-1012-05	10.0	+0.025 +0.083	12.0	18.0	5.0	1.0
GFM-1012-06	10.0	+0.025 +0.083	12.0	18.0	6.0	1.0
GFM-1012-07	10.0	+0.025 +0.083	12.0	18.0	7.0	1.0
GFM-1012-09	10.0	+0.025 +0.083	12.0	18.0	9.0	1.0
GFM-1012-10	10.0	+0.025 +0.083	12.0	18.0	10.0	1.0
GFM-1012-12	10.0	+0.025 +0.083	12.0	18.0	12.0	1.0
GFM-1012-15	10.0	+0.025 +0.083	12.0	18.0	15.0	1.0
GFM-1012-17	10.0	+0.025 +0.083	12.0	18.0	17.0	1.0
GFM-101214-07	10.0	+0.025 +0.083	12.0	14.0	7.0	1.0
GFM-101215-12	10.0	+0.025 +0.083	12.0	15.0	12.0	1.0
GFM-101216-06	10.0	+0.025 +0.083	12.0	16.0	6.0	1.0
GFM-101216-09	10.0	+0.025 +0.083	12.0	16.0	9.0	1.0
GFM-101216-15	10.0	+0.025 +0.083	12.0	16.0	15.0	1.0
GFM-1213-03	12.0	+0.016 +0.059	13.0	17.0	3.0	0.5
GFM-1213-12	12.0	+0.016 +0.059	13.0	17.0	12.0	0.5
GFM-1214-03	12.0	+0.032 +0.102	14.0	20.0	3.0	1.0
GFM-1214-06	12.0	+0.032 +0.102	14.0	20.0	6.0	1.0
GFM-1214-07	12.0	+0.032 +0.102	14.0	20.0	7.0	1.0
GFM-1214-09	12.0	+0.032 +0.102	14.0	20.0	9.0	1.0
GFM-1214-10	12.0	+0.032 +0.102	14.0	20.0	10.0	1.0
GFM-1214-11	12.0	+0.032 +0.102	14.0	20.0	11.0	1.0
GFM-1214-12	12.0	+0.032 +0.102	14.0	20.0	12.0	1.0
GFM-1214-15	12.0	+0.032 +0.102	14.0	20.0	15.0	1.0
GFM-1214-17	12.0	+0.032 +0.102	14.0	20.0	17.0	1.0
GFM-1214-20	12.0	+0.032 +0.102	14.0	20.0	20.0	1.0
GFM-1214-24	12.0	+0.032 +0.102	14.0	20.0	24.0	1.0
GFM-121418-04	12.0	+0.032 +0.102	14.0	18.0	4.0	1.0
GFM-121418-08	12.0	+0.032 +0.102	14.0	18.0	8.0	1.0
GFM-121418-10	12.0	+0.032 +0.102	14.0	18.0	10.0	1.0
GFM-121418-12	12.0	+0.032 +0.102	14.0	18.0	12.0	1.0
GFM-121418-15	12.0	+0.032 +0.102	14.0	18.0	15.0	1.0
GFM-121418-20	12.0	+0.032 +0.102	14.0	18.0	20.0	1.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/g | order example part number GFM-0910-17

iglidur® G | Product Range

Flange Bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
GFM-1315-06	13.0	+0.032 +0.102	15.0	22.0	6.0	1.0
GFM-1416-03	14.0	+0.032 +0.102	16.0	22.0	3.0	1.0
GFM-1416-04	14.0	+0.032 +0.102	16.0	22.0	4.0	1.0
GFM-1416-06	14.0	+0.032 +0.102	16.0	22.0	6.0	1.0
GFM-1416-08	14.0	+0.032 +0.102	16.0	22.0	8.0	1.0
GFM-1416-10	14.0	+0.032 +0.102	16.0	22.0	10.0	1.0
GFM-1416-12	14.0	+0.032 +0.102	16.0	22.0	12.0	1.0
GFM-1416-17	14.0	+0.032 +0.102	16.0	22.0	17.0	1.0
GFM-1416-21	14.0	+0.032 +0.102	16.0	22.0	21.0	1.0
GFM-1516-02	15.0	+0.016 +0.059	16.0	20.0	2.0	0.5
GFM-1516-025	15.0	+0.016 +0.059	16.0	20.0	2.5	0.5
GFM-1516-03	15.0	+0.016 +0.059	16.0	20.0	3.0	0.5
GFM-1516-15	15.0	+0.016 +0.059	16.0	20.0	15.0	0.5
GFM-1517-04	15.0	+0.032 +0.102	17.0	23.0	4.0	1.0
GFM-1517-045	15.0	+0.032 +0.102	17.0	23.0	4.5	1.0
GFM-1517-05	15.0	+0.032 +0.102	17.0	23.0	5.0	1.0
GFM-1517-09	15.0	+0.032 +0.102	17.0	23.0	9.0	1.0
GFM-1517-12	15.0	+0.032 +0.102	17.0	23.0	12.0	1.0
GFM-1517-17	15.0	+0.032 +0.102	17.0	23.0	17.0	1.0
GFM-1517-20	15.0	+0.032 +0.102	17.0	23.0	20.0	1.0
GFM-151824-32	15.0	+0.032 +0.102	18.0	24.0	32.0	1.5
GFM-1618-04	16.0	+0.032 +0.102	18.0	24.0	4.0	1.0
GFM-1618-06	16.0	+0.032 +0.102	18.0	24.0	6.0	1.0
GFM-1618-09	16.0	+0.032 +0.102	18.0	24.0	9.0	1.0
GFM-1618-12	16.0	+0.032 +0.102	18.0	24.0	12.0	1.0
GFM-1618-17	16.0	+0.032 +0.102	18.0	24.0	17.0	1.0
GFM-1618-21	16.0	+0.032 +0.102	18.0	24.0	21.0	1.0
GFM-1719-09	17.0	+0.032 +0.102	19.0	25.0	9.0	1.0
GFM-1719-25	17.0	+0.032 +0.102	19.0	25.0	25.0	1.0
GFM-1820-04	18.0	+0.032 +0.102	20.0	26.0	4.0	1.0
GFM-1820-06	18.0	+0.032 +0.102	20.0	26.0	6.0	1.0
GFM-1820-09	18.0	+0.032 +0.102	20.0	26.0	9.0	1.0
GFM-1820-11	18.0	+0.032 +0.102	20.0	26.0	11.0	1.0
GFM-1820-12	18.0	+0.032 +0.102	20.0	26.0	12.0	1.0
GFM-1820-17	18.0	+0.032 +0.102	20.0	26.0	17.0	1.0
GFM-1820-22	18.0	+0.032 +0.102	20.0	26.0	22.0	1.0
GFM-1820-30	18.0	+0.032 +0.102	20.0	26.0	30.0	1.0
GFM-1820-32	18.0	+0.032 +0.102	20.0	26.0	32.0	1.0
GFM-182022-06	18.0	+0.032 +0.102	20.0	22.0	6.0	1.0
GFM-1822-28	18.0	+0.032 +0.102	22.0	26.0	28.0	2.0
GFM-2021-20	20.0	+0.020 +0.072	21.0	25.0	20.0	0.5
GFM-2023-07	20.0	+0.040 +0.124	23.0	30.0	7.0	1.5

* after pressfit. Testing methods ▶ page 55

Flange Bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
GFM-2023-11	20.0	+0.040 +0.124	23.0	30.0	11.5	1.5
GFM-2023-16	20.0	+0.040 +0.124	23.0	30.0	16.5	1.5
GFM-2023-21	20.0	+0.040 +0.124	23.0	30.0	21.5	1.5
GFM-202326-21	20.0	+0.040 +0.124	23.0	26.0	21.5	1.5
GFM-202328-15	20.0	+0.040 +0.124	23.0	28.0	15.0	1.5
GFM-222535-315	22.0	+0.040 +0.124	25.0	35.0	31.5	1.5
GFM-2427-07	24.0	+0.040 +0.124	27.0	32.0	7.0	1.5
GFM-2427-10	24.0	+0.040 +0.124	27.0	32.0	10.0	1.5
GFM-2526-25	25.0	+0.020 +0.072	26.0	30.0	25.0	0.5
GFM-2527-48	25.0	+0.040 +0.124	27.0	32.0	48.0	1.0
GFM-2528-11	25.0	+0.040 +0.124	28.0	35.0	11.5	1.5
GFM-2528-16	25.0	+0.040 +0.124	28.0	35.0	16.5	1.5
GFM-2528-21	25.0	+0.040 +0.124	28.0	35.0	21.5	1.5
GFM-2830-10	28.0	+0.040 +0.124	30.0	36.0	10.0	1.0
GFM-2830-36	28.0	+0.040 +0.124	30.0	35.0	36.0	1.0
GFM-283239-20	28.0	+0.040 +0.124	32.0	39.0	20.0	2.0
GFM-3031-20	30.0	+0.040 +0.124	31.0	36.0	20.0	0.5
GFM-3031-30	30.0	+0.040 +0.124	31.0	35.0	30.0	0.5
GFM-3032-04	30.0	+0.040 +0.124	32.0	37.0	4.0	1.0
GFM-3032-12	30.0	+0.040 +0.124	32.0	37.0	12.0	1.0
GFM-3032-17	30.0	+0.040 +0.124	32.0	37.0	17.5	1.0
GFM-3032-22	30.0	+0.040 +0.124	32.0	37.0	22.0	1.0
GFM-3034-09	30.0	+0.040 +0.124	34.0	42.0	9.0	2.0
GFM-3034-16	30.0	+0.040 +0.124	34.0	42.0	16.0	2.0
GFM-3034-20	30.0	+0.040 +0.124	34.0	42.0	20.0	2.0
GFM-3034-26	30.0	+0.040 +0.124	34.0	42.0	26.0	2.0
GFM-3034-37	30.0	+0.040 +0.124	34.0	42.0	37.0	2.0
GFM-3236-16	32.0	+0.050 +0.150	36.0	40.0	16.0	2.0
GFM-3236-26	32.0	+0.050 +0.150	36.0	40.0	26.0	2.0
GFM-343850-35	34.0	+0.050 +0.150	38.0	50.0	35.0	2.0
GFM-3539-058	35.0	+0.050 +0.150	39.0	47.0	5.8	2.0
GFM-3539-07	35.0	+0.050 +0.150	39.0	47.0	7.0	2.0
GFM-3539-16	35.0	+0.050 +0.150	39.0	47.0	16.0	2.0
GFM-3539-26	35.0	+0.050 +0.150	39.0	47.0	26.0	2.0
GFM-3539-36	35.0	+0.050 +0.150	39.0	47.0	36.0	2.0
GFM-3842-22	38.0	+0.050 +0.150	42.0	54.0	22.0	2.0
GFM-4044-07	40.0	+0.050 +0.150	44.0	52.0	7.0	2.0
GFM-4044-14	40.0	+0.050 +0.150	44.0	52.0	14.0	2.0
GFM-4044-20	40.0	+0.050 +0.150	44.0	52.0	20.0	2.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/g | order example part number GFM-2023-11

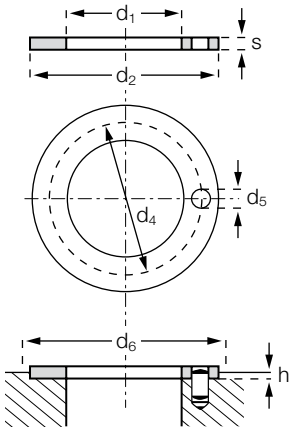
Flange Bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3 d13	b1 h13	b2 –0.14
GFM-4044-30	40.0	+0.050 +0.150	44.0	52.0	30.0	2.0
GFM-4044-40	40.0	+0.050 +0.150	44.0	52.0	40.0	2.0
GFM-4044-50	40.0	+0.050 +0.150	44.0	52.0	50.0	2.0
GFM-4246-19	42.0	+0.050 +0.150	46.0	53.0	19.0	2.0
GFM-4550-25	45.0	+0.050 +0.150	50.0	58.0	25.0	2.0
GFM-4550-30	45.0	+0.050 +0.150	50.0	58.0	30.0	2.0
GFM-4550-50	45.0	+0.050 +0.150	50.0	58.0	50.0	2.0
GFM-5055-07	50.0	+0.050 +0.150	55.0	63.0	7.0	2.0
GFM-5055-10	50.0	+0.050 +0.150	55.0	63.0	10.0	2.0
GFM-5055-25	50.0	+0.050 +0.150	55.0	63.0	25.0	2.0
GFM-5055-40	50.0	+0.050 +0.150	55.0	63.0	40.0	2.0
GFM-5055-50	50.0	+0.050 +0.150	55.0	63.0	50.0	2.0
GFM-6065-22	60.0	+0.060 +0.180	65.0	73.0	22.0	2.0
GFM-6065-30	60.0	+0.060 +0.180	65.0	73.0	30.0	2.0
GFM-6065-50	60.0	+0.060 +0.180	65.0	73.0	50.0	2.0
GFM-606580-62	60.0	+0.060 +0.180	65.0	80.0	62.0	2.0
GFM-6570-50	65.0	+0.060 +0.180	70.0	78.0	50.0	2.0
GFM-7075-50	70.0	+0.060 +0.180	75.0	83.0	50.0	2.0
GFM-7580-50	75.0	+0.060 +0.180	80.0	88.0	50.0	2.0
GFM-8085-100	80.0	+0.060 +0.180	85.0	93.0	100.0	2.5
GFM-8590-100	85.0	+0.072 +0.212	90.0	98.0	100.0	2.5
GFM-9095-100	90.0	+0.072 +0.212	95.0	103.0	100.0	2.5
GFM-95100-100	95.0	+0.072 +0.212	100.0	108.0	100.0	2.5
GFM-100105-100	100.0	+0.072 +0.212	105.0	113.0	100.0	2.5
GFM-100105-425	100.0	+0.072 +0.212	105.0	113.0	42.5	2.5
GFM-110115-100	110.0	+0.072 +0.212	115.0	123.0	100.0	2.5
GFM-120125-100	120.0	+0.072 +0.212	125.0	133.0	100.0	2.5
GFM-125130-100	125.0	+0.085 +0.245	130.0	138.0	100.0	2.5
GFM-130135-100	130.0	+0.085 +0.245	135.0	143.0	100.0	2.5
GFM-140145-100	140.0	+0.085 +0.245	145.0	153.0	100.0	2.5
GFM-150155-40	150.0	+0.085 +0.245	155.0	163.0	40.0	2.5
GFM-150155-100	150.0	+0.085 +0.245	155.0	163.0	100.0	2.5

* after pressfit. Testing methods ▶ page 55

Thrust Washer



Order key

GTM-1630-015

- Thickness s
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form T)
- Material iglidur® G

Dimensions according to ISO 3547-1 and special dimensions

Dimensions [mm]

Part number	d1 +0.25	d2 −0.25	s −0.05	d4 −0.12 +0.12	d5 +0.375 +0.125	h +0.2 −0.2	d6 +0.12
GTM-0509-006	5.0	9.5	0.6	**	**	0.3	9.5
GTM-0615-015	6.0	15.0	1.5	**	**	1.0	15
GTM-0620-015	6.0	20.0	1.5	13.0	1.5	1.0	20
GTM-0713-005	7.0	13.0	0.5	**	**	0.2	13
GTM-0815-005	8.0	15.0	0.5	**	**	0.2	15
GTM-0815-015	8.0	15.0	1.5	**	**	1.0	15
GTM-0818-010	8.0	18.0	1.0	**	**	0.7	18
GTM-0818-015	8.0	18.0	1.5	13.0	1.5	1.0	18
GTM-0918-015	9.0	18.0	1.5	13.5	1.5	1.0	18
GTM-1018-010	10.0	18.0	1.0	**	**	0.7	18
GTM-1018-020	10.0	18.0	2.0	**	**	1.5	18
GTM-1224-015	12.0	24.0	1.5	18.0	1.5	1.0	24
GTM-1420-015	14.0	20.0	1.5	**	**	1.0	20
GTM-1426-015	14.0	26.0	1.5	20.0	2.0	1.0	26
GTM-1522-008	15.0	22.0	0.8	**	**	0.5	22
GTM-1524-015	15.0	24.0	1.5	19.5	1.5	1.0	24
GTM-1524-0275	15.0	24.0	2.75	**	**	2.0	24
GTM-1630-015	16.0	30.0	1.5	22.0	2.0	1.0	30
GTM-1832-015	18.0	32.0	1.5	25.0	2.0	1.0	32
GTM-2036-015	20.0	36.0	1.5	28.0	3.0	1.0	36
GTM-2238-015	22.0	38.0	1.5	30.0	3.0	1.0	38
GTM-2442-015	24.0	42.0	1.5	33.0	3.0	1.0	42
GTM-2644-015	26.0	44.0	1.5	35.0	3.0	1.0	44
GTM-2835-005	28.5	35.8	0.5	**	**	0.2	35.8

** Design without fixing bore

delivery time available from stock | prices price list online www.igus.co.uk/en/g | order example part number GTM-0509-006

Thrust Washer

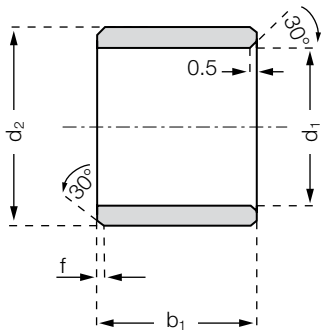
Dimensions [mm]

Part number	d1 +0.25	d2 –0.25	s –0.05	d4 –0.12 +0.12	d5 +0.375 +0.125	h +0.2 –0.2	d6 +0.12
GTM-2848-015	28.0	48.0	1.5	38.0	4.0	1.0	48
GTM-3254-015	32.0	54.0	1.5	43.0	4.0	1.0	54
GTM-3862-015	38.0	62.0	1.5	50.0	4.0	1.0	62
GTM-4266-015	42.0	66.0	1.5	54.0	4.0	1.0	66
GTM-4874-020	48.0	74.0	2.0	61.0	4.0	1.5	74
GTM-5278-020	52.0	78.0	2.0	65.0	4.0	1.5	78
GTM-6290-020	62.0	90.0	2.0	76.0	4.0	1.5	90
GTM-6881-020	68.0	81.0	2.0	**	**	1.5	81

** Design without fixing bore

iglidur® G | Product Range | Inch

Sleeve Bearing



Order key

GSI-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form S)
- Material iglidur® G

Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing Bore		Shaft Size	
				max.	min.	max.	min.	max.	min.
GSI-0203-03	1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236
GSI-0203-04	1/8	3/16	1/4	.1269	.1251	.1878	.1873	.1243	.1236
GSI-0203-06	1/8	3/16	3/8	.1269	.1251	.1878	.1873	.1243	.1236
GSI-0304-04	3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858
GSI-0304-06	3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858
GSI-0304-08	3/16	1/4	1/2	.1892	.1873	.2503	.2497	.1865	.1858
GSI-0405-04	1/4	5/16	1/4	.2521	.2498	.3128	.3122	.2490	.2481
GSI-0405-05	1/4	5/16	5/16	.2521	.2498	.3128	.3122	.2490	.2481
GSI-0405-06	1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481
GSI-0405-08	1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481
GSI-0405-10	1/4	5/16	5/8	.2521	.2498	.3128	.3122	.2490	.2481
GSI-0405-12	1/4	5/16	3/4	.2521	.2498	.3128	.3122	.2490	.2481
GSI-0506-04	5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106
GSI-0506-06	5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106
GSI-0506-08	5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106
GSI-0506-12	5/16	3/8	3/4	.3148	.3125	.3753	.3747	.3115	.3106
GSI-0607-04	3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731
GSI-0607-06	3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731
GSI-0607-08	3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731
GSI-0607-12	3/8	15/32	3/4	.3773	.3750	.4691	.4684	.3740	.3731
GSI-0608-08	3/8	8/16	1/2	.3783	.3760	.5015	.5010	.3750	.3741
GSI-0608-12	3/8	8/16	3/4	.3773	.3750	.5015	.5010	.3750	.3741
GSI-0708-04	7/16	17/32	1/4	.4406	.4379	.5316	.5309	.4365	.4355
GSI-0708-08	7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355
GSI-0809-03	1/2	19/32	3/16	.5030	.5003	.5941	.5934	.4990	.4980

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/g | order example part number GSI-0203-03

iglidur® G | Product Range | Inch

Sleeve Bearing

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing Bore		Shaft Size	
				max.	min.	max.	min.	max.	min.
GSI-0809-04	1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980
GSI-0809-06	1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980
GSI-0809-08	1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980
GSI-0809-10	1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980
GSI-0809-16	1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980
GSI-0810-08	1/2	5/8	1/2	.5040	.5013	.6260	.6250	.5000	.4990
GSI-0810-12	1/2	5/8	3/4	.5040	.5013	.6260	.6250	.5000	.4990
GSI-0910-06	9/16	21/32	3/8	.5655	.5627	.6566	.6559	.5615	.5605
GSI-0910-08	9/16	21/32	1/2	.5655	.5627	.6566	.6559	.5615	.5605
GSI-0910-10	9/16	21/32	5/8	.5655	.5627	.6566	.6559	.5615	.5605
GSI-1011-06	5/8	23/32	3/8	.6280	.6253	.7192	.7184	.6240	.6230
GSI-1011-08	5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230
GSI-1011-10	5/8	23/32	5/8	.6280	.6253	.7192	.7184	.6240	.6230
GSI-1011-12	5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230
GSI-1011-16	5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230
GSI-1011-20	5/8	23/32	1 1/4	.6280	.6253	.7192	.7184	.6240	.6230
GSI-1011-30	5/8	23/32	1 7/8	.6280	.6253	.7192	.7184	.6240	.6230
GSI-1012-08	5/8	3/4	1/2	.6290	.6263	.7510	.7500	.6250	.6240
GSI-1012-16	5/8	3/4	1	.6290	.6263	.7510	.7500	.6250	.6240
GSI-1112-14	11/16	25/32	7/8	.6906	.6879	.7817	.7809	.6865	.6855
GSI-1214-02	3/4	7/8	1/8	.7541	.7505	.8755	.8747	.7491	.7479
GSI-1214-06	3/4	7/8	3/8	.7541	.7505	.8755	.8747	.7491	.7479
GSI-1214-08	3/4	7/8	1/2	.7541	.7505	.8755	.8747	.7491	.7479
GSI-1214-12	3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479
GSI-1214-16	3/4	7/8	1	.7541	.7505	.8755	.8747	.7491	.7479
GSI-1214-20	3/4	7/8	1 1/4	.7541	.7505	.8755	.8747	.7491	.7479
GSI-1214-24	3/4	7/8	1 1/2	.7541	.7505	.8755	.8747	.7491	.7479
GSI-1416-06	7/8	1	3/8	.8791	.8757	1.0005	.9997	.8741	.8729
GSI-1416-08	7/8	1	1/2	.8791	.8757	1.0005	.9997	.8741	.8729
GSI-1416-10	7/8	1	5/8	.8791	.8757	1.0005	.9997	.8741	.8729
GSI-1416-12	7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729
GSI-1416-16	7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729
GSI-1416-24	7/8	1	1 1/2	.8791	.8757	1.0005	.9997	.8741	.8729
GSI-1618-08	1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GSI-1618-12	1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GSI-1618-16	1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GSI-1618-20	1	1 1/8	1 1/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GSI-1618-24	1	1 1/8	1 1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GSI-1618-33	1	1 1/8	2 1/16	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GSI-1820-12	1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
GSI-1820-24	1 1/8	1 9/32	1 1/2	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
GSI-2022-12	1 1/4	1 13/32	3/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472

* after pressfit. Testing methods ▶ page 55

iglidur® G | Product Range | Inch

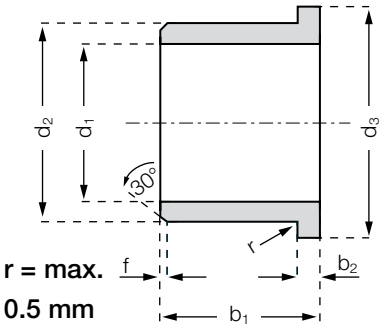
Sleeve Bearing

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing Bore		Shaft Size	
				max.	min.	max.	min.	max.	min.
GSI-2022-14	1 1/4	1 13/32	7/8	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GSI-2022-16	1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GSI-2022-20	1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GSI-2022-24	1 1/4	1 13/32	1 1/2	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GSI-2224-16	1 3/8	1 17/32	1	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722
GSI-2224-24	1 3/8	1 17/32	1 1/2	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722
GSI-2224-26	1 3/8	1 17/32	1 5/8	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722
GSI-2426-06	1 1/2	1 21/32	3/8	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
GSI-2426-07	1 1/2	1 21/32	7/16	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
GSI-2426-08	1 1/2	1 21/32	1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
GSI-2426-12	1 1/2	1 21/32	3/4	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
GSI-2426-16	1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
GSI-2426-24	1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
GSI-2629-20	1 5/8	1 25/32	1 1/4	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222
GSI-2831-16	1 3/4	1 15/16	1	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471
GSI-2831-24	1 3/4	1 15/16	1 1/2	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471
GSI-2831-32	1 3/4	1 15/16	2	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471
GSI-2831-40	1 3/4	1 15/16	2 1/2	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471
GSI-2831-48	1 3/4	1 15/16	3	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471
GSI-3235-16	2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
GSI-3235-24	2	2 3/16	1 1/2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
GSI-3235-32	2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
GSI-3639-32	2 1/4	2 7/16	2	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489
GSI-4043-32	2 2/4	2 11/16	2	2.5082	2.5035	2.6881	2.6869	2.5000	2.4999
GSI-4447-32	2 3/4	2 15/16	2	2.7570	2.7523	2.9370	2.9358	2.7500	2.7490
GSI-4851-32	3	3 3/16	2	3.0070	3.0023	3.1870	3.1858	3.0000	2.9990

* after pressfit. Testing methods ▶ page 55

Flange Bearing



r = max. 0.5 mm

Order key

GFI-0203-02

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® G

Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing Bore		Shaft Size	
						max.	min.	max.	min.	max.	min.
GFI-0203-02	1/8	3/16	1/8	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
GFI-0203-03	1/8	3/16	3/16	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
GFI-0203-04	1/8	3/16	1/4	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
GFI-0203-06	1/8	3/16	3/8	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
GFI-0304-04	3/16	1/4	1/4	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
GFI-0304-06	3/16	1/4	3/8	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
GFI-0304-08	3/16	1/4	1/2	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
GFI-0405-04	1/4	5/16	1/4	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
GFI-0405-05	1/4	5/16	5/16	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
GFI-0405-06	1/4	5/16	3/8	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
GFI-0405-08	1/4	5/16	1/2	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
GFI-0405-12	1/4	5/16	3/4	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
GFI-0506-04	5/16	3/8	1/4	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
GFI-0506-06	5/16	3/8	3/8	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
GFI-0506-08	5/16	3/8	1/2	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
GFI-0506-12	5/16	3/8	3/4	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
GFI-0607-04	3/8	15/32	1/4	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
GFI-0607-05	3/8	15/32	5/16	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
GFI-0607-06	3/8	15/32	3/8	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
GFI-0607-08	3/8	15/32	1/2	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
GFI-0607-12	3/8	15/32	3/4	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
GFI-0607-14	3/8	15/32	7/8	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
GFI-0708-04	7/16	17/32	1/4	.750	.046	.4406	.4379	.5316	.5309	.4365	.4355
GFI-0708-08	7/16	17/32	1/2	.750	.046	.4406	.4379	.5316	.5309	.4365	.4355
GFI-0809-04	1/2	19/32	1/4	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980

* after pressfit. Testing methods ▶ page 55

delivery time available from stock

prices price list online www.igus.co.uk/en/g

order example part number GFI-0203-02

Flange Bearing

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing Bore		Shaft Size	
						max.	min.	max.	min.	max.	min.
GFI-0809-05	1/2	19/32	5/16	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
GFI-0809-06	1/2	19/32	3/8	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
GFI-0809-08	1/2	19/32	1/2	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
GFI-0809-12	1/2	19/32	3/4	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
GFI-0809-16	1/2	19/32	1	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
GFI-1011-06	5/8	23/32	3/8	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
GFI-1011-08	5/8	23/32	1/2	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
GFI-1011-12	5/8	23/32	3/4	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
GFI-1011-14	5/8	23/32	7/8	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
GFI-1011-16	5/8	23/32	1	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
GFI-1011-24	5/8	23/32	1 1/2	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
GFI-1214-02	3/4	7/8	1/8	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
GFI-1214-06	3/4	7/8	3/8	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
GFI-1214-08	3/4	7/8	1/2	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
GFI-1214-10	3/4	7/8	5/8	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
GFI-1214-12	3/4	7/8	3/4	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
GFI-1214-16	3/4	7/8	1	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
GFI-1214-24	3/4	7/8	1 1/2	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
GFI-1416-08	7/8	1	1/2	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
GFI-1416-12	7/8	1	3/4	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
GFI-1416-16	7/8	1	1	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
GFI-1416-20	7/8	1	1 1/4	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
GFI-1416-24	7/8	1	1 1/2	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
GFI-1618-08	1	1 1/8	1/2	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GFI-1618-12	1	1 1/8	3/4	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GFI-1618-16	1	1 1/8	1	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GFI-1618-20	1	1 1/8	1 1/4	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GFI-1618-24	1	1 1/8	1 1/2	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
GFI-1820-12	1 1/8	1 9/32	3/4	1.562	.078	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
GFI-1820-24	1 1/8	1 9/32	1 1/2	1.562	.078	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
GFI-2022-06	1 1/4	1 13/32	3/8	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GFI-2022-12	1 1/4	1 13/32	3/4	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GFI-2022-14	1 1/4	1 13/32	7/8	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GFI-2022-16	1 1/4	1 13/32	1	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GFI-2022-20	1 1/4	1 13/32	1 1/4	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GFI-2022-24	1 1/4	1 13/32	1 1/2	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
GFI-2224-16	1 3/8	1 17/32	1	1.875	.078	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722
GFI-2426-12	1 1/2	1 21/32	3/4	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
GFI-2426-16	1 1/2	1 21/32	1	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
GFI-2426-24	1 1/2	1 21/32	1 1/2	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
GFI-2831-16	1 3/4	1 15/16	1	2.375	.093	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471
GFI-2831-24	1 3/4	1 15/16	1 1/2	2.375	.093	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471

* after pressfit. Testing methods ▶ page 55

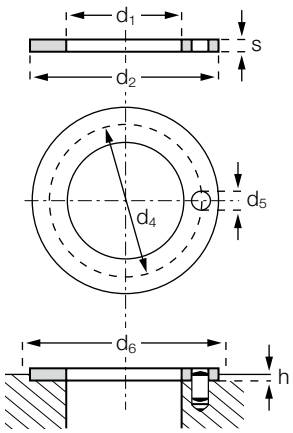
Flange Bearing

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing Bore		Shaft Size	
						max.	min.	max.	min.	max.	min.
GFI-2831-32	1 3/4	1 15/16	2	2.375	.093	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471
GFI-3235-16	2	2 3/16	1	2.625	.093	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
GFI-3235-24	2	2 3/16	1 1/2	2.625	.093	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
GFI-3235-32	2	2 3/16	2	2.625	.093	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
GFI-3639-32	2 1/4	2 7/16	2	2.750	.093	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489
GFI-4043-32	2 1/2	2 11/16	2	3.125	.093	2.5082	2.5035	2.6881	2.6869	2.5000	2.4999
GFI-4447-32	2 3/4	2 15/16	2	3.375	.093	27570	2.7523	2.9370	2.9358	2.7500	2.7490

* after pressfit. Testing methods ▶ page 55

Thrust Washer



Order key

GTI-0814-01

- Thickness s
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form T)
- Material iglidur® G

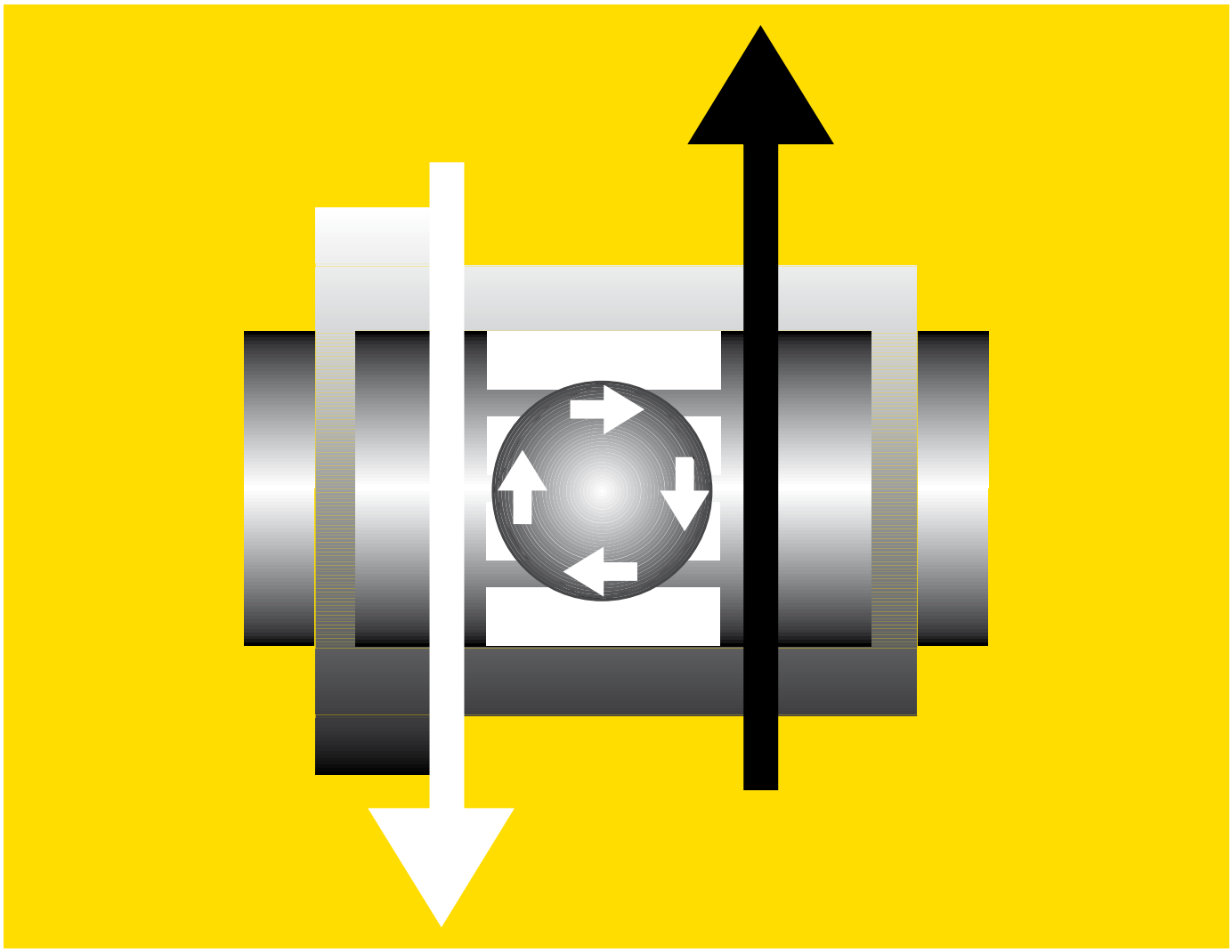
Dimensions according to ISO 3547-1 and special dimensions

Dimensions [Inch]

Part number	d1	d2	s	d4	d5	h	d6
	+.010	-.010	-.0020	±.005	.015 + .005	+.008	+.005
GTI-0814-01	.500	.875	.0585	.692	.067	.040	.875
GTI-1018-01	.625	1.125	.0585	.880	.099	.040	1,125
GTI-1220-01	.750	1.250	.0585	1,005	.099	.040	1,250
GTI-1424-01	.875	1.500	.0585	1,192	.130	.040	1,500
GTI-1628-01	1.000	1.750	.0585	1,380	.130	.040	1,750
GTI-2034-01	1.250	2.125	.0585	1,692	.161	.040	2,125
GTI-2440-01	1.500	2.500	.0585	2,005	.192	.040	2,500
GTI-2844-01	1.750	2.750	.0585	2,255	.192	.040	2,750
GTI-3248-01	2.000	3.000	.0895	2,505	.192	.070	3,000

* after pressfit. Testing methods ▶ page 55

My Sketches

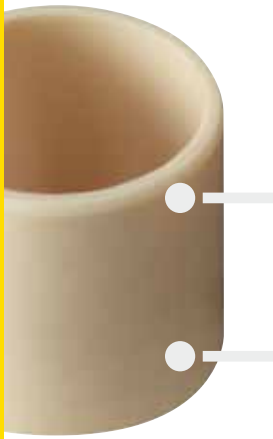


iglidur® J – The Fast and Slow Motion Specialist: used in long-life applications, also with soft shafts

- Over 250 sizes available from stock
- Low wear against different shaft materials
- Low coefficients of friction running dry
- Vibration dampening
- Good chemical resistance
- Best material to use with soft shaft materials
- Low moisture absorption

iglidur® J | The Fast and Slow Motion Specialist

Used in long-life applications, also with soft shafts. The iglidur® J plain bearings are designed for the lowest coefficients of friction while running dry and low stick slip tendency. With a maximum permissible surface pressure of 35 MPa iglidur® J plain bearings are not suitable for extreme loads.



Low wear against different shaft materials

Low coefficients of friction running dry

Vibration dampening

Good chemical resistance

Best material to use with soft shaft materials

Low moisture absorption

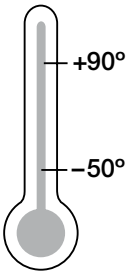
When to use it?

- For high speeds
- For highest wear resistance at low to medium pressures
- Low wear against different shafts
- Low coeffficient of friction in dry run
- Vibration dampening
- Good chemical resistance
- Best perfomance with soft shaft materials
- Low moisture absorption

When not to use it?

- When high pressures occur
  ▶ **iglidur® G, page 61**
  ▶ **iglidur® W300, page 131**
- When short term temperatures occur that are greater +120 °C
  ▶ **iglidur® G, page 61**
  ▶ **iglidur® Z, page 299**
- When a low-cost bearing for occasional movements is necessary
  ▶ **iglidur® G, page 61**

Temperature



Product range

3 types
> 250 dimensions
Ø 2–100 mm

iglidur® J | Application Examples

Typical sectors of industry and application areas

● Automation ● Printing industry ● Beverage technology ● Aerospace engineering ● Cleanroom etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

▶ **www.igus.co.uk/mountainbike**

▶ **www.igus.co.uk/powderpress**

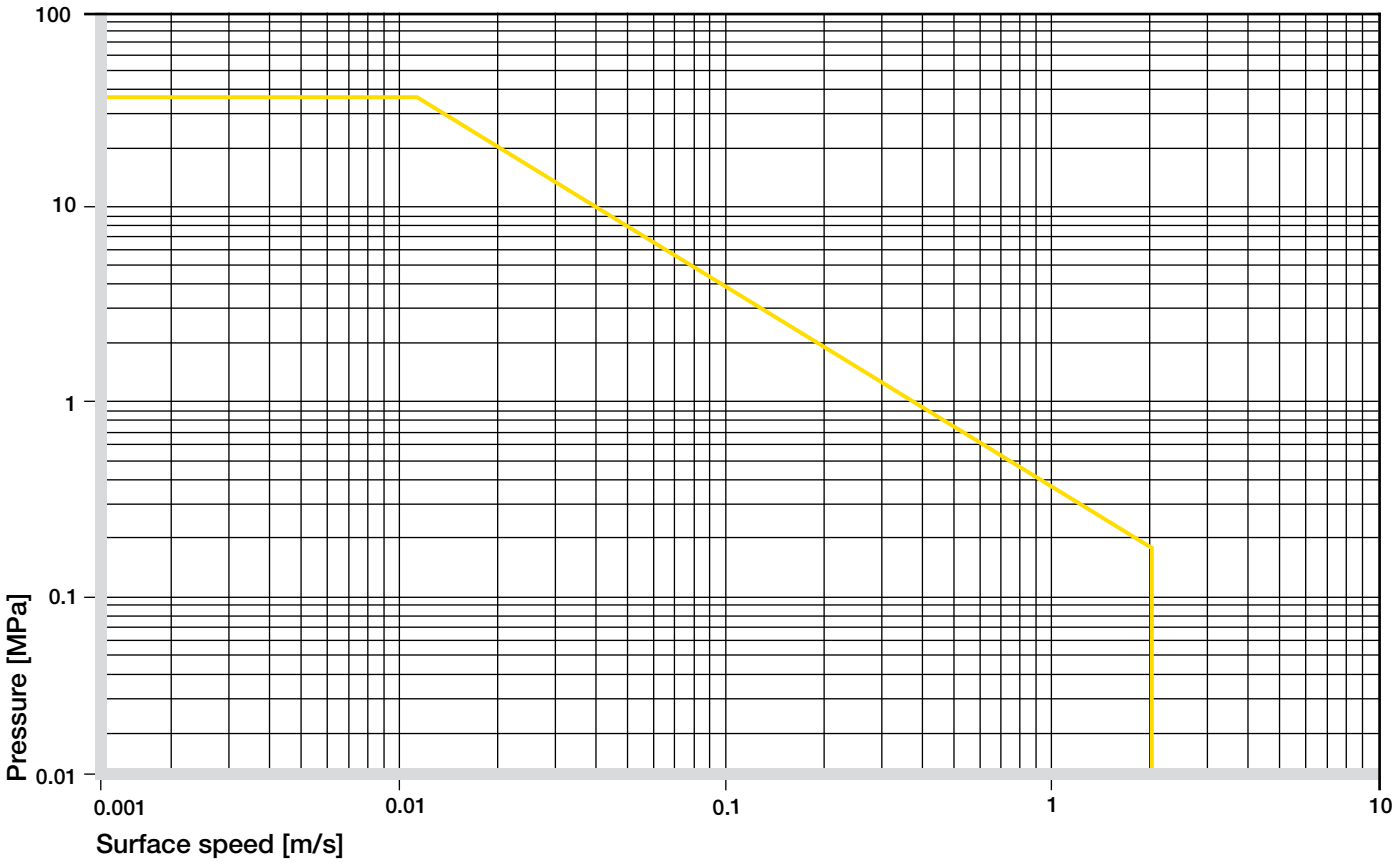
▶ **www.igus.co.uk/pullback-star**

▶ **www.igus.co.uk/sawmill**

iglidur® J | Technical Data

Material table			
General properties	**Unit**	**iglidur® J**	**Testing method**
Density	**g/cm³**	1.49	
Colour		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.3	DIN 53495
Max. moisture absorption	**% weight**	1.3	
Coefficient of sliding friction, dynamic against steel	**µ**	0.06–0.18	
pv value, max. (dry)	**MPa · m/s**	0.34	
Mechanical properties			
Modulus of elasticity	**MPa**	2,400	DIN 53457
Tensile strength at +20 °C	**MPa**	73	DIN 53452
Compressive strength	**MPa**	60	
Max. static surface pressure (+20 °C)	**MPa**	35	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+120	
Min. application temperature	**°C**	–50	
Thermal conductivity	**W/m · K**	0,25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	10	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{13}	DIN IEC 93
Surface resistance	**Ω**	> 10^{12}	DIN 53482

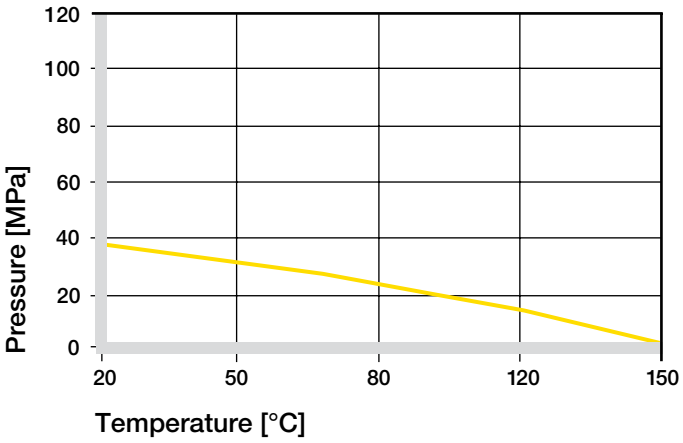
Table 01: Material data



Graph 01: Permissible pv values for iglidur® J with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

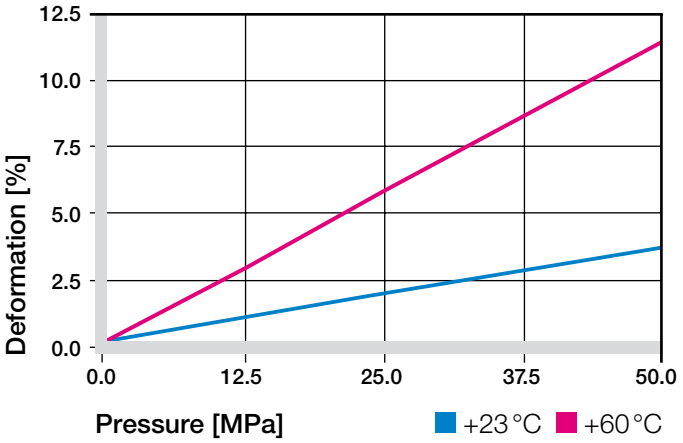
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® J plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90 °C the permissible surface pressure is almost 20 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (35 MPa at +20 °C)

One main advantage of iglidur® J plain bearings is the combination of a low coefficient of friction when running dry, the low stickslip tendency, and the excellent wear rate at low pressure. With a recommended maximum surface pressure of 35 MPa, iglidur® J plain bearings are not suitable for extreme loads. Graph 03 shows the elastic deformation of iglidur® J for radial loads. At the recommended maximum surface pressure of 35 MPa the deformation is less than 2.5 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

The low coefficient of friction and the extremely low stick slip tendency of iglidur® J plain bearings are especially important at very low speeds. However, iglidur® J material can also be used for high speeds of over 1 m/s. In both cases the static friction is very low and stick slip does not occur.
The maximum values given in Table 02 can only be achieved at the lowest pressure loads. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached, due to varying application conditions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1.5	1.1	8
Short term	3	1.1	10

Table 02: Maximum surface speeds

Temperatures

iglidur® J plain bearings can be used between –50 °C and +90 °C; the short-term maximum permissible temperature is +120 °C. Also, the wear increases significantly above +80 °C.

▶ Application Temperatures, **page 46**

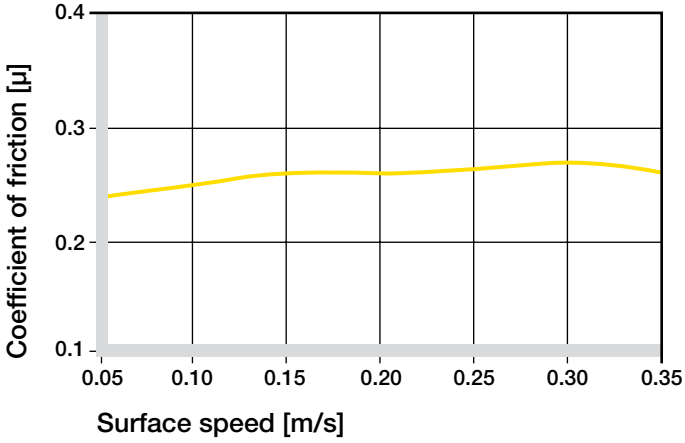
iglidur® J	Application temperature
Minimum	–50 °C
Max., long term	+90 °C
Max., short term	+120 °C
Add. securing is required from	+60 °C

Table 03: Temperature limits

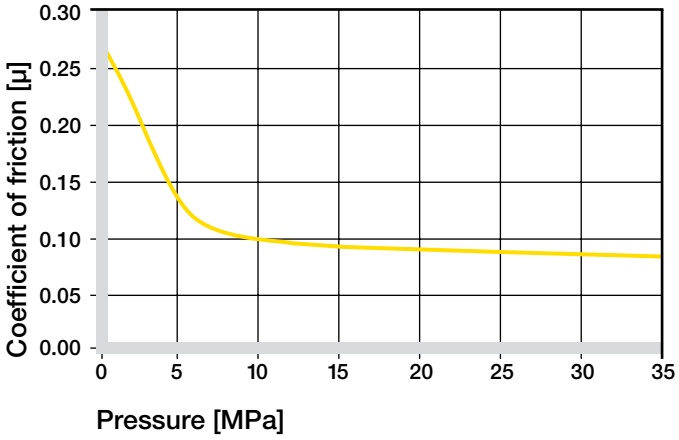
Friction and Wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. Graph 05 shows the coefficients of friction for different loads. The level of the coefficient of friction is very good for all loads with iglidur® J.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

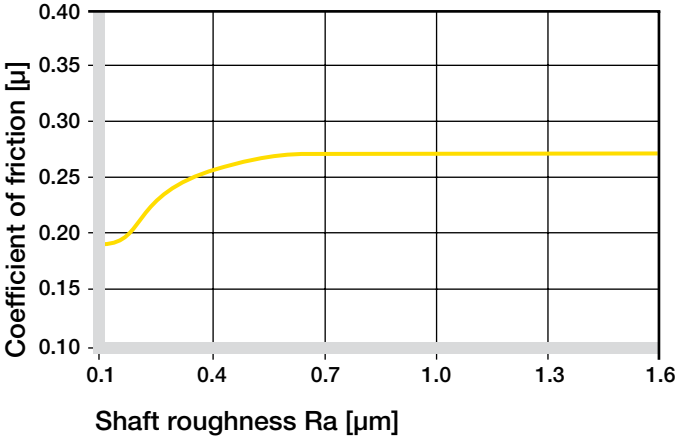
Friction and wear are also dependent, to a large extent, on the shaft material. With increasing shaft roughness, the coefficient of friction also increases. The best case is a ground surface with an average roughness Ra = 0.1–0.3 μm (Graph 06).

Graphs 07 to 09 show results of testing different shaft materials with plain bearings made of iglidur® J.

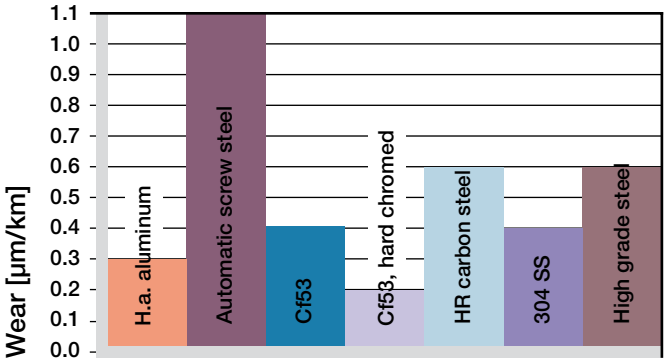
If iglidur® J plain bearings are used in rotational applications with pressures under 2 MPa, several shaft materials are suitable. A Hard Chromed shaft provides the lowest wear in this range. When compared to most iglidur® materials, iglidur® J has very low wear results at low loads compared with all shaft materials tested. Also, for increasing pressures up to 5 MPa, the wear resistance of iglidur® J is excellent. Especially suitable is the combination with 303 stainless steel.

In oscillating operation with Cf53 Steel and HR Carbon Steel, the wear of iglidur® J is slightly higher than for rotation. For oscillating movements with loads of 2 MPa, iglidur® J is best combined with Cf53 Steel shaft. As Graph 09 shows, the difference in wear between rotation and oscillating movements is most significant for 303 stainless steel shafts. If the shaft material you plan to use is not contained in this list, please contact us.

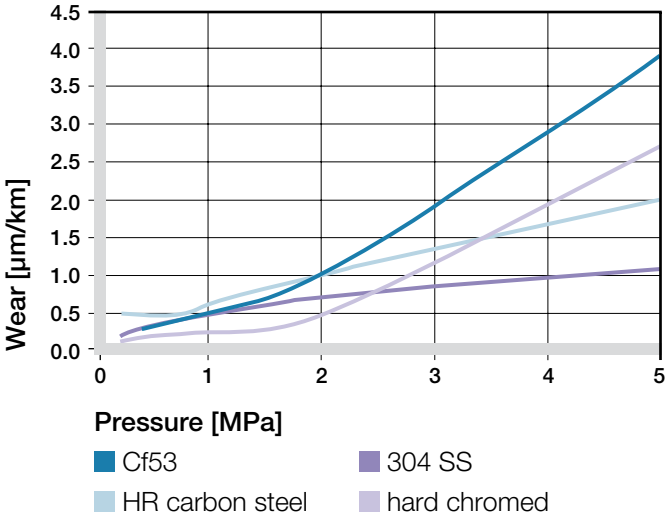
▶ Shaft Materials, **page 51**



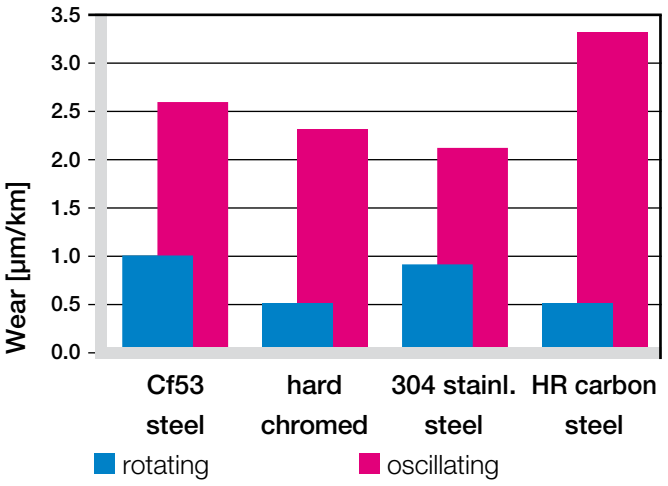
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® J	Dry	Grease	Oil	Water
C.o.f. µ	0.06–0.18	0.09	0.04	0.04

Table 04: Coefficients of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® J plain bearings are resistant to diluted alkaline and very weak acids, as well as fuels and all types of lubricants. The low moisture absorption also permits use in wet or damp environments.

Plain bearings made of iglidur® J are resistant to common cleaning agents used in the food industry.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant

All data given at room temperature [+20 °C]

Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® J are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® J plain bearings become discoloured under UV radiation. However, hardness, compressive strength and the wear resistance of the material do not change.

Vacuum

When used in a vacuum environment, the iglidur® J plain bearings release moisture as a vapour. Therefore, only dehumidified bearings are suitable in a vacuum environment.

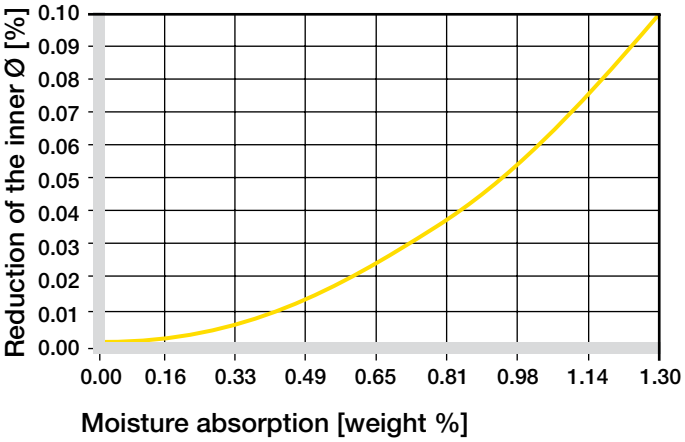
Electrical Properties

iglidur® J plain bearings are electrically insulating.

Specific volume resistance	> 10^{13} Ωcm
Surface resistance	> 10^{12} Ω 10

Moisture Absorption

The moisture absorption of iglidur® J plain bearings is 0.3 % in standard atmosphere. The saturation limit in water is 1.3 %. These values are so low that design changes due to absorption are only necessary in extreme cases.



Graph 10: Effect of moisture absorption on plain bearings

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.3 % weight
Max. moisture absorbtion	1.3 % weight

Table 06: Moisture absorption

Installation Tolerances

iglidur® J plain bearings are meant to be oversized before pressfit. The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet our specified tolerances.

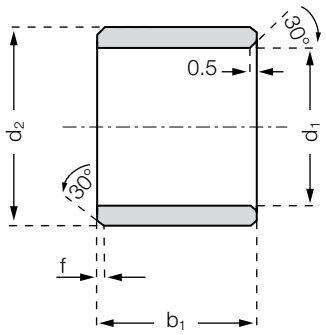
▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® J E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Essential tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® J | Product Range

Sleeve bearing



Order key

JSM-0104-02

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® J

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
JSM-0104-02	1.5	+0.014 +0.054	4.0	2.0
JSM-0203-07	2.0	+0.014 +0.054	3.5	7.0
JSM-0205-02	2.0	+0.020 +0.080	5.0	2.5
JSM-0206-02	2.5	+0.020 +0.080	6.0	2.5
JSM-0304-05	3.0	+0.014 +0.054	4.5	5.0
JSM-0304-09	3.0	+0.014 +0.054	4.5	9.0
JSM-0305-04	3.0	+0.020 +0.080	5.0	4.0
JSM-0308-04	3.0	+0.020 +0.080	8.0	4.0
JSM-0308-05	3.0	+0.020 +0.080	8.0	5.0
JSM-0405-04	4.0	+0.020 +0.068	5.5	4.0
JSM-0405-08	4.0	+0.020 +0.068	5.5	8.0
JSM-0507-046	5.0	+0.020 +0.068	7.0	4.6
JSM-0507-05	5.0	+0.020 +0.068	7.0	5.0
JSM-0507-10	5.0	+0.020 +0.068	7.0	10.0
JSM-0507-15	5.0	+0.020 +0.080	7.0	15.0
JSM-0607-08	6.0	+0.010 +0.058	7.0	8.0
JSM-0607-12.5	6.0	+0.010 +0.058	7.0	12.5
JSM-0607-14	6.0	+0.010 +0.058	7.0	14.0
JSM-0608-043	6.0	+0.020 +0.068	8.0	4.3
JSM-0608-06	6.0	+0.020 +0.068	8.0	6.0
JSM-0608-08	6.0	+0.020 +0.068	8.0	8.0
JSM-0608-10	6.0	+0.020 +0.068	8.0	10.0
JSM-0609-06	6.0	+0.030 +0.105	9.0	6.0
JSM-0610-10	6.0	+0.030 +0.105	10.0	10.0
JSM-0709-09	7.0	+0.025 +0.083	9.0	9.0

Part number	d1	d1-Tolerance*	d2	b1 h13
JSM-0810-04	8.0	+0.025 +0.083	10.0	4.0
JSM-0810-06	8.0	+0.025 +0.083	10.0	6.0
JSM-0810-08	8.0	+0.025 +0.083	10.0	8.0
JSM-0810-10	8.0	+0.025 +0.083	10.0	10.0
JSM-0810-12	8.0	+0.025 +0.083	10.0	12.0
JSM-0810-16	8.0	+0.025 +0.083	10.0	16.0
JSM-0812-10	8.0	+0.040 +0.130	12.0	10.0
JSM-0812-12	8.0	+0.040 +0.130	12.0	12.0
JSM-1012-05	10.0	+0.025 +0.083	12.0	5.0
JSM-1012-06	10.0	+0.025 +0.083	12.0	6.0
JSM-1012-08	10.0	+0.025 +0.083	12.0	8.0
JSM-1012-10	10.0	+0.025 +0.083	12.0	10.0
JSM-1012-11	10.0	+0.025 +0.083	12.0	11.0
JSM-1012-12	10.0	+0.025 +0.083	12.0	12.0
JSM-1012-15	10.0	+0.025 +0.083	12.0	15.0
JSM-1012-20	10.0	+0.025 +0.083	12.0	20.0
JSM-1014-10	10.0	+0.040 +0.130	14.0	10.0
JSM-1014-16	10.0	+0.040 +0.130	14.0	16.0
JSM-1214-06	12.0	+0.032 +0.102	14.0	6.0
JSM-1214-08	12.0	+0.032 +0.102	14.0	8.0
JSM-1214-09	12.0	+0.032 +0.102	14.0	9.0
JSM-1214-10	12.0	+0.032 +0.102	14.0	10.0
JSM-1214-15	12.0	+0.032 +0.102	14.0	15.0
JSM-1216-12	12.0	+0.050 +0.160	16.0	12.0
JSM-1216-17	12.0	+0.050 +0.160	16.0	17.0

* after pressfit. Testing methods ▶ page 55

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order example part number JSM-0104-02

iglidur® J | Product Range

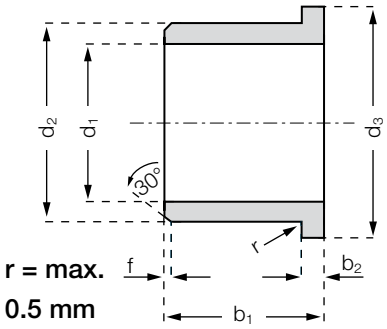
Sleeve bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
JSM-1416-05	14.0	+0.032 +0.102	16.0	5.0
JSM-1416-08	14.0	+0.032 +0.102	16.0	8.0
JSM-1416-10	14.0	+0.032 +0.102	16.0	10.0
JSM-1416-15	14.0	+0.032 +0.102	16.0	15.0
JSM-1416-20	14.0	+0.032 +0.102	16.0	20.0
JSM-1416-25	14.0	+0.032 +0.102	16.0	25.0
JSM-1418-18	14.0	+0.032 +0.102	18.0	18.0
JSM-1517-12	15.0	+0.032 +0.102	17.0	12.0
JSM-1517-20	15.0	+0.032 +0.102	17.0	20.0
JSM-1618-10	16.0	+0.032 +0.102	18.0	10.0
JSM-1618-12	16.0	+0.032 +0.102	18.0	12.0
JSM-1618-15	16.0	+0.032 +0.102	18.0	15.0
JSM-1618-20	16.0	+0.032 +0.102	18.0	20.0
JSM-1620-16	16.0	+0.050 +0.160	20.0	16.0
JSM-1622-16	16.0	+0.050 +0.160	22.0	16.0
JSM-1622-20	16.0	+0.050 +0.160	22.0	20.0
JSM-1820-15	18.0	+0.032 +0.102	20.0	15.0
JSM-1820-20	18.0	+0.032 +0.102	20.0	20.0
JSM-1922-14	19.0	+0.032 +0.102	22.0	14.0
JSM-2022-20	20.0	+0.040 +0.124	22.0	20.0
JSM-2022-30	20.0	+0.040 +0.124	22.0	30.0
JSM-2023-15	20.0	+0.040 +0.124	23.0	15.0
JSM-2023-20	20.0	+0.040 +0.124	23.0	20.0
JSM-2026-06	20.0	+0.065 +0.195	26.0	6.0
JSM-2026-20	20.0	+0.065 +0.195	26.0	20.0
JSM-2026-25	20.0	+0.065 +0.195	26.0	25.0
JSM-2026-30	20.0	+0.065 +0.195	26.0	30.0
JSM-2427-25	24.0	+0.040 +0.124	27.0	25.0
JSM-2427-46	24.0	+0.040 +0.124	27.0	46.0
JSM-2528-12	25.0	+0.040 +0.124	28.0	12.0
JSM-2528-20	25.0	+0.040 +0.124	28.0	20.0
JSM-2528-30	25.0	+0.040 +0.124	28.0	30.0
JSM-2532-25	25.0	+0.065 +0.195	32.0	25.0
JSM-2532-32	25.0	+0.065 +0.195	32.0	32.0
JSM-2532-35	25.0	+0.065 +0.195	32.0	35.0
JSM-2630-20	26.0	+0.065 +0.195	30.0	20.0
JSM-3034-20	30.0	+0.040 +0.124	34.0	20.0
JSM-3034-25	30.0	+0.040 +0.124	34.0	25.0
JSM-3034-30	30.0	+0.040 +0.124	34.0	30.0
JSM-3038-40	30.0	+0.065 +0.195	38.0	40.0
JSM-3236-20	32.0	+0.050 +0.150	36.0	20.0
JSM-3236-30	32.0	+0.050 +0.150	36.0	30.0
JSM-3236-40	32.0	+0.050 +0.150	36.0	40.0
JSM-3539-20	35.0	+0.050 +0.150	39.0	20.0
JSM-3539-30	35.0	+0.050 +0.150	39.0	30.0
JSM-3539-40	35.0	+0.050 +0.150	39.0	40.0
JSM-3640-45	36.0	+0.050 +0.150	40.0	45.0
JSM-4044-30	40.0	+0.050 +0.150	44.0	30.0
JSM-4044-35	40.0	+0.050 +0.150	44.0	35.0
JSM-4044-40	40.0	+0.050 +0.150	44.0	40.0
JSM-4246-73	42.0	+0.080 +0.240	46.0	73.0
JSM-5055-30	50.0	+0.050 +0.150	55.0	30.0
JSM-5055-50	50.0	+0.050 +0.150	55.0	50.0
JSM-5560-60	55.0	+0.060 +0.180	60.0	60.0
JSM-6065-60	60.0	+0.060 +0.180	65.0	60.0
JSM-7580-60	75.0	+0.060 +0.180	80.0	60.0
JSM-8085-100	80.0	+0.060 +0.180	85.0	100.0
JSM-8086-60	80.0	+0.060 +0.180	86.0	60.0
JSM-100105-100	100.0	+0.072 +0.212	105.0	100.0
JSM-100115-60	110.0	+0.072 +0.212	115.0	60.0

* after pressfit. Testing methods ▶ page 55

Flange bearing



Order key

JFM-0304-05

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® J

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
JFM-0304-05	3.0	+0.014 +0.054	4.5	7.5	5.0	0.75
JFM-0306-10	3.0	+0.020 +0.080	6.0	9.0	10.0	1.5
JFM-0405-03	4.0	+0.020 +0.068	5.5	9.5	3.0	0.75
JFM-0405-06	4.0	+0.020 +0.068	5.5	9.5	6.0	0.75
JFM-0506-05	5.0	+0.020 +0.068	6.0	10.	5.0	0.5
JFM-0507-05	5.0	+0.020 +0.068	7.0	11.0	5.0	1.0
JFM-0608-04	6.0	+0.020 +0.068	8.0	12.0	4.0	1.0
JFM-0608-06	6.0	+0.020 +0.068	8.0	12.0	6.0	1.0
JFM-0608-08	6.0	+0.020 +0.068	8.0	12.0	8.0	1.0
JFM-0608-10	6.0	+0.020 +0.068	8.0	12.0	10.0	1.0
JFM-0610-10	6.0	+0.030 +0.105	10.0	14.0	10.0	2.0
JFM-0810-038	8.0	+0.025 +0.083	10.0	15.0	3.8	1.0
JFM-0810-05	8.0	+0.025 +0.083	10.0	15.0	5.0	1.0
JFM-0810-06	8.0	+0.025 +0.083	10.0	15.0	6.0	1.0
JFM-0810-07	8.0	+0.025 +0.083	10.0	15.0	7.0	1.0
JFM-0810-08	8.0	+0.025 +0.083	10.0	15.0	8.0	1.0
JFM-0810-10	8.0	+0.025 +0.083	10.0	15.0	10.0	1.0
JFM-0810125-10	8.0	+0.025 +0.083	10.0	12.5	10.0	1.0
JFM-081014-10	8.0	+0.025 +0.083	10.0	14.0	10.0	1.0
JFM-081016-11	8.0	+0.025 +0.083	10.0	16.0	11.0	2.0
JFM-0812-06	8.0	+0.025 +0.083	12.0	16.0	6.0	2.0
JFM-1012-05	10.0	+0.025 +0.083	12.0	18.0	5.0	1.0
JFM-1012-09	10.0	+0.025 +0.083	12.0	18.0	9.0	1.0
JFM-1012-10	10.0	+0.025 +0.083	12.0	18.0	10.0	1.0
JFM-1012-12	10.0	+0.025 +0.083	12.0	18.0	12.0	1.0

* after pressfit. Testing methods ▶ page 55

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order example part number JFM-0304-05

iglidur® J | Product Range

Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
JFM-1012-15	10.0	+0.025 +0.083	12.0	18.0	15.0	1.0
JFM-1012-18	10.0	+0.025 +0.083	12.0	18.0	18.0	1.0
JFM-101215-035	10.0	+0.025 +0.083	12.0	15.0	3.5	1.0
JFM-1014-14	10.0	+0.025 +0.083	14.0	18.0	14.0	1.0
JFM-1113-05	11.0	+0.032 +0.102	13.0	18.0	5.0	1.0
JFM-1214-05	12.0	+0.032 +0.102	14.0	20.0	5.0	1.0
JFM-1214-07	12.0	+0.032 +0.102	14.0	20.0	7.0	1.0
JFM-1214-09	12.0	+0.032 +0.102	14.0	20.0	9.0	1.0
JFM-1214-12	12.0	+0.032 +0.102	14.0	20.0	12.0	1.0
JFM-1214-15	12.0	+0.032 +0.102	14.0	20.0	15.0	1.0
JFM-121418-045	12.0	+0.032 +0.102	14.0	18.0	4.5	1.0
JFM-121418-10	12.0	+0.032 +0.102	14.0	18.0	10.0	1.0
JFM-1218-08	12.0	+0.050 +0.160	18.0	24.0	8.0	3.0
JFM-1218-12	12.0	+0.050 +0.160	18.0	24.0	12.0	3.0
JFM-1218-20	12.0	+0.050 +0.160	18.0	22.0	20.0	3.0
JFM-1416-03	14.0	+0.032 +0.102	16.0	22.0	3.0	1.0
JFM-1416-10	14.0	+0.032 +0.102	16.0	22.0	10.0	1.0
JFM-1416-12	14.0	+0.032 +0.102	16.0	22.0	12.0	1.0
JFM-1416-17	14.0	+0.032 +0.102	16.0	22.0	17.0	1.0
JFM-141822-20	14.0	+0.032 +0.102	18.0	22.0	20.0	2.0
JFM-1517-09	15.0	+0.032 +0.102	17.0	23.0	9.0	1.0
JFM-1517-12	15.0	+0.032 +0.102	17.0	23.0	12.0	1.0
JFM-1517-17	15.0	+0.032 +0.102	17.0	23.0	17.0	1.0
JFM-1521-20	15.0	+0.050 +0.160	21.0	27.0	20.0	3.0
JFM-1618-16	16.0	+0.032 +0.102	18.0	24.0	16.0	1.0
JFM-1618-17	16.0	+0.032 +0.102	18.0	24.0	17.0	1.0
JFM-1622-12	16.0	+0.050 +0.160	22.0	28.0	12.0	3.0
JFM-1622-15	16.0	+0.050 +0.160	22.0	28.0	15.0	3.0
JFM-1719-09	17.0	+0.032 +0.102	19.0	25.0	9.0	1.0
JFM-1719-21	17.0	+0.032 +0.102	19.0	25.0	21.0	1.0
JFM-1820-04	18.0	+0.032 +0.102	20.0	26.0	4.0	1.0
JFM-1820-12	18.0	+0.032 +0.102	20.0	26.0	12.0	1.0
JFM-1820-22	18.0	+0.032 +0.102	20.0	26.0	22.0	1.0
JFM-1922-36	19.0	+0.032 +0.102	22.0	26.0	36.0	1.0
JFM-2023-11	20.0	+0.040 +0.124	23.0	30.0	11.5	1.5
JFM-2023-15.5	20.0	+0.040 +0.124	23.0	30.0	15.5	1.5
JFM-2023-21	20.0	+0.040 +0.124	23.0	30.0	21.5	1.5
JFM-202530-15	20.0	+0.065 +0.195	25.0	30.0	15.0	2.0
JFM-2026-15	20.0	+0.065 +0.195	26.0	32.0	15.0	3.0
JFM-2026-20	20.0	+0.065 +0.195	26.0	32.0	20.0	3.0
JFM-2026-25	20.0	+0.065 +0.195	26.0	32.0	25.0	3.0
JFM-222532-08	22.0	+0.040 +0.124	25.0	32.0	8.0	1.5

* after pressfit. Testing methods ▶ page 55

iglidur® J | Product Range

Flange bearing

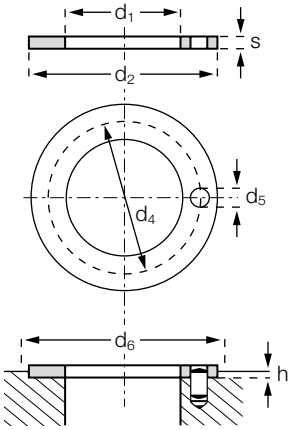
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
JFM-2430-30	24.0	+0.040 +0.124	30.0	36.0	30.0	3.0
JFM-2528-06	25.0	+0.040 +0.124	28.0	35.0	6.0	1.5
JFM-2528-14.5	25.0	+0.040 +0.124	28.0	35.0	14.5	1.5
JFM-2528-21	25.0	+0.040 +0.124	28.0	35.0	21.5	1.5
JFM-252839-075	25.0	+0.040 +0.124	28.0	39.0	7.5	1.5
JFM-2532-20	25.0	+0.065 +0.195	32.0	38.0	20.0	4.0
JFM-2532-25	25.0	+0.065 +0.195	32.0	38.0	25.0	4.0
JFM-283235-07	28.0	+0.065 +0.195	32.0	35.0	7.0	2.0
JFM-3034-20	30.0	+0.040 +0.124	34.0	42.0	20.0	2.0
JFM-3034-26	30.0	+0.040 +0.124	34.0	42.0	26.0	2.0
JFM-3038-30	30.0	+0.065 +0.195	38.0	44.0	30.0	4.0
JFM-3539-12	35.0	+0.050 +0.150	39.0	47.0	12.0	2.0
JFM-3539-16	35.0	+0.050 +0.150	39.0	47.0	16.0	2.0
JFM-3539-26	35.0	+0.050 +0.150	39.0	47.0	26.0	2.0
JFM-4044-20	40.0	+0.050 +0.150	44.0	52.0	20.0	2.0
JFM-4044-30	40.0	+0.050 +0.150	44.0	52.0	30.0	2.0
JFM-4044-40	40.0	+0.050 +0.150	44.0	52.0	40.0	2.0
JFM-4550-20	45.0	+0.050 +0.150	50.0	58.0	20.0	2.0
JFM-4550-50	45.0	+0.050 +0.150	50.0	58.0	50.0	2.0
JFM-5055-50	50.0	+0.050 +0.150	55.0	63.0	50.0	2.0
JFM-5560-50	55.0	+0.060 +0.180	60.0	68.0	50.0	2.0
JFM-6065-50	60.0	+0.060 +0.180	65.0	73.0	50.0	2.0
JFM-7075-50	70.0	+0.060 +0.180	75.0	83.0	50.0	2.0
JFM-9095-100	90.0	+0.072 +0.212	95.0	108.0	100.0	2.5
JFM-110115-100	110.0	+0.072 +0.212	115.0	123.0	100.0	2.5

* after pressfit. Testing methods ▶ page 55

iglidur® J | Product Range

Thrust washer



Order key

JTM-1224-015

- Thickness s
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form T)
- Material iglidur® J

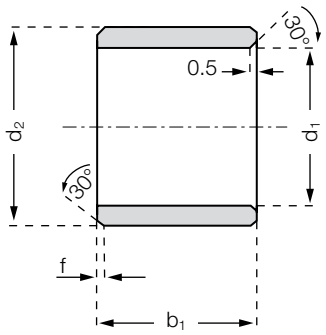
Dimensions according to ISO 3547-1 and special dimensions

Dimensions [mm]

Part number	d1 +0.25	d2 –0.25	s –0.05	d4 –0.12 +0.12	d5 +0.375 +0.125	h +0.2 –0.2	d6 +0.12
JTM-1224-015	12.0	24.0	1.5	18.0	1.5	1.0	24.0
JTM-2036-015	20.0	36.0	1.5	28.0	3.0	1.0	36.0
JTM-3039-015	30.0	39.0	1.5	**	**	1.0	39.0
JTM-5670-010	56.0	70.0	1.0	**	**	0.7	70.0
JTM-139188-020	139.0	188.0	2.0	**	**	2.0	188.0

** Design without fixing bore

Sleeve bearing



Order key

JSI-0204-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® J

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [Inch]:	Ø 0,040–0,236	Ø 0,236–0,472	Ø 0,472–1,18	Ø > 1,18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing Bore		Shaft Size	
				max.	min.	max.	min.	max.	min.
JSI-0204-04	1/8	1/4	1/4	.1280	.1262	.2515	.2510	.1250	.1241
JSI-0204-06	1/8	1/4	3/8	.1280	.1262	.2515	.2510	.1250	.1241
JSI-0304-06	3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858
JSI-0304-08	3/16	1/4	1/2	.1892	.1873	.2503	.2497	.1865	.1858
JSI-0305-05	3/16	5/16	5/16	.1905	.1887	.3140	.3135	.1875	.1866
JSI-0305-06	3/16	5/16	3/8	.1905	.1887	.3140	.3135	.1875	.1866
JSI-0305-08	3/16	5/16	1/2	.1905	.1887	.3140	.3135	.1875	.1866
JSI-0405-04	1/4	5/16	1/4	.2521	.2498	.3128	.3122	.2490	.2481
JSI-0405-06	1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481
JSI-0405-08	1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481
JSI-0406-04	1/4	3/8	1/4	.2539	.2516	.3765	.3760	.2500	.2491
JSI-0406-08	1/4	3/8	1/2	.2539	.2516	.3765	.3760	.2500	.2491
JSI-0406-12	1/4	3/8	3/4	.2539	.2516	.3765	.3760	.2500	.2491
JSI-0406-16	1/4	3/8	1	.2539	.2516	.3765	.3760	.2500	.2491
JSI-0506-06	5/16	3/8	3/8	.3148	.3125	.3753	3747	.3115	.3106
JSI-0506-08	5/16	3/8	1/2	.3148	.3125	.3753	3747	.3115	.3106
JSI-0506-12	5/16	3/8	3/4	.3148	.3125	.3753	3747	.3115	.3106
JSI-0507-06	5/16	7/16	3/8	.3164	.3141	.4390	.4385	.3125	.3116
JSI-0507-08	5/16	7/16	1/2	.3164	.3141	.4390	.4385	.3125	.3116
JSI-0507-10	5/16	7/16	5/8	.3164	.3141	.4390	.4385	.3125	.3116
JSI-0607-06	3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731
JSI-0608-03	3/8	1/2	3/16	.3773	.3750	.4691	.4684	.3740	.3731
JSI-0608-06	3/8	1/2	3/8	.3773	.3750	.4691	.4684	.3740	.3731
JSI-0608-08	3/8	1/2	1/2	.3773	.3750	.4691	.4684	.3740	.3731
JSI-0608-10	3/8	1/2	5/8	.3773	.3750	.4691	.4684	.3740	.3731

* after pressfit. Testing methods ▶ page 55

delivery time available from stock

prices price list online www.igus.co.uk/en/j

order example part number JSI-0204-04

iglidur® J | Product Range | Inch

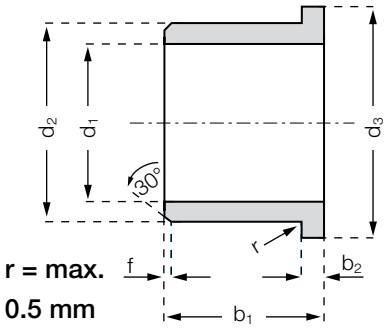
Sleeve bearing

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing Bore		Shaft Size	
				max.	min.	max.	min.	max.	min.
JSI-0809-06	1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980
JSI-0809-08	1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980
JSI-0809-12	1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980
JSI-0810-08	1/2	5/8	1/2	.5040	.5013	.6260	.6250	.5000	.4990
JSI-0810-12	1/2	5/8	3/4	.5040	.5013	.6260	.6250	.5000	.4990
JSI-1011-08	5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230
JSI-1011-12	5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230
JSI-1012-04	5/8	3/4	1/4	.6297	.6270	.7510	.7500	.6250	.6240
JSI-1012-06	5/8	3/4	3/8	.6297	.6270	.7510	.7500	.6250	.6240
JSI-1012-08	5/8	3/4	1/2	.6297	.6270	.7510	.7500	.6250	.6240
JSI-1012-12	5/8	3/4	3/4	.6297	.6270	.7510	.7500	.6250	.6240
JSI-1012-16	5/8	3/4	1	.6297	.6270	.7510	.7500	.6250	.6240
JSI-1214-08	3/4	7/8	1/2	.7541	.7505	.8755	.8747	.7491	.7479
JSI-1214-12	3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479
JSI-1214-16	3/4	7/8	1	.7541	.7505	.8755	.8747	.7491	.7479
JSI-1216-12	3/4	1	3/4	.7559	.7525	1.0010	1.000	.7500	.7490
JSI-1216-16	3/4	1	1	.7559	.7525	1.0010	1.000	.7500	.7490
JSI-1416-12	7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729
JSI-1418-12	7/8	11/8	3/4	.8809	.8775	1.1260	1.1250	.8750	.8740
JSI-1418-24	7/8	11/8	11/2	.8809	.8775	1.1260	1.1250	.8750	.8740
JSI-1620-16	1	11/4	1	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
JSI-1620-24	1	11/4	11/2	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
JSI-1822-16	11/8	113/8	1	1.1327	1.1276	1.3760	1.3750	1.1250	1.1240
JSI-2022-14	11/4	113/32	7/8	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
JSI-2024-24	11/4	11/2	11/2	1.2600	1.2532	1.5005	1.4995	1.2500	1.2490
JSI-2428-24	11/2	13/4	11/2	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990

* after pressfit. Testing methods ▶ page 55

Flange bearing



r = max. 0.5 mm

Order key

JFI-0204-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® G

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [Inch]:	Ø 0,040–0,236	Ø 0,236–0,472	Ø 0,472–1,18	Ø > 1,18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing Bore		Shaft Size	
						max.	min.	max.	min.	max.	min.
JFI-0204-06	1/8	1/4	3/8	.360	.047	.1280	.1262	.2515	.2510	.1250	.1241
JFI-0304-02	3/16	1/4	1/8	.375	.032	.1905	.1887	.2515	.2510	.1875	.1866
JFI-0304-04	3/16	1/4	1/4	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
JFI-0304-06	3/16	1/4	3/8	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
JFI-0304-08	3/16	1/4	1/2	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
JFI-0305-06	3/16	5/16	3/8	.370	.047	.1905	.1887	.3140	.3135	.1875	.1866
JFI-0305-08	3/16	5/16	1/2	.370	.047	.1905	.1887	.3140	.3135	.1875	.1866
JFI-0405-04	1/4	5/16	1/4	.437	.032	.2521	.2498	.3128	.3122	.2490	.2481
JFI-0405-06	1/4	5/16	3/8	.437	.032	.2521	.2498	.3128	.3122	.2490	.2481
JFI-0405-12	1/4	5/16	3/4	.437	.032	.2521	.2498	.3128	.3122	.2490	.2481
JFI-0406-03	1/4	3/8	3/16	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
JFI-0406-04	1/4	3/8	1/4	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
JFI-0406-08	1/4	3/8	1/2	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
JFI-0506-04	5/16	3/8	1/4	.500	.032	.3148	.3125	.3753	.3747	.3115	.3106
JFI-0506-06	5/16	3/8	3/8	.500	.032	.3148	.3125	.3753	.3747	.3115	.3106
JFI-0506-08	5/16	3/8	1/2	.500	.032	.3148	.3125	.3753	.3747	.3115	.3106
JFI-0507-08	5/16	7/16	1/2	.560	.062	.3164	.3141	.4390	.4385	.3125	.3116
JFI-0607-06	3/8	15/32	3/8	.687	.046	.3772	.3775	.4691	.4684	.3740	.3731
JFI-0608-03	3/8	1/2	3/16	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
JFI-0608-06	3/8	1/2	3/8	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
JFI-0608-08	3/8	1/2	1/2	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
JFI-0809-04	1/2	19/32	1/4	.875	.046	.5040	.5000	.5941	.5934	.4990	.4980
JFI-0809-06	1/2	19/32	3/8	.875	.046	.5040	.5000	.5941	.5934	.4990	.4980
JFI-0809-08	1/2	19/32	1/2	.875	.046	.5040	.5000	.5941	.5934	.4990	.4980
JFI-0810-04	1/2	5/8	1/4	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990

* after pressfit. Testing methods ▶ page 55

delivery time available from stock

prices price list online www.igus.co.uk/en/j

order example part number JFI-0204-06

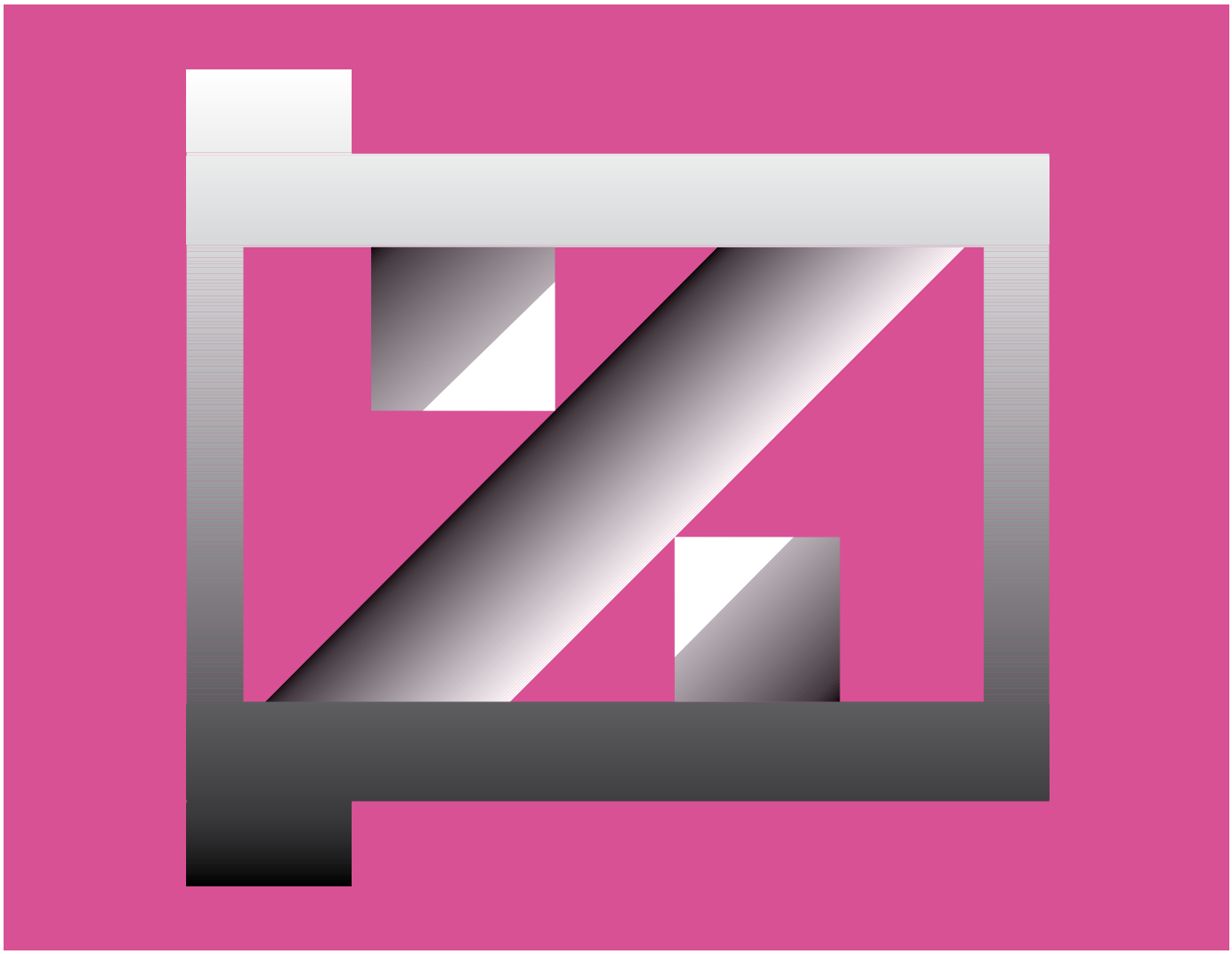
iglidur® J | Product Range | Inch

Flange bearing

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing Bore		Shaft Size	
						max.	min.	max.	min.	max.	min.
JFI-0810-08	1/2	5/8	1/2	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
JFI-0810-10	1/2	5/8	5/8	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
JFI-0810-12	1/2	5/8	3/4	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
JFI-1011-08	5/8	23/32	1/2	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
JFI-1011-12	5/8	23/32	3/4	1.000	.046	.6297	.6270	.7192	.7184	.6250	.6240
JFI-1012-08	5/8	3/4	1/2	1.000	.062	.6297	.6270	.7510	.7500	.6250	.6240
JFI-1012-12	5/8	3/4	3/4	1.000	.062	.6297	.6270	.7510	.7500	.6250	.6240
JFI-1012-16	5/8	3/4	1	1.000	.062	.6297	.6270	.7510	.7500	.6250	.6240
JFI-1214-08	3/4	7/8	1/2	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
JFI-1214-10	3/4	7/8	5/8	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
JFI-1214-12	3/4	7/8	3/4	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
JFI-1214-16	3/4	7/8	1	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
JFI-1216-12	3/4	1	3/4	1.250	.156	.7559	.7525	1.0010	1.0000	.7500	.7490
JFI-1216-16	3/4	1	1	1.250	.156	.7559	.7525	1.0010	1.0000	.7500	.7490
JFI-1416-12	7/8	1	3/4	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
JFI-141618-11	7/8	1	11/16	1.125	.062	.8809	.8776	1.0010	1.0000	.8750	.8740
JFI-1618-12	1	11/8	3/4	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
JFI-1618-16	1	11/8	1	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
JFI-1620-12	1	11/4	3/4	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
JFI-1620-16	1	11/4	1	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
JFI-1620-24	1	11/4	11/2	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
JFI-2024-16	11/4	11/2	1	1.750	.188	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
JFI-2024-24	11/4	11/2	11/2	1.750	.188	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
JFI-2428-16	11/2	13/4	1	2.000	.125	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
JFI-2428-24	11/2	13/4	11/2	2.000	.125	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
JFI-2630-16	15/8	17/8	1	2.125	.125	1.6350	1.6882	1.8755	1.8745	1.6250	1.6240

* after pressfit. Testing methods ▶ page 55



iglidur® M250 – Thick and Tough: excellent vibration dampening

- Over 450 sizes available from stock
- Excellent vibration dampening
- Resistant to edge loading
- High impact resistance
- Thick walled according to DIN 1850
- Dirt can become embedded for shaft protection

iglidur® M250 | Thick and Tough

Excellent vibration dampening. The self-lubricating plain bearings made of iglidur® M250 are defined by their impact strength, vibration dampening, and wear resistant properties. They excel in applications in which vibration dampening is necessary, for example, in fitness and packaging machines.

Excellent vibration dampening

Resistant to edge loading

High impact resistance

Thick walled according to DIN 1850

Dirt can become embedded for shaft protection

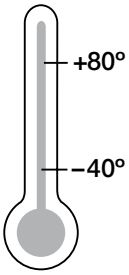
When to use it?

- When the bearings are exposed to high amounts of dirt
- When high vibration damping is necessary
- For low to average speeds
- When mechanical reaming of the wall surface is necessary
- Resistant to edge loads
- High impact resistance
- Thick-walled according to DIN 1850

When not to use it?

- For applications in wet areas
  ▶ **iglidur® H, page 325**
- When very high precision is necessary
  ▶ **iglidur® P, page 185**
- For very smooth shafts
  ▶ **iglidur® J, page 89**
- When a cost-effective wear resistant bearing is desired
  ▶ **iglidur® R, page 249**

Temperature



Product range

3 types
> 450 dimensions
Ø 1–75 mm

iglidur® M250 | Application Examples

Typical sectors of industry and application areas

- Agricultural industry
- Furniture/industrial design
- Textile technology
- Doors and gates
- Machine building etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

▶ **www.igus.co.uk/waterpump**

▶ **www.igus.co.uk/lawnmover**

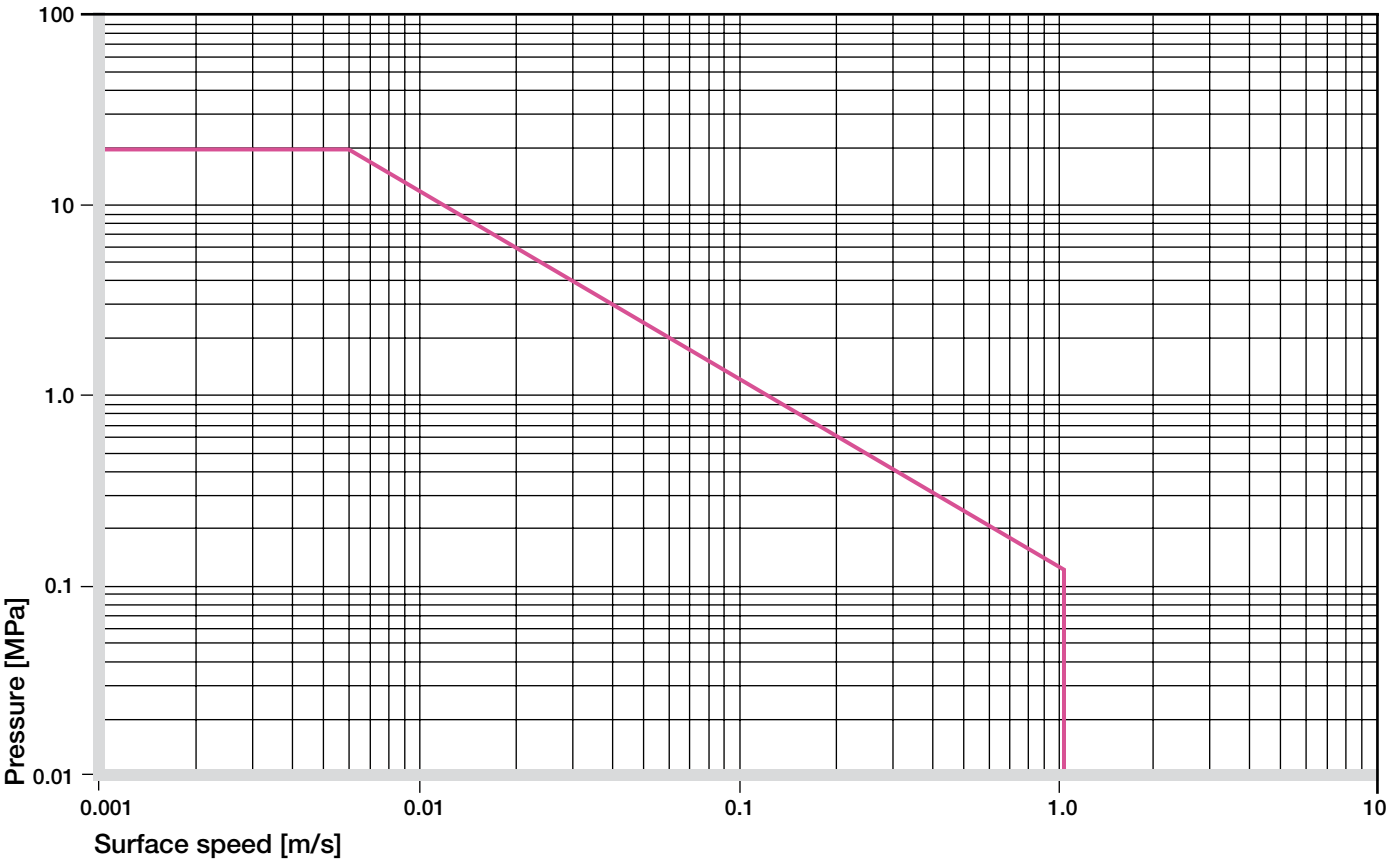
▶ **www.igus.co.uk/camerajib**

▶ **www.igus.co.uk/drilling-machine**

iglidur® M250 | Technical Data

Material data			
General properties	**Unit**	**iglidur® M250**	**Testing method**
Density	**g/cm³**	1.14	
Colour		charcoal	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	1.4	DIN 53495
Max. moisture absorption	**% weight**	7.6	
Coefficient of sliding friction, dynamic against steel	**µ**	0,18–0,40	
pv value, max. (dry)	**MPa · m/s**	0.12	
Mechanical properties			
Modulus of elasticity	**MPa**	2,700	DIN 53457
Tensile strength at +20 °C	**MPa**	112	DIN 53452
Compressive strength	**MPa**	52	
Max. recommended surface pressure (+20 °C)	**MPa**	20	
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+80	
Max. short term application temperature	**°C**	+170	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	10	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{13}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{11}$	DIN 53482

Table 01: Material data

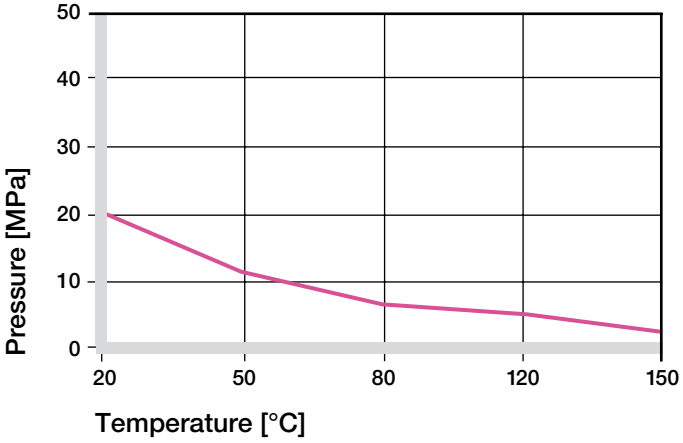


Graph 01: Permissible pv values for iglidur® M250 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® M250 plain bearings decreases.

The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +80 °C the permissible surface pressure is almost 10 MPa.

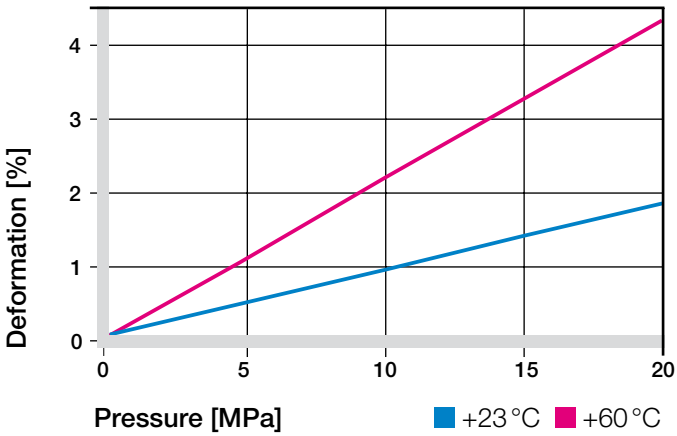


Graph 02: Recommended maximum surface pressure as a function of temperature (20 MPa at +20 °C)

The self lubricating plain bearings made of iglidur® M250 are defined by their impact strength, vibration dampening, and wear resistant properties. They excel in applications in which vibration dampening is necessary, for example, in fitness and packaging machines. Since they are additionally able to absorb dirt, they are also suited for agricultural machines and garden appliances.

iglidur® M250 bearings can withstand radial loads of a maximum 20 MPa. The material deformation is below 2 % at room temperature. Compared with other iglidur® materials iglidur® M250 bearings are highly elastic. By this elasticity, they are able to yield very well, but retain their original shape again. A plastic deformation is minimal up to the permissible surface pressure.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

As standard, iglidur® M250 is manufactured as a thick walled bearing. iglidur® M250 is best suited for low to medium surface speeds. The maximum permissible speed for dry running applications is 0.8 m/s (rotating) or 2 m/s (linear). In practice, though, this temperature level is rarely reached, due to varying application conditions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.8	0.6	2.5
Short term	2	1.4	5

Table 02: Maximum running speed

Temperatures

The maximum permissible short term temperature is +170 °C. However iglidur® M250 plain bearings may only be exposed to this temperature without any additional load. The long term permissible application temperature is +80 °C. This is also the point of the wear limit, i. e. the temperature over which the wear increases exponentially.

▶ Application Temperatures, **page 46**

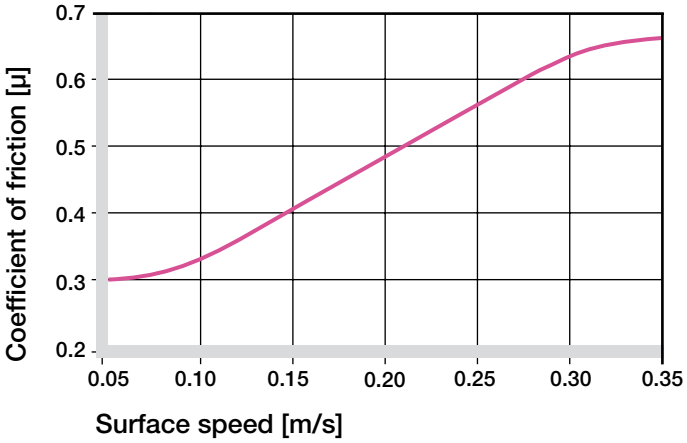
iglidur® M250	Application temperature
Minimum	–40 °C
Max. long term	+80 °C
Max. short term	+170 °C
Add. securing is required from	+60 °C

Table 03: Temperature limits

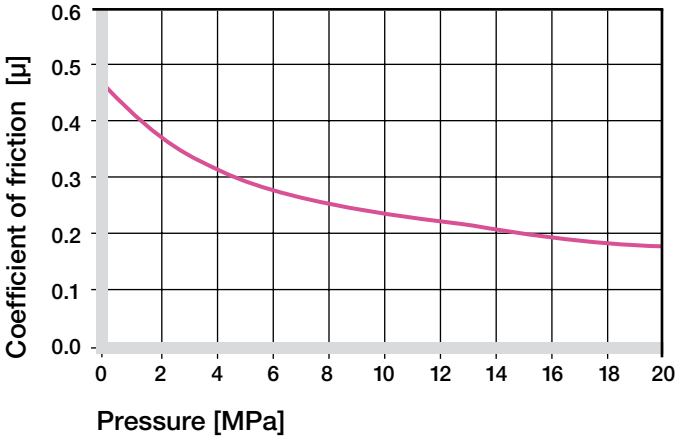
Friction and Wear

The coefficient of friction μ of a plain bearing among other things is influenced by the surface speed and the load. If the load stays constant, then the coefficient of friction increases with increasing speed (see Graph 04).
On the other hand, an increase in load at constant speed can result in a reduction in the coefficient of friction (see Graph 05).

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

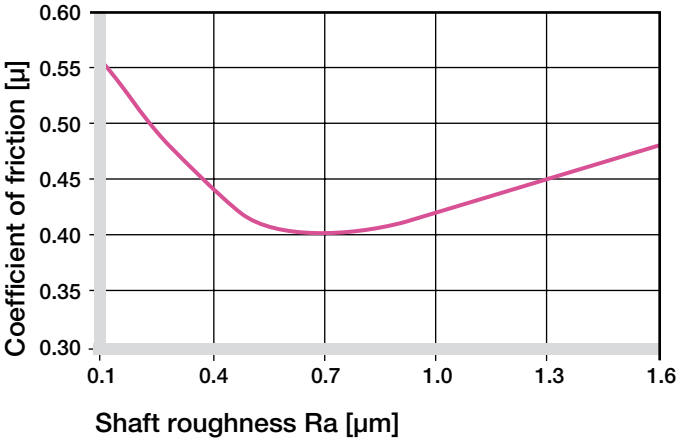


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

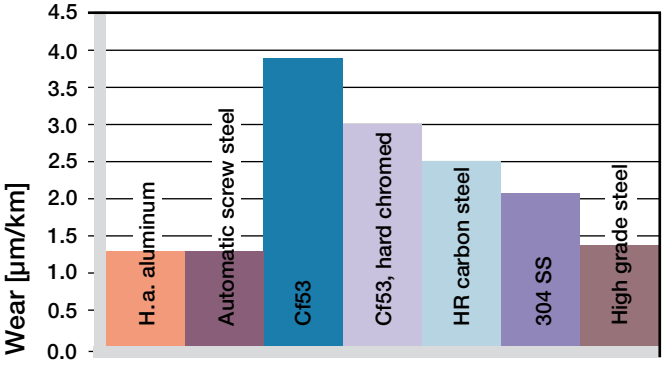
Shaft Materials

Friction and wear are also greatly dependent on the surface of the shaft. If you observe the coefficient of friction, then the ideal shaft surface finish for iglidur® M250 bearings is Ra = 0.6 mm (Graph 06).
Graphs 07 to 09 show results of testing different shaft materials with plain bearings made of iglidur® M250. Up to loads of 2 MPa the shaft material plays a relatively small role for rotational movements. Graph 07 best illustrates which shaft materials are best suited for smaller loads. If the load increases, the wear of a bearing clearly increases. Therefore, a suitable shaft material must be considered for higher loads. These are hardened shafts, such as cold-rolled steel or hard chromed shafts. Graph 09 makes it clear that iglidur® M250 is considerably better for rotational than for oscillating operation. However, it must be mentioned that in oscillating movements, often the vibrations acting on the bearing are especially high. Here, iglidur® M250 can utilise its special dampening properties. In our test, these vibrations are excluded so that the comparison between rotation and oscillating operation is captured first.

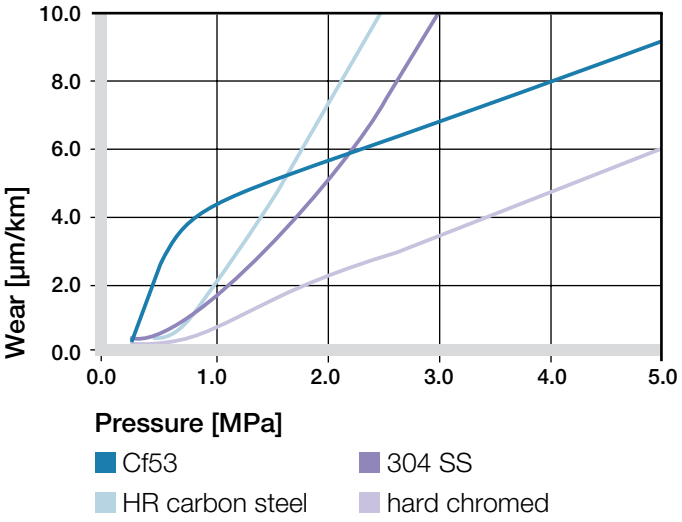
▶ Shaft Materials, **page 51**



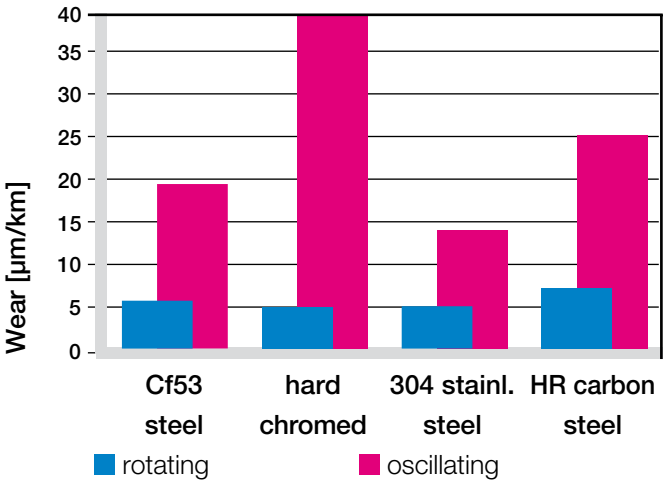
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® M250	Dry	Greases	Oil	Water
C.o.f. µ	0.18–0.40	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® M250 plain bearings have a good resistance to chemicals. They are resistant to most lubricants. iglidur® M250 are not affected by most weak organic and inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® M250 can be used conditionally under radioactive radiation. They are resistant to radiation up to a radiation intensity of $1 \cdot 10^4$ Gy.

UV Resistance

iglidur® M250 plain bearings are permanently resistant to UV radiation.

Vacuum

In a vacuum environment, the iglidur® M250 plain bearing releases moisture as vapour. The relatively high moisture absorption of the bearing allows only limited use in the vacuum.

Electrical Properties

iglidur® M250 plain bearings are electrically insulating.

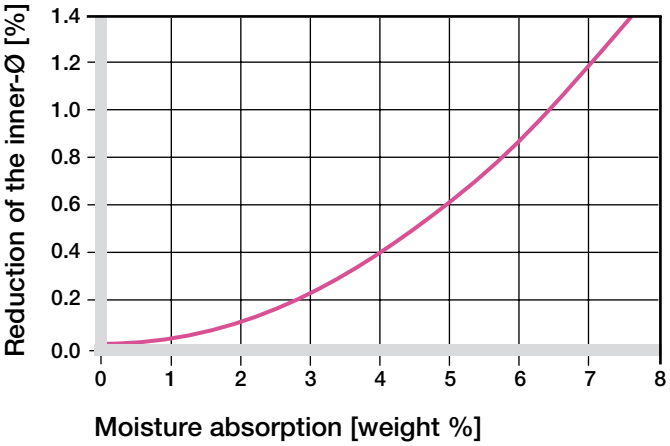
Volume resistance	$> 10^{13}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

Moisture Absorption

The moisture absorption of iglidur® M250 plain bearings is approximately 1.4 % in standard atmosphere. The saturation limit in water is 7.5 %. This must be taken into account along with other application conditions.

Maximum moisture absorption	
At +23 °C/50 % r.h.	1.4 % weight
Max. moisture absorption	7.6 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® M250 plain bearings require a relatively large amount of clearance for optimal operation. This ensures that the bearing remains reliable during temperature change and water absorption. This clearance, which would not be acceptable for a metallic plain bearing, allows the iglidur® M250 to exhibit its best qualities, such as wear resistance and maintenance free operation. The disadvantages of the clearance are minimised by the vibration dampening properties. The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

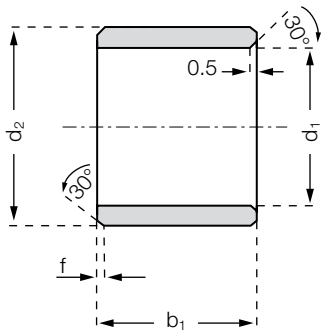
▶ Testing methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® M250 D11 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.020 +0.080	0 +0.010
>	3 to	6	0–0.030	+0.030 +0.105	0 +0.012
>	6 to	10	0–0.036	+0.040 +0.130	0 +0.015
>	10 to	18	0–0.043	+0.050 +0.160	0 +0.018
>	18 to	30	0–0.052	+0.065 +0.195	0 +0.021
>	30 to	50	0–0.062	+0.080 +0.240	0 +0.025
>	50 to	80	0–0.074	+0.100 +0.290	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® M250 | Product Range

Sleeve bearing



Order key

MSM-0103-02

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® M250

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
MSM-0103-02	1.0	+0.020 +0.080	3.0	2.0
MSM-0104-02	1.5	+0.020 +0.080	4.0	2.0
MSM-0205-01	2.0	+0.020 +0.080	5.0	1.0
MSM-0205-02	2.0	+0.020 +0.080	5.0	2.0
MSM-0205-03	2.0	+0.020 +0.080	5.0	3.0
MSM-0206-03	2.5	+0.020 +0.080	6.0	3.0
MSM-0305-03	3.0	+0.020 +0.080	5.0	3.0
MSM-0305-04	3.0	+0.020 +0.080	5.0	4.0
MSM-0306-03	3.0	+0.020 +0.080	6.0	3.0
MSM-0306-04	3.0	+0.020 +0.080	6.0	4.0
MSM-0407-03	4.0	+0.030 +0.105	7.0	3.0
MSM-0407-04	4.0	+0.030 +0.105	7.0	4.0
MSM-0407-06	4.0	+0.030 +0.105	7.0	6.0
MSM-0408-04	4.0	+0.030 +0.105	8.0	4.0
MSM-0408-06	4.0	+0.030 +0.105	8.0	6.0
MSM-0508-04	5.0	+0.030 +0.105	8.0	4.0
MSM-0508-05	5.0	+0.030 +0.105	8.0	5.0
MSM-0508-08	5.0	+0.030 +0.105	8.0	8.0
MSM-0509-05	5.0	+0.030 +0.105	9.0	5.0
MSM-0509-08	5.0	+0.030 +0.105	9.0	8.0
MSM-0608-10	6.0	+0.030 +0.105	8.0	10.0
MSM-0609-06	6.0	+0.030 +0.105	9.0	6.0
MSM-0610-02	6.0	+0.030 +0.105	10.0	2.5
MSM-0610-04	6.0	+0.030 +0.105	10.0	4.0
MSM-0610-06	6.0	+0.030 +0.105	10.0	6.0

Part number	d1	d1-Tolerance*	d2	b1 h13
MSM-0610-08	6.0	+0.030 +0.105	10.0	8.0
MSM-0610-10	6.0	+0.030 +0.105	10.0	10.0
MSM-0611-04	6.0	+0.030 +0.105	11.0	4.0
MSM-0612-06	6.0	+0.030 +0.105	12.0	6.0
MSM-0612-10	6.0	+0.030 +0.105	12.0	10.0
MSM-0710-05	7.0	+0.040 +0.130	10.0	5.0
MSM-0710-08	7.0	+0.040 +0.130	10.0	8.0
MSM-0710-10	7.0	+0.040 +0.130	10.0	10.0
MSM-0711-16	7.0	+0.040 +0.130	11.0	16.0
MSM-0810-06	8.0	+0.040 +0.130	10.0	6.0
MSM-0810-08	8.0	+0.040 +0.130	10.0	8.0
MSM-0810-10	8.0	+0.040 +0.130	10.0	10.0
MSM-0811-06	8.0	+0.040 +0.130	11.0	6.0
MSM-0811-08	8.0	+0.040 +0.130	11.0	8.0
MSM-0811-12	8.0	+0.040 +0.130	11.0	12.0
MSM-0812-04	8.0	+0.040 +0.130	12.0	4.0
MSM-0812-06	8.0	+0.040 +0.130	12.0	6.0
MSM-0812-08	8.0	+0.040 +0.130	12.0	8.0
MSM-0812-10	8.0	+0.040 +0.130	12.0	10.0
MSM-0812-12	8.0	+0.040 +0.130	12.0	12.0
MSM-0814-06	8.0	+0.040 +0.130	14.0	6.0
MSM-0814-10	8.0	+0.040 +0.130	14.0	10.0
MSM-0912-14	9.0	+0.040 +0.130	12.0	14.0
MSM-1014-06	10.0	+0.040 +0.130	14.0	6.0
MSM-1014-08	10.0	+0.040 +0.130	14.0	8.0

* after pressfit. Testing methods ▶ page 55

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iglidur® M250 | Product Range

Sleeve bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
MSM-1014-10	10.0	+0.040 +0.130	14.0	10.0
MSM-1014-16	10.0	+0.040 +0.130	14.0	16.0
MSM-1016-06	10.0	+0.040 +0.130	16.0	6.0
MSM-1016-08	10.0	+0.040 +0.130	16.0	8.0
MSM-1016-10	10.0	+0.040 +0.130	16.0	10.0
MSM-1016-16	10.0	+0.040 +0.130	16.0	16.0
MSM-1016-50	10.0	+0.040 +0.130	16.0	50.0
MSM-1214-15	12.0	+0.050 +0.160	14.0	15.0
MSM-1214-20	12.0	+0.050 +0.160	14.0	20.0
MSM-1216-15	12.0	+0.050 +0.160	16.0	15.0
MSM-1216-20	12.0	+0.050 +0.160	16.0	20.0
MSM-1218-08	12.0	+0.050 +0.160	18.0	8.0
MSM-1218-10	12.0	+0.050 +0.160	18.0	10.0
MSM-1218-15	12.0	+0.050 +0.160	18.0	15.0
MSM-1218-20	12.0	+0.050 +0.160	18.0	20.0
MSM-1416-085	14.0	+0.050 +0.160	16.0	8.5
MSM-1416-10	14.0	+0.050 +0.160	16.0	10.0
MSM-1416-15	14.0	+0.050 +0.160	16.0	15.0
MSM-1416-20	14.0	+0.050 +0.160	16.0	20.0
MSM-1416-29	14.0	+0.050 +0.160	16.0	29.0
MSM-1418-20	14.0	+0.050 +0.160	18.0	20.0
MSM-1420-10	14.0	+0.050 +0.160	20.0	10.0
MSM-1420-15	14.0	+0.050 +0.160	20.0	15.0
MSM-1420-20	14.0	+0.050 +0.160	20.0	20.0
MSM-1517-10	15.0	+0.050 +0.160	17.0	10.0
MSM-1517-15	15.0	+0.050 +0.160	17.0	15.0
MSM-1521-10	15.0	+0.050 +0.160	21.0	10.0
MSM-1521-15	15.0	+0.050 +0.160	21.0	15.0
MSM-1521-20	15.0	+0.050 +0.160	21.0	20.0
MSM-1521-23	15.0	+0.050 +0.160	21.0	23.0
MSM-1618-12	16.0	+0.050 +0.160	18.0	12.0
MSM-1618-20	16.0	+0.050 +0.160	18.0	20.0
MSM-1620-20	16.0	+0.050 +0.160	20.0	20.0
MSM-1620-25	16.0	+0.050 +0.160	20.0	25.0
MSM-1620-30	16.0	+0.050 +0.160	20.0	30.0
MSM-1622-12	16.0	+0.050 +0.160	22.0	12.0
MSM-1622-15	16.0	+0.050 +0.160	22.0	15.0
MSM-1622-16	16.0	+0.050 +0.160	22.0	16.0
MSM-1622-20	16.0	+0.050 +0.160	22.0	20.0
MSM-1622-25	16.0	+0.050 +0.160	22.0	25.0
MSM-1824-12	18.0	+0.050 +0.160	24.0	12.0
MSM-1824-20	18.0	+0.050 +0.160	24.0	20.0
MSM-1824-30	18.0	+0.050 +0.160	24.0	30.0
MSM-2023-15	20.0	+0.065 +0.195	23.0	15.0
MSM-2023-20	20.0	+0.065 +0.195	23.0	20.0
MSM-2025-14	20.0	+0.065 +0.195	25.0	14.0
MSM-2025-20	20.0	+0.065 +0.195	25.0	20.0
MSM-2025-30	20.0	+0.065 +0.195	25.0	30.0
MSM-2026-12	20.0	+0.065 +0.195	26.0	12.0
MSM-2026-15	20.0	+0.065 +0.195	26.0	15.0
MSM-2026-20	20.0	+0.065 +0.195	26.0	20.0
MSM-2026-30	20.0	+0.065 +0.195	26.0	30.0
MSM-2226-15	22.0	+0.065 +0.195	26.0	15.0
MSM-2228-10	22.0	+0.065 +0.195	28.0	10.0
MSM-2228-15	22.0	+0.065 +0.195	28.0	15.0
MSM-2228-20	22.0	+0.065 +0.195	28.0	20.0
MSM-2228-30	22.0	+0.065 +0.195	28.0	30.0
MSM-2430-15	24.0	+0.065 +0.195	30.0	15.0
MSM-2430-20	24.0	+0.065 +0.195	30.0	20.0
MSM-2430-30	24.0	+0.065 +0.195	30.0	30.0
MSM-2528-12	25.0	+0.065 +0.195	28.0	12.0
MSM-2528-20	25.0	+0.065 +0.195	28.0	20.0
MSM-2530-20	25.0	+0.065 +0.195	30.0	20.0
MSM-2530-30	25.0	+0.065 +0.195	30.0	30.0
MSM-2530-40	25.0	+0.065 +0.195	30.0	40.0
MSM-2532-12	25.0	+0.065 +0.195	32.0	12.0
MSM-2532-20	25.0	+0.065 +0.195	32.0	20.0
MSM-2532-30	25.0	+0.065 +0.195	32.0	30.0
MSM-2532-35	25.0	+0.065 +0.195	32.0	35.0
MSM-2532-40	25.0	+0.065 +0.195	32.0	40.0
MSM-2630-20	26.0	+0.065 +0.195	30.0	20.0
MSM-2632-30	26.0	+0.065 +0.195	32.0	30.0
MSM-2734-20	27.0	+0.065 +0.195	34.0	20.0
MSM-2734-30	27.0	+0.065 +0.195	34.0	30.0
MSM-2734-40	27.0	+0.065 +0.195	34.0	40.0
MSM-2833-20	28.0	+0.065 +0.195	33.0	20.0
MSM-2836-20	28.0	+0.065 +0.195	36.0	20.0
MSM-2836-30	28.0	+0.065 +0.195	36.0	30.0
MSM-2836-40	28.0	+0.065 +0.195	36.0	40.0
MSM-3035-20	30.0	+0.065 +0.195	35.0	20.0
MSM-3035-40	30.0	+0.065 +0.195	35.0	40.0
MSM-3038-20	30.0	+0.065 +0.195	38.0	20.0
MSM-3038-30	30.0	+0.065 +0.195	38.0	30.0
MSM-3038-40	30.0	+0.065 +0.195	38.0	40.0

* after pressfit. Testing methods ▶ page 55

iglidur® M250 | Product Range

Sleeve bearing

Dimensions [mm]

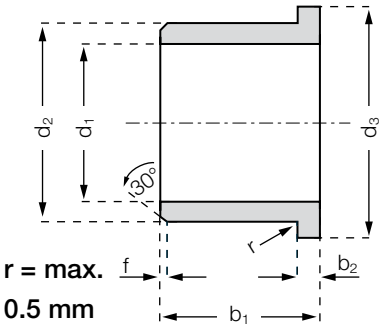
Part number	d1	d1-Tolerance*	d2	b1 h13
MSM-3040-40	30.0	+0.065 +0.195	40.0	40.0
MSM-3240-20	32.0	+0.080 +0.240	40.0	20.0
MSM-3240-30	32.0	+0.080 +0.240	40.0	30.0
MSM-3240-40	32.0	+0.080 +0.240	40.0	40.0

Part number	d1	d1-Tolerance*	d2	b1 h13
MSM-3542-50	35.0	+0.080 +0.240	42.0	50.0
MSM-4046-20	40.0	+0.080 +0.240	46.0	20.0
MSM-7580-60	75.0	+0.100 +0.290	80.0	60.0

* after pressfit. Testing methods ▶ page 55

iglidur® M250 | Product Range

Flange bearing



Order key

MFM-0103-02

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® M250

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	-0.14
MFM-0103-02	1.0	+0.020 +0.080	3.0	5.0	2.0	1.0
MFM-0104-02	1.5	+0.020 +0.080	4.0	6.0	2.0	1.0
MFM-0205-03	2.0	+0.020 +0.080	5.0	8.0	3.0	1.5
MFM-0206-03	2.5	+0.020 +0.080	6.0	9.0	3.0	1.5
MFM-0306-04	3.0	+0.020 +0.080	6.0	9.0	4.0	1.5
MFM-0408-04	4.0	+0.030 +0.105	8.0	12.0	4.0	2.0
MFM-0408-06	4.0	+0.030 +0.105	8.0	12.0	6.0	2.0
MFM-0408-08	4.0	+0.030 +0.105	8.0	12.0	8.0	2.0
MFM-0509-05	5.0	+0.030 +0.105	9.0	13.0	5.0	2.0
MFM-0509-06	5.0	+0.030 +0.105	9.0	13.0	6.0	2.0
MFM-0509-08	5.0	+0.030 +0.105	9.0	13.0	8.0	2.0
MFM-0610-04	6.0	+0.030 +0.105	10.0	14.0	4.0	2.0
MFM-0610-06	6.0	+0.030 +0.105	10.0	14.0	6.0	2.0
MFM-0610-10	6.0	+0.030 +0.105	10.0	14.0	10.0	2.0
MFM-0612-06	6.0	+0.030 +0.105	12.0	14.0	6.0	3.0
MFM-0612-10	6.0	+0.030 +0.105	12.0	14.0	10.0	3.0
MFM-0711-08	7.0	+0.040 +0.130	11.0	15.0	8.0	2.0
MFM-0811-05	8.0	+0.040 +0.130	11.0	13.0	5.0	2.0
MFM-0811-08	8.0	+0.040 +0.130	11.0	13.0	8.0	2.0
MFM-0812-06	8.0	+0.040 +0.130	12.0	16.0	6.0	2.0
MFM-0812-08	8.0	+0.040 +0.130	12.0	16.0	8.0	2.0
MFM-0812-12	8.0	+0.040 +0.130	12.0	16.0	12.0	2.0
MFM-0814-06	8.0	+0.040 +0.130	14.0	18.0	6.0	3.0
MFM-0814-10	8.0	+0.040 +0.130	14.0	18.0	10.0	3.0
MFM-081416-06	8.0	+0.040 +0.130	14.0	16.0	6.0	3.0

* after pressfit. Testing methods ▶ page 55

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iglidur® M250 | Product Range

Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	-0.14
MFM-081416-10	8.0	+0.040 +0.130	14.0	16.0	10.0	3.0
MFM-0914-06	9.0	+0.040 +0.130	14.0	19.0	6.0	2.0
MFM-0914-10	9.0	+0.040 +0.130	14.0	19.0	10.0	2.0
MFM-0914-14	9.0	+0.040 +0.130	14.0	19.0	14.0	2.0
MFM-1014-10	10.0	+0.040 +0.130	14.0	19.0	10.0	2.0
MFM-1014-14	10.0	+0.040 +0.130	14.0	17.5	14.0	1.0
MFM-1014-19	10.0	+0.040 +0.130	14.0	17.5	19.0	1.0
MFM-1014-24	10.0	+0.040 +0.130	14.0	17.5	24.0	1.0
MFM-1014-34	10.0	+0.040 +0.130	14.0	17.5	34.0	1.0
MFM-101420-12	10.0	+0.040 +0.130	14.0	20.0	12.0	2.0
MFM-1016-08	10.0	+0.040 +0.130	16.0	22.0	8.0	3.0
MFM-1016-10	10.0	+0.040 +0.130	16.0	22.0	10.0	3.0
MFM-1016-16	10.0	+0.040 +0.130	16.0	22.0	16.0	3.0
MFM-101620-06	10.0	+0.040 +0.130	16.0	20.0	6.0	3.0
MFM-101620-10	10.0	+0.040 +0.130	16.0	20.0	10.0	3.0
MFM-1216-10	12.0	+0.050 +0.160	16.0	22.0	10.0	2.0
MFM-1216-20	12.0	+0.050 +0.160	16.0	22.0	20.0	2.0
MFM-1218-08	12.0	+0.050 +0.160	18.0	24.0	8.0	3.0
MFM-1218-10	12.0	+0.050 +0.160	18.0	22.0	10.0	3.0
MFM-1218-12	12.0	+0.050 +0.160	18.0	24.0	12.0	3.0
MFM-1218-15	12.0	+0.050 +0.160	18.0	22.0	15.0	3.0
MFM-1218-20	12.0	+0.050 +0.160	18.0	22.0	20.0	3.0
MFM-1420-07	14.0	+0.050 +0.160	20.0	25.0	7.0	3.0
MFM-1420-10	14.0	+0.050 +0.160	20.0	25.0	10.0	3.0
MFM-1420-15	14.0	+0.050 +0.160	20.0	25.0	15.0	3.0
MFM-1420-20	14.0	+0.050 +0.160	20.0	25.0	20.0	3.0
MFM-1521-10	15.0	+0.050 +0.160	21.0	27.0	10.0	3.0
MFM-1521-15	15.0	+0.050 +0.160	21.0	27.0	15.0	3.0
MFM-1521-20	15.0	+0.050 +0.160	21.0	27.0	20.0	3.0
MFM-1521-25	15.0	+0.050 +0.160	21.0	27.0	25.0	3.0
MFM-1618-12	16.0	+0.050 +0.160	18.0	24.0	12.0	1.0
MFM-1622-12	16.0	+0.050 +0.160	22.0	28.0	12.0	3.0
MFM-1622-15	16.0	+0.050 +0.160	22.0	28.0	15.0	3.0
MFM-1622-20	16.0	+0.050 +0.160	22.0	28.0	20.0	3.0
MFM-1622-25	16.0	+0.050 +0.160	22.0	28.0	25.0	3.0
MFM-1824-08	18.0	+0.050 +0.160	24.0	30.0	8.0	3.0
MFM-1824-12	18.0	+0.050 +0.160	24.0	30.0	12.0	3.0
MFM-1824-18	18.0	+0.050 +0.160	24.0	30.0	18.0	3.0
MFM-1824-20	18.0	+0.050 +0.160	24.0	30.0	20.0	3.0
MFM-1824-30	18.0	+0.050 +0.160	24.0	30.0	30.0	3.0
MFM-182426-078	18.0	+0.050 +0.160	24.0	26.0	7.8	3.0
MFM-192427-12	19.0	+0.065 +0.195	24.0	27.0	12.0	2.0

* after pressfit. Testing methods ▶ page 55

iglidur® M250 | Product Range

Flange bearing

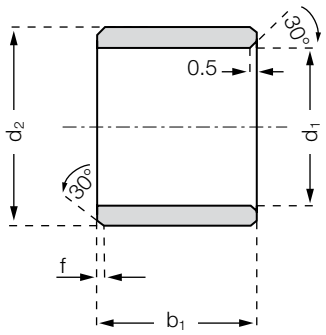
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3 d13	b1 h13	b2 -0.14
MFM-2026-15	20.0	+0.065 +0.195	26.0	32.0	15.0	3.0
MFM-2026-20	20.0	+0.065 +0.195	26.0	32.0	20.0	3.0
MFM-202628-12	20.0	+0.065 +0.195	26.0	28.0	12.0	3.0
MFM-2026-30	20.0	+0.065 +0.195	26.0	32.0	30.0	3.0
MFM-2228-15	22.0	+0.065 +0.195	28.0	34.0	15.0	3.0
MFM-2228-20	22.0	+0.065 +0.195	28.0	34.0	20.0	3.0
MFM-2228-30	22.0	+0.065 +0.195	28.0	34.0	30.0	3.0
MFM-2430-15	24.0	+0.065 +0.195	30.0	36.0	15.0	3.0
MFM-2430-20	24.0	+0.065 +0.195	30.0	36.0	20.0	3.0
MFM-2430-30	24.0	+0.065 +0.195	30.0	36.0	30.0	3.0
MFM-2532-12	25.0	+0.065 +0.195	32.0	38.0	12.0	4.0
MFM-2532-15	25.0	+0.065 +0.195	32.0	38.0	15.0	4.0
MFM-2532-20	25.0	+0.065 +0.195	32.0	38.0	20.0	4.0
MFM-2532-30	25.0	+0.065 +0.195	32.0	38.0	30.0	4.0
MFM-2532-40	25.0	+0.065 +0.195	32.0	38.0	40.0	4.0
MFM-2734-20	27.0	+0.065 +0.195	34.0	40.0	20.0	4.0
MFM-2734-30	27.0	+0.065 +0.195	34.0	40.0	30.0	4.0
MFM-2734-40	27.0	+0.065 +0.195	34.0	40.0	40.0	4.0
MFM-2836-20	28.0	+0.065 +0.195	36.0	42.0	20.0	4.0
MFM-2836-30	28.0	+0.065 +0.195	36.0	42.0	30.0	4.0
MFM-2836-40	28.0	+0.065 +0.195	36.0	42.0	40.0	4.0
MFM-3035-20	30.0	+0.065 +0.195	35.0	44.0	20.0	4.0
MFM-3038-20	30.0	+0.065 +0.195	38.0	44.0	20.0	4.0
MFM-3038-30	30.0	+0.065 +0.195	38.0	44.0	30.0	4.0
MFM-3038-40	30.0	+0.065 +0.195	38.0	44.0	40.0	4.0
MFM-3240-20	32.0	+0.080 +0.240	40.0	46.0	20.0	4.0
MFM-3240-30	32.0	+0.080 +0.240	40.0	46.0	30.0	4.0
MFM-3240-40	32.0	+0.080 +0.240	40.0	46.0	40.0	4.0

* after pressfit. Testing methods ▶ page 55

iglidur® M250 | Product Range | Inch

Sleeve bearing



Order key

MSI-0203-02

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form S)
- Material iglidur® M250

Chamfer in relation to the d1

d1 [Inch]:	Ø 0,040–0,236	Ø 0,236–0,472	Ø 0,472–1,18	Ø > 1,18
f [Inch]:	0,012	0,019	0,031	0,047

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
MSI-0203-02	1/8	3/16	1/8	.1280	.1262	.1990	.1985	.1250	.1241
MSI-0203-04	1/8	3/16	1/4	.1280	.1262	.1990	.1985	.1250	.1241
MSI-0204-02	1/8	1/4	1/8	.1280	.1262	.2515	.2510	.1250	.1241
MSI-0204-03	1/8	1/4	3/16	.1280	.1262	.2515	.2510	.1250	.1241
MSI-0204-04	1/8	1/4	1/4	.1280	.1262	.2515	.2510	.1250	.1241
MSI-0204-06	1/8	1/4	3/8	.1280	.1262	.2515	.2510	.1250	.1241
MSI-0304-04	3/16	1/4	1/4	.1905	.1887	.2515	.2510	.1875	.1866
MSI-0304-06	3/16	1/4	3/8	.1905	.1887	.2515	.2510	.1875	.1866
MSI-0304-08	3/16	1/4	1/2	.1905	.1887	.2515	.2510	.1875	.1866
MSI-0305-02	3/16	5/16	1/8	.1905	.1887	.3140	.3135	.1875	.1866
MSI-0305-03	3/16	5/16	3/16	.1905	.1887	.3140	.3135	.1875	.1866
MSI-0305-04	3/16	5/16	1/4	.1905	.1887	.3140	.3135	.1875	.1866
MSI-0305-05	3/16	5/16	5/16	.1905	.1887	.3140	.3135	.1875	.1866
MSI-0305-06	3/16	5/16	3/8	.1905	.1887	.3140	.3135	.1875	.1866
MSI-0305-08	3/16	5/16	1/2	.1905	.1887	.3140	.3135	.1875	.1866
MSI-0405-03	1/4	5/16	3/16	.2539	.2516	.3140	.3135	.2500	.2491
MSI-0405-06	1/4	5/16	3/8	.2539	.2516	.3140	.3135	.2500	.2491
MSI-0405-08	1/4	5/16	1/2	.2539	.2516	.3140	.3135	.2500	.2491
MSI-0406-02	1/4	3/8	1/8	.2539	.2516	.3765	.3760	.2500	.2491
MSI-0406-03	1/4	3/8	3/16	.2539	.2516	.3765	.3760	.2500	.2491
MSI-0406-04	1/4	3/8	1/4	.2539	.2516	.3765	.3760	.2500	.2491
MSI-0406-05	1/4	3/8	5/16	.2539	.2516	.3765	.3760	.2500	.2491
MSI-0406-06	1/4	3/8	3/8	.2539	.2516	.3765	.3760	.2500	.2491
MSI-0406-08	1/4	3/8	1/2	.2539	.2516	.3765	.3760	.2500	.2491
MSI-0406-10	1/4	3/8	5/8	.2539	.2516	.3765	.3760	.2500	.2491

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/m250 | order example part number MSI-0203-02

iglidur® M250 | Product Range | Inch

Sleeve bearing

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
MSI-0406-12	1/4	3/8	3/4	.2539	.2516	.3765	.3760	.2500	.2491
MSI-0506-04	5/16	3/8	1/4	.3164	.3141	.3765	.3760	.3125	.3116
MSI-0506-06	5/16	3/8	3/8	.3164	.3141	.3765	.3760	.3125	.3116
MSI-0506-08	5/16	3/8	1/2	.3164	.3141	.3765	.3760	.3125	.3116
MSI-0507-03	5/16	7/16	3/16	.3164	.3141	.4390	.4385	.3125	.3116
MSI-0507-04	5/16	7/16	1/4	.3164	.3141	.4390	.4385	.3125	.3116
MSI-0507-05	5/16	7/16	5/16	.3164	.3141	.4390	.4385	.3125	.3116
MSI-0507-06	5/16	7/16	3/8	.3164	.3141	.4390	.4385	.3125	.3116
MSI-0507-08	5/16	7/16	1/2	.3164	.3141	.4390	.4385	.3125	.3116
MSI-0507-10	5/16	7/16	5/8	.3164	.3141	.4390	.4385	.3125	.3116
MSI-0507-12	5/16	7/16	3/4	.3164	.3141	.4390	.4385	.3125	.3116
MSI-0607-04	3/8	7/16	1/4	.3789	.3766	.4390	.4385	.3750	.3741
MSI-0607-06	3/8	7/16	3/8	.3789	.3766	.4390	.4385	.3750	.3741
MSI-0607-08	3/8	7/16	1/2	.3789	.3766	.4390	.4385	.3750	.3741
MSI-0608-04	3/8	1/2	1/4	.3789	.3766	.5015	.5010	.3750	.3741
MSI-0608-05	3/8	1/2	5/16	.3789	.3766	.5015	.5010	.3750	.3741
MSI-0608-06	3/8	1/2	3/8	.3789	.3766	.5015	.5010	.3750	.3741
MSI-0608-08	3/8	1/2	1/2	.3789	.3766	.5015	.5010	.3750	.3741
MSI-0608-10	3/8	1/2	5/8	.3789	.3766	.5015	.5010	.3750	.3741
MSI-0608-12	3/8	1/2	3/4	.3789	.3766	.5015	.5010	.3750	.3741
MSI-0608-16	3/8	1/2	1	.3789	.3766	.5015	.5010	.3750	.3741
MSI-0709-06	7/16	9/16	3/8	.4422	.4395	.5941	.5934	.4375	.4365
MSI-0709-08	7/16	9/16	1/2	.4422	.4395	.5941	.5934	.4375	.4365
MSI-0810-04	1/2	5/8	1/4	.5047	.5020	.6260	.6250	.5000	.4990
MSI-0810-05	1/2	5/8	5/16	.5047	.5020	.6260	.6250	.5000	.4990
MSI-0810-06	1/2	5/8	3/8	.5047	.5020	.6260	.6250	.5000	.4990
MSI-0810-08	1/2	5/8	1/2	.5047	.5020	.6260	.6250	.5000	.4990
MSI-0810-10	1/2	5/8	5/8	.5047	.5020	.6260	.6250	.5000	.4990
MSI-0810-12	1/2	5/8	3/4	.5047	.5020	.6260	.6250	.5000	.4990
MSI-0810-16	1/2	5/8	1	.5047	.5020	.6260	.6250	.5000	.4990
MSI-1012-04	5/8	3/4	1/4	.6297	.6270	.7510	.7500	.6250	.6240
MSI-1012-06	5/8	3/4	3/8	.6297	.6270	.7510	.7500	.6250	.6240
MSI-1012-08	5/8	3/4	1/2	.6297	.6270	.7510	.7500	.6250	.6240
MSI-1012-10	5/8	3/4	5/8	.6297	.6270	.7510	.7500	.6250	.6240
MSI-1012-12	5/8	3/4	3/4	.6297	.6270	.7510	.7500	.6250	.6240
MSI-1012-16	5/8	3/4	1	.6297	.6270	.7510	.7500	.6250	.6240
MSI-1012-26	5/8	3/4	1 5/8	.6297	.6270	.7510	.7500	.6250	.6240
MSI-1013-06	5/8	13/16	3/8	.6297	.6270	.8135	.8125	.6250	.6240
MSI-1013-08	5/8	13/16	1/2	.6297	.6270	.8135	.8125	.6250	.6240
MSI-1013-10	5/8	13/16	5/8	.6297	.6270	.8135	.8125	.6250	.6240
MSI-1013-12	5/8	13/16	3/4	.6297	.6270	.8135	.8125	.6250	.6240
MSI-1013-16	5/8	13/16	1	.6297	.6270	.8135	.8125	.6250	.6240

* after pressfit. Testing methods ▶ page 55

iglidur® M250 | Product Range | Inch

Sleeve bearing

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
MSI-1113-12	11/16	13/16	3/4	.6921	.6893	.8135	.8125	.6875	.6865
MSI-1113-14	11/16	13/16	7/8	.6921	.6893	.8135	.8125	.6875	.6865
MSI-1113-16	11/16	13/16	1	.6922	.6900	.8135	.8125	.6875	.6865
MSI-1214-06	3/4	7/8	3/8	.7559	.7525	.8760	.8750	.7500	.7490
MSI-1214-12	3/4	7/8	3/4	.7559	.7525	.8760	.8750	.7500	.7490
MSI-1214-16	3/4	7/8	1	.7559	.7525	.8760	.8750	.7500	.7490
MSI-1214-24	3/4	7/8	1 1/2	.7559	.7525	.8760	.8750	.7500	.7490
MSI-1216-06	3/4	1	3/8	.7559	.7525	1.0010	1.0000	.7500	.7490
MSI-1216-08	3/4	1	1/2	.7559	.7525	1.0010	1.0000	.7500	.7490
MSI-1216-10	3/4	1	5/8	.7559	.7525	1.0010	1.0000	.7500	.7490
MSI-1216-12	3/4	1	3/4	.7559	.7525	1.0010	1.0000	.7500	.7490
MSI-1216-16	3/4	1	1	.7559	.7525	1.0010	1.0000	.7500	.7490
MSI-1216-20	3/4	1	1 1/4	.7559	.7525	1.0010	1.0000	.7500	.7490
MSI-1216-24	3/4	1	1 1/2	.7559	.7525	1.0010	1.0000	.7500	.7490
MSI-1316-08	13/16	1	1/2	.8184	.8151	1.0010	1.0000	.8126	.8116
MSI-1416-12	7/8	1	3/4	.8809	.8775	1.0010	1.0000	.8750	.8740
MSI-1416-16	7/8	1	1	.8809	.8775	1.0010	1.0000	.8750	.8740
MSI-1416-24	7/8	1	1 1/2	.8809	.8775	1.0010	1.0000	.8750	.8740
MSI-1418-08	7/8	1 1/8	1/2	.8809	.8775	1.1260	1.1250	.8750	.8740
MSI-1418-12	7/8	1 1/8	3/4	.8809	.8775	1.1260	1.1250	.8750	.8740
MSI-1418-16	7/8	1 1/8	1	.8809	.8775	1.1260	1.1250	.8750	.8740
MSI-1418-24	7/8	1 1/8	1 1/2	.8809	.8775	1.1260	1.1250	.8750	.8740
MSI-1618-12	1	1 1/8	3/4	1.0059	1.0025	1.1260	1.1250	1.0000	.9990
MSI-1618-16	1	1 1/8	1	1.0059	1.0025	1.1260	1.1250	1.0000	.9990
MSI-1618-24	1	1 1/8	1 1/2	1.0059	1.0025	1.1260	1.1250	1.0000	.9990
MSI-1620-08	1	1 1/4	1/2	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MSI-1620-10	1	1 1/4	5/8	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MSI-1620-12	1	1 1/4	3/4	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MSI-1620-16	1	1 1/4	1	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MSI-1620-24	1	1 1/4	1 1/2	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MSI-1620-32	1	1 1/4	2	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MSI-1822-16	1 1/8	1 3/8	1	1.1309	1.1275	1.3760	1.3750	1.1250	1.1240
MSI-1822-24	1 1/8	1 3/8	1 1/2	1.1309	1.1275	1.3760	1.3750	1.1250	1.1240
MSI-2024-12	1 1/4	1 1/2	3/4	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
MSI-2024-16	1 1/4	1 1/2	1	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
MSI-2024-22	1 1/4	1 1/2	1 3/8	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
MSI-2024-24	1 1/4	1 1/2	1 1/2	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
MSI-2024-40	1 1/4	1 1/2	2 1/2	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
MSI-2226-16	1 3/8	1 5/8	1	1.3850	1.3182	1.6255	1.6245	1.3750	1.3740

* after pressfit. Testing methods ▶ page 55

iglidur® M250 | Product Range | Inch

Sleeve bearing

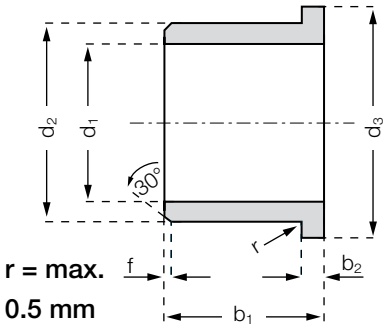
Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
MSI-2428-12	1 1/2	1 3/4	3/4	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
MSI-2428-16	1 1/2	1 3/4	1	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
MSI-2428-24	1 1/2	1 3/4	1 1/2	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
MSI-2428-40	1 1/2	1 3/4	2 1/2	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
MSI-2630-16	1 5/8	1 7/8	1	1.6350	1.6282	1.8755	1.8745	1.6250	1.6240
MSI-2832-08	1 3/4	2	1/2	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490
MSI-2832-12	1 3/4	2	3/4	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490
MSI-2832-16	1 3/4	2	1	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490
MSI-2832-24	1 3/4	2	1 1/2	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490
MSI-2832-40	1 3/4	2	2 1/2	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490
MSI-3236-16	2	2 1/4	1	2.0100	2.0032	2.2505	2.2495	2.0000	1.9990
MSI-3236-24	2	2 1/4	1 1/2	2.0100	2.0032	2.2505	2.2495	2.0000	1.9990
MSI-3236-32	2	2 1/4	2	2.0100	2.0032	2.2505	2.2495	2.0000	1.9990
MSI-3236-40	2	2 1/4	2 1/2	2.0100	2.0032	2.2505	2.2495	2.0000	1.9990
MSI-4852-16	3	3 1/4	1	3.0114	3.0039	3.2505	3.2495	3.0000	2.9990

* after pressfit. Testing methods ▶ page 55

iglidur® M250 | Product Range | Inch

Flange bearing



Order key

MFI-0203-02

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® M250

Chamfer in relation to the d1

d1 [Inch]:	Ø 0,040–0,236	Ø 0,236–0,472	Ø 0,472–1,18	Ø > 1,18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft size	
						max.	min.	max.	min.	max.	min.
MFI-0203-02	1/8	3/16	1/8	.3125	.032	.1280	.1262	.1885	.1880	.1250	.1241
MFI-0203-04	1/8	3/16	1/4	.3125	.032	.1280	.1262	.1885	.1880	.1250	.1241
MFI-0204-02	1/8	1/4	1/8	.360	.047	.1280	.1262	.2515	.2510	.1250	.1241
MFI-0204-03	1/8	1/4	3/16	.360	.047	.1280	.1262	.2515	.2510	.1250	.1241
MFI-0204-04	1/8	1/4	1/4	.360	.047	.1280	.1262	.2515	.2510	.1250	.1241
MFI-0204-06	1/8	1/4	3/8	.360	.047	.1280	.1262	.2515	.2510	.1250	.1241
MFI-0204-12	1/8	1/4	3/4	.360	.047	.1280	.1262	.2515	.2510	.1250	.1241
MFI-0304-04	3/16	1/4	1/4	.375	.032	.1905	.1887	.2515	.2510	.1875	.1866
MFI-0304-06	3/16	1/4	3/8	.375	.032	.1905	.1887	.2515	.2510	.1875	.1866
MFI-0304-08	3/16	1/4	1/2	.375	.032	.1905	.1887	.2515	.2510	.1875	.1866
MFI-0305-03	3/16	5/16	3/16	.370	.047	.1905	.1887	.3140	.3135	.1875	.1866
MFI-0305-04	3/16	5/16	1/4	.370	.047	.1905	.1887	.3140	.3135	.1875	.1866
MFI-0305-05	3/16	5/16	5/16	.370	.047	.1905	.1887	.3140	.3135	.1875	.1866
MFI-0305-06	3/16	5/16	3/8	.370	.047	.1905	.1887	.3140	.3135	.1875	.1866
MFI-0305-08	3/16	5/16	1/2	.370	.047	.1905	.1887	.3140	.3135	.1875	.1866
MFI-0405-03	1/4	5/16	3/16	.4375	.047	.2539	.2516	.3140	.3135	.2500	.2491
MFI-0405-04	1/4	5/16	1/4	.4375	.032	.2539	.2516	.3140	.3135	.2500	.2491
MFI-0405-06	1/4	5/16	3/8	.4375	.032	.2539	.2516	.3140	.3135	.2500	.2491
MFI-0405-07	1/4	5/16	7/16	.4375	.047	.2539	.2516	.3140	.3135	.2500	.2491
MFI-0405-08	1/4	5/16	1/2	.4375	.032	.2539	.2516	.3140	.3135	.2500	.2491
MFI-0405-12	1/4	5/16	3/4	.4375	.047	.2539	.2516	.3140	.3135	.2500	.2491
MFI-0406-02	1/4	3/8	1/8	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
MFI-0406-03	1/4	3/8	3/16	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
MFI-0406-04	1/4	3/8	1/4	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
MFI-0406-06	1/4	3/8	3/8	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/m250 | order example part number MFI-0203-02

iglidur® M250 | Product Range | Inch

Flange bearing

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft size	
						max.	min.	max.	min.	max.	min.
MFI-0406-08	1/4	3/8	1/2	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
MFI-0406-10	1/4	3/8	5/8	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
MFI-0406-12	1/4	3/8	3/4	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
MFI-0506-04	5/16	3/8	1/4	.500	.032	.3164	.3141	.3765	.3760	.3125	.3116
MFI-0506-06	5/16	3/8	3/8	.500	.032	.3164	.3141	.3765	.3760	.3125	.3116
MFI-0506-08	5/16	3/8	1/2	.500	.032	.3164	.3141	.3765	.3760	.3125	.3116
MFI-0506-15	5/16	3/8	15/16	.500	.032	.3164	.3141	.3765	.3760	.3125	.3116
MFI-0507-03	5/16	7/16	3/16	.560	.062	.3164	.3141	.4390	.4385	.3125	.3116
MFI-0507-04	5/16	7/16	1/4	.560	.062	.3164	.3141	.4390	.4385	.3125	.3116
MFI-0507-05	5/16	7/16	5/16	.560	.062	.3164	.3141	.4390	.4385	.3125	.3116
MFI-0507-06	5/16	7/16	3/8	.560	.062	.3164	.3141	.4390	.4385	.3125	.3116
MFI-0507-08	5/16	7/16	1/2	.560	.062	.3164	.3141	.4390	.4385	.3125	.3116
MFI-0507-10	5/16	7/16	5/8	.560	.062	.3164	.3141	.4390	.4385	.3125	.3116
MFI-0507-12	5/16	7/16	3/4	.560	.062	.3164	.3141	.4390	.4385	.3125	.3116
MFI-0607-04	3/8	7/16	1/4	.5625	.032	.3789	.3766	.4390	.4385	.3750	.3741
MFI-0607-06	3/8	7/16	3/8	.5625	.032	.3789	.3766	.4390	.4385	.3750	.3741
MFI-0607-08	3/8	7/16	1/2	.5625	.032	.3789	.3766	.4390	.4385	.3750	.3741
MFI-0608-02	3/8	1/2	1/8	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
MFI-0608-03	3/8	1/2	3/16	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
MFI-0608-04	3/8	1/2	1/4	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
MFI-0608-05	3/8	1/2	5/16	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
MFI-0608-06	3/8	1/2	3/8	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
MFI-0608-08	3/8	1/2	1/2	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
MFI-0608-10	3/8	1/2	5/8	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
MFI-0608-12	3/8	1/2	3/4	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
MFI-0608-16	3/8	1/2	1	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
MFI-0709-06	7/16	9/16	3/8	.687	.062	.4422	.4395	.5941	.5934	.4375	.4365
MFI-0709-08	7/16	9/16	1/2	.687	.062	.4422	.4395	.5941	.5934	.4375	.4365
MFI-0810-02	1/2	5/8	1/8	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
MFI-0810-04	1/2	5/8	1/4	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
MFI-0810-05	1/2	5/8	5/16	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
MFI-0810-06	1/2	5/8	3/8	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
MFI-0810-08	1/2	5/8	1/2	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
MFI-0810-10	1/2	5/8	5/8	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
MFI-0810-12	1/2	5/8	3/4	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
MFI-0810-16	1/2	5/8	1	.875	.062	.5047	.5020	.6260	.6250	.5000	.4990
MFI-1012-06	5/8	3/4	3/8	1.000	.062	.6297	.6270	.7510	.7500	.6250	.6240
MFI-1012-08	5/8	3/4	1/2	1.000	.062	.6297	.6270	.7510	.7500	.6250	.6240
MFI-1012-10	5/8	3/4	5/8	1.000	.062	.6297	.6270	.7510	.7500	.6250	.6240
MFI-1012-12	5/8	3/4	3/4	1.000	.062	.6297	.6270	.7510	.7500	.6250	.6240
MFI-1012-16	5/8	3/4	1	1.000	.062	.6297	.6270	.7510	.7500	.6250	.6240
MFI-1012-24	5/8	3/4	1 1/2	1.000	.062	.6297	.6270	.7510	.7500	.6250	.6240

* after pressfit. Testing methods ▶ page 55

iglidur® M250 | Product Range | Inch

Flange bearing

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft size	
						max.	min.	max.	min.	max.	min.
MFI-1013-08	5/8	13/16	1/2	1.063	.062	.6297	.6270	.8135	.8125	.6250	.6240
MFI-1013-10	5/8	13/16	5/8	1.063	.062	.6297	.6270	.8135	.8125	.6250	.6240
MFI-1013-12	5/8	13/16	3/4	1.063	.062	.6297	.6270	.8135	.8125	.6250	.6240
MFI-1013-16	5/8	13/16	1	1.063	.062	.6297	.6270	.8135	.8125	.6250	.6240
MFI-1214-06	3/4	7/8	3/8	1.125	.062	.7559	.7525	.8760	.8750	.6250	.6240
MFI-1214-08	3/4	7/8	1/2	1.125	.062	.7559	.7525	.8760	.8750	.6250	.6240
MFI-1214-12	3/4	7/8	3/4	1.125	.062	.7559	.7525	.8760	.8750	.7500	.7490
MFI-1214-16	3/4	7/8	1	1.125	.062	.7559	.7525	.8760	.8750	.7500	.7490
MFI-1214-24	3/4	7/8	1 1/2	1.125	.062	.7559	.7525	.8760	.8750	.7500	.7490
MFI-1216-08	3/4	1	1/2	1.250	.156	.7559	.7525	1.0010	1.0000	.7500	.7490
MFI-1216-10	3/4	1	5/8	1.250	.156	.7559	.7525	1.0010	1.0000	.7500	.7490
MFI-1216-12	3/4	1	3/4	1.250	.156	.7559	.7525	1.0010	1.0000	.7500	.7490
MFI-1216-16	3/4	1	1	1.250	.156	.7559	.7525	1.0010	1.0000	.7500	.7490
MFI-1216-24	3/4	1	1 1/2	1.250	.156	.7559	.7525	1.0010	1.0000	.7500	.7490
MFI-1416-12	7/8	1	3/4	1.250	.062	.8809	.8775	1.0010	1.0000	.8750	.8740
MFI-1416-16	7/8	1	1	1.250	.062	.8809	.8775	1.0010	1.0000	.8750	.8740
MFI-1416-24	7/8	1	1 1/2	1.250	.062	.8809	.8775	1.0010	1.0000	.8750	.8740
MFI-1418-08	7/8	1 1/8	1/2	1.375	.156	.8809	.8775	1.1260	1.1250	.8750	.8740
MFI-1418-12	7/8	1 1/8	3/4	1.375	.156	.8809	.8775	1.1260	1.1250	.8750	.8740
MFI-1418-16	7/8	1 1/8	1	1.375	.156	.8809	.8775	1.1260	1.1250	.8750	.8740
MFI-1418-24	7/8	1 1/8	1 1/2	1.375	.156	.8809	.8775	1.1260	1.1250	.8750	.8740
MFI-1618-03	1	1 1/8	3/16	1.375	.062	1.0059	1.0025	1.1260	1.1250	1.0000	.9990
MFI-1618-12	1	1 1/8	3/4	1.375	.062	1.0059	1.0025	1.1260	1.1250	1.0000	.9990
MFI-1618-16	1	1 1/8	1	1.375	.062	1.0059	1.0025	1.1260	1.1250	1.0000	.9990
MFI-1618-24	1	1 1/8	1 1/2	1.375	.062	1.0059	1.0025	1.1260	1.1250	1.0000	.9990
MFI-1620-08	1	1 1/4	1/2	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MFI-1620-10	1	1 1/4	5/8	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MFI-1620-12	1	1 1/4	3/4	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MFI-1620-16	1	1 1/4	1	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MFI-1620-24	1	1 1/4	1 1/2	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
MFI-2024-07	1 1/4	1 1/2	7/16	1.750	.200	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
MFI-2024-12	1 1/4	1 1/2	3/4	1.750	.200	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
MFI-2024-16	1 1/4	1 1/2	1	1.750	.200	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
MFI-2024-24	1 1/4	1 1/2	1 1/2	1.750	.200	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
MFI-2226-12	1 3/8	1 5/8	3/4	1.875	.125	1.3850	1.3182	1.6255	1.6245	1.3750	1.3740
MFI-2226-16	1 3/8	1 5/8	1	1.875	.125	1.3850	1.3182	1.6255	1.6245	1.3750	1.3740
MFI-2428-12	1 1/2	1 3/4	3/4	2.000	.125	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
MFI-2428-16	1 1/2	1 3/4	1	2.000	.125	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
MFI-2428-24	1 1/2	1 3/4	1 1/2	2.000	.125	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/m250 | order example part number MFI-1013-08

iglidur® M250 | Product Range | Inch

Flange bearing

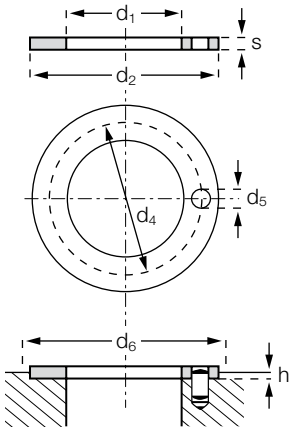
Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft size	
						max.	min.	max.	min.	max.	min.
MFI-2630-16	1 5/8	1 7/8	1	2.125	.125	1.6350	1.6282	1.8755	1.8745	1.6250	1.6240
MFI-2832-12	1 3/4	2	3/4	2.250	.125	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490
MFI-2832-16	1 3/4	2	1	2.250	.125	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490
MFI-2832-24	1 3/4	2	1 1/2	2.250	.125	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490
MFI-3236-16	2	2 1/4	1	2.500	.125	2.0100	2.0032	2.2550	2.2540	2.0000	1.9990
MFI-3236-24	2	2 1/4	1 1/2	2.500	.125	2.0100	2.0032	2.2550	2.2540	2.0000	1.9990
MFI-3236-32	2	2 1/4	2	2.500	.125	2.0100	2.0032	2.2550	2.2540	2.0000	1.9990

* after pressfit. Testing methods ▶ page 55

iglidur® M250 | Product Range | Inch

Thrust washer



Order key

MTI-04

- Thickness s
- Inch
- Type (Form T)
- Material iglidur® M250

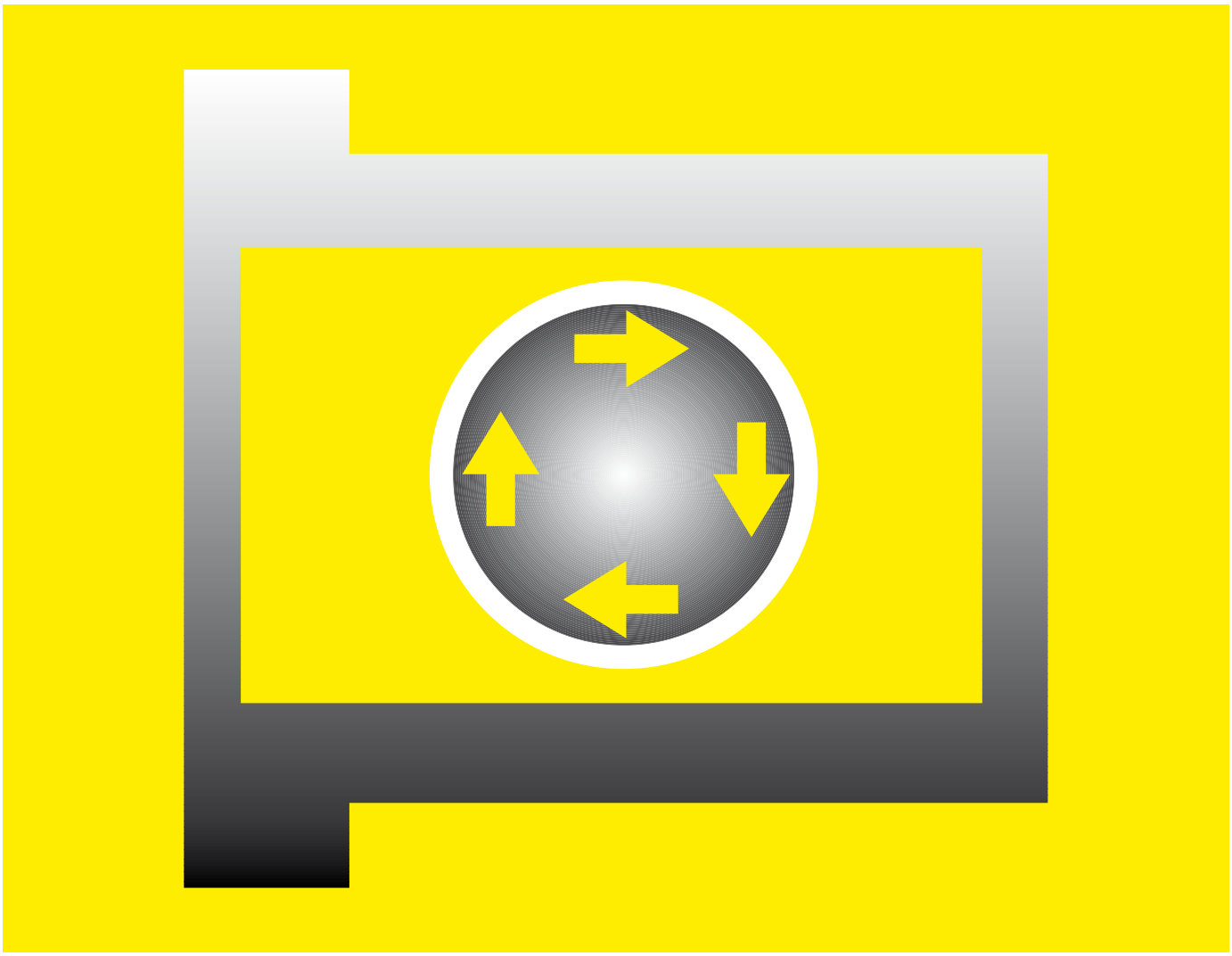
Dimensions according to ISO 3547-1 and special dimensions

Dimensions [Inch]

Part number	d1 (nominal)	d1*		d2		s
		max.	min.	max.	min.	
MTI-04	1/4	.2609	.2550	.6200	.6094	.0900
MTI-05	5/16	.3271	.3189	.6874	.6767	.0900
MTI-06	3/8	.3850	.3780	.7409	.7394	.0900
MTI-08	1/2	.5101	.5030	.8200	.8070	.0900
MTI-10	5/8	.6371	.6300	1.0000	.9870	.0940
MTI-12	3/4	.7675	.7600	1.0630	1.0500	.0940
MTI-16	1	1.0200	1.0100	1.5000	1.4843	.1250
MTI-20	1 1/4	1.2998	1.2900	2.1400	2.1220	.0980
MTI-24	1 1/2	1.6000	1.5500	2.6000	2.5500	.1250

* after pressfit. Testing methods ▶ page 55

My Sketches

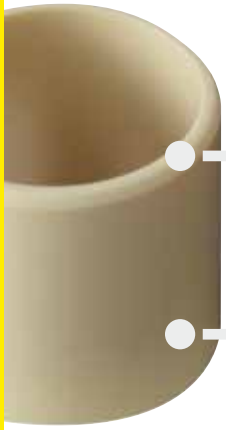


iglidur® W300 – The Marathon Runner: long service life, also for soft shafts

- Over 400 sizes available from stock
- For especially long service life
- Low coefficient of friction
- Extremely high wear resistance
- Also suitable for soft shafts
- Resistant to dirt

iglidur® W300 | The Marathon Runner

Long service life, also for soft shafts. The iglidur® W300 material gives excellent wear resistance, even in harsh environments or when used with rough shafts. Of all iglidur® materials, iglidur® W300 is the most resistant to these conditions.

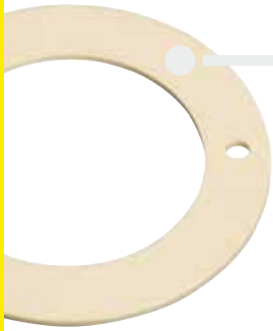


For especially high service life

Low coefficient of friction

Extremely high wear resistance

Also suitable for soft shafts



Resistant to dirt

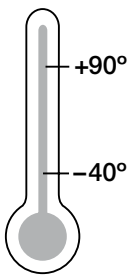
When to use it?

- When especially high service life is necessary
- When low coefficients of dynamic friction and high wear resistance are needed
- For use on 303 stainless steel shafts
- For harsh environments and very rough shafts
- Dirt resistant

When not to use it?

- For high loads starting at 50 MPa
  ▶ **iglidur® Q, page 461**
- When temperatures are constantly above +90 °C
  ▶ **iglidur® H, page 325**
  ▶ **iglidur® X, page 153**
- For very wet environments
  ▶ **iglidur® P, page 185**
- When an economical bearing is required
  ▶ **iglidur® G, page 61**

Temperature



Product range

3 types
> 400 dimensions
Ø 2–120 mm

iglidur® W300 | Application Examples

Typical sectors of industry and application areas

- Automation
- Printing industry
- Woodworking
- Mechatronics
- Test engineering and quality assurace etc.

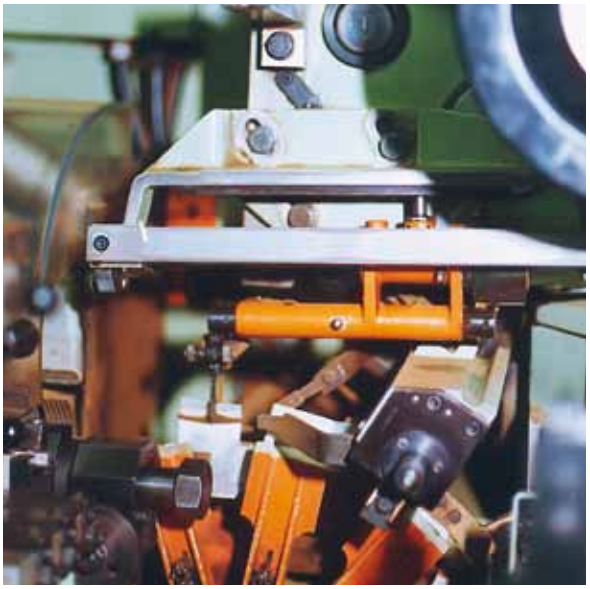
Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

▶ **www.igus.co.uk/hydrogen-car**

▶ **www.igus.co.uk/concrete-machines**

▶ **www.igus.co.uk/rickshaw**

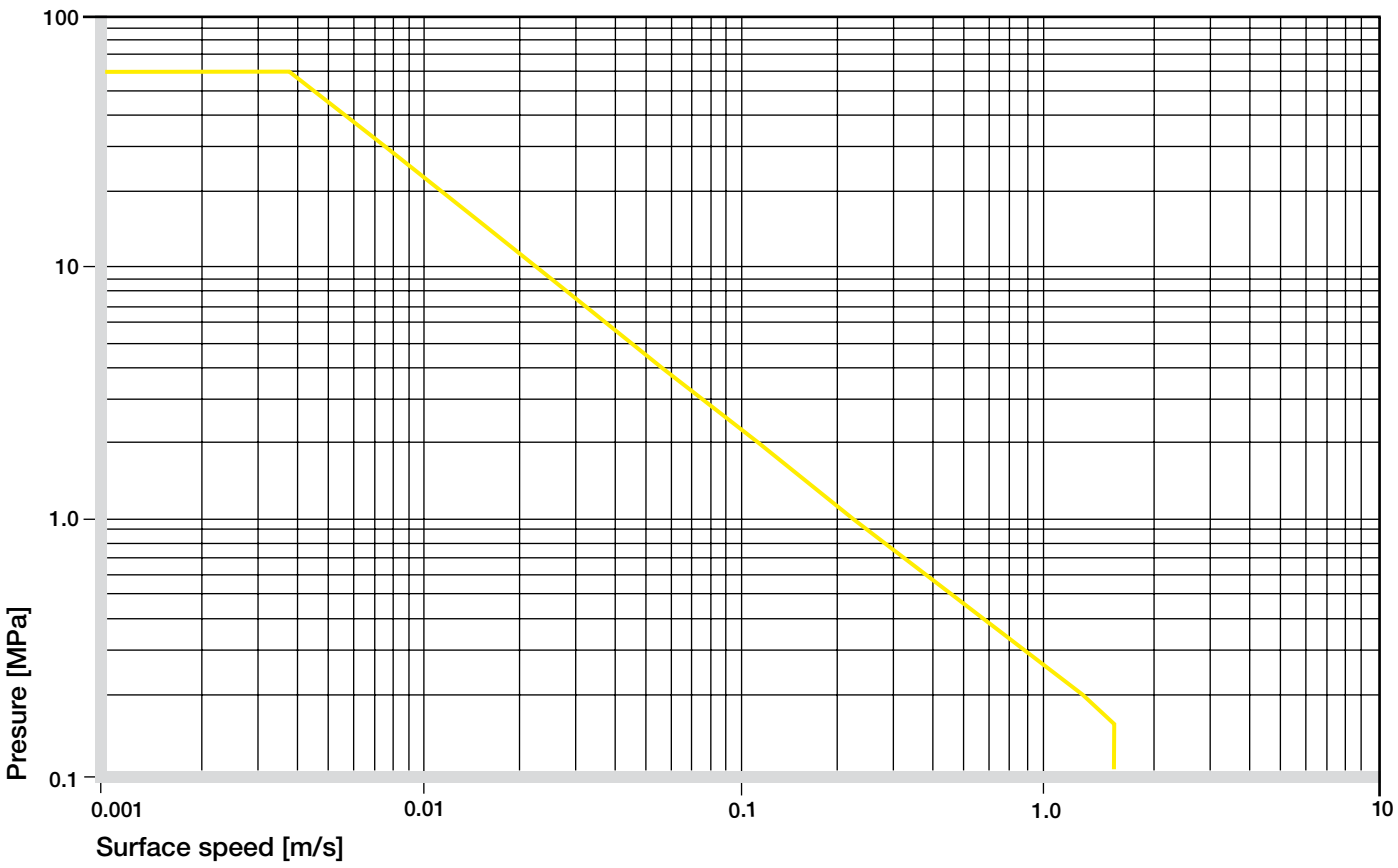


▶ **www.igus.co.uk/teebag-packaging**

iglidur® W300 | Technical Data

Material data			
General properties	**Unit**	**iglidur® W300**	**Testing method**
Density	**g/cm³**	1.24	
Colour		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	1.3	DIN 53495
Max. moisture absorption	**% weight**	6.5	
Coefficient of sliding friction, dynamic against steel	**µ**	0.08–0.23	
pv value, max. (dry)	**MPa · m/s**	0.23	
Mechanical properties			
Modulus of elasticity	**MPa**	3,500	DIN 53457
Tensile strength at +20 °C	**MPa**	125	DIN 53452
Compressive strength	**MPa**	61	
Max. recommended surface pressure (+20 °C)	**MPa**	60	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+180	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	9	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{13}	DIN IEC 93
Surface resistance	**Ω**	> 10^{12}	DIN 53482

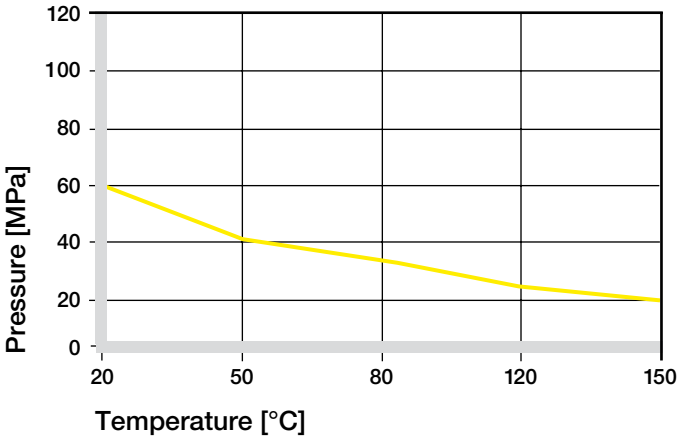
Table 01: Material data



Graph 01: Permissible pv values for iglidur® W300 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

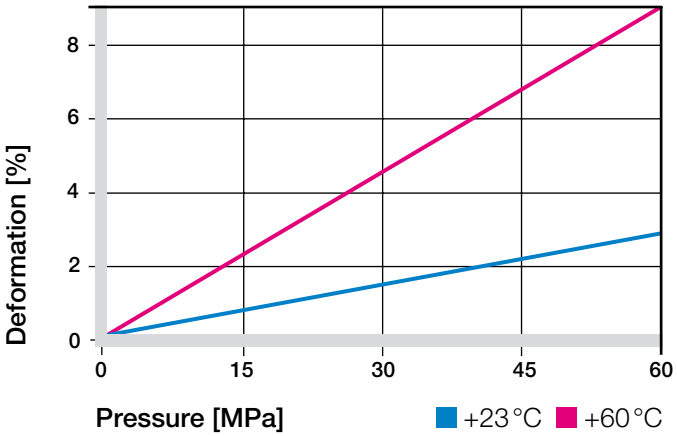
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® W300 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90 °C the permissible surface pressure is almost 30 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (35 MPa at +20 °C)

iglidur® W300 gives excellent wear resistance, even in harsh environments or when used with rough shafts. This material is the most tolerant of these external effects out of all the iglidur® range.
iglidur® W300 exhibits a very high compression resistance in spite of its high elasticity.Graph 03 shows the elastic deformation of iglidur® W300 under radial loading. At the recommended maximum surface pressure of 60 MPa, the deformation at room temperature is less than 3 %.
Below the recommended maximum surface pressure of 60 MPa the deformation at room temperature is virtually zero.

▶ Surface Speed, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

Even at higher surface speeds, the coefficients of friction for iglidur® W300 do not increase. Therefore, compared to other materials, higher surface speeds can be obtained, for example, up to 1.5 m/s rotat ing and up to 5 m/s linear. The bearing wear remains low when used for long periods at high speeds, due to exceptional wear resistance. Relatively high speeds can be obtained with iglidur® W300 bearings on hardened shafts with the recommended surface finish.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	4
Short term	2.5	1.8	6

Table 02: Maximum surface speeds

Temperatures

iglidur® W300 plain bearings show minimal reaction to environmental effects. This also applies to temperatures. iglidur® W300 bearings maintain their exceptional wear resistance even up to the highest permissible application temperatures and at the same time resist becoming brittle at low temperatures.

▶ Application Temperatures, **page 46**

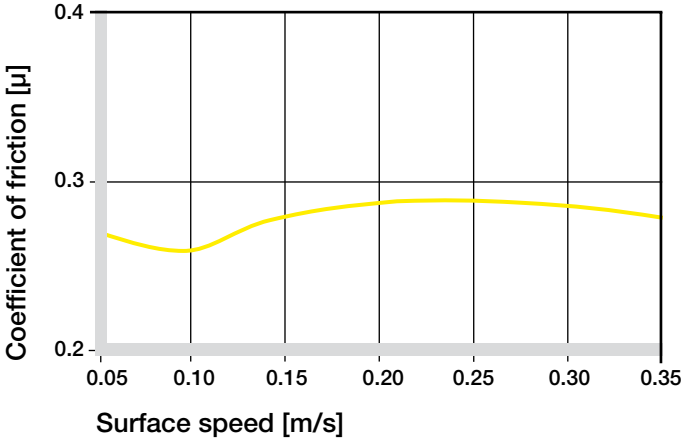
iglidur® W300	Application temperature
Minimum	–40 °C
Max. long term	+90 °C
Max. short term	+180 °C
Add. securing is required from	+60 °C

Table 03: Temperature limits

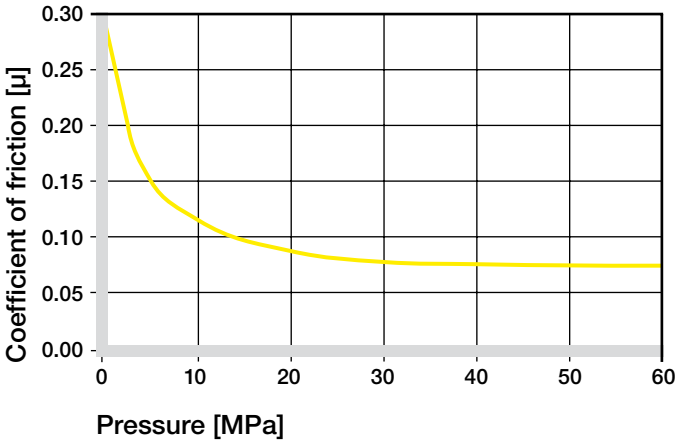
Friction and Wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. In contrast to other iglidur® materials, the coefficient of friction of iglidur® W300 remains consistently low at higher rotational speeds.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

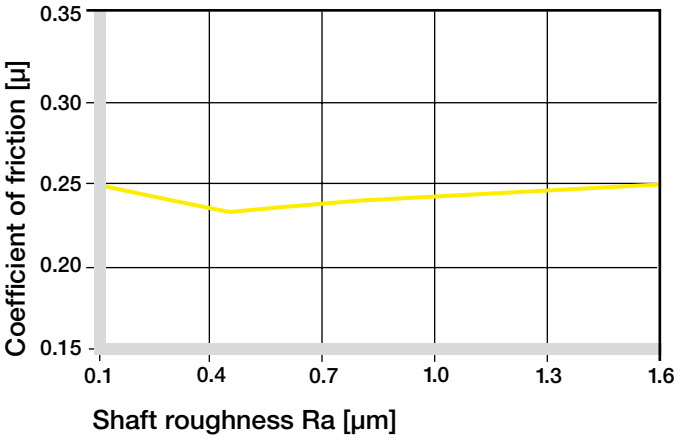
Friction and wear are to a large extent also highly dependant on the shaft materials. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. Smooth shafts have the danger of stick slip. Squeaking as an effect of stick slip is usually the result of shafts that are too smooth.

For the lowest coefficients of friction when using iglidur® W300 plain bearings, the surfaces should not be too smooth. Shaft roughnesses of 0.4 to 0.5 μm have proven to be the best (see Graph 06). Tests with iglidur® W300 have shown the wear resistance at this roughness is very high, while the friction reduces to the lowest value.

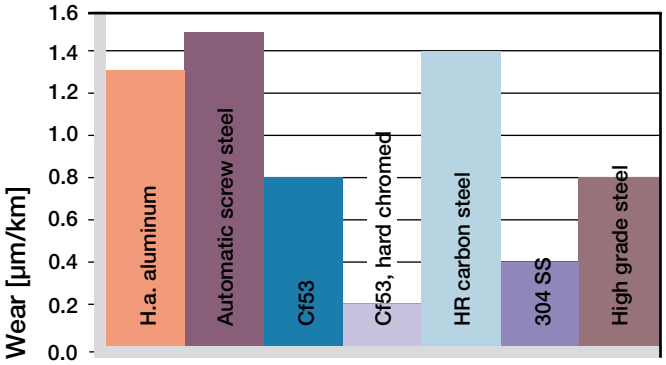
Graphs 07 to 09 show results of testing different shaft materials with iglidur® W300 plain bearings. For rotational applications with low loads, the wear varies according to the shaft material. iglidur® W300 provides very good to acceptable coefficients of friction for all shafts that were tested. iglidur® W300 gives best results when running on hard shafts. For small radial loads with hard chromed shafts and/or shafts made of stainless steel, iglidur® W300 is the most suitable iglidur® material.The soft shaft materials HR carbon steel and free-machining steel are not as well suited to iglidur® W300 plain bearings. Hardened shafts are preferred for applications for higher loads. Graph 08 clearly shows the difference in materials for increasing loads. A similar picture emerges for oscillating applications. First, for low loads, the wear for the oscillating movement lies below that of a rotation at the same load.

For higher loads, the situation changes. If the shaft material you plan to use is not contained in this list, please contact us.

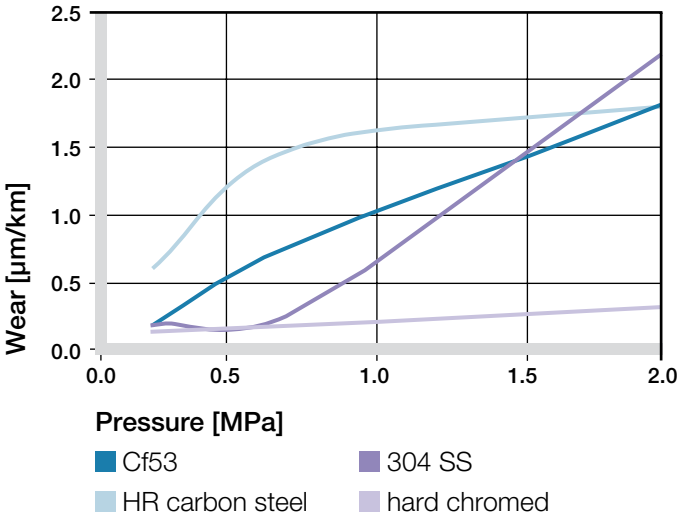
▶ Shaft Materials, **page 51**



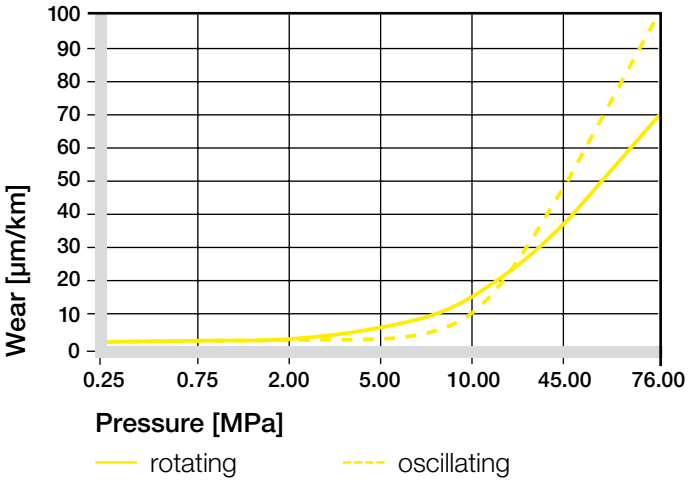
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating application with different shaft materials, p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with Cf53 hardenend and ground steel shafts, as a function of the pressure

iglidur® W300	Dry	Greases	Oil	Water
C. o. f. µ	0,08–0.23	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® W300 plain bearings have a good resistance to chemicals. They are resistant to most lubricants. iglidur® W300 is not attacked by most weak organic or inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alkohole	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® W300 are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® W300 plain bearings are permanently resistant to UV radiation. A slight change in colour (dark coloration) due to UV radiation and other weathering effects will not significantly influence the mechanical, electrical or thermal properties.

Vacuum

In a vacuum, iglidur® W300 plain bearings will outgas any moisture that may have been absorbed. The use of iglidur® W300 in a vacuum environment is only possible to a limited extent.

Electrical Properties

iglidur® W300 plain bearings are electrically insulating.

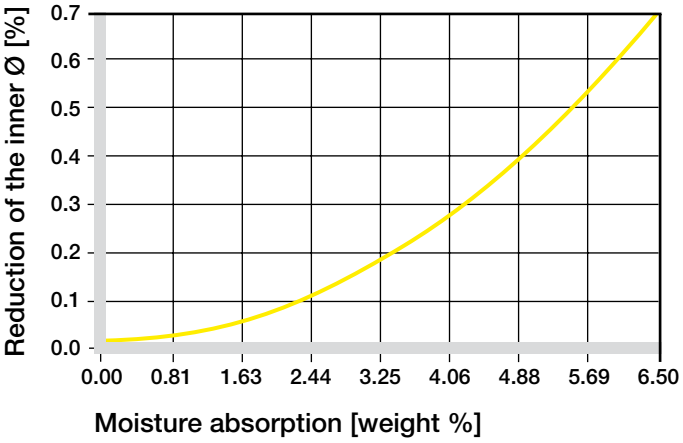
Specific volume resistance	> 10^{13} Ωcm
Surface resistance	> 10^{12} Ω

Moisture Absorption

The moisture absorption of iglidur® W300 plain bearings is approximately 1.3 % weight in the standard atmosphere. The maximum water absorption is 6.5 %. This must be taken into account along with other environmental influences.

Maximum moisture absorption	
At +23 °C/50 % r.h.	1.3 % weight
Max. moisture absorbtion	6.5 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® W300 plain bearings are meant to be oversized before pressfit. The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

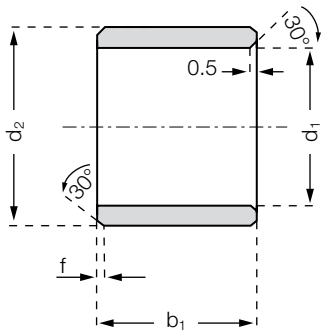
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® W300 E10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.014 +0.054	0 +0.010
> 3	to	6	0–0.030	+0.020 +0.068	0 +0.012
> 6	to	10	0–0.036	+0.025 +0.083	0 +0.015
> 10	to	18	0–0.043	+0.032 +0.102	0 +0.018
> 18	to	30	0–0.052	+0.040 +0.124	0 +0.021
> 30	to	50	0–0.062	+0.050 +0.150	0 +0.025
> 50	to	80	0–0.074	+0.060 +0.180	0 +0.030
> 80	to	120	0–0.087	+0.072 +0.212	0 +0.035
> 120	to	180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Essential tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® W300 | Product Range

Sleeve bearing



Order key

WSM-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® G

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
WSM-0203-03	2.0	+0.014 +0.054	3.5	3.0
WSM-0204-03	2.5	+0.014 +0.054	4.0	3.0
WSM-0304-03	3.0	+0.014 +0.054	4.5	3.0
WSM-0304-05	3.0	+0.014 +0.054	4.5	5.0
WSM-0304-06	3.0	+0.014 +0.054	4.5	6.0
WSM-0405-04	4.0	+0.020 +0.068	5.5	4.0
WSM-0405-06	4.0	+0.020 +0.068	5.5	6.0
WSM-0405-08	4.0	+0.020 +0.068	5.5	8.0
WSM-0405-10	4.0	+0.020 +0.068	5.5	10.0
WSM-0507-05	5.0	+0.020 +0.068	7.0	5.0
WSM-0507-08	5.0	+0.020 +0.068	7.0	8.0
WSM-0507-10	5.0	+0.020 +0.068	7.0	10.0
WSM-0608-06	6.0	+0.020 +0.068	8.0	6.0
WSM-0608-08	6.0	+0.020 +0.068	8.0	8.0
WSM-0608-09	6.0	+0.020 +0.068	8.0	9.5
WSM-0608-10	6.0	+0.020 +0.068	8.0	10.0
WSM-0608-11	6.0	+0.020 +0.068	8.0	11.8
WSM-0608-13	6.0	+0.020 +0.068	8.0	13.8
WSM-0709-09	7.0	+0.025 +0.083	9.0	9.0
WSM-0709-12	7.0	+0.025 +0.083	9.0	12.0
WSM-0709-125	7.0	+0.025 +0.083	9.0	12.5
WSM-0810-06	8.0	+0.025 +0.083	10.0	6.0
WSM-0810-08	8.0	+0.025 +0.083	10.0	8.0
WSM-0810-10	8.0	+0.025 +0.083	10.0	10.0
WSM-0810-12	8.0	+0.025 +0.083	10.0	12.0

Part number	d1	d1-Tolerance*	d2	b1 h13
WSM-0810-13	8.0	+0.025 +0.083	10.0	13.8
WSM-0810-15	8.0	+0.025 +0.083	10.0	15.0
WSM-0810-16	8.0	+0.025 +0.083	10.0	16.0
WSM-0810-20	8.0	+0.025 +0.083	10.0	20.0
WSM-0810-21	8.0	+0.025 +0.083	10.0	21.0
WSM-0911-06	9.0	+0.025 +0.083	11.0	6.0
WSM-1012-04	10.0	+0.025 +0.083	12.0	4.0
WSM-1012-06	10.0	+0.025 +0.083	12.0	6.0
WSM-1012-08	10.0	+0.025 +0.083	12.0	8.0
WSM-1012-09	10.0	+0.025 +0.083	12.0	9.0
WSM-1012-10	10.0	+0.025 +0.083	12.0	10.0
WSM-1012-12	10.0	+0.025 +0.083	12.0	12.0
WSM-1012-15	10.0	+0.025 +0.083	12.0	15.0
WSM-1012-17	10.0	+0.025 +0.083	12.0	17.0
WSM-1012-20	10.0	+0.025 +0.083	12.0	20.0
WSM-1012-25.5	10.0	+0.025 +0.083	12.0	25.5
WSM-1113-08	11.0	+0.032 +0.102	13.0	8.0
WSM-1214-04	12.0	+0.032 +0.102	14.0	4.0
WSM-1214-05	12.0	+0.032 +0.102	14.0	5.0
WSM-1214-06	12.0	+0.032 +0.102	14.0	6.0
WSM-1214-08	12.0	+0.032 +0.102	14.0	8.0
WSM-1214-10	12.0	+0.032 +0.102	14.0	10.0
WSM-1214-12	12.0	+0.032 +0.102	14.0	12.0
WSM-1214-15	12.0	+0.032 +0.102	14.0	15.0
WSM-1214-20	12.0	+0.032 +0.102	14.0	20.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/w300 | order example part number WSM-0203-03

iglidur® W300 | Product Range

Sleeve bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
WSM-1214-25	12.0	+0.032 +0.102	14.0	25.0
WSM-1315-07	13.0	+0.032 +0.102	15.0	7.0
WSM-1315-10	13.0	+0.032 +0.102	15.0	10.0
WSM-1315-15	13.0	+0.032 +0.102	15.0	15.0
WSM-1315-20	13.0	+0.032 +0.102	15.0	20.0
WSM-1416-07	14.0	+0.032 +0.102	16.0	7.25
WSM-1416-10	14.0	+0.032 +0.102	16.0	10.0
WSM-1416-15	14.0	+0.032 +0.102	16.0	15.0
WSM-1416-20	14.0	+0.032 +0.102	16.0	20.0
WSM-1416-25	14.0	+0.032 +0.102	16.0	25.0
WSM-1416-33	14.0	+0.032 +0.102	16.0	33.0
WSM-1517-10	15.0	+0.032 +0.102	17.0	10.0
WSM-1517-15	15.0	+0.032 +0.102	17.0	15.0
WSM-1517-20	15.0	+0.032 +0.102	17.0	20.0
WSM-1517-25	15.0	+0.032 +0.102	17.0	25.0
WSM-1618-07	16.0	+0.032 +0.102	18.0	7.0
WSM-1618-08	16.0	+0.032 +0.102	18.0	8.0
WSM-1618-11	16.0	+0.032 +0.102	18.0	11.5
WSM-1618-12	16.0	+0.032 +0.102	18.0	12.0
WSM-1618-15	16.0	+0.032 +0.102	18.0	15.0
WSM-1618-20	16.0	+0.032 +0.102	18.0	20.0
WSM-1618-25	16.0	+0.032 +0.102	18.0	25.0
WSM-1820-12	18.0	+0.032 +0.102	20.0	12.0
WSM-1820-15	18.0	+0.032 +0.102	20.0	15.0
WSM-1820-20	18.0	+0.032 +0.102	20.0	20.0
WSM-1820-25	18.0	+0.032 +0.102	20.0	25.0
WSM-1820-33	18.0	+0.032 +0.102	20.0	33.0
WSM-1820-35	18.0	+0.032 +0.102	20.0	35.0
WSM-1922-28	19.0	+0.040 +0.124	22.0	28.0
WSM-2022-11	20.0	+0.040 +0.124	22.0	11.5
WSM-2022-12	20.0	+0.040 +0.124	22.0	12.0
WSM-2022-15	20.0	+0.040 +0.124	22.0	15.0
WSM-2022-20	20.0	+0.040 +0.124	22.0	20.0
WSM-2022-30	20.0	+0.040 +0.124	22.0	30.0
WSM-2023-08	20.0	+0.040 +0.124	23.0	8.0
WSM-2023-12	20.0	+0.040 +0.124	23.0	12.0
WSM-2023-15	20.0	+0.040 +0.124	23.0	15.0
WSM-2023-20	20.0	+0.040 +0.124	23.0	20.0
WSM-2023-23	20.0	+0.040 +0.124	23.0	23.0
WSM-2023-25	20.0	+0.040 +0.124	23.0	25.0
WSM-2023-30	20.0	+0.040 +0.124	23.0	30.0
WSM-2224-15	22.0	+0.040 +0.124	24.0	15.0
WSM-2224-20	22.0	+0.040 +0.124	24.0	20.0
WSM-2224-30	22.0	+0.040 +0.124	24.0	30.0
WSM-2224-35	22.0	+0.040 +0.124	24.0	35.0
WSM-2225-15	22.0	+0.040 +0.124	25.0	15.0
WSM-2225-20	22.0	+0.040 +0.124	25.0	20.0
WSM-2225-25	22.0	+0.040 +0.124	25.0	25.0
WSM-2225-30	22.0	+0.040 +0.124	25.0	30.0
WSM-2427-15	24.0	+0.040 +0.124	27.0	15.0
WSM-2427-20	24.0	+0.040 +0.124	27.0	20.0
WSM-2427-25	24.0	+0.040 +0.124	27.0	25.0
WSM-2427-30	24.0	+0.040 +0.124	27.0	30.0
WSM-2528-12	25.0	+0.040 +0.124	28.0	12.0
WSM-2528-14	25.0	+0.040 +0.124	28.0	14.0
WSM-2528-15	25.0	+0.040 +0.124	28.0	15.0
WSM-2528-20	25.0	+0.040 +0.124	28.0	20.0
WSM-2528-25	25.0	+0.040 +0.124	28.0	25.0
WSM-2528-30	25.0	+0.040 +0.124	28.0	30.0
WSM-2630-16	26.0	+0.040 +0.124	30.0	16.0
WSM-2630-25	26.0	+0.040 +0.124	30.0	25.0
WSM-2830-10	28.0	+0.040 +0.124	30.0	10.0
WSM-2831-10	28.0	+0.040 +0.124	31.0	10.0
WSM-2832-20	28.0	+0.040 +0.124	32.0	20.0
WSM-2832-25	28.0	+0.040 +0.124	32.0	25.0
WSM-2832-30	28.0	+0.040 +0.124	32.0	30.0
WSM-3034-16	30.0	+0.040 +0.124	34.0	16.0
WSM-3034-20	30.0	+0.040 +0.124	34.0	20.0
WSM-3034-24	30.0	+0.040 +0.124	34.0	24.0
WSM-3034-25	30.0	+0.040 +0.124	34.0	25.0
WSM-3034-30	30.0	+0.040 +0.124	34.0	30.0
WSM-3034-36	30.0	+0.040 +0.124	34.0	36.0
WSM-3034-38	30.0	+0.040 +0.124	34.0	38.0
WSM-3034-40	30.0	+0.040 +0.124	34.0	40.0
WSM-3034-45	30.0	+0.040 +0.124	34.0	45.0
WSM-3236-20	32.0	+0.050 +0.150	36.0	20.0
WSM-3236-25	32.0	+0.050 +0.150	36.0	25.0
WSM-3236-30	32.0	+0.050 +0.150	36.0	30.0
WSM-3236-40	32.0	+0.050 +0.150	36.0	40.0
WSM-3539-20	35.0	+0.050 +0.150	39.0	20.0
WSM-3539-30	35.0	+0.050 +0.150	39.0	30.0
WSM-3539-40	35.0	+0.050 +0.150	39.0	40.0
WSM-3539-50	35.0	+0.050 +0.150	39.0	50.0
WSM-3540-07	35.0	+0.050 +0.150	40.0	7.0

* after pressfit. Testing methods ▶ page 55

iglidur® W300 | Product Range

Sleeve bearing

Dimensions [mm]

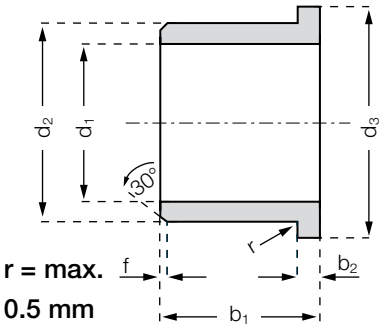
Part number	d1	d1-Tolerance*	d2	b1 h13
WSM-4044-20	40.0	+0.050 +0.150	44.0	20.0
WSM-4044-30	40.0	+0.050 +0.150	44.0	30.0
WSM-4044-40	40.0	+0.050 +0.150	44.0	40.0
WSM-4044-50	40.0	+0.050 +0.150	44.0	50.0
WSM-4550-30	45.0	+0.050 +0.150	50.0	30.0
WSM-4550-50	45.0	+0.050 +0.150	50.0	50.0
WSM-5055-20	50.0	+0.050 +0.150	55.0	20.0
WSM-5055-30	50.0	+0.050 +0.150	55.0	30.0
WSM-5055-40	50.0	+0.050 +0.150	55.0	40.0
WSM-5055-50	50.0	+0.050 +0.150	55.0	50.0

Part number	d1	d1-Tolerance*	d2	b1 h13
WSM-5560-40	55.0	+0.060 +0.180	60.0	40.0
WSM-5560-60	55.0	+0.060 +0.180	60.0	60.0
WSM-6065-30	60.0	+0.060 +0.180	65.0	30.0
WSM-6065-60	60.0	+0.060 +0.180	65.0	60.0
WSM-6570-60	65.0	+0.060 +0.180	70.0	60.0
WSM-7075-60	70.0	+0.060 +0.180	75.0	60.0
WSM-8085-100	80.0	+0.060 +0.180	85.0	100.0
WSM-9095-100	90.0	+0.072 +0.212	95.0	100.0
WSM-100105-100	100.0	+0.072 +0.212	105.0	100.0

* after pressfit. Testing methods ▶ page 55

iglidur® W300 | Product Range

Flange bearing



r = max. 0.5 mm

Order key

WFM-0304-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® G

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
WFM-0304-03	3.0	+0.014 +0.054	4.5	7.5	3.0	0.75
WFM-0304-05	3.0	+0.014 +0.054	4.5	7.5	5.0	0.75
WFM-0405-03	4.0	+0.020 +0.068	5.5	9.5	3.0	0.75
WFM-0405-04	4.0	+0.020 +0.068	5.5	9.5	4.0	0.75
WFM-0405-06	4.0	+0.020 +0.068	5.5	9.5	6.0	0.75
WFM-0506-08	5.0	+0.010 +0.040	6.0	10.0	8.0	0.50
WFM-0507-04	5.0	+0.020 +0.068	7.0	11.0	4.0	1.00
WFM-0507-05	5.0	+0.020 +0.068	7.0	11.0	5.0	1.00
WFM-0608-04	6.0	+0.020 +0.068	8.0	12.0	4.0	1.00
WFM-0608-06	6.0	+0.020 +0.068	8.0	12.0	6.0	1.00
WFM-0608-08	6.0	+0.020 +0.068	8.0	12.0	8.0	1.00
WFM-0608-10	6.0	+0.020 +0.068	8.0	12.0	10.0	1.00
WFM-0608-15	6.0	+0.020 +0.068	8.0	12.0	15.0	1.00
WFM-0709-12	7.0	+0.025 +0.083	9.0	15.0	12.0	1.00
WFM-0810-02	8.0	+0.025 +0.083	10.0	15.0	2.7	1.00
WFM-0810-05	8.0	+0.025 +0.083	10.0	15.0	5.5	1.00
WFM-0810-07	8.0	+0.025 +0.083	10.0	15.0	7.5	1.00
WFM-0810-09	8.0	+0.025 +0.083	10.0	15.0	9.5	1.00
WFM-0810-10	8.0	+0.025 +0.083	10.0	15.0	10.0	1.00
WFM-0810-23	8.0	+0.025 +0.083	10.0	15.0	23.0	1.00
WFM-0810-30	8.0	+0.025 +0.083	10.0	15.0	30.0	1.00
WFM-081015-05	8.0	+0.025 +0.083	10.0	15.0	5.0	1.00
WFM-1012-04	10.0	+0.025 +0.083	12.0	18.0	4.0	1.00
WFM-1012-05	10.0	+0.025 +0.083	12.0	18.0	5.0	1.00
WFM-1012-06	10.0	+0.025 +0.083	12.0	18.0	6.0	1.00

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/w300 | order example part number WFM-0304-03

iglidur® W300 | Product Range

Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
WFM-1012-07	10.0	+0.025 +0.083	12.0	18.0	7.0	1.00
WFM-1012-09	10.0	+0.025 +0.083	12.0	18.0	9.0	1.00
WFM-1012-10	10.0	+0.025 +0.083	12.0	18.0	10.0	1.00
WFM-1012-12	10.0	+0.025 +0.083	12.0	18.0	12.0	1.00
WFM-1012-15	10.0	+0.025 +0.083	12.0	18.0	15.0	1.00
WFM-1012-17	10.0	+0.025 +0.083	12.0	18.0	17.0	1.00
WFM-1214-04	12.0	+0.032 +0.102	14.0	20.0	4.0	1.00
WFM-1214-044	12.0	+0.032 +0.102	14.0	20.0	4.4	1.00
WFM-1214-06	12.0	+0.032 +0.102	14.0	20.0	6.0	1.00
WFM-1214-07	12.0	+0.032 +0.102	14.0	20.0	7.0	1.00
WFM-1214-09	12.0	+0.032 +0.102	14.0	20.0	9.0	1.00
WFM-1214-10	12.0	+0.032 +0.102	14.0	20.0	10.0	1.00
WFM-1214-11	12.0	+0.032 +0.102	14.0	20.0	11.0	1.00
WFM-1214-12	12.0	+0.032 +0.102	14.0	20.0	12.0	1.00
WFM-1214-15	12.0	+0.032 +0.102	14.0	20.0	15.0	1.00
WFM-1214-17	12.0	+0.032 +0.102	14.0	20.0	17.0	1.00
WFM-1214-20	12.0	+0.032 +0.102	14.0	20.0	20.0	1.00
WFM-1315-06	13.0	+0.032 +0.102	15.0	22.0	6.0	1.00
WFM-1416-04	14.0	+0.032 +0.102	16.0	22.0	4.0	1.00
WFM-1416-05	14.0	+0.032 +0.102	16.0	22.0	5.0	1.00
WFM-1416-08	14.0	+0.032 +0.102	16.0	22.0	8.0	1.00
WFM-1416-12	14.0	+0.032 +0.102	16.0	22.0	12.0	1.00
WFM-1416-17	14.0	+0.032 +0.102	16.0	22.0	17.0	1.00
WFM-1416-29	14.0	+0.032 +0.102	16.0	22.0	29.0	1.00
WFM-1517-09	15.0	+0.032 +0.102	17.0	23.0	9.0	1.00
WFM-1517-12	15.0	+0.032 +0.102	17.0	23.0	12.0	1.00
WFM-1517-17	15.0	+0.032 +0.102	17.0	23.0	17.0	1.00
WFM-1517-20	15.0	+0.032 +0.102	17.0	23.0	20.0	1.00
WFM-1618-09	16.0	+0.032 +0.102	18.0	24.0	9.0	1.00
WFM-1618-12	16.0	+0.032 +0.102	18.0	24.0	12.0	1.00
WFM-1618-17	16.0	+0.032 +0.102	18.0	24.0	17.0	1.00
WFM-1719-12	17.0	+0.032 +0.102	19.0	25.0	12.0	1.00
WFM-1719-18	17.0	+0.032 +0.102	19.0	25.0	18.0	1.00
WFM-1719-25	17.0	+0.032 +0.102	19.0	25.0	25.0	1.00
WFM-1820-12	18.0	+0.032 +0.102	20.0	26.0	12.0	1.00
WFM-1820-17	18.0	+0.032 +0.102	20.0	26.0	17.0	1.00
WFM-1820-22	18.0	+0.032 +0.102	20.0	26.0	22.0	1.00
WFM-2023-11	20.0	+0.040 +0.124	23.0	30.0	11.5	1.50
WFM-2023-14	20.0	+0.040 +0.124	23.0	30.0	14.0	1.50
WFM-2023-16	20.0	+0.040 +0.124	23.0	30.0	16.5	1.50
WFM-2023-21	20.0	+0.040 +0.124	23.0	30.0	21.5	1.50
WFM-2427-10	24.0	+0.040 +0.124	27.0	32.0	10.0	1.50

* after pressfit. Testing methods ▶ page 55

iglidur® W300 | Product Range

Flange bearing

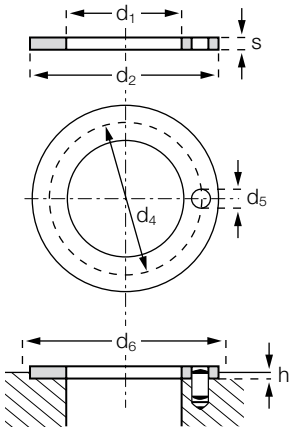
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
WFM-2528-11	25.0	+0.040 +0.124	28.0	35.0	11.0	1.50
WFM-2528-16	25.0	+0.040 +0.124	28.0	35.0	16.0	1.50
WFM-2528-21	25.0	+0.040 +0.124	28.0	35.0	21.0	1.50
WFM-2528-30	25.0	+0.040 +0.124	28.0	32.0	30.0	1.50
WFM-252831-13	25.0	+0.040 +0.124	28.0	31.0	13.0	1.50
WFM-2830-36	28.0	+0.040 +0.124	30.0	35.0	36.0	1.00
WFM-3034-10	30.0	+0.040 +0.124	34.0	42.0	10.0	2.00
WFM-3034-16	30.0	+0.040 +0.124	34.0	42.0	16.0	2.00
WFM-3034-26	30.0	+0.040 +0.124	34.0	42.0	26.0	2.00
WFM-3034-37	30.0	+0.040 +0.124	34.0	42.0	37.0	2.00
WFM-3236-16	32.0	+0.050 +0.150	36.0	40.0	16.0	2.00
WFM-3236-26	32.0	+0.050 +0.150	36.0	40.0	26.0	2.00
WFM-3539-16	35.0	+0.050 +0.150	39.0	47.0	16.0	2.00
WFM-3539-26	35.0	+0.050 +0.150	39.0	47.0	26.0	2.00
WFM-353950-35	35.0	+0.050 +0.150	39.0	50.0	35.0	2.00
WFM-3842-22	38.0	+0.050 +0.150	42.0	50.0	22.0	2.00
WFM-4044-30	40.0	+0.050 +0.150	44.0	52.0	30.0	2.00
WFM-4044-40	40.0	+0.050 +0.150	44.0	52.0	40.0	2.00
WFM-4550-50	45.0	+0.050 +0.150	50.0	58.0	50.0	2.00
WFM-5055-40	50.0	+0.050 +0.150	55.0	63.0	40.0	2.00
WFM-5055-50	50.0	+0.050 +0.150	55.0	63.0	50.0	2.00
WFM-5560-60	55.0	+0.060 +0.180	60.0	68.0	60.0	2.00
WFM-5762-40	57.0	+0.060 +0.180	62.0	67.0	40.0	2.00
WFM-6065-60	60.0	+0.060 +0.180	65.0	73.0	60.0	2.00
WFM-6570-60	65.0	+0.060 +0.180	70.0	78.0	60.0	2.00
WFM-7075-100	70.0	+0.060 +0.180	75.0	83.0	100.0	2.50
WFM-7580-100	75.0	+0.060 +0.180	80.0	88.0	100.0	2.50
WFM-8085-100	80.0	+0.060 +0.180	85.0	93.0	100.0	2.50
WFM-9095-100	90.0	+0.072 +0.212	95.0	103.0	100.0	2.50
WFM-100105-100	100.0	+0.072 +0.212	105.0	113.0	100.0	2.50
WFM-120125-100	120.0	+0.072 +0.212	125.0	133.0	100.0	2.50

* after pressfit. Testing methods ▶ page 55

iglidur® W300 | Product Range

Thrust washer



Order key

WTM-0509-006

- Thickness s
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form T)
- Material iglidur® G

Dimensions according to ISO 3547-1 and special dimensions

Dimensions [mm]

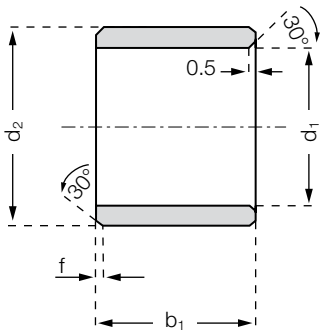
Part number	d1 +0.25	d2 −0.25	s −0.05	d4 −0.12 +0.12	d5 +0.375 +0.125	h +0.2 −0.2	d6 +0.12
WTM-0509-006	5.0	9.5	0.6	**	**	0.3	9.5
WTM-0620-015	6.0	20.0	1.5	13.0	1.5	1.0	20.0
WTM-0818-015	8.0	18.0	1.5	13.0	1.5	1.0	18.0
WTM-1018-010	10.0	18.0	1.0	**	**	0.7	18.0
WTM-1018-015	10.0	18.0	1.5	**	**	1.0	18.0
WTM-1224-015	12.0	24.0	1.5	18.0	1.5	1.0	24.0
WTM-1426-015	14.0	26.0	1.5	20.0	2.0	1.0	26.0
WTM-1524-015	15.0	24.0	1.5	19.5	1.5	1.0	24.0
WTM-1630-015	16.0	30.0	1.5	23.0	2.0	1.0	30.0
WTM-1832-015	18.0	32.0	1.5	25.0	2.0	1.0	32.0
WTM-2036-015	20.0	36.0	1.5	28.0	3.0	1.0	36.0
WTM-2238-015	22.0	38.0	1.5	30.0	3.0	1.0	38.0
WTM-2442-015	24.0	42.0	1.5	33.0	3.0	1.0	42.0
WTM-2644-015	26.0	44.0	1.5	35.0	3.0	1.0	44.0
WTM-2848-015	28.0	48.0	1.5	38.0	4.0	1.0	48.0
WTM-3254-015	32.0	54.0	1.5	43.0	4.0	1.0	54.0
WTM-3862-015	38.0	62.0	1.5	50.0	4.0	1.0	62.0
WTM-4266-015	42.0	66.0	1.5	54.0	4.0	1.0	66.0
WTM-4874-020	48.0	74.0	2.0	61.0	4.0	1.5	74.0
WTM-5278-020	52.0	78.0	2.0	65.0	4.0	1.5	78.0
WTM-6290-020	62.0	90.0	2.0	76.0	4.0	1.5	90.0
WTM-82110-020	82.0	110.0	2.0	**	**	1.5	110.0
WTM-102130-020	102.0	130.0	2.0	**	**	1.5	130.0
WTM-120150-020	120.0	150.0	2.0	**	**	1.5	150.0

** Design without fixing bore

delivery time available from stock | prices price list online www.igus.co.uk/en/w300 | order example part number WTM-0509-006

iglidur® W300 | Product Range | Inch

Sleeve bearing



Order key

WSI-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form S)
- Material iglidur® W300

Chamfer in relation to the d1

d1 [Inch]:	Ø 0,040–0,236	Ø 0,236–0,472	Ø 0,472–1,18	Ø > 1,18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
WSI-0203-03	1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236
WSI-0203-04	1/8	3/16	1/4	.1269	.1251	.1878	.1873	.1243	.1236
WSI-0203-06	1/8	3/16	3/8	.1269	.1251	.1878	.1873	.1243	.1236
WSI-0304-04	3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858
WSI-0304-06	3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858
WSI-0304-08	3/16	1/4	1/2	.1892	.1873	.2503	.2497	.1865	.1858
WSI-0405-03	1/4	5/16	3/16	.2521	.2498	.3128	.3122	.2490	.2481
WSI-0405-04	1/4	5/16	1/4	.2521	.2498	.3128	.3122	.2490	.2481
WSI-0405-05	1/4	5/16	5/16	.2521	.2498	.3128	.3122	.2490	.2481
WSI-0405-06	1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481
WSI-0405-08	1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481
WSI-0506-04	5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106
WSI-0506-06	5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106
WSI-0506-08	5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106
WSI-0506-12	5/16	3/8	3/4	.3148	.3125	.3753	.3747	.3115	.3106
WSI-0607-04	3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731
WSI-0607-06	3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731
WSI-0607-07	3/8	15/32	7/16	.3773	.3750	.4691	.4684	.3740	.3731
WSI-0607-08	3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731
WSI-0607-12	3/8	15/32	3/4	.3773	.3750	.4691	.4684	.3740	.3731
WSI-0608-12	3/8	17/32	3/4	.3773	.3750	.5316	.5309	.3740	.3731
WSI-0708-04	7/16	17/32	1/4	.4406	.4379	.5316	.5309	.4365	.4355
WSI-0708-08	7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355
WSI-0809-03	1/2	19/32	3/16	.5030	.5003	.5941	.5934	.4990	.4980
WSI-0809-04	1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/w300 | order example part number WSI-0203-03

iglidur® W300 | Product Range | Inch

Sleeve bearing

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
WSI-0809-06	1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980
WSI-0809-08	1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980
WSI-0809-10	1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980
WSI-0809-12	1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980
WSI-0809-16	1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980
WSI-0810-08	1/2	5/8	1/2	.5040	.5013	.6260	.6250	.5000	.4990
WSI-0810-10	1/2	5/8	5/8	.5040	.5013	.6260	.6250	.5000	.4990
WSI-0810-12	1/2	5/8	3/4	.5040	.5013	.6260	.6250	.5000	.4990
WSI-0810-16	1/2	5/8	1	.5040	.5013	.6260	.6250	.5000	.4990
WSI-0910-08	9/16	5/8	1/2	.5655	.5627	.6566	.6559	.5615	.5605
WSI-0910-12	9/16	5/8	3/4	.5655	.5627	.6566	.6559	.5615	.5605
WSI-1011-04	5/8	23/32	1/4	.6280	.6253	.7192	.7184	.6240	.6230
WSI-1011-06	5/8	23/32	3/8	.6280	.6253	.7192	.7184	.6240	.6230
WSI-1011-08	5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230
WSI-1011-10	5/8	23/32	5/8	.6280	.6253	.7192	.7184	.6240	.6230
WSI-1011-12	5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230
WSI-1011-16	5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230
WSI-1112-12	11/16	25/32	3/4	.6906	.6879	.7817	.7809	.6865	.6855
WSI-1214-08	3/4	7/8	1/2	.7541	.7507	.8755	.8747	.7491	.7479
WSI-1214-12	3/4	7/8	3/4	.7541	.7507	.8755	.8747	.7491	.7479
WSI-1214-16	3/4	7/8	1	.7541	.7507	.8755	.8747	.7491	.7479
WSI-1214-24	3/4	7/8	1 1/2	.7541	.7507	.8755	.8747	.7491	.7479
WSI-1416-04	7/8	1	1/4	.8791	.8757	1.0005	.9997	.8741	.8729
WSI-1416-06	7/8	1	3/8	.8791	.8757	1.0005	.9997	.8741	.8729
WSI-1416-08	7/8	1	1/2	.8791	.8757	1.0005	.9997	.8741	.8729
WSI-1416-10	7/8	1	5/8	.8791	.8757	1.0005	.9997	.8741	.8729
WSI-1416-12	7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729
WSI-1416-16	7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729
WSI-1416-24	7/8	1	1 1/2	.8791	.8757	1.0005	.9997	.8741	.8729
WSI-1618-06	1	1 1/8	3/8	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WSI-1618-08	1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WSI-1618-12	1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WSI-1618-16	1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WSI-1618-20	1	1 1/8	1 5/16	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WSI-1618-22	1	1 1/8	1 3/8	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WSI-1618-24	1	1 1/8	1 1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WSI-1820-12	1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
WSI-2022-14	1 1/4	1 13/32	7/8	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
WSI-2022-16	1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
WSI-2022-20	1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
WSI-2022-24	1 1/4	1 13/32	1 1/2	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
WSI-2224-16	1 3/8	1 17/32	1	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722

* after pressfit. Testing methods ▶ page 55

iglidur® W300 | Product Range | Inch

Sleeve bearing

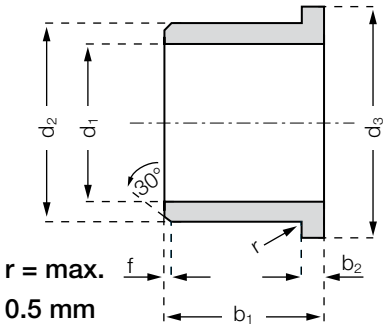
Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
WSI-2224-24	1 3/8	1 17/32	1 1/2	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722
WSI-2426-12	1 1/2	1 21/32	3/4	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
WSI-2426-16	1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
WSI-2426-24	1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
WSI-2426-44	1 1/2	1 21/32	2 3/4	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
WSI-2629-16	1 5/8	1 25/32	1	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222
WSI-2629-20	1 5/8	1 25/32	1 1/4	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222
WSI-2831-16	1 3/4	1 15/16	1	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
WSI-2831-24	1 3/4	1 15/16	1 1/2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
WSI-2831-32	1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
WSI-2831-48	1 3/4	1 15/16	3	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
WSI-3235-16	2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
WSI-3235-24	2	2 3/16	1 1/2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
WSI-3235-32	2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
WSI-3639-32	2 1/4	2 7/16	2	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489

* after pressfit. Testing methods ▶ page 55

iglidur® W300 | Product Range | Inch

Flange bearing



Order key

WFI-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® W300

Chamfer in relation to the d1

d1 [Inch]:	Ø 0,040–0,236	Ø 0,236–0,472	Ø 0,472–1,18	Ø > 1,18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft aize	
						max.	min.	max.	min.	max.	min.
WFI-0203-03	1/8	3/16	3/16	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
WFI-0203-04	1/8	3/16	1/4	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
WFI-0203-06	1/8	3/16	3/8	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
WFI-0304-02	3/16	1/4	1/8	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
WFI-0304-04	3/16	1/4	1/4	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
WFI-0304-06	3/16	1/4	3/8	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
WFI-0304-08	3/16	1/4	1/2	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
WFI-0405-04	1/4	5/16	1/4	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
WFI-0405-05	1/4	5/16	5/16	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
WFI-0405-06	1/4	5/16	3/8	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
WFI-0405-08	1/4	5/16	1/2	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
WFI-0405-12	1/4	5/16	3/4	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
WFI-0506-04	5/16	3/8	1/4	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
WFI-0506-06	5/16	3/8	3/8	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
WFI-0506-08	5/16	3/8	1/2	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
WFI-0506-12	5/16	3/8	3/4	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
WFI-0607-04	3/8	15/32	1/4	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
WFI-0607-06	3/8	15/32	3/8	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
WFI-0607-08	3/8	15/32	1/2	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
WFI-0607-12	3/8	15/32	3/4	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
WFI-0708-08	7/16	17/32	1/2	.750	.046	.4406	.4379	.5316	.5309	.4365	.4355
WFI-0809-04	1/2	19/32	1/4	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
WFI-0809-06	1/2	19/32	3/8	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
WFI-0809-08	1/2	19/32	1/2	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
WFI-0809-12	1/2	19/32	3/4	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/w300 | order example part number WFI-0203-03

iglidur® W300 | Product Range | Inch

Flange bearing

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft aize	
						max.	min.	max.	min.	max.	min.
WFI-0809-16	1/2	19/32	1	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
WFI-1011-045	5/8	23/32	9/32	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
WFI-1011-08	5/8	23/32	1/2	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
WFI-1011-12	5/8	23/32	3/4	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
WFI-1011-16	5/8	23/32	1	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
WFI-1011-24	5/8	23/32	1 1/2	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
WFI-1214-08	3/4	7/8	1/2	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
WFI-1214-10	3/4	7/8	5/8	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
WFI-1214-12	3/4	7/8	3/4	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
WFI-1214-16	3/4	7/8	1	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
WFI-1214-24	3/4	7/8	1 1/2	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
WFI-1416-04	7/8	1	1/4	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-1416-075	7/8	1	15/32	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-1416-08	7/8	1	1/2	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-1416-115	7/8	1	23/32	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-1416-12	7/8	1	3/4	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-1416-16	7/8	1	1	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-1416-20	7/8	1	1 1/4	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-1416-24	7/8	1	1 1/2	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-141618-10	7/8	1	5/8	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-141620-11	7/8	1	11/16	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
WFI-1618-08	1	1 1/8	1/2	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WFI-1618-12	1	1 1/8	3/4	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WFI-1618-16	1	1 1/8	1	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WFI-1618-20	1	1 1/8	1 1/4	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WFI-1618-24	1	1 1/8	1 1/2	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
WFI-1820-08	1 1/8	1 9/32	1/2	1.562	.078	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
WFI-1820-12	1 1/8	1 9/32	3/4	1.562	.078	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
WFI-1820-24	1 1/8	1 9/32	1 1/2	1.562	.078	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
WFI-2022-12	1 1/4	1 13/32	3/4	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
WFI-2022-14	1 1/4	1 13/32	7/8	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
WFI-2022-16	1 1/4	1 13/32	1	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
WFI-2022-20	1 1/4	1 13/32	1 1/4	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
WFI-2022-24	1 1/4	1 13/32	1 1/2	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
WFI-2224-16	1 3/8	1 17/32	1	1.875	.078	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722
WFI-2426-12	1 1/2	1 21/32	3/4	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
WFI-2426-16	1 1/2	1 21/32	1	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
WFI-2426-24	1 1/2	1 21/32	1 1/2	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
WFI-2831-16	1 3/4	1 15/16	1	2.375	.093	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
WFI-2831-24	1 3/4	1 15/16	1 1/2	2.375	.093	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
WFI-2831-32	1 3/4	1 15/16	2	2.375	.093	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
WFI-3235-16	2	2 3/16	1	2.625	.093	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969

* after pressfit. Testing methods ▶ page 55

iglidur® W300 | Product Range | Inch

Flange bearing

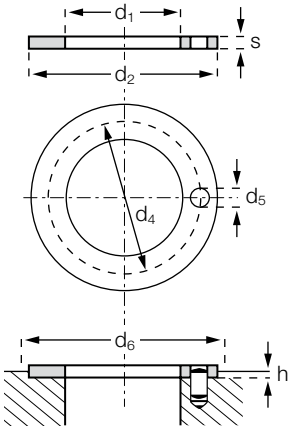
Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft aize	
						max.	min.	max.	min.	max.	min.
WFI-3235-24	2	2 3/16	1 1/2	2.625	.093	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
WFI-3235-32	2	2 3/16	2	2.625	.093	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969

* after pressfit. Testing methods ▶ page 55

iglidur® W300 | Product Range | Inch

Thrust washer



Order key

WTI-0814-01

- Thickness s
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form T)
- Material iglidur® W300

Dimensions according to ISO 3547-1 and special dimensions

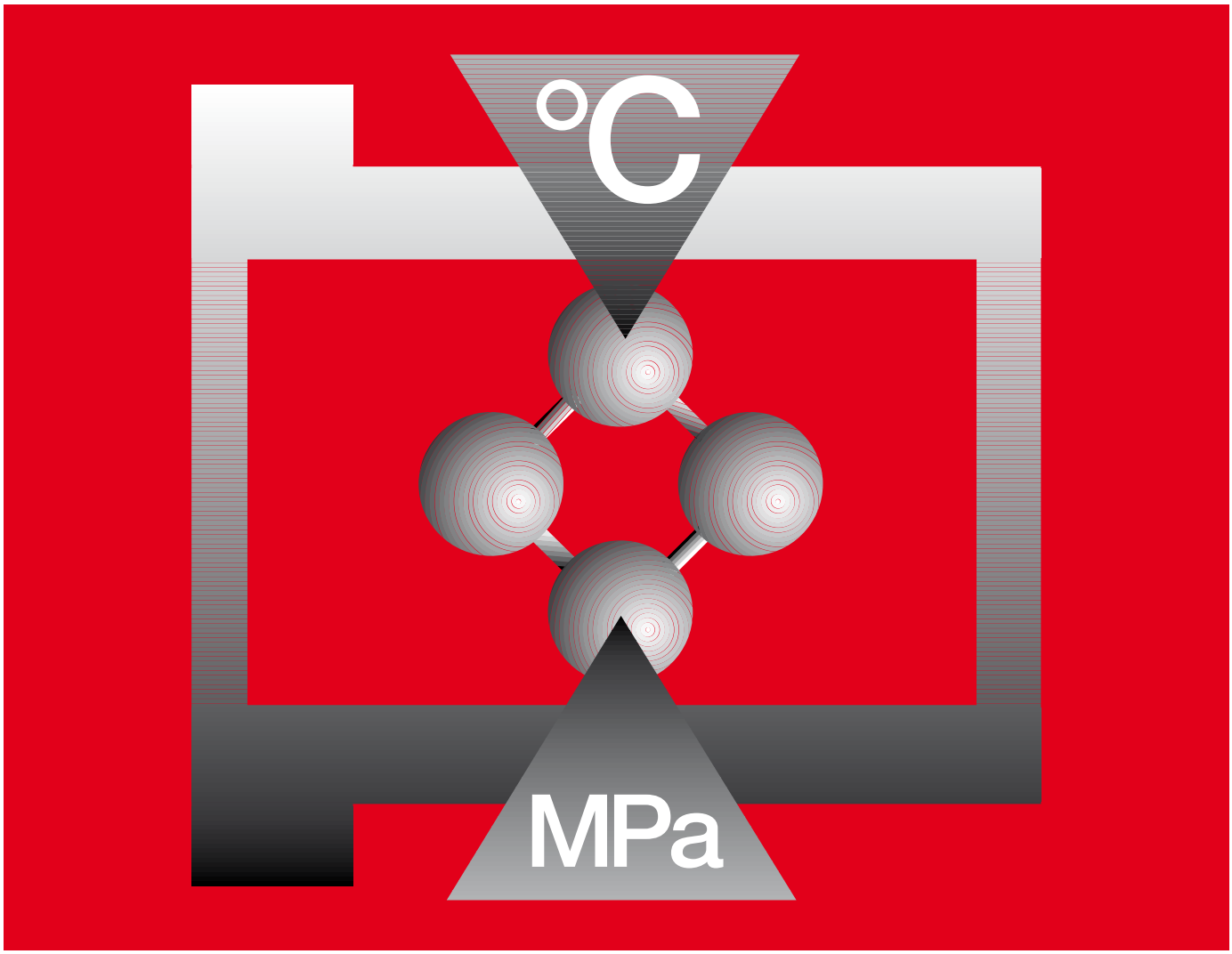
Dimensions [Inch]

Part number	d1	d2	s	d4	d5	h	d6
	+.010	-.010	-.0020	±.005	.015 + .005	+.008	+.005
WTI-0814-01	.500	.875	.0585	.692	.067	.040	.875
WTI-1018-01	.625	1.125	.0585	.880	.099	.040	1.125
WTI-1220-01	.750	1.250	.0585	1.005	.099	.040	1.250
WTI-1424-01	.875	1.500	.0585	1.192	.130	.040	1.500
WTI-1628-01	1.000	1.750	.0585	1.380	.130	.040	1.750
WTI-2034-01	1.250	2.125	.0585	1.692	.161	.040	2.125
WTI-2440-01	1.500	2.500	.0585	2.005	.192	.040	2.500
WTI-2844-01	1.750	2.750	.0585	2.255	.192	.040	2.750
WTI-3248-01	2.000	3.000	.0895	2.505	.192	.070	3.000

delivery time: available from stock

prices: price list online www.igus.co.uk/en/w300

order example: part number WTI-0814-01



iglidur® X – The High-Tech Problem Solver: chemical- and temperature-resistant up to +250 °C

- Over 250 dimensions available from stock
- Temperature resistant from –100 °C to +250 °C in continuous operation
- Universal resistance to chemicals
- High compressive strength
- Very low moisture absorption
- Excellent wear resistance through the entire temperature range

iglidur® X | The High-Tech Problem Solver

Chemical- and temperature resistant up to +250 °C. iglidur® X is defined by its combination of high temperature resistance with compressive strength, along with high resistance to chemicals. iglidur® X is designed for higher speeds than other iglidur® bearings.

Temperature resistant from –100 °C to +250 °C in continuous operation

Universal resistance to chemicals

High compressive strength

Very low moisture absorption

Excellent wear resistance through the entire temperature range

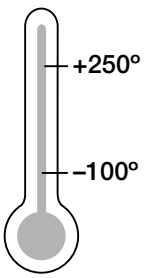
When to use it?

- For pressure loads up to 150 MPa
- For linear movements with stainless steel at high temperatures
- Universal resistance to chemicals
- Temperature resistant from –100 °C to +250 °C in continuous operation (short term to +315 °C)
- Very low moisture absorption
- High wear resistance over the entire temperature range

When not to use it?

- For very low wear at high loads
  - ▶ **iglidur® Q, page 461**
  - ▶ **iglidur® Z, page 299**
- For economical underwater applications
  - ▶ **iglidur® H, page 325**
  - ▶ **iglidur® H370, page 347**
- For edge pressure
  - ▶ **iglidur® Z, page 299**

Temperature



Product range

3 types
> 250 dimensions
Ø 2–75 mm

iglidur® X | Application Examples

Typical sectors of industry and application areas

● Beverage technology ● Woodworking ● Plastic processing industry ● Aerospace engineering ● Cleanroom etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

▶ **www.igus.co.uk/bottle-filling**

▶ **www.igus.co.uk/drillrig**

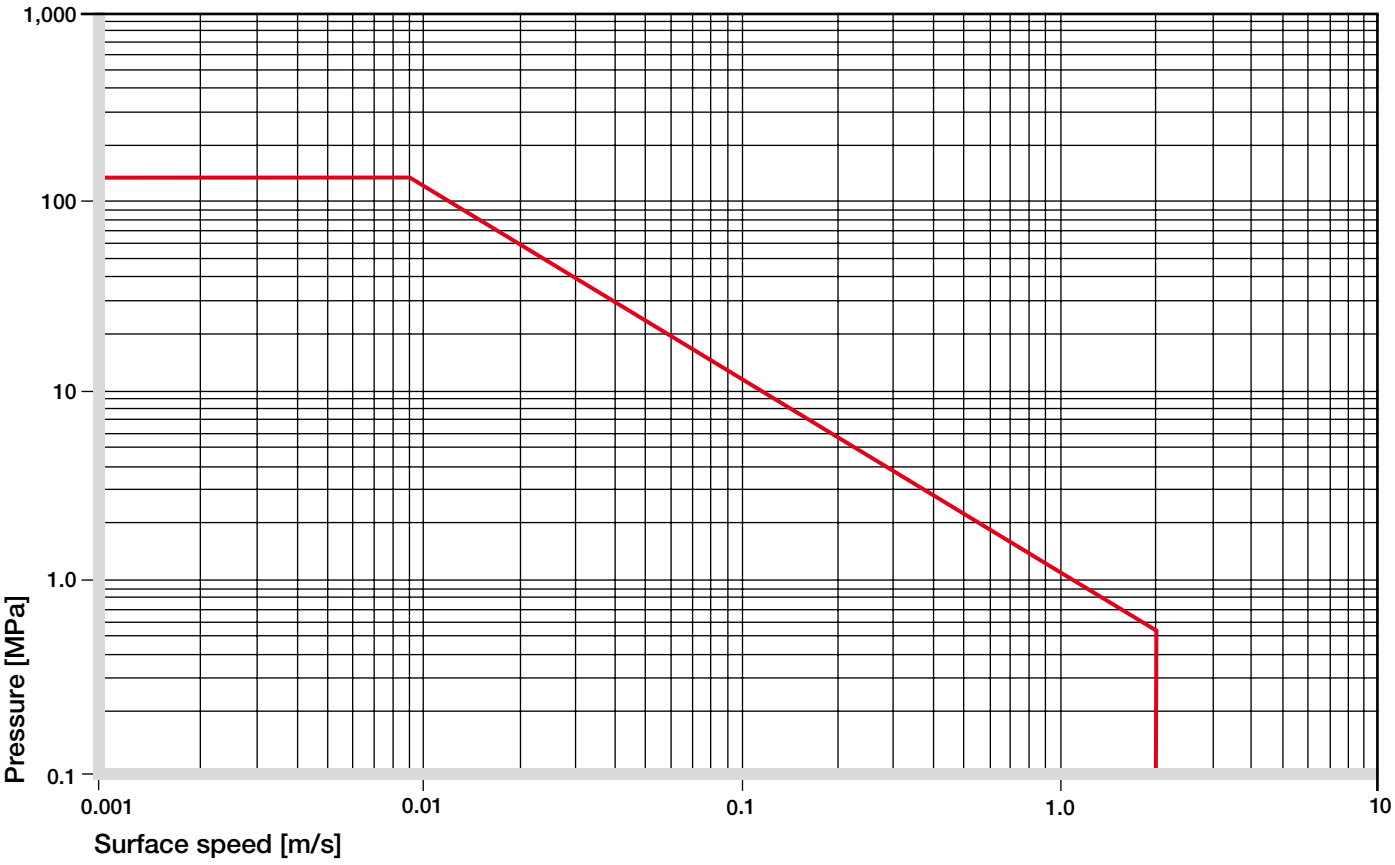
▶ **www.igus.co.uk/ultraviolet-radiation**

▶ **www.igus.co.uk/flangedball-valves**

iglidur® X | Technical Data

Material data			
General properties	**Unit**	**iglidur® X**	**Testing method**
Density	**g/cm³**	1.44	
Colour		black	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.1	DIN 53495
Max. moisture absorption	**% weight**	0.5	
Coefficient of sliding friction, dynamic against steel	**µ**	0.09–0.27	
pv value, max. (dry)	**MPa · m/s**	1.32	
Mechanical properties			
Modulus of elasticity	**MPa**	8,100	DIN 53457
Tensile strength at +20 °C	**MPa**	170	DIN 53452
Compressive strength	**MPa**	100	
Max. static surface pressure (+20 °C)	**MPa**	150	
Shore-D Hardness		85	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+250	
Max. short term application temperature	**°C**	+315	
Min. application temperature	**°C**	–100	
Thermal conductivity	**W/m · K**	0.6	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	5	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$< 10^5$	DIN IEC 93
Surface resistance	**Ω**	$< 10^3$	DIN 53482

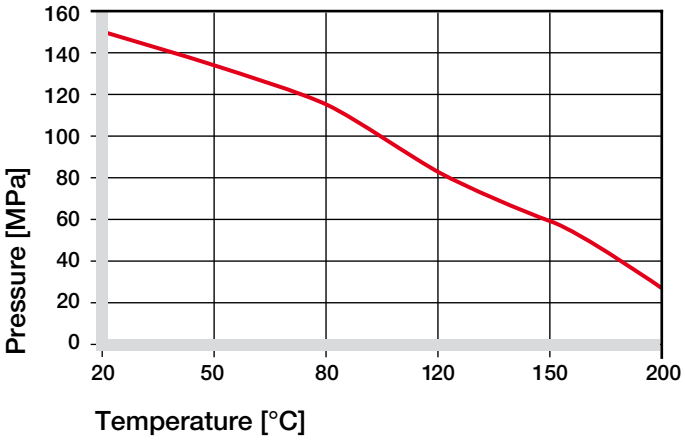
Table 01: Material data



Graph 01: Permissible pv values for iglidur® X with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

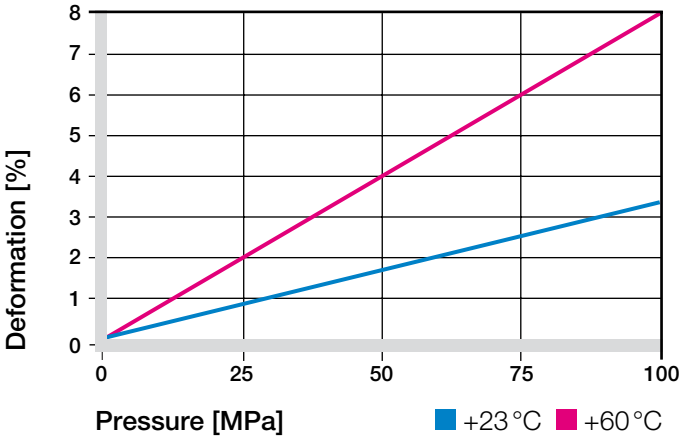
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® X plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +150° C the permissible surface pressure is almost 60 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (150 MPa at +20 °C)

iglidur® X has an excellent combination of high temperature resistance, high compressive strength, and excellent resistance to chemicals. The aspect of temperature resistance and pressure susceptibiluty is also reflected in the pv diagram.
Graph 03 shows how iglidur® X plain bearings deform elastically under load.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® X is designed for higher speeds than other iglidur® bearings. This is due to its high temperature resistance and excellent thermal conductivity. One benefit of this is seen in the maximum pV value of 1.32 MPa · m/s.
However, in this case, only the smallest radial loads may act on the bearings. At the given speeds, friction can cause a temperature increase to maximum permissible levels.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1.5	1.1	5
Short term	3.5	2.5	10

Table 02: Maximum running speed

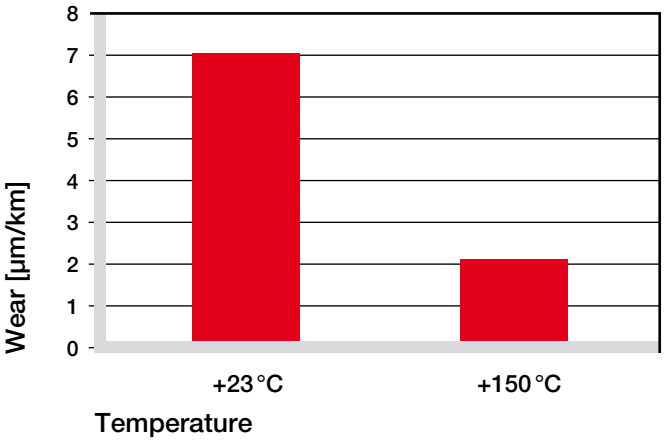
Temperatures

In terms of temperature resistance iglidur® X has also taken on a leading position. Having a permissible long term application, temperature of +250 °C, iglidur® X will even withstand +315 °C short term.As with all thermoplastics, the compression resistance of iglidur® X decreases with increasing temperature. However, the wear drops considerably when used within the observed temperature range of +23 °C to +150 °C.
In certain cases, relaxation of the bearing can even occur at temperatures of more than +170 °C. This leads, after re-cooling, to the bearing moving out of the housing. At temperatures over +170 °C the axial security of the bearing in the housing needs to be tested. If necessary, secondary measures must be taken to mechanically secure the bearing. Please contact us if you have questions on bearing use.

▶ Application Temperatures, **page 46**

iglidur® X	Application temperature
Minimum	–100 °C
Max. long term	+250 °C
Max. short term	+315 °C
Add. securing is required from	+135 °C

Table 03: Temperature limits

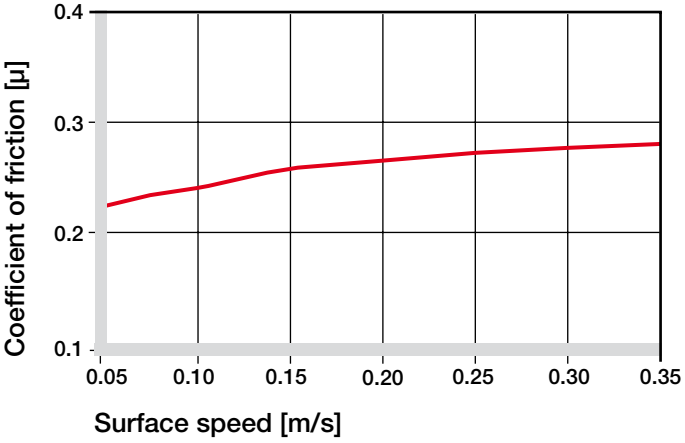


Graph 04: Wear, rotation with p = 0.75 MPa, v = 0.5 m/s, Cf53 hardended and ground steel shaft

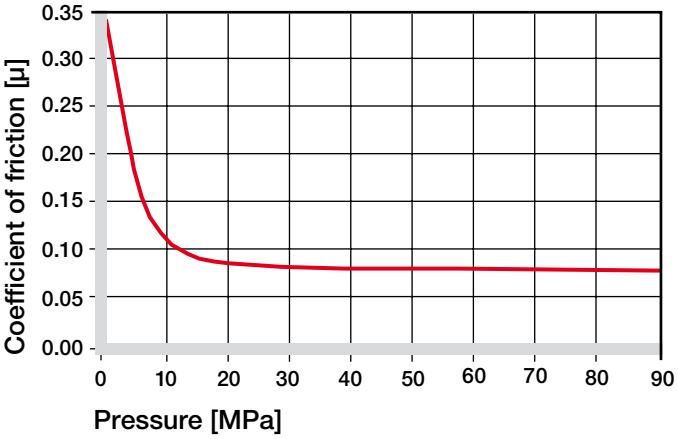
Friction and Wear

Similar to wear resistance, the coefficient of friction also changes with the load. The coefficient of friction increases with an increase in surface speed. On the other hand, an increased load has an inverse effect: the coefficient of friction decreases (see Graphs 05 and 06). This explains the excellent performance of iglidur® X plain bearings for high loads.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

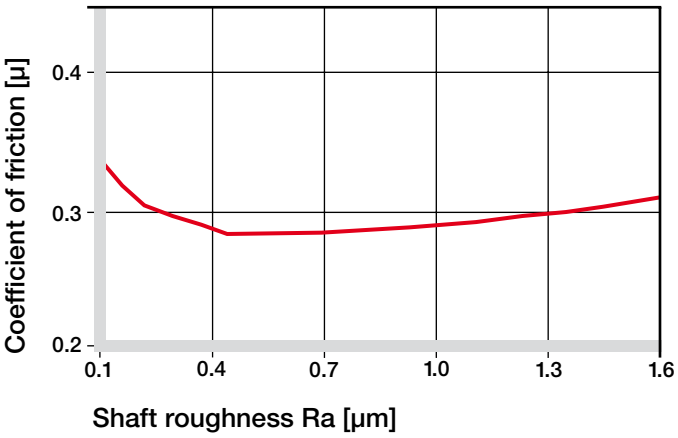


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

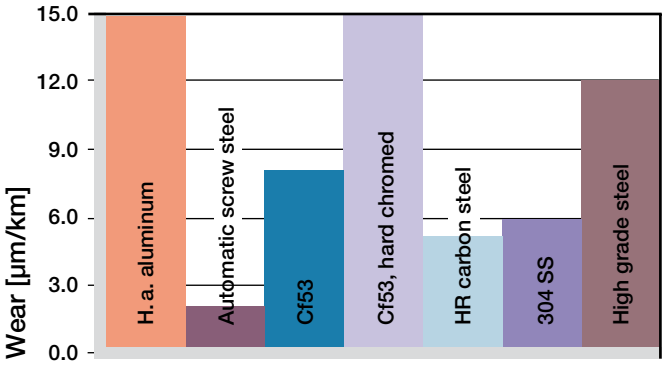
Shaft Materials

Friction and wear, to a high degree, are also dependent on the shaft material. Shafts that are too smooth increase the coefficient of friction of the bearing. Ground surfaces with an average roughness Ra of 0.6 to 0.8 µm are ideal. Graphs 07 to 10 show results of testing different shaft materials with plain bearings made of iglidur® X. For low loads in rotating operation, the best wear values are found with 303 Stainless and HR Carbon Steel shafts. However, above a load of 2 MPa the bearing wear greatly increases with these two shaft materials. For the higher load range, hard chromed shafts or Cf53 shafts give good results. In oscillating operation at low loads, similar wear values for Cf53 and 303 stainless steel shafts occur. The wear is somewhat higher than during rotational movements.
If the shaft material you plan to use is not contained in this list, please contact us.

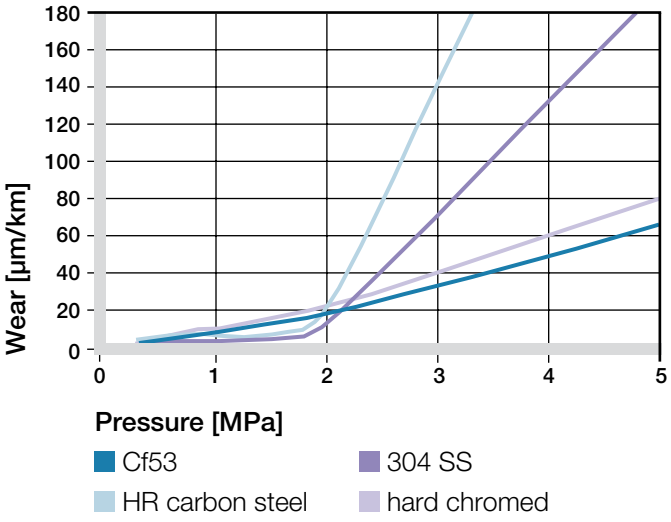
▶ Shaft Materials, **page 51**



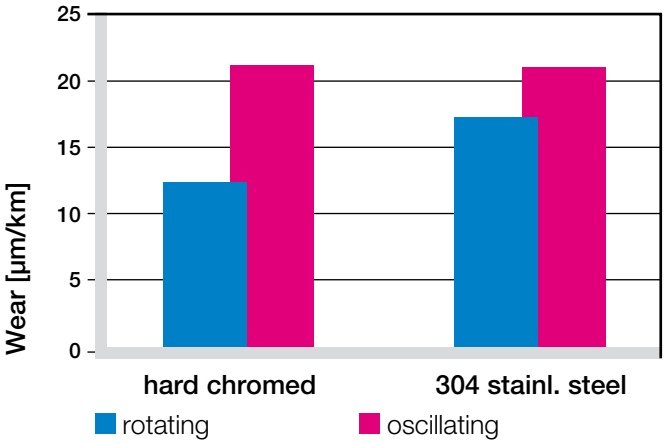
Graph 07: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 08: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 09: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 10: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® X	Dry	Greases	Oil	Water
C. o. f. µ	0,09–0.27	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® X plain bearings have almost universal chemical resistance. The material is only attacked by concentrated acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	–
Diluted alkalines	+
Strong alkalines	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® X are resistant to radiation up to an intensity of $1 \cdot 10^5$ Gy. iglidur® X is the most radioactive resistant material of the iglidur® product range. iglidur® X is extremely resistant to hard gamma radiation and withstands a radiation dose of 1,000 Mrad without detectable change in its properties. The material also withstands an alpha or beta radiation of 10,000 Mrad with practically no damage.

UV Resistance

The excellent material properties of iglidur® X do not change under UV radiation and other weathering effects.

Vacuum

In a vacuum environment iglidur® X plain bearings can be used virtually without restrictions. Outgassing takes place to a very limited extent.

Electrical Properties

iglidur® X plain bearings are are electrically conductive.

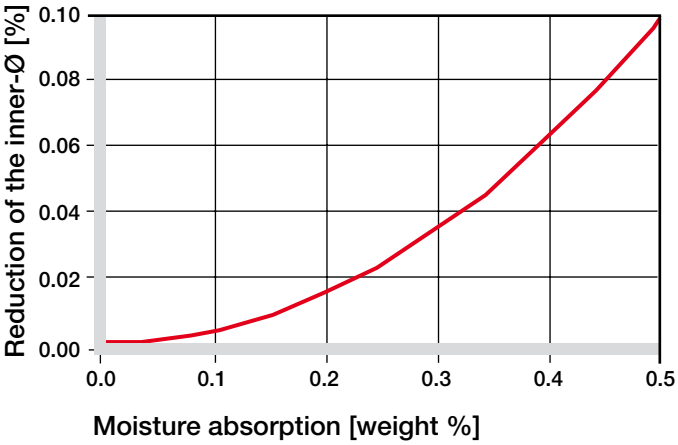
Volume resistance	$< 10^5$ Ωcm
Surface resistance	$< 10^3$ Ωcm

Moisture Absorption

The moisture absorption of iglidur® X plain bearings is very low. It is approximately 0.1% by weight in the standard atmosphere. So even in applications under water, iglidur® X bearings can be used without alterations of the assembly conditions. The maximum moisture absorption is 0.5 % by weight.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. moisture absorption	0.5 % weight

Table 06: Moisture absorption



Graph 11: Effect of moisture absorption plain bearings

Installation Tolerances

iglidur® X plain bearings are meant to be oversized before pressfit. The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet our specified tolerances.

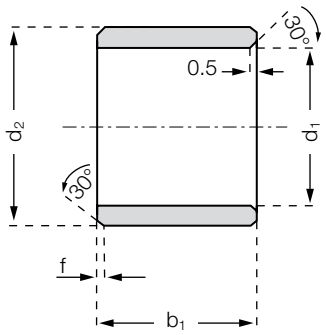
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® X F10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.006 +0.046	0 +0.010
>	3 to	6	0–0.030	+0.010 +0.058	0 +0.012
>	6 to	10	0–0.036	+0.013 +0.071	0 +0.015
>	10 to	18	0–0.043	+0.016 +0.086	0 +0.018
>	18 to	30	0–0.052	+0.020 +0.104	0 +0.021
>	30 to	50	0–0.062	+0.025 +0.125	0 +0.025
>	50 to	80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances plain bearings according to ISO 3547-1 after pressfit

iglidur® X | Product Range

Sleeve bearing



Order key

XSM-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® X

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
XSM-0203-03	2.0	+0.006 +0.046	3.5	3.0
XSM-0304-03	3.0	+0.006 +0.046	4.5	3.0
XSM-0304-06	3.0	+0.006 +0.046	4.5	6.0
XSM-0405-04	4.0	+0.010 +0.058	5.5	4.0
XSM-0507-035	5.0	+0.010 +0.058	7.0	3.5
XSM-0507-05	5.0	+0.010 +0.058	7.0	5.0
XSM-0507-08	5.0	+0.010 +0.058	7.0	8.0
XSM-0608-06	6.0	+0.010 +0.058	8.0	6.0
XSM-0608-08	6.0	+0.010 +0.058	8.0	8.0
XSM-0608-10	6.0	+0.010 +0.058	8.0	10.0
XSM-0608-13	6.0	+0.010 +0.058	8.0	13.8
XSM-0709-12	7.0	+0.013 +0.071	9.0	12.0
XSM-0810-06	8.0	+0.013 +0.071	10.0	6.0
XSM-0810-08	8.0	+0.013 +0.071	10.0	8.0
XSM-0810-10	8.0	+0.013 +0.071	10.0	10.0
XSM-0810-12	8.0	+0.013 +0.071	10.0	12.0
XSM-0810-15	8.0	+0.013 +0.071	10.0	15.0
XSM-1012-06	10.0	+0.013 +0.071	12.0	6.0
XSM-1012-08	10.0	+0.013 +0.071	12.0	8.0
XSM-1012-10	10.0	+0.013 +0.071	12.0	10.0
XSM-1012-12	10.0	+0.013 +0.071	12.0	12.0
XSM-1012-20	10.0	+0.013 +0.071	12.0	20.0
XSM-1214-035	12.0	+0.016 +0.086	14.0	3.5
XSM-1214-06	12.0	+0.016 +0.086	14.0	6.0
XSM-1214-08	12.0	+0.016 +0.086	14.0	8.0

Part number	d1	d1-Tolerance*	d2	b1 h13
XSM-1214-10	12.0	+0.016 +0.086	14.0	10.0
XSM-1214-12	12.0	+0.016 +0.086	14.0	12.0
XSM-1214-15	12.0	+0.016 +0.086	14.0	15.0
XSM-1214-20	12.0	+0.016 +0.086	14.0	20.0
XSM-1416-12	14.0	+0.016 +0.086	16.0	12.0
XSM-1416-15	14.0	+0.016 +0.086	16.0	15.0
XSM-1416-20	14.0	+0.016 +0.086	16.0	20.0
XSM-1517-10	15.0	+0.016 +0.086	17.0	10.0
XSM-1517-15	15.0	+0.016 +0.086	17.0	15.0
XSM-1517-20	15.0	+0.016 +0.086	17.0	20.0
XSM-1618-10	16.0	+0.016 +0.086	18.0	10.0
XSM-1618-12	16.0	+0.016 +0.086	18.0	12.0
XSM-1618-15	16.0	+0.016 +0.086	18.0	15.0
XSM-1618-20	16.0	+0.016 +0.086	18.0	20.0
XSM-1618-35	16.0	+0.016 +0.086	18.0	35.0
XSM-1719-20	17.0	+0.016 +0.086	19.0	20.0
XSM-1820-15	18.0	+0.016 +0.086	20.0	15.0
XSM-1820-20	18.0	+0.016 +0.086	20.0	20.0
XSM-2022-140	20.0	+0.020 +0.104	22.0	14.0
XSM-2022-145	20.0	+0.020 +0.104	22.0	14.5
XSM-2022-18	20.0	+0.020 +0.104	22.0	18.0
XSM-2022-20	20.0	+0.020 +0.104	22.0	20.0
XSM-2023-07	20.0	+0.020 +0.104	23.0	7.0
XSM-2023-10	20.0	+0.020 +0.104	23.0	10.0
XSM-2023-15	20.0	+0.020 +0.104	23.0	15.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/x | order example part number XSM-0203-03

iglidur® X | Product Range

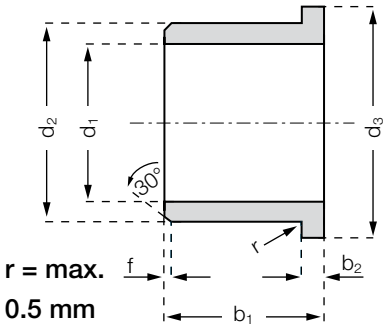
Sleeve bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
XSM-2023-20	20.0	+0.020 +0.104	23.0	20.0
XSM-2023-25	20.0	+0.020 +0.104	23.0	25.0
XSM-2023-30	20.0	+0.020 +0.104	23.0	30.0
XSM-2225-15	22.0	+0.020 +0.104	25.0	15.0
XSM-2225-20	22.0	+0.020 +0.104	25.0	20.0
XSM-2426-20	24.0	+0.020 +0.104	26.0	20.0
XSM-2427-20	24.0	+0.020 +0.104	27.0	20.0
XSM-2528-077	25.0	+0.020 +0.104	28.0	7.7
XSM-2528-09	25.0	+0.020 +0.104	28.0	9.0
XSM-2528-12	25.0	+0.020 +0.104	28.0	12.0
XSM-2528-13	25.0	+0.020 +0.104	28.0	13.0
XSM-2528-15	25.0	+0.020 +0.104	28.0	15.0
XSM-2528-20	25.0	+0.020 +0.104	28.0	20.0
XSM-2528-30	25.0	+0.020 +0.104	28.0	30.0
XSM-2730-05	27.0	+0.020 +0.104	30.0	5.7
XSM-2832-20	28.0	+0.020 +0.104	32.0	20.0
XSM-2832-30	28.0	+0.020 +0.104	32.0	30.0
XSM-3034-20	30.0	+0.020 +0.104	34.0	20.0
XSM-3034-25	30.0	+0.020 +0.104	34.0	25.0
XSM-3034-30	30.0	+0.020 +0.104	34.0	30.0
XSM-3034-40	30.0	+0.020 +0.104	34.0	40.0
XSM-3236-25	32.0	+0.025 +0.125	36.0	25.0
XSM-3236-30	32.0	+0.025 +0.125	36.0	30.0
XSM-3539-20	35.0	+0.025 +0.125	39.0	20.0
XSM-3539-30	35.0	+0.025 +0.125	39.0	30.0
XSM-3539-40	35.0	+0.025 +0.125	39.0	40.0
XSM-3539-50	35.0	+0.025 +0.125	39.0	50.0
XSM-4044-30	40.0	+0.025 +0.125	44.0	30.0
XSM-4044-40	40.0	+0.025 +0.125	44.0	40.0
XSM-4044-50	40.0	+0.025 +0.125	44.0	50.0
XSM-4550-50	45.0	+0.025 +0.125	50.0	50.0
XSM-5055-30	50.0	+0.025 +0.125	55.0	30.0
XSM-5055-40	50.0	+0.025 +0.125	55.0	40.0
XSM-5055-60	50.0	+0.025 +0.125	55.0	60.0
XSM-5560-50	55.0	+0.030 +0.150	60.0	50.0
XSM-6065-45	60.0	+0.030 +0.150	65.0	45.0
XSM-6065-60	60.0	+0.030 +0.150	65.0	60.0
XSM-6570-50	65.0	+0.030 +0.150	70.0	50.0
XSM-7075-70	70.0	+0.030 +0.150	75.0	70.0

* after pressfit. Testing methods ▶ page 55

Flange bearing



Order key

XFM-0304-05

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® X

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
XFM-020406-03	2.0	+0.006 +0.046	4.0	6.0	3.0	1.0
XFM-0304-05	3.0	+0.006 +0.046	4.5	7.5	5.0	0.75
XFM-0405-04	4.0	+0.010 +0.058	5.5	9.5	4.0	0.75
XFM-0405-06	4.0	+0.010 +0.058	5.5	9.5	6.0	0.75
XFM-040508-06	4.0	+0.010 +0.058	5.5	8.0	6.0	0.75
XFM-0507-05	5.0	+0.010 +0.058	7.0	11.0	5.0	1.0
XFM-0608-08	6.0	+0.010 +0.058	8.0	12.0	8.0	1.0
XFM-0608-10	6.0	+0.010 +0.058	8.0	12.0	10.0	1.0
XFM-0810-05	8.0	+0.013 +0.071	10.0	15.0	5.5	1.0
XFM-0810-075	8.0	+0.013 +0.071	10.0	15.0	7.5	1.0
XFM-0810-08	8.0	+0.013 +0.071	10.0	15.0	8.0	1.0
XFM-0810-09	8.0	+0.013 +0.071	10.0	15.0	9.0	1.0
XFM-081012-04	8.0	+0.013 +0.071	10.0	12.0	4.0	1.0
XFM-081014-31	8.0	+0.013 +0.071	10.0	14.0	31.5	1.0
XFM-1012-06	10.0	+0.013 +0.071	12.0	18.0	6.0	1.0
XFM-1012-08	10.0	+0.013 +0.071	12.0	15.0	8.0	1.0
XFM-1012-09	10.0	+0.013 +0.071	12.0	18.0	9.0	1.0
XFM-1012-15	10.0	+0.013 +0.071	12.0	18.0	15.0	1.0
XFM-1012-18	10.0	+0.013 +0.071	12.0	18.0	18.0	1.0
XFM-1012-22	10.0	+0.013 +0.071	12.0	18.0	22.0	1.0
XFM-1214-055	12.0	+0.016 +0.086	14.0	20.0	5.5	1.0
XFM-121418-059	12.0	+0.016 +0.086	14.0	18.0	5.9	1.0
XFM-1214-09	12.0	+0.016 +0.086	14.0	20.0	9.0	1.0
XFM-1214-12	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
XFM-1214-15	12.0	+0.016 +0.086	14.0	20.0	15.0	1.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock

prices price list online www.igus.co.uk/en/x

order example part number XFM-0304-05

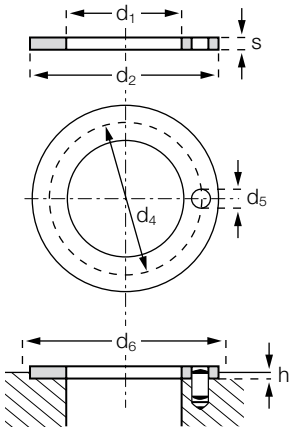
Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
XFM-121418-039	12.0	+0.016 +0.086	14.0	18.0	3.9	1.0
XFM-1416-10	14.0	+0.016 +0.086	16.0	22.0	10.0	1.0
XFM-1416-12	14.0	+0.016 +0.086	16.0	22.0	12.0	1.0
XFM-1416-17	14.0	+0.016 +0.086	16.0	22.0	17.0	1.0
XFM-1517-06	15.0	+0.015 +0.086	17.0	23.0	6.0	1.0
XFM-1517-12	15.0	+0.016 +0.086	17.0	23.0	12.0	1.0
XFM-1517-17	15.0	+0.016 +0.086	17.0	23.0	17.0	1.0
XFM-1618-12	16.0	+0.016 +0.086	18.0	24.0	12.0	1.0
XFM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
XFM-1820-12	18.0	+0.016 +0.086	20.0	26.0	12.0	1.0
XFM-1820-17	18.0	+0.016 +0.086	20.0	26.0	17.0	1.0
XFM-2023-075	20.0	+0.020 +0.104	23.0	30.0	7.5	1.5
XFM-2023-11	20.0	+0.020 +0.104	23.0	30.0	11.0	1.5
XFM-2023-16	20.0	+0.020 +0.104	23.0	30.0	16.5	1.5
XFM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.0	1.5
XFM-2528-13	25.0	+0.020 +0.104	28.0	35.0	13.5	1.5
XFM-2528-21	25.0	+0.020 +0.104	28.0	35.0	21.0	1.5
XFM-252833-08	25.0	+0.020 +0.104	28.0	33.0	8.0	1.0
XFM-2730-20	27.0	+0.020 +0.104	30.0	38.0	20.0	1.5
XFM-3034-16	30.0	+0.020 +0.104	34.0	42.0	16.0	2.0
XFM-3034-26	30.0	+0.020 +0.104	34.0	42.0	26.0	2.0
XFM-3034-40	30.0	+0.020 +0.104	34.0	42.0	40.0	2.0
XFM-3236-15	32.0	+0.025 +0.125	36.0	45.0	15.0	2.0
XFM-3236-26	32.0	+0.025 +0.125	36.0	45.0	26.0	2.0
XFM-3539-26	35.0	+0.025 +0.125	39.0	47.0	26.0	2.0
XFM-4044-30	40.0	+0.025 +0.125	44.0	52.0	30.0	2.0
XFM-4044-40	40.0	+0.025 +0.125	44.0	52.0	40.0	2.0
XFM-4550-50	45.0	+0.025 +0.125	50.0	58.0	50.0	2.0
XFM-5055-40	50.0	+0.025 +0.125	55.0	63.0	40.0	2.0
XFM-6065-40	60.0	+0.030 +0.150	65.0	73.0	40.0	2.0
XFM-7075-40	70.0	+0.030 +0.150	75.0	83.0	40.0	2.0
XFM-7580-50	75.0	+0.030 +0.150	80.0	88.0	50.0	2.0

* after pressfit. Testing methods ▶ page 55

Thrust washer



Order key

XTM-0620-015

- Thickness s
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form T)
- Material iglidur® X

Dimensions according to ISO 3547-1 and special dimensions

Dimensions [mm]

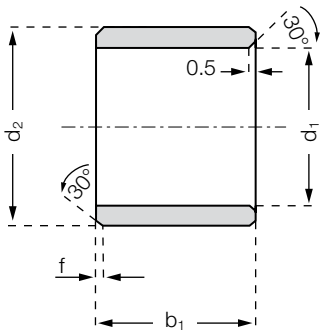
Part number	d1 +0.25	d2 –0.25	s –0.05	d4 –0.12 +0.12	d5 +0.375 +0.125	h +0.2 –0.2	d6 +0.12
XTM-0620-015	6.0	20.0	1.5	13.0	1.5	1.0	20.0
XTM-0818-015	8.0	18.0	1.5	13.0	1.5	1.0	18.0
XTM-1018-010	10.0	18.0	1.0	**	**	0.7	18.0
XTM-1224-015	12.0	24.0	1.5	18.0	1.5	1.0	24.0
XTM-1426-015	14.0	26.0	1.5	20.0	2.0	1.0	26.0
XTM-1524-015	15.0	24.0	1.5	19.5	1.5	1.0	24.0
XTM-1630-015	16.0	30.0	1.5	22.0	2.0	1.0	30.0
XTM-1832-015	18.0	32.0	1.5	25.0	2.0	1.0	32.0
XTM-2036-015	20.0	36.0	1.5	28.0	3.0	1.0	36.0
XTM-2238-015	22.0	38.0	1.5	30.0	3.0	1.0	38.0
XTM-2442-015	24.0	42.0	1.5	33.0	3.0	1.0	42.0
XTM-2644-015	26.0	44.0	1.5	35.0	3.0	1.0	44.0
XTM-3254-015	32.0	54.0	1.5	43.0	4.0	1.0	54.0
XTM-3862-015	38.0	62.0	1.5	50.0	4.0	1.0	62.0
XTM-4266-015	42.0	66.0	1.5	54.0	4.0	1.0	66.0
XTM-4874-020	48.0	74.0	2.0	61.0	4.0	1.5	74.0
XTM-5278-020	52.0	78.0	2.0	65.0	4.0	1.5	78.0
XTM-6290-020	62.0	90.0	2.0	76.0	4.0	1.5	90.0

** design without fixing bore

delivery time available from stock | prices price list online www.igus.co.uk/en/x | order example part number XTM-0620-015

iglidur® X | Product Range | Inch

Sleeve bearing



Order key

XSI-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form S)
- Material iglidur® X

Chamfer in relation to the d1

d1 [Inch]:	Ø 0,040–0,236	Ø 0,236–0,472	Ø 0,472–1,18	Ø > 1,18
f [Inch]:	0.012	0.019	0.031	0047

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
XSI-0203-03	1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236
XSI-0203-05	1/8	3/16	5/16	.1269	.1251	.1878	.1873	.1243	.1236
XSI-0203-06	1/8	3/16	3/8	.1269	.1251	.1878	.1873	.1243	.1236
XSI-0304-03	3/16	1/4	3/16	.1892	.1873	.2503	.2497	.1865	.1858
XSI-0304-04	3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858
XSI-0304-06	3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858
XSI-0304-08	3/16	1/4	1/2	.1892	.1873	.2503	.2497	.1865	.1858
XSI-0405-04	1/4	5/16	1/4	.2521	.2498	.3128	.3122	.2490	.2481
XSI-0405-06	1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481
XSI-0405-08	1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481
XSI-0506-04	5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106
XSI-0506-06	5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106
XSI-0506-08	5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106
XSI-0607-04	3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731
XSI-0607-05	3/8	15/32	5/16	.3773	.3750	.4691	.4684	.3740	.3731
XSI-0607-06	3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731
XSI-0607-08	3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731
XSI-0607-10	3/8	15/32	5/8	.3773	.3750	.4691	.4684	.3740	.3731
XSI-0708-04	7/16	17/32	1/4	.4406	.4379	.5316	.5309	.4365	.4355
XSI-0708-08	7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355
XSI-0708-10	7/16	17/32	5/8	.4406	.4379	.5316	.5309	.4365	.4355
XSI-0708-12	7/16	17/32	3/4	.4406	.4379	.5316	.5309	.4365	.4355
XSI-0809-04	1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980
XSI-0809-06	1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980
XSI-0809-08	1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/x | order example part number XSI-0203-03

Sleeve bearing

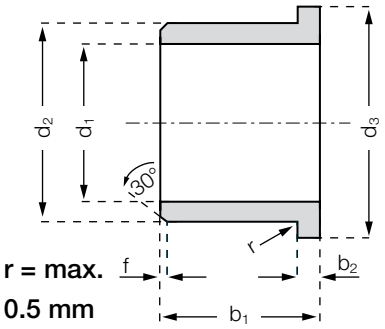
Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
XSI-0809-10	1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980
XSI-0809-12	1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980
XSI-0809-16	1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980
XSI-0910-08	9/16	21/32	1/2	.5655	.5627	.6566	.6559	.5615	.5605
XSI-0910-12	9/16	21/32	3/4	.5655	.5627	.6566	.6559	.5615	.5605
XSI-1011-04	5/8	23/32	1/4	.6280	.6253	.7192	.7184	.6240	.6230
XSI-1011-06	5/8	23/32	3/8	.6280	.6253	.7192	.7184	.6240	.6230
XSI-1011-08	5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230
XSI-1011-10	5/8	23/32	5/8	.6280	.6253	.7192	.7184	.6240	.6230
XSI-1011-12	5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230
XSI-1011-16	5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230
XSI-1112-14	11/16	25/32	7/8	.6906	.6879	.7817	.7809	.6865	.6855
XSI-1214-06	3/4	7/8	3/8	.7541	.7507	.8755	.8747	.7491	.7479
XSI-1214-08	3/4	7/8	1/2	.7541	.7507	.8755	.8747	.7491	.7479
XSI-1214-12	3/4	7/8	3/4	.7541	.7507	.8755	.8747	.7491	.7479
XSI-1214-16	3/4	7/8	1	.7541	.7507	.8755	.8747	.7491	.7479
XSI-1416-12	7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729
XSI-1416-16	7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729
XSI-1618-08	1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979
XSI-1618-12	1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979
XSI-1618-16	1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979
XSI-1618-24	1	1 1/8	1 1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979
XSI-1820-12	1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
XSI-2022-10	1 1/4	1 13/32	5/8	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
XSI-2022-20	1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
XSI-2426-12	1 1/2	1 21/32	3/4	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
XSI-2426-16	1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
XSI-2426-24	1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
XSI-2629-20	1 5/8	1 25/32	1 1/4	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222
XSI-2831-16	1 3/4	1 15/16	1	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
XSI-3235-24	2	2 3/16	1 1/2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
XSI-3235-32	2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
XSI-3639-32	2 1/4	2 7/16	2	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489
XSI-4447-32	2 3/4	2 15/16	2	2.7570	2.7523	2.9370	2.9358	2.7500	2.7490

* after pressfit. Testing methods ▶ page 55

iglidur® X | Product Range | Inch

Flange bearing



r = max. 0.5 mm

Order key

XFI-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® X

Chamfer in relation to the d1

d1 [Inch]:	Ø 0,040–0,236	Ø 0,236–0,472	Ø 0,472–1,18	Ø > 1,18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft size	
						max.	min.	max.	min.	max.	min.
XFI-0203-03	1/8	3/16	3/16	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
XFI-0203-06	1/8	3/16	3/8	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
XFI-0304-04	3/16	1/4	1/4	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
XFI-0304-06	3/16	1/4	3/8	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
XFI-0304-08	3/16	1/4	1/2	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
XFI-0405-03	1/4	5/16	3/16	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
XFI-0405-04	1/4	5/16	1/4	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
XFI-0405-06	1/4	5/16	3/8	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
XFI-0405-08	1/4	5/16	1/2	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
XFI-0405-12	1/4	5/16	3/4	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
XFI-0506-04	5/16	3/8	1/4	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
XFI-0506-06	5/16	3/8	3/8	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
XFI-0506-08	5/16	3/8	1/2	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
XFI-0607-04	3/8	15/32	1/4	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
XFI-0607-06	3/8	15/32	3/8	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
XFI-0607-08	3/8	15/32	1/2	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
XFI-0607-12	3/8	15/32	3/4	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
XFI-0708-08	7/16	17/32	1/2	.750	.046	.4406	.4379	.5316	.5309	.4365	.4355
XFI-0809-04	1/2	19/32	1/4	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
XFI-0809-06	1/2	19/32	3/8	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
XFI-0809-08	1/2	19/32	1/2	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
XFI-0809-12	1/2	19/32	3/4	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
XFI-0809-16	1/2	19/32	1	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
XFI-1011-08	5/8	23/32	1/2	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
XFI-1011-12	5/8	23/32	3/4	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/x | order example part number XFI-0203-03

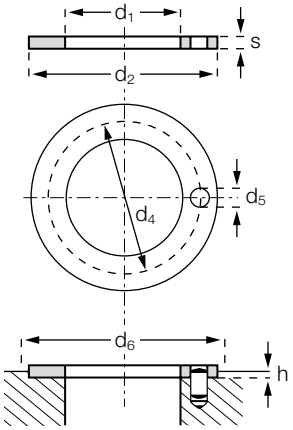
Flange bearing

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft size	
						max.	min.	max.	min.	max.	min.
XFI-1011-16	5/8	23/32	1	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
XFI-1011-24	5/8	23/32	1 1/2	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
XFI-1214-08	3/4	7/8	1/2	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
XFI-1214-12	3/4	7/8	3/4	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
XFI-1214-16	3/4	7/8	1	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
XFI-1214-28	3/4	7/8	1 3/4	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
XFI-1416-12	7/8	1	3/4	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
XFI-1416-16	7/8	1	1	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
XFI-1618-08	1	1 1/8	1/2	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
XFI-1618-12	1	1 1/8	3/4	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
XFI-1618-16	1	1 1/8	1	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
XFI-1618-24	1	1 1/8	1 1/2	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
XFI-1820-12	1 1/8	1 9/32	3/4	1.562	.078	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
XFI-2022-20	1 1/4	1 13/32	1 1/4	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
XFI-2022-32	1 1/4	1 13/32	2	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
XFI-2426-12	1 1/2	1 21/32	3/4	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
XFI-2426-16	1 1/2	1 21/32	1	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
XFI-2426-24	1 1/2	1 21/32	1 1/2	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
XFI-2426-26	1 1/2	1 21/32	1 5/8	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
XFI-2831-16	1 3/4	1 15/16	1	2.375	.093	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
XFI-3235-32	2	2 3/16	2	2.625	.093	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
XFI-4447-32	2 3/4	2 15/16	2	3.375	.093	2.7570	2.7523	2.9370	2.9358	2.7500	2.7490

* after pressfit. Testing methods ▶ page 55

Thrust washer



Order key

XTI-0814-01

- Thickness s
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form T)
- Material iglidur® X

Dimensions according to ISO 3547-1 and special dimensions

Dimensions [Inch]

Part number	d1	d2	s	d4	d5	h	d6
	+.010	-.010	-.0020	±.005	.015 + .005	+.008	+.005
XTI-0814-01	.500	.875	.0585	.692	.067	.040	.875
XTI-1018-01	.625	1.125	.0585	.880	.099	.040	1.125
XTI-1220-01	.750	1.250	.0585	1.005	.099	.040	1.250
XTI-1424-01	.875	1.500	.0585	1.192	.130	.040	1.500
XTI-1628-01	1.000	1.750	.0585	1.380	.130	.040	1.750
XTI-1826-01	1.125	1.625	.0585	–	–	.040	1.625
XTI-2034-01	1.250	2.125	.0585	1.692	.161	.040	2.125
XTI-2440-01	1.500	2.500	.0585	2.005	.192	.040	2.500
XTI-2844-01	1.750	2.750	.0585	2.255	.192	.040	2.750
XTI-3248-01	2.000	3.000	.0895	2.505	.192	.070	3.000

delivery time available from stock | prices price list online www.igus.co.uk/en/x | order example part number XTI-0814-01

iglidur® K NEW!*

versatile, wear-resistant universal material

Standard range from stock ▶ **from page 175**

iglidur® P

versatile, waterproof

Standard range from stock ▶ **from page 185**

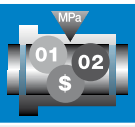
iglidur® GLW

strong and low-cost material for high quantities

On request ▶ **from page 197**

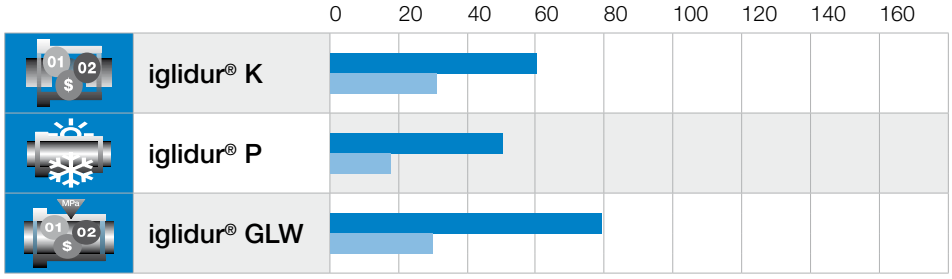
* in this catalog

iglidur® Specialists | Selection According to Main Criteria

iglidur® Specialists – General Purpose			
	iglidur® K	iglidur® P	iglidur® GLW
Long life dry running	●	●	
For high loads			●
For high temperatures			
Low friction/high speed	●		
Dirt resistant		●	●
Chemicals resistant			
Low water absorption	●	●	
Food-suitable			
Vibration-dampening			
Egde pressure			
For under water use			
Cost-effective	●	●	●
from page	175	185	197

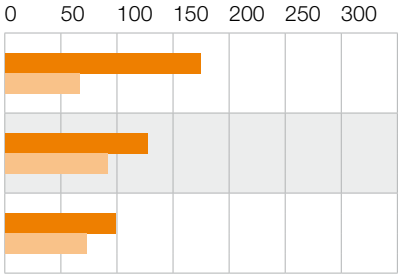
iglidur® Specialists | Selection According to Main Criteria

Load [MPa]



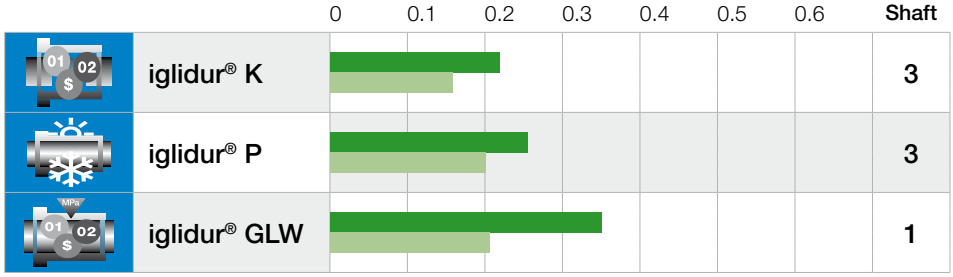
Maximum permissible radial load of iglidur® bearings at
- +20 °C
- +120 °C

Temperature [°C]



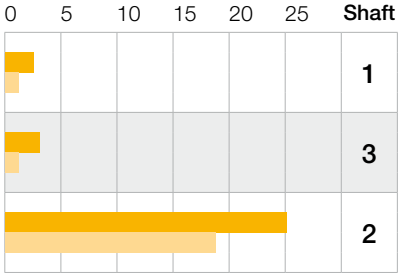
Important temperatur limits of iglidur® bearings
- Maximum permissible application temperature, continous
- Temperature where bearings need to be secured against radial or axial movement in the housing

Coefficient of Friction [µ]



Coefficients of friction of iglidur® bearings sliding against steel, p = 1.2 MPa, v = 0.3 m/s
- Average coefficient of all the seven sliding combinations tested
- Coefficient of friction of best combination

Wear [µm/km]



Wear of iglidur® bearings sliding against steel, p = 1 MPa
- Average wear of all the seven sliding combination tested
- Wear of best combination

Shaft material:

1 = Cf53
2 = hard chromed
3 = Aluminum, hc
4 = Automatic screw steel
5 = HR carbon steel
6 = 304 SS
7 = High grade steel

iglidur® Specialists | Material Data

Material data

General properties	Unit	iglidur® K	iglidur® P	iglidur® GLW
Density	g/cm³	1.52	1.58	1.36
Colour		yellow beige	black	black
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	< 0.2	1.3
Max. moisture absorption	% weight	0.6	0.4	5.5
Coefficient of sliding friction. dynamic against steel	µ	0.06–0.20	0.06–0.21	0.1–0.24
pv value. max. (dry)	MPa · m/s	0.30	0.39	0.3
Mechanical properties				
Modulus of elasticity	MPa	3,500	5,300	7,700
Tensile strength at +20 °C	MPa	80	120	235
Compressive strength	MPa	60	66	74
Max. recommended surface pressure (+20 °C)	MPa	60	50	80
Shore D hardness		72	75	78
Physical and thermal properties				
Max. long term application temperature	°C	+170	+130	+100
Max. short term application temperature	°C	+240	+200	+160
Min. application temperature	°C	–40	–40	–40
Thermal conductivity	W/m · K	0.25	0.25	0.24
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	n. b.	4	17
Electrical properties				
Specific volume resistance	Ωcm	> 10^{12}	> 10^{13}	> 10^{11}
Surface resistance	Ω	> 10^{12}	> 10^{12}	> 10^{11}

Material resistance (at +20 °C)

Chemical resistance	iglidur® K	iglidur® P	iglidur® GLW
Alcohol	+ to 0	+	+ to 0
Hydrocarbons	+	–	+
Greases, oils without additives	+	+	+
Fuels	+	+	+
Diluted acids	0 to –	0	0 to –
Strong acids	–	–	–
Diluted alkalines	+	–	+
Strong alkalines	0	–	0
Radiation resistance [Gy] to	$5 \cdot 10^2$	$5 \cdot 10^2$	$3 \cdot 10^2$

+ resistant 0 conditionally resistant – not resistant

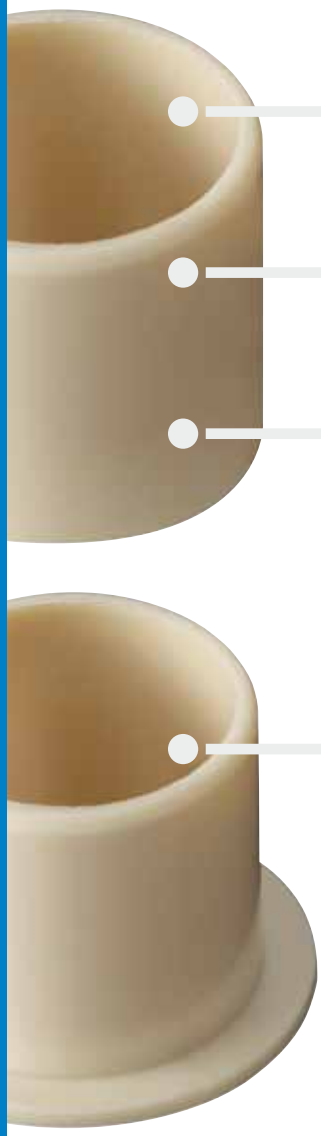
iglidur® K – versatile, wear-resistant universal material

- Standard range from stock
- Lubrication- and maintenance-free
- Low moisture absorption
- Wear-resistant
- Cost-effective

NEW in this catalog!

iglidur® K

Versatile, wear-resistant universal material. iglidur® K is the new general purpose bearing for medium temperatures, low moisture absorption and good environmental resistance.



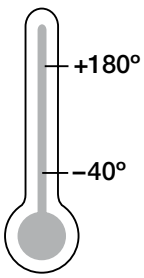
When to use it?

- When you need a cost-effective general purpose bearing
- For use in wet environments
- When good wear resistance is required at medium loads

When not to use it?

- When highest wear resistance is necessary
  ▶ **iglidur® W300, page 131**
- If high media-resistance is required
  ▶ **iglidur® X6, page 289**
- When a high-temperature bearing is needed
  ▶ **iglidur® H, page 325**

Temperature



Product range

2 types
Ø 6–20 mm
more dimensions
on request

iglidur® K | Application Examples

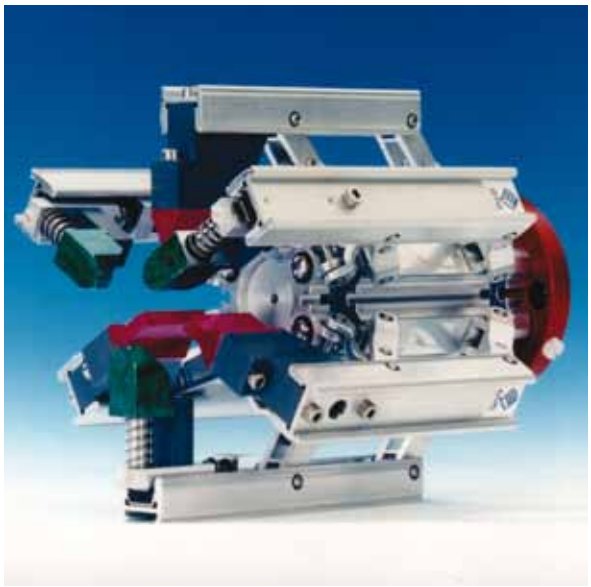
Typical sectors of industry and application areas

● Printing industry ● Electronics industry
● Packaging ● Medical
● Polymer processing machines etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

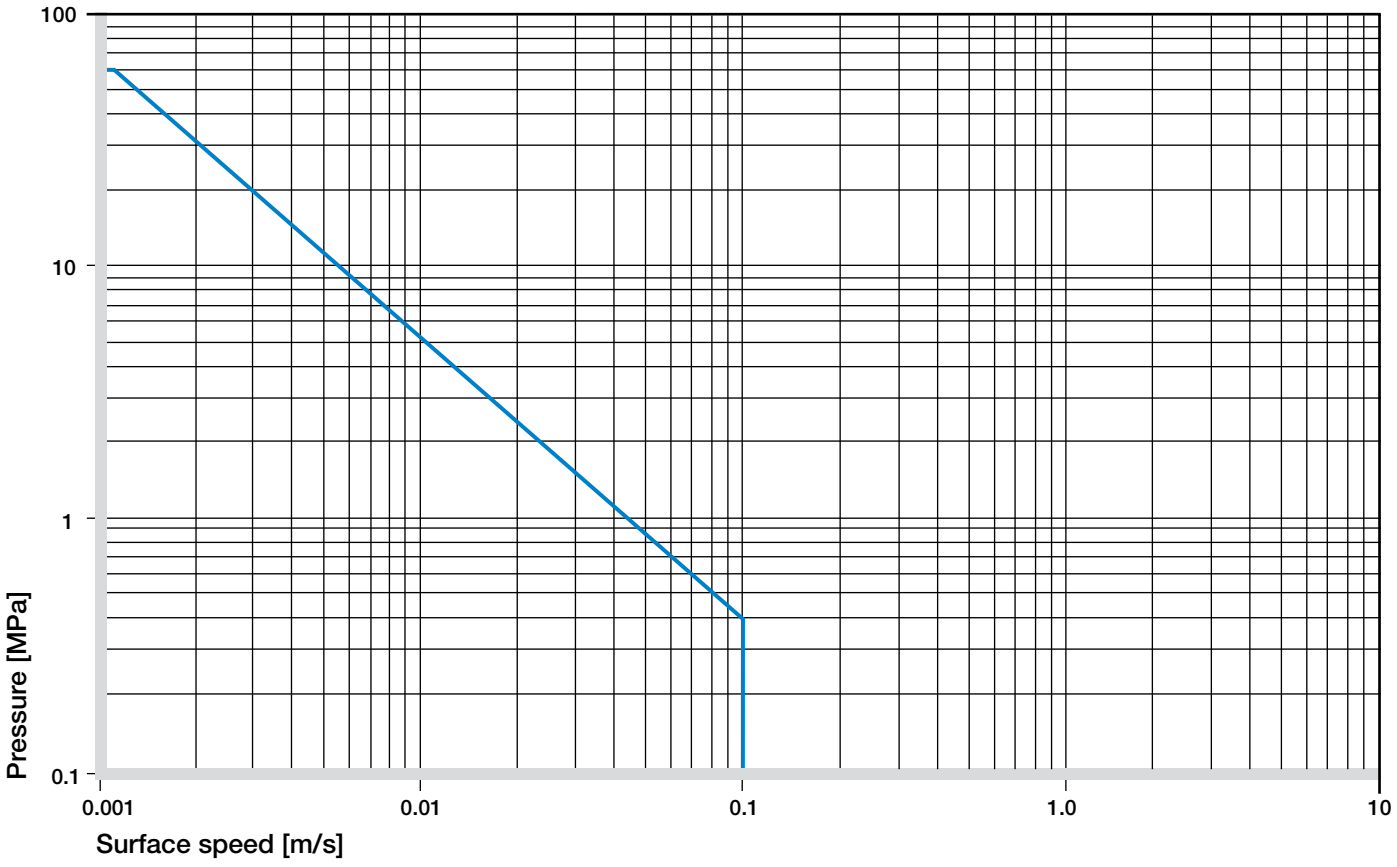
▶ www.igus.co.uk/satellite-receiver



▶ www.igus.co.uk/mechanical-hand

Material data			
General properties	**Unit**	**iglidur® K**	**Testing method**
Density	**g/cm³**	1.52	
Colour		yellow beige	
Max. moisture absorption at +23 °C/50 % r. h.	**% weight**	0.1	DIN 53495
Max. moisture absorption	**% weight**	0.6	
Coefficient of sliding friction, dynamic against steel	**µ**	0,06–0,20	
pv value, max. (dry)	**MPa · m/s**	0.30	
Mechanical properties			
Modulus of elasticity	**MPa**	3,500	DIN 53457
Tensile strength at +20 °C	**MPa**	80	DIN 53452
Compressive strength	**MPa**	60	
Max. recommended surface pressure (+20 °C)	**MPa**	60	
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+170	
Max. short term application temperature	**°C**	+240	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	3	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{12}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{12}$	DIN 53482

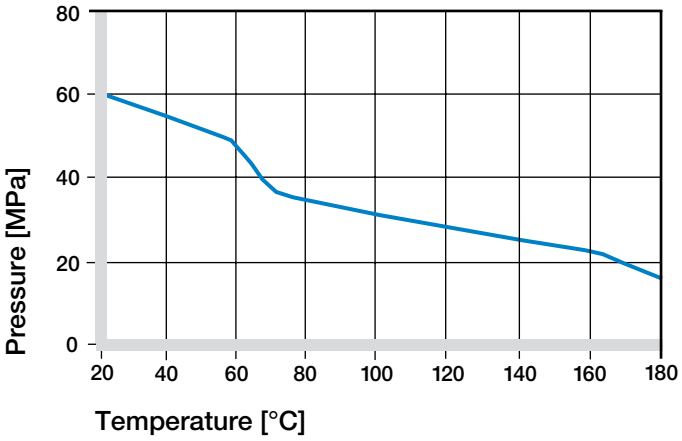
Table 01: Material data



Graph 01: Permissible pv values for iglidur® K with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

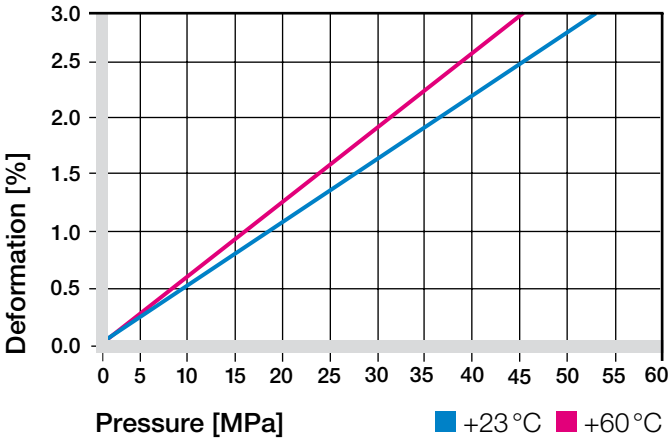
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® K plain bearings decreases. Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +150° C the permissible surface pressure is almost 25 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (60 MPa at +20°C)

Graph 03 shows the elastic deformation of iglidur® K during radial loading. At the recommended maximum surface pressure of 60 MPa the deformation is less than 5%. Plastic deformation can occur, this depends on the applied pressure.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® K has been developed for low to medium surface speeds. The maximum values shown in table 02 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached, due to varying application conditions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	3
Short term	2	1.4	4

Table 02: Maximum running speed

Temperatures

iglidur® K plain bearings can be used at temperatures from –40 °C up to +170 °C. The short term maximum temperature is +240 °C, The ambient temperatures of the application also have an effect on the bearing wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +100 °C.

▶ Application Temperatures, **page 46**

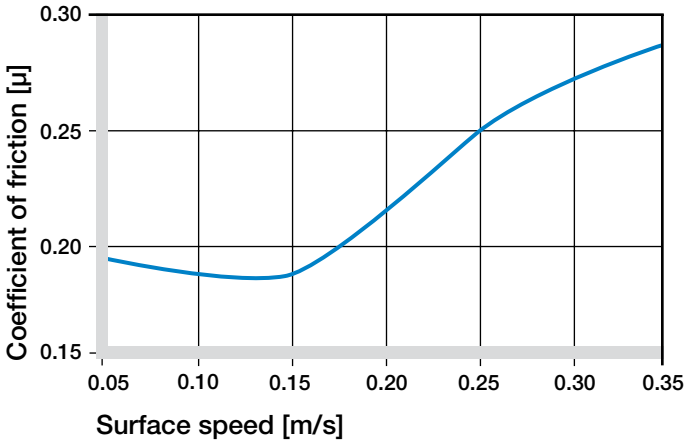
iglidur® K	Application temperature
Minimum	–40 °C
Max. long term	+170 °C
Max. short term	+240 °C
Add. securing is required from	+70 °C

Table 03: Temperature limits

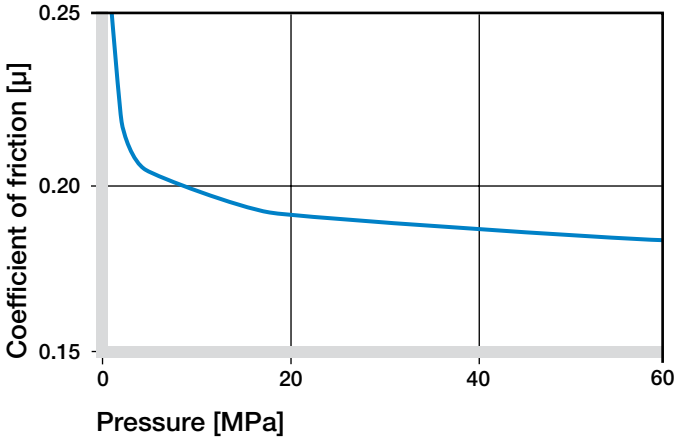
Friction and Wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction decreases with increasing pressure (Graph 05), whereas an increase in surface speed causes an increase of the coefficient of friction (Graph 04). A noticeable increase is found over 0.15 m/s.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

The friction and wear are also dependent, to a large degree, on the shaft material. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. For iglidur® K a ground surface with an average roughness Ra = 0,15–0,20 µm is recommended.

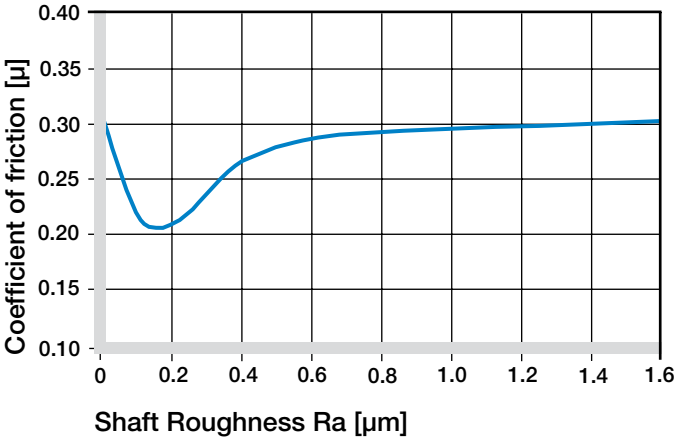
Graphs 06 and 07 show results of testing different shaft materials with plain bearings made of iglidur® K. It can be seen from Graph 07 that iglidur® K can be combined with a large number of different shaft materials. Only hard-chromed shafts are unsuitable. It is important to notice that with increasing loads, the recommended hardness of the shaft increases. The “soft” shafts tend to wear more easily and thus increase the wear of the overall system, if the loads exceed 2 MPa.

The comparison of rotational movements to oscillating movements shows that the wear is almost identical at a pressure up to 5 MPa. The higher the loads, the greater the difference.

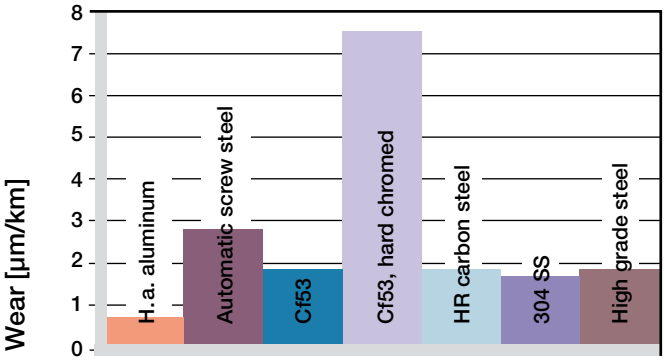
▶ Shaft Materials, **page 51**

iglidur® K	Dry	Greases	Oil	Water
C. o. f. µ	0,06–0,21	0,09	0,04	0,04

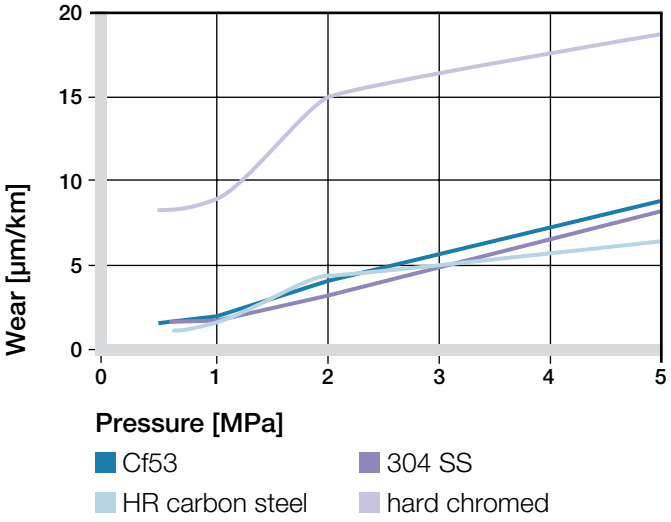
Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)



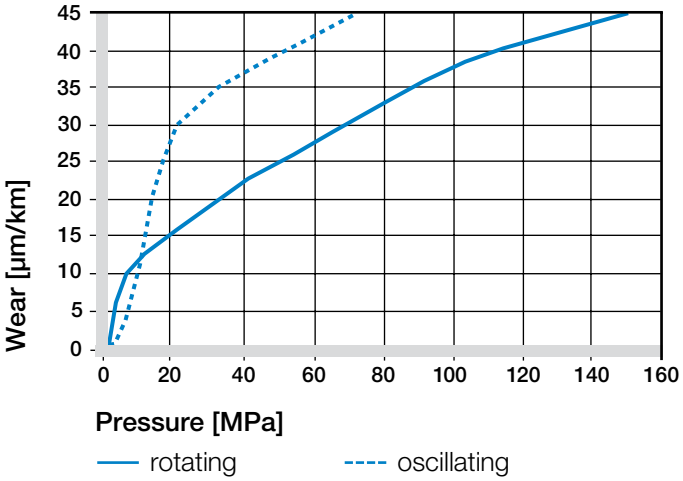
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

Additional Properties

Chemical Resistance

iglidur® K plain bearings are resistant to diluted alkaline and very weak acids, as well as fuels and all types of lubricants. The low moisture absorption also permits use in wet or damp environments.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® K are resistant to radiation up to an intensity of $5 \cdot 10^2$ Gy.

