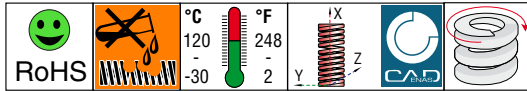
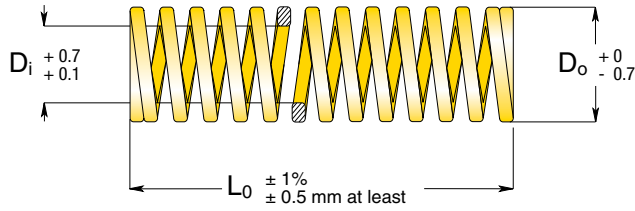


## SF SERIES 系列

## JIS B 5012 - 1986

**EN** Lightest load springs  
**CN** 最轻型荷载弹簧



Code 型号	D <sub>o</sub> Outside Diameter 外径	D <sub>i</sub> Inside Diameter 内径	L <sub>0</sub> Free Length 自由长度	R Spring Constant 弹簧定数	A 40% L <sub>0</sub> 1.000.000 cycles		B 45% L <sub>0</sub> 500.000 cycles		C 50% L <sub>0</sub> 300.000 cycles		E do not use approx.	Pcs
					mm	Kgf (N)	mm	Kgf (N)	mm	Kgf (N)		
SF 10 - 020	10	5	20	1.00	8.0		9.0	10.0	11.6	50		
SF 10 - 025			25	0.80	10.0		11.2	12.5	14.5	50		
SF 10 - 030			30	0.67	12.0		13.5	15.0	17.4	50		
SF 10 - 035			35	0.57	14.0		15.7	17.5	20.3	50		
SF 10 - 040			40	0.50	16.0		18.0	20.0	23.2	50		
SF 10 - 045			45	0.44	18.0	8	20.2	22.5	26.1	50		
SF 10 - 050			50	0.40	20.0	(78.5)	22.5	25.0	29.0	25		
SF 10 - 055			55	0.36	22.0		24.7	27.5	31.9	25		
SF 10 - 060			60	0.33	24.0		27.0	30.0	34.8	25		
SF 10 - 065			65	0.31	26.0		29.2	32.5	37.7	25		
SF 10 - 070	70	0.29	28.0		31.5	35.0	40.6	25				
SF 10 - 075	75	0.27	30.0		33.7	37.5	43.5	25				
SF 10 - 080	80	0.25	32.0		36.0	40.0	46.4	25				
SF 12 - 020	12	6	20	1.40	8.0		9.0	10.0	11.6	50		
SF 12 - 025			25	1.12	10.0		11.2	12.5	14.5	50		
SF 12 - 030			30	0.93	12.0		13.5	15.0	17.4	50		
SF 12 - 035			35	0.80	14.0		15.7	17.5	20.3	50		
SF 12 - 040			40	0.70	16.0		18.0	20.0	23.2	50		
SF 12 - 045			45	0.62	18.0	11	20.2	22.5	26.1	50		
SF 12 - 050			50	0.56	20.0	(107.9)	22.5	25.0	29.0	25		
SF 12 - 055			55	0.51	22.0		24.7	27.5	31.9	25		
SF 12 - 060			60	0.47	24.0		27.0	30.0	34.8	25		
SF 12 - 065			65	0.43	26.0		29.2	32.5	37.7	25		
SF 12 - 070	70	0.40	28.0		31.5	35.0	40.6	25				
SF 12 - 075	75	0.37	30.0		33.7	37.5	43.5	25				
SF 12 - 080	80	0.35	32.0		36.0	40.0	46.4	25				
SF 14 - 025	14	7	25	1.44	10.0		11.2	12.5	14.5	50		
SF 14 - 030			30	1.20	12.0		13.5	15.0	17.4	50		
SF 14 - 035			35	1.03	14.0		15.7	17.5	20.3	50		
SF 14 - 040			40	0.90	16.0		18.0	20.0	23.2	50		
SF 14 - 045			45	0.80	18.0		20.2	22.5	26.1	25		
SF 14 - 050			50	0.72	20.0	14.5	22.5	25.0	29.0	25		
SF 14 - 055			55	0.65	22.0	(142.2)	24.7	27.5	31.9	25		
SF 14 - 060			60	0.60	24.0		27.0	30.0	34.8	25		
SF 14 - 065			65	0.55	26.0		29.2	32.5	37.7	25		
SF 14 - 070			70	0.51	28.0		31.5	35.0	40.6	25		
SF 14 - 075	75	0.48	30.0		33.7	37.5	43.5	25				
SF 14 - 080	80	0.45	32.0		36.0	40.0	46.4	20				
SF 14 - 090	90	0.40	36.0		40.5	45.0	52.2	20				
SF 16 - 025	16	8	25	1.68	10.0		11.2	12.5	14.5	50		
SF 16 - 030			30	1.40	12.0		13.5	15.0	17.4	50		
SF 16 - 035			35	1.20	14.0		15.7	17.5	20.3	50		
SF 16 - 040			40	1.05	16.0		18.0	20.0	23.2	25		
SF 16 - 045			45	0.94	18.0		20.2	22.5	26.1	25		
SF 16 - 050			50	0.84	20.0		22.5	25.0	29.0	25		
SF 16 - 055			55	0.77	22.0	17	24.7	27.5	31.9	25		
SF 16 - 060			60	0.70	24.0	(166.7)	27.0	30.0	34.8	25		
SF 16 - 065			65	0.65	26.0		29.2	32.5	37.7	25		
SF 16 - 070			70	0.60	28.0		31.5	35.0	40.6	20		
SF 16 - 075	75	0.56	30.0		33.7	37.5	43.5	20				
SF 16 - 080	80	0.53	32.0		36.0	40.0	46.4	20				
SF 16 - 090	90	0.47	36.0		40.5	45.0	52.2	20				
SF 16 - 100	100	0.42	40.0		45.0	50.0	58.0	20				

