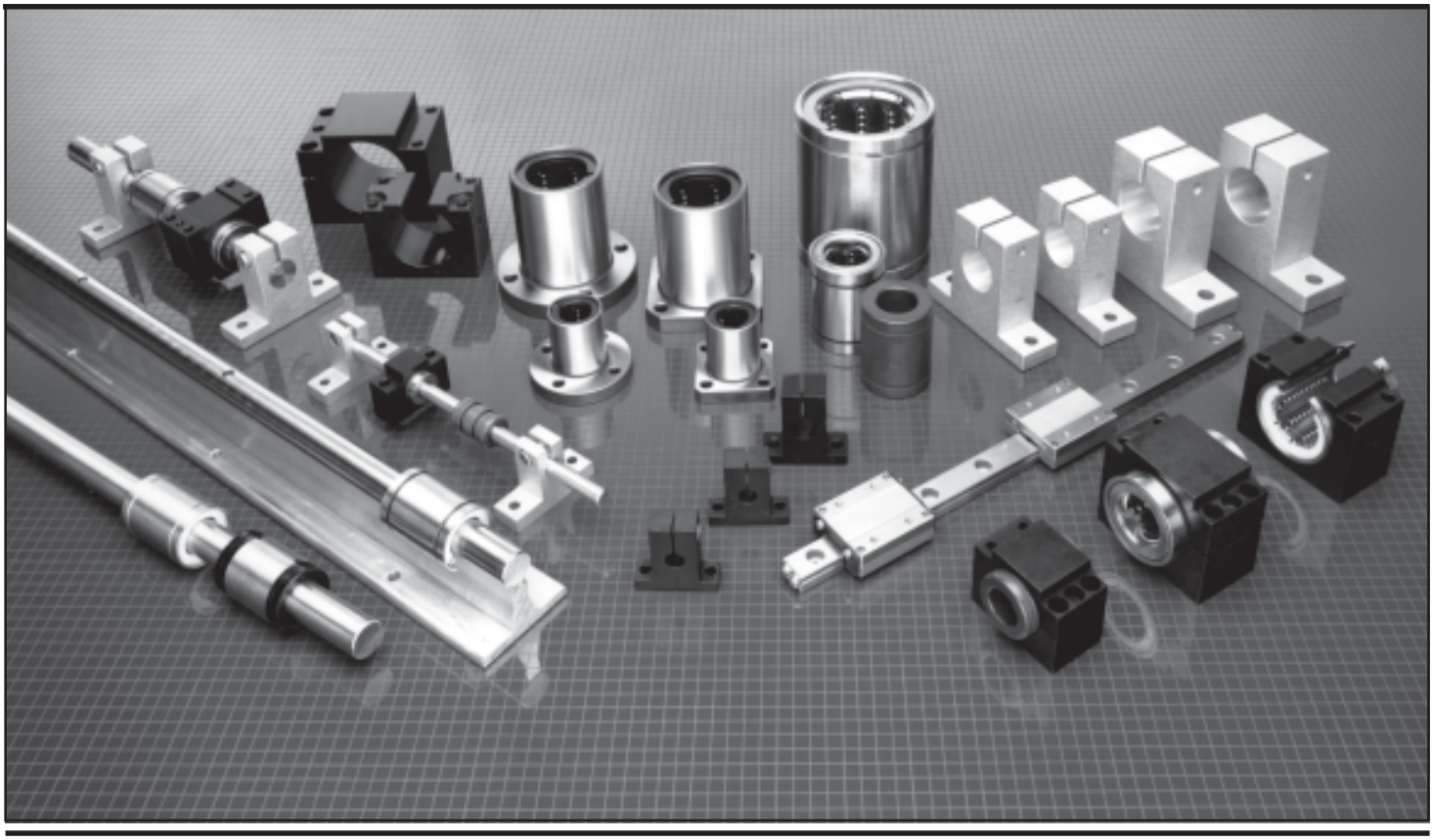
PIC DESIGN®

PRECISION INDUSTRIAL COMPONENTS

LINEAR MOTION SYSTEM COMPONENTS



LINEAR MOTION SYSTEM COMPONENTS

PIC Design has added a most comprehensive selection of precision components for linear motion applications. Our standard components range in shaft and bearing sizes from 1/4 in. to 1-1/2 in. diameter and linear guides with travel from 4 in. to 35 in.

All components are available in inch and metric sizes.

PIC Linear Motion Products — A Brief Overview

PRECISION SHAFTING

Precision case hardened and ground shafting include C-1060 steel case hardened to Rockwell 60-65C, 440C stainless steel case hardened to Rockwell 50-55C as well as precision ground 303 stainless steel (Rockwell 70-95B typical).

PRE-DRILLED SHAFTING

Shafting is available with pre-drilled and tapped mounting holes matching our pre-drilled shaft support rails.

SUPPORT RAILS

Aluminum support rails for intermittent or continuous support can be supplied with or without mounting holes.

SHAFT SUPPORT HANGERS

Cast aluminum shaft hangers to accommodate PIC shaft sizes.

LINEAR BEARINGS — RECIRCULATING BALL

High precision linear bearings enable endless rectilinear motion with contained rolling recirculating balls. Available in closed, adjustable or open styles.

LINEAR SELF-LUBE NON METALLIC BEARINGS

Engineered plastic, self-lubricating bearings, interchangeable with all makes of linear ball bearings. Use them for linear or rotational motion with hardened shafting or with lower cost, non-corrosive “soft” 300 series stainless steel ground shafting. Available in closed, adjustable and open style.

CERAMIC COATED LINEAR BEARINGS

Ceramic coated hard aluminum alloy with rotary/linear motion capability and low friction. Allows speeds up to 400 SFM, loads up to 5000 PSI with PV factor of 40,000.

LINEAR BEARING BRACKETS (PILLOW BLOCKS), CARRIAGE TOPS AND PRE-ASSEMBLED SUB-SYSTEMS

Offered to assist customers in selecting the most appropriate linear motion components and sub-systems.

SPECIALS

Custom sub systems available to customer specifications using PIC linear motion components.

TECHNICAL SECTION

Whatever your application, PIC Design offers a linear motion component that will work for you. Determine all loads, magnitude and direction, force and torque for your system requirements. Use of this data should enable users to select individual components, then select and specify all parts from this comprehensive offering.

END SUPPORTS VS. RAIL SUPPORT

Knowing the load to be carried by the linear motion system will help determine the proper diameter of the shafts.

By using the shaft deflection table below, you can estimate the amount each shaft will deflect at the center of the stroke under maximum load. If deflection must be minimized, a continuous or intermittent support rail should be used.

BEARING SPEEDS

Linear bearing systems using recirculating ball bearings can travel at about 250 ft./min.; ceramic coated bearings at about 400 ft./min.; and our PIC self-lubricating linear bearing at 200 ft./min.

SHAFT HARDNESS

Rockwell 55 to 60C is required for "no grooving" of the shaft when using recirculating ball bearings or ceramic coated bearings. Use our PIC C1060 hardened and ground steel shaft; or where application dictates, 440 C stainless steel hardened and ground shaft. PIC self-lube linear bearings can be used with above shafting as well as the more economical and corrosion resistant "soft" 303 stainless steel (Rockwell 70-95B).

LINEAR MOTION GUIDES (See Section 2 — Linear Slides)

These guides offer excellent positioning accuracy, low friction, high load bearing capabilities and greater compactness with recirculating ball or crossed roller slide design.

LUBRICATION

In applications where operating speeds are low and loads are light, linear recirculating ball bearings can be used without lubrication. However, to protect the highly polished bearing surfaces from corrosion and wear, a lubricant is recommended for most applications.

Use light oil for good surface adhesion and greater bearing protection.

Shaft Deflection Table For Use In Design And Application Of Linear Motion Devices

Shaft Diameter	Deflection Per Pound at Center of Shaft Supported at Ends (Not Fixed) — Length of Unsupported Section (inches)												
	4	6	8	10	12	16	20	24	30	36	42	48	72
1/4″	$2.34x10^{-4}$	$7.90x10^{-4}$	$1.87x10^{-3}$	$3.66x10^{-3}$	$6.33x10^{-3}$	$1.50x10^{-2}$	$2.93x10^{-2}$	$5.06x10^{-2}$	$1.00x10^{-1}$				
3/8″	$4.81x10^{-5}$	$1.62x10^{-4}$	$3.85x10^{-4}$	$7.15x10^{-4}$	$1.30x10^{-3}$	$3.07x10^{-3}$	$5.72x10^{-3}$	$1.04x10^{-2}$	$1.93x10^{-2}$	$3.33x10^{-2}$	$5.29x10^{-2}$	$7.90x10^{-2}$	
1/2″	$1.45x10^{-5}$	$4.90x10^{-5}$	$1.16x10^{-4}$	$2.27x10^{-4}$	$3.93x10^{-4}$	$9.30x10^{-4}$	$1.80x10^{-3}$	$3.14x10^{-3}$	$6.13x10^{-3}$	$1.06x10^{-2}$	$1.68x10^{-2}$	$2.51x10^{-2}$	$8.47x10^{-2}$
3/4″	$2.86x10^{-6}$	$9.68x10^{-6}$	$2.29x10^{-5}$	$4.48x10^{-5}$	$7.74x10^{-5}$	$1.83x10^{-4}$	$3.58x10^{-4}$	$6.20x10^{-4}$	$1.21x10^{-3}$	$2.09x10^{-3}$	$3.32x10^{-3}$	$4.95x10^{-3}$	$1.67x10^{-2}$
1″	$9.01x10^{-7}$	$3.08x10^{-6}$	$7.03x10^{-6}$	$1.42x10^{-5}$	$2.46x10^{-5}$	$5.84x10^{-5}$	$1.14x10^{-4}$	$1.97x10^{-4}$	$3.85x10^{-4}$	$6.64x10^{-4}$	$1.05x10^{-3}$	$1.57x10^{-3}$	$5.30x10^{-3}$
1 1/4″	$3.72x10^{-7}$	$1.25x10^{-6}$	$2.98x10^{-6}$	$5.81x10^{-6}$	$1.00x10^{-5}$	$2.38x10^{-5}$	$4.65x10^{-5}$	$8.05x10^{-5}$	$1.57x10^{-4}$	$2.71x10^{-4}$	$4.30x10^{-4}$	$6.42x10^{-4}$	$2.17x10^{-3}$
1 1/2″	$1.79x10^{-7}$	$6.05x10^{-7}$	$1.43x10^{-6}$	$2.80x10^{-6}$	$4.84x10^{-6}$	$1.15x10^{-5}$	$2.24x10^{-5}$	$3.87x10^{-5}$	$7.56x10^{-5}$	$1.31x10^{-4}$	$2.07x10^{-4}$	$3.10x10^{-4}$	$1.03x10^{-3}$
2″	$5.66x10^{-8}$	$1.91x10^{-7}$	$4.53x10^{-7}$	$8.85x10^{-7}$	$1.53x10^{-6}$	$3.62x10^{-6}$	$7.08x10^{-6}$	$1.22x10^{-5}$	$2.39x10^{-5}$	$4.13x10^{-5}$	$6.55x10^{-5}$	$9.78x10^{-5}$	$3.30x10^{-4}$

