

ドライスター FR936 ブシュ寸法表

TABLE OF DRY STAR FR936 BUSHING DIMENSIONS

(単位 unit : mm)

(INCH SIZES. BUSHING)

ブシュ 内径 BUSHING I.D	外径寸法 BUSHING O.D DIM. リングゲージ RING GAGE		肉厚寸法 WALL THICK	クリアランス 最大 CLEARANCE MAX.	BUSHING O.D DIM. RING GAGE	WALL THICK	CLEARANCE MAX.		
	"GO"	"NO GO"						"GO"	"NO GO"
	3	5.047						5.017	1.0 ⁰ _{-0.025}
4	6.047	6.017	"	0.099	5/32	"	0.0042		
5	7.053	7.023	"	0.102	3/16	"	0.0043		
6	8.053	8.023	"	"	1/4	"	0.0044		
7	9.053	9.023	"	0.105	5/16	"	"		
8	10.055	10.025	"	"	3/8	0.0467/0.0457	0.0046		
9	11.060	11.030	"	0.108	7/16	"	0.0047		
10	12.060	12.030	"	"	1/2	"	"		
12	14.060	14.030	"	0.111	9/16	"	"		
13	15.063	15.033	"	"	5/8	"	0.0048		
14	16.063	16.033	"	"	11/16	"	"		
15	17.073	17.038	"	"	3/4	0.0623/0.0611	0.0053		
16	18.073	18.038	"	"	13/16	"	"		
17	19.081	19.046	"	0.114	7/8	"	"		
18	20.081	20.046	"	"	1	"	"		
19	22.081	22.046	1.5 ⁰ _{-0.030}	0.127	1 1/8	0.0780/0.0768	0.0056		
20	23.081	23.046	"	"	1 1/4	"	0.0060		
22	25.086	25.051	"	"	1 3/8	"	"		
24	27.086	27.051	"	"	1 1/2	"	"		
25	28.093	28.056	"	"	1 5/8	"	"		
26	30.115	30.075	2.0 ⁰ _{-0.030}	"	1 3/4	0.0937/0.0925	"		
28	32.115	32.075	"	0.131	1 7/8	"	"		
30	34.115	34.075	"	"	2	"	0.0064		
31	35.115	35.075	"	0.135					
32	36.115	36.075	"	"					
35	39.115	39.075	"	"					
38	42.115	42.075	"	"					
40	44.115	44.075	"	"					
45	50.115	50.075	2.5 ⁰ _{-0.040}	0.155					
50	55.145	55.095	"	0.160					
55	60.145	60.095	"	0.165					
60	65.145	65.095	"	"					
65	70.145	70.095	2.47 ⁰ _{-0.05}	0.185					
70	75.145	75.095	"	"					
75	80.160	80.095	"	"					
80	85.165	85.100	"	0.190					
85	90.165	90.100	"	0.195					
90	95.165	95.100	"	"					
100	105.180	105.115	"	"					
105	110.180	110.115	"	"					
110	115.180	115.115	"	"					
120	125.185	125.120	"	0.200					
130	135.185	135.120	"	0.205					
140	145.185	145.120	"	"					
150	155.205	155.140	"	"					
160	165.205	165.140	"	"					

注1. 最小クリアランスは0.025mmです。

2. クリアランスの計算はハウジング径-(肉厚×2)-軸径で計算できます。

3. ブシュ外径は圧入後、抜け出さないようにハウジング径よりいくらか大きくしてあります。

MINIMUM CLEARANCE 0.001"

