Oil Free Bushings / Oil Free Bushing Housing Units - Blocks

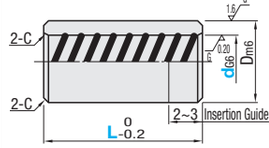
Casting　　Built-in Cast Bushings

Features: Optimal for use in medium load and low speed applications.

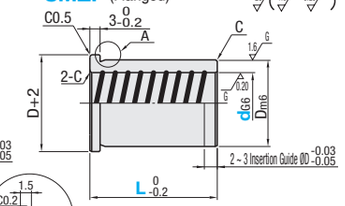
Straight / Flanged

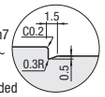
RoHS10

SMZ (Straight)



SMZF (Flanged)



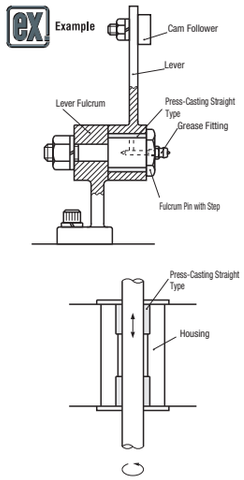


Detail of A

- Recommended Mating Shaft Tolerance: e7 or h7
- Recommended Housing I.D. Tolerance: +0.05 ~ +0.02
- Loctite (thread locking adhesive) is recommended to affix bushings.

M Material　EN-JL 1040 Equiv.
Special Solid Lubricant

Example



Part Number Type	dG6		L	Dm6		C	SMZ Unit Price 1 ~ 9 pc(s).	SMZ Volume Discount Rate 10 ~ 50 pcs.	SMZF Unit Price 1 ~ 9 pc(s).	SMZF Volume Discount Rate 10 ~ 20 pcs.
Straight SMZ / Flanged SMZF	6	+0.014 +0.005	*6 8 10 12	10	+0.018 +0.007	0.3				
	8		8 10 12 15	12						
	10		10 12 15 20	16						
	12	+0.017 +0.006	10 12 15 20 25	18						
	15		15 20 25 30	22	+0.021 +0.008					
	16		15 20 25 30	23						
	20	+0.020 +0.007	20 25 30 40	28		0.5				
	25		25 30 40 50	32	+0.025 +0.009					
	30		30 40 50 60	38						

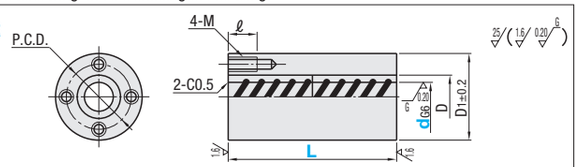
*marked L dimension is available for SMZ only.　For orders larger than indicated quantity, please request a quotation.

Features: Reduces the time of manufacturing and assembling the housing.

Housing Units

RoHS10

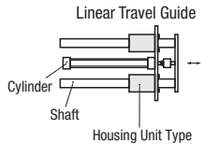
MHSR



M Material: EN 1.0038 Equiv.
S Surface Treatment: Chrome Plating
SMZ

Recommended Mating Shaft Tolerance: e7 or h7

Example



Part Number Type	d	L (1 Bushing) Short	L (2 Bushings) Long	D	D1	Mxℓ	P.C.D.	Mass (g) Short	Mass (g) Long	Short Unit Price 1 ~ 9 pc(s).	Short Volume Discount Rate 10 ~ 20 pcs.	Long Unit Price 1 ~ 9 pc(s).	Long Volume Discount Rate 10 ~ 20 pcs.
MHSR	8	15	30	12	30	4x8	21	77	154				
	10	20	40	16	34		25	130	260				
	12	25	40	18	36		27	177	284				
	15	30	50	22	42	5x10	32	284	474				
	20	40	60	28	48		38	469	939				
	25	50	80	32	52		42	641	1025				
	30	60	100	38	60	6x12	49	999	1665				

For orders larger than indicated quantity, please request a quotation.

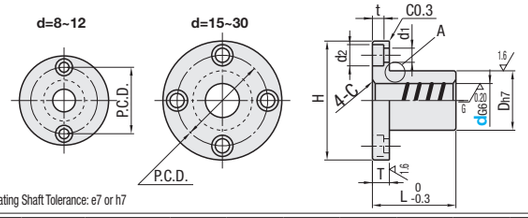
Ordering Example　Part Number - L
SMZ12 - 20
MHSR15 - 50

Features: Flange Integrated Oil Free Bushings can reduce the time of assembling.

Flanged

RoHS10

SMZH



Detail of A

25 (1.6 0.20 6)

Recommended Mating Shaft Tolerance: e7 or h7

M Material: EN-JL 1040 Equiv.
Special Solid Lubricant

Part Number Type	dG6	Tolerance	Dh7	Tolerance	L	H	T	d1	d2	t	P.C.D.	Mass (g)	Unit Price 1 ~ 9 pc(s).	Volume Discount Rate 10 ~ 20 pcs.
SMZH	8	+0.014 +0.005	15	0 -0.013	20	32	5	3.5	6	3.1	24	45		
	10		19	0 -0.016	25	40	6	4.5	7.5	4.1	29	85		
	12	+0.017 +0.006	21		30	42					32	103		
	15		28		40	48					38	180		
	20	+0.020 +0.007	32	0 -0.019	50	54	8	5.5	9	5.1	43	280		
	25		40		60	62					51	270		
	30		45		70	74	10	6.6	11	6.1	60	670		

For orders larger than indicated quantity, please request a quotation.