Basic Dynamic Load Rating (C)

This term means such load that, when a certain number of identical linear systems are individually run in the same conditions, 90% of them can run with the load (with a constant value in a constant direction) for a distance of 50×10^3 meters without damage caused by rolling fatigue.

Static Safety Factor (fs)

This factor is used to derate the basic static load (Co) for the sake of safety, depending on the conditions of use as shown in Table 1.

Table 1. Static Safety Factors

Condition of use	Low limit of fs
When in regular operating condition	1~2
When especially smooth running performance is needed	2~4
When the equipment is subject to vibration and shock	3~5

Basic Static Load Rating (Co)

This term defines a static load such that, at the contacting position where the maximum stress is exercised, the sum of the permanent deformation of the rolling body and that of the rolling plane is 0.0001 time of the diameter of the rolling body.

Rating Life (L)

Rating life is the total travelling distance that 90% of a group of linear systems of the same size can reach without causing any flaking when they operate under the same conditions.

The rating life can be obtained from the following equation with the basic dynamic load rating and the load on the linear system:

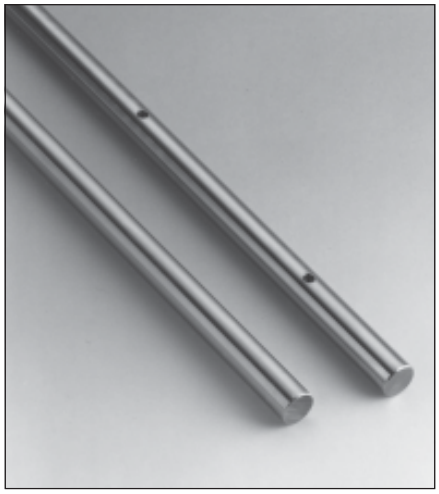
For ball type: $L = \left(\frac{C}{P}\right)^3 \cdot 50$

For roller type: $L = \left(\frac{C}{P}\right)^{10/3} \cdot 50$

L: Rating life (km) C: Basic Dynamic load rating (kgf)
P: Load (kgf)

PRECISION CASE HARDENED & GROUND SHAFTING

Inch and Metric **For Linear Motion Applications**



Materials and Hardness:

C-1060 steel, case hardened to Rockwell 60-65C
440 C stainless steel, case hardened to Rockwell 50-55C
303 stainless steel, (for use with engineered plastic bearings), has approximate hardness of Rockwell 75-95B.
C-1060 can be supplied with hard satin chrome finish at additional cost. Special orders only. (Adds .0001 to .0002 to diameter).

Finish: Normally between 10 and 16 micro-inches RMS. Other finishes can be furnished to meet special requirements.

Length Tolerances: Shafting is stocked in 6 to 10 foot lengths, and is supplied to required lengths ±1/16" (±1.5mm). If required, closer length tolerances can be supplied at additional cost.

Straightness: With the exception of 1/4" and 3/8" diameters, the standard straightness tolerance is .001"-.002" per foot cumulative. Straighter lengths to meet more stringent requirements can be supplied at additional cost.

Chamfered Ends: Normally, all shafts are rough cut. Precision chamfers or other dimensions are classified as a special fabrication and carry extra charges.

Maximum Lengths: The maximum lengths in stock for each diameter are shown in the tables.

HOW TO ORDER

When ordering shafts that do not require any special machining, simply add length (in inches or mm) requirement to Part Number. Example: A10-8-20".

Inch Shaft Diameters

Nominal Diameter (Inches)	Size & Tol. (Inches)	Max Length (ft)	C-1060 Steel Hardened & Ground		440 C stainless Hardened & Ground		303 Stainless Steel Ground
			Case Depth	Part No.	Case Depth	Part No.	Part No.
1/4	.2485/.2490 .2490/.2495	6	.040	**A10-4** **A10L-4**	— —	— —	**A11-4** —
3/8	.3735/.3740 .3740/.3745	6	.040	**A10-6** **A10L-6**	— —	— —	**A11-6** —
1/2	.4985/.4990 .4990/.4995	6	.060	**A10-8** **A10L-8**	.060 —	**A12-8** —	**A11-8** —
5/8	.6235/.6240 .6240/.6245	10	.060	**A10-10** **A10L-10**	.060 —	**A12-10** —	**A11-10** —
3/4	.7485/.7490 .7490/.7495	10	.060	**A10-12** **A10L-12**	.060 —	**A12-12** —	**A11-12** —
1	.9985/.9990 .9990/.9995	10	.080	**A10-16** **A10L-16**	.080 —	**A12-16** —	**A11-16** —
1 1/4	1.2485/1.2490 1.2490/1.2495	10	.080	**A10-20** **A10L-20**	.080 —	**A12-20** —	**A11-20** —
1 1/2	1.4984/1.4989 1.4989/1.4994	10	.080	**A10-24** **A10L-24**	.080 —	**A12-24** —	**A11-24** —

Note: L Series shafting should be used with self-aligning linear bearings.

Metric Shaft Diameters

Nominal Diameter (mm)	Tolerance µm	Max. Length (mm)	C-1060 Steel Hardened & Ground		440C Stainless Steel Hardened & Ground		303 Stainless Steel Ground
			Case Depth	Part No.	Case Depth	Part No.	Part No.
5	0/-10	700	1.0	**MA10-05**	1.0	**MA12-05**	**MA11-05**
8	0/-10	1500	1.0	**MA10-08**	1.0	**MA12-08**	**MA11-08**
12	0/-10	3000	1.0	**MA10-12**	1.0	**MA12-12**	**MA11-12**
16	0/-10	3000	1.5	**MA10-16**	1.5	**MA12-16**	**MA11-16**
20	0/-12	3000	1.5	**MA10-20**	1.5	**MA12-20**	**MA11-20**
25	0/-12	3000	1.5	**MA10-25**	1.5	**MA12-25**	**MA11-25**
30	0/-12	3000	2.0	**MA10-30**	2.0	**MA12-30**	**MA11-30**
40	0/-15	3000	2.0	**MA10-40**	2.0	**MA12-40**	**MA11-40**

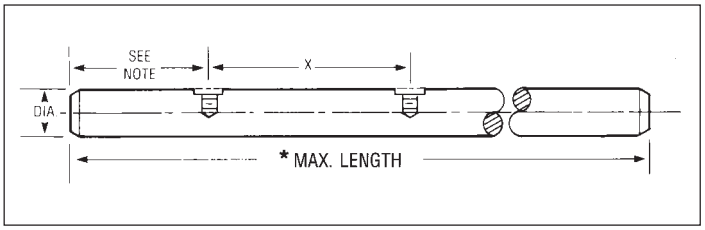
SPECIAL PRECISION MACHINING

Quotations are provided after receipt of a faxed drawing, rough sketch or verbal description. Indicate quantity required.

Metric Conversion To Inches: .03937 x metric dimension
Inch Conversion To Metric: 25.4 x inch dimension

PRE-DRILLED SHAFTS

TYPE D Solid AISI C-1060, 440C & 303 Stainless Steel Shafts With Pre-drilled & Tapped Mounting Holes **Inch and Metric**



Example: A10-8D24 = C1060 shaft, 1/2 diameter predrilled, 24" long.

PRE-DRILLED SHAFTS

INCH SHAFT DIAMETERS					
Nominal Diameter (inch)	Diameter Tolerance	"X" Space ±.015 (inch)	Tap Size	C1060 Steel Hardened & Ground Part No.	440C S.S. Hardened & Ground Part No.
1/2	.4990/.4995	4	6-32	**A10-8D**	**A12-8D**
5/8	.6240/.6245	4	8-32	**A10-10D**	**A12-10D**
3/4	.7490/.7495	6	10-32	**A10-12D**	**A12-12D**
1	.9990/.9995	6	1/4-20	**A10-16D**	**A12-16D**
1 1/4	1.2490/1.2495	6	5/16-18	**A10-20D**	**A12-20D**
1 1/2	1.4989/1.4994	8	3/8-16	**A10-24D**	**A12-24D**

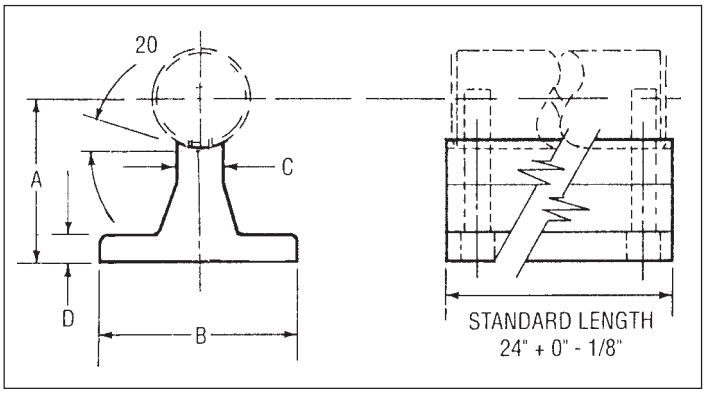
METRIC SHAFT DIAMETERS				
Nominal Diameter (mm)	Diameter Tolerance (µm)	"X" Space ±.38 (mm)	Tap Size	C1060 Steel Hardened & Ground Part No.
12	0/-10	120	M4 x .7	**MA10-12D**
16	0/-10	150	M5 x .8	**MA10-16D**
20	0/-12	150	M6 x 1.0	**MA10-20D**
25	0/-12	200	M8 x 1.25	**MA10-25D**
30	0/-12	200	M10 x 1.5	**MA10-30D**
40	0/-15	200	M10 x 1.5	**MA10-40D**

* Maximum length available is 6 feet (1830 mm).
For longer lengths, please contact factory

Note: Standard first hole dimension on in-stock shafts is 1/2 of "X" dimension but different first-hole locations may be specified when ordering, providing its location is not more than the "X" hole spacing.