ドライ スター FR936 ブシュ標準寸法表

単位
Unit:mm

ブシュ Bushing	推奨寸法 Recommended Dimensions		ブシュの長さ 公差 Bushing Length Tolerance								
	ハウジング径 Housing Dia.	軸径 Shaft Diameter	内径 ID 3φ~110φ 0~-0.3			内径 ID 120φ~160φ 0~-0.4					
内径 ID			3	4	5	6	7	8	10	12	15
3	5H7 ^{+0.012} ₀	3 ^{-0.025} _{-0.034}	BM0303FS	BM0304FS	BM0305FS	BM0306FS					
4	6 "	4 ^{-0.025} _{-0.037}	BM0403FS	BM0404FS	BM0405FS	BM0406FS		BM0408FS			
5	7H7 ^{+0.015} ₀	5 "	BM0503FS	BM0504FS	BM0505FS	BM0506FS		BM0508FS			
6	8 "	6 "	BM0603FS	BM0604FS	BM0605FS	BM0606FS	BM0607FS	BM0608FS	BM0610FS	BM0612FS	
7	9 "	7 ^{-0.025} _{-0.040}			BM0705FS	BM0706FS	BM0707FS	BM0708FS	BM0710FS	BM0712FS	
8	10 "	8 "		BM0804FS	BM0805FS	BM0806FS	BM0807FS	BM0808FS	BM0810FS	BM0812FS	BM0815FS
9	11H7 ^{+0.018} ₀	9 "				BM0906FS			BM0910FS		
10	12 "	10 "				BM1006FS	BM1007FS	BM1008FS	BM1010FS	BM1012FS	BM1015FS
12	14 "	12 ^{-0.025} _{-0.043}				BM1206FS		BM1208FS	BM1210FS	BM1212FS	BM1215FS
13	15 "	13 "						BM1308FS	BM1310FS	BM1312FS	BM1315FS
14	16 "	14 "						BM1408FS	BM1410FS	BM1412FS	BM1415FS
15	17 "	15 "						BM1508FS	BM1510FS	BM1512FS	BM1515FS
16	18 "	16 "							BM1610FS	BM1612FS	BM1615FS
17	19H7 ^{+0.021} ₀	17 "							BM1710FS		BM1715FS
18	20 "	18 "							BM1810FS	BM1812FS	BM1815FS
19	22 "	19 ^{-0.025} _{-0.046}							BM1910FS		BM1915FS
20	23 "	20 "							BM2010FS	BM2012FS	BM2015FS
22	25 "	22 "							BM2210FS	BM2212FS	BM2215FS
24	27 "	24 "									BM2415FS
25	28 "	25 "							BM2510FS	BM2512FS	BM2515FS
26	30 "	26 "									BM2615FS
28	32H7 ^{+0.025} ₀	28 "							BM2810FS	BM2812FS	BM2815FS
30	34 "	30 "							BM3010FS	BM3012FS	BM3015FS
31	35 "	31 ^{-0.025} _{-0.050}									BM3115FS
32	36 "	32 "									BM3215FS
35	39 "	35 "							BM3510FS	BM3512FS	BM3515FS
38	42 "	38 "									
40	44 "	40 "								BM4012FS	BM4015FS
45	50 "	45 "									
50	55H7 ^{+0.030} ₀	50 "								BM5012FS	BM5015FS
55	60 "	55 ^{-0.025} _{-0.056}									
60	65 "	60 "									BM6015FS
65	70 "	65 ^{+0.035} _{+0.005}									
70	75 "	70 "									
75	80 "	75 "									
80	85H7 ^{+0.035} ₀	80 "									
85	90 "	85 ^{+0.035} ₀									
90	95 "	90 "									
95	100 "	95 "									
100	105 "	100 "									
105	110 "	105 "									
110	115 "	110 "									
120	125H7 ^{+0.040} ₀	120 "									
130	135 "	130 ^{+0.035} _{-0.005}									
140	145 "	140 "									
150	155 "	150 "									
160	165 "	160 "									

