

# Oil Free Bushings / Thrust Washers

## Multi-Layer LF Bushings - Straight / Flanged

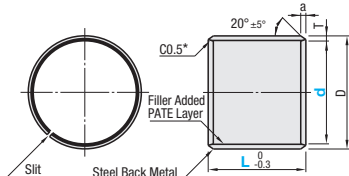
■ **Features:** Thin wall and compact. **🔗The bulk-purchase is a better deal.**

■ **Straight / Flanged**

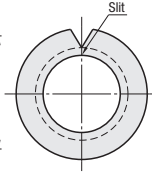


RoHS 10

MDZB (Straight)



MDZF (Flanged)



O.D. Chamfers

When T=1.0, a0.5  
When T=1.5, a0.8  
When T=2.0, a1.0  
When T=2.5, a1.0

🔗 **Applicable to linear and rotary motion.**

🔗 Press fitting is recommended to affix bushings.

\*1) Bushings with I.D.  $d < 10$  are only de-burred lightly instead of full chamfering.  
2) Chamfering is C0.3 when the I.D. is  $d \geq 10$  and the plate thickness is 1.0.

Material: Filler Added PTFE Layer  
Sintered Bronze Layer  
Steel-backed Metal Layer (SPCC: Tin Plating)  
Allowable Temperature: -195 ~ 280°C

🔗 There may be some color variations.

Part Number Type	d	L													MDZB		MDZF			* Shaft Diameter Ref. Dim. Tolerance	D	* Housing Dia. H7	I.D. Tolerance after press fit (Reference Value)						
		3	4	5	6	8	10	12	15	20	25	30	35	40	50	D	Tolerance	T	Tolerance					D	H	T, T1	Tolerance		
Straight Type MDZB	3																5	+0.047			4.6	7	0.8	3	-0.025	3-6	+0.012	+0.062	
	4																6	+0.017			5.6	9		4	-0.025	7-10	+0.015	+0.065	
	5																7	+0.055			7	10		5	-0.037	11-18	+0.018	+0.068	
	6																8	+0.025			8	12		6	-0.025	19-20	+0.021	+0.071	
	8																10	+0.060	1.0	0	-0.025	10	15		8	-0.025	21-30	0	+0.081
	10																12	+0.030			12	18		10	-0.040	31-50	+0.025	+0.085	
	12																14	+0.080			14	20		12	-0.025	51-80	+0.030	+0.110	
	13																15	+0.065			15	21		13	-0.025		0	0	
	15																17	+0.035			17	23		15	-0.043		0	0	
	16																18	+0.075			18	24		16					
	18																20	+0.045			20	26		18					
	20																22	+0.080			22	31		20					
	22																25	+0.045	1.5	0	-0.030	25	33	1.5	22	-0.025			
	25																28	+0.085			28	36		25	-0.046				
	30																34	+0.090	2.0	0	-0.030	34	42		30	-0.025			
35																39	+0.095			39	49	2.0	35	-0.050					
40																44	+0.055			44	54		40	-0.050					
50																55	+0.105	2.5	0	-0.040	55	65	2.5	50	-0.040				

\* Housing diameters and shaft diameters listed here are recommended dimensions. 🔗 MDZB is a rolled bushing with a slit. Indicated values of D tolerance are reference after press fitted into ring gage ( $\pm 0.002$ ).

Part Number Type	d	Unit Price														
		L3	L4	L5	L6	L8	L10	L12	L15	L20	L25	L30	L35	L40	L50	L60
MDZB	3															
MDZB	4															
MDZB	5															
MDZB	6															
MDZB	8															
MDZB	10															
MDZB	12															
MDZB	13															
MDZB	15															
MDZB	16															
MDZB	18															
MDZB	20															
MDZB	22															
MDZB	25															
MDZB	30															
MDZB	35															
MDZB	40															
MDZB	50															

Part Number Type	d	Unit Price												
		L3	L4	L5	L6	L8	L10	L12	L15	L20	L25	L30	L40	
MDZF	3													
MDZF	4													
MDZF	5													
MDZF	6													
MDZF	8													
MDZF	10													
MDZF	12													
MDZF	13													
MDZF	15													
MDZF	16													
MDZF	18													
MDZF	20													
MDZF	22													
MDZF	25													
MDZF	30													
MDZF	35													
MDZF	40													
MDZF	50													

🔗 Housing Units with built-in MDZB are also available. 🔗 P.399, 400

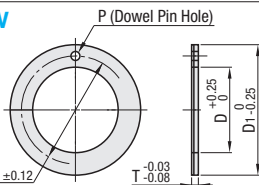
■ **Features:** Thin wall and compact. Supports a thrust load. **🔗The bulk-purchase is a better deal.**

■ **Thrust Washer**



RoHS 10

MDZW



Material: Filler Added PTFE Layer  
Sintered Bronze Layer  
Steel-backed Metal Layer (SPCC: Tin Plating)  
Allowable Temperature: -195 ~ 280°C

Part Number Type	No.	T	D	D1	Mounting Hole		Bushing I.D.	Unit Price
					P	Tolerance P.C.D.		
MDZW	6	1.5	8	16	1.0	+0.30	12	6
	8		10	+0.10		14	8	
	10		12	18		10		
	12		14	24		15	20	12
	14		16	30		2.0	23	13
	16	18	32	2.0	25	15, 16		
	18	20	36	3.0	+0.375 +0.125	28	18	
	20	22	38			30	20	
	22	24	42			33	22	
	25	28	48			38	25	
	30	32	54			43	30	
	35	38	62	4.0		50	35	
	40	42	66			54	40	
	50	52	78			65	50	

🔗 There may be some color variations.



Ordering Example  
Part Number - L  
MDZB8 - 5  
MDZF12 - 15  
MDZW6