UV Resistance

iglidur® K plain bearings become discoloured under UV radiation. However, hardness,compressive strength and the wear resistance of the material do not change.

Vacuum

When used in a vacuum environment, the iglidur® K plain bearings release moisture as a vapour. Therefore, only dehumidified bearings are suitable in a vacuum environment.

Electrical Properties

iglidur® K plain bearings are electrically insulating.

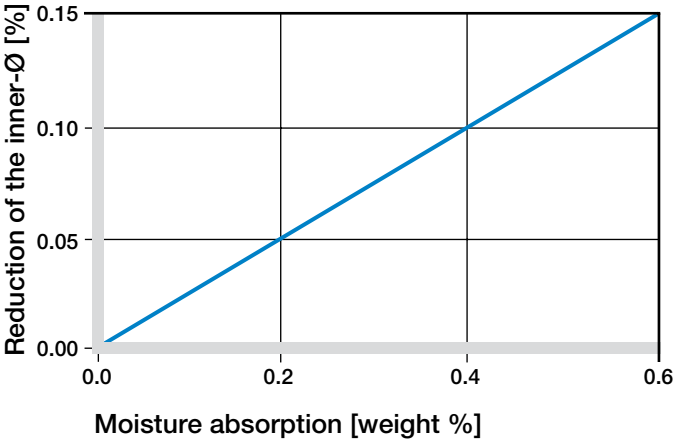
Volume resistance	$> 10^{12}$ Ωcm
Surface resistance	$> 10^{12}$ Ω

Moisture Absorption

The moisture absorption of iglidur® K plain bearings is approximately 0.1 % in the standard atmosphere. The saturation limit submerged in water is 0.6 %. These values are so low that the swelling only has to be considered in extreme cases.

Maximum moisture absorption	
At +23 °C/50 % r.h	0.1 % weight
Max. moisture absorption	0.6 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

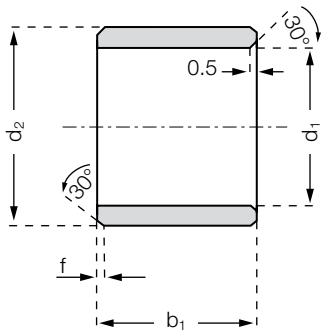
iglidur® K plain bearings are meant to be oversized before pressfit. The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet our specified tolerances. In relation to the installation tolerance, the inner diameter changes with the absorbtion of humidity.

▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® K E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Sleeve bearing



Order key

KSM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® K

Dimensions according to ISO 3547-1 and special dimensions

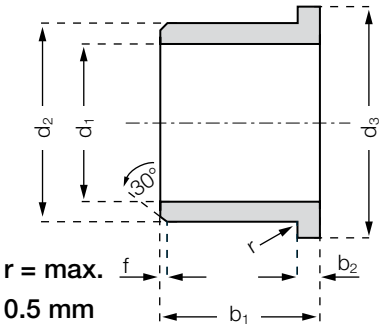
Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1 [mm]	Tolerance pressfitted in H7	d2 [mm]	b1 [mm]
KSM-0608-06	6	+0.020 +0.068	8	6
KSM-0810-10	8	+0.025 +0.083	10	10
KSM-1012-10	10	+0.025 +0.083	12	10
KSM-1214-12	12	+0.032 +0.102	14	12
KSM-1618-15	16	+0.032 +0.102	18	15
KSM-2023-20	20	+0.040 +0.124	23	20

Flange bearing



Order key

KFM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® K

Dimensions according to ISO 3547-1 and special dimensions

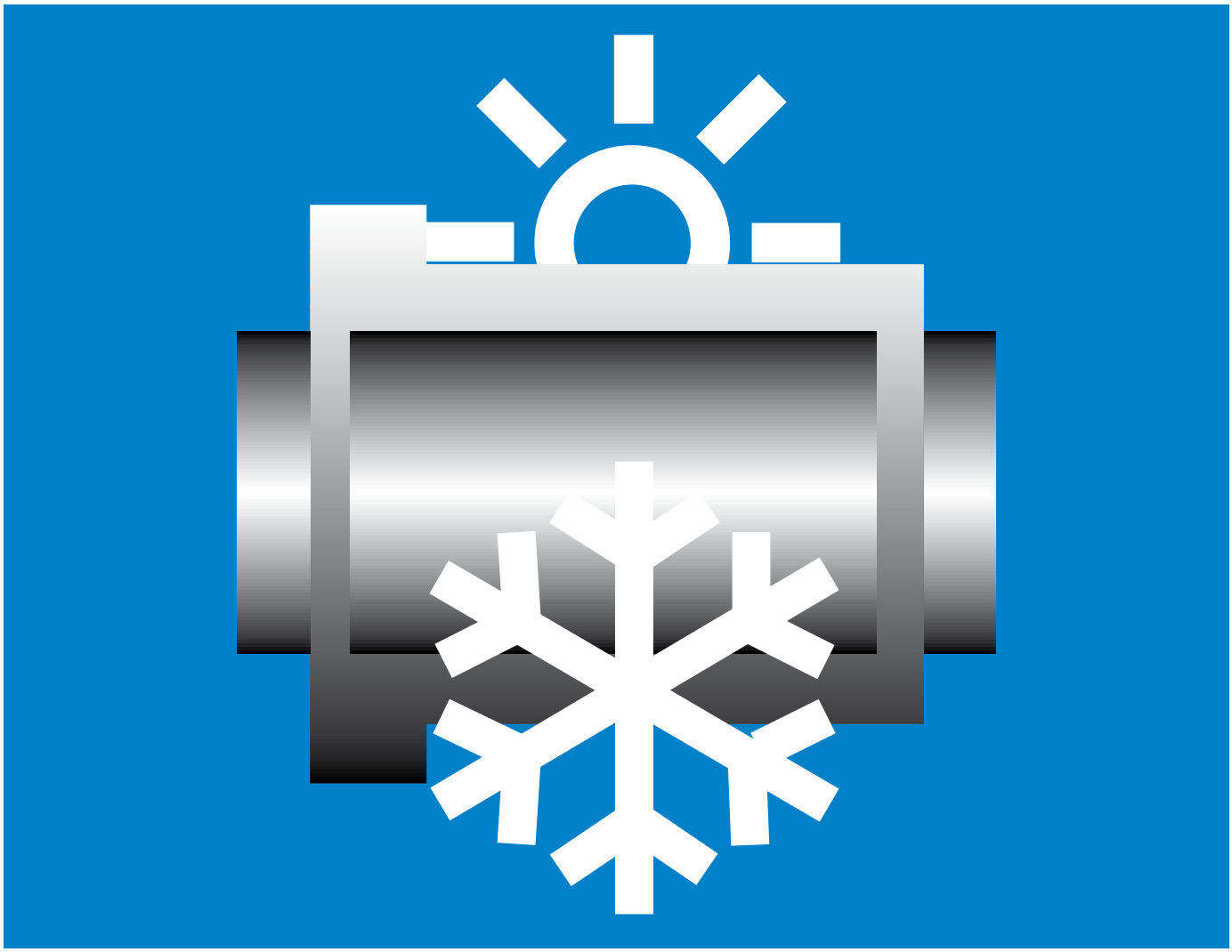
Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1 [mm]	Tolerance pressfitted in H7	d2 [mm]	d3 [mm]	b1 [mm]	b2 [mm]
KFM-0608-06	6	+0.020 +0.068	8	12	6	1
KFM-0810-10	8	+0.025 +0.083	10	15	10	1
KFM-1012-10	10	+0.025 +0.083	12	18	10	1
KFM-1214-12	12	+0.032 +0.102	14	20	12	1
KFM-1618-17	16	+0.032 +0.102	18	24	17	1
KFM-2023-21	20	+0.040 +0.124	23	30	21.5	1.5

delivery time available from stock | prices price list online www.igus.co.uk/en/k | order example part number KFM-0608-06

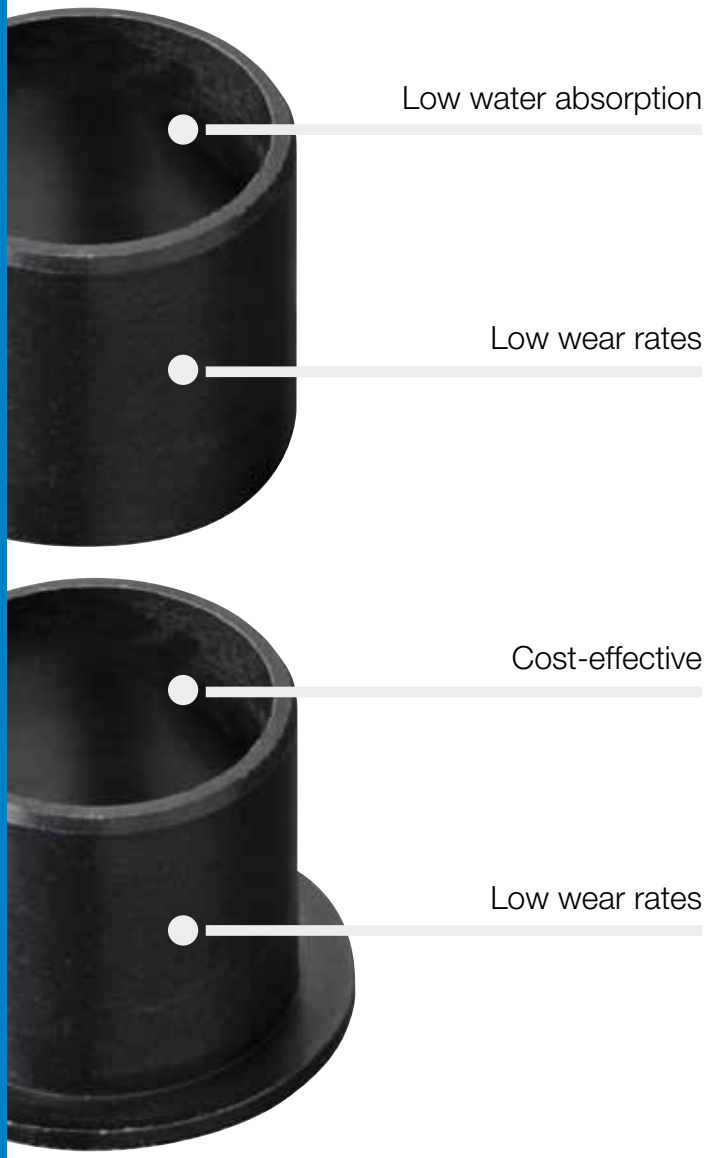


iglidur® P – versatile, waterproof

- Standard range from stock
- Low water absorption
- Low wear rates
- High load capacity
- Maintenance-free
- Cost-effective

iglidur® P

Versatile, waterproof. With the iglidur® P plain bearing, the user has a cost-effective, maintenance-free plain bearing. Compared to iglidur® G plain bearings made of iglidur® P are better suited to rotating movements and high loads, as well as being effectively waterproof.



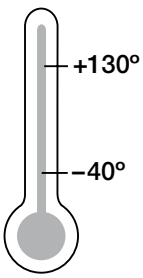
When to use it?

- When very low water absorption is needed
- When a cost-effective bearing for high pressure loads is desired
- For rotating movements under high loads
- When high precision in high humidity and moderately high temperatures are needed

When not to use it?

- When the maximum application temperature is above +120 °C
  ▶ **iglidur® K, page 175**
- When mechanical reaming of the wall surface is necessary
  ▶ **iglidur® M250, page 107**
- When the highest wear resistance is needed
  ▶ **iglidur® W300, page 131**

Temperature



Product range

2 types
Ø 3–95 mm
more dimensions
on request

iglidur® P | Application Examples

Typical sectors of industry and application areas

- Solar technology
- Sports and leisure
- Machine Building
- Doors and gates
- Railway industry etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

▶ **www.igus.co.uk/boat-cranes**

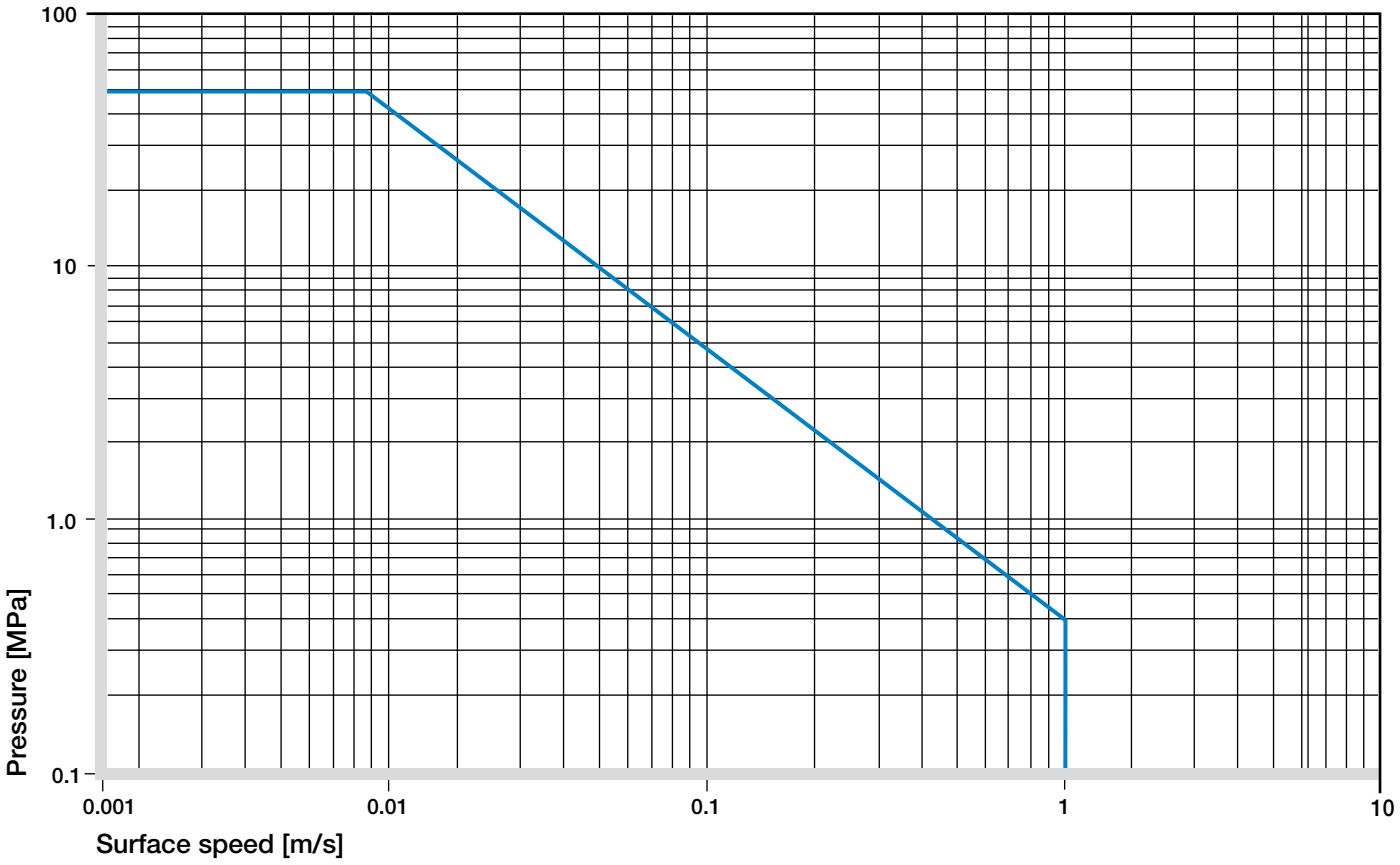
▶ **www.igus.co.uk/helicopter-loadsystem**

▶ **www.igus.co.uk/road-sweeper**

iglidur® P | Technical Data

Material data			
General properties	**Unit**	**iglidur® P**	**Testing method**
Density	**g/cm³**	1.58	
Colour		black	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.2	DIN 53495
Max. moisture absorption	**% weight**	0.4	
Coefficient of sliding friction, dynamic against steel	**µ**	0.06–0.21	
pv value, max. (dry)	**MPa · m/s**	0,39	
Mechanical properties			
Modulus of elasticity	**MPa**	5,300	DIN 53457
Tensile strength at +20 °C	**MPa**	120	DIN 53452
Compressive strength	**MPa**	66	
Max. recommended surface pressure (+20 °C)	**MPa**	50	
Shore D hardness		75	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+130	
Max. short term application temperature	**°C**	+200	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	4	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{13}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{12}$	DIN 53482

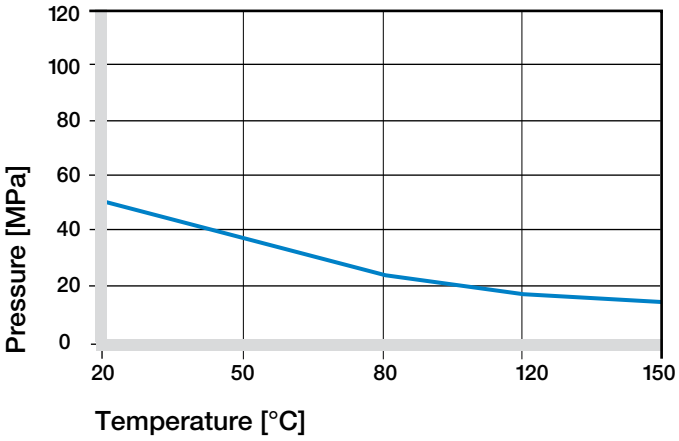
Table 01: Material data



Graph 01: Permissible pv values for iglidur® P with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

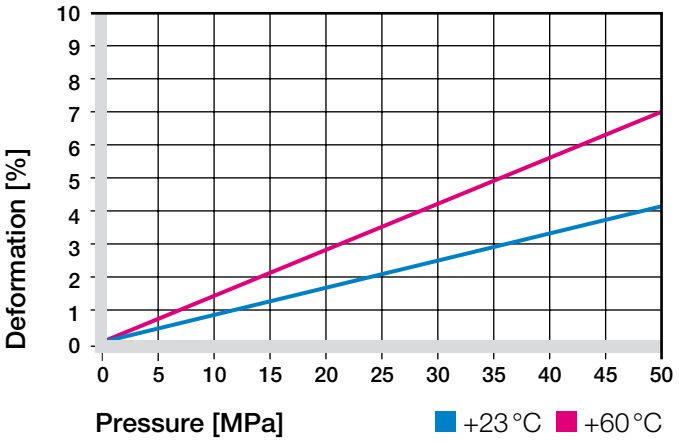
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® P plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +130 ° C the permissible surface pressure is almost 15 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (50 MPa at +20 °C)

With the iglidur® P plain bearing, the user has a cost-effective, maintenance-free plain bearing. Compared to iglidur® G, plain bearings made of iglidur® P are better suited for rotating movements and high loads. Graph 03 shows the elastic deformation of iglidur® P for radial loads. At the recommended maximum surface pressure of 50 MPa the deformation is less than 3 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

Plain bearings made of iglidur® P are maintenance-free plain bearings, which were developed for low to average surface speeds. The maximum values given in table 02 can only be achieved at a very low surface pressure. The maximum speed given is the speed at which an increase up to the continuous use temperature occurs due to friction.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	3
Short term	2	1.4	4

Table 02: Maximum running speed

Temperatures

Even at its highest long term application temperature of +120 °C, iglidur® P does not quite reach the values of iglidur® G. The ambient temperatures in the bearing system also have an effect on the bearing wear. With increasing temperatures, the wear increases.

▶ Application Temperatures, **page 46**

iglidur® P	Application temperature
Minimum	–40 °C
Max. long term	+130 °C
Max. short term	+200 °C
Add. securing is required from	+90 °C

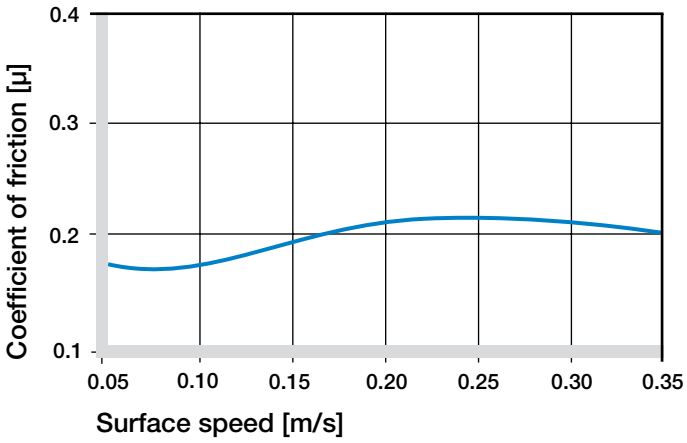
Table 03: Temperature limits

Friction and Wear

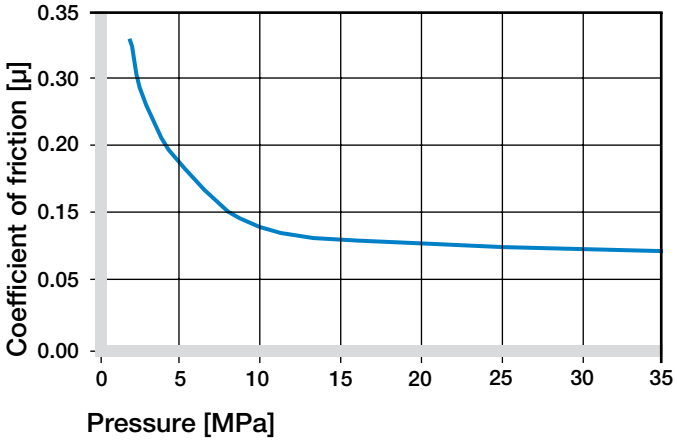
Just as the wear resistance, the coefficient of friction changes greatly with increasing load. With regard to iglidur® P, the coefficient of friction increases slightly when the speed increases (Graph 04). Graph 05 shows how the coefficient of friction drops when the load increases. Starting at approximately 6 MPa, the coefficient of friction is already below 0.1.

iglidur® P plain bearings obtain a minimum coefficient of friction on shafts with a roughness Ra from 0.1 to 0.2 µm. Both smoother and rougher shaft finishes cause the friction to clearly increase.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



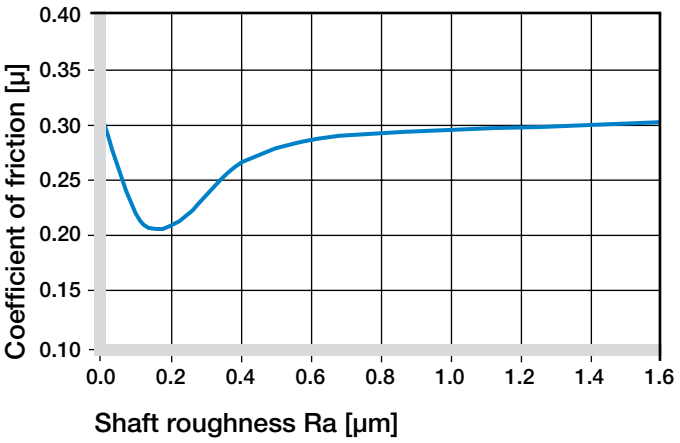
Graph 05: Coefficient of friction as a function of the pressure, v = 0,01 m/s

Shaft Materials

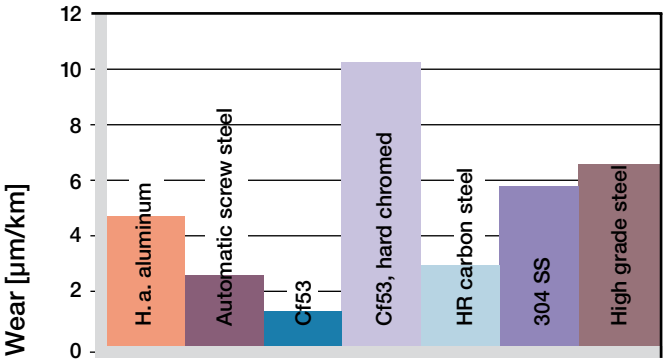
Graphs 06 to 10 show results of testing different shaft materials with plain bearings made of iglidur® P.

For rotating movements, the wear of iglidur® P with Cold Rolled Steel and HR Carbon Steel shafts is very low. On the other hand, the bearings on 304 Stainless Steel shafts as well as hard-chromed shafts result in higher wear than other shaft materials even in the low load range. For example at a load of 2 MPa, Cold Rolled Steel is six times better than 304 Stainless Steel. For oscillating movements without loads wear rates are lower than for most rotating movements. For this purpose, the Cold Rolled Steel and hard chromed shafts prove to be the best sliding partners. Also, the 304 Stainless Steel shafts that have poor results for rotation are very good in oscillating operation.

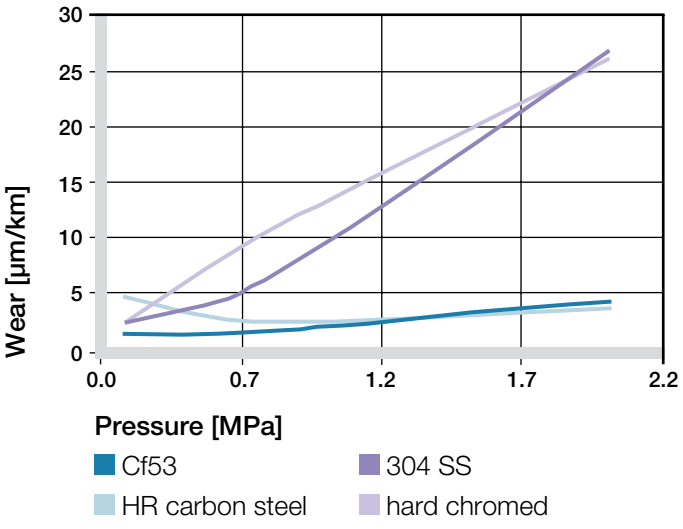
▶ Shaft Materials, **page 51**



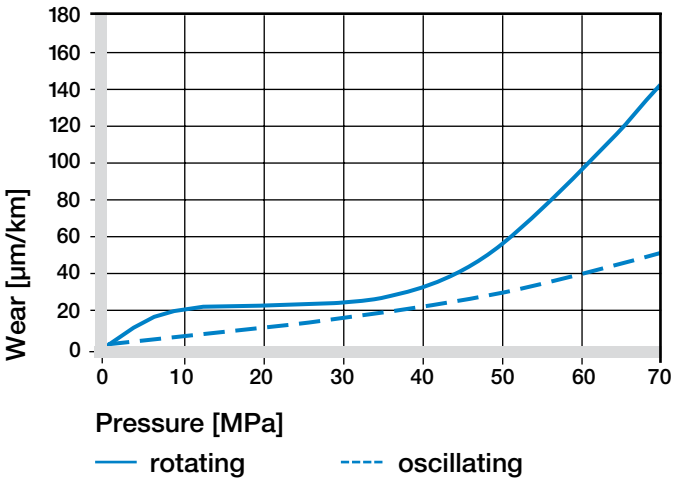
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



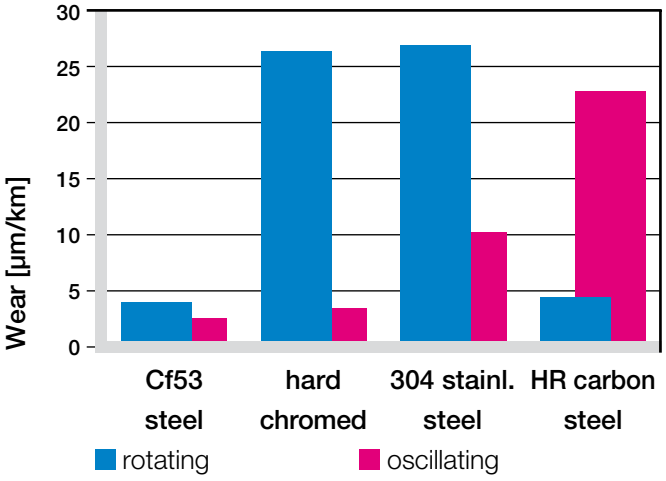
Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure



Graph 10: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® P	Dry	Greases	Oil	Water
C. o. f. µ	0,06–0,21	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® P plain bearings have a good resistance to chemicals. They are resistant to most lubricants.
iglidur® P is not attacked by most weak organic and inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	–
Greases, oils without additives	+
Fuels	+
Diluted acids	0
Strong acids	–
Diluted alkalines	–
Strong alkalines	–

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made of iglidur® P have limited use under radioactive radiation. They are resistant to radiation up to an intensity of $5 \cdot 10^2$ Gy.

UV Resistance

iglidur® P plain bearings are partially UV resistant.

Vacuum

In a vacuum environment, existing moisture in iglidur® P plain bearings is released as a vapour. Use in vacuum can be limited.

Electrical Properties

iglidur® P plain bearings are electrically insulating.

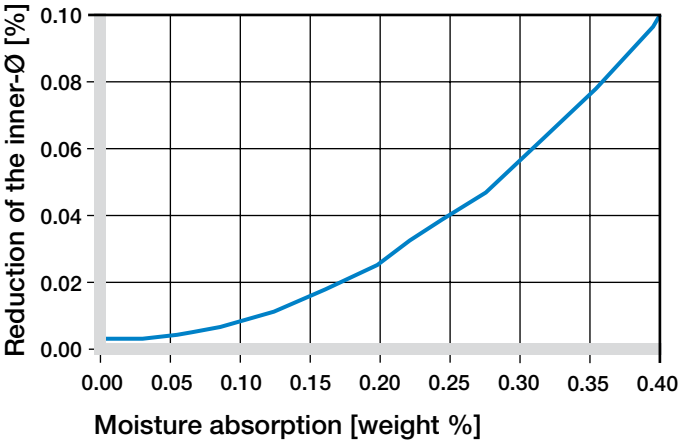
Volume resistance	$> 10^{13}$ Ωcm
Surface resistance	$> 10^{12}$ ΩΩ

Moisture Absorption

The moisture absorption of iglidur® P plain bearings is approximately 0.2 % in standard atmosphere. The saturation limit in water is 0.4 %. This low moisture absorption is well below the values of iglidur® G.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.2 % weight
Max. moisture absorption	0.4 % weight

Table 06: Moisture absorption



Graph 11: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® P plain bearings are meant to be oversized before being pressfit. The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter is adjusted to meet the specified tolerances.

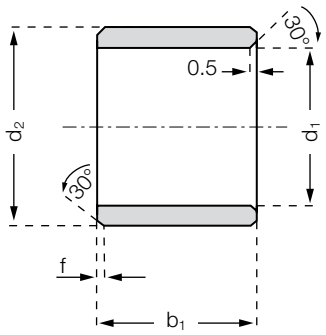
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® P E10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.014 +0.054	0 +0.010
> 3	to	6	0–0.030	+0.020 +0.068	0 +0.012
> 6	to	10	0–0.036	+0.025 +0.083	0 +0.015
> 10	to	18	0–0.043	+0.032 +0.102	0 +0.018
> 18	to	30	0–0.052	+0.040 +0.124	0 +0.021
> 30	to	50	0–0.062	+0.050 +0.150	0 +0.025
> 50	to	80	0–0.074	+0.060 +0.180	0 +0.030
> 80	to	120	0–0.087	+0.072 +0.212	0 +0.035
> 120	to	180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® P | Product Range

Sleeve bearing



Order key

PSM-0304-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® P

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
PSM-0304-03	3.0	+0.014 +0.054	4.5	3.0
PSM-0405-04	4.0	+0.020 +0.068	5.5	4.0
PSM-0507-05	5.0	+0.020 +0.068	7.0	5.0
PSM-0608-06	6.0	+0.020 +0.068	8.0	6.0
PSM-0810-08	8.0	+0.025 +0.083	10.0	8.0
PSM-0810-11	8.0	+0.025 +0.083	10.0	11.5
PSM-0810-12	8.0	+0.025 +0.083	10.0	12.0
PSM-1012-10	10.0	+0.025 +0.083	12.0	10.0
PSM-1214-15	12.0	+0.032 +0.102	14.0	15.0
PSM-1214-25	12.0	+0.032 +0.102	14.0	25.0
PSM-1517-15	15.0	+0.032 +0.102	17.0	15.0
PSM-1618-20	16.0	+0.032 +0.102	18.0	20.0
PSM-1618-42	16.0	+0.032 +0.102	18.0	42.0
PSM-1820-15	18.0	+0.032 +0.102	20.0	15.0
PSM-1820-20	18.0	+0.032 +0.102	20.0	20.0
PSM-1820-33	18.0	+0.032 +0.102	20.0	33.0
PSM-2022-22	20.0	+0.040 +0.124	22.0	22.0
PSM-2022-30	20.0	+0.040 +0.124	22.0	30.0
PSM-2022-51	20.0	+0.040 +0.124	22.0	51.0
PSM-2023-15	20.0	+0.040 +0.124	23.0	15.0
PSM-2023-25	20.0	+0.040 +0.124	23.0	25.0
PSM-2023-30	20.0	+0.040 +0.124	23.0	30.0
PSM-2325-37	23.0	+0.040 +0.124	25.0	37.0

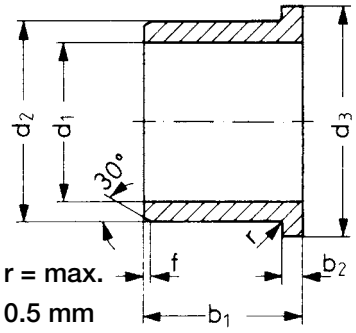
Part number	d1	d1-Tolerance*	d2	b1 h13
PSM-2224-45	22.0	+0.040 +0.124	24.0	45.0
PSM-2225-15	22.0	+0.040 +0.124	25.0	15.0
PSM-2225-45	22.0	+0.040 +0.124	25.0	45.0
PSM-2528-30	25.0	+0.040 +0.124	28.0	30.0
PSM-2528-35	25.0	+0.040 +0.124	28.0	35.0
PSM-2630-25	26.0	+0.040 +0.124	30.0	25.0
PSM-2832-20	28.0	+0.040 +0.124	32.0	20.0
PSM-2832-25	28.0	+0.040 +0.124	32.0	25.0
PSM-3034-20	30.0	+0.040 +0.124	34.0	20.0
PSM-3034-30	30.0	+0.040 +0.124	34.0	30.0
PSM-3034-40	30.0	+0.040 +0.124	34.0	40.0
PSM-3034-45	30.0	+0.040 +0.124	34.0	45.0
PSM-3539-40	35.0	+0.050 +0.150	39.0	40.0
PSM-4044-50	40.0	+0.050 +0.150	44.0	50.0
PSM-4044-58	40.0	+0.050 +0.150	44.0	58.0
PSM-5055-40	50.0	+0.050 +0.150	55.0	40.0
PSM-6065-50	60.0	+0.060 +0.180	65.0	50.0
PSM-6065-60	60.0	+0.060 +0.180	65.0	60.0
PSM-6570-50	65.0	+0.060 +0.180	70.0	50.0
PSM-7580-80	75.0	+0.060 +0.180	80.0	80.0
PSM-9095-100	90.0	+0.072 +0.212	95.0	100.0
PSM-95100-100	95.0	+0.072 +0.212	100.0	100.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/p | order example part number PSM-0304-03

iglidur® P | Product Range

Flange bearing



Order key

PFM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® P

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
PFM-0405-04	4.0	+0.020 +0.068	5.5	9.5	4.0	0.75
PFM-0507-05	5.0	+0.020 +0.068	7.0	11.0	5.0	1.0
PFM-0608-04	6.0	+0.020 +0.068	8.0	12.0	4.0	1.0
PFM-0810-075	8.0	+0.025 +0.083	10.0	15.0	7.5	1.0
PFM-0810-10	8.0	+0.025 +0.083	10.0	15.0	10.0	1.0
PFM-0810-15	8.0	+0.025 +0.083	10.0	15.0	15.0	1.0
PFM-081012-10	8.0	+0.025 +0.083	10.0	12.0	10.0	1.0
PFM-1012-17	10.0	+0.025 +0.083	12.0	18.0	17.0	1.0
PFM-1214-09	12.0	+0.032 +0.102	17.0	20.0	9.0	1.0
PFM-1214-10	12.0	+0.032 +0.102	14.0	20.0	10.0	1.0
PFM-1214-15	12.0	+0.032 +0.102	14.0	20.0	15.0	1.0
PFM-121418-08	12.0	+0.032 +0.102	14.0	18.0	8.0	1.0
PFM-121420-10	12.0	+0.032 +0.102	14.0	20.0	10.0	1.0
PFM-1416-04	14.0	+0.032 +0.102	16.0	22.0	4.0	1.0
PFM-1416-08	14.0	+0.032 +0.102	16.0	22.0	8.0	1.0
PFM-1416-12	14.0	+0.032 +0.102	16.0	22.0	12.0	1.0
PFM-141624-25	14.0	+0.032 +0.102	16.0	24.0	25.0	1.0
PFM-1517-22	15.0	+0.032 +0.102	17.0	23.0	22.0	1.0
PFM-151824-32	15.0	+0.032 +0.102	18.0	24.0	32.0	1.5
PFM-1618-12	16.0	+0.032 +0.102	18.0	24.0	12.0	1.0
PFM-1618-17	16.0	+0.032 +0.102	18.0	24.0	17.0	1.0
PFM-161824-40	16.0	+0.032 +0.102	18.0	24.0	40.0	1.0
PFM-1719-25	17.0	+0.032 +0.102	19.0	25.0	25.0	1.0
PFM-1820-17	18.0	+0.032 +0.102	20.0	26.0	17.0	1.0
PFM-2023-16	20.0	+0.040 +0.124	23.0	30.0	16.5	1.5

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/p | order example part number PFM-0405-04

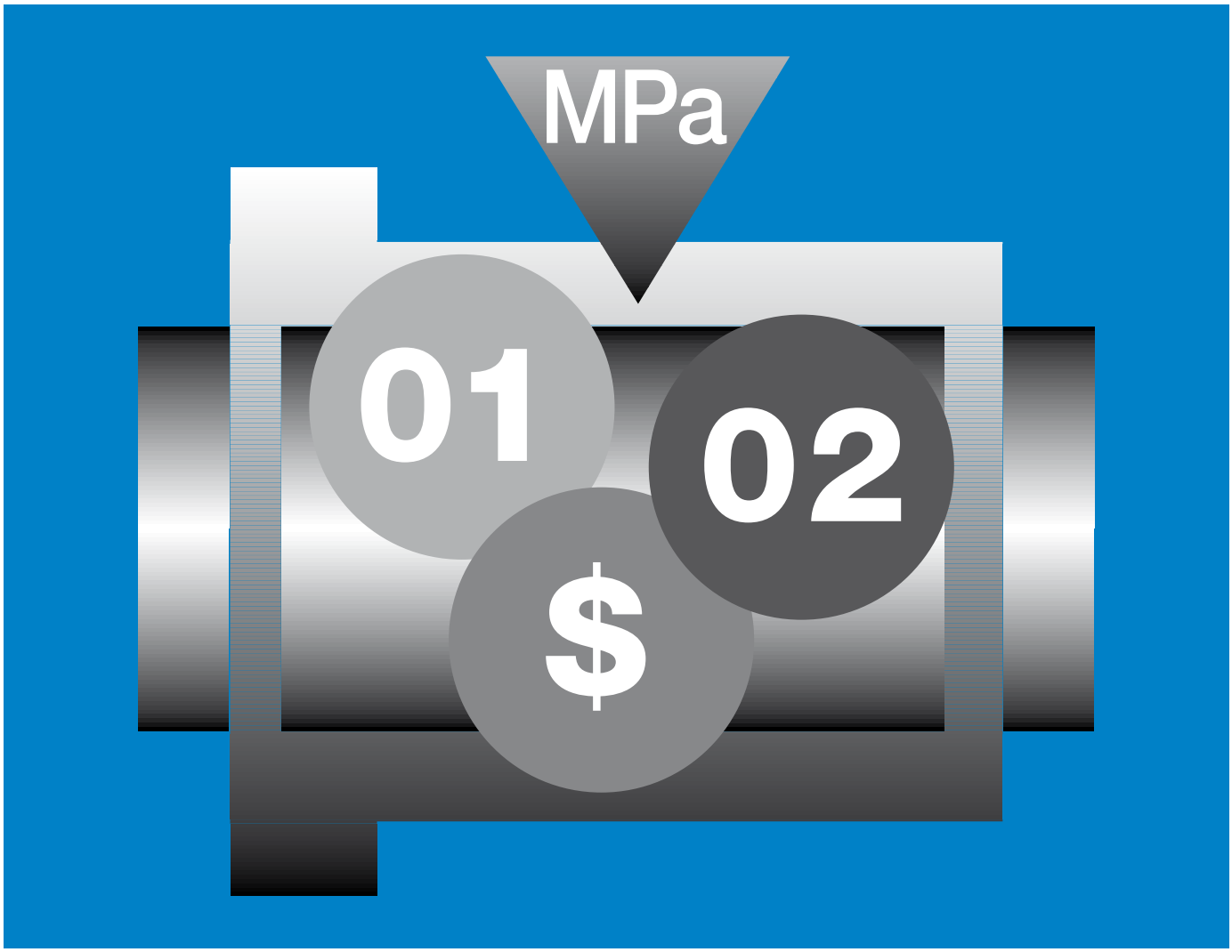
Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
PFM-202328-15	20.0	+0.040 +0.124	23.0	28.0	15.0	1.5
PFM-2023-30	20.0	+0.040 +0.124	23.0	30.0	30.0	1.5
PFM-2427-22	24.0	+0.040 +0.124	27.0	32.0	22.0	1.5
PFM-2528-21	25.0	+0.040 +0.124	28.0	35.0	21.5	1.5
PFM-3034-16	30.0	+0.040 +0.124	34.0	42.0	16.0	2.0
PFM-3034-37	30.0	+0.040 +0.124	34.0	42.0	37.0	2.0
PFM-3539-26	35.0	+0.050 +0.150	39.0	47.0	26.0	2.0
PFM-4044-30	40.0	+0.050 +0.150	44.0	52.0	30.0	2.0
PFM-4044-40	40.0	+0.050 +0.150	44.0	52.0	40.0	2.0
PFM-5055-50	50.0	+0.050 +0.150	55.0	63.0	50.0	2.0
PFM-6065-40	60.0	+0.060 +0.180	65.00	73.0	40.0	2.0
PFM-6065-50	60.0	+0.060 +0.180	65.0	73.0	50.0	2.0
PFM-7075-50	70.0	+0.060 +0.180	75.0	83.0	50.0	2.0
PFM-8085-100	80.0	+0.060 +0.180	85.0	93.0	100.0	2.5

* after pressfit. Testing methods ▶ page 55

My Sketches



iglidur® GLW – strong and low-cost material for high quantities

- Applications with static loads
- Maintenance-free dry running
- Cost-effective
- Resistant to dirt
- Resistant to vibrations

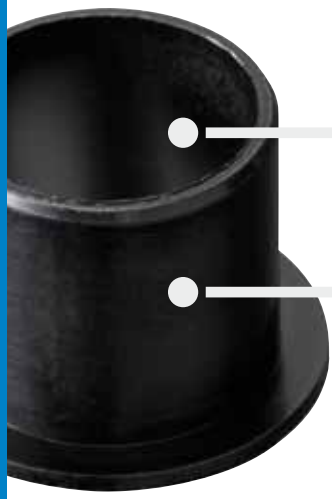
iglidur® GLW

Strong and low-cost material for high quantities. Low cost material for medium loads. iglidur® GLW plain bearings are prefered in applications with static load, where only occasional movement takes place.

Applications with static loads

Maintenance-free dry running

Cost-effective



Resistant to dirt

Resistant to vibrations

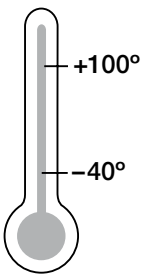
When to use it?

- When you need an economical universal bearing for mass production
- For high, primarily static loads
- For low to medium speeds

When not to use it?

- When mechanical reaming of the wall surface is necessary
  ▶ **iglidur® M250, page 107**
- For primarily dynamic loads
  ▶ **iglidur® G, page 61**
- When the highest wear resistance is necessary
  ▶ **iglidur® W300, page 131**
- When temperatures continuously exceed +130 °C
  ▶ **iglidur K, page 175**
- For underwater applications
  ▶ **iglidur H2, page 359**

Temperature

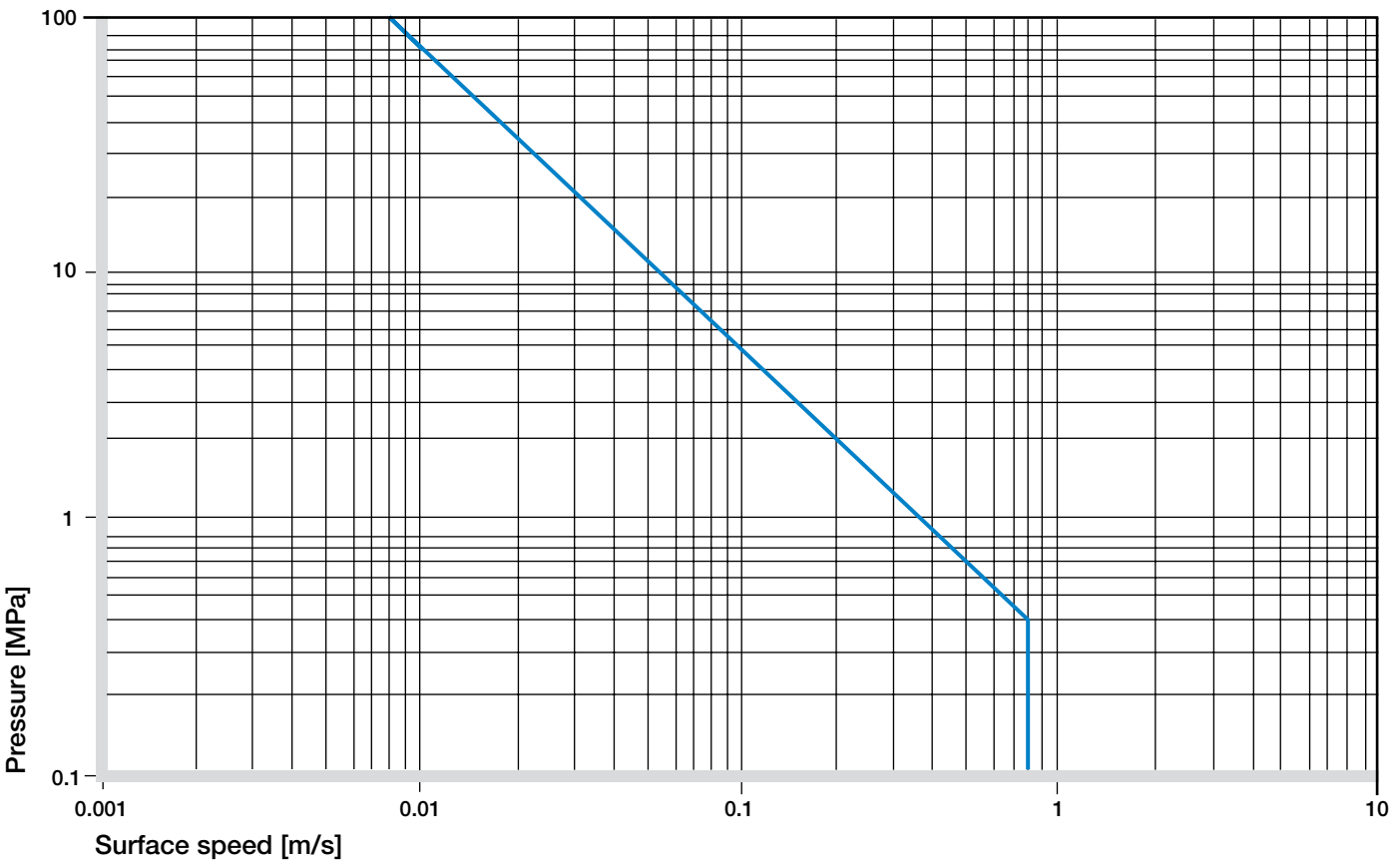


Product range

on request

Material data			
General properties	**Unit**	**iglidur® GLW**	**Testing method**
Density	**g/cm³**	1.36	
Colour		black	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	1.3	DIN 53495
Max. moisture absorption	**% weight**	5.5	
Coefficient of sliding friction, dynamic against steel	**µ**	0.1–0.24	
pv value, max. (dry)	**MPa · m/s**	0.3	
Mechanical properties			
Modulus of elasticity	**MPa**	7,700	DIN 53457
Tensile strength at +20 °C	**MPa**	235	DIN 53452
Compressive strength	**MPa**	74	
Max. recommended surface pressure (+20 °C)	**MPa**	80	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+100	
Max. short term application temperature	**°C**	+160	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	17	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{11}	DIN IEC 93
Surface resistance	**Ω**	> 10^{11}	DIN 53482

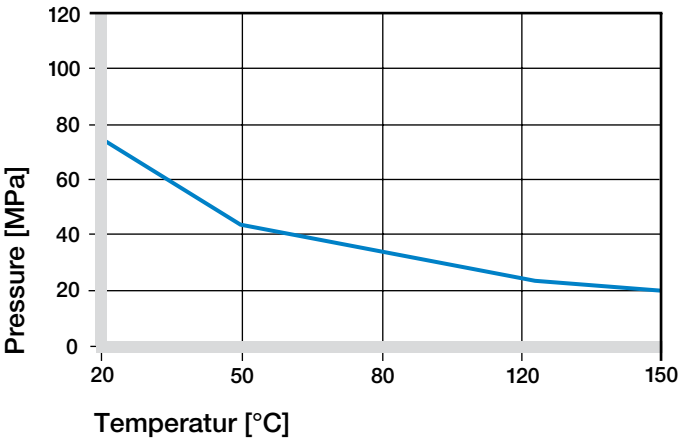
Table 01: Material data



Graph 01: Permissible pv values for iglidur® GLW with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

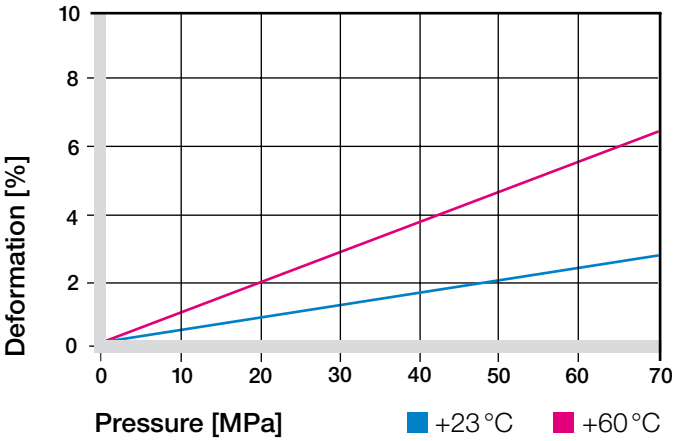
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® GLW plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +100 ° C the permissible surface pressure is almost 30 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (80 MPa at +20 °C)

With plain bearings made of iglidur® GLW we can offer our customers an alternative to iglidur® G for mass production applications. Featuring similar mechanical designed as iglidur® G, iglidur® GLW plain bearings are primarily recommended for static loads. With regard to these applications, in which the dynamic properties of iglidur® G to a large extent are unimportant, iglidur® GLW presents a very cost-effective alternative. Graph 03 shows the elastic deformation of iglidur® GLW for radial loads. At the recommended maximum surface pressure of 70 MPa at room temperature, the deformation is less than 3 %. At this load the plastic deformation is minimal. However, it is also dependent on the duty cycle of the application.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® GLW was developed for low to average surface speeds. In constant operation, a maximum speed of 0.8 m/s (rotating) or 2.5 m/s (linear) is permitted. Please note that the maximum values shown in table 02 are only possible at the lowest pressures. In practice, these values are rarely reached, due to the increasing temperatures approach ing or exceeding the maximum permitted value.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.8	0.6	2.5
Short term	1	0.7	3

Table 02: Maximum running speed

Temperatures

To a large extent, the surrounding temperatures affect the properties of plain bearings. Graph 02 shows the inverse relationship. With increasing temperatures in the bearing system, the wear also increases.

▶ Application Temperatures, **page 46**

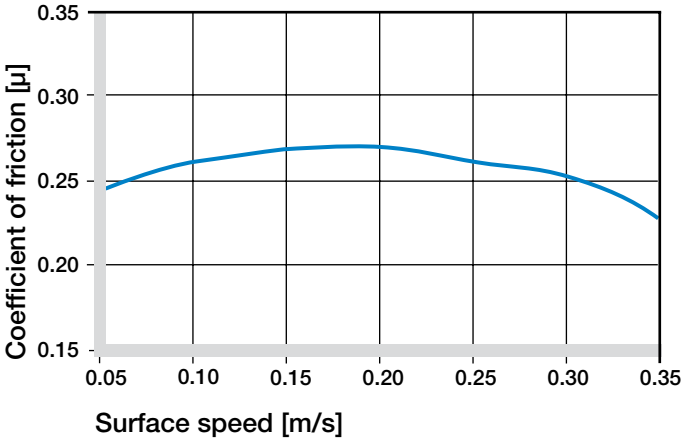
iglidur® GLW	Application temperature
Minimum	–40 °C
Max. long term	+100 °C
Max. short term	+160 °C
Add. securing is required from	+80 °C

Table 03: Temperature limits

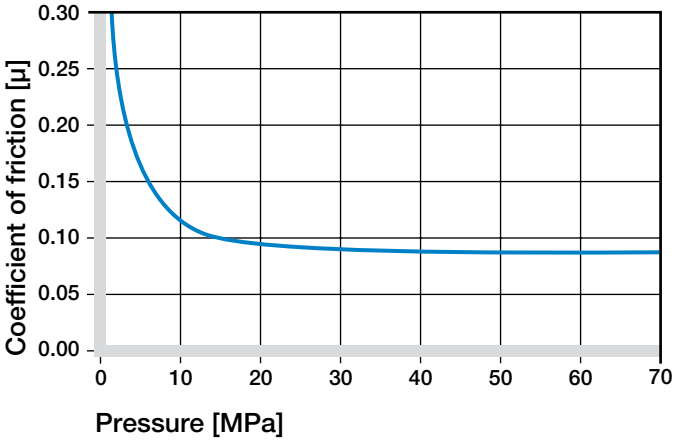
Friction and Wear

Similar to wear resistance, the coefficient of friction μ also changes with increasing load. It is striking that the coefficient of friction μ decreases with increasing pressure. This rela tionship explains the excellent suitability of iglidur® GLW plain bearings with regard to high loads.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

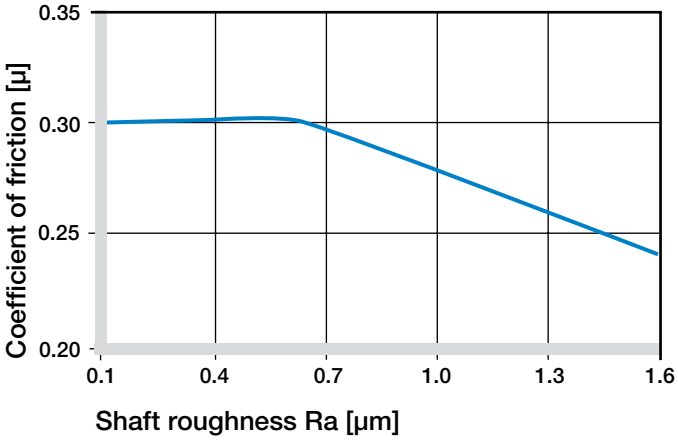


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

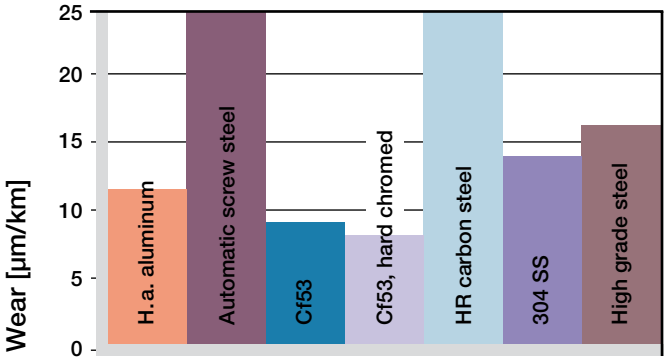
Shaft Materials

To a large extent, friction and wear depend on the shaft material. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. A ground surface with an average roughness Ra between 0.1 and 0.2 μm is the most suitable (Graph 06). The following graphs show an extract of the results of tests with different shaft materials carried out with iglidur® GLW plain bearings.
If the shaft material you plan on using is not shown in these test results, please contact us.

▶ Shaft Materials, **page 51**



Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure, p = 1 MPa, v = 0.3 m/s

Additional Properties

Chemical Resistance

iglidur® GLW plain bearings have a good resistance to chemicals. They are resistant to most lubricants.
iglidur® GLW is not attacked by most organic and inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made of iglidur® GLW are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® GLW plain bearings are permanently resistant to UV radiation.

Vacuum

In a vacuum environment iglidur® GLW plain bearings release gases. Use in a vacuum should be tested beforehand.

Electrical Properties

iglidur® GLW plain bearings are electrically insulating.

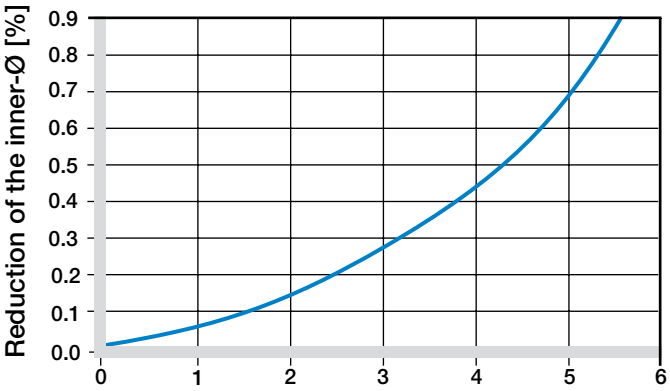
Volume resistance	$> 10^{11}$ Ωcm
Surface resistance	$> 10^{11}$ Ω 10

Moisture Absorption

The moisture absorption of iglidur® GLW plain bearings is approximately 1 % in standard atmosphere. The saturation limit in water is 5 %. This must be taken into account with regard to the respective operating conditions.

Maximum moisture absorption	
At +23 °C/50 % r.h.	1.3 % weight
Max. moisture absorption	5.5 % weight

Table 06: Moisture absorption



Graph 08: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® GLW plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9).
The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® GLW E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Product Range

iglidur® GLW plain bearings are made to special order. For high volume applications, please request iglidur® GLW plain bearings as an alternative to iglidur® G.

iglidur® Specialists | For Long Service Life

iglidur® J260 NEW!*

suitable for plastic shafts

Standard range from stock ▶ **from page 209**

iglidur® J3 NEW!*

runs up to three time longer than iglidur® J

Standard range from stock ▶ **from page 219**

iglidur® J350 NEW!*

extremely wear-resistant in rotation

Standard range from stock ▶ **from page 229**

iglidur® L250

for high speed

Standard range from stock ▶ **from page 239**

iglidur® R

low-cost material, low wear

Standard range from stock ▶ **from page 249**

iglidur® D

low-cost material with silicone

On request ▶ **from page 259**

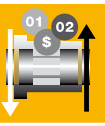
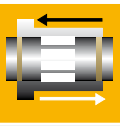
iglidur® J200

suitable for anodized aluminum shafts

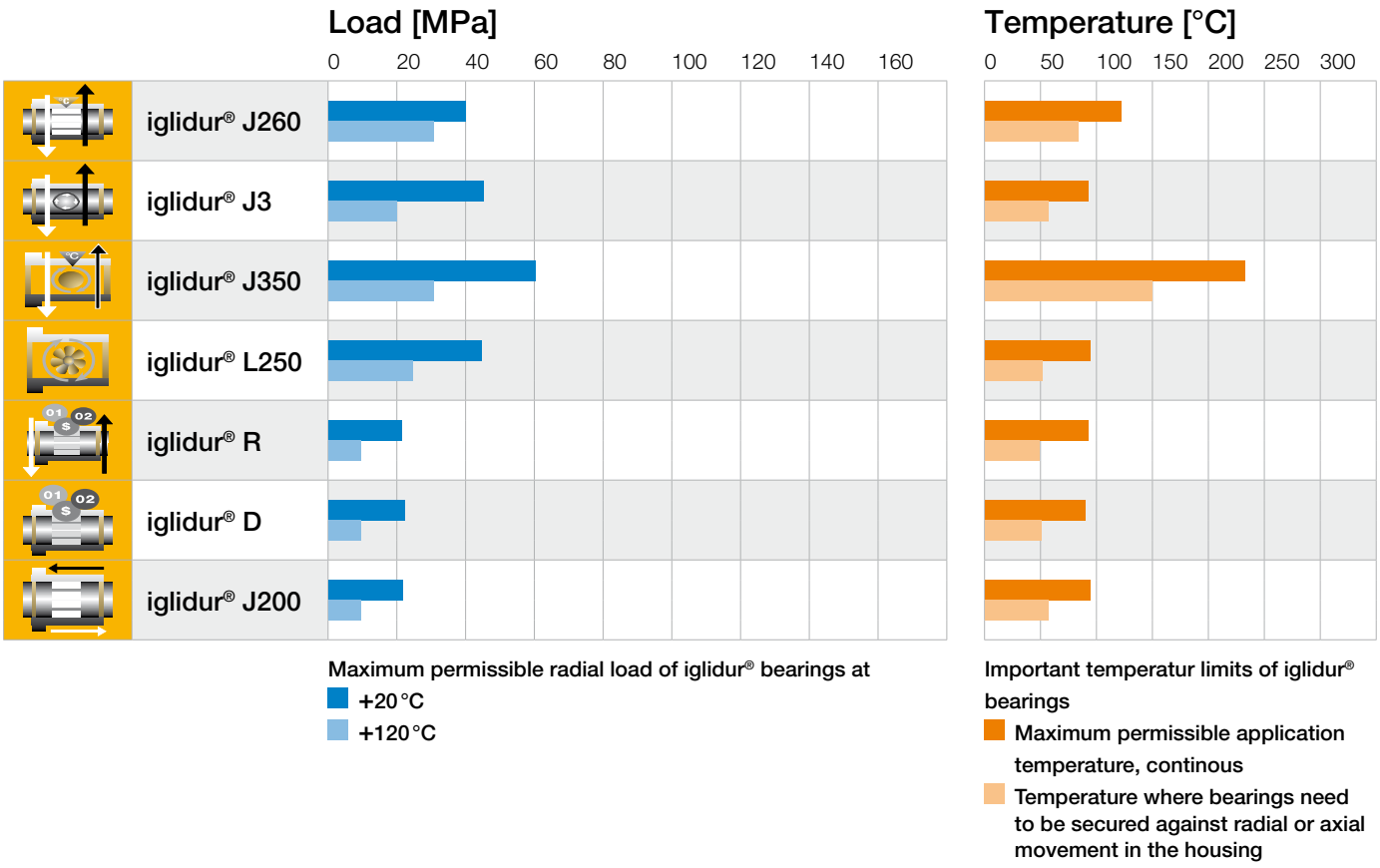
On request ▶ **from page 267**

*** in this catalog**

iglidur® Specialists | Selection According to Main Criteria

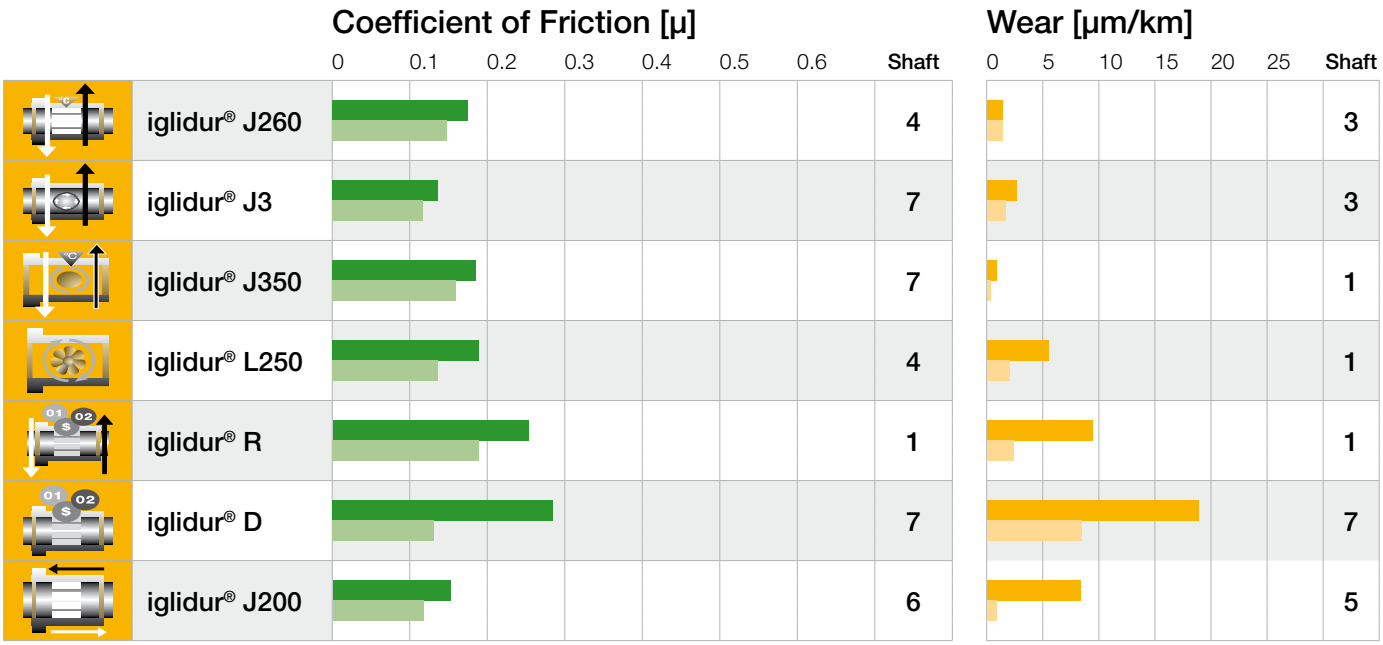
iglidur® Specialists – For Long Service Life							
	iglidur® J260	iglidur® J3	iglidur® J350	iglidur® L250	iglidur® R	iglidur® D	iglidur® J200
Long life dry running	●	●	●	●	●		●
For high loads			●				
For high temperatures			●				
Low friction/high speed	●	●	●	●	●	●	●
Dirt resistant							●
Chemicals resistant							
Low water absorption	●	●	●		●	●	
Food-suitable							
Vibration-dampening							
Egde pressure		●	●	●	●	●	●
For under water use							
Cost-effective		●			●	●	
from page	209	219	229	239	249	259	267

iglidur® Specialists | Selection According to Main Criteria



Maximum permissible radial load of iglidur® bearings at
- +20 °C
- +120 °C

Important temperatur limits of iglidur® bearings
- Maximum permissible application temperature, continous
- Temperature where bearings need to be secured against radial or axial movement in the housing



Coefficients of friction of iglidur® bearings sliding against steel, p = 1,2 MPa, v = 0,3 m/s
- Average coefficient of all the seven sliding combinations tested
- Coefficient of friction of best combination

Wear of iglidur® bearings sliding against steel, p = 1 MPa
- Average wear of all the seven sliding combination tested
- Wear of best combination

Shaft material:

1 = Cf53
2 = hard chromed
3 = Aluminum, hc
4 = Automatic screw steel
5 = HR carbon steel
6 = 304 SS
7 = High grade steel

Material data

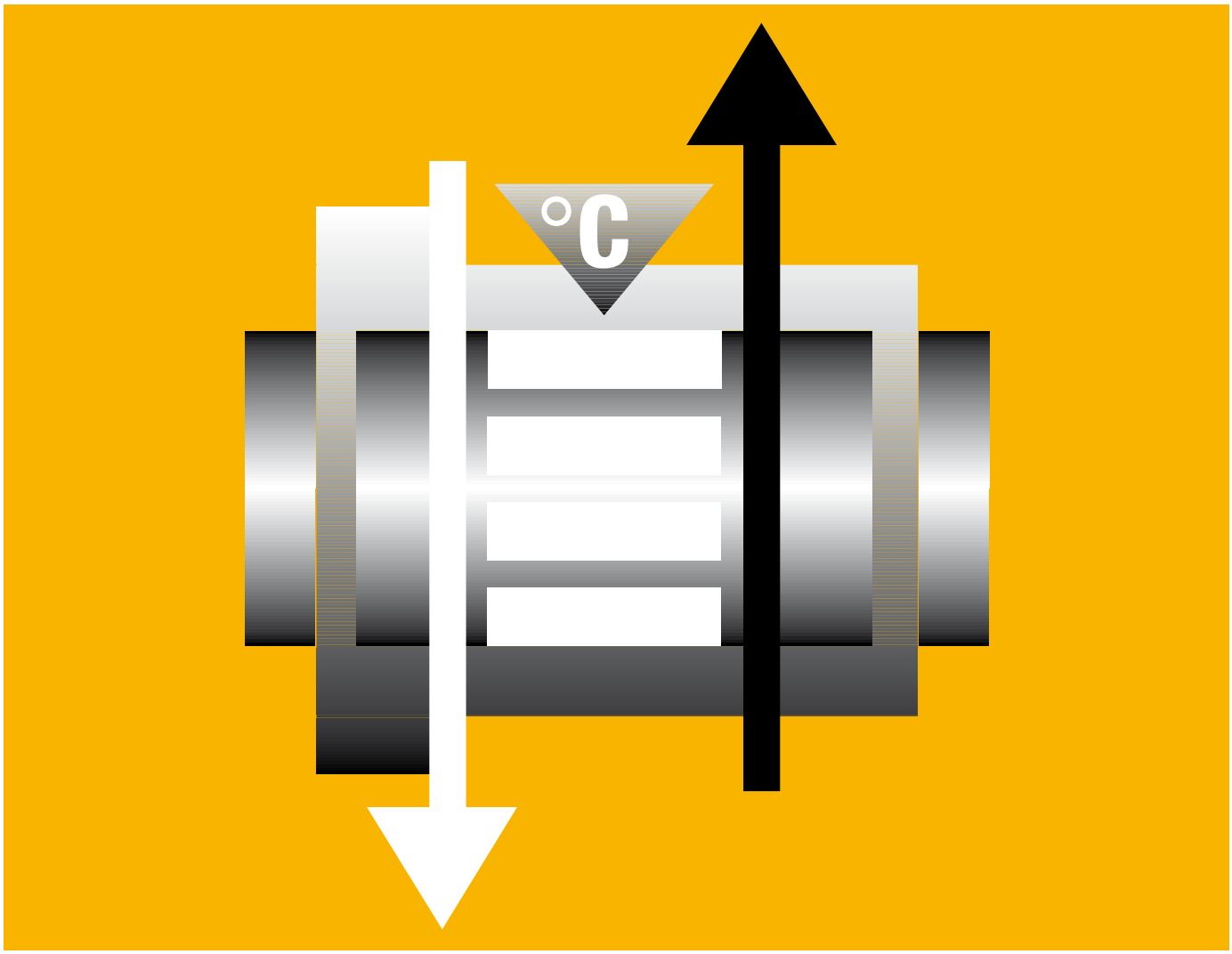
General properties	Unit	iglidur® J260	iglidur® J3	iglidur® J350	iglidur® L250	iglidur® R	iglidur® J200	iglidur® D
Density	g/cm³	1.35	1.42	1.44	1.50	1.39	1.40	1.72
Colour		yellow	yellow	yellow	beige	dark red	green	dark grey
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.2	1.3	0.3	0.7	0.2	0.3	0.2
Max. moisture absorption	% weight	0.4	0.4	1.6	3.9	1.1	1.1	0.7
Coefficient of sliding friction. dynamic against steel	µ	0.06–0.20	0.06–0.20	0.10–0.20	0.08–0.19	0.09–0.25	0.08–0.26	0.11–0.17
pv value. max. (dry)	MPa · m/s	0.35	0.50	0.45	0.40	0.27	0.27	0.30
Mechanical properties								
Modulus of elasticity	MPa	2,200	2,700	2,000	1,950	1,950	2,000	2,800
Tensile strength at +20 °C	MPa	60	70	55	67	70	72	58
Compressive strength	MPa	50	60	60	47	68	70	43
Max. recommended surface pressure (+20 °C)	MPa	40	45	60	45	23	23	23
Shore D hardness		77	73	80	68	77	78	70
Physical and thermal properties								
Max. long term application temperature	°C	+120	+90	+180	+90	+90	+90	+90
Max. short term application temperature	°C	+140	+120	+220	+180	+110	+110	+120
Min. application temperature	°C	–100	–50	–100	–40	–50	–50	–50
Thermal conductivity	W/m · K	n. b.	0.25	0.24	0.24	0.25	0.25	0.24
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	13	n. wb.	7	10	11	11	8
Electrical properties								
Specific volume resistance	Ωcm	$> 10^{12}$	$> 10^{12}$	$> 10^{13}$	$> 10^{10}$	$> 10^{12}$	$> 10^{14}$	$> 10^{8}$
Surface resistance	Ω	$> 10^{10}$	$> 10^{12}$	$> 10^{10}$	$> 10^{11}$	$> 10^{12}$	$> 10^{14}$	$> 10^{8}$

Material resistance (at +20 °C)

Chemical resistance	iglidur® J260	iglidur® J3	iglidur® J350	iglidur® L250	iglidur® R	iglidur® D	iglidur® J200
Alcohol	+ to 0	+	+	+ to 0	+	+	+
Hydrocarbons	+	+	+ to 0	+	+	+	+
Greases, oils without additives	0 to –	+	+	+	+	+	+
Fuels	–	+	+	+	+	+	+
Diluted acids	–	0 to –	+	0 to –	0 to –	0 to –	0 to –
Strong acids	–	–	+ to 0	–	–	–	–
Diluted alkalines	+ to 0	+	+	+	+	+	+
Strong alkalines	+ to 0	+ to 0	+	0	+ to 0	+ to 0	+ to 0
Radiation resistance [Gy] to	$3 \cdot 10^{2}$	$1 \cdot 10^{4}$	$2 \cdot 10^{2}$	$3 \cdot 10^{4}$	$3 \cdot 10^{2}$	$3 \cdot 10^{2}$	$3 \cdot 10^{2}$

+ resistant 0 conditionally resistant – not resistant

My Sketches



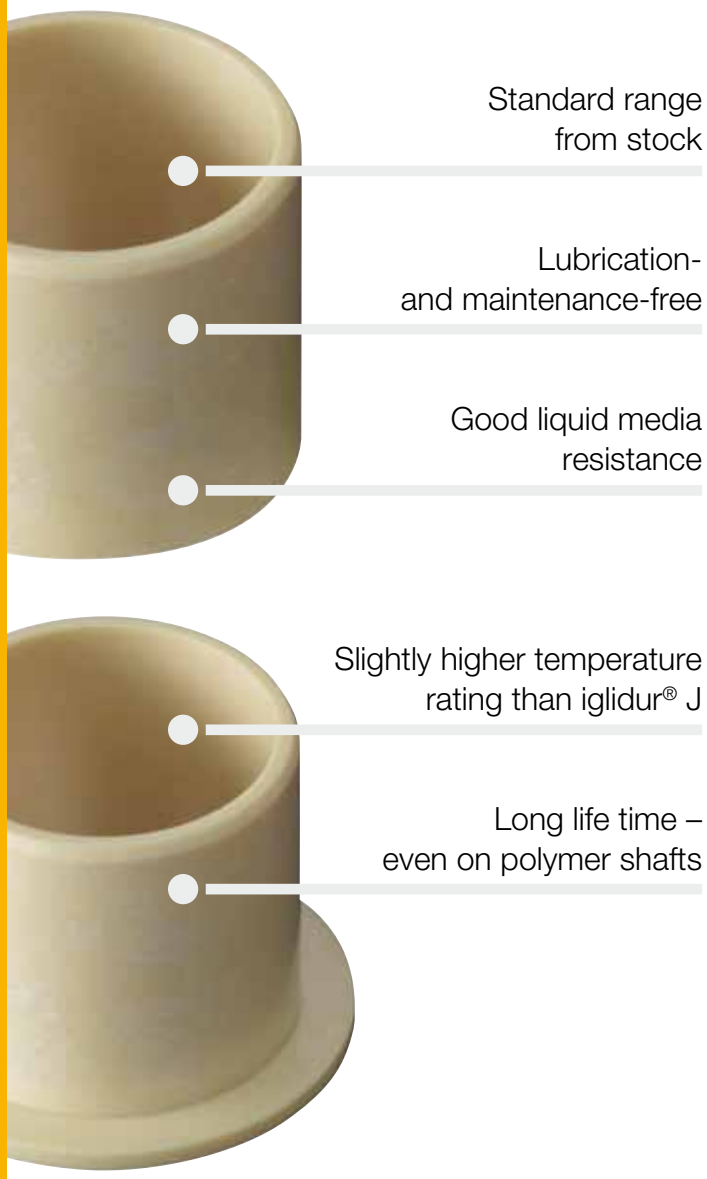
iglidur® J260 – suitable for plastic shafts

- Standard range from stock
- Lubrication- and maintenance-free
- Very good c. o. f. for low or medium loads
- Good liquid media resistance
- Slightly higher temperature rating than iglidur® J
- Long life time – even on polymer shafts and other special cases

NEW in this catalog!

iglidur® J260

Suitable for plastic shafts. iglidur® J260 is a perfect material for long service life and best coefficient of friction with special operating conditions – first of all in contact with plastic shafts!



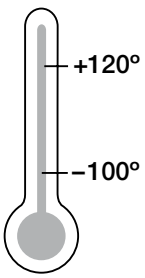
When to use it?

- When polymer shafts are used
- When the temperature rating of iglidur® J is not sufficient
- If bearings with low friction is required
- If good wear resistance is required at medium loads
- If good liquid media resistance is required

When not to use?

- When high pressures occur
  ▶ **iglidur® Z, page 299**
- When short term temperatures occur that are greater +120 °C
  ▶ **iglidur® J350, page 229**
- When a low-cost bearing for occasional movements is necessary
  ▶ **iglidur® J, page 89**

Temperature



Product range

2 types
Ø 6–20 mm
more dimensions
on request

iglidur® J260 | Application Examples

Typical sectors of industry and application areas

● Automation ● Machine design
● Test engineering and quality assurance
● Robotics ● Eletronics industry etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

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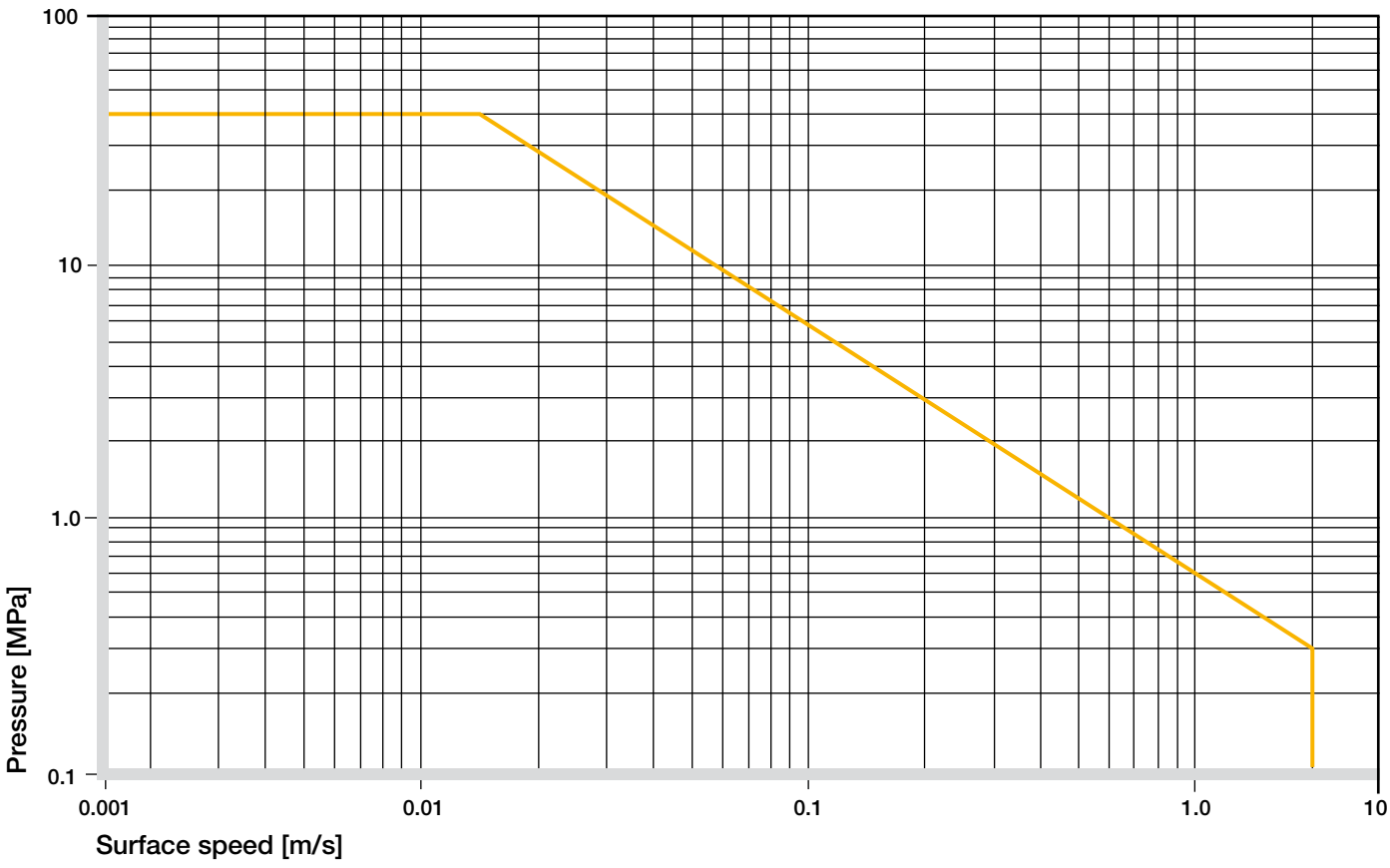
▶ **www.igus.co.uk/steering-systems**

iglidur® J260 | Technical Data

Material data			
General properties	**Unit**	**iglidur® J260**	**Testing method**
Density	**g/cm³**	1.35	
Colour		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.2	DIN 53495
Max. moisture absorption	**% weight**	0.4	
Coefficient of sliding friction, dynamic against steel	**µ**	0.06–0.20	
pv value, max. (dry)	**MPa · m/s**	0.35	
Mechanical properties			
Modulus of elasticity	**MPa**	2,200	DIN 53457
Tensile strength at +20 °C	**MPa**	60	DIN 53452
Compressive strength	**MPa**	50	
Max. recommended surface pressure (+20 °C)	**MPa**	40	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+120	
Max. short term application temperature	**°C**	+140	
Min. application temperature	**°C**	–100	
Thermal conductivity	**W/m · K**	n. a.	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	13	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{12}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{10}$	DIN 53482

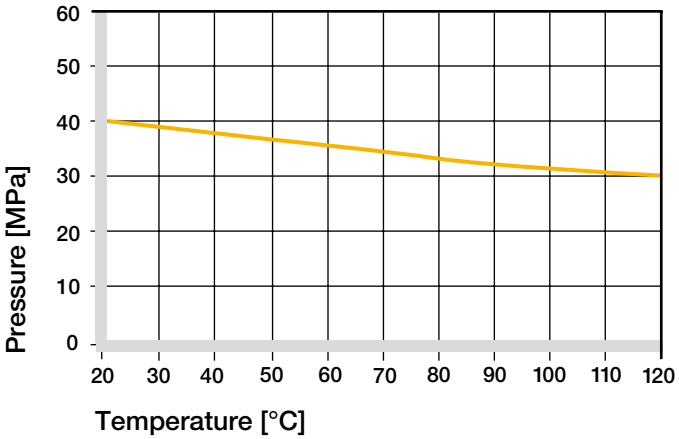
Table 01: Material data



Graph 01: Permissible pv values for iglidur® J260 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

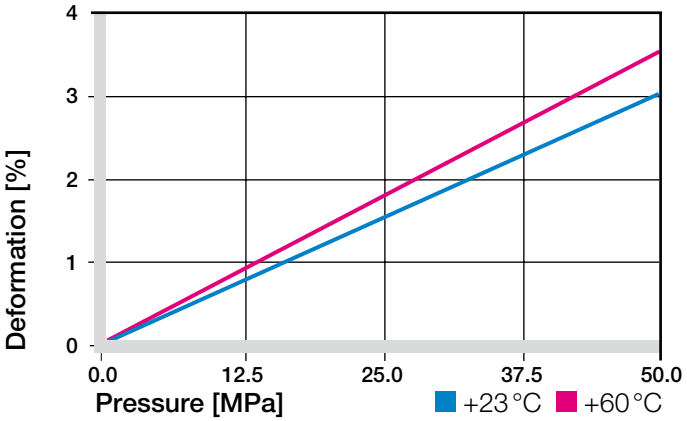
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® J260 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +120° C the permissible surface pressure is almost 30 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (40 MPa at +20 °C)

Graph 03 shows the elastic deformation of iglidur® J260 during radial loading. At the recommended maximum surface pressure of 40 MPa the deformation is less than 2,5 %. The plastic deformation is minimal up to a pressure of approximately 100 MPa. However, it is also dependant on the cycle time.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® J260 has been developed for low to medium surface speeds.

The maximum values shown in table 02 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached, due to varying application conditions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	3
Short term	2	1.4	4

Table 02: Maximum running speed

Temperatures

iglidur® J260 plain bearings can be used at temperatures from –100 °C up to +120 °C. The short term maximum temperature is +140 °C. The temperature in an application also has an effect on the bearing wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +80 °C.

▶ Application Temperatures, **page 46**

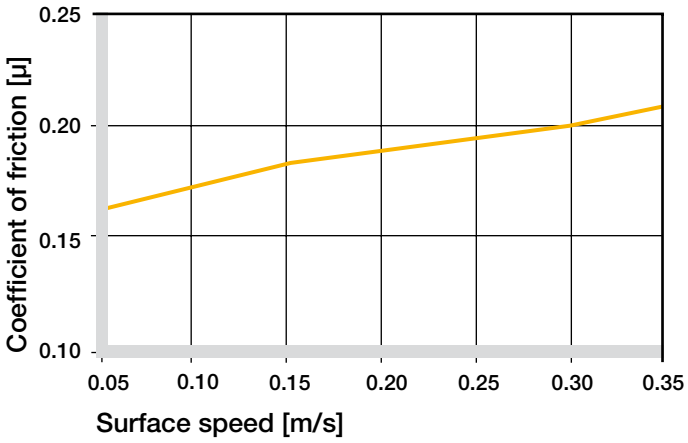
iglidur® J260	Application temperature
Minimum	–100 °C
Max. long term	+120 °C
Max. short term	+140 °C
Add. securing is required from	+80 °C

Table 03: Temperature limits

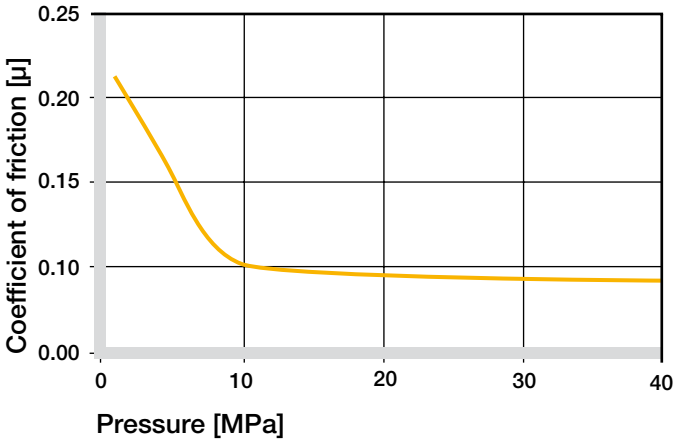
Friction and Wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction decreases with increasing loads, whereas an increase in surface speed causes an increase of the coefficient of friction.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

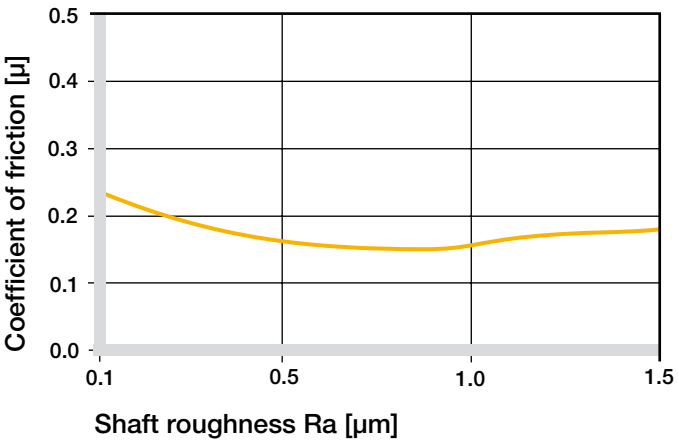


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

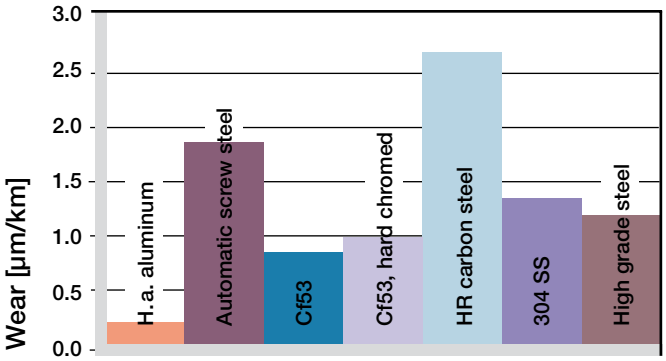
Shaft Materials

The friction and wear are also dependent, to a large degree, on the shaft material. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. For iglidur® J260 a ground surface with an average roughness Ra = 0.8 μm is recommended (Graph 06). Graphs 07 to 09 shows results of testing different shaft materials with plain bearings made of iglidur® J260. In Graph 07 it shows that iglidur® J260 can be combined with various shaft materials. The hard anodized aluminum shafts came out best at low loads, but iglidur® J260 bearings show good service life even on simple Cf53, stainless steel and hard-chromed shafts. In this connection it is important to note that with increasing loads, the recommended hardness of the shaft increases. The “soft” shafts tend to wear more easily and thus increase the wear of the overall system, if the loads exceed 2 MPa. Graph 08 shows that with increasing load the wear on hard-chromed shafts and V2A shafts rises less strongly than on Cf53 and St37 shafts. The comparison of rotation and oscillating in Graph 09 makes it very clear where iglidur® J260 bearings are best used, especially in rotary operations.

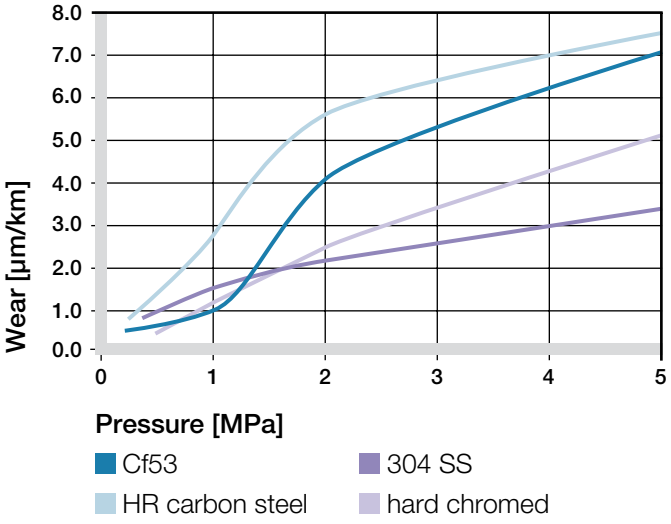
▶ Shaft Materials, **page 51**



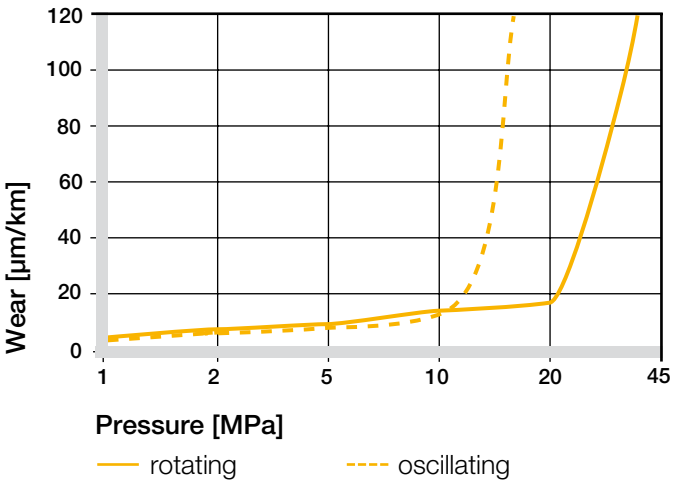
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® J260	Dry	Greases	Oil	Water
C. o. f. µ	0.08–0.15	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® J260 plain bearings are resistant to diluted alkalis, hydrocarbons and alcohols. The very low moisture absorption also permits use in wet or damp environments.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	0 to –
Fuels	–
Diluted acids	–
Strong acids	–
Diluted alkalines	+ to 0
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV Resistance

Partially resistant against UV rays.

Vacuum

In a vacuum, any moisture absorbed in the material would be outgassed. For this reason only dehumidified iglidur® J260 bearings are suitable for vacuum.

Electrical Properties

iglidur® J260 plain bearings are electrically insulating.

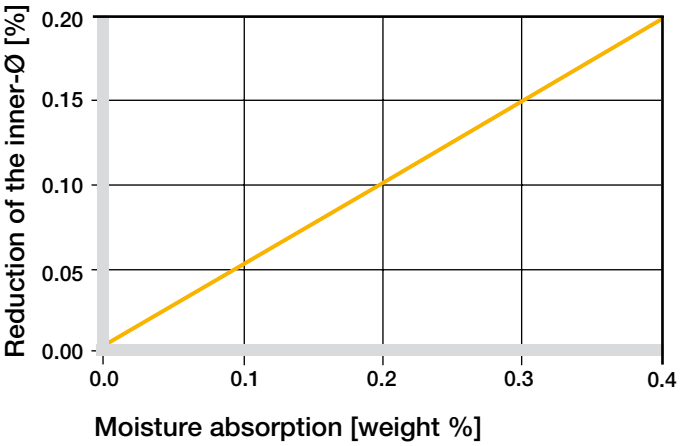
Volume resistance	> 10^{12} Ωcm
Surface resistance	> 10^{10} Ω 10

Moisture Absorption

The moisture absorption of iglidur® J260 plain bearings is approximately 0.2 % in standard atmosphere. The saturation limit submerged in water is 0.4 %. These values are so low that design changes due to absorption can be ignored in most cases.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.2 % weight
Max. moisture absorption	0.4 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

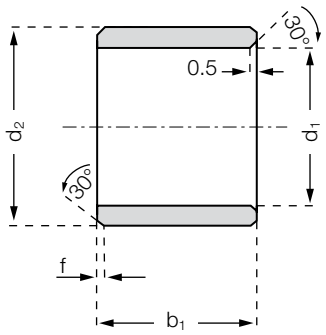
iglidur® J260 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® J260 E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Sleeve bearing



Order key

J260SM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® J260

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

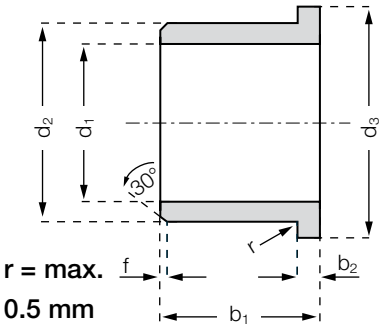
Part number	d1	Tolerance pressfitted in H7	d2	b1
J260SM-0608-06	6	+0.020 +0.068	8	6
J260SM-0810-10	8	+0.025 +0.083	10	10
J260SM-1012-10	10	+0.025 +0.083	12	10
J260SM-1214-12	12	+0.032 +0.102	14	12
J260SM-1214-15	12	+0.032 +0.102	14	15
J260SM-1618-15	16	+0.032 +0.102	18	15
J260SM-1820-12	18	+0.032 +0.102	20	12
J260SM-2023-20	20	+0.040 +0.124	23	20

delivery time available from stock | prices price list online www.igus.co.uk/en/j260 | order example part number J260SM-0608-06

NEW in this catalog!

iglidur® J260 | Product Range

Flange bearing



Order key

J260FM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® J260

Dimensions according to ISO 3547-1 and special dimensions

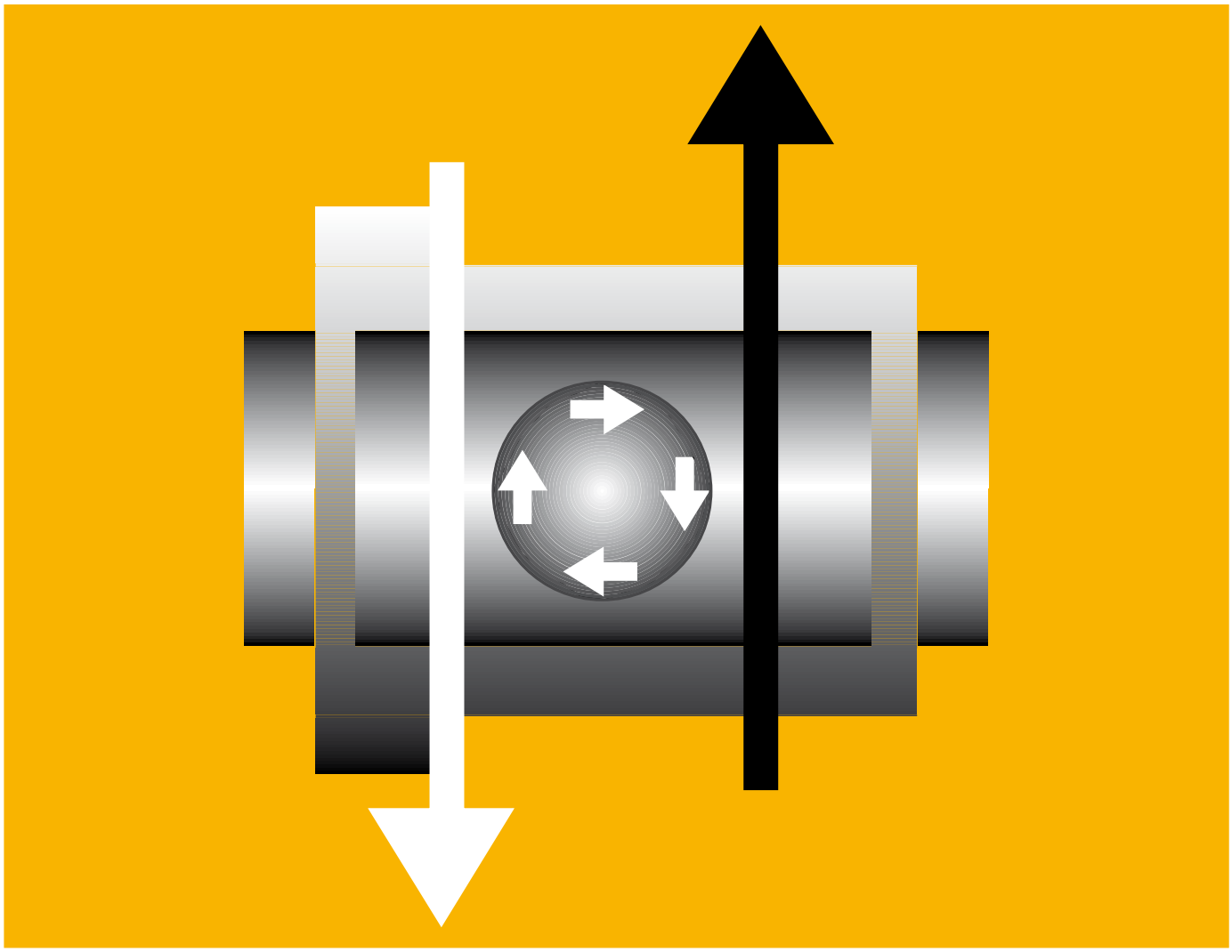
Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	Tolerance pressfitted in H7	d2	d3	b1	b2
J260FM-0608-06	6	+0.020 +0.068	8	12	6	1
J260FM-0810-10	8	+0.025 +0.083	10	15	10	1
J260FM-1012-10	10	+0.025 +0.083	12	18	10	1
J260FM-1214-12	12	+0.032 +0.102	14	20	12	1
J260FM-1618-17	16	+0.032 +0.102	18	24	17	1
J260FM-2023-21	20	+0.040 +0.124	23	30	21.5	1.5

delivery time available from stock | prices price list online www.igus.co.uk/en/j260 | order example part number J260FM-0608-06



iglidur® J3 – runs up to three times longer than iglidur® J

- Standard range from stock
- Lubrication- and maintenance-free
- Low coefficients of friction
- Good liquid media resistance
- Low moisture absorption
- PTFE-free

NEW in this catalog!

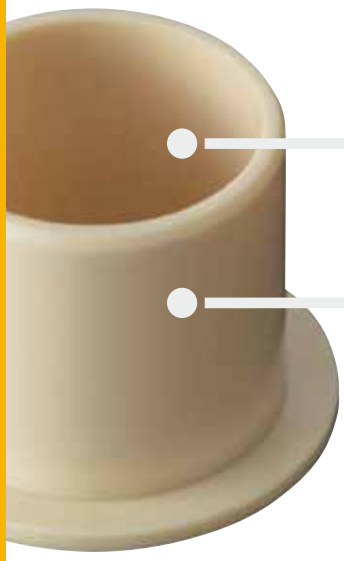
iglidur® J3

Runs up to three times longer than iglidur® J. iglidur® J3 is the new material with improved wear resistance at low to medium loads and high speed. The lifetime is up to three times longer than iglidur® J – the previous iglidur® champion.

Standard range from stock

Low coefficients of friction

Good liquid media resistance



Low moisture absorption

PTFE-free

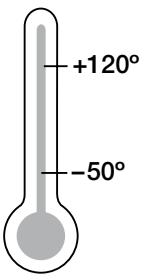
When to use it?

- If wear resistance (rotating or oscillating) of iglidur® J should be optimized
- If a really low coefficient of friction in dry run is are necessary
- If high wear resistance at low temperatures is required
- If low moisture absorption is requested
- If good liquid media resistance is required

When not to use it?

- If you need a wear-resistant bearing for linear motion
  ▶ **iglidur® J, page 89**
- If permanent temperatures exceed +90 °C
  ▶ **iglidur® J260, page 209**
- If radial surface pressure is higher than 35 MPa
  ▶ **iglidur® W300, page 131**

Temperature



Product range

2 types
Ø 3–40 mm
more dimensions
on request

iglidur® J3 | Application Examples

Typical sectors of industry and application areas

- Automation
- Printing industry
- Beverage technology
- Glass industry
- Aerospace engineering etc.

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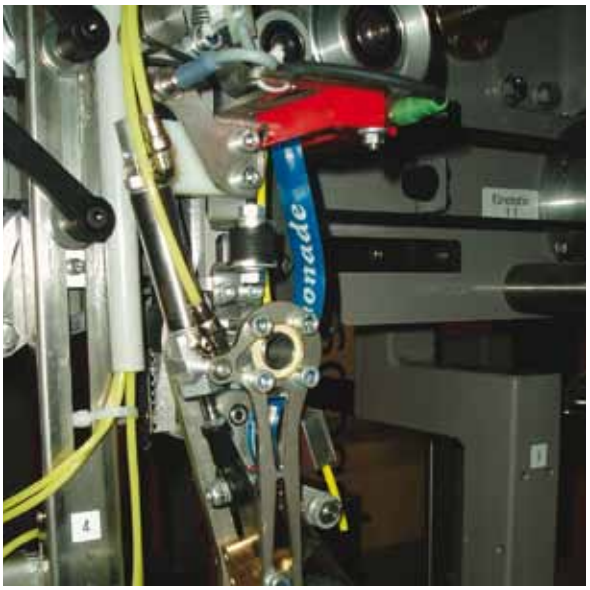
▶ **www.igus.co.uk/flap-bearings**

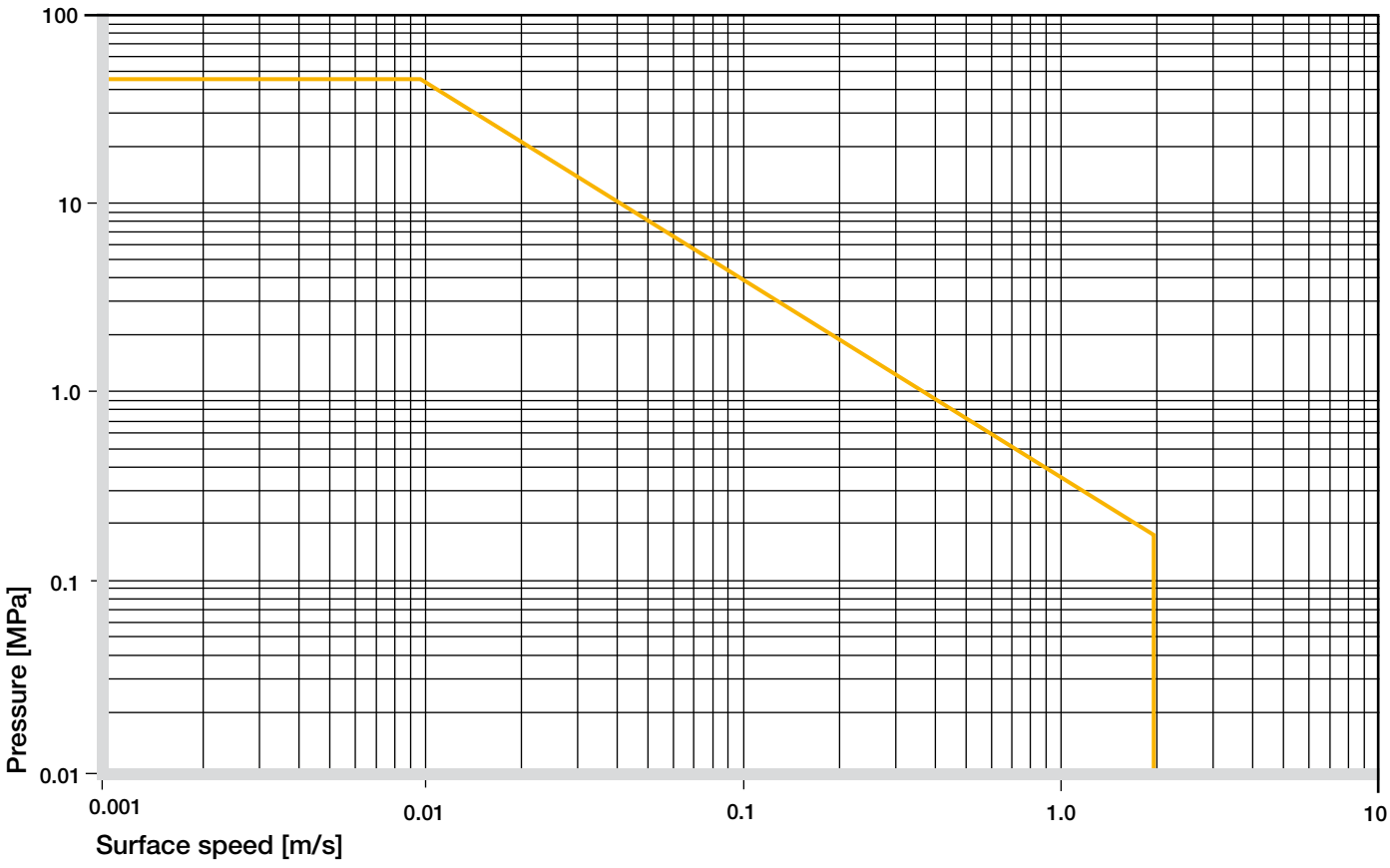


▶ **www.igus.co.uk/carrier-handle**

iglidur® J3 | Technical Data

Material data			
General properties	**Unit**	**iglidur® J3**	**Testing method**
Density	**g/cm³**	1.42	
Colour		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.3	DIN 53495
Max. moisture absorption	**% weight**	1.3	
Coefficient of sliding friction, dynamic against steel	**µ**	0.06–0.20	
pv value, max. (dry)	**MPa · m/s**	0.5	
Mechanical properties			
Modulus of elasticity	**MPa**	2,700	DIN 53457
Tensile strength at +20 °C	**MPa**	70	DIN 53452
Compressive strength	**MPa**	60	
Max. recommended surface pressure (+20 °C)	**MPa**	45	
Shore D hardness		73	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+120	
Min. application temperature	**°C**	–50	
Thermal conductivity	**W/m · K**	0.25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	13	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{12}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{12}$	DIN 53482

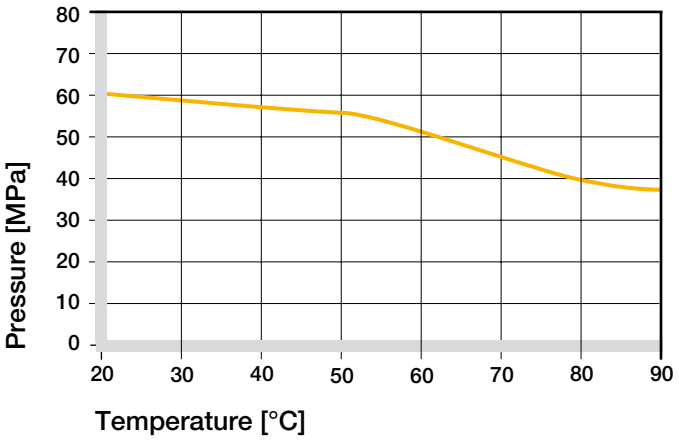
Table 01: Material data



Graph 01: Permissible pv values for iglidur® J3 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

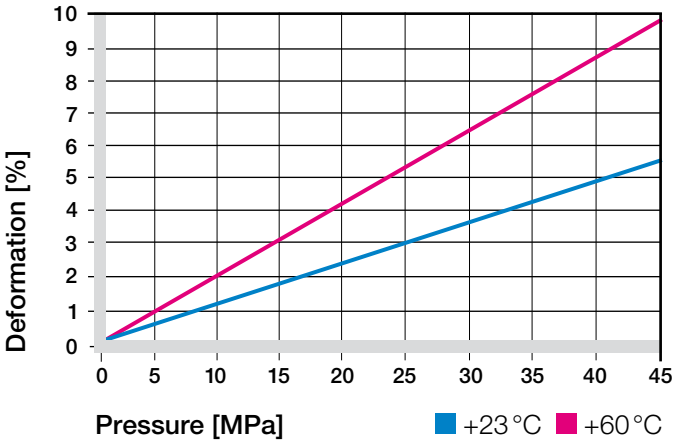
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® J3 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90° C the permissible surface pressure is almost 25 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (40 MPa at +20 °C)

Graph 03 shows the elastic deformation of iglidur® J3 during radial loading. At the recommended maximum surface pressure of 40 MPa the deformation is less than 3 %. The plastic deformation is minimal up to a pressure of approximately 100 MPa. The possible plastic deformation depends on the applied pressure, as well as other external factors.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® J3 has been developed for medium to high surface speeds. The maximum values shown in table 02 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached, due to varying application conditions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1.5	1.1	8
Short term	3	2.1	10

Table 02: Maximum running speed

Temperatures

iglidur® J3 plain bearings can be used at temperatures from –50 °C up to +90 °C. The short term maximum temperature is +120 °C. The temperature in an application also has an effect on the bearing wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +90 °C.

▶ Application Temperatures, **page 46**

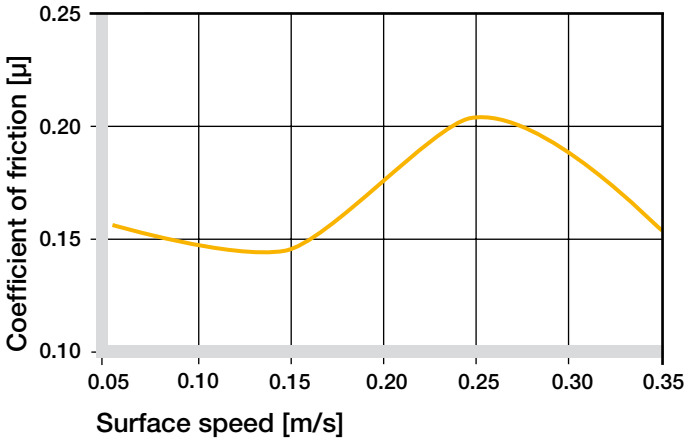
iglidur® J3	Application temperature
Minimum	–50 °C
Max. long term	+90 °C
Max. short term	+120 °C
Add. securing is required from	+60 °C

Table 03: Temperature limits

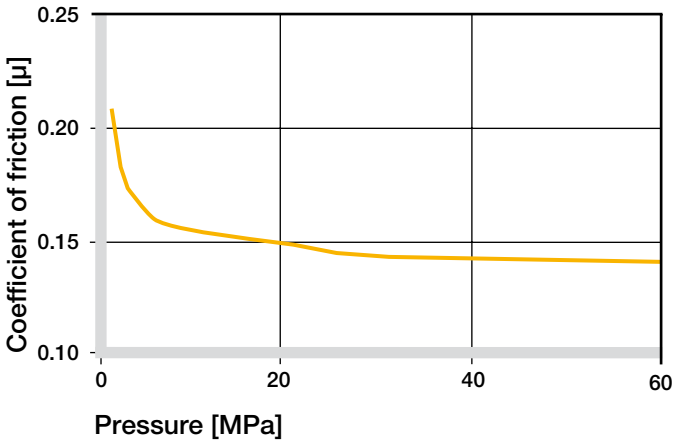
Friction and Wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction decreases with increasing loads, as it shows a clear minimum at surface speeds up to 0.15 m/s (s. Graph. 04 and 05).

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

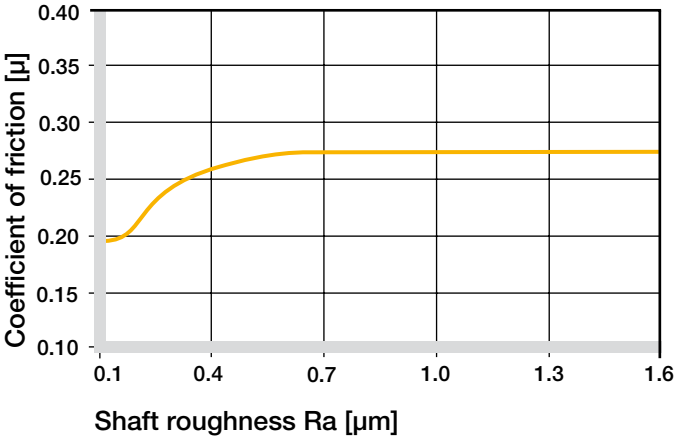


Graph 05: Coefficient of friction as a function of the pressure, v = 0,01 m/s

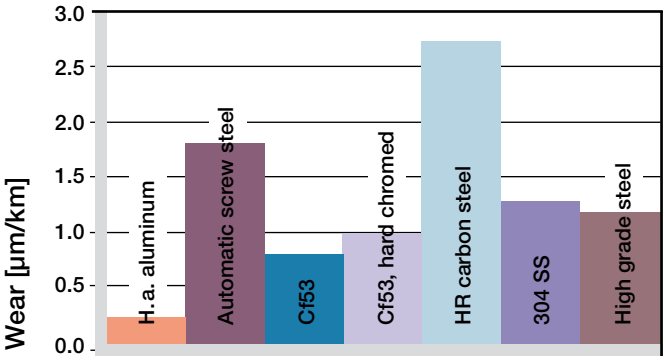
Shaft Materials

The friction and wear are also dependent, to a large degree, on the shaft material. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. For iglidur® J3 a ground surface with an average roughness Ra = 0,1–0,3 µm is recommended. (s. Graph 06). Graphs 07 to 09 shows results of testing different shaft materials with plain bearings made of iglidur® J3. In Graph 07 it shows that iglidur® J3 can be combined with various shaft materials. At low pressures, hard anodized aluminum shafts, X90 stainless steel and Cf53 steel shafts proved to be the best. But even in combination with other shaft materials, except for free cutting steel, iglidur® J3 bearings achieve excellent wear values. Graph 08 shows that the difference between shaft materials increase with increasing loads. Hard chromed or 304 SS-shafts are best at pressures from 2 MPa in rotation movement. Graph 09 shows rotating and oscillating tests in comparison. With higher load, the wear increases more for rotating than for oscillating movements.

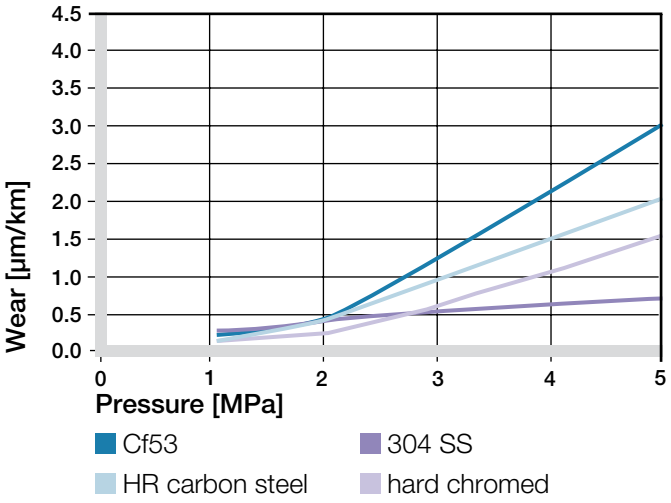
▶ Shaft Materials, **page 51**



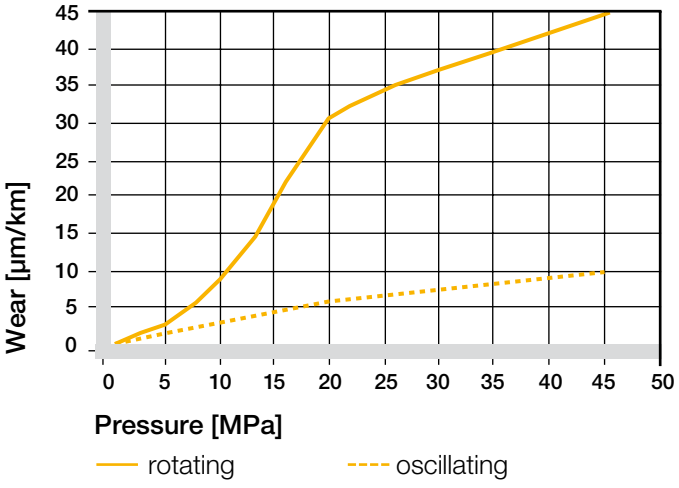
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® J3	Dry	Greases	Oil	Water
C.o.f. µ	0.08–0.15	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® J3 bearings are resistant to diluted alkalis and very weak acids as well as to fuels and all kinds of lubricants. The low humidity absorption allows them to be used in wet or humid environments. iglidur® J3 bearings are also resistant to conventional detergents used in the food industry.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Resistant to radiation up to an intensity of $1 \cdot 10^4$ Gy.

UV Resistance

iglidur® J3 plain bearings become discoloured under UV radiation. However, hardness, compressive strength and the wear resistance of the material do not change.

Vacuum

In vacuum applications, any absorbed moisture content is degassed. For this reason only dehumidified iglidur® J3 bearings are suitable for use in a vacuum.

Electrical Properties

iglidur® J3 plain bearings are electrically insulating.

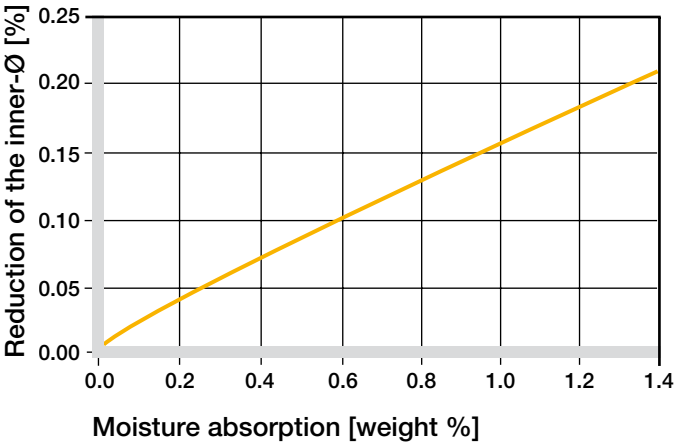
Volume resistance	> 10^{12} Ωcm
Surface resistance	> 10^{12} Ω 10

Moisture Absorption

The moisture absorption of iglidur® J3 plain bearings is approximately 0.3 % in the standard atmosphere. The saturation limit submerged in water is 1.3 %. These values are so low that design changes due to absorption are only necessary in extreme cases.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.3 % weight
Max. moisture absorption	1.3 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

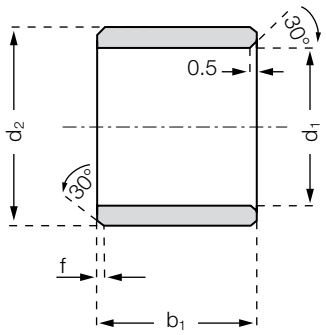
iglidur® J3 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® J3 E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Sleeve bearing



Order key

J3SM-0304-05

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® J3

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

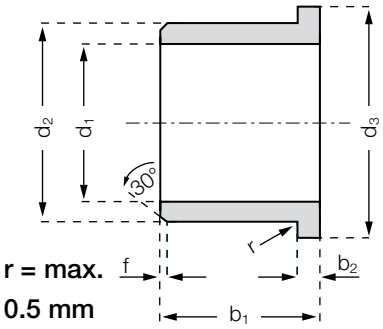
Part number	d1	Tolerance pressfitted in H7	d2	b1
J3SM-0304-05	3	+0.020 +0.068	4.5	5
J3SM-0507-05	5	+0.020 +0.068	7	5
J3SM-0608-06	6	+0.020 +0.068	8	6
J3SM-0810-10	8	+0.025 +0.083	10	10
J3SM-1012-10	10	+0.025 +0.083	12	10
J3SM-1214-15	12	+0.032 +0.102	14	15
J3SM-1618-15	16	+0.032 +0.102	18	15
J3SM-2023-20	20	+0.040 +0.124	23	20
J3SM-2528-30	25	+0.040 +0.124	28	30
J3SM-3034-30	30	+0.040 +0.124	34	30
J3SM-3539-40	35	+0.050 +0.150	39	40
J3SM-4044-40	40	+0.050 +0.150	44	40

delivery time available from stock | prices price list online www.igus.co.uk/en/j3 | order example part number J3SM-0304-05

NEW in this catalog!

iglidur® J3 | Product Range

Flange bearing



r = max. 0.5 mm

Order key

J3FM-0304-05

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® J3

Dimensions according to ISO 3547-1 and special dimensions

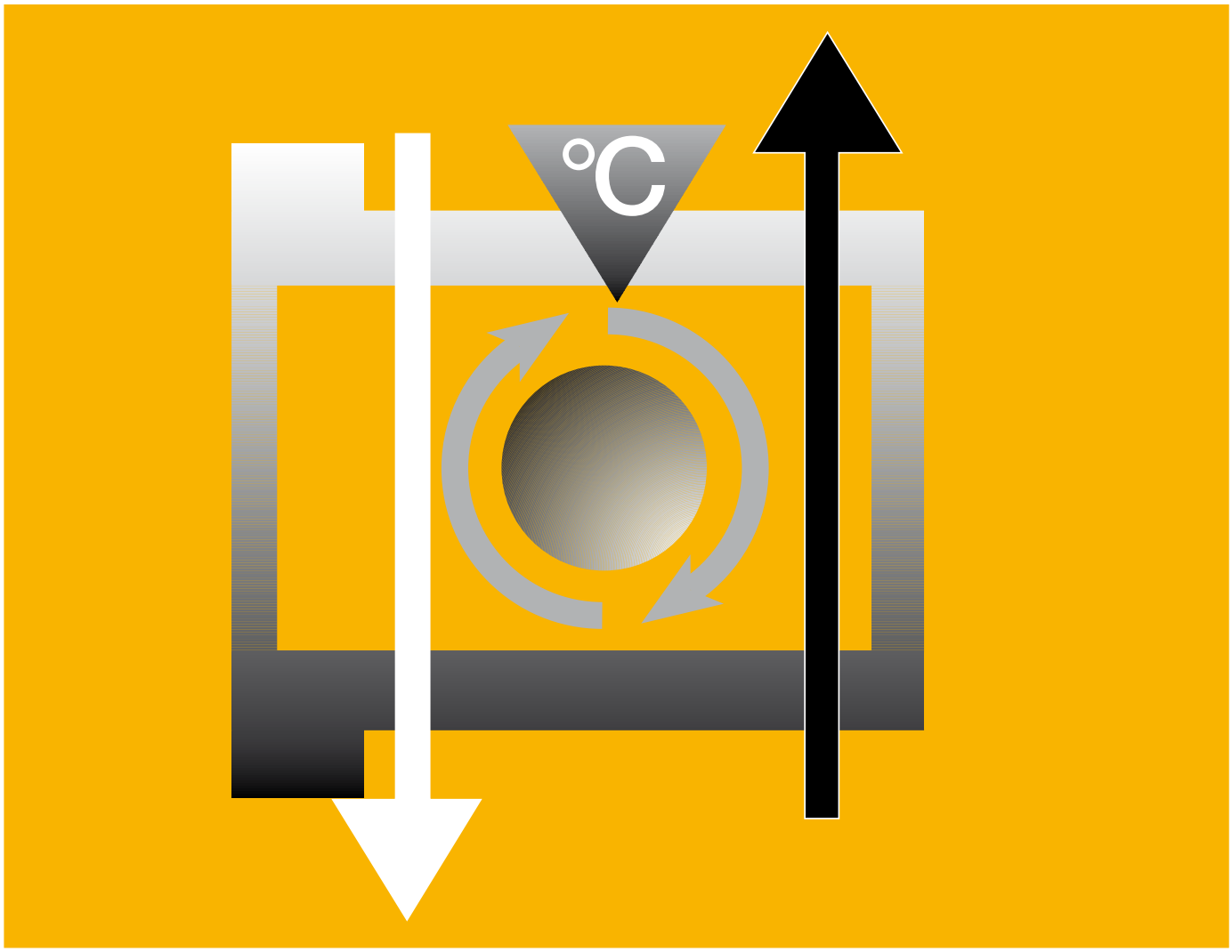
Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	Tolerance pressfitted in H7	d2	d3	b1	b2
J3FM-0304-05	3	+0.020 +0.068	4.5	7.5	5	0.75
J3FM-0507-05	5	+0.020 +0.068	7	11	5	1
J3FM-0608-06	6	+0.020 +0.068	8	12	6	1
J3FM-0810-10	8	+0.025 +0.083	10	15	10	1
J3FM-1012-10	10	+0.025 +0.083	12	18	10	1
J3FM-1214-12	12	+0.032 +0.102	14	20	12	1
J3FM-1618-17	16	+0.032 +0.102	18	24	17	1
J3FM-2023-21	20	+0.040 +0.124	23	30	21.5	1.5
J3FM-2528-21	25	+0.040 +0.124	28	35	21.5	1.5
J3FM-3034-26	30	+0.040 +0.124	34	42	26	2
J3FM-3539-26	35	+0.050 +0.150	39	47	26	2
J3FM-4044-40	40	+0.050 +0.150	44	52	40	2

delivery time available from stock | prices price list online www.igus.co.uk/en/j3 | order example part number J3FM-0304-05



iglidur® J350 – extremely wear-resistant in rotation

- Excellent coefficient of friction against steel
- Continuous service temperature up to +180°C
- For medium and high loads
- Particularly well suited to rotating movement

NEW in this catalog!

iglidur® J350

Extremely wear-resistant in rotation. An outstanding bearing for rotating applications – and for a wide range of different shaft materials: With iglidur® J350 bearings, the lifetime can often be increased for applications between 1 and 50 MPa. In addition, the high temperature resistance makes it a very versatile material.

Really good coefficient of friction with steel

Continuous service temperature up to +180 °C

For medium and high loads

Particularly well suited to rotating movement

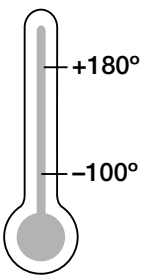
When to use it?

- If a high wear-resistant bearing for rotating movement at medium and high loads is required
- If an economic bearing is required for use at high temperatures.
- If pressfit up to +150 °C is necessary
- If high wear resistance is required at high loads
- If the bearing is exposed to shock loading

When not to use it?

- If permanent temperatures exceed +180 °C
  ▶ **iglidur® X, page 153**
- If low friction is required
  ▶ **iglidur® J, page 89**
- When a cost-effective bearing with a low friction is needed
  ▶ **iglidur® D, page 259**
  ▶ **iglidur® R, page 249**
- With high rotational speeds
  ▶ **iglidur® J, page 89**

Temperature



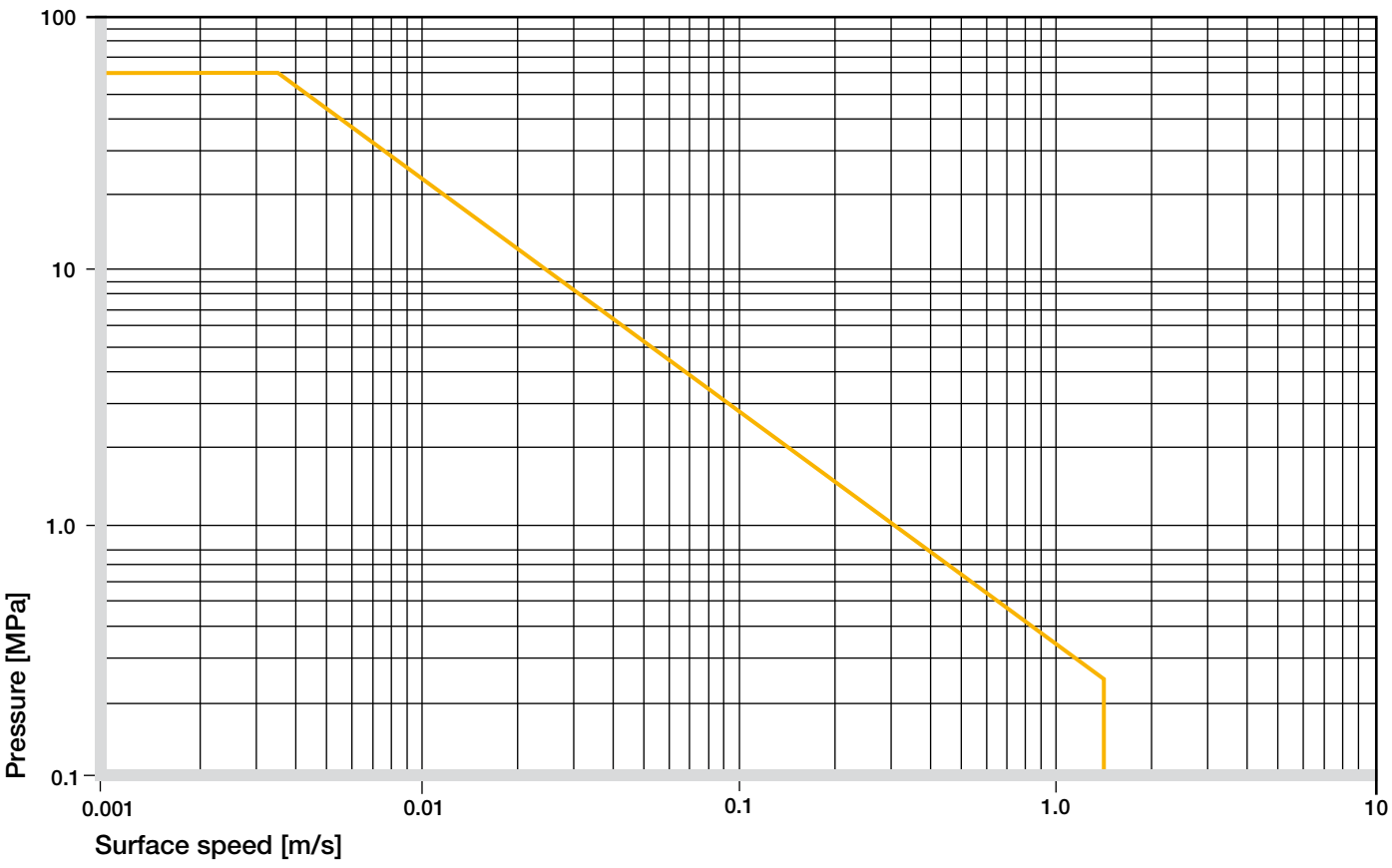
Product range

2 styles
Ø 6–20 mm
more dimensions
on request

iglidur® J350 | Technical Data

Material data			
General properties	**Unit**	**iglidur® J350**	**Testing method**
Density	**g/cm³**	1.44	
Colour		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.3	DIN 53495
Max. moisture absorption	**% weight**	1.6	
Coefficient of sliding friction, dynamic against steel	**µ**	0.1–0.2	
pv value, max. (dry)	**MPa · m/s**	0.45	
Mechanical properties			
Modulus of elasticity	**MPa**	2,000	DIN 53457
Tensile strength at +20 °C	**MPa**	55	DIN 53452
Compressive strength	**MPa**	60	
Max. recommended surface pressure (+20 °C)	**MPa**	60	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+180	
Max. short term application temperature	**°C**	+220	
Min. application temperature	**°C**	–100	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	7	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{13}	DIN IEC 93
Surface resistance	**Ω**	> 10^{10}	DIN 53482

Table 01: Material data

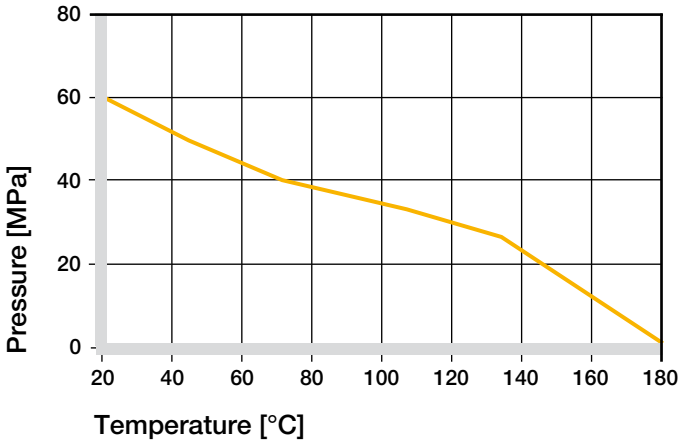


Graph 01: Permissible pv values for iglidur® J350 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® J350 | Technical Data

Mechanical Properties

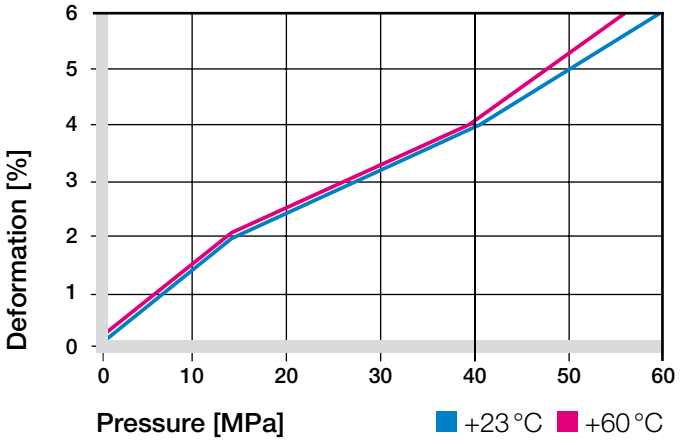
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® J350 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +150° C the permissible surface pressure is almost 25 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (60 MPa at +20 °C)

iglidur® J350 bearings are adequate for medium and high loads. Graph 03 shows the elastic deformation under different temperature. At the recommended maximum surface pressure of 60 MPa the deformation is less than 6 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® J350 has been developed for low and medium speeds in rotating and oscillating use. The wear rate is much better with rotating movement.
iglidur® J350 plain bearings can also be used for linear motion.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1.3	1	4
Short term	3	2,3	8

Table 02: Maximum running speed

Temperatures

The temperature resistance of iglidur® J250 allows universal applications in many different industries. The short term maximum temperature is +220 °C. At temperatures above +150 °C the bearing should be mechanically fixed in the bore. Higher temperatures may result in a loss of the pressfit of the plain bearings, potentially allowing the bearing to drift within the housing bore.
The wear-rate of iglidur® J350 bearings changes very little at high temperatures. In some cases, the wear even decreases at +100 °C. Generally, the wear figures between +20 °C and +150 °C are very similar.
The iglidur® J350 is a highly wear-resistant bearing material, which can also be used at higher temperatures. The combination of excellent trobological and thermal properties fills a gap in the group of long life materials.

▶ Application Temperatures, **page 46**

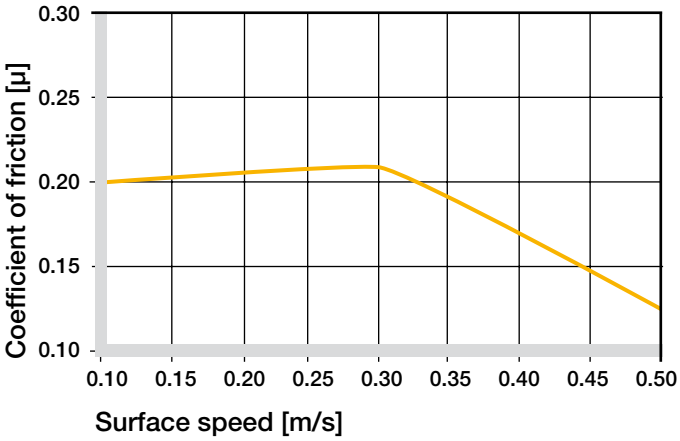
iglidur® J350	Application temperature
Minimum	–100 °C
Max. long term	+180 °C
Max. short term	+220 °C
Add. securing is required from	+150 °C

Table 03: Temperature limits

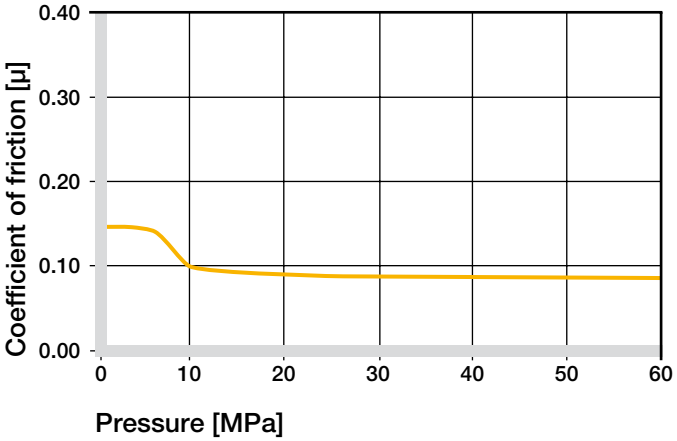
Friction and Wear

The coefficient of friction of iglidur® J350 in dry operation on a steel shaft are very good. It is even lower at high speed, which makes the material very suitable for permanently dry-running application at high rotation speed, as can be seen in graph 04.
iglidur® J350 bearings are clearly superior to other bearing materials in rotating applications over 2 Mpa. The lifetime of iglidur® J350 can be several times higher.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 1 MPa

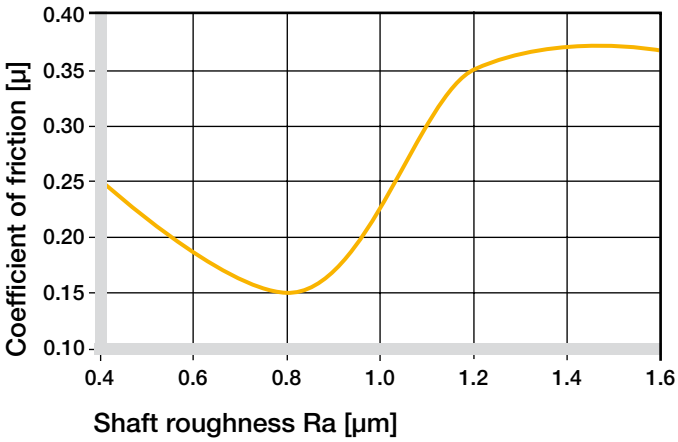


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

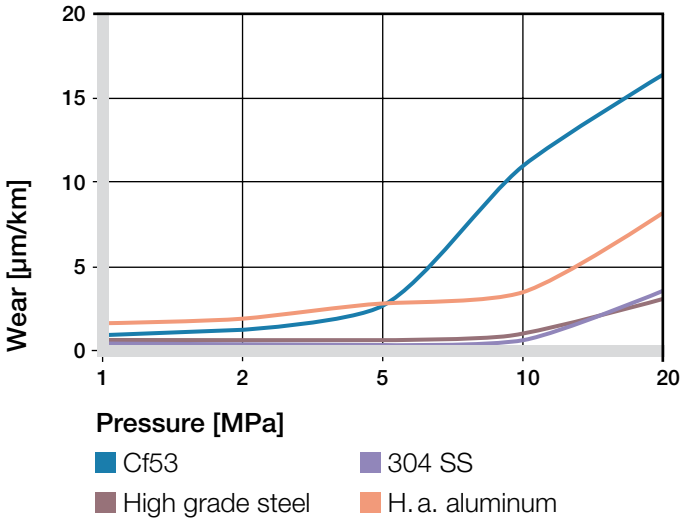
Graph 06 and 07 shows results of testing different shaft materials with plain bearings made of iglidur® J350.
iglidur® J350 plain bearings can be combined with various shaft materials.
One shaft – bearing combination stands out when looking at the wear results of the test: iglidur® J350 with soft stainless steel (V2A). Not many bearing materials are suitable for use with this rather difficult soft stainless steel material (V2A) and achieve good wear results. Also, iglidur® J350 shows good properties with hard-anodized aluminum shafts.
If the shaft material you plan on using is not shown in these test results, please contact us.

▶ Shaft Materials, **page 51**

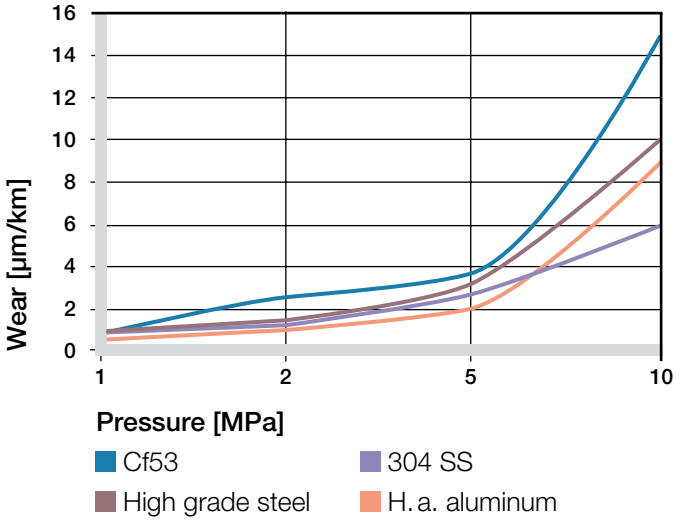


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

iglidur® J350 | Technical Data



Graph 07: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 08: Wear with oscillating movement of different shaft materials according to applied load

iglidur® J350	Dry	Greases	Oil	Water
C. o. f. µ	0.1–0.2	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® J350 plain bearings are resistant to diluted alkalines and acids, alcohols, cleaning agents and lubricants. iglidur® J350 will be attacked by esters, ketones, chlorinated hydrocarbons, and other solvents, please refer to the chemical resistance chart at the back of this catalogue.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+ to 0
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	+ to 0
Diluted alkalines	+
Strong alkalines	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® J350 are resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® J350 plain bearings are conditionally resistant to UV radiation.

Vacuum

iglidur® J260 plain bearings outgas in a vacuum. Use in a vacuum environment is only possible with dehumidified bearings.

Electrical Properties

iglidur® J350 plain bearings are electrically insulating.

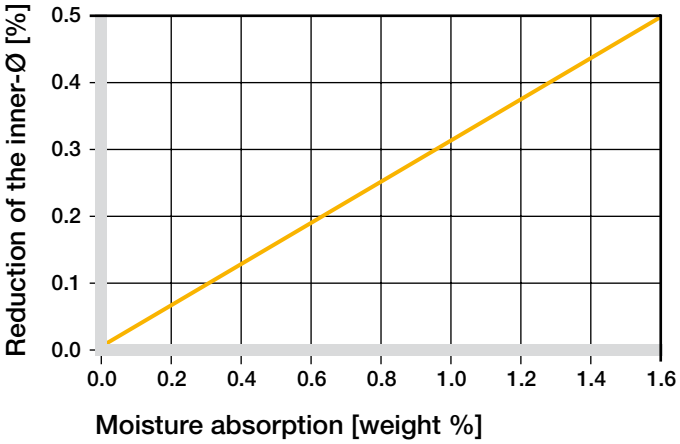
Volume resistance	$> 10^{13}$ Ωcm
Surface resistance	$> 10^{10}$ Ω

Moisture Absorption

The humidity absorbtion of iglidur® J350 is low and can be ignored when using standard-bearings. Even when saturated with water, iglidur® J350 does not absorb more than 1.6 % of water (by weight).

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.3 % weight
Max. moisture absorption	1.6 % weight

Table 06: Moisture absorption



Graph 09: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® J350 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

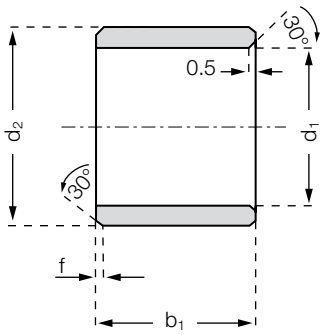
Diameter d1 [mm]			Shaft h9 [mm]	iglidur® J350 F10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.006 +0.046	0 +0.010
>	3 to	6	0–0.030	+0.010 +0.058	0 +0.012
>	6 to	10	0–0.036	+0.013 +0.071	0 +0.015
>	10 to	18	0–0.043	+0.016 +0.086	0 +0.018
>	18 to	30	0–0.052	+0.020 +0.104	0 +0.021
>	30 to	50	0–0.062	+0.025 +0.125	0 +0.025
>	50 to	80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

NEW in this catalog!

iglidur® J350 | Product Range

Sleeve bearing



Order key

J350SM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® J350

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

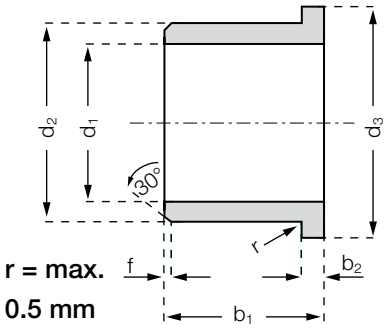
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1
J350SM-0608-06	6	+0.010 +0.058	8	6
J350SM-0810-10	8	+0.013 +0.071	10	10
J350SM-1012-10	10	+0.013 +0.071	12	10
J350SM-1214-12	12	+0.016 +0.068	14	12
J350SM-1618-15	16	+0.016 +0.068	18	15
J350SM-2023-20	20	+0.020 +0.104	23	20

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/j350 | order example part number J350SM-0608-06

Flange bearing



Order key

J350FM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® J350

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
J350FM-0608-06	6	+0.010 +0.058	8	12	6	1
J350FM-0810-10	8	+0.013 +0.071	10	15	10	1
J350FM-1012-10	10	+0.013 +0.071	12	18	10	1
J350FM-1214-12	12	+0.016 +0.068	14	20	12	1
J350FM-1618-17	16	+0.016 +0.068	18	24	17	1
J350FM-2023-21	20	+0.020 +0.104	23	30	21.5	1.5

* after pressfit. Testing methods ▶ page 55

My Sketches

iglidur® L250 – for high speed

- Standard range from stock
- Recommended for rotating applications
- Very low coefficients of friction
- Excellent wear resistance

iglidur® L250

For high speed. Plain bearings for high speed rotation applications, especially for fan- and motors.

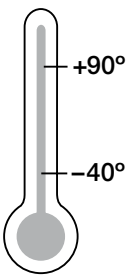
When to use it?

- For rotating applications at high speed
- If highest service life is required
- Low load applications
- If low noise level is required
- For very low coefficients of friction

When not to use it?

- When high pressure loads occur
  ▶ **iglidur® Q, page 461**
  ▶ **iglidur® W300, page 131**
- When sustained temperatures above +90 °C is a condition
  ▶ **iglidur® V400, page 279**
- When low moisture absorption is required
  ▶ **iglidur® H1, page 337**
  ▶ **iglidur® J, page 89**

Temperature



Product range

2 styles
Ø 6–20 mm
more dimensions
on request

iglidur® L250 | Application Examples

Typical sectors of industry and application areas

● Automotive ● Electronics industry
● Mechatronics ● Optical industry
● Test engineering and quality assurance etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

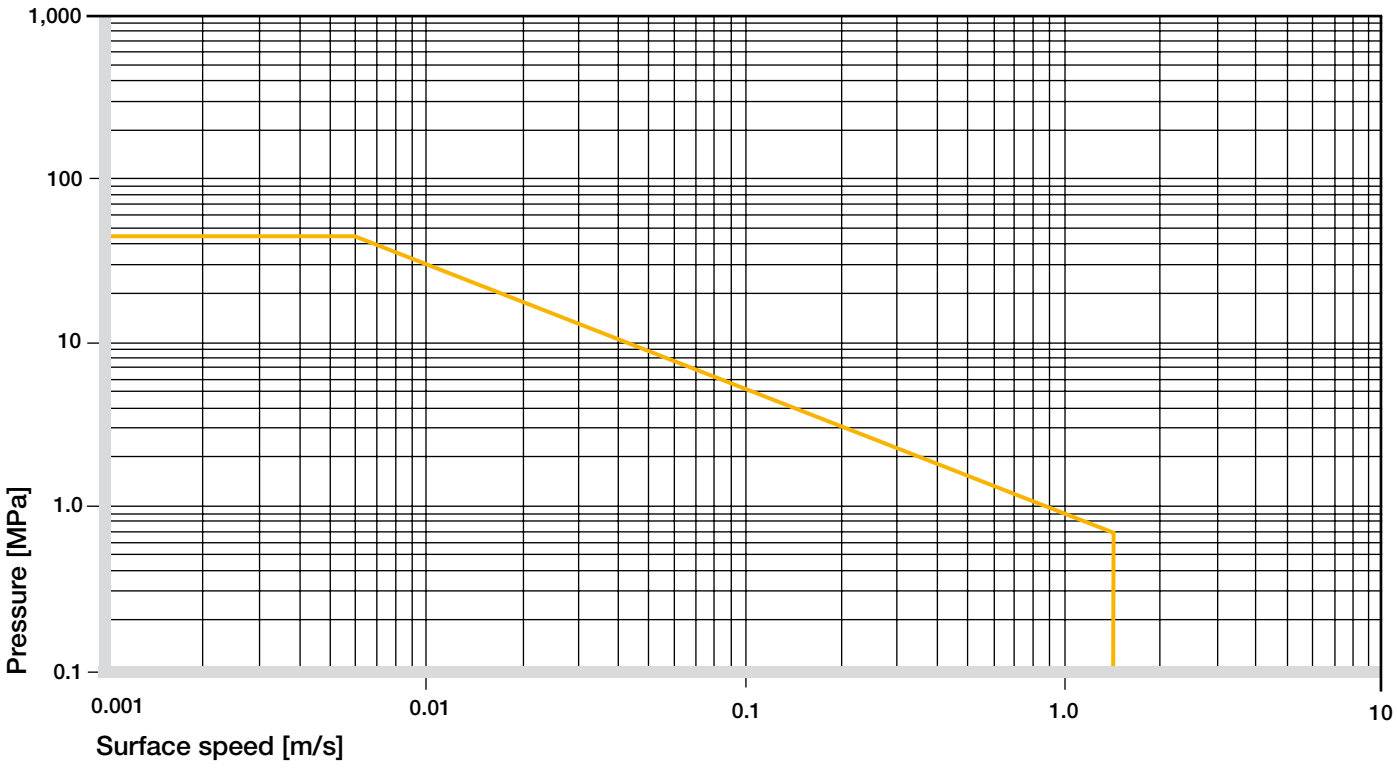
▶ www.igus.co.uk/light-aircraft

iglidur® L250 | Technical Data

Material data			
General properties	**Unit**	**iglidur® L250**	**Testing method**
Density	**g/cm³**	1.50	
Colour		beige	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.7	DIN 53495
Max. moisture absorption	**% weight**	3.9	
Coefficient of sliding friction, dynamic against steel	**µ**	0.08–0.19	
pv value, max. (dry)	**MPa · m/s**	0.4	
Mechanical properties			
Modulus of elasticity	**MPa**	1,950	DIN 53457
Tensile strength at +20 °C	**MPa**	67	DIN 53452
Compressive strength	**MPa**	47	
Max. recommended surface pressure (+20 °C)	**MPa**	45	
Shore D hardness		68	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+180	
Max. ambient temperature. short term[1)]	**°C**	+200	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	10	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{10}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{11}$	DIN 53482

[1)] Without additional load; no sliding movement; relaxation possible

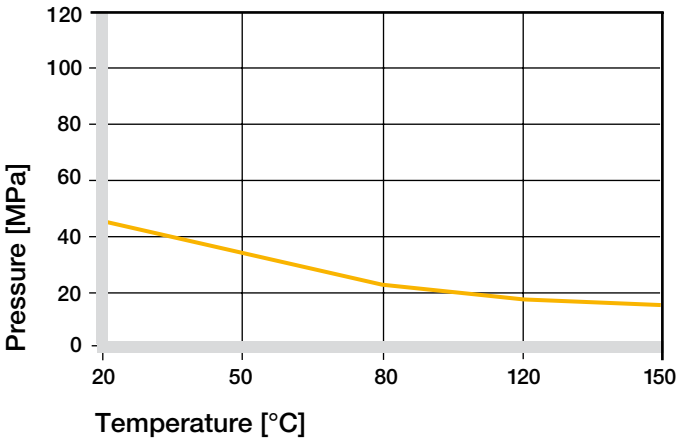
Table 01: Material data



Graph 01: Permissible pv values for iglidur® L250 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

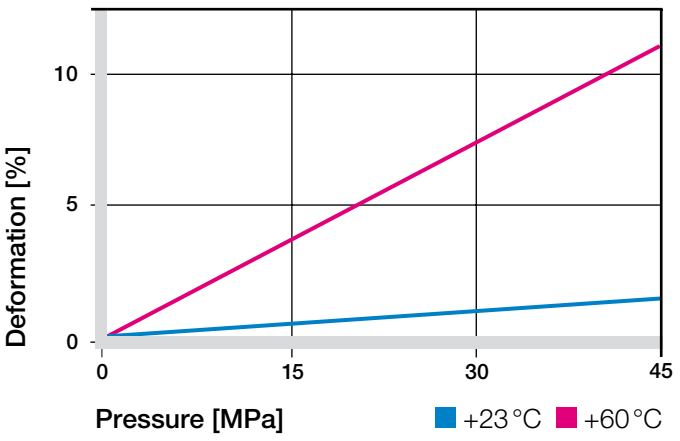
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® L250 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90° C the permissible surface pressure is almost 20 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (45 MPa at +20 °C)

iglidur® L250 is a bearing material for high rotary speeds and low coefficients of friction. The iglidur® L250 material can feature these advantages particularly with low loads. Applications which feature these advantages are fans, small motors, fast-running sensors or the magnet technology.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® L250 has been developed especially for high surface speeds with low loads. Besides the physical limit, which is preset by the heating of the bearing, the coefficients of wear also act limitingly if rapidly high glide paths emerge at high peripheral speeds and the permitted wear limit is thus reached earlier. The great advantages of the iglidur® L250 bearings are seen right here. The wear rate is very low, thus making the material an ideal solution for extreme glide paths. The maximum speeds can be gathered from Table 02.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	2
Short term	1.5	1.1	3

Table 02: Maximum running speed

Temperatures

The iglidur® L250 bearings can be used in temperatures up to 180 °C for the short-term. Note that a mechanical securing of the bearing is recommended from temperatures of 55 °C. Higher temperatures can also cause the bearing to lose its press-fit seating and move in the bore.

▶ Application Temperatures, **page 46**

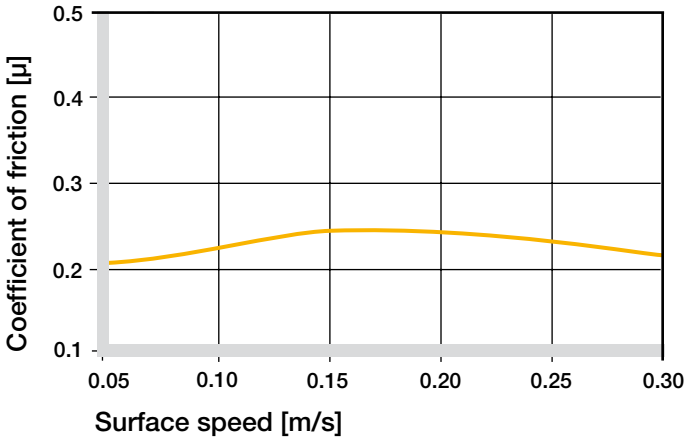
iglidur® L250	Application temperature
Minimum	–40 °C
Max. long term	+90 °C
Max. short term	+180 °C
Add. securing is required from	+55 °C

Table 03: Temperature limits

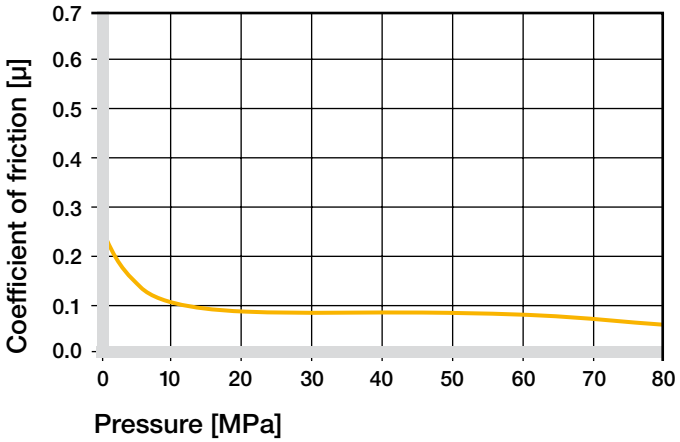
Friction and Wear

Low coefficients of friction form an essential reason for the excellent features of the iglidur® L250 bearings. In the best pairing (with V2A shafts), friction coefficients of 0.14 are already reached with low loads. Coefficients of friction under 0.1 was measured already below 10 MPa. To utilize the excellent coefficients of wear in the application, loads over 5 MPa should be avoided according to shaft material.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

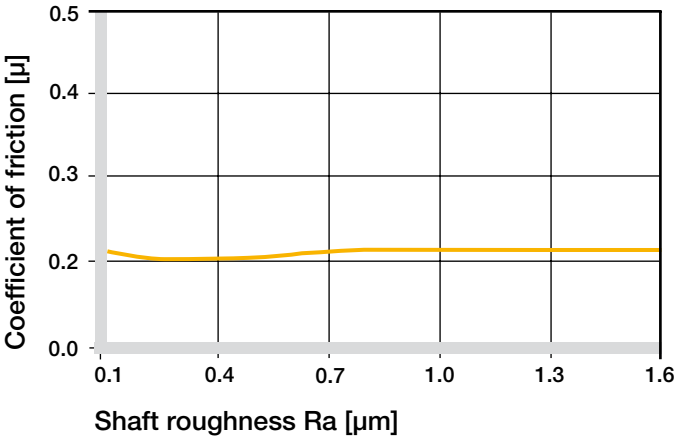


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

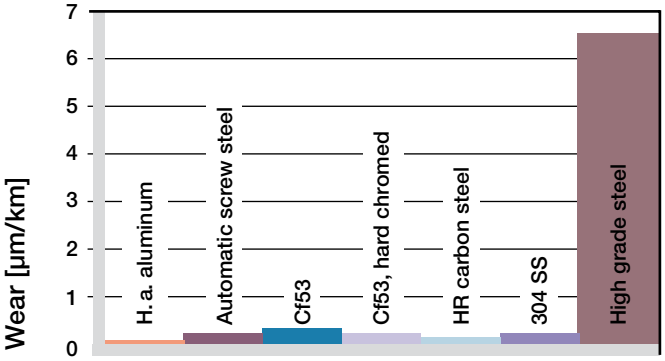
Shaft Materials

As seen in Graph 07, many shafts are recommendable for low loads and low rotations. The good coefficients of friction are additionally retained over a wide range of recommendable surface finishes for shafts (see Graph 06 for it). For loads greater than 1 MPa, particular attention should be paid to the shaft material used.

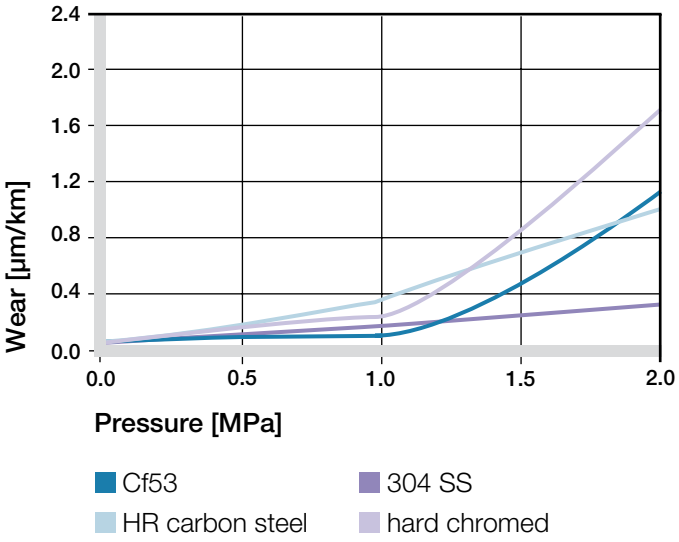
▶ Shaft Materials, **page 51**



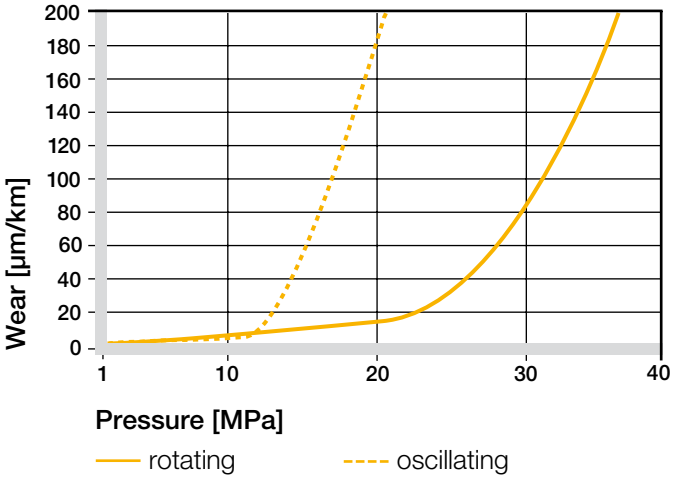
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® L250	Dry	Greases	Oil	Water
C. o. f. µ	0.08–0.19	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® L250 plain bearings are resistant to diluted alkalines and very weak acids, as well as to solvents and all types of lubricants.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings of iglidur® L250 are resistant to radiation up to a radiation intensity of $3 \cdot 10^4$ Gy. Higher radiation affects the material and may result in a significant decrease in mechanical properties.

UV Resistance

When subjected to UV radiation, iglidur® L250 plain bearings change colour. The hardness, compression strength, and wear resistance of the material, however, are not affected.

Vacuum

When used in a vacuum, the existing humidity may out gas. Therefore, only dehumidified bearings of iglidur® L250 are suitable for a vacuum application.

Electrical Properties

iglidur® L250 plain bearings are electrically insulating.

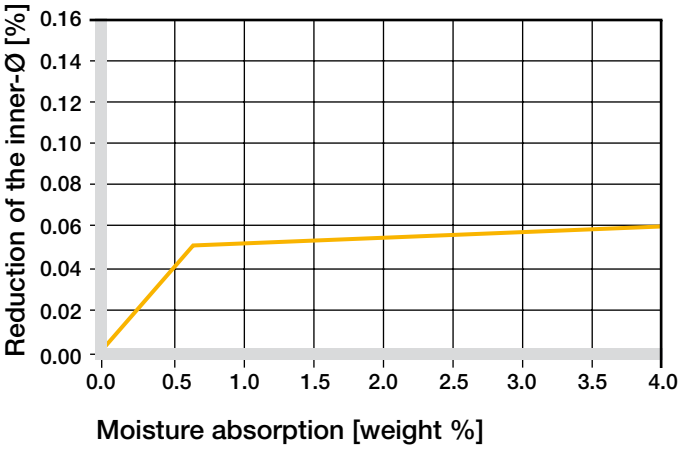
Volume resistance	$> 10^{10}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

Moisture Absorption

With regard to applications where the smallest bearing clearances are concerned, please take the moisture absorption into consideration.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.7 % weight
Max. moisture absorption	3.9 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® L250 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

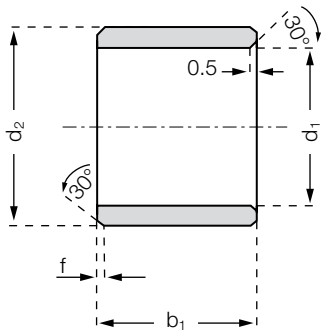
▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® L250 E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0,.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® L250 | Product Range

Sleeve bearing



Order key

L250SM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® L250

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

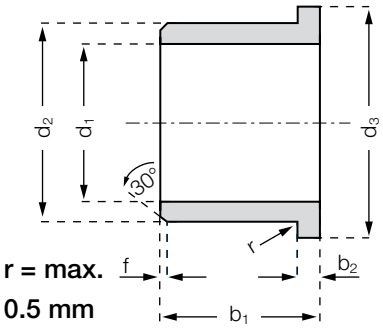
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
L250SM-0608-06	6.0	+0.020 +0.068	8.0	6.0
L250SM-0810-10	8.0	+0.025 +0.083	10.0	10.0
L250SM-1012-10	10.0	+0.025 +0.083	12.0	10.0
L250SM-1214-12	12.0	+0.032 +0.102	14.0	12.0
L250SM-1618-15	16.0	+0.032 +0.102	18.0	15.0
L250SM-2023-20	20.0	+0.040 +0.124	23.0	20.0

* after pressfit. Testing methods ▶ page 55

iglidur® L250 | Product Range

Flange bearing



r = max. 0.5 mm

Order key

L250FM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® L250

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

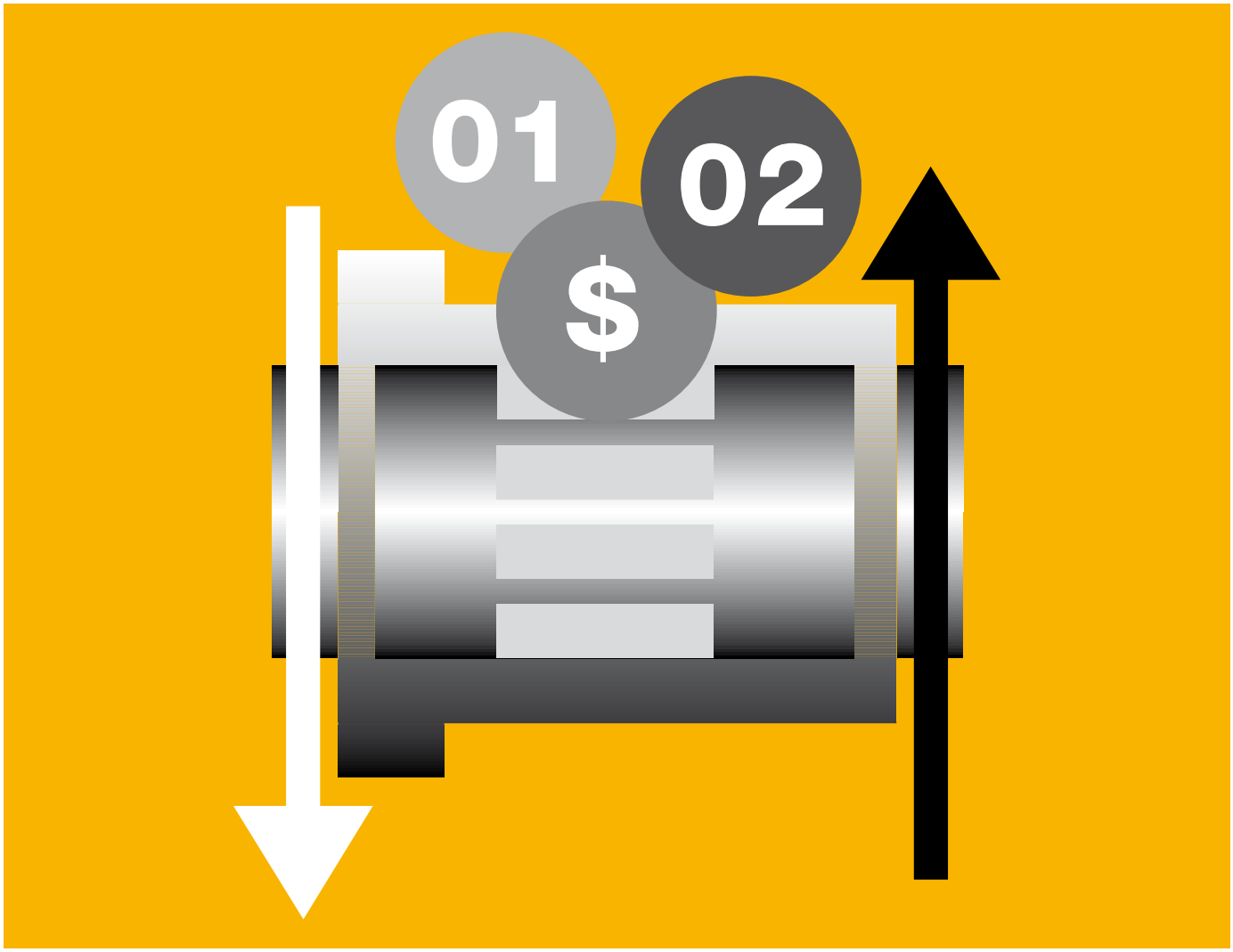
d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	-0.14
L250FM-0608-06	6.0	+0.020 +0.068	8.0	12.0	6.0	1.0
L250FM-0810-10	8.0	+0.025 +0.083	10.0	15.0	10.0	1.0
L250FM-1012-10	10.0	+0.025 +0.083	12.0	18.0	10.0	1.0
L250FM-1214-12	12.0	+0.032 +0.102	14.0	20.0	12.0	1.0
L250FM-1618-17	16.0	+0.032 +0.102	18.0	24.0	17.0	1.0
L250FM-2023-21	20.0	+0.040 +0.124	23.0	30.0	21.5	1.5

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/l250 | order example part number L250FM-0608-06



iglidur® R – low-cost material, low wear

- Standard range from stock
- Good wear resistance
- Low friction when running dry
- Very cost-effective
- Low wear rate

iglidur® R

Low-cost material, low wear. Low-cost-material with low coefficients of friction and good wear resistance at low to medium loads.

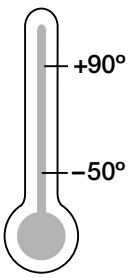
When to use it?

- If high wear resistance at low load is required
- If you are looking for a very cost-effective bearing
- If low friction at dry operation is required
- If edge loads occur
- If you are looking for low water absorbtion
- If PTFE and silicone are prohibited in the application

When not to use it?

- If high pressure occurs
  ▶ **iglidur® G, page 61**
- If permanent temperatures exceed +90 °C
  ▶ **iglidur® G, page 61**
  ▶ **iglidur® P, page 185**
- If best wear resistance is required
  ▶ **iglidur® J, page 89**

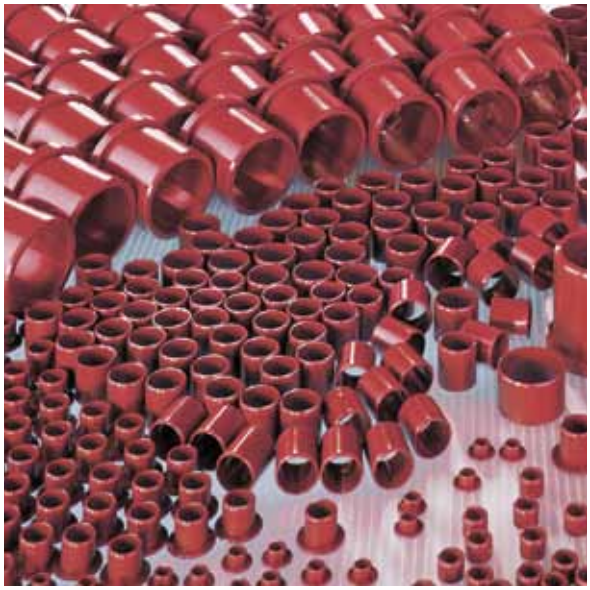
Temperature



Product range

2 types
Ø 6–20 mm
more dimensions
on request

iglidur® R | Application Examples



Typical sectors of industry and application areas

● Sports and leisure ● Model making
● Automotive ● Mechatronics
● Camera technology etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

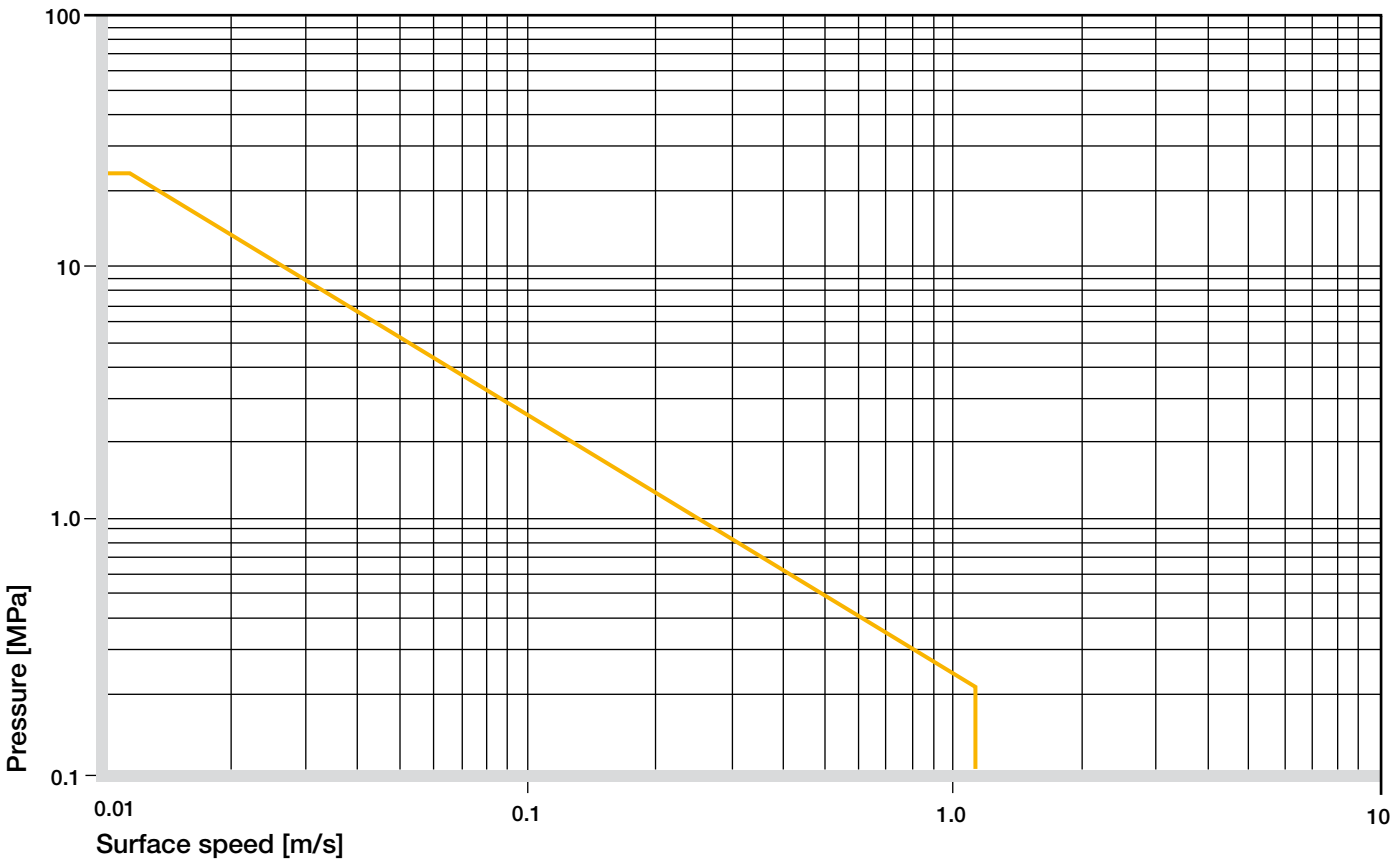
▶ www.igus.co.uk/rickshaw

▶ www.igus.co.uk/office-chair

iglidur® R | Technical Data

Material data			
General properties	**Unit**	**iglidur® R**	**Testing method**
Density	**g/cm³**	1.39	
Colour		dark red	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.2	DIN 53495
Max. moisture absorption	**% weight**	1.1	
Coefficient of sliding friction, dynamic against steel	**µ**	0.09–0.25	
pv value, max. (dry)	**MPa · m/s**	0.27	
Mechanical properties			
Modulus of elasticity	**MPa**	1,950	DIN 53457
Tensile strength at +20 °C	**MPa**	70	DIN 53452
Compressive strength	**MPa**	68	
Max. recommended surface pressure (+20 °C)	**MPa**	23	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+110	
Min. application temperature	**°C**	–50	
Thermal conductivity	**W/m · K**	0.25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	11	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{12}	DIN IEC 93
Surface resistance	**Ω**	> 10^{12}	DIN 53482

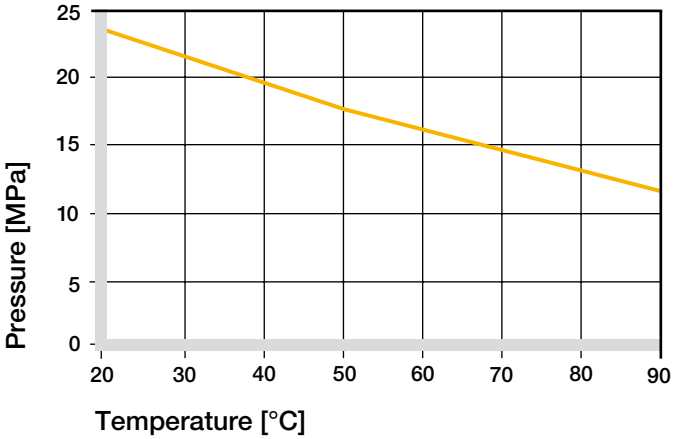
Table 01: Material data



Graph 01: Permissible pv values for iglidur® R with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

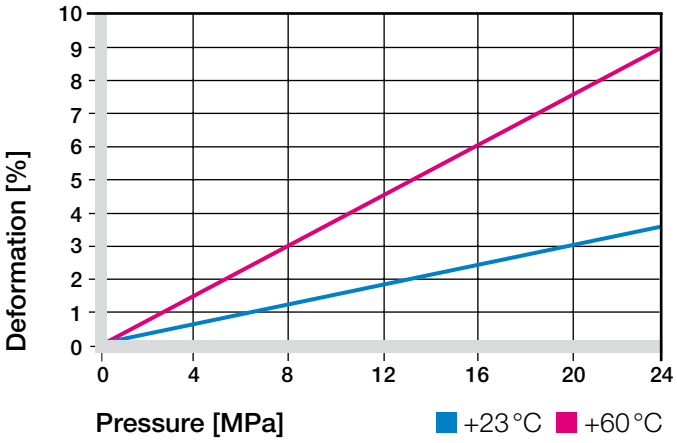
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® R plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90° C the permissible surface pressure is around 11 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (23 MPa at +20 °C)

The development of the iglidur® R as a bearing material focused on high performance and very low cost. Especially in the dry operation low coefficients of friction and wear were to be achieved. Bearings made of iglidur® R are selectively supported by a combination of solid lubricants. The PTFE- and silicon-free material achieves extremely low coefficients of friction in dry operation and runs largely free of stick-slip effects. iglidur® R plain bearings in the first place were developed for low to average radial loads – Graph 03 shows the elastic deformation of iglidur® R during radial loading. At the maximum permisslible load of 23 MPa, the deformation is approximately 3 %. Plastic deformation is not detectable up to this value. However, it is also dependent on the service time.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® R bearings are suitable for high surface speeds. Speeds of up to 10 m/s are permitted in linear motions! Here too the specified maximum values can be achieved only with minimum pressure loads. The specified values show the speed at which due to friction an increase in temperature up to the long-term permitted value can occur.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.8	0.6	3.5
Short term	1.2	1	5

Table 02: Maximum running speed

Temperatures

The short term maximum temperature is +110 °C, the long term maximum temperature is +90 °C. With increasing temperatures, the compressive strength of iglidur® R bearings decreases. Graph 02 clarifies this relationship. The ambient temperature in the application also has an impact on the wear of the bearing, an increase in temperature will result in an increase in wear.

▶ Application Temperatures, **page 46**

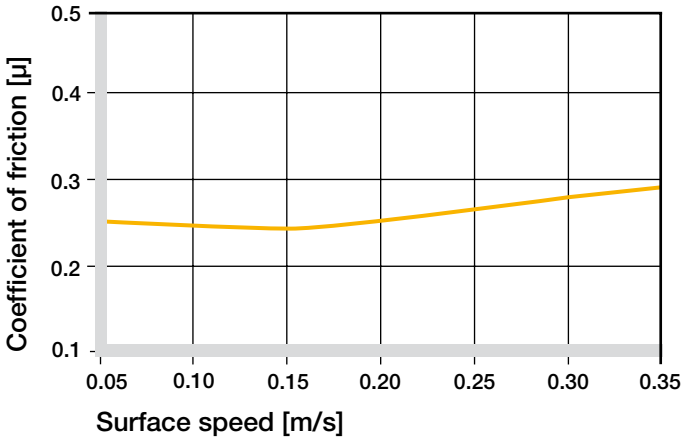
iglidur® R	Application temperature
minimum	–50 °C
Max. long term	+90 °C
Max. short term	+110 °C
Add. securing is required	+50 °C

Table 03: Temperature limits

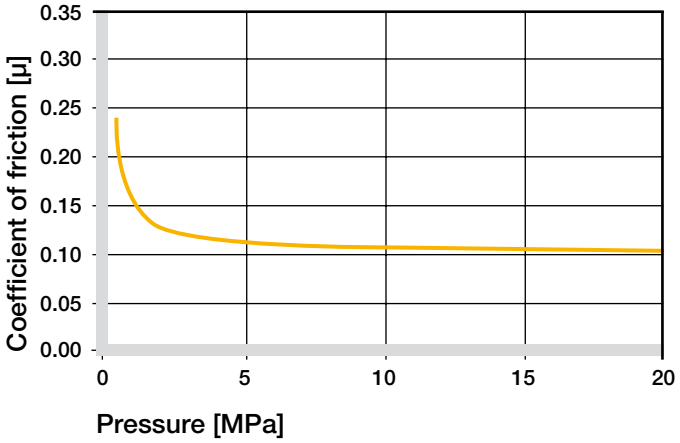
Friction and Wear

The coefficient of friction decreases like the wear resistance with increasing load. In contrast, a higher surface speed has less impact on the coefficient of friction of an iglidur® R bearing. iglidur® R is suitable for applications in which high pv values are given mainly through the high surface speed and not as much through the surface pressure. The coefficient of friction of iglidur® R plain bearings depends greatly on the shaft roughness.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

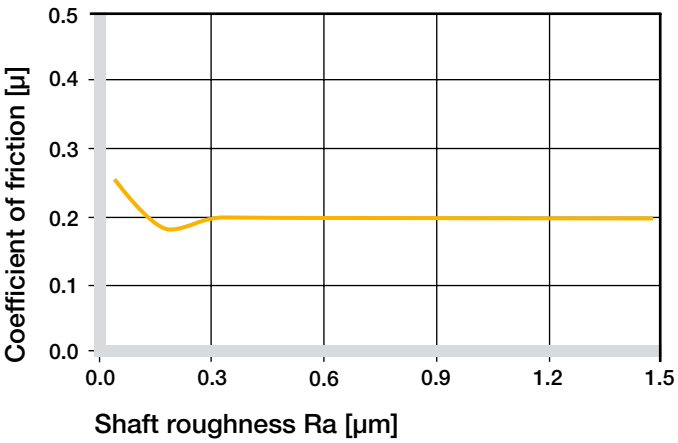
Shaft Materials

Graph 06 to 09 display a summary of the results of tests with different shaft materials conducted with bearings made of iglidur® R. At 0.3 m/s and 1,0 MPa, the X90 shaft is the best material.

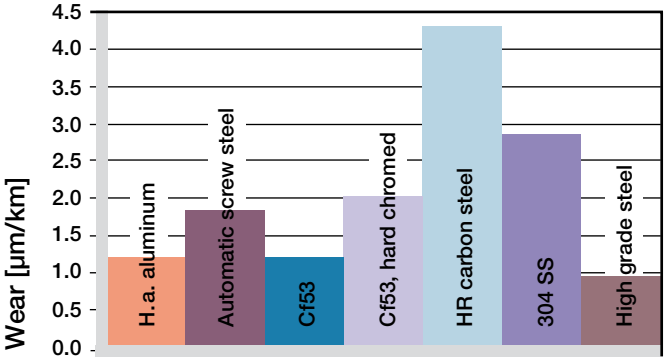
With increasing loads the iglidur® R bearings feature the best wear behavior with Cf53 and V2A shafts. In oscillating applications, the hard chromed shaft proves to be the ideal material.

If the shaft material you plan on using is not shown in these test results, please contact us.

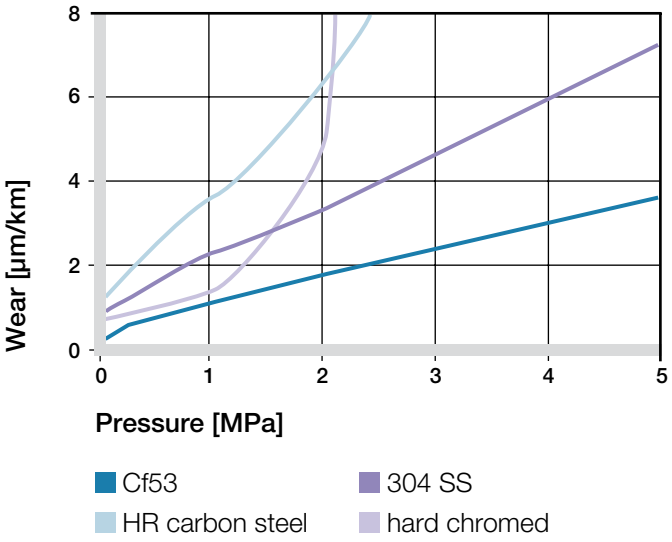
▶ Shaft Materials, **page 51**



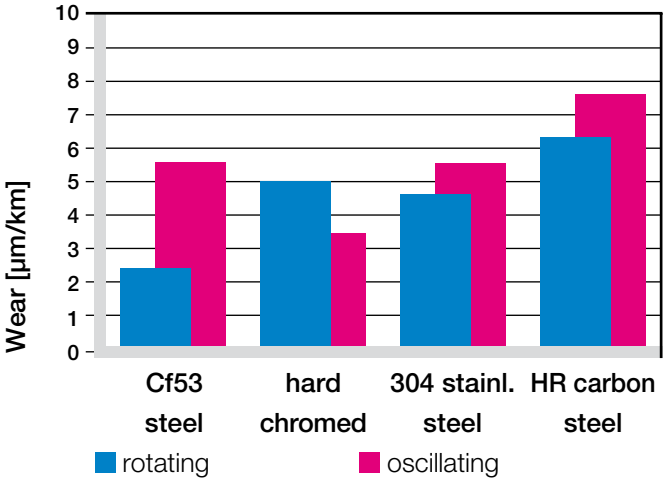
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® R	Dry	Greases	Oil	Water
C. o. f. µ	0.09–0.25	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® R bearings can be used in various environmental conditions and in contact with numerous chemicals. Table 05 gives an overview of the chemical resistance of iglidur® R bearings at room temperature.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® R are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® R plain bearings are resistant to UV radiation, but the tribological properties are are reduced by permanent exposure.

Vacuum

In a vacuum environment, iglidur® R plain bearings release gases. It is only possible to use iglidur® R in a a vacuum to a limited extent.

Electrical Properties

iglidur® R plain bearings are electrically insulating.

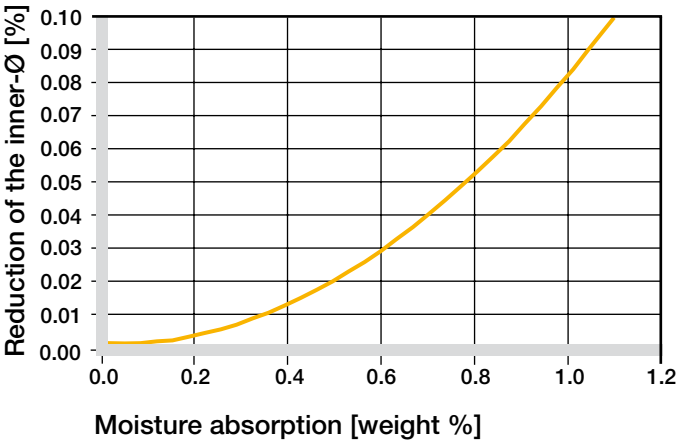
Volume resistance	$> 10^{12}$ Ωcm
Surface resistance	$> 10^{12}$ Ω 10

Moisture Absorption

The moisture absorption of iglidur® R plain bearings is apprximately 0.2 % in standard atmosphere. The saturation limit in water is 1 %. This low moisture absorption allows for design in wet environments.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.2 % weight
Max. moisture absorption	1.1 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® R plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

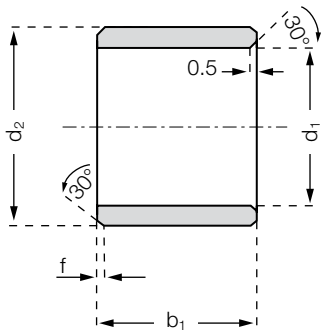
▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® R E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® R | Product Range

Sleeve bearing



Order key

RSM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® R

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

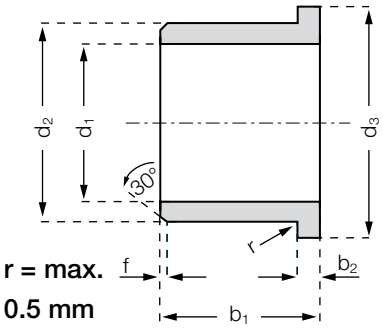
Part number	d1	d1-Tolerance*	d2	b1 h13
RSM-0608-06	6	+0.020 +0.068	8	6
RSM-0810-10	8	+0.025 +0.083	10	10
RSM-1012-05	10	+0.025 +0.083	12	5
RSM-1012-10	10	+0.025 +0.083	12	10
RSM-1012-15	10	+0.025 +0.083	12	15
RSM-1214-12	12	+0.032 +0.102	14	12
RSM-1416-15	14	+0.032 +0.102	16	15
RSM-1618-15	16	+0.032 +0.102	18	15
RSM-2023-15	20	+0.040 +0.124	23	15
RSM-2023-20	20	+0.040 +0.124	23	20
RSM-3034-25	30	+0.040 +0.124	34	25
RSM-3539-30	35	+0.050 +0.150	39	30

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/r | order example part number RSM-0608-06

iglidur® R | Product Range

Flange bearing



Order key

RFM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® R

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

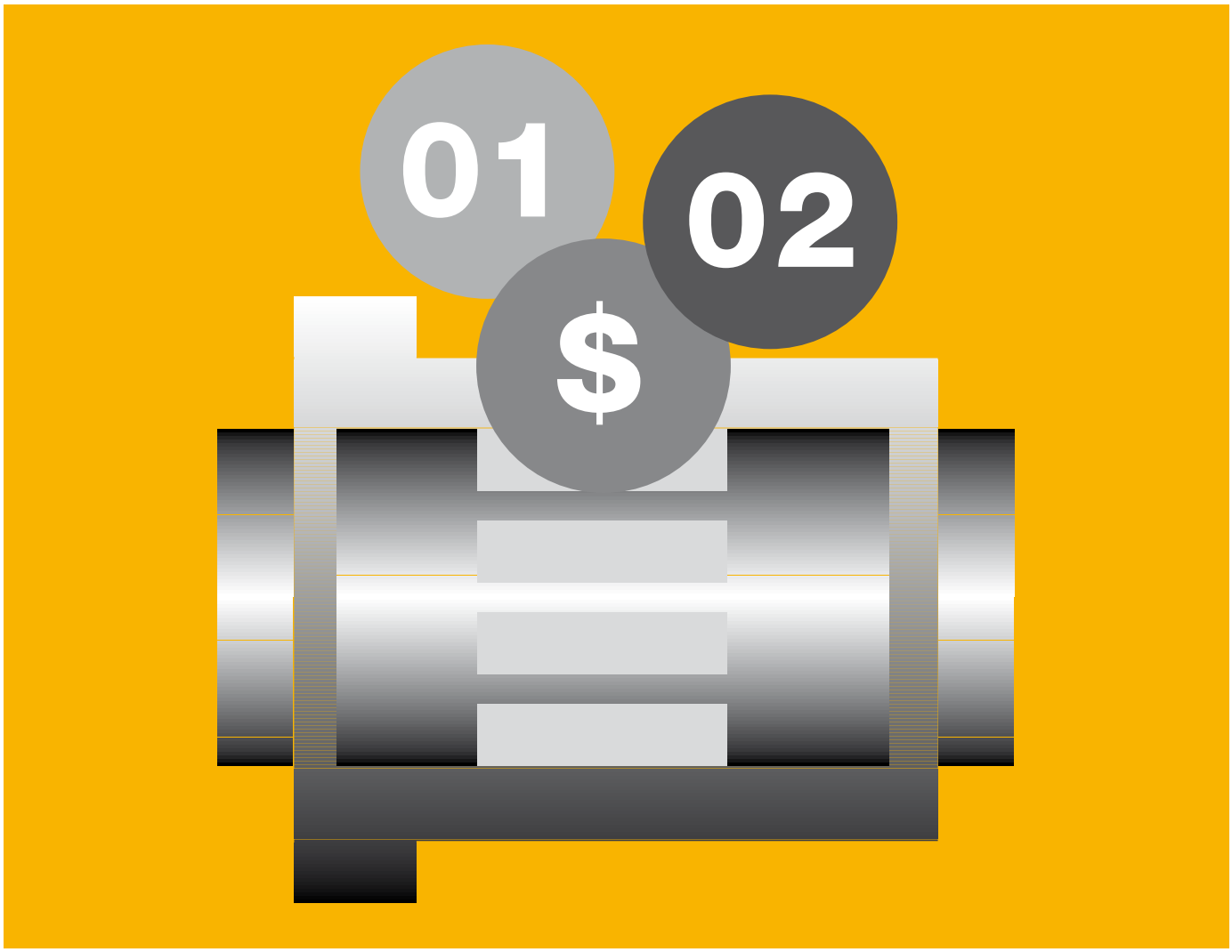
d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1 h13	b2
RFM-0608-06	6	+0.020 +0.068	8	12	6	1
RFM-0810-05	8	+0.025 +0.083	10	15	5	1
RFM-0810-10	8	+0.025 +0.083	10	15	10	1
RFM-1012-10	10	+0.025 +0.083	12	18	10	1
RFM-1012-18	10	+0.025 +0.083	12	18	18	1
RFM-1214-12	12	+0.032 +0.102	14	20	12	1
RFM-1416-17	14	+0.032 +0.102	16	22	17	1
RFM-1618-17	16	+0.032 +0.102	18	24	17	1
RFM-2023-21	20	+0.040 +0.124	23	30	21.5	1.5

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/r | order example part number RFM-0608-06



iglidur® D – low-cost material with silicone

- Low coefficients of friction at high speeds
- For low loads
- Extremely cost-effective
- Vibration dampening
- Very low moisture absorption

iglidur® D

Low-cost material with silicone. Low-cost-material with low coefficients of friction and good wear resistance at low loads.

Low coefficients of friction at high speeds

For low loads

Extremly cost efficient

Vibration dampening

Very low moisture absorption

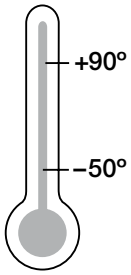
When to use it?

- When very low coefficients of friction are needed
- For high speeds
- For low load
- When a very low-priced bearing is required

When not to use it?

- When high pressure loads occur
  ▶ **iglidur® G, page 61**
- When the part should be free of silicon
  ▶ **iglidur® J, page 89**
  ▶ **iglidur® R, page 249**
- When constant temperatures of more than +90 °C occur
  ▶ **iglidur® G, page 61**
  ▶ **iglidur® P, page 185**

Temperature

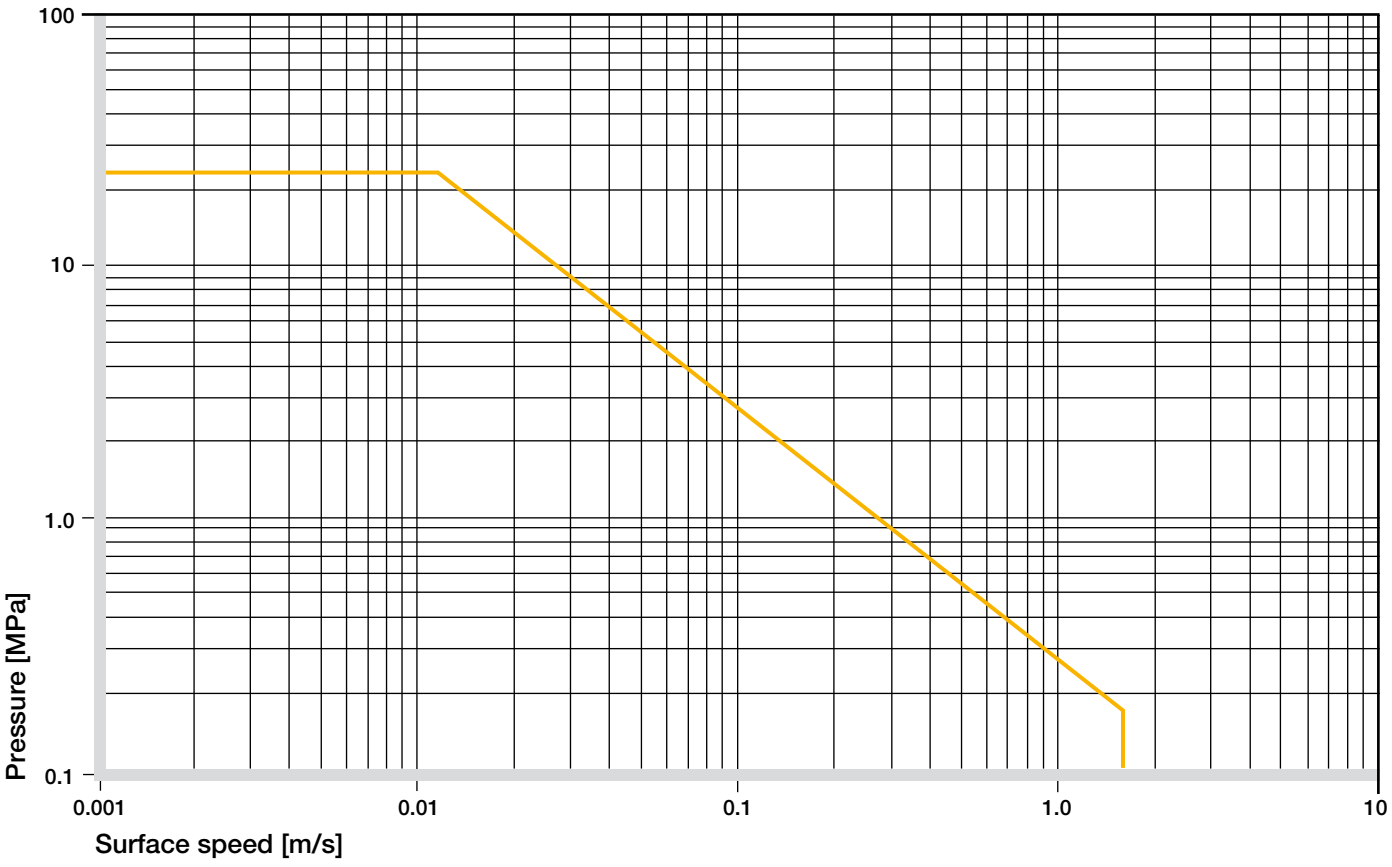


Product range

on request

Material data			
General properties	**Unit**	**iglidur® D**	**Testing method**
Density	**g/cm³**	1.40	
Colour		green	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.3	DIN 53495
Max. moisture absorption	**% weight**	1.1	
Coefficient of sliding friction, dynamic against steel	**µ**	0.08–0.26	
pv value, max. (dry)	**MPa · m/s**	0.27	
Mechanical properties			
Modulus of elasticity	**MPa**	2,000	DIN 53457
Tensile strength at +20 °C	**MPa**	72	DIN 53452
Compressive strength	**MPa**	70	
Max. recommended surface pressure (+20 °C)	**MPa**	23	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+110	
Min. application temperature	**°C**	–50	
Thermal conductivity	**W/m · K**	0.25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	11	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{14}	DIN IEC 93
Surface resistance	**Ω**	> 10^{14}	DIN 53482

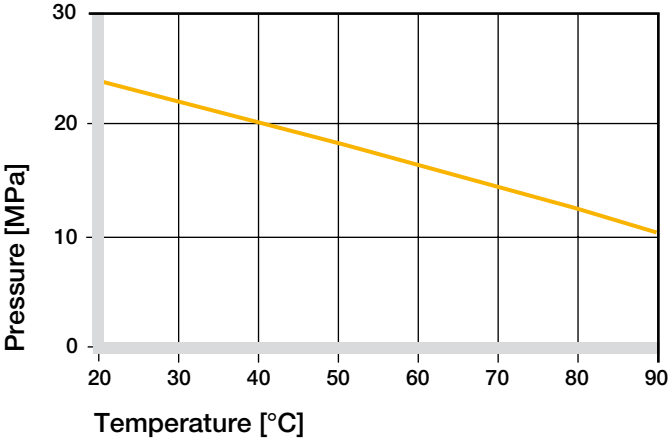
Table 01: Material data



Graph 01: Permissible pv values for iglidur® D with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

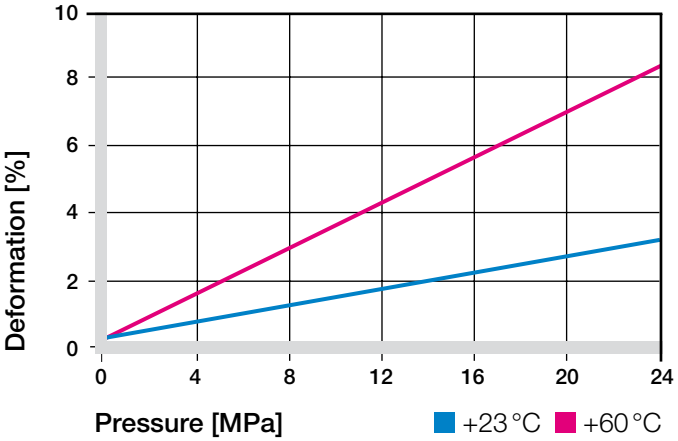
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® D plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90 °C the permissible surface pressure is almost +100 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (23 MPa at +20 °C)

During the development process of iglidur® D as a bearing material, high performance and a very low price were the top requirements. In particular, low coefficients of friction were needed at high speeds in the dry run. Plain bearings made of iglidur® D are supported by a combination of solid lubricants. This material containing silicone achieves excellently low friction values in dry operation and runs with virtually no stick-slip. Graph 03 shows the elastic deformation of iglidur® D during radial loading. At the recommended maximum surface pressure of 23 MPa the deformation is less than 3 %. Plastic deformation is not detectable up to this value. However, it is also dependent on the service time.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® D bearings are suitable for high surface speeds. Speeds of up to 10 m/s are permitted in linear motions! Here too the specified maximum values can be achieved only with minimum pressure loads. The specified values show the speed at which due to friction an increase in temperature up to the long-term permitted value can occur.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1.5	1.1	8
Short term	3	2.1	10

Table 02: Maximum running speed

Temperatures

The short-term permitted maximum temperature is +110 °C, and the long-term application temperature is +90 °C. With increasing temperatures, the compressive strength of iglidur® D bearings decreases. Graph 02 clarifies this relationship.

The ambient application temperature has a direct impact on bearing wear, an increase in temperature results in an increase in wear.

▶ Application Temperatures, **page 46**

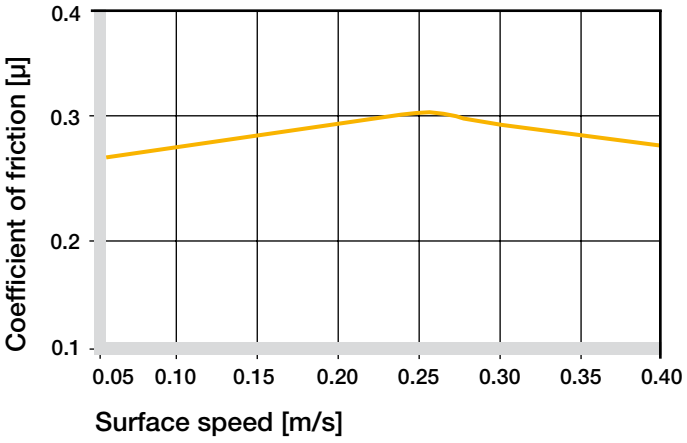
iglidur® D	Application temperature
Minimum	–50 °C
Max. long term	+90 °C
Max. short term	+110 °C
Add. securing is required from	+50°C

Table 03: Temperature limits

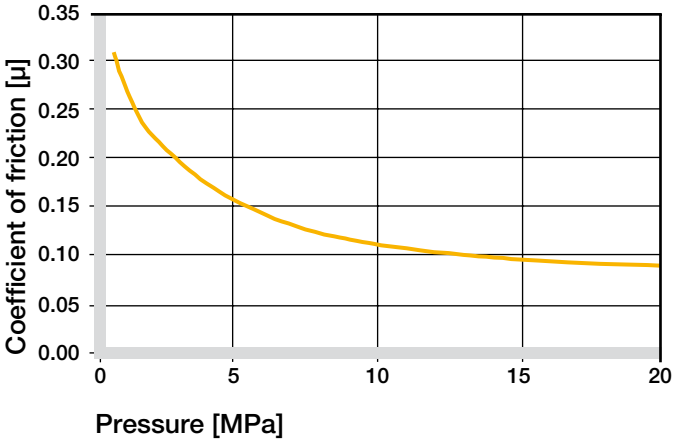
Friction and Wear

The coefficient of friction decreases like the wear resistance with increasing load. In contrast, a higher surface speed rarely affects the coefficient of friction of an iglidur® D bearing. iglidur® D is suitable for applications in which high pv values are achieved mainly through the high surface speed and not as much through the surface pressure.
The coefficient of friction of the iglidur D bearings is highly dependant on the shaft surface finish. In the Ra range between 0.4 and 0.6 µm, the coefficient of friction attains the optimum value. With values below and above this range, the friction of the bearing system rapidly rises.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

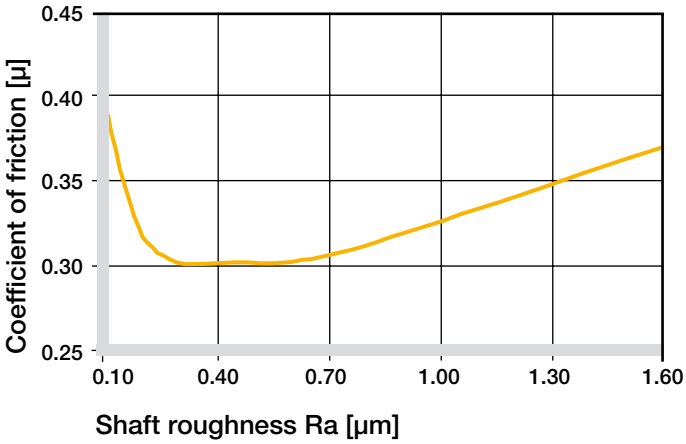


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

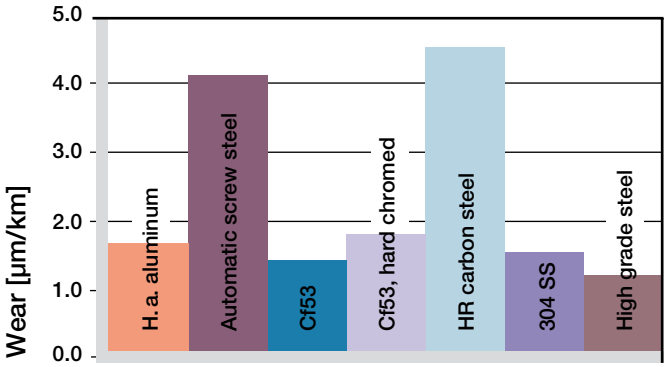
Shaft Materials

Graph 06 to 09 display a summary of the results of tests with different shaft materials conducted with bearings made of iglidur® D. Whereas in the lower load range the hard-chromed shaft is the most suitable for iglidur® D bearings, the wear is lower with Cf53 and V2A shafts from 2 MPa upward. The Cf53 and V2A shafts are recommended in the low load range in pivoting applications.
Please contact us if you would like to use a shaft material not included in this list.

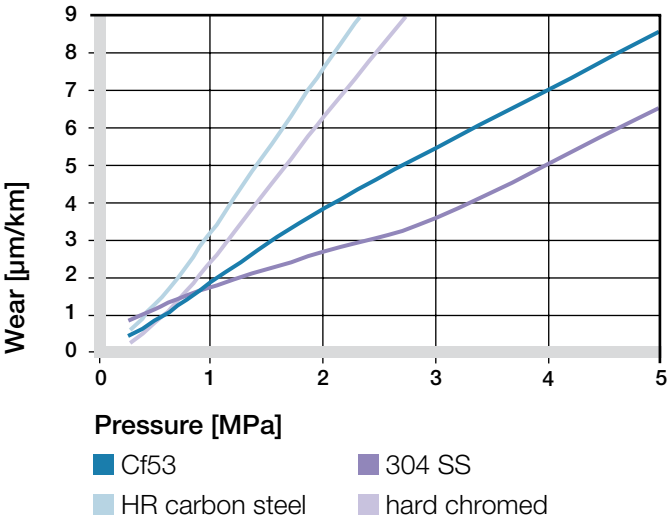
▶ Shaft Materials, **page 51**



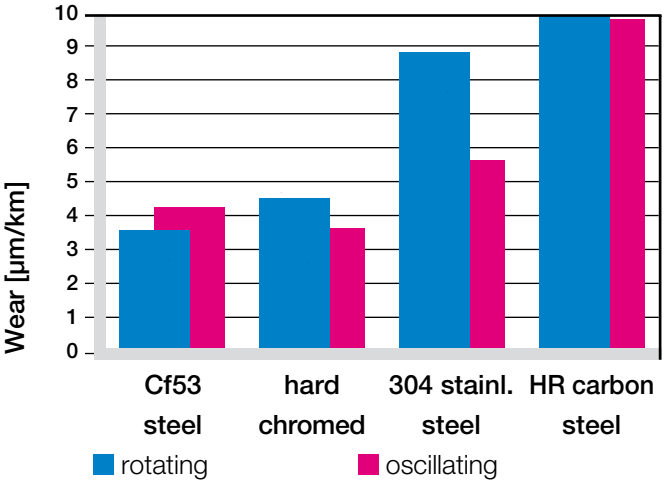
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0,75 MPa, v = 0,5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® D	Dry	Greases	Oil	Water
C. o. f. µ	0.08–0.26	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® D plain bearings are resistant to very weak acids, diluted alkaline, fuels and all types of lubricants.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® D are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® D plain bearings are resistant to UV radiation, but the tribological properties are reduced by permanent exposure.

Vacuum

In a vacuum environment, iglidur® D plain bearings release gases. It is only possible to use in a vacuum to a limited extent.

Electrical Properties

iglidur® D plain bearings are electrically insulating.

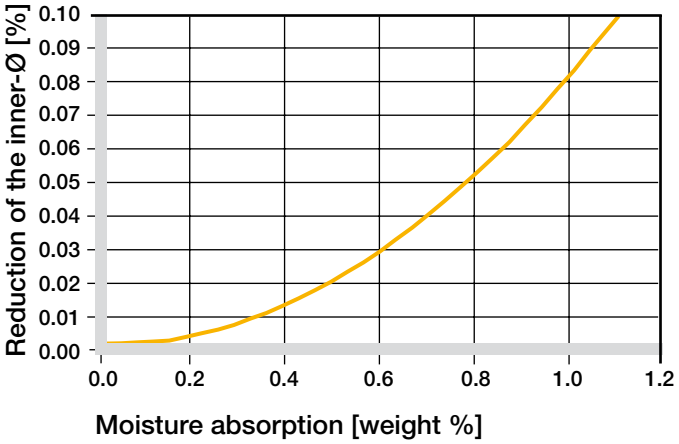
Volume resistance	$> 10^{14}$ Ωcm
Surface resistance	$> 10^{14}$ Ω 10

Moisture Absorption

The moisture absorption of iglidur® D plain bearings is approximately 0.2 % in standard atmosphere. The saturation limit in water is 1 %. This low moisture absorption allows for design in wet environments.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.3 % weight
Max. moisture absorption	1.1 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® D plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

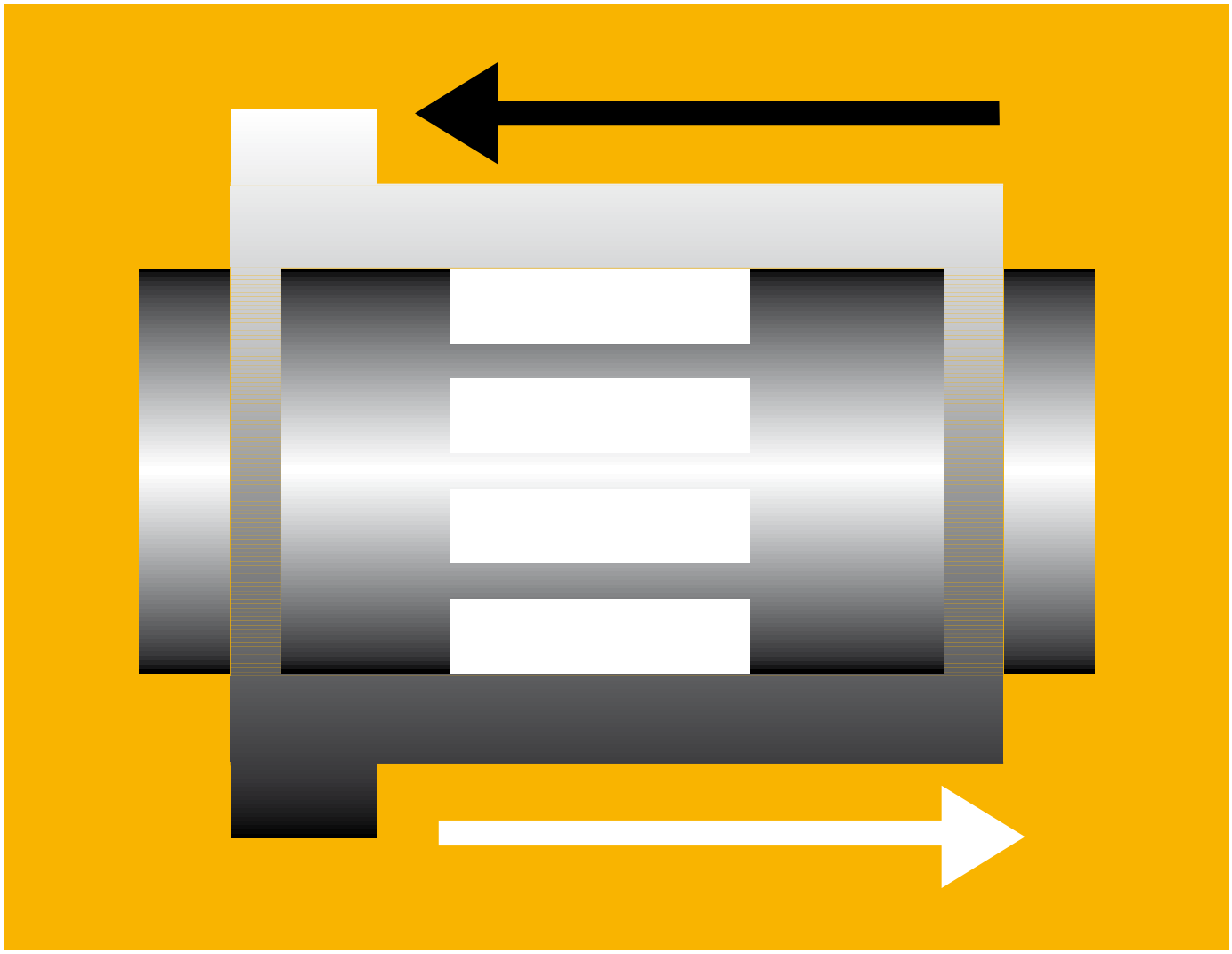
Diameter d1 [mm]	Shaft h9 [mm]	iglidur® D E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Product Range

iglidur® D plain bearings are manufactured to special order.

My Sketches



iglidur® J200 – suitable for anodized aluminum shafts

Very long service life with hard anodized aluminium

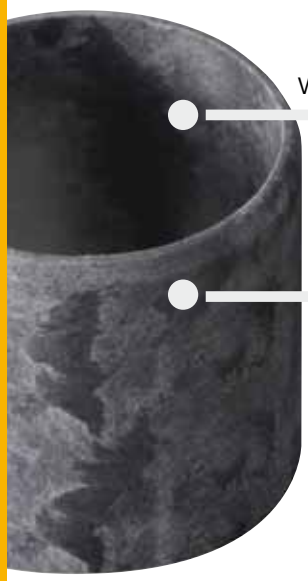
Low coefficients of friction

Low wear

For low to medium loads

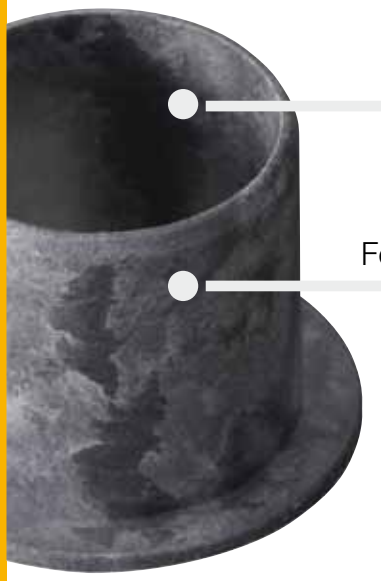
iglidur® J200

Suitable for anodized aluminum shafts. The specialist for low friction-values and minimal wear with hard anodized aluminum shaft.



Very long service life with hard anodized aluminum

Low coefficients of friction



Low wear

For low to medium loads

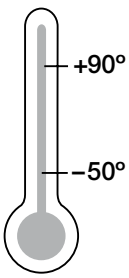
When to use it?

- For applications with anodized aluminum shafts
- When lowest coefficients of friction are required
- If long service life with low wear is required

When not to use it?

- For steel shafts
  - ▶ **iglidur® J, page 89**
  - ▶ **iglidur® W300, page 131**
- When temperatures are continuously higher than +80 °C
  - ▶ **iglidur® V400, page 279**
- When a cost-effective universal bearing is required
  - ▶ **iglidur® G, page 61**
  - ▶ **iglidur® P, page 185**

Temperature



Product range

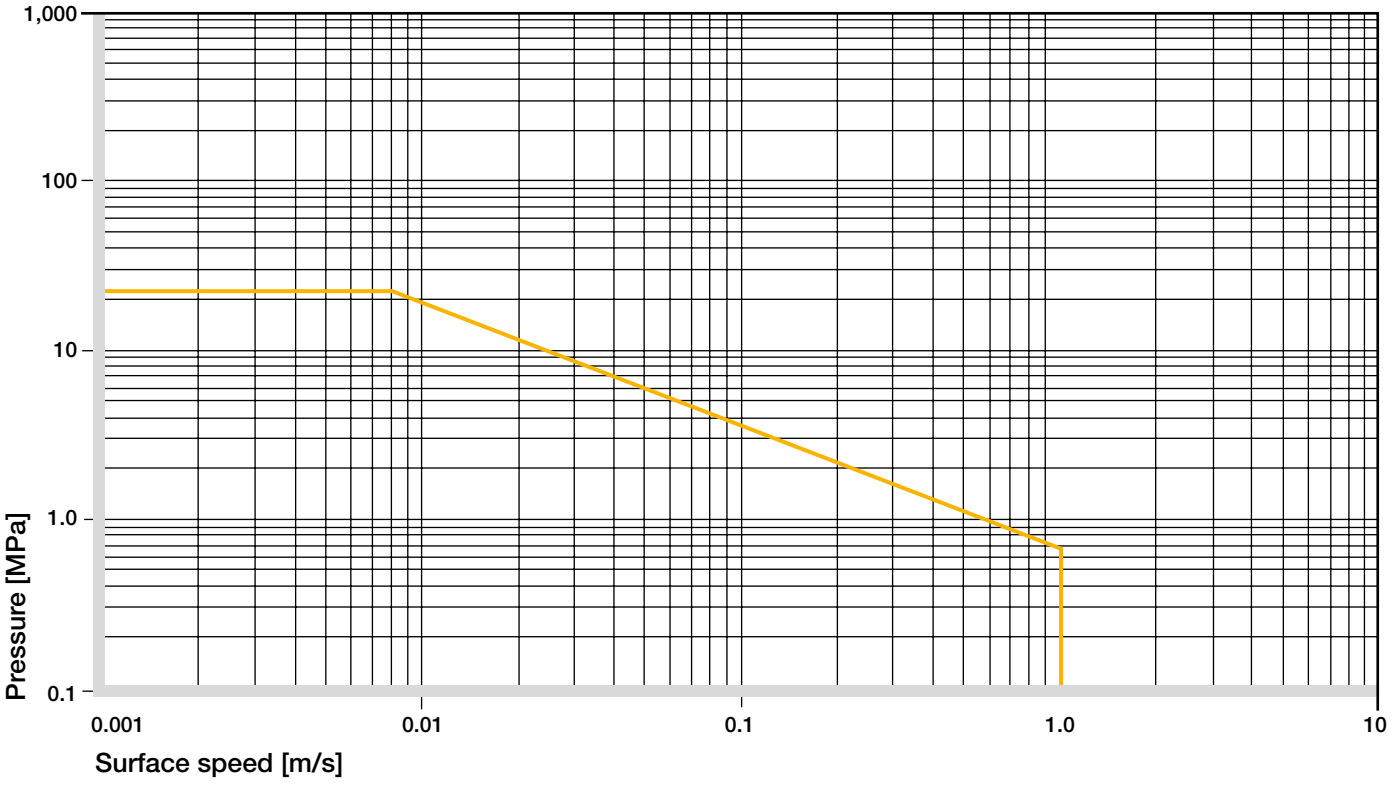
on request

iglidur® J200 | Technical Data

Material data			
General properties	**Unit**	**iglidur® J200**	**Testing method**
Density	**g/cm³**	1.72	
Colour		dark grey	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.2	DIN 53495
Max. moisture absorption	**% weight**	0.7	
Coefficient of sliding friction, dynamic against steel	**µ**	0.11–0.17	
pv value, max. (dry)	**MPa · m/s**	0.30	
Mechanical properties			
Modulus of elasticity	**MPa**	2,800	DIN 53457
Tensile strength at +20 °C	**MPa**	58	DIN 53452
Compressive strength	**MPa**	43	
Max. recommended surface pressure (+20 °C)	**MPa**	23	
Shore D hardness		70	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+120	
Maximum ambient temperature, short term	**°C**	+140	
Min. application temperature	**°C**	–50	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	8	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^8$	DIN IEC 93
Surface resistance	**Ω**	$> 10^8$	DIN 53482

[1] Without additional load; no sliding movement; relaxation possible

Table 01: Material data

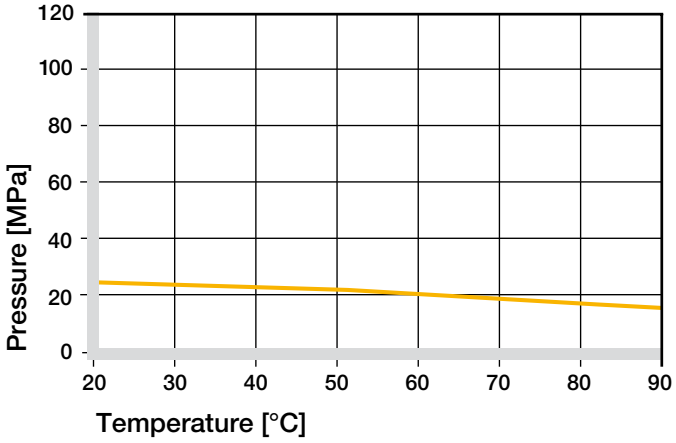


Graph 01: Permissible pv values for iglidur® J200 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® J200 | Technical Data

Mechanical Properties

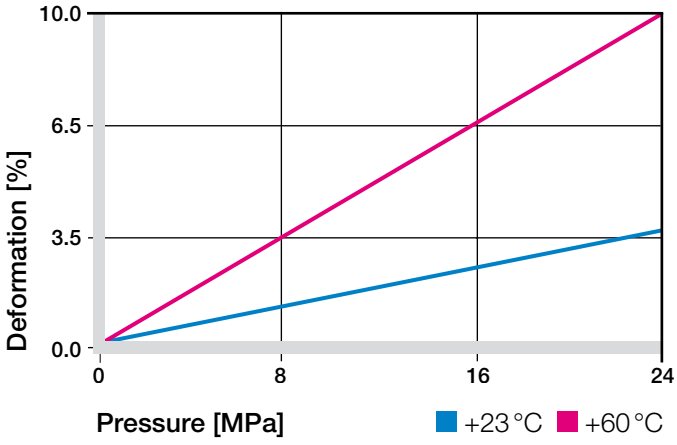
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® J200 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90° C the permissible surface pressure is almost 15 MPa.



Graph 02: Recommended maximum surface pressure of a function of temperature (23 MPa at +20 °C)

Graph 03 shows the deformation of the material at room temperature to the recommended maximum limit. At the recommended maximum surface pressure of 23 MPa the deformation is less than 3,5 %. A plastic deformation can be neglected up to this value. It is nonetheless depending on the duration of the applied force.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® J200 attains high surface speeds through its excellent coefficients of friction. Continuous rotary speeds of 1 m/s are possible. The permitted speeds are clearly higher yet in linear movements or in short-term operation. Speeds of over 15 m/s were successfully tested in linear movements.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	10
Short term	1.5	1.1	15

Table 02: Maximum running speed

Temperatures

The bearings made of iglidur® J200 were not developed for high temperatures. The maximum permitted temperature of +120 °C should not be exceeded. Thereby the ambient temperature generated by friction has to be added. From +60 °C onward, the bearing should be mechanically fastened, so that the danger of bushings creeping out of the bores is avoided. The wear resistance too declines disproportionately from +70 °C.

▶ Application Temperatures, **page 46**

iglidur® J200	Application temperature
Minimum	–50 °C
Max. long term	+90 °C
Max. short term	+120 °C
Add. securing is required from	+60 °C

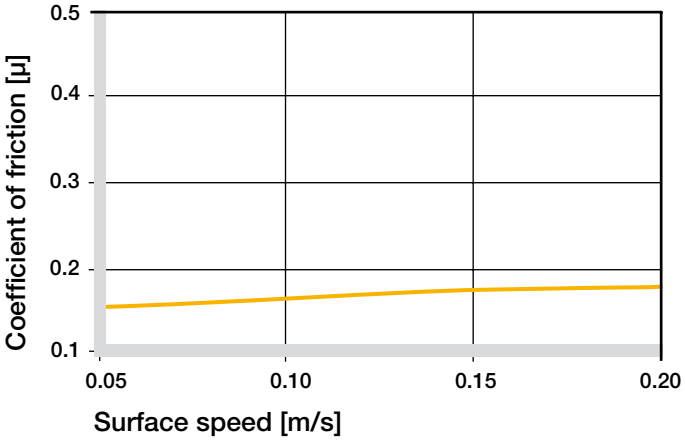
Table 03: Temperature limits

Friction and Wear

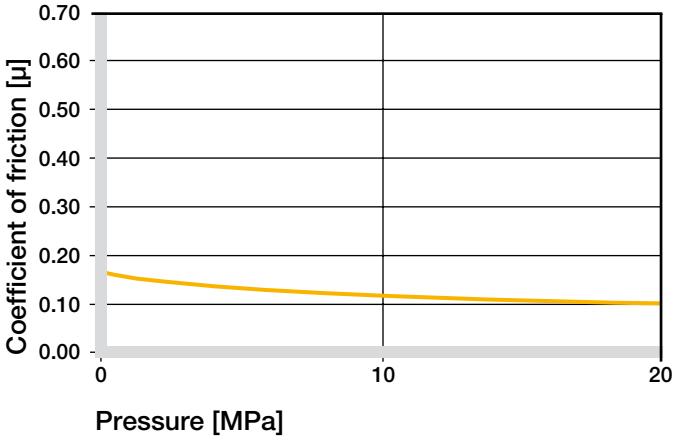
iglidur® J200 is the result of the development of extremely low friction plain bearing materials. When using plain bearings in linear motion, friction can be critical. Many materials can give low coefficients of friction under high loads, but iglidur® J200 can give excellent friction values even at low loads. iglidur® J200 presents the lowest coefficients of friction of all iglidur® materials. The average coefficient of friction of all measurements, even with different shaft materials, is 0.11. The use of hard anodized aluminum as a shaft material is also of importance.

The comparison to the other iglidur® materials reveals that iglidur® J200 plain bearings are more suitable for lower loads. The influence of sliding speed and load on the wear is small. The chenge of the coefficient of friction at high loads is in the normal range (graph. 04 and 05). The optimum shaft roughness is between 0.2 and 0.4 µm Ra. The influence of the shaft material on the wear performanvce on the other hand is significant. Even at low loads, we recommend to have a closer look into the wear database.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

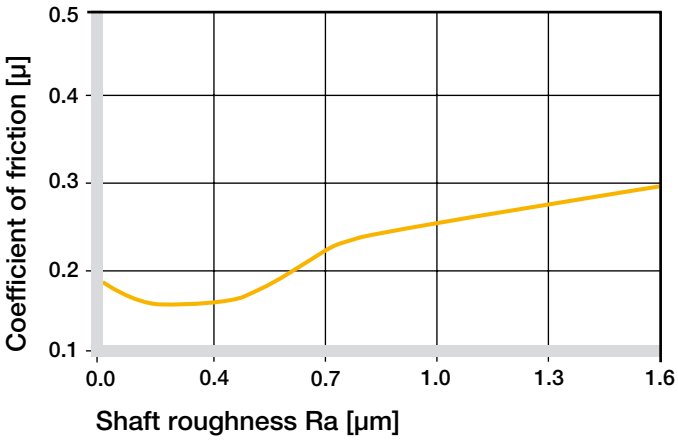


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

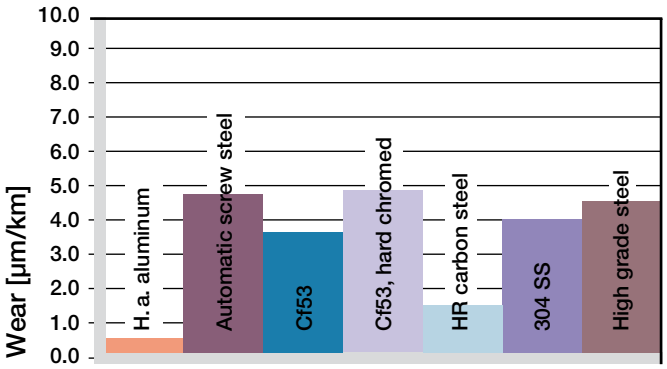
Shaft Materials

The shaft material used has a great impact on the wear resistance. In fact, all shaft materials (smooth or hardened) are suitable for use with iglidur® J200, but the best results are achieved with hard anodized aluminum. In particular when used in linear motion, this running surface has proven its value.

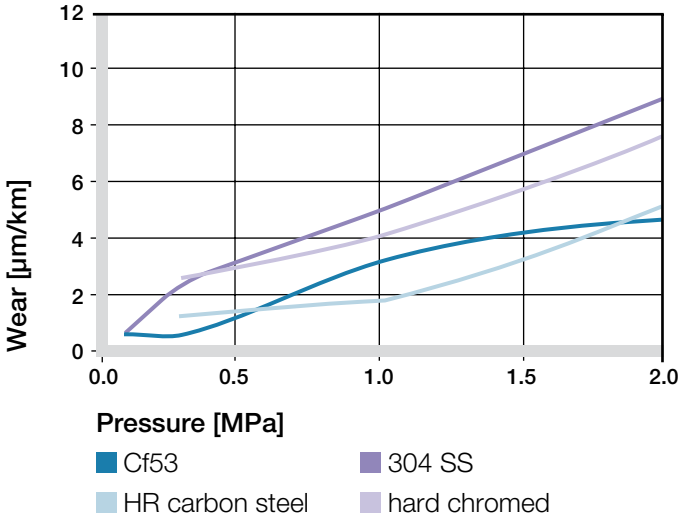
▶ Shaft Materials, **page 51**



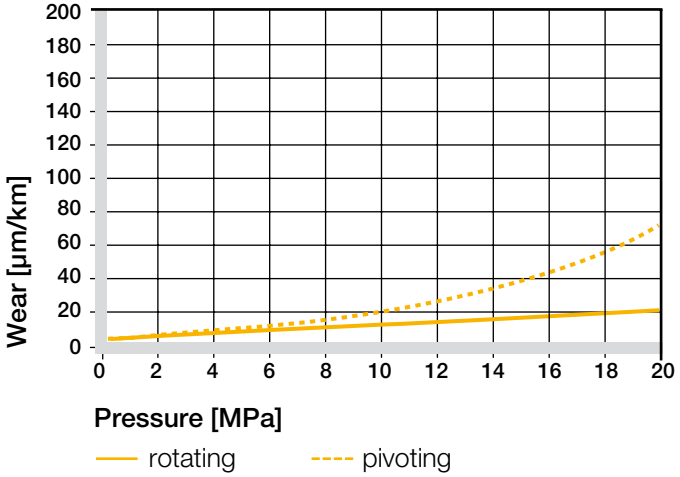
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for pivoting and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® J200	Dry	Greases	Oil	Water
C. o. f. µ	0,11–0,17	0,09	0,04	0,04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® J200 plain bearings are resistant to diluted alkalines, as well as to solvents and all types of lubricants.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made of iglidur® J200 are radiation resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® J200 plain bearings are very resistant to the impact of UV radiation.

Vacuum

Use in a vacuum is only possible to a limited extent. Also, only dehumidified bearings made from iglidur® J200 should be tested in a vacuum.

Electrical Properties

iglidur® J200 plain bearings are electrically insulating.

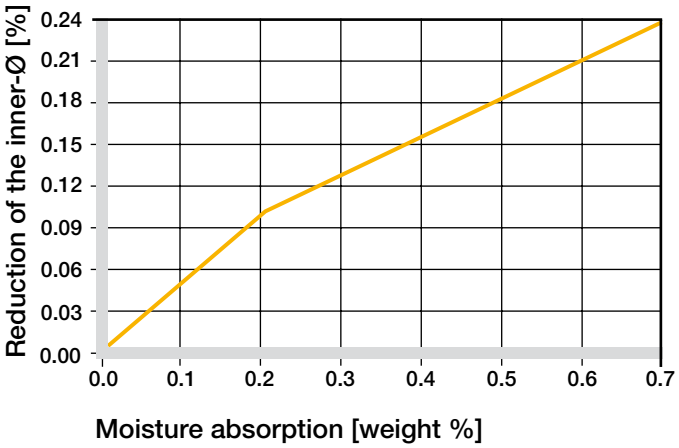
Volume resistance	$> 10^8$ Ωcm
Surface resistance	$> 10^8$ Ω

Moisture Absorption

The moisture absorption of iglidur® J200 plain bearings in standard atmosphere is approximately 0.2 %. The saturation limit in water is 0.7 %. Due to these low values considering expansion by moisture absorption is only required in extreme cases.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.2 % weight
Max. moisture absorption	0.7 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® J200 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® J200 E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Product Range

At present, iglidur® J200 plain bearings are made to special order.

iglidur® Specialists | High Temperatures

iglidur® V400

high chemical- and temperature resistance

Standard range from stock ▶ **from page 279**

iglidur® X6 NEW!*

runs up to six times longer than iglidur® X

Standard range from stock ▶ **from page 289**

iglidur® Z

wear-resistant at high loads and high temperatures

Standard range from stock ▶ **from page 299**

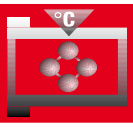
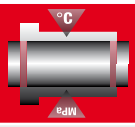
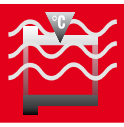
iglidur® UW500

for use in hot liquids

On request ▶ **from page 313**

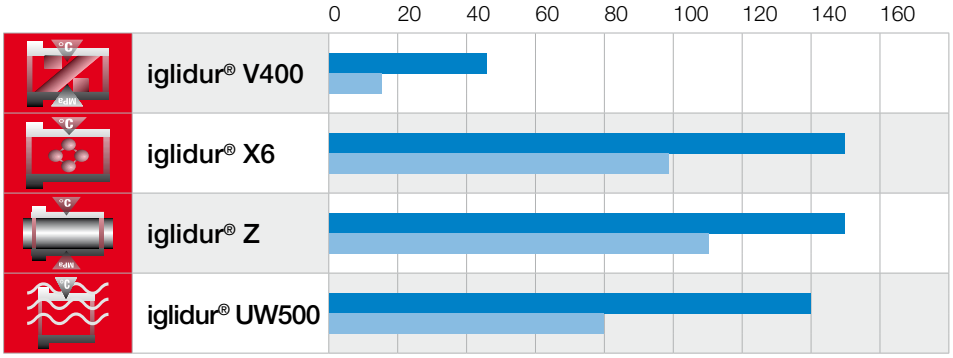
*** in this catalog**

iglidur® Specialists | Selection According to Main Criteria

iglidur®-Specialists – High Temperatures				
	iglidur® V400	iglidur® X6	iglidur® Z	iglidur® UW500
Long life dry running	●	●	●	
For high loads		●	●	
For high temperatures	●	●	●	●
Low friction/high speed	●	●	●	
Dirt resistant				
Chemicals resistant	●	●	●	●
Low water absorption	●	●	●	●
Food-suitable				
Vibration-dampening				
Egde pressure	●		●	
For under water use				●
Cost-effective				
from page	279	289	299	313

iglidur® Specialists | Selection According to Main Criteria

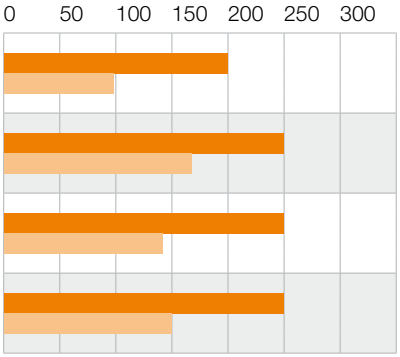
Load [MPa]



Maximum permissible radial load of iglidur® bearings at

- +20 °C
- +120 °C

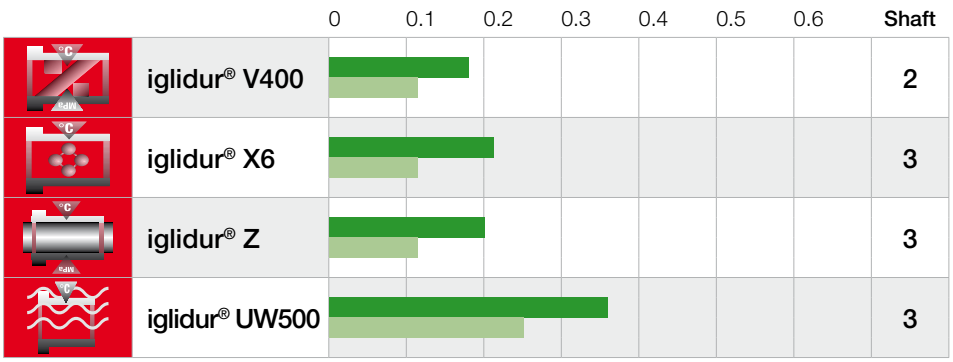
Temperature [°C]



Important temperatur limits of iglidur® bearings

- Maximum permissible application temperature, continous
- Temperature where bearings need to be secured against radial or axial movement in the housing

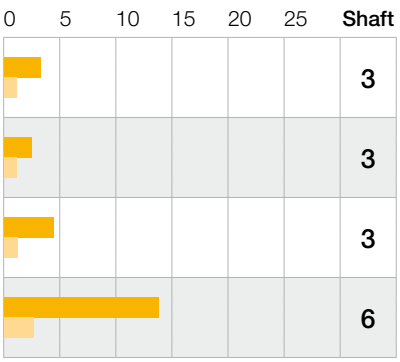
Coefficient of Friction [µ]



Coefficients of friction of iglidur® bearings sliding against steel, p = 1.2 MPa, v = 0.3 m/s

- Average coefficient of all the seven sliding combinations tested
- Coefficient of friction of best combination

Wear [µm/km]



Wear of iglidur® bearings sliding against steel, p = 1 MPa

- Average wear of all the seven sliding combination tested
- Wear of best combination

Shaft material:

1 = Cf53
2 = hard chromed
3 = Aluminum, hc
4 = Automatic screw steel
5 = HR carbon steel
6 = 304 SS
7 = High grade steel

Material data

General properties	Unit	iglidur® V400	iglidur® X6	iglidur® Z	iglidur® UW500
Density	g/cm³	1.51	1.53	1.40	1.49
Colour		white	anthracite blue	brown	black
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	0.1	0.3	0.1
Max. moisture absorption	% weight	0.2	0.5	1.1	0.5
Coefficient of sliding friction. dynamic against steel	µ	0.15–0.20	0.09–0.25	0.06–0.14	0.20–0.36
pv value. max. (dry)	MPa · m/s	0.5	1.35	0.84	0.35
Mechanical properties					
Modulus of elasticity	MPa	4,500	16,000	2,400	16,000
Tensile strength at +20 °C	MPa	95	290	95	260
Compressive strength	MPa	47	190	65	140
Max. recommended surface pressure (+20 °C)	MPa	45	150	150	140
Shore D hardness		74	89	81	86
Physical and thermal properties					
Max. long term application temperature	°C	+200	+250	+250	+250
Max. short term application temperature	°C	+240	+315	+310	+300
Min. application temperature	°C	–50	–100	–100	–100
Thermal conductivity	W/m · K	0.24	0.55	0.62	0.60
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	3	n.b.	4	4
Electrical properties					
Specific volume resistance	Ωcm	> 10^{12}	< 10^{5}	> 10^{11}	< 10^{9}
Surface resistance	Ω	> 10^{12}	< 10^{5}	> 10^{11}	< 10^{9}

Material resistance (at +20 °C)

Chemical resistance	iglidur® V400	iglidur® X6	iglidur® Z	iglidur® UW500
Alcohol	+	+	0	+
Hydrocarbons	+	+	+	+
Greases, oils without additives	+	+	+	+
Fuels	+	+	+	+
Diluted acids	+	+	+	+
Strong acids	+	+	–	+
Diluted alkalines	+	+	+	+
Strong alkalines	–	+	–	+
Radiation resistance [Gy] to	$2 \cdot 10^{4}$	$2 \cdot 10^{5}$	$1 \cdot 10^{5}$	$1 \cdot 10^{5}$

+ resistant 0 conditionally resistant – not resistant

My Sketches

iglidur® V400 – high chemical- and temperature resistance

- Standard range from stock
- Excellent wear resistance with soft shaft materials and for temperatures up to +200 °C
- Good chemical resistance
- High elasticity

iglidur® V400

High chemical- and temperature resistance. Highly wear-resistant bearing for soft shafts and temperatures up to +200 °C with low moisture absorption and excellent resistance to chemicals.

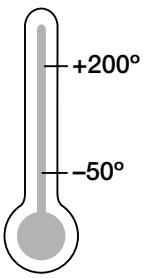
When to use it?

- When extreme wear resistance is required with soft shafts
- For applications at temperatures higher than +100 °C
- When vibrations and edge pressure are present
- When the bearing should be resistant to chemicals

When not to use it?

- For hardened shafts
  ▶ **iglidur® W300, page 131**
- For applications at normal temperatures
  ▶ **iglidur® G, page 61**
  ▶ **iglidur® J, page 89**
  ▶ **iglidur® W300, page 131**
- When a cost-effective universal bearing is required
  ▶ **iglidur® G, page 61**

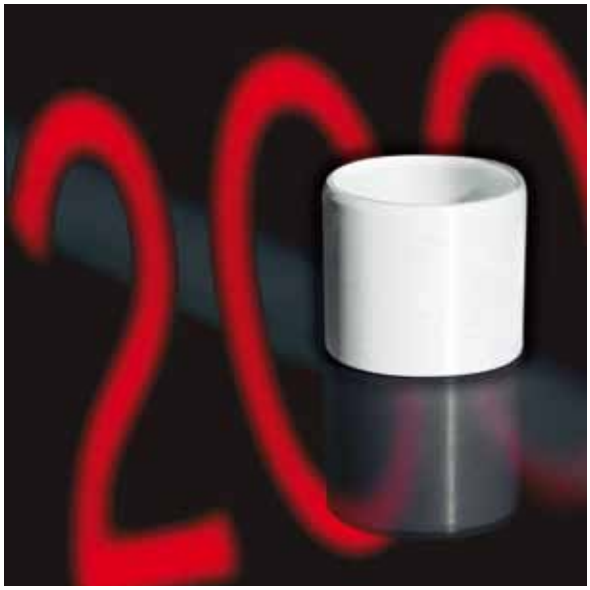
Temperature



Product range

2 types
Ø 6–20 mm
more dimensions
on request

iglidur® V400 | Application Examples



Typical sectors of industry and application areas

● Plant construction ● Automotive
● Automation ● Aerospace engineering
● Mechatronics etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

▶ www.igus.co.uk/blown-film-line

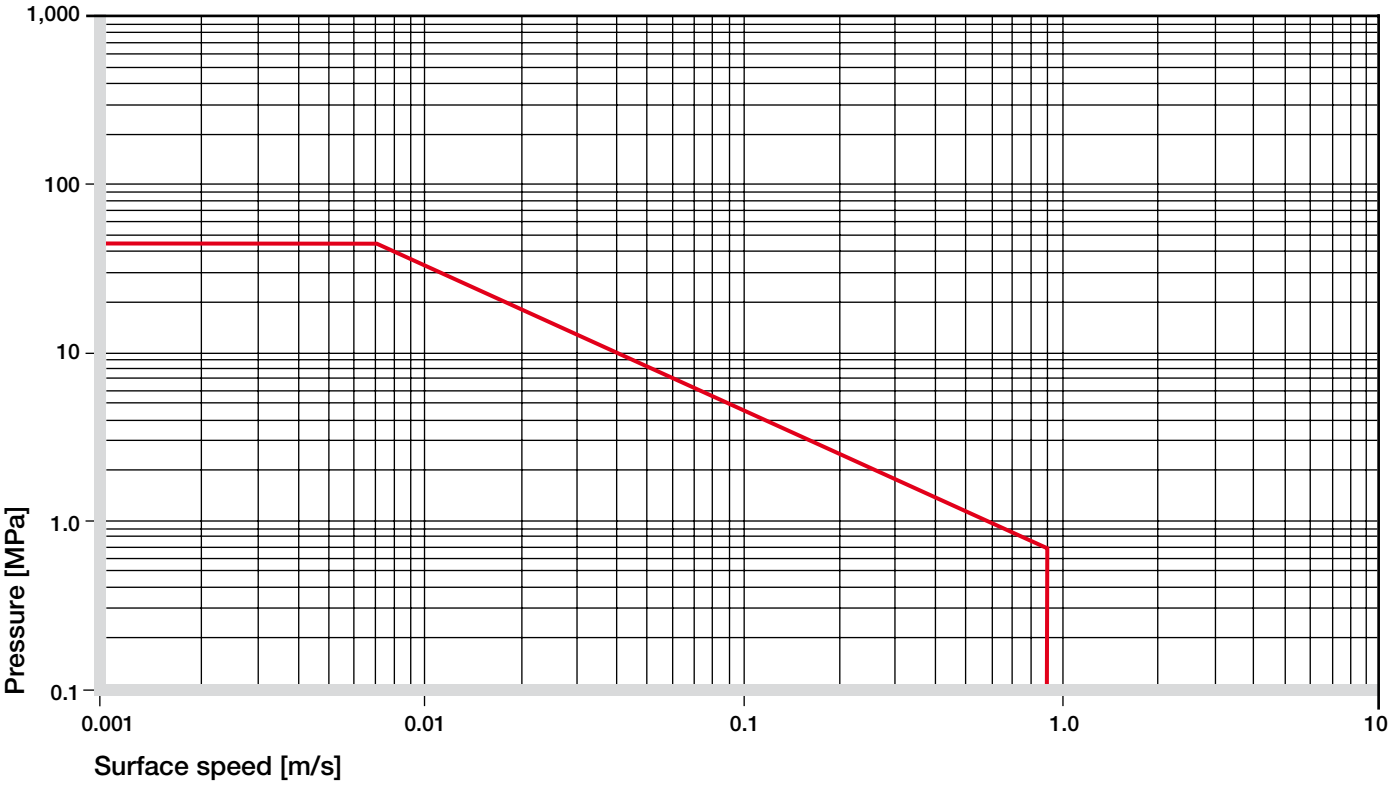
iglidur® V400 | Technical Data

Material data

General properties	Unit	iglidur® V400	Testing method
Density	g/cm³	1.51	
Colour		white	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.2	
Coefficient of sliding friction, dynamic against steel	µ	0.15–0.20	
pv value, max. (dry)	MPa · m/s	0.50	
Mechanical properties			
Modulus of elasticity	MPa	4,500	DIN 53457
Tensile strength at +20 °C	MPa	95	DIN 53452
Compressive strength	MPa	47	
Max. recommended surface pressure (+20 °C)	MPa	45	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+200	
Max. short term application temperature	°C	+240	
Max. ambient temperature, short term[1)]	°C	+250	
Min. application temperature	°C	–50	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	3	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	$< 10^{12}$	DIN IEC 93
Surface resistance	Ω	$< 10^{12}$	DIN 53482

[1)] Without additional load; no sliding movement; relaxation possible

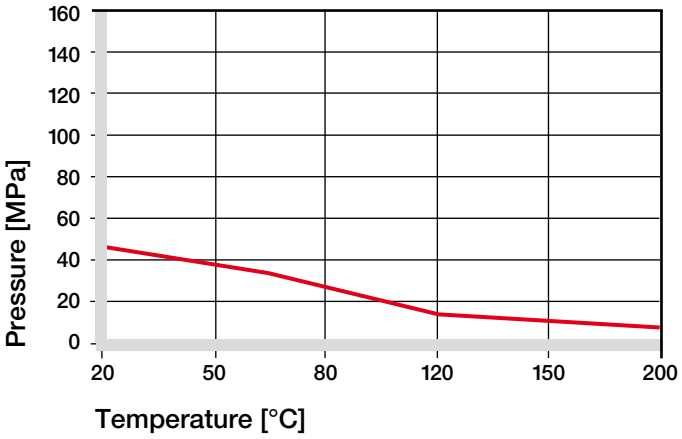
Table 01: Material data



Graph 01: Permissible pv values for iglidur® V400 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

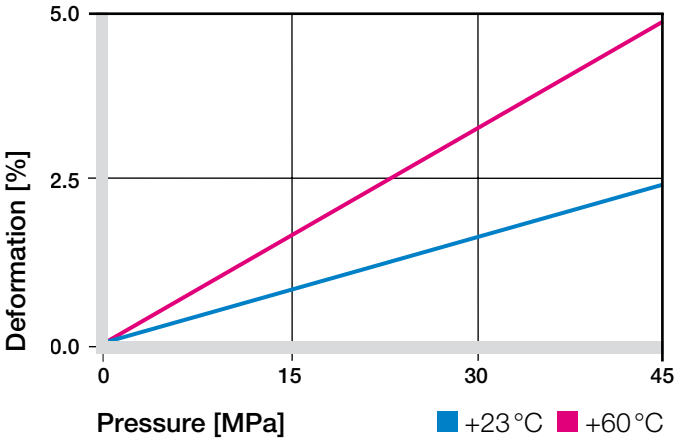
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® V400 plain bearings decreases. The Graph 02 shows this inverserelationship. However, at the longterm maximum temperature of +200 °C the permissible surface pressure is almost 10 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (40 MPa at +20 °C)

iglidur® V400 bearings are not suitable for high pressures or static high loads. However they are characterized by a high wear resistance all the way up to the maximum recommended surface pressure. Moreover the limit of the permitted loads at +100 °C is still higher with 20 MPa. The high elasticity is seen also in Graph 03.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® V400 also permits high surface speeds due to the high temperature resistance. The very favorable coefficients of the bearing enable maximum surface speeds up to 1.3 m/s. Even higher are the permitted speeds for linear movement and 3 m/s can be attained on the short term.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.9	0.6	2
Short term	1.3	0.9	3

Table 02: Maximum running speed

Temperatures

The long-term maximum permissible application temperature is +200 °C, although at these temperatures the bearings have to be mechanically secured. Then, however, the wear resistance of the bearings is very good and adopts a leading position among all iglidur® materials. The compressive strength of iglidur® V400 plain bearings decreases with increasing temperatures. Graph 02 clarifies this connection.

▶ Application Temperatures, **page 46**

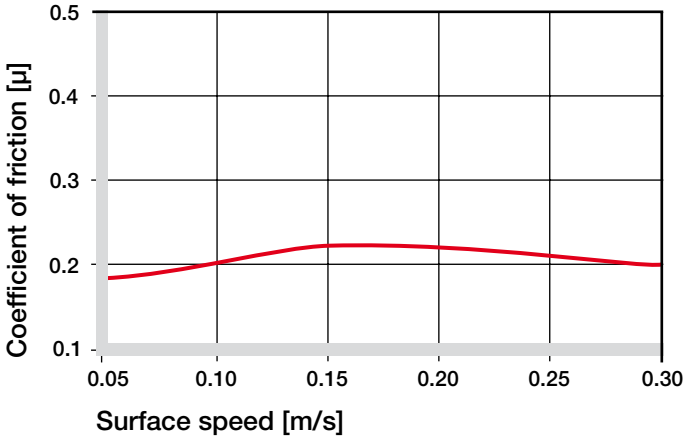
iglidur® V400	Application temperature
Minimum	–50 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+100 °C

Table 03: Temperature limits

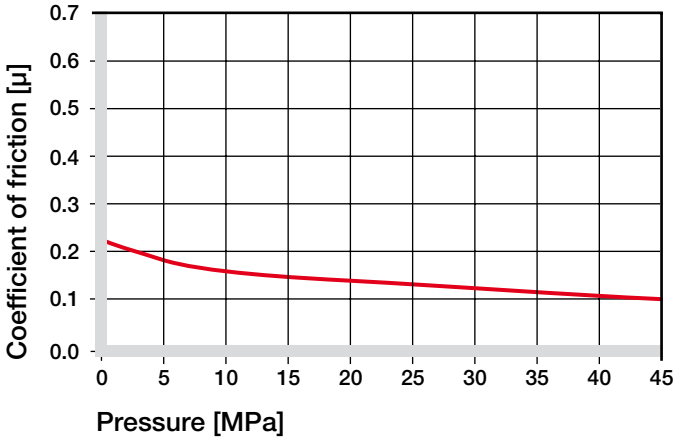
Friction and Wear

The coefficient of friction is dependent on the bearing's stressing capacity. When pv values exceed the permitted range, the bearings respond with a rise in coefficient of friction. As long as the loads are in the permitted range, the coefficient of friction of the bearing is very low. Furthermore, the coefficients of friction of iglidur® V400 are very constant. No other iglidur® bearing material exhibits a lower variance in the coefficients of friction, even when the shaft material is altered.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

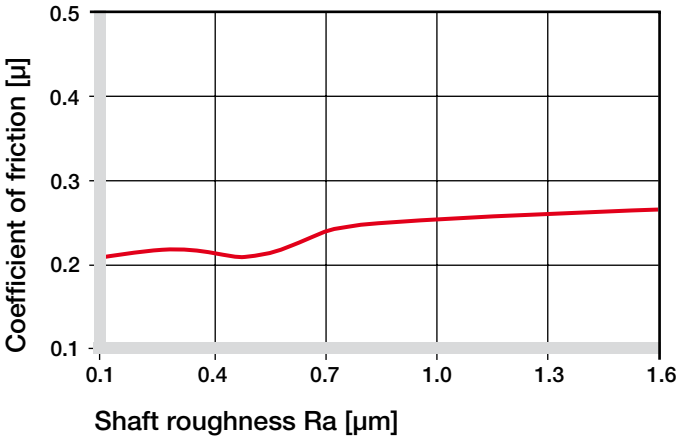


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

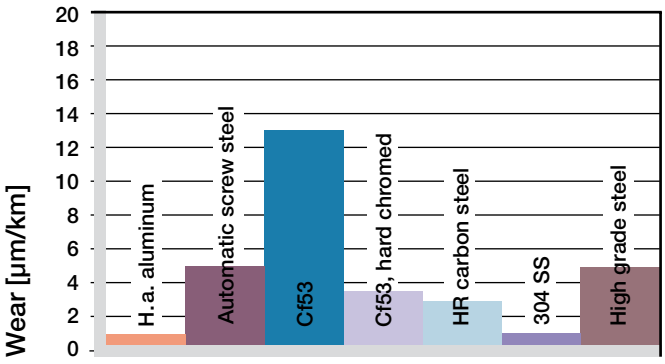
Shaft Materials

Greater is the influence on wear resistance. Here already at low loads (0.75 MPa) there could be significant variations, as Graph 07 shows.
iglidur® V400 is a material which clearly shows better wear performance in rotating than in oscillating applications.

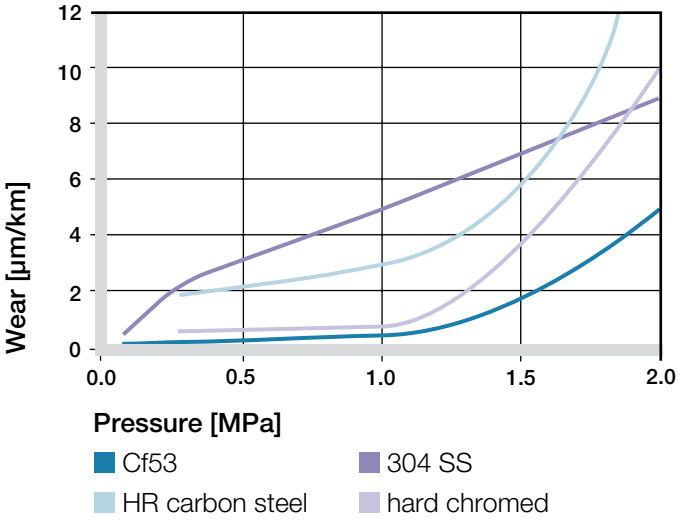
▶ Shaft Materials, **page 51**



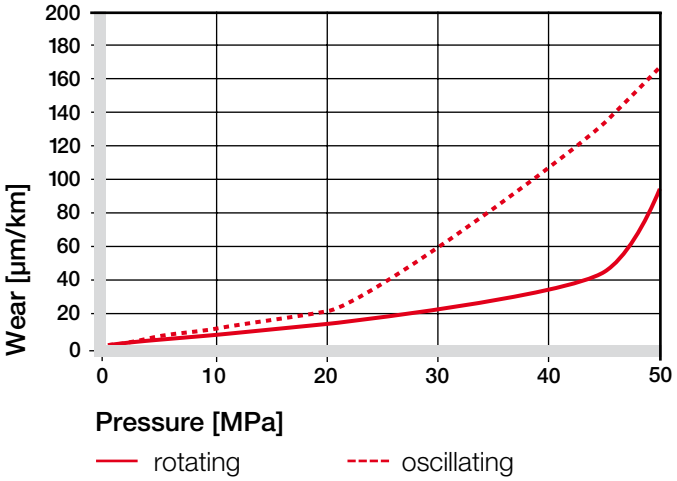
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® V400	Dry	Greases	Oil	Water
C. o. f. µ	0.15–0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® V400 plain bearings feature good chemical resistance. They are resistant to detergents, greases, oils, alcohol, solvents, diluted bases, as well as to diluted acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	+
Diluted alkalines	+
Strong alkalines	–

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings of iglidur® V400 are resistant to a radiation intensity of $2 \cdot 10^4$ Gy. Higher radiation affects the material and can result in a loss of important mechanical characteristics.

UV Resistance

iglidur® V400 plain bearings are resistant to UV radiation to a large extent.

Vakuum

In the vacuum, iglidur® V400 plain bearings can only be used to a limited extent. Outgassing takes place.

Electrical Properties

iglidur® V400 plain bearings are electrically insulating.

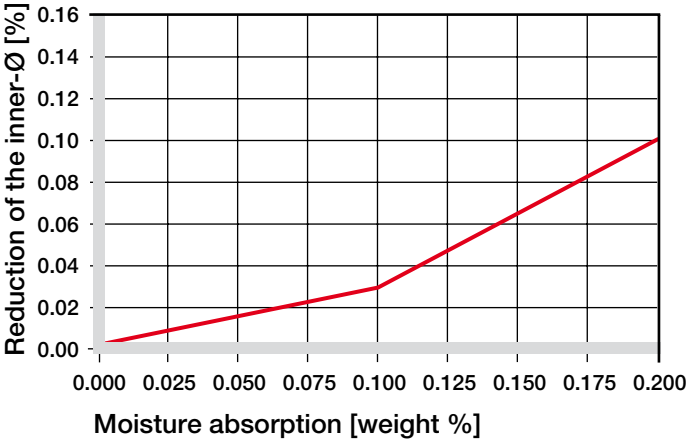
Volume resistance	$> 10^{12}$ Ωcm
Surface resistance	$> 10^{12}$ Ω 10

Moisture Absorption

The moisture absorption of iglidur® V400 plain bearings is only 0.2 % after saturation in water.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. moisture absorption	0.2 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® V400 plain bearings are standard bearings for shafts with h tolerance (h9 recommended at least).
The bearings are designed for pressfit into a housing with a H7 tolerance. After being assembled into a nominal size housing, the inner diameter of the bearings is automatically adjusted to F10 tolerance.

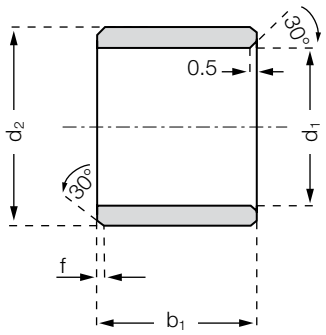
▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® V400 | Product Range

Sleeve bearing



Order key

VSM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® V400

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

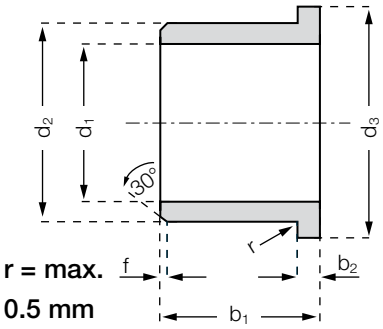
Part number	d1	d1-Tolerance*	d2	b1 h13
VSM-0608-06	6.0	+0.010 +0.058	8.0	6.0
VSM-0810-10	8.0	+0.013 +0.071	10.0	10.0
VSM-1012-10	10.0	+0.013 +0.071	12.0	10.0
VSM-1214-12	12.0	+0.016 +0.086	14.0	12.0
VSM-1618-15	16.0	+0.016 +0.086	18.0	15.0
VSM-2023-20	20.0	+0.020 +0.104	23.0	20.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/v400 | order example part number VSM-0608-06

iglidur® V400 | Product Range

Flange bearing



r = max. 0.5 mm

Order key

VFM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® V400

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

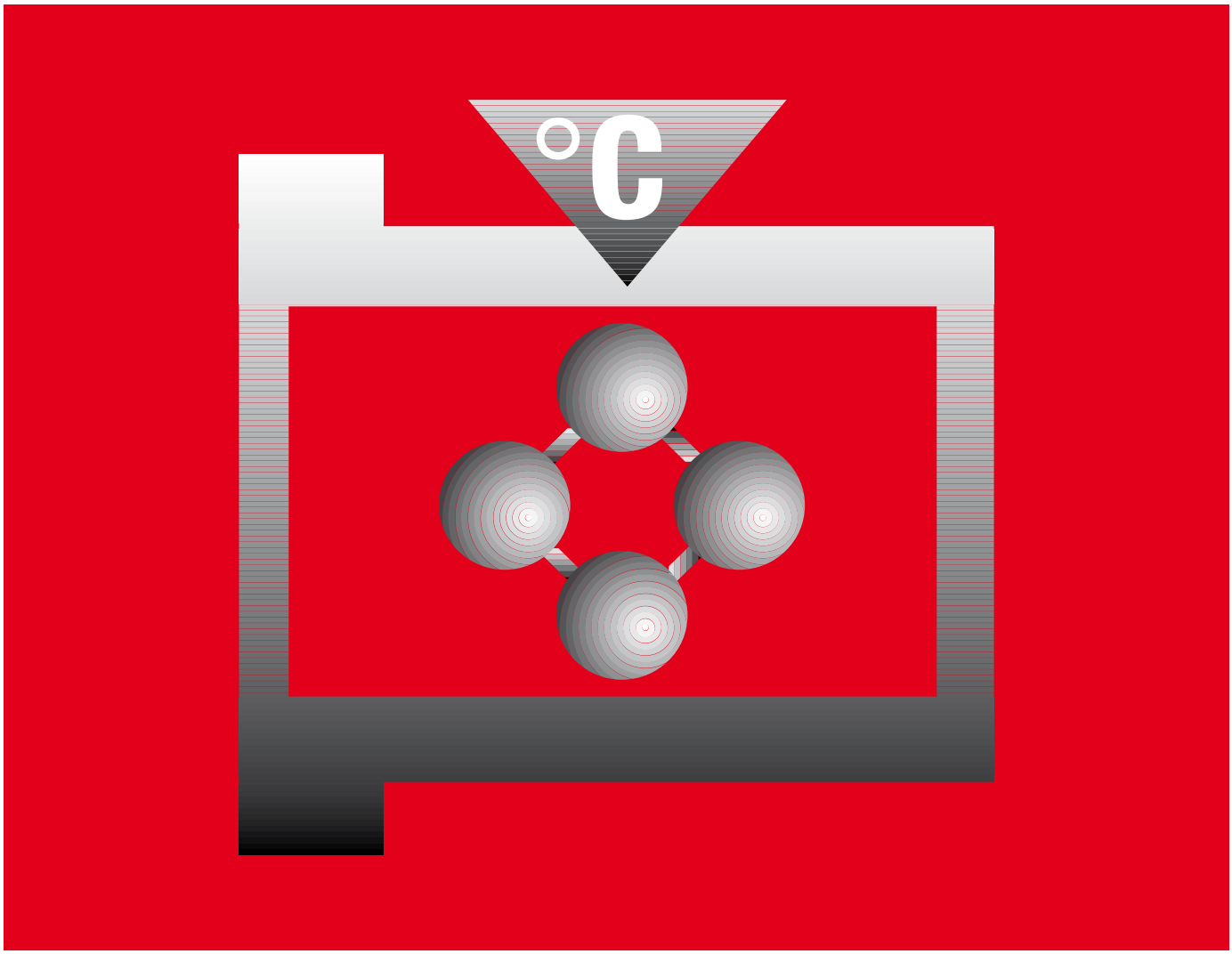
d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
VFM-0608-06	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
VFM-0810-10	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
VFM-1012-10	10.0	+0.013 +0.071	12.0	18.0	10.0	1.0
VFM-1214-12	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
VFM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
VFM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.5	1.5

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/v400 | order example part number VFM-0608-06



iglidur® X6 – runs up to six times longer than iglidur® X

- Standard range from stock
- Lubrication and maintenance-free
- Long term service temperature up to +250 °C
- Up to 50 % better press fit than iglidur® X
- High compressive strength
- Very good chemical resistance
- PTFE-free

NEW in this catalog!

iglidur® X6

Runs up to six times longer than iglidur® X. Due to nano-technology, iglidur® X6 shows up to six times better performance than iglidur® X in many oscillating and rotating applications – even at temperatures over +100 °C.

Lubrication and maintenance-free

Long term service temperature up to +250 °C

Up to 50 % better press fit than iglidur® X

High compressive strength

Very good chemical resistance

PTFE free

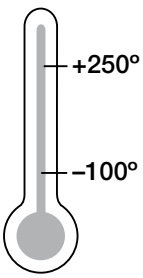
When to use it?

- If temperatures are higher than +150 °C
- When the wear performance of iglidur® X in oscillation and rotation is not sufficient.
- If the pressfit should be improved over iglidur® X
- If high media-resistance is required
- If you need a bearing which is free of PTFE

When not to use it?

- When you need a cost-effective universal bearing
  ▶ **iglidur® G, page 61**
- If you need a bearing for underwater use
  ▶ **iglidur® UW500, page 313**
  ▶ **iglidur® H370, page 347**
- When a wear-resistant high temperature bearing for linear movements is needed.
  ▶ **iglidur® Z, page 299**

Temperature



Product range

2 types
Ø 3–40 mm
more dimensions
on request

iglidur® X6 | Application Examples

Typical sectors of industry and application areas

- Glass industry
- Food industry
- Fluid technology
- Textile technology
- Machine building etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

▶ www.igus.co.uk/pies

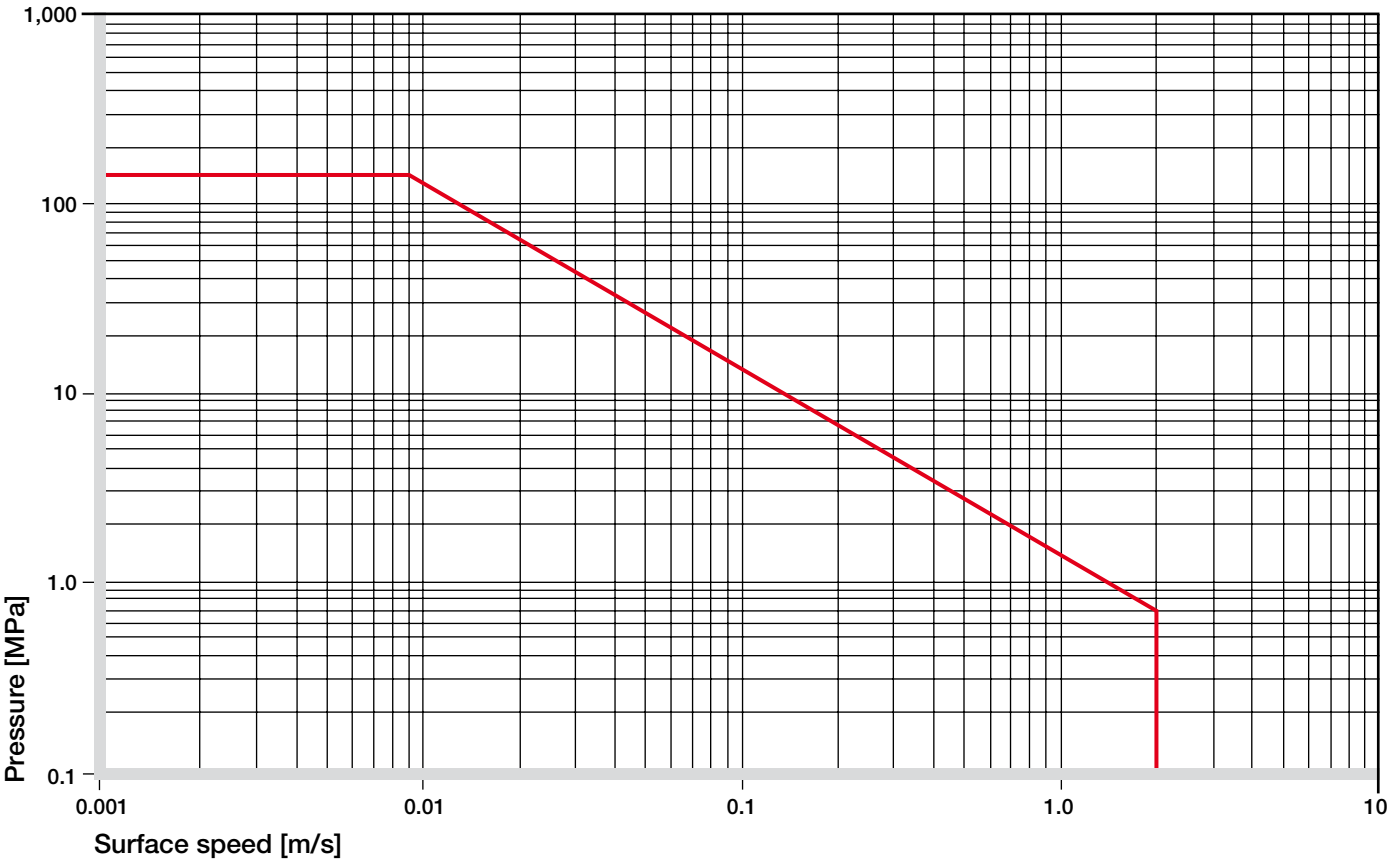
▶ www.igus.co.uk/baking-oven

iglidur® X6 | Technical Data

Material data

General properties	Unit	iglidur® X6	Testing method
Density	g/cm³	1.53	
Colour		anthracite blue/grey	
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of sliding friction, dynamic against steel	µ	0.09–0.25	
pv value, max. (dry)	MPa · m/s	1.35	
Mechanical properties			
Modulus of elasticity	MPa	16,000	DIN 53457
Tensile strength at +20 °C	MPa	290	DIN 53452
Compressive strength	MPa	190	
Max. recommended surface pressure (+20 °C)	MPa	150	
Shore D hardness		89	DIN 53505
Physical and thermal properties			
Max. long term application temperature	°C	+250	
Max. short term application temperature	°C	+315	
Min. application temperature	°C	–100	
Thermal conductivity	W/m · K	0.55	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	1	DIN 53752
Electrical properties			
Specific volume resistance	Ωcm	> 10^5	DIN IEC 93
Surface resistance	Ω	> 10^5	DIN 53482

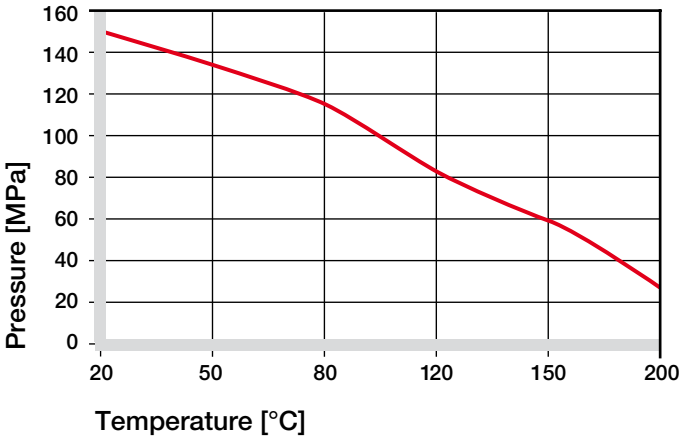
Table 01: Material data



Graph 01: Permissible pv values for iglidur® X6 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

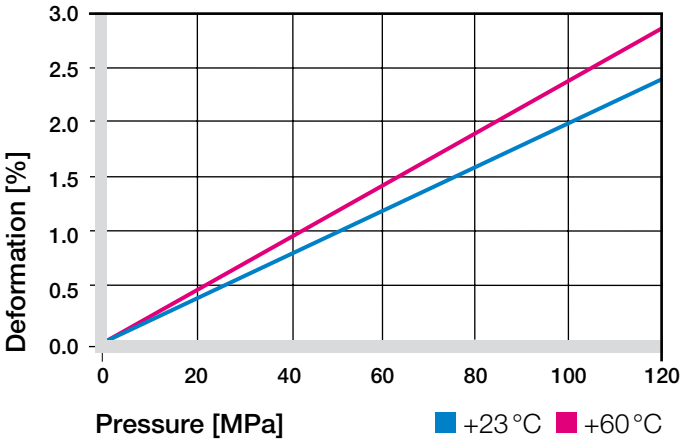
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® X6 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +250° C the permissible surface pressure is almost 90 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (150 MPa at +20 °C)

Graph 03 shows the elastic deformation of iglidur® X6 during radial loading. At the recommended maximum surface pressure of 2 MPa the deformation is less than 100 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

The high temperature resistance and good thermal conductivity values mean than iglidur® X6 is suitable for high speed applications. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached, due to varying application conditions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1.5	1.1	5
Short Term	3.5	2.5	10

Table 02: Maximum running speed

Temperatures

The ambient temperatures greatly influence the wear performance of plastic bearings. The temperature resistance of iglidur® X6 is among the highest in the iglidur® range. In many tests it has shown a six times higher wear performance compared to the established high-temperature specialist iglidur® X. Also, the temperature induced relaxation of the bearing in the housing bore is much lower so that iglidur X6 required additional axial securing only above +165 °C.

▶ Application Temperatures, **page 46**

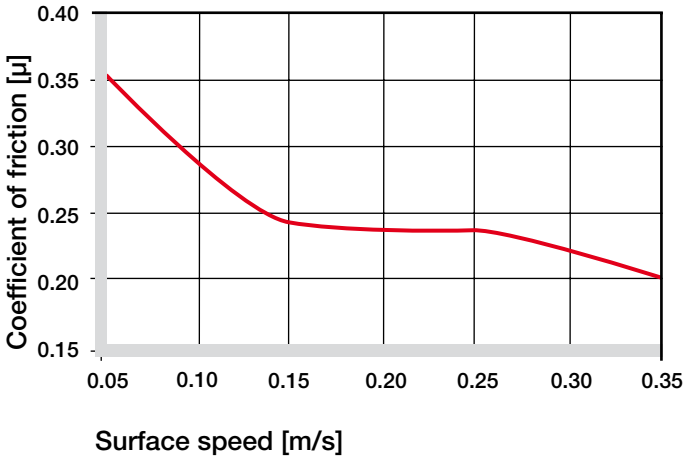
iglidur® X6	Application temperature
Minimum	–100 °C
Max. long term	+250 °C
Max. short term	+315 °C
Add. securing is required from	+165 °C

Table 03: Temperature limits

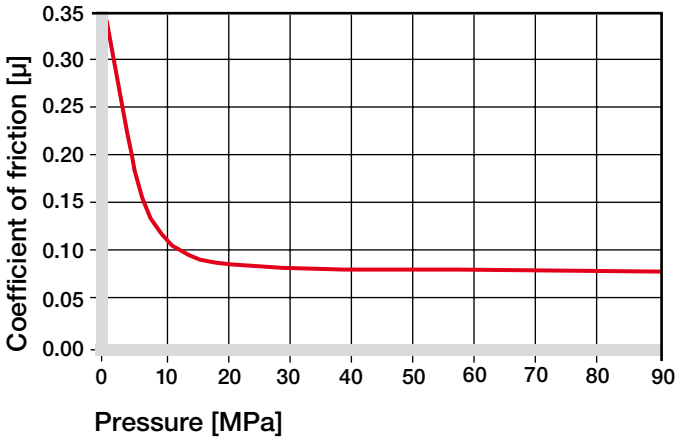
Friction and Wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction of iglidur® X6 declines with higher pressure and is practically constant for pressures above 30 Mpa. A higher speed of the shaft also results in a lower coefficient of friction (Graph. 04 and 05).

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

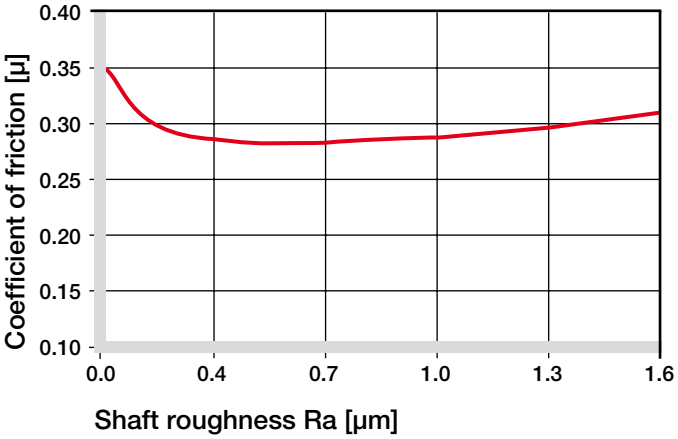
Shaft Materials

The friction and wear are also dependent, to a large degree, on the shaft material. Shafts that are too smooth, increase both the coefficient of friction and the wear of the bearing. The best case for iglidur® X6 is a ground surface with an average roughness Ra = 0.4–0.7 μm (Graph 06). Graphs 07 and 09 show results of testing different shaft materials with plain bearings made of iglidur® X6. In Graph 07 it shows that iglidur® X6 can be combined with various shaft materials.

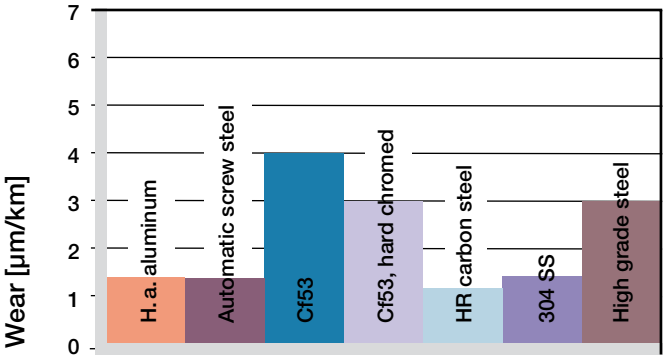
The best performance is achieved with the plain shaft materials free cutting steel and plain steel 1.0037. At higher loads, we recommend harder steel qualities. Non-hardened steel shafts can be worn by the bearing at pressures over 2 Mpa.

The wear database shows that iglidur® X6 is more suitable for rotating than for oscillating applications. If the shaft material you plan on using is not shown in these test results, please contact us.

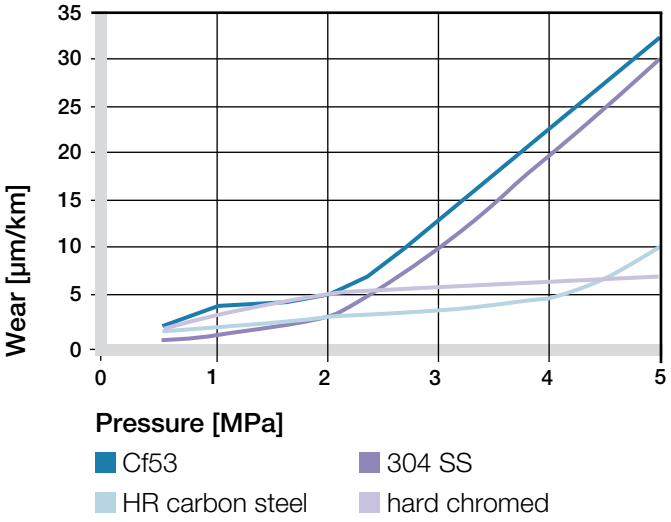
▶ Shaft Materials, **page 51**



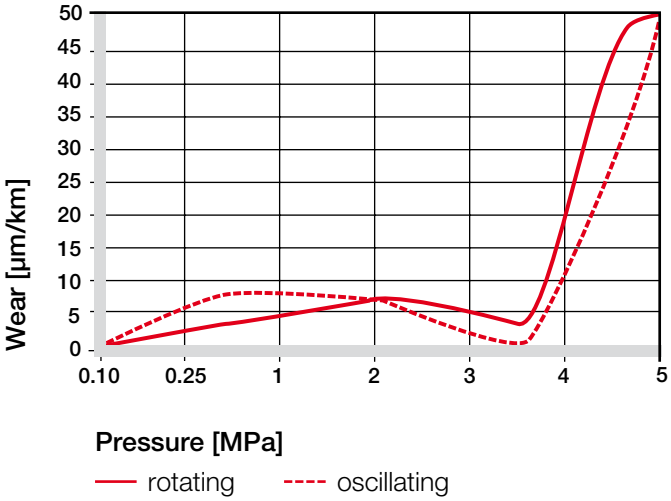
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® X6	Dry	Greases	Oil	Water
C.o.f. µ	0.08–0.15	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® X6 bearings have almost universal chemical resistance. They are affected only by concentrated nitric acid and sulphuric acid. Due to the low water absorbtion, the material can be used in humid environment without problems. iglidur® X6 is resistant to most typical detergents used in the food and packaging industries.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	+
Diluted alkalines	+
Strong alkalines	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Resistant to radiation up to an intensity of $2 \cdot 10^5$ Gy.

UV Resistance

Partly resistant against UV rays.

Vacuum

In a vacuum environment iglidur® X6 plain bearings can be used virtually without restrictions. Outgassing takes place to a very limited extent.

Electrical Properties

iglidur® X6 plain bearings are electrically insulating.

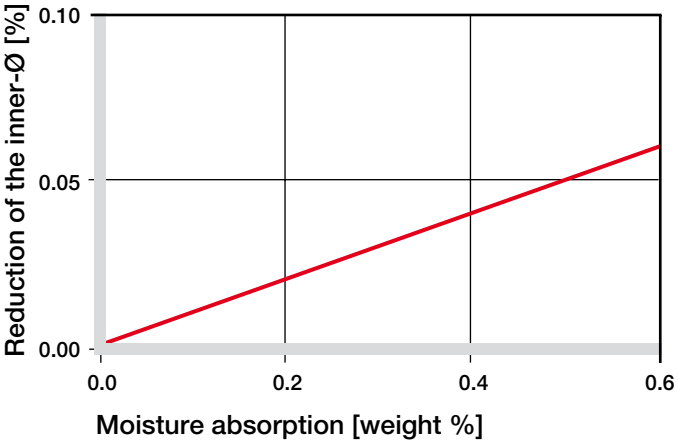
Volume resistance	$< 10^5$ Ωcm
Surface resistance	$< 10^5$ Ω

Moisture Absorption

The moisture absorption of iglidur® X6 plain bearings is approximately 0.1 % in the standard atmosphere. The saturation limit submerged in water is 0.5 %. These values are so low that the swelling only has to be considered in extreme applications.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. moisture absorption	0.5 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

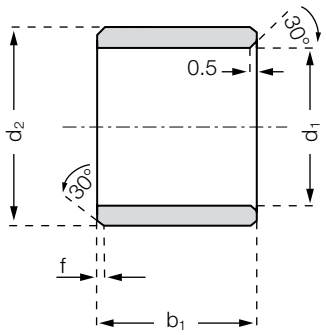
iglidur® X6 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® X6 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Sleeve bearing



Order key

X6SM-0304-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® X6

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

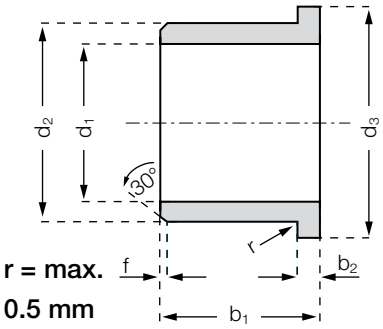
Part number	d1	Tolerance pressfitted in H7	d2	b1
X6SM-0304-03	3	+0.010 +0.058	4.5	3
X6SM-0507-05	5	+0.010 +0.058	7	5
X6SM-0608-06	6	+0.010 +0.058	8	6
X6SM-0810-10	8	+0.013 +0.071	10	10
X6SM-1012-10	10	+0.013 +0.071	12	10
X6SM-1214-12	12	+0.016 +0.086	14	12
X6SM-1618-15	16	+0.016 +0.086	18	15
X6SM-2023-20	20	+0.020 +0.104	23	20
X6SM-2528-30	25	+0.020 +0.104	28	30
X6SM-3034-30	30	+0.020 +0.104	34	30
X6SM-3539-40	35	+0.025 +0.125	39	40
X6SM-4044-40	40	+0.025 +0.125	44	40

delivery time available from stock | prices price list online www.igus.co.uk/en/x6 | order example part number X6SM-0304-03

NEW in this catalog!

iglidur® X6 | Product Range

Flange bearing



Order key

X6FM-0304-05

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® X6

Dimensions according to ISO 3547-1 and special dimensions

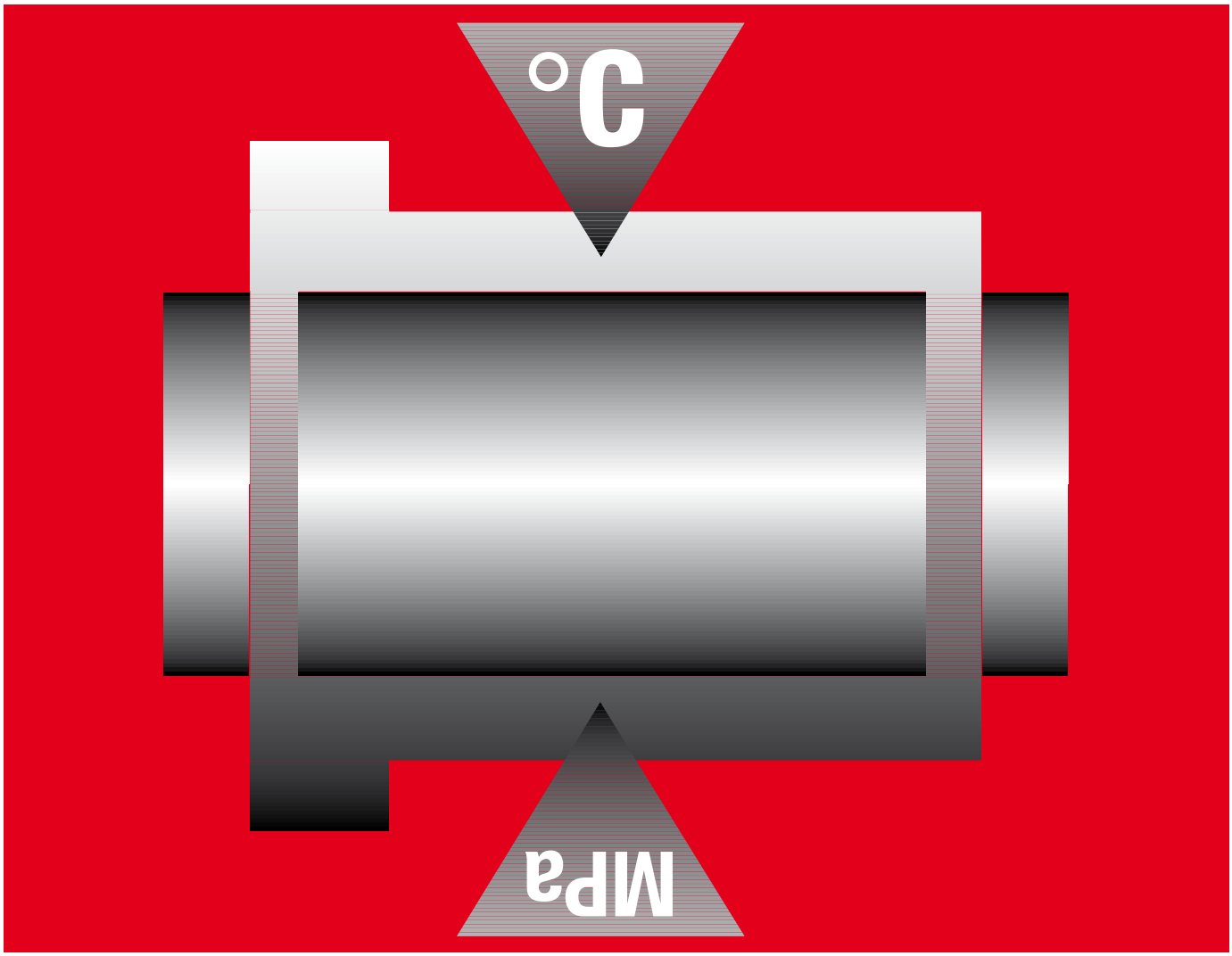
Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	Tolerance pressfitted in H7	d2	d3	b1	b2
X6FM-0304-05	3	+0.010 +0.058	4.5	7.5	5	0.75
X6FM-0507-05	5	+0.010 +0.058	7	11	5	1
X6FM-0608-06	6	+0.010 +0.058	8	12	6	1
X6FM-0810-10	8	+0.013 +0.071	10	15	10	1
X6FM-1012-10	10	+0.013 +0.071	12	18	10	1
X6FM-1214-12	12	+0.016 +0.086	14	20	12	1
X6FM-1618-17	16	+0.016 +0.086	18	24	17	1
X6FM-2023-21	20	+0.020 +0.104	23	30	21.5	1.5
X6FM-2528-21	25	+0.020 +0.104	28	35	21.5	1.5
X6FM-3034-40	30	+0.020 +0.104	34	42	40	2
X6FM-3539-26	35	+0.025 +0.125	39	47	26	2
X6FM-4044-40	40	+0.025 +0.125	44	52	40	2

delivery time available from stock | prices price list online www.igus.co.uk/en/x6 | order example part number X6FM-0304-05



iglidur® Z – wear-resistant at high loads and temperatures

- Standard range from stock
- Excellent wear resistance especially with high loads
- High thermal resistance
- For extreme loads
- For high surface speeds
- Resistant to edge loads

iglidur® Z

Wear-resistant at high loads and temperatures. Extremely high compressive strength coupled with high elasticity enables iglidur® Z bearings to attain their prominent features in association with soft shafts, edge loads and impacts. The bearings are at the same time suitable for temperatures up to +250 °C.

Excellent wear resistance especially with high loads

High thermal resistance

For extreme loads

For high surface speeds

Resistant to edge loads

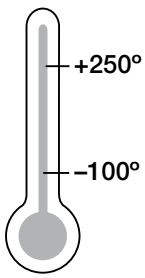
When to use it?

- For continuous temperatures up to +250 °C long term or +310 °C short term
- When high wear resistance is required especially under high radial loads
- For high surface speeds
- For edge loading in connection with high surface pressures

When not to use it?

