Standard Flanged Oil-Free Bushings (Build-In Copper Alloy)

Standard / with Non-Contact Seals / with Dust Seals

Standard Flanged Oil-Free Bushings – Standard

Standard Flanged Oil-Free Bushings – with Non-Contact Seals

Standard Flanged Oil-Free Bushings – with Dust Seals

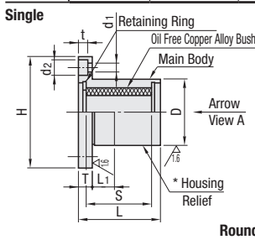
Housing Type	Type: Round Flange	Type: Square Flange	Type: Compact	Seal	Seals: Material	Housing: Material	Housing: Surface Treatment	Bushings: Material
Single	MFMS	MFKS	MFNS	No Seal	—	1018 Carbon Steel or equivalent	Electroless Nickel Plating	High Tensile Brass Alloy
	MFMS-S	MFKS-S	MFNS-S	With Non-Contact Seals	Teflon Resin			
	MFMS-DS	—	MFNS-DS	With Dust Seals	Nitrile Rubber			
Double	MFMW	MFKW	MFNW	No Seal	—			
	MFMW-S	MFKW-S	MFNW-S	With Non-Contact Seals	Teflon Resin			
	MFMW-DS	—	MFNW-DS	With Dust Seals	Nitrile Rubber			
Long	MFML	MFKL	—	No Seal	—			
	MFML-S	MFKL-S	—	With Non-Contact Seals	Teflon Resin			

*Housing Relief
When D≤28, $^{-0.1}_{-0.3}$
When D≥32, $^{-0.3}_{-0.5}$

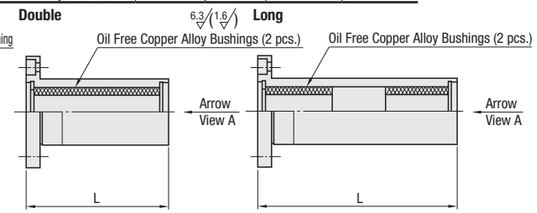
! Recommended Mating Shaft f8 or g6

! Operating Temperature (°C) -40-150

Single

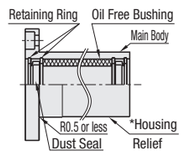


Double



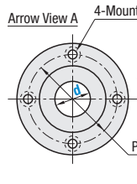
Long

Details for with Dust Seals

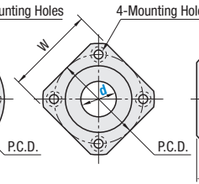


! For With Dust Seals, only f8 shaft is recommended.

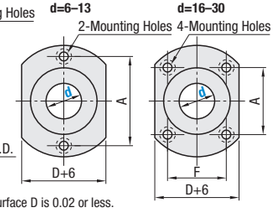
Round Flange



Square Flange



Compact



! Perpendicularity of flange bottom plane to surface D is 0.02 or less.

Part Number: Type				d	Tol.	D	Tol.	L: No Seal / With Non-Contact Seals: Single	L: No Seal / With Non-Contact Seals: Double	L: No Seal / With Non-Contact Seals: Long	L: With Dust Seals: Single	L: With Dust Seals: Double	L1	S	H	T	d1	d2	t	P.C.D.	W	F	A
		Round Flange	Square Flange	Compact Flange																			
Single	No Seal	MFMS	MFKS	MFNS	6	$^{+0.022}_{0}$	12	$^{0}_{-0.018}$	22	37	52	—	—	5	15	28	5	3.5	6	3.1	20	22	—	20
					8	$^{+0.028}_{0}$	15		27	47	67	—	—		20	32					24	25	—	24
					10		19					—	—		25	40					29	30	—	29
	With Non-Contact Seals	MFMS-S	MFKS-S	MFNS-S	12	$^{+0.034}_{0}$	21	$^{0}_{-0.021}$	32	57	82	—	—		25	42	6	4.5	7.5	4.1	32	32	—	32
	With Dust Seals	MFMS-DS		MFNS-DS	13		23					—	—		25	43					33	34	—	33
Double	No Seal	MFMW	MFKW	MFNW	16*		28		37	67	97	45	75	10	30	48					38	37	22	31
	With Non-Contact Seals	MFMW-S	MFKW-S	MFNW-S	20*	$^{+0.041}_{0}$	32	$^{0}_{-0.025}$	42	77	112	51	86		35	54	8	5.5	9	5.1	43	42	24	36
	With Dust Seals	MFMW-DS		MFNW-DS	25*		40		58	108	158	70	120		50	62					51	50	32	40
Double	No Seal	MFML	MFKL		30*		45		68	128	188	81	141		60	74	10	6.6	11	6.1	60	58	35	49
	With Non-Contact Seals	MFML-S	MFKL-S		35	$^{+0.050}_{0}$	52	$^{0}_{-0.030}$	68	128	—	—	—	15	60	82					67	64	—	—
					40		60		80	150	—	—	—		70	96	13	9	14	8.1	78	75	—	—
					50		80		90	170	—	—	—		80	116					98	92	—	—

