

SF



使用回数	100万回	50万回	30万回	外径	外径(φ70)	内径	自由長	荷重	直角度
種類				+0	+0	+0.1	自由長50mm以下±0.5mm	±10%	2度以下
SF	自由長×40%	自由長×45%	自由長×50%	-0.7	-1.0	+0.7	自由長55mm以上±1%		

密着長は参考値です、ロットによって多少のバラツキがあります。

品番 Catalog No. 番号	外径 Outer-Dia 外径 (mm)	内径 Inner-Dia 内径 (mm)	自由長 Free Length 自由長 (mm)	ばね定数 Spring Constant 弾簧定数 (N/mm) (kgf/mm)		密着長 Min.Length 貼緊長 (mm)	100万回		50万回		30万回	
							たわみ Deflection 弯曲 (mm)	荷重 Load 負荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 負荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 負荷 (kgf)[N]
SF6-15	6	3	15	7.8	0.80	7.1	6.0	4.8 {47}	6.8	5.4 {53}	7.5	6 {59}
20			20	5.9	0.60	9.5	8.0		9.0		10.0	
25			25	4.7	0.48	11.9	10.0		11.3		12.5	
30			30	3.9	0.40	14.2	12.0		13.5		15.0	
35			35	3.4	0.34	16.6	14.0		15.8		17.5	
40			40	2.9	0.30	19.0	16.0		18.0		20.0	
SF8-10	8	4	10	15.7	1.60	4.5	4.0	6.4 {63}	4.5	7.2 {71}	5.0	8 {79}
15			15	10.5	1.07	6.8	6.0		6.8		7.5	
20			20	7.8	0.80	9.0	8.0		9.0		10.0	
25			25	6.3	0.64	11.3	10.0		11.3		12.5	
30			30	5.2	0.53	13.5	12.0		13.5		15.0	
35			35	4.5	0.46	15.8	14.0		15.8		17.5	
40			40	3.9	0.40	18.0	16.0		18.0		20.0	
45			45	3.5	0.36	20.3	18.0		20.3		22.5	
50			50	3.1	0.32	22.5	20.0		22.5		25.0	
55			55	2.9	0.29	24.8	22.0		24.8		27.5	
60			60	2.6	0.27	27.0	24.0		27.0		30.0	
65			65	2.4	0.25	30.8	26.0		29.3		32.5	
70			70	2.2	0.23	33.2	28.0		31.5		35.0	
75			75	2.1	0.21	35.6	30.0		33.8		37.5	
80			80	2.0	0.20	37.9	32.0		36.0		40.0	
SF10-10	10	5	10	19.6	2.00	4.5	4.0	8 {78}	4.5	9 {88}	5.0	10 {98}
15			15	13.1	1.33	6.8	6.0		6.8		7.5	
20			20	9.8	1.00	9.0	8.0		9.0		10.0	
25			25	7.8	0.80	11.3	10.0		11.3		12.5	
30			30	6.5	0.67	13.5	12.0		13.5		15.0	
35			35	5.9	0.57	15.8	14.0		15.8		17.5	
40			40	4.9	0.50	18.0	16.0		18.0		20.0	
45			45	4.4	0.44	20.3	18.0		20.3		22.5	
50			50	3.9	0.40	22.5	20.0		22.5		25.0	
55			55	3.6	0.36	24.8	22.0		24.8		27.5	
60			60	3.3	0.33	27.0	24.0		27.0		30.0	
65			65	3.0	0.31	29.3	26.0		29.3		32.5	
70			70	2.8	0.29	31.5	28.0		31.5		35.0	
75			75	2.6	0.27	33.8	30.0		33.8		37.5	
80			80	2.5	0.25	36.0	32.0		36.0		40.0	
90			90	2.2	0.22	40.5	36.0		40.5		45.0	

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							たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]
SF12-15	12	6	15	18.3	1.87	6.8	6.0	11 {110}	6.8	13 {124}	7.5	14 {137}
20			20	13.7	1.40	9.0	8.0		9.0		10.0	
25			25	11.0	1.12	11.3	10.0		11.3		12.5	
30			30	9.2	0.93	13.5	12.0		13.5		15.0	
35			35	7.8	0.80	15.8	14.0		15.8		17.5	
40			40	6.9	0.70	18.0	16.0		18.0		20.0	
45			45	6.1	0.62	20.3	18.0		20.3		22.5	
50			50	5.5	0.56	22.5	20.0		22.5		25.0	
