

Oil Free Bushings

-Guide-

Oil Free Bushing Shapes and Materials Selection List

	Type				Lubrication	Max. Allowable Load		Max. Allowable Speed		Max. Allowable PV Value		Features	Page	
	Type	Standard	Thin Wall	With Oil Groove		N/mm²	kgf/cm²	m/s	m/min	N/mm² · m/s	kgf/cm² · m/min			
Bronze Type	Straight	Standard	Inner Diameter E7	SHBR	Regular	10	102	1.66	100	1.65	1,000	Bushings made of bronze and porous elements soaked in lubricant. Excels in abrasion, heat and corrosion resistance in the oiling condition. Best for high speed and low load. The lubrication frequency can be reduced. 4 types are available: Standard Inner Diameter E7, F7, Flanged, and Flange Integrated.	P.297	
				SHBZ	Regular	10	102	1.66	100	1.65	1,000			
			SHFZ	Unlubricated	10	102	1.66	100	1.65	1,000				
	Flanged	Standard	Inner Diameter E7	SHBZ	Regular	10	102	1.66	100	1.65	1,000		P.298	
				SHFZ	Regular	10	102	1.66	100	1.65	1,000			
			SHTZ	Regular	10	102	1.66	100	1.65	1,000				
	Flange Integrated	Standard	Inner Diameter F7	SHTNZ	Regular	10	102	1.66	100	1.65	1,000		P.298	
				SHTNZ	Oil	10	102	5.0	300	3.25	2,000			
			MPBR	Unlubricated	10	102	1.66	100	1.65	1,000				
Brass Type	Straight	Standard	Inner Diameter E7	MPBR	Unlubricated	29.0	296	0.5	30	1.65	1,010	Oil free, high performance in high load and low speed. High friction resistance in locations where oil film formation is impeded by reciprocating motion, oscillating motion, or frequent starts and stops.	P.300	
				MPBZ	Regular	*98.0	*1,000	1.00	60	3.25	1,990			
			MPBP	Unlubricated	29.0	296	0.5	30	1.65	1,010				
		Thin Wall	Inner Diameter F7	MPBRU	Unlubricated	29.0	296	0.5	30	1.65	1,010		Space-saving, almost as thin as multi-layer LF bushings.	P.300
				MPBZU	Regular	*98.0	*1,000	1.00	60	3.25	1,990			
				MPBPU	Unlubricated	29.0	296	0.5	30	1.65	1,010			
	With Oil Groove	Inner Diameter G6	MPBZU	Regular	*98.0	*1,000	1.00	60	3.25	1,990	High-precision version of the above. Higher precision sliding because of finer accuracy of inner diameter tolerance.	P.300		
			MPBZU	Unlubricated	29.0	296	0.5	30	1.65	1,010				
			MPBAZ	Regular	*98.0	*1,000	1.00	60	3.25	1,990				
	Flanged	Standard	Inner Diameter E7	MPFZ	Unlubricated	29.0	296	0.5	30	1.65	1,010	High performance in high load and low speed.	P.301	
				MPFZU	Regular	*98.0	*1,000	1.00	60	3.25	1,990			
		Thin Wall	Inner Diameter E7	MPFZU	Unlubricated	29.0	296	0.5	30	1.65	1,010		Thin Wall Type of the above. Space-saving, thin almost like multi-layer LF bushings.	P.301
				MPFZU	Regular	*98.0	*1,000	1.00	60	3.25	1,990			
	Thrust Flanged	Standard	Inner Diameter E7	MPGZ	Unlubricated	29.0	296	0.5	30	1.65	1,010	As lubricant has been embedded in the flange part, the bushing can bear radial load and thrust load at the same time. 3 types are available: Standard, Flat Head Screw Hole and Low Head Bolt Hole.	P.302	
				MPSZ	Unlubricated	29.0	296	0.5	30	1.65	1,010			
MPSZ				Regular	*98.0	*1,000	1.00	60	3.25	1,990				
Flush Bolt Hole		Inner Diameter F7	MPSZ	Unlubricated	29.0	296	0.5	30	1.65	1,010	P.302			
			MPSZ	Regular	*98.0	*1,000	1.00	60	3.25	1,990				
Flange Integrated	Standard	Inner Diameter F7	MPTZ	Unlubricated	29.0	296	0.5	30	1.65	1,010	The Flange Integrated type, which can reduce the assembly time. It excels in space-saving compared to flanged copper alloy built-in type. 3 types are available: Standard Flanged, Inlay Flanged and Center Flanged.	P.303		
			MPTSZ	Regular	*98.0	*1,000	1.00	60	3.25	1,990				
			MPTNZ	Regular	*98.0	*1,000	1.00	60	3.25	1,990				
	Inlay	Inner Diameter F7	MPTZ	Unlubricated	29.0	296	0.5	30	1.65	1,010		P.304		
			MPTZ	Regular	*98.0	*1,000	1.00	60	3.25	1,990				
	Center	Inner Diameter F7	MPCZ	Unlubricated	29.0	296	0.5	30	1.65	1,010		P.304		
			MPCTZ	Regular	*98.0	*1,000	1.00	60	3.25	1,990				
Flanged -Built-in Copper Alloy Bushing-	Standard	Single	Inner Diameter E7	MFS	Unlubricated	29.0	296	0.5	30	1.65	1,010	These can reduce the time of creating and assembling the housing. Compatible with Linear Bushing Standard Flanged, Inlay Flanged, and Center Flanged. 3 types are available: Single, Double and Long.	P.305	
				MFS	Regular	*98.0	*1,000	1.00	60	3.25	1,990			
		Double	Inner Diameter E7	MFW	Unlubricated	29.0	296	0.5	30	1.65	1,010			P.305
				MFW	Regular	*98.0	*1,000	1.00	60	3.25	1,990			
		Long	Inner Diameter E7	MFL	Unlubricated	29.0	296	0.5	30	1.65	1,010			P.306
	MFL			Regular	*98.0	*1,000	1.00	60	3.25	1,990				
	MFL			Regular	*98.0	*1,000	1.00	60	3.25	1,990				
	Inlay	Single	Inner Diameter F7	MFL	Unlubricated	29.0	296	0.5	30	1.65	1,010		P.306	
				MFL	Regular	*98.0	*1,000	1.00	60	3.25	1,990			
	Center	Double	Inner Diameter F7	MFL	Unlubricated	29.0	296	0.5	30	1.65	1,010		P.307	
MFL				Regular	*98.0	*1,000	1.00	60	3.25	1,990				
MFC				Unlubricated	29.0	296	0.5	30	1.65	1,010				

