

Oil Free Bushing Housing Units - Blocks - Standard -

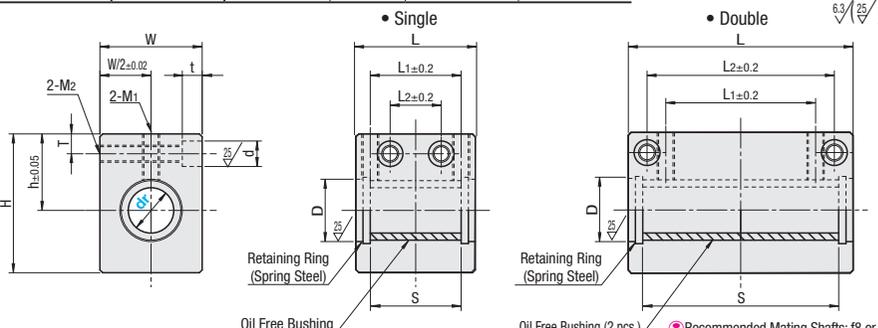
Built-In Copper Alloy Bushings - Tall Blocks / Wide Blocks

Features: Best suitable for horizontal use. Reduces the time of manufacturing and assembling the housing. Compact in width (W Dimension) compared to Wide Blocks Type.

Tall Blocks Standard Type



Type	Seal	Housing		Bushing
		M Material	S Surface Treatment	M Material
Single	No Seal	Aluminum Alloy	Clear Anodize	High Tensile Brass Alloy, Solid Lubricant Embedded
	With Non-Contact Seals			
Double	No Seal	Aluminum Alloy	Clear Anodize	High Tensile Brass Alloy, Solid Lubricant Embedded
	With Non-Contact Seals			



• Single • Double

Retaining Ring (Spring Steel)

Oil Free Bushing

Oil Free Bushing (2 pcs.)

Recommended Mating Shafts: f8 or g6

RoHS

With Non-Contact Seals
Teflon seal of 0.3mm thick is attached on the inner side of each retaining ring.

Part Number	Type	dr	Tolerance	h	W	H	D	L		L1		L2		S		T	M1	M2	dxt	Unit Price				
								Single	Double	Single	Double	Single	Double	Single	Double					MHUTS	MHUTS-S	MHUTW	MHUTW-S	
Single MHUTS (No Seal)	16	+0.034	0	27	36	49	22.2	42	78	32	52	18	65	29.8	59.6	7	M6	M6	9x7	(For M5 Screws)				
MHUTS-S (With Non-Contact Seals)	20			31	42	54	26	48	85	36	58	18	70	34.8	69.6	8	M8	M8	11x8	(For M6 Screws)				
Double MHUTW (No Seal)	25	+0.041	0	37	52	65	32	56	120	42	80	22	100	49.8	99.6	9	M10	M10	14x10	(For M8 Screws)				
MHUTW-S (With Non-Contact Seals)	30			40	58	71	37	68	128	44	90	22	110	59.8	119.6	9	M10	M10	14x10					

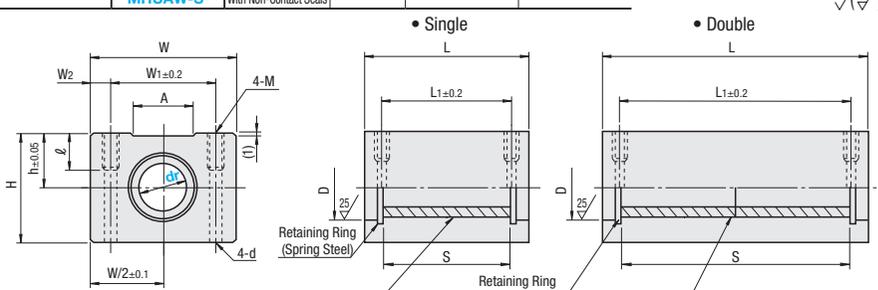
For Features of Non-Contact Seal Type, refer to P.393.

Features: Best suitable for horizontal use. Reduces the time of manufacturing and assembling the housing. Sufficient clamping strength can be obtained with 4 Mounting Holes.

