

# 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)

Ⓜ 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.

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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		M4x8		
	6	+0.010	8	10	12	15	16					8	+0.015 0			
	8	+0.028	8	10	12	15	16	20				10				
	10	+0.013	8	10	12	15	16	20	25			12				
	12	+0.034 +0.016	10	12	15	16	20	25				15	+0.018 0			
	13		10	12	15	16	20	25				16				
	15	+0.034 +0.016	10	12	15	16	20	25	30			18				
	16		10	12	15	16	20	25	30			20				
	18	+0.041 +0.020	12	15	16	20	25	30				22	+0.021 0		M5x8	
	20		15	16	20	25	30	40				24				
25	+0.041 +0.020	15	16	20	25	30	40				29					
30		15	16	20	25	30	40				34					
35	+0.050 +0.025	20	25	30	40						40	+0.025 0	M6x16			
40		20	25	30	40	50					45					
50	+0.050 +0.025	30	40	50							55	+0.030 +0.011	M8x16			
		30	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

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														

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.

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

Part Number		Unit Price										Part Number		Unit Price									
Type	dE7	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

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Part Number		Unit Price										Dm6	Thickness (N)	Rotation Stopper Screw (Reference)	Dm6	Thickness (N)	D	MPBP O.D. m6 (*1)	MPBPU Housing Dia. G7 (*2)
Type	dG6	L8	L10	L12	L15	L16	L20	L25	L30	L40	Ref. Dim.								
MPBP	5	+0.012	8	10	12	(15)						9		M4x8	7	+0.015	+0.020		
	6	+0.004	8	10	12	15	16					10			8	+0.006	+0.005		
	8	+0.014	10	12	15	16	20					12			10	+0.018	+0.024		
	10	+0.005	10	12	15	16	20	25				14			12	+0.007	+0.006		
	12	+0.017 +0.006	12	15	16	20	25					18			15	+0.021	+0.028		
	13		12	15	16	20	25					19			16	+0.008	+0.007		
	15	+0.020 +0.007	12	15	16	20	25					21			18	+0.025	+0.034		
	16		12	15	16	20	25					22			20	+0.009	+0.009		
	20	+0.020 +0.007	15	16	20	25	30					28			24				
	25		16	20	25	30	40					33			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.

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