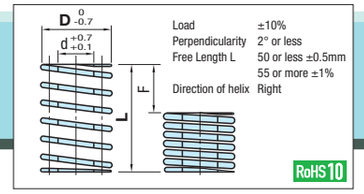
Coil Spring
Light Load SWL



Load	±10%
Perpendicularity	2° or less
Free Length L	50 or less ±0.5mm 55 or more ±1%
Direction of helix	Right

RoHS10

D	d	L	Spring Constant N/mm{kgf/mm}	F=Lx32% Fmm	F=Lx32% Load N{kgf}	F=Lx36% Fmm	F=Lx36% Load N{kgf}	F=Lx40% Fmm	F=Lx40% Load N{kgf}	Part Number Type D-L	Unit Price
6	3	15	13.1{1.33}	4.8	63 {6.4}	5.4	71 {7.2}	6.0	78 {8.0}	SWL 6- 15	
		20	9.8{1.00}	6.4		7.2		8.0		20	
		25	7.8{0.80}	8.0		9.0		10.0		25	
		30	6.5{0.67}	9.6		10.8		12.0		30	
		35	5.6{0.57}	11.2		12.6		14.0		35	
		40	4.9{0.50}	12.8		14.4		16.0		40	
8	4	10	24.5{2.50}	3.2	78 {8.0}	3.6	88 {9.0}	4.0	98 {10}	SWL 8- 10	
		15	16.3{1.67}	4.8		5.4		6.0		15	
		20	12.3{1.25}	6.4		7.2		8.0		20	
		25	9.8{1.00}	8.0		9.0		10.0		25	
		30	8.2{0.83}	9.6		10.8		12.0		30	
		35	7.0{0.71}	11.2		12.6		14.0		35	
		40	6.1{0.63}	12.8		14.4		16.0		40	
		45	5.4{0.56}	14.4		16.2		18.0		45	
		50	4.9{0.50}	16.0		18.0		20.0		50	
		55	4.5{0.45}	17.6		19.8		22.0		55	
		60	4.1{0.42}	19.2		21.6		24.0		60	
		65	3.8{0.38}	20.8		23.4		26.0		65	
		70	3.5{0.36}	22.4		25.2		28.0		70	
		75	3.3{0.33}	24.0		27.0		30.0		75	
		80	3.1{0.31}	25.6		28.8		32.0		80	
10	5	10	34.3{3.50}	3.2	110 {11}	3.6	124 {13}	4.0	137 {14}	SWL 10- 10	
		15	22.9{2.33}	4.8		5.4		6.0		15	
		20	17.2{1.75}	6.4		7.2		8.0		20	
		25	13.7{1.40}	8.0		9.0		10.0		25	
		30	11.4{1.17}	9.6		10.8		12.0		30	
		35	9.8{1.00}	11.2		12.6		14.0		35	
		40	8.6{0.88}	12.8		14.4		16.0		40	
		45	7.6{0.78}	14.4		16.2		18.0		45	
		50	6.9{0.70}	16.0		18.0		20.0		50	
		55	6.2{0.64}	17.6		19.8		22.0		55	
		60	5.7{0.58}	19.2		21.6		24.0		60	
		65	5.3{0.54}	20.8		23.4		26.0		65	
		70	4.9{0.50}	22.4		25.2		28.0		70	
		75	4.6{0.47}	24.0		27.0		30.0		75	
		80	4.3{0.44}	25.6		28.8		32.0		80	
		90	3.8{0.39}	28.8		32.4		36.0		90	
12	6	15	34.3{3.50}	4.8	165 {17}	5.4	185 {19}	6.0	206 {21}	SWL 12- 15	
		20	25.7{2.63}	6.4		7.2		8.0		20	
		25	20.6{2.10}	8.0		9.0		10.0		25	
		30	17.2{1.75}	9.6		10.8		12.0		30	
		35	14.7{1.50}	11.2		12.6		14.0		35	
		40	12.9{1.31}	12.8		14.4		16.0		40	
		45	11.4{1.17}	14.4		16.2		18.0		45	
		50	10.3{1.05}	16.0		18.0		20.0		50	
		55	9.4{0.95}	17.6		19.8		22.0		55	
		60	8.6{0.88}	19.2		21.6		24.0		60	
		65	7.9{0.81}	20.8		23.4		26.0		65	
		70	7.4{0.75}	22.4		25.2		28.0		70	
		75	6.9{0.70}	24.0		27.0		30.0		75	
		80	6.4{0.66}	25.6		28.8		32.0		80	
		90	5.7{0.58}	28.8		32.4		36.0		90	
14	7	20	34.3{3.50}	6.4	220 {22}	7.2	247 {25}	8.0	275 {28}	SWL 14- 20	
		25	27.5{2.80}	8.0		9.0		10.0		25	
		30	22.9{2.33}	9.6		10.8		12.0		30	
		35	19.6{2.00}	11.2		12.6		14.0		35	
		40	17.2{1.75}	12.8		14.4		16.0		40	
		45	15.3{1.56}	14.4		16.2		18.0		45	
		50	13.7{1.40}	16.0		18.0		20.0		50	
		55	12.5{1.27}	17.6		19.8		22.0		55	
		60	11.4{1.17}	19.2		21.6		24.0		60	
		65	10.6{1.08}	20.8		23.4		26.0		65	
		70	9.8{1.00}	22.4		25.2		28.0		70	
		75	9.2{0.93}	24.0		27.0		30.0		75	
		80	8.6{0.88}	25.6		28.8		32.0		80	
		90	7.6{0.78}	28.8		32.4		36.0		90	
		100	6.9{0.70}	32.0		36.0		40.0		100	
Usage Count				1 Million Times		500,000 Times		300,000 Times			