Wide Blocks Standard Type



Type	Seal	Housing		Bushing
		M Material	S Surface Treatment	M Material
Single	No Seal	Aluminum Alloy	Clear Anodize	High Tensile Brass Alloy, Solid Lubricant Embedded
	With Non-Contact Seals			
Double	No Seal	Aluminum Alloy	Clear Anodize	High Tensile Brass Alloy, Solid Lubricant Embedded
	With Non-Contact Seals			



• Single • Double

Retaining Ring (Spring Steel)

Oil Free Bushing

Oil Free Bushings (2 pcs.)

Recommended Mating Shafts: f8 or g6

RoHS

With Non-Contact Seals
Teflon seal of 0.3mm thick is attached on the inner side of each retaining ring.

Part Number	Type	dr	Tolerance	h	W	H	D	L		L1		S		W1	W2	M	d	ℓ	A	Unit Price			
								Single	Double	Single	Double	Single	Double							MHUAS	MHUAS-S	MHUAW	MHUAW-S
Single MHUAS (No Seal)	16	+0.034	0	19	54	42	22.2	42	68	34	60	29.8	59.6	36	9	M5	4.3	12	26				
MHUAS-S (With Non-Contact Seals)	20			21	54	42	26	48	78	40	70	34.8	69.6	40	7	M6	5.2	12	26				
Double MHUAW (No Seal)	25	+0.041	0	26	78	60	32	62	110	50	100	49.8	99.6	54	12	M8	7	18	38				
MHUAW-S (With Non-Contact Seals)	30			30	78	60	37	70	128	58	110	59.8	119.6	58	10	M8	7	18	38				

For Features of Non-Contact Seal Type, refer to P.393.

Ordering Example
Part Number
MHUTS16
MHUAS20

Oil Free Bushing Housing Units - Blocks - Compact -

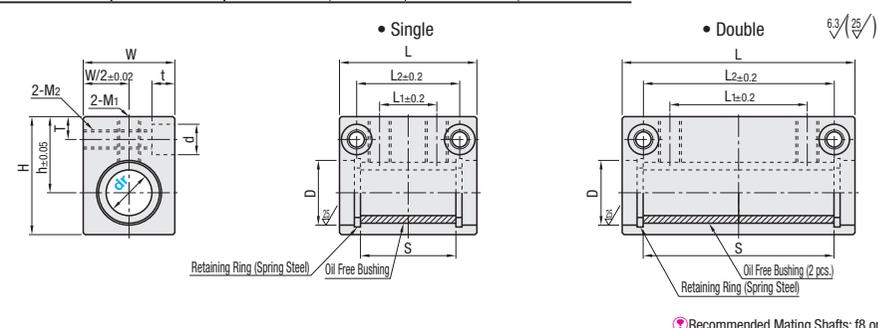
Built-In Copper Alloy Bushings - Tall Blocks / Wide Blocks

Features: Best suitable for horizontal use. Reduces the time of manufacturing and assembling the housing. More compact housing compared to Housing Unit Standard Type.

Tall Blocks Compact Type



Type	Seal	Housing		Bushing
		M Material	S Surface Treatment	M Material
Single	No Seal	Aluminum Alloy	Clear Anodize	High Tensile Brass Alloy, Solid Lubricant Embedded
	With Non-Contact Seals			
Double	No Seal	Aluminum Alloy	Clear Anodize	High Tensile Brass Alloy, Solid Lubricant Embedded
	With Non-Contact Seals			



• Single • Double

Retaining Ring (Spring Steel)

Oil Free Bushing

Oil Free Bushing (2 pcs.)

Recommended Mating Shafts: f8 or g6

RoHS

With Non-Contact Seals
Teflon seal of 0.3mm thick is attached on the inner side of each retaining ring.

Part Number	Type	dr	Tolerance	h	W	H	D	L		L1		L2		S		T	M1	M2	dxt	Unit Price				
								Single	Double	Single	Double	Single	Double	Single	Double					MHCTS	MHCTS-S	MHCTW	MHCTW-S	
Single MHCTS (No Seal)	10	+0.028	0	17	20	26	15	37	62	13	36	25	50	24.8	49.6	5	M6	M5	8x6	(For M4 Screws)				
MHCTS-S (With Non-Contact Seals)	12			18	22	28	17	37	62	14	36	26	50	24.8	49.6	5	M6	M5	8x6					
Double MHCTW (No Seal)	16	+0.034	0	21	28	35	22.2	42	78	15	52	28	65	29.8	59.6	5.5	M6	M6	9x7	(For M5 Screws)				
MHCTW-S (With Non-Contact Seals)	20			24	34	40	26	48	85	21	58	34	70	34.8	69.6	5.5	M6	M6	9x7					
Double MHCTW (No Seal)	25	+0.041	0	30	42	50	32	56	120	25	80	42	100	49.8	99.6	8	M8	M8	11x8	(For M6 Screws)				
MHCTW-S (With Non-Contact Seals)	30			33	48	57	37	68	128	37	90	54	110	59.8	119.6	8	M8	M8	11x8					

