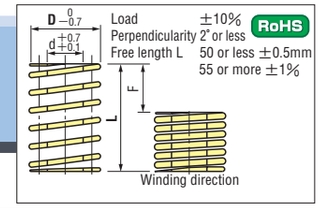
COIL SPRINGS
—X—SWF—

Light — Load — Heavy

X—SWF



Load ±10%
Perpendicularity 2° or less
Free length L 50 or less ±0.5mm
55 or more ±1%

RoHS

COIL SPRINGS

D	d	L	Spring constant N/mm {kgf/mm}	F=L×40% Fmm	F=L×40% Load N {kgf}	F=L×45% Fmm	F=L×45% Load N {kgf}	Catalog No. Type D—L
Operation count				1,000,000		500,000		
8	4	10	15.7 {1.60}	4.0	63 {6.4}	4.5	71 {7.2}	X—SWF 8—10
		15	10.5 {1.07}	6.0		6.8		15
		20	7.8 {0.80}	8.0		9.0		20
		25	6.3 {0.64}	10.0		11.2		25
		30	5.2 {0.53}	12.0		13.5		30
		35	4.5 {0.46}	14.0		15.7		35
		40	3.9 {0.40}	16.0		18.0		40
		45	3.5 {0.36}	18.0		20.2		45
		50	3.1 {0.32}	20.0		22.5		50
		55	2.9 {0.29}	22.0		24.7		55
		60	2.6 {0.27}	24.0		27.0		60
		65	2.4 {0.25}	26.0		29.3		65
		70	2.2 {0.23}	28.0		31.5		70
		75	2.1 {0.21}	30.0		33.8		75
		80	2.0 {0.20}	32.0		36.0		80
10	5	10	19.6 {2.00}	4.0	78 {8.0}	4.5	88 {9.0}	X—SWF10—10
		15	13.1 {1.33}	6.0		6.8		15
		20	9.8 {1.00}	8.0		9.0		20
		25	7.8 {0.80}	10.0		11.2		25
		30	6.5 {0.67}	12.0		13.5		30
		35	5.9 {0.57}	14.0		15.7		35
		40	4.9 {0.50}	16.0		18.0		40
		45	4.4 {0.44}	18.0		20.2		45
		50	3.9 {0.40}	20.0		22.5		50
		55	3.6 {0.36}	22.0		24.7		55
		60	3.3 {0.33}	24.0		27.0		60
		65	3.0 {0.31}	26.0		29.2		65
		70	2.8 {0.29}	28.0		31.5		70
		75	2.6 {0.27}	30.0		33.7		75
		80	2.5 {0.25}	32.0		36.0		80
		90	2.2 {0.22}	36.0		40.5		90
12	6	15	18.3 {1.87}	6.0	110 {11}	6.8	124 {13}	X—SWF12—15
		20	13.7 {1.40}	8.0		9.0		20
		25	11.0 {1.12}	10.0		11.2		25
		30	9.2 {0.93}	12.0		13.5		30
		35	7.8 {0.80}	14.0		15.7		35
		40	6.9 {0.70}	16.0		18.0		40
		45	6.1 {0.62}	18.0		20.2		45
		50	5.5 {0.56}	20.0		22.5		50
		55	5.0 {0.51}	22.0		24.7		55
		60	4.6 {0.47}	24.0		27.0		60
		65	4.2 {0.43}	26.0		29.2		65
		70	3.9 {0.40}	28.0		31.5		70
		75	3.7 {0.37}	30.0		33.7		75
		80	3.4 {0.35}	32.0		36.0		80
		90	3.1 {0.31}	36.0		40.5		90
14	7	20	17.7 {1.80}	8.0	141 {14}	9.0	159 {16}	X—SWF14—20
		25	14.1 {1.44}	10.0		11.2		25
		30	11.8 {1.20}	12.0		13.5		30
		35	10.1 {1.03}	14.0		15.7		35
		40	8.8 {0.90}	16.0		18.0		40
		45	7.8 {0.80}	18.0		20.2		45
		50	7.1 {0.72}	20.0		22.5		50
		55	6.4 {0.65}	22.0		24.7		55
		60	5.9 {0.60}	24.0		27.0		60
		65	5.4 {0.55}	26.0		29.2		65
		70	5.0 {0.51}	28.0		31.5		70
		75	4.7 {0.48}	30.0		33.7		75
		80	4.4 {0.45}	32.0		36.0		80
		90	3.9 {0.40}	36.0		40.5		90
		100	3.5 {0.36}	40.0		45.0		100

