## **Oil Free Bushings**

-Guide-

Туре					Туре	Lubrication Max. Allowable Load N/mm² kgf/cm²				Max. Allowable PV Value		Features		
				Innor		Decite	w/mm²	kgi/cm²				kgf/cm² · m/min		
Bronze Type				Inner Diameter	SHBR	Regular	10	102	1.66	100	1.65	1,000		
	Straight		Standard	E7		Oil			5.0	300	3.25	2,000	Bushing made of bronze and porous	n
				Inner Diameter	SHBZ	Regular	10	102	1.66	100	1.65	1,000	elements soaked in lubricant. Excels in abrasion, heat and corrosion resistance in	
				F7		0il			5.0	300	3.25	2,000	the oiling condition. Best for high speed and	
	Flanged Flange		Standard	Inner Diameter E7	SHFZ	Unlubricated	10	102	1.66	100	1.65	1,000	low load. The lubrication frequency can be	e d
			Standard		02	Regular		102	5.0	300	3.25	2,000	reduced. 4 types are available: Standard Inner Diameter E7, F7, Flanged, and Flange	
_				Inner	SHTZ	Regular			1.66	100	1.65	1,000	Integrated.	
	Integrated	13 13	Standard	Diameter F7	SHTNZ	Oil	10	102	5.0	300	3.25	2,000		
				Inner		Unlubricated	00.0	000	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.  High-precision version of the above. Higher	
				Diameter E7 Inner	MPBR MPBZ	Regular	29.0 *98.0 29.0 *98.0	296 *1,000 296 *1,000	1.00	60	3.25	1,990		P.30
						Unlubricated			0.5	30	1.65	1,010		
		0	Standard			Regular			1.00	60	3.25	1,990		
				Inner Diameter	MDDD	Unlubricated	29.0 *98.0	000	0.5	30	1.65	1,010		
					MPBP MPBZP	Regular		296 *1,000	1.00	60	3.25	1,990	precision sliding because of finer accuracy of	P.
				G6 Inner	52.	Unlubricated			0.5	30	1.65	1,010	inner diameter tolerance.	
	Straight			Diameter E7 Inner	MPBRU MPBZU	Regular	*98.0	296 296 1,000 296	1.00	60	3.25	1,990		<b>P.2</b>
	_	200				Unlubricated			0.5	30	1.65	1,010	Space-saving, almost as thin as multi-layer LF bushings.	
		المنافقة المنافقة	Thin Wall			Regular	29.0 *98.0		1.00	60	3.25	1,990	-	
						- ·			0.5	30	1.65	1,010	High-precision version of the above. Highe	
				Diameter	MPBPU	Unlubricated	29.0 *98.0		_			-	precision sliding because of finer accuracy of	
				G6		Regular			1.00	60	3.25	1,990	inner diameter tolerance.	
			With Oil Groove	Inner Diameter F7	MPBAZ	Unlubricated	29.0	296 *1,000	0.5	30	1.65	1,010	Lubrication frequency can be reduced b gathering initial grease in oil groove.	P.2
						Regular	*98.0		1.00	60	3.25	1,990		
	Flanged	3	Standard	Inner Diameter E7	MPFZ	Unlubricated Regular	29.0 *98.0	296 *1,000	0.5	30	1.65	1,010	High performance in high load and low speed Thin Wall Type of the above. Space-saving, thin almost like multi-layer LF bushings.	
									1.00	60	3.25	1,990		_
		3111	Thin Wall	Inner Diameter E7	MPFZU	Unlubricated	29.0	296 *1,000	0.5	30	1.65	1,010		P.3
						Regular	*98.0		1.00	60	3.25	1,990		
e d						Unlubricated	00.0		0.5	30	1.65	1,010		
	Thrust Flanged		Standard	Diameter E7	MPGZ		29.0 *98.0	296 *1,000	-					d e <b>P.</b> 3
						Regular	30.0	1,000	1.00	60	3.25	1,990	As lubricant has been embedded in the	
		Bo Lov Flu	Flush Bolt Hole Low Head Flush Bolt Hole	Inner Diameter F7	MPSZ	Unlubricated	*98.0	296 *1,000	0.5	30	1.65	1,010	flange part, the bushing can bear radial load and thrust load at the same time. 3 types are	
						Regular			1.00	60	3.25	1,990	available: Standard, Flat Head Screw Hole	
					MDVZ	Unlubricated		296	0.5	30	1.65	1,010	and Low Head Bolt Hole.	