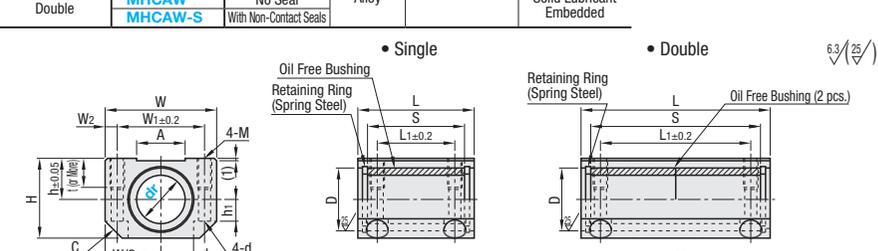
For Features of Non-Contact Seal Type, refer to P.393.

Features: Best suitable for horizontal use. Reduces the time of manufacturing and assembling the housing. More compact housing compared to Housing Unit Wide Blocks Standard Type.

Wide Blocks Compact Type



Type	Seal	Housing		Bushing
		M Material	S Surface Treatment	M Material
Single	No Seal	Aluminum Alloy	Clear Anodize	High Tensile Brass Alloy, Solid Lubricant Embedded
	With Non-Contact Seals			
Double	No Seal	Aluminum Alloy	Clear Anodize	High Tensile Brass Alloy, Solid Lubricant Embedded
	With Non-Contact Seals			



• Single • Double

Retaining Ring (Spring Steel)

Oil Free Bushing

Oil Free Bushing (2 pcs.)

Recommended Mating Shafts: f8 or g6

RoHS

With Non-Contact Seals
Teflon seal of 0.3mm thick is attached on the inner side of each retaining ring.

Part Number	Type	dr	Tolerance	h	W	H	D	L		L1		S		W1	W2	M	d	d1	t	h1	A	C	Unit Price			
								Single	Double	Single	Double	Single	Double										MHCAS	MHCAS-S	MHCAW	MHCAW-S
Single MHCAS (No Seal)	10	+0.028	0	10	30	19	15	32	56	22	46	24.8	49.6	22	4					4	15	5				
MHCAS-S (With Non-Contact Seals)	12			11	34	21	17	34	58	24	48	24	49.6	24		M5	4.3	8		5						
Double MHCAW (No Seal)	16	+0.034	0	14	40	27	22.2	42	68	32	58	29.8	59.6	30	5					7	20	6				
MHCAW-S (With Non-Contact Seals)	20			17	46	33	26	48	78	32	66	34.8	69.6	36		M6	5.1	9		9	7	7				
Double MHCAW (No Seal)	25	+0.041	0	20	54	39	32	62	110	42	92	49.8	99.6	42						11	30	8				
MHCAW-S (With Non-Contact Seals)	30			24	58	47	37	70	128	50	110	59.8	119.6	46		M8	7.0	11		13	10					

For Features of Non-Contact Seal Type, refer to P.393.

Ordering Example
Part Number
MHCTS16
MHCAS20

Oil Free Bushings / Oil Free Bushing Housing Units - Blocks

Casting Built-in Cast Bushings

Oil Free Bushings / Thrust Washers

Multi-Layer LF Bushings - Straight / Flanged

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

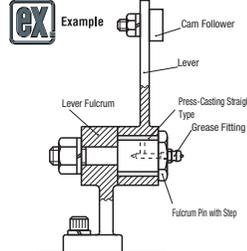
Straight / Flanged

SMZ (Straight)

SMZF (Flanged)

Material: FC250
Special Solid Lubricant

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.



