TEN GOOD REASONS TO USE PLASTIC BALL BEARINGS

S T E E L B E A R I N G S C O R R O D E I N L I Q U I D S

If you're looking for an innovative, cost effective way to approach an engineering design problem, the solution may be a plastic ball bearing. They can make your products run smoother, quieter, more efficiently and with less maintenance than conventional steel bearings. Size, shape and environment are no longer limitations. Following are ten good reasons to use plastic ball bearings.

1. CORROSION RESISTANCE:
Most bearing failures today are caused by corrosion. KMS Bearings' plastic ball bearings can be utilized in environments destructive to conventional bearings. They can operate in hostile environments such as sea water, film processing solutions and swimming pools. In many cases the medium can be used as a lubricant.

2. LIGHTWEIGHT:
Plastics are five times lighter than steel, thereby reducing the weight and energy required to move them.

3. DESIGN FLEXIBILITY:
Special designs are readily and inexpensively made from plastics. This allows engineers complete freedom to design the bearing around the device rather than attempting to design the device around a limited range of standard bearings.

4. PRODUCT INTEGRATION:
Many times a bearing is mounted into another part, such as a plastic pulley, sprocket, wheel or a mounted block. Utilizing the design concept of a plastic ball bearing, KMS Bearings, Inc., can integrate the mating component as the raceway of the bearing, ie: pulley as the outer ring, or the shaft as the inner ring. The end result is fewer parts, reduced assembly time, and overall lower cost.

5. NON METALLIC – NON MAGNETIC:
Plastic ball bearings become completely non magnetic when fitted with either polymer, glass, or non magnetic 316 stainless balls. They are ideal for use where there can be no magnetic distortion.

6. HYGIENIC:
Plastic ball bearings are naturally clean because they do not corrode or require lubrication. They are ideal for wash down applications and clean room environments.

7. NOISE CONTROL:
Plastics have the inherent ability to dampen vibrations. Add lubrication and they become virtually silent.

8. SHOCK LOAD SUPPRESSION:
Plastics absorb shock loads better than metal due to their elastic nature. Many conventional radial ball bearings fail due to brinelling of the raceway, ie: balls denting the raceway.

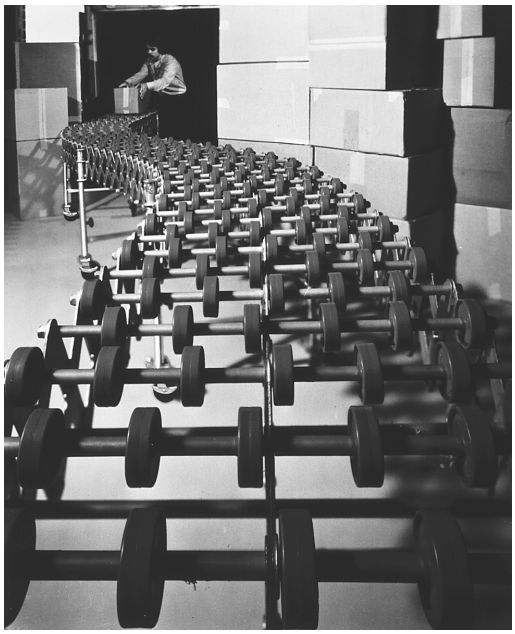
9. LUBRICATION FREE:
There are three reasons steel bearings require lubrication; to reduce friction, dissipate heat and resist corrosion. Plastic, by nature, does not corrode. Due to the design of plastic ball bearings, there is no metal to metal contact, resulting in less friction; therefore dissipating heat becomes less critical.

10. LOW INERTIA – FREER TURNING:
Plastic ball bearings run freer and naturally have low inertia due to the low coefficient of friction between plastic and stainless. Two other factors contributing to low inertia are the ability to run without grease and being lighter in weight.