ALUMINUM SHAFT SUPPORT RAILS

Type PSR Extruded Aluminum Shaft Support Rails (Solid Rail — No Holes) **Inch And Metric**



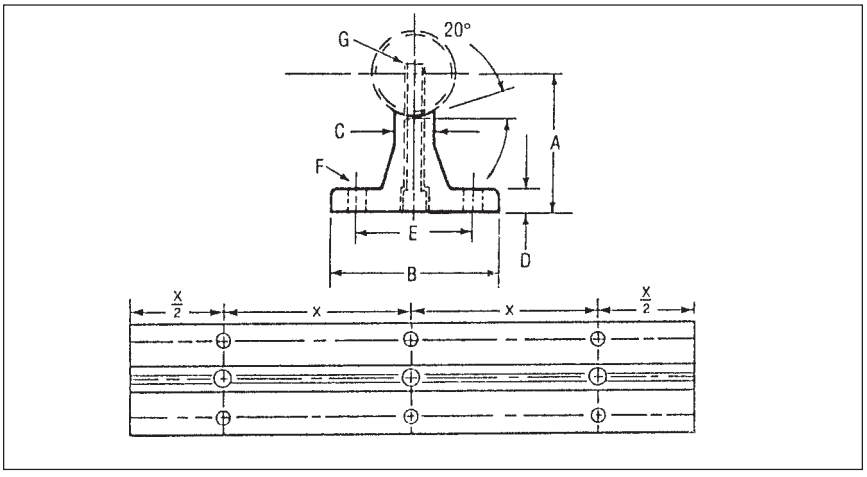
These rails are supplied without mounting holes and can be used horizontally or vertically to provide optimum rigidity (see pre-drilled aluminum rails for sizes and specifications). Shaft support rails are available in standard lengths of 24" + 0", -1/8 (600 + 0, -3.2 mm), but can be supplied to meet shorter length requirements or placed end to end to meet longer length requirements.

Note: To accommodate in-between shaft sizes, use the shaft support rail size that comes closest to the diameter of your shaft. If shaft diameter falls in between, use the next larger rail.

Inch Sizes						Metric Sizes					
Nom. Shaft Dia. (in)	A ± .002	B	C	D	Part No.	Nom. Shaft Dia. (mm)	A*±.08	B (mm)	C (mm)	D (mm)	Part No.
1/2	1.125	1 1/2	1/4	3/16	**PSR-8**	12	28.32	38.1	6.4	4.8	**MPSR-12**
5/8	1.125	1 5/8	5/16	1/4	**PSR-10**	16	28.77	41.3	8.0	6.4	**MPSR-16**
3/4	1.500	1 3/4	3/8	1/4	**PSR-12**	20	38.72	44.5	9.5	6.4	**MPSR-20**
1	1.750	2 1/8	1/2	1/4	**PSR-16**	25	44.22	54.0	12.7	6.4	**MPSR-25**
1 1/4	2.125	2 1/2	9/16	5/16	**PSR-20**	30	46.85	54.0	12.7	6.4	**MPSR-30**
1 1/2	2.500	3	11/16	3/8	**PSR-24**	40	64.44	76.2	17.5	9.5	**MPSR-40**

PRE-DRILLED ALUMINUM SHAFT SUPPORT RAILS

Inch and Metric **Mate With Type PD Shafts**



ORDERING INFORMATION

When ordering standard 24" support rails with mounting holes, order by part number only (for example PSR-20-PD). If a shorter length is required, specify part number and exact length (for example PSR-20 - PD, 18" long). We provide cutting service at a slight additional charge.

Use "M" prefix for metric sizes.

Pre-drilled support rails are stocked for immediate delivery in standard 24" (600 mm) lengths, but can easily be cut to size. When longer shafts are to be supported, the rails can be continuously mounted end-to-end or intermittently mounted to any desired length.

Inch Sizes

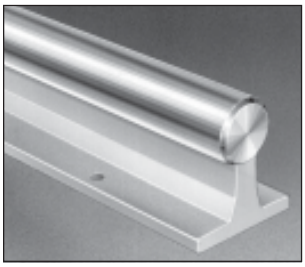
Nominal Shaft Diameter (inch)	A ± .002	B	C	D	E	F Hole	G Screw	G Hole	X ± .010	Part Number
1/2	1.125	1 1/2	1/4	3/16	1	.169	6-32 x 7/8	.169	4	**PSR-8-PD**
5/8	1.125	1 5/8	5/16	1/4	1 1/8	.193	8-32 x 7/8	.193	4	**PSR-10-PD**
3/4	1.500	1 3/4	3/8	1/4	1 1/4	.221	10-32 x 1 1/4	.221	6	**PSR-12-PD**
1	1.750	2 1/8	1/2	1/4	1 1/2	.281	1/4-20 x 1 1/2	.281	6	**PSR-16-PD**
1 1/4	2.125	2 1/2	9/16	5/16	1 7/8	.343	5/16-18 x 1 3/4	.343	6	**PSR-20-PD**
1 1/2	2.500	3	11/16	3/8	2 1/4	.343	3/8-16 x 2	.406	8	**PSR-24-PD**

Metric Sizes

Nominal Shaft Diameter (mm)	A ± .08	B	C	D	E	F Hole	G Screw	G Hole	X ± .25	Part Number
12	28.32	38.1	6.4	4.8	25.4	4.8	M4 x .7	4.8	120	**MPSR-12-PD**
16	28.77	41.3	8.0	6.4	28.6	5.8	M5 x .8	5.8	150	**MPSR-16-PD**
20	38.72	44.5	9.5	6.4	31.8	6.8	M6 x 1.0	6.8	150	**MPSR-20-PD**
25	44.22	54.0	12.7	6.4	38.1	6.8	M8 x 1.25	8.8	200	**MPSR-25-PD**
30	46.85	54.0	12.7	6.4	38.1	6.8	M10 x 1.50	8.8	200	**MPSR-30-PD**
40	64.44	76.2	17.5	9.5	57.2	8.8	M10 x 1.50	10.8	200	**MPSR-40-PD**

Mounting hole patterns for various sizes are shown in tables above. The alignment and location of holes are ±.010 (±0.25 mm) non-cumulative.

SHAFTS AND SUPPORT RAILS ASSEMBLIES



PIC can supply shafts and rails as complete assemblies in 24" length (600 mm) as standard sizes. Other lengths will be quoted on request.

ORDERING INFORMATION

Order standard 24" long shaft and rail assembly as follows:

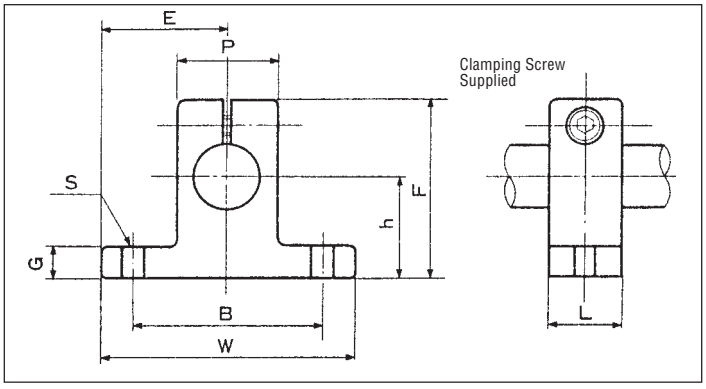
C1060 Hardened Steel Shaft A10-X-SR
440C Stainless Steel Shaft A12-X-SR
303 Staineless Steel Shaft A11-X-SR

"X" = Size Code for Inch Series.
Use diameter for Metric Series.