	Type				Lubrication	Max. Allowable Load		Max. Allowable Speed		Max. Allowable PV Value		Features	Page		
	Type	Standard	Thin Wall	With Oil Groove		N/mm²	kgf/cm²	m/s	m/min	N/mm² · m/s	kgf/cm² · m/min				
Copper Alloy Type	Flanged -Built-in Copper Alloy Bushing-	Small flanged	Single	MFST	Unlubricated	29.0	296	0.5	30	1.65	1,010	Best use for space-saving. The strength is about equal to or higher than that of the conventional flanged oil-free bushings even under moment load.	P.307		
				MFST	Regular	*98.0	*1,000	1.00	60	3.25	1,990				
		Screw Case	Single	MPNT	Unlubricated	29.0	296	0.5	30	1.65	1,010		P.308		
				MPNT	Regular	*98.0	*1,000	1.00	60	3.25	1,990				
	Wide Block	Double	MPNTW	Unlubricated	29.0	296	0.5	30	1.65	1,010	P.308				
			MPNTW	Regular	*98.0	*1,000	1.00	60	3.25	1,990					
	Housing Unit -Built-in Copper Alloy Bushing-	Tall Block	Single	Inner Diameter E7	MHUTS	Unlubricated	29.0	296	0.5	30	1.65		1,010	These can reduce the time of creating and assembling the housing. In addition to the conventional products compatible with the Linear Bushing Housing Unit, a space-saving Compact Type has been newly added to the line (Printed in Red) 2 types are available: Single and Double.	P.309 P.310
					MHUTS	Regular	*98.0	*1,000	1.00	60	3.25		1,990		
			Double	Inner Diameter E7	MHUTW	Unlubricated	29.0	296	0.5	30	1.65		1,010		
		MHUTW			Regular	*98.0	*1,000	1.00	60	3.25	1,990				
Wide Block		Single	Inner Diameter E7	MHUAS	Unlubricated	29.0	296	0.5	30	1.65	1,010				
				MHUAS	Regular	*98.0	*1,000	1.00	60	3.25	1,990				
	Double	Inner Diameter E7	MHUAW	Unlubricated	29.0	296	0.5	30	1.65	1,010					
MHUAW			Regular	*98.0	*1,000	1.00	60	3.25	1,990						
Casting Type	Straight	Standard	Inner Diameter E7	SMZ	Unlubricated	5	51	0.15	9	0.5	306	Oil free, high performance in medium load and low speed. The spirally embedded Molybdenum Disulfide lubricant enables a low friction coefficient in both reciprocal and oscillating motion. 4 types are available: Standard, Flanged, Flange Integrated and Housing Unit.	P.313		
				SMZ	Regular	8	82	0.25	15	0.8	490				
	Flanged	Standard	Inner Diameter E7	SMZF	Unlubricated	5	51	0.15	9	0.5	306				
				SMZF	Regular	8	82	0.25	15	0.8	490				
Housing Unit	Short/Long	Inner Diameter E7	MHSR	Unlubricated	5	51	0.15	9	0.5	306	P.313				
			MHSR	Regular	8	82	0.25	15	0.8	490					
	Flange Integrated	Standard	Inner Diameter E7	SMZH	Unlubricated	5	51	0.15	9	0.5		306			
SMZH				Regular	8	82	0.25	15	0.8	490					
Multi-Layer LF Type	Straight	Standard	Inner Diameter E7	LFZB	Unlubricated	49.0	500	0.65	39	3.60	2,200	Thin wall, light weight and compact. Consistently low friction coefficient and high abrasion resistance under high load and low speed conditions. With lubricating oil, high PV values can be obtained even under medium and high speed operations. Excels in chemical resistance.	P.314		