D	d	L	Spring constant N/mm {kgf/mm}	F=L×40% Fmm	F=L×40% Load N {kgf}	F=L×45% Fmm	F=L×45% Load N {kgf}	Catalog No. Type D—L
Operation count				1,000,000		500,000		
16	8	20	20.6 {2.10}	8.0	165 {17}	9.0	185 {19}	X—SWF16—20
		25	16.5 {1.68}	10.0		11.2		25
		30	13.7 {1.40}	12.0		13.5		30
		35	11.8 {1.20}	14.0		15.7		35
		40	10.3 {1.05}	16.0		18.0		40
		45	9.2 {0.93}	18.0		20.2		45
		50	8.2 {0.84}	20.0		22.5		50
		55	7.5 {0.76}	22.0		24.7		55
		60	6.9 {0.70}	24.0		27.0		60
		65	6.3 {0.65}	26.0		29.2		65
		70	5.9 {0.60}	28.0		31.5		70
		75	5.5 {0.56}	30.0		33.7		75
		80	5.1 {0.53}	32.0		36.0		80
		90	4.6 {0.47}	36.0		40.5		90
		100	4.1 {0.42}	40.0		45.0		100
		125	3.3 {0.34}	50.0		56.3		125
18	9	20	25.5 {2.60}	8.0	204 {21}	9.0	229 {23}	X—SWF18—20
		25	20.4 {2.08}	10.0		11.2		25
		30	17.0 {1.73}	12.0		13.5		30
		35	14.6 {1.49}	14.0		15.7		35
		40	12.7 {1.30}	16.0		18.0		40
		45	11.3 {1.16}	18.0		20.2		45
		50	10.2 {1.04}	20.0		22.5		50
		55	9.3 {0.95}	22.0		24.7		55
		60	8.5 {0.87}	24.0		27.0		60
		65	7.8 {0.80}	26.0		29.2		65
		70	7.3 {0.74}	28.0		31.5		70
		75	6.8 {0.69}	30.0		33.7		75
		80	6.4 {0.65}	32.0		36.0		80
		90	5.7 {0.58}	36.0		40.5		90
		100	5.1 {0.52}	40.0		45.0		100
		125	4.1 {0.42}	50.0		56.3		125
20	11	20	31.4 {3.20}	8.0	251 {26}	9.0	282 {29}	X—SWF20—20
		25	25.1 {2.56}	10.0		11.2		25
		30	20.9 {2.13}	12.0		13.5		30
		35	17.9 {1.83}	14.0		15.7		35
		40	15.7 {1.60}	16.0		18.0		40
		45	13.9 {1.42}	18.0		20.2		45
		50	12.6 {1.28}	20.0		22.5		50
		55	11.4 {1.16}	22.0		24.7		55
		60	10.5 {1.07}	24.0		27.0		60
		65	9.7 {0.98}	26.0		29.2		65
		70	9.0 {0.91}	28.0		31.5		70
		75	8.4 {0.85}	30.0		33.7		75
		80	7.8 {0.80}	32.0		36.0		80
		90	7.0 {0.71}	36.0		40.5		90
		100	6.3 {0.64}	40.0		45.0		100
		125	5.0 {0.51}	50.0		56.2		125
		150	4.2 {0.43}	60.0		67.5		150
22	11	25	31.4 {3.20}	10.0	314 {32}	11.2	353 {36}	X—SWF22—25
		30	26.2 {2.67}	12.0		13.5		30
		35	22.4 {2.29}	14.0		15.7		35
		40	19.6 {2.00}	16.0		18.0		40
		45	17.4 {1.78}	18.0		20.2		45
		50	15.7 {1.60}	20.0		22.5		50
		55	14.3 {1.45}	22.0		24.7		55
		60	13.1 {1.33}	24.0		27.0		60
		65	12.1 {1.23}	26.0		29.2		65
		70	11.2 {1.14}	28.0		31.5		70
		75	10.5 {1.07}	30.0		33.7		75
		80	9.8 {1.00}	32.0		36.0		80
		90	8.7 {0.89}	36.0		40.5		90
		100	7.8 {0.80}	40.0		45.0		100
		125	6.3 {0.64}	50.0		56.2		125
		150	5.2 {0.53}	60.0		67.5		150