"M" = Prefix For Metric Sizes

Inch	
Nominal	Size Code
1/2	8
5/8	10
3/4	12
1	16
1 1/4	20
1 1/2	24

SHAFT SUPPORT BLOCKS / HANGERS



Material: Cast Aluminum

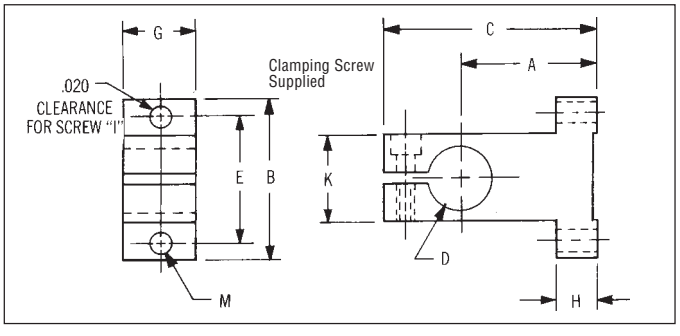
Inch Shaft Support Blocks / Hangers

Shaft Diameter (inch)	Dimensions (inch)										Part No.
	h ±.001	E ±.005	W	L	F	G	P	B ±.01	S Hole	Bolt #	
.250	.6875	.7500	1.500	.500	1.063	.250	.500	1.125	.156	#6	SHA-4
.375	.7500	.8125	1.625	.563	1.187	.250	.688	1.250	.156	#6	SHA-6
.500	1.0000	1.0000	2.000	.625	1.625	.250	.875	1.500	.188	#8	SHA-8
.625	1.0000	1.2500	2.500	.688	1.750	.313	1.000	1.875	.218	#10	SHA-10
.750	1.2500	1.2500	2.500	.750	2.063	.313	1.250	2.000	.218	#10	SHA-12
1.000	1.5000	1.5315	3.063	1.000	2.500	.375	1.500	2.500	.281	#1/4	SHA-16
1.250	1.7500	1.8750	3.750	1.125	3.000	.438	2.000	3.000	.346	#5/16	SHA-20
1.500	2.0000	2.1875	4.375	1.250	3.437	.500	2.250	3.500	.346	#5/16	SHA-24

Metric Shaft Support Blocks / Hangers

Dimension (metric sizes)											
Shaft Dia. (mm)	h ±.02	E ±.05	W	L	F	G	P	B	S	Bolt #	Part Number
12	23	21	42	14	37.5	6	20	32	5.5	M5	MSHA-12
16	27	24	48	18	44.0	8	25	38	5.5	M5	MSHA-16
20	31	30	60	20	51.0	10	30	45	6.6	M6	MSHA-20
25	35	35	70	24	60.0	12	38	56	6.6	M6	MSHA-25
30	42	42	84	28	70.0	12	44	64	9.0	M8	MSHA-30
40	60	57	114	36	96.0	15	60	90	11.0	M10	MSHA-40

PRECISION SHAFT HANGERS — 1/4 to 1 Shaft Diameters Machined

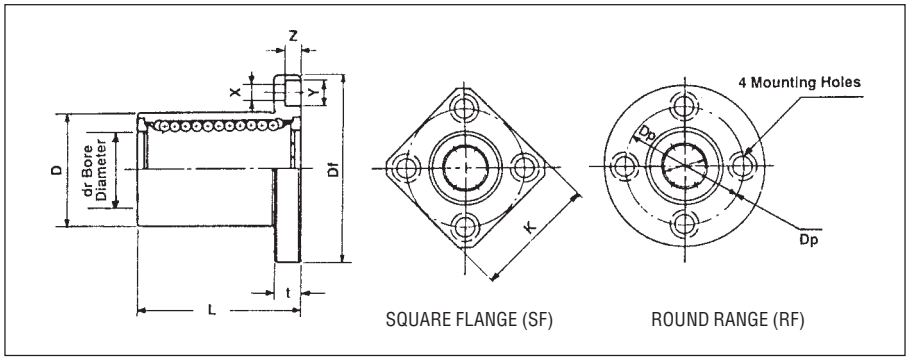


A ±.001	B	C	D +.005 −.000	E	G	H	I	K	Part No.
.562	1.125	1.125	.2500	.875	3/8	3/16	#6	5/8	S7-1
.687	1.250	1.313	.3750	.937	1/2	3/16	#8	5/8	S7-2
.750	1.500	1.438	.5000	1.125	5/8	1/4	#10	3/4	S7-3
1.000	1.750	1.750	.6250	1.375	3/4	3/8	#10	7/8	S7-4
1.062	1.875	1.875	.7500	1.500	7/8	1/2	1/4	1	S7-5
2.125	2.125	3.063	1.0000	1.750	1	5/8	1/4	1-1/4	S7-6

Material: Machined Aluminum
Finish: Black Anodize

FLANGED TYPE LINEAR BEARINGS

Inch and Metric **Recirculating Ball**



- Requires no housing, thus reducing costs
- Requires little installation space
- Ensures high accuracy upon replacement
- Retains excellent rigidity

Material:

Balls: 52100 Chrome Steel
Outer Housing: 52100 Chrome Steel
Ball Retainer: Resin For Low Noise Performance
End Caps: 1018 Steel

Inch Sizes

Boundary Dimensions and Tolerance														Eccentricity	Squareness	Basic Dynamic Load Rating (C kgf)	Basic Static Load Rating (Co kgf)	Shaft Diameter	Part No.* Add Suffix RF or SF
dr		D		L		Flange													
(inch)	Tolerance (inch)	(inch)	Tolerance (inch)	(inch)	Tolerance (inch)	Df (inch)	K (inch)	t (inch)	Dp (inch)	X (inch)	Y (inch)	Z (inch)		(inch)	(inch)			(inch)	
.2500		.5000	0 - .00045	.7500		1.2500	1.0000	0.219	.8750	.1560	.2500	.1410				21	27	.2500	PL-4
.3750	0	.6250		.8750	0	1.5000	1.2500	.2500	1.0620	.1875	.2970	.1720		.0005	.0005	23	32	.3750	PL-6
.5000	-.00040	.8750	0 -.00050	1.2500	-.008	1.7500	1.3750	.2500	1.312	.1875	.2970	.1720				52	79	.5000	PL-8
.6250		1.1250		1.5000		2.0000	1.5000	.2500	1.5620	.1875	.2970	.1720				79	120	.6250	PL-10
.7500	0	1.2500	0	1.6250		2.1875	1.6875	.3125	1.7180	.2187	.3440	.2030		.0006	.0006	88	140	.7500	PL-12
1.0000	-.00040	1.5625	-.00065	2.2500	0	2.5000	2.0000	.3125	2.0310	.2187	.3440	.2030				100	160	1.0000	PL-16
1.2500	0	2.0000	0	2.6250	-.012	3.1250	2.5000	.3750	2.5625	.2812	.4060	.2656		.0008	.0008	160	280	1.2500	PL-20
1.5000	-.00050	2.3750	-.00075	3.0000		3.7500	3.0000	.5000	3.0625	.3440	.5000	.3280				220	410	1.5000	PL-24

*Note: To order round flange type use "RF" suffix in part number.
To order square flange type use "SF" suffix in part number.

Example: PL-8RF (Round Flange)
PL-8SF (Square Flange)

Metric Sizes

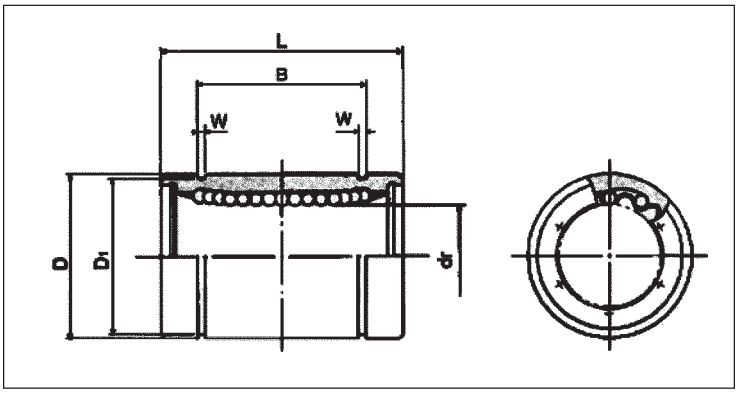
Boundary Dimensions and Tolerance													Eccentricity	Squareness	Basic Dynamic Load Rating (C kgf)	Basic Static Load Rating (Co kgf)	Shaft Diameter	Part No.* Add Suffix RF or SF
dr		D		L		Flange												
(mm)	Tolerance (μm)	(mm)	Tolerance (μm)	(mm)	Tolerance (μm)	Df (mm)	K (mm)	t (mm)	Dp (mm)	X (mm)	Y (mm)	Z (mm)	(μm)	(μm)			(mm)	
5		12	0	22		28	22	5	20	3.5	6	3.1			21	27	5	MPL-5
8	+8	16	-8	25		32	25	5	24	3.5	6	3.1	12	12	27	41	8	MPL-8
12	0	22	0	32	0	42	32	6	32	4.5	7.5	4.1			52	79	12	MPL-12
16	+9	26	-9	36	-200	46	35	6	36	4.5	7.5	4.1			59	91	16	MPL-16
20	-1	32	0	45		54	42	8	43	5.5	9	5.1			88	140	20	MPL-20
25	+11	40	-11	58	0	62	50	8	51	5.5	9	5.1	15	15	100	160	25	MPL-25
30	-1	47		68	-300	76	60	10	62	6.6	11	6.1			160	280	30	MPL-30
40	+13 -2	62	0 -13	80		98	75	13	78	9	14	8.1	17	17	220	410	40	MPL-40

*Note: To order round flange type use "RF" suffix in part number.
To order square flange type use "SF" suffix in part number.

