



Metric

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5 – Bearings

Stock Drive Products/Sterling Instrument

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Metric Metric Metric Metric Metric Metric Metric

5 – Pictorial Guide to Bearings

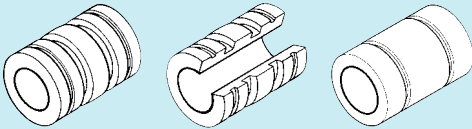
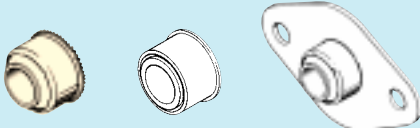
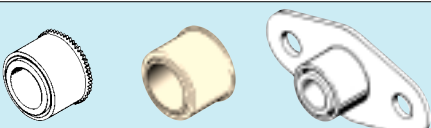
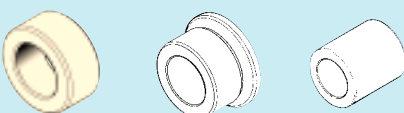
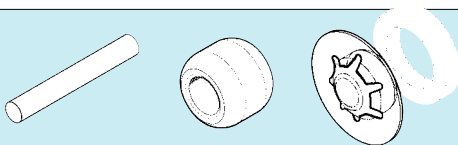
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Description	Configuration	Pages
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5 – Pictorial Guide to Bearings

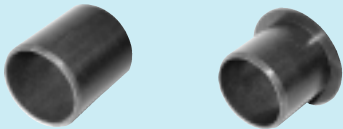
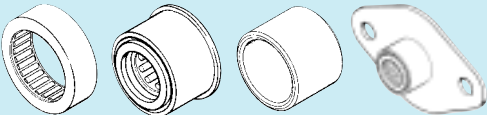
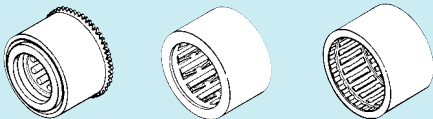
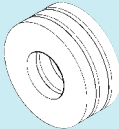
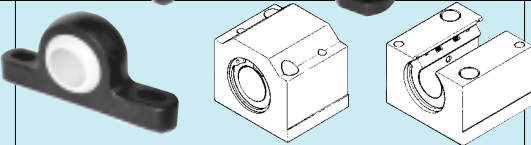
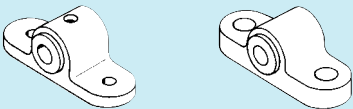
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Description	Configuration	Pages
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5 – Pictorial Guide to Bearings

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Description	Configuration	Pages
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	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Precision Ball Bearings						
Stock Drive Products/Sterling Instrument			Phone: 516-328-3300		Fax: 516-326-8827		

■ ISO 5 AND 4

■ PLAIN

■ 0.005 / 0.013 mm RADIAL PLAY

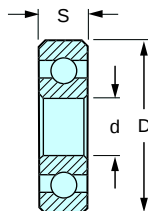


Fig. 1

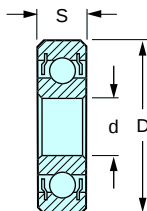
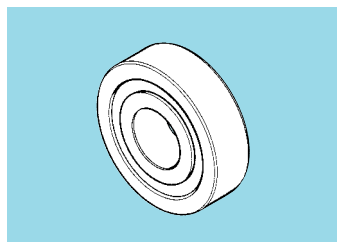


Fig. 2


5 BEARINGS
**MATERIAL:** 440C or DD Stainless Steel**LUBRICATION:** Synthetic Oil, MIL-L-6085A

Catalog Number		d Bore -0.005	D Outer Ring Dia. -0.005	S Width -0.025	Load Rating N	
ISO 5	ISO 4				Dynamic	Static
• FIG. 1 PLAIN OPEN TYPE						
S9912YME0206PS0	S9912YMD0206PS0	2	6	2.3	253	98
S9912YME0208PS0	S9912YMD0208PS0	2.5	8	2.8	431	178
S9912YME0306PS0	S9912YMD0306PS0	3	6	2	155	62
S9912YME0308PS0	S9912YMD0308PS0	3	8	3	293	106
S9912YME0408PS0	S9912YMD0408PS0	4	8	2	196	80
S9912YME0410PS0	S9912YMD0410PS0	4	10	3	293	116
S9912YME0413PS0	S9912YMD0413PS0	4	13	5	1000	480
S9912YME0508PS0	S9912YMD0508PS0	5	8	2	164	67
S9912YME0513PS0	S9912YMD0513PS0	5	13	4	832	400
S9912YME0610PS0	S9912YMD0610PS0	6	10	2.5	253	115
S9912YME0613PS0	S9912YMD0613PS0	6	13	3.5	836	400
S9912YME0713PS0	S9912YMD0713PS0	7	13	3	276	138
S9912YME0816PS0	S9912YMD0816PS0	8	16	4	960	520
• FIG. 2 PLAIN SHIELDED TYPE						
S9912YME0206PS2	S9912YMD0206PS2	2	6	3	253	98
S9912YME0208PS2	S9912YMD0208PS2	2.5	8	4	431	178
S9912YME0306PS2	S9912YMD0306PS2	3	6	2.5	155	62
S9912YME0308PS2	S9912YMD0308PS2	3	8	4	293	106
S9912YME0408PS2	S9912YMD0408PS2	4	8	3	196	80
S9912YME0410PS2	S9912YMD0410PS2	4	10	4	293	116
S9912YME0413PS2	S9912YMD0413PS2	4	13	5	1000	480
S9912YME0508PS2	S9912YMD0508PS2	5	8	2.5	164	67
S9912YME0513PS2	S9912YMD0513PS2	5	13	4	832	400
S9912YME0610PS2	S9912YMD0610PS2	6	10	3	253	115
S9912YME0613PS2	S9912YMD0613PS2	6	13	5	836	400
S9912YME0713PS2	S9912YMD0713PS2	7	13	4	276	138
S9912YME0816PS2	S9912YMD0816PS2	8	16	5	960	520

NOTE: ISO 5 and 4 tolerances are approximately equivalent to ABEC 5 and 7, respectively.



SDPSI

Stock Drive Products/Sterling Instrument

Metric Metric Metric Metric Metric Metric Metric

Precision Ball Bearings

Phone: 516-328-3300 Fax: 516-326-8827

■ ISO 5 AND 4

■ FLANGED

■ 0.005 / 0.013 mm RADIAL PLAY

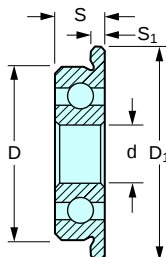


Fig. 1

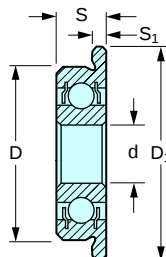
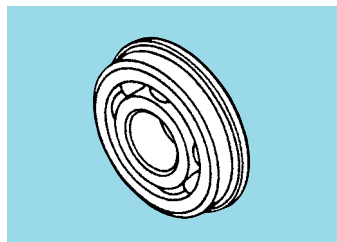


Fig. 2



S Precision
Component

MATERIAL: 440C or DD Stainless Steel

LUBRICATION: Synthetic Oil, MIL-L-6085A

Catalog Number		d Bore -0.005	D Outer Ring Dia. -0.005	S Width -0.025	D ₁ Flange Dia. -0.025	S ₁ Flange Width -0.05	Load Rating N	
ISO 5	ISO 4						Dynamic	Static
• FIG. 1 FLANGED OPEN TYPE								
S9912YME0206FS0	S9912YMD0206FS0	2	6	2.3	7.5	0.6	253	98
S9912YME0306FS0	S9912YMD0306FS0	3	6	2	7.2	0.6	155	62
S9912YME0308FS0	S9912YMD0308FS0	3	8	3	9.5	0.7	293	106
S9912YME0408FS0	S9912YMD0408FS0	4	8	2	9.2	0.6	196	80
S9912YME0410FS0	S9912YMD0410FS0	4	10	3	11.2	0.6	293	116
S9912YME0413FS0	S9912YMD0413FS0	4	13	5	15	1	1000	480
S9912YME0513FS0	S9912YMD0513FS0	5	13	4	15	1	832	400
S9912YME0610FS0	S9912YMD0610FS0	6	10	2.5	11.2	0.6	253	115
S9912YME0613FS0	S9912YMD0613FS0	6	13	3.5	15	1	836	400
S9912YME0713FS0	S9912YMD0713FS0	7	13	3	14.2	0.6	276	138
S9912YME0816FS0	S9912YMD0816FS0	8	16	4	18	1	960	520

• FIG. 2 FLANGED SHIELDED TYPE								
S9912YME0206FS2	S9912YMD0206FS2	2	6	3	7.5	0.8	253	98
S9912YME0208FS2	S9912YMD0208FS2	2.5	8	4	9.5	0.9	431	178
S9912YME0306FS2	S9912YMD0306FS2	3	6	2.5	7.2	0.6	155	62
S9912YME0308FS2	S9912YMD0308FS2	3	8	4	9.5	0.9	293	106
S9912YME0408FS2	S9912YMD0408FS2	4	8	3	9.2	0.6	196	80
S9912YME0410FS2	S9912YMD0410FS2	4	10	4	11.6	0.8	293	116
S9912YME0413FS2	S9912YMD0413FS2	4	13	5	15	1	1000	480
S9912YME0508FS2	S9912YMD0508FS2	5	8	2.5	9.2	0.6	164	67
S9912YME0513FS2	S9912YMD0513FS2	5	13	4	15	1	832	400
S9912YME0610FS2	S9912YMD0610FS2	6	10	3	11.2	0.6	253	115
S9912YME0613FS2	S9912YMD0613FS2	6	13	5	15	1.1	836	400
S9912YME0713FS2	S9912YMD0713FS2	7	13	4	14.6	0.8	276	138
S9912YME0816FS2	S9912YMD0816FS2	8	16	5	18	1.1	960	520

NOTE: ISO 5 and 4 tolerances are approximately equivalent to ABEC 5 and 7, respectively.

SDP/SI	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Ball Bearings						
Stock Drive Products/Sterling Instrument		Phone: 516-328-3300	Fax: 516-326-8827				

■ ISO 6

■ PLAIN

■ 0.005 / 0.013mm RADIAL PLAY

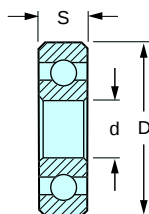


Fig. 1

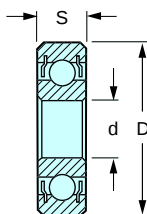
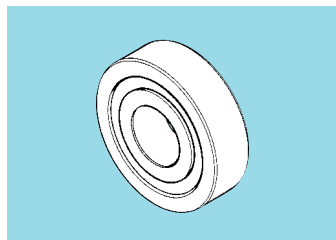


Fig. 2

Precision
Component

MATERIAL: 440C Stainless Steel
LUBRICATION: Synthetic Oil, MIL-L-6085A

Catalog Number	d Bore -0.005	D Outer Ring Dia. -0.007	S Width -0.120	Load Rating N	
				Dynamic	Static
• FIG. 1 PLAIN OPEN TYPE					
A 7Y 5MP0301	1	3	1	62	18
A 7Y 5MP0602	2	6	2.3	253	98
A 7Y 5MP0802	2.5	8	2.8	431	178
A 7Y 5MP0603	3	6	2	155	62
A 7Y 5MP0803	3	8	3	293	106
A 7Y 5MP0804	4	8	2	196	80
A 7Y 5MP1004	4	10	3	293	116
A 7Y 5MP1304	4	13	5	1000	480
A 7Y 5MP0805	5	8	2	164	67
A 7Y 5MP1305	5	13	4	832	400
A 7Y 5MP1006	6	10	2.5	253	115
A 7Y 5MP1306	6	13	3.5	836	400
A 7Y 5MP1307	7	13	3	276	138
A 7Y 5MP1608	8	16	4	960	520
• FIG. 2 PLAIN SHIELDED TYPE					
A 7Y 5MPSS0602	2	6	3	253	98
A 7Y 5MPSS0802	2.5	8	4	431	178
A 7Y 5MPSS0603	3	6	2.5	155	62
A 7Y 5MPSS0803	3	8	4	293	106
A 7Y 5MPSS0804	4	8	3	196	80
A 7Y 5MPSS1004	4	10	4	293	116
A 7Y 5MPSS1304	4	13	5	1000	480
A 7Y 5MPSS0805	5	8	2.5	164	67
A 7Y 5MPSS1305	5	13	4	832	400
A 7Y 5MPSS1006	6	10	3	253	115
A 7Y 5MPSS1306	6	13	5	836	400
A 7Y 5MPSS1307	7	13	4	276	138
A 7Y 5MPSS1608	8	16	5	960	520

NOTE: ISO 6 tolerances are approximately equivalent to ABEC 3.

	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Ball Bearings						
	Stock Drive Products/Sterling Instrument			Phone: 516-328-3300		Fax: 516-326-8827	

■ ISO 6

■ FLANGED

■ 0.005 / 0.013mm RADIAL PLAY

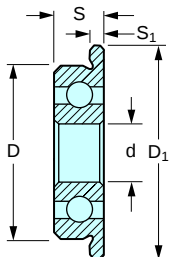


Fig. 1

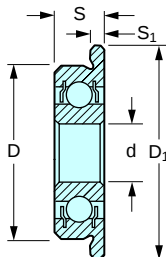
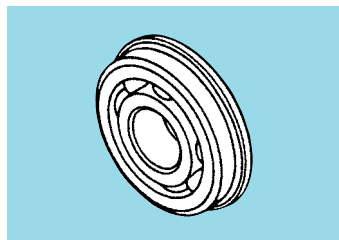


Fig. 2



MATERIAL: 440C Stainless Steel

LUBRICATION: Synthetic Oil, MIL-L-6085A

Catalog Number	d Bore -0.005	D Outer Ring Dia. -0.007	S Width -0.120	D ₁ Flange Dia. +0.125 -0.050	S ₁ Flange Width -0.050	Load Rating N	
						Dynamic	Static
• FIG. 1 FLANGED OPEN TYPE							
A 7Y 5MF0602	2	6	2.3	7.5	0.6	253	98
A 7Y 5MF0603	3	6	2	7.2	0.6	155	62
A 7Y 5MF0803	3	8	3	9.5	0.7	293	106
A 7Y 5MF0804	4	8	2	9.2	0.6	196	80
A 7Y 5MF1004	4	10	3	11.2	0.6	293	116
A 7Y 5MF1304	4	13	5	15	1.0	1000	480
A 7Y 5MF1305	5	13	4	15	1.0	832	400
A 7Y 5MF1006	6	10	2.5	11.2	0.6	253	115
A 7Y 5MF1306	6	13	3.5	15	1.0	836	400
A 7Y 5MF1307	7	13	3	14.2	0.6	276	138
A 7Y 5MF1608	8	16	4	18	1.0	960	520
• FIG. 2 FLANGED SHIELDED TYPE							
A 7Y 5MFSS0602	2	6	3	7.5	0.8	253	98
A 7Y 5MFSS0802	2.5	8	4	9.5	0.9	431	178
A 7Y 5MFSS0603	3	6	2.5	7.2	0.6	155	62
A 7Y 5MFSS0803	3	8	4	9.5	0.9	293	106
A 7Y 5MFSS0804	4	8	3	9.2	0.6	196	80
A 7Y 5MFSS1004	4	10	4	11.6	0.8	293	116
A 7Y 5MFSS1304	4	13	5	15	1.0	1000	480
A 7Y 5MFSS0805	5	8	2.5	9.2	0.6	164	67
A 7Y 5MFSS1305	5	13	4	15	1.0	832	400
A 7Y 5MFSS1006	6	10	3	11.2	0.6	253	115
A 7Y 5MFSS1306	6	13	5	15	1.1	836	400
A 7Y 5MFSS1307	7	13	4	14.6	0.8	276	138
A 7Y 5MFSS1608	8	16	5	18	1.1	960	520

NOTE: ISO 6 tolerances are approximately equivalent to ABEC 3.

SDP/SI	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Ball Bearings						
Stock Drive Products/Sterling Instrument			Phone: 516-328-3300	Fax: 516-326-8827			

■ ISO 0 (ABEC 1)

■ PLAIN

■ 0.005 / 0.013mm RADIAL PLAY

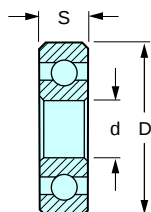


Fig. 1

No Shield

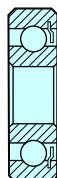


Fig. 2

Single Shield

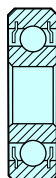


Fig. 3

Double Shield



MATERIAL: Steel, AISI 52100
LUBRICATION: Chevron SRI #2

Catalog Number			d Bore -0.008	D Outer Ring Dia. -0.010	S Width -0.120	Shaft & Housing Fillet Radius Max.
Fig. 1 No Shield	Fig. 2 Single Shield	Fig. 3 Double Shield				
A 7C55MP1905	A 7C55MPS1905	A 7C55MPSS1905	5	19	6	
A 7C55MP1906	A 7C55MPS1906	A 7C55MPSS1906	6	19	6	0.5
A 7C55MP2207	A 7C55MPS2207	A 7C55MPSS2207	7	22	7	
A 7C55MP2208	A 7C55MPS2208	A 7C55MPSS2208	8	22	7	0.5
A 7C55MP2609	A 7C55MPS2609	A 7C55MPSS2609	9	26	8	0.5
A 7C55MP3010	A 7C55MPS3010	A 7C55MPSS3010	10	30	9	0.6
A 7C55MP3212	A 7C55MPS3212	A 7C55MPSS3212	12	32	10	
A 7C55MP3515	A 7C55MPS3515	A 7C55MPSS3515	15	35	11	0.6
A 7C55MP4017	A 7C55MPS4017	A 7C55MPSS4017	17	40	12	
A 7C55MP4720	A 7C55MPS4720	A 7C55MPSS4720	20	47	14	
A 7C55MP5225	A 7C55MPS5225	A 7C55MPSS5225	25	52	15	1

Did You Know?

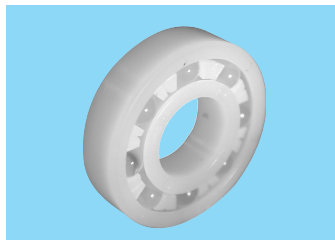
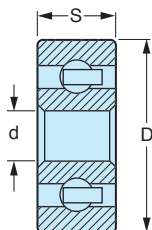
... SDP/SI's computer system was designed with customer service in mind!
 It provides instantaneous information on:

- Availability of inventory
- Status of customer orders
- Quantity pricing
- Allocation of materials
- Status of production releases

■ NONMETALLIC RINGS & CAGE

■ GLASS BALLS

■ NONCORROSIVE



MATERIAL:

Rings – Acetal

Cage – Nylon

Balls – Ground Glass

TEMPERATURE RANGE:

Continuous – -30°C to +100°C

Intermittent – -55°C to +140°C

Catalog Number	d Bore	D Outer Ring Dia.	S Width	Load Rating Radial		Max. rpm in Air
				Dynamic N	Static N	
A 7Z 5M1605	5	16	5	116	76	2352
A 7Z 5M1906	6	19	6	67	44	3017
A 7Z 5M1907	19	19	6	58	40	3017
A 7Z 5M2207	7	22	7	85	58	2606
A 7Z 5M2208	8	22	7	187	147	1600
A 7Z 5M2409	24	24	7	85	58	2384
A 7Z 5M2609	9	26	8	102	67	2205
A 7Z 5M2610	26	26	8	187	147	1600
A 7Z 5M3010	10	30	9	245	191	1142
A 7Z 5M3510	35	35	11	280	187	1638
A 7Z 5M2812	28	28	8	160	107	2047
A 7Z 5M3212	12	32	10	245	191	1142
A 7Z 5M3712	37	37	12	307	205	1550
A 7Z 5M3215	32	32	8	191	129	1800
A 7Z 5M3215A	15	32	9	245	191	1142
A 7Z 5M3515	35	35	11	307	205	1069
A 7Z 5M4215	42	42	13	369	245	1360
A 7Z 5M3517	35	35	8	262	178	1630
A 7Z 5M3517A	17	35	10	307	205	1069
A 7Z 5M4017	40	40	12	307	205	1069
A 7Z 5M4717	47	47	14	440	294	1220
A 7Z 5M4220	42	42	8	307	205	1365
A 7Z 5M4220A	20	42	12	347	231	840
A 7Z 5M4720	47	47	14	347	231	840
A 7Z 5M5220	52	52	15	529	351	1103

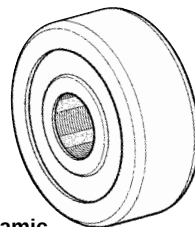
SDPSI Stock Drive Products/Sterling Instrument	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Hydro-Dynamic Pressure Bearings						
Phone: 516-328-3300		Fax: 516-326-8827					

■ PATENTED

Sterling Instrument's new Hydro-Dynamic Pressure Bearing

fulfills the need for a long-lasting and economical bearing capable of high-speed, quiet operation and suitable for light application use, such as compact fan motors, paper feeders of copying machines and printers, laptop computers, micromotors, toys, etc.

The bearings are formed by stacking "petal-shaped" laminated aluminum-silicon alloy plates and housed in a stainless steel case with a polyurea-thickened grease containing antioxidant and anticorrosion additives.



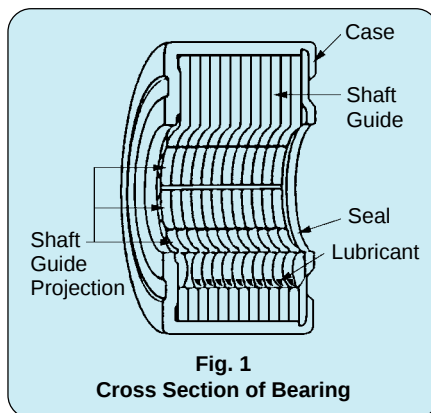
Hydro-Dynamic Pressure Bearing

A cross section of the Hydro-Dynamic Pressure Bearing (see Fig. 1) shows the shaft guides (laminated plates) having a number of projections, of which the inner faces act as the bore of the assembled bearing. The inner faces of the plates' projections face the shaft, as shown in Fig. 2. Clearance to the shaft is closer in the center area and wider on both sides.

When the shaft rotates in this state, a fluid between the shaft guide and the shaft generates pressure as a result of the squeeze effect – a phenomenon of generating pressure to a lubricating membrane in a fluid lubrication when wall faces are close to each other. This fluid pressure supports the shaft with a clearance of 7 to 15 μm between the shaft and the shaft guide.

To generate the fluid pressure, the shaft guide is fabricated very precisely. 0.4 mm thick Al-Si (Aluminum-Silicon) alloy plates are punched, stacked and caulked into the final shape, retaining a bore accuracy of ± 0.003 mm. Using stainless steel sheet for the case and the seal, the bearing provides 30% less weight than an equivalent size precision ball bearing.

With dimensions similar to those of precision ball bearings, these bearings can be used at speeds up to 20000 rpm, depending on the bore size. Allowable radial loads, however, will be less than a quarter of that of precision ball bearings. As an added feature, the operational noise level remains very low due to the nonfriction configuration.



The Clearance between Shaft Guide and Shaft is closest in the center area of the end face (h_2) and wider at both sides (h_1).

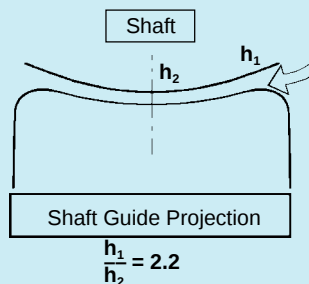


Fig. 2
A schematic sectional view between shaft and shaft guide

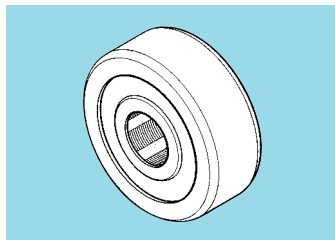
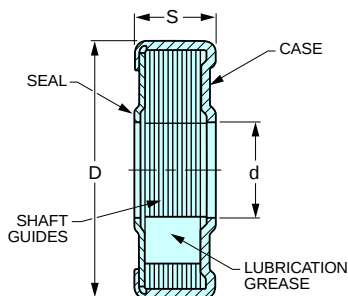
SDPSI	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Hydro-Dynamic Pressure Bearings						
Stock Drive Products/Sterling Instrument		Phone: 516-328-3300		Fax: 516-326-8827			

■ ECONOMICAL

■ HIGH-SPEED

■ LONG LIFE

■ PATENTED



5 BEARINGS

TYPICAL APPLICATIONS:

- Compact fan motors
- Copying machines
- Printers
- Laptop computers
- Camera micromotors
- Toys

FEATURES:

- Low-cost alternative to ball bearings
- Quiet operation
- 30% weight savings over ball bearings

MATERIAL: Shaft Guide (Bearing) - Laminated Aluminum-Silicon Alloy Plates
Case & Seal - Stainless Steel

LUBRICATION: Heat-Resistant, Long-Lasting Grease

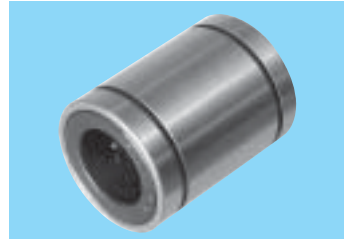
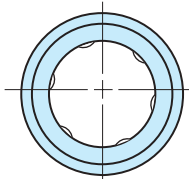
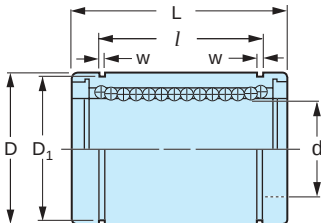
OPERATING TEMPERATURE: -20°C to +100°C

SHAFT RECOMMENDATIONS: **Normal Use** - Case-hardened, carbon steel, 2 μ m surface finish, O.D. tolerance -0.007 to -0.012.
High Accuracy - Case-hardened, 400 series stainless steel, 1 μ m surface finish, O.D. tolerance -0.005 to -0.007.

