

# Oil-Free Bushings (Bronze / Build-In Copper Alloy)

Standard Flanged (Bronze) / with Threaded Housing (Built-In Copper Alloy)

**Oil-Free Bushings – Standard Flanged**

RoHS10

**Round Flange**  
**SHTZ**

d=6-12

**Compact Flange**  
**SHTNZ**

d=6-12

d=16-30

Recommended Mating: Shaft f8 or g6

Material: Special Bronze Castings  
Allowable Temperature: -40~150°C  
Accessories: Hex Socket Low Head Cap Screws 2-4 pcs.

Ensure the bushing remains well lubricated.

Part Number		L		D <sub>h7</sub>	H	T	t	d1	d2	P.C.D.	F	A	Accessories Hex Socket Low Head Cap Screw		
Type	dF7														
SHTZ SHTNZ	6	+0.022 +0.010	15	10	0 -0.015	25				17		17	M3-10 x 2		
	8	+0.028	20 25	12	0	27	4	2.2	3.5	6	19	19			
	10	+0.013	25 30	14	0	29					21	21			
	12	+0.034	25 30	18	-0.018	36					26	26		M4-12 x 2	
	16	+0.016	25 30 35 40	22	0	40	5	3	4.5	7.5	30	18		24	M4-12 x 4
	20		30 35 40 50	28	-0.021	49	6	3.7	5.5	9	38	22		31	M5-16 x 4
	25	+0.041 +0.020	30 35 40 50 60	33	0	54					43	25		35	
30		35 40 50 60 70	38	-0.025	63	8	4.2	6.6	11	50	30	40	M6-20 x 4		

**Part Number Example**

Part Number - L

SHTZ16 - 25

SHTNZ16 - 40

Type	d	Available Types					
		L15	L20	L25	L30	L35	L40
SHTZ	6	•	•	•	•	•	•
	8	•	•	•	•	•	•
	10	•	•	•	•	•	•
	12	•	•	•	•	•	•
	16	•	•	•	•	•	•
	20	•	•	•	•	•	•
	25	•	•	•	•	•	•
30	•	•	•	•	•	•	

Type	d	Available Types					
		L15	L20	L25	L30	L35	L40
SHTNZ	6	•	•	•	•	•	•
	8	•	•	•	•	•	•
	10	•	•	•	•	•	•
	12	•	•	•	•	•	•
	16	•	•	•	•	•	•
	20	•	•	•	•	•	•
	25	•	•	•	•	•	•
30	•	•	•	•	•	•	

**Oil-Free Bushings – with Threaded Housing**

RoHS10

Case	Type	Housing		Tightening Nut		Bushings
		Material	Surface Treatment	Material	Surface Treatment	
Single	MPNT	1018 Carbon Steel or equivalent	Electroless Nickel Plating	1045 Carbon Steel or equivalent	Electroless Nickel Plating	High Tensile Brass Alloy Solid Lubricant Embedded (Graphite)
Double	MPNTW					

**Single**

**Double**

Recommended Mating Shafts f8 or g6

Part Number	Type	d	D	L		L <sub>1</sub>	T	H	B	M	m	(e)
				Single	Double							
Single MPNT	6	14	22	37	5	5	20	17	14 x 1.5	8	19.6	
	8	18	27	47	5	5	25	21	18 x 1.5	11	24.3	
	10	20	32	57	5	6	30	24	20 x 1.5	12	27.7	
	12	22	32	57	10	6	32	27	22 x 1.5	13	31.2	
	13	24	32	57	10	6	35	30	24 x 1.5	14	34.6	
	16	27	37	67	10	6	40	32	27 x 1.5	16	37.0	
	20	33	42	77	10	8	45	38	33 x 1.5	20	43.9	
Double MPNTW	25	40	58	108	10	8	55	46	40 x 1.5	25	53.1	
	30	48	68	128	10	10	65	55	48 x 1.5	29	63.5	

Dimensions of Special Nuts		
M	m	Special Nut B (e)
14	8	17
18	11	21
20	12	24
22	13	27
24	14	30
27	16	32
33	20	38
40	25	46
48	29	55

**Part Number Example**

Part Number

MPNT6

MPNTW16

# Standard Flanged Oil-Free Bushings (Build-In Copper Alloy)

Compact

**Standard Flanged Oil-Free Bushings – Compact**

RoHS10

Housing Type	Type			Seal	Housing		Bushings
	Round Flange	Square Flange	Compact		Material	Surface Treatment	
Single	MFMS	MFMS-S	MFNS	No Seal	1018 Carbon Steel or equivalent	Electroless Nickel Plating	High Tensile Brass Alloy Solid Lubricant Embedded (Graphite)
	MFMS-C	MFMS-S	MFNS-S	With Non-Contact Seals			
Double	MFMS	MFMS-S	MFNS	No Seal	1018 Carbon Steel or equivalent	Electroless Nickel Plating	High Tensile Brass Alloy Solid Lubricant Embedded (Graphite)
	MFMS-C	MFMS-S	MFNS-S	With Non-Contact Seals			

**Single**

**Double**

**Round Flange**

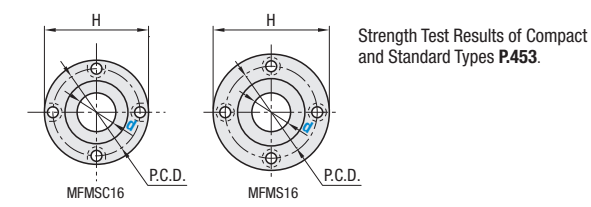
**Square Flange**

**Compact**

Perpendicularity of flange bottom plane to surface D is 0.02 or less.

Part Number		d	Tolerance	D	Tolerance	L		L <sub>1</sub>	H	T	d1	ℓ1	t	t1	P.C.D.	W	F	A		
Type	Seal					Single	Double													
Single	No Seal	6	+0.022 0	12	0 -0.018	22	37	5	25	5	3.5	6	3.1	1.5	20	20	—	20		
		With Non-Contact Seals	8	+0.028	15		27		47	28	5					2.0	23	22	—	23
			10	0	18						35	6	4.5	7.5	4.1	2.0	28	27	—	28
	Double	No Seal	12	+0.034 0	20	0	32	57	10	37					2.0	30	29	—	30	
			13		21						38					2.0	31	29	—	31
		With Non-Contact Seals	16		26	-0.021	37	67		43						2.0	36	33	19	30
			20	+0.041 0	30		42	77		50	8	5.5	9	5.1		2.5	47	42	27	38
25		36	0	58	108	56	10	6.6	11	6.1		3.0	55	49	30	46				
30		42	-0.025	68	128	65														

## Flange Diameter Comparison



## Comparison of Flange Diameter (H Dimension) & P.C.D. of MFMS & MFMS-C

d	H			P.C.D.		
	MFMS	MFMS-C	Reduced Value	MFMS	MFMS-C	Reduced Value
6	28	25	-3	20	20	0
8	32	28	-4	24	23	-1
10	40	35	-5	29	28	-1
12	42	37	-5	32	30	-2
13	43	38	-5	33	31	-2
16	48	43	-5	38	36	-2
20	54	50	-4	43	41	-2
25	62	56	-6	51	47	-4
30	74	65	-9	60	55	-5

## Features of Compact Type

- Thinning the outer cylinder and cutting out mounting holes from the flange have made the flange diameter compact.
- This compact type is up to 5 mm smaller in P.C.D. and up to 9 mm smaller in flange diameter than the Standard Type shown on next page.
- Best suited for limited space.

**Part Number Example**

Part Number

MFMS6

MFMS-C-S25