Example: MPL-12RF (Round Flange)
MPL-12SF (Square Flange)

RECIRCULATING BALL LINEAR BEARINGS

Instrument Series



Material: Corrosion Resistant Materials.
Balls: Stainless Steel Outer
Housing: Hardned Stainless Steel Ball
Retainer: Seamless Resin
Eccentricity: 0.0003”

Nominal Shaft Diameter	Ball Circuit	Weight oz.	dr Tol. +0 -0.00035	D	L Tol. +0 -0.008	B Tol. +0 -0.008	W	D1	Radial Clearance	Basic Load Rating		Part Number
										Dynamic C lbs.	Static Co lbs.	
0.1250	4	0.099	0.1250	0.3125	0.500	0.3681	0.0280	0.2902	-0.00008	13.2	17.1	**PLS-2**
0.1875	4	0.127	0.1875	0.3750	0.562	0.4311	0.0280	0.3520	-0.00010	20.5	24.7	**PLS-3**
0.2500	4	0.335	0.2500	0.5000	0.750	0.5110	0.0391	0.4687	-0.00010	46.3	59.6	**PLS-4**

SHAFTING FOR INSTRUMENT SERIES

Linear Bearings

Material and Hardness:
C-1060 case hardened to Rockwell 60-64C
440C Stainless Steel (or equivalent) case hardened to Rockwell 52-56C
Case Depth. 0.03” minimum

Finish: Between 10 –16 micro-inches RMS

Length Tolerances: ±1/16”

Straightness: .001” - .002” per foot

Nominal Dia. (inches)	Size & Tol. (inches)	Max. Length (inches)	C-1060 Steel Part Number	440 C Stainless Part Number
0.1250	.1248/.1245	12	**ACS10-2**	**A12-2**
0.1875	.1873/.1870	16	**ACS10-3**	**A12-3**
0.2500	.2498/.2494	48	**ACS10-4**	**A12-4**

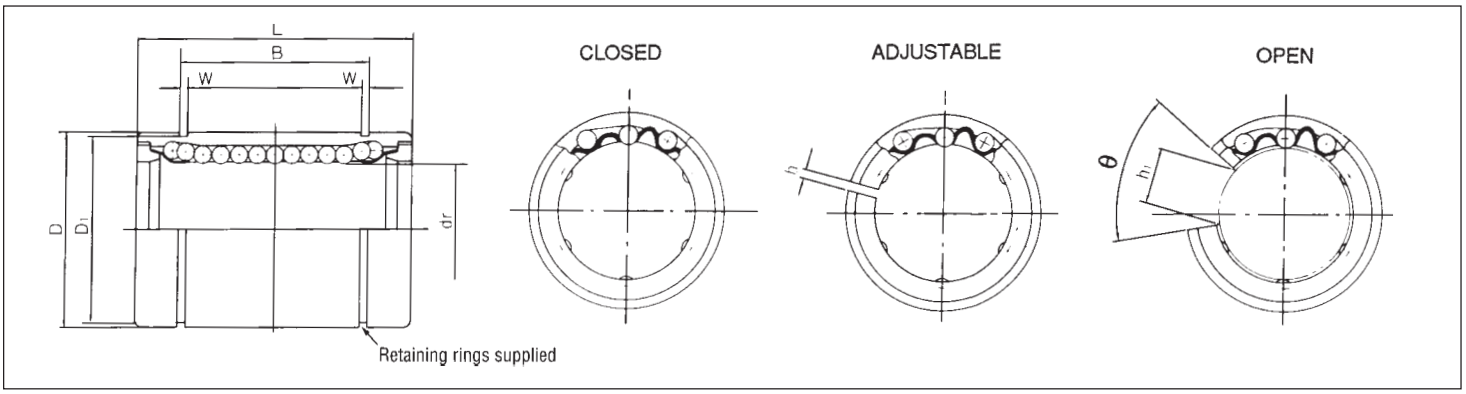
How to Order

When ordering shaft that do not require any special machining, simply add required length in inches to Part Number.

Example: A12-2-6”.

RECIRCULATING BALL LINEAR BEARINGS

Inch and Metric **Closed, Adjustable and Open Styles**



Material:

Balls: 52100 Chrome Steel
Outer Housing: 52100 Steel
Ball Retainer: Resin
End Caps: 1018 Steel

Shafting:

Select From C-1060 Steel (PIC Series A10)
or 440C Stainless Steel (PIC Series A12)

Boundary Dimensions and Tolerance (inch sizes)																
dr		D		L		B		W	D_1	h	h_1	θ	Basic Dynamic Load Rating (C lbs)	Basic Static Load Rating (Co lbs)	Nominal Shaft diameter (inch)	Part No.*
(inch)	Tolerance (inch)	(inch)	Tolerance (inch)	(inch)	Tolerance (inch)	(inch)	Tolerance (inch)	(inch)	(inch)	(inch)	(inch)					
.2500	0 -.00040	.5000	.00045	.7500	0 -.008	.5110	0 -.008	.0390	.4687	—	—	—	46	60	.250	PL-4**
.3750		.6250	0 -.00050	.8750		.6358		.0390	.5880	—	—	—	51	71	.375	PL-6**
.5000		.8750		1.2500		.9625		.0459	.8209	.06	.340	80°	115	176	.500	PL-8
.625		1.125		1.5000		1.1039		.0559	1.0590	.06	.375	80°	174	265	.625	PL-10
.7500	0 -.00050	1.2500	0 -.00075	1.6250	-.012	1.1657	-.012	.0559	1.1760	.06	.437	60°	194	308	.750	PL-12
1.0000		1.5625		2.2500		1.7547		.0679	1.4687	.06	.562	50°	220	353	1.000	PL-16
1.2500		2.0000		2.6250		2.0047		.0679	1.8859	.10	.625	50°	353	616	1.250	PL-20
1.5000		2.3750		3.000		2.4118		.0859	2.2389	.12	.750	50°	490	904	1.500	PL-24

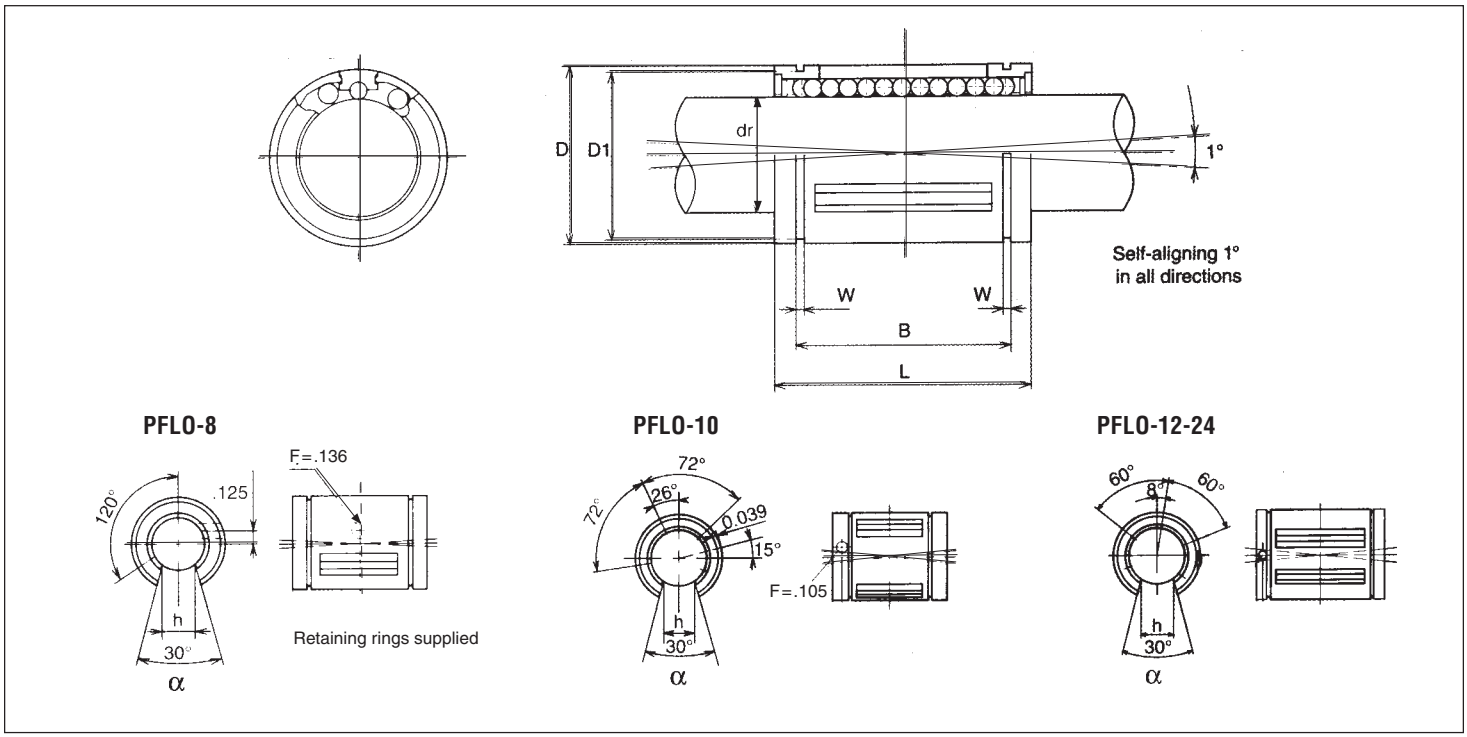
*To order: Adjustable bearing — Use No. PA - Size Code. Open bearing — Use No. PO - Size Code.
**Closed Style Only

Boundary Dimensions and Tolerance (metric sizes)																
dr		D		L		B		W	D_1	h	h_1	θ	Basic Dynamic Load Rating (C N)	Basic Static Load Rating (Co N)	Nominal Shaft diameter (mm)	Part No.*
(mm)	Tolerance (μm)	(mm)	Tolerance (μm)	(mm)	Tolerance (μm)	(mm)	Tolerance (μm)	(mm)	(μm)	(mm)	(mm)					
5	+8 0	12	0 -8	22	0 -200	14.5	0 -200	1.1	11.5	1	—	—	206	265	5	MPL-5
8		16		25		16.5		1.1	15.2	1	—	—	265	402	8	MPL-8
12		22	0 -9	32		22.9		1.3	21	1.5	7.5	78°	510	784	12	MPL-12
16	+9 -1	26		36		24.9		1.3	24.9	1.5	10	78°	578	892	16	MPL-16
20		32	0 -11	45		31.5		1.6	30.3	2	10	60°	862	1370	20	MPL-20
25	+11 -1	40		58	0 -300	44.1	0 -300	1.85	37.5	2	12.5	60°	980	1570	25	MPL-25
30		47		68		52.1		1.85	44.5	2	12.5	50°	1570	2740	30	MPL-30
40	+13 -2	62	0 -13	80		60.6		2.15	59	3	16.8	50°	2160	4020	40	MPL-40

*To order: Adjustable bearing — Use No. MPA - Size Code. Open bearing — Use No. MPO - Size Code.