Catalog Number	d I.D. +0.003	D O.D. +0.015	S Width - 0.17	Max. Speed rpm	Max. Radial Load kg	Comparable Ball Bearing Series
S99HDP100310	1	3	1	20000	0.2	681
S99HDP150420	1.5	4	2	20000	0.3	681XZZ
S99HDP200525	2	5	2.5	15000	0.4	MR52ZZ
S99HDP300840	3	8	4	15000	0.5	693ZZ
S99HDP401140	4	11	4	10000	0.6	694ZZ
S99HDP501650	5	16	5	10000	0.8	625ZZ
S99HDP601960	6	19	6	6000	1	626ZZ

SDPSI	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Linear Ball Bearings – Closed Type						
Stock Drive Products/Sterling Instrument		Phone: 516-328-3300		Fax: 516-326-8827			

- LOW FRICTION COEFFICIENT ■ HIGH POSITIONING ACCURACY
- HIGH LOAD CAPACITY ■ QUIET MOVEMENT ■ LONG TRAVEL LIFE



MATERIAL: Sleeve and Balls – AISI 52100 Steel, hardened to HRC 60...64
Retainer and Side Ring – Resin

Catalog Number◊	Ball Circuit	d* Bore	D** O.D.	L ^Δ Length	l [§] Groove Distance	w Groove Width	D ₁ Groove Dia.	Load Capacity Dynamic N	Static N
STANDARD TYPE									
S99LSCM008025  	4	8	16	25	16.5	1.1	15.2	280	420
S99LSCM012032  	5	12	22	32	22.9	1.3	21	640	950
S99LSCM016036  		16	26	36	24.9	1.3	24.9	720	1120
S99LSCM020045  		20	32	45	31.5	1.6	30.3	920	1480
HEAVY-DUTY TYPE									
S99LHCM012032  	6	12	22	32	22.9	1.3	21	660	1310
S99LHCM016036  		16	26	36	24.9	1.3	24.9	800	1480
S99LHCM020045  		20	32	45	31.5	1.6	30.3	1050	2280
S99LHCM025058  	8	25	40	58	44.1	1.85	37.5	1370	3470

BEARING TOLERANCES

* d Tolerance:	8 & 12 mm	+0.008 / 0
	16 & 20 mm	+0.009 / -0.001
	25 mm	+0.011 / -0.001
** D Tolerance:	16 mm	0 / -0.008
	22 & 26 mm	0 / -0.009
	32 & 40 mm	0 / -0.011
Δ L Tolerance:	25, 32, 36 & 45 mm	0 / -0.200
	58 mm	0 / -0.300
§ l Tolerance:	16.5, 22.9, 24.9 & 31.5 mm	0 / -0.200
	44.1 mm	0 / -0.300

◊ To be discontinued when present stock is depleted.

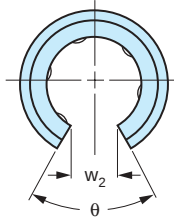
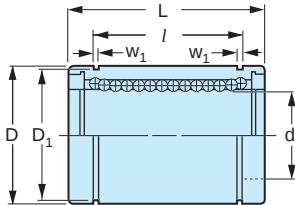
NOTE:

To order bearings *with no wipers*:
use catalog numbers as they are.

To order bearings *with wipers*:
add "WW" to end of part number
for wipers on *both ends*.

	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Linear Ball Bearings – Open Type						
Stock Drive Products/Sterling Instrument		Phone: 516-328-3300		Fax: 516-326-8827			

- LOW FRICTION COEFFICIENT ■ HIGH POSITIONING ACCURACY
- HIGH LOAD CAPACITY ■ QUIET MOVEMENT ■ LONG TRAVEL LIFE



MATERIAL: Sleeve and Balls – AISI 52100 Steel, hardened to HRC 60...64
Retainer and Side Ring – Resin

Catalog Number [◇]	Ball Circuit	d [*] Bore	D ^{**} O.D.	L ^Δ Length	I [§] Groove Distance	w ₁ Groove Width	D ₁ Groove Dia.	w ₂ Slot Width	θ Slot Angle	Load Capacity	
										Dynamic N	Static N
STANDARD TYPE											
S99LSZM012032 ☐	4	12	22	32	22.9	1.3	21	7	54°	640	950
S99LSZM016036 ☐		16	26	36	24.9	1.3	24.9	9.6	60°	720	1120
S99LSZM020045 ☐		20	32	45	31.5	1.6	30.3	11.7	60°	920	1480
S99LSZM025058 ☐	5	25	40	58	44.1	1.85	37.5	14.4	60°	1070	1670
HEAVY-DUTY TYPE											
S99LHZM012032 ☐	4	12	22	32	22.9	1.3	21	10	90°	660	1310

BEARING TOLERANCES

*d Tolerance:	12 mm	+0.008 / 0
	16 & 20 mm	+0.009 / - 0.001
	25 mm	+0.011 / - 0.001
** D Tolerance:	22 & 26 mm	0 / - 0.009
	32 & 40 mm	0 / - 0.011
Δ L Tolerance:	32, 36 & 45 mm	0 / - 0.200
	58 mm	0 / - 0.300
§ I Tolerance:	22.9, 24.9 & 31.5 mm	0 / - 0.200
	44.1 mm	0 / - 0.300

[◇]To be discontinued when present stock is depleted.

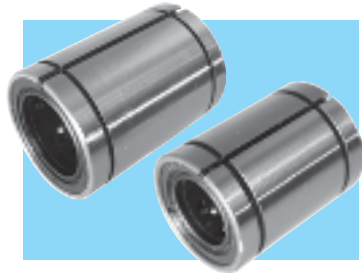
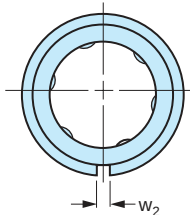
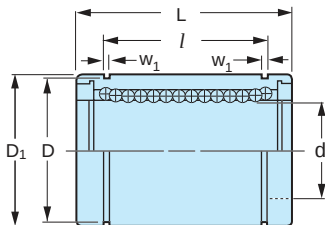
NOTE:

To order bearings *with no wipers*:
use catalog numbers as they are.

To order bearings *with wipers*:
add "**WW**" to end of part number
for wipers on *both ends*.

SDPS/	Metric	Metric	Metric	Metric	Metric	Metric	Metric
Linear Ball Bearings – Adjustable Type							
Stock Drive Products/Sterling Instrument				Phone: 516-328-3300	Fax: 516-326-8827		

- LOW FRICTION COEFFICIENT ■ HIGH POSITIONING ACCURACY
- HIGH LOAD CAPACITY ■ QUIET MOVEMENT ■ LONG TRAVEL LIFE



MATERIAL: Sleeve and Balls – AISI 52100 Steel, hardened to HRC 60...64
Retainer and Side Ring – Resin

Catalog Number◇	Ball Circuit	d* Bore	D** O.D.	L ^Δ Length	l [§] Groove Distance	w Groove Width	D ₁ Groove Dia.	w ₂ Slot Width	Load Capacity	
									Dynamic N	Static N
STANDARD TYPE										
S99LSAM008025□□	4	8	16	25	16.5	1.1	15.2	1	280	420
S99LSAM012032□□	5	12	22	32	22.9	1.3	21	1.5	640	950
S99LSAM020045□□		20	32	45	31.5	1.6	30.3	2	920	1480

BEARING TOLERANCES

*d Tolerance:	8 & 12 mm	+0.008 / 0
	20 mm	+0.009 / -0.001
**D Tolerance:	16 mm	0 / -0.008
	22 mm	0 / -0.009
	32 mm	0 / -0.011
ΔL Tolerance:	25, 32 & 45 mm	0 / -0.200
§ l Tolerance:	16.5, 22.9 & 31.5 mm	0 / -0.200

◇ To be discontinued when present stock is depleted.

NOTE:

To order bearings *with no wipers*:
use catalog numbers as they are.

To order bearings *with wipers*:
add "**WW**" to end of part number
for wipers on *both ends*.

SDPSI	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Frelon® Lined Linear Bearings						
Stock Drive Products/Sterling Instrument		■	Phone: 516-328-3300		■	Fax: 516-326-8827	

BEARING LOAD:

- Frelon lined bearings can tolerate up to 105 kg/cm² over the portion of the bearing that is carrying the load.
- These bearings carry 4 to 8 times the load of ball bearings.
- A 12 mm Frelon bearing will carry as much load as a 25 mm ball bearing.

WEAR RATE:

- Although wear rates are affected by surface finish, shaft hardness, length of travel, contamination and lubrication, these bearings last on average 4 to 8 times longer than ball bearings.

BEARING PV:

- P = Pressure or kg/cm² on the projected area.
- V = Velocity of the wear surface in m/min.
- The maximum PV is 214 kg/cm² • m/min.

BEARING SPEED:

- The maximum average speed without lubrication is:
70 cm/sec - continuous
200 cm/sec - intermittent
- When lubricated, the maximum speed is 200 cm/sec

CANTILEVERED LOADS:

- The distance between the bearings and the drive source or load should not exceed a maximum ratio of 2:1.

SHAFT FINISH AND HARDNESS:

- A shaft finish with an 0.2 to 0.3 μm R_a and a hardness of HRC 50 is recommended for best results. Acceptable performance can be attained with a finish of 0.2 to 0.4 μm R_a and a minimum hardness of HRC 35.
- Softer shafting will cause an accelerated wear to both the shaft and the bearings.
- Optional liners are available for both nonhardened shafting and for use in food applications.

RUNNING CLEARANCES:

- **Precision Series** - approximately .025 mm. High precision, similar to a preloaded ball bearing.
- **Standard Series** - approximately .075 mm. Excellent for parallel shaft applications, similar to a typical ball bearing.

LUBRICATION:

- Frelon lined bearings are self-lubricating.
- Additional lubrication reduces friction up to 50%, minimizes wear, reduces heat, allows greater speed, and extends wear life.
- Acceptable lubrication includes 3-in-1 oils, way lube oils and petroleum-based greases.
- DO NOT USE PTFE FLUOROCARBON AND/OR SILICONE OILS, GREASE, SPRAY, OR WD40.

NO CATASTROPHIC FAILURE:

- No shaft scoring or shock load damage. Liner dampens shock loads and vibration. These bearings provide more surface contact area than ball bearings.
- No corrosion or rust.
- No temperature induced bearing seizure. Temperature range of -240°C to +260°C. Operates with consistent friction and load bearing characteristics throughout temperature range. Liner allows heat to dissipate through the shell.



SDPSI

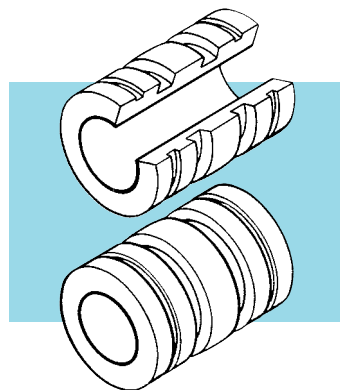
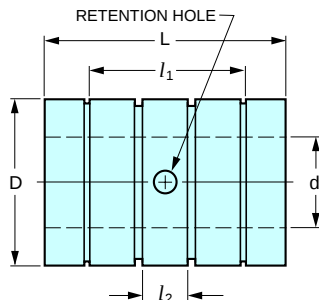
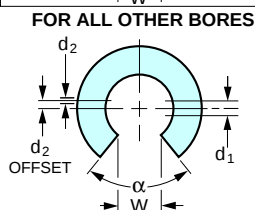
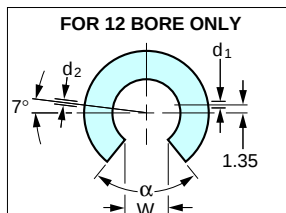
Stock Drive Products/Sterling Instrument

Metric Metric Metric Metric Metric Metric Metric

Frelon® Lined Linear Bearings

Phone: 516-328-3300 Fax: 516-326-8827

■ SELF-LUBRICATING ■ CLOSED OR OPEN ■ PRECISION SERIES ■ LOW COST



5 BEARINGS

MATERIAL: Body - Aluminum, Anodized
Liner - Bonded Frelon®

FRELON® LINED LINEAR BEARINGS

Catalog Number	d* Bore F8	D ^s h7	L ^Δ	Slot (Open Series)		l ₁ Retaining Space	l ₂ O-Ring Spacing	Max Load N	Effective Surface Area cm ²	Retention Hole		
				W Slot Width	α Slot Angle					d ₁	d ₂	d ₂ Offset
S99AP M05F012022	5	12	22	3.2	60°	12	5	1135	1.1	2.2	—	—
S99AP M08F016025	8	16	25	5.1	60°	14	5.33	2055	2	3	—	—
S99AP M10F019029	10	19	29	6.4	60°	19.4	5.63	2985	2.9	3	—	—
S99AP M12F022032	12	22	32	7.6	78°	20	6	3950	3.8	3	3	7°
S99AP M16F026036	16	26	36	10.4	78°	22	8	5930	5.8	2.2	3	0
S99AP M20F032045	20	32	45	10.8	60°	28	10	9265	9	2.2	3	0
S99AP M25F040058	25	40	58	13.2	60°	40	12.5	14935	14.5	3	3	-1.51
S99AP M30F047068	30	47	68	14.2	72°	48	15	21010	20.4	3	3	2
S99AP M40F062080	40	62	80	19.5	72°	56	20	32955	32	3	3	1.5
S99AP M50F075100	50	75	100	24	72°	72	25	51495	50	3	5	2.5
S99AP M60F090125	60	90	125	29.6	72°	95	30	77250	75	—	6	0
S99AP M80F120165	80	120	165	39	72°	125	40	135960	132	—	8	0

APPLICABLE RETAINING RINGS AND O-RINGS

Bearing Reference (Closed or Open Series)	Catalog Numbers	
	Retaining Ring	O-Ring
S99AP M05F012022	MD0471MQB012	A 6R11ML009713
S99AP M08F016025	MD0471MQB016	A 6R11ML013017
S99AP M10F019029	MD0471MQB019	A 6R11ML015520
S99AP M12F022032	MD0471MQB022	A 6R11ML017525
S99AP M16F026036	MD0471MQB026	A 6R11ML021525
S99AP M20F032045	MD0471MQB032	A 6R11ML027525
S99AP M25F040058	MD0471MQB040	A 6R11ML035525
S99AP M30F047068	MD0471MQB047	A 6R11ML042526
S99AP M40F062080	MD0471MQB062	A 6R11ML056035
S99AP M50F075100	MD0471MQB075	A 6R11ML069035
S99AP M60F090125	MD0471MQB090	A 6R11ML081050
S99AP M80F120165	MD0471MQB120	A 6R11ML05111

BEARING TOLERANCES

* d Tolerance (F8):		5 mm +0.028 / +0.010
		8 & 10 mm +0.035 / +0.013
		12 & 16 mm +0.043 / +0.016
		20, 25 & 30 mm +0.053 / +0.020
		40 & 50 mm +0.064 / +0.025
		60 & 80 mm +0.076 / +0.030
§ D Tolerance (h7):		12 & 16 mm -0.018
		19, 22 & 26 mm -0.021
		32, 40 & 47 mm -0.025
		62 & 75 mm -0.030
		90 & 120 mm -0.035
Δ L Tolerance:		22 to 100 mm -0.254
		125 & 165 mm -0.508



SDPSI

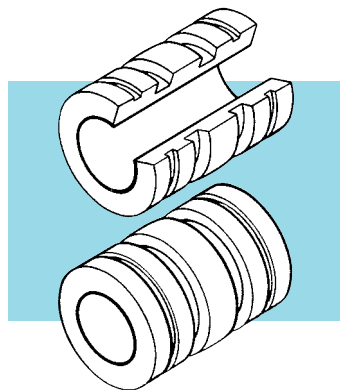
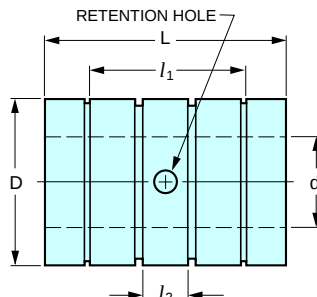
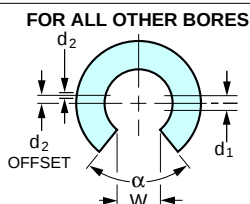
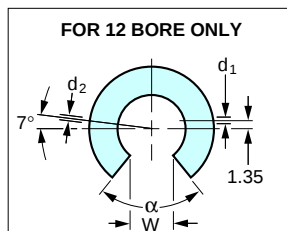
Stock Drive Products/Sterling Instrument

Metric Metric Metric Metric Metric Metric Metric

Frelon® Lined Linear Bearings

Phone: 516-328-3300 Fax: 516-326-8827

■ SELF-LUBRICATING ■ CLOSED OR OPEN ■ STANDARD SERIES ■ LOW COST



MATERIAL: Body - Aluminum, Anodized
Liner - Bonded Frelon®

FRELON® LINED LINEAR BEARINGS

Catalog Number	d* Bore	D ^s h7	L ^Δ	Slot (Open Series)		l ₁ Retaining Space	l ₂ O-Ring Spacing	Max Load N	Effective Surface Area cm ²	Retention Hole		
				W Slot Width	α Slot Angle					d ₁	d ₂	d ₂ Offset
S99AS □ M05F012022	5	12	22	3.2	60°	12	5	1135	1.1	2.2	—	—
S99AS □ M08F016025	8	16	25	5.1	60°	14	5.33	2055	2	3	—	—
S99AS □ M10F019029	10	19	29	6.4	60°	19.4	5.63	2985	2.9	3	—	—
S99AS □ M12F022032	12	22	32	7.6	78°	20	6	3950	3.8	3	3	7°
S99AS □ M16F026036	16	26	36	10.4	78°	22	8	5930	5.8	2.2	3	0
S99AS □ M20F032045	20	32	45	10.8	60°	28	10	9265	9	2.2	3	0
S99AS □ M25F040058	25	40	58	13.2	60°	40	12.5	14935	14.5	3	3	-1.51
S99AS □ M30F047068	30	47	68	14.2	72°	48	15	21010	20.4	3	3	2
S99AS □ M40F062080	40	62	80	19.5	72°	56	20	32955	32	3	3	1.5
S99AS □ M50F075100	50	75	100	24	72°	72	25	51495	50	3	5	2.5
S99AS □ M60F090125	60	90	125	29.6	72°	95	30	77250	75	—	6	0
S99AS □ M80F120165	80	120	165	39	72°	125	40	135960	132	—	8	0

APPLICABLE RETAINING RINGS AND O-RINGS

Bearing Reference (Closed or Open Series)	Catalog Numbers	
	Retaining Ring	O-Ring
S99AS □ M05F012022	MD0471MQB012	A 6R11ML009713
S99AS □ M08F016025	MD0471MQB016	A 6R11ML013017
S99AS □ M10F019029	MD0471MQB019	A 6R11ML015520
S99AS □ M12F022032	MD0471MQB022	A 6R11ML017525
S99AS □ M16F026036	MD0471MQB026	A 6R11ML021525
S99AS □ M20F032045	MD0471MQB032	A 6R11ML027525
S99AS □ M25F040058	MD0471MQB040	A 6R11ML035525
S99AS □ M30F047068	MD0471MQB047	A 6R11ML042526
S99AS □ M40F062080	MD0471MQB062	A 6R11ML056035
S99AS □ M50F075100	MD0471MQB075	A 6R11ML069035
S99AS □ M60F090125	MD0471MQB090	A 6R11ML081050
S99AS □ M80F120165	MD0471MQB120	A 6R11ML05111

BEARING TOLERANCES

* Bore Tol.:	5 mm +0.078 / +0.060 8 & 10 mm +0.085 / +0.063 12 & 16 mm +0.093 / +0.066 20, 25 & 30 mm +0.129 / +0.096 40 & 50 mm +0.166 / +0.127 60 & 80 mm +0.228 / +0.182
§ D Tol. (h7):	12 & 16 mm -0.018 19, 22 & 26 mm -0.021 32, 40 & 47 mm -0.025 62 & 75 mm -0.030 90 & 120 mm -0.035
Δ L Tol.:	22 to 100 mm -0.254 125 & 165 mm -0.508



SDPSI

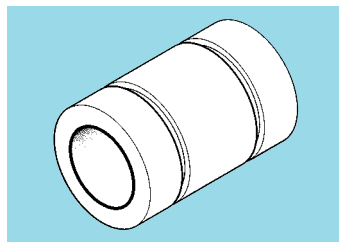
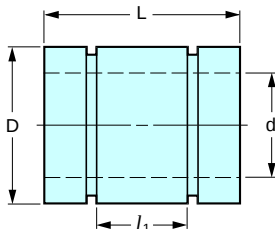
Stock Drive Products/Sterling Instrument

Metric Metric Metric Metric Metric Metric Metric

Frelon® Lined Linear Bearings

Phone: 516-328-3300 Fax: 516-326-8827

■ SELF-LUBRICATING ■ PRECISION OR STANDARD ■ THIN WALLED ■ LOW COST



5 BEARINGS

FRELON® LINED LINEAR BEARINGS

MATERIAL: Body - Aluminum, Anodized
Liner - Bonded Frelon®

Catalog Number Insert in box: P for Precision Series S for Standard Series	d Bore	Bore Tolerance		D ^S h7	L ^Δ	l ₁ O-Ring Spacing	Max Load N	Effective Surface Area cm ²
		Precision Series	Standard Series					
S99B ☐ CM06F012022	6	+0.028/+0.010	+0.078/+0.060	12	22	—	1360	1.3
S99B ☐ CM08F015024	8	+0.035/+0.013	+0.085/+0.063	15	24	10	1975	1.9
S99B ☐ CM10F017026	10			17	26	12	2675	2.6
S99B ☐ CM12F019028	12	+0.043/+0.016	+0.093/+0.066	19	28	14	3460	3.4
S99B ☐ CM14F021028	14			21	28		4035	3.9
S99B ☐ CM16F024030	16			24	30		4940	4.8
S99B ☐ CM20F028030	20			28	30	14	6175	6
S99B ☐ CM25F035040	25	+0.020/+0.053	+0.129/+0.096	35	40	22	10295	10
S99B ☐ CM30F040050	30			40	50	30	15445	15
S99B ☐ CM40F052060	40	+0.064/+0.025	+0.166/+0.127	52	60	40	24715	24
S99B ☐ CM50F062070	50			62	70	50	36045	35

APPLICABLE O-RINGS

Bearing Reference (Precision or Standard)	Catalog Number
S99B ☐ CM06F012022	—
S99B ☐ CM08F015024	A 6R11ML011819
S99B ☐ CM10F017026	A 6R11ML014116
S99B ☐ CM12F019028	A 6R11ML016015
S99B ☐ CM14F021028	A 6R11ML018015
S99B ☐ CM16F024030	A 6R11ML021116
S99B ☐ CM20F028030	A 6R11ML025015
S99B ☐ CM25F035040	A 6R11ML030525
S99B ☐ CM30F040050	A 6R11ML035525
S99B ☐ CM40F052060	A 6R11ML046035
S99B ☐ CM50F062070	A 6R11ML056035

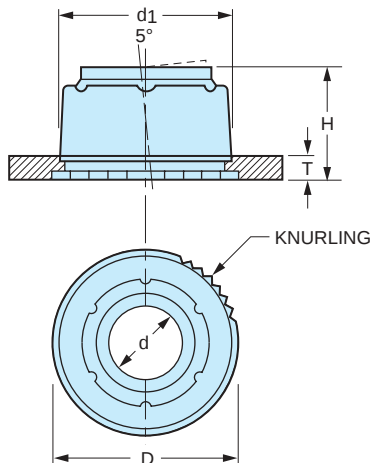
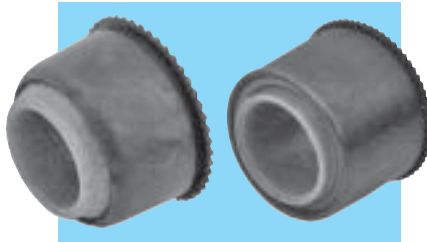
BEARING TOLERANCES

^S D Tolerance (h7):	12 to 17 mm	-0.018
	19 to 28 mm	-0.021
	35 & 40 mm	-0.025
	52 & 62 mm	-0.030
^Δ L Tolerance:		22 to 70 mm -0.254

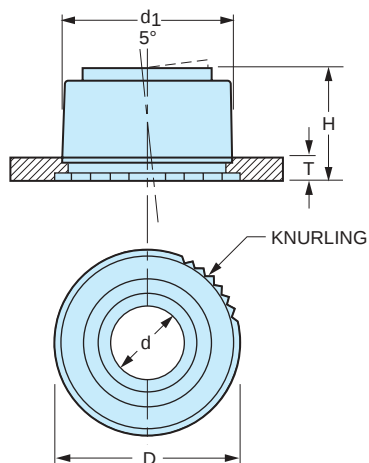
■ SELF-CLINCHING

■ SELF-ALIGNING TO $\pm 5^\circ$

■ SELF-LUBRICATING

**Fig. 1**

The projections shown are per ISO convention.