D	d	L	Spring constant N/mm {kgf/mm}	F=L×40% Fmm	F=L×40% Load N {kgf}	F=L×45% Fmm	F=L×45% Load N {kgf}	Catalog No. Type D—L
Operation count				1,000,000		500,000		
25	13.5	25	39.2 {4.00}	10.0	392 {40}	11.2	441 {45}	X—SWF25—25
		30	32.7 {3.33}	12.0		13.5		30
		35	28.0 {2.86}	14.0		15.7		35
		40	24.5 {2.50}	16.0		18.0		40
		45	21.8 {2.22}	18.0		20.2		45
		50	19.6 {2.00}	20.0		22.5		50
		55	17.8 {1.82}	22.0		24.7		55
		60	16.3 {1.67}	24.0		27.0		60
		65	15.1 {1.54}	26.0		29.2		65
		70	14.0 {1.43}	28.0		31.5		70
		75	13.1 {1.33}	30.0		33.7		75
		80	12.3 {1.25}	32.0		36.0		80
		90	10.9 {1.11}	36.0		40.5		90
		100	9.8 {1.00}	40.0		45.0		100
		125	7.8 {0.80}	50.0		56.2		125
		150	6.5 {0.67}	60.0		67.5		150
		175	5.6 {0.57}	70.0		78.7		175
		200	4.9 {0.50}	80.0		90.0		200
27	13.5	30	39.2 {4.00}	12.0	471 {48}	13.5	530 {54}	X—SWF27—30
		35	33.6 {3.43}	14.0		15.8		35
		40	29.4 {3.00}	16.0		18.0		40
		45	26.2 {2.67}	18.0		20.3		45
		50	23.5 {2.40}	20.0		22.5		50
		55	21.4 {2.18}	22.0		24.8		55
		60	19.6 {2.00}	24.0		27.0		60
		65	18.1 {1.85}	26.0		29.3		65
		70	16.8 {1.71}	28.0		31.5		70
		75	15.7 {1.60}	30.0		33.8		75
		80	14.7 {1.50}	32.0		36.0		80
		90	13.1 {1.33}	36.0		40.5		90
		100	11.8 {1.20}	40.0		45.0		100
		125	9.4 {0.96}	50.0		56.3		125
		150	7.8 {0.80}	60.0		67.5		150
		175	6.7 {0.69}	70.0		78.8		175
		200	5.9 {0.60}	80.0		90.0		200
30	16	25	56.5 {5.76}	10.0	565 {58}	11.2	635 {65}	X—SWF30—25
		30	47.1 {4.80}	12.0		13.5		30
		35	40.3 {4.11}	14.0		15.7		35
		40	35.3 {3.60}	16.0		18.0		40
		45	31.4 {3.20}	18.0		20.2		45
		50	28.2 {2.88}	20.0		22.5		50
		55	25.7 {2.62}	22.0		24.7		55
		60	23.5 {2.40}	24.0		27.0		60
		65	21.7 {2.22}	26.0		29.2		65
		70	20.2 {2.06}	28.0		31.5		70
		75	18.8 {1.92}	30.0		33.7		75
		80	17.7 {1.80}	32.0		36.0		80
		90	15.7 {1.60}	36.0		40.5		90
		100	14.1 {1.44}	40.0		45.0		100
		125	11.3 {1.15}	50.0		56.2		125
		150	9.4 {0.96}	60.0		67.5		150
		175	8.1 {0.82}	70.0		78.7		175
		200	7.1 {0.72}	80.0		90.0		200
35	19	40	48.0 {4.89}	16.0	768 {78}	18.0	864 {88}	X—SWF35—40
		45	42.7 {4.35}	18.0		20.2		45
		50	38.4 {3.92}	20.0		22.5		50
		55	34.9 {3.56}	22.0		24.7		55
		60	32.0 {3.26}	24.0		27.0		60
		65	29.5 {3.01}	26.0		29.2		65
		70	27.4 {2.80}	28.0		31.5		70
		75	25.6 {2.61}	30.0		33.7		75
		80	24.0 {2.45}	32.0		36.0		80
		90	21.3 {2.18}	36.0		40.5		90
		100	19.2 {1.96}	40.0		45.0		100
		125	15.4 {1.57}	50.0		56.2		125
		150	12.8 {1.31}	60.0		67.5		150
		175	11.0 {1.12}	70.0		78.7		175
		200	9.6 {0.98}	80.0		90.0		200