ブシュ部品番号の見方
Guide to Parts Numbers

BM 03 03 FS

— 材質記号 FR936
Material symbol for FR936

— ブシュの長さ3mm
Bushing length:3mm

— ブシュの内径3mm
Bushing ID:3mm

— ブシュのミリサイズ
Bushing in millimeters

TABLE OF DRY STAR FR936 BUSHING STANDARD DIMENSIONS METRIC SIZES

単位
Unit:mm

ブシュ Bushing	ブシュの長さ 公差 Bushing Length Tolerance					内径 ID 3φ~110φ 0~-0.3 内径 ID 120φ~160φ 0~-0.4								
	20	25	30	35	40	50	60	70	80	90	95	100		
BM1020FS														
BM1220FS		BM1225FS												
BM1320FS														
BM1420FS														
BM1520FS		BM1525FS												
BM1620FS		BM1625FS												
BM1720FS														
BM1820FS		BM1825FS	BM1830FS											
BM1920FS														
BM2020FS		BM2025FS	BM2030FS											
BM2220FS		BM2225FS	BM2230FS											
BM2420FS		BM2425FS	BM2430FS											
BM2520FS		BM2525FS	BM2530FS	BM2535FS	BM2540FS	削除								
BM2620FS		BM2625FS	BM2630FS											
BM2820FS		BM2825FS	BM2830FS											
BM3020FS		BM3025FS	BM3030FS	BM3035FS	BM3040FS	BM3050FS								
		BM3125FS	BM3130FS		BM3140FS									
BM3220FS		BM3225FS	BM3230FS		BM3240FS	削除								
BM3520FS		BM3525FS	BM3530FS	BM3535FS	BM3540FS	BM3550FS								
BM3820FS		BM3825FS	BM3830FS	BM3835FS	BM3840FS									
BM4020FS		BM4025FS	BM4030FS	BM4035FS	BM4040FS	BM4050FS								
BM4520FS		BM4525FS	BM4530FS	BM4535FS	BM4540FS	BM4550FS								
BM5020FS		BM5025FS	BM5030FS	BM5035FS	BM5040FS	BM5050FS	BM5060FS							
		BM5525FS	BM5530FS	BM5535FS	BM5540FS	BM5550FS	BM5560FS							
			BM6030FS	BM6035FS	BM6040FS	BM6050FS	BM6060FS	BM6070FS	BM6080FS					
			BM6530FS		BM6540FS	BM6550FS	BM6560FS							
			BM7030FS	BM7035FS	BM7040FS	BM7050FS	BM7060FS	BM7070FS	BM7080FS					
			BM7530FS	BM7535FS	BM7540FS	BM7550FS	BM7560FS		BM7580FS					
					BM8040FS	BM8050FS	BM8060FS		BM8080FS					
					BM8530FS	BM8540FS	BM8550FS	BM8560FS	BM8580FS					
						BM9040FS	BM9050FS	BM9060FS				BM9090FS		
							BM9530FS	BM9550FS						
							BM10030FS	BM10050FS		BM10070FS	BM10080FS		BM10095FS	BM100100FS
								BM10550FS				BM10590FS		BM105100FS
								BM11030FS		BM11050FS	BM11070FS			BM110100FS
								BM12030FS		BM12050FS	BM12070FS		BM12095FS	BM120100FS
										BM13050FS				BM130100FS
										BM14050FS				BM140100FS
										BM15050FS				BM150100FS
										BM16050FS				BM160100FS

ドライスター FR936 スライド
Dry Star FR936 Sliding Plate

グループ番号 Group No.	肉厚 Thickness	幅 Width	長さ Length
S100FS	1.00 ^{-0.03} _{-0.13}	80 ^{+2.0} ₀	500 ^{+10.0} ₀
S150FS	1.50 ^{-0.03} _{-0.13}	90 ^{+2.0} ₀	
S200FS	2.00 ^{-0.03} _{-0.13}	100 ^{+2.0} ₀	
S250FS	2.50 ^{-0.03} _{-0.13}	100 ^{+2.0} ₀	
S300FS	3.00±0.05	100 ^{+2.0} ₀	