**Fig. 2****MATERIAL:****Bearing-** Teflon-Filled Acetal**Retainer-** Carbon Steel, Oxytote®

(Black, Hardened to HRB 93...98),

or 300 Series Stainless Steel, Passivated

SHAFT REQUIREMENTS:Any material, soft or hard, with a
0.4 μm or finer finish.**OPERATING TEMPERATURE:** -40°C to +149°C

Catalog Number*	Fig. No.	d Nom. I.D.	Actual I.D. +0.05	d ₁ Panel Hole +0.07	T Min. Panel Thickness	D Knurl O.D.	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
A 7Z43MF ☐ D04MAF	1	4	4.02	7.5	1	8.7	6	2425	153
A 7Z43MF ☐ D06MAF		6	6.02	9.5		10.6	6.9	1617	266
A 7Z43MF ☐ D08MAF		8	8.03	13.9		15.3	10	1213	526
A 7Z43MF ☐ D10MAF		10	10.03	15.9		17	11.4	970	862
A 7Z43MF ☐ D12MAF	2	12	12.03	20.6	1.5	22	16.5	808	1331
A 7Z43MF ☐ D15MAF		15	15.03	27	2.3	28	19.4	647	1871
A 7Z43MF ☐ D18MAF		18	18.03	31.8	2.3	33	22.4	539	2681

*To complete the Catalog Number, specify:

☐ for a Carbon Steel Retaineror ☒ for a Stainless Steel Retainer.

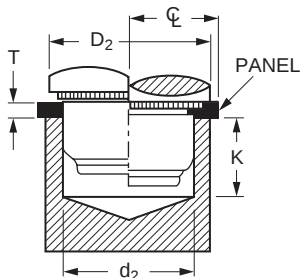
Example: For a Carbon Steel retainer, specify Catalog Number A 7Z43MFSD08MAF.

Continued on the next page

■ SELF-CLINCHING

■ SELF-ALIGNING TO $\pm 5^\circ$

■ SELF-LUBRICATING

**INSTALLATION:**

1. Punch or drill and ream a hole of diameter d_1 in panel as specified in the table below. Panel hardness HRB 65 max., HRB 75 max. (Stainless Steel retainer).

DO NOT DEBURR OR BREAK EDGE OF HOLE.

2. Place bearing assembly in hole. The slight interference fit assures centering the assembly in the mounting hole.
3. Using an anvil with diameter d_2 , a minimum depth of K and a Press Tool diameter of D_2 , install the bearing assembly into the panel by constantly applying a force of F , per the table, until the assembly is flush with the panel surface.

DO NOT USE HAMMER BLOWS!**TOOLING AND INSTALLATION DATA**

Nominal Shaft Diameter	d_1 Panel Hole Diameter +0.07	d_2 Anvil Diameter +0.1	K Minimum Anvil Depth	D_2 Press Tool Minimum Diameter	C Min. Dist. Centerline to Panel Edge	F Install Force Cold-Rolled Steel kN
4	7.5	7.95	11	13.7	5.5	14
6	9.5	9.95	11.9	15.6	6.4	18
8	13.9	14.35	15	20.3	10.3	45
10	15.9	16.35	18	22	11.5	49
12	20.6	21.05	22	27	12.7	49
15	27	27.45	24.4	33	19	54
18	31.8	32.25	27.4	38	19	54

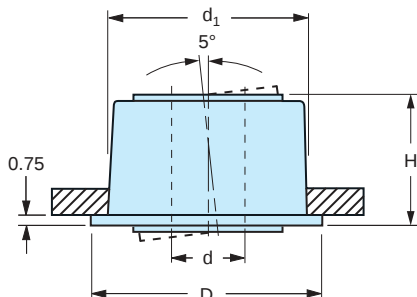
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We can customize to your specifications for a nominal fee.

■ PRESS-FIT INSTALLATION

■ SELF-ALIGNING TO $\pm 5^\circ$

■ SELF-LUBRICATING

**MATERIAL:** Bearing - Teflon-Filled Acetal

Retainer - Carbon Steel, Oxycote®

(Black, Hardened to HRB 93...98)

OPERATING TEMPERATURE: -40°C to +149°C

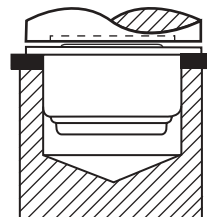
Catalog Number	d Nom. I.D.	Actual I.D. +0.05	d ₁ Panel Hole +0.07	D Flange Diameter	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
A 7Z44MPSD04MAF	4	4.02	12.7	14.2	9.6	2425	153
A 7Z44MPSD06MAF	6	6.02				1617	266
A 7Z44MPSD08MAF	8	8.03	15.9	17.4	10.8	1213	526
A 7Z44MPSD10MAF	10	10.03				970	862
A 7Z44MPSD12MAF	12	12.03	20.6	22.2	14.9	808	1331
A 7Z44MPSD15MAF	15	15.03	27	28.5	19.6	647	1871

SHAFT REQUIREMENTS:

Any material, soft or hard, with a
0.4 μm or finer finish.

INSTALLATION NOTES:

1. The punch must be relieved to accommodate protruding insert.
2. **DO NOT PRESS BEARING ON INSERT!**

**Did You Know?**

...SDP/SI's computer system was designed
with customer service in mind?

It provides instantaneous information on:

- Availability of inventory
- Status of customer orders
- Quantity pricing
- Allocation of materials
- Status of production releases

Flange-Mounted Acetal Pressbearings

Stock Drive Products/Sterling Instrument

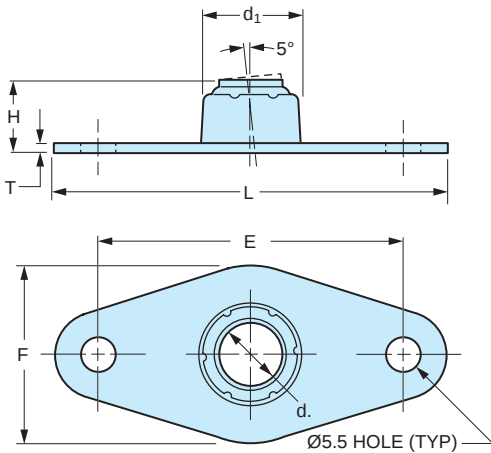
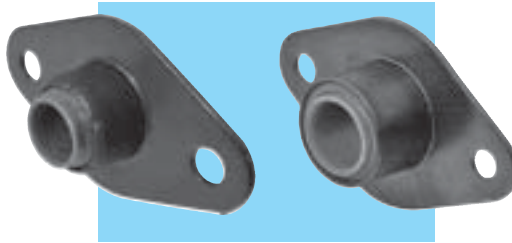
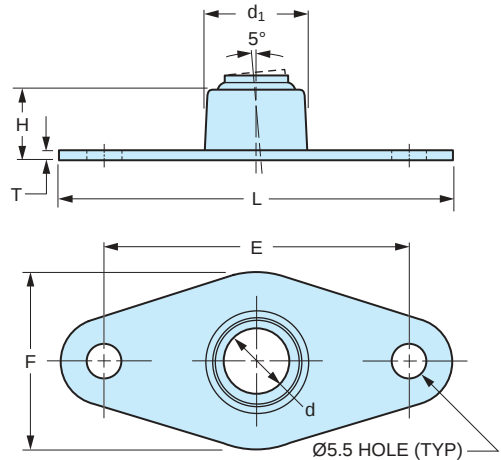
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■ FLANGE-MOUNTED

■ SELF-ALIGNING TO $\pm 5^\circ$

■ SELF-LUBRICATING

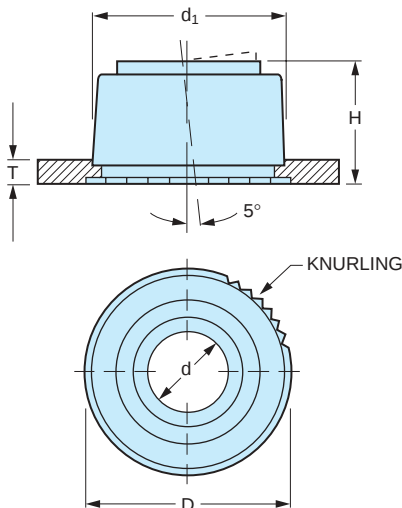
**Fig. 1****Fig. 2**

The projections shown are per ISO convention.

MATERIAL: Bearing - Teflon-Filled AcetalFlange & Retainer - Carbon Steel, Oxygate® (Black,
Hardened to HRB 93...98)**SHAFT REQUIREMENTS:**Any material, soft or hard, with a
0.4 μm or finer finish.**OPERATING TEMPERATURE:** -40°C to +149°C

Catalog Number	Fig. No.	d Nom. I.D.	Actual I.D. +0.05	d ₁ Bearing Clearance Dia.	L Overall Length	F Overall Width	E Mounting Distance	T Nominal Flange Thickness	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
A 7Z45MBFM06MAF	1	6	6.02	11	45	22	31	1.2	6.9	1617	266
A 7Z45MBFM08MAF		8	8.03	17	53	30	39	1.6	10	1213	526
A 7Z45MBFM10MAF	2	10	10.03	17	53	30	39	1.6	11.4	970	862
A 7Z45MBFM12MAF		12	12.03	22	60	36.5	45		16.5	808	1331
A 7Z45MBFM15MAF		15	15.03	28	60	39.7	45	2.3	19.4	647	1871
A 7Z45MBFM18MAF		18	18.03	33		47	45.2		22.4	539	2681

- EXTREME TEMPERATURE RANGE
- SELF-ALIGNING TO $\pm 5^\circ$
- SELF-LUBRICATING
- IDEAL FOR ALL TYPES OF ROTATING, OSCILLATING AND SLIDING MOTIONS

**MATERIAL:****Bearing:** Teflon-Impregnated Porous Bronze**Retainer:** Carbon Steel, Oxycote®

(Black, Hardened to HRB 93...98)

The projections shown are per ISO convention.

OPERATING TEMPERATURE: -201°C to +282°C

Catalog Number	d Nom. I.D.	d ₁ Panel Hole Dia. +0.07	T Min. Panel Thickness	D Knurl O.D.	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
A 7Z60MFSDU04	4	12.7	1	14	10.2	9542	6000
A 7Z60MFSDU06	6	15.9	1.5	17	11.5	6361	9000
A 7Z60MFSDU08	8	15.9	1.5	17	11.5	4771	16000
A 7Z60MFSDU10	10	20.6	1.5	22	16.3	3817	25000
A 7Z60MFSDU12	12	20.6	1.5	22	15.9	3181	30000

Continued on the next page

SHAFT DIAMETERS

Nom. Shaft Diameter	Maximum Diameter	Minimum Diameter
4	4.000	3.992
6	5.990	5.978
8	7.987	7.972
10	9.987	9.972
12	11.984	11.966

SHAFT REQUIREMENTS:Any material, soft or hard, with a
0.4 μ m or finer finish.

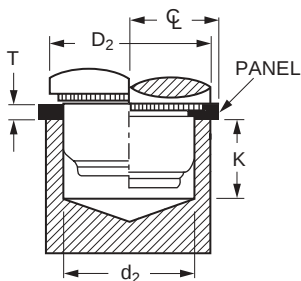
Self-Clinching Teflon Bronze Pressbearings

Stock Drive Products/Sterling Instrument

Phone: 516-326-3300

Fax: 516-326-8827

- EXTREME TEMPERATURE RANGE
- SELF-ALIGNING TO $\pm 5^\circ$
- SELF-LUBRICATING
- IDEAL FOR ALL TYPES OF ROTATING, OSCILLATING AND SLIDING MOTIONS

**INSTALLATION:**

1. Punch or drill and ream a hole of diameter d_1 in panel as specified in the table below. Panel hardness HRB 65 max.
DO NOT DEBURR OR BREAK EDGE OF HOLE.
2. Place bearing assembly in hole. The slight interference fit assures centering the assembly in the mounting hole.
3. Using an anvil with diameter d_2 , a minimum depth of K and a Press Tool diameter of D_2 , install the bearing assembly into the panel by constantly applying a force of F , per the table, until the assembly is flush with the panel surface.

DO NOT USE HAMMER BLOWS!**TOOLING AND INSTALLATION DATA**

Nominal Shaft Diameter	d_1 Panel Hole Diameter +0.07	d_2 Anvil Diameter +0.1	K Minimum Anvil Depth	D_2 Press Tool Minimum Diameter	C Min. Dist. Centerline to Panel Edge	F Install Force Cold-Rolled Steel kN
4	12.7	13.15	15.2	19	9.5	45
6	15.9	16.35	16.5	22	11.5	49
8	15.9	16.35	16.5	22	11.5	49
10	20.6	21.05	21.3	27	12.7	49
12	20.6	21.05	20.9	27	12.7	49

Did You Know?

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<http://www.sdp-si.com>

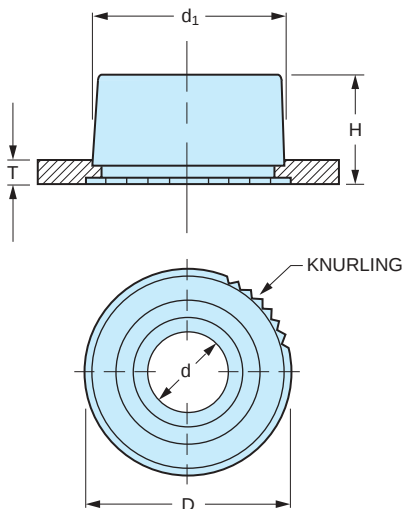
Self-Clinching Teflon Bronze Pressbearings

Stock Drive Products/Sterling Instrument

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■ Fax: 516-326-8827

- EXTREME TEMPERATURE RANGE
- NONALIGNING
- SELF-LUBRICATING
- IDEAL FOR ALL TYPES OF ROTATING, OSCILLATING AND SLIDING MOTIONS

**MATERIAL:****Bearing:** Teflon-Impregnated Porous Bronze**Retainer:** Carbon Steel, Oxycote®
(Black, Hardened to HRB 93...98)

The projections shown are per ISO convention.

OPERATING TEMPERATURE: -201°C to +282°C

Catalog Number	d Nom. I.D.	d ₁ Panel Hole Dia. +0.07	T Min. Panel Thickness	D Knurl O.D.	H Bearing Height	Max. Speed rpm	Max. Radial Load N
A 7Z61MFSDU04	4	9.5	1	10.5	6.7	9542	4000
A 7Z61MFSDU06	6	12.7	1	14	8.7	6361	9000
A 7Z61MFSDU08	8	15.9	1.5	17	10.7	4771	16000
A 7Z61MFSDU10	10	15.9	1.5	17	12.9	3817	25000
A 7Z61MFSDU12	12	20.6	1.5	22	12.9	3181	30000

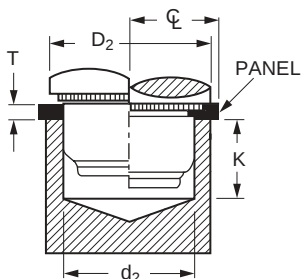
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SHAFT DIAMETERS

Nom. Shaft Diameter	Maximum Diameter	Minimum Diameter
4	4.000	3.992
6	5.990	5.978
8	7.987	7.972
10	9.987	9.972
12	11.984	11.966

SHAFT REQUIREMENTS:Any material, soft or hard, with a
0.4 μm or finer finish.

- EXTREME TEMPERATURE RANGE ■ NONALIGNING ■ SELF-LUBRICATING
- IDEAL FOR ALL TYPES OF ROTATING, OSCILLATING AND SLIDING MOTIONS

**INSTALLATION:**

1. Punch or drill and ream a hole of diameter d_1 in panel as specified in the table below. Panel hardness HRB 65 max.

DO NOT DEBURR OR BREAK EDGE OF HOLE.

2. Place bearing assembly in hole. The slight interference fit assures centering the assembly in the mounting hole.
3. Using an anvil with diameter d_2 , a minimum depth of K and a Press Tool diameter of D_2 , install the bearing assembly into the panel by constantly applying a force of F , per the table, until the assembly is flush with the panel surface.

DO NOT USE HAMMER BLOWS!**TOOLING AND INSTALLATION DATA**

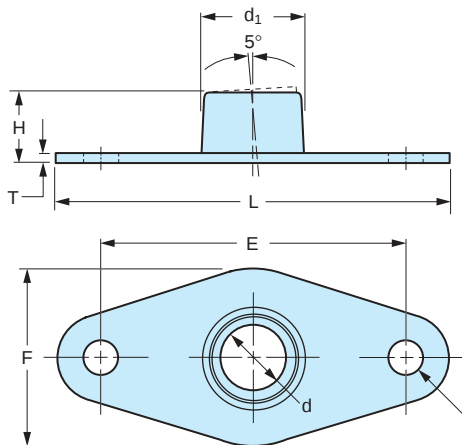
Nominal Shaft Diameter	d_1 Panel Hole Diameter +0.07	d_2 Anvil Diameter +0.1	K Minimum Anvil Depth	D_2 Press Tool Minimum Diameter	C Min. Dist. Centerline to Panel Edge	F Install Force Cold-Rolled Steel kN
4	9.5	9.95	11.7	15.5	6.4	18
6	12.7	13.15	13.7	19	9.5	45
8	15.9	16.35	15.7	22	11.5	49
10	15.9	16.35	17.9	22	11.5	49
12	20.6	21.05	17.9	27	12.7	49

Did You Know?

...You can obtain additional literature by viewing our Web site on the INTERNET?

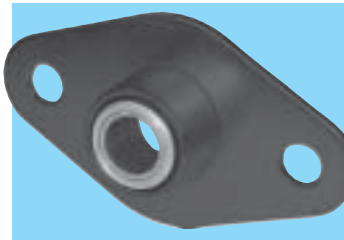
<http://www.sdp-si.com>

- EXTREME TEMPERATURE RANGE ■ SELF-ALIGNING TO $\pm 5^\circ$ ■ SELF-LUBRICATING
- IDEAL FOR ALL TYPES OF ROTATING, OSCILLATING AND SLIDING MOTIONS



5.5 DIA. HOLE (TYP)

The projections shown are per ISO convention.

**MATERIAL:****Bearing:** Teflon-Impregnated Porous Bronze**Retainer:** Carbon Steel, Oxycote®

(Black, Hardened to HRB 93...98)

OPERATING TEMPERATURE: -201°C to +282°C

Catalog Number	d Nom. I.D.	d ₁ Bearing Clearance Diameter	L Overall Length	F Overall Width	E Mtg. Dist.	T Nominal Flange Thickness	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
*A 7Z62MFDU04	4	13	45	22.2	31	1.2	10.2	23885	3360
A 7Z62MFDU06	6	16.5	53	30.2	39	1.5	11.5	6361	9000
A 7Z62MFDU08	8	16.5	53	30.2	39	1.5	11.5	4771	16000
A 7Z62MFDU10	10	22	60	36.5	45.2	1.5	16.3	3817	25000
A 7Z62MFDU12	12	22	60	36.5	45.2	1.5	15.9	3181	30000

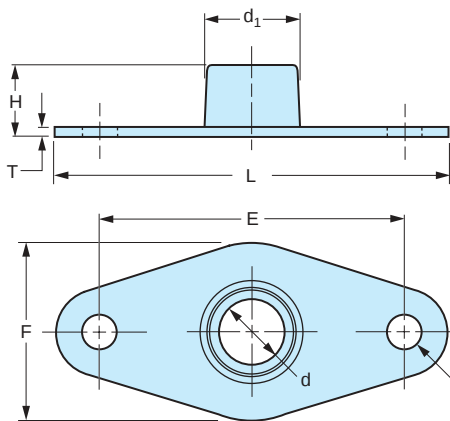
*To be discontinued when present stock is depleted.

SHAFT DIAMETERS

Nominal Shaft Diameter	Maximum Diameter	Minimum Diameter
4	4.000	3.992
6	5.990	5.978
8	7.987	7.972
10	9.987	9.972
12	11.984	11.966

SHAFT REQUIREMENTS:Any material, soft or hard, with a
0.4 μm or finer finish.

- EXTREME TEMPERATURE RANGE
- NONALIGNING
- SELF-LUBRICATING
- IDEAL FOR ALL TYPES OF ROTATING, OSCILLATING AND SLIDING MOTIONS



5.5 DIA. HOLE (TYP)

The projections shown are per ISO convention.

**MATERIAL:****Bearing:** Teflon-Impregnated Porous Bronze**Retainer:** Carbon Steel, Oxycote®

(Black, Hardened to HRB 93...98)

OPERATING TEMPERATURE: -201°C to +282°C

Catalog Number	d Nom. I.D.	d ₁ Bearing Clearance Diameter	L Overall Length	F Overall Width	E Mtg. Dist.	T Nominal Flange Thickness	H Height	Max. Speed rpm	Max. Radial Load N
*A 7Z63MFDU04	4	10.3	45	22.2	31	1.2	6.7	23885	3360
A 7Z63MFDU06	6	13	45	22.2	31	1.2	8.7	6361	9000
A 7Z63MFDU08	8	16.5	53	30.2	39	1.5	10.7	4771	16000
A 7Z63MFDU10	10	16.5	53	30.2	39	1.5	12.9	3817	25000
A 7Z63MFDU12	12	22	60	36.5	45	1.5	12.9	3181	30000

*To be discontinued when present stock is depleted.

SHAFT DIAMETERS

Nominal Shaft Diameter	Maximum Diameter	Minimum Diameter
4	4.000	3.992
6	5.990	5.978
8	7.987	7.972
10	9.987	9.972
12	11.984	11.966

SHAFT REQUIREMENTS:Any material, soft or hard, with a
0.4 μ m or finer finish.

Sintered Bronze Pressbearings

Stock Drive Products/Sterling Instrument

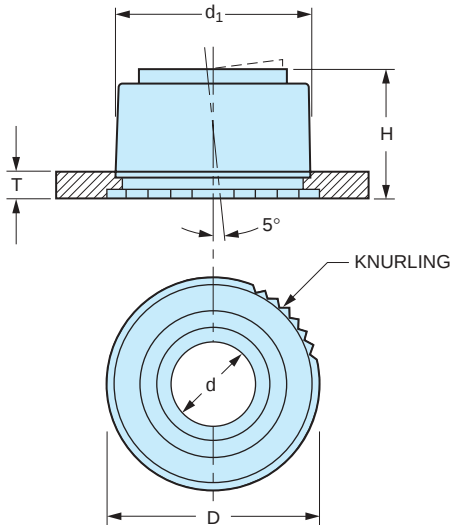
Phone: 516-328-3300

Fax: 516-326-8827

■ SELF-CLINCHING

■ SELF-ALIGNING TO $\pm 5^\circ$

■ SELF-LUBRICATING



The projections shown are per ISO convention.