Ordering Example　Part Number
SMZH10

Oil Free Bushings / Thrust Washers

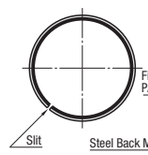
Multi-Layer LF Bushings - Straight / Flanged

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

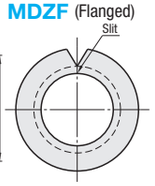
Straight / Flanged

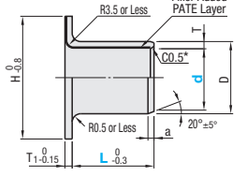
RoHS10

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≥10 and the plate thickness is 1.0.

M Material: Filler Added PTFE Layer
Sintered Bronze Layer
Steel-backed Metal Layer (EN 1.0330 Equiv.: Tin Plating)
Allowable Temperature: -195 ~ 280°C

There may be some color variations.

Part Number Type	d	L	D	Tolerance	T	Tolerance	D	H	T, T1	Tolerance	* Shaft Diameter Ref. Dim.	Tolerance
Straight Type MDZB Flanged MDZF	3	3 (4) 5 (6)	5	+0.047 +0.017	1.0	0 -0.025	4.6	7	0.8	0 -0.025	3	-0.025 -0.034
	4	(3) 4 (5) 6 (8)	6				5.6	9			4	-0.025 -0.037
	5	(3) 4 5 6 (8)	7	+0.055 +0.025			7	10	1.0		5	
	6	(3) (4) 5 6 8 (10) (12)	8				8	12			6	
	8	(5) 6 8 10 12 (15)	10				10	15			8	-0.025 -0.040
	10	6 8 10 12 15 (20)	12	+0.060 +0.030			12	18			10	
	12	6 8 10 12 15 (20)	14				14	20			12	
	13	(8) 10 (12) 15 (20)	15				15	21			13	
	15	(8) 10 12 15 20 (25)	17	+0.085 +0.035			17	23			15	-0.025 -0.043
	16	10 (12) 15 20 (25)	18	+0.070 +0.035			18	24			16	
	18	10 12 15 20 (25) (30)	20	+0.075 +0.040			20	26			18	
	20	10 12 15 20 25 (30)	23	+0.080			23	31			20	
	22	10 12 15 20 (25) (30)	25	+0.045	1.5		25	33	1.5		22	-0.025 -0.046
	25	10 12 15 20 25 (30) (35)	28	+0.085 +0.050		0 -0.030	28	36		0 -0.030	25	
	30	12 15 20 25 30 (35) (40) (50)	34	+0.090 +0.050			34	42			30	
	35	12* 20 25 30 (35) 40 (50)	39	+0.095	2.0		39	49	2.0		35	-0.025 -0.050
	40	12 (15) 20 25 30 (35) 40 (50)	44	+0.055			44	54			40	
	50	20 (25) 30 (35) 40 (50) (60)	55	+0.105 +0.060	2.5	0 -0.040	55	65	2.5	0 -0.040	50	

L dimensions in ( ) are available for MDZB only.
L dimensions marked with * are available for MDZF only.

* 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 gauge (±0.002).

D	* Housing Dia. H7	I.D. Tolerance after press fit (Reference Value)
3~6	+0.012 0	+0.062 0
7~10	+0.015 0	+0.065 0
11~18	+0.018 0	+0.068 0
19~20	+0.021 0	+0.071 0
21~30		+0.081 0
31~50	+0.025 0	+0.085 0
51~80	+0.030 0	+0.110 0

I.D. Tolerance is a value after press fit, not a guaranteed value but a reference value.

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

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

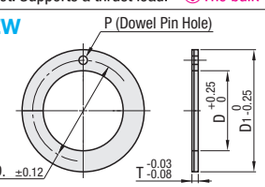
Housing Units with built-in MDZB are also available. P.399, 400

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

Thrust Washer

RoHS10

MDZW



M Material: Filler Added PTFE Layer
Sintered Bronze Layer
Steel-backed Metal Layer (EN 1.0330 Equiv.: Tin Plating)
Allowable Temperature: -195~280°C

There may be some color variations.

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

Part Number Type	No.	T	D	D1	Mounting Hole P	Mounting Hole Tolerance	Mounting Hole P.C.D.	Bushing I.D.	Unit Price
MDZW	6	1.5	8	16	1.0	+0.30 +0.10	12	6	
	8		10	18			14	8	
	10		12	24	1.5	+0.375 +0.125	18	10	
	12		14	26	2.0		20	12	
	14		16	30			23	13	
	16		18	32			25	15,16	
	18		20	36	3.0		28	18	
	20		22	38			30	20	
	22		24	42			33	22	
	25		28	48	4.0		38	25	
	30		32	54			43	30	
	35		38	62			50	35	
	40		42	66			54	40	
	50	2.0	52	78			65	50	