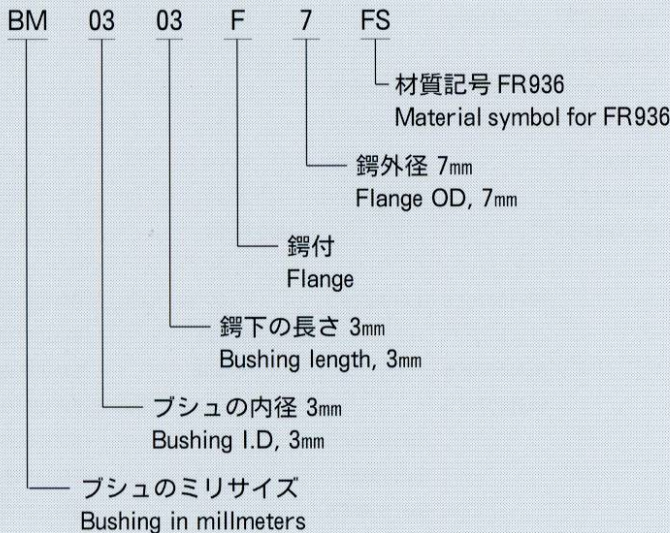
ドライ スター FR936 鍍付ブッシュ標準寸法表

単位
Unit:mm

ブッシュ Bushing		推奨寸法 Recommended Dimensions		各部肉厚 Thickness		鍍下ブッシュの長さ Bushing Length		公差 Tolerance $_{-0.3}^0$		
内径 ID	鍍外径 Flange OD	ハウジング 径 Housing Dia.	軸径 Shaft Diameter	ブッシュ部 Bushing	スラスト部 Flange	3, 4	5	6	7	
3	7	4.6H7 ^{+0.012} ₀	3 ^{-0.025} _{-0.034}	0.8 ⁰ _{-0.025}	0.8 ⁰ _{-0.15}	BM0303F7FS	BM0305F7FS			
4	9	5.6 "	4 ^{-0.025} _{-0.037}				BM0404F9FS		BM0406F9FS	
5	10	7H7 ^{+0.015} ₀	5 "	1.0 ⁰ _{-0.025}	1.0 ⁰ _{-0.15}	BM0504F10FS	BM0505F10FS	BM0506F10FS		
6	12	8 "	6 "				BM0604F12FS	BM0605F12FS	BM0606F12FS	BM0607F12FS
7	13	9 "	7 ^{-0.025} _{-0.040}					BM0705F13FS		BM0707F13FS
8	15	10 "	8 "						BM0806F15FS	
10	18	12 H7 ^{+0.018} ₀	10 "						BM1006F18FS	BM1007F18FS
12	20	14 "	12 ^{-0.025} _{-0.043}						BM1206F20FS	BM1207F20FS
14	22	16 "	14 "						BM1406F22FS	
15	23	17 "	15 "							
16	24	18 "	16 "							
18	26	20 H7 ^{+0.021} ₀	18 "							
20	31	23 "	20 ^{-0.025} _{-0.046}	1.5 ⁰ _{-0.030}	1.5 ⁰ _{-0.15}					
22	33	25 "	22 "							
24	35	27 "	24 "							
25	36	28 "	25 "							
26	38	30 "	26 "							
28	40	32 H7 ^{+0.025} ₀	28 "							
30	42	34 "	30 "	2.0 ⁰ _{-0.030}	2.0 ⁰ _{-0.15}					
31	45	35 "	31 ^{-0.025} _{-0.050}							
32	46	36 "	32 "							
35	49	39 "	35 "							
38	52	42 "	38 "							
40	54	44 "	40 "							
45	60	50 "	45 "	2.5 ⁰ _{-0.040}	2.5 ⁰ _{-0.15}					
50	65	55 H7 ^{+0.030} ₀	50 "							
55	70	60 "	55 ^{-0.025} _{-0.055}							
60	75	65 "	60 "							