Brass Type				Diameter F7	MPKZ	Regular	*98.0	*1,000	1.00	60	3.25	1,990		
SS	Flange Integrated		Standard	Inner Diameter F7	MPTZ MPTSZ MPTNZ	Unlubricated	29.0 *98.0	296 *1,000	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.	
B														g
_						Regular			1.00	60	3.25	1,990		
				Inner Diameter G6	MPTP MPTNP	*0	29.0	296 *1,000	0.5	30	1.65	1,010		
						Regular	*98.0		1.00	60	3.25	1,990		
			Inlay	Inner Diameter F7	MPIZ MPITZ	Unlubricated	29.0 *98.0	296 *1,000	0.5	30	1.65	1,010		
						Regular			1.00	60	3.25	1,990		
			Center	Inner Diameter F7	MPCIZ	Unlubricated	*98.0	000	0.5	30	1.65	1,010		P
						Regular		296 *1,000		60	3.25			
						-			1.00			1,990		
	Flanged -Built-in Copper Alloy Bushing-	C		Single  Double	MF_S MF_S-S SMF_S SMF_S-S MF_W	Unlubricated	29.U *00.0	296	0.5	30	1.65	1,010		
		0	Standard			Regular	30.0	1,000	1.00	60	3.25	1,990		
		(O)				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.3
						Regular	*98.0	*1,000	1.00	60	3.25	1,990		
				Long	MF_L MF_L-S	Unlubricated	29.0 *98.0	296 *1,000	0.5	30	1.65	1,010		
						Regular			1.00	60	3.25	1,990		
		Inlay		Single	MFI_S MFI_S-S			296 *1,000						
						Unlubricated			0.5	30	1.65	1,010		
						Regular			1.00	60	3.25	1,990		
				Double	MFI_W MFI_W-S	Unlubricated	29.0	296 *1,000	0.5	30	1.65	1,010		_
						Regular	*98.0		1.00	60	3.25	1,990		P.3
				MELL	Unlubricated	00.0	000	0.5	30	1.65	1,010	1		
				Long	MFI_L MFI L-S	Regular	29.0 *98.0	296 *1,000	1.00	60	3.25	1,990		P.3
						-	55.0	1,000						
		0	Center	Double	MFC_W	Unlubricated	29.0	296	0.5	30	1.65	1,010		
		A STATE OF THE PARTY OF		1	MFC W-S	Regular	*98.0	*1,000	1.00	60	3.25	1,990		Ι.

				•	Max.	. ⊕Max.		• Max. Allowable						
		Туре	Lubrication		kgf/cm²	Allowabl m/s	m/min	N/mm²·m/s	kgt/cm² · m/min	Features	Page			
Copper Alloy Type	Flanged -Built-in Copper Alloy Bushing-	(0)	Small flanged	Single	MFST MFST-S	Unlubricated Regular	29.0 *98.0	296 *1,000	0.5	30 60	1.65 3.25	1,010	Best use for space-saving. The strength is about equal to or higher than that of the conventional	P.307
	With	19-			MPNT	Unlubricated	29.0	296	0.5	30	1.65	1,010	flanged oil-free bushings even under moment load.  With the thread machining performed on the body	
	Screw Case		Screw	Single	MPNT-S	Regular	*98.0	*1,000	1.00	60	3.25	1,990	of the case, only 1pc of special nut can assemble	P.308
	-Built-in Copper	Case	Double	MPNTW-S	Unlubricated Regular	29.0 *98.0	296	0.5 1.00	30 60	1.65 3.25	1,010	the product. This reduced the assembling process comparing to the conventional flange type.	1.000	
	Alloy Bushing-				MHUTS		30.0	1,000				,	1	
	Housing Unit -Built-in Copper Alloy Bushing-			Single	MHCTS-S	Unlubricated Regular	29.0 *98.0	296 *1,000	1.00	30 60	1.65 3.25	1,010		
			Tall Block			negulai		1.00 60 3.25 1,890						
			DIOCK	Double	MHUTW-S MHCTW	*98.0	29.0 *98.0	8.0   *1.000	0.5	30	1.65	1,010	These can reduce the time of creating and assemling the housing. In addition to the conventional products comapatble 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
					MHCTW-S	Regular	00.0		1.00	60	3.25	1,990		
		@		Single	MHUAS MHUAS-S	Unlubricated	29.0 *98.0	296 *1,000	0.5	30	1.65	1,010		
		0			MHCAS MHCAS-S	Regular			1.00	60	3.25	1,990		
		•	- Wide Block	Double	MHUAW MHUAW-S		29.0 *98.0	296	0.5	30	1.65	1,010		
				Dompie	I WHCAW I			*1,000	1.00	60	3.25	1,990		
	0					Unlubricated	5	51	0.15	9	0.5	306		
Casting Type	Straight	0	Standa	ard	SMZ	Regular	8	82	0.25	15	0.8	490		D.C.