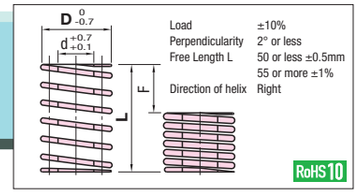
Ordering Example — Part Number: SWL22-100, SWM20-80

- Load calculation method = Spring constant x Deflection
  (Int'l Unit) N=N/mmxFmm
  kgf=kgf/mmxFmm
  (kgf=Nx0.101972)

M Material: Oil tempered wires for springs

D	d	L	Spring Constant N/mm{kgf/mm}	F=Lx32% Fmm	F=Lx32% Load N{kgf}	F=Lx36% Fmm	F=Lx36% Load N{kgf}	F=Lx40% Fmm	F=Lx40% Load N{kgf}	Part Number Type D-L	Unit Price
16	8	20	42.9{4.38}	6.4	275 {28}	7.2	309 {32}	8.0	343 {35}	SWL 16- 20	
		25	34.3{3.50}	8.0		9.0		10.0		25	
		30	28.6{2.92}	9.6		10.8		12.0		30	
		35	24.5{2.50}	11.2		12.6		14.0		35	
		40	21.5{2.19}	12.8		14.4		16.0		40	
		45	19.1{1.94}	14.4		16.2		18.0		45	
		50	17.2{1.75}	16.0		18.0		20.0		50	
		55	15.6{1.59}	17.6		19.8		22.0		55	
		60	14.3{1.46}	19.2		21.6		24.0		60	
		65	13.2{1.35}	20.8		23.4		26.0		65	
		70	12.3{1.25}	22.4		25.2		28.0		70	
		75	11.4{1.17}	24.0		27.0		30.0		75	
		80	10.7{1.09}	25.6		28.8		32.0		80	
		90	9.5{0.97}	28.8		32.4		36.0		90	
		100	8.6{0.88}	32.0		36.0		40.0		100	
		125	6.9{0.70}	40.0		45.0		50.0		125	
18	9	20	52.7{5.38}	6.4	337 {34}	7.2	380 {39}	8.0	422 {43}	SWL 18- 20	
		25	42.2{4.30}	8.0		9.0		10.0		25	
		30	35.1{3.58}	9.6		10.8		12.0		30	
		35	30.1{3.07}	11.2		12.6		14.0		35	
		40	26.4{2.69}	12.8		14.4		16.0		40	
		45	23.4{2.39}	14.4		16.2		18.0		45	
		50	21.1{2.15}	16.0		18.0		20.0		50	
		55	19.2{1.95}	17.6		19.8		22.0		55	
		60	17.6{1.79}	19.2		21.6		24.0		60	
		65	16.2{1.65}	20.8		23.4		26.0		65	
		70	15.1{1.54}	22.4		25.2		28.0		70	
		75	14.1{1.43}	24.0		27.0		30.0		75	
		80	13.2{1.34}	25.6		28.8		32.0		80	
		90	11.7{1.19}	28.8		32.4		36.0		90	
		100	10.5{1.08}	32.0		36.0		40.0		100	
		125	8.4{0.86}	40.0		45.0		50.0		125	
20	10	20	66.2{6.75}	6.4	424 {43}	7.2	477 {48}	8.0	530 {54}	SWL 20- 20	
		25	53.0{5.40}	8.0		9.0		10.0		25	
		30	44.1{4.50}	9.6		10.8		12.0		30	
		35	37.8{3.86}	11.2		12.6		14.0		35	
		40	33.1{3.38}	12.8		14.4		16.0		40	