鍍付ブッシュ部品番号の見方

Guide to Parts Numbers



鍍付ブッシュ標準品図面

Drawing of Standard Flanged Bushing

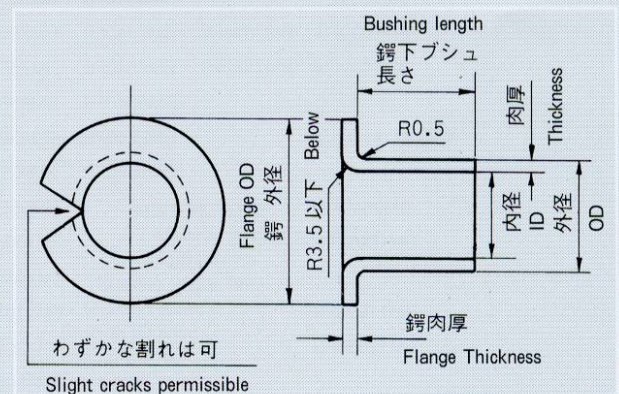


TABLE OF DRY STAR FR936 FLANGED BUSHING STANDARD DIMENSIONS METRIC SIZES

単位
Unit:mm

		鍍下ブシユの長さ Bushing Length				公差 Tolerance $\begin{smallmatrix} 0 \\ -0.3 \end{smallmatrix}$			
8	10	12	15	20	25	30	40	50	
BM0608F12FS	BM0610F12FS								
	BM0710F13FS	BM0712F13FS							
BM0808F15FS	BM0810F15FS	BM0812F15FS							
BM1008F18FS	BM1010F18FS	BM1012F18FS	BM1015F18FS						
BM1208F20FS	BM1210F20FS	BM1212F20FS	BM1215F20FS	BM1220F20FS					
	BM1410F22FS	BM1412F22FS	BM1415F22FS	BM1420F22FS					
	BM1510F23FS	BM1512F23FS	BM1515F23FS	BM1520F23FS	BM1525F23FS				
	BM1610F18FS		BM1615F24FS	BM1620F24FS	BM1625F24FS				
	BM1810F26FS	BM1812F26FS	BM1815F26FS	BM1820F26FS	BM1825F26FS				
	BM2010F31FS	BM2012F31FS	BM2015F31FS	BM2020F31FS	BM2025F31FS	BM2030F31FS			
	BM2210F33FS	BM2212F33FS	BM2215F33FS	BM2220F33FS	BM2225F33FS				
			BM2415F35FS	BM2420F35FS	BM2425F35FS	BM2430F35FS			
	BM2510F36FS	BM2512F36FS	BM2515F36FS	BM2520F36FS	BM2525F36FS	BM2530F36FS			
			BM2615F38FS	BM2620F38FS					
		BM2812F40FS	BM2815F40FS	BM2820F40FS		BM2830F40FS			
		BM3012F42FS	BM3015F42FS	BM3020F42FS	BM3025F42FS	BM3030F42FS	BM3040F42FS		
					BM3125F45FS				
				BM3220F46FS	BM3225F46FS	BM3230F46FS			
		BM3512F49FS		BM3520F49FS	BM3525F49FS	BM3530F49FS	BM3540F49FS	BM3550F49FS	
				BM3820F52FS		BM3830F52FS	BM3840F52FS		
		BM4012F54FS		BM4020F54FS	BM4025F54FS	BM4030F54FS	BM4040F54FS	BM4050F54FS	
				BM4520F60FS	BM4525F60FS	BM4530F60FS	BM4540F60FS	BM4550F60FS	
				BM5020F65FS		BM5030F65FS	BM5040F65FS		
						BM5530F70FS	BM5540F70FS		
						BM6030F75FS	BM6040F75FS		

鍍付ブシユ使用時の注意

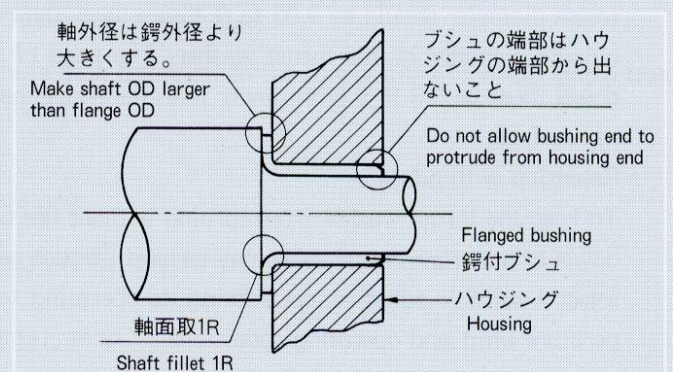
- 圧入時は鍍外径よりアーバー直径を大きくして下さい。
- 相手軸のスラスト面は鍍外径より大きくして下さい。その外15ページの「取扱についてのご注意」および16ページの「ブシユ圧入時のアーバー直径とハウジングの公差」を参考にして下さい。

Cautions for Flanged Bushing Use

- When press-fitting, the arbor diameter must be larger than the outside diameter of the flange.
- The thrust side of the shaft must be larger than the outside diameter of the flange.