- For low loads and temperatures
  ▶ **iglidur® P, page 185**
- When a cost-effective general purpose bearing is sought
  ▶ **iglidur® G, page 61**
- When electrically conductive bearings are needed
  ▶ **iglidur® F, page 439**
  ▶ **iglidur® H, page 325**
  ▶ **iglidur® H370, page 347**

Temperature



Product range

3 types
Ø 4–75 mm
more dimesions
on request

iglidur® Z | Application Examples

Typical sectors of industry and application areas

- Construction machinery
- Machine building ● Textile technology
- Aerospace engineering
- Glass industry etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

▶ **www.igus.co.uk/hip-jointsystem**

▶ **www.igus.co.uk/rollercoaster**

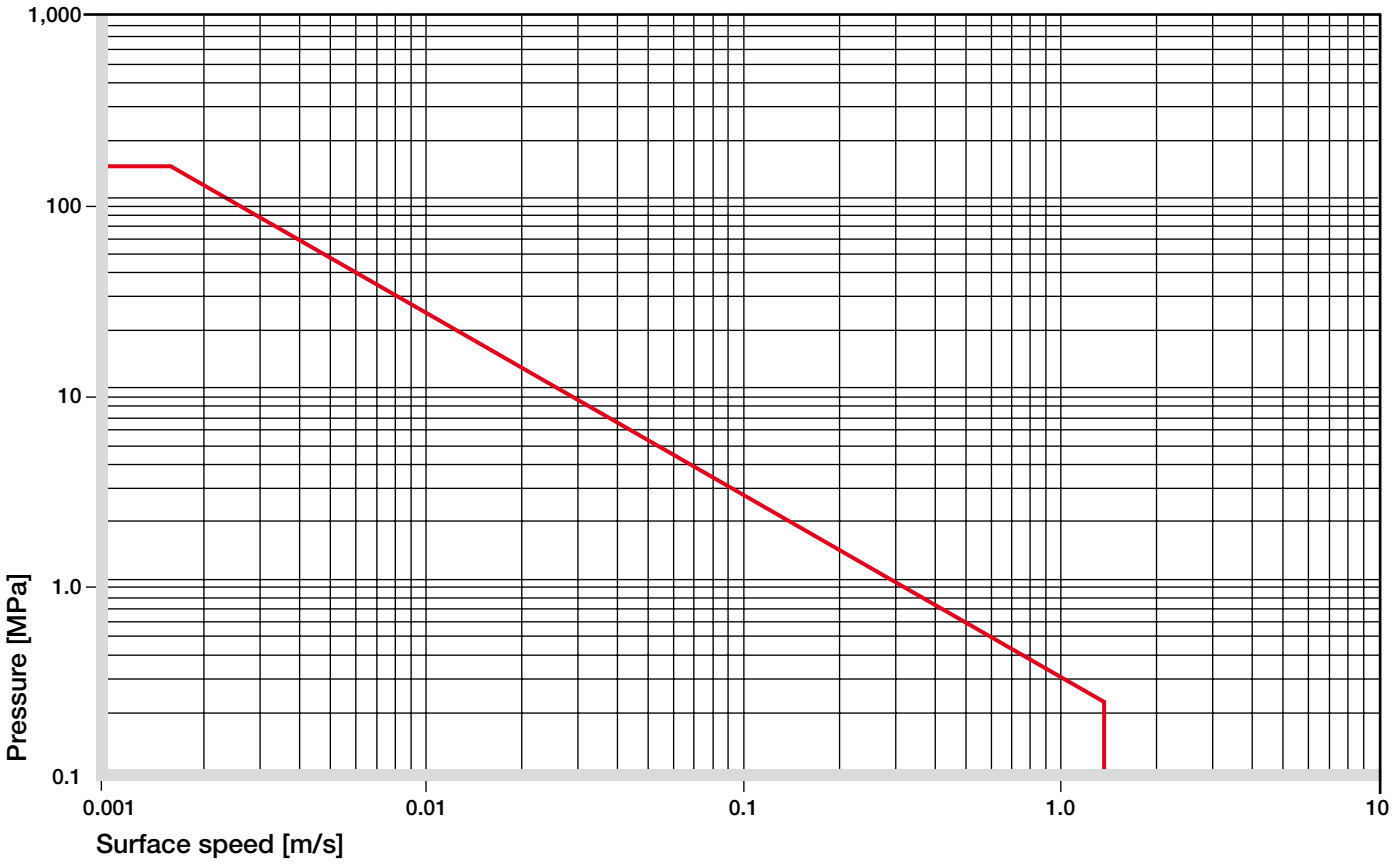
▶ **www.igus.co.uk/mooring-system**

▶ **www.igus.co.uk/railroad-platform**

iglidur® Z | Technical Data

Material data			
General Properties	**Unit**	**iglidur® Z**	**Testing method**
Density	**g/cm³**	1.40	
Colour		brown	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.3	DIN 53495
Max. moisture absorption	**% weight**	1.1	
Coefficient of sliding friction, dynamic against steel	**µ**	0.06–0.14	
pv value, max. (dry)	**MPa · m/s**	0.84	
Mechanical properties			
Modulus of elasticity	**MPa**	2,400	DIN 53457
Tensile strength at +20 °C	**MPa**	95	DIN 53452
Compressive strength	**MPa**	65	
Max. recommended surface pressure (+20 °C)	**MPa**	150	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+250	
Max. short term application temperature	**°C**	+310	
Min. application temperature	**°C**	–100	
Thermal conductivity	**W/m · K**	0.62	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	4	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{11}	DIN IEC 93
Surface resistance	**Ω**	> 10^{11}	DIN 53482

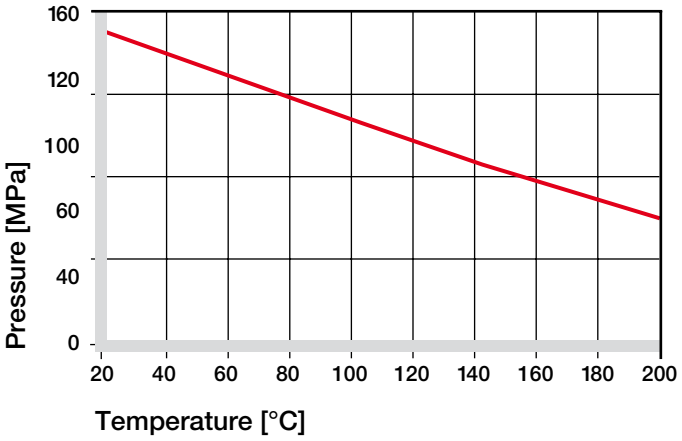
Table 01: Material data



Graph 01: Permissible pv values for iglidur® Z with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

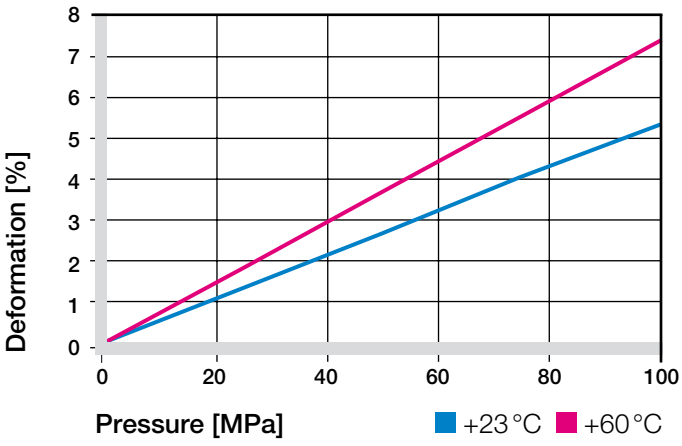
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® Z plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +60° C the permissible surface pressure is almost 200 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (150 MPa at +20 °C)

iglidur® Z is suited for both average and high speeds due to its high thermal resistance. Graph 03 shows the elastic deformation of iglidur® Z during radial loading. At the recommended maximum surface pressure of 150 MPa the deformation is ca. 5.5 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® Z is a high temperature bearing material, which is suited for applications with very high specific loads.
The maximum values shown in table 02 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this temperature level is rarely reached, due to varying application conditions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1.5	1.1	5
Short term	3.5	2.5	6

Table 02: Maximum running speed

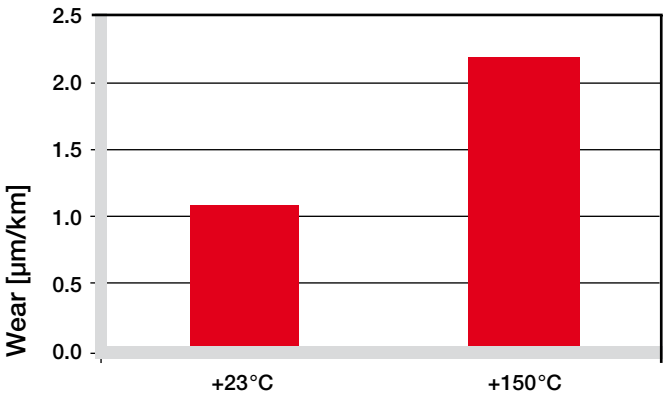
Temperatures

The maximum permissible short term temperature is +310 °C.This is among the highest thermal resistance of any iglidur® material. Abb. 02 shows this relationship.
The ambient temperatures in the bearing system also have an effect on the bearing wear. With increasing temperatures, the wear rate increases.
At high temperatures iglidur® Z is also the most wear resistant material when running dry.

▶ Application Temperatures, **page 46**

iglidur® Z	Application temperature
Minimum	–100 °C
Max. long term	+250 °C
Max. short term	+310 °C
Add. securing is required from	+145 °C

Table 03: Temperature limits



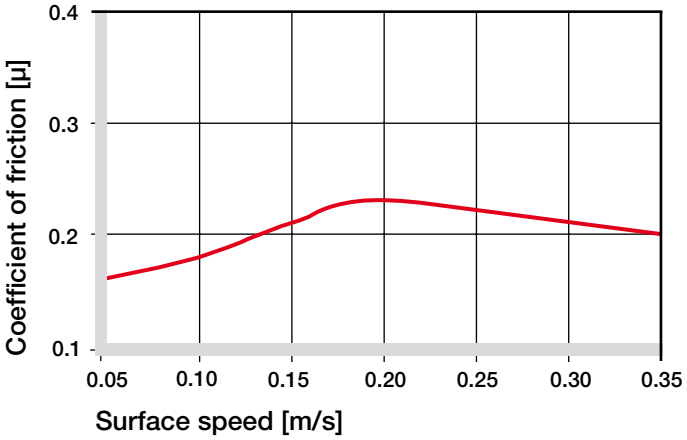
Graph 04: Wear as a function of temperature, rotation with p = 0.75 MPa, v = 0.5 m/s (CF53 hardened and ground steel)

Friction and Wear

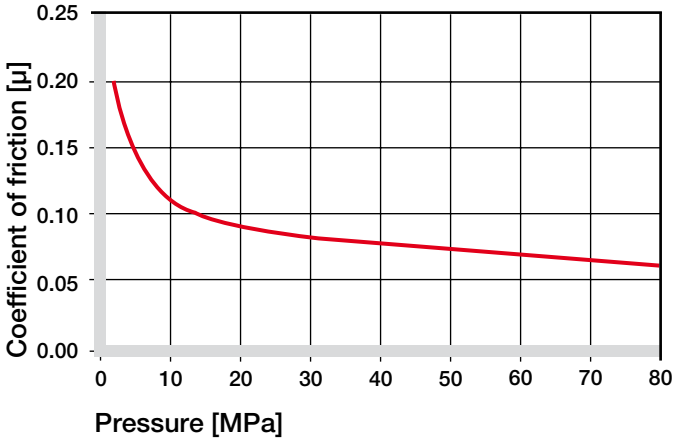
The coefficient of friction alters only slightly like the wear resistance with increasing load.

Friction and wear also depend to a high degree on the reverse partner. Very smooth shafts increase the coefficient of both friction and wear. iglidur® Z proves to be relatively insensitive with regard to the shaft surface. The best suited is a smoothed surface with an average surface finish coefficient of friction 0.4 to 0.7 µm, if the friction should be minimized.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 05: Coefficient of friction as a function of the running speed, p = 0.75 MPa



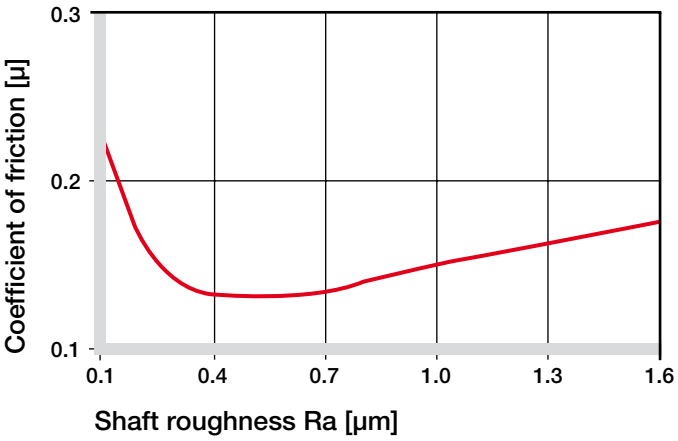
Graph 06: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

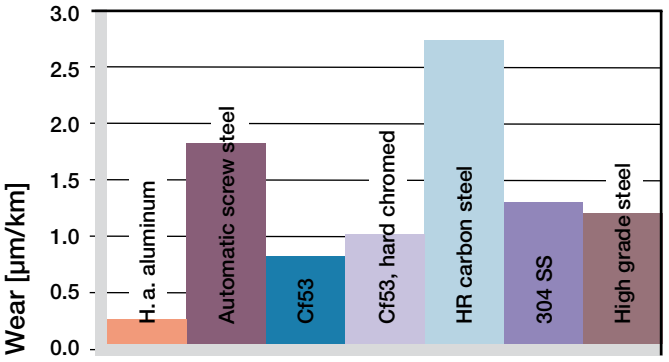
Graphs 08-11 show wear rates in the lower load range, which are very similar to those of other wear-resistant iglidur® materials. However, in the upper load range iglidur® Z outperforms all other materials in wear resistance. Provided a Cf53 hardened and ground steel shaft is used, the wear is at 45 MPa still only 15 µm/km.

For low loads iglidur® Z plain bearings war less in oscillating operation than in rotation. 303 Stainless Steel and hard chromed shaft are of interest here. With higher loads the behavior reverses, but even with 100 MPa, iglidur® Z attains excellent coefficients of wear.

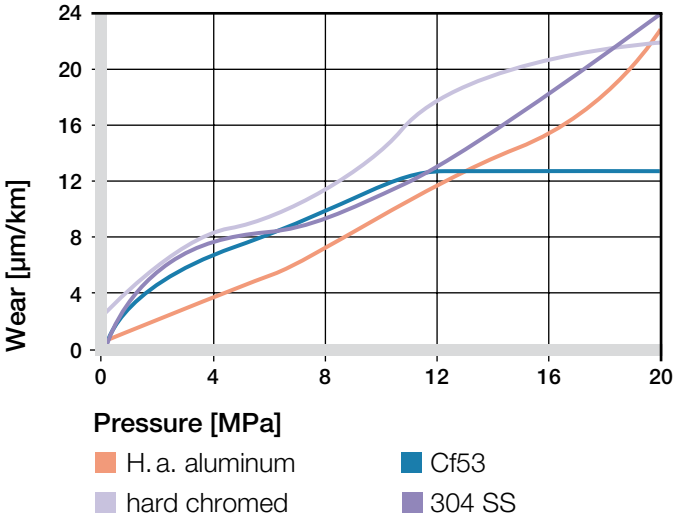
▶ Shaft Materials, **page 51**



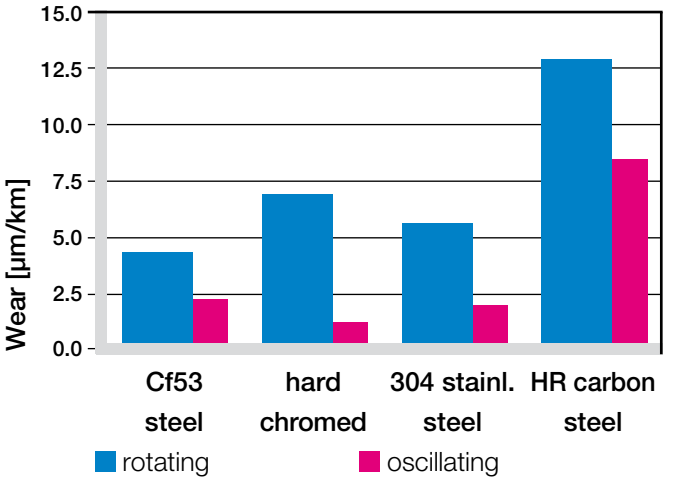
Graph 07: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



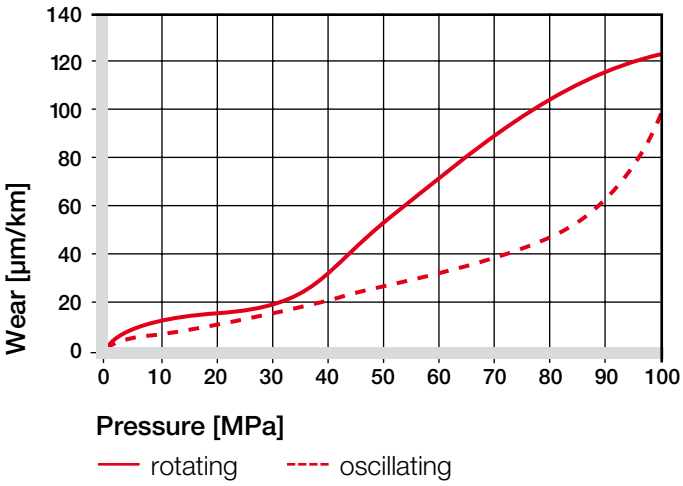
Graph 08: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 09: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 10: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa



Graph 11: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® Z	Dry	Greases	Oil	Water
C. o. f. µ	0,06–0,14	0,09	0,04	0,04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® Z plain bearings have a very good resistance to chemicals. They have an excellent resistance against organic solvents, fuels, oils and greases. The material is only partially resistant against weak acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	–
Diluted alkalines	+
Strong alkalines	–

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® Z are resistant to radiation up to an intensity of $1 \cdot 10^5$ Gy.

UV Resistance

UV radiation causes approximately 50 % decline of the tribological properties (wear resistance) of plain bearings made from iglidur® Z.

Vacuum

For use in a vacuum environment, moisture content is released as vapour. Therefore, only dehumidified bearings made of iglidur® Z are suitable for a vacuum environment.

Electrical Properties

iglidur® Z plain bearings are electrically insulating.

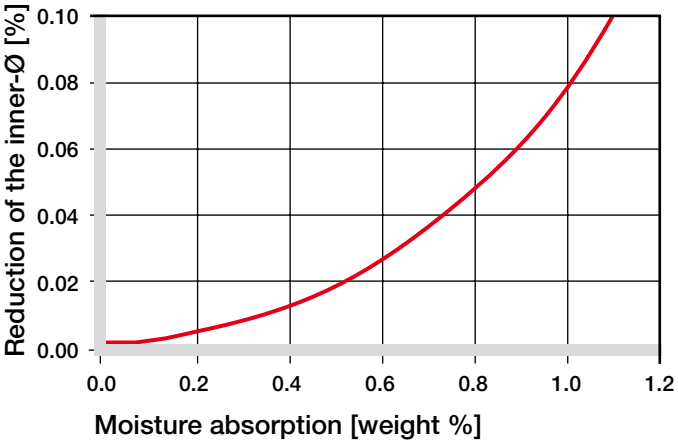
Volume resistance	$> 10^{11}$ Ωcm
Surface resistance	$> 10^{11}$ Ω 10

Moisture Absorption

The moisture absorption of iglidur® Z plain bearings is approximately 0.3 % in standard atmosphere. The saturation limit in water is 1.1 %.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.3 % weight
Max. moisture absorption	1.1 % weight

Table 06: Moisture absorption



Graph 12: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® Z plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

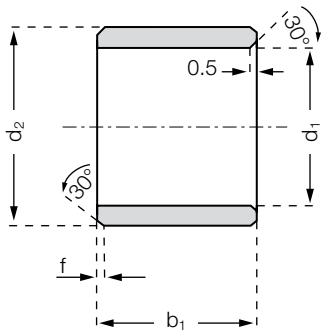
▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® Z F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® Z | Product Range

Sleeve bearing



Order key

ZSM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® Z

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
ZSM-0405-04	4.0	+0.010 +0.058	5.5	4.0
ZSM-0507-05	5.0	+0.010 +0.058	7.0	5.0
ZSM-0608-08	6.0	+0.010 +0.058	8.0	8.0
ZSM-0608-12	6.0	+0.010 +0.058	8.0	12.0
ZSM-0810-08	8.0	+0.013 +0.071	10.0	8.0
ZSM-0810-10	8.0	+0.013 +0.071	10.0	10.0
ZSM-1012-08	10.0	+0.013 +0.071	12.0	8.0
ZSM-1012-10	10.0	+0.013 +0.071	12.0	10.0
ZSM-1012-12	10.0	+0.013 +0.071	12.0	12.0
ZSM-1214-15	12.0	+0.016 +0.086	14.0	15.0
ZSM-1517-15	15.0	+0.016 +0.086	17.0	15.0
ZSM-1618-12	16.0	+0.016 +0.086	18.0	12.0
ZSM-1618-15	16.0	+0.016 +0.086	18.0	15.0
ZSM-1820-20	18.0	+0.016 +0.086	20.0	20.0
ZSM-2023-15	20.0	+0.020 +0.104	23.0	15.0

Part number	d1	d1-Tolerance*	d2	b1 h13
ZSM-2023-20	20.0	+0.020 +0.104	23.0	20.0
ZSM-2023-30	20.0	+0.020 +0.104	23.0	30.0
ZSM-2023-35	20.0	+0.020 +0.104	23.0	35.0
ZSM-2225-20	22.0	+0.020 +0.104	25.0	20.0
ZSM-2528-20	25.0	+0.020 +0.104	28.0	20.0
ZSM-2528-30	25.0	+0.020 +0.104	28.0	30.0
ZSM-2528-48	25.0	+0.020 +0.104	28.0	48.0
ZSM-3034-30	30.0	+0.020 +0.104	34.0	30.0
ZSM-3034-40	30.0	+0.020 +0.104	34.0	40.0
ZSM-3539-20	35.0	+0.025 +0.125	39.0	20.0
ZSM-4044-40	40.0	+0.025 +0.125	44.0	40.0
ZSM-4044-47	40.0	+0.020 +0.104	44.0	47.0
ZSM-5055-60	50.0	+0.025 +0.125	55.0	60.0
ZSM-6065-60	60.0	+0.030 +0.150	65.0	60.0

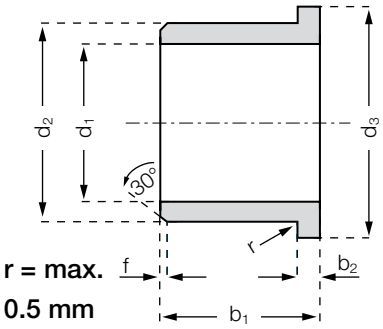
delivery time available from stock

prices price list online www.igus.co.uk/en/z

order example part number ZSM-0405-04

iglidur® Z | Product Range

Flange bearing



Order key

ZFM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® Z

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
ZFM-0405-04	4.0	+0.010 +0.058	5.5	9.5	4.0	0.75
ZFM-0507-05	5.0	+0.010 +0.058	7.0	11.0	5.0	1.0
ZFM-0608-08	6.0	+0.010 +0.058	8.0	12.0	8.0	1.0
ZFM-0810-055	8.0	+0.013 +0.071	10.0	15.0	5.5	1.0
ZFM-0810-09	8.0	+0.013 +0.071	10.0	15.0	9.0	1.0
ZFM-1012-05	10.0	+0.013 +0.071	12.0	18.0	5.0	1.0
ZFM-1012-09	10.0	+0.013 +0.071	12.0	18.0	9.0	1.0
ZFM-1214-09	12.0	+0.016 +0.086	14.0	20.0	9.0	1.0
ZFM-1214-12	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
ZFM-1214-20	12.0	+0.016 +0.086	14.0	20.0	20.0	1.0
ZFM-1416-17	14.0	+0.016 +0.086	16.0	22.0	17.0	1.0
ZFM-1517-11	15.0	+0.016 +0.086	17.0	23.0	11.0	1.0
ZFM-1517-15	15.0	+0.016 +0.086	17.0	23.0	15.0	1.0
ZFM-1820-04	18.0	+0.016 +0.086	20.0	26.0	4.0	1.0
ZFM-1820-17	18.0	+0.016 +0.086	20.0	26.0	17.0	1.0
ZFM-2022-21	20.0	+0.020 +0.104	22.0	30.0	21.0	1.0
ZFM-2023-11	20.0	+0.020 +0.104	23.0	30.0	11.5	1.5
ZFM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.5	1.5
ZFM-2023-31	20.0	+0.020 +0.104	23.0	30.0	31.5	1.5
ZFM-2528-16	25.0	+0.020 +0.104	28.0	35.0	16.5	1.5
ZFM-2528-21	25.0	+0.020 +0.104	28.0	35.0	21.5	1.5
ZFM-2528-31	25.0	+0.020 +0.104	28.0	35.0	31.5	1.5
ZFM-3034-20	30.0	+0.020 +0.104	34.0	42.0	20.0	2.0
ZFM-3034-26	30.0	+0.020 +0.104	34.0	42.0	26.0	2.0
ZFM-3034-37	30.0	+0.020 +0.104	34.0	42.0	37.0	2.0

* after pressfit. Testing methods ▶ page 55

delivery time: available from stock

prices: price list online www.igus.co.uk/en/z

order example: part number ZFM-0405-04

Flange bearing

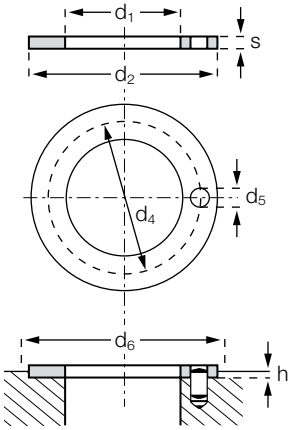
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3 d13	b1 h13	b2 –0.14
ZFM-3539-26	35.0	+0.025 +0.125	39.0	47.0	26.0	2.0
ZFM-4044-20	40.0	+0.025 +0.125	44.0	52.0	20.0	2.0
ZFM-4044-40	40.0	+0.025 +0.125	44.0	52.0	40.0	2.0
ZFM-5055-50	50.0	+0.025 +0.125	55.0	63.0	50.0	2.0
ZFM-6065-50	60.0	+0.030 +0.150	65.0	73.0	50.0	2.5
ZFM-7580-50	75.0	+0.030 +0.150	80.0	88.0	50.0	2.5

* after pressfit. Testing methods ▶ page 55

iglidur® Z | Product Range

Thrust washer



Order key

ZTM-1527-015

- Thickness s
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form T)
- Material iglidur® Z

Dimensions according to ISO 3547-1 and special dimensions

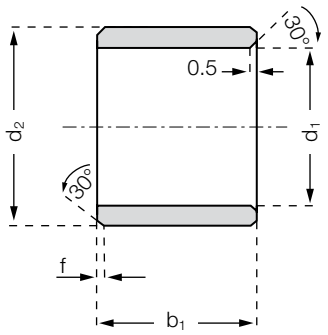
Dimensions [mm]

Part number	d1 ±0.25	d2 –0.25	s –0.05	d4 –0.12 +0.12	d5 +0.375 +0.125	h +0.2 –0.2	d6 +0.12
ZTM-1527-015	15.0	27.0	1.5	–	–	1.0	27.0
ZTM-1623-015	16.0	23.0	1.5	–	–	1.0	23.0
ZTM-2644-015	26.0	44.0	1.5	35.0	3.0	1.0	44.0
ZTM-3254-015	32.0	54.0	1.5	43.0	4.0	1.0	54.0
ZTM-4874-020	48.0	74.0	2.0	61.0	4.0	1.5	74.0
ZTM-6290-020	62.0	90.0	2.0	–	–	1.5	90.0

delivery time available from stock | prices price list online www.igus.co.uk/en/z | order example part number ZTM-1527-015

iglidur® Z | Product Range | Inch

Sleeve bearings



Order key

ZSI-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form S)
- Material iglidur® Z

Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

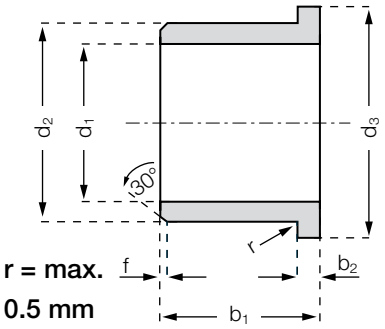
Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
ZSI-0203-03	1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236
ZSI-0506-06	5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106
ZSI-0607-04	3/8	15/32	1/4	.3768	.3745	.4691	.4684	.3740	.3731
ZSI-0607-06	3/8	15/32	3/8	.3768	.3745	.4691	.4684	.3740	.3731
ZSI-0607-08	3/8	15/32	1/2	.3768	.3745	.4691	.4684	.3740	.3731
ZSI-0708-08	7/16	17/32	1/2	.4399	.4371	.5316	.5309	.4365	.4355
ZSI-0809-12	1/2	19/32	3/4	.5024	.4996	.5941	.5934	.4990	.4980
ZSI-0810-12	1/2	5/8	3/4	.5034	.5006	.6260	.6250	.5000	.4990
ZSI-1011-12	5/8	23/32	3/4	.6274	.6246	.7192	.7184	.6240	.6230
ZSI-1214-12	3/4	7/8	3/4	.7532	.7499	.8755	.8747	.7491	.7479
ZSI-1214-16	3/4	7/8	1	.7532	.7499	.8755	.8747	.7491	.7479
ZSI-1416-16	7/8	1	1	.8782	.8749	1.0005	.9997	.8741	.8729
ZSI-1618-16	1	11/8	1	1.0032	.9999	1.1255	1.1247	.9991	.9979
ZSI-1618-24	1	11/8	11/2	1.0032	.9999	1.1255	1.1247	.9991	.9979
ZSI-1820-24	1 1/8	1 9/32	11/2	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226
ZSI-2022-20	1 1/4	1 13/32	11/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472
ZSI-2426-24	1 1/2	1 21/32	11/2	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972
ZSI-2831-32	1 3/4	1 15/16	2	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/z | order example part number ZSI-0203-03

iglidur® Z | Product Range | Inch

Flange bearing



Order key

ZSI-3235-16

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® Z

Chamfer in relation to the d1

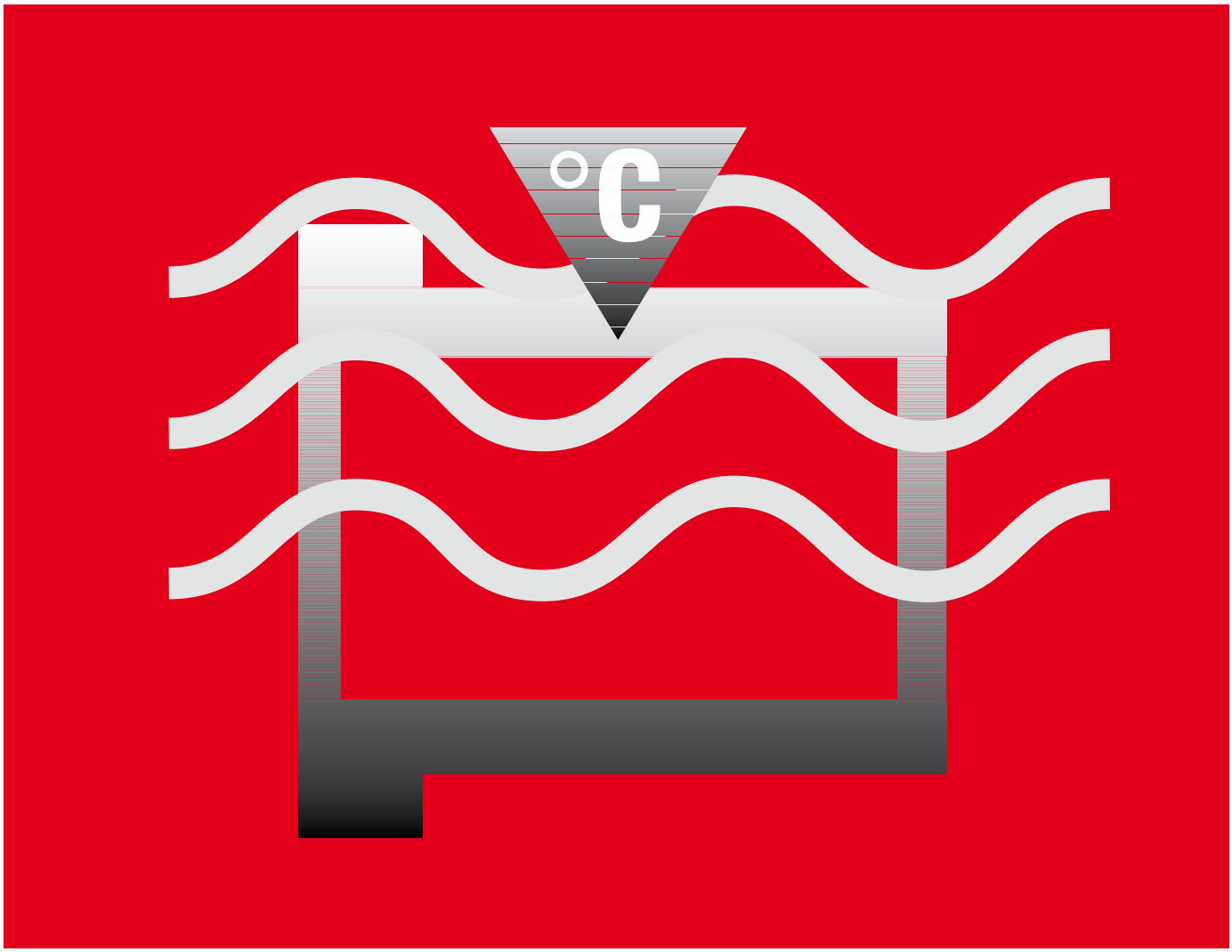
d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
ZSI-3235-16	2	23/16	1	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969
ZSI-3235-32	2	23/16	2	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969
ZSI-3639-32	2 1/4	27/16	2	2.2556	2.2519	2.4377	2.4365	2.2507	2.2489

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/z | order example part number ZSI-3235-16



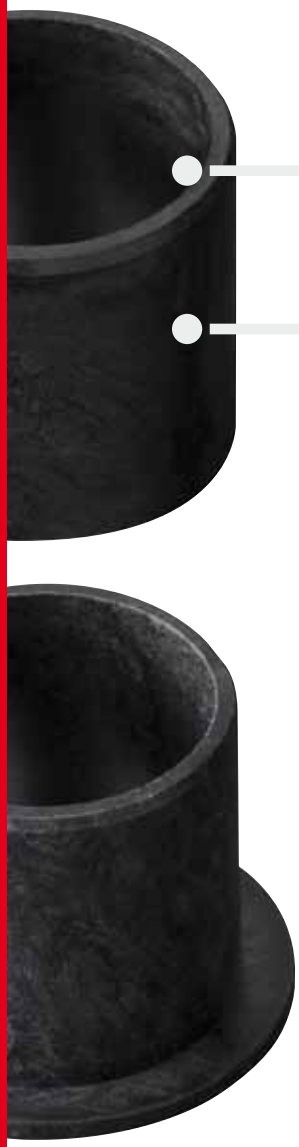
iglidur® UW500 – for use in hot liquids

For underwater use at high temperatures

For fast and constant movements

iglidur® UW500

For use in hot liquids. iglidur® UW500 was developed for underwater applications at temperatures up to +250 °C. In addition, the bearings will run in chemicals which would act as a lubricant.



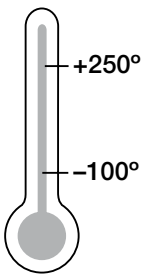
When to use it?

- When bearings need to be used in liquids
- For high speeds
- For high temperatures
- When a high chemical resistance is required

When not to use it?

- When a cost-effective underwater bearing is required
  ▶ **iglidur® UW, page 475**
- When a cost-efficient underwater bearing is sought for rare operations
  ▶ **iglidur® H, page 325**
- When a cost-effective universal bearing is required
  ▶ **iglidur® G, page 61**

Temperature



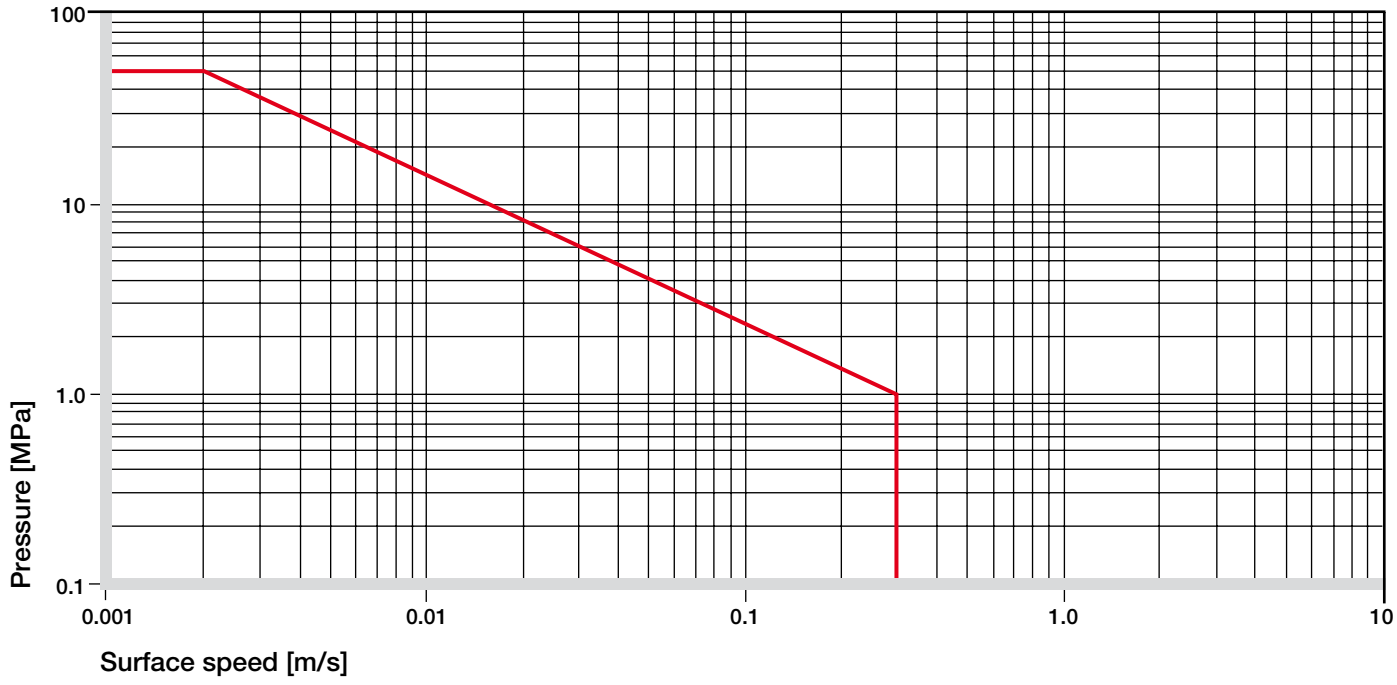
Product range

on request

Material data			
General properties	**Unit**	**iglidur® UW 500**	**Testing method**
Density	**g/cm³**	1.49	
Colour		black	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.1	DIN 53495
Max. water absorption[3]	**% weight**	0.5	
Coefficient of sliding friction, dynamic against steel	**µ**	0.20–0.36	
pv value, max. (dry)	**MPa · m/s**	0.35	
Mechanical properties			
Modulus of elasticity	**MPa**	16,000	DIN 53457
Tensile strength at +20 °C	**MPa**	260	DIN 53452
Compressive strength	**MPa**	140	
Max. recommended surface pressure (+20 °C)	**MPa**	140	
Shore D hardness		86	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+250	
Max. short term application temperature	**°C**	+300	
Min. application temperature[1]	**°C**	+315	
untere Anwendungstemperatur	**°C**	–100	
Thermal conductivity	**W/m · K**	0.60	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	4	DIN 53752
Electrical properties[2]			
Specific volume resistance	**Ωcm**	$< 10^9$	DIN IEC 93
Surface resistance	**Ω**	$< 10^9$	DIN 53482

[1] Without additional load; no sliding movement; relaxation possible
[2] The good conductivity of this plastic material under certain circumstances can favour the formation of corrosion on the metallic contact component
[3] With respect to the use of the material in direct contact with water, it has to be pointed out that all results have been attained under laboratory conditions DW (fully demineralised water). We therefore recommend custom-designed tests under real application conditions.

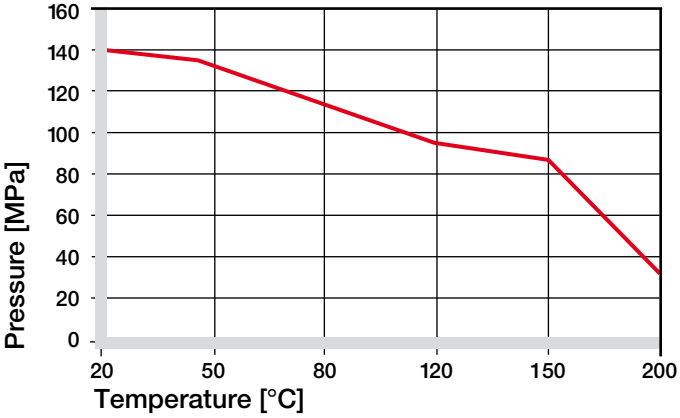
Table 01: Material data



Graph 01: Permissible pv values for iglidur® UW500 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

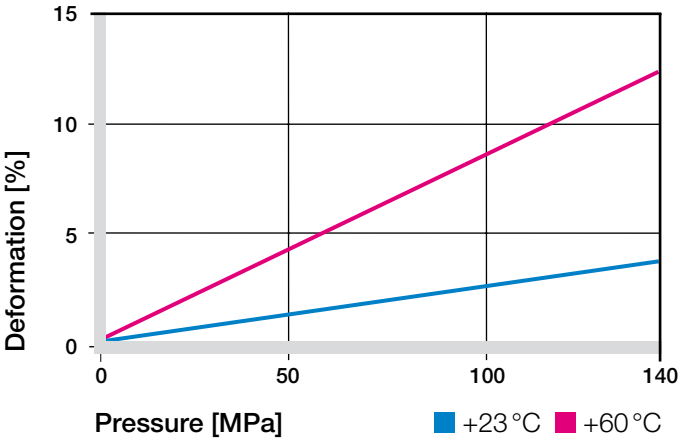
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® UW500 plain bearings decreases. The Graph 02 shows this inverse relationship. Of +200° C the permissible surface pressure is almost 35 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (130 MPa at +20 °C)

The plain bearings of iglidur® UW500 were developed for underwater applications with high temperatures. Examples for this are water pumps in automotive engineering, but also the field of medical engineering and related fields. iglidur® UW500 can be used in applications with continuous temperatures of +150 °C. If the bearings are additionally secured, these temperatures can even exceed +200 °C. Unless the underwater operation is explicitly stated, the information in this chapter describes iglidur® UW500 in when running dry. Graph 03 illustrates how iglidur® UW500 plain bearings elastically deform under load. Graph 01 on the preceding page shows the maximum pv values at room temperature. The high pv values are attained by the high temperature resistance.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® UW500 bearings can be used both dry running and in media like water in a wide range of conditions. Permitted surface speeds iglidur® UW500 is excellent in both dry and wet operations. Through a hydrodynamic lubrication, attained under water with high speeds, surface speeds far above 2 m/s can be achieved. In dry operation the iglidur® UW500 bearings can be used anyhow up to 1.5 m/s on the short term.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.8	0.6	2
Short term	1.5	1.1	3

Table 02: Maximum running speed

Temperatures

iglidur® UW500 can be used in applications with permanent temperatures of +150 °C. If the bearings are fixed specially, the temperatures can even be higher than +200 °C.
iglidur® UW500 are amoung the most temperature-resistant iglidur materials, tolerating temperatures of up to +250 °C permanently. Short-term it can even be heated up to +315 °C! Nonetheless, the pressfit can be losened over a temperature of +150 °C due to relaxation. We therefore recommend to secure the bearing axially if these temperatures are reached in the application.

▶ Application Temperatures, **page 46**

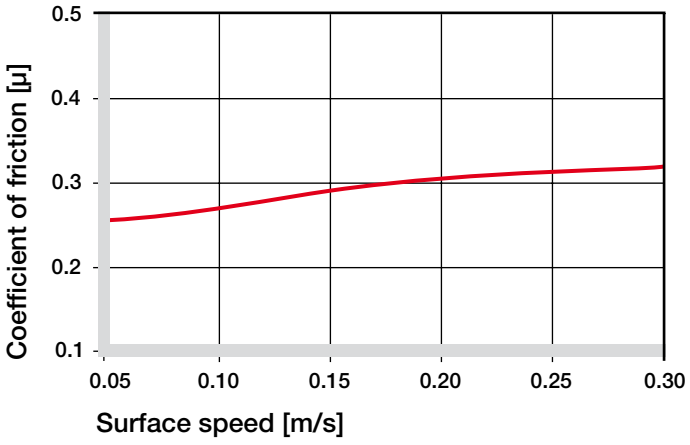
iglidur® UW500	Application temperature
Minimum	–100 °C
Max. long term	+250 °C
Max. short term	+300 °C
Add. securing is required	+150 °C

Table 03: Temperature limits

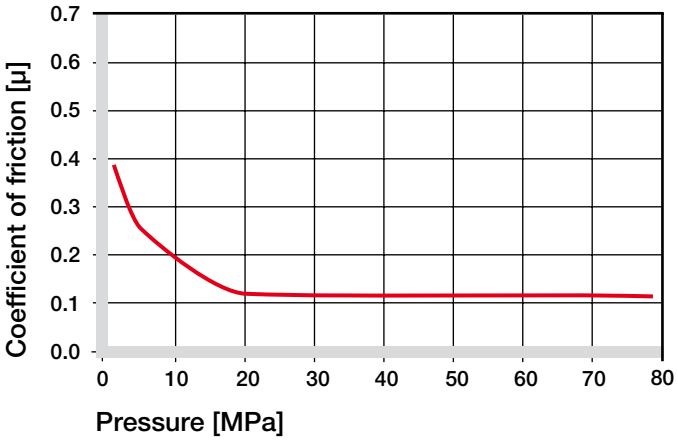
Friction and Wear

With increasing load the friction of the bearing system with iglidur® UW500 bearings declines. Instead of that the coefficient of friction rises with increasing speed. This illustrates the excellent suitability of iglidur® UW500 bearings with high loads. Friction and wear also depend to a high degree on the reverse partner. Extremely smooth and extremely coarse shafts enhance the coefficient of friction of the bearing. Ideal are smoothed surfaces with an average surface finish of Ra of 0.1 to 0.4.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

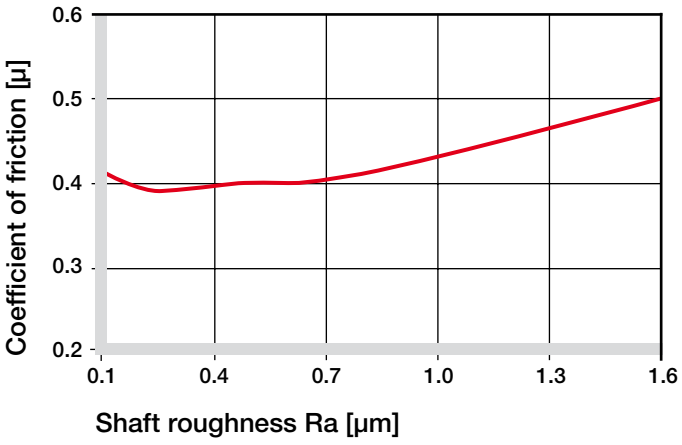


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

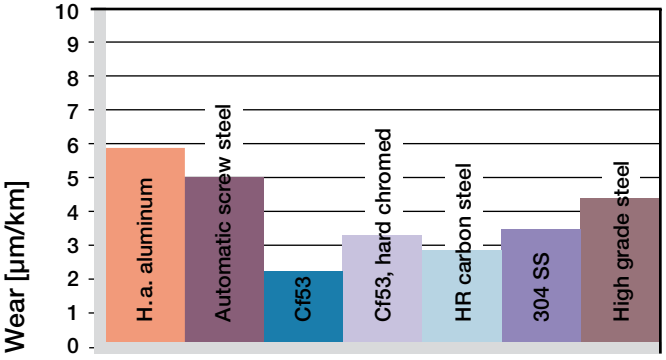
Shaft Materials

The Graphs 06–09 display a summary of the results of tests with different shaft materials conducted with bearings made of iglidur® UW500. With low loads in the rotating application, the coefficients of wear are ideal with Cf53 shafts.

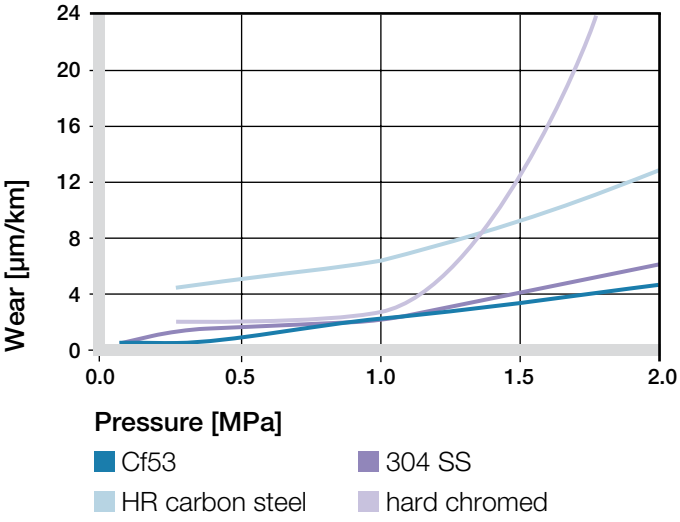
▶ Shaft Materials, **page 51**



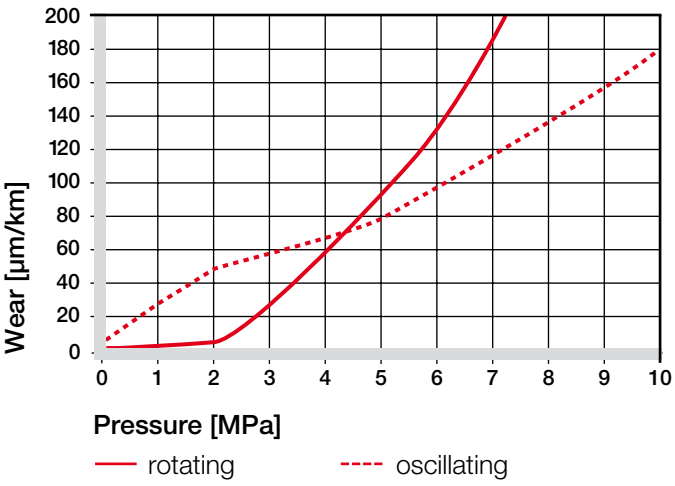
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® UW500	Dry	Greases	Oil	Water
C. o. f. µ	0,2–0,36	0,09	0,04	0,04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® UW500 bearings have almost universal chemical resistance. They are affected only by concentrated nitric acid and sulfuric acid.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	+
Diluted alkalines	+
Strong alkalines	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings of iglidur® UW500 are radiation resistant up to a radiation intensity of $1 \cdot 10^5$ Gy. With regard to radiation, iglidur® UW500 is one of the most resistant materials of the iglidur® range.
iglidur® UW500 is very resistant to hard gamma radiation and endures a radiation dose of 1,000 Mrad without noticeable losses of its characteristics.The material also endures an alpha or beta radiation 10,000 Mrad with practically no effect.

UV Resistance

Under UV radiation and other atmospheric influences, the excellent material characteristics of iglidur® UW500 are not affected.

Vacuum

Also in vacuum atmosphere, iglidur® UW500 plain bearings can be used almost without restrictions. Outgassing only takes place to a minor degree.

Electrical Properties

iglidur® UW500 plain bearings are electrically conductive.

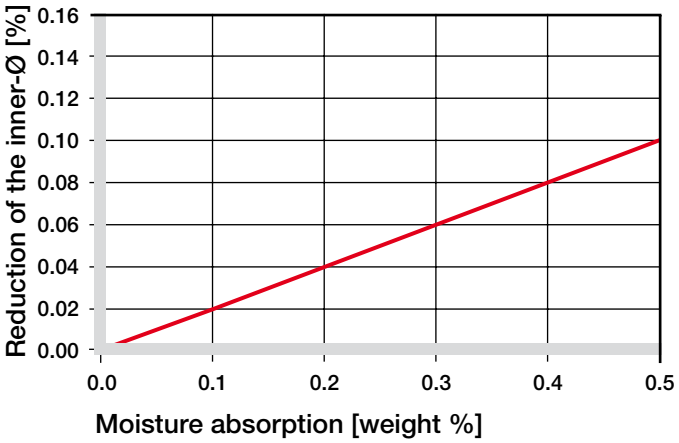
Volume resistance	$< 10^9$ Ωcm
Surface resistance	$< 10^9$ Ω 10

Moisture Absorption

The moisture absorption of iglidur® UW500 plain bearings is extremely low. In standard atmosphere it is below 0.1 % by weight.Therefore, even with regard to applications under water, iglidur® UW500 plain bearings can be used without adjusting the fitting conditions. The maximum moisture absorption is 0.5 % by weight.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. moisture absorption	0.5 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® UW500 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® UW500 F10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.006 +0.046	0 +0.010
>	3 to	6	0–0.030	+0.010 +0.058	0 +0.012
>	6 to	10	0–0.036	+0.013 +0.071	0 +0.015
>	10 to	18	0–0.043	+0.016 +0.086	0 +0.018
>	18 to	30	0–0.052	+0.020 +0.104	0 +0.021
>	30 to	50	0–0.062	+0.025 +0.125	0 +0.025
>	50 to	80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Product Range

iglidur® UW500 plain bearings are manufactured to special order.

iglidur® Specialists | High Resistance to Liquid Media

iglidur® H

the standard for wet and hot conditions

Standard range from stock ▶ **from page 325**

iglidur® H1

long life operation

Standard range from stock ▶ **from page 337**

iglidur® H370

wear resistant under water

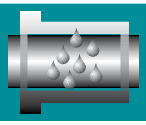
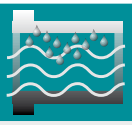
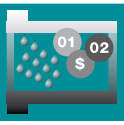
Standard range from stock ▶ **from page 347**

iglidur® H2

low-cost high temperature material

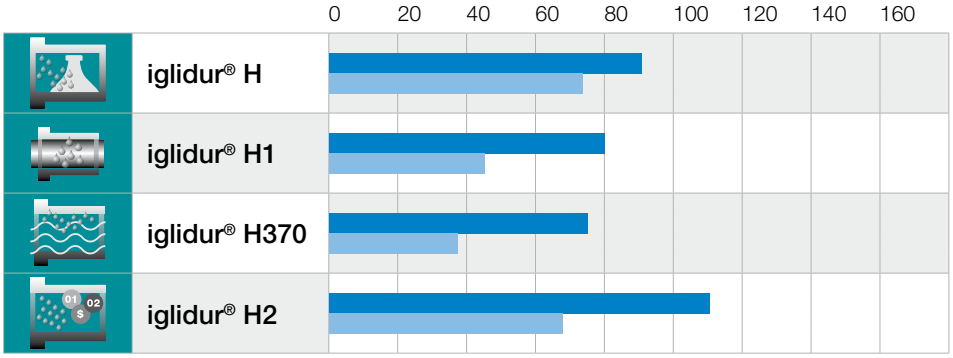
On request ▶ **from page 359**

iglidur® Specialists | Selection According to Main Criteria

iglidur®-Specialists – High Resistance to Liquid Media				
	iglidur® H	iglidur® H1	iglidur® H370	iglidur® H2
Long life dry running		●		
For high loads		●		
For high temperatures	●	●	●	●
Low friction/high speed		●	●	
Dirt resistant				
Chemicals resistant	●	●	●	●
Low water absorption	●	●	●	●
Food-suitable				
Vibration-dampening				
Egde pressure		●		
For under water use	●	●	●	●
Cost-effective				●
from page	325	337	347	359

iglidur® Specialists | Selection According to Main Criteria

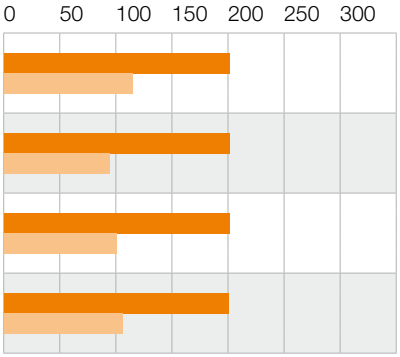
Load [MPa]



Maximum permissible radial load of iglidur® bearings at

- +20 °C
- +120 °C

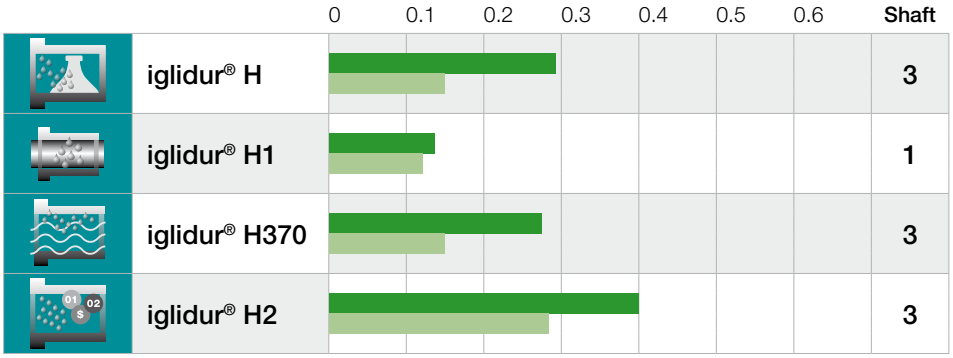
Temperature [°C]



Important temperatur limits of iglidur® bearings

- Maximum permissible application temperature, continous
- Temperature where bearings need to be secured against radial or axial movement in the housing

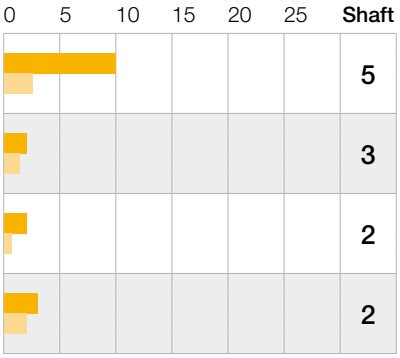
Coefficient of Friction [µ]



Coefficients of friction of iglidur® bearings sliding against steel, p = 1.2 MPa, v = 0.3 m/s

- Average coefficient of all the seven sliding combinations tested
- Coefficient of friction of best combination

Wear [µm/km]



Wear of iglidur® bearings sliding against steel, p = 1 MPa

- Average wear of all the seven sliding combination tested
- Wear of best combination

Shaft material:

1 = Cf53
2 = hard chromed
3 = Aluminum, hc
4 = Automatic screw steel
5 = HR carbon steel
6 = 304 SS
7 = High grade steel

Material data

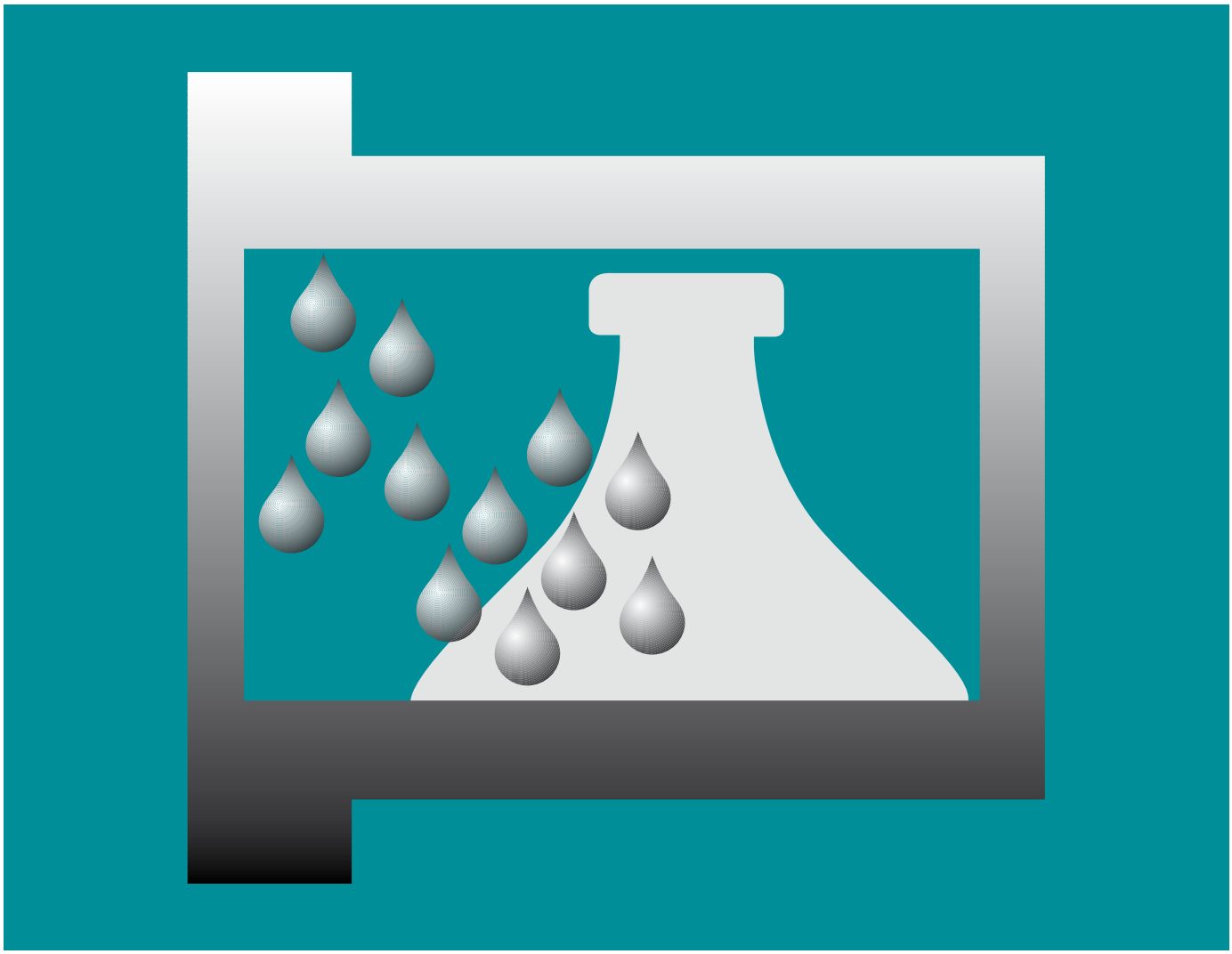
General properties	Unit	iglidur® H	iglidur® H1	iglidur® H370	iglidur® H2
Density	g/cm³	1.71	1.60	1.60	1.69
Colour		grey	cream	grey	brown
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.1	0.1	< 0.1	< 0.1
Max. moisture absorption	% weight	0.3	0.3	< 0.1	0.2
Coefficient of sliding friction. dynamic against steel	µ	0.07–0.2	0.06–0.20	0.07–0.17	0.07–0.3
pv value. max. (dry)	MPa · m/s	1.37	0.8	0.74	0.58
Mechanical properties					
Modulus of elasticity	MPa	12,500	2,800	11,100	10,300
Tensile strength at +20 °C	MPa	175	55	135	210
Compressive strength	MPa	81	78	79	109
Max. recommended surface pressure (+20 °C)	MPa	90	80	75	110
Shore D hardness		87	77	82	88
Physical and thermal properties					
Max. long term application temperature	°C	+200	+200	+200	+200
Max. short term application temperature	°C	+240	+240	+240	+240
Min. application temperature	°C	–40	–40	–40	–40
Thermal conductivity	W/m · K	0.6	0.24	0.5	0.24
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	4	6	5	4
Electrical properties					
Specific volume resistance	Ωcm	< 10^5	> 10^{12}	< 10^5	> 10^{15}
Surface resistance	Ω	< 10^2	> 10^{11}	< 10^5	> 10^{14}

Material resistance (at +20 °C)

Chemical resistance	iglidur® H	iglidur® H1	iglidur® H370	iglidur® H2
Alcohol	+	+	+	+
Hydrocarbons	+	+	+	+
Greases, oils without additives	+	+	+	+
Fuels	+	+	+	+
Diluted acids	+ to 0	+ to 0	+ to 0	+ to 0
Strong acids	+ to –	+ to –	+ to –	+ to –
Diluted alkalines	+	+	+	+
Strong alkalines	+	+ bis –	+	+
Radiation resistance [Gy] to	$2 \cdot 10^2$	$2 \cdot 10^2$	$2 \cdot 10^2$	$2 \cdot 10^2$

+ resistant 0 conditionally resistant – not resistant

My Sketches



iglidur® H – the standard for wet and hot conditions

- Standard range from stock
- Underwater applications
- Maintenance-free
- For high temperatures
- Resistant to chemicals

iglidur® H

The standard for wet and hot conditions. Resistant to chemicals and suitable for temperatures up to +200 °C. Very low coefficients of friction when used with hardened shafts.

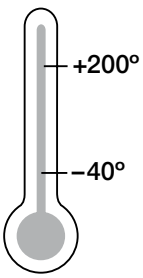
When to use it?

- Suitable for unterwater applications
- When high temperature resistance is necessary
- For high mechanical loading
- For applications in contact with chemicals

When not to use it?

- When extremely high wear resistance under water is required
  ▶ **iglidur® H370, page 347**
- When universal resistance to chemicals is needed
  ▶ **iglidur® X, page 153**
- For the maximum pressure at higher temperatures
  ▶ **iglidur® X, page 153**
  ▶ **iglidur® Z, page 299**

Temperature



Product Range

2 types
Ø 3–70 mm
more dimensions
on request

iglidur® H | Application Examples

Typical sectors of industry and application areas

● Offshore ● Marine engineering
● Beverage technology ● Medical
● Mechatronics etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

▶ **www.igus.co.uk/cup-filling-line**

▶ **www.igus.co.uk/pneumatic-lifting**

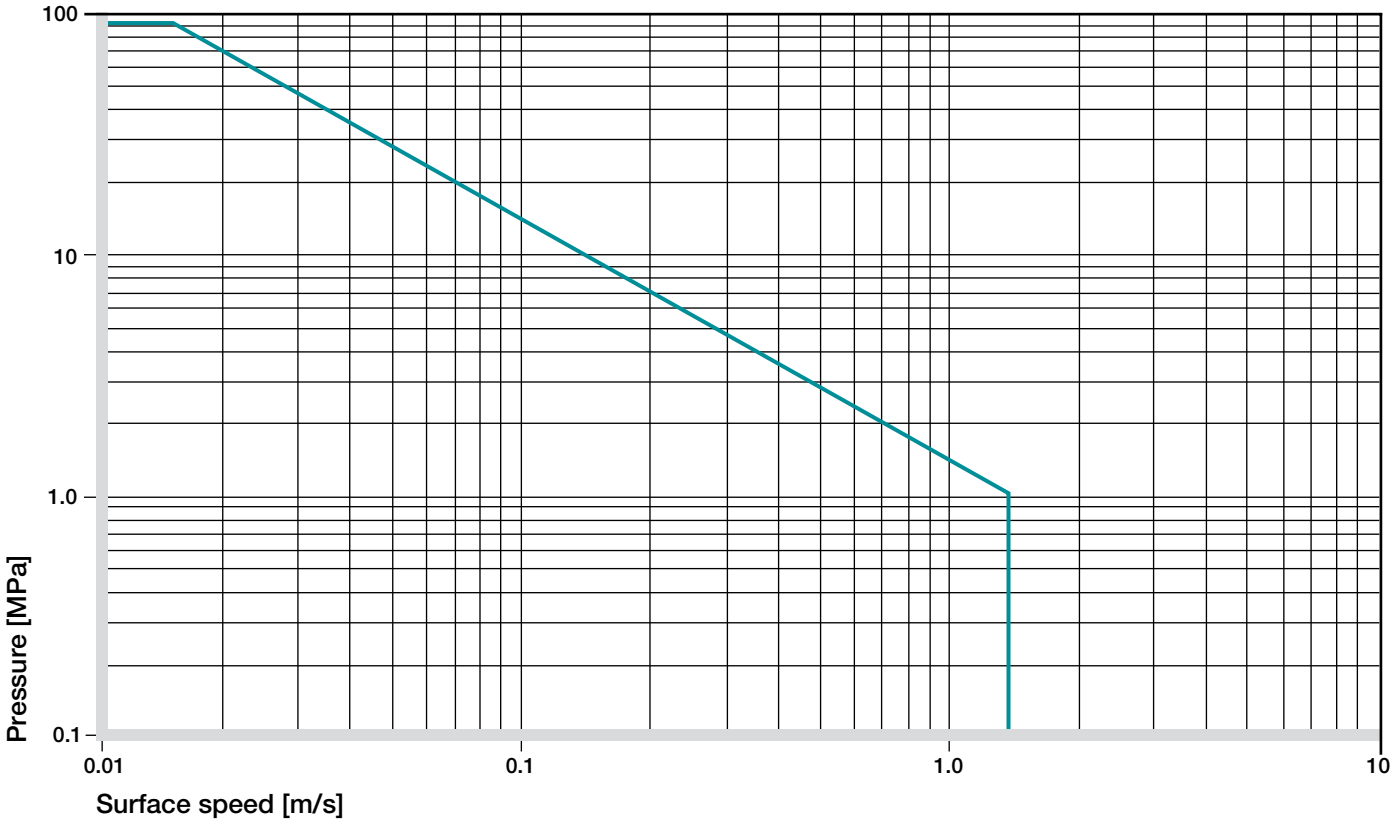
▶ **www.igus.co.uk/hull-cleaning**

iglidur® H | Technical Data

Material data			
General properties	**Unit**	**iglidur® H**	**Testing method**
Density	**g/cm³**	1.71	
Colour		grey	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.1	DIN 53495
Max. moisture absorption	**% weight**	0.3	
Coefficient of sliding friction, dynamic against steel	**µ**	0.07–0.2	
pv value, max. (dry)	**MPa · m/s**	1.37	
Mechanical properties			
Modulus of elasticity	**MPa**	12,500	DIN 53457
Tensile strength at +20 °C	**MPa**	175	DIN 53452
Compressive strength	**MPa**	81	
Max. recommended surface pressure (+20 °C)	**MPa**	90	
Shore D hardness		87	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+200	
Max. short term application temperature	**°C**	+240	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.6	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	4	DIN 53752
Electrical properties[1)]			
Specific volume resistance	**Ωcm**	$< 10^5$	DIN IEC 93
Surface resistance	**Ω**	$< 10^2$	DIN 53482

[1)] The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact component.

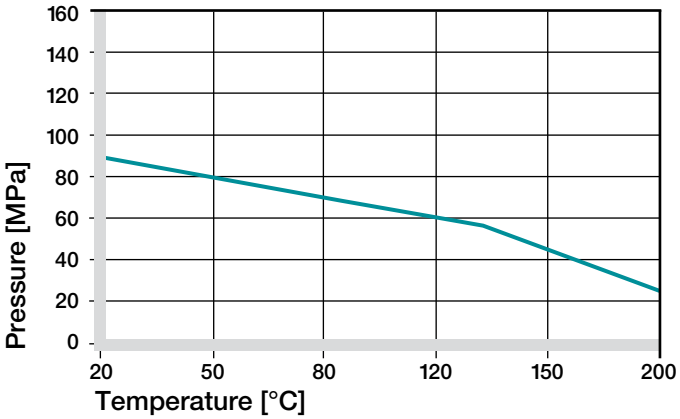
Table 01: Material data



Graph 01: Permissible pv values for iglidur® H with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

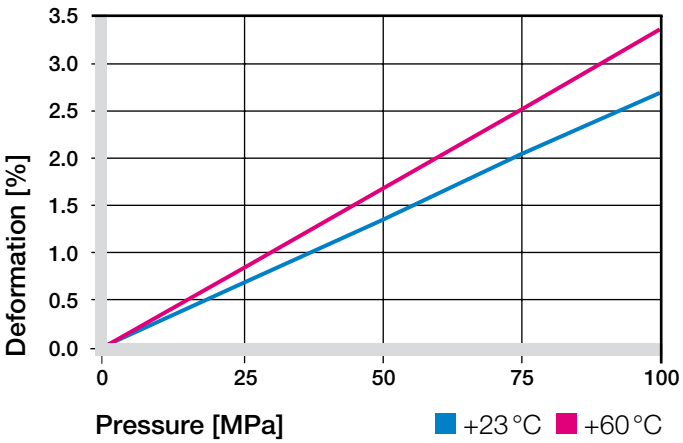
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® H plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +200° C the permissible surface pressure is almost 25 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (90 MPa at +20 °C)

iglidur® H is a fibre-reinforced thermoplastic material especially developed for applications in high atmospheric humidity or under water. Bearings made of iglidur® H can be used completely free of lubrication; in wet applications, the surrounding media acts as additional lubricant.
Graph 03 shows the elastic deformation of iglidur® H during radial loading. At the recommended maximum surface pressure of 90 MPa the deformation is less than 2.5 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

The maximum permitted surface speed is dependent on whether the temperature in the bearing location rises or not. Running dry, iglidur® H can be used at a maximum surface speed of 1 m/s (rotating) and 4 m/s (linear) respectively. Linear movements enable higher surface speeds, as a large area of the shaft contributes to the cooling.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	3
Short term	1.5	1.1	4

Table 02: Maximum running speed

Temperatures

iglidur® H is an extremely temperature resistant material. With a maximum permissible short term temperature of +240 °C iglidur® H plain bearings may be used in heat treated applications at low loads.
With increasing temperatures, the compressive strength of iglidur® H plain bearings decreases. Graph 02 shows this relationship.
The ambient temperatures prevalent in the bearing system also have an effect on the bearing wear.

▶ Application Temperatures, **page 46**

iglidur® H	Application temperature
Minimum	–40 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+120 °C

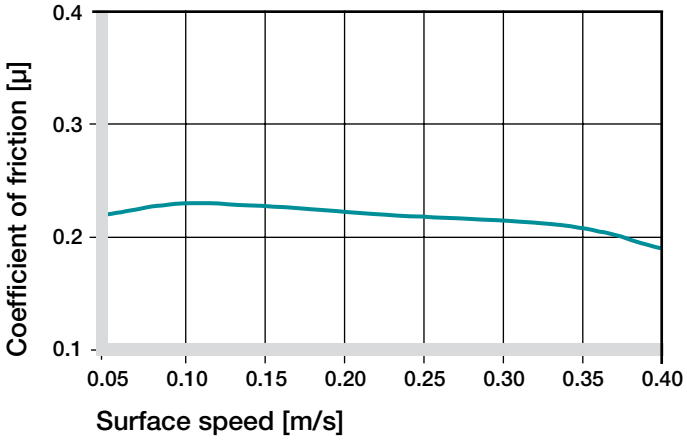
Table 03: Temperature limits

Friction and Wear

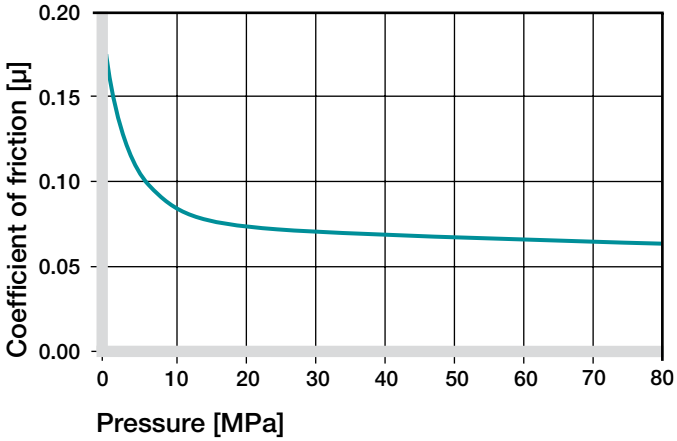
Both the wear rate and the coefficient of friction values change depending on the pressure. Interestingly, the friction coefficient μ lowers slightly with the increase of surface speed at constant load (see Graphs 04 and 05).

The choice of the shaft material to run against iglidur® H bearings is critical, as this has a large impact on the wear and friction values. More than Ra = 0.1 µm shaft surface finish raises the coefficient of friction. For applications with high loads, we recommend hardened and ground surfaces with an average surface finish of Ra = 0.3 to 0.4 µm.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



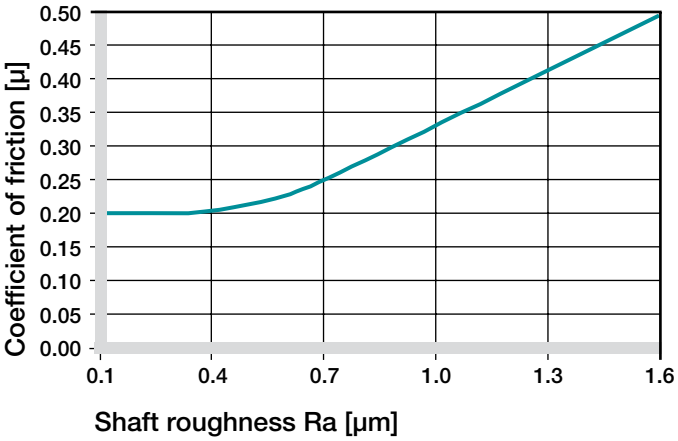
Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

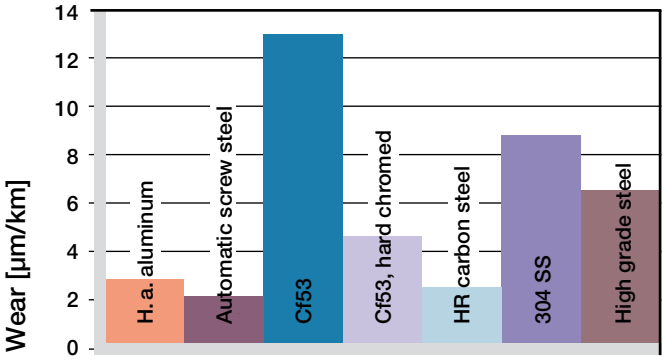
Graphs 07 to 09 show the test results of iglidur® H bearings running against various shaft materials.

The iglidur® H bearings give different results when used in rotating and pivoting applications. The CF53 and St37 shafts give the best wear values in rotary applications, whereas the V2A shafts (which are not so good for rotation) give the best results in oscillating applications Hard chromed shafts only give an advantage at low pressures when used with iglidur® H bearings.

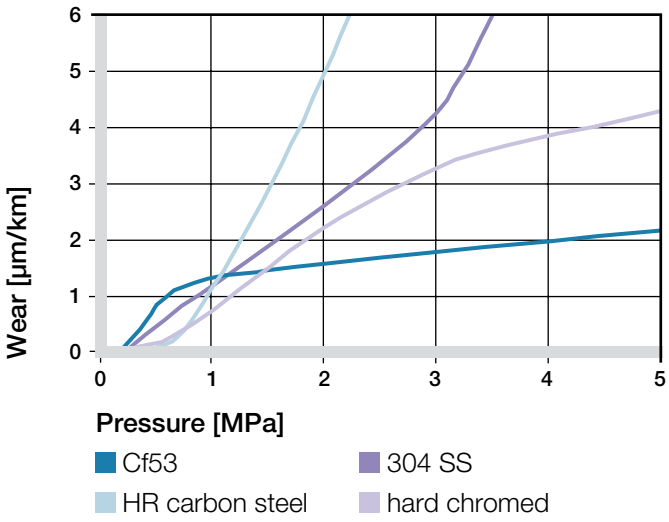
▶ Shaft Materials, **page 51**



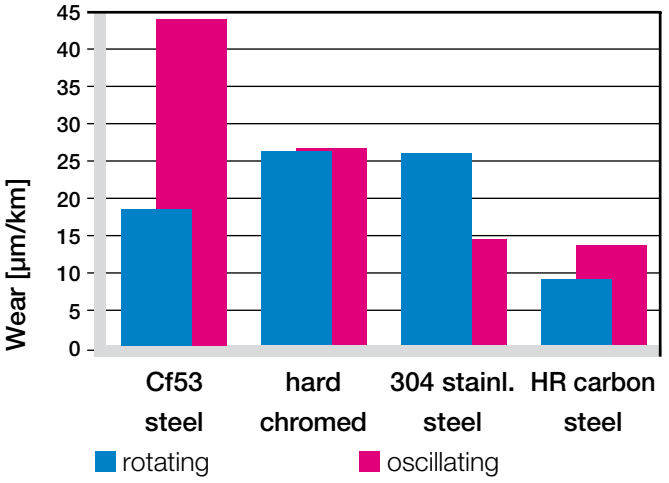
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® H	Dry	Greases	Oil	Water
C.o.f. µ	0.07–0.2	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® H plain bearings have a good resistance to chemicals. Thus, even aggressive chemicals can act as lubricants.

Plain bearings made of iglidur® H are not resistant to hot, oxidizing acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+ to 0
Strong acids	+ to –
Diluted alkalines	+
Strong alkalines	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

iglidur® H withstands both neutron as well as gamma particle radiation without noticeable loss to the excellent mechanical properties. Plain bearings made from iglidur® H are resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® H plain bearings are only conditionally resistant against UV radiation. Under the effects of weathering, the surface of iglidur® H becomes rougher, and the compressive strength of the material decreases.

Vacuum

For use in a vacuum environment, it must be taken into account that a small amount of moisture is released as vapour.

Electrical Properties

iglidur® H bearings are electrically conductive.

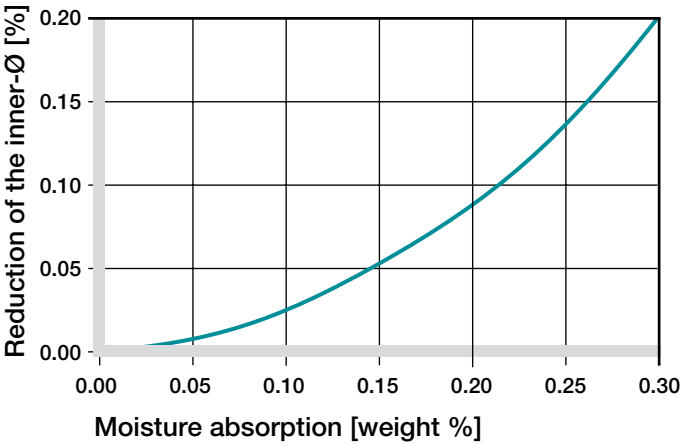
Volume resistance	$< 10^5$ Ωcm
Surface resistance	$< 10^2$ Ω

Moisture Absorption

The moisture absorption of iglidur® H plain bearings is below 0.1 % in standard atmosphere. The saturation limit in water is 0.3 %. iglidur® H is very well suited for use in wet applications.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. moisture absorption	0.3 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® H plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9).

The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

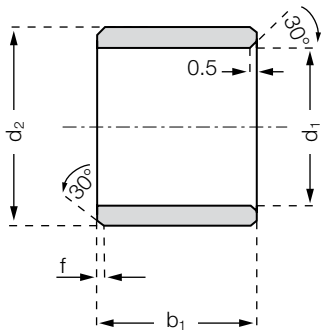
▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® H | Product Range

Sleeve bearing



Order key

HSM-0304-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® H

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
HSM-0304-03	3.0	+0.006 +0.046	4.5	3.0
HSM-0405-04	4.0	+0.010 +0.058	5.5	4.0
HSM-0507-05	5.0	+0.010 +0.058	7.0	5.0
HSM-0608-03	6.0	+0.010 +0.058	8.0	3.0
HSM-0608-06	6.0	+0.010 +0.058	8.0	6.0
HSM-0810-08	8.0	+0.013 +0.071	10.0	8.0
HSM-0810-10	8.0	+0.013 +0.071	10.0	10.0
HSM-1012-06	10.0	+0.013 +0.071	12.0	6.0
HSM-1012-10	10.0	+0.013 +0.071	12.0	10.0
HSM-1214-10	12.0	+0.016 +0.086	14.0	10.0
HSM-1214-12	12.0	+0.016 +0.086	14.0	12.0
HSM-1214-15	12.0	+0.016 +0.086	14.0	15.0
HSM-1214-20	12.0	+0.016 +0.086	14.0	20.0
HSM-1416-20	14.0	+0.016 +0.086	16.0	20.0
HSM-1517-15	15.0	+0.016 +0.086	17.0	15.0
HSM-1618-15	16.0	+0.016 +0.086	18.0	15.0
HSM-1618-20	16.0	+0.016 +0.086	18.0	20.0
HSM-1618-25	16.0	+0.016 +0.086	18.0	25.0

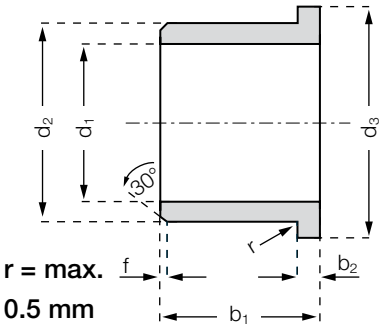
Part number	d1	d1-Tolerance*	d2	b1 h13
HSM-1820-15	18.0	+0.016 +0.086	20.0	15.0
HSM-1820-25	18.0	+0.016 +0.086	20.0	25.0
HSM-2023-20	20.0	+0.020 +0.104	23.0	20.0
HSM-2225-20	22.0	+0.020 +0.104	25.0	20.0
HSM-2528-15	25.0	+0.020 +0.104	28.0	15.0
HSM-2528-20	25.0	+0.020 +0.104	28.0	20.0
HSM-3034-20	30.0	+0.020 +0.104	34.0	20.0
HSM-3034-30	30.0	+0.020 +0.104	34.0	30.0
HSM-3034-40	30.0	+0.020 +0.104	34.0	40.0
HSM-3236-30	32.0	+0.025 +0.125	36.0	30.0
HSM-3539-40	35.0	+0.025 +0.125	39.0	40.0
HSM-4044-20	40.0	+0.025 +0.125	44.0	20.0
HSM-4044-50	40.0	+0.025 +0.125	44.0	50.0
HSM-4550-30	45.0	+0.025 +0.125	50.0	30.0
HSM-5055-40	50.0	+0.025 +0.125	55.0	40.0
HSM-5560-26	55.0	+0.030 +0.150	60.0	26.0
HSM-6065-60	60.0	+0.030 +0.150	65.0	60.0
HSM-7075-50	70.0	+0.030 +0.150	75.0	50.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/h | order example part number HSM-0304-03

iglidur® H | Product Range

Flange bearing



Order key

HFM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® H

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0,14
HFM-0405-04	4.0	+0.010 +0.058	5.5	9.5	4.0	0.75
HFM-0507-05	5.0	+0.010 +0.058	7.0	11.0	5.0	1.0
HFM-0507-08	5.0	+0.010 +0.058	7.0	11.0	8.0	1.0
HFM-0608-04	6.0	+0.010 +0.058	8.0	12.0	4.0	1.0
HFM-0608-06	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
HFM-0810-07	8.0	+0.013 +0.071	10.0	15.0	7.0	1.0
HFM-0810-10	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
HFM-0810-15	8.0	+0.013 +0.071	10.0	15.0	15.0	1.0
HFM-1012-04	10.0	+0.013 +0.071	12.0	18.0	4.0	1.0
HFM-1012-09	10.0	+0.013 +0.071	12.0	18.0	9.0	1.0
HFM-1012-15	10.0	+0.013 +0.071	12.0	18.0	15.0	1.0
HFM-1012-20	10.0	+0.013 +0.071	12.0	18.0	20.0	1.0
HFM-1214-07	12.0	+0.016 +0.086	14.0	20.0	7.0	1.0
HFM-1214-10	12.0	+0.016 +0.086	14.0	20.0	10.0	1.0
HFM-1214-15	12.0	+0.016 +0.086	14.0	20.0	15.0	1.0
HFM-1416-12	14.0	+0.016 +0.086	16.0	22.0	12.0	1.0
HFM-1517-17	15.0	+0.016 +0.086	17.0	23.0	17.0	1.0
HFM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
HFM-1820-17	18.0	+0.016 +0.086	20.0	26.0	17.0	1.0
HFM-2023-16	20.0	+0.020 +0.104	23.0	30.0	16.5	1.5
HFM-2023-30	20.0	+0.020 +0.104	23.0	30.0	30.0	1.5

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/h | order example part number HFM-0405-04

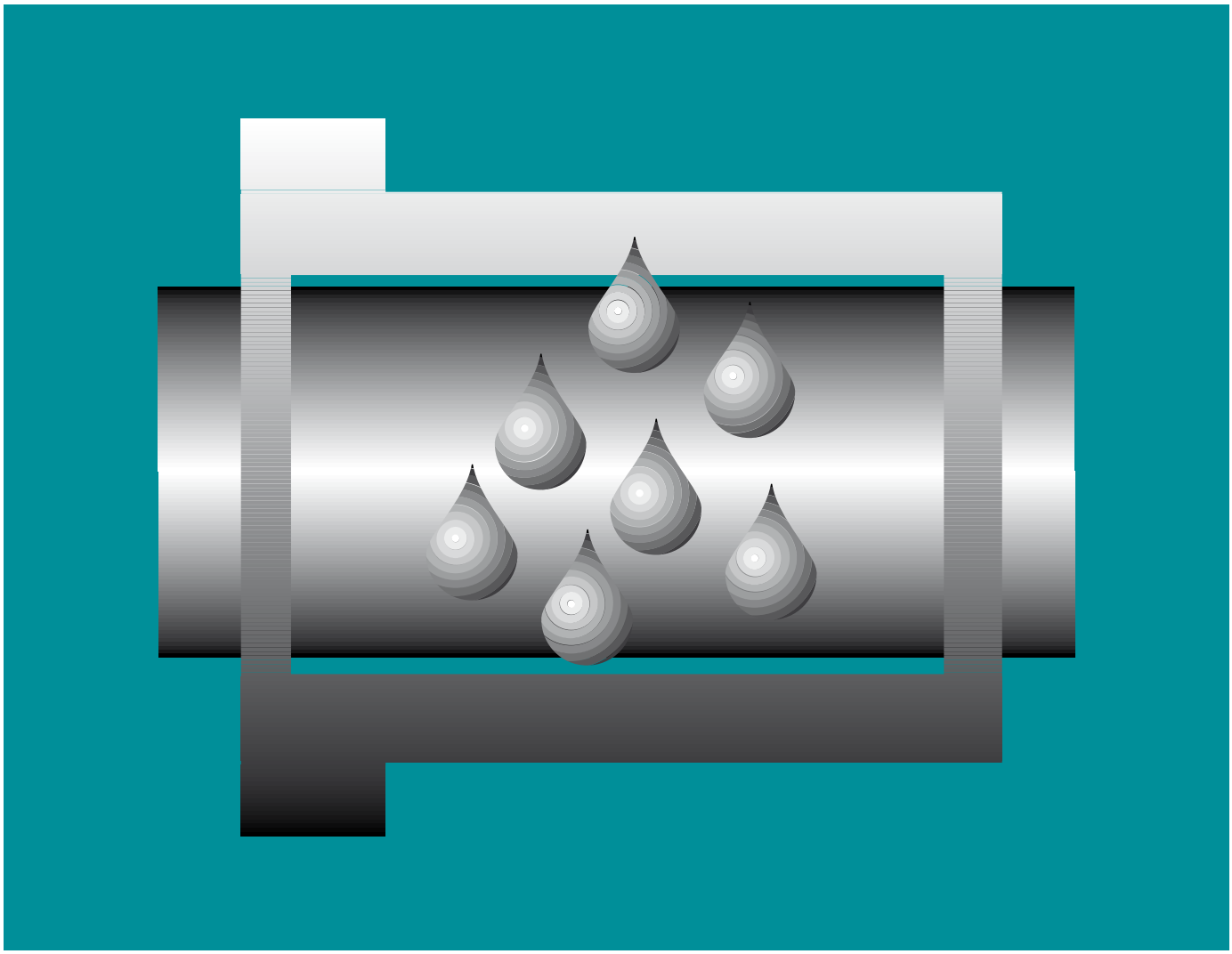
Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0,14
HFM-2528-30	25.0	+0.020 +0.104	28.0	35.0	30.0	1.5
HFM-2730-20	27.0	+0.020 +0.104	30.0	38.0	20.0	1.5
HFM-3034-40	30.0	+0.020 +0.104	34.0	42.0	40.0	2.0
HFM-3438-13	34.0	+0.025 +0.125	38.0	46.0	13.0	2.0
HFM-3539-26	35.0	+0.025 +0.125	39.0	47.0	26.0	2.0
HFM-4044-40	40.0	+0.025 +0.125	44.0	52.0	40.0	2.0
HFM-5055-50	50.0	+0.025 +0.125	55.0	63.0	50.0	2.0
HFM-6065-50	60.0	+0.030 +0.150	65.0	73.0	50.0	2.0
HFM-7075-50	70.0	+0.030 +0.150	75.0	83.0	50.0	2.0

* after pressfit. Testing methods ▶ page 55

My Sketches

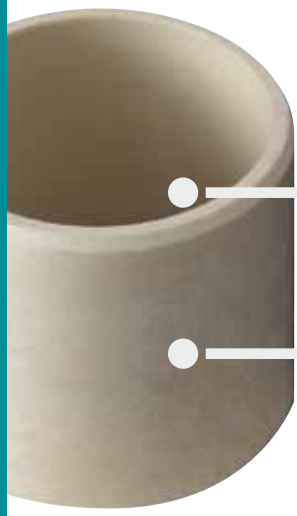


iglidur® H1 – long life operation

- Standard range from stock
- High wear resistance in extreme ambient conditions
- Very low coefficient of friction
- High resistance to temperature and chemicals
- For underbonnet applications

iglidur® H1

Long life operation. iglidur® H1 is the first choice when high holding times are required in extreme environmental conditions. Extreme wear resistance is coupled with excellent resistance to temperature and chemicals – not only in the packaging and foodstuff industries or the automotive industry.



High wear resistance in extreme ambient conditions

Very low coefficient of friction

High resistance to temperature and chemicals

For underbonnet applications

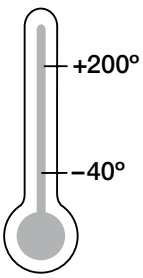
When to use it?

- When extreme service life is required under the influence of temperature and humidity
- When low coefficients of friction at high temperature are important
- When regular aggressive cleaning is required (splashes, steam blasting)
- When the bearings are used in the engine compartment

When not to use it?

- Wenn hohe Flächenpressungen auftreten
  ▶ **iglidur® Z, page 299**
- When the best universal chemical resistance is required
  ▶ **iglidur® X, page 153**
- When a cost-efficient high temperature bearing is sought, not the ideal wear resistance
  ▶ **iglidur® H2, page 359**
- When an FDA-compliant plain bearing with high temperature resistance is required
  ▶ **iglidur® A500, page 407**

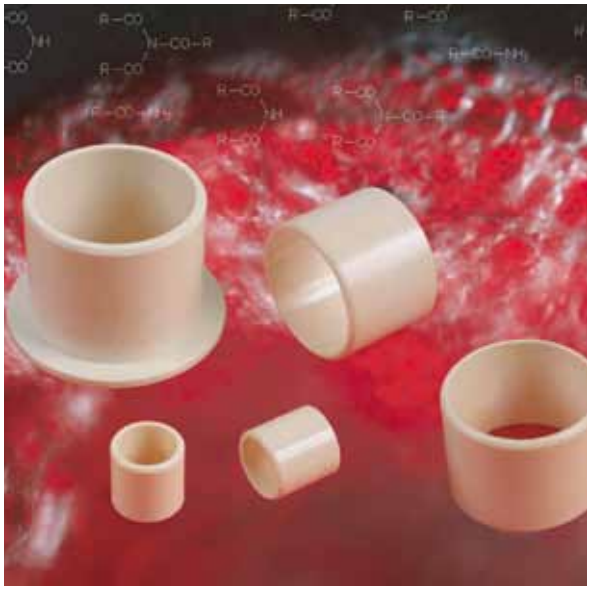
Temperature



Product range

2 types
Ø 6–20 mm
more dimensions
on request

iglidur® H1 | Application Examples



Typical sectors of industry and application areas

- Beverage technology
- Automation
- Packaging
- Textile technology
- Optical industry etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

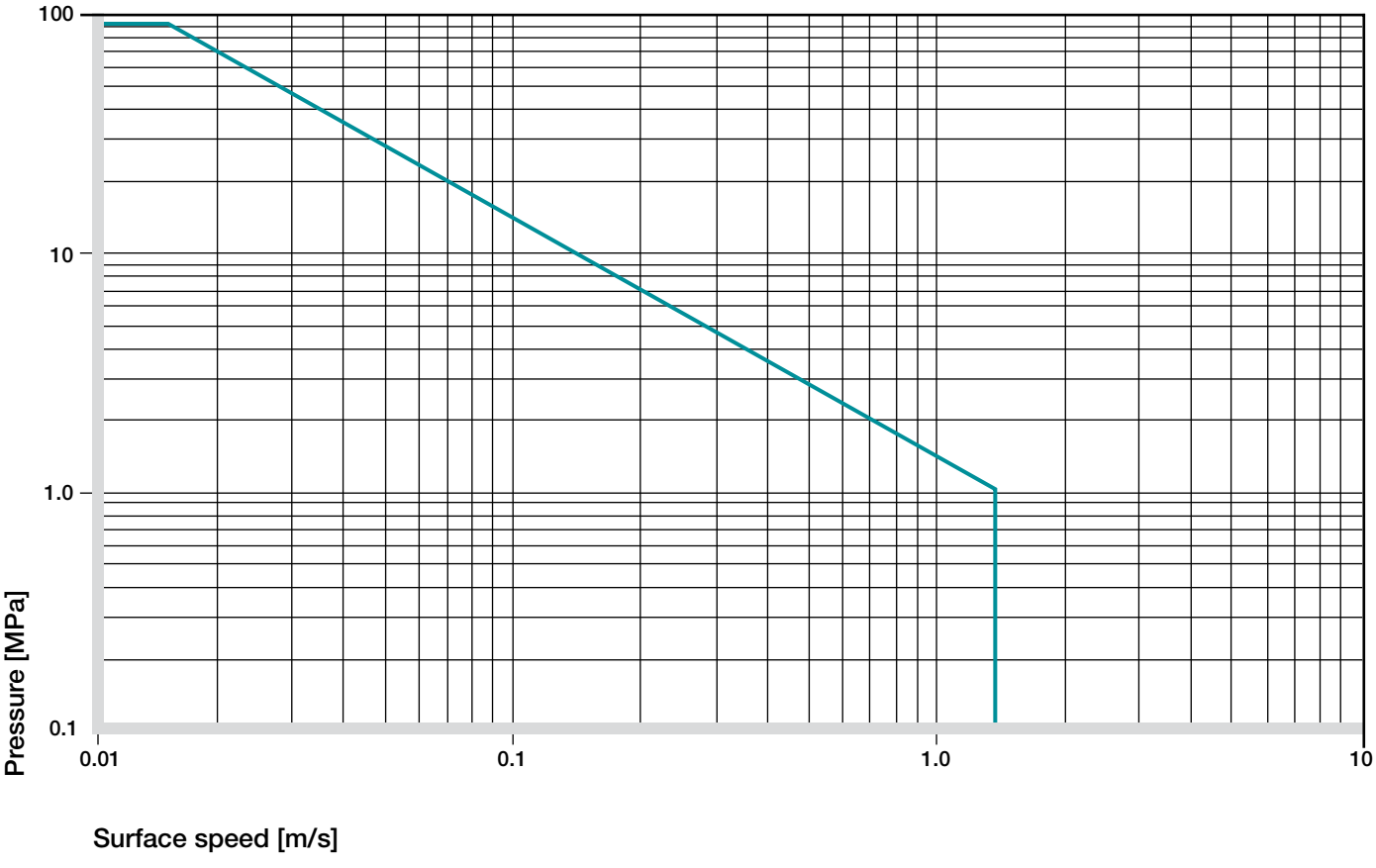
▶ www.igus.co.uk/washing-chain

▶ www.igus.co.uk/form-fill-seal

iglidur® H1 | Technical Data

Material data			
General properties	**Unit**	**iglidur® H1**	**Testing method**
Density	**g/cm³**	1.53	
Colour		cream	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.1	DIN 53495
Max. moisture absorption	**% weight**	0.3	
Coefficient of sliding friction, dynamic against steel	**µ**	0.06–0.20	
pv value, max. (dry)	**MPa · m/s**	0.8	
Mechanical properties			
Modulus of elasticity	**MPa**	2,800	DIN 53457
Tensile strength at +20 °C	**MPa**	55	DIN 53452
Compressive strength	**MPa**	78	
Max. recommended surface pressure (+20 °C)	**MPa**	80	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+200	
Max. short term application temperature	**°C**	+240	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	6	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{12}	DIN IEC 93
Surface resistance	**Ω**	> 10^{11}	DIN 53482

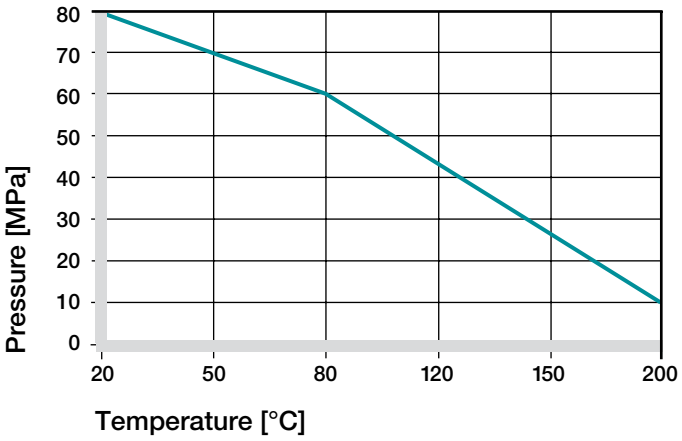
Table 01: Material data



Graph 01: Permissible pv values for iglidur® H1 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® H1 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +200° C the permissible surface pressure is almost 10 MPa.

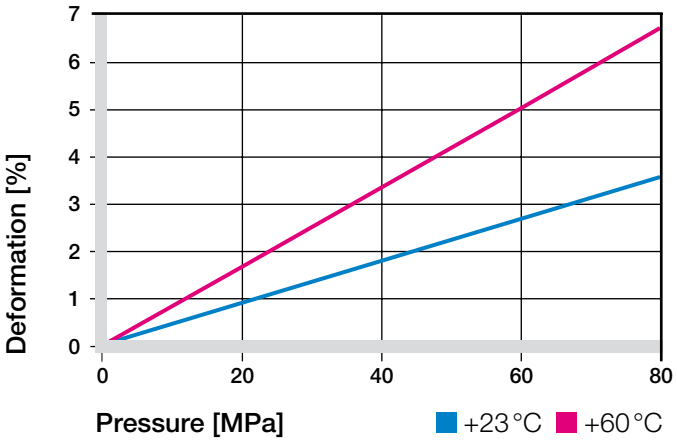


Graph 02: Recommended maximum surface pressure as a function of temperature (80 MPa at +20 °C)

iglidur® H1 plain bearings have been specially developed for use under extreme environmental conditions. Their strengths are the extremely high wear resistance and the excellent coefficients of friction even in applications in which the bearing is exposed to extreme temperatures and/or aggressive chemicals. iglidur® H1 bearings can be used completely free of lubrication; in wet area applications, the surrounding medium acts as additional lubricant.

Graph 03 shows the elastic deformation of iglidur® H1 during radial loading. Among the iglidur® H materials, iglidur® H1 material has the greatest elasticity. This must be considered for applications with high pressure or strong edge pressure.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

Due to the excellent coefficients of friction, rotating surface speeds up to 2 m/s are possible with iglidur® H1 plain bearings in dry operation. Linear speeds up to 5 m/s are attained. The speeds stated in Table 02 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	2	1.0	5
Short term	2.5	1.5	7

Table 02: Maximum running speed

Temperatures

iglidur® H is an extremely temperature-resistant material. The short term maximum temperature is +240 °C. The pressure-resistance of iglidur® H1 decreases wioth rising temperature. Apart from the surounding temperature, the friction heat resulting from the movement of the shaft in the bearing must be considered. The ambient temperatures that are pre-valent in applications also have an effect on the bearing wear. The wear rate rises with higher temperatures, but with iglidur® H1, this increase is small.

The temperature above which we recommend an additional axial securing is +90 °C for iglidur® H1, lower than for the other iglidur® H materials.

▶ Application Temperatures, **page 46**

iglidur® H1	Application temperature
Minimum	–40 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+ 80 °C

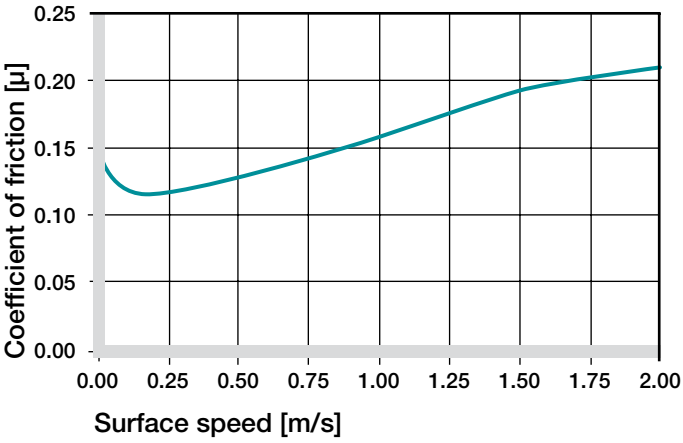
Table 03: Temperature limits

Friction and Wear

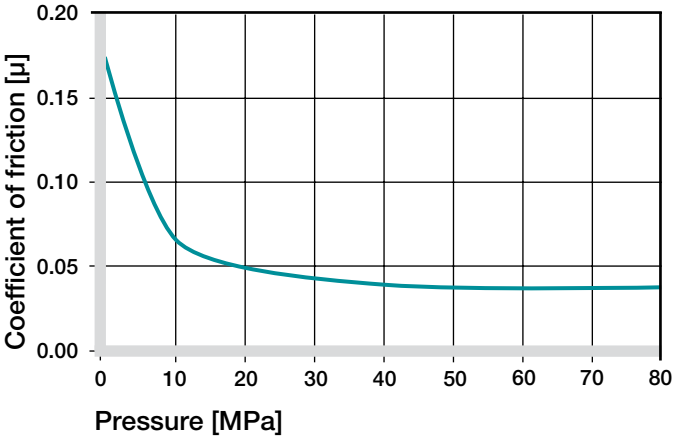
The coefficient of friction alters like the wear resistance with increasing load and speed. At constant load the coefficient of friction µ increases with the speed. At constant speed the coefficient of friction lowers with increasing load, whereupon almost constant values result from 40 MPa.

As the counter partner has a large influence on friction and wear, the choice of the appropriate shaft can be decisive. Smoother shafts than Ra = 0.1 µm raises the coefficient of friction. For applications with high loads, we recommend hardened and smoothed surfaces with an average surface finish of Ra = 0.3 to 0.4 µm.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



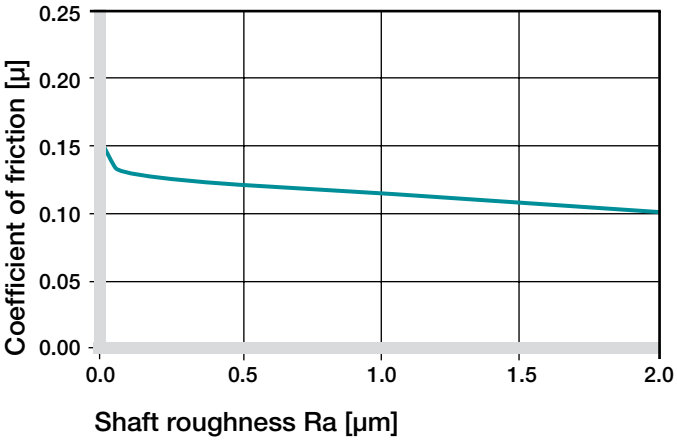
Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

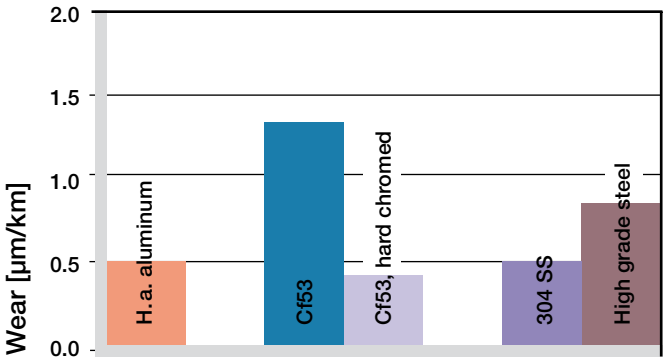
Graphs 06 to 09 display a summary of the results of tests with different shaft materials conducted with iglidur® H1 plain bearings in the igus® laboratory.

The iglidur® H1 plain bearings display excellent wear behavior in combination with a wide variety of shaft materials both in rotating and pivoting operations. On the V2A shafts in particular, iglidur® H1 attains very low wear rates both in rotating and pivoting operations. Even on hard-coated aluminum shafts, iglidur® H1 plain bearings attain high service life in rotating applications with low to medium loads.

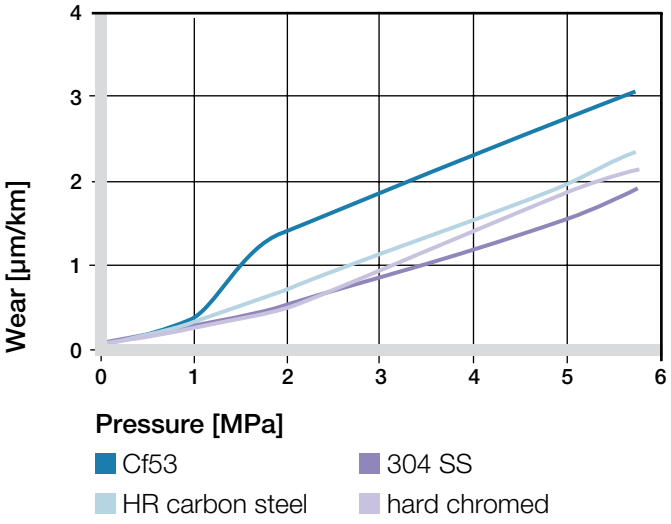
▶ Shaft Materials, **page 51**



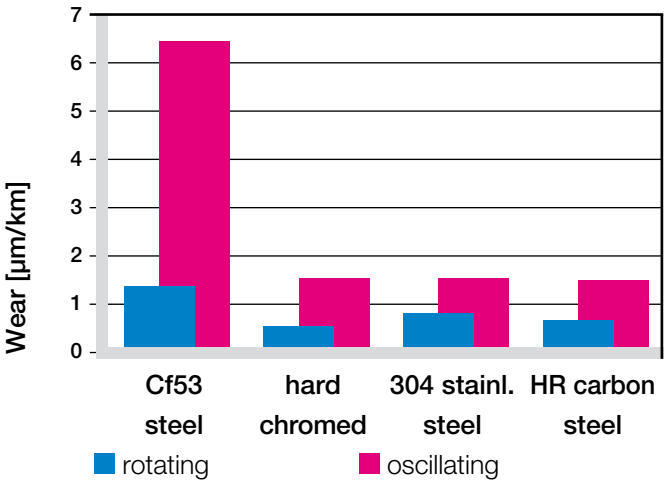
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® H1	Dry	Greases	Oil	Water
C. o. f. µ	0.06–0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® H1 bearings have a good resistance against chemicals. Hence even chemicals can act as lubricants. The iglidur® H1 plain bearings are not resistant against hot, oxidizing acids and some other particularly aggressive chemicals.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+ to 0
Strong acids	+ to –
Diluted alkalines	+
Strong alkalines	+ to –

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy

UV Resistance

iglidur® H1 bearings are only conditionally resistant to UV rays. The surface of iglidur® H1 becomes coarser under the influence of atmospheric conditions and the wear increases. Therefore the use of iglidur® H1 plain bearings in applications directly exposed to weathering should be tested in individual cases.

Vacuum

Water elements, even if only little, should be degassed for use in vacuum. The use in vacuum is generally possible.

Electrical Properties

iglidur® H1 plain bearings are electrically insulating.

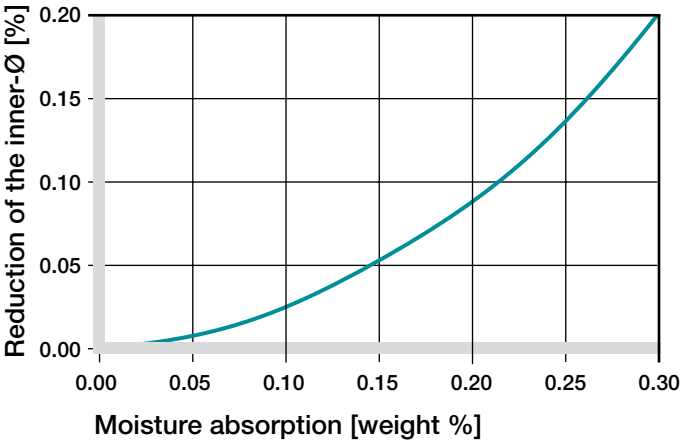
Volume resistance	$> 10^{12}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

Moisture Absorption

The moisture absorption of iglidur® H1 bearings is approximately 0.1 % in standard climatic conditions. The saturation limit in water is 0.3 %. Therefore iglidur® H1 is very well suited for use in wet environments.

Maximal moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. moisture absorption	0.3 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® H1 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9).

The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

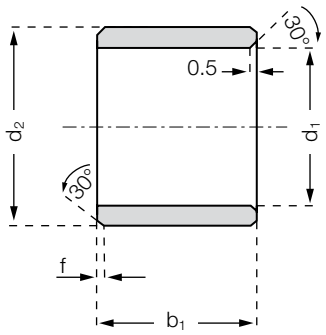
▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H1 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® H1 | Product Range

Sleeve bearing



Order key

H1SM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® H1

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

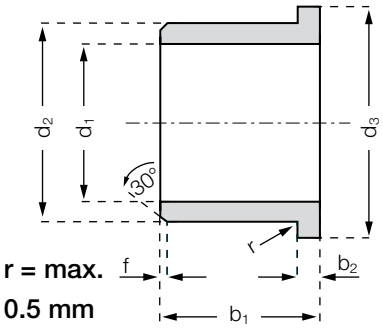
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
H1SM-0304-05	3.0	+0.006 +0.046	4.0	5.0
H1SM-0507-05	5.0	+0.010 +0.058	7.0	5.0
H1SM-0608-06	6.0	+0.010 +0.058	8.0	6.0
H1SM-0608-10	6.0	+0.010 +0.058	8.0	10.0
H1SM-0810-10	8.0	+0.013 +0.071	10.0	10.0
H1SM-0810-15	8.0	+0.013 +0.071	10.0	15.0
H1SM-1012-10	10.0	+0.013 +0.071	12.0	10.0
H1SM-1012-15	10.0	+0.013 +0.071	12.0	15.0
H1SM-1214-12	12.0	+0.016 +0.086	14.0	12.0
H1SM-1618-15	16.0	+0.016 +0.086	18.0	15.0
H1SM-2023-15	20.0	+0.020 +0.104	23.0	15.0
H1SM-2023-20	20.0	+0.020 +0.104	23.0	20.0
H1SM-2528-30	25.0	+0.020 +0.104	28.0	30.0
H1SM-3034-30	30.0	+0.020 +0.104	34.0	30.0
H1SM-3539-30	35.0	+0.025 +0.125	39.0	30.0
H1SM-4044-40	40.0	+0.025 +0.125	44.0	40.0

* after pressfit. Testing methods ▶ page 55

iglidur® H1 | Product Range

Flange bearing



Order key

H1FM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter
- Metric
- Type (Form F)
- Material iglidur® H1

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

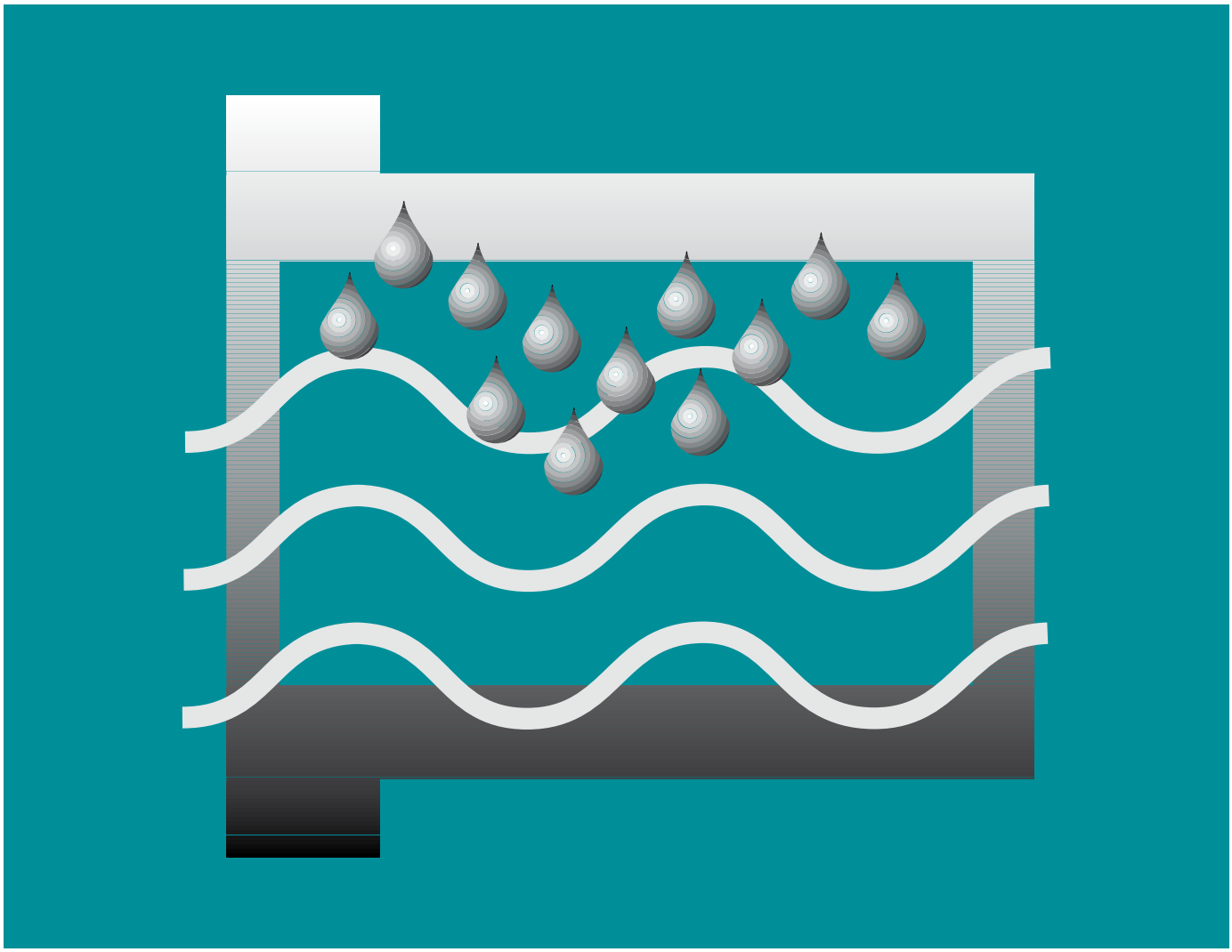
d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0,14
H1FM-0304-05	3.0	+0.006 +0.046	4.0	7.5	5.0	0.75
H1FM-0507-05	5.0	+0.010 +0.058	7.0	11.0	5.0	1.0
H1FM-0608-06	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
H1FM-0810-10	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
H1FM-1012-10	10.0	+0.013 +0.071	12.0	18.0	10.0	1.0
H1FM-1214-12	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
H1FM-1214-20	12.0	+0.016 +0.086	14.0	20.0	20.0	1.0
H1FM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
H1FM-1618-25	16.0	+0.016 +0.086	18.0	24.0	25.0	1.0
H1FM-1820-12	18.0	+0.016 +0.086	20.0	26.0	12.0	1.0
H1FM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.0	1.5
H1FM-2023-30	20.0	+0.020 +0.104	23.0	30.0	30.0	1.5
H1FM-2528-21	25.0	+0.020 +0.104	28.0	35.0	21.0	1.5
H1FM-3034-26	30.0	+0.020 +0.104	34.0	42.0	26.0	2.0
H1FM-3539-26	35.0	+0.025 +0.125	39.0	47.0	26.0	2.0
H1FM-4044-40	40.0	+0.025 +0.125	44.0	52.0	40.0	2.0

* after pressfit. Testing methods ▶ page 55

delivery time available ex stock | prices price list online www.igus.co.uk/en/h1 | order example part number H1FM-0608-06

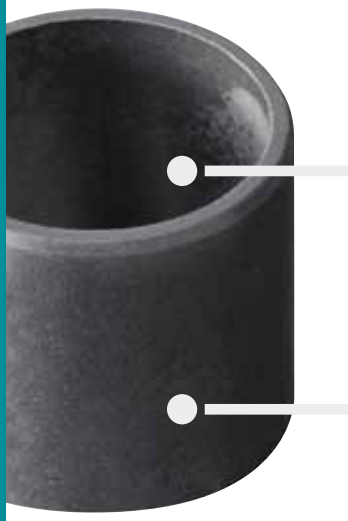


iglidur® H370 – wear resistant under water

- Standard range from stock
- Wear-resistant – especially under water
- High temperature resistance –40 °C to +200 °C
- High resistance to chemicals

iglidur® H370

Wear resistant under water. iglidur® H370 is the right solution for underwater applications. The bearings absorb extremely high loads, resist chemicals and can be used at temperatures up to +200 °C.



Wear-resistant – especially under water

High temperature resistance –40 °C to +200 °C

High resistance to chemicals

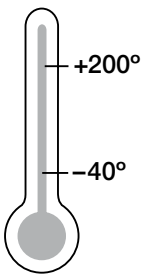
When to use it?

- For underwater use
- When it is dependent on high temperature resistance
- When high mechanical loading and wear resistance is required
- When good resistance to chemicals is required

When not to use it?

- When mechanical reaming of the wall surface is necessary
  ▶ **iglidur® M250, page 107**
- When high wear resistance in temperatures is required
  ▶ **iglidur® H1, page 337**
- For use in dirty surroundings
  ▶ **iglidur® Z, page 299**
- When a cost-efficient, large-volume solution is required
  ▶ **iglidur® H2, page 359**

Temperature



Product Range

2 types
Ø 3–75 mm
more dimensions
on request

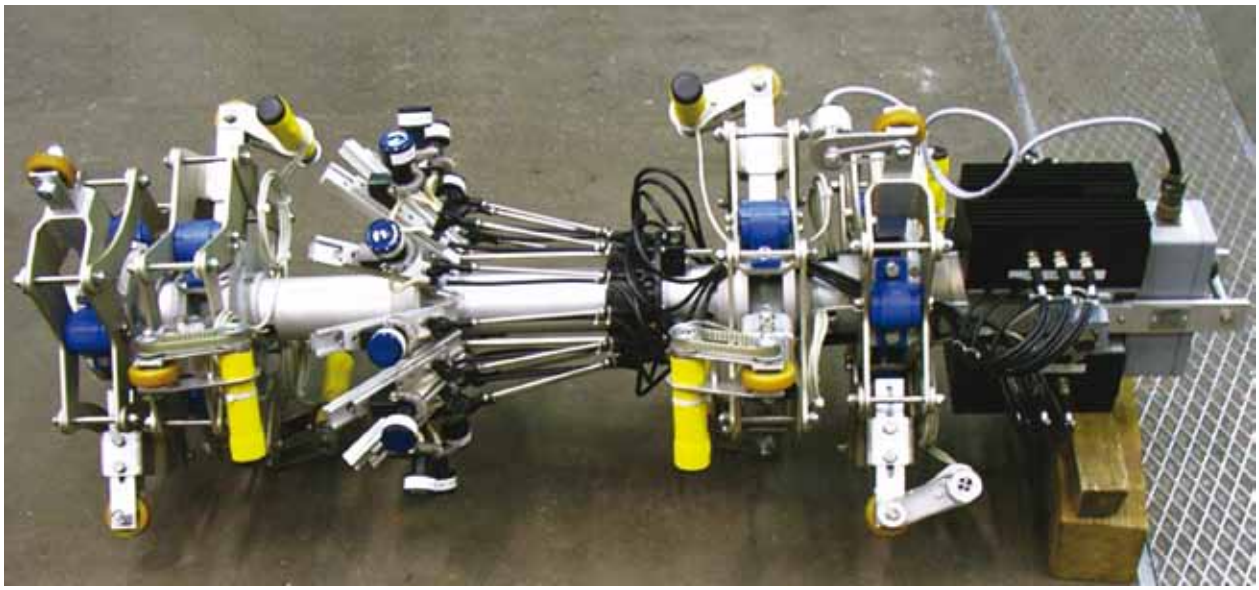
iglidur® H370 | Application Examples

Typical sectors of industry and application areas

● Offshore ● Marine engineering
● Fluid technology ● Packaging
● Plant construction etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications



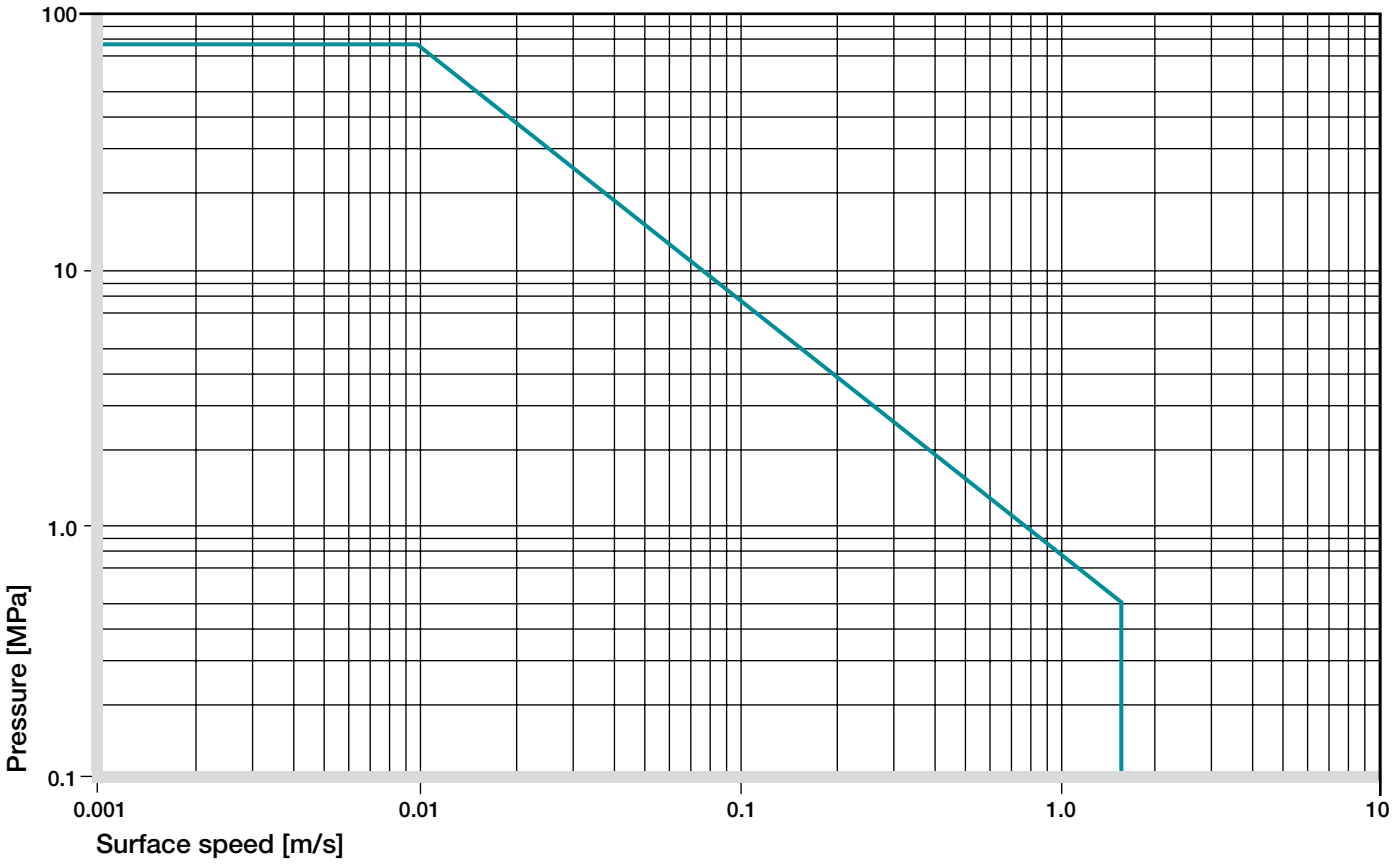
▶ www.igus.co.uk/oilplatform

▶ www.igus.co.uk/ultrasonic-tests

iglidur® H370 | Technical Data

Material data			
General properties	**Unit**	**iglidur® H370**	**Testing method**
Density	**g/cm³**	1.66	
Colour		grey	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.1	DIN 53495
Max. moisture absorption	**% weight**	0.1	
Coefficient of sliding friction, dynamic against steel	**µ**	0.07–0.17	
pv value, max. (dry)	**MPa · m/s**	0.74	
Mechanical properties			
Modulus of elasticity	**MPa**	11,100	DIN 53457
Tensile strength at +20 °C	**MPa**	135	DIN 53452
Compressive strength	**MPa**	79	
Max. recommended surface pressure (+20 °C)	**MPa**	75	
Shore D hardness		82	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+200	
Max. short term application temperature	**°C**	+240	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.5	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	5	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	< 10^5	DIN IEC 93
Surface resistance	**Ω**	< 10^5	DIN 53482

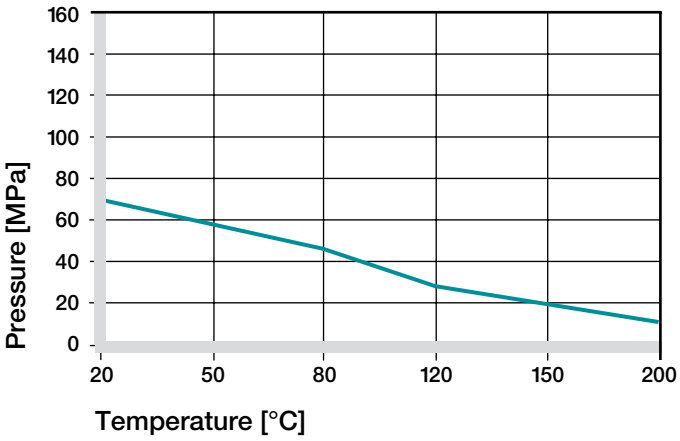
Table 01: Material data



Graph 01: Permissible pv values for iglidur® H370 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

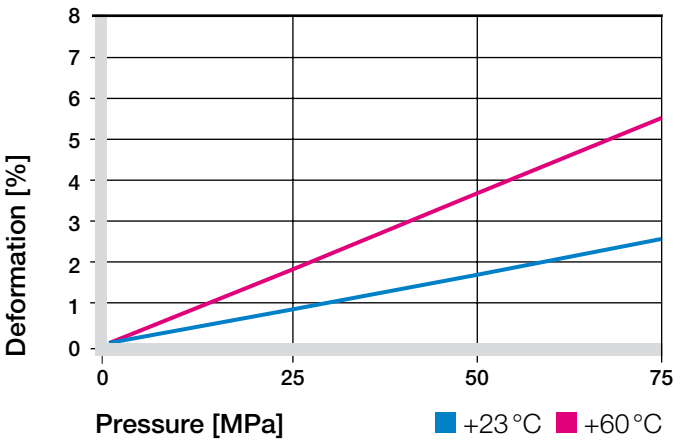
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® H370 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +200 ° C the permissible surface pressure is almost 10 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (75 MPa at +20 °C)

iglidur® H370 is an advanced development of the iglidur® H series. The material is characterized by particularly low water absorption and clearly enhanced wear resistance. With regard to the mechanical and thermal characteristic values, iglidur® H370 shows the same features as iglidur® H. Graph 02 shows how iglidur® H370 elastically deforms under radial load. Under the maximum recommended surface pressure of 75 MPa, the deformation at room temperature amounts to about 2.5 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

The maximum permitted surface speed is dependent on whether the temperature in the bearing location rises strongly or not. iglidur® H370 is suitable for surface speeds up to 1 m/s (rotating) and 3 m/s (linear) respectively.
The maximum values stated in Table 02 are valid only with minimum pressure loads and are often not attained in practice.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1.2	0.8	4
Short term	1.5	1.1	5

Table 02: Maximum running speed

Temperatures

iglidur® H370 is an extremely temperature-resistant material. With a short-term permitted maximum temperature of +240 °C, the iglidur® H370 bearings can in otherwise unloaded condition be subjected for instance, to a paint drying process. With increasing temperatures, the compressive strength of iglidur® H370 bearings decreases. The ambient temperatures that are pre-valent in applications also have an effect on the bearing wear. The wear rises with increasing temperatures.
iglidur® H370 loses about 75 % of its compressive strength with a rise in temperature range, from room temperature to +150 °C. In contrast the increase in wear is hardly noticeable in the same temperature range.

▶ Application Temperatures, **page 46**

iglidur® H370	Application temperature
Minimum	–40 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+100 °C

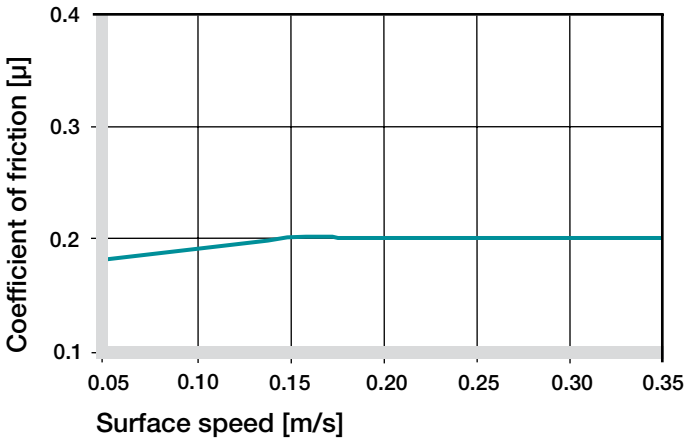
Table 03: Temperature limits

Friction and Wear

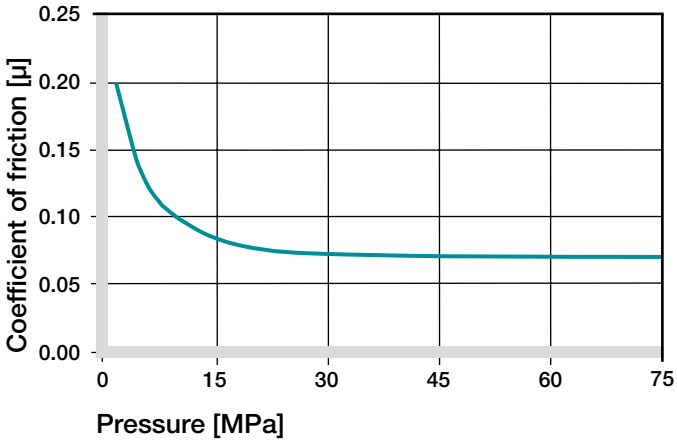
The coefficients of friction and wear in iglidur® H370 are more favorable than in iglidur® H. There is no better material than iglidur® H370 especially for underwater applications. The coefficient of friction alters only little, like the wear resistance with increasing load and surface speed. This connection illustrates the excellent suitability of iglidur® H370 bearings with high loads.

Friction and wear also depend to a high degree on the reverse partner. Very smooth shafts increase the coefficient of both friction and wear. The ideally suited is a smoothed surface with an average surface finish of Ra = 0.2 to 0.4 µm.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

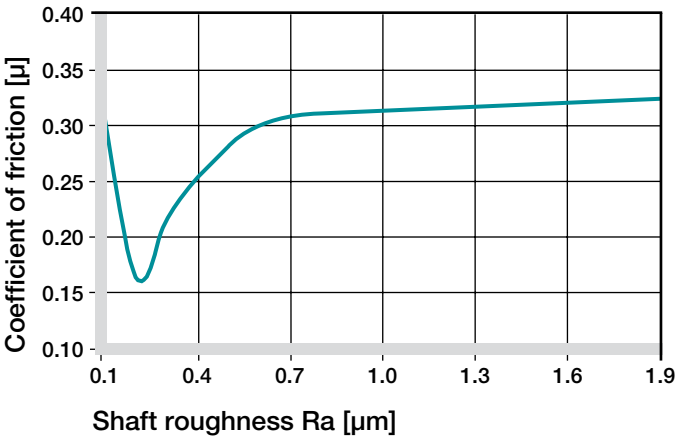
Shaft Materials

Graphs 06 to 09 show the test results of iglidur® H370 bearings running against various shaft materials.

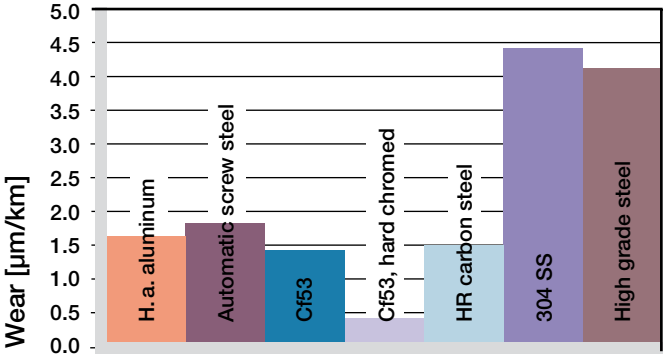
For loads up to 2 MPa, the hard-chromed shaft is the best counter partner for the iglidur® H370 bearings in rotating applications. The high coefficients of wear with V2A shafts are striking, which due to their extremely smooth surfaces are prone to the stick-slip effect. The St37 shaft shows better values than Cf53, despite same values in the lowest range, from 2 MPa.

On the other hand, the V2A shaft shows a clear advantage in pivoting movements. (Graph 08).

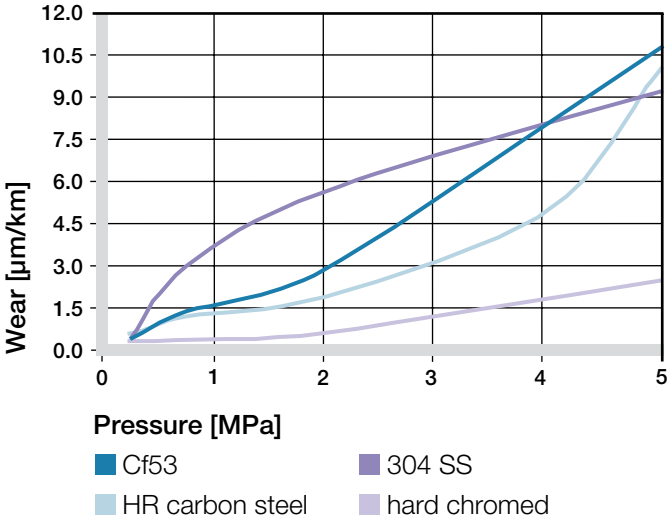
▶ Shaft Materials, **page 51**



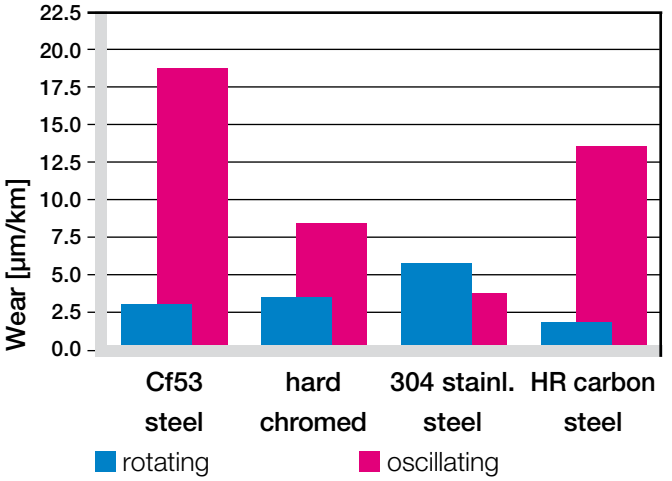
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure, p = 1 MPa, v = 0,3 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® H370	Dry	Greases	Oil	Water
C.o.f. µ	0.07–0.17	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® H370 bearings have a good resistance against chemicals. They are resistant to most lubricants.
The iglidur® is not affected by most weak organic and inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	–
Diluted acids	–
Strong acids	–
Diluted alkalines	+ to 0
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

iglidur® H370 withstands neutron and gamma particle radiation without detectable losses of its excellent mechanical properties. Plain bearings made from iglidur® H370 are resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® H370 plain bearings are permanently resistant against UV radiation.

Vacuum

In a vacuum environment, moisture is released as a vapour. Due to its low moisture absorption, use in a vacuum is possible.

Electrical Properties

iglidur® H370 plain bearings are electrically conductive.

Volume resistance	$< 10^5$ Ωcm
Surface resistance	$< 10^5$ Ω

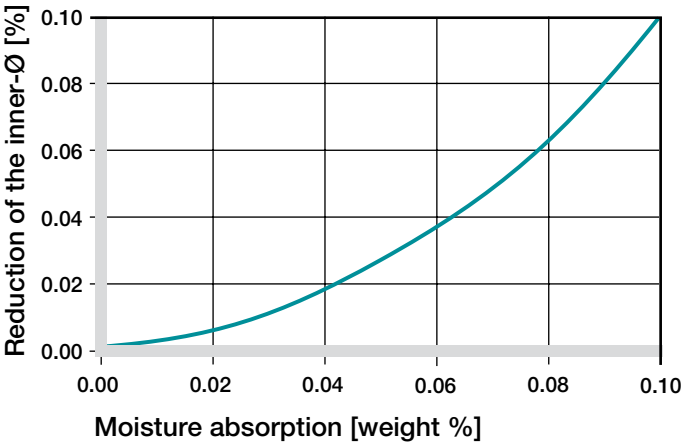
Moisture Absorption

The moisture absorption of iglidur® H370 plain bearings is below 0.1 % in standard atmosphere. The saturation limit in water is also below 0.1 %.

For this reason, iglidur® H370 plain bearings are often used for underwater applications.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. moisture absorption	0.1 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® H370 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9).

The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

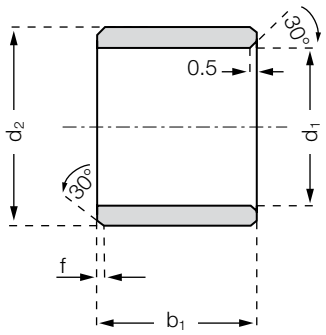
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® H370 F10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.006 +0.046	0 +0.010
>	3 to	6	0–0.030	+0.010 +0.058	0 +0.012
>	6 to	10	0–0.036	+0.013 +0.071	0 +0.015
>	10 to	18	0–0.043	+0.016 +0.086	0 +0.018
>	18 to	30	0–0.052	+0.020 +0.104	0 +0.021
>	30 to	50	0–0.062	+0.025 +0.125	0 +0.025
>	50 to	80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® H370 | Product Range

Sleeve bearing



Order key

H370SM-0304-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® H370

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
H370SM-0304-03	3.0	+0.006 +0.046	4.5	3.0
H370SM-0405-04	4.0	+0.010 +0.058	5.5	4.0
H370SM-0405-12	4.0	+0.010 +0.058	5.5	12.0
H370SM-0507-05	5.0	+0.010 +0.058	7.0	5.0
H370SM-0608-06	6.0	+0.010 +0.058	8.0	6.0
H370SM-0810-08	8.0	+0.013 +0.071	10.0	8.0
H370SM-1012-10	10.0	+0.013 +0.071	12.0	10.0
H370SM-1214-10	12.0	+0.016 +0.086	14.0	10.0
H370SM-1214-15	12.0	+0.016 +0.086	14.0	15.0
H370SM-1517-15	15.0	+0.016 +0.086	17.0	15.0
H370SM-1618-15	16.0	+0.016 +0.086	18.0	15.0

Part number	d1	d1-Tolerance*	d2	b1 h13
H370SM-1618-20	16.0	+0.016 +0.086	18.0	20.0
H370SM-1820-15	18.0	+0.016 +0.086	20.0	15.0
H370SM-2023-20	20.0	+0.020 +0.104	23.0	20.0
H370SM-2528-20	25.0	+0.020 +0.104	28.0	20.0
H370SM-3034-30	30.0	+0.020 +0.104	34.0	30.0
H370SM-3539-40	35.0	+0.025 +0.125	39.0	40.0
H370SM-4044-50	40.0	+0.025 +0.125	44.0	50.0
H370SM-5055-40	50.0	+0.025 +0.125	55.0	40.0
H370SM-5560-26	55.0	+0.030 +0.150	60.0	26.0
H370SM-6065-60	60.0	+0.030 +0.150	65.0	60.0
H370SM-7580-60	75.0	+0.030 +0.150	80.0	60.0

Dimensions [Inch]

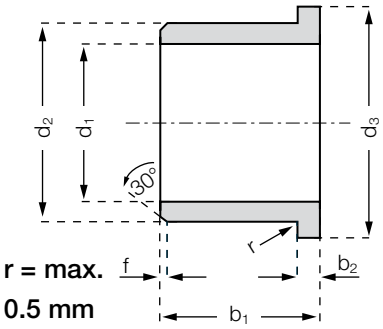
Part number	d1	d2	b1	d1*		Housing Bore		Shaft Size	
			h13	max.	min.	max.	min.	max.	min.
H370SI-0203-03	1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236
H370SI-0304-04	3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858
H370SI-0405-04	1/4	5/16	1/4	.2521	.2498	.3128	.3122	.2490	.2481
H370SI-0506-06	5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106
H370SI-0607-08	3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731
H370SI-0809-08	1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980
H370SI-1011-12	5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230
H370SI-1214-12	3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479
H370SI-1416-16	7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729
H370SI-1618-16	1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979
H370SI-2022-20	1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/h370 | order example part number H370SM-0304-03

iglidur® H370 | Product Range

Flange bearing



r = max. 0.5 mm

Order key

H370FM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® H370

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part Number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0,14
H370FM-0405-04	4.0	+0.010 +0.058	5.5	9.5	4.0	0.75
H370FM-0507-05	5.0	+0.010 +0.058	7.0	11.0	5.0	1.0
H370FM-0608-06	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
H370FM-0810-06	8.0	+0.013 +0.071	10.0	15.0	6.0	1.0
H370FM-0810-15	8.0	+0.013 +0.071	10.0	15.0	15.0	1.0
H370FM-1012-10	10.0	+0.013 +0.071	12.0	18.0	10.0	1.0
H370FM-1012-20	10.0	+0.013 +0.071	12.0	18.0	20.0	1.0
H370FM-1012-145	10.0	+0.013 +0.071	12.0	18.0	14.5	1.0
H370FM-1214-07	12.0	+0.016 +0.086	14.0	20.0	7.0	1.0
H370FM-1214-12	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
H370FM-1214-15	12.0	+0.016 +0.086	14.0	20.0	15.0	1.0
H370FM-1416-12	14.0	+0.016 +0.086	16.0	22.0	12.0	1.0
H370FM-1517-17	15.0	+0.016 +0.086	17.0	23.0	17.0	1.0
H370FM-1618-10	16.0	+0.016 +0.086	18.0	24.0	10.0	1.0
H370FM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
H370FM-1820-12	18.0	+0.016 +0.086	20.0	26.0	12.0	1.0
H370FM-1820-17	18.0	+0.016 +0.086	20.0	26.0	17.0	1.0
H370FM-2023-16	20.0	+0.020 +0.104	23.0	30.0	16.0	1.5
H370FM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.5	1.5
H370FM-2023-30	20.0	+0.020 +0.104	23.0	30.0	30.0	1.5
H370FM-222532-215	22.0	+0.020 +0.104	25.0	32.0	21.5	1.5
H370FM-2528-30	25.0	+0.020 +0.104	28.0	35.0	30.0	1.5
H370FM-3034-40	30.0	+0.020 +0.104	34.0	42.0	40.0	2.0
H370FM-3539-26	35.0	+0.025 +0.125	39.0	47.0	26.0	2.0
H370FM-4044-40	40.0	+0.025 +0.125	44.0	52.0	40.0	2.0

* after pressfit. Testing methods ▶ page 55

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iglidur® H370 | Product Range

Flange bearing

Dimensions [mm]

Part Number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0,14
H370FM-5055-50	50.0	+0.025 +0.125	55.0	63.0	50.0	2.0
H370FM-6065-50	60.0	+0.030 +0.150	65.0	73.0	50.0	2.0
H370FM-7075-50	70.0	+0.030 +0.150	75.0	83.0	50.0	2.0

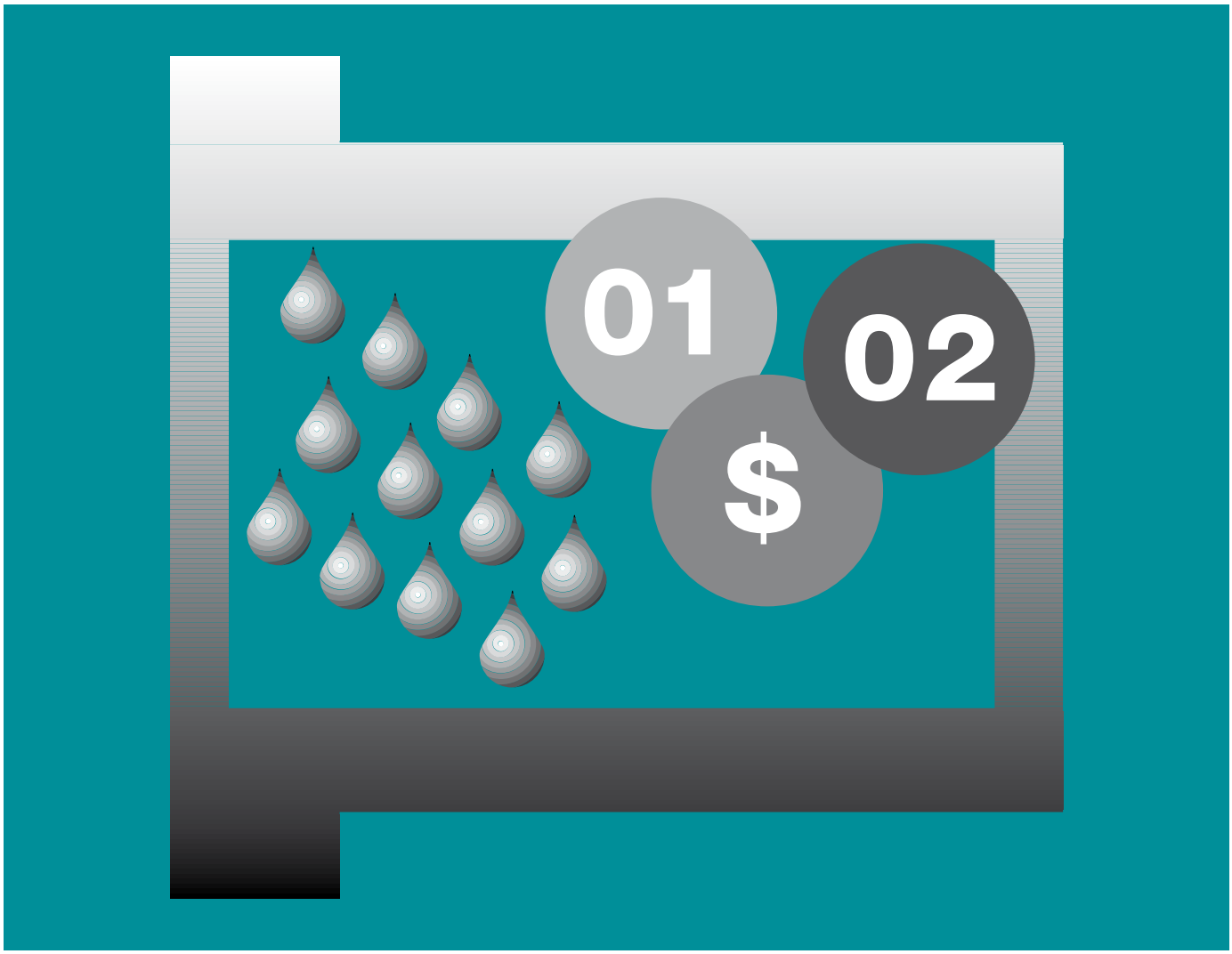
* after pressfit. Testing methods ▶ page 55

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing Bore		Shaft Size	
			h13		–0,14	max.	min.	max.	min.	max.	min.
H370FI-0203-03	1/8	3/16	3/16	.312	.032	.1269	.1251	.1878	.1873	.1243	.1236
H370FI-0304-04	3/16	1/4	1/4	.375	.032	.1892	.1873	.2503	.2497	.1865	.1858
H370FI-0405-04	1/4	5/16	1/4	.500	.032	.2521	.2498	.3128	.3122	.2490	.2481
H370FI-0506-06	5/16	3/8	3/8	.562	.032	.3148	.3125	.3753	.3747	.3115	.3106
H370FI-0607-08	3/8	15/32	1/2	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
H370FI-0809-08	1/2	19/32	1/2	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
H370FI-1011-12	5/8	23/32	3/4	1.000	.046	.6280	.6253	.7192	.7184	.6240	.6230
H370FI-1214-12	3/4	7/8	3/4	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
H370FI-1416-16	7/8	1	1	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
H370FI-1618-16	1	1 1/8	1	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
H370FI-2022-20	1 1/4	1 13/32	1 1/4	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472

* after pressfit. Testing methods ▶ page 55

My Sketches

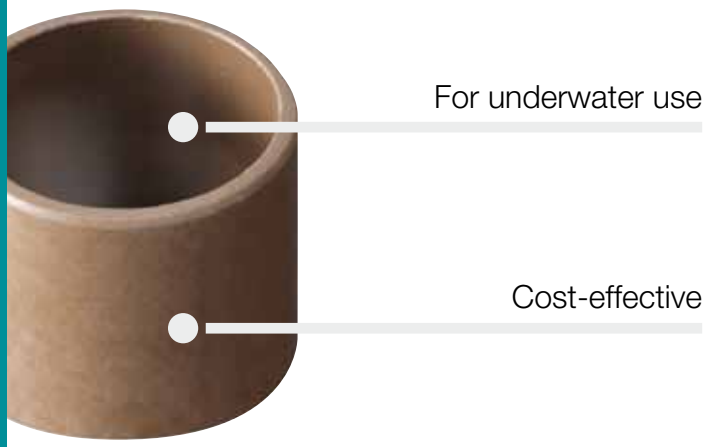


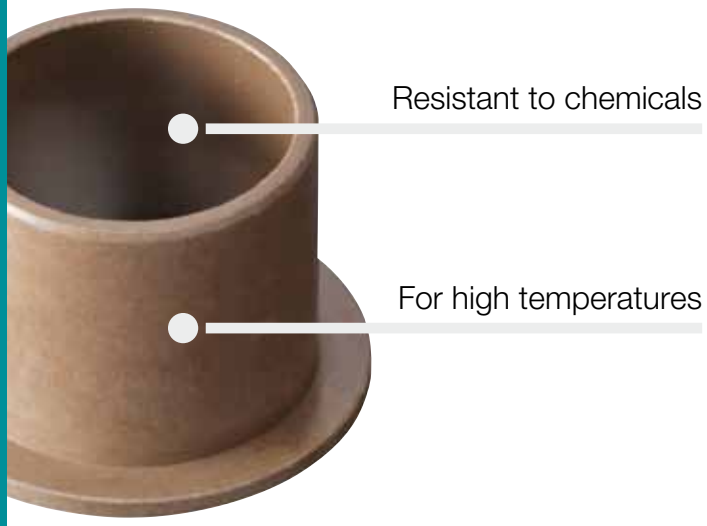
iglidur® H2 – low-cost high temperature material

- Can be used underwater
- Cost-effective
- Resistant to chemicals
- For high temperatures

iglidur® H2

Low-cost high temperature material. For application with high temperature requirements. Can be conditionally used in dry operation; excellent properties with additional lubrication.





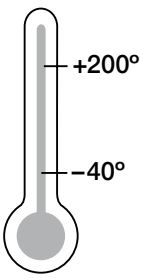
When to use it?

- For underwater use
- When a cost-effective bearing for high temperatures is desired
- For applications with fuels, oils etc.
- Resistant to chemicals

When not to use it?

- When the highest wear resistance is required
  - ▶ **iglidur® H1, page 337**
  - ▶ **iglidur® H4, page 451**
  - ▶ **iglidur® W300, page 131**
- When vibration dampening is necessary
  - ▶ **iglidur® B, page 485**
  - ▶ **iglidur® M250, page 107**
- When neither increased temperatures nor media contact occur
  - ▶ **iglidur® GLW, page 197**

Temperature



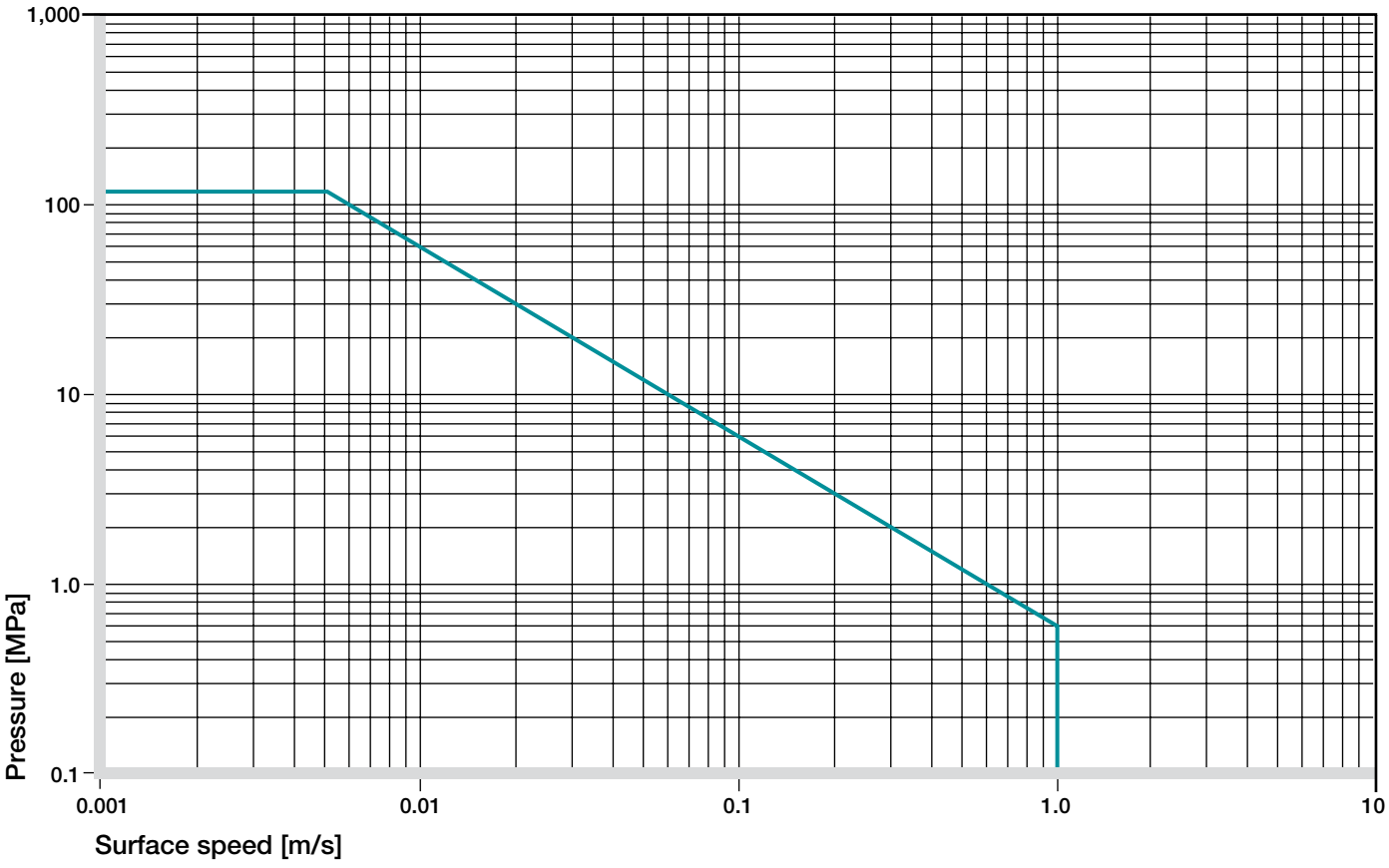
Product range

on request

iglidur® H2 | Technical Data

Material data			
General properties	**Unit**	**iglidur® H2**	**Testing method**
Density	**g/cm³**	1.69	
Colour		brown	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.1	DIN 53495
Max. moisture absorption	**% weight**	0.2	
Coefficient of sliding friction, dynamic against steel	**µ**	0.07–0.3	
pv value, max. (dry)	**MPa · m/s**	0.58	
Mechanical properties			
Modulus of elasticity	**MPa**	10,300	DIN 53457
Tensile strength at +20 °C	**MPa**	210	DIN 53452
Compressive strength	**MPa**	109	
Max. recommended surface pressure (+20 °C)	**MPa**	110	
Shore D hardness		88	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+200	
Max. short term application temperature	**°C**	+240	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	4	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{15}	DIN IEC 93
Surface resistance	**Ω**	> 10^{14}	DIN 53482

Table 01: Material data

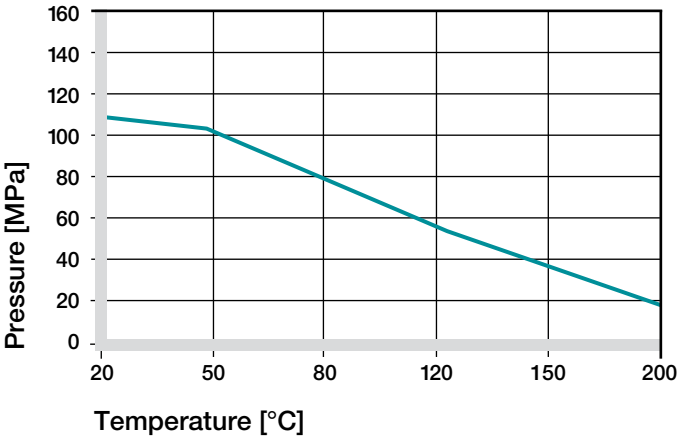


Graph 01: Permissible pv values for iglidur® H2 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® H2 | Technical Data

Mechanical Properties

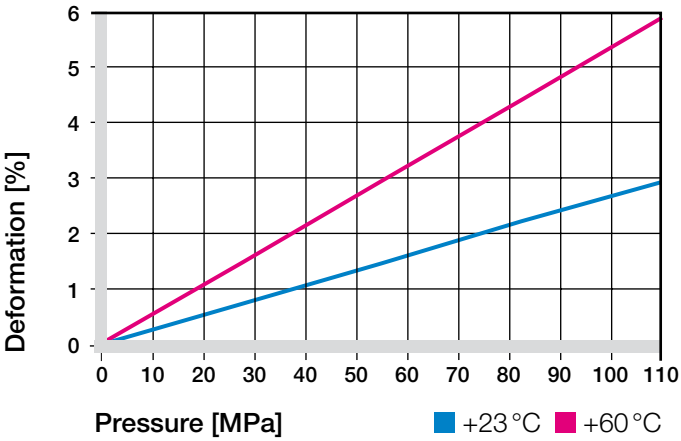
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® H2 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +200 °C the permissible surface pressure is almost 20 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (110 MPa at +20 °C)

In applications with the iglidur® H2 bearings, economical aspects are in focus. It is the first time that it is possible to offer such a high-performance bearing for large volume applications with these technical advantages at such a low price: Temperatures up to +200 °C, permitted surface pressure till 110 N/mm², and excellent chemical resistance. A mixture of solid lubricants lowers the coefficient of friction and supports the wear resistance. The iglidur® H2 bearings are self-lubricating and suitable for all motions.
Graph 03 shows the elastic deformation of iglidur® H2 during radial loading. At the recommended maximum surface pressure of 110 MPa the deformation is less than 3 %. The values for tensile and compressive strength are higher than those of iglidur® H at room temperature.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

In the development of iglidur® H2, cost aspects and mechanical stability were in focus. The permitted surface speeds of this bearing are rather low, which primarily permits an application with slow movements or in intermittent service.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.9	0.6	2.5
Short term	1	0.7	3

Table 02: Maximum running speed

Temperatures

iglidur® H2 is an extremely temperature-resistant material. The short-term permitted maximum temperature is +240 °C and this enables the iglidur® H2 bearings to be subjected, for instance to a paint drying process without further load. With increasing temperatures, the compressive strength of iglidur® H2 bearings however decreases more strongly than in iglidur® H.
The temperatures prevailing in the bearing system also have an influence on the bearing wear. The wear rises with increasing temperatures.

▶ Application Temperatures, **page 46**

iglidur® H2	Application temperature
Minimum	–40 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+ 110 °C

Table 03: Temperature limits

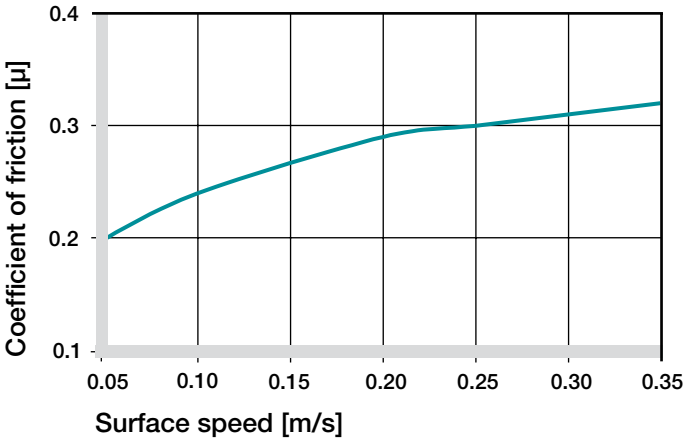
Friction and Wear

The coefficients of friction of iglidur® H2 plain bearings change with different surface speeds, loads and roughness, as indicated in the graphs 04-06. Paired with hardened steel shafts, the friction of the iglidur® H2 bearing reduces sharply and in the high load range attains (> 30 MPa) values of 0.07.

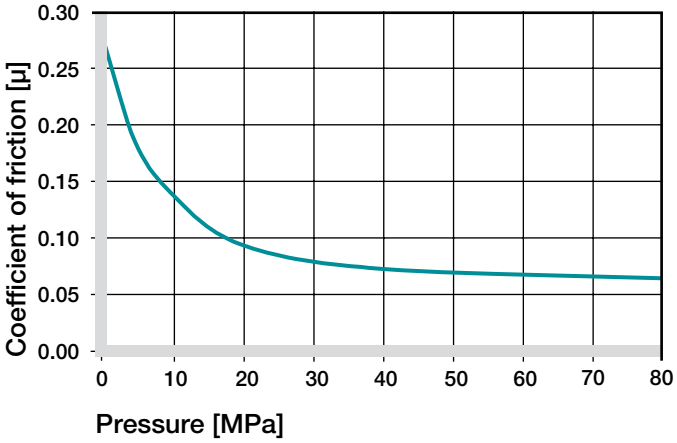
The hardness and brittleness of the material are the reason for the sensitivity of the iglidur® H2 bearing with coarse shafts; smooth shafts (Ra = 0.1) in contrast do not increase the friction of the systems.

▶ Coefficients of Friction and Surfaces, **page 48**

▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



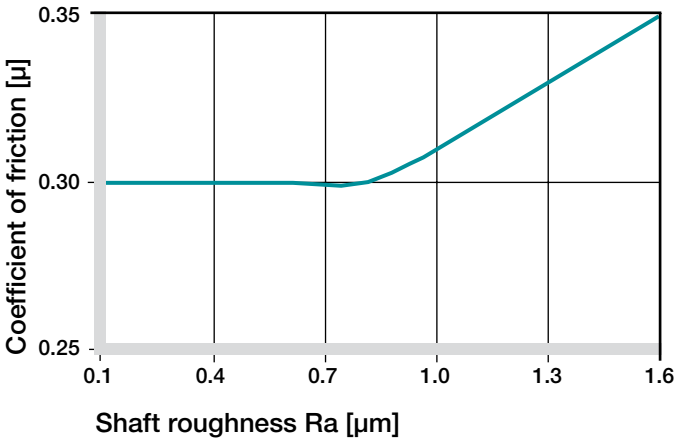
Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

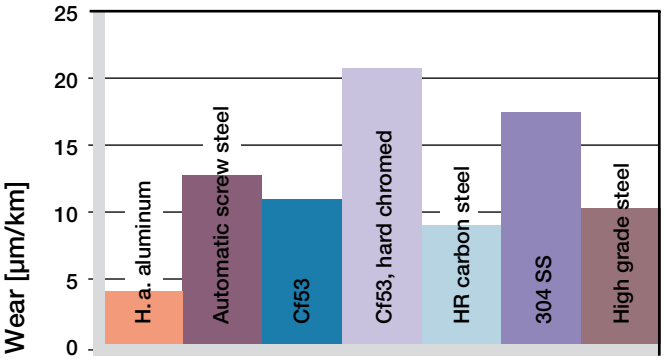
Regarding the wear resistance of combinations with iglidur® H2, it must be indicated once again that this bearing was developed for statically high mechanical stability. The wear resistance however does not attain, with none of the bearing-shaft combinations, the values of iglidur® H370 with the corresponding shaft.

When the iglidur® H2 bearings are used, they should not be combined with hard-chromed shafts. Shafts made of Cf53 and V2A are essentially better, as is found in Graphs 08 and 09.

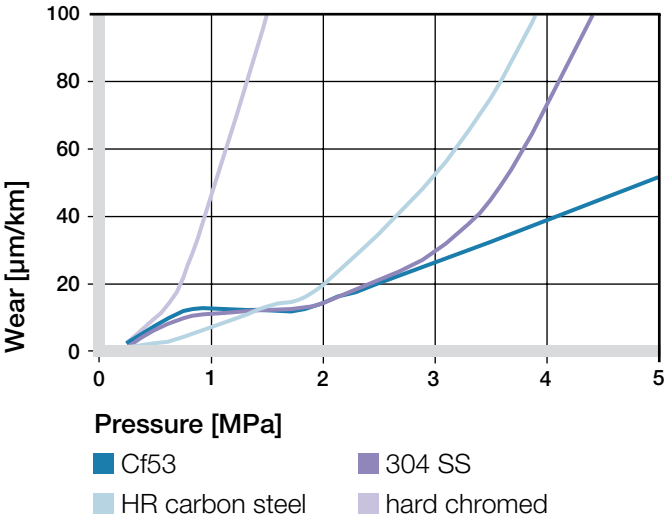
▶ Shaft Materials, **page 51**



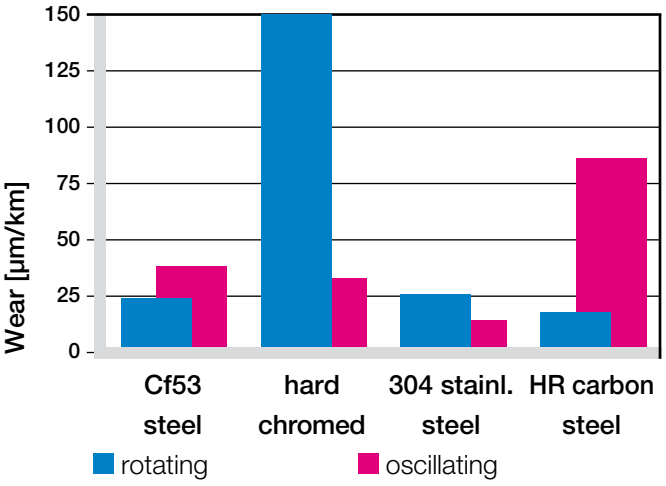
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® H2	Greases	Fett	Oil	Water
C. o. f. µ	0.07–0.30	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® H2 bearings have a good resistance against chemicals. They are resistant to most lubricants.
The iglidur® H2 is not affected by most weak organic and inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+ to 0
Strong acids	+ to –
Diluted alkalines	+
Strong alkalines	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

iglidur® H2 withstands neutron and gamma particle radiation without detectable losses of its excellent mechanical properties. Plain bearings made of iglidur® H2 are resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® H2 plain bearings change under the influence of UV radiation and other weathering effects. The surface becomes rougher and the compressive strength decreases. The use of iglidur® H2 in applications that are permanently exposed to weathering should be checked.

Vacuum

In a vacuum environment, small moisture components are released as vapour. It is possible to use iglidur® H2 in a vacuum.

Electrical Properties

iglidur® H2 plain bearings are electrically insulating.

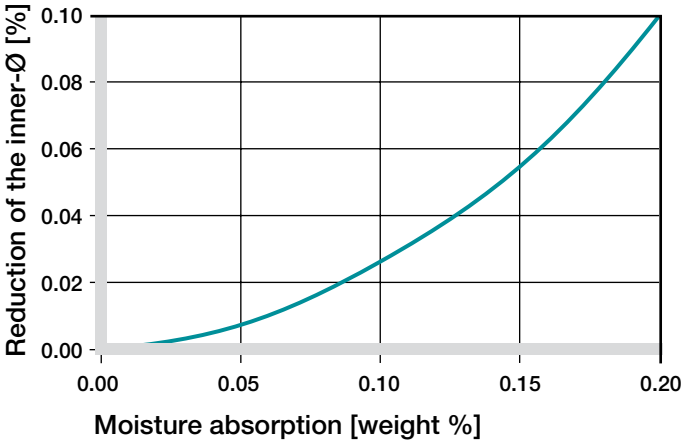
Volume resistance	> 10^{15} Ωcm
Surface resistance	> 10^{14} Ω

Moisture Absorption

The moisture absorption of iglidur® H2 bearings is approximately 0.1 % in standard climatic conditions. The saturation limit in water is 0.3 %. iglidur® H2 is an ideal material for wet environments.

Maximal Moisture Absorption	
At +23 °C/50 % r.h.	0.1 % weight
Max. moisture absorption	0.2 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® H2 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size retainer, the inner diameter is adjusted to meet our specified tolerances.

▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® H2 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Product Range

Plain bearings made of iglidur® H2 are manufactured to special order. Please request iglidur® H2 bearings as an alternative to iglidur® H and iglidur® H370 bearings in high volume applications.

iglidur® Specialists | Contact with Food

iglidur® A180

FDA-general purpose waterproof material

Standard range from stock ▶ **from page 371**

iglidur® A200

FDA-compliant and vibration-dampening, absorbs moisture

Standard range from stock ▶ **from page 381**

iglidur® A350 NEW!*

FDA-compliant and wear-resistant at high temperatures

Standard range from stock ▶ **from page 397**

iglidur® A500

FDA-material for high temperatures and high load

Standard range from stock ▶ **from page 407**

iglidur® A290

the robust general purpose material

Standard range from stock ▶ **from page 417**

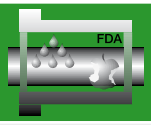
iglidur® T220

suitable for the tobacco industry

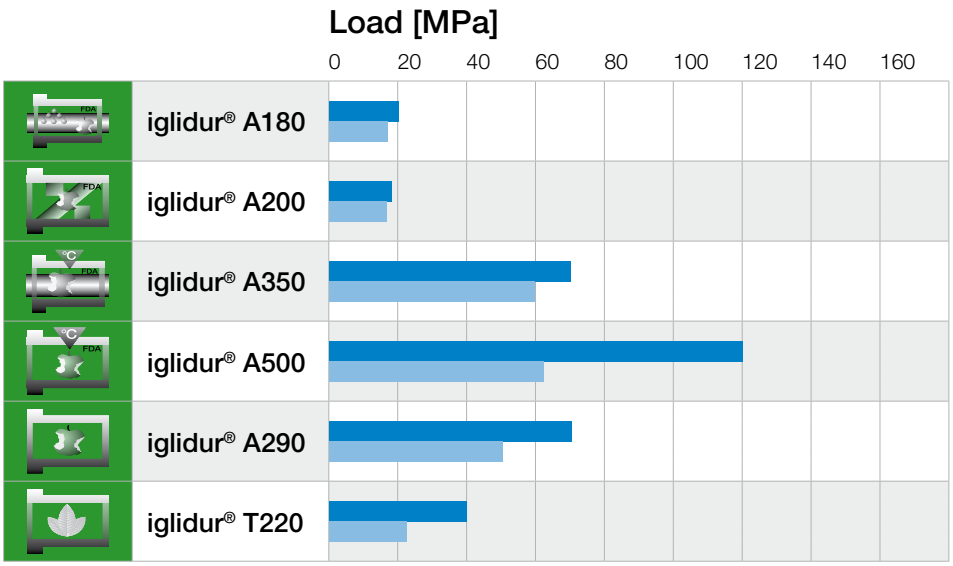
On request ▶ **from page 427**

* in this catalog

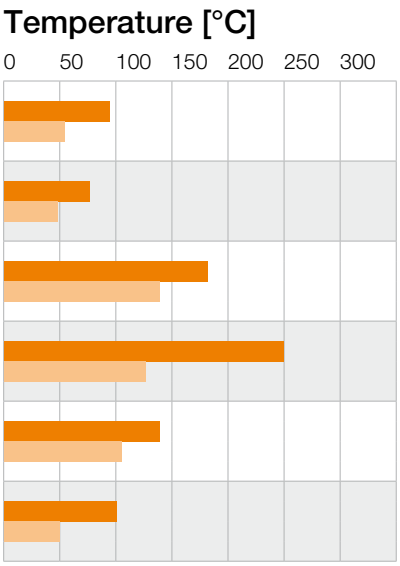
iglidur® Specialists | Selection According to Main Criteria

iglidur®-Specialists – Contact with Food						
	iglidur® A180	iglidur® A200	iglidur® A350	iglidur® A500	iglidur® A290	iglidur® T220
Long life dry running	●		●			
For high loads				●	●	
For high temperatures			●	●		
Low friction/high speed	●		●			
Dirt resistant		●				●
Chemicals resistant				●		
Low water absorption	●		●	●		
Food-suitable	●	●	●	●	●	
Vibration-dampening		●				
Egde pressure	●	●	●	●		●
For under water use			●	●		
Cost-effective	●				●	
from page	371	381	397	407	417	427

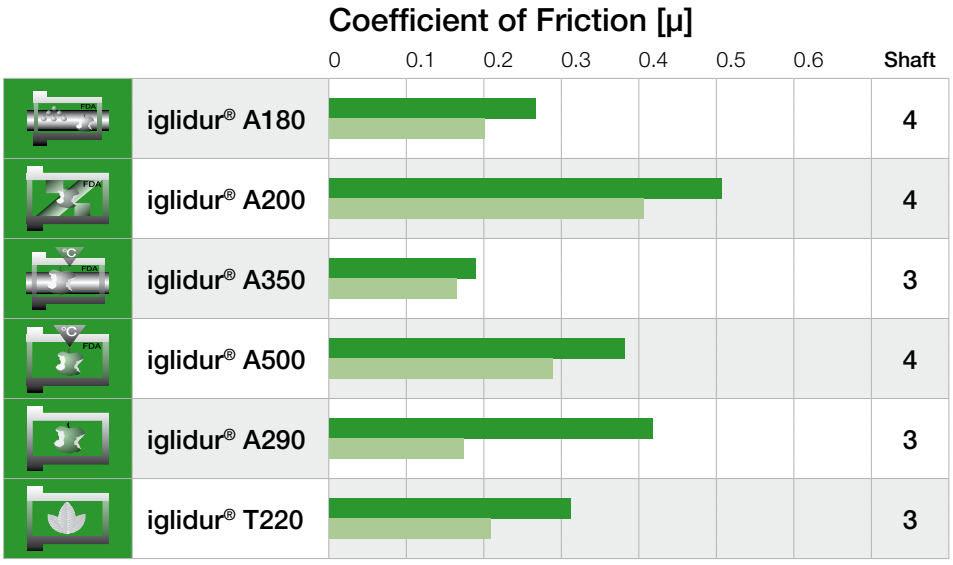
iglidur® Specialists | Selection According to Main Criteria



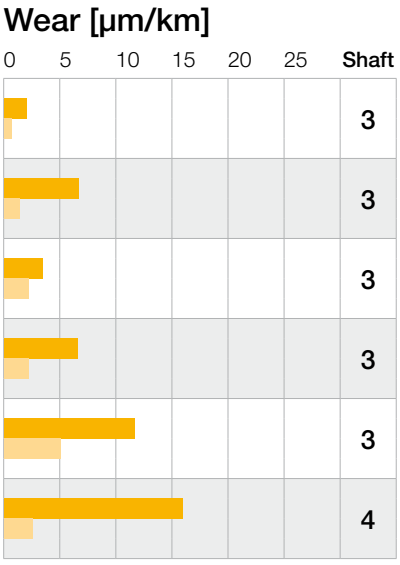
Maximum permissible radial load of iglidur® bearings at
- +20 °C
- +120 °C



Important temperatur limits of iglidur® bearings
- Maximum permissible application temperature, continous
- Temperature where bearings need to be secured against radial or axial movement in the housing



Coefficients of friction of iglidur® bearings sliding against steel, p = 1.2 MPa, v = 0.3 m/s
- Average coefficient of all the seven sliding combinations tested
- Coefficient of friction of best combination



Wear of iglidur® bearings sliding against steel, p = 1 MPa
- Average wear of all the seven sliding combination tested
- Wear of best combination

Shaft material:

1 = Cf53
2 = hard chromed
3 = Aluminum, hc
4 = Automatic screw steel
5 = HR carbon steel
6 = 304 SS
7 = High grade steel

Material data

Allgemeine Eigenschaften	Unit	iglidur® A180	iglidur® A200	iglidur® A350	iglidur® A500	iglidur® A290	iglidur® T220
Density	g/cm³	1.46	1.14	1.42	1.28	1.41	1.28
Colour		white	white	blue	brown	white	white
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.2	1.5	0.9	0.3	1.7	0.3
Max. moisture absorption	% weight	1.3	7.6	1.9	0.5	7.3	0.5
Coefficient of sliding friction. dynamic against steel	µ	0.05–0.23	0.10–0.40	0.10–0.20	0.26–0.41	0.13–0.40	0.20–0.32
pv value. max. (dry)	MPa · m/s	0.31	0.09	0.40	0.28	0.23	0.28
Mechanical properties							
Modulus of elasticity	MPa	2,300	2,500	2,000	3,600	8,800	1,800
Tensile strength at +20 °C	MPa	88	116	110	140	250	65
Compressive strength	MPa	78	54	78	118	91	55
Max. recommended surface pressure (+20 °C)	MPa	28	18	60	120	70	40
Shore D hardness		76	81	76	83	88	76
Physical and thermal properties							
Max. long term application temperature	°C	+90	+80	+180	+250	+140	+100
Max. short term application temperature	°C	+110	+170	+210	+300	+180	+160
Min. application temperature	°C	–50	–40	–100	–100	–40	–40
Thermal conductivity	W/m · K	0.25	0.24	0.24	0.24	0.24	0.24
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	11	10	8	9	7	11
Electrical properties							
Specific volume resistance	Ωcm	> 10^{12}	> 10^{13}	> 10^{11}	> 10^{14}	> 10^{11}	> 10^{10}
Surface resistance	Ω	> 10^{11}	> 10^{12}	> 10^{10}	> 10^{13}	> 10^{11}	> 10^{10}

Material resistance (at +20 °C)

Chemical resistance	iglidur® A180	iglidur® A200	iglidur® A350	iglidur® A500	iglidur® A290	iglidur® T220
Alcohol	+	+ bis 0	+	+	+ to 0	+
Hydrocarbons	+	+	+ to 0	+	+	–
Greases, oils without additives	+	+	+	+	+	+
Fuels	+	+	+	+	+	+
Diluted acids	0 to –	0 to –	+	+	0 to –	0
Strong acids	–	–	+	+	–	–
Diluted alkalines	+	+	+	+	+	–
Strong alkalines	+ to 0	0	+	+	+ to 0	–
Radiation resistance [Gy] to	3 · 10^2	1 · 10^4	2 · 10^2	2 · 10^5	3 · 10^2	3 · 10^2

+ resistant 0 conditionally resistant – not resistant

iglidur® Contact with food | Application Examples

Typical sectors of industry and application areas

- Food industry
- Beverage technology
- Medical etc.

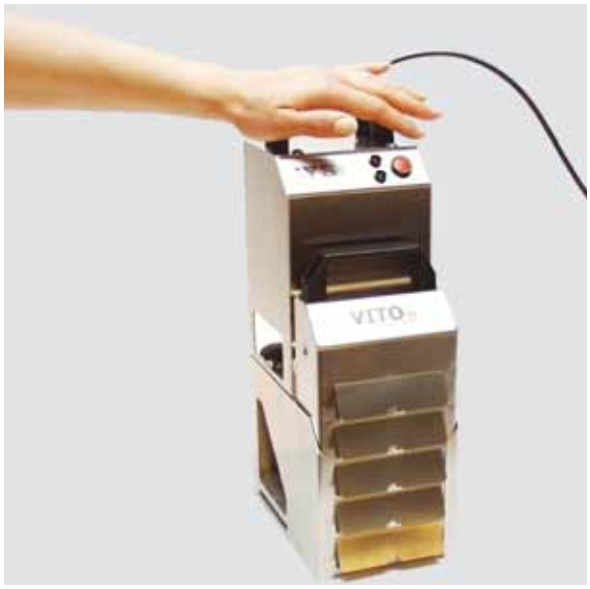
Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

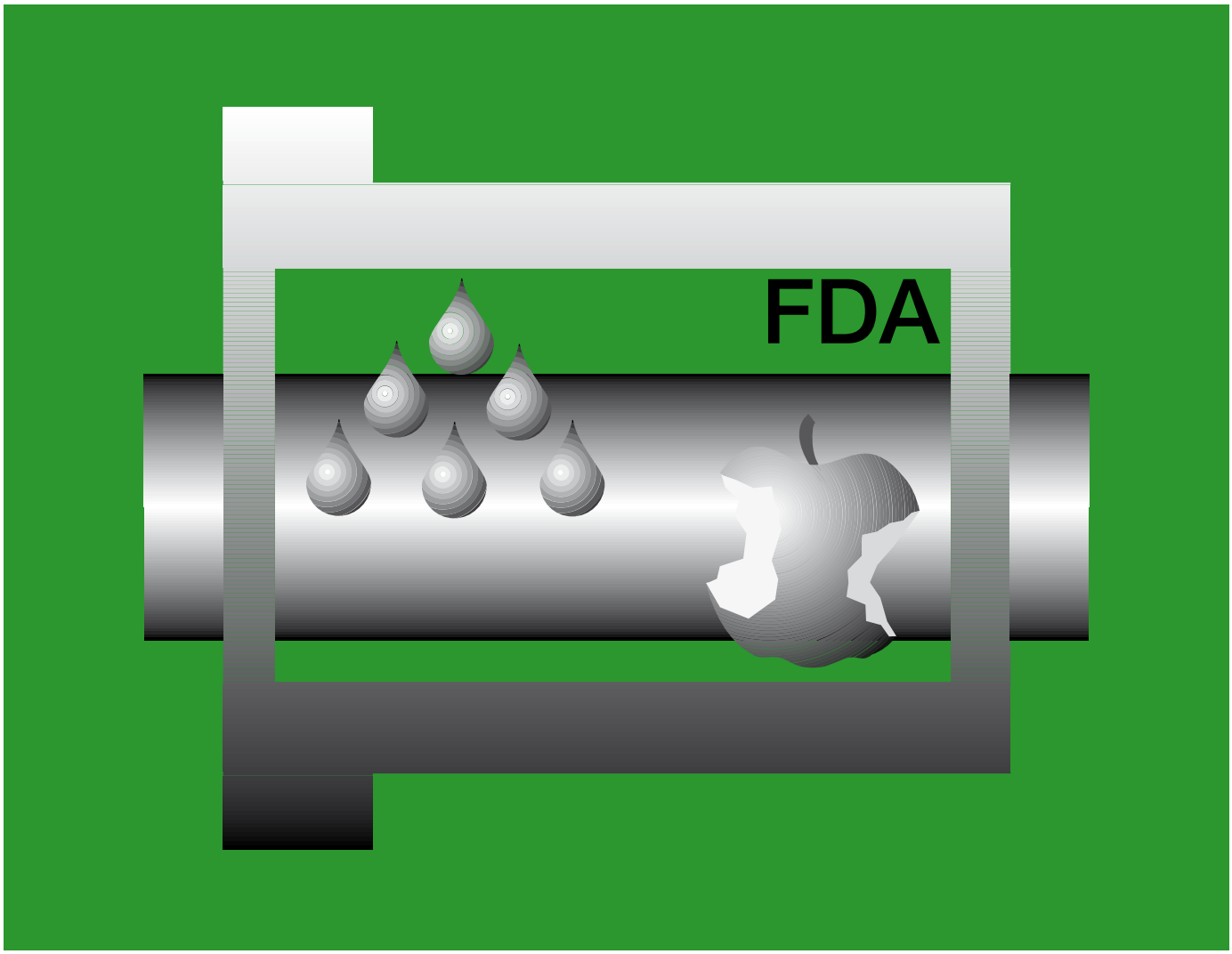
▶ www.igus.co.uk/kitchen

▶ www.igus.co.uk/kitchen

▶ www.igus.co.uk/milking-arm



▶ www.igus.co.uk/filtration-plant



iglidur® A180 – FDA-general purpose waterproof material

Standard range from stock

The iglidur® A180 material complies with FOOD AND DRUG ADMINISTRATION (FDA) regulations

For direct contact with food or pharmaceuticals

For wet environments

iglidur® A180

FDA-general purpose waterproof material. FDA compliant material for applications with low to medium loads in immediate environs of (or contact with) food or drugs, as well as humidity.

The iglidur® A180 material complies with FOOD AND DRUG ADMINISTRATION (FDA) regulations

For direct contact with food or pharmaceuticals

For wet environments

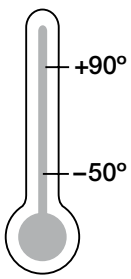
When to use it?

- If the bearings have direct contact with food
- If FDA-compliance is required
- If quiet operation is important
- If low water absorption is needed

When not to use?

- When the maximum abrasion resistance is necessary
  ▶ **iglidur® J, page 89**
- When temperatures are continuously higher than +80 °C
  ▶ **iglidur® A290, page 417**
  ▶ **iglidur® A500, page 407**
- When a cost-effective universal bearing is required
  ▶ **iglidur® G, page 61**
  ▶ **iglidur® P, page 185**

Temperature



Product Range

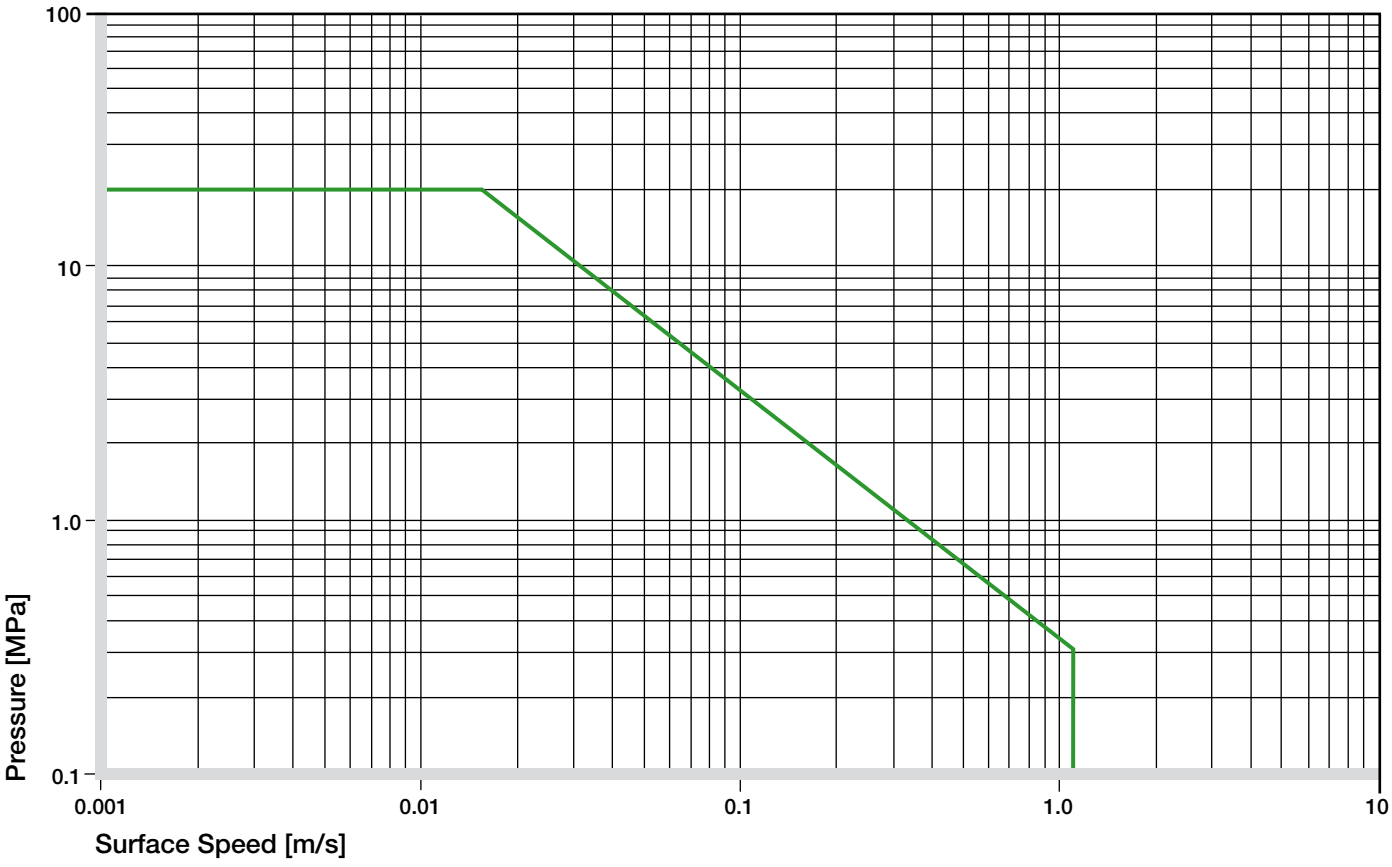
2 types
Ø 6–30 mm
more dimensions
on request

products of iglidur® A180 comply with the requirements of the FDA for repeated contact with food

iglidur® A180 | Technical Data

Material data			
General properties	**Unit**	**iglidur® A180**	**Testing Method**
Density	**g/cm³**	1.46	
Colour		white	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.2	DIN 53495
Max. moisture absorption	**% weight**	1.3	
Coefficient of sliding friction, dynamic against steel	**µ**	0.05–0.23	
pv value, max. (dry)	**MPa · m/s**	0.31	
Mechanical properties			
Modulus of elasticity	**MPa**	2,300	DIN 53457
Tensile strength at +20 °C	**MPa**	88	DIN 53452
Compressive strength	**MPa**	78	
Max. recommended surface pressure (+20 °C)	**MPa**	28	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+110	
Min. application temperature	**°C**	–50	
Thermal conductivity	**W/m · K**	0.25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	11	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{12}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{11}$	DIN 53482

Table 01: Material Data

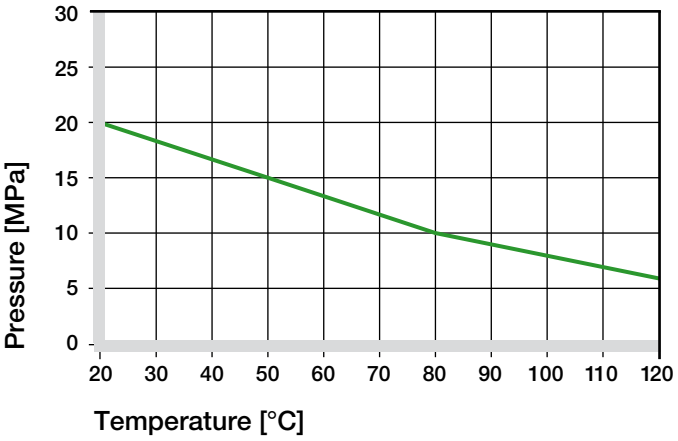


Graph 01: Permissible pv values for iglidur® A180 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® A180 | Technical Data

Mechanical Properties

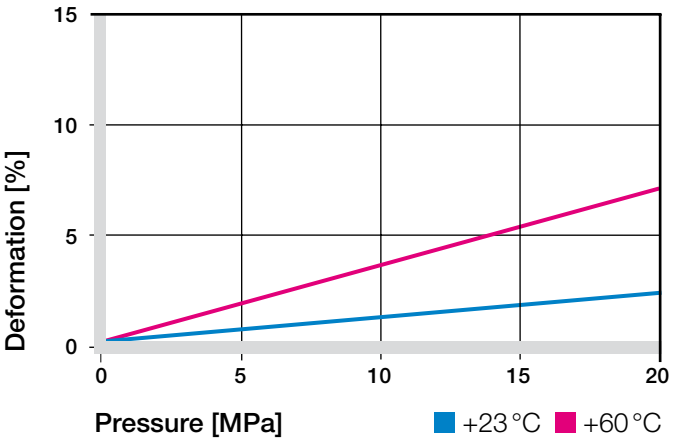
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® A180 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90 °C the permissible surface pressure is almost 6 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (20 MPa at +20 °C)

Bearings made of iglidur® A180 are suitable for application in direct contact with foodstuffs. Hence they are the ideal solution for bearing positions on machines for the food and packaging industries, the medical equipment manufacturing, for small equipment for households, etc. The iglidur® A180 distinguishes itself also in wet cleaning or where process-dependent contact with wet media is the business of the day by its extremely low humidity absorption Graph 03 shows the elastic deformation of iglidur® A180 during radial loading. At the recommended maximum surface pressure of 20 MPa the deformation is less than 2.5 %. Plastic deformation is minimal up to this radial load. However, it is also a result of the service time.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® A180 is developed for low surface speeds. Maximum speeds up to 0.8 m/s (rotating) and 3.5 m/s (linear) respectively are permitted for continuous application in dry operation.

These given values (table 02) indicate the limits at which an increase up to the continuous permissible temperature occurs. In practice these limit values are not always reached due to interactions.

▶ Surface Speed, **page 45**
▶ pv value and lubrication, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.8	0.6	3.5
Short term	1.2	1	5

Table 02: Maximum running speed

Temperatures

The short-term permitted maximum temperature is +110 °C. With increasing temperatures, the compressive strength of iglidur® A180 bearings decreases. Graph 02 clarifies this connection. The temperatures prevailing in the bearing system also have an influence on the bearing wear.

▶ Application Temperatures, **page 46**

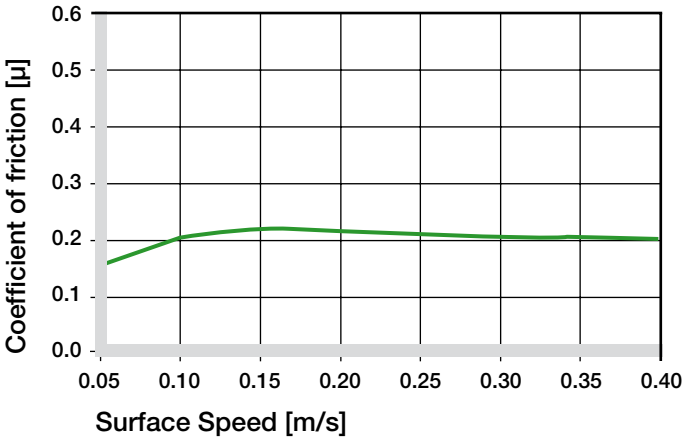
iglidur® A180	Application Temperature
Minimum	–50 °C
Max. long term	+90 °C
Max. short term	+110 °C
Add. securing is required from	+60 °C

Table 03: Temperature limits

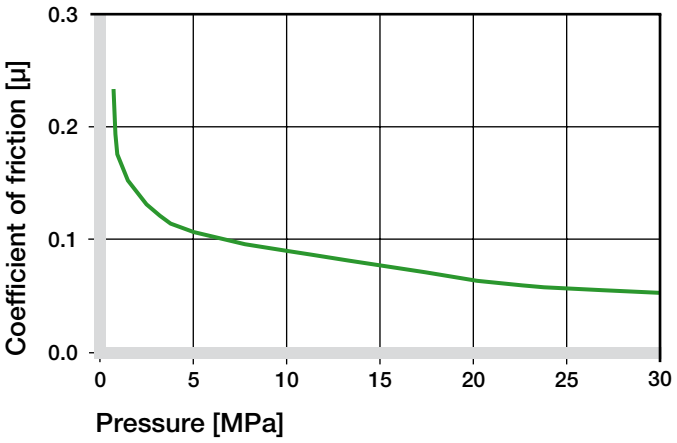
Friction and Wear

Coefficient of friction and wear resistance alter with the application parameters. In the iglidur® A180 bearings, the alteration of the friction coefficient μ dependent on surface speed and the shaft's surface finish is only negligently pronounced. With increasing load, the coefficient of friction however sinks markedly. The coefficient of friction perceptibly reduces straightaway in the load range up to 5 MPa.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

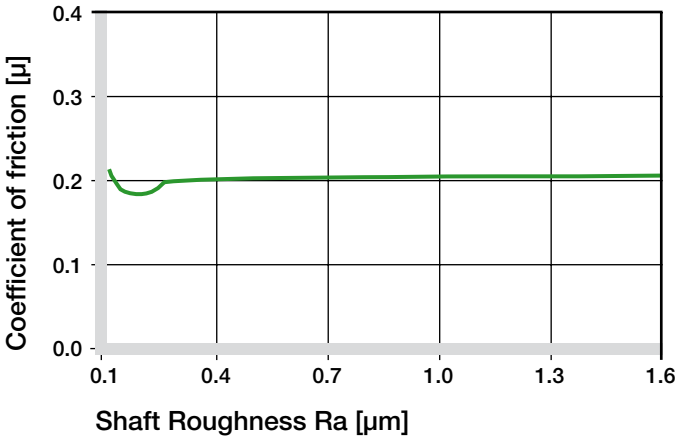


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

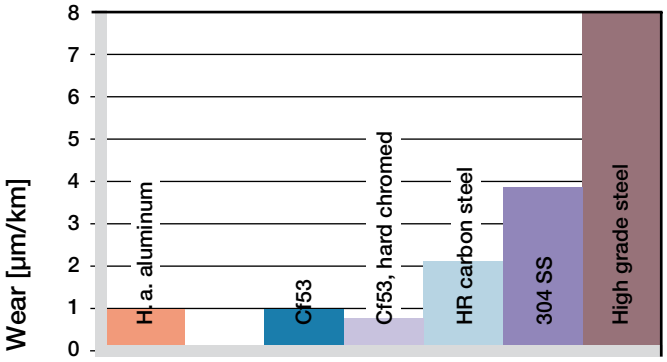
Shaft Materials

Graphs 06 to 09 show the test results of iglidur® A180 bearings running against various shaft materials.
The combination "iglidur® A180/hard-anodized aluminum" clearly stands out. It attains good to excellent wear rates also with other shafts.
With Cf53 shafts, the higher wear in pivoting applications is exemplary compared to rotating applications. Graph 08 clearly shows, in the example of the V2A shafts, the direct increase in wear with rising load with "soft" shafts. The increase is hardly noticeable with hard shafts.

▶ Shaft Materials, **page 51**

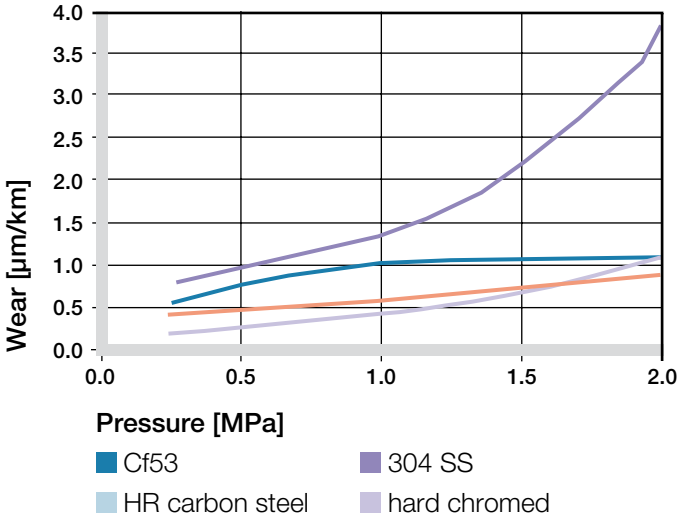


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

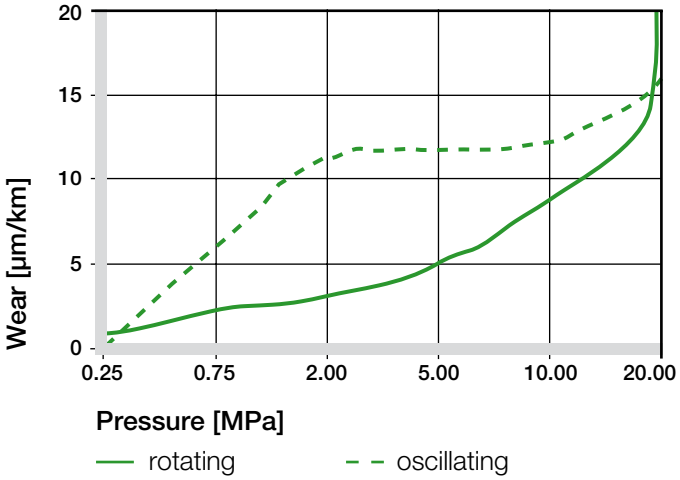


Graph 07: Wear, rotating with different shaft materials, pressure p = 2 MPa, v = 0.3 m/s

iglidur® A180 | Technical Data



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® A180	Dry	Greases	Oil	Water
C. o. f. µ	0.05–0.23	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® A180 bearings can be used under various environmental conditions and in contact with numerous chemicals. Table 05 gives an overview of the chemical resistance of iglidur® A180 bearings at room temperature.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made of iglidur® A180 are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy. Higher radiation levels attack the material and can cause the loss of essential mechanical properties.

UV Resistance

iglidur® A180 bearings are resistant to UV radiation, but the tribological properties deteriorate with continuous exposure.

Vacuum

When used in a vacuum environment, the iglidur® A180 plain bearings release moisture as a vapour. Therefore, only dehumidified bearings are suitable in a vacuum invironment.

Electrical Properties

iglidur® A180 plain bearings are electrically insulating.

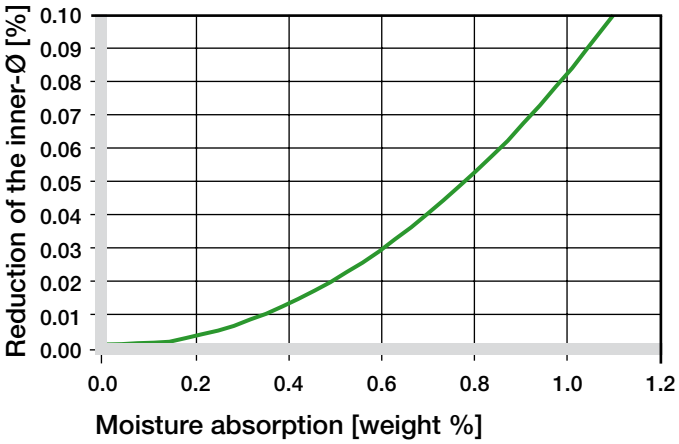
Volume resistance	$> 10^{12}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

Moisture Absorption

The moisture absorption of iglidur® A180 plain bearings is approximately 0.2 % in standard atmosphere. The saturation limit submerged in water is 5 %. This must be taken into account for these types of applications.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.2 % weight
Max. moisture absorption	1.3 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® A180 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

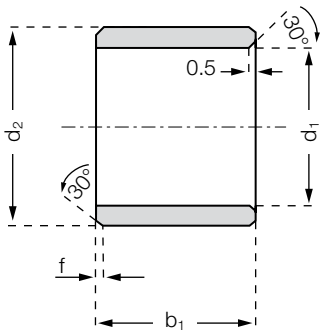
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® A180 E10 [mm]	Housing H7 [mm]
	to	3	0–0.025	+0.014 +0.054	0 +0.010
> 3	to	6	0–0.030	+0.020 +0.068	0 +0.012
> 6	to	10	0–0.036	+0.025 +0.083	0 +0.015
> 10	to	18	0–0.043	+0.032 +0.102	0 +0.018
> 18	to	30	0–0.052	+0.040 +0.124	0 +0.021
> 30	to	50	0–0.062	+0.050 +0.150	0 +0.025

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® A180 | Product Range

Sleeve bearing



Order key

A180SM-0608-10

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® A180

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

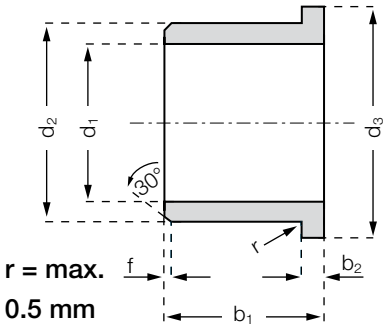
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
A180SM-0608-10	6	+0.020 +0.068	8	10
A180SM-0810-10	8	+0.025 +0.083	10	10
A180SM-1012-10	10	+0.025 +0.083	12	10
A180SM-1214-15	12	+0.032 +0.102	14	15
A180SM-1618-15	16	+0.032 +0.102	18	15
A180SM-2023-20	20	+0.040 +0.124	23	20
A180SM-2528-30	25	+0.040 +0.124	28	30
A180SM-3034-20	30	+0.040 +0.124	34	20

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/a180 | Order example Part Number A180SM-0608-10

Flange bearing



r = max. 0.5 mm

Order key

A180FM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® A180

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1 h13	b2
A180FM-0608-06	6	+0.020 +0.068	8	12	6	1
A180FM-0810-10	8	+0.025 +0.083	10	15	10	1
A180FM-1012-10	10	+0.025 +0.083	12	18	10	1
A180FM-1214-15	12	+0.032 +0.102	14	20	15	1
A180FM-1618-17	16	+0.032 +0.102	18	24	17	1
A180FM-2023-21	20	+0.040 +0.124	23	30	21.5	1.5
A180FM-2528-21	25	+0.040 +0.124	28	35	21.5	1.5
A180FM-3034-26	30	+0.040 +0.124	34	42	26	2

* after pressfit. Testing methods ▶ page 55

My Sketches

iglidur® A200 – FDA-compliant and vibration-dampening, absorbs moisture

Standard range from stock

iglidur® A200 material complies with Food and Drug Administration (FDA) regulations

For direct contact with food or pharmaceuticals

For low speeds

iglidur® A200

FDA-compliant and vibration-dampening, absorbs moisture. FDA compliant material for applications with low to medium loads in immediate environs of (or contact) with food or drugs.

iglidur® A200 material complies with FOOD AND DRUG ADMINISTRATION (FDA) regulations

For direct contact with food or pharmaceuticals

For low speeds

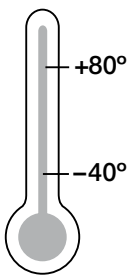
When to use it?

- Suitable for direct contact with food
- When quiet operation is important
- When dirt needs to become embedded
- If FDA compliance is necessary

When not to use it?

- When the maximum abrasion resistance is necessary
  ▶ **iglidur® W300, page 131**
- When temperatures are continuously higher than +80 °C
  ▶ **iglidur® A290, page 417**
  ▶ **iglidur® A500, page 407**
- When a cost-effective universal bearing is required
  ▶ **iglidur® G, page 61**
- For operations in wet environments
  ▶ **iglidur® A180, page 371**

Temperature



Product range

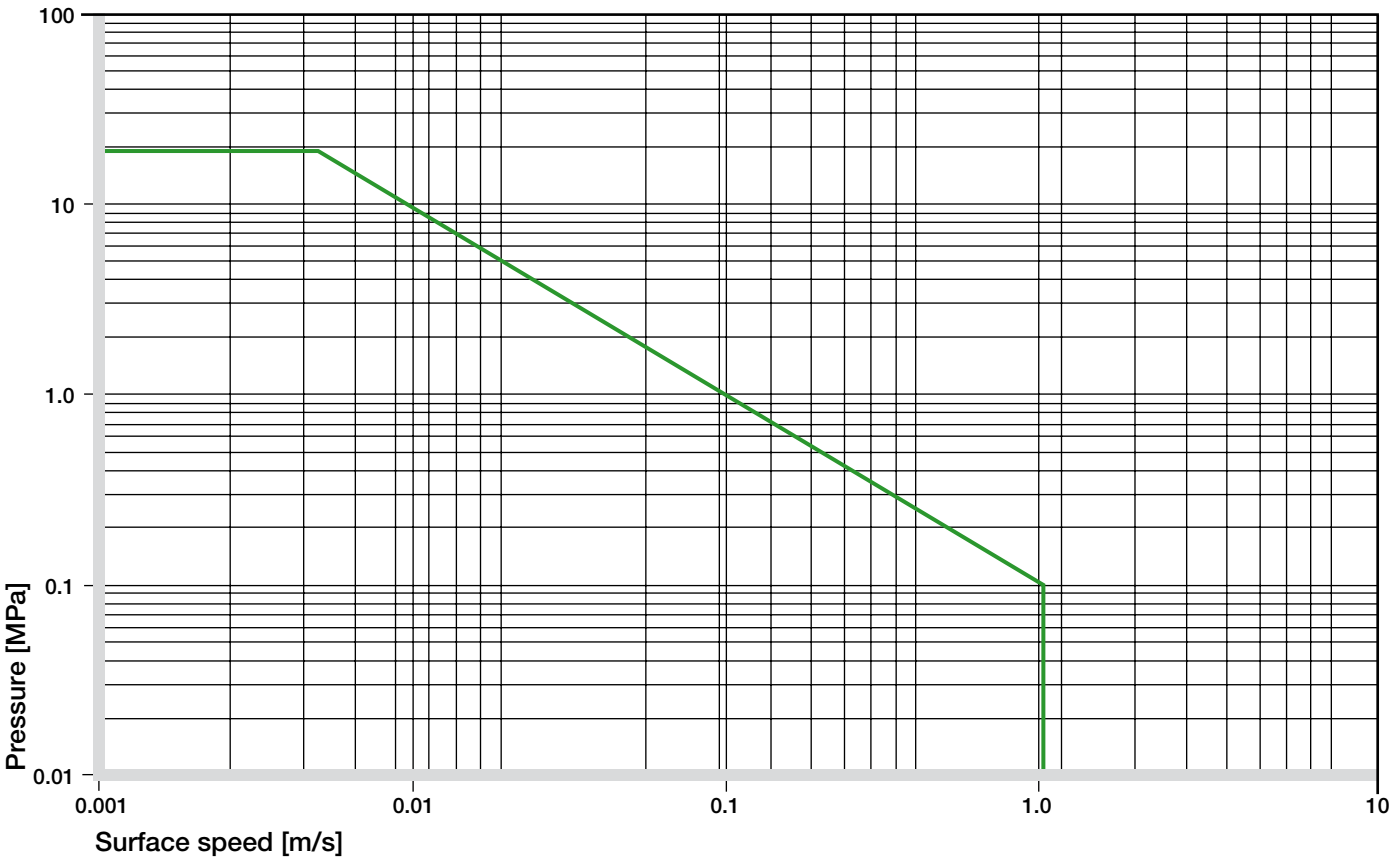
3 types
Ø 1–32 mm
more dimensions
on request

Products of iglidur® A200 comply with the requirements of the FDA for repeated contact with food

iglidur® A200 | Technical Data

Material data			
General properties	**Unit**	**iglidur® A200**	**Testing method**
Density	**g/cm³**	1.14	
Colour		white	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	1.5	DIN 53495
Max. moisture absorption	**% weight**	7.6	
Coefficient of sliding friction, dynamic against steel	**µ**	0.10–0.40	
pv value, max. (dry)	**MPa · m/s**	0.09	
Mechanical properties			
Modulus of elasticity	**MPa**	2,500	DIN 53457
Tensile strength at +20 °C	**MPa**	116	DIN 53452
Compressive strength	**MPa**	54	
Max. recommended surface pressure (+20 °C)	**MPa**	18	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+80	
Max. short term application temperature	**°C**	+170	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0,24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	10	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{13}	DIN IEC 93
Surface resistance	**Ω**	> 10^{12}	DIN 53482

Table 01: Material data

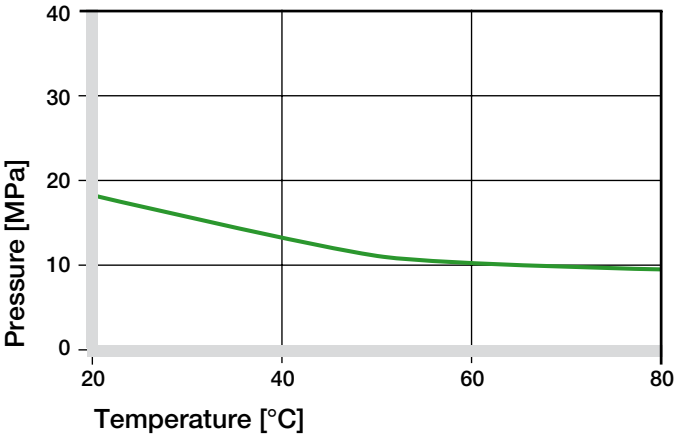


Graph 01: Permissible pv values for iglidur® A200 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® A200 | Technical Data

Mechanical Properties

The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® A200 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +40 °C the permissible surface pressure is almost 5 MPa.



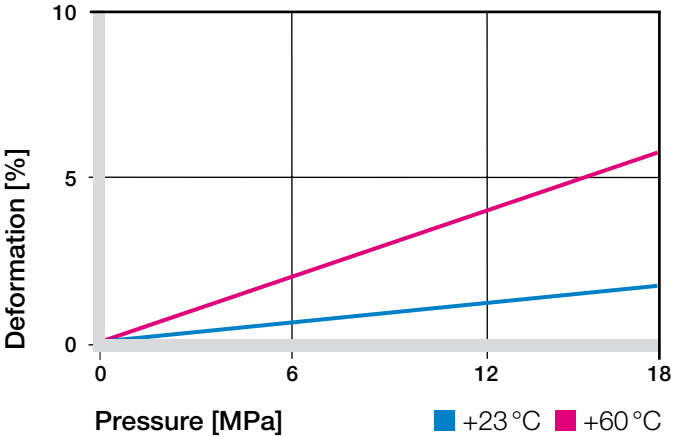
Graph 02: Recommended maximum surface pressure as a function of temperature (18 MPa at +20 °C)

Bearings made of iglidur® A200 are suitable for application in direct contact with foodstuffs. Hence they are the ideal solution for bearing positions in machines for the food industry, medical equipment manufacturing, for small equipment for households, etc. As the admixture of lubricants should be foregone in favor of food compatibility, the thermoplastic composition of iglidur® A200 is particularly adjusted for abrasion resistance. In addition the iglidur® A200 is characterized by its capacity to embed dirt and by its quiet operating behavior.

The good wear properties, dirt resistance and the possibility for dry operation allow to replace elaborately sealed, lubricated bearings for little costs.

Graph 03 shows the elastic deformation of iglidur® A200 during radial loading. At the recommended maximum surface pressure of 18 MPa the deformation is less than 2 %. A plastic deformation can be neglected up to this value. It is nonetheless depending on the duration of the applied force.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® A200 was developed for low surface speeds. With regard to running dry in continuous use, a maximum of 0.8 m/s (rotating) or 2 m/s (linear) is possible.

These given values indicate the limits at which an increase up to the continuous permissible temperature occurs. This increase is a result of friction. In practice, these limit values are not often reached, due to varying application conditions.

▶ Surface Speed, **page 45**
▶ pv value, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.8	0.6	2
Short term	1.5	1.1	3

Table 02: Maximum running speed

Temperatures

The maximum permissible short term temperature +170 °C. With increasing temperatures, the compressive strength of iglidur® A200 plain bearings decreases. Graph 02 shows this relationship. The ambient temperatures prevalent in the bearing system also have an effect on the bearing wear.

▶ Application Temperatures, **page 46**

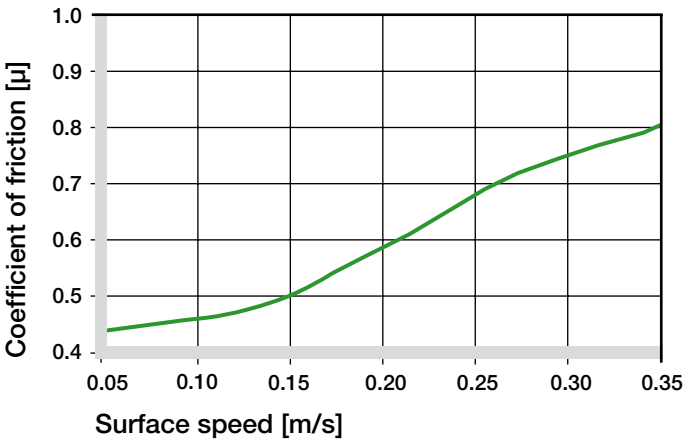
iglidur® A200	Application temperature
Minimum	–40 °C
Max. long term	+80 °C
Max. short term	+170 °C
Add. securing is required from	+50 °C

Table 03: Temperature limits

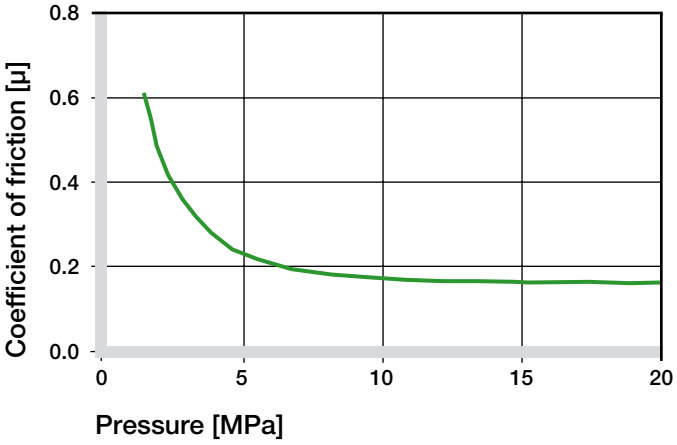
Friction and Wear

Just as the wear resistance, the coefficient of friction also changes with the load. For iglidur® A200 plain bearings, the coefficient of friction μ decreases slightly with increasing load. Friction and wear also depend to a high degree on the reverse partner. The shaft can be a decisive factor for an ideal pairing of the bearing system. Thus extremely smooth shafts enhance not only the coefficient of friction, but also the bearing wear. The most suited are smoothed surfaces with an average surface finish of Ra = 0.4 to 0.6 μm.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

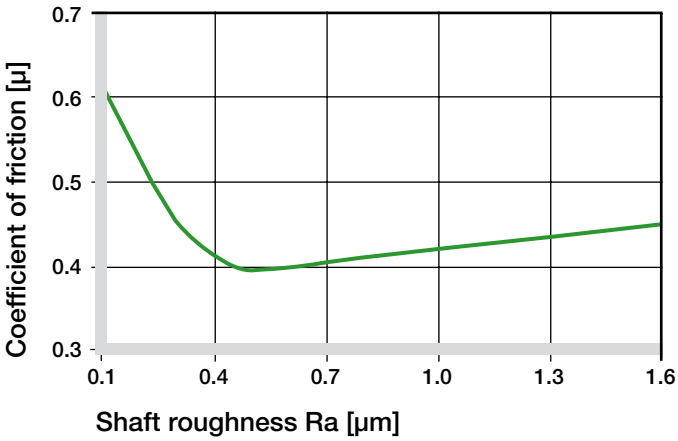


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

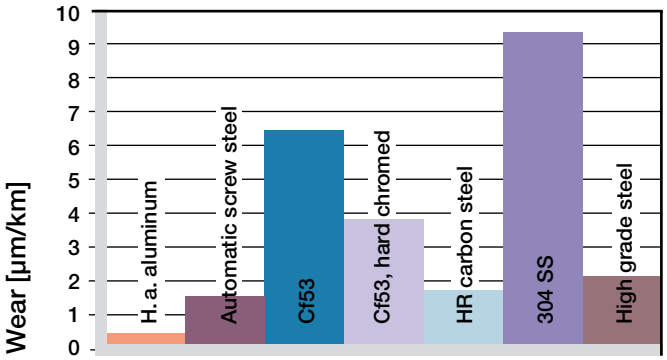
Shaft Materials

Graphs 06 to 09 show the test results of iglidur® A200 bearings running against various shaft materials.
The combination "iglidur® A200/hard-chromed shaft" clearly stands out. Up to a range of about 2.5 MPa, the wear of this combination remains largely independent of load. In pivoting applications below a load p = 2 MPa, the wear of iglidur® A200 bearings is higher than in rotating applications with equal load. Here the St37 shaft is a positive exception with its much less coefficient of wear.

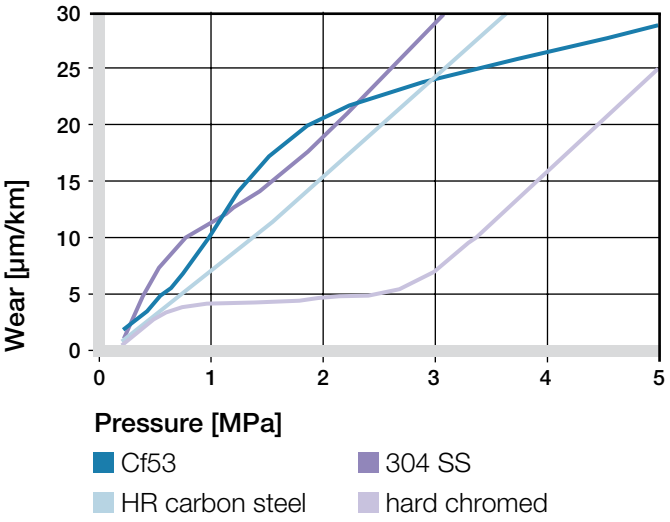
▶ Shaft Materials, **page 51**



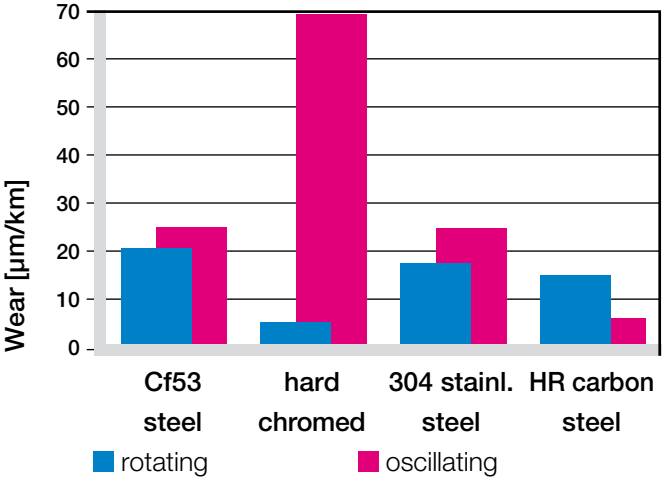
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® A200	Dry	Greases	Oil	Water
C. o. f. µ	0.1–0.4	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® A200 plain bearings have strong resistance to chemicals. They are also resistant to most lubricants.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made of iglidur® A200 are resistant to radiation up to an intensity of $1 \cdot 10^4$ Gy. Higher radiation levels attack the material and can cause the loss of essential mechanical properties.

UV Resistance

iglidur® A200 plain bearings are resistant to UV radiation.

Vacuum

In a vacuum environment, iglidur® A200 plain bearings have restricted use.

Electrical Properties

iglidur® A200 plain bearings are electrically insulating.

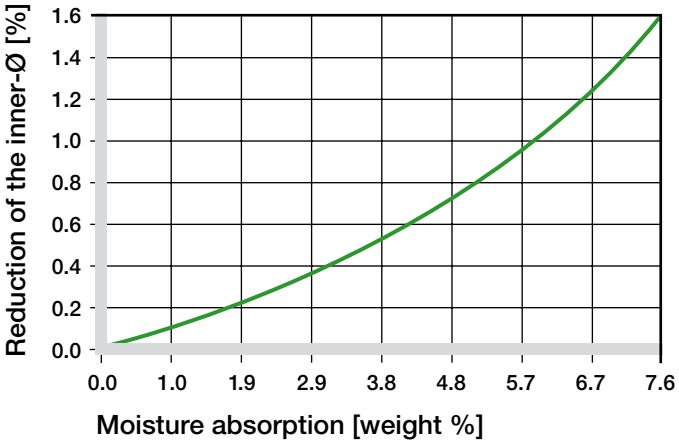
Volume resistance	$> 10^{13}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

Moisture Absorption

The moisture absorption of iglidur® A200 plain bearings is approximately 1.5 % in standard atmosphere. The saturation limit submerged in water is 7.6 %. This must be taken into account for these types of applications.

Maximum moisture absorption	
At +23 °C/50 % r.h.	1.5 % weight
Max. moisture absorption	7.6 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® A200 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9).

The bearings are designed for pressfit into a housing machined to a H7 tolerance. After the installation in a housing bore with the tolerance H7, the inner diameter of the bearing automatically adjusts to the D11 tolerance.

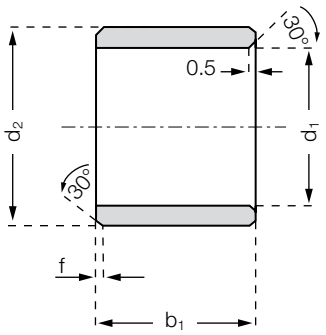
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® A200 D11 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.020 +0.080	0 +0.010
>	3 to	6	0–0.030	+0.030 +0.105	0 +0.012
>	6 to	10	0–0.036	+0.040 +0.130	0 +0.015
>	10 to	18	0–0.043	+0.050 +0.160	0 +0.018
>	18 to	30	0–0.052	+0.065 +0.195	0 +0.021
>	30 to	50	0–0.062	+0.080 +0.240	0 +0.025

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® A200 | Product Range

Sleeve bearing



Order key

ASM-0103-02

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® A200

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
ASM-0103-02	1.0	+0.020 +0.080	3.0	2.0
ASM-0104-02	1.5	+0.020 +0.080	4.0	2.0
ASM-0205-02	2.0	+0.020 +0.080	5.0	2.0
ASM-0205-03	2.0	+0.020 +0.080	5.0	3.0
ASM-0206-03	2.5	+0.020 +0.080	6.0	3.0
ASM-0305-03	3.0	+0.020 +0.080	5.0	3.0
ASM-0305-04	3.0	+0.020 +0.080	5.0	4.0
ASM-0306-03	3.0	+0.020 +0.080	6.0	3.0
ASM-0306-04	3.0	+0.020 +0.080	6.0	4.0
ASM-0407-03	4.0	+0.030 +0.105	7.0	3.0
ASM-0407-04	4.0	+0.030 +0.105	7.0	4.0
ASM-0407-06	4.0	+0.030 +0.105	7.0	6.0
ASM-0408-06	4.0	+0.030 +0.105	8.0	6.0
ASM-0508-04	5.0	+0.030 +0.105	8.0	4.0
ASM-0508-05	5.0	+0.030 +0.105	8.0	5.0
ASM-0508-08	5.0	+0.030 +0.105	8.0	8.0
ASM-0509-05	5.0	+0.030 +0.105	9.0	5.0
ASM-0509-08	5.0	+0.030 +0.105	9.0	8.0
ASM-0608-10	6.0	+0.030 +0.105	8.0	10.0
ASM-0609-06	6.0	+0.030 +0.105	9.0	6.0
ASM-0610-04	6.0	+0.030 +0.105	10.0	4.0
ASM-0610-06	6.0	+0.030 +0.105	10.0	6.0
ASM-0610-10	6.0	+0.030 +0.105	10.0	10.0
ASM-0612-06	6.0	+0.030 +0.105	12.0	6.0
ASM-0612-10	6.0	+0.030 +0.105	12.0	10.0

Part number	d1	d1-Tolerance*	d2	b1 h13
ASM-0710-05	7.0	+0.040 +0.130	10.0	5.0
ASM-0710-08	7.0	+0.040 +0.130	10.0	8.0
ASM-0810-06	8.0	+0.040 +0.130	10.0	6.0
ASM-0810-08	8.0	+0.040 +0.130	10.0	8.0
ASM-0810-10	8.0	+0.040 +0.130	10.0	10.0
ASM-0811-08	8.0	+0.040 +0.130	11.0	8.0
ASM-0811-12	8.0	+0.040 +0.130	11.0	12.0
ASM-0812-06	8.0	+0.040 +0.130	12.0	6.0
ASM-0812-08	8.0	+0.040 +0.130	12.0	8.0
ASM-0812-10	8.0	+0.040 +0.130	12.0	10.0
ASM-0812-12	8.0	+0.040 +0.130	12.0	12.0
ASM-0814-06	8.0	+0.040 +0.130	14.0	6.0
ASM-0814-10	8.0	+0.040 +0.130	14.0	10.0
ASM-0912-14	9.0	+0.040 +0.130	12.0	14.0
ASM-1012-10	10.0	+0.040 +0.130	12.0	10.0
ASM-1014-06	10.0	+0.040 +0.130	14.0	6.0
ASM-1014-08	10.0	+0.040 +0.130	14.0	8.0
ASM-1014-10	10.0	+0.040 +0.130	14.0	10.0
ASM-1014-16	10.0	+0.040 +0.130	14.0	16.0
ASM-1016-06	10.0	+0.040 +0.130	16.0	6.0
ASM-1016-10	10.0	+0.040 +0.130	16.0	10.0
ASM-1016-16	10.0	+0.040 +0.130	16.0	16.0
ASM-1214-20	12.0	+0.050 +0.160	14.0	20.0
ASM-1216-15	12.0	+0.050 +0.160	16.0	15.0
ASM-1216-20	12.0	+0.050 +0.160	16.0	20.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/a200 | order example part number ASM-0103-02

iglidur® A200 | Product Range

Sleeve bearing

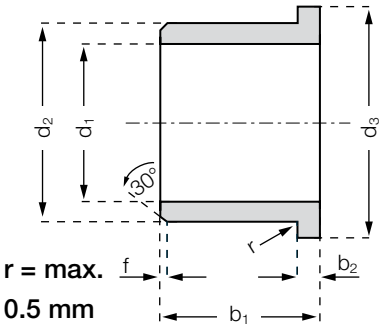
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
ASM-1218-08	12.0	+0.050 +0.160	18.0	8.0
ASM-1218-10	12.0	+0.050 +0.160	18.0	10.0
ASM-1218-15	12.0	+0.050 +0.160	18.0	15.0
ASM-1218-20	12.0	+0.050 +0.160	18.0	20.0
ASM-1416-10	14.0	+0.050 +0.160	16.0	10.0
ASM-1416-15	14.0	+0.050 +0.160	16.0	15.0
ASM-1416-20	14.0	+0.050 +0.160	16.0	20.0
ASM-1420-10	14.0	+0.050 +0.160	20.0	10.0
ASM-1420-15	14.0	+0.050 +0.160	20.0	15.0
ASM-1420-20	14.0	+0.050 +0.160	20.0	20.0
ASM-1517-10	15.0	+0.050 +0.160	17.0	10.0
ASM-1517-15	15.0	+0.050 +0.160	17.0	15.0
ASM-1521-10	15.0	+0.050 +0.160	21.0	10.0
ASM-1521-15	15.0	+0.050 +0.160	21.0	15.0
ASM-1521-20	15.0	+0.050 +0.160	21.0	20.0
ASM-1618-12	16.0	+0.050 +0.160	18.0	12.0
ASM-1618-20	16.0	+0.050 +0.160	18.0	20.0
ASM-1620-20	16.0	+0.050 +0.160	20.0	20.0
ASM-1620-25	16.0	+0.050 +0.160	20.0	25.0
ASM-1622-12	16.0	+0.050 +0.160	22.0	12.0
ASM-1622-15	16.0	+0.050 +0.160	22.0	15.0
ASM-1622-16	16.0	+0.050 +0.160	22.0	16.0
ASM-1622-20	16.0	+0.050 +0.160	22.0	20.0
ASM-1622-25	16.0	+0.050 +0.160	22.0	25.0
ASM-1824-12	18.0	+0.050 +0.160	24.0	12.0
ASM-1824-20	18.0	+0.050 +0.160	24.0	20.0
ASM-1824-30	18.0	+0.050 +0.160	24.0	30.0
ASM-2023-15	20.0	+0.065 +0.195	23.0	15.0
ASM-2023-20	20.0	+0.065 +0.195	23.0	20.0
ASM-2025-20	20.0	+0.065 +0.195	25.0	20.0
ASM-2025-15	20.0	+0.065 +0.195	25.0	15.0
ASM-2025-30	20.0	+0.065 +0.195	25.0	30.0
ASM-2026-15	20.0	+0.065 +0.195	26.0	15.0
ASM-2026-20	20.0	+0.065 +0.195	26.0	20.0
ASM-2026-30	20.0	+0.065 +0.195	26.0	30.0
ASM-2226-15	22.0	+0.065 +0.195	26.0	15.0
ASM-2228-10	22.0	+0.065 +0.195	28.0	10.0
ASM-2228-15	22.0	+0.065 +0.195	28.0	15.0
ASM-2228-20	22.0	+0.065 +0.195	28.0	20.0
ASM-2228-30	22.0	+0.065 +0.195	28.0	30.0
ASM-2430-15	24.0	+0.065 +0.195	30.0	15.0
ASM-2430-20	24.0	+0.065 +0.195	30.0	20.0
ASM-2430-30	24.0	+0.065 +0.195	30.0	30.0
ASM-2528-12	25.0	+0.065 +0.195	28.0	12.0
ASM-2528-20	25.0	+0.065 +0.195	28.0	20.0
ASM-2530-20	25.0	+0.065 +0.195	30.0	20.0
ASM-2530-30	25.0	+0.065 +0.195	30.0	30.0
ASM-2530-40	25.0	+0.065 +0.195	30.0	40.0
ASM-2532-20	25.0	+0.065 +0.195	32.0	20.0
ASM-2532-30	25.0	+0.065 +0.195	32.0	30.0
ASM-2532-40	25.0	+0.065 +0.195	32.0	40.0
ASM-2630-20	26.0	+0.065 +0.195	30.0	20.0
ASM-2632-30	26.0	+0.065 +0.195	32.0	30.0
ASM-2734-20	27.0	+0.065 +0.195	34.0	20.0
ASM-2734-30	27.0	+0.065 +0.195	34.0	30.0
ASM-2734-40	27.0	+0.065 +0.195	34.0	40.0
ASM-2833-20	28.0	+0.065 +0.195	33.0	20.0
ASM-2836-20	28.0	+0.065 +0.195	36.0	20.0
ASM-2836-30	28.0	+0.065 +0.195	36.0	30.0
ASM-2836-40	28.0	+0.065 +0.195	36.0	40.0
ASM-3038-20	30.0	+0.065 +0.195	38.0	20.0
ASM-3038-30	30.0	+0.065 +0.195	38.0	30.0
ASM-3038-40	30.0	+0.065 +0.195	38.0	40.0
ASM-3240-20	32.0	+0.080 +0.240	40.0	20.0
ASM-3240-30	32.0	+0.080 +0.240	40.0	30.0
ASM-3240-40	32.0	+0.080 +0.240	40.0	40.0

* after pressfit. Testing methods ▶ page 55

iglidur® A200 | Product Range

Flange bearing



r = max. 0.5 mm

Order key

AFM-0103-02

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® A200

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
AFM-0103-02	1.0	+0.020 +0.080	3.0	5.0	2.0	1.0
AFM-0104-02	1.5	+0.020 +0.080	4.0	6.0	2.0	1.0
AFM-0205-03	2.0	+0.020 +0.080	5.0	8.0	3.0	1.5
AFM-0206-03	2.5	+0.020 +0.080	6.0	9.0	3.0	1.5
AFM-0306-04	3.0	+0.020 +0.080	6.0	9.0	4.0	1.5
AFM-0408-04	4.0	+0.030 +0.105	8.0	12.0	4.0	2.0
AFM-0408-06	4.0	+0.030 +0.105	8.0	12.0	6.0	2.0
AFM-0507-05	5.0	+0.030 +0.105	7.0	11.0	5.0	1.0
AFM-0509-05	5.0	+0.030 +0.105	9.0	13.0	5.0	2.0
AFM-0509-06	5.0	+0.030 +0.105	9.0	13.0	6.0	2.0
AFM-0509-08	5.0	+0.030 +0.105	9.0	13.0	8.0	2.0
AFM-0610-04	6.0	+0.030 +0.105	10.0	14.0	4.0	2.0
AFM-0610-06	6.0	+0.030 +0.105	10.0	14.0	6.0	2.0
AFM-0610-10	6.0	+0.030 +0.105	10.0	14.0	10.0	2.0
AFM-0612-06	6.0	+0.030 +0.105	12.0	14.0	6.0	3.0
AFM-0612-10	6.0	+0.030 +0.105	12.0	14.0	10.0	3.0
AFM-0711-08	7.0	+0.040 +0.130	11.0	15.0	8.0	2.0
AFM-0811-08	8.0	+0.040 +0.130	11.0	13.0	8.0	2.0
AFM-0812-06	8.0	+0.040 +0.130	12.0	16.0	6.0	2.0
AFM-0812-08	8.0	+0.040 +0.130	12.0	16.0	8.0	2.0
AFM-0812-12	8.0	+0.040 +0.130	12.0	16.0	12.0	2.0
AFM-0812-22	8.0	+0.040 +0.130	12.0	16.0	22.0	2.0
AFM-0814-06	8.0	+0.040 +0.130	14.0	18.0	6.0	3.0
AFM-0814-10	8.0	+0.040 +0.130	14.0	18.0	10.0	3.0
AFM-0914-06	9.0	+0.040 +0.130	14.0	19.0	6.0	2.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/a200 | order example part number AFM-0103-02

iglidur® A200 | Product Range

Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
AFM-0914-10	9.0	+0.040 +0.130	14.0	19.0	10.0	2.0
AFM-0914-14	9.0	+0.040 +0.130	14.0	19.0	14.0	2.0
AFM-1016-06	10.0	+0.040 +0.130	16.0	22.0	6.0	3.0
AFM-1016-08	10.0	+0.040 +0.130	16.0	22.0	8.0	3.0
AFM-1016-10	10.0	+0.040 +0.130	16.0	22.0	10.0	3.0
AFM-1016-16	10.0	+0.040 +0.130	16.0	22.0	16.0	3.0
AFM-101620-10	10.0	+0.040 +0.130	16.0	20.0	10.0	3.0
AFM-1214-12	12.0	+0.050 +0.160	14.0	20.0	12.0	3.0
AFM-1218-08	12.0	+0.050 +0.160	18.0	24.0	8.0	1.0
AFM-1218-10	12.0	+0.050 +0.160	18.0	22.0	10.0	3.0
AFM-1218-12	12.0	+0.050 +0.160	18.0	24.0	12.0	3.0
AFM-1218-15	12.0	+0.050 +0.160	18.0	22.0	15.0	3.0
AFM-1218-20	12.0	+0.050 +0.160	18.0	22.0	20.0	3.0
AFM-1420-10	14.0	+0.050 +0.160	20.0	25.0	10.0	3.0
AFM-1420-15	14.0	+0.050 +0.160	20.0	25.0	15.0	3.0
AFM-1420-20	14.0	+0.050 +0.160	20.0	25.0	20.0	3.0
AFM-1521-10	15.0	+0.050 +0.160	21.0	27.0	10.0	3.0
AFM-1521-15	15.0	+0.050 +0.160	21.0	27.0	15.0	3.0
AFM-1521-20	15.0	+0.050 +0.160	21.0	27.0	20.0	3.0
AFM-1521-25	15.0	+0.050 +0.160	21.0	27.0	25.0	3.0
AFM-1622-12	16.0	+0.050 +0.160	22.0	28.0	12.0	3.0
AFM-1622-15	16.0	+0.050 +0.160	22.0	28.0	15.0	3.0
AFM-1622-20	16.0	+0.050 +0.160	22.0	28.0	20.0	3.0
AFM-1622-25	16.0	+0.050 +0.160	22.0	28.0	25.0	3.0
AFM-1824-12	18.0	+0.050 +0.160	24.0	30.0	12.0	3.0
AFM-1824-18	18.0	+0.050 +0.160	24.0	30.0	18.0	3.0
AFM-1824-20	18.0	+0.050 +0.160	24.0	30.0	20.0	3.0
AFM-1824-30	18.0	+0.050 +0.160	24.0	30.0	30.0	3.0
AFM-2026-15	20.0	+0.065 +0.195	26.0	32.0	15.0	3.0
AFM-2026-20	20.0	+0.065 +0.195	26.0	32.0	20.0	3.0
AFM-2026-30	20.0	+0.065 +0.195	26.0	32.0	30.0	3.0
AFM-2228-15	22.0	+0.065 +0.195	28.0	34.0	15.0	3.0
AFM-2228-20	22.0	+0.065 +0.195	28.0	34.0	20.0	3.0
AFM-2228-30	22.0	+0.065 +0.195	28.0	34.0	30.0	3.0
AFM-2430-15	24.0	+0.065 +0.195	30.0	36.0	15.0	3.0
AFM-2430-20	24.0	+0.065 +0.195	30.0	36.0	20.0	3.0
AFM-2430-30	24.0	+0.065 +0.195	30.0	36.0	30.0	3.0
AFM-2532-20	25.0	+0.065 +0.195	32.0	38.0	20.0	4.0
AFM-2532-30	25.0	+0.065 +0.195	32.0	38.0	30.0	4.0
AFM-2532-40	25.0	+0.065 +0.195	32.0	38.0	40.0	4.0
AFM-2734-20	27.0	+0.065 +0.195	34.0	40.0	20.0	4.0
AFM-2734-30	27.0	+0.065 +0.195	34.0	40.0	30.0	4.0

* after pressfit. Testing methods ▶ page 55

iglidur® A200 | Product Range

Flange bearing

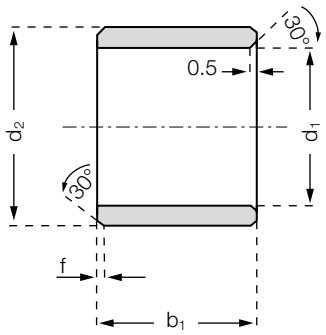
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3 d13	b1 h13	b2 –0.14
AFM-2734-40	27.0	+0.065 +0.195	34.0	40.0	40.0	4.0
AFM-2836-20	28.0	+0.065 +0.195	36.0	42.0	20.0	4.0
AFM-2836-30	28.0	+0.065 +0.195	36.0	42.0	30.0	4.0
AFM-2836-40	28.0	+0.065 +0.195	36.0	42.0	40.0	4.0
AFM-3038-20	30.0	+0.065 +0.195	38.0	44.0	20.0	4.0
AFM-3038-30	30.0	+0.065 +0.195	38.0	44.0	30.0	4.0
AFM-3038-40	30.0	+0.065 +0.195	38.0	44.0	40.0	4.0
AFM-3240-20	32.0	+0.080 +0.240	40.0	46.0	20.0	4.0
AFM-3240-30	32.0	+0.080 +0.240	40.0	46.0	30.0	4.0
AFM-3240-40	32.0	+0.080 +0.240	40.0	46.0	40.0	4.0

* after pressfit. Testing methods ▶ page 55

iglidur® A200 | Product Range | Inch

Sleeve bearing



Order key

ASI-0204-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® A200

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

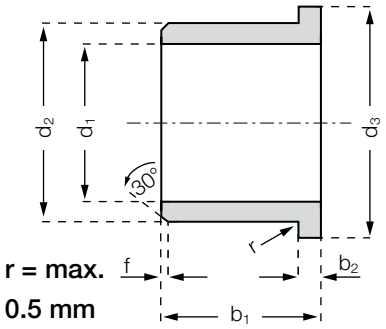
Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
ASI-0204-04	1/8	1/4	1/4	.1280	.1262	.2515	.2510	.1250	.1241
ASI-0305-04	3/16	5/16	1/4	.1905	.1887	.3140	.3135	.1875	.1866
ASI-0406-04	1/4	3/8	1/4	.2539	.2516	.3765	.3760	.2500	.2491
ASI-0406-06	1/4	3/8	3/8	.2539	.2516	.3765	.3760	.2500	.2491
ASI-0406-08	1/4	3/8	1/2	.2539	.2516	.3765	.3760	.2500	.2491
ASI-0507-08	5/16	15/32	1/2	.3164	.3141	.4390	.4385	.3125	.3116
ASI-0608-04	3/8	1/2	1/4	.3789	.3766	.5015	.5010	.3750	.3741
ASI-0608-08	3/8	1/2	1/2	.3789	.3766	.5015	.5010	.3750	.3741
ASI-0810-08	1/2	5/8	1/2	.5047	.5020	.6260	.6250	.5000	.4990
ASI-0810-12	1/2	5/8	3/4	.5047	.5020	.6260	.6250	.5000	.4990
ASI-1013-05	5/8	13/16	5/16	.6297	.6270	.8135	.8125	.6250	.6240
ASI-1013-12	5/8	13/16	3/4	.6297	.6270	.8135	.8125	.6250	.6240
ASI-1216-12	3/4	1	3/4	.7559	.7525	1.0010	1.0000	.7500	.7490
ASI-1216-16	3/4	1	1	.7559	.7525	1.0010	1.0000	.7500	.7490
ASI-1418-16	7/8	11/8	1	.8809	.8775	1.1260	1.1250	.8750	.8740
ASI-1620-12	1	19/32	3/4	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
ASI-1620-16	1	19/32	1	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
ASI-2024-16	1 1/4	117/32	1	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
ASI-2428-24	1 1/2	13/4	11/2	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/a200 | order example part number ASI-0204-04

iglidur® A200 | Product Range | Inch

Flange bearing



Order key

AFI-0204-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® A200

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

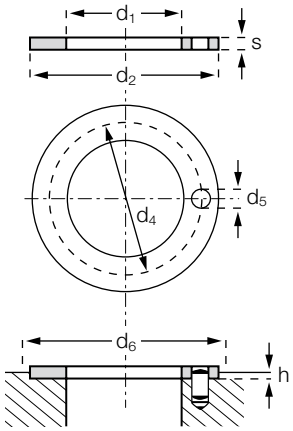
Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft size	
						max.	min.	max.	min.	max.	min.
AFI-0204-04	1/8	1/4	1/4	.360	.047	.1280	.1262	.2515	.2510	.1250	.1241
AFI-0305-04	3/16	5/16	1/4	.370	.047	.1905	.1887	.3140	.3135	.1875	.1866
AFI-0406-04	1/4	3/8	1/4	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
AFI-0406-06	1/4	3/8	3/8	.560	.047	.2539	.2516	.3765	.3760	.2500	.2491
AFI-0507-08	5/16	15/32	1/2	.560	.062	.3164	.3141	.4390	.4385	.3125	.3116
AFI-0608-04	3/8	1/2	1/4	.625	.062	.3164	.3141	.4390	.4385	.3125	.3116
AFI-0608-08	3/8	1/2	1/2	.625	.062	.3789	.3766	.5015	.5010	.3750	.3741
AFI-0810-08	1/2	5/8	1/2	.875	.062	.5047	.5020	.6257	.6250	.5000	.4983
AFI-0810-12	1/2	5/8	3/4	.875	.062	.5047	.5020	.6257	.6250	.5000	.4983
AFI-1013-16	5/8	13/16	1	1.063	.156	.6297	.6270	.8135	.8125	.6250	.6240
AFI-1216-12	3/4	1	3/4	1.250	.156	.7559	.7525	1.0010	1.0000	.7500	.7490
AFI-1216-16	3/4	1	1	1.250	.156	.7559	.7525	1.0010	1.0000	.7500	.7490
AFI-1418-24	7/8	11/8	11/2	1.375	.156	.8809	.8775	1.1260	1.1250	.8750	.8740
AFI-1620-16	1	19/32	1	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
AFI-1620-24	1	19/32	11/2	1.500	.188	1.0059	1.0025	1.2510	1.2500	1.0000	.9990
AFI-2024-16	11/4	117/32	1	1.750	.200	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
AFI-2024-24	11/4	117/32	11/2	1.750	.200	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490
AFI-2428-16	11/2	13/4	1	2.000	.125	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
AFI-2428-24	11/2	13/4	11/2	2.000	.125	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990
AFI-2832-16	13/4	2	1	2.250	.125	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/a200 | order example part number AFI-0204-04

iglidur® A200 | Product Range | Inch

Thrust washer



Order key

ATI-04

- Thickness s
- Inch
- Type (Form T)
- Material iglidur® A200

Dimensions according to ISO 3547-1 and special dimensions

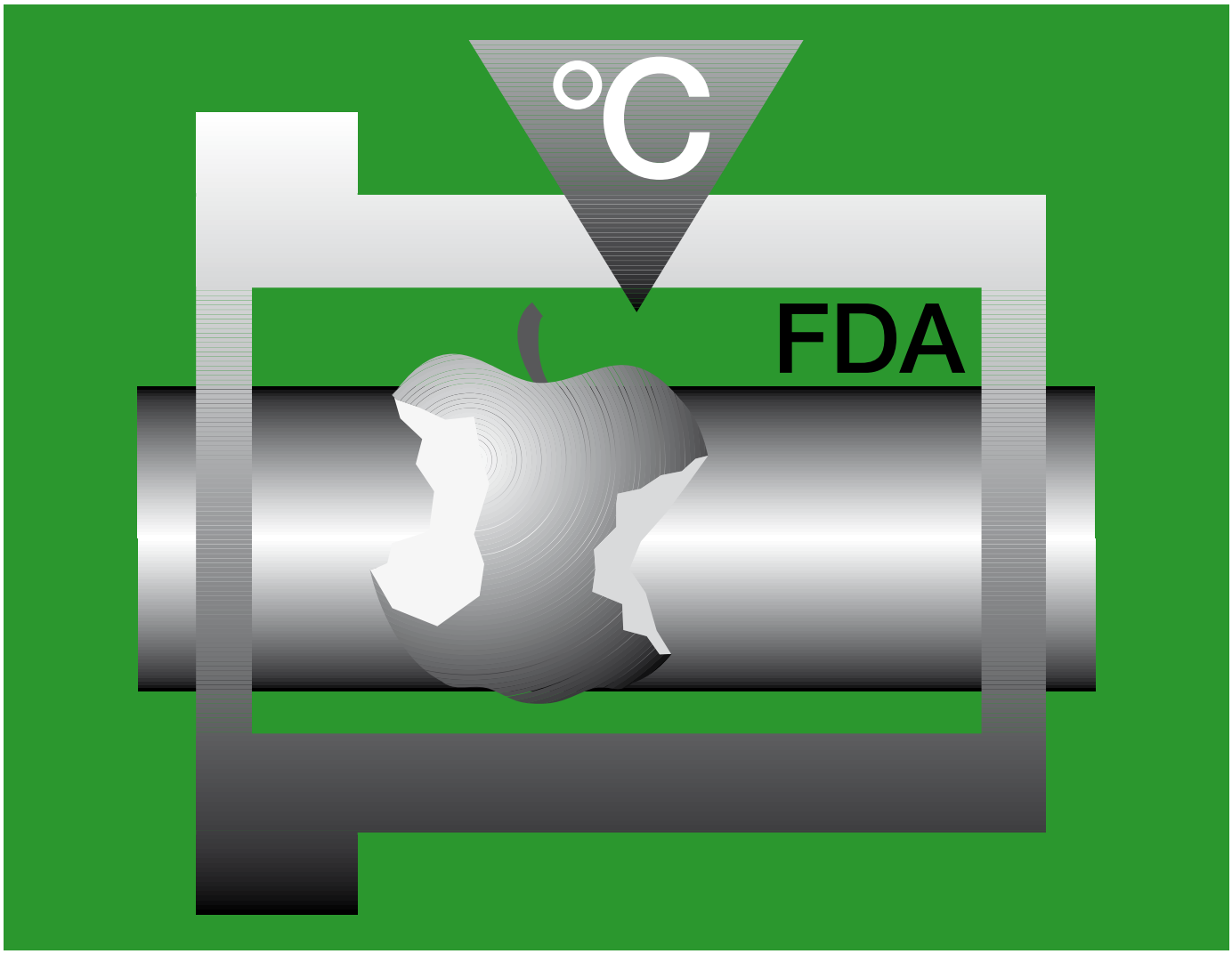
Dimensions [Inch]

Part number	d1 (nominal)	d1*		d2		s
		max.	min.	max.	min.	
ATI-04	1/4	.2610	.2551	.6201	.6094	.0902
ATI-06	3/8	.3943	.3813	.7500	.7370	.0902
ATI-08	1/2	.5102	.5031	.8201	.8071	.0902
ATI-12	3/4	.7673	.7598	1.0654	1.0500	.0941
ATI-16	1	1.0268	1.0197	1.5000	1.4843	.1252

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/a200 | order example part number ATI-04

My Sketches



iglidur® A350 – FDA-compliant and wear-resistant at high temperatures

- Standard range from stock
- The iglidur® A350 material complies with FOOD AND DRUG ADMINISTRATION (FDA) regulations
- For use with temperatures up to +180 °C
- For medium and high loads
- Equally good for both oscillating and rotating applications

NEW in this catalog!

iglidur® A350

FDA-compliant and wear-resistant at high temperatures. A very universal bearing for use in the area of food and pharmaceutical industries. Composition of FDA-conform materials allows the use in areas where due to the contact with food other bearings cannot be used. With good tribologican and mechanical properties, iglidur® A350 bearings are real allround talents for food machinery.

Complies with FOOD AND DRUG ADMINISTRATION (FDA) regulations

For use with temperatures up to +180 °C

For medium and high loads

Equally good for both oscillating and rotating applications

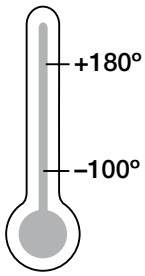
When to use it?

- If FDA-compliance is required
- If wear-resistance and FDA-conformance is necessary at high loads
- If the bearing is use in acid environment

When not to use?

- When temperatures are continuously greater than +80 °C
  ▶ **iglidur® A500, page 407**
- When the maximum abrasion resistance is necessary
  ▶ **iglidur® J, page 89**
- When a low-priced FDA bearing is sought
  ▶ **iglidur® A200, page 381**
  iglidur® A180, page 371
- For high speeds
  ▶ **iglidur® J, page 89**

Temperature



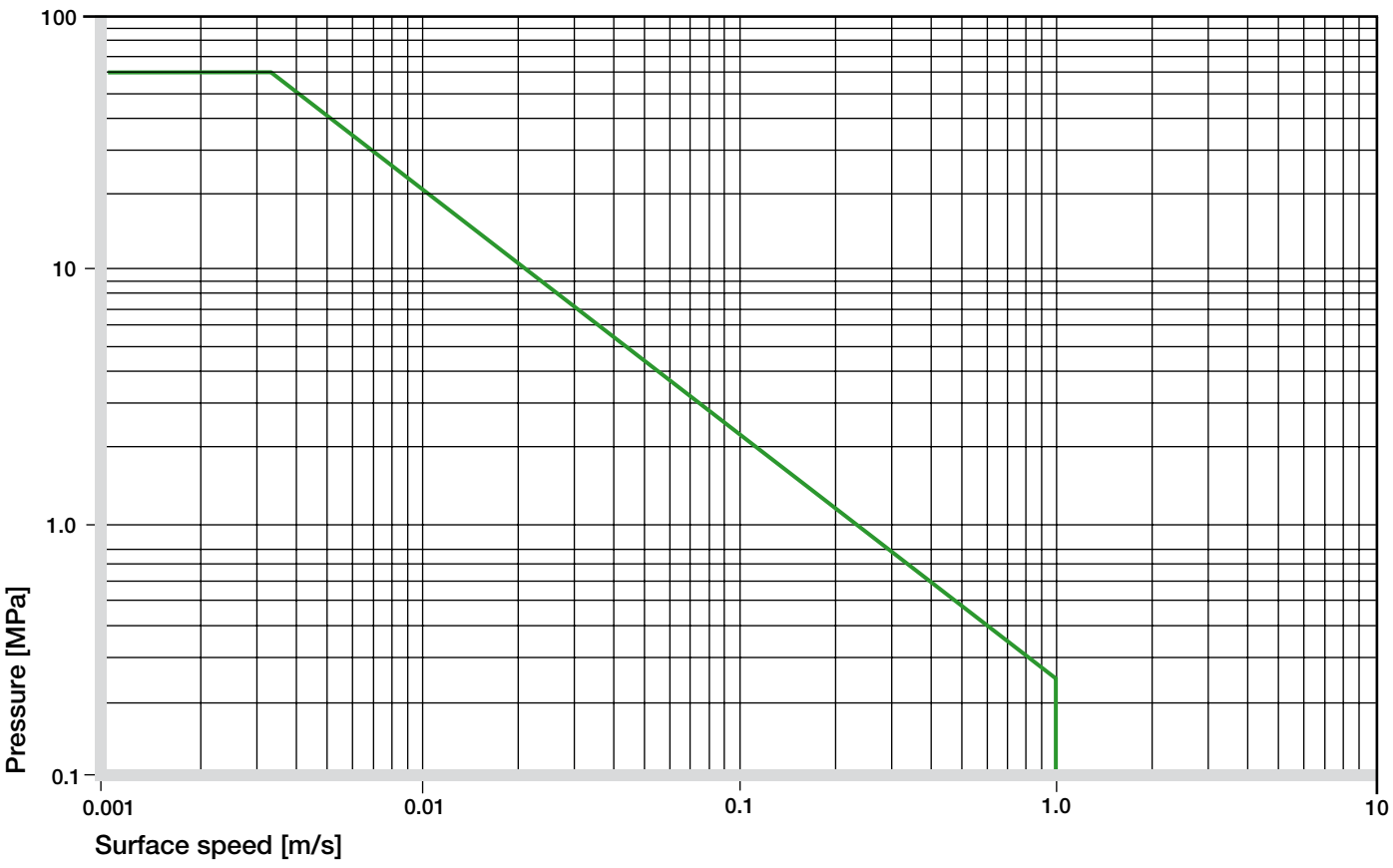
Product range

2 types
Ø 6–20 mm
more dimensions
on request

iglidur® A350 | Technical Data

Material data			
General poperties	**Unit**	**iglidur® A350**	**Testing method**
Density	**g/cm³**	1.42	
Colour		blue	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.6	DIN 53495
Max. moisture absorption	**% weight**	1.9	
Coefficient of sliding friction, dynamic against steel	**µ**	0.1–0.2	
pv value, max. (dry)	**MPa · m/s**	0.4	
Mechanical properties			
Modulus of elasticity	**MPa**	2,000	DIN 53457
Tensile strength at +20 °C	**MPa**	110	DIN 53452
Compressive strength	**MPa**	78	
Max. recommended surface pressure (+20 °C)	**MPa**	60	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+180	
Max. short term application temperature	**°C**	+210	
Min. application temperature	**°C**	–100	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	8	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{11}	DIN IEC 93
Surface resistance	**Ω**	> 10^{11}	DIN 53482

Table 01: Material data

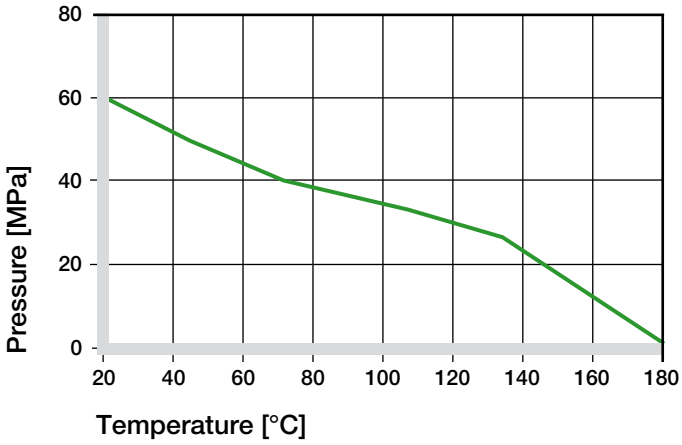


Graph 01: Permissible pv values for iglidur® A350 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® A350 | Technical Data

Mechanical Properties

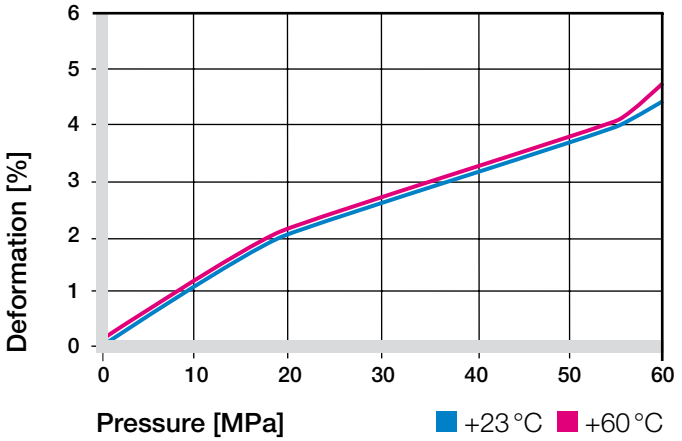
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® A350 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +150 °C the permissible surface pressure is almost 25 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (60 MPa at +20 °C)

iglidur® A350 bearings are made for practically all loads in food and packaging machinery. Even Even high loads, often seen in lifting equipment, are taken easily and the bearings work flawlessly without any external lubrication. Graph 03 shows the elastic deformation of iglidur® A358 during radial loading. At the recommended maximum surface pressure of 60 MPa the deformation is less than 5 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® A350 bearings are suitable for low to medium speeds in both rotating and oscillating applications. Even linear movements can often be realised with iglidur® A350. With high sliding speeds, iglidur® J or iglidur® L250 can be interesting alternatives because the wear rate of these materials is better.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.8	2.5
Short term	1.2	0.9	3

Table 02: Maximum running speed

Temperatures

Its temperature resistance makes iglidur® A350 an ideal material for bearing in the area of foodstuffs. Typically, temperatures range up to +130 °C, which corresponds perfectly with the applicable temperature range for iglidur® A350. Short-term temperatures up to +210 °C are possible. Please note that at temperatures over +140 °C, the pressfit forces of the bearings may decrease and an additional axial security device is recommended.
The wear-rate of iglidur® A350 bearings rises only little with higher temperatures. Tests have shown good wear results at +100 °C on all tested shaft materials.

▶ Application Temperatures, **page 46**

iglidur® A350	Application temperature
Minimum	–100 °C
Max. long term	+180 °C
Max. short term	+210 °C
Add. securing is required from	+140 °C

Table 03: Temperature limits

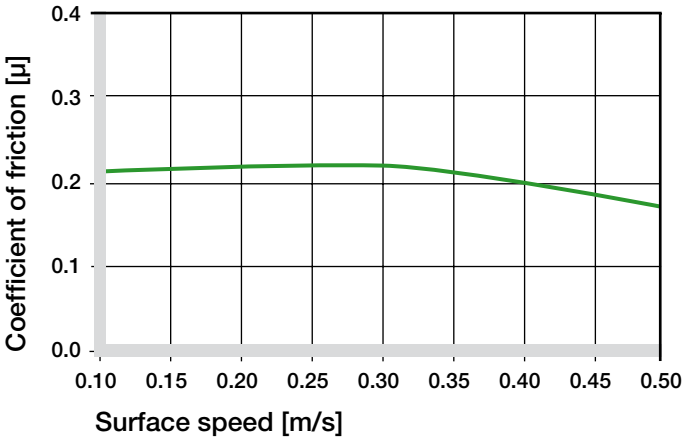
Friction and Wear

The coefficient of friction of iglidur® A350 on a steel shaft are in the mid range. They decrease at higher temperatures, which in dry operation is somewhat unusual. Graph. 04 shows this phenomenon graphically.

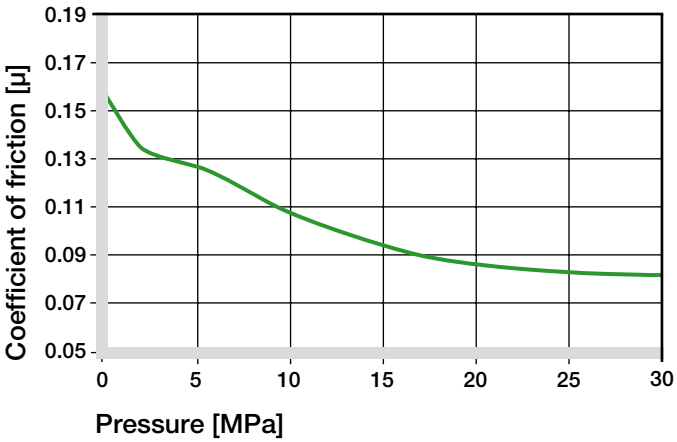
All wear results of iglidur® A350 bearings show good results on a low level. Of all iglidur® materials for food contact, they are often the best choice.

▶ Coefficients of Friction and Surfaces, **page 48**

▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 1 MPa



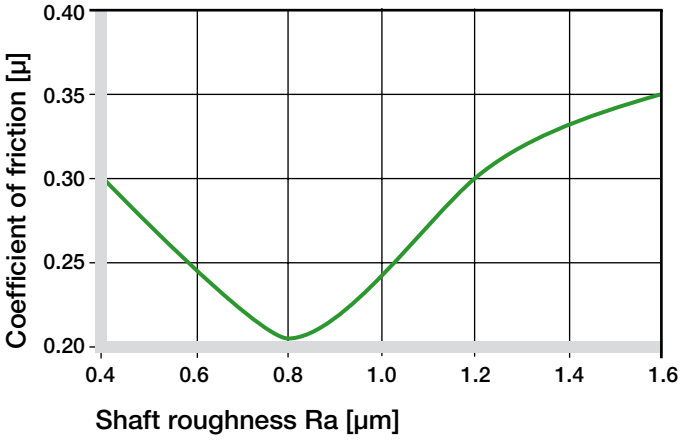
Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

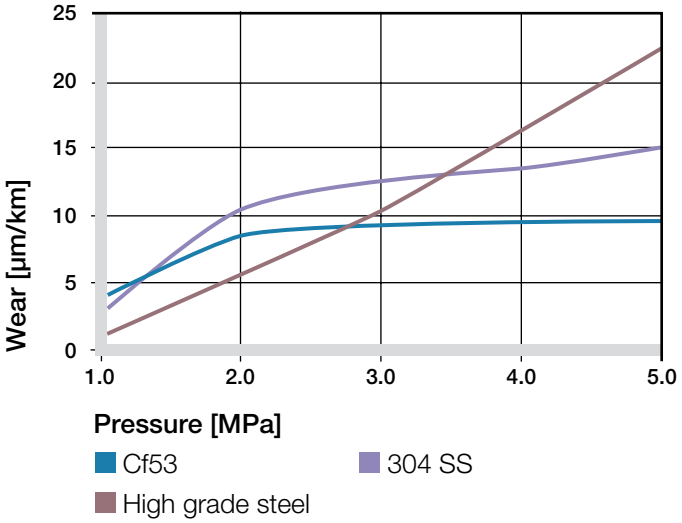
The corrosion-resistant steels are rather considered a natural choice for use in the food industry.

The trials were therefore carried out especially on such materials. It has been shown that there is no clear favorite and A2, X90 and hard chrome plated steel are all suitable. Hard-anodized aluminum is also well suited for both linear and rotating movements.

▶ Shaft Materials, **page 51**

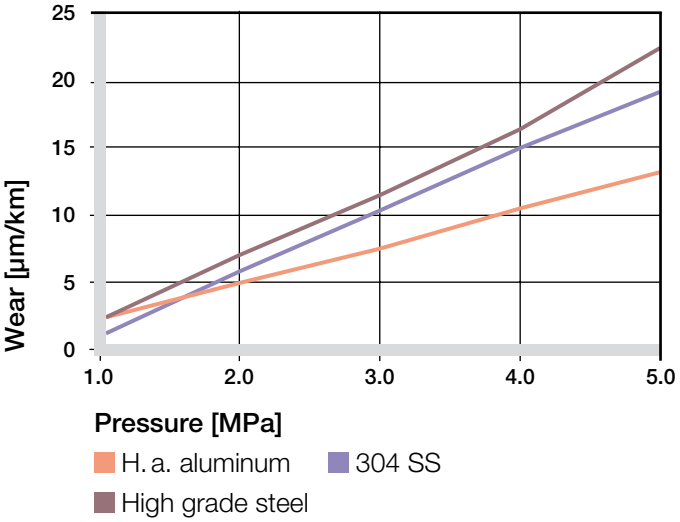


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear with different shaft materials in rotational operation, as a function of the pressure

iglidur® A350 | Technical Data



Graph 08: Wear with different shaft materials in oscillating operation, as a function of the pressure

iglidur® A350	Dry	Greases	Oil	Water
C. o. f. µ	0.1–0.2	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® A350 plain bearings are resistant to diluted acids and alkalis, alcohols and detergents. They are also resistant to most lubricants. The iglidur® A350 plain bearings are resistant to common cleaning agents in the food industry. iglidur® A350 is affected by esters, ketones, chlorinated hydrocarbons, aromatics and highly polar solvents.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+ to 0
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	+
Diluted alkalines	+
starke Basen	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made of iglidur® A350 are resistant to radiation up to an intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® A350 bearings are resistant to UV radiation.

Vacuum

When used in a vacuum environment, the iglidur® A350 plain bearings release moisture as a vapour. Therefore, only dehumidified bearings are suitable in a vacuum invironment.

Electrical Properties

iglidur® A350 plain bearings are electrically insulating.

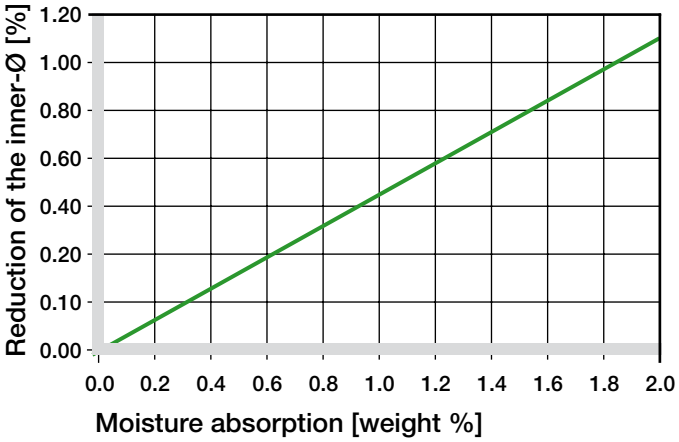
Volume resistance	$> 10^{11}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

Moisture Absorption

The moisture absorption of iglidur® A350 is low and can be disregarded when using standard bearings.
Even at full saturation the iglidur® A350 does not absorb more than 1.9 % of water.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.6 % weight
Max. moisture absorption	1.9 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® A350 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter adjusts to meet the specified tolerances.

▶ Testing Methods, **page 55**

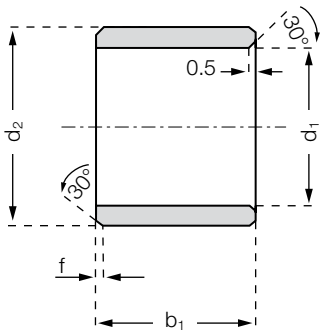
Diameter d1 [mm]			Shaft h9 [mm]	iglidur® A350 F10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.006 +0.046	0 +0.010
>	3 to	6	0–0.030	+0.010 +0.058	0 +0.012
>	6 to	10	0–0.036	+0.013 +0.071	0 +0.015
>	10 to	18	0–0.043	+0.016 +0.086	0 +0.018
>	18 to	30	0–0.052	+0.020 +0.104	0 +0.021
>	30 to	50	0–0.062	+0.025 +0.125	0 +0.025
>	50 to	80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

NEW in this catalog!

iglidur® A350 | Product Range

Sleeve bearing



Order key

A350SM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® A350

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

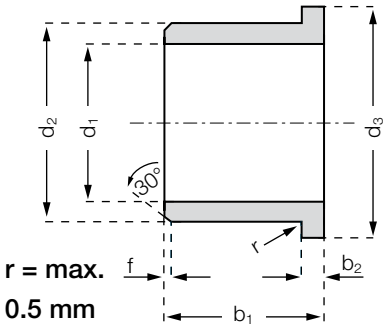
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1
A350SM-0608-06	6	+0.010 +0.058	8	6
A350SM-0810-10	8	+0.013 +0.071	10	10
A350SM-1012-10	10	+0.013 +0.071	12	10
A350SM-1214-12	12	+0.016 +0.068	14	12
A350SM-1618-15	16	+0.016 +0.068	18	15
A350SM-2023-20	20	+0.020 +0.104	23	20

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/a350 | order example part number A350SM-0608-06

Flange bearing



Order key

A350FM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® A350

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

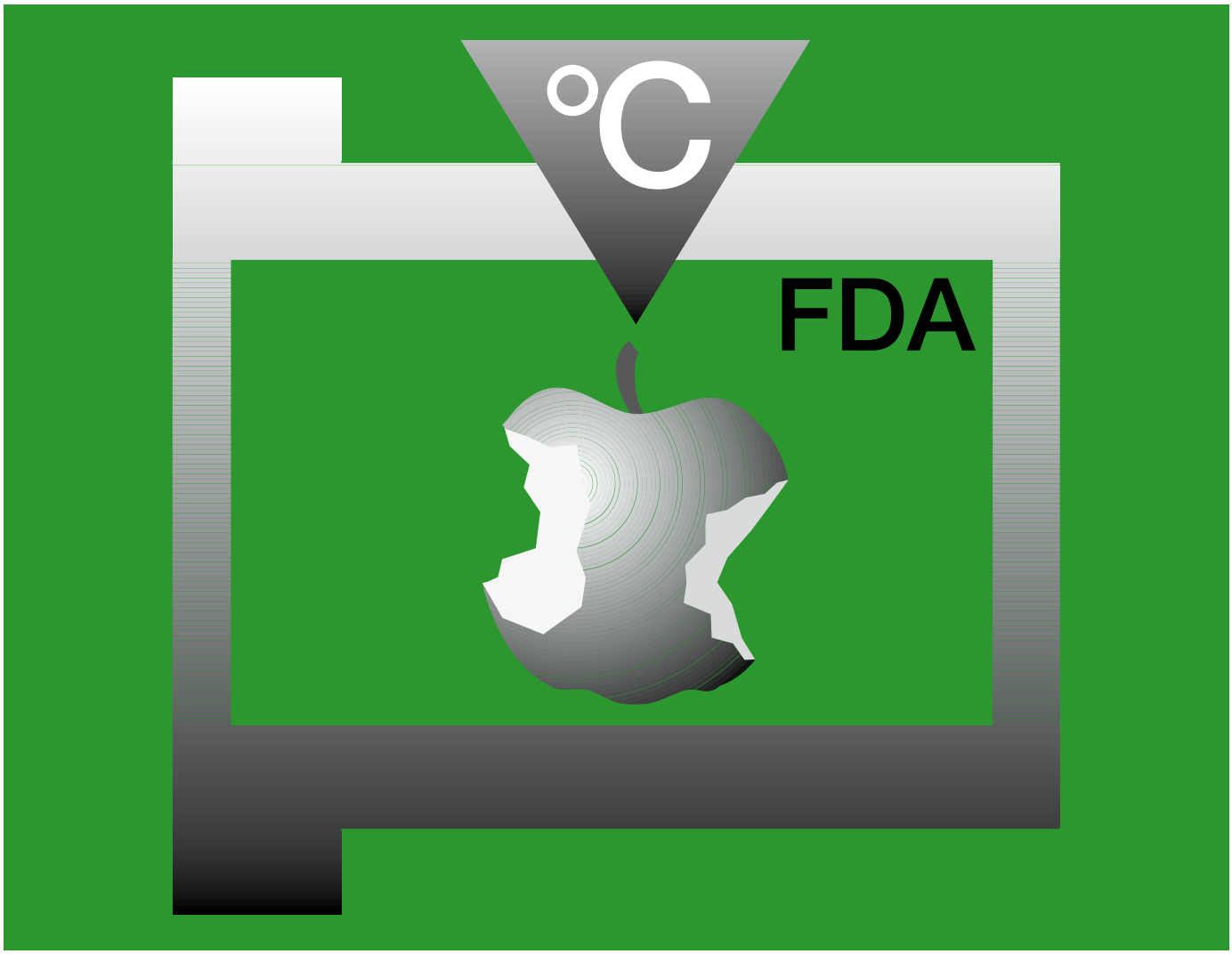
d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
A350FM-0608-06	6	+0.010 +0.058	8	12	6	1
A350FM-0810-10	8	+0.013 +0.071	10	15	10	1
A350FM-1012-10	10	+0.013 +0.071	12	18	10	1
A350FM-1214-12	12	+0.016 +0.068	14	20	12	1
A350FM-1618-17	16	+0.016 +0.068	18	24	17	1
A350FM-2023-21	20	+0.020 +0.104	23	30	21,5	1,5

* after pressfit. Testing methods ▶ page 55

My Sketches

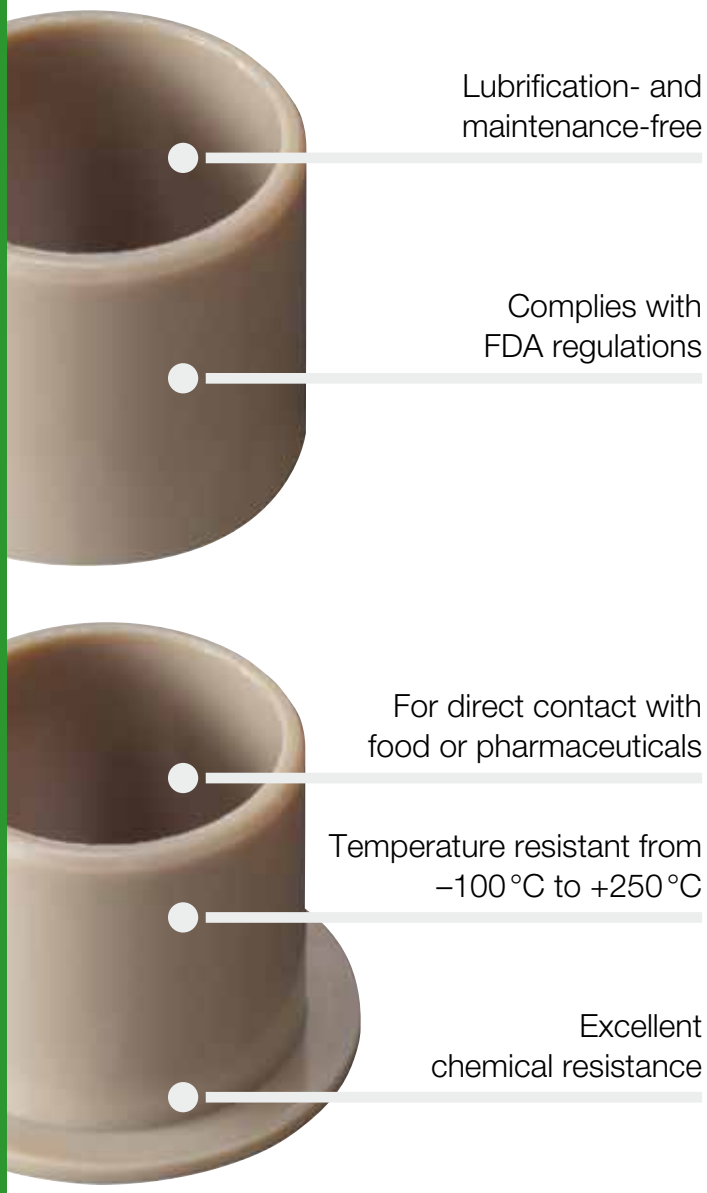


iglidur® A500 – FDA-material for high temperatures and high load

- Standard range from stock
- Lubrication- and maintenance-free
- Complies with FDA regulations
- For direct contact with food or pharmaceuticals
- Temperature resistant from –100 °C to +250 °C
- High chemical-resistance

iglidur® A500

FDA-material for high temperatures and high load. Polymer bearings made from iglidur® A500 can be exposed to extremely high temperatures and consist of materials suitable for direct contact with food (FDA-conformity).



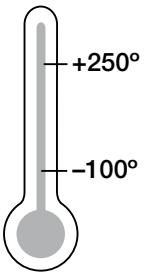
When to use it?

- When FDA compliance is required
- When a high chemical resistance is required
- Good abrasion resistance
- Temperature resistant from –100 °C to +250 °C

When not to use it?

- When the highest wear resistance is required
  - ▶ **iglidur® X, page 153**
  - ▶ **iglidur® Z, page 299**
- If no resistance to temperature or chemicals is required
  - ▶ **iglidur® A180, page 371**
  - ▶ **iglidur® A200, page 381**
- When a cost-effective universal bearing is required
  - ▶ **iglidur® G, page 61**
  - ▶ **iglidur® P, page 185**

Temperature



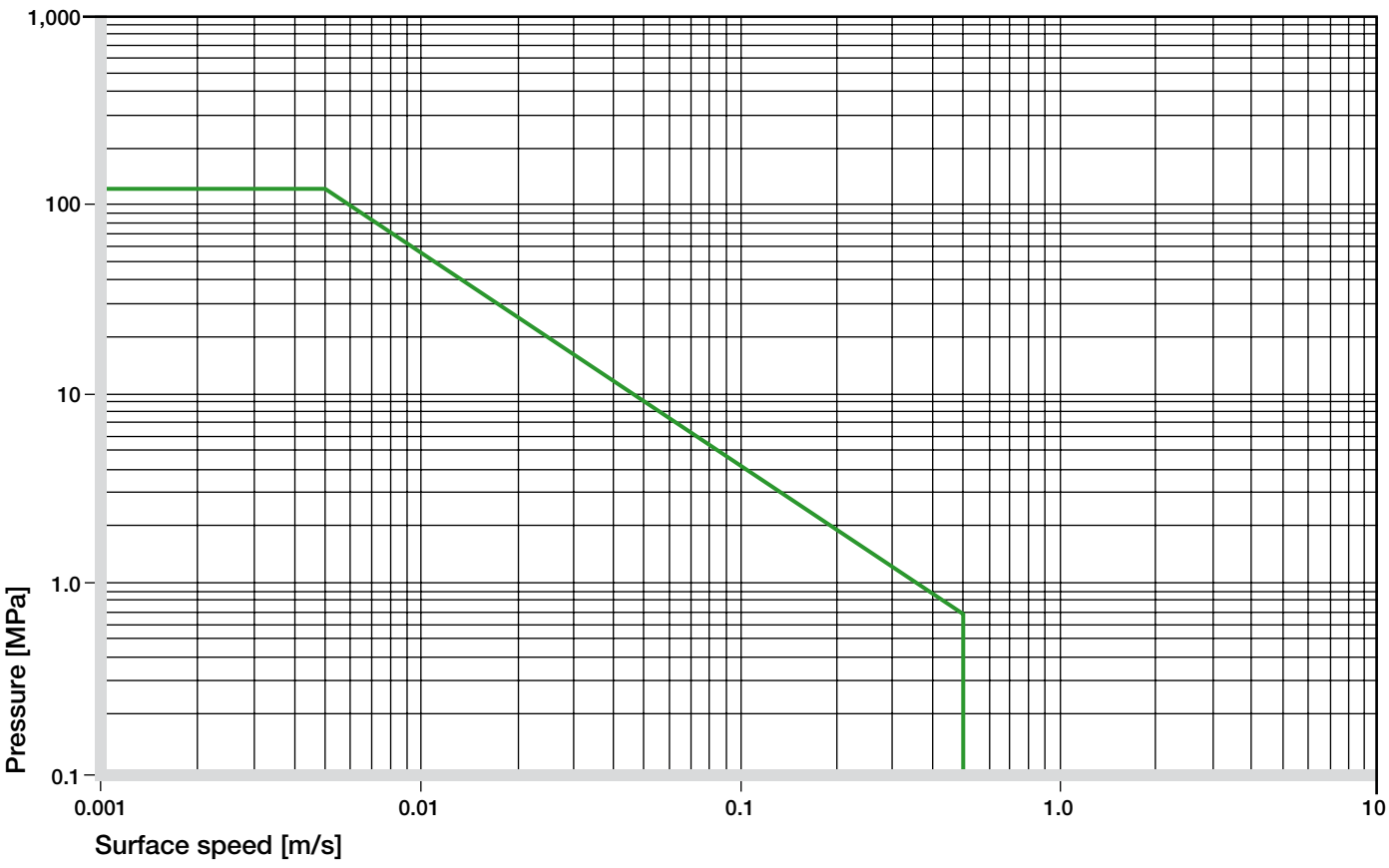
Product range

2 types
Ø 4–50 mm
more dimensions
on request

The material iglidur® A500 complies with the requirements of the FDA for repeated contact with food.

Material data			
General properties	**Unit**	**iglidur® A500**	**Testing method**
Density	**g/cm³**	1.28	
Colour		brown	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.3	DIN 53495
Max. moisture absorption	**% weight**	0.5	
Coefficient of sliding friction, dynamic against steel	**µ**	0.26–0.41	
pv value, max. (dry)	**MPa · m/s**	0.28	
Mechanical properties			
Modulus of elasticity	**MPa**	3,600	DIN 53457
Tensile strength at +20 °C	**MPa**	140	DIN 53452
Compressive strength	**MPa**	118	
Max. recommended surface pressure (+20 °C)	**MPa**	120	
Shore D hardness		83	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+250	
Max. short term application temperature	**°C**	+300	
Min. application temperature	**°C**	–100	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	9	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{14}	DIN IEC 93
Surface resistance	**Ω**	> 10^{13}	DIN 53482

Table 01: Material data

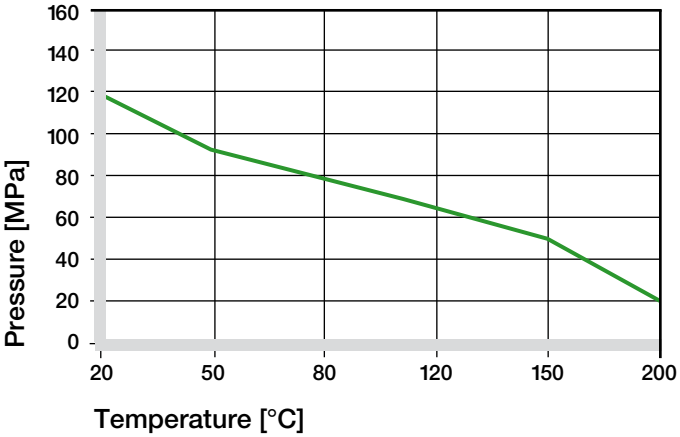


Graph 01: Permissible pv values for iglidur® A500 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® A500 | Technical Data

Mechanical Properties

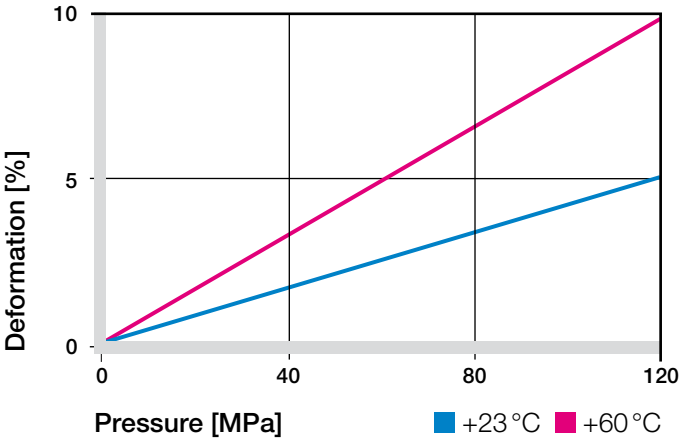
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® A500 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +200 °C the permissible surface pressure is almost 20 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (120 MPa at +20 °C)

Bearings made of iglidur® A500 can be used at high temperatures and are permitted for use in direct contact with foodstuffs (FDA compatible). They exhibit an exceptionally good chemical resistance and are suitable for heavy-duty use in machinery for the food industry. Though iglidur® A500 is an extremely soft material, it simultaneously possesses an excellent compressive strength even at high temperatures. Graph 03 shows the maximum recommended surface pressure of the bearing dependent on the temperature. This combination of high stability and high flexibility acts very positively during vibrations and edge loads. As the wear of the bearing rapidly escalates from pressures of 10 to 20 MPa, we recommend a particularly accurate testing of the application above these limits.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® A500 also permits high surface speeds due to the high temperature resistance. The coefficient of friction rises however by these high rotatary speeds leading to a higher heating up of the bearing. Tests show that bearings made of iglidur® A500 are more wear resistant in pivoting motions, and the permitted pv values are also higher in the pivoting application.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.6	0.4	1
Short term	1	0.7	2

Table 02: Maximum running speed

Temperatures

The short-term permitted maximum application temperature is +300 °C. With increasing temperatures, the compressive strength of iglidur® A500 bearings decreases. Graph 02 clarifies this connection. The temperatures prevailing in the bearing system also have an influence on the bearing wear.

▶ Application Temperatures, **page 46**

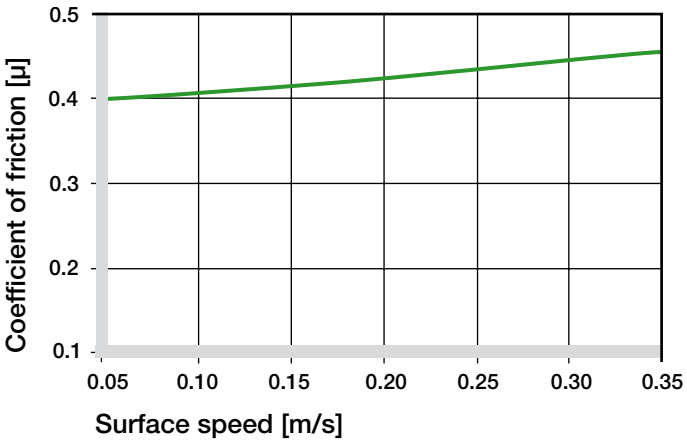
iglidur® A500	Application temperature
Minimum	–100 °C
Max. long term	+250 °C
Max. short term	+300 °C
Add. securing is required from	+ 130 °C

Table 03: Temperature limits

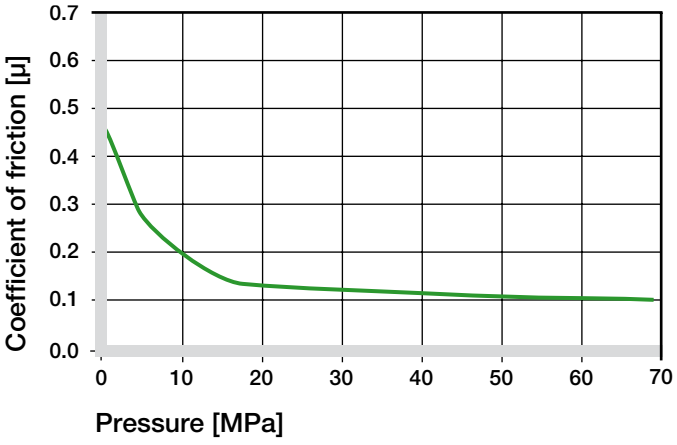
Friction and Wear

The coefficient of friction is dependent on the load that acts on the bearing. In iglidur® A500 bearings, the friction coefficient μ initially declines with increasing load. The most favorable coefficient of friction is attained from about 10 MPa. Friction and wear also depend to a high degree on the reverse partner. Thus extremely smooth shafts enhance not only the coefficient of friction, but also the bearing wear. The most suited are smoothed surfaces with an average surface finish of Ra = 0.4 to 0.6 µm.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

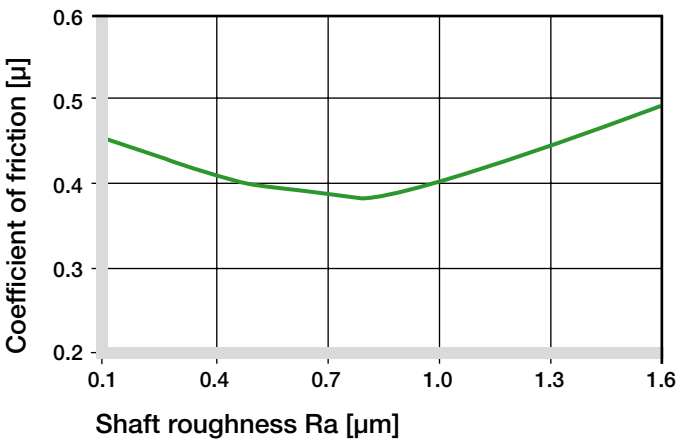


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

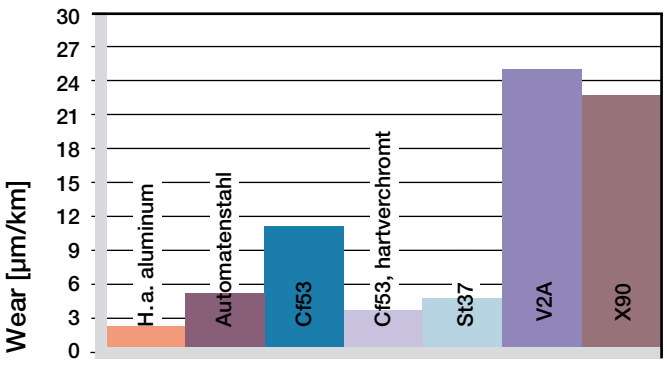
Shaft Materials

The graphs 06 to 09 display a summary of the results of tests with different shaft materials conducted with bearings made of iglidur® A500. The combination "iglidur® A500/hard-chromed shaft" clearly stands out in rotating application. Up to about 2.0 MPa, the wear of this combination remains largely independent of load. In pivoting motions with Cf53 shafts, the wear resistance is better than in rotations under equal load.
Please contact us in case the shaft material scheduled by you is not included in these figures.

