

Oil Free Bushings

Copper Alloy Straight, Standard / Thin Wall, I.D. E7 O.D. r6 / I.D. G6 O.D. m6

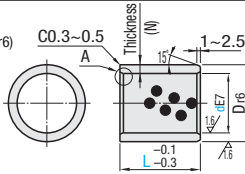
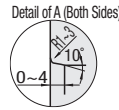
■ **Features:** Bushings can be affixed only by Press-fit process. No process using Rotation Stopper Screws is required.

■ **Standard / Thin Wall, I.D. E7 O.D. r6**

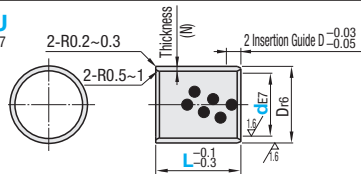


RoHS 10

MPBR
(Standard I.D. E7 O.D. r6)



MPBRU
(Thin Wall I.D. E7 O.D. r6)



Ⓢ Recommended Mating Shafts for I.D. E7 O.D. r6 Type
 Ⓢ Press fitting is recommended to affix bushings.

d8: General Use (High-Load)
 e7: General Use (Light Load)

f8: High Precision Use
 g6: High Precision Use (Intermittent Operation)

Ⓜ Material: High Tensile Brass Alloy Solid Lubricant Embedded

Part Number	Type	dE7	L										MPBR		MPBRU		
			d	L8	L10	L12	L15	L16	L20	L25	L30	L40	L50	D r6 (*1)	Thickness (N)	D r6 (*1)	Thickness (N)
5		+0.032	8	10	(12)	(15)								9		7	
6		+0.020	8	10	12	15	16	(20)						10	2	8	1
8		+0.040	8	10	12	15	16	(20)						12		10	
10		+0.025	(8)	10	12	15	16	(20)	(25)					14		12	
12		+0.050	(10)	12	15	16	20	(25)						18		18	1.5
15		+0.032		12	15	16	20	(25)						21	3	20	
16				12	15	16	20	25	(30)	(40)				22		20	
20		+0.061		15	16	20	25	30	(40)	(50)				28		24	2
25		+0.040		16	20	25	30	(40)	(50)					33	4	29	
30				16	20	25	30	(40)	(50)					38		34	

Ⓢ Tolerance H7 (*2) to D dimensions (*1) is recommended for housing diameter.

■ **Copper Alloy Bushings: I.D. Variations after Press-Fitted (Reference)**
 Inner Diameter after press-fit is almost equal to I.D. F7 O.D. m6 Type. (See below for I.D. Variations after press-fitted)
 Housing Diameter Tolerance: H7

Type	I.D. E7 O.D. r6	I.D. F7 O.D. m6
Standard	99.84%	99.95%
Thin Wall	99.83%	99.94%

Ⓢ Data above are obtained by test, not guaranteed.

Part Number	Type	Unit Price									
		d	L8	L10	L12	L15	L16	L20	L25	L30	L40
5		-	-	-	-	-	-	-	-	-	-
6		-	-	-	-	-	-	-	-	-	-
8		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-

Part Number	Type	Unit Price									
		d	L8	L10	L12	L15	L16	L20	L25	L30	
5		-	-	-	-	-	-	-	-	-	
6		-	-	-	-	-	-	-	-	-	
8		-	-	-	-	-	-	-	-	-	
10		-	-	-	-	-	-	-	-	-	
12		-	-	-	-	-	-	-	-	-	
15		-	-	-	-	-	-	-	-	-	
16		-	-	-	-	-	-	-	-	-	
20		-	-	-	-	-	-	-	-	-	
25		-	-	-	-	-	-	-	-	-	
30		-	-	-	-	-	-	-	-	-	

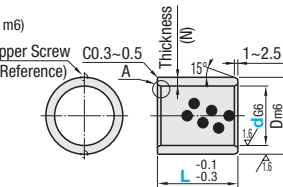
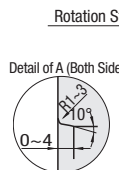
■ **Features:** More precise linear and rotary motion compared to I.D. F7 O.D. m6 (MPBZ, MPBZU) and I.D. E7 O.D. r6 (MPBR, MPBRU) can be achieved by keeping the clearance between bushings and g6 shafts small.

■ **Standard / Thin Wall, I.D. G6 O.D. m6**

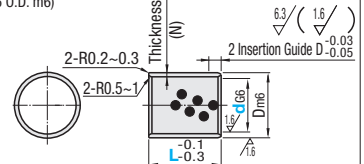


RoHS 10

MPBP
(Standard I.D. G6 O.D. m6)



MPBPU
(Thin Wall I.D. G6 O.D. m6)



■ **How to use MPBP, MPBPU**
 Ⓢ Use of Rotation Stopper Screws is recommended to affix bushings.
 Ⓢ Recommended Mating Shaft for I.D. G6 Type, g6: High Precision Use

Ⓜ Material: High Tensile Brass Alloy Solid Lubricant Embedded

Part Number	Type	dG6	L										MPBP		MPBPU		
			d	L8	L10	L12	L15	L16	L20	L25	L30	L40	D m6 (*1)	Thickness (N)	D m6 (*1)	Thickness (N)	
5		+0.012	8	10	12	(15)								9		7	
6		+0.004	8	10	12	15	16							10	2	8	1
8		+0.014	10	12	15	16	20							12		10	
10		+0.005	10	12	15	16	20	25						14		12	
12			12	15	16	20	25							18		15	1.5
13		+0.017	12	15	16	20	25							19		16	
15		+0.006	12	15	16	20	25							21	3	18	
16			12	15	16	20	25							22		20	
20		+0.020	15	16	20	25	30							28		24	2
25		+0.007	16	20	25	30	40							33	4	29	
30			16	20	25	30	40							38		34	

Ⓢ Tolerance G7 (*2) to D dimensions (*1) for housing diameter

* Indicated dimensions of Rotation Stopper Screws are recommended dimensions.

D	MPBP O.D. m6 (*1)	MPBPU Housing Dia. G7 (*2)
11~18	+0.018 +0.007	+0.024 +0.006
19~30	+0.021 +0.008	+0.028 +0.007
31~50	+0.025 +0.009	+0.034 +0.009

Part Number	Type	Unit Price									
		d	L8	L10	L12	L15	L16	L20	L25	L30	L40
5		-	-	-	-	-	-	-	-	-	-
6		-	-	-	-	-	-	-	-	-	-
8		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-

Part Number	Type	Unit Price									
		d	L8	L10	L12	L15	L16	L20	L25	L30	L40
5		-	-	-	-	-	-	-	-	-	-
6		-	-	-	-	-	-	-	-	-	-
8		-	-	-	-	-	-	-	-	-	-
10		-	-	-	-	-	-	-	-	-	-
12		-	-	-	-	-	-	-	-	-	-
13		-	-	-	-	-	-	-	-	-	-
15		-	-	-	-	-	-	-	-	-	-
16		-	-	-	-	-	-	-	-	-	-
20		-	-	-	-	-	-	-	-	-	-
25		-	-	-	-	-	-	-	-	-	-
30		-	-	-	-	-	-	-	-	-	-

Ordering Example
 Part Number - L
 MPBR12 - 12
 MPBP20 - 15