Part Number	Type	d ₆₆	L	D _{m6}	C	SMZ		SMZF	
						Unit Price	Volume Discount Rate	Unit Price	Volume Discount Rate
6	Straight	+0.014	6	10	0.3	1	9	1	9
8	Straight	+0.005	8	12	0.3	1	9	1	9
10	Straight	+0.017	10	15	0.3	1	9	1	9
12	Straight	+0.006	12	20	0.3	1	9	1	9
15	Straight	+0.017	15	25	0.3	1	9	1	9
16	Straight	+0.006	16	30	0.3	1	9	1	9
20	Straight	+0.020	20	40	0.3	1	9	1	9
25	Straight	+0.007	25	50	0.3	1	9	1	9
30	Straight	+0.007	30	60	0.3	1	9	1	9

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

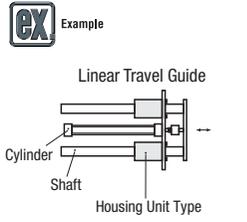
Features: Reduces the time of manufacturing and assembling the housing.

Housing Units

MHSR

Material: SS400
Surface Treatment: Chrome Plating
SMZ

Recommended Mating Shaft Tolerance: e7 or h7



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

Ordering Example: Part Number - L. Example: SMZ12 - 20, MHSR15 - 50. For orders larger than indicated quantity, please request a quotation.

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

Flanged

SMZH

Material: FC250
Special Solid Lubricant

Recommended Mating Shaft Tolerance: e7 or h7

Part Number	Type	d ₆₆	Tolerance	D _{h7}	Tolerance	L	H	T	d ₁	d ₂	t	P.C.D.	Mass (g)	Unit Price	
														Unit Price	Volume Discount Rate
8	SMZH	8	+0.014	15	-0.013	20	32	5	3.5	6	3.1	24	45	1	9
10	SMZH	10	+0.005	19	0	25	40	5	3.5	6	2.9	29	85	1	9
12	SMZH	12	+0.017	21	0	30	42	6	4.5	7.5	4.1	32	103	1	9
15	SMZH	15	+0.006	28	-0.016	40	48	6	4.5	7.5	4.1	38	180	1	9
20	SMZH	20	+0.020	32	0	50	54	8	5.5	9	5.1	43	280	1	9
25	SMZH	25	+0.007	40	-0.019	60	62	8	5.5	9	5.1	51	270	1	9
30	SMZH	30	+0.007	45	-0.019	70	74	10	6.6	11	6.1	60	670	1	9

Ordering Example: Part Number - L. Example: SMZH10. For orders larger than indicated quantity, please request a quotation.

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

Straight / Flanged

MDZB (Straight)

MDZF (Flanged)

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

Applicable to linear and rotary motion. Press fitting is recommended to affix bushings. Bushings with I.D. d<10 are only de-burred lightly instead of full chamfering. Chamfering is C0.3 when the I.D. is d>10 and the plate thickness is 1.0.

Part Number	Type	d	L												MDZB		MDZF			* Shaft Diameter		* Housing Dia. H7			I.D. Tolerance after press fit (Reference Value)
			Tolerance																						
3	Straight Type	3	3	4	5	6	5	+0.047	4.6	7	0.8	3	-0.022	3-6	+0.012	+0.062	0								
4	MDZB	4	3	4	5	6	6	+0.017	5.6	9	0	4	-0.025	7-10	+0.015	+0.065	0								
5	MDZB	5	3	4	5	6	7	+0.055	7	10	0	5	-0.037	11-18	+0.018	+0.068	0								
6	MDZB	6	3	4	5	6	8	+0.025	8	12	0	6	-0.040	19-20	+0.021	+0.071	0								
8	MDZB	8	5	6	8	10	10	+0.060	10	15	1.0	8	-0.025	21-30	0	+0.081	0								
10	MDZB	10	6	8	10	12	12	+0.030	12	18	0	10	-0.040	31-50	+0.025	+0.085	0								
12	MDZB	12	6	8	10	12	15	+0.030	14	20	0	12	-0.040	51-80	+0.030	+0.110	0								
13	MDZB	13	8	10	12	15	20	15	15	21	0	13	-0.025												
15	MDZB	15	8	10	12	15	20	17	17	23	0	15	-0.043												
16	MDZB	16	10	12	15	20	25	18	18	24	0	16	-0.046												
18	MDZB	18	10	12	15	20	25	20	20	26	0	18	-0.050												
20	MDZB	20	10	12	15	20	25	23	23	31	0	20	-0.050												
22	MDZB	22	10	12	15	20	25	25	25	33	1.5	22	-0.025												
25	MDZB	25	10	12	15	20	25	28	28	36	0	25	-0.046												
30	MDZB	30	12	15	20	25	30	34	34	42	0	30	-0.050												
35	MDZB	35	12	15	20	25	30	39	39	49	2.0	35	-0.025												
40	MDZB	40	12	15	20	25	30	44	44	54	0	40	-0.050												
50	MDZB	50	20	25	30	35	40	55	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 gauge (±0.002).