Special Springs **26**

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)



SF 20 - 60 (Series D<sub>o</sub> - L<sub>0</sub>)

**JIS B 5012 - 1986**

系列 **SERIES SF**

Code 型号	D <sub>o</sub> Outside Diameter 外径	D <sub>i</sub> Inside Diameter 内径	L <sub>0</sub> Free Length 自由长度	R Spring Constant 弹簧定数	A 40% L <sub>0</sub> 1.000.000 cycles		B 45% L <sub>0</sub> 500.000 cycles		C 50% L <sub>0</sub> 300.000 cycles		E do not use approx. Pcs	
					mm	Kgf/mm	mm	Kgf (N)	mm	Kgf (N)		mm
SF 18 - 025	18	9	25	2.08	10.0		11.2		12.5		14.5	50
SF 18 - 030			30	1.74	12.0		13.5		15.0		17.4	50
SF 18 - 035			35	1.49	14.0		15.7		17.5		20.3	25
SF 18 - 040			40	1.30	16.0		18.0		20.0		23.2	25
SF 18 - 045			45	1.16	18.0		20.2		22.5		26.1	25
SF 18 - 050			50	1.04	20.0		22.5		25.0		29.0	25
SF 18 - 055			55	0.95	22.0	21	24.7	23	27.5	26	31.9	25
SF 18 - 060			60	0.87	24.0	(206)	27.0	(225)	30.0	(255)	34.8	25
SF 18 - 065			65	0.80	26.0		29.2		32.5		37.7	25
SF 18 - 070			70	0.74	28.0		31.5		35.0		40.6	25
SF 18 - 075			75	0.70	30.0		33.7		37.5		43.5	25
SF 18 - 080			80	0.65	32.0		36.0		40.0		46.4	20
SF 18 - 090			90	0.58	36.0		40.5		45.0		52.2	20
SF 18 - 100			100	0.52	40.0		45.0		50.0		58.0	20
SF 20 - 025			20	11	25	2.56	10.0		11.2		12.5	
SF 20 - 030	30	2.13			12.0		13.5		15.0		17.4	50
SF 20 - 035	35	1.83			14.0		15.7		17.5		20.3	25
SF 20 - 040	40	1.60			16.0		18.0		20.0		23.2	25
SF 20 - 045	45	1.42			18.0		20.2		22.5		26.1	25
SF 20 - 050	50	1.28			20.0		22.5		25.0		29.0	25
SF 20 - 055	55	1.16			22.0		24.7		27.5		31.9	25
SF 20 - 060	60	1.07			24.0	26	27.0	29	30.0	32	34.8	25
SF 20 - 065	65	0.98			26.0	(255)	29.2	(284)	32.5	(314)	37.7	25
SF 20 - 070	70	0.91			28.0		31.5		35.0		40.6	25
SF 20 - 075	75	0.85			30.0		33.7		37.5		43.5	25
SF 20 - 080	80	0.80			32.0		36.0		40.0		46.4	20
SF 20 - 090	90	0.71			36.0		40.5		45.0		52.2	20
SF 20 - 100	100	0.64			40.0		45.0		50.0		58.0	20