55			55	5.0	0.51	24.8	22.0		24.8		27.5	
60			60	4.6	0.47	27.0	24.0		27.0		30.0	
65			65	4.2	0.43	29.3	26.0		29.3		32.5	
70			70	3.9	0.40	31.5	28.0		31.5		35.0	
75			75	3.7	0.37	33.8	30.0		33.8		37.5	
80			80	3.4	0.35	36.0	32.0		36.0		40.0	
90			90	3.1	0.31	40.5	36.0		40.5		45.0	
SF14-20	14	7	20	17.7	1.80	9.0	8.0	14 {141}	9.0	16 {159}	10.0	18 {177}
25			25	14.1	1.44	11.3	10.0		11.3		12.5	
30			30	11.8	1.20	13.5	12.0		13.5		15.0	
35			35	10.1	1.03	15.8	14.0		15.8		17.5	
40			40	8.8	0.90	18.0	16.0		18.0		20.0	
45			45	7.8	0.80	20.3	18.0		20.3		22.5	
50			50	7.1	0.72	22.5	20.0		22.5		25.0	
55			55	6.4	0.65	24.8	22.0		24.8		27.5	
60			60	5.9	0.60	27.0	24.0		27.0		30.0	
65			65	5.4	0.55	29.3	26.0		29.3		32.5	
70			70	5.0	0.51	31.5	28.0		31.5		35.0	
75			75	4.7	0.48	33.8	30.0		33.8		37.5	
80			80	4.4	0.45	36.0	32.0		36.0		40.0	
90			90	3.9	0.40	40.5	36.0		40.5		45.0	
100			100	3.5	0.36	45.0	40.0		45.0		50.0	
SF16-20	16	8	20	20.6	2.10	9.0	8.0	17 {165}	9.0	19 {185}	10.0	21 {206}
25			25	16.5	1.68	11.3	10.0		11.3		12.5	
30			30	13.7	1.40	13.5	12.0		13.5		15.0	
35			35	11.8	1.20	15.8	14.0		15.8		17.5	
40			40	10.3	1.05	18.0	16.0		18.0		20.0	
45			45	9.2	0.93	20.3	18.0		20.3		22.5	
50			50	8.2	0.84	22.5	20.0		22.5		25.0	
55			55	7.5	0.76	24.8	22.0		24.8		27.5	
60			60	6.9	0.70	27.0	24.0		27.0		30.0	
65			65	6.3	0.65	29.3	26.0		29.3		32.5	
70			70	5.9	0.60	31.5	28.0		31.5		35.0	
75			75	5.5	0.56	33.8	30.0		33.8		37.5	
80			80	5.1	0.53	36.0	32.0		36.0		40.0	
90			90	4.6	0.47	40.5	36.0		40.5		45.0	
100			100	4.1	0.42	45.0	40.0		45.0		50.0	
125			125	3.3	0.34	56.3	50.0		56.3		62.5	
SF18-20	18	9	20	25.5	2.60	9.0	8.0	21 {204}	9.0	23 {229}	10.0	26 {255}
25			25	20.4	2.08	11.3	10.0		11.3		12.5	
30			30	17.0	1.73	13.5	12.0		13.5		15.0	
35			35	14.6	1.49	15.8	14.0		15.8		17.5	
40			40	12.7	1.30	18.0	16.0		18.0		20.0	
45			45	11.3	1.16	20.3	18.0		20.3		22.5	
50			50	10.2	1.04	22.5	20.0		22.5		25.0	
55			55	9.3	0.95	24.8	22.0		24.8		27.5	
60			60	8.5	0.87	27.0	24.0		27.0		30.0	
65			65	7.8	0.80	29.3	26.0		29.3		32.5	
70			70	7.3	0.74	31.5	28.0		31.5		35.0	
75			75	6.8	0.69	33.8	30.0		33.8		37.5	
80			80	6.4	0.65	36.0	32.0		36.0		40.0	
90			90	5.7	0.58	40.5	36.0		40.5		45.0	
100			100	5.1	0.52	45.0	40.0		45.0		50.0	
125			125	4.1	0.42	56.3	50.0		56.3		62.5	

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							たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]
SF20-20	20	11	20	31.4	3.20	9.0	8.0	26 {251}	9.0	29 {282}	10.0	32 {314}
25			25	25.1	2.56	11.3	10.0		11.3		12.5	
30			30	20.9	2.13	13.5	12.0		13.5		15.0	