SELF-ALIGNING BEARINGS

Inch and Metric



Inch Sizes

Nominal Shaft Diameter	Working Bore		O.D. Nominal	Length		Retaining Rings			Open Type	Load Ratings	F	Dynamic Part Number*
	(dr)	Tolerance	(D)	(L)	Tolerance	(B)	(W)	(D1)	(h)	(lbs.)		
1/4	0.2500	-0.0005	0.500	0.750	-0.015	0.515	0.039	0.4687	—	60	—	**PFL-4**
3/8	0.3750	-0.0005	0.625	0.875	-0.015	0.703	0.039	0.588	—	95	—	**PFL-6**
1/2	0.5000	-0.0005	0.875	1.250	-0.020	1.032	0.0459	0.8209	0.313	230	.136	**PFL-8**
5/8	0.6250	-0.0005	1.125	1.500	-0.020	1.112	0.0559	1.059	0.375	400	.105	**PFL-10**
3/4	0.7500	-0.0005	1.250	1.625	-0.020	1.272	0.0559	1.176	0.438	470	.136	**PFL-12**
1	1.0000	-0.0005	1.5625	2.250	-0.020	1.886	0.0679	1.4687	0.563	850	.136	**PFL-16**
1 1/4	1.2500	-0.0006	2.000	2.625	-0.025	2.011	0.0679	1.8859	0.625	1230	.201	**PFL-20**
1 1/2	1.5000	-0.0006	2.375	3.000	-0.030	2.422	0.0859	2.2389	0.750	1480	.201	**PFL-24**

* For open type bearings, insert "O" after PFL. Example: Part number for an open 1/2" bearing is **PFLO-8**.

Note: Open bearing should use pillow blocks with 'S' suffix.

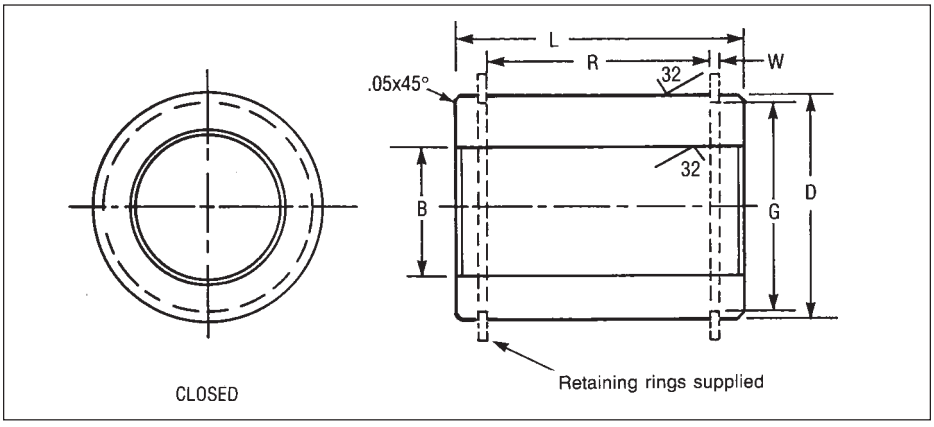
Metric Sizes

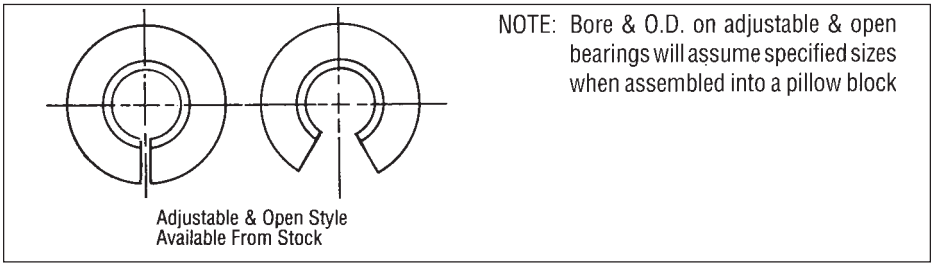
Working Bore		O.D.		Length		Retaining Rings			Open Type	Open Type Angle	Dynamic Load Ratings	Part Number*
(dr)	Tolerance (μm)	(D)	Tolerance (μm)	(L)	Tolerance (μm)	(B)	(W)	(D1)	(h)	(α)	(N)	
12	+8	22	-8	32		22.9	1.3	21	6.5	66	650	**MPFL-12**
16	+9 -1	26	-9	36	-200	24.9	1.3	24.9	9.0	68	800	**MPFL-16**
20		32	-11	45		31.5	1.6	30.3	9.0	55	1500	**MPFL-20**
25	+11 -1	40	-11	58		44.1	1.85	37.5	11.5	57	2500	**MPFL-25**
30		47	-11	68	-300	52.1	1.85	44.5	14.0	57	3200	**MPFL-30**
40	+13 -2	62	-13	80		60.6	2.15	59	19.5	56	5500	**MPFL-40**

* For open type bearings, insert "O" after MPFL. Example: Part number for an open 16mm bearing is **MPFLO-16**.

SELF LUBRICATING PLASTIC LINEAR BEARINGS

Closed, Adjustable and Open Styles **Inch and Metric**





NOTE: Bore & O.D. on adjustable & open bearings will assume specified sizes when assembled into a pillow block

Material: Self Lubricated Engineered Plastic
PV = 16000 PSI-FPM Closed Bearings
= 10000 PSI-FPM Open Bearings
Maximum Speed: 200 FPM (unlubricated)
Max P: 750 PSI (static)
Hardness Durometer: Shore "D" 75
Coefficient of Friction: 0.2

$$P = \frac{\text{Load (lbs.)}}{\text{I.D x L (in.)}}$$

$$V_{FPM} = \frac{\text{Travel Distance (ft)}}{\text{Time (minutes)}}$$

- Maintenance free — self lubricating material — quiet operation
- Improved reliability in hostile environments. Resistant to galvanic corrosion
- Does not gall or Brinell mating shaft
- Interchangable with all linear ball bearings
- Use with all hard or "soft" stainless steel shafting

Inch Sizes

Bore B (inch)	Outside Dia. D	L ±.010	R ±.015	W +.010 -.000	G +.010 -.000	Max Shaft Diameter	Recommended Fits Normal +.0005	Recommended Fits Press +.0005	Part Number* (Closed)
.253 + .002	.5000 - .0010	3/4	.437	.039	.468	.2490	.5000	.4990	**PLC-4****
.378 + .002	.6250 - .0010	7/8	.562	.039	.588	.3740	.6250	.6240	**PLC-6****
.504 + .003	.8750 - .0015	1 1/4	.875	.046	.821	.4995	.8750	.8740	**PLC-8**
.629 + .003	1.1250 - .0015	1 1/2	1.000	.056	1.063	.6245	1.125	1.124	**PLC-10**
.755 + .003	1.2500 - .0015	1 5/8	1.062	.056	1.176	.7495	1.2500	1.2490	**PLC-12**
1.005 + .004	1.5625 - .0020	2 1/4	1.625	.068	1.468	.9995	1.5625	1.5615	**PLC-16**
1.255 + .004	2.0000 - .0020	2 5/8	1.875	.068	1.886	1.2490	2.0000	1.9990	**PLC-20**
1.505 + .004	2.3750 - .0020	3	2.240	.086	2.239	1.4990	2.3750	2.3740	**PLC-24**

* Substitute A or O for C to denote adjustable or closed style, respectively. For example, PLA = Adjustable style. PLO = open style, PLC = closed style
** Closed only

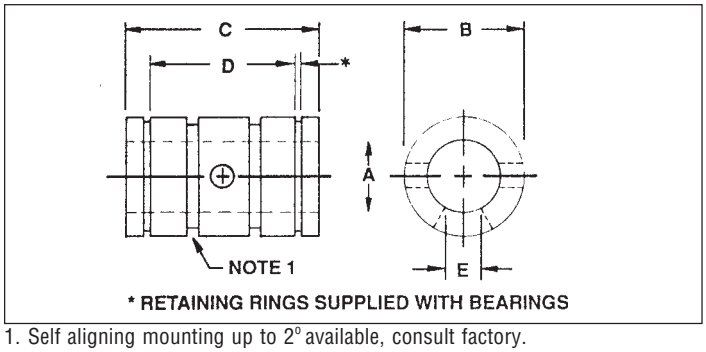
Metric Sizes

Bore B (mm)	Outside Dia. D	L ±.30	R ±.40	W +.30	G +.30	Max Shaft Diameter	Recommended Fits Normal +.012	Recommended Fits Press +.012	Part Number* (Closed)
5	12 - .03	22	12	1.1	11.5	5	12.0	11.98	**MPLC-5****
8	16 - .03	25	14	1.1	15.0	8	16.0	15.97	**MPLC-8****
12	22 - .03	32	20	1.3	21.0	12	22.0	21.97	**MPLC-12**
16	26 - .04	36	22	1.3	25.0	16	26.0	25.96	**MPLC-16**
20	32 - .04	45	28	1.6	30.5	20	32.0	31.96	**MPLC-20**
25	40 - .05	58	40	1.9	37.5	25	40.0	39.96	**MPLC-25**
30	47 - .05	68	48.4	1.9	44.5	30	47.0	46.96	**MPLC-30**
40	62 - .05	80	56.3	2.1	59.0	40	62.0	61.96	**MPLC-40**

* Substitute A or O for C to denote adjustable or closed style, respectively. For example, MPLA = Adjustable style. MPLO = open style, MPLC = closed style
** Closed only

PIC CERAMIC COATED LINEAR BEARINGS

Linear Rotary Motion Bearings



1. Self aligning mounting up to 2° available, consult factory.
2. Larger size bearings available, consult factory.

DESIGN ADVANTAGES

- Economical alternative to linear ball bearings — interchangeable with PL & PO series.
- Eliminates shaft brinelling
- Designed for linear and rotary motion
- Quiet operation
- Lightweight
- Vacuum Application up to 10^{-10} Torr
- High load capacity
- Outstanding wear, prolonged bearing and shaft life
- Corrosion resisting
- Electrically insulating
- One piece construction — no balls to damage or jam mechanisms
- Special shapes and sizes available, consult factory