SF 20 - 125	125	0.51			50.0		56.2		62.5		72.5	10
SF 20 - 150	150	0.43	60.0		67.5		75.0		87.0	10		
SF 22 - 025	22	11	25	3.20	10.0		11.2		12.5		14.5	50
SF 22 - 030			30	2.67	12.0		13.5		15.0		17.4	25
SF 22 - 035			35	2.29	14.0		15.7		17.5		20.3	25
SF 22 - 040			40	2.00	16.0		18.0		20.0		23.2	25
SF 22 - 045			45	1.78	18.0		20.2		22.5		26.1	25
SF 22 - 050			50	1.60	20.0		22.5		25.0		29.0	25
SF 22 - 055			55	1.46	22.0		24.7		27.5		31.9	25
SF 22 - 060			60	1.33	24.0	32	27.0	36	30.0	40	34.8	25
SF 22 - 065			65	1.23	26.0	(314)	29.2	(353)	32.5	(392)	37.7	25
SF 22 - 070			70	1.14	28.0		31.5		35.0		40.6	20
SF 22 - 075			75	1.07	30.0		33.7		37.5		43.5	20
SF 22 - 080			80	1.00	32.0		36.0		40.0		46.4	20
SF 22 - 090			90	0.89	36.0		40.5		45.0		52.2	20
SF 22 - 100			100	0.80	40.0		45.0		50.0		58.0	20
SF 22 - 125			125	0.64	50.0		56.2		62.5		72.5	10
SF 22 - 150	150	0.53	60.0		67.5		75.0		87.0	10		
SF 25 - 025	25	13.5	25	4.00	10.0		11.2		12.5		14.5	50
SF 25 - 030			30	3.33	12.0		13.5		15.0		17.4	25
SF 25 - 035			35	2.85	14.0		15.7		17.5		20.3	25
SF 25 - 040			40	2.50	16.0		18.0		20.0		23.2	25
SF 25 - 045			45	2.22	18.0		20.2		22.5		26.1	25
SF 25 - 050			50	2.00	20.0		22.5		25.0		29.0	25
SF 25 - 055			55	1.82	22.0		24.7		27.5		31.9	25
SF 25 - 060			60	1.67	24.0	40	27.0	45	30.0	50	34.8	25
SF 25 - 065			65	1.54	26.0	(392)	29.2	(441)	32.5	(490)	37.7	25
SF 25 - 070			70	1.43	28.0		31.5		35.0		40.6	20
SF 25 - 075			75	1.33	30.0		33.7		37.5		43.5	20
SF 25 - 080			80	1.25	32.0		36.0		40.0		46.4	20
SF 25 - 090			90	1.11	36.0		40.5		45.0		52.2	20
SF 25 - 100			100	1.00	40.0		45.0		50.0		58.0	20
SF 25 - 125			125	0.80	50.0		56.2		62.5		72.5	10
SF 25 - 150	150	0.67	60.0		67.5		75.0		87.0	10		
SF 25 - 175	175	0.57	70.0		78.7		87.5		101.5	10		

**SF  
JIS**

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)



SF 20 - 60 (Series | D<sub>o</sub> | - | L<sub>0</sub>)