		45	29.4{3.00}	14.4		16.2		18.0		45	
		50	26.5{2.70}	16.0		18.0		20.0		50	
		55	24.1{2.45}	17.6		19.8		22.0		55	
		60	22.1{2.25}	19.2		21.6		24.0		60	
		65	20.4{2.08}	20.8		23.4		26.0		65	
		70	18.9{1.93}	22.4		25.2		28.0		70	
		75	17.7{1.80}	24.0		27.0		30.0		75	
		80	16.5{1.69}	25.6		28.8		32.0		80	
		90	14.7{1.50}	28.8		32.4		36.0		90	
		100	13.2{1.35}	32.0		36.0		40.0		100	
		125	10.6{1.08}	40.0		45.0		50.0		125	
		150	8.8{0.90}	48.0		54.0		60.0		150	
22	11	25	65.7{6.70}	8.0	526 {54}	9.0	591 {60}	10.0	657 {67}	SWL 22- 25	
		30	54.8{5.58}	9.6		10.8		12.0		30	
		35	46.9{4.79}	11.2		12.6		14.0		35	
		40	41.1{4.19}	12.8		14.4		16.0		40	
		45	36.5{3.72}	14.4		16.2		18.0		45	
		50	32.9{3.35}	16.0		18.0		20.0		50	
		55	29.9{3.05}	17.6		19.8		22.0		55	
		60	27.4{2.79}	19.2		21.6		24.0		60	
		65	25.3{2.58}	20.8		23.4		26.0		65	
		70	23.5{2.39}	22.4		25.2		28.0		70	
		75	21.9{2.23}	24.0		27.0		30.0		75	
		80	20.5{2.09}	25.6		28.8		32.0		80	
		90	18.3{1.86}	28.8		32.4		36.0		90	
		100	16.4{1.68}	32.0		36.0		40.0		100	
		125	13.1{1.34}	40.0		45.0		50.0		125	
		150	11.0{1.12}	48.0		54.0		60.0		150	
25	12.5	25	82.4{8.40}	8.0	659 {67}	9.0	741 {76}	10.0	824 {84}	SWL 25- 25	
		30	68.6{7.00}	9.6		10.8		12.0		30	
		35	58.8{6.00}	11.2		12.6		14.0		35	
		40	51.5{5.25}	12.8		14.4		16.0		40	
		45	45.8{4.67}	14.4		16.2		18.0		45	
		50	41.2{4.20}	16.0		18.0		20.0		50	
		55	37.4{3.82}	17.6		19.8		22.0		55	
		60	34.3{3.50}	19.2		21.6		24.0		60	
		65	31.7{3.23}	20.8		23.4		26.0		65	
		70	29.4{3.00}	22.4		25.2		28.0		70	
		75	27.5{2.80}	24.0		27.0		30.0		75	
		80	25.7{2.63}	25.6		28.8		32.0		80	
		90	22.9{2.33}	28.8		32.4		36.0		90	
		100	20.6{2.10}	32.0		36.0		40.0		100	
		125	16.5{1.68}	40.0		45.0		50.0		125	
		150	13.7{1.40}	48.0		54.0		60.0		150	
		175	11.8{1.20}	56.0		63.0		70.0		175	
		200	10.3{1.05}	64.0		72.0		80.0		200	
Usage Count				1 Million Times		500,000 Times		300,000 Times			