▶ Shaft Materials, **page 51**

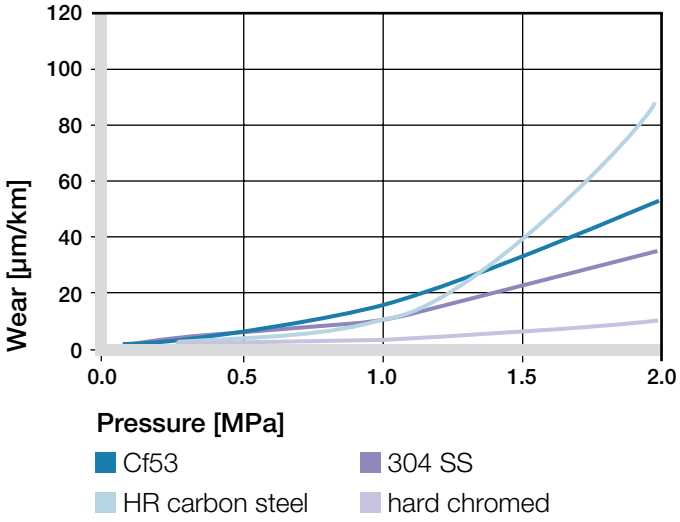


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

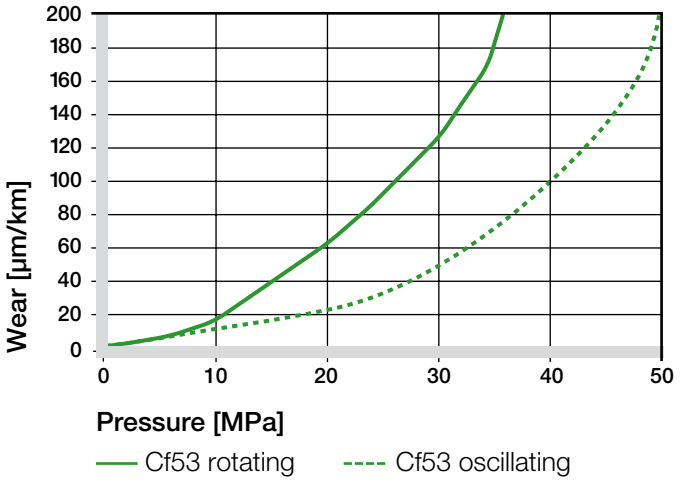


Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s

iglidur® A500 | Technical Data



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® A500	Dry	Greases	Oil	Water
C. o. f. µ	0.26–0.41	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® A500 plain bearings feature an excellent resistance with regard to detergents, greases, oils, bases and acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+
Strong acids	+
Diluted alkalines	+
Strong alkalines	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings of iglidur® A500 rank among the most radiation resistant products in the iglidur® range. The bearings are resistant up to a radiation intensity of $2 \cdot 10^5$ Gy. Higher radiation affects the material and can result in the loss of basic mechanical characteristics.

UV Resistance

To a large extent, iglidur® A500 plain bearings are resistant to UV radiation.

Vacuum

In a vacuum, iglidur® A500 plain bearings can only be used to a limited degree.

Electrical Properties

iglidur® A500 plain bearings are electrically insulating.

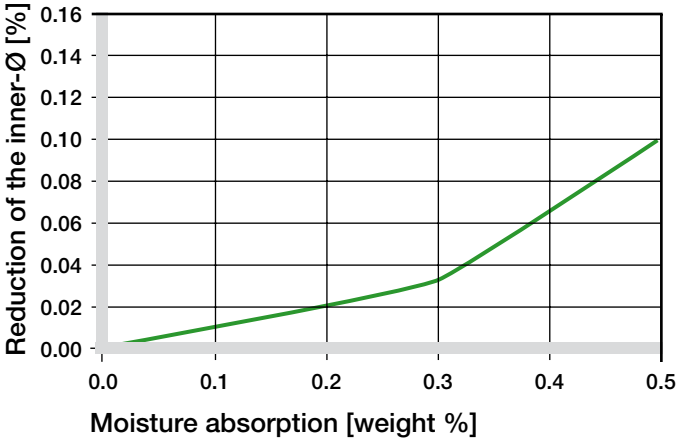
Volume resistance	$> 10^{14}$ Ωcm
Surface resistance	$> 10^{13}$ Ω

Moisture Absorption

The moisture absorption of iglidur® A500 plain bearings is only 0.5 % when saturated.

Maximum moisture absorption	
At +23 °C/50 % r.h.	0.3 % weight
Max. moisture absorption	0.5 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® A500 bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). After the installation in a housing bore with H7 tolerance, the inner diameter of the bearing automatically adjusts to the E10 tolerance.

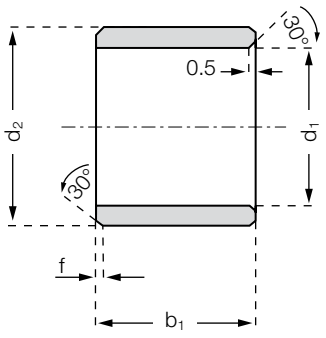
▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® A500 F10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.006 +0.046	0 +0.010
> 3 to 6	0–0.030	+0.010 +0.058	0 +0.012
> 6 to 10	0–0.036	+0.013 +0.071	0 +0.015
> 10 to 18	0–0.043	+0.016 +0.086	0 +0.018
> 18 to 30	0–0.052	+0.020 +0.104	0 +0.021
> 30 to 50	0–0.062	+0.025 +0.125	0 +0.025
> 50 to 80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® A500 | Product Range

Sleeve bearing



Order key

A500SM-0507-05

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® A500

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

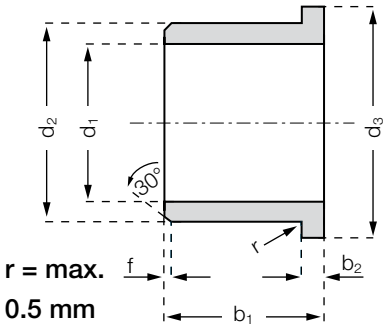
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
A500SM-0507-05	5.0	+0.010 +0.058	7.0	5.0
A500SM-0810-06	8.0	+0.013 +0.071	10.0	6.0
A500SM-0810-10	8.0	+0.013 +0.071	10.0	10.0
A500SM-1012-12	10.0	+0.013 +0.071	12.0	12.0
A500SM-1416-16	14.0	+0.016 +0.086	16.0	16.0
A500SM-2023-30	20.0	+0.020 +0.104	23.0	30.0
A500SM-2225-30	22.0	+0.020 +0.104	25.0	30.0
A500SM-3236-30	32.0	+0.030 +0.150	36.0	30.0
A500SM-3539-50	35.0	+0.025 +0.125	39.0	50.0
A500SM-5055-30	50.0	+0.025 +0.125	55.0	30.0

* after pressfit. Testing methods ▶ page 55

iglidur® A500 | Product Range

Flange bearing



r = max. 0.5 mm

Order key

A500FM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® A500

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

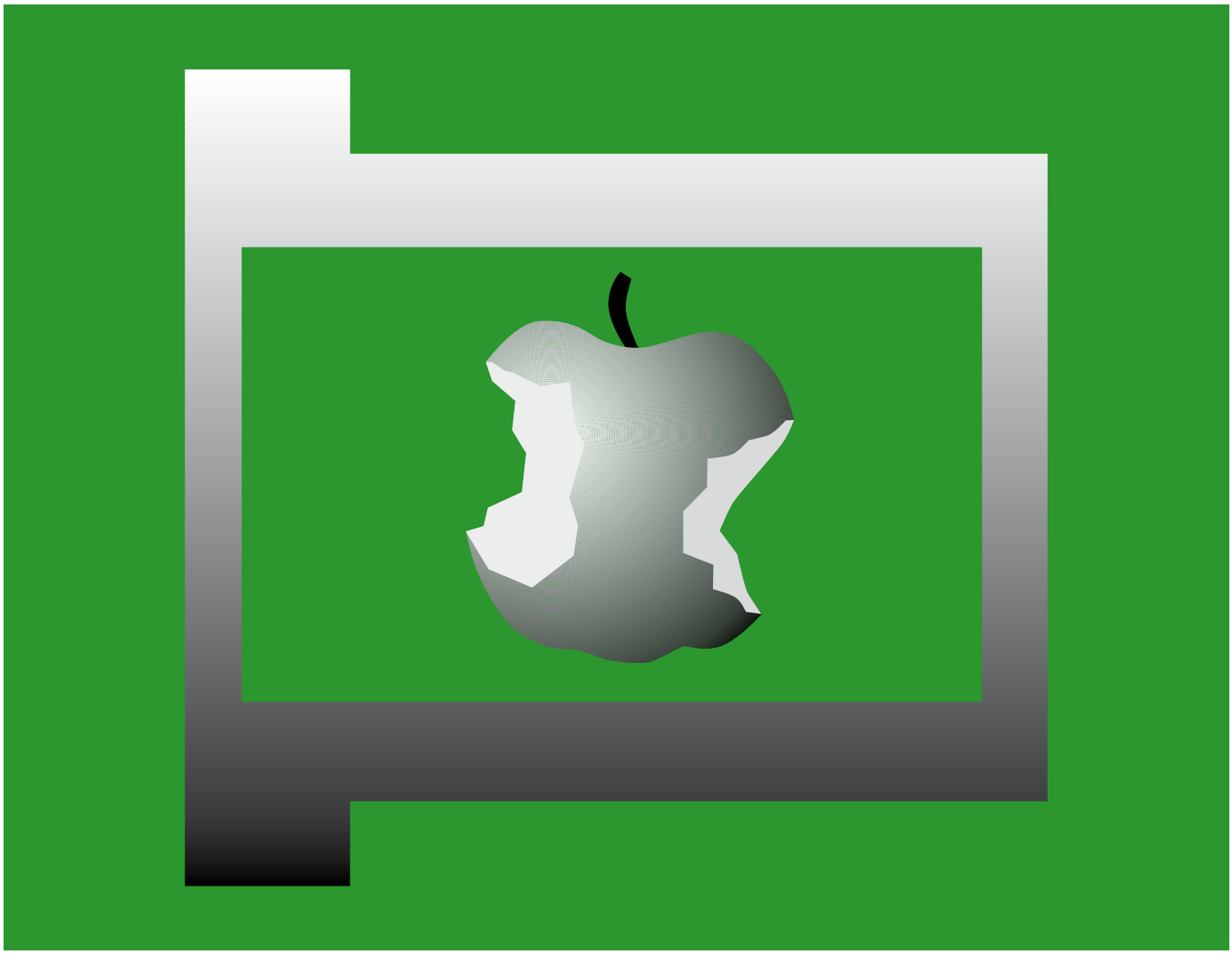
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	-0,14
A500FM-0405-04	4.0	+0.010 +0.058	5.5	9.5	4.0	0.75
A500FM-0608-06	6.0	+0.010 +0.058	8.0	12.0	6.0	1.0
A500FM-0810-10	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
A500FM-1012-09	10.0	+0.013 +0.071	12.0	18.0	9.0	1.0
A500FM-1012-15	10.0	+0.013 +0.071	12.0	18.0	15.0	1.0
A500FM-1214-13	12.0	+0.016 +0.086	14.0	20.0	13.0	1.0
A500FM-1214-15	12.0	+0.016 +0.086	14.0	20.0	15.0	1.0
A500FM-1517-17	15.0	+0.016 +0.086	17.0	23.0	17.0	1.0
A500FM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
A500FM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.0	1.5
A500FM-3034-40	30.0	+0.020 +0.104	34.0	42.0	40.0	2.0
A500FM-3539-40	35.0	+0.025 +0.125	39.0	47.0	40.0	2.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/a500 | order example part number A500FM-0405-04

My Sketches



iglidur® A290 – the robust general purpose material

- Standard range from stock
- Complies with the requirements of the BfR
- Suited for direct contact with food materials
- Good abrasion resistance
- For low-noise operation

iglidur® A290

The robust general purpose material. The bearings complies with the requirements of the BfR for contact with food. For medium and high loads.

Standard range from stock

Complies with the requirements of the BfR

Suited for direct contact with food material

Good abrasion resistance

For low-noise operation

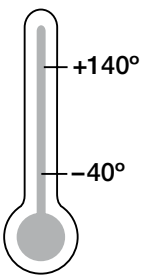
When to use it?

- Suitable for contact with food
- For low speeds
- For low-noise operation
- Physiologically safe
- Very good mechanical properties

When not to use it?

- When the material's FDA compliance is necessary
  - ▶ **iglidur® A180, page 371**
  - ▶ **iglidur® A200, page 381**
  - ▶ **iglidur® A500, page 407**
- When the highest wear resistance is required
  - ▶ **iglidur® W300, page 131**
- When temperatures are continuously greater than +140 °C
  - ▶ **iglidur® A500, page 407**
  - ▶ **iglidur® H, page 325**
  - ▶ **iglidur® X, page 153**
- When a cost-effective universal bearing is required
  - ▶ **iglidur® G, page 61**

Temperature



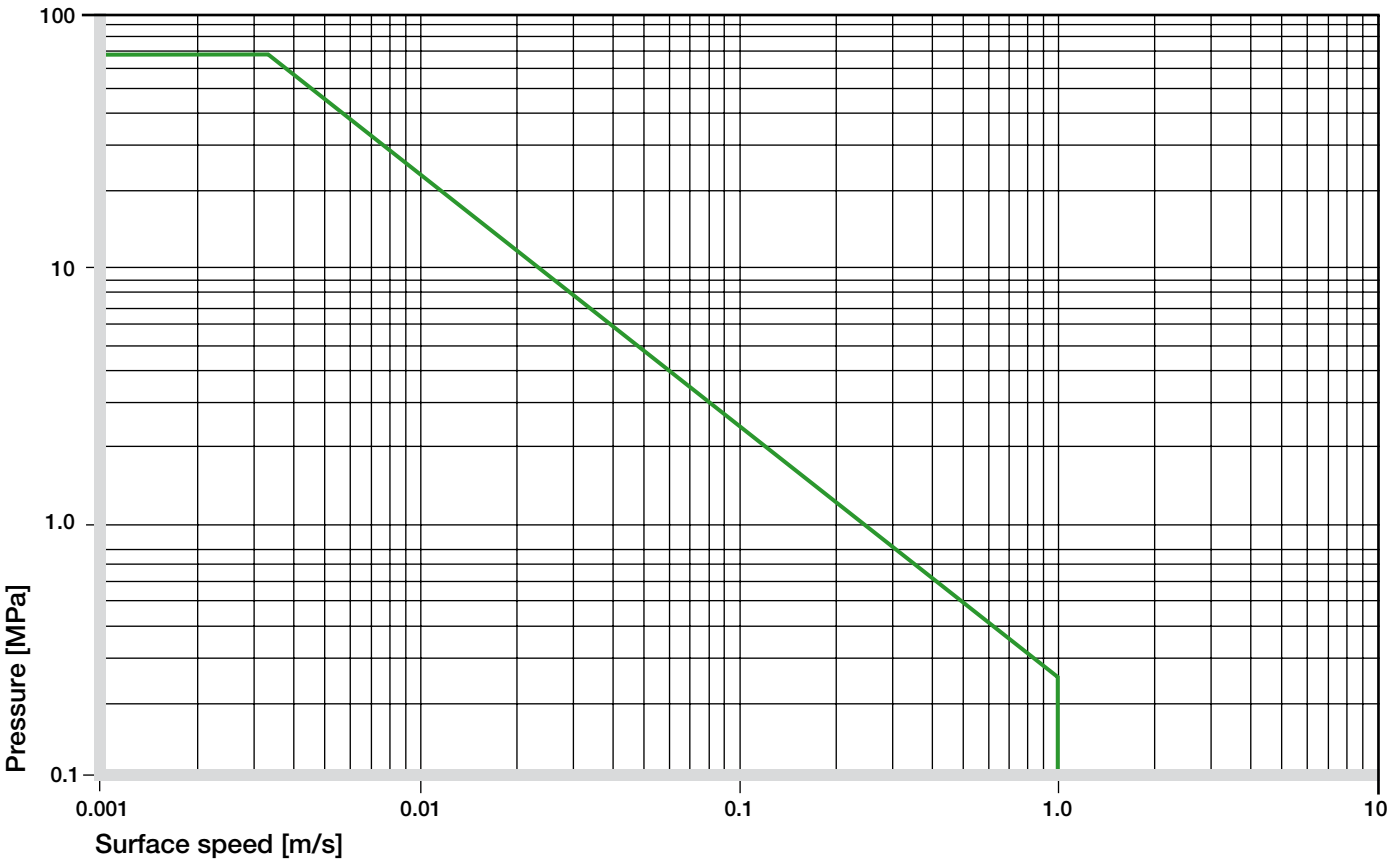
Product range

2 types
Ø 3–50 mm
more dimensions
on request

The material iglidur® A290 complies with the requirements of the BfR for contact with food.

Material data			
General properties	**Unit**	**iglidur® A290**	**Testing method**
Density	**g/cm³**	1.41	
Colour		white	
Max. moisture absorption at +23 °C/50 % r. h.	**% weight**	1.7	DIN 53495
Max. moisture absorption	**% weight**	7.3	
Coefficient of sliding friction, dynamic against steel	**µ**	0.13–0.40	
pv value, max. (dry)	**MPa · m/s**	0.23	
Mechanical properties			
Modulus of elasticity	**MPa**	8,800	DIN 53457
Tensile strength at +20 °C	**MPa**	250	DIN 53452
Compressive strength	**MPa**	91	
Max. recommended surface pressure (+20 °C)	**MPa**	70	
Shore D hardness		88	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+140	
Max. short term application temperature	**°C**	+180	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	7	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{11}	DIN IEC 93
Surface resistance	**Ω**	> 10^{11}	DIN 53482

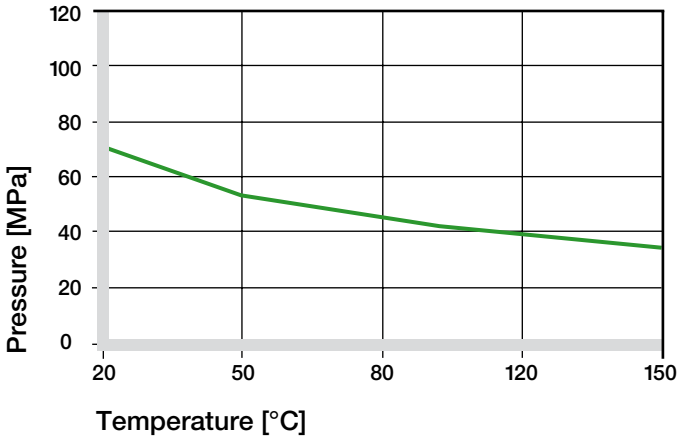
Table 01: Material data



Graph 01: Permissible pv values for iglidur® A290 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

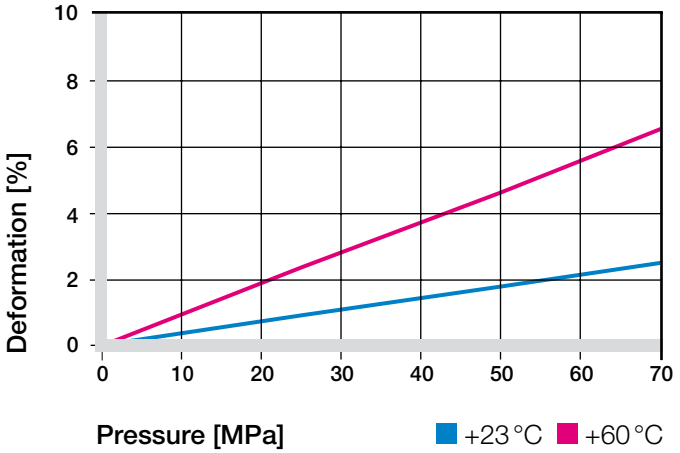
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® A290 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +140 °C the permissible surface pressure is almost 35 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (70 MPa at +20 °C)

iglidur® A290 bearings are an advanced development for the use in food industry. Compared to the bearings made of iglidur® A200, the tribological properties could be significantly improved. Hence the maximum recommended surface pressure for example is 70 MPa. Under this load, the deformation is only about 2.5 % at room temperature A plastic deformation can be negligible up to this load. It is however also dependent on the period of exposure.

▶ Surface Pressure, **page 43**



Permissible Surface Speeds

iglidur® A290 is suitable for low surface speeds. Due to the relatively high friction particularly in the low load range, the bearings made of iglidur® A290 heat more strongly than other bearings. With higher speeds, the friction also increases.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	3
Short term	2	1.4	4

Table 02: Maximum running speed

Temperatures

The short-term permitted maximum temperature is +180 °C. With increasing temperatures, the compressive strength of iglidur® A290 bearings decreases. The graph 02 clarifies this connection. The temperatures prevailing in the bearing system also have an influence on the bearing wear. The wear increases with rising temperatures, and the influence is especially marked from +120 °C temperature onwards.

▶ Application Temperatures, **page 46**

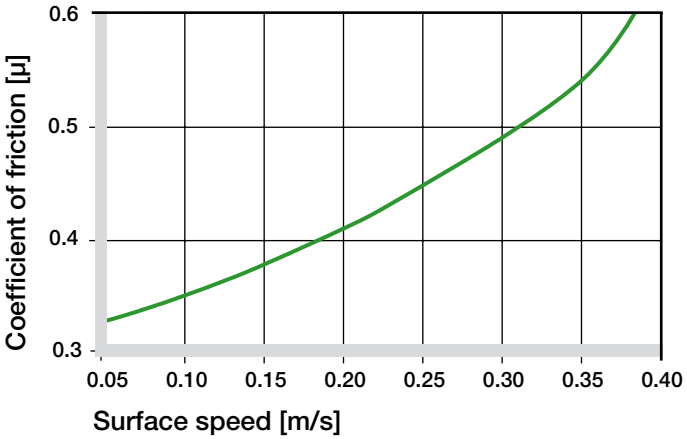
iglidur® A290	Application temperature
Minimum	–40 °C
Max. long term	+140 °C
Max. short term	+180 °C
Add. securing is required from	+110 °C

Table 03: Temperature limits

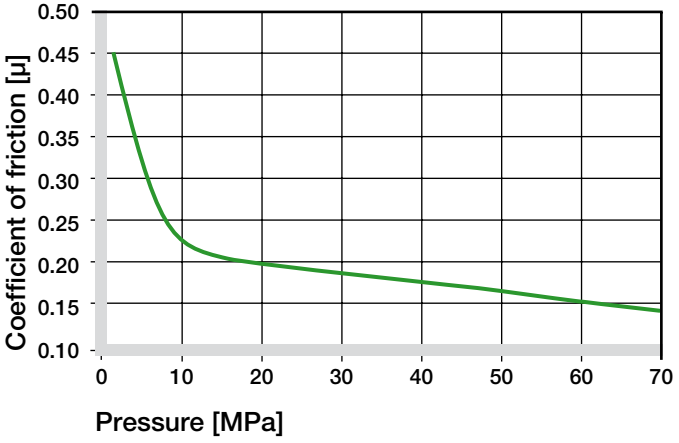
Friction and Wear

The coefficient of friction alters like the wear resistance with increasing load and surface speed. With increasing speed and constant load, the coefficient of friction steadily rises. In contrast a reverse behavior is noticed at increasing load and constant speed (see graphs 04 and 05). Friction and wear depend to a high degree on the reverse partner. Very smooth shafts increase the coefficient of both friction and wear. iglidur® A290 proves to be relatively insensitive to shaft surfaces and retains a 0.4 friction coefficient μ with average surface finishes of Ra = 0.4 to 1.6 μm.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

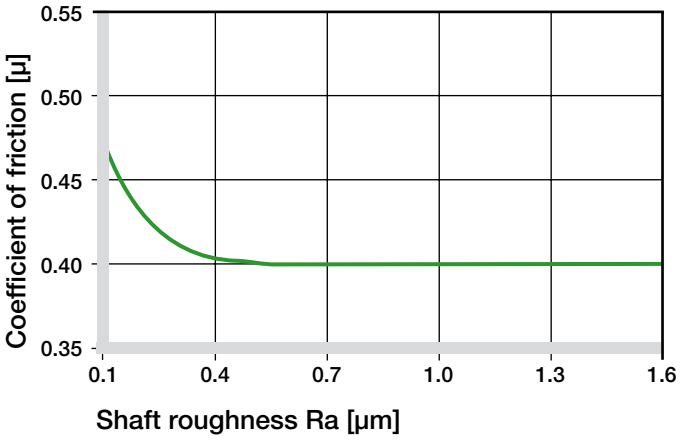


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

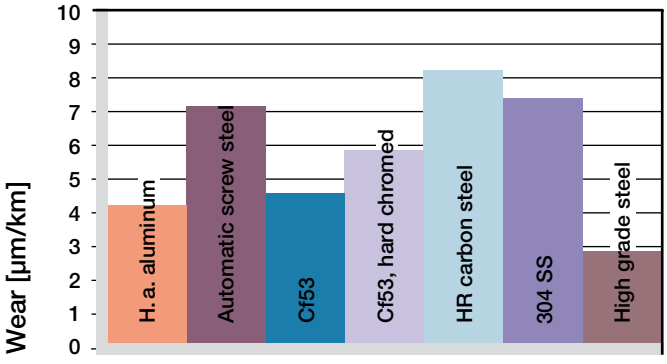
Shaft Materials

Graphs 06 to 09 display a summary of the results of tests with different shaft materials conducted with bearings made of iglidur® A290. Compared to iglidur® A200, the improved tribological properties of iglidur® A290 are also reflected in the coefficients of wear. At low loads, the differences in the wear resistance of the combinations of iglidur® A290 with different shaft materials are very distinct. Graph 08 shows that the advantage of hard-chromed shafts increases with rising load. This counter partner is also well-suited for pivoting applications and are frequently found in packaging machines. Other hardened surfaces such as the Cf53 are also recommended.

▶ Shaft Materials, **page 51**

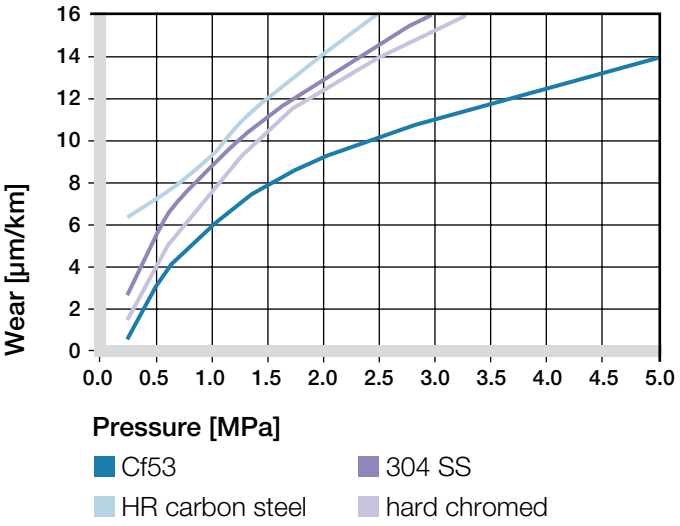


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

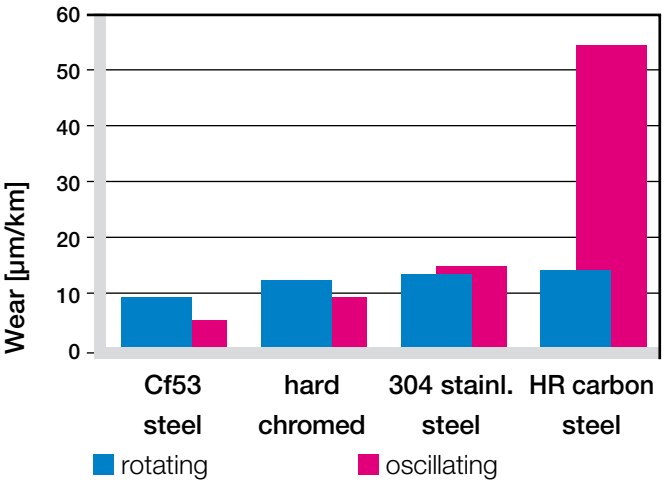


Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s

iglidur® A290 | Technical Data



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® A290	Dry	Greases	Oil	Water
C. o. f. µ	0.13–0.40	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® A290 bearings have a good resistance against chemicals. They are resistant to most lubricants. The iglidur® A290 is not affected by most weak organic and inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® A290 are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® A290 is resistant to UV radiation, tribological properties can be affected.

Vacuum

In a vacuum environment iglidur® A290 plain bearings have limited use due to the high moisture absorption.

Electrical Properties

iglidur® A290 plain bearings are electrically insulating.

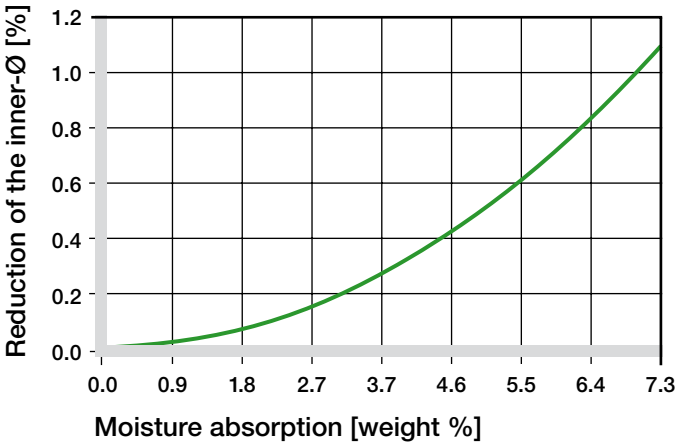
Volume resistance	$> 10^{11}$ Ωcm
Surface resistance	$> 10^{11}$ Ω

Moisture Absorption

The moisture absorption of iglidur® A290 bearings is approximately 1.7 % in standard atmosphere. The saturation limit in water is 7.3 %, a disadvantage which must be accounted for by all means in applications in humid and wet areas.

Maximum moisture absorption	
At +23 °C/50 % r. h.	1.7 % weight
Max. moisture absorption	7.3 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® A290 bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). After the installation in a housing bore with the tolerance H7, the inner diameter of the bearing automatically adjusts to the D11 tolerance.

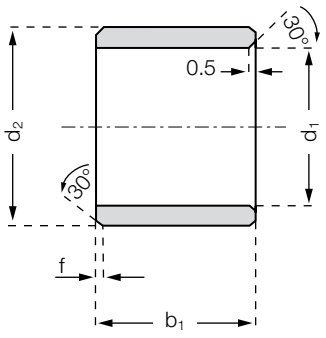
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® A290 D11 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.020 +0.080	0 +0.010
>	3 to	6	0–0.030	+0.030 +0.105	0 +0.012
>	6 to	10	0–0.036	+0.040 +0.130	0 +0.015
>	10 to	18	0–0.043	+0.050 +0.160	0 +0.018
>	18 to	30	0–0.052	+0.065 +0.195	0 +0.021
>	30 to	50	0–0.062	+0.080 +0.240	0 +0.025
>	50 to	80	0–0.074	+0.100 +0.290	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® A290 | Product Range

Sleeve bearing



Order key

A290SM-0304-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® A290

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

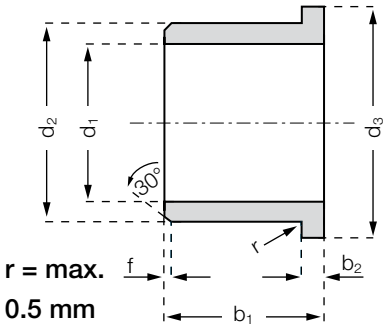
Part number	d1	d1-Tolerance*	d2	b1 h13
A290SM-0304-03	3.0	+0.020 +0.080	4.5	3.0
A290SM-0405-04	4.0	+0.030 +0.105	5.5	4.0
A290SM-0507-05	5.0	+0.030 +0.105	7.0	5.0
A290SM-0608-06	6.0	+0.030 +0.105	8.0	6.0
A290SM-0810-08	8.0	+0.040 +0.130	10.0	8.0
A290SM-1012-10	10.0	+0.040 +0.130	12.0	10.0
A290SM-1214-15	12.0	+0.050 +0.160	14.0	15.0
A290SM-1517-15	15.0	+0.050 +0.160	17.0	15.0
A290SM-1618-15	16.0	+0.050 +0.160	18.0	15.0
A290SM-1820-15	18.0	+0.050 +0.160	20.0	15.0
A290SM-2023-20	20.0	+0.065 +0.195	23.0	20.0
A290SM-2528-20	25.0	+0.065 +0.195	28.0	20.0
A290SM-3034-30	30.0	+0.065 +0.195	34.0	30.0
A290SM-3539-40	35.0	+0.080 +0.240	39.0	40.0
A290SM-4044-50	40.0	+0.080 +0.240	44.0	50.0
A290SM-5055-40	50.0	+0.080 +0.240	55.0	40.0

* after pressfit. Testing methods ▶ page 55

delivery time available ex stock | prices price list online www.igus.co.uk/en/a290 | order example part number A290SM-0304-03

iglidur® A290 | Product Range

Flange bearing



r = max. 0.5 mm

Structure – part no.

A290FM-0405-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® A290

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

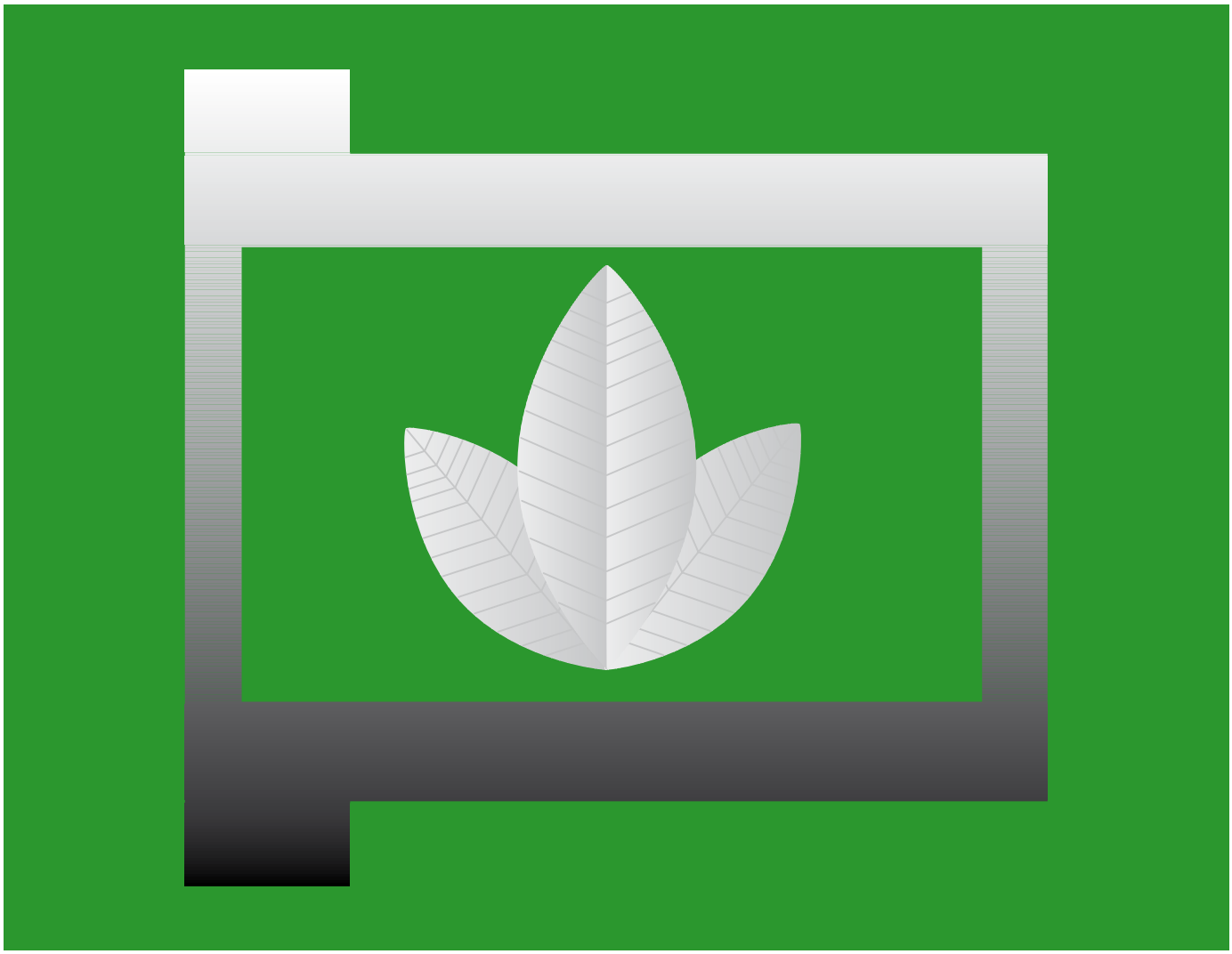
d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0,14
A290FM-0405-06	4.0	+0.030 +0.105	5.5	9.5	6	0.75
A290FM-0507-05	5.0	+0.030 +0.105	7.0	11.0	5	1.00
A290FM-0608-08	6.0	+0.030 +0.105	8.0	12.0	8	1.00
A290FM-0810-09	8.0	+0.040 +0.130	10.0	15.0	9	1.00
A290FM-1012-09	10.0	+0.040 +0.130	12.0	18.0	9	1.00
A290FM-1214-12	12.0	+0.050 +0.160	14.0	20.0	12	1.00
A290FM-1517-17	15.0	+0.050 +0.160	17.0	23.0	17	1.00
A290FM-1618-17	16.0	+0.050 +0.160	18.0	24.0	17	1.00
A290FM-2023-21	20.0	+0.065 +0.195	23.0	30.0	21	1.50
A290FM-2528-21	25.0	+0.065 +0.195	28.0	35.0	21	1.50
A290FM-3034-26	30.0	+0.065 +0.195	34.0	42.0	26	2.00
A290FM-3539-26	35.0	+0.080 +0.240	39.0	47.0	26	2.00
A290FM-4044-40	40.0	+0.080 +0.240	44.0	52.0	40	2.00
A290FM-5055-40	50.0	+0.080 +0.240	55.0	63.0	40	2.00

* after pressfit. Testing methods ▶ page 55

My Sketches



iglidur® T220 – suitable for the tobacco industry

Free of unwanted components as requested by main manufacturers of tobacco products

iglidur® T220

Suitable for the tobacco industry. Bearings that constitute only materials “recommended” for the tobacco industry. They are free from carcinogenic additives like, for instance, PTFE.

Free of unwanted components as requested by main manufacturers of tobacco products

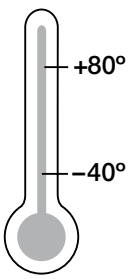
When to use it?

- When my bearings need to be free of substances that are not permitted for applications in the tobacco industry

When not to use it?

- When high compression strength occurs
  ▶ **iglidur® Z, page 299**
- When a cost-effective universal bearing is required
  ▶ **iglidur® G, page 61**
  ▶ **iglidur® M250, page 107**
- If highest wear resistance and low pressure load is necessary
  ▶ **iglidur® J, page 89**
- If the bearing should be free merely from PTFE and silicon
  ▶ **iglidur® C, page 493**
  ▶ **iglidur® R, page 249**

Temperature



Product range

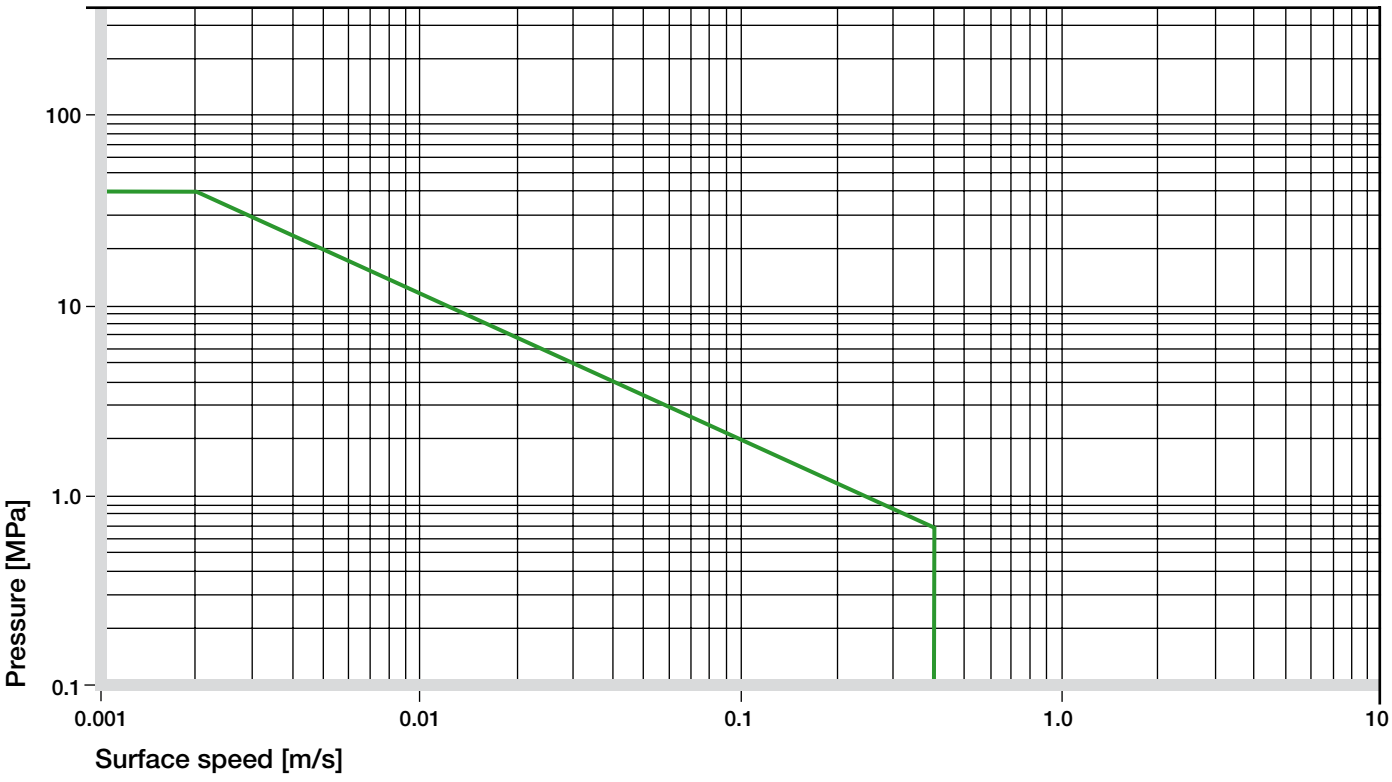
on request

iglidur® T220 | Technical Data

Material data			
General properties	**Unit**	**iglidur® T220**	**Testing method**
Density	**g/cm³**	1.28	
Colour		white	
Max. moisture absorption at +23 °C/50 % r. h.	**% weight**	0.3	DIN 53495
Max. moisture absorption	**% weight**	0.5	
Coefficient of sliding friction, dynamic against steel	**µ**	0.20–0.32	
pv value, max. (dry)	**MPa · m/s**	0.28	
Mechanical properties			
Modulus of elasticity	**MPa**	1,800	DIN 53457
Tensile strength at +20 °C	**MPa**	65	DIN 53452
Compressive strength	**MPa**	55	
Max. recommended surface pressure (+20 °C)	**MPa**	40	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+100	
Max. short term application temperature	**°C**	+160	
Max. ambient temperature, short term[1)]	**°C**	+170	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	11	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{10}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{10}$	DIN 53482

[1)] Without additional load; no sliding movement; relaxation possible

Table 01: Material data

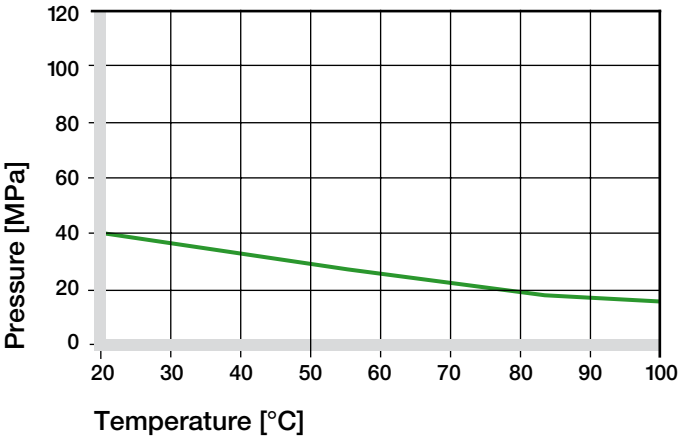


Graph 01: Permissible pv values for iglidur® T220 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

iglidur® T220 | Technical Data

Mechanical Properties

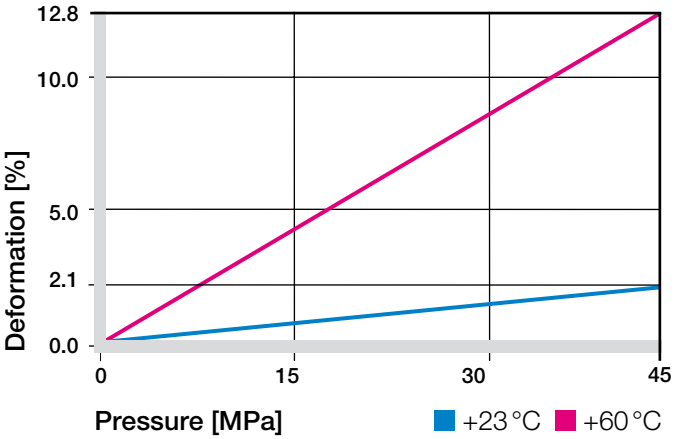
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® C plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +100 °C the permissible surface pressure is almost 10 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (40 MPa at +20 °C)

iglidur® T220 is a special material for application in the tobacco processing industry. It fulfills the demands of the tobacco industry (engineering database). The material is free of undesirable or banned ingredients, as requested by reputed manufacturers from 2004 onward.
iglidur® T220 bearings can be stressed up to the permitted limit of 45 MPa. However, the level of the load has an influence on the bearing's wear. The permitted load is limited by higher temperatures. (Graph 02).

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

The maximum speeds of iglidur® T220 bearings amount to 0.4 m/s with continuous rotation. The friction and the entailing heating limit the permitted speeds. From this it follows that in intermittent service or in linear movements, higher speeds can be attained.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.4	0.3	1
Short term	1	0.7	2

Table 02: Maximum running speed

Temperatures

The plain bearings of iglidur® T220 can be continuously used up to +100 °C. Temporarily, temperatures up to +160 °C are permissible.
The elasticity of the bearings depends on the temperature. +60°C already results in a clear increase in elasticity. Usually iglidur® T220 bearings will need to be mechanically secured in the housing when being used at temperatures over +50 °C.

▶ Application Temperatures, **page 46**

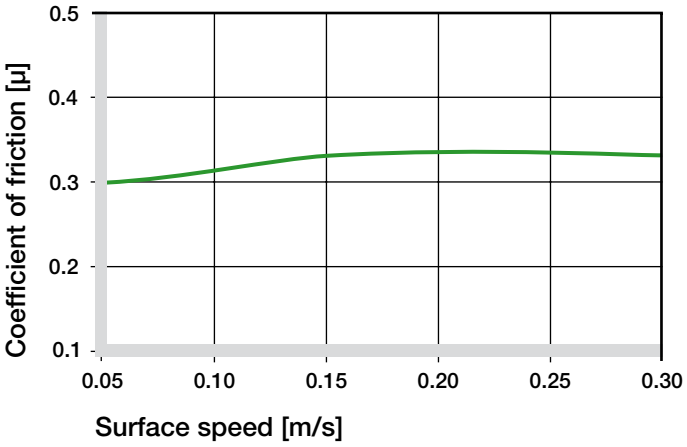
iglidur® T220	Application temperature
Minimum	–40 °C
Max. long term	+100 °C
Max. short term	+160 °C
Add. securing is required from	+50 °C

Table 03: Temperature limits

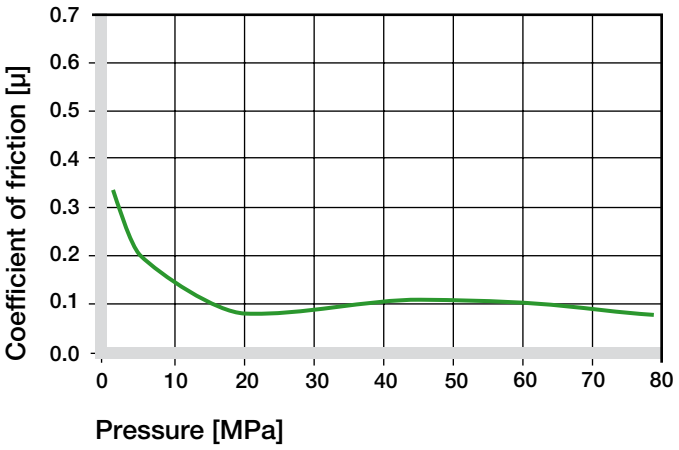
Friction and Wear

This material was developed in strict complience with the specific requirments of the tobacco procesing industry. This eliminated the use of friction reducing additives, which means that the friction and wear values of iglidur® T220 plain bearings fall well behind those of the better iglidur materials.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

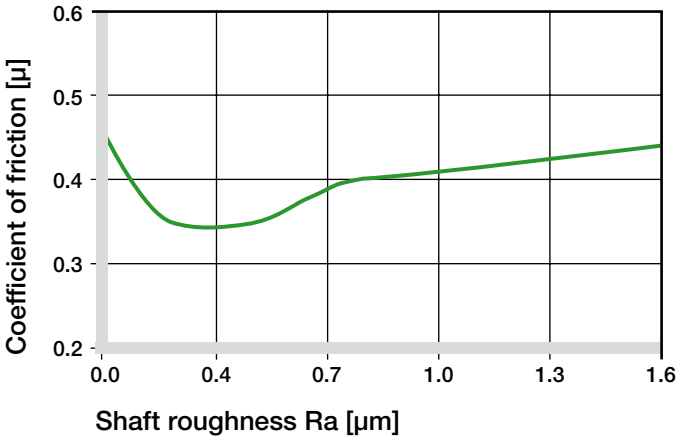


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

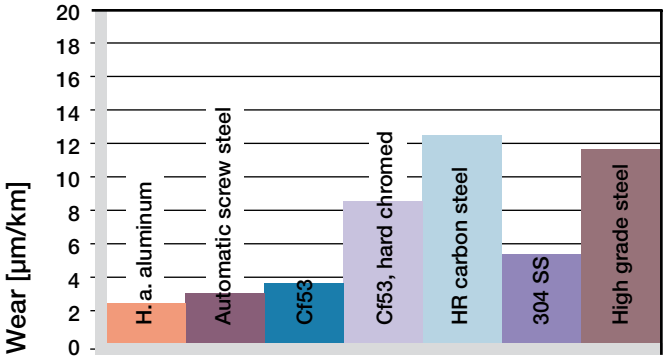
Shaft Materials

Graphs 06 to 09 show the test results of iglidur® T220 bearings running against various shaft materials.
Graph 09 shows that the bear ings react with a heavy increase in wear when the load is increased. Therefore it should be observed that the load should be kept below 5 MPa by the correct dimensioning of the bearings.

▶ Shaft Materials, **page 51**

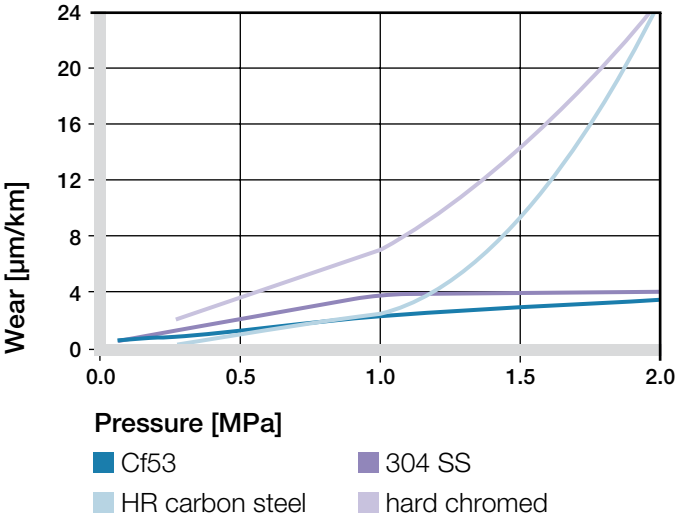


Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)

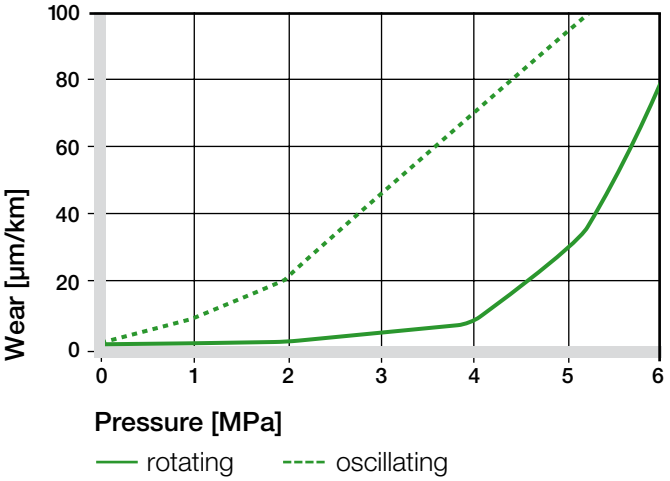


Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s

iglidur® T220 | Technical Data



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® T220	Dry	Greases	Oil	Water
C. o. f. µ	0.2–0.32	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® T220 plain bearings are resistant to strongly diluted alkalines and very weak acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	–
Greases, oils without additives	+
Fuels	+
Diluted acids	0
Strong acids	–
Diluted alkalines	–
Strong alkalines	–

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings of iglidur® T220 are radiation resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® T220 plain bearings are not resistant to the impact of UV radiation.

Vacuum

Applications in a vacuum are only possible to a limited extent. Only dehumidified bearings of iglidur® T220 should be tested in a vacuum.

Electrical Properties

iglidur® T220 plain bearings are electrically insulating.

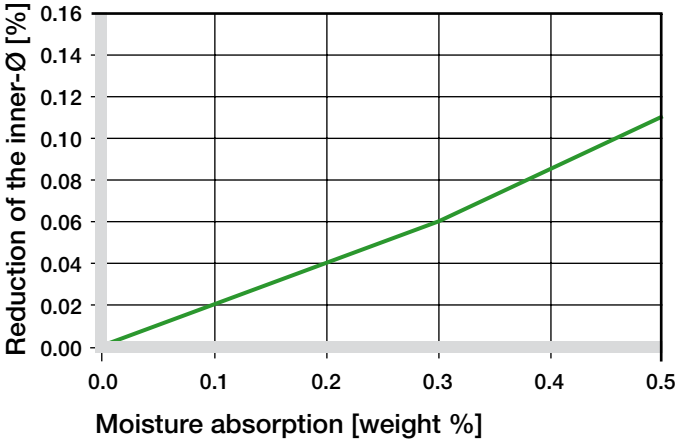
Volume resistance	$> 10^{10}$ Ωcm
Surface resistance	$> 10^{10}$ Ω

Moisture Absorption

The moisture absorption of iglidur® T220 plain bearings is approximately 0.3 % in standard atmosphere. The saturation limit in water is 0.5 %. These values are so low that consideration of expansion by moisture absorption is only required under extreme circumstances.

Maximum moisture absorption	
At +23 °C/50 % r. h.	0.3 % weight
Max. moisture absorption	0.5 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® T220 bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). After the installation in a housing bore with H7 tolerance, the inner diameter of the bearing automatically adjusts to the E10 tolerance.

▶ Testing Methods, **page 55**

Diameter d1 [mm]	Shaft h9 [mm]	iglidur® T220 E10 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.014 +0.054	0 +0.010
> 3 to 6	0–0.030	+0.020 +0.068	0 +0.012
> 6 to 10	0–0.036	+0.025 +0.083	0 +0.015
> 10 to 18	0–0.043	+0.032 +0.102	0 +0.018
> 18 to 30	0–0.052	+0.040 +0.124	0 +0.021
> 30 to 50	0–0.062	+0.050 +0.150	0 +0.025
> 50 to 80	0–0.074	+0.060 +0.180	0 +0.030
> 80 to 120	0–0.087	+0.072 +0.212	0 +0.035
> 120 to 180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Product Range

iglidur® T220 plain bearings are manufactured to special order.

iglidur® Specialists | Special Applications

iglidur® F

electrically conductive and strong

Standard range from stock ▶ **from page 439**

iglidur® H4

the automotive standard

Standard range from stock ▶ **from page 451**

iglidur® Q

wear-resistant at high loads

Standard range from stock ▶ **from page 461**

iglidur® UW

for fast rotation under water

Standard range from stock ▶ **from page 475**

iglidur® B

the flexible material

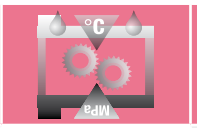
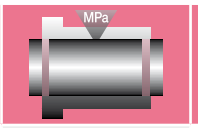
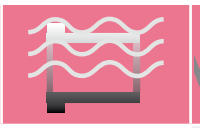
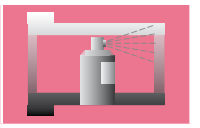
On request ▶ **from page 485**

iglidur® C

free from PTFE and silicone

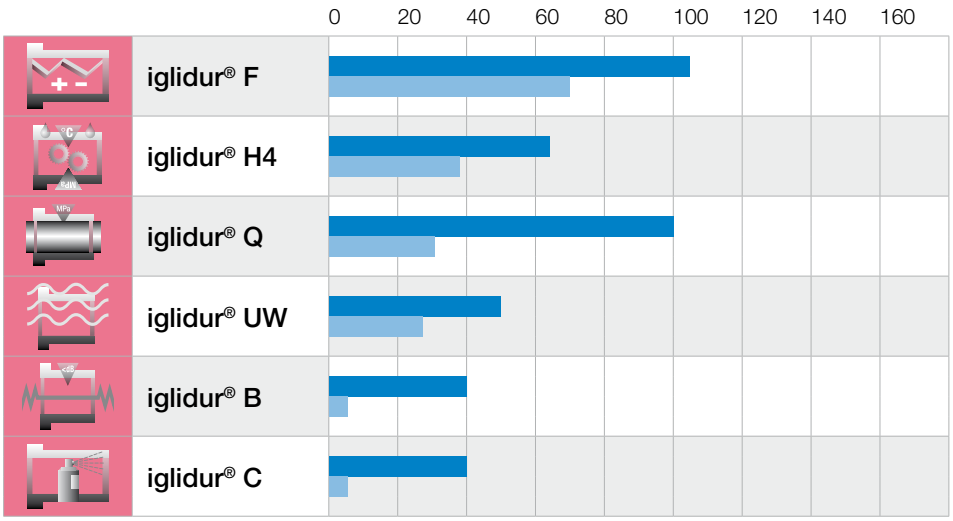
On request ▶ **from page 493**

iglidur® Specialists | Selection According to Main Criteria

iglidur®-Specialists – Special Applications						
	iglidur® F	iglidur® H4	iglidur® Q	iglidur® UW	iglidur® B	iglidur® C
Long life dry running		●	●			
For high loads	●	●	●			
For high temperatures		●				
Low friction/high speed		●	●			
Dirt resistant						
Chemicals resistant		●				
Low water absorption		●	●	●		
Food-suitable						
Vibration-dampening					●	
Egde pressure		●			●	●
For under water use		●		●		
Cost-effective		●		●		
from page	439	451	461	475	485	493

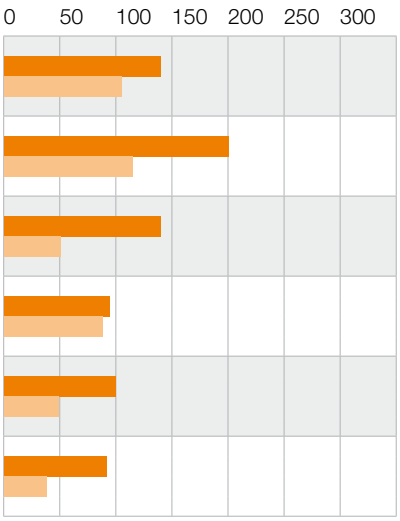
iglidur® Specialists | Selection According to Main Criteria

Load [MPa]



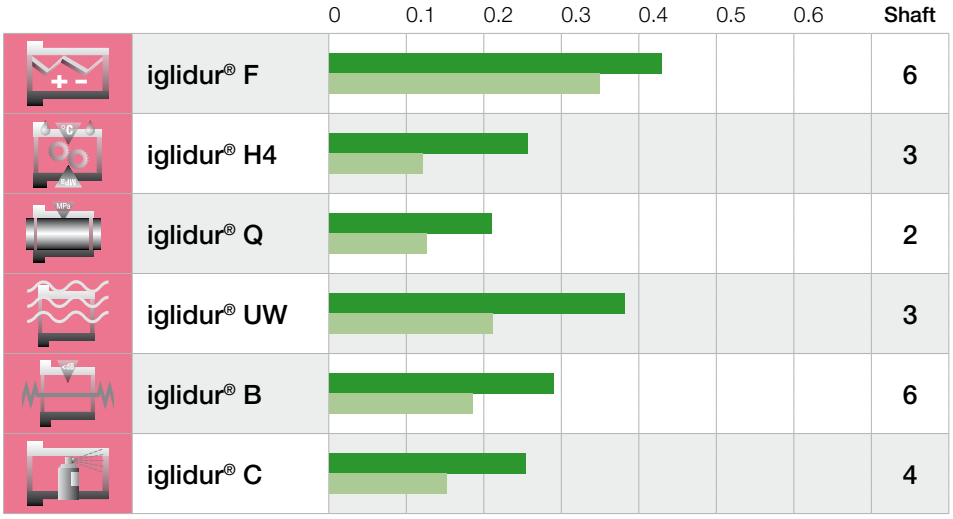
Maximum permissible radial load of iglidur® bearings at
- +20 °C
- +120 °C

Temperature [°C]



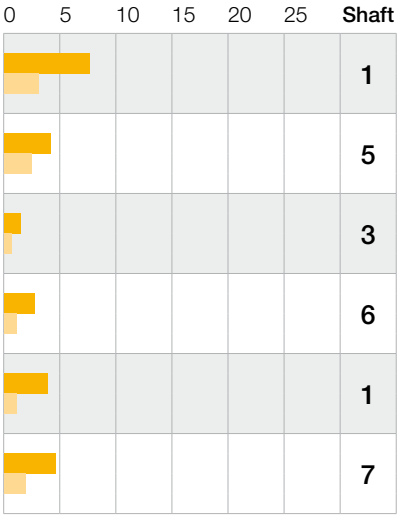
Important temperatur limits of iglidur® bearings
- Maximum permissible application temperature, continous
- Temperature where bearings need to be secured against radial or axial movement in the housing

Coefficient of Friction [µ]



Coefficients of friction of iglidur® bearings sliding against steel, p = 1.2 MPa, v = 0.3 m/s
- Average coefficient of all the seven sliding combinations tested
- Coefficient of friction of best combination

Wear [µm/km]



Wear of iglidur® bearings sliding against steel, p = 1 MPa
- Average wear of all the seven sliding combination tested
- Wear of best combination

Shaft material:

1 = Cf53
2 = hard chromed
3 = Aluminum, hc
4 = Automatic screw steel
5 = HR carbon steel
6 = 304 SS
7 = High grade steel

iglidur® Specialists | Material Data

Material data

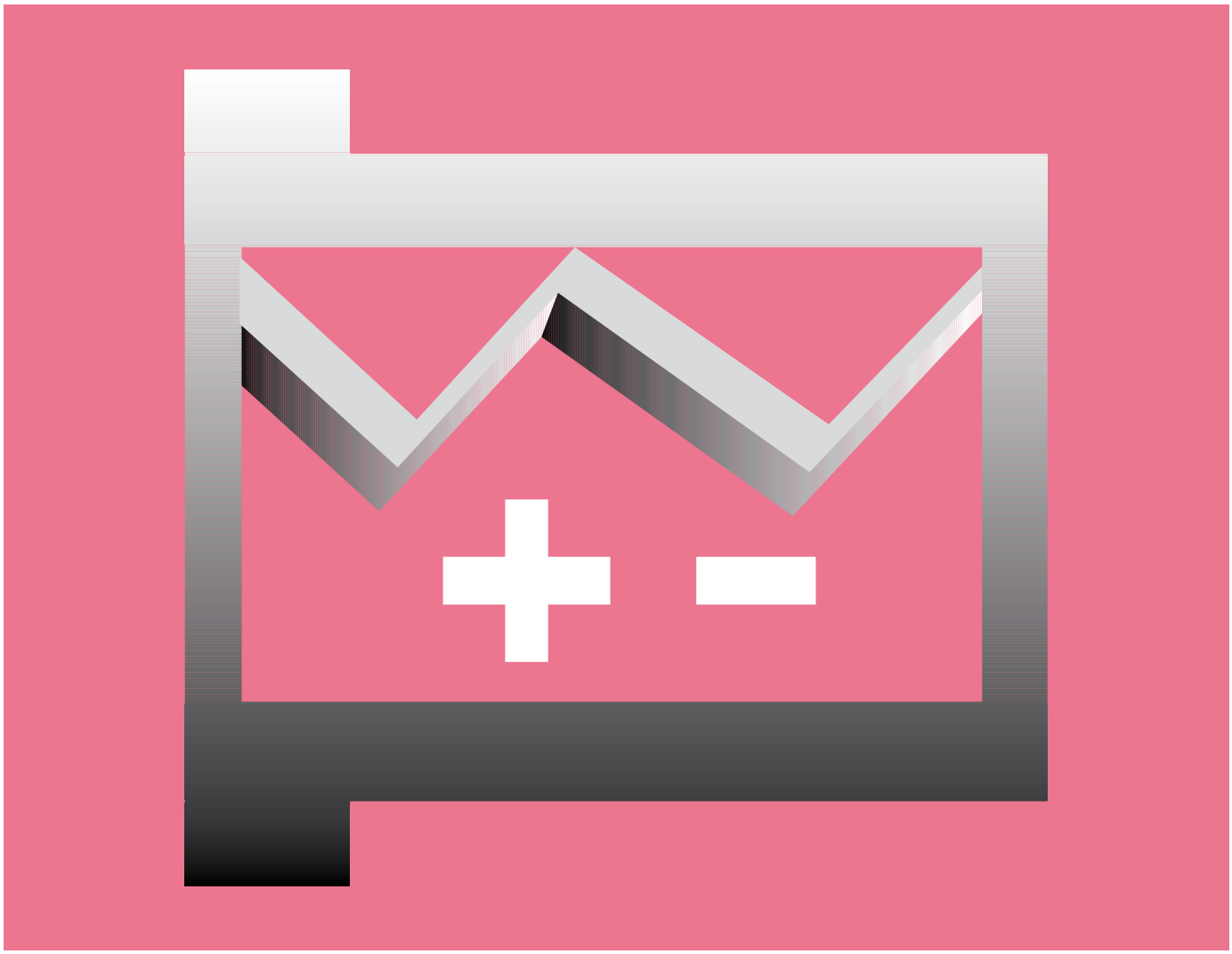
General properties	Unit	iglidur® F	iglidur® H4	iglidur® Q	iglidur® UW	iglidur® B	iglidur® C
Density	g/cm³	1.25	1.79	1.40	1.52	1.15	1.1
Colour		black	brown	black	black	grey	white
Max. moisture absorption at +23 °C/50 % r.h.	% weight	1.8	0.1	0.9	0.2	1.0	1.0
Max. moisture absorption	% weight	8.4	0.2	4.9	0.8	6.3	6.9
Coefficient of sliding friction. dynamic against steel	µ	0.10–0.39	0.08–0.25	0.05–0.15	0.15–0.35	0.18–0.28	0.17–0.25
pv value. max. (dry)	MPa · m/s	0.34	0.7	0.55	0.11	0.15	0.10
Mechanical properties							
Modulus of elasticity	MPa	11,600	7,500	4,500	9,600	1,800	1,900
Tensile strength at +20 °C	MPa	260	120	120	90	55	60
Compressive strength	MPa	98	50	89	70	20	30
Max. recommended surface pressure (+20 °C)	MPa	105	65	100	40	40	40
Shore D hardness		84	80	83	78	69	72
Physical and thermal properties							
Max. long term application temperature	°C	+140	+200	+135	+90	+100	+90
Max. short term application temperature	°C	+180	+240	+155	+110	+130	+130
Min. application temperature	°C	–40	–40	–40	–50	–40	–40
Thermal conductivity	W/m · K	0.65	0.24	0.23	0.60	0.24	0.24
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	12	5	5	6	12	15
Electrical properties							
Specific volume resistance	Ωcm	$< 10^3$	$> 10^{13}$	$> 10^{15}$	$< 10^5$	$> 10^{10}$	$> 10^{10}$
Surface resistance	Ω	$< 10^2$	$> 10^{12}$	$> 10^{12}$	$< 10^5$	$> 10^9$	$> 10^9$

Material resistance (at +20 °C)

Chemical resistance	iglidur® F	iglidur® H4	iglidur® Q	iglidur® UW	iglidur® B	iglidur® C
Alcohol	+ to 0	+	+ to 0	+	+ to 0	+ to 0
Hydrocarbons	+	+	+	+	–	+
Greases, oils without additives	+	+	+	+	–	+
Fuels	+	+	+	+	–	+
Diluted acids	0 to –	+ to 0	0 to –	0 to –	0 to –	0 to –
Strong acids	–	+ to –	–	–	–	–
Diluted alkalines	+	+	+	+	–	+
Strong alkalines	+ to 0	+	0	+ to 0	–	0
Radiation resistance [Gy] to	$3 \cdot 10^2$	$2 \cdot 10^2$	$2 \cdot 10^4$	$3 \cdot 10^2$	$3 \cdot 10^2$	$2 \cdot 10^4$

+ resistant 0 conditionally resistant – not resistant

My Sketches

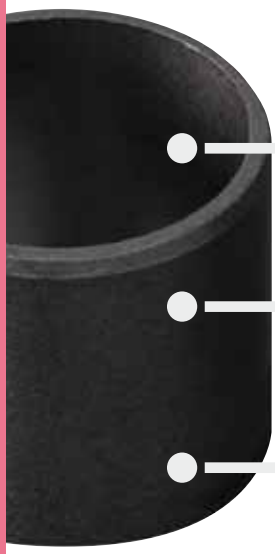


iglidur® F – electrically conductive and strong

- Standard range from stock
- Electrically conductive
- High compressive strength
- Good temperature resistance
- High pv value
- Good resistance to chemicals

iglidur® F

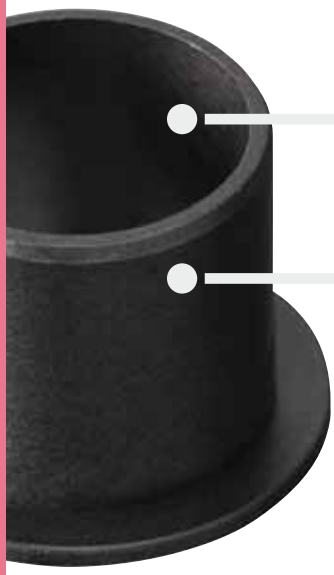
Electrically conductive and strong. Extreme stiffening and hardening, besides being highly electrically conductive iglidur® F bearings can be used in dry operation only conditionally, but display full mechanical potentials with oil and fat lubrication.



Electrically conductive

High compressive strength

High temperature resistance



High pv value

Good resistance to chemicals

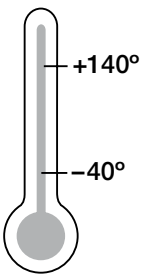
When to use it?

- When the bearing should be electrically conductive
- For high static loads

When not to use it?

- When mechanical reaming of the wall surface is necessary
  ▶ **iglidur® M250, page 107**
- When the highest wear resistance is needed
  ▶ **iglidur® W300, page 131**
- When very low coefficients of friction in the dry run are needed
  ▶ **iglidur® J, page 89**
- For underwater applications
  ▶ **iglidur® H370, page 347**
- When you need an universal bearing
  ▶ **iglidur® G, page 61**

Temperature



Product range

2 types
Ø 2–70 mm
more dimensions
on request

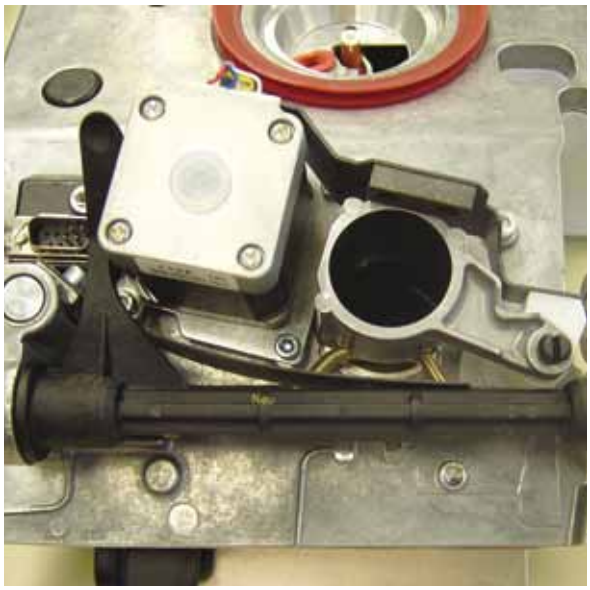
iglidur® F | Application Examples

Typical sectors of industry and application areas

- Textile technology
- Automotive etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications



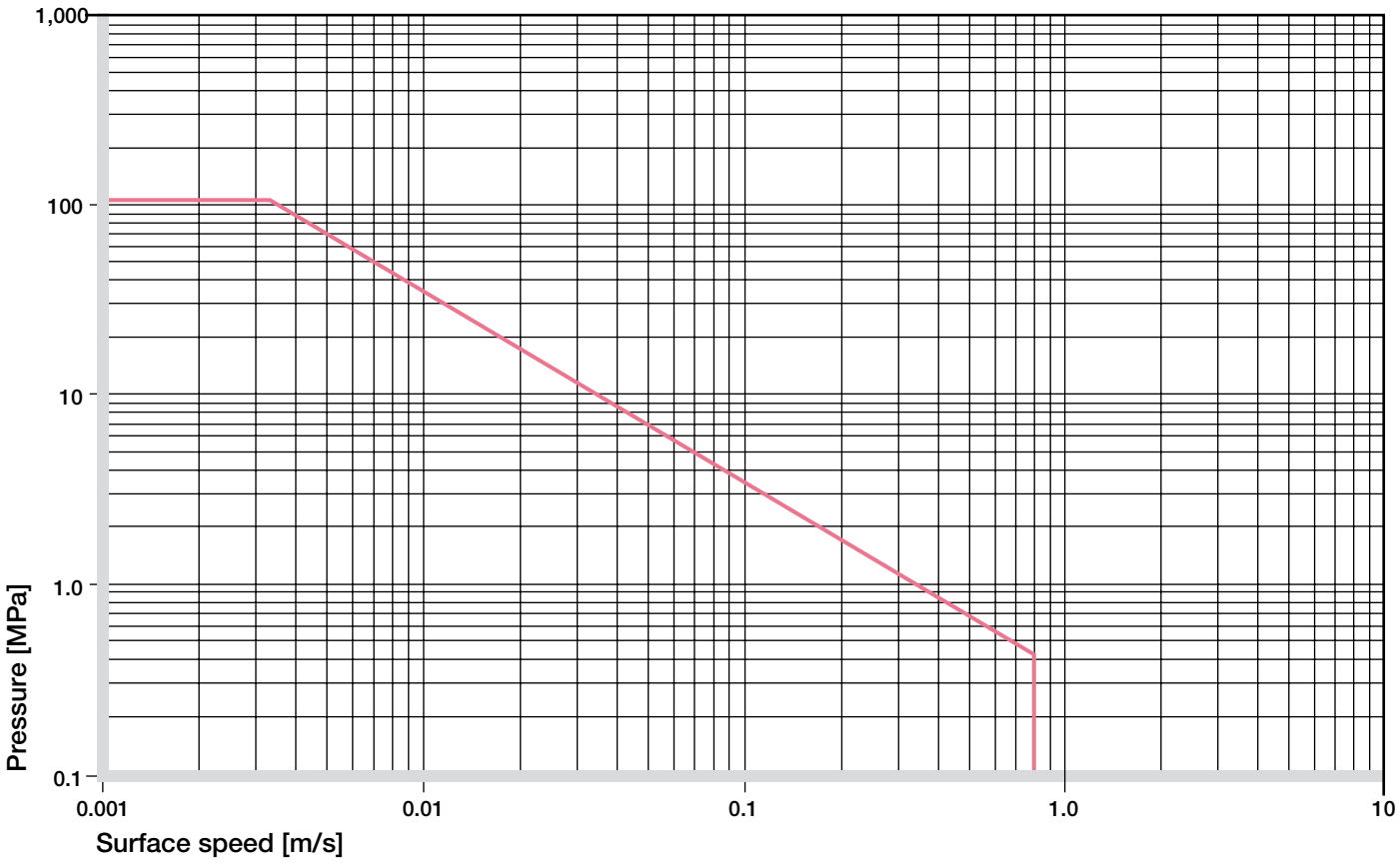
▶ www.igus.co.uk/spinningbox

▶ www.igus.co.uk/textile-machine

iglidur® F | Technical Data

Material data			
General properties	**Unit**	**iglidur® F**	**Testing method**
Density	**g/cm³**	1.25	
Colour		black	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	1.8	DIN 53495
Max. moisture absorption	**% weight**	8.4	
Coefficient of sliding friction, dynamic against steel	**µ**	0.1–0.39	
pv value, max. (dry)	**MPa · m/s**	0.34	
Mechanical properties			
Modulus of elasticity	**MPa**	11,600	DIN 53457
Tensile strength at +20 °C	**MPa**	260	DIN 53452
Compressive strength	**MPa**	98	
Max. recommended surface pressure (+20 °C)	**MPa**	105	
Shore D hardness		84	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+140	
Max. short term application temperature	**°C**	+180	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.65	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	12	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$< 10^3$	DIN IEC 93
Surface resistance	**Ω**	$< 10^2$	DIN 53482

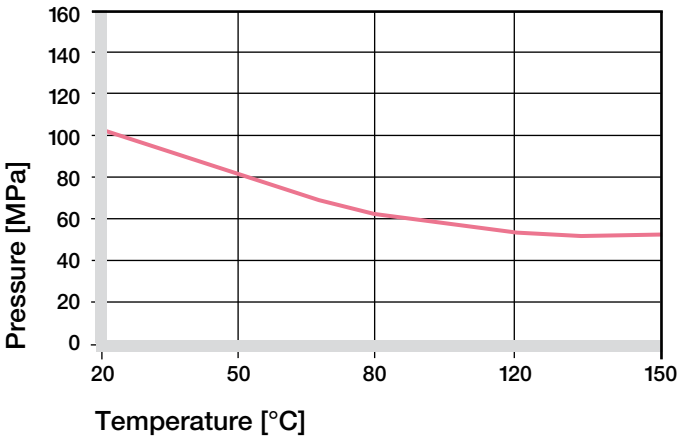
Table 01: Material data



Graph 01: Permissible pv values for iglidur® F with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® F plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +140°C the permissible surface pressure is almost 50 MPa.



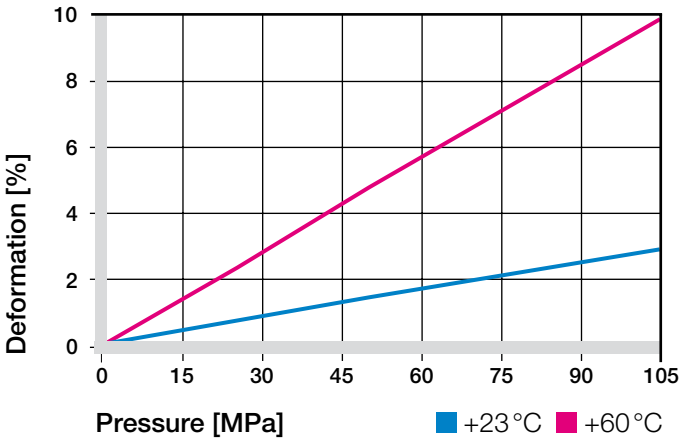
Graph 02: Recommended maximum surface pressure as a function of temperature (100 MPa at +20 °C)

When bearings need to be electrically conductive, especially in applications that should keep out static, the iglidur® F is the right choice. Moreover, the iglidur® F bearings are extremely pressure resistant. At room temperature, they could be statically loaded up to 100 MPa.

Graph 03 shows the elastic deformation of iglidur® F with radial loads. Under the maximum recommended surface pressure of 105 MPa, the deformation amounts to less than 3.5 %.

A plastic deformation can be negligible up to this pressure load. It is however also dependent on the period of exposure.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

The maximum permitted surface speeds are based on the operation period and the type of motion. A bearing is the most stressed in long-term rotating motions. Here the maximum speed for the iglidur® F bearing is 0.8 m/s.

The maximum values specified in Table 02 are attained only at minimum pressure loads. In practice these limit values are not often attained due to interactions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.8	0.6	3
Short term	1.5	1.1	6

Table 02: Maximum running speed

Temperatures

The ambient temperatures strongly influence the features of bearings. The short-term permitted maximum temperature is +180 °C. Long-term operating temperatures should not exceed +140°C.

With increasing temperatures, the compressive strength of iglidur® F bearings decreases. Graph 02 clarifies this connection. The wear too rises.

▶ Application Temperatures, **page 46**

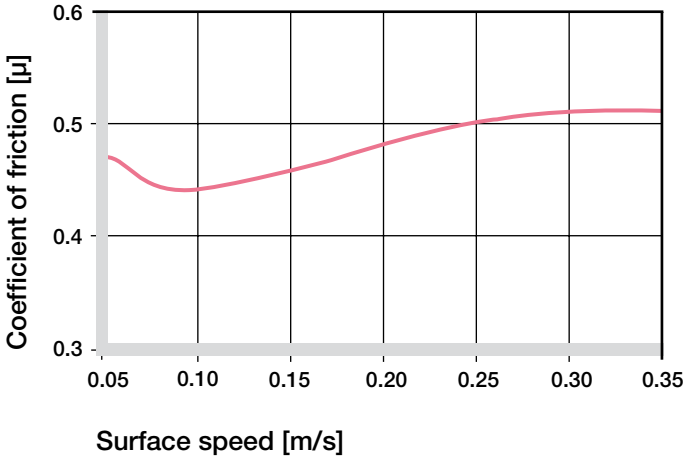
iglidur® F	Application temperature
Minimum	–40 °C
Max. long term	+140 °C
Max. short term	+180 °C
Add. securing is required from	+105 °C

Table 03: Temperature limits

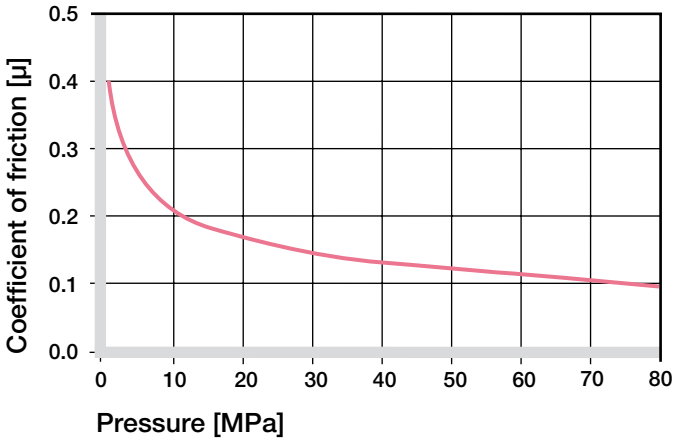
Friction and Wear

The coefficients of friction in the dry operation are not so favorable in iglidur® F bearings like in many other iglidur®materials. However iglidur® bearings can be lubricated without any problems, and iglidur® F bearings attain excellent results compared among the lubricated iglidur® bearings.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

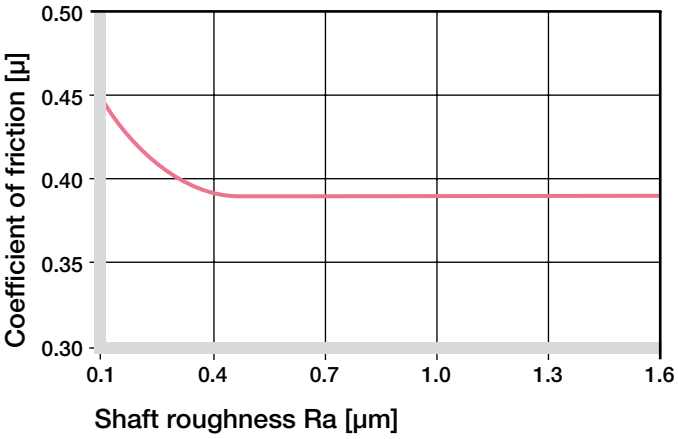


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

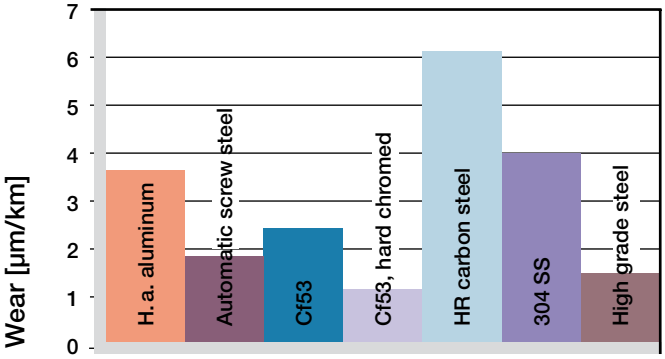
Shaft Materials

Graphs 07–09 display a summary of the results of tests with different shaft materials conducted with bearings made of iglidur® F. In the lowest load range, the hard-chromed shafts prove to be the most suitable counter partner in rotating applications with iglidur® F bearings. It behaves otherwise in pivoting applications (see Graph 09) At 2 MPa loads, the V2A shaft and the hard-chromed shaft are more favorable than the Cf53 shaft, having much higher coefficients of wear altogether than in rotations.
Please contact us in case the shaft material scheduled by you is not included in these diagrams.

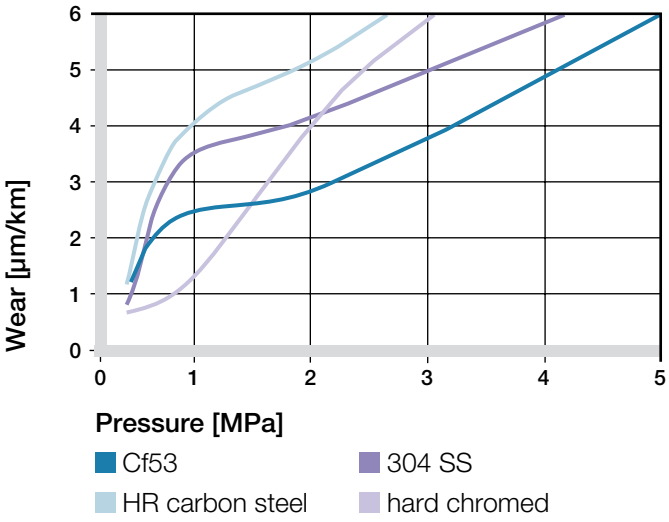
▶ Shaft Materials, **page 51**



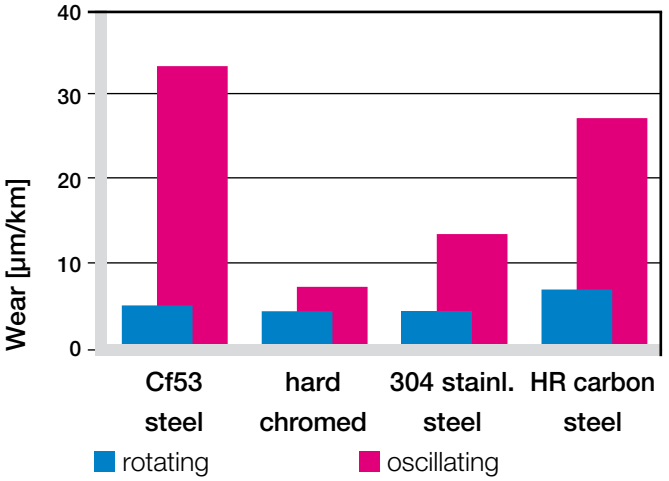
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

iglidur® F	Dry	Greases	Oil	Water
C.o.f. µ	0.08–0.15	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® F plain bearings have a good chemical resistance. They have a high resistance to lubricants, even at high temperatures (around +120 °C). Hence the iglidur® F bearings are particularly suitable for applications that call for lubrication necessitated by other parts. The iglidur® F is not affected by most weak organic and inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings of iglidur® F are radiation resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® F plain bearings are permanently resistant to UV radiation.

Vacuum

iglidur® F plain bearings outgas in a vacuum. Use in a vacuum environment is only possible with dehumidified bearings.

Electrical Properties

iglidur® F plain bearings are electrically conductive.

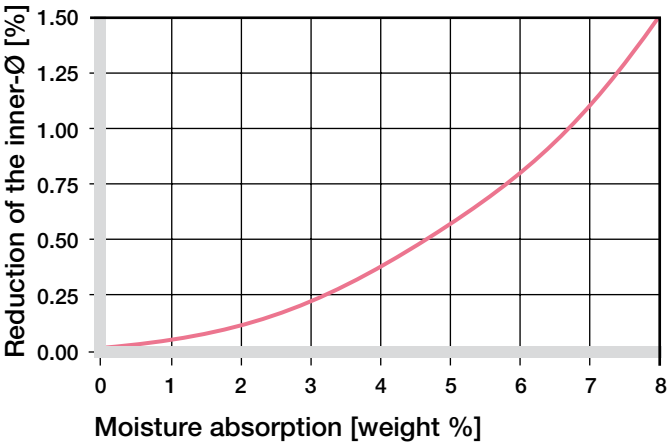
Volume resistance	$< 10^3$ Ωcm
Surface resistance	$< 10^2$ Ω

Moisture Absorption

The moisture absorption of iglidur® F plain bearings is approximately 1.8 % in standard atmosphere. The saturation limit in water is 8.4 %. This must be taken into account along with the other applicable conditions.

Maximum moisture absorption	
At +23 °C/50 % r.h.	1.8 % weight
Max. moisture absorption	8.4 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® F bearings are standard bearings for shafts with h-tolerance (recommended minimum h9).
After the installation in a housing bore with the tolerance H7, the inner diameter of the bearing automatically adjusts to the D11 tolerance.

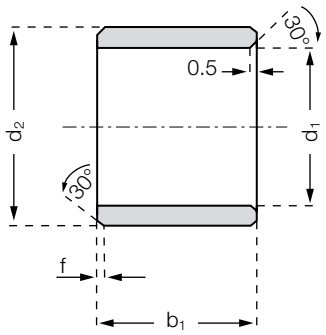
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® F D11 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.020 +0.080	0 +0.010
>	3 to	6	0–0.030	+0.030 +0.105	0 +0.012
>	6 to	10	0–0.036	+0.040 +0.130	0 +0.015
>	10 to	18	0–0.043	+0.050 +0.160	0 +0.018
>	18 to	30	0–0.052	+0.065 +0.195	0 +0.021
>	30 to	50	0–0.062	+0.080 +0.240	0 +0.025
>	50 to	80	0–0.074	+0.100 +0.290	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® F | Product Range

Sleeve bearing



Order key

FSM-0203-03

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® F

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
FSM-0203-03	2.0	+0.020 +0.080	3.5	3.0
FSM-0304-03	3.0	+0.020 +0.080	4.5	3.0
FSM-0405-04	4.0	+0.030 +0.105	5.5	4.0
FSM-0507-05	5.0	+0.030 +0.105	7.0	5.0
FSM-0507-08	5.0	+0.030 +0.105	7.0	8.0
FSM-0608-06	6.0	+0.030 +0.105	8.0	6.0
FSM-0608-08	6.0	+0.030 +0.105	8.0	8.0
FSM-0608-10	6.0	+0.030 +0.105	8.0	10.0
FSM-0608-13	6.0	+0.030 +0.105	8.0	13.8
FSM-0709-10	7.0	+0.040 +0.130	9.0	10.0
FSM-0709-12	7.0	+0.040 +0.130	9.0	12.0
FSM-0810-08	8.0	+0.040 +0.130	10.0	8.0
FSM-0810-10	8.0	+0.040 +0.130	10.0	10.0
FSM-0810-15	8.0	+0.040 +0.130	10.0	15.0
FSM-1012-06	10.0	+0.040 +0.130	12.0	6.0
FSM-1012-10	10.0	+0.040 +0.130	12.0	10.0
FSM-1214-10	12.0	+0.050 +0.160	14.0	10.0
FSM-1214-15	12.0	+0.050 +0.160	14.0	15.0
FSM-1416-15	14.0	+0.050 +0.160	16.0	15.0
FSM-1517-15	15.0	+0.050 +0.160	17.0	15.0
FSM-1517-20	15.0	+0.050 +0.160	17.0	20.0
FSM-1618-15	16.0	+0.050 +0.160	18.0	15.0
FSM-1820-15	18.0	+0.050 +0.160	20.0	15.0
FSM-1820-20	18.0	+0.050 +0.160	20.0	20.0
FSM-2022-14	20.0	+0.065 +0.195	22.0	14.5

* after pressfit. Testing methods ▶ page 55

delivery time available from stock

prices price list online www.igus.co.uk/en/f

order example part number FSM-0203-03

iglidur® F | Product Range

Sleeve bearing

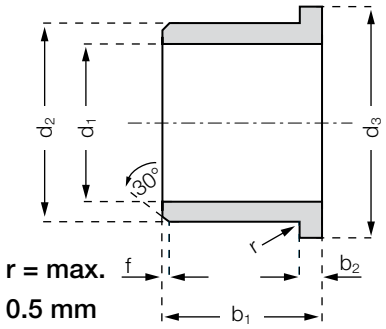
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
FSM-2022-20	20.0	+0.065 +0.195	22.0	20.0
FSM-2023-15	20.0	+0.065 +0.195	23.0	15.0
FSM-2023-20	20.0	+0.065 +0.195	23.0	20.0
FSM-2225-15	22.0	+0.065 +0.195	25.0	15.0
FSM-2528-20	25.0	+0.065 +0.195	28.0	20.0
FSM-2832-20	28.0	+0.065 +0.195	32.0	20.0
FSM-2832-30	28.0	+0.065 +0.195	32.0	30.0
FSM-3034-20	30.0	+0.065 +0.195	34.0	20.0
FSM-3034-30	30.0	+0.065 +0.195	34.0	30.0
FSM-3034-40	30.0	+0.065 +0.195	34.0	40.0
FSM-3236-30	32.0	+0.080 +0.240	36.0	30.0
FSM-3539-30	35.0	+0.080 +0.240	39.0	30.0
FSM-3539-40	35.0	+0.080 +0.240	39.0	40.0
FSM-4044-30	40.0	+0.080 +0.240	44.0	30.0
FSM-4044-50	40.0	+0.080 +0.240	44.0	50.0
FSM-4550-50	45.0	+0.080 +0.240	50.0	50.0
FSM-5055-40	50.0	+0.080 +0.240	55.0	40.0
FSM-5560-50	55.0	+0.100 +0.290	60.0	50.0
FSM-6065-60	60.0	+0.100 +0.290	65.0	60.0

* after pressfit. Testing methods ▶ page 55

iglidur® F | Product Range

Flange bearing



Order key

FFM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® F

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
FFM-0405-04	4.0	+0.030 +0.105	5.5	9.5	4.0	0.75
FFM-0405-06	4.0	+0.030 +0.105	5.5	9.5	6.0	0.75
FFM-0507-05	5.0	+0.030 +0.105	7.0	11.0	5.0	1.0
FFM-0608-08	6.0	+0.030 +0.105	8.0	12.0	8.0	1.0
FFM-0810-06	8.0	+0.040 +0.130	10.0	15.0	6.0	1.0
FFM-0810-09	8.0	+0.040 +0.130	10.0	15.0	9.0	1.0
FFM-1012-06	10.0	+0.040 +0.130	12.0	18.0	6.0	1.0
FFM-1012-08	10.0	+0.040 +0.130	12.0	15.0	8.0	1.0
FFM-1012-09	10.0	+0.040 +0.130	12.0	18.0	9.0	1.0
FFM-1012-15	10.0	+0.040 +0.130	12.0	18.0	15.0	1.0
FFM-1012-18	10.0	+0.040 +0.130	12.0	18.0	18.0	1.0
FFM-1214-09	12.0	+0.050 +0.160	14.0	20.0	9.0	1.0
FFM-1214-12	12.0	+0.050 +0.160	14.0	20.0	12.0	1.0
FFM-1416-12	14.0	+0.050 +0.160	16.0	22.0	12.0	1.0
FFM-1416-17	14.0	+0.050 +0.160	16.0	22.0	17.0	1.0
FFM-1517-12	15.0	+0.050 +0.160	17.0	23.0	12.0	1.0
FFM-1517-17	15.0	+0.050 +0.160	17.0	23.0	17.0	1.0
FFM-1618-17	16.0	+0.050 +0.160	18.0	24.0	17.0	1.0
FFM-1820-12	18.0	+0.050 +0.160	20.0	26.0	12.0	1.0
FFM-1820-17	18.0	+0.050 +0.160	20.0	26.0	17.0	1.0
FFM-2023-21	20.0	+0.065 +0.195	23.0	30.0	21.0	1.5
FFM-2528-21	25.0	+0.065 +0.195	28.0	35.0	21.0	1.5
FFM-3034-26	30.0	+0.065 +0.195	34.0	42.0	26.0	2.0
FFM-3236-26	32.0	+0.080 +0.240	36.0	45.0	26.0	2.0
FFM-3539-26	35.0	+0.080 +0.240	39.0	47.0	26.0	2.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock

prices price list online www.igus.co.uk/en/f

order example part number FFM-0405-04

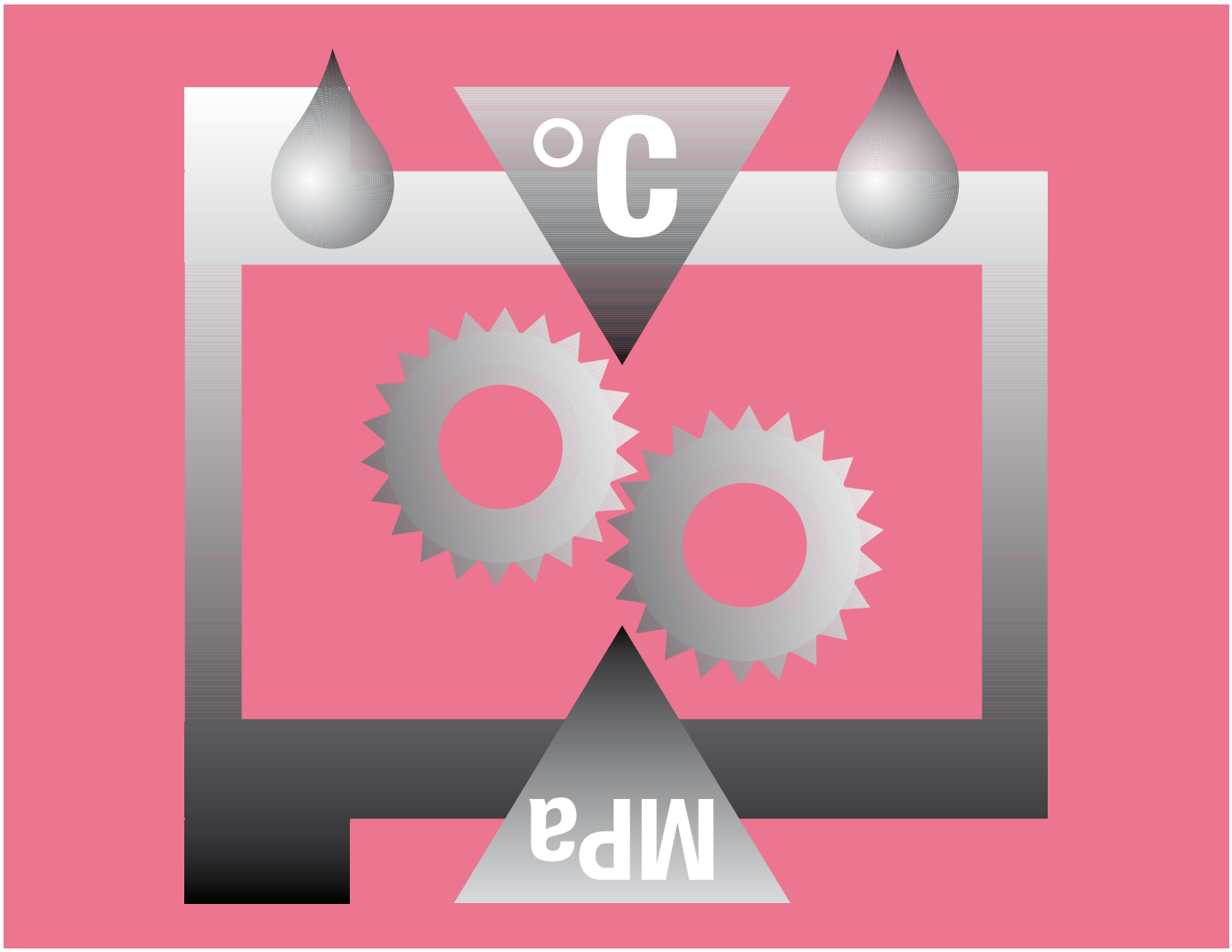
iglidur® F | Product Range

Flange bearing

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3 d13	b1 h13	b2 –0.14
FFM-4044-30	40.0	+0.080 +0.240	44.0	52.0	30.0	2.0
FFM-4044-40	40.0	+0.080 +0.240	44.0	52.0	40.0	2.0
FFM-4550-50	45.0	+0.080 +0.240	50.0	58.0	50.0	2.0
FFM-5055-40	50.0	+0.080 +0.240	55.0	63.0	40.0	2.0
FFM-6065-40	60.0	+0.100 +0.290	65.0	73.0	40.0	2.0
FFM-7075-40	70.0	+0.100 +0.290	75.0	83.0	40.0	2.0

* after pressfit. Testing methods ▶ page 55

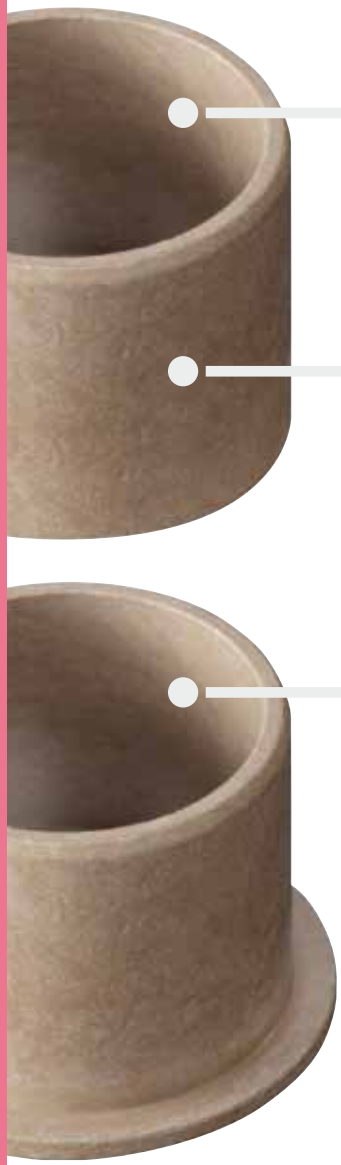


iglidur® H4 – the automotive under bonnet standard

- Standard range from stock
- Low coefficients of friction
- Good abrasion resistance
- High temperature resistance from –40 °C to +200 °C
- High chemical resistance

iglidur® H4

The automotive under bonnet standard. Very cost-efficient high-temperature material with good dry-operation properties and “engine compartment resistance”.



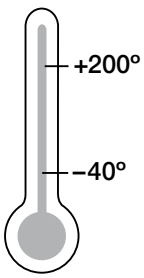
When to use it?

- Application with fuels, oils etc.
- When high wear resistance is required
- For low coefficients of friction
- For high temperature resistance from –40 °C to +200 °C
- For high chemical resistance

When not to use it?

- For underwater use
  ▶ **iglidur® H370, page 347**
- When a cost-effective universal bearing is required
  ▶ **iglidur® G, page 61**
- When you need a temperature- and media-resistant bearing for static applications.
  ▶ **iglidur® H2, page 359**

Temperature



Product range

2 types
Ø 6–40 mm
more dimensions
on request

iglidur® H4 | Application Examples

Typical sectors of industry and application areas

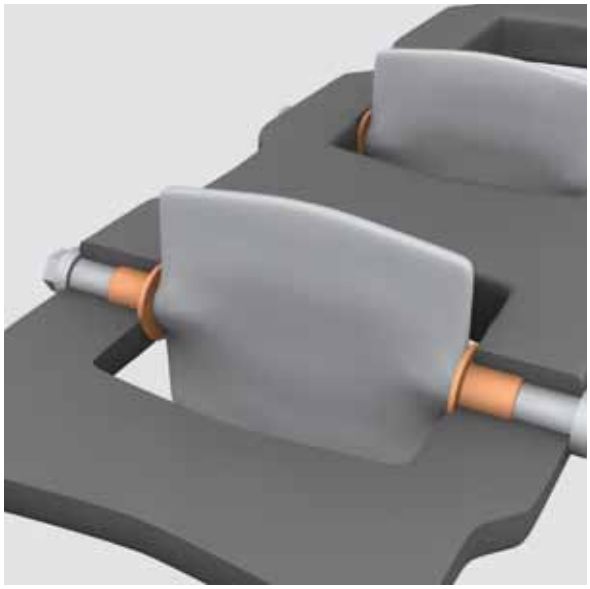
● Automotive ● Automation
● Packaging etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

▶ www.igus.co.uk/gear-actuator

▶ www.igus.co.uk/throttle-valves



▶ www.igus.co.uk/intake-systems

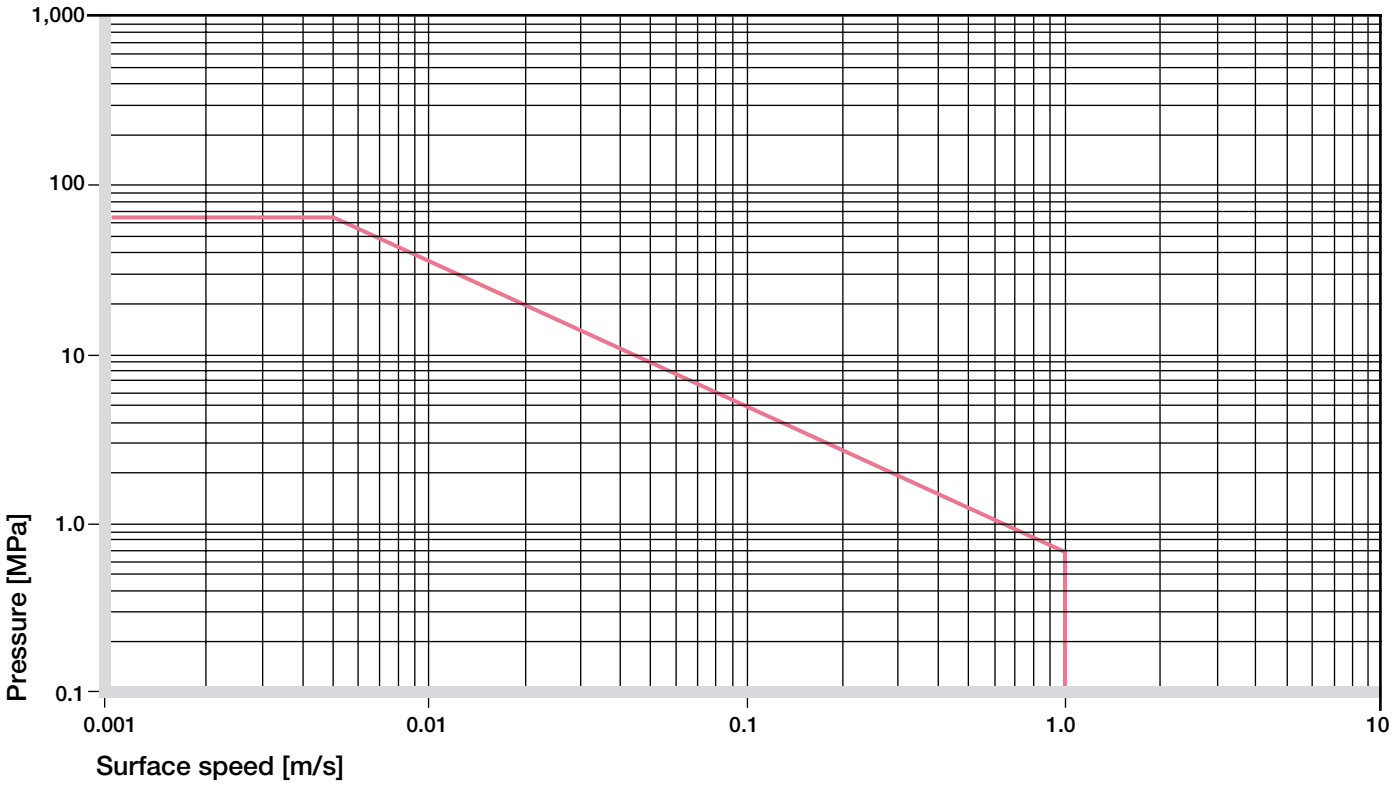
▶ www.co.uk/automotive

iglidur® H4 | Technical Data

Material data			
General properties	**Unit**	**iglidur® H4**	**Testing method**
Density	**g/cm³**	1.79	
Colour		brown	
Max. moisture absorption at +23 °C/50 % r. h.	**% weight**	0.1	DIN 53495
Max. moisture absorption	**% weight**	0.2	
Coefficient of sliding friction, dynamic against steel	**µ**	0.08–0.25	
pv value, max. (dry)	**MPa · m/s**	0.7	
Mechanical properties			
Modulus of elasticity	**MPa**	7,500	DIN 53457
Tensile strength at +20 °C	**MPa**	120	DIN 53452
Compressive strength	**MPa**	50	
Max. recommended surface pressure (+20 °C)	**MPa**	65	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+200	
Max. short term application temperature	**°C**	+240	
Min. application temperature	**°C**	+260	
Thermal conductivity	**°C**	–40	
Coefficient of thermal expansion (at +23 °C)	**W/m · K**	0.24	ASTM C 177
Wärmeausdehnungskoeffizient (bei +23 °C)	**$K^{-1} \cdot 10^{-5}$**	5	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{13}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{12}$	DIN 53482

[1] Without additional load; no sliding movement; relaxation possible

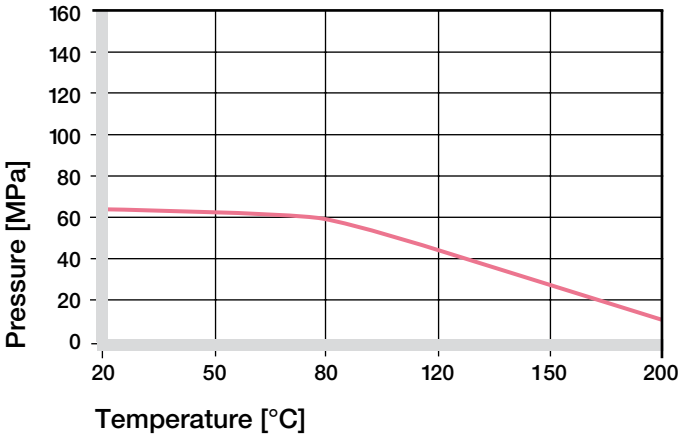
Table 01: Material data



Graph 01: Permissible pv values for iglidur® H4 with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® H4 plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +200°C the permissible surface pressure is almost 10 MPa.

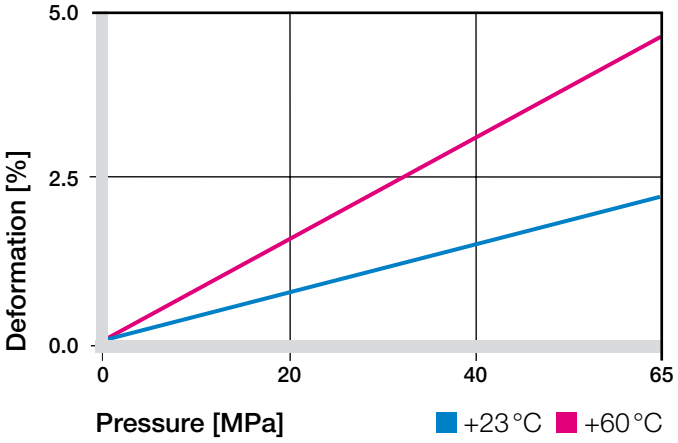


Graph 02: Recommended maximum surface pressure of iglidur® H4 as a function of temperature (65 MPa at +20 °C)

iglidur® H4 bearings stand for high carrying capacity, good abrasion resistance and good temperature resistance, besides the obvious economic factors. Temperatures up to +200 °C, permitted surface pressure up to 65 MPa, and excellent chemical resistance are only some of the essential attributes. Solid lubricants lower the coefficient of friction and support the wear resistance, which was essentially improved compared to the likewise cost-efficient iglidur® H2 bearings. iglidur® H4 bearings are self-lubricating and suitable for all motions.

Graph 03 shows the elastic deformation of iglidur® H4 with radial loads.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

In contrast to the similarly cost-efficient iglidur® H2 bearings, the iglidur® H4 has an essentially favorable coefficient of friction. This accounts for the higher permitted surface speeds that can be attained with these bearings. In the dry operation, long-term speeds of 0.8 m/s are possible. The speeds stated in Table 02 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	1
Short term	1.5	1.1	2

Table 02: Maximum running speed

Temperatures

iglidur® H4 is a temperature resistant material. The short-term maximum permissible temperature is +240 °C, and therefore allows for the use of iglidur® H4 plain bearings in applications where the bearings for instance undergo a drying process without further loading. The compressive strength of iglidur® H4, however, decreases with increasing temperatures.

The additional friction heat in the bearing system should be considered in the temperatures.

▶ Application Temperatures, **page 46**

iglidur® H4 | Technical Data

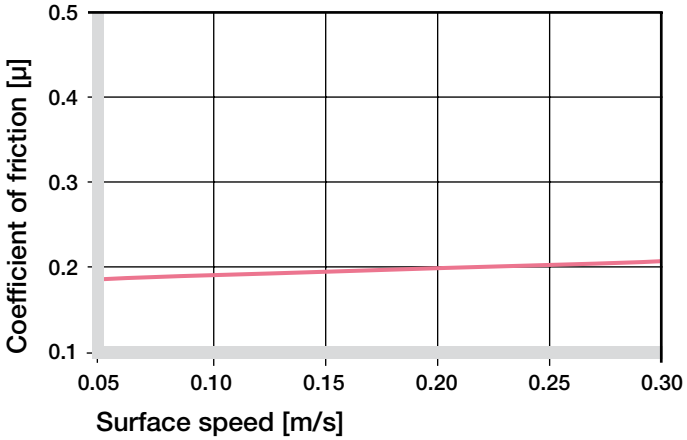
iglidur® H4	Application temperature
Minimum	–40 °C
Max. long term	+200 °C
Max. short term	+240 °C
Add. securing is required from	+110 °C

Table 03: Temperature limits

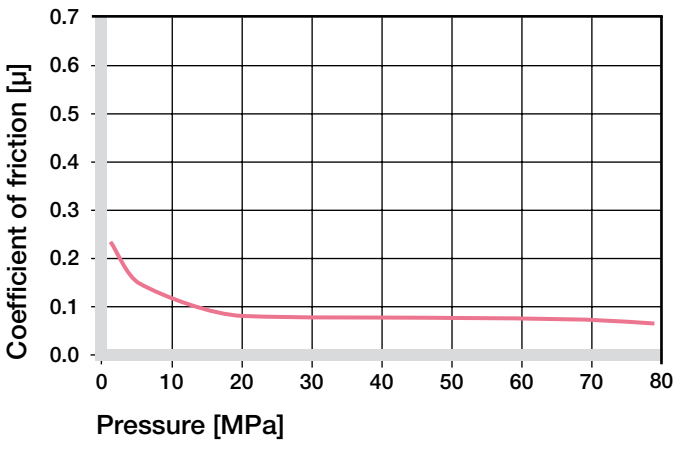
Friction and Wear

The coefficient of friction of the iglidur® H4 bearing is very low. However it must be noted that an extremely coarse gliding partner can increase the friction. We recommend a shaft surface finish (Ra) of 0.1 to maximum 0.4 µm. The coefficient of friction of the iglidur® H4 bearings is dependent on the surface speed only to a minor extent. The influence of the load is greater; an increase in load lowers the coefficient of friction up to 0.08.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

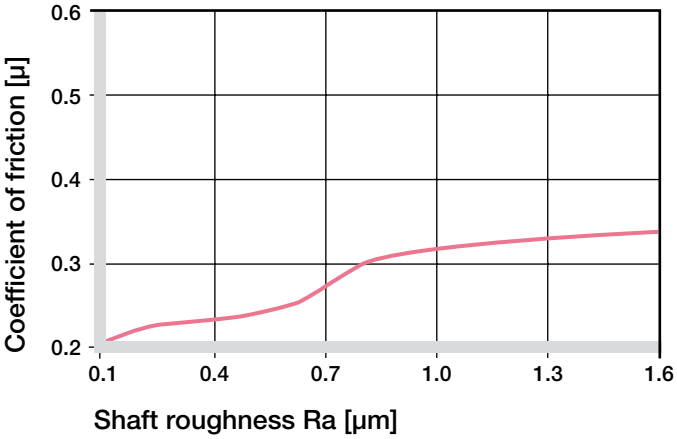


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

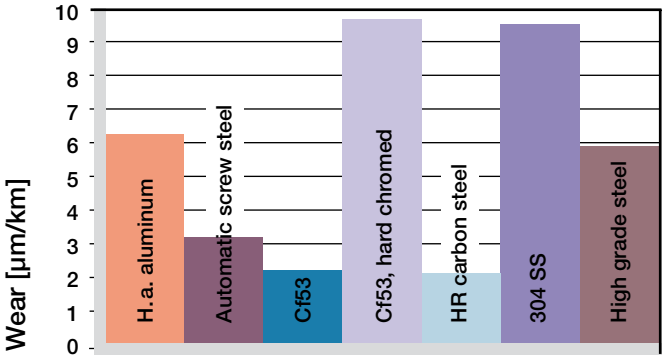
Shaft Materials

In many of the usable shaft materials, the iglidur® H4 is the economical alternative to many other high-temperature bearings. The important thing is however the selection of the suitable shaft material. It cannot be generally stated that iglidur® H4 is better suited for hard or soft shafts. Tests have however shown that pivoting motions yield better wear data. In rotating applications, the wear increases markedly from 10 MPa.

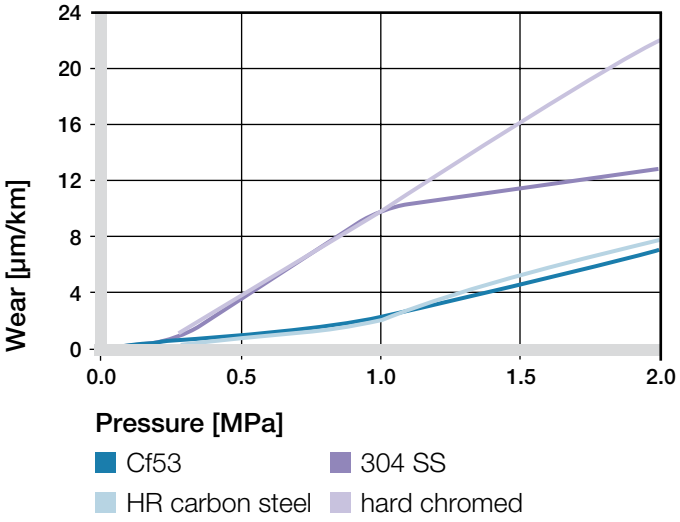
▶ Shaft Materials, **page 51**



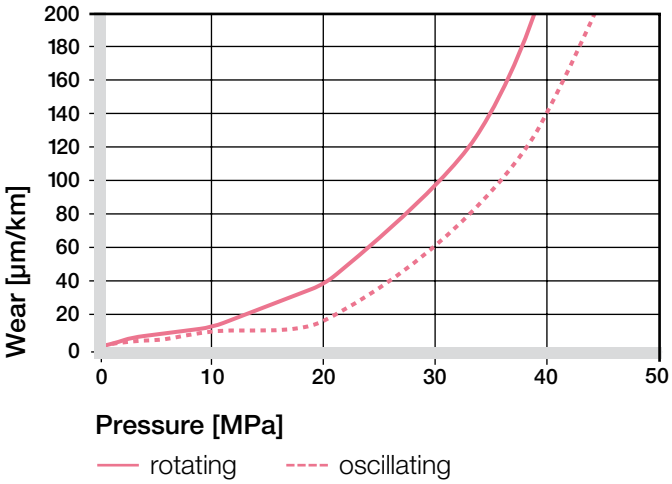
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® H4	Dry	Greases	Oil	Water
C. o. f. µ	0.08–0.25	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® H4 plain bearings feature good chemical resistance. They are resistant to most lubricants. The iglidur® H4 is not affected by most weak organic and inorganic acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	+ to 0
Strong acids	+ to –
Diluted alkalines	+
Strong alkalines	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

iglidur® H4 withstands neutron radiation as well as gamma radiation without noticeable losses of its excellent mechanical characteristics. Plain bearings of iglidur® H4 are radiation resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

UV Resistance

iglidur® H4 plain bearings change under the influence of UV radiation and other climatic influences. The surface gets rougher, and the compressive strength decreases. The use of iglidur® H4 in applications directly exposed to atmospheric conditions should therefore be tested.

Vacuum

In a vacuum, any moisture present will out gas. Use in a vacuum is usually possible.

Electrical Properties

iglidur® H4 plain bearings are electrically insulating.

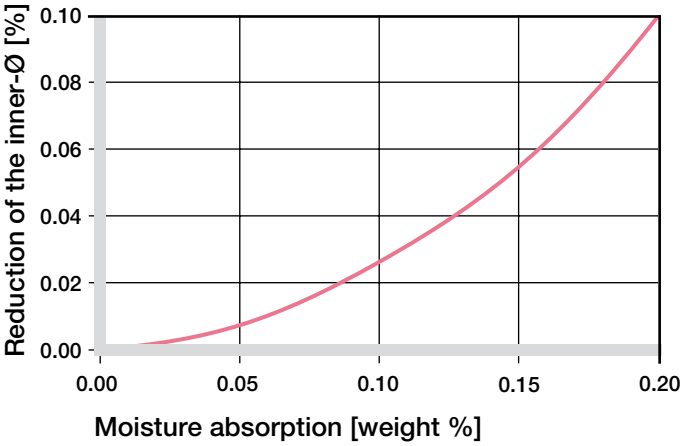
Volume resistance	$> 10^{13}$ Ωcm
Surface resistance	$> 10^{12}$ Ω

Moisture Absorption

The moisture absorption of iglidur® H4 plain bearings is below 0.1 % in standard atmosphere. The saturation limit in water is 0.2 %. iglidur® H4 is therefore an ideal material for wet environments.

Maximum moisture absorption	
At +23 °C/50 % r. h.	0.1 % weight
Max. moisture absorption	0.2 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® H4 bearings are standard bearings for shafts with h-tolerance (recommended minimum h9).
After the installation in a housing bore with H7 tolerance, the inner diameter of the bearing automatically adjusts to F10 tolerance.

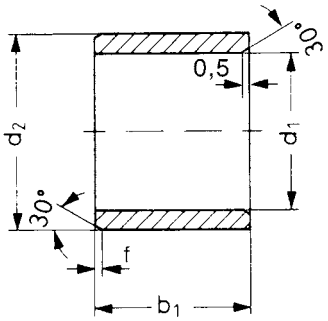
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® H4 F10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.006 +0.046	0 +0.010
>	3 to	6	0–0.030	+0.010 +0.058	0 +0.012
>	6 to	10	0–0.036	+0.013 +0.071	0 +0.015
>	10 to	18	0–0.043	+0.016 +0.086	0 +0.018
>	18 to	30	0–0.052	+0.020 +0.104	0 +0.021
>	30 to	50	0–0.062	+0.025 +0.125	0 +0.025
>	50 to	80	0–0.074	+0.030 +0.150	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® H4 | Product Range

Sleeve bearing



Order key

H4SM-0405-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material: iglidur® H4

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

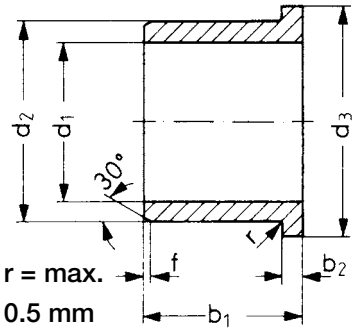
Part number	d1	d1-Tolerance*	d2	b1 h13
H4SM-0405-04	4.0	+0.010 +0.058	5.5	4.0
H4SM-0608-08	6.0	+0.010 +0.058	8.0	8.0
H4SM-0810-20	8.0	+0.013 +0.071	10.0	20.0
H4SM-1618-20	16.0	+0.016 +0.086	18.0	20.0
H4SM-1820-15	18.0	+0.016 +0.086	20.0	15.0
H4SM-2022-15	20.0	+0.020 +0.104	22.0	15.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/h4 | order example part number H4SM-0405-04

iglidur® H4 | Product Range

Flange bearing



Order key

H4FM-0608-08

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material: iglidur® H4

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

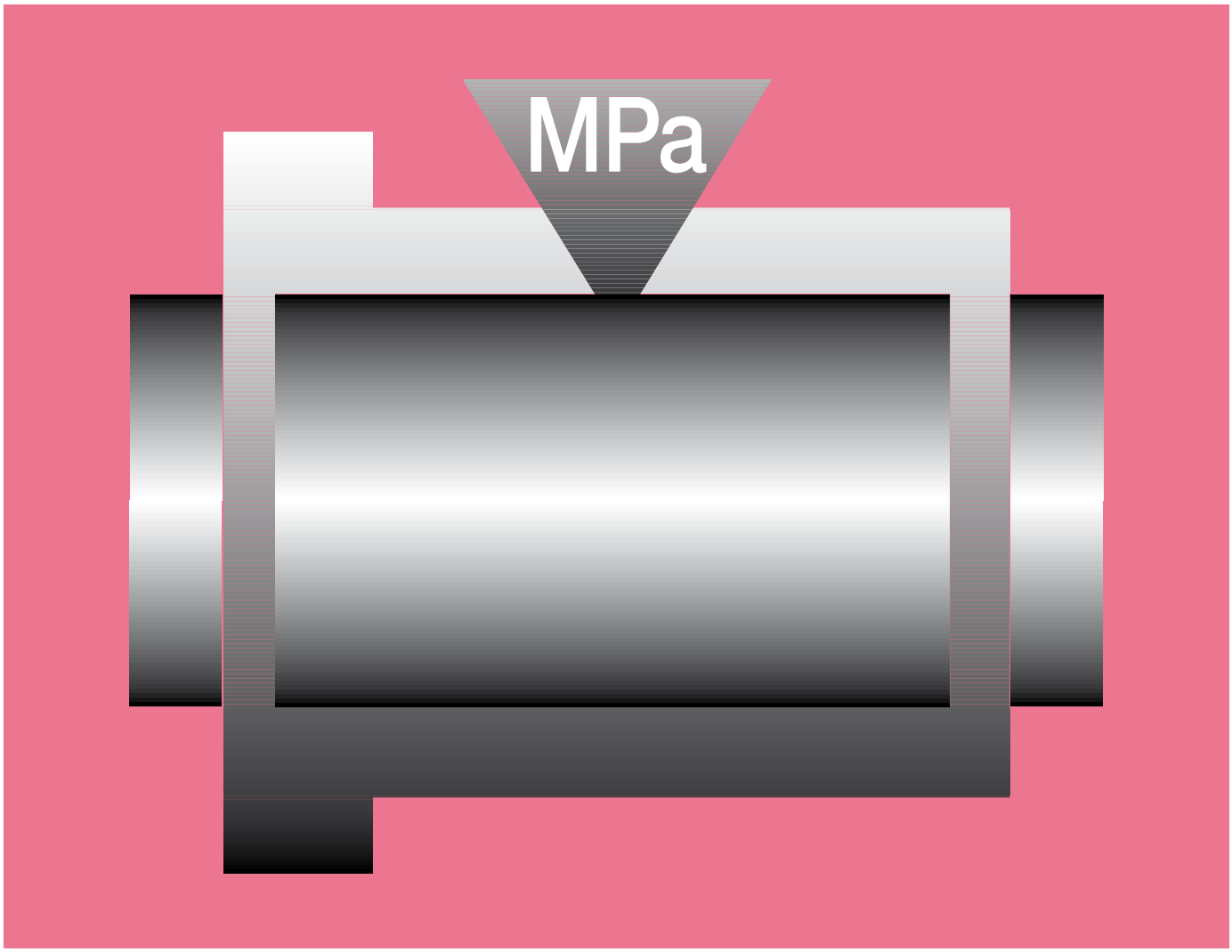
d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
H4FM-0608-08	6.0	+0.010 +0.058	8.0	12.0	8.0	1.0
H4FM-0810-10	8.0	+0.013 +0.071	10.0	15.0	10.0	1.0
H4FM-1012-05	10.0	+0.013 +0.071	12.0	18.0	5.0	1.0
H4FM-1012-12	10.0	+0.013 +0.071	12.0	18.0	12.0	1.0
H4FM-1214-12	12.0	+0.016 +0.086	14.0	20.0	12.0	1.0
H4FM-1517-12	15.0	+0.016 +0.086	17.0	23.0	12.0	1.0
H4FM-1618-17	16.0	+0.016 +0.086	18.0	24.0	17.0	1.0
H4FM-1820-17	18.0	+0.016 +0.086	20.0	26.0	17.0	1.0
H4FM-2023-21	20.0	+0.020 +0.104	23.0	30.0	21.5	1.5
H4FM-2528-21	25.0	+0.020 +0.104	28.0	35.0	21.5	1.5
H4FM-3034-30	30.0	+0.020 +0.104	34.0	40.0	30.0	2.0
H4FM-4044-40	40.0	+0.030 +0.150	44.0	52.0	40.0	2.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/h4 | order example part number H4FM-0608-08



iglidur® Q – wear-resistant at high loads

- Standard range from stock
- Excellent wear resistance, especially for extreme loads
- Recommended for extreme pv values
- Good coefficients of friction
- Insensitive to dirt

iglidur® Q

Wear-resistant at high loads. iglidur® Q is the low priced solution for high duty cycles at high to extreme loads. Bearing made from this material can be used in all types of motion, but is best suited to oscillating applications.

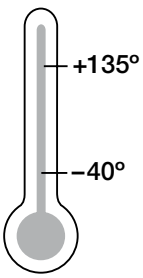
When to use it?

- For oscillating applications
- Excellent wear resistance, especially for extreme loads
- Recommended for extreme pv values
- If the bearing should be insensitive to dirt

When not to use it?

- For underwater applications
  ▶ **iglidur® H370, page 347**
- When temperatures are constantly greater than +135 °C
  ▶ **iglidur® H, page 325**
  ▶ **iglidur® X, page 153**
  ▶ **iglidur® Z, page 299**
- When electrically conductive bearings are needed
  ▶ **iglidur® F, page 439**
  ▶ **iglidur® H, page 325**

Temperature



Product range

3 types
Ø 6–80 mm
more dimensions
on request

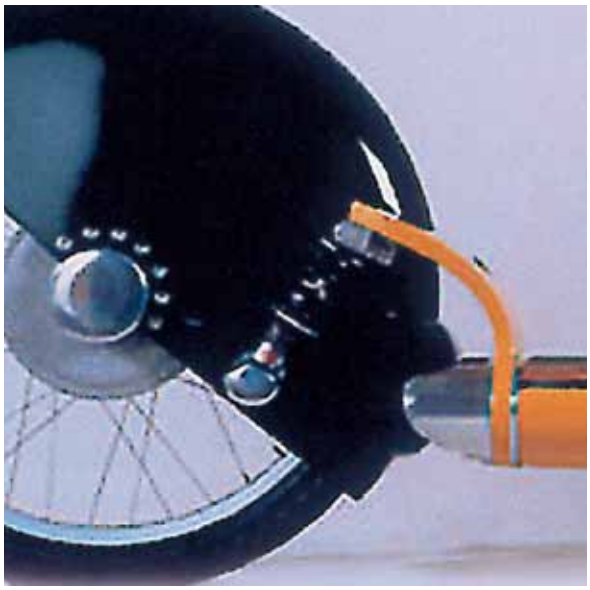
iglidur® Q | Application Examples

Typical sectors of industry and application areas

● Construction machinery
● Sheet metal industry ● Agricultural machines ● Railway technology
● Doors and gates etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**



▶ **www.igus.co.uk/electro-roller**

▶ **www.igus.co.uk/tank-truck**

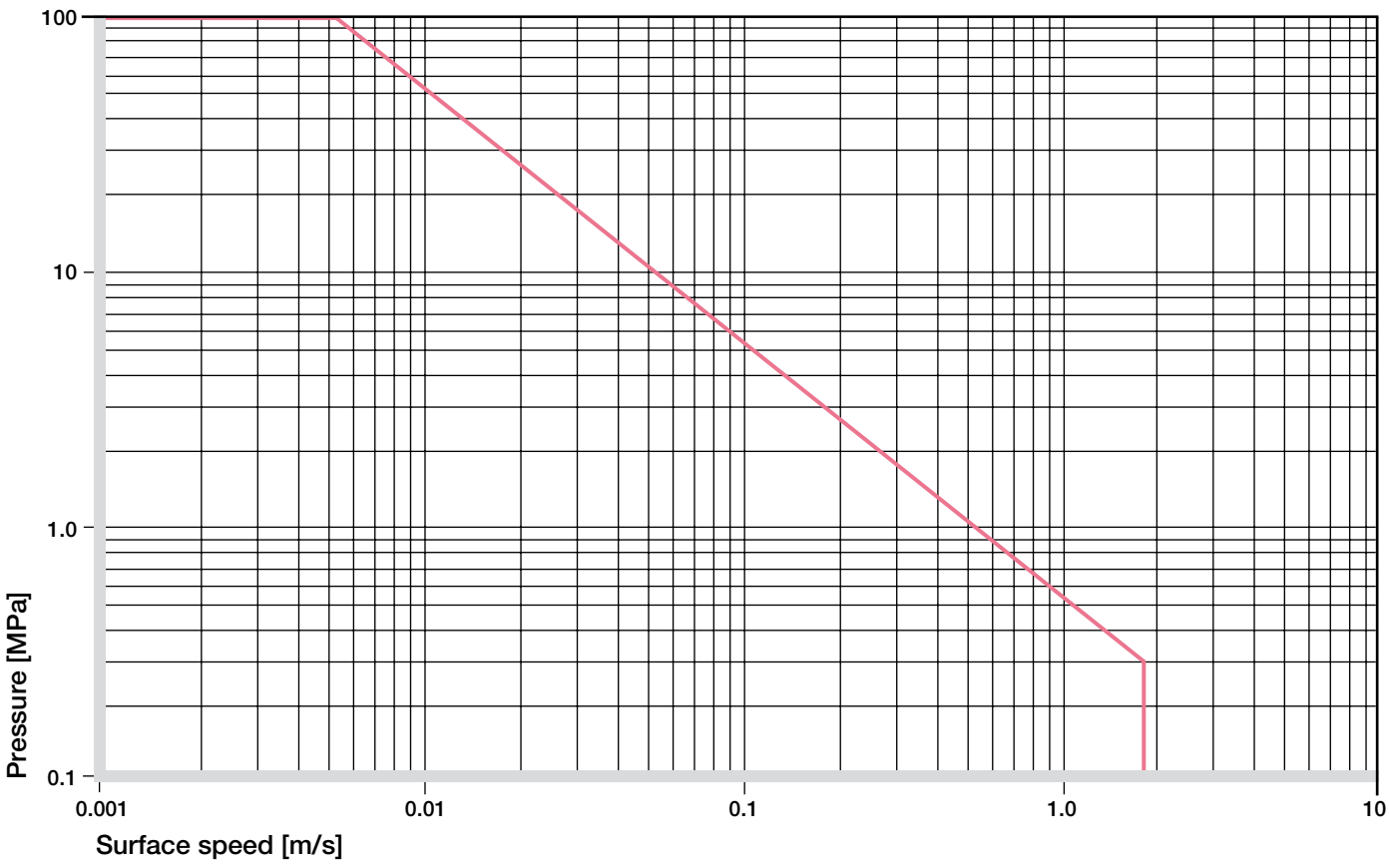
▶ **www.igus.co.uk/baggripper**

▶ **www.igus.co.uk/tv-stand**

iglidur® Q | Technical Data

Material data			
General properties	**Unit**	**iglidur® Q**	**Testing method**
Density	**g/cm³**	1.40	
Colour		black	
Max. moisture absorption at +23 °C/50 % r. h.	**% weight**	0.9	DIN 53495
Max. moisture absorption	**% weight**	4.9	
Coefficient of sliding friction, dynamic against steel	**µ**	0.05–0.15	
pv value, max. (dry)	**MPa · m/s**	0.55	
Mechanical properties			
Modulus of elasticity	**MPa**	4,500	DIN 53457
Tensile strength at +20 °C	**MPa**	120	DIN 53452
Compressive strength	**MPa**	89	
Max. recommended surface pressure (+20 °C)	**MPa**	100	
Shore D hardness		83	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+135	
Max. short term application temperature	**°C**	+155	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.23	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	5	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{15}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{12}$	DIN 53482

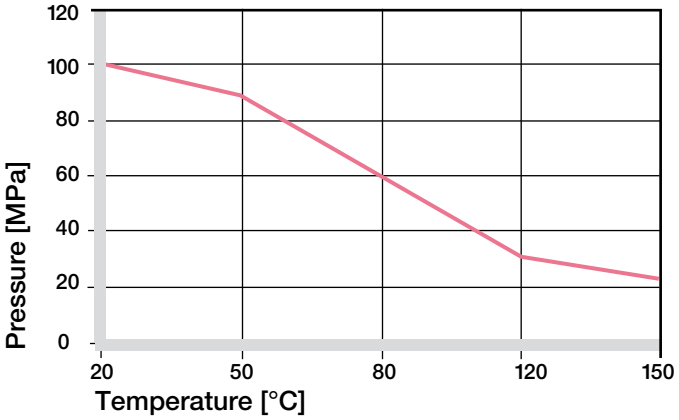
Tabelle 01: Material data



Graph 01: Permissible pv values for iglidur® Q with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® Q plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +135 °C the permissible surface pressure is almost 30 MPa.

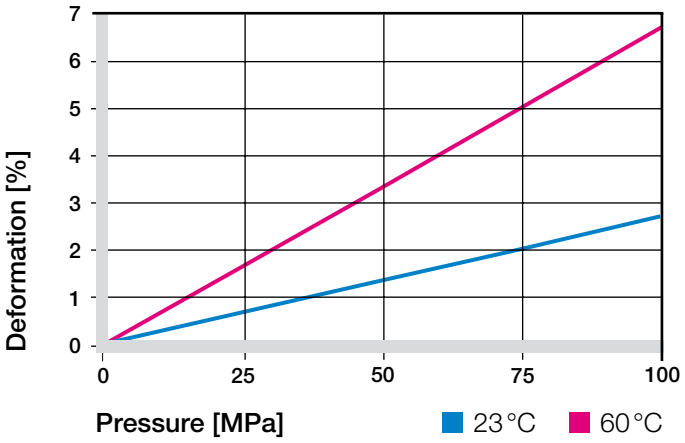


Graph 02: Recommended maximum surface pressure of as a function of temperature (100 MPa at +20 °C)

iglidur® Q bearings were developed especially for extreme loads. Under high loads, iglidur® Q figures among the iglidur® materials that display the best wear resistance. From a radial pressure of 25 MPa, it outclasses even bearings made of the highly abrasion-resistant iglidur® W300. Specific solid lubricants, precisely integrated into the material, ensure that the maintenance-free dry operation is guaranteed under any load.

iglidur® Q is a material used when high pv values are reached through high loads. pv values above 1 are possible for loads over 50 MPa. Graph 03 shows the elastic deformation of iglidur® Q with radial loads. Under the maximum recommended surface pressure of 100 MPa, the deformation at room temperature amounts to less than 3 %.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

Under extreme radial loads, the iglidur® Q bearings can reach the maximum pv values, which are possible in the dry operation with plain bearings. Though the iglidur® Q bearings have the greatest advantages with high loads and low speeds, high surface speeds are also attainable due to the excellent coefficients of friction. The values stated in Table 02 show the speed at which the temperature rises to the maximum permitted value as a result of friction.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	5
Short term	2	1.4	6

Table 02: Maximum running speed

Temperatures

Plain bearings made of iglidur® Q have excellent wear resistance even at high temperatures. The maximum long term application temperature is +135 °C. Because of different environmental influences, the bearing can lose pressfit at lower temperatures. Therefore, it may be necessary to secure the bearings in the housing bore. Also, notice that the coefficient of friction increases rapidly as temperature increases from around +100 °C.

▶ Application Temperatures, **page 46**

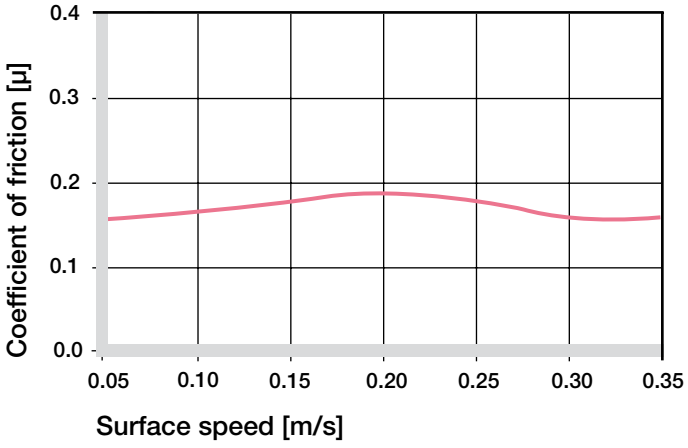
iglidur® Q	Application temperature
Minimum	–40 °C
Max. long term	+135 °C
Max. short term	+155 °C
Add. securing is required from	+50 °C

Table 03: Temperature limits

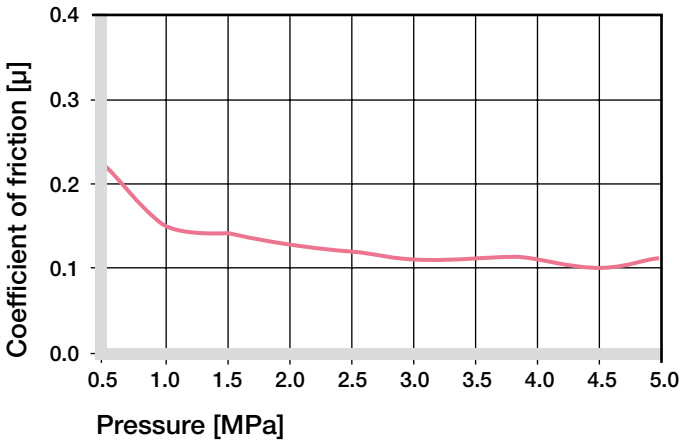
Friction and Wear

Although most dry running plastic bearings feature decreasing coefficients of friction with increasing pressure, iglidur® Q goes further than most, under high pressures the material gives excellent low values. Soon after the short run-in period, the coefficient of friction stabilizes to the final value. The shaft material also has significant influence on friction and wear. Extremely smooth shafts enhance the coefficient of friction of the bearing. For applications with high loads, we recommend hardened and ground surfaces with an average surface finish of Ra = 0.15 to 0.3 µm.

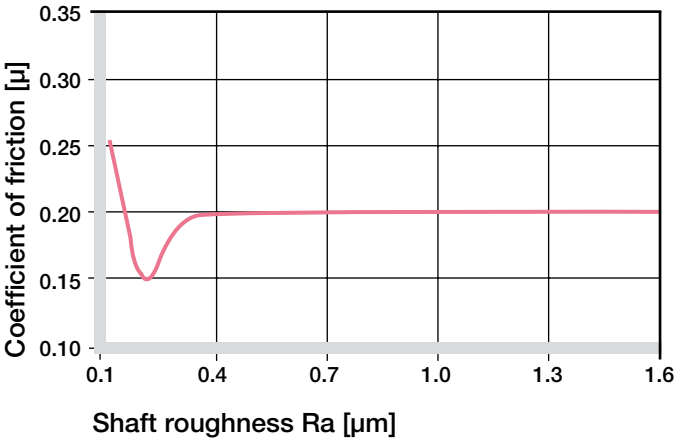
▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



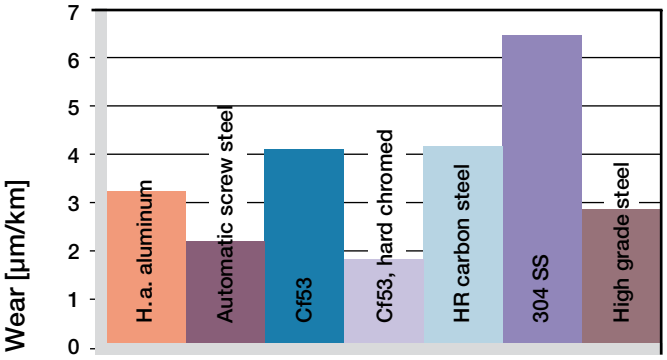
Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



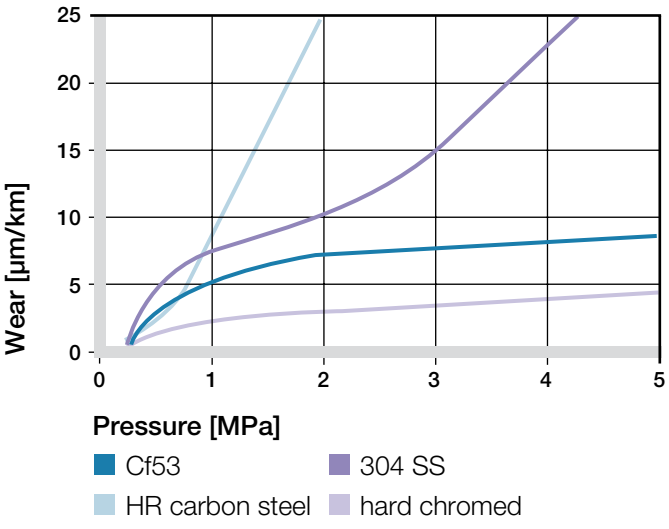
Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s



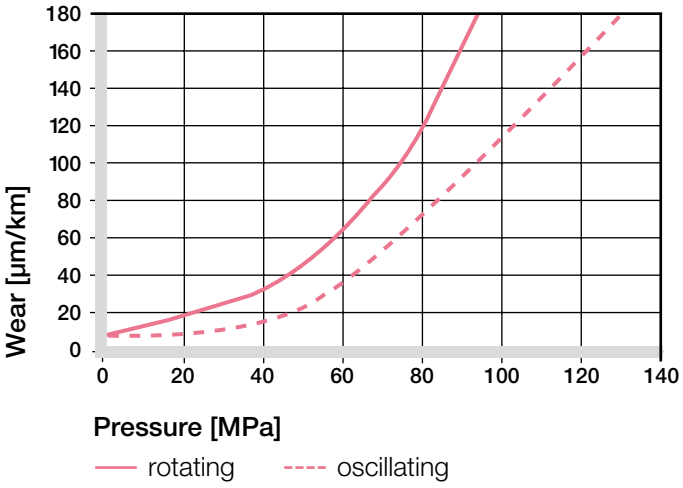
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



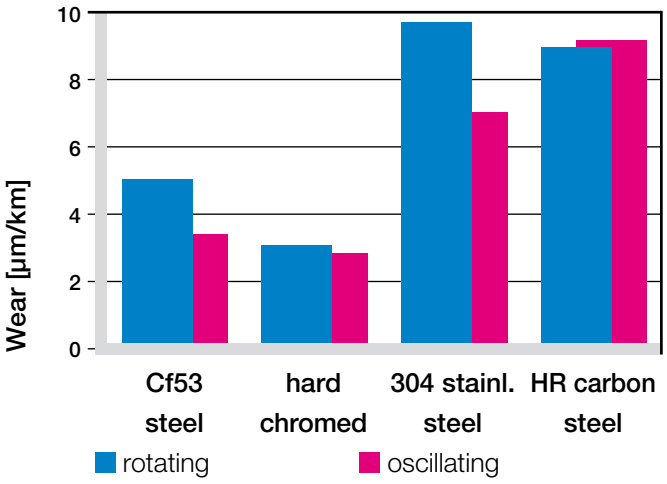
Graph 07: Wear, rotating with different shaft materials, pressure p = 1 MPa, v = 0.3 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure



Graph 10: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

Shaft Materials

The graphs 06 and 07 display a summary of the results of tests with different shaft materials conducted with bearings made of iglidur® Q.

It is striking that in general the iglidur® Q bearings in the lower load range do not wear rates which are as good as, for example, bearings made of iglidur® J or iglidur® W300. The actual strength of iglidur® Q lies in the wear resistance under heavy loads and in pivoting applications. In pivoting applications, the iglidur® Q pairings with hard-chromed shafts and machining steel shafts turn out to be the best among the tested combinations.

▶ Shaft Materials, **page 51**

iglidur® Q	Dry	Greases	Oil	Water
C. o. f. µ	0.05–0.15	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® Q bearings have a good resistance against chemicals. They possess an excellent resistance to organic solvents, fuels, oils and fats. The material is only partially resistant to weak acids and alkalis.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings made from iglidur® Q are resistant to radiation up to an intensity of applications $3 \cdot 10^2$ Gy.

UV Resistance

The tribological properties of iglidur® Q plain bearings stay constant for the most part under weathering effects. However, the material may become slightly brittle.

Vacuum

When used in a vacuum, the iglidur® Q plain bearings release existing moisture as a vapour. Therefore, only dehumidified bearings made of iglidur® Q are suitable for use in a vacuum.

Electrical Properties

iglidur® Q plain bearings are electrically insulating.

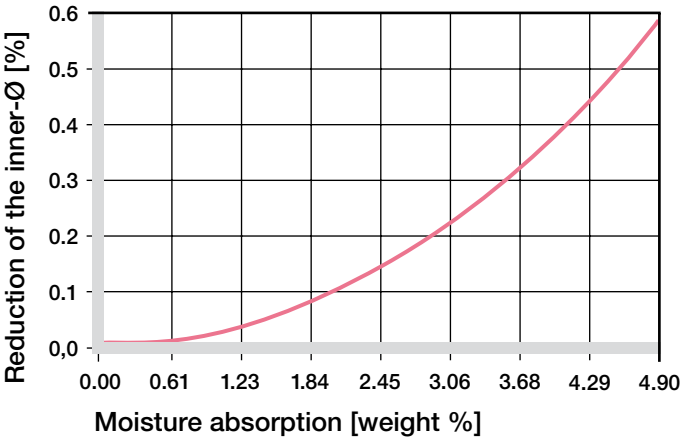
Volume resistance	$> 10^{15}$ Ωcm
Surface resistance	$> 10^{12}$ Ω 10

Moisture Absorption

The moisture absorption of iglidur® Q plain bearings is approximately 0.9 % in standard atmosphere. The saturation limit in water is 4.9 %. This must be taken into account along with any other application conditions.

Maximum moisture absorption	
At +23 °C/50 % r. h.	0.9 % weight
Max. moisture absorption	4.9 % weight

Table 06: Moisture absorption



Graph 11: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® Q bearings are standard bearings for shafts with h tolerance (recommended minimum h9).

After the installation in a housing bore with H7 tolerance, the inner diameter of the bearing automatically adjusts to the E10 tolerance.

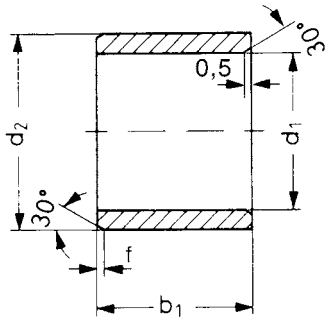
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® Q E10 [mm]	Housing H7 [mm]
	up to	3	0–0.025	+0.014 +0.054	0 +0.010
> 3	to	6	0–0.030	+0.020 +0.068	0 +0.012
> 6	to	10	0–0.036	+0.025 +0.083	0 +0.015
> 10	to	18	0–0.043	+0.032 +0.102	0 +0.018
> 18	to	30	0–0.052	+0.040 +0.124	0 +0.021
> 30	to	50	0–0.062	+0.050 +0.150	0 +0.025
> 50	to	80	0–0.074	+0.060 +0.180	0 +0.030
> 80	to	120	0–0.087	+0.072 +0.212	0 +0.035
> 120	to	180	0–0.100	+0.085 +0.245	0 +0.040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® Q | Product Range

Sleeve bearing



Order key

QSM-0608-10

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® Q

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	b1 h13
QSM-0608-10	6.0	+0.020 +0.068	8.0	10.0
QSM-0810-08	8.0	+0.025 +0.083	10.0	8.0
QSM-1012-10	10.0	+0.025 +0.083	12.0	10.0
QSM-1214-10	12.0	+0.032 +0.102	14.0	10.0
QSM-1214-20	12.0	+0.032 +0.102	14.0	20.0
QSM-1618-08	16.0	+0.032 +0.102	18.0	8.0
QSM-1618-12	16.0	+0.032 +0.102	18.0	12.5
QSM-1618-20	16.0	+0.032 +0.102	18.0	20.0
QSM-1820-20	18.0	+0.032 +0.102	20.0	20.0
QSM-2022-15	20.0	+0.040 +0.124	22.0	15.0
QSM-2023-15	20.0	+0.040 +0.124	23.0	15.0
QSM-2023-20	20.0	+0.040 +0.124	23.0	20.0
QSM-2023-25	20.0	+0.040 +0.124	23.0	25.0
QSM-2023-30	20.0	+0.040 +0.124	23.0	30.0
QSM-2528-25	25.0	+0.040 +0.124	28.0	25.0
QSM-2528-48	25.0	+0.040 +0.124	28.0	48.0

Part number	d1	d1-Tolerance*	d2	b1 h13
QSM-3034-20	30.0	+0.040 +0.124	34.0	20.0
QSM-3034-40	30.0	+0.040 +0.124	34.0	40.0
QSM-3539-15	35.0	+0.050 +0.150	39.0	15.0
QSM-3539-30	35.0	+0.050 +0.150	39.0	30.0
QSM-3539-50	35.0	+0.050 +0.150	39.0	50.0
QSM-4044-40	40.0	+0.050 +0.150	44.0	40.0
QSM-4044-47	40.0	+0.050 +0.150	44.0	47.0
QSM-4550-252	45.0	+0.050 +0.150	50.0	25.2
QSM-4550-50	45.0	+0.050 +0.150	50.0	50.0
QSM-5055-50	50.0	+0.050 +0.150	55.0	50.0
QSM-5055-60	50.0	+0.050 +0.150	55.0	60.0
QSM-6065-50	60.0	+0.060 +0.180	65.0	50.0
QSM-6570-34	65.0	+0.060 +0.180	70.0	34.0
QSM-7075-50	70.0	+0.060 +0.180	75.0	50.0
QSM-8085-60	80.0	+0.060 +0.180	85.0	60.0

* after pressfit. Testing methods ▶ page 55

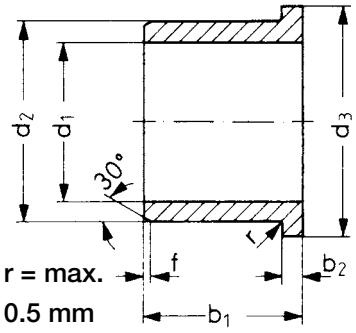
delivery time available from stock

prices price list online www.igus.co.uk/en/q

order example part number QSM-0608-10

iglidur® Q | Product Range

Flange bearing



Order key

QFM-0608-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® Q

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

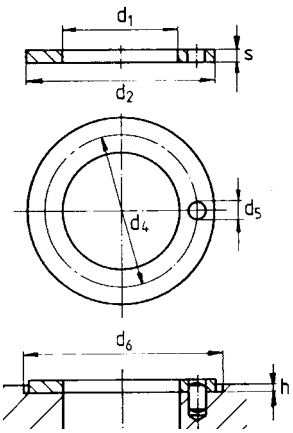
Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0.14
QFM-0608-04	6.0	+0.020 +0.068	8.0	12.0	4.0	1.0
QFM-0810-05	8.0	+0.025 +0.083	10.0	15.0	5.5	1.0
QFM-0810-06	8.0	+0.025 +0.083	10.0	15.0	6.0	1.0
QFM-1012-06	10.0	+0.025 +0.083	12.0	18.0	6.0	1.0
QFM-1012-10	10.0	+0.025 +0.083	12.0	18.0	10.0	1.0
QFM-101215-035	10.0	+0.025 +0.083	12.0	15.0	3.5	1.0
QFM-101215-08	10.0	+0.025 +0.083	12.0	15.0	8.0	1.0
QFM-1214-08	12.0	+0.032 +0.102	14.0	20.0	8.0	1.0
QFM-1214-12	12.0	+0.032 +0.102	14.0	20.0	12.0	1.0
QFM-1214-20	12.0	+0.032 +0.102	14.0	20.0	20.0	1.0
QFM-1416-12	14.0	+0.032 +0.102	16.0	22.0	12.0	1.0
QFM-1618-17	16.0	+0.032 +0.102	18.0	24.0	17.0	1.0
QFM-1820-12	18.0	+0.032 +0.102	20.0	26.0	12.0	1.0
QFM-2023-21	20.0	+0.040 +0.124	23.0	30.0	21.5	1.5
QFM-2528-21	25.0	+0.040 +0.124	28.0	35.0	21.5	1.5
QFM-2730-20	27.0	+0.040 +0.124	30.0	38.0	20.0	1.5
QFM-3034-37	30.0	+0.040 +0.124	34.0	42.0	37.0	2.0
QFM-3539-26	35.0	+0.050 +0.150	39.0	47.0	26.0	2.0
QFM-4044-40	40.0	+0.050 +0.150	44.0	52.0	40.0	2.0
QFM-5055-50	50.0	+0.050 +0.150	55.0	63.0	50.0	2.0
QFM-6065-50	60.0	+0.060 +0.180	65.0	78.0	50.0	2.0
QFM-7075-50	70.0	+0.060 +0.180	75.0	83.0	50.0	2.0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/q | order example part number QFM-0608-04

Thrust washer



Order key

QTM-2842-015

- Thickness s
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form T)
- Material iglidur® Q

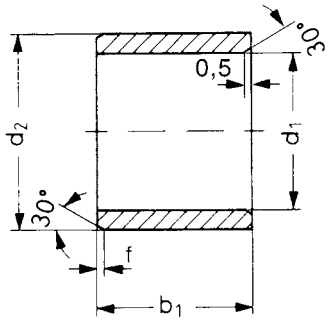
Dimensions according to ISO 3547-1 and special dimensions

Dimensions [mm]

Part number	d1	d2	s	d4	d5	h	d6
	+0.3	–0.3	–0.06	–0.12/+0.12	–0.375/+0.125	+0.2/–0.2	+0.12
QTM-2842-015	28.0	42.0	1.5	35.0	4.0	1.0	42.0
QTM-3254-015	32.0	54.0	1.5	43.0	4.0	1.0	54.0

iglidur® Q | Product Range | Inch

Sleeve bearing



Order key

QSI-0607-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form S)
- Material iglidur® Q

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

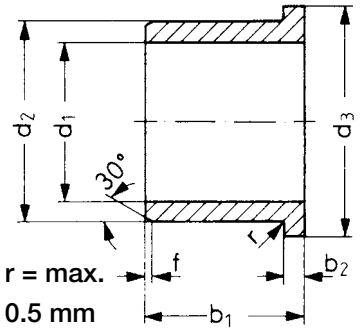
Part number	d1	d2	b1	d1*		Housing bore		Shaft size	
				max.	min.	max.	min.	max.	min.
QSI-0607-04	3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731
QSI-0607-06	3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731
QSI-0607-08	3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731
QSI-0708-08	7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355
QSI-0809-12	1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980
QSI-1011-12	5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230
QSI-1214-08	3/4	7/8	1/2	.7541	.7507	.8755	.8747	.7491	.7479
QSI-1214-12	3/4	7/8	3/4	.7541	.7507	.8755	.8747	.7491	.7479
QSI-1214-16	3/4	7/8	1	.7541	.7507	.8755	.8747	.7491	.7479
QSI-1416-16	7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729
QSI-1618-16	1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979
QSI-1618-24	1	1 1/8	1 1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979
QSI-1820-24	1 1/8	1 9/32	1 1/2	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
QSI-2022-20	1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
QSI-2022-24	1 1/4	1 13/32	1 1/2	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
QSI-2426-24	1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
QSI-2629-20	1 5/8	1 25/32	1 1/4	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222
QSI-2831-32	1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
QSI-3235-12	2	2 3/16	3/4	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
QSI-3235-16	2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
QSI-3235-24	2	2 3/16	1 1/2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
QSI-3235-32	2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
QSI-3235-40	2	2 3/16	2 1/2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
QSI-3639-32	2 1/4	2 7/16	2	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/q | order example part number QSI-0607-04

iglidur® Q | Product Range | Inch

Flange bearing



Order key

QFI-0607-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® Q

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft size	
						max.	min.	max.	min.	max.	min.
QFI-0607-04	3/8	15/32	1/4	,687	,046	,3773	,3750	,4691	,4684	,3740	,3731
QFI-0607-08	3/8	15/32	1/2	.687	.046	.3773	.3750	.4691	.4684	.3740	.3731
QFI-0809-04	1/2	19/32	1/4	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
QFI-0809-08	1/2	19/32	1/2	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
QFI-0809-12	1/2	19/32	3/4	.875	.046	.5030	.5003	.5941	.5934	.4990	.4980
QFI-1011-12	5/8	23/32	3/4	.937	.046	.6280	.6253	.7192	.7184	.6240	.6230
QFI-1012-08	5/8	3/4	3/4	1.000	.062	.6290	.6263	.7510	.7500	.6250	.6240
QFI-1214-08	3/4	7/8	1/2	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
QFI-1214-12	3/4	7/8	3/4	1.125	.062	.7541	.7507	.8755	.8747	.7491	.7479
QFI-1214-16	3/4	7/8	1	1.125	.062	.7541	.7505	.8755	.8747	.7491	.7479
QFI-1416-12	7/8	1	3/4	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
QFI-1416-16	7/8	1	1	1.250	.062	.8791	.8757	1.0005	.9997	.8741	.8729
QFI-1618-08	1	1 1/8	1/2	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
QFI-1618-16	1	1 1/8	1	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
QFI-1618-24	1	1 1/8	1 1/2	1.375	.062	1.0041	1.0007	1.1255	1.1247	.9991	.9979
QFI-1820-12	1 1/8	1 9/32	3/4	1.562	.078	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
QFI-1820-24	1 1/8	1 9/32	1 1/2	1.562	.078	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226
QFI-2022-20	1 1/4	1 13/32	1 1/4	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472

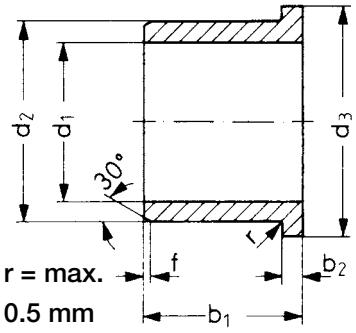
* after pressfit. Testing methods ▶ page 55

delivery time available from stock

prices price list online www.igus.co.uk/en/q

order example part number QFI-0607-04

Flange bearing



Order key

QFI-0608-04

- Length b1
- Outer diameter d2
- Inner diameter d1
- Inch
- Type (Form F)
- Material iglidur® Q

Dimensions according to ISO 3547-1 and special dimensions

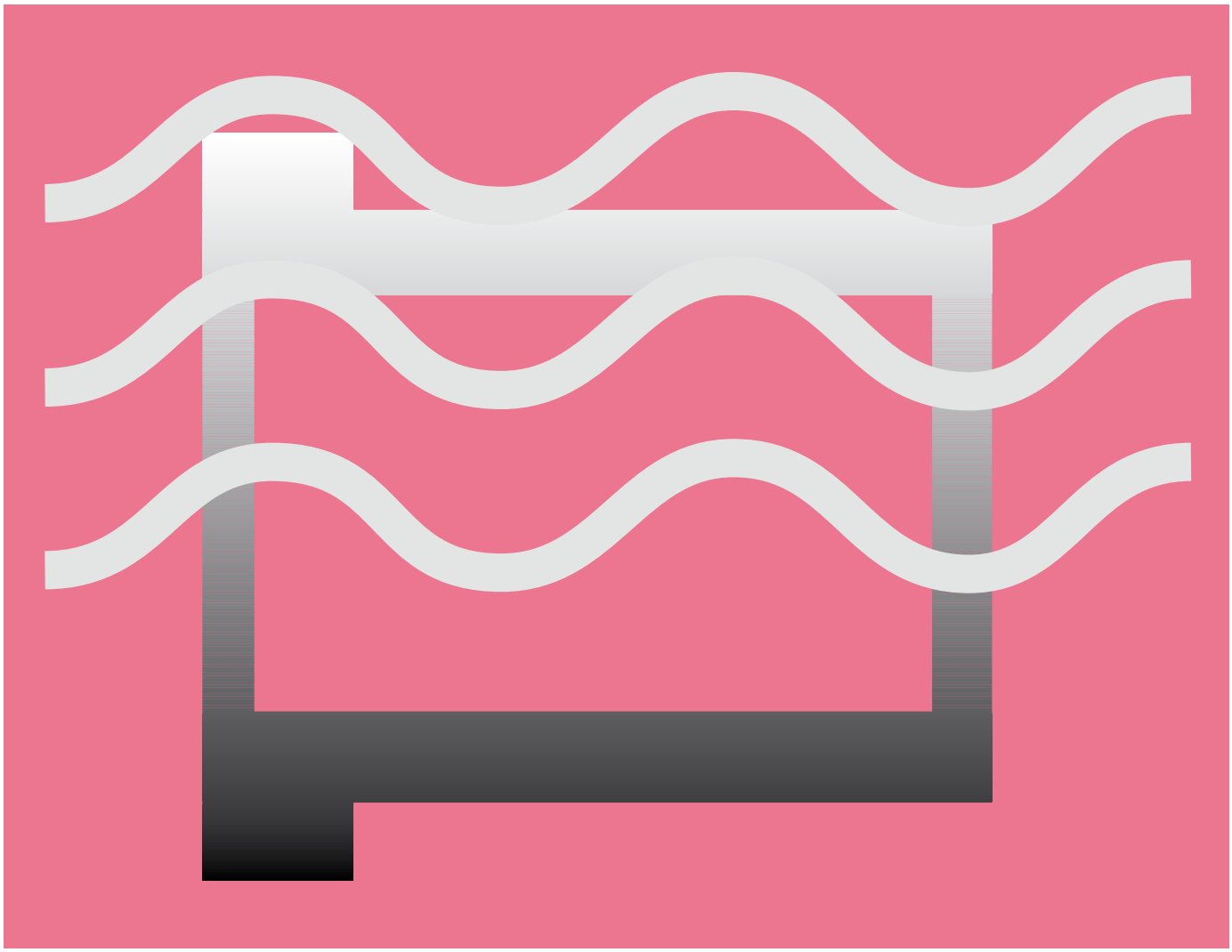
Chamfer in relation to the d1

d1 [Inch]:	Ø 0.040–0.236	Ø 0.236–0.472	Ø 0.472–1.18	Ø > 1.18
f [Inch]:	0.012	0.019	0.031	0.047

Dimensions [Inch]

Part number	d1	d2	b1	d3	b2	d1*		Housing bore		Shaft size	
						max.	min.	max.	min.	max.	min.
QFI-2022-24	1 1/4	1 13/32	1 1/2	1.687	.078	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472
QFI-2426-24	1 1/2	1 21/32	1 1/2	2.000	.078	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972
QFI-2831-32	1 3/4	1 15/16	2	2.375	.093	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471
QFI-3235-32	2	2 3/16	2	2.625	.093	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969
QFI-3639-32	2 1/4	2 7/16	2	2.750	.093	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489

* after pressfit. Testing methods ▶ page 55

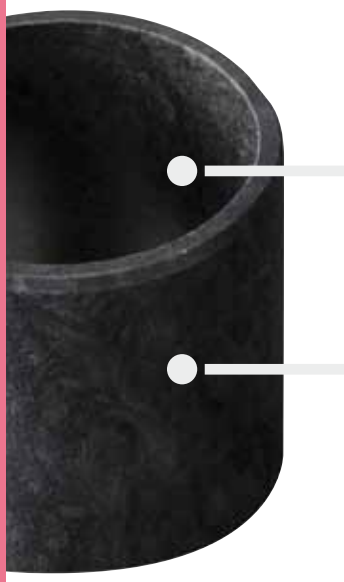


iglidur® UW – for fast rotation under water

- Standard range from stock
- For underwater applications
- For fast and constant motion
- Long service life

iglidur® UW

For fast rotation under water. The best iglidur® bearings for underwater applications. Extremely wear resistant under water, tested and free from maintenance. The first choice for pumping applications.



For underwater applications

For fast and constant motion

Long service life

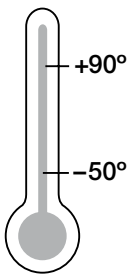
When to use it?

- For underwater applications and in liquid media
- For low loads
- For high speeds
- For extreme wear resistance in media-lubricated continuous operation

When not to use it?

- When temperatures are continuously higher than +90 °C
  ▶ **iglidur® UW500, page 313**
- When high loads are required
  ▶ **iglidur® H370, page 347**
  ▶ **iglidur® UW500, page 313**
  ▶ **iglidur® X, page 153**
- When only dry operation is feasible
  ▶ **iglidur® J, page 89**

Temperature



Product range

2 types
Ø 3–20 mm
more dimensions
on request

iglidur® UW | Application Examples

Typical sectors of industry and application areas

- Fluid technology etc.

Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ **www.igus.co.uk/iglidur-applications**

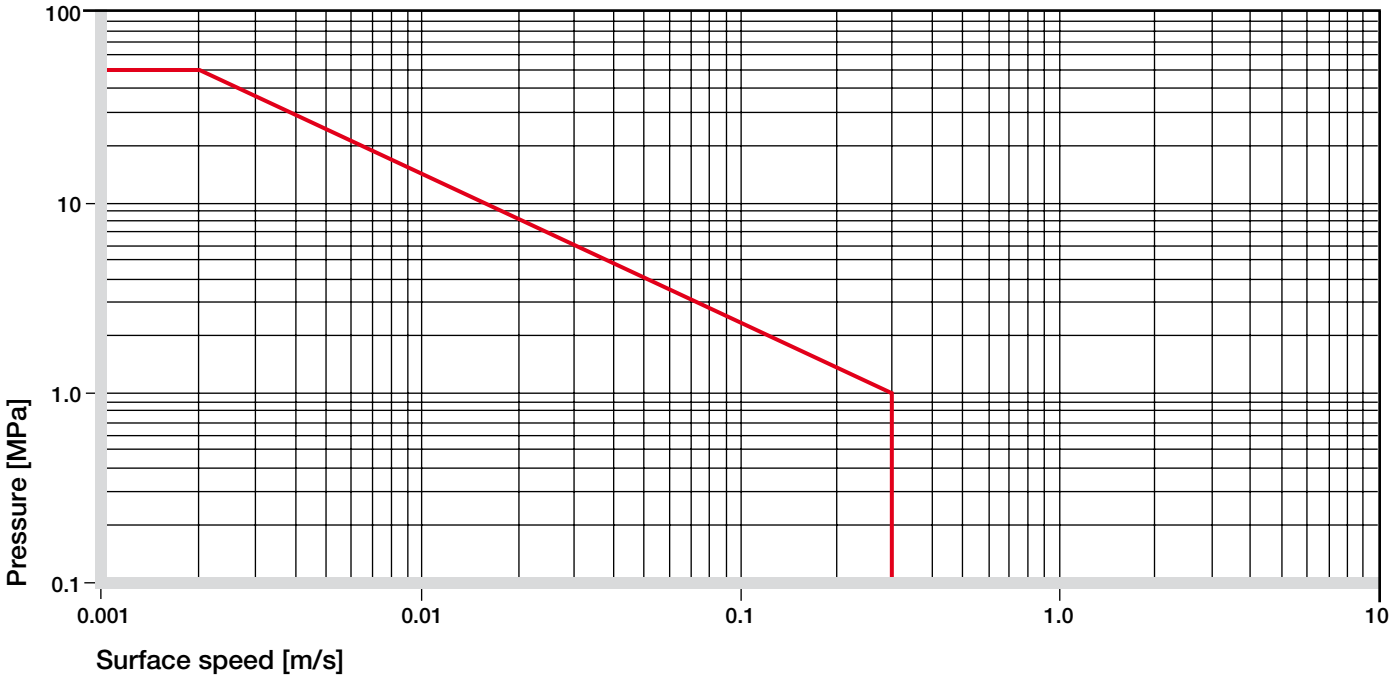
▶ **www.igus.co.uk/underwater-powerpump**

iglidur® UW | Technical Data

Material data			
General properties	**Unit**	**iglidur® UW**	**Testing method**
Density	**g/cm³**	1,52	
Colour		black	
Max. moisture absorption at +23 °C/50 % r. h.	**% weight**	0.2	DIN 53495
Max. moisture absorption	**% weight**	0.8	
Coefficient of sliding friction, dynamic against steel	**µ**	0,15–0,35	
pv value, max. (dry)	**MPa · m/s**	0,11	
Mechanical properties			
Modulus of elasticity	**MPa**	9.600	DIN 53457
Tensile strength at +20 °C	**MPa**	90	DIN 53452
Compressive strength	**MPa**	70	
Max. recommended surface pressure (+20 °C)	**MPa**	40	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+110	
Max. short term ambient temperature[1)]	**°C**	+140	
Min. application temperature	**°C**	–50	
Thermal conductivity	**W/m · K**	0,60	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	6	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$< 10^5$	DIN IEC 93
Surface resistance	**Ω**	$< 10^5$	DIN 53482

[1)] Without additional load, no sliding movement; relaxation possible
[2)] The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact component.
[3)] With respect to the use of the material in direct contact with water, it has to be pointed out that all results have been attained under laboratory conditions DW (demineralised water). We therefore recommend custom-designed tests under real application conditions.

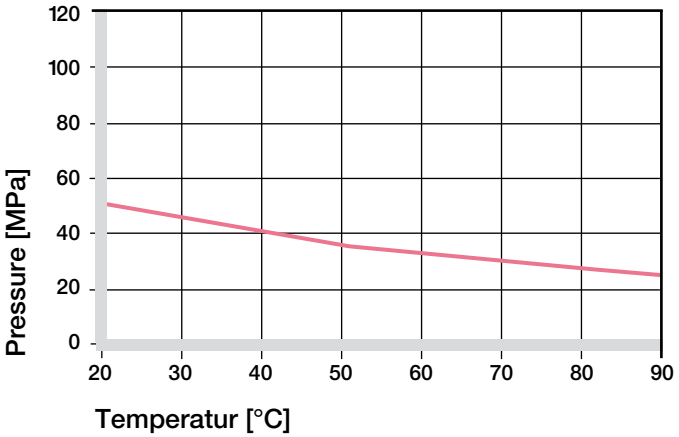
Table 01: Material data



Graph 01: Permissible pv values for iglidur® UW with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

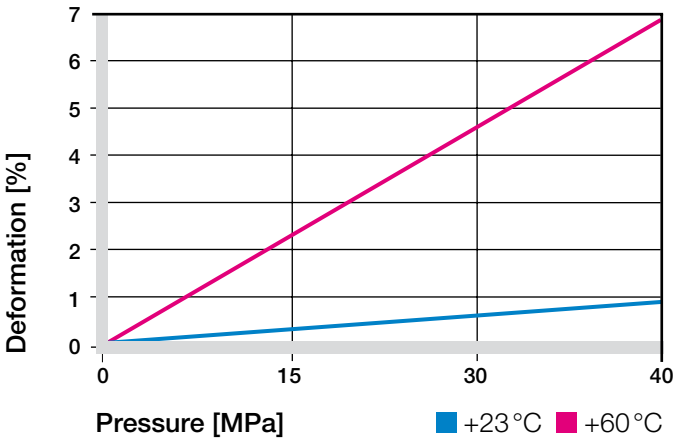
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® UW plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90 °C the permissible surface pressure is almost 25 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (50 MPa at +20 °C)

iglidur® UW was developed for underwater applications in which the maximum temperatures clearly lie below +100 °C. For application temperatures above this limit, the bearings made of iglidur® UW500 (▶ **page 313**) are available. Though iglidur® UW was developed for application in liquids, it is also suitable for dry operation. This one is particularly important in applications that call for both dry and wet operations. These applications can be seen often in practice. The features of the bearings made of iglidur® UW described in this section apply to the dry operation. Unless it is expressly mentioned otherwise. Graph 02 shows the permissible bearing loads at the respective temperatures. It can be said that iglidur® UW plain bearings are not very suitable for high loads. Normally in underwater applications there is no question of high loads being present. It is also important to note that the wear rate increases significantly from loads of 5 MPa (Graph 03).

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® UW is excellent in both dry and wet operations. Through a hydrodynamic lubrication, attained under water with high speeds, surface speeds far above 2 m/s can be achieved.

In dry operation the iglidur® UW bearings can be used anyhow up to 1.5 m/s on the short term.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0,5	0,4	2
Short term	1,5	1,1	3

Table 02: Maximum running speed

Temperatures

As stated earlier, iglidur® UW plain bearings are recommended for the low temperature range. The bearing temperature can be up to 90 °C, although the frictional heat must also be considered here, especially when running dry. In underwater applications, the fluid aids heat dissipation, so in this case the temperature of the fluid is of greater importance.

▶ Application Temperatures, **page 46**

iglidur® UW	Application temperature
Minimum	–50 °C
Max. long term	+90 °C
Max. short term	+110 °C
Add. securing is required from	+80 °C

Table 03: Temperature limits

Friction and Wear

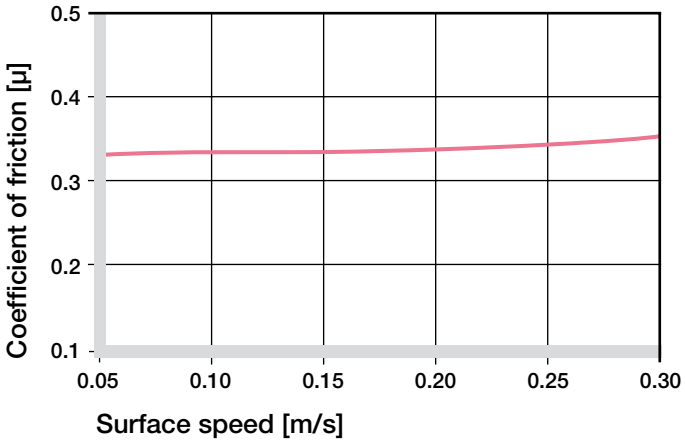
In dry operation the coefficient of friction rises up to 0.4 with low loads. With higher loads, it lowers to 0.1. The surface finishes of the shafts should not be extremely smooth in order to prevent a high adhesion effect and the entailing increases in the coefficient of friction.
Please contact us for the specifications of shaft surface finishes in underwater applications.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**

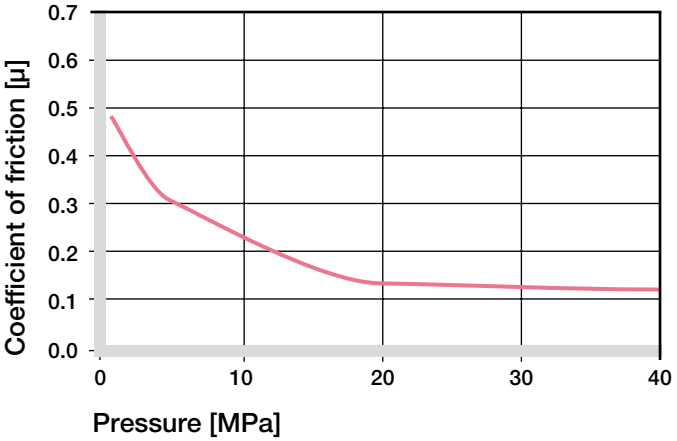
Shaft Materials

For low loads with rotation, the combinations achieve the best wear values with the stainless steels X90 and V2A. The conditions shift with increasing loads.
Graph 08 shows that this is more varied with increasing loads.

▶ Shaft Materials, **page 51**



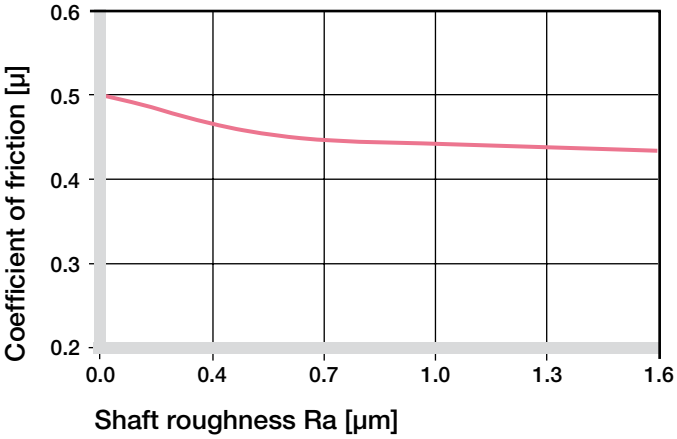
Graph 04: Coefficient of friction as a function of the running speed, p = 0,75 MPa



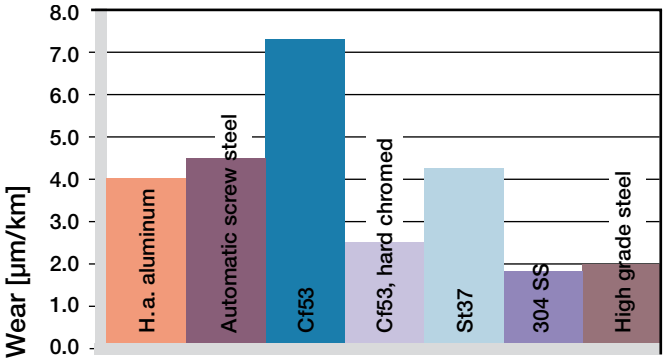
Graph 05: Coefficient of friction as a function of the pressure, v = 0,01 m/s

iglidur® UW	Dry	Greases	Oil	Water
C. o. f. µ	0,15–0,35	0,09	0,04	0,04

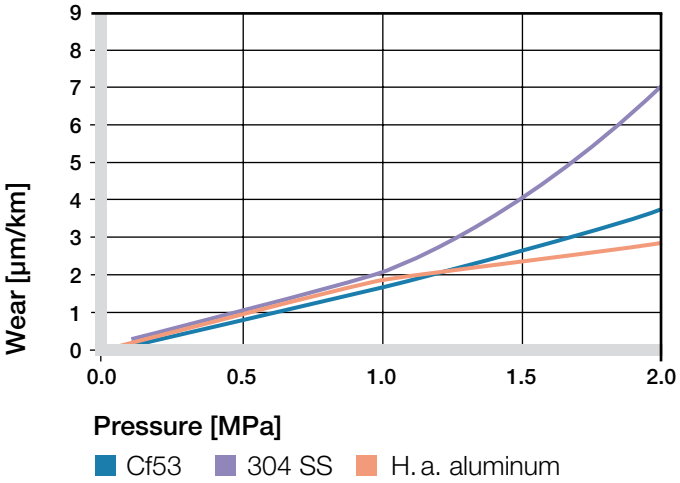
Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)



Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0,75 MPa, v = 0,5 m/s



Graph 08: Wear with different shaft materials in rotational applications

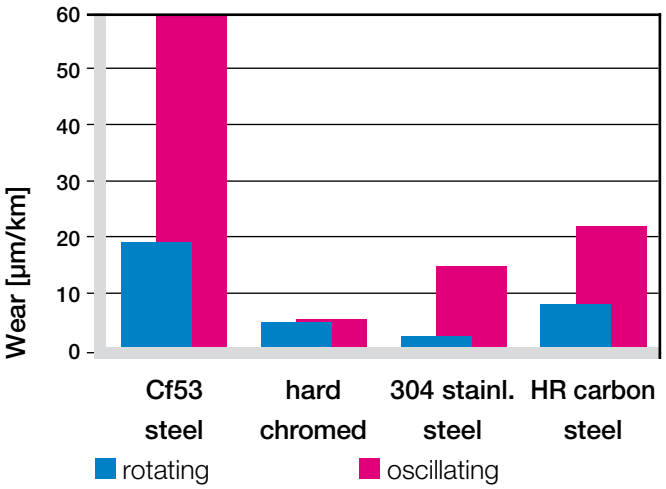


Abb. 09: Wear for rotating and oscillating applications with different shaft materials, p = 2 MPa

Additional Properties

Chemical Resistance

iglidur® UW bearings are resistant to diluted alkalis and very weak acids as well as to solvents and all kinds of lubricants.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings of iglidur® UW are radiation resistant to a radiation intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® UW plain bearings are resistant to the impact of UV radiation.

Vacuum

Applications in a vacuum are only possible to a limited extent. Only dehumidified bearings of iglidur® UW should be tested in a vacuum.

Electrical Properties

iglidur® UW plain bearings are electrically conductive.

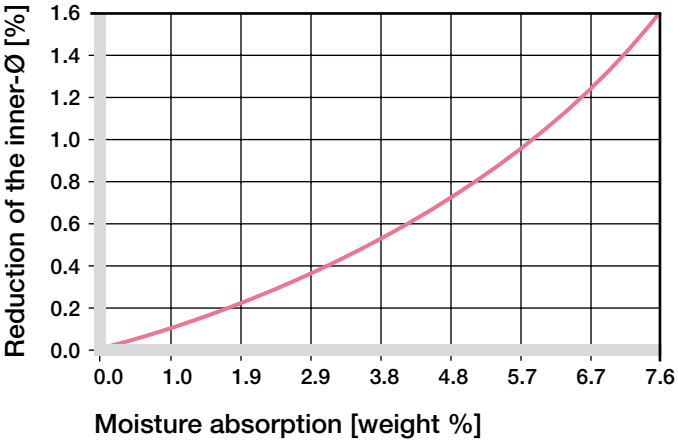
Volume resistance	$< 10^5$ Ωcm
Surface resistance	$< 10^5$ Ω 10

Moisture Absorption

The humidity absorption of iglidur® UW bearings amounts to about 0,2 % in standard climatic conditions. The saturation limit in water is 0,8 %. These values are so low that a moisture expansion need to be considered only in extreme cases.

Maximum moisture absorption	
At +23 °C/50 % r. h.	0,2 % weight
Max. moisture absorption	0,8 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® UW bearings are standard bearings for shafts with h-tolerance (recommended minimum h9).
After the installation in a housing bore with H7 tolerance, the inner diameter of the bearing automatically adjusts to the E10 tolerance.

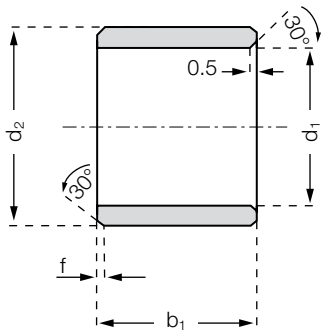
▶ Testing Methods, **page 55**

Diameter d1 [mm]			Shaft h9 [mm]	iglidur® UW E10 [mm]	Housing H7 [mm]
	up to	3	0–0,025	+0,014 +0,054	0 +0,010
> 3	to	6	0–0,030	+0,020 +0,068	0 +0,012
> 6	to	10	0–0,036	+0,025 +0,083	0 +0,015
> 10	to	18	0–0,043	+0,032 +0,102	0 +0,018
> 18	to	30	0–0,052	+0,040 +0,124	0 +0,021
> 30	to	50	0–0,062	+0,050 +0,150	0 +0,025
> 50	to	80	0–0,074	+0,060 +0,180	0 +0,030
> 80	to	120	0–0,087	+0,072 +0,212	0 +0,035
> 120	to	180	0–0,100	+0,085 +0,245	0 +0,040

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

iglidur® UW | Product Range

Sleeve bearing



Order key

UWSM-0304-05

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® UW

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

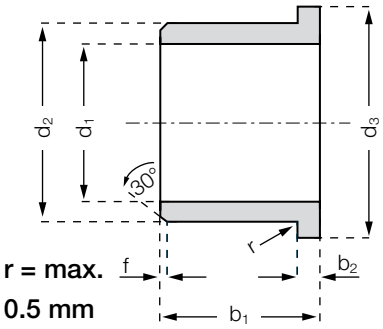
Part number	d1	d1-Tolerance*	d2	b1 h13
UWSM-0304-05	3,0	+0,014 +0,054	4,5	5,0
UWSM-0405-06	4,0	+0,020 +0,068	5,5	6,0
UWSM-0507-08	5,0	+0,020 +0,068	7,0	8,0
UWSM-0608-08	6,0	+0,020 +0,068	8,0	8,0
UWSM-0810-10	8,0	+0,025 +0,083	10,0	10,0
UWSM-1012-10	10,0	+0,025 +0,083	12,0	10,0
UWSM-1214-12	12,0	+0,032 +0,102	14,0	12,0

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/uw | order example part number UWSM-0304-05

iglidur® UW | Product Range

Flange bearing



Order key

UWFM-0304-05

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- Material iglidur® UW

Dimensions according to ISO 3547-1 and special dimensions

Chamfer in relation to the d1

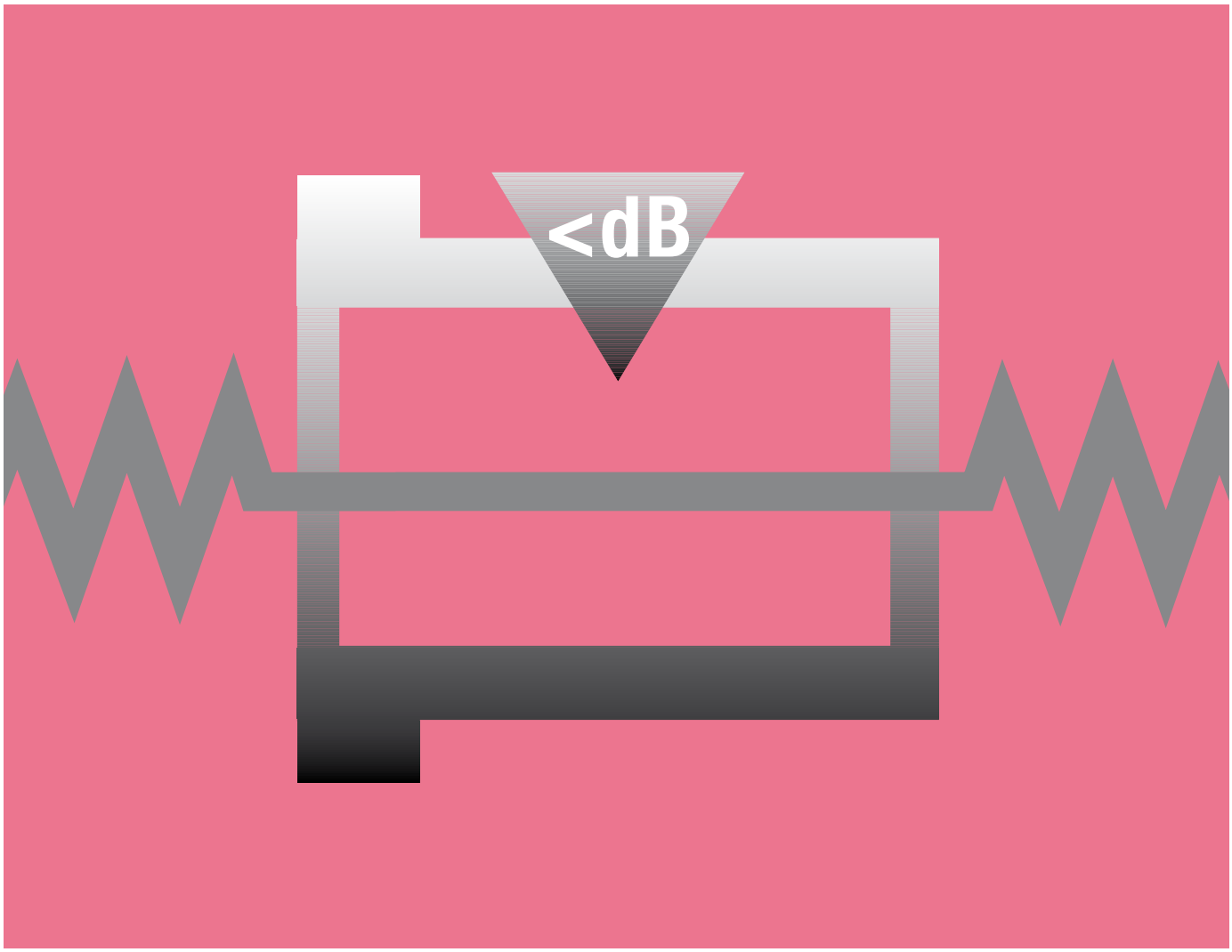
d1 [mm]:	Ø 1–6	Ø 6–12	Ø 12–30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2	d3	b1	b2
				d13	h13	–0,14
UWFM-0304-05	3,0	+0,014 +0,054	4,5	7,5	5	0,75
UWFM-0405-06	4,0	+0,020 +0,068	5,5	9,5	6	0,75
UWFM-0507-05	5,0	+0,020 +0,068	7,0	11,0	5	1
UWFM-0608-06	6,0	+0,020 +0,068	8,0	12,0	6	1
UWFM-0810-10	8,0	+0,025 +0,083	10,0	15,0	10	1
UWFM-1012-10	10,0	+0,025 +0,083	12,0	18,0	10	1
UWFM-1214-12	12,0	+0,032 +0,102	14,0	20,0	12	1
UWFM-1618-17	16,0	+0,032 +0,102	18,0	24,0	17	1
UWFM-2023-21	20,0	+0,040 +0,124	23,0	30,0	21,5	1,5

* after pressfit. Testing methods ▶ page 55

delivery time available from stock | prices price list online www.igus.co.uk/en/uw | order example part number UWFM-0304-05



iglidur® B – the flexible material

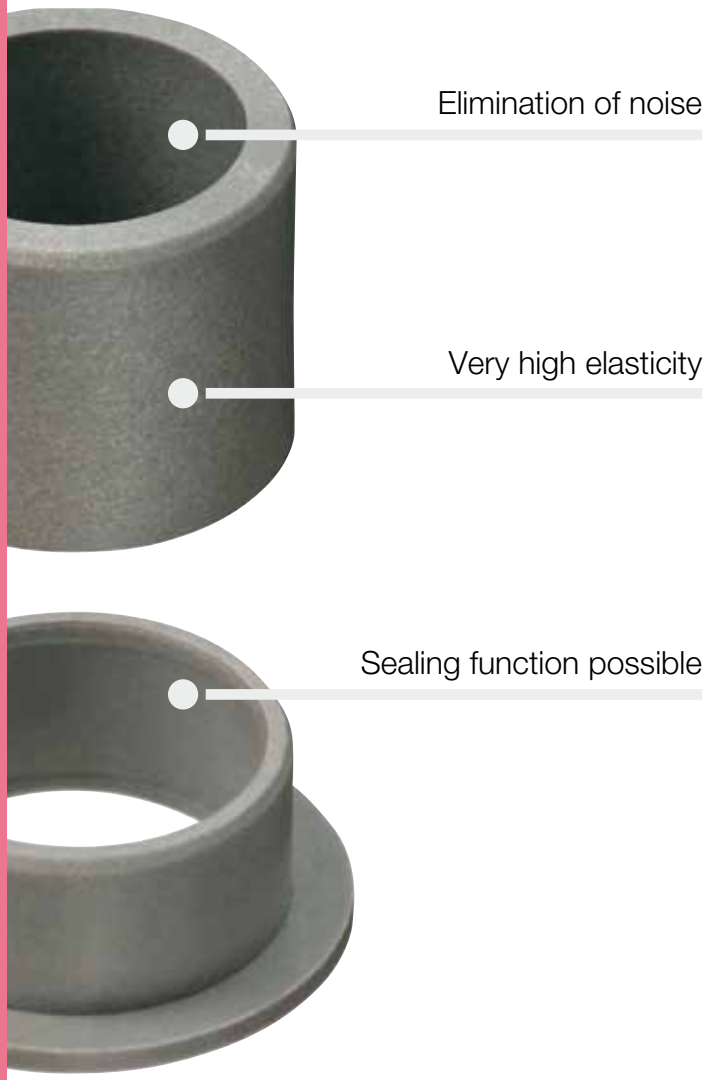
Elimination of noise

Very high elasticity

Sealing function possible

iglidur® B

The flexiable material. Vibration dampening is the salient feature of the iglidur® B bearings, which are also well-suited for edge loads at low forces.



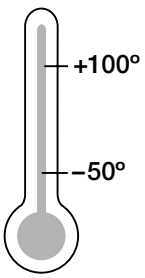
When to use it?

- When maximum vibration dampening is required
- When sealing function has to be integrated
- When high edge loads occur

When not to use it?

- In applications with high atmospheric humidity
  ▶ **iglidur® J, page 89**
- When a cost-effective universal bearing is required
  ▶ **iglidur® R, page 249**
- When the highest wear resistance is required
  ▶ **iglidur® J, page 89**

Temperature



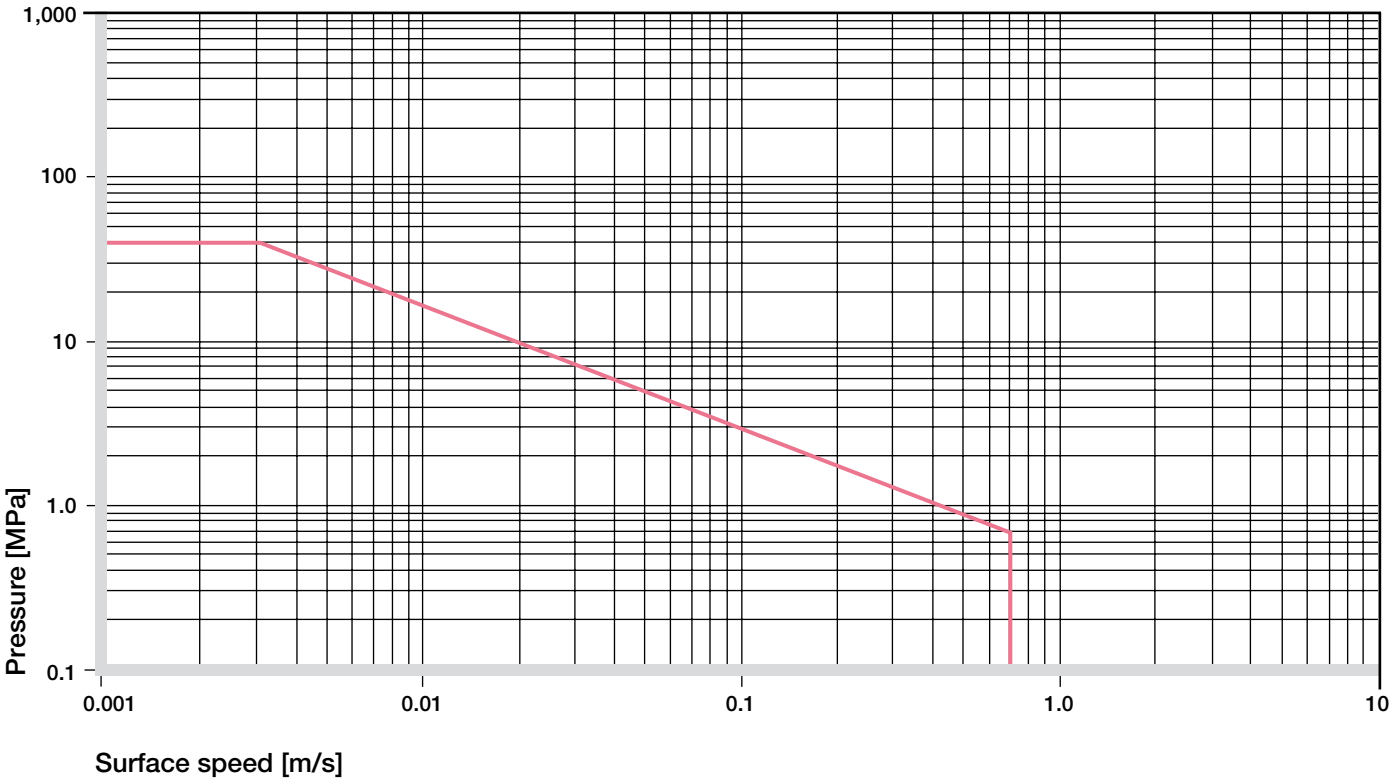
Product range

on request

Material data			
General properties	**Unit**	**iglidur® B**	**Testing method**
Density	**g/cm³**	1.15	
Colour		grey	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	1.0	DIN 53495
Max. moisture absorption	**% weight**	6.3	
Coefficient of sliding friction, dynamic against steel	**µ**	0.18–0.28	
pv value, max. (dry)	**MPa · m/s**	0.15	
Mechanical properties			
Modulus of elasticity	**MPa**	1,800	DIN 53457
Tensile strength at +20 °C	**MPa**	55	DIN 53452
Compressive strength	**MPa**	20	
Max. recommended surface pressure (+20 °C)	**MPa**	40	
Shore D hardness		69	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+100	
Max. short term application temperature	**°C**	+130	
Max. short term ambient temperature[1)]	**°C**	+150	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	12	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{10}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{9}$	DIN 53482

[1)] Without additional load; no sliding movement; relaxation possible

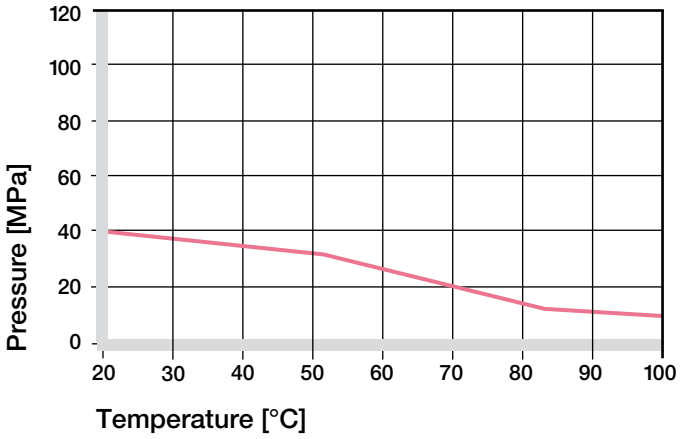
Tabelle 01: Material data



Graph 01: Permissible pv values for iglidur® B with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

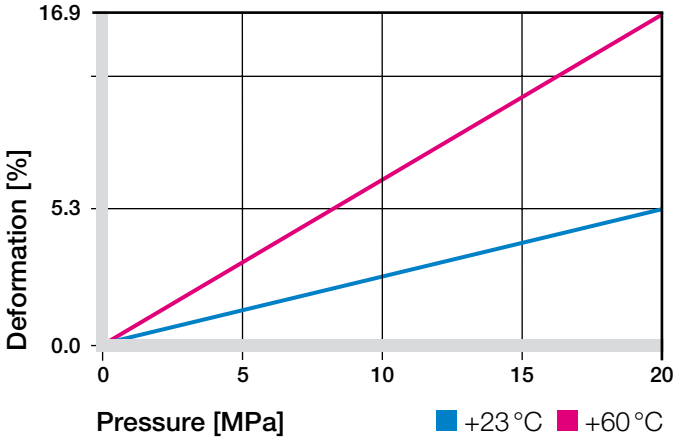
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® B plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +100°C the permissible surface pressure is almost 10 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (40 MPa at +20 °C)

The compressive strength of the iglidur® B bearings is on the one hand low, but on the other, is an important property of the bearing. They are mainly used where vibration dampening and acoustic separation are required. The deformation at 40 MPa and under ambient temperature is 5.3 % (Graph 03).

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

iglidur® B bearings can be continuously used up to 0.7 m/s. The frictional heat provides the speed limits.
In practice, though, this temperature level is rarely reached, due to varying application conditions.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.7	0.5	2
Short term	1	0.7	3

Table 02: Maximum running speed

Temperatures

The operating temperature of the iglidur® B bearings is limited to +100°C. From +50 °C onward, the very soft bearing should be mechanically fastened, so that the danger of bushings creeping out of the bores is avoided. The wear resistance too declines disproportionately from +70 °C.

▶ Application Temperatures, **page 46**

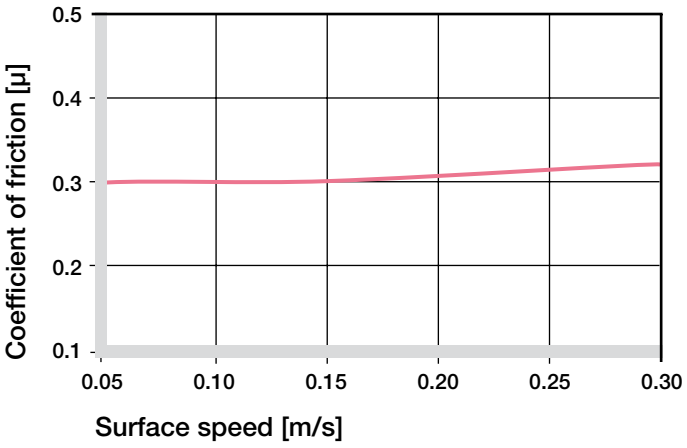
iglidur® B	Application temperature
Minimum	–40 °C
Max. long term	+100 °C
Max. short term	+130 °C
Add. securing is required from	+50 °C

Table 03: Temperature limits

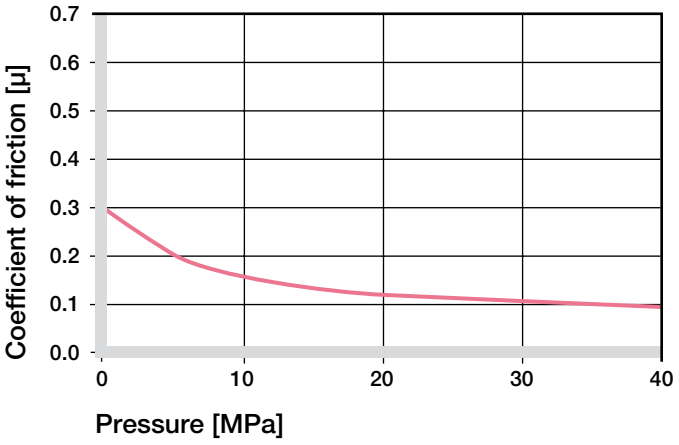
Friction and Wear

The coefficients of friction increase slightly with the speed and decrease with the load. Surface finishes of the shaft between 0.4 and 0.6 Ra are ideal. The iglidur® B bearings assume a center position in wear resistance. As far as the bearing load is not too high, the attained coefficients of wear are pretty good. An increase in load results in a disproportionate increase in abrasion.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa



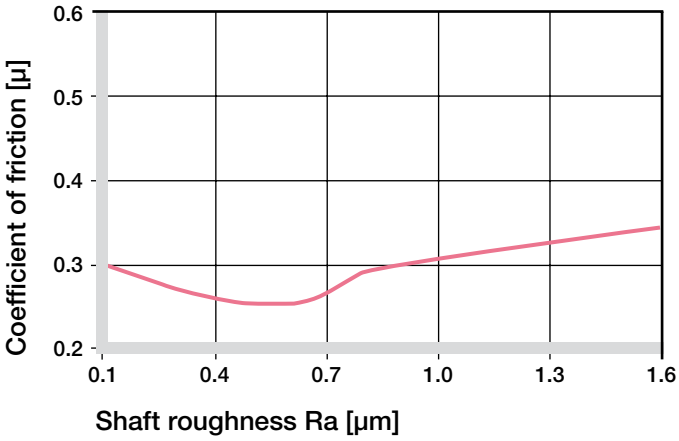
Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

Shaft Materials

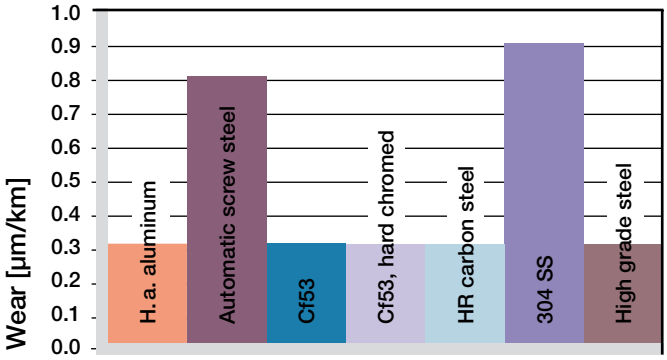
The influence of the shaft is not very large in wear resistance.

Graph 07 and 08 clarify that very similar wear data are attained with different shaft materials. If high operational performances are expected, the bearing load should not be too high.

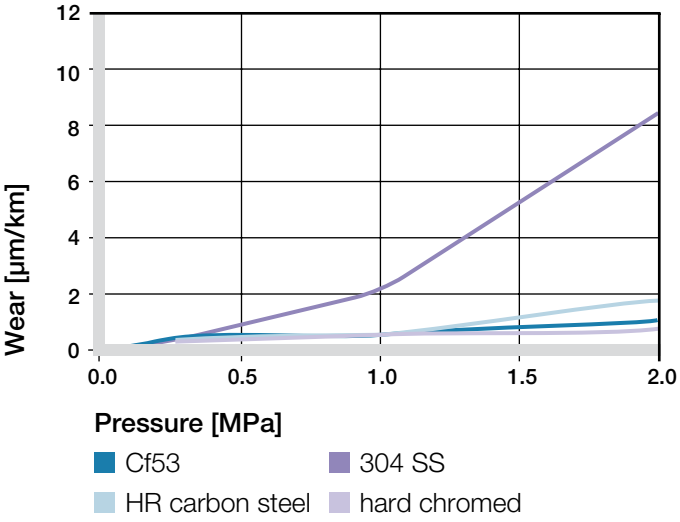
▶ Shaft Materials, **page 51**



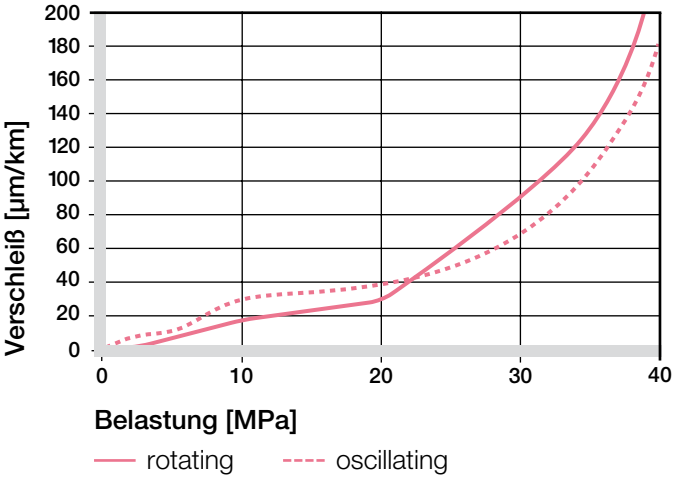
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® B	Dry	Greases	Oil	Water
C. o. f. µ	0.18–0.28	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® B plain bearings are not very resistant to chemicals. Where chemical resistance is required, other iglidur® materials featuring better characteristics should be used.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	–
Greases, oils without additives	–
Fuels	–
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	–
Strong alkalines	–

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings of iglidur® B are radiation resistant to a radiation intensity of $3 \cdot 10^2$ Gy.

UV Resistance

iglidur® B plain bearings are not resistant to the impact of UV radiation.

Vacuum

Use of iglidur® B plain bearings is limited in a vacumn. Only dehumidified bearings should be tested.

Electrical Properties

iglidur® B plain bearings are electrically insulating.

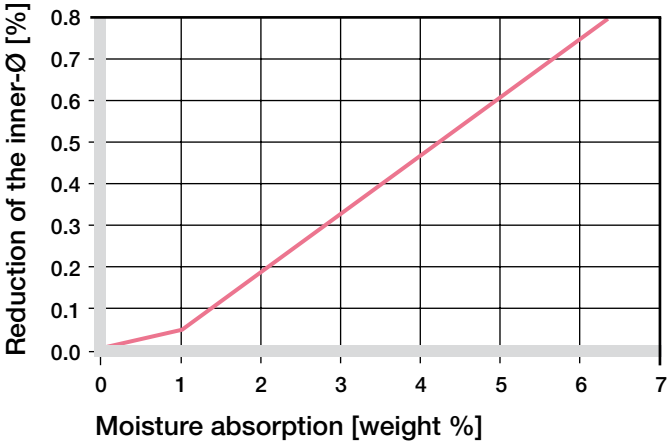
Volume resistance	$> 10^{10}$ Ωcm
Surface resistance	$> 10^9$ Ω 10

Moisture Absorption

The moisture absorption is relatively high and must be considered in the selection and design.

Maximum moisture absorption	
At 2+3 °C/50 % r.h.	1.0 % weight
Max. moisture absorption	6.3 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® B plain bearings are standard bearings for shafts with a h tolerance (h9 recommended at least).The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter of the bearings is automatically adjusted to an E10 tolerance.

▶ Testing Methods, **page 55**

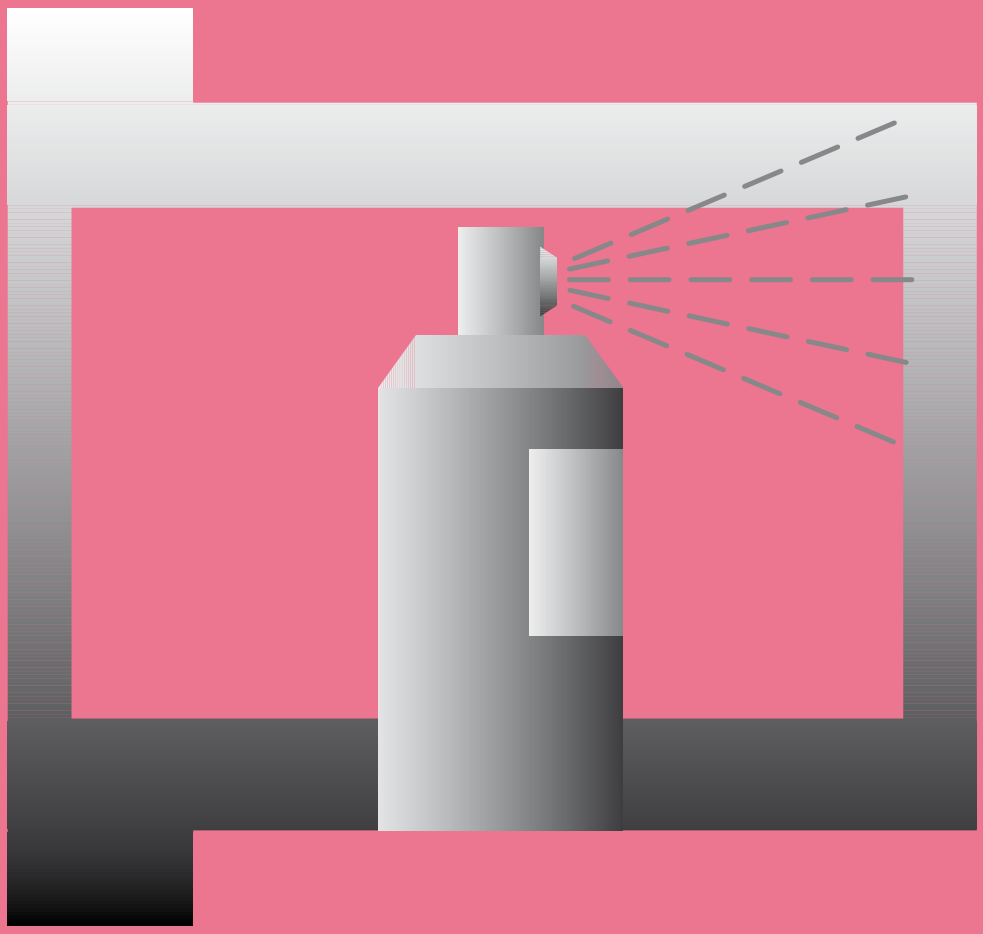
Diameter d1 [mm]	Shaft h9 [mm]	iglidur® B D11 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.020 +0.080	0 +0.010
> 3 to 6	0–0.030	+0.030 +0.105	0 +0.012
> 6 to 10	0–0.036	+0.040 +0.130	0 +0.015
> 10 to 18	0–0.043	+0.050 +0.160	0 +0.018
> 18 to 30	0–0.052	+0.065 +0.195	0 +0.021
> 30 to 50	0–0.062	+0.080 +0.240	0 +0.025
> 50 to 80	0–0.074	+0.100 +0.290	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Product Range

iglidur® B plain bearings are manufactured to special order.

My Sketches



iglidur® C – free from PTFE and silicone

Dry-running

Good abrasion resistance

Maintenance-free

iglidur® C

Free from PTFE and silicone. In iglidur® C, the use of Teflon and silicone as lubricants is deliberately avoided. However the bearings display excellent wear resistance at low loads.

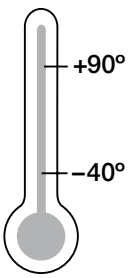
When to use it?

- When PTFE and silicone are not allowed in your application
- For applications with low speed
- If you need dirt-resistant bearings
- If you need maintenance-free, self-lubricating bearings

When not to use it?

- When highest wear resistance is required
  ▶ **iglidur® W300, page 131**
- When low coefficients of friction are required
  ▶ **iglidur® J, page 89**
  ▶ **iglidur® L250, page 239**
- If a cost-effective option is requested
  ▶ **iglidur® M250, page 107**
- When low moisture absorption is required
  ▶ **iglidur® R, page 249**

Temperature



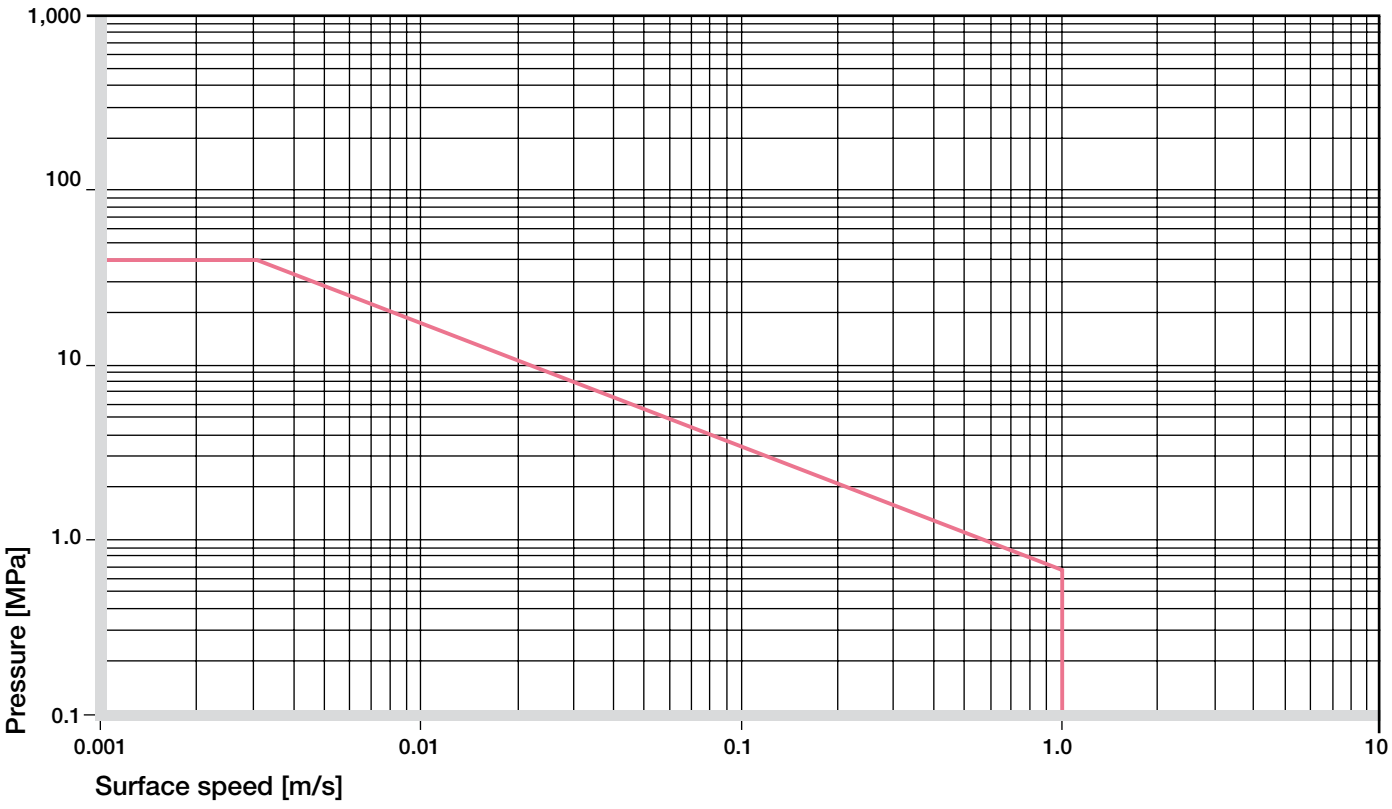
Product range

on request

Material data			
General properties	**Unit**	**iglidur® C**	**Testing method**
Density	**g/cm³**	1.1	
Colour		off white	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	1.0	DIN 53495
Max. moisture absorption	**% weight**	6.9	
Coefficient of sliding friction, dynamic against steel	**µ**	0.17–0.25	
pv value, max. (dry)	**MPa · m/s**	0.10	
Mechanical properties			
Modulus of elasticity	**MPa**	1,900	DIN 53457
Tensile strength at +20 °C	**MPa**	60	DIN 53452
Compressive strength	**MPa**	30	
Max. recommended surface pressure (+20 °C)	**MPa**	40	
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+130	
Maximum short term ambient temperature[1)]	**°C**	+150	
Min. application temperature	**°C**	–40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	15	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{10}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{9}$	DIN 53482

[1)] Without additional load; no sliding movement; relaxation possible

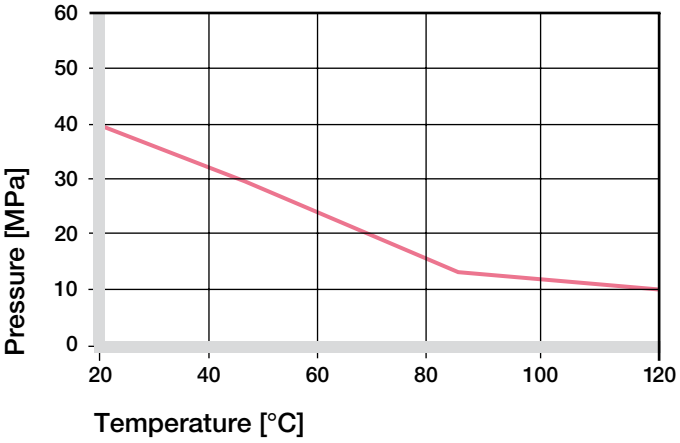
Table 01: Material data



Graph 01: Permissible pv values for iglidur® C with a wall thickness of 1 mm dry running against a steel shaft at +20 °C, mounted in a steel housing

Mechanical Properties

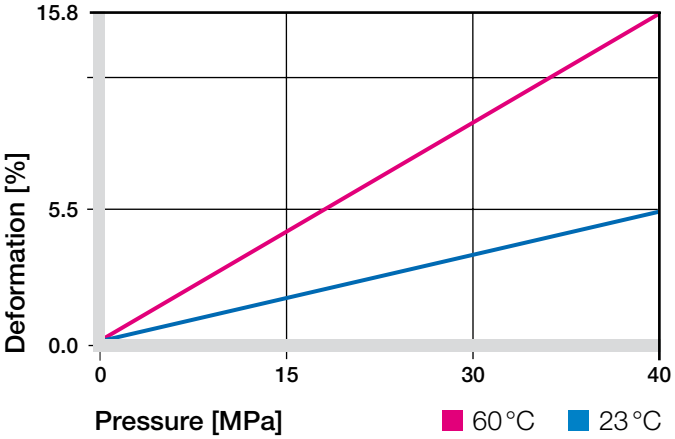
The recommended maximum surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. With increasing temperatures, the compressive strength of iglidur® C plain bearings decreases. The Graph 02 shows this inverse relationship. However, at the longterm maximum temperature of +90 °C the permissible surface pressure is almost 10 MPa.



Graph 02: Recommended maximum surface pressure as a function of temperature (40 MPa at +20 °C)

Though iglidur® C is a very soft material, it also has a maximum surface pressure limit of 40 MPa. The high elasticity makes the bearing suitable for vibrations and edge loads.

▶ Surface Pressure, **page 43**



Graph 03: Deformation under pressure and temperature

Permissible Surface Speeds

Though important solid lubricants have been deliberately avoided in the development of the iglidur® C, the bearings are very wear resistant and for this reason suitable also for continuous movements at medium surface speeds. Though speeds up to 1.5 m/s can be achieved short term, for general long term applications the speeds should be below 05 m/s.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	1	0.7	2
Short term	1.5	1.1	3

Table 02: Maximum running speed

Temperatures

The short-term maximum application temperature is +170 °C. However no real loads are possible at this temperature. Therefore it would be reasonable to limit the operating temperature to about +120 °C.

Note that the bearing should be mechanically secured in the housing from temperatures of +70 °C to prevent the bearing coming out of the housing.

▶ Application Temperatures, **page 46**

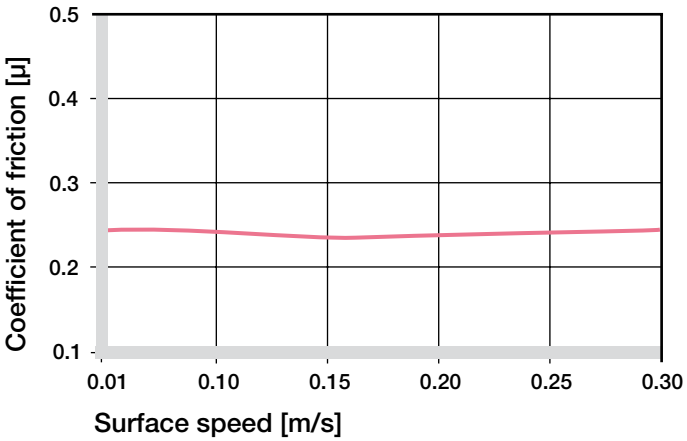
iglidur® C	Application temperature
Minimum	–40 °C
Max. long term	+90 °C
Max. short term	+130 °C
Add. securing is required from	+40 °C

Table 03: Temperature limits

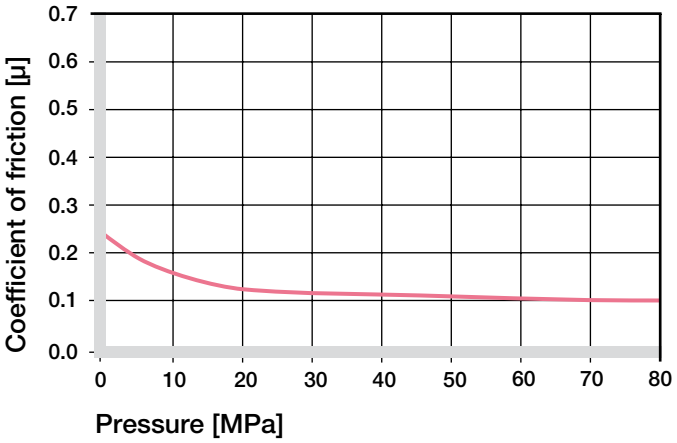
Friction and Wear

The coefficient of friction of the iglidur® C bearing is dependent to a large degree on the shaft surface finish. Even though PTFE and silicone have been designed out of this material, iglidur® C still gives very low coefficients of friction. Similarly the wear of the bearing is very good in applications with rotating or pivoting motions with low loads.

▶ Coefficients of Friction and Surfaces, **page 48**
▶ Wear Resistance, **page 49**



Graph 04: Coefficient of friction as a function of the running speed, p = 0.75 MPa

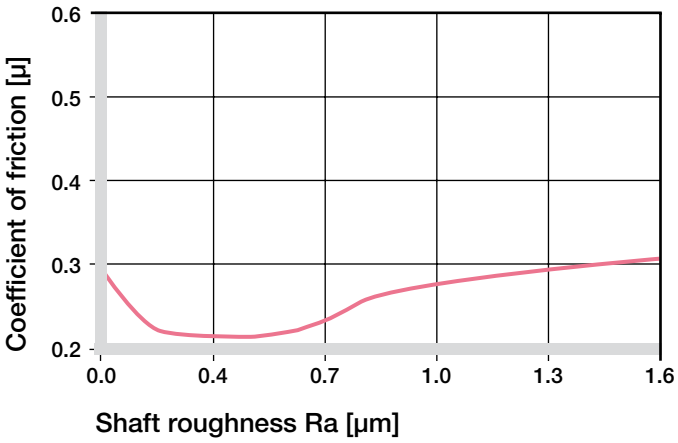


Graph 05: Coefficient of friction as a function of the pressure, v = 0.01 m/s

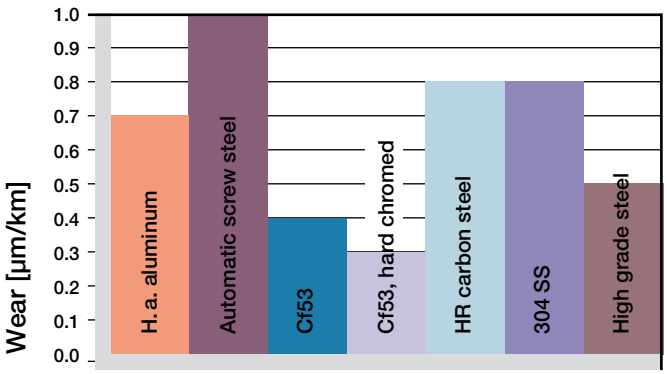
Shaft Materials

Graph 07 clearly shows how critical the choice of shaft material is. Though all results of this rotation test under the load of 0.75 MPa can be read as excellent, the difference is significant.
Graph 08 shows eventually that this difference rises still further with increasing loads.

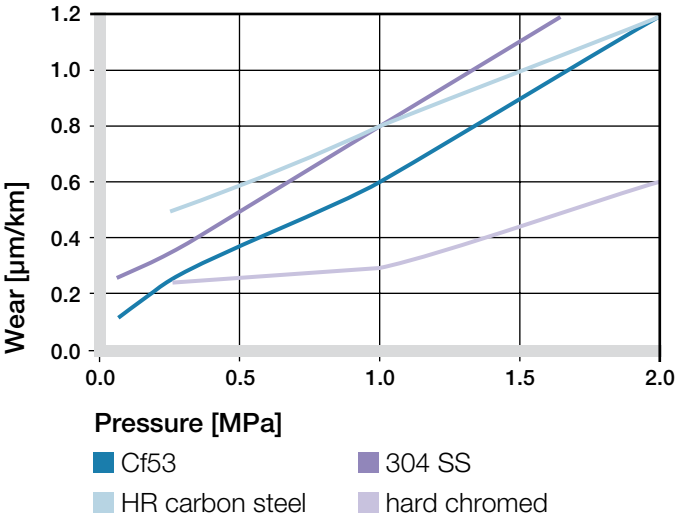
▶ Shaft Materials, **page 51**



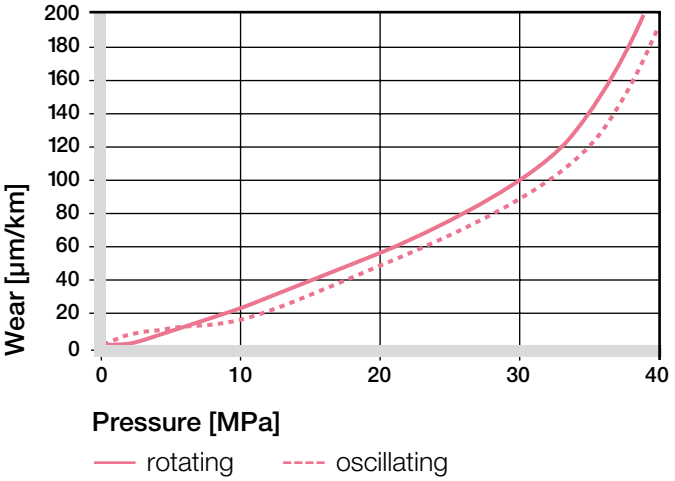
Graph 06: Coefficient of friction as function of the shaft surface (Cf53 hardened and ground steel)



Graph 07: Wear, rotating with different shaft materials, pressure, p = 0.75 MPa, v = 0.5 m/s



Graph 08: Wear with different shaft materials in rotational operation, as a function of the pressure



Graph 09: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the pressure

iglidur® C	Dry	Greases	Oil	Water
C. o. f. µ	0.17–0,25	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1 µm, 50 HRC)

Additional Properties

Chemical Resistance

iglidur® C plain bearings are resistant to detergents, greases, oils, diluted alkalines and weak acids.

▶ Chemical Table, **page 974**

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Radiation Resistance

Plain bearings of iglidur® C are radiation resistant up to a radiation intensity of $2 \cdot 10^4$ Gy. Higher radiation affects the material and can result in a loss of important mechanical characteristics.

UV Resistance

iglidur® C plain bearings are not resistant to UV radiation. For applications in outdoor areas, or in cases of other intensive radiation, adequate protection against direct radiation must be provided.

Vacuum

When used in a vacuum environment, the iglidur® C plain bearings release moisture as a vapour. Therefore, only dehumidified bearings are suitable in a vacuum environment.

Electrical Properties

iglidur® C plain bearings are electrically insulating.

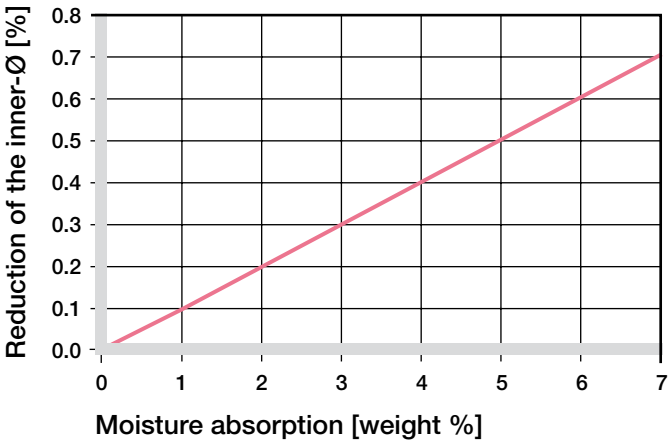
Volume resistance	$> 10^{10}$ Ωcm
Surface resistance	$> 10^9$ Ω 10

Moisture Absorption

The moisture absorption of iglidur® C plain bearings is approx. 7 % when saturated in water, and this needs to be taken into account if this material is to be used in wet enviroments.

Maximum moisture absorption	
At +23 °C/50 % r.h.	1.0 % weight
Max. moisture absorption	6.9 % weight

Table 06: Moisture absorption



Graph 10: Effect of moisture absorption on plain bearings

Installation Tolerances

iglidur® C plain bearings are meant to be oversized before being pressfit. The bearings are designed for pressfit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter is adjusted to meet our specified tolerances.

▶ Testing Methods, **page 55**

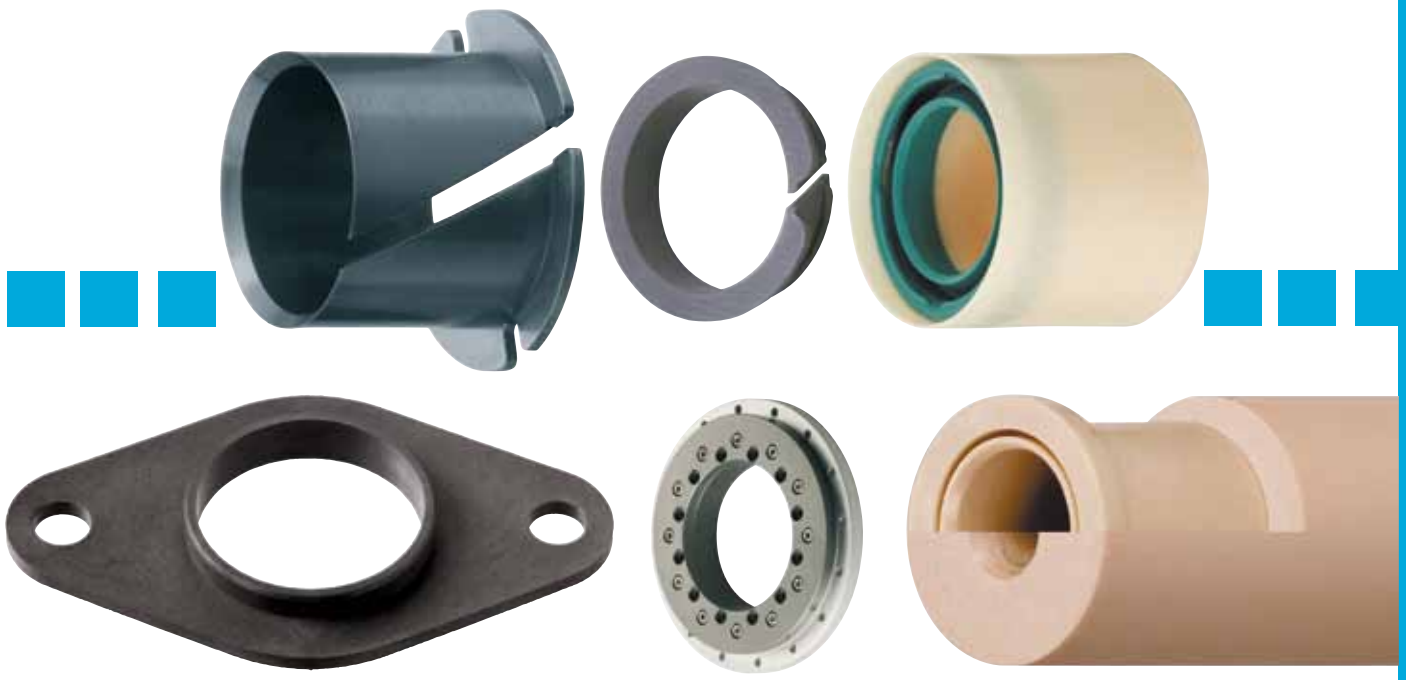
Diameter d1 [mm]	Shaft h9 [mm]	iglidur® C D11 [mm]	Housing H7 [mm]
up to 3	0–0.025	+0.020 +0.080	0 +0.010
> 3 to 6	0–0.030	+0.030 +0.105	0 +0.012
> 6 to 10	0–0.036	+0.040 +0.130	0 +0.015
> 10 to 18	0–0.043	+0.050 +0.160	0 +0.018
> 18 to 30	0–0.052	+0.065 +0.195	0 +0.021
> 30 to 50	0–0.062	+0.080 +0.240	0 +0.025
> 50 to 80	0–0.074	+0.100 +0.290	0 +0.030

Table 07: Important tolerances for plain bearings according to ISO 3547-1 after pressfit

Product Range

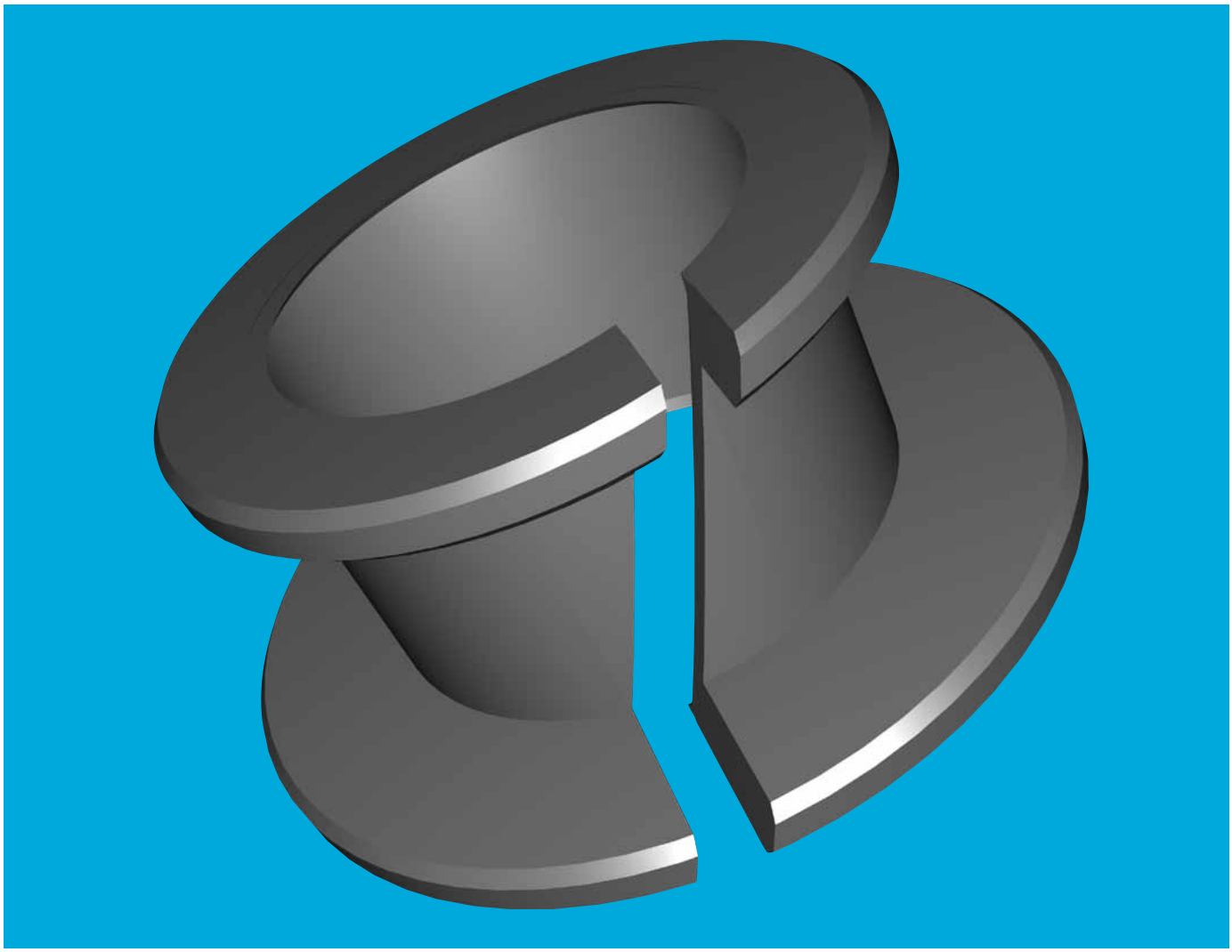
iglidur® C plain bearings are produced to special order.

2. igidur®



Additional products: clip & slewing ring bearings, stock bars and much more…

...plastics



iglidur® Clip Bearings

- Standard range from stock
- Easy to fit
- Increased security with the double flange design
- Good wear resistance
- Maintenance-free and predictable lifetime
- Material iglidur® M250
- Special dimensions are possible

iglidur® Clip Bearings

iglidur® clip bearings are designed specifically for putting shafts through sheet metal. For this reason, the bearings have flanges located on both ends. The bearings are secured in the sheet metal plate on both sides after fitting.

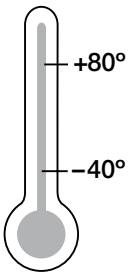
When to use it?

- When a sheet metal bearing is required
- When the bearing should be fitted into a drilled or punched hole with a wide tolerance
- For rotating, linear and pivoting movements
- When a quick-fitting bearing solution is sought

When not to use it?

- When continuous temperatures of above +80 °C occur
  ▶ **iglidur® G, page 61**
- When a high-precision bearing is needed
  ▶ **iglidur® J, page 89**
- When the sheet metal is more than 4 mm thick
  ▶ **iglidur® Clips2, page 509**
  ▶ **iglidur® MKM, page 513**
- When extremely high surface pressures occur
  ▶ **iglidur® G, page 61**

Temperature



Product range

1 style
Ø 3–12 mm
more dimensions
on request

iglidur® Clip Bearings | Technical Data

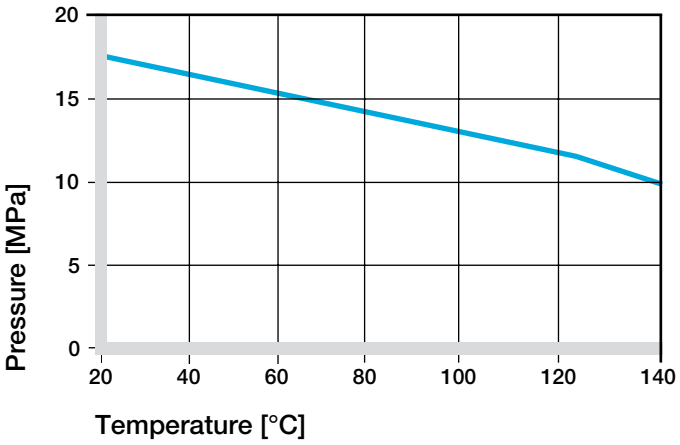
Main Criteria

iglidur® clip bearings are designed specifically for putting shafts through sheet metal. For this reason, the bearings have flanges located on both ends. The bearings are secured in the sheet metal plate on both sides after fitting. The clip bearings have an angled slot which allows the bearings to be fitted from one side. After fitting, the bearing expands and forms a lining for the bore in the metal plate. The shaft prevents the clip bearing from falling out the housing. Even during linear movement, the bearing cannot slide out of the housing. In addition, the lateral slot can compensate for bearing expansions due to temperature or moisture. During expansion, the slot width decreases, and changes to the bearing clearance are minimized. The flange diameter on the smaller side is made in such a way that housings with larger tolerances still provide sufficient security. iglidur® clip bearings are made of a plain bearing materials which gives strong wear resistance at average loads. The bearings are selflubricating and are designed to be used dry. If required, the bearings can be lubricated, as iglidur® M250 is resistant to all common lubricants.

Mechanical Properties

The permissible static pressure of iglidur® clip bearings at room temperature is 20 MPa. Due to the possibility of high tolerances in the housing bore, the clip bearing has a high compressive strength even for punched holes. For bearing surfaces that are very small, the vibration dampening properties and the resistance to edge loads are especially important.

▶ iglidur® M250, **page 107**



Graph 02: Recommended maximum surface pressure as a function of temperature (20 MPa at +20 °C)

Permissible Surface Speeds

Clip bearings are extremely wear resistant in slow rotating, oscillating, and linear movements. The maximum surface speeds for the different movements are the same as for the material iglidur® M250 (Table 02).
With lubrication the permissible speeds can be increased.

▶ Surface Speed, **page 45**

m/s	Rotating	Oscillating	Linear
Continuous	0.8	0.8	2.5
Short term	2	2	5

Table 02: Maximum running speed

Temperatures

For operating temperatures up to +80 °C iglidur® clip bearings display high wear resistance. Even in the cold, the plain bearings remain elastic and resistant to wear.

▶ Application Temperatures, **page 46**

iglidur® M250	Application temperature
Minimum	–40 °C
Max. long term	+80 °C
Max. short term	+170 °C

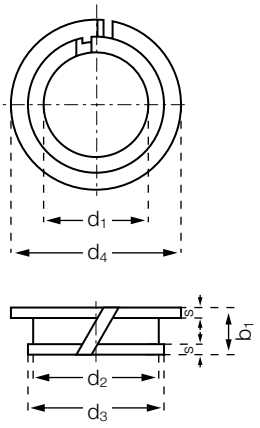
Table 03: Temperature limits

Installation

For installation, the plain bearings are press ed together on the side with the large flange. The angled slot makes the bearing spiral shaped so that it can be placed easily into the metal plate. The slot also compensates for expansions of the circumference. In this way, a tight clearance is possible with the clip bearings.
The recommended clearance allows a nominal size shaft to turn easily. The clip bearings should be fitted into a housing with a “H” class tolerance, up to H13. The clip bearing can also rotate within the housing bore.

iglidur® Clip Bearings | Product Range

Clip Bearings



Order key

MCM-06-015

- Sheet metal thickness
- Inner diameter d1
- Metric
- Clip Bearings
- Material iglidur® M250

Material:
iglidur® M250 ▶ page 107

Dimensions [mm]

Part number	d1	d2	d3	d4	s	b1
	D11*				–0.10	+ 0.20
MCM-06-015	6	7.2	7.8	11	0.6	3.2
MCM-03-02	3	4.2	4.8	6	0.6	3.2
MCM-04-02	4	5.2	5.9	7	0.6	3.2
MCM-05-02	5	6.2	6.8	8	0.6	3.2
MCM-06-02	6	7.2	7.8	11	0.6	3.2
MCM-08-02	8	9.6	10.4	13	0.8	3.6
MCM-09-02	9	10.6	11.4	14	0.8	3.6
MCM-10-02	10	11.6	12.4	15	0.8	3.6
MCM-10-025	10	11.6	12.4	15	0.8	4.1
MCM-12-02	12	13.6	14.4	17	0.8	3.6
MCM-16-02	16	17.6	18.4	21	0.8	3.6
MCM-03-03	3	4.2	4.8	6	0.6	4.2
MCM-04-03	4	5.2	5.9	7	0.6	4.2
MCM-05-03	5	6.2	6.8	8	0.6	4.2

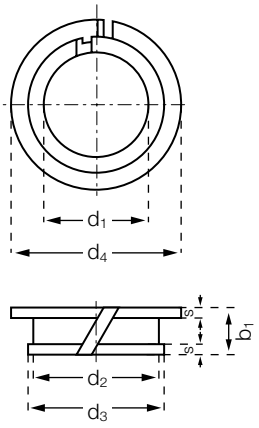
Part number	d1	d2	d3	d4	s	b1
	D11*				–0.10	+ 0.20
MCM-06-03	6	7.2	7.8	11	0.6	4.2
MCM-07-03	7	9	9.8	13	0.8	4.6
MCM-08-03	8	9.6	10.4	13	0.8	4.6
MCM-10-03	10	11.6	12.4	15	0.8	4.6
MCM-12-03	12	13.6	14.4	17	0.8	4.6
MCM-14-03	14	15.6	16.4	19	0.8	4.6
MCM-16-03	16	17.6	18.4	21	0.8	4.6
MCM-18-03	18	20	21	23	1.0	5.0
MCM-20-03	20	22	23	25	1.0	5.0
MCM-25-03	25	27	28	30	1.0	5.0
MCM-12-035	12	13.6	14.4	17	0.8	5.1
MCM-06-04	6	7.2	7.8	11	0.6	5.2
MCM-12-04	12	13.6	14.4	17	0.8	5.6
MCM-10-08	10	11.6	12.4	15	0.8	9.6

* d1 measurement is measured with a plug gauge after fitting into a reference housing d2 (+0.005)

delivery time available from stock | prices price list online www.igus.co.uk/en/clips | order example part number MCM-06-015

iglidur® Clip Bearings | Product Range | Inch

Clip Bearings



Order key

MCI-03-01

- Sheet metal thickness
- Inner diameter d1
- Inch
- Clip Bearings
- Material iglidur® M250

Material:
iglidur® M250 ▶ page 107

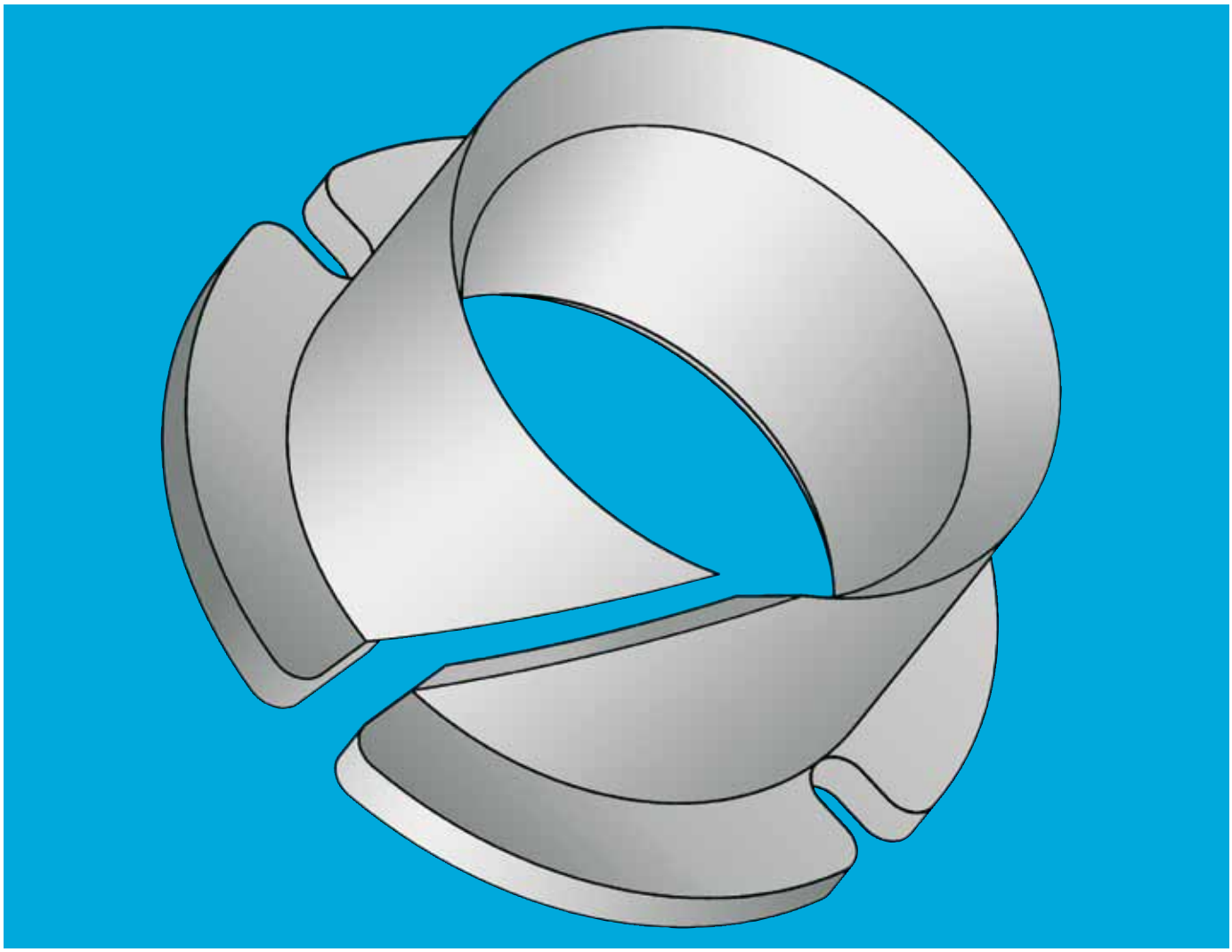
Dimensions [Inch]

Part number	d1 D11*	d2	d3	d4	s –0.10	b1 + 0.20
MCI-03-01	3/16	0.2343	1/4	5/16	0.032	0.1380
MCI-04-01	1/4	0.3125	11/32	7/16	0.032	0.1380
MCI-05-01	5/16	0.3750	13/32	1/2	0.032	0.1380
MCI-06-01	3/8	0.4375	15/32	9/16	0.032	0.1380
MCI-07-01	7/16	0.5000	17/32	5/8	0.032	0.1380
MCI-08-01	1/2	0.5625	19/32	11/16	0.032	0.1380
MCI-03-02	3/16	0.2343	1/4	5/16	0.032	0.2000
MCI-04-02	1/4	0.3125	11/32	7/16	0.032	0.2000
MCI-05-02	5/16	0.3750	13/32	1/2	0.032	0.2000
MCI-06-02	3/8	0.4375	15/32	9/16	0.032	0.2000
MCI-07-02	7/16	0.5000	17/32	5/8	0.032	0.2000
MCI-08-02	1/2	0.5625	19/32	11/16	0.032	0.2000

*** d1 measurement is measured with a plug gauge after fitting into a reference housing d2 (+0.005)**

delivery time available from stock | prices price list online www.igus.co.uk/en/clips | order example part number MCI-03-01

My Sketches



iglidur® Clips2 – easy assembly due to angle slot

- Available from stock
- Low bearing clearance, high precision
- Easy installation due to chamfered edge
- Material: iglidur® M250
- Maintenance-free and predictable service life

iglidur® Clips2

Easy assembly due to angle slot. These iglidur® M250 self lubricating plain bearings give impact strength, vibration dampening, and wear resistant properties. The bearings are designed for use in applications which vibration dampening is necessary, for example, in fitness and packaging machines.

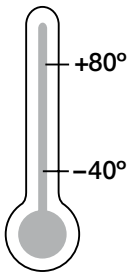
When to use it?

- When a simple assembly (by hand) is required
- When there is a very imprecise housing bore
- When a simple and cost effective bearing solution is sought

When not to use it?

- When the bearing should be secured by press fit
  ▶ **iglidur® M250, page 107**
- When continuous temperatures of above +80 ° C occur
  ▶ **iglidur® G, page 61**
- When extremely high surface pressures occur
  ▶ **iglidur® G, page 61**

Temperature

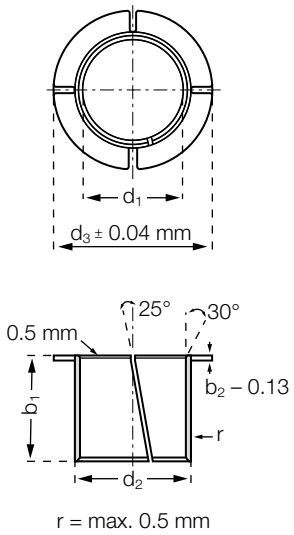


Product range

1 style
Ø 4–25 mm
more dimensions
on request

iglidur® Clips2 | Product Range

Clips2



r = max. 0.5 mm

Order key

MYM-04-04

- Length b1
- Inner diameter d1
- Metric
- Form: Clips2
- Material iglidur® M250

Material:
iglidur® M250 ▶ page 107

Dimensions [mm]

Part number	d1	d1-Tolerance*	d2**	d3 ±0.40	b1 –0.40	b2 –0.13
MYM-04-04	4	+0.025/+0.075	5.20	7.00	4.00	0.60
MYM-05-05	5	+0.025/+0.075	6.20	8.00	5.00	0.60
MYM-06-06	6	+0.025/+0.075	7.20	9.50	6.00	0.60
MYM-08-08	8	+0.025/+0.075	9.60	12.00	8.00	0.80
MYM-10-10	10	+0.025/+0.075	11.60	15.00	10.00	0.80
MYM-12-12	12	+0.025/+0.075	13.60	18.00	12.00	0.80
MYM-14-14	14	+0.025/+0.075	15.60	21.00	14.00	0.80
MYM-16-16	16	+0.025/+0.075	17.60	24.00	16.00	0.80
MYM-20-20	20	+0.025/+0.075	21.60	30.00	20.00	0.80
MYM-25-25	25	+0.025/+0.075	27.40	37.50	25.00	1.20

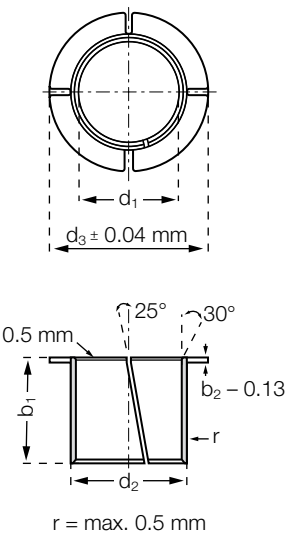
* d1 measurement is measured with a plug gauge after fitting into a reference housing d2 (+0.005)

** Recommended housing bore tolerance: H9

delivery time available from stock | prices price list online www.igus.co.uk/en/clips2 | order example part number MYM-04-04

iglidur® Clips2 | Product Range | Inch

Clips2



Order key

MYI-04-04

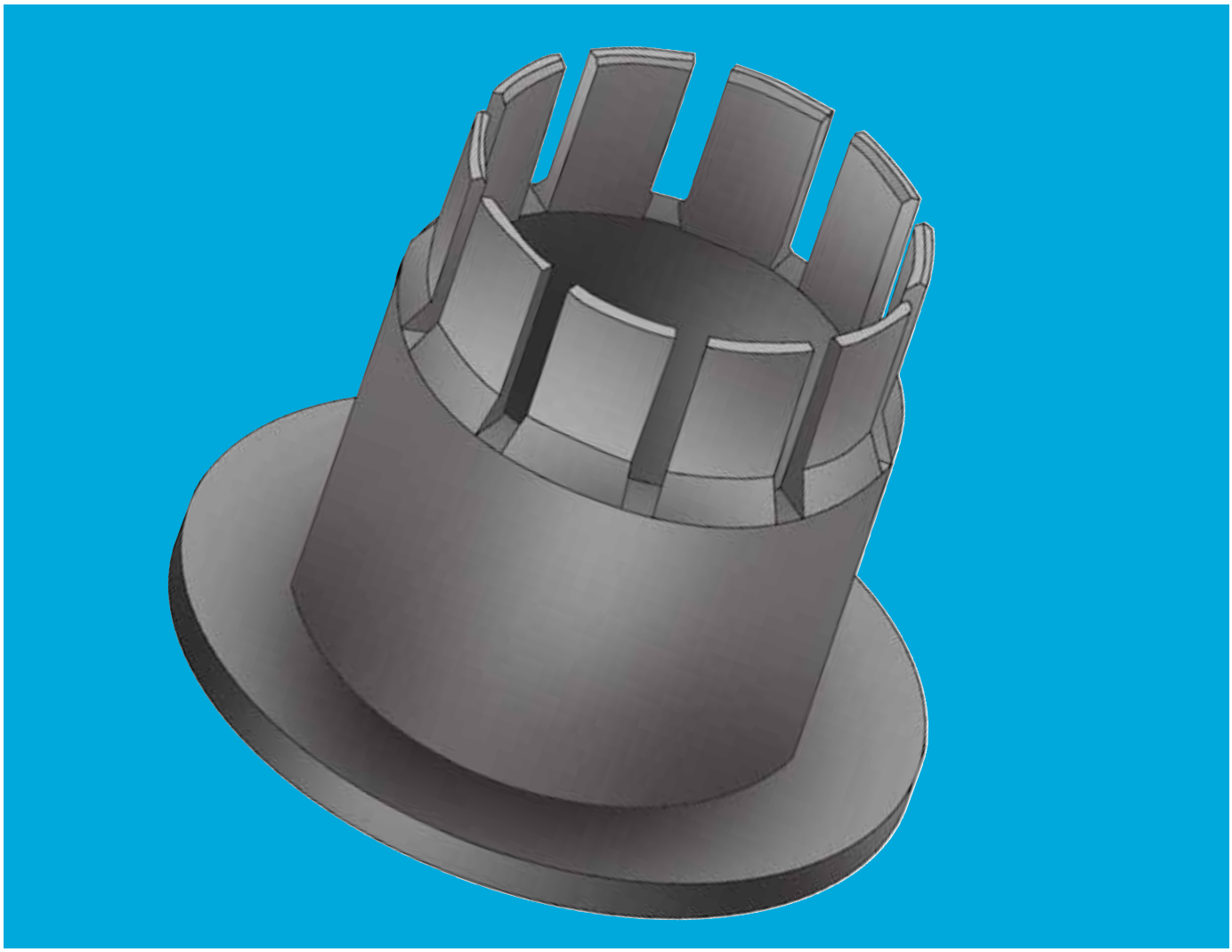
- Length b1
- Inner diameter d1
- Inch
- Form: Clips2
- Material iglidur® M250

Material:
iglidur® M250 ▶ page 107

Dimensions [Inch]

Part number	d1	Shaft diameter		d2	Housing bore		d3	b1	b1-	b2
		min.	max.		min.	max.			Tolerance	
MYI-03-03	3/16	.1875	.1865	0.2339	.2351	.2339	19/61	3/16	–0.016	0.0252
MYI-04-04	1/4	.0025	.2490	0.2965	.2979	.2965	13/32	1/4	–0.016	0.0252
MYI-05-05	5/16	.3125	.3115	0.3744	.3758	.3744	1/2	5/16	–0.017	0.0299
MYI-06-06	3/8	.3750	.3740	0.4370	.4387	.4370	19/32	3/8	–0.017	0.0299
MYI-07-07	7/16	.4375	.4365	0.4996	.5013	.4996	21/32	7/16	–0.017	0.0299
MYI-08-06	1/2	.5000	.4990	0.5618	.5635	.5618	3/8	3/4	–0.018	0.0299
MYI-08-08	1/2	.5000	.4990	0.5618	.5635	.5618	3/4	1/2	–0.018	0.0299
MYI-10-07	5/8	.6250	.6240	0.6870	.6887	.6870	15/16	7/16	–0.018	0.0299
MYI-10-10	5/8	.6250	.6240	0.6870	.6887	.6870	15/16	5/8	–0.018	0.0299
MYI-10-18	5/8	.6250	.6240	0.6870	.6887	.6870	15/16	1 1/8	–0.018	0.0299
MYI-12-12	3/4	.7500	.7490	0.8118	.8139	.8118	1 1/8	3/4	–0.019	0.0299
MYI-12-18	3/4	.7500	.7490	0.8118	.8139	.8118	1 1/8	1 1/8	–0.019	0.0299
MYI-14-7.5	7/8	.8750	.8740	0.9370	.9391	.9370	1 5/16	15/32	–0.019	0.0299
MYI-14-14	7/8	.8750	.8740	0.9370	.9391	.9370	1 5/16	7/8	–0.019	0.0299
MYI-16-14	1	1.0000	.9985	1.0933	1.0954	1.0933	1 1/2	7/8	–0.020	0.0449
MYI-16-16	1	1.0000	.9985	1.0933	1.0954	1.0933	1 1/2	1	–0.020	0.0449

delivery time available from stock | prices price list online www.igus.co.uk/en/clips2 | order example part number MYI-04-04



iglidur® MKM-Double Flange Bearing: press in – fold down – finished

- Pressfit
- Axial load on both sides
- Compensation of tolerances of the sheet metal
- Easy assembly
- Axial pre-tension
- Special design possible, conductive material available

iglidur® MKM Double Flange Bearing

Bearing with flanges on both ends made of iglidur® M250. Easy installation by pressing in and turning down the “second flange” in one step

Pressfit

Axial load on both sides

Compensation of tolerances of the sheet metal

Easy assembly

Axial pre-tension

Special design possible, including conductive material

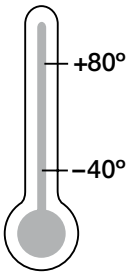
When to use it?

- When a double flanged bearing is needed
- When the housing bore is more than 4 mm long
- When the press fit force cannot be guaranteed
- When a double flange is required as a thrust surface

When not to use it?

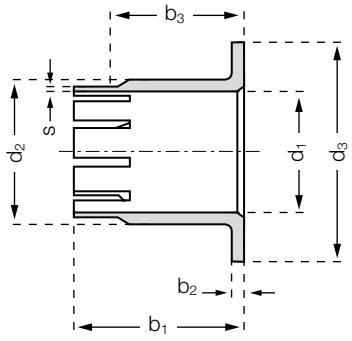
- When extreme compressive strengths are required
  ▶ **iglidur® G, page 61**
- When a simple press-fit bearing is required
  ▶ **iglidur® M250, page 107**
- When a clip bearing for sheet metal is required
  ▶ **iglidur® Clipslager, page 503**

Temperature



iglidur® MKM Double Flange Bearing | Product Range

Double Flange Bearing



Order key

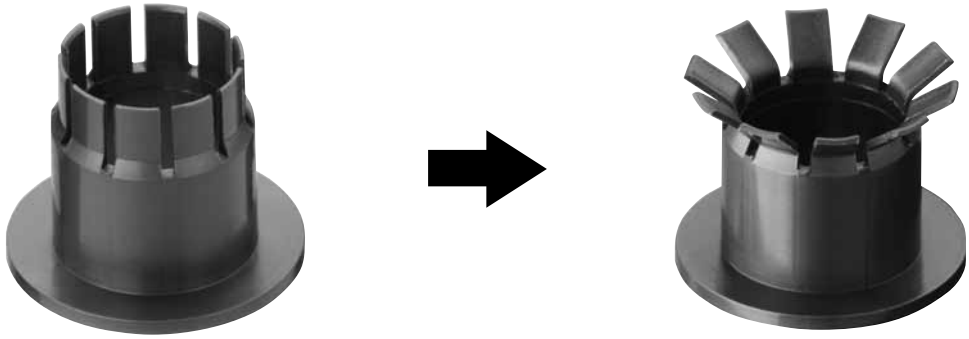
MKM-1012-10

- Metal sheet thickness
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form K)
- Material iglidur® M250

Material:
iglidur® M250 ▶ **page 107**

Dimensions [mm]

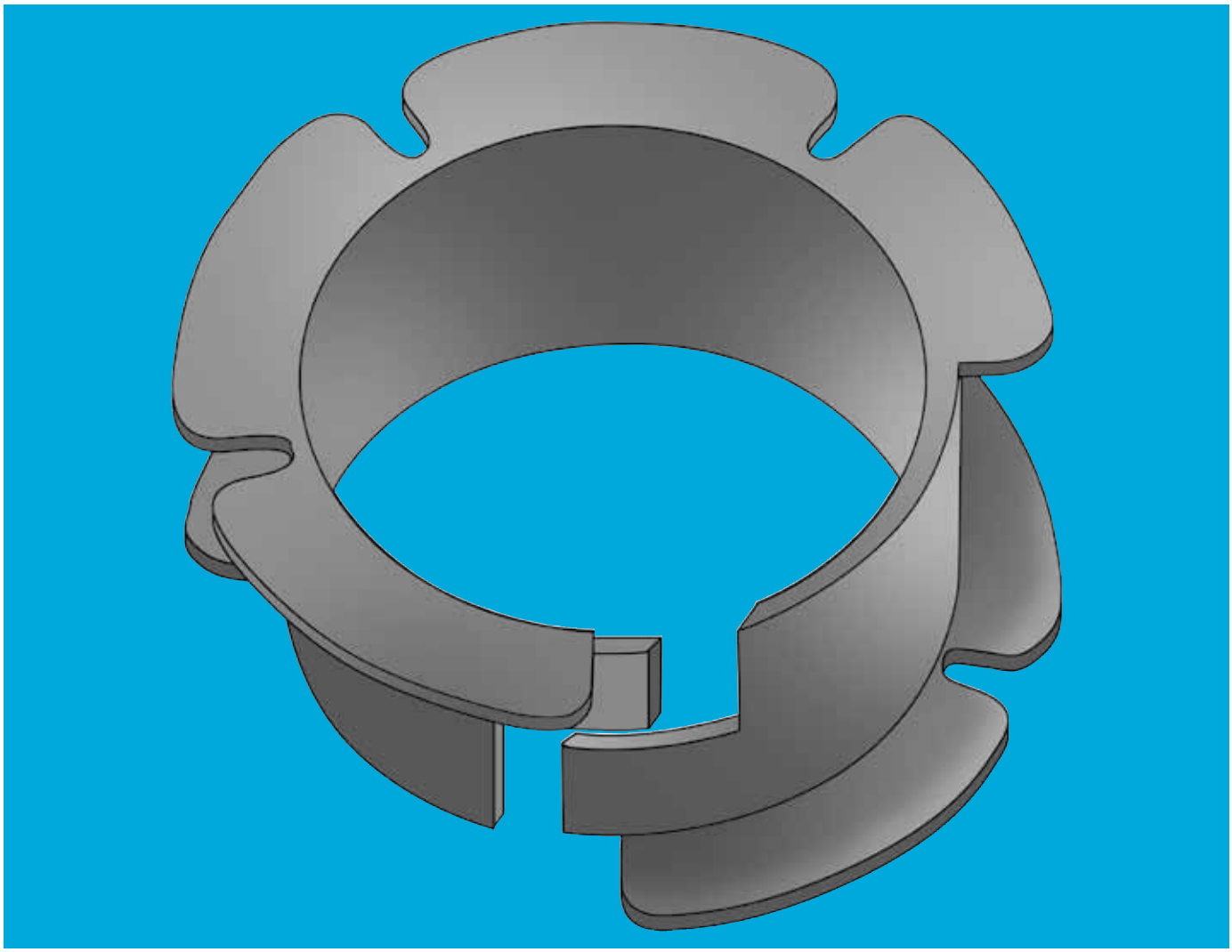
Part number	d1	d2	d3	b1	b2	b3	s
					–0.14	±0.5	±0.1
MKM-1012-10	10	12	18	14	1	10	0.4



Press in, fold down, finished: axial load on both sides

delivery time available from stock | prices price list online www.igus.co.uk/en/mkm | order example part number MKM-1012-10

My Sketches



iglidur® MDM Double Flange Bearing – clip in, finished

- Large flange surfaces
- Symmetrical flange
- Easy assembly
- Clips in easily
- Remains in place during E-Coat paint process
- Special designs possible

iglidur® MDM Double Flange Bearing

Clip-in double flange bearing with symmetrical flange. The large second flange allows the bearing to take high axial forces, and the bearing is secure even when fitted to wide toleranced bores.

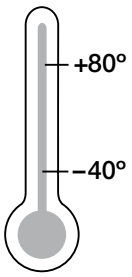
When to use it?

- When the axial security of an iglidur® clip bearing is not sufficient
- When there is a housing with very wide tolerance
- For high axial loads

When not to use it?

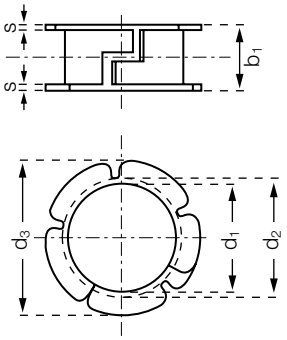
- When an automated assembly is required
  ▶ **iglidur® MKM, page 513**
- When the iglidur® clip bearings offer adequate fit
  ▶ **iglidur® clip bearings, page 503**
- When a large bearing length is required
  ▶ **iglidur® MKM, page 513**

Temperature



iglidur® Double Flange Bearing | Product Range

Double Flange Bearing



Order key

MDM-1213-06

- Sheet metal thickness
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form D)
- Material iglidur® M250

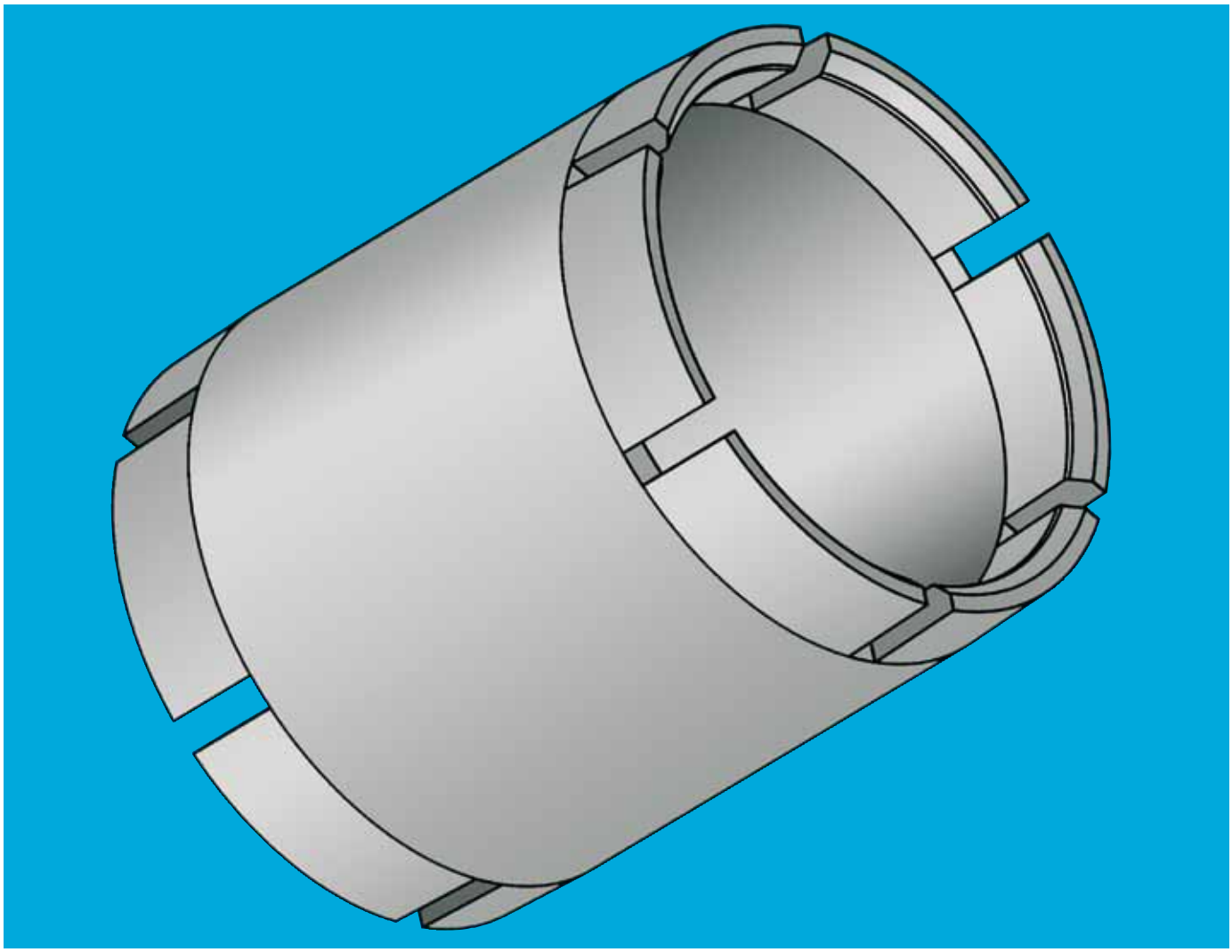
Material:
iglidur® M250 ▶ page 107

Dimensions [mm]

Part number	d1	d2	d3	b1	s
MDM-1213-06	12	13	16.5	7	0.5

delivery time available from stock | prices price list online www.igus.co.uk/en/mdm | order example part number MDM-1213-06

My Sketches



iglidur® JVSM/JVFM – Zero Clearance and Pre-Tensioned Bearings

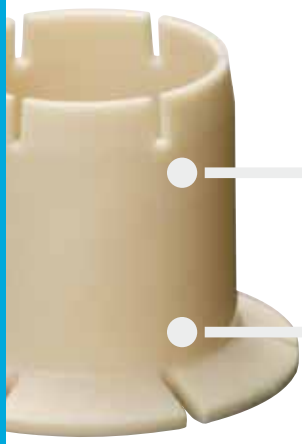
- Standard range from stock
- Radial and axial pretension of bearings
- Zero clearance in free state
- Material: iglidur® J
- Maintenance-free and predictable service life

iglidur® JVSM/JVFM

iglidur® JVSM and JVFM bearings are clearance-free in unloaded condition due to the axial and/or radial pretension. The iglidur® J material possesses extremely low coefficients of friction in dry operation and a very low stick-slip effect. Ideal for “anti-vibration mounting” of pedal box bearings, etc.

Pre-tensioned bearing free of clearance

Zero clearance in free state



Material: iglidur® J

Maintenance-free and predictable service life

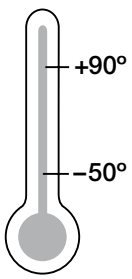
When to use it?

- When a radial and/or axial pretension of bearings is desired
- When a rattle-free bearing in the unloaded state is required
- When you want a zero clearance feel

When not to use it?

- When a bearing solution with reduced clearance is needed
  ▶ please contact us
- When the pretension has to withstand high radial forces
- When total zero clearance feature is required at high loads

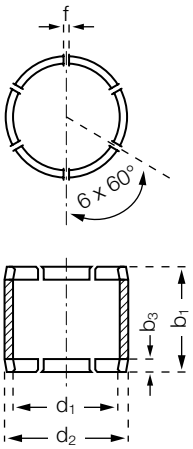
Temperature



Product range

2 types
Ø 8–20 mm
more dimensions
on request

Sleeve Bearing



Order key

JVSM-0608-06

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- pre-tensioned
- Material iglidur® J

Material:
iglidur® J ▶ page 89

Dimensions [mm]

Part number	d1	d1-Tolerance	d2	b1	b3	f
		E10		h13		
JVSM-0608-06	6	+0.083 / +0.025	8	6	2.0	1
JVSM-0810-08	8	+0.083 / +0.025	10	8	2.0	1
JVSM-1012-10	10	+0.083 / +0.025	12	10	2.0	1
JVSM-1214-12	12	+0.102 / +0.032	14	12	2.0	1
JVSM-1416-14	14	+0.102 / +0.032	16	14	2.0	1
JVSM-1517-15	15	+0.102 / +0.032	17	15	2.5	1
JVSM-1820-18	18	+0.102 / +0.032	20	18	2.5	1
JVSM-2023-20	20	+0.124 / +0.040	23	20	2.5	1

d1 – Measured after pressfit in housing bore. d2 H7 within the measurement plane

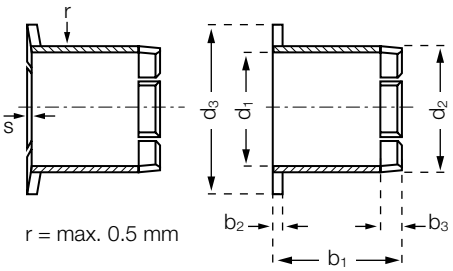
Dimensions [Inch]

Part number	d1	d1-Tolerance		d2	b1	b1-Tolerance
		max.	min.		h13	
JVSI-0608-06	3/8	0.3773	0.3750	1/2	3/8	0.075
JVSI-0810-08	1/2	0.5040	0.5013	5/8	1/2	0.075
JVSI-1012-10	5/8	0.6297	0.6270	3/4	5/8	0.075
JVSI-1214-12	3/4	0.7541	0.7505	1 1/8	3/4	0.075
JVSI-1618-16	1	1.0041	1.0007	28.58	1	0.100

d1 – Measured after pressfit in housing bore. d2 H7 within the measurement plane

iglidur® JVSM/JVFM | Product Range

Flange Bearing



Order key

JVFM-0810-10

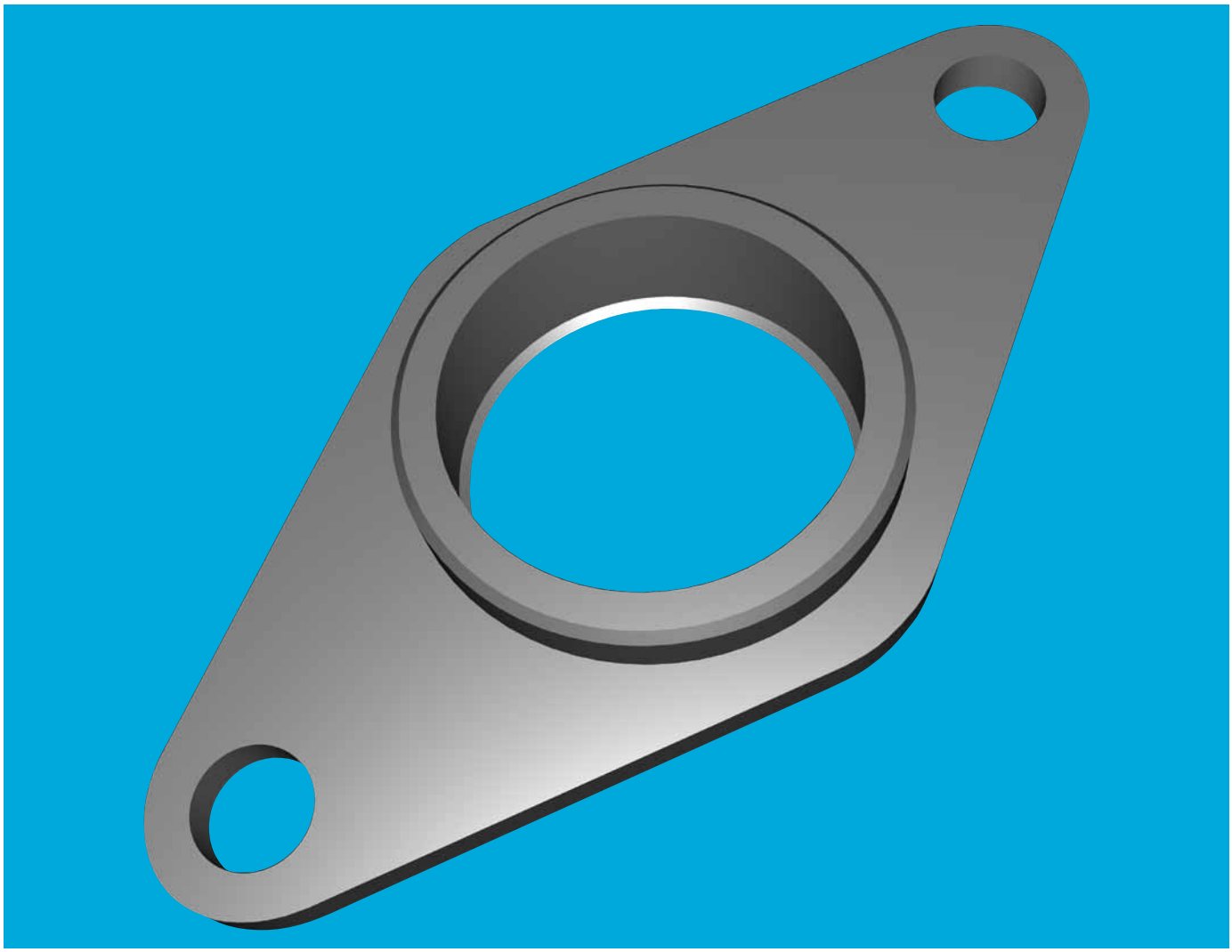
- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form F)
- pre-tensioned
- Material iglidur® J

Material:
iglidur® J ▶ page 89

Dimensions [mm]

Part number	d1	d1-Tolerance	d2	d3	b1	b2	b3	s
		E10			h13			±0.1
JVFM-0810-10	8	+0.083 / +0.025	10	15	10	1	2.0	0.44
JVFM-1012-10	10	+0.083 / +0.025	12	18	10	1	2.0	0.53
JVFM-1214-12	12	+0.102 / +0.032	14	20	12	1	2.0	0.53
JVFM-1416-12	14	+0.102 / +0.032	16	22	12	1	2.0	0.53
JVFM-1517-15	15	+0.102 / +0.032	17	23	15	1	2.5	0.53
JVFM-1820-18	18	+0.102 / +0.032	20	26	18	1	2.5	0.53
JVFM-2023-20	20	+0.124 / +0.040	23	30	20	1.5	2.5	0.62

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/jvfm | order example **part number JVFM-0810-10**



iglidur® – Flange Bearings

- Standard range from stock
- Very good wear resistance
- Maintenance-free
- Material: iglidur® G, iglidur® A180, iglidur® J and iglidur® X
- Light weight

iglidur® Flange Bearings

With this design it is possible to use iglidur® high performance plain bearings in locations where recommended housing bore tolerances are not possible.

Very good wear resistance

Maintenance-free

Material: iglidur® G, iglidur® A180, iglidur® J and iglidur® X

Light weight

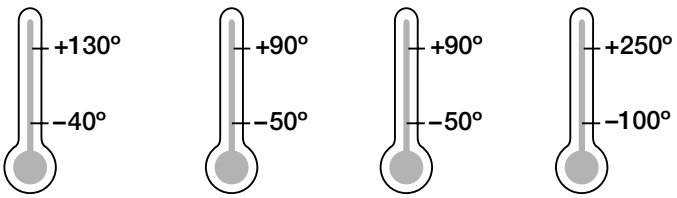
When to use it?

- When a screw flanged bearing is sought
- When a clip bearing solution is not satisfactory as a sheet metal feedthrough
- When there is a housing with very rough tolerances
- When the tight fit of a press-fit bearing is not sufficient as an axial securing

When not to use it?

- When an additional angular compensation is required
  ▶ **igubal® Flange bearings, page 631**
- When a screw connection is not possible
  ▶ **iglidur® Clip bearings, page 503**
- When a large guide length is necessary
  ▶ **iglidur® G, page 61**

Temperature



GFL | A180FL | JFL | XFL

Product range

1 style
Ø 10–35 mm
more dimensions on request

iglidur® Flange Bearings | Technical Data

General Properties

With this design it is possible to use iglidur® high performance plain bearings in locations where recommended housing bore tolerances are not possible.

Due to the design of the bearing, high loads are possible although there is a minimal precision requirement of the housing. iglidur® maintenance-free flange bearings are made of iglidur® G, iglidur® J, iglidur® X or iglidur® A180. In this way, all the advantages of the iglidur® high performance polymers can be used, e.g. universal bearings, bearings with high wear-resistance or high temperature-resistance (up to +250 °C) or FDA-compliance.

Installation

Depending on the requirements, different mounting types can be considered. For low radial loads, it is sufficient to mount iglidur® flange bearings on one surface simply with two bolts. For higher radial loads, it advisable to support the iglidur® flange bearing in a bore on the reinforced side facing the direction of the load. For this bore, large tolerances are permitted, since it serves only as additional support for the iglidur® flange bearing. In order to achieve higher radial loads in the bearings, the iglidur® flange bearing can be pressfit into a recommended housing bore. The additional bolts ensure the fit of the bearing in the housing.

For the installation of the iglidur® maintenance-free flange bearing, no special materials or tools are necessary.

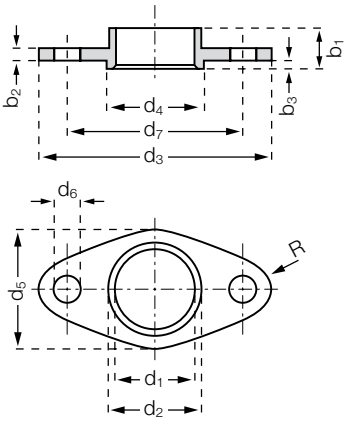
Material data for available materials:

- **iglidur® G ▶ page 61**
- **iglidur® A180 ▶ page 371**
- **iglidur® J ▶ page 89**
- **iglidur® X ▶ page 153**

The installation of iglidur® flange bearing: simple and secure

iglidur® Flange Bearings | Product Range

Flange bearings



Order key

GFL-10

- Inner diameter d1
- Flange Bearings
- Material

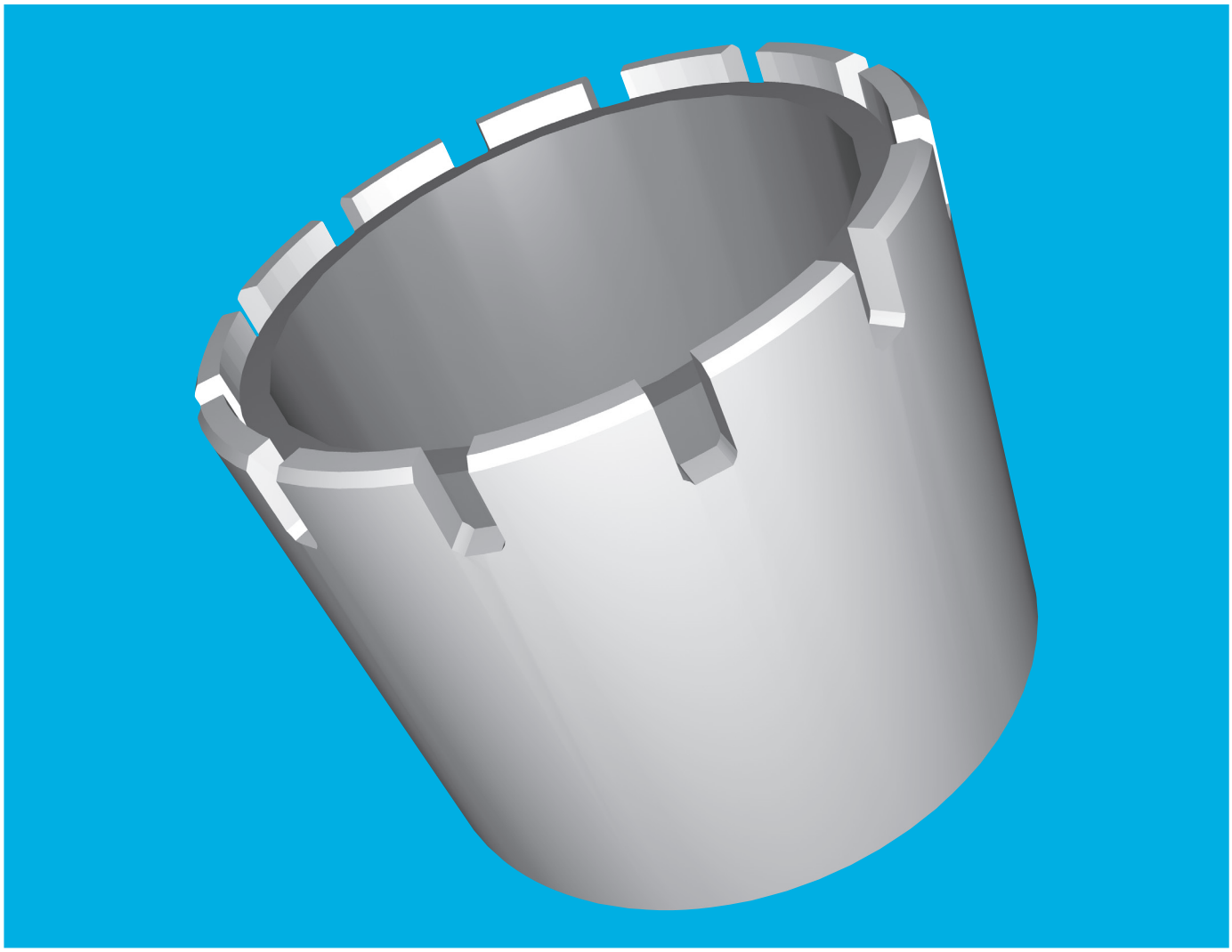
Dimensions [mm]

Part number	d1*	d2**	d3	d4	d5	d6	d7	b1	b2	b3	R (±0.2)
GFL-10	10	12	30	14	15	4.5	22	6	2	1	4
GFL-12	12	14	36	16	18	4.5	26	6	2	1	4.5
GFL-14	14	16	42	18	21	5.5	30	6	2	1	5
GFL-16	16	18	48	20	24	5.5	34	6	2	1	5.5
GFL-18	18	20	54	22	27	6.5	39	6	2	1	7
GFL-20	20	23	60	26	30	6.5	44	10	3	2	7
GFL-25	25	28	75	30	35	6.5	55	10	3	2	8.5
GFL-30	30	34	90	36	40	8.5	66	10	3	2	10
GFL-35	35	39	95	41	55	8.5	77	10	3	2	12
A180FL-10	10	12	30	14	15	4.5	22	6	2	1	4
A180FL-12	12	14	36	16	18	4.5	26	6	2	1	4.5
A180FL-16	16	18	48	20	24	5.5	34	6	2	1	5.5
A180FL-20	20	23	60	26	30	6.5	44	10	3	2	7
A180FL-25	25	28	75	30	35	6.5	55	10	3	2	8.5
A180FL-30	30	34	90	36	40	8.5	66	10	3	2	10
A180FL-35	35	39	95	41	55	8.5	77	10	3	2	12
JFL-10	10	12	30	14	15	4.5	22	6	2	1	4
JFL-12	12	14	36	16	18	4.5	26	6	2	1	4.5
JFL-14	14	16	42	18	21	5.5	30	6	2	1	5
JFL-16	16	18	48	20	24	5.5	34	6	2	1	5.5
JFL-20	20	23	60	26	30	6.5	44	10	3	2	7
JFL-25	25	28	75	30	35	6.5	55	10	3	2	8.5
JFL-30	30	34	90	36	40	8.5	66	10	3	2	10
JFL-35	35	39	95	41	55	8.5	77	10	3	2	12
XFL-10	10	12	30	14	15	4.5	22	6	2	1	4
XFL-12	12	14	36	16	18	4.5	26	6	2	1	4.5
XFL-14	14	16	42	18	21	5.5	30	6	2	1	5
XFL-16	16	18	48	20	24	5.5	34	6	2	1	5.5
XFL-20	20	23	60	26	30	6.5	44	10	3	2	7
XFL-25	25	28	75	30	35	6.5	55	10	3	2	8.5
XFL-30	30	34	90	36	40	8.5	66	10	3	2	10
XFL-35	35	39	95	41	55	8.5	77	10	3	2	12

delivery time available from stock

prices price list online www.igus.co.uk/iglidur-flange

order example part number GFL-10

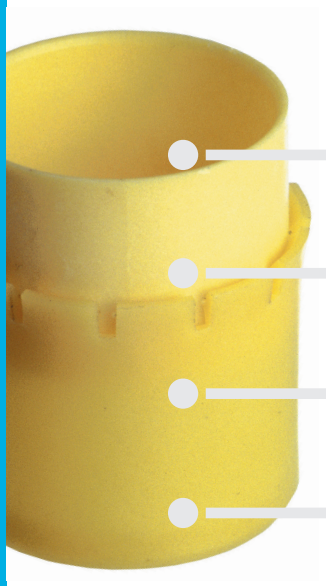


iglidur® PEP

- Standard range from stock
- Can be used with any shaft material
- Very cost-effective
- Easy to fit
- Low coefficient of friction

iglidur® PEP

In standard plain bearing solutions, the shaft has a critical part to play, as important as the bearing itself. With the iglidur® PEP bearings, igus® takes a forging new trail highlighted by this enclosed and maintenance-free plain bearing design.



