

# Oil Free Bushings

Copper Alloy Straight / Thin Wall, I.D. F7 O.D. m6

# Oil Free Bushings

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

■ Features: Suitable for use in limited space.

■ Thin Wall I.D. F7 O.D. m6

**MPBZU** (Thin Wall I.D. F7 O.D. m6)

☑ Recommended Mating Shaft for I.D. F7 Type    d8: General Use (High-Load)    f8: High Precision Use  
 e7: General Use (Light Load)    g6: High Precision Use (Intermittent Operation)

☑ Use of Rotation Stopper Screws is recommended to affix bushings.

☑ Material: High Tensile Brass Alloy Solid Lubricant Embedded

**RoHS**

Part Number Type	dF7	L										Dm6	Thickness (N)	Housing Dia. (Recommended Dimension)		Rotation Stopper Screw (Reference)	
		8	10	12	15	16	20	25	30	40	50			Ref. Dim.	Tolerance (H7)		
MPBZU	5	+0.022	8	10	12							7	1	7	+0.015	0	M4x8
	6	+0.010	8	10	12	15	16					8					
	8	+0.028	8	10	12	15	16	20				10					
	10	+0.013	8	10	12	15	16	20	25			12					
	12		10	12	15	16	20	25				15					
	13		10	12	15	16	20	25				16					
	15	+0.034	10	12	15	16	20	25	30			18					
	16	+0.016	10	12	15	16	20	25	30			20					
	18		12	15	16	20	25	30				22					
	20		15	16	20	25	30	40				24					
25	+0.041	15	16	20	25	30	40				29						
30	+0.020	15	16	20	25	30	40				34						
35		20	25	30	40						40						
40	+0.050	20	25	30	40	50					45						
50	+0.025	30	40	50							55						

Part Number Type	d	Unit Price									
		L8	L10	L12	L15	L16	L20	L25	L30	L40	L50
5											
6											
8											
10											
12											
13											
15											
16											
18											
20											
25											
30											
35											
40											
50											

■ O.D. Dimension Comparison Table

d	Dimension Variation		Thin Wall MPBZU		Standard Type MPBZ	
	O.D. Dm6	Thickness (N)	O.D. Dm6	Thickness (N)	O.D. Dm6	Thickness (N)
5	-2	-1	7		9	
6	-2	-1	8		10	
8	-2	-1	10		12	
10	-2	-1	12		14	
12	-3	-1.5	15		18	
13	-3	-1.5	16		19	
15	-3	-1.5	18		21	
16	-2	-1	20		22	
18	-2	-1	22		24	
20	-4	-2	24		28	
25	-4	-2	29		33	
30	-4	-2	34		38	
35	-4	-2	40		44	4.5
40	-5	-2.5	45		50	5
50	-7	-3.5	55		62	6

Ordering Example: Part Number - L  
 MPBZU16 - 20

■ 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

**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    d8: General Use (High-Load)    f8: High Precision Use  
 e7: General Use (Light Load)    g6: High Precision Use (Intermittent Operation)

☑ Press fitting is recommended to affix bushings.

☑ Material: High Tensile Brass Alloy Solid Lubricant Embedded

**RoHS**

Part Number Type	dE7	L										Dm6	Thickness (N)	Housing Dia. (Recommended Dimension)		Rotation Stopper Screw (Reference)	
		8	10	12	15	16	20	25	30	40	50			Ref. Dim.	Tolerance (H7)		
MPBR	5	+0.032	8	10	12	15	16	20				9	2	10	7	8	1
	6	+0.020	8	10	12	15	16	20				10					
	8	+0.040	8	10	12	15	16	20				12					
	10	+0.025	8	10	12	15	16	20	25			14					
	12		10	12	15	16	20	25				18					
	13		10	12	15	16	20	25				18					
	15	+0.050	12	15	16	20	25	30	40			21					
	16	+0.032	12	15	16	20	25	30	40			22					
	20		15	16	20	25	30	40	50			28					
	25	+0.061	16	20	25	30	40	50				33					
30	+0.040	16	20	25	30	40	50				38						

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

Part Number Type	d	Unit Price									
		L8	L10	L12	L15	L16	L20	L25	L30	L40	L50
5											
6											
8											
10											
12											
13											
15											
16											
20											
25											
30											

Part Number Type	d	Unit Price									
		L8	L10	L12	L15	L16	L20	L25	L30	L40	L50
5											
6											
8											
10											
12											
13											
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

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

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

☑ Recommended Mating Shaft for I.D. G6 Type, g6: High Precision Use

☑ Use of Rotation Stopper Screws is recommended to affix bushings.

☑ Material: High Tensile Brass Alloy Solid Lubricant Embedded

**RoHS**

Part Number Type	dG6	L										Dm6	Thickness (N)	Housing Dia. (Recommended Dimension)		Rotation Stopper Screw (Reference)	
		8	10	12	15	16	20	25	30	40	50			Ref. Dim.	Tolerance (H7)		
MPBP	5	+0.012	8	10	12	15	16	20				9	2	10	7	8	1
	6	+0.004	8	10	12	15	16	20				10					
	8	+0.014	8	10	12	15	16	20				12					
	10	+0.005	8	10	12	15	16	20	25			14					
	12		10	12	15	16	20	25				18					
	13	+0.017	12	15	16	20	25	30	40			19					
	15	+0.006	12	15	16	20	25	30	40			21					
	16		12	15	16	20	25	30	40			22					
	20	+0.020	15	16	20	25	30	40	50			28					
	25	+0.007	16	20	25	30	40	50				33					
30		16	20	25	30	40	50				38						

D	MPBP O.D. m6 (*1)		MPBPU Housing Dia. G7 (*2)	
	+0.015	+0.006	+0.020	+0.005
7~10				
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	d	Unit Price									
		L8	L10	L12	L15	L16	L20	L25	L30	L40	L50
5											
6											
8											
10											
12											
13											
15											
16											
20											
25											
30											

Part Number Type	d	Unit Price									
		L8	L10	L12	L15	L16	L20	L25	L30	L40	L50
5											
6											
8											
10											
12											
13											
15											
16											
20											
25											
30											

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