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

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	P.C.D.		
6	MDZW	6	1.5	8	16	1.0	+0.30	12	6
8	MDZW	8	1.5	10	18	1.5	+0.10	14	8
10	MDZW	10	1.5	12	24	2.0		18	10
12	MDZW	12	1.5	14	26	2.0		20	12
14	MDZW	14	1.5	16	30	2.0		23	13
16	MDZW	16	1.5	18	32	2.0		25	15, 16
18	MDZW	18	1.5	20	36	2.0		28	18
20	MDZW	20	1.5	22	38	3.0	+0.375	30	20
22	MDZW	22	1.5	24	42	3.0	+0.125	33	22
25	MDZW	25	1.5	28	48	3.0		38	25
30	MDZW	30	1.5	32	54	4.0		43	30
35	MDZW	35	1.5	38	62	4.0		50	35
40	MDZW	40	1.5	42	66	4.0		54	40
50	MDZW	50	1.5	52	78	4.0		65	50

Ordering Example: Part Number - L. Example: MDZB8 - 5, MDZF12 - 15, MDZW6. There may be some color variations.

Oil Free Bushings / Oil Free Bushing Housing Units - Standard Flanged

High Precision Built-In Multi-Layer LF Bushings

■ Features: More precise linear and rotary motion compared to Multi-Layer LF Bushings - Straight (MDZB) can be achieved by keeping the clearance between bushings and g6 shafts small.

High Precision

BFLB

Fluor resin Layer

Ⓜ Material: Base Material: A2017
Sliding Material: Fluororesin
* Base and sliding materials are bonded.
Allowable Temperature: -50~140°C

Ⓟ Applicable to linear and rotary motion.
Ⓡ Loctite (thread locking adhesive) is recommended to affix bushings.

Part Number Type	d	L					D	Tolerance	T	Unit Price		
		5	6	8	10	12				L5-8	L10-15	L20-25
BFLB	4	5	6			7	0 -0.015	1.5				
	5	5	6	8		8						
	6	5	6	8	10	12			9			
	8	6	8	10	12	15			11			
	10	6	8	10	12	15			13			
	12	10	12	15	20				15			
	16	15	20	25					19			

Ordering Example: Part Number BFLB10 - L 10

■ Features: Suitable for vertical use. Reduces the time of manufacturing and assembling the housing.

Flanged

MDRA (Round Flange, Single) **MDRAW** (Round Flange, Double)

MDSA (Square Flange, Single) **MDSAW** (Square Flange, Double)

MDCA (Compact Flange, Single) **MDCAW** (Compact Flange, Double)

Bushing: MDZB (P398)
Seals: NBR (O-Ring)

* Housing Relief When D≤28, D -0.1 to -0.3; When D≥32, D -0.3 to -0.5

Ⓜ Material: Aluminum Alloy (Housing)
Ⓡ Surface Treatment: Clear Anodize

Part Number Type	d	Tolerance	D	Tolerance	L		L1	S		H	T	d1	d2	t	P.C.D.	K	F	A	Unit Price			
					Single	Double		Single	Double										MDRA	MDRAW	MDSA	MDSAW
MDRA MDRAW (Round Flange)	6	+0.065	12	0	19	32	5	13	26	28	5	3.5	6	3.1	20	22	20					
	8	0	15	-0.013	24	38		18	32	32								24	25			
MDSA MDSAW (Square Flange)	10	+0.068	19	0	29	50	10	21	42	40	6	4.5	7.5	4.1	32	32	32					
	12	0	21	-0.016	30	51		21.6	42.6	42								29	30			
MDCA MDCAW (Compact Flange)	20	+0.081	32	0	42	73	10	31.6	62.6	54	8	5.5	9	5.1	43	42	24	36				
	25	0	40	-0.019	59	103		48.6	92.6	62									51	50		
30	+0.085	45		64	115	51.6	102.6	74	10	6.6	11	6.1	60	58	35	49						

Ⓟ Flanged Height-Adjusting Spacers are selectable from P330.