Can be used with any shaft material

Very cost-effective

Easy to fit

Low coefficient of friction

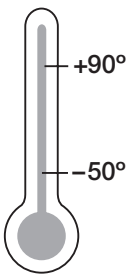
When to use it?

- Cost-effective polymer bearing system
- Independent of the shaft material and of the shaft surface
- Protection of expensive and sensitive shafts

When not to use it?

- For high surface speeds
  - ▶ **iglidur® J, page 89**
- At high loads
  - ▶ **iglidur® G, page 61**
  - ▶ **iglidur® Q, page 461**
- For high temperatures
  - ▶ **iglidur® V400, page 279**
  - ▶ **iglidur® X, page 153**
  - ▶ **iglidur® Z, page 299**
- When low clearance bearings are required
  - ▶ **iglidur® P, page 185**
  - ▶ **iglidur® X, page 153**

Temperature



Product range

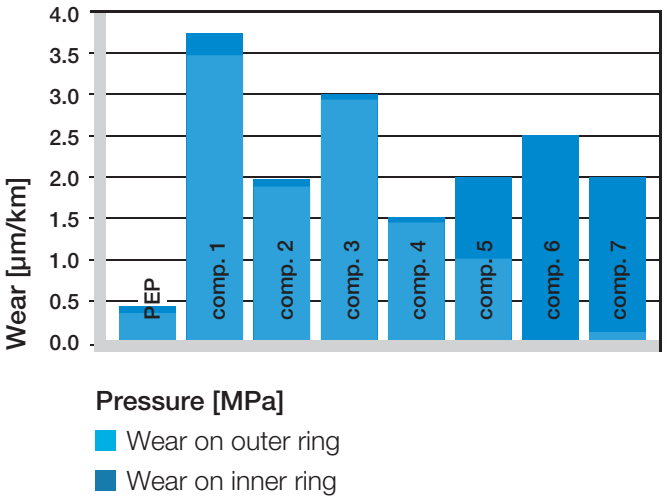
1 type
Ø 6–20 mm
more dimensions
on request

General Properties

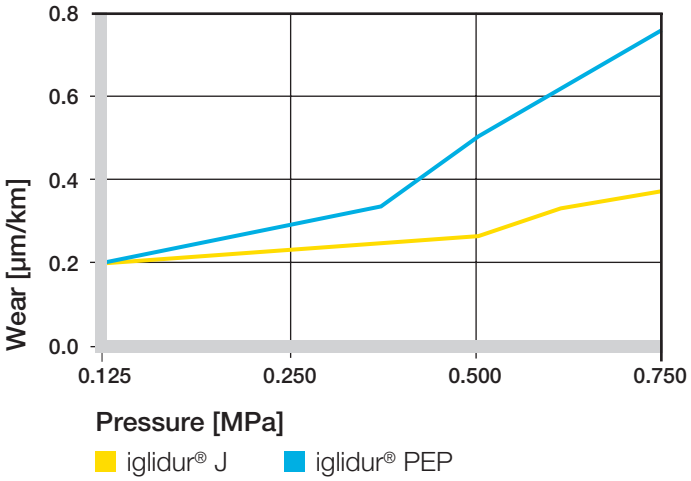
Maintenance-free plain bearings are generally described as being able to slide on the shaft without any additional coating and/or lubrication. It is evident that shaft materials are as important as the bearing itself. igus® is forging a new path with a plain bearing that is self-contained and maintenance-free. iglidur® PEP is an innovative design for lubricant-free polymer plain bearing systems with an inner and outer ring. The special feature; the sliding surface is the inner ring, and for the first, time shaft materials and shaft surfaces are not a concern. Even threads, rust and scratches do not affect the performance or reliability. With the control over the sliding surface and through considerable testing, the long term behaviour of the bearing system can be predicted precisely. Similar to ball bearings, the inner ring turns with the shaft in the polymer PEP plain bearing. Relative movements of the shaft with respect to the bearing are eliminated. This protects the shaft surface from wear and saves costs. An additional benefit; even the most sensitive or unusual materials can be used as the rotating shaft with this new polymer plain bearing. Due to the bearing materials used, the PEP polymer bearing is totally corrosion-free.

Wear Resistance

The wear resistance of PEP is of significant interest. For loads up to 1 N/mm² the test results are compelling. Here PEP polymer bearings obtain values that are comparable to most wear resistant metal-backed bearing systems. This is a very positive result, when you consider the reduced costs compared with the required shaft surface finish which is demanded by traditional bearings.The consistently low coefficient of friction is also an advantage to the user. Since the running surfaces are fixed, the tribological data can be calculated. The coefficients of friction of the PEP bearings are no longer based on the shaft materials or surface properties. If necessary, the coefficients of friction can be reduced further with a small amount of lubricant.



Graph 02: Wear experiments of different material combinations, p = 0.75 MPa, v = 0.3 m/s



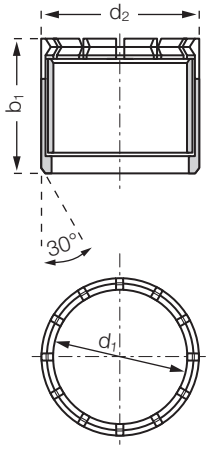
Graph 03: Wear of iglidur® PEP bearings as a function of the pressure, v = 0.3 m/s

Fitting

The installation of the PEP plain bearing could not be easier or faster. The bearings are manufactured to be press fitted into a recommended housing bore of H7 tolerance. Then, the shaft is inserted and fits tightly onto the inner ring. The inner bearing is clipped into the outer ring. This design makes it possible to pull the shaft out without removing the inner ring.

iglidur® PEP | Product Range

Sleeve Bearing



Order key

PEPSM-0610-10

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Type (Form S)
- Material iglidur® J

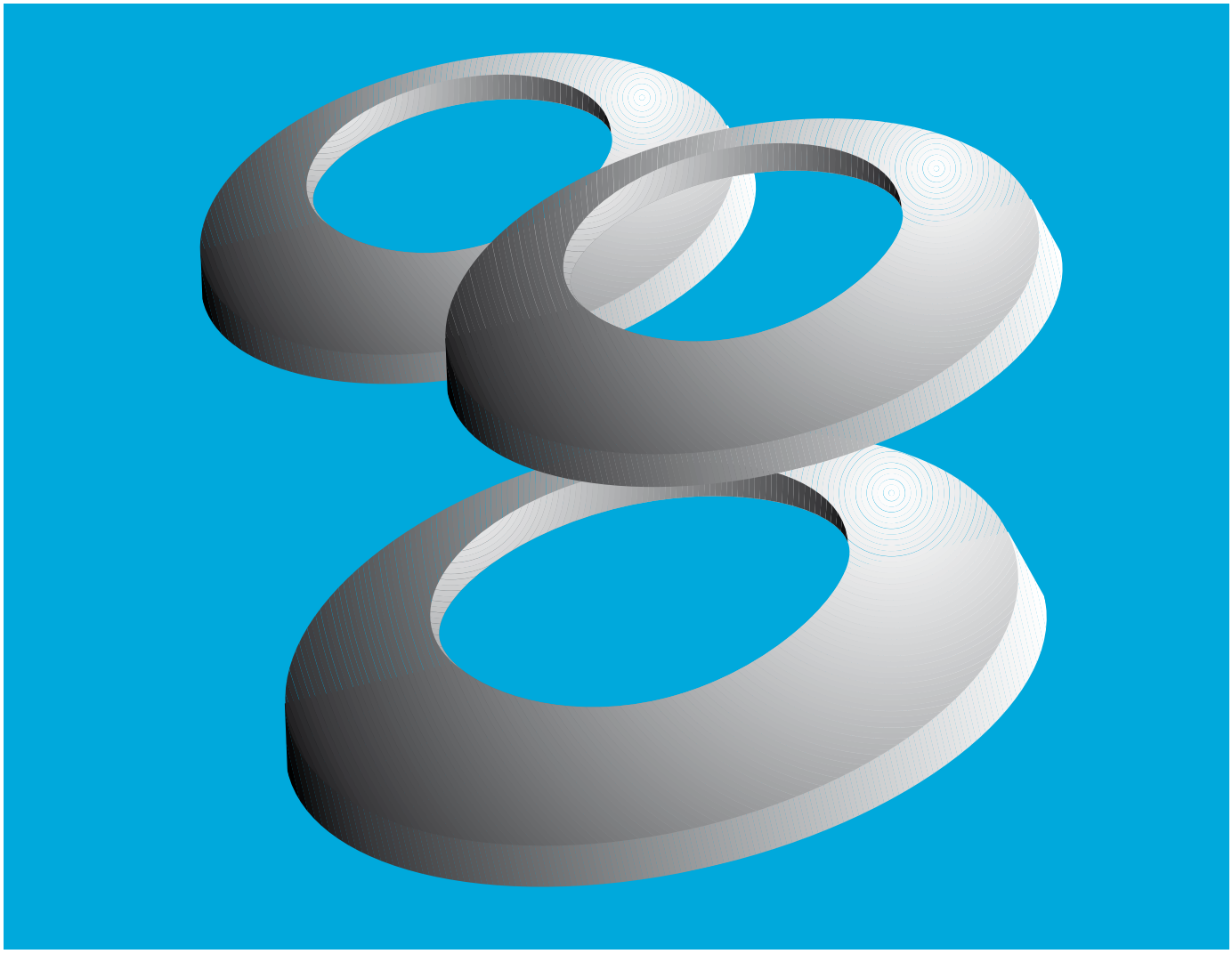
Dimensions [mm]

Part number	d1	d2	b1
PEPSM-0610-10	6	10	10
PEPSM-0812-12	8	12	12
PEPSM-1014-12	10	14	12
PEPSM-1216-15	12	16	15
PEPSM-1620-20	16	20	20
PEPSM-2023-20	20	23	20

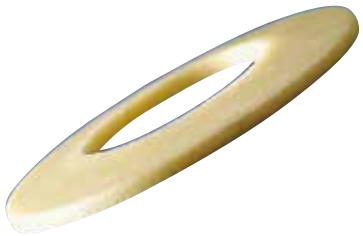
Dimensions [Inch]

Part number	d1	d2	b1
PEPSI-0406-06	1/4	3/8	3/8
PEPSI-0608-08	3/8	1/2	1/2
PEPSI-0810-08	1/2	5/8	1/2
PEPSI-1012-12	5/8	3/4	3/4
PEPSI-1214-12	3/4	7/8	3/4
PEPSI-1618-16	1	1 1/8	1

delivery time available from stock | prices price list online www.igus.co.uk/en/pep | order example part number PEPSM-0610-10



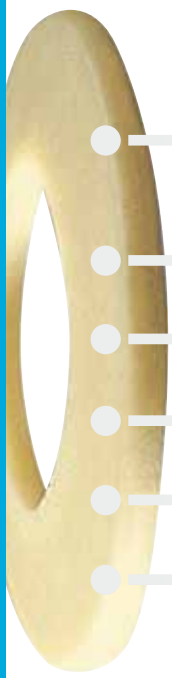
Polysorb – Polymer Disc Springs



- Standard range from stock
- Compensation for axial clearances and manufacturing tolerances
- Vibration dampening
- Noise dampening
- Corrosion-free
- Light weight
- Electrical and thermal insulation

iglidur® Polysorb

Spring washers are discs that can be axially loaded, which are concave in the axial direction. Polysorb disc springs require less space than other spring types, and are especially suitable for designs that do not require a high spring length.



Compensation for axial clearances and manufacturing tolerances

Vibration dampening

Noise dampening

Corrosion-free

Light weight

Electrical and thermal insulation

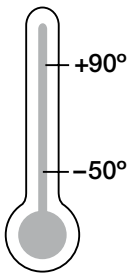
When to use it?

- Application requires disc spring characteristics which are only possible in metal at a considerable expense (slotted design)
- Compensation of axial clearances and manufacturing tolerances
- Vibration dampening
- Noise reduction
- Non-magnetic
- Electrical and thermal insulation

When not to use it?

- When constant spring forces are necessary over wide temperature ranges
- When high spring forces are required

Temperature



Product range

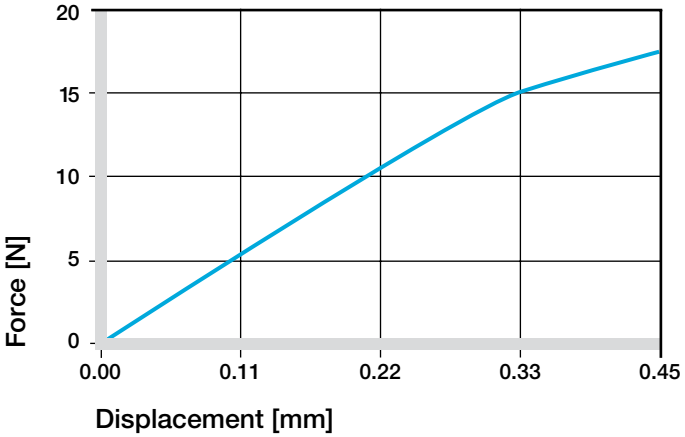
1 style
Ø 10–40 mm
more dimensions
on request

iglidur® Polysorb | Technical Data

General Properties

Spring washers are discs that can be axially loaded and which are concave in the axial direction. Polysorb disc springs require less space than other spring types, and are especially suitable for designs that do not require a high spring length as the height of a disc spring is relatively small. In practice, a number of disc springs are combined.

Disc springs that are alternately stacked increase the spring length proportionally to the amount of springs. The total spring force is as large as the force of one single disc spring. In order to increase the force, the disc springs can be parallel stacked to form a spring packet. Please contact us if you have any questions regarding the stacking of Polysorb disc springs.



Graph 02: Experimental test results between the force ratio $F/F_{1,0}$ and the spring length ratio S/h_0 ($S_{1,0} = H_0$), using part number JTEM-10

Additional Properties

Chemical Resistance

Polysorb disc springs are resistant to diluted alkalines and very weak acids, as well as against fuels and all types of lubricants. The low moisture absorption permits the use in wet or moist environments.

Medium	Resistance
Alcohol	+
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	+ to 0

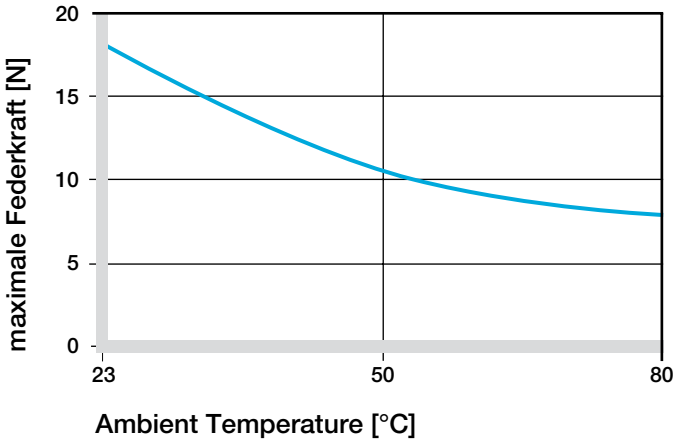
+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]
Table 05: Chemical resistance

Moisture Absorption

Polysorb disc springs absorb moisture and in the process the mechanical properties change. However, in the worst application case – a long term use in water – Polysorb disc springs still have a maximum spring force of 10 N.

Increased Temperatures

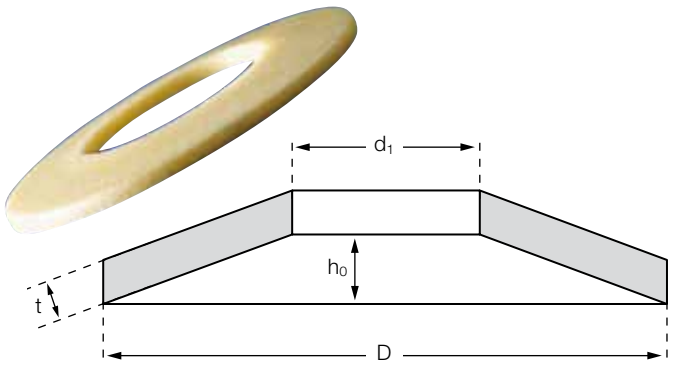
Increased temperatures reduce the rigidity of polymers. Polysorb disc springs still have a maximum spring force of 8 N at the maximum permissible temperature of +80 ° C. The spring force against ambient temperature is shown in Graph 03.



Graph 03: Effect of ambient temperature on the spring force, using part number JTEM-10

iglidur® Polysorb | Product Range

Polymer disc springs



Dimensions based on DIN 2093

Order key

JTEM-05

- Inner diameter d1
- Metric
- “Elastic spring”
- Thrust washer style
- Material iglidur® J

Dimension [mm]

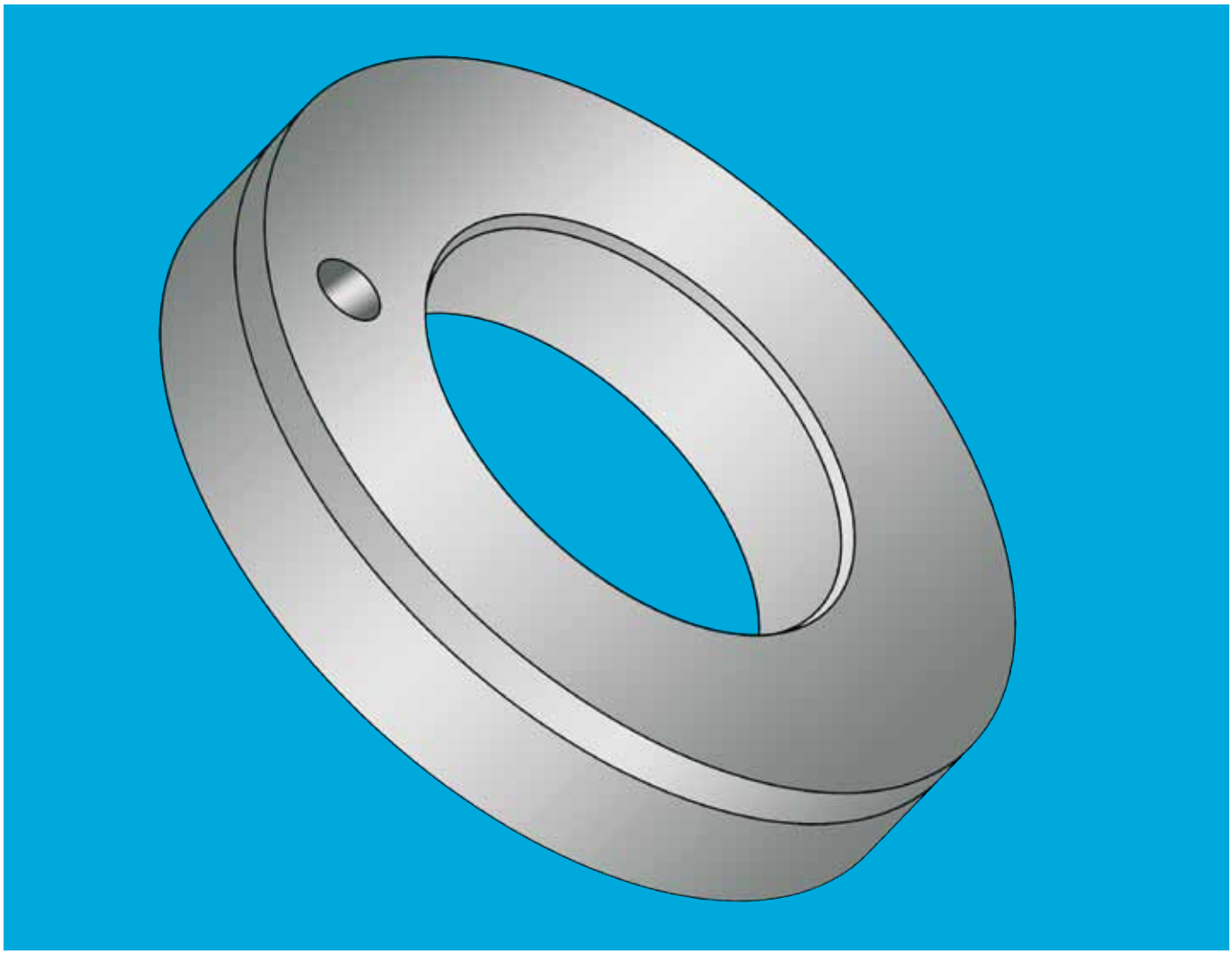
Part number	Standard values: spring lengths and forces											
	D_e	D_i	t	h_0	$S_{0,25}$	$F_{0,25}$ [N]	$S_{0,5}$	$F_{0,5}$ [N]	$S_{0,75}$	$F_{0,75}$ [N]	$F_{1,0}$ [N]	M [g]
JTEM-05	10.0	5.2	0,5	0.25	0.06	1	0.13	2.4	0.19	3,6	5	0.04
JTEM-06	12.5	6.2	0,7	0.30	0.08	3	0.15	5.1	0.23	8	12	0.11
JTEM-08	16.0	8.2	0,9	0.35	0.09	4	0.18	8	0.28	11	12	0.20
JTEM-10	20.0	10.2	1.1	0.45	0.11	5	0.22	10	0.33	15	18	0.33
JTEM-12	25.0	12.2	1.5	0.55	0.14	9	0.28	18	0.42	27	35	0.85
JTEM-16	31.5	16.3	1.75	0.70	0.18	15	0.35	32	0.53	51	70	1.44
JTEM-20	40.0	20.4	2.25	0.90	0.23	35	0.45	70	0.68	110	140	3.10

The standard values for the spring lengths and forces are rounded mean values

Symbols and Units:

F	=	Force
S	=	Spring length
D_e	=	Outside diameter [mm]
D_i	=	Inside diameter [mm]
t	=	Plate thickness [mm]
h_0	=	Maximum spring displacement [mm]
$S_{0,25}$	=	25 % of maximal spring displacement [mm]
$F_{0,25}$	=	Spring force 25 % displacement [N]
$S_{0,5}$	=	50 % of max. spring displacement [mm]
$F_{0,5}$	=	Spring force 50 % displacement [N]
$S_{0,75}$	=	75 % of max. spring displacement [mm]
$F_{0,75}$	=	Spring force 75 % displacement [N]
$F_{1,0}$	=	Spring force 100 % displacement [N]
M	=	Mass of one disc spring [g]

delivery time available from stock | prices price list online www.igus.co.uk/en/polysorb | order example part number JTEM-05



iglidur® JATM/VATM – matching sliding surfaces

Maintenance-free plain bearing system

For high performance

Matching sliding surfaces

Predictable service life

iglidur® JATM/VATM

iglidur® JATM/VATM consists of an anodized aluminum ring combined with an iglidur® bearing ring. This combination of materials results in low friction values and high wear resistance – without lubrication.

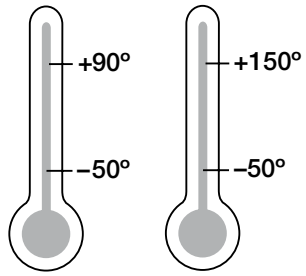
When to use it?

- When an axial bearing system with defined tribological characteristics is required
- For extremely high wear resistance
- For a very low coefficient of friction is desired

When not to use it?

- When an additional angular compensation is required
  ▶ **igubal® Axial bearing, page 663**
- When only a small installation space is available
  ▶ **iglidur® J, Thrust Washer, page 102**
- For occasional use only
  ▶ **iglidur® G, Thrust Washer, page 79**

Temperature

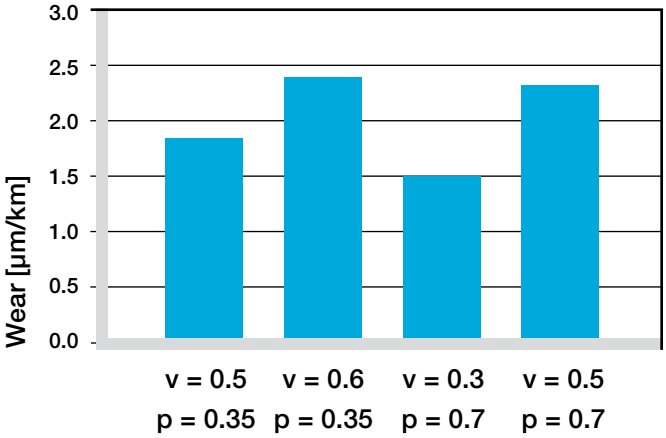


Product range

on request

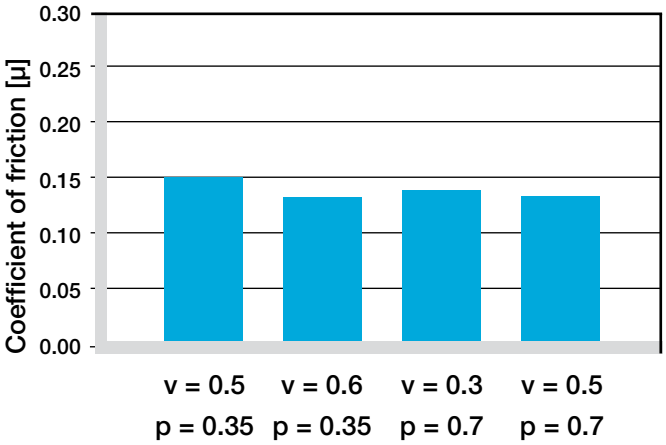
We welcome your request for a thrust bearing customized for your application.
Please call us.
Phone +44 (0) 16 04-67 72 40

The calculated rates of wear rates of thrust bearing JATM



Graph 02: The graph shows the effect of pressure (p in MPa) and speed (v in m/s) on the thrust bearing wear

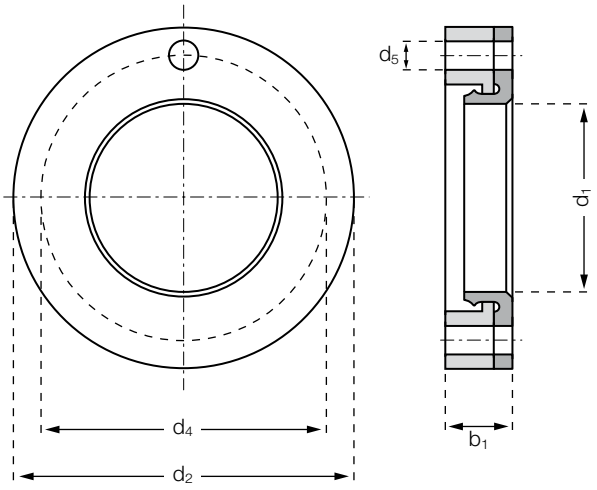
Calculated friction value of thrust bearing JATM



Graph 03: In a test, the friction values of the bearing systems were calculated at different speeds (v) and pressures (p) – (v in m/s, p in MPa)

iglidur® JATM/VATM | Product Range

Matching sliding surfaces



Order key

JATM-2036-070

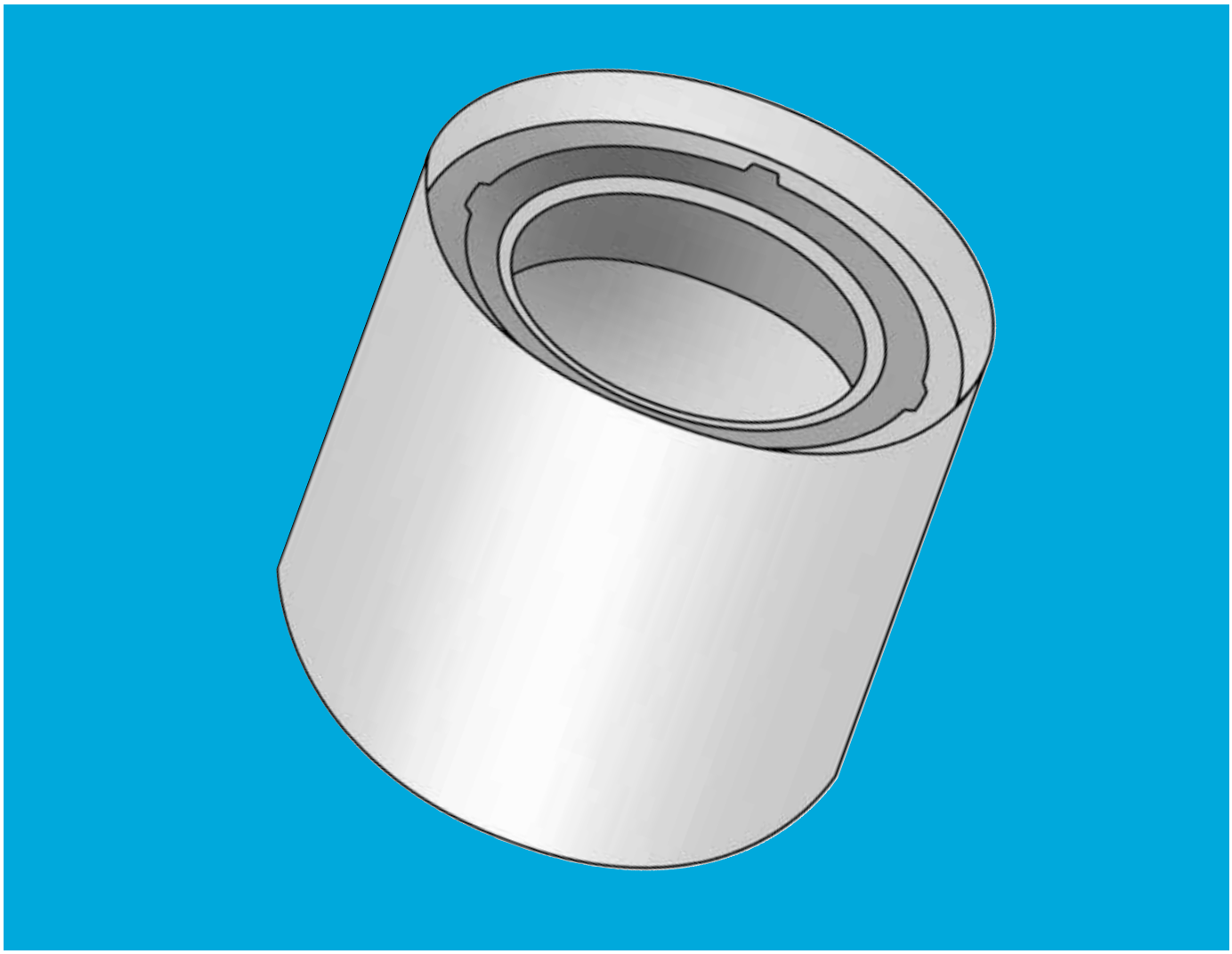
- Total height b1
- Outer diameter d2
- Inner diameter d4
- Metric
- Thrust bearing
- Aluminium
- Material iglidur® J/V400

Material:
iglidur® J ▶ page 89
iglidur® V400 ▶ page 279

Dimensions [mm]

Part number	d1	d2	b1	d4	d5
JATM-2036-070	20	36	7	30	3
VATM-2036-070	20	36	7	30	3

delivery time available from stock | prices price list online www.igus.co.uk/en/jatm | order example part number JATM-2036-070

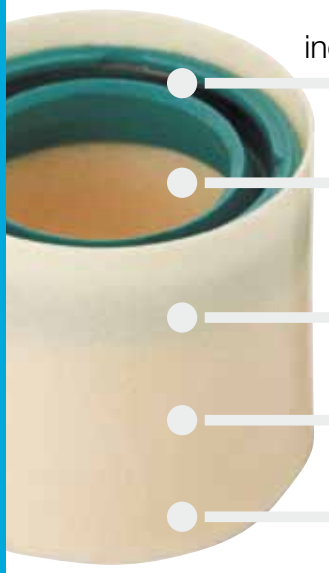


iglidur® Polymer Bearing with Lip Seal

- Polymer bearing with incorporated radial shaft seal
- Seals against the rotating shaft
- Reduced space requirement and easy, fast installation
- Can be manufactured with different types of seal
- High-temperature version VDSM available

iglidur® Polymer Bearing with Lip Seal

Easy and quick to fit polymer plain bearing made from iglidur® J (JDSM) or iglidur® V400 (VDSM) with an integrated rotary lip seal, which protects against dust, dirt, and all unpressurized liquids.



Polymer bearing with incorporated radial shaft seal

Seals against the rotating shaft

Reduced space requirement and easy, fast installation

Can be manufactured with different types of seal

High-temperature version VDSM available

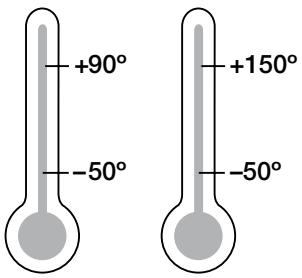
When to use it?

- When the penetration of dirt and water spray should be prevented
- When only a small installation space is available in the axial direction
- When an existing seal should be integrated in a plain bearing

When not to use it?

- When pressurized media should be sealed
- When a permanent tensioned seal is required

Temperature



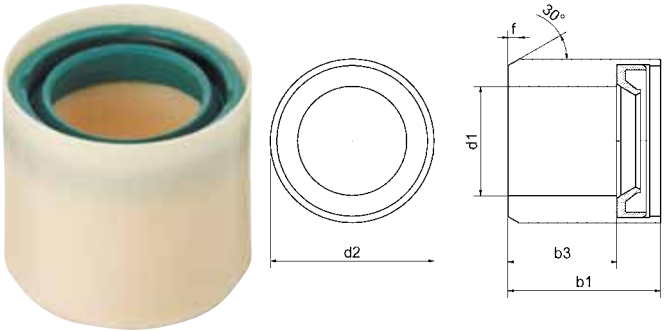
Product range

1 type
Ø 15 mm
other dimensions
on request

We welcome your request for a Polymer Bearing with integrated Seal customized for your application. Please call us. Phone +44 (0) 16 04-67 72 40

iglidur® Polymer Bearing with Lip Seal | Product Range

Polymer bearing with lip seal



Order key

JDSM-1015-14

- Height b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Polymer Bearing with lip seal, Form S
- Seal
- Material iglidur® J

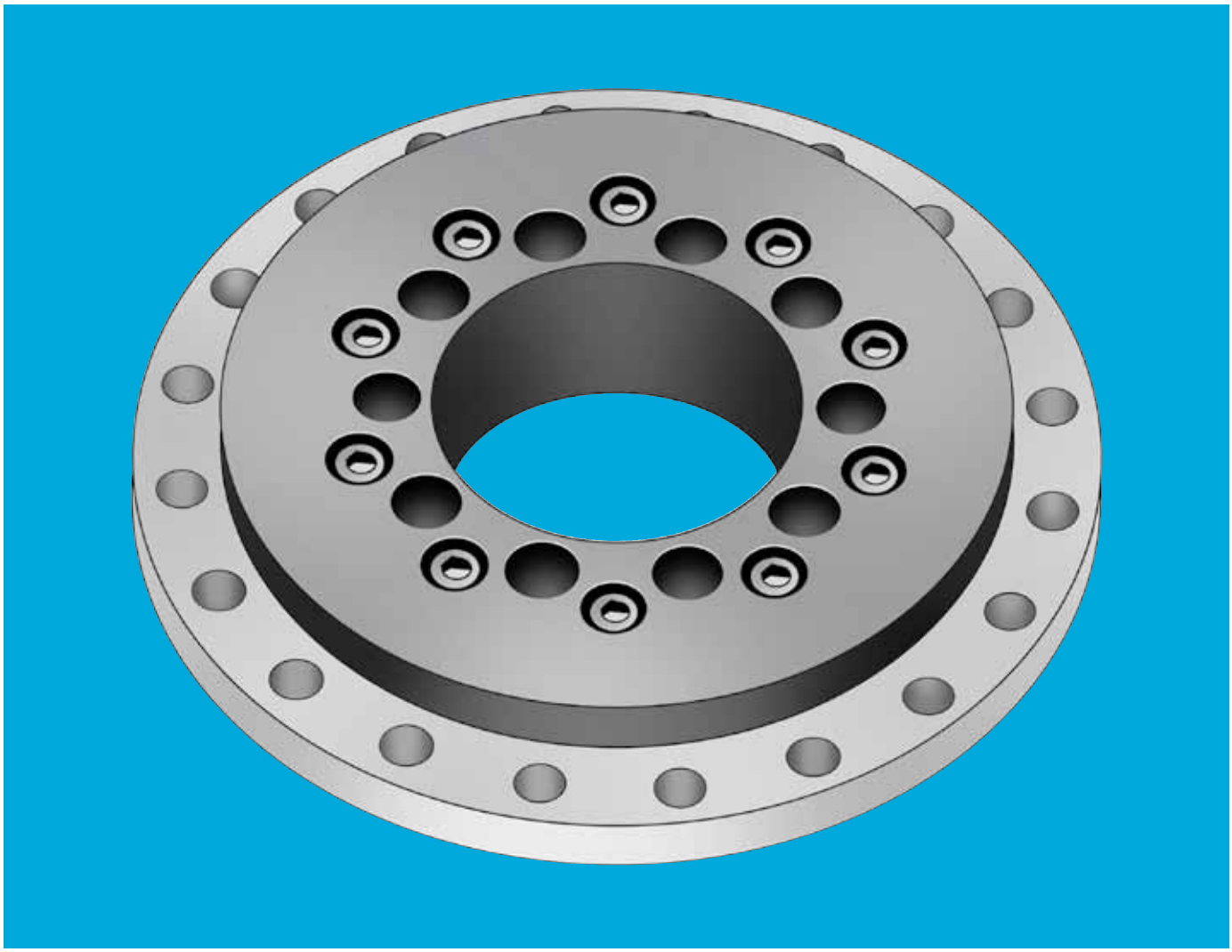
Material:
iglidur® J ▶ page 89
iglidur® V400 ▶ page 279

Dimensions [mm]

Part number	d1	d2	b1	b3	f
	E11	Ø	h13		
JDSM-1015-14	10	15	14	10	1
VDSM-1015-14	10	15	14	10	1

delivery time available from stock | prices price list online www.igus.co.uk/en/jdsm | order example part number JDSM-1015-14

My Sketches

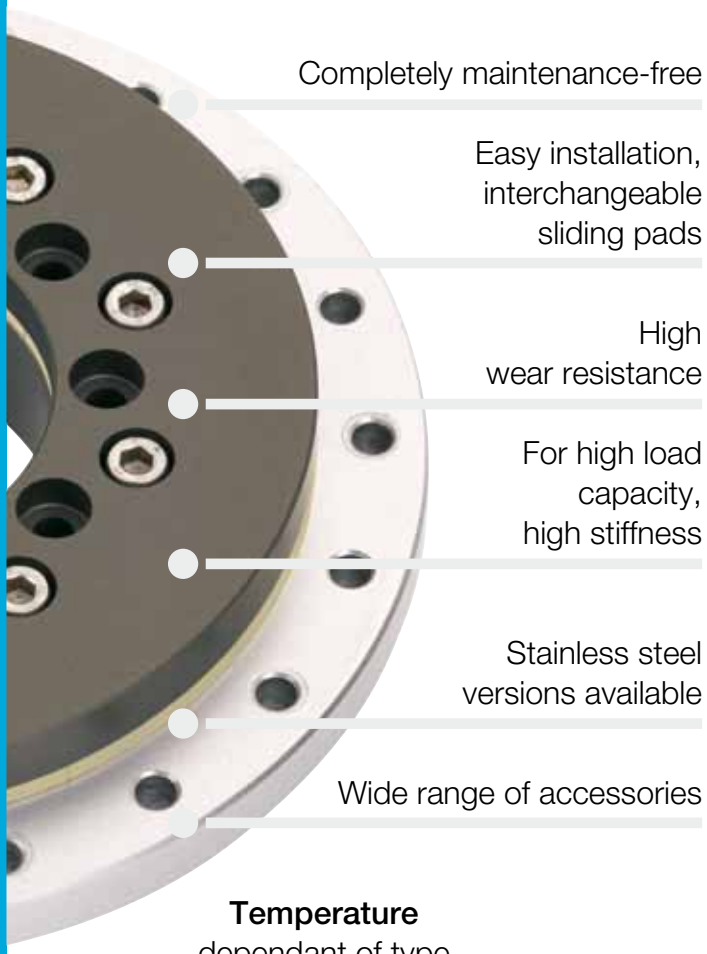


iglidur® PRT – Slewing Ring Bearing

- Standard range from stock
- Completely maintenance-free
- Easy installation, interchangeable sliding pads
- High wear resistance
- For high load capacity, high stiffness
- Available as stainless steel version
- Wide range of accessories

iglidur® PRT

iglidur® PRT is a Slewing Ring Bearing with the proven advantages of the igus® polymer bearings. The sliding pads made from iglidur® high-performance polymers are completely free from maintenance and lubrication. All the housing components are made from anodized aluminum or stainless steel, the surfaces which mate with the iglidur® sliding pads are all hard anodized. All the fixing screws are stainless steel.



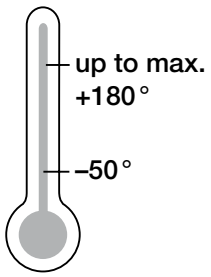
When to use it?

- When a ready-to-install fit solution is needed
- As a robust and corrosion resistant bearing unit for high loads
- For high tilting moments
- For use with different sorrounding media
- When a lubrication and maintenance free Slewing Ring Bearing is needed
- For slow to medium speed

When not to use it?

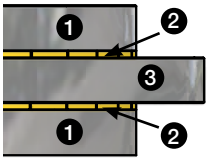
- For fast rotations
- With temperatures over +180 °C
- When there is not enough driving torque at high loads
- When highest precision is needed

Temperature
dependant of type



Product range

3 types
42 dimensions
Ø 20–300 mm



❶ **Type 01:**
Aluminum, hard anodized, or Stainless steel V4A
Type 02:
iglidur® J4 or A180

❷ **Type 01:**
iglidur® J or H1

❸ **Type 01 and 02:**
Aluminum, anodized, or Stainless steel V4A

iglidur® PRT | Application Examples

Typical sectors of industry and application areas

● Conveyors ● Automation ● Assembly stations ● Theatre/Stage and lighting technology ● Renewable energy etc.

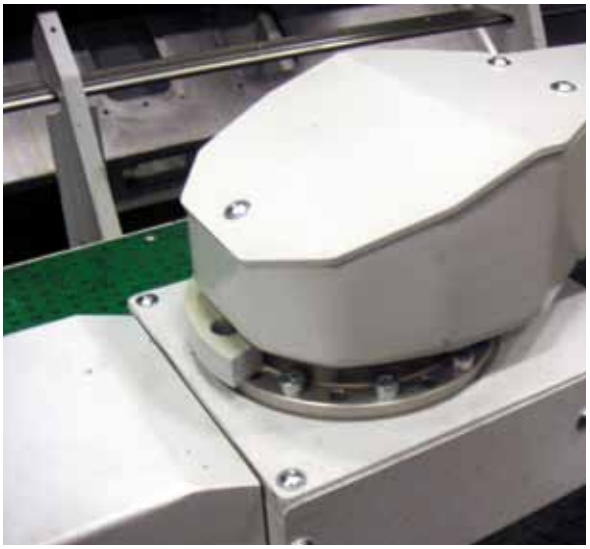
Improve technology and reduce costs – 310 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/iglidur-applications

Handling and conveyance system for semiconductor transport/box.

▶ www.igus.co.uk/movinghead

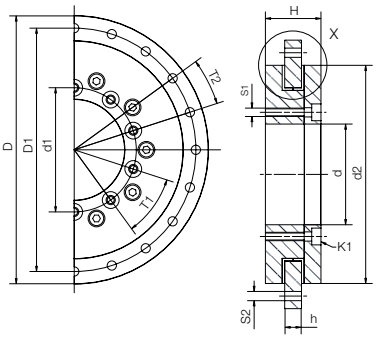
▶ www.igus.co.uk/welding-plant

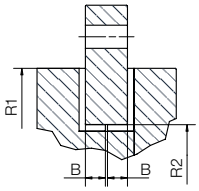


▶ www.igus.co.uk/cnc-machining

iglidur® PRT | Product Range Type 01

Slewing ring bearing





Order key

PRT-01-30-ES-H1

- blank = iglidur® J
- Sliding pads from iglidur® H1
- Blank: Alumnium
- ES: Stainless steel V4A
- Inner-Ø
- Type
- Slewing Ring

Special properties

- Slewing ring with high stiffness
- Easy to fit
- High wear resistance
- Maintenance-free sliding pads made of iglidur® J ▶ **page 89**
- Available in aluminium or stainless steel V4A

Available in stainless steel

Dimensions [mm]

Part Number	D*	D1	d1	d	d2 ±0,2	H	h	T1	T2	S1	S2	K1 for screw	R1	R2	B
PRT-01-30	100	91	42.5	30	82	29	10	8 x 45°	8 x 45°	M4	4.5	DIN 7984 M4	41	29	4,5
PRT-01-60	160	145	74	60	130	33	10	10 x 36°	20 x 18°	M5	5.5	DIN 912 M5	65	51.5	4.5
PRT-01-100	185	170	112	100	160	34	12	12 x 30°	16 x 22.5°	M5	5.5	DIN 912 M5	80	69	5.5
PRT-01-150	250	235	165	150	220	35	12	12 x 30°	16 x 22.5°	M5	5.5	DIN 912 M5	110	96.5	5.5
PRT-01-200	300	285	215	200	274	38	15	12 x 30°	16 x 22.5°	M6	7.0	DIN 912 M6	137	124	7.0
PRT-01-300	450	430	320	300	410	42	15	12 x 30°	16 x 22.5°	M8	9.0	DIN 7984 M8	205	186.6	7.0

*** Tolerance according to DIN ISO 2768 mK**

High temperature slewing ring bearing

Special properties

- Suitable up to +180 °C, high chemical resistance
- For all 5 standard dimensions of style 01
- Body in aluminium or stainless steel,
- Sliding pads in iglidur® H1 ▶ **page 337**

Dimensions [mm]

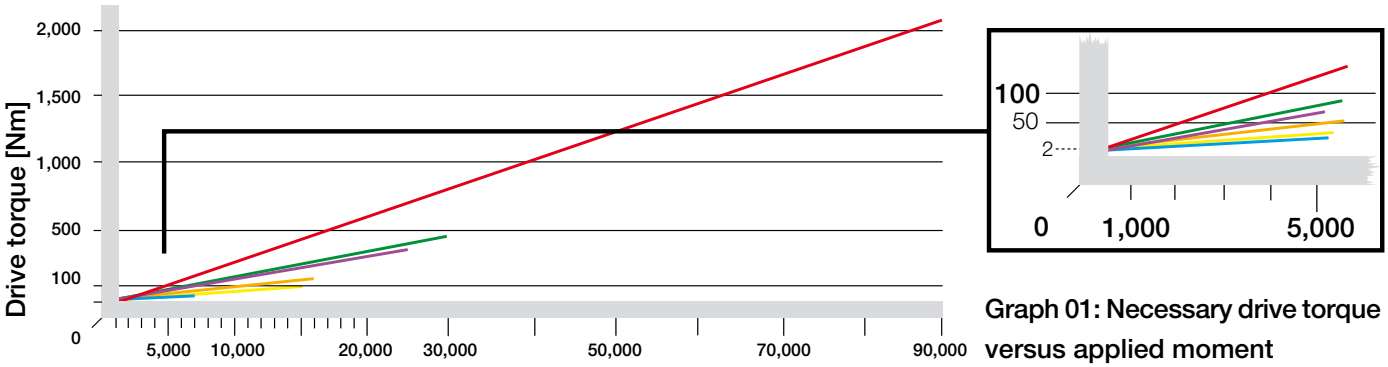
Part Number	D*	D1	d1	d	d2 ±0,2	H	h	T1	T2	S1	S2	K1 for screw	R1	R2	B
PRT-01-30-H1	100	91	42.5	30	82	29	10	8 x 45°	8 x 45°	M4	4.5	DIN 7984 M4	41	29	4.5
PRT-01-60-H1	160	145	74	60	130	33	10	10 x 36°	20 x 18°	M5	5.5	DIN 912 M5	65	51.5	4.5
PRT-01-100-H1	185	170	112	100	160	34	12	12 x 30°	16 x 22.5°	M5	5.5	DIN 912 M5	80	69	5.5
PRT-01-150-H1	250	235	165	150	220	35	12	12 x 30°	16 x 22.5°	M5	5.5	DIN 912 M5	110	96.5	5.5
PRT-01-200-H1	300	285	215	200	274	38	15	12 x 30°	16 x 22.5°	M6	7.0	DIN 912 M6	137	124	7.0
PRT-01-300-H1	450	430	320	300	410	42	15	12 x 30°	16 x 22.5°	M8	9.0	DIN 7984 M8	205	186.6	7.0

*** Tolerance according to DIN ISO 2768 mK**

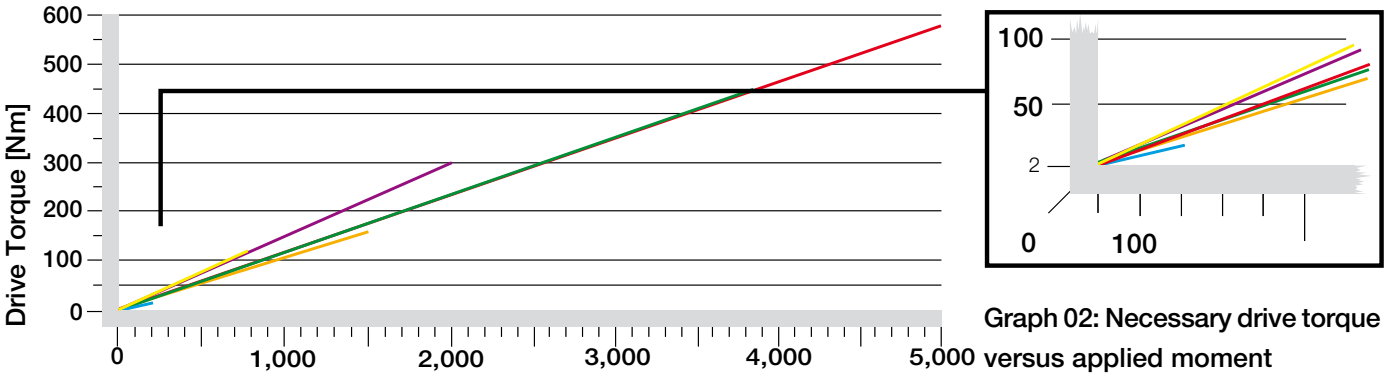
delivery time **available from stock** | prices **price list online www.igus.co.uk/en/prt** | order example **part number PRT-01-30**

iglidur® PRT | Technical Data Type 01

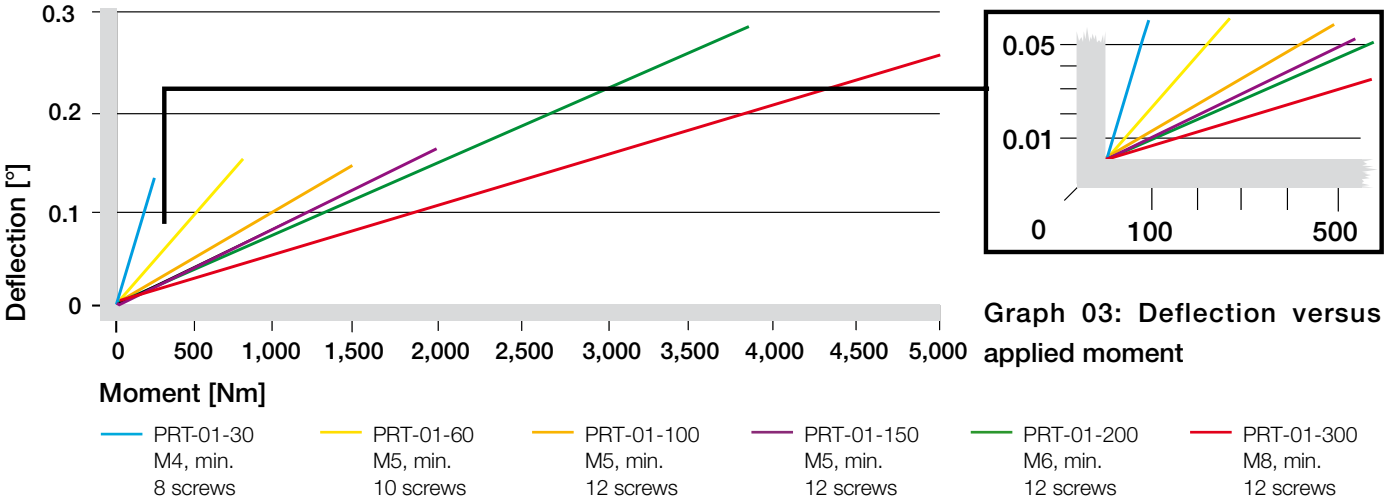
Properties	Unit	PRT-01-30	PRT-01-60	PRT-01-100	PRT-01-150	PRT-01-200	PRT-01-300
Weight	kg	0.4	1.1	1.3	2.2	3.2	7.6
Max. axial load, static	N	27,000	50,000	55,000	80,000	100,000	150,000
Max. axial load, dynamic	N	7,000	15,000	16,000	25,000	30,000	90,000
Max. radial load, static	N	5,000	10,000	16,000	25,000	35,000	45,000
Max. radial load, dynamic	N	1,500	3,000	5,000	8,000	10,000	27,000
Max. rotat. speed dry running	1/min	250	200	150	100	80	50
Rigidity, axial	N/µm	100	300	400	450	500	500
Rigidity, radial	N/µm	50	65	65	65	65	65
Max. perm. tilting moment	Nm	200	800	1,500	2,000	3,800	5,000



Graph 01: Necessary drive torque versus applied moment



Graph 02: Necessary drive torque versus applied moment



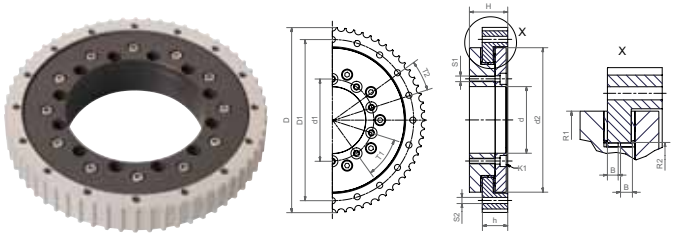
Graph 03: Deflection versus applied moment

All load values assume the PRT is assembled with socket head screws (strength class 8.8) on the outside pitch circle diameter. For the assembly of the PRT the screws have to be inserted to a minimum thread depth of 2xd in every bore location in the outer ring. All data can be used for both lateral and horizontal assembly.

NEW in this catalog!

iglidur® PRT | Product Range Type 01

Slewing ring bearing with toothed outer ring



For each of the 6 sizes of the PRT-01 design version, 4 standards for toothed outer ring are available.
A classic spur gear teeth according to DIN3967 for use with a plastic gear or gear rack, and three commercially available belt profiles: T10, AT10, HTD8M. In the case of the externally toothed PRT, the inner ring is fixed and the outer ring driven.
At the same time the toothed outer ring outer ring with a special large diameter carries the gear.

Order key

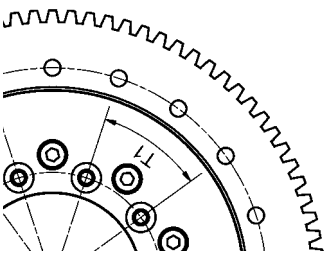
PRT-01-30-TO-...

- Tooth profile type
- Toothed outer ring
- Inner-Ø
- Type
- Slewing Ring

Dimensions [mm]

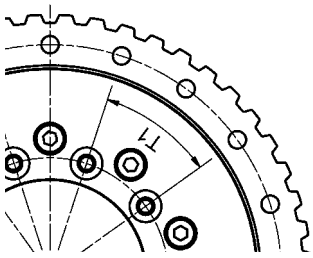
Part number	D1	d1	d	d2	h	T1	T2	S1	S2	K1	R1	R2	B	H
PRT-01-30-TO-...	91	42.5	30	82	21	8x45°	8x45°	M4	4,5	DIN 912 M4	41	29.0	4.5	(30.4)
PRT-01-60-TO-...	145	74.0	60	130	23	10x36°	20x18°	M5	5,5	DIN 912 M5	65	51.5	4.5	(34.5)
PRT-01-100-TO-...	170	112.0	100	160	25	12x30°	16x22,5°	M5	5,5	DIN 912 M5	80	69.0	5.5	(36.0)
PRT-01-150-TO-...	235	165.0	150	220	25	12x30°	16x22.5°	M5	5,5	DIN 912 M5	110	96.5	5.5	(37.5)
PRT-01-200-TO-...	285	215.0	200	274	30	12x30°	16x22.5°	M6	7,0	DIN 912 M6	137	124.0	7.0	(41.5)
PRT-01-300-TO-...	430	320.0	300	410	30	12x30°	16x22.5°	M8	9,0	DIN 912 M8	205	186.5	8.5	(46.5)

Spur gearing DIN3967



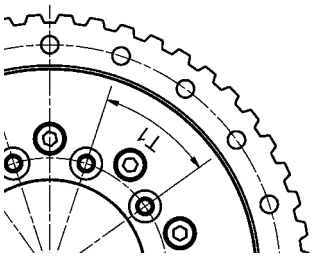
Part number	m	z	D
...-ST	2	54	(112)
...-ST	2	90	(184)
...-ST	2	96	(196)
...-ST	2	126	(256)
...-ST	2	152	(308)
...-ST	3	152	(462)

Toothed belt profile AT10



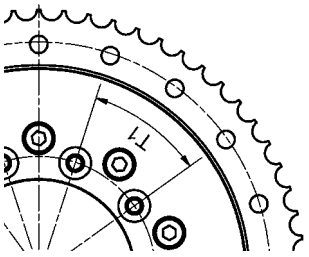
Part number	z	D
...-AT10	34	(106.4)
...-AT10	52	(163.8)
...-AT10	60	(189.2)
...-AT10	80	(252.9)
...-AT10	96	(303.9)

Toothed belt profile T10



Part number	z	D
...-T10	34	(106.4)
...-T10	52	(163.8)
...-T10	60	(189.2)
...-T10	80	(252.9)
...-T10	96	(303.9)
...-T10	144	(456.7)

Toothed belt profile HTD8M

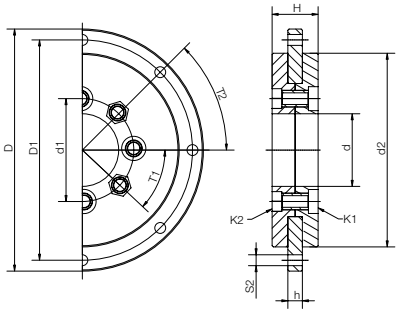


Part number	z	D
...-HTD8M	34	(105.6)
...-HTD8M	52	(166.7)
...-HTD8M	60	(189.2)
...-HTD8M	80	(253.3)
...-HTD8M	96	(304.3)
...-HTD8M	144	(457.1)

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/prt | order example **part number PRT-01-30-TO-...**

iglidur® PRT | Product Range Type 02

Slewing ring bearing



Order key

PRT-02-20-AL

- AL: Aluminium
- ES: Stainless steel V4A
- Inner-Ø
- Type
- Slewing Ring

Special properties

- Slewing ring with very low weight
- Outer ring made from hard anodized Aluminium or stainless steel (V4A)
- iglidur® J4 – head rings – sliding against the outer ring without lubrication
- Low cost

Outer ring available in stainless steel as an option. Headrings made from iglidur® J4

Dimensions [mm]

Part number	D*	D1	d1	d	d2	H	h	T1	T2	S2	K1 for screw	K2 for screw
PRT-02-20-AL/ES	80	70	31	20	60	16	5	6 x 60°	6 x 60°	4,5	DIN 6912-A2 M5	DIN 439-A2 M5
PRT-02-30-AL/ES	100	91	42,5	30	80	19	6	8 x 45°	8 x 45°	4,5	DIN 7984 M5	DIN 439-A2 M5
PRT-02-60-AL	160	145	86,0	60	130	30	10	12 x 30°	20 x 18°	5,5	DIN 931 M5X25	DIN 934 M5

Slewing ring bearing, FDA compliant

Special properties

- For use in the food technology with headrings made from FDA-conform material iglidur® A180
- The stainless steel outer ring and the material iglidur® A180 ▶ **page 371** are suitable for the direct contact with food, pharmaceuticals and humidity.
- Low profile and low weight
- Ready to fit

Dimensions [mm]

Part Number	D*	D1	d1	d	d2	H	h	T1	T2	S2	K1 for screw	K2 for screw
PRT-02-30-ES-A180	100	91	42,5	30	80	19	6	8 x 45	8 x 45	4,5	DIN 7984 M5	DIN 439-A2 M5

Properties	Unit	PRT-02-20	PRT-02-30	PRT-02-60
Weight	kg	0,1	0,2	0,7
Max. axial load, stat.	N	13,000	25,000	45,000
Max. axial load, dyn.	N	4,000	7,000	12,000
Max. radial load, stat.	N	2,000	2,500	10,000
Max. radial load, dyn.	N	500	700	2,800
Max. rotat. speed dry running	1/min	250	200	120
Max. permissible tilting moment	Nm	60	100	200

delivery time **available from stock**

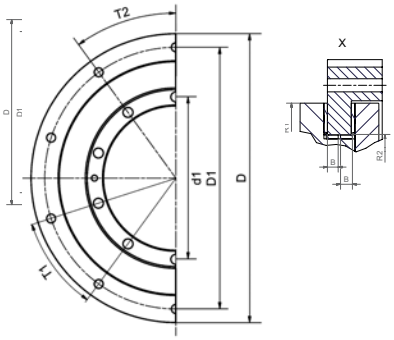
prices **price list online** www.igus.co.uk/en/prt

order example **part number** PRT-02-20-AL/-ES

NEW in this catalog!

iglidur® PRT | Product Range Type 03

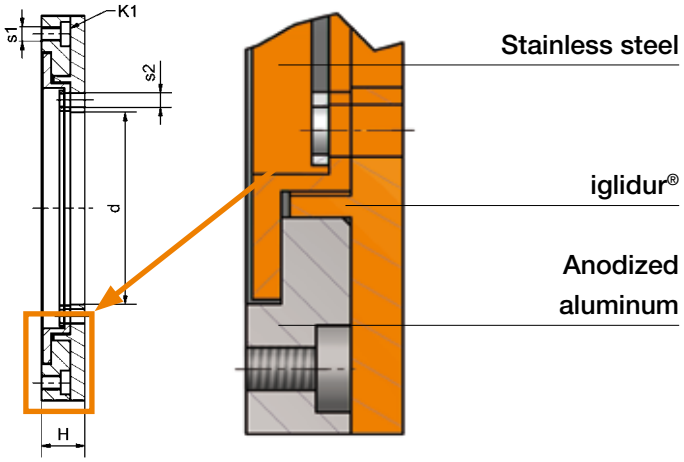
Slewing ring bearing in a new Low-Cost-Design



Order key

PRT-03-80

Inner-Ø
Type
Slewing Ring



iglidur® PRT slewing ring bearings in a new economic design. Ongoing cost engineering has resulted in a new design, with a greater use of plastics.

- Maintenance- and lubrication-free
- Low priced and lightweight
- Low installation space
- Ready to fit

Properties	Unit	PRT-03-80
max. rpm	rpm	120
max. recommended static load rating axial (push direction)	N	12,000
recommended dynamic load rating axial (push direction)	N	45,000
max. recommended static load rating axial (pull direction)	N	5,000
max. recommended dynamic load rating axial (pull direction)	N	2,000
max. recommended static overturning moment	Nm	120
max. recommended static load rating radial	N	4,000
max. recommended dynamic load rating radial	N	1,000
max. temperature	°C	60

Dimensions [mm]

Part number	D	D1	d1	d	H	T1	T2	s1	s2	K1
PRT-03-80	160	145	90	80	18	10 x 36°	10 x 36°	M6	6	M5

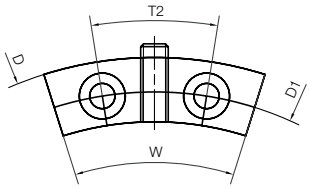
delivery time available from stock

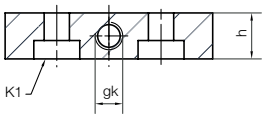
prices price list online www.igus.co.uk/en/prt

order example part number PRT-03-80

iglidur® PRT | Product Range Accessories

Hand clamp





Graph 04: PRT with fitted manual clamp

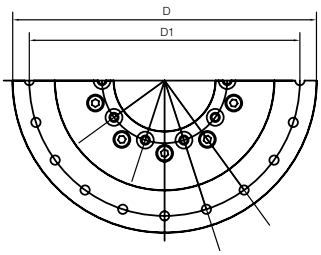
- With 1 Nm screw torque, a holding torque up to 10 Nm is possible
- Easy to screw onto outer ring

Dimensions [mm]

Part number	D	D1	T2	K1	h	gk	W
PRT-HK-60	160	145	20 x 18°	DIN 7984 M5	10	M6	35°
PRT-HK-100*	205	185	16 x 22.5°	DIN 7984 M5	12	M6	40°
PRT-HK-200*	320	300	16 x 22.5°	DIN 7984 M6	15	M6	40°

* Only available with large outer rings

Slewing ring bearing with large outer ring



Dimensions [mm]

Part number	D	D1
PRT-01-100-M-ARG*	205	185
PRT-01-100-M-ARGG*	205	185
PRT-01-100-M-ARGS*	205	185
PRT-01-200-M-ARG*	320	300
PRT-01-200-M-ARGG*	320	300
PRT-01-200-M-ARGS*	320	300

* Ending: -G standard, -GG thread- or -GS counterbore

Other dimensions such as Standard type PRT-01 ▶ page 548

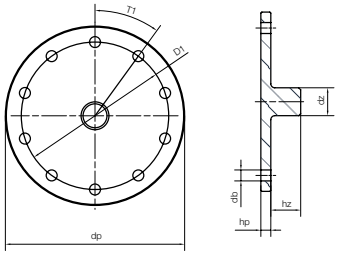
delivery time available from stock

prices price list online www.igus.co.uk/en/prt

order example part number PRT-HK-60 PRT-01-100-M-ARG

iglidur® PRT | Product Range Accessories

Drive pin

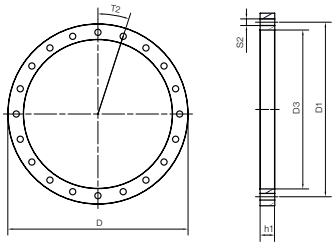


Graph 05: PRT with assembled drive pin

Dimensions [mm]

Part number	dp	hp	dz	hz	D1	T1	db
PRT-AZ-30	55	5	10	15	42.5	8 x 45°	4.5
PRT-AZ-60	90	5	14	15	74	10 x 36°	5.5

Spacing rings made from anodized aluminum

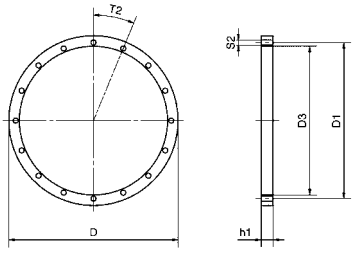


Graph 06: PRT with assembled spacing ring

Dimensions [mm]

Part number	D	D1	T2	S2	D3	h1
PRT-01-30-DR	100	91	8 x 45°	4.5	84	11
PRT-01-60-DR	160	145	20 x 18°	5.5	132	13
PRT-01-100-DR	185	170	16 x 22,5°	5.5	162	13
PRT-01-150-DR	250	235	16 x 22.5°	5.5	222	13
PRT-01-200-DR	300	285	16 x 22.5°	7.0	276	13

Spacing rings made from polymer



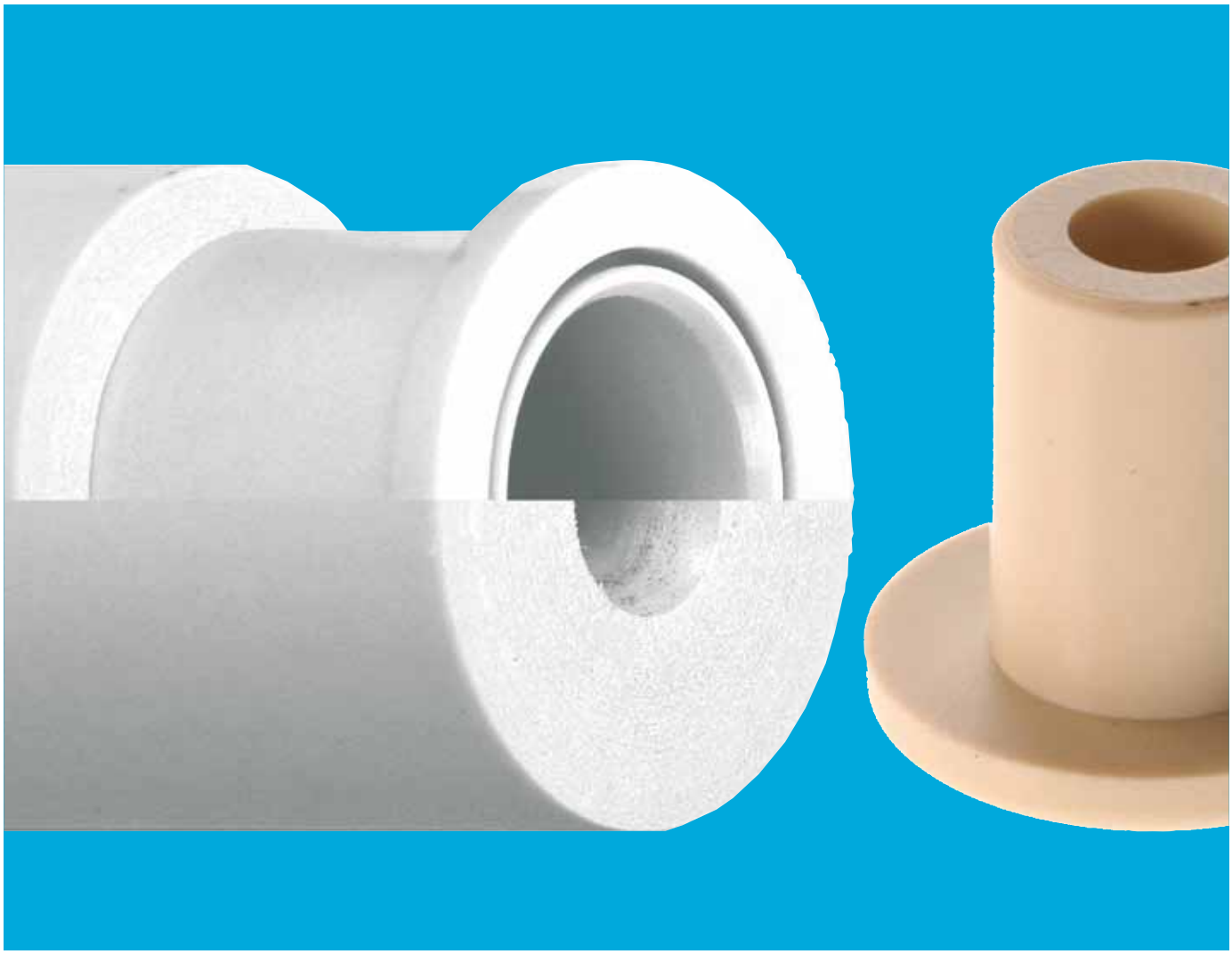
Dimensions [mm]

Part number	D	D1	T2	S2	D3	h1
PRT-01-30-DR-POM	100	91	8 x 45°	4.5	84	11
PRT-01-60-DR-POM	160	145	20 x 18°	5.5	132	13
PRT-01-100-DR-POM	185	170	16 x 22.5°	5.5	162	13

delivery time available from stock

prices price list online www.igus.co.uk/en/prt

order example part number
PRT-AZ-30
PRT-01-03-DR
PRT-01-03-DR-POM

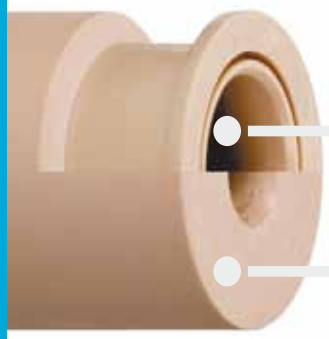


iglidur® Stock Bars and speedigus

- Standard range from stock
- iglidur® materials as round material or customized molded parts
- Maintenance-free and predictable service life
- Fast delivery and low priced

iglidur® Stock Bars and speedigus | Own design

iglidur® gives design freedom – now available as round material, mechanically finished special parts or customized moulded parts – for prototypes, test samples and low volume requirements.



iglidur® materials as round material or customized molded parts

Maintenance-free and predictable service life

fast delivery and low priced

When to use it?

- If the required dimension is not in iglidur® catalog range
- If you need a stock bar with excellent wear rates and coefficient of friction
- If you need only a small size from iglidur® special parts
- If you need to make a prototype using igus® bearings

When not to use it?

- If an equal iglidur® standard catalog bearing is available
- If you need a iglidur® plain bearings with special dimensions in high quantity
  ▶ Please ask us
- If you need a stock bar without any tribological properties

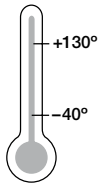
Material data for stock bars

iglidur® A180	▶ page 371
iglidur® J	▶ page 89
iglidur® J4	▶ page 982
iglidur® P210	▶ page 982
iglidur® R	▶ page 249
iglidur® W300	▶ page 131

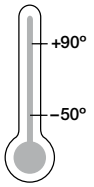
Material data for speedigus

iglidur® G	▶ page 61
iglidur® J	▶ page 89
iglidur® M250	▶ page 107
iglidur® W300	▶ page 131
iglidur® X	▶ page 153
iglidur® A180	▶ page 371
iglidur® H2	▶ page 359
iglidur® P	▶ page 185
igumid G	▶ page 983

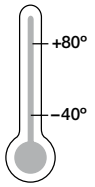
Temperatures



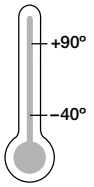
iglidur® G



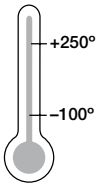
iglidur® J



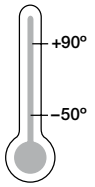
iglidur® M250



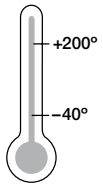
iglidur® W300



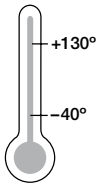
iglidur® X



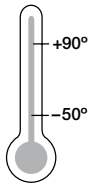
iglidur® A180



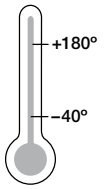
iglidur® H2



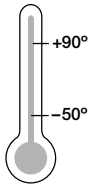
iglidur® P



iglidur® J4



iglidur® P210



iglidur® R

 More information ▶ www.igus.co.uk/stockbar and www.igus.co.uk/speedigus

iglidur® Stock Bars | Product Range

Order key

SFRJ-3000-500

- Length*
- Inner diameter (00 = solid material)
- Outer diameter
- iglidur® J Material
- round
- iglidur® stock bar (semi-finished)

Dimensions [mm]

Part number	Ø	Material
SFRW-3000-□*	30	iglidur® W300
SFRW-6000-□*	60	iglidur® W300

Part number	Ø	Material
SFRJ-1000-□*	10	iglidur® J
SFRJ-2000-□*	20	iglidur® J
SFRJ-3000-□*	30	iglidur® J
SFRJ-4000-□*	40	iglidur® J
SFRJ-5000-□*	50	iglidur® J
SFRJ-6000-□*	60	iglidur® J
SFRJ-8000-□*	80	iglidur® J
SFRJ-10000-□*	100	iglidur® J

* length in mm from 100 to 1000 graduated in 100 mm steps

** new in this catalog

Use the online product selector to input application parameters, add to shopping basket, and order

▶ www.igus.co.uk/stockbar-productfinder

Part number	Ø	Material
SFRA180-1000-□*	10	iglidur® A180
SFRA180-2000-□*	20	iglidur® A180
SFRA180-3000-□*	30	iglidur® A180
SFRA180-4000-□*	40	iglidur® A180
SFRA180-5000-□*	50	iglidur® A180
SFRA180-6000-□*	60	iglidur® A180
SFRA180-8000-□*	80	iglidur® A180
SFRA180-10000-□*	100	iglidur® A180

Part number	Ø	Material
SFRJ4-3000-□*	30	iglidur® J4

Part number	Ø	Material
SFRP210-3000-□*	30	iglidur® P210

Part number	Ø	Material
SFRR-3000-□*	30	iglidur® R

delivery time available from stock

prices price list online www.igus.co.uk/stockbar

order example part number SFRJ-1000

NEW in this catalog!

speedigus

What is speedigus? Simple; choose any iglidur® material, get moulded parts in 1 to 10 days, depending on complexity of the part. Full technical component information given with every quotation, including leadtime options. Absolute maximum delivery is 15 days.

How speedigus works?

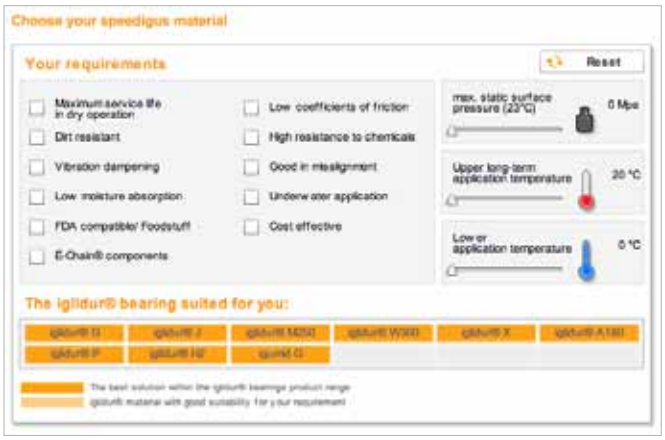
❶ Tell us about your special part: material, special requirements etc. and upload or email us your 3D model

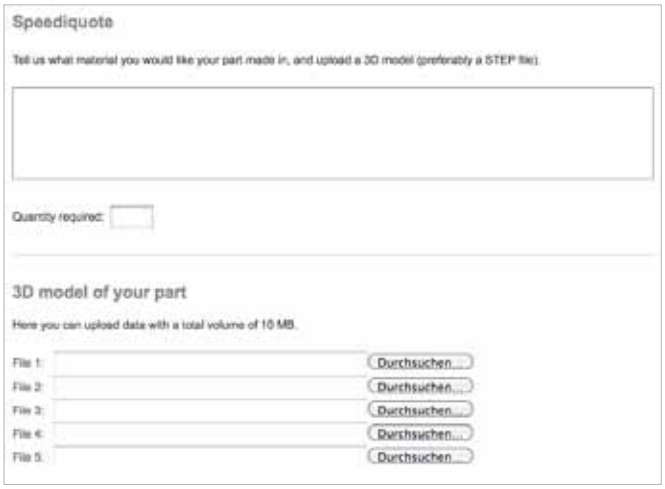
❷ Check your speedigus quotation, select your required leadtime, then place your order

❸ The speedigus tool for your part is manufactured

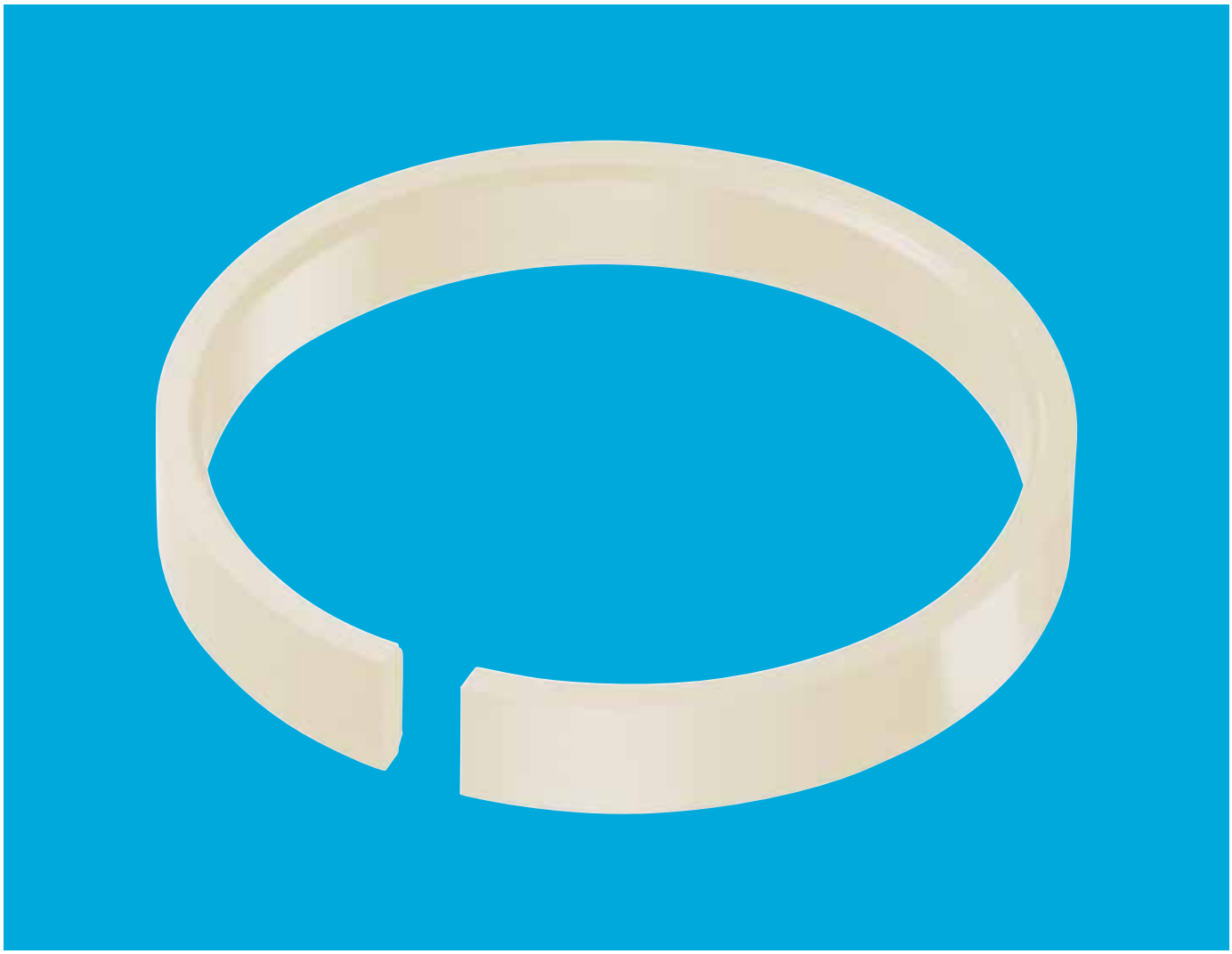
❹ The parts are moulded in the igus® material which you have selected

❺ You fit your parts





delivery time **1–15 days**



iglidur® Piston Rings

- Standard range from stock
- Easy installation
- Economically
- More wear-resistant than PTFE-strips
- High load capacity
- Wide dimensional range

iglidur® Piston Rings

Why complicate things when it can be done simply? It can actually be very easy: Replace complex stamped PTFE tapes with a single clip-on guide ring, for example in cylinders, control valves and fittings. We offer iglidur® piston rings made of any iglidur® material for a wide range of applications.

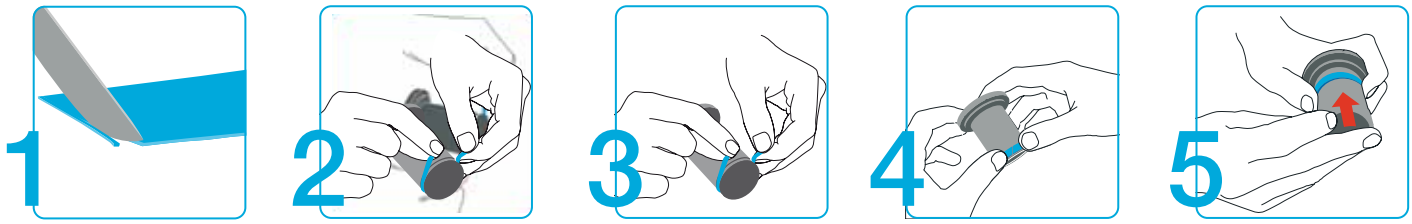
When to use it?

- When piston rings with excellent wear properties are required
- When simple assembly is of great importance
- When high edge loads occur
- When tailor-made solutions based on iglidur® materials are required

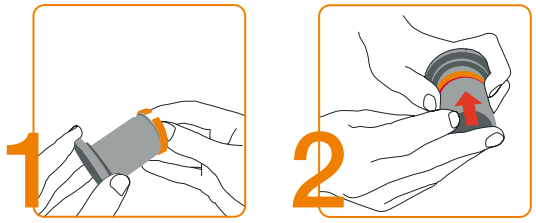
When not to use it?

- When the piston rings should also act as a seal
- When different diameters should be covered by one part

Traditional method:



New: with iglidur®:



Product range

Ø 10–70 mm
more dimensions on request

iglidur® Piston Rings | Product Range

Order key

JPRM-1012-054

- Length
- Outer diameter
- Inner diameter
- Metric
- Piston rings
- iglidur® J

iglidur® J piston rings, from stock

Dimensions [mm]

Part number	Inner-Ø d1	Outer-Ø d2	Width piston ring b1; h13	Gap width	Tolerance gap ±mm	Split angle [°]
JPRM-1012-054	10	12	5.4	2.5	0.5	20
JPRM-1214-054	12	14	5.4	2.5	0.5	20
JPRM-1416-054	14	16	5.4	2.5	0.5	20
JPRM-1618-054	16	18	5.4	2.5	0.5	20
JPRM-2023-054	20	23	5.4	2.5	0.5	20
JPRM-2528-054	25	28	5.4	2.5	0.5	20
JPRM-3034-054	30	34	5.4	2.5	0.5	20
JPRM-3539-054	35	39	5.4	2.5	0.5	20
JPRM-4044-054	40	44	5.4	2.5	0.5	20
JPRM-4550-054	44	50	5.4	2.5	0.5	20
JPRM-5055-054	50	55	5.4	2.5	0.5	20
JPRM-6065-054	60	65	5.4	2.5	0.5	20
JPRM-7075-054	70	75	5.4	2.5	0.5	20

Custom-made piston rings

Piston rings in your required material and dimensions in max. 10 days from the entire iglidur® bearings catalog program – economically injection molded and processed in your required dimensions.

Preferable iglidur® materials:

- **iglidur® J: universal ▶ page 89**
- **iglidur® A180: FDA conform ▶ page 371**
- **iglidur® J4 ▶ page 982**
- **iglidur® J350: > +90 °C ▶ page 229**
- **iglidur® X: chemicals, temperatures ▶ page 153**

Choose your material and diameter from the igus® bearing catalog, tell us your required length and done.

Order key

□PRM-d1d2-b1

- b1: Required length
- Inner- and Outer-Ø (d1 + d2) from available standard plain bearing
- Metric
- Piston rings
- iglidur® material

delivery time **available from stock**

prices **price list online** www.igus.co.uk/pistonring

order example **part number JPRM-1012-054**

3. igubal®

Self-aligning rod ends-, pillow block- and flange bearings

...plastics

Application Examples: igubal®

Exciting applications can be viewed online at ▶ **www.igus.co.uk/igubal-applications**

LIMELIGHT BV

Stadium paneling igubal® spherical bearings of dimension series K are used in the main bearing assembly of every individual slat owing to their freedom from maintenance, corrosion resistance and atmospheric resistance. Since these slats can be swiveled, this allows the air flow inside the stadium to be regulated. Part number: igubal® spherical bearing KGLM-08

RESEARCH INSTITUTE
Mirror adjustment of the telescope is performed virtually free of backlash with igubal® flange bearings. Magnetic influences can be avoided.
(Max-Planck Institut for physics and astrophysics)

SPECIAL-PURPOSE VEHICLE
Insensitive to dirt and maintenance-free: The rugged clevises and spherical bearings never give in on the special-purpose municipal vehicles.
(Multicar Spezialfahrzeuge GmbH)

PACKAGING MACHINE
Long service life and, at the same time, food-safe design have been implemented in this application with igubal® rod ends.
(Leeb GmbH)

CARAVAN STEP
Rugged, insensitive to dirt and vibration-dampening igubal® rod ends withstand the loads even in worst-case conditions.
(Hymner AG)

TEXTILE INDUSTRY
Concentricity errors and jolts are compensated by means of spherical clevises in the support of the thread guide unit more efficiently than the alternative metal product.
(Sahm GmbH & Co. KG)

CHOCOLATE DECORATION SYSTEM
Decoration without grease by using maintenance-free igubal® rod ends turn all the sweets into sheer enjoyment.
(Wolf Spezialmaschinen GmbH)

igubal® Selection | Materials Overview

Rod Ends
▶ from page 571

KBRM/KBLM
Series K
female thread
right/left; metric
(metal insert optional)
▶ page 576

KBRM CL
KBLM CL
Series K
female thread
right/left; metric
(metal insert optional)
▶ page 578

KCRM/
KCLM
Series K
female thread
right/left; metric
(metal insert optional)
▶ page 581

KARM/KALM
Series K
male thread
right/left; metric
(metal insert optional)
▶ page 580

KBRI/KBLI
Series K
female thread
right/left; Inches
▶ page 590

KARI/KALI
Series K
Male thread
right/left; Inches
▶ page 592

EBRI/EBLI
Series E
female thread
right/left; Inches
▶ page 594

WGRM
WGLM
right/left
metric
▶ page 596

Clevis Joints
▶ from page 602

GERM/GELM
Series E
metric
▶ page 606

GERMK/GELMK
Series E
metric
▶ page 608

GERMF/GELMF
Series E
metric
▶ page 609

GERMKE
GELMKE
Series E
metric
▶ page 610

Pillow Block Bearings
▶ from page 619

KSTM
Series K
metric
▶ page 624

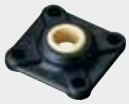
KSTI
Series K
Inches
▶ page 624

KSTM-GT
Series K
metric
▶ page 626

ESTM
Series E
metric
▶ page 627

Flange Bearings
▶ from page 631

EFOM
Series E
metric
▶ page 636



EFSM
Series E
metric
▶ page 638

KFSM-GT
Series K
metric
▶ page 640

EFOM HT
Series E
metric
▶ page 641

Pressfit Spherical Bearings
▶ from page 643

KGLM
Series K
metric
▶ page 648

KGLM LC
Series K
metric
▶ page 649

KGLM SL
Series K
metric
▶ page 650

NEW!*

KGLM H
Series K
metric
▶ page 651

Thrust Bearings
▶ from page 663

SAM
metric
▶ page 666

Spherical Balls
▶ from page 667

WKM/WKI
Series K
metric/Inches
▶ page 671

WEM/WEI
Series E
metric/Inches
▶ page 671

RKM/REM
Series K, E
metric
▶ page 672

XKM/XEM
Series K, E
metric
▶ page 673

KARM CL
Series K
male thread
right; metric

▶ page 582

EBRM/EBLM
Series E
female thread
right/left
metric

▶ page 584

EARM/EALM
Series E
male thread
right/left
metric

▶ page 589

EBRM HT
EBLM HT
Series E
female thread
right/left; metric

▶ page 588

EARM HT
EALM HT
Series E
male thread
right/left; metric

▶ page 589

WGRM-LC
WGLM-LC
right/left
metric

▶ page 597

AGRM
AGLM
right/left
metric

▶ page 598

NEW!*

AGRM-LC
AGLM-LC
right/left
metric

▶ page 599

PKRM
PKLM
Series K
right/left; metric

▶ page 600

GERMFE
GELMFE
Series E
metric

▶ page 611

GEFM
Spring-loaded pin
metric

▶ page 612

GBM
Clevis pin
metric

▶ page 613

GSR
Circlip
metric

▶ page 613

NEW!*

GERM-…-DT
GELM-…-DT
Detectable
clevis joints

▶ page 614

NEW!*

GEFM-…-DT
Detectable
spring-loaded pin

▶ page 616

NEW!*

GERMF-…-DT
GELMF-…-DT
Detectable
combination

▶ page 617

NEW!*

ESTM-GT
Series E
metric

▶ page 628

ESTM-SL
Series E
metric

▶ page 629

NEW!*

AD-01-ESTM
Adapter for
series E
metric

▶ page 630

EFSM HT
Series E
metric

▶ page 642

KGLI
Series K
Inches

▶ page 652

EGLM
Series E
metric

▶ page 653

ECLM
Series E
metric

▶ page 654

ECLM-HD
Series E
metric

▶ page 655

EGFM-… T
Series E
metric

▶ page 656

EGZM
Series E
metric

▶ page 658

EGXM
Series E
metric

▶ page 659

NEW!*

WDGM
Metric

NEW!*

KDGM
Series K
metric

▶ page 660/661

JKM/JEM
Series K, E
metric

▶ page 674

NEW!*

J4KM/J4EM
Series K, E
metric

▶ page 675

UWEM
Series E
metric

▶ page 676

J4VEM
Series E
metric

▶ page 677

* in this catalog

igubal®

igubal® – self-aligning maintenance-free plain bearings made of high performance polymers

igubal® puts a complete system of self-aligning bearings – spherical bearings, pillow block spherical bearings and rod ends – at the developer's fingertips. Self-aligning bearings are easy to fit, adapt to all angular deviations and replace special housings in many cases.
With igubal®, the user can take advantage of all the benefits of high performance polymers: vibration dampening, ability to operate in liquids or chemicals, and resistance to dirt and dust, which can impede the performance of greased metal components.
They are very lightweight: 80 % lighter than steel. They save on installation space because of their small dimensions, and can save on cost at the time of purchase and during operation.
igubal® bearings are also extremely cost competitive due to the elimination of maintenance and installation costs.

Advantages of igubal®:

- Exceptionally cost-effective
- Maintenance-free
- Lubrication-free
- Insensitive to dust and dirt
- Corrosion-resistant
- Can be used in liquid media
- Vibration-dampening
- Inner race set in housings with very low clearance
- Dirt can become embedded for shaft protection
- Light weight

igubal® Spherical Balls Made from iglidur® W300

In standard spherical bearings, the spherical ball is from the iglidur® W300 material (▶ page 131), which is known for its low coefficient of friction while running dry and extremely low tendency to stickslip. This is especially important for low loads and very slow movements.

More spherical ball materials ▶ page 667

Advantages:

- Tough, resistant thermoplastic alloy
- Very low coefficients of friction while running dry
- High service life
- Vibration dampening
- Very good abrasion resistance
- Excellent wear resistance
- Maintenance-free
- Very good chemical resistance
- Suitable for rotating, oscillating and linear movements
- Also suitable for soft shafts

igubal® Housing Made from igumid G

The housings are made of igumid G, a highly shock-resistant, long-fibre reinforced polymer.

Material Table ▶ page 983

Advantages:

- Light weight
- Optimal sliding partner for iglidur® W300 spherical balls
- High mechanical strength
- Shock- and impact-resistant
- Corrosion-resistant
- Chemical-resistant
- Dimensionally stable

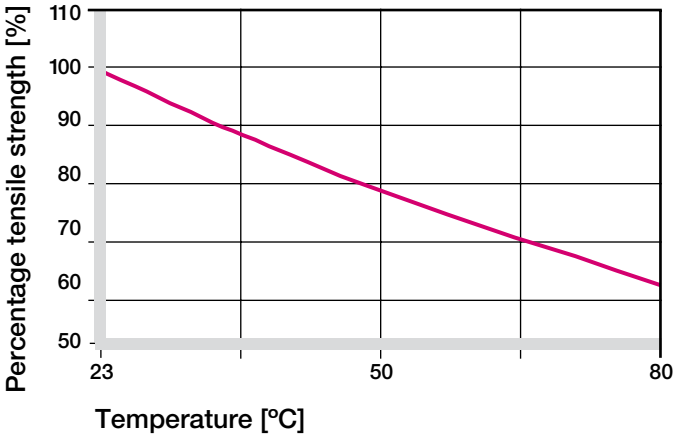
Areas of Application:

igubal® bearing elements can be used without problems even in harsh environments. In moist or wet environments, the bearings are corrosion resistant, and resistant to weak acids and alkalines. The application temperatures range is from –30 to +80 °C. Resistance to dirt and dust is outstanding.
Seals are not necessary, even in extremely contaminated conditions. This is true for fine dust as well as coarse dirt, which is present in agricultural equipment. The housing is made of an impact-resistant composite material which tolerates high alternating loads.

Load

The load capacity of the maintenance-free igubal® bearing element parts is very high at normal ambient temperatures. igubal® bearings absorb high forces and weigh only one fifth of traditional, metal bearing housings. The excellent dampening properties are based on the fact that the polymer material of the two part bearing can absorb vibrations differently than steel.

However, plastic specific properties, such as dependence on temperature and behaviour under long-term stress, must be taken into consideration when using igubal® bearings. The load capacity of the rod end should therefore be checked in a practical test, particularly if it will be used under continuous high loads and at elevated temperatures.



Graph 01: Effect of the temperature on the maximum tensile strength of igubal® rod ends

Coefficients of Sliding Friction and Speed

One important advantage of igubal® spherical bearings is that rapid, rotary movements of a mounted shaft take place directly in the spherical portion, made of iglidur® W300. In metallic rod ends, rotary motion takes place between the race and the spherical bearing. High speeds can be achieved with igubal® bearings.

igubal® bearings are used in such a way that the angular movements of the spherical bearings take place at the outer diameter. By contrast, rotations of the shaft are supported directly in the inner diameter of the spherical portion. The advantage therefore lies in the polymer vs. steel relationship. Polymer produces lower friction and permits high speeds, even when running dry.

Application Temperatures

igubal® bearings can be used in temperatures from –30 °C to +80 °C. Table 01 shows the effect of temperature on the load capacity of igubal® bearings.

igubal®	Application Temperatures
Minimum	–30 °C
Maximum, long term	+80 °C
Maximum, short term	+120 °C

Tabelle 01: Applications temperatures of igubal® bearings

Thread Description	Pitch [mm]
M2	0.40
M3	0.50
M4	0.70
M5	0.80
M6	1.00
M8	1.25
M10	1.50
M10 F	1.25
M12	1.75
M12 F	1.25
M14	2.00
M16	2.00
M16 F	1.50
M18	1.50
M20	1.50
M20 M20	2.50
M22	1.50
M24	2.00
M27	2.00
M30	2.00

Table 02: Thread pitches of igubal® rod ends

Chemical Resistance

The moisture absorption of igubal® is approximately 1.3 % of weight in standard atmosphere. The saturation limit in water is 6.5 %. This must be taken into account for these types of applications. iglidur® W300 and the housing made of igumid G are resistant to weak alkalines, weak acids and fuels, as well as all types of lubricants. You will find a chemicals table starting on page 974.

igubal® | Technical Data

Medium	Resistance
Alcohol	+ to 0
Hydrocarbons	+
Greases, oils without additives	+
Fuels	+
Diluted acids	0 to –
Strong acids	–
Diluted alkalines	+
Strong alkalines	0

Table 03: Chemical resistance of igubal® plain bearings
+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20 °C]

Radiation Resistance

Self-aligning igubal® plain bearings are resistant to radiation up to an intensity of $3 \cdot 10^2$ Gy.

UV Resistance

The corrosion resistance of igubal® bearings gives them special value for outside applications. igubal® bearings are permanently resistant to UV radiation. A small change in colour (dark coloration) of the spherical ball due to UV radiation does not affect the mechanical, electrical or thermal properties.

Tolerances

igubal® spherical bearings can be used with different tolerances according to each application. They are designed with a large clearance in the standard product, which enables a secure operation even under high peripheral speeds. The bore of the inner ring has a tolerance according to E10. The shafts should have tolerances between h6 and h9. The tolerances are provided in the table below. Please contact us in case you require lower or other bearing tolerances.

Basic size [mm]	Tolerance	
	Gauge falls	Gauge hangs
to 3	x,01	x,05
> 3 to 6	x,02	x,07
> 6 to 10	x,02	x,08
> 10 to 18	x,03	x,10
> 18 to 30	x,04	x,12
> 30 to 50	x,05	x,15

Table 04: Tolerances of inner diameter (spherical balls)

Check the Inner Diameter

Inadequate test equipment; mandril gauge to short

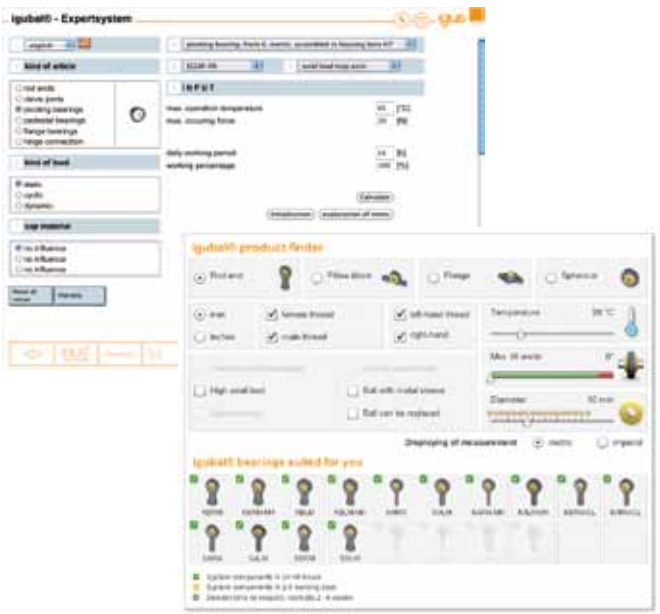
Wrong test equipment; caliper

Tolerance test with gauge

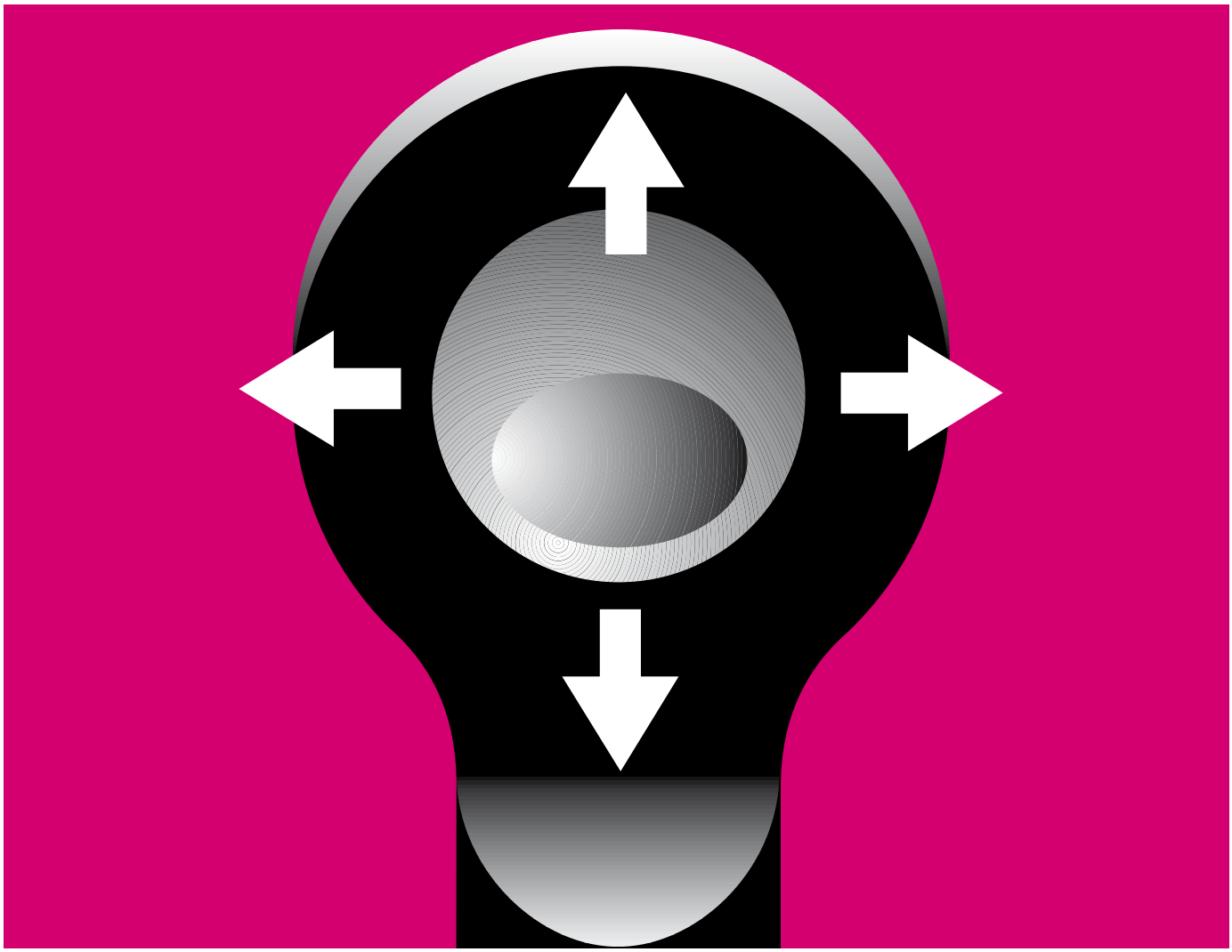
Service Life Calculation

The igubal® expert (picture 04) allows to check the suitability of igubal® bearings for every application. You can choose from different igubal® bearings and specific load (radial, axial or static, cyclic and dynamic). The expert system will calculate from these input data:

- The bearing wear
- The theoretical service life



igubal® Expertsystem
▶ www.igus.co.uk/igubal-expert
igubal® productfinder
▶ www.igus.co.uk/igubal-productfinder

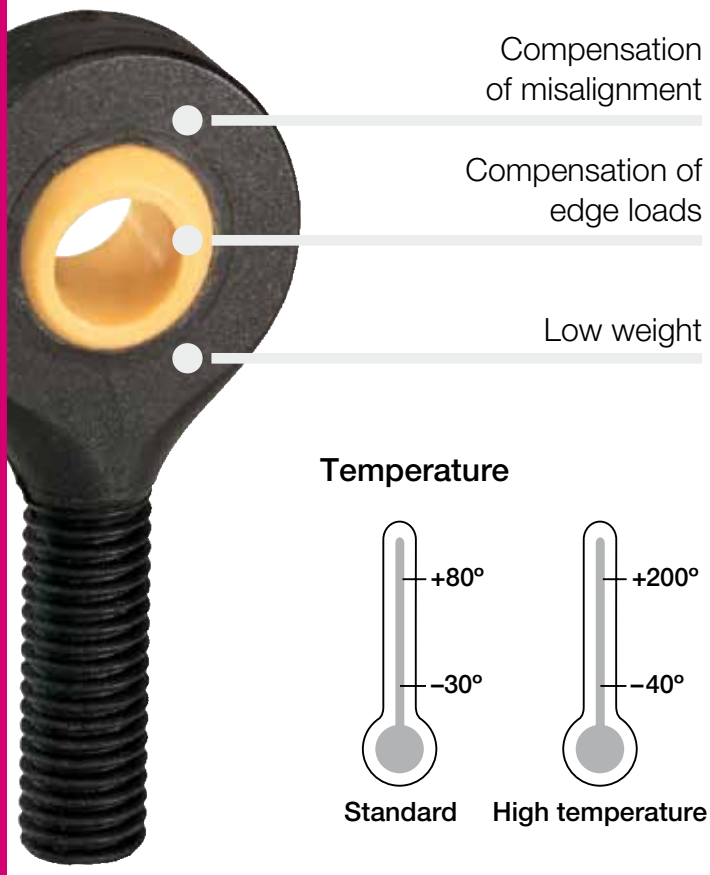


igubal® Rod Ends

- Maintenance-free, self-lubricating
- High strength under impact loads
- High tensile strength
- Compensation of misalignment
- Compensation of edge loads
- Very low weight

igubal® Rod Ends

igubal® rod ends can also be used in rough environments. They are corrosion-resistant in humid environments and resistant to weak acids and bases. The operation temperature is from –40 °C up to +80 °C. Rod ends are also insensitive to dirt and dust.



When to use it?

- If you want to save weight
- To realise rotating, oscillating and linear movements
- If high-frequency oscillations/vibrations preponderance
- If silent run is required
- If you need an electrical insulating article
- If corrosion resistance is required
- In combination with pneumatic cylinders and gas pressure springs
- If chemical resistance is required
- If high stiffness is requested

When not to use it?

- If temperatures are higher than +80 °C
  ▶ HT version
- If rotation speeds higher than 0.5 m/s are required
- If really high tensile and transverse loads prevail
- If applications with hydraulic cylinders should be realised
- If dimensions above 30 mm are necessary

Temperature

Product range

18 types
Ø 2–30 mm

igubal® Rod Ends | Application Examples

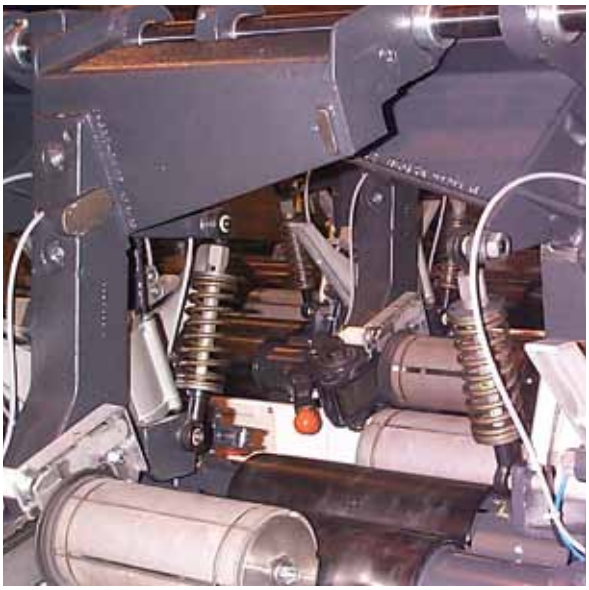
Typical sectors of industry and application areas

- Bicycle manufacturing
- Plant construction
- Packaging
- Offshore etc.

Improve technology and reduce costs – 110 exciting examples online

▶ **www.igus.co.uk/igubal-applications**

▶ **www.igus.co.uk/special-bikes**



▶ **www.igus.co.uk/textile**

▶ **www.igus.co.uk/packaging**

▶ **www.igus.co.uk/offshore**

igubal® Rod Ends | Technical Data

Advantages

- Maintenance-free
- High strength under impact loads
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-resistant
- High vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Light weight
- Dimensional series K and E, according to standard DIN ISO 12240
- Available with a metal sleeve to take a higher torque

Loads

igubal® rod ends handle high loads at normal room temperatures, have excellent dampening properties and weigh only a fifth of traditional metallic rod ends. In applications with high continuous loads and high temperatures, the load capacity of igubal® rod ends should be tested in an experiment that simulates the application.

Coefficients of Friction and Speed

One important advantage of igubal® spherical bearings is that rapid, rotary movements of a mounted shaft take place directly between the shaft and the iglidur® plain spherical bearing. In metallic rod ends, rotary motion takes place between the race and the spherical bearing. High speeds can be achieved with igubal® bearings.

Product Range

igubal® rod ends are available in the dimensional series K and E for shaft diameters of 2 to 30 mm.

- Form A – with male thread and
- Form B – with female thread

The dimensional series K is available in imperial dimensions, as well as a special version containing a stainless steel sleeve in the inner race. This allows a significantly higher torque than for the standard polymer race. Please ask us for more dimensons, delivery time and prices.

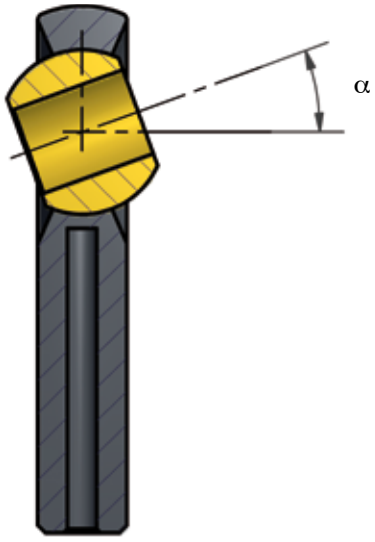
Temperatures

Series E (types A+B) for temperatures up to +200 °C (HT material).

Tolerances

igubal® rod ends can be used at different tolerances depending on the individual application. In standard form, they are designed with a large amount of bearing clearance, which permits reliable operation even at high rotational speeds. The bore of the inner race is produced to a standard tolerance range. Shafts should also meet recommended tolerances. Please contact us if you have any questions regarding tolerances.

Pivot angle



igubal® Rod Ends | Product Overview

igubal® rod ends with female thread

KBRM/KBLM
Series K
right/left
metric
(metal insert optional)

▶ from page 576

**KBRM CL
KBLM CL**
Series K
righ/left; metric
(metal insert optional)

▶ page 578

KCRM/KCLM
Series K
right/left
metric
(metal insert optional)

▶ page 579

EBRM/EBLM
Series E
right/left
metric

▶ from page 584

**EBRM HT/
EBLM HT**
Series E
right/left
metric

▶ page 588

KBRI/KBLI
Series K
right/left
Inches

▶ from page 590

EBRI/EBLI
Series E
right/left
Inches

▶ from page 594

igubal® rod ends with male thread

KARM/KALM
Series K
right/left
metric
(metal insert otional)

▶ from page 580

KARM CL
Series K
right/left; metric
(metal insert optional)

▶ page 582

EARM/EALM
Series E
right/left
metric

▶ from page 586

**EARM HT/
EALM HT**
Series E
right/left
metric

▶ page 589

KARI/KALI
Series K
right/left
Inches

▶ from page 592

igubal® accessories for rod ends

PKRM/PKLM
Series K
right/left
metric

▶ page 600

**GERMK/
GELMK**
Series E
metric

▶ page 608

**GERMF/
GELMF**
Series E
metric

▶ page 609

**WGRM/
WGLM**
right/left
metric

▶ page 596

**WGRM-LC
WGLM-LC**
right/left
metric

▶ page 597

**AGRM
AGLM**
right/left
metric

▶ page 598

NEW!*

**AGRM-LC
AGLM-LC**
right/left
metric

▶ page 599

* in this catalog

igubal® Rod Ends | Product Range

Rod ends with female thread: KBRM and KBLM

Standard design

Design with metal sleeve (MH)

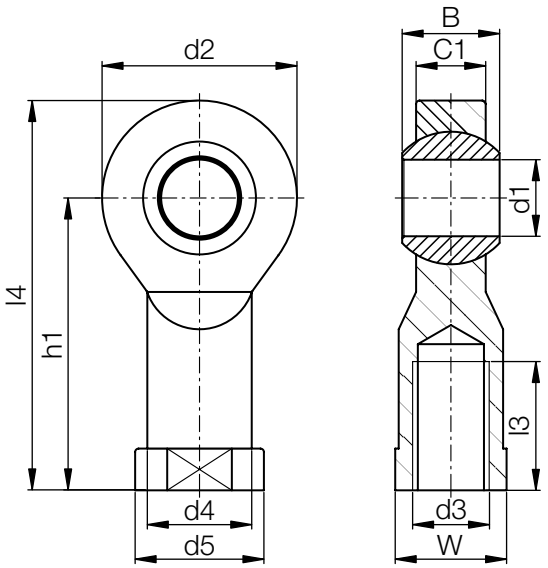
- Maintenance-free, self-lubricating
- High strength under impact loads
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-resistant
- High vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Very low weight
- Dimensional series K according to standard DIN ISO 12240
- Available with a metal sleeve for a higher torque

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Min. thread depth	Max. torque strength	Max. torque through ball		Weight
		Short term	Long term	Short term	Long term	Thread	Inner threading	Standard without MH	Standard with MH	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[Nm]	[g]
KBRM-02	**KBLM-02**	200	100	50	25	4	0.30	1	–	0.4
KBRM-03	**KBLM-03**	800	400	100	50	5	0.50	2	4	2.7
KBRM-05 M4	**KBLM-05 M4**	1,000	500	250	125	7	0.75	5	12	3.5
KBRM-05	**KBLM-05**	1,000	500	250	125	7	1.00	5	12	3.4
KBRM-06	**KBLM-06**	1,400	700	400	200	8	1.50	10	15	4.7
KBRM-08	**KBLM-08**	2,100	1,050	700	350	11	5.00	12	40	8.6
KBRM-10	**KBLM-10**	3,100	1,550	800	400	13	15.00	20	50	14.6
KBRM-10 F	**KBLM-10 F**	3,100	1,550	800	400	13	6.00	20	50	14.6
KBRM-12	**KBLM-12**	3,600	1,800	900	450	15	20.00	30	70	22
KBRM-12 F	**KBLM-12 F**	3,600	1,800	900	450	15	15.00	30	70	22
KBRM-14	**KBLM-14**	4,000	2,000	1,000	500	17	25.00	35	75	30.9
KBRM-16	**KBLM-16**	4,200	2,100	1,300	650	19	30.00	40	110	39.6
KBRM-16 F	**KBLM-16 F**	4,200	2,100	1,300	650	19	27.50	40	110	39.6
KBRM-18	**KBLM-18**	4,600	2,300	1,600	800	21	45.00	45	150	55
KBRM-20	**KBLM-20**	5,400	2,700	2,100	1,050	22	60.00	55	200	73.5
KBRM-20 M20	**KBLM-20 M20**	5,400	2,700	2,100	1,050	22	60.00	55	200	73.5
KBRM-22	**KBLM-22**	7,000	3,500	2,200	1,100	25	75.00	60	–	94.8
KBRM-25	**KBLM-25**	8,500	4,250	2,300	1,150	28	120.00	60	–	119.8
KBRM-30	**KBLM-30**	10,500	5,250	2,500	1,250	34	135.00	60	–	177
KBRM-30 M27x2	**KBLM-30 M27x2**	10,500	5,250	2,500	1,250	34	135.00	60	–	189.6

igubal® Rod Ends | Product Range

Rod ends with female thread: KBRM and KBLM



Order key

KB...M-02

- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (female thread)
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Dimensions [mm]

Part number		d1 E10	d2	d3	d4	d5	C1	B	h1	l3	l4	W	Max. pivot angle
Right-hand thread	Left-hand thread												
KBRM-02	**KBLM-02**	2	9	M02	4.0	4.6	3.0	4	12.5	6	17	SW04	30°
KBRM-03	**KBLM-03**	3	13	M03	6.5	8.0	4.5	6	18.5	7	25	SW06	30°
KBRM-05 M4	**KBLM-05 M4**	5	18	M04	9.0	12.0	6.0	8	27	10	36	SW09	30°
KBRM-05	**KBLM-05**	5	18	M05	9.0	12.0	6.0	8	27	10	36	SW09	30°
KBRM-06	**KBLM-06**	6	20	M06	10.0	13.0	7.0	9	30	12	40	SW11	29°
KBRM-08	**KBLM-08**	8	24	M08	13.0	16.0	9.0	12	36	16	48	SW14	25°
KBRM-10	**KBLM-10**	10	30	M10	15.0	19.0	10.5	14	43	20	58	SW17	25°
KBRM-10 F	**KBLM-10 F**	10	30	M10 x 1.25	15.0	19.0	10.5	14	43	20	58	SW17	25°
KBRM-12	**KBLM-12**	12	34	M12	18.0	22.0	12.0	16	50	22	67	SW19	25°
KBRM-12 F	**KBLM-12 F**	12	34	M12 x 1.25	18.0	22.0	12.0	16	50	22	67	SW19	25°
KBRM-14	**KBLM-14**	14	38	M14	20.0	25.0	13.5	19	57	25	76	SW22	25°
KBRM-16	**KBLM-16**	16	42	M16	22.0	27.0	15.0	21	64	28	85	SW22	23°
KBRM-16 F	**KBLM-16 F**	16	42	M16 x 1.5	22.0	27.0	15.0	21	64	28	85	SW22	23°
KBRM-18	**KBLM-18**	18	46	M18 x 1.5	25.0	31.0	16.5	23	71	32	94	SW27	23°
KBRM-20	**KBLM-20**	20	50	M20 x 1.5	28.0	34.0	18.0	25	77	33	102	SW30	23°
KBRM-20 M20	**KBLM-20 M20**	20	50	M20 x 2.5	28.0	34.0	18.0	25	77	33	102	SW30	23°
KBRM-22	**KBLM-22**	22	56	M22 x 1.5	30.0	37.0	20.0	28	84	37	112	SW32	22°
KBRM-25	**KBLM-25**	25	60	M24 x 2.0	32.0	41.0	22.0	31	94	42	124	SW36	22°
KBRM-30	**KBLM-30**	30	70	M30 x 2.0	37.0	50.0	25.0	37	110	50	145	SW41	22°
KBRM-30 M27x2	**KBLM-30 M27x2**	30	70	M27 x 2.0	37.0	50.0	25.0	37	110	50	145	SW41	22°

For rod ends with **metal insert** please add **MH** to the part number, e.g. KRBM-10 **MH (Inner-Ø: 10 mm).**

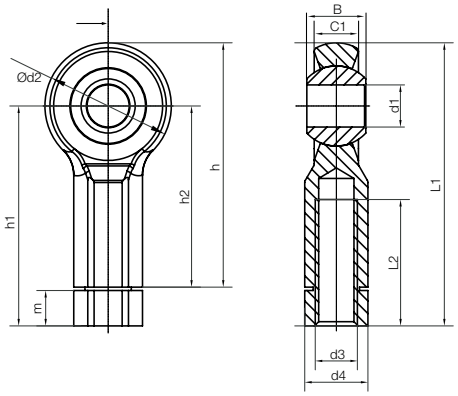
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/kbrm

order example **Part number** KBRM-02

igubal® Rod Ends | Product Range

Rod ends, female thread; 2nd generation: KBRM CL and KBLM CL



Housing with female thread

- Smooth design has no dirt traps
- Compensation of misalignment
- Light weight
- Excellent corrosion resistance
- Design with metal sleeve for higher torque strength available
- Standard spherical bearing: iglidur® W300

Order key

KB…M-06 CL

- 2nd Generation
- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (female thread)
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **variable** ▶ **page 667**

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Min. thread depth	Max. torque strength	Max. torque through ball		Weight
		Short term	Long term	Short term	Long term	Thread	Inner threading	Standard without MH	Standard with MH	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[Nm]	[g]
KBRM-06 CL	**KBLM-06 CL**	1,400	700	300	150	8	0.75	10	15	4.5
KBRM-08 CL	**KBLM-08 CL**	2,100	1,050	500	250	11	2.0	12	40	8.6
KBRM-10 CL	**KBLM-10 CL**	3,100	1,550	800	400	13	3.0	20	50	14.1

Dimensions [mm]

Part number		d1	d2	d3	d4	B	C1	h	h1	h2	L2	L1	m	Max. pivot angle
Right-h. thread	Left-h. thread	E10												α
KBRM-06 CL	**KBLM-06 CL**	6	20	M06	SW10	9	7	40	36.5	30	20	46.5	5.7	40°
KBRM-08 CL	**KBLM-08 CL**	8	24	M08	SW13	12	9	48	44.3	36	25	56.3	7.5	35°
KBRM-10 CL	**KBLM-10 CL**	10	30	M10	SW15	14	10.5	58	52.2	43	30	67.2	8.4	35°

For rod ends with **metal insert** please add **MH** to the part number, e. g. KBRM-10 CL **MH (Inner-Ø: 10 mm).** For another spherical bearing material please add **J, R** or **X** to the part number, e. g. KBRM-10 CL **J**.

Spherical ball material to choose ▶ page 667

RKM: low-cost

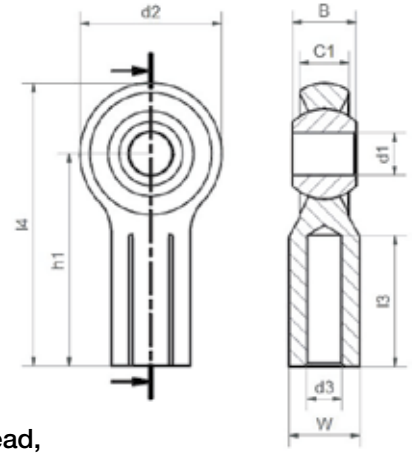
XKM: high temperatures

JKM: Low moisture absorption

W300: standard spherical bearing with metal sleeve

igubal® Rod Ends | Product Range

Rod ends with female thread: KCRM and KCLM



Housing with female thread,
Standard spherical ball: iglidur® W300

- Smooth design has no dirt traps
- Spherical ball is clipped in
- Choice of iglidur® ball materials
- Compensation of misalignment
- Light weight
- Universal corrosion resistance
- Standard spherical bearing: iglidur® W300

Order key

KC...M-06

- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (female thread)
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **variable** ▶ **page 667**

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Max. torque strength	Max. torque through balls		Weight
		Short term	Long term	Short term	Long term	Inner threading	Standard	Standard	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[Nm]	with MH[Nm]	with MH[Nm]	[g]
KCRM-06	**KCLM-06**	1,400	700	300	150	0.75	10	15	4.2
KCRM-08	**KCLM-08**	2,100	1,050	500	250	2	12	40	7.6
KCRM-10	**KCLM-10**	3,100	1,500	800	400	3	20	50	12,8

Dimensions [mm]

Part number		d1	d2	d3	W	B	C1	h1	l3	l4	Max. pivot angle
Right-hand thread	Left-hand thread										
KCRM-06	**KCLM-06**	6	20	M06	SW10	9.0	7	30	13.5	40	40°
KCRM-08	**KCLM-08**	8	24	M08	SW13	12.0	9	36	17	48	35°
KCRM-10	**KCLM-10**	10	30	M10	SW15	14.0	10.5	43	22	58	35°

For rod ends with **metal insert** please add **MH** to the part number, e. g. KCRM-10 **MH (Inner-Ø: 10 mm).**

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/kcrm

order example **Part number** KCRM-06

igubal® Rod Ends | Product Range

Rod ends with male thread: KARM and KALM

Standard design

Design with metal sleeve (MH)

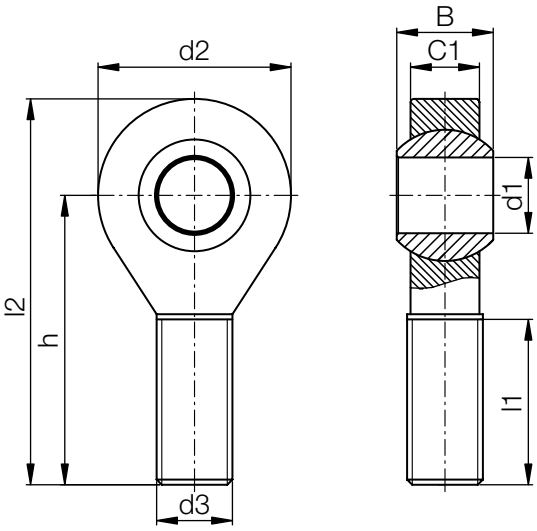
- Maintenance-free, self-lubricating
- High strength ander impact loads
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-restistant
- High vibration dampening capacity
- Suitable for rotating, oscillating, and linear movements
- Light weight
- Dimensional series K according to standard DIN ISO 12240
- Available with metal sleeve for higher torque

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Min. thread depth	Max. torque strength	Max. torque through ball		Weight
		Short term	Long term	Short term	Long term	Thread	Outer threading	Standard without MH	Standard with MH	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[Nm]	[g]
KARM-05	KALM-05	800	400	80	40	13	0.4	5	12	2.7
KARM-06	KALM-06	1,000	500	100	50	15	0.5	10	15	3.9
KARM-08	KALM-08	1,700	850	200	100	18	2.0	12	40	7.1
KARM-10	KALM-10	2,500	1,250	300	150	20	5.0	20	50	12.5
KARM-10 F	KALM-10 F	2,500	1,250	300	150	20	3.0	20	50	12.5
KARM-12	KALM-12	2,700	1,350	400	200	22	6.0	30	70	18
KARM-12 F	KALM-12 F	2,700	1,350	400	200	22	6.0	30	70	18
KARM-14	KALM-14	3,400	1,700	700	350	25	12.0	35	75	25
KARM-16	KALM-16	3,900	1,950	800	400	26	17.0	40	110	34
KARM-16 F	KALM-16 F	3,900	1,950	800	400	26	17.0	40	110	34
KARM-18	KALM-18	4,200	2,100	1,000	500	29	20.0	45	150	45.9
KARM-20	KALM-20	6,000	3,000	1,300	650	32	25.0	55	200	58
KARM-20 M20	KALM-20 M20	6,000	3,000	1,300	650	32	25.0	55	200	58
KARM-22	KALM-22	7,200	3,600	1,500	750	34	25.0	60	–	86.2
KARM-25	KALM-25	7,500	3,750	1,900	950	39	45.0	65	–	99.1
KARM-30	KALM-30	8,800	4,400	2,300	1,150	46	85.0	70	–	160.4

igubal® Rod Ends | Product Range

Rod ends with male thread: KARM and KALM



Order key

KA...M-05

- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (male thread)
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Dimensions [mm]

Part number		d1 E10	d2	d3	C1	B	h	l1	l2	Max. pivot angle
Right-hand thread	Left-hand thread									
KARM-05	**KALM-05**	5	18	M05	6.0	8.0	33	19	42	30°
KARM-06	**KALM-06**	6	20	M06	7.0	9.0	36	21	46	29°
KARM-08	**KALM-08**	8	24	M08	9.0	12.0	42	25	55	25°
KARM-10	**KALM-10**	10	30	M10	10.5	14.0	48	28	63	25°
KARM-10 F	**KALM-10 F**	10	30	M10 x 1.25	10.5	14.0	48	28	63	25°
KARM-12	**KALM-12**	12	34	M12	12.0	16.0	54	32	71	25°
KARM-12 F	**KALM-12 F**	12	34	M12 x 1.25	12.0	16.0	54	32	71	25°
KARM-14	**KALM-14**	14	38	M14	13.5	19.0	61	36	79	25°
KARM-16	**KALM-16**	16	42	M16	15.0	21.0	66	37	88	23°
KARM-16 F	**KALM-16 F**	16	42	M16 x 1.5	15.0	21.0	66	37	88	23°
KARM-18	**KALM-18**	18	46	M18 x 1.5	16.5	23.0	72	41	96	23°
KARM-20	**KALM-20**	20	50	M20 x 1.5	18.0	25.0	78	45	104	23°
KARM-20 M20	**KALM-20 M20**	20	50	M20 x 2.5	18.0	25.0	78	45	104	23°
KARM-22	**KALM-22**	22	56	M22 x 1.5	20.0	28.0	84	48	112	22°
KARM-25	**KALM-25**	25	61	M24 x 2.0	22.0	31.0	95	55	126	22°
KARM-30	**KALM-30**	30	71	M30 x 2.0	25.0	37.0	112	66	147	22°

For rod ends with **metal insert** please add **MH** to the part number, e. g. KARM-10 **MH (Inner-Ø: 10 mm).**

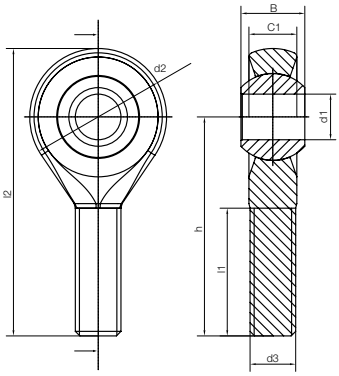
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/karm

order example **Part number** KARM-05

igubal® Rod Ends | Product Range

Rod ends, male thread; 2nd generation: KARM CL



Male thread

Order key

KARM-06 CL

- 2nd Generation
- Dimension
- Metric
- Thread
- Housing (male thread)
- Series

- Smooth design has no dirt traps
- Compensation of misalignment
- Light weight
- Excellent corrosion resistance
- Design with metal sleeve for higher torque strength available
- Left-hand thread version KALM in preparation
- Standard spherical bearing: iglidur® W300

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **variable** ▶ **page 667**

Technical data

Part number	Max. static tensile strength		Max. radial load		Min. thread depth	Max. torque strength	Max. torque through ball		Weight
	Short term [N]	Long term [N]	Short term [N]	Long term [N]	Thread [mm]	Outer threading [Nm]	Standard without MH [Nm]	Standard with MH [Nm]	[g]
KARM-06 CL	1,000	500	100	50	15	0.5	10	15	3.5
KARM-08 CL	1,700	850	200	100	18	2.0	12	40	6.2
KARM-10 CL	2,500	1,250	300	150	20	5.0	20	50	11.2
KARM-12 CL	2,700	1,350	400	200	22	6.0	30	70	15.6

Dimensions [mm]

Part number	d1 E10	d2	d3	C1	B	h	l1	l2	Max. pivot angle
KARM-06 CL	6	20	M06	7.0	9.0	36	21	46	40°
KARM-08 CL	8	24	M08	9.0	12.0	42	25	55	35°
KARM-10 CL	10	30	M10	10.5	14.0	48	28	63	35°
KARM-12 CL	12	34	M12	12.0	16.0	54	32	71	35°

Rod ends can be ordered in metric dimensions **with metal insert** with the addition of **MH** after the part numbers listed here Part numbern, e. g. KARM-10 **MH (Inner-Ø: 10 mm).**
For another spherical bearing material please add **J, R** or **X** to the part number, e. g. KARM-10 CL **J**.

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/karm-cl | order example **Part number KARM-06 CL**

My Sketches

igubal® Rod Ends | Product Range

Rod ends with female thread: EBRM and EBLM

- Maintenance-free, self-lubricating
- High strength under impact loads
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating and linear movements
- Light weight
- Dimensional series E according to standard DIN ISO 12240
- 50 % higher tensile force possible due to metal inlay (only dimension 16, more dimensions on request)

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Min. thread depth	Max. torque strength	Max. torque through ball	Weight
		Short term	Long term	Short term	Long term	Thread	Inner threading		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[g]
EBRM-04	EBLM-04	800	400	100	50	7	0.4	2.0	1.8
EBRM-05	EBLM-05	1,300	650	150	75	8	0.5	2.0	3.2
EBRM-06	EBLM-06	1,500	750	200	100	8	1.5	2.5	4
EBRM-08	EBLM-08	2,000	1,000	450	225	11	5.0	7.0	6.9
EBRM-10	EBLM-10	2,300	1,150	500	250	13	15.0	14.0	11.2
EBRM-10 F	EBLM-10 F	2,300	1,150	500	250	13	6.0	14.0	11.2
EBRM-12	EBLM-12	3,300	1,650	550	275	14	20.0	25.0	17.1
EBRM-12 F	EBLM-12 F	3,300	1,650	550	275	14	15.0	25.0	17.1
EBRM-15	EBLM-15	4,800	2,400	800	400	18	25.0	30.0	28.9
EBRM-16	EBLM-16	5,000	2,500	850	425	18	20.0	32.0	32.6
EBRM-16 F	EBLM-16 F	5,000	2,500	850	425	18	15.0	32.0	32.6
EBRM-17	EBLM-17	5,300	2,650	1,100	550	19	30.0	35.0	42.4
EBRM-17 F	EBLM-17 F	5,300	2,650	1,100	550	19	27.5	35.0	42.4
EBRM-20	EBLM-20	7,200	3,600	1,800	900	22	60.0	40.0	65.8
EBRM-20 M20	EBLM-20 M20	7,200	3,600	1,800	900	22	60.0	40.0	65.8
EBRM-25	EBLM-25	10,000	5,000	2,600	1,300	27	115.0	55.0	125.9
EBRM-30	EBLM-30	10,500	5,250	3,000	1,500	33	130.0	70.0	184.1

Spherical ball material to choose ▶ page 667

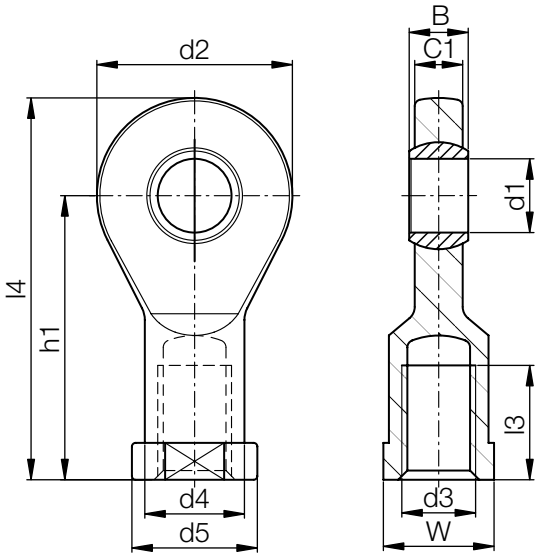
J4VEM: clearance-free

JEM: low moisture absorption

REM: low-cost

igubal® Rod Ends | Product Range

Rod ends with female thread: EBRM and EBLM



Order key

EB...M-04

- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (female thread)
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**
More spherical balls on request ▶ **page 667**

Dimensions [mm]

Part number		d1	d2	d3	d4	d5	C1	B	h1	l3	l4	W	Max. pivot angle
		E10											
Right-h. thread	Left-h. thread												
EBRM-04	**EBLM-04**	4	15	M04	–	–	3.5	5	22.5	9.5	30.0	SW08	33°
EBRM-05	**EBLM-05**	5	19	M05	9.0	11	4.4	6	30	12	39.5	SW09	33°
EBRM-06	**EBLM-06**	6	21	M06	11.0	13	4.4	6	30	8	40.5	SW11	27°
EBRM-08	**EBLM-08**	8	24	M08	13.0	16	6.0	8	36	14	48.0	SW14	24°
EBRM-10	**EBLM-10**	10	29	M10	15.0	19	7.0	9	43	18	57.5	SW17	24°
EBRM-10 F	**EBLM-10 F**	10	29	M10 x 1.25	15.0	19	7.0	9	43	18	57.5	SW17	24°
EBRM-12	**EBLM-12**	12	34	M12	18.0	22	8.0	10	50	20	67.0	SW19	21°
EBRM-12 F	**EBLM-12 F**	12	34	M12 x 1.25	18.0	22	8.0	10	50	20	67.0	SW19	21°
EBRM-15	**EBLM-15**	15	40	M14	21.0	26	10.0	12	61	26	81.0	SW22	21°
EBRM-16	**EBLM-16**	16	43	M16	–	–	10.5	13	64.5	26.5	86.0	SW22	21°
EBRM-16 F	**EBLM-16 F**	16	43	M16 x 1.5	–	–	10.5	13	64.5	26.5	86.0	SW22	21°
EBRM-17	**EBLM-17**	17	46	M16	24.0	30	11.0	14	67	27	90.0	SW27	18°
EBRM-17 F	**EBLM-17 F**	17	46	M16 x 1.5	24.0	30	11.0	14	67	27	90.0	SW27	18°
EBRM-20	**EBLM-20**	20	53	M20 x 1.5	27.0	34	13.0	16	77	31	103.5	SW30	16°
EBRM-20 M20	**EBLM-20 M20**	20	53	M20 x 2.5	27.0	34	13.0	16	77	31	103.5	SW30	16°
EBRM-25	**EBLM-25**	25	64	M24 x 2.0	34.0	41	17.0	20	94	38	126.5	SW36	16°
EBRM-30	**EBLM-30**	30	73	M30 x 2.0	41.0	48	19.0	22	110	47	146.5	SW41	13°

delivery time available from stock

prices price list online www.igus.co.uk/en/ebrm

order example Part number EBRM-04

igubal® Rod Ends | Product Range

Rod ends with male thread: EARM and EALM

- Maintenance-free, dry-running
- High stiffness
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating, and linear movements
- Light weight
- Dimensional series E according to standard DIN ISO 12240

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Min. thread depth	Max. torque strength	Max. torque through ball	Weight
		Short term	Long term	Short term	Long term	Thread	Outer threading		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[g]
EARM-05	EALM-05	550	275	50	25	14	0.4	2.0	2.2
EARM-06	EALM-06	850	425	80	40	14	0.5	2.5	2.7
EARM-08	EALM-08	1,600	800	160	80	17	2.0	7.0	5.1
EARM-10	EALM-10	2,600	1,300	250	125	19	5.0	14.0	8.4
EARM-10 F	EALM-10 F	2,600	1,300	250	125	19	3.0	14.0	8.4
EARM-12	EALM-12	3,100	1,550	300	150	20	6.0	25.0	14.3
EARM-12 F	EALM-12 F	3,100	1,550	300	150	20	6.0	25.0	14.3
EARM-15	EALM-15	3,400	1,700	600	300	24	12.5	30.0	21.1
EARM-17	EALM-17	3,600	1,800	900	450	26	17.5	35.0	30.2
EARM-17 F	EALM-17 F	3,600	1,800	900	450	26	21.0	35.0	30.2
EARM-20	EALM-20	6,800	3,400	1,700	850	30	25.0	40.0	57.3
EARM-20 M20	EALM-20 M20	6,800	3,400	1,700	850	30	25.0	40.0	57.3
EARM-25	EALM-25	7,000	3,500	1,000	500	37	45.0	55.0	94.8
EARM-30	EALM-30	7,000	3,500	2,000	1,000	46	85.0	70.0	156.4

Spherical ball material to choose ▶ page 667

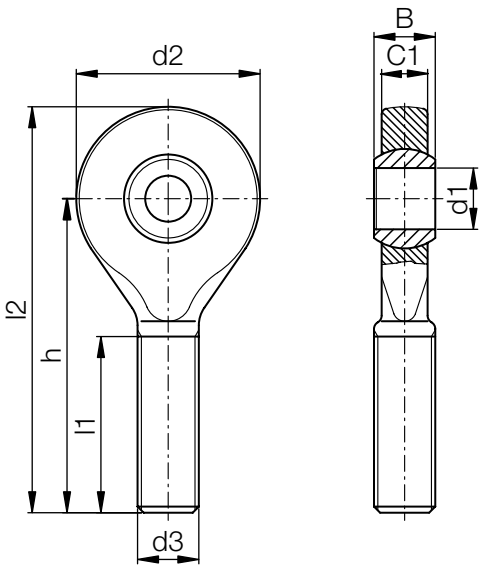
J4VEM: clearance-free preloaded

JEM: low moisture absorption

REM: Low-cost

igubal® Rod Ends | Product Range

Rod ends with male thread: EARM and EALM



Order key

EA...M-05

- Abmessung
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (male thread)
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**
More spherical balls on request ▶ **page 667**

Dimensions [mm]

Part number		d1	d2	d3	C1	B	h	l1	l2	Max. pivot angle
		E10								
Right-hand thread	Left-hand thread									
EARM-05	**EALM-05**	5	19	M05	4.4	6	36	20	45.5	33°
EARM-06	**EALM-06**	6	21	M06	4.4	6	36	20	46.5	27°
EARM-08	**EALM-08**	8	24	M08	6.0	8	41	24	53.0	24°
EARM-10	**EALM-10**	10	29	M10	7.0	9	47.5	27	62.0	24°
EARM-10 F	**EALM-10 F**	10	29	M10 x 1.25	7.0	9	47.5	27	62.0	24°
EARM-12	**EALM-12**	12	34	M12	8.0	10	54	29	71.0	21°
EARM-12 F	**EALM-12 F**	12	34	M12 x 1.25	8.0	10	54	29	71.0	21°
EARM-15	**EALM-15**	15	40	M14	10.0	12	63	34	83.0	21°
EARM-17	**EALM-17**	17	46	M16	11.0	14	69	37	92.0	18°
EARM-17 F	**EALM-17 F**	17	46	M16 x 1.5	11.0	14	69	37	92.0	18°
EARM-20	**EALM-20**	20	53	M20 x 1.5	13.0	16	80	43	106.5	16°
EARM-20 M20	**EALM-20 M20**	20	53	M20 x 2.5	13.0	16	80	43	106.5	16°
EARM-25	**EALM-25**	25	64	M24 x 2.0	17.0	20	97	53	129.0	16°
EARM-30	**EALM-30**	30	73	M30 x 2.0	19.0	22	113	65	149.5	13°

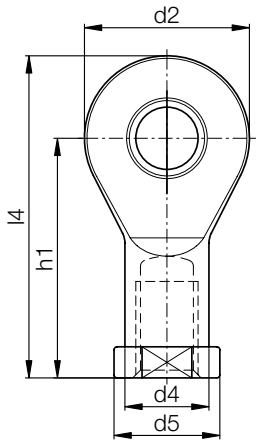
delivery time **available from stock**

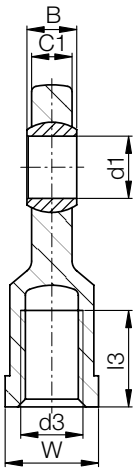
prices **price list online** www.igus.co.uk/en/earm

order example **Part number** EARM-05

igubal® Rod Ends | Product Range

High temperature rod ends with female thread: EBRM-HT and EBLM-HT





Order key

EB…M-05-HT

- High Temperature
- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (female thread)
- Series

- For temperatures up to +200 °C
- Maintenance-free, self-lubricating
- High strength under impact loads
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating and linear movements
- Light weight

Material:
Housing: **iguton G** ▶ **page 983**
Spherical ball: **iglidur® X** ▶ **page 673**

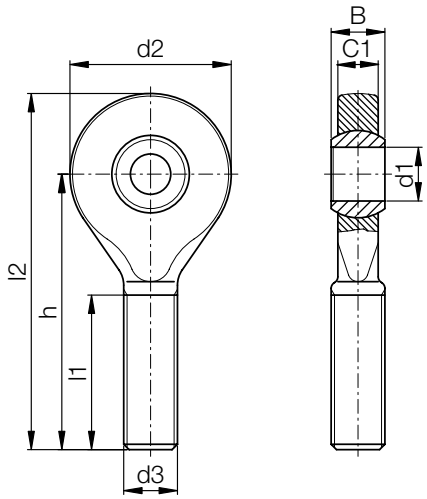
Dimensions [mm]

Part number		d1	d2	d3	d4	d5	C1	B	h1	l3	l4	W	Max. pivot angle	Weight
		E10												[g]
Right-hand thread	Left-hand thread													
EBRM-05-HT	**EBLM-05-HT**	5	19	M05	9.0	11	4.4	6	30	12	39.5	SW09	33°	3.8
EBRM-06-HT	**EBLM-06-HT**	6	21	M06	11.0	13	4.4	6	30	12	40.5	SW11	27°	5
EBRM-08-HT	**EBLM-08-HT**	8	24	M08	13.0	16	6.0	8	36	16	48.0	SW14	24°	8.5
EBRM-10-HT	**EBLM-10-HT**	10	29	M10	15.0	19	7.0	9	43	18	57.5	SW17	24°	13.7
EBRM-12-HT	**EBLM-12 HT**	12	34	M12	18.0	22	8.0	10	50	20	67.0	SW19	21°	21.4

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/ebrm-ht | order example **Part number EBRM-05 HT**

igubal® Rod Ends | Product Range

High temperature rod ends with male thread: EARM-HT and EALM-HT



Order key

EA…M-05-HT

- High Temperature
- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (male thread)
- Series

- For temperatures up to +200 °C
- Maintenance-free, self-lubricating
- High strength under impact loads
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating and linear movements
- Light weight
- Dimensional series K according to standard DIN ISO 12240

Material:
Housing: **iguton G** ▶ **page 983**
Spherical ball: **iglidur® X** ▶ **page 673**

Dimensions [mm]

Part number		d1	d2	d3	C1	B	h1	l1	l2	Max. pivot angle	Weight
		E10									[g]
Right-hand thread	Left-hand thread										
EARM-05-HT	**EALM-05-HT**	5	19	M05	4.4	6	36	20	45.5	33°	2.8
EARM-06-HT	**EALM-06-HT**	6	21	M06	4.4	6	36	20	46.5	27°	3.4
EARM-08-HT	**EALM-08-HT**	8	24	M08	6.0	8	41	24	53.0	24°	6.1
EARM-10-HT	**EALM-10-HT**	10	29	M10	7.0	9	47.5	27	62.0	24°	10.2
EARM-12-HT	**EALM-12-HT**	12	34	M12	8.0	10	54	29	71.0	21°	15.7

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/earm-ht

order example **Part number EARM-05 HT**

igubal® Rod Ends | Product Range | Inch

Rod ends with female thread: KBRI and KBLI

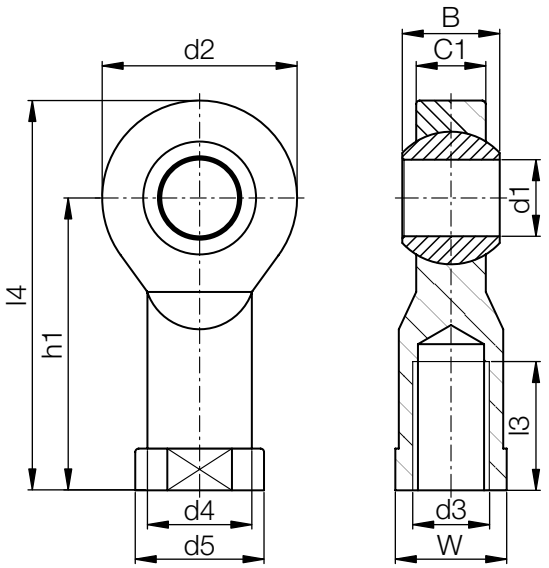
- Maintenance-free, self-lubricating
- High strength under impact loads
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating, and linear movements
- Light weight

Technical Data

Part number		Max. static tensile strength		Max. radial load		Min. thread depth	Max. torque strength	Max. torque through ball	Weight
		Short term	Long term	Short term	Long term	Thread	Inner threading		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[Inch]	[Nm]	[Nm]	[g]
KBRI-03	**KBLI-03**	900	450	300	150	.350	2	3	3.3
KBRI-04	**KBLI-04**	1,100	550	400	200	.480	5	4	5.1
KBRI-05	**KBLI-05**	1,700	850	500	250	.480	6	10	7.1
KBRI-06	**KBLI-06**	2,000	1,000	1,000	500	.568	7	15	12.6
KBRI-07	**KBLI-07**	2,300	1,150	1,200	600	.655	18	25	16.1
KBRI-08	**KBLI-08**	2,600	1,300	1,500	750	.743	23	35	26.5
KBRI-10	**KBLI-10**	4,900	2,450	1,700	850	.962	30	50	38.7
KBRI-12	**KBLI-12**	5,600	2,800	2,300	1,150	1.093	40	70	54.4
KBRI-16	**KBLI-16**	6,000	3,000	2,600	1,300	1.488	46	85	197.5

igubal® Rod Ends | Product Range | Inch

Rod ends with female thread: KBRI and KBLI



Order key

KB...I-03

- Dimension
- Inch
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (female thread)
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Dimensions [Inch]

Part number		d1 E10	d2	d3	d4	C1	B	h1	l3	l4	W	Max. pivot angle
Right-h. thread	Left-h. thread											
KBRI-03	**KBLI-03**	.1900	.625	10-32	.406	.246	.312	1.062	.500	1.374	.312	25°
KBRI-04	**KBLI-04**	.2500	.750	1/4-28	.469	.272	.365	1.312	.687	1.687	.375	25°
KBRI-05	**KBLI-05**	.3125	.875	5/16-24	.500	.340	.437	1.375	.687	1.813	.437	25°
KBRI-06	**KBLI-06**	.3750	1.000	3/8-24	.687	.394	.500	1.625	.812	2.125	.562	22°
KBRI-07	**KBLI-07**	.4375	1.125	7/16-20	.750	.456	.562	1.812	.937	2.374	.625	22°
KBRI-08	**KBLI-08**	.5000	1.312	1/2-20	.875	.487	.625	2.125	1.062	2.781	.750	22°
KBRI-10	**KBLI-10**	.6250	1.500	5/8-18	1.000	.545	.750	2.500	1.375	3.250	.875	22°
KBRI-12	**KBLI-12**	.7500	1.750	3/4-16	1.125	.676	.875	2.875	1.562	3.750	1.000	22°
KBRI-16	**KBLI-16**	1.0000	2.750	1-12	1.625	1.000	1.375	4.125	2.125	5.500	1.500	20°

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/kbri

order example **Part number** KBRI-03

igubal® Rod Ends | Product Range | Inch

Rod ends with male thread: KARI and KALI

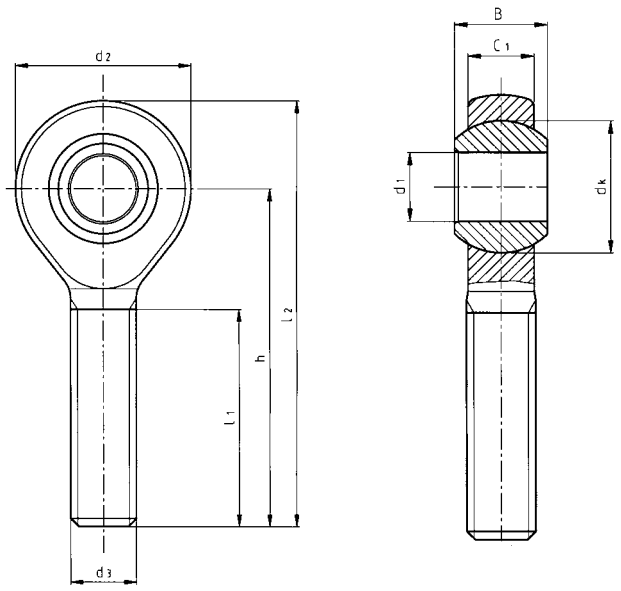
- Maintenance-free, self-lubricating
- High strength under impact loads
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating, and linear movements
- Light weight

Technical Data

Part number		Max. static tensile strength		Max. radial load		Min. thread depth	Max. torque strength	Max. torque through ball	Weight
		Short term	Long term	Short term	Long term		Outer threading		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[Inch]	[Nm]	[Nm]	[g]
KARI-03	**KALI-03**	390	200	70	35	.525	0.5	3	2.1
KARI-04	**KALI-04**	900	450	100	50	.700	1.0	4	3.5
KARI-05	**KALI-05**	1,100	550	150	75	.875	2.0	10	6
KARI-06	**KALI-06**	1,500	750	350	175	.875	3.0	15	8.8
KARI-07	**KALI-07**	2,000	1,000	400	200	.962	6.0	25	12.4
KARI-08	**KALI-08**	2,500	1,250	450	225	1.050	9.0	35	18.5
KARI-10	**KALI-10**	3,500	1,750	600	300	1.137	12.0	50	27.6
KARI-12	**KALI-12**	3,900	1,950	1,000	500	1.226	25.0	70	42.8
KARI-16	**KALI-16**	4,400	2,200	1,300	650	1.488	45.0	85	143.3

igubal® Rod Ends | Product Range | Inch

Rod ends with male thread: KARI and KALI



Order key

KA...I-03

- Dimensions
- Inch
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (male thread)
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Dimensions [Inch]

Part number		d1	d2	d3	C1	B	h	l1	l2	Max. pivot angle
		E10								
Right-hand thread	Left-hand thread									
KARI-03	**KALI-03**	.1900	.625	10-32	.234	.312	1.250	.750	1.563	25°
KARI-04	**KALI-04**	.2500	.750	1/4-28	.250	.365	1.562	1.000	1.937	25°
KARI-05	**KALI-05**	.3125	.875	5/16-24	.312	.437	1.875	1.250	2.313	25°
KARI-06	**KALI-06**	.3750	1.000	3/8-24	.359	.500	1.938	1.250	2.438	22°
KARI-07	**KALI-07**	.4375	1.125	7/16-20	.406	.562	2.125	1.375	2.688	22°
KARI-08	**KALI-08**	.5000	1.312	1/2-20	.453	.625	2.428	1.500	2.094	22°
KARI-10	**KALI-10**	.6250	1.500	5/8-18	.484	.750	2.625	1.625	3.375	22°
KARI-12	**KALI-12**	.7500	1.750	3/4-16	.593	.875	2.875	1.750	3.750	22°
KARI-16	**KALI-16**	1.0000	2.750	1-12	1.000	1.375	4.125	2.350	5.500	20°

delivery time available from stock

prices price list online www.igus.co.uk/en/kari

order example Part number KARI-03

igubal® Rod Ends | Product Range | Inch

Rod ends with female thread: EBRI and EBLI

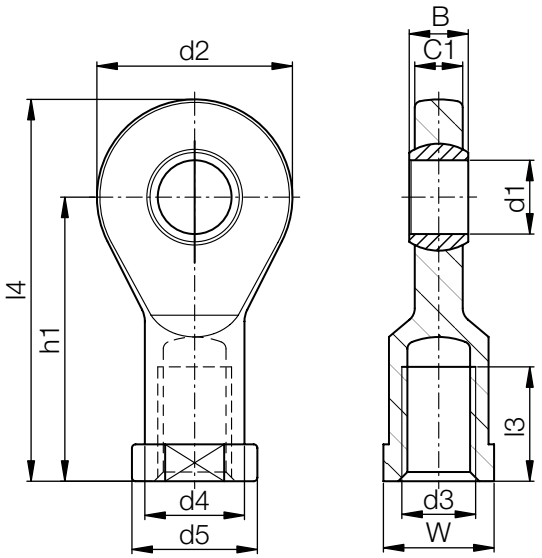
- Maintenance-free, self-lubricating
- High strength under impact loads
- Very high tensile strength for varying loads
- Compensation of misalignment
- Compensation of edge loads
- Insensitive to dirt, dust and lint
- Corrosion- and chemical-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating and linear movements
- Light weight
- Dimensional series K according to standard DIN ISO 12240

Technical Data

Part number		Max. static tensile strength		Max. radial load		Min. thread depth	Max. torque strength	Max. torque through ball	Weight
		Short term	Long term	Short term	Long term	Thread	Inner threading		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[Inch]	[Nm]	[Nm]	[g]
EBRI-03	**EBLI-03**	1,300	650	150	75	.315	2	2.0	3,1
EBRI-04	**EBLI-04**	1,500	750	200	100	.315	5	2.5	3,8
EBRI-05	**EBLI-05**	2,000	1,000	450	225	.433	6	7.0	6.9
EBRI-06	**EBLI-06**	2,300	1,150	500	250	.512	7	14.0	11.5
EBRI-07	**EBLI-07**	3,300	1,650	550	275	.551	18	25.0	17.6
EBRI-08	**EBLI-08**	3,300	1,650	550	275	.551	23	25.0	18.1
EBRI-10	**EBLI-10**	5,000	2,500	850	425	.709	30	32.0	31.9
EBRI-12	**EBLI-12**	7,200	3,600	1,800	900	.866	40	40.0	61.5

igubal® Rod Ends | Product Range | Inch

Rod ends with female thread: EBRI and EBLI



Order key

EB…I-03

- Dimensions
- Inches
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing (female thread)
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Dimensions [Inch]

Part number		d1 E10	d2	d3	d4	d5	C1	B
Right-h. thread	Left-h. thread							
EBRI-03	**EBLI-03**	0.1900	0.748	10–32	0.3543	0.4331	0.1732	0.1900
EBRI-04	**EBLI-04**	0.2500	0.827	1/4–28	0.4331	0.5118	0.1732	0.2500
EBRI-05	**EBLI-05**	0.3125	0.945	5/16–24	0.5118	0.6299	0.2362	0.3125
EBRI-06	**EBLI-06**	0.3750	1.142	3/8–24	0.5906	0.7480	0.2756	0.3750
EBRI-07	**EBLI-07**	0.4375	1.339	7/16–20	0.7087	0.8661	0.3150	0.4063
EBRI-08	**EBLI-08**	0.5000	1.339	1/2–20	0.7087	0.8661	0.3150	0.4063
EBRI-10*	**EBLI-10***	0.6250	1.693	5/8–18	–	–	0.4134	0.5000
EBRI-12	**EBLI-12**	0.7500	2.087	3/4–16	1.0630	1.3386	0.5118	0.6250

Part number		h1 E10	l3	W	Max. pivot angle
Right-hand thread	Left-hand thread				
EBRI-03	**EBLI-03**	1.1811	0.4724	0.35	30°
EBRI-04	**EBLI-04**	1.1811	0.4724	0.43	25°
EBRI-05	**EBLI-05**	1.4173	0.6299	0.55	22°
EBRI-06	**EBLI-06**	1.6929	0.7087	0.67	22°
EBRI-07	**EBLI-07**	1.9685	0.7874	0.75	18°
EBRI-08	**EBLI-08**	1.9685	0.7874	0.75	18°
EBRI-10*	**EBLI-10***	2.5394	1.0433	0.87	16°
EBRI-12	**EBLI-12**	3.0315	1.2205	1.18	14°

* EBRI-10/EBLI-10 special form with hexagonal foot

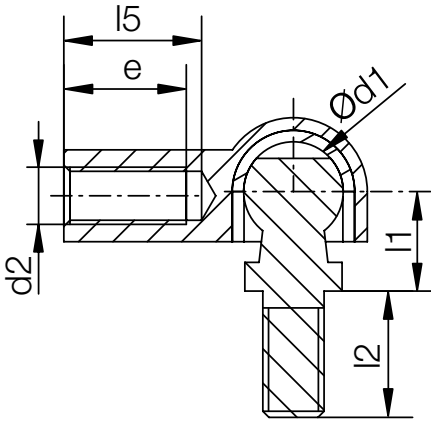
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/ebri

order example **Part number EBRI-03**

igubal® Rod Ends | Product Range

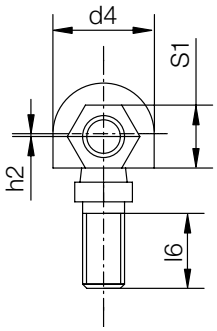
Angle joint for rotating and pivoting motions: WGRM and WGLM

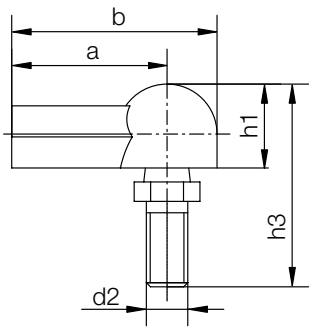


Order key

WG...M-05

- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Housing
- Angle joint





Material:
Housing: **igumid G** ▶ **page 983**
Spherical cap: **iglidur® W300** ▶ **page 131**

- Connection for rotating and swivelling movements
- Light weight and robust
- Easy and quick assembly
- Vibration-dampening
- Insensitive to dirt and dust

Technical Data

Part number		Max. axial tensile force (Ball stud axis*)		Max. axial compressive force (Ball stud axis)		Max. axial tensile force (Housing axis)		Max. axial tensile force in housing axis, with metal ball stud		Weight
		Short time	Long term	Short term	Long term	Short term	Long term	Short term	Long term	
Right-h. thread	Left-h. thread	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]
WGRM-05	WGLM-05	30	15	200	100	100	50	600	300	2.6
WGRM-06	WGLM-06	35	17.5	300	150	140	70	800	400	3.8
WGRM-08	WGLM-08	250	125	500	250	200	100	1,500	750	8
WGRM-10	WGLM-10	250	125	900	450	400	200	1,900	950	13.7

* MS = metal stud; e.g.: WGRM-05 MS

Dimensions [mm]

Part number		d1	d2	d4	l1	l2	l5	l6	h3	a	b	e	S1	Max. pivot angle
		+0.1		+0.5	+0.2	+0.3			+0.5	+0.3	+0.5	+0.5		
Right-hand thread	Left-hand thread	–0.1		–0.5	–0.2	–0.3		Min.	–0.5	–0.3	–0.5	–0.5		
WGRM-05	WGLM-05	8.0	M5	12.8	9.0	10.2	14.0	8.2	25.6	22.0	28.4	11.0	SW 8	25°
WGRM-06	WGLM-06	10.0	M6	14.8	11.0	12.5	16.0	10.5	30.9	25.0	32.4	13.0	SW 9	25°
WGRM-08	WGLM-08	13.0	M8	19.3	13.0	16.5	18.0	13.5	38.8	30.0	39.7	16.0	SW12	25°
WGRM-10	WGLM-10	16.0	M10	24.0	16.0	20.0	20.0	16.0	47.0	35.0	47.0	18.0	SW14	25°

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/wgrm

order example **Part number WGRM-05**

igubal® Rod Ends | Product Range

Ball and socket joint (low-cost): WGRM LC and WGLM LC

Dimensions as WGRM

- LC (low-cost) version is a two piece assembly with either a plastic or metal stud
- Low weight
- Maintenance-free
- Plastic stud for lowest price, metal stud for highest load

Order key

WG...M-05 LC

- Low-cost
- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Angle joint

Material:
Housing: **igumid G** ▶ **page 983**

Technical Data

Part number		Max. axial tensile force (Ball stud axis*)		Max. axial compressive force (Ball stud axis)		Max. axial tensile force (Housing axis)		Max. axial tensile force in housing axis, with metal ball stud		Weight
		Short time	Long term	Short term	Long term	Short term	Long term	Short term	Long term	
Right-h. thread	Left-h. thread	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]
WGRM-05 LC	WGLM-05 LC	30	15	200	100	100	50	600	300	2.6
WGRM-06 LC	WGLM-06 LC	35	17.5	300	150	140	70	800	400	4
WGRM-08 LC	WGLM-08 LC	250	125	500	250	200	100	1,500	750	8.2
WGRM-10 LC	WGLM-10 LC	250	125	900	450	400	200	1,900	950	13.8

* MS = metal stud; e.g.: WGRM-05 LC MS

Dimensions [mm] – technical drawing ▶ page 596

Part number		d1	d2	d4	l1	l2	l5	l6	h1	h2	h3	S1	a	b	e	Piv. angle	
		+0.1		+0.5	+0.2	+0.3			+0.4	+0.5	+0.5		+0.3	+0.5	+0.5	Recom.	Max.
Right-h. thread	Left-h. thread	–0.1		–0.5	–0.2	–0.3		Min.	–0.4	–0.5	–0.5		–0.3	–0.5	–0.5		
WGRM-05 LC	WGLM-05 LC	8.0	M5	12.8	9.0	10.2	14.0	8.2	10.8	0.65	25.6	SW8	22.0	28.4	11,0	18°	25°
WGRM-06 LC	WGLM-06 LC	10.0	M6	14.8	11.0	12.5	16.0	10.5	12.3	0.70	30.9	SW9	25.0	32.4	13,0	18°	25°
WGRM-08 LC	WGLM-08 LC	13.0	M8	19.3	13.0	16.5	18.0	13.5	16.2	1.15	38.8	SW12	30.0	39.7	16,0	18°	25°
WGRM-10 LC	WGLM-10 LC	16.0	M10	24.0	16.0	20.0	20.0	16.0	20.0	1.15	47.0	SW14	35.0	47.0	18,0	18°	25°

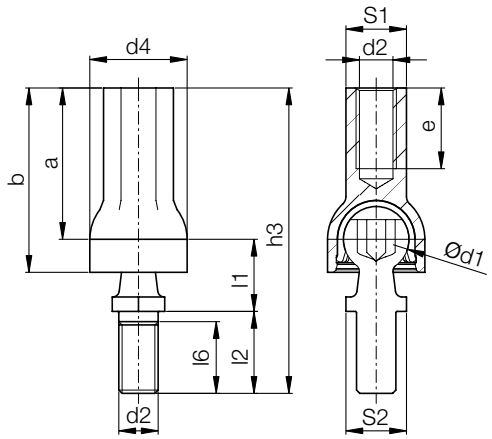
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/wgrm-lc

order example **Part number WGRM-05 LC**

igubal® Rod Ends | Product Range

Axial joint: AGRM and AGLM



Order key

AG...M-08

- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Axial joint

- For all mechanical combinations
- Very easy hand assembly
- Maintenance-free and predictable
- Corrosion-resistant
- Chemical-resistant
- Good vibration-dampening qualities

Material:
Housing: **igumid G** ▶ **page 983**
Spherical cap: **iglidur® W300** ▶ **page 131**

Technical data

Part number		Max. static axial tensile force		Max. static axial compressive force		Max. assembling force	Weight
		Short term	Long term	Short term	Long term		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[N]	[g]
AGRM-08	**AGLM-08**	250	125	1,000	500	110	7.8

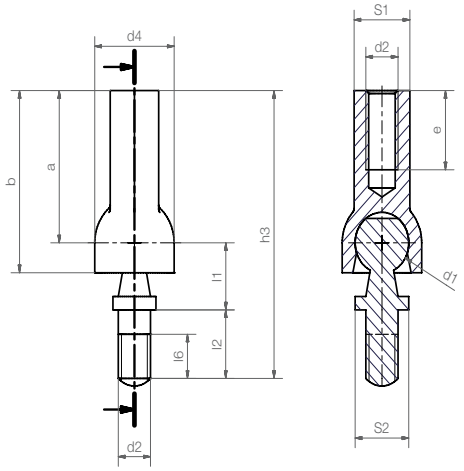
Dimensions [mm]

Part number		d1	d2	d4	l1	l2	l6	h3	S1	S2	a	b	e	Pivot angle	
		+0.1		+0.5	+0.2	+0.3		+0.5			+0.3	+0.5			
Right-hand thread	Left-hand thread	–0.1		–0.5	–0.2	–0.3	Min.	–0.5			–0.3	–0.5	Min.	Recom.	Max.
AGRM-08	**AGLM-08**	13.0	M8	19.3	13.0	16.5	13.5	59.0	SW12	SW11	29.5	36.5	16.0	18°	25°

delivery time available from stock | prices price list online www.igus.co.uk/en/agrm | order example Part number AGRM-08

Axial joint: AGRM LC and AGLM LC

Dimensions as AGRM



Order key

AG...M-06 LC

- Low-cost
- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Axial joint

Material:
Housing: **igumid G** ▶ **page 983**

- LC (low-cost) version is a two piece assembly with either a plastic or metal stud
- Low weight
- Maintenance-free
- Plastic stud for lowest price, metal stud for highest load

Technical Data

Part number		Max. static axial tensile force		Max. static axial compressive force		Weight
		Short term	Long term	Short term	Long term	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[g]
AGRM-06 LC	AGLM-06 LC	100	50	2,000	1,000	10.8

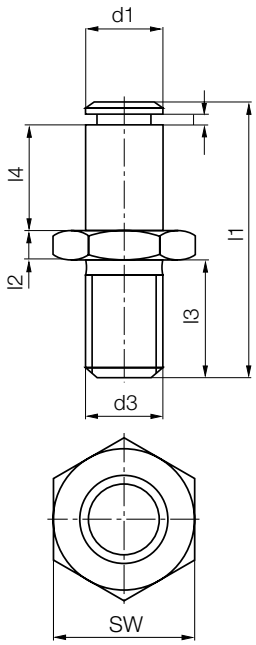
* MS = metal stud; e.g.: AGRM-06 LC MS

Dimensions [mm]

Part number		d1	d2	d4	l1	l2	l6	h3	S1	S2	a	b	e
		+0.1		+0.5	+0.2	+0.3		+0.5			+0.3	+0.5	
Right-hand thread	Left-hand thread	–0.1		–0.5	–0.2	–0.3	Min.	–0.5			–0.3	–0.5	Min.
AGRM-06 LC	AGLM-06 LC	10.0	M6	14.8	11.0	11.25	7.25	47.25	SW9	10.0	25.0	29.9	13.0

igubal® Rod Ends | Product Range

Adapter bolt: PKRM and PKLM



Order key

PK...M-06

- Dimension
- Metric
- Thread
- L = left-hand thread
- R = right-hand thread
- Series K
- Adapter bolt

Material:
POM ▶ **page 984**

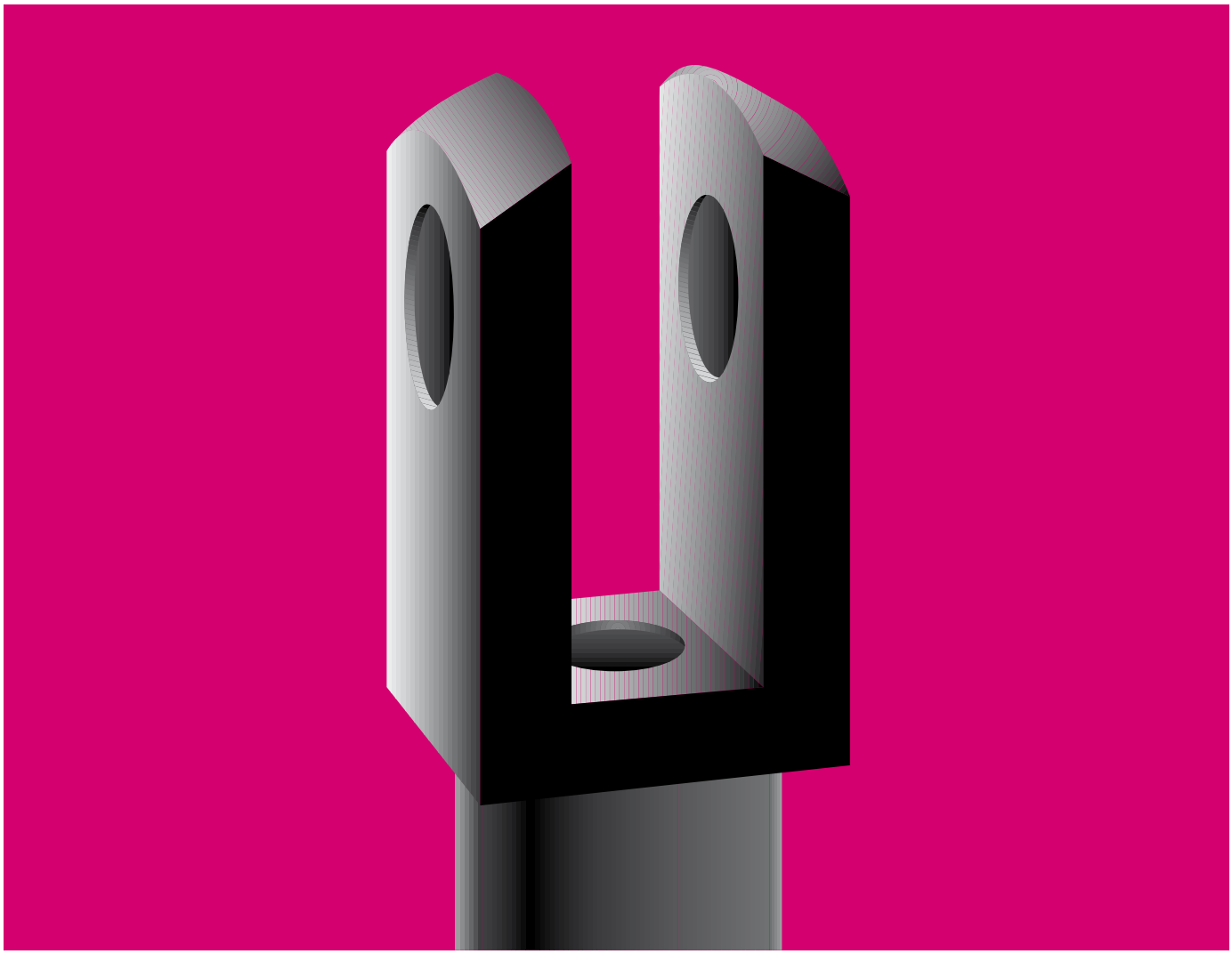
Solid polymer bolts with a hexagonal head are an accessory to the series K rod ends. The plain shank fits into the inside diameter of the spherical ball and is secured by a circlip. The igubal® adapter bolts consist of highly shock-resistant, long-fibre reinforced polymer **POM**.

- Lightweight
- Excellent corrosion resistance
- Designed for use with K series rod ends
- High strength under impact loads
- Vibration-dampening
- Easy to fit
- Available in left- and right-hand threads

Technical Data and Dimensions [mm]

Part number		Max. static tensile strength		Max. static radial load		d1	d3	l1	l4	l3	l2	SW	Weight
		Short term	Long term	Short term	Long term		Connection Thread	Total length	Length adjusting bolt	Thread length	Nut width	Width across flats	
Right-h. thread	Left-h. thread	[N]	[N]	[N]	[N]	h11							[g]
PKRM-05	**PKLM-05**	100	50	200	100	5	M05	25.0	8.5	11.3	2.7	8	0.7
PKRM-06	**PKLM-06**	150	75	250	125	6	M06	28.0	9.5	12.8	3.2	10	1.2
PKRM-08	**PKLM-08**	250	125	400	200	8	M08	32.0	12.5	12.5	4.0	13	2.6
PKRM-10	**PKLM-10**	500	250	600	300	10	M10	37.5	14.5	14.5	5.0	16	4
PKRM-12	**PKLM-12**	700	350	900	450	12	M12M	42.0	16.5	15.5	6.0	18	7.5
PKRM-14	**PKLM-14**	800	400	1,100	550	14	14M	47.0	19.5	15.5	7.0	21	11.4
PKRM-16	**PKLM-16**	900	450	1,400	700	16	16M	52.0	22.0	16.5	8.0	24	16.9
PKRM-18	**PKLM-18**	800	400	1,700	850	18	M18 x 1.5	59.0	24.0	20.5	9.0	27	16.9
PKRM-20	**PKLM-20**	500	250	2,200	1,100	20	M20 x 1.5	67.0	26.0	25.0	10.0	30	34.4

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/pkrm | order example **Part number PKRM-06**



igubal® Clevis Joints

- High tensile strength
- Vibration-dampening
- Noise-dampening
- Can be used in combination with series E rod ends
- Lightweight

igubal® Clevis Joints

igubal® clevis joints are all made of igumid G to DIN 71752, which can be used in combination with series E rod ends. Available components are clevis joint, clevis pin and clip or as an alternative, spring-loaded pin.

High tensile strength

Vibration-dampening

Noise-dampening

Can be used in combination with series E rod ends

Light weight

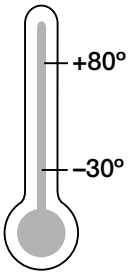
When to use it?

- If high stiffness is requested
- If corrosion resistance is required
- If no lubrication is to be used
- To save weight
- If maintenance-free, dry-running is required
- If simple assembly is to be realized
- In combination with pneumatic cylinders and gas pressure springs

When not to use it?

- If temperatures are higher than +200 °C
- If dimensions above 30 mm are necessary

Temperature



Standard

Product range

4 types
Ø 4–20 mm

igubal® Clevis Joints | Application Examples

Typical sectors of industry and application areas

● Food industry ● Packaging
● Heavy Duty ● Automotive
● Disposal engineering ● Automation etc.

Improve technology and reduce costs – 110 exciting examples online

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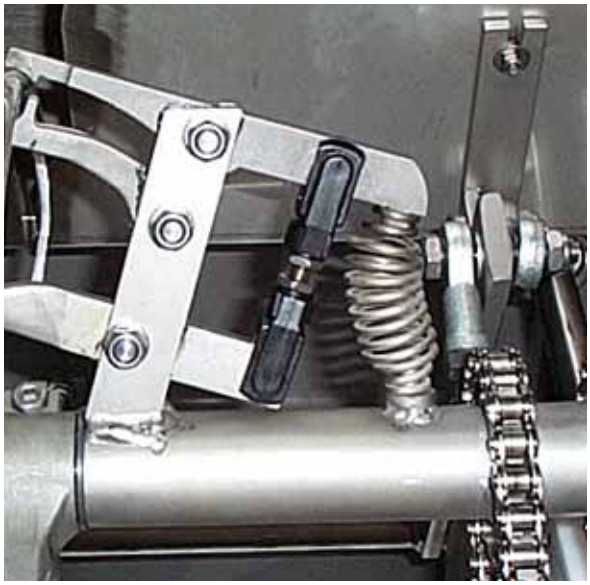


► www.igus.co.uk/food

► www.igus.co.uk/packaging

► www.igus.co.uk//traffic

Pneumatic cylinder

igubal® Clevis Joints | Product Overview

GERM/GELM
Series E
metric

▶ from page 606

GERMK/GELMK
Series E
metric

▶ page 608

GERMF/GELMF
Series E
metric

▶ page 609

GERMKE/GELMKE
Series E
metric

▶ page 610

GERMFE/GELMFE
Series E
metric

▶ page 611

GEFM – Spring-loaded pin; metric
GBM – Clevis pin; metric
GSR – Circlip; metric

▶ from page 612/613

NEW!*

GERM-DT
GELM-DT
Detectable clevis joint

▶ from page 614

NEW!*

GEFM-DT
Detectable spring-loaded pin

▶ page 616

NEW!*

GERMF-DT
GELMF-DT
Detectable combination

▶ page 617

* in this catalog

My Sketches

igubal® Clevis Joints | Product Range

Clevis joint: GERM and GELM

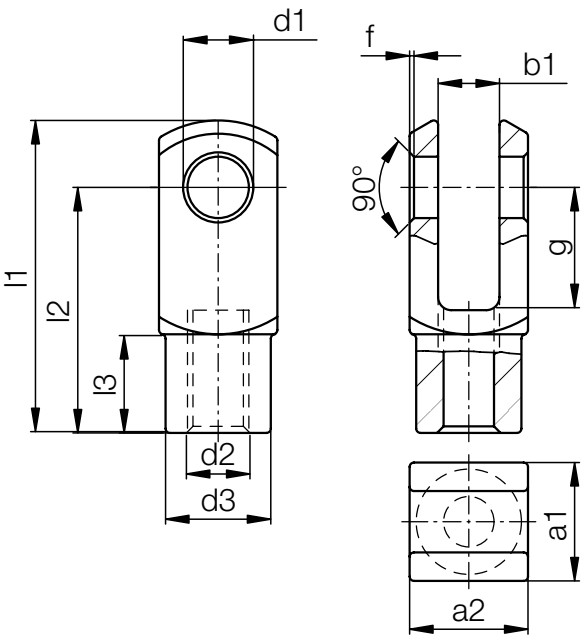
- Light weight
- High strength under impact loads
- Universal corrosion resistance
- High tensile strength
- Can be used in combination with series E rod ends
- Vibration-dampening
- Noise-dampening
- Available in left- (GELM) and right-hand-thread (GERM)

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Max. torque strength	Weight
		Long term	Short term	Long term	Short term		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[Nm]	[g]
GERM-04 M3.5	GELM-04 M3.5	650	325	250	125	0.4	0.9
GERM-04	GELM-04	650	325	250	125	0.4	0.9
GERM-05 DIN M4	GELM-05 DIN M4	1,000	500	250	125	0.4	1.5
GERM-05 DIN M5	GELM-05 DIN M5	1,000	500	250	125	0.5	1.5
GERM-05	GELM-05	1,200	600	250	125	0.5	2.7
GERM-05 DIN M5 LS	GELM-05 DIN M5 LS	1,000	500	130	65	0.5	2.3
GERM-06	GELM-06	1,400	700	300	150	1.5	2.5
GERM-06 LS	GELM-06 LS	1,400	700	130	65	1.5	3.6
GERM-08	GELM-08	2,700	1,350	650	325	5	6.3
GERM-10	GELM-10	4,700	2,350	800	400	15	13.2
GERM-10 F	GELM-10 F	4,700	2,350	800	400	6	13.2
GERM-12	GELM-12	5,700	2,850	900	450	20	20.2
GERM-12 F	GELM-12 F	5,700	2,850	900	450	15	20.2
GERM-14	GELM-14	6,600	3,300	1,000	500	25	29.9
GERM-15	GELM-15	3,200	1,600	1,000	500	25	30
GERM-16	GELM-16	7,500	3,750	1,200	600	30	49.9
GERM-16 F	GELM-16 F	7,500	3,750	1,200	600	27.5	49.9
GERM-17	GELM-17	3,600	1,800	1,200	600	30	50
GERM-17 F	GELM-17 F	3,600	1,800	1,200	600	27.5	50
GERM-20	GELM-20	9,500	4,750	3,000	1,500	60	105
GERM-20 M20	GELM-20 M20	9,500	4,750	3,000	1,500	80	105

igubal® Clevis Joints | Product Range

Clevis joint: GERM and GELM



Order key

GE...M-04

- Dimension
- Metric
- Thread design
- L = left-hand thread
- R = right-hand thread
- Dimensional series
- Clevis

Material:
Housing: **igumid G** ▶ **page 983**

Dimensions [mm]

Part number		d1	g	a1	a2	b1	d2	d3	f	l1	l2	l3
		H9	h11	+0.3	+0.3	B13	Thread tolerance 6H	+0.3	+0.3	+0.5	+0.3	+0.2
Right-hand thread	Left-hand thread			–0.16	–0.16			–0.3	–0.3	–0.5	–0.3	–0.2
GERM-04 M3.5	GELM-04 M3.5	4	8	8	8	4	M3.5	8.0	0.5	21.0	16.0	6.0
GERM-04	GELM-04	4	8	8	8	4	M04	8.0	0.5	21.0	16.0	6.0
GERM-05 DIN M4	GELM-05 DIN M4	5	10	10	10	5	M04	9.0	0.5	25.0	20.0	7.5
GERM-05 DIN M5	GELM-05 DIN M5	5	10	10	10	5	M05	9.0	0.5	25.0	20.0	7.5
GERM-05	GELM-05	5	12	12	12	6	M05	10.0	0.5	30.6	24.0	9.0
GERM-05 DIN M5 LS	GELM-05 DIN M5 LS	5	20	10	10	5	M05	9.0	0.5	36.0	30.0	7.5
GERM-06	GELM-06	6	12	12	12	6	M06	10.0	0.5	30.6	24.0	9.0
GERM-06 LS	GELM-06 LS	6	24	12	12	6	M06	10.0	0.5	43.0	36.0	9.0
GERM-08	GELM-08	8	16	16	16	8	M08	14.0	0.5	41.6	32.0	12.0
GERM-10	GELM-10	10	20	20	20	10	M10	18.0	0.5	51.3	40.0	15.0
GERM-10 F	GELM-10 F	10	20	20	20	10	M10 x 1.25	18.0	0.5	51.3	40.0	15.0
GERM-12	GELM-12	12	24	24	24	12	M12	20.0	0.5	61.3	48.0	18.0
GERM-12 F	GELM-12 F	12	24	24	24	12	M12 x 1.25	20.0	0.5	61.3	48.0	18.0
GERM-14	GELM-14	14	28	27	27	14	M14	24.0	0.5	71.3	56.0	22.5
GERM-15	GELM-15	15	28	27	27	14	M14	24.0	0.5	71.3	56.0	22.5
GERM-16	GELM-16	16	32	32	32	16	M16	26.0	1.0	81.9	64.0	24.0
GERM-16 F	GELM-16 F	16	32	32	32	16	M16 x 1.5	26.0	1.0	81.9	64.0	24.0
GERM-17	GELM-17	17	32	32	32	16	M16	26.0	1.0	83.0	64.0	24.0
GERM-17 F	GELM-17 F	17	32	32	32	16	M16 x 1.5	26.0	1.0	83.0	64.0	24.0
GERM-20	GELM-20	20	40	40	40	20	M20 x 1.5	34.0	1.0	105.0	80.0	30.0
GERM-20 M20	GELM-20 M20	20	40	40	40	20	M20 x 2.5	34.0	1.0	105.0	80.0	30.0

delivery time available from stock | prices price list online www.igus.co.uk/en/germ | order example part number GERM-04

igubal® Clevis Joints | Product Range

Clavis joints with clevis pin and circlip: GERMK and GELMK

- Light weight
- Universal corrosion resistance
- High tensile strength
- Can be used in combination with series E rod ends

Order key

GE…MK-04

- Dimension
- Clevis pin and circlip
- Metric
- Thread design
  - L = left-hand thread
  - R = right-hand thread
- Dimensional series
- Clevis joint

Material:
Housing: **igumid G** ▶ **page 983**

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Weight
		Long term	Short term	Long term	Short term	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[g]
GERMK-04 M3.5	GELMK-04 M3.5	500	250	250	125	1.3
GERMK-04	GELMK-04	500	250	250	125	1.3
GERMK-05 DIN M4	GELMK-05 DIN M4	800	400	250	125	2.1
GERMK-05 DIN M5	GELMK-05 DIN M5	800	400	250	125	2.1
GERMK-05	GELMK-05	900	450	250	125	3.3
GERMK-05 DIN M5 LS	GELMK-05 DIN M5 LS	800	400	130	65	2.9
GERMK-06	GELMK-06	1,300	650	300	150	3.3
GERMK-06 LS	GELMK-06 LS	1,300	650	130	65	4.4
GERMK-08	GELMK-08	2,100	1,050	650	325	7.9
GERMK-10	GELMK-10	3,000	1,500	800	400	16.4
GERMK-10 F	GELMK-10 F	3,000	1,500	800	400	16.4
GERMK-12	GELMK-12	3,500	1,750	900	450	25.3
GERMK-12 F	GELMK-12 F	3,500	1,750	900	450	25.3
GERMK-14	GELMK-14	6,100	3,050	1,000	500	31.2
GERMK-15	GELMK-15	2,800	1,400	1,000	500	38.9
GERMK-16	GELMK-16	7,000	3,500	1,200	600	60.8
GERMK-16 F	GELMK-16 F	7,000	3,500	1,200	600	60.8
GERMK-17	GELMK-17	3,600	1,800	1,200	600	62.3
GERMK-17 F	GELMK-17 F	3,600	1,800	1,200	600	62.3
GERMK-20	GELMK-20	9,000	4,500	3,000	1,500	125.2
GERMK-20 M20	GELMK-20 M20	9,000	4,500	3,000	1,500	125.2


Single components: clevis pin GBM and circlip GSR
▶ **page 613**

igubal® Clevis Joints | Product Range

Clevis joints with spring-loaded pin: GERMF and GELMF

- Single piece design
- Easy to assemble
- Easy assembly also at hard to reach locations
- Can be used in combination with series E rod ends
- Corrosion-resistant and lightweight

Order key

GE...MF-04

- Dimension
- Spring-loaded pin
- Metric
- Thread design
  - L = left-hand thread
  - R = right-hand thread
- Dimensional series
- Clevis joint

Material:
igumid G ▶ page 983

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Weight
		Long term	Short term	Long term	Short term	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[g]
GERMF-04 M3.5	GELMF-04 M3.5	500	250	250	125	1.3
GERMF-04	GELMF-04	500	250	250	125	1.3
GERMF-05 DIN M4	GELMF-05 DIN M4	800	400	250	125	2.3
GERMF-05 DIN M5	GELMF-05 DIN M5	800	400	250	125	2.3
GERMF-05 DIN M5 LS	GELMF-05 DIN M5 LS	800	400	250	125	2.3
GERMF-05	GELMF-05	900	450	250	125	3.8
GERMF-06	GELMF-06	1,300	650	300	150	3.9
GERMF-06 LS	GELMF-06 LS	1,300	650	130	65	3.9
GERMF-08	GELMF-08	2,100	1,050	650	325	9.1
GERMF-10	GELMF-10	3,000	1,500	800	400	18.2
GERMF-10 F	GELMF-10 F	3,000	1,500	800	400	18.2
GERMF-12	GELMF-12	3,500	1,750	900	450	28.6
GERMF-12 F	GELMF-12 F	3,500	1,750	900	450	28.6
GERMF-16	GELMF-16	7,000	3,500	1,200	600	61.8
GERMF-16 F	GELMF-16 F	7,000	3,500	1,200	600	61.8

Single components: spring-loaded pins GEFM
▶ page 612

delivery time available from stock | prices price list online www.igus.co.uk/en/germf | order example part number GERMF-04

igubal® Clevis Joints | Product Range

Clevis joints combination: GERMKE and GELMKE

- Light weight
- Universal corrosion resistance
- High tensile strength
- Can be used in combination with series E rod ends

Order key

GE…MKE-05

- Dimension
- With clevis pin, circlip and rod end
- Metric
- Thread design
- L = left-hand thread
- R = right-hand thread
- Dimensional series
- Clevis joint

Material:
igumid G ▶ **page 983**

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Weight
		Long term	Short term	Long term	Short term	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[g]
GERMKE-05	GELMKE-05	900	450	150	75	6.4
GERMKE-06	GELMKE-06	1,300	650	200	100	7.3
GERMKE-08	GELMKE-08	2,000	1,000	450	225	14.6
GERMKE-10	GELMKE-10	2,300	1,150	500	250	27.1
GERMKE-10 F	GELMKE-10 F	2,300	1,150	500	250	27.1
GERMKE-12	GELMKE-12	3,300	1,650	550	275	42.7
GERMKE-12 F	GELMKE-12 F	3,300	1,650	550	275	42.7
GERMKE-15	GELMKE-15	2,800	1,400	800	400	68.4
GERMKE-16	GELMKE-16	5,000	2,500	850	425	86.9
GERMKE-16 F	GELMKE-16 F	5,000	2,500	850	425	86.9
GERMKE-17	GELMKE-17	3,600	1,800	1,100	550	98.3
GERMKE-17 F	GELMKE-17 F	3,600	1,800	1,100	550	98.3
GERMKE-20	GELMKE-20	7,200	3,600	1,800	900	175.2
GERMKE-20 M20	GELMKE-20 M20	7,200	3600	1800	900	175,2

Cleve joints with spring-loaded pin, can be used in combination with series E rod ends.

delivery time available from stock | prices price list online www.igus.co.uk/en/germke | order example part number GERMKE-05

igubal® Clevis Joints | Product Range

Clevis joints combination: GERMFE and GELMFE

Order key

GE…MFE-05

- Dimension
- With spring-loaded pin and rod end
- Metric
- Thread design
- L = left-hand thread
- R = right-hand thread
- Dimensional series
- Clevis joint

Material:
igumid G ▶ page 983

Technical Data

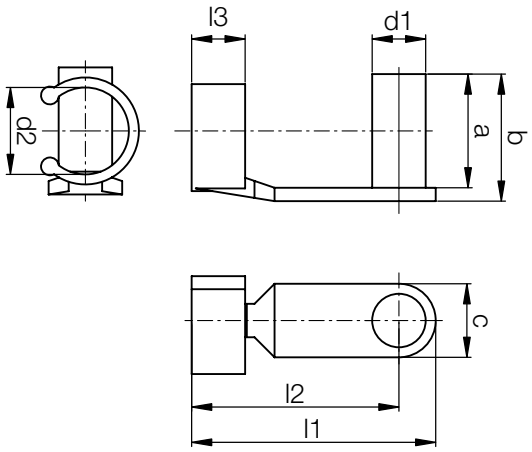
Part number		Max. static tensile strength		Max. static radial load		Weight
		Long term	Short term	Long term	Short term	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[g]
GERMFE-05	GELMFE-05	900	450	150	75	7
GERMFE-06	GELMFE-06	1,300	650	200	100	7.9
GERMFE-08	GELMFE-08	2,000	1,000	450	225	15.9
GERMFE-10	GELMFE-10	2,300	1,150	500	250	29.2
GERMFE-10 F	GELMFE-10 F	2,300	1,150	500	250	29.2
GERMFE-12	GELMFE-12	3,300	1,650	550	275	46
GERMFE-12 F	GELMFE-12 F	3,300	1,650	550	275	46
GERMFE-16	GELMFE-16	5,000	2,500	850	425	94.4
GERMFE-16 F	GELMFE-16 F	5,000	2,500	850	425	94.4

Cleve joints with spring-loaded pin, can be used in combination with series E rod ends.

delivery time available from stock | prices price list online www.igus.co.uk/en/germfe | order example part number GERMFE-05

igubal® Clevis Joints | Product Range

Spring-loaded pin: GEFM



Material:
igumid G ▶ page 983

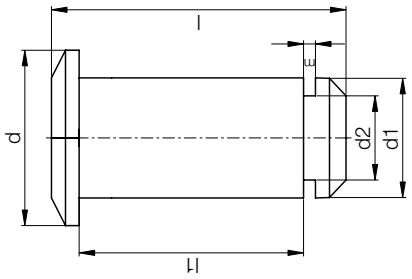
Dimensions [mm]

Part number	d1	d2	a	b	c	l1	l2	l3	Weight
	h11					±0.5			[g]
GEFM-04	4	8	9.5	10.5	8	19	15	4.5	0.5
GEFM-05 DIN	5	9	12	13.5	8	23	19	5.5	0.8
GEFM-05 DIN M5 LS	5	9	12	13.5	8	33	29	5.5	1
GEFM-05	5	10	14	15.5	8	27	23	6.5	1.1
GEFM-06 LS	6	10	14	15.5	8	39	35	6.5	1
GEFM-06	6	10	14	15.5	8	27	23	6.5	1.2
GEFM-08	8	14	19	21.0	11	35.5	30	8.0	2.8
GEFM-10	10	18	23	25.5	14	45	38	10.0	5
GEFM-12	12	20	28	31.0	16	53	45	12.0	8.3
GEFM-16	16	26	36	40.0	22	73	62	16.0	18.3

delivery time available from stock | prices price list online www.igus.co.uk/en/gefm | order example part number GEFM-04

igubal® Clevis Joints | Product Range

Clevis pin: GBM

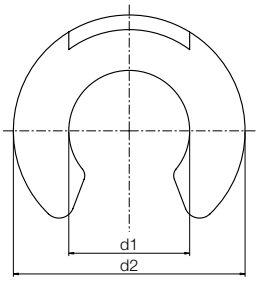


Material:
igumid G ▶ page 983

Dimensions [mm]

Part number	d1 h11	d2	d	l	l1	m	Clip	Weight [g]
GBM-04	4	3.2	7	12.5	8	1.05	GSR-04	0.3
GBM-05	5	4	8	16.5	12	1.15	GSR-06	0.5
GBM-05 DIN	5	4	8	14.5	10	1.15	GSR-06	0.5
GBM-06	6	4	9	16.5	12	1.15	GSR-06	0.7
GBM-08	8	5	12	21.5	16	1.15	GSR-08	1.5
GBM-10	10	7	15	27	20	1.35	GSR-10	3
GBM-12	12	9	18	31.5	24	1.5	GSR-12	4.8
GBM-14	14	12	22	36	27	1.7	GSR-16	5.7
GBM-15	15	12	23	36	27	1.7	GSR-16	8.3
GBM-16	16	12	24	42	32	1.7	GSR-16	10.4
GBM-17	17	12	25	42	32	1.7	GSR-16	12.3
GBM-20	20	15	30	51	40	2.0	GSR-20	19.2

Circlip: GSR



Material:
POM ▶ page 984

Dimensions [mm]

Part number	d1	d2	b	Weight [g]
GSR-04	3.2	7	1	0.05
GSR-06	4	9	1.1	0.06
GSR-08	5	11	1.1	0.12
GSR-10	7	14	1.3	0.16
GSR-12	9	18.5	1.4	0.31
GSR-16	12	23	1.6	0.58
GSR-20	15	28	1.9	0.96

delivery time available from stock

prices price list online www.igus.co.uk/en/gbm

order example part number GBM-04

NEW in this catalog!

igubal® Clevis Joints | Product Range

Cleve joint, detectable: GERM-DT and GELM-DT

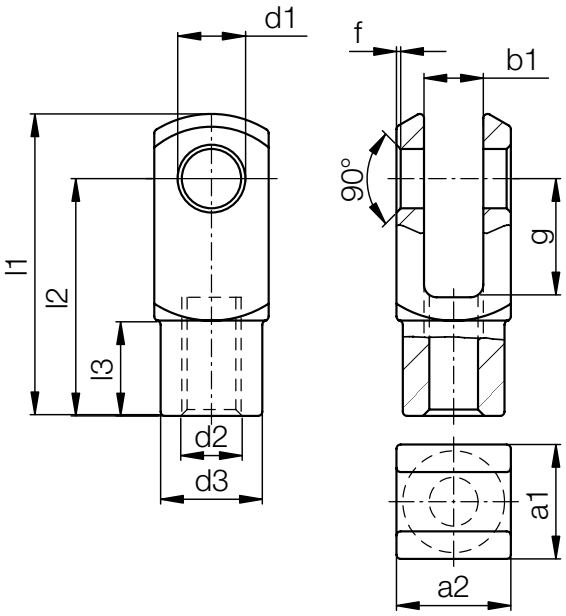
- Detectable
- Insensitive to dust and dirt
- Maintenance-free, dry-running
- Vibration-dampening
- Light weight

Technical Data

Part number		Max. static tensile strength		Max. static radial load		Weight
		Long term	Short term	Long term	Short term	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[g]
GERM-04-DT	GELM-04-DT	455	227.5	175	87.5	0.9
GERM-05-DT	GELM-05-DT	840	420	175	87.5	2.7
GERM-06-DT	GELM-06-DT	980	490	210	105	2.5
GERM-08-DT	GELM-08-DT	1,890	945	455	227.5	6.3
GERM-10-DT	GELM-10-DT	3,290	1,645	560	280	13.2
GERM-10-DT F	GELM-10-DT F	3,290	1,645	560	280	13.2
GERM-12 DT	GELM-12 DT	3,990	1,995	630	315	20.2
GERM-12 DT F	GELM-12 DT F	3,990	1,995	630	315	20.2

delivery time available from stock | prices price list online www.igus.co.uk/clevis | order example part number GERM-04-DT

Cleve joint, detectable: GERM-DT and GELM-DT



Order key

GE...M-04-DT

- Detectable
- Dimension
- Metric
- Thread design
  - L = left-hand thread
  - R = right-hand thread
- Dimensional series
- Clevis joint

Material:
RN246 ▶ page 985

Dimensions [mm]

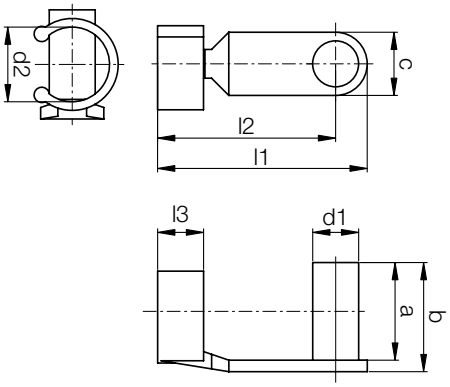
Part number		d1	g	a1	a2	b1	d2	d3	f	l1	l2	l3
		H9	h11	+0.3 –0.16	+0.3 –0.16	B13	Thread tolerance 6H	+0.3 –0.3	+0.3 –0.3	+0.5 –0.5	+0.3 –0.3	+0.2 –0.2
Right-hand thread	Left-hand thread											
GERM-04-DT	GELM-04-DT	4	8	8	8	4	M4	8.0	0.5	21.0	16.0	6.0
GERM-05-DT	GELM-05-DT	5	12	12	12	6	M05	10.0	0.5	30.6	24.0	9.0
GERM-06-DT	GELM-06-DT	6	12	12	12	6	M06	10.0	0.5	30.6	24.0	9.0
GERM-08-DT	GELM-08-DT	8	16	16	16	8	M08	14.0	0.5	41.6	32.0	12.0
GERM-10-DT	GELM-10-DT	10	20	20	20	10	M10	18.0	0.5	51.3	40.0	15.0
GERM-10-DT F	GELM-10-DT F	10	20	20	20	10	M10 x 1.25	18.0	0.5	51.3	40.0	15.0
GERM-12 DT	GELM-12 DT	12	24	24	24	12	M12	20.0	0.5	61.3	48.0	18.0
GERM-12 DT F	GELM-12 DT F	12	24	24	24	12	M12 x 1.25	20.0	0.5	61.3	48.0	18.0

delivery time available from stock | prices price list online www.igus.co.uk/clevis | order example part number GERM-04-DT

NEW in this catalog!

igubal® Clevis Joints | Product Range

Spring-loaded pin, detectable: GEFM-DT



Order key

GEFM-04-DT

- Detectable
- Dimension
- Metric
- Spring-loaded pin
- Series
- Clevis joint

- Detectable
- Insensitive to dust and dirt
- Maintenance-free, dry-running
- Vibration-dampening
- Light weight

Material:
RN246 ▶ page 985

Dimensions [mm]

Part number	d1 h11	d2	a	b	c	l1 ±0.5	l2	l3	Weight [g]
GEFM-04-DT	4	8	9.5	10.5	8	19	15	4.5	0.5
GEFM-05-DT	5	10	14	15.5	8	27	23	6.5	1.1
GEFM-06-DT	6	10	14	15.5	8	27	23	6.5	1.2
GEFM-08-DT	8	14	19	21.0	11	35.5	30	8.0	2.8
GEFM-10-DT	10	18	23	25.5	14	45	38	10	5
GEFM-12-DT	12	20	28	31.0	16	53	45	12.0	8.3

delivery time **available from stock** | prices **price list online** www.igus.co.uk/clevis | order example **part number GEFM-04-DT**

igubal® Clevis Joints | Product Range

Cleve joint with spring-loaded pin, detectable: GERMF-DT

- Detectable
- Insensitive to dust and dirt
- Maintenance-free, dry-running
- Vibration-dampening
- Light weight

Order key

GE…MF-04-DT

- Detectable
- Dimension
- Spring-loaded pin
- Metric
- Thread design
  - L = left-hand thread
  - R = right-hand thread
- Dimensional series
- Clevis joint

Material:
RN246 ▶ page 985

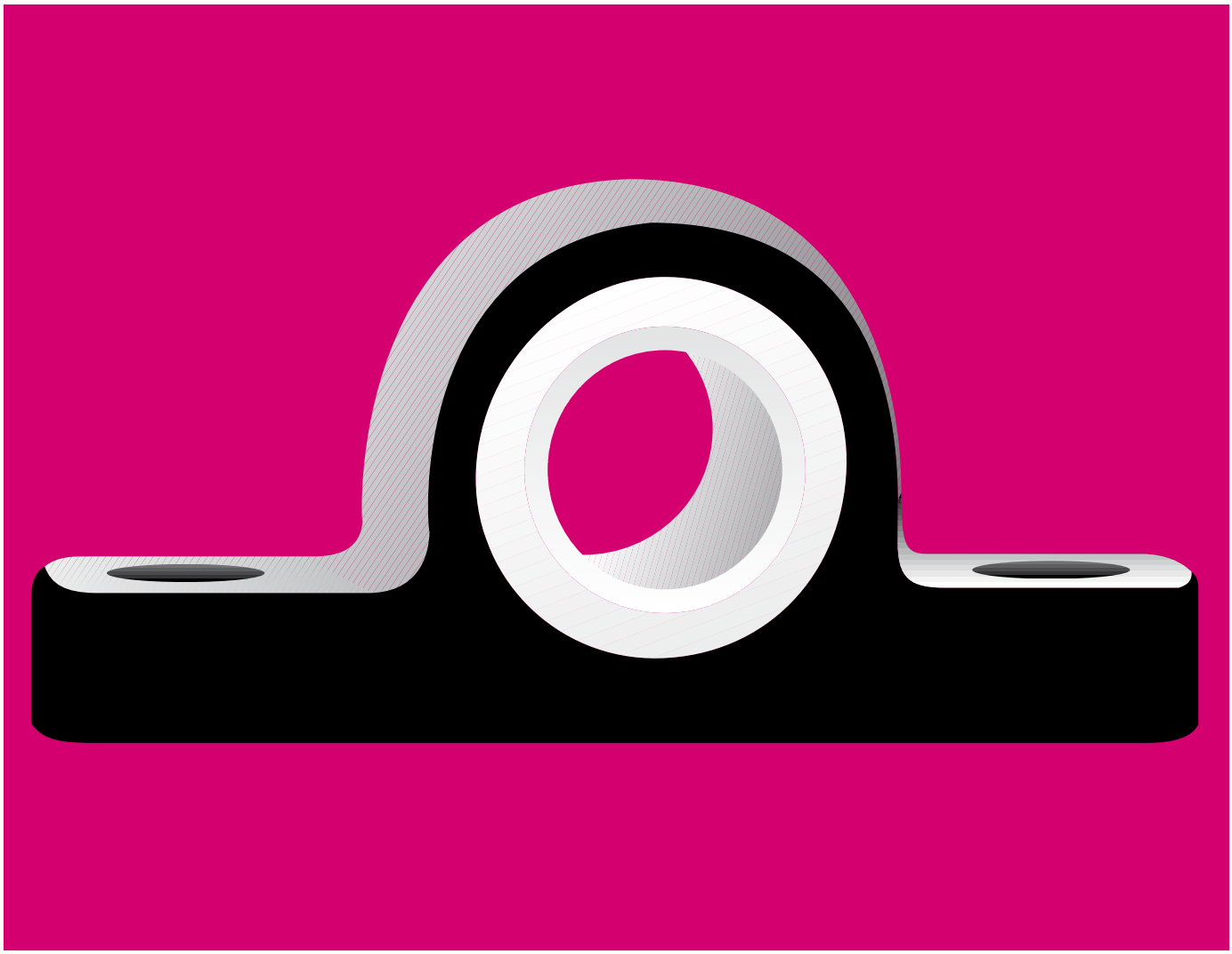
Technical Data

Part number		Max. static tensile strength		Max. static radial load		Weight
		Long term	Short term	Long term	Short term	
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[g]
GERMF-04-DT	GELMF-04-DT	350	175	175	87.5	1.3
GERMF-05-DT	GELMF-05-DT	630	315	175	87.5	3.8
GERMF-06-DT	GELMF-06-DT	910	455	210	105	3.9
GERMF-08-DT	GELMF-08-DT	1,470	735	455	227.5	9.1
GERMF-10-DT	GELMF-10-DT	2,100	1,050	560	280	18.2
GERMF-10-DT F	GELMF-10-DT F	2,100	1,050	560	280	18.2
GERMF-12-DT	GELMF-12-DT	2,450	1,225	630	315	28.6
GERMF-12-DT F	GELMF-12-DT F	2,450	1,225	630	315	28.6


Single components: cleve joint GERM-DT and spring-loaded pin GEFM-DT
▶ pages 614 and 616

delivery time available from stock
prices price list online www.igus.co.uk/clevis
order example part number GERMF-04-DT

My Sketches

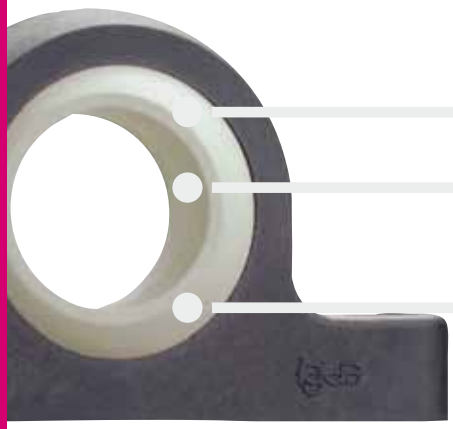


igubal® Pillow Block Bearings

- Maintenance-free, dry-running
- High tensile strength
- High endurance strength
- Lubrication-free
- Chemical-resistant
- High radial loads

igubal® Pillow Block Bearings

igubal® pillow block bearings are bearing units especially easy to install and which are able to compensate alignment errors and prevent edge loads.



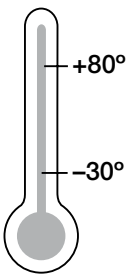
When to use it?

- If chemical resistance is required
- If a cost-effective option is requested
- If you need dirt-resistant bearings
- To adjust misalignment
- If you need splitting components

When not to use it?

- If temperatures are higher than +80 °C
- If an integrated fixing collar is required
- If dimensions above 50 mm are necessary
- If rotation speeds higher than 0,5 m/s are required

Temperature



Product Range

6 types
Ø 5–50 mm

igubal® Pillow Block Bearings | Application Examples

Typical sectors of industry and application areas

● Plant construction ● Machine building
● Packaging etc.

Improve technology and reduce costs – 110 exciting examples online

▶ www.igus.co.uk/igubalPraxis

Stone processing

▶ www.igus.co.uk/solar

Paper industry

▶ www.igus-packaging.eu

igubal® Pillow Block Bearings | Technical Data

Advantages

- Maintenance-free, dry running
- High stiffness
- High strength under impact loads
- Compensation for alignment errors
- Compensation for edge loads
- Corrosion-free
- Chemically resistant
- Vibration damping
- Suitable for rotating, oscillating and linear movements
- Light weight
- High radial loads
- Can be used in liquid media
- Space-saving design
- Easy to install
- Predictable lifetime
- Maintenance-free, lubrication-free

Areas of Application

The ability to pivot allows igubal® pillow block bearings to compensate for misalignment and possible shaft deflection. Applications in which these effects cannot be prevented are suitable for igubal® pillow block bearings.

Tolerances

Maintenance-free igubal® pillow block bearings are designed with an inside diameter tolerance of E10. The shaft should be made to tolerance class h6 to h9. These recommended tolerances allow for changes in the bearing due to temperature.

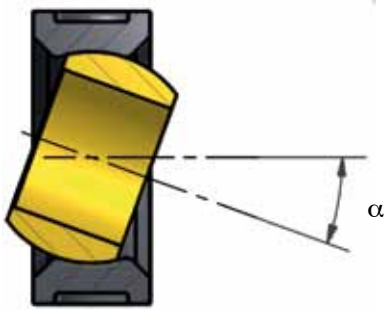
Fitting

igubal® pillow block bearings are designed for mounting with 2 bolts. Precision mounting of the bearing is not necessary, since the spherical ball compensates for alignment errors.

Product Range

igubal® pillow block bearings can be supplied in the standard dimensions for shafts of 5 to 50 mm.

Pivot angle



igubal® Pillow Block Bearings | Product Overview

KSTM/KSTI
Series K
metric/inches

▶ page 624

KSTM-GT
Series K
metric

▶ page 626

NEW!*

ESTM
Series E
metric

▶ page 627

ESTM-GT
Series E
metric

▶ page 628

ESTM-SL
Series E
metric

▶ page 629

NEW!*

AD-01-ESTM
Adapter for series E
metric

▶ page 630

* in this catalog

igubal® Pillow Block Bearing | Product Range

Pillow block bearing KSTM and KSTI

- Maintenance-free, dry-running
- High stiffness
- High strength under impact loads
- Compensation of misalignment and edge loads
- Corrosion- and chemical-resistant
- High vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Light weight

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Technical Data

Part number	Max. static tensile strenght		Max. axial static compressive strength	Max. torque for longitudinal	Weight
	Short term	Long term			
	[N]	[N]	[N]	[Nm]	[g]
KSTM-05	700	350	300	0.6	1.7
KSTM-06	1,100	550	300	1.3	2.9
KSTM-08	1,300	650	400	1.3	4.6
KSTM-10	1,500	750	500	2.5	8.6
KSTM-12	2,200	1,100	600	2.5	11.8
KSTM-14	2,400	1,200	600	4.5	18.4
KSTM-16	3,000	1,500	1,800	4.5	23.7
KSTM-18	3,500	1,750	1,200	10.5	32.2
KSTM-20	4,700	2,350	1,300	10.5	40
KSTM-22	6,100	3,050	1,400	10.5	54
KSTM-25	6,600	3,300	1,600	10.5	75.3
KSTM-30	8,100	4,050	2,100	21.5	116.8

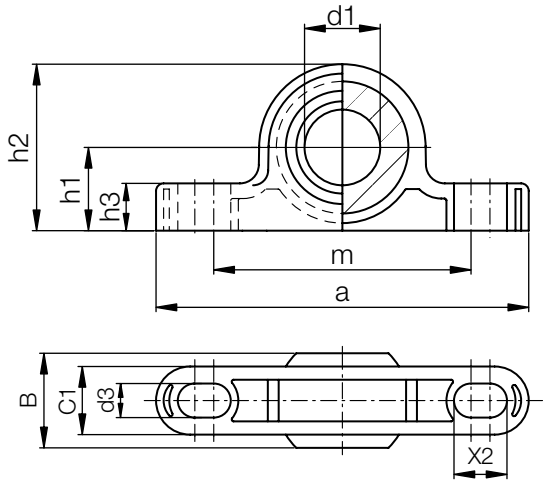
Technical Data

Part number	Max. static tensile strenght		Max. axial static compressive strength	Max. torque for longitudinal	Weight
	Short term	Long term			
	[N]	[N]	[N]	[Nm]	[g]
KSTI-03	550	275	300	0.6	1.7
KSTI-04	600	300	300	0.6	2.8
KSTI-05	800	400	400	0.8	4.5
KSTI-06	1,000	500	500	1.3	7.5
KSTI-07	1,100	550	600	2.5	9.7
KSTI-08	1,200	600	600	2.5	13.5
KSTI-10	2,100	1,050	800	2.5	21.5
KSTI-12	3,100	1,550	1,200	4.5	33.4
KSTI-16	5,400	2,700	1,600	10.5	85.8

The maximum torques for longitudinal holes correspond to the permissible torque of the fixing screws (fixing category 5.8).

igubal® Pillow Block Bearing | Product Range

Pillow block bearing KSTM and KSTI



Order key

KSTM-05

- Dimension
- Metric
- Pillow block bearing
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Dimensions [mm]

Part number	a	d1 E10	B	C1	h1	h2	m	h3	d3	X2	Max. pivot angle
KSTM-05	34	5	8	6.0	7	14	25	4	3.3	5	30°
KSTM-06	43	6	9	7.0	10	18	33	5.5	4.5	6	29°
KSTM-08	47	8	12	9.0	10	20	33	6	4.5	7	25°
KSTM-10	62	10	14	10.5	14	26	46	7.5	5.5	8	25°
KSTM-12	65	12	16	12.0	14	28	46	8.5	5.5	9	25°
KSTM-14	82	14	19	13.5	18	34	60	9.5	6.6	11	23°
KSTM-16	86	16	21	15.0	18	36	60	10.5	6.6	12	23°
KSTM-18	93	18	23	16.5	22	42	68	11.5	9.0	13	23°
KSTM-20	98	20	25	18.0	22	44	68	13	9.0	14	23°
KSTM-22	108	22	28	20.0	24	48	74	14	9.0	16	22°
KSTM-25	124	25	31	22.0	27	54	86	16	9.0	17	22°
KSTM-30	139	30	37	25.0	32	64	96	17	11.0	20	22°

Dimensions [Inch]

Part number	a	d1 E10	B	C1	h1	h2	m	h3	d3	X2	Max. pivot angle
KSTI-03	1.4000	.1900	.312	.234	.290	.566	1.000	.165	.137	.200	25°
KSTI-04	1.7500	.2500	.375	.250	.390	.705	1.250	.205	.137	.250	25°
KSTI-05	1.9500	3125	.437	.312	.430	.824	1.350	.236	.150	.280	25°
KSTI-06	2.4000	.3750	.500	.359	.550	1.022	1.800	.376	.180	.300	22°
KSTI-07	2.5000	.4375	.562	.406	.570	1.082	1.850	.315	.205	.330	22°
KSTI-08	2.8000	.5000	.625	.453	.600	1.191	2.000	.354	.205	.380	22°
KSTI-10	3.3500	.6250	.750	.484	.700	1.409	2.300	.413	.205	.470	22°
KSTI-12	3.7500	.7500	.875	.593	.860	1.687	2.700	.472	.270	.530	22°
KSTI-16	5.0000	1.0000	1.375	1.005	1.100	2.163	3.500	.630	.520	.680	20°

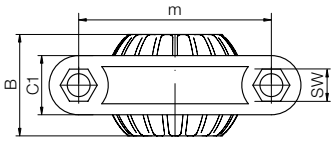
delivery time **available from stock**

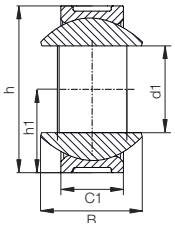
prices **price list online** www.igus.co.uk/en/kstm

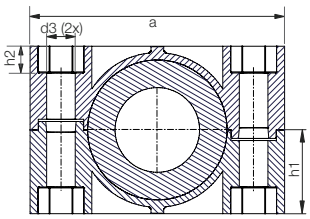
order example **part number** KSTM-05

igubal® Pillow Block Bearing | Product Range

Pillow block bearing with split housing: KSTM-GT







Order key

KSTM-GT40-GT

- Split ball
- Inner diameter
- Split pillow block
- Metric
- Pillow block bearing
- Series

- Fitting is easy and does not require shaft removal
- Maintenance-free, dry-running
- For high static loads
- Space- and weight-saving design
- High stiffness
- Predictable lifetime

Material:
Housing: **RN33** ▶ **page 984**
Spherical ball: **iglidur® J** ▶ **page 674**

Technical Data

Part number	Max. radial tensile strength		Max. axial tensile strength		Max. torque through ball	Max. torque fixing holes	Weight
	Short term	Long term	Short term	Long term			
	[N]	[N]	[N]	[N]	[Nm]	[Nm]	[g]
KSTM-GT35*	11,000	5,500	2,500	1,250	20	15	250.3
KSTM-GT40	11,000	5,500	2,500	1,250	20	15	228.4
KSTM-GT40-GT**	11,000	5,500	2,500	1,250	20	15	235
KSTM-GT45*	15,000	7,500	3,000	1,500	20	20	405.2
KSTM-GT50	15,000	7,500	3,000	1,500	20	20	370.5
KSTM-GT50-GT**	15,000	7,500	3,000	1,500	20	20	389.2

Dimensions [mm]

Part number	d1	d3	h	h1	h2	SW	a	m	C1	B	Max. pivot angle
	E10										
KSTM-GT35*	35.0	13.5	79.0	39.5	12.6	19.0	120.5	91.0	29.5	48.5	24°
KSTM-GT40	40.0	13.5	79.0	39.5	12.6	19.0	120.5	91.0	29.5	48.5	24°
KSTM-GT40-GT**	40.0	13.5	79.0	39.5	12.6	19.0	120.5	91.0	29.5	48.5	24°
KSTM-GT45*	45.0	13.5	100.0	50.0	12.6	19.0	149.0	114.0	35.0	60.0	24°
KSTM-GT50	50.0	13.5	100.0	50.0	12.6	19.0	149.0	114.0	35.0	60.0	24°
KSTM-GT50-GT**	50.0	13.5	100.0	50.0	12.6	19.0	149.0	114.0	35.0	60.0	24°

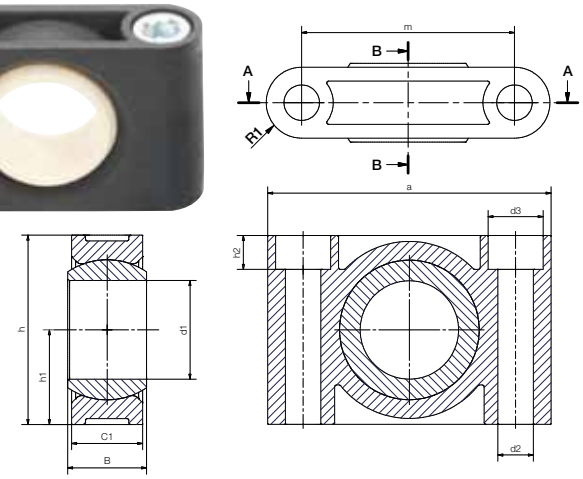
* Diameter given by iglidur® J bore reducer

** Split pillow block with split ball

delivery time available from stock | prices price list online www.igus.co.uk/en/kstm-gt | order example part number KSTM-GT35

igubal® Pillow Block Bearing | Product Range

Pillow block bearing ESTM



Order key

ESTM-08

- Dimension
- Metric
- Pillow block bearing
- Series

- High radial loads
- Can be used in liquid media
- Space-saving design
- Easy to install
- Predictable lifetime

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

- Maintenance-free, self-lubricating
- Adapter available ▶ **page 630**

Technical Data

Part number	Max. radial tensile strength		Max. radial compressive strength		Max. axial strength		Max. torque fixing holes	Weight
	Short term	Long term	Short term	Long term	Short term	Long term		
	[N]	[N]	[N]	[N]	[N]	[N]	[Nm]	[g]
ESTM-08	2,500	1,250	4,300	2,150	600	300	1.3	5
ESTM-10	3,400	1,700	5,300	2,650	700	350	2.5	7.1
ESTM-12	4,500	2,250	6,500	3,250	750	375	2.5	9
ESTM-16	6,700	3,350	8,500	4,250	1,100	550	4.5	17.5
ESTM-20	8,500	4,250	11,000	5,750	1,400	700	4.5	27.4
ESTM-25	13,500	6,750	18,500	9,250	2,300	1,150	10.5	50.8
ESTM-30*	10,000	5,000	16,500	8,250	2,500	1,250	10.5	79.7

*** Due to the different manufacturing method, the load values are lower**

Dimensions [mm]

Part number	d1	d2	d3	h	h1	h2	a	m	C1	B	R1	Max. pivot angle
ESTM-08	8.0	4.5	–	19	9.5	–	31.0	22.0	9.0	8.0	4.5	22°
ESTM-10	10.0	5.5	–	22	11	–	36.0	26.0	10.0	9.0	5.0	22°
ESTM-12	12.0	5.5	–	26	13	–	38.0	28.0	10.0	10.0	5.0	22°
ESTM-16	16.0	6.6	10.6	34.0	17.0	6.4	50.0	37.0	13.0	13.0	6.5	22°
ESTM-20	20.0	9.0	14.0	40.0	20.0	8.6	62.0	46.0	16.0	16.0	8.0	22°
ESTM-25	25.0	9.0	14.0	48.0	24.0	8.6	72.0	54.0	18.0	20.0	9.0	20°
ESTM-30	30.0	11.0	17.0	56.0	28.0	10.6	86.0	64.0	22.0	22.0	11.0	20°

delivery time **available from stock**

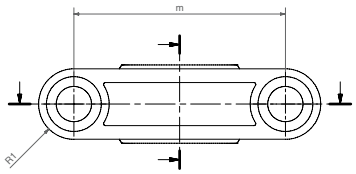
prices **price list online** www.igus.co.uk/en/estm

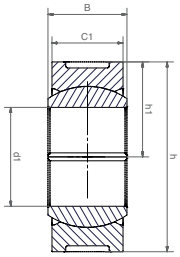
order example **part number** ESTM-08

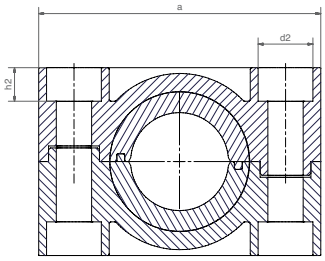
NEW in this catalog!!

igubal® Pillow Block Bearing | Product Range

Pillow block bearing with split housing and split ball: ESTM-GT...-GT







Order key

ESTM-GT16-GT

- Split ball
- Dimension
- Split
- Metric
- Pillow block bearing
- Series

- Save time during assembly and disassembly of shafts, no more threading
- Low installation space and low weight
- High stiffening and fatigue strength
- Spherical ball material iglidur® J for low moisture absorption
- Ideal for outdoor use
- Adapter available ▶ **page 630**

Material:
Housing: **RN33** ▶ **page 984**
Spherical ball: **iglidur® J** ▶ **page 674**

Technical Data

Part number	Max. static tensile strength		Max. static axial compressive strength		Weight
	Short term	Long term	Short term	Long term	
	[N]	[N]	[N]	[N]	[g]
ESTM-GT16-GT	2,500	1,250	4,000	2,000	18
ESTM-GT20-GT	3,500	1,750	6,000	3,000	28
ESTM-GT25-GT	5,000	2,500	3,500	3,500	52
ESTM-GT30-GT	5,000	2,750	5,000	5,000	84

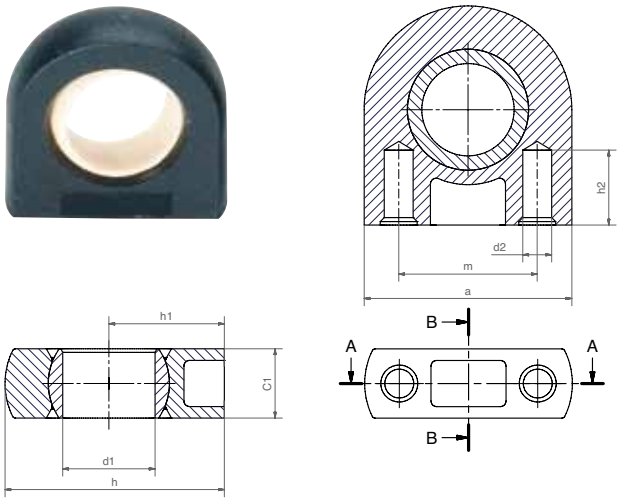
Dimensions [mm]

Part number	d1	d2	h	h1	h2	a	m	C1	B	R1	Max. pivot angle
	E10										
ESTM-GT16-GT	16.0	10.6	34.0	17.0	6.4	50.0	37.0	13.0	13.0	6.5	22°
ESTM-GT20-GT	20.0	14.0	40.0	20.0	8.6	62.0	46.0	16.0	16.0	8.0	22°
ESTM-GT25-GT	25.0	14.0	48.0	24.0	8.6	72.0	54.0	18.0	20.0	9.0	22°
ESTM-GT30-GT	30.0	17.0	56.0	28.0	10.6	86.0	64.0	22.0	22.0	11.0	22°

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/estm-gt | order example **part number ESTM-GT16-GT**

igubal® Pillow Block Bearing | Product Range

Pillow block bearing slimline: ESTM SL



Order key

ESTM-05 SL

- Slimline
- Dimension
- Metric
- Pillow block bearing
- Series

- Light weight
- Extremly space saving
- Low-cost
- Predictable lifetime
- Maintenance- and lubricant-free
- With M3 thread, e. g. ESTM-10-SL-M3
- For spax screw with outer diameter 3.5 mm

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® J** ▶ **page 674**

Technical Data

Part number	Max. radial tensile strength		Max. radial compressive strength		Max. lateral strength		Max. axial strength		Weight
	Short term	Long term	Short term	Long term	Short term	Long term	Short term	Long term	
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]
ESTM-05 SL	1,500	750	1,400	700	900	450	150	75	1.6
ESTM-06 SL	1,500	750	1,400	700	900	450	150	75	1.7
ESTM-08 SL	1,600	800	1,400	700	950	475	100	50	1.7
ESTM-10 SL	1,600	800	1,400	700	1,000	500	100	50	1.9

Dimensions [mm]

Part number	d1 H10	d2	h	h1	h2	a	m	C1	Max. pivot angle
ESTM-05 SL	5.0	2.5	18.0	10.0	6.5	16.0	10.0	6.0	17°
ESTM-06 SL	6.0	2.5	18.0	10.0	6.5	16.0	10.0	6.0	17°
ESTM-08 SL	8.0	2.5	19.0	10.0	6.5	18.0	12.0	6.0	17°
ESTM-10 SL	10.0	2.5	20.0	10.0	6.5	20.0	14.0	6.0	17°

delivery time **available from stock**

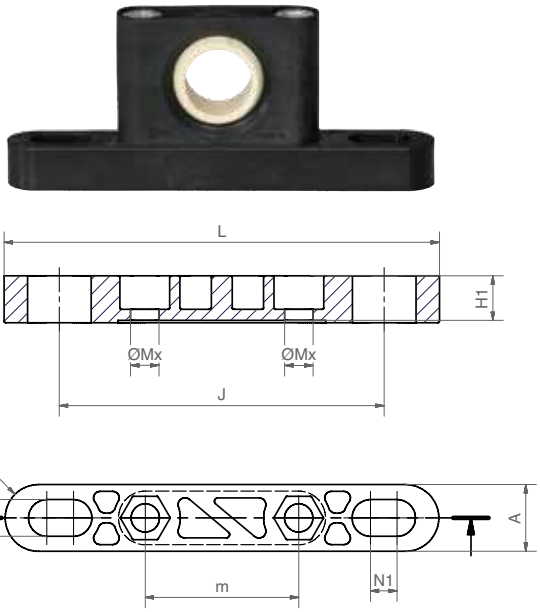
prices **price list online** www.igus.co.uk/en/estm-sl

order example **part number** ESTM-05 SL

NEW in this catalog!!

igubal® Pillow Block Bearings | Product Range

Adapter for pillow block bearings of series E

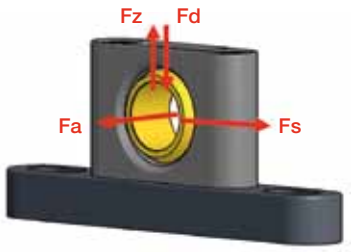


Order key

AD-01-ESTM-20

- Dimension
- Metric
- Pillow block bearing
- Series
- Adapter

- Same depth gauge as metal pillow blocks
- Light weight
- For pillow block bearings of series E (ESTM, ESTM-GT)
- Corrosion- and chemical-resistant
- Fits directly
- Space-saving



Technical Data

Part number	Max. radial tensile strength [Fz]		Max. radial compressive strength [Fd]		lateral strength [Fs]		Max. axial strength [Fa] (Tension/pression)		Weight
	Short term	Long term	Short term	Long term	Short term	Long term	Short term	Long term	
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]
AD-01-ESTM-20*	2,400	1,200	10,000	5,000	3,000	1,500	1,200	600	29.8
AD-01-ESTM-25**	2,400	1,200	10,000	5,000	3,000	1,500	1,200	600	74
AD-01-ESTM-30**	2,400	1,200	10,000	5,000	3,000	1,500	1,200	600	124

Dimension [mm]

Part number	for ESTM-...	d1	L	A	Ra	J	H1	N	N1	m	Mx
AD-01-ESTM-20*	ESTM-20	20	130	20	10	97	14	11	8	46	M8
AD-01-ESTM-25**	ESTM-25	25	130	20	10	102	12.5	11	9	54	M8
AD-01-ESTM-30**	ESTM-30	30	158	25	12.5	118	14.9	14	10	64	M10

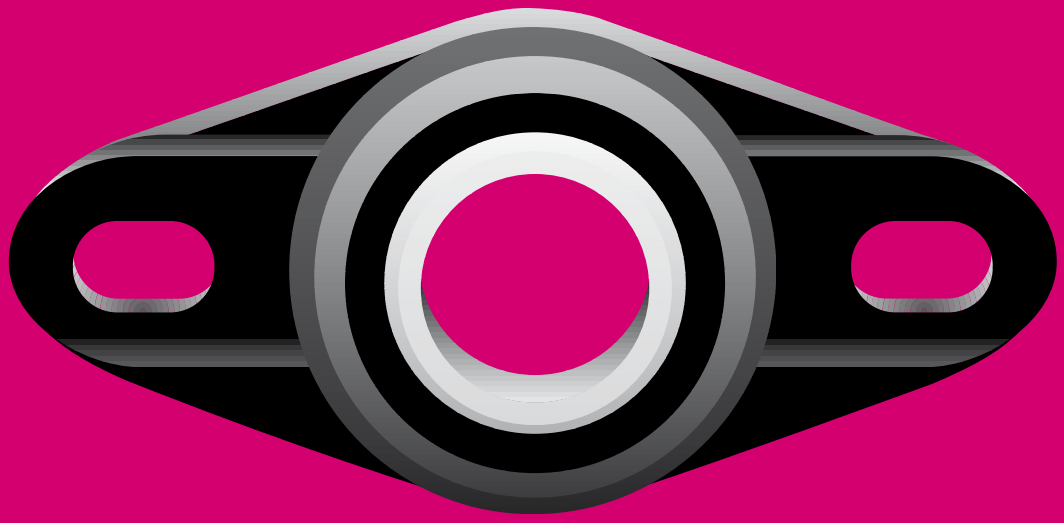
* Material: plastic

** Material: aluminum

delivery time available from stock

prices price list online www.igus.co.uk/en/ad-01-estm

order example part number AD-01-ESTM-20

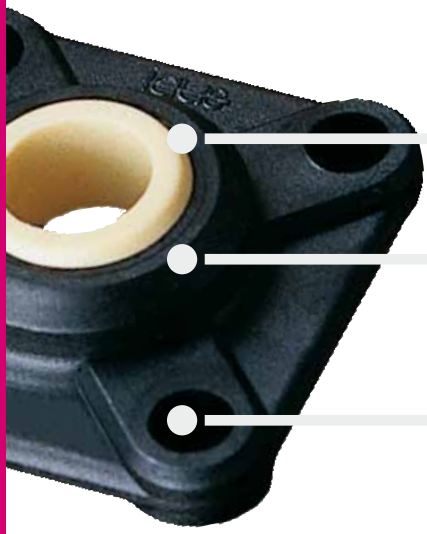


igubal® Flange Bearings

- Maintenance-free, dry-running
- High tensile strength
- High endurance strength
- Compensation of alignment errors
- Compensation of edge loads
- Light weight

igubal® Flange Bearings

igubal® flange bearings have been developped for the support of shaft ends or for shafts lead-through. Like all igubal® products, these bearings consist of an igumid G housing and an iglidur® W300 spherical ball. igubal® flange bearings are made to the di mensional series E and are offered with two or four mounting holes.



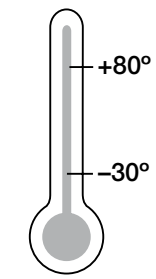
When to use it?

- If chemical resistance is required
- If a cost-effective option is requested
- If you need dirt-resistant bearings
- To adjust misalignment
- If you need splitting components

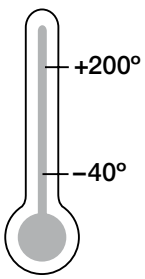
When not to use it?

- If temperatures are higher than +200 °C
  ▶ **HT Version, page 641**
- If an integrated fixing collar is required
- If dimensions above 50 mm are necessary
- If rotation speeds higher than 0.5 m/s are required

Temperature



Standard



High temperature

Product Range

5 types
Ø 4–50 mm

igubal® Flange Bearings | Application Examples

Typical sectors of industry and application areas

● Plant construction ● Automation
● Agricultural machines
● Machine building ● Food industry etc.

Improve technology and reduce costs – 110 exciting examples online

▶ **www.igus.co.uk/igubal-applications**

Conveyor technique

▶ **www.igus.co.uk/agrar**

▶ **www.igus.co.uk/rotary-sorter**

▶ **www.igus.co.uk/food**

igubal® Flange Bearings | Technical Data

General Properties

igubal® Flange bearings have been developped for the support of shaft ends or for shafts lead-through. Like all igubal® products, these bearings consist of an igumid G housing and an iglidur® W300 spherical ball. igubal® flange bearings are made to the di mensional series E and are offered with two or four mounting holes.

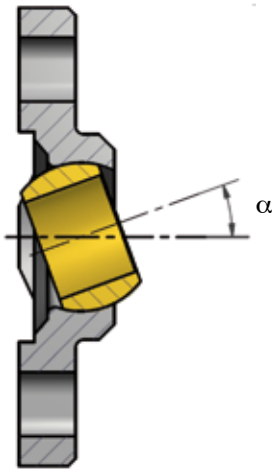
Areas of Application

Since igubal® flange bearings are made for maintenance-free use, they are especially suitable for applications in which access to the bearing is limited, in moist or wet environments or clean room environments. igubal® flange bearings are also found in electric brushes, awnings, conveyor technology, and bakery machines.

Installation

igubal® flange bearings are designed for mounting with 2 or 4 bolts, depending on the design. The 2-hole types are provided with elongated holes, which allow easy and flexible installation. An exact positioning of the bearing housing is not necessary, since the flange bearing compensates for alignment errors.

Pivot angle



igubal® Flange Bearings | Product Overview

EFOM
Series E
metric

▶ from page 636

EFSM
Series E
metric

▶ from page 638

KFSM-GT
Series K
metric

▶ page 640

EFOM-HT
Series E
metric

▶ page 641

EFSM-HT
Series E
metric

▶ page 642

igubal® Flange Bearings | Product Range

Flange bearing with 2 mounting holes: EFOM

- iglidur® W300 highly wear resistant spherical ball
- Easy to install
- Compensation of misalignment errors
- Corrosion-resistance
- Light weight
- Maintenance-free, self-lubricating

Technical Data

Part number	Maximum static axial load		Maximum static radial load		Maximum static torque	Max. pivot angle	Weight
	Short term	Long term	Short term	Long term	Holes		
	[N]	[N]	[N]	[N]	[Nm]		[g]
EFOM-04	400	200	750	375	0.6	28°	1.9
EFOM-05	400	200	750	375	0.6	29°	2.3
EFOM-06	500	250	800	400	0.6	25°	1.8
EFOM-08	700	350	1,100	550	1.3	25°	4.1
EFOM-10	850	425	2,000	1,000	2.5	25°	6.8
EFOM-12	1,100	550	2,200	1,100	2.5	21°	8.9
EFOM-15	1,300	650	2,400	1,200	4.5	20°	15
EFOM-16	1,400	700	2,800	1,400	4.5	27°	17.7
EFOM-17	1,800	900	3,200	1,600	4.5	21°	24.9
EFOM-20	1,800	900	5,500	2,750	10.5	19°	32.8
EFOM-25	3,000	1,500	6,000	3,000	10.5	15°	58.5
EFOM-30	3,500	1,750	6,500	3,250	21.5	14°	78.9

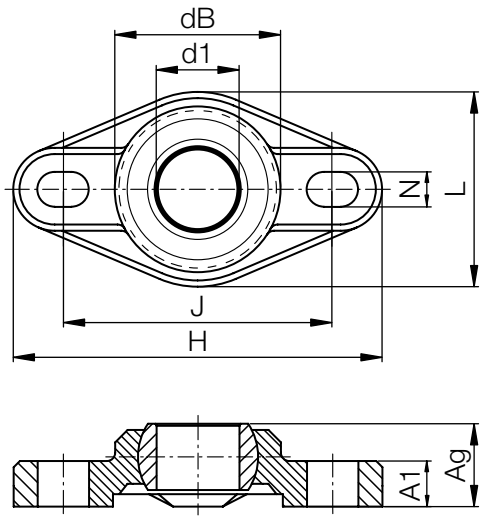
Spherical ball material to choose ▶ page 667

J4VEM: clearance-free

JEM: low moisture absorption

REM: low-cost

igubal® Flange Bearings | Product Range



Order key

EFOM-04

- Inner diameter
- Metric
- 2 holes
- Flange bearing
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Dimensions [mm]

Part number	d1 E10	dB	H Size	L Width	J Hole pitch ±0.1	A1 Height of plate	Ag Height total	N Bore diameter d x l
EFOM-04	4	14.0	33.8	16.0	24.0	4.5	8.5	3.2 x 5.0
EFOM-05	5	14.0	33.8	16.0	24.0	4.5	8.5	3.2 x 5.0
EFOM-06	6	14.0	33.8	16.0	24.0	4.5	8.5	3.2 x 5.5
EFOM-08	8	18.0	44.2	22.0	31.0	5.5	10.5	4.3 x 6.5
EFOM-10	10	22.2	52.0	26.0	36.0	6.5	12.0	5.3 x 8.0
EFOM-12	12	25.0	56.7	31.0	41.0	7.0	13.0	5.3 x 8.0
EFOM-15	15	29.8	68.6	36.0	50.0	8.5	15.5	6.4 x 10.0
EFOM-16	16	32.0	72.6	38.0	53.0	10.0	17.5	6.4 x 10.1
EFOM-17	17	34.8	74.6	41.0	55.0	10.0	18.0	6.4 x 10.2
EFOM-20	20	40.0	89.0	47.0	65.0	11.0	20.0	8.4 x 12.5
EFOM-25	25	48.5	101.0	58.5	75.0	14.0	25.0	8.4 x 12.6
EFOM-30	30	55.0	118.0	65.0	87.5	15.0	26.0	10.5 x 16.0

To apply to following **standard tolerances:**
from 0,5 to 6 mm: ±0.1 mm
over 6 to 30 mm: ±0.2 mm
over 30 to 120 mm: ±0.3 mm

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/efom

order example **Part number** EFOM-04

igubal® Flange Bearings | Product Range

Flange bearing with 4 mounting holes: EFSM

- Spherical ball made from high wear-resistant iglidur® W300
- Easy assembly
- Compensation of alignment errors
- Corrosion-resistant
- Light weight
- Mainteance-free, dry-running

Technical Data

Part number	Maximum static axial load		Maximum static radial load		Maximum static torque	Max. pivot angle	Weight
	Short term	Long term	Short term	Long term	Holes		
	[N]	[N]	[N]	[N]	[Nm]		[g]
EFSM-04	200	100	1,000	500	0.6	28°	2.6
EFSM-05	300	150	1,000	500	0.6	29°	2.7
EFSM-06	300	150	1,000	500	0.6	25°	2.8
EFSM-08	450	225	1,400	700	1.3	25°	5.9
EFSM-10	700	350	2,000	1,000	2.5	25°	9.1
EFSM-12	850	425	2,500	1,250	2.5	21°	11
EFSM-15	1,100	550	3,000	1,500	4.5	20°	20.2
EFSM-16	1,350	675	3,200	1,600	4.5	27°	23.3
EFSM-17	1,600	800	3,400	1,700	4.5	21°	27.9
EFSM-20	2,000	1,000	4,000	2,000	10.5	19°	45
EFSM-25	2,400	1,200	5,600	2,800	10.5	15°	76
EFSM-30	2,800	1,400	6,000	3,000	21.5	14°	100.7

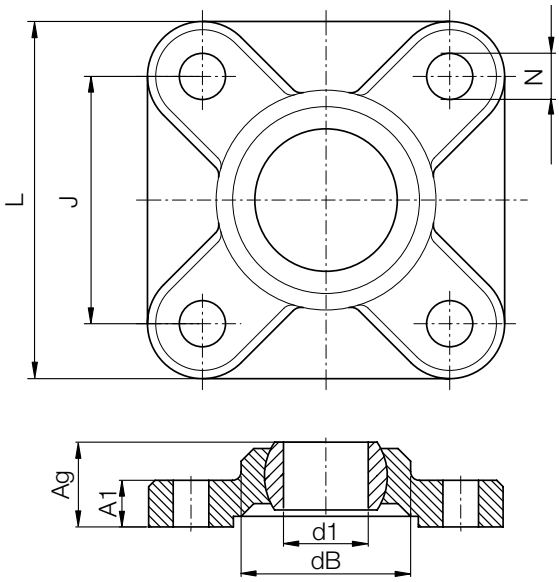
Spherical bearing material to choose ▶ page 667

J4VEM: clearance-free

JEM: low moisture absorption

REM: low-cost

igubal® Flange Bearings | Product Range



Order key

EFSM-04

- Inner diameter
- Metric
- 4 holes
- Flange bearing
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Dimensions [mm]

Part number	d1 E10	dB	L Width	J Hole pitch ±0.1	A1 Height of plate	Ag Height total	N Bore d
EFSM-04	4	14.0	25.0	17.0	4.5	8.5	3.2
EFSM-05	5	14.0	25.0	17.0	4.5	8.5	3.2
EFSM-06	6	14.0	25.0	17.0	4.5	8.5	3.2
EFSM-08	8	18.0	33.0	22.0	5.5	10.5	4.3
EFSM-10	10	21.9	38.0	26.0	6.5	12.0	5.3
EFSM-12	12	25.0	40.0	28.0	7.0	13.0	5.3
EFSM-15	15	30.0	49.0	34.0	8.5	15.5	6.4
EFSM-16	16	32.0	52.0	36.0	9.0	16.5	6.4
EFSM-17	17	35.0	54.0	38.0	10.0	18.0	6.4
EFSM-20	20	40.0	65.0	45.0	11.0	20.0	8.4
EFSM-25	25	48.5	74.0	52.0	14.0	25.0	8.4
EFSM-30	30	54.5	85.0	60.0	15.0	26.0	10.5

To apply to following **standard tolerances:**
from 0,5 to 6 mm: ±0.1 mm
over 6 to 30 mm: ±0.2 mm
over 30 to 120 mm: ±0.3 mm

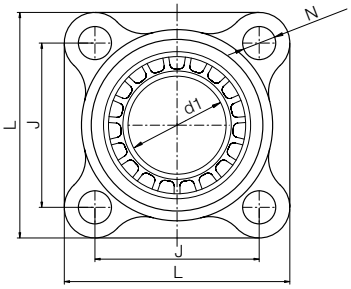
delivery time **available from stock**

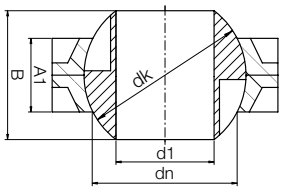
prices **price list online** www.igus.co.uk/en/efsm

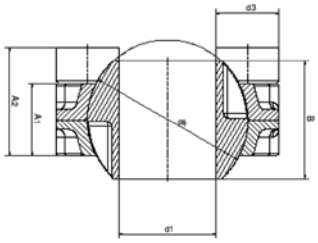
order example **part number** EFSM-04

igubal® Flange Bearings | Product Range

Flange bearing with 4 mounting holes and split housing: KFSM GT







- Preassembled delivery
- Resistant to dirt
- Light weight
- For high static loads
- High tensile strength
- Predictable lifetime
- Maintenance-free, dry-running

Order key

KFSM-GT-35

- Inner diameter
- Split housing
- Metric
- 4 holes
- Flange bearing
- Series

Material:
Housing: **RN33** ▶ **page 983**
Spherical ball: **iglidur® J** ▶ **page 674**

Technical Data

Part number	Maximum static radial load		Maximum static axial load		Weight
	Short term	Long term	Short term	Long term	
	[N]	[N]	[N]	[N]	[g]
KFSM-GT-35*	5,000	2,500	4,500	2,250	183.5
KFSM-GT-40	5,000	2,500	4,500	2,250	161.6
KFSM-GT-45*	6,000	3,000	5,000	2,500	294.6
KFSM-GT-50	6,000	3,000	5,000	2,500	260.1

Max. tightening torque for fixing: 30 Nm

Dimensions [mm]

Part number	d1	dn	d3	dk	A1	A2	B	J	L	N	Max. pivot angle
	E10										
KFSM-GT-35*	35.0	59.0	26.0	66.0	30.0	45.0	48.5	66.0	92.0	13.5	24°
KFSM-GT-40	40.0	59.0	26.0	66.0	30.0	45.0	48.5	66.0	92.0	13.5	24°
KFSM-GT-45*	45.0	72.0	26.0	82.0	40.0	60.0	60.0	78.0	104.0	13.5	24°
KFSM-GT-50	50.0	72.0	26.0	82.0	40.0	60.0	60.0	78.0	104.0	13.5	24°

For KFSM with distance pieces, please add an “A” to the part no, e. g.: KFSM-GT50A
Diameter given by iglidur® J bore reducer

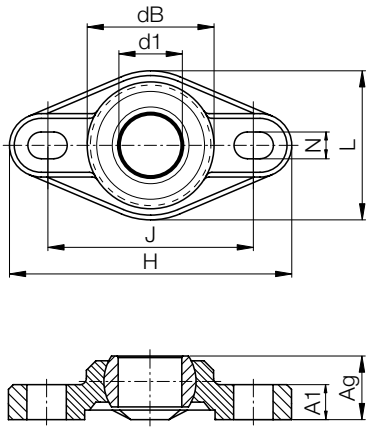
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/kfsm-gt

order example **Part number KFSM GT-35**

igubal® Flange Bearings | Product Range

High-temperature flange bearing with 2 mounting holes: EFOM-HT



Order key

EFOM-06-HT

- High temperature
- Dimensions
- Metric
- 2 holes
- Flange bearing
- Series

- Applicable at high temperatures up to +200 °C
- Spherical ball made of high temperature resistant iglidur® X
- Easy assembly
- Compensation for alignment errors
- Corrosion-resistance
- Light weight
- Maintenance-free, dry-running
- Chemical-resistant, under-water use

Material:
Housing: **iguton G** ▶ **page 983**
Spherical ball: **iglidur® X** ▶ **page 673**

Dimensions [mm]

Part number	d1 E10	dB	H Length	L Width	J Hole pitch ±0.1	A1 Height of plate	Ag Total height	N Bore diameter d · l	Max. pivot angle	Weight [g]
EFOM-05-HT	5	14.0	33.8	16.0	24.0	4.5	8.5	3.2 x 5.0	29°	2.5
EFOM-06-HT	6	14.0	33.8	16.0	24.0	4.5	8.5	3.2 x 5.5	27°	2.3
EFOM-08-HT	8	18.0	44.2	22.0	31.0	5.5	10.5	4.3 x 6.5	24°	5.0
EFOM-10-HT	10	22.0	52.0	26.0	36.0	6.5	12.0	5.3 x 8.0	24°	8.3
EFOM-12-HT	12	25.0	56.7	31.0	41.0	7.0	13.0	5.3 x 8.0	21°	10.7

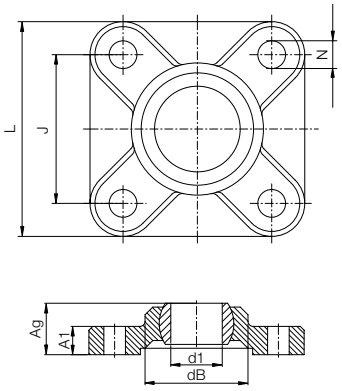
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/efom-ht

order example **Part number EFOM-06 HT**

igubal® Flange Bearings | Product Range

High-temperature flange bearing with 4 mounting holes: EFSM-HT



Order key

EFSM-06-HT

- High temperature
- Dimension
- Metric
- 4 holes
- Flange bearing
- Series

- Applicable at high temperatures up to +200 °C
- Spherical ball made of high temperature resistant iglidur® X
- Easy assembly
- Compensation for alignment errors
- Corrosion-resistance
- Light weight
- Maintenance-free, dry-running
- Chemical-resistant, under-water use

Material:
Housing: **iguton G** ▶ **page 983**
Spherical ball: **iglidur® X** ▶ **page 673**

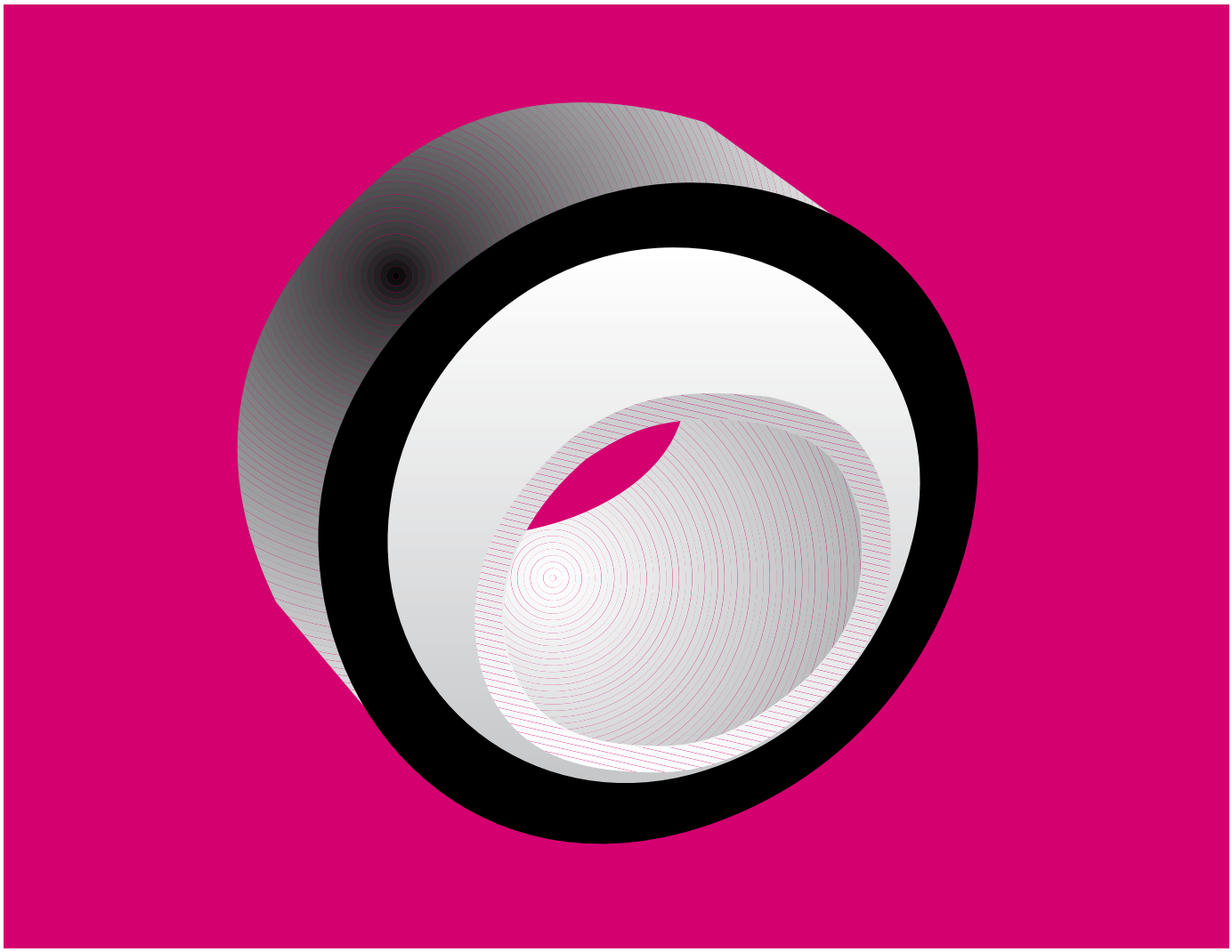
Dimensions [mm]

Part number	d1 E10	dB	L Length	J Hole pitch ±0.1	A_1 Height of plate	A_g Total height	N Bore diameter d	Max. pivot angle	Weight [g]
EFSM-05-HT	5	14.0	25.0	17.0	4.5	8.5	3.2	29°	3.5
EFSM-06-HT	6	14.0	25.0	17.0	4.5	8.5	3.2	25°	3.3
EFSM-08-HT	8	18.0	33.0	22.0	5.5	10.5	4.3	25°	7.1
EFSM-10-HT	10	22.0	38.0	26.0	6.5	12.0	5.3	25°	11.2
EFSM-12-HT	12	25.0	40.0	28.0	7.0	13.0	5.3	21°	13.3

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/efsm-ht

order example **part number EFSM-06 HT**

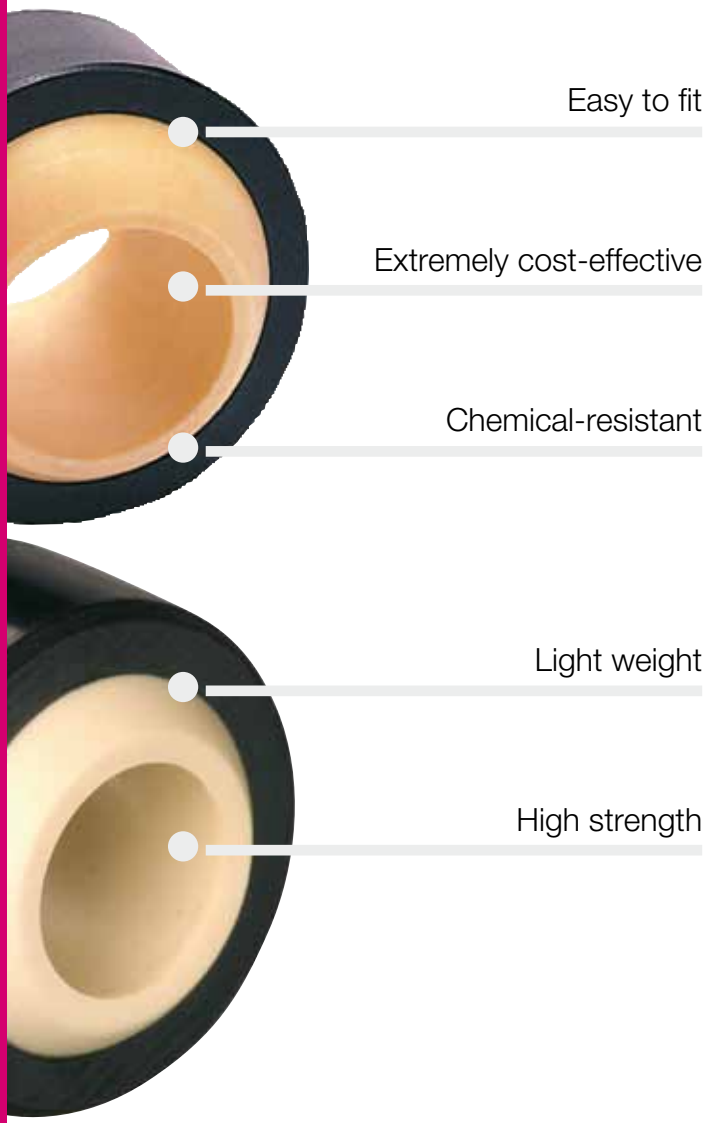


igubal® Pressfit Spherical Bearings

- Easy to fit
- Extremely cost-effective
- Chemical-resistant
- Light weight
- High strength

igubal® Pressfit Spherical Bearings

The use of pivoting bearings is usually associated with high weight materials, difficult installation, and high costs. Most of the time, maintenance is still necessary long term, and the bearings are only corrosion resistant in special designs. igubal® pressfit spherical bearings put an end to all of these disadvantage: they are easy to fit, cost-effective, lightweight and robust.



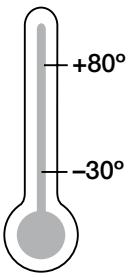
When to use it?

- For high axial and radial loads
- When an easy installation is required
- In case of reduced installation place
- If chemical resistance is required
- If a cost-effective option is requested
- If you need dirt-resistant bearings
- To adjust misalignment
- If you need splitting components

When not to use it?

- If temperatures are higher than +80 °C
- If dimensions above 30 mm are necessary
- If rotation speeds higher than 0.5 m/s are required

Temperature



Product range

13 types
Ø 2–30 mm

igubal® Pressfit Spherical Bearings | Application Examples

Typical sectors of industry and application areas

● Food industry ● Railway technology
● Automotive ● Plant construction etc.

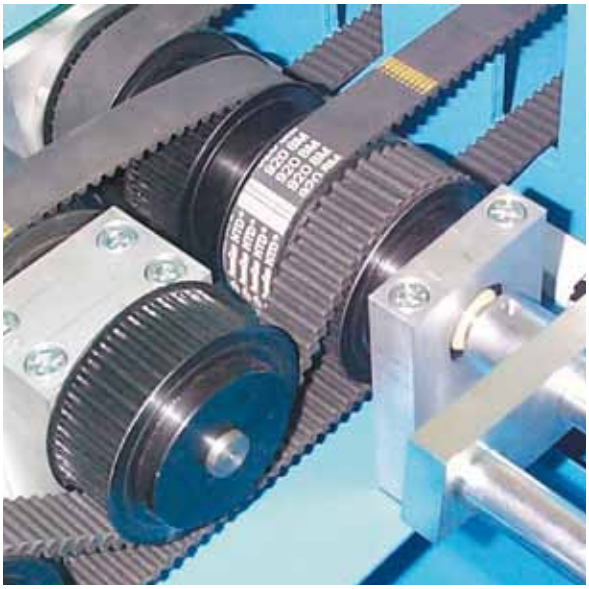
Improve technology and reduce costs – 110 exciting examples online

▶ **www.igus.co.uk/igubal-applications**

▶ **www.igus.co.uk/food**

▶ **www.igus.co.uk/traffic**

▶ **www.igus.co.uk/automotive**



▶ **www.igus.co.uk/hose-skiving**

igubal® Pressfit Spherical Bearings | Technical Data

The use of spherical bearings is usually associated with high weight materials, difficult installation, and high costs. Most of the time, maintenance is still necessary long term, and the bearings are only corrosion resistant in special designs. Often roller bearings or plain bearings malfunction prematurely due to high edge loads, or because they need to be readjusted, reamed, or refitted in order to compensate for alignment errors.

igubal® spherical bearings put an end to all of these disadvantages and open up many new possibilities for your engineering design.

- igubal® pressfit spherical bearings are easy to fit
- igubal® pressfit spherical bearings are cost-effective
- igubal® pressfit spherical bearings are light weight
- igubal® pressfit spherical bearings have a high strength

Area of application

Ease of installation makes diverse applications possible for igubal® spherical bearings. They can be used anywhere. The self-aligning feature offers design advantages or helps to simplify assembly.

Tolerances

Maintenance-free igubal® spherical bearings are designed to be oversized before being pressfitted. After correct installation into a recommended housing bore, the inner diameter adjusts to meet our specified tolerances. Please pressfit the igubal® spherical bearings into a housing tolerance of H7, and use a shaft of h tolerance, normally h6 to h9. This will help to ensure optimal performance of iglidur® plain bearings. If you have any questions, please contact an iglidur® technical expert for assistance.

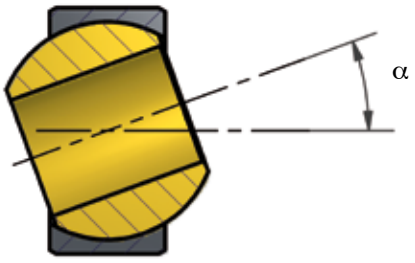
Installation

igubal® spherical bearings are pressfitted into a recommended housing bore and axially secured. An exact orientation of the bearing housing is not necessary, since the spherical bearing compensates for alignment errors.

Dimensions

igubal® spherical bearings are manufactured according to DIN ISO 12240 dimensional series K and E. The product range provides dimensions from 0.19 to 1.0” and 2 to 30 mm. Please contact us if you need other dimensions.

Pivot angle



igubal® Pressfit Spherical Bearings | Product Overview

igubal® pressfit spherical bearing

KGLM
Series K
metric

▶ page 648

KGLM LC
Series K
metric

▶ page 649

KGLM SL
Series K
metric

▶ page 650

NEW!*

KGLM H
Series K
metric

▶ page 651

KGLI
Series K
inches

▶ page 652

EGLM
Series E
metric

▶ page 653

igubal® self-aligning clip bearing

ECLM
Series E
metric

▶ page 654

ECLM-HD
Series E
metric

▶ page 655

EGFM-...T
Series E
metric

▶ page 656

igubal® double joint

EGZM
Series E
metric

▶ page 658

EGXM
Series E
metric

▶ page 659

NEW!*

WDGM
metric

▶ page 660

NEW!*

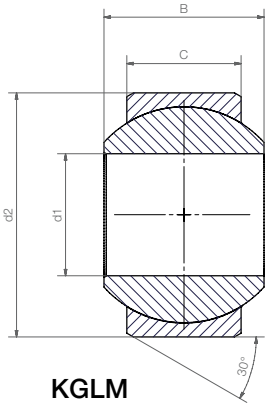
KDGM
Series K
metric

▶ page 661

* in this catalog

igubal® Pressfit Spherical Bearings | Product Range

Pressfit spherical bearing: KGLM



KGLM

Order key

KGLM-02

- Dimension
- Metric
- Pressfit spherical bearing
- Series

- Compensation of misalignment and edge loads
- Corrosion-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating and linear movements

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Technical Data and Dimensions [mm]

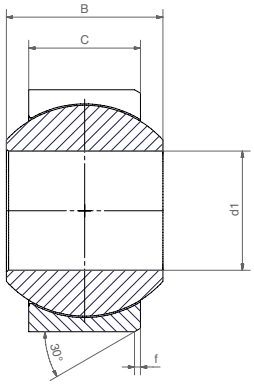
Part number	Max. static compressive strength		Max. torque through ball	d1 E10	d2	B	C	Max. pivot angle	Weight
	radial [N]	axial* [N]	[Nm]						[g]
KGLM-02	300	60	1	2	8	4	3.0	32°	0.1
KGLM-03	550	200	2	3	10	6	4.5	32°	0.5
KGLM-05	1,300	500	5	5	13	8	6.0	30°	1.0
KGLM-06	1,800	650	10	6	16	9	6.5	29°	1.6
KGLM-08	2,700	1,200	12	8	19	12	9.0	25°	2.9
KGLM-10	4,000	1,400	20	10	22	14	10.5	25°	4.4
KGLM-12	5,400	1,500	30	12	26	16	12.0	25°	7.0
KGLM-14	6,000	2,500	35	14	28	19	13.5	23°	9.1
KGLM-16	8,000	3,000	40	16	32	21	15.0	23°	12.8
KGLM-18	9,000	4,000	45	18	35	23	16.5	23°	16.6
KGLM-20	10,000	5,000	55	20	40	25	18.0	23°	24.4
KGLM-22	11,700	6,500	60	22	42	28	20.0	22°	28.5
KGLM-25	13,600	7,500	65	25	47	31	22.0	22°	39.3
KGLM-30	20,000	9,000	70	30	55	37	25.0	22°	62.6

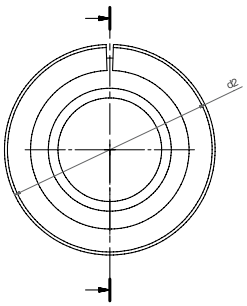
*** The maximum static axial load is determined in a remote location hole.**

delivery time available from stock | prices price list online www.igus.co.uk/en/kglm | order example part number KGLM-02

igubal® Pressfit Spherical Bearings | Product Range

Pressfit spherical bearing: KGLM Low Cost





- Spherical ball can be replaced
- Easy to install
- Low-cost
- Slotted housing

Order key

KGLM-10 LC

- Low Cost
- Dimension
- Metric
- Pressfit spherical bearing
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical balls: iglidur® W300 ▶ **page 671**
Other spherical balls on request ▶ **page 667**

Technical Data

Part number	Max. static compressive strength (short term)		Weight
	radial	axial	
	[N]	[N]	[g]
KGLM-10 LC	4,000	1,400	4.3
KGLM-12 LC	5,400	1,500	6.9
KGLM-16 LC	8,000	3,000	12.7
KGLM-20 LC	10,000	5,000	23.6
KGLM-25 LC	13,600	7,500	38.9
KGLM-30 LC	20,000	9,000	61.0

*** The maximum static axial load is determined in a remote location hole.**

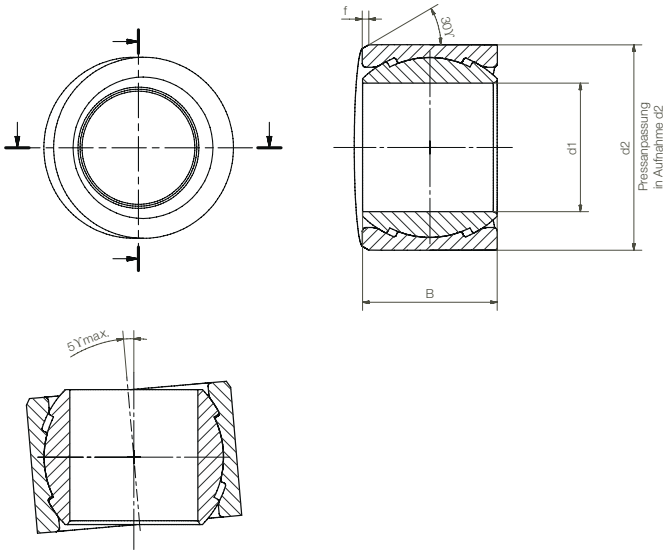
Dimensions [mm]

Part number	d1	d2	B	C	f	Max.
	E10					pivot angle
KGLM-10 LC	10	22.0	14	10.5	0.8	25°
KGLM-12 LC	12	26.0	16	12	0.8	25°
KGLM-16 LC	16	32.0	21	15	0.8	23°
KGLM-20 LC	20	40.0	25	18	0.8	23°
KGLM-25 LC	25	47.0	31	22	0.8	22°
KGLM-30 LC	30	55.0	37	25	1.0	22°

delivery time available from stock | prices price list online www.igus.co.uk/en/kglm-lc | order example part number KGLM-10 LC

igubal® Pressfit Spherical Bearings | Product Range

Pressfit spherical bearing: KGLM Slim Line



Order key

KGLM-08 SL

- Slim line
- Dimension
- Metric
- Pressfit spherical bearing
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

- Very small space, wall thickness 50 % thiner than KGLM compared to KGLM
- Angle compensation up to 5 °
- Low weight

Technical Data and Dimensions [mm]

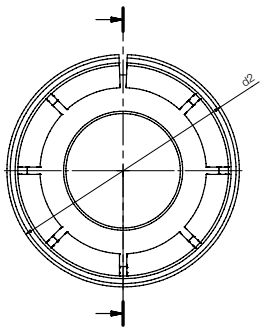
Part number	Max. static compressive strength (short term)		Max. static compressive strength (long term)		d1	d2	B	f	Max. pivot angle	Weight
	radial	axial	radial	axial	E10					
	[N]	[N]	[N]	[N]						[g]
KGLM-08 SL	2,700	450	1,350	225	8	14	9.0	0.5	5°	1.1
KGLM-10 SL	4,000	750	2,000	375	10	16	10.5	0.5	5°	1.5
KGLM-12 SL	4,500	750	2,250	375	12	18	12.0	0.5	5°	2.0
KGLM-16 SL	6,500	500	3,250	250	16	22	15.0	0.5	5°	3.1

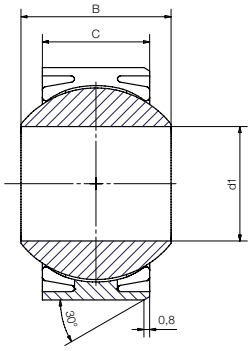
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/kglm-sl

order example **part number KGLM-08 SL**

Pressfit spherical bearing: KGLM-H Soft Touch





Order key

KGLM-16 H

- Haptics
- Dimension
- Metric
- Pressfit spherical bearing
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® L250** ▶ **page 239**

- Quiet operation
- Low tolerances
- Easy to install
- Chemical- and corrosion-resistant
- Compensation of misalignment errors, precise run

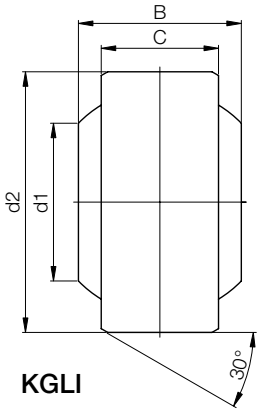
Technical Data and Dimensions [mm]

Part number	Max. static compressive strength (short term)		Max. static compressive strength (long term)		d1	d2	B	C	Max. pivot angle	Weight
	radial	axial	radial	axial	E10					
	[N]	[N]	[N]	[N]						[g]
KGLM-16-H	4,000	300	2,000	150	16	32	21.0	15	22°	12.2

delivery time available from stock | prices price list online www.igus.co.uk/en/kglm-h | order example part number KGLM-16 H

igubal® Pressfit Spherical Bearings | Product Range

Pressfit spherical bearing: KGLI



KGLI

Order key

KGLI-03

- Dimension
- Inch
- Pressfit spherical bearing
- Series

- Inch dimensions
- Compensation of misalignment and edge loads
- Corrosion-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating and linear movements

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

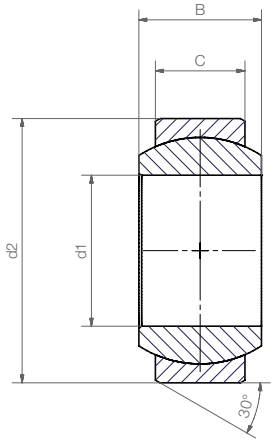
Technical Data and Dimensions [Inch]

Part number	Max. static compressive strenght		Max. torque through ball	d1 E10	d2	B	C	Max. pivot angle	Weight
	radial [N]	axial* [N]	[Nm]						[g]
KGLI-03	1,000	150	5	.1900	.5625	.312	.218	34°	1.2
KGLI-04	1,500	250	10	.2500	.6562	.375	.250	30°	1.7
KGLI-05	2,000	350	12	.3125	.7500	.437	.281	29°	2.6
KGLI-06	2,800	400	20	.3750	.8125	.500	.312	25°	3.3
KGLI-07	3,750	450	30	.4375	.9375	.562	.343	25°	4.9
KGLI-08	4,250	500	35	.5000	1.0625	.625	.390	25°	7.1
KGLI-10	5,300	750	40	.6250	1.1875	.750	.500	23°	10.2
KGLI-12	8,500	850	55	.7500	1.4375	.875	.593	23°	17.5
KGLI-16	13,600	2,500	65	1.0000	2.1250	1.375	1.005	23°	62.7

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/kgli | order example **part number KGLI-03**

igubal® Pressfit Spherical Bearings | Product Range

Pressfit spherical bearing: EGLM



Order key

EGLM-04

- Dimension
- Metric
- Pressfit spherical bearing
- Series

- Compensation of misalignment errors and edge loads
- Corrosion-resistant
- High vibration-dampening capacity
- Suitable for rotating, oscillating and linear movements

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Technical Data and Dimensions [mm]

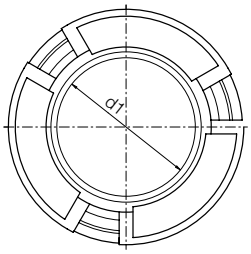
Part number	Max. static compressive strength		Max. torque through ball	d1 E10	d2	B	C	Max. pivot angle	Weight
	radial [N]	axial* [N]	[Nm]						[g]
EGLM-04	600	50	1	4	12	5	3.0	37°	0.4
EGLM-05	1,000	130	2	5	14	6	4.0	33°	0.8
EGLM-06	1,200	150	2.5	6	14	6	4.0	27°	0.9
EGLM-08	1,800	175	7	8	16	8	5.0	24°	1.2
EGLM-10	2,500	400	14	10	19	9	6.0	24°	1.9
EGLM-12	3,800	650	25	12	22	10	7.0	21°	2.8
EGLM-15	5,500	1,000	30	15	26	12	9.0	21°	6.9
EGLM-16	6,000	1,150	32	16	28	13	9.5	21°	9.0
EGLM-17	6,300	1,200	35	17	30	14	10.0	21°	10.6
EGLM-20	9,000	1,400	40	20	35	16	12.0	18°	16.3
EGLM-25	14,000	2,900	55	25	42	20	16.0	16°	29.0
EGLM-30	17,000	4,000	70	30	47	22	18.0	13°	37.4

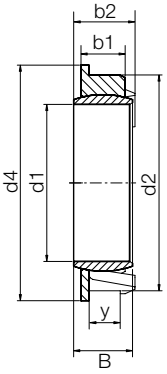
*** The maximum static axial load is determined in a remote location hole.**

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/eglm | order example **part number** EGLM-04

igubal® Self-aligning Clip Bearing | Product Range

Self-aligning clip bearing: ECLM





Order key

ECLM-05-02

- Sheet thickness
- Dimension
- Metric
- Self-aligning clip bearing
- Series

- Very easy installation by simply snapping into sheet metal
- No additional axial fastening necessary
- Extremely small installation space: space-saving, thin-walled design

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® J** ▶ **page 674**

Technical Data

Part number	Max. static compressive strength (short term)		Max. static compressive strength (long term)		Weight
	radial	axial	radial	axial	
	[N]	[N]	[N]	[N]	[g]
ECLM-05-02	700	25	350	12.5	0.5
ECLM-06-02	700	25	350	12.5	0.5
ECLM-08-02	1,000	25	500	12.5	0.5
ECLM-10-03	1,400	15	700	7	0.8
ECLM-12-03	1,800	20	900	10	0.8
ECLM-16-03	2,800	40	1,400	20	1.1

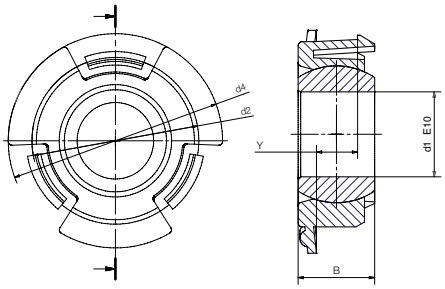
Dimensions [mm]

Part number	d1	B	d2	d4	y	b1	b2	Max. pivot angle
	E10		±0.2			±0.1		
ECLM-05-02	5	9	12	13	2.0	3.9	6.0	25°
ECLM-06-02	6	9	12	13	2.0	3.9	6.0	18°
ECLM-08-02	8	10.5	14	15	2.0	3.9	6.0	16°
ECLM-10-03	10	12.4	16	17	3.0	4.5	6.7	12°
ECLM-12-03	12	14.2	18	19	3.0	4.5	6.7	12°
ECLM-16-03	16	18.15	22	24	3.0	4.5	6.7	12°

delivery time available from stock | prices price list online www.igus.co.uk/en/eclm | order example part number ECLM-05-02

igubal® Self-aligning Clip Bearing | Product Range

Self-aligning clip bearing: ECLM-HD



Order key

ECLM-10-05-HD

- Heavy Duty
- Sheet thickness
- Dimension
- Metric
- Self-aligning clip bearing
- Series

- High axial and radial loads
- Adjustment of axial and radial clearance by preloading
- Easily clips into sheet metal
- No additional axial fastening necessary
- For sheet thickness 5 mm

Material:
Housing: **igumid G** ▶ **page 983**
Spherical balls: iglidur® W300 ▶ **page 671**
Other spherical balls on request ▶ **page 667**

Technical Data

Part number	Max. static compressive strength (short term)		Max. static compressive strength (long term)		Weight
	radial	axial	radial	axial	
	[N]	[N]	[N]	[N]	[g]
ECLM-10-05-HD	2,500	150	1,250	75	3.1

Dimensions [mm]

Part number	d1	B	d2	d4	y	Max.
	E10		±0.15		±0.1	pivot angle
ECLM-10-05-HD	10.0	9.0	22.0	28	5.0	24°

Spherical bearing material to choose ▶ page 667


REM: low-cost


JEM: low moisture absorption

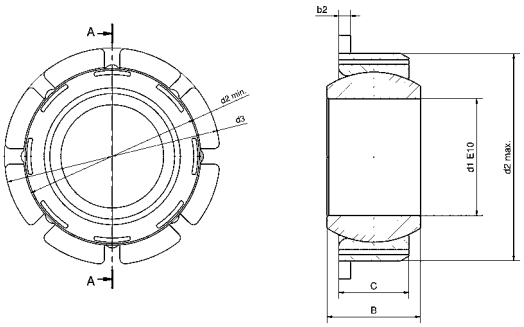

UWEM: for under water applications


J4VEM: clearance-free spherical ball

delivery time available from stock | prices price list online www.igus.co.uk/en/eclm-hd | order example part number ECLM-10-05-HD

igubal® Self-aligning Clip Bearing | Product Range

Self-aligning clip bearing: EGFM-T



- Maintenance-free, dry-running
- Easy to fit
- Max. tolerance compensation ±0.2 mm

Order key

EGFM-08 T

- Tolerance compensation
- Inner diameter d1
- Metric
- Self-aligning clip bearing with flange
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical balls: iglidur® W300 ▶ **page 671**
Other spherical balls on request ▶ **page 667**

Technical Data

Part number	Max. stat. compressive force (short term)		Max. stat. compressive force (long term)		Weight
	radial	axial	radial	axial	
	[N]	[N]	[N]	[N]	[g]
EGFM-08 T SL	1,100	150	550	75	0.9
EGFM-10 T	1,900	220	950	110	2.4
EGFM-12 T	2,500	270	1,250	135	3.0
EGFM-16 T	6,000	600	3,000	300	6.6
EGFM-20 T	9,000	800	4,500	400	11.1
EGFM-25 T	14,000	2,800	7,000	1,400	19.0
EGFM-30 T	17,000	3,000	8,500	1,500	24.0

Dimensions [mm]

Part number	d1	d2	d2	d3	C	B	b2	Housing		Max.
		min.	max.					min.	max.	pivot angle
EGFM-08 T SL*	8 (H10)	15.8	16.5	18	5.0	6	1.1	15.8	16.2	11°
EGFM-10 T	10 (E10)	20.8	21.6	26	6.0	9	1.0	20.8	21.2	24°
EGFM-12 T	12 (E10)	22.8	23.6	28	7.0	10	1.0	22.8	23.2	21°
EGFM-16 T	16 (E10)	29.8	30.6	35	9.5	13	1.5	29.8	30.2	21°
EGFM-20 T	20 (E10)	34.8	35.6	42	12.0	16	2.0	34.8	35.2	18°
EGFM-25 T	25 (E10)	41.8	42.6	50	16.0	20	2.0	41.8	42.2	16°
EGFM-30 T	30 (E10)	46.8	47.6	55	18.0	22	2.0	46.8	47.2	13°

* Spherical ball from iglidur® J

Spherical bearing material to choose ▶ page 667


REM: low-cost


UWEM: for under water applications


J4VEM: clearance-free spherical ball

delivery time **available from stock**

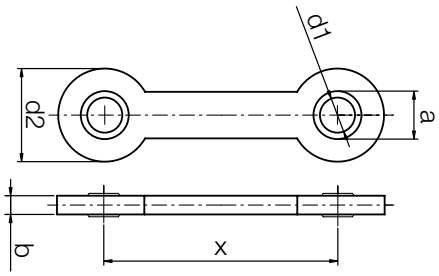
prices **price list online** www.igus.co.uk/en/egfm-t

order example **part number EGFM-08 T**

My Sketches

igubal® Double Joint | Product Range

Double joint: EGZM



- Maintenance-free, self-lubricating
- Mechanical joining link between 2 components
- Compensation of misalignment errors
- Corrosion-resistant

Order key

EGZM-04-25

- Pitch X
- Inner diameter d1
- Metric
- Double joint
- Series

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **iglidur® W300** ▶ **page 671**

Technical Data and Dimensions [mm]

Part number	Max. static tensile strength (short term)		Max. static tensile strength (long term)		d1 E10	d2	X	b	a	Weight
	radial [N]	axial [N]	radial [N]	axial [N]						[g]
EGZM-04-25	1,100	1,300	550	650	04	20	25	4	10	3.5
EGZM-04-50	1,100	750	550	375	04	20	50	4	10	4.8
EGZM-04-75	1,100	500	550	250	04	20	75	4	10	6.1
EGZM-05-25	1,100	1,300	550	650	05	20	25	4	10	2.2
EGZM-05-50	1,100	750	550	375	05	20	50	4	10	4.9
EGZM-05-75	1,100	500	550	250	05	20	75	4	10	6.3
EGZM-06-25	1,100	1,300	550	650	06	20	26	4	10	3.4
EGZM-06-50	1,100	750	550	375	06	20	50	4	10	4.8
EGZM-06-75	1,100	500	550	250	06	20	75	4	10	3.4
EGZM-08-60	3,000	3,500	1,500	1,750	08	20	60	7	15	15.2
EGZM-08-100	3,000	1,900	1,500	950	08	30	100	7	15	19.5
EGZM-10-60	2,500	3,500	1,250	1,750	10	30	60	7	15	15.3
EGZM-10-85	2,500	2,300	1,250	1,150	10	30	85	7	15	18.1
EGZM-10-100	2,500	1,900	1,250	950	10	30	100	7	15	19.4
EGZM-12-60	2,000	3,500	1,000	1,750	12	30	60	7	15	14.7
EGZM-12-100	2,500	1,900	1,000	950	12	30	100	7	15	18.8

Spherical bearing material to choose ▶ page 667


REM: low-cost

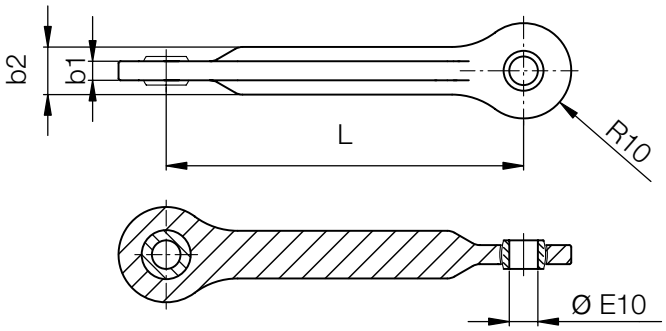

JEM: low moisture absorption


J4VEM: clearance-free spherical ball

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/egzm | order example **part number EGZM-04-25**

igubal® Double Joint | Product Range

Double joint: EGXM



Order key

EGXM-06-75

- Pitch
- Dimensions
- Metric
- Double joint, turned 90°
- Series

- Double joint, turned 90°
- Easy to fit
- Custom-design, with or without ball stud
- Maintenance-free iglidur® W300 spherical ball

Material:
Housing: **igumid G** ▶ **page 983**
Spherical ball: **variabel** ▶ **page 667**

Technical Data and Dimensions [mm]

Part number	Max. permitted tensile force		Max. permitted compressive strength		ø Sphercial ball	Centre distance	Head thickness	Housing size	Weight
	short term	long term	short term	long term					
	[N]	[N]	[N]	[N]	d	L	b1	b2	[g]
EGXM-06-75	1,100	550	1,600	800	6	75	4	10	7.7

Further dimensions on request

Further combinations:
EGXM-06-75 ZM (with metal ball stud)
EGXM-06-75 ZK (with plastic ball stud)
EGXM-06-75 EK (with stainless steel ball)

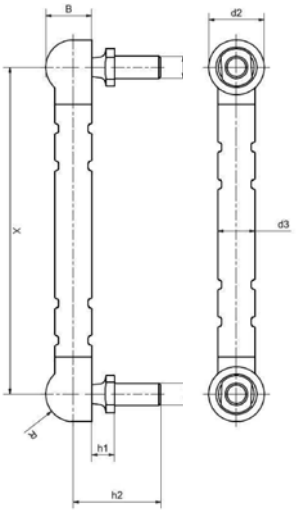
delivery time available from stock | prices price list online www.igus.co.uk/en/egxm | order example part number EGXM-06-75

NEW in this catalog!

igubal® Double Joint | Product Range

Variable double joint: WDGM

Version A Version B Version C



Order key

WDGM-05-XX

- Center distance
- Dimension
- Metric
- Double joint
- Angle

- Socket cup M5, M6, M8 and M10
- Individual center dimensions and lengths
- Individual alignment of the bearing position

Material:
Housing: **igumid G** ▶ **page 983**
Ball stud: **igumid G, steel or stainless steel**

Dimensions [mm]

Part number	d1	d2	d3	X min.	B	h1	h2	Max. pivot angle
WDGM-05-XX	M5	12.8	8.0	45.0	10.8	4.6	19.2	23°
WDGM-06-XX	M6	14.8	10.0	50.0	12.3	6.1	23.5	25°
WDGM-08-XX	M8	19.3	12.0	60.0	16.2	5.9	29.5	24°
WDGM-10-XX	M10	24.0	14.0	70.0	20.0	7.9	36.0	25°

Please complete the part no. with the required center distance in mm and the alignment of the bearing position.
Order example: WDGM-05-100-A, center distance 100 mm, ball stud in the same alignment.

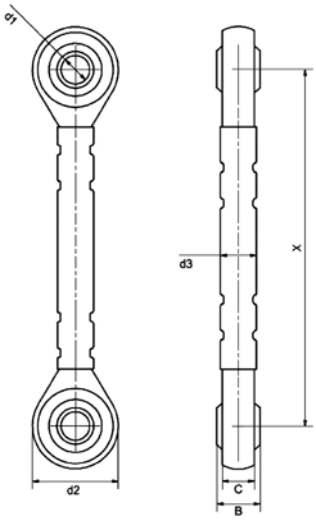
delivery time available from stock | prices price list online www.igus.co.uk/en/wdgm | order example part number WDGM-05-XX

igubal® Double Joint | Product Range

Variable double joint: KDGM

Version A

Version B



Order key

KDGM-06-XX

- Ball diameters 6, 8, 10 and 12 mm
- Individual center dimensions and lengths
- Individual alignment of the bearing position

Material:
Housing: **igumid G** ▶ **page 983**
Ball: **iglidur® W300, iglidur® J, iglidur® J4 and stainless steel**

Dimensions [mm]

Part number	d1 E10	d2	d3	X	B	C	Max. pivot angle
KDGM-06-XX	6.0	20.0	6.0	50.0	9.0	7.0	40°
KDGM-08-XX	8.0	24.0	8.0	65.0	12.0	9.0	35°
KDGM-10-XX	10.0	30.0	10.0	80.0	14.0	10.5	35°
KDGM-12-XX	12.0	34.0	12.0	90.0	16.0	12.0	35°

Please complete the part no. with the required center distance in mm and the alignment of the bearing position.
Order example: KDGM-05-100-A, center distance 100 mm, ball in the same alignment.

delivery time available from stock | prices price list online www.igus.co.uk/en/kdgm | order example part number KDGM-06-XX

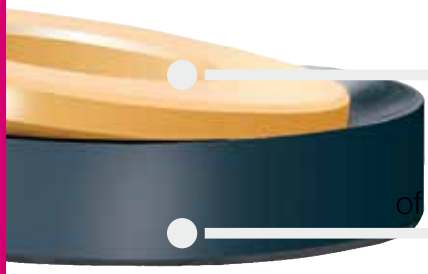
My Sketches

igubal® Spherical Thrust Bearings

- Easy to install
- Compensation of misalignment errors
- Compensation of edge loads
- Very good friction and wear properties

igubal® Spherical Thrust Bearing

igubal® self-aligning spherical thrust bearings are very easy to fit and help to compensate misalignment errors and prevent edge loads.



Easy to install

Compensation of misalignment errors

Prevent edge loads

Very good friction and wear properties

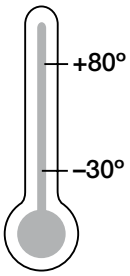
When to use it?

- If you want to save weight
- If corrosion resistance is desired
- If a bearing with a good coefficient of friction is sought

When not to use it?

- At very high loads
- If temperatures are higher than +80 °C
- If a high number of revolutions have to achieved

Temperature



Product range

1 types
Ø 5–20 mm

igubal® Spherical Thrust Bearing | Technical Data

Mechanical Properties

igubal® self-aligning spherical thrust bearings are very easy to fit and help to compensate for alignment errors and prevent edge loads.The housing pad is made of the impact resistant, thermoplastic composite material igumid G. The spherical washer is made of the iglidur® W300 plain bearing material. This combination provides exceptionally good friction and wear properties.

Loads

The load capacity of igubal® spherical thrust bearings is very high for standard ambient temperatures. For high continuous loads and high temperatures, the load capacity of the thrust bearings should be tested in an experiment that simulates the application.

Coefficients of Friction and Speed

Taking into account the radial load, maximum surface speeds up to 0.5 m/s rotating are possible.

Installation

The housing pad is installed so that it is countersunk and secured. The spherical washer is loosely fitted in the socket and is held in place by the shaft that is placed into the bearing.