! Sizes in ( ) are not available for Long Housing Type nor Compact Flanges. ! Flanged Height-Adjusting Spacers are selectable from **P.384**. ! With Dust Seals are only available in *marked sizes.

Features: With Dust Seals / With Non-Contact Seals

– Contact Seals built into With Dust Seals Type prevent small dust from escaping through the Sliding Contact Surface.
– For Sliding resistance of With Dust Seals, refer to Sliding Resistance Test Data.
– Employed Dust Seals are SER series of SAKAGAMI SEISAKUSHO LTD.
– With Non-Contact Seals are provided to prevent large dust entry. Clearance between shaft and the bushing (approx. 0.1 mm) lowers the sliding resistance than With Dust Seals.

Part Number Example

Part Number
MFMS6
MFMS-S6

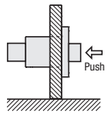
Dust Seals Sliding Resistance Test

d	Sliding Resistance (N)	SAKAGAMI SEISAKUSHO LTD. Dust Seals
16	6	SER16
20	7	SER20
25	8	SER25
30	12	SER30

! Values are for reference only.

Test Conditions
1. Tester: Push-Pull Gauge
2. Bushings: Copper Alloy Type
3. Shaft: MISUMI f8 shaft

Testing Method
Measured the load when the shaft started to move.
*Speed 1 mm/s approx.



d	(No Seal) Available Types: Single: MFMS	MFKS	MFNS	Double: MFMW	MFKW	MFNW	Long: MFML	MFKL	(With Non-Contact Seals) Available Types: Single: MFMS-S	MFKS-S	MFNS-S	Double: MFMW-S	MFKW-S	MFNW-S	Long: MFML-S	MFKL-S
6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
8	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
10	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
12	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
13	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
16	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
20	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
25	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
30	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
35	•	•	•	•	•	•	—	—	•	•	•	•	•	•	—	—
40	•	•	•	•	•	•	—	—	•	•	•	•	•	•	—	—
50	•	•	•	•	•	•	—	—	•	•	•	•	•	•	—	—

d	(With Dust Seals) Available Types: Single: MFMS-DS	MFNS-DS	Double: MFMW-DS	MFNW-DS
16	•	•	•	•
20	•	•	•	•
25	•	•	•	•
30	•	•	•	•

MiSUMi

Flanged Oil-Free Bushings (Build-In Copper Alloy)

Compact Single / Double

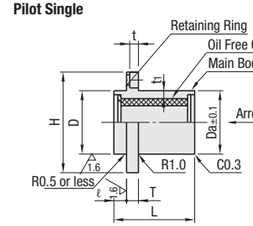
Flanged Oil-Free Bushings – Compact

RoHS10

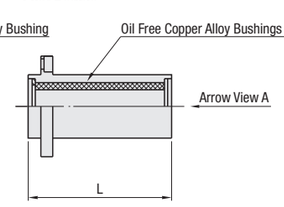
With Non-Contact Seals
A 0.3 mm thick Teflon seal is attached on the inner side of each retaining ring.