**SHAFT REQUIREMENTS:**Any material, HRB 100 min., with a 0.4 μm or finer finish.**MATERIAL:****Bearing** - Oil-Impregnated Sintered Bronze**Retainer** - Carbon Steel, Oxytote[®]

(Black, Hardened to HRB 93...98),

or 300 Series Stainless Steel, Passivated

OPERATING TEMPERATURE: -29°C to +93°C

Catalog Number*	d Nom. I.D.	Actual I.D. +0.02	d ₁ Panel Hole +0.07	T Min. Panel Thickness	D Knurl O.D.	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
A 7Z40MF ☐ B04M	4	4.01	12.7	1	14	10.2	24166	527
A 7Z40MF ☐ B06M	6	6.02	15.9	1.5	17	11.5	16110	791
A 7Z40MF ☐ B08M	8	8.02	20.6	1.5	22	16.3	12121	1191
A 7Z40MF ☐ B10M	10	10.02	27	2.3	28	19.4	9698	1489
A 7Z40MF ☐ B12M	12	12.03	31.8	2.3	33	22.5	8055	2531
A 7Z40MF ☐ B15M	15	15.03					6461	3745
A 7Z40MF ☐ B18M	18	18.03					5378	5371

*To complete the Catalog Number, specify:

☐ for a **Carbon Steel Retainer**or ☒ for a **Stainless Steel Retainer**.

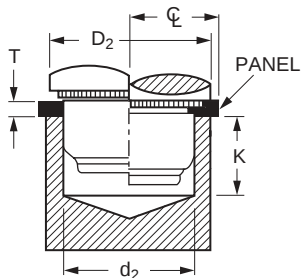
Example: For a Stainless Steel retainer, specify Catalog Number A 7Z40MFXB08M.

Continued on the next page

■ SELF-CLINCHING

■ SELF-ALIGNING TO $\pm 5^\circ$

■ SELF-LUBRICATING

**INSTALLATION:**

1. Punch or drill and ream a hole of diameter d_1 in panel as specified in the table below. Panel hardness HRB 65 max., HRB 75 max. (Stainless Steel retainer).

DO NOT DEBURR OR BREAK EDGE OF HOLE.

2. Place bearing assembly in hole. The slight interference fit assures centering the assembly in the mounting hole.
3. Using an anvil with diameter d_2 , a minimum depth of K and a Press Tool diameter of D_2 , install the bearing assembly into the panel by constantly applying a force of F , per the table, until the assembly is flush with the panel surface.

DO NOT USE HAMMER BLOWS!**TOOLING AND INSTALLATION DATA**

Nominal Shaft Diameter	d_1 Panel Hole Diameter +0.07	d_2 Anvil Diameter +0.1	K Minimum Anvil Depth	D_2 Press Tool Minimum Diameter	C Min. Dist. Centerline to Panel Edge	F Install Force Cold-Rolled Steel kN
4 6	12.7	13.15	15.2	19	9.5	45
8 10	15.9	16.35	16.5	22	11.5	49
12 15 18	20.6 27 31.8	21.05 27.45 32.25	21.3 24.4 27.5	27 33 38	12.7 19 19	49 54 54

Did You Know?

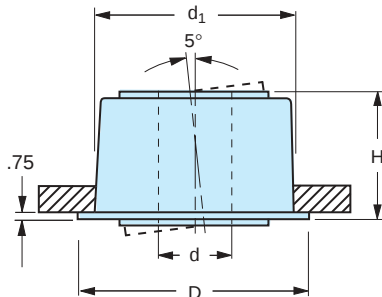
...You can obtain additional literature by viewing our Web site on the INTERNET?

<http://www.sdp-si.com>

■ PRESS-FIT INSTALLATION

■ SELF-ALIGNING TO $\pm 5^\circ$

■ SELF-LUBRICATING



MATERIAL: Bearing - Oil-Impregnated Sintered Bronze
 Retainer - Carbon Steel, Oxygate®
 (Black, Hardened to HRB 93...98)

OPERATING TEMPERATURE: -29°C to +93°C

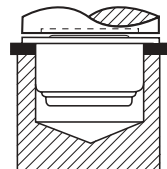
Catalog Number	d Nom. I.D.	Actual I.D. +0.02	d ₁ Panel Hole Diameter +0.07	D Flange Diameter	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
A 7Z41MPSB04M	4	4.01	12.7	14.2	9.6	24166	527
A 7Z41MPSB06M	6	6.02	12.7	14.2	9.6	16110	791
A 7Z41MPSB08M	8	8.02	15.9	17.4	10.8	12121	1191
A 7Z41MPSB10M	10	10.02	15.9	17.4	10.8	9698	1489
A 7Z41MPSB12M	12	12.03	20.6	22.2	15.2	8055	2531
A 7Z41MPSB15M	15	15.03	27	28.5	19.6	6461	3745

SHAFT REQUIREMENTS:

Any material, HRB 100 min., with a
 0.4 μ m or finer finish.

INSTALLATION NOTES:

1. The punch must be relieved to accommodate protruding insert.
2. **DO NOT PRESS BEARING ON INSERT!**

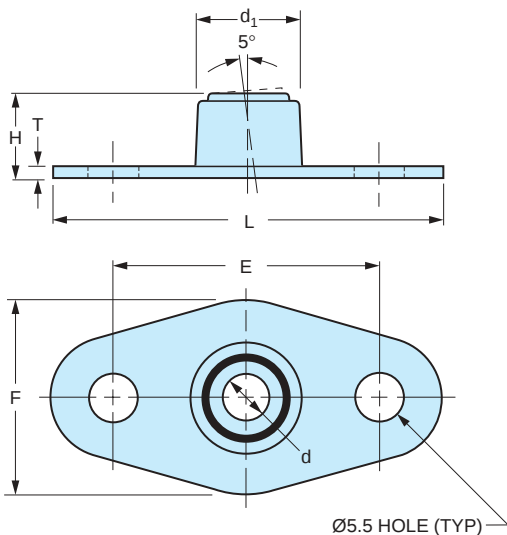
**Did You Know?**

... That Fairloc® is a specially designed hub-fastening device that has many unique advantages over set screw or keyway methods? See **Section 6** for a full explanation.

■ FLANGE-MOUNTED

■ SELF-ALIGNING TO $\pm 5^\circ$

■ SELF-LUBRICATING



The projections shown are per ISO convention.

**SHAFT REQUIREMENTS:**

Any material, HRB 100, with a 0.4 μm or finer finish.

MATERIAL:

Bearing - Oil-Impregnated Sintered Bronze
Flange & Retainer - Carbon Steel, Oxycote®
 (Black, Hardened to HRB 93...98)

OPERATING TEMPERATURE: -29°C to +93°C

Catalog Number	d Nom. I.D.	Actual I.D. +0.02	d ₁ Bearing Clearance Diameter	L Overall Length	F Overall Width	E Mtg. Dist.	T Nominal Flange Thickness	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
*A 7Z42MBFM04MB	4	4.01							24166	527
A 7Z42MBFM06MB	6	6.02	13.5	45	22.3	31	1.2	10.2	16110	791
A 7Z42MBFM08MB	8	8.02	17	53	30.2	39	1.5	11.5	12121	1191
A 7Z42MBFM10MB	10	10.02							9698	1489
A 7Z42MBFM12MB	12	12.03	21.5		36.5		1.5	16.3	8055	2531
A 7Z42MBFM15MB	15	15.03	28	60	39.7	45.2	2.3	19.4	6461	3745
A 7Z42MBFM18MB	18	18.03	32.5		47.0		2.3	22.5	5378	5371

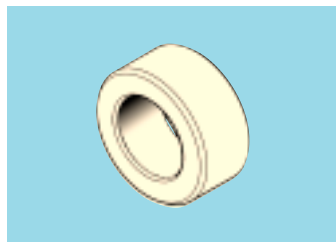
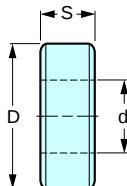
* To be discontinued when present stock is depleted.

SDP/SI	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Ultraprecision Sintered Bronze Bearings						
Stock Drive Products/Sterling Instrument		Phone: 516-328-3300		Fax: 516-326-8827			

■ OIL-IMPREGNATED

■ SELF-LUBRICATING

■ PLAIN



S Precision
Component

FEATURES:

- Economical replacement for ball bearings.
- Dimensioned to be readily interchangeable with comparable ball bearings.

MATERIAL: Porous Sintered Bronze**LUBRICATION:** Vacuum-Impregnated with Oil**SPECIFICATIONS:**

O.D. concentric to bore within 0.005 mm.

Faces square to bore within 0.008 mm.

$$\text{Load} = \frac{\text{Load Speed Rating}}{\text{rpm}} = \text{Newtons}$$

Catalog Number	Shaft Size h6	d Bore H7	D h6	S Width - 0.17	Load Speed Rating N • rpm
S99BP3MPB030625	3	3	6	2.5	84000
S99BP3MPB030830			8	3	100000
S99BP3MPB031040			10	4	134000
S99BP3MPB040840	4	4	8	4	134000
S99BP3MPB051050	5	5	10	5	167000
S99BP3MPB051240			12	4	134000
S99BP3MPB051350			13	5	167000
S99BP3MPB061050	6	6	10	5	167000
S99BP3MPB061650			16	5	167000
S99BP3MPB081660	8	8	16	6	200000
S99BP3MPB101970	10	10	19	7	220000
S99BP3MPB122080	12	12	20	8	220000

Bore Tolerance:
 3 mm + 0.01
 4, 5 & 6 mm + 0.012
 8 & 10 mm + 0.015
 12 mm + 0.018

Shaft & O.D. Tolerance:
 3 mm - 0.006
 4, 5 & 6 mm - 0.008
 8 & 10 mm - 0.009
 12, 13 & 16 mm - 0.011
 19 & 20 mm - 0.013

Other bores / O.D.'s available as special order.

SDP/SI Metric Metric Metric Metric Metric Metric Metric

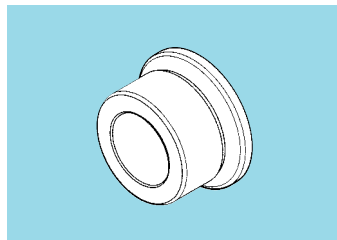
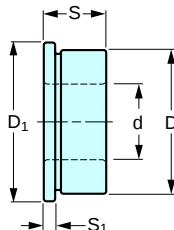
Ultraprecision Sintered Bronze Bearings

Stock Drive Products/Sterling Instrument ■ Phone: 516-328-3300 ■ Fax: 516-326-8827

■ OIL-IMPREGNATED

■ SELF-LUBRICATING

■ FLANGED



S Precision
Component

5 BEARINGS

FEATURES:

- Economical replacement for ball bearings.
- Dimensioned to be readily interchangeable with comparable ball bearings.

MATERIAL: Porous Sintered Bronze**LUBRICATION:** Vacuum-impregnated with Oil**SPECIFICATIONS:**

O.D. concentric to bore within 0.005 mm.

Faces square to bore within 0.008 mm.

$$\text{Load} = \frac{\text{Load Speed Rating}}{\text{rpm}} = \text{Newtons}$$

Catalog Number	Shaft Size h6	d Bore H7	D h6	S - 0.17 Width	D ₁ Flange Dia. h14	S ₁ - 0.05 Flange Width	Load Speed Rating N • rpm
S99BP4MFB030625	3	3	6	2.5	8	0.5	84000
S99BP4MFB030830			8	3	10	0.5	100000
S99BP4MFB031040			10	4	12	1	134000
S99BP4MFB040840	4	4	8	4	10	1	134000
S99BP4MFB051050	5	5	10	5	12	1	167000
S99BP4MFB051240			12	4	14		134000
S99BP4MFB051350			13	5	14		167000
S99BP4MFB061050	6	6	10	5	12	1	167000
S99BP4MFB061650			16		18		
S99BP4MFB081660	8	8	16	6	18	1	200000
S99BP4MFB101970	10	10	19	7	21	1.5	220000
S99BP4MFB122080	12	12	20	8	22	1.5	220000

Bore Tolerance:

3 mm + 0.01

4, 5 & 6 mm + 0.012

8 & 10 mm + 0.015

12 mm + 0.018

Shaft & O.D. Tolerance:

3 mm - 0.006

4, 5 & 6 mm - 0.008

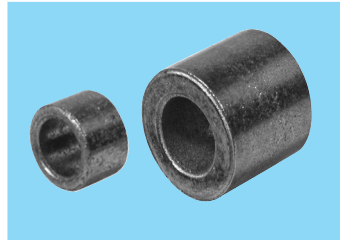
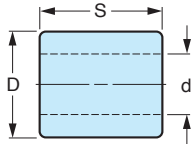
8 & 10 mm - 0.009

12, 13 & 16 mm - 0.011

19 & 20 mm - 0.013

Other bores / O.D.'s available as special order.

■ STANDARD SERIES



MATERIAL: Oil-Impregnated Bronze, Self-Lubricating

Catalog Number	d* E7	D** r7	S Width -0.20
A 7B 4MP020403	2	4	3
A 7B 4MP020404		4	4
A 7B 4MP020503		5	3
Δ A 7B 4MPH20603	2.5	6	3
A 7B 4MP030503	3	5	3
A 7B 4MP030504		5	4
A 7B 4MP030506		6	6
A 7B 4MP040804	4	8	4
A 7B 4MP040806		8	6
A 7B 4MP040808		8	8
A 7B 4MP050805	5	8	5
A 7B 4MP050808		8	8
Δ A 7B 4MP051008		10	8
A 7B 4MP061004	6	10	4
A 7B 4MP061006		10	6
A 7B 4MP061010		10	10
A 7B 4MP061208	7	12	8
A 7B 4MP061212		12	12
Δ A 7B 4MP071008		10	8
A 7B 4MP071010	7	10	8
Δ A 7B 4MP071208		12	8

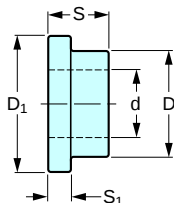
Catalog Number	d* E7	D** r7	S Width -0.20
Δ A 7B 4MP071210	7	12	10
Δ A 7B 4MP071212		12	12
A 7B 4MP081206	8	12	6
A 7B 4MP081208		12	8
A 7B 4MP081212		12	12
A 7B 4MP081408	8	14	8
A 7B 4MP081412		14	12
A 7B 4MP081416		14	16
Δ A 7B 4MP091410	9	14	10
Δ A 7B 4MP091420		14	20
A 7B 4MP101410	10	14	10
A 7B 4MP101416		14	16
A 7B 4MP101610		16	10
A 7B 4MP101616	10	16	16
A 7B 4MP101620		16	20
A 7B 4MP121612		16	12
A 7B 4MP121620	12	16	20
A 7B 4MP121812		18	12
A 7B 4MP121816		18	16
A 7B 4MP121825		18	25

*Bore Tolerance (E7): 2, 2.5 & 3 mm + 0.024, + 0.014
 4, 5 & 6 mm + 0.032, + 0.020
 7, 8, 9 & 10 mm + 0.040, + 0.025
 12 mm + 0.050, + 0.032

**O.D. Tolerance (r7): 4, 5 & 6 mm + 0.027, + 0.015
 8 & 10 mm + 0.034, + 0.019
 12, 14, 16 & 18 mm + 0.041, + 0.023

Δ To be discontinued when present stock is depleted.

■ STANDARD SERIES



MATERIAL: Oil-Impregnated Bronze, Self-Lubricating

Catalog Number	d* E7	D** r7	S Width -0.2	D ₁ Flange Diameter ± 0.12	S ₁ Flange Width -0.2
A 7B 4MF010302	1	3	2	5	1
A 7B 4MF020404	2	4	4	6	1.5
A 7B 4MFH20603	2.5	6	3	9	
A 7B 4MF030504	3	5	4	8	
A 7B 4MF040806	4	8	6	10	
A 7B 4MF050806	5	8	6	10	2
A 7B 4MF051006		10		12	
A 7B 4MF061004	6	10	4	14	2
A 7B 4MF061006		10	6		
A 7B 4MF061206		12	6		
A 7B 4MF071208	7	12	8	16	3
A 7B 4MF081208	8	12		16	
A 7B 4MF101608	10	16	8	20	3
A 7B 4MF101610			10		
A 7B 4MF121810	12	18	10	22	3
A 7B 4MF121812			12		

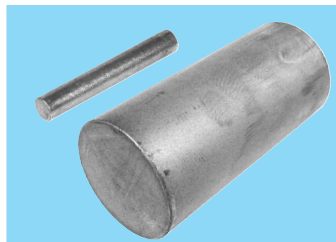
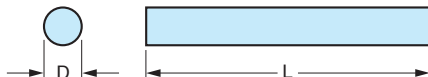
*Bore Tolerance (E7): 1, 2, 2.5 & 3 mm + 0.024, + 0.014
 4, 5 & 6 mm + 0.032, + 0.020
 7, 8 & 10 mm + 0.040, + 0.025
 12 mm + 0.050, + 0.032

**O.D. Tolerance (r7): 3 mm + 0.020, + 0.010
 4, 5 & 6 mm + 0.027, + 0.015
 8 & 10 mm + 0.034, + 0.019
 12, 16 & 18 mm + 0.041, + 0.023

Did You Know?

...You can obtain additional literature by viewing our "home page" on the INTERNET?

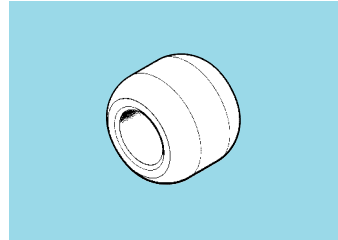
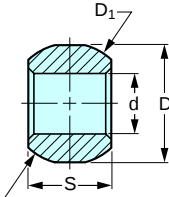
<http://www.sdp-si.com>

Sintered Solid Bar Stock**MATERIAL:** Oil-Impregnated Bronze, Self-Lubricating

Catalog Number	D mm (Ref.)	L Length mm (Ref.)
A 7B 4MSSB006	6.3	50
A 7B 4MSSB010	9.5	76
A 7B 4MSSB013	12.7	165
A 7B 4MSSB016	15.9	
A 7B 4MSSB019	19	
A 7B 4MSSB022	22.2	
A 7B 4MSSB025	25.4	
A 7B 4MSSB029	28.6	
A 7B 4MSSB032	31.7	
A 7B 4MSSB035	34.9	
A 7B 4MSSB038	38.1	
A 7B 4MSSB041	41.3	
A 7B 4MSSB045	44.5	
A 7B 4MSSB051	50.8	
A 7B 4MSSB057	57.1	
A 7B 4MSSB064	63.5	
A 7B 4MSSB070	69.8	
A 7B 4MSSB076	76.2	
A 7B 4MSSB083	82.6	
A 7B 4MSSB089	88.9	
A 7B 4MSSB102	101.6	
A 7B 4MSSB114	114.3	
A 7B 4MSSB127	127	
A 7B 4MSSB140	139.7	
A 7B 4MSSB152	152.4	

NOTE: All bars are supplied oversized so they can be machine finished to the dimensions shown.**Did You Know?**

... That the Bearing Section of this catalog contains ball bearings, oil-impregnated sintered bearings and nonmetallic sleeve bearings in addition to many linear bearings and pillow blocks?



MATERIAL: Oil-Impregnated Bronze, Self-Lubricating

Catalog Number	d* H7	D	D1** h11	S Width -0.3
A 7B 4MS04H908	4	9.5	10	8
A 7B 4MS05H1210	5	12.5	13	10
A 7B 4MS06H1411	6	14.5	15	
A 7B 4MS07H1511	7	15.5	16	11
A 7B 4MS08H1511	8	15.5	16	
A 7B 4MS102114	10	21	22	14
A 7B 4MS122416	12	24	25	16

*Bore Tolerance (H7): 4, 5 & 6 mm + 0.012
 7, 8 & 10 mm + 0.015
 12 mm + 0.018

**Dia. Tolerance (h11): 10 mm + 0.034, + 0.019
 13, 15 & 16 mm + 0.041, + 0.023
 22 & 25 mm + 0.049, + 0.028

Did You Know?

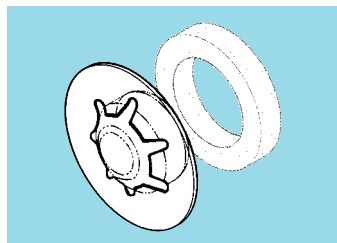
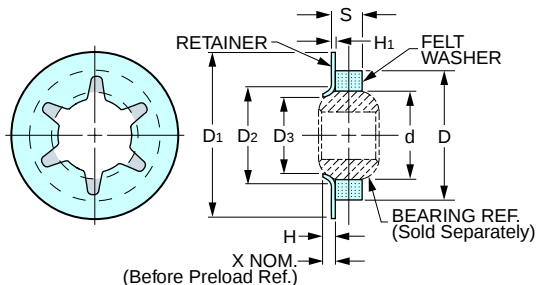
...The SDP/SI METRIC catalog offers the widest selection of off-the-shelf drive components?

- Bearings
- Belt Drives
- Cams
- Chain Drives
- Clamps
- Clutches and Brakes
- Constant Force Springs
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- Vibration Mounts

...and more!

	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Felt Washers and Retainers						
	Stock Drive Products/Sterling Instrument		Phone: 516-328-3300		Fax: 516-326-8827		

■ FOR SPHERICAL BEARINGS



5 BEARINGS

MATERIAL: Felt, Oil-Impregnated (SAE 50)

FELT WASHER				
Catalog Number	d Dia.	D Dia.	S	Use With Bearing I.D. ^Δ
A 7B 4MW0810	7.6	10	3	3
A 7B 4MW1013	9.5	13		4
* A 7B 4MW1316	12.5	16	5	5
A 7B 4MW1518	14.5	18		6
A 7B 4MW1619	15.5	19	6	7 & 8
* A 7B 4MW1822	17.5	22		9
A 7B 4MW2127	21	27	7	10
A 7B 4MW2430	24	30		12

Bearing I.D. (mm)	X Nom. (Ref.)
3	1.35
4	1.65
5	2.1
6	2.3
7	2.45
8	2.45
9	3.05
10	2.75

MATERIAL: Steel, Spring

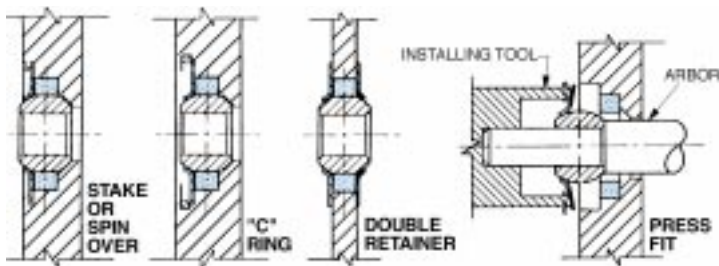
RETAINER						
Catalog Number	D ₁ Dia.	D ₂ Dia.	D ₃ Dia.	H Ht.	H ₁	Use With Bearing I.D. ^Δ
* A 7B 4MR0715	14.92	9.5	6.5	1.05	0.2	3
* A 7B 4MR1120	19.9	14.5	10.9	1.7	0.3	5
* A 7B 4MR1224	23.9	17	12.4	2.15		6
* A 7B 4MR1326	25.9	18	13.2	2.4	0.35	7 & 8
* A 7B 4MR1532	31.9	19	15.1	2.25		9
* A 7B 4MR1934	33.9	24	18.9	3.6	0.4	10

^ΔFor Spherical Bearings, see index.

* To be discontinued when stock is depleted.

NOTE: Retainer for 12 mm Bearing I.D. not available.

TYPICAL INSTALLATIONS



	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Nonmetallic Bearings						
Stock Drive Products/Sterling Instrument		Phone: 516-328-3300		Fax: 516-326-8827			

FEATURES:

- Extremely low wear rate.
- High performance rating (PV) among sleeve bearing materials.
- Bearing O.D.'s compatible with standard sintered bronze sizes for upgrading existing equipment.
- Dynamic coefficient of friction varies, dependent upon customer's loads.
- Extremely low coefficient of friction.
- Inexpensive.

BEARING DESIGN CALCULATIONS FOR LOADS & SPEED

The load carrying capability of sleeve bearings is expressed by a PV factor in the following formula:

$$PV = \frac{W}{Ld} \times \pi dn = \frac{\pi Wn}{L}$$

P = load in kgf/cm² on the bearing area

V = shaft surface velocity, m/min.

W = bearing load, kgf

L = bearing length, cm

d = bearing I.D., cm

n = shaft speed (rpm)

COEFFICIENT OF FRICTION AND LIMITING PV DATA

Material	Dynamic Coefficient of Friction (Dry against steel)	Limiting PV (kgf/cm ² x m/min)
Ertalyle TX	0.19	129
Acetron® NS	0.20	187
Delrin 500AF	0.16	108
Delrin 500CL	0.20	65
Delrin 500	0.39	65
T500®*	0.09...0.27	808
G300®*	0.08...0.15	257
M250®*	0.1...0.3	73
L280®*	0.08...0.23	141

*These materials are a registered trademark of Igus, Inc.