Coil Spring
Medium Load SWM



Load	±10%
Perpendicularity	2° or less
Free Length L	50 or less ±0.5mm 55 or more ±1%
Direction of helix	Right

RoHS10

D	d	L	Spring Constant N/mm{kgf/mm}	F=Lx25.6% Fmm	F=Lx25.6% Load N{kgf}	F=Lx28.8% Fmm	F=Lx28.8% Load N{kgf}	F=Lx32% Fmm	F=Lx32% Load N{kgf}	Part Number Type D-L	Unit Price
6	3	15	20.4{2.08}	3.8	79 {8.0}	4.3	88 {9.0}	4.8	98 {10}	SWM 6- 15	
		20	15.3{1.56}	5.1		5.8		6.4		20	
		25	12.3{1.25}	6.4		7.2		8.0		25	
		30	10.2{1.04}	7.7		8.6		9.6		30	
		35	8.8{0.89}	9.0		10.1		11.2		35	
		40	7.7{0.78}	10.2		11.5		12.8		40	
		45	6.8{0.69}	11.5		13.0		14.4		45	
		50	6.1{0.63}	12.8		14.4		16.0		50	
		55	5.6{0.57}	14.1		15.8		17.6		55	
		60	5.1{0.52}	15.4		17.3		19.2		60	
8	4	10	42.9{4.37}	2.6	110 {11}	2.9	123 {13}	3.2	137 {14}	SWM 8- 10	
		15	28.6{2.91}	3.8		4.3		4.8		15	
		20	21.5{2.18}	5.1		5.8		6.4		20	
		25	17.2{1.75}	6.4		7.2		8.0		25	
		30	14.3{1.46}	7.7		8.6		9.6		30	
		35	12.2{1.25}	9.0		10.1		11.2		35	
		40	10.7{1.09}	10.2		11.5		12.8		40	
		45	9.5{0.97}	11.5		13.0		14.4		45	
		50	8.6{0.87}	12.8		14.4		16.0		50	
		55	7.8{0.79}	14.1		15.8		17.6		55	
		60	7.1{0.73}	15.4		17.3		19.2		60	
		65	6.6{0.67}	16.6		18.7		20.8		65	
		70	6.1{0.62}	17.9		20.2		22.4		70	
		75	5.7{0.58}	19.2		21.6		24.0		75	
		80	5.4{0.55}	20.5		23.0		25.6		80	
10	5	10	61.3{6.25}	2.6	157 {16}	2.9	176 {18}	3.2	196 {20}	SWM 10- 10	
		15	40.9{4.17}	3.8		4.3		4.8		15	
		20	30.6{3.13}	5.1		5.8		6.4		20	
		25	24.5{2.50}	6.4		7.2		8.0		25	
		30	20.4{2.08}	7.7		8.6		9.6		30	
		35	17.5{1.79}	9.0		10.1		11.2		35	
		40	15.3{1.56}	10.2		11.5		12.8		40	
