

Flange Integrated Oil Free Bushings

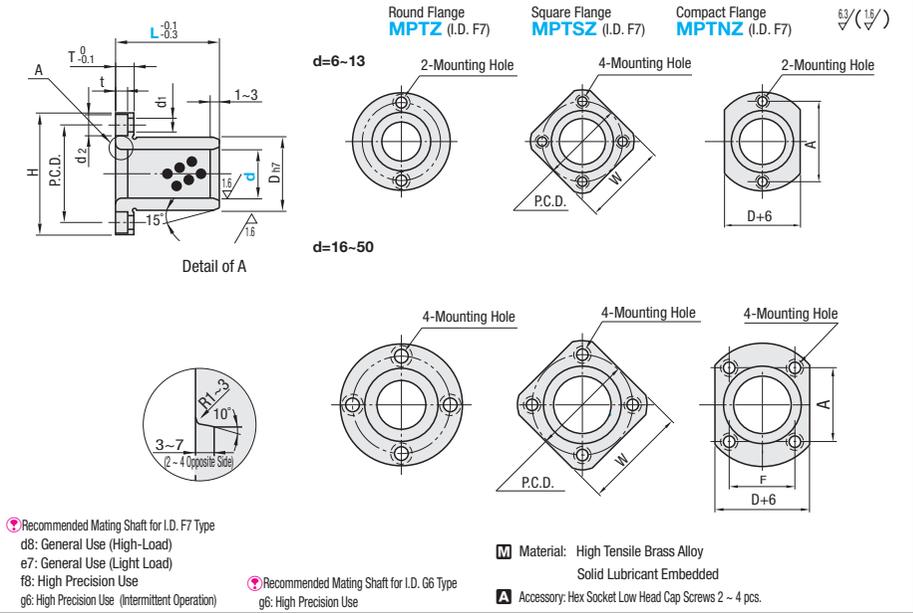
Copper Alloy, Standard Flanged, I.D. F7

Flange Integrated Oil Free Bushings / Oil Free Copper Alloy Washers

Copper Alloy, Pilot Flanged / Center Flanged Flat Head Screw / Low Head Cap Screw

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

Standard Flanged, I.D. F7



Part Number Type	dF7	L										Dh7	H	T	t	d1	d2	P.C.D.	W	F	A	Accessory: Hex Socket Low Head Cap Screw				
		6	8	10	12	13	16	20	25	30	35												40	45	50	60
I.D. F7 MPTZ MPTSZ MPTNZ	6	+0.022 +0.010	15	20									10	0 -0.015	25							17	20		17	M3-10x2
	8	+0.028 +0.013	20	25									12	0	27	4	2.2	3.5	6			19	22		19	(4)
	10		20	25	30								14	0 -0.018	29							21	23		21	
	12		20	25	30								18		36							26	28		26	M4-12x2
	13	+0.034 +0.016	20	25	30	35							19		37	5	3	4.5	7.5			27	29		27	(4)
	16		20	25	30	35	40						22	0 -0.021	40							30	31	18	24	M4-12x4
	20		25	30	35	40	50						28		49	6	3.7	5.5	9			38	38	22	31	M5-16x4
	25	+0.041 +0.020	30	35	40	50	60						33	0	54							43	42	25	35	
	30		35	40	50	60	70						38	0 -0.025	63	8	4.2	6.6	11			50	50	30	40	M6-20x4
	35		50	60	70								44		69							56	54	36	43	
40	+0.050 +0.025	60	70	80								50		82	10	5.2	9	14			66	64	38	54	M8-25x4	
50		70	80	100								62	0 -0.030	94							78	73	50	60		

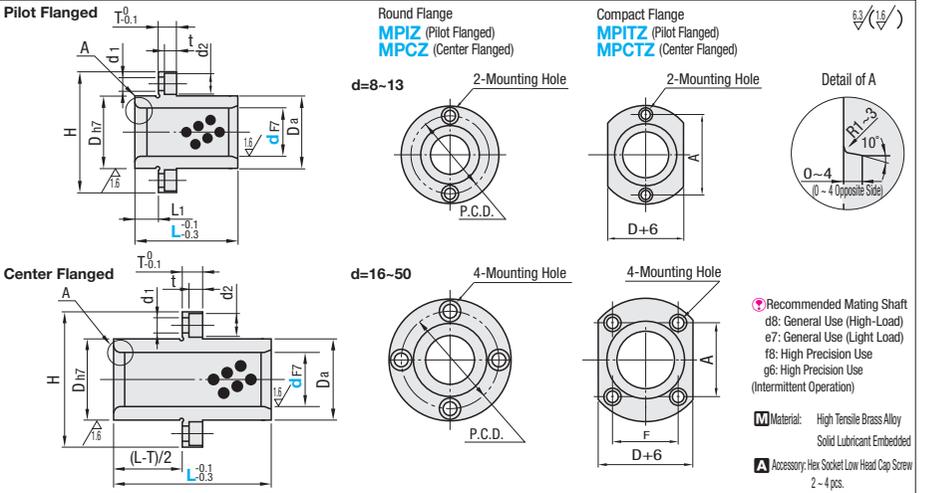
* Values in () are the number of screws included in MPTSZ.