35			35	17.9	1.83	15.8	14.0		15.8		17.5	
40			40	15.7	1.60	18.0	16.0		18.0		20.0	
45			45	13.9	1.42	20.3	18.0		20.3		22.5	
50			50	12.6	1.28	22.5	20.0		22.5		25.0	
55			55	11.4	1.16	24.8	22.0		24.8		27.5	
60			60	10.5	1.07	27.0	24.0		27.0		30.0	
65			65	9.7	0.98	29.3	26.0		29.3		32.5	
70			70	9.0	0.91	31.5	28.0		31.5		35.0	
75			75	8.4	0.85	33.8	30.0		33.8		37.5	
80			80	7.8	0.80	36.0	32.0		36.0		40.0	
90			90	7.0	0.71	40.5	36.0		40.5		45.0	
100			100	6.3	0.64	45.0	40.0		45.0		50.0	
125			125	5.0	0.51	56.3	50.0		56.3		62.5	
150			150	4.2	0.43	67.5	60.0		67.5		75.0	
SF22-25	22	11	25	31.4	3.20	11.3	10.0	32 {314}	11.3	36 {353}	12.5	40 {392}
30			30	26.2	2.67	13.5	12.0		13.5		15.0	
35			35	22.4	2.29	15.8	14.0		15.8		17.5	
40			40	19.6	2.00	18.0	16.0		18.0		20.0	
45			45	17.4	1.78	20.3	18.0		20.3		22.5	
50			50	15.7	1.60	22.5	20.0		22.5		25.0	
55			55	14.3	1.45	24.8	22.0		24.8		27.5	
60			60	13.1	1.33	27.0	24.0		27.0		30.0	
65			65	12.1	1.23	29.3	26.0		29.3		32.5	
70			70	11.2	1.14	31.5	28.0		31.5		35.0	
75			75	10.5	1.07	33.8	30.0		33.8		37.5	
80			80	9.8	1.00	36.0	32.0		36.0		40.0	
90			90	8.7	0.89	40.5	36.0		40.5		45.0	
100			100	7.8	0.80	45.0	40.0		45.0		50.0	
125			125	6.3	0.64	56.3	50.0		56.3		62.5	
150			150	5.2	0.53	67.5	60.0		67.5		75.0	
SF25-25	25	13.5	25	39.2	4.00	11.3	10.0	40 {392}	11.3	45 {441}	12.5	50 {490}
30			30	32.7	3.33	13.5	12.0		13.5		15.0	
35			35	28.0	2.86	15.8	14.0		15.8		17.5	
40			40	24.5	2.50	18.0	16.0		18.0		20.0	
45			45	21.8	2.22	20.3	18.0		20.3		22.5	
50			50	19.6	2.00	22.5	20.0		22.5		25.0	
55			55	17.8	1.82	24.8	22.0		24.8		27.5	
60			60	16.3	1.67	27.0	24.0		27.0		30.0	
65			65	15.1	1.54	29.3	26.0		29.3		32.5	
70			70	14.0	1.43	31.5	28.0		31.5		35.0	
75			75	13.1	1.33	33.8	30.0		33.8		37.5	
80			80	12.3	1.25	36.0	32.0		36.0		40.0	
90			90	10.9	1.11	40.5	36.0		40.5		45.0	
100			100	9.8	1.00	45.0	40.0		45.0		50.0	
125			125	7.8	0.80	56.3	50.0		56.3		62.5	
150			150	6.5	0.67	67.5	60.0		67.5		75.0	
175			175	5.6	0.57	78.8	70.0		78.8		87.5	
200			200	4.9	0.50	90.0	80.0		90.0		100.0	

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							たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]
SF27-25	27	13.5	25	47.1	4.80	11.3	10.0	48 {471}	11.3	54 {530}	12.5	60 {588}
30			30	39.2	4.00	13.5	12.0		13.5		15.0	
35			35	33.6	3.43	15.8	14.0		15.8		17.5	
40			40	29.4	3.00	18.0	16.0		18.0		20.0	
45			45	26.2	2.67	20.3	18.0		20.3		22.5	
50			50	23.5	2.40	22.5	20.0		22.5		25.0	
55			55	21.4	2.18	24.8	22.0		24.8		27.5	
60			60	19.6	2.00	27.0	24.0		27.0		30.0	