		45	13.6{1.39}	11.5		13.0		14.4		45	
		50	12.3{1.25}	12.8		14.4		16.0		50	
		55	11.1{1.14}	14.1		15.8		17.6		55	
		60	10.2{1.04}	15.4		17.3		19.2		60	
		65	9.4{0.96}	16.6		18.7		20.8		65	
		70	8.8{0.89}	17.9		20.2		22.4		70	
		75	8.2{0.83}	19.2		21.6		24.0		75	
		80	7.7{0.78}	20.5		23.0		25.6		80	
		90	6.8{0.69}	23.0		25.9		28.8		90	
12	6	15	59.2{6.04}	3.8	227 {23}	4.3	256 {26}	4.8	284 {29}	SWM 12- 15	
		20	44.4{4.53}	5.1		5.8		6.4		20	
		25	35.5{3.63}	6.4		7.2		8.0		25	
		30	29.6{3.02}	7.7		8.6		9.6		30	
		35	25.4{2.59}	9.0		10.1		11.2		35	
		40	22.2{2.27}	10.2		11.5		12.8		40	
		45	19.7{2.01}	11.5		13.0		14.4		45	
		50	17.8{1.81}	12.8		14.4		16.0		50	
		55	16.2{1.65}	14.1		15.8		17.6		55	
		60	14.8{1.51}	15.4		17.3		19.2		60	
		65	13.7{1.39}	16.6		18.7		20.8		65	
		70	12.7{1.29}	17.9		20.2		22.4		70	
		75	11.8{1.21}	19.2		21.6		24.0		75	
		80	11.1{1.13}	20.5		23.0		25.6		80	
		90	9.9{1.01}	23.0		25.9		28.8		90	
14	7	20	59.8{6.09}	5.1	306 {31}	5.8	345 {35}	6.4	383 {39}	SWM 14- 20	
		25	47.9{4.88}	6.4		7.2		8.0		25	
		30	39.9{4.08}	7.7		8.6		9.6		30	
		35	34.2{3.48}	9.0		10.1		11.2		35	
		40	29.9{3.05}	10.2		11.5		12.8		40	
		45	26.6{2.71}	11.5		13.0		14.4		45	
		50	23.9{2.44}	12.8		14.4		16.0		50	
		55	21.8{2.22}	14.1		15.8		17.6		55	
		60	19.9{2.03}	15.4		17.3		19.2		60	
		65	18.4{1.88}	16.6		18.7		20.8		65	
		70	17.1{1.74}	17.9		20.2		22.4		70	
		75	16.0{1.63}	19.2		21.6		24.0		75	
		80	15.0{1.52}	20.5		23.0		25.6		80	
		90	13.3{1.35}	23.0		25.9		28.8		90	
		100	12.0{1.22}	25.6		28.8		32.0		100	
Usage Count				1 Million Times		500,000 Times		300,000 Times			