Part Number Type	d-L	Unit Price														
		MPTZ	MPTSZ	MPTNZ												
MPTZ MPTSZ MPTNZ	6-15				13-25				20-40				30-70			
	20				30				50				35-50			
	8-20				35				70				60			
	25				16-20				35				70			
	10-20				25				40				40-60			
	25				30				50				70			
	30				35				60				80			
	12-20				40				30-35				50-70			
	25				20-25				40				80			
	30				30				50				100			
13-20				35				60								

Ordering Example: Part Number - L
 MPTZ12 - 30

■ **Features:** Flange Integrated Oil Free Bushings can reduce the time of assembling. Pilot Flanged: Oil Free Bushings do not project from bushing mounting position. Saves space on the opposite side. Center Flanged: Workpiece located near the center of the bushing provides balanced load and clearance on both sides of the flange.

Pilot Flanged / Center Flanged

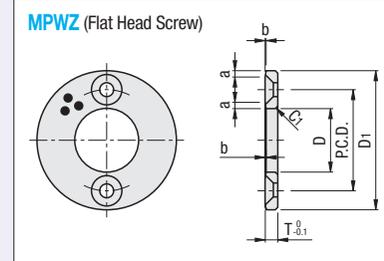
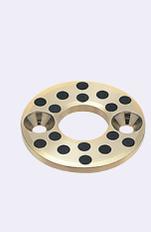


Part Number Type	dF7	L										Dh7	Da	L1	H	T	t	d1	d2	P.C.D.	F	A	Accessory: Hex Socket Low Head Cap Screw		
		8	10	12	13	16	20	25	30	35	40													45	50
Pilot Flanged MPIZ MPITZ	8	+0.028 +0.013	20	(25)									12	0	11.5	5	27	4	2.2	3.5	6	19		19	M3-10x2
	10		25	30								14	-0.018	13.5		29					21		21		
	12		25	30								18		17.5	6	36					26		26	M4-12x2	
	13	+0.034 +0.016	(25)	(30)	35							19		18.5		37	5	3	4.5	7.5	27		27		
	16		25	30	35	40						22	0 -0.021	21.5		40					30	18	24	M4-12x4	
	20		30	35	40	50						28		27.5	8	49	6	3.7	5.5	9	38	22	31	M5-16x4	
Center Flanged MPCZ MPCTZ	25	+0.041 +0.020	(30)	(35)	(40)	(50)	60				33	0	32.5		54					43	25	35	M5-16x4		
	30		(35)	(40)	(50)	(60)	70				38	-0.025	37.5	10	63	8	4.2	6.6	11	50	30	40	M6-20x4		

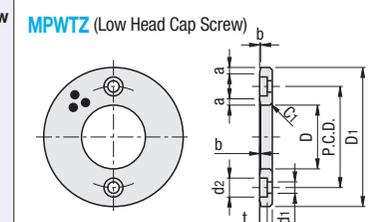
d-L	Unit Price				d-L	Unit Price				d-L	Unit Price			
	MPIZ	MPITZ	MPCZ	MPCTZ		MPIZ	MPITZ	MPCZ	MPCTZ		MPIZ12	MPITZ16	MPCZ16	MPCTZ16
8-20					16-40					30-50				
25					20-30					60				
10-25					35					70				
30					40									
12-25					50									
30					25-30									
13-25					35									
30					40									
35					50									
16-25					60									
30					30-35									
35					40									

■ **Features:** Supports a thrust load.

Flat Head Screw



Low Head Cap Screw



Part Number Type	No.	T Tolerance	D Tolerance	D1	P.C.D.	Quantity	Mounting Hole			Chamfer	Unit Price			
							MPWZ (Flat Head Screw)	MPWTZ	MPWZ		MPWTZ			
MPWZ MPWTZ	6		6.2	25	15					1.5	0.3			
	8		8.2	28	18									
	10		10.2	30	20									
	12	3(4)	12.2	40	28									
	13		13.2											
	15		15.2											
	16		16.2	50	35	2	M3	3.5	6	2.4				
	18	0	18.2	50	35									
	20	-0.1	20.2											
	25		25.2	55	40									
30	5	30.2	60	45										
35		35.2	70	50										
40	7	40.2	80	60										
50	8	50.3	100	75	4	M6	5.5	9	4	3	0.5			

* For MPWTZ, T dimensions of No.6 - 18 are values in (). * For Hex Socket Low Head Cap Screws, refer to P. 194. * Indicated dimensions of Flat Head Screws are recommended dimensions.

