



Additional Options

Expansion Units Options



Axial shaft expansion is compensated by a non-expansion (fixed) and expansion (float) arrangement. Many bearings are offered in both fixed and float arrangements and have identical mounting dimensions. It is recommended to use both units on one shaft in high temperature applications to help account for linear shaft expansion. For more information see page G-249 in the Mounted Ball Bearing Engineering section.

Expansion Unit Availability Chart

Bore Diameter		Unit Size	Standard Duty				Expansion Capability
in	mm		ENP	ESP	ESF	ESFT	
5/8		10					
11/16		11					
3/4		12	•		•	•	3/32"
	20	204					
13/16		13					
7/8		14					
15/16		15	•	•	•	•	3/32"
	25	205					
1		16					
1 1/16		17					
1 1/8		18					
	30	206	•	•	•	•	1/8"
1 3/6		19					
1 1/4		20R					
1 1/4		20					
1 5/16		21					
1 3/8		22	•	•	•	•	1/8"
	35	207					
1 7/16		23					
1 1/2		24					
1 9/16		25	•		•	•	1/8"
	40	208					
1 5/8		26					
1 11/16		27	•		•	•	1/8"
1 3/4		28					
	45	209					
1 13/16		29					
1 7/8		30					
1 15/16		31	•	•	•	•	3/16"
	50	210					
2		32R					
2		32					
2 1/8		34	•	•	•	•	3/16"
	55	211					
2 3/16		35					
2 1/4		36					
	60	212	•	•	•		3/16"
2 3/8		38					
2 7/16		39					
2 1/2		40					
2 11/16		43		•	•		3/16"
	70	214					
2 7/8		46					
2 15/16		47			•		3/16"
	75	215					
3		48					
	80	216		•			1/4"
3 3/16		51					

Bore Diameter		Unit Size	Medium Duty							Expansion Capability	
in	mm		EMFP	EMFPD	EMP	EMSPD	EMSFPD	EMSF	EMSFT		EMFC
15/16		15									
	25	305			•			•	•		1/8"
1		16									
	30	306									
1 3/16		19			•			•	•		1/8"
1 1/4		20									
	35	307						•	•		1/8"
1 7/16		23									
1 1/2		24									
	40	308			•			•	•		1/8"
1 11/16		27									
1 3/4		28			•			•	•	•	3/16"
	45	309									
1 15/16		31									
	50	310			•	•		•	•	•	3/16"
2		32									
	55	311									
2 3/16		35			•				•	•	3/16"
2 1/4		36									
2 7/16		39									
2 1/2		40	•	•	•	•		•		•	3/16"
	65	313									
2 11/16		43			•						
	70	314	•	•	•			•			3/16"
2 15/16		47									
	75	315	•	•	•	•		•			1/4"
3		48									
	80	316									
3 3/16		51			•				•		1/4"
3 1/4		52									
3 7/16		55	•	•	•	•	•	•			9/32"
3 15/16		63									
	100	320	•	•	•	•	•	•			9/32"
4		64									
4 7/16		71	•	•				•	•		7/16"
4 15/16		79									

• Expansion option exists for the bearing and housing combination

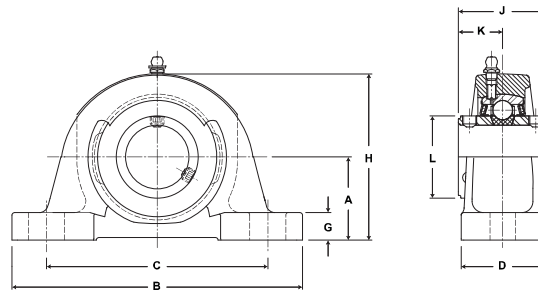
Note: 1. Not all combinations of housing styles, locking types and seal options are available. Consult customer service for availability and possible set-up charges.

2. Alternate expansion version available in some sizes and configurations with half-dog and wire, suffix "HIY", see page G-104 for more information.