			<u> </u>	ard	SMZF	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:	
	Flanged	0	Standa			Regular	8	82	0.25	15	0.8	490		
	Housing	ousing	Ch //		MHSR	Unlubricated	5	51	0.15	9	0.5	306		
	Unit	6	Short/Long		WINSK	Regular	8	82	0.25	15	0.8	490	Standard, Flanged, Flange Integrated and Housing Unit.	P.313
	Flange		Standard		SMZH	Unlubricated	5	51	0.15	9	0.5	306		
	Integrated	19			SIVIZH	Regular	8	82	0.25	15	0.8	490		
Multi-Layer LF Type	Straight		Standard		LFZB	Unlubricated	49.0 *137	500 *1,400	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
	Flanged		Standard		LFZF	Unlubricated	49.0 *137	500 *1,400	0.65	39	3.60	2,200		
	Housing Unit	-0	Tall Block Wide Blocks	Single	LFBA LFBAC	Unlubricated	49.0 *137	500 *1,400	0.65	39	3.60	2,200	Housing unit type of the above. These can reduce the time of creating and assembling the housing. 2 types are available: Single and Double.	D315
				Double	LFBAW	Unlubricated	49.0 *137	500 *1,400	0.65	39	3.60	2,200		
	Offic	•		Single	LFWBA	Unlubricated	49.0 *137	500 *1,400	0.65	39	3.60	2,200		
	Flanged	0	Standard	Single	LF_A	Unlubricated	49.0 *137	500 *1,400	0.65	39	3.60	2,200	Flanged type of the above. These can reduce the time of creating and assembling the housing. 2 types are available: Single and Double.	D316
	-Multi-Layer LF Type-			Double	LF_AW	Unlubricated	49.0 *137	500 *1.400	0.65	39	3.60	2,200		
High Preci- sion Type	Straight		Standa	ard	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	P.316
Polyacetal Resin Type	Straight		Standard		JZB	Unlubricated	17.5	179	0.85	51	2.45	1,500	condition. Compatible with mild metal shafts (Aluminum, etc.).	
			Standard								2.40		Oil free, high load and abrasion resistance. Low friction coefficient and excellent speed property. Prevents stick slips and creak. Conforms to Food Societation Laws	P.317
	Flanged		Standard		JZF	Unlubricated	17.5	179	0.85	51	2.45	1,500	Conforms to Food Sanitation Laws.	
	Flanged -Built-in Polyacetal-		Standard	Single	JFMA JFRA	Unlubricated	17.5	179	0.85	51	2.45	1,500	Built-in Polyacetal bushings can reduce the time of manufacturing and assembling the housing.	na <b>P.318</b>
	Housing Unit -Built-in Polyacetal-	6	Tall Block	Single	JFBA	Unlubricated	17.5	179	0.85	51	2.45	1,500	Compatible with Flanged Linear Bushing Standard Flanged Type and Bushing Housing Unit Tall Block.	
PTFE Type	Straight		Standard Standard		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
	Flanged	0			TFZF	Unlubricated	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.