Product Range

igubal® spherical thrust bearings are available in standard form to suit diameters from 5 to 20 mm. Please contact us if you require other dimensions.

igubal® Spherical Thrust Bearing | Product Range

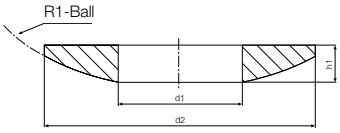
Spherical thrust bearing: SAM

Order key

SAM-05

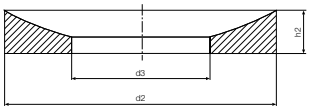
- Inner-Ø d1
- Metric
- Type

Spherical washer



Material:
Spherical washer: **iglidur® W300** ▶ **page 131**
Housing pad: **igumid G** ▶ **page 683**

Housing pad



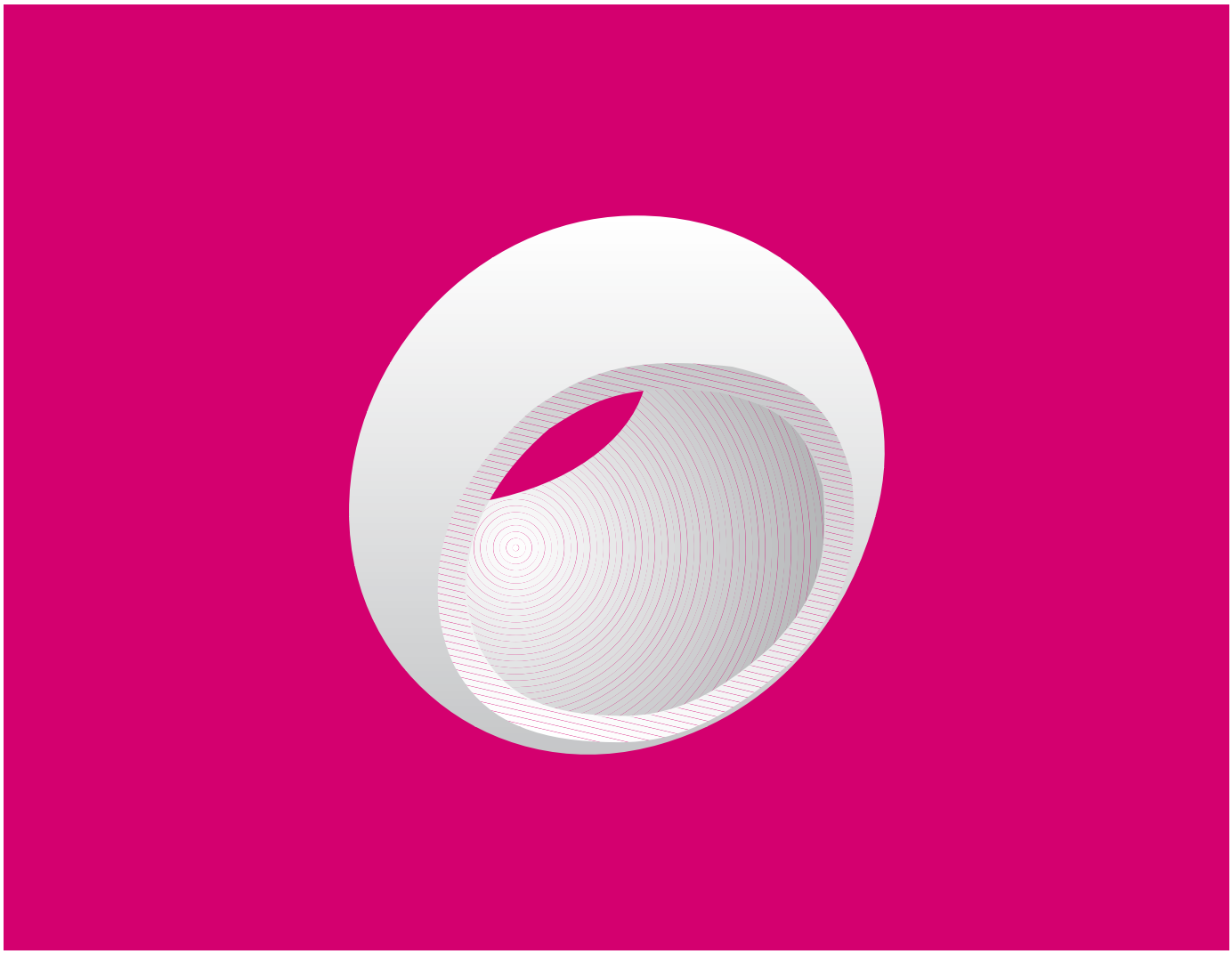
Technical Data

Part number	Maximum static axial tensile strength short term [N]	Maximum static axial tensile strength long term [N]	Weight [g]
SAM-05	4,000	2,000	0.9
SAM-06	5,000	2,500	1.1
SAM-08	8,000	4,000	2.2
SAM-10	10,000	5,000	3.4
SAM-12	12,000	6,000	5.9
SAM-16	17,000	8,500	8.5
SAM-20	22,000	11,000	12.8

Dimensions [mm]

Part number	d1 housing pad DIN 7168	d3 spherical washer DIN 7168	d2	h1 housing pad	h2 spherical washer	H total height	R1 radius	Compensation angle
SAM-05	5.2	7.0	15.0	3.0	3.5	4.7	15.0	3°
SAM-06	6.2	7.5	16.0	3.0	4.0	5.3	16.0	3°
SAM-08	8.2	10.0	20.0	4.0	5.0	6.8	20.0	2°
SAM-10	10.2	12.0	24.0	4.5	5.5	7.5	24.0	2°
SAM-12	12.5	14.5	30.0	5.0	6.0	8.0	32.0	2°
SAM-16	16.5	19.0	36.0	5.5	6.5	8.7	40.0	2°
SAM-20	20.2	23.0	44.0	6.0	7.0	8.6	45.0	2°

delivery time available from stock | prices price list online www.igus.co.uk/en/sam | order example part number SAM-05



igubal® Spherical Balls

- Maintenance-free, self-lubricating
- Corrosion-resistant
- High compressive strength
- High elasticity
- Light weight
- Different materials

igubal® Spherical Balls

Every single iglidur® material has its own special properties, which determines the suitability for your special applications and requirements. Today, we offer you spherical bearings from iglidur® materials W300 (standard), J, J4, R, UW and X.

Maintenance-free, self-lubricating

Corrosion-resistant

High compressive strength

High elasticity

Light weight

Different materials

When to use it?

- If you need maintenance-free material
- When dimensional series E and K components should be installed
- If different iglidur® materials should be tested
- If high compressive strength is required
- If high elasticity is required

When not to use it?

- If temperatures are higher than +250 °C
- If dimensions above 50 mm are necessary
- If rotation speeds higher than 0.5 m/s are required

Temperature	Product Range	Tolerances
Depend on material	6 types Ø 2–50 mm	The tolerance of the inner diameter is E10. The shaft tolerance should be included between h6 and h9.

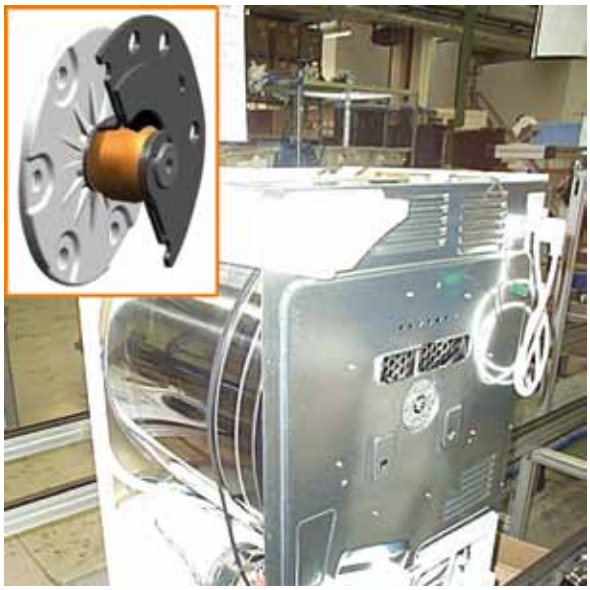
igubal® Spherical Balls | Application Examples

Typical sectors of industry and application areas

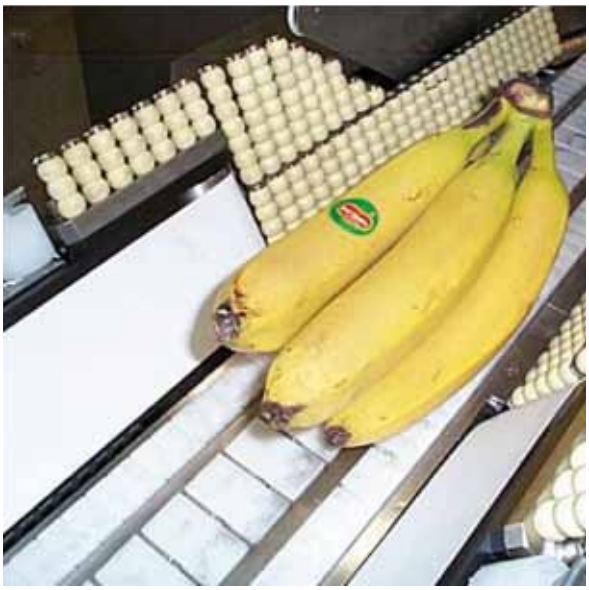
● Plant construction ● Model building
● Furniture/Industrial design etc.

Improve technology and reduce costs – 110 exciting examples online

▶ **www.igus.co.uk/igubal-applications**



Drum bearing in a tumble dryer



▶ **www.igus.co.uk/food**

Carriage in a crane system

▶ **www.igus.co.uk/design**

igubal® Spherical Balls | Product Overview

igubal® spherical balls – standard

iglidur® W300

WKM/WKI
Series K
metric/Inches
▶ page 671

WEM/WEI
Series E
metric/Inches
▶ page 671

igubal® spherical balls – low-cost

iglidur® R

RKM
Series K
metric
▶ page 672

REM
Series E
metric
▶ page 672

igubal® spherical balls – high temperatures

iglidur® X

XKM
Series K
metric
▶ page 673

XEM
Series E
metric
▶ page 673

igubal® spherical balls – low moisture absorption

iglidur® J

JKM
Series K
metric
▶ page 674

JEM
Series E
metric
▶ page 674

igubal® spherical balls – cost-effective

iglidur® J4

NEW!*

J4KM
Series K
metric
▶ page 675

NEW!*

J4EM
Series E
metric
▶ page 675

igubal® spherical balls – under water applications

iglidur® UW

UWEM
Series E
metric
▶ page 676

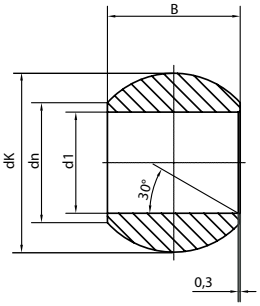
igubal® spherical balls – clearance free

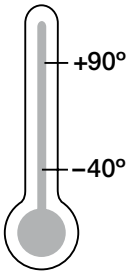
J4VEM
Series E
metric
▶ page 677

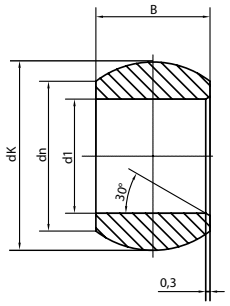
* in this catalog

igubal® Spherical Balls | Product Range

Standard spherical balls: WKM and WKI/WEM and WEI







Order key

WKM-02-04

- Width B
- Inner diameter d1
- Measuring system
  - m = Metric
  - I = Inch
- Dimensonal series
  - K = Series K
  - E = Series E
- Spherical balls made of iglidur® W300

Dimensions [mm]

Part number	d1	dn	dK	B	Weight
	E10				[g]
WKM-02-04	2.00	3.90	5.10	4.00	0.1
WKM-03-06	3.00	5.10	8.10	6.00	0.3
WKM-05-08	5.00	7.70	11.30	8.00	0.6
WKM-06-09	6.00	8.90	12.80	9.00	0.9
WKM-08-12	8.00	10.30	16.00	12.00	1.6
WKM-10-14	10.00	12.90	19.00	14.00	2.7
WKM-12-16	12.00	15.40	22.10	16.00	4.0
WKM-14-19	14.00	16.80	25.40	19.00	6.0
WKM-16-21	16.00	19.30	28.40	21.00	8.2
WKM-18-23	18.00	21.80	31.50	23.00	10.8
WKM-20-25	20.00	24.30	35.10	25.00	14.5
WKM-22-28	22.00	25.80	38.30	28.00	18.7
WKM-25-31	25.00	29.50	42.90	31.00	26.0
WKM-30-37	30.00	34.80	51.20	37.00	44.7

Dimensions [Inch]

Part number	d1	dn	dK	B	Weight
	E10				[g]
WKI-03	.1900	.307	.444	.312	0.6
WKI-04	.2500	.354	.516	.375	1.0
WKI-05	.3125	.447	.625	.437	1.7
WKI-06	.3750	.504	.718	.500	2.3
WKI-07	.4375	.601	.828	.562	3.5
WKI-08	.5000	.700	.938	.625	5.0
WKI-10	.6250	.838	1.125	.750	8.2
WKI-12	.7500	.978	1.312	.875	12.5
WKI-16	1.0000	1.269	1.750	1.375	31.7

Dimensions [mm]

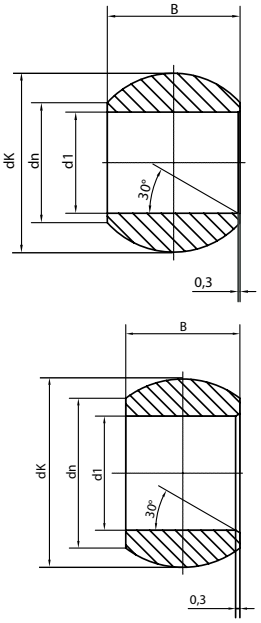
Part number	d1	dn	dK	B	Weight
	E10				[g]
WEM-04-05	4.00	6.25	8.30	5.00	0.2
WEM-05-06	5.00	8.00	10.30	6.00	0.3
WEM-06-06	6.00	8.00	10.30	6.00	0.4
WEM-08-08	8.00	10.00	13.30	8.00	0.7
WEM-10-09	10.00	13.00	16.20	9.00	1.2
WEM-12-10	12.00	15.00	18.10	10.00	1.5
WEM-15-12	15.00	18.00	22.00	12.00	2.4
WEM-16-13	16.00	19.50	24.10	13.00	3.3
WEM-17-14	17.00	20.00	25.10	14.00	3.7
WEM-20-16	20.00	24.00	29.10	16.00	5.3
WEM-25-20	25.00	29.00	35.60	20.00	9.5
WEM-30-22	30.00	34.00	40.90	22.00	12.1

Dimensions [Inch]

Part number	d1	dn	dK	B	Weight
	E10				[g]
WEI-03	.1900	.354	.402	.1900	0.3
WEI-04	.2500	.314	.402	.2500	0.3
WEI-05	.3125	.415	.520	.3125	0.7
WEI-06	.3750	.506	.630	.3750	1.3
WEI-07	.4375	.581	.709	.4063	1.6
WEI-08	.5000	.581	.709	.4063	2.6
WEI-10	.6250	.802	.945	.5000	3.1
WEI-12	.7500	.951	1.138	.6250	5.9
WEI-16	1.0000	1.180	1.398	.7500	9.2

igubal® Spherical Balls | Product Range

Low-cost spherical balls: RKM and REM



Order key

R...M-10-14

- R... = Spherical balls made of iglidur® R
- E = Series E
- K = Series K
- Dimensional series
- M = Metric
- 10 = Inner diameter d1
- 14 = Width B

Dimensions [mm]

Part number	d1 E10	dn	dK	B	Weight [g]
RKM-10-14	10.00	12.90	19.00	14.00	2.9

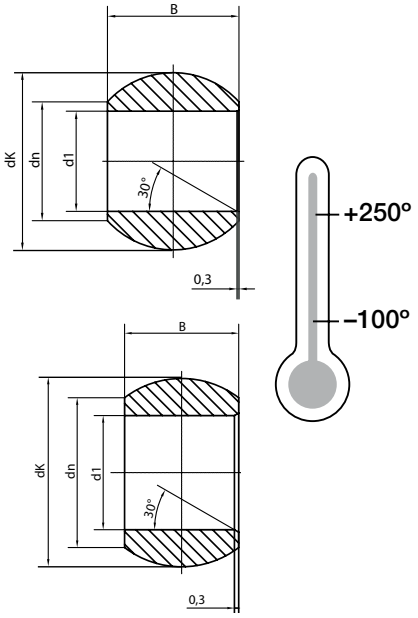
Dimensions [mm]

Part number	d1 E10	dn	dK	B	Weight [g]
REM-05-06	5.00	8.00	10.20	6.00	0.4
REM-06-06	6.00	8.00	10.20	6.00	0.4
REM-08-08	8.00	10.00	13.20	8.00	0.8
REM-10-09	10.00	13.00	16.10	9.00	1.3
REM-12-10	12.00	15.00	18.10	10.00	1.6

delivery time available from stock | prices price list online www.igus.co.uk/en/rkm | order example Part number RKM-10-14

igubal® Spherical Balls | Product Range

High temperatures spherical balls: XKM and XEM



Order key

X...M-10-14

- Width B
- Inner diameter d1
- Metric
- Dimensional series
  - K = Series K
  - E = Series E
- Spherical balls made of iglidur® X

Dimensions [mm]

Part number	d1 E10	dn	dK	B	Weight [g]
XKM-10-14	10.00	12.90	19.10	14.00	2.9

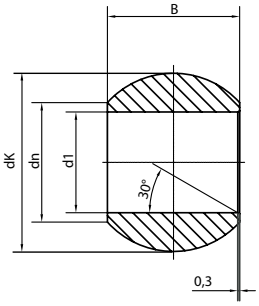
Dimensions [mm]

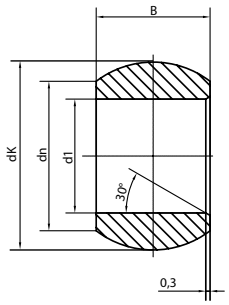
Part number	d1 E10	dn	dK	B	Weight [g]
XEM-05-06	5.00	8.00	10.30	6.00	0.4
XEM-06-06	6.00	8.00	10.20	6.00	0.4
XEM-08-08	8.00	10.00	10.30	8.00	0.8
XEM-10-09	10.00	13.00	16.10	9.00	1.3
XEM-12-10	12.00	15.00	18.10	10.00	1.6

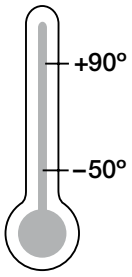
delivery time available from stock | prices price list online www.igus.co.uk/en/xkm | order example part number XKM-10-14

igubal® Spherical Balls | Product Range

Low moisture absorption spherical balls: JKM and JEM







Order key

J...M-03-06

- Width B
- Inner diameter d1
- Metric
- Dimensional series
  - K = Series K
  - E = Series E
- Spherical balls made of iglidur® J

Dimensions [mm]

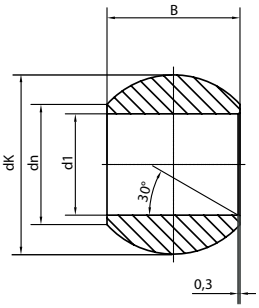
Part number	d1 E10	dn	dK	B	Weight [g]
JKM-03-06	3.00	5.10	8.10	6.00	0.3
JKM-05-08	5.00	7.70	11.30	8.00	0.7
JKM-06-09	6.00	8.90	12.80	9.00	1.0
JKM-08-12	8.00	10.30	15.90	12.00	1.9
JKM-10-14	10.00	12.90	19.00	14.00	3.1
JKM-12-16	12.00	15.40	22.10	16.00	4.7
JKM-16-21	16.00	19.30	28.40	21.00	9.4
JKM-20-25	20.00	24.30	35.10	25.00	17.6
JKM-25-31	25.00	29.50	42.80	31.00	31.6
JKM-30-37	30.00	34.80	51.20	37.00	53.0
JKM-40-49	40.00	44.50	66.30	49.00	54.5
JKM-50-60	50.00	56.50	82.40	60.00	92.1

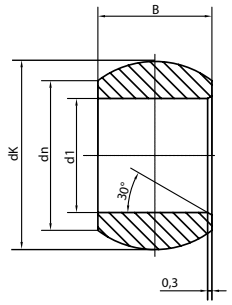
Dimensions [mm]

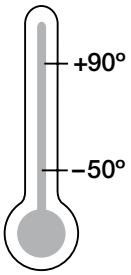
Part number	d1 E10	dn	dK	B	Weight [g]
JEM-04-05	4.00	6.25	8.30	5.00	0.3
JEM-05-06	5.00	8.00	10.20	6.00	0.4
JEM-06-06	6.00	8.00	10.20	6.00	0.4
JEM-08-08	8.00	10.00	13.30	8.00	0.8
JEM-10-09	10.00	13.00	16.10	9.00	1.3
JEM-12-10	12.00	15.00	18.10	10.00	1.7
JEM-15-12	15.00	18.00	22.00	12.00	2.9
JEM-16-13	16.00	19.50	24.10	13.00	3.9
JEM-17-14	17.00	20.00	25.20	14.00	4.1
JEM-20-16	20.00	24.00	29.10	16.00	6.4
JEM-25-20	25.00	29.00	35.60	20.00	11.5
JEM-30-22	30.00	34.00	40.90	22.00	14.5

igubal® Spherical Balls | Product Range

Cost-effective spherical balls: J4KM and J4EM







Order key

J4...M-04-05

- Width B
- Inner diameter d1
- Metric
- Dimensional series
  - K = Series K
  - E = Series E
- Spherical balls made of iglidur® J4

Dimensions [mm]

Part number	d1 E10	dn	dK	B	Weight [g]
J4KM-10-14	10.00	12.90	19.10	14.00	3.1

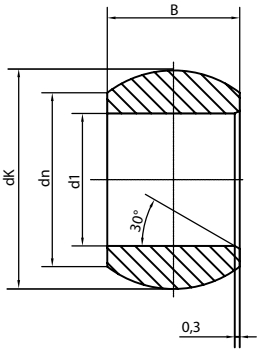
Dimensions [mm]

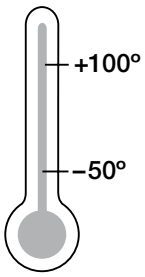
Part number	d1 E10	dn	dK	B	Weight [g]
J4EM-04-05	4.00	6.25	8.25	5.00	0.3
J4EM-05-06	5.00	8.00	10.20	6.00	0.4
J4EM-06-06	6.00	8.00	10.20	6.00	0.4
J4EM-08-08	8.00	10.00	13.20	8.00	0.8
J4EM-10-09	10.00	13.00	16.00	9.00	1.3
J4EM-12-10	12.00	15.00	18.00	10.00	1.7
J4EM-15-12	15.00	18.00	22.00	12.00	2.9
J4EM-16-13	16.00	19.50	24.00	13.00	3.9
J4EM-17-14	17.00	20.00	25.10	14.00	4.1
J4EM-20-16	20.00	24.00	28.90	16.00	6.4
J4EM-25-20	25.00	29.00	35.50	20.00	11.5
J4EM-30-22	30.00	34.00	40.90	22.00	14.5

delivery time available from stock | prices price list online www.igus.co.uk/en/j4km | order example part number J4KM-04-05

igubal® Spherical Balls | Product Range

Spherical balls for under water applications: UWEM





Order key

UWEM-04-05

- Dimension
- Inner diameter d1
- Metric
- Series
- Spherical balls made of iglidur® UW

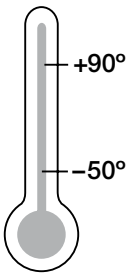
Dimensions [mm]

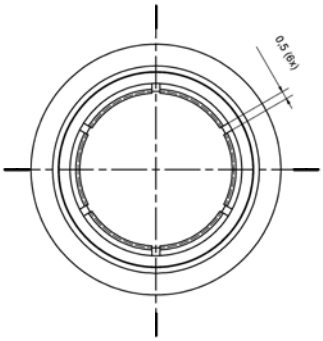
Part number	d1 E10	dn	dK	B	Weight [g]
UWEM-16-13	16.00	19.50	23.80	13.00	4.0
UWEM-20-16	20.00	24.00	29.10	16.00	6.5
UWEM-25-20	25.00	29.00	35.30	20.00	11.6
UWEM-30-22	30.00	34.00	40.50	22.00	15.2

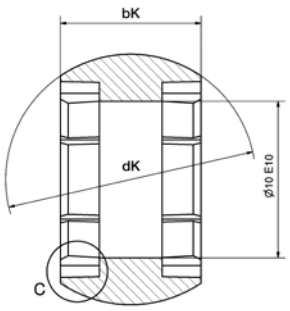
delivery time available from stock | prices price list online www.igus.co.uk/en/uwem | order example part number UWEM-04-05

igubal® Spherical Balls | Product Range

Clearance-free, single piece: J4VEM







Order key

J4VEM-10-09

- Width
- Inner-Ø
- Metric
- Series
- Preloaded
- Material iglidur® J4

- Can be combined with all series E housing
- Sizes 8 to 20 mm
- Preloaded
- Totally clearance-free, even in unloaded state

Dimensions [mm]

Part number	d1 E10	dK	bK	Weight [g]
J4VEM-08-08	8	13.20	8.00	0.7
J4VEM-10-09	10	16.10	9.00	1.2
J4VEM-12-10	12	18.10	10.00	1.5
J4VEM-16-13	16	24.10	13.00	3.7
J4VEM-20-16	20	29.10	16.00	6.2

5 Sizes available: Ø 8, 10, 12, 20 mm combinable with:

igubal® Rod Ends	EA(L)RM	▶ **page 586**	igubal® Flange Bearing	EFSM	▶ **page 638**
igubal® Rod Ends	EB(L)RM	▶ **page 588**	igubal® Pivoting Bearing	EGFM	▶ **page 656**
igubal® Pillow Block Bearing	ESTM	▶ **page 627**	igubal® Pivoting Bearing	EGLM	▶ **page 653**
igubal® Flange Bearing	EFOM	▶ **page 636**	igubal® Double Joint	EGZM	▶ **page 658**

delivery time available from stock | prices price list online www.igus.co.uk/en/j4vem | order example part number J4VEM-10-09

4.xiros®...

Deep-Groove Ball Bearings, Axial, Multi-Axis, Shields and More...

...plastics

xiros® | Application Examples

Exciting applications can be viewed online at ▶ **www.igus.co.uk/xiros-applications**

Typical sectors of industry and application areas

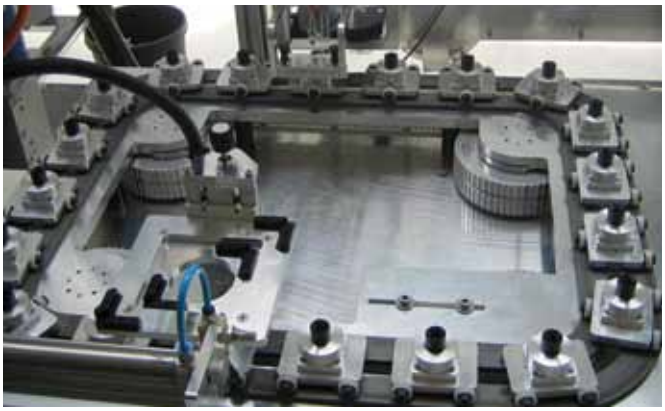
● Packaging ● Textile industry
● Test engineering & Quality assurance
● Optical industry ● Model making
● Medical etc.

GUIDE ROLLERS

The xiros® polymer ball bearings are 50 % lower in price than the bearings previously used here

THERMOFORMING MACHINE

In this Thermoforming machine for coffee-cream portion packs, xiros plastic ball bearings are used for their highj chemical resistance. (frischli Milchwerke GmbH, Germany)



INDEXING TABLE

This indexing table is used to test metal balls for cracks and dimensional accuracy. xiros® polymer ball bearings are used here as wheels for the trolleys.

WET FILM THICKNESS GAGE

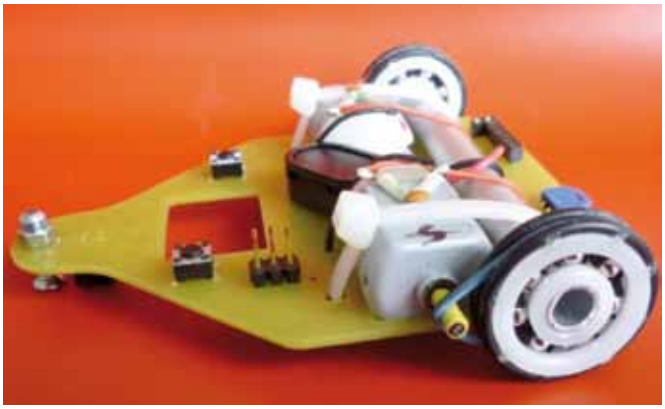
This precision tester for accurate and rapid measurement of all liquid paint, coatings, oil coatings and adhesives is equipped with a durable and solvent resistant xiros® B180 ball bearing.

FILM GUIDE ROLLERS

There is no contamination of the films through lubricants, due to the use of maintenance-free xiros® flange bearings.

STUTTGART ADLER

The use of a remote-controlled model aircraft is being tested and demonstrated as a remote sensing platform at the Institute of Space Systems (IRS). Due to the extreme weight requirements, the xiros® flange bearings are used here.



SMALL ROBOT

The wheels of this little low cost robot are two xiros B180 plastic ball bearings. These ensure an totally maintenance-free, lubricant-free and easy function.

NEW in this catalog!

xiros® Selection | Product Overview

xirodur® B180 Radial Deep-Groove Ball bearings

From xirodur® B180
PA cage,
glass balls
▶ from page 690

From xirodur® B180
PA cage,
stainless steel balls
▶ from page 690

From xirodur® B180
with shield
PA cage/glass balls
▶ page 692

From xirodur® B180
with shield
PA cage/stainless steel balls
▶ page 692

xirodur® A500 Radial Deep-Groove Ball bearings

From xirodur® A500
PEEK cage,
stainless steel balls
▶ page 693

From xirodur® A500
PEEK cage,
glass balls
▶ page 694

From xirodur® A500
PA cage,
stainless steel balls
▶ page 695

From xirodur® A500
PEEK cage,
PAI balls
▶ page 696

xirodur® C160 Radial Deep-Groove Ball bearings

From xirodur® C160
PP cage
Glass balls
▶ page 697

From xirodur® C160
PP cage
Stainless steel balls
▶ page 697

xiros® Axial Ball Bearing, Polymer Ball Transfer Unit, Multi-Axis Bearing, Slewing Ring Bearing

Axial Ball Bearing
From xirodur® B180
glass/stainless steel balls
▶ page 698

Polymer Ball Transfer Unit
From xirodur® B180
▶ page 699

Multi-Axis Plastic Bearing
From xirodur® B180
PP balls
▶ page 700

Slewing Ring Ball Bearing
Glass/stainless steel balls
▶ page 701

xiros® Pillow Block and Flange Bearings

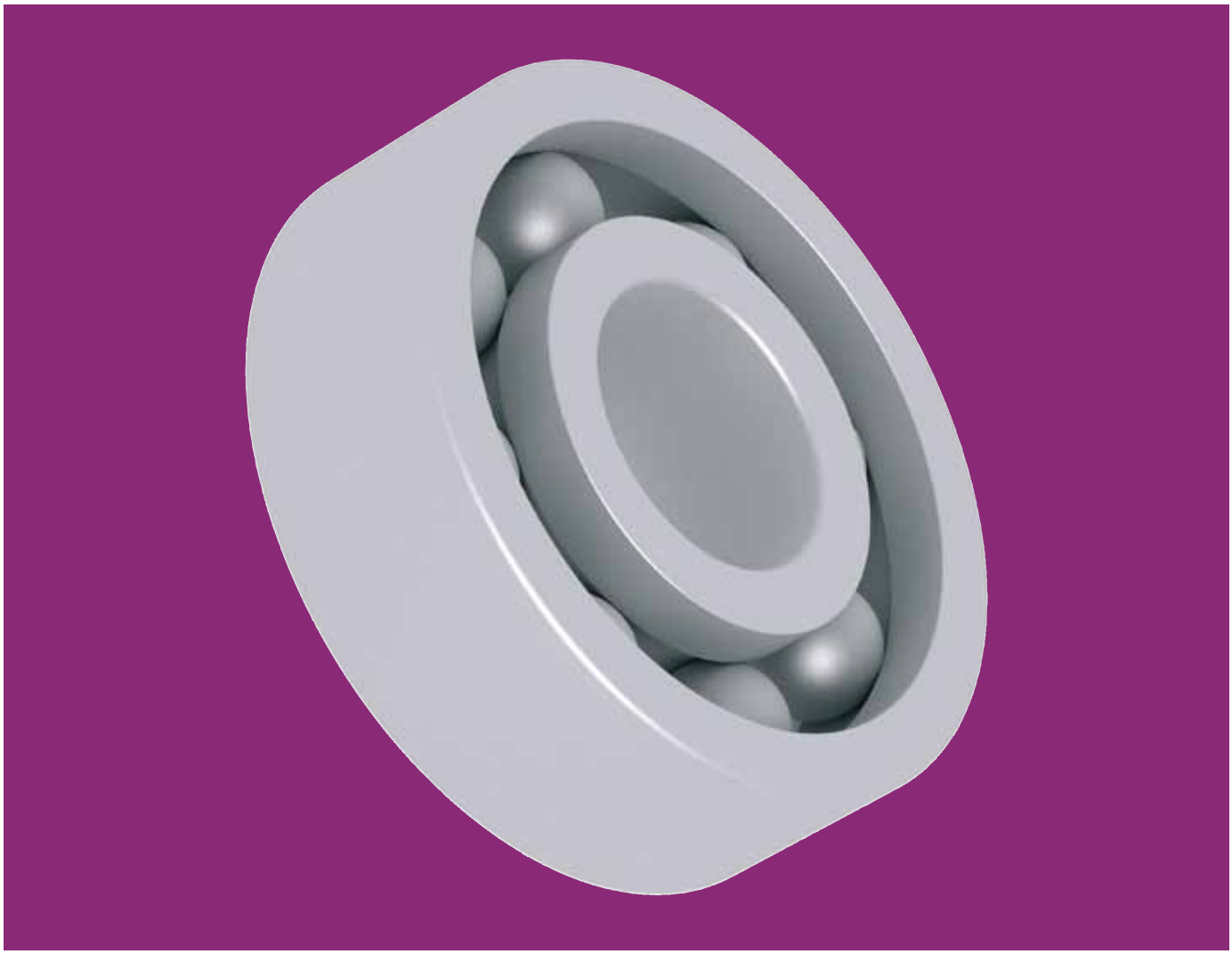
Pillow Block Bearing
Rigid option
glass/stainless steel balls
▶ page 702

Pillow Block Bearing
Pivoting option
Glass/stainless steel balls
▶ page 703

Flange Bearing
4-hole flange bearing
glass/stainless steel balls
▶ page 704

Flange Bearing
2-hole flange bearing
glass/stainless steel balls
▶ page 705

Material data, chemical resistant table and tolerance recommendation ▶ page 688



xiros® Polymer Ball Bearings – for extreme applications

- Lubrication- and maintenance-free
- High corrosion resistance
- For temperatures up to +150 °C
- High chemical resistance can be cleaned
- Non-magnetic
- Low weight

xiros® Polymer Ball Bearings

xiros® polymer ball bearings revolutionize the market. Due to the maintenance-free dry-running and the use of xirodur® high performance polymers successfully solve many applications where conventional metal ball bearings are not effective.

Lubrication- and maintenance-free

High corrosion resistance

For temperatures up to +150 °C

High chemical resistance, can be cleaned

Non-magnetic

Light weight

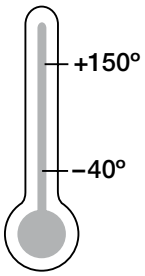
When to use xiros® polymer ball bearings?

- If you need lubrication-free ball bearings
- For maintenance-free dry-running
- At rotational speeds that exceed the limits of a plain bearing
- If corrosion resistance is required
- If temperatures are reached up to +150 °C (depending on type)
- If chemical resistance and cleaning is necessary
- If non-magnetics ball bearings are to be used
- Low weight requirement
- When they need for FDA compliance

When not to use xiros® polymer ball bearings?

- At very high loads or speeds
- Just for a cost down on traditional metal ball bearings
- At very high precision requirements (clearance)

Temperature



Product range

3 materials
10 product types
> 50 dimensions

General order key for radial ball bearings

BB-623-A500-10-ES

Ball material
GL = glass
ES = stainless steel
PAI

Cage material
10 = PA
20 = PP
70 = PEEK

Race material
xirodur® A500
xirodur® B180
xirodur® C160

Dimensions acc. to DIN 625-1

Ball bearing

xiros® Polymer Ball Bearings

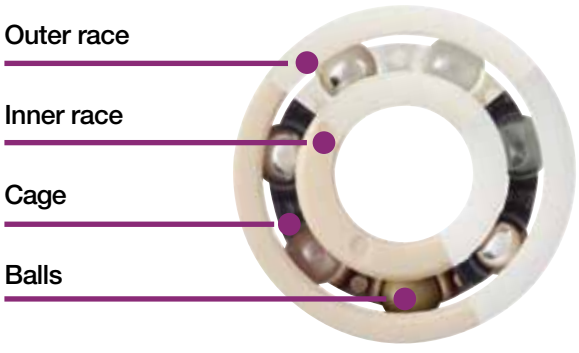
The product range of xiros® polymer ball bearing comprises a variety of different product groups. All have in common that they do not require any additional lubrication. This provides significant advantages in areas where lubricants can be washed out, or could decompose due to the operational environment. Other advantanges are (depending on the design):

- Maintenance-free
- Light weight
- Free from metal (due to the use of glass and plastic balls)
- Non-magnetic
- Chemical resistant
- Corrosion resistant
- Electrically insulating
- FDA-compliant (► **page 693**)
- Predictable lifetime

This last point, the predictability of xiros® polymer ball bearing is one of the most important advantages. Based on the results of many wear tests, the user can calculate the lifetime of the xiros® polymer ball bearing reliably and interpret the application (xiros® expert ► **page 687**).

Design

The xiros® polymer ball bearings are single-row grooved ball bearings based on DIN 625. The lubricant-free and maintenance-free ball bearings consist of four components:



The Outer- and Inner Race

The suitability of a xiros® polymer ball bearings is largely determined by the materials of the two races. These are made from igus® tribopolymers to maximize service life and minimize friction. You can choose from three different materials. They allow different values of application temperature, chemical resistance and price. The table with material data (► **page 688**) gives exact information.

The Cage

The material of the ball bearing cage must fit well to the application. These materials are very different regard to chemical resistance and temperature. As part of the delivery program of xiros® polymer ball bearings the cage are already great with the materials of the outer and inner rings.

The Balls

The ball materials differ most significantly. In addition to steel glass or plastics are used. This produces a large difference in mass, which in turn affects smoothness, weight and chemical resistance.

Steelballs (stainless steel) are cost-effective, chemical resistant, but with the highest weight.

Glass balls used to give a metal-free solution. They are also very resistant to chemicals and have an average weight.

Polymer balls have significant advantages in weight, size and in the quiete rinning characteristics. Depending on the polymer plastic balls they can have excellent chemical resistance.

Pillow Block and Flange Bearings

This range is made up by combining xiros® polymer ball bearing with the igubal® pillow block and flange bearings, resulting in a higher flexibility in terms of installation of the bearings. The pre-finished bearing housing make it easy for the user to use these maintenance-free components. Both flanged and pillow block available as fixed or as a pivoting design.

The difference between the two options is that the pivoting type can compensate for shaft and/or bearing misalignment. A spherical outer race is pressed into the bearing housing, ensuring self aligning action.

xiros® Polymer Ball Bearings

Application Areas

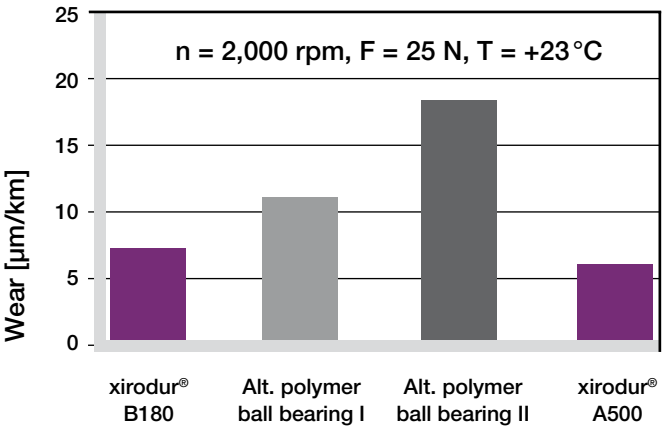
In contrast to metallic ball bearings, xiros® polymer ball bearings run without any lubrication. For this reason they suitable for many applications which do not have extreme speeds or loads but ones which cannot use traditional greased ball bearings, as the application should run maintenance free. These areas are for example food and medical industries, packaging and textile industries, or the chemical industry and cleanroom applications as well as electronics and office technology.

Development and Tests

Through numerous tests the race materials were optimised. The polymers we have developed for used with ball bearings allow higher speeds, greater loads, and longer service life. But the development continues, we believe that polymer ball bearing technology will continue to advance, especially with our experience and development with tribological polymer materials.

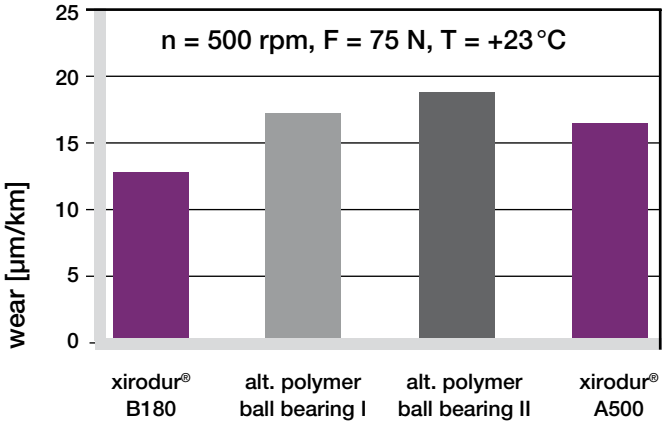
Challenge us, talk to us about your applications, tell us what you need from a plastic ball bearing.

In the igus® test laboratory the life and wear of xiros® polymer ball bearings was tested. In addition to the actual material comparison, tests indicate these experiments also answers to questions about the impact of external influences such as temperature, humidity or dust.

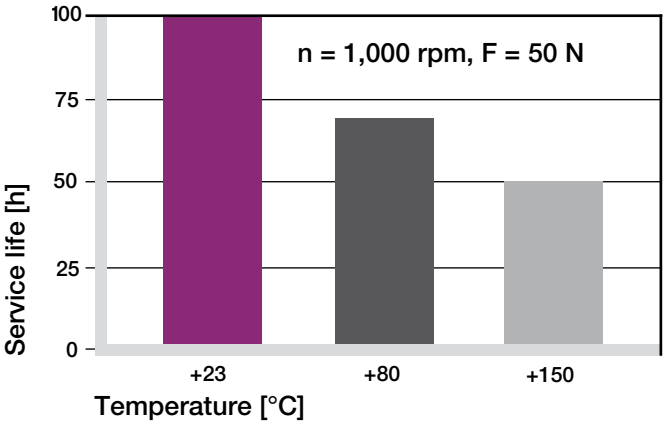


Graph 01: Wear test in igus® laboratory

The material combinations for bearing races, balls and cage are tested in the igus® test laboratory for a variety of load and speed. Thus, the application-specific selection of the suitable bearing and a Lifetime calculation is possible.



Graph 02: Wear test in igus® laboratory



Graph 03: Service life of xirodur® A500 polymer ball bearings at different ambient temperatures, dry

Predictability

As part of the development of xiros® polymer ball bearing tests are carried out continuously. The extreme number of test results make it very difficult to present this information in tabular form, and for it to actually make sense.

Picture 01: Test bench for xiros® polymer ball bearings at igus® laboratory

xiros® Polymer Ball Bearings

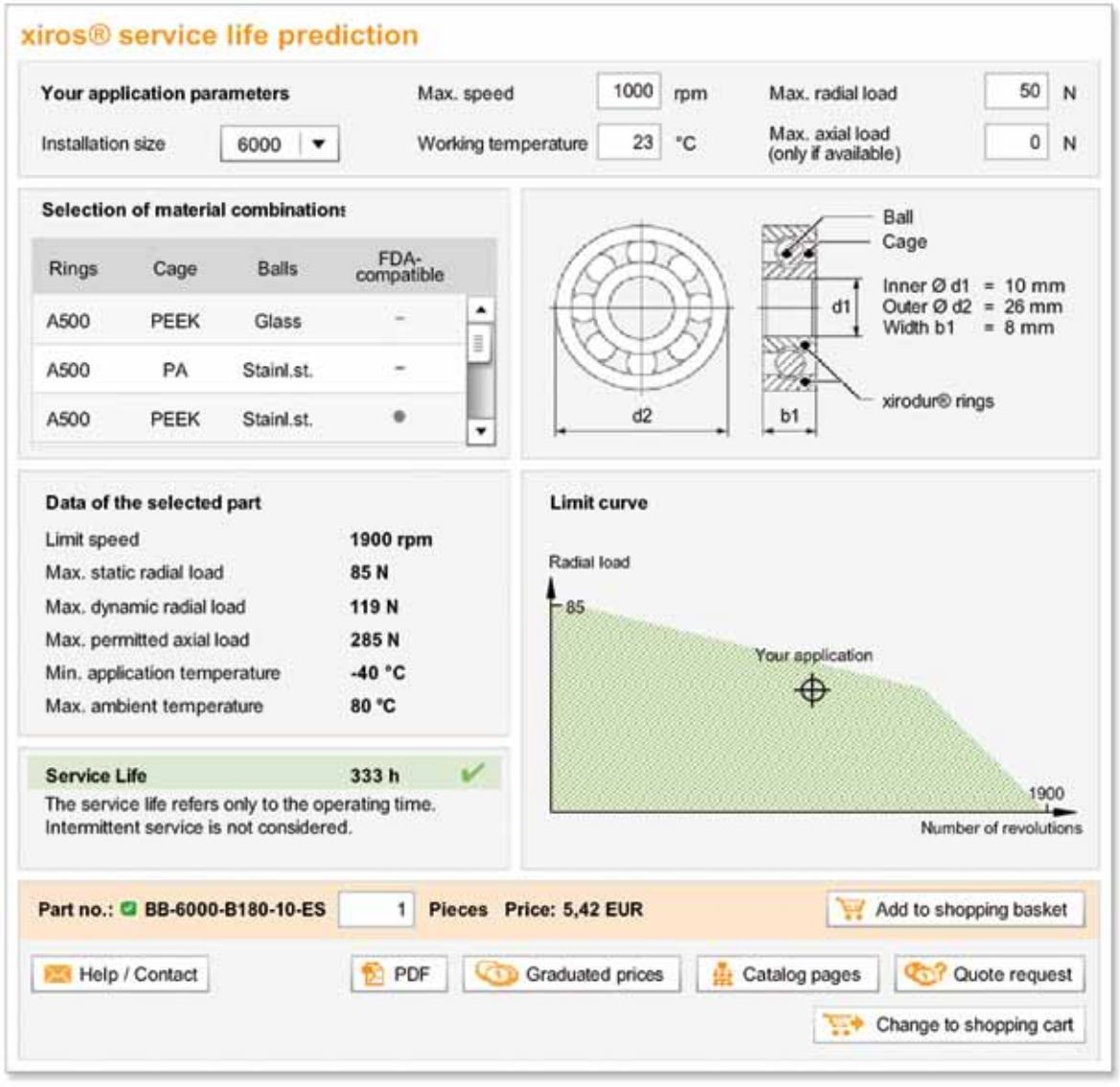
Picture 02: Test bench for xiros® polymer ball bearings at igus® laboratory

It is for this reason that igus has developed the online life calculator, which uses real test results to give an accurate calculation.

The lifetime-calculator is online at

▶ **www.igus.co.uk/xiros-expert**

Immediately after entering the data, the lifetime is calculated and displayed. It is important to remember that the result given is based on actual test results in the igus laboratory, and is therefore totally reliable.



Picture 03: xiros® expert for calculation service life online

xiros® Polymer Ball Bearings | Technical Data

Material table

General properties	Unit	xirodur® A500	xirodur® B180	xirodur® C160	igumid G
Density	g/cm³	1.28	1.41	1.11	1.37
Colour		brown	white	opaque	black
Max. moisture absorption at +23 °C/50 % r.h.	% weight	0.3	0.2	0.1	1.4
Max. water absorption	% weight	0.5	0.7	0.2	5.6
Mechanical properties					
Module of elasticity	MPa	3,600	2,500	1,900	7,800
Tensile strength at +20 °C	MPa	140	68	35	240
Compressive strength		83	77	n. b.	79
Electrical properties					
Specific volume resistance	Ωcm	> 10^{14}	> 10^{14}	> 10^{14}	> 10^{11}
Surface resistance	Ω	> 10^{13}	> 10^{14}	> 10^{14}	> 10^{11}
Thermal properties of xiros® polymer ball bearings					
Max. long term application temperatures	°C	+150	+80	+80	+120
Min. application temperatures (in combination with cage material)	°C	–100 (PEEK) –40 (PA)	–40	0	–40

Table 01: Material data

Medium	Resistance			
	xirodur® A500	xirodur® B180	xirodur® C160	igumid G
Alcohol	+	+	+	+ to 0
Hydrocarbons	+	+	+ to 0	+
Greases, oils without additives	+	+	+	+
Fuels	+	+	+ to 0	+
Diluted acids	+	0 to –	+	0 to –
Strong acids	+	_	+ to 0	–
Diluted alkalines	+	+	+	+
Strong alkalines	+	+ to 0	+	0

Table 02: Chemical resistance of xiros® materials

Recommendation of tolerance for bore and shaft at xiros® radial ball bearings

By default we recommend a H7-tolerance of the housing bore of xiros® radial ball bearings and a h6-tolerance of the shaft. For further questions about the dimensioning of the bore and the shaft please contact us.

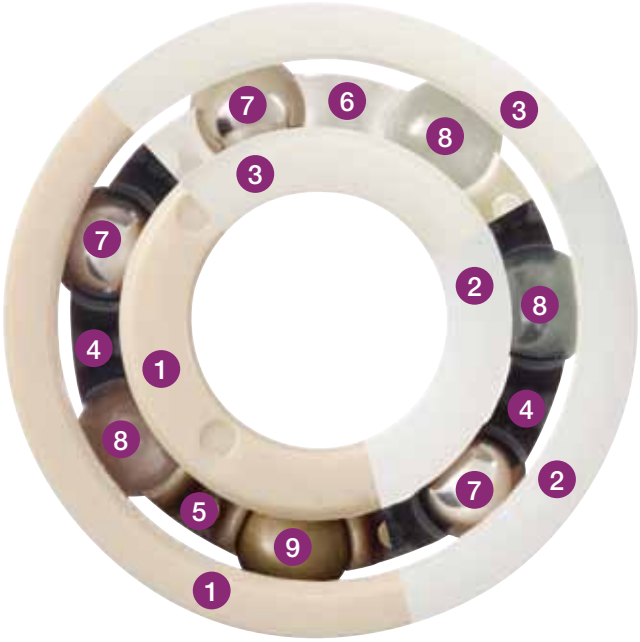
xiros® Polymer Ball Bearings | Technical Data

Which combination of materials is the best for my application?

Races
1. xirodur® A500
2. xirodur® B180
3. xirodur® C160

Cages
4. PA
5. PEEK
6. PP

Balls
7. Stainless steel (ES)
8. Glass (GL)
9. PAI



Material of inner-/outer races	xirodur® B180		xirodur® A500			xirodur® C160		
	For cost-effective use		At high temperatures	With chemicals, FDA and high temperatures		With chemicals, temperatures up to +80 °C and for under water use		
Cage material	PA		PA	PEEK		PP		
Ball material	ES	GL	ES	ES	GL	PAI	ES	GL
	Cost-effective	No metal	With high temperatures	FDA compliance	Chemicals	Low loads	Depending on media: cost-effective	Depending on media: seawater
Page	690	690	695	693	694	996	697	697

NEW in this catalog!

xirodur® B180 Polymer Ball Bearings | Product Range

Radial deep-groove ball bearings

From xirodur® B180
PA cage, glass balls
+80 °C
–40 °C

From xirodur® B180
PA cage, stainless steel balls
+80 °C
–40 °C

xiros® B180 polymer ball bearings are for use with temperatures up to +80 °C. The specially developed material xirodur® B180 provides significantly longer life times at a lower cost.

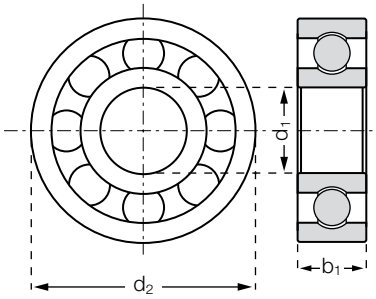
- Lubrication- and maintenance-free
- Non-magnetic and washable
- Corrosion-resistant
- Predictable lifetime
- Low weight
- For shaft diameters 3–60 mm
- Electrically insulating

Dimensions [mm]

Part number	Race	Cage	Ball	Inner-Ø d1	Outer-Ø d2	Width b1
BB-623-B180-10-ES	B180	PA	1.4401	3	10	4
BB-626-B180-10-ES	B180	PA	1.4401	6	19	6
BB-608-B180-10-ES	B180	PA	1.4401	8	22	7
BB-6000-B180-10-ES	B180	PA	1.4401	10	26	8
BB-6001-B180-10-ES	B180	PA	1.4401	12	28	8
BB-6003-B180-10-ES	B180	PA	1.4401	17	35	10
BB-6004-B180-10-ES	B180	PA	1.4401	20	42	12
BB-6005-B180-10-ES	B180	PA	1.4401	25	47	12
BB-6006-B180-10-ES*	B180	PA	1.4401	30	55	13
BB-6007-B180-10-ES*	B180	PA	1.4401	35	62	14
BB-6008-B180-10-ES*	B180	PA	1.4401	40	68	15
BB-6009-B180-10-ES*	B180	PA	1.4401	45	75	16
BB-6010-B180-10-ES*	B180	PA	1.4401	50	80	16
BB-6011-B180-10-ES*	B180	PA	1.4401	55	90	18
BB-6012-B180-10-ES*	B180	PA	1.4401	60	95	18
BB-623-B180-10-GL	B180	PA	Glass	3	10	4
BB-626-B180-10-GL	B180	PA	Glass	6	19	6
BB-608-B180-10-GL	B180	PA	Glass	8	22	7
BB-6000-B180-10-GL	B180	PA	Glass	10	26	8
BB-6001-B180-10-GL	B180	PA	Glass	12	28	8
BB-6003-B180-10-GL	B180	PA	Glass	17	35	10
BB-6004-B180-10-GL	B180	PA	Glass	20	42	12
BB-6005-B180-10-GL	B180	PA	Glass	25	47	12
BB-6006-B180-10-GL*	B180	PA	Glass	30	55	13
BB-6007-B180-10-GL*	B180	PA	Glass	35	62	14
BB-6008-B180-10-GL*	B180	PA	Glass	40	68	15
BB-6009-B180-10-GL*	B180	PA	Glass	45	75	16
BB-6010-B180-10-GL*	B180	PA	Glass	50	80	16
BB-6011-B180-10-GL*	B180	PA	Glass	55	90	18
BB-6012-B180-10-GL*	B180	PA	Glass	60	95	18

xirodur® B180 Polymer Ball Bearings | Product Range

Radial deep-groove ball bearings



Order key

BB-623-B180-10-GL

- **Ball material**
  - GL = glass
  - ES = stainless steel
- **Cage material**
  - 10 = PA
- **Race material**
  - xirodur® B180
- **Dimensions acc. to DIN 625-1**
- **Ball bearing**

Technical data

Part number	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
BB-623-B180-10-ES	30	25	35	4,500	0.4
BB-626-B180-10-ES	95	50	70	2,600	2.2
BB-608-B180-10-ES	165	60	84	2,200	3.9
BB-6000-B180-10-ES	285	85	119	1,900	6.1
BB-6001-B180-10-ES	315	105	147	1,750	6.9
BB-6003-B180-10-ES	360	180	250	1,400	11.1
BB-6004-B180-10-ES	400	210	294	1,150	20.2
BB-6005-B180-10-ES	520	240	360	1,050	23.9
BB-6006-B180-10-ES*	640	280	420	900	35.0
BB-6007-B180-10-ES*	720	320	480	800	47.0
BB-6008-B180-10-ES*	800	350	520	750	56.3
BB-6009-B180-10-ES*	900	380	560	650	71.5
BB-6010-B180-10-ES*	950	390	580	600	83.1
BB-6011-B180-10-ES*	1,000	400	600	550	125.2
BB-6012-B180-10-ES*	1,100	420	640	500	129.6
BB-623-B180-10-GL	30	25	35	4,500	0.3
BB-626-B180-10-GL	95	50	70	2,600	1.7
BB-608-B180-10-GL	165	60	84	2,200	2.6
BB-6000-B180-10-GL	285	85	119	1,900	4.0
BB-6001-B180-10-GL	315	105	147	1,750	4.5
BB-6003-B180-10-GL	360	180	250	1,400	7.9
BB-6004-B180-10-GL	400	210	294	1,150	13.6
BB-6005-B180-10-GL	520	240	360	1,050	16.7
BB-6006-B180-10-GL*	640	280	420	900	24.2
BB-6007-B180-10-GL*	720	320	480	800	31.3
BB-6008-B180-10-GL*	800	350	520	750	39.1
BB-6009-B180-10-GL*	900	380	560	650	48.6
BB-6010-B180-10-GL*	950	390	580	600	56.4
BB-6011-B180-10-GL*	1,000	400	600	550	84.4
BB-6012-B180-10-GL*	1,100	420	640	500	85.6

delivery time: available from stock
*order related

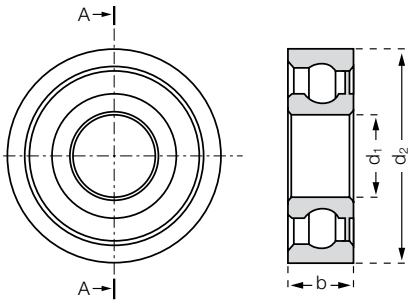
prices: price list online
www.igus.co.uk/en/BB-B180

order example: part number BB-623-B180-10-ES

NEW in this catalog!

xirodur® A500 Polymer Ball Bearings | Product Range

Radial deep-groove ball bearings with shield



From xirodur® B180

PA cage, stainless steel or glass balls

+80 °C

–40 °C

xiros® polymer ball bearings made of xirodur® B180 now with shield to prevent the penetration of dirt and other abrasive particles. The one-sided shield is fixed to the inner race. The other side is protected by the enclosed ball cage.

- Lubrication- and maintenance-free
- Dirt-repellant
- Corrosion-resistant
- Low weight
- For shaft diameter 3–20 mm
- Electrically insulating

Dimensions [mm]

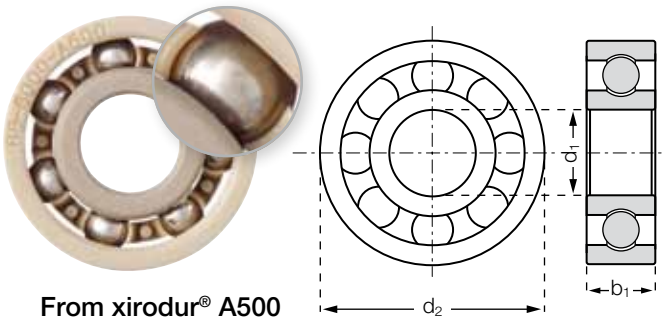
Part number	Race	Cage	Ball	Inner-Ø d1	Outer-Ø d2	Width b1
BB-623-B180-10-ES-C	B180	PA	1.4401	3	10	4
BB-626-B180-10-ES-C	B180	PA	1.4401	6	19	6
BB-608-B180-10-ES-C	B180	PA	1.4401	8	22	7
BB-6000-B180-10-ES-C	B180	PA	1.4401	10	26	8
BB-6001-B180-10-ES-C	B180	PA	1.4401	12	28	8
BB-6003-B180-10-ES-C	B180	PA	1.4401	17	35	10
BB-6004-B180-10-ES-C	B180	PA	1.4401	20	42	12
BB-623-B180-10-GL-C	B180	PA	Glass	3	10	4
BB-626-B180-10-GL-C	B180	PA	Glass	6	19	6
BB-608-B180-10-GL-C	B180	PA	Glass	8	22	7
BB-6000-B180-10-GL-C	B180	PA	Glass	10	26	8
BB-6001-B180-10-GL-C	B180	PA	Glass	12	28	8
BB-6003-B180-10-GL-C	B180	PA	Glass	17	35	10
BB-6004-B180-10-GL-C	B180	PA	Glass	20	42	12

Technical data

Part number	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
BB-623-B180-10-ES-C	30	25	35	4,500	0.4
BB-626-B180-10-ES-C	95	50	70	2,600	2.5
BB-608-B180-10-ES-C	165	60	84	2,200	4.0
BB-6000-B180-10-ES-C	285	85	119	1,900	6.3
BB-6001-B180-10-ES-C	315	105	147	1,750	7.1
BB-6003-B180-10-ES-C	360	180	250	1,400	11.5
BB-6004-B180-10-ES-C	400	210	294	1,150	19.7
BB-623-B180-10-GL-C	30	25	35	4,500	0.4
BB-626-B180-10-GL-C	95	50	70	2,600	1.8
BB-608-B180-10-GL-C	165	60	84	2,200	2.7
BB-6000-B180-10-GL-C	285	85	119	1,900	4.1
BB-6001-B180-10-GL-C	315	105	147	1,750	4.7
BB-6003-B180-10-GL-C	360	180	250	1,400	8.4
BB-6004-B180-10-GL-C	400	210	294	1,150	14.2

xirodur® A500 Polymer Ball Bearings | Product Range

Radial deep-groove ball bearings



From xirodur® A500
PEEK cage
stainless steel balls

+150 °C
–100 °C

Order key

BB-623-A500-70-ES

Ball material
ES = stainless steel
Cage material
70 = PEEK
Race material
A500 = xirodur® A500
Dimensions acc. to DIN 625-1
Ball bearing

xiros® polymer ball bearings open up new application areas for plastic roller bearings. After the 2007 market launch, the life-time of the high-temperature option with xirodur® A500 inner and outer rings could be clearly raised by up to factor 5.

- Lubrication- and maintenance-free
- For high temperatures up to +150 °C
- Corrosion-resistant
- Non-magnetic and washable
- Chemical resistant
- Low weight
- Inner-, outer races and cages made from FDA-compliant polymers
- Predictable lifetime
- For shaft diameter 3–20 mm
- Electrically insulating

FDA **PEEK cages, inner- and outer races made from FDA-compliant polymers**

Dimensions [mm]

Part number	Race	Cage	Ball	Inner-Ø d1	Outer-Ø d2	Width b1
BB-623-A500-70-ES	A500	PEEK	1.4401	3	10	4
BB-626-A500-70-ES	A500	PEEK	1.4401	6	19	6
BB-608-A500-70-ES	A500	PEEK	1.4401	8	22	7
BB-6000-A500-70-ES	A500	PEEK	1.4401	10	26	8
BB-6004-A500-70-ES	A500	PEEK	1.4401	20	42	12

Technical data

Part number	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
BB-623-A500-70-ES	40	30	40	5,000	0.≠4
BB-626-A500-70-ES	125	60	81	3,200	2.3
BB-608-A500-70-ES	220	72	97	2,700	3.7
BB-6000-A500-70-ES	380	102	137	2,100	6.0
BB-6004-A500-70-ES	650	250	350	1,300	19.7

delivery time **available from stock**

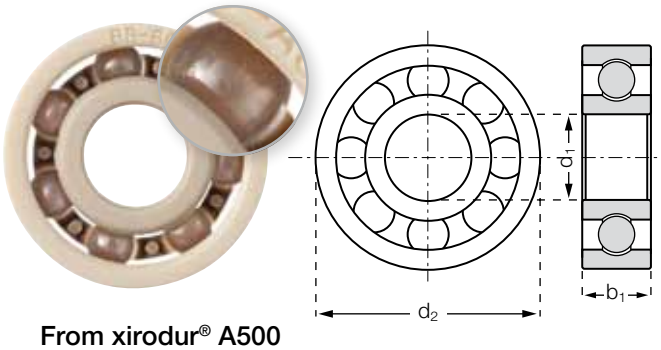
prices **price list online** www.igus.co.uk/en/BB-A500

order example **part number** BB-623-A500-70-ES

NEW in this catalog!

xirodur® A500 Polymer Ball Bearings | Product Range

Radial deep-groove ball bearings



From xirodur® A500
PEEK cage
glass balls

+150 °C
–100 °C

Order key

BB-623-A500-70-GL

Ball material
GL = glass
Cage material
70 = PEEK
Race material
A500 = xirodur® A500
Dimensions acc. to DIN 625-1
Ball bearing

xirodur® A500 polymer ball bearings with combination of PEEK cage and Glass balls are often used in environments, where high chemical resistance is necessary and it should be dispense entirely of stainless steel components.

- Lubrication- and maintenance-free
- For high temperatures up to +150 °C
- Corrosion-resistant
- Non-magnetic and washable
- Chemical resistant
- Predictable lifetime
- Low weight
- For shaft diameter 3–20 mm
- Electrically insulating

Dimensions [mm]

Part number	Race	Cage	Ball	Inner-Ø d1	Outer-Ø d2	Width b1
BB-623-A500-70-GL	A500	PEEK	Glass	3	10	4
BB-626-A500-70-GL	A500	PEEK	Glass	6	19	6
BB-608-A500-70-GL	A500	PEEK	Glass	8	22	7
BB-6000-A500-70-GL	A500	PEEK	Glass	10	26	8
BB-6004-A500-70-GL	A500	PEEK	Glass	20	42	12

Technical data

Part number	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
BB-623-A500-70-GL	40	30	40	5,000	0.3
BB-626-A500-70-GL	125	60	81	3,200	1.6
BB-608-A500-70-GL	220	72	97	2,700	2.4
BB-6000-A500-70-GL	380	102	137	2,100	3.8
BB-6004-A500-70-GL	650	250	350	1,300	13.2

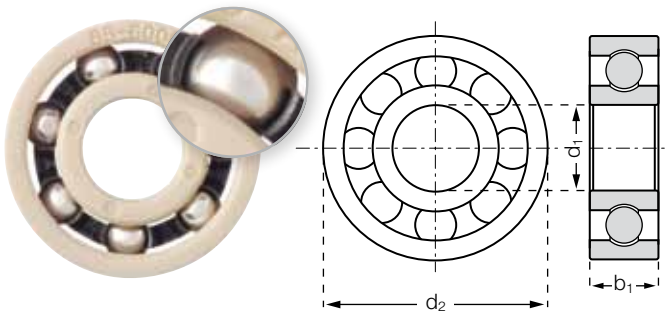
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/BB-A500

order example **part number BB-623-A500-70-GL**

xirodur® A500 Polymer Ball Bearings | Product Range

Radial deep-groove ball bearings



From xirodur® A500
PA cage
stainless steel balls

+150 °C
–40 °C

Order key

BB-623-A500-10-ES

Ball material
ES = stainless steel
Cage material
10 = PA
Race material
A500 = xirodur® A500
Dimensions acc. to
DIN 625-1
Ball bearing

xirodur® A500 polymer ball bearings with combination of PA cage and stainless steel balls are the ecomic alternative of xirodur® A500 product range, when temperature is merely up to +150 °C and no chemicals are in use.

- Lubrication- and maintenance-free
- For high temperatures +150 °C
- Corrosion-resistant
- Non-magnetic and washable
- Electrically insulating

Dimensions [mm]

Part number	Race	Cage	Ball	Inner-Ø d1	Outer-Ø d2	Width b1
BB-623-A500-10-ES	A500	PA	1.4401	3	10	4
BB-626-A500-10-ES	A500	PA	1.4401	6	19	6
BB-608-A500-10-ES	A500	PA	1.4401	8	22	7
BB-6000-A500-10-ES	A500	PA	1.4401	10	26	8
BB-6004-A500-10-ES	A500	PA	1.4401	20	42	12

Technical data

Part number	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
BB-623-A500-10-ES	40	30	40	5,000	0.4
BB-626-A500-10-ES	125	60	81	3,200	2.3
BB-608-A500-10-ES	220	72	97	2,700	3.7
BB-6000-A500-10-ES	380	102	137	2,100	6.0
BB-6004-A500-10-ES	650	250	350	1,300	19.4

delivery time **available from stock**

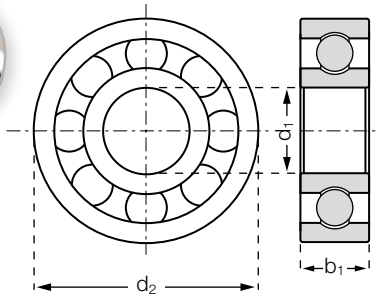
prices **price list online** www.igus.co.uk/en/BB-A500

order example **part number** BB-623-A500-10-ES

NEW in this catalog!

xirodur® A500-Polymer ball bearing | Product Range

Radial deep-groove ball bearings



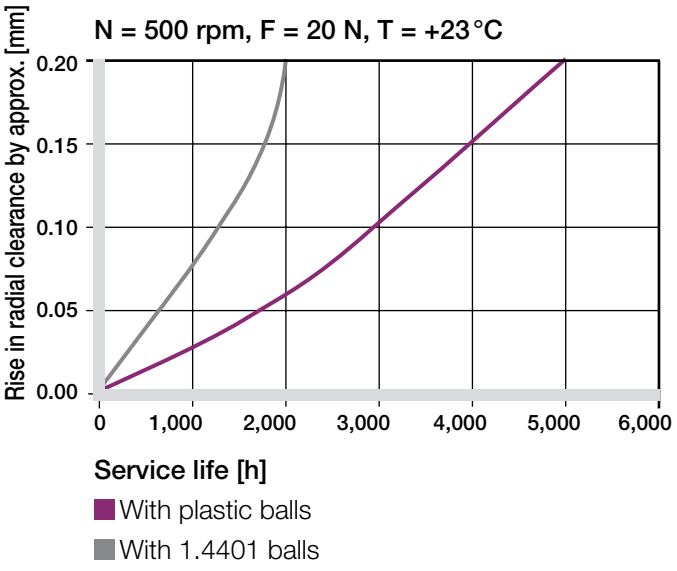
From xirodur® A500
PEEK cage
PAI balls

+150 °C
–100 °C

Order key

BB-626-A500-70-PAI

- **Ball material**
  PAI = plastic
- **Cage material**
  70 = PEEK
- **Race material**
  A500 = xirodur® A500
- **Dimensions acc. to DIN 625-1**
- **Ball bearing**



xirodur® A500 polymer ball bearings are also available with plastic balls. At low loads the wear resistance can be improved by a factor of 3.

- Lubrication- and maintenance-free
- Corrosion and chemical resistant
- For temperatures up to +150 °C
- Non-magnetic and washable
- Predictable lifetime
- Low weight
- Electrically insulating

Dimensions [mm]

Part number	Race	Cage	Ball	Inner-Ø d1	Outer-Ø d2	Width b1
BB-626-A500-70-PAI	A500	PEEK	PAI	6	19	6
BB-608-A500-70-PAI	A500	PEEK	PAI	8	22	7
BB-6000-A500-70-PAI	A500	PEEK	PAI	10	26	8
BB-6004-A500-70-PAI	A500	PEEK	PAI	20	42	12

Technical data

Part number	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
BB-626-A500-70-PAI	30	15	20	3,200	1.4
BB-608-A500-70-PAI	55	18	25	2,700	2.2
BB-6000-A500-70-PAI	95	25	34	2,100	3.4
BB-6004-A500-70-PAI	160	62	88	1,300	11.7

delivery time available from stock

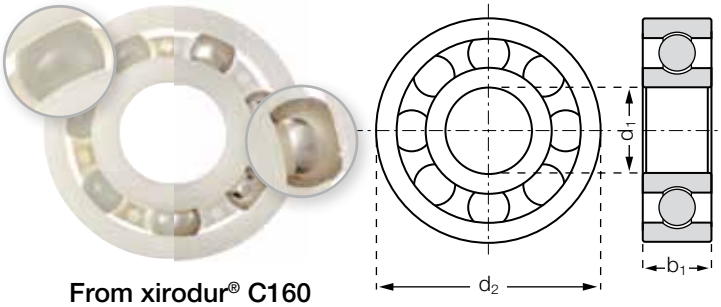
prices price list online www.igus.co.uk/en/BB-A500

order example part number BB-623-A500-70-PAI

NEW in this catalog!

xirodur® C160 Polymer Ball Bearings | Product Range

Radial deep-groove ball bearings



From xirodur® C160
PP-Cage
glas-/stainless steel balls
+80 °C
0 °C

Order key

BB-623-C160-20-GL

Ball material
GL = glass
ES = stainless steel
Cage material
20 = PP
Race material
C160 = xirodur® C160
Dimensions acc. to DIN 625-1
Ball bearing

The ball bearing material xirodur® C160 is cost-effective and very resistant to chemicals. xirodur® C160 can be use with temperatures up to +80 °C.

- Lubrication- and maintenance-free
- Corrosion and chemical resistant
- Non-magnetic and washable
- Predictable lifetime
- Low weight
- Low friction
- Electrically insulating

Dimensions [mm]

Part number	Race	Cage	Ball	Inner-Ø d1	Outer-Ø d2	Width b1
BB-623-C160-20-GL	C160	PP	Glass	3	10	4
BB-626-C160-20-GL	C160	PP	Glass	6	19	6
BB-608-C160-20-GL	C160	PP	Glass	8	22	7
BB-6000-C160-20-GL	C160	PP	Glass	10	26	8
BB-623-C160-20-ES	C160	PP	1.4401	3	10	4
BB-626-C160-20-ES	C160	PP	1.4401	6	19	6
BB-608-C160-20-ES	C160	PP	1.4401	8	22	7
BB-6000-C160-20-ES	C160	PP	1.4401	10	26	8

Technical data

Part number	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
BB-623-C160-20-GL	9	20	28	4,500	0.3
BB-626-C160-20-GL	30	40	56	2,600	1.4
BB-608-C160-20-GL	50	48	67	2,200	2.2
BB-6000-C160-20-GL	85	68	95	1,900	3.5
BB-623-C160-20-ES	9	20	28	4,500	0.3
BB-626-C160-20-ES	30	40	56	2,600	2.1
BB-608-C160-20-ES	50	48	67	2,200	3.4
BB-6000-C160-20-ES	85	68	95	1,900	5.6

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/BB-C160

order example **part number** BB-623-C160-20-GL

NEW in this catalog!

xirodur® B180 Axial Ball Bearings | Product Range

From xirodur® B180 stainless steel balls

+80 °C
–40 °C

From xirodur® B180 glass balls

+80 °C
–40 °C

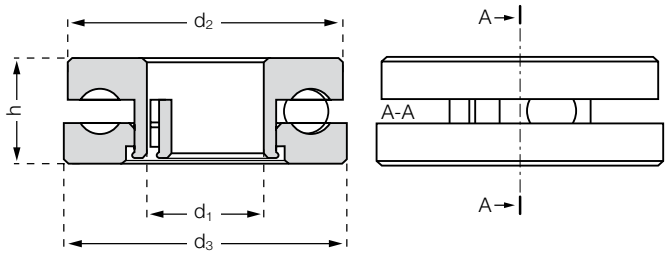
Order key

BB-51100-B180-ES

- **Ball material**
  - GL = glass
  - ES = stainless steel
- **Material**
  - xirodur® B180
- **Dimensions acc. to DIN 711**
- **Ball bearing**

xiros® axial ball bearings made of plastics for absorbing thrust loads. xirodur® B180 is combined with stainless steel or glass balls.

- Lubrication- and maintenance-free
- Corrosion-resistant
- Non-magnetic and washable
- Low weight
- Temperature resistant up to +80 °C
- Low weight
- Electrically insulating



Dimensions [mm]

Part number	housing	ball	d1	d2	d3	h	Weight [g]
BB-51100-B180-ES	B180	1.4401	10	23.5	24	9	6.9
BB-51100-B180-GL	B180	Glass	10	23.5	24	9	4.4

delivery time **available from stock**

prices **price list online** www.igus.co.uk/BB-axial

order example **part number** BB-51100-B180-ES

xirodur® B180 Polymer Ball Transfer Unit | Product Range

From xirodur® B180
POM balls

+80 °C
–40 °C

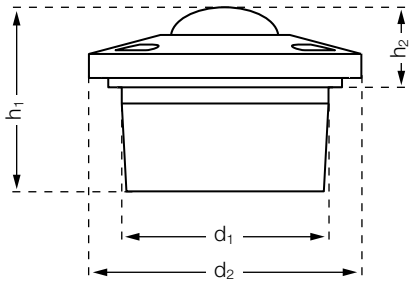
Order key

BB-515-B180-POM

- **Ball material** POM
- **Material** xirodur® B180
- **Type-No.**
- **Ball bearing**

xiros® polymer ball transfer unit made of xirodur® B180 for the lubricant-free transport of sensitive product.
The support ball is mounted inside the housing on many smaller balls, in order to optimize the running behavior.
The entire structure of the polymer ball caster consists of plastic components.

- Lubrication- and maintenance-free
- Low coefficient of friction
- Corrosion-resistant and non-magnetic
- Temperature resistant up to +80 °C
- Rlectrically insulating



Dimensions [mm]

Part number	Ball	d2	h2 ± 0.20	d1 -0.30	h1	Max. stat. bearing load [N]	Weight [g]
BB-515-B180-POM	POM	31	9.8	24	21	80	8.7

delivery time available from stock

prices price list online www.igus.co.uk/transferunit

order example part number BB-515-B180-POM

NEW in this catalog!

xirodur® B180 Multi-Axis Plastic Bearings | Product Range

From xirodur® B180
PP balls

+80 °C
–40 °C

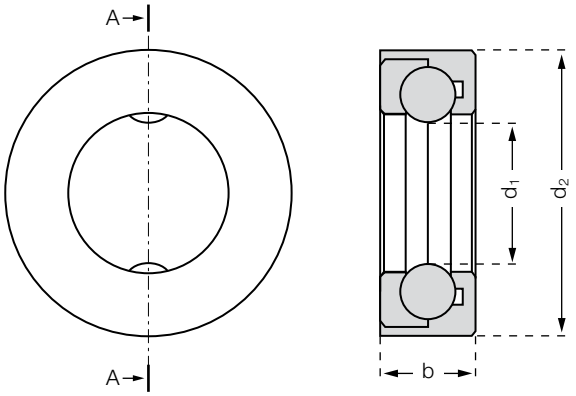
Order key

BB-MB-1633-11-B180-PP

- Ball material: PP
- Material: xirodur® B180
- b
- d2
- d1
- Multi bearing
- Ball bearing

This xirodur® B180 multi-axis plastic bearing made of triboplastic uses balls running directly on the shaft. By not using a cage, both rotary movements as well linear strokes are possible.

- Lubrication- and maintenance-free
- Corrosion-resistant
- Low weight
- Temperature resistant up to +80 °C
- Non-magnetic
- Electrically insulating



Dimensions [mm]

Part number	Ring	Ball	d1	d2	b	Weight [g]
BB-MB-1633-11-B180-PP	B180	PP	16.3	33	11	6.9

delivery time available from stock

prices price list online www.igus.co.uk/BB-axial

order example part number BB-MB-1633-11-B180-PP

xirodur® B180 Slewing Ring Bearings | Product Range

From xirodur® B180
stainless steel balls

+80 °C
–40 °C

From xirodur® B180
glass balls

+80 °C
–40 °C

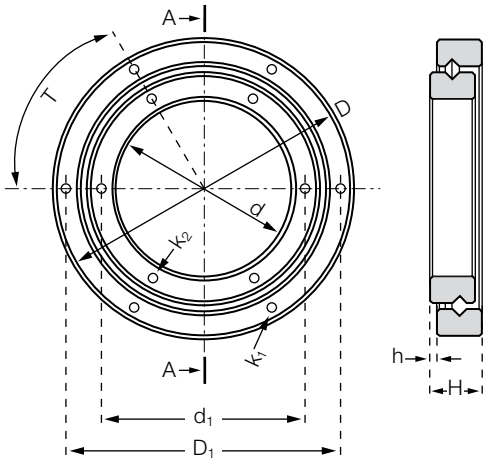
Order key

BB-RT-01-60-ES

- **Ball material**
  - GL = glass
  - ES = stainless steel
- **Inner-Ø**
- **Type**
- **Slewing ring**
- **Ball bearing**

The combination of stainless steel balls with polymer inner and outer races results in maintenance-free dry operation with low coefficients of friction. The xiros® slewing ring bearing can be used in temperatures up to +80 °C.

- Lubrication- and maintenance-free
- Low weight
- Corrosion-resistant
- Washable
- Cost-effective
- Electrically insulating



Dimensions [mm]

Part number	Balls	D	D1	d	d1	H	h	T	K1 Ø	K2 Ø	Weight [g]
BB-RT-01-60-ES*	1.4401	100	90	60	68	17.5	2.5	60	3.3	3.3	111.9
BB-RT-01-60-GL*	Glass	100	90	60	68	17.5	2.5	60	3.3	3.3	98.3

*** More dimensions upon request**

NEW in this catalog!

xiros® Pillow Block Bearings | Product Range

xiros® ESTM-pillow block bearing – rigid

From xirodur® B180
and igumid G
PA cage
glass balls

+80 °C
–40 °C

From xirodur® B180
and igumid G
PA cage
stainless steel balls

+80 °C
–40 °C

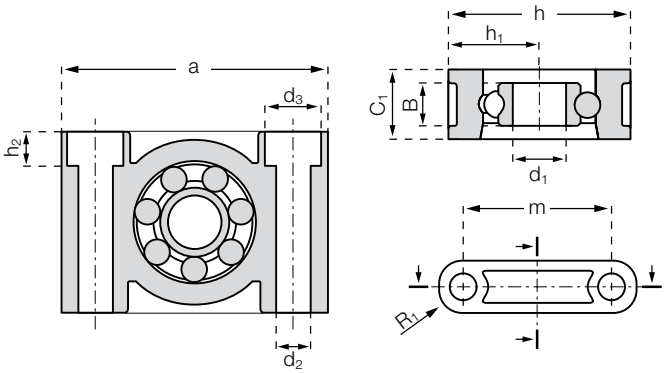
xiros® pillow block bearings with glass or stainless steel balls are a combination of xiros® polymer ball bearings and igubal® housings.

- Low weight
- Totally corrosion-resistant
- Lubrication- and maintenance-free
- Washable and non-magnetic
- Service life prediction on request
- Compact design
- Electrically insulating

Order key

ESTM-BB1-F06-B180-ES

- **Ball material**
  - ES = stainless steel
  - GL = glass
- **Temperature resistance**
  - xirodur® B180 = up to +80 °C
  - xirodur® A500 = up to +120 °C
- **Inner-Ø**
- **Rigid**
- **Ball bearing, single-row**
- **Pillow block bearing**



Dimensions [mm]

Part number*	Inner-Ø d1	Bore-Ø d2	d3	h	h1	h2	a	m	C1	B	R1
ESTM-BB1-F06-B180-ES*	6	5.5	–	22	11	–	36	26	10	6	5.0
ESTM-BB1-F10-B180-ES*	10	6.6	10.6	34	17	6.4	50	37	13	8	6.5
ESTM-BB1-F20-B180-ES*	20	9.0	14.0	48	24	8.06	72	54	18	12	9.0
ESTM-BB1-F06-B180-GL*	6	5.5	–	22	11	–	36	26	10	6	5.0
ESTM-BB1-F10-B180-GL*	10	6.6	10.6	34	17	6.4	50	37	13	8	6.5
ESTM-BB1-F20-B180-GL*	20	9.0	14.0	48	24	8.06	72	54	18	12	9.0

Technical data

Part number*	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
ESTM-BB1-F06-B180-ES*	95	50	70	2,600	7.7
ESTM-BB1-F10-B180-ES*	285	85	119	1,900	20.2
ESTM-BB1-F20-B180-ES*	400	210	294	1,150	54.1
ESTM-BB1-F06-B180-GL*	95	50	70	2,600	6.7
ESTM-BB1-F10-B180-GL*	285	85	119	1,900	18.2
ESTM-BB1-F20-B180-GL*	400	210	294	1,150	47.7

* Temperatures up to +120 °C: ESTM-BB1-…-A500-…

delivery time available from stock

prices price list online www.igus.co.uk/en/ESTM-BB-F

order example part number ESTM-BB1-F06-101

xiros® Pillow Block Bearings | Product Range

xiros® ESTM-pillow block bearing – pivoting

From xirodur® B180
and igumid G
RN56, PA cage
glass balls

+80 °C
–40 °C

From xirodur® B180
and igumid G
RN56, PA cage
stainless steel balls

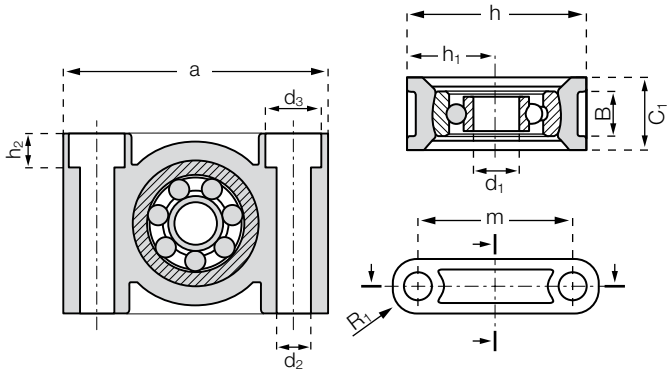
+80 °C
–40 °C

Besides the rigid option, the pivoting option enables the compensation of misalignments.

Order key

ESTM-BB1-P08-B180-ES

- **Ball material**
  - ES = stainless steel
  - GL = glass
- **Temperature resistance**
  - xirodur® B180 = up to +80 °C
  - xirodur® A500 = up to +120 °C
- **Inner-Ø**
- **Pivoting**
- **Ball bearing, single-row**
- **Pillow block bearing**



Dimensions [mm]

Part number*	Inner-Ø d1	Bore-Ø d2	d3	h	h1	h2	a	m	C1	B	R1	Max. pivoting angle
ESTM-BB1-P08-B180-ES*	8	6.6	10.6	34	17	6.4	50	37	13	7	6.5	5°
ESTM-BB1-P10-B180-ES*	10	9.0	14.0	40	20	8.6	62	46	16	8	8	5°
ESTM-BB1-P12-B180-ES*	12	9.0	14.0	48	24	8.6	72	54	18	10	9	5°
ESTM-BB1-P08-B180-GL*	8	6.6	10.6	34	17	6.4	50	37	13	7	6.5	5°
ESTM-BB1-P10-B180-GL*	10	9.0	14.0	40	20	8.6	62	46	16	8	8	5°
ESTM-BB1-P12-B180-GL*	12	9.0	14.0	48	24	8.6	72	54	18	10	9	5°

Technical data

Part number*	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
ESTM-BB1-P08-B180-ES*	165	60	84	2,200	19.6
ESTM-BB1-P10-B180-ES*	285	85	119	1,900	32.9
ESTM-BB1-P12-B180-ES*	315	105	147	1,750	54.8
ESTM-BB1-P08-B180-GL*	165	60	84	2,200	18.2
ESTM-BB1-P10-B180-GL*	285	85	119	1,900	30.3
ESTM-BB1-P12-B180-GL*	315	105	147	1,750	52.8

* Temperatures up to +120 °C: ESTM-BB1-…-A500-…

delivery time available from stock

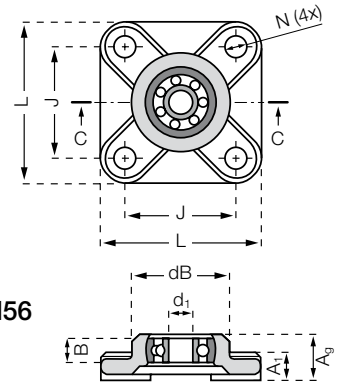
prices price list online www.igus.co.uk/en/ESTM-BB-P

order example part number ESTM-BB1-P08-101

NEW in this catalog!

xiros® Flange Bearing | Product Range

4-hole flange bearing



From xirodur® B180, RN56 and igumid G
PA cage
glass/stainless steel balls

+80 °C
–40 °C

Order key

EFSM-BB1-P08-B180-ES

- **Ball material**
  - ES = stainless steel
  - GL = glass
- **Temperature resistance**
  - xirodur® B180 = up to +80 °C
  - xirodur® A500 = up to +120 °C
- **Inner-Ø**
- **Pivoting**
- **Ball bearing, single-row**
- **4-hole flange bearing**

xiros® flange bearings with glass or stainless steel balls are also a combination of xiros® polymer ball bearings and igubal® housings.
The new angle-compensating xiros® polymer ball bearing was developed for the maintenance-free application in conveyor belts, cam rollers and support housings. The light, corrosion-free and anti-magnetic bearing needs no oil or grease and compensates for misalignments caused by tiltings and/or tolerances.

- Compensation of misalignments
- Very low weight
- Totally corrosion-resistant
- Lubrication- and maintenance-free
- Washable and non-magnetic
- Service life prediction on request
- Compact design
- Electrically insulating

Dimensions [mm]

Part number*	Inner-Ø d1	dB	L	J	A1	Ag	B	N	Max. pivoting angle
EFSM-BB1-P08-B180-ES*	8	32.5	52	36	9	15.5	8	6.4	5°
EFSM-BB1-P10-B180-ES*	10	40.0	65	45	11	18.8	10	8.4	5°
EFSM-BB1-P12-B180-ES*	12	48.0	74	52	14	23.5	12	8.4	5°
EFSM-BB1-P08-B180-GL*	8	32.5	52	36	9	15.5	8	6.4	5°
EFSM-BB1-P10-B180-GL*	10	40.0	65	45	11	18.8	10	8.4	5°
EFSM-BB1-P12-B180-GL*	12	48.0	74	52	14	23.5	12	8.4	5°

Technical data

Part number*	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
EFSM-BB1-P08-B180-ES*	165	60	84	2,200	25.2
EFSM-BB1-P10-B180-ES*	285	85	119	1,900	48.8
EFSM-BB1-P12-B180-ES*	315	105	147	1,750	80.0
EFSM-BB1-P08-B180-GL*	165	60	84	2,200	24.0
EFSM-BB1-P10-B180-GL*	285	85	119	1,900	46.2
EFSM-BB1-P12-B180-GL*	315	105	147	1,750	77.7

*** Temperatures up to +120 °C: ESTM-BB1-…-A500-…**

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/EFSM-BB

order example **part number** EFSM-BB1-P08-101

xiros® Flange Bearing | Product Range

2-hole flange bearing

From xirodur® B180, RN56
and igumid G
PA cage
glass/stainless steel balls

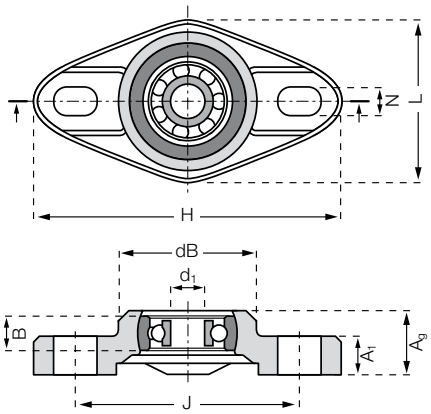
+80 °C
–40 °C

Order key

EFOM-BB1-P08-B180-ES

- **Ball material**
  - ES = stainless steel
  - GL = glass
- **Temperature resistance**
  - xirodur® B180 = up to +80°C
  - xirodur® A500 = up to +120°C
- **Inner-Ø**
- **Pivoting**
- **Ball bearing, single-row**
- **2-hole flange bearing**

In comparison to the four-hole flange bearing, the 2-hole design offers another possibility of adjustment due to the elongated holes. Alignment errors are compensated by the pivoting ball so that a tedious precise alignment of the bearings is usually not necessary.



Dimensions [mm]

Part number*	Inner-Ø d1	dB	H	L	J	A1	Ag	B	N	Max. pivoting angle
EFOM-BB1-P08-B180-ES*	8	32.5	72.6	38	53	10	15.5	8	6,4x10,1	5°
EFOM-BB1-P10-B180-ES*	10	40.0	89.0	47	65	11	18.8	10	8,4x12,5	5°
EFOM-BB1-P12-B180-ES*	12	48.5	101.0	58.5	75	14	23.5	12	8,4x12,5	5°
EFOM-BB1-P08-B180-GL*	8	32.5	72.6	38	53	10	15.5	8	6,4x10,1	5°
EFOM-BB1-P10-B180-GL*	10	40.0	89.0	47	65	11	18.8	10	8,4x12,5	5°
EFOM-BB1-P12-B180-GL*	12	48.5	101.0	58.5	75	14	23.5	12	8,4x12,5	5°

Technical data

Part number*	Max. static bearing load axial [N]	Static bearing load [N]	Dynamic bearing load [N]	Max. speed [rpm]	Weight [g]
EFOM-BB1-P08-B180-ES*	165	60	84	2,200	19.5
EFOM-BB1-P10-B180-ES*	285	85	119	1,900	36.3
EFOM-BB1-P12-B180-ES*	315	105	147	1,750	61.7
EFOM-BB1-P08-B180-GL*	165	60	84	2,200	18.1
EFOM-BB1-P10-B180-GL*	285	85	119	1,900	33.6
EFOM-BB1-P12-B180-GL*	315	105	147	1,750	59.4

* Temperatures up to +120 °C: ESTM-BB1-…-A500-…

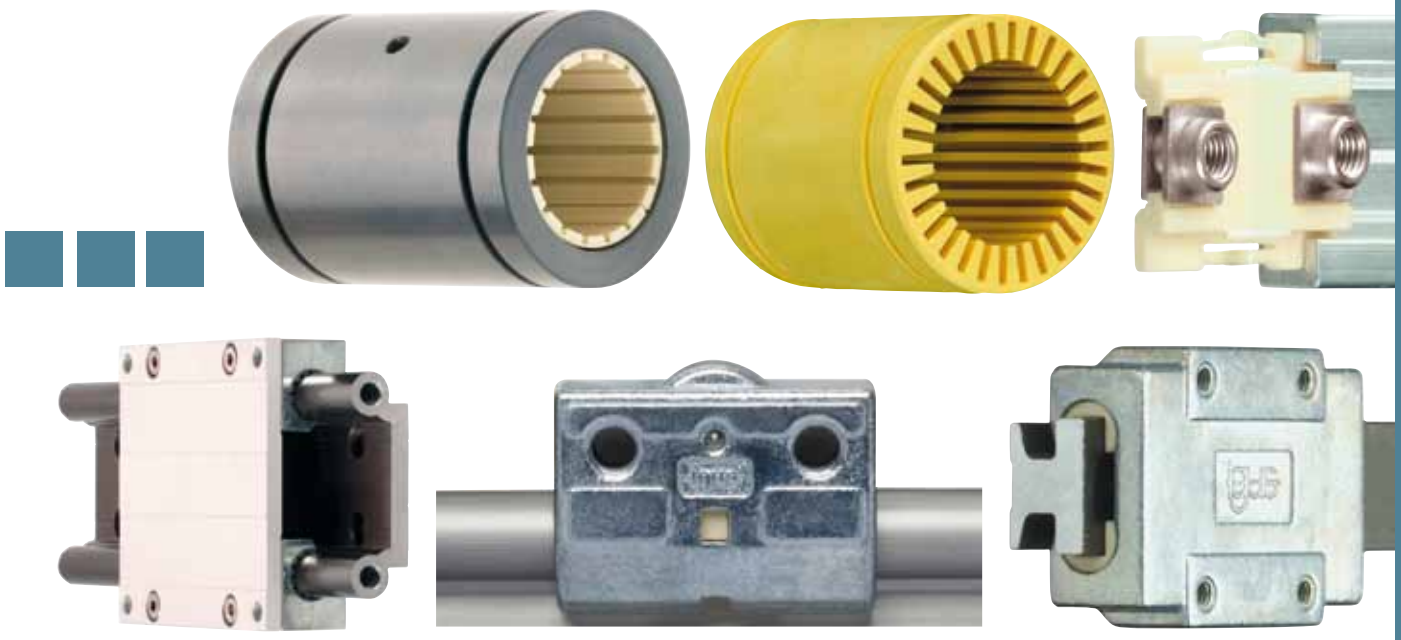
delivery time available from stock

prices price list online www.igus.co.uk/en/EFOM-BB

order example part number EFOM-BB1-P08-102

5. DryLin®

Linear Guide Systems



...Rail-, Miniature-, Profile-Guides...Linear Plain Bearings and Shafts...

...plastics

Application Examples: DryLin®

More exciting examples ▶ **www.igus.co.uk/DryLin-applications**

GESET ETIKETTIER-SYSTEME GmbH
LABEL FEEDING SYSTEM/PACKAGING TECHNOLOGY
Quick and flexible format adjustment with absolute freedom from lubrication at lower costs - implemented with the DryLin® T linear guide system. Further advantage: Guide carriage with manual clamping.

CHAMPAGNE-BOTTLE SEALING MACHINE
Due to freedom from lubricants and chemical resistance, DryLin® guides score highly in facilities in the food sector. (Sick International Kellereimaschinen GmbH)

FORMING, FILLING AND SEALING MACHINE
DryLin® high temperature bearings (up to +120 °C) are used in the tool guide system of this forming, filling and sealing machine. (Unifill SpA, Italy)

DOOR ADJUSTMENT
The smooth, low noise operation and the enormous cost advantages are obtained by the use of the DryLin® R linear plain bearings on hard-anodized guide shafts to guide the doors of machine tools. (Alzmetall GmbH + Co. KG)

SYSTEMS FOR THE PRODUCTION OF ALUMINUM CARTRIDGES
The absolute freedom from lubricants and the resistance to prevailing paint mist led to the application of DryLin® R linear plain bearings. (Mall + Herlan GmbH)

ERSASCOPE INSPECTION OPTICS
The vertical positioning of the optics is carried out by the DryLin® T linear guide system whose continuously adjustable clearance provides for the required precision and a smooth, vibration-free operation. (ERSA GmbH)

MOBILE AND STATIONARY SAW MILLS
DryLin® W modular linear guide system and iglidur® J liner for adjusting the saw blade guide. (Serra Maschinenbau GmbH)

DryLin® Linear Guide Systems | Product Overview

DryLin® T
Rail guide systems
▶ from page 727

TS-01 Standard rail single
▶ page 734

TW-01 Standard carriage single
▶ page 734

TK-01 Standard complete system
▶ page 740

TWA-01 Automatic carriage single
▶ page 735

TKA-01 Automatic complete system
▶ page 740

DryLin® N
Low profile guide systems
▶ from page 749

NS-01-17 rail width 17 mm
▶ page 756

NW-02-17 carriage with thread
▶ page 756

NW-02-17-P carriage with thread, preload
▶ page 756

NW-22-17-40 double carriage with thread
▶ page 756

NS-01-27 rail width 27 mm
▶ page 757

NW-02-40/ NW-12-40 carriage with mounting holes
▶ page 759

NS-01-80 rail width 80 mm
▶ page 760

NW-02-80 standard with thread, clipped
▶ page 760

NW-12-80 overmouled with thread
▶ page 760

DryLin® W
Modular guide systems
▶ from page 763

WSQ Rail square
▶ page 770

WJ200QM Housing bearing square
▶ page 771

WS Rail round
▶ page 772

WJ200UM Housing bearing round
▶ page 773

WJUME Housing bearing "Turn to fit" adjustable
▶ page 773

DryLin® R
Round shaft guide systems
▶ from page 787

JUM-01 Liner closed, long design
▶ page 796

JUMO-01 Liner open, long design
▶ page 797

JUM-11 Liner closed, long design, precise
▶ page 798

JUMO-11 Liner open, long design, precise
▶ page 799

JUM-02 Liner closed, short design
▶ page 800

* in this catalog

TW-02
Heavy Duty
carriage
single

▶ page 736

TK-02
Heavy Duty
complete
system

▶ page 740

TW-HKA
carriage
single
with manual
clamping

▶ page 737

TK-HKA
complete
system
with manual
clamping

▶ page 740

NEW!*

TWBM-11
clamping
elements,
compact

▶ page 738

TWBM-01
manual
clamping with
high holding
strength

▶ page 738

TS-04
Miniature
rail
single

▶ page 739

TW-04
Miniature
carriage
single

▶ page 739

TK-04
Miniature
complete
system

▶ page 740

NW-01-27/
NW-11-27
carriage with
mounting
holes

▶ page 757

NW-01-27-P
carriage with
mounting
holes,
preload

▶ page 757

NW-02-27/
NW-12-27
carriage with
thread

▶ page 757

NW-02-27-P
carriage with
mounting
holes,
preload

▶ page 757

NW-21-27-
60P
polymer
carriage with
mounting
holes

▶ page 758

NW-22-27-
60P
polymer
carriage with
thread

▶ page 758

NEW!*

NW-12-27-80
double
carriage
with thread,
overmouled

▶ page 758

NW-11-27-80
double
carriage with
mounting
holes

▶ page 758

NS-01-40
rail width
40 mm

▶ page 759

NW-01-40/
NW-11-40
carriage with
mounting holes

▶ page 759

WSQ-06
Double rail
square

▶ page 774

WW-06
Guide
carriage
fitted

▶ page 776

WS
Double rail
round

▶ page 775

WW
Guide
carriage
fitted

▶ page 777

NEW!*

WJRM
Hybrid
bearing
roll and slide

▶ page 779

WS-.../
WJUM-...-
ES-FG
Stainl. steel
round, single
and double

▶ page 781

NEW!*

WSQ-.../
WS-...-CAM
Double rail
reduced
weight

▶ page 782

WHKA
Manual
clamping

▶ page 783

NEW!*

WHKD
Manual
clamping
for high
holding
strength

▶ page 784

XUM
Liner
open (XUMO)
and closed
design,
long (XUM-01)
and short
(XUM-02)

▶ page 801

WLM
Pressfit
bearing
made of
iglidur® L100

▶ page 802

WLFM
Pressfit
bearing
made of
iglidur® L100

▶ page 803

RJUM-01
Linear plain
bearing
closed
anodized
aluminum
adapter

▶ page 804

RJUM-11
Linear plain
bearing
closed
anodized
aluminum
adapter
precision

▶ page 805

RJM
Solid
polymer
bearing
made of
iglidur® J

▶ page 806

NEW!*

RJMP
Solid
polymer
bearing
long design
precise

▶ page 807

RJUM-...-ES
Linear plain
bearing
closed
stainless
steel adapter

▶ page 808

TJUM-01
Linear plain
bearing
split anodized
aluminum
adapter

▶ page 809

RJUM-03
Linear plain
bearing
closed
aluminum
adapter
(floating
bearing)

▶ page 810

DryLin® Linear Guide Systems | Product Overview

DryLin® R
Round shaft guide systems
▶ from page 787

TJUM-03 Linear plain bearing split aluminum adapter

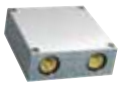
RJUM-02 Linear plain bearing closed anodized aluminum adapter

RJ260UM Compact Bushing Low-cost linear plain bearing

RJUM-05 Housing bearing closed anodized aluminum housing, short design

RJUME Housing bearing adjustable anodized aluminum housing, short design

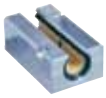
▶ page 811 ▶ page 812 ▶ page 813 ▶ page 814 ▶ page 815



RQA Quad block closed design

OQA Quad block open design

RTA Tandem housing closed design

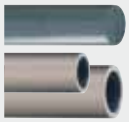


OTA Tandem housing open design

RGA Pillow block housing closed long design

▶ page 830 ▶ page 831 ▶ page 832 ▶ page 833 ▶ page 834

DryLin® Shafts
and accessories
▶ from page 847



AWMP Precision aluminum shaft

AWMU Supported aluminum shaft

SWM/ SWMH Steel shaft

SWUM/ SWUMN Supported steel shaft

EWM/EEWM/ EWMR Stainless steel shaft

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DryLin® Specialists
▶ from page 867

NEW!* NEW!* NEW!*

DryLin® N Telescopic rails

DryLin® NT Telescopic rails with locking system

DryLin® WKM Digital measuring system

DryLin® WKMEX Measuring system

DryLin® WJRM Hybrid bearing roll and slide

▶ page 865 ▶ page 866 ▶ page 867 ▶ page 868 ▶ page 870

DryLin® Stainless Steel
▶ from page 877

STAIN-LESS STEEL

RJUM-01-ES Linear plain bearing stainless steel

DryLin® W Guide rail and housing bearing single and double

Stainless steel shaft

Supported stainless steel shaft

Partially supported stainless steel shaft

▶ page 875 ▶ page 876 ▶ page 878 ▶ page 880 ▶ page 881

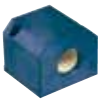
* in this catalog

TJUM-05
Housing bearing
split anodized aluminum housing screwed short design

▶ page 816

RJUMT
Housing bearing
open anodized aluminum housing Tandem

▶ page 817



RJUM-06
Housing bearing
closed anodized aluminum housing long design

▶ page 818

RJUM-06-...-LL
Housing bearing
closed housing floating bearing

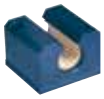
▶ page 819

OJUM-01
Linear plain bearing
open anodized aluminum adapter

▶ page 820

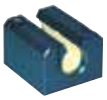
OJUM-03
Linear plain bearing
open anodized aluminum adapter (floating bearing)

▶ page 821



OJUM-06
Housing bearing
open anodized aluminum housing long design

▶ page 822



OJUME
Housing bearing
open aluminum housing long design adjustable

▶ page 823

OJUM-06-...-LL
Housing bearing
closed housing floating bearing

▶ page 824

FJUM-01/-02
Flange Housing
anodized aluminum round/square flange

▶ p. 825/826

OGA
Pillow block housing
open, long design

▶ page 835

RGAS
Pillow block housing
closed, short design

▶ page 836

OGAS
Pillow block housing
open, short design

▶ page 837

JUI
Liner
closed, long design, inch

▶ page 838

JUIO
Liner
open, long design, inch

▶ page 838

RJI
Solid polymer bearing
made of iglidur® J, inch

▶ page 839

RJUI-01/-03
Linear plain bearing
closed aluminum adapter, inch

▶ page 840

TJUI-01/-03
Linear plain bearing
split aluminum adapter, inch

▶ page 841

OJUI-01/-03
Linear plain bearing
open aluminum adapter, inch (Vers.3: bearing)

▶ page 842

EWUM/ EWUMN
Supported stainless steel shaft

▶ page 852

EWUM-ES
Partially supported stainless steel shaft

▶ page 853

CWM
Carbon fiber shaft

▶ page 854

TA
Shaft end support
moving

▶ page 855

TAF
Shaft end support
fixed

▶ page 856

WA
Shaft support block
Standard

▶ page 857

WAC
Shaft support block
compact design

▶ page 858

WAS
Shaft support block
narrow design

▶ page 859

WAF
Shaft end block

▶ page 860

NEW!*

DryLin® Q
Square guide

▶ page 869

NEW!*

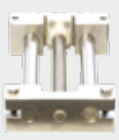
DryLin®
Slide disk

▶ page 872

SLW-ES
Linear slide table

▶ page 882

NEW!*



SHTC-HYD
Hygienic Design

▶ page 883

NEW!*

SLW-XY-ES
XY-table, compact
stainless steel

▶ page 884

DryLin® SHT

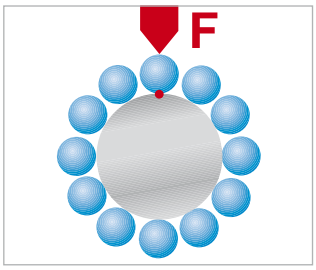
Drive technology

▶ from page 885

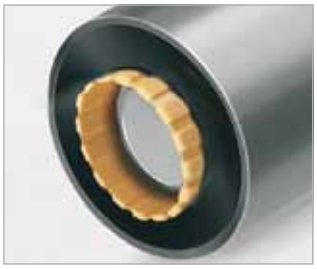
DryLin® | Glides instead of Rolling!

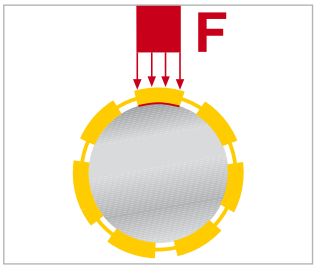
DryLin® is a range of maintenance-and lubrication-free linear bearings. Furthermore the program replenish with linear moduls with spindle drive or belt drives. Principal features in addition to zero maintenance and lubrication are strength and resistance to external influences such as soiling, moisture, chemicals, heat and impact.

- Maintenance-free
- Wear-resistant
- Insensitive to impacts and vibrations
- Corrosion-resistant
- Resistant to dirt, dust and humidity
- Low coefficients of friction
- Weight reduction
- Dry-running
- For short-stroke applications
- High static load capacity
- High speeds and accelerations possible
- Self-lubricating
- Very quiet run
- Low magnetism



Roller bearings – Point contact





Plain bearings – Surface contact

Resistant to dirt, dust and moisture – due to due to lubricant-free use and pollutant channels.

Optimum load distribution

DryLin® linear bearings operate on gliding elements unlike the familiar recirculating ball bearing systems. Thus an essentially larger contact surface becomes available resulting in essentially lower surface pressure. The resultant advantages are:

- The application of non-hardened shafts is possible
- Even non-metallic counter-partners are usable
- A galling is completely excluded.

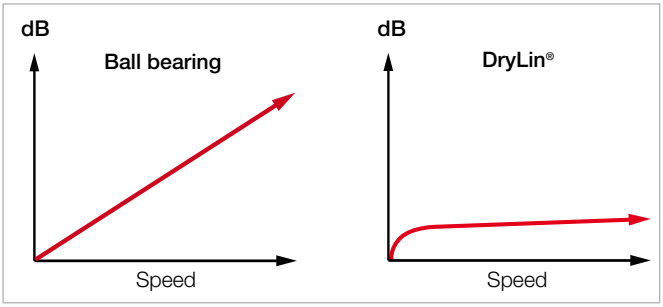
Shafts and rail materials

Due to the large surface load distribution of the DryLin® linear plain bearings compared to the ball lining, softer shaft materials can also be used. Thus hard-coated aluminum shafts offer the best coefficients of friction and wear, carbon shafts the lowest weight and VA stainless steel shafts the highest chemical resistance. Of course the use of hardened steel and stainless steel as well as hard-chromed shafts is also recommended.

Dry Run, without Lubrication

DryLin® linear bearing systems are designed for dry-running. Your applications are thereby protected against soiling by grease or oil. Even the application under coarse dirt and sand is possible. Particles are repelled from the contact surface by the movement itself. Here the front side of the gliders works like a wiper. The contact surface remains clean.

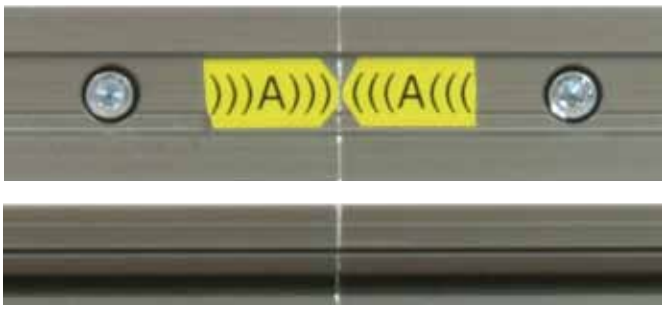
DryLin® | Glides instead of Rolling!



Graph 01: Comparison of noise development

Low Noise

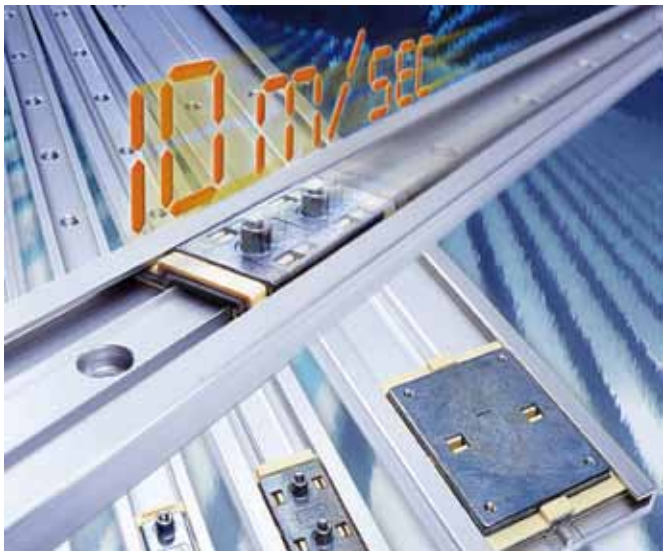
The quiet run is also based on the feature of gliding in contrast to rolling. There is no mechanical rolling up of hard gliding partner and no ball collisions that cause loud noises. The gliding motion is extremely quiet and only a light friction noise is audible.



Rail joint

Maximum stroke lengths

The line up of guide rails (joining) poses no challenge for DryLin® linear guides. The guide rails are slightly chamfered, aligned and simply placed behind each other. The groove resulting from the joint can be passed over by the gliding element without problems. With the DryLin® linear plain bearings, a ball or roller cannot get stuck. In this way stroke lengths of more than 20 meters can be implemented. The assembly is facilitated by distinct marking of the joints provided at the factory.



Permitted Speeds/Accelerations

DryLin® linear plain bearings do without rolling objects or balls. This makes the bearing independent of the mass inertia of this body and can be used with high speeds up to 10 m/s and accelerations up to 100G.

DryLin® linear bearings are thus suitable for applications with light loads, whose cycle rates should be increased. The use of hard-coated aluminum as a friction partner lowers the operating temperature in the bearing due to the high thermal conductivity of aluminum. Thus the operation can be carried out with a high frequency even at very short stroke lengths.

The maximum average surface speed results from the load on the bearings. With decreasing surface load, higher speeds can be achieved. More important than the maximum speed reached is the average speed in a period of time, because it has the most influence on the heating of the bearing system. In cases with breaks between the individual cycles, the maximum average surface speed is decisive, which is achieved during a period of 10 to 30 minutes.

Heat conductivity	[W / m · K]
Aluminum	235
Unalloyed steel	48 - 58
High-alloyed steel	15

Table 01: Heat conductivity

Average surface speed

= Travel distance per cycle [m] / total cycle time [sec].

DryLin® | Glides instead of Rolling!

Extreme application conditions in the offshore sector

Filling machine, Krones AG, Rosenheim

The iglidur® X material in heavy-duty use under high temperatures in foundries

Lubrication-free and insensitive to dirt

Corrosion Behavior

The low humidity absorption of iglidur® J, J200 and X permits even underwater applications. The application of stainless steel or anodized aluminum shafts provide for a corrosion-resistant guide system. Anodized aluminum is resistant to chemically neutral substances in the range pH 2 to 7.

For special cases of application, separate tests are recommended for coated aluminum sample parts for that specific application.

Chemical Resistance

iglidur® J is resistant to weak acids, diluted alkalis as well as to fuels and all kinds of lubricants. The intensive cleaning of machines with standard commercial cleaning agents, even in the food sector, is thus not a problem for the guides.

For applications in environments with extreme chemical loads, the application of the DryLin® R bearings equipped with iglidur® X liners is recommended.

The resistance of linear bearing systems is equally dependent on the counter partner. As a partner most resistant to chemicals, a high-alloyed stainless steel is offered, for instance X105 CrMo 17 (1.4125), or alternatively the use of soft VA steels (e.g. 1.4571).

Application Temperatures

Gliding elements made of iglidur® J and J200 can be used in the temperature range between –40 and +90 °C. In applications with aluminum shafts and/or rails, distinctly higher loads and speeds can be attained due to the excellent heat conductivity. Gliding elements made of iglidur® X can be used in the range of –100 °C to +250 °C.

Use in Dirt

Even the application under coarse dirt and sand is possible. Particles are repelled from the contact surface by the movement itself.

DryLin® | Materials

Materials

igus® offers various materials for gliding elements and counter partners for the DryLin® linear systems. Tests conducted over the years have shown that iglidur® J, J 200 and X are the ideal materials for most linear applications due to their positive properties in wear and friction.

iglidur® J

iglidur® J200

iglidur® X

Ideal Material Combinations

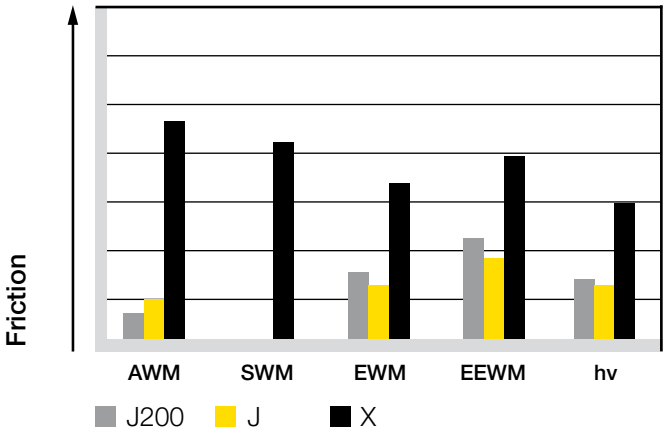
iglidur® J

The iglidur® J material achieved the best results among almost all shaft materials in our tests. Comparative laboratory tests show that iglidur® J is the most low-wear, low-friction polymer for linear applications.

Special properties of iglidur® J:

- Maintenance-free, dry-running
- Low coefficients of friction with all materials
- Excellent wear resistance
- Low humidity absorption

▶ More about iglidur® J from page 89.



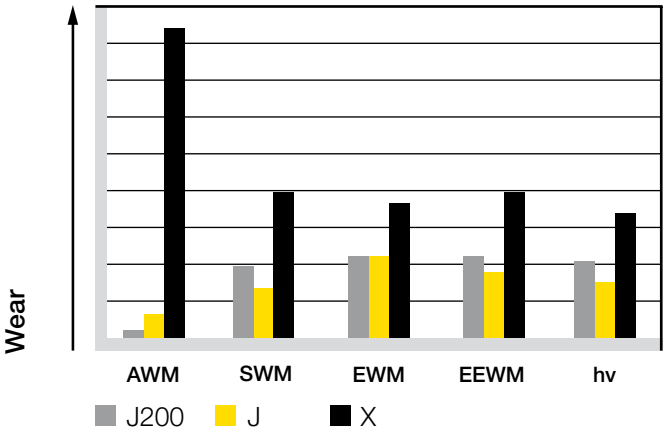
iglidur® J200

iglidur® J200 was designed and developed especially for linear applications together with hard-anodized aluminum. This combination achieves by far the best results in our laboratory tests.

Special properties of iglidur® J200:

- Absolutely maintenance-free
- Extremely high service life on hard-anodized aluminum
- Low coefficients of friction with hard-anodized aluminum
- Excellent wear resistance with anodized aluminum

▶ More about iglidur® J200 from page 267.



iglidur® X

iglidur® X is characterized by high temperature resistance and compressive strength combined with extreme resistance to chemicals. iglidur® X achieves the best wear resistance on stainless steel and chrome-plated steel shafts.

Special properties of iglidur® X:

- Absolutely maintenance-free
- Temperature resistance from –100 °C to +250 °C in continuous operation
- Universal resistance to chemicals
- Very low humidity absorption

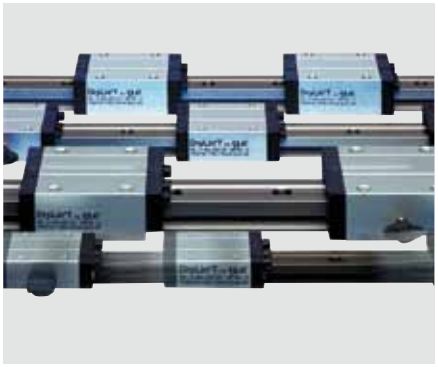
▶ More about iglidur® X from page 153.

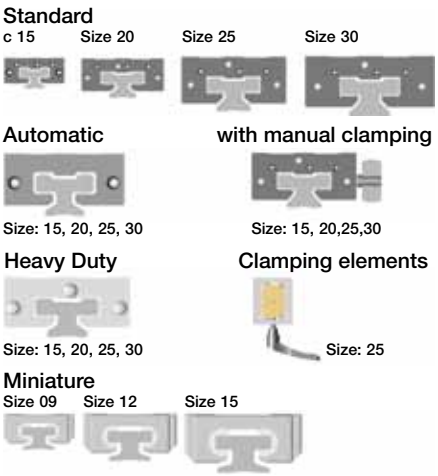
Other possible materials:
iglidur® A180, FDA-konform

▶ More about iglidur® A180 from page 371.

AWMP:
Hard-anodized aluminum shaft, h8
SWM:
Hardened and smoothed steel shaft, h6, (1.1213)
EWM:
Hardened and smoothed stainless steel shaft, h6, (1.4125)
EEWM:
Hardened and smoothed stainless steel shaft, h6, (1.4034)
hv:
Hard-chrome plated and smoothed steel shaft, h7, (1.1213)

DryLin® | Type Series





DryLin® T-Rail Guide Sytems

▶ from page 727

DryLin® T rail guides are the classical linear guides. Their dimension is identical to standard commercial ball guide systems and are used in almost all industries.

- 100 % lubrication-free
- Adjustable clearance
- Automatic clearance adjustment
- High static load capacity
- Service life up to 50,000 km
- High insensitivity to dirt

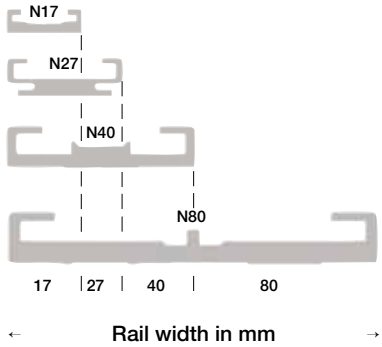
Max. stat. load capacity:
14,000 N

Max. application temperature
–40 °C to +90 °C

Corrosion resistance: ●●●

Chemical resistance: ●●●

Insensitivity to dirt: ●●●●●



DryLin® N-Low Profile Guide Systems

▶ from page 749

DryLin® N flat guides have an extremely low built, run free of lubrication and are very light. If extreme precision is not required, they are an interesting alternative to miniature ball guide systems and self-made solutions.

- Construction height: 6–12 mm
- Numerous carriage options – also with pretension
- Rails in silver or black anodized

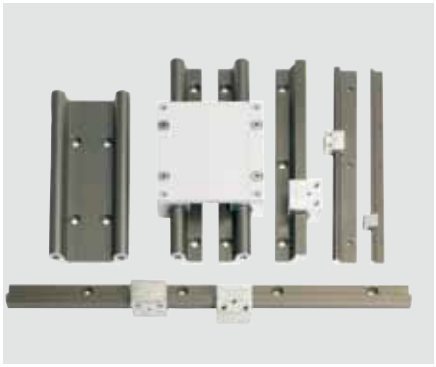
Max. stat. load capacity:
1,000 N

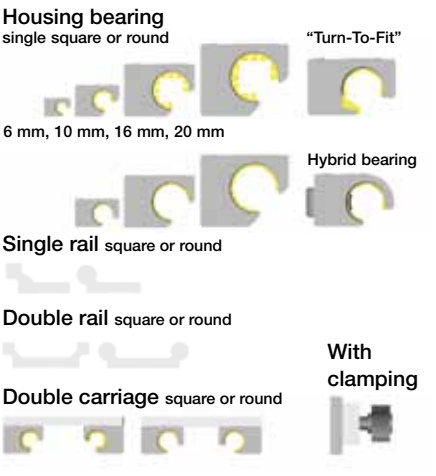
Max. application temperature
–40 °C to +90 °C

Corrosion resistance: ●

Chemical resistance: ●

Insensitivity to dirt: ●●





DryLin® W-Modular Guide Systems

▶ from page 763

DryLin® W profile guides offer a large and complex modular system with 14 different profiles and more than 50 carriage options. The system offers versatile use and is an alternative to all popular guide systems.

- Easy installation
- Angular rail with floating bearing function enables a diagonal assembly
- Space saving and compact
- VA stainless steel version also available

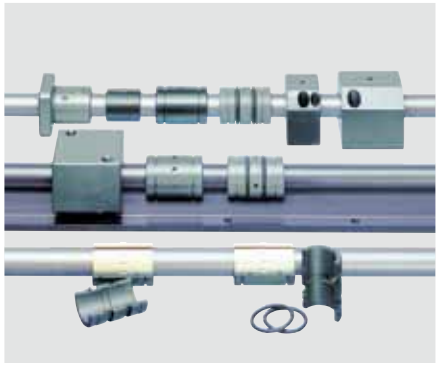
Max. stat. load capacity:
12,800 N

Max. application temperature
–40 °C to +250 °C

Corrosion resistance: ●●●●●

Chemical resistance: ●●●●●

Insensitivity to dirt: ●●●●●

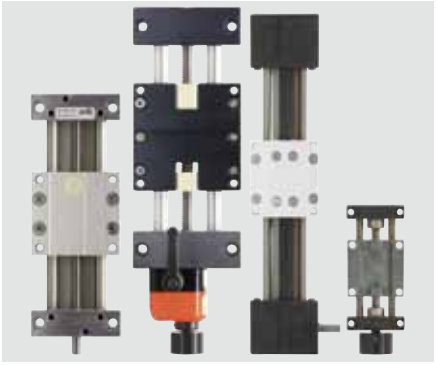


Liner
open or closed

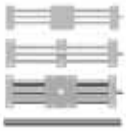
Linear bearing
open or closed

Solid polymer bearing

Housing bearing

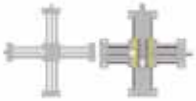


Trapezoidal thread



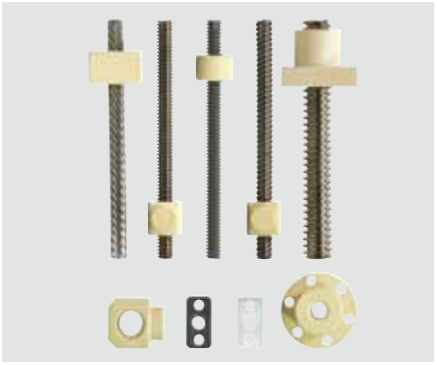
High helix thread

XY-tables



Belt drive

Accessories



Trapezoidal leadscrew nuts
cylindric with Flange

Leadscrew with trapezoidal thread

High helix leadscrew

Anti-backlash nuts

DryLin® R-Round Shaft Guide Systems

▶ from page 787

DryLin® R shaft guides as an alternative to ball linings. Polymer plain bearings can now work lubrication-free on all available shaft materials, and not only on hardened steel shafts.

- Same dimensions as standard ball bearings
- Shafts, Pillow Blocks and Accessories available from stock
- 8 different shaft materials
- Changeable liners
- Low weight

Max. stat. load capacity:
40,000 N

Max. application temperature
–40 °C to +250 °C

Corrosion resistance:
●●●●●

Chemical resistance:
●●●●●

Insensitivity to dirt:
●●●●●

DryLin® SHT-Drive Technology

▶ from page 885

DryLin® SHT linear slide modules drives with trapezoidal thread, high helix thread or gear belts. The linear slide modules are lubrication-free and will be deliverd in requested lengths. An interesting solution for size-adjustments as far as fast small-part-handling.

- Low weight
- Lubrication-free
- Prompt delivery
- Numerous accessories

Max. stat. load capacity:
6,250 N

Max. application temperature
–40 °C to +200 °C

Corrosion resistance:
●●●●

Chemical resistance:
●●●●

Insensitivity to dirt:
●●●

DryLin® TR-Leadscrew Drives

▶ from page 943

DryLin® TR screw drives convert a rotary motion into a translational motion. Thereby the plastic nuts run completely lubrication-free on trapezoidal or steep threaded spindles.

- Maintenance-free, dry-running
- Low coef. of friction in dry operation
- Optionally clearance-free through anti-backlash feature
- Vibration-dampening
- Required shapes

Max. stat. load capacity:
16,000 N

Max. application temperature
–20 °C to +80 °C

Corrosion resistance:
●●●●

Chemical resistance:
●●●

Insensitivity to dirt:
●●●

Insensitivity to Dust and Dirt

DryLin® linear bearings offer the ultimate dirt and dust resistance. As external lubrication is dispensed with, dirt particles cannot get stuck in oil or grease residues. If they are on the guideway, they are removed from the track by the plastic gliding element that acts like a wiper. The lack of seals enables the gliding elements to even guide the dirt through the bearing via channels and thus minimize pressure build-up in front of the bearing. If the liners get worn out due to extremely dirty conditions, these can be easily replaced in all systems.

Typical sectors of industry and application areas

● Agricultural economy ● Plant construction ● Printing industry ● Glass industry ● Heavy Duty
● Woodworking ● Textile technology ● Packaging

DryLin® in the heaviest environments

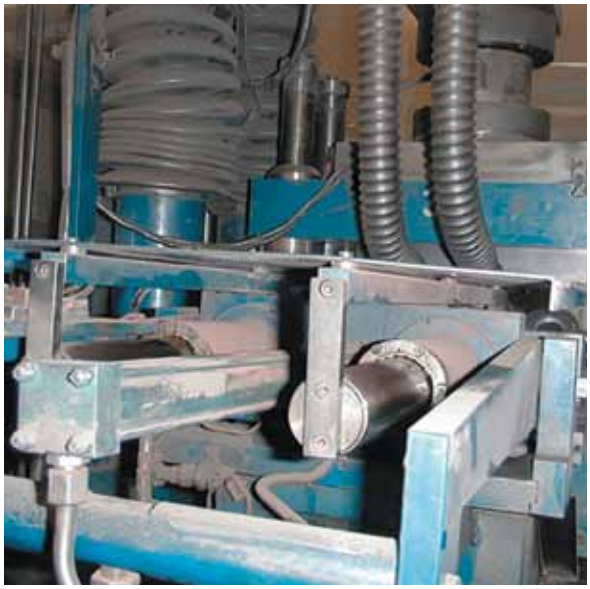
DryLin® | Application Examples

Parting unit with talcum powder

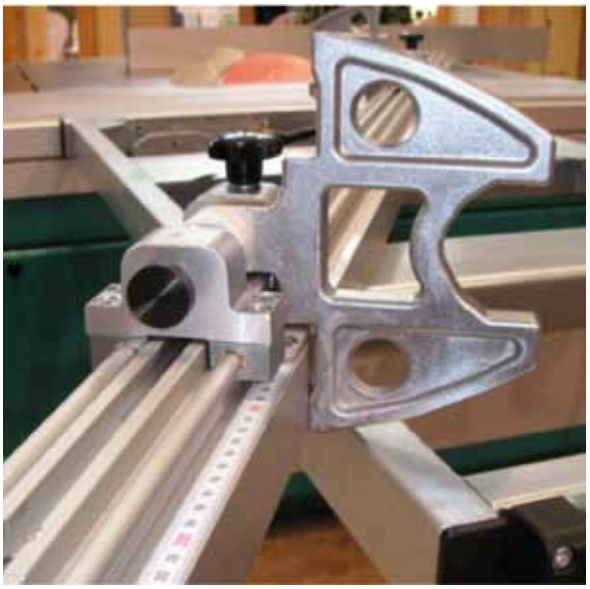
Mobile saw mills

Welding tongs

Concrete cutting machine



Filling-shoe mechanism in a compaction unit



Stop dog system of a sliding table panel saw

DryLin® | Application Examples

Clean and hygienical

DryLin® linear guides work with plastic gliding elements instead of balls. Because, these are iglidur® high-performance polymers which integrate dry lubricants in the polymer. Compared to roller guides this enables a lubricant-free operation and gives guarantee to the user that machine parts or products to be packaged will not be contaminated by oil.

Typical sectors of industry and application areas

● Automation ● Automotive ● Electronics industry ● Film and TV ● Food industry ● Medical
● Furniture/industrial design ● Test engineering and quality assurance ● Cleanroom
● Sports and leisure ● Packaging

Vacuum pressure casting machine with DryLin® W feeder

DryLin® | Application Examples

Fitness equipment: Seat height adjustment for bench press

Adjustment of kitchen worktop

Beverage can emptying device

Table pull-out mechanism

Pizza machine

Filling system

DryLin® | Application Examples

Corrosion and Chemical Resistance

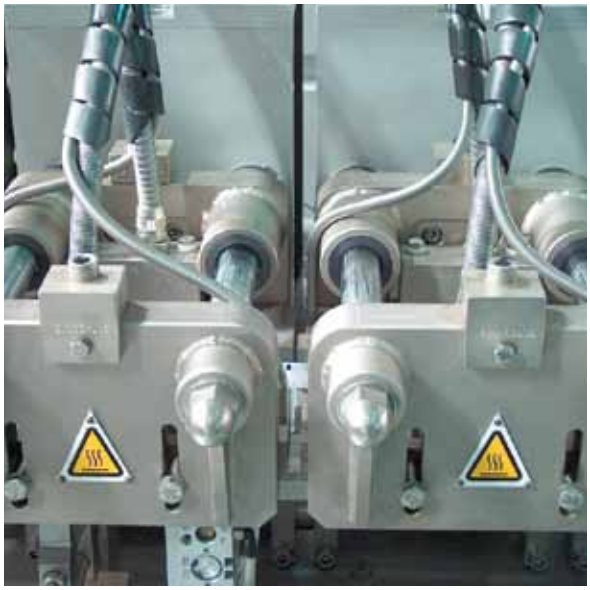
DryLin® linear guides offer pure stainless steel solutions in several subassemblies. Here the materials 1.4301, 1.4305, 1.4408 and 1.4571 are particularly used – generally designated as VA. These soft stainless steels are chemically resistant materials and can be used as linear guides without problems along with iglidur® J and/or iglidur® X gliding elements.

Typical sectors of industry and application areas

● Disposal engineering ● Fluid technology ● Beverage technology ● Food industry
● Offshore ● Marine engineering

Blister machine / Packaging technology

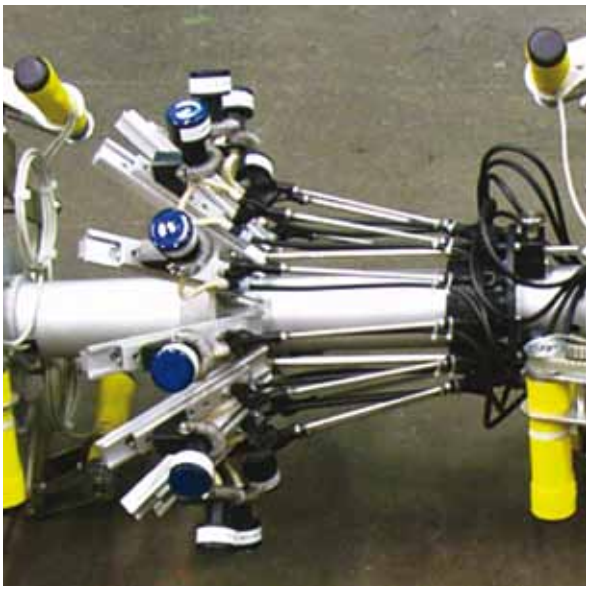
DryLin® | Application Examples



Forming, filling and sealing machine

Steering systems on bus trailers

Plant for the manufacture of die-casting molds



Offshore-Drilling-Riser

Leather splitting machine

Bag forming, filling and sealing machine

Clean Room Suitability and ESD Compability of DryLin®

Linear Guide Systems by igus® GmbH

All DryLin® guide systems are clearly qualified for clean room applications. The differentiation between the various clean room classes is only dependent on load and speed of the application. The combination of iglidur® J and hard anodized aluminum is classified as level 1 in the ESD compatibility according to SEMI E78-0998 (Highest rank).

IPA Fraunhofer TESTED® DEVICE igus Energieführungsketten/ Lineargleitführung Report No. IG 0308-295

The measurement results of the ESD compatibility according to SEMI E78-0998 show that the linear guide system DryLin® NK-02-40-02 can be classified as “level 1” (Highest rank). See Fraunhofer IPA Report No.: IG 0308-295 73.

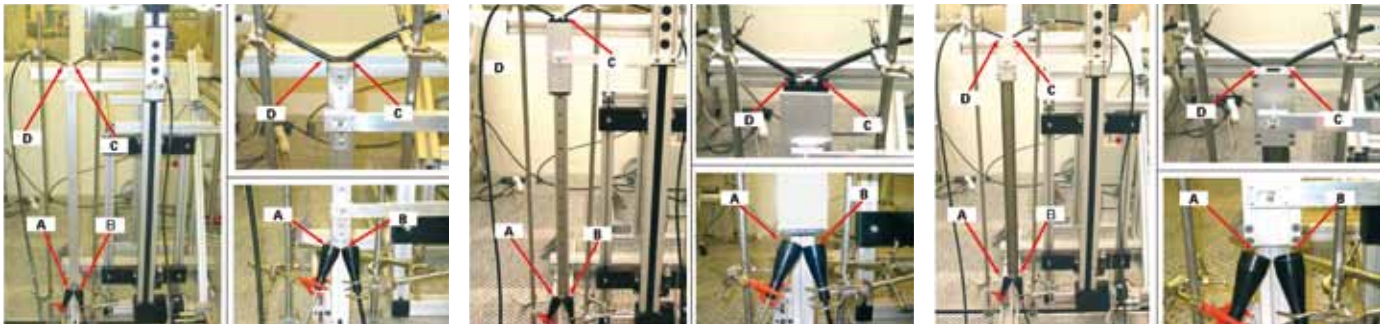
The following DryLin® guide systems by igus® GmbH were examined: N40, W10, T25 and T30.
See below for detailed results.

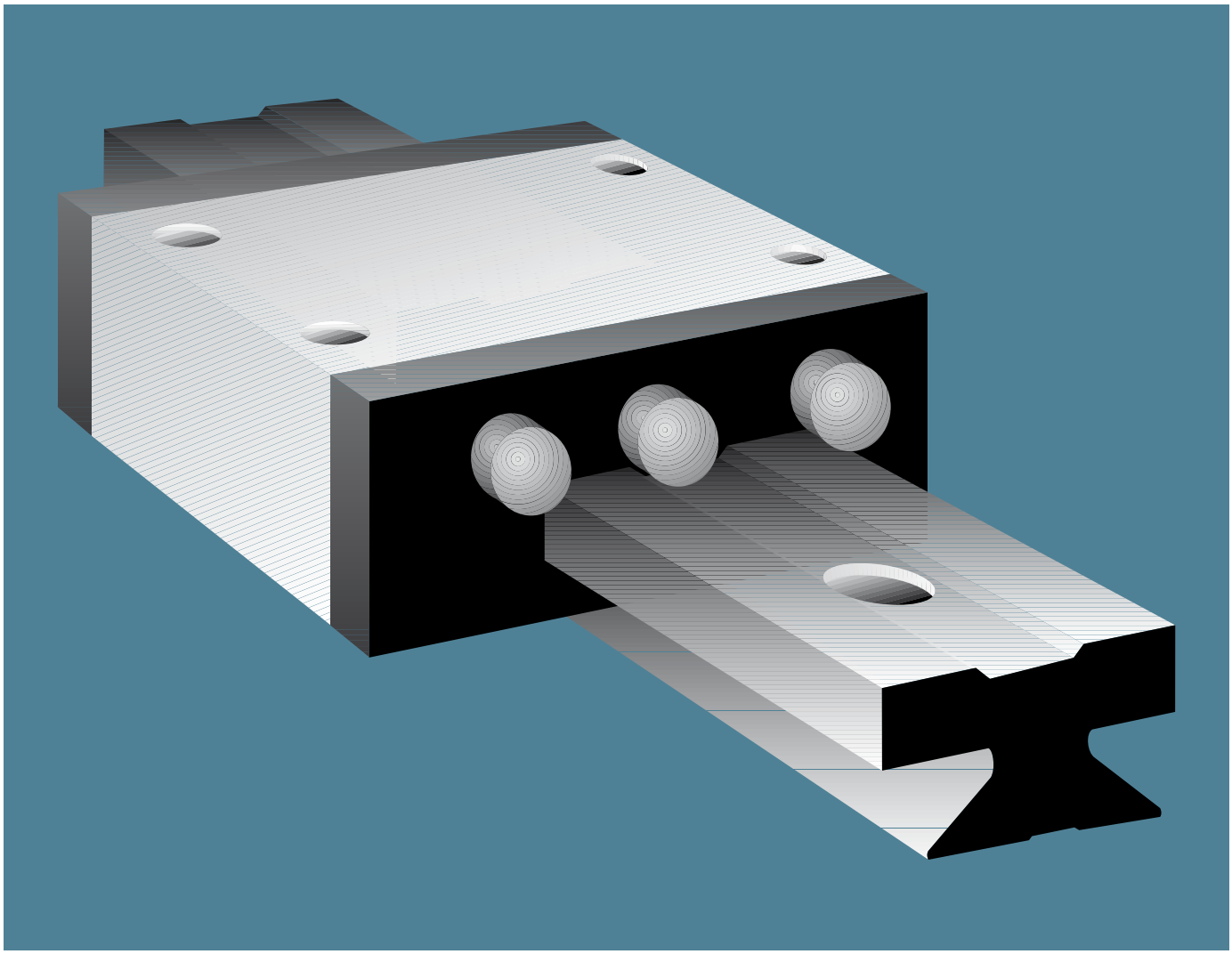
Linear guide system DryLin® TK-10-30-01:
“For the linear guide system DryLin® TK-10-30-01 by igus® GmbH, it is possible, on the calculations of the likelihood of violation of threshold values of the detection sizes 0.2 µm, 0.3 µm, 0.5 µm, and 5 µm with motion speed of v = 0.1 m/s, to clearly derive suitability for clean rooms classified as ISO Class 3 according to DIN EN ISO 14644-1.”

Linear guide system DryLin® NK-02-40-02:
“For the linear guide system DryLin® NK-02-40-02 by igus® GmbH, it is possible, on the calculations of the likelihood of violation of threshold values of the detection sizes 0.2 µm, 0.3 µm, 0.5 µm, and 5 µm with motion speed of v =1 m/s, to clearly derive suitability for clean rooms classified as ISO Class 6 according to DIN EN ISO 14644-1.”

Linear guide system DryLin® TK-01-25-02:
“For the linear guide system DryLin® TK-01-25-02 by igus® GmbH, it is possible, on the calculations of the likelihood of violation of threshold values of the detection sizes 0.2 µm, 0.3 µm, 0.5 µm, and 5 µm with motion speed of v =1 m/s, to clearly derive suitability for clean rooms classified as ISO Class 5 according to DIN EN ISO 14644-1.”
The measurement results of the ESD compatibility according to SEMI E78-0998 show that the linear guide system DryLin® TK-01-25-02 can be classified as “level 1” (Highest rank).

Linear guide system DryLin® WK-10-40-15-01:
“For the linear guide system DryLin® WK-10-40-15-01 by igus® GmbH, it is possible, on the calculations of the likelihood of violation of threshold values of the detection sizes 0.2 µm, 0.3 µm, 0.5 µm, and 5 µm with motion speed of v =1 m/s, to clearly derive suitability for clean rooms classified as ISO Class 6 according to DIN EN ISO 14644-1.”
The measurement results of the ESD compatibility according to SEMI E78-0998 show that the linear guide system DryLin® WK-10-40-15-01 can be classified as “level 1” (Highest rank).
See Fraunhofer IPA Report No.: IG 0308-295 74.



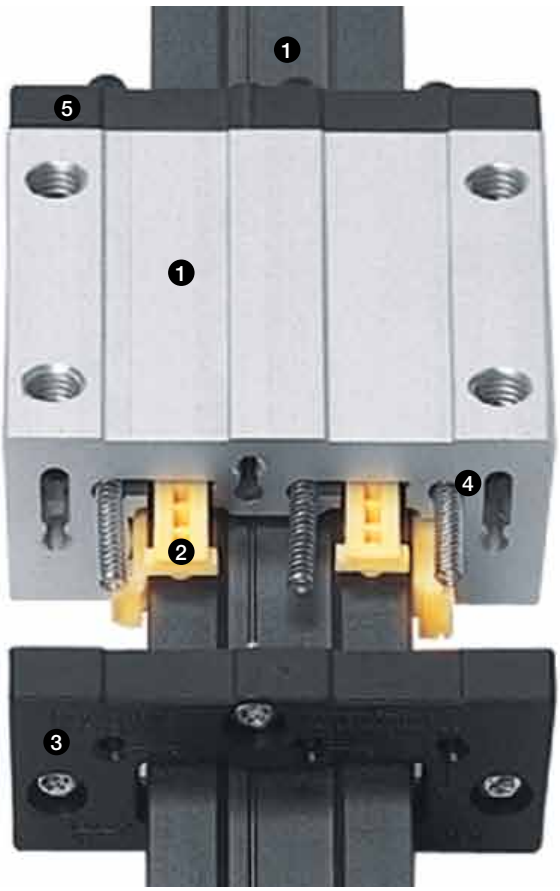


DryLin® T Rail Guide Systems

- Corrosion-resistant
- Wear-resistant
- Low friction
- Extremely quiet operation
- Lubrication-free

DryLin® T | Rail Guide Systems

DryLin® T rail guide systems were originally developed for applications in both automation and materials handling. The goal was to create a high performance, maintenance-free linear guide for use in the most diverse, even extreme environments. Their dimensions are identical to most recirculating ball guides.



❶ Profile rails and base structures of the carriages manufactured from aluminum. The rail is hard anodized, the aluminum housing of the carriage is clear anodized
❷ 6 sliding iglidur® J elements act as guide bearings, which are set in pairs opposite each other and act as three guide bearings altogether
❸ Each of the 3 guide bearings is continuously adjustable
❹ All steel parts are of stainless steel
❺ The end plate is solid plastic or stainless steel

Advantages:

- 100 % lubrication-free
- Adjustable clearance
- Automatic clearance adjustment
- High static load capacity
- Service life up to 50,000 km without lubrication
- High insensitivity to dirt
- Low vibration and quiet run

When not to use them?

- When I want to save installation space
  - ▶ **DryLin® N, page 749**
  - ▶ **DryLin® W, page 763**
- When I need a pure stainless steel solution
  - ▶ **DryLin® W, page 763**
  - ▶ **DryLin® R, page 787**
- When I want to build a minimum-cost solution
  - ▶ **DryLin® N, page 749**
  - ▶ **DryLin® W, page 763**

Clean-Room

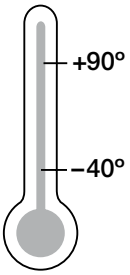
Cleanroom certificated – IPA Fraunhofer

RoHS 2002/95/EC

Free of toxins ROHS 2002/95/EC

ESD compatible (electrostatic discharge)

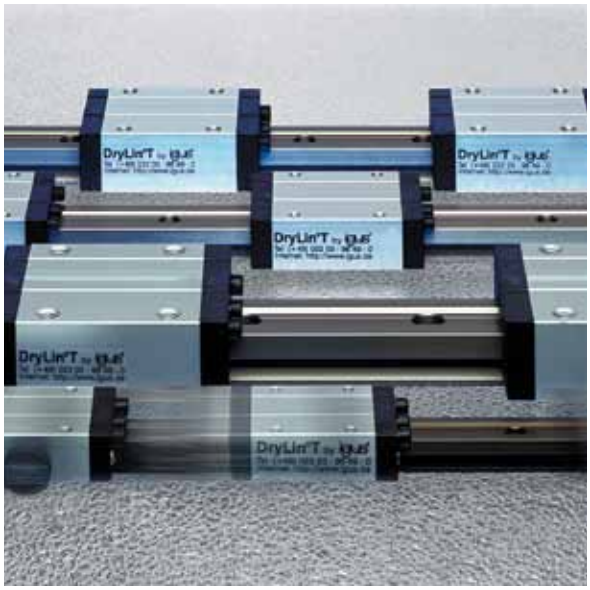
Temperature



Product range

7 rail sizes
40 guide carriages

DryLin® T | Application Examples



Typical sectors of industry and application areas

● Machine building ● Wood working industry ● Machine tools ● Handling etc.

Improve technology and reduce costs – 170 exciting examples online

▶ **www.igus.co.uk/drylin-applications**

▶ **www.igus.co.uk/packaging**

▶ **www.igus.co.uk/grinding-machine**

▶ **www.igus.co.uk/enveloping**

▶ **www.igus.co.uk/automotive**

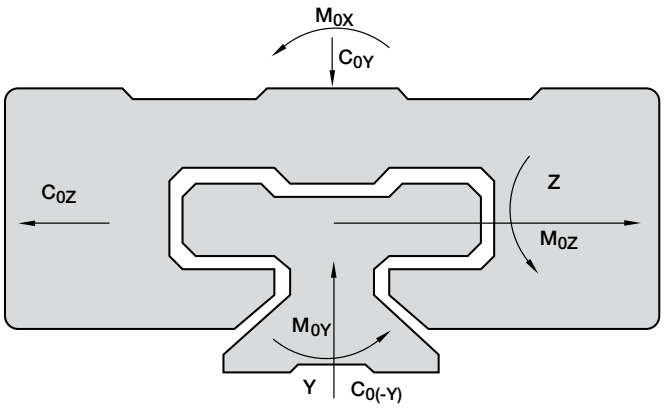
DryLin® T | Technical Data

Guide rails	
Material	Aluminum, extruded section
Substance	AlMgSi0,5
Coating	Hard anodized aluminum, 50 µm
Hardness	500 HV
Sliding carriage	
Base structure	Aluminum, extruded section
Material	AlMgSi0,5
Coating	Anodized aluminum
Sliding elements	Maintenance-free plain bearing iglidur® J
Bolts, springs	Stainless steel
Cover	Plastic
Max. surface speed	15 m/s
Temperature range	–40 °C to +90 °C

Table 01: DryLin® – technical data

Type	C_{0Y} [kN]	$C_{0(-Y)}$ [kN]	C_{0Z} [kN]	M_{0X} [Nm]	M_{0Y} [Nm]	M_{0Z} [Nm]
04-09	0.48	0.48	0.24	3.4	1.8	1.8
04-12	0.96	0.96	0.48	9.2	4.4	4.4
04-15	1.4	1.4	0.7	17	8	8
01-15	4	4	2	32	25	25
01-20	7.4	7.4	3.7	85	45	45
01-25	10	10	5	125	65	65
01-30	14	14	7	200	100	100

Table 02: DryLin® – permissible static load capacity



Graph 01: Designation of load directions

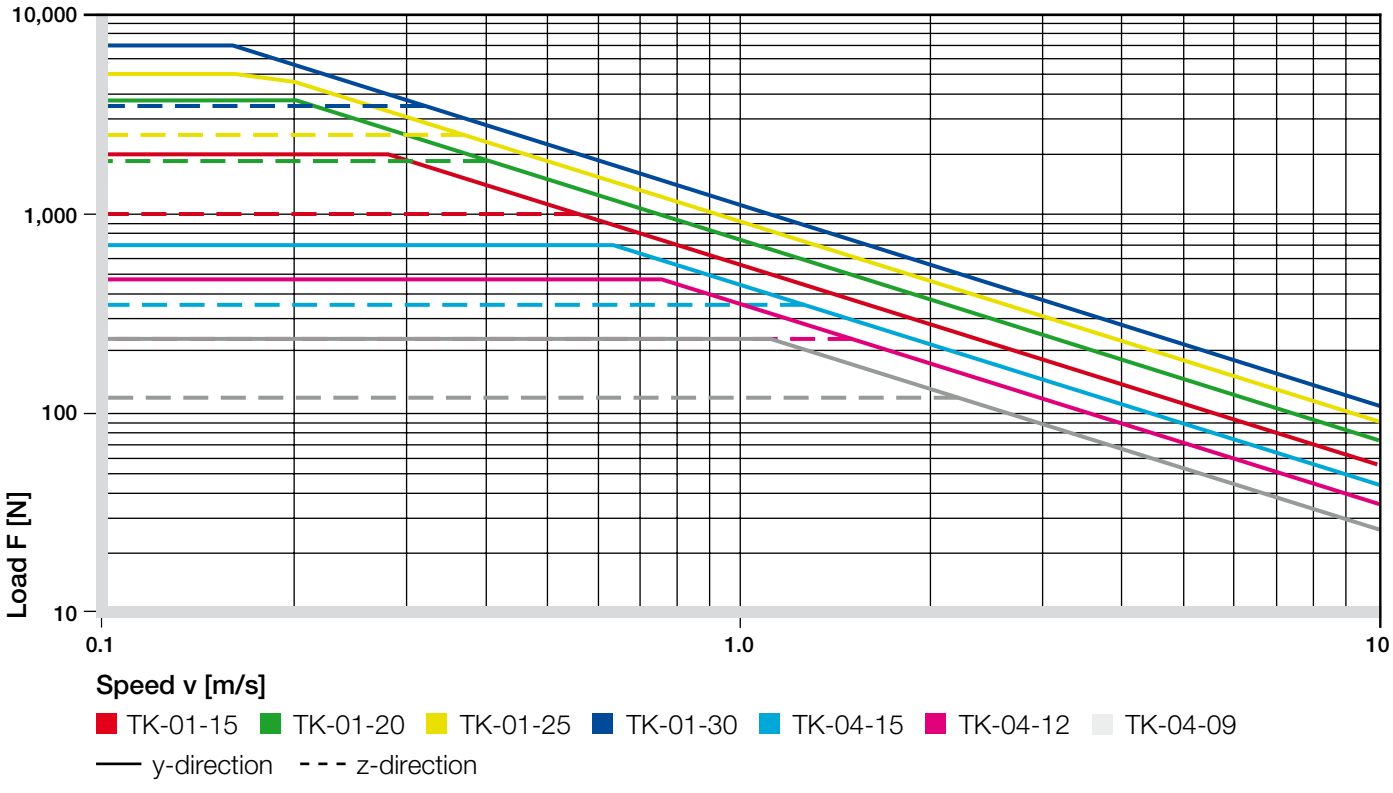


Abb. 02: DryLin® T – permissible dynamic load

DryLin® T | Design rules

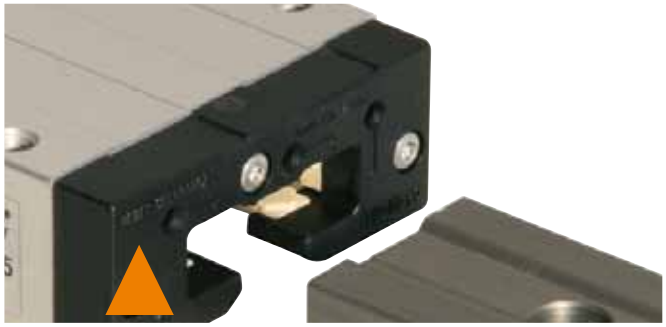
Installation Notes

The compensation of parallelism errors between mounted rails is possible with a fixed/floating bearing in the range up to maximum 0.5 mm. During installation, take care that the floating bearing has the same clearance on both sides. In the adjoining designs you can see the version of the fixed/floating bearing system recommended by us.

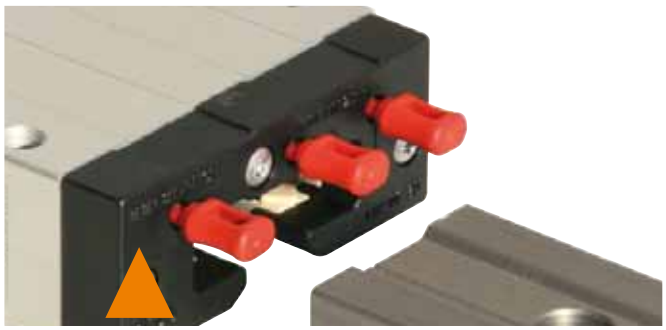
The mounting surfaces of the rails and carriages should possess a good evenness (e. g. machined surface) to prevent twisting in the system. Small unevennesses in the mounting surfaces can be individually compensated up to a certain measurement (0.5 mm) by a greater clearance adjustment. The clearance adjustment is possible only in unloaded state. If you have any questions on design and/or assembly, please make use of our applications consultancy.

Installation DryLin® T linear guide system:

Make sure to assemble the side of the carriage saying “Reset Clearance” onto the rail first (see picture).



TW-series, adjustable clearance

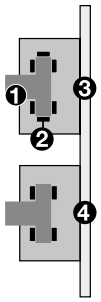


TWA-series, Automatic

Rail joint

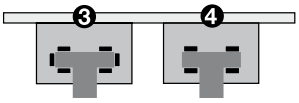
Lateral/vertical installation with floating bearing in the z-direction

❶ Rail
❷ Sliding elements
❸ Fixed bearing
❹ Floating bearing LLZ or LLY



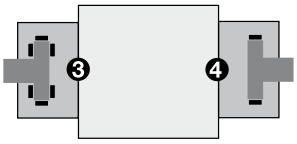
LLZ

Horizontal installation with floating bearing in the z-direction



LLZ

Horizontal mounting version with floating bearing in the y-direction and lateral mounting carriage



LLY

DryLin® T | Design rules

Floating bearings for linear slide guides

In the case of a system with two parallel guides, one side needs to be configured with floating bearings.

A suitable solution comprising fixed & floating bearings is available for every installation position, whether horizontal, vertical or lateral. This type of assembly prevents jamming and blockage on the guides resulting from discrepancies in parallelism. Floating bearings are realized through a controlled extension of play in the direction of the expected parallelism error. This creates an additional degree of freedom on one side.

During assembly, it must be ensured that the floating bearings exhibit a similar degree of play in both directions.

The systems of fixed & floating bearings we recommend are represented in various related chapters.

The contact surfaces on the guides and carriages should be sufficiently even (for instance, milled down) to prevent strains from occurring in the system.

Eccentric Forces

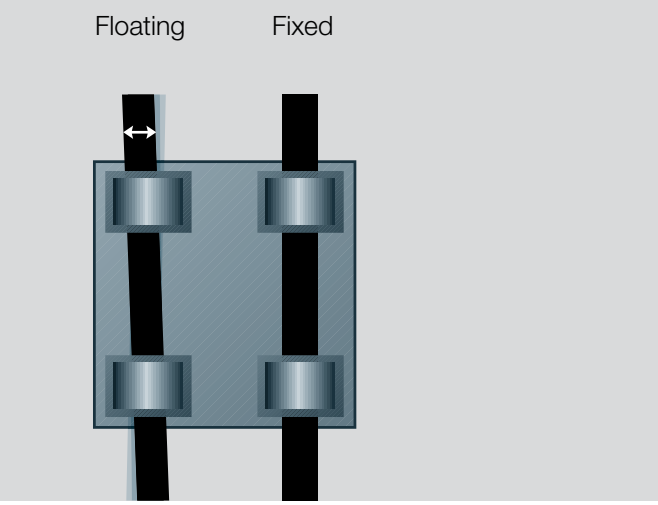
To ensure successful use of maintenance-free DryLin® linear bearings, it is necessary to follow certain recommendations:

If the distance between the driving force point and the fixed bearings is more than twice the bearing spacing (2:1 rule), a static friction value of 0.25 can theoretically result in jamming on the guides. This principle applies regardless of the value of the load or drive force.

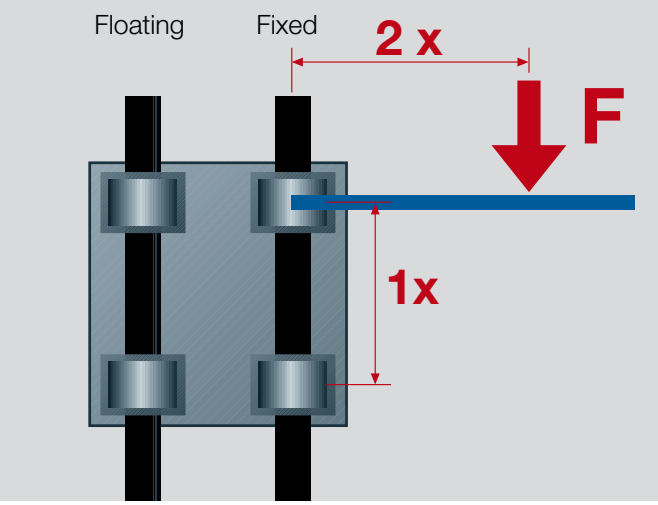
The friction product is always related to the fixed bearings. The greater the distance between the drive and guide bearings, the higher the degree of wear and required drive force.

Failure to observe the 2:1 rule during a use of linear slide bearings can result in uneven motion or even system blockage. Such situations can often be remedied with relatively simple modifications.

If you have any questions on design and/or assembly, please contact our application engineers.



Graph 02: Automatic compensation of parallelism errors



Graph 03: The 2:1 rule

DryLin® Expert & Lifetime calculation:
▶ **www.igus.co.uk/drylin-expert**

DryLin® CAD configurator:
▶ **www.igus.co.uk/drylin-cad-expert**

DryLin® T | Product Overview

DryLin® T – Variations

DryLin® T – Adjustable clearance

- supplied preset and can be put into operation at once
- Manual clearance adjustment or fine tuning

▶ page 734

DryLin® T – Automatic

- With a mechanism that automatically adjusts the bearing clearance after removal of the preload key and adjusts during operation

▶ page 735

DryLin® T – Heavy Duty

- Used for the most extreme conditions (dirt, adhesive residues, chips, mud, etc.)
- Plastic gliding elements made of iglidur® J are fixed in the lid and are therefore non-detachable
- compatible with many standard commercial recirculating ball bearing systems

▶ page 736

DryLin® T – Manual clamping

- Manual clamp for simple tasks
- Clamping by friction locking, not suitable for safety-related parts

▶ page 737

DryLin® T – Miniature

- Clearance not adjustable
- Gliding elements are mounted with positive fit in the chromated zinc carriage
- robust and cost-effective

▶ page 739

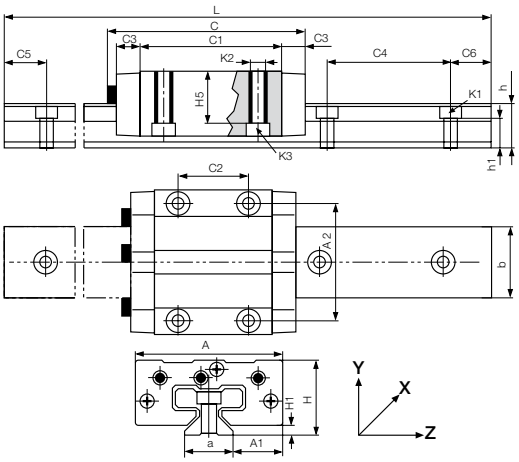
DryLin® T – Clamps

- Compact and strong clamping elements for all installation sizes – holding forces up to 500 N (pneumatically up to 600 N)

▶ page 738

DryLin® T Rail Guide Systems | Product Range

Adjustable clearance



- Slide carriage with manual adjustable clearance
- Maintenance-free, dry operation
- Resistant to corrosion
- Hard anodized aluminum rails
- Standard bore pattern symmetrical C5 = C6

DryLin® T Rail Guide Systems

Dimensions [mm]

Part number	Weight	L	a	C4	C5	C5	C6	C6	h	h1	K1 for screw	b	Iy	Iz	Wby	Wbz
		max.	–0,2		min.	max.	min.	max.								
	[kg/m]										DIN 912		[mm⁴]	[mm⁴]	[mm³]	[mm³]
TS-01-15	0.6	4,000	15	60	20	49	20	49	15.5	10.0	M4	22	6,440	4,290	585	488
TS-01-20	1.0	4,000	20	60	20	49	20	49	19.0	12.3	M5	31	22,570	11,520	1,456	1,067
TS-01-25	1.3	4,000	23	60	20	49	20	49	21.5	13.8	M6	34	34,700	19,300	2,041	1,608
TS-01-30	1.9	4,000	28	80	20	59	20	59	26.0	15.8	M8	40	70,040	40,780	3,502	2,832

For rails without mounting holes, please use bearing suffix “without holes”.
DryLin® T guide rails clear anodized available. Please add the suffix “CA”.
Order example: TS-01-15, 2,000 for a guide rail TS-01-15 of 2 m length

DryLin® T Guide Carriages

Dimensions [mm]

Part number	Weight	H	A	C	A1	A2	C1	C2	C3	H1	H5	K2	Torque	K3 for screw
		±0.35			±0.35					±0.35		Thread	max.	
	[kg]												[Nm]	DIN 912
TW-01-15	0.11	24	47	74	16.0	38	50	30	9	4.0	16.0	M5	1.5	M4
TW-01-20	0.19	30	63	87	21.5	53	61	40	10	5.0	19.8	M6	2.5	M5
TW-01-25	0.29	36	70	96	23.5	57	68	45	11	5.0	24.8	M8	6.0	M6
TW-01-30	0.50	42	90	109	31.0	72	79	52	12	6.5	27.0	M10	15.0	M8

Order examples:
TW-01-20 for a guide carriage
TW-01-20, LLY for a guide carriage with floating bearing in y-direction
TW-01-20, LLZ for a guide carriage with floating bearing in z-direction

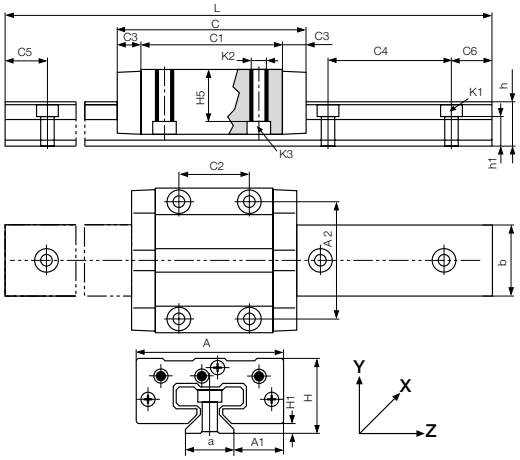
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/DryLinT

Order notice ▶ page 740
TS rails (single)
TW guide carriages (single)
TK complete system (TS+TW assembled)

DryLin® T Rail Guide Systems | Product Range

Automatic



- Self-adjusting carriage (automatic clearance adjustment)
- Maintenance-free, dry operation
- Resistant to corrosion
- Hard anodized aluminum rails
- Standard bore pattern symmetrical C5 = C6

DryLin® T Rail Guide Systems

Dimensions [mm]

Part number	Weight	L	a	C4	C5	C5	C6	C6	h	h1	K1 for screw	b	Iy	Iz	Wby	Wbz
		max.	–0.2		min.	max.	min.	max.								
	[kg/m]										DIN 912	[mm]	[mm⁴]	[mm⁴]	[mm³]	[mm³]
TS-01-15	0.6	4,000	15	60	20	49	20	49	15.5	10.0	M4	22	6,440	4,290	585	488
TS-01-20	1.0	4,000	20	60	20	49	20	49	19.0	12.3	M5	31	22,570	11,520	1,456	1,067
TS-01-25	1.3	4,000	23	60	20	49	20	49	21.5	13.8	M6	34	34,700	19,300	2,041	1,608
TS-01-30	1.9	4,000	28	80	20	59	20	59	26.0	15.8	M8	40	70,040	40,780	3,502	2,832

For rails without mounting holes, please use bearing suffix “without holes”.
DryLin® T guide rails clear anodized available. Please add the suffix “CA”.
Order example: TS-01-15, 2,000 for a guide rail TS-01-15 of 2 m length

DryLin® T Guide Carriages with Automatic Clearance Adjustment

Dimensions [mm]

Part number	Weight	H	A	C	A1	A2	C1	C2	C3	H1	H5	K2-Thread	Torque	K3 for screw
		±0.35			±0.35					±0.35			max.	
	[kg]												[Nm]	DIN 912
TWA-01-15	0.11	24	47	68	16.0	38	50	30	9	4.0	16.0	M5	1.5	M4
TWA-01-20	0.19	30	63	81	21.5	53	61	40	10	5.0	19.8	M6	2.5	M5
TWA-01-25	0.29	36	70	90	23.5	57	68	45	11	5.0	24.8	M8	6.0	M6
TWA-01-30	0.50	42	90	103	31.0	72	79	52	12	6.5	27.0	M10	15.0	M8

Order examples:
TWA-01-20 for a guide carriage
TWA-01-20, LLY for a guide carriage with floating bearing in y-direction
TWA-01-20, LLZ for a guide carriage with floating bearing in z-direction

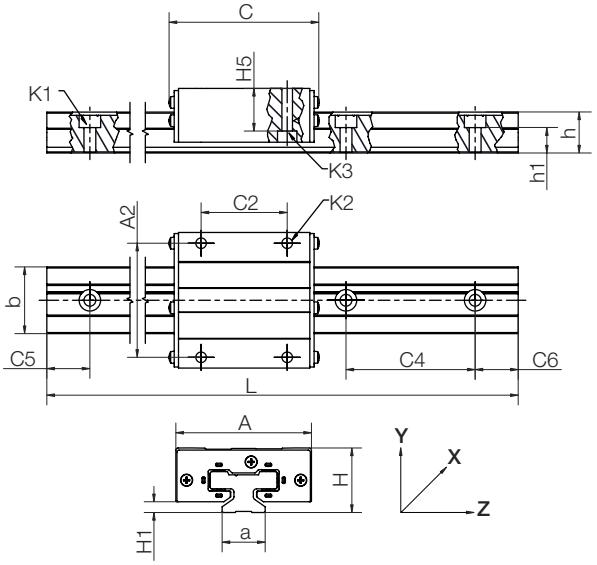
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/DryLinT

Order notice ▶ page 740
TS rails (single)
TW guide carriages (single)
TK complete system (TS+TW assembled)

DryLin® T Rail Guide Systems | Product Range

Heavy Duty



- Linear guide carriage for extreme conditions (dirt, glue resins, chips, mud etc.)
- Polymer sliding elements of iglidur® J are fixed by the metal end caps and cannot be lost
- Dimensions equivalent to the TW-01 design and standard recirculating ball bearings.

▶ page 734

DryLin® T Rail Guide Systems

Dimensions [mm]

Part number	Weight	L	a	C4	C5	C5	C6	C6	h	h1	K1 for screw	b	Iy	Iz	Wby	Wbz
		max.	–0.2		min.	max.	min.	max.								
	[kg/m]										DIN 912		[mm⁴]	[mm⁴]	[mm³]	[mm³]
TS-01-20	1.0	4,000	20	60	20	49	20	49	19.0	12.3	M5	31	22,570	11,520	1,456	1,067
TS-01-25	1.3	4,000	23	60	20	49	20	49	21.5	13.8	M6	34	34,700	19,300	2,041	1,608
TS-01-30	1.9	4,000	28	80	20	59	20	59	26.0	15.8	M8	40	70,040	40,780	3,502	2,832

For rails without mounting holes, please use bearing suffix “without holes”.
DryLin® T guide rails clear anodized available. Please add the suffix “CA”.
Order example: TS-01-20, 2,000 for a guide rail TS-01-20 of 2 m length

DryLin® T-Heavy Duty – Guide Carriages

Dimensions [mm]

Part number	Weight	H	H5	A	C	A2	C2	H1	K2	K3
		±0.35						±0.35		
	[kg]									
TW-02-20	0.19	30	19.8	63	70	53	40	5.0	M6	M5
TW-02-25	0.29	36	24.8	70	77	57	45	5.0	M8	M6
TW-02-30	0.50	42	27.0	90	92	72	52	6.5	M10	M8

Floating bearing on request

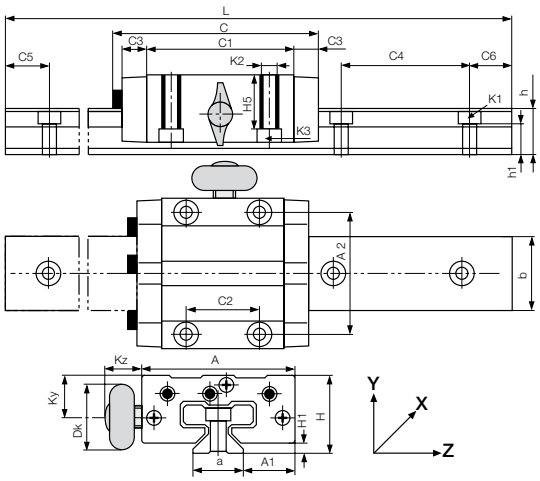
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/DryLinT

Order notice ▶ page 740
TS rails (single)
TW guide carriages (single)
TK complete system (TS+TW assembled)

DryLin® T Rail Guide Systems | Product Range

Manual Clamping



- With manual clamping
- Slide carriage with manual adjustable clearance
- Maintenance-free, dry operation
- Resistant to corrosion
- Hard anodized aluminum rails
- Standard bore pattern symmetrical C5 = C6

DryLin® T Rail Guide Systems

Dimensions [mm]

Part number	Weight	L	a	C4	C5	C5	C6	C6	h	h1	K1 for screw	b	Iy	Iz	Wby	Wbz
		max.	–0.2		min.	max.	min.	max.								
	[kg/m]										DIN 912		[mm⁴]	[mm⁴]	[mm³]	[mm³]
TS-01-15	0.6	4,000	15	60	20	49	20	49	15.5	10.0	M4	22	6,440	4,290	585	488
TS-01-20	1.0	4,000	20	60	20	49	20	49	19.0	12.3	M5	31	22,570	11,520	1,456	1,067
TS-01-25	1.3	4,000	23	60	20	49	20	49	21.5	13.8	M6	34	34,700	19,300	2,041	1,608
TS-01-30	1.9	4,000	28	80	20	59	20	59	26.0	15.8	M8	40	70,040	40,780	3,502	2,832

For rails without mounting holes, please use bearing suffix “without holes”.
DryLin® T guide rails clear anodized available. Please add the suffix “CA”.
Order example: TS-01-15, 2,000 for a guide rail TS-01-15 of 2 m length

DryLin® T Guid Carriages with Manual Clamping

Dimensions [mm]

Part number	Größe	Kz	Ky	Dk	Thread of the clamp
TW-01-15-HKA	15	19.0	11.5	20.0	M6
TW-01-20-HKA	20	18.0	15.0	28.0	M8
TW-01-25-HKA	25	17.0	19.0	28.0	M8
TW-01-30-HKA	30	20.0	21.5	28.0	M8

More dimensions for the DryLin® TW-Guide Carriage ▶ page 734

The manual clamp has been developed for simple tasks. The creep behavior of the clamped plastic causes a slackening in clamping force over time (up to 70 %). Therefore safety-related parts should not be clamped. Please contact our applications consultant if you require other options for the clamping.

delivery time **available from stock**

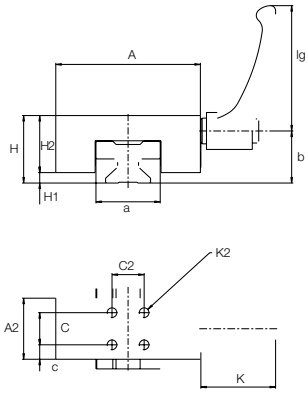
prices **price list online** www.igus.co.uk/en/DryLinT

Order notice ▶ page 740
TS rails (single)
TW guide carriages (single)
TK complete system (TS+TW assembled)

DryLin® T Rail Guide Systems | Product Range

Clamping Elements and Manual Clamping for quick positioning

- Compact clamping of high loads, for all sizes (15–30) – holding force up to 500 N
- Pneumatic clamping – holding force up to 600 N (on request)
- Simple assembly

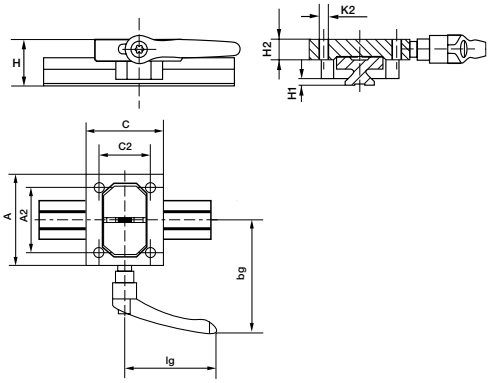


Clamping Elements for DryLin® T Rail Guide Systems – Dimensions [mm]

TWBM-11: narrow design with clamping elements made of plastic

Part number	A	a	A2	H	H1	H2	K2	C	C2	c	lg	b
TWBM-11-15	47	22	15	24	4	20	M4	15	15	4	44	18.9
TWBM-11-20	63	31	28	30	6	24	M5	15	15	6.5	44	23
TWBM-11-25	70	34	35	36	5	31	M6	20	20	7.5	63.63	26.2
TWBM-11-30	90	40	38	42	6.5	35.5	M6	20	20	9	78	32.4

- Clamping of high loads, up to 500 N per clamp
- Brass clamp elements
- Location bores as TW-01-25
- Removable hands



DryLin® T Manual Clamping – dimensions [mm]

TWBM-01: solid design with brass clamp elements, location bores as TW-01-25

Part number	A	A2	H	H1	H2	K2	C	C2	lg	bg
TWBM-01-25*	80	57	36	5	16	M8	68	45	80	99

*** Only for guide rails TS-01-25**

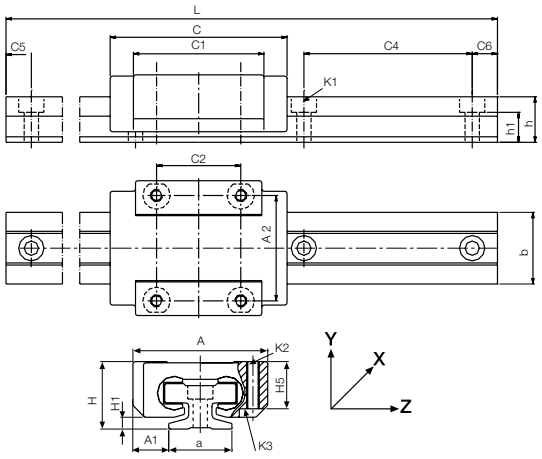
DryLin® T Guide Rails for TWBM – Dimensions [mm]

Part number	Weight	L	a	C4	C5	C5	C6	C6	h	h1	K1 for screw	b	Iy	Iz	Wby	Wbz
		max.	–0.2		min.	max.	min.	max.								
	[kg/m]										DIN 912		[mm⁴]	[mm⁴]	[mm³]	[mm³]
TS-01-15	0.6	4,000	15	60	20	49	20	49	15.5	10.0	M4	22	6,440	4,290	585	488
TS-01-20	1.0	4,000	20	60	20	49	20	49	19.0	12.3	M5	31	22,570	11,520	1,456	1,067
TS-01-25	1.3	4,000	23	60	20	49	20	49	21.5	13.8	M6	34	34,700	19,300	2,041	1,608
TS-01-30	1.9	4,000	28	80	20	49	20	59	26.0	15.8	M8	40	70,040	40,780	3,502	2,832

For rails without mounting holes, please use bearing suffix “without holes”.

DryLin® T Rail Guide Systems | Product Range

Miniature



- Maintenance-free, dry operation
- 3 sizes
- Slide carriage housing is a chromated zinc casting
- Wear-resistant and replaceable gliding elements made of iglidur® J
- Hard anodized aluminum rails
- Small mounting height and width
- Resistant to corrosion
- Standard bore pattern symmetrical C5 = C6

DryLin® T Miniature Rails – Dimensions [mm]

Part number	Weight	L	a	C4	C5	C5	C6	C6	h	h1	K1 for screw	b	Iy	Iz	Wby	Wbz
		max.	–0.2		min.	max.	min.	max.								
	[kg/m]										DIN 912		[mm⁴]	[mm⁴]	[mm³]	[mm³]
TS-04-09	0.11	2,000	9	20	5	14.5	5	14.5	6.3	4.6	M2	9.6	252	169	52	49
TS-04-12	0.20	2,000	12	25	5	17.0	5	17.0	8.6	5.9	M3	13	856	574	132	120
TS-04-15	0.33	3,000	15	40	10	29.5	10	29.5	10.8	7.0	M3	17	2,420	1,410	285	239

For rails without mounting holes, please use bearing suffix “without holes”.

DryLin® T Miniature Carriages – Dimensions [mm]

Part number	Weight	H	A	C	A1	A2	C1	C2	H1	H5	K2	Torque	K3 for screw
		±0.2	–0.2	±0.3	±0.35				±0.35		Thread	max.	
	[g]											[Nm]	DIN 912
TW-04-09	17	10	20	29	5.5	15	18	13	1.7	7.2	M2	25	M2
TW-04-12	34	13	27	34	7.5	20	22	15	2.2	9.5	M3	50	M2 (M3)
TW-04-15	61	16	32	42	8.5	25	31	20	2.8	11	M3	50	M2 (M3)

(M...) = bored out

delivery time **available from stock**

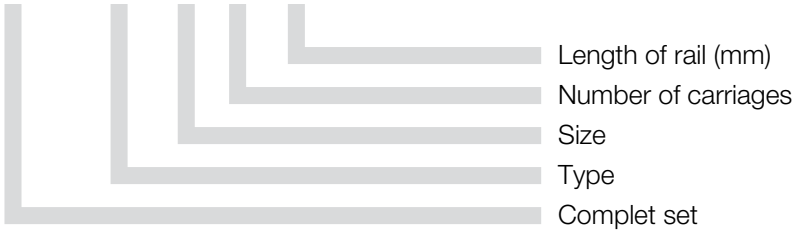
prices **price list online** www.igus.co.uk/en/DryLinT

Order notice ▶ page 740
TS rails (single)
TW guide carriages (single)
TK complete system (TS+TW assembled)

DryLin® T | Order key

Order key complete system:

TK(A)-01-15-2,500



Declaration:

This order example (TK-01-15-2,500) corresponds to a DryLin® T system (TKA = automatic) of size 15 with 2 carriages (for single part numbers see acc. pages) and 500 mm rail length.
Order TK-01-15-2,500, LLy(z) for a complete system with floating bearing in y(z)-direction

Valid for guide rails:

For rails without mounting holes, please use part number suffix “without mounting holes”.
DryLin® T guide rails as clear anodised version. Please use suffix “CA”.

Order example: TS-01-15,2000 for a guide rail TS-01-15 of 2 m length

Valid for guide carriages:

TW-01-... for a guide carriage
TWA-01-... for a guide carriage with automatic clearance adjustment
TW-02-... for Heavy-Duty design
TW-04-... for miniature guide carriages
-LLY for a guide carriage with floating bearing in y-direction
-LLZ for a guide carriage with floating bearing in z-direction
-HKA for a guide carriage with manual clamping

DryLin® T alternate plastic sliding parts (set)

Material iglidur® J

Guide carriages	Part number sliding part set
TW-01-15	TEK-01-15
TW-01-20	TEK-01-20
TW-01-25	TEK-01-25
TW-01-30	TEK-01-30
TW-02-20	TEK-02-20
TW-02-25	TEK-02-25
TW-02-30	TEK-02-30
TW-04-09	TEK-04-09
TW-04-12	TEK-04-12
TW-04-15	TEK-04-15

DryLin® T | Adjusting and Installation

DryLin® T – Adjusting the Clearance

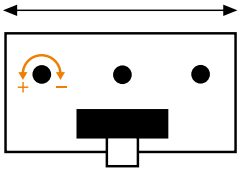
DryLin® T is delivered ready for installation. Clearance of the carriage is adjusted at the factory. The preadjustment is determined by the acting forces on each individual system. If you have special requirements, please indicate in your order whether particularly limited or extended bearing clearance is required. If necessary, clearance of the DryLin® T linear guide system can be readjusted. This should always take place when there is no load on the carriage.

1. After removing the protective cover, loosen the locknuts – Width across flats:
- SW 5 for TW-01-15
- SW 5 for TW-01-15 and TW-01-20
- SW 7 for TW-01-25 and TW-01-30

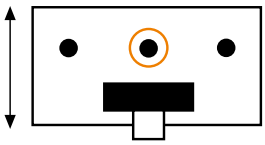
2. Adjust the bearing clearance for the 3 guide points with an Allen key – Allen key size:
- 1.5 mm for TW-01-15 and TW-01-20
- 2.0 mm for TW-01-25 and TW-01-30

3. Check the clearance of the carriage after adjusting the 3 levels. If it is sufficient, tighten the locknuts and put on the cover.

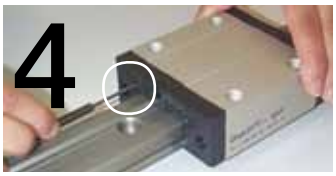
4. There is a danger that excessive reduction of the clearances can seize the gliding elements and that the clearance cannot be reset simply by loosening the adjustment screws. The gliding elements are then released by pressing the reset button on the opposite side. Press hard against the readjusting spring. You must have already loosened the respective adjustment screws. Use the correct size pin for this purpose:
- 2.5 mm for TW-01-20 and TW-01-15
- 3.0 mm for TW-01-25
- 3.0 mm for TW-01-30

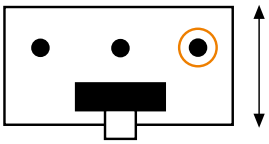


Lateral guide:
– less clearance
+ more clearance



Vertical guide left





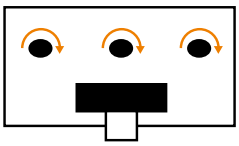
Vertical guide right

DryLin® T | Adjusting and Installation

DryLin® T Automatic – Adjusting the Clearance

The DryLin® T Automatic series offers you an automatic adjustment of the clearance. A readjustment can take place automatically in steps of 0.1 mm. Springs tighten the regulating wedge immediately as soon as the clearance is bigger than 0.1 mm and the system is unloaded.

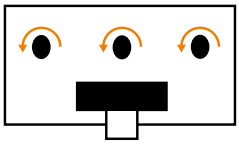
1. The system will be delivered with 3 spanners which are already plugged in. They are necessary for mounting the carriage onto the rail. In case these spanners are removed they need to be replugged into the openings and turned right by 90°.



locked

2. When the carriage is on the rail, loosen the spanners by turning them left 90° and remove them. The clearance will be adjusted automatically.

3. Check the clearance of the carriage. A fine adjusting can be done at this point.



unlocked

4. You can remove the carriage at any time. In order to do so, simply plug the spanners back into the openings (see step 1).

DryLin® T | System Design

For the exact calculation of the DryLin® T Linear Guide System it is essential to find out whether the position of the forces is within the allowable limits, and if the sliding pad where the highest forces occur is not overloaded.
The calculation of the necessary driving force and the maximum permissible speed is important. Each orientation requires a different formula for calculation.

Please note that the following calculations do not contain any guarantees with regard to impact loads and acceleration forces. The drive should always take place precisely in the x direction, as additional loads and increased drive resistances (danger of seizing) occur (for e. g. in crank drive) that cannot be neglected.

Variables in the calculations:

Fa:	Drive Force	[N]
Fs:	Applied Mass	[N]
Fy, Fz:	Bearing Load	[N]
	in y- or z-direction	[mm]
sx, sy, sz:	Location of the centre of gravity in x-, y- or z-direction	[mm]
ay, az:	Location of the driving force in y- or z-direction	[mm]
wx:	Distance between carriages, on a rail	[mm]
LX:	Constant from table below	[mm]
Zm:	Constant from table below	[mm]
Y0:	Constant from table below	[mm]
b:	Distance between guide rails	[mm]
μ:	Coefficient of friction, μ = 0 for static loads, μ = 0.2 for dynamic loads	
ZW:	Number of carriages per rail	

The constant values [mm]:

Part number	Lx	Zm	Y0
TW-01-15	29	16	11.5
TW-01-20	35	23	15.0
TW-01-25	41	25	19.0
TW-01-30	49	29	21.5

Recommended procedure

1st step:

Select the orientation

- horizontal

1 rail and 1 carriage
1 rail and 2 carriages
2 rails and 4 carriages

- lateral

1 rail and 1 carriage
1 rail and 2 carriages
2 rails and 4 carriages

- vertical

1 rail and 1 carriage
1 rail and 2 carriages
2 rails and 4 carriages

2nd step:

Check to see whether the offset distances of the applied forces are within the permissible values

3rd step:

Calculate the necessary drive force

4th step:

Calculate the maximum bearing load in y- and z-directions

5th step:

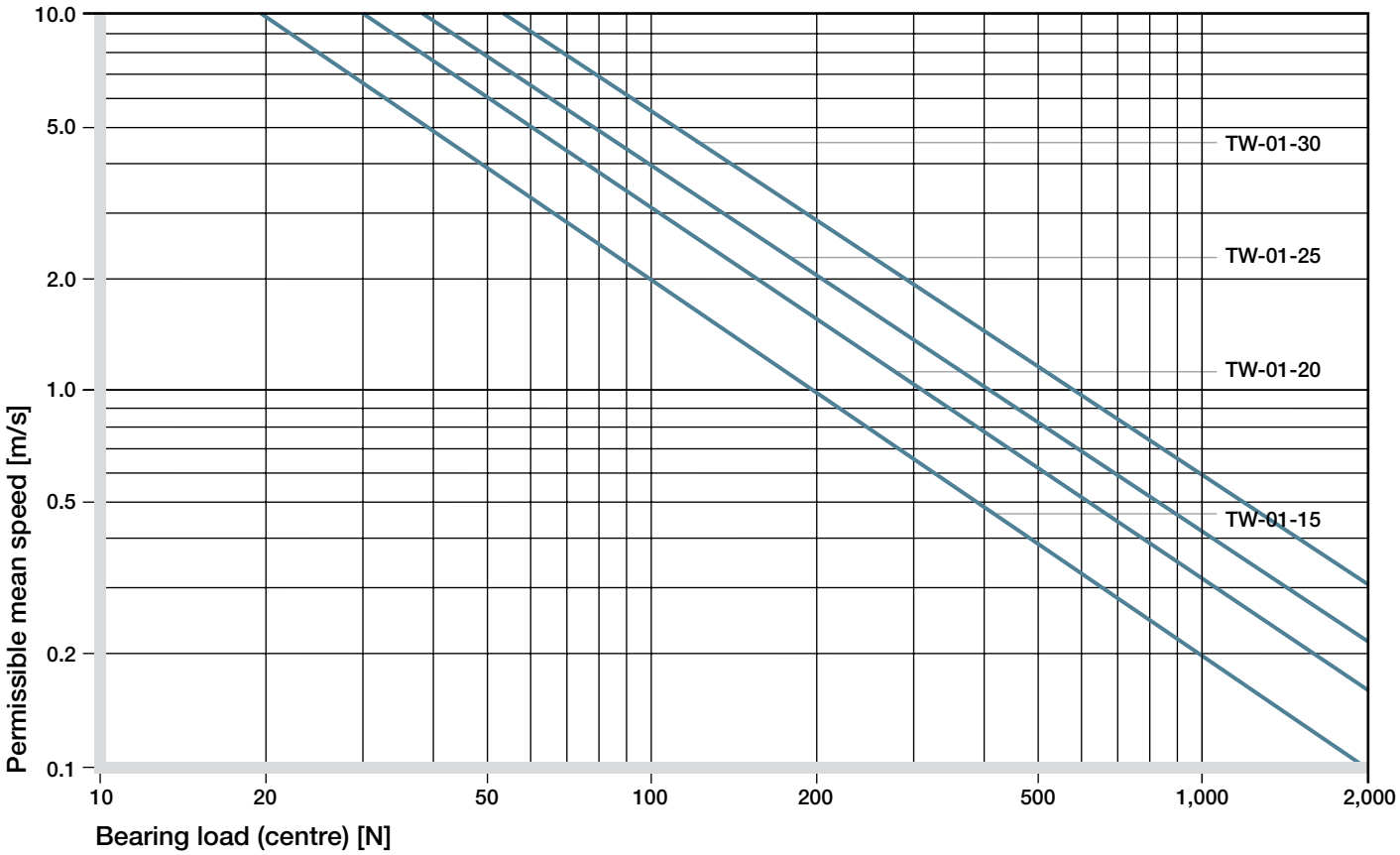
Check out the maximum bearing load of the most strongly affected bearing with the load calculated in step No. 4.

6th step:

Determination of the maximum permitted speed for the load from step No. 4.

Coefficients

	1 rail, 1 carriage	1 rail, 2 carriages	2 rails, 3–4 carriages
K1	|(ay + Y0)/Lx|	|(ay + Y0)/Wx|	|(ay + Y0)/Wx|
K2	(sy + Y0)/Lx	(sy + Y0)/Wx	(sy + Y0)/Wx
K3	|az/Lx|	|az/Wx|	|az/Wx|
K4	|sx/Lx|	|sx/Wx|	|sx/Wx|
K5	sz/Lx	|sz/Wx|	|sz/Wx|
K6	|(sy + Y0)/Zm|	|(sy + Y0)/Zm|	|(sy + Y0)/b|
K7	|sz/Zm|	|sz/Zm|	|(sz/b) – 0.5|



Graph 04: Graph to determine the maximum permissible speed for the calculated bearing load

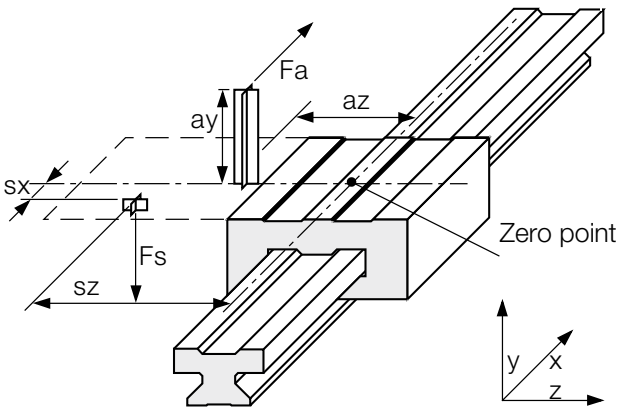
Part number	F_{ymax}, F_{zmax} [N]
TW-01-15	2,000
TW-01-20	3,700
TW-01-25	5,000
TW-01-30	7,000

Table 03: Maximum permissible load

DryLin® T | Mounting Version Horizontal

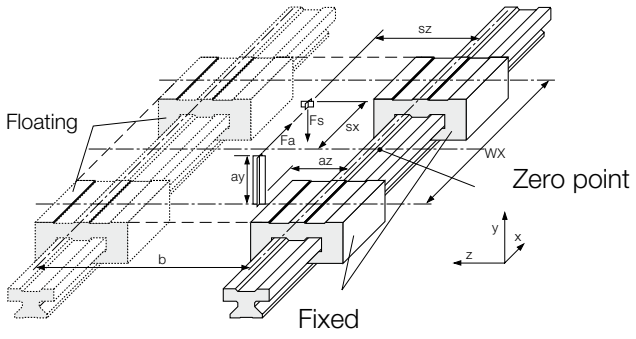
Maximum permissible distances:

Variation: 1 rail, 1 carriages		
sy + sz	<	2 Lx – Y0
ay + az	<	2 Lx – Y0
sy	<	5 Zm
sz	<	5 Zm



Maximum permissible distances:

Variation: 1 rail, 2 carriages Variation: 2 rails, 4 carriages		
sy + sz	<	2 wx – Y0
ay + az	<	2 wx – Y0



2nd step:

Check to see whether the maximum distances of the applied forces are within the permissible values. (See maximum permissible distances)

3rd step:

Calculate the necessary drive force

3.1 Maximum bearing load
in **x-** and **z-direction**
outside of the carriage(s)

$$Fa_1 = \frac{\mu}{1 - 2\mu K_3} \cdot Fs$$

3.2 Maximum bearing load
in **z-direction**
outside of the carriage(s)

$$Fa_2 = \frac{2\mu K_7}{1 - 2\mu K_3} \cdot Fs$$

3.3 Maximum bearing load
in **x-direction**
outside of the carriage(s)

$$Fa_3 = \frac{2\mu K_4}{1 - 2\mu K_3 - 2\mu K_1} \cdot Fs$$

If the position of the centre of gravity is not specified:

$$Fa = MAX\ (Fa_1, Fa_2, Fa_3)$$

4th step:

Calculate the maximum bearing load

4.1 Maximum bearing load
in **y-direction**

$$Fy_{max} = \frac{2\,Fs}{Zw}\left(\frac{2\,K_4}{Zw} + 0.5\right) \cdot \left(K_7 + 0.5\right) + \frac{2Fa\,K_1}{Zw^2}$$

4.2 Maximum bearing load
in **z-direction**

$$Fz_{max} = \frac{4Fa\,K_3}{Zw^2}$$

DryLin® T | Mounting Version Lateral

2nd step:

Check to see whether the maximum distances of the applied forces are within the permissible values. (See maximum permissible distances)

3rd step:

Calculate the necessary drive force
First two calculations must be made:

$$Fa_1 = \frac{(1+2K_6)\mu}{1-2\mu K_1} \cdot Fs$$

$$Fa_2 = \frac{(2K_4+2K_6)\mu}{1-2\mu K_1-2\mu K_3} \cdot Fs$$

The drive force Fa corresponds to the calculated maximum value:

$$Fa = MAX\,(Fa_1, Fa_2, Fa_3)$$

4th step:

Calculate the maximum bearing load

4.1 Maximum bearing load in **y-direction**

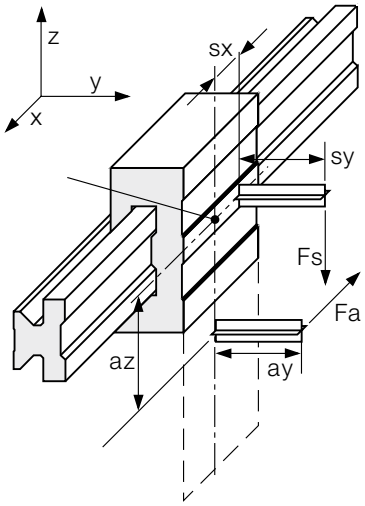
$$Fy_{max} = \frac{Fs\,K_5}{Zw} + \frac{2Fa\,K_1}{Zw^2}$$

4.2 Maximum bearing load in **z-direction**

$$Fz_{max} = \frac{2Fs}{Zw}\left(\frac{2K_4}{Zw}+0.5\right)+\frac{4Fa\,K_3}{Zw^2}$$

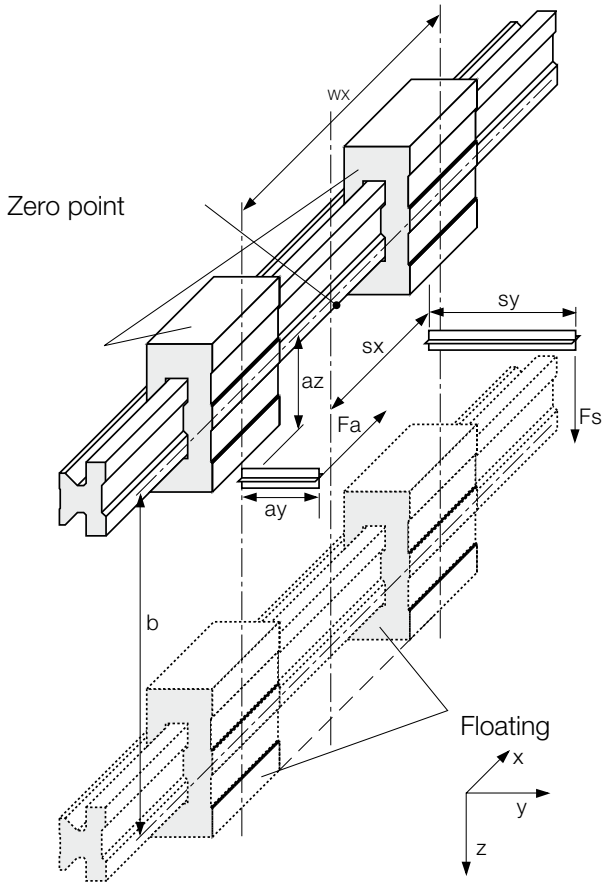
Maximum permissible distances:

Variation: 1 rail, 2 carriages Variation: 2 rails, 4 carriages		
sy + sz	<	2 Lx – Y0
ay + az	<	2 Lx – Y0
sy	<	5 Zm
sz	<	5 Zm



Maximum permissible distances:

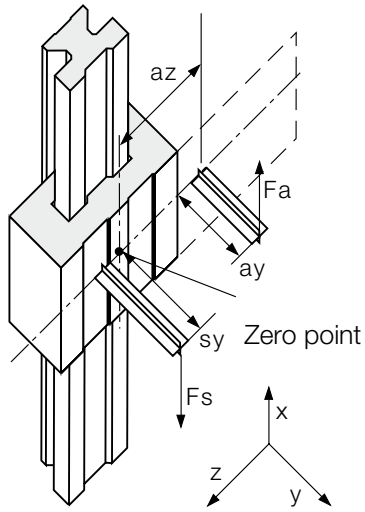
Variation: 1 rail, 2 carriages Variation: 2 rails, 4 carriages		
sy + sz	<	2 wx – Y0
ay + az	<	2 wx – Y0



DryLin® T | Mounting Version Vertical

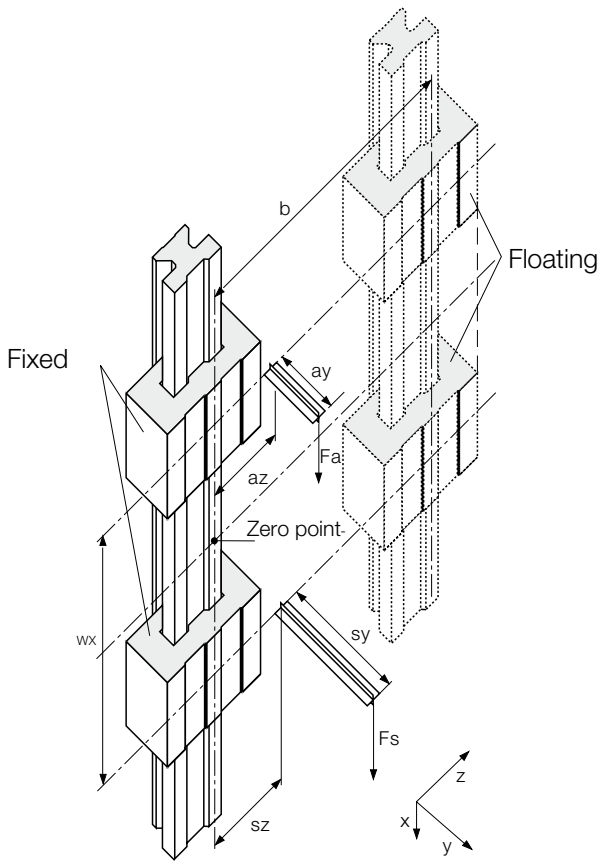
Maximum permissible distances:

Variation: 1 rail, 1 carriage		
sy + sz	<	2 Lx – Y0
ay + az	<	2 Lx – Y0
sy	<	5 Zm
sz	<	5 Zm



Maximum permissible distances:

Variation: 1 rail, 2 carriages Variation: 2 rails, 4 carriages		
sy + sz	<	2 wx – Y0
ay + az	<	2 wx – Y0



2nd step:

Check to see whether the maximum distances of the applied forces are within the permissible values. (See maximum permissible distances)

3rd step:

Calculate the necessary drive force
First four calculations must be made:

$$Fa_1 = \frac{2\mu(sz + sy + Y_0) - wx}{2\mu(az + ay + Y_0) - wx} \cdot Fs$$

$$Fa_2 = \frac{2\mu(-sz + sy + Y_0) - wx}{2\mu(-az + ay + Y_0) - wx} \cdot Fs$$

$$Fa_3 = \frac{2\mu(sz - sy - Y_0) - wx}{2\mu(az - ay - Y_0) - wx} \cdot Fs$$

$$Fa_4 = \frac{2\mu(sz + sy + Y_0) + wx}{2\mu(az + ay + Y_0) + wx} \cdot Fs$$

The drive force Fa corresponds to the calculated maximum value:

$$Fa = MAX\,(Fa_1, Fa_2, Fa_3, Fa_4)$$

4th step:

Calculate the maximum bearing load

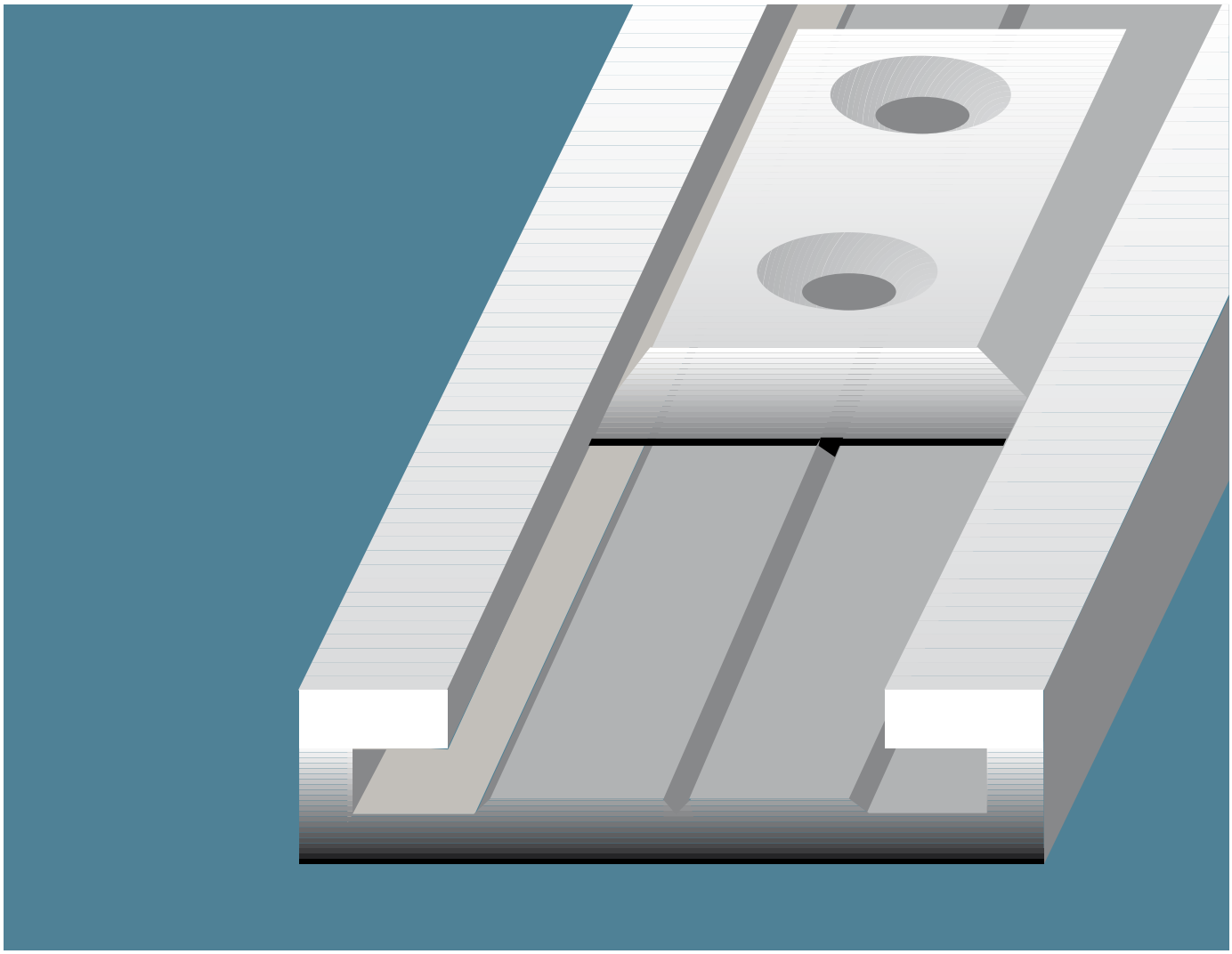
4.1 Maximum bearing load in **y-direction**

$$Fy_{max} = \left| Fa\frac{ay + Y_0}{wx} - Fs\,K_2 \right| \cdot \frac{2}{Zw^2}$$

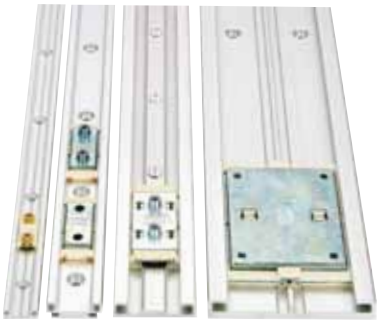
4.2 Maximum bearing load in **z-direction**

$$Fz_{max} = \left| Fa\frac{az}{wx} - Fs\,K_5 \right| \cdot \frac{4}{Zw^2}$$

My Sketches



DryLin® N Low-Profile Guide Systems



- Low-profile height and width
- Replaceable polymer sliding pads
- Anodized aluminium rail
- High speed and acceleration possible
- Lubrication-free
- Low weight

DryLin® N | Low-Profile Guide Systems

The low-profile range DryLin® N offers extremely low profiles in several widths. Like all DryLin® products the carriages run without grease or oil in an anodized aluminum profile. The selected materials and the unique design make DryLin® N a cost-effective and flexible guide system.

❶ Anodized aluminum rails
❷ iglidur® J plain bearing liner
❸ Zinc chromed carriage Type 01 (with mounting hole)
❹ Zinc chromed carriage Type 02 (with thread)

Advantages:

- Small mounting height and width
- Light weight
- Many carriage options – even with pre-load
- Maintenance-free, dry-running
- Corrosion resistant
- Low wear at a low coefficient of friction
- Rails in silver or black anodized

When not to use it?

- When precision below 50 µ is required
- For loads more than 50 kg
  - ▶ **DryLin® T, page 727**
  - ▶ **DryLin® R, page 787**
  - ▶ **DryLin® W, page 763**
- If you need high chemical resistance
  - ▶ **DryLin® W, page 763**
  - ▶ **DryLin® R, page 787**

Clean-Room

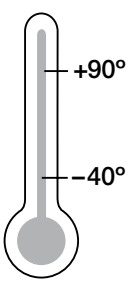
Cleanroom certificated – IPA Fraunhofer

RoHS 2002/95/EC

Free of toxins ROHS 2002/95/EC

ESD compatible (electrostatic discharge)

Temperature



Product range

4 types
up to 9 guide carriages for each size

DryLin® N | Application Examples

Typical sectors of industry and application areas

- Agricultural
- Vehicle manufacturing
- Medical
- Structural-facings sector
- Packaging etc.

Improve technology and reduce costs – 170 exciting examples online

▶ www.igus.co.uk/DryLinPraxis

▶ www.igus.co.uk/camera

▶ www.igus.co.uk/automated-teller

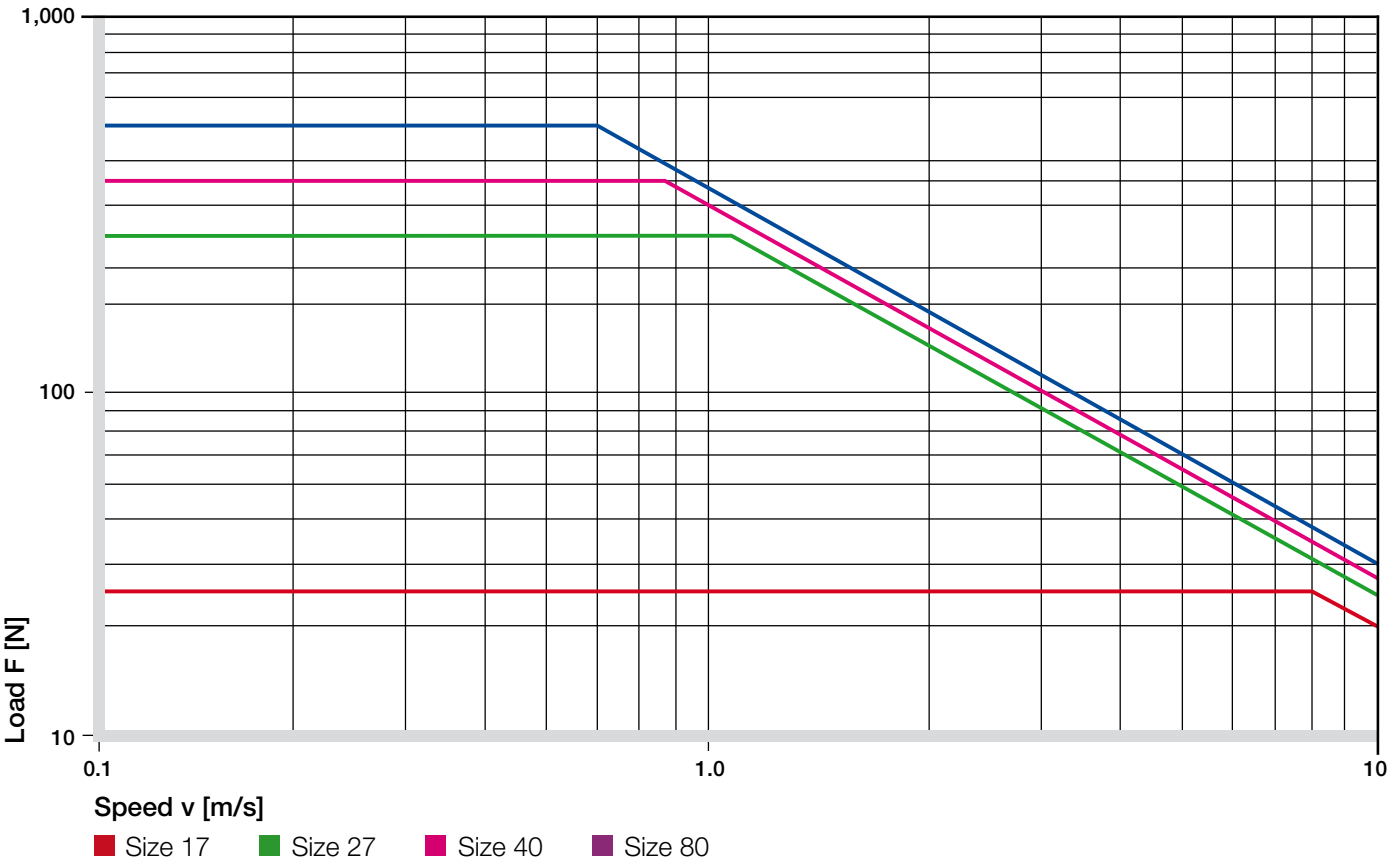
Handling device

Toothed belt unit

DryLin® N | Technical Data

System selection				
System	**N17**	**N27**	**N40**	**N80**
Rail width	17 mm	27 mm	40 mm	80 mm
Installation height	6 mm	9.5 mm	9.5 mm	12 mm
General properties				
Rail weight	150 g/m	290 g/m	450 g/m	1,140 g/m
Carriage weight	1.7 g	9–12.5 g	30 g	100 g
Max. rail length	2,000 mm	3,000 mm	3,000 mm	4,000 mm
Load capacities				
Fy	50 N	500 N	700 N	1,000 N
Fz	50 N	500 N	700 N	1,000 N
Mx	0.31 Nm	5 Nm	10 Nm	32.4 Nm
My, Mz	0.18 Nm	2.5 Nm	6 Nm	15 Nm
Carriage options				
Floating bearing Y	●	●	●	●
Floating bearing Z	●	●	●	●
Floating bearing YZ	●	●	●	●
Preload (1 N)	●	●	–	–
Moulded version	–	●	●	●
Carriage with plain bore	–	●	●	–
Carriage with threaded bore	●	●	●	●

Table 01: Material data



Graph 01: F v diagram, maximum permissible dynamic loads

DryLin® N | Design Information

Schematic representation of floating bearings

NW-... NW-... LLZ NW-... LLY NW-... LLYZ

LLZ Floating in z-direction
LLY Floating in y-direction
LLYZ Floating in yz-direction

Floating bearing	NW-17	NW-27	NW-40	NW-80
LLY	0.6	0.45	0.4	0.6
LLZ	0.5	0.8	0.8	0.8
LLYZ	Y = 0.6 | Z = 0.5	Y = 0.3 | Z = 0.4	Y = 0.4 | Z = 0.8	Y = 0.6 | Z = 0.8

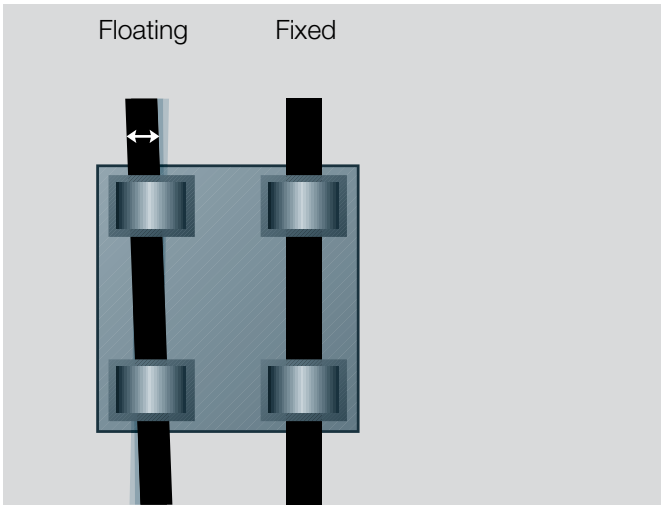
Table 02: Available floating bearings in mm

Floating Bearings for Linear Slide Guides

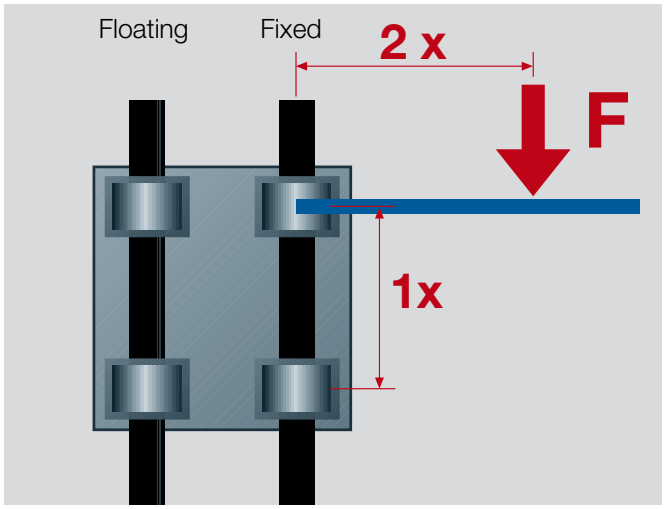
In the case of a system with two parallel guides, one side needs to be configured with floating bearings. A suitable solution comprising fixed & floating bearings is available for every orientation, whether horizontal, vertical or lateral. This type of assembly prevents jamming and blockage on the guides resulting from discrepancies in parallelism. Floating bearings are created through a controlled extension of play in the direction of the expected parallelism error. This creates an additional degree of freedom on one side.
During assembly, it must be ensured that the floating bearings exhibit a similar degree of play in both directions. The contact surfaces on the guides and carriages should be sufficiently flat (for instance, milled down) to prevent strains from occurring in the system.

Eccentric Forces

To ensure successful use of maintenance-free DryLin® linear bearings, it is necessary to follow certain recommendations: If the distance between the driving force point and the fixed bearings is more than twice the bearing spacing (2:1 rule), a static friction value of 0.25 can theoretically result in jamming on the guides. This principle applies regardless of the value of the load or drive force. The friction product is always related to the fixed bearings. The greater the distance between the drive and guide bearings, the higher the degree of wear and required drive force. Failure to observe the 2:1 rule during a use of linear slide bearings can result in uneven motion or even system blockage. Such situations can often be remedied with relatively simple modifications. If you have any questions on design and/or assembly, please contact our application engineers.

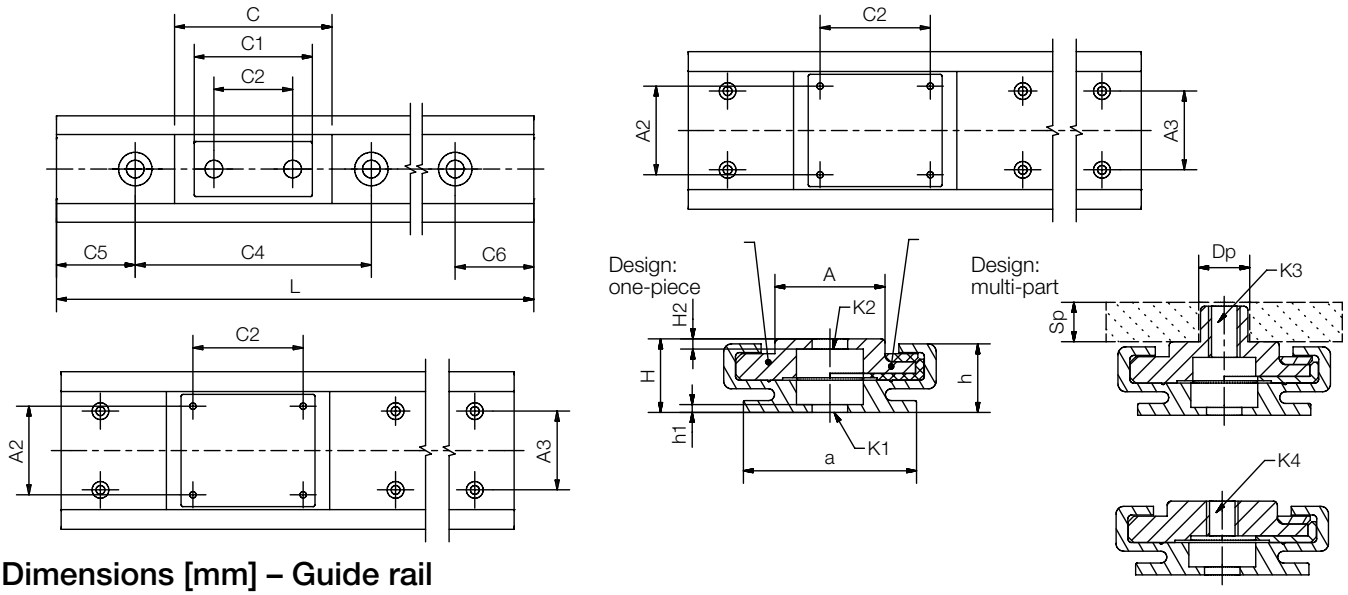


Graph 02: Automatic compensation of parallelism errors



Graph 03: The 2:1 rule

DryLin® N | Dimensions



Dimensions [mm] – Guide rail

Part number	L	a	C4	A3	C5 = C6		h	h1	K1*	Iy	Iz	Weight
	max.				min.	max.				[mm⁴]	[mm⁴]	[g/m]
NS-01-17	2,000	17	60	–	20	49.5	5.5	0,9	M3	1,700	120	150
NS-01-27	3,000	22	60	–	20	49.5	9	1.1	M4	6,524	588	290
NS-01-40	3,000	40	60	–	20	49.5	8.7	1.3	M4	26,400	970	450
NS-01-80	4,000	80	150	40	25	99.5	11	1.5	M4	27,1200	2,900	1,140

* For cylinder screw with low head

For rails without mounting holes, please use part number suffix “UNGEBOHRT”.

Dimensions [mm] – Guide carriage

Part number	H ±0.35	A	C	C1	C2	A2	H2	K2**	K3**	K4**	Spmin.	DpØmin.	Weight
													[g/m]
NW-02-17	6	9.6	20	20	14	–	–	–	M3	–	2.5	5	1.7
NW-02-17P	6	9.6	20	20	14	–	–	–	M3	–	2.5	5	1.7
NW-22-17-40	6	9.6	40	40	28	–	–	–	M3	–	2.5	5	1.7
NW-01-27	9.5	14	40	30	20	–	1.5	M4	–	–	–	–	11
NW-11-27	9.5	14	34	30	20	–	1.5	M4	–	–	–	–	11
NW-01-27P	9.5	14	40	30	20	–	1.5	M4	–	–	–	–	11
NW-21-27-60P	9.5	14	60	60	20	–	1.5	M4	–	–	–	–	9
NW-11-27-80	9.5	14	80	76	60	–	1.5	M4	–	–	–	–	25
NW-02-27	9.5	14	40	30	20	–	–	–	M4	–	5	6.5	13
NW-12-27	9.5	14	34	30	20	–	–	–	M4	–	5	6.5	13
NW-02-27P	9.5	14	40	30	20	–	–	–	M4	–	5	6.5	13
NW-22-27-60P	9.5	14	60	60	20	–	–	–	M4	–	5	6.5	12
NW-12-27-80	9.5	14	80	76	60	–	1.5	M4	–	–	–	–	25
NW-01-40	9.5	23	50	40	20	–	1.3	M4	–	–	–	–	28
NW-11-40	9.5	23	52	40	20	–	1.3	M4	–	–	–	–	28
NW-02-40	9.5	23	50	40	20	–	–	–	M4	–	5	6.5	28
NW-12-40	9.5	23	52	40	20	–	–	–	M4	–	5	6.5	28
NW-02-80	12	57	80	68	56	45	–	–	–	M4	–	–	100
NW-12-80	12	57	83	68	56	45	–	–	–	M4	–	–	100

* For cylinder screw with low head

** Metal thread

DryLin® N | Product Overview

NS-01-17 NS-01-27 NS-01-40 NS-01-80

Linear Guide
- Rail width: 17, 27, 40 and 80 mm
- Installation heigth: 6, 9, 5 and 12 mm
- Standard bore pattern or without holes
- „Black Edition“: Black anti-reflex surface in rail width 27 and 80 mm

▶ **from page 756**

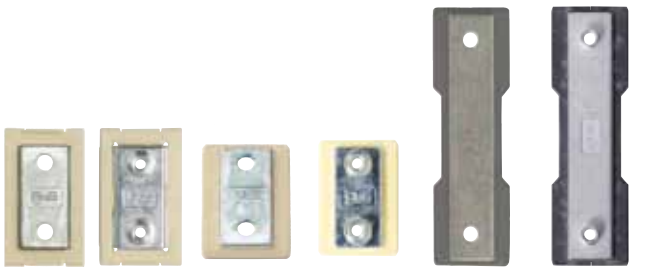
NEW!*

NW-02-17 NW-02-17-P NW-22-17-40

Carriage – Size 17
- Variations: Standard, Preload (PL), Floating (LL)
- Min. dimensions coupled with a high load capacity
- Lubrication-free
- Extremely light weight
- Quiet operation

▶ **page 756**

NEW!* NEW!*



NW-01-27 NW-02-27 NW-11-27 NW-12-27 NW-11-27-80 NW-12-27-80

Carriage – Size 27
- Best variety of guide carriages (with through hole, with tapped hole, pre-load, molded, …, double carriage)
- Vary in connecting options, length and precision
- Easy to fit
- Top-selling linear guide system

▶ **from page 757**

NW-21-27-60P NW-22-27-60P NW-01-27-P NW-02-27-P

NW-02-40 NW-12-40 NW-01-40 NW-11-40

Carriage – Size 40
- Perfect with standard aluminum profiles
- Carriage with threaded pin or through hole
- Sliding parts as clip version or molded

▶ **page 759**

NW-02-80 NW-12-80

Carriage – Size 80
- High loads, low installation height
- Lubrication-free
- Standard or overmoulded with thread
- Gliding elements from iglidur® J or J200

▶ **page 760**

*** in this catalog**

DryLin® Low-Profile Linear Guide [17] | Product Range

The smallest size of the DryLin® N range is designed to have minimum dimensions coupled with a high load capacity. In addition, this range is free from lubrication and can run at high speeds.

- Rail width 17 mm
- 6 mm installation height
- 100 % lubrication-free
- Up to 50 N load
- Preload “P” (optional), max. increase of shifting force: 10 N

Dimensions ▶ **page 754**

Standard

Preload

Double carriage with threaded pin

Standard with thread	
Part number carriage	NW-02-17
Part number carriage, preload available	NW-02-17P
Part number rail	NS-01-17
Carriage weight	1.7 g
Rail weight	150 g/m
Material carriage	iglidur® J
Max. rail length	2,000 mm
Standard bore pattern	symmetrical (C5 = C6)

Double carriage with thread	
Part number carriage	NW-22-17-40
Part number rail	NS-01-17
Carriage weight	2.6 g
Rail weight	150 g/m
Material carriage	iglidur® J
Max. rail length	2,000 mm
Standard bore pattern	symmetrical (C5 = C6)

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/DryLinN | order example **part number NW-01-27**

DryLin® Low-Profile Linear Guide [27] | Product Range

The NW 27 series is available in 2 different versions: As a slide with a plain bore, and as a slide with a threaded bore. The lubrication free design is capable of running at high linear speeds.

- Rail width 27 mm
- More than 20 carriage-types
- 9.5 mm installation height
- 100 % lubrication-free
- Glide bearing made of iglidur® J
- Up to 500 N load
- Preload “P” (optional), max. increase of shifting force: 10 N

Dimensions ▶ **page 754**

Standard 01 with mounting holes

Standard 02 with thread

Preload with mounting holes or thread

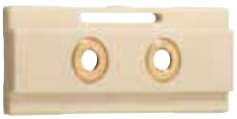
Overmoulded with mounting holes or thread

Standard with mounting holes	
Part number carriage, clipped	NW-01-27
Part number carriage, overmolded	NW-11-27
Part number carriage, preload available	NW-01-27P
Part number rail	NS-01-27
Carriage weight	10.8 g
Rail weight	290 g/m
Material carriage	Zinkdruckguss, blau chromatiert
Max. rail length	3,000 mm
Standard bore pattern	symmetrical (C5 = C6)

Standard with thread	
Part number carriage	NW-02-27
Part number carriage, overmolded	NW-12-27
Part number rail, preload available	NW-02-27P
Part number rail	NS-01-27
Carriage weight	12.5 g
Rail weight	290 g/m
Material carriage	Zink
Max. rail length	3,000 mm
Standard bore pattern	symmetrical (C5 = C6)

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/DryLinN | order example **part number NW-01-27**

DryLin® Low-Profile Linear Guide [27] | Product Range



Polymer carriage with mounting hole

Polymer carriage with thread

Double carriage with mounting hole

Double carriage with thread

Polymer carriage with mounting hole	
Part number carriage, preload available	NW-21-27-60P
Part number rail	NS-01-27
Carriage weight	9 g
Rail weight	290 g/m
Material carriage	iglidur® J
Max. rail length	3,000 mm
Standard bore pattern	symmetrical (C5 = C6)

Polymer carriage with thread	
Part number carriage, preload available	NW-22-27-60P
Part number rail	NS-01-27
Carriage weight	12 g
Rail weight	290 g/m
Material carriage	iglidur® J
Max. rail length	3,000 mm
Standard bore pattern	symmetrical (C5 = C6)

Double carriage with mounting hole	
Part number carriage, overmolded	NW-11-27-80
Part number rail	NS-01-27
Carriage weight	25 g
Rail weight	290 g/m
Material carriage	Zink
Material gliding elements	iglidur® J200
Max. rail length	3,000 mm
Standard bore pattern	symmetrical C5 = C6)

Double carriage with thread	
Part number carriage, overmolded	NW-12-27-80
Part number rail	NS-01-27
Carriage weight	25 g
Rail weight	290 g/m
Material carriage	Zink
Material gliding elements	iglidur® J200
Max. rail length	3,000 mm
Standard bore pattern	symmetrical (C5 = C6)

DryLin® Low-Profile Linear Guide [40] | Product Range

Compared with smaller series, NW 40 is able to withstand significantly higher loads. The slides of this range come with threaded bores. Like all other DryLin® N series, the lubrication free design is capable of running at high linear speeds.

- Rail width 40 mm
- Installation heigth 9.5 mm
- Low weight
- High speed (up to 5 m/s)
- iglidur® J plain bearing material
- Up to 700 N load

Dimensions ▶ **page 754**

Standard with mounting hole

Standard with thread

Overmouled with mounting hole

Overmouled with thread

Standard with mounting hole	
Part number carriage, clipped	NW-01-40
Part number rail, overmolded	NW-11-40
Part number rail	NS-01-40
Carriage weight	30 g
Rail weight	450 g/m
Material carriage	Zink
Material gliding elements	iglidur® J
Max. rail length	3,000 mm
Standard bore pattern	symmetrical (C5 = C6)

Standard with thread	
Part number carriage, clipped	NW-02-40
Part number rail, overmolded	NW-12-40
Part number rail	NS-01-40
Carriage weight	30 g
Rail weight	450 g/m
Material carriage	Zink
Material gliding elements	iglidur® J
Max. rail length	3,000 mm
Standard bore pattern	symmetrical (C5 = C6)

DryLin® Low-Profile Linear Guide [80] | Product Range

The largest of the DryLin® N series permits low installation heights while offering high load-bearing capacity. The lubrication free design is capable of running at high linear speeds.

- Rail width 80 mm
- Installation heigth 12 mm
- 100 % lubricant-free
- Wide torque support
- Load up to 1,000 N

Dimensions ▶ **page 754**

Standard with thread

Overmouled with thread

Standard with thread, clipped	
Part number carriage	NW-02-80
Part number rail	NS-01-80
Carriage weight	100 g
Rail weight	1,140 g/m
Material carriage	Zink
Material gliding elements	iglidur® J
Max. rail length	4,000 mm
Standard bore pattern	symmetrical (C5 = C6)

Overmouled with thread	
Part number carriage	NW-12-80
Part number rail	NS-01-80
Carriage weight	100 g
Rail weight	1,140 g/m
Material carriage	Zink
Material gliding elements	iglidur® J200
Max. rail length	4,000 mm
Standard bore pattern	symmetrical (C5 = C6)

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/DryLinN | order example **part number NW-02-80**

DryLin® N | Order Key

Order key for assambled system:

NK-02-27-02-500-LLZ C5 = 20

Rail options
Leave blank: Standard with holes
UNGEBOHRT: Without holes
C5 = … mm: If hole spacein is not symmetrical

Carriage options
Leave blank: Standard
LLZ: Floating z-direction
LLY: Floating y-direction
LLYZ: Floating y- and z-direction
P: Preload (max. 1 N)
only size 17/27

Length of rail in mm

No. of carriages

Size 17/27/40/80

Type of carriage
01 with plain bore, only size 27, 40
02 With thread
11-80 double rail, plain bore, only size 27
12-80 double rail, thread, only size 27
11 with plain bore, overmoulded, only size 27, 40
12 with thread, overmoulded, size 27, 40, 80
21 with pre-tension and plain bore, only size 27 (solid polymer)
22 with pre-tension and threaded pin, only size 27 (solid polymer)

Assembled system

DryLin® T alternate plastic sliding parts (set)

Material iglidur® J

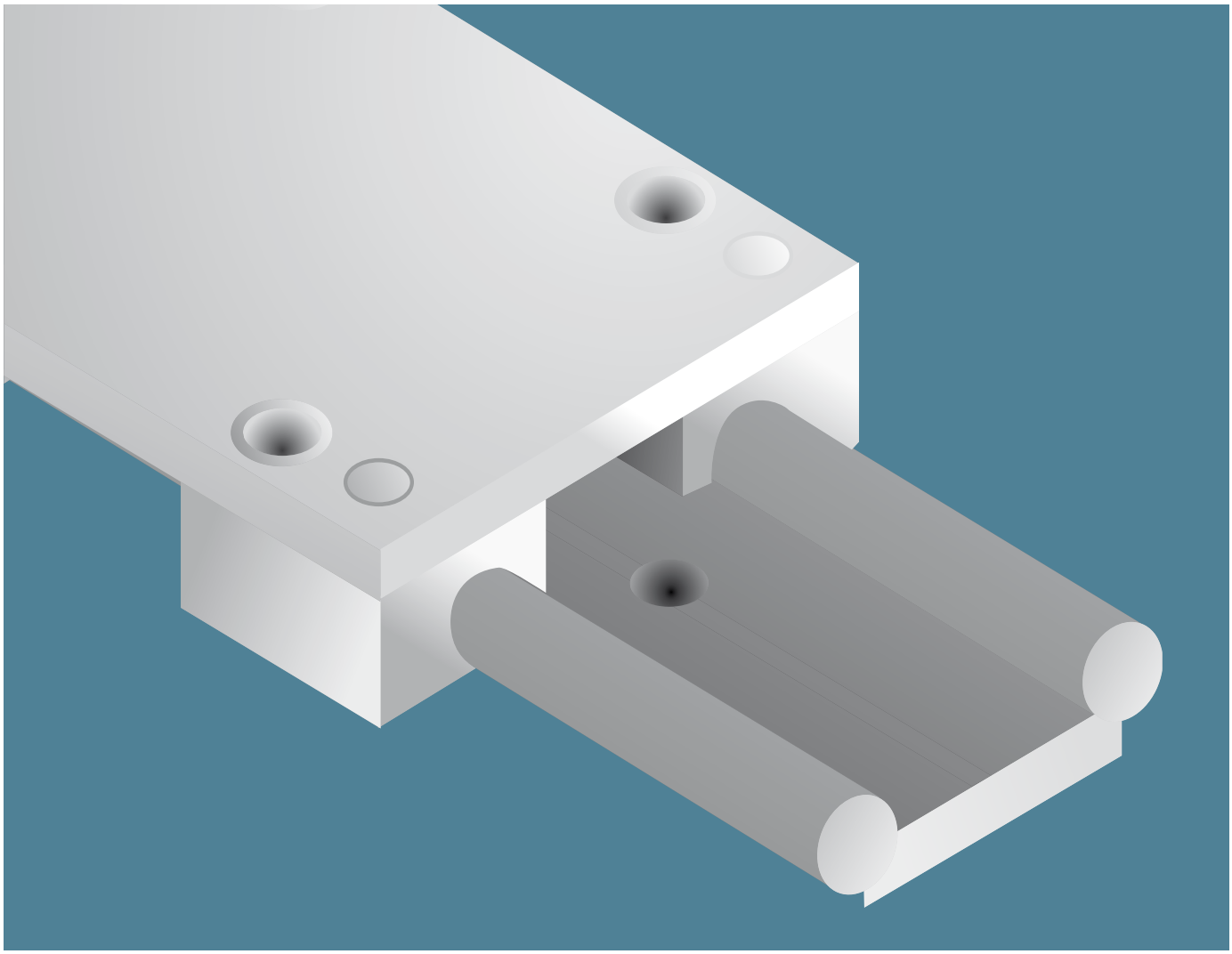
Type of carriage	Part number Sliding part set
NW-01/02/27	NEK-01-27
NW-01/02-27P	NEK-01-27-P
NW-01/02-27-LLY	NEK-01-27-LLY
NW-01/02-27-LLZ	NEK-01-27-LLZ
NW-01/02-40	NEK-02-40
NW-01/02-40-LLY	NEK-02-40-LLY
NW-01/02-40-LLZ	NEK-02-40-LLZ
NW-02-80	NEK-02-80
NW-02-80-LLY	NEK-02-80-LLY
NW-02-80-LLZ	NEK-02-80-LLZ

delivery time available from stock

prices price list online www.igus.co.uk/en/DryLinN

order example part number NEK-01-27

My Sketches

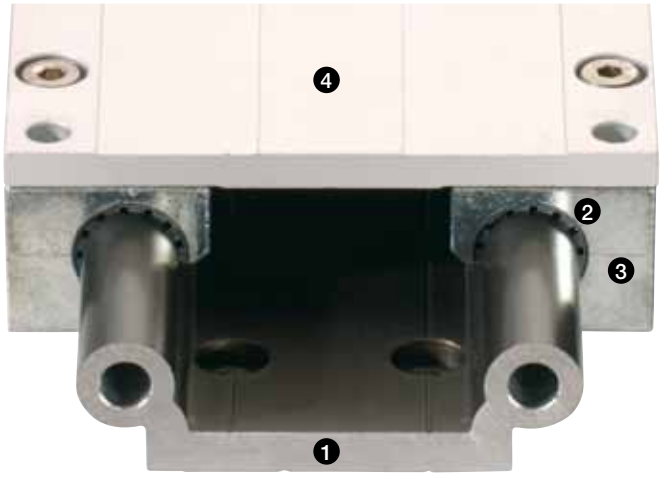


DryLin® W Modular Guide Systems

- Lubrication-free
- Different carriage lengths available
- Different rail widths available
- Low installation height
- Corrosion-resistant

DryLin® W | Modular Guide Systems

DryLin® W is offered as a cost-effective, fully assembled system. The design of DryLin® W promotes design flexibility and ease of assembly, with both single and double rail configurations. Hard anodized aluminum is used as the rail material, and DryLin® W also offers low wear, low friction without lubrication, resistance to dirt and dust, low weight and quiet operation.



❶ Hard anodized aluminum rail
❷ Liners made from iglidur® J200
❸ Zinc chromed die cast housing
(Option: Stainless steel version V4A
▶ page 780)
❹ Anodized alumnium mounting plate
in 2 widths and 3 lengths for each size

Advantages:

- Easy installation, maintenance-free
- Dry running properties make the system dirt resistant
- Lightweight and quiet operation
- Angular rail with floating bearing function for diagonal assembly
- Manually adjustable bearing clearance (optional)
- VA stainless steel version (optional)

When not to use it?

- When I require the same dimension as in roller bearing solutions
  ▶ **DryLin® T, page 727**
  ▶ **DryLin® R, page 787**
- When I require an integrated drive
  ▶ **DryLin® SHT/SLW, page 889**

DryLin® W with digital measuring system
chapter "specialists" ▶ page 868

WJUME

WJRM

Product range

12 rail profiles,
more than 30 carriages types

Clean-Room

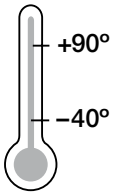
Cleanroom certificated –
IPA Fraunhofer

RoHS 2002/95/EC

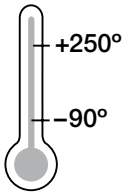
Free of toxins
ROHS 2002/95/EC

ESD compatible
(electrostatic discharge)

Temperatures



Standard



Stainless steel

DryLin® W | Application Examples

Typical sectors of industry and application areas

● Agricultural ● Vehicle manufacturing
● Medical ● Structural-facings sector
● Packaging ● Furniture
● Robotics ● Sheet metal industry etc.

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Flatbed ink-jet printer

Mobile saw mill

▶ **www.igus.co.uk/safety-door**

▶ **www.igus.co.uk/packaging**

DryLin® W | Design Notes

Floating bearings for all directions (±1 mm) compensate misalignments and parallelism errors

Floating bearings facilitate assembly – only necessary for individual rails.

Assembly is easy with the DryLin® WQ – a square profile. Floating bearings for all directions (±1 mm) compensate misalignments and parallelism errors between rails. This precludes jamming, otherwise only prevented by time-consuming parallel alignment of the system.

Although DryLin® W is a profile rail system, it is able to compensate angular rotation errors about the x-axis. An angular adjustment of ±7 ° is possible here. This effectively eliminates the strain known to occur when fitting to sheet metal fabrications.

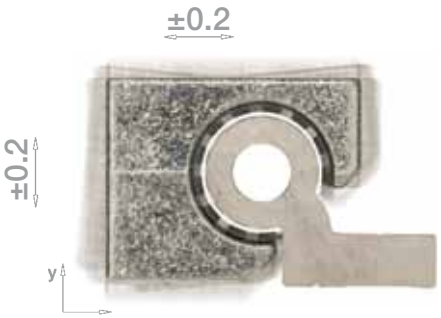
Possible combinations in mounted rail systems

Fixed Floating

Fixed Floating

Fixed Floating

Available floating bearing blocks



LL – round

LLY – angular

LLZ – angular

rotating – angular

DryLin® W | Design Rules

Floating bearings for linear slide guides

In the case of a system with two parallel guides, one side needs to be configured with floating bearings.

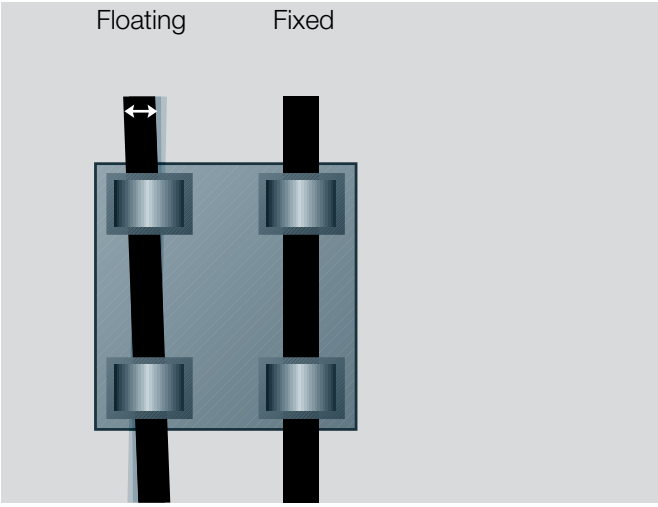
A suitable solution comprising fixed & floating bearings is available for every orientation, whether horizontal, vertical or lateral. This type of assembly prevents jamming and blockage on the guides resulting from discrepancies in parallelism. Floating bearings are created through a controlled extension of play in the direction of the expected parallelism error. This creates an additional degree of freedom on one side.

During assembly, it must be ensured that the floating bearings exhibit a similar degree of play in both directions. The contact surfaces on the guides and carriages should be sufficiently flat (for instance, milled down) to prevent strains from occurring in the system.

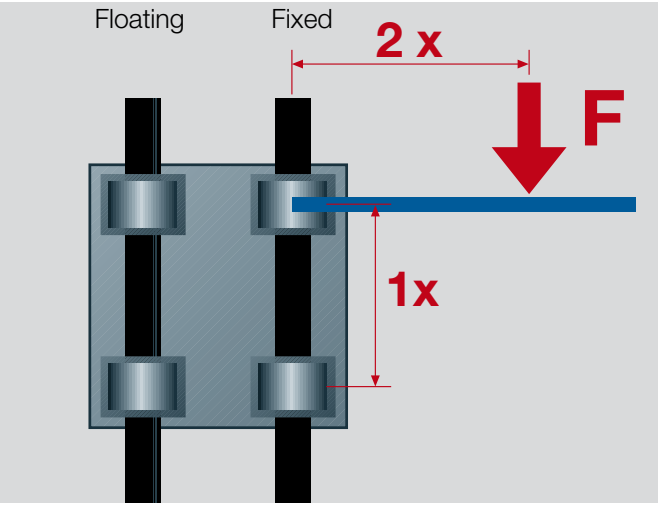
Eccentric Forces

To ensure successful use of maintenance-free DryLin® linear bearings, it is necessary to follow certain recommendations: If the distance between the driving force point and the fixed bearings is more than twice the bearing spacing (2:1 rule), a static friction value of 0.25 can theoretically result in seizure. This principle applies regardless of the value of the load or drive force.

The friction product is always related to the fixed bearings. The greater the distance between the drive and guide bearings, the higher the degree of wear and required drive force. Failure to observe the 2:1 rule during a use of linear slide bearings can result in uneven motion or even system blockage. Such situations can often be remedied with relatively simple modifications. If you have any questions on design and/or assembly, please contact our application engineers.



Graph 01: Automatic compensation of parallelism errors



Graph 02: The 2:1 Rule

DryLin® expert & lifetime calculation:
▶ www.igus.co.uk/drylin-expert

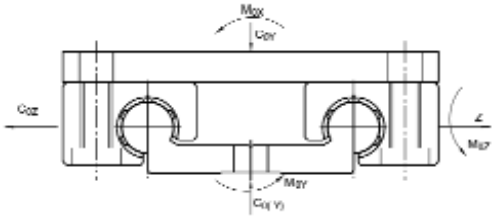
DryLin® CAD configurator:
▶ www.igus.co.uk/drylin-cad-expert

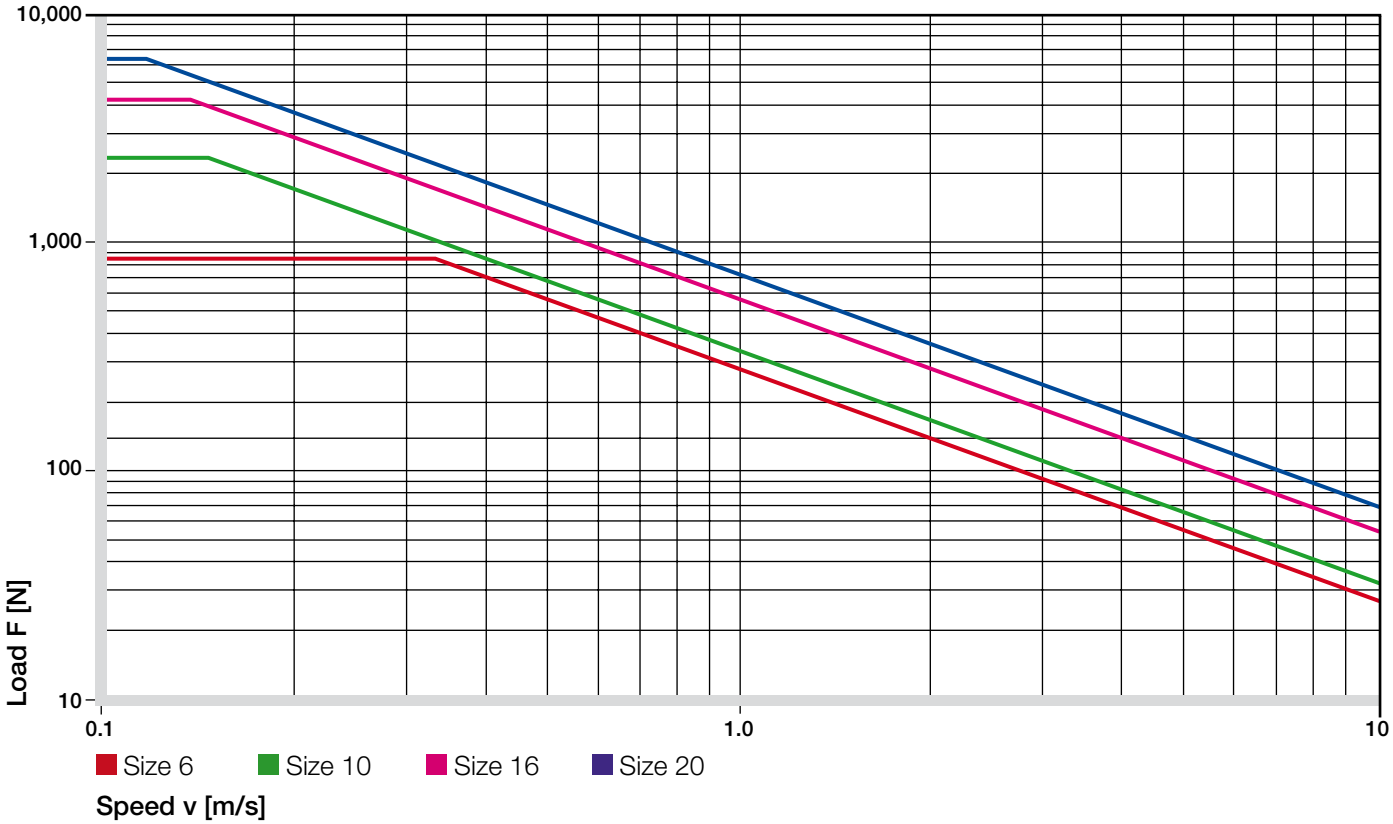
DryLin® W | Technical Data

Type	Carriage length [mm]	Carriage width [mm]	Coy [N]	Coz [N]	Mox [Nm]	Moy [Nm]	Moz [Nm]
WW-06-30-06	60	54	1,680	1,680	25	34	34
WW-06-30-08	80	54	1,680	1,680	25	51	51
WW-06-30-10	100	54	1,680	1,680	25	68	68
WW-10-40-10	100	73	4,800	4,800	96	170	170
WW-10-40-15	150	73	4,800	4,800	96	290	290
WW-10-40-20	200	73	4,800	4,800	96	410	410
WW-10-80-10	100	107	4,800	4,800	178	170	170
WW-10-80-15	150	107	4,800	4,800	178	290	290
WW-10-80-20	200	107	4,800	4,800	178	410	410
WW-16-60-10	100	104	8,400	8,400	240	270	270
WW-16-60-15	150	104	8,400	8,400	240	480	480
WW-16-60-20	200	104	8,400	8,400	240	690	690
WW-20-80-15	150	134	12,800	12,800	525	670	670
WW-20-80-20	200	134	12,800	12,800	525	990	990
WW-20-80-25	250	134	12,800	12,800	525	1,250	1,250

Table 01: Load capacities for complete carriage plates, confirm each with 4 housing bearings and plate

	Size 6 [mm]	Size 10 [mm]	Size 16 [mm]	Size 20 [mm]
Single Rail, Roand		●	●	●
Single Rail, Square	●	●	●	●
Double Rail	●	●	●	●
Complete system	●	●	●	●





Graph 03: Fv-Diagramm, maximum permissible dynamic loads (4 bearing system)

DryLin® W | Product Overview

DryLin® W Single rail – square geometry

The individual rails in square shape are flexible to use and reduce the installation costs. Floating bearings (±1 mm) are available in all directions and can compensate for rotation angle errors. Individual rail and bearing housings are available in the installation sizes 06, 10, 16, 20.

DryLin® W Single rail – round geometry

The individual rail allows a flexible utilization of installation space. In parallel operation it offers a good torque support and is very resistant against dirt and dust. Individual rail and bearing housings are available in the installation sizes 10, 16 and 20, optionally with manual clearance adjustment, manual clamp, stainless steel housing or supporting roller.

DryLin® W Double rail

The DryLin® W double rails offer a high torque support as well as extreme torsional rigidity. Due to the given parallelism the installation is simple and fast. Available in various widths in the installation sizes 06, 10, 16, and 20.

DryLin® W Complete Carriage

For all double rails, complete carriages in various lengths are available. You get an assembled system ready for installation. Optionally with adjustable bearing housings as well as with manual clamp.

DryLin® W Stainless Steel

DryLin® W stainless steel systems combine guide shafts made of material 1.4571 (V4A) with milling parts made of V4A and/or stainless steel precision casting parts made of material 1.4408 and make this system a chemical and corrosion resistant linear guide.

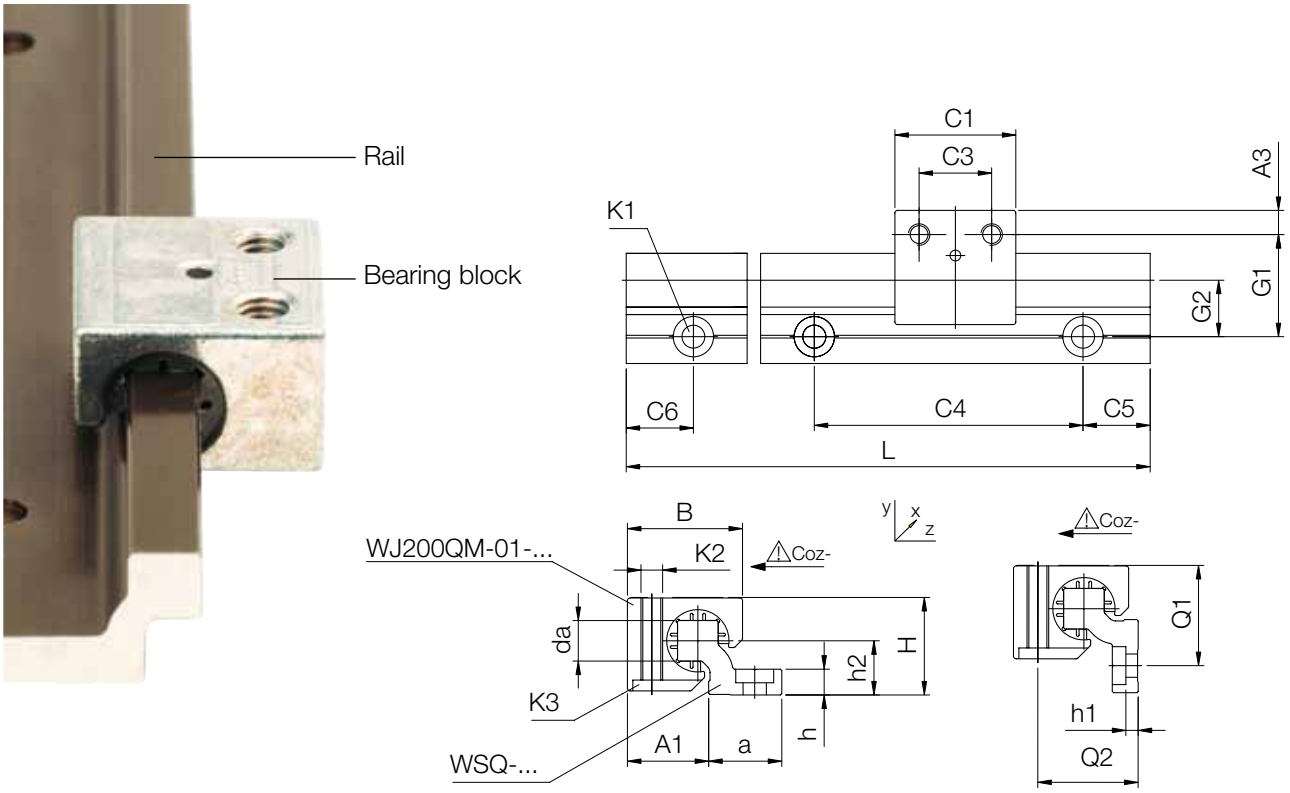
DryLin® W Specialists

On all round rail shapes, either clearance-adjustable bearings or bearings with support rollers – for smooth running in manual mode – can be used.

DryLin® W Modular Guide Systems | Product Range

Single rail and housing bearing, square

Order key
complete ▶ page 785



Illustrated rails may vary in color due to the technical coating!

DryLin® W Guide Rails, Square – Load Data and Dimensions [mm]

Part number	Weight	H	da	L	a	h	h1	h2	G1	G2	A1	Q1	Q2
		±0.07	–0.1	max.	–0.3								
	[kg/m]												
WSQ-06	0.23	14	5	3,000	14	4	4*	7.5	18	10.5	13.5	17	15
WSQ-10	0.54	20	7.5	4,000	25	5.5	5.5*	11	27	17	18.5	26	21
WSQ-16	0.94	27	11.5	4,000	27	7.5	3.5	14	33	19	25	32	28
WSQ-20	1.41	36	15	4,000	27	9.5	4.5	20	38	21	30	37	37

Part number	C4	C5	C5	C6	C6	K1 for Screw	Iy	Iz	Wby	Wbz
		min.	max.	min.	max.	DIN 912				
							[mm⁴]	[mm⁴]	[mm³]	[mm³]
WSQ-06	60	20	49.5	20	49.5	M4*	2,200	640	220	100
WSQ-10	120	20	79.5	20	79.5	M6*	16,100	3,300	950	350
WSQ-16	120	20	79.5	20	79.5	M8	33,000	10,800	1,700	910
WSQ-20	120	20	79.5	20	79.5	M8	56,500	34,000	2,600	2,100

Standard bore pattern symmetrical: C5 = C6; please order C5 ≠ C6 with drawing

* Trough bore

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinW | order example part number WSQ-06

DryLin® W Modular Guide Systems | Product Range

Single rail and housing bearing, square

Order key
complete ▶ page 785

All parts can be ordered individually or as an assembled system

DryLin® W Housing Bearings, Square – Load Data and Dimensions [mm]

Part number	Floating bearing play	Floating bearing direction	Weight [g]	B	C1	C3	A3	K2	K3	Stat. Load Capac. Coy [N]	Coz+ [N]	Coz– [N]
WJ200QM-01-06	–	–	16	18	19	10	4.5	M4	M3	420	420	140
WJ200QM-01-06-LLZ	± 0,5	z	16	18	19	10	4.5	M4	M3	420	420	140
WJ200QM-01-06-LLY	± 0,5	y	16	18	19	10	4.5	M4	M3	420	420	140
WJ200QM-01-10	–	–	41	26	29	16	6.5	M6	M5	1,200	1,200	250
WJ200QM-01-10-LLZ	± 0,7	z	41	26	29	16	6.5	M6	M5	1,200	1,200	250
WJ200QM-01-10-LLY	± 0,7	y	41	26	29	16	6.5	M6	M5	1,200	1,200	250
WJ200QM-01-16	–	–	100	34.5	36	18	9	M8	M6	2,100	2,100	400
WJ200QM-01-16-LLZ	± 1,0	z	100	34.5	36	18	9	M8	M6	2,100	2,100	400
WJ200QM-01-16-LLY	± 1,0	y	100	34.5	36	18	9	M8	M6	2,100	2,100	400
WJ200QM-01-20	–	–	190	42.5	45	27	9	M8	M6	3,200	3,200	500
WJ200QM-01-20-LLZ	± 1,0	z	190	42.5	45	27	9	M8	M6	3,200	3,200	500
WJ200QM-01-20-LLY	± 1,0	y	190	42.5	45	27	9	M8	M6	3,200	3,200	500

Order example: WJ200QM-01-06 for a housing bearing, square
WJ200QM-01-06-LLZ for a housing bearing, square with floating z-direction

delivery time available from stock

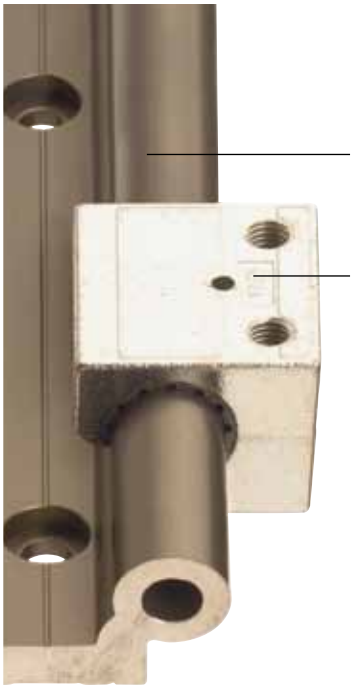
prices price list online www.igus.co.uk/en/DryLinW

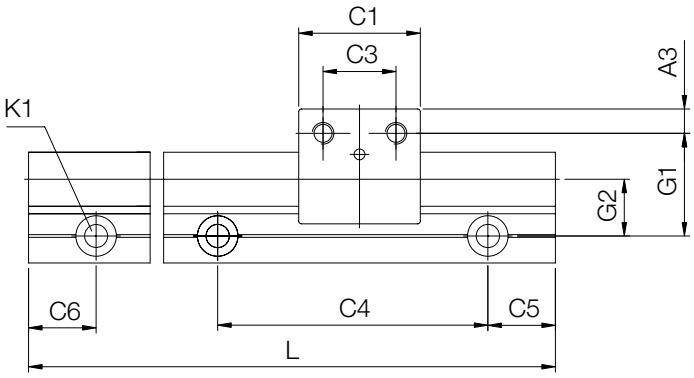
order example part number WSQ-06-guide rail, square; WJ200QM-01-06-housing bearing, square

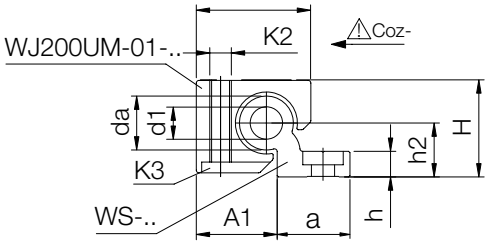
DryLin® W Modular Guide Systems | Product Range

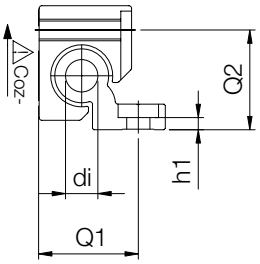
Single rail and housing bearing, round

Order key
complete ▶ page 785









Illustrated rails may vary in color due to the technical coating!

displayed assembling position not possible for WS-10

DryLin® W Guide Rails, Round – Load Data and Dimensions [mm]

Part number	Weight	H	da	di	L	a	h	h1	h2	G1	G2	A1	Q1	Q2
	[kg/m]	±0.07	–0.1		max.	–0.3								
WS-10	0.62	18	10	–	4,000	27	5.5	5.5**	9	27	17	16.5	–	–
WS-16	0.98	27	16	8.0	4,000	27	7.5	3.5	14	33	19	25	32	28
WS-20	1.32	36	20	10.2	4,000	27	9.5	4.5	20	38	21	30	37	37

Part number	C4	C5 min.	C5 max.	C6 min.	C6 max.	K1 for Screw DIN 912	Iy [mm⁴]	Iz [mm⁴]	Wby [mm³]	Wbz [mm³]
WS-10	120	20	79.5	20	79.5	M6**	19,000	2,850	1,000	310
WS-16	120	20	79.5	20	79.5	M8	36,000	12,900	1,800	940
WS-20	120	20	79.5	20	79.5	M8	57,100	35,000	2,700	1,900

Standard bore pattern symmetrical: C5 = C6; please order C5 ≠ C6 with drawing

** Trough bore

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinW | order example part number WS-10

DryLin® W Modular Guide Systems | Product Range

Single rail and housing bearing, round

Order key
complete ▶ page 785

All parts can be ordered individually or as an assembled system

DryLin® W Housing Bearing, Round – Load Data and Dimensions [mm]

Part number	Floating bearing play	Floating-bearing direction	Weight [g]	B	C1	C3	A3	K2	K3	Stat. Load Capac. Coy [N]	Coz+ [N]	Coz– [N]
WJ200UM-01-10	–	–	41	26	29	16	6.5	M6	M5	1,200	1200	250
WJ200UM-01-10-LL	±0.2	–	41	26	29	16	6.5	M6	M5	1,200	1,200	250
WJ200UM-01-16	±0.2	–	100	34.5	36	18	9	M8	M6	2,100	2,100	400
WJ200UM-01-20	–	–	190	42.5	45	27	9	M8	M6	3,200	3200	500
WJ200UM-01-20-LL	±0.25	–	190	42.5	45	27	9	M8	M6	3,200	3,200	500

Order example: WJ200UM-01-10 for a housing bearing, round
WJ200UM-01-10-LL for a housing bearing, round with floating z-direction

- Manual adjustable clearance by “Turn-To-Fit” function (allen key included in delivery)
- Adjusting screw: max. torque 0.1 Nm
- 100 % lubrication-free
- Compact dimensions
- 8 different rail profiles available

DryLin® W Linear Guides with “Turn-to-Fit” – Dimensions [mm]

Part number	Weight [g]	B	C1	C3	A3	K2	H	SW	G1
WJUME-01-10	43	26	20	16	6.5	M6	18	1.5	27
WJ200UME-01-16	110	34.5	36	18	0	M8	27	2.5	33
WJ200UME-01-20	222	42.5	45	27	0	M8	36	2.5	38

delivery time available from stock

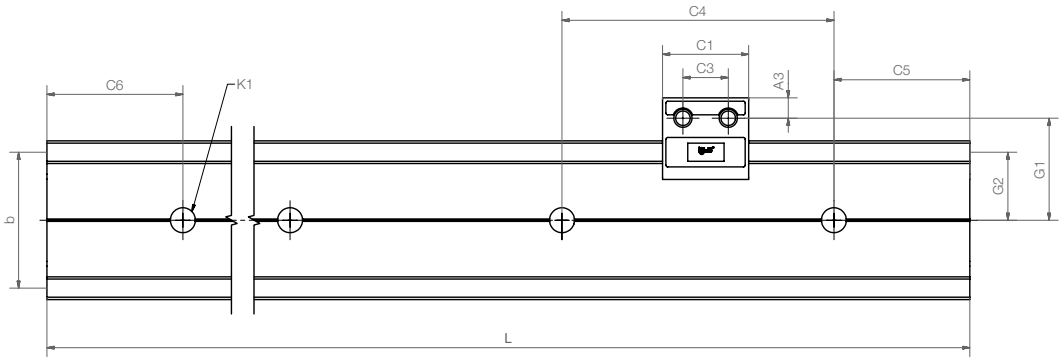
prices price list online www.igus.co.uk/en/DryLinW

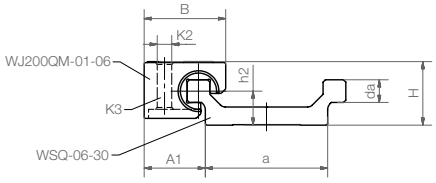
order example part number WJ200UM-… Housing bearing, round WJUME-… Turn-To-Fit Linear Guide

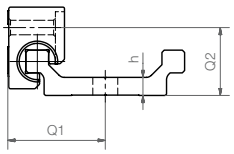
DryLin® W Modular Guide Systems | Product Range

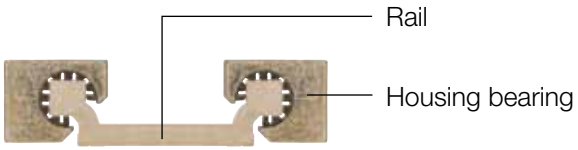
Double rail and housing bearing, square

Order key
complete ▶ page 785









DryLin® W Guide Rails – Dimensions [mm]

Part number	Weight	H	da	di	L	a	b	h	h1	h2	G1	G2	a1*
	[kg/m]	±0.07	–0.1		max.	–0.3							
WSQ-06-30	0.45	14	5	–	3,000	27	30	4	4	7.5	22.5	10.5	–

Part number	C4	C5		C6		K1 for Screw	Iy	Iz	Wby	Wbz
		min.	max.	min.	max.	DIN 912	[mm⁴]	[mm⁴]	[mm³]	[mm³]
WSQ-06-30	60	20	49.5	20	49.5	M5***	19,000	1250	1,100	200

Standard bore pattern symmetrical: C5 = C6; please order C5 ≠ C6 with drawing

** Trough bore

Load Data and Dimensions [mm] – DryLin® W Housing Bearing – Square

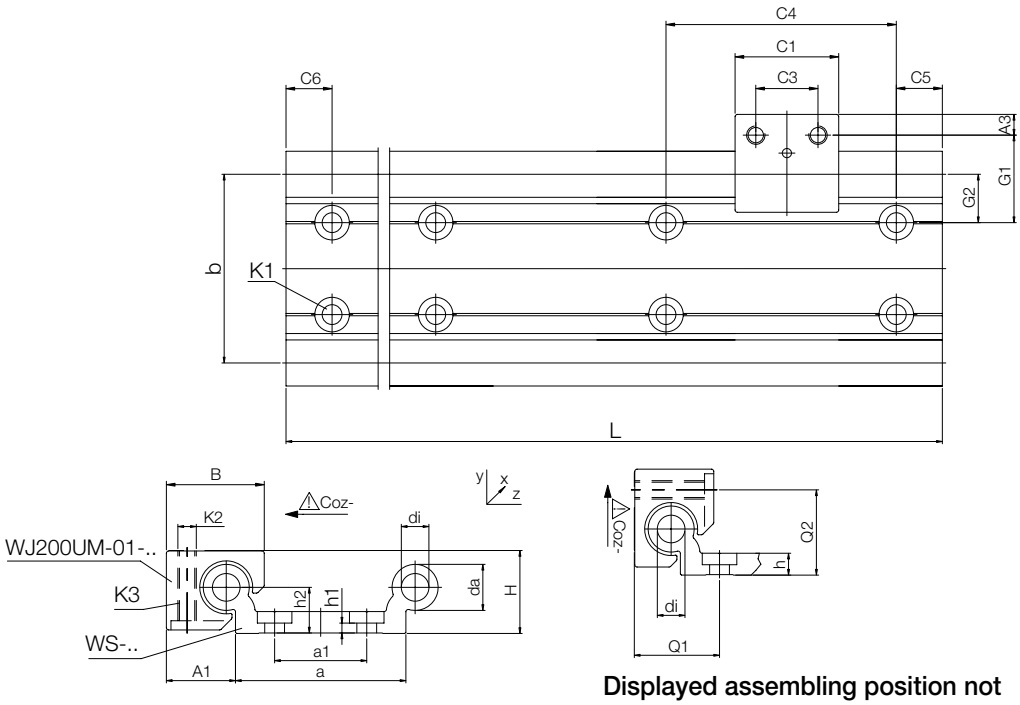
Part number	Weight	B	C1	C3	A3	K2	K3	Stat. Load Capac.		
								Coy	Coz+	Coz–
	[g]							[N]	[N]	[N]
WJ200QM-01-06	16	18	19	10	4.5	M4	M3	420	420	140

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinW | order example part number WSQ-06-30

DryLin® W Modular Guide Systems | Product Range

Double rail and housing bearing, round

Order key
complete ▶ page 785



Displayed assembling position not possible for WS-10-40 and WS-10-80

DryLin® W Guide Rails – Dimensions [mm]

Part number	Weight	H	da	di	L	a	b	h	h1	h2	G1	G2	a1*
	[kg/m]	±0.07	–0.1		max.	–0.3							
WS-10-40	1.00	18	10	–	4,000	40	40	5.5	5.5**	9	27	17	–
WS-10-80	1.50	18	10	–	4,000	74	74	5.5	5.5**	9	27	17	40
WS-16-60	1.96	27	16	8.0	4,000	54	58	7.5	3.5	14	33	19	–
WS-20-80	3.30	36	20	10.2	4,000	74	82	9.5	4.5	20	38	21	40

* WS-10-40 and WS-16-60 a single row of mounting holes down the centreline;

** WS-10-80 and WS-20-80 two parrellel rows of mounting holes

Part number	C4	C5		C6		K1 for Screw	Iy	Iz	Wby	Wbz
		min.	max.	min.	max.	DIN 912	[mm⁴]	[mm⁴]	[mm³]	[mm³]
WS-10-40	120	20	79.5	20	79.5	M6***	91,000	5,100	3,600	590
WS-10-80	120	20	79.5	20	79.5	M6***	388,000	6,100	9,200	650
WS-16-60	120	20	79.5	20	79.5	M8	367,600	26,100	9,900	1,900
WS-20-80	120	20	79.5	20	79.5	M8	1,080,000	78,700	21,000	4,000

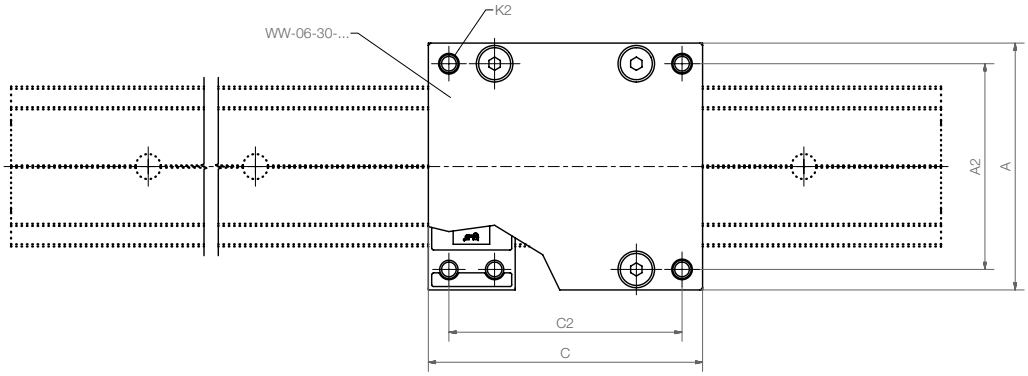
Standard bore pattern symmetrical: C5 = C6; please order C5 ≠ C6 with drawing *** Trough bore

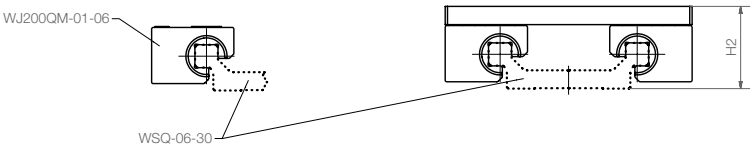
Load Data and Dimensions [mm] – DryLin® W Housing Bearings – Round

Part number	Weight	B	C1	C3	A3	K2	K3	Stat. Load Capac.		
								Coy	Coz+	Coz–
	[g]							[N]	[N]	[N]
WJ200UM-01-10	41	26	29	16	6.5	M5	M5	1,200	1,200	250
WJ200UM-01-16	100	34.5	36	18	9	M8	M6	2,100	2,100	400
WJ200UM-01-20	190	42.5	45	27	9	M8	M6	3,200	3,200	500

Guide carriage, fitted, square

Order key
complete ▶ page 785





DryLin® W Guide Carriage – Load Data and Dimensions [mm]

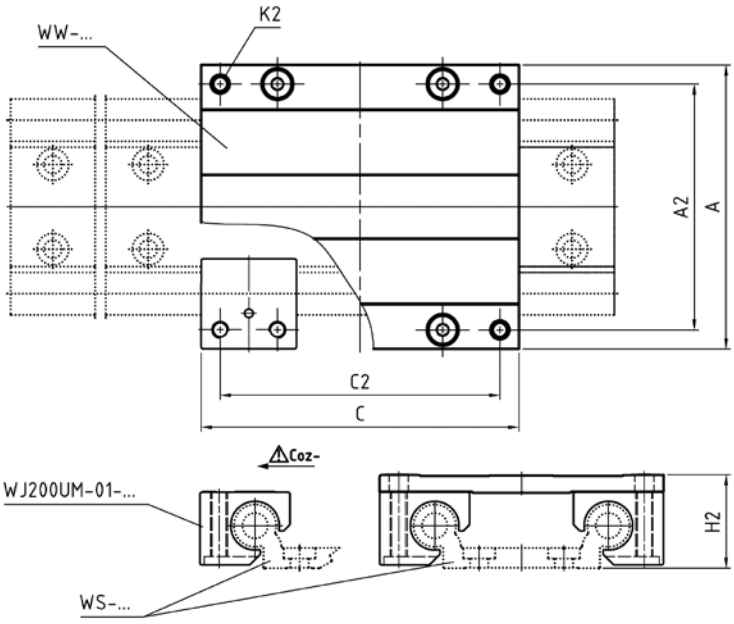
Part number	Part number Suitable Rail	Weight [kg]	A Wide	C Length	A2	C2	K2	H2 ±0.17	Stat. Load Capacity Coy [N]	Coz [N]	Mox [Nm]	Moy [Nm]	Moz [Nm]
WW-06-30-06	**WSQ-06-30**	0.10	54	60	45	51	M4	18	1,680	840	25	34	34
WW-06-30-08	**WSQ-06-30**	0.11	54	80	45	71	M4	18	1,680	840	25	51	51
WW-06-30-10	**WSQ-06-30**	0.12	54	100	45	91	M4	18	1,680	840	25	68	68

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinW | order example part number WW-06-30-06 WSQ-06-30

DryLin® W Modular Guide Systems | Product Range

Guide carriage, fitted, round

Order key
complete ▶ page 785



DryLin® W Guide Carriage, Fitted – Load Data and Dimensions [mm]

Part number	Part number Suitable Rail	Weight [kg]	A Wide	C Length	A2	C2	K2	H2 ±0.17	Stat. Load Capacity Coy [N]	Coz [N]	Mox [Nm]	Moy [Nm]	Moz [Nm]
WW-10-40-10*	WS-10-40	0.29	73	100	60	87	M6	24	4,800	2,400	96	170	170
WW-10-40-15*	WS-10-40	0.34	73	150	60	137	M6	24	4,800	2,400	96	290	290
WW-10-40-20*	WS-10-40	0.40	73	200	60	187	M6	24	4,800	2,400	96	410	410
WW-10-80-10*	WS-10-80	0.34	107	100	94	87	M6	24	4,800	2,400	178	170	170
WW-10-80-15*	WS-10-80	0.42	107	150	94	137	M6	24	4,800	2400	178	290	290
WW-10-80-20*	WS-10-80	0.50	107	200	94	187	M6	24	4,800	2,400	178	410	410
WW-16-60-10	WS-16-60	0.71	104	100	86	82	M8	35	8,400	4,200	240	270	270
WW-16-60-15*	WS-16-60	0.84	104	150	86	132	M8	35	8,400	4,200	240	480	480
WW-16-60-20*	WS-16-60	0.97	104	200	86	182	M8	35	8,400	4,200	240	690	690
WW-20-80-15*	WS-20-80	1.20	134	150	116	132	M8	44	12,800	6,400	525	670	670
WW-20-80-20*	WS-20-80	1.30	134	200	116	182	M8	44	12,800	6,400	525	990	990
WW-20-80-25*	WS-20-80	1.50	134	250	116	232	M8	44	12,800	6,400	525	1,250	1,250

Also available as version with adjustable clearance in installation sizes 10, 16 and 20:
Order example, WWE-10-40-15

* DryLin® W manual clamp, assembled (optional)
suffix -HKA
▶ page 783

delivery time available from stock

prices price list online www.igus.co.uk/en/DryLinW

order example part number WW-10-40-10 WS-10-40

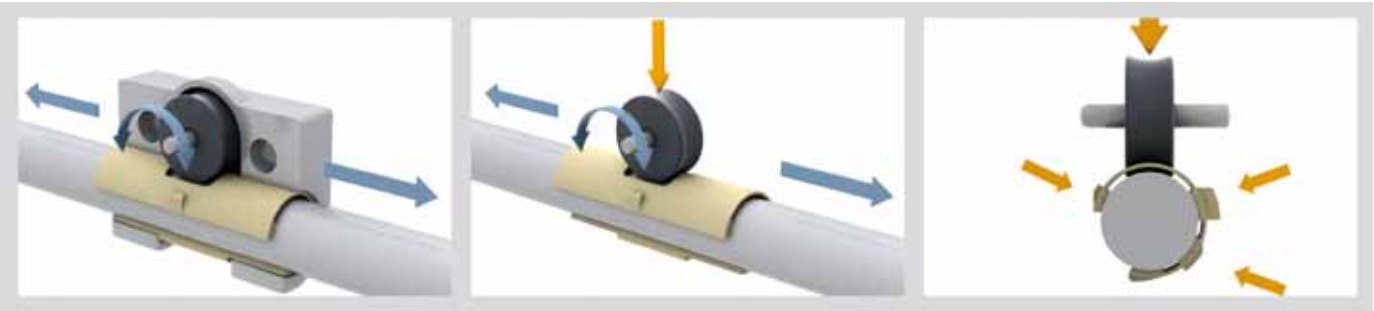
NEW in this catalog!

DryLin® W Modular Guide Systems | Product Range

Hybrid linear bearing – roll and slide

DryLin® W Hybrid bearings offer a unique combination of plain and roller bearings. At a defined installation position, the required driving torque reduces itself significantly by the maintenance-free roller bearings. Shear forces and abuse forces are absorbed by the glider. The hybrid bearing is ideal for manual adjustments, especially in door adjustments.

- Glide-mounted plastic rollers
- Liner made of iglidur® J
- Low drive force needed, friction: 0.04–0.05 µ
- Cost-effective
- Can be combined with 7 linear profile rails



▶ www.igus.co.uk/en/WJRM-video

DryLin® W Hybrid Linear Bearings – Load Data and Dimensions [mm]

Part number	Stat. load capacity Co	Dyn. load capacity Cz+ at total running distance (km)			F · v
		10	100	200	max.
	[N]	[N]	[N]	[N]	[N · m/s]
WJRM-01-10	250	250	90	50	50
WJRM-01-16	400	400	140	70	80
WJRM-01-20	550	550	200	100	80

DryLin® W, Compatible Guide Rails – Dimensions [mm]

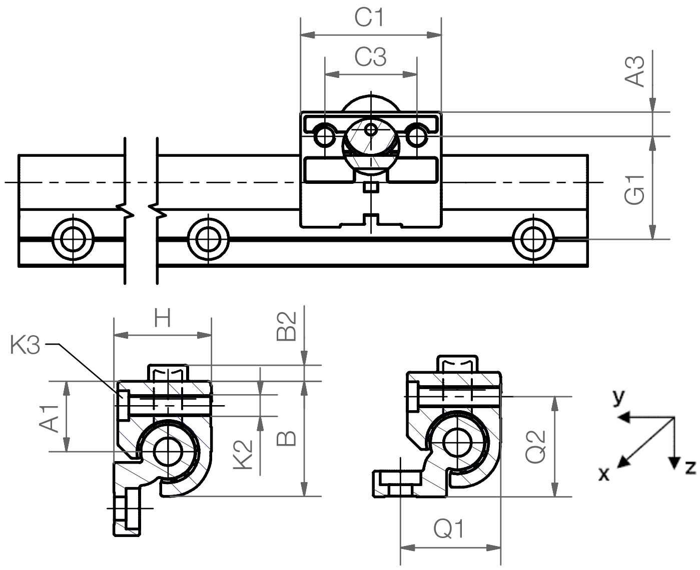
Part number	Weight	H	da	L	a	h	h2	G1	G2	C4	C5	C5	C6	C6	K1 for Screw
											min.	max.	min.	max.	DIN 912
	[g]														
WS-10	0.62	18	10	4,000	27	5.5	9	27	17	120	20	79.5	20	79.5	M6
WS-10-40	1.00	18	10	4,000	40	5.5	9	30	20	120	20	79.5	20	79.5	M6
WS-10-80	1.50	18	10	4,000	74	5.5	9	27	17	120	20	79.5	20	79.5	M6
WS-16	0.98	27	16	4,000	27	7.5	14	33	19	120	20	79.5	20	79.5	M8
WS-16-60	1.96	27	16	4,000	54	7.5	14	43	29	120	20	79.5	20	79.5	M8
WS-20	1.32	36	20	4,000	27	9.5	20	38	21	120	20	79.5	20	79.5	M8
WS-20-80	3.38	36	20	4,000	74	9.5	20	38	21	120	20	79.5	20	79.5	M8

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinW | order example part number WJRM-01-10

DryLin® W Modular Guide Systems | Product Range

Hybrid linear bearing – roll and slide

Order key
complete ▶ page 785



Shown installation position is not possible for combination of WJRM-01-10 with rail WS-10/ WS-10-40/WS-10-80

DryLin® W Hybrid Linear Bearings – Load Data and Dimensions [mm]

Part number	Friction in +z direction	Weight	B	B2	C1	C3	G1	A3	A1	K2	K3	Q1	Q2
		[g]									[N]		
WJRM-01-10	< 0,1	46	26	2,5	35	22	27	6,5	16,5	M6	M5	–	–
WJRM-01-16	< 0,1	131	34.5	5	48	30	33	9	25	M8	M6	32	28
WJRM-01-20	< 0,1	232	42.5	6	52	34	38	9	30	M8	M6	37	37

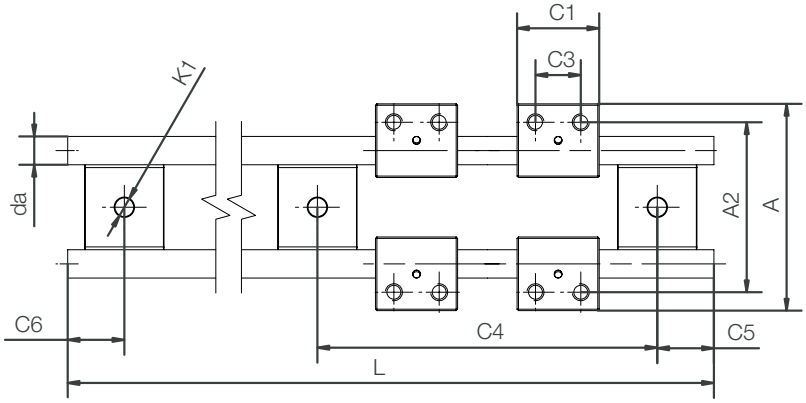
Adjustment sliding door at tool magazine

Adjustment camera slider ▶ www.igus.co.uk/camera

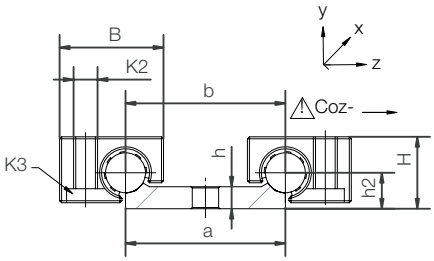
DryLin® W Modular Guide Systems | Product Range

Double rail and housing bearing, round made of stainless steel V4A

Order key
complete ▶ page 785



Material for housing and shaft support 1.4408
1.4571



DryLin® W Guide Rail, Double, Ø 10 mm – Dimensions [mm]

Part number	Suitable bearing Part number	Weight [kg/m]	da h9	L max.	a –0.3	b	h	h2
WS-10-40-ES-FG	WJUM-01-10-ES-FG	1.58	10	3,000	40	40	5.5	9

Part number	C4 [mm]	C5 min. [mm]	C5 max. [mm]	C6 min. [mm]	C6 max. [mm]	K1 for Screw DIN 912
WS-10-40-ES-FG	120	20	79.5	20	79.5	M6

Order key
complete ▶ page 785

STAIN-LESS STEEL

DryLin® W Housing Bearing – Load Data and Dimensions [mm]

Part number	Weight [g]	H ±0.07	B	C1	C3	A	A2	K2	K3 Countersunk-head screw	Stat. Load Capac. Coy [N]	Coz+ [N]	Coz- [N]
WJUM-01-10-ES-FG*	57	18	26	29	16	73	60	M6	M5	3,800	3,800	950

* alternativ with XUMO-01-10 liners for high temperatures available
Part number: WXUM-01-10-ES-FG

delivery time 8–14 days

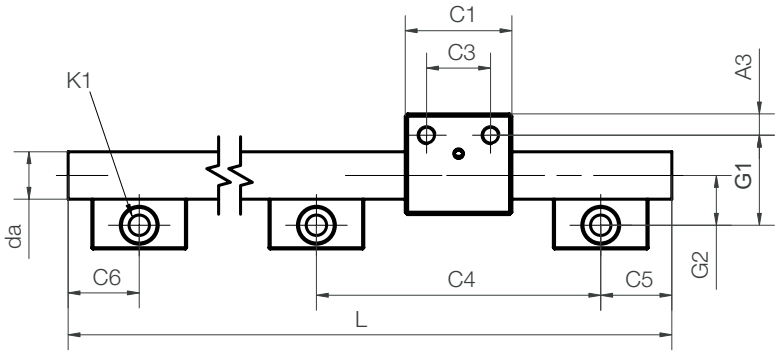
prices price list online www.igus.co.uk/en/DryLinW

order example part number WS-10-40-ES-FG

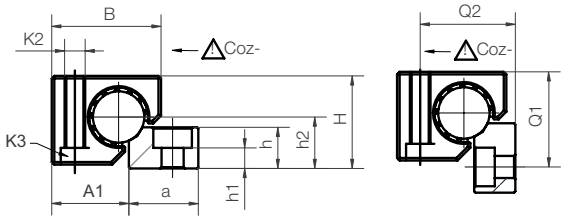
DryLin® W Modular Guide Systems | Product Range

Single rail and housing bearing, round made of stainless steel V4A

Order key
complete ▶ page 785



Material for housing and shaft support	1.4408
	1.4571



DryLin® W Guide Rail, Single, Ø 20 mm – Dimensions [mm]

Part number	Suitable bearing Part number	Weight [kg/m]	da h9 [mm]	L max. [mm]	a –0.3 [mm]	h [mm]	h2 [mm]	G2 [mm]
WS-20-ES-FG	WJUM-01-20-ES-FG	3.37	20	3,000	27	16	20	21

Part number	C4 [mm]	C5 min. [mm]	C5 max. [mm]	C6 min. [mm]	C6 min. [mm]	K1 for Screw DIN 912	h1 [mm]	Iy [mm⁴]	Iz [mm⁴]	Wby [mm³]	Wbz [mm³]
WS-20-ES-FG	120	20	79.5	20	79.5	M8	8	7,854	7,854	785	785

Order key
complete ▶ page 785

STAIN-LESS STEEL

DryLin® W Housing Bearing – Load Data and Dimensions [mm]

Part number	Weight [g]	H ±0.07 [mm]	B [mm]	C1 [mm]	C3 [mm]	G1 [mm]	A3 [mm]	A1 [mm]	K2 [mm]	K3 Countersunk-head screw	Q1 [mm]	Q2 [mm]	Stat. Load Capac. Coy [N]	Coz+ [N]	Coz- [N]
WJUM-01-20-ES-FG*	280	36	42.5	45	27	38	9	30	M8	M6	37	37	11,000	11,000	1,900

* alternativ with XUMO-01-10 liners for high temperatures available
Part number: WXUM-01-10-ES-FG

delivery time 8–14 Days

prices price list online www.igus.co.uk/en/DryLinW

order example part number WS-20-ES-FG

NEW in this catalog!

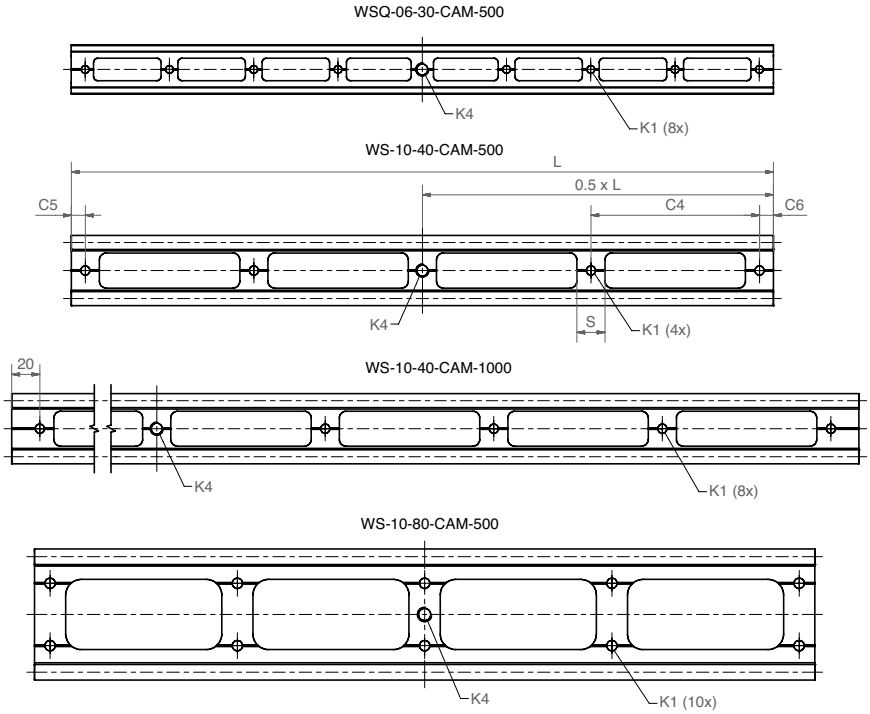
DryLin® W Modular Guide Systems | Product Range

Double rail, reduced weight

Order key

complete ▶ page 785

- 30 % weight reduction by machined recesses
- Sizes: 0630, 1040 and 1080
- Lubrication free, quiet and light
- Standard lengths from stock
- Matching housing bearing and carriage made of plastic, aluminum, zinc die cast or stainless steel



DryLin® W Guide Rail – Dimensions [mm]

Part number	Indetic profil	L	C4	C5	C6	S	K1 for Screw DIN 192	K4	Weight [g]
WSQ-06-30-CAM-500	**WSQ-06-30**	500	60	10	10	12	M5	3/8" 16-UNC*	159
WS-10-40-CAM-500	**WS-10-40**	500	120	10	10	20	M6	3/8" 16-UNC*	353
WS-10-40-CAM-1000	**WS-10-40**	1,000	120	20	20	20	M6	3/8" 16-UNC*	706
WS-10-80-CAM-500	**WS-10-80**	500	120	10	10	20	M6	3/8" 16-UNC*	482

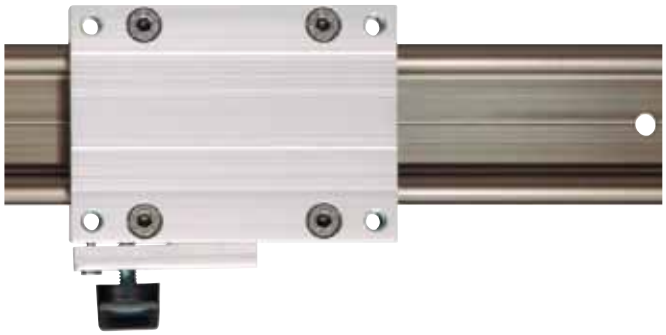
*** UNC = United National Coarse, anglo-saxon standard for screws and threads**

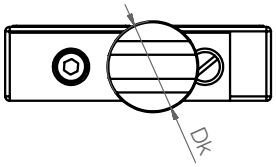
Application example: Camera slider with standard rail and carriage ▶ www.igus.co.uk/camera

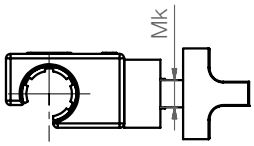
delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/DryLinW | order example **part number WS-10-40-CAM-500**

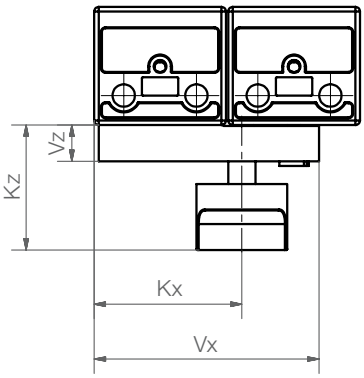
DryLin® W Modular Guide Systems | Product Range

Accessories – manual clamp









Order key
complete ▶ page 785

DryLin® W manual clamping, for simple positioning tasks

- Cost-efficient option
- Universally applicable
- Clamping force based on tightening torque
- Clamping by friction locking

DryLin® W Accessories – Load Data and Dimensions [mm]

Part number	Mk	Vx	Kx	Vz	Kz	Dk	Min. holding strength**	Min. tightening torque
WHKA-10*	M6	50	33	8	28	20	30 N	0.8 Nm
WHKA-16*	M8	72	32	10	31	26	60 N	1.5 Nm
WHKA-20*	M8	90	29	10	31	26	70 N	1.5 Nm

* **Manual clamp is also available as complete carriage (suffix HKA, order example WW-10-40-10-HKA)**
▶ complete carriage WW, page 776

** **Condition: dry rail surface**

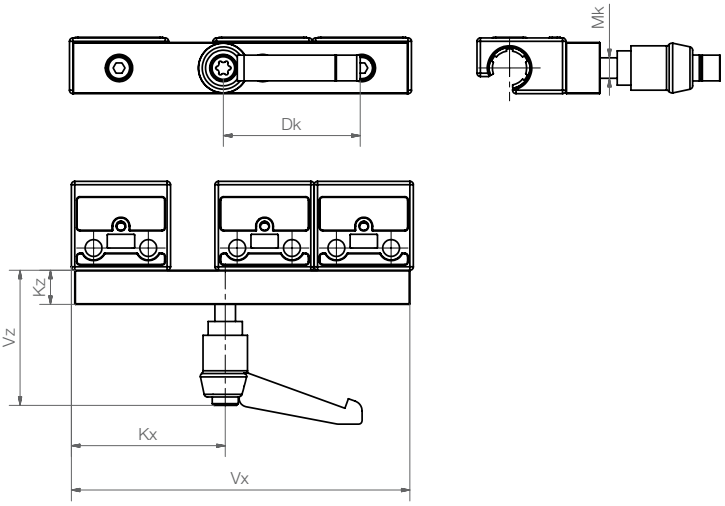
Hint:
The creep behavior of the clamped plastic causes a slackening in clamping force over time (up to 70 %). Therefore safety-related parts should not be clamped.