SDP/SI

Metric Metric Metric Metric Metric

Nonmetallic Sleeve Bearings

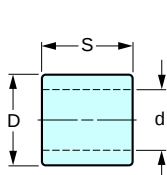
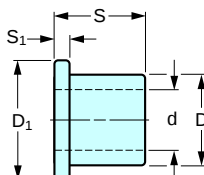
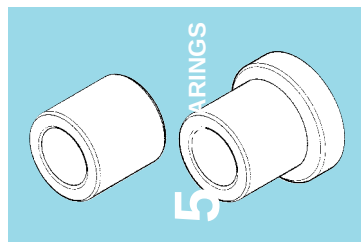
Stock Drive Products/Sterling Instrument

Phone: 516-326-3300

Fax: 516-326-8827

■ MACHINED

■ SELF-LUBRICATING

**Fig. 1****Fig. 2****MATERIAL:** Ertalyte TX Polyester**COLOR:** Grey**TEMPERATURE RANGE:** 0°C to 99°C

Catalog Number*	d Bore +0.04	D +0.05	S Length ±0.13	D ₁ Flange Dia. ±0.13	S ₁ Flange Width ±0.08
• FIG. 1 PLAIN BEARINGS					
A 7P 6MP0304E	3.06	6.05	4	—	—
A 7P 6MP0306E			6		
A 7P 6MP0404E	4.06	8.06	4		
A 7P 6MP0406E			6		
A 7P 6MP0506E	5.06	10.05	6		
A 7P 6MP0508E			8		
A 7P 6MP0510E			10		
A 7P 6MP0608E	6.07	10.05	8		
A 7P 6MP0612E			12		
A 7P 6MP0808E	8.08	12.07	8		
A 7P 6MP0812E			12		
A 7P 6MP1012E	10.1	16.07	12		
A 7P 6MP1016E			16		

• FIG. 2 FLANGED BEARINGS					
A 7P 6MF0404E	4.06	8.06	4	10	2
A 7P 6MF0406E			6		
A 7P 6MF0508E	5.06	10.05	8	12	
A 7P 6MF0510E			10		
A 7P 6MF0608E	6.07	10.05	8	14	
A 7P 6MF0612E			12		
A 7P 6MF0808E	8.08	12.07	8	15.8	3
A 7P 6MF0812E			12		
A 7P 6MF1012E	10.1	16.07	12	20	
A 7P 6MF1016E			16		

For additional information on this material, see page 5-41.

	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Nonmetallic Sleeve Bearings						
Stock Drive Products/Sterling Instrument			Phone: 516-326-3300		Fax: 516-326-8827		

■ MACHINED

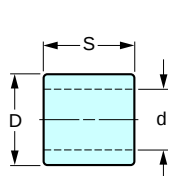


Fig. 1

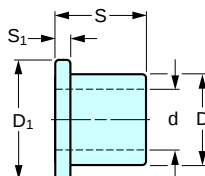
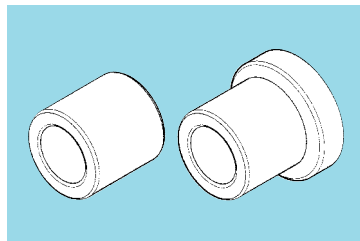


Fig. 2



MATERIAL: Acetron, Self-Lubricating

TEMPERATURE RANGE: -40°C to +121°C

Catalog Number*	d Bore +0.04	D +0.05	S Length ±0.13	D ₁ Flange Dia. ±0.13	S ₁ Flange Width ±0.08
• FIG. 1 PLAIN BEARINGS					
A 7P 6MP0304	3.06	6.05	4	—	—
A 7P 6MP0306			6		
A 7P 6MP0404			4		
A 7P 6MP0406			6		
A 7P 6MP0506	5.06	10.05	6		
A 7P 6MP0508			8		
A 7P 6MP0510			10		
A 7P 6MP0608			8		
A 7P 6MP0612	6.07	10.05	12		
A 7P 6MP0808			8		
A 7P 6MP0812	8.08	12.07	12		
A 7P 6MP1012			12		
A 7P 6MP1016	10.1	16.07	16		

• FIG. 2 FLANGED BEARINGS					
A 7P 6MF0404	4.06	8.06	4	10	2
A 7P 6MF0406			6	12	
A 7P 6MF0508	5.06	10.05	8	14	
A 7P 6MF0510			10	15.8	
A 7P 6MF0608	6.07	10.05	8	20	
A 7P 6MF0612			12		
A 7P 6MF0808	8.08	12.07	8		3
A 7P 6MF0812			12		
A 7P 6MF1012	10.1	16.07	12		
A 7P 6MF1016			16		

* All items to be discontinued when present material is depleted.

A new material will be offered in its place - **Ertalyte TX Polyester**.

See page 5-42 for those part numbers.

For additional information on this material, see page 5-41.

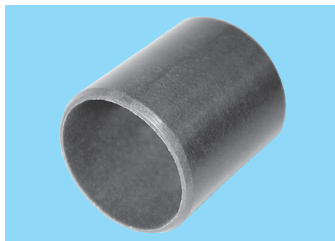
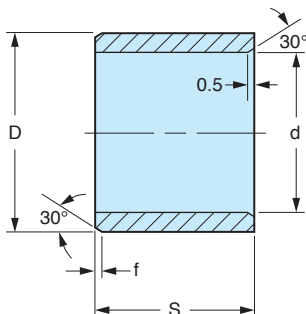
General Purpose Sleeve Bearings

■ MAINTENANCE-FREE

■ DRY RUNNING

■ HIGH WEAR RESISTANCE

■ ABOVE AVERAGE LOADS

**MATERIAL:** G300® Polymer**TEMPERATURE RANGE:** -40°C to +130°C

Catalog Number	d	d Tolerance	D	S h13	I.D. After Pressfit		Housing Bore		Shaft Size		f
					Max.	Min.	Max.	Min.	Max.	Min.	
S99GGPM020403	2	+ 0.014 + 0.054	3.5	3	2.054	2.014	3.508	3.500	2.000	1.975	0.5
S99GGPM030506	3	+ 0.014 + 0.054	4.5	6	3.054	3.014	4.512	4.500	3.000	2.975	
S99GGPM040604	4	+ 0.020 + 0.068	5.5	4	4.068	4.020	5.512	5.500	4.000	3.970	
S99GGPM050708	5	+ 0.020 + 0.068	7	8	5.068	5.020	7.015	7.000	5.000	4.970	0.5
S99GGPM060808	6	+ 0.020 + 0.068	8	8	6.068	6.020	8.015	8.000	6.000	5.970	
S99GGPM081012	8	+ 0.025 + 0.083	10	12	8.083	8.025	10.015	10.000	8.000	7.964	
S99GGPM101212	10	+ 0.025 + 0.083	12	12	10.083	10.025	12.018	12.000	10.000	9.964	0.5
S99GGPM121414	12	+ 0.032 + 0.102	14	14	12.102	12.032	14.018	14.000	12.000	11.957	0.8
S99GGPM161820	16	+ 0.032 + 0.102	18	20	16.102	16.032	18.018	18.000	16.000	15.957	0.8
S99GGPM202222	20	+ 0.040 + 0.124	22	22	20.124	20.040	22.021	22.000	20.000	19.948	0.8

NOTE: For additional information concerning the bearing material, see page 5-46.



Metric Metric Metric Metric Metric

General Purpose Flanged Bearings

Stock Drive Products/Sterling Instrument

Phone: 516-326-3300

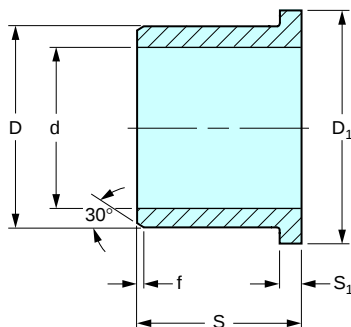
Fax: 516-326-8827

■ MAINTENANCE-FREE

■ DRY-RUNNING

■ HIGH WEAR RESISTANCE

■ ABOVE AVERAGE LOADS



MATERIAL: G300® Polymer

TEMPERATURE RANGE: -40°C to +130°C

Catalog Number	d	d Tolerance	D	D ₁ d13	S h13	S ₁ -0.14	I.D. After Pressfit	
							Max.	Min.
S99GGFM030503	3	+ 0.014 + 0.054	4.5	7.5	3	0.75	3.054	3.014
S99GGFM040604	4	+ 0.020 + 0.068	5.5	9.5	4	0.75	4.068	4.020
S99GGFM050605	5	+ 0.010 + 0.040	6	10	5	0.5	5.040	5.010
S99GGFM060808	6	+ 0.020 + 0.068	8	12	8		6.068	6.020
S99GGFM081010	8	+ 0.025 + 0.083	10	15	10	1	8.083	8.025
S99GGFM101212	10	+ 0.025 + 0.083	12	18	12		10.098	10.040
S99GGFM121415	12	+ 0.032 + 0.102	14	20	15	1	12.102	12.032
S99GGFM161817	16	+ 0.032 + 0.102	18	24	17	1	16.102	16.032
S99GGFM202120	20	+ 0.020 + 0.072	21	25	20	0.5	20.072	20.020

Catalog Number	Housing Bore		Shaft Size		f
	Max.	Min.	Max.	Min.	
S99GGFM030503	4.512	4.500	3.000	2.975	0.5
S99GGFM040604	5.512	5.500	4.000	3.970	
S99GGFM050605	6.012	6.000	5.000	4.970	
S99GGFM060808	8.015	8.000	6.000	5.970	0.5
S99GGFM081010	10.015	10.000	8.000	7.964	
S99GGFM101212	12.018	12.000	10.000	9.964	
S99GGFM121415	14.018	14.000	12.000	11.957	0.8
S99GGFM161817	18.018	18.000	16.000	15.957	
S99GGFM202120	21.021	21.000	20.000	19.948	

NOTE: For additional information concerning the bearing material, see page 5-46.



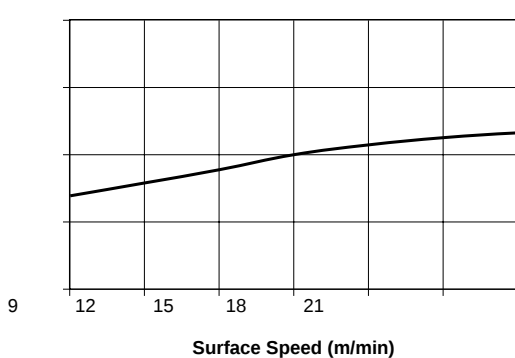
General Purpose Polymer

Stock Drive Products/Sterling Instrument

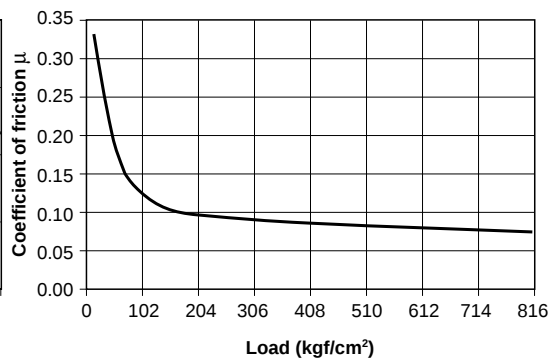
Phone: 516-328-3300

Fax: 516-326-8827

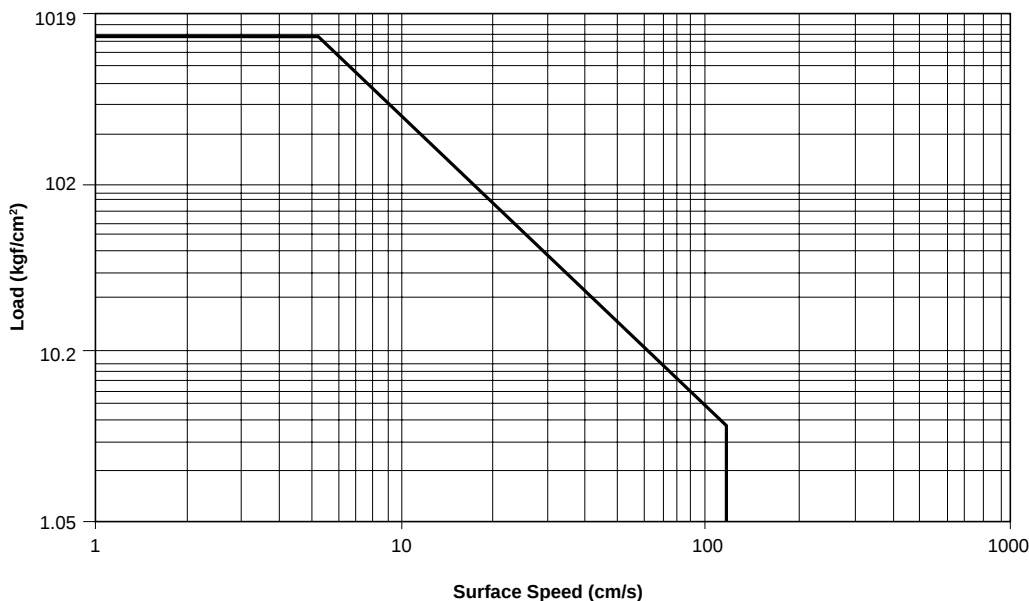
■ G300® POLYMER



Graph 1: Coefficient of friction of G300® as a result of the running speed; $p = 7.6 \text{ kgf/cm}^2$



Graph 2: Coefficient of friction of G300® as a result of the load; $v = 0.6 \text{ m/min}$

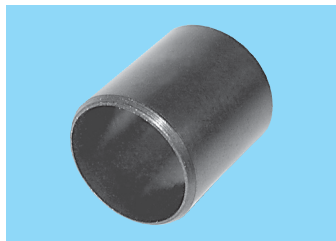
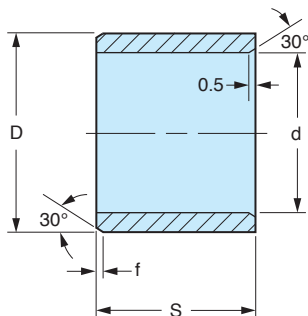


Graph 3: Permissible $p \times v$ - values for G300® running dry against a steel shaft, at 20°C.

■ VERY LOW MOISTURE ABSORPTION

■ HIGH COMPRESSIVE STRENGTH

■ UNIVERSAL RESISTANCE TO CHEMICALS

**MATERIAL:** T500® Polymer**TEMPERATURE RANGE:** -100°C to +250°C

Catalog Number	d	d Tolerance	D	S h13	I.D. After Pressfit		Housing Bore		Shaft Size		f
					Max.	Min.	Max.	Min.	Max.	Min.	
S99GTPM020403	2	+ 0.006 + 0.046	3.5	3	2.046	2.006	3.580	3.500	2.000	1.975	0.5
S99GTPM030506	3	+ 0.006 + 0.046	4.5	6	3.046	3.006	4.512	4.500	3.000	2.975	
S99GTPM040604	4	+ 0.010 + 0.058	5.5	4	4.058	4.010	5.512	5.500	4.000	3.970	
S99GTPM050708	5	+ 0.010 + 0.058	7	8	5.058	5.010	7.015	7.000	5.000	4.970	0.5
S99GTPM061008	6	+ 0.010 + 0.058	10	8	6.058	6.010	10.015	10.000	6.000	5.970	
S99GTPM081015	8	+ 0.013 + 0.071	10	15	8.071	8.013	10.015	10.000	8.000	7.964	
S99GTPM101212	10	+ 0.013 + 0.071	12	12	10.071	10.013	12.018	12.000	10.000	9.964	0.5
S99GTPM121415	12	+ 0.016 + 0.086	14	15	12.086	12.016	14.018	14.000	12.000	11.957	0.8
S99GTPM161820	16	+ 0.016 + 0.086	18	20	16.086	16.016	18.018	18.000	16.000	15.957	0.8
S99GTPM202220	20	+ 0.020 + 0.104	22	20	20.104	20.020	22.021	22.000	20.000	19.948	0.8

NOTE: For additional information concerning the bearing material, see page 5-49.



Metric

Metric

Metric

Metric

Metric

High-Temperature Flanged Bearings

Stock Drive Products/Sterling Instrument

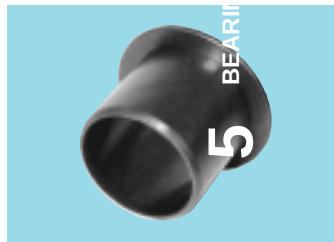
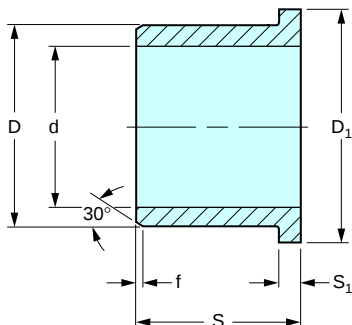
Phone: 516-328-3300

Fax: 516-326-8827

■ VERY LOW MOISTURE ABSORPTION

■ HIGH COMPRESSIVE STRENGTH

■ UNIVERSAL RESISTANCE TO CHEMICALS



MATERIAL: T500® Polymer

TEMPERATURE RANGE: -100°C to +250°C

Catalog Number	d	d Tolerance	D	D ₁ d13	S h13	S ₁ -0.14	I.D. After Pressfit	
							Max.	Min.
S99GTFM030505	3	+ 0.006 + 0.046	4.5	7.5	5	0.75	3.046	3.006
S99GTFM040606	4	+ 0.010 + 0.058	5.5	9.5	6	0.75	4.058	4.010
S99GTFM050705	5	+ 0.010 + 0.058	7	11	5	1	5.058	5.010
S99GTFM060808	6	+ 0.010 + 0.058	8	12	8		6.058	6.010
S99GTFM081009	8	+ 0.013 + 0.071	10	15	9	1	8.071	8.013
S99GTFM101209	10	+ 0.013 + 0.071	12	18	9		10.071	10.013
S99GTFM121412	12	+ 0.016 + 0.086	14	20	12	1	12.086	12.016
S99GTFM161817	16	+ 0.016 + 0.086	18	24	17	1	16.086	16.016
S99GTFM202321	20	+ 0.020 + 0.104	23	30	21	1.5	20.104	20.020

Catalog Number	Housing Bore		Shaft Size		f
	Max.	Min.	Max.	Min.	
S99GTFM030505	4.512	4.500	3.000	2.975	0.5
S99GTFM040606	5.512	5.500	4.000	3.970	
S99GTFM050705	7.015	7.000	5.000	4.970	
S99GTFM060808	8.015	8.000	6.000	5.970	0.5
S99GTFM081009	10.015	10.000	8.000	7.964	
S99GTFM101209	12.018	12.000	10.000	9.964	
S99GTFM121412	14.018	14.000	12.000	11.957	0.8
S99GTFM161817	18.018	18.000	16.000	15.957	
S99GTFM202321	23.021	23.000	20.000	19.948	

NOTE: For additional information concerning the bearing material, see page 5-49.



Metric

Metric

Metric

Metric

Metric

High-Temperature Polymer

Stock Drive Products/Sterling Instrument

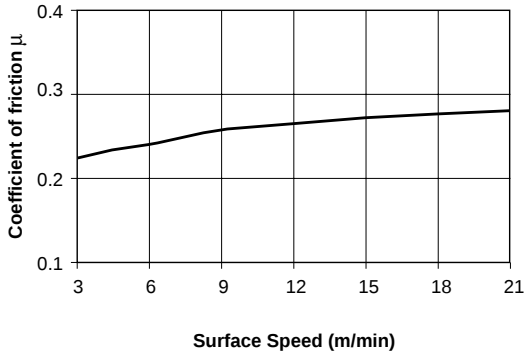


Phone: 516-328-3300

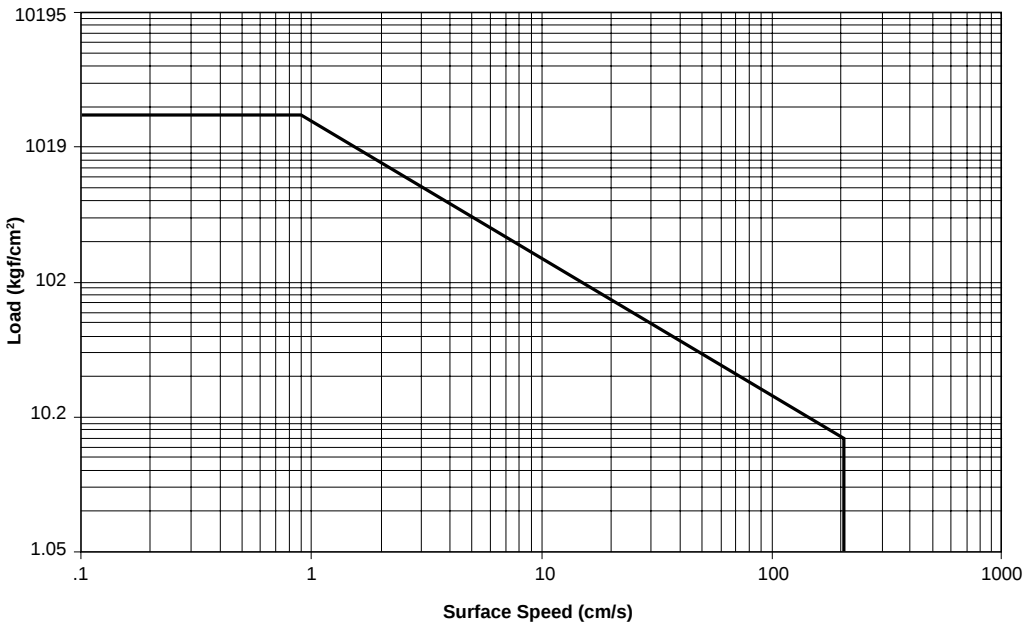
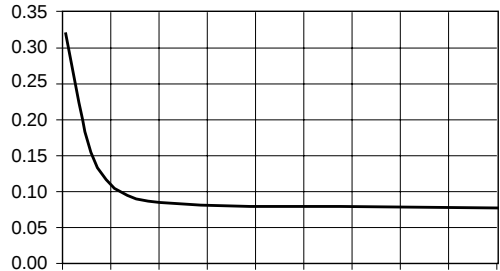


Fax: 516-326-8827

■ T500® POLYMER



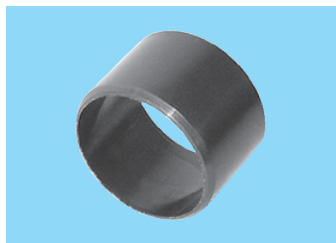
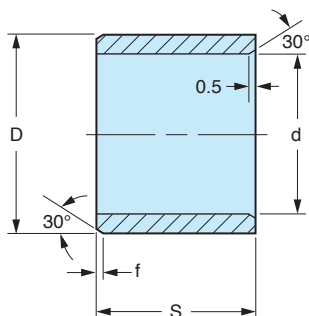
**Graph 1: Coefficient of friction for T500®
as a result of the surface speed;
 $p = 7.6 \text{ kgf/cm}^2$ shaft Cold Rolled Steel**



Graph 3: Permissible $p \times v$ values for T500® running dry against a steel shaft, at 20°C.

Heavy-Duty Sleeve Bearing

- EXCELLENT VIBRATION DAMPENING
- HIGH IMPACT RESISTANCE
- ALLOWS DIRT PENETRATION FOR SHAFT PROTECTION



MATERIAL: M250® Polymer

TEMPERATURE RANGE: -40°C to +80°C

Catalog Number	d	d Tolerance	D	S h13	I.D. After Pressfit		Housing Bore		Shaft Size		f
					Max.	Min.	Max.	Min.	Max.	Min.	
S99GHPM030604	3	+ 0.020 + 0.080	6	4	3.080	3.020	6.012	6.000	3.000	2.975	0.5
S99GHPM040806	4	+ 0.030 + 0.105	8	6	4.105	4.030	8.015	8.000	4.000	3.970	
S99GHPM050908	5	+ 0.030 + 0.105	9	8	5.105	5.030	9.015	9.000	5.000	4.970	
S99GHPM061008	6	+ 0.030 + 0.105	10	8	6.105	6.030	10.015	10.000	6.000	5.970	
S99GHPM081212	8	+ 0.040 + 0.130	12	12	8.130	8.040	10.015	10.000	8.000	7.964	
S99GHPM101616	10	+ 0.040 + 0.130	16	16	10.130	10.040	16.018	16.000	10.000	9.964	0.8
S99GHPM121815	12	+ 0.050 + 0.160	18	15	12.160	12.050	18.018	18.000	12.000	11.957	
S99GHPM161820	16	+ 0.050 + 0.160	18	20	16.160	16.050	18.018	18.000	16.000	15.957	
S99GHPM202520	20	+ 0.065 + 0.195	25	20	20.195	20.065	25.021	25.000	20.000	19.948	

NOTE: For additional information concerning the bearing material, see page 5-52.