Ordering Example: Part Number MDRA10

Oil Free Bushing Housing Units - Blocks

Built-In Multi-Layer LF Bushings - Tall Blocks / Tall Blocks Compact / Wide Blocks

■ Features: Best suitable for horizontal use. Reduces the time of manufacturing and assembling the housing. Compact in width (W Dimension) compared to Wide Blocks Type.

Tall Blocks Standard Type

MDBA (Single with Seal) **MDBAW** (Double with Seal)

Bushing: MDZB(P398)
Seals: NBR (O-Ring)

Ⓜ Material: Aluminum Alloy (Housing)
Ⓡ Surface Treatment: Clear Anodize

Part Number Type	d	Tolerance	h	W	H	D	Single				Double				ℓ	M1	M2	d1xt	Unit Price	
							L	L1	L2	S	L	L1	L2	S					MDBA	MDBAW
MDBA MDBAW	6	+0.065	14	16	22	8.1	27	18	9	21	-	-	-	-	5	M4	M4	6x5 (for M3 Screws)		
	8	0	16	20	26	10.1	32	20	10	26	-	-	-	-						
	10	+0.068	19	26	32	12.2	39	27	15	31	62	36	50	54	6	M5	M5	8x6 (for M4 Screws)		
	12	0	20	28	34	14.3	40	27	15	32	62	36	50	54						
	16	+0.081	27	36	49	18.3	47	32	18	37	78	52	65	68	7	M6	M6	9x7 (for M5 Screws)		
	20	0	31	42	54	23.4	52	36	18	42	85	58	70	75	8	M8	M8	11x8 (for M6 Screws)		
	25	0	37	52	65	28.4	69	42	22	59	120	80	100	110	9	M10	M10	14x10 (for M8 Screws)		
	30	+0.085	40	58	71	34.4	74	44	22	62	128	90	110	116						

■ Features: Best suitable for horizontal use. Reduces the time of manufacturing and assembling the housing. More compact housing compared to Housing Unit - Tall Blocks - Standard Type.

Tall Blocks Compact Type

MDBAC

Bushing: MDZB (P398)
Seals: NBR (O-Ring)

Ⓜ Material: Aluminum Alloy (Housing)
Ⓡ Surface Treatment: Clear Anodize

Part Number Type	d	Tolerance	h	W	H	D	L	L1	L2	S	ℓ	M1	M2	d1xt	Unit Price
12	0	18	22	28	14.3	40	26	14	32	5					
16	+0.081	21	28	35	18.3	47	28	15	37	5.5	M8	M8	11x8 (for M6 Screws)		
20	0	24	34	40	23.4	52	34	21	42	5.5					
25	0	30	42	50	28.4	69	42	25	59	8					
30	+0.085	33	48	57	34.4	74	54	37	62	8					

■ Features: Best suitable for horizontal use. Reduces the time of manufacturing and assembling the housing. Sufficient clamping strength can be obtained with 4 Mounting Holes.

Wide Blocks Standard Type

MDWBA

Bushing: MDZB (P398)
Seals: NBR (O-Ring)

Ⓜ Material: Aluminum Alloy (Housing)
Ⓡ Surface Treatment: Clear Anodize

Part Number Type	d	Tolerance	h	W	H	D	L	L1	S	W1	W2	M	d1	ℓ	A	Unit Price
8	0	11	34	20	10.1	32	18	26	24	5	M4	3.4	8	10		
10	+0.068	13	44	30	12.2	39	21	31	28	8	M5	4.3	12	20		
12	0	15	44	30	14.3	40	26	32	30.5	6.75	M5	4.3	12	20		
16	+0.081	19	54	42	18.3	47	34	37	36	9	M5	4.3	12	26		
20	0	21	54	42	23.4	52	40	42	40	7	M6	5.2	12	26		
25	0	26	78	60	28.4	67	50	59	54	12	M8	7	18	38		
30	+0.085	30	78	60	34.4	74	58	62	58	10	M8	7	18	38		

Ordering Example: Part Number MDBA10, MDBAC12, MDWBA16

Oil Free Bushings

Polyacetal Resin / PTFE Resin

■ Features: Conforms to Food Sanitation Law. The bulk-purchase is a better deal.