SEALMASTER® Performance Mounted Ball Bearings



Duty: Medium
Rolling Elements: Ball
Housing: Cast Iron Pillow Block - High Base
Self Alignment: +/- 2 Degrees
Lock: Double Setscrew
Seal: Felt
Optional Seal: Contact
Temperature: -20° to 220°F



MPD Series Medium Duty Pillow Blocks With Double Lock - Setscrew Locking

Bore Diameter inch	Part No.	Bearing Insert No.	Basic Dynamic Rating lb/N	Dimensions inch / mm										Bolt Size	Unit Wt. lb/kg
				A	B	C		D	G	H	J	K	L		
						min.	max.								
1	MPD-16	3-1D	4381 19487	1 3/4 44.5	6 1/4 158.8	4 3/16 106.4	5 3/16 131.8	2 50.8	5/8 15.9	3 7/16 87.3	1 3/4 44.5	7/8 22.2	1 19/32 40.5	1/2	4.0 1.81
1 3/16 1 1/4	MPD-19 MPD-20	3-13D 2-14D	5782 25718	1 7/8 47.6	6 7/8 174.6	4 1/2 114.3	5 1/2 139.7	2 1/4 57.2	11/16 17.5	3 13/16 96.8	2 50.8	1 25.4	1 55/64 47.2	1/2	5.4 2.45
1 7/16	MPD-23	3-17D	7340 32648	2 1/8 54.0	8 203.2	5 127.0	6 3/8 161.9	2 1/4 57.2	3/4 19.1	4 3/16 106.4	2 5/16 58.7	1 5/32 29.4	2 1/16 52.4	1/2	6.8 3.08
1 1/2	MPD-24	3-18D	7901 35144	2 5/16 58.7	8 3/4 222.3	5 1/2 139.7	6 3/4 171.5	2 5/8 66.7	13/16 20.6	4 9/16 115.9	2 3/8 60.3	1 3/16 30.2	2 19/64 58.3	5/8	9.0 4.08
1 11/16 1 3/4	MPD-27 MPD-28	3-111D 3-112D	7889 35090	2 5/16 58.7	8 3/4 222.3	5 7/16 138.1	6 13/16 173.0	2 5/8 66.7	13/16 20.6	4 5/8 117.5	2 1/2 63.5	1 1/4 31.8	2 15/32 62.7	5/8	9.5 4.31
1 15/16 2	MPD-31 MPD-32	3-115D 2-2D	9752 43377	2 1/2 63.5	9 1/2 241.3	5 15/16 150.8	7 9/16 192.1	2 7/8 73.0	7/8 22.2	5 3/32 129.4	2 5/8 66.7	1 5/16 33.3	2 23/32 69.1	5/8	11.7 5.31
2 3/16 2 1/4	MPD-35 MPD-36	3-23D 2-24D	11789 52437	2 3/4 69.9	10 1/4 260.4	6 9/16 166.7	7 15/16 201.6	3 1/8 79.4	1 1/16 27.0	5 5/8 142.9	3 1/8 79.4	1 9/16 39.7	2 63/64 75.8	3/4	16.2 7.35
2 7/16 2 1/2	MPD-39 MPD-40	3-27D 3-28D	13971 62143	3 76.2	11 1/4 285.8	7 1/8 181.0	8 7/8 225.4	3 1/4 82.6	1 1/16 27.0	6 1/4 158.8	3 1/2 88.9	1 3/4 44.5	3 7/16 87.3	3/4	21.5 9.75
2 11/16	MPD-43	3-211D	14839 66004	3 1/2 88.9	13 330.2	7 7/8 200.0	10 1/8 257.2	3 1/2 88.9	1 1/8 28.6	7 177.8	3 1/2 88.9	1 3/4 44.5	3 41/64 92.5	7/8	29.2 13.24
2 15/16 3	MPD-47 MPD-48	3-215D 3-3D	17412 77449	3 1/2 88.9	13 330.2	7 7/8 200.0	10 1/8 257.2	3 1/2 88.9	1 1/4 31.8	7 1/4 184.2	3 7/8 98.4	1 15/16 49.2	3 59/64 99.6	7/8	31.5 14.29
3 3/16 3 1/4	MPD-51 MPD-52	3-33D 2-34D	18681 83093	4 101.6	15 381.0	9 11/16 246.1	12 9/16 319.1	4 101.6	1 1/4 31.8	8 203.2	4 1/16 103.2	2 1/32 51.6	4 5/32 105.6	7/8	44.1 20.00
3 7/16 3 1/2	MPD-55 MPD-56	3-37D 2-38D	21566 95926	4 101.6	15 381.0	9 5/8 244.5	12 5/8 320.7	4 3/8 111.1	1 5/16 33.3	8 1/4 209.6	4 7/16 112.7	2 7/32 56.4	4 25/64 111.5	7/8	47.8 21.68
3 15/16 4	MPD-63 MPD-64	3-315D 3-4D	29905 133017	5 127.0	17 431.8	11 3/4 298.5	14 3/4 374.7	4 3/4 120.7	1 5/16 33.3	10 254.0	5 3/8 136.5	2 11/16 68.3	5 11/64 131.4	1	73.2 33.20

For Medium Duty Bearing Inserts-Double Lock see page G-97.