PERFORMANCE DATA

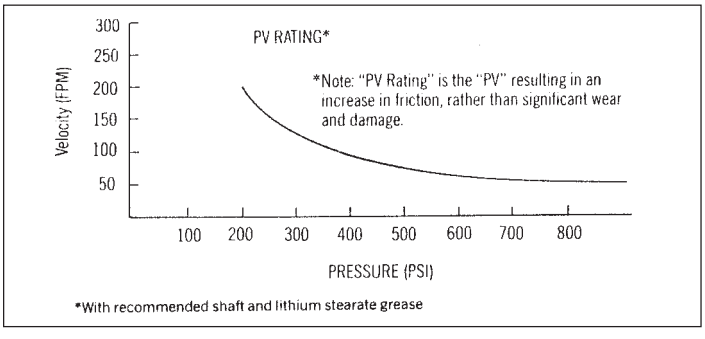
Maximum PV (continuous) 40,000
Maximum linear velocity: 2000 SFM
Maximum Load: 5000 PSI
Coefficient of Friction: .04 (with recommended shaft and lithium stearate grease)
Material: Special aluminum alloy with a proprietary low friction coating (RC 85)
Recommended shaft: 58-63 Rockwell "C", 8-16 RMS
Electrical Resistance (flat surface): 1200 VDC
Insulation Resistance: above 250 Megohms
Lubrication: Essential to achieve maximum performance. Lithium Stearate grease is recommended. (Silicone fluid lubricants have a negative effect on performance.)

Closed Series

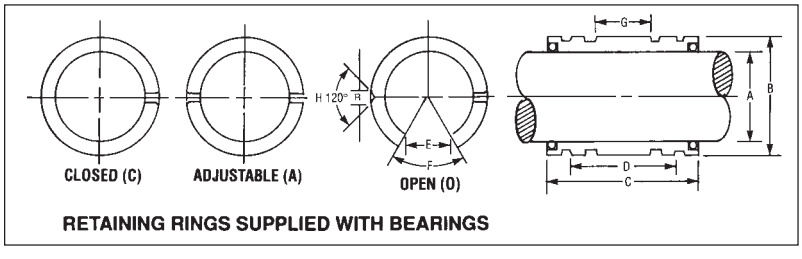
Bore +.001 −.000	O.D. B +.000 −.001	C +.000 −.015	D ±.010	Recommended Shaft PIC Part No.	Recommended Dia. +.0000 −.0005	Recommended Pillow Block PIC Part No.	Part No.
.2505	.5000	.750	.437	A10-4	.2490	S5-1	BLC-04
.3755	.6250	.875	.562	A10-6	.3740	S5-2	BLC-06
.5005	.8750	1.250	.875	A10-8	.4990	S5-3	BLC-08
.6255	1.1250	1.500	1.000	A10-10	.6240	S5-4	BLC-10
.7508	1.2500	1.625	1.062	A10-12	.7490	S5-5	BLC-12
1.0008	1.5625	2.250	1.625	A10-16	.9990	S5-6	BLC-16

Open Series

Bore +.001 −.000	Housing Bore +000 −.001	C +.000 −.015	D ±.010	E +.020 −.000	Recommended Shaft PIC Part No.	Recommended Dia. +.0000 −.0005	Recommended Pillow Block PIC Part No.	Part No.
.5005	.8750	1.250	.875	.312	A10-8	.4990	S5-13	BLO-08
.6255	1.1250	1.500	1.000	.375	A10-10	.6240	S5-14	BLO-10
.7508	1.2500	1.625	1.062	.438	A10-12	.7490	S5-15	BLO-12
1.0008	1.5625	2.250	1.625	.563	A10-16	.9990	S5-16	BLO-16



PIC METRIC CERAMIC COATED LINEAR BEARINGS



These bearings are produced to ISO standards and are exactly interchangeable dimensionally with metric ball bushings currently produced in Europe. Retention is achieved through the use of a set screw of suitable point dimension to be accepted into the retention hole illustrated. Retention hole diameters are listed in column R, Metric PIC Linear Bearings are available with or without integral seals. Since the seals are recessed, all bearings are the same length. There's no need to allow extra space for sealed bearings.

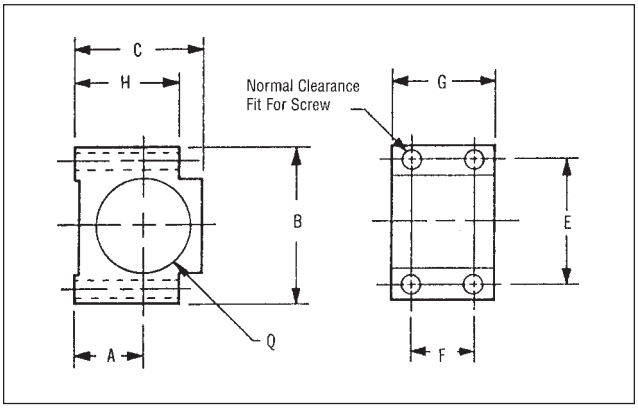
Working Bore A	Working Bore Tol. −.000 +	Outside Dia. B	Outside Dia. Tol. +.000 −	Length C	Length Tol. +.000 −	D	Tol. −.000 +	Max Shaft Dia. h6	Housing Bore Dia. H7	Open (O) E	Adj. (A) H	Open (O) deg. F	G	Open (O) R	Part No.* Insert Type (C) (A) (O)
5	0.038 - 0.065	12	0.030	22	0.2	12	0.28	5	12	—	—	—	4	—	MBL(__)-5
8	0.038 - 0.065	16	0.030	25	0.2	14	0.28	8	16	—	—	—	6	—	MBL(__)-8
12	0.038 - 0.065	22	0.030	32	0.26	20	0.33	12	22	7.6	2.5	78	8	2.5	MBL(__)-12
16	0.038 - 0.065	26	0.030	36	0.26	22	0.33	16	26	10.8	3	78	12	3	MBL(__)-16
20	0.047 - 0.074	32	0.030	45	0.26	28	0.33	20	32	10.8	3.5	60	14	3.5	MBL(__)-20
25	0.047 - 0.074	40	0.030	58	0.3	40	0.38	25	40	13.2	4.5	60	16	4.5	MBL(__)-25

*Note: MBLC - X = Closed; MBLA - X = Adjustable; MBLO - X = Open

LINEAR BEARING HOUSING

For Closed Linear Bearings

MATERIAL: Aluminum
FINISH: Black Anodize

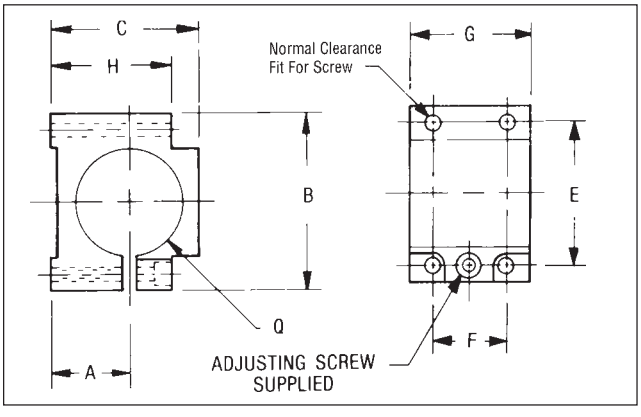


For Shaft Size	Q Bore +.001 -.000	A ±.001	B ±.030	C ±.025	E ±.005	F ±.015	G +.000 -.005	H ±.025	MTG Screw	Part No.
.250	.5000	.437	1.125	.812	.875	—*	.427	.656	#6	**S5-1**
.375	.6250	.500	1.250	.937	1.000	—*	.552	.781	#6	**S5-2**
.500	.8750	.625	1.500	1.187	1.187	.562	.865	1.000	#6	**S5-3**
.625	1.1250	.762	1.750	1.500	1.425	.700	.986	1.300	#8	**S5-4**
.750	1.2500	.875	1.875	1.656	1.562	.750	1.048	1.437	#8	**S5-5**
1.000	1.5625	1.000	2.375	1.937	2.000	1.250	1.610	1.625	#10	**S5-6**
1.250	2.0000	1.312	2.750	2.500	2.375	1.500	1.860	2.062	#10	**S5-7**
1.500	2.3750	1.625	3.750	3.180	3.281	1.750	2.235	2.750	1/4"	**S5-8**

* 2 mounting holes centered

For Adjustable Linear Bearings

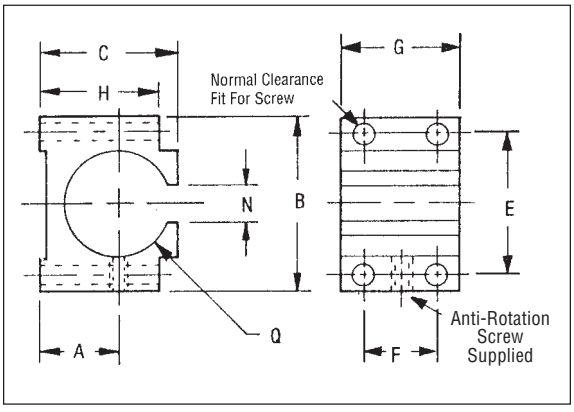
MATERIAL: Aluminum
FINISH: Black Anodize