Housing Type	Type: Round Flange	Type: Square Flange	Type: Compact	Seal	Housing: Material	Housing: Surface Treatment	Bushings: Material
Single	MFIMSC	MFIKSC	MFINSC	No Seal	1018 Carbon Steel or equivalent	Electroless Nickel Plating	High Tensile Brass Alloy Solid Lubricant Embedded (Graphite)
	MFIMSC-S	MFIKSC-S	MFINSC-S	With Non-Contact Seals			
Double	MFIMWC	MFIKWC	MFINWC	No Seal			
	MFIMWC-S	MFIKWC-S	MFINWC-S	With Non-Contact Seals			

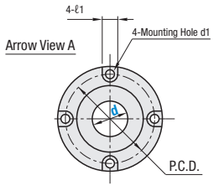
Pilot Single



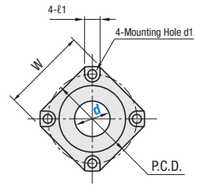
Pilot Double



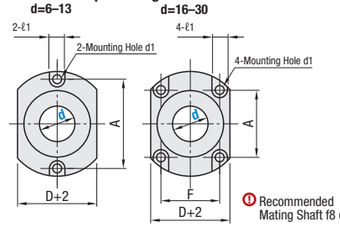
Round Flange



Square Flange



Compact Flange



! Perpendicularity of flange bottom plane to surface D is 0.02 or less.

! Recommended Mating Shaft f8 or g6

Part Number: Type				d	Tol.	D	Tol.	Da	L: Single	L: Double	ℓ	H	T	d1	ℓ1	t	t1	P.C.D.	W	F	A
		Round Flange	Square Flange	Compact																	
Single	No Seal	MFIMSC	*MFIKSC	MFINSC	6	$^{+0.022}_{0}$	12	$^{0}_{-0.018}$	11.8	22	37	5	25	5	3.5	6	3.1	1.5	20	20	—	20
	With Non-Contact Seals	MFIMSC-S	MFIKSC-S	MFINSC-S	8	$^{+0.028}_{0}$	15		14.8	27	47		28					2.0	23	22	—	23
					*10		18		17.8				35					2.0	28	27	—	28
					12	$^{+0.034}_{0}$	20		19.8	32	57	6	37	6	4.5	7.5	4.1	2.0	30	29	—	30
					13		21	$^{0}_{-0.021}$	20.8				38					2.0	31	29	—	31
Double	No Seal	MFIMWC	MFIKWC	MFINWC	16		26		25.8	37	67		43					2.0	36	33	19	30
	With Non-Contact Seals	MFIMWC-S	MFIKWC-S	MFINWC-S	20	$^{+0.041}_{0}$	30		29.8	42	77	8	50	8	5.5	9	5.1	2.0	41	38	21	36
					25		36	$^{0}_{-0.025}$	35.6	58	108		56					2.5	47	42	27	38
					30		42		41.6	68	128	10	65	10	6.6	11	6.1	3.0	55	49	30	46

! MFIKSC10 has been discontinued.

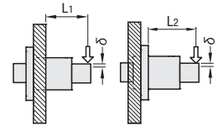
Part Number Example

Part Number
MFIMSC6
MFIKWC-S25

Outer Cylinder Strength of Flanged Oil-Free Bushings

Test Conditions
1. Tester: Universal tensile compression testing machine
2. Bushing: Copper Alloy Type
3. Shaft: MISUMI's Hardened g6 Shaft

Testing Method
Load* and displacement measured when the shaft is deflected 1°.
*Load at approx. 5% of the tensile strength of 1018 Carbon Steel



Strength Test Data

d	Dimension: D: MFMS MFIMS	D: MFMSC MFIMSC	Thickness of Outer Cylinder (mm): MFMS MFIMS	MFMSC MFIMSC	Standard Flanged: L1	Load (N): MFMS	MFMSC	Displacement (mm)	Pilot Flanged: L2	Load (N): MFIMS	MFIMSC	Displacement (mm)
6	12	12	1.5	1.5	22	686	660	0.38	22	681	643	0.38
8	15	15	2.0	2.0	27	1310	1178	0.47	27	1507	1285	0.47
10	19	18	2.5	2.0	31	2024	1656	0.54	30	1866	1518	0.52
12	21	20	2.5	2.0	26	3068	2520	0.45	30	3973	3320	0.52
13	23	21	3.0	2.0	26	3568	3032	0.45	30	4217	3765	0.52
16	28	26	3.0	2.0	31	5506	4894	0.54	35	6028	5107	0.61
20	32	30	3.0	2.0	34	5652	4926	0.59	36	6748	6251	0.63
25	40	36	4.5	2.5	50	7977	6592	0.87	52	9243	7461	0.91
30	45	42	4.5	3.0	58	10799	9719	1.01	58	10545	9109	1.01

! Values are for reference only.