Metric dimensions for reference only.

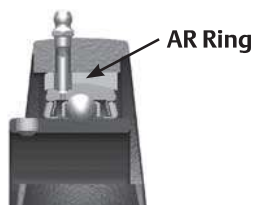
Not all parts are available from stock. Please contact customer service for availability (800) 626-2120.

For more information on bearing capabilities outside of our standard offering, please contact Application Engineering (800) 626-2093.

Sealmaster Gold Expansion Bearings:

Expansion bearings allow for linear shaft expansion or contraction caused by temperature variations. Without this expansion capability, bearings may be subjected to excessive thrust loads and misalignment which could damage the bearing, mounting surfaces, and frameworks. Sealmaster offers two types of expansion (float) bearings:

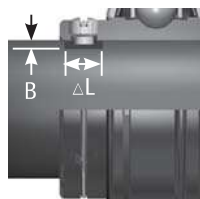
1. In Sealmaster Gold mounted units where the bearing is installed into an AR ring then into a housing assembly as shown on page G-29. This design allows the bearing to move axially in the housing assembly. Table 4 below shows the allowable expansion by size.



SM Gold Table 4

Bore Diameter		Expansion (inch)
Standard Duty	Medium Duty	
1/2 - 1	N/A	3/32
1 3/16 - 1 3/4	15/16 - 1 1/2	1/8
1 15/16 - 2 15/16	1 11/16 - 2 11/16	3/16
3 - 3 7/16	2 15/16 - 3 3/16	1/4
3 1/2 - 4	3 7/16 - 4	9/32
5	4 7/16 - 4 15/16	7/16

2. In Sealmaster Cylindrical O.D. bearings (ER style) and some Sealmaster Gold mounted units expansion is achieved by utilizing a special half-dog & wire and keyway in the shaft by specifying a "HIY" suffix. The bearing then floats along the shaft. Table 5 shows the shaft slot dimensions required.



SM Gold Table 5

Bore Sizes	Slot Width (C)	Min. Slot Depth (B)	1/2 Dog Point Dia. (P)
inch	inch	inch	inch
1/2 to 1/4R	13/64	3/32	5/32
1 1/4 to 1 3/4	9/32	3/32	13/64
1 7/8 to 2 7/16	21/64	1/8	1/4
2 1/2 to 3 7/16	21/64	1/8	19/64
3 15/16 to 4	33/64	3/16	15/32

ΔL is calculated below

Notes:

- Before installation, make certain proper expansion is accounted for. Expansion units should be placed in a location where relative movement between the bearing insert and the housing can be tolerated.
- When using an expansion bearing, always use a fixed bearing as the second support bearing.
- Half-dog setscrew and lock wire systems are not recommended for high speed or vibration applications. Application Engineering can be contacted for specifics. Only one half-dog setscrew should be used in this arrangement. No other setscrew should be installed. The half-dog setscrew's nub is engaged within the shaft slot, but not tightened into the shaft.

When shafting is heated, it grows longer. This growth in shaft length is particularly problematic when shafts are long and temperature differentials are large.

The difference in linear expansion between the shaft (shaft length between bearing centers) and the bearing mounting structure must be taken in consideration in high temperature applications. For example, in the case where the shaft, bearings and bearing support structure are all in a heated environment, the effect of thermal expansion on the bearings can be insignificant (assuming that all components are made of steel).

The shaft expansion concern arises when the shaft is in a heated environment but the bearings and bearing support structure are not. In this case the slot length in the shaft should be machined so as to accommodate the amount of linear shaft expansion.

Calculate the minimum slot length (ΔL) as follows:

$$\Delta L = \alpha \cdot X \cdot \Delta \text{TEMP}_{\text{sys}}$$

Where:

- ΔL = differential linear expansion (inches)
- α = coefficient of thermal expansion (inch/inch/°F)
($\alpha = 7 \times 10^{-6}$ inch/inch/°F for most carbon steel shafting)
($\alpha = 1 \times 10^{-5}$ inch/inch/°F for most stainless steel shafting)
- X = length of shaft (inches)
- $\Delta \text{TEMP}_{\text{sys}}$ = operating shaft temperature (°F) - installed shaft temperature (°F)