For Shaft Size	Q Bore +.001 -.000	A ±.001	B ±.030	C ±.025	E ±.005	F ±.015	G +.000 -.005	H ±.025	MTG Screw	Part No.
.500	.8750	.625	1.500	1.187	1.187	.562	.865	1.000	#6	**S8-3**
.625	1.125	.762	1.750	1.500	1.425	.700	.986	1.300	#8	**S8-4**
.750	1.2500	.875	1.875	1.656	1.562	.750	1.048	1.437	#8	**S8-5**
1.000	1.5625	1.000	2.375	1.937	2.000	1.250	1.610	1.625	#10	**S8-6**
1.250	2.0000	1.312	2.750	2.500	2.375	1.500	1.860	2.062	#10	**S8-7**
1.500	2.3750	1.625	3.750	3.187	3.350	1.750	2.235	2.750	1/4"	**S8-8**

For Open Linear Bearings

MATERIAL: Aluminum
FINISH: Black Anodize

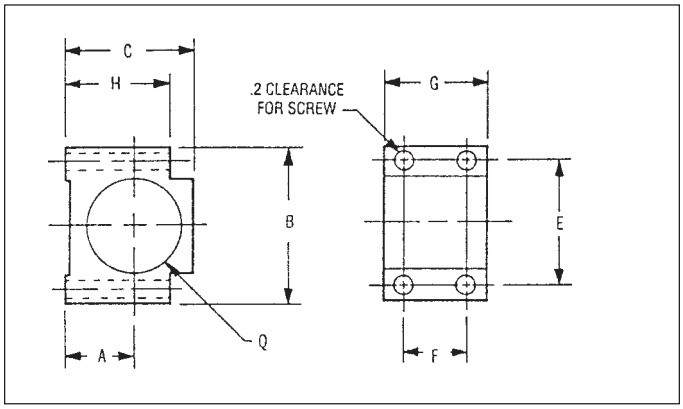


For Shaft Size	Q Bore +.001 -.000	A ±.001	B ±.030	C ±.025	E ±.005	F ±.015	G +.000 -.005	H ±.025	MTG Screw	N ±.02	Std. Style	Self-Aligning Style	
											Part No.	G +000 -005	Part No.
.500	.8750	.625	1.500	1.062	1.187	.562	.865	1.000	#6	.406	**S5-13**	.930	**S5-13S**
.625	1.1250	.762	1.750	1.250	1.425	.700	.986	1.250	#8	.781	**S5-14**	.990	**S5-14S**
.750	1.2500	.875	1.875	1.562	1.562	.750	1.048	1.437	#8	.469	**S5-15**	1.150	**S5-15S**
1.000	1.5625	1.000	2.375	1.687	2.000	1.250	1.610	1.625	#10	.781	**S5-16**	1.740	**S5-16S**
1.250	2.0000	1.312	2.750	2.250	2.375	1.500	1.860	2.062	#10	.781	**S5-17**	1.863	**S5-17S**
1.500	2.3750	1.625	3.750	3.000	3.281	1.750	2.235	2.750	1/4"	.906	**S5-18**	2.235	**S5-18S**

METRIC LINEAR BEARING HOUSING

For Closed Linear Bearings

MATERIAL: Aluminum
FINISH: Black Anodize

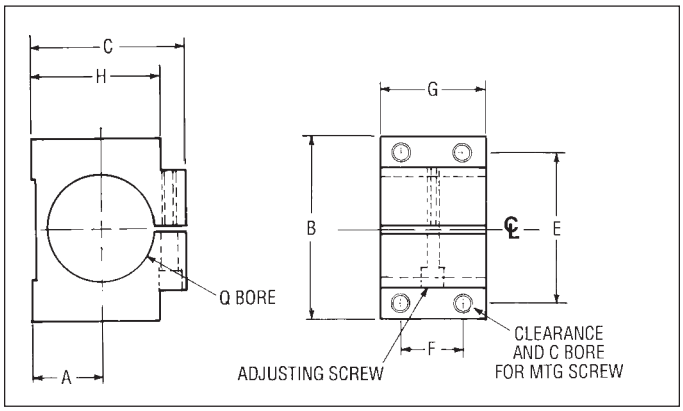


For Shaft Size	Q Bore H7	A ±.03	B ±.4	C ±.4	E ±.3	F ±.3	G −.3	H ±.4	MTG SCREW	Part No.
5	12	14	37	29	24	—*	12	26	M3	MSC-5
8	16	16	40	35	28	—*	14	31	M4	MSC-8
12	22	18	43	38	32	—*	20	34	M4	MSC-12
16	26	22	53	45	40	12	22	40	M5	MSC-16
20	32	25	60	56	45	14	28	46	M6	MSC-20
25	40	30	78	61	60	22	40	53	M8	MSC-25
30	47	35	87	72	68	26	48	64	M8	MSC-30
40	62	45	108	98	86	32	56	82	M10	MSC-40

*2 Mounting Holes Centered

For Adjustable Linear Bearings

MATERIAL: Aluminum
FINISH: Black Anodize

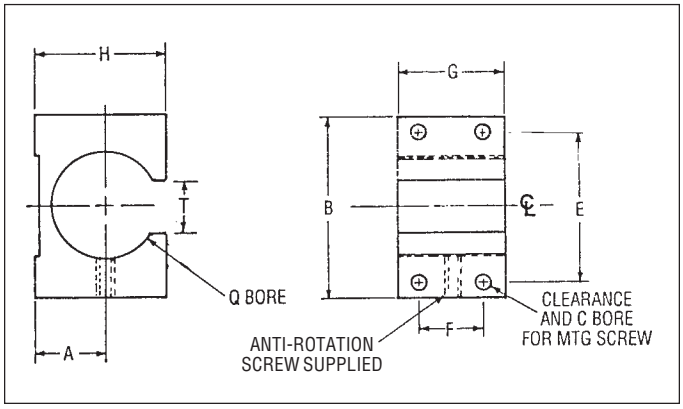


For Shaft Size	Q Bore H7	A ±.03	B ±.4	C ±.4	E ±.3	F ±.3	G −.3	H ±.4	MTG SCREW	Part No.
12	22	18	43	42	32	—*	20	34	M4	MSA-12
16	26	22	53	50	40	12	22	40	M5	MSA-16
20	32	25	60	58	45	14	28	48	M6	MSA-20
25	40	30	78	68	60	22	40	55	M8	MSA-25
30	47	35	87	78	68	26	48	66	M8	MSA-30
40	62	45	108	98	86	32	56	82	M10	MSA-40

*2 Mounting Holes Centered

For Open Linear Bearings

MATERIAL: Aluminum
FINISH: Black Anodize



For Shaft Size	Q Bore H7	A ±.03	B ±.4	T ±.4	E ±.3	F ±.3	G -.3	H ±.4	MTG SCREW	Part No.
12	22	18	43	14	32	—*	20	34	M4	MSO-12
16	26	22	53	16	40	12	22	40	M5	MSO-16
20	32	25	60	16	45	14	28	48	M6	MSO-20
25	40	30	78	20	60	22	40	55	M8	MSO-25
30	47	35	87	20	68	26	48	66	M8	MSO-30
40	62	45	108	26	86	32	56	82	M10	MSO-40

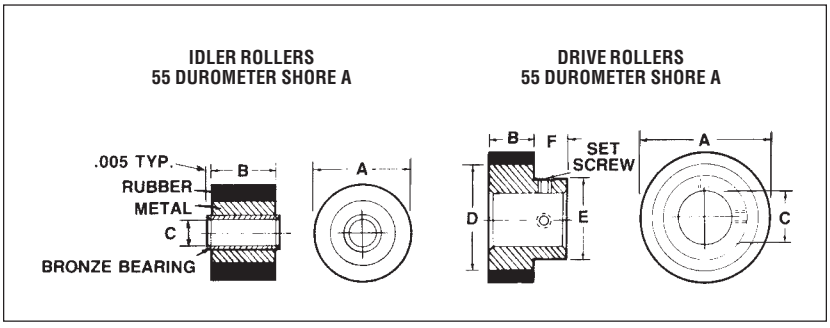
*2 Mounting Holes Centered

PRECISION RUBBER ROLLERS

- Used in design of: Copier machine paper drives, card feeders, collators, sorters, ticket and label dispensers, and virtually any machine that moves paper, tape, etc.
- Other bores, widths and diameters are available...inquire for price and availability.

MATERIAL: Neoprene (Urethane, 40-90 Shore A Durometer optionally available)

Clear Anodized Aluminum Hub



IDLER ROLLERS

Dimension			Part No.
A*	B*	C*	
.500	3/8	.188	**RS6-0500-3**
.625	5/16	.188	**RS5-0625-3**
.750	3/8	.251	**RS6-0750-4**
.875	3/8	.251	**RS6-0875-4**
1.000	1/2	.251	**RS8-1000-4**
1.125	1/2	.251	**RS8-1125-4**
1.625	1/2	.376	**RS8-1525-6**
2.000	5/8	.376	**RS10-2000-6**

Note: The face width is .010″ less than the standard width

DRIVE ROLLERS

Dimension						Set Screw	Part No.
A*	B*	C*	D*	E	F		
.625	1/4	.188	1/2	1/2	1/4	(1) #8-32	**RD4-0625-3**
.750	3/8	.251	1/2	1/2	1/4	(1) #8-32	**RD6-0750-4**
.875	3/8	.251	1/2	1/2	1/4	(1) #8-32	**RD6-0875-4**
1.000	3/16	.188	1/2	1/2	1/4	(1) #8-32	**RD3-1000-3**
1.000	1/2	.251	3/4	5/8	5/16	(2) #8-32	**RD8-1000-4**
1.125	3/8	.251	3/4	5/8	5/16	(2) #8-32	**RD6-1125-4**
1.625	1/2	.376	1-1/8	7/8	3/8	(2) #10-32	**RD8-1625-6**
2.000	5/8	.376	1-1/2	1	3/8	(2) #10-32	**RD10-2000-6**

*"A", "B", & "C" Dimension tolerances are as follows: A= $^{+.000''}_{-.002''}$; B= ±.003″; C= $^{+.001''}_{-.000''}$

Concentricty "A" to "C" T.I.R. −.001″