KMS Bearings, Inc. • 1560 Harmony Circle, Anaheim, CA 92807 • (714) 970-0280 • FAX (714) 970-0560
Toll Free (800) 448-2412 • www.KMSBearings.com

APPLICATIONS

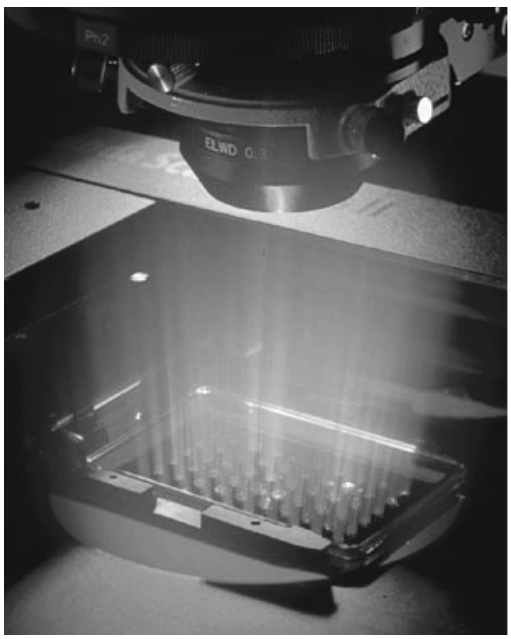
STANDARD PLASTIC RACE BALL BEARINGS



Conveyors Systems
Plastic Skatewheel ball bearings are ideal for conveyor systems. They are light weight, no lube, will not rust after wash down and require less energy to turn.

Medical Applications
Plastic Ball Bearings fitted with plastic or glass balls meet MRI system requirements because they do not distort magnetic imaging.

Pool Cleaners
Plastic Ball Bearings can run under water without lubrication or rusting.

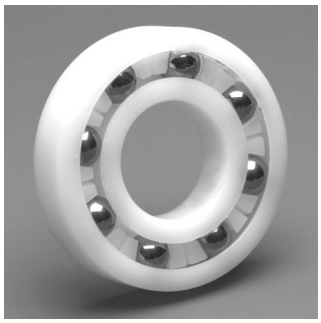


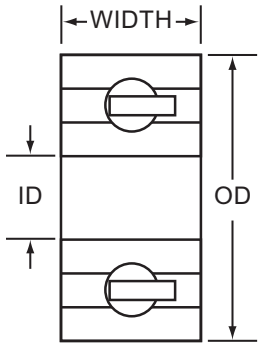
Semi-Conductor Industries
Plastic and 316 Stainless survive in the hostile environments of semi-conductor manufacturing.

RADIAL BALL BEARINGS - PLASTIC

Single Row Plastic Raceways

Inch Sizes





Standard Plastic is Acetal

PART NUMBER	ID	OD	WIDTH	MAX. RPM WITH NO LOAD	DYNAMIC LOAD CAPACITY	STATIC LOAD CAPACITY
AR3-6	3/16 in	1/2 in	5/32 in	3167	17 lbs	11 lbs
AR3A-6	3/16 in	5/8 in	0.196 in	2352	26 lbs	17 lbs
AR4-6	1/4 in	5/8 in	0.196 in	2352	26 lbs	17 lbs
AR4A-6	1/4 in	3/4 in	7/32 in	2352	26 lbs	17 lbs
AR4AW-6	1/4 in	3/4 in	9/32 in	2352	26 lbs	17 lbs
AR6-6	3/8 in	7/8 in	7/32 in	1600	42 lbs	33 lbs
AR6A-6	3/8 in	7/8 in	9/32 in	1600	42 lbs	33 lbs
AR8-6-1/2	1/2 in	1 1/8 in	1/4 in	1142	55 lbs	43 lbs
AR8-6-5/8	5/8 in	1 1/8 in	1/4 in	1142	55 lbs	43 lbs
AR10A-6	3/8, 1/2, 5/8 in	1 3/8 in	3/8 in	1069	69 lbs	46 lbs
AR10B-6	3/8, 1/2, 5/8 in	1 3/8 in	7/16 in	1069	69 lbs	46 lbs
AR12-6	3/4 in	1 5/8 in	5/16 in	840	78 lbs	52 lbs
AR12W-6	3/4 in	1 5/8 in	7/16 in	840	78 lbs	52 lbs
AR16-6	1, 1-1/4 in	2 in	1/2 in	729	92 lbs	61 lbs
AR16-6-1	1 in	2 in	1/2 in	729	92 lbs	61 lbs
AR16-6-1-1/4	1 1/4 in	2 in	1/2 in	729	92 lbs	61 lbs
AR18-6	1 1/8 in	2 1/8 in	1/2 in	729	92 lbs	61 lbs
AR20-6	1 1/4 in	2 1/4 in	1/2 in	729	92 lbs	61 lbs

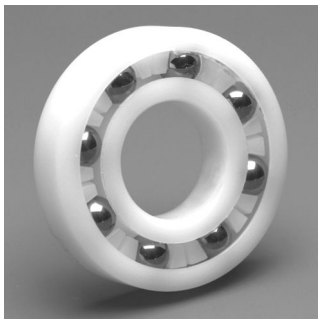
- For Delivery see Availability and Material Selection Page.
- Load & Speed calculations are for reference only. KMS recommends testing in actual environment to be encountered.
- Information presented is believed to be accurate at the time of publication but is subject to change without notice.

