

Oil Free Bushings

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

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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)

Ⓜ Material: High Tensile Brass Alloy Solid Lubricant Embedded

Ⓢ 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.

RoHS 10

Part Number		Unit Price										Dm6	Thickness (N)	Housing Dia. (Recommended Dimension)		Rotation Stopper Screw (Reference)
Type	dF7	L8	L10	L12	L15	L16	L20	L25	L30	L40	L50			Ref. Dim.	Tolerance (H7)	
MPBZU	5	+0.022	8	10	12							7		7	M4x8	
	6	+0.010	8	10	12	15	16					8	+0.015	8		
	8	+0.028	8	10	12	15	16	20					10	0		
	10	+0.013	8	10	12	15	16	20	25				12			
	12	+0.034	10	12	15	16	20	25					15	+0.018		
	13		10	12	15	16	20	25				16	0			
	15		10	12	15	16	20	25	30				18			
	16		10	12	15	16	20	25	30				20			
	18	+0.016	12	15	16	20	25	30				22		M5x8		
	20	+0.041	15	16	20	25	30	40				24	+0.021			
25	15		16	20	25	30	40				29	0				
30	+0.020	15	16	20	25	30	40				34					
35	+0.050	20	25	30	40							40	+0.025	M6x16		
40		20	25	30	40	50				45	0					
50	+0.025	30	40	50							55	+0.030	M8x16			
		+0.011										0				

■ 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)

Ⓜ Material: High Tensile Brass Alloy Solid Lubricant Embedded

Ⓢ 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.

RoHS 10

Part Number		Unit Price										D	O.D. r6 (*1)	Housing Dia. H7 (*2)
Type	dE7	L8	L10	L12	L15	L16	L20	L25	L30	L40	L50			
MPBR	5	+0.032	8	10	12	15	16					9		7
	6	+0.020	8	10	12	15	16	20					10	+0.019
	8	+0.040	8	10	12	15	16	20					12	0
	10	+0.025	8	10	12	15	16	20	25				14	+0.023
	12	+0.050	10	12	15	16	20	25					18	+0.028
	15		10	12	15	16	20	25				21	0	
	16		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	+0.025	2
	30	+0.040	16	20	25	30	40	50				38	0	

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

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

Ⓜ Material: High Tensile Brass Alloy Solid Lubricant Embedded

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

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

RoHS 10

Part Number		Unit Price										D	O.D. m6 (*1)	Housing Dia. G7 (*2)
Type	dG6	L8	L10	L12	L15	L16	L20	L25	L30	L40				
MPBP	5	+0.012	8	10	12	15	16					9		+0.020
	6	+0.004	8	10	12	15	16	20					10	+0.006
	8	+0.014	8	10	12	15	16	20					12	+0.018
	10	+0.005	8	10	12	15	16	20	25				14	+0.007
	12	+0.017	10	12	15	16	20	25					18	+0.021
	13		12	15	16	20	25				19	+0.008		
	15		12	15	16	20	25				21	+0.008		
	16		12	15	16	20	25				22	+0.007		
	20	+0.020	15	16	20	25	30				28	+0.025	2	
	25	+0.007	16	20	25	30	40				33	+0.009		
30		16	20	25	30	40				38				

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

* Indicated dimensions of Rotation Stopper Screws are recommended dimensions.

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

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