Special Springs **27**

## SF SERIES 系列

## JIS B 5012 - 1986

Code 型号	D <sub>o</sub> Outside Diameter 外径	D <sub>i</sub> Inside Diameter 内径	L <sub>0</sub> Free Length 自由长度	R Spring Constant 弹簧定数	A 40% L <sub>0</sub> 1,000,000 cycles	B 45% L <sub>0</sub> 500,000 cycles	C 50% L <sub>0</sub> 300,000 cycles	E do not use approx.	Pcs		
	mm	mm	mm	± 10% Kgf/mm	mm Kgf (N)	mm Kgf (N)	mm Kgf (N)	mm			
SF 27 - 025	27	13.5	25	4.80	10.0	11.2	12.5	14.5	20		
SF 27 - 030			30	4.00	12.0	13.5	15.0	17.4	20		
SF 27 - 035			35	3.43	14.0	15.7	17.5	20.3	20		
SF 27 - 040			40	3.00	16.0	18.0	20.0	23.2	20		
SF 27 - 045			45	2.67	18.0	20.2	22.5	26.1	20		
SF 27 - 050			50	2.40	20.0	22.5	25.0	29.0	20		
SF 27 - 055			55	2.18	22.0	24.7	27.5	31.9	20		
SF 27 - 060			60	2.00	24.0	27.0	30.0	34.8	20		
SF 27 - 065			65	1.85	26.0	29.2	32.5	37.7	20		
SF 27 - 070			70	1.71	28.0	31.5	35.0	40.6	20		
SF 27 - 075			75	1.60	30.0	33.7	37.5	43.5	20		
SF 27 - 080			80	1.50	32.0	36.0	40.0	46.4	10		
SF 27 - 090			90	1.33	36.0	40.5	45.0	52.2	10		
SF 27 - 100			100	1.20	40.0	45.0	50.0	58.0	10		
SF 27 - 125			125	0.96	50.0	56.2	62.5	72.5	10		
SF 27 - 150			150	0.80	60.0	67.5	75.0	87.0	10		
SF 27 - 175			175	0.69	70.0	78.7	87.5	101.5	5		
SF 30 - 025	30	16	25	5.80	10.0	11.2	12.5	14.5	20		
SF 30 - 030			30	4.80	12.0	13.5	15.0	17.4	20		
SF 30 - 035			35	4.13	14.0	15.7	17.5	20.3	20		
SF 30 - 040			40	3.60	16.0	18.0	20.0	23.2	20		
SF 30 - 045			45	3.21	18.0	20.2	22.5	26.1	20		
SF 30 - 050			50	2.88	20.0	22.5	25.0	29.0	20		
SF 30 - 055			55	2.63	22.0	24.7	27.5	31.9	20		
SF 30 - 060			60	2.40	24.0	27.0	30.0	34.8	20		
SF 30 - 065			65	2.22	26.0	29.2	32.5	37.7	20		
SF 30 - 070			70	2.05	28.0	31.5	35.0	40.6	20		
SF 30 - 075			75	1.93	30.0	33.7	37.5	43.5	20		
SF 30 - 080			80	1.80	32.0	36.0	40.0	46.4	10		
SF 30 - 090			90	1.60	36.0	40.5	45.0	52.2	10		
SF 30 - 100			100	1.44	40.0	45.0	50.0	58.0	10		
SF 30 - 125			125	1.15	50.0	56.2	62.5	72.5	10		
SF 30 - 150			150	0.96	60.0	67.5	75.0	87.0	10		
SF 30 - 175			175	0.82	70.0	78.7	87.5	101.5	5		
SF 30 - 200	200	0.72	80.0	90.0	100.0	116.0	5				
SFR 35 - 040	35	21	40	4.90	16.0	18.0	20.0	23.2	20		
SFR 35 - 045			45	4.36	18.0	20.25	22.5	26.1	20		
SFR 35 - 050			50	3.92	20.0	22.5	25.0	29.0	20		
SFR 35 - 055			55	3.56	22.0	24.75	27.5	31.9	10		
SFR 35 - 060			60	3.26	24.0	27.0	30.0	34.8	10		
SFR 35 - 065			65	3.02	26.0	29.25	32.5	37.7	10		
SFR 35 - 070			70	2.80	28.0	31.5	35.0	40.6	10		
SFR 35 - 075			75	2.61	30.0	33.75	37.5	43.5	10		
SFR 35 - 080			80	2.45	32.0	36.0	40.0	46.4	10		
SFR 35 - 090			90	2.17	36.0	40.5	45.0	52.2	10		
SFR 35 - 100			100	1.96	40.0	45.0	50.0	58.0	10		
SFR 35 - 125			125	1.57	50.0	56.25	62.5	72.5	5		
SFR 35 - 150			150	1.30	60.0	67.5	75.0	87.0	5		
SFR 35 - 175			175	1.12	70.0	78.75	87.5	101.5	5		
SFR 35 - 200			200	0.98	80.0	90.0	100.0	116.0	5		
SF 40 - 040			40	22	40	6.38	16.0	18.0	20.0	23.2	20
SF 40 - 050					50	5.12	20.0	22.5	25.0	29.0	20
SF 40 - 060	60	4.26			24.0	27.0	30.0	34.8	10		
SF 40 - 070	70	3.65			28.0	31.5	35.0	40.6	10		
SF 40 - 080	80	3.20			32.0	36.0	40.0	46.4	10		
SF 40 - 090	90	2.84			36.0	40.5	45.0	52.2	10		
SF 40 - 100	100	2.56			40.0	45.0	50.0	58.0	10		
SF 40 - 125	125	2.04			50.0	56.2	62.5	72.5	5		
SF 40 - 150	150	1.70			60.0	67.5	75.0	87.0	5		
SF 40 - 175	175	1.46			70.0	78.7	87.5	101.5	5		
SF 40 - 200	200	1.28			80.0	90.0	100.0	116.0	5		
SF 40 - 250	250	1.02			100.0	112.5	125.0	145.0	2		