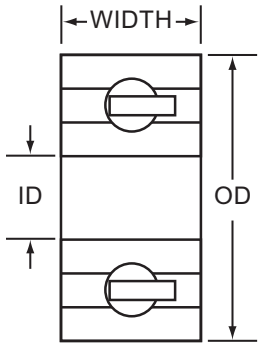
VARIATIONS & CUSTOM SIZES MADE EASILY FOR LOW AND HIGH QUANTITIES
Corrosion Resistant • Lube Free • Hygienic • Non-Metallic • Non-Magnetic • Light Weight • Design Flexibility

RADIAL BALL BEARINGS - PLASTIC

Single Row Plastic Raceways

Metric Sizes





600 Series **Standard Plastic is Acetal**

PART NUMBER	ID	OD	WIDTH	MAX. RPM WITH NO LOAD	DYNAMIC LOAD CAPACITY	STATIC LOAD CAPACITY
A624-6	4 mm	13 mm	5 mm	3167	17 lbs	11 lbs
A634-6	4 mm	16 mm	5 mm	2352	26 lbs	17 lbs
A625-6	5 mm	16 mm	5 mm	2352	26 lbs	17 lbs
A635-6	5 mm	19 mm	6 mm	2352	26 lbs	17 lbs
A606-6	6 mm	17 mm	6 mm	2352	26 lbs	17 lbs
A626-6	6 mm	19 mm	6 mm	2352	26 lbs	17 lbs
A636-6	6 mm	22 mm	7 mm	1600	42 lbs	33 lbs
A607-6	7 mm	19 mm	6 mm	1600	42 lbs	33 lbs
A627-6	7 mm	22 mm	7 mm	1600	42 lbs	33 lbs
A637-6	7 mm	26 mm	9 mm	1600	42 lbs	33 lbs
A608-6	8 mm	22 mm	7 mm	1600	42 lbs	33 lbs
A628-6	8 mm	24 mm	8 mm	1600	42 lbs	33 lbs
A638-6	8 mm	28 mm	9 mm	1142	55 lbs	43 lbs
A609-6	9 mm	24 mm	7 mm	1600	42 lbs	33 lbs
A629-6	9 mm	26 mm	7 mm	1600	42 lbs	33 lbs
A639-6	9 mm	30 mm	10 mm	1142	55 lbs	43 lbs

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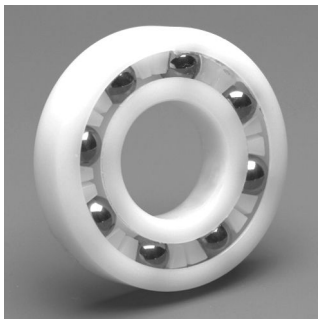
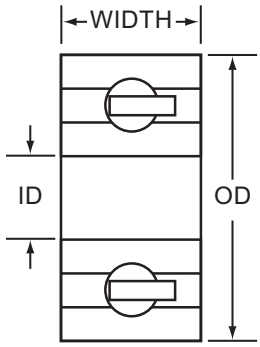
RADIAL BALL BEARINGS - PLASTIC

Single Row Plastic Raceways

Metric Sizes





6000 Series

Standard Plastic is Acetal

PART NUMBER	ID	OD	WIDTH	MAX. RPM WITH NO LOAD	DYNAMIC LOAD CAPACITY	STATIC LOAD CAPACITY
A6000-6	10 mm	26 mm	8 mm	1600	42 lbs	33 lbs
A6001-6	12 mm	28 mm	8 mm	1142	55 lbs	43 lbs
A6002-6	15 mm	32 mm	9 mm	1142	55 lbs	43 lbs
A6003-6	17 mm	35 mm	10 mm	1069	69 lbs	46 lbs
A6004-6	20 mm	42 mm	12 mm	840	78 lbs	52 lbs
A6005-6	25 mm	47 mm	12 mm	840	78 lbs	52 lbs