D	d	L	Spring constant N/mm {kgf/mm}	F=L×40% Fmm	F=L×40% Load N {kgf}	F=L×45% Fmm	F=L×45% Load N {kgf}	Catalog No. Type D—L
Operation count				1,000,000		500,000		
40	22	40	62.7 {6.39}	16.0	1003 {102}	18.0	1129 {115}	X—SWF40—40
		45	55.7 {5.68}	18.0		20.3		45
		50	50.2 {5.11}	20.0		22.5		50
		55	45.6 {4.65}	22.0		24.8		55
		60	41.8 {4.26}	24.0		27.0		60
		65	38.6 {3.93}	26.0		29.3		65
		70	35.8 {3.65}	28.0		31.5		70
		75	33.4 {3.41}	30.0		33.8		75
		80	31.4 {3.20}	32.0		36.0		80
		90	27.9 {2.84}	36.0		40.5		90
		100	25.1 {2.56}	40.0		45.0		100
		125	20.1 {2.05}	50.0		56.2		125
		150	16.7 {1.70}	60.0		67.5		150
		175	14.3 {1.46}	70.0		78.7		175
		200	12.5 {1.28}	80.0		90.0		200
		225	11.1 {1.14}	90.0		101.3		225
		250	10.0 {1.02}	100.0		112.5		250
		275	9.1 {0.93}	110.0		123.8		275
		300	8.4 {0.85}	120.0		135.0		300
50	27.5	50	78.4 {7.99}	20.0	1568 {160}	22.5	1764 {180}	X—SWF50—50
		55	71.3 {7.27}	22.0		24.8		55
		60	65.3 {6.66}	24.0		27.0		60
		65	60.3 {6.15}	26.0		29.3		65
		70	56.0 {5.71}	28.0		31.5		70
		75	52.3 {5.33}	30.0		33.8		75
		80	49.0 {5.00}	32.0		36.0		80
		90	43.6 {4.44}	36.0		40.5		90
		100	39.2 {4.00}	40.0		45.0		100
		125	31.4 {3.20}	50.0		56.3		125
		150	26.1 {2.66}	60.0		67.5		150
		175	22.4 {2.28}	70.0		78.8		175
		200	19.6 {2.00}	80.0		90.0		200
		225	17.4 {1.78}	90.0		101.3		225
		250	15.7 {1.60}	100.0		112.5		250
		275	14.3 {1.45}	110.0		123.8		275
		300	13.1 {1.33}	120.0		135.0		300
		350	11.2 {1.14}	140.0		157.5		350
		400	9.8 {1.00}	160.0		180.0		400
		450	8.7 {0.89}	180.0		202.5		450
		500	7.8 {0.80}	200.0		225.0		500
60	33	60	94.0 {9.59}	24.0	2256 {230}	27.0	2538 {259}	X—SWF60—60
		70	80.6 {8.22}	28.0		31.5		70
		80	70.5 {7.19}	32.0		36.0		80
		90	62.7 {6.39}	36.0		40.5		90
		100	56.4 {5.75}	40.0		45.0		100
		125	45.1 {4.60}	50.0		56.3		125
		150	37.6 {3.83}	60.0		67.5		150
		175	32.2 {3.29}	70.0		78.8		175
		200	28.2 {2.88}	80.0		90.0		200
		225	25.1 {2.56}	90.0		101.3		225
		250	22.6 {2.30}	100.0		112.5		250
		275	20.5 {2.09}	110.0		123.8		275
		300	18.8 {1.92}	120.0		135.0		300
		350	16.1 {1.64}	140.0		157.5		350
		400	14.1 {1.44}	160.0		180.0		400
		450	12.5 {1.28}	180.0		202.5		450
		500	11.3 {1.15}	200.0		225.0		500

● Load calculation method: Load=Spring constant×Deflection
(SI unit) N=N/mm×Fmm
kgf=kgf/mm×Fmm
(kgf=N×0.101972)

Order — Catalog No. X—SWF 10—30

Days to Ship — Quotation

Price — Quotation

Product guide P.806