Special Springs **2B**

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)



SF 40 - 80 (Series D<sub>o</sub> - L<sub>0</sub>)

**JIS B 5012 - 1986**

系列 **SERIES SF**

Code 型号	D <sub>o</sub> Outside Diameter 外径	D <sub>i</sub> Inside Diameter 内径	L <sub>0</sub> Free Length 自由长度	R Spring Constant 弹簧定数	A 40% L <sub>0</sub> 1.000.000 cycles	B 45% L <sub>0</sub> 500.000 cycles	C 50% L <sub>0</sub> 300.000 cycles	E do not use approx.	Pcs			
	mm	mm	mm	Kgf/mm ± 10%	mm Kgf (N)	mm Kgf (N)	mm Kgf (N)	mm				
SFR 40 - 040	40	26	40	4.00	16.0		18.0	20.0	23.2	20		
SFR 40 - 050			50	3.20	20.0		22.5	25.0	29.0	20		
SFR 40 - 060			60	2.60	24.0		27.0	30.0	34.8	10		
SFR 40 - 070			70	2.35	28.0		31.5	35.0	40.6	10		
SFR 40 - 080			80	2.05	32.0		36.0	40.0	46.4	10		
SFR 40 - 090			90	1.80	36.0	52	40.5	58.5	45.0	65	52.2	10
SFR 40 - 100			100	1.50	40.0	(509.6)	45.0	(573.3)	50.0	(637)	58.0	10
SFR 40 - 125			125	1.15	50.0		56.25		62.5		72.5	5
SFR 40 - 150			150	0.90	60.0		67.5		75.0		87.0	5
SFR 40 - 175			175	0.75	70.0		78.75		87.5		101.5	5
SFR 40 - 200	200	0.60	80.0		90.0		100.0		116.0	5		
SFR 40 - 250	250	0.40	100.0		112.5		125.0		145.0	2		
SF 50 - 050	50	27.5	50	8.00	20.0		22.5	25.0	29.0	5		
SF 50 - 060			60	6.66	24.0		27.0	30.0	34.8	5		
SF 50 - 070			70	5.71	28.0		31.5	35.0	40.6	5		
SF 50 - 080			80	5.00	32.0		36.0	40.0	46.4	5		
SF 50 - 090			90	4.44	36.0		40.5	45.0	52.2	5		
SF 50 - 100			100	4.00	40.0	160	45.0	180	50.0	200	58.0	5
SF 50 - 125			125	3.20	50.0	(1,569)	56.2	(1,765)	62.5	(1,961)	72.5	5
SF 50 - 150			150	2.66	60.0		67.5		75.0		87.0	2
SF 50 - 175			175	2.28	70.0		78.7		87.5		101.5	2
SF 50 - 200			200	2.00	80.0		90.0		100.0		116.0	2
SF 50 - 250	250	1.60	100.0		112.5		125.0		145.0	2		
SF 50 - 300	300	1.33	120.0		135.0		150.0		174.0	2		
SFR 50 - 050	50	31	50	5.40	20.0		22.5	25.0	29.0	5		
SFR 50 - 060			60	4.50	24.0		27.0	30.0	34.8	5		