Metric Metric Metric Metric Metric

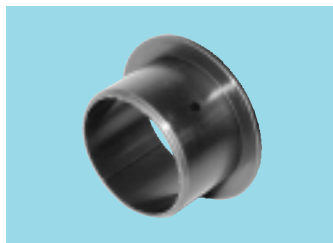
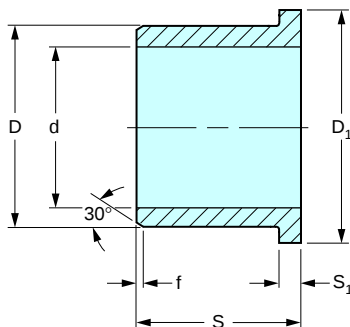
Heavy-Duty Flanged Bearing

Stock Drive Products/Sterling Instrument

Phone: 516-326-3300

Fax: 516-326-8827

- EXCELLENT VIBRATION DAMPENING
- HIGH IMPACT RESISTANCE
- ALLOWS DIRT PENETRATION FOR SHAFT PROTECTION



MATERIAL: M250® Polymer

TEMPERATURE RANGE: -40°C to +80°C

Catalog Number	d	d Tolerance	D	D ₁ d13	S h13	S ₁ -0.14	I.D. After Pressfit	
							Max.	Min.
S99GHFM030604	3	+ 0.020 + 0.080	6	9	4	1.5	3.080	3.020
S99GHFM040806	4	+ 0.030 + 0.105	8	12	6	2	4.105	4.030
S99GHFM050908	5	+ 0.030 + 0.105	9	13	8	2	5.105	5.030
S99GHFM061010	6	+ 0.030 + 0.105	10	14	10	2	6.105	6.030
S99GHFM081212	8	+ 0.040 + 0.130	12	16	12	2	8.130	8.040
S99GHFM101616	10	+ 0.040 + 0.130	16	22	16	3	10.130	10.040
S99GHFM121810	12	+ 0.050 + 0.160	18	22	10	3	12.160	12.050
S99GHFM161812	16	+ 0.050 + 0.160	18	24	12	1	16.160	16.050
S99GHFM202620	20	+ 0.060 + 0.195	26	32	20	3	20.195	20.065

Catalog Number	Housing Bore		Shaft Size		f
	Max.	Min.	Max.	Min.	
S99GHFM030604	6.012	6.000	3.000	2.975	0.5
S99GHFM040806	8.015	8.000	4.000	3.970	
S99GHFM050908	9.015	9.000	5.000	4.970	
S99GHFM061010	10.015	10.000	6.000	5.970	0.5
S99GHFM081212	12.018	12.000	8.000	7.964	
S99GHFM101616	16.018	16.000	10.000	9.964	
S99GHFM121810	18.018	18.000	12.000	11.957	0.8
S99GHFM161812	18.021	18.000	16.000	15.957	
S99GHFM202620	26.021	26.000	20.000	19.948	

NOTE: For additional information concerning the bearing material, see page 5-52.



Metric

Metric

Metric

Metric

Metric

Heavy-Duty Polymer

Stock Drive Products/Sterling Instrument

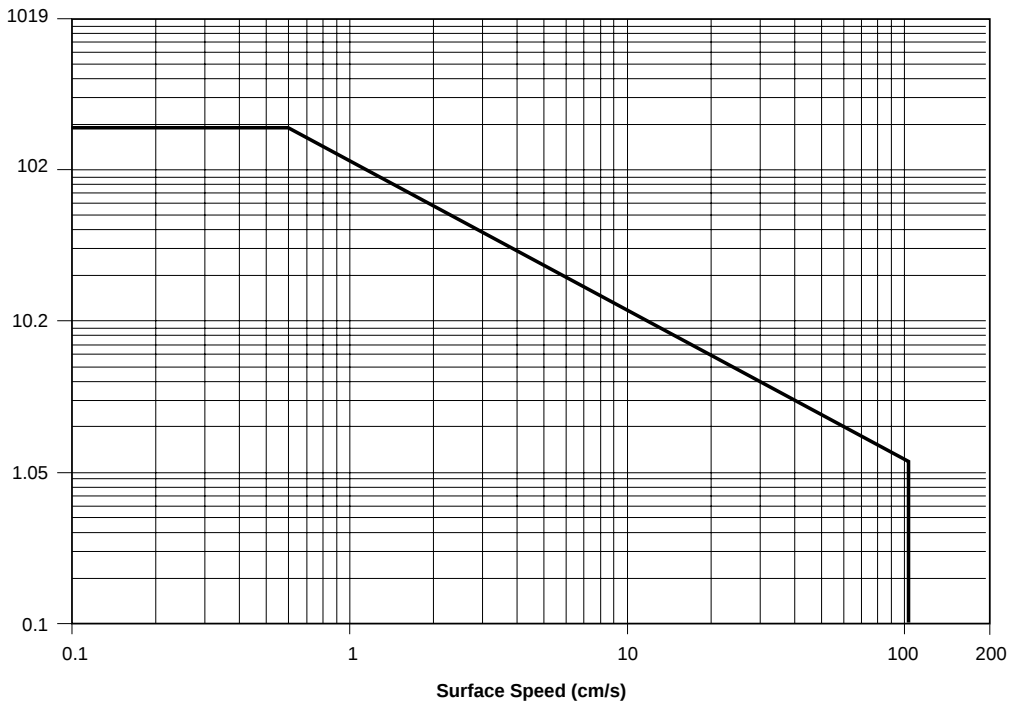
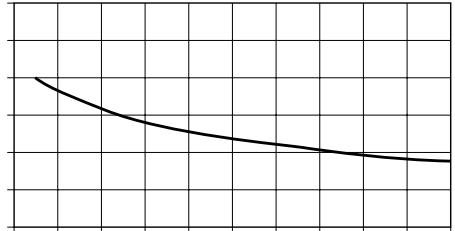
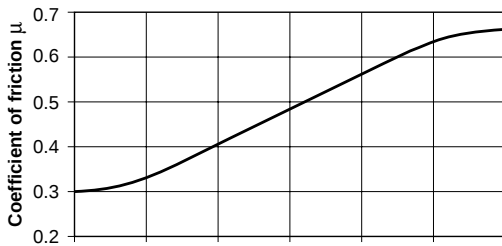


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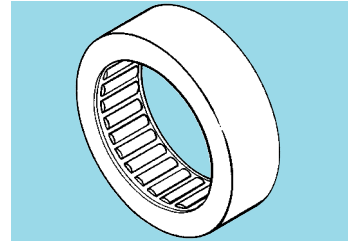
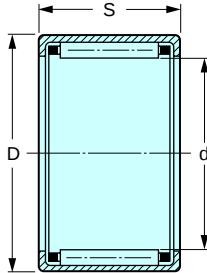
Fax: 516-326-8827

■ M250® POLYMER

Graph 3: Permissible $p \times v$ value for M250® running dry against a steel shaft, at 20°C.

	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Needle Roller Bearings						
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■ FOR 3mm TO 25mm HARDENED SHAFTS



5 BEARINGS

FEATURES:

- Extremely high speed
- High load capacity
- Low profile, lightweight caged
- Caged needle bearings offer up to 3 times the speed of uncaged designs
- Extremely low rolling friction
- High lubrication capacity
- Low sensitivity to misalignment
- Needles have high length to diameter ratios

TOLERANCE CHART				
Dimensions		Shaft ^Δ	Bore ^Δ	Bore ^Δ
Over	Incl.	h6	N6	R6
—	3	- 0.006	- 0.004, - 0.010	- 0.010, - 0.016
3	6	- 0.008	- 0.005, - 0.013	- 0.012, - 0.020
6	10	- 0.009	- 0.007, - 0.016	- 0.016, - 0.025
10	18	- 0.011	- 0.009, - 0.020	- 0.020, - 0.031
18	30	- 0.013	- 0.011, - 0.024	- 0.024, - 0.037
30	50	- 0.016	- 0.012, - 0.028	- 0.029, - 0.045

MATERIAL: Roller Cup – Case-Hardened Steel

Needle Bearing – 52100 Hardened Chrome Steel

Bearing Cage – Low Carbon Steel

Catalog Number	Shaft Diameter d [§] (h6)	D ^Δ	Face Width S (- 0.2)	*Speed Limit Oil rpm	Load Capacities N		Inner Race Available See Series S99RH2M...
					Dynamic	Static	
S99NH2MBN0306	3	6.5	6	46000	1230	840	—
S99NH2MBN0408	4	8	8	41000	1780	1310	
S99NH2MBN0509	5	9	9	38000	2400	1990	
S99NH2MBN0609	6	10		35000	2850	2600	
S99NH2MBN0709	7	11		31000	3100	2950	
S99NH2MBN0810	8	12	10	28000	3800	3950	S99RH2MBNR0508
S99NH2MBN0910	9	13		25000	4250	4650	S99RH2MBNR0609
S99NH2MBN1010	10	14		23000	4400	5100	S99RH2MBNR0710
S99NH2MBN1212	12	18		19000	6500	7300	S99RH2MBNR0812
S99NH2MBN1312	13	19		18000	6800	7900	S99RH2MBNR1013
S99NH2MBN1412	14	20		16000	7100	8500	S99RH2MBNR1014
S99NH2MBN1512	15	21		16000	7900	9400	S99RH2MBNR1215
S99NH2MBN1612	16	22		15000	7600	9700	S99RH2MBNR1216
S99NH2MBN1712	17	23		14000	7900	10300	S99RH2MBNR1417
S99NH2MBN1812	18	24		13000	8100	10900	S99RH2MBNR1518
S99NH2MBN2012	20	26		12000	8600	12100	S99RH2MBNR1520
S99NH2MBN2212	22	28		11000	9100	13400	S99RH2MBNR1722
S99NH2MBN2512	25	32		10000	11000	15200	S99RH2MBNR2025

*With grease lubricant, 60% of given values are permissible.

§ Shaft surface hardness must be HRC 58 minimum; or use inner race over softer shaft, where available.

Δ Recommended tolerances for steel or cast iron housing bore diameter according to N6. For light metal, use tolerance R6.

Standard bearings are oiled or greased with general purpose lubricants. Other lubricants are available on special order.

SDPSI

Metric Metric Metric Metric

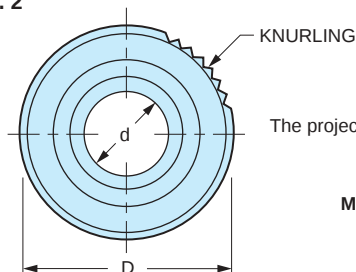
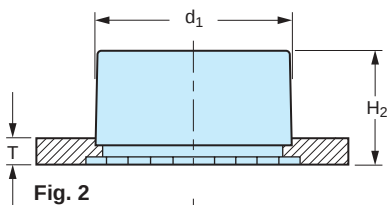
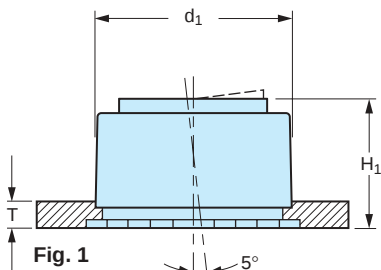
Needle Roller Pressbearings

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Fax: 516-326-8827

■ SELF-CLINCHING

■ SELF-ALIGNING TO $\pm 5^\circ$ OR NONALIGNING

The projections shown are per ISO convention.

FEATURES:

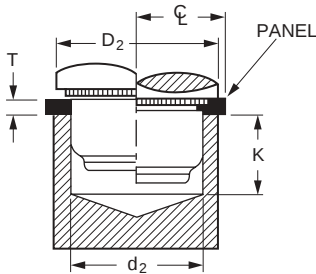
- High-speed, high-load applications
- Knurling ensures secure self-clinching
- Simple quick installation
- Major assembly and production savings
- Mounting blocks not necessary

MATERIAL: Bearing - Drawn Cup NeedleHousing - Carbon Steel, Oxycote®
(Black, Hardened to HRB 93...98)**OPERATING TEMPERATURE:** -30°C to +100°C

Catalog Number	d Nom. I.D.	d ₁ Panel Hole Dia. +0.07	T Min. Panel Thickness	D Knurl O.D.	H ₂ Bearing Height	H ₁ Height Along Centerline	Max. Speed rpm	Max. Radial Load N
FIG. 1 SELF-ALIGNING								
A 7Z46MFSN04M	4	15.9	1.5	17	—	11.6	41000	1780
A 7Z46MFSN06M	6	20.6	1.5	22	—	16.3	35000	2030
A 7Z46MFSN08M	8	27	2.3	28	—	19.5	28000	2750
A 7Z46MFSN10M	10	31.8	2.3	33	—	22.5	23000	4400
A 7Z46MFSN12M	12						20000	4950
A 7Z46MFSN15M	15						16000	7900
FIG. 2 NONALIGNING								
A 7Z48MFSN04M	4	12.7	1	14	10.8	—	41000	1780
A 7Z48MFSN06M	6	15.9	1.5	17	11.1	—	35000	2030
A 7Z48MFSN08M	8	20.6	1.5	22	12.7	—	28000	2750
A 7Z48MFSN10M	10	27	2.3	28	19.5	—	23000	4400
A 7Z48MFSN12M	12	31.8	2.3	33	22.5	—	20000	4950

Continued on the next page

■ SELF-CLINCHING

■ SELF-ALIGNING TO $\pm 5^\circ$ OR NONALIGNING**INSTALLATION:**

1. Punch or drill and ream a hole of diameter d_1 in panel as specified in the table below. Panel hardness HRB 65 max.

DO NOT DEBURR OR BREAK EDGE OF HOLE.

2. Place bearing assembly in hole. The slight interference fit assures centering the assembly in the mounting hole.
3. Using an anvil with diameter d_2 , a minimum depth of K and a Press Tool diameter of D_2 , install the bearing assembly into the panel by constantly applying a force of F , per the table, until the assembly is flush with the panel surface.

DO NOT USE HAMMER BLOWS!**TOOLING AND INSTALLATION DATA**

Nominal Shaft Diameter	d_1 Panel Hole Diameter +0.07	d_2 Anvil Dia. +0.1	K Minimum Anvil Depth	D_2 Press Tool Minimum Diameter	C Min. Dist. Centerline to Panel Edge	F Install Force Cold-Rolled Steel kN
SELF-ALIGNING						
4	15.9	16.35	16.6	22	11.5	49
6						
8	20.6	21.05	21.3	27	12.7	49
10						
12	27	27.45	24.5	33	19	54
15	31.8	32.25	27.5	38		
NONALIGNING						
4	12.7	13.15		19	9.5	45
6	15.9	16.35	15.8	22	11.5	49
8	15.9	16.35	16.1	22	11.5	
10	20.6	21.05	17.7	27	12.7	49
12	20.6	21.05	17.7	27	12.7	

SHAFT DIAMETERS**SELF-ALIGNING & NONALIGNING**

Nominal Shaft Diameter	Maximum Diameter	Minimum Diameter
4	4.000	3.992
6	6.000	5.992
8	8.000	7.991
10	10.000	9.991
12	12.000	11.989
15	15.000	14.989

SHAFT REQUIREMENTS:

Any material, HRC 58 to 64, with a 0.4 μ m or finer finish.

SDPSI

Metric

Metric

Metric

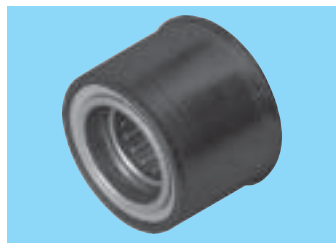
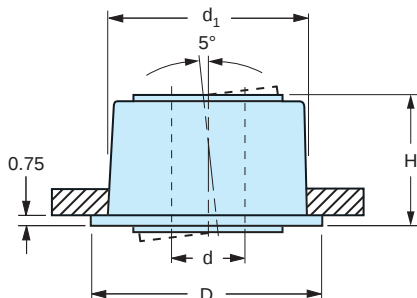
Metric

Needle Roller Pressbearings

Stock Drive Products/Sterling Instrument

Phone: 516-328-3300

Fax: 516-326-8827

■ **PRESS-FIT INSTALLATION**■ **SELF-ALIGNING TO $\pm 5^\circ$** **FEATURES:**

- Simple quick press-fit installation
- Self-aligning to $\pm 5^\circ$
- High-speed, high-load
- No precision holes required
- Major assembly and production savings

MATERIAL: Bearing - Drawn Cup Needle

Housing - Carbon Steel, Oxycote® (Black, Hardened to HRB 93...98)

OPERATING TEMPERATURE: -30°C to +100°C

Catalog Number	d Nom. I.D.	d ₁ Panel Hole Dia. +0.07	D Flange Diameter	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
A 7Z47MPSN04M	4	15.9	17.4	10.8	41000	1780
A 7Z47MPSN06M	6				35000	2030
A 7Z47MPSN08M	8	20.6	22.2	15.2	28000	2750
A 7Z47MPSN10M	10				23000	4400
A 7Z47MPSN12M	12	27	28.5	19.6	20000	4950
A 7Z47MPSN15M	15	31.8	33.3	21.6	16000	7900

SHAFT DIAMETERS

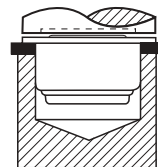
Nominal Shaft Diameter	Maximum Diameter	Minimum Diameter
4	4.000	3.992
6	6.000	5.992
8	8.000	7.991
10	10.000	9.991
12	12.000	11.989
15	15.000	14.989

SHAFT REQUIREMENTS:

Any material, HRC 58 to 64, with a 0.4 μm or finer finish.

INSTALLATION NOTES:

1. The punch must be relieved to accommodate protruding insert.
2. **DO NOT PRESS BEARING ON INSERT!**



SDPSI

Metric Metric Metric Metric Metric

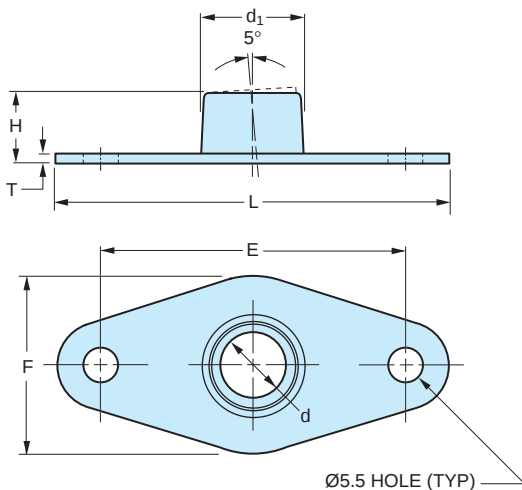
Flange-Mounted Needle Roller Pressbearings

Stock Drive Products/Sterling Instrument

Phone: 516-328-3300

Fax: 516-326-8827

■ FLANGE-MOUNTED

■ SELF-ALIGNING TO $\pm 5^\circ$ 

The projections shown are per ISO convention.

MATERIAL: Bearing - Drawn Cup Needle
Housing - Carbon Steel, Oxycote®
(Black, Hardened to
HRB 93...98)

OPERATING TEMPERATURE: -30°C to +100°C

Catalog Number	d Nom. I.D.	d ₁ Bearing Clearance Diameter	L Overall Length	F Overall Width	E Mtg. Dist.	T Nominal Flange Thickness	H Height Along Centerline	Max. Speed rpm	Max. Radial Load N
*A 7Z56MBFM04MN	4	17	53	30	39	1.5	11.6	41000	1780
A 7Z56MBFM06MN	6							35000	2030
A 7Z56MBFM08MN	8	22	45	31.8	30.9	2.3	16.3	28000	2750
A 7Z56MBFM10MN	10							23000	4400
A 7Z56MBFM12MN	12	28	60	39.6	45.2	2.3	19.5	20000	4950
A 7Z56MBFM15MN	15	33		47			22.5	16000	7900

*To be discontinued when present stock is depleted.

SHAFT DIAMETERS

Nominal Shaft Diameter	Maximum Diameter	Minimum Diameter
4	4.000	3.992
6	6.000	5.992
8	8.000	7.991
10	10.000	9.991
12	12.000	11.989
15	15.000	14.989

SHAFT REQUIREMENTS:

Any material, HRC 58 to 64, with a
0.4 µm or finer finish.

SDPSI

Metric Metric Metric Metric Metric

Flange-Mounted Needle Roller Pressbearings

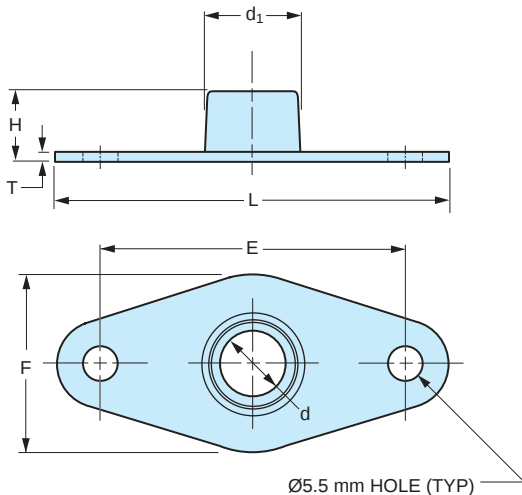
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Fax: 516-326-8827

■ FLANGE-MOUNTED

■ NONALIGNING



MATERIAL: Bearing - Drawn Cup Needle
Housing - Carbon Steel, Oxyacote®
(Black, Hardened to
HRB 93...98)

The projections shown are per ISO convention.

OPERATING TEMPERATURE: -30°C to +100°C

Catalog Number	d Nom. I.D.	d ₁ Bearing Clearance Diameter	L Overall Length	F Overall Width	E Mounting Distance	T Nominal Flange Thickness	H Height	Max. Speed rpm	Max. Radial Load N
*A 7Z57MBFM04MN	4	10.5	45.7	22.4	31	1.3	10.8	41000	1780
A 7Z57MBFM06MN	6	16.7	53	30	38.8	1.5	10.8	35000	2030
A 7Z57MBFM08MN	8	16.7	53	30	38.8	1.5	11.1	28000	2750
A 7Z57MBFM10MN	10	22	45	31.8	31	2.3	12.7	23000	4400
A 7Z57MBFM12MN	12	22	45	31.8	31	2.3	12.7	20000	4950

*To be discontinued when present stock is depleted.

SHAFT DIAMETERS

Nominal Shaft Diameter	Maximum Diameter	Minimum Diameter
4	4.000	3.992
6	6.000	5.992
8	8.000	7.991
10	10.000	9.991
12	12.000	11.989

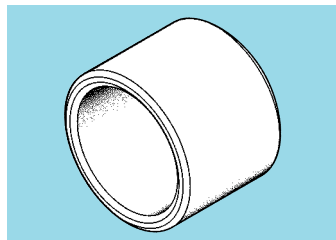
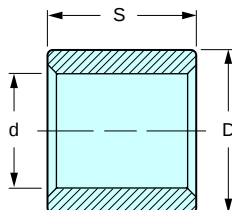
SHAFT REQUIREMENTS:

Any material, HRC 58 to 64, with a
0.4 µm or finer finish.

	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Inner Races For Needle Bearings						
Stock Drive Products/Sterling Instrument			Phone: 516-328-3300		Fax: 516-326-8827		

■ USED AS INNER RACE ON SOFT SHAFTS

■ CAN BE USED AS HARDENED BUSHINGS

**FEATURES:**

- O.D. ground to 0.40 μm AA surface roughness
- Recommended fit tolerances for shaft according to k6
- All corners chamfered for easy assembly
- Wider units available to accommodate shaft translation

MATERIAL: Alloy Steel, Hardened To HRC 58 Min.

Catalog Number	d H6	D h5	S h6	Use With Bearing No.
S99RH2MBNR0508	5	8		S99NH2MBN0810
S99RH2MBNR0609	6	9	12	S99NH2MBN0910
S99RH2MBNR0710	7	10		S99NH2MBN1010
S99RH2MBNR0812	8	12	12	S99NH2MBN1212
S99RH2MBNR0912	9			S99NH2MBN1212
S99RH2MBNR1013		13	12.5	S99NH2MBN1312
S99RH2MBNR1014	10	14	12	S99NH2MBN1412
S99RH2MBNR1215		15		S99NH2MBN1512
S99RH2MBNR1216	12	16	12	S99NH2MBN1612
S99RH2MBNR1417	14	17	17	S99NH2MBN1712
S99RH2MBNR1518		18	16	S99NH2MBN1812
S99RH2MBNR1520	15	20	12	S99NH2MBN2012
S99RH2MBNR1722	17	22	13	S99NH2MBN2212
S99RH2MBNR2025	20	25	16	S99NH2MBN2512

Other sizes available as special order.