65			65	18.1	1.85	29.3	26.0		29.3		32.5	
70			70	16.8	1.71	31.5	28.0		31.5		35.0	
75			75	15.7	1.60	33.8	30.0		33.8		37.5	
80			80	14.7	1.50	36.0	32.0		36.0		40.0	
90			90	13.1	1.33	40.5	36.0		40.5		45.0	
100			100	11.8	1.20	45.0	40.0		45.0		50.0	
125			125	9.4	0.96	56.3	50.0		56.3		62.5	
150			150	7.8	0.80	67.5	60.0		67.5		75.0	
175			175	6.7	0.69	78.8	70.0		78.8		87.5	
200			200	5.9	0.60	90.0	80.0		90.0		100.0	
SF30-25	30	16	25	56.5	5.76	11.3	10.0	58 {565}	11.3	65 {635}	12.5	72 {706}
30			30	47.1	4.80	13.5	12.0		13.5		15.0	
35			35	40.3	4.11	15.8	14.0		15.8		17.5	
40			40	35.3	3.60	18.0	16.0		18.0		20.0	
45			45	31.4	3.20	20.3	18.0		20.3		22.5	
50			50	28.2	2.88	22.5	20.0		22.5		25.0	
55			55	25.7	2.62	24.8	22.0		24.8		27.5	
60			60	23.5	2.40	27.0	24.0		27.0		30.0	
65			65	21.7	2.22	29.3	26.0		29.3		32.5	
70			70	20.2	2.06	31.5	28.0		31.5		35.0	
75			75	18.8	1.92	33.8	30.0		33.8		37.5	
80			80	17.7	1.80	36.0	32.0		36.0		40.0	
90			90	15.7	1.60	40.5	36.0		40.5		45.0	
100			100	14.1	1.44	45.0	40.0		45.0		50.0	
125			125	11.3	1.15	56.3	50.0		56.3		62.5	
150			150	9.4	0.96	67.5	60.0		67.5		75.0	
175			175	8.1	0.82	78.8	70.0		78.8		87.5	
200			200	7.1	0.72	90.0	80.0		90.0		100.0	
SF35-40	35	19	40	48.0	4.89	18.0	16.0	78 {768}	18.0	88 {864}	20.0	98 {960}
45			45	42.7	4.35	20.3	18.0		20.3		22.5	
50			50	38.4	3.92	22.5	20.0		22.5		25.0	
55			55	34.9	3.56	24.8	22.0		24.8		27.5	
60			60	32.0	3.26	27.0	24.0		27.0		30.0	
65			65	29.5	3.01	29.3	26.0		29.3		32.5	
70			70	27.4	2.80	31.5	28.0		31.5		35.0	
75			75	25.6	2.61	33.8	30.0		33.8		37.5	
80			80	24.0	2.45	36.0	32.0		36.0		40.0	
90			90	21.3	2.18	40.5	36.0		40.5		45.0	
100			100	19.2	1.96	45.0	40.0		45.0		50.0	
125			125	15.4	1.57	56.3	50.0		56.3		62.5	
150			150	12.8	1.31	67.5	60.0		67.5		75.0	
175			175	11.0	1.12	78.8	70.0		78.8		87.5	
200			200	9.6	0.98	90.0	80.0		90.0		100.0	

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						たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]	たわみ Deflection 弯曲 (mm)	荷重 Load 负荷 (kgf)[N]
SF40-40	40	22	40	62.7	6.39	18.0	16.0	18.0		20.0	
45			45	55.7	5.68	21.3	18.0	20.3		22.5	
50			50	50.2	5.11	22.5	20.0	22.5		25.0	
55			55	45.6	4.65	26.1	22.0	24.8		27.5	
60			60	41.8	4.26	27.0	24.0	27.0		30.0	
65			65	38.6	3.93	30.8	26.0	29.3		32.5	
70			70	35.8	3.65	31.5	28.0	31.5		35.0	
75			75	33.4	3.41	35.6	30.0	33.8		37.5	
80			80	31.4	3.20	36.0	32.0	36.0		40.0	
90			90	27.9	2.84	40.5	36.0	40.5	115 [1129]	45.0	128 [1254]
100			100	25.1	2.56	45.0	40.0	45.0		50.0	