Ordering Example: Part Number - L
 MPWZ18
 MPWTZ15

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)

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	
			L3	L4	L5	L6	L8	L10	L12	L15	L20	L25				L30	L40	L50	a	b	c	Ref. Dim.
3	Straight JZB	+0.095	3	4	5	6	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.012	3	-0.012
4		+0.095	3	4	5	6	8	10	12	15	20	25	30	40	50	6	7	8	5	0	4	0
5		+0.045	3	4	5	6	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.015	5	0
6			(3)	4	5	6	8	10	12	15	20	25	30	40	50	6	7	8	5	0	6	-0.012
8				5	6	8	10	12	15	20	25	30	40	50	6	7	8	5	0	8	0	0
10				6	8	10	12	15	20	25	30	40	50	6	7	8	5	0	10	+0.018	10	-0.015
12		+0.120		8	10	12	15	20	25	30	40	50	6	7	8	5	0	12	0	12	0	0
15		+0.060		10	12	15	20	25	30	40	50	6	7	8	5	0	15	0	15	0	15	0
16				10	12	15	20	25	30	40	50	6	7	8	5	0	16	0	16	0	16	-0.018
18				12	15	20	25	30	40	50	6	7	8	5	0	18	0	18	0	18	0	0
20	Flanged JZF	+0.145	(12)	15	20	25	30	40	50	6	7	8	5	0	20	+0.221	26	23	+0.071	31	0	0
22		+0.075	20	30	40	50	6	7	8	5	0	22	+0.231	33	25	+0.021	20	0	22	0	22	0
25		+0.170	20	25	30	40	50	6	7	8	5	0	25	+0.081	36	28	0	25	0	25	0	0
30		+0.090	20	25	30	40	50	6	7	8	5	0	30	+0.290	42	34	0	30	0	30	0	-0.021
35		+0.215	25	30	40	50	6	7	8	5	0	35	+0.095	49	39	+0.025	35	0	35	0	35	0
40		+0.115	30	40	50	6	7	8	5	0	40	+0.349	54	44	0	40	0	40	0	40	0	0
50			30	40	50	6	7	8	5	0	50	+0.393	65	2.5	55	+0.030	50	0	50	0	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
3	JZB	3	-	-	-	-	-	-	-	-	-	-	-	-	-
4		3	-	-	-	-	-	-	-	-	-	-	-	-	-
5		3	-	-	-	-	-	-	-	-	-	-	-	-	-
6		3	-	-	-	-	-	-	-	-	-	-	-	-	-
8		3	-	-	-	-	-	-	-	-	-	-	-	-	-
10		3	-	-	-	-	-	-	-	-	-	-	-	-	-
12		3	-	-	-	-	-	-	-	-	-	-	-	-	-
15		3	-	-	-	-	-	-	-	-	-	-	-	-	-
16		3	-	-	-	-	-	-	-	-	-	-	-	-	-
18		3	-	-	-	-	-	-	-	-	-	-	-	-	-
20	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
22	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
25	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
30	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
35	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
40	3	-	-	-	-	-	-	-	-	-	-	-	-	-	
50	3	-	-	-	-	-	-	-	-	-	-	-	-	-	

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

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

■ Straight / Flanged (PTFE)

RoHS

TFZB (Straight)

TFZF (Flanged)

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	
			L3	L4	L5	L6	L8	L10	L12	L15	L20	L25					L30	Ref. Dim.	Tolerance (H7)	Ref. Dim.
3	Straight TFZB	+0.179	3	5	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.012	3	-0.004
4		+0.129	3	5	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.072	4	-0.012
5			3	5	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.122	5	-0.004
6			3	5	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.152	6	-0.012
8			3	5	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.181	8	-0.005
10			3	5	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.144	10	-0.014
12			3	5	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.146	12	-0.006
16			3	5	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.126	16	-0.017
20			3	5	8	10	12	15	20	25	30	40	50	6	7	8	5	+0.129	20	-0.022

* 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
3	TFZB	3	-	-	-	-	-	-	-	-	-	-	-
4		3	-	-	-	-	-	-	-	-	-	-	-
5		3	-	-	-	-	-	-	-	-	-	-	-
6		3	-	-	-	-	-	-	-	-	-	-	-
8		3	-	-	-	-	-	-	-	-	-	-	-
10		3	-	-	-	-	-	-	-	-	-	-	-
12		3	-	-	-	-	-	-	-	-	-	-	-
16		3	-	-	-	-	-	-	-	-	-	-	-
20		3	-	-	-	-	-	-	-	-	-	-	-

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

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
8	JZW	8	1.5	8.5	17	
10		10.5	24			
12		12.5	28			
17		17	30			
21		21	37			
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	
	Material	Surface Treatment	Material	
JFMA	Aluminum Alloy	Clear Anodize	Polyacetal Resin	JZB

Oil Free Resin Bushing, Seal NBR(O-Ring), 4-Mounting Hole, 2-Mounting Hole, P.C.D., D+6, F, A, H, L, L1, S, T, d1, d2, t, Relief D-0.3

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	-0.021	30	10	21.6	42	6	4.5	7.5	4.1	32	-	32		
	16			28	0	37	10	26.6	48	6	4.5	7.5	4.1	38	22	31		

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