6200 Series

Standard Plastic is Acetal

PART NUMBER	ID	OD	WIDTH	MAX. RPM WITH NO LOAD	DYNAMIC LOAD CAPACITY	STATIC LOAD CAPACITY
A6200-6	10 mm	30 mm	9 mm	1142	55 lbs	43 lbs
A6201-6	12 mm	32 mm	10 mm	1142	55 lbs	43 lbs
A6202-6	15 mm	35 mm	11 mm	1069	69 lbs	46 lbs
A6203-6	17 mm	40 mm	12 mm	840	78 lbs	52 lbs
A6006-6	30 mm	55 mm	13 mm	729	92 lbs	61 lbs
A6007-6	35 mm	62 mm	14 mm	630	111 lbs	74 lbs
A6204-6	20 mm	47 mm	14 mm	840	78 lbs	52 lbs
A6205-6	25 mm	52 mm	15 mm	729	92 lbs	61 lbs
A6206-6	30 mm	62 mm	16 mm	729	92 lbs	61 lbs

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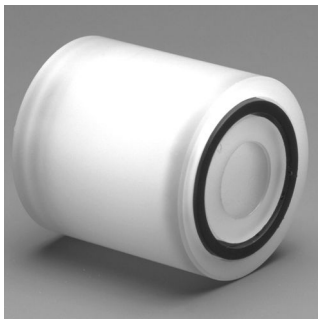
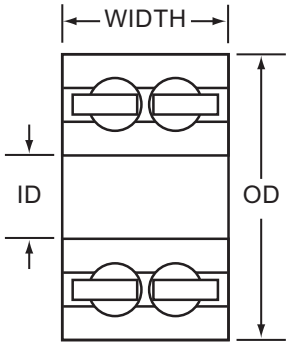
RADIAL BALL BEARINGS - PLASTIC

Double Row Plastic Raceways

Inch Sizes





Standard Plastic is Acetal

PART NUMBER	ID	OD	WIDTH	MAX. RPM WITH NO LOAD	DYNAMIC LOAD CAPACITY	STATIC LOAD CAPACITY
AR4DR-6	1/4 in	5/8 in	3/8 in	1881	50 lbs	33 lbs
AR4ADR-6	1/4 in	3/4 in	3/8 in	1881	50 lbs	33 lbs
AR6DR-6	3/8 in	7/8 in	7/16 in	1280	60 lbs	43 lbs
AR8DR-6-3/8	3/8 in	1 1/8 in	7/16 in	913	78 lbs	61 lbs
AR8DR-6-1/2	1/2 in	1 1/8 in	7/16 in	913	78 lbs	61 lbs
AR10BDR-6-3/8	3/8 in	1 3/8 in	7/16 in	855	85 lbs	68 lbs
AR10BDR-6-1/2	1/2 in	1 3/8 in	7/16 in	855	85 lbs	68 lbs
AR10BDR-6-5/8	5/8 in	1 3/8 in	7/16 in	855	85 lbs	68 lbs
AR12DR-6	3/4 in	1 5/8 in	5/8 in	672	100 lbs	83 lbs
AR16DR-6-1	1 in	2 in	3/4 in	583	127 lbs	110 lbs
AR16DR-6-1-1/4	1 1/4 in	2 in	3/4 in	583	127 lbs	110 lbs
AR18DR-6	1 1/8 in	2 1/8 in	3/4 in	583	127 lbs	110 lbs
AR20DR-6	1 1/4 in	2 1/4 in	3/4 in	583	127 lbs	110 lbs

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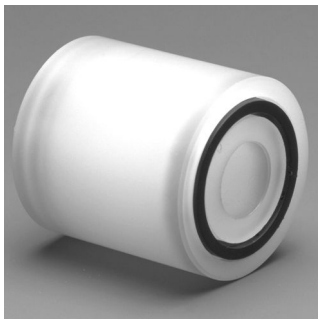
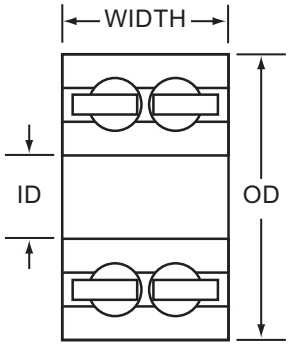
Double Row Plastic Raceways