125			125	20.1	2.05	56.3	50.0	56.3		62.5	
150			150	16.7	1.70	67.5	60.0	67.5		75.0	
175			175	14.3	1.46	78.8	70.0	78.8		87.5	
200			200	12.5	1.28	90.0	80.0	90.0		100.0	
225			225	11.1	1.14	101.0	90.0	101.3		112.5	
250			250	10.0	1.02	112.5	100.0	112.5		125.0	
275			275	9.1	0.93	124.0	110.0	123.8		137.5	
300			300	8.4	0.85	142.2	120.0	135.0		150.0	
SF50-50	50	27.5	50	78.4	7.99	22.5	20.0	22.5		25.0	
55			55	71.3	7.27	24.8	22.0	24.8		27.5	
60			60	65.3	6.66	27.0	24.0	27.0		30.0	
65			65	60.3	6.15	29.3	26.0	29.3		32.5	
70			70	56.0	5.71	31.5	28.0	31.5		35.0	
75			75	52.3	5.33	33.8	30.0	33.8		37.5	
80			80	49.0	5.00	36.0	32.0	36.0		40.0	
90			90	43.6	4.44	40.5	36.0	40.5	180 [1764]	45.0	200 [1960]
100			100	39.2	4.00	45.0	40.0	45.0		50.0	
125			125	31.4	3.20	56.3	50.0	56.3		62.5	
150			150	26.1	2.66	67.5	60.0	67.5		75.0	
175			175	22.4	2.28	78.8	70.0	78.8		87.5	
200			200	19.6	2.00	90.0	80.0	90.0		100.0	
225			225	17.4	1.78	101.0	90.0	101.3		112.5	
250			250	15.7	1.60	112.5	100.0	112.5		125.0	
275			275	14.3	1.45	124.0	110.0	123.8		137.5	
300			300	13.1	1.33	135.0	120.0	135.0		150.0	
350			350	11.2	1.14	165.9	140.0	157.5		175.0	
400			400	9.8	1.00	189.6	160.0	180.0		200.0	
450			450	8.7	0.89	213.3	180.0	202.5		225.0	
500			500	7.8	0.80	237.0	200.0	225.0		250.0	
SF60-60	60	33	60	94.0	9.59	27.0	24.0	27.0		30.0	
70			70	80.6	8.22	31.5	28.0	31.5		35.0	
80			80	70.5	7.19	36.0	32.0	36.0		40.0	
90			90	62.7	6.39	40.5	36.0	40.5		45.0	
100			100	56.4	5.75	45.0	40.0	45.0		50.0	
125			125	45.1	4.60	56.3	50.0	56.3		62.5	
150			150	37.6	3.83	67.5	60.0	67.5		75.0	
175			175	32.2	3.29	78.8	70.0	78.8	259 [2538]	87.5	288 [2820]
200			200	28.2	2.88	90.0	80.0	90.0		100.0	
225			225	25.1	2.56	101.3	90.0	101.3		112.5	
250			250	22.6	2.30	112.5	100.0	112.5		125.0	
275			275	20.5	2.09	123.8	110.0	123.8		137.5	
300			300	18.8	1.92	135.0	120.0	135.0		150.0	
350			350	16.1	1.64	165.9	140.0	157.5		175.0	
400			400	14.1	1.44	189.6	160.0	180.0		200.0	
450			450	12.5	1.28	213.3	180.0	202.5		225.0	
500			500	11.3	1.15	237.0	200.0	225.0		250.0	
SF70-70	70	38.5	70	112.0	11.40	33.2	28.0	31.5		35.0	
80			80	98.0	9.99	37.9	32.0	36.0		40.0	
90			90	87.1	8.88	42.7	36.0	40.5		45.0	
100			100	78.4	7.99	47.4	40.0	45.0		50.0	
125			125	62.7	6.40	59.3	50.0	56.3	360 [3528]	62.5	400 [3920]
150			150	52.3	5.33	71.1	60.0	67.5		75.0	
175			175	44.8	4.57	83.0	70.0	78.8		87.5	
200			200	39.2	4.00	94.8	80.0	90.0		100.0	
250			250	31.4	3.20	118.5	100.0	112.5		125.0	
300			300	26.1	2.66	142.2	120.0	135.0		150.0	
350			350	22.4	2.28	165.9	140.0	157.5		175.0	