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinW | order example part number WHKA-10

NEW in this catalog!

DryLin® W Modular Guide Systems | Product Range

Accessories – manual clamp



DryLin® W manual clamping for high holding strength

- Available as single-part or assembled to guide carriage
- Clamping force based on tightening torque
- Clamping by friction locking

Order key
complete ▶ page 785

DryLin® W Accessories – Load Data and Dimensions [mm]

Part number	Mk	Vx	Kx	Vz	Kz	Dk	Min. holding strength**	Min. tightening torque
WHKD-10*	M6	99	45	40	10	40	70 N	2.5 Nm
WHKD-20*	M8	149	87	–	15	–	90 N	3.5 Nm

* **Manual clamp is also available as complete carriage (suffix HKA, order example WW-10-40-10-HKD) ▶ complete carriage WW, page 776**

** **Condition: dry rail surface**

Hint:
The creep behavior of the clamped plastic causes a slackening in clamping force over time (up to 70 %). Therefore safety-related parts should not be clamped.

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinW | order example part number WHKD-10

DryLin® W | Order key

Order key for a complete system:

WK-10-40-15-01-1500-HKA C5=20

Rail options
Leave blank: Standard with holes
C5= … mm: If hole spacing is not symmetrical
Carriage options
Leave blank: Standard
-HKA: Carriage with assembled clamp
(available sizes/lengths ▶ **page 776**)
Length of rail
Number of carriage plates
Length of carriage plate
Support width
Shaft diameter
Complete system

Declaration:

WK-10-40-15-01-1500: Complete system with rail (WS-10-40) with length 1500 mm and width 40 mm, and a guiding carriage (WW-10-40-15) with length 150 mm and width 73 mm.

Valid for guide rails:

Standard bore pattern symmetrical: C5=C6; please order C5≠C6 with drawing.
WSQ-… square
WS-… round
- CAM machined cut-out

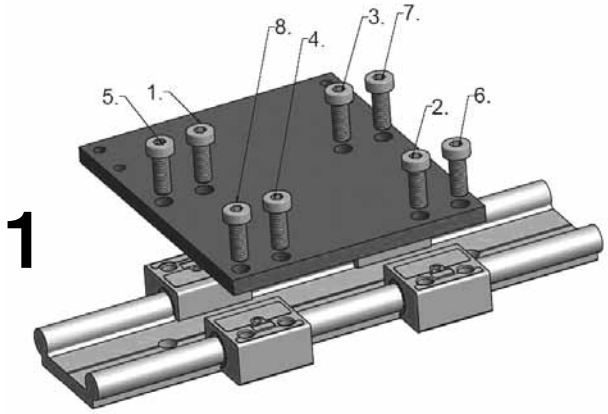
Valid for housing bearings:

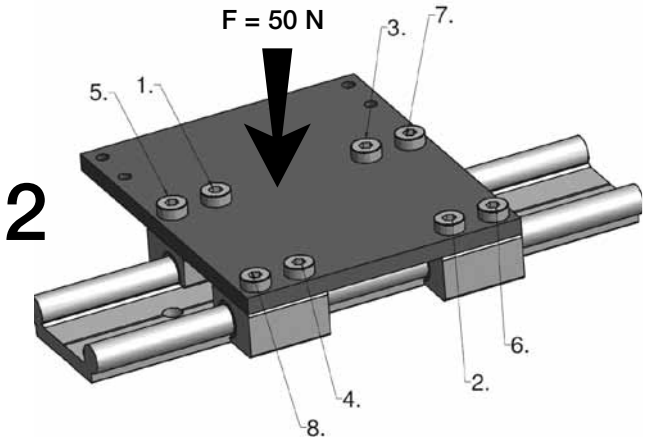
WJ200QM-… Housing bearings, square
WJ200UM-… Housing bearings, round or square
WW-… guiding carriage, fitted, round
WJUME-…"Turn-To-Fit"
WJRM Hybrid linear bearing
WHKA ▶ Housing bearings with manual clamp

DryLin® W alternate plastic liners

Size	Material	Housing bearing	Geometry	Part number liner
10/16/20	iglidur® J200	WJ200UM-01-ø	round	J200UM-01-ø
10/20 (Floating bearing)	iglidur® J200	WJ200UM-01-ø LL	round	J200UM-01-ø LL
10/16/20	iglidur® X	WXUM-01-ø	round	XUMO-01-ø
10 (adjustable)	iglidur® J	WJUME-01-10	round	JUME-01-10
16/20 (adjustable)	iglidur® J200	WJ200UME-01-ø	round	J200UME-01-ø
6/10/16/20	iglidur® J200	WJ200QM-01-ø	square	J200QM-01-ø
6/10/16/20 (Floating bearing)	iglidur® J200	WJ200QM-01-ø LLY/LLZ	square	J200QM-01-LL

DryLin® W | Installation Instructions

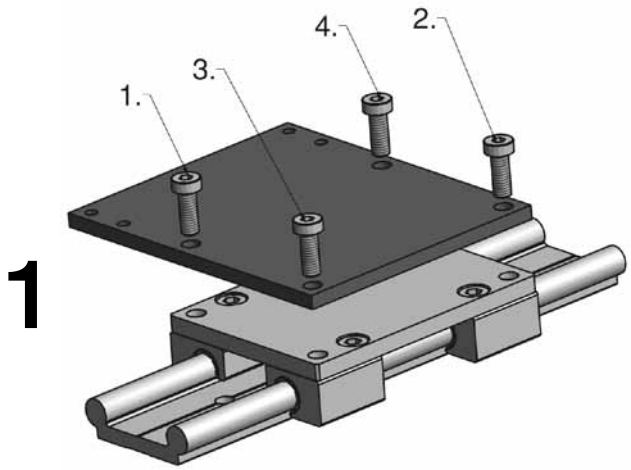


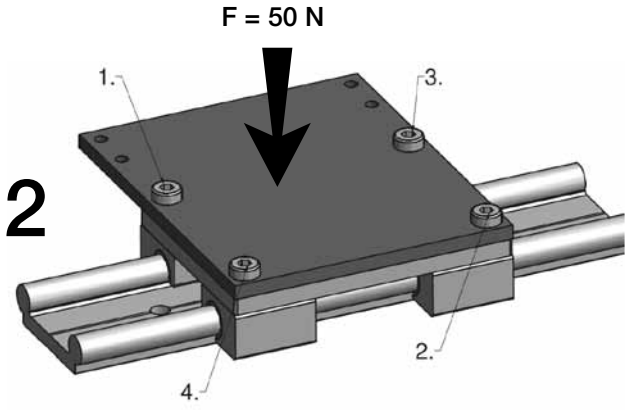


DryLin® W rail with housing bearings

During the installation process, a compressive force of minimum 50 N is recommended on the centre of the mounting surface. Alternatively, a plastic hammer/soft face hammer can be used during and after the mounting to align the bearing.

Dimension	Max. tightening torque [Nm]	Nut width
W-06	1.5	M4
W-10	6.0	M6
W-16	15.0	M8
W-20	15.0	M8

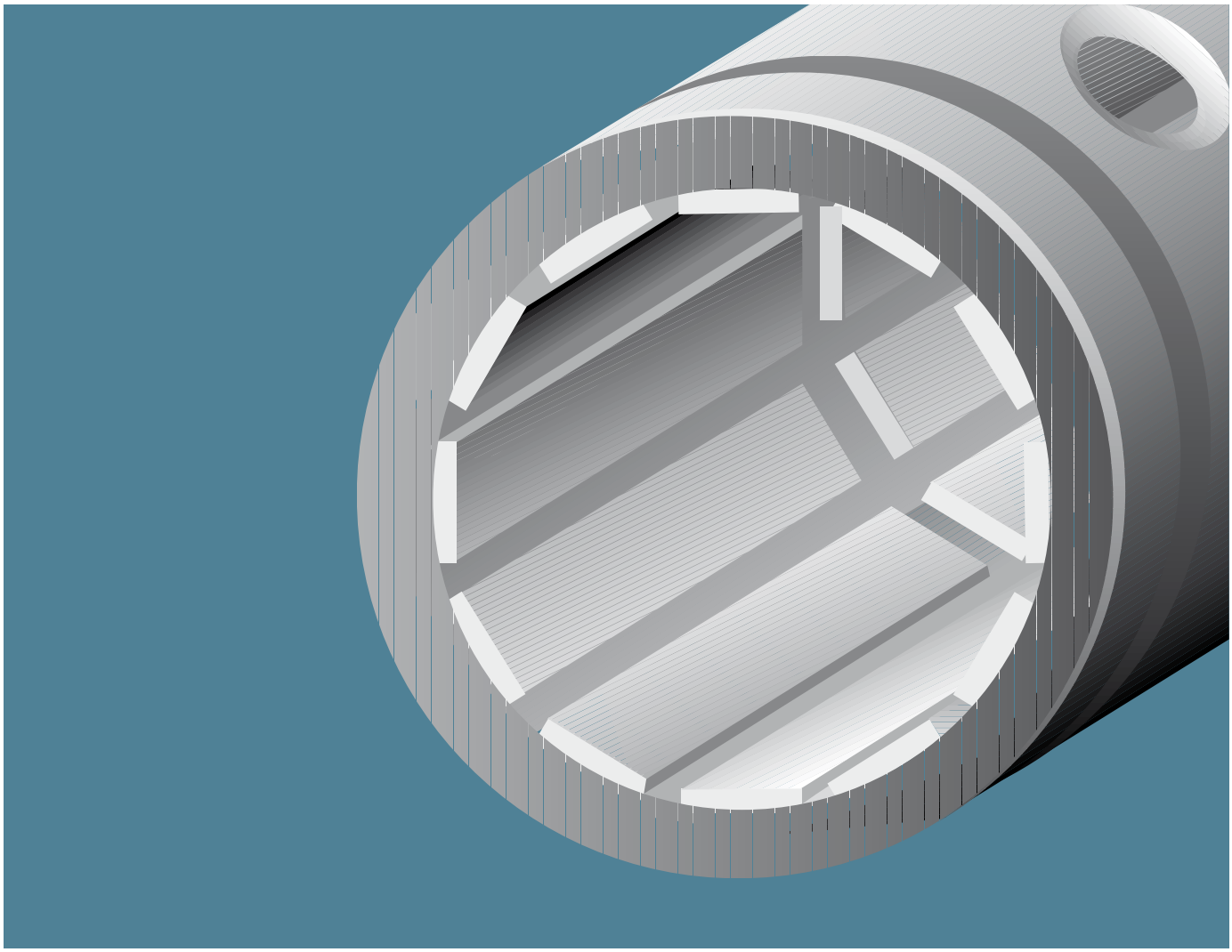




DryLin® W rail with complete slide system

During the installation process, a compressive force of minimum 50 N is recommended on the centre of the mounting surface. Alternatively, a plastic hammer/soft face hammer can be used during and after the mounting to align the bearing.

Dimension	Max. tightening torque [Nm]	Nut width
W-06	1.5	M4
W-10	6.0	M6
W-16	15.0	M8
W-20	15.0	M8



DryLin® R Round Shaft Guide Systems

- Lubrication-free
- Corrosion-resistant
- Wear-resistant
- Insensitive to dirt
- Low friction
- Extremely quiet operation
- Low weight

DryLin® R | Round Shaft Guide Systems

DryLin® R linear plain bearings are based on extremely wear-resistant polymers specially developed for the linear technology. The dimensions are compatible with standard ball bearings. The special geometry guarantees ruggedness even in extreme environments.

Advantages:

- 100 % lubrication-free
- Dimensionally interchangeable with standard recirculating ball bearings
- Large variety of choice in housing shapes
- Shafts, shaft end supports and accessories available from stock
- 8 different shaft materials
- Replaceable liner
- VA stainless steel housing available

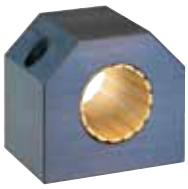
When not to use them?

- When little installation space is available
  - ▶ **DryLin® N, page 749**
  - ▶ **DryLin® W, page 763**
- When twist-protection is required for single-axis systems
  - ▶ **DryLin® T, page 727**
  - ▶ **DryLin® N, page 749**

Standard aluminum

Standard stainless steel

Standard solid platic



Pillow block

Flange bearing

Quad block

Clean-Room

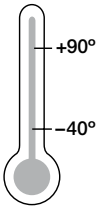
Cleanroom certificated – IPA Fraunhofer

RoHS 2002/95/EC

Free of toxins ROHS 2002/95/EC

ESD compatible (electrostatic discharge)

Temperature

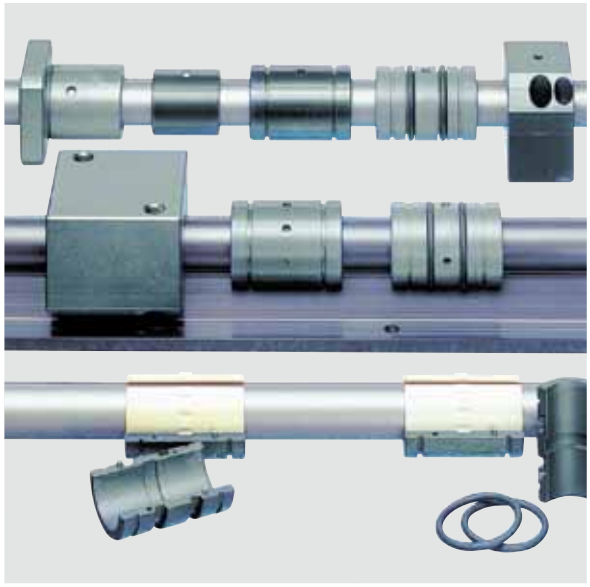


Standard iglidur® J

Product range

12 diameters from 6 to 60 mm up to 30 bearing types for every diameter

DryLin® R | Application Examples



Typical sectors of industry and application areas

● Agricultural ● Vehicle manufacturing
● Medical ● Structural-facings sector
● Packaging etc.

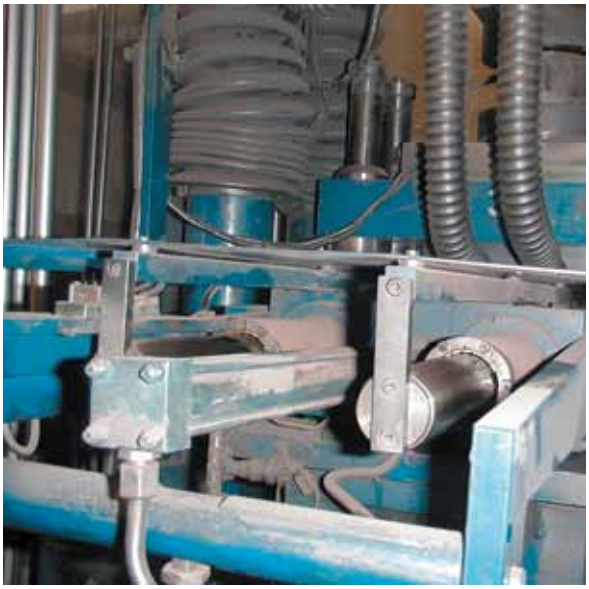
Improve technology and reduce costs – 170 exciting examples online

▶ www.igus.co.uk/drylin-applications

Parting-off grinder

▶ www.igus.co.uk/woodworking

Concrete cutting machine



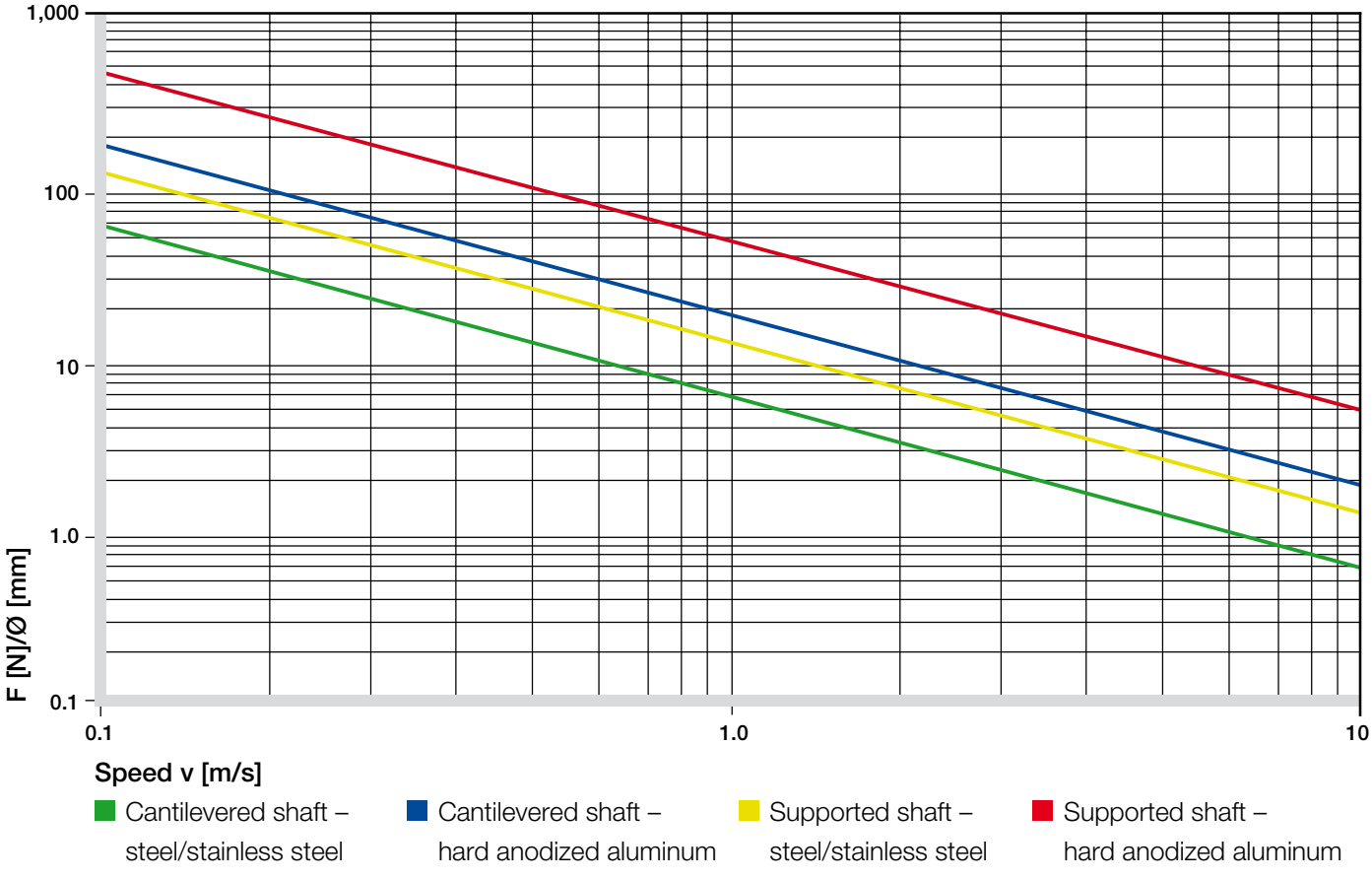
Filling-shoe mechanism in a compaction unit

DryLin® R | Technical Data

Material data

General properties	Unit	iglidur® J	iglidur® X	iglidur® J200	Testing method
Density	g/cm³	1.49	1.44	1.72	
Colour		yellow	black	dark grey	
Max. moisture absorption at +23 °C/50 % r. h.	% weight	0.3	0.1	0.2	DIN 53495
Max. moisture absorption	% weight	1.3	0.5	0.7	
Coefficient of sliding friction, dynamic against steel	µ	0.06–0.18	0.09–0.27	0.11–0.22	
pv value, max. (dry)	MPa · m/s	0.34	1.32	0.30	
Mechanical properties					
Modulus of elasticity	MPa	2,400	8,100	2,800	DIN 53457
Tensile strength at +20 °C	MPa	73	170	58	DIN 53452
Compressive strength	MPa	60	100	43	
Max. recommended surface pressure (+20 °C)	MPa	35	150	23	
Shore D hardness		74	85	70	DIN 53505
Physical and thermal properties					
Max. long term application temperature	°C	+90	+250	+90	
Max. short term application temperature	°C	+120	+315	+120	
Min. application temperature	°C	–50	–100	–50	
Thermal conductivity	W/m · K	0.25	0.6	0.24	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	$K^{-1} \cdot 10^{-5}$	10	5	8	DIN 53752
Electrical properties					
Specific volume resistance	Ωcm	> 10^{13}	> 10^{5}	> 10^{8}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	> 10^{3}	> 10^{8}	DIN 53482

Table 01: Material data



Graph 01: DryLin® R – comparison of the permissible dynamic loads at equivalent diameters

DryLin® R | Technical Data

DryLin® R
Linear Plain Bearings

The DryLin® standard round bearings consist of a replaceable iglidur® J, J200 or X liner, that is manufactured to be a mechanical fit into an anodized aluminum adapter. The axial securing of the liner is achieved by a snap ring groove. DryLin® R linear plain bearings, made from solid polymer, are dimensionally equivalent to standard ball bearings. They are made entirely out of wear resistant iglidur® J, J200 or X material and can offer technical advantages in addition to the clear price advantage. Thus, applications in which machine parts are primarily stainless steel, i. e. food and filling equipment, are well suited for the use of solid plastic bearings. An additional weight-saving is also easily obtained. Both designs are designed for fitting in housings with our recommended tolerances. The bearings are secured by circlips in the same way as with ball bearings. The narrow design of the 02 design series, is pressfit or bonded into the housing. Standard commercial adhesives can be used for this purpose.

Dirt, Dust, Fibres

An important feature of all the linear plain bearings is their tolerance of dirt and abrasive particles. For most conventional bearing systems, the use of wiper or seals is recommended to prevent dirt accumulation. No other system has the design benefits for use in dust, lint, and coarse dirt as DryLin®. The patented design of the bearing surface using individual slide pads connected by thin film sections, provides performance benefits for dirty environments. Dirt, even if it becomes wet on the shaft, is wiped away by the individual glide pads and is moved into the open areas. The running sections of the DryLin® bearings then slide on the shaft that has been cleared of all contaminants.

Split Linear Bearings

Applications that are on the edge of technical feasibility or in extremely harsh environments often require frequent replacement of the linear bearings. In many cases, DryLin® can give a multiple increase in the service life. However, in extreme applications, replacement of the bearings is necessary, even with DryLin®. DryLin® linear bearings can provide considerable cost reductions in such cases as only the polymer bearing liner has to be replaced. This often means a reduction of more than 90 % in replacement part costs. The iglidur® J liner can be easily replaced, while a ball-bearing cage cannot. The range of split adapters offers even greater cost savings. Shafts no longer need to be removed from the housing. The two shells of the adapter can be opened very easily. The high performance polymer bearing inside is split and can easily be pulled off the shaft. Clip a new bearing liner over the shaft, put the two adapter halves together, install – done! With this product line of split DryLin® bearings, installation times can be reduced to a minimum.

	The all rounder – iglidur® J	The specialist – iglidur® J200	The extreme – iglidur® X
			
Potential reverse partner	all shaft materials	Aluminum, hard anodized	hardened stainless steel
Application temperature	–50 to +90 °C	–50 to +90 °C	–100 to +250 °C
Best coeff. of friction with	steel shaft	Aluminum, hard anodized	steel hard chromed
Maximum lifetime	Aluminum, hard anodized	Aluminum, hard anodized	hardened stainless steel

DryLin® R | Technical Data

Series L1 – Low-clearance press-fit bearings

The series L1 plain bearings are composed of the iglidur® L100 bearing material, an extremely wear-resistant plastic compound. They are sub-divided into a press-fit area and a gliding range. They can be used both as individual part and as press-fit bearing in linear plain bearings of the DryLin® R series. The gliding range is composed of individual crossbars which are linked to each other by thin film bridges. These film bridges on the one hand prevent the divergence of the individual crossbars, but on the other compensate all expansions of the bearing through heating or moisture. This separation enables the almost clearance-free design of the bearings, as there is no clamping of the shaft. The cylinder-shaped press-fit area is also visually very distinct from the gliding range. The singular function of this range, which shows a distinct clearance compared to the shaft, is to fix the bushing firmly in the housing.

- High wear resistance
- Low coefficient of friction
- Vibration dampening
- High static compressive strength
- Good chemical resistance
- Resistant to dirt
- Suitable for soft and rough shafts

Compressive strength

iglidur® plain bearings are homogeneously filled with solid lubricants. In this way, lubricants cannot be removed, even at high loads. The material iglidur® L100 allows an average static surface pressure pf 70 MPa. However, only half of the bearing surface can carry loads and this is taken into account in the calculation.

Surface Speeds

The following table shows possible surface speeds of L1 bearings.

iglidur® L100	Rotating	Oscillating	Linear
Continuous (m/s)	1.5	1.5	3
Short term (m/s)	3	3	10

Table 04: Maximum running speed for iglidur® L100

Coefficients of sliding friction

Plain bearings of the L1 series are designed for dry operation against steel. The best results are attained with surface finishes of 0.8 µm. The coefficients of sliding friction reduces with increasing load. Typical values in dry operation are 0.2 to 0.3. But the value can be higher with unfavorable shafts.

Temperatures

Temperatures affect the compressive strength, the wear and the securing of the bearing in the housing. In all tests, a secure pressfit could be held up to a temperature of 80 °C. At higher temperatures, an additional securing of the bearing is recommended. With effectice securing, L1 plain bearings could also be used at temperatures over 100 °C.

iglidur® L100	Application temperatures
Minimum	–30 °C
Max. long term	+100 °C
Max. short term	+190 °C

Table 05: Temperature limits for iglidur® L100

DryLin® R | Construction Standards

Self-Aligning Bearings

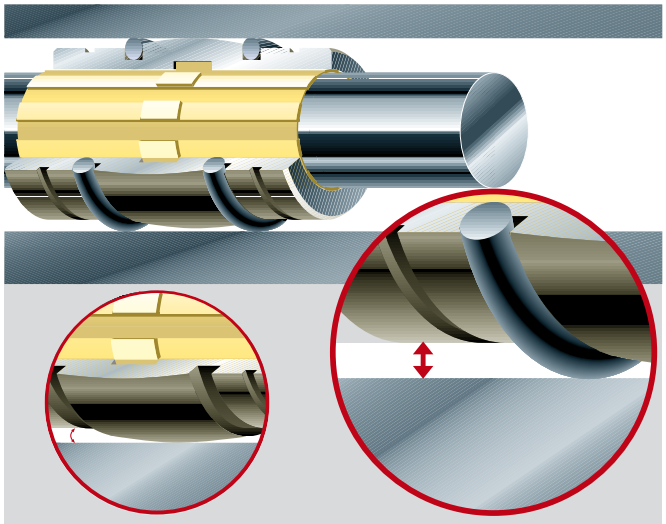
DryLin® R linear plain bearings in the 03 design series offer great advantages in applications with parallel shafts. By their geometry, they are able to compensate for alignment and parallelism errors and should be used on the shaft located furthest from the drive mechanism.

The design provides a spherical area on the outside diameter of the aluminum adapter for self-alignment. Reductions in load capacity are prevented, since the shaft always lies on the total projected surface.

Due to the even load distribution over the entire bearing, edge loads are not possible with the self-aligning DryLin® linear bearings. Even in unfavourable conditions, the load is supported by the entire projected surface.

In order to compensate for parallelism errors between two shafts, the outer diameter is designed to be smaller than the housing bore diameter by 0.2–0.3 mm (depending on the size). With the use of mounted O-rings, these bearings have an elastic bearing seat.

The clearance between the bearing and housing allows for the maximum compensation of possible shaft mis-alignment. The DryLin® R self-aligning bearings are supplied hard anodized. These surfaces guarantee the highest wear resistance if the aluminum bearing moves in the housing during compensation adjustments.



Graph 04: By defined installation clearance and externally mounted O-rings, the self-aligning DryLin® R bearings of the type series 03 can compensate parallelism errors. Spherical DryLin® adapters can compensate angle errors. Hard anodization protects the aluminum adapters against wear.

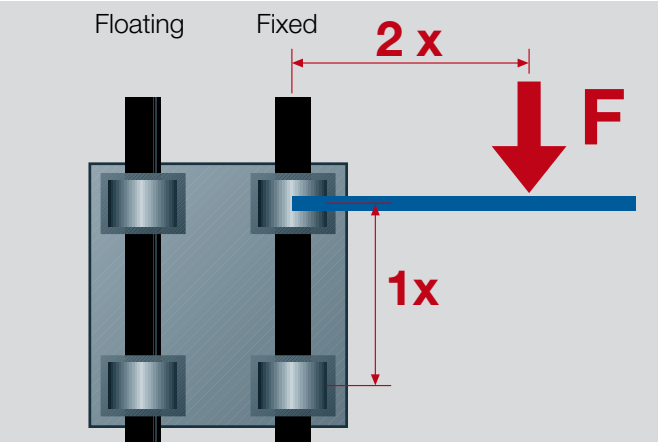
Eccentric Forces

To ensure successful use of maintenance-free DryLin® linear bearings, it is necessary to follow certain recommendations: If the distance between the driving force point and the fixed bearings is more than twice the bearing spacing (2:1 rule), a static friction value of 0.25 can theoretically result in jamming on the guides. This principle applies regardless of the value of the load or drive force.

The friction product is always related to the fixed bearings. The greater the distance between the drive and guide bearings, the higher the degree of wear and required drive force.

Failure to observe the 2:1 rule during a use of linear slide bearings can result in uneven motion or even system blockage. Such situations can often be remedied with relatively simple modifications.

If you have any questions on design and/or assembly, please contact our application engineers.



Graph 03: The 2:1 rule

OJUM-06-LL:
▶ page 824

RJUM-06-LL:
▶ page 819

Series RJUM-03/OJUM-03	±0.5 °
Series RJUM-06-LL/OJUM-06-LL:	±3.5 °

Table 02: Compensation of angle errors

Series RJUM-03/OJUM-03	±0.1 mm
Series RJUM-06-LL/OJUM-06-LL:	±3 mm

Table 03: Compensation of parallelism errors

DryLin® R | Product Overview

DryLin® R-Variations

High wear-resistant, compatible with standard-ball linings, robust even in extreme environments and allways 100 % lubrication-free. Liners made from iglidur® J (JUM-01/JUMO-01) are standard inside all aluminum- and stainless-steel housings.

DryLin® R | JUM-01

DryLin® R | XUM

1. Liners and Pressfit Bearings

- Low friction, optimised wear quality
- Space saving, low weight
- High chemical-resistant

▶ **from page 796**

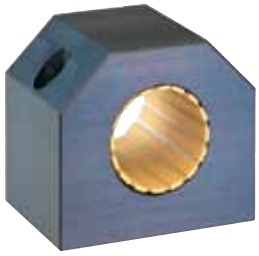
DryLin® R | RJUM-01

DryLin® R | RJMP-01

2. Linear Plain Bearings

- Aluminum/stainl. steel adapter with liner made of iglidur® J
- Solid plastic bearing made of iglidur® J, dimensions corresponding to the standard for recirculating ball bearings
- Closed or split
- Self-aligning

▶ **from page 804**



DryLin® R | RJUM-05

DryLin® R | RJUM-06-LL

3. House Bearing and Floating House Bearing

- 100 % lubrication-free
- Easy to fit
- High statical load
- Replaceable liners
- Split housing for quick bearing replacement available

▶ **from page 814**

DryLin® R | FJUM-01

DryLin® R | FJUM-02

4. Flange Bearing

- Easy to fit
- Round or square type
- Standard design or tandem flange

▶ **from page 825**

DryLin® R | OJUM-01

DryLin® R | OJUM-06

5. Open Linear Plain Bearings

- For supported shafts
- Cylindric or housing form
- Optional adjustable
- Optional floating bearing type for quick assembly

▶ **from page 797**

DryLin® R | Installation instructions

DryLin® R shaft guides are designed for completely lubrication-free operation. The dimensions of the respective linear adapter and housing meet the standard for recirculating ball bearings. During assembly, please note the following installation instructions:

Construction tips for DryLin® linear plain bearings:
The above values for „$F_{max.}$“ relate to the performance of the iglidur® liners made of high-performance plastics and cannot be used as the sole criterion for the calculation of an application. The maximum carrying capacity of the entire bearing system depends on the installation position, housing shape, the housing material, the connection including the screws used and requires a separate inspection. For a detailed dimensioning, please use our online configurator at ▶ **www.igus.co.uk/drylin-expert**

Recommended shaft-tolerance: h6–h10
Roughness [Ra]: 0.15–0.6
Guide shafts, round/supported ▶ **shafts, page 843**

Recommended mounting hole: H7
Linear Plain Bearing RJUM-01/03, TJUM-01/03, RJM, RJMP, RJ260(U)M02, Pressfit bearing WLM, WLFM

Liners:
JUM, XUM, JUMO, XUMO, JUI,JUIO
● Interlocking clip-on in the housing bore ● Axial securing is effected by a snap ring groove ● Twist protection through engagement of the safety pin in hole ø z

Pressfit Bearings:
WLM, WLFM
● Installation by pressing into the H7 housing bore
▶ Assembly-instruction, **page 56**

Linear Plain Bearings:
RJUM-01, RJUM-11, RJUM-ES, TJUM, RJUM-03, TJUM-03, RJUI-01, RJUI-03, TJUI-01, TJUI-03
● Secured by DIN 471 or 472 circlips, metric types (not included in delivery)

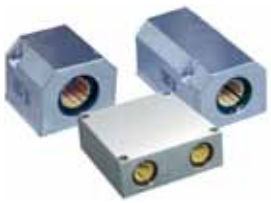
Solid Plastic Bearings:
RJM, RJI-01
● Fastening through pressfit or with circlips according to DIN 471 or 472 (not included in delivery) ● The E9 inner tolerance ensues only after the pressfit

Solid Plastic Bearings:
RJMP
● Easy assembly by soft pressfit ● Secured by DIN 471 or 472 circlips, metric types (not included in delivery)

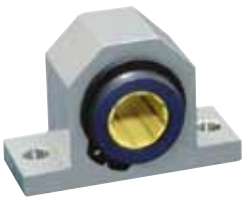
Linear Plain Bearings:
RJUM-02
● Secured by pressfitting in steel housing bore H7 or aluminum housing bore K7 ● Alternatively, the adapter can be glued with commercially available 2-component adhesive in housing

Compact Bearing:
RJ260 (UM-02)
● Axial saving and press fit into housing bore H7 ● Alternatively, the adapter can be glued with commercially available 2-component adhesive in housing

Linear Plain Bearings:
OJUM-01, OJUM-03, OJUI-01, OJUI-03
● Secure the bearing with set screws (not included in delivery)

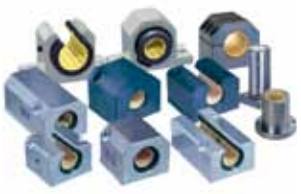


Quad Block: RQA, RGA
Tandem Design: RTA
● The bearing in the housing is secured using DIN 472 circlips (not included in delivery)



Linear Housing:
RGAS
● The bearing in the housing is secured using DIN 472 circlips (not included in delivery)

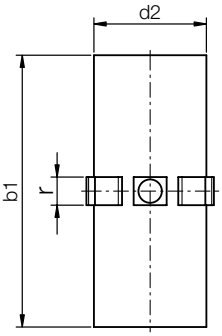
Quad Block: OQA, OGA,
Linear Housing: OGAS,
Tandem Design: OTA
● The bearings of the housings are secured using set screws

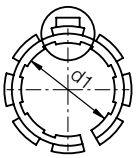


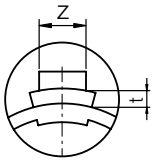
Pillow Block: RJUM/E/T-05, RJUM-06/-LL, OJUM/E-06/-LL,
Flange Housing: FJUM/T-01/02
Quad Block: RGA, OGA,
Tandem Design: RTA, OTA,
Linear Housing: RGAS, OGAS
● Mounting screws of the housing DIN 912-8.8 ● Circlips according to DIN 7980

DryLin® R Linear | Product Range

Closed, long design







Order key

JUM-01-10

- Diameter
- Standard
- Metric
- Liner
- Material iglidur® J

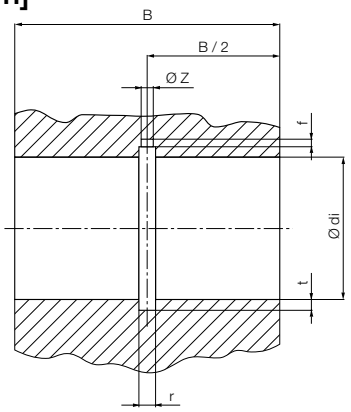
* according to igus® testing method ▶ page 828
Ø < 10 use iglidur® JSM sleeve bearings ▶ page 89
Please note: Installation instructions ▶ page 795

Dimensions [mm]

Part number	d1	Tolerance*	d2	b1	r	t	z	Weight [g]
JUM-01-10	10	+0.030 +0.070	12	28	3.0	0.8	2.5	1.10
JUM-01-12	12	+0.030 +0.070	14	31	3.0	0.8	3.0	1.50
JUM-01-16	16	+0.030 +0.070	18	35	3.5	0.8	3.5	2.20
JUM-01-20	20	+0.030 +0.070	23	44	5.0	0.8	3.5	4.90
JUM-01-25	25	+0.030 +0.070	28	57	5.0	0.8	4.0	8.23
JUM-01-30	30	+0.040 +0.085	34	67	5.0	0.8	4.0	14.95
JUM-01-40	40	+0.040 +0.085	44	79	6.0	1.3	5.0	23.16
JUM-01-50	50	+0.050 +0.100	55	99	7.0	1.3	6.0	45.35
JUM-01-60**	60	+0.050 +0.100	65	124	8.0	2.5	6.5	70.00

Installation Drawings Housing Bore for Liner JUM-01 | Dimensions [mm]

Part number	Shaft Ø	di H7	B h10	r +0.05	t +0.1	f +0.5	z +0.2
JUM-01-10	10	12	29	3.0	1.0	1,0	2.6
JUM-01-12	12	14	32	3.0	1.0	1,5	3.1
JUM-01-16	16	18	36	3.5	1.0	1,7	3.6
JUM-01-20	20	23	45	5.0	1.0	2,0	3.6
JUM-01-25	25	28	58	5.0	1.0	2.0	4.1
JUM-01-30	30	34	68	5.0	1.0	2.0	4.1
JUM-01-40	40	44	80	6.0	1.5	2.5	5.1
JUM-01-50	50	55	100	7.0	1.5	2.5	6.1
JUM-01-60**	60	65	124	8.0	2.5	3.0	6.5



** in two parts

Can be combined with:


RJUM-01/-03
TJUM-01/-03

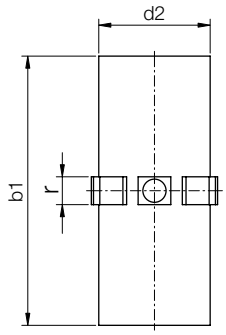

RJUM-06/-06-LL

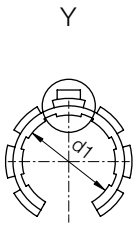

FJUM-01/-02

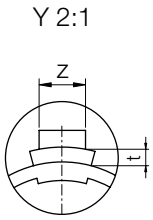
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number JUM-01-10

DryLin® R Linear | Product Range

Open, long design







Order key

JUMO-01-10

- Diameter
- Standard
- Open
- Metric
- Liner
- Material iglidur® J

● For supported shafts

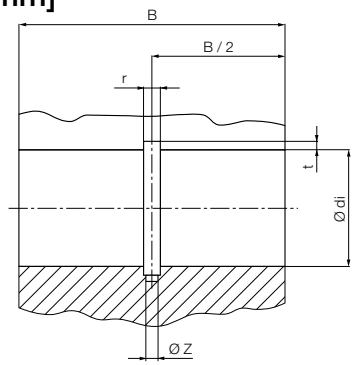
* according to igus® testing method ▶ page 828
Please note: Installation instructions ▶ page 795

Dimensions [mm]

Part number	d1	Tolerance*	d2	b1	r	t	z	Weight [g]
JUMO-01-10	10	+0.030 +0.070	12	29	3.0	0.8	2.5	0.90
JUMO-01-12	12	+0.030 +0.070	14	31	3.0	0.8	3.0	1.16
JUMO-01-16	16	+0.030 +0.070	18	35	3.5	0.8	3.5	1.71
JUMO-01-20	20	+0.030 +0.070	23	44	5.0	0.8	3.5	4.16
JUMO-01-25	25	+0.030 +0.070	28	57	5.0	0.8	4.0	6.97
JUMO-01-30	30	+0.040 +0.085	34	67	5.0	0.8	4.0	12.38
JUMO-01-40	40	+0.040 +0.085	44	79	6.0	1.3	5.0	20.18
JUMO-01-50	50	+0.050 +0.100	55	99	7.0	1.3	6.0	38.60
JUMO-01-60**	60	+0.050 +0.100	65	124	8.0	2.5	6.5	60.10

Installation Drawings Housing Bore for Liner JUMO-01 | Dimensions [mm]

Part number	Shaft Ø	di H7	B h10	r +0.05	t +0.1	f +0.5	z +0.2
JUMO-01-10	10	12	29	3.0	1.0	1.0	2.6
JUMO-01-12	12	14	32	3.0	1.0	1.5	3.1
JUMO-01-16	16	18	36	3.5	1.0	1.7	3.6
JUMO-01-20	20	23	45	5.0	1.0	2.0	3.6
JUMO-01-25	25	28	58	5.0	1.0	2.0	4.1
JUMO-01-30	30	34	68	5.0	1.0	2.0	4.1
JUMO-01-40	40	44	80	6.0	1.5	2.5	5.1
JUMO-01-50	50	55	100	7.0	1.5	2.5	6.1
JUMO-01-60**	60	65	124	8.0	2.5	3.0	6.5



** in two parts

Can be combined with:

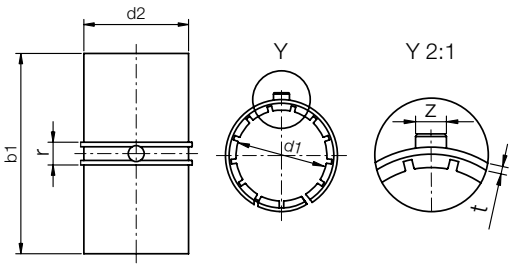

OJUM-01/-03


OJUM-06/-06-LL

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number JUMO-01-10

DryLin® R Linear | Product Range

Closed, long design, precise



Order key

JUM-11-10

- Diameter
- Precision
- Metric
- Liner
- Material iglidur® J

- Max. bearing clearance reduced by 50 % compared to JUM-01
- Increased bearing area = longer service life

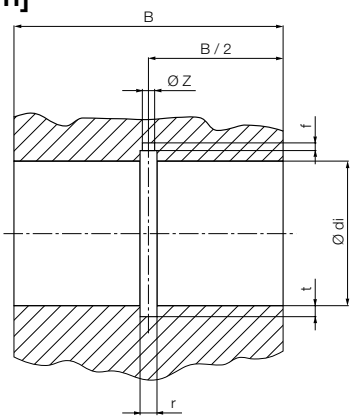
*** according to igus® testing method ▶ page 828**
Please note: Installation instructions ▶ page 795

Dimensions [mm]

Part number	d1	Tolerance*	d2	b1	r	t	z	Weight [g]
JUM-11-10	10	+0.000 +0.040	12	29	3.0	0.8	2.5	1.23
JUM-11-12	12	+0.000 +0.040	14	31	3.0	0.8	3.0	1.65
JUM-11-16	16	+0.000 +0.040	18	35	3.5	0.8	3.5	2.42
JUM-11-20	20	+0.000 +0.040	23	44	5.0	0.8	3.5	5.49
JUM-11-25	25	+0.000 +0.040	28	57	5.0	0.8	4.0	8.86
JUM-11-30	30	+0.000 +0.050	34	67	5.0	0.8	4.0	16.63
JUM-11-40	40	+0.000 +0.050	44	79	6.0	1.3	5.0	26.06
JUM-11-50	50	+0.000 +0.060	55	99	7.0	1.3	6.0	48.82

Installation Drawings Housing Bore for Liner JUM-11 | Dimensions [mm]

Part number	Shaft Ø	di H7	B h10	r +0.05	t +0.1	f +0.5	z +0.2
JUM-11-10	10	12	29	3.0	1.0	1.0	2.6
JUM-11-12	12	14	32	3.0	1.0	1.5	3.1
JUM-11-16	16	18	36	3.5	1.0	1.7	3.6
JUM-11-20	20	23	45	5.0	1.0	2.0	3.6
JUM-11-25	25	28	58	5.0	1.0	2.0	4.1
JUM-11-30	30	34	68	5.0	1.0	2.0	4.1
JUM-11-40	40	44	80	6.0	1.5	2.5	5.1
JUM-11-50	50	55	100	7.0	1.5	2.5	6.1



Can be combined with:


RJUM-01/-03
TJUM-01/-03


RJUM-06/-06-LL


FJUM-01/-02

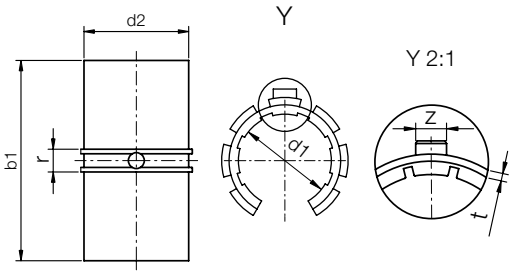
delivery time available from stock

prices price list online www.igus.co.uk/en/DryLinR

order example part number JUM-11-10

DryLin® R Linear | Product Range

Open, long design, precise



Order key

JUMO-11-10

- Diameter
- Precision
- Open
- Metric
- Liner
- Material iglidur® J

- Increased bearing area = longer service life
- Max. bearing clearance reduced by 50 %

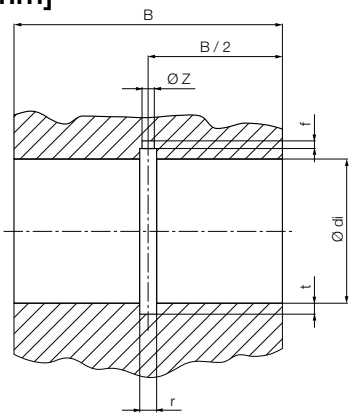
*** according to igus® testing method ▶ page 828**
Please note: Installation instructions ▶ page 795

Dimensions [mm]

Part number	d1	Tolerance*	d2	b1	r	t	z	Weight [g]
JUMO-11-10	10	+0.000 +0.040	12	28	3.0	0.8	2.5	1.10
JUMO-11-12	12	+0.000 +0.040	14	31	3.0	0.8	3.0	1.50
JUMO-11-16	16	+0.000 +0.040	18	35	3.5	0.8	3.5	2.20
JUMO-11-20	20	+0.000 +0.040	23	44	5.0	0.8	3.5	4.90
JUMO-11-25	25	+0.000 +0.040	28	57	5.0	0.8	4.0	8.23
JUMO-11-30	30	+0.000 +0.050	34	67	5.0	0.8	4.0	14.95
JUMO-11-40	40	+0.000 +0.050	44	79	6.0	1.3	5.0	23.16
JUMO-11-50	50	+0.000 +0.060	55	99	7.0	1.3	6.0	45.35

Installation Drawings Housing Bore for Liner JUMO-11 | Dimensions [mm]

Part number	Shaft Ø	di H7	B h10	r +0.05	t +0.1	f +0.5	z +0.2
JUMO-11-10	10	12	29	3.0	1.0	1.0	2.6
JUMO-11-12	12	14	32	3.0	1.0	1.5	3.1
JUMO-11-16	16	18	36	3.5	1.0	1.7	3.6
JUMO-11-20	20	23	45	5.0	1.0	2.0	3.6
JUMO-11-25	25	28	58	5.0	1.0	2.0	4.1
JUMO-11-30	30	34	68	5.0	1.0	2.0	4.1
JUMO-11-40	40	44	80	6.0	1.5	2.5	5.1
JUMO-11-50	50	55	100	7.0	1.5	2.5	6.1



Can be combined with:

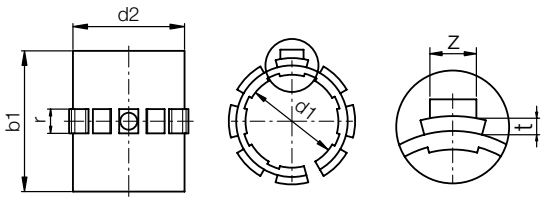

OJUM-01/-03


OJUM-06/-06-LL

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number JUMO-11-10

DryLin® R Linear | Product Range

Closed, short Design



Order key

JUM-02-10

- Diameter
- Short v.
- Metric
- Liner
- Material iglidur® J

● Available also as low-clearance version (JUM-12...)

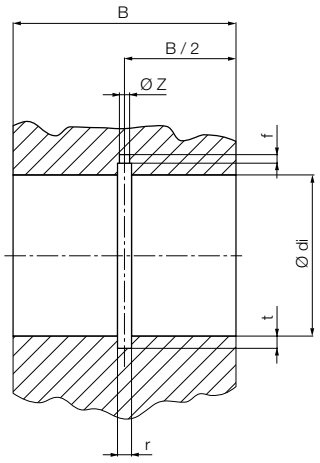
*** according to igus® testing method ▶ page 828**
Please note: Installation instructions ▶ page 795

Dimensions [mm]

Part number	d1	Tolerance*	d2	b1	r	t	z	Weight [g]
JUM-02-10	10	+0.030 +0.070	12	25	3.0	0.8	2.5	1.02
JUM-02-12	12	+0.030 +0.070	14	27	3.0	0.8	3.0	1.27
JUM-02-16	16	+0.030 +0.070	18	29	3.5	0.8	3.5	1.82
JUM-02-20	20	+0.030 +0.070	23	29	5.0	0.8	3.5	3.27
JUM-02-25	25	+0.030 +0.070	28	39	5.0	0.8	4.0	5.75
JUM-02-30	30	+0.040 +0.085	34	49	5.0	0.8	4.0	11.28
JUM-02-40	40	+0.040 +0.085	44	59	6.0	1.3	5.0	17.94
JUM-02-45	45	+0.040 +0.085	50	59	7.0	1.3	6.0	27.00
JUM-02-50	50	+0.050 +0.100	55	69	7.0	1.3	6.0	32.56

Installation Drawings Housing Bore for JUM-02 | Dimensions [mm]

Part number	Shaft Ø	di H7	B h10	r +0.05	t +0.1	f +0.5	z +0.2
JUM-02-10	10	12	26	3.0	1.0	1.0	2.6
JUM-02-12	12	14	28	3.0	1.0	1.5	3.1
JUM-02-16	16	18	30	3.5	1.0	1.7	3.6
JUM-02-20	20	23	30	5.0	1.0	2.0	3.6
JUM-02-25	25	28	40	5.0	1.0	2.0	4.1
JUM-02-30	30	34	50	5.0	1.0	2.0	4.1
JUM-02-40	40	44	60	6.0	1.5	2.5	5.1
JUM-02-45	45	50	60	7.0	1.5	2.5	6.1
JUM-02-50	50	55	70	7.0	1.5	2.5	6.1



Can be combined with:

RJUM-02

RJUM-05/RJUME-05
TJUM-05/RJUMT-05

FJUMT-01/-02

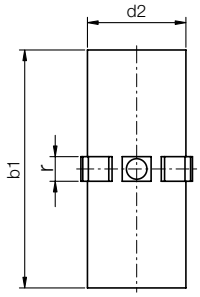
delivery time available from stock

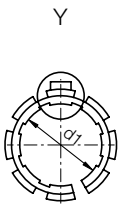
prices price list online www.igus.co.uk/en/DryLinR

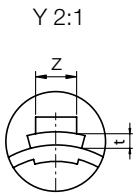
order example part number JUM-02-10

DryLin® R Linear | Product Range

Open design (XUMO...) closed, long design (XUM-01) and short (XUM-02)







Order key

XUM-01-12

- Diameter
- Standard
- Metric
- Liner
- Material iglidur® X

- Temperatures from +100 to +250 °C
- Recommended in combination with stainless steel or chrome-plated shafts

*** according to igus® testing method ▶ page 828**
Please note: Installation instructions ▶ page 795

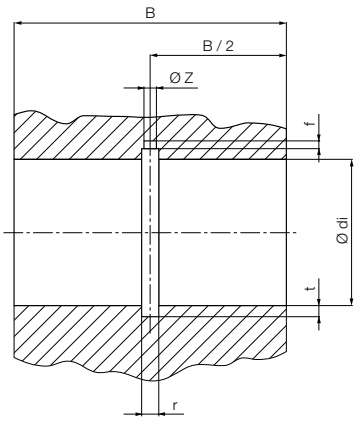
Dimensions [mm]

Part number	d1	Tolerance*	d2	b1	r	t	z	Weight [g]
XUMO-01-10**	10	+0.000 +0.020	12	28	3.0	0.8	2.5	1.0
XUM-01-12/-02-12	12	+0.030 +0.070	14	31/27	3.0	0.8	3.0	1.46
XUM-01-14	14	+0.030 +0.070	16	30	3.5	0.6	3.5	1.81
XUM-01-16/-02-16	16	+0.030 +0.070	18	35/29	3.5	0.8	3.5	2.13
XUM-01-20/-02-20	20	+0.030 +0.070	23	44/29	5.0	0.8	3.5	4.7
XUM-01-25/-02-25	25	+0.030 +0.070	28	57/ 39	5.0	0.8	4.0	8.27
XUM-01-30/-02-30	30	+0.040 +0.085	34	67/49	5.0	0.8	4.0	15.57
XUM-01-40/-02-40	40	+0.040 +0.085	44	79/59	6.0	1.3	5.0	24.0

** only available with open design

Installation Drawings Housing Bore for XUM-01 | Dimensions [mm]

Part number	Shaft Ø	di H7	B h10	r +0.05	t +0.1	f +0.5	z +0.2
XUMO-01-10	10	12	29	3.0	1.0	1.0	2.6
XUM-01-12	12	14	32	3.0	1.0	1.5	3.1
XUM-01-14	14	16	31	3.	0.8	1.7	3.6
XUM-01-16	16	18	36	3.5	1.0	1.7	3.6
XUM-01-20	20	23	45	5.0	1.0	2.0	3.6
XUM-01-25	25	28	58	5.0	1.0	2.0	4.1
XUM-01-30	30	34	68	5.0	1.0	2.0	4.1
XUM-01-40	40	44	80	6.0	1.5	2.5	5.1



Can be combined with:

RJUM-01/-03
TJUM-01/-03

RJUM-06/-06-LL

FJUM-01/-02

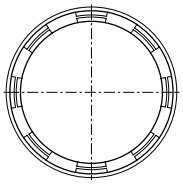
delivery time available from stock

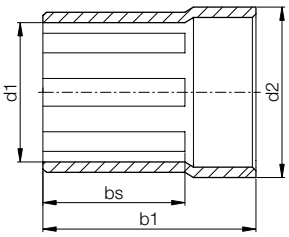
prices price list online www.igus.co.uk/en/DryLinR

order example part number XUM-01-12

DryLin® R Pressfit Bearing | Product Range

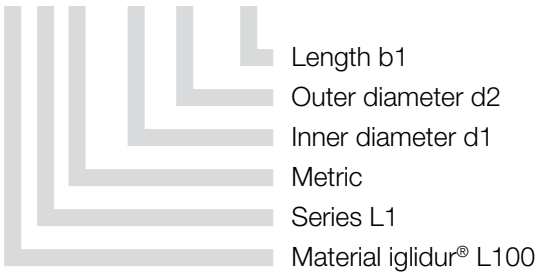
made of iglidur® L100 ▶ page 985





Order key

WLM-0608-10



- Highly wear-resistant
- Low friction

*** Measured with a plug gauge**

Please note: Installation instructions ▶ page 795

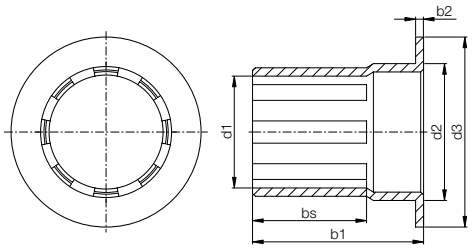
Dimensions [mm]

Part number	d1	Tolerance*	d2	b1	bs
WLM-0608-10	6	+0.000 +0.040	8	10	6
WLM-0810-12	8	+0.000 +0.050	10	12	8
WLM-1012-14	10	+0.000 +0.050	12	14.5	10
WLM-1012-16	10	+0.000 +0.050	12	16	10
WLM-1214-16	12	+0.000 +0.050	14	16	10
WLM-1214-25	12	+0.000 +0.050	14	25	15
WLM-1618-18	16	+0.000 +0.050	18	18	10
WLM-1618-26	16	+0.000 +0.050	18	26	16
WLM-2023-22	20	+0.000 +0.060	23	22.5	12.5
WLM-2023-30	20	+0.000 +0.060	23	30	20
WLM-2225-30	22	+0.000 +0.060	25	30	20
WLM-2528-29	25	+0.000 +0.060	28	29	19
WLM-2528-35	25	+0.000 +0.060	28	35	25
WLM-3034-34	30	+0.000 +0.060	34	34	24
WLM-3034-40	30	+0.000 +0.060	34	40	30
WLM-4044-40	40	+0.000 +0.060	44	40	30
WLM-4044-50	40	+0.000 +0.060	44	50	40
WLM-5055-50	50	+0.000 +0.070	55	50	40
WLM-5055-60	50	+0.000 +0.070	55	60	50

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/DryLinR | order example **part number WLM-0608-10**

DryLin® R Pressfit Bearing | Product Range

made of iglidur® L100 ▶ page 985



- Highly wear-resistant
- Low friction

Order key

WLFM-1214-15

- Length b1
- Outer diameter d2
- Inner diameter d1
- Metric
- Flange
- Series L1
- Material iglidur® L100

*** Measured with a plug gauge**

Please note: Installation instructions ▶ page 795

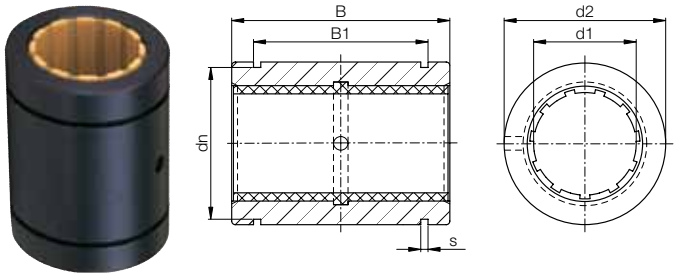
Dimensions [mm]

Part number	d1	Tolerance*	d2	d3	b1	b2	bs
WLFM-1214-15	12	+0.000 +0.050	14	20	15.0	1.0	9
WLFM-1618-16	16	+0.000 +0.050	18	24	16.0	1.0	10
WLFM-2023-16	20	+0.000 +0.060	23	30	16.5	1.5	10
WLFM-2528-21	25	+0.000 +0.060	28	35	21.5	1.5	11
WLFM-3034-27	30	+0.000 +0.060	34	42	27.0	2.0	15
WLFM-4044-32	40	+0.000 +0.060	44	52	32.0	2.0	20
WLFM-5055-37	50	+0.000 +0.070	55	63	37.5	2.5	25

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number WLFM-1214-15

DryLin® R Linear Plain Bearing | Product Range

Closed anodized aluminum adapter



- Dimension equivalent to the standard for recirculating ball bearings
- JUM-01 liner made of iglidur® J

Order key

RJUM-01-10

- Diameter
- Standard
- Metric
- Liner
- Material iglidur® J
- Closed

* according to igus® testing method ▶ page 828
** Ø < 10 mm use iglidur® JSM sleeve bearings
*** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic*** P = 5 MPa	F max. static*** P = 35 MPa	Weight
	[mm]	[mm]	[N]	[N]	[g]
RJZM-01-05**	5	+0.025 +0.060	525	3,675	5
RJZM-01-06**	6	+0.025 +0.060	525	3,675	5
RJZM-01-08**	8	+0.032 +0.070	960	6,720	9
RJUM-01-10	10	+0.030 +0.088	725	5,075	14
RJUM-01-12	12	+0.030 +0.088	960	6,720	21
RJUM-01-16	16	+0.030 +0.088	1,440	10,080	28
RJUM-01-20	20	+0.030 +0.091	2,250	15,750	49
RJUM-01-25	25	+0.030 +0.091	3,625	25,375	108
RJUM-01-30	30	+0.040 +0.110	5,100	35,700	162
RJUM-01-40	40	+0.040 +0.115	8,000	56,000	334
RJUM-01-50	50	+0.050 +0.130	12,500	87,500	579

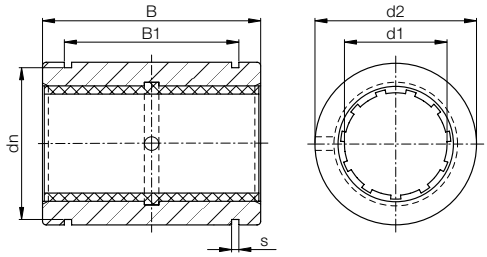
Dimensions [mm]

Part number	d1	d2 h7	B h10	B1 H10	s H10	dn h10
RJZM-01-05**	5	12	22	14.2	1.10	11.5
RJZM-01-06**	6	12	22	14.2	1.10	11.5
RJZM-01-08**	8	16	25	16.2	1.10	15.2
RJUM-01-10	10	19	29	21.6	1.30	17.5
RJUM-01-12	12	22	32	22.6	1.30	20.5
RJUM-01-16	16	26	36	24.6	1.30	24.2
RJUM-01-20	20	32	45	31.2	1.60	29.6
RJUM-01-25	25	40	58	43.7	1.85	36.5
RJUM-01-30	30	47	68	51.7	1.85	43.5
RJUM-01-40	40	62	80	60.3	2.15	57.8
RJUM-01-50	50	75	100	77.3	2.65	70.5

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUM-01-10

DryLin® R Linear Plain Bearing | Product Range

Closed anodized aluminum adapter, precise



- Dimension equivalent to the standard for recirculating ball bearings
- Max. bearing clearance reduced by 50 % compared to RJUM-01

Order key

RJUM-11-10

- Diameter
- Standard
- Metric
- Liner
- Material iglidur® J
- Closed

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa	F max. static** P = 35 MPa	Weight
	[mm]	[mm]	[N]	[N]	[g]
RJUM-11-10	10	+0.000 +0.058	725	5,075	14
RJUM-11-12	12	+0.000 +0.058	960	6,720	21
RJUM-11-16	16	+0.000 +0.058	1,440	10,080	28
RJUM-11-20	20	+0.000 +0.061	2,250	15,750	49
RJUM-11-25	25	+0.000 +0.061	3,625	25,375	108
RJUM-11-30	30	+0.000 +0.075	5,100	35,700	162
RJUM-11-40	40	+0.000 +0.080	8,000	56,000	334
RJUM-11-50	50	+0.000 +0.090	12,500	87,500	579

Dimensions [mm]

Part number	d1	d2	B	B1	s	dn
		h7	h10	H10	H10	h10
RJUM-11-10	10	19	29	21.6	1.30	17.5
RJUM-11-12	12	22	32	22.6	1.30	20.5
RJUM-11-16	16	26	36	24.6	1.30	24.2
RJUM-11-20	20	32	45	31.2	1.60	29.6
RJUM-11-25	25	40	58	43.7	1.85	36.5
RJUM-11-30	30	47	68	51.7	1.85	43.5
RJUM-11-40	40	62	80	60.3	2.15	57.8
RJUM-11-50	50	75	100	77.3	2.65	70.5

Can be combined with:

RQA-/RTA-/RGA-01
RGAS-01

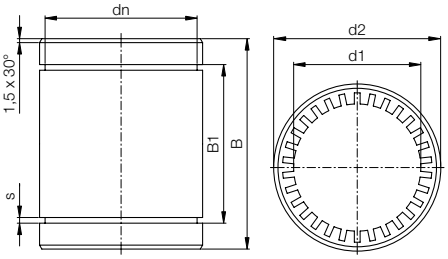
RJUM-01 ▶ page 804 and RJUM-11 also available with liners:

XUM-01

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUM-11-10

DryLin® R Solid Polymer Bearing | Product Range

Standard type made of iglidur® J ▶ page 89



Order key

RJM-01-08

- Diameter
- Standard
- Metric
- Material iglidur® J
- Closed

- Dimension equivalent to the standard for recirculating ball bearings
- Assembly by pressfitting
  ▶ Press-in forces: see table

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* for d1	F max. dyn.**, P = 2.5 MPa	F max. stat.**, P = 17.5 MPa	Weight	Pressfit pressfit force
		E9	[N]	[N]	[g]	[N]
RJM-01-08	8	+0.025 +0.061	250	1,750	4	400
RJM-01-10	10	+0.032 +0.075	363	2,538	7	700
RJM-01-12	12	+0.032 +0.075	480	3,360	9	1,300
RJM-01-16	16	+0.032 +0.075	720	5,040	13	1,100
RJM-01-20	20	+0.040 +0.092	1,125	7,875	24	1,500
RJM-01-25	25	+0.040 +0.092	1,813	12,688	47	3,500
RJM-01-30	30	+0.040 +0.092	2,550	17,850	72	4,500
RJM-01-40	40	+0.050 +0.112	4,000	28,000	127	4,200

Dimensions [mm]

Part number	d1	d2	B	B1	s	dn
RJM-01-08	8	16	25	16.2	1.10	15.2
RJM-01-10	10	19	29	21.6	1.30	17.5
RJM-01-12	12	22	32	22.6	1.30	20.5
RJM-01-16	16	26	36	24.6	1.30	24.2
RJM-01-20	20	32	45	31.2	1.60	29.6
RJM-01-25	25	40	58	43.7	1.85	36.5
RJM-01-30	30	47	68	51.7	1.85	43.5
RJM-01-40	40	62	80	60.3	2.15	57.8

Can be combined with:

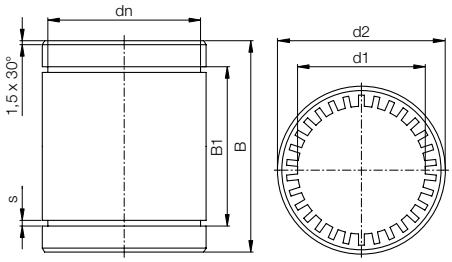

RQA-/RTA-/ RGAS-04


RGA-04

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJM-01-08

DryLin® R Solid Polymer Bearing | Product Range

Standard type, precise



Order key

RJMP-01-06

- Diameter
- Standard
- Precision
- Metric
- Material iglidur® J
- Closed

- Easy assembly by soft pressfit
- Reduced bearing clearance

* according to igus® testing method ▶ page 828

** construction standards ▶ page 829

Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* für d1	F max. dyn.**, P = 2.5 MPa [N]	F max. stat.**, P = 2.5 MPa [N]	Weight [g]
RJMP-01-06	6	+0.000 +0.030	200	1,400	2
RJMP-01-08	8	+0.000 +0.040	250	1,750	4
RJMP-01-10	10	+0.000 +0.040	363	2,538	7
RJMP-01-12	12	+0.000 +0.040	480	3,360	9
RJMP-01-16	16	+0.000 +0.040	720	5,040	13
RJMP-01-20	20	+0.000 +0.040	1,125	7,875	24
RJMP-01-25	25	+0.000 +0.050	1,813	12,688	47
RJMP-01-30	30	+0.000 +0.050	2,550	17,850	72

Dimensions [mm]

Part number	d1	d2	B	B1	s	dn
RJMP-01-06	6	12	19	13.5	1.10	11.5
RJMP-01-08	8	16	25	16.2	1.10	15.2
RJMP-01-10	10	19	29	21.6	1.30	17.5
RJMP-01-12	12	22	32	22.6	1.30	20.5
RJMP-01-16	16	26	36	24.6	1.30	24.2
RJMP-01-20	20	32	45	31.2	1.60	29.6
RJMP-01-25	25	40	58	43.7	1.85	36.5
RJMP-01-30	30	47	68	51.7	1.85	43.5

Can be combined with:

RQA-/RTA-/ RGAS-04

RGA-04

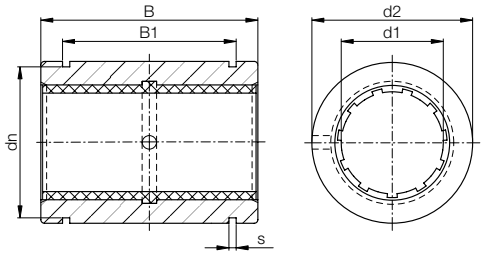
delivery time available from stock

prices price list online www.igus.co.uk/en/DryLinR

order example part number RJMP-01-06

DryLin® R Linear Plain Bearing | Product Range

Closed stainless steel adapter 1.4305



Order key

RJUM-01-12-ES

- Stainless Steel
- Diameter
- Standard
- Metric
- Liner
- Material iglidur® J
- Closed

- Dimensions correspond to the standard for recirculating ball bearings

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa	F max. static** P = 35 MPa	Weight
	[mm]	[mm]	[N]	[N]	[g]
RJUM-01-12-ES	12	+0.030 +0.088	960	6,720	60
RJUM-01-16-ES	16	+0.030 +0.088	1,440	10,080	84
RJUM-01-20-ES	20	+0.030 +0.091	2,250	15,750	147
RJUM-01-25-ES	25	+0.030 +0.091	3,625	25,375	324
RJUM-01-30-ES	30	+0.040 +0.110	5,100	35,700	486

Dimensions [mm]

Part number	d1	d2	B	B1	s	dn
		h7	h10	H10	H10	h10
RJUM-01-12-ES	12	22	32	22.6	1.30	20.5
RJUM-01-16-ES	16	26	36	24.6	1.30	24.2
RJUM-01-20-ES	20	32	45	31.2	1.60	29.6
RJUM-01-25-ES	25	40	58	43.7	1.85	36.5
RJUM-01-30-ES	30	47	68	51.7	1.85	43.5

Also available with liners:


JUM-11

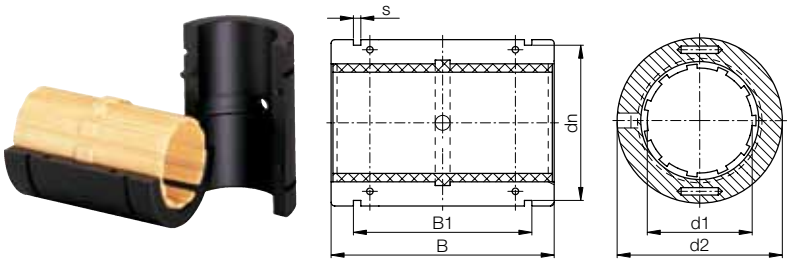

XUM-01

STAIN-LESS STEEL

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUM-01-12 ES

DryLin® R Linear Plain Bearing | Product Range

Split anodized aluminum adapter



Order key

TJUM-01-10

- Diameter
- Standard
- Metric
- Liner
- Material iglidur® J
- Split

- Dimensions correspond to the standard for recirculating ball bearings
- Quick replacement of bearing lining without dismantling the shaft

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dyn.** P = 5 MPa [N]	F max. stat.** P = 35 MPa [N]	Weight [g]
TJUM-01-10	10	+0.030 +0.092	725	5,075	14
TJUM-01-12	12	+0.030 +0.097	960	6,720	19
TJUM-01-16	16	+0.030 +0.097	1,440	10,080	27
TJUM-01-20	20	+0.030 +0.103	2,250	15,750	49
TJUM-01-25	25	+0.030 +0.103	3,625	25,375	106
TJUM-01-30	30	+0.040 +0.124	5,100	35,700	166
TJUM-01-40	40	+0.040 +0.124	8,000	56,000	347
TJUM-01-50	50	+0.050 +0.146	12,500	87,500	577

Dimensions [mm]

Part number	d1	d2	B h10	B1 H10	s H10	dn
TJUM-01-10	10	19 –0.020 –0.040	29	21.6	1.30	17.5
TJUM-01-12	12	22 –0.020 –0.040	32	22.6	1.30	20.5
TJUM-01-16	16	26 –0.020 –0.040	36	24.6	1.30	24.2
TJUM-01-20	20	32 –0.020 –0.045	45	31.2	1.60	29.6
TJUM-01-25	25	40 –0.030 –0.055	58	43.7	1.85	36.5
TJUM-01-30	30	47 –0.030 –0.055	68	51.7	1.85	43.5
TJUM-01-40	40	62 –0.030 –0.060	80	60.3	2.15	57.8
TJUM-01-50	50	75 –0.030 –0.060	100	77.3	2.65	70.5

Can be combined with:

RQA-/RTA-/RGA-01
RGAS-01

Also available with liners:

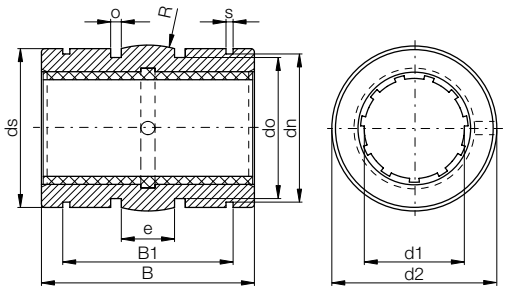
JUM-11

XUM-01

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number TJUM-01-10

DryLin® R Linear Plain Bearing | Product Range

Closed aluminum adapter (floating bearing)



- With reduced outer diameter, spherical area on the outer diameter, O-rings for elastic seating and hard anodized surface

Order key

RJUM-03-10

- Diameter
- Self-aligning
- Metric
- Liner
- Material iglidur® J
- Closed

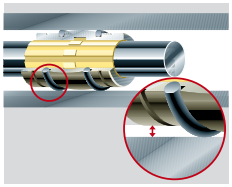
* according to igus® testing method ▶ page 828
** Ø < 10 mm use iglidur® JSM sleeve bearings
*** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795
Floating bearing ▶ page 793

Technical Data

Part number	Shaft Ø	Housing bore, Ø H7	Tolerance* bearing inner-Ø	F max. dyn.***, P = 5 MPa, [N]	F max. stat.***, P = 35 MPa, [N]	Weight [g]
RJZM-03-08**	8	16	+0.032 +0.070	960	6,720	8
RJUM-03-10	10	19	+0.030 +0.088	725	5,075	11
RJUM-03-12	12	22	+0.030 +0.088	960	6,720	17
RJUM-03-16	16	26	+0.030 +0.088	1,440	10,080	23
RJUM-03-20	20	32	+0.030 +0.091	2,250	15,750	44
RJUM-03-25	25	40	+0.030 +0.091	3,625	25,375	92
RJUM-03-30	30	47	+0.040 +0.110	5,100	35,700	145
RJUM-03-40	40	62	+0.040 +0.115	8,000	56,000	311
RJUM-03-50	50	75	+0.050 +0.130	12,500	87,500	542

Dimensions [mm]

Part number	d1	d2 h8	B h10	B1 H10	s H10	dn h10	ds h10	do	o +0.1	e	R
RJZM-03-08**	8	15.8	24.9	16.4	1.10	15.0	15.5	13.2	1.86	5.0	20.0
RJUM-03-10	10	18.8	28.9	21.8	1.30	17.5	18.5	15.4	1.86	5.0	13.0
RJUM-03-12	12	21.8	31.9	22.8	1.30	20.5	21.5	18.4	1.86	6.0	18.0
RJUM-03-16	16	25.8	35.9	24.9	1.30	24.2	25.5	20.4	2.86	8.0	32.0
RJUM-03-20	20	31.8	44.8	31.5	1.60	29.6	31.5	26.4	2.86	10.0	50.0
RJUM-03-25	25	39.8	57.8	44.1	1.85	36.5	39.5	34.4	2.86	12.5	39.0
RJUM-03-30	30	46.7	67.8	52.1	1.85	43.5	46.0	41.4	2.86	15.0	57.0
RJUM-03-40	40	61.7	79.8	60.9	2.15	57.8	61.0	56.4	2.86	20.0	100.0
RJUM-03-50	50	74.7	99.8	78.0	2.65	70.5	74.0	69.4	2.86	25.0	157.0



Can be combined with:

RQA-/RTA-/RGA-03
RGAS-03

Also available with liners:

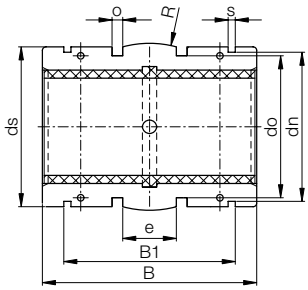
JUM-11

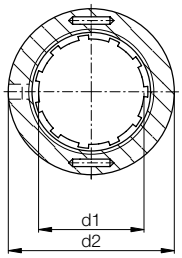
XUM-01

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUM-03-10

DryLin® R Linear Plain Bearing | Product Range

Split aluminum adapter (floating bearing)





- With spherical area on the outer diameter for self aligning purposes and O-rings for elastic seating
- Dimensions correspond to the standard for recirculating ball bearings

Order key

TJUM-03-10

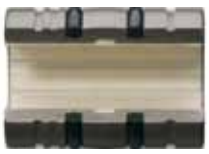
* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795
Floating bearing ▶ page 793

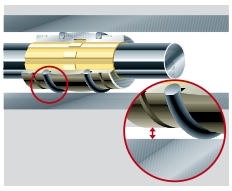
Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa, [N]	F max. static** P = 35 MPa, [N]	Weight [g]
TJUM-03-10	10	+0.030 +0.092	725	5,075	11
TJUM-03-12	12	+0.030 +0.097	960	6,720	17
TJUM-03-16	16	+0.030 +0.097	1,440	10,080	23
TJUM-03-20	20	+0.030 +0.103	2,250	15,750	44
TJUM-03-25	25	+0.030 +0.103	3,625	25,375	92
TJUM-03-30	30	+0.040 +0.124	5,100	35,700	145
TJUM-03-40	40	+0.040 +0.124	8,000	56,000	311
TJUM-03-50	50	+0.050 +0.146	12,500	87,500	542

Dimensions [mm]

Part number	d1	d2	B h10	B1 H10	s H10	dn h10	ds h10	do	o 0,4	e	R
TJUM-03-10	10	19 –0.020 –0.040	28.9	21.8	1.30	17.5	18.5	15.4	1.86	5.0	13.0
TJUM-03-12	12	22 –0.020 –0.040	31.9	22.8	1.30	20.5	21.5	18.4	1.86	6.0	18.0
TJUM-03-16	16	26 –0.020 –0.040	35.9	24.9	1.30	24.2	25.5	20.4	2.86	8.0	32.0
TJUM-03-20	20	32 –0.020 –0.045	44.8	31.5	1.60	29.6	31.5	26.4	2.86	10.0	50.0
TJUM-03-25	25	40 –0.030 –0.055	57.8	44.1	1,85	36.5	39.5	34.4	2.86	12.5	39.0
TJUM-03-30	30	47 –0.030 –0.055	67.8	52.1	1.85	43.5	46.0	41.4	2.86	15.0	57.0
TJUM-03-40	40	62 –0.030 –0.060	79.8	60.9	2.15	57.8	61.0	56.4	2.86	20.0	100.0
TJUM-03-50	50	75 –0.030 –0.060	99.8	78.0	2.65	70.5	74.0	69.4	2.86	25.0	157.0





Can be combined with:

RQA-/RTA-/RGA-01
RGAS-01

Also available with liners:

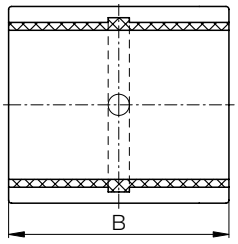
JUM-11

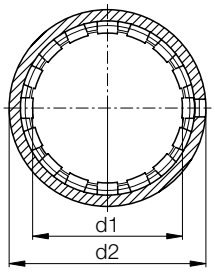
XUM-01

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number TJUM-03-10

DryLin® R Linear Plain Bearing | Product Range

Closed anodized aluminum adapter, short design





Order key

RJUM-02-16

- Dimensions equivalent to the standard for recirculating ball bearings
- Available also as low-clearance version RJUM-12 (Ø 10–50 mm)

* according to igus® testing method ▶ page 828
** Ø < 10 mm use iglidur® JSM sleeve bearings
*** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Housing bore Ø H7/K7	Tolerance* bearing inner diameter	F max. dynamic*** P = 5 MPa [N]	F max. static*** P = 35 MPa [N]	Weight [g]
RJZM-02-06**	6	12	+0.032 +0.070	600	4,200	4
RJZM-02-08**	8	15	+0.032 +0.070	650	4,550	6
RJUM-02-10	10	17	+0.030 +0.088	650	4,550	8
RJUM-02-12	12	19	+0.030 +0.088	840	5,880	10
RJUM-02-16	16	24	+0.030 +0.088	1,200	8,400	17
RJUM-02-20	20	28	+0.030 +0.091	1,500	10,500	18
RJUM-02-25	25	35	+0.030 +0.091	2,500	17,500	42
RJUM-02-30	30	40	+0.040 +0.110	3,750	26,250	56
RJUM-02-40	40	52	+0.040 +0.115	6,000	42,000	113
RJUM-02-50	50	62	+0.050 +0.130	8,750	61,250	147

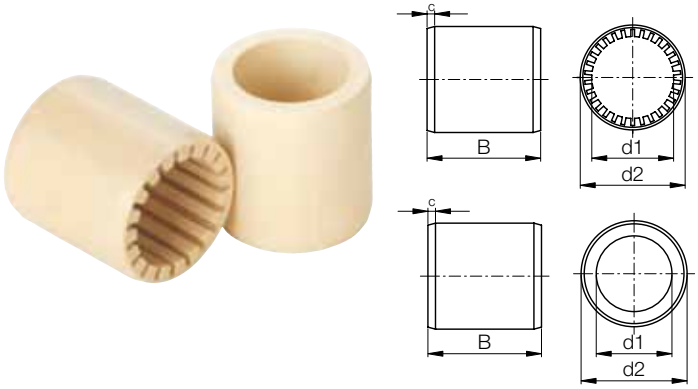
Dimensions [mm]

Part number	d1	d2 k7	B h10
RJZM-02-06**	6	12	22
RJZM-02-08**	8	15	24
RJUM-02-10	10	17	26
RJUM-02-12	12	19	28
RJUM-02-16	16	24	30
RJUM-02-20	20	28	30
RJUM-02-25	25	35	40
RJUM-02-30	30	40	50
RJUM-02-40	40	52	60
RJUM-02-50	50	62	70

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUM-02-10

DryLin® R Compact Bearing | Product Range

Low-cost linear plain bearing



- Dimensions equivalent to the standard for recirculating ball bearings
- 2 Variations: RJ260M (with plain design) and RJ260UM (grooved structure)

Order key

RJ260UM-02-12

- Diameter
- Compact
- Metric
- Grooved bearing
- Marterial iglidur® J260
- geschlossen

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	d2	B	C	F max. dynamic** P = 5 MPa	F max. static** P = 35 MPa	Weight
Grooved bearing						[N]	[N]	[g]
RJ260UM-02-12	12	+0.035 +0.080	19	28	1.5x15°	420	2,940	6.2
RJ260UM-02-16	16	+0.035 +0.080	24	30	1.5x15°	600	4,200	9.7
RJ260UM-02-20	20	+0.040 +0.095	28	30	2.0x15°	750	5,250	11.7
RJ260UM-02-25	25	+0.040 +0.095	35	40	2.0x15°	1,250	8,750	22.8

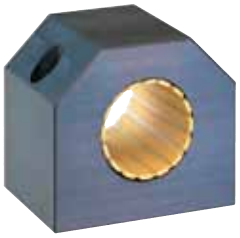
Dimensions [mm]

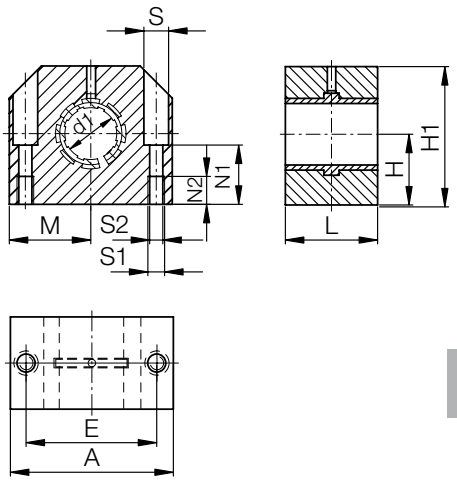
Part number	Shaft Ø	Tolerance* bearing inner diameter	d2	B	C	F max. dynamic** P = 5 MPa	F max. static** P = 35 MPa	Weight
Plain bearing	[mm]	[mm]	[mm]	[mm]	[mm]	[N]	[N]	[g]
RJ260M-02-12	12	+0,035 +0,080	19	28	1,5x15°	420	2.940	6,2
RJ260M-02-16	16	+0,035 +0,080	24	30	1,5x15°	600	4.200	9,7
RJ260M-02-20	20	+0,040 +0,095	28	30	2,0x15°	750	5.250	11,7
RJ260M-02-25	25	+0,040 +0,095	35	40	2,0x15°	1.250	8.750	22,8

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJ260UM-02-12

DryLin® R Pillow Block | Product Range

Closed anodized aluminum pillow bock, short type





Order key

RJUM-05-10

- Diameter
- Compact
- Metric
- Liner
- Material iglidur® J
- Closed

* according to igus® testing method ▶ page 828
** Ø < 10 mm with pressfit sleeve bearings
*** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic*** P = 5 MPa [N]	F max. static*** P = 35 MPa [N]	Weight [g]
RJZM-05-08**	8	+0.032 +0.070	960	6,720	46
RJUM-05-10	10	+0.030 +0.088	650	4,550	71
RJUM-05-12	12	+0.030 +0.088	840	5,880	78
RJUM-05-16	16	+0.030 +0.088	1,200	8,400	106
RJUM-05-20	20	+0.030 +0.091	1,500	10,500	132
RJUM-05-25	25	+0.030 +0.091	2,500	17,500	253
RJUM-05-30	30	+0.040 +0.110	3,750	26,250	374
RJUM-05-40	40	+0.040 +0.115	6,000	42,000	713
RJUM-05-50	50	+0.050 +0.130	8,750	61,250	1,168

Dimensions [mm]

Part number	d1	H +0.01; –0.014	H1	A	M	E ±0.15	S	S1	S2	N1	N2	L
RJZM-05-08**	8	14	27	32	16.0	23	6.0	M4	3.4	13	9	24
RJUM-05-10	10	16	33	40	20.0	29	8.0	M5	4.3	16	11	26
RJUM-05-12	12	17	33	40	20.0	29	8.0	M5	4.3	16	11	28
RJUM-05-16	16	19	38	45	22.5	34	8.0	M5	4.3	18	11	30
RJUM-05-20	20	23	45	53	26.5	40	9.5	M6	5.3	22	13	30
RJUM-05-25	25	27	54	62	31.0	48	11.0	M8	6.6	26	18	40
RJUM-05-30	30	30	60	67	33.5	53	11.0	M8	6.6	29	18	50
RJUM-05-40	40	39	76	87	43.5	69	15.0	M10	8.4	38	22	60
RJUM-05-50	50	47	92	103	51.5	82	18.0	M12	10.5	46	26	70

Also available with liners:

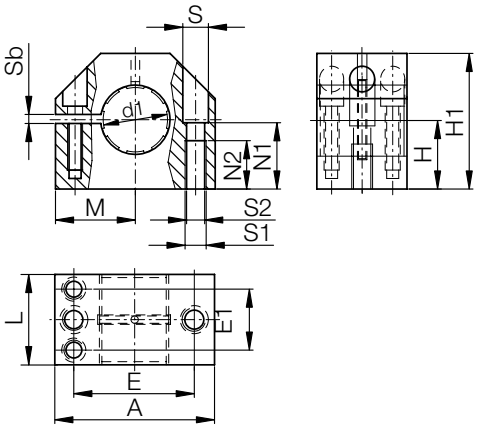

XUM-02


JUM-12

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUM-05-10

DryLin® R Pillow Block | Product Range

Adjustable anodized aluminum housing, short type



- With adjustable clearance for shaft diameters 12 to 50 mm

Order key

RJUME-05-12

- Diameter
- Compact
- Adjustable
- Metric
- Liner
- Material iglidur® J
- Closed

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Welle Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa [N]	F max. static** P = 35 MPa [N]	Weight [g]
RJUME-05-12	12	adjustable	840	5,880	78
RJUME-05-16	16	adjustable	1,200	8,400	106
RJUME-05-20	20	adjustable	1,500	10,500	132
RJUME-05-25	25	adjustable	2,500	17,500	253
RJUME-05-30	30	adjustable	3,750	26,250	374
RJUME-05-40	40	adjustable	6,000	42,000	713
RJUME-05-50	50	adjustable	8,750	61,250	1,168

Dimensions [mm]

Part number	d1	H +0.01 –0.014	H1	A	M	E ±0.15	E1 ±0.15	S	S1	S2	Sb	N1	N2	L
RJUME-05-12	12	17	33	40	20.0	29	18.0	8.0	4.3	M5	2	16	11	28
RJUME-05-16	16	19	38	45	22.5	34	19.0	8.0	4.3	M5	2	18	11	30
RJUME-05-20	20	23	45	53	26.5	40	20.0	9.5	5.3	M6	2	22	13	30
RJUME-05-25	25	27	54	62	31.0	48	25.5	11.0	6.6	M8	2	26	18	40
RJUME-05-30	30	30	60	67	33.5	53	30.5	11.0	6.6	M8	2	29	18	50
RJUME-05-40	40	39	76	87	43.5	69	36.0	15.0	8.4	M10	2	38	22	60
RJUME-05-50	50	47	92	103	51.5	82	44.0	18.0	10.5	M12	2	46	26	70

Also available with liners:

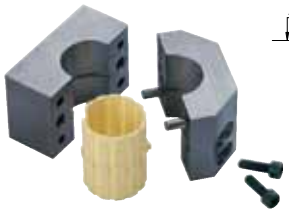

XUM-02

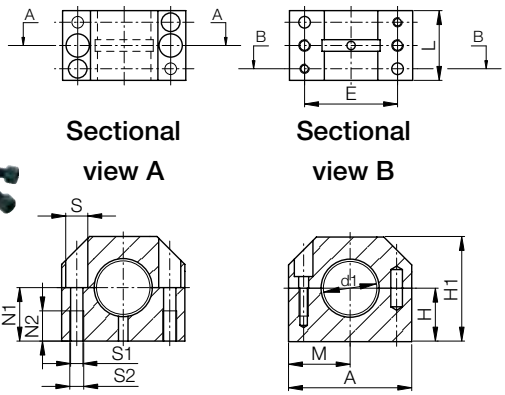

JUM-12

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUME-05-12

DryLin® R Pillow Bock | Product Range

Split anodized aluminum housing, short type





Order key

TJUM-05-16

- Diameter
- Compact
- Metric
- Liner
- Material iglidur® J
- Split

● Replacement of the liner is possible without removing the shaft

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa [N]	F max. static** P = 35 MPa [N]	Weight [g]
TJUM-05-16	16	+0.030 +0.120	1,200	8,400	105
TJUM-05-20	20	+0.030 +0.120	1,500	10,500	137
TJUM-05-25	25	+0.030 +0.120	2,500	17,500	253
TJUM-05-30	30	+0.040 +0.135	3,750	26,250	377
TJUM-05-40	40	+0.040 +0.135	6,000	42,000	720

Dimensions [mm]

Part number	d1	H ±0.02	H1	A	M	E ±0.15	S	S1	S2	N1	N2	L
TJUM-05-16	16	19	38	45	22.5	34	8.0	M5	4.3	18	11	30
TJUM-05-20	20	23	45	53	26.5	40	9.5	M6	5.3	22	13	30
TJUM-05-25	25	27	54	62	31.0	48	11.0	M8	6.6	26	18	40
TJUM-05-30	30	30	60	67	33.5	53	11.0	M8	6.6	29	18	50
TJUM-05-40	40	39	76	87	43.5	69	15.0	M10	8.4	38	22	60

Also available with liners:

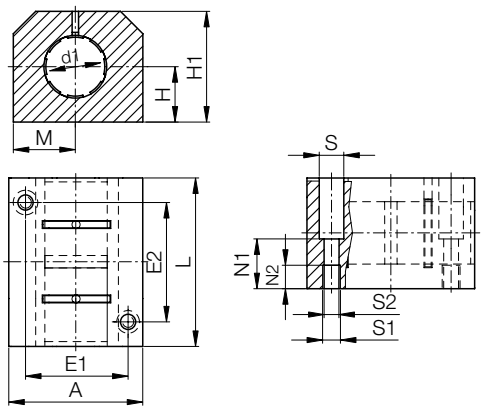

XUM-02


JUM-12

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number TJUM-05-16

DryLin® R Pillow Bock | Product Range

Closed anodized aluminum housing, short tandem type



- Tandem type of design
- Equipped with 2 JUM-02 liners to increase the guide length

Order key

RJUMT-05-12

- Diameter
- Compact
- Tandem
- Metric
- Liner
- Material iglidur® J
- Closed

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa [N]	F max. static** P = 35 MPa [N]	Weight [g]
RJUMT-05-12	12	+0.030 +0.088	840	5,880	170
RJUMT-05-16	16	+0.030 +0.088	1,200	8,400	250
RJUMT-05-20	20	+0.030 +0.091	1,500	10,500	300
RJUMT-05-25	25	+0.030 +0.091	2,500	17,500	550
RJUMT-05-30	30	+0.004 +0.110	3,750	26,250	750
RJUMT-05-40	40	+0.004 +0.115	6,000	42,000	1,500
RJUMT-05-50***	50	+0.005 +0.130	8,750	61,250	2,400

Dimensions [mm]

Part number	d1	H +0.01 –0.014	H1	A	M	E1 ±0.15	E2 ±0.15	S	S1	S2	N1	N2	L
RJUMT-05-12	12	17	33	40	20	29	35	8.0	M5	4.3	16.0	11	60
RJUMT-05-16	16	19	38	45	22.5	34	40	8.0	M5	4.3	18.0	11	65
RJUMT-05-20	20	23	45	53	26.5	40	45	9.5	M6	5.3	22.0	13	65
RJUMT-05-25	25	27	54	62	31	48	55	11.0	M8	6.6	26.0	18	85
RJUMT-05-30	30	30	60	67	33.5	53	70	11.0	M8	6.6	29.0	18	105
RJUMT-05-40	40	39	76	87	43.5	69	85	15.0	M10	8.4	38.0	22	125
RJUMT-05-50***	50	47	92	103	51.5	82	100	18.0	M12	10.5	46.0	26	145

Also available with liners:

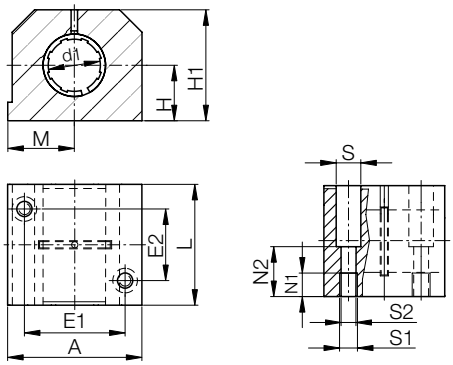
XUM-02

JUM-12

delivery time from stock *** on request | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUMT-05-12

DryLin® R Pillow Bock | Product Range

Closed anodized aluminum housing, long design



Order key

RJUM-06-12

- Diameter
- Long design
- Metric
- Liner
- Material iglidur® J
- Closed

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa [N]	F max. static** P = 35 MPa [N]	Weight [g]
RJUM-06-12	12	+0.030 +0.088	960	6,720	121
RJUM-06-16	16	+0.030 +0.088	1,440	10,080	211
RJUM-06-20	20	+0.030 +0.091	2,250	15,750	323
RJUM-06-25	25	+0.030 +0.091	3,625	25,375	651
RJUM-06-30	30	+0.040 +0.110	5,100	35,700	1,050
RJUM-06-40	40	+0.040 +0.115	8,000	56,000	1,820
RJUM-06-50	50	+0.050 +0.130	12,500	87,500	3,250

Dimensions [mm]

Part number	d1	H +0.01; –0.014	H1	A	M	E1 ±0.15	E2 ±0.15	S	S1	S2	N1	N2	L
RJUM-06-12	12	18	35	43	21.5	32	23	8.0	M5	4.3	16.5	11	39
RJUM-06-16	16	22	42	53	26.5	40	26	10.0	M6	5.3	21.0	13	43
RJUM-06-20	20	25	50	60	30.0	45	32	11.0	M8	6.6	24.0	18	54
RJUM-06-25	25	30	60	78	39.0	60	40	15.0	M10	8.4	29.0	22	67
RJUM-06-30	30	35	70	87	43.5	68	45	15.0	M10	8.4	34.0	22	79
RJUM-06-40	40	45	90	108	54.0	86	58	18.0	M12	10.5	44.0	26	91
RJUM-06-50	50	50	105	132	66.0	108	50	20.0	M16	13.5	49.0	34	113

Can be combined with:

RGA-01, RGA-03
RJUM-06-LL

Also available with liners:

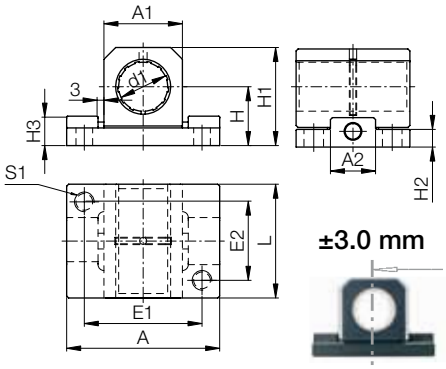
XUM-01

JUM-11

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUM-06-12

DryLin® R Pillow Bock | Product Range

Floating pillow block RJUM-06-LL



Order key

RJUM-06-12-LL

- Floating
- Diameter
- Long design
- Metric
- Liner
- Material iglidur® J
- Closed

- Compensation of parallelism errors up to 6 mm
- Quick assembly on raw profiles

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795
Floating bearing ▶ page 793

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. static or dynamic**	Weight
		[mm]	[N]	[g]
RJUM-06-12-LL	12	+0.030 +0.088	560	50
RJUM-06-16-LL	16	+0.030 +0.088	920	80
RJUM-06-20-LL	20	+0.030 +0.091	2,100	130
RJUM-06-25-LL	25	+0.030 +0.091	3,550	280
RJUM-06-30-LL	30	+0.040 +0.110	5,300	430
RJUM-06-40-LL	40	+0.040 +0.115	8,000	850
RJUM-06-50-LL	50	+0.050 +0.130	12,500	1,550

Dimensions [mm]

Part number	d1	H	H1	A	E1	E2	S1	L	A1	A2	H2	H3
		±0.01			±0.15	±0.15						
RJUM-06-12-LL	12	18	28	43	32	23	M5	32	20	13	6	11
RJUM-06-16-LL	16	22	35	53	40	26	M6	36	26	15	7	11
RJUM-06-20-LL	20	25	41	60	45	32	M8	45	32	19	7	12.5
RJUM-06-25-LL	25	30	50	78	60	40	M10	58	40	23	9	15
RJUM-06-30-LL	30	35	59	87	68	45	M10	68	48	28	10	15
RJUM-06-40-LL	40	45	76	108	86	58	M12	80	62	80	20	20
RJUM-06-50-LL	50	50	89	132	108	50	M16	100	78	100	24	24

Can be combined with:

RGA-01, RGA-03
RJUM-06

Also available with liners:

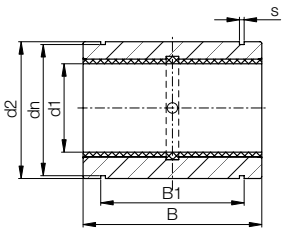
XUM-01

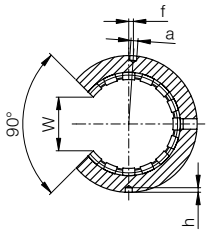
JUM-11

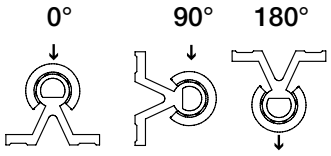
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUM-06-12-LL

DryLin® Linear Plain Bearing | Product Range

Open anodized aluminum adapter







- For supported shafts
- Dimensions equivalent to the standard for recirculating ball bearings

Order key

OJUM-01-10

- Diameter
- Standard
- Metric
- Liner
- Material iglidur® J
- Open

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. [N], dyn.** P = 5 MPa			F max. [N], stat.** P = 35 MPa			Weight
			0°	90°	180°	0°	90°	180°	[g]
OJUM-01-10	10	+0.030 +0.088	725	500	196	5,075	3,500	1,370	11
OJUM-01-12	12	+0.030 +0.088	960	635	240	6,720	4,445	1,680	15
OJUM-01-16	16	+0.030 +0.088	1,440	990	396	10,080	6,943	2,772	21
OJUM-01-20	20	+0.030 +0.091	2,250	1,800	900	15,750	12,600	6.300	42
OJUM-01-25	25	+0.030 +0.091	3,625	2,953	1,523	25,375	20.670	10,658	70
OJUM-01-30	30	+0.040 +0.110	5,100	4,250	2,278	35,700	29,735	15,946	132
OJUM-01-40	40	+0.040 +0.115	8,000	6,810	3,800	56,000	47,660	26,660	278
OJUM-01-50	50	+0.050 +0.130	12,500	10,750	6,125	87,500	75,265	42,875	479

Dimensions [mm]

Part number	d1	d2 h7	B h10	W –1	a +0.1	dn h10	B1 H10	s H10	f ±0.2	h -0.5
OJUM-01-10	10	19	29	7.3	0.0	17.5	21.6	1.30	0	1.2
OJUM-01-12	12	22	32	9.0	3.0	20.5	22.6	1.30	1.33 (7°)	1.2
OJUM-01-16	16	26	36	11.6	2.2	24.2	24.6	1.30	0	1.2
OJUM-01-20	20	32	45	12.0	2.2	29.6	31.2	1.60	0	1.2
OJUM-01-25	25	40	58	14.5	3.0	36.5	43.7	1.85	–1.5 (–4.3°)	1.5
OJUM-01-30	30	47	68	16.6	3.0	43.5	51.7	1.85	2 (4.9°)	2.0
OJUM-01-40	40	62	80	21.0	3.0	57.8	60.3	2.15	1.5 (2.8°)	2.0
OJUM-01-50	50	75	100	25.5	5.0	70.5	77.3	2.65	2.5 (3.8°)	2.0

Can be combined with:

OQA-/OGA/OTA-01
OGAS-01

Also available with liners:

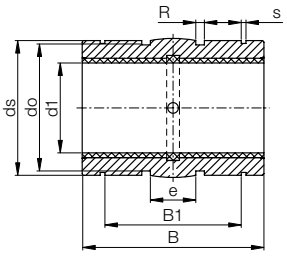
XUMO-01

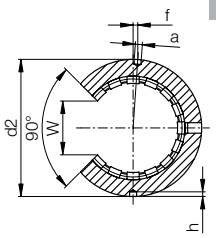
JUMO-11

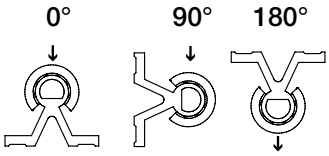
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number OJUM-01-10

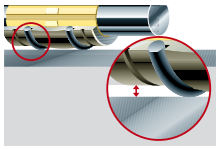
DryLin® Linear Plain Bearing | Product Range

Open anodized aluminum adapter, floating









- With reduced outer diameter, spherical area on the outer diameter, O-rings for elastic seating and hard anodized surface

Order key

OJUM-03-10

- Diameter
- Self-aligning
- Metric
- Liner
- Material iglidur® J
- Open

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795
Floating bearing ▶ page 793

Technical Data

Part number	Shaft Ø	Housing bore Ø H7	Tolerance* bearing inner diameter	F max. [N], dyn.** P = 5 MPa 0°	90°	180°	F max. [N], stat.** P = 35 MPa 0°	90°	180°	Weight [g]
OJUM-03-10	10	19	+0.030 +0.088	725	500	196	5,075	3,500	1,370	10
OJUM-03-12	12	22	+0.030 +0.088	960	635	240	6,720	4,445	1,680	13
OJUM-03-16	16	26	+0.030 +0.088	1,440	990	396	10,080	6,943	2,772	19
OJUM-03-20	20	32	+0.030 +0.091	2,250	1,800	900	15,750	12,600	6,300	38
OJUM-03-25	25	40	+0.030 +0.091	3,625	2,953	1,523	25,375	20,670	10,658	63
OJUM-03-30	30	47	+0.040 +0.110	5,100	4,250	2,278	35,700	29,735	15,946	119
OJUM-03-40	40	62	+0.040 +0.115	8,000	6,810	3,800	56,000	47,660	26,600	250
OJUM-03-50	50	75	+0.050 +0.130	12,500	10,750	6,125	87,500	75,265	42,875	431

Dimensions [mm]

Part number	d1	d2 h7	ds h10	e	o +0.1	do	B1 H10	s H10	B h10	R	W –1	a +0.1	f ±0.2	h –0.5
OJUM-03-10	10	18.8	18.5	5.0	1.86	15.4	21.8	1.30	28.9	13.0	7.3	0.0	0	1.2
OJUM-03-12	12	21.8	21.5	6.0	1.86	18.4	22.8	1.30	31.9	18.0	9.0	3.0	1.33 (7°)	1.2
OJUM-03-16	16	25.8	25.5	8.0	2.86	20.4	24.9	1.30	35.9	32.0	11.6	2.2	0	1.2
OJUM-03-20	20	31.8	31.5	10.0	2.86	26.4	31.5	1.60	44.8	50.0	12.0	2.2	0	1.2
OJUM-03-25	25	39.8	39.0	12.5	2.86	34.4	44.1	1.85	57.8	39.0	14.5	3.0	–1.5 (–4.3°)	1.5
OJUM-03-30	30	46.7	46.0	15.0	2.86	41.4	52.1	1.85	67.8	57.0	16.6	3.0	2 (4.9°)	2
OJUM-03-40	40	61.7	61.0	20.0	2.86	56.4	60.9	2.15	79.8	100.0	21.0	3.0	1.5 (2.8°)	2
OJUM-03-50	50	74.7	74.0	25.0	2.86	69.4	78.0	2.65	99.8	157.0	25.5	5.0	2.5 (3.8°)	2

Can be combined with:

OQA-/OGA/OTA-01
OGAS-01

Also available with liners:

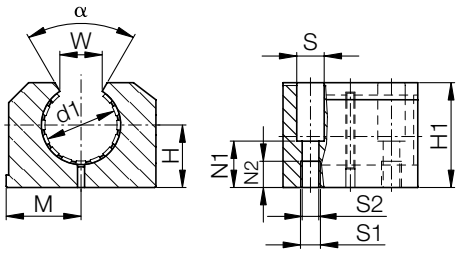
XUMO-01

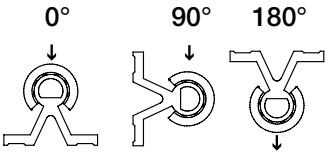
JUMO-11

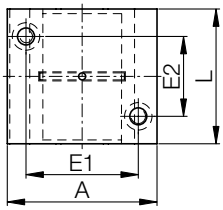
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number OJUM-03-10

DryLin® R Pillow Bock | Product Range

Open anodized pillow bock, long design







Order key

OJUM-06-12

- Diameter
- Std. p. block
- Metric
- Liner
- Material iglidur® J
- Open

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. [N] dynamic** P = 5 MPa			F max. [N] static** P = 35 MPa			Weight
			0°	90°	180°	0°	90°	180°	[g]
OJUM-06-12	12	+0.030 +0.088	960	635	240	6,720	4,445	1,680	95
OJUM-06-16	16	+0.030 +0.088	1,440	990	396	10,080	6,943	2,772	158
OJUM-06-20	20	+0.030 +0.091	2,250	1,800	900	15,750	12,600	6,300	266
OJUM-06-25	25	+0.030 +0.091	3,625	2,953	1,523	25,375	20,670	10,658	530
OJUM-06-30	30	+0.040 +0.110	5,100	4,250	2,278	35,700	29,735	15,946	818
OJUM-06-40	40	+0.040 +0.115	8,000	6,810	3,800	56,000	47,660	26,600	1,485
OJUM-06-50	50	+0.050 +0.130	12,500	10,750	6,125	87,500	75,265	42,875	2,750

Dimensions [mm]

Part number	d1	H	H1	A	M	E1	E2	S	S1	S2	N1	N2	W	a	L
		+0.01; –0.014				±0.15	±0.15						–1	[°]	
OJUM-06-12	12	18	28	43	21.5	32	23	8.0	M5	4.3	16.5	11	10.2	78	39
OJUM-06-16	16	22	35	53	26.5	40	26	10.0	M6	5.3	21.0	13	11.6	78	43
OJUM-06-20	20	25	42	60	30.0	45	32	11.0	M8	6.6	24.0	18	12.0	60	54
OJUM-06-25	25	30	51	78	39.0	60	40	15.0	M10	8.4	29.0	22	14.5	60	67
OJUM-06-30	30	35	60	87	43.5	68	45	15.0	M10	8.4	34.0	22	16.6	57	79
OJUM-06-40	40	45	77	108	54.0	86	58	18.0	M12	10.5	44.0	26	21.0	56	91
OJUM-06-50	50	50	88	132	66.0	108	50	20.0	M16	13.5	49.0	34	25.5	54	113

Can be combined with:

OGA-01, OGA-03
OJUM-06-LL

Also available with liners:

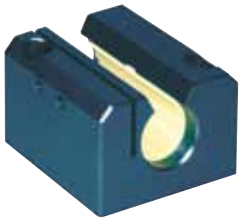
XUMO-01

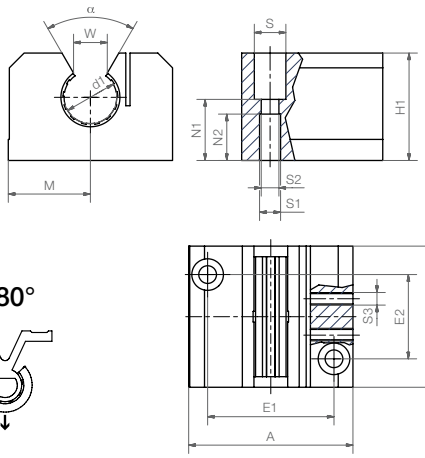
JUMO-11

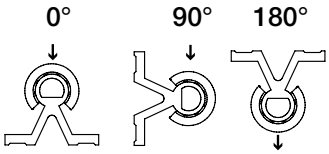
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number OJUM-06-12

DryLin® R Pillow Block | Product Range

Open anodized pillow bock, long design, adjustable







- With two set screws (DIN 913), Clearance adjustment possible

Order key

OJUME-06-12

- Diameter
- Std. p. block
- Adjustable
- Metric
- Liner
- Material iglidur® J
- Open

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. [N] dynamic** P = 5 MPa			F max. [N] static** P = 35 MPa			Weight
			0°	90°	180°	0°	90°	180°	[g]
OJUME-06-12	12	adjustable	960	635	240	6,720	4,445	1,680	100
OJUME-06-16	16	adjustable	1,440	990	396	10,080	6,943	2,772	160
OJUME-06-20	20	adjustable	2,250	1,800	900	15,750	12,600	6,300	270
OJUME-06-25	25	adjustable	3,625	2,953	1,523	25,375	20,670	10,658	530
OJUME-06-30	30	adjustable	5,100	4,250	2,278	35,700	29,735	15,946	820
OJUME-06-40	40	adjustable	8,000	6,810	3,800	56,000	47,660	26,600	1,490
OJUME-06-50	50	adjustable	12,500	10,750	6,125	87,500	75,265	42,875	2,750

Dimensions [mm]

Part number	d1	H	H1	A	M	E1	E2	S	S1	S2	S3	N1	N2	W	a	L
		+0.01; –0.014				±0.15	±0.15							–1	[°]	
OJUME-06-12	12	18	28	43	21.5	32	23	8.0	M5	4.3	M4	16.5	11	10.2	78	39
OJUME-06-16	16	22	35	53	26.5	40	26	10.0	M6	5.3	M4	21.0	13	11.6	78	43
OJUME-06-20	20	25	42	60	30.0	45	32	11.0	M8	6.6	M5	24.0	18	12.0	60	54
OJUME-06-25	25	30	51	78	39.0	60	40	15.0	M10	8.4	M6	29.0	22	14.5	60	67
OJUME-06-30	30	35	60	87	43.5	68	45	15.0	M10	8.4	M6	34.0	22	16.6	57	79
OJUME-06-40	40	45	77	108	54.0	86	58	18.0	M12	10.5	M8	44.0	26	21.0	56	91
OJUME-06-50	50	50	88	132	66.0	108	50	20.0	M16	13.5	M8	49.0	34	25.5	54	113

Can be combined with:

OGA-01, OGA-03
OJUM-06-LL

Also available with liners:

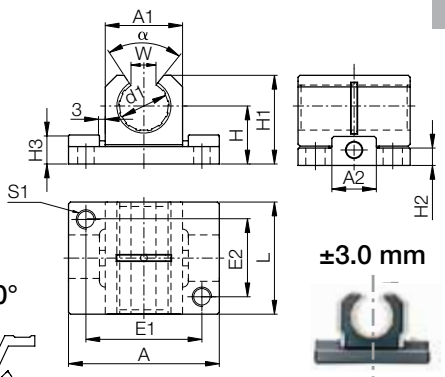
XUMO-01

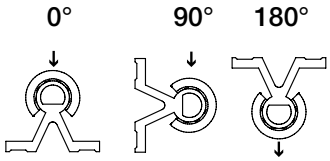
JUMO-11

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number OJUME-06-12

DryLin® R Pillow Block | Product Range

Floating pillow bock





Order key

OJUM-06-12-LL

- Floating bearing
- Diameter
- Std. p. block
- Metric
- Liner
- Material iglidur® J
- Open

● Compensation of parallelism errors up to 6 mm

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795
Floating Bearing ▶ page 793

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. static or dynamic**	F max. dynamic load at 180°**	Weight
			[N]	[N]	[g]
OJUM-06-12-LL	12	+0.030 +0.088	560	240	40
OJUM-06-16-LL	16	+0.030 +0.088	920	400	70
OJUM-06-20-LL	20	+0.030 +0.091	2,100	900	115
OJUM-06-25-LL	25	+0.030 +0.091	3,550	1,520	240
OJUM-06-30-LL	30	+0.040 +0.110	5,300	2,280	370
OJUM-06-40-LL	40	+0.040 +0.115	8,000	3,800	750
OJUM-06-50-LL	50	+0.050 +0.130	12,500	6,100	1,400

Dimensions [mm]

Part number	d1	H	H1	A	E1	E2	S1	L	A1	A2	H2	H3	W	a
		±0.01			±0.15	±0.15							–1	[°]
OJUM-06-12-LL	12	18	24.5	43	32	23	M5	32	20	13	6	11	10.2	90
OJUM-06-16-LL	16	22	30.5	53	40	26	M6	36	26	15	7	11	11.6	90
OJUM-06-20-LL	20	25	37.0	60	45	32	M8	45	32	19	7	12.5	12.0	60
OJUM-06-25-LL	25	30	44.0	78	60	40	M10	58	40	23	9	15	14.5	60
OJUM-06-30-LL	30	35	52.5	87	68	45	M10	68	48	28	10	15	16.8	60
OJUM-06-40-LL	40	45	69.0	108	86	58	M12	80	62	80	20	20	21.0	60
OJUM-06-50-LL	50	50	80.0	132	108	50	M16	100	78	100	24	24	25.5	60

Can be combined with:

OGA-01, OGA-03
OJUM-06-LL

Also available with liners:

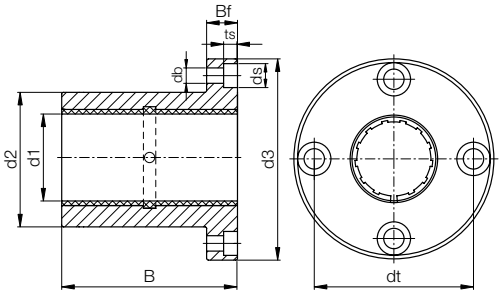
XUMO-01

JUMO-11

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number OJUM-06-12-LL

DryLin® R Flange Pillow Block | Product Range

Made of anodized aluminum, round flange



Order key

FJUM-01-10

- Diameter
- Round
- Metric
- Liner
- Material iglidur® J
- Flange

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa	F max. static** P = 35 MPa	Weight [g]
FJZM-01-08**	8	+0.032 +0.070	960	6,720	20
FJUM-01-10	10	+0.030 +0.088	725	5,075	32
FJUM-01-12	12	+0.030 +0.088	960	6,720	42
FJUM-01-16	16	+0.030 +0.088	1,440	10,080	51
FJUM-01-20	20	+0.030 +0.091	2,250	15,750	88
FJUM-01-25	25	+0.030 +0.091	3,625	25,375	152
FJUM-01-30	30	+0.040 +0.110	5,100	35,700	266
FJUM-01-40	40	+0.040 +0.115	8,000	56,000	552
FJUM-01-50	50	+0.050 +0.130	12,500	87,500	853

Dimensions [mm]

Part number	d1	d2 h7	dt	d3	B	Bf	ts	db	ds
FJZM-01-08**	8	16	24	32	25	8	3.1	3.5	6.0
FJUM-01-10	10	19	29	39	29	9	4.1	4.5	7.5
FJUM-01-12	12	22	32	42	32	9	4.1	4.5	7.5
FJUM-01-16	16	26	36	46	36	9	4.1	4.5	7.5
FJUM-01-20	20	32	43	54	45	11	5.1	5.5	9.0
FJUM-01-25	25	40	51	62	58	11	5.1	5.5	9.0
FJUM-01-30	30	47	62	76	68	14	6.1	6.6	11.0
FJUM-01-40	40	62	80	98	80	18	8.1	9.0	14.0
FJUM-01-50	50	75	94	112	100	18	8.1	9.0	14.0

Also available with liners:

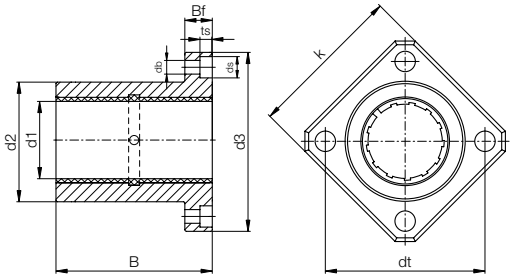

XUM-01


JUM-11

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number FJUM-01-10

DryLin® R Flange Pillow Block | Product Range

Made of anodized aluminum, square flange



Order key

FJUM-02-10

- Diameter
- Square
- Metric
- Liner
- Material iglidur® J
- Flange

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa	F max. static** P = 35 MPa	Weight [g]
FJZM-02-08**	8	+0.032 +0.070	960	6,720	17
FJUM-02-10	10	+0.030 +0.088	725	5,075	25
FJUM-02-12	12	+0.030 +0.088	960	6,720	32
FJUM-02-16	16	+0.030 +0.088	1,440	10,080	41
FJUM-02-20	20	+0.030 +0.091	2,250	15,750	73
FJUM-02-25	25	+0.030 +0.091	3,625	25,375	135
FJUM-02-30	30	+0.030 +0.110	5,100	35,700	228
FJUM-02-40	40	+0.030 +0.115	8,000	56,000	454
FJUM-02-50	50	+0.030 +0.130	12,500	87,500	735

Dimensions [mm]

Part number	d1	d2 h7	d3	dt	k	B	Bf	ts	db	ds
FJZM-02-08**	8	16	32	24	25	25	8	3.1	3.5	6.0
FJUM-02-10	10	19	39	29	30	29	9	4.1	4.5	7.5
FJUM-02-12	12	22	42	32	32	32	9	4.1	4.5	7.5
FJUM-02-16	16	26	46	36	35	36	9	4.1	4.5	7.5
FJUM-02-20	20	32	54	43	42	45	11	5.1	5.5	9.0
FJUM-02-25	25	40	62	51	50	58	11	5.1	5.5	9.0
FJUM-02-30	30	47	76	62	60	68	14	6.1	6.6	11.0
FJUM-02-40	40	62	98	80	75	80	18	8.1	9.0	14.0
FJUM-02-50	50	75	112	94	88	100	18	8.1	9.0	14.0

Also available with liners:


XUM-01


JUM-11

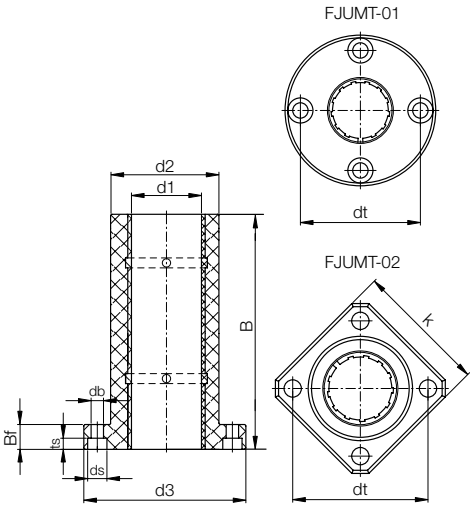
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number FJUM-02-10

DryLin® R Flange Pillow Block | Product Range

Made of anodized aluminum, round/square flange, Tandem type of design

FJUMT-01-...

FJUMT-02-...



● 2 x liner JUM-02 for more guiding length

Order key

FJUMT-01-08

- Diameter
- 01 round; 02 square
- Tandem
- Metric
- Liner
- Material iglidur® J
- Flange

* according to igus® testing method ▶ page 828

** FJZMT-01/02-08 are fitted with 2 pieces of JSM-0810-16

Please note: Installation instructions ▶ page 795

Technical Data

Part number	Dimension nominal diameter	Tolerance* bearing inner diameter	Flange length FJUMT-01/02-...	Effective surface area FJUMT-01/02-...
FJZMT-□-08**	8	+0.032 +0.070	45	256
FJUMT-□-10	10	+0.030 +0.088	52	250
FJUMT-□-12	12	+0.030 +0.088	57	324
FJUMT-□-16	16	+0.030 +0.088	70	464
FJUMT-□-20	20	+0.030 +0.091	80	580
FJUMT-□-25	25	+0.030 +0.091	112	975
FJUMT-□-30	30	+0.030 +0.110	123	1,470
FJUMT-□-40	40	+0.030 +0.115	151	2,360
FJUMT-□-50	50	+0.030 +0.130	192	3,450

Dimensions [mm]

Part number	d1	d2 h7	d3	dt	k	B	Bf	ts	db	ds
FJZMT-□-08**	8	16	32	24	25	45	8	3.1	3.5	6.0
FJUMT-□-10	10	19	39	29	30	52	9	4.1	4.5	7.5
FJUMT-□-12	12	22	42	32	32	57	9	4.1	4.5	7.5
FJUMT-□-16	16	26	46	36	35	70	9	4.1	4.5	7.5
FJUMT-□-20	20	32	54	43	42	80	11	5.1	5.5	9.0
FJUMT-□-25	25	40	62	51	50	112	11	5.1	5.5	9.0
FJUMT-□-30	30	47	76	62	60	123	14	6.1	6.6	11.0
FJUMT-□-40	40	62	98	80	75	151	18	8.1	9.0	14.0
FJUMT-□-50	50	75	112	94	88	192	18	8.1	9.0	14.0

□ Please insert: **01** for **round** ● or **02** for **square** ◆ flange

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/DryLinR

order example **part number FJUMT-01-10**

DryLin® R | igus® Testing Method

igus® Testing method for measuring the tolerance of DryLin® plain bearings

To ensure the correct function of a DryLin plain bearing, it is necessary to use the bearing with a defined minimum clearance. The quality control of this dimension is carried out with a plug gauge test. For this purpose, specific force is defined with which the plug gauge is loaded when the plain bearing is tested.

Part number	Test force [N]	Ø-i test housing	Min. bearing Øi (c. gauge-free)	Max. bearing Øi (with c. gauge)
JUM-01/02-10	0.981	12.000 mm	10.030 mm	10.070 mm
JUM-01/02-12	1.373	14.000 mm	12.030 mm	12.070 mm
JUM-01/02-16	1.864	18.000 mm	16.030 mm	16.070 mm
JUM-01/02-20	2.649	23.000 mm	20.030 mm	20.070 mm
JUM-01/02-25	3.729	28.000 mm	25.030 mm	25.070 mm
JUM-01/02-30	4.807	34.000 mm	30.040 mm	30.085 mm
JUM-01/02-40	7.063	44.000 mm	40.040 mm	40.085 mm
JUM-01/02-50	9.810	55.000 mm	50.050 mm	50.100 mm
JUI-01-06	0.981	0.4684 Inch	0.3768 Inch	0.3776 Inch
JUI-01-08	1.373	0.5934 Inch	0.5016 Inch	0.5024 Inch
JUI-01-10	1.864	0.7184 Inch	0.6268 Inch	0.6276 Inch
JUI-01-12	2.649	0.8747 Inch	0.7516 Inch	0.7524 Inch
JUI-01-16	3.729	1.1247 Inch	1.0016 Inch	1.0024 Inch
JUI-01-20	4.807	1.4058 Inch	1.2520 Inch	1.2531 Inch
JUI-01-24	7.063	1.6558 Inch	1.5020 Inch	1.5031 Inch
JUI-01-32	9.810	2.1870 Inch	2.0024 Inch	2.0039 Inch
RJM-01-08	0.981	16.000 mm	8.025 mm	8.061 mm
RJM-01-10	0.981	19.000 mm	10.025 mm	10.061 mm
RJM-01-12	1.373	22.000 mm	12.032 mm	12.075 mm
RJM-01-16	1.864	26.000 mm	16.032 mm	16.075 mm
RJM-01-20	2.649	32.000 mm	20.040 mm	20.092 mm
RJM-01-25	3.729	40.000 mm	25.040 mm	25.092 mm
RJM-01-30	4.807	47.000 mm	30.040 mm	30.092 mm
RJM-01-40	7.063	62.000 mm	40.050 mm	40.112 mm
RJM-01-50	9.810	75.000 mm	50.050 mm	50.112 mm
RJI-01-06	0.981	0.6250 Inch	0.3762 Inch	0.3776 Inch
RJI-01-08	1.373	0.8750 Inch	0.5013 Inch	0.5030 Inch
RJI-01-10	1.864	1.1250 Inch	0.6265 Inch	0.6282 Inch
RJI-01-12	2.649	1.2500 Inch	0.7516 Inch	0.7536 Inch
RJI-01-16	3.729	1.5625 Inch	1.0035 Inch	1.0056 Inch
RJI-01-20	4.807	2.0000 Inch	1.2520 Inch	1.2544 Inch
RJI-01-24	7.063	2.3750 Inch	1.5020 Inch	1.5044 Inch
RJI-01-32	9.810	3.0000 Inch	2.0024 Inch	2.0053 Inch
RJ260(U)M-02-12	1.373	19.000 mm	12.032 mm	12.084 mm
RJ260(U)M-02-16	1.864	24.000 mm	16.032 mm	16.084 mm
RJ260(U)M-02-20	2.649	28.000 mm	20.040 mm	20.100 mm
RJ260(U)M-02-25	3.729	35.000 mm	25.040 mm	25.100 mm

DryLin® R | igus® Testing Method

Part number	Test force [N]	Ø-i test housing	Min. bearing Øi (c. gauge-free)	Max. bearing Øi (with c. gauge)
XUMO-01-10	0.981	12.000 mm	9.98 mm	10.02 mm
XUM-01-12	1.373	14.000 mm	12.02 mm	12.06 mm
XUM-01-16	1.864	18.000 mm	16.02 mm	16.06 mm
XUM-01-20	2.649	23.000 mm	20.03 mm	20.07 mm
XUM-01-25	3.729	28.000 mm	24.97 mm	25.01 mm
XUM-01-30	4.807	34.000 mm	29.96 mm	30.01 mm
XUM-01-40	7.063	44.000 mm	40.00 mm	40.05 mm

Explanation:

The iglidur® X material has a higher stiffening than iglidur® J. This causes shifts – depending on the diameter – compared to the ratio of test force to LD diameter. The parts are designed in such a way that under load the clearance between the iglidur® X and iglidur® J bearings is as identical as possible. Thereby in the use of iglidur® X liners, increased shifting forces can occur in the unloaded new condition on an h-toleranced shaft.

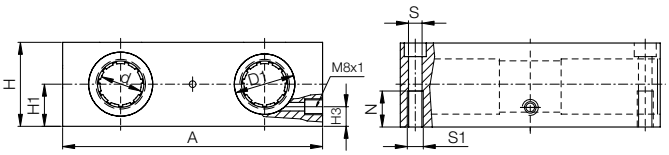
When using a plain bearing (JUM/RJM) in connection with a housing (RJUM, OJUM, RGA) the factory tolerance of the housing bore (standard case: H7) is also added to the minimum clearance stated above. The total from these two values then produces the maximum possible bearing tolerance. Plain bearings of the dimensional series “Japan-Std.” (JUJ) are tested according to the same criteria for the JUM plain bearing.

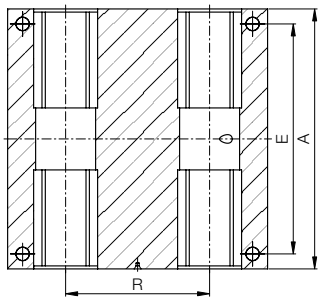
The effective clearance is also influence from shaft tolerance. The undersize of shaft may be added.

DryLin® R Quad Block | Product Range

Closed design

- Housing: Aluminum, equipped with four DryLin® R linear plain bearings





Order key

RQA-01-08

- Inner-Ø
- 01: Standard with RJUM-01
- 03: with RJUM-03
- 04: with RJM-01
- Aluminum housing
- RQ: Quad block with RJUM bearings

Please note:
Installation instructions ▶ page 795

Dimensions [mm]

Part number Standard with RJUM-01	Self-aligning with RJUM-03	All polymer bearing with RJM-01	d	D1	A	H	H1	H3	R	N	E	S	S1
RQA-01-08	–	**RQA-04-08**	8	16	65	23	11,5	8	32	11	55	4.3	M5
RQA-01-12	**RQA-03-12**	**RQA-04-12**	12	22	85	32	16	13	42	13	73	5.3	M6
RQA-01-16	**RQA-03-16**	**RQA-04-16**	16	26	100	36	18	15	54	13	88	5.3	M6
RQA-01-20	**RQA-03-20**	**RQA-04-20**	20	32	130	46	23	19	72	18	115	6.6	M8
RQA-01-25	**RQA-03-25**	**RQA-04-25**	25	40	160	56	28	24	88	22	140	8.4	M10
RQA-01-30	**RQA-03-30**	**RQA-04-30**	30	47	180	64	32	27	96	26	158	10.5	M12
RQA-01-40	**RQA-03-40**	**RQA-04-40**	40	62	230	80	40	35	122	34	202	13.5	M16

Are equipped with:


RJUM-01


RJUM-03

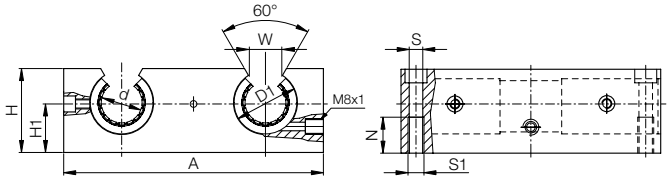

RJM-01

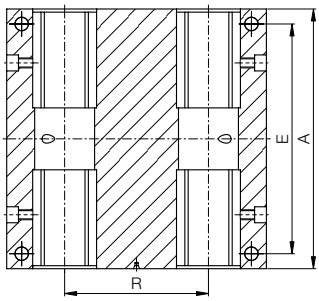
delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/DryLinR | order example **part number RQA-01-08**

DryLin® R Quad Block | Product Range

Open design

- Housing: Aluminum, equipped with four DryLin® R linear plain bearings





Order key

OQA-01-12

- Inner-Ø
- 01: Standard with OJUM-01
- 03: with OJUM-03
- Aluminum housing
- OQ: Quad block with OJUM bearings

Please note:
Installation instructions ▶ page 795

Dimensions [mm]

Part number Standard with OJUM-01	Self-aligning with OJUM-03	d	D1	A	H	H1	W	R	N	E	S	S1
OQA-01-12	**OQA-03-12**	12	22	85	30	18	14	42	13	73	5.3	M6
OQA-01-16	**OQA-03-16**	16	26	100	35	22	17	54	13	88	5.3	M6
OQA-01-20	**OQA-03-20**	20	32	130	42	25	17	72	18	115	6.8	M8
OQA-01-25	**OQA-03-25**	25	40	160	51	30	21	88	22	140	9.0	M10
OQA-01-30	**OQA-03-30**	30	47	180	60	35	21	96	26	158	10.5	M12
OQA-01-40	**OQA-03-40**	40	62	230	77	45	27	122	34	202	13.5	M16

Are equipped with:


OJUM-01

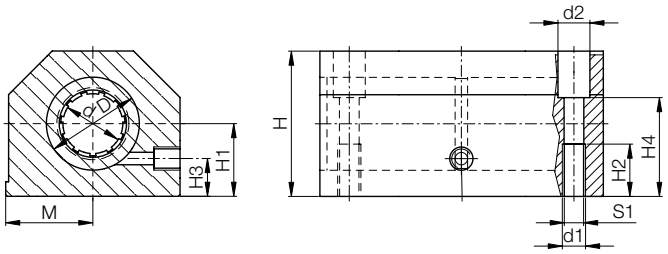

OJUM-03

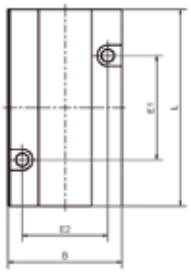
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number OQA-01-12

DryLin® R Pillow Block | Product Range

Closed , Tandem design

- Housing: Aluminum, equipped with 2 DryLin® R linear plain bearings to increase the guide length





Order key

RTA-01-08

- Inner-Ø
- 01: Standard with RJUM-01
- 03: with RJUM-03
- 04: with RJM-01
- Aluminum housing
- RT: Tandem housing with RJUM bearing

Please note:
Installation instructions ▶ page 795

Dimensions [mm]

Part number Standard with RJUM-01	Self-aligning with RJUM-03	All polymer bearing with RJM-01	d	D H6	H	H1 +0.01 –0.02	H2	H3	H4	S1	B	L +0.3	M ±0.02	E1 ±0.15	E2 ±0.15	d1	d2
RTA-01-08	–	**RTA-04-08**	8	16	28	13	13	8	23	M5	35	62	17.5	35	25	4.20	8
RTA-01-12	**RTA-03-12**	**RTA-04-12**	12	22	35	18	13	10	25	M6	43	76	21.5	40	30	5.20	10
RTA-01-16	**RTA-03-16**	**RTA-04-16**	16	26	42	22	13	12	30	M6	53	84	26.5	45	36	5.20	10
RTA-01-20	**RTA-03-20**	**RTA-04-20**	20	32	50	25	18	13	34	M8	60	104	30.0	55	45	6.80	11
RTA-01-25	**RTA-03-25**	**RTA-04-25**	25	40	60	30	22	15	40	M10	78	130	39.0	70	54	8.60	15
RTA-01-30	**RTA-03-30**	**RTA-04-30**	30	47	70	35	26	16	48	M12	87	152	43.5	85	62	10.30	18
RTA-01-40	**RTA-03-40**	**RTA-04-40**	40	62	90	45	34	20	60	M16	108	176	54.0	100	80	14.25	20

Are equipped with:


RJUM-01

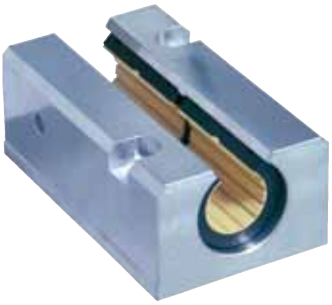

RJUM-03


RJM-01

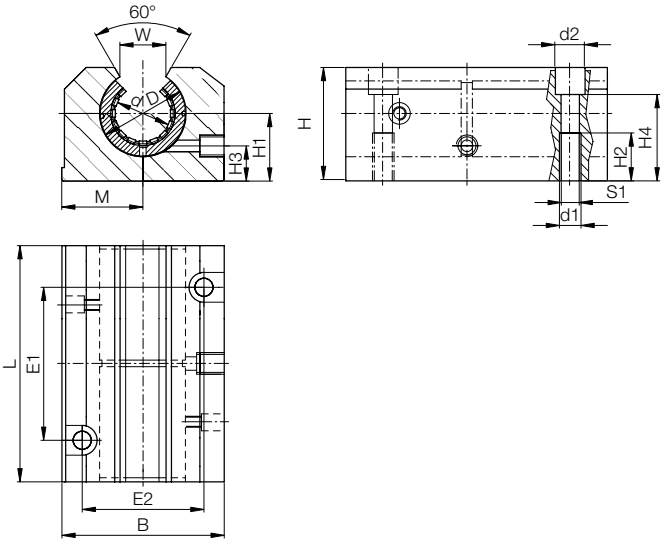
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RTA-01-08

DryLin® R Pillow Block | Product Range

Open, Tandem design



- Housing: Aluminum, equipped with 2 DryLin® R linear plain bearings to increase the guide length



Order key

OTA-01-12

- Inner-Ø
- 01: Standard with OJUM-01
- 03: with OJUM-03
- Aluminum housing
- OT: Tandem housing with OJUM bearings

Please note:
Installation instructions ▶ **page 795**

Dimensions [mm]

Part number Standard with OJUM-01	Self-aligning with OJUM-03	d	D H6	H	H1 +0.01 −0.02	H2	H3	H4	S1	B	L +0.3	M ±0.02	E1 ±0.15	E2 ±0.15	d1	d2	W
OTA-01-12	**OTA-03-12**	12	22	30	18	13	10	25	M6	43	76	21.5	40	30	5.20	10	14
OTA-01-16	**OTA-03-16**	16	26	35	22	13	12	30	M6	53	84	26.5	45	36	5.20	10	17
OTA-01-20	**OTA-03-20**	20	32	42	25	18	13	34	M8	60	104	30.0	55	45	6.80	11	17
OTA-01-25	**OTA-03-25**	25	40	51	30	22	15	40	M10	78	130	39.0	70	54	8.60	15	21
OTA-01-30	**OTA-03-30**	30	47	60	35	26	16	48	M12	87	152	43.5	85	62	10.30	18	21
OTA-01-40	**OTA-03-40**	40	62	77	45	34	20	60	M16	108	176	54.0	100	80	14.25	20	27

Are equipped with:


OJUM-01


OJUM-03

delivery time **available from stock**

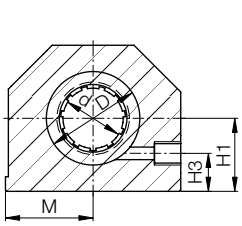
prices **price list online** www.igus.co.uk/en/DryLinR

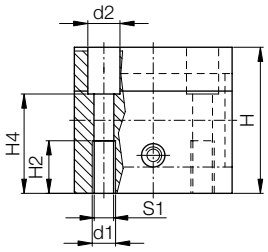
order example **part number** OTA-01-12

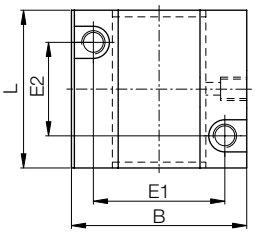
DryLin® R Pillow Block | Product Range

Closed, long design

- Housing: Aluminum, equipped with 2 DryLin® R linear plain bearings







Order key

RGA-01-08

- Inner-Ø
- 01: Standard with RJUM-01
  03: with RJUM-03
  04: with RJM-01
- Aluminum housing
- Linear housing with RJUM bearings

Please note:
Installation instructions ▶ page 795

Dimensions [mm]

Part number Standard with RJUM-01	Self-aligning with RJUM-03	All polymer bearing with RJM-01	d	D H6	H	H1 +0.01 –0.02	H2	H3	H4	S1	B	L ±0.3	M ±0.02	E1 ±0.15	E2 ±0.15	d1	d2
RGA-01-08	–	**RGA-04-08**	8	16	28	13	10	8	14	M4	35	32	17.5	25	20	3.2	6
RGA-01-12	**RGA-03-12**	**RGA-04-12**	12	22	35	18	11	10	25	M5	43	39	21.5	32	23	4.2	6
RGA-01-16	**RGA-03-16**	**RGA-04-16**	16	26	42	22	13	12	30	M6	53	43	26.5	40	26	5.2	10
RGA-01-20	**RGA-03-20**	**RGA-04-20**	20	32	50	25	18	13	34	M8	60	54	30.0	45	32	6.8	11
RGA-01-25	**RGA-03-25**	**RGA-04-25**	25	40	60	30	22	15	40	M10	78	67	39.0	60	40	8.6	15
RGA-01-30	**RGA-03-30**	**RGA-04-30**	30	47	70	35	22	16	48	M10	87	79	43.5	68	45	8.6	15
RGA-01-40	**RGA-03-40**	**RGA-04-40**	40	62	90	45	26	20	60	M12	108	91	54.0	86	58	10.3	18

Are equipped with:


RJUM-01


RJUM-03


RJM-01

Can be combined with:


RJUM-06

delivery time **available from stock**

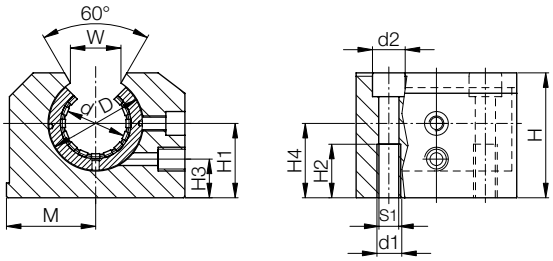
prices **price list online** www.igus.co.uk/en/DryLinR

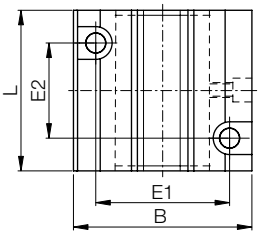
order example **part number RGA-01-08**

DryLin® R Pillow Block | Product Range

Open, long design

- Housing: Aluminum, equipped with 2 DryLin® R linear plain bearings





Order key

OGA-01-12

- Inner-Ø
- 01: Standard with OJUM-01
- 03: with OJUM-03
- Aluminum housing
- Linear housing with OJUM bearings

Please note:
Installation instructions ▶ **page 795**

Dimensions [mm]

Part number Standard with OJUM-01	Self-aligning with OJUM-03	d	D H6	H	H1 +0.01 −0.02	H2	H3	H4	S1	B	L ±0.3	M ±0.02	E1 ±0.15	E2 ±0.15	d1	d2	W +0.6
OGA-01-12	**OGA-03-12**	12	22	28	18	11	8	25	M5	43	39	21.5	32	23	4.2	8	14
OGA-01-16	**OGA-03-16**	16	26	35	22	13	12	30	M6	53	43	26.5	40	26	5.2	10	17
OGA-01-20	**OGA-03-20**	20	32	42	25	18	13	34	M8	60	54	30.0	45	32	6.8	11	17
OGA-01-25	**OGA-03-25**	25	40	51	30	22	15	40	M10	78	67	39.0	60	40	8.6	15	21
OGA-01-30	**OGA-03-30**	30	47	60	35	22	16	48	M10	87	79	43.5	68	45	8.6	15	21
OGA-01-40	**OGA-03-40**	40	62	77	45	26	20	60	M12	108	91	54.0	86	58	10.3	18	27

Are equipped with:


OJUM-01


OJUM-03

Can be combined with:


OJUM-06

delivery time **available from stock**

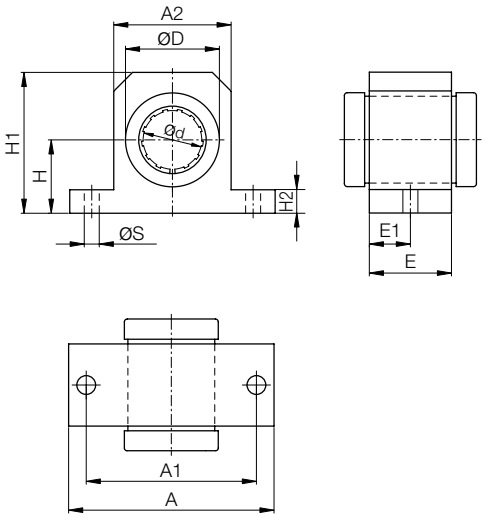
prices **price list online** www.igus.co.uk/en/DryLinR

order example **part number** OGA-01-12

DryLin® R Pillow Block | Product Range

Closed, short design

- Housing: Aluminum, equipped with DryLin® R linear plain bearings
- Variations:
  Standard: RGAS-01-Ø
  Self-aligning: RGAS-03-Ø
  All polymer bearing (cost-effective, light): RGAS-04-Ø



Order key

RGAS-01-12

- Inner-Ø
- 01: Standard with OJUM-01
  03: with OJUM-03
- Small
- Aluminum housing
- Linear Housing with RJUM bearings

Please note:
Installation instructions ▶ page 795

Dimensions [mm]

Part number Standard with RJUM-01	Self-aligning with RJUM-03	All polymer bearing with RJM-01	d	D	H	H1	H2	A	A1	A2	E	E1	S
RGAS-01-12	**RGAS-03-12**	**RGAS-04-12**	12	22	18	35	6	52	42	30	20	10	5.3
RGAS-01-16	**RGAS-03-16**	**RGAS-04-16**	16	26	22	40.5	7	56	46	34	22	11	5.3
RGAS-01-20	**RGAS-03-20**	**RGAS-04-20**	20	32	25	48.0	8	70	58	40	28	14	6.4
RGAS-01-25	**RGAS-03-25**	**RGAS-04-25**	25	40	30	58.0	10	80	68	50	40	20	6.4
RGAS-01-30	**RGAS-03-30**	**RGAS-04-30**	30	47	35	67.0	10	88	76	58	48	24	6.4
RGAS-01-40	**RGAS-03-40**	**RGAS-04-40**	40	62	45	85.0	12	108	94	74	56	28	8.4

Are equipped with:


RJUM-01


RJUM-03


RJM-01

Can be combined with:


RJUM-06

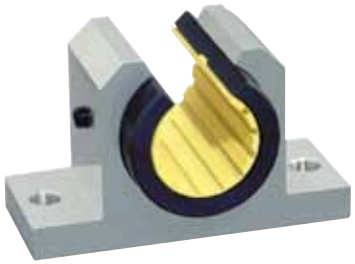
delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/DryLinR

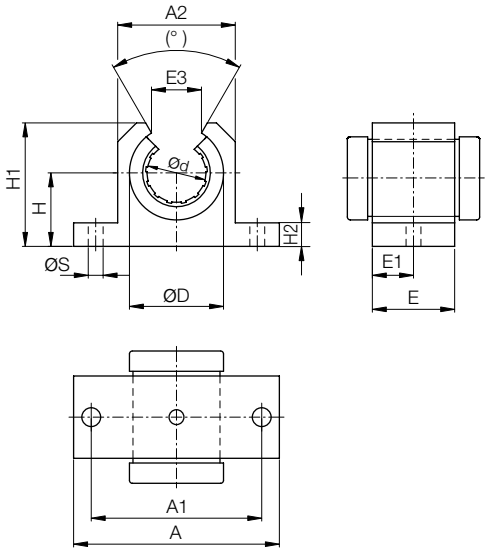
order example **part number** RGAS-01-12

DryLin® R Pillow Block | Product Range

Open, short design



- Housing: Aluminum, equipped with DryLin® R linear plain bearings
- Variations:
  Standard: OGAS-01-Ø
  Self-aligning: OGAS-03-Ø



Order key

OGAS-01-12

- Inner-Ø
- 01: Standard with OJUM-01
  03: with OJUM-03
- Small
- Aluminum housing
- Linear Housing
- with OJUM bearings

Please note:
Installation instructions ▶ page 795

Dimensions [mm]

Part number Standard with OJUM-01	Self-aligning with OJUM-03	d	D	H	H1	H2	A	A1	A2	E	E1	E3	(°)	S
OGAS-01-12	**OGAS-03-12**	12	22	18	28	6	52	42	30	20	10	14	78	5.3
OGAS-01-16	**OGAS-03-16**	16	26	22	33.5	7	56	46	34	22	11	17	78	5.3
OGAS-01-20	**OGAS-03-20**	20	32	25	42	8	70	58	40	28	14	17	60	6.4
OGAS-01-25	**OGAS-03-25**	25	40	30	51	10	80	68	50	40	20	21	60	6.4
OGAS-01-30	**OGAS-03-30**	30	47	35	60	10	88	76	58	48	24	21	54	6.4
OGAS-01-40	**OGAS-03-40**	40	62	45	77	12	108	94	74	56	28	27	54	8.4

Are equipped with:


OJUM-01


OJUM-03

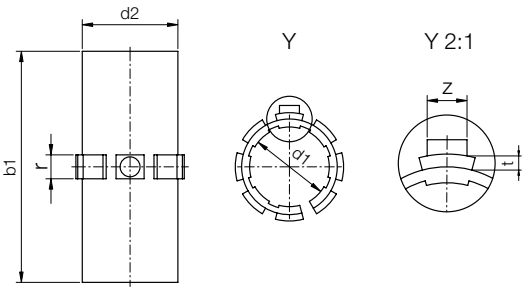
Can be combined with:


OJUM-06

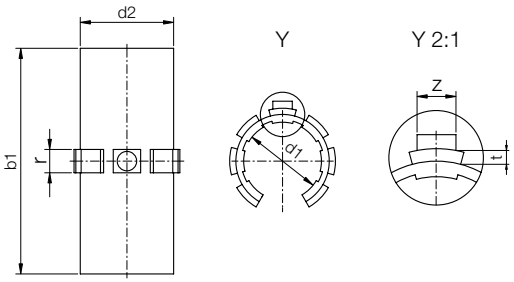
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number OGAS-01-12

DryLin® R Linear | Product Range | Inch

Closed, long type



Open, Long Type



● For supported shafts

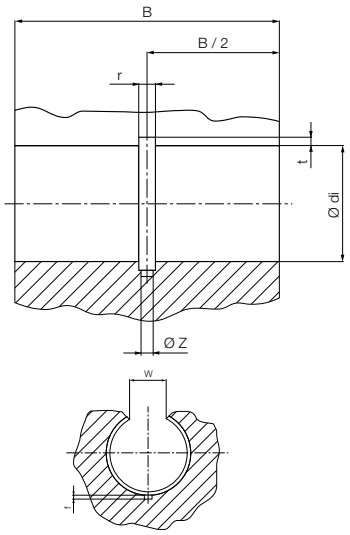
* according to igus® testing method ▶ page 828
Please note: Installation instructions ▶ page 795

Dimensions [Inch]

Part number closed	Part number open	Ø Shaft	Tolerance*	d2	b1	r	t –0.004	z –0.020
JUI-01-06		3/8	+0.0016 +0.0024	0.4684	0.846	0.1250	0.0311	0.0866
JUI-01-08	JUIO-01-08	1/2	+0.0016 +0.0024	0.5934	1.22	0.1250	0.0391	0.1024
JUI-01-10	JUIO-01-10	5/8	+0.0016 +0.0024	0.7184	1.46	0.1406	0.0391	0.1181
JUI-01-12	JUIO-01-12	3/4	+0.0016 +0.0024	0.8747	1.575	0.1875	0.0391	0.1339
JUI-01-16	JUIO-01-16	1	+0.0016 +0.0024	1.1247	2.205	0.1875	0.0391	0.1496
JUI-01-20	JUIO-01-20	1 1/4	+0.0020 +0.0032	1.4058	2.579	0.1875	0.0391	0.1496
JUI-01-24	JUIO-01-24	1 1/2	+0.0020 +0.0032	1.6558	2.953	0.2500	0.0625	0.1811
JUI-01-32	JUIO-01-32	2	+0.0024 +0.0040	2.1871	3.937	0.2813	0.0625	0.2280

Housing Bore for Liner JUI-01 | Dimensions [Inch]

Part number closed	Part number open	di H7 min.	di H7 max.	B h10	r 0.002	t 0.004	f 0.002	z 0.008
JUI-01-06		.4680	.4684	.875	.1250	.031	.039	.102
JUI-01-08	JUIO-01-08	.5940	.5934	1.25	.1250	.031	.059	.122
JUI-01-10	JUIO-01-10	.7190	.7184	1.5	.1406	.031	.067	.142
JUI-01-12	JUIO-01-12	.8755	.8747	1.625	.1875	.031	.079	.142
JUI-01-16	JUIO-01-16	1.1255	1.1247	2.25	.1875	.031	.079	.161
JUI-01-20	JUIO-01-20	1.4068	1.4058	2.625	.1875	.031	.079	.161
JUI-01-24	JUIO-01-24	1.6568	1.6558	3	.2500	.051	.089	.200
JUI-01-32	JUIO-01-32	2.1881	2.1871	4	.2813	.051	.098	.240



Can be combined with:

RJUI-01, RJUI-03,
TJUI-01, TJUI-03

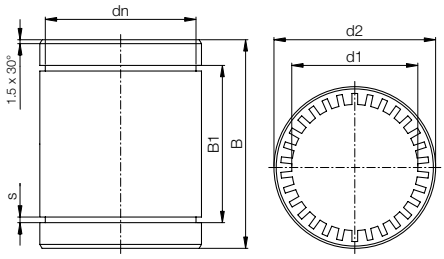
Can be combined with:

OJUI-01, OJUI-03

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number JUI-01-06

DryLin® R Solid Plastic Bearing | Product Range | Inch

Made of iglidur® J ▶ page 89



- Dimensions equivalent to the standard for recirculating ball bearings

* according to igus® testing method ▶ page 828
Please note: Installation instructions ▶ page 795

Inner diameter [Inch]

Part number	Shaft ø	Tolerance* bearing inner diameter	F max. dynamic** P = 2.5 MPa	F max. static** P = 17.5 MPa	Weight [g]
RJI-01-06	3/8	+0.0010 +0.0024	265	1,855	3.0
RJI-01-08	1/2	+0.0013 +0.0030	505	3,535	8.8
RJI-01-10	5/8	+0.0013 +0.0030	755	5,285	17.4
RJI-01-12	3/4	+0.0016 +0.0036	982	6,877	22.2
RJI-01-16	1	+0.0016 +0.0036	1,815	12,705	42.5
RJI-01-20	1 1/4	+0.0020 +0.0044	2,645	18,515	81.1
RJI-01-24	1 1/2	+0.0020 +0.0044	3,630	25,410	127.1
RJI-01-32	2	+0.0024 +0.0053	6,452	45,167	249.0

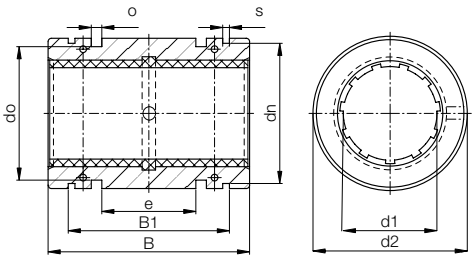
Dimensions [Inch]

Part number	d1	d2	B	B1	s	dn
RJI-01-06	3/8	0.6250	0.8750	0.6890	0.0410	0.5870
RJI-01-08	1/2	0.8750	1.2500	1.0125	0.0480	0.8200
RJI-01-10	5/8	1.1250	1.5000	1.0950	0.0580	1.0600
RJI-01-12	3/4	1.2500	1.6250	1.2500	0.0580	1.1770
RJI-01-16	1	1.5625	2.2500	1.8640	0.0700	1.4710
RJI-01-20	1 1/4	2.0000	2.6250	1.9840	0.0700	1.8890
RJI-01-24	1 1/2	2.3750	3.0000	2.3900	0.0890	2.2410
RJI-01-32	2	3.000	4.0000	3.1630	0.1050	2.8390

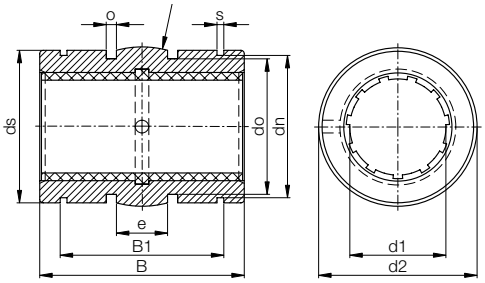
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJI-01-06

DryLin® R Linear Plain Bearing | Product Range | Inch

Closed, anodized aluminum adapter – version 01



Closed, anodized aluminum adapter – version 03 (floating bearing)



- Dimensions equivalent to the standard for recirculating ball bearings
- With reduced outer diameter, spherical area on the outer diameter, O-rings for elastic seating and hard anodized surface

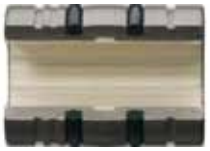
* according to igus® testing method ▶ page 828
** Ø < 3/8 Inch with pressfit sleeve bearings
Please note: Installation instructions ▶ page 795

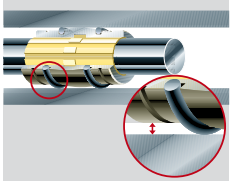
Dimensions [Inch]

Part number	Ø Shaft	Tolerance*	d2	B	B1
			h7	h10	H10
RJZI-01-04**/-03-04**	1/4	+0.0016 +0.0032	.5000/.4921	.7500/.7460	.5190/.5270
RJUI-01-06/-03-06	3/8	+0.0016 +0.0032	.6250/.6173	.8750/.8713	.6440/.6520
RJUI-01-08/-03-08	1/2	+0.0016 +0.0032	.8750/.8673	1.2500/1.2461	.9790/.9870
RJUI-01-10/-03-10	5/8	+0.0016 +0.0032	1.1250/1.1173	1.5000/1.4961	1.1240/1.1360
RJUI-01-12/-03-12	3/4	+0.0016 +0.0032	1.2500/1.2421	1.6250/1.6173	1.1860/1.1980
RJUI-01-16/-03-16	1	+0.0016 +0.0032	1.5625/1.5547	2.2500/2.2421	1.7730/1.7890
RJUI-01-20/-03-20	1 1/4	+0.0020 +0.0041	2.0000/1.9881	2.6250/2.6173	2.0230/2.0390
RJUI-01-24/-03-24	1 1/2	+0.0020 +0.0041	2.3750/2.3634	3.0000/2.9921	2.4400/2.4630
RJUI-01-32/-03-32	2	+0.0024 +0.0051	3.0000/2.9881	4.0000/3.9921	3.2220/3.2490

Dimensions [Inch]

Part number	s	dn	ds	do	e	o
	H10	h10	h10			–0.004
RJZI-01-04**/-03-04**	.0410	.4670	.4803	.3990	.125	.0800
RJUI-01-06/-03-06	.0410	.5870	.6055	.5240	.243	.0800
RJUI-01-08/-03-08	.0520	.8200	.8556	.7120	.281	.1250
RJUI-01-10/-03-10	.0620	1.0600	1.1055	.9620	.312	.1250
RJUI-01-12/-03-12	.0620	1.1770	1.2300	1.0870	.312	.1250
RJUI-01-16/-03-16	.0740	1.4710.	1.5271	1.3990	.500	.1250
RJUI-01-20/-03-20	.0740	1.8890	1.9606	1.8370	.625	.1250
RJUI-01-24/-03-24	.0950	2.2410	2.3358	2.1520	.650	.1620
RJUI-01-32/-03-32	.1110	2.8390	2.9606	2.7750	1.000	.1890

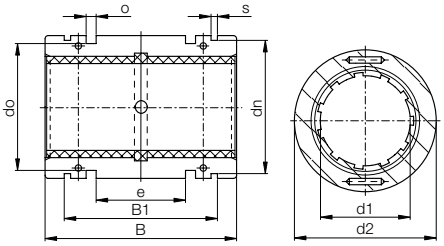




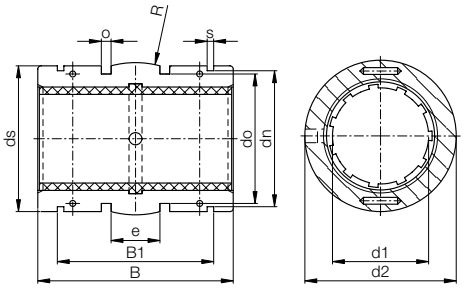
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number RJUI-01-08

DryLin® R Linear Plain Bearing | Product Range | Inch

Split aluminum adapter – version 01



Split aluminum adapter – version 03 (floating bearing)



- Dimensions equivalent to the standard for recirculating ball bearings
- With spherical area on the outer diameter and O-rings for elastic seating

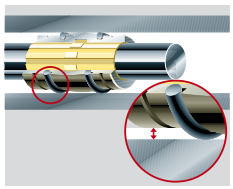
*** according to igus® testing method ▶ page 828**
Please note:
Installation instructions ▶ page 795

Dimensions [Inch]

Part number	Ø Shaft	Tolerance*	d2	B	B1
			h7	h10	H10
TJUI-01-08/-03-08	1/2	+0.0016 +0.0036	.8750	1.2500/1.2420	.9790
TJUI-01-10/-03-10	5/8	+0.0016 +0.0036	1.1250	1.5000/1.4920	1.1240
TJUI-01-12/-03-12	3/4	+0.0016 +0.0036	1.2500	1.6250/1.6170	1.1860
TJUI-01-16/-03-16	1	+0.0016 +0.0036	1.5625	2.2500/2.2382	1.7730
TJUI-01-20/-03-20	1 1/4	+0.0020 +0.0039	2.0000	2.6250/2.6134	2.0230
TJUI-01-24/-03-24	1 1/2	+0.0020 +0.0047	2.3750	3.0000/2.9843	2.4400
TJUI-01-32/-03-32	2	+0.0024 +0.0057	3.0000	4.0000/3.9803	3.2220

Dimensions [Inch]

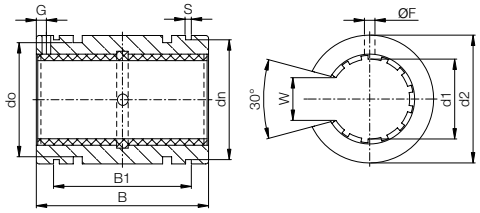
Part number	s	dn	ds	do	e	o
	H10	h10	h10			+0.008
TJUI-01-08/-03-08	.0520	.8200	0.8563	.7120	.281	.1250
TJUI-01-10/-03-10	.0620	1.0600	1.1039	.9620	.312	.1250
TJUI-01-12/-03-12	.0620	1.1770	1.2276	1.0870	.312	.1250
TJUI-01-16/-03-16	.0740	1.4710	1.5350	1.3990	.500	.1250
TJUI-01-20/-03-20	.0740	1.8890	1.9654	1.8370	.625	.1250
TJUI-01-24/-03-24	.0950	2.2410	2.3370	2.1520	.650	.1620
TJUI-01-32/-03-32	.1110	2.8390	2.9531	2.7750	1.000	.1890



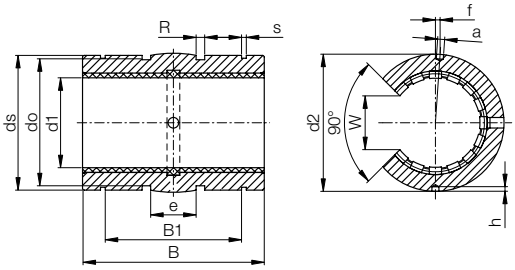
delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number TJUI-01-08

DryLin® R Linear Plain Bearing | Product Range | Inch

Open anodized aluminum adapter – version 01



Open anodized aluminum adapter – version 03 (floating)



- For supported shafts
- With reduced outer diameter, spherical area on the outer diameter, O-rings for elastic seating and hard anodized surface

*** according to igus® testing method ▶ page 828**

Please note:

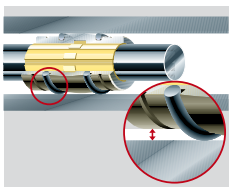
Construction standards ▶ page 795

Dimensions [Inch]

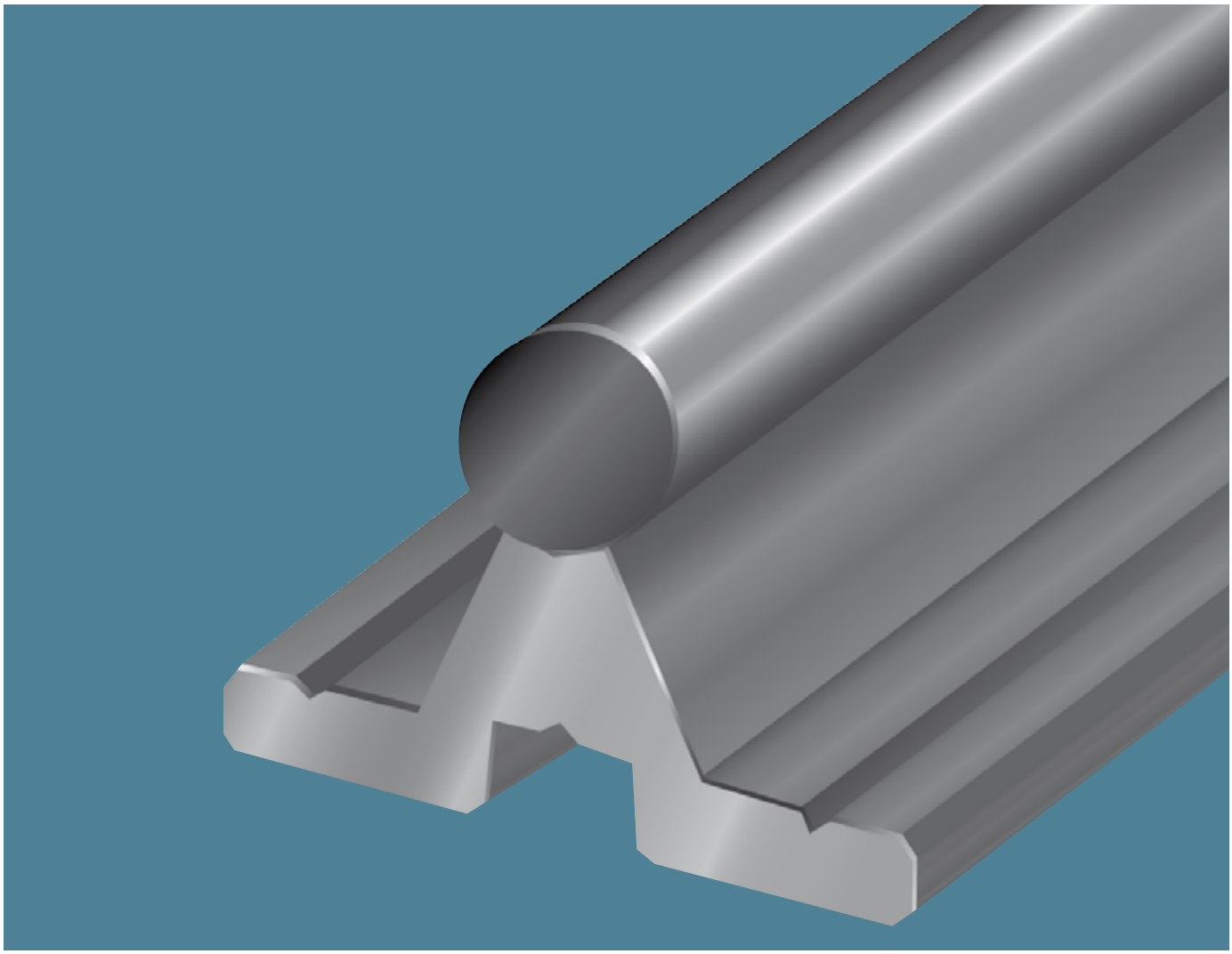
Part number	Ø Shaft	Tolerance*	d2	B	W
			h7	h10	±0.012
OJUI-01-08/-03-08	1/2	+0.0016 +0.0032	.8750/.8673	1.2500/1.2461	.3940
OJUI-01-10/-03-10	5/8	+0.0016 +0.0032	1.1250/1.1173	1.5000/1.4961	.4330
OJUI-01-12/-03-12	3/4	+0.0016 +0.0032	1.2500/1.2421	1.6250/1.6173	.4920
OJUI-01-16/-03-16	1	+0.0016 +0.0032	1.5625/1.5547	2.2500/2.2421	.6300
OJUI-01-20/-03-20	1 1/4	+0.0020 +0.0041	2.0000/1.9881	2.6250/2.6173	.7090
OJUI-01-24/-03-24	1 1/2	+0.0020 +0.0041	2.3750/2.3634	3.0000/2.9921	.8660
OJUI-01-32/-03-32	2	+0.0024 +0.0051	3.0000/2.988	4.0000/3.9921	1.1810

Dimensions [Inch]

Part number	s	dn	B1	F	G	do
		h10	H10	+0.004	+0.004	
OJUI-01-08/-03-08	.0520	.8200	.9790/.9870	.1360	.6250	.6846
OJUI-01-10/-03-10	.0620	1.0600	1.1240/1.1360	.1360	.1250	.9346
OJUI-01-12/-03-12	.0620	1.1770	1.1860/1.1980	.1360	.1250	1.0590
OJUI-01-16/-03-16	.0740	1.4710	1.7730/1.7890	.1360	.1250	1.3720
OJUI-01-20/-03-20	.0740	1.8890	2.0230/2.0390	.2010	.1875	1.8094
OJUI-01-24/-03-24	.0950	2.2410	2.4400/2.4630	.2010	.1875	2.1130
OJUI-01-32/-03-32	.1110	2.8390	3.2220/3.2490	.2650	.3125	2.7378



delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinR | order example part number OJUI-01-08



DryLin® Shafts

- 7 shaft materials to choose
- All shafts also in supported versions
- Aluminium for low weight
- Stainless steel for high corrosion resistance
- Special machining
- Available from stock
- Diameters 6–50 mm

Drylin® Shafts

Suitable liner materials:

+90°
−40°

The all rounder – **iglidur® J**
▶ **page 89**

+90°
−40°

The specialist – **iglidur® J200**
▶ **page 267**

+250°
−100°

The extreme – **iglidur® X**
▶ **page 153**

Aluminum

- Low weight
- Lower wear of the plain bearing
- Corrosion resistant
- Ideal in combination with liners made of iglidur® J/J200
- Delivered ex-stock

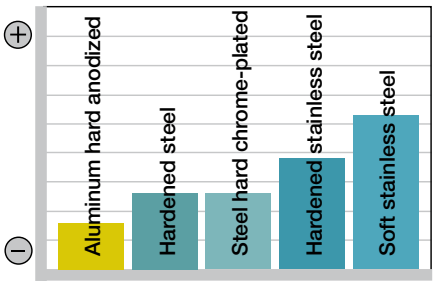
Steel

- Low-priced standard
- High load capacity
- Application in dry area
- Hard chrome-plated also available
- Lower coefficient of friction against plastic bearing

Stainless Steel

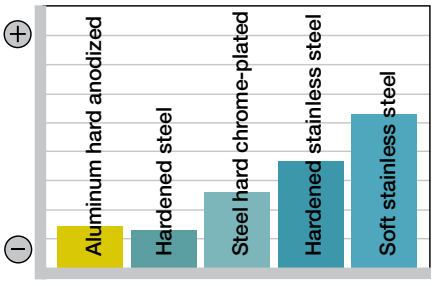
- High corrosion resistance
- High resistance to chemicals
- Ideal solution for the wet area
- 316 for extreme chemical intensive applications

Wear



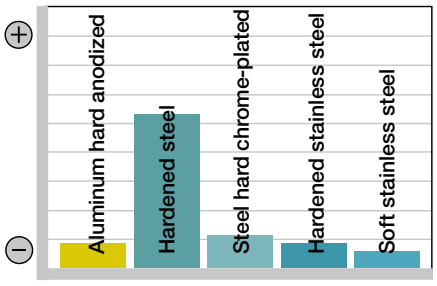
iglidur® J against particular shaft materials

Coefficient of friction

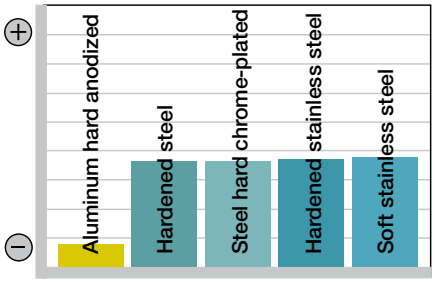


iglidur® J against particular shaft materials

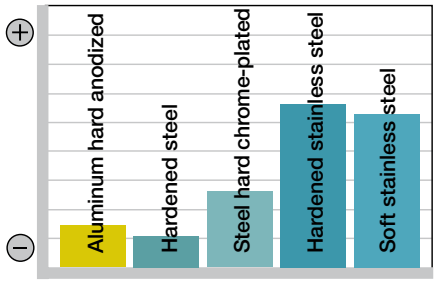
Corrosion



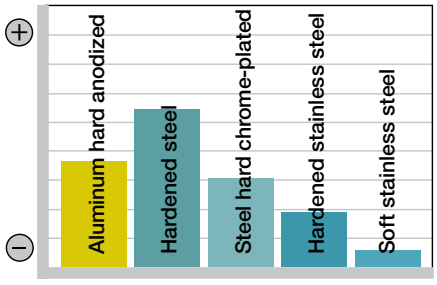
Weight



Costs



Chemical resistance



Drylin® Shafts | Product Range

	Aluminum			Steel				Stainless steel, hardened				SS, soft	
Designation					SWUM		SWUMH		EWUM		EEWUM			
	AWMP	AWMU	AWMR	SWM	SWUMN	SWMH	SWUMHN	EWM	EWUMN	EEWM	EEWUMN	EWMR	EWMS
Material	EN AW 6061/6060			1.1213		1.1213 HV		1.4125		1.4034		1.4301	1.4571
Ø 6	●			▲		▲		▲[2]		▲			
Ø 8	●			▲		▲		▲[2]		▲			
Ø 10	●	●		▲		▲		▲[2]		▲		▲	▲
Ø 12	●	●		▲	▲	▲	▲	▲	▲	▲	▲	▲	■
Ø 16	●	●		▲	▲	▲	▲	▲	▲	▲	▲	▲	■
Ø 20	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
Ø 25	●	●	●	▲	▲	▲	▲	▲	▲	▲	▲	▲	■
Ø 30	●[1]	●		▲	▲	▲	▲	▲	▲	▲	▲	▲	■
Ø 40	●[1]	●		▲	▲	▲	▲	▲	▲	▲			
Ø 50	●[1]			▲	▲	▲	▲	▲	▲	▲	▲		
Ø Tolerance	h8	-0.1	h9	h6	h6	h7	h7	h6	h6	h6	h6	h9	h9
Max. supply length Ø 8–10	3,000			3,000			3,000			3,000			
Max. supply length Ø 12–50	3,000	4,000	3,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	6,000	3,000	3,000
Surface	hard anodized			hardened/ smoothend		hard chrome-plated		hardened/ smoothend		hardened/ smoothend		drawn	
Surface Roughness Ra	< 0.6			0.15–0.3		0.15–0.3		0.15–0.3		0.15–0.3		0.3–0.6	
Surface hardness	450–550 HV			60+4 HRC		60+4 HRC		52+8 HRC		52+8 HRC		soft	
Roundness	≤ 1/2 ø Tolerance			≤ 1/2 ø Tolerance		≤ 1/2 ø Tolerance		≤ 1/2 ø Tolerance		≤ 1/2 ø Tolerance		≤ 1/2 ø Tolerance	

Delivery time ● ex-stock ▲ 3–14 days ■ on request [1] Hollow profile 30 · 7.5; 40 · 10; 50 · 11 [2] Material 1.4112

Special Machining

All shafts can be individually machined. Please send us your drawing. We'll submit an quote to you in a short time.

Query form ▶ **page 866**

Queries can also be sent online:

▶ www.igus.co.uk/shaftinquiry

DryLin® Shafts | Product Range

Precision Aluminum Shafts

Order key

AWMP-06-…

- Length
- Outer-Ø
- Precision h8
- Metric
- Aluminum shaft

- The recommended shaft material for all linear bearings made from iglidur® J and iglidur® J200
- Material: EN AW 6061/6060
- Streightness: EN 754-3
- Hardness: 75 HB
- Surface: hartanodisiert
- Surface hardness: 450–550 HV
- Inch-dimensions on request

Please remember that this is a technical surface. Small colour variations are possible due to variable coating depths.

Dimensions [mm]

Part number	Version	Outer diameter	ø Tolerance	Insulation thickness	Inner diameter	Max. length	Weight [kg/m]
AWMP-06	solid shaft	6	h8	–	–	3,000	0.08
AWMP-08	solid shaft	8	h8	–	–	3,000	0.14
AWMP-10	solid shaft	10	h8	–	–	3,000	0.22
AWMP-12	solid shaft	12	h8	–	–	3,000	0.32
AWMP-16	solid shaft	16	h8	–	–	3,000	0.56
AWMP-20	solid shaft	20	h8	–	–	3,000	0.88
AWMR-20	hollow shaft	20	h9	2	16	3,000	0.32
AWMP-25	solid shaft	25	h8	–	–	3,000	1.37
AWMR-25	hollow shaft	25	h9	3	19	3,000	0.59
AWMP-30	hollow shaft	30	h8	7.5	15	3,000	1.48
AWMP-40	hollow shaft	40	h8	10	20	3,000	2.63
AWMP-50	hollow shaft	50	h8	11	28	3,000	3.75

Order example: AWMP-12-500 corresponds to a precision aluminum shaft Ø 12 mm, 500 mm in length.
Order example: AWMP-30-2,000 corresponds to an aluminum hollow shaft Ø 30 mm, 2,000 mm in length.

delivery time **available from stock** | prices **price list online** www.igus.co.uk/shafts | order example **part number AWMP-06**

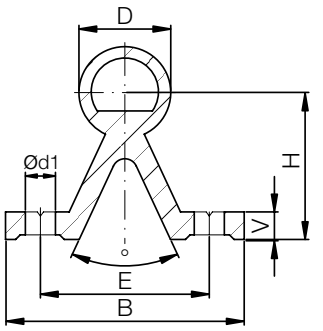
DryLin® Shafts | Product Range

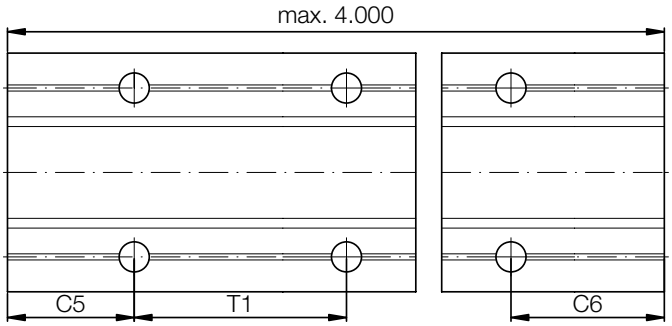
Supported Aluminum Shaft

Order key

AWMU-12-…

- Length
- Outer-Ø
- Supported
- Metric
- Aluminum shaft





- Material: EN AW 6061/6060
- Streightness: DIN 12020
- Hardness: 75 HB
- Surface: hartanodisiert
- Surface hardness: 450-550 HV
- Hole pitches symmetrical C5 = C6

Please remember that this is a technical surface. Small colour variations are possible due to variable coating depths.

Dimensions [mm]

Part number	D	B	H	V	d1	(°)	E	T1	C5/C6		Max.	Weight
	–0.1		±0.25				±0.25		min.	max.	length	[kg/m]
AWMU-12	12	40	22	5	4.5	50	29	75	20	57	4,000	0.75
AWMU-16	16	45	26	5	5.5	50	33	100	20	69	4,000	1.00
AWMU-20	20	52	32	6	6.6	50	37	100	20	69	4,000	1.42
AWMU-25	25	57	36	6	6.6	50	42	120	20	79	4,000	1.81
AWMU-30	30	69	42	7	9.0	50	51	150	20	94	4,000	2.69
AWMU-40*	40	73	50	8	9.0	50	55	200	20	119	4,000	4.06

Order example: AWMU-16-500 corresponds to a supported aluminum shaft Ø 16 mm, 500 mm in length.

*** Tolerance for shaft diameter D is –0.15.**

delivery time **available from stock**

prices **price list online** www.igus.co.uk/shafts

order example **part number** AWMU-12

DryLin® Shafts | Product Range

Steel Shafts

Order key

SWM-06-…

- Length
- Outer-Ø
- Metric
- Steel shaft

Cf53

- Low-priced standard shafts
- Even totally supported with standard aluminum support
- Available shaft materials:
  - ▶ Cf53 steel (1.1213), hardened/smoothed
  - ▶ Cf53 steel (1.1213 HV), hard chromed
- For supported shafts:
  - ▶ Shaft support supplied in lengths of 600 mm max.
  - ▶ Two hole pitches are available, T2 (standard) or T1
  - ▶ Hole pitches symmetrical C5 = C6

Dimensions [mm] – Steel Shafts 1.1213

Part number	d	Weight [kg/m]	Max. length	Effective hardness depth (at 1.1213)
SWM-06	06	0.222	3,000	0.8
SWM-08	08	0.359	4,000	0.9
SWM-10	10	0.617	4,000	0.9
SWM-12	12	0.888	6,000	1.0
SWM-16	16	1.578	6,000	1.2
SWM-20	20	2.466	6,000	1.6
SWM-25	25	3.853	6,000	1.8
SWM-30	30	5.549	6,000	2.0
SWM-40	40	9.865	6,000	2.2
SWM-50	50	15.413	6,000	2.4

Dimensions [mm] – Hard chromed Steel Shafts 1.1213

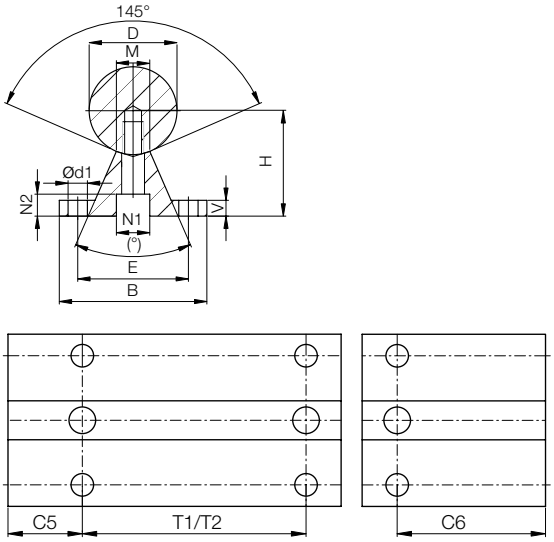
Part number	d	Weight [kg/m]	Max. length	Effective hardness depth (at 1.1213)
SWMH-06	06	0.222	3,000	0.8
SWMH-08	08	0.359	4,000	0.9
SWMH-10	10	0.617	4,000	0.9
SWMH-12	12	0.888	6,000	1.0
SWMH-16	16	1.578	6,000	1.2
SWMH-20	20	2.466	6,000	1.6
SWMH-25	25	3.853	6,000	1.8
SWMH-30	30	5.549	6,000	2.0
SWMH-40	40	9.865	6,000	2.2
SWMH-50	50	15.413	6,000	2.4

Order example: SWM-16-500 corresponds to a steel shaft 16 mm Ø 1.1213, 500 mm in length.

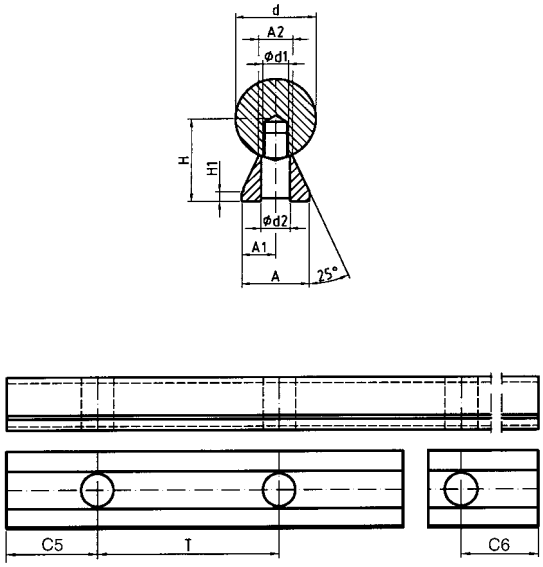
DryLin® Shafts | Product Range

Supported Steel Shaft

SWUM



SWUMN



Dimensions [mm] – Supported Steel Shafts 1.1213

Part number	D	B	H ±0.02	V	N1	N2	d1	M	(°)	E	T1* ±0.15	C5/C6 min. for T1	C5/C6 max. for T1	T2 Standard	C5/C6 min. for T2 Standard	C5/C6 max. for T2 Standard	Weight [kg/m]
SWUM-12	12	40	22	5	8.0	5.0	4.5	5.8	50	29	75	20	57	120	20	79	1.75
SWUM-16	16	45	26	5	9.5	6.0	5.5	7.0	50	33	100	20	69	150	20	94	2.64
SWUM-20	20	52	32	6	11.0	6.5	6.6	8.3	50	37	100	20	69	150	20	94	3.97
SWUM-25	25	57	36	6	14.0	8.5	6.6	10.8	50	42	120	20	79	200	20	119	5.65
SWUM-30	30	69	42	7	17.0	10.5	9.0	11.0	50	51	150	20	94	200	20	119	7.93
SWUM-40	40	73	50	8	17.0	10.5	9.0	15.0	50	55	200	20	119	300	20	169	12.88
SWUM-50	50	84	60	9	19.0	12.5	11.0	19.0	46	63	200	20	119	300	20	169	19.60

* Two hole pitches are available, T2 (standard) or T1

Dimensions [mm] – Low Level Supported Steel Shafts 1.1213

Part number	d	H	H1 ±0.02	A	A1	A2 ±0.02	d1	d2	T	C5/C6 min.	C5/C6 max.	Weight [kg/m]
SWUMN-12	12	14.5	3	11	5.5	5.4	M4	4.5	75	20	57	1.62
SWUMN-16	16	18	3	14	7.0	7.0	M5	5.5	75	20	57	2.54
SWUMN-20	20	22	3	17	8.5	8.1	M6	6.6	75	20	57	3.81
SWUMN-25	25	26	3	21	10.5	10.3	M8	9.0	75	20	57	5.62
SWUMN-30	30	30	3	23	11.5	11.0	M10	11.0	100	20	69.5	7.63
SWUMN-40	40	39	4	30	15.0	15.0	M12	13.5	100	20	69.5	13.47
SWUMN-50	50	46	5	35	17.5	19.0	M14	15.5	100	20	69.5	20.31

Low level supoorted shafts are delivered unmounted.

Order example: SWUM-16-500 corresponds to a supported steel shaft 16 mm ø aus 1.1213, 500 mm in length.

delivery time 3–8 days

prices price list online www.igus.co.uk/shafts

order example part number SWUM-12

DryLin® Shafts | Product Range

Stainless Steel Shafts

Order key

EWM-06-…

- Length
- Outer-Ø
- Metric
- Material: stainless stell
  - EWM – 1.4125
  - EEWM – 1.4034
  - EWMR – 1.4301
  - EWMS – 1.4571

- Even totally supported with standard aluminum support
- Available shaft materials:
  - – Stainless steel (1.4125), hardened/smoothed
  - – Stainless steel (1.4034), hardened/smoothed
  - – Stainless steel (1.4301 oder 1.4571), drawn
  - – Stainless steel (1.4112), hardened/smoothed

- For supported shafts:
  - ▶ Shaft support supplied in lengths of 600 mm max.
  - ▶ Two hole pitches are available, T2 (standard) or T1
  - ▶ Hole pitches symmetrical C5 = C6

STAIN-
LESS
STEEL

Dimensions [mm] – Hardened Stainless Steel 1.4125

Part number	d	Weight [kg/m]	Max. length	Effective hardness depth (at 1.4125)
EWM-06*	06	0.222	3,000	0.8
EWM-08*	08	0.359	4,000	0.9
EWM-10*	10	0.617	4,000	0.9
EWM-12	12	0.888	6,000	1.0
EWM-16	16	1.578	6,000	1.2
EWM-20	20	2.466	6,000	1.6
EWM-25	25	3.853	6,000	1.8
EWM-30	30	5.549	6,000	2.0
EWM-40	40	9.865	6,000	2.2
EWM-50	50	15.413	6,000	2.4

*** Material X90 (1.4112)**

delivery time **3–8 days**

prices **price list online** www.igus.co.uk/shafts

order example **part number EWM-06**

DryLin® Shafts | Product Range

Stainless Steel Shafts

Dimensions [mm] – Hardened Stainless Steel 1.4034

Part number	d	Weight [kg/m]	Max. length	Effective hardness depth (at 1.4034)
EEWM-06	06	0.222	3,000	0.8
EEWM-08	08	0.359	4,000	0.9
EEWM-10	10	0.617	4,000	0.9
EEWM-12	12	0.888	6,000	1.0
EEWM-16	16	1.578	6,000	1.2
EEWM-20	20	2.466	6,000	1.6
EEWM-25	25	3.853	6,000	1.8
EEWM-30	30	5.549	6,000	2.0
EEWM-40	40	9.865	6,000	2.2
EEWM-50	50	15.413	6,000	2.4

Dimensions [mm] – Stainless Steel 1.4301 (EWMR) or 1.4571 Soft Stainless Steel (EWMS)

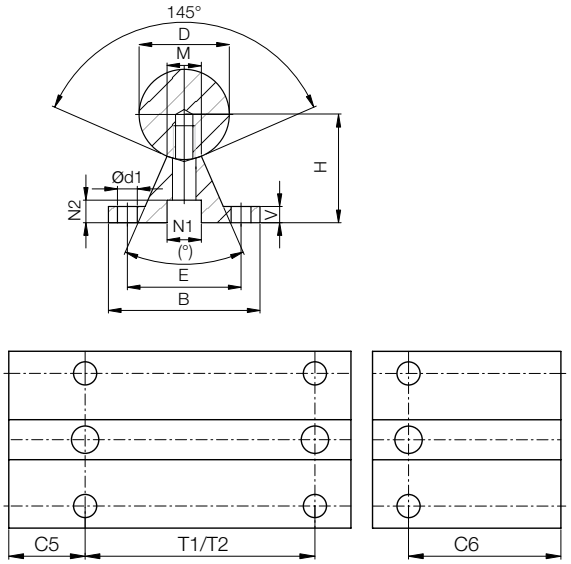
Part number	d	Weight [kg/m]	Max. length
EWMR-10	10	0.617	4,000
EWMS-10	10	0.617	4,000
EWMR-12	12	0.888	6,000
EWMR-16	16	1.578	6,000
EWMR-20	20	2.466	6,000
EWMS-20	20	2.466	6,000
EWMR-25	25	3.853	6,000
EWMR-30	30	5.549	6.000

Order example: EWM-16-500 corresponds to a stainless steel shaft 16 mm Ø 1.4125, 500 mm in length.

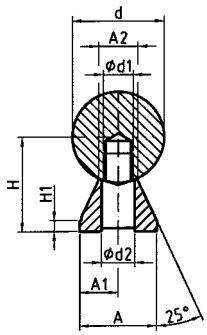
DryLin® Shafts | Product Range

Supported Stainless Steel Shafts, partial aluminum supports, max. 600 mm long

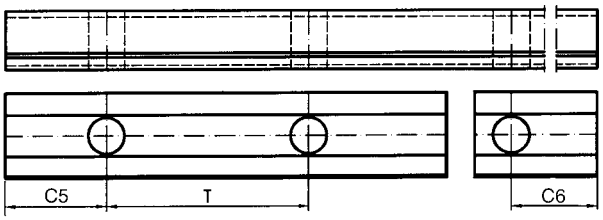
EWUM



EWUMN



STAIN-LESS STEEL



Dimensions [mm] – Supported Stainless Steel Shafts 1.4125

Part number	D	B	H	V	N1	N2	d1	M	(°)	E	T1*	C5/C6		T2	C5/C6		Weight
												min.	max.	for T2	min.	max.	
			±0.02								±0.15	for T1		Standard	Standard		[kg/m]
EWUM-12	12	40	22	5	8.0	5.0	4.5	5.8	50	29	75	20	57	120	20	79	1.75
EWUM-16	16	45	26	5	9.5	6.0	5.5	7.0	50	33	100	20	69	150	20	94	2.64
EWUM-20	20	52	32	6	11.0	6.5	6.6	8.3	50	37	100	20	69	150	20	94	3.97
EWUM-25	25	57	36	6	14.0	8.5	6.6	10.8	50	42	120	20	79	200	20	119	5.65
EWUM-30	30	69	42	7	17.0	10.5	9.0	11.0	50	51	150	20	94	200	20	119	7.93
EWUM-40	40	73	50	8	17.0	10.5	9.0	15.0	50	55	200	20	119	300	20	169	12.88
EWUM-50	50	84	60	9	19.0	12.5	11.0	19.0	46	63	200	20	119	300	20	169	19.60

* Two hole pitches are available, T2 (standard) or T1

Dimensions [mm] – Low Level Supported Stainless Steel Shafts 1.4125

Part number	d	H	H1	A	A1	A2	d1	d2	T	C5/C6		Weight
			±0.02			±0.02				min.	max.	[kg/m]
EWUMN-12	12	14.5	3	11	5.5	5.4	M4	4.5	75	20	57	1.62
EWUMN-16	16	18	3	14	7.0	7.0	M5	5.5	75	20	57	2.54
EWUMN-20	20	22	3	17	8.5	8.1	M6	6.6	75	20	57	3.81
EWUMN-25	25	26	3	21	10.5	10.3	M8	9.0	75	20	57	5.62
EWUMN-30	30	30	3	23	11.5	11.0	M10	11.0	100	20	69.5	7.63
EWUMN-40	40	39	4	30	15.0	15.0	M12	13.5	100	20	69.5	13.47
EWUMN-50	50	46	5	35	17.5	19.0	M14	15.5	100	20	69.5	20.31

Low level supoorted shafts are delivered unmounted.

Order example: EWUMN-16-500 corresponds to a low level supportetd stainless steel shaft (1.4125) 16 mm Ø, 500 mm in length.

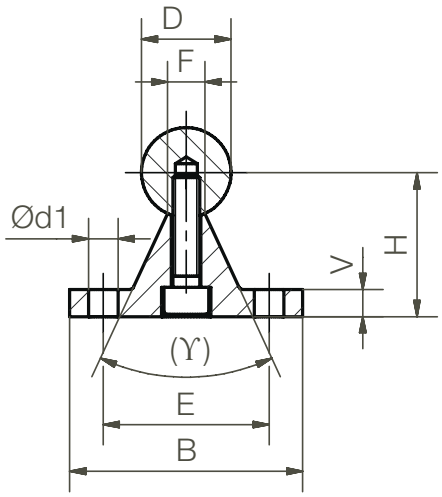
delivery time 3–8 days

prices price list online www.igus.co.uk/shafts

order example part number EWUM-12

DryLin® Shafts | Product Range

Partially supported stainless steel shafts



STAIN-LESS STEEL

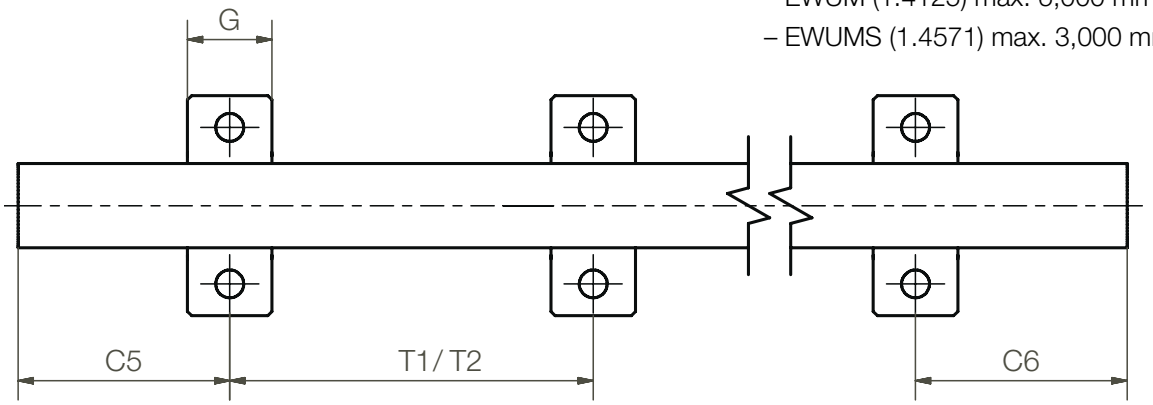
Order key

EWUM-ES-20-...

- Length
- Outer-Ø
- Stainless steel VA
- Metric
- Shaft support blocks

Shaft support blocks for Ø 20 mm made of stainless steel VA

- Connecting dimensions as standard shaft supports in aluminum
- High corrosion and chemical resistance
- Best addition for stainless steel shafts
- Available stainless steel shafts in 1.4571 and 1.4125
- Possible lengths:
  - EWUM (1.4125) max. 6,000 mm
  - EWUMS (1.4571) max. 3,000 mm



Dimensions [mm]

Part number	Shaft material	D h6	B	H ±0.02	V	d1	E	G	T1	C5/C6 for T1 min.	C5/C6 for T1 max.	T2	C5/C6 for T2 min.	C5/C6 for T2 max.
EWUM-ES-20	1.4125	20	52	32	6	6.6	37	20	100	20	69	150	20	94
EWUMS-ES-20	1.4571	20	52	32	6	6.6	37	20	100	20	69	150	20	94

delivery time 3–8 days

prices price list online www.igus.co.uk/shafts

order example part number EWUM-ES_20

DryLin® Shafts | Product Range

Carbon Fibre Shaft

Order key

CWM-12-…

- Length
- Outer-Ø
- Metric
- Carbon Fibre Shaft

- Material: Carbon fibre
- Roundness Tolerance: ±0.05 mm
- Tolerance of diameter: –0,1 mm
- Application temperature: max. +80 °C
- Colour: Black
- Shafts and mounting accessories on request

Dimensions [mm]

Part number	Version	Diameter -0.1	Max. length	Weight [kg]
CWM-12	Hollow	12/9	2,000 mm	0.07
CWM-16	Hollow	16/12.5	2,000 mm	0.12
CWM-20	Hollow	20/16	2,000 mm	0.17
CWM-30	Hollow	30/26	2,000 mm	0.27

Order example: CWM-12, 500 corresponds to a carbon fibre shaft Ø 12 mm, 500 mm in length.

delivery time upon request

prices price list online www.igus.co.uk/shafts

order example part number CWM-12

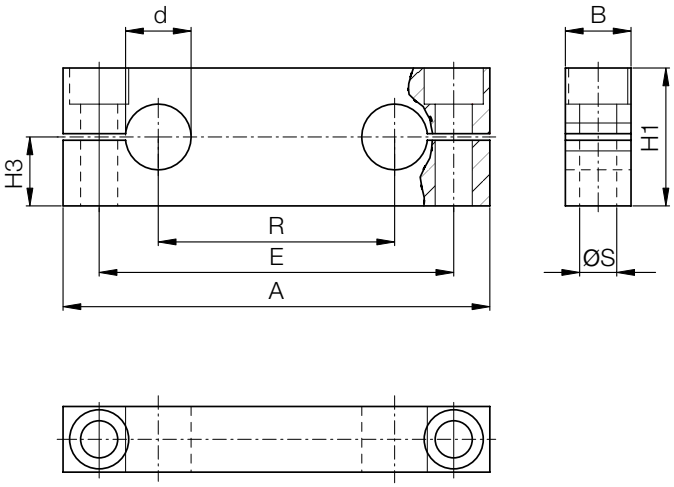
DryLin® Shafts | Product Range

Shaft End Support, Movable

Order key

TA-08

- Innen-Ø
- Shaft end support, movable



Material: Aluminum
Threaded fixing bore

Dimensions [mm]

Part number	d	A	B	H1	H3 ±0.015	S	E	R	Weight [kg]
TA-08	8	65	12	22	11	M5	52	32	0.04
TA-12	12	85	14	28	14	M6	70	42	0.07
TA-16	16	100	18	32	16	M8	82	54	0.13
TA-20	20	130	20	42	21	M10	108	72	0.22
TA-25	25	160	25	52	26	M12	132	88	0.44
TA-30	30	180	25	58	29	M12	150	96	0.56
TA-40	40	230	30	72	36	M16	190	122	1.00

delivery time available from stock | prices price list online www.igus.co.uk/shafts | order example part number TA-06

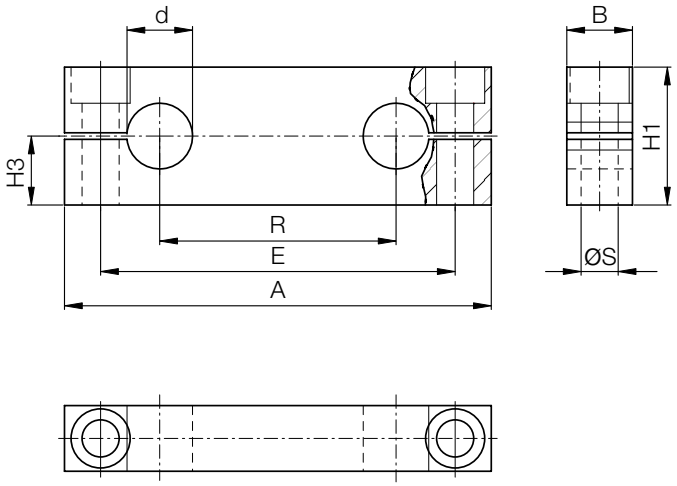
DryLin® Shafts | Product Range

Shaft End Support, Fixed

Order key

TAF-08

Inner-Ø
Shaft end support, fixed



Material: Aluminum
mounting hole

Dimensions [mm]

Part number	d	A	B	H1	H3 ±0.015	S	E	R	Weight [kg]
TAF-08	8	65	12	23	12.5	32	5.5	52	0.04
TAF-12	12	85	14	32	18.0	42	6.6	70	0.09
TAF-16	16	100	18	36	20.0	54	9.0	82	0.14
TAF-20	20	130	20	46	25.0	72	11.0	108	0.25
TAF-25	25	160	25	56	30.0	88	13.5	132	0.47
TAF-30	30	180	25	64	35.0	96	13.5	150	0.62
TAF-40	40	230	30	80	44.0	122	17.5	190	1.15

delivery time available from stock | prices price list online www.igus.co.uk/shafts | order example part number TAF-08

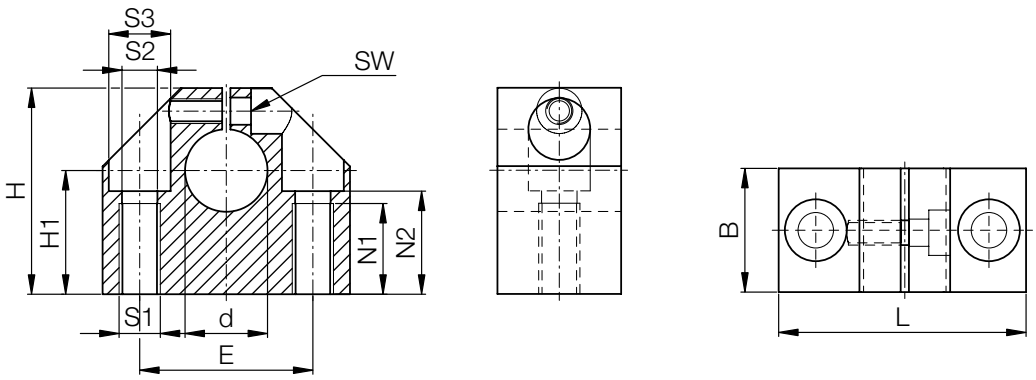
DryLin® Shafts | Product Range

Shaft End Block, Standard Design

Order key

WA-08

- Inner-Ø
- Shaft end block



Dimensions [mm]

Part number	d	B	H	H1 ±0.02	L	S1	S2	S3	E ±0.1	N1	N2	SW	Weight [kg]
WA-08	8	18	28	15	32	M4	3.3	6	22	9	13.0	2.5	0.04
WA-12	12	20	35	20	43	M6	5.2	10	30	13	16.5	3.0	0.10
WA-16	16	24	42	25	53	M8	6.8	11	38	18	21.0	4.0	0.15
WA-20	20	30	50	30	60	M10	8.6	15	42	22	25.0	5.0	0.23
WA-25	25	38	60	35	78	M12	10.3	18	56	26	30.0	6.0	0.41
WA-30	30	40	70	40	87	M12	10.3	18	64	26	34.0	6.0	0.53
WA-40	40	48	90	50	108	M16	14.25	20	82	34	44.0	8.0	0.99
WA-50*	50	58	105	60	132	M20	17.5	26	100	43	49.0	10.0	1.25

delivery time from stock * on request | prices price list online www.igus.co.uk/shafts | order example part number WA-08

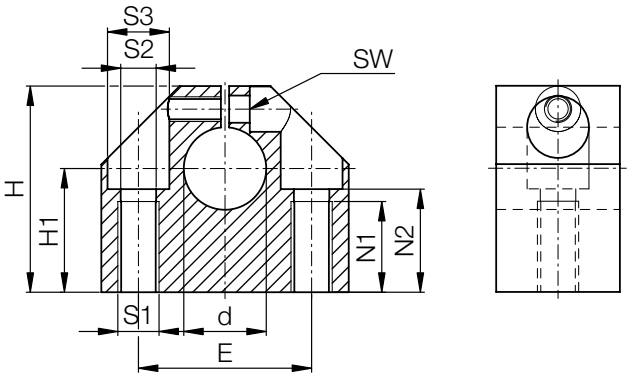
DryLin® Shafts | Product Range

Shaft End Block, Compact Design

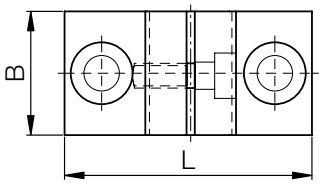
Order key

WAC-06

- Inner-Ø
- Shaft end block, Compact design



Material: Aluminum



Dimensions [mm]

Part number	d	B	H	H1	L	S1	S2	S3	E	N1	N2	SW	Weight
				+0.01 up to +0.02					±0.1				[kg]
WAC-06*	6	16	27	15	32	M5	4.2	8	22	11	13	2.5	0.03
WAC-08	8	16	27	16	32	M5	4.2	8	22	11	13	2.5	0.03
WAC-10	10	18	33	18	40	M6	5.2	10	27	13	16	3.0	0.05
WAC-12	12	18	33	19	40	M6	5.2	10	27	13	16	3.0	0.05
WAC-14*	14	20	38	20	45	M6	5.2	10	32	13	18	3.0	0.07
WAC-16	16	20	38	22	45	M6	5.2	10	32	13	18	3.0	0.07
WAC-20	20	24	45	25	53	M8	6.8	11	39	18	22	4.0	0.12
WAC-25	25	28	54	31	62	M10	8.6	15	44	22	26	5.0	0.17
WAC-30	30	30	60	34	67	M10	8.6	15	49	22	29	5.0	0.22
WAC-40	40	40	76	42	87	M12	10.3	18	66	26	38	6.0	0.48
WAC-50*	50	50	92	50	103	M16	14.25	20	80	34	46	8.0	0.82

delivery time: from stock, * on request

prices: price list online www.igus.co.uk/shafts

order example: part number WAC-06

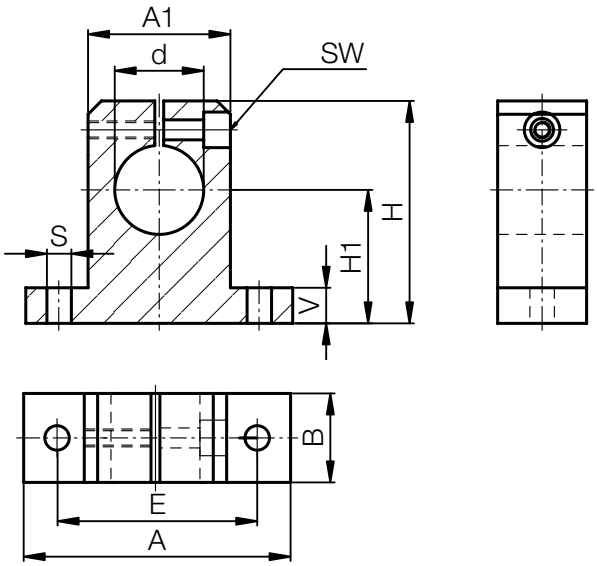
DryLin® Shafts | Product Range

Shaft End Block, Narrow Design

Order key

WAS-08

- Inner-Ø
- Shaft end block, narrow design



Material: Aluminum

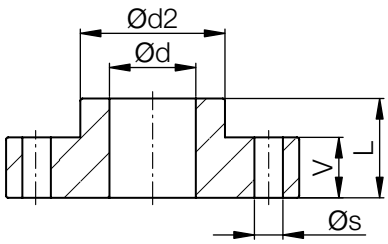
Dimensions [mm]

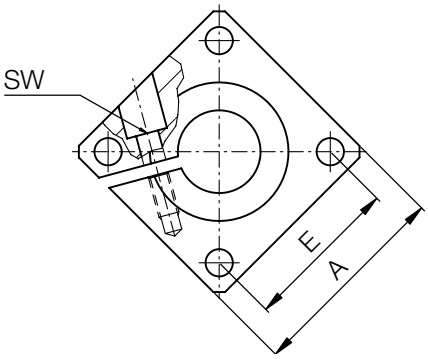
Part number	d	H	H1 ±0.02	A	A1	B	E	S	V	SW	Weight [kg]
WAS-08	8	27	15	32	16	10	25	4.5	5.0	2.5	0.012
WAS-12	12	35	20	42	20	12	32	5.5	5.5	3.0	0.023
WAS-16	16	42	25	50	26	16	40	5.5	6.5	3.0	0.035
WAS-20	20	50	30	60	32	20	45	5.5	8.0	4.0	0.067
WAS-25	25	58	35	74	38	25	60	6.6	9.0	4.0	0.140
WAS-30	30	68	40	84	45	28	68	9.0	10.0	5.0	0.200
WAS-40	40	86	50	108	56	32	86	11.0	12.0	6.0	0.480

delivery time available from stock | prices price list online www.igus.co.uk/shafts | order example part number WAS-08

DryLin® Shafts | Product Range

Shaft End Block





Order key

WAF-12

- Inner-Ø
- Shaft end block

Material: Aluminum

Dimensions [mm]

Part number	Ø d	A	L	Ø d2	E	Ø s	V	SW	Weight [kg]
WAF-12	12	40	20	23.5	30 ± 0.12	5.5	12	3	0.06
WAF-16	16	50	20	27.5	35 ± 0.12	5.5	12	3	0.08
WAF-20	20	50	23	33.5	38 ± 0.15	6.6	14	4	0.10
WAF-25	25	60	25	42.0	42 ± 0.15	6.6	16	5	0.15
WAF-30	30	70	30	49.5	54 ± 0.15	9.0	19	6	0.30
WAF-40	40	100	40	65.0	68 ± 0.25	11.0	26	8	0.70
WAF-50	50	100	50	75.0	75 ± 0.25	11.0	36	8	1.20

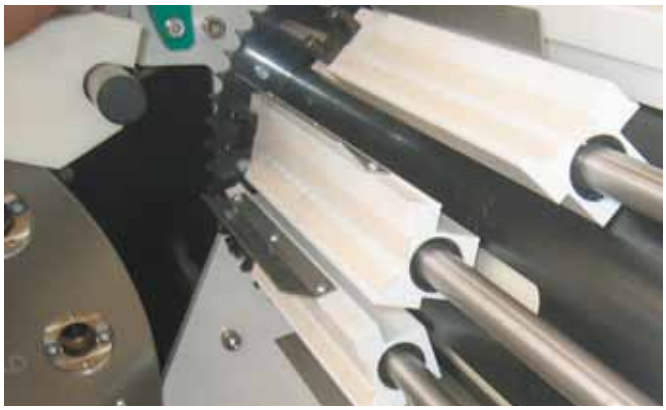
delivery time available from stock | prices price list online www.igus.co.uk/shafts | order example part number WAF-12

DryLin® R | The Best Bearing for Your Shaft

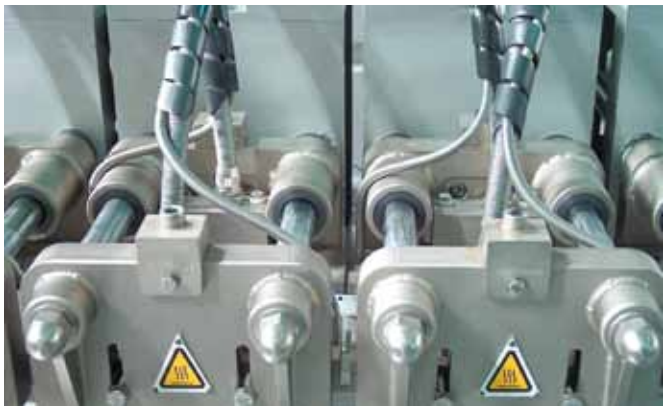
The combination of shaft and bearing material is critical to the operation of the linear bearing. The correct bearing material depends on many factors, including coefficient of friction and wear, as well as moisture absorption, chemical resistance and temperature resistance.

	The all rounder – iglidur® J	The specialist – iglidur® J200	The extreme – iglidur® X
			
Potential reverse partner	all shaft materials	Aluminum, hard anodized	hardened stainless steel
Application temperature	–50 to +90 °C	–50 to +90 °C	–100 to +250 °C
Best coeff. of friction with	steel shaft	Aluminum, hard anodized	hard chromed steel
Maximum lifetime	Aluminum, hard anodized	Aluminum, hard anodized	hardened stainless steel
Max. surface pressure	35 MPa	23 MPa	150 MPa
Moisture absorption	1.3 % weight	0.7 % weight	0.5 % weight
Volume resistance	> 1,013 Ωcm (spez.)	> 108 Ωcm (spez.)	< 105 Ωcm (spez.)
Speciality	lubrication-free	lubrication-free	lubrication-free
Part number	JUM-...	J200UM-...	XUM-...

More information: iglidur® J ▶ page 89; iglidur® J200 ▶ page 267; iglidur® X ▶ page 153

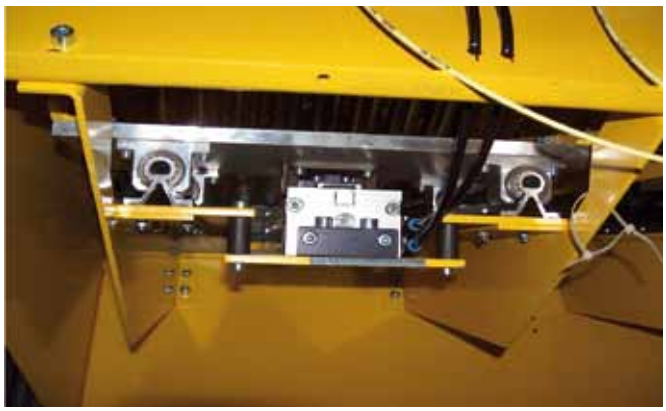


Aluminum shafts in combination with iglidur® J enable high speeds due to the low weight.



Stainless steel shafts combined with iglidur® X, offer maximum resistance at +120 °C. Cleaning in filling machine.

Stainless steel combined with iglidur® J in cut-off grinding machine. Grinding particles and coolants, extreme conditions.



Low-cost guide for workpiece carriage in a machine tool through supported aluminum shaft.

Fax-Reply to +49(0) 22 03/96 49-334

Date:	Phone: +44 (0) 16 04/67 72 40 Fax: +44 (0) 16 04/67 72 45
From: Phone: Fax:	To: **igus® UK Ltd.** 51A Caswell Road Brackmills Northampton NN4 7PW

Lower costs in 45 seconds? Simply fill in, send off, save!!

Step 1:
Please choose the desired shaft material:


☐ Aluminum, hard anodized


☐ CF-53 steel (1.1213)


☐ 1.4034 stainless steel, hardened


☐ 1.4034 stainless steel, drawn

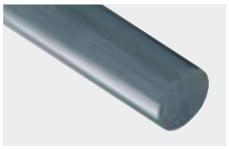

☐ Aluminum, hard anodized


☐ CF-53 steel hv (1.1213 hv)

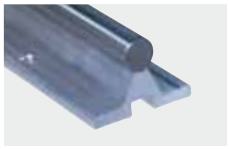

☐ 1.4125 stainless steel, hardened


☐ 1.4571 stainless steel, drawn

Step 2:
Please choose the desired version:


☐ Solid shaft


☐ Low level supported

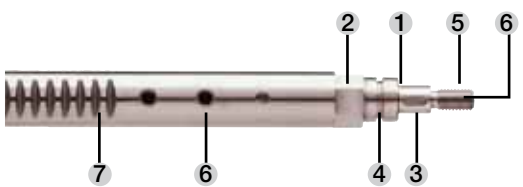

☐ Standard supported

Step 3:
Please enter the desired dimensions:

_____ Outer-Ø (mm)

_____ Length (mm)

Step 4:
Processing: Please draw a sketch of the machining required



1 Bevel ☐ one side ☐ both sides

2 Key surface ☐ one side ☐ both sides

3 Trunion ☐ one side ☐ both sides

4 Keyway, recess

Quantity _____

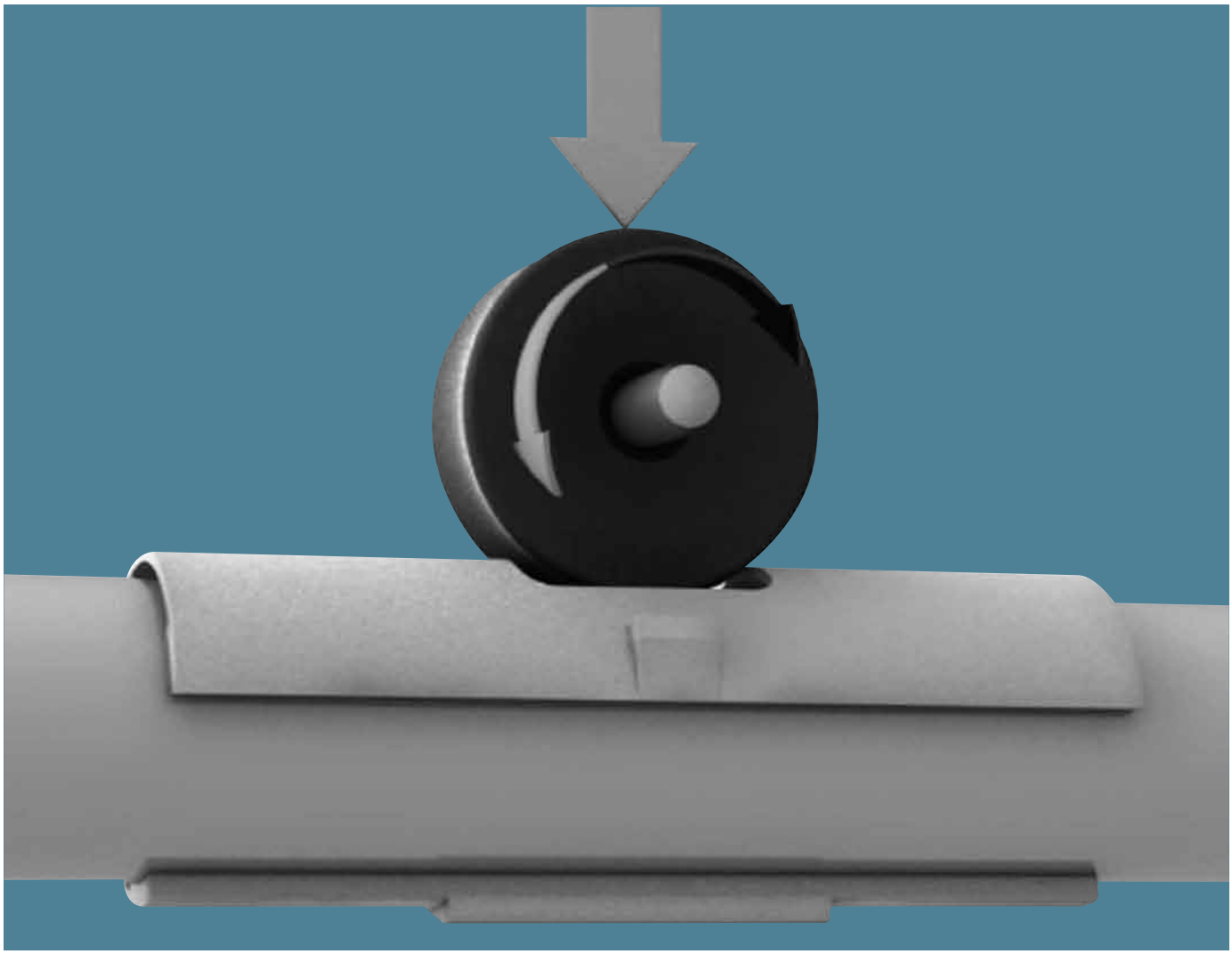
5 Male thread axial ☐ one side ☐ both sides

6 Female thread axial ☐ one side ☐ both sides

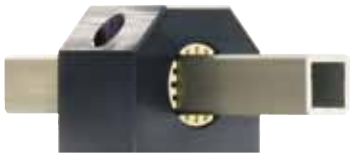
Female thread, radial

Quantity _____

7 Other surface processing ☐ one side ☐ both sides



DryLin® Specialists



DryLin® Specialists | Product Overwiew

DryLin® NT – Telescopic rails
Lubrication-free solid polymer/aluminum guide for continuous lengths up to 1,200 mm extension.
▶ page 865

NEW!*

DryLin® NT – Telescopic rails with locking mechanism
The proven DryLin® N telescopic system is now available with a locking mechanism.
▶ page 866

There are two different versions:
a) Detent in end and centre positions
b) Precision detent with variable pitch
(minimum pitch 10 mm)
▶ page 866

DryLin® WKM – Digital measuring systems
The DryLin® WKM measuring systems are battery powered. The integrated battery has a life of at least two years. Magnetic tapes fitted as standard. The position value is displayed on a 5-digit LC display.
▶ page 867

NEW!*

DryLin® WKMEX – Measuring system
Much less space is required for the latest DryLin® WKMEX measuring device. The sensor head is integrated in the carriage (total height 36 mm). There are three sensor types available, two are compatible with TTL Line Driver. We recommend igus® E-Chain® series E2 micro or Easy Chain® for guiding the signal cable.
▶ page 868

NEW!*

DryLin® WJRM – Hybrid bearing
An additional DryLin® W solution is the combined rolling and sliding carriage.
In the defined load direction the required drive force is reduced by the maintenance free roller bearing.
▶ page 870

NEW!*

DryLin® Q – Torque-resistant square guide
DryLin® Q is the new torque resistant linear slide for the spacesaving handling of small parts. Four liners made of igli-dur® J run on a hard anodized aluminum square tube. This unit is light weight, compact and 100 % lubrication-free.
▶ page 869

NEW!*

DryLin® round slide disk
The DryLin® – Slide disks from stock (RSDJ – Round Slide disk) – made from the high performance material iglidur® J have many applications. Without additional lubricant, heavy loads can be moved over a variety of surfaces (steel, alumi-num, stainless steel, etc.) with very low friction. The plates are fixed securely with a screw through the reinforced hole in the centre.
▶ page 872

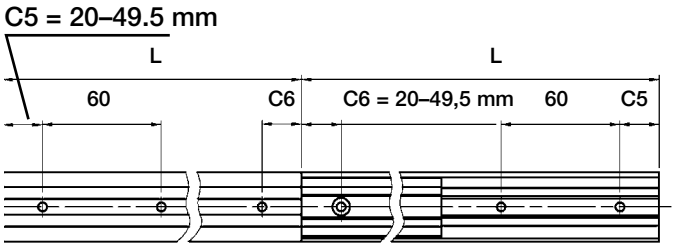
* in this catalog

DryLin® Telescopic Rails | Product Range

NT-35-“L” – Total extension

- Solid polymer guide/aluminum guide
- Low weight
- Cost-effective
- Corrosion-resistant
- Continuous lengths up to 1,200 mm (total extension)

NT-35-“L” – Total extension

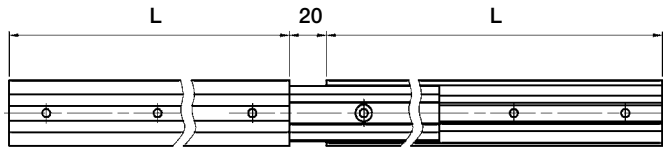


Order key

NT-35-300

- Retracted length L
- Rail width: 35 mm
- Telescopic-System

NT-35-“L”-“L+20” – Over-extension

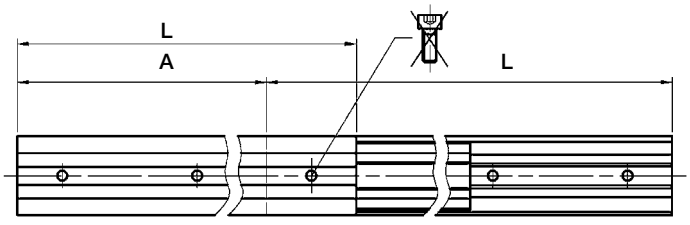


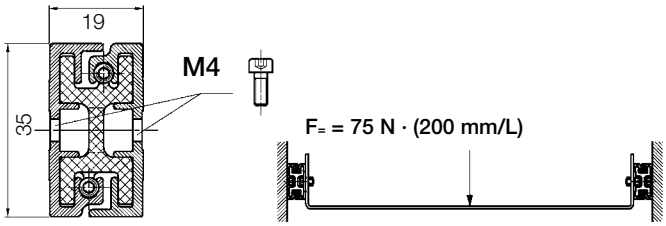
Order key

NT-35-300-320

- Over extension (e.g. telescoped length 300 mm, extended length 620 mm; Over extension max. 20 mm)
- Retracted length L
- Rail width: 35 mm
- Telescopic-System

NT-35-“L”-“A” – Partial extension





Order key

NT-35-300-200

- Partial extension (e. g. telescoped length 300 mm, extended length 500 mm)
- Retracted length L
- Rail width: 35 mm
- Telescopic-System

Recommendation:

F_{max} calculated using this formula allows an easy manual use. The unit can take higher forces than this, but the required driving force will be correspondingly higher.

Dimensions [mm]

Part number	b	H	L min.	L max.
NT-35-… mm	35	19	100	600

NEW in this catalog!

DryLin® Telescopic Rails | Product Range

With locking mechanism

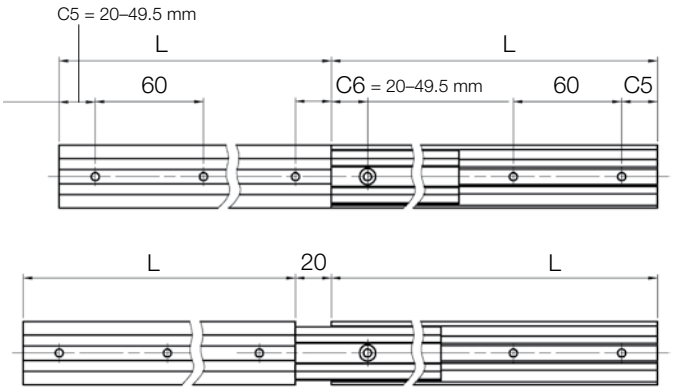
Order key

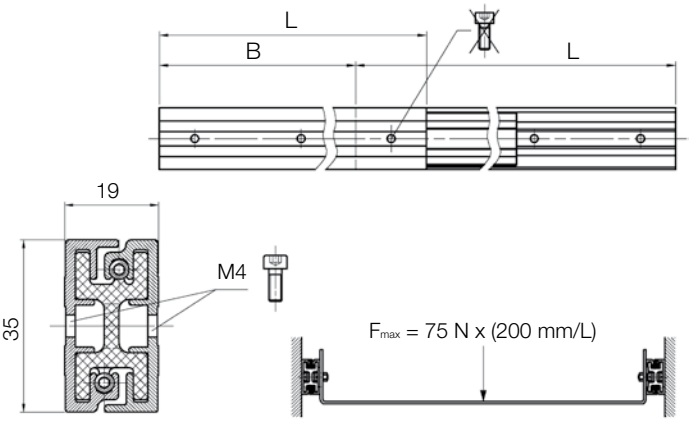
NT-LM-35-300

- Retracted length L
- Rail width: 35 mm
- Locking Mechanism
- Telescopic-system

The proven DryLin® N telescopic system is now available with a locking mechanism.
There are two different versions:
a) Detent in end and centre positions
b) Precision detent with variable pitch (minimum pitch 10 mm)

- Solid polymer/aluminum guide
- Low weight, quiet running
- Cost-effective
- Corrosion-resistant, 100 % lubrication-free
- Continuous lengths up to 1,200 mm (extended total length)





DryLin® NT-LM in adjustment of Perspex guard

DryLin® NT-LM in guard door adjustment in machine tool

DryLin® – Detent in end and centre position at full extension – Dimensions [mm]

Part number	B	H	Lmin	Lmax
NT-LM-35-...mm	35	19	140	600

individual precision detent on request

delivery time 3–8 days

prices price list online www.igus.co.uk/drylinspecialists

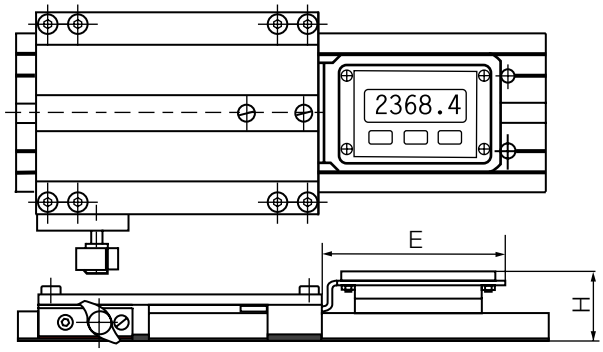
order example part number NT-LM-35-...

DryLin® Measuring Systems | Product Range

The DryLin® WKM measuring systems are battery powered. The integrated battery guarantees two year operating time. This means a virtually absolute distance measurement is possible. Magnetic tapes fitted as standard. The position value is displayed on a 5-digit LC display.

- Measuring principle: magnetic with magnetic tape (10 · 1.4 mm)
- Resolution: 0.1 mm
- Accuracy: ±(0.1 + 0.01 · measured length [m]) mm
- Service life: over 5 years at 100 % switch-on time
- Application temperature: +0 to +60 °C
- Display: LCD
- Repeat accuracy:±1 Digit
- Absolute and incremental measuring method
- Flexible and mobile use
- Variable zero point
- Carriage can be clamped
- Display optionally right (R) or left (L) of guide carriage
- Max. rail length 4,000 mm (Effective measurement max. 3,757 mm)

Type series WKM-10 and -20



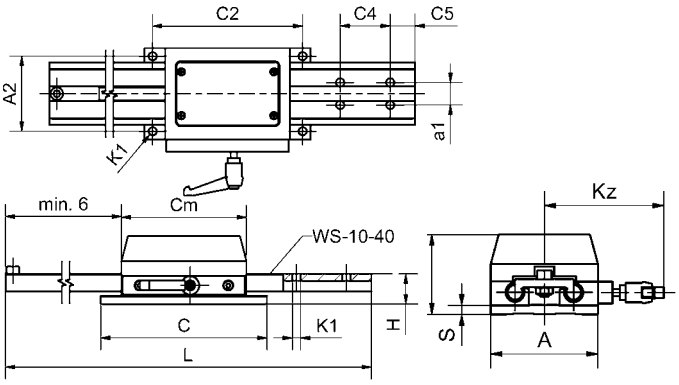
For the series 10 and 20 the rails are fixed and the measuring carriage moves.

Dimensions [mm]

Part number	DryLin® linear guide	H	E
WKM-10-80-15-01-L	**WK-10-80-15-01***	36	93
WKM-10-80-15-01-R	**WK-10-80-15-01***	36	93
WKM-20-80-15-01-L	**WK-20-80-15-01***	40	93
WKM-20-80-15-01-R	**WK-20-80-15-01***	40	93

*** Dimensions rail/slide ▶ DryLin® W chapter, page 763**

Type series WKM-11



For the series 11, the carriage is fixed with 4 screws. The rail moves, the end of the rail is the fixing point.

Dimensions [mm]

Part number	L max.	C4	C5	a1	C2	A2	K1	C	A	H	S	Cm	Hm	kz
WKM-11-40	2,000	40	20	18	120	80	8.6	133	73	24	8	100	54	82

NEW in this catalog!

DryLin® Measuring Systems | Product Range

Measuring-system with external signal output

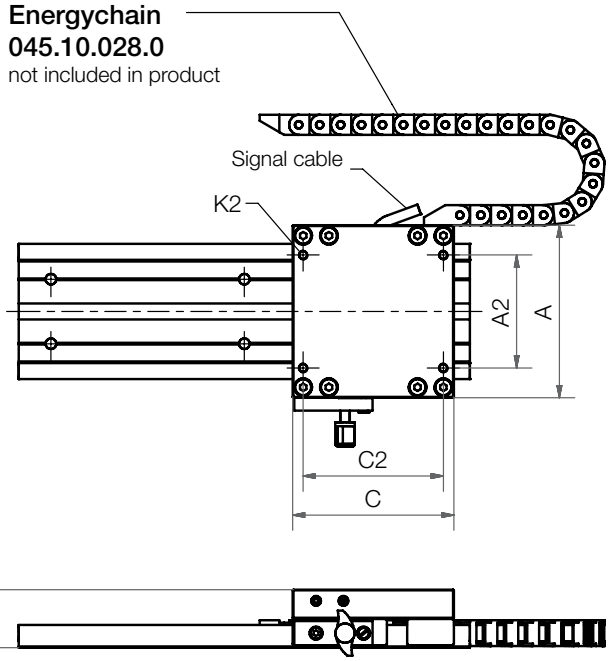
Much less space is required for the latest DryLin® WKMEX measuring device. The sensor head is integrated in the carriage (total height 36 mm). There are three sensor types available, two are compatible with TTL Line Driver. We recommend igus® E-Chain® series E2 micro or Easy Chain® for guiding the signal cable.

- Ready-to-fit measuring device for external signal output
- With 4 edge trigger mode (setting parameters of the display or control, for example, IW4) and +20 °C ambient temperature: Resolution: ±(0.025 + 0.02 · L) L = measuring length in metres; Repeatability: ±0.025 mm
- With 1 edge trigger mode (setting parameters of the display or control, for example, IW1) and +20 °C ambient temperature: Resolution: ±(0.1 + 0.02 · L) L = measuring length in metres; Repeatability: ±0.025 mm
- Small sensor with integrated evaluation unit

Order key

WKMEX-10-80-10-2.5-00-01-1500

01	Rail length
11	Number of complete carriages
	Sensor version in Table
	Length of signal cable (m)



Dimensions [mm]

Part number	H2	C	C2	A	A2	K2	Resolution
WKMEX-10-80	36	100	87	107	70	M6	0.1

Versions

Sensor type	Nominal voltage	Output power	Max. length of signal cable
00	10–30 V	10–30 V	30 m
01	10–30 V	TTL Line Driver	50 m
11	5 V	TTL Line Driver	10 m

delivery time available from stock

prices price list online www.igus.co.uk/drylinspecialists

order example part number WKMEX-10-80

DryLin® Q Square Guide | Product Range

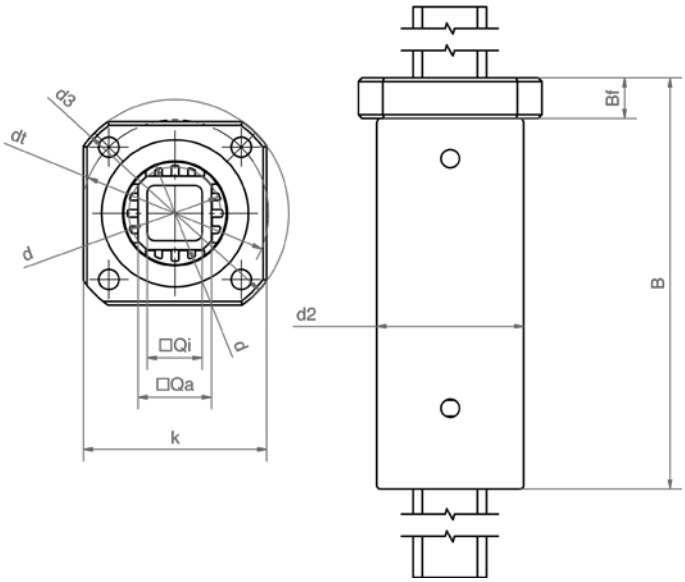
Torque-resistant square guide

- Square section tube made of hard-anodized aluminum
- Closed anodized aluminum housing
- Torque resistant without 2nd guidance
- Tolerates moments up to 10 Nm
- Space saving and low weight
- Cable guidance possible in tube
- Unsupported installation
- Lubrication-free

Order key

QJRMT-05-20

- Dimension across flats
- Pillow block, short
- Tandem (optional)
- Metric
- Form of Housing, closed
- iglidur® J bearings
- Square design



Dimensions [mm]

Part number DryLin® Q rail profile	Weight [kg]	A	H ±0. 02
AWMQ-20	0.55	62	27

Part number DryLin® Q Housing Bearing	Weight [kg]	A	H ±0.02	H1	dQ	Qa	Qi	E1 ±0.15	E2 ±0.15	d	L
QJRMT-05-20	0.55	62	27	54	25	20	15	48	55	28	85
QJRM-05-20	0.25	62	27	54	25	20	15	48	55	28	40

Part number DryLin® Q Flange Bearing	Weight [kg]	k	d2 h7	Bf	d	Qa	Qi	d3 ±0.15	dt ±0.15	d	B
QJFMT-02-20	0.24	50	40	11	25	20	15	62	51	28	112
QJFM-02-20	0.14	50	40	11	25	20	15	62	51	28	58

delivery time available from stock

prices price list online www.igus.co.uk/drylinspecialists

order example part number QJRMT-05-20

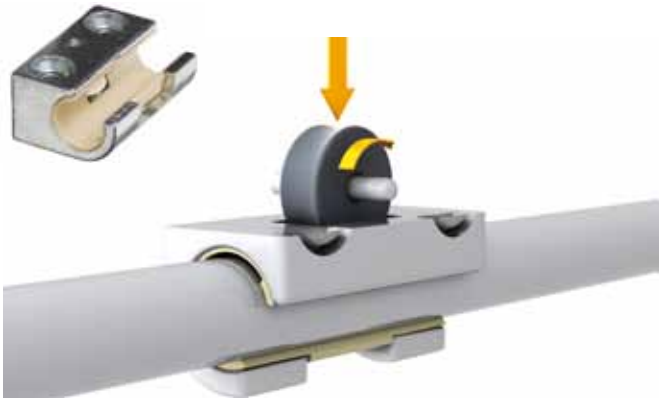
NEW in this catalog!

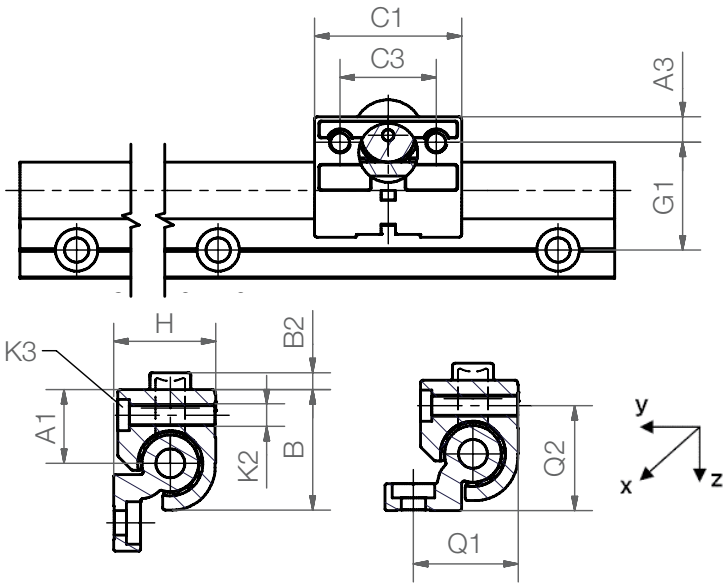
DryLin® WJRM Hybrid Bearing | Product Range

Hybrid bearing – roll and slide

DryLin® W Hybrid bearings offer a unique combination of plain and roller bearings. At a defined installation position, the required driving torque reduces significantly due to the maintenance-free roller bearings. Shear forces and shock loads are absorbed by the plain bearing. The hybrid bearing is ideal for manual adjustments, especially in door slides.

- Shaft-mounted plastic rollers
- Liner made of iglidur® J
- Low drive force needed, friction: 0.04–0.05 µ
- Cost-effective
- Can be combined with 7 linear profile rails





Shown installation position is not possible for combination of WJRM-01-10 with rail WS-10/WS-10-40/WS-10-80

DryLin® W Housing Bearing, Round – Load Data and Dimensions [mm]

Part number	Static load capacity Co	Dyn. load capacity Cz+ at total running distance (km			F · v
		10	100	200	max.
	[N]	[N]	[N]	[N]	[N · m/s]
WJRM-01-10	250	250	90	50	50
WJRM-01-16	400	400	140	70	80
WJRM-01-20	550	550	200	100	80

DryLin® W Housing Bearing – Load Data and Dimensions [mm]

Part number	Friction in +z direction	Weight	B	B2	C1	C3	G1	A3	A1	K2	K3	Q1	Q2
		[g]									[N]		
WJRM-01-10	< 0.1	46	26	2.5	35	22	27	6.5	16.5	M6	M5	–	–
WJRM-01-16	< 0.1	131	34.5	5	48	30	33	9	25	M8	M6	32	28
WJRM-01-20	< 0.1	232	42.5	6	52	34	38	9	30	M8	M6	37	37

DryLin® W guide rail ▶ page 770

delivery time available from stock

prices price list online www.igus.co.uk/drylinspecialists

order example part number WJRM-01-10

DryLin® WJRM Hybrid Bearing | Application Examples

Adjustment of control panel unit

Adjustment of sliding door tool magazine

Adjustment of wood panel

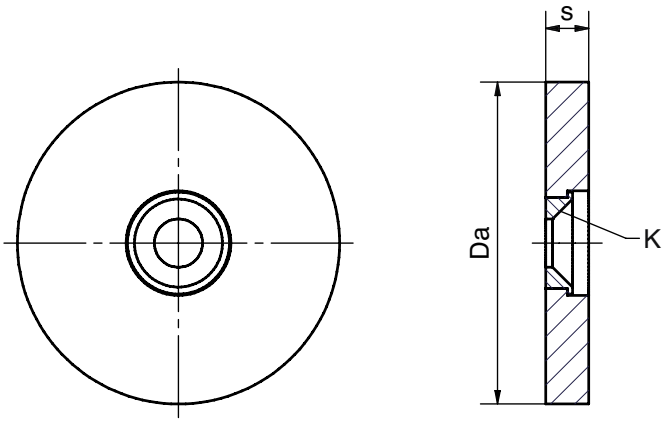
Adjustment of camera mounting slide

▶ www.igus.co.uk/cam

NEW in this catalog!

DryLin® Round Slide Disk | Product Range

DryLin® round slide disk



The DryLin® – slide disks from stock (RSDJ – round slide disk) – made from the high performance material iglidur® J have many different applications. Without additional lubricant, heavy loads can be moved over a variety of surfaces (steel, aluminum, stainless steel, etc.) with very low friction. The plates are fixed securely with a screw through the reinforced hole in the centre.

Order key

RSDJ-40-06

- Thickness
- Outer-Ø
- iglidur® J
- Round slide disk

Material:
iglidur® J ▶ page 89

Dimensions [mm]

Part number	Outer-Ø Da	Wear limit	Thickness s	For countersunk screw K	Max. static load capacity [N]
RSDJ-40-06	40	1.5	6 ± 0.05	M6	28,500
RSDJ-60-08	60	2.5	8 ± 0.05	M8	66,000
RSDJ-80-08	80	2.5	8 ± 0.05	M8	120,000

Please, use our different bar stock dimensions for your individual design ▶ **page 555**

delivery time **available from stock**

prices **price list online** www.igus.co.uk/drylinspecialists

order example **part number RSDJ-40-06**

STAIN-
LESS
STEEL

DryLin® Stainless Steel

- Lubrication-free
- Temperature-resistant up to +250 °C
- Corrosion-resistant
- Chemical-resistant
- Standard parts with short delivery time

DryLin® Stainless Steel

Machine parts made of stainless steel have to weather many elements. Heat, pressure, seawater, liquid and gaseous media like detergents and other chemicals. If these machine parts also have to undertake bearing tasks, the combination with iglidur® high-performance polymers is ideal. All bearings are lubricant-free and the plastic parts are secured axially and radially in the housings with positive fit.

The suitable iglidur material can be selected according to the application and has a bearing for linear and/or rotary motions.

- lubricant-free
- temperature-resistant up to +250 °C
- corrosion-resistant
- resistant to chemicals
- cost-effective

The usage of **1.4571** and **1.4301** makes most of the listed guides resistant to seawater and chemical contact corrosion, as the guide shafts are also made of 1.4571. Despite the lack of surface hardness, required for instance in recirculating ball bearings, they are suitable for use with plain bearings. The large bearing surface of a plain bearing reduces the surface pressure to a quite safe value.

Industries and application areas:

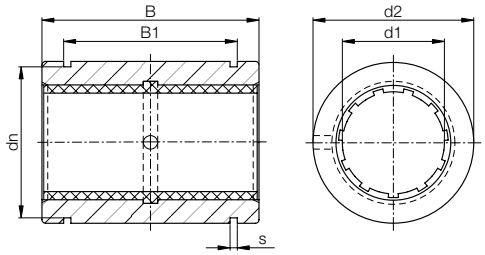
- food and bottling industry
- meat processing
- harbor and crane facilities
- yacht building
- chemical industry
- electroplating industry
- medical and rehabilitation technologies
- packaging industry

Lubrication freedom with DryLin® for a baking and conveyor unit.

DryLin® W is accredited to Cleanroom-set points and in use in this blister machine.

DryLin® R Linear Plain Bearing | Product Range

Closed stainless steel adapter 1.4305



Order key

RJUM-01-12-ES

- Stainless Steel
- Diameter
- Standard
- Metric
- Liner
- Material iglidur® J
- Closed

- Dimensions correspond to the standard for recirculating ball bearings

* according to igus® testing method ▶ page 828
** construction standards ▶ page 829
Please note: Installation instructions ▶ page 795

Technical Data

Part number	Shaft Ø	Tolerance* bearing inner diameter	F max. dynamic** P = 5 MPa	F max. static** P = 35 MPa	Weight
	[mm]	[mm]	[N]	[N]	[g]
RJUM-01-12-ES	12	+0.030 +0.088	960	6,720	60
RJUM-01-16-ES	16	+0.030 +0.088	1,440	10,080	84
RJUM-01-20-ES	20	+0.030 +0.091	2,250	15,750	147
RJUM-01-25-ES	25	+0.030 +0.091	3,625	25,375	324
RJUM-01-30-ES	30	+0.040 +0.110	5,100	35,700	486

Dimensions [mm]

Part number	d1	d2	B	B1	s	dn
		h7	h10	H10	H10	h10
RJUM-01-12-ES	12	22	32	22.6	1.30	20.5
RJUM-01-16-ES	16	26	36	24.6	1.30	24.2
RJUM-01-20-ES	20	32	45	31.2	1.60	29.6
RJUM-01-25-ES	25	40	58	43.7	1.85	36.5
RJUM-01-30-ES	30	47	68	51.7	1.85	43.5

Also available with liners:


JUM-11


XUM-01

STAIN-LESS STEEL

delivery time available from stock

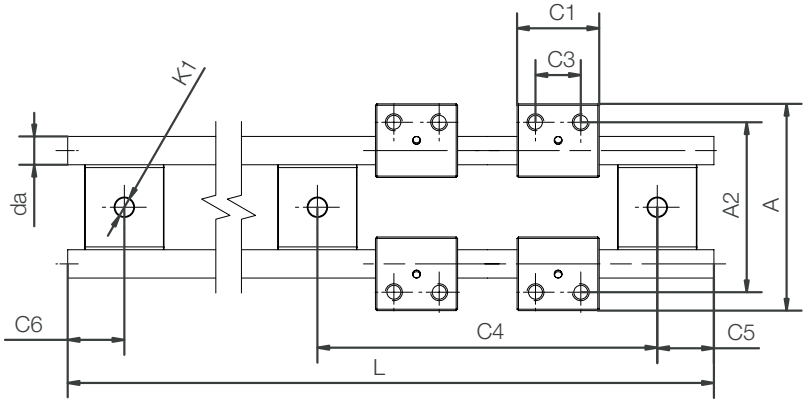
prices price list online www.igus.co.uk/en/DryLinES

order example part number RJUM-01-12 ES

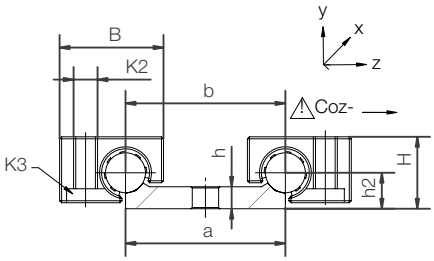
DryLin® Shafts | Product Range

Double rail and housing bearing, round made of stainless steel V4A

Order key
complete ▶ page 785



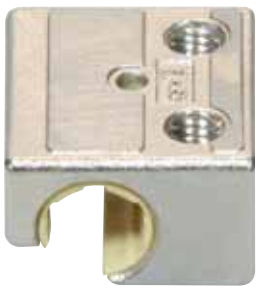
Material for housing and shaft support 1.4408
1.4571



DryLin® W Guide Rail, Double, Ø 10 mm – Dimensions [mm]

Part number	Suitable bearing Part number	Weight [kg/m]	da h9	L max.	a –0.3	b	h	h2
WS-10-40-ES-FG	WJUM-01-10-ES-FG	1.58	10	3,000	40	40	5.5	9

Part number	C4 [mm]	C5 min. [mm]	C5 max. [mm]	C6 min. [mm]	C6 max. [mm]	K1 for Screw DIN 912
WS-10-40-ES-FG	120	20	79.5	20	79.5	M6



Order key
complete ▶ page 785

STAIN-LESS STEEL

DryLin® W Housing Bearing – Load Data and Dimensions [mm]

Part number	Weight [g]	H ±0.07	B	C1	C3	A	A2	K2	K3 Countersunk-head screw	Stat. Load Capac. Coy [N]	Coz+ [N]	Coz- [N]
WJUM-01-10-ES-FG*	57	18	26	29	16	73	60	M6	M5	3,800	3,800	950

* alternativ with XUMO-01-10 liners for high temperatures available
Part number: WXUM-01-10-ES-FG

delivery time available from stock

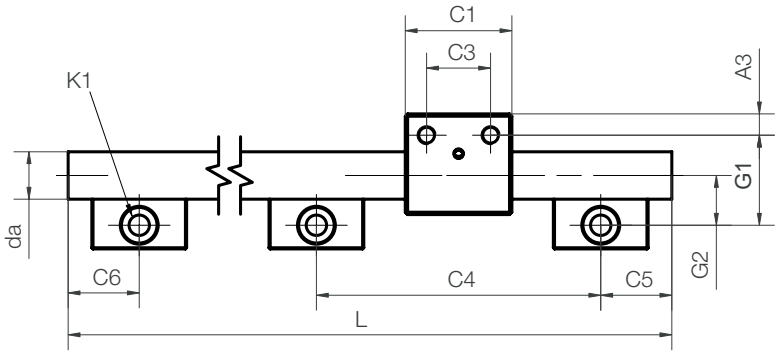
prices price list online www.igus.co.uk/en/DryLinES

order example part number WS-10-40-ES-FG

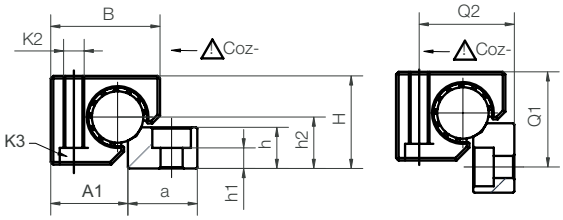
DryLin® Shafts | Product Range

Single rail and housing bearing, round made of stainless steel V4A

Order key
complete ▶ page 785



Material for housing and shaft support 1.4408
1.4571



DryLin® W Guide Rail, Single, Ø 20 mm – Dimensions [mm]

Part number	Suitable bearing Part number	Weight [kg/m]	da h9 [mm]	L max. [mm]	a –0.3 [mm]	h [mm]	h2 [mm]	G2 [mm]
WS-20-ES-FG	WJUM-01-20-ES-FG	3.37	20	3,000	27	16	20	21

Part number	C4 [mm]	C5 min. [mm]	C5 max. [mm]	C6 min. [mm]	C6 min. [mm]	K1 for Screw DIN 912	h1 [mm]	Iy [mm⁴]	Iz [mm⁴]	Wby [mm³]	Wbz [mm³]
WS-20-ES-FG	120	20	79.5	20	79.5	M8	8	7,854	7,854	785	785

Order key
complete ▶ page 785

STAIN-LESS STEEL

DryLin® W Housing Bearing – Load Data and Dimensions [mm]

Part number	Weight [g]	H ±0.07 [mm]	B [mm]	C1 [mm]	C3 [mm]	G1 [mm]	A3 [mm]	A1 [mm]	K2 [mm]	K3 Countersunk-head screw	Q1 [mm]	Q2 [mm]	Stat. Load Capac. Coy [N]	Coz+ [N]	Coz- [N]
WJUM-01-20-ES-FG*	280	36	42.5	45	27	38	9	30	M8	M6	37	37	11,000	11,000	1,900

* alternativ with XUMO-01-10 liners for high temperatures available
Part number: WXUM-01-10-ES-FG

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinES | order example part number WS-20-ES-FG

DryLin® Shafts | Product Range

Stainless Steel Shafts

EWM-06-…

Length
Outer-Ø
Metric
Material: stainless stell
EWM – 1.4125
EEWM – 1.4034
EWMR – 1.4301
EWMS – 1.4571

- Even totally supported with standard aluminum support
- Available shaft materials:
  – Stainless steel (1.4125), hardened/smoothed
  – Stainless steel (1.4034), hardened/smoothed
  – Stainless steel (1.4301 oder 1.4571), drawn
  – Stainless steel (1.4112), hardened/smoothed

- For supported shafts:
  ▶ Shaft support supplied in lengths of 600 mm max.
  ▶ Two hole pitches are available, T2 (standard) or T1
  ▶ Hole pitches symmetrical C5 = C6

STAIN-LESS STEEL

Dimensions [mm] – Hardened Stainless Steel 1.4125

Part number	d	Weight [kg/m]	Max. length	Effective hardness depth (at 1.4125)
EWM-06*	06	0.222	3,000	0.8
EWM-08*	08	0.359	4,000	0.9
EWM-10*	10	0.617	4,000	0.9
EWM-12	12	0.888	6,000	1.0
EWM-16	16	1.578	6,000	1.2
EWM-20	20	2.466	6,000	1.6
EWM-25	25	3.853	6,000	1.8
EWM-30	30	5.549	6,000	2.0
EWM-40	40	9.865	6,000	2.2
EWM-50	50	15.413	6,000	2.4

*** Material X90 (1.4112)**

delivery time 3–8 days

prices price list online www.igus.co.uk/en/DryLinES

order example part number EWM-06

DryLin® Shafts | Product Range

Stainless Steel Shafts

Dimensions [mm] – Hardened Stainless Steel 1.4034

Part number	d	Weight [kg/m]	Max. length	Effective hardness depth (at 1.4034)
EEWM-06	06	0.222	3,000	0.8
EEWM-08	08	0.359	4,000	0.9
EEWM-10	10	0.617	4,000	0.9
EEWM-12	12	0.888	6,000	1.0
EEWM-16	16	1.578	6,000	1.2
EEWM-20	20	2.466	6,000	1.6
EEWM-25	25	3.853	6,000	1.8
EEWM-30	30	5.549	6,000	2.0
EEWM-40	40	9.865	6,000	2.2
EEWM-50	50	15.413	6,000	2.4

Dimensions [mm] – Stainless Steel 1.4301 (EWMR) or 1.4571 Soft Stainless Steel (EWMS)

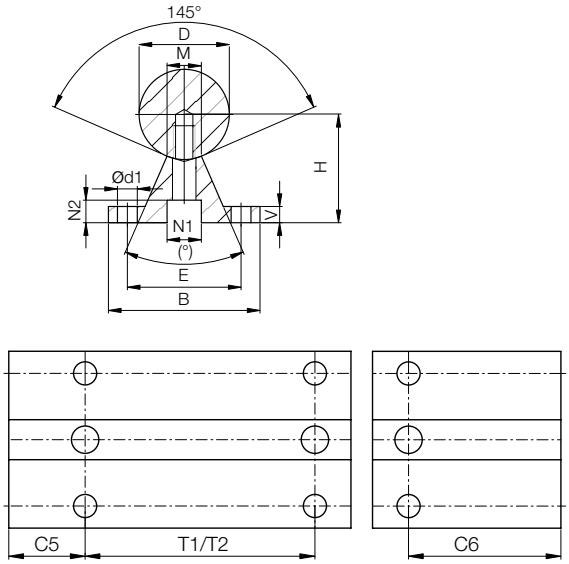
Part number	d	Weight [kg/m]	Max. length
EWMR-10	10	0.617	4,000
EWMS-10	10	0.617	4,000
EWMR-12	12	0.888	6,000
EWMR-16	16	1.578	6,000
EWMR-20	20	2.466	6,000
EWMS-20	20	2.466	6,000
EWMR-25	25	3.853	6,000
EWMR-30	30	5.549	6.000

Order example: EWM-16-500 corresponds to a stainless steel shaft 16 mm Ø 1.4125, 500 mm in length.

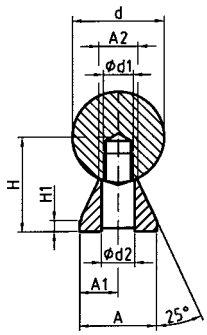
DryLin® Shafts | Product Range

Supported Stainless Steel Shafts, partial aluminum supports, max. 600 mm long

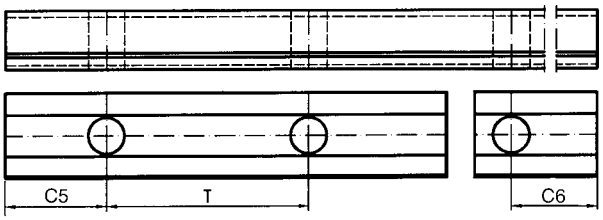
EWUM



EWUMN



STAIN-LESS STEEL



Dimensions [mm] – Supported Stainless Steel Shafts 1.4125

Part number	D	B	H	V	N1	N2	d1	M	(°)	E	T1*	C5/C6		T2	C5/C6		Weight
												min.	max.	for T2	min.	max.	
			±0.02								±0.15	for T1		Standard	Standard		[kg/m]
EWUM-12	12	40	22	5	8.0	5.0	4.5	5.8	50	29	75	20	57	120	20	79	1.75
EWUM-16	16	45	26	5	9.5	6.0	5.5	7.0	50	33	100	20	69	150	20	94	2.64
EWUM-20	20	52	32	6	11.0	6.5	6.6	8.3	50	37	100	20	69	150	20	94	3.97
EWUM-25	25	57	36	6	14.0	8.5	6.6	10.8	50	42	120	20	79	200	20	119	5.65
EWUM-30	30	69	42	7	17.0	10.5	9.0	11.0	50	51	150	20	94	200	20	119	7.93
EWUM-40	40	73	50	8	17.0	10.5	9.0	15.0	50	55	200	20	119	300	20	169	12.88
EWUM-50	50	84	60	9	19.0	12.5	11.0	19.0	46	63	200	20	119	300	20	169	19.60

* Two hole pitches are available, T2 (standard) or T1

Dimensions [mm] – Low Level Supported Stainless Steel Shafts 1.4125

Part number	d	H	H1	A	A1	A2	d1	d2	T	C5/C6		Weight
			±0.02			±0.02				min.	max.	[kg/m]
EWUMN-12	12	14.5	3	11	5.5	5.4	M4	4.5	75	20	57	1.62
EWUMN-16	16	18	3	14	7.0	7.0	M5	5.5	75	20	57	2.54
EWUMN-20	20	22	3	17	8.5	8.1	M6	6.6	75	20	57	3.81
EWUMN-25	25	26	3	21	10.5	10.3	M8	9.0	75	20	57	5.62
EWUMN-30	30	30	3	23	11.5	11.0	M10	11.0	100	20	69.5	7.63
EWUMN-40	40	39	4	30	15.0	15.0	M12	13.5	100	20	69.5	13.47
EWUMN-50	50	46	5	35	17.5	19.0	M14	15.5	100	20	69.5	20.31

Low level supoorted shafts are delivered unmounted.

Order example: EWUMN-16-500 corresponds to a low level supportetd stainless steel shaft (1.4125) 16 mm Ø, 500 mm in length.

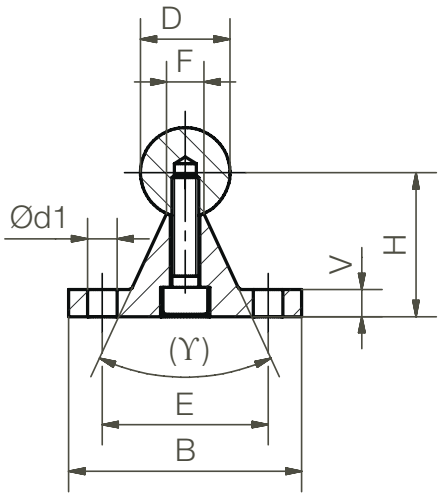
delivery time 3–8 days

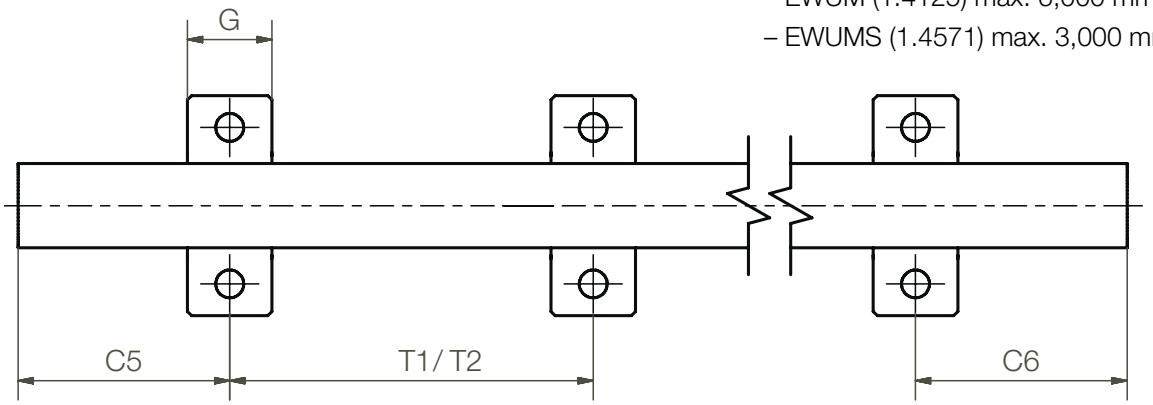
prices price list online www.igus.co.uk/en/DryLinES

order example part number EWUM-12

DryLin® Shafts | Product Range

Partially supported stainless steel shafts





EWUM-ES-20-...

- Length
- Outer-Ø
- Stainless steel VA
- Metric
- Shaft support blocks

STAIN-LESS STEEL

Shaft support blocks for Ø 20 mm made of stainless steel VA

- Connecting dimensions as standard shaft supports in aluminum
- High corrosion and chemical resistance
- Best addition for stainless steel shafts
- Available stainless steel shafts in 1.4571 and 1.4125
- Possible lengths:
  - EWUM (1.4125) max. 6,000 mm
  - EWUMS (1.4571) max. 3,000 mm

Dimensions [mm]

Part number	Shaft material	D	B	H	V	d1	E	G	T1	C5/C6 for T1		T2	C5/C6 for T2	
		h6		±0.02						min.	max.		min.	max.
EWUM-ES-20	1.4125	20	52	32	6	6.6	37	20	100	20	69	150	20	94
EWUMS-ES-20	1.4571	20	52	32	6	6.6	37	20	100	20	69	150	20	94

delivery time 3–8 days

prices price list online www.igus.co.uk/en/DryLinES

order example part number EWUM-ES_20

NEW in this catalog!

DryLin® SHT | Product Range | Trapezoidal Leadscrew

SLW-ES – Stainless steel

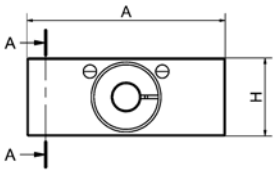
- Stainless steel version with corrosion-resistant steel components (1.4305, 1.4408 resp. 1.4571)
- Bearing material selectable:
  iglidur® J = Standard
  iglidur® A180 = FDA
  iglidur® X = High temperature till +250 °C
- Available accessories
  ▶ page 922

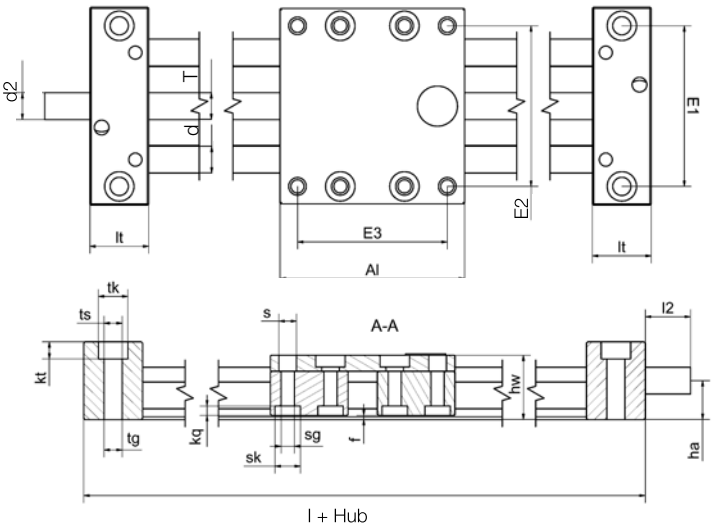
Order key
complete ▶ page 897

SLW-ESJ-1040

- Dimension
- Bearing material iglidur® J
- Stainless steel
- Compact

STAIN-LESS STEEL





Technical Data

Part number	Shaft-Ø	Spindel-Ø	Max. length of stroke	Weight	Additional (per 100 mm)	Max. static load-bearing capacity	
	[mm]	[mm]	[mm]	[kg]	[kg]	axial [N]	radial [N]
SLW-ESJ-1040	10	10	750	1.4	0.2	700	2,800
SLW-ESX-1040	10	10	750	1.4	0.2	700	2,800
SLW-ESA180-1040	10	10	750	1.4	0.2	700	2,800
SLW-ESJ-2080	20	18	750	5.7	0.64	1,600	6,400
SLW-ESA180-2080	20	18	750	5.7	0.64	1,600	6,400

Dimensions [mm]

Part number	A	Al	H	E1	E2	E3	l	hw	f	lt	tk	ts	tg
	–0.3	–0.3		±0.15	±0.15	±0.15				±0.1			
SLW-ES-1040	74	100	29	60	60	87	144	17	1.5	22	11	6.8	M8
SLW-ES-2080	134	150	46	116	116	132	206	44	1.5	28	15	8	M10

Part number	kt	s	sk	sg	kq	d	T	l2	d2	ha
	±0.1								Standard	
SLW-ES-1040	6.4	6.6	9.5	M6	4.4	10	TR 10 x 2	17	TR 10 x 2*	14.5
SLW-ES-2080	8.6	9.0	40	M8	5.5	20	TR 18 x 4	26	12 h9	23.0

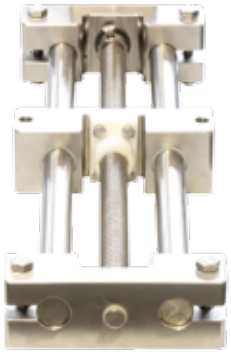
* leadscrew end unmachined

delivery time 8–14 days

prices price list online www.igus.co.uk/en/DryLinES

order example part number SLW-ESJ-1040

SHTC-HYD – Hygienic design



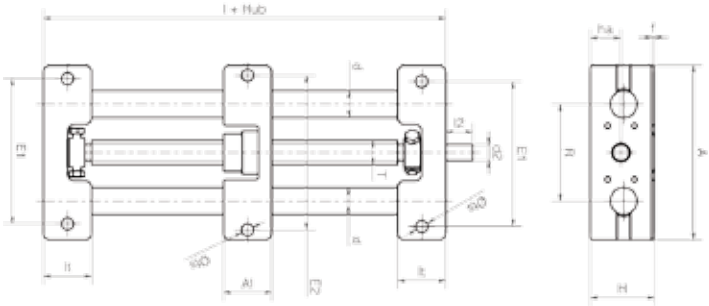
STAIN-LESS STEEL

Order key
complete ▶ page 897

SHTC-20-EWM-HYD

- Hygienic design
- Shaft material
- Dimension
- Flexible

Based on the „hygienic design“ idea, this version offers an easily flushable solution. Even screw connections are designed easily accessible and the gap dimensions accordingly generous. The materials used are plastic and VA stainless steel.



FDA

FDA-complied material for linear slide module available.

Dimensions [mm]

Part number	A	Al	H	E1	E2	l	H	f	lt	ts	d	T	l2	d2	ha
	–0.3	–0.3		±0.15	±0.15										
SHTC-20-EWM-HYD	130	35	48	108	115	108	72	2	36	9.0	20	TR 18 x 4	26	12 h9	23

Available accessories ▶ page 922

Assembly in combination with following bearing materials:

iglidur® J
Standard till +90 °C

iglidur® X
for temperatures up to +250 °C
High chemical resistance

iglidur® A180
for applications with food contact (FDA)

delivery time 8–14 days

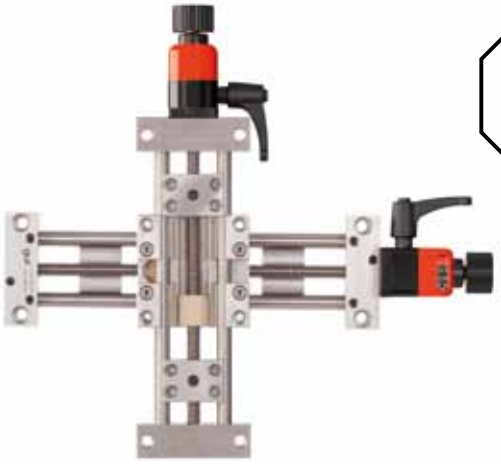
prices price list online
www.igus.co.uk/en/DryLinES

order example part number SHTC-20-EWM-HYD

NEW in this catalog!

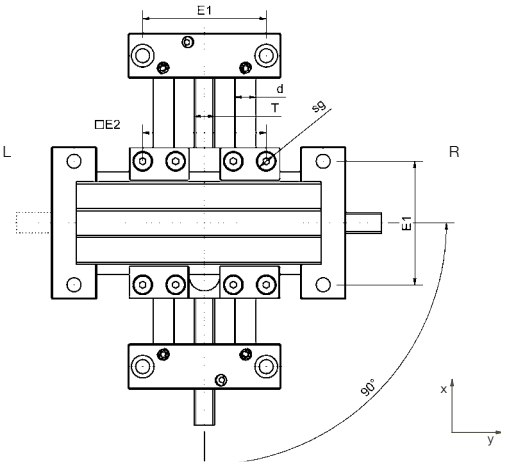
DryLin® SHT | Product Range | XY-Tables

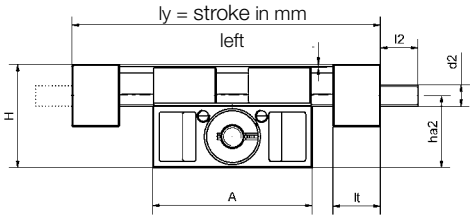
SLW – compact XY-table – stainless steel

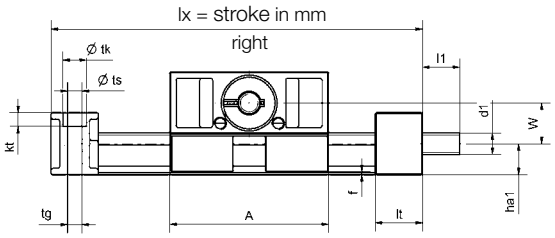


STAIN-LESS STEEL

- For manual adjustments
- Flat and compact
- High torsional stability (stiffening)
- Complete design with stainless steel 316
- 100 % lubrication-free
- chemical- and corrosion-resistant
- Available accessories ▶ page 922







Dimensions [mm]

Part number	A	H	E1	E2	Base length	Base length	f	lt	tk	ts	tg	kt
	–0.3		±0.15	±0.15	lx	ly			±0.1			
SLW-XY-ESJ-1040	74	48	60	60	117	117	1.5	22	11	6.6	M8	6.4

Dimensions [mm]

Part number	sg	d	T	l1	d1	d1	l2	d2	d2	ha1	ha2	W
					Standard	Alternative		Standard	Alternative			ha2–ha1
SLW-XY-ESJ-1040	M6	10	TR 10 x 2	17	TR 10 x 2	6 h9	17	TR 10 x 2	6 h9	14.5	33.5	19

The rotary knob on the y-axis can be ordered installed on the left or on the right side.
Left: SHT-XY-ESJ-1040-AWM-L-200-300 for 200 mm stroke length on the x-axis and 300 mm on the y-axis
Right: SHT-XY-ESJ-1040-AWM-R-200-300 for 200 mm stroke length on the x-axis and 300 mm on the y-axis

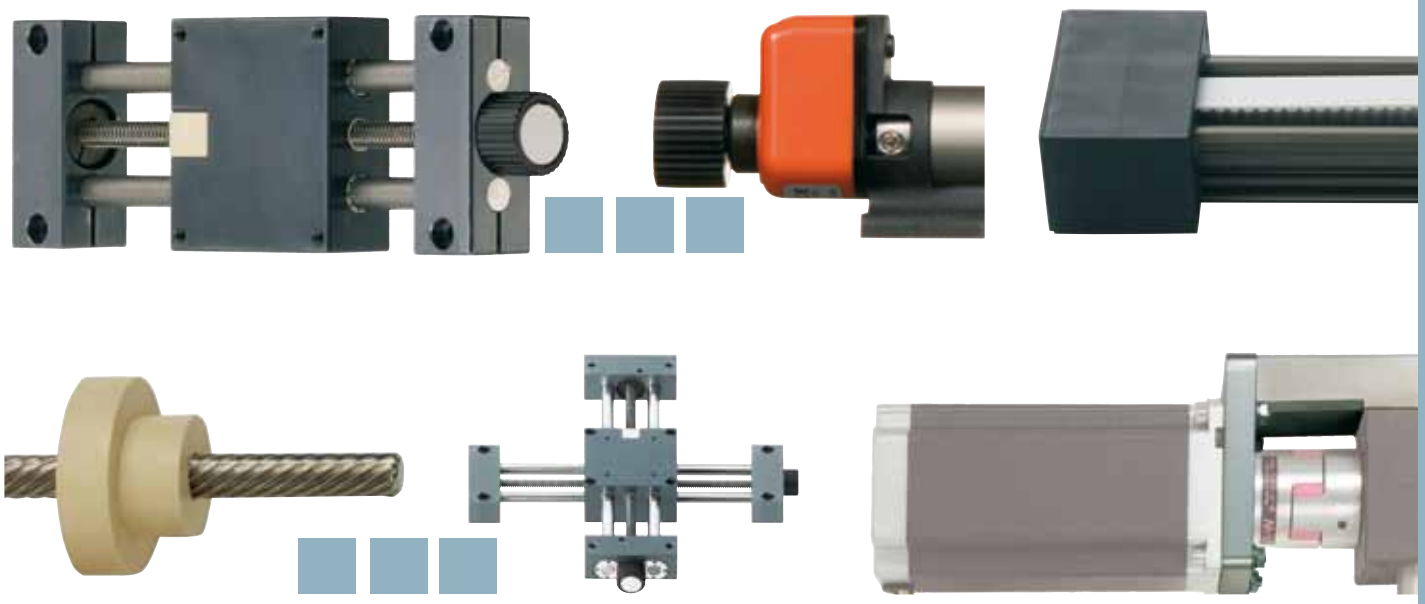
delivery time 8–14 days

prices price list online www.igus.co.uk/en/DryLinES

order example part number SLW-XY-ESJ-1040

6. DryLin®

Drive Technology



Leadscrew tables…gear belts…leadscrew drives…ready to fit…

...plastics

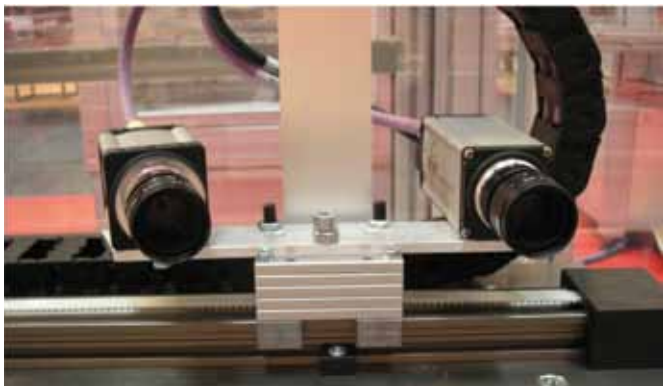
Application Examples: DryLin® Drive Technology

More exciting applications examples online ▶ **www.igus.co.uk/DryLinPraxis**

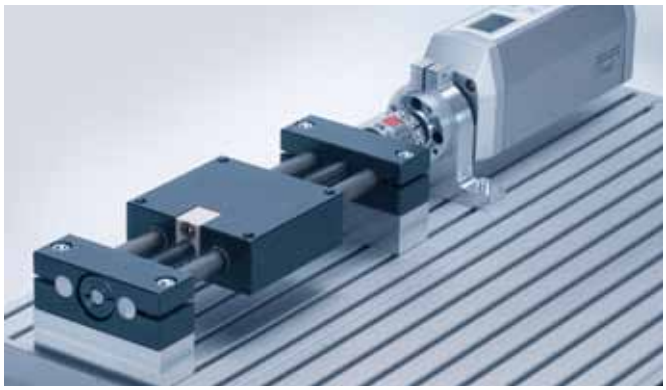
CAMERA/LASER ADJUSTMENT IN LABELLING SYSTEM
In a labelling system the camera and laser positioning are guided with two DryLin® SHT/SLWE-XY cross slide units.
(Co. Pago Etikettiersysteme GmbH)

POSITIONING OF MILLING HEADS
Aluminum dust and chips cannot stick due to the absence of lubricants at any of the bearing points of the DryLin® leadscrew table SHT.
(Berchtold GmbH)

HEIGHT ADJUSTMENT OF CODING DEVICE
The DryLin® leadscrew unit gives variable and precise adjustment, free from any maintenance or lubrication.
(Filtec Europe GmbH)

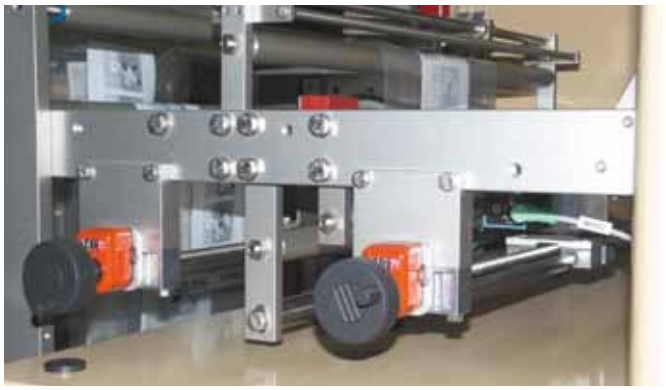


CAMERA ADJUSTMENT
The DryLin® ZLW belt drive gives quiet, smooth, and lubrication free operation in this adjustable camera mount on a conveyor belt.



ELECTRIC ACTUATOR
DryLin® leadscrew table combined with an electric actuator for use in a variety of format adjustments.
(Festo AG & Co. KG)

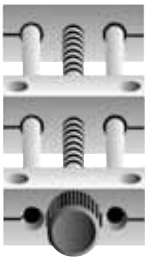
ADJUSTMENT OF INSPECTION CAMERA
DryLin® ZLW toothed belt axis in an inspection camera adjustment for checking the position of sealing rings.
(OLPE Jena GmbH)



WEB EDGE DETECTION
The DryLin® SLW leadscrew unit with position indicator and handwheel adjusts the sensors which detect the edge of the webbing and any print marks.

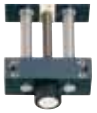
DryLin® Drive Engineering | Product Overview

DryLin® SHT
Drive technology
from page 891



SHT
Standard

▶page 900



SHT-PL
Preload

▶page 901

SHTC
Flexible

▶page 903

NEW!*

SHT-FF
Fast Forward

▶page 903

SLW
Compact

▶page 904

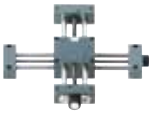
SET
EasyTube

▶page 916

NEW!*

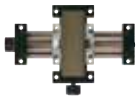
SETM
EasyTube
With scaling

▶page 918



SHT-XY
XY-Table
Standard/
preload

▶page 919



SLW-XY
XY-Table,
compact

▶page 920

NEW!*

SLW-XY-ES
XY-Table,
compact
Stainless steel

▶page 921

ZLW
Belt Drive

▶page 928

NEW!*

ZLW-OD
Opposed
belt drive

▶page 934

NEW!*

ZLW-LT/-UW
Belt Drive:
specialists

▶page 935

SLWS
Compact
with high
helix pitch
leadscrew

▶page 936

NEW!*

ZAW
Cantilever drive

▶page 937

NEW!*

SAW/SAWE
Linear Module
with Electric
Motor

▶page 940

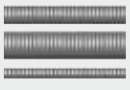
NEW!*

Spacer,
Motor Flange,
Coupling

▶page 942

DryLin® TR
Leadscrew drives
from page 943

NEW!*



Trapezoidal
Leadscrew

▶page 948

Trapezoidal
Leadscrew
Nuts
Cylindrical,
made of
iglidur® W300

▶page 949

Trapezoidal
Leadscrew
Nuts
Cylindrical,
made of
iglidur® J

▶page 950

Trapezoidal
Leadscrew
Nuts
Flanged, made
of iglidur® W300
or J

▶page 951

Anti-Backlash-
Nuts
Made of iglidur® J

▶page 952

* in this catalog

NEW!*

SLWE-PL
Preload

▶page 905

NEW!*

SLW-ES
Stainless steel

▶page 906

NEW!*

SLWE-BB
With ball bearing leadscrew supports

▶page 907

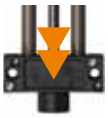
SHTP Mini
Small and low-cost, solid plastic

▶page 908

SHTP
Cost effective

▶page 909

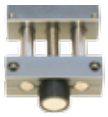
NEW!*



SHTP-FF
Fast-Forward

▶page 910

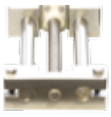
NEW!*



SHT-HTX
High temperature up to +200 °C

▶page 911

NEW!*



SHTC-HYD
Hygienic Design

▶page 912

SHTS
Standard with high helix pitch leadscrew

▶page 914

NEW!*

SLWS
Compact with high helix pitch leadscrew

▶page 915

Position indicator

▶page 923

Leadscrew clamp

▶page 924

Rotary Knob

▶page 924

NEW!*

Angular drive

▶page 925

NEW!*

Stainless steel angle kit

▶page 926

NEW!*

Motor Flange
For Nema motor or custom design

▶page 938

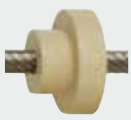
Clamp

▶page 938

Slot Nuts

▶page 940

NEW!*



High Helix Leadscrew and Lead-screw Nuts
Cylindrical, made of iglidur® J

▶page 953

NEW!*

Leadscrew Support Blocks

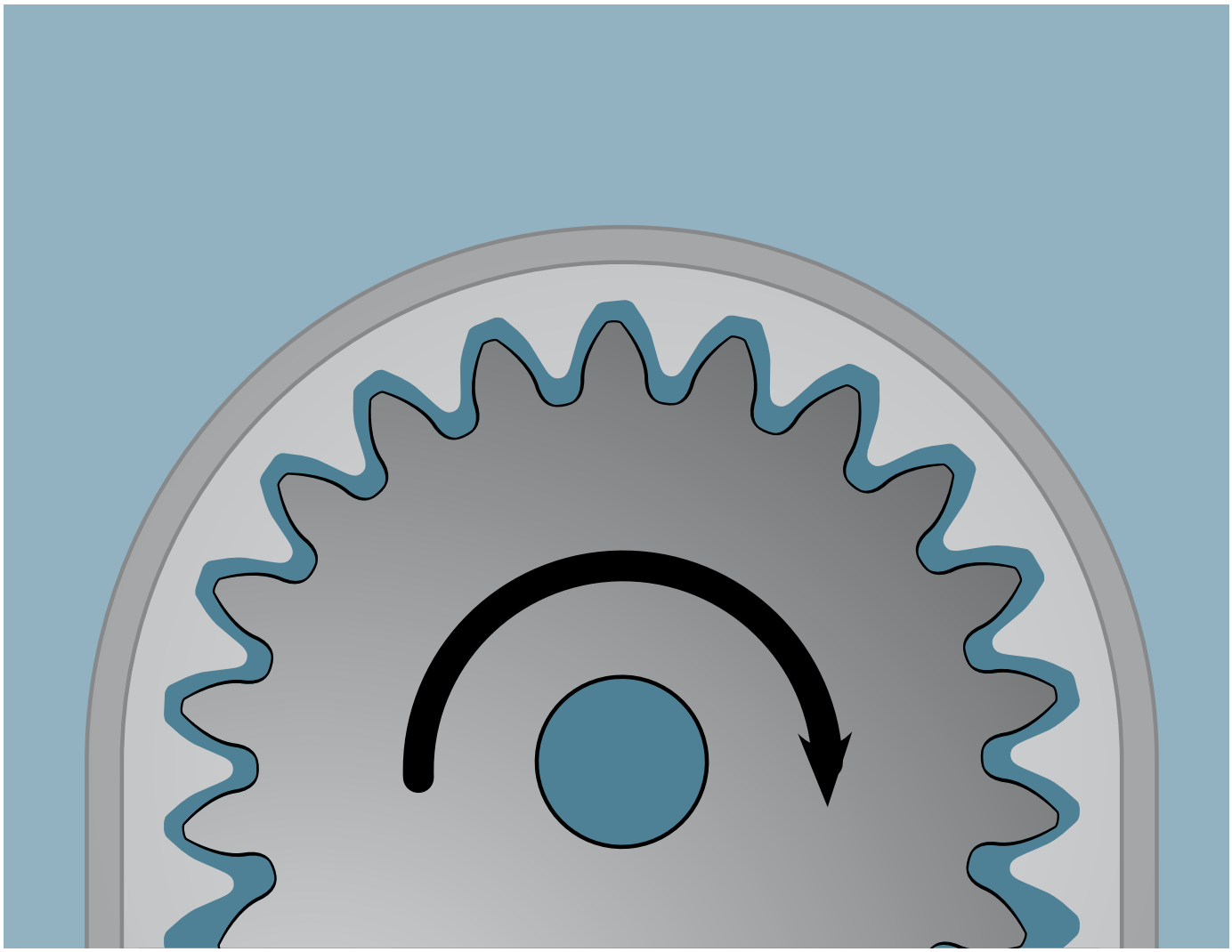
▶page 954

NEW!*

Quick release nuts – Fast Forward

▶page 955

My Sketches

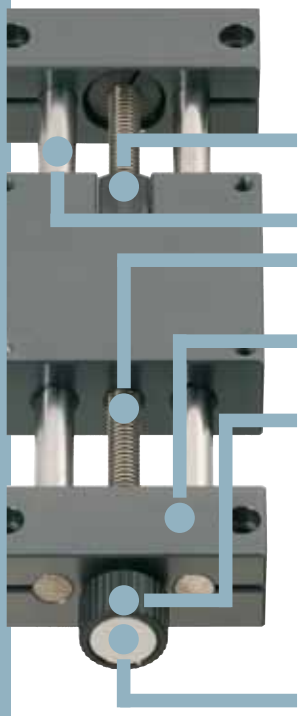


DryLin® Linear Drive Technology

Lubrication-free linear slide modules
– with trapezoidal thread
– with high helix thread
– with belt drives
– with electric motor

DryLin® SHT | Linear slide modules

The DryLin® product portfolio provides lubricant-free linear drives that are driven either by a trapezoidal thread, high helix thread or toothed belt. The user can choose a suitable individual solution from lightweight solid plastic units up to heavy duty stainless steel solutions. In all systems, the stroke length is freely selectable and the drive implemented either via handwheel or motor.



Linear slide modules with leadscrew drive

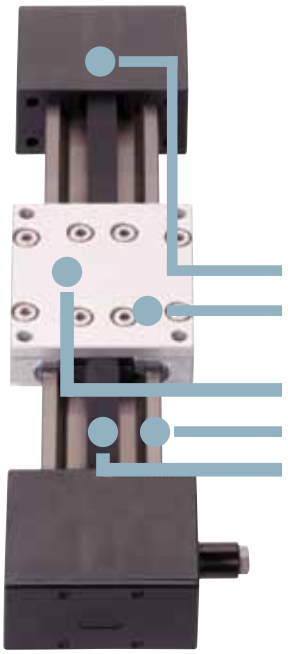
Polymer bearings and leadscrew nuts give lubrication free operation
3 shaft materials
8 trapezoidal thread pitches, 4 high helix thread pitches
Base body material: Stainless steel, aluminum, zinc or plastic
Leadscrew machining according to drawing or plain drive shaft (Steel, stainless steel- or aluminum leadscrews)
Accessories: position indicators, clamps and hand wheels

When to use it?

- For format adjustments
- In extreme environments
- When a cost-effective, ready-to-fit solution is required
- When corrosion resistance is required
- For low noise

When not to use it?

- When high loads combined with very high speeds
- When positioning accuracy < 0.1 mm is necessary
- If high running performance is required in continuous operation



Linear slide modules with belt drive

High loads with grooved ball bearings
Lubrication-free linear guide system with polymer plain bearings
Various carriage lengths
Hard-anodized aluminum profile
Polyurethane or neoprene toothed belts

When to use it?

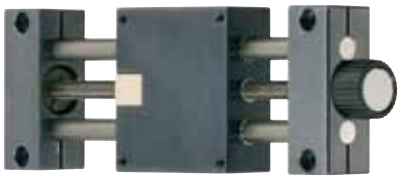
- Quick positioning of small loads
- Quiet running
- Flat design
- Use under water with UW-belt
- Cost-effective solution as basic version
- Long-term usage

When not to use it?

- When high loads should move highly dynamically
- When positioning accuracy < 0.1 mm is necessary

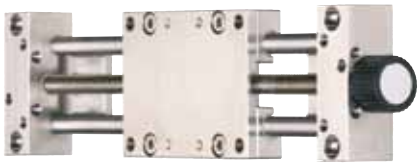
DryLin® SHT | Product Program

Trapezoidal Leadscrew
▶ from page 895



- Cost-effective, flexible solutions for adjustment
- Robust and corrosion-resistant (optional)
- High static loads

Stainless Steel



- Corrosion-resistant
- VA-Materials
- Individual stroke length

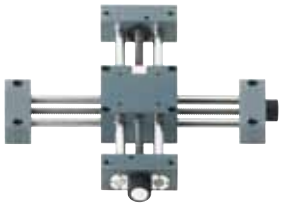
High Helix Leadscrew
▶ from page 913

- Fast positioning
- Quiet, lubrication-free run
- Up to 100 mm stroke/rev

EasyTube
▶ from page 916

- Space saving
- Spindle inside
- Cost-effective

XY-Tables
▶ from page 919



- Multi-axis positioning
- Preload and radial clearance adjustment
- Individual stroke length

Accessories
▶ from page 922

- Clamps
- Position indicator
- Hand wheel

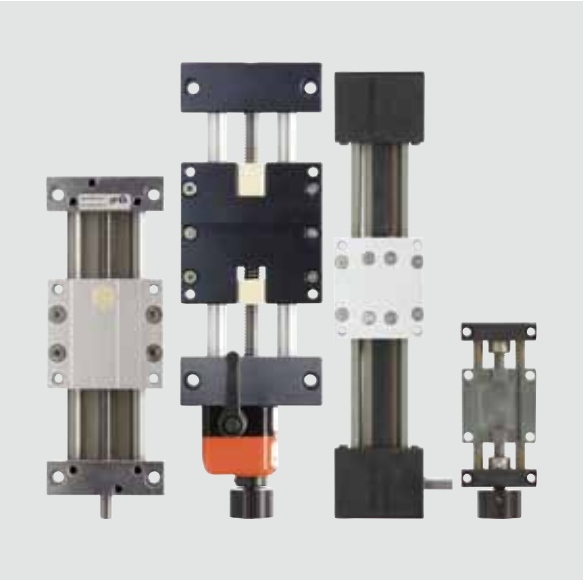
Belt
▶ from page 928

- Fast positioning
- Optional motor flange
- Lubrication-free and quiet

Systems with electrical motor
▶ from page 939

- For NEMA 23 stepper motor
- Compact
- Trapezoidal or high helix leadscrews

DryLin® SHT | Application Examples

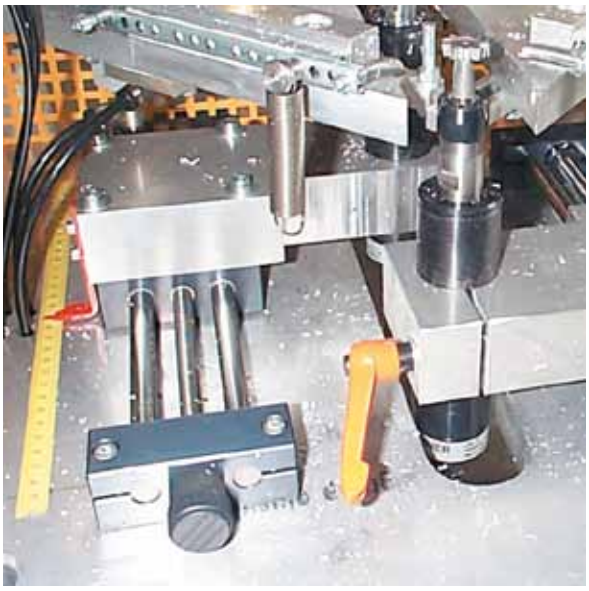


Typical sectors of industry and application areas

- Vehicle manufacturing
- Medical
- Packaging
- Machine building
- Glass industry etc.