TOLERANCE CHART					
Dimensions		H6	h5	h6	k6
Over	Incl.				
3	6	+ 0.008	- 0.005	- 0.008	+ 0.009, + 0.001
6	10	+ 0.009	- 0.006	- 0.009	+ 0.010, + 0.001
10	18	+ 0.011	- 0.008	- 0.011	+ 0.012, + 0.001
18	30	+ 0.013	- 0.009	- 0.013	+ 0.015, + 0.002

SDPSI

Metric Metric Metric Metric Metric

Needle Roller Clutch Pressbearings

Stock Drive Products/Sterling Instrument

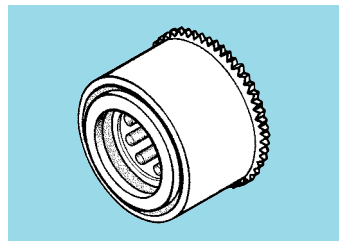
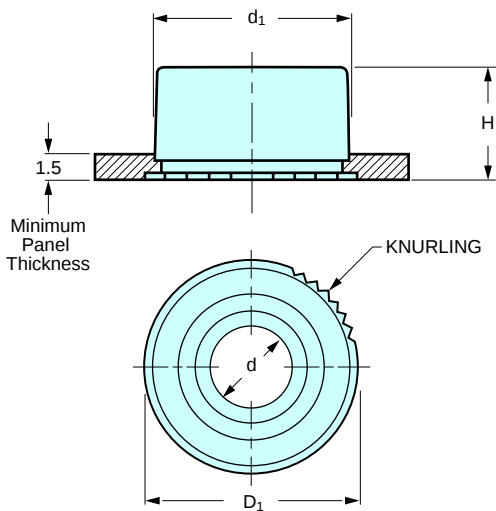
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■ SELF-CLINCHING

■ UNIDIRECTIONAL DRIVE

■ NONALIGNING

**FEATURES:**

- Knurling ensures secure self-clinching
- Simple quick installation
- Major assembly and production savings
- Mounting blocks not necessary

MATERIAL: Clutch - Drawn Cup Needle

Housing - Carbon Steel, Zinc Plated or Oxycote® (Black, Hardened to HRB 93...98)

The projections shown are ISO convention.

OPERATING TEMPERATURE: -30°C to +110°C

Catalog Number	Direction of Rotation	d I.D.	d ₁ Panel Hole +0.07	D ₁ Knurl O.D.	H Height	Max. Speed rpm	Max. Torque N • m	Max. Radial Load N
A 7Z49MFSC06MCW	Clockwise	6	15.9	17	23.8	39300	2.1	650
A 7Z49MFSC08MCW	Clockwise	8	22.2	23	25.4	28700	3.3	1530
A 7Z49MFSC06MCCW	Counterclockwise	6	15.9	17	23.8	39300	2.1	650
A 7Z49MFSC08MCCW	Counterclockwise	8	22.2	23	25.4	28700	3.3	1530

NOTE: It is necessary to stipulate the direction of rotation when viewed from the serrated end of the retainer.

Continued on the next page



Stock Drive Products/Sterling Instrument

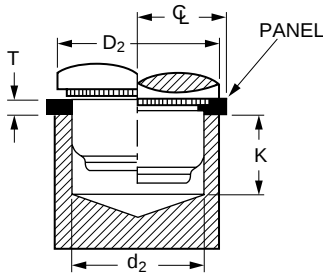
Phone: 516-328-3300

Fax: 516-326-8827

Needle Roller Clutch Pressbearings

■ SELF-CLINCHING

■ UNIDIRECTIONAL DRIVE



INSTALLATION:

1. Punch or drill and ream a hole of diameter d_1 in panel as specified in the table below.

DO NOT DEBURR OR BREAK EDGE OF HOLE.

2. Place bearing assembly in hole. The slight interference fit assures centering the assembly in the mounting hole.
3. Using an anvil with diameter d_2 , a minimum depth of K and a Press Tool diameter of D_2 , install the bearing assembly into the panel by constantly applying a force of F , per the table, until the assembly is flush with the panel surface.

DO NOT USE HAMMER BLOWS!

TOOLING AND INSTALLATION DATA

Nominal Shaft Diameter	d_1 Panel Hole Dia. +0.07	d_2 Anvil Diameter +0.08	K Minimum Anvil Depth	D_2 Press Tool Minimum Diameter	C Min. Dist. Centerline to Panel Edge	F Install Force Cold-Rolled Steel kN
6	15.9	16.3	21	22	11.5	49
8	22.2	22.6	18	26	15.9	54

SHAFT DIAMETERS

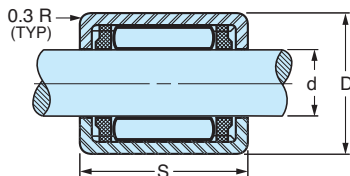
Nominal Shaft Diameter	Maximum Diameter	Minimum Diameter
6	6.000	5.992
8	8.000	7.991

SHAFT RECOMMENDATIONS:

Shafts must be hardened to HRC 58 with 0.8 μm finish.
Shafts ends should have radii or be chamfered.

■ UNIDIRECTIONAL DRIVE

■ FOR 4 mm TO 35 mm HARDENED SHAFTS



FEATURES:

- Ideal for indexing, backstopping or overrunning operations
- Free rolling one way, drives in opposite direction
- Lightweight, low profile
- High indexing frequency, up to 4CPS
- Temperature range, grease +10°C to +70°C
- Minimum backlash

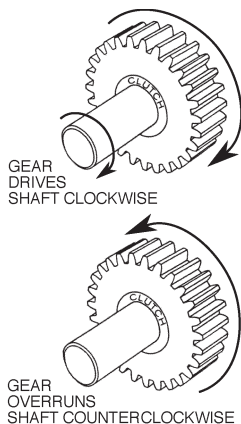
MATERIAL:

Roller Cup – Case-Hardened Steel
Needle Bearing – 52100 Hardened Chrome Steel

Springs – Stainless Steel
Cage – Nylon 66 (or Equivalent)

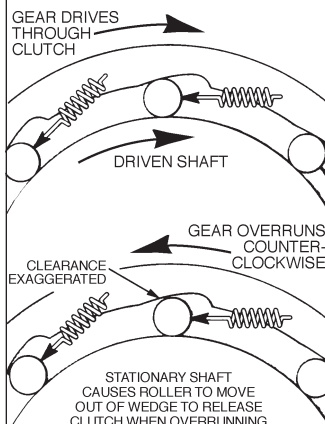
What It Does...

Transmits torque load in one direction. Overruns freely in opposite direction. Either shaft or housing can be driving member.



How It Works...

Rollers wedge between shaft and outer race. Positive wedging forces prevent slipping. Springs position rollers for instantaneous lockup.



Catalog Number	d Shaft Diameter h6	D	S Face Width -0.2	Max. Torque N • m	Rotating Overrun Speed Max. rpm	
					Shaft	Housing
S99NH3MURC0406	4	8	6	0.34	34000	8000
S99NH3MURC0612	6	10		1.76	23000	13000
S99NH3MURC0812	8	12	12	3.15	17000	12000
S99NH3MURC1012	10	14		5.3	14000	11000
S99NH3MURC1216	12	18		12.2	11000	8000
S99NH3MURC1416	14	20		17.3	9500	8000
S99NH3MURC1616	16	22	16	20.5	8500	7500
S99NH3MURC1816	18	24		24.1	7500	7500
S99NH3MURC2016	20	26		28.5	7000	6500
S99NH3MURC2520	25	32		66	5500	5500
S99NH3MURC3020	30	37	20	90	4500	4500
S99NH3MURC3520	35	42		121	3900	3900

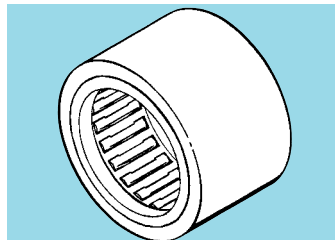
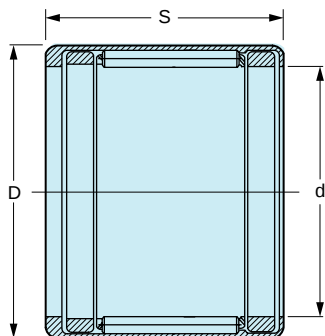
NOTES: 1. Shaft surface hardness must be HRC 58 minimum.

2. Recommended tolerances for housing bore according to N7 for Steel, R7 for Aluminum.

SDPSI	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Roller Clutches with Bearing Support						
Stock Drive Products/Sterling Instrument			Phone: 516-328-3300	Fax: 516-326-8827			

■ UNIDIRECTIONAL DRIVE

■ SINTERED BEARING SUPPORT



MATERIAL: Roller Cup – Case-Hardened Steel
 Needle Bearing – 52100 Hardened Chrome Steel
 Springs – Stainless Steel
 Cage – Plastic
 Bearing Support – Sintered Bronze Bearings

Catalog Number	d Shaft Diameter h6	D	S Face Width -0.2	Torque Limit N • m	Max. Speed Limit rpm		Max. Load Limit N	Max. Load Speed Limit N/min.
					Shaft	Housing		
* ^Δ S99NH4MURC0408	4	8	8	0.34	34000	8000	80	16000
* S99NH4MURC0615	6	10	15	1.76	23000	13000	110	18000

*During operation of the above items:

F max = Load Speed Limit (N/min.)

F_R = Load Limit (N)

n = Speed Limit (housing or shaft) (rpm)

F_R • n = F max.

^ΔEquipped with plastic springs

NOTES: 1. Shaft surface hardness must be HRC 58 minimum.

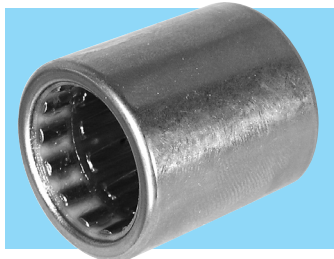
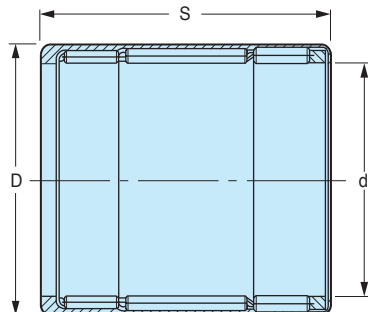
2. Recommended tolerances for Housing Bore are N6 for Steel, R6 for Aluminum.

Tolerances for housing bore of N7 for steel and R7 for aluminum can be used if only 50% of the torque is used.

Continued on the next page

■ UNIDIRECTIONAL DRIVE

■ NEEDLE BEARING SUPPORT



MATERIAL: Roller Cup – Case-Hardened Steel

Needle Bearing – 52100 Hardened Chrome Steel

Springs – Stainless Steel

Cage – Plastic

Bearing Support – Needle Bearings

Catalog Number	d Shaft Diameter h6	D	S Face Width -0.2	Max. Torque N • m	Rotating Overrun Speed Max. rpm		Load Ratings N	
					Shaft	Housing	Dynamic	Static
S99NH4MURC0822	8	12	22	3.15	17000	12000	3500	4100
S99NH4MURC1022	10	14		5.3	14000	11000	3750	4650
S99NH4MURC1226	12	18	26	12.2	11000	8000	5800	6700
S99NH4MURC1426	14	20		17.3	9500	8000	6300	7800
S99NH4MURC1626	16	22		20.5	8500	7500	6900	9000
S99NH4MURC1826	18	24		24.1	7500	7500	7400	10200
S99NH4MURC2026	20	26		28.5	7000	6500	7900	11400
S99NH4MURC2530	25	32	30	66	5500	5500	9800	14000
S99NH4MURC3030	30	37		90	4500	4500	10800	16900
S99NH4MURC3530	35	42		121	3900	3900	11400	18800

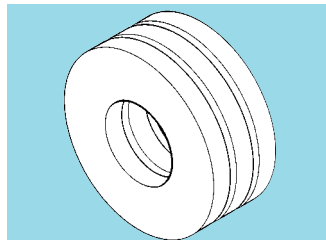
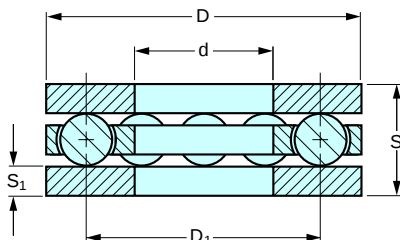
NOTES: 1. Shaft surface hardness must be HRC 58 minimum.

2. Recommended tolerances for Housing Bore are N6 for Steel, R6 for Aluminum.

Tolerances for housing bore of N7 for steel and R7 for aluminum can be used if only 50% of the torque is used.

	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Thrust Bearings						
Stock Drive Products/Sterling Instrument Phone: 516-328-3300 Fax: 516-326-8827							

■ STAINLESS STEEL



MATERIAL: Balls – 440C Stainless Steel, Hardened to HRC 58...65
 Retainer – Molded Nylon, for 120°C Max.
 Washer – 410 Stainless Steel, Hardened to HRC 38...42

Catalog Number (Complete Bearing Set)	d		D		D ₁ Ball Circle	S ₁ Washer		S Total Bearing Thickness	No. of Balls	Size of Balls ± 0.0025
	Bore	Tol.	O.D.	Tol.		Thk.	Tol.			
A 7Z 7M0512ST	5	5.21...5.08	12	11.96...11.78	8.7	1.27	± 0.05	5.02...4.82	7	2.38
A 7Z 7M0614ST	6	6.20...6.07	14	13.97...13.79	10.3				8	
A 7Z 7M0717ST	7	7.18...7.06	17	16.97...16.79	11.9				9	
A 7Z 7M0816ST	8	8.20...8.08	16	15.96...15.80	11.9	1.57	+0.06 -0.05	6.44...6.22	6	3.18
A 7Z 7M1021ST	10	10.19...10.06	21	20.96...20.78	15.1				8	
A 7Z 7M1224ST	12	12.19...12.06	24	23.98...23.80	18.3				8	
A 7Z 7M1628ST	16	16.26...16.07	28	27.97...27.74	22.2	2.36	± 0.8	8.88...8.56	6	3.97
A 7Z 7M1932ST	19	19.25...19.08	32	31.98...31.75	25.4				8	
A 7Z 7M2541ST	25	25.30...25.07	41	40.97...40.69	33.3	3.18	+0.12 -0.13	11.36...10.86	10	4.76
A 7Z 7M2844ST	28	28.30...28.07	44	43.97...43.69	36.5				12	

ADDITIONAL BEARING COMPONENTS USED ON COMPLETE THRUST BEARING

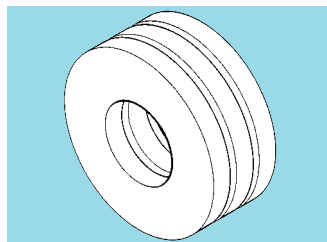
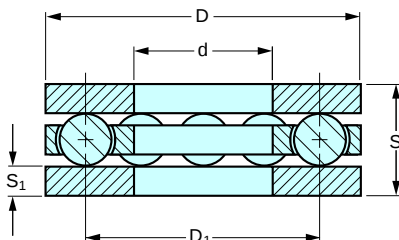
Catalog Number (Complete Bearing Set)	Load Rating N	
	15 rpm	100 rpm
A 7Z 7M0512ST	391	218
A 7Z 7M0614ST	405	214
A 7Z 7M0717ST	423	222
A 7Z 7M0816ST	423	222
A 7Z 7M1021ST	543	289
A 7Z 7M1224ST	623	329
A 7Z 7M1628ST	778	414
A 7Z 7M1932ST	912	480
A 7Z 7M2541ST	1428	756
A 7Z 7M2844ST	1566	832

Reference (Complete Bearing Set)	Catalog Numbers	
	Retainer and Balls	Washer
A 7Z 7M0512ST	A 7M 7M0512ST	A 7Y 7M0512
A 7Z 7M0614ST	A 7M 7M0614ST	A 7Y 7M0614
A 7Z 7M0717ST	A 7M 7M0717ST	A 7Y 7M0717
A 7Z 7M0816ST	A 7M 7M0816ST	A 7Y 7M0816
A 7Z 7M1021ST	A 7M 7M1021ST	A 7Y 7M1021
A 7Z 7M1224ST	A 7M 7M1224ST	A 7Y 7M1224
A 7Z 7M1628ST	A 7M 7M1628ST	A 7Y 7M1628
A 7Z 7M1932ST	A 7M 7M1932ST	A 7Y 7M1932
A 7Z 7M2541ST	A 7M 7M2541ST	A 7Y 7M2541
A 7Z 7M2844ST	A 7M 7M2844ST	A 7Y 7M2844

NOTE: Load rating @ 900 rpm approximately 50% of those @ 100 rpm. Other data available.

	Metric	Metric	Metric	Metric	Metric	Metric	Metric
	Thrust Bearings						
Stock Drive Products/Sterling Instrument Phone: 516-328-3300 Fax: 516-326-8827							

■ STEEL



MATERIAL: Balls – S.A.E. 1018 Steel, Hardened to HRC 60 Min.
 Retainer – Molded Nylon, for 120°C Max.
 Washer – CR1075 Steel, Hardened to HRC 59...61

Catalog Number (Complete Bearing Set)	d		D		D ₁ Ball Circle	S ₁ Washer		S Total Bearing Thickness	No. of Balls	Size of Balls ±0.0025
	Bore	Tol.	O.D.	Tol.		Thk.	Tol.			
A 7Z 7M0512	5	5.21...5.08	12	11.96...11.78	8.7	1.27	±0.05	5.02...4.82	7	2.38
A 7Z 7M0614	6	6.20...6.07	14	13.97...13.79	10.3				8	
A 7Z 7M0717	7	7.18...7.06	17	16.97...16.79	11.9				9	
A 7Z 7M0816	8	8.20...8.08	16	15.96...15.80	11.9				9	
A 7Z 7M1021	10	10.19...10.06	21	20.96...20.78	15.1	1.57	+0.06 -0.05	6.44...6.22	6	3.18
A 7Z 7M1224	12	12.19...12.06	24	23.98...23.80	18.3				8	
A 7Z 7M1628	16	16.26...16.07	28	27.97...27.74	22.2	2.36	±0.08	8.88...8.56	6	3.97
A 7Z 7M1932	19	19.25...19.08	32	31.98...31.75	25.4				8	
A 7Z 7M2541	25	25.30...25.07	41	40.97...40.69	33.3	3.18	+0.12 -0.13	11.36...10.86	10	4.76
A 7Z 7M2844	28	28.30...28.07	44	43.97...43.69	36.5				12	

**ADDITIONAL BEARING COMPONENTS
USED ON COMPLETE THRUST BEARING**

Catalog Number (Complete Bearing Set)	Load Rating N		Reference (Complete Bearing Set)	Catalog Numbers	
	15 rpm	100 rpm		Retainer and Balls	Washer
A 7Z 7M0512	560	311	A 7Z 7M0512	A 7M 7M0512	A 7Q 7M0512
A 7Z 7M0614	583	307	A 7Z 7M0614	A 7M 7M0614	A 7Q 7M0614
A 7Z 7M0717	605	320	A 7Z 7M0717	A 7M 7M0717	A 7Q 7M0717
A 7Z 7M0816	605	320	A 7Z 7M0816	A 7M 7M0816	A 7Q 7M0816
A 7Z 7M1021	778	414	A 7Z 7M1021	A 7M 7M1021	A 7Q 7M1021
A 7Z 7M1224	894	472	A 7Z 7M1224	A 7M 7M1224	A 7Q 7M1224
A 7Z 7M1628	1116	592	A 7Z 7M1628	A 7M 7M1628	A 7Q 7M1628
A 7Z 7M1932	1303	689	A 7Z 7M1932	A 7M 7M1932	A 7Q 7M1932
A 7Z 7M2541	2042	1081	A 7Z 7M2541	A 7M 7M2541	A 7Q 7M2541
A 7Z 7M2844	2242	1188	A 7Z 7M2844	A 7M 7M2844	A 7Q 7M2844

NOTE: Load rating @ 900 rpm approximately 50% of those @ 100 rpm. Other data available.

Material:	G300®	T500®	M250®	L280®
SDPSI				
Product Pages:	5-44 & 5-45	5-47 & 5-48	5-50 & 5-51	5-68 thru 5-73
GENERAL PROPERTIES				
Density g/cm ³	1.45	1.44	1.14	1.24
Color	Dark gray	Black	Charcoal	Yellow
Max. moisture absorption at 23°C / 50% r.h. % weight	0.7	0.1	1.4	1.3
Max. moisture absorption % weight	4	0.5	7.6	6.5
Coefficient of sliding friction, dynamic against steel	0.08 ... 0.15	0.09 ... 0.27	0.1 ... 0.3	0.08 ... 0.23
p x v-value, max. (dry) (kgf/cm ² x m/min)	257	808	73	141
MECHANICAL PROPERTIES				
Modulus of elasticity N/mm ²	7798	8098	838	3499
Tensile strength at 20°C N/mm ²	210	170	112	125
Compressive strength N/mm ²	78	100	52	61
Max. permissible static surface pressure (20°C) N/mm ²	80	150	18	60
Shore D-hardness	81	85	79	77

5-67



Metric Metric Metric Metric Metric

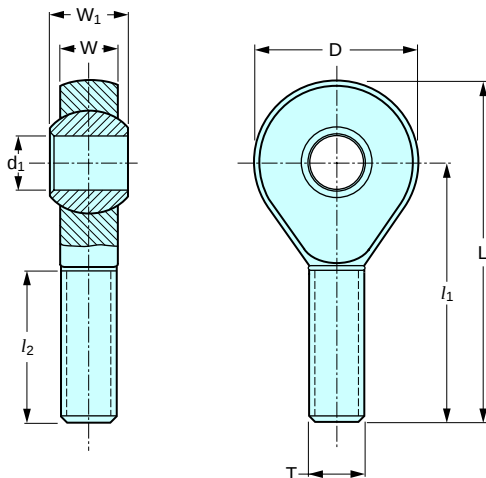
Male Plastic Rod End Bearings

Stock Drive Products/Sterling Instrument

Phone: 516-328-3300

Fax: 516-326-8827

- MAINTENANCE-FREE ■ SELF-LUBRICATING ■ LIGHTWEIGHT
- COMPENSATES FOR ALIGNMENT ERRORS AND EDGE LOADS



MATERIAL: Body: Thermoplastic
Ball: L280® Polymer

OPERATING TEMPERATURE: -40°C to +130°C

Catalog Number*	d ₁ E10	D	T Thread Size	W	W ₁	l ₁	l ₂	L	Shaft Size	
									Min.	Max.
S62GMRM0508 ☐	5	18	M5	6	8	33	19	42	4.970	5.000
S62GMRM0609 ☐	6	20	M6	7	9	36	21	46	5.970	6.000
S62GMRM0812 ☐	8	24	M8	9	12	42	25	55	7.964	8.000
S62GMRM1014 ☐	10	30	M10	10.5	14	48	28	63	9.964	10.000
S62GMRM1216 ☐	12	34	M12	12	16	54	32	71	11.957	12.000
S62GMRM1419 ☐	14	38	M14	13.5	19	61	36	79	13.957	14.000
S62GMRM1621 ☐	16	42	M16	15	21	66	37	88	15.957	16.000
S62GMRM1823 ☐	18	46	M18 x 1.5	16.5	23	72	41	96	17.957	18.000
S62GMRM2025 ☐	20	50	M20 x 1.5	18	25	78	45	104	19.948	20.000
S62GMRM2228 ☐	22	56	M22 x 1.5	20	28	84	48	112	21.948	22.000
S62GMRM2531 ☐	25	60	M24 x 2.0	22	31	94	55	125	24.948	25.000

NOTE: For additional information concerning the bearing material, see page 5-72.

Continued on the next page

*To complete Catalog Number, specify **R** for Right-Hand Thread and **L** for Left-Hand Thread.





Stock Drive Products/Sterling Instrument

Phone: 516-328-3300

Fax: 516-326-8827

Male Plastic Rod End Bearings

- MAINTENANCE-FREE ■ SELF-LUBRICATING ■ LIGHTWEIGHT
- COMPENSATES FOR ALIGNMENT ERRORS AND EDGE LOADS

Catalog Number	Max. Angle of Pivot	Max. Static Tensile Strength N		Max. Radial Load N	
		Short-Term	Long-Term	Short-Term	Long-Term
S62GMRM0508 ☐	30°	801	400	80	40
S62GMRM0609 ☐	29°	1001	498	98	49
S62GMRM0812 ☐	25°	1699	850	200	98
S62GMRM1014 ☐		2500	1250	298	147
S62GMRM1216 ☐		2700	1348	396	200
S62GMRM1419 ☐	25°	3398	1699	698	347
S62GMRM1621 ☐	23°	3897	1948	796	396
S62GMRM1823 ☐	23°	4199	2100	996	498
S62GMRM2025 ☐	23°	5996	2988	1299	649
S62GMRM2228 ☐	22°	7197	3599	1499	747
S62GMRM2531 ☐	22°	7500	3750	1899	947

Catalog Number	Min. Thread Engagement mm	Max. Torque Strength Inner Threading N • m	Max. Torque Strength N • m
S62GMRM0508 ☐	13	0.41	5
S62GMRM0609 ☐	15	0.54	10
S62GMRM0812 ☐	18	2	12.1
S62GMRM1014 ☐	20	5	20.1
S62GMRM1216 ☐	22	6	30
S62GMRM1419 ☐	25	12.1	35
S62GMRM1621 ☐	26	16.9	40
S62GMRM1823 ☐	29	20.1	45
S62GMRM2025 ☐	32	24.9	55
S62GMRM2228 ☐	34	24.9	60.1
S62GMRM2531 ☐	39	45	64.9

NOTE: For additional information concerning the bearing material, see page 5-72.