鍍付ブシユ組付図面

Assembly Drawing of Flanged Bushing



ドライ スター FR936スラストワッシャ標準寸法表

DRY STAR FR936 THRUST WASHER STANDARD DIMENSIONS METRIC SIZES

単位
Unit:mm

組み合わせる ブシュの内径 Matching Bushing ID	部品番号 Part No. * See guide below	内径 ID	外径 OD	肉厚 Thickness	ノックピン穴径 Dowel Hole Dia.	ノックピン位置 Dowel Position	ハウジング くぼみの深さ Housing Recess Depth
6	WM06FSA	8 ^{+0.25} ₀	16 ⁰ _{-0.25}	1.5 ^{-0.03} _{-0.08}	1.300 1.100	12±0.12	1.20 0.95
8	WM08FSA	10 "	18 "	"	"	14 "	"
10	WM10FSA	12 "	24 "	"	1.875 1.625	18 "	"
12	WM12FSA	14 "	26 "	"	2.375 2.125	20 "	"
14	WM14FSA	16 "	30 "	"	"	23 "	"
16	WM16FSA	18 "	32 "	"	"	25 "	"
18	WM18FSA	20 "	36 "	"	3.375 3.125	28 "	"
20	WM20FSA	22 "	38 "	"	"	30 "	"
22	WM22FSA	24 "	42 "	"	"	33 "	"
24	WM24FSA	26 "	44 "	"	"	35 "	"
25	WM25FSA	28 "	48 "	"	4.375 4.125	38 "	"
30	WM30FSA	32 "	54 "	"	"	43 "	"
35	WM35FSA	38 "	62 "	"	"	50 "	"
40	WM40FSA	42 "	66 "	"	"	54 "	"
45	WM45FSA	48 "	74 "	2.0 ^{-0.03} _{-0.08}	"	61 "	1.70 1.45
50	WM50FSA	52 "	78 "	"	"	65 "	"

スラストワッシャ使用時の注意

- ノックピン等で廻り止めをする場合

ハウジングにくぼみをつけて取付けて下さい。くぼみの直径はスラストワッシャの外径より0.05~0.15mm大きくして下さい。ノックピンの頭はスラスト受圧面より0.3~0.5mm低くして下さい。

- 接着剤で廻り止めをする場合

ノックピンやネジを使用しない。スラストワッシャの廻り止めは接着剤を使用する方法もありますが、その場合は接着剤の使用限界温度と運転条件を考慮して選択して下さい。

Cautions for Thrust Washer Use

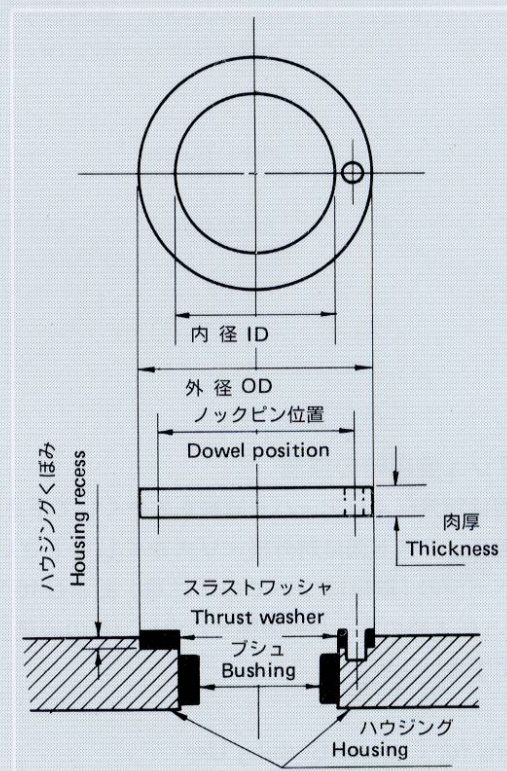
- Retension with dowel

Mount it into the recess provided on the housing. Ideally, recess diameter should be 0.05 to 0.15mm larger than the outside diameter of the thrust washer. The head of the dowel must be 0.3 to 0.5mm lower than the thrust bearing surface.

- Retension with adhesive

To keep the thrust washer from turning without use of a dowel or setscrew, an adhesive may be used. In such case, select a suitable adhesive, considering its operating temperature limit and operating conditions.

スラストワッシャ標準品 Standard Thrust Washer



商品番号の見方

Guide to Parts Numbers

WM 06 FS A
 WM 形状区分 Shape category
 06 材質記号 FR936 Material symbol for FR936
 FS 組み合わせるブシュの内径 6mm Matching bushing ID
 A スラストワッシャのミリサイズ Thrust washer in millimeters