■ Straight / Flanged (Polyacetal Resin)

RoHS

JZB (Straight)

JZF (Flanged)

* When L≤10, tolerance $\begin{matrix} 0 \\ -0.3 \end{matrix}$
When L>12, tolerance $\begin{matrix} 0 \\ -0.5 \end{matrix}$
* Press fitting is recommended to affix bushings.

Material: Polyacetal Resin
Lubricating Oil and Special Filler Added Allowable Temperature: -40 ~ 80°C

Part Number Type	d (Tolerance after press fitting)	L										D	F	T	Chamfer			*1 Housing Dia.		*1 Shaft Diameter	
		3	4	5	6	8	10	12	15	20	25				a	b	c	Ref. Dim.	Tolerance (H7)	Ref. Dim.	Tolerance (H7)
Straight JZB	3	+0.095										5	+0.107			1*	0.3	5	+0.012	3	-0.012
	4	+0.095	3	4	5							6	+0.032			1*	0.3	6	0	4	0
	5	+0.045	3	4	5	6						7	+0.045			1*	0.3	7	+0.015	5	0
	6		(3)	4	5	6	8					8	+0.157			1*	0.3	8	0	6	-0.012
	8			5	6	8	10					10	+0.045			1*	0.3	10	0	8	0
	10			6	8	10	12	15				12				1*	0.3	12	+0.018	10	-0.015
	12	+0.120		8	10	12	15	20				14	+0.193			1*	0.3	14	0	12	0
	15	+0.060		10	12	15	20	25				17	+0.058			1*	0.3	17	0	15	0
	16			10	12	15	20	25				18				1*	0.3	18	0	16	-0.018
	Flanged JZF	18		12	15	20	25	30				20	+0.221			1	0.4	20	0	18	0
20		+0.145		(12)	15	20	25	30			23	+0.071			1	0.4	23	+0.021	20	0	
22		+0.075			20	25	30				25	+0.231			1.5	0.5	25	0	22	0	
25		+0.170			20	25	30				28	+0.081			0	0	28	0	25	-0.021	
30		+0.090			20	25	30	40			34	+0.290			0	0	34	0	30	0	
35		+0.215			25	30	40				39	+0.095			2	0.15	39	+0.025	35	0	
40		+0.115			30	40	50				44	+0.349			0	0	44	0	40	0	
50		+0.235			30	40	50				55	+0.395			2.5	0.5	55	+0.030	50	-0.025	

* When selecting 3-3, 3-4, 4-3, 4-4, 4-6, 5-3, 5-4, 6-4 and 6-5 of Straight Type, a=0.5. d tolerance is the value after press fitting into ring gauge of d±0.002. *1 Housing diameters and shaft diameters listed here are recommended dimensions. * marked L dimension is applicable to JZB only. L dimension in () is applicable to JZF only. I.D. Tolerance is guaranteed value after press fit.

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

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

■ Features: Conforms to Food Sanitation Law and excels in chemical resistance.

■ Straight / Flanged (PTFE)

RoHS

TFZB (Straight)

TFZF (Flanged)

* L Dimension Tolerance: 8$\leq L$-0.2 (TFZB, TFZF) 10$\leq L$-0.25 (TFZF)
* Press fitting is recommended to affix bushings.

Material: PTFE Resin
Lubricating Oil and Special Filler Added Allowable Temperature: -200 ~ 200°C