Metric Metric Metric Metric Metric

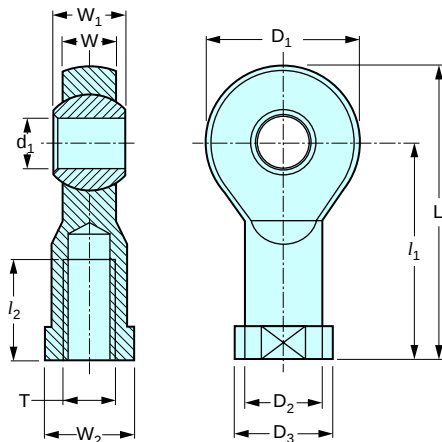
Female Plastic Rod End Bearings

Stock Drive Products/Sterling Instrument

Phone: 516-328-3300

Fax: 516-326-8827

- MAINTENANCE-FREE ■ SELF-LUBRICATING ■ LIGHTWEIGHT
- COMPENSATES FOR ALIGNMENT ERRORS AND EDGE LOADS



MATERIAL: Body: Thermoplastic

Ball: L280® Polymer

OPERATING TEMPERATURE: -40°C to +130°C

Catalog Number*	d ₁ E10	D ₁	T Thread Size	D ₂	D ₃	W	W ₁	l ₁	l ₂	L	W ₂ Wrench Size	Shaft Size	
												Min.	Max.
S62GFRM0306 ☐	3	13	M3	6.5	8	4.5	6	18.5	8	25	06	2.975	3.000
S62GFRM0508 ☐	5	18	M5	9	12	6	8	27	10	36	09	4.970	5.000
S62GFRM0609 ☐	6	20	M6	10	13	7	9	30	12	40	11	5.970	6.000
S62GFRM0812 ☐	8	24	M8	13	16	9	12	36	16	48	14	7.964	8.000
S62GFRM1014 ☐	10	30	M10	15	19	10.5	14	43	20	58	17	9.964	10.000
S62GFRM1216 ☐	12	34	M12	18	22	12	16	50	22	67	19	11.957	12.000
S62GFRM1419 ☐	14	38	M14	20	25	13.5	19	57	25	76	22	13.957	14.000
S62GFRM1621 ☐	16	42	M16	22	27	15	21	64	28	85	22	15.957	16.000
S62GFRM1823 ☐	18	46	M18 x 1.5	25	31	16.5	23	71	32	94	27	17.957	18.000
S62GFRM2025 ☐	20	50	M20 x 1.5	28	34	18	25	77	33	102	30	19.948	20.000
S62GFRM2228 ☐	22	56	M22 x 1.5	30	37	20	28	84	37	112	32	21.948	22.000
S62GFRM2531 ☐	25	60	M24 x 2	32	41	22	31	94	42	124	36	24.948	25.000

*To complete Catalog Number, specify **R** for Right-Hand Thread or **L** for Left-Hand Thread.

Continued on the next page

NOTE: For additional information concerning the bearing material, see page 5-72.



Metric Metric Metric Metric Metric

Female Plastic Rod End Bearings

Stock Drive Products/Sterling Instrument

Phone: 516-328-3300

Fax: 516-326-8827

- MAINTENANCE-FREE ■ SELF-LUBRICATING ■ LIGHTWEIGHT
- COMPENSATES FOR ALIGNMENT ERRORS AND EDGE LOADS

Catalog Number	Max. Angle of Pivot	Max. Static Tensile Strength N		Max. Radial Load N	
		Short-Term	Long-Term	Short-Term	Long-Term
S62GFRM0306 ☐	30°	796	396	98	49
S62GFRM0508 ☐	30°	996	498	249	125
S62GFRM0609 ☐	29°	1397	698	396	196
S62GFRM0812 ☐		2100	1050	698	347
S62GFRM1014 ☐	25°	3096	1548	796	396
S62GFRM1216 ☐		3599	1797	899	449
S62GFRM1419 ☐		3999	1997	996	496
S62GFRM1621 ☐	23°	4199	2100	1299	649
S62GFRM1823 ☐		4599	2300	1597	796
S62GFRM2025 ☐	23°	5396	2696	2100	1050
S62GFRM2228 ☐	22°	6997	3496	2197	1099
S62GFRM2531 ☐	22°	8446	4248	2300	1148

Catalog Number	Min. Thread Engagement mm	Max. Torque Strength Inner Threading N • m	Max. Torque Strength N • m
S62GFRM0306 ☐	5	0.50	2.03
S62GFRM0508 ☐	7	1	5.02
S62GFRM0609 ☐	8	1.49	10
S62GFRM0812 ☐	11	10	12.1
S62GFRM1014 ☐	13	15	20.1
S62GFRM1216 ☐	15	20	30
S62GFRM1419 ☐	17	24.9	35
S62GFRM1621 ☐	19	30	40
S62GFRM1823 ☐	21	45	45
S62GFRM2025 ☐	22	60.1	55
S62GFRM2228 ☐	25	75	60.1
S62GFRM2531 ☐	28	120	60.1

NOTE: For additional information concerning the bearing material, see page 5-72.



Metric

Metric

Metric

Metric

Metric

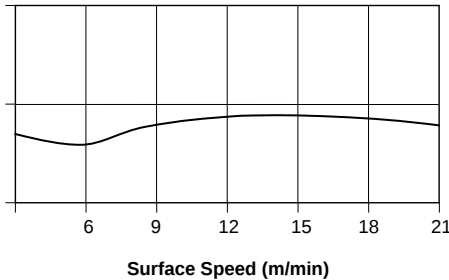
Pillow Block & Rod End Polymer

Stock Drive Products/Sterling Instrument

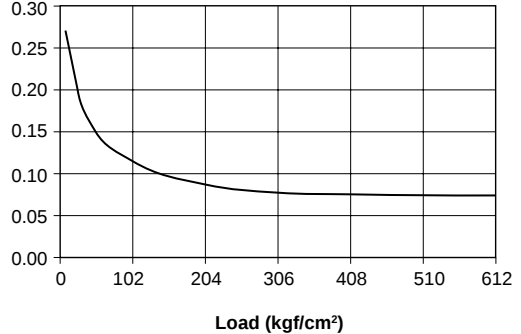
Phone: 516-328-3300

Fax: 516-326-8827

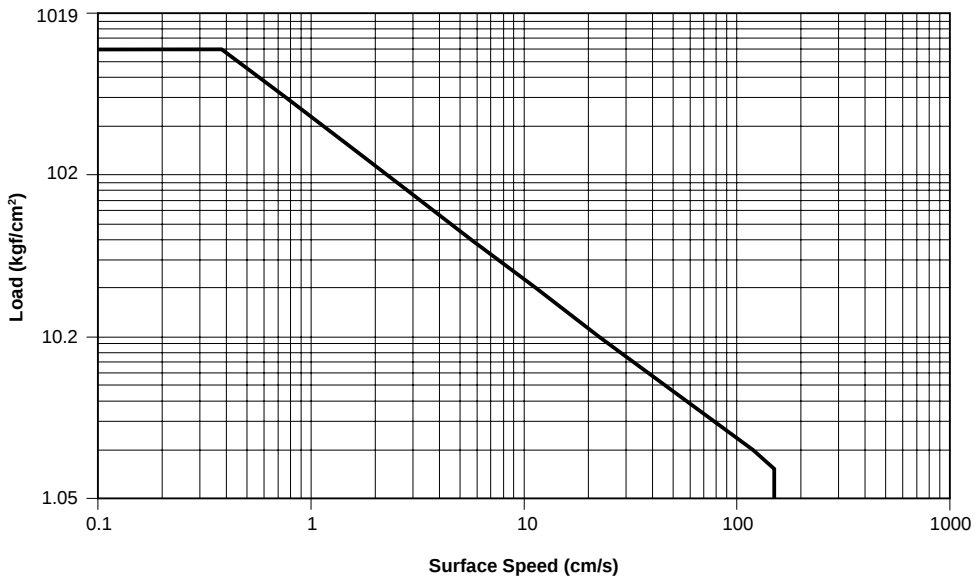
■ L280® POLYMER

Coefficient of friction μ 

Graph 1: Coefficient of friction of L280® as a result of the surface speed; $p = 7.6$ kgf/cm², shaft made of Cold Rolled Steel

Coefficient of friction μ 

Graph 2: Coefficient of friction of L280® as a result of the load; $v = 0.6$ m/min



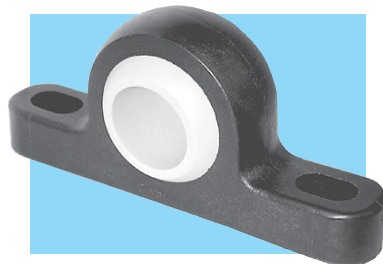
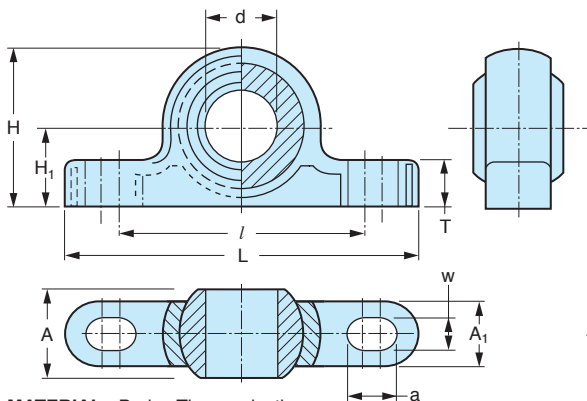
Graph 3: Permissible $p \times v$ - values for L280® running dry against a steel shaft, at 20°C.

■ MAINTENANCE-FREE

■ SELF-LUBRICATING

■ LIGHTWEIGHT

■ COMPENSATES FOR ALIGNMENT ERRORS



The projections shown are per
ISO convention.

MATERIAL: Body: Thermoplastic
Ball: L280® Polymer

TEMPERATURE RANGE: -40°C to +130°C

Catalog Number	d* Bore E10	H	H ₁	T	A	A ₁	L	l	w	a	Max. Angle of Pivot
S61GPBM0508	5	14	7	4	8	6	34	25	3.3	5	30°
S61GPBM0609	6	20	10	5.5	9	7	43	33	4.5	6	29°
S61GPBM0812	8	20	10	6	12	9	47	33	4.5	7	25°
S61GPBM1014	10	28	14	7.5	14	10.5	62	46	5.5	8	25°
S61GPBM1226	12	28	14	8.5	26	12	65	46	5.5	9	25°
S61GPBM1429	14	36	18	9.5	29	13.5	82	60	6.6	11	23°
S61GPBM1621	16	36	18	10.5	21	15	86	60	6.6	12	23°
S61GPBM1823	18	44	22	11.5	23	16.5	93	68	9	13	
S61GPBM2025	20	44	22	13	25	18	98	68	9	14	
S61GPBM2228	22	48	24	14	28	20	108	74	9	16	22°
S61GPBM2531	25	54	27	16	31	22	124	86	9	17	
S61GPBM3037	30	64	32	17	37	25	139	96	11	20	

Catalog Number	Max. Static Tensile Strength		Maximum Torque for Longitudinal Holes N • m
	Short-Term N	Long-Term N	
S61GPBM0508	698	347	0.54
S61GPBM0609	1099	547	1.36
S61GPBM0812	1299	649	1.36
S61GPBM1014	1499	747	2.44
S61GPBM1226	2197	1099	2.44
S61GPBM1429	2398	1197	4.47
S61GPBM1621	2998	1499	4.47
S61GPBM1823	3496	1748	10.4
S61GPBM2025	4697	2349	10.4
S61GPBM2228	6099	3047	10.4
S61GPBM2531	6597	3296	10.4
S61GPBM3037	8096	4048	21.6

NOTE: For additional information concerning the bearing material, see page 5-72.

*Bore Tolerance: 5 & 6 mm +0.068, +0.020
8 & 10 mm +0.083, +0.025
12 to 18 mm +0.102, +0.032
20 to 30 mm +0.124, +0.040



SDP/SI

Stock Drive Products/Sterling Instrument

Metric Metric Metric Metric Metric Metric Metric

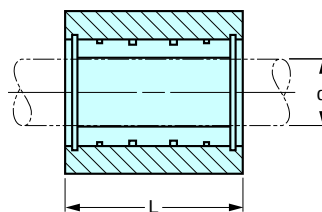
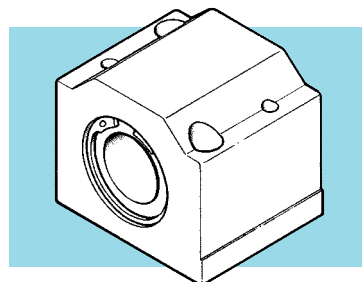
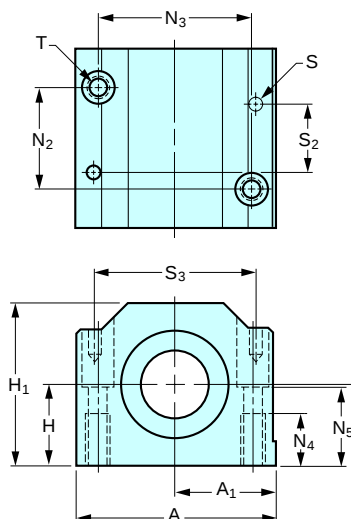
Frelon® Lined Pillow Blocks

Phone: 516-328-3300 Fax: 516-326-8827

■ CLOSED SERIES

■ SELF-ALIGNING

■ LOW COST



Material: Body – Anodized Aluminum

Bearing – Frelon® Lined Aluminum

CATALOG NUMBER
DESIGNATIONS61P ☐ CM ☐ ☐ F ☐ ☐ ☐

P Precision

S Standard

Δ Tolerance: ± 0.2

* Bore Tolerance

for **PRECISION** (F8):

8 & 10 mm +0.035, +0.013

12 & 16 mm +0.043, +0.016

20, 25 & 30 mm +0.053, +0.020

40 & 50 mm +0.064, +0.025

* Bore Tolerance

for **STANDARD**:

8 & 10 mm +0.085, +0.063

12 & 16 mm +0.093, +0.066

20, 25 & 30 mm +0.129, +0.096

40 & 50 mm +0.166, +0.127

Catalog Number	d* Nom. Bore Size	H ± 0.015	H ₁ Height	A Width	A ₁ ± 0.013	L Length	T	N ₂ ± 0.15
S61P ☐ CM08F032	8	15	28	35	17.5	32	M4	20
S61P ☐ CM10F036	10	16	31.5	40	20	36	M5	20
S61P ☐ CM12F039	12	18	35	43	21.5	39	M5	23
S61P ☐ CM16F043	16	22	42	53	26.5	43	M6	26
S61P ☐ CM20F054	20	25	50	60	30	54	M8	32
S61P ☐ CM25F067	25	30	60	78	39	67	M10	40
S61P ☐ CM30F079	30	35	71	87	43.5	79	M10	45
S61P ☐ CM40F091	40	45	91	108	54	91	M12	58
S61P ☐ CM50F113	50	50	105	132	66	113	M16	50 ^Δ

Catalog Number	N ₃ ± 0.15	N ₄	N ₅	S	S ₂	S ₃	Max. Load Rating N	Ass'y Weight kg
S61P ☐ CM08F032	25	9	14.5	—	—	—	1760	0.069
S61P ☐ CM10F036	29	11	15	4	29	31	2985	0.095
S61P ☐ CM12F039	32	11	16.5	4	32	34	3950	0.118
S61P ☐ CM16F043	40	13	21	4	35	42	5930	0.2
S61P ☐ CM20F054	45	18	24	5	45	50	9265	0.329
S61P ☐ CM25F067	60	22	29	6	20	64	14935	0.655
S61P ☐ CM30F079	68	22	34	6	30	72	21010	1.02
S61P ☐ CM40F091	86	26	44	8	35	90	32955	1.846
S61P ☐ CM50F113	108 ^Δ	34	49	10	42	108	51495	3.169



SDP/SI

Stock Drive Products/Sterling Instrument

Metric Metric Metric Metric Metric Metric Metric

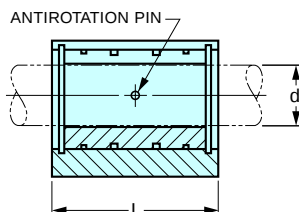
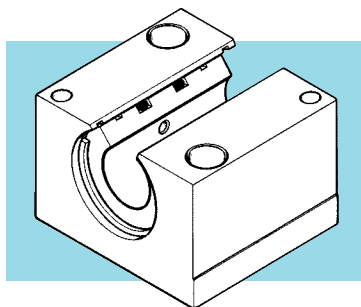
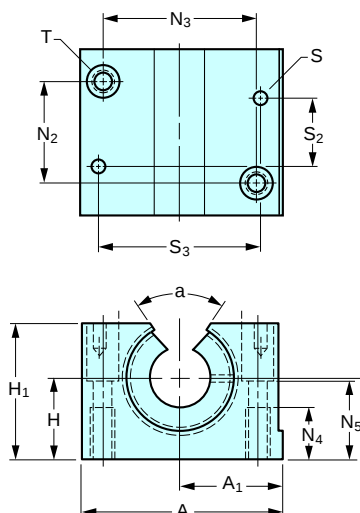
Frelon® Lined Pillow Blocks

Phone: 516-326-3300 Fax: 516-326-8827

■ OPEN SERIES

■ SELF-ALIGNING

■ LOW COST



Material: Body – Anodized Aluminum
 Bearing – Frelon® Lined Aluminum

CATALOG NUMBER DESIGNATION

S61P ☐ **ZM** ☐ ☐ **F** ☐ ☐ ☐ ☐

— **P** Precision
 — **S** Standard

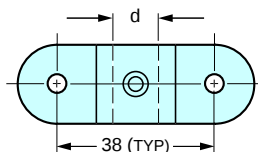
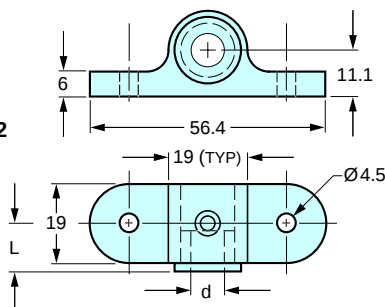
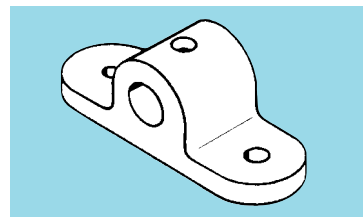
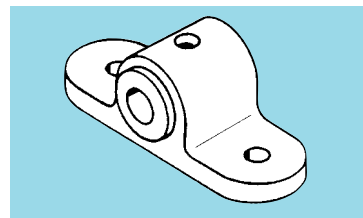
△ Tolerance: ± 0.2

* Bore Tolerance for **PRECISION** (F8):
 12 & 16 mm +0.043, +0.016
 20, 25 & 30 mm +0.053, +0.020
 40 & 50 mm +0.064, +0.025

* Bore Tolerance for **STANDARD**:
 12 & 16 mm +0.093, +0.066
 20, 25 & 30 mm +0.129, +0.096
 40 & 50 mm +0.166, +0.127

Catalog Number	d* Nom. Bore Size	H ± 0.015	H ₁ Height	A Width	A ₁ ± 0.013	L Length	T	N ₂ ± 0.15
S61P ☐ ZM12F039	12	18	28	43	21.5	39	M5	23
S61P ☐ ZM16F043	16	22	35	53	26.5	43	M6	26
S61P ☐ ZM20F054	20	25	42	60	30	54	M8	32
S61P ☐ ZM25F067	25	30	51	78	39	67	M10	40
S61P ☐ ZM30F079	30	35	60	87	43.5	79	M10	45
S61P ☐ ZM40F091	40	45	77	108	54	91	M12	58
S61P ☐ ZM50F113	50	50	88	132	66	113	M16	50 [△]

Catalog Number	N ₃ ± 0.15	N ₄	N ₅	S	S ₂	S ₃	a deg.	Max. Load Rating N	Ass'y Weight kg
S61P ☐ ZM12F039	32	11	16.5	4	32	34	66°	3950	0.096
S61P ☐ ZM16F043	40	13	21	4	35	42	68°	5930	0.162
S61P ☐ ZM20F054	45	18	24	5	45	50	60°	9265	0.267
S61P ☐ ZM25F067	60	22	29	6	20	64	60°	14935	0.536
S61P ☐ ZM30F079	68	22	34	6	30	72	60°	21010	0.831
S61P ☐ ZM40F091	86	26	44	8	35	90	60°	32955	1.499
S61P ☐ ZM50F113	108 [△]	34	49	10	42	108	60°	51495	2.539

■ **NO BEARING**■ **FLANGED BEARING****Fig. 1****Fig. 2****Fig. 1****Fig. 2**

The projections shown are per ISO convention.

MATERIAL: Housing - Zinc, Die Cast
Bearing - Sintered Bronze, Oiled

• FIG. 1 WITHOUT BEARING	
Catalog Number	d Bore +0.025
A 7Z 4M08	8
A 7Z 4M10	10
A 7Z 4M12	12

• FIG. 2 WITH FLANGED BEARING			
Catalog Number	Bore		L
	d	Tol.	
A 7Z 4MF2104	4	+0.03	11
A 7Z 4MF2105	5		11.5
A 7Z 4MF2106	6		11.5
A 7Z 4MF2207	7	+0.04	12.5
A 7Z 4MF2208	8		

Did You Know?

... That pricing for any component in this catalog is available through the Sales Department? Simply call, fax or write in your request for a quote for any component that you think you might want to use in your design.

CALL: 516-328-3300

or FAX: 516-326-8827

SDPSI

Metric

Metric

Metric

Metric

Nonmetallic Bearing Blocks

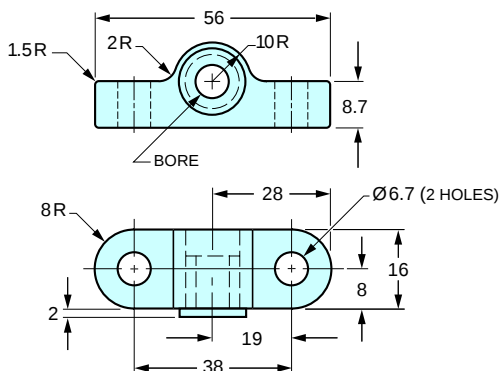
Stock Drive Products/Sterling Instrument

Phone: 516-326-3300

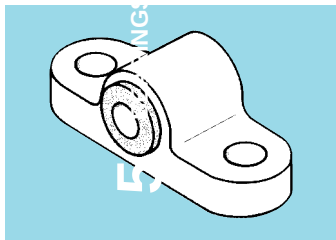
Fax: 516-326-8827

■ MOLDED

■ WITH FLANGED BEARING



The projections shown are per ISO convention.

**FEATURES:**

- Self-Lubricating
- Low Cost
- High Performance
- Electrically Insulating

MATERIAL: Body - Nylon 101, Molded
Bearing - Acetron NS, Machined

Catalog Number*	Bore +0.10 +0.05
A 7Z 6MF1804	4
A 7Z 6MF1805	5
A 7Z 6MF1806	6
A 7Z 6MF1808	8

*All items to be discontinued when present material is depleted. The parts below, with better performance characteristics, will be offered in its place.

MATERIAL: Body - Nylon 101, Molded
Bearing - Ertalyte TX, Machined

Catalog Number	Bore +0.10 +0.05
A 7Z 6MF1804E	4
A 7Z 6MF1805E	5
A 7Z 6MF1806E	6
A 7Z 6MF1808E	8

For additional information on this material, see page 5-41.

Continued from page 5-67

Material:	G300®	T500®	M250®	L280®
SDPSI				
Product Pages:	5-44 & 5-45	5-47 & 5-48	5-50 & 5-51	5-68 thru 5-73
PHYSICAL AND THERMAL PROPERTIES				
Max. long-term application temperature °C	130	250	80	90
Max. short-term application temperature °C	220	315	170	180
Min. application temperature °C	-40	-100	-40	-40
Thermal conductivity (W/m x K)	0.24	0.6	0.24	0.24
Coefficient of thermal expansion (at 23°C) (K ⁻¹ x 10 ⁻⁵)	9	5	10	9
ELECTRICAL PROPERTIES				
Specific volume resistance Ωcm	>10 ¹³	>10 ⁵	>10 ¹³	>10 ¹³
Surface resistance Ω	>10 ¹¹	>10 ³	>10 ¹¹	>10 ¹²

For more properties, see page 5-67