Improve technology and reduce costs – 170 exciting examples for iglidur® plain bearings online

▶ www.igus.co.uk/DryLin-applications



Positioning of Milling Heads with DryLin® SHT

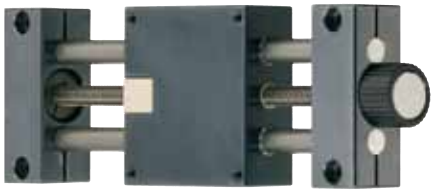
Adjustment of trough with DryLin® SHT

Size adjustment in bag forming, filling and sealing machine with DryLin® SET

Adjustment of Inspection camera with DryLin® ZLW

DryLin® SHT | Product Overview | Trapezoidal Leadscrews

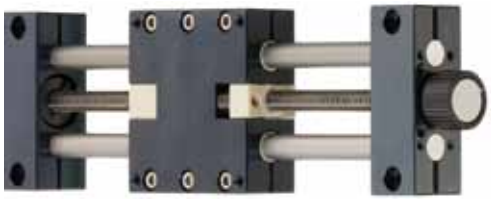
SHT – Standard



- Solid design
- Three different sizes
- Various materials for shaft and leadscrew
- Maintenance-free and corrosion-resistant
- TR 10 x 2, TR 18 x 4, TR 24 x 5

▶ **page 900**

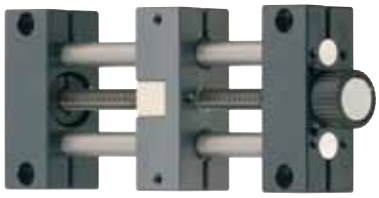
SHT-PL „preload“



- Totally lubrication-free
- Preloaded trapezoidal leadscrew nuts, preload force: 50 N
- Manually and continuously adjustable radial clearance
- Low weight due to aluminum and plastic
- Machined leadscrew ends ends enable operation by hand wheel or motor
- High precision

▶ **page 901**

SHTC – Flexible



- High flexibility due to two short carriages
- Ideal for 2 carriages
- Maintenance-free, dry-running
- Adjustable bearing clearance
- 5 installation types from Ø 12 up to 50 mm
- Thread pitch from TR 10x2 to TR 30x6

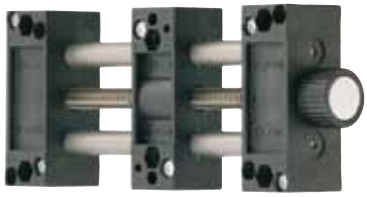
▶ **page 902**

SLW – Compact

- Flat and compact
- High torsional stability stiffness, fully supported
- Cost-effective
- Hard anodized aluminum rail
- 4 types
- Shaft end supports made according to installation size of chromated zinc, anodized aluminum or plastic
- Adjustable clearance; optional
- Optional mounting of the spindle with grooved ball bearings
- Optional ball bearings fitted into leadscrew end blocks

▶ **page 904**

SHTP – Economical



- Solid plastic-version
- Low weight
- Cost-effective
- Corrosion-resistant
- 2 types: Ø 6 mm and Ø 12 mm

▶ **page 909**

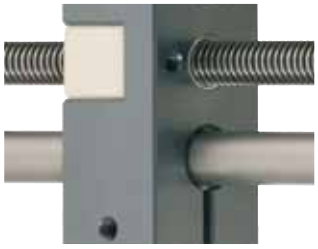
delivery time
with aluminum shaft AWMP: 2–3 days, with stainless steel shaft EWM or steel shaft SWM: 3–8 days

DryLin® SHT | Technical Data | Trapezoidal Leadscrew

With the trapezoidal screw driven linear table options, the DryLin® SHT product portfolio offers numerous solutions for the many requirements of different applications.

Adjustable radial clearance

The “turn to fit” feature allows individual clearance adjustment by hand. The adjustment is done in 0.01-mm increments and cannot be triggered unintentionally during the operation (SLW type series 10-20).

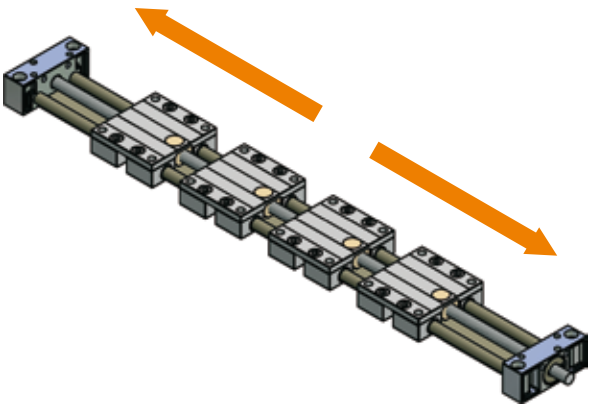


Preload

The optional axial pretension reduces the backlash of the system. Positioning and repeatability can be optimized. The required driving torque increases only slightly.

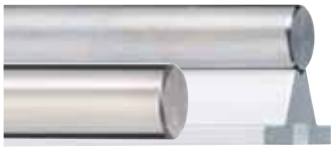
Right-left and reverse

In addition to the standard right-handed leadscrews, left-hand thread leadscrews and counter leadscrews can also be used. This option often used in format adjustments can be implemented for all diameters and type series.



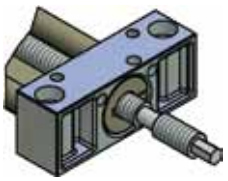
Shaft Materials

When using linear axes of the SHT series, you can choose a shaft material from steel, stainless steel, or hard-anodized aluminum (standard). The short delivery time and excellent coefficients of friction and wear make the aluminum version the most common choice.



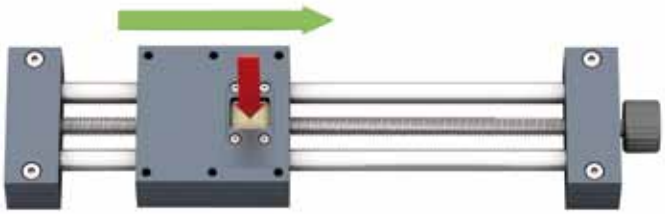
Leadscrew materials

Steel and stainless steel versions are available for the trapezoidal leadscrews. On request solutions with hard-coated aluminum leadscrews are also available. High helix leadscrews and metric threaded bars are always made of stainless steel. The leadscrew ends are machined up to the leadscrew diameter of 14 mm. On request pins or specially machined components can be fitted.



Fast Forward

The SHT linear tables and SHTP plastic linear tables with quick-release mechanism offer a combination of precise positioning and quick adjustment by hand.



DryLin® SHT | Order key

Order key complete system:

SHT-12-AWM-150-HR-ES

Leadscrew material

l. b.	Steel C15 (standard)
ES:	Stainless steel 1.4305 (Standard with EWM)
AL:	Hard anodized aluminum

Additional options

blank	Without extras (standard)
HK:	Leadscrew clamp
PA:	Position indicator
HR:	Hand wheel
PL:	Preloaded
HTX:	High temperature version
HYD:	Hygienic Design
Z:	No machining (TR 10 x 2)
FF:	Fast Forward

Length of stroke

Shaft material

AWM:	Hard anodized aluminum
SWM:	Cf53 (1.1213)
EWM:	Stainless steel X105 (1.4125)

Dimensions

0630:	Shaft ø 06 mm, Br. 30 mm (SLW/SLWS)
1040:	Shaft ø 10 mm, Br. 40 mm (SLW, SLWE)
1080:	Shaft ø 10 mm, Br. 80 mm (SLW, SLWE)
12:	Shaft ø 12 mm (SHT, SHTC, SHTS)
1660:	Shaft ø 16 mm, Br. 60 mm (SLW, SLWE)
20:	Shaft ø 20 mm (SHT, SHTC, SHTS)
2080:	Shaft ø 20 mm, Br. 80 mm (SLW, SLWE)
25:	Shaft ø 25 mm (SET)
30:	Shaft ø 30 mm (SHT, SHTC, SET)
40:	Shaft ø 40 mm (SHTC)
50:	Shaft ø 50 mm (SHTC)

Type

SHT:	Basic ▶ **page 900**
SHTP:	Cost-effective ▶ **page 909**
SLW:	Compact ▶ **page 904**
SLWS:	Fast compact ▶ **page 915**
SHTC:	Flexible ▶ **page 902**
SHTS:	Fast ▶ **page 914**
SET:	EasyTube ▶ **page 916**

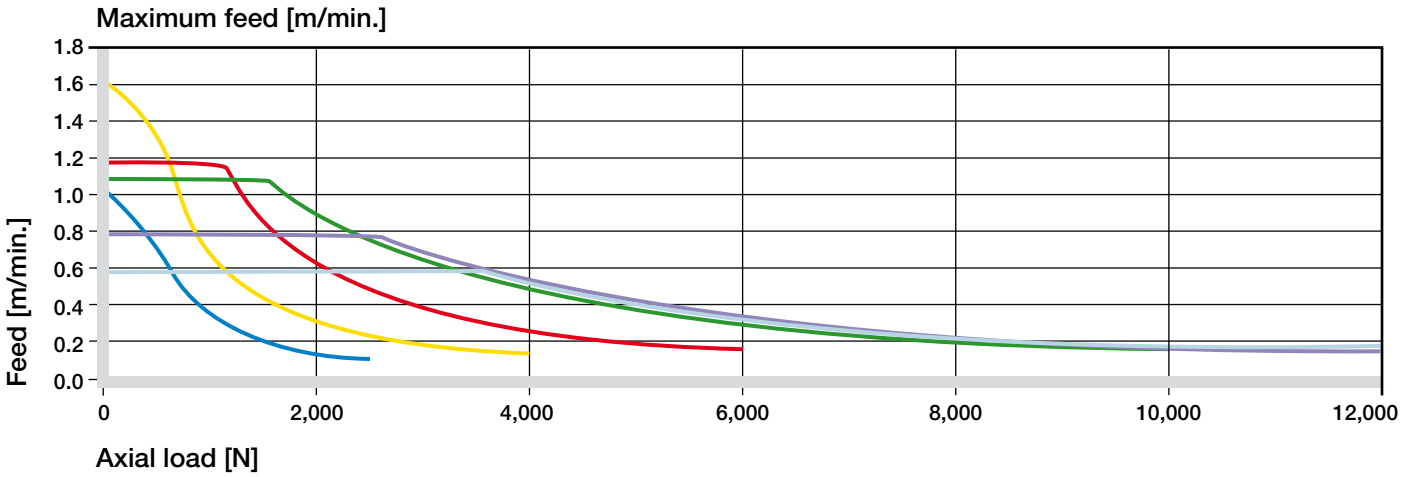
DryLin® SHT | Design and Calculation

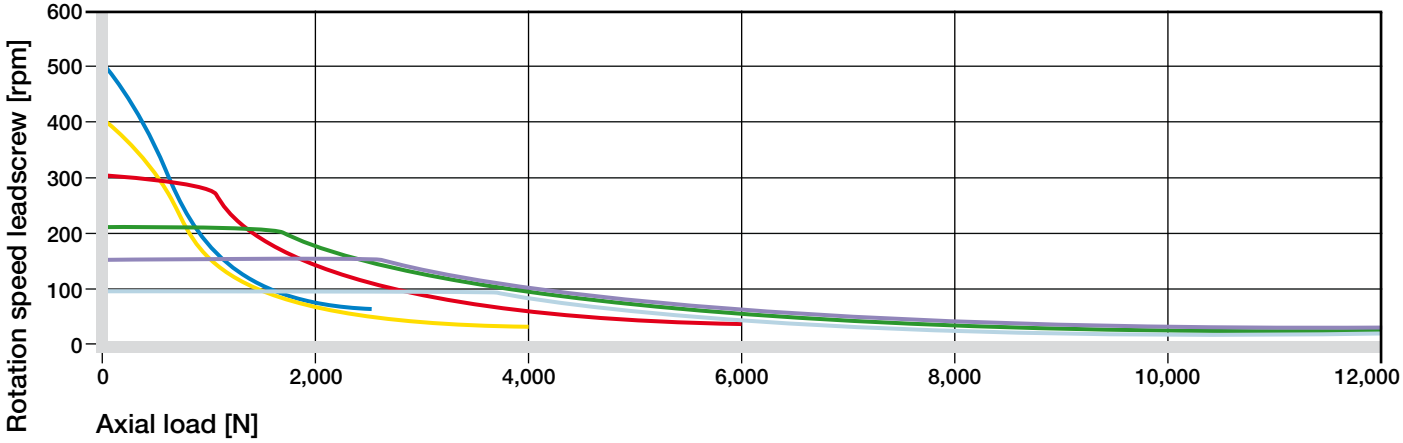
DryLin® linear leadscrew units have been developed for position settings of all types. The linear setting is achieved by means of trapezoidal leadscrew that can be operated manually or by motor. The maximum linear continuous speed is 1m/min.

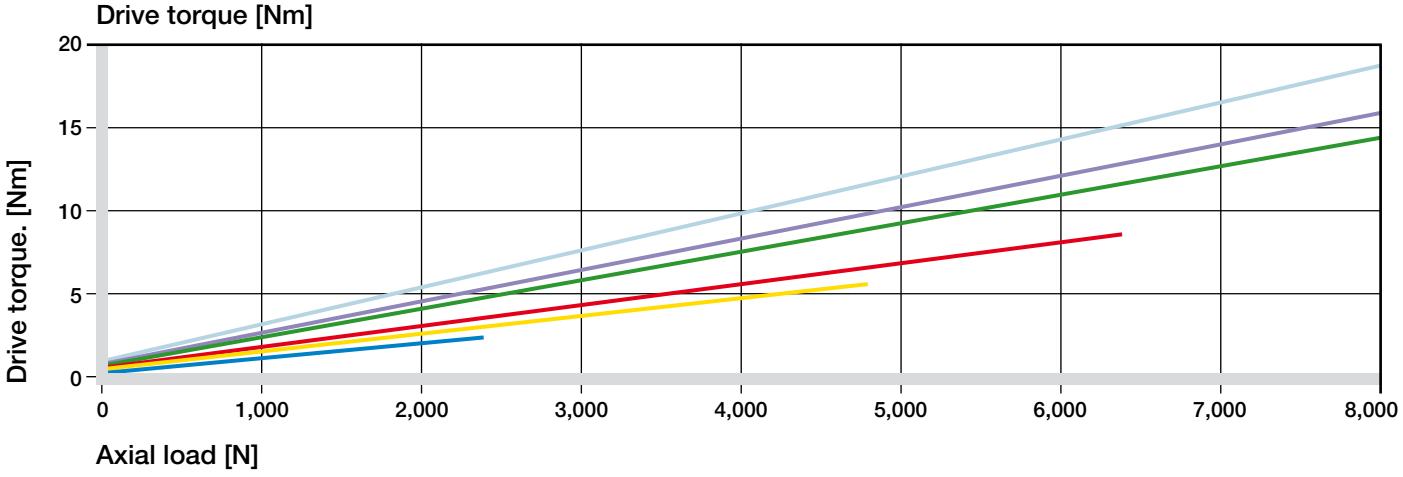
The suitability of the linear slide unit for an application can be checked using the graphs below.

HORIZONTAL

HORIZONTAL





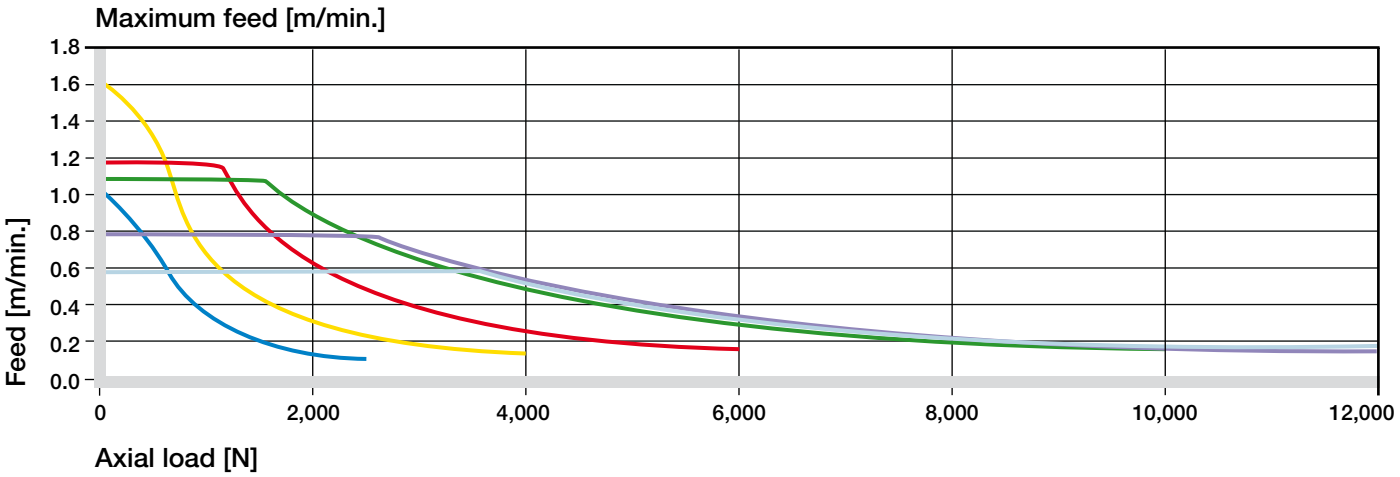


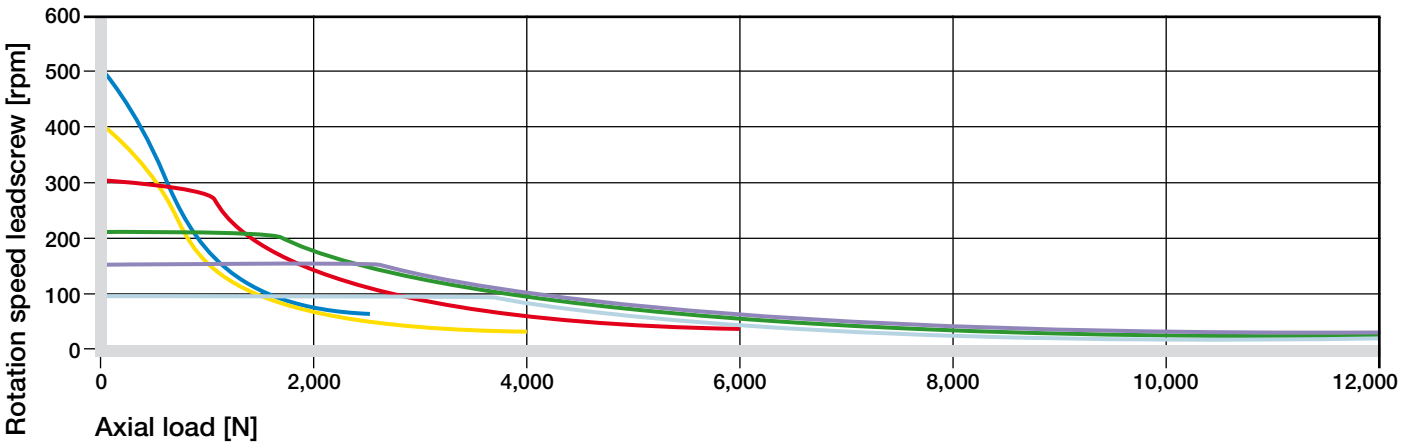
DryLin® SHT | Design and Calculation

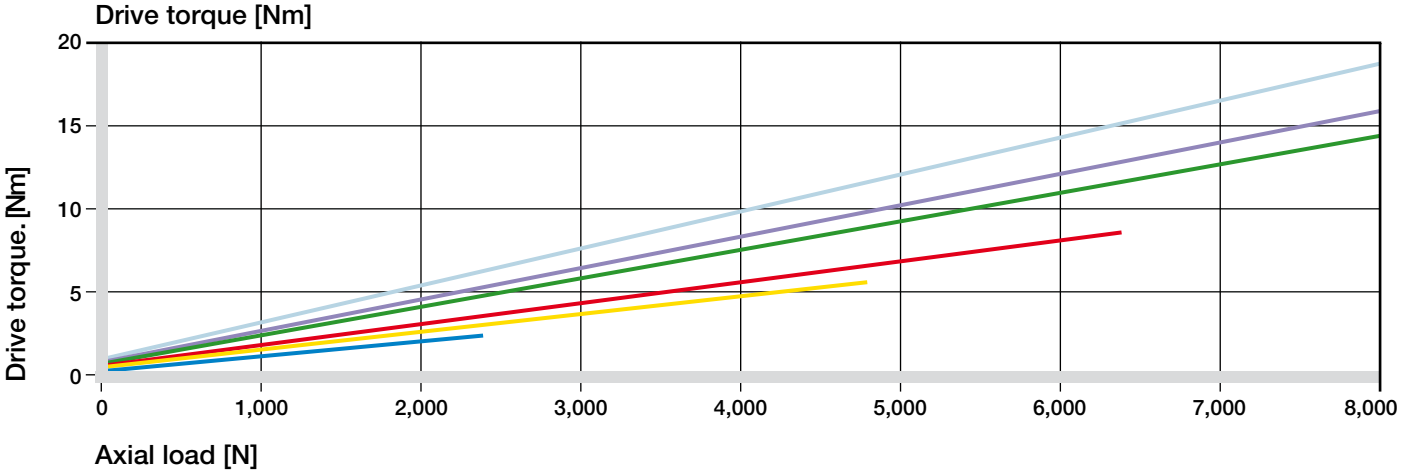
The following trapezodial leadscrew drive sizes are used in SHT linear tables:

- TR 10x2: SHT-12, SHTC-12, SHTP-12, SLW-1040, SLW-1080, SLW-1040-ES, SET-25
- TR 14x4: SLW-1660
- TR 18x4: SHT-20, SHTC-20, SLW-2080
- TR 24x5: SHT-30, SHTC-30
- TR 26x5: SHTC-40
- TR 30x6: SHTC-50

VERTICAL







DryLin® SHT | Product Range | Trapezoidal Leadscrew

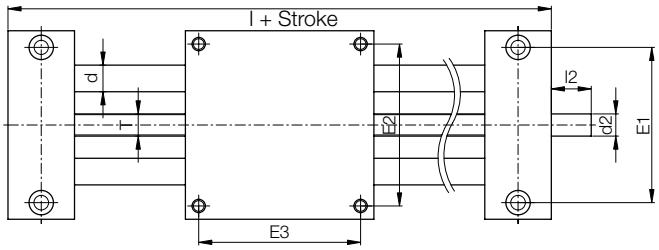
SHT – Standard

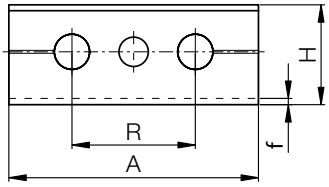
- Solid design
- Three different installation sizes
- Various materials for shaft and leadscrew
- Maintenance-free and corrosion-resistant
- TR 10 x 2, TR 18 x 4, TR 24 x 5
- Temperature-resistant up to +80 °C
- Available accessories
  ▶ page 922

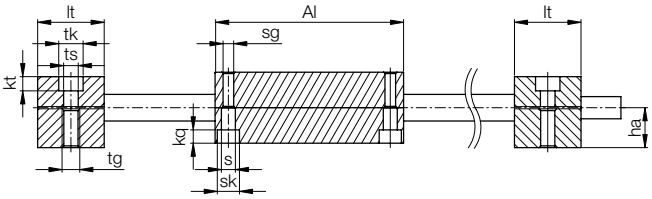
Order key
complete ▶ page 897

SHT-12-AWM

- Shaft material
- Type
- Basic







reddot design award
winner 2006

Technical Data

Part number	Max. length of stroke	Aluminum shaft		Steel shaft		Max. static load-bearing capacity	
		Weight	Additional (per 100 mm)	Weight	Additional (per 100 mm)	axial	radial
	[mm]	[kg]	[kg]	[kg]	[kg]	[N]	[N]
SHT-12-AWM	750	1.1	0.1	1.3	0.2	700	2,800
SHT-20-AWM	1,000	3.2	0.3	3.9	0.6	1,600	6,400
SHT-30-AWM	1,250	8.6	0.6	10.9	1.4	2,500	10,000

Dimensions [mm]

Part number	A	Al	H	E1	E2	E3	l	R	f	lt	tk	ts
	–0.3	–0.3		±0.15	±0.15	±0.15				±0.1		
SHT-12-AWM	85	85	34	70	73	73	145	42	2	30	11	6.6
SHT-20-AWM	130	130	48	108	115	115	202	72	2	36	15	9.0
SHT-30-AWM	180	189	68	150	158	158	280	96	4	50	20	13.5

Part number	tg	kt	s	sk	sg	kq	d	T	l2	d2	ha
		±0.1								Standard	
SHT-12-AWM	M8	6.4	6.3	10	M6	6.0	12	TR 10 x 2	17	TR 10 x 2*	18
SHT-20-AWM	M10	8.6	6.4	11	M8	7.0	20	TR 18 x 4	26	12 h9	23
SHT-30-AWM	M16	12.6	11.0	18	M12	10.6	30	TR 24 x 5	38	14 h9	36

*** TR 10 x 2 leadscrew end unmachined**

delivery time 2–3 days ▶ page 895

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHT-12-AWM

DryLin® SHT | Product Range | Trapezoidal Leadscrew

SHT-PL – Preload

Preloaded trapezoidal leadscrew nut, Radial clearance adjustable from both sides

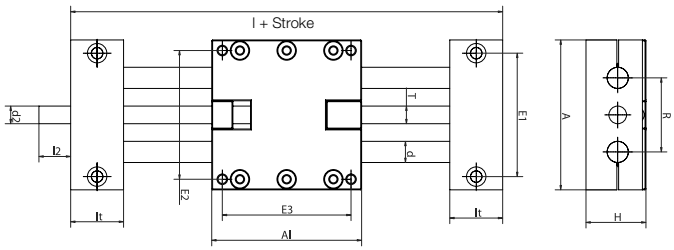
Order key

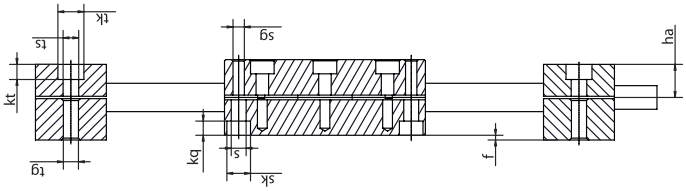
complete ▶ page 897

SHT-12-AWM-PL

- Preload
- Shaft material
- Type
- Basic

- Totally lubrication-free
- Pre-tensioned trapezoidal nut, preload force: 50 N
- Manually and continuously adjustable radial clearance
- Low weight due to aluminum and plastic
- Machined leadscrew ends to allow operation by hand wheel or motor
- Temperature resistance up to +80 °C
- Available accessories ▶ page 922





Technical Data

Part number	Max. length of stroke	Aluminum shaft		Steel shaft		Max. static load-bearing capacity	
		Weight	Additional (per 100 mm)	Weight	Additional (per 100 mm)	axial	radial
	[mm]	[kg]	[kg]	[kg]	[kg]	[N]	[N]
SHT-12-AWM-PL	750	1.1	0.1	1.3	0.2	700	2,800
SHT-20-AWM-PL	1,000	3.2	0.3	3.9	0.6	1,600	6,400
SHT-30-AWM-PL	1,250	8.6	0.6	10.9	1.4	2,500	10,000

Dimensions [mm]

Part number	A	Al	H	E1	E2	E3	l	R	f	lt	tk	ts
	–0.3	–0.3		±0.15	±0.15	±0.15				±0.1		
SHT-12-AWM-PL	85	85	34	70	73	74	145	42	2	30	11	6.6
SHT-20-AWM-PL	130	130	48	108	115	115	202	72	2	36	15	9.0
SHT-30-AWM-PL	180	180	68	150	158	158	280	96	4	50	20	13.5

Part number	tg	kt	s	sk	sg	kq	d	T	l2	d2	ha
		±0.1								Standard	
SHT-12-AWM-PL	M8	6.4	6.3	10	M6	6.0	12	TR 10 x 2	17	TR 10 x 2*	18
SHT-20-AWM-PL	M10	8.6	6.4	11	M8	7.0	20	TR 18 x 4	26	12 h9	23
SHT-30-AWM-PL	M16	12.6	11.0	18	M12	10.6	30	TR 24 x 5	38	14 h9	36

* TR 10 x 2 leadscrew end unmachined

delivery time 2–3 days ▶ page 895

prices price list online www.igus.co.uk/en/DryLinSHT

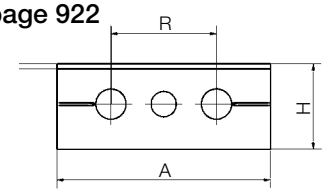
order example part number SHT-12-AWM-PL

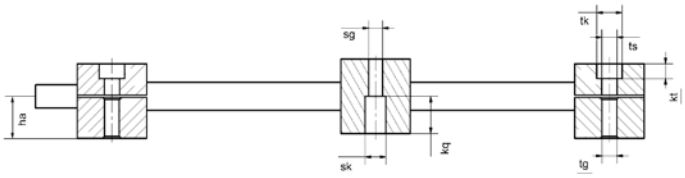
DryLin® SHT | Product Range | Trapezoidal Leadscrew

SHTC – Flexible

- High flexibility
- Ideal for 2 carriages
- Maintenance-free dry operation
- 5 types
- Adjustable bearing clearance
- Available accessories

▶ page 922



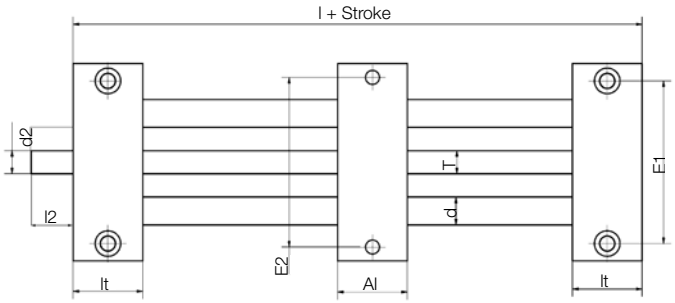


Order key

complete ▶ page 897

SHTC-12-AWM

- Shaft material
- Type
- Flexible



Technical Data

Part number	Max. length of stroke	Aluminum shaft		Steel shaft		Max. static load-bearing capacity	
		Weight	Additional (pro 100 mm)	Weight	Additional (pro 100 mm)	axial	radial
	[mm]	[kg]	[kg]	[kg]	[kg]	[N]	[N]
SHTC-12-AWM	750	0.7	0.1	0.8	0.2	700	2,800
SHTC-20-AWM	1,000	1.9	0.3	2.3	0.6	1,600	6,400
SHTC-30-AWM	1,250	4.6	0.6	5.8	1.4	2,500	10,000
SHTC-40-AWM	1,500	11.0	0.9	16.0	2.4	4,000	16,000
SHTC-50-AWM	1,500	17.0	1.2	26.3	3.5	6,250	25,000

Dimensions [mm]

Part number	A	Al	H	E1	E2	l	R	f	LT	tk	ts	tg
	–0.3	–0.3		±0.15	±0.15				±0.1			
SHTC-12-AWM	85	30	34	70	73	90	42	2	30	11	6.6	M8
SHTC-20-AWM	130	36	48	108	115	108	72	2	36	15	9.0	M10
SHTC-30-AWM	180	50	68	150	158	150	96	4	50	20	13.5	M16
SHTC-40-AWM	230	70	84	202	202	210	122	4	70	20	13.5	M16
SHTC-50-AWM	280	80	100	250	250	240	152	4	80	20	13.5	M16

Part number	kt	sk	sg	kq	d	T	l2	d2	ha
	±0.1							Standard	
SHTC-12-AWM	6.4	10	M6	6.0	12	TR 10 x 2	17	TR 10 x 2*	18
SHTC-20-AWM	8.6	11	M8	7.0	20	TR 18 x 4	26	12 h9	23
SHTC-30-AWM	12.6	18	M12	10.6	30	TR 24 x 5	38	14 h9	36
SHTC-40-AWM	12.6	20	M16	39	40	TR 26 x 5	45	16	44
SHTC-50-AWM	12.6	20	M16	49	50	TR 30 x 6	50	20	52

* TR 10 x 2 leadscrew end unmachined

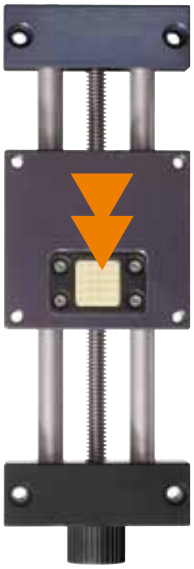
delivery time 2–3 days ▶ page 895

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHTC-12-AWM

DryLin® SHT | Product Range | Trapezoidal Leadscrew

SHT-FF – Fast Forward



SHT linear tables with quick release mechanism offer a combination of accurate positioning and quick manual adjustment.

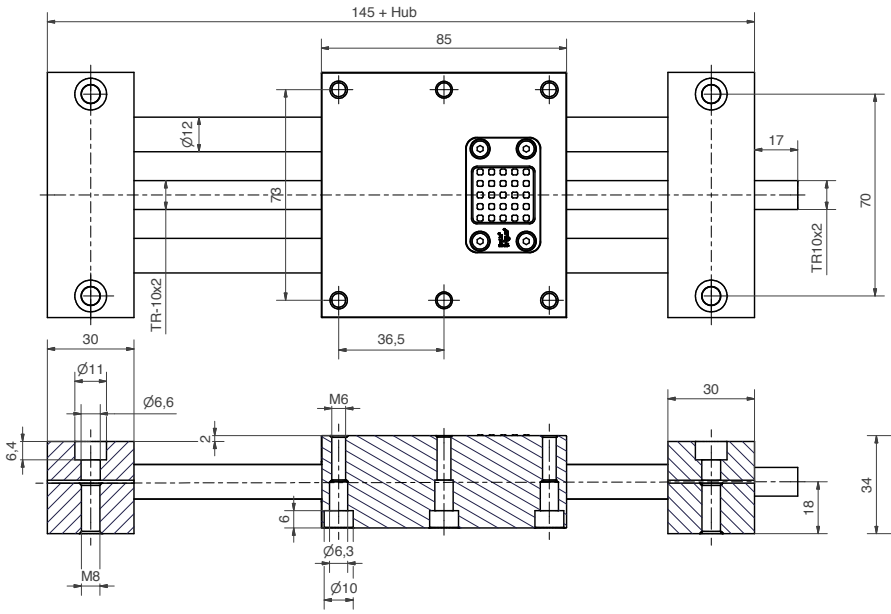
- Aluminum model
- For fast format adjustments
- Including self-locking brake
- Variable stroke length
- Only recommended for horizontal applications
- Max. stat. axial load 200 N (horizontal installation position)
- Max. dynamic axial load 50 N
- Available accessories ▶ page 922

Order key

complete ▶ page 897

SHT-12-AWM-FF

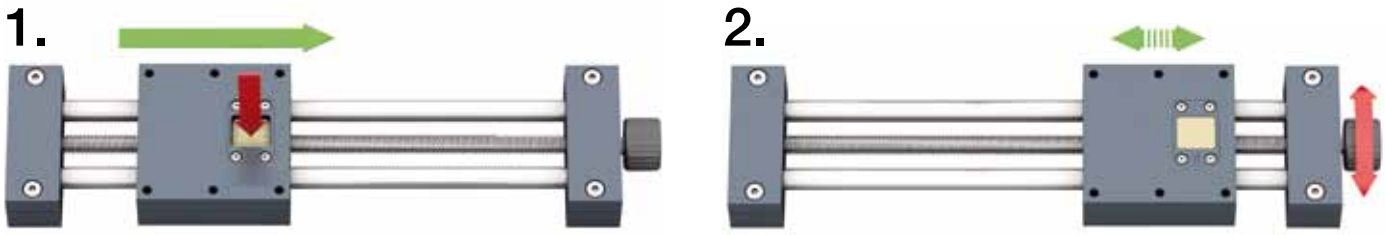
- Fast Forward
- Shaft material
- Type
- Basic



product design award 2011

Technical Data

Part number	Max. length of stroke [mm]	Weight [kg]	Additional weight pro 100 mm
SHT-12-AWM-FF	750	1.1	0.1



Press > disengage > move manually > click into place > fine-tune

delivery time 3–8 days

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHT-12-AWM-FF

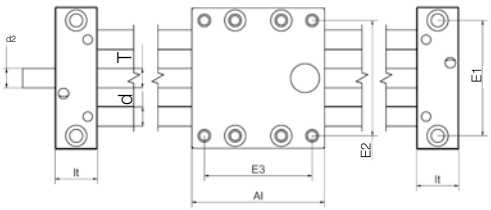
SLW – Compact

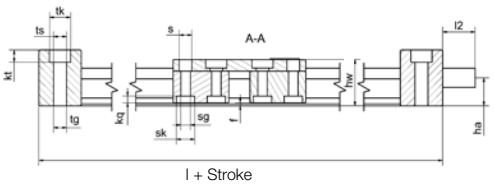
- Flat and compact
- High torsional stability stiffness
- Fully supported
- Hard anodized aluminum rail
- 5 types
- Available accessories
  ▶ page 922

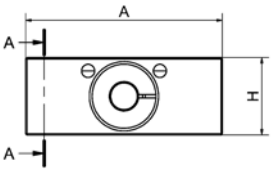
Order key
complete ▶ page 897

SLW-1040

Dimension
Compact







Technical Data

Part number	Max. length of stroke	Shaft weight	Additional (per 100 mm)	Max. static load-bearing capacity		End block material
	[mm]	[kg]	[kg]	axial [N]	radial [N]	
SLW-0630	300	0.2	0.08	50	200	plastic
SLW-1040	750	0.7	0.10	700	2,800	zinc diecasting
SLW-1080	750	0.9	0.20	700	2,800	aluminum
SLW-1660	750	1.5	0.30	1,200	4,600	aluminum
SLW-2080	1,000	3.0	0.40	1,600	6,400	aluminum

Dimensions [mm]

Part number	A	Al**	H	E1	E2	E3	l	hw	f	lt	tk	ts	tg
	–0.3	–0.3		±0.15	±0.15	±0.15				±0.1			
SLW-0630	54	60	20	40	45	51	100	17.5	1.2	20	11	6.2	–
SLW-1040	74	69	29	60	60	56	113	24	1.5	22	11	7.1	M8
SLW-1080	108	100	29	94	94	87	144	24	1.5	22	11	7.1	M8
SLW-1660	104	100	37	84	86	82	150	35	1.5	25	15	9.0	M10
SLW-2080	134	150	46	116	116	132	206	44	1.5	28	15	8.6	M10

Part number	kt	s	sk	sg	kq	d	T	l2	d2	ha
	±0.1								Standard	
SLW-0630	8.0	4.5	7.0	M4	2.0	6	M8	15	M8	9.5
SLW-1040	6.4	6.6	9.5	M6	4.4	10	TR 10 x 2	17	TR 10 x 2*	14.5
SLW-1080	6.4	6.6	9.5	M6	4.4	10	TR 10 x 2	17	TR 10 x 2*	14.5
SLW-1660	8.6	9.0	11	M8	5.5	16	TR 14 x 4	20	TR 14 x 4*	18.5
SLW-2080	8.6	9.0	40	M8	5.5	20	TR 18 x 4	26	12 h9	23.0

*** leadscrew end unmachined; ** Carriages also in 100, 150, 200 and 250 mm lengths available on request**

delivery time 2–3 days ▶ page 895

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SLW-0630

SLWE-PL – Preload

- Flat and compact
- High torsional stability stiffness
- Fully supported
- Hard anodized aluminum rail
- 4 types
- Available accessories
  ▶ page 922

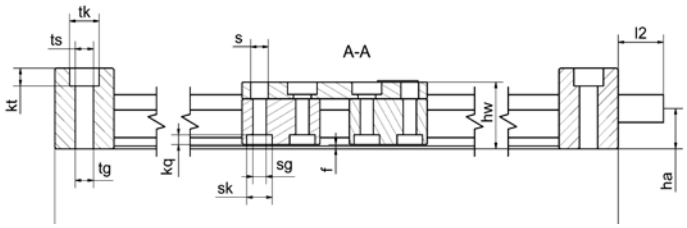
Order key

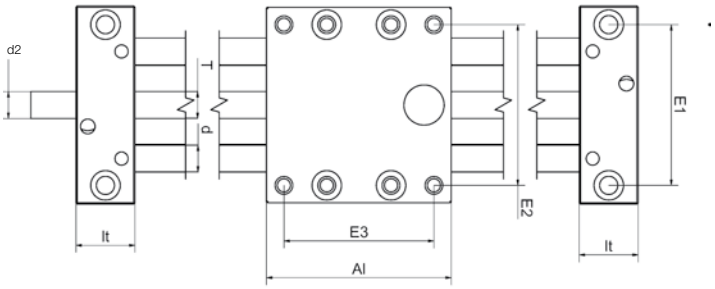
complete ▶ page 897

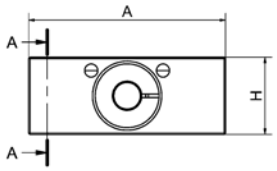
SLWE-1040-PL

- Preload
- Dimension
- Adjustable bearing clearance
- Compact

The new preload version DryLin® SLWE-PL linear slide table offers an additional benefit to the standard systems. In the preloaded version the axial clearance is adjusted by two trapezoidal nuts. The carriage can be regulated manually.







Technical Data ▶ see SLW on left side

Dimensions [mm]

Part number	A	Al	H	E1	E2	E3	l	hw	f	lt	tk	ts
	–0.3	–0.3		±0.15	±0.15	±0.15				±0.1		
SLWE-1040-PL	74	69	29	60	60	56	113	24	1.5	22	11	6.0
SLWE-1080-PL	108	100	29	94	94	87	144	24	1.5	22	11	6.8
SLWE-1660-PL	104	100	37	84	86	82	150	35	1.5	25	15	9.0
SLWE-2080-PL	134	150	46	116	116	132	206	44	1.5	28	15	8.6

Part number	tg	kt	s	sk	sq	kq	d	T	l2	d2	ha
		±0.1								Standard	
SLWE-1040-PL	M8	6.4	6.6	9.5	M6	4.4	10	TR 10 x 2	17	TR 10 x 2*	14.5
SLWE-1080-PL	M8	6.4	6.6	9.5	M6	4.4	10	TR 10 x 2	17	TR 10 x 2*	14.5
SLWE-1660-PL	M10	8.6	9.0	11.0	M8	5.5	16	TR 14 x 4	20	TR 14 x 4*	18.5
SLWE-2080-PL	M10	8.6	9.0	14.0	M8	5.5	20	TR 18 x 4	26	12 h9	23.0

*** leadscrew end unmachined; ** Carriages also in 100, 150, 200 and 250 mm lengths available on request**

delivery time 2–3 days

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SLWE-1040-PL

NEW in this catalog!

DryLin® SHT | Product Range | Trapezoidal Leadscrew

SLW-ES – Stainless steel

- Stainless steel version with corrosion-resistant steel components (1.4305, 1.4408 or rather 1.4571)
- Choice of bearing material:
  iglidur® J = Standard
  iglidur® A180 = FDA
  iglidur® X = High temperature up to +250 °C
- Available accessories
  ▶ page 922

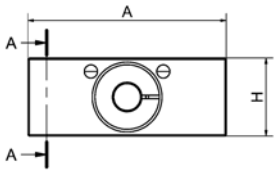
STAIN-LESS STEEL

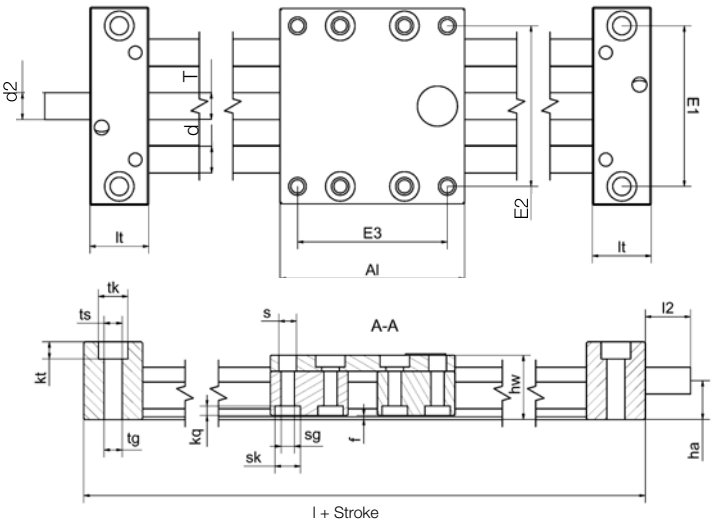
Order key

complete ▶ page 897

SLW-ESJ-1040

- Dimension
- Bearing material iglidur® J
- Stainless steel
- Compact





Technical Data

Part number	Shaft-Ø	Lead-screw-Ø	Max. length of stroke	Weight	Additional (per 100 mm)	Max. static load-bearing capacity	
	[mm]	[mm]	[mm]	[kg]	[kg]	axial [N]	radial [N]
SLW-ESJ-1040	10	10	750	1.4	0.2	700	2,800
SLW-ESX-1040	10	10	750	1.4	0.2	700	2,800
SLW-ESA180-1040	10	10	750	1.4	0.2	700	2,800
SLW-ESJ-2080	20	18	750	5.7	0.64	1,600	6,400
SLW-ESA180-2080	20	18	750	5.7	0.64	1,600	6,400

Dimensions [mm]

Part number	A	Al	H	E1	E2	E3	l	hw	f	lt	tk	ts	tg
	–0.3	–0.3		±0.15	±0.15	±0.15				±0.1			
SLW-ES-1040	74	100	29	60	60	87	144	24	1.5	22	11	6.8	M8
SLW-ES-2080	134	150	46	116	116	132	206	44	1.5	28	15	8	M10

Part number	kt	s	sk	sg	kq	d	T	l2	d2	ha
	±0.1								Standard	
SLW-ES-1040	6.4	6.6	9.5	M6	4.4	10	TR 10 x 2	17	TR 10 x 2*	14.5
SLW-ES-2080	8.6	9.0	40	M8	5.5	20	TR 18 x 4	26	12 h9	23.0

* leadscrew end unmachined

delivery time 8–14 days | prices price list online www.igus.co.uk/en/DryLinSHT | order example part number SLW-ESJ-1040

SLWE-BB – With ball bearing leadscrew supports

DryLin® linear table with ball bearing leadscrew supports. Linear guide and leadscrew absolutely lubrication-free. Compact and low profile linear actuator for manual or motor drive, also suitable for continuous operation and higher dynamics.

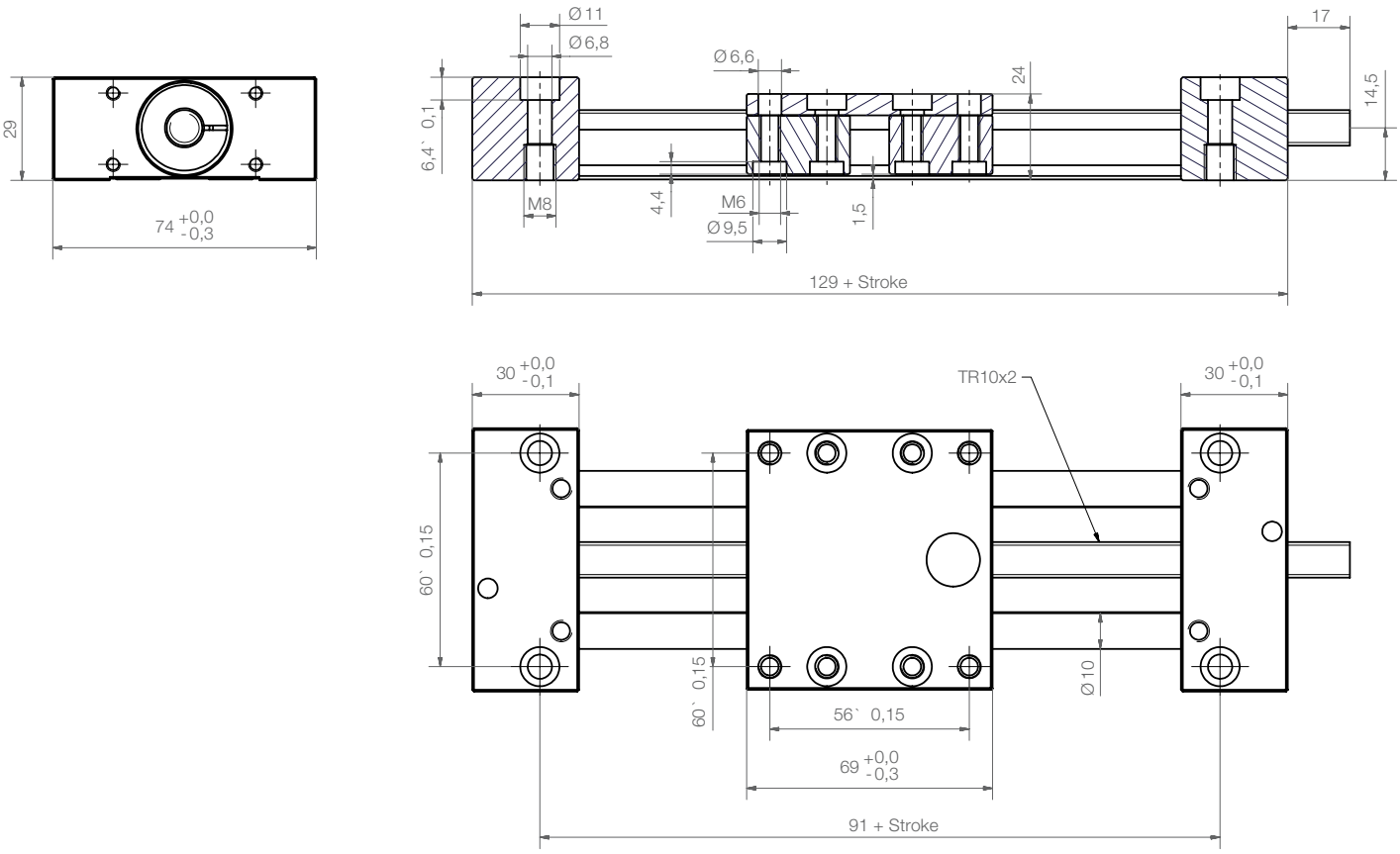
- Lower drive force
- Optimized clearance
- Up to 1,500 rpm (depending on length and load)
- Quiet operation – reduced vibration of the overall system
- Available accessories ▶ **page 922**

Order key

complete ▶ page 897

SLWE-BB-1040

- Dimension
- Ball bearing
- Adjustable
- Compact



delivery time 2–3 days

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SLWE-BB-1040

SHTP Mini – Small and low-cost – Solid plastic

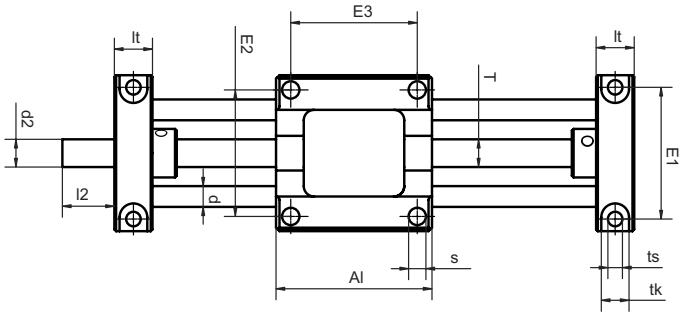
- Miniature version
- Very low weight
- Very low price
- Corrosion resistant
- Carriages and shaft end supports made of high-performance polymers
- Available accessories
  ▶ page 922

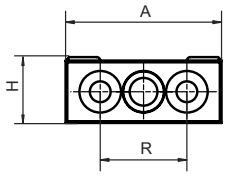
Order key

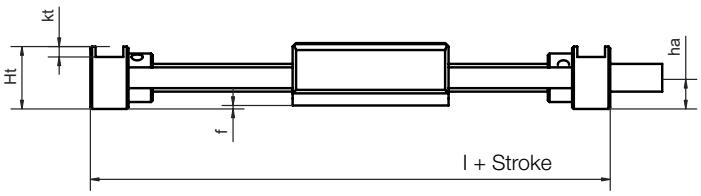
complete ▶ page 897

SHTP-01-06-AWM

- Shaft material
- Dimension
- Type
- SHT-Polymer







Technical Data

Part number	Max. length of stroke [mm]	Aluminum shaft Weight [kg]	Aluminum shaft Additional [kg] (per 100 mm)	Max. static load-bearing capacity axial [N]	Max. static load-bearing capacity radial [N]	More information
SHTP-01-06-AWM	300	0.11	0,06	50	200	Carriage, square, with four symmetrical mounting bores

Dimensions [mm]

Part number	A	Al	H	Ht	E1	E2	E3	l	R	f	lt	tk	ts
SHTP-01-06-AWM	45	45	19	18	38	36.5	36.5	67	25	1	11	8	42

Part number	s	sg	d	T	l2	d2* Standard	ha
SHTP-01-06-AWM	5.1	–	6	M8	15	M8	9

* Standard versions supplied with leadscrew end unmachined

delivery time 2–3 days ▶ page 895

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHTP-01-06-AWM

DryLin® SHT | Product Range | Trapezoidal Leadscrew

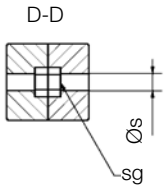
SHTP – Economical – Solid plastic

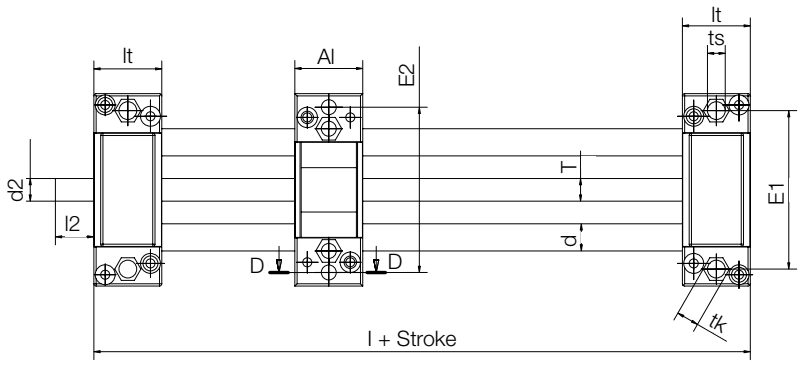
- Solid polymer design
- Low weight
- Cost-effective
- Corrosion-resistant
- Available accessories
  ▶ page 922

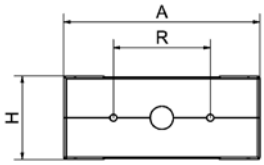
Order key
complete ▶ page 897

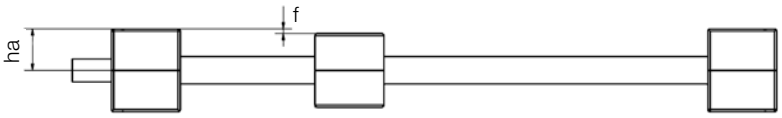
SHTP-01-12-AWM

- Shaft material
- Dimension
- Type
- SHT-Polymer









Technical Data

Part number	Max. length of stroke [mm]	Aluminum shaft Weight [kg]	Aluminum shaft Additional [kg] (per 100 mm)	More information
SHTP-01-12	500	0.35	0.11	Liners and trapezoidal leadscrew nut made of iglidur® J
SHTP-02-12	500	0.35	0.11	Bearing and nut integrated into the carriage

Dimensions [mm]

Part number	A	Al	H	E1	E2	E3	l	R	f	lt ±0.1	tk	ts ±0.15
SHTP-01-12	85	30	36	70	73	–	90	42	2	30	10	6.0
SHTP-02-12	85	30	36	70	73	–	90	42	2	30	10	6.0

Part number	s	sg	d	T	l2	d2*	ha	Max. static load-bearing capacity axial [N]	Max. static load-bearing capacity radial [N]
SHTP-01-12	6.3	M6	12	TR 10 x 2	17	TR 10 x 2	18	200	800
SHTP-02-12	6.3	M6	12	TR 10 x 2	17	TR 10 x 2	18	200	800

* Standard versions supplied with leadscrew end unmachined

delivery time 2–3 days ▶ page 895

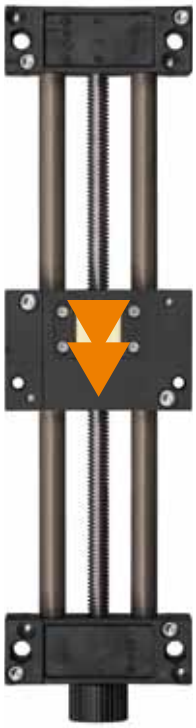
prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHTP-01-12

NEW in this catalog!

DryLin® SHT | Product Range | Trapezoidal Leadscrew

SHTP-FF – Fast Forward



SHTP linear tables with quick release mechanism offer a combination of accurate positioning and quick manual adjustment.

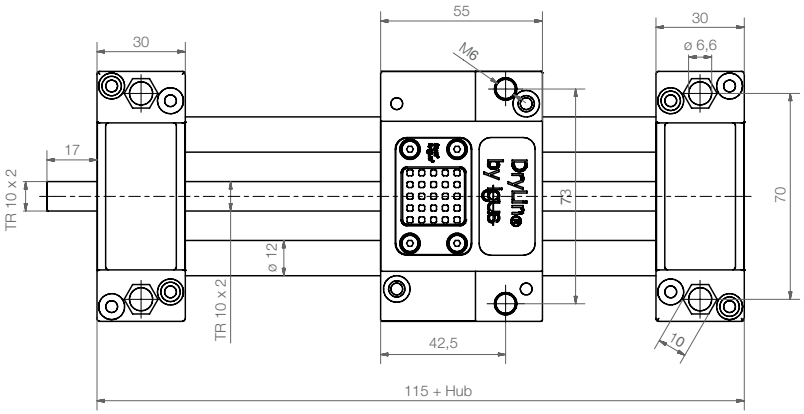
- Light solid polymer model
- For fast format adjustments
- Including self-locking brake
- Variable stroke length
- Only recommended for horizontal applications
- Max. static axial load 200 N
- Max. dynamic axial load 50 N
- Available accessories ▶ page 922

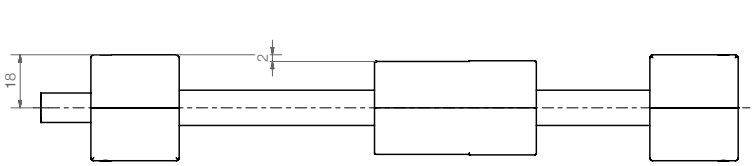
Order key

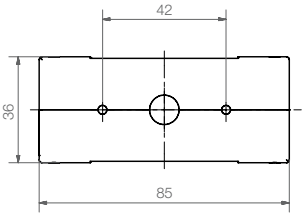
complete ▶ page 897

SHTP-01-12-AWM-FF

- Fast Forward
- Shaft Material
- Dimension
- Type
- SHT-Polymer





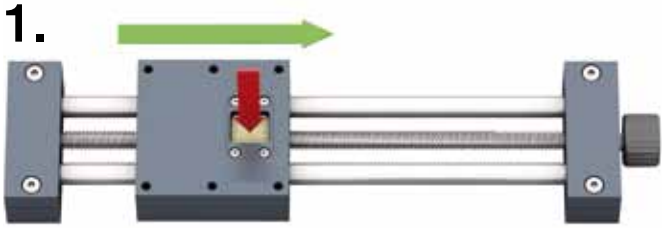


Technical Data

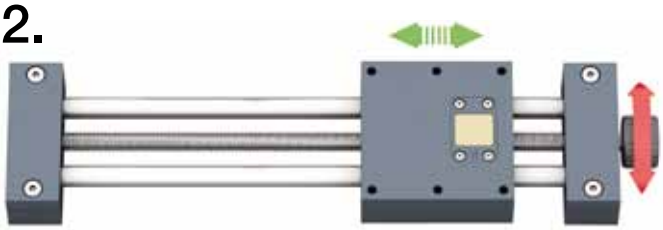
Part number	Max. length of stroke [mm]	Weight [kg]	Additional weight (per 100 mm)
SHTP-01-12-AWM-FF*	500	0.35	0.11

* Liners and trapezoidal leadscrew nut made of iglidur® J

1.



2.



Press > disengage > move manually > click into place > fine-tune

delivery time 8–14 days

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHTP-01-12-AWM-FF

SHT-HTX – High temperature up to +180 °C

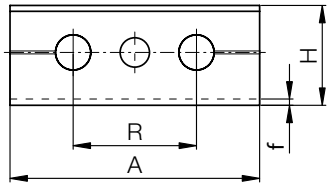
- Shaft and leadscrew made of stainless steel, shaft material iglidur® X
- Carriages and shaft ends made of anodized aluminum
- Absolutely lubrication-free
- available as SHT – Standard; SHTC – Flexible, ideal for two carriages; SHT-XY – the XY-table
- Available accessories ▶ page 922

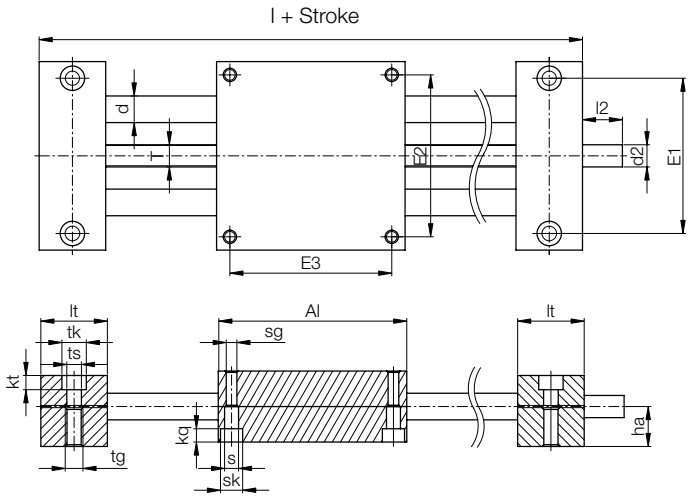
Order key

complete ▶ page 897

SHT-20-EWM-HTX

- High temperature
- Shaft material
- Dimension
- Standard





Technical Data

Part number	Max. length of stroke	Aluminum shaft		Steel shaft		Max. static load-bearing capacity	
		Weight	Additional (per 100 mm)	Weight	Additional (per 100 mm)	axial	radial
	[mm]	[kg]	[kg]	[kg]	[kg]	[N]	[N]
SHT-12-EWM-HTX	750	1.1	0.1	1.3	0.2	700	2,800
SHT-20-EWM-HTX	1,000	3.2	0.3	3.9	0.6	1,600	6,400

Dimensions [mm]

Part number	A	Al	H	E1	E2	E3	l	R	f	lt	tk	ts
	–0.3	–0.3		±0.15	±0.15	±0.15				±0.1		
SHT-12-EWM-HTX	85	85	34	70	73	73	145	42	2	30	11	6.6
SHT-20-EWM-HTX	130	130	48	108	115	115	202	72	2	36	15	9.0

Part number	tg	kt	s	sk	sg	kq	d	T	l2	d2	ha
		±0.1								Standard	
SHT-12-EWM-HTX	M8	6.4	6.3	10	M6	6.0	12	TR 10 x 2	17	TR 10 x 2*	18
SHT-20-EWM-HTX	M10	8.6	6.4	11	M8	7.0	20	TR 18 x 4	26	12 h9	23

* TR 10 x 2 with leadscrew end unmachined

delivery time 2–3 days

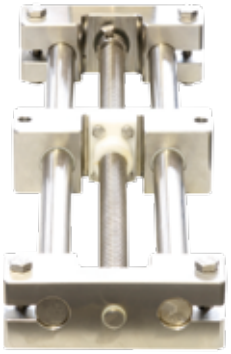
prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHT-12-EWM-HTX

NEW in this catalog!

DryLin® SHT | Product Range | Trapezoidal Leadscrew

SHTC-HYD – Hygienic design



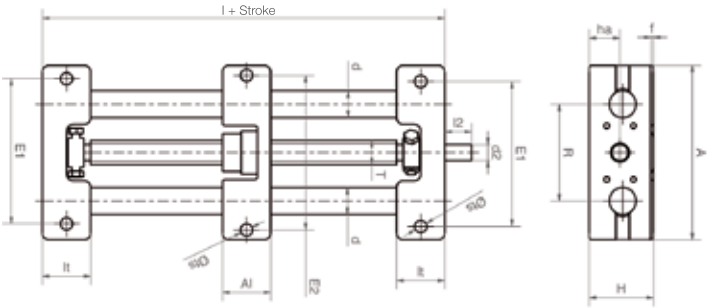
STAIN-LESS STEEL

Order key
complete ▶ page 897

SHTC-20-EWM-HYD

- Hygienic design
- Shaft material
- Dimension
- Flexible

Based on the “hygienic design” idea, this version offers an easily cleaned solution. Even screw connections are designed easily accessible and the gap dimensions accordingly generous. The materials used are plastic and VA stainless steel.



FDA

FDA-compliant material for linear slide module available.

Dimensions [mm]

Part number	A	Al	H	E1	E2	l	H	f	lt	ts	d	T	l2	d2	ha
	–0.3	–0.3		±0.15	±0.15										
SHTC-20-EWM-HYD	130	35	48	108	115	108	72	2	36	9.0	20	TR 18 x 4	26	12 h9	23

Available accessories ▶ page 922

Assembly in combination with following bearing materials:

iglidur® J
Standard up to +90 °C

iglidur® X
for temperatures up to +250 °C
High chemical resistance

iglidur® A180
for applications with food contact (FDA)

delivery time 8–14 days

prices price list online
www.igus.co.uk/en/DryLinSHT

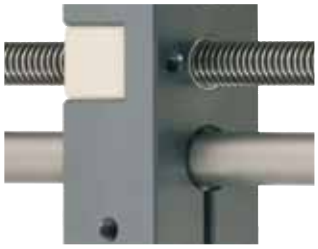
order example part number
SHTC-20-EWM-HYD

DryLin® SHT | Technical Data | High Helix Leadscrew

DryLin® linear tables with a high helix thread offer very high travel speeds, with pitches up to 100 mm per revolution. The lubrication free iglidur® J plastic nuts run on cold rolled stainless steel leadscrews. An interesting alternative to the toothed belt drive, especially in the fast handling of small parts.

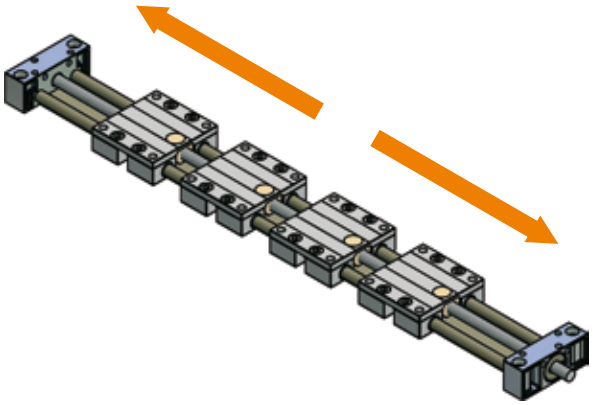
Adjustable radial clearance

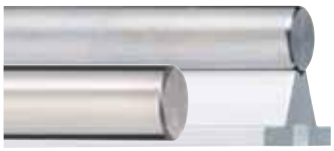
The “turn to fit” feature allows individual clearance adjustment by hand. The adjustment is done in 0.01-mm increments and cannot be triggered unintentionally during the operation.



Right and left hand, and opposed drives

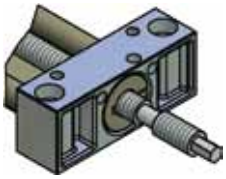
The standard leadscrew is right hand drive, but left hand drive leadscrews are also available on request. Also, an opposed leadscrew can be supplied, having both right and left hand drives.





Shaft materials

If the linear unit is not based on an aluminum extruded section, then the shaft material can be either steel, stainless steel or hard anodized aluminum. As the wear and friction values are so much better with hard anodized aluminum, this is supplied as standard.



Leadscrew materials

All high helix leadscrews are made of stainless steel. Compared to the trapezoidal thread the high helix thread has much higher pitches. Thus higher travel speeds are possible, but at higher driving torque compared to the trapezoidal thread.

Available diameter and pitch:

8x15, 10x12, 10x50, 18x100.

Application Areas

- Handling technology
- Medical
- Dental technology
- Textile machines
- Packaging

DryLin® SHT | Product Range | High Helix Leadscrew

SHTS – Standard with leadscrew

- Lead 10 x 12, 10 x 50, 18 x 100
- High helix leadscrew
- High-speed solution
- Maintenance-free, dry-running
- Available accessories
  ▶ page 922

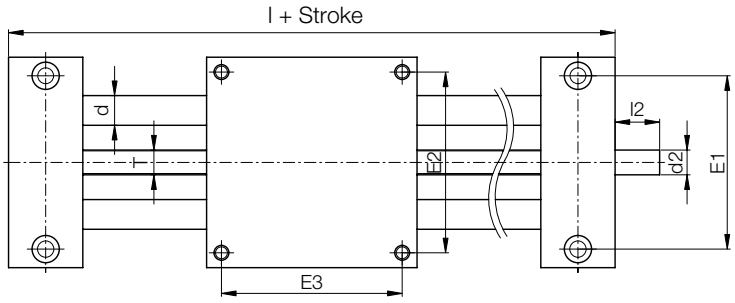
reddot design award winner 2006

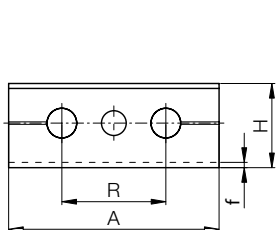
Order key

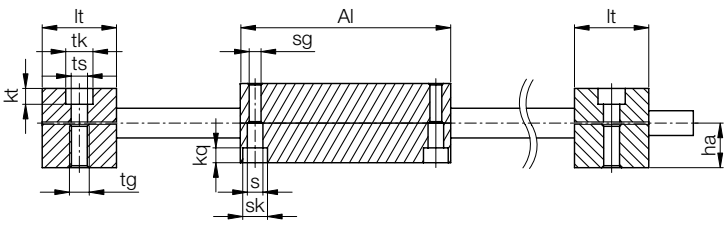
complete ▶ page 897

SHTS-12-AWM

- Shaft material
- Dimension
- High helix thread
- Standard







Technical Data

Part number	Max. length of stroke	Aluminum shaft		Max. static load-bearing capacity	
		Weight	Additional (per 100 mm)		
		[kg]	[kg]	axial [N]	radial [N]
SHTS-12-AWM	750	0.7	0.1	100	400
SHTS-20-AWM	1,000	1.9	0.3	400	1,600

Dimensions [mm]

Part number	A	Al	H	Ht	E1 ±0.15	E2 ±0.15	E3 ±0.15	l	R	f	lt ±0.1	tk	ts
SHTS-12-AWM	85	85	34	70	73	73	73	145	42	2	30	11	6.6
SHTS-20-AWM	130	130	48	108	115	115	202	72	2	36	15	9.0	M10

Part number	tg	kt ±0.1	s	sk	sg	kq	d	T	l2	d2 Standard	ha
SHTS-12-AWM	M8	6.4	6.3	10	M6	6.0	12	10 x 50**	17	TR 10 x 50*	18
SHTS-20-AWM	M10	8.6	6.4	11	M8	7.0	20	18 x 100	26	12 h9	23

* TR 10x50 leadscrew end unmachined; ** alternatively as 10x12 on request

delivery time 2–3 days

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHTS-12-AWM

DryLin® SHT | Product Range | High Helix Leadscrew

SLWS – Compact with leadscrew

- Lead 8 x 15 mm
- Flat and compact
- High torsional stability stiffness
- Hard anodized aluminum rail
- Available accessories

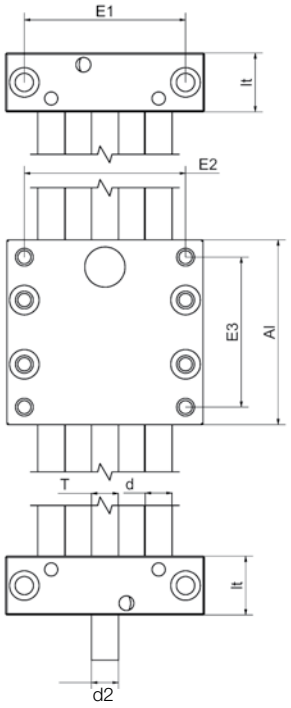
▶ page 922

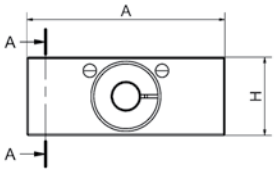
Order key

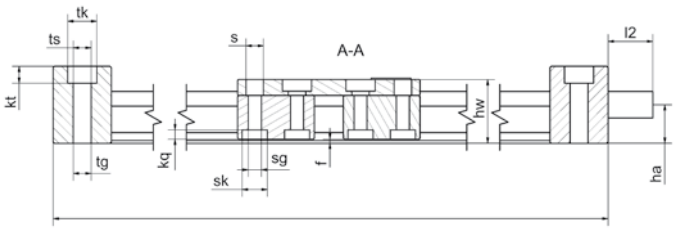
complete ▶ page 897

SLWS-0630

Dimension
High helix thread
Compact







Technical Data

Part number*	Max. length of stroke	Weight	Additional (per 100 mm)	Max. static load-bearing capacity	
		[kg]	[kg]	axial [N]	radial [N]
SLWS-0630	300	0.2	0.08	50	200

Dimensions [mm]

Part number	A –0.3	Al –0.3	H	E1 ±0.15	E2 ±0.15	E3 ±0.15	l	hw	f	lt ±0.1	tk	ts	tg
SLWS-0630	54	60	20	40	45	51	100	17.5	1.2	20	11	6.2	–

Part number	kt ±0.1	s	sk	sg	kq	d	T	l2	d2	ha
SLWS-0630	8.0	4.5	7.0	M4	2.0	6	M8	15	8	9.5

* other sizes for SLW-type with high helix thread on request

delivery time 2–3 days

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SLWS-0630

DryLin® SET | Technical Data | EasyTube

Linear unit as tube adjustment

The new linear unit for easy adjustment functions is characterized by a simple but effective and solid structure. A complete system is built up from few components. The outer anodized aluminum tube guides the carriage/s and at the same time protects the trapezoidal leadscrew and leadscrew nut from external influences. Carriage, torque support and trapezoidal leadscrew nut in one component and are made of a special plain bearing high-performance polymer. This guarantees freedom from lubrication with simultaneously low coefficient of friction and optimal wear rates. The iglidur® bearing materials are also used in the axial bearings of the leadscrew.

- Totally lubrication-free
- Corrosion-free version with stainless leadscrew
- Low weight due to aluminum and plastics
- Machined leadscrew ends allow operation by handwheel or motor
- Temperature resistance up to 80 °C
- Extensive accessories
- Simple, smooth design according to specifications of our customers

Temperature

Product range

3 sizes
2 assembly options

EasyTube with optional accessories (Hand wheel, position indicator)

Flange version

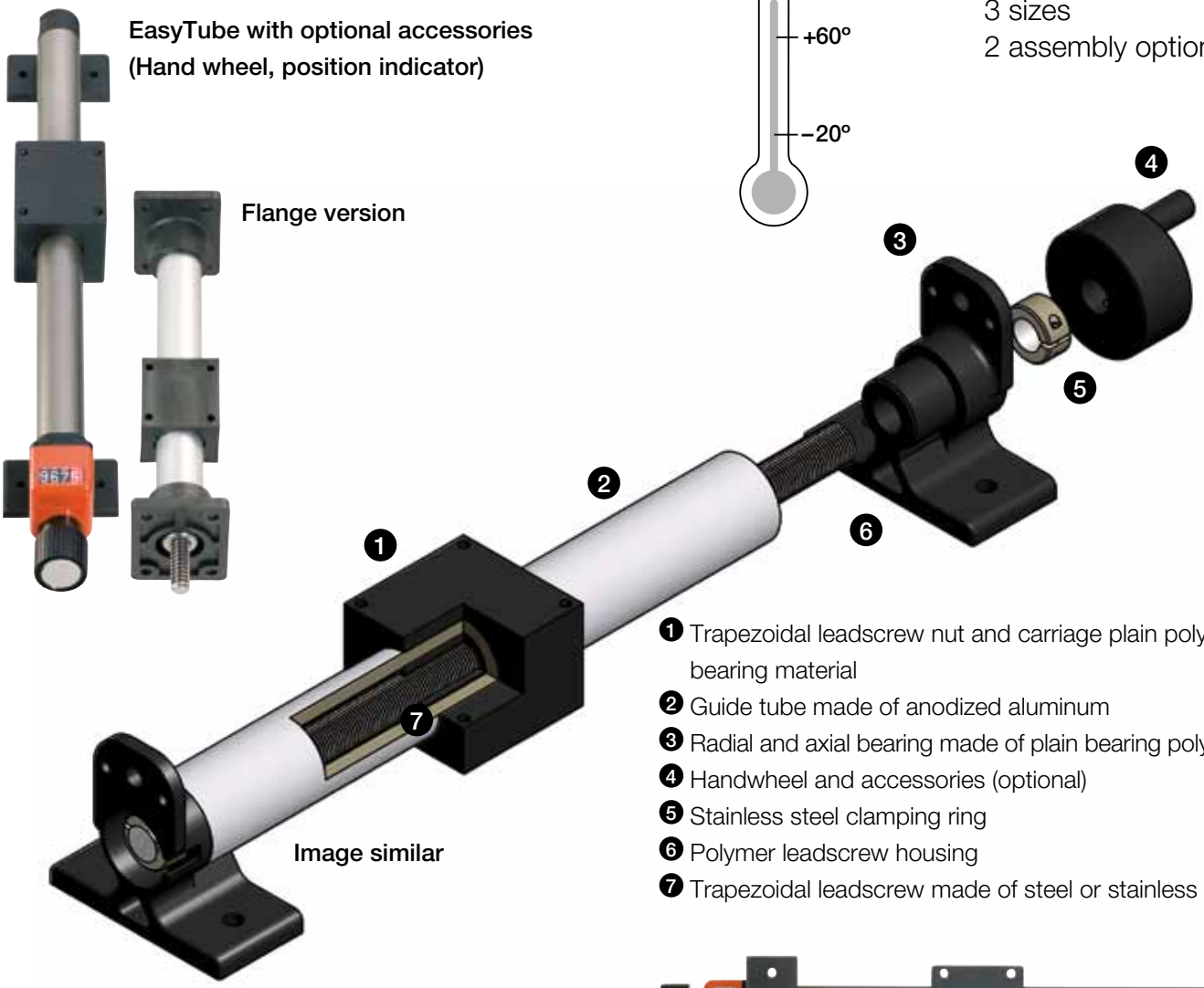
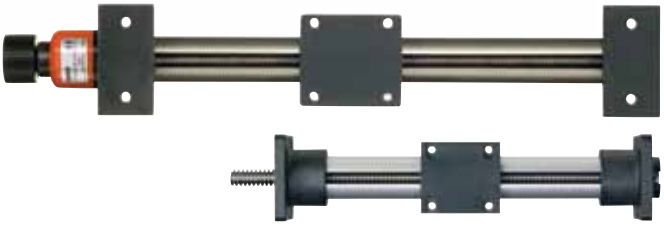


Image similar

1. Trapezoidal leadscrew nut and carriage plain polymer bearing material
2. Guide tube made of anodized aluminum
3. Radial and axial bearing made of plain bearing polymer
4. Handwheel and accessories (optional)
5. Stainless steel clamping ring
6. Polymer leadscrew housing
7. Trapezoidal leadscrew made of steel or stainless steel



Flange version

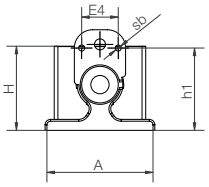
DryLin® SET | Product Range | EasyTube

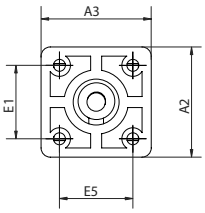
EasyTube

Order key
complete ▶ page 897

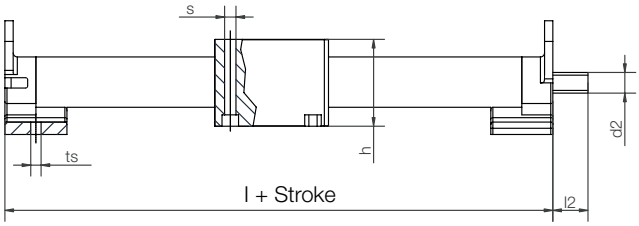
SET-25-AWM-F

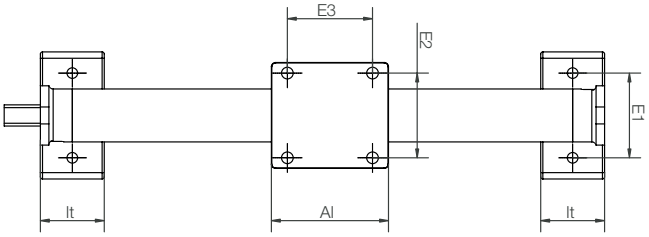
- Flange (optional)
- Shaft material
- Dimension
- EasyTube





Also available as flange version (for axial connection)





Technical Data

Part number	Max. length of stroke	Aluminum shaft		Max. static load-bearing capacity	
		Weight shaft end supports and carriage	Additional (per 100 mm)	axial	radial
		[kg]	[kg]	[N]	[N]
SET-12-AWM	200	0.05	0.03	10	20
SET-25-AWM	850	0.15	0.12	150	300
SET-30-AWM	850	0.20	0.21	200	400

Dimensions [mm]

Part number	A	Al	H	E1	E2	E3	E4	l	h	h1	lt	ts	s	sb	l2	d2
SET-12-AWM	30	30	23,5	20	20	20	_	60	22	_	15	3,3	4,2	_	10	M4*
SET-25-AWM	60	55	44	40	40	40	20	115	39	45	30	5,2	5,2	M4	17	TR 10 x 2*
SET-30-AWM	80	55	49	60	40	40	20	125	39	50	35	6,5	5,2	M4	20	TR 12 x 3*

Dimensions [mm] – Flange version

Part number	A2	A3	H	E1	E2	E3	E5	l	h	lt	ts	s	l2	d2
SET-25-AWM-F	60	60	49	40	40	40	40	117	39	30	5.2	5.2	27	TR 10 x 2*
SET-30-AWM-F	80	60	59	60	40	40	40	125	39	35	6.5	5.2	30	TR 12 x 3*

* leadscrew end unmachined

delivery time 2–3 days

prices price list online
www.igus.co.uk/en/DryLinSET

order example part number SET-25-AWM-F

NEW in this catalog!

DryLin® SET | Product Range | EasyTube

EasyTube with scaling

Order key
complete ▶ page 897

SETM-25-AWM-200-SC

- Scaling
- Stroke length
- Shaft material
- Dimension
- Manual without leadscrew (optional)
- EasyTube

DryLin® SET EasyTube with lasered, wash-proof scale:

- Totally lubrication.free
- Corrosion-resistant
- Continuously clamped
- Available with/without scaling
- Three stroke lengths available from stock: 200, 400 and 600 mm

Technical Data		
F radial	N	300
Max. extension at maximum load	mm	66
Max. extension at nominal load 100 N	mm	200
Max. shifting force without load	N	10
Max. holding strength	N	100
Max. stroke length	mm	850

Part number with scaling without leadscrew	Part number with scaling with TR leadscrew 10 x 2	Stroke length [mm]
SETM-25-AWM-200-SC	SET-25-AWM-200-SC	200
SETM-25-AWM-400-SC	SET-25-AWM-400-SC	400
SETM-25-AWM-600- SC	SET-25-AWM-600-SC	600

▶ Dimensions see page 917

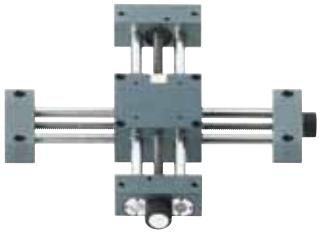
delivery time 2–3 days

prices price list online www.igus.co.uk/en/DryLinSET

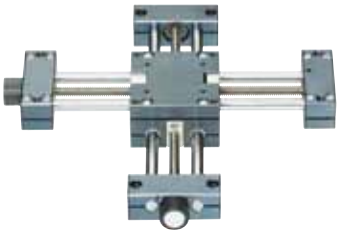
order example part number SETM-25-AWM-200-SC

DryLin® SHT | Product Range | XY-Tables

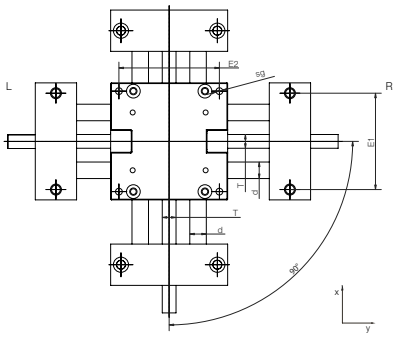
SHT – XY-table standard/preload



DryLin® SHT



DryLin® SHT-PL

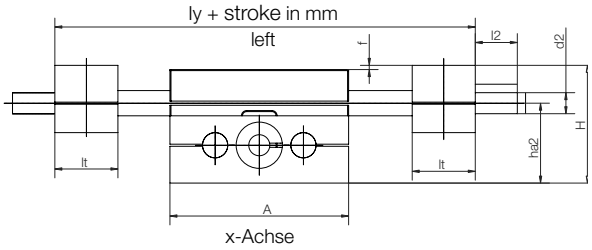


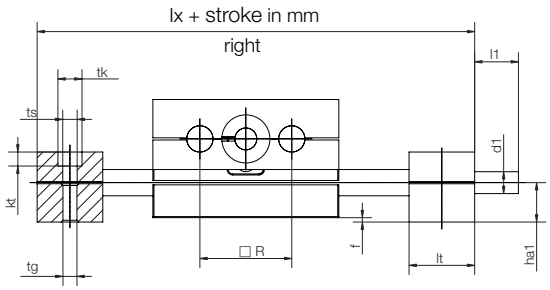
- High precision, extreme stiffness and accurate alignment due to the single-piece carriage
- Available as standard and preload version
- Lubrication-free and corrosion-resistant
- Adjustments by trapezoidal thread
- Assembly of upper unit with left or right adjustment possible
- Available accessories ▶ page 922

Order key
complete ▶ page 897

SHT-XY-12-EWM-PL

- Preload (optional)
- Shaft material
- Dimension
- XY-table
- Standard





Dimensions [mm]

Part number	A	H	E1	E2	Base length	Base length	R	f	lt	tk	ts	tg	kt
	–0.3		±0.15	±0.15	lx	ly			±0.1				
SHT-XY-12	85	56	70	73	145	145	42	2	30	11	6.6	M8	6.4
SHT-XY-12-PL	85	56	70	73	145	145	42	2	30	11	6.6	M8	6.4
SHT-XY-20-EWM-PL	130	86	108	115	202	202	72	2	36	15	9.0	M10	8.6

Dimensions [mm]

Part number	sg	d	T	l1	d1	d1	l2	d2	d2	ha1	ha2	W
					Standard	Alternative		Standard	Alternative			ha2–ha1
SHT-XY-12	M6	12	TR 10 x 2	17	TR 10 x 2	6 h9	17	TR 10 x 2	6 h9	18	38	20
SHT-XY-12-PL	M6	12	TR 10 x 2	17	TR 10 x 2	6 h9	17	TR 10 x 2	6 h9	18	38	20
SHT-XY-20-EWM-PL	M8	20	TR 18 x 4	26	TR 18 x 4	12 h9	26	12 h9	–	23	63	40

The hand wheel on the y-axis can be ordered fitted to the left or the right side.
Left: SHT-XY-12-AWM-L-200-300 for 200 mm stroke length on the x-axis and 300 mm on the y-axis
Right: SHT-XY-12-AWM-R-200-300 for 200 mm stroke length on the x-axis and 300 mm on the y-axis

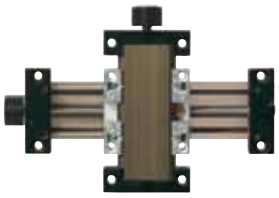
delivery time 4–8 days

prices price list online www.igus.co.uk/en/DryLinSHT

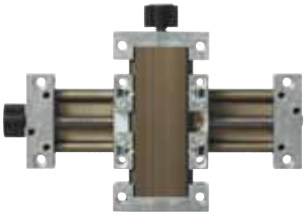
order example part number SHT-XY-12-PL

DryLin® SHT | Product Range | XY-Tables

SLW – compact XY-table



SLW-XY-0630



SLW-XY-1040

NEW!

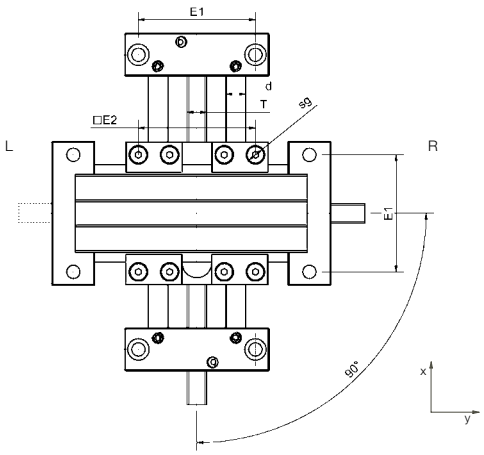
SLW-XY-1080

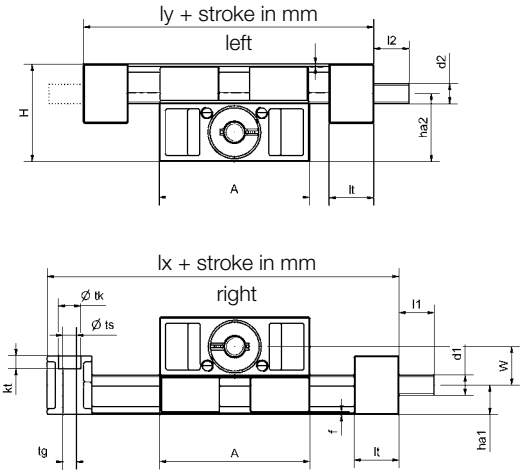
- Low-cost solution for manual adjustments
- lubrication-free and corrosion-resistant
- Max. stroke length at XY-tables 300 mm
- preload version SLWE-XY-PL also available (optional, sizes: 1040/1080)
- Available accessories ▶ page 922

Order key
complete ▶ page 897

SLW-XY-1040-PL

- Preload (optional with size 1040 and 1080)
- Dimension
- XY-table
- Compact





Dimensions [mm]

Part number	A	H	E1	E2	Base length	Base length	f	lt	tk	ts	tg	kt
	–0.3		±0.15	±0.15	lx	ly			±0.1			
SLW-XY-0630	54	37.4	40	45	94	94	1.2	20	11	8	M8	8
SLW-XY-1040	74	48	60	60	118	118	1.5	22	11	6.6	M8	6.4
SLW-XY-1080	108	48	94	94	152	152	1.5	22	11	6.6	M8	6.4

Dimensions [mm]

Part number	sg	d	T	l1	d1	d1	l2	d2	d2	ha1	ha2	W
					Standard	Alternativ		Standard	Alternativ			ha2–ha1
SLW-XY-0630	M4	5	M8	15	M8	–	15	M8	–	9.5	27.9	18.4
SLW-XY-1040	M6	10	TR 10 x 2	17	TR 10 x 2	6 h9	17	TR 10 x 2	6 h9	18	38	20
SLW-XY-1080	M6	10	TR 10 x 2	17	TR 10 x 2	6 h9	17	TR 10 x 2	6 h9	14.5	33.5	19

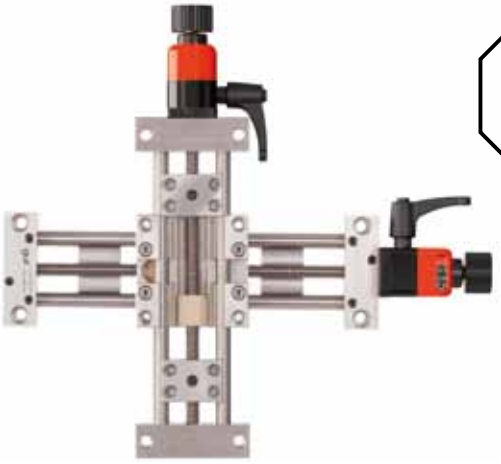
The hand wheel on the y-axis can be ordered fitted to the left or the right side.
Left: SLW-XY-0630-AWM-L-200-300 for 200 mm stroke length on the x-axis and 300 mm on the y-axis
Right: SLW-XY-0630-AWM-R-200-300 for 200 mm stroke length on the x-axis and 300 mm on the y-axis

delivery time **2–3 days**

prices **price list online** www.igus.co.uk/en/DryLinSHT

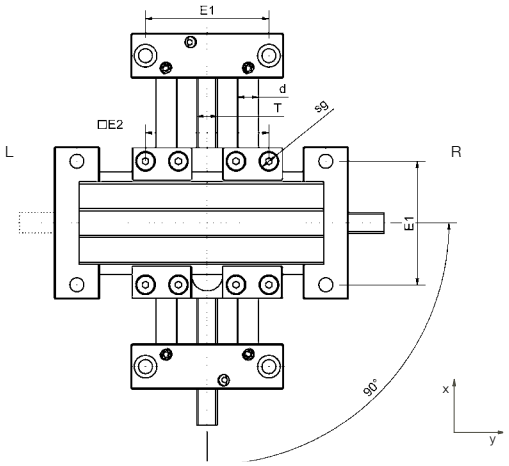
order example **part number SLW-XY-0630**

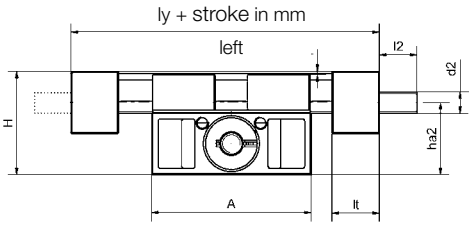
SLW – compact XY-table – stainless steel

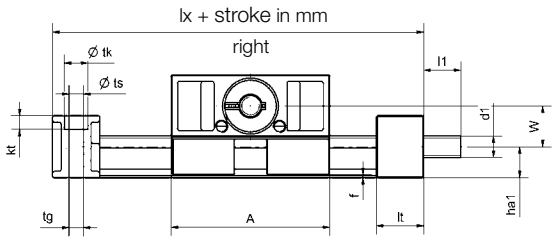


STAIN-LESS STEEL

- For manual adjustments
- Flat and compact
- High torsional stability stiffness
- Complete design with stainless steel 316
- 100 % lubrication-free
- chemical- and corrosion-resistant
- Available accessories ▶ page 922







Dimensions [mm]

Part number	A	H	E1	E2	Base length	Base length	f	lt	tk	ts	tg	kt
	–0.3		±0.15	±0.15	lx	ly			±0.1			
SLW-XY-ESJ-1040	74	48	60	60	118	118	1.5	22	11	6.6	M8	6.4

Dimensions [mm]

Part number	sg	d	T	l1	d1	d1	l2	d2	d2	ha1	ha2	W
					Standard	Alternativ		Standard	Alternativ			ha2–ha1
SLW-XY-ESJ-1040	M6	10	TR 10 x 2	17	TR 10 x 2	6 h9	17	TR 10 x 2	6 h9	14.5	33.5	19

The hand wheel on the y-axis can be ordered fitted to the left or the right side.
Left: SHT-XY-ESJ-1040-AWM-L-200-300 for 200 mm stroke length on the x-axis and 300 mm on the y-axis
Right: SHT-XY-ESJ-1040-AWM-R-200-300 for 200 mm stroke length on the x-axis and 300 mm on the y-axis

delivery time 8–14 days

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SLW-XY-ESJ-1040

DryLin® SHT | Product Overview | Accessories

Position Indicator

▶ page 923

- Plastic digital indicator for adjustment and direct reading of slide position
- 4-digit counter
- Can be combined with leadscrew clamps and hand wheel
- Reduction sleeves included
- Colours: orange (standard), grey and black (optional)

Leadscrew Clamp

▶ page 924

- Shaft clamping flange for attachment to the position indicator and subsequent mounting to the leadscrew
- Provides a mechanical brake to the leadscrew
- Material: plastic housing with aluminum shaft clamp
- Colour: black

Hand wheel

▶ page 924

- Hand wheel: defined standard for complete systems
- Different outer-diameters available
- Different handles available

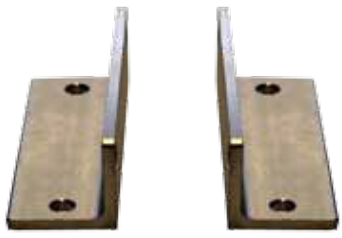
V-drive

▶ page 925

- 360 ° continuously adjustable
- Fixing of setting angle with clamp
- Small flange saves installation space
- Max. torque: 3 Nm
- Can be combined with DryLin® SHT/SHTC/SHTS (sizes 12, 20 and 30)

Angle kit

▶ page 926



- Angle kit for series SHT
- For 3-axis-systems XYZ
- Material: Stainless Steel
- 2 different sizes (12 and 20)
- Can be combined with all DryLin® SHT-linear slide modules series SHT/SHTC/SHTS

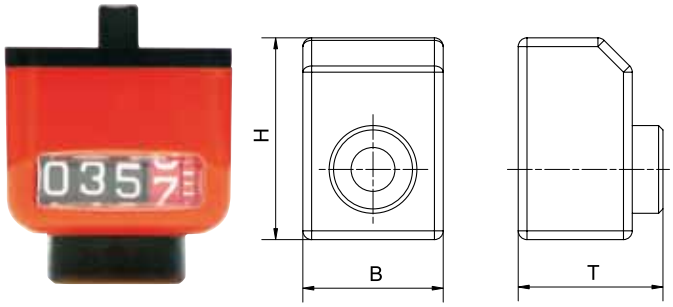
Spacer, Motor flange and coupling

▶ page 942

- Easy installation of stepper motor
- Material: Aluminum, anodized
- For size SHT-12 and SLW-1040

DryLin® SHT | Product Overview | Accessories

Position indicator



- Plastic digital indicator for adjustment and direct reading of slide position
- 4-digit counter (red digit indicates tenths)
- Can be combined with hand clamps and hand wheels
- Reduction sleeves included

Order key

SHT-P3-A-2-DX-O

- Housing colour
  - O = Orange (standard)
- Direction of rotation
  - DX = clockwise
  - SX = anti clockwise
- Pitch
- Display orientation
- Size
- Standard

Installation possibilities

0 degrees | 90 degrees | 180 degrees | 270 degrees

Display orientation

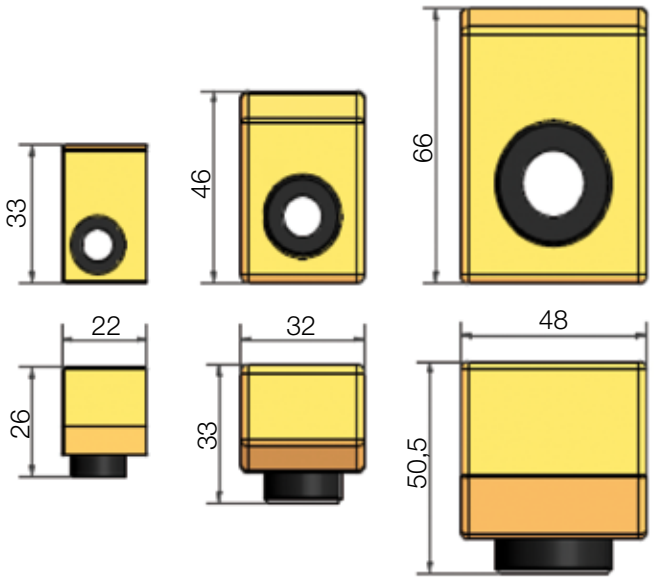
A* — * Standard

B (optional) — for vertical fitting position: display turned 180 °

Dimensions [mm]

Pitch	For leadscrew	Display after 1 rotation
1.25	M8 x 1.25	001.25
2	TR 10 x 2	002.0
3	TR 10 x 3; TR 12 x 3	003.0
4	TR 18 x 4; TR 14 x 4	004.0
5	TR 24 x 5	005.0
12	10 x 12	012.0
50	10 x 50	005.0
100	18 x 100	001.0

The pitch depends on the leadscrew used.



P1
SLW-0630
SHTP-01-06

P3
all other
linear tables

P6
SHTC-40
SHTC-50

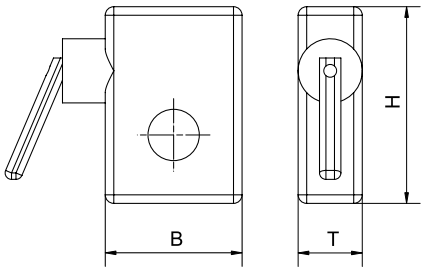
delivery time **2–3 days**

prices **price list online**
www.igus.co.uk/en/DryLinSHT

order example **part number**
SHT-P3-A-2-DX-O

DryLin® SHT | Product Overview | Accessories

Leadscrew clamp



- Shaft clamping flange for attachment to the position indicator and subsequent mounting on the leadscrew
- Provides a mechanical brake to the leadscrew
- Material: plastic housing with aluminum shaft clamp
- Colour: black

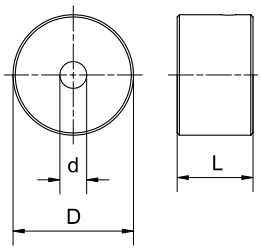
Dimensions [mm]

Part number	SHT-HK-12	SHT-HK-16	SHT-HK-20	SHT-HK-30
Leadscrew	TR 10 x 2	TR 14 x 4	TR 18 x 4	TR 24 x 5
Dimensions (B x H x T)	32 x 46 x 15	32 x 46 x 15	32 x 46 x 15	32 x 46 x 15

Hand wheel

Standard

handle (optional)



- Hand wheel: defined standard for complete systems
- Different handles available
- Different diameters available

Order key

SHT-HR-8-27-17-OG

- Handle (optional)
- OG = without handle
- FG = fixed handle
- UG = stowable handle
- SG = security handle
- Length
- Outer diameter D
- Inner diameter d
- Hand wheel
- Standard

Dimensions [mm]

d	D	L	OG	FG	UG	SG*
8	27	17	●	–	–	–
10	27	17	●	–	–	–
12	42	23	●	–	–	–
14	42	23	●	–	–	–
6	50		–	●	–	–
8	80	75	–	●	●	●
10	80	75	–	●	●	●
12	80	75	–	●	●	●
12	125	109	–	●	●	●
14	125	109	–	●	●	●
18	125	109	–	●	●	●

*** The automatic panning will return on release.**

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/DryLinSHT

order example **part number** SHT-HR-8-27-17-OG

DryLin® SHT | Product Overview | Accessories

SHT-WT V-drive

Order key

SHT-WT-12

- Dimension
- V-drive
- Standard

SHT V-drive

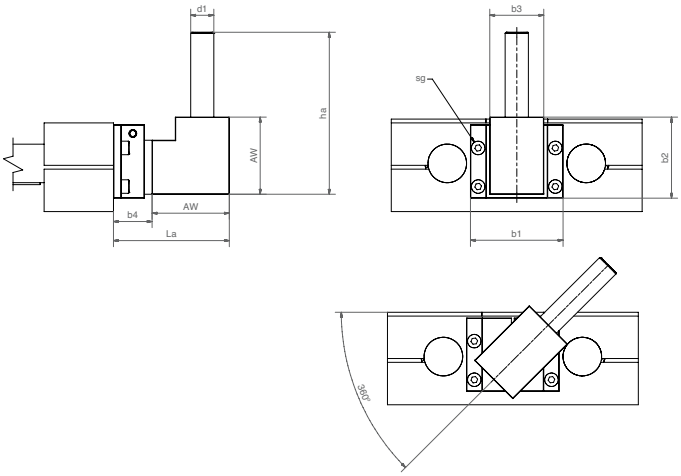
The standard for three dimensions as closed system with aluminum housing.

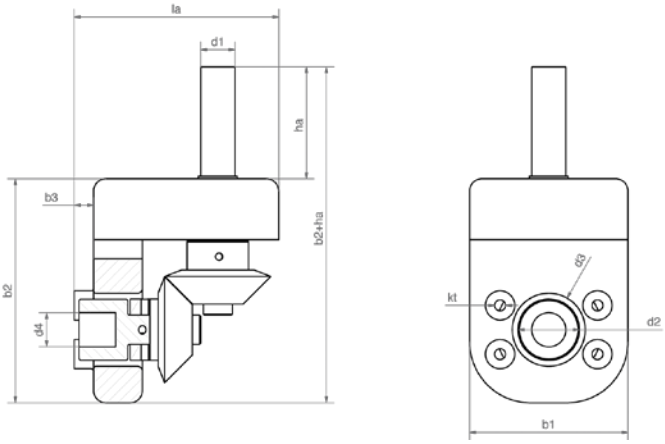
- Suits any application with continuously variable adjustment (can be oscillated 360 °)
- Motor or manual operation
- Max. torque 3 Nm
- Adapter for DryLin® leadscrew clamp and position indicator
- Compatible with DryLin® SHT/SHTC/SHTS (dimensions 12, 20 and 30)

Hygienic Design V-drive

Following the idea of “Hygienic Design” the V-drive is available as maintenance-free and washable stainless steel/ polymer system.

- Lubrication-free
- Max. torque 3 Nm
- Single parts made of stainless steel
- Easy to clean with water
- Compatible with DryLin® SHT/SHTC (dimensions 20 and 30)





Dimensions [mm]

Part number	l	AW	La	b1	b2	b3	b4	ha	d1	sg
SHT-WT-3000	01:01	40	60	48	42	28	20	variable	12	M4

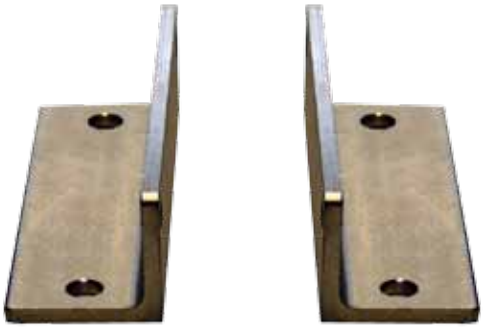
Part number	l	kt	La	b2 + ha	b1	b2	b3	b4	ha	d1	d2	d3	sg
SHT-WT-20-ES-HYD	01:01	45	84	variable	65	92	8	8	variable	14	25	30	14

delivery time 3–8 days

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHT-WT-12

Stainless Steel angle kit for linear slide modules



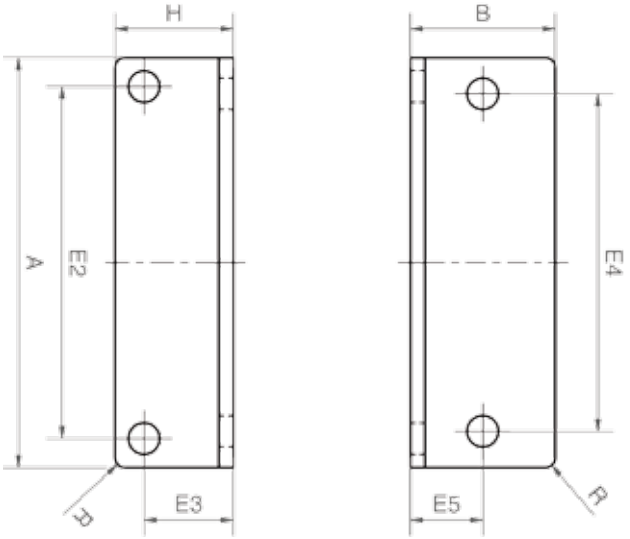
Order key

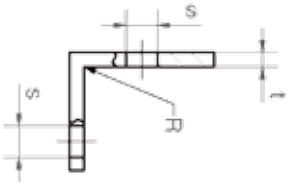
SHT-WS-12

- Dimension
- Angle kit
- Standard

DryLin® SHT-WS is the new angle kit for the SHT linear sliding tables range. Stainless steel angle brackets for the dimensions 12 and 20 make any combination possible.

- Two different sizes
- Can be combined with all DryLin® linear slide tables SHT/SHTC/SHTS in the dimensions 12 and 20





Dimensions [mm]

Part number	A	H	B	E2	E3	E4	E5	s	t
SHT-WS-12	85	26.5	30	73	20.5	70	15	6.5	3
SHT-WS-20	130	36	35	108	18	115	35	8.5	5

delivery time 2–3 days

prices price list online www.igus.co.uk/en/DryLinSHT

order example part number SHT-WS-12

My Sketches

DryLin® ZLW | Product Overview | Belt Drive

The use of polymer plain bearings on all moving parts makes the toothed belt drive 100 % free of maintenance and lubricants. The avoidance of lubricants means a high insensitivity to dirt as particles do not get stuck on the moving parts. Consequently this drive is a robust solution for many applications. You can choose which type according to the application area and requirement:

Basic series

"Basic" is the designation of the low-priced option of the toothed belt axis. A black neoprene belt with glass fibre reinforcement is used. The toothed belt is supported at each end by a square stainless steel and polymer drive shaft running in two deep grooved ball bearings.

Standard series

The lubricant-free linear guide is also driven by a toothed belt made of polyurethane (white) with steel cable. Deflection shaft and drive pulley – single-piece – are made of plated steel or stainless steel. The pulley shafts are mounted in two grooved ball bearings.

ZLW-0630 – Belt drive axis

The DryLin® ZLW-0630 toothed belt axis is the ideal solution for easy adjustment and positioning tasks in confined spaces. The installation height is only 31 mm. The stroke length is variable (maximum 1,000 mm).
DryLin® ZLW-0630 is available in the "Basic 02" and "Standard 02" type series.

▶ **from page 930**

ZLW-1040 – Belt drive axis

The DryLin® ZLW-1040 toothed belt axis is the ideal solution for many positioning tasks. The installation height is only 45 mm. The stroke length is variable (maximum 2,000 mm). The carriage is available In 3 lengths.
DryLin® ZLW-1040 is available in the "Basic 02" and "Standard 02" type series.

▶ **from page 932**

ZLW-OD – opposite belt drive axis

Belt drive for quick reverse positioning.

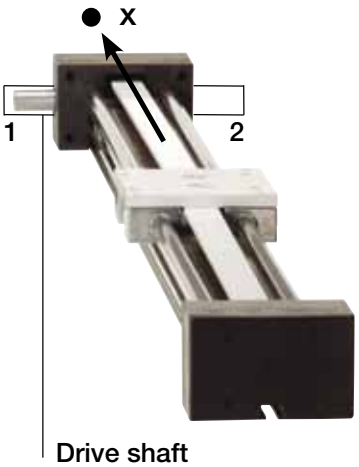
- Fast right/left adjustment
- Compact and light
- Lubrication-free

▶ **page 934**

ZAW – Cantilever axis

- Drive unit firmly mounted, only profile and load are moved
- Hard-anodized aluminum axis profile
- Absolutely lubricant-free and corrosion resistant
- Low weight
- up to 50 N axial load

▶ **page 936**



Determination of the position of the drive shaft (right or left), in the line of vision x!
1 = drive shaft left
2 = drive shaft right
x = in the line of vision of drive shaft

DryLin® ZLW | Technical Data | Belt Drive

Technical Data

ZLW-0630	Weight without stroke [kg]	Weight mm stroke 100 [kg]	Max. length of stroke [mm]	Trans-mission [mm/rev]	Tooth profile	Belt drive -material	-width [mm]	-tension [N]
Basic 02	0.38	0.08	1,000	54	HTD 3M	Neopren with GF	9	75
Standard 02	0.43	0.08	1,000	54	MTD3	PU with steel	9	100

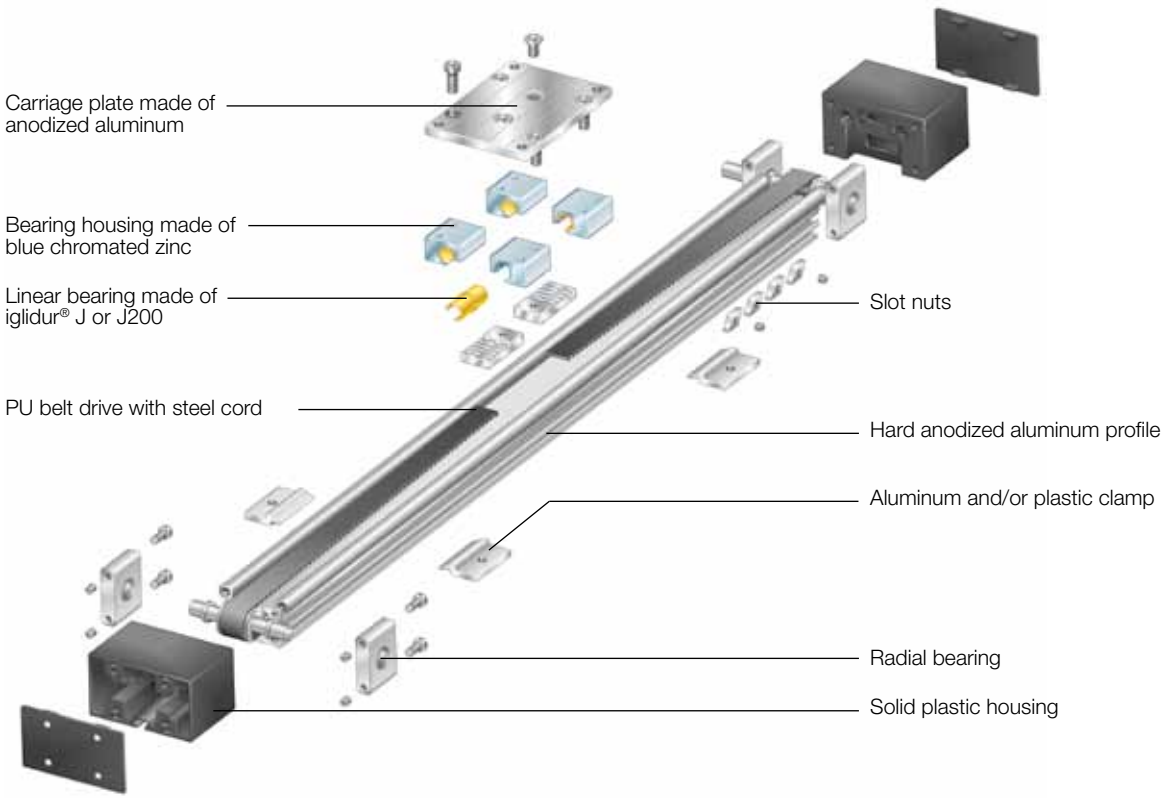
	Max. radial stress [N]	Pulley bearing	Maximum speed [m/s]	Max. position accuracy** [mm]
Basic 02	100	ball bearing	2	±0.35
Standard 02	150	ball bearing	2	±0.3

ZLW-1040	Weight without stroke [kg]	Weight mm stroke 100 [kg]	Max. length of stroke [mm]	Trans-mission [mm/rev]	Tooth profile	Belt drive -material	-width [mm]	-tension [N]
Basic 02	0.9	0.14	2,000	66	RPP 3M	Neopren with GF	15	150
Standard 02	1.0	0.14	2,000	70	AT5	PU with steel	16	200

	Max. radial stress [N]	Pulley bearing	Maximum speed [m/s]	Max. position accuracy** [mm]
Basic 02	200	ball bearing	3	±0.3
Standard 02	300	ball bearing	5	±0.2

* **Longer stroke lengths on request.**

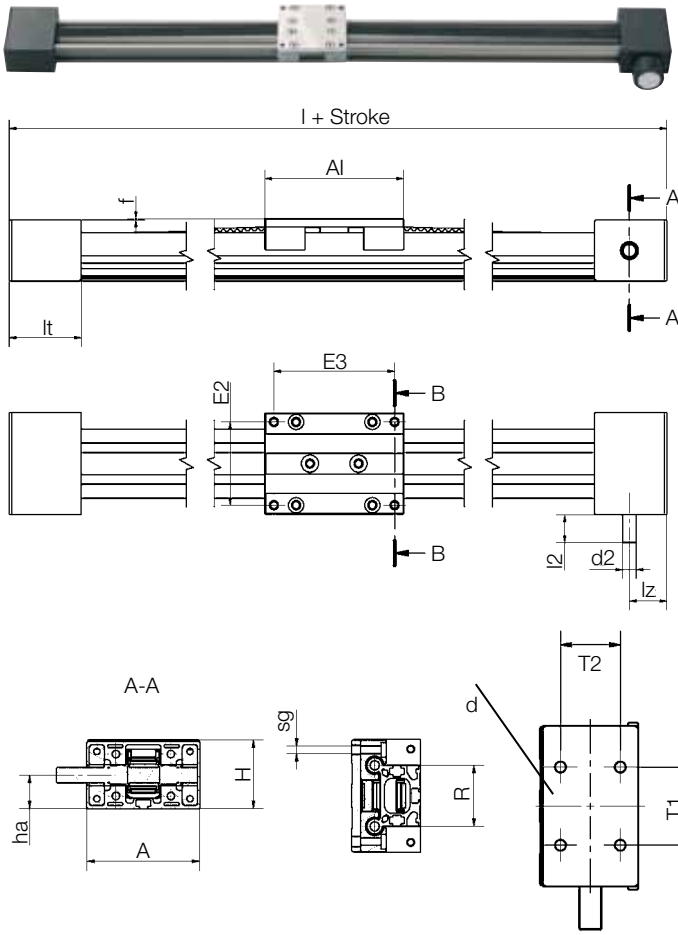
** **These values were measured with maximum load in horizontal orientation**



DryLin® ZLW | Product Range | Belt drive

ZLW 0630 – Belt drive axis

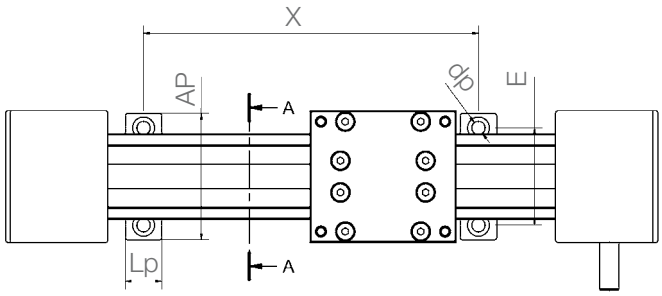
The DryLin® ZLW-0630 Belt Drive is the perfect solution for easy positioning in limited design space. The overall height is only 31 mm, the stroke length is variable up to 1,000 mm (longer strokes potentially possible on request).
DryLin® ZLW-0630 is available as “Basic 02” and “Standard 02”.



Order key

ZLW-0630-02-B-60-L-xxx

- Stroke length in mm
- L = Drive shaft left
- R = Drive shaft right
- L/R = Drive shaft both sides
- Length of carriage in mm, 60 mm (100 mm optional)
- S: Type standard
- B: Type basic
- Version 02 with deep-groove ball bearings
- Size 0630
- Belt drive axis



Core hole for M4 metric thread or self-tapping plastic screws (not included in delivery).

Dimensions [mm]

Part number	A	Al	H	E2	l	hc	E3	R	f	lt	sg	ha	lz	l2	d2*
	–0.3			±0.15			±0.15	±0.15		±0.3					
ZLW-0630-02-…	54	60	31	45	144	13.5	51	30	3	42	M4	14	22	20	8

*** Basic version: 6 mm square, plastic adapter for pin diameter 10 mm included**

Dimensions [mm]

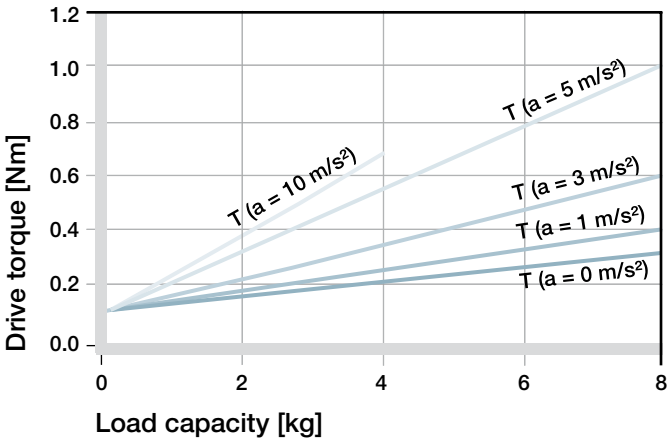
Part number	X	E	AP	LP	dp	n	nb	nw	nh	T1	T2	d
Connecting dimensions		±0.2	–1.0							±0.25	±0.25	
ZLW-0630-02-…	variable	40	52	15	5.5	5.2	9.5	4.3	7	20	21	3.2

delivery time **2–3 days**

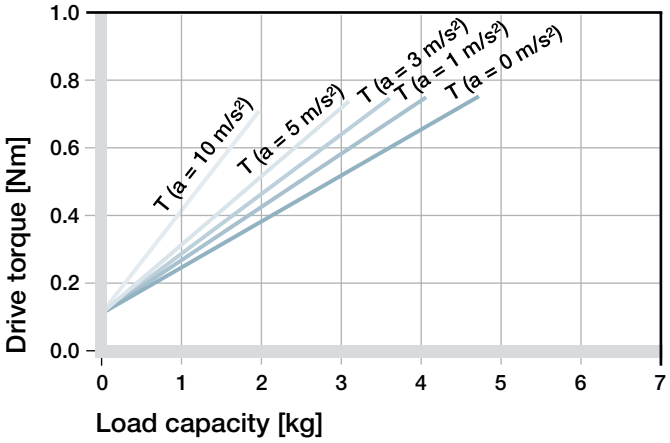
prices **price list online** www.igus.co.uk/en/DryLinZLW

order example part number **ZLW-0630-02-…**

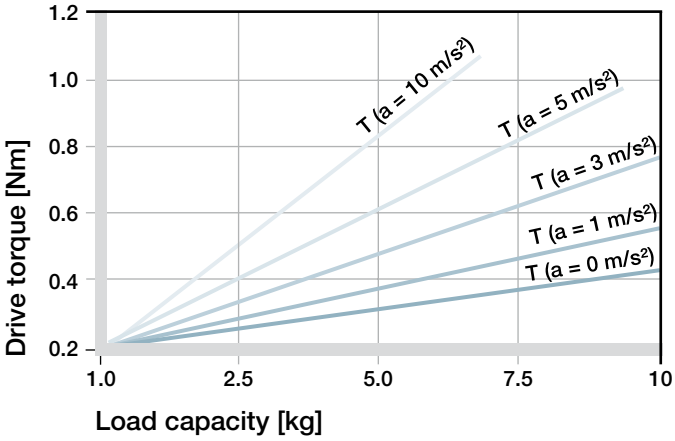
DryLin® ZLW | Technical Information



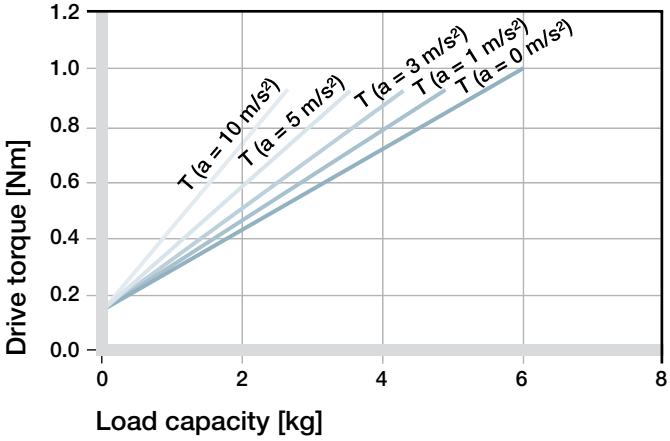
Graph 01: Required drive torque*; horizontal orientation – ZLW-0630, Version basic 02



Graph 02: Required drive torque*; vertical orientation – ZLW-0630, Version basic 02

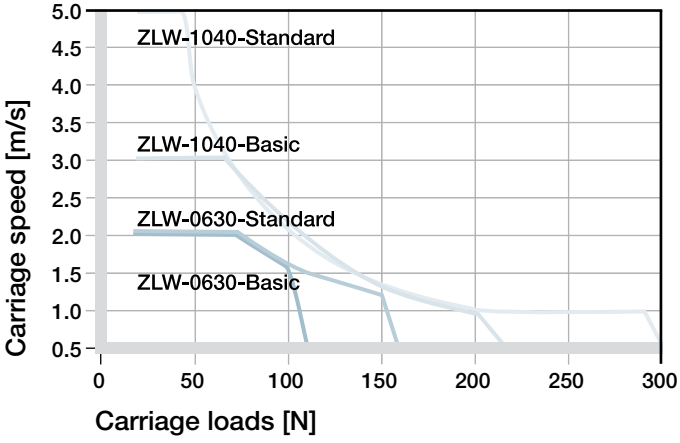


Graph 03: Required drive torque*; horizontal orientation – ZLW-0630, Version standard 02

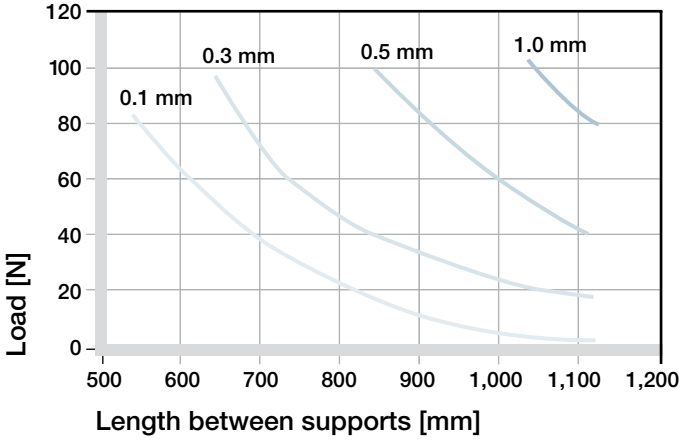


Graph 04: Required drive torque*; vertical orientation – ZLW-0630, Version standard 02

* Assumption: The moving mass is located in a circumscribed circle with a max. R = 100 mm to the middle of the guiding rail, max. permissable torque ZLW-0630 Basic 02: 0.75 Nm, a = 0 m/s² , ZLW-0630 Standard 02: 1 Nm, a = 0 m/s², constant drive without nominal acceleration value



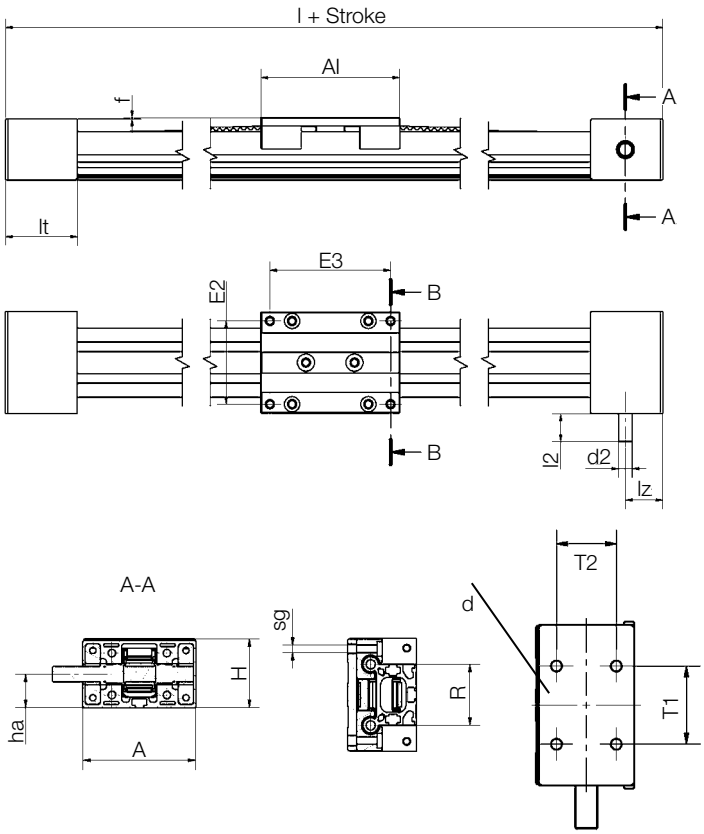
Graph 05: Maximum load compared: ZLW-0630 and ZLW-1040, 100 % OT (On-time). The graph accounts for the sum of all forces active on the carriage.



Graph 06: Sag between unsupported end blocks ZLW-0630, Version basic 02 and standard 02. Sag permissible up to 2 mm maximum.

ZLW 1040 – Belt drive axis

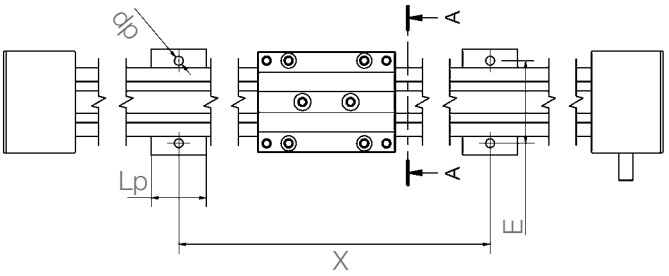
The DryLin® ZLW-1040 belt drive is the perfect solution for high speed positioning applications. The overall height is only 45 mm. The stroke length is variable (up to 2,000 mm). The carriage is available in three lengths. DryLin® ZLW-1040 is available as “Basic 02” and “Standard 02”.



Order key

ZLW-1040-02-B-100-L-xxx

- Stroke length in mm
- L = Drive shaft left
- R = Drive shaft right
- L/R = Drive shaft both sides
- Length of carriage in mm, 60 mm (100 mm optional)
- S: Type standard
- B: Type basic
- Version 02 with deep-groove ball bearings
- Size 0630
- Belt drive axis



Core hole for M4 metric thread or self-tapping plastic screws (not included in delivery).

Dimensions [mm]

Part number	A	Al	H	E2	l	hc	E3	R	f	lt	sg	ha	lz	l2	d2*
	–0.3			±0.15			±0.15	±0.15		±0.3					
ZLW-1040-02-…	74	100	45	60	204	22.5	87	40	1	52	M6	22	27	20	10

*** Basic version: 6 mm square, plastic adapter for pin diameter 10 mm included**

Dimensions [mm]

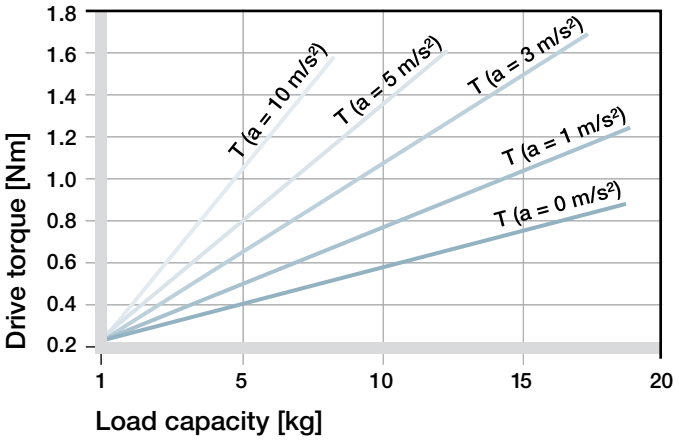
Part number	X	E	AP	LP	dp	n	nb	nw	nh	T1	T2	d
Connecting dimensions		±0.2	–1.0							±0.25	±0.25	
ZLW-1040-02-…	variable	60	78	40	6.4	5.2	9.5	4.3	15.5	36	26.5	5.0

delivery time **2–3 days**

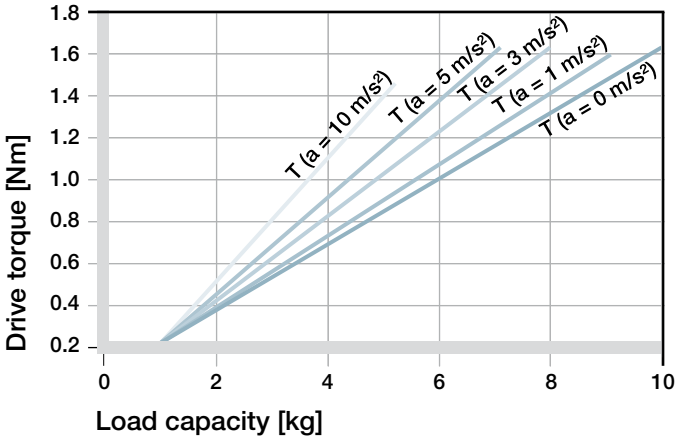
prices **price list online** www.igus.co.uk/en/DryLinZLW

order example **part number ZLW-1040-02…**

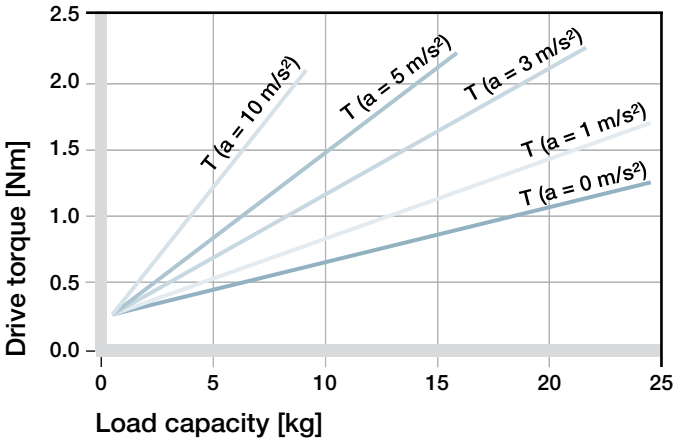
DryLin® ZLW | Product Range | Belt Drive



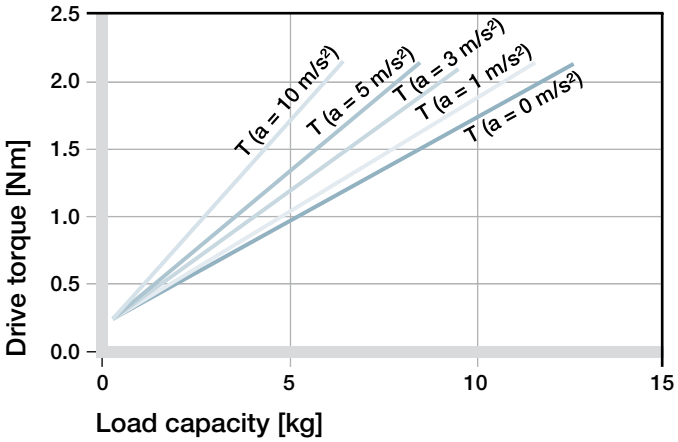
Graph 07: Required drive torque*; horizontal orientation – ZLW-1040, Version basic 02



Graph 08: Required drive torque*; vertical orientation – -ZLW-1040 Version basic 02

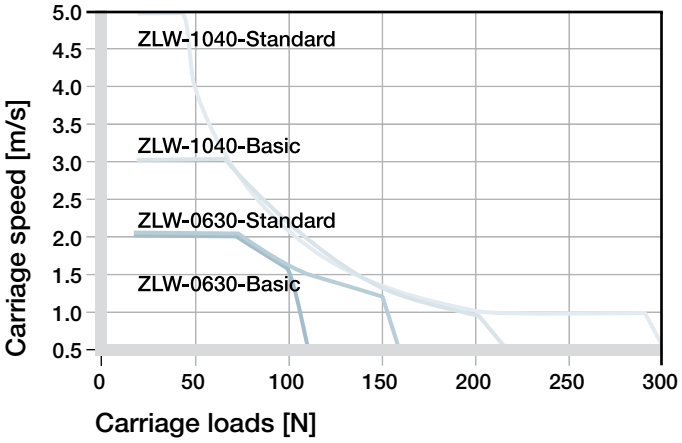


Graph 09:Required drive torque*; horizontal orientation – ZLW-1040, Version standard 02

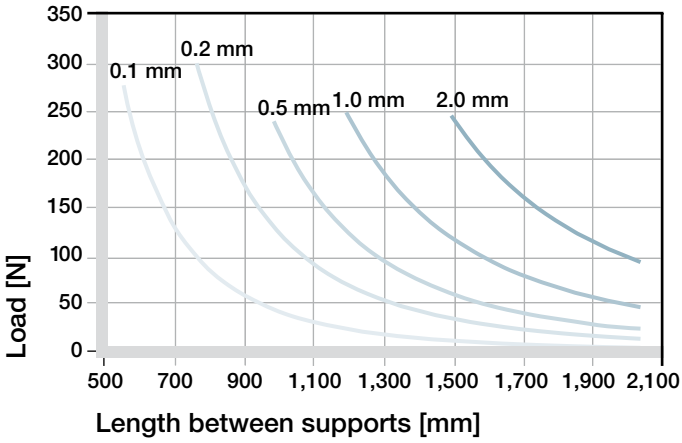


Graph 10: Required drive torque*; vertical orientation – ZLW-1040, Version standard 02

* Assumption: The moving mass is located in a circumscribed circle with a max. R = 100 mm to the middle of the guiding rail, max. permissable torque ZLW-1040 Basic 02: 1.75 Nm, a = 0 m/s2 , ZLW-1040 Standard 02: 2.4 Nm, a = 0 m/s², constant drive without nominal acceleration value



Graph 11: Maximum load compared: ZLW-0630 and ZLW-1040, 100 % OT (On-time). The graph accounts for the sum of all forces active on the carriage.



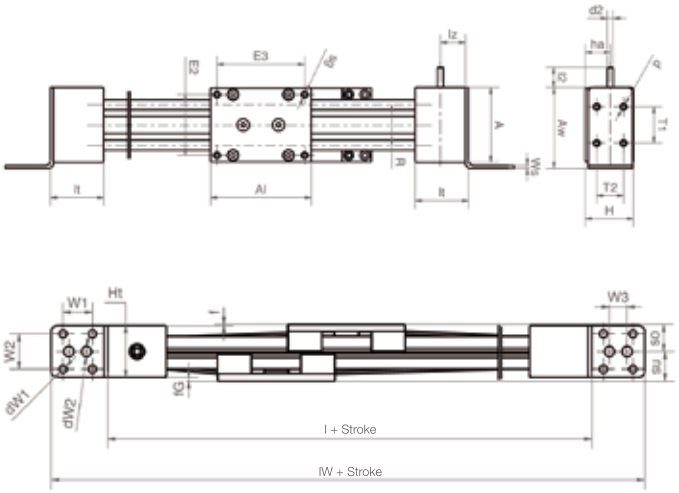
Graph 12: Sag between unsupported end blocks ZLW-1040, Version basic 02 and standard 02. Sag permissible up to 2mm maximum.

NEW in this catalog!

DryLin® ZLW | Product Range | Belt Drive

ZLW-OD – Opposite Drive

- Quick reverse positioning
- Fast right/left adjustment
- Compact and light
- Motor flange for NEMA23 available from stock
- Available as standard and basic version



Order key

ZLW-1040-OD-02-B-100-R-xxx

- Stroke length in mm
- L = Drive shaft left
- R = Drive shaft right
- L/R = Drive shaft both sides
- Length of carriage in mm: Size 1040: 100 mm (optional 150/200 mm); Size 0630: 60 mm (optional 100 mm)
- S: Type standard
- B: Type basic
- Version 02 with deep-groove ball bearings
- opposite drive
- Sizes 1040 and 0630
- Belt drive axis

Dimensions [mm]

Part number	A	Al	H	Ht	E2	E3	l	R	f	fG	lt	sg	ha	l2	d2
	–0.3				±0.15	±0.15		±0.15			±0.3				h9
ZLW-0630-OD*	54	60	31	28	45	51	144	30	3	7	42	M4	14	20	8
ZLW-1040-OD	74	100	45	44	60	87	204	40	1	3	52	M6	22	20	10

Part number	d	SU	SO	T1	T2	lz	WS	W1	W2	W3	dw1	dw2	lW	AW
Connecting dimensions				±0.2	–1.0								±0.25	±0.25
ZLW-0630-OD*	4	21	17	20	21	22	2	20	2	10	5.5	6.6	260	60
ZLW-1040-OD	5	25	23	36	26.5	27	3	25	3	15	6.6	8.8	296	80

*** Basic version: 6 mm square, plastic adapter for pin diameter 10 mm included**

delivery time 2–3 days

prices price list online www.igus.co.uk/en/DryLinZLW

order example part number ZLW-0630-OD

DryLin® ZLW | Product Range | Belt Drive

ZLW-1040 Belt drive – specialists

Version LT for cold storage down to –30 °C
Version UW for under water use

The long established toothed belt drives have been developed for the fast positioning of low loads. The linear units with toothed belt drive are corrosion resistant, light and compact, as well as having a low mass inertia due to low deadweight of guide and sliding carriage.

Order key

ZLW-1040-LT-100-L-x

- Stroke
- Drive shaft
- L = left
- R = right
- Length of carriage
- Application area
- LT = cold storage
- UW = under water
- Size
- Belt drive axis

Technical Data

		Unit	ZLW-1040-LT for cold storage	ZLW-1040-UW for under water use
Weight without stroke		kg	1.0	1.0
Weight 100 mm stroke		mm	0.14	0.14
Max. length of stroke		mm	2,000	1,000
Transmission		mm/rev	70	70
Gear teeth			AT 5	AT 5
Belt drive	-material		TPUKF2	PU + stainless steel reinforcment
	-width	mm	16	16
	-tension	N	200	50
Max. radial load		N	300	100
Guide bearing			steel ball bearing	xiros® ball bearing
Max. speed		m/s	5	1
position variants of carriage, load dependent		mm	±0.2	±0.5

Dimensions [mm]

Part number	x	E	AP	LP	dp	n	nb	nw	nh	T1	T2	d
Connecting dimensions		±0.2	–1.0							±0.25	±0.25	
ZLW-1040-LT-100-L-x	variable	60	78	40	6.4	5.2	9.5	4.3	15.5	36	26.5	5.0

DryLin® ZLW | Product Range | Belt Drive

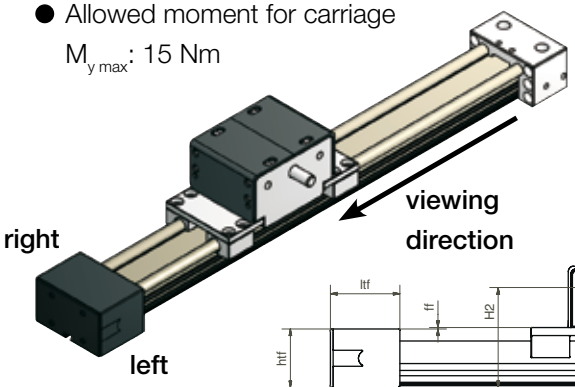
ZAW – Cantilever axis

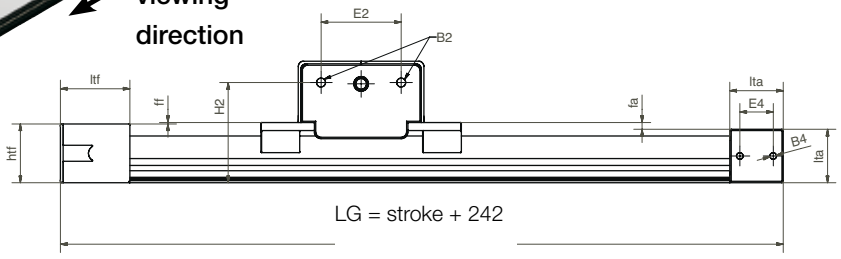
- Drive unit firmly mounted, only profile and load are moved
- Hard-anodized aluminum axis profile
- Totally lubricant-free and corrosion-resistant
- Low weight
- Max. stroke: 750 mm
- Max. axial load 50 N
- Available as standard version
- Allowed moment for carriage $M_{y\,max}$: 15 Nm

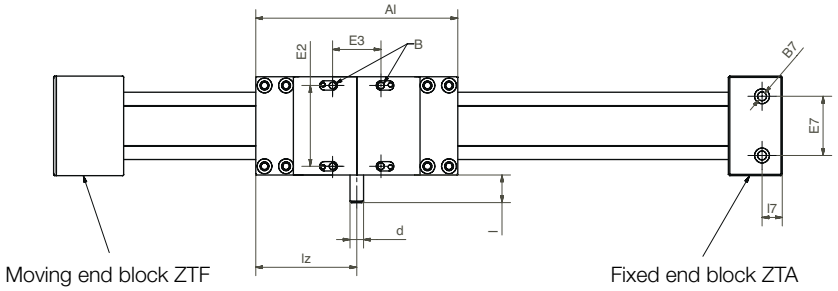
Order key

ZAW-1040-02-S-150-L-xxx

- Stroke length in mm
- L = drive shaft left
- R = drive shaft right
- L/R = drive shaft both-sides
- Length of carriage in mm
- S: Size Standard
- Version 02 with deep-groove ball bearings
- Size 1040
- Cantilever axis







Dimensions [mm]

Part number	A	H	LG	Al	ha	d	l	lz	E2	E3
	–0.3		Stroke	±0.3	±0.1	h9	+1		±0.15	±0.15
ZAW-1040	74	91	242	150	74	10	20	75	60	60

Part number	B	B2	htf	ltf	ff	fa	lta	E4	B4	E5	E6
Connecting dimensions	–0.3		Stroke	±0.3	±0.1	h9	±0.1		±0.15	±0.15	
ZAW-1040	M6	M8	44	52	2	5	40	25	M6	26	62

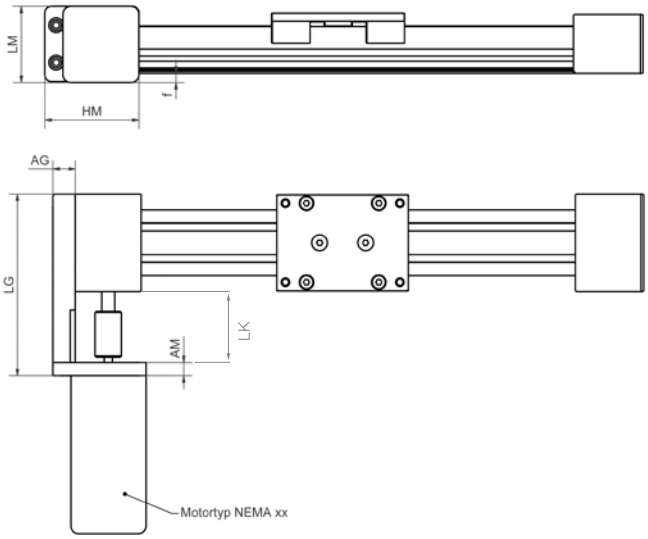
delivery time 8–14 days

prices price list online www.igus.co.uk/en/DryLinZLW

order example part number ZAW-1040

DryLin® ZLW | Product Range | Accessories

ZLW – NEMA motor flange, standard



- 2 lengths of base plate for every NEMA motor flange, others on request
- S-design (short) compatible to igus® coupling

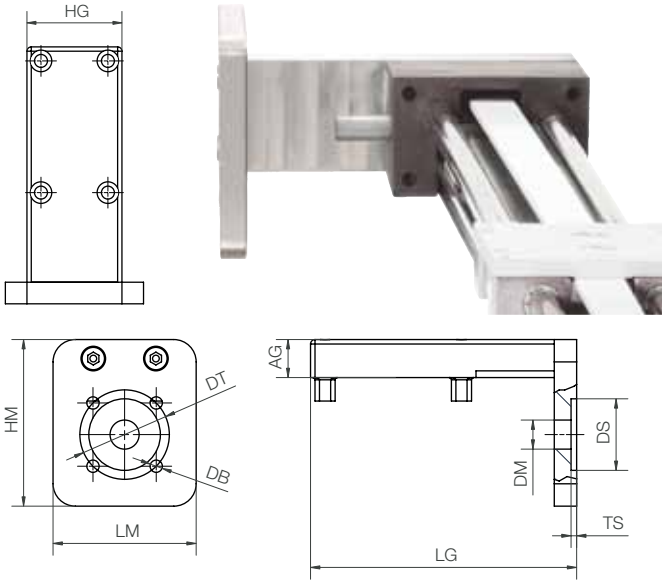
Accessories: Coupling ▶ page 942

Dimensions [mm]

Part number	Base plate				Motor flange		
	AG	LG	LK	AM	HM	LM	f
MF-0630-NEMA23-S	12	99.5	35.5	10	59	56	17
MF-0630-NEMA23-L	12	110.5	46.5	10	59	56	17
MF-1040-NEMA23-S	17	119	35	10	70.7	56.4	7
MF-1040-NEMA23-L	17	138	54	10	70.7	56.4	7
MF-1040-NEMA34-S	17	119	35	10	85	85	20.5
MF-1040-NEMA34-L	17	138	54	10	85	85	20.5

ZLW – Motor flange, individual

The motor flange can be fastened onto the end block with four screws.
Material: Aluminum.



Suitable for	Part number	Base plate			Motor mounting plate						
		LG	HG	AG	HM	LM	DT	DM	DS	TS	DB
ZLW-1040	MF-1040-xx	138	44	17	_____*	_____*	_____*	_____*	_____*	_____*	_____*
ZLW-0630	MF-0630-xx	110.5	28	12	_____*	_____*	_____*	_____*	_____*	_____*	_____*

*** Please request individual values for each motor type**

delivery time 2–3 days

prices price list online www.igus.co.uk/en/DryLinZLW

order example part number MF-0630-NEMA23

DryLin® ZLW | Product Range | Accessories

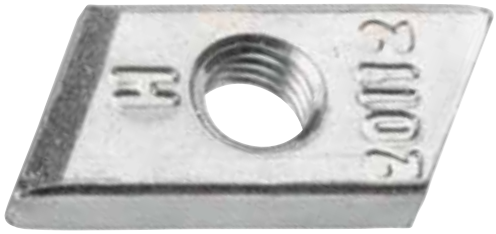
The DryLin® ZLW belt drive can be mounted in different ways (clamp and slot nuts included in delivery):
The orientation of the drive is optional. Overhead installation is the best option against contamination.
Directions for installation: The end blocks should not be used as a mechanical stop under any circumstances. A buffer length is to be provided on both sides which corresponds to at least one revolution of the drive shaft The safety distance provided at both sides of the guide carriage can be reduced provided that it is ensured that the housings of the drive and end blocks do not collide with the mechanical parts.
The igus® staff would be pleased to provide you with more information on the fastening and connecting of the belt drive.

1. Clamps: Clamps offer an easy fitting of the axis, among other things, on aluminum profiles.
2. Slot nuts: Slot nuts enable the installation in 3 sides (1040: left, right, below) or 2 sides (0630: left, right) as well as the fitting of sensors and proximity switches for the positioning.
3. Screw connection: Threaded bores for screws are loacted at the ends of the shaft supports.

Clamp

4 pieces included in delivery:
Part number 75.40ZLW
(Size 1040)
Part number ZTZ-063006 (Size 0630)

Slot nuts



8 pieces, 4 for each side, included in delivery:
Part number NOR-20602

Screw connection

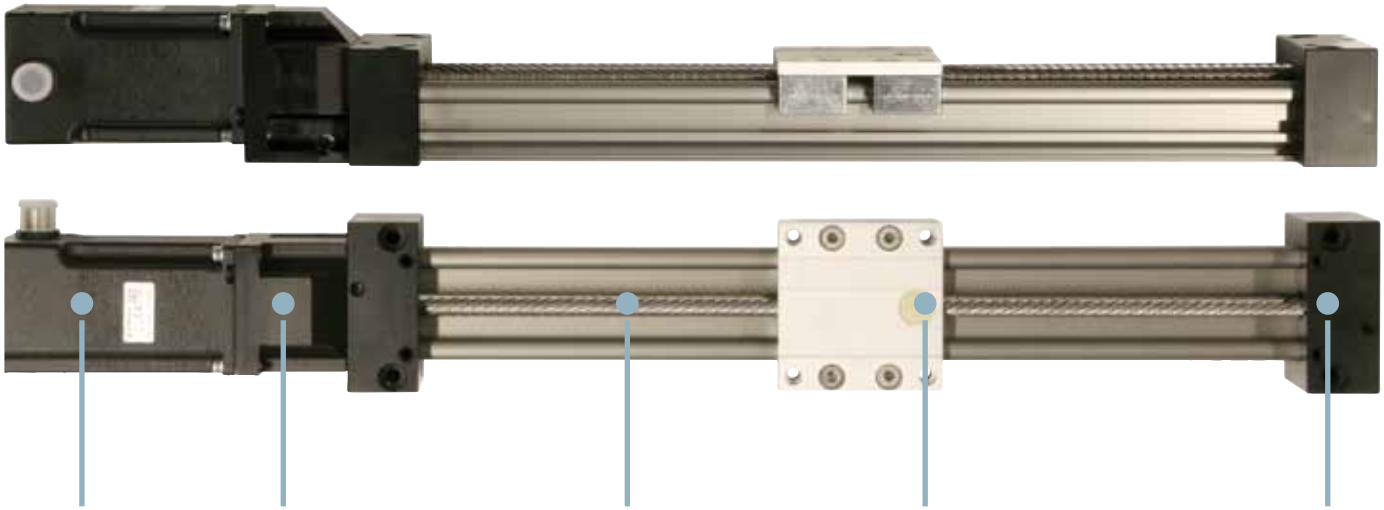
4 x M6/M4 (optional)

DryLin® SHT | Technical Data | Ready-to-use

SAW – Ready to use with stepper-motor

Ready-to-use linear actuators for your stepper motro type NEMA-23 from different manufacturers (Berger Lahr, Festo, Gunda, Oriental, Sanyo Denki etc.). Completely lubrication-free!

- Leadscrew with ball bearing
- Pitch 2mm, 3mm, 12mm or 50 mm per revolution
- Compact design, low weight, high stability
- Ready for assembly, with motor flange and coupling
- Optional: with adjustable linear bearings and clearance-free preloaded carriage
- Right-handed leadscrew is standard, left- or opposed-drive also available



Stepper motor (optional)

Motor flange and Coupling

Trapezoidal thread 10 x 2, 10 x 3 High helix thread 10 x 12, 10 x 50

Nut and linear bearing made of iglidur® J, lubrication-free

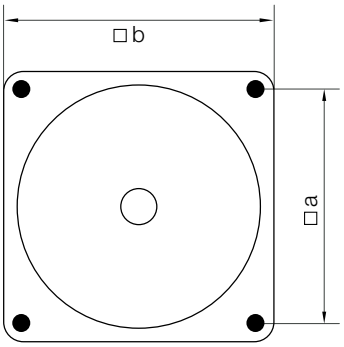
Ball bearing

Additional infos for motors:

Stepper motors are a good option for DryLin® linear axes, being cost effective, precise, and easy to control. They operate reliably in a variety of environmental conditions (depending on the chosen degree of protection IP). The NEMA standard guarantees good availability worldwide.

Dimensions [mm]

NEMA size	Flange width □ b	Hole spacing □ a
8	20.00	16.00
11	28.00	23.00
14	35.00	26.00
17	42.00	31.00
23	56.40	47.14
34	86.00	69.50



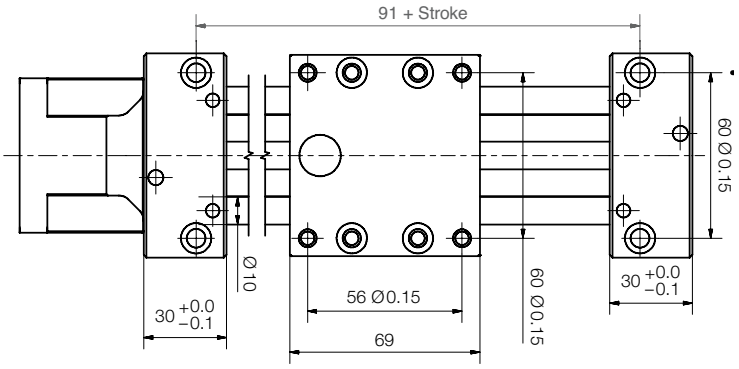
NEMA refers exclusively to the connecting dimensions of the step motors! Exact values can be found from the relevant motor data sheets.

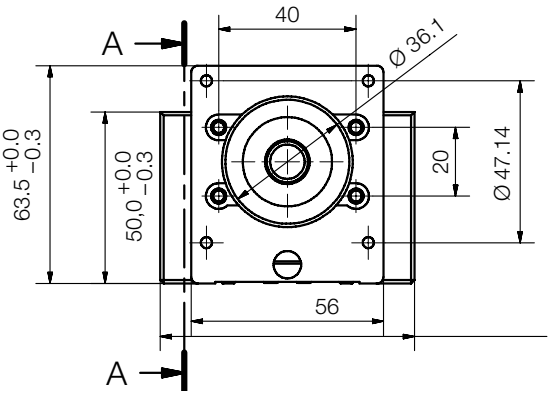
NEW in this catalog!

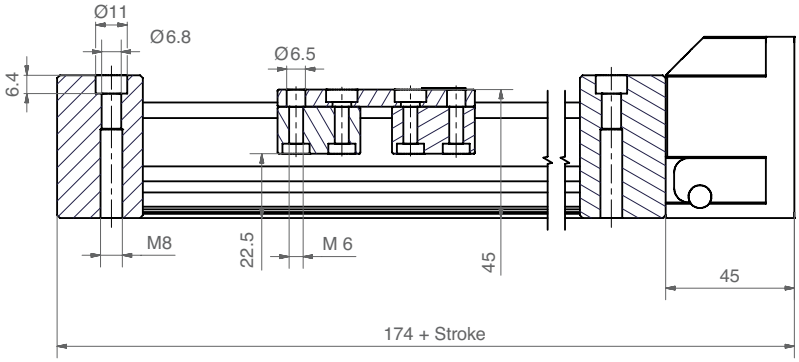
DryLin® SHT | Product Range | Ready-to-use

SAW – ready to use with stepper-motor

Accessories: Flange and coupling
▶ page 940







Dimensions [mm]

Part number	Max. length of stroke	Max. rotation speed [rpm]	Max. static load-bearing capacity axial [N]	Max. static load-bearing capacity radial [N]	Design
SAW-1040	750	1,500	700	2,800	Standard linear bearing with lubrication-free iglidur® J-liner
SAW-1040-E	750	1,500	700	2,800	Additional with manual adjustable linear bearings (Turn-To-Fit)

*** depending on load, stroke length and pitch**

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/DryLinSHT

order example **part number SAW-1040-Stroke**

DryLin® SHT | Order key

Order key:

SAW-1040-EPL-07-S 0020 R G-750

Stroke length in mm

Leadscrew identification

G: Threaded (TR 10 x 2)
Z: Plain shaft (6 h9)
R: Right-hand thread
L: Left-hand thread
0020: TR 10 x 2 mm (Steel- and stainless steel)
0030: TR 10 x 3 mm (Steel- and stainless steel)
0120: SG 10 x 12 mm (Stainless steel)
0500: SG 10 x 50 mm (Stainless steel)
S: Steel leadscrew
E: Stainless steel leadscrew

Carriage length in mm

07: 69 mm (Standard)
10: 100 mm
15: 150 mm

Version

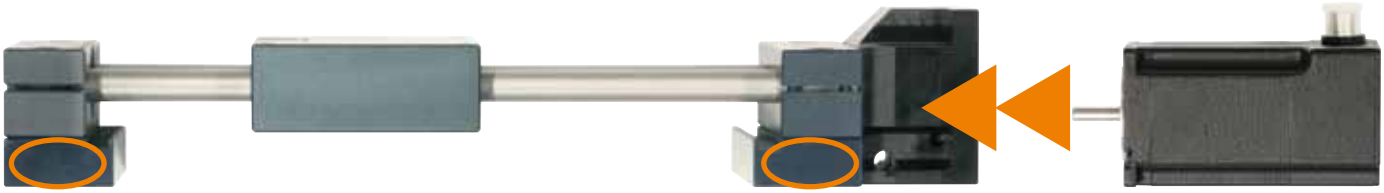
E: Adjustable linear guides
PL: Clearance-free preload carriage (50N)
EPL: Adjustable linear guides and clearance-free preload carriage (50N)

Size 1040

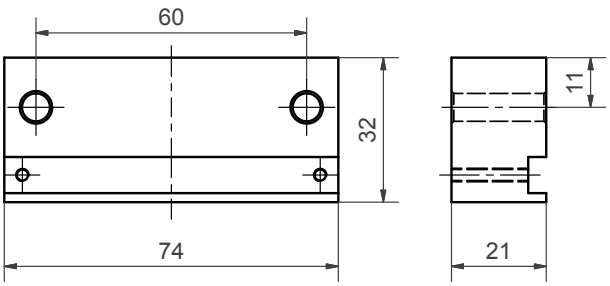
Typ SAW – Ready-to-use linear actuator

NEW in this catalog!

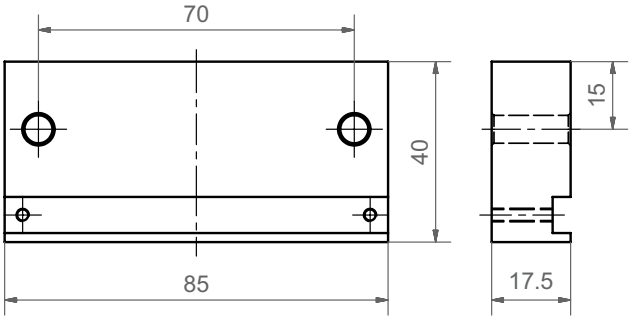
DryLin® SHT | Product Range | Accessories



The **spacer** is a distance unit which levels the linear unit to the correct height for use with your NEMA23 motor. These can be retro-fitted to existing units.



STY-104001



STY-121001

Part number	For linear unit	Motor type	Material
STY-104001	SLW-1040 | SLWE-1040	NEMA23	Aluminum, clear anodized
STY-121001	SHT-12 | SHTC-12 | SHT-12-PL | SHTS-12	NEMA23	Aluminum, blue-grey anodized

The **motor flange** incorporates the the coupling and offers the correct mating dimensions for your NEMA23 motor.

Part number	For linear unit	Motor type	Material
MF-2040-NEMA23	SAW-1040 | SLW-1040 | SLWE-1040 | SHT-12 | SHTC-12 | SHT-12-PL | SHTS-12	NEMA23	Aluminum, black anodized

The **coupling** connects the leadscrew and the drive shaft of the motor and transfers the torque. Elastic elements prevent tensioning between the components.

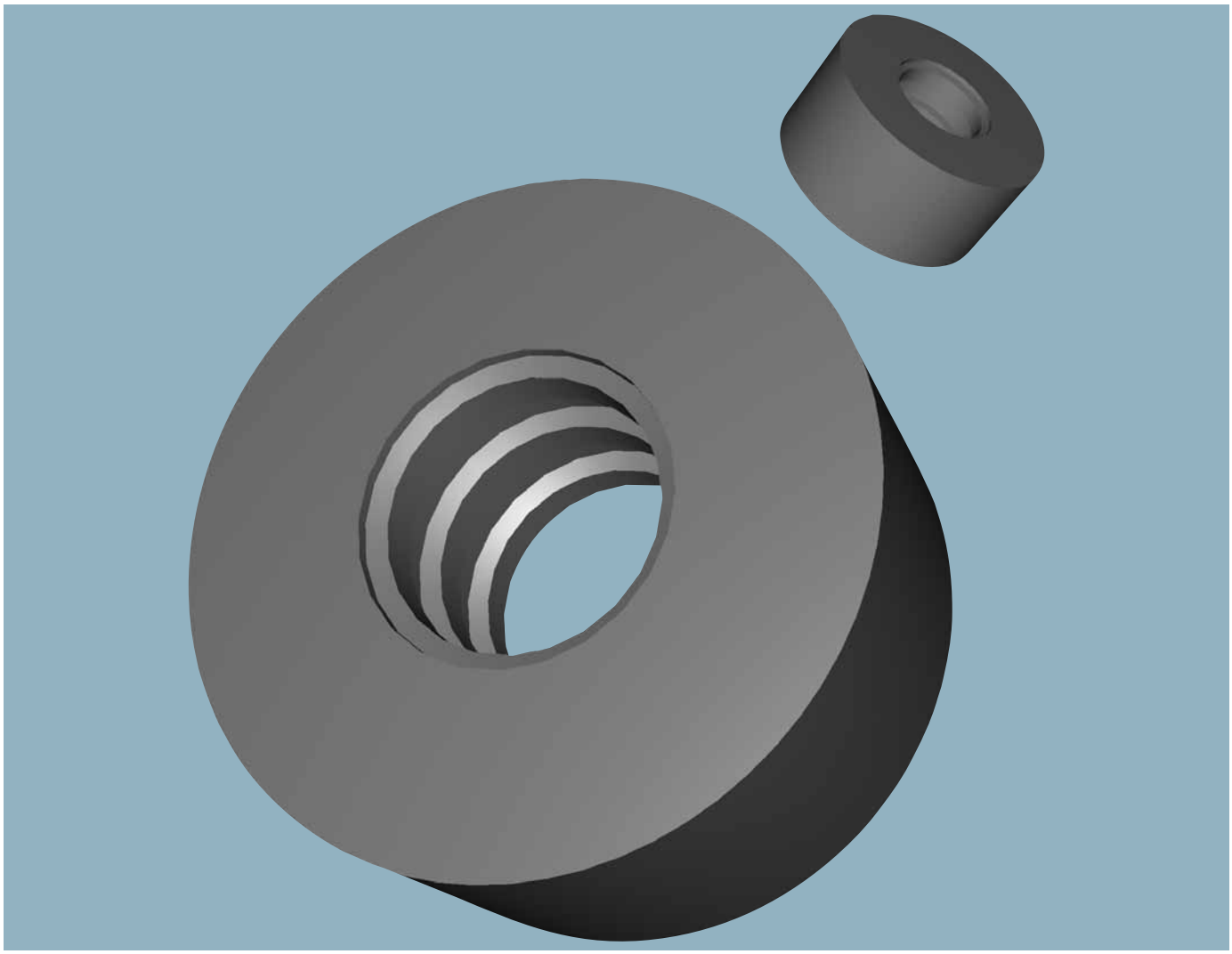
Part number	Motor type	Ø Motor journal	Ø Outer dimension [mm]	From stock available Inner-Ø [mm]	Length [mm]
COU-AR-K-...	NEMA23	please name	32	5/6.35/8/10/12/14	32

more dimensions on request

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/DryLinSHT

order example **part number STY-104001**



DryLin® TR Lead Screw Drives

- Maintenance free, dry running, low noise
- Insensitivity to dirt
- Corrosion-free
- Trapezoidal and high helix thread
- Excellent emergency running properties
- Anti-Backlash option
- FDA-compliance possible

DryLin® TR | Linear Screw Drives

Screw drives are machine components that convert a rotary motion into a linear motion. DryLin® screw drives are always based on self-lubricating plastic nuts and thus enable a life-long operation without external lubrication.

The leadscrew (trapezoidal or high-helix thread) remains dry in operation, and dirt cannot stick to lubricants. This means that DryLin leadscrew drives can be used in extremely contaminated environments as well as in hygienic applications. Classic format adjustments and lifting applications can be implemented with the self-braking trapezoidal threads.

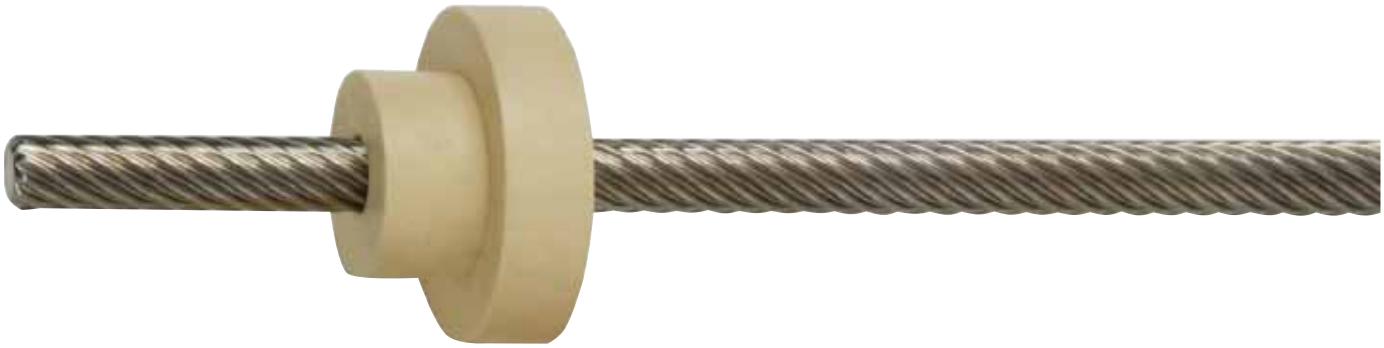
Quick adjustments or handling utilize the high ratio of the high helix thread. All leadscrews are available in steel or stainless steel and are corrosion free in combination with DryLin® threaded nuts made of iglidur® plastics.

Avantages:

- Dry run, without lubrication
- Insensitivity to dirt
- Corrosion-free
- Low noise
- Maintenance-free
- Anti backlash option gives zero clearance operation
- Vibration dampening

When not to use them?

- For required positioning accuracy below 10 µm
- For dynamic high-load applications
- When an efficiency greater than 50 % is required

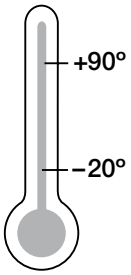


cylindrical

with flange

anti-backlash

Temperature



Product range

20 dimensions
each up to
5 variants of nuts

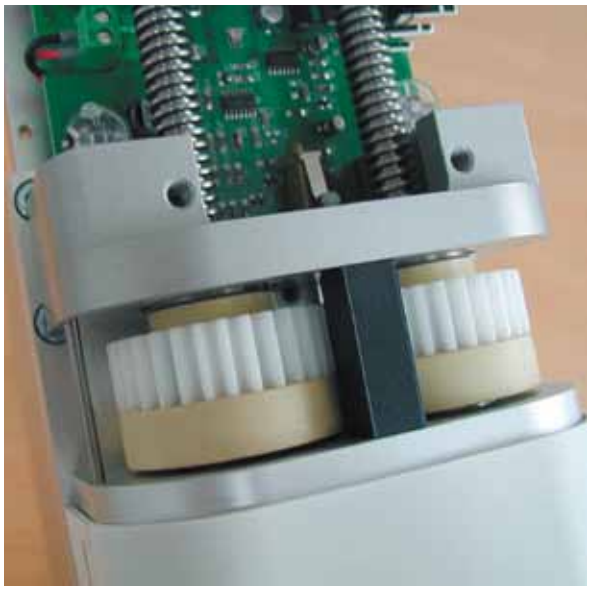
DryLin® TR | Application Examples

Typical sectors of industry and application areas

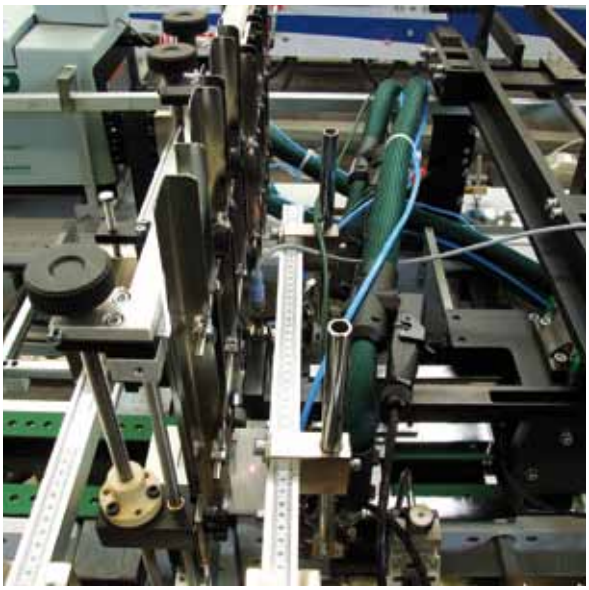
- Lifting gear
- Automotive
- Packaging
- Wood working industry
- Furniture design
- Stone processing
- Traffic engineering
- Format adjustments
- Gears etc.

Improve technology and reduce costs – 170 exciting examples for DryLin® online

▶ www.igus.co.uk/DryLin-applications

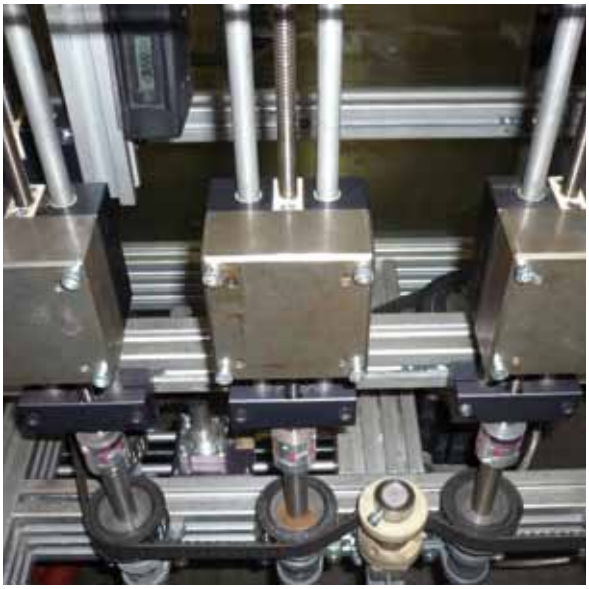


Two-component mixing unit



Adjustment for filling height

Can opener: drive for the height adjustmet



Synchronal height adjustment

DryLin® TR | Technical Data

DryLin® TR leadscrew drives run without maintenance or lubrication on different screw materials, because the nuts are made from iglidur® high-performance Tribo-Polymers. These leadscrew nuts, compared to the nuts requiring maintenance and lubrication, offer substantial advantages especially for the application areas in packaging technology (cleaning) and applications involving high dust formation (textile machines).

Wet Area

For applications in humid environments, especially in wet areas, the trapezoidal leadscrew nuts made of iglidur® J should be used. The iglidur® J material exhibits very low moisture absorption. ▶ iglidur® J, **page 89**

Testing of TR Linear Screw Drives

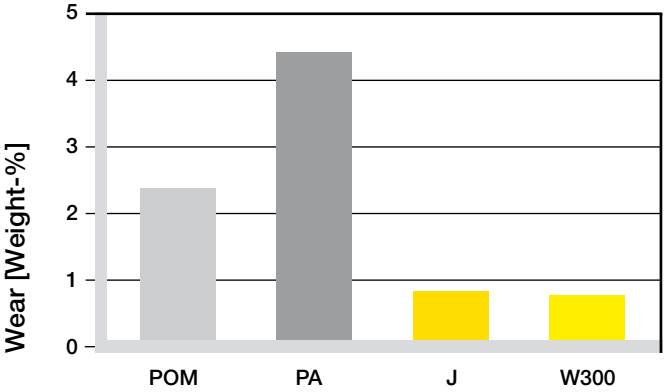
DryLin® TR linear screw drives are manufactured to comply with the DIN 103 standard. The testing takes place by means of a standard thread gage after production. For thread sizes that are not listed in the standard table, DIN 103 is converted to the corresponding size. The hygroscopic and thermal properties of the material are to be considered in the selection. Dimension changes can occur through moisture and/or heat in the application. For these reasons, a general DIN-compliance cannot be guaranteed. The use of plastic trapezoidal leadscrew nuts for precision drive is therefore not recommended without testing first. Please contact igus® technical support to help with the selection of DryLin® leadscrew drives for your application.

Leadscrew Nuts with Flange

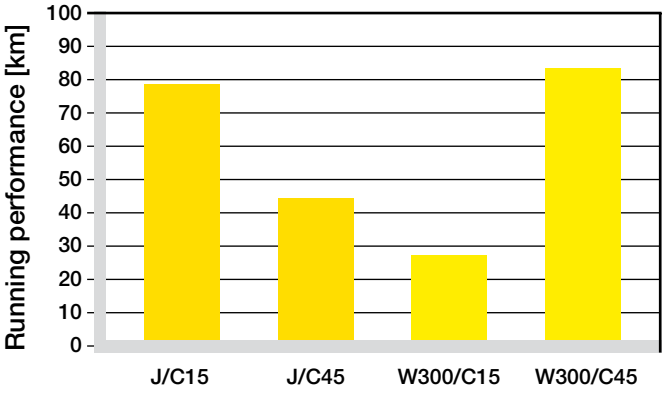
The DryLin® TR flanged leadscrew nuts are fitted with M6 screws, these should be tightened with a torque up to 2.5 Nm. It is recommended that the screws are secured by the use of thread-lock or other means. If a higher torque is required, then metal sleeves should be pressed into the mounting holes.

Leadscrew Selection

As well as the leadscrew nut, the leadscrew itself has an equal influence on the operation and behaviour of the linear system. It is recommended that both the leadscrew nut and the leadscrew are purchased from a single supplier. Leadscrews are tested with thread gauges corresponding to DIN 103. The selection of the leadscrew material depends heavily on the leadscrew nut material. In general, DryLin® TR leadscrew nuts can be used with steel, stainless steel or hard anodized alumnium leadscrew nuts.



Graph 01: Wear test with rolled trapezoidal thread spindle C 15 with 100 N axial load



Graph 02: Wear test with 200 N axial load and 50 % duty cycle

DryLin® TR | Technical Data

Required percentage of surface contact area:

$$A_e = \frac{F_{axial}}{p_{zul.}\ [mm^2]}$$

Selection of the required thread size and determination of the actual surface pressure:

$$p_{eff} = \frac{F_{axial}}{A_{e\ eff}\ [MPa]}$$

Permitted surface speed:

$$V_{slide} = \frac{p \cdot v_{max}}{p_{eff}\ [m/s]}$$

Maximum permitted rotation speed:

$$n = \frac{V_{slide} \cdot 1000 \cdot 60}{\pi \cdot d1\ [1/min]}$$

Feed rate:

$$V_{feed} = \frac{n \cdot P}{60{,}000\ [m/s]}$$

F_{axial}	Axial force
$P_{permitted}$	max. permitted surface pressure 5 MPa (iglidur® W300), max.permitted surface pressure 4 MPa (iglidur® J)
P_{eff}	actual occurring surface pressure for selected size
$A_{e\ eff}$	Percentage of surface contact area of the selected trapezoidal leadscrew nut
P	Lead
d1	Nominal thread diameter

Calculation of trapezoidal thread loads

Trapezoidal Leadscrew Selection

The load capacity of the trapezoidal leadscrew nuts made of high-performance polymers is dependent on the surface pressure, the surface speed and the resultant temperature. The temperature behavior is additionally influenced by the duty cycle as well as the selected leadscrew material and the specific heat conductivity. The surface pressure of the DryLin® trapezoidal leadscrew nuts should not exceed 5 MPa long term.

Reference values when using DryLin® plastic nuts without lubrication (with 300 mm stroke)

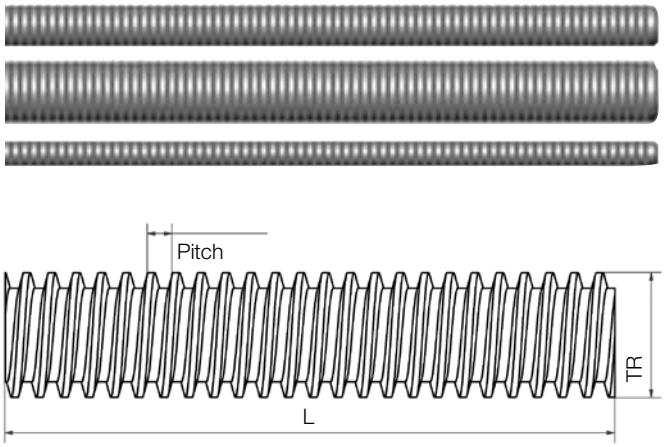
On-time OT	pv-value$_{max.}$ [MPa · m/s]
100 %	0.08
50 %	0.2
10 %	0.3

With the pv value and the surface bearing length ratio specified in the dimension tables, the permissible surface speed and the feed rate can be determined for each thread size.

Technical data	
Nuts	maintenance-free
Materials	iglidur® W300 iglidur® J
Application temperature	–40 °C up to +90 °C

DryLin® TR Linear Screw Drives | Product Range

Trapezoidal leadscrew



Order key

PTGSG-10x2-01-R-ES-1000

- 1000: length
- ES = stainless steel
- Blank = Standard C15
- Thread direction
- R = right
- L = Left
- Number of threads
- Pitch
- Diameter
- PTGSG: Precision Trapezoidal leadscrew

Dimensions [mm]

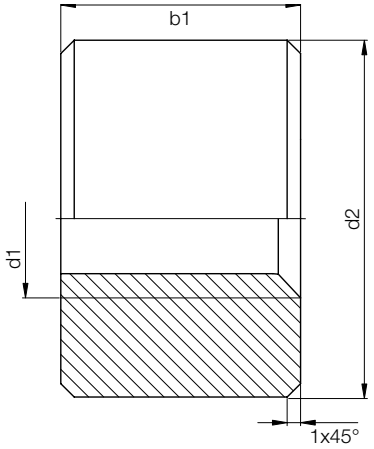
Part number	Thread	Diameter	Pitch	Max. length
PTGSG-08x1.5-R or -L*	8 x 1.5	8	1.5	1,000
PTGSG-10x2-R or -L	10 x 2	10	2	1,000
PTGSG-10x3-R or -L	10 x 3	10	3	1,000
PTGSG-12x3-R or -L	12 x 3	12	3	2,000
PTGSG-14x4-R or -L	14 x 4	14	4	3,000
PTGSG-16x4-R or -L	16 x 4	16	4	3,000
PTGSG-18x4-R or -L	18 x 4	18	4	3,000
PTGSG-20x4-R or -L	20 x 4	20	4	3,000
PTGSG-24x5-R or -L	24 x 5	24	5	3,000
PTGSG-26x5-R or -L	26 x 5	26	5	3,000
PTGSG-28x5-R or -L	28 x 5	28	5	3,000
PTGSG-30x6-R or -L	30 x 6	30	6	3,000
PTGSG-36x6-R or -L*	36 x 6	36	6	3,000
PTGSG-40x7-R or -L*	40 x 7	40	7	3,000
PTGSG-50x8-R or -L*	50 x 8	50	8	3,000

DryLin® precision leadscrews are made of C15 cold rolled steel as standard. Alternatively, VA stainless steel or hard-anodized aluminum are available on request. Right hand/Left hand leadscrews, multi start leadscrews or alternative thread profiles are available on request.
Pitch deviation 0.1 over 300 mm, straightness 0.3 over 300 mm

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinTR | order example part number PTGSG-10x2-01-R

DryLin® TR Linear Screw Drives | Product Range

Trapezoidal leadscrew nut, cylindrical, made from iglidur® W300



Order key

WSRM-2215TR10x2

- Thread
- b1
- d2
- Metric
- Rotating direction
- Type (Form S)
- Material iglidur® W300

Dimensions [mm]

Part number short	Effective supporting surface [mm²]	d1	d2	b1	TR d1 x P	Max. stat. F axial [N]
WSRM-2215TR10x2	212	10	22	15	TR 10 x 2	1,060
WSRM-2215TR10x3	200	10	22	15	TR 10 x 3	1,000
WSRM-2618TR12x3	296	12	26	18	TR 12 x 3	1,480
WSRM-3021TR14x4	396	14	30	21	TR 14 x 4	1,980
WSRM-3624TR16x2	564	16	36	24	TR 16 x 2	2,820
WSRM-3024TR16x4	526	16	30	24	TR 16 x 4	2,630
WSRM-3624TR16x4	526	16	36	24	TR 16 x 4	2,830
WSRM-3027TR18x4	678	18	30	27	TR 18 x 4	3,390
WSRM-4027TR18x4	678	18	40	27	TR 18 x 4	3,390
WSRM-3025TR20x4	706	20	30	25	TR 20 x 4	3,530
WSRM-4530TR20x4	848	20	45	30	TR 20 x 4	4,240
WSRM-5036TR24x5	1,214	24	50	36	TR 24 x 5	6,070
WSRM-5039TR26x5	1,438	26	50	39	TR 26 x 5	7,190
WSRM-6042TR28x5	1,680	28	60	42	TR 28 x 5	8,400
WSRM-6045TR30x6	1,906	30	60	45	TR 30 x 6	9,530

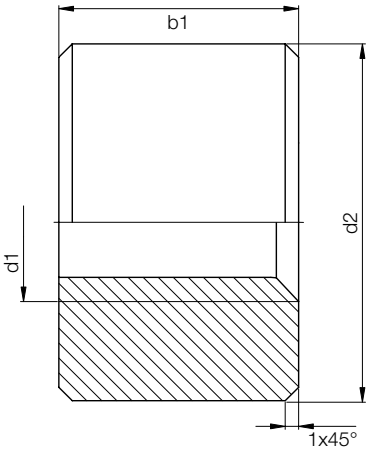
Dimensions [mm]

Part number long	Effective supporting surface [mm²]	d1	d2	b1	TR d1 x P	Max. stat. F axial [N]
WSRM-2220TR10x2	282	10	22	20	TR 10 x 2	1,410
WSRM-2220TR10x3	266	10	22	20	TR 10 x 3	1,330
WSRM-2624TR12x3	394	12	26	24	TR 12 x 3	1,970
WSRM-3028TR14x4	526	14	30	28	TR 14 x 4	2,630
WSRM-3632TR16x2	702	16	36	32	TR 16 x 2	3,510
WSRM-3632TR16x4	752	16	36	32	TR 16 x 4	3,760
WSRM-4036TR18x4	904	18	40	36	TR 18 x 4	4,520
WSRM-4540TR20x4	1,130	20	45	40	TR 20 x 4	5,650
WSRM-5048TR24x5	1,620	24	50	48	TR 24 x 5	8,100
WSRM-5052TR26x5	1,918	26	50	52	TR 26 x 5	9,590
WSRM-6056TR28x5	2,240	28	60	56	TR 28 x 5	11,200
WSRM-6060TR30x6	2,542	30	60	60	TR 30 x 6	12,710

NEW in this catalog!

DryLin® TR Linear Screw Drives | Product Range

DryLin trapezoidal leadscrew nuts, cylindric, made of iglidur® J



Order key

JSRM-2220TR10x2

- Thread
- b1
- d2
- Metric
- Rotating direction
- Type (Form S)
- Material iglidur® J

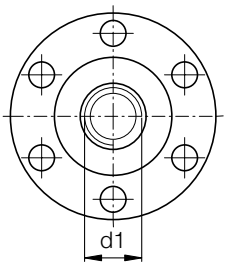
Dimensions [mm]

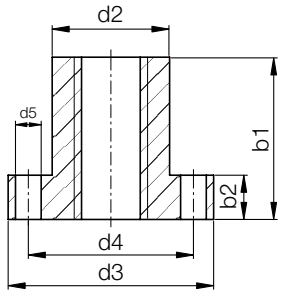
Part number long	Effective supporting surface [mm²]	Inner-ø d1 [mm]	Outer-ø d2 [mm]	Length b1 [mm]	TR d1 x P	Max. stat. F axial [N]
JSRM-1812TR8x1.5	136	8	18	12	TR 8 x 1.5	500
JSRM-2220TR10x2	282	10	22	20	TR 10 x 2	1,128
JSRM-2220TR10x3	266	10	22	20	TR 10 x 3	1,064
JSRM-2624TR12x3	394	12	26	24	TR 12 x 3	1,576
JSRM-3028TR14x4	526	14	30	28	TR 14 x 4	2,104
JSRM-3632TR16x2	702	16	36	32	TR 16 x 2	2,808
JSRM-3632TR16x4	752	16	36	32	TR 16 x 4	3,008
JSRM-4036TR18x4	904	18	40	36	TR 18 x 4	3,616
JSRM-4540TR20x4	1,130	20	45	40	TR 20 x 4	4,520
JSRM-5048TR24x5	1,620	24	50	48	TR 24 x 5	6,480
JSRM-5052TR26x5	1,918	26	50	52	TR 26 x 5	7,672
JSRM-6056TR28x5	2,240	28	60	56	TR 28 x 5	8,960
JSRM-6060TR30x6	2,542	30	60	60	TR 30 x 6	10,168
JSRM-7572TR36x6	3,732	36	75	72	TR 36 x 6	15,274
JSRM-7680TR40x7	4,582	40	76	80	TR 40 x 7	17,837
JSRM-90100TR50x8	7,225	50	90	100	TR 50 x 8	20,400

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinTR | order example part number JSRM-1812TR8x1.5

DryLin® TR Linear Screw Drives | Product Range

Trapezoidal leadscrew nut, with flange, made of iglidur® W300 or iglidur® J





Order key

WFRM-2215TR10x2

- Thread
- b1
- d2
- Metric
- Rotating direction
- Type (Form F)
- Material iglidur® W300

Material:

- W for iglidur® W300
- J for iglidur® J

Dimensions [mm]

Part number with flange	Effective supporting surface [mm²]	d1	d2	d3	d4	d5	b1	b2	TR d1 x P	Max. stat. F axial [N]
WFRM-2525TR10x2	352	10	25	42	34	5	25	10	TR 10 x 2	1,760
WFRM-2835TR12x3	576	12	28	48	38	6	35	12	TR 12 x 3	2,880
WFRM-2835TR14x4	658	14	28	48	38	6	35	12	TR 14 x 4	3,290
WFRM-2835TR16x4	768	16	28	48	38	6	35	12	TR 16 x 4	3,840
WFRM-2835TR18x4	878	18	28	48	38	6	35	12	TR 18 x 4	4,390
WFRM-3244TR20x4	1,242	20	32	55	45	7	44	12	TR 20 x 4	6,210
WFRM-3244TR24x5	1,484	24	32	55	45	7	44	12	TR 24 x 5	7,420
WFRM-3846TR26x5	1,696	26	38	62	50	7	46	14	TR 26 x 5	7,900*
WFRM-3846TR28x5	1,840	28	38	62	50	7	46	14	TR 28 x 5	5,900*
WFRM-3846TR30x6	1,948	30	38	62	50	7	46	14	TR 30 x 6	4,470*

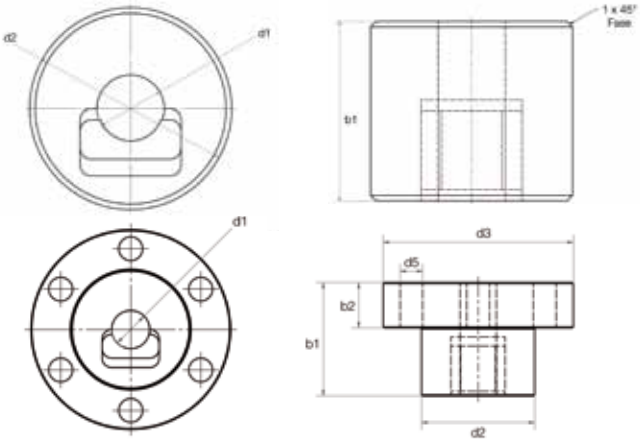
Part number with flange	Effective supporting surface [mm²]	d1	d2	d3	d4	d5	b1	b2	TR d1 x P	Max. stat. F axial [N]
JFRM-2525TR10x2	352	10	25	42	34	5	25	10	TR 10 x 2	1,408
JFRM-2835TR12x3	576	12	28	48	38	6	35	12	TR 12 x 3	2,304
JFRM-2835TR14x4	658	14	28	48	38	6	35	12	TR 14 x 4	2,632
JFRM-2835TR16x4	768	16	28	48	38	6	35	12	TR 16 x 4	3,072
JFRM-2835TR18x4	878	18	28	48	38	6	35	12	TR 18 x 4	3,512
JFRM-3244TR20x4	1,242	20	32	55	45	7	44	12	TR 20 x 4	4,968
JFRM-3244TR24x5	1,484	24	32	55	45	7	44	12	TR 24 x 5	5,936
JFRM-3846TR26x5	1,696	26	38	62	50	7	46	14	TR 26 x 5	6,320*
JFRM-3846TR28x5	1,840	28	38	62	50	7	46	14	TR 28 x 5	4,560*
JFRM-3846TR30x6	1,948	30	38	62	50	7	46	14	TR 30 x 6	3,576*
JFRM-4546TR30x6	1,948	30	45	70	58	7	46	16	TR 30 x 6	9,740

*** Reduced axial load through narrow flange shapes; special designs on request**

NEW in this catalog!

DryLin® TR Linear Screw Drives | Product Range

Anti-backlash leadscrew nuts, made of iglidur® J



Order key

JSRM-AB-2220TR10x2

- Thread
- b1
- d2
- Anti-backlash
- Metric
- Rotating direction
- Type
  - Form S = cylindrical,
  - Form F = with flange
- Material iglidur® J

Backlash refers to the play at direction reversal, which is caused in a leadscrew drive by the axial clearance. Anti-backlash nuts reduce this clearance during the entire life time (within the permissible wear).

Dimensions [mm]

Part number cylindric type	d1	d2	d3	d4	d5	b1	b2	TR-d1 x P	Max. stat. F axial [N]
JSRM-AB-2220-TR10x2	10	22	–	–	–	20	–	TR 10 x 2	840
JSRM-AB-4036-TR18x4	18	40	–	–	–	36	–	TR 18 x 4	2,700
JSRM-AB-5048-TR24x5	24	50	–	–	–	48	–	TR 24 x 5	4,800

Dimensions [mm]

Part number with flange	d1	d2	d3	d4	d5	b1	b2	TR-d1 x P	Max. stat. F axial [N]
JFRM-AB-2525-TR10x2	10	25	42	34	5	25	10	TR 10 x 2	1,160
JFRM-AB-2835-TR18x4	18	28	48	38	6	35	12	TR 18 x 4	2,890
JFRM-AB-3244-TR24x5	24	32	55	45	7	44	12	TR 24 x 5	4,890

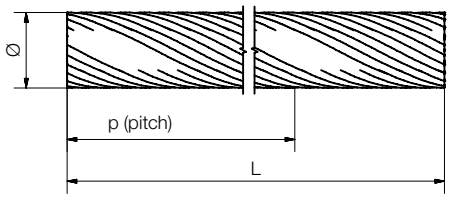
Other thread sizes and nut designs with Anti-backlash upon request.

delivery time available from stock | prices price list online www.igus.co.uk/en/DryLinTR | order example part number JSRM-AB-2220TR10x2

DryLin® TR Linear Screw Drives | Product Range

Leadscrews and nuts with high helix thread

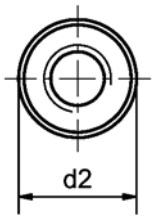
High helix lead screws

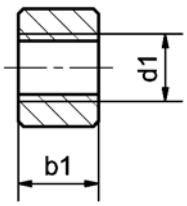


Dimensions [mm]

Part number	ø	Lead	Max. length	Material
PTGSG-10x12-R-ES-length in mm	10	12	2,000	1.4021
PTGSG-10x50-R-ES-length in mm	10	50	2,000	1.4021
PTGSG-18x100-R-ES-length in mm	18	100	2,000	1.4021

Round nut, cylindrical



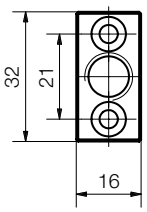


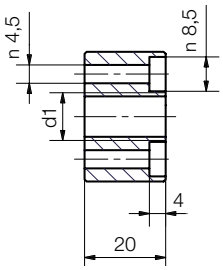
Dimensions [mm]

Part number	d1	Lead	d2	b1	Material
JSRM-2215TR10x12	10	12	22	15	iglidur® J
JSRM-2215TR10x50	10	50	22	15	iglidur® J
JSRM-3027TR18x100	18	100	30	27	iglidur® J

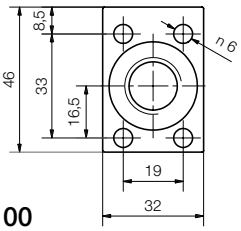
Nuts with flange

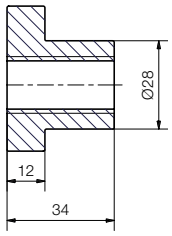
SHT-1210-SM10x12
SHT-1210-SM10x50





SHT-2018-SM18x100
Attention: not symmetrical





Dimensions [mm]

Part number	d1	Pitch	Material
SHT-2010-SM10x12	10	12	iglidur® J
SHT-2010-SM10x50	10	50	iglidur® J
SHT-2018-SM18x100	18	100	iglidur® J

delivery time available from stock

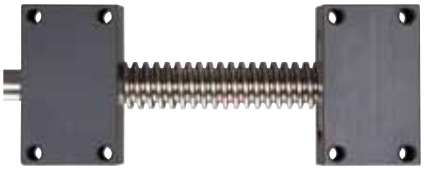
prices price list online www.igus.co.uk/en/DryLinTR

order example part number PTGSG-10x12-R-ES

NEW in this catalog!

DryLin® TR Linear Screw Drives | Product Range

Leadscrew end blocks, fixed and floating

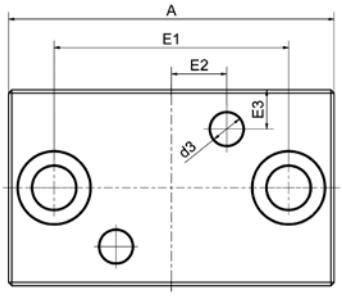


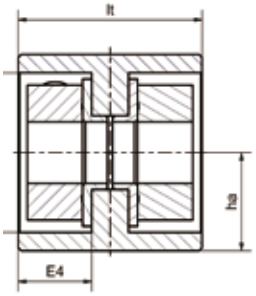
Order key

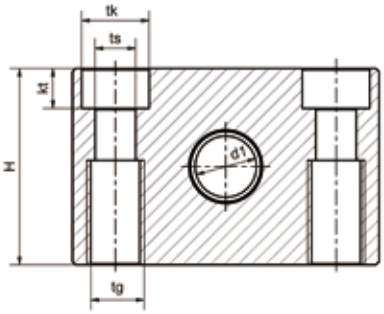
SLS-10x2-LL

- LL = floating side
- FL = fixed side
- Leadscrew size
- SLS: description

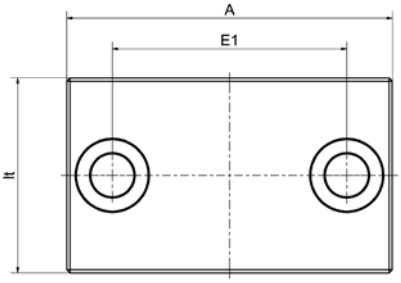
Fixed side

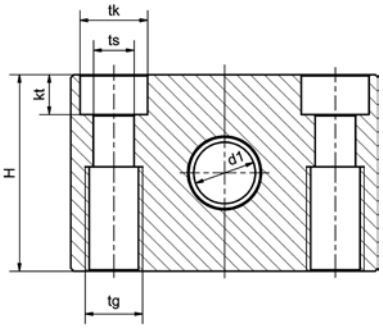






Floating side





Dimensions [mm]

Part number	A	H	E1	E2	E3	E4	lt	tk	ts	tg	kt	d1	d2	d3	ha	Weight
	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[g]
SLS-10x2-LL	50	32	36	–	–	–	30	11	6.6	M8	6.5	10	–	–	16	115
SLS-10x2-FL	50	32	36	8.5	6	12	30	11	6.6	M8	6.5	10	26	5	16	88
SLS-18x4-LL	72	46	54	–	–	–	36	15	9	M10	8.6	12	–	–	23	295
SLS-18x4-FL	72	46	54	13.5	8	15	36	15	9	M10	8.6	18	42	6.6	23	205
SLS-24x5-LL	94	64	70	–	–	–	50	20	13.5	M16	13	14	–	–	32	725
SLS-24x5-FL	94	64	70	17.5	7.5	17	50	20	13.5	M16	13	24	52	8	32	525

Included in delivery: anodized pillow block with collar clamps (fixed side) and plain bearings (fixed and floating side)

delivery time **available from stock** | prices **price list online** www.igus.co.uk/en/DryLinTR | order example **part number SLS-10x2-LL**

Quick-release nuts – Fast Forward

Order key

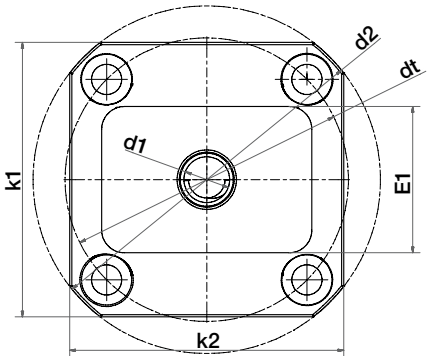
FTRM-FF-10x2

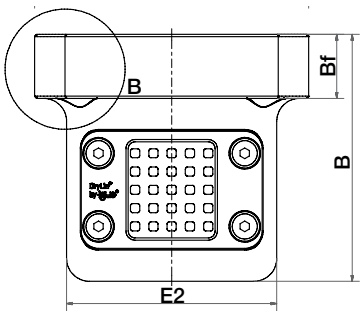
- Thread
- Fast Forward
- Metric
- Rotating direction
- Trapezoidal Thread
- Flange

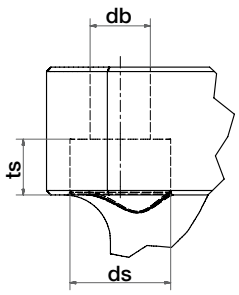
Quick release mechanism: A combination of accurate positioning and quick manual adjustment with trapezoidal leadscrew nut. Simply press the square yellow section to release the nut from the thread, and move by hand to desired position.

- For fast format adjustments
- Self braking design
- Lubrication-free
- Housing: AL anodized, iglidur® J leadscrew nut
- Robust and reliable
- Only recommended for horizontal applications
- Max. axial loads stat.: 200 N, dyn.: 50 N

see SHT-FF ▶ **page 903**



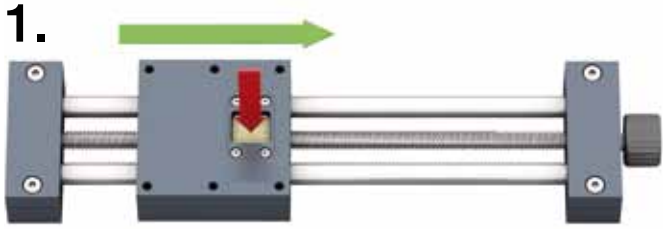




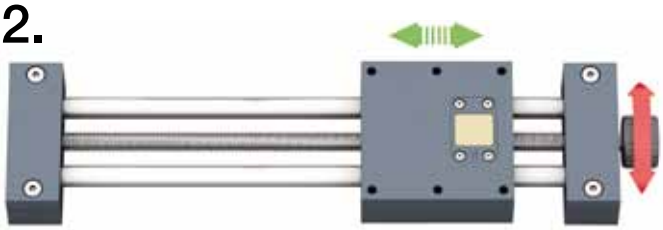
Dimensions [mm]

Part number	d1	d2	dt	B	Bf	ts	db	ds	k1	k2	E1	E2
FTRM-FF-10x2	TR-10x2	76	62	54	14	6.1	6.6	11	60	60	32	46

1.



2.



Press > disengage > move manually > click into place > fine-tune

delivery time **available from stock**

prices **price list online** www.igus.co.uk/en/DryLinTR

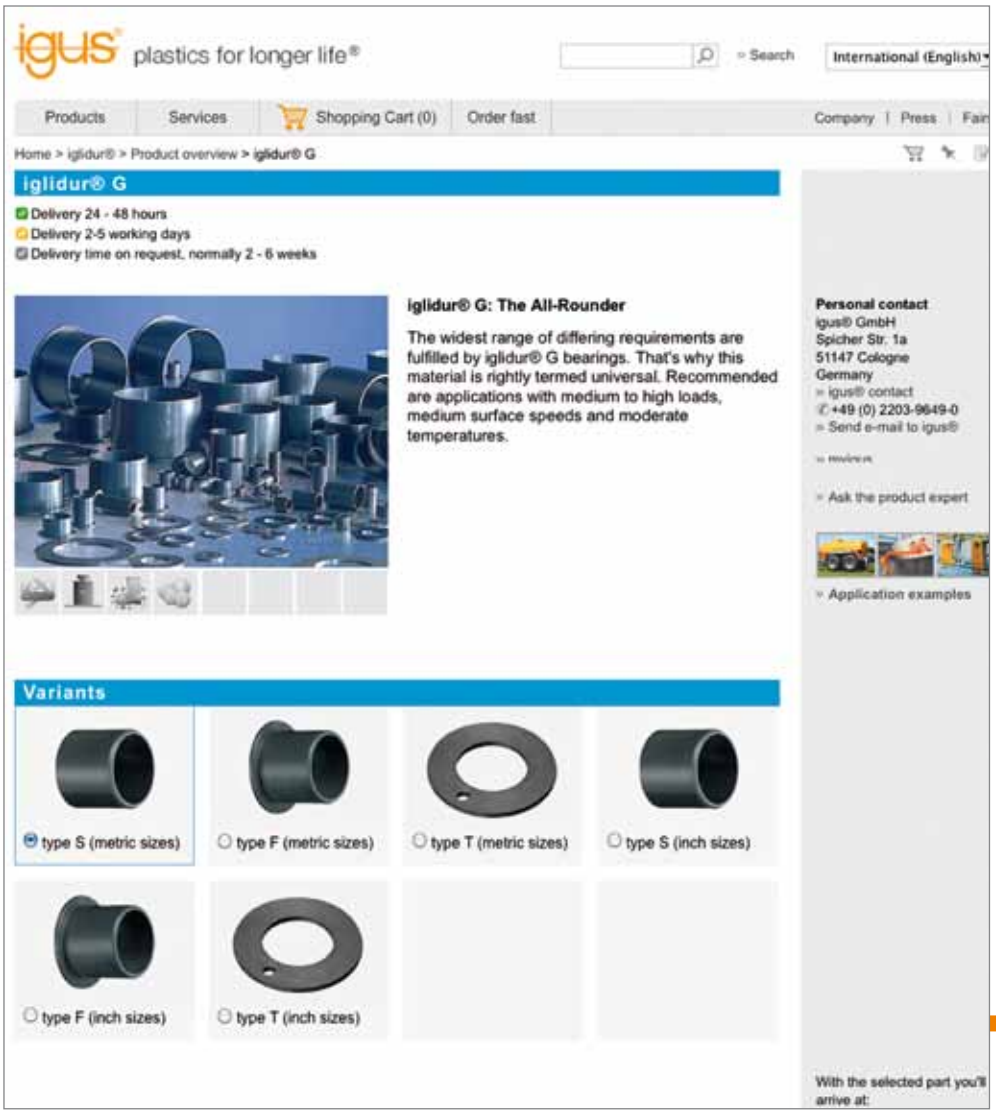
order example **part number** FTRM-FF-10x2

7. service

About igus®...table of chemicals...material data...forms...addresses...

...plastics

QuickLink: Polymer Bearings online



Visit www.igus.co.uk and make use of all the advantages

For every product in this catalog, there is a special QuickLink or direct online pointer to further useful details,data and facts. These include:

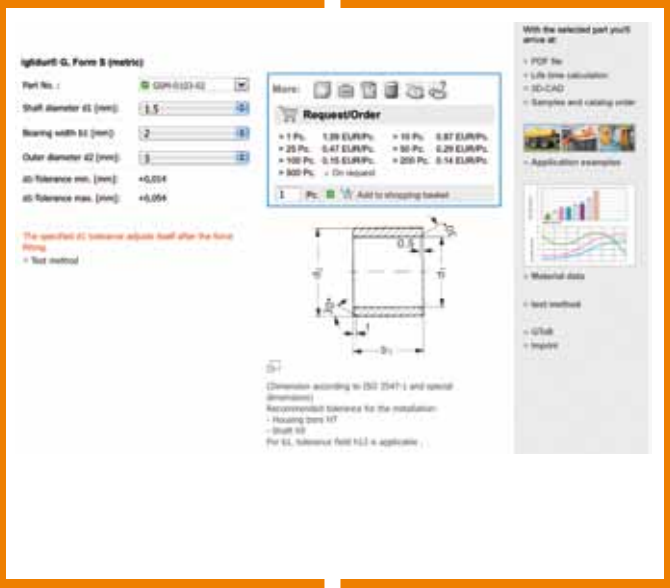
- Online wizards for calculating service life
- 3D-CAD files
- DXF data
- PDF-data and other formats for download
- Application pictures
- Imperial dimensions
- Personal support
- Catalog, CD and sample ordering forms
- Online pricelist and Online-Shop

Online shopping – 24h!

- iglidur® ▶ www.igus.co.uk/iglidurshop
- igubal® ▶ www.igus.co.uk/igubalshop
- xiros® ▶ www.igus.co.uk/xirosshop
- DryLin® ▶ www.igus.co.uk/drylinshop

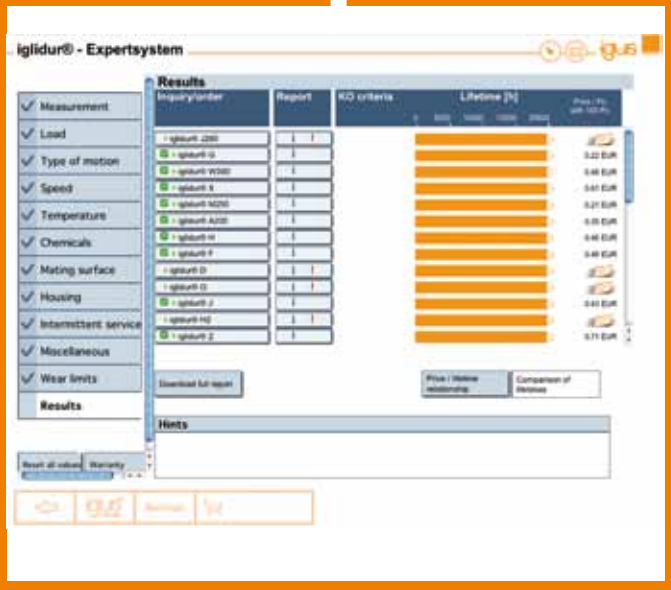
“Search”

iglidur® product finder
Find the right bearing quickly.



“Order”

iglidur® online catalog
The online catalog is just a click away. See all important product details, information and tools by clicking again on the corresponding link.



“Calculate”

iglidur® life cycle calculation
Simple and quick input of your application parameters, allows a precise calculation of the life cycle. Also download and save CAD data free of charge.

See for yourself ▶ www.igus.co.uk

iglidur® expert and productfinder

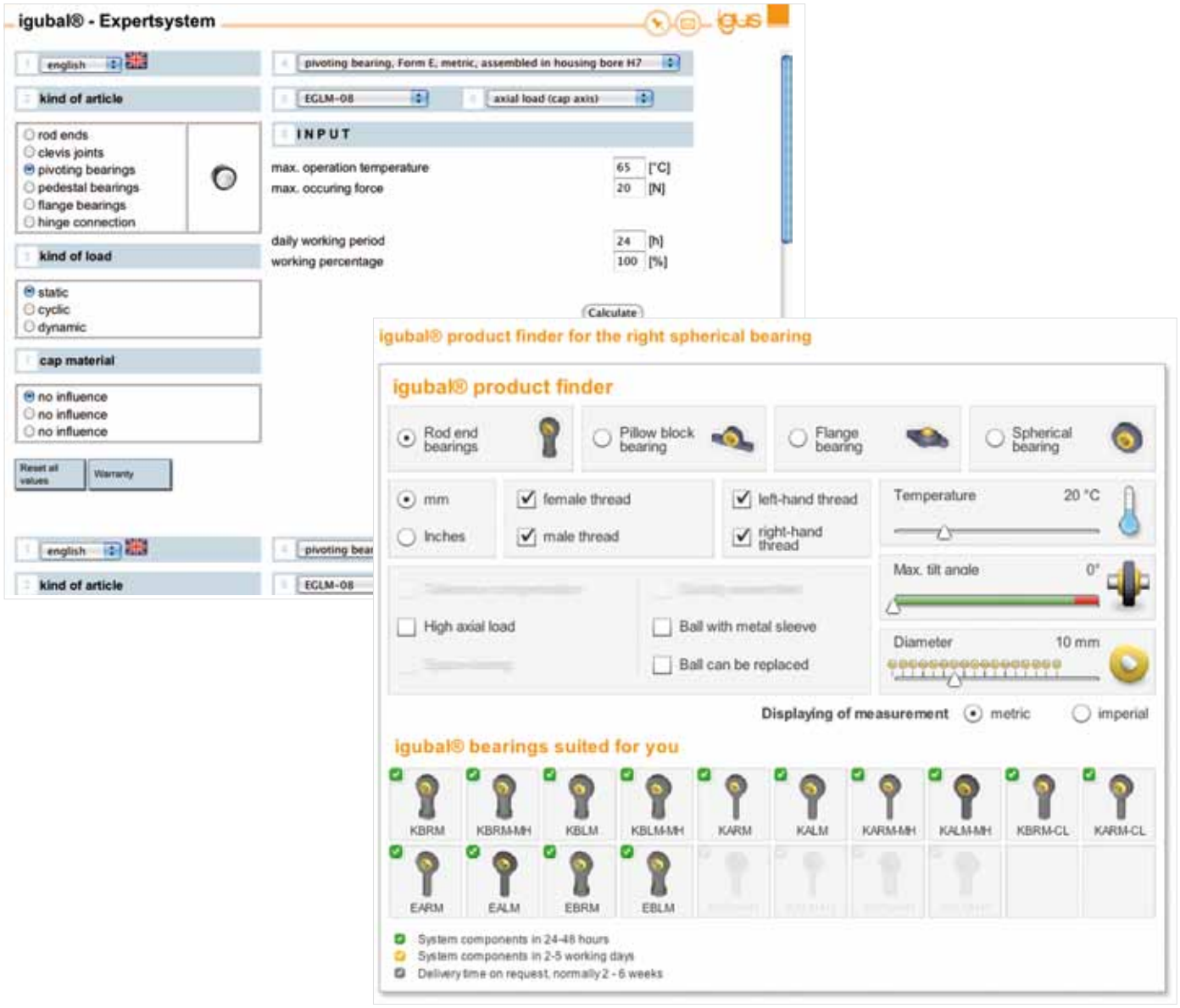
iglidur® expert system –
► www.igus.co.uk/iglidur-expert

The iglidur® expert help you to find the right bearing for your application: After entering the application parameters you will get the expected service life for your bearing. You can download constantly updated and advanced CAD-files from our CAD library for free - more than 20 2D- and 3D-formats.

iglidur® product finder –
► www.igus.co.uk/iglidur-productfinder

The iglidur® product finder shows you the right plain bearing solution especially for your application with just a few clicks. To do so, simply specify parameters about environmental conditions and other factors relevant for you. As a result you will get the best material solution for your application as well as other materials that are well suited. With a direct link to the online catalog with much more information and direct price display. More exact details for the suitability and life-time of the iglidur® bearings you can find in the iglidur® expert system.

igubal® expert and productfinder



igubal® expert system –
► www.igus.co.uk/igubal-expert

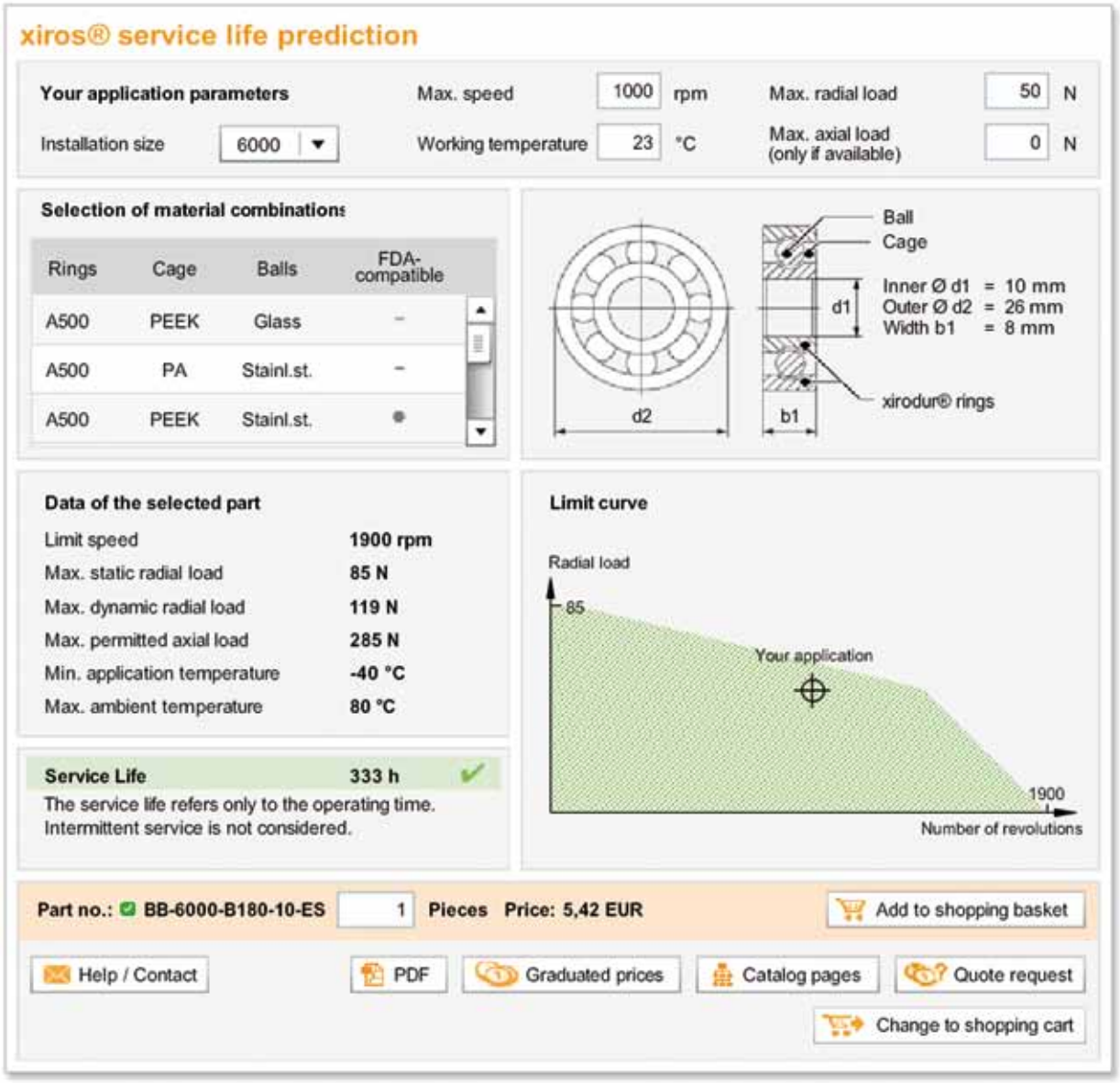
The igubal® expert help you to find the right spherical bearing for your application: You can choose from different igubal® spherical bearings and load types (radial / axial or static, cyclic and dynamic). The expertsystem calculated from this:

- wear of bearing
- theoretical service life

igubal® productfinder –
► www.igus.co.uk/igubal-productfinder

The igubal® product finder shows you the right spherical bearing solution especially for your application with just a few clicks. To do so, enter some details about the product you want and other factors relevant for you. As a result you will get the best solutions for your application. Just one click takes you to the online catalog with much more information and direct price display. More exact details for the suitability and lifetime you can find in the iglidur® expert system.

xiros® service life calculator

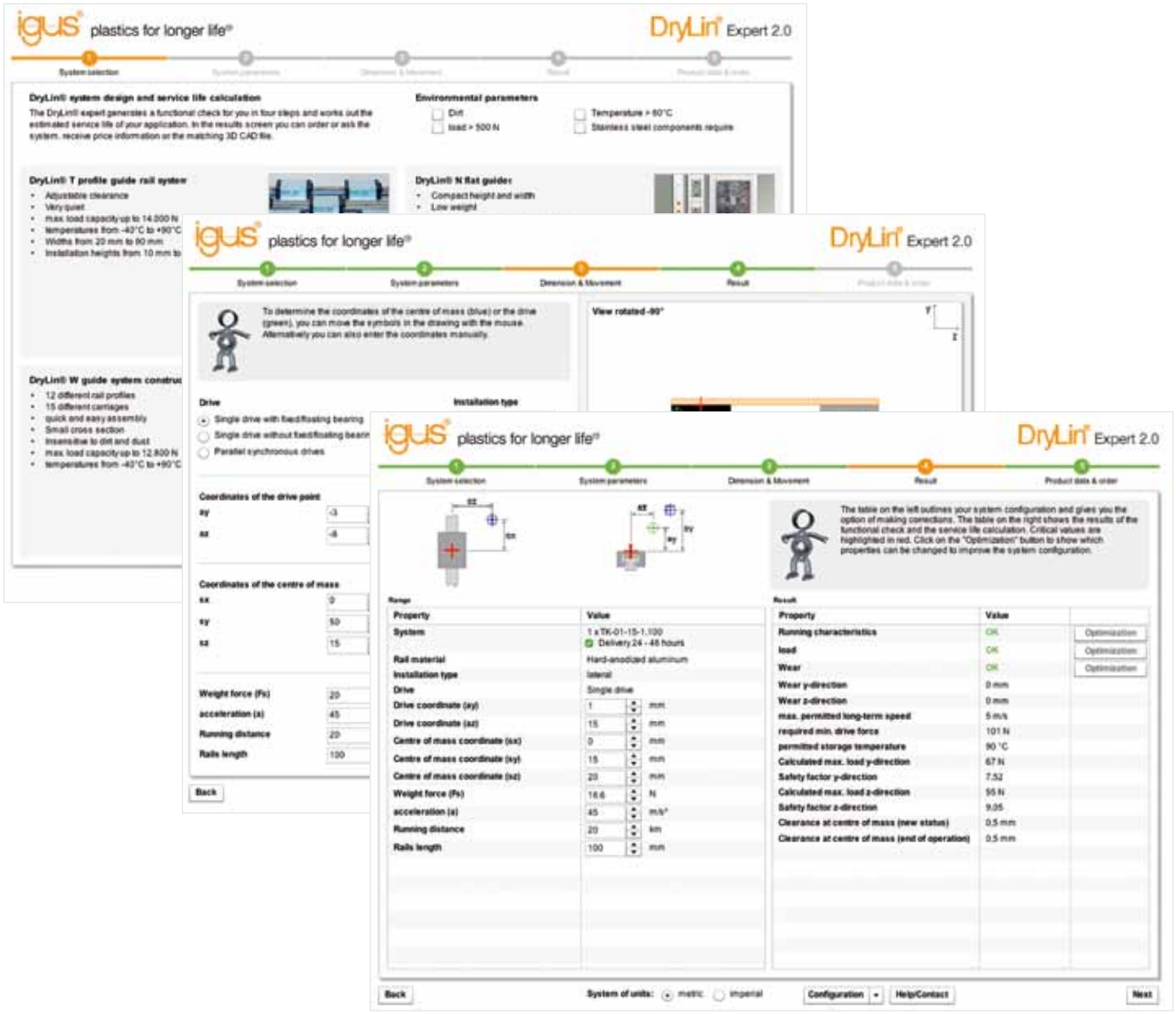


Service life prediction for xiros® polymer ball bearings ► www.igus.co.uk/xiros-expert

Select the installation size and enter the rotary speed and loads of your application. The material combinations available in your required size are displayed. You can select the option for which you want to calculate the service life in dry operation.

- Selection of different installation sizes and material combinations of rings, cages and balls
- Graphically clear visualizations
- Within the limit curve of the selected item, the calculated application is highlighted on the basis of the input data
- Direct link to xiros® online catalog and shopping cart for easy ordering

DryLin® expert



DryLin® expert and system selection –
► www.igus.co.uk/drylin-expert

The Drylin® expert help you to find the right linear bearing for your application: You can choose from different DryLin® bearings or systems with one or more bearings on shafts or rails. The installation position may be horizontal, vertical or lateral. You also need to enter: The coordinates from mass of gravity according to a given coordinate system and the position of drive mechanism and a favored propagation for calculating the wear.

The expert calculate for you:

- wear of linear bearing
- essential driving force
- max. acceptable speed by continuous operation
- theoretical clearance in given center of gravity

Furhermore there is an alert for deadlock, achieved wear limit, overloading or anxious operation.

Quick and reliable.
igus® delivery service.

The igus® delivery service: FROM 24h or today*

The economy is booming and igus® is also pleased about a sudden rise in orders. Thanks to you!
To give you optimal security in planning, we need to somewhat adapt our delivery promise “24 hours or today*” for the next few month.

Otherwise the following applies as always:
- no minimum order value
- no surcharges for small quantities and packaging
- no cutting costs with cables
- no fuss return

Over 80,000 products available! Order two plain bearings or 2,46 m DryLin® T-rail with 2 carriages without any surcharge. Invoices and confirmations can be sent via post, fax or e-mail.
There are 1,900 employees in Germany and 28 international subsidiaries and offices, plus bases in another 33 countries to guarantee a rapid delivery worldwide.
- selivery and consultation Mon-Fri from 8am-8pm and Sat from 8am-12pm
- order tracking possible
- No fuss return
- Round-the-clock emergency service

* Delivery time means time until shipping of goods.

i-net customer information system

Track your orders in real time with igus® i-net. Just request a password, log into i-net and track your job status via a webcam. igus® i-net shipment tracking permits a monitoring of deliveries from igus® outlet right up to your doorstep.
- detailed order data including an overview of target and actual deadlines.
- order confirmation via post, fax or e-mail as required
- track your orders via webcam

Request order tracking here: www.igus.co.uk/en/i-net

24 h | 24–48 h | 24–72 h | 3–10 days | 3–6 weeks

Individual components

Example:
iglidur® W300 plain bearings; standard igubal® ball joint or DryLin® flange bearing.

Custom made linear systems

Example:
2.46 m DryLin® T rail with 2 carriages.

Ready made modules

Example:
Linear leadscrew tables made to your individual requirements and dimensions.

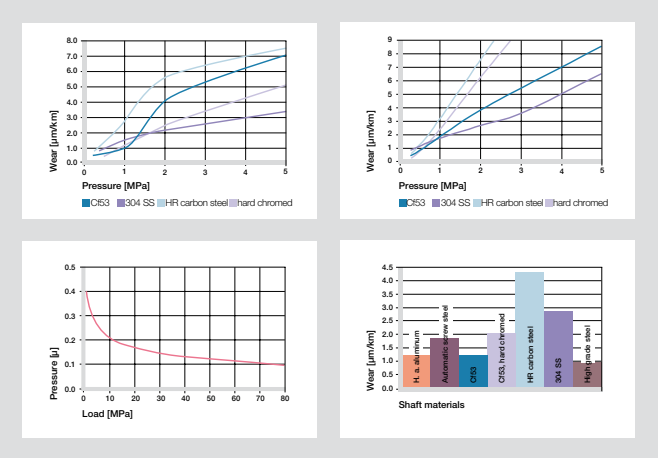
Mechanically machined components

Example:
Machined shafts made to design or machined bearings.

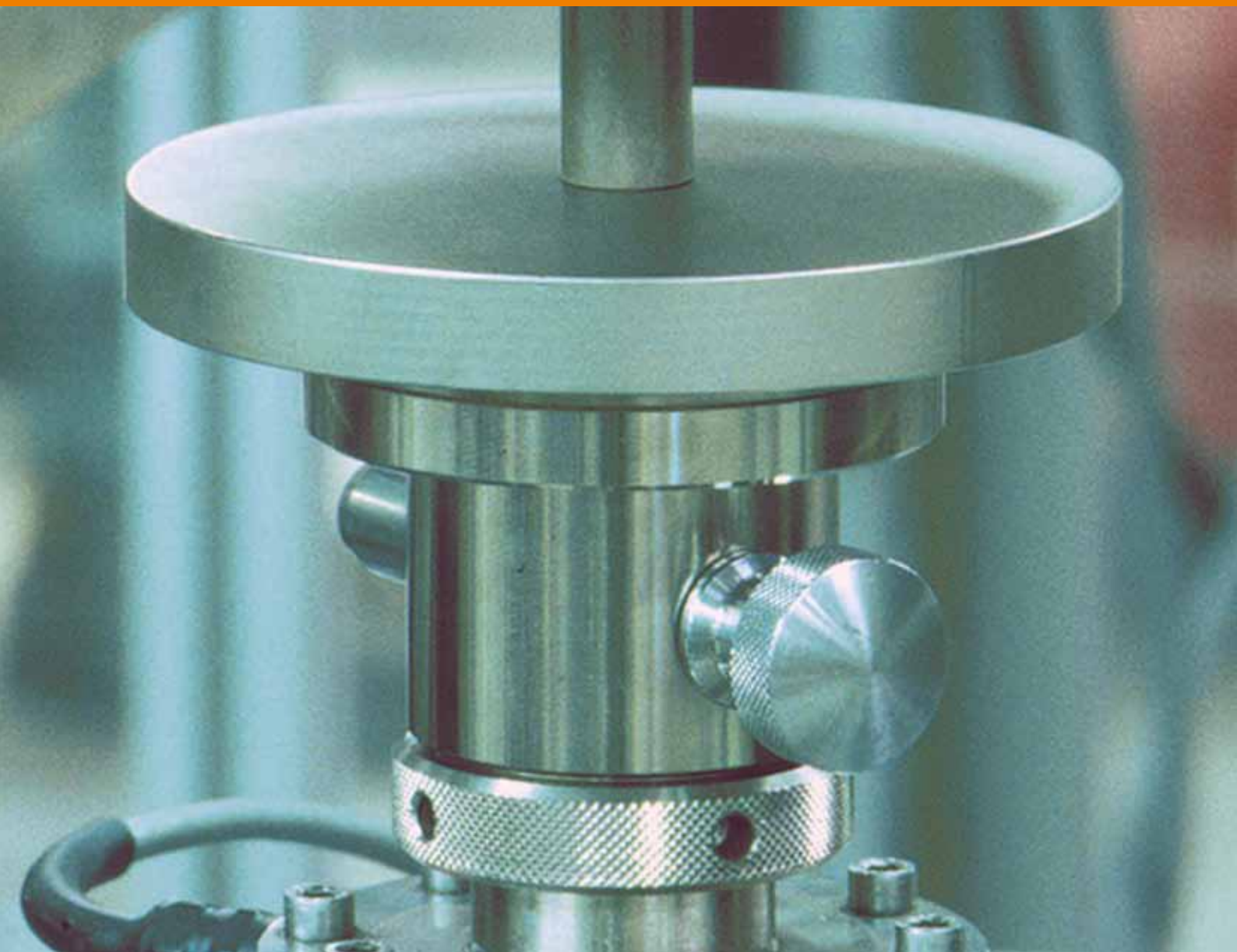
Initial samples from new tools

Example:
Injection moulding of parts made to your design.

Quality from the igus® laboratory: Tested thousands of times, proven millions of times.



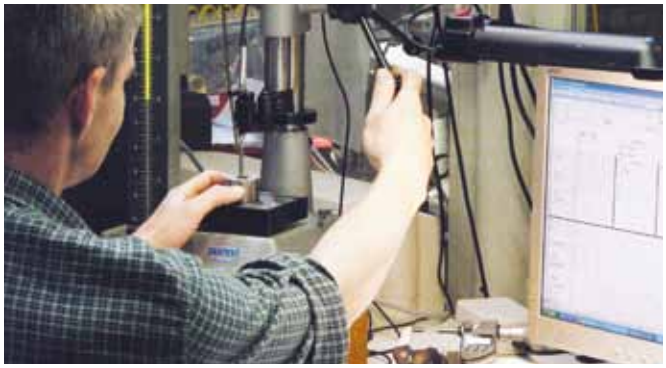
The results of more than 7,000 tests are fed to our database annually.



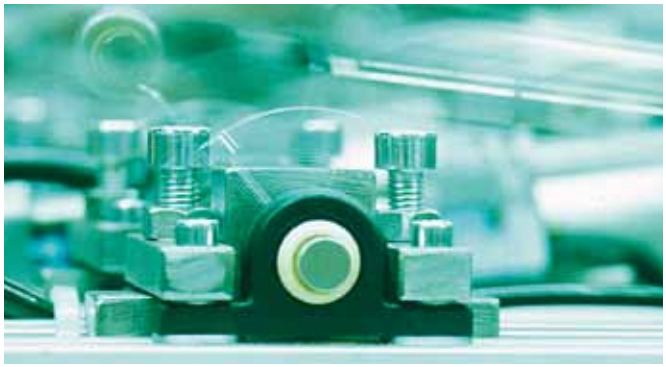
igus® test laboratory

Applications involving high cycle counts, speeds and accelerations or demanding environmental conditions require proven systems providing durable and reliable operation, especially when it comes to energy chains, cables, polymer plain bearings and linear systems.
igus® regularly conducts tests at its own laboratory under realistic conditions. Every year, we conduct more than 2,000 tests on E-Chains® and cables, and over 5,000 tests on plain bearings. These tests focus on push-/pull forces, friction values, wear rates, drive forces and abrasion under all possible conditions at diverse speeds.

Influential factors like soiling, weathering, cold and impact are examined.
Tests are also performed on electric cables, media as well as hydraulic and pneumatic hoses of all kinds.
Our laboratory is at your disposal. Should we happen to lack a ready solution for your special problems, we will gladly conduct tests according to your requirements.



igus® quality assurance



Determination of the max. running speed of an igubal® pillow block bearing

Friction and abrasion measurement in the rotation test

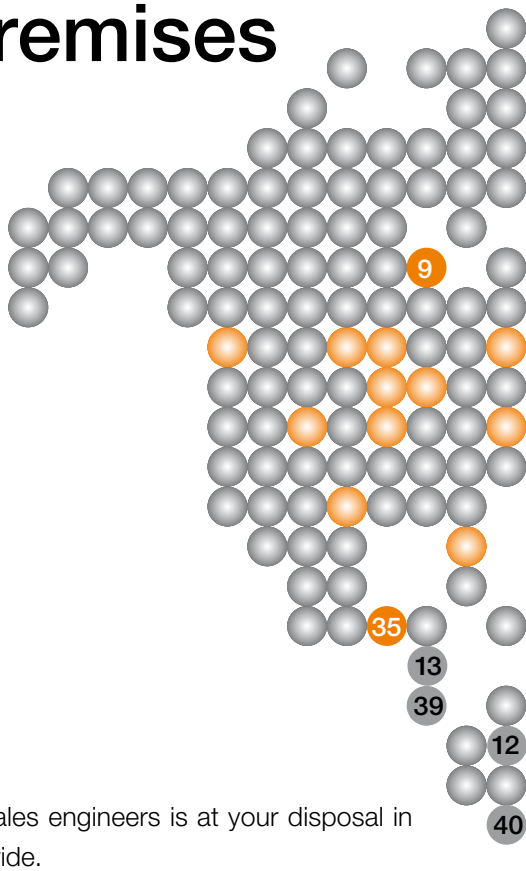
Test bench for loads up to 150 MPa and temperatures up to +250 °C

All products are tested and available from a single source.
Examples of test certificates and quality seals for igus® products:

ISO 9001:2000 TS 16949

…more upon request

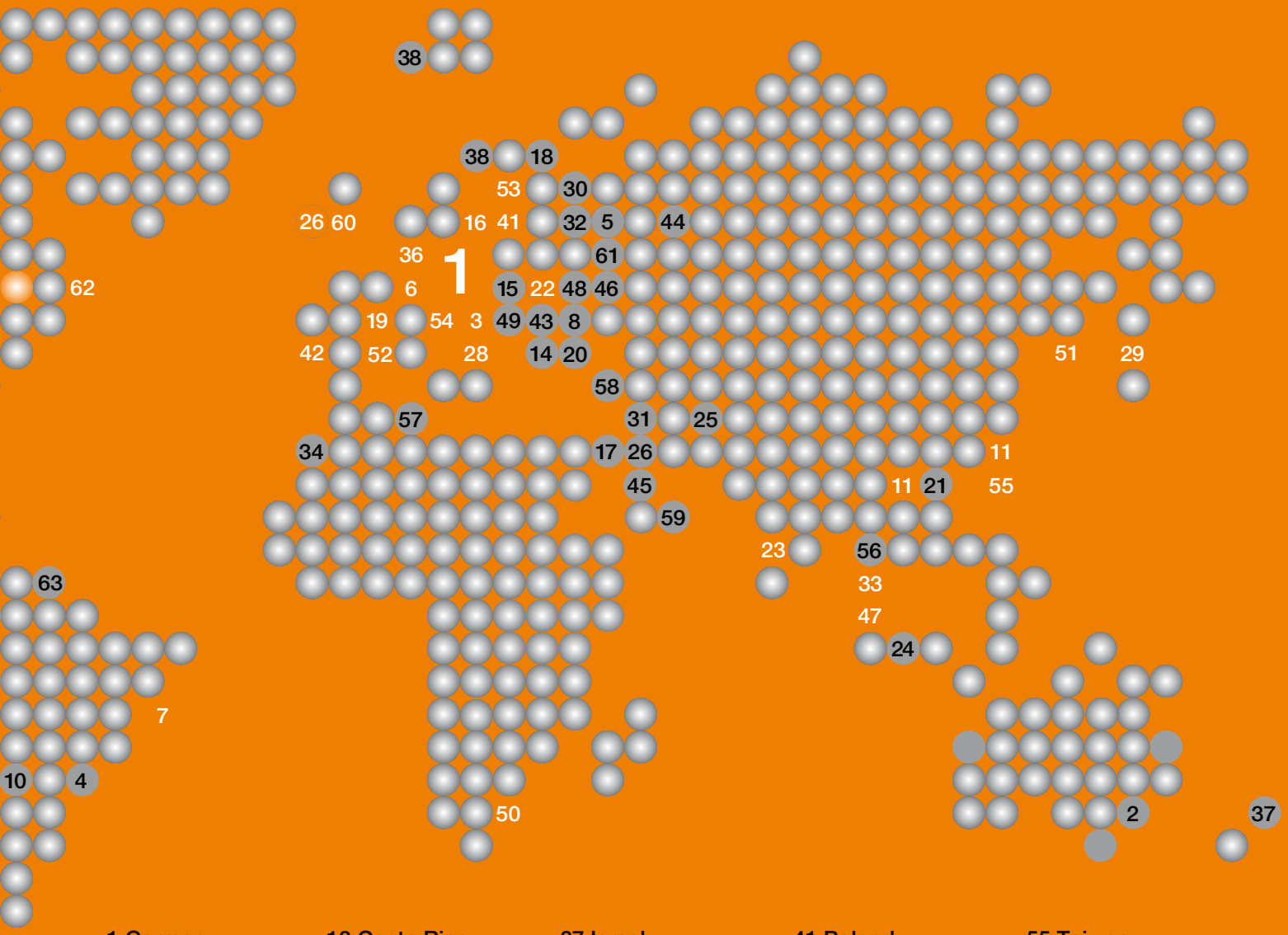
Individual consultation by igus® – via phone or on your premises



A large network of sales engineers is at your disposal in Germany and worldwide.
We gladly provide consultation on your premises, supply assembly instructions and aids to installation sites, as well as measure installation spaces and register ambient conditions on location.

This has the following benefits for you:

- We are wherever you need us
- Numerous E-Chain® and Polymer Bearing consultants remain at your disposal at all times
- Rapid delivery is guaranteed worldwide
- Spare parts are delivered ex stock in the shortest possible time



1 Germany
2 Australia
3 Austria
4 Argentinia
5 Belarus
6 Belgium/ Luxembourg
7 Brazil
8 Bulgaria
9 Canada
10 Chile
11 China/ China South
12 Colombia
13 Costa Rica
14 Croatia
15 Czech Republic
16 Denmark
17 Egypt
18 Finland
19 France
20 Greece
21 Hong Kong
22 Hungary
23 India
24 Indonesia
25 Iran
26 Ireland
27 Israel
28 Italy
29 Japan
30 Latvia
31 Lebanon
32 Lithuania
33 Malaysia
34 Morocco
35 Mexico
36 Netherlands
37 New Zealand
38 Norway/Iceland
39 Panama
40 Peru
41 Poland
42 Portugal
43 Romania
44 Russia
45 Saudi Arabia
46 Serbia
47 Singapore
48 Slovakia
49 Slovenia
50 South Africa
51 South Korea
52 Spain
53 Sweden
54 Switzerland
55 Taiwan
56 Thailand
57 Tunesia
58 Turkey
59 United Arab Emirates
60 United Kingdom
61 Ukraine
62 USA
63 Venezuela

All addresses on last page.

The igus® story from 1964 till today.

Innovation with plastics

The igus® story begins on October 15th, 1964 with Günter Blase in a double garage in Cologne-Mülheim. In its first 20 years, igus® operated as a supplier of intricate technical plastic components. In 1983, son Frank Blase started to concentrate on full products like EChain Systems® and Polymer Bearings and established a separate marketing department. Between 1985 and 2009, igus® expanded from 40 over 1800 staff members distributed all over the world. igus® will continue to invest in expansion in the coming years. Modern materials have opened up further opportunities for innovative products.

igus® Sales & Marketing, from left: Tobias Vogel, Sales Manager Polymer Bearings, Harald Nehring, authorized signatory, E-ChainSystems® and Chainflex®, Gerhard Baus, authorized signatory Polymer Plain Bearings, Michael Blaß, Sales-Manager E-ChainSystems® and Chainflex®, Frank Blase, CEO.

Today: Automated plastic production

Today: Large tool development and production facility

970

1965
First iglidur® sliding element: Plug valve for the company Pierburg

1971
First E-Chain® (series 20)

1979
First E-Chain® catalog, 2 pages

1980
First Polymer Bearings catalog, 8 pages

65 70 75 80

Company founders Günter and Margret Blase in front of their "double garage" from 1964

1977: Relocation to the Locher Mühle in Bergisch Gladbach

5 10 27 1.000

1989
First Chainflex®-cable CF1

1989
E4 E-Tubes, to open on both sides

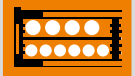
1991 x xigus 1.0 electronic catalog

1993
intro-duction of DryLin® R

1994
intro-duction of igubal®

1994:
Reloca-tion to the new igus® factory in Cologne

1995
ReadyChain®, with the slogan "Chain-Cable Guarantee"



1997
DryLin® T

2001
System E6 E-Chains®

2001
DryLin® N

2003
Triflex® R

2003
DryLin® W

2005
iglidur®-PRT sle-wing ring bearings

2006
LeviChain

2006
System P4 roller E-Chain®

2007
System E4.1 E-Chain®

2007
DryLin® ZLW

2007
invis® Power

2008
E4.350 – largest polymer E-Chain®

2008
xiros® po-lymer ball bearings

2009
E4.1 – new interior separation tool box

2009
RX – chip-proof E-tube

2009
Guidelok horizontal – for long travels

2009
igus® robolink

2009:
Extension by around 60% of the igus® factory in Cologne

2010
igus®-Twister-Band 3000°

2010
Pick-Chain, continu

2010
E2/000 – Chain opener

2010
DryLin® Leadscrew nut with Anti-Backlash

85 90 95 00 05 06 07 08 09 10

160
8.000
45.000
1.000
80.000
1.600
1.900

staff

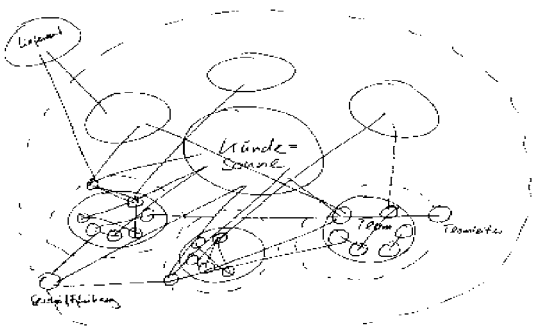
products with variants

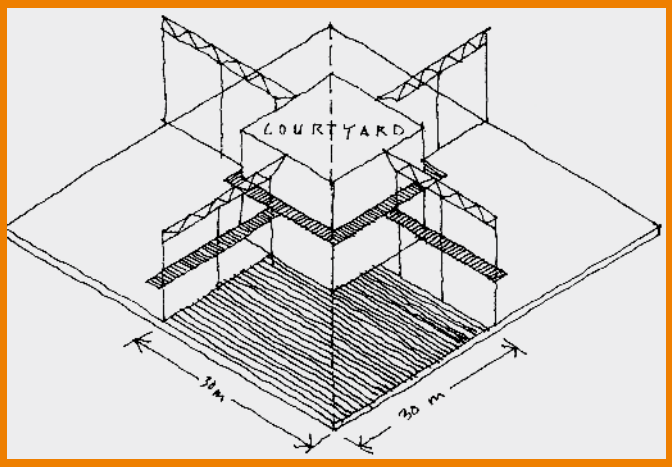
The flexible igus® factory

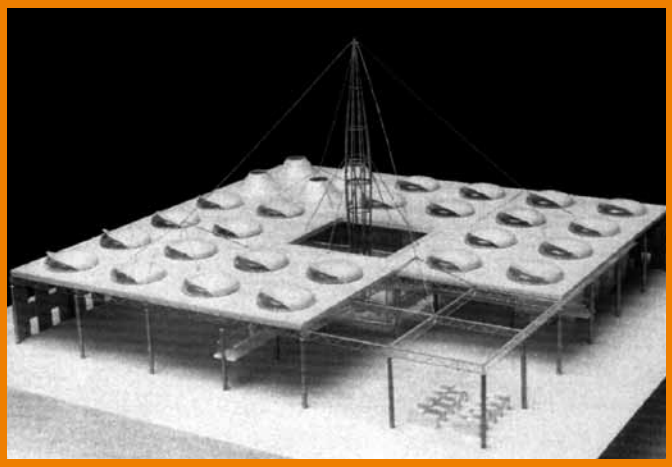
igus® is now producing, testing and researching in Cologne on a floor area covering 36,000 m².
The factory area has been extended to 29,000 m², added to which are 7,000 m² of surrounding buildings for additional fabrication, technical training and a large logistics center. In the course of factory extension, together with consistent lean management we have closely examined all departments: from marketing and administration to research and development, tool design and production throught to warehousing and distribution.

The environment at igus® is fully open – anyone can contact anyone else directly, everyone works at identical desks, has the same work equipment, the same choice of meals at the cafeteria and the same bathroom facilities.

For us, customers have the same significance as the sun to life on earth.
The sun gives light, warmth and energy; our customers give us ideas, work and money.







Excerpt of architect's briefing

"In October 1988, igus® acquired a plot sized about 40,000 m2 in the Porz-Lind district of Cologne.
This will be the future site of development, production, sales, administration and planning. As the centre of all activities, this location will serve as the new igus® headquarters. igus® has made preparations for fast growth, fast change and flexible response in all areas.
Offering the necessary facilities and technology, the new "igus® premises" will also be designed to promote staff performance.

The interior and exterior will be designed to reflect the enterprise's products and key philosophy: innovation – service – reliability, the customer being comparable to a solar system's centre orbited by all igus® staff and igus® entities dedicated toward solving the customer's problems."

Chemicals, iglidur®	A180, J200, R, UW, xirodur® B180	A200, G, GLW, M250, W300, L250, C, L100, igumid G	A350	A500, UW500, X, X6, xirodur® A500	A290, F	J, J3, J4	J260	J350	H, H2, H370, H4	P, P210, K	Q	V400	Z	B	D	T220	PEP
Acetaldehyde (aqueous), 40 %	+	o	x	+	o	+	–	x	x	–	o	x	x	o	+	–	o
Acetamide (aqueous), 50 %	+	+[1]	x	+	+[1]	+	–	x	x	x	+[1]	x	x	x	+	x	+[1]
Acetic acid, 2 %	+	–	+	+	–	+	+	+	+	+	o	+	+	–	+	+	o
Acetic acid, 10 %	+	–	+	+	–	+	+	+	+	+	+	+	+	–	+	+	o
Acetic acid, 90 %	–	–	+	o	–	–	–	x	+	–	–	+	+	–	–	–	–
Acetone	+	+	–	+	o	+	–	–	+	–	+	+	+	o	o	–	+
Acetyl chloride	–	–	x	x	–	–	x	x	x	x	–	x	x	x	–	x	–
Acrylnitrile	o	+	x	+	+	o	–	x	x	–	+	x	x	–	o	–	+
Air, liquid	o	o	x	x	o	o	x	x	x	o	o	x	x	x	o	o	x
Allyl alcohol	+	o	x	+	o	+	x	x	+	+	+	x	+	o	+	+	+
Aluminum chloride (aq.), 10 %	o	o	x	+	o	o	o	x	+	o	o	x	x	o	o	o	o
Aluminum cleaner	–	–	x	o	–	–	x	x	o	x	–	x	x	–	–	x	–
Aluminium salt from mineral acid, 20 %	o	o	x	x	o	o	x	x	x	o	o	x	x	x	o	o	x
Aluminum sulphate (aq.), 10 %	o	o	x	+	o	o	+	x	+	o	o	x	+	o	o	o	o
Ammonium carbonate (aqueous), 10 %	+	+[1]	x	+	+[1]	+	o	x	+	+	+[1]	x	+	o	+	+	+[1]
Ammonium chloride (aq.), 10 %	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	x	+	o	+	+	+[1]
Amyl acetate, 100 %	–	–	x	+	–	–	–	x	+	o	+	x	+	–	o	o	o
Amyl alcohol	+	+	x	+	+	+	+	x	+	o	+	x	o	o	+	+	+
Aniline (aqueous), sat'd solution	o	o	x	+	o	o	–	x	+	o	o	x	x	–	o	o	o
Anisole	o	+	x	+	+	o	–	x	+	x	+	x	o	o	o	x	o
Anodised liquor (HNO_3 –30 %/ H_2SO_4 –10 %)	–	o	x	x	o	–	x	x	x	o	o	x	x	x	–	o	–
Aromatics	+	+	+	x	+	+	x	x	x	o	x	x	x	x	x	o	x
Barium chloride (aqueous), 10 %	+	o	x	+	o	+	+	x	+	+	+[1]	x	+	–	+	+	+[1]
Barium salt from mineral acid	+	o	x	x	o	o	x	x	x	o	o	x	x	x	o	o	x
Barium sulphate (aqueous), 10 %	+	o	x	+	o	+	o	x	+	+	+[1]	x	+	o	+	+	+[1]
Benzaldehyde	+	o	x	+	o	o	–	x	o	–	o	x	x	–	o	–	o
Benzoic acid (aqueous), 20 %	o	o	x	+	o	o	–	x	x	+	o	x	+	o	o	+	o
Benzyl alcohol	+	+	+	+	+	o	–	+	x	x	o	x	o	o	o	x	o
Biphenyl	+	+	x	x	+	+	x	x	x	–	x	x	x	x	x	–	x
Bitumen, DIN 51567	+	o	–	+	o	o	+	x	x	o	o	x	+	–	o	o	o
Bleaching solution	–	–	x	+	–	–	x	x	x	–	o	x	+	–	–	–	–
Bleaching solution (aqueous), 10 %	–	–	x	+	–	–	x	x	+	o	o	x	+	–	–	o	–
Blue vitriol, saturated solution	o	o	+	+	o	o	x	x	+	x	o	x	+	o	o	x	o
Blue vitriol, 0,5 %	+	o	+	+	o	+	x	x	+	x	o	x	+	o	+	x	o
Boric acid (aqueous), 10 %	+	o	+	+	o	+	+	x	x	–	+[1]	x	+	–	–	+	+[1]
Boring oils	+	+	+	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Brandy vinegar	o	o	x	+	o	o	x	x	+	o	o	x	+	o	o	o	o
Bromine (aqueous), 25 %	–	–	x	+	–	–	–	x	–	–	–	x	o	–	–	–	–
Bromine vapours	–	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–

Chemicals, iglidur®	A180, J200, R, UW, xirodur® B180	A200, G, GLW, M250, W300, L250, C, L100, igumid G	A350	A500, UW500, X, X6, xirodur® A500	A290, F	J, J3, J4	J260	J350	H, H2, H370, H4	P, P210, K	Q	V400	Z	B	D	T220	PEP
Butanol	+	+	+	+	+	+	o	x	+	+	+	x	o	–	o	+	+
Butter	+	+	x	+	+	+	+	x	+	+	+	x	+	o	+	+	+
Butylacetate	+	+	o	+	o	o	x	x	+	o	o	x	+	x	o	o	o
Butylglycol	+	+	–	+	+	+	o	x	+	+	+	x	+	o	+	+	+
Butylglycolat	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Butyl phthalate	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Butyric acid	o	o	x	+	o	–	–	x	+	o	–	x	+	–	–	o	–
Calcium chloride, sat'd solution	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	x	+	+	+	+	+[1]
Calcium hydroxide (aqueous)	+	+	+	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Calcium hypochlorite	+	+	x	x	+	+	x	x	x	o	x	x	x	x	x	o	x
Camphor	+	+	x	+	+	+	o	x	+	x	+	x	+	o	+	x	+
Carbonated ammonia (aqueous), 10 %	+	+	x	+	+	+	x	x	+	x	x	x	+	x	+	x	+
Carbon dioxide gas	+	+	x	+	+	+	+	x	+	+	x	x	x	–	+	+	x
Carbon disulphide	+	+	x	+	+	+	x	x	+	x	+	x	x	x	+	x	+
Catechol (aqueous), 6 %	–	–	x	+	–	–	–	x	x	–	o	x	o	–	–	–	–
Caustic natron (aqueous), 50 %	o	o	x	+	o	o	x	x	x	x	x	x	+	o	o	x	o
Caustic potash, 10 %	o	+[1]	+	x	+[1]	o	x	x	x	–	x	x	x	x	o	–	x
Caustic potash, 20 %	–	o	+	+	o	–	–	x	+	–	x	x	+	o	–	–	–
Caustic potash (aqueous), 40 %	+	+	x	+	+	+	x	x	x	x	x	x	+	x	+	x	+
Caustic potash, 50 %	–	o	+	x	o	–	x	x	x	–	o	x	x	x	–	–	–
Caustic soda (aqueous), 10 %	+	–	+	+	–	o	x	x	+	–	o	+	+	–	–	–	o
Caustic soda (aqueous), 50 %	+	+	+	x	+	+	x	x	x	–	x	x	x	x	x	–	x
Cellulose paint	+	+	x	x	x	+	x	x	x	x	x	x	x	x	+	+	x
Chlor, chlorine water	–	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Chloramine	x	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Chlor bromine methane, 98 %	x	o	x	+	o	x	x	x	x	o	o	x	x	o	x	o	x
Chlorethanal	–	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Chloric gas	–	–	x	–	–	–	–	x	–	–	–	o	–	–	–	–	–
Chlorine hydrogen gas	–	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Chlorine sulfone acid (aqueous)	–	–	x	–	o	–	–	x	–	–	–	x	+	–	–	–	–
Chlorine water, sat'd solution	–	–	x	+	–	–	o	x	x	–	o	+	o	–	–	–	–
Chloroacetic acid (aq.), 10 %	–	–	x	+	–	–	–	x	x	–	–	x	–	–	–	–	–
Chloroform	–	–	–	+	o	–	–	–	o	–	–	x	o	–	–	–	–
Chromic acid (aqueous), 1 %	o	–	x	+	–	o	o	x	–	o	o	+	o	–	o	o	o
Chromic acid (aqueous), 10 %	–	–	x	+	–	–	–	x	–	–	–	+	o	–	–	–	–
Citric acid, concentrate dilution	o	o	x	+	o	o	+	x	o	x	–	x	+	o	o	x	–
Citric acid (aqueous), 10 %	+	+[1]	+	+	+[1]	+	+	x	+	+	o	x	+	x	+	+	o
Citrus fruits	+	+	x	x	+	+	x	x	x	+	x,	x	x	x	x	x	x
Cobalt salt (aqueous)	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Cooking fats, 100 %	+	+	+	+	+	+	x	x	+	+	+	x	+	o	+	+	+

Chemicals, iglidur®	A180, J200, R, UW, xirodur® B180	A200, G, GLW, M250, W300, L250, C, L100, igumid G	A350	A500, UW500, X, X6, xirodur® A500	A290, F	J, J3, J4	J260	J350	H, H2, H370, H4	P, P210, K	Q	V400	Z	B	D	T220	PEP
Cooking oils	+	+	+	+	+	+	x	x	+	+	+	x	+	o	+	+	+
Cresol	–	–	x	+	–	–	–	x	+	–	–	x	+	–	–	–	–
Cyclohexane	+	+	+	+	+	+	o	x	+	–	+	x	+	–	–	–	+
Decahydronaphthaline	+	+	–	+	+	+	x	x	+	–	+	x	+	–	–	–	+
Dibutyl ether	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Dibutyl phthalate	+	+	x	+	+	+	–	x	+	+	+	x	+	o	+	+	+
Dichlor benzene	–	+	x	+	+	–	x	x	+	–	+	x	o	x	–	–	–
Dichlor ethene	–	+	x	+	+	–	x	x	+	–	+	x	o	x	–	–	–
Dichlor ethylene	–	–	x	+	–	–	–	x	+	–	–	x	+	–	–	–	–
Diethylether	o	o	+	+	+	+	–	x	x	+	+	x	+	o	o	+	+
Dimethylformamide	o	+	+	+	+	+	–	x	+	+	+	+	+	o	+	+	+
Dioctyl phthalate	+	+	+	+	+	+	x	x	+	o	+	x	+	x	o	o	+
Dioxane	o	+	x	+	+	o	–	x	+	+	+	x	+	x	o	+	o
Dioxygen gas, +23 °C, depressurized	+	+	x	+	+	+	+	x	+	+	x	x	x	–	+	+	x
Ethanal (aqueous), 40 %	+	o	x	x	o	o	x	x	x	o	o	x	x	x	o	o	x
Ethanol (aqueous), 96 %	+	o	+	+	o	o	+	x	+	–	o	+	o	o	+	–	o
Ethyl acetate	+	+	–	+	+	+	–	x	+	–	+	+	+	o	+	–	+
Ethylene	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	–
Ethylene chloride	+	+	–	+	+	+	–	x	+	–	+	x	+	o	+	–	+
Ethylene diamine (1,2-Ethane diamine)	+	+	x	+	+	+	o	x	o	+	+	+	+	o	o	x	+
Ethylene glycole (aqueous), 95 %	+	o	x	+	o	+	o	x	+	+	o	+	+	–	+	+	o
Ethylene oxide (1,2-Epoxy ethane)	+	o	+	x	o	o	x	x	x	o	o	x	x	x	o	o	x
Fat, cooking fat	+	+	x	+	+	+	o	x	+	+	+	x	+	o	+	+	+
Ferric chlorid, saturated solution	+	o	x	x	o	+	x	x	+	x	o	x	+	o	+	x	o
Ferric chlorid, 2,5 %	+	o	x	x	o	+	x	x	+	x	o	x	+	o	+	x	o
Ferric chlorid, 5 %	–	o	x	o	o	–	o	x	+	x	o	x	+	o	–	x	–
Ferric-III-chloride (aqueous), neutral, 10 %	o	+[1]	x	o	o	o	+	x	+	x	o	x	+	o	o	x	–
Ferric-III-chloride (aqueous), sour, 10 %	–	–	x	+	+	–	–	x	+	–	o	x	+	–	–	x	–
Fluorinated hydrocarbons	o	+	x	+	o	+	o	x	+	o	+	x	o	x	o	o	+
Fluorine	–	–	+	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Formaldehyde (aqueous), 30 %	+	o	+	+	o	+	+	+	+	+	+[1]	x	+	o	+	+	+[1]
Formamide	+	o	–	+	o	+	o	x	x	x	o	x	+	–	o	x	o
Formic acid (aqueous), 2 %	o	–	x	o	–	–	+	x	+	o	–	x	o	–	–	o	–
Formic acid, 10 %	–	–	x	–	–	–	x	x	o	–	–	x	–	–	–	–	–
Formic acid, 90 %	–	–	x	–	–	–	–	x	o	–	–	x	–	–	–	–	–
Fruit juices	+	+	–	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Fuming sulfuric acid	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Furfurol	+	o	x	+	o	+	o	x	+	+	+	x	+	o	+	+	+
Glycerine	–	+	+	+	+	+	o	x	+	+	+	x	+	x	+	+	+
Glycol	+	o	+	+	o	o	x	x	+	+	o	x	+	o	o	+	o

Chemicals, iglidur®	A180, J200, R, UW, xirodur® B180	A200, G, GLW, M250, W300, L250, C, L100, igumid G	A350	A500, UW500, X, X6, xirodur® A500	A290, F	J, J3, J4	J260	J350	H, H2, H370, H4	P, P210, K	Q	V400	Z	B	D	T220	PEP
Heptane	+	+	+	+	+	+	+	x	+	o	+	x	+	–	–	o	+
Hexa chlorine ethane	+	+	x	+	+	+	x	x	x	x	+	x	o	x	–	–	–
Hexachlorobenzene	+	–	x	+	–	–	x	x	x	x	–	x	o	x	–	–	–
Hexamethylphosphoracidtramid	+	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–.	–
Hexane	+	+	+	+	+	+	+	x	+	–	+	+	+	–	–	–	+
Humic acid	o	o	x	x	o	o	x	x	x	o	o	x	x	x	o	o	x
Hydrobromic acid (aqueous), 10 %	–	–	x	+	–	–	–	x	o	–	–	x	+	–	–	–	–
Hydrochloric acid, L20	–	–	+	x	–	–	x	–	x	o	–	x	x	x	–	o	–
Hydrochloric acid, 2 %	–	–	+	+	–	–	+	x	–	–	o	+	+	–	–	–	–
Hydrochloric acid, 10 %	–	–	+	+	–	–	–	o	–	–	–	+	+	–	–	–	–
Hydrofluoric acid (aqueous), 4 %	–	–	–	+	–	–	–	x	–	–	–	–	–	–	–	–	–
Hydrogen peroxide, 0,5 %	+	+	+	+	+	+	+	o	+	+	+	+	+	+	+	+	+
Hydrogen peroxide, 30 %	–	–	+	+	–	–	–	–	–	–	–	x	–	–	–	–	–
Hydrogen sulphide (aqueous)	+	o	x	x	o	+	x	x	x	o	o	x	x	x	–	o	o
Hydrogen sulphide (dry)	+	+	+	+	o	x	+	x	+	+	+	x	+	x	x	+	x
Hydroquinone (aqueous), 5 %	o	–	x	+	–	o	o	x	x	o	–	x	+	–	o	o	–
Ink, dye, Color	+	+[1]	–	+	+[1]	+	+	x	+	+	+[1]	+	+	+	+	+	+[1]
Iodine tincture, 3 %	o	–	–	+	–	o	–	x	+	x	o	x	+	–	o	x	o
Isooctane, 80 %	+	+	+	+	+	+	+	x	+	o	+	x	+	–	–	o	+
Isopropanol	+	+	+	+	+	+	+	x	+	+	o	x	o	o	+	+	o
Isopropyl ether	+	+	x	+	+	+	–	x	x	o	+	x	+	o	+	o	+
Ketone (aliphatic)	+	o	+	x	o	o	x	x	x	–	o	x	x	x	o	–	x
“Königswasser” HCl/HNO_3 (75/50 vol.)	–	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Lead acetate (diluted), 10 %	+	o	x	+	o	+	+	x	x	o	o	x	+	–	+	o	o
Lead stearat	+	+	x	+	+	+	+	x	+	+	+	x	+	o	+	+	+
Linseed oil	+	+	+	+	+	+	+	x	+	+	+	+	+	–	+	+	+
Lithium bromide/chloride/salts (aqueous), 50 %	+	o	x	+	o	+	+	x	x	o	o	x	+	–	+	o	o
Lithium chloride in alcohol, 20 %	+	–	x	x	–	–	x	x	x	x	–	x	x	x	–	x	–
Lubricating oil, mineral	+	+	+	+	+	+	+	x	+	o	+	+	+	–	+	o	o
Lubricating oil, synthetic	o	o	x	+	o	o	o	x	+	–	+	+	+	–	o	–	o
Magnesium chloride (aq.), 10 %	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	+	+	+	+	+	+[1]
Magnesium hydroxyde (aqueous)	+	+[1]	x	+	+[1]	+	+	x	+	+	+	+	+	+	+	+	+
Maleic acid, concentrate solution	o	–	x	+	–	o	o	x	+	x	o	x	+	–	o	x	–
Maleic acid (aqueous), 10 %	–	o	x	x	o	–	x	x	x	–	o	x	x	x	–	–	–
Malt	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Manganese sulphat (aq.), 10 %	+	o	x	+	o	+	x	x	+	x	+	x	+	o	+	x	+
Mercurous chloride, 6 %	–	–	x	+	–	–	+	x	o	o	–	x	x	–	–	o	–
Mercury	+	+	x	+	+	+	+	x	+	+	+	+	+	+	+	+	+
Methane	+	+	+	+	+	+	+	+	+	+	x	x	x	–	+	+	x

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Methanol	+	+	+	x	+	+	x	+	x	+	x	x	x	x	x	x	x
Methanol, +20 % $CaCl_2$ or LiCl	+	–	x	o	o	o	–	x	o	+	o	+	o	+	+	+	o
Methyl acetate	o	+	x	+	+	o	x	x	+	o	+	x	+	x	o	o	o
Methylamine	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Methylene chloride	o	–	–	x	–	–	x	–	+	–	–	+	o	o	–	–	–
Methyl ethyl ketone	o	+	–	+	+	o	–	–	+	–	+	x	+	–	o	–	o
Milk	+	+[1]	+	+	+[1]	+	+	x	+	+	+[1]	+	+	+	+	+	+[1]
Milk acid (lactic acid), 10 %	+	+	+	+	+	+	+	x	+	+	o	x	+	o	o	o	o
Milk acid (lactic acid), 90 %	+	o	o	+	o	o	+	x	+	o	o	x	+	o	o	o	o
Molasses	+	+	+	x	+	+	x	+	x	+	x	x	x	x	x	x	x
Molykote lubricating grease	+	+	x	+	+	+	x	x	+	x	+	x	+	x	+	x	+
Mortar, cement, chalk	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Naphthalene	+	+	x	+	+	+	o	x	+	+	+	x	+	–	+	+	+
Naphtalene sulfone acid	–	–	x	x	–	–	x	x	x	x	–	x	x	x	–	x	–
Natrium oleate	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Natrium sulphate, 10 %	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	x	+	+	+	+	+[1]
Natrium sulphite, neutral, 2 %	o	+[1]	x	+	+[1]	o	o	x	+	o	+[1]	x	+	x	o	o	o
Natrium thiosulphate, 10 %	+	+[1]	–	+	+[1]	+	+	x	+	+	+[1]	x	+	x	+	+	+[1]
Nickelsalt (aqueous), 10 %	+	o	x	x	o	+	x	x	x	x	o	x	x	x	–	x	o
Nitric acid (aqueous), L50	–	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Nitric acid (aqueous), 2 %	–	–	+	+	–	–	o	+	–	–	–	+	+	–	–	–	–
Nitric acid (aqueous), 5 %	–	–	x	+	–	–	–	x	–	–	–	+	+	–	–	–	–
Nitrio acetic acid	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Nitrobenzene	o	–	–	+	–	o	–	x	o	–	o	+	–	–	–	–	–
Nitrogases	–	o	x	x	o	–	x	x	x	x	o	x	x	x	–	x	–
Nitromethane	–	o	x	+	o	–	x	x	o	–	x	x	+	o	–	–	–
Nitro paints, danger class A I	+	o	x	x	o	+	x	x	x	o	o	x	x	x	–	o	o
Nitro paints, danger class A II	+	+	x	x	+	+	x	x	x	o	x	x	x	x	x	o	x
Nitrotoluene	°	o	x	x	o	o	x	x	x	–	o	x	x	x	o	–	x
Nitrous gases (dry)	–	o	x	x	o	–	x	x	x	o	o	x	x	x	–	o	–
Noble gases (argon, helium, neon)	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Octane	x	+	?	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Oleic acid	+	+	x	+	+	+	+	x	+	+	+	+	+	o	+	+	+
Oxalic acid (aqueous), 10 %	x	o	+	+	o	x	+	x	x	+	o	x	+	–	x	+	x
Ozon	–	–	–	+	–	–	+	x	–	–	–	x	+	–	–	–	–
Palmitic acid	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Paraffin	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Paraffin oil	+	+	+	+	+	+	+	x	+	–	+	x	+	–	–	–	+
Pebble hydrofluoric acid (aqueous), 30 %	x	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Perchlorethene	–	–	–	+	–	–	–	–	x	–	–	x	+	–	–	–	–
Perchloric acid, 10 %	–	–	x	+	–	–	–	x	x	–	–	x	+	–	–	–	–

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Perfume	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Phenol (aqueous), 6 %	–	–	–	x	–	–	–	x	+	–	–	x	+	–	–	–	–
Phenol (aqueous), 70 %	–	–	x	o	–	–	–	x	+	–	–	x	+	–	–	–	–
Phenol (aqueous), 88 %	–	–	–	x	–	–	x	x	x	x	–	x	x	x	–	x	–
Phosphoric acid (aqueous), 0,3 %	+	o	x	+	o	+	+	x	o	–	o	x	+	o	–	+	o
Phosphoric acid (aqueous), 3 %	+	o	x	+	–	o	+	x	o	–	o	x	+	o	–	–	o
Phosphoric acid (aqueous), 10 %	–	–	–	+	–	–	o	x	–	–	–	x	+	–	–	–	–
Phthalic acid, saturated solution	+	o	x	+	o	+	o	x	o	+	o	x	+	o	+	+	o
Polyester resin (with styrene)	o	+	x	+	+	+	–	x	+	o	+	x	+	–	o	o	+
Porpenoic acid	o	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Potassium bromide (aq.), 10 %	+	o	x	+	o	o	+	x	+	o	+[1]	x	+	–	+	o	+
Potassium carbonate (aq.), 60 %	+	+[1]	x	+	+[1]	+	+	x	+	o	+[1]	x	+	o	+	o	+
Potassium chloride (aq.), 10 %	+	+[1]	x	x	+[1]	+	x	x	x	+	x	x	x	x	x	x	x
Potassium chloride (aq.), 90 %	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	+	+	+	+	+	+
Potassium dichromate (aq.), 5 %	+	o	–	+	o	o	+	x	+	o	o	x	+	–	+	o	o
Potassium nitrate (aq.), 10 %	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	+	+	+	+	+	+
Potassium permanganate (aqueous), 1 %	+	–	–	+	–	+	+	x	–	+	o	x	+	–	+	+	o
Potassium sulphat, sat'd solution	+	+[1]	x	+	+[1]	+	+	x	+	o	+[1]	x	+	o	+	o	+
Propane, Propene	+	+	x	+	+	+	–	x	+	+	+	x	+	o	+	+	+
Propanol	+	+	–	+	+	+	+	x	o	+	+	+	o	o	+	+	+
Pyridine	o	+	–	+	+	o	–	x	+	x	+	x	+	x	o	x	o
Pyruvic acid (aqueous), 10 %	x	o	x	x	o	x	x	x	x	o	o	x	x	x	–	o	x
Resorcin (1,3-Dihydroxybenzol), 50 %	x	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Salicyl acid	–	+	–	+	+	–	+	x	+	–	+	x	+	x	–	–	–
Seawater	+	+	+	x	+	+	x	+	x	+	x	x	x	x	x	x	x
Sebum	+	+	x	+	+	+	+	x	+	+	+	+	+	+	+	+	+
Silikon oils	+	+	+	+	+	+	+	x	+	+	+	+	+	+	+	+	+
Silver nitrate	+	+[1]	x	+	+[1]	+	+	x	+	o	+[1]	x	+	x	+	o	+[1]
Soap solutions	+	+[1]	+	+	+[1]	+	+	x	+	+	+[1]	+	+	+	+	+	+[1]
Soda solution, 10 %	+	+[1]	+	+	+[1]	+	x	x	+	+	+[1]	x	+	x	+	+	+[1]
Sodium acetate (aqueous), 10 %	+	–	x	+	+[1]	+	+	x	+	o	+	x	+	o	+	o	+
Sodium bisuphite (aqueous), 10 %	+	+[1]	–	+	+[1]	+	o	x	+	+	+[1]	x	+	x	+	+	+[1]
Sodium bromide (aqueous), 10 %	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	x	+	+	+	+	+[1]
Sodium carbonate, 5 %	+	+[1]	–	+	+[1]	+	+	x	+	+	+[1]	x	+	x	+	+	+
Sodium carbonate (aqueous), 21,5 %	+	+[1]	–	+	+[1]	+	+	x	+	+	+[1]	x	+	x	+	+	+
Sodium carbonate (aqueous), 50 %	+	+[1]	–	+	+[1]	+	+	x	+	+	+[1]	x	+	o	+	+	+
Sodium chlorate (aqueous), 10 %	+	o	x	x	o	o	x	x	x	o	o	x	x	x	o	o	x

Chemicals, iglidur®	A180, J200, R, UW, xirodur® B180	A200, G, GLW, M250, W300, L250, C, L100, igumid G	A350	A500, UW500, X, X6, xirodur® A500	A290, F	J, J3, J4	J260	J350	H, H2, H370, H4	P, P210, K	Q	V400	Z	B	D	T220	PEP
Sodium chloride, sat'd solution	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	x	+	+	+	+	+[1]
Sodium dichromate (aq.), 10 %	x	o	x	x	o	x	x	x	x	o	o	x	x	x	–	o	x
Sodium dodecylbenzolsulfonat	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Sodium hypochlorite (aq.), 10 %	–	–	x	+	–	–	o	x	o	o	o	x	x	o	o	o	o
Sodium hypophosphite (aqueous), 10 %	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Sodium nitrate (aqueous), 10 %	+	+[1]	–	+	+[1]	+	+	x	+	+	+[1]	x	+	+	+	+	+[1]
Sodium nitrilotriacetate (aqueous), 10 %	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Sodium salts, 10 %	+	+	x	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Soldering fluid	–	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Spirit, white	+	+	x	+	+	+	o	x	+	+	+	x	+	x	+	+	+
Steam	x	–	o	+	–	x	o	x	+	–	o	o	o	–	x	–	x
Styrene	o	+	x	+	+	o	–	x	+	–	+	x	+	–	–	–	+
Sulphur	+	+	x	+	+	+	+	x	+	+	+	+	+	+	+	+	+
Sulphur acid, 2 %	–	–	+	o	–	–	o	+	o	–	–	+	+	–	–	–	–
Sulphur acid, 10 %	–	–	+	o	–	–	o	o	–	–	–	+	+	–	–	–	–
Sulphuric acid (concentrate), 98 %	–	–	–	–	–	–	–	x	–	–	–	–	o	–	–	–	–
Tar	+	+	+	+	+	+	o	x	+	+	+	x	+	x	+	+	+
Tetrahydrofurane (solvent)	o	+	–	+	+	o	–	x	+	+	+	+	+	x	o	+	o
Tetraline	+	+	x	+	+	+	x	x	+	–	+	x	+	x	–	–	+
Thionyl chloride	o	o	–	+	o	o	–	x	x	x	o	x	x	o	o	x	o
Toluene	o	+	o	+	+	o	–	o	+	–	+	+	+	–	–	–	+
Transformer oil	+	+	+	+	+	+	o	x	+	+	+	x	+	–	+	+	+
Trichloroacetic acid (aq.), 50 %	–	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Trichloroethanoic	–	o	x	+	o	–	x	x	+	–	o	x	o	x	–	–	–
Trichloroethylene	–	–	–	+	–	–	–	–	o	–	–	x	+	–	–	–	–
Triethanolamine, 90 %	+	+[1]	–	+	+[1]	+	+	x	+	+	+[1]	x	+	x	+	+	+[1]
Trisodiumphosphate, 90 %	+	+	x	+	+	+	+	x	+	+	+	x	+	x	+	+	+
Uranium fluoride	–	–	x	x	–	–	x	x	x	–	–	x	x	x	–	–	–
Urea	+	+	x	+	+	+	+	x	+	+	+	x	+	o	+	+	+
Uric acid (aqueous), 10 %	+	+	+	x	+	+	x	x	x	+	x	x	x	x	x	x	x
Urine	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Vaseline	o	o	+	+	+	+	o	x	+	o	+	x	+	o	o	+	+
Violet oil	+	+	x	+	+	+	x	x	+	x	+	x	+	x	+	x	+
"Washing machine cleaner" (phosphoric and nitric acid)	+	o	x	+	o	–	x	x	+	+	o	x	+	o	–	+	–
Water glasses (Sodium silicate)	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	x	+	+	+	+	+[1]
Wax, molten	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Wine acid	o	o	+	+	o	+	+	x	+	x	+[1]	x	+	o	o	x	+[1]
Xylene	o	o	+	+	+	o	–	x	+	–	+	x	+	o	–	–	+

iglidur® | Chemical Resistance

Chemicals, iglidur®	A180, J200, R, UW, xirodur® B180	A200, G, GLW, M250, W300, L250, C, L100, igumid G	A350	A500, UW500, X, X6, xirodur® A500	A290, F	J, J3, J4	J260	J350	H, H2, H370, H4	P, P210, K	Q	V400	Z	B	D	T220	PEP
Zinc chloride (aqueous), 10 %	+	o	+	+	o	+	+	x	+	x	–	x	+	o	+	x	–
Zinc oxide	+	+	x	+	+	+	+	x	+	+	+	+	+	+	+	+	+
Zinc sulphate (aqueous), 10 %	+	+[1]	x	+	+[1]	+	+	x	+	+	+[1]	x	+	+	+	+	+[1]

Resistance classification: + resistant; o conditionally resistant; – not resistant; x no data available

[1] The bearings are not chemically attacked by these substances. However, there may be a dimensional change due to moisture absorption.

The data was determined using laboratory specimens or based on comparisons with similar chemicals. Therefore, this data can only act as a reference. The chemical resistance of actual parts should be tested under application conditions. All data given concerns the chemical resistance at room temperature. Other temperatures may lead to different classifications of the chemical resistance. The data is based on our current knowledge. Future discoveries may lead to changes in the classification of the chemical resistance.

iglidur® J4 | Technical Data

Material table			
General properties	**Unit**	**iglidur® J4**	**Test method**
Density	**g/cm³**	1.48	
Color		grew	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.3	DIN 53495
Max. water absorption	**% weight**	1.3	
Coefficient of sliding friction, dynamic against steel	**µ**	0.06–0.20	
pv-Wert, max. (trocken)	**MPa · m/s**	0.3	
Mechanical properties			
Modulus of elasticity	**MPa**	2,350	DIN 53457
Tensile strength at +20 °C	**MPa**	70	DIN 53452
Druckfestigkeit	**MPa**	55	
Max. recommended surface pressure (+20 °C)	**MPa**	35	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+120	
Min. short term application temperature	**°C**	–50	
Wärmeleitfähigkeit	**W/m · K**	0.25	ASTM C 177
Coefficient of thermal expansion (at +23 °C)	**$K^{-1} \cdot 10^{-5}$**	10	DIN 53752
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{13}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{12}$	DIN 53482

iglidur® P210 | Technical Data

Material table			
General properties	**Unit**	**iglidur® P210**	**Test method**
Density	**g/cm³**	1.4	
Color		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.3	DIN 53495
Max. water absorption	**% weight**	0.5	
Mechanical properties			
Modulus of elasticity	**MPa**	2,200	DIN 53457
Tensile strength at +20 °C	**MPa**	65	DIN 53452
Shore D hardness		75	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+100	
Max. short term application temperature	**°C**	+160	
Min. short term application temperature	**°C**	–40	
Electrical properties			
Surface resistance	**Ω**	$> 10^{11}$	DIN 53482

igumid G | Technical Data

Material table			
General properties	**Unit**	**igumid G**	**Test method**
Density	**g/cm³**	1.37	
Color		black	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	1.4	DIN 53495
Max. water absorption	**% weight**	5.6	
Mechanical properties			
Modulus of elasticity	**MPa**	7,800	DIN 53457
Tensile strength at +20 °C	**MPa**	240	DIN 53452
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+120	
Max. short term application temperature	**°C**	+180	
Min. short term application temperature	**°C**	–40	
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{11}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{11}$	DIN 53482

iguton G | Technical Data

Material table			
General properties	**Unit**	**iguton G**	**Test method**
Density	**g/cm³**	1.69	
Color		brown	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.1	DIN 53495
Max. water absorption	**% weight**	0.2	
Mechanical properties			
Modulus of elasticity	**MPa**	10,200	DIN 53457
Tensile strength at +20 °C	**MPa**	140	DIN 53452
Max. recommended surface pressure (+20 °C)	**MPa**	65	
Shore D hardness		85	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+200	
Max. short term application temperature	**°C**	+240	
Max. short term ambient temperature[1)]	**°C**	+260	
Min. short term application temperature	**°C**	–40	
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{15}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{14}$	DIN 53482

[1)] Without additional load, no sliding movement; relaxation possible

POM black | Technical Data

Material table			
General properties	**Unit**	**POM black**	**Test method**
Density	**g/cm³**	1.41	
Color		black	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0,2	DIN 53495
Max. water absorption	**% weight**	1,1	
Mechanical properties			
Modulus of elasticity	**MPa**	1,900	DIN 53457
Tensile strength at +20 °C	**MPa**	68	DIN 53452
Max. recommended surface pressure (+20 °C)	**MPa**	23	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+120	
Min. short term application temperature	**°C**	–50	
Electrical properties			
Specific volume resistance	**Ωcm**	$> 10^{12}$	DIN IEC 93
Surface resistance	**Ω**	$> 10^{12}$	DIN 53482

RN33 | Technical Data

Material table			
General properties	**Unit**	**RN33**	**Test method**
Density	**g/cm³**	1.36	
Color		black	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	1.4	DIN 53495
Max. water absorption	**% weight**	6.0	
Mechanical properties			
Modulus of elasticity	**MPa**	3,200	DIN 53457
Tensile strength at +20 °C	**MPa**	80	DIN 53452
Max. recommended surface pressure (+20 °C)	**MPa**	60	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+90	
Max. short term application temperature	**°C**	+120	
Min. short term application temperature	**°C**	–40	
Electrical properties			
Specific volume resistance	**Ωcm**	~ 10^{11}	DIN IEC 93
Surface resistance	**Ω**	~ 10^{11}	DIN 53482

iglidur® L100 | Technical Data

Material table			
General properties	**Unit**	**iglidur® L100**	**Test method**
Density	**g/cm³**	1.35	
Color		yellow	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	0.7	DIN 53495
Max. water absorption	**% weight**	5.2	
Mechanical properties			
Modulus of elasticity	**MPa**	5,500	DIN 53457
Tensile strength at +20 °C	**MPa**	150	DIN 53452
Max. recommended surface pressure (+20 °C)	**MPa**	70	
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+100	
Max. short term application temperature	**°C**	+190	
Max. short term ambient temperature	**°C**	+200	
Min. short term application temperature	**°C**	–40	
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{13}	DIN IEC 93
Surface resistance	**Ω**	> 10^{11}	DIN 53482

RN246 | Technical Data

Material table			
General properties	**Unit**	**RN246**	**Test method**
Density	**g/cm³**	1.49	
Color		blue	
Max. moisture absorption at +23 °C/50 % r.h.	**% weight**	2.0	DIN 53495
Max. water absorption	**% weight**	6.0	
Mechanical properties			
Modulus of elasticity	**MPa**	6,000	DIN 53457
Tensile strength at +20 °C	**MPa**	180	DIN 53452
Max. recommended surface pressure (+20 °C)	**MPa**	65	
Shore D hardness		85	DIN 53505
Physical and thermal properties			
Max. long term application temperature	**°C**	+80	
Max. short term application temperature [1)]	**°C**	+120	
Min. short term application temperature	**°C**	–40	
Electrical properties			
Specific volume resistance	**Ωcm**	> 10^{11}	DIN IEC 93
Surface resistance	**Ω**	> 10^{11}	DIN 53482

[1)] without additional load, no sliding movement; relaxation possible

Date:	Phone: +44 (0) 16 04/67 72 40 Fax: +44 (0) 16 04/67 72 45
From: Phone: Fax:	To: **igus® UK Head Office** Polymer Bearings 51A Caswell Road Brackmills Northampton NN4 7PW

Please enter as much information as possible. If you prefer other measuring units, cross out the given unit and write your units next to it. Most applications questions can be answered with minimal data. Please call for further information (Phone: +44 [0] 16 04/67 72 40).

Dimensions:

Shaft diameter (mm): .....
Bearing length (mm): .....
Bearing wall thickness (mm): .....
Bearing load (N): .....
Running speed (m/s): .....

Type of motion:

- ☐ rotating with ..... U/min
- ☐ oscillating with .....degrees
- ☐ linear with .....mm stroke

Rate (1/min): .....

Lubrication:

- ☐ dry
- ☐ oil
- ☐ grease
- ☐ water

Ambient temperature (°C) .....
Surrounding media (e.g. acids, water, alkalines etc.): .....
.....
Sliding surface (e. g. steel, plastic): .....
.....
Average roughness Ra: .....
Housing material: .....
Intermittent rating: .....
Run time (s): .....
Down time (s): .....
Target service life: .....

What type of bearing are you currently using?

- ☐ iglidur®
- ☐ steel backed PTFE bearing
- ☐ oil filled sintered bronze bearing
- ☐ anti-friction bearing
- ☐ other

Which problem can iglidur® solve for you?

- ☐ dry running
- ☐ abrasion firmness
- ☐ edge pressing
- ☐ vibration dampening
- ☐ chemicals
- ☐ temperatures
- ☐ dirt, dust, ...
- ☐ cost reduction

Other load characteristics: .....
.....

Drawing:

All calculations also online with our expert system ▶ page 960

Date:	Phone: +44 (0) 16 04/67 72 40 Fax: +44 (0) 16 04/67 72 45
From: Phone: Fax:	To: **igus® UK Head Office** Polymer Bearings 51A Caswell Road Brackmills Northampton NN4 7PW

Please enter as much information as possible. If you prefer other measuring units, cross out the given unit and write your units next to it. Most applications questions can be answered with minimal data. Please call for further information (Phone: +44 [0] 16 04/67 72 40).

Rod ends type A ☐ (male thread)
Rod ends type B ☐ (female thread)
Pillow block ☐
Spherical bearing ☐
Flange bearing ☐ 2-hole
☐ 4-hole
Clevis Joints ☐ with pin and clip
☐ with spring-loaded pin
Dimensional series ☐ E
☐ K
Thread pitch ☐ Standard thread
☐ Fine thread

Speed (m/s; rpm): .....

Type of movements:

☐ rotating
☐ oscillating with ..... degrees
☐ linear

Lubrication:

☐ dry
☐ oil
☐ grease
☐ water

Shaft diameter (mm/Inch): .....
.....
Bearing load (N): .....
Ambient temperature (°C): .....
Shaft material (z. B. steel, 303 stainless, plastic): .....
.....

Average roughness Ra: .....
Target service life (hrs): .....
Current typ: .....
.....
Surrounding media (e.g. acids, water, alkalines): .....
.....

Which problem can igubal® solve for you?

☐ dry running ☐ chemicals
☐ corrosion ☐ dirt
☐ vibration dampening ☐ dust
☐ cost-reduction ☐ weight

Other load characteristics: .....
.....

Drawing:

All calculations also online with our expert system ▶ page 962

Date:	Phone: +44 (0) 16 04/67 72 40 Fax: +44 (0) 16 04/67 72 45
From: Phone: Fax:	To: **igus® UK Head Office** Polymer Bearings 51A Caswell Road Brackmills Northampton NN4 7PW

Application: .....

.....

Current guide system: .....

Orientation of system (1 = horizontal, 2 = lateral, 3 = vertical): .....

Number of bearings per rail/shaft: ..... Number of rails/shafts: .....

Type of drive: ..... Drive force [N]: .....

Average speed: ..... Maximum speed: .....

Length of stroke: ..... Expected service life: .....

Operating time: .....

Ambient temperature: ..... Maximum temperature: .....

Surrounding medium: ..... Lubrication: .....

Static load: ..... Dynamic load: .....

For the following data, the drawings on next pages will help you!

Distance between bearings/carriages on a rail/shaft (wx): .....

Distance between rails/shafts (b): .....

Distance to centre of gravity in x-direction (Sx): .....

Distance to centre of gravity in y-direction (Sy): .....

Distance to centre of gravity in z-direction (Sz): .....

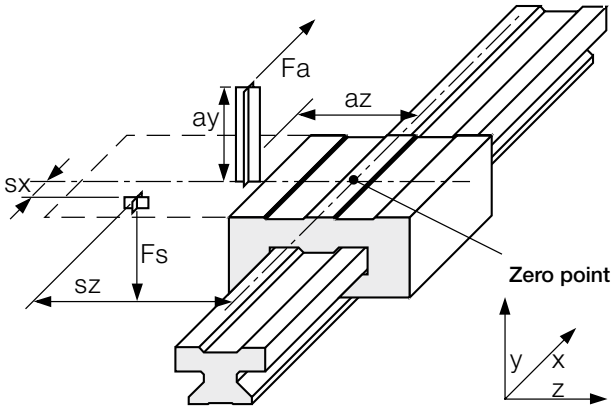
Distance to the drive force in y-direction (ay): .....

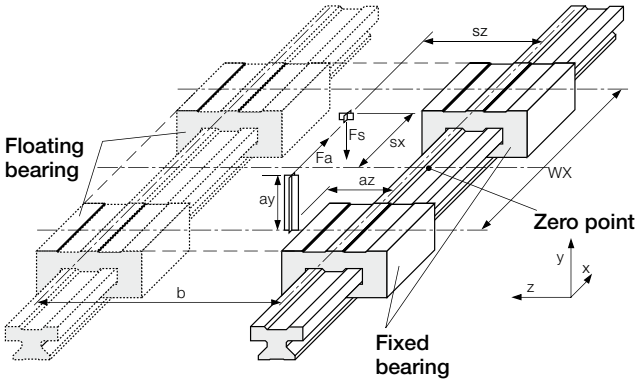
Distance to the drive force in z-d (az): .....

Please enter all the data you know and if possible make sketch.

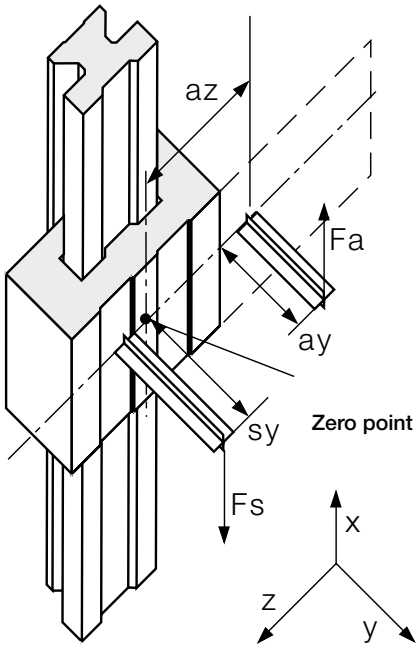
All calculations also online with our expert system ▶ page 963

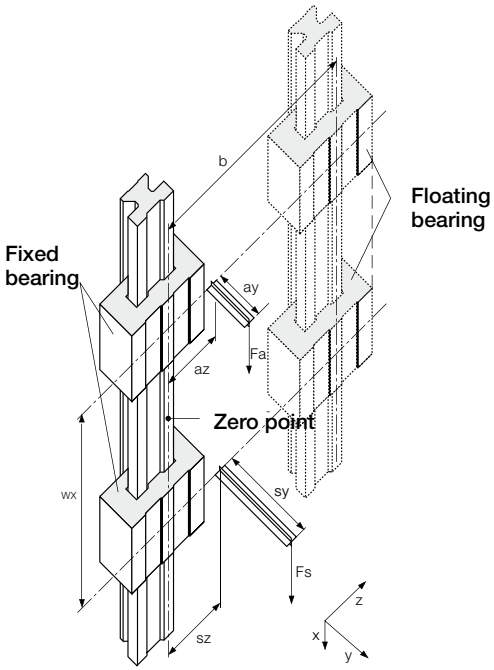
Horizontal Orientation





Vertical Orientation





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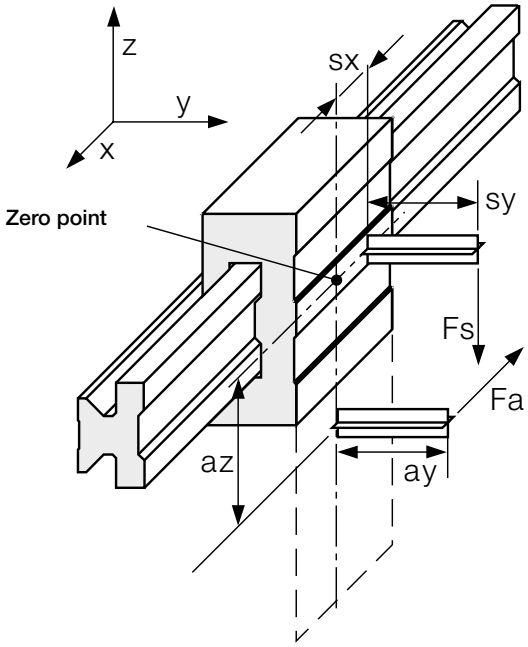

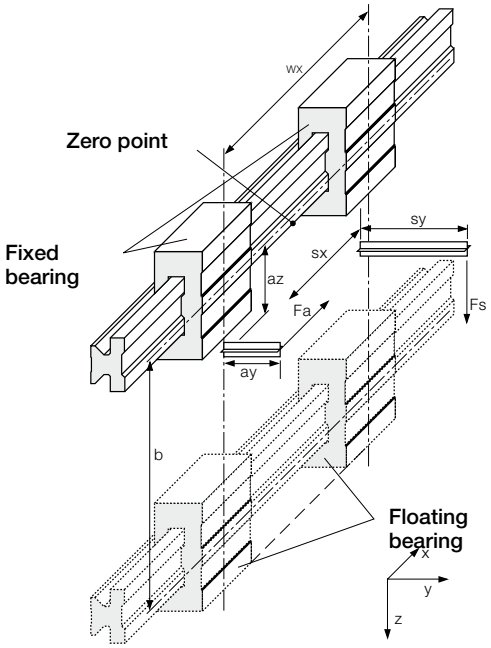

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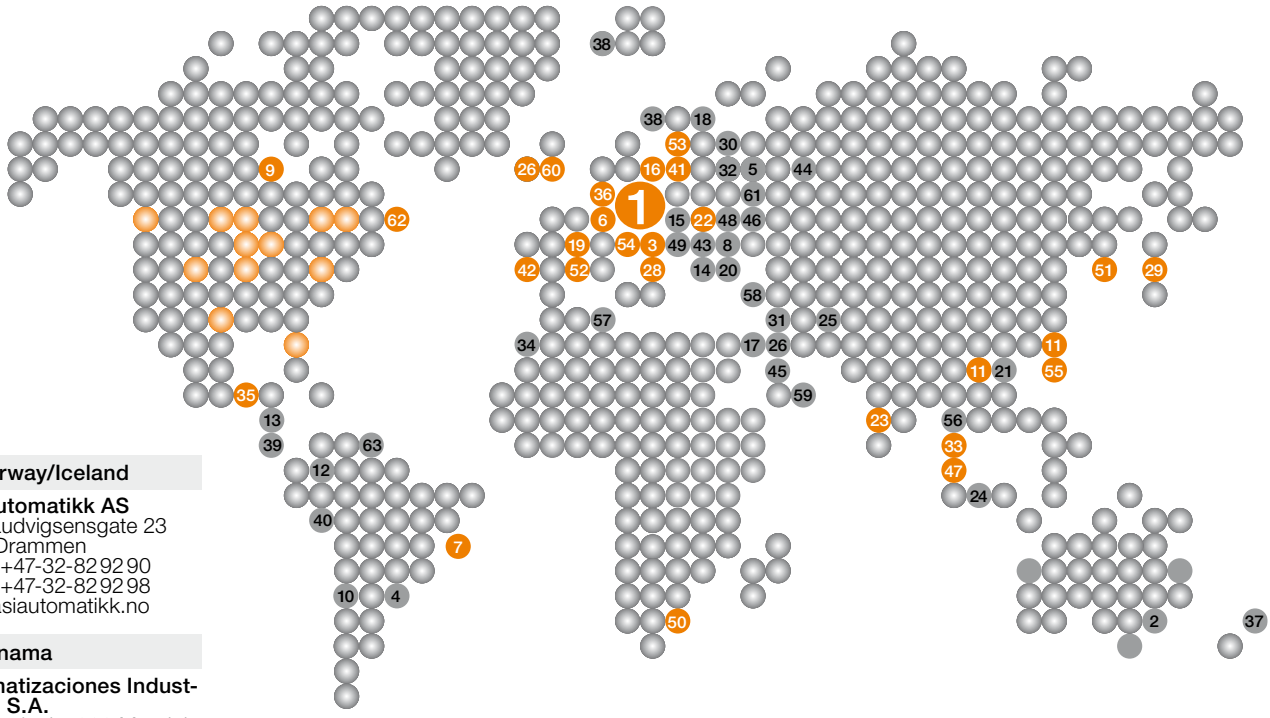

Issue 08.03.2011 ECS+BRG

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