				LFZB	Regular	*137	*1,400	1.00	60	3.25	1,990				
	Flanged	Standard	Inner Diameter E7	LFZF	Unlubricated	49.0	500	0.65	39	3.60	2,200				
				LFZF	Regular	*137	*1,400	1.00	60	3.25	1,990				
	Housing Unit	Tall Block	Single	Inner Diameter E7	LFBA	Unlubricated	49.0	500	0.65	39	3.60			2,200	
					LFBA	Regular	*137	*1,400	1.00	60	3.25			1,990	
Wide Blocks	Double	Inner Diameter E7	LFBWA	Unlubricated	49.0	500	0.65	39	3.60	2,200					
			LFBWA	Regular	*137	*1,400	1.00	60	3.25	1,990					
Flanged -Multi-Layer LF Type-	Standard	Single	Inner Diameter E7	LF_A	Unlubricated	49.0	500	0.65	39	3.60	2,200				
				LF_A	Regular	*137	*1,400	1.00	60	3.25	1,990				
Double	Inner Diameter E7	LF_AW	Unlubricated	49.0	500	0.65	39	3.60	2,200						
		LF_AW	Regular	*137	*1,400	1.00	60	3.25	1,990						
High Precision Type	Straight	Standard	Inner Diameter E7	BFLB	Unlubricated	6	61	3.33	200	0.98	600	Oil free, thin wall, light weight and compact. Fine accuracy of inner and outer diameter tolerances allows easy mounting. High abrasion resistance and low friction coefficient under high speed condition. Compatible with mild metal shafts (Aluminum, etc.).	P.316		
				BFLB	Regular	8	82	0.25	15	0.8	490				
Polyacetal Resin Type	Straight	Standard	Inner Diameter E7	JZB	Unlubricated	17.5	179	0.85	51	2.45	1,500	Oil free, high load and abrasion resistance. Low friction coefficient and excellent speed property. Prevents stick slips and creak. Conforms to Food Sanitation Laws.	P.317		
				JZB	Regular	17.5	179	0.85	51	2.45	1,500				
	Flanged	Standard	Inner Diameter E7	JZF	Unlubricated	17.5	179	0.85	51	2.45	1,500				
				JZF	Regular	17.5	179	0.85	51	2.45	1,500				
Flanged -Built-in Polyacetal-	Standard	Single	Inner Diameter E7	JFMA	Unlubricated	17.5	179	0.85	51	2.45	1,500				
				JFMA	Regular	17.5	179	0.85	51	2.45	1,500				
Housing Unit -Built-in Polyacetal-	Tall Block	Single	Inner Diameter E7	JFBA	Unlubricated	17.5	179	0.85	51	2.45	1,500				
				JFBA	Regular	17.5	179	0.85	51	2.45	1,500				
PIFE Type	Straight	Standard	Inner Diameter E7	TFZB	Unlubricated	7	71	1.65	99	1	612	Oil free, low static friction coefficient on start-up and no stick slips during operation. High abrasion resistance and low friction coefficient under high speed condition. Excels in chemical resistance and conforms to Food Sanitation Laws. Compatible with mild metal (Aluminum, etc.).	P.317		
				TFZB	Regular	7	71	1.65	99	1	612				

*Allowable static surface pressure (no sliding motion or sliding at extremely low speed)

*Listed values are not standard values but reference values.