Metric Sizes





Standard Plastic is Acetal

PART NUMBER	ID	OD	WIDTH	MAX. RPM WITH NO LOAD	DYNAMIC LOAD CAPACITY	STATIC LOAD CAPACITY
A5200-6	10 mm	30 mm	14.28 mm	913	78 lbs	61 lbs
A5201-6	12 mm	32 mm	15.87 mm	913	78 lbs	61 lbs
A5202-6	15 mm	35 mm	15.87 mm	855	85 lbs	68 lbs
A5203-6	17 mm	40 mm	17.46 mm	855	85 lbs	68 lbs
A5204-6	20 mm	47 mm	20.63 mm	672	100 lbs	83 lbs
A5205-6	25 mm	52 mm	20.63 mm	583	127 lbs	110 lbs
A5206-6	30 mm	62 mm	33 mm	502	150 lbs	133 lbs

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RADIAL BALL BEARINGS - PLASTIC

Plastic Raceways

Availability and Material Selection

Availability

Some bearings listed on data sheets may not be in inventory. Some may require a minimum order, and delivery could range from 3 to 6 weeks. **Check with KMS for item availability and delivery.**

Standard Material

The standard KMS Plastic Ball Bearings are produced with Acetal plastic raceways and cages, and are fitted with 316 stainless balls. Acetal, (trade name Celcon® or Delrin®) is a general purpose engineering polymer used for mechanical components. Acetal is the first choice for plastic bearing races due to its chemical resistance, ease of molding/machining, and general affordability. Standard temperature range for Acetal is 180° to 220° F. For higher temperature capability consult KMS.

Standard Sizes

KMS Bearings. Inc., produces *plastic ball bearings* in many standard industrial sizes. These standards provide an opportunity to try a plastic ball bearing in an existing application or prototype. Customers with high volume quantities are encouraged to explore avenues that can utilize the many benefits of plastic, ie; molding features that can reduce parts and assembly time through product integration.

When Acetal doesn't work.

When Acetal is not the ideal choice, KMS has developed alternative materials to suit most requirements.

For: **Increased Chemical Resistance**	Use: **Polypropylene, UHMW, Kynar®, Valox®**
For: **Higher Heat Capacity**	Use: **PEEK®, Vespel®, Valox®, 316 Stainless**
For: **Greater Strength**	Use: **Kynar®,Vespel®, 316 Stainless**

Materials for races, cages and balls.

	Acetal	Polypro	Vespel®	PEEK®	Valox®	Kynar®	UHMW	Glass	SS316	SS302	Torlon®
Raceways	♦	◊	◊	◊	◊	◊	◊				
Cages	♦	♦	◊	◊	◊	◊					
Balls	o							•	•	o	o

♦ standard race material ◊ Special order, races & cage • Standard ball type o Special order, balls

- Technical information listed is for reference only. KMS Recommends testing in actual environment to be encountered.

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RADIAL BALL BEARINGS - PLASTIC

Plastic Raceways

Availability and Material Selection (cont'd)

How to order/specify.

Call or Fax KMS to check availability on a specific size and material.

Prefix: Raceway Materials

A = Acetal K = Kynar®	P = Polypropylene PK = PEEK®	UH = UHMW - PE	V = Valox®
Suffix: Ball Type			
-6 = 316 Stainless -G = Glass	-A = Acetal	-T = Torlon®	-P = PVC
Example: AR4-6 = Standard R4 Bearing, Acetal races & cage, fitted with 316 Stainless Balls.			

Value Engineering = Less Cost

Many times a bearing is mounted into another part, such as a plastic pulley, sprocket, wheel or mounted block. Utilizing the design concept of a *plastic ball bearing* , KMS Bearings, Inc. can integrate the mating component as the raceway of the bearing, ie: pulley as the outer ring, or the shaft as the inner ring. The end result is fewer parts, reduced assembly time, and overall lower cost.

Special Bearings & Sizes - Variations - Engineering & Prototyping
Plastic Ball Bearings "Ten Good Reasons To Use," ETC...

For additional information on the above topics see directory.

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