SFR 50 - 070			70	3.60	28.0		31.5	35.0	40.6	5		
SFR 50 - 080			80	3.00	32.0		36.0	40.0	46.4	5		
SFR 50 - 090			90	2.65	36.0		40.5	45.0	52.2	5		
SFR 50 - 100			100	2.40	40.0	99	45.0	111.4	50.0	123.3	58.0	5
SFR 50 - 125			125	1.90	50.0	(970.2)	56.25	(1,091.4)	62.5	(1,212.3)	72.5	5
SFR 50 - 150			150	1.55	60.0		67.5		75.0		87.0	2
SFR 50 - 175			175	1.30	70.0		78.75		87.5		101.5	2
SFR 50 - 200			200	1.10	80.0		90.0		100.0		116.0	2
SFR 50 - 250	250	0.90	100.0		112.5		125.0		145.0	2		
SFR 50 - 300	300	0.75	120.0		135.0		150.0		174.0	2		
SF 60 - 060	60	33	60	9.59	24.0		27.0	30.0	34.8	5		
SF 60 - 070			70	8.22	28.0		31.5	35.0	40.6	5		
SF 60 - 080			80	7.19	32.0		36.0	40.0	46.4	5		
SF 60 - 090			90	6.40	36.0		40.5	45.0	52.2	5		
SF 60 - 100			100	5.76	40.0		45.0	50.0	58.0	5		
SF 60 - 125			125	4.60	50.0	230	56.2	259	62.5	288	72.5	2
SF 60 - 150			150	3.84	60.0	(2,260)	67.5	(2,540)	75.0	(2,820)	87.0	2
SF 60 - 175			175	3.29	70.0		78.7		87.5		101.5	2
SF 60 - 200			200	2.88	80.0		90.0		100.0		116.0	2
SF 60 - 250			250	2.30	100.0		112.5		125.0		145.0	2
SF 60 - 300	300	1.92	120.0		135.0		150.0		174.0	2		
SFR 60 - 060	60	36	60	7.40	24.0		27.0	30.0	34.8	5		
SFR 60 - 070			70	6.30	28.0		31.5	35.0	40.6	5		
SFR 60 - 080			80	5.30	32.0		36.0	40.0	46.4	5		
SFR 60 - 090			90	4.20	36.0		40.5	45.0	52.2	5		
SFR 60 - 100			100	3.10	40.0		45.0	50.0	58.0	5		
SFR 60 - 125			125	2.35	50.0	148.8	56.25	167.4	62.5	186	72.5	2
SFR 60 - 150			150	2.10	60.0	(1,458.2)	67.5	(1,640.5)	75.0	(1,822.8)	87.0	2
SFR 60 - 175			175	1.90	70.0		78.75		87.5		101.5	2
SFR 60 - 200			200	1.60	80.0		90.0		100.0		116.0	2
SFR 60 - 250			250	1.30	100.0		112.5		125.0		145.0	2
SFR 60 - 300	300	1.00	120.0		135.0		150.0		174.0	2		

**SF  
JIS**

1 N = 0.1 daN = 0.102 kgf

Load (N) = R (N/mm) x Deflection (mm)



SF 40 - 80 (Series D<sub>o</sub> - L<sub>0</sub>)

Special Springs **29**