Part Number Type	d (Tolerance before press fitting)	L										D	F	T	Chamfer a	* Housing Dia.		* Shaft Diameter			
		3	4	5	6	8	10	12	15	20	25					Ref. Dim.	Tolerance (H7)	Ref. Dim.	Tolerance (g6)		
Straight TFZB	3	+0.179										6	+0.090			9	1.5	6	+0.012	3	-0.004
	4	+0.129	3	4	5							7	+0.040			11	1.5	7	+0.015	4	-0.012
	5		3	4	5	8						8				11	1.5	8	+0.015	5	-0.012
	6		3	4	5	8	10					9				11	1.5	9	+0.015	6	-0.012
	8		3	4	5	8	10	12	15			12				11	1.5	12	+0.015	8	-0.005
Flanged TFZF	10		8	10	12	15					14	+0.100			2	0.5	14	+0.018	10	-0.014	
	12		8	10	12	15	20				16	+0.050			2	0.5	16	0	12	-0.006	
	16		10	12	15	20					22				3	0.5	22	+0.021	16	-0.017	
	20		12	15	20	25	30				26				3	0.5	26	0	20	-0.017	
	20		15	20	25	30					26				3	0.5	26	0	20	-0.017	

* Dimension tolerance is measured at +25°C. d tolerance is the value before press fitting into housing. * Housing diameters and shaft diameters listed here are recommended dimensions.

Part Number Type	d	L3	L4	L5	L6	L8	L10	L12	L15	L20	L25	L30
TFZB	3	-	-	-	-	-	-	-	-	-	-	-
TFZB	4	-	-	-	-	-	-	-	-	-	-	-
TFZB	5	-	-	-	-	-	-	-	-	-	-	-
TFZB	6	-	-	-	-	-	-	-	-	-	-	-
TFZB	8	-	-	-	-	-	-	-	-	-	-	-
TFZB	10	-	-	-	-	-	-	-	-	-	-	-
TFZB	12	-	-	-	-	-	-	-	-	-	-	-
TFZB	16	-	-	-	-	-	-	-	-	-	-	-
TFZB	20	-	-	-	-	-	-	-	-	-	-	-

Part Number Type	d	L3	L4	L5	L6	L8	L10	L12	L15	L20	L25	L30
TFZF	3	-	-	-	-	-	-	-	-	-	-	-
TFZF	4	-	-	-	-	-	-	-	-	-	-	-
TFZF	5	-	-	-	-	-	-	-	-	-	-	-
TFZF	6	-	-	-	-	-	-	-	-	-	-	-
TFZF	8	-	-	-	-	-	-	-	-	-	-	-
TFZF	10	-	-	-	-	-	-	-	-	-	-	-
TFZF	12	-	-	-	-	-	-	-	-	-	-	-
TFZF	16	-	-	-	-	-	-	-	-	-	-	-
TFZF	20	-	-	-	-	-	-	-	-	-	-	-

Ordering Example: Part Number - L
JZB10 - 12
TFZF12 - 15

Oil Free Resin Washers / Oil Free Bushing Housing Units - Flanged / Housing Units - Blocks

■ Features: Supports a thrust load. The bulk-purchase is a better deal.

■ Oil Free Resin Washers

RoHS

JZW

Material: Polyacetal Resin Lubricant and Special Filler Added Allowable Temperature: -40 ~ 80°C

Part Number Type	No.	T	d	D	Unit Price
JZW	8	1.5	8.5	17	
JZW	10		10.5	24	
JZW	12		12.5	28	
JZW	17		17	30	
JZW	21		21	37	
JZW	23		23	39	

■ Features: Suitable for vertical use. Reduces the time of manufacturing and assembling the housing.

■ Oil Free Bushing Housing Units - Flanged

RoHS

Type	Housing		Bushing	
	Round Flange	Compact Flange	Material	Surface Treatment
JFMA	JFRA	Aluminum Alloy	Clear Anodize	Polyacetal Resin

Part Number Type	d	Tolerance	Dh7	Tolerance	L	L1	S	H	T	d1	d2	t	P.C.D.	F	A	Unit Price	
																JFMA	JFRA
JFMA JFRA	6	+0.095 +0.045	12	0	19	5	13	28	5	3.5	6	3.1	20		20		
	8		15	-0.018	24	5	18	32	5	3.5	6	3.1	24		24		
	10	+0.120	19	0	29	10	21	40	6	4.5	7.5	4.1	29		29		
	12	+0.060	21	0	30	10	21.6	42	6	4.5	7.5	4.1	32		32		
	16		28	-0.021	37	10	26.6	48	6	4.5	7.5	4.1	38	22	31		

Flanged Height-Adjusting Spacers are selectable from P. 330.

■ Features: Best suitable for horizontal use. Reduces the time of manufacturing and assembling the housing.

■ Oil Free Bushing Housing Units - Blocks

RoHS