D	d	L	Spring Constant N/mm{kgf/mm}	F=Lx25.6% Fmm	F=Lx25.6% Load N{kgf}	F=Lx28.8% Fmm	F=Lx28.8% Load N{kgf}	F=Lx32% Fmm	F=Lx32% Load N{kgf}	Part Number Type D-L	Unit Price
16	8	20	78.1{7.97}	5.1	400 {41}	5.8	450 {46}	6.4	500 {51}	SWM 16- 20	
		25	62.5{6.38}	6.4		7.2		8.0		25	
		30	52.1{5.31}	7.7		8.6		9.6		30	
		35	44.7{4.55}	9.0		10.1		11.2		35	
		40	39.1{3.98}	10.2		11.5		12.8		40	
		45	34.7{3.54}	11.5		13.0		14.4		45	
		50	31.3{3.19}	12.8		14.4		16.0		50	
		55	28.4{2.90}	14.1		15.8		17.6		55	
		60	26.0{2.66}	15.4		17.3		19.2		60	
		65	24.0{2.45}	16.6		18.7		20.8		65	
		70	22.3{2.28}	17.9		20.2		22.4		70	
		75	20.8{2.13}	19.2		21.6		24.0		75	
		80	19.5{1.99}	20.5		23.0		25.6		80	
		90	17.4{1.77}	23.0		25.9		28.8		90	
		100	15.6{1.59}	25.6		28.8		32.0		100	
18	9	20	99.6{10.2}	5.1	510 {52}	5.8	574 {59}	6.4	637 {65}	SWM 18- 20	
		25	79.7{8.13}	6.4		7.2		8.0		25	
		30	66.4{6.77}	7.7		8.6		9.6		30	
		35	56.9{5.80}	9.0		10.1		11.2		35	
		40	49.8{5.08}	10.2		11.5		12.8		40	
		45	44.3{4.51}	11.5		13.0		14.4		45	
		50	39.8{4.06}	12.8		14.4		16.0		50	
		55	36.2{3.69}	14.1		15.8		17.6		55	
		60	33.2{3.39}	15.4		17.3		19.2		60	
		65	30.6{3.13}	16.6		18.7		20.8		65	
		70	28.5{2.90}	17.9		20.2		22.4		70	
		75	26.6{2.71}	19.2		21.6		24.0		75	
		80	24.9{2.54}	20.5		23.0		25.6		80	
		90	22.1{2.26}	23.0		25.9		28.8		90	
		100	19.9{2.03}	25.6		28.8		32.0		100	
20	10	20	123{12.5}	5.1	628 {64}	5.8	706 {72}	6.4	784 {80}	SWM 20- 20	
		25	98.0{10.0}	6.4		7.2		8.0		25	
		30	81.7{8.33}	7.7		8.6		9.6		30	
		35	70.0{7.14}	9.0		10.1		11.2		35	
		40	61.3{6.25}	10.2		11.5		12.8		40	
		45	54.4{5.55}	11.5		13.0		14.4		45	
		50	49.0{5.00}	12.8		14.4		16.0		50	
		55	44.5{4.55}	14.1		15.8		17.6		55	
		60	40.8{4.17}	15.4		17.3		19.2		60	
		65	37.7{3.85}	16.6		18.7		20.8		65	
		70	35.0{3.57}	17.9		20.2		22.4		70	
		75	32.7{3.33}	19.2		21.6		24.0		75	
		80	30.6{3.13}	20.5		23.0		25.6		80	
		90	27.2{2.78}	23.0		25.9		28.8		90	
		100	24.5{2.50}	25.6		28.8		32.0		100	
		125	19.6{2.00}	32.0		36.0		40.0		125	
		150	16.3{1.67}	38.4		43.2		48.0		150	
22	11	25	119{12.1}	6.4	761 {78}	7.2	856 {87}	8.0	951 {97}	SWM 22- 25	
		30	99.1{10.1}	7.7		8.6		9.6		30	
		35	84.9{8.66}	9.0		10.1		11.2		35	
		40	74.3{7.58}	10.2		11.5		12.8		40	
		45	66.1{6.74}	11.5		13.0		14.4		45	
		50	59.5{6.06}	12.8		14.4		16.0		50	
		55	54.0{5.51}	14.1		15.8		17.6		55	
		60	49.5{5.05}	15.4		17.3		19.2		60	
		65	45.7{4.66}	16.6		18.7		20.8		65	
		70	42.5{4.33}	17.9		20.2		22.4		70	
		75	39.6{4.04}	19.2		21.6		24.0		75	
		80	37.2{3.79}	20.5		23.0		25.6		80	
		90	33.0{3.37}	23.0		25.9		28.8		90	
		100	29.7{3.03}	25.6		28.8		32.0		100	
		125	23.8{2.43}	32.0		36.0		40.0		125	
		150	19.8{2.02}	38.4		43.2		48.0		150	
25	12.5	25	153{15.6}	6.4	981 {100}	7.2	1103 {113}	8.0	1225 {125}	SWM 25- 25	
		30	128{13.0}	7.7		8.6		9.6		30	
		35	109{11.2}	9.0		10.1		11.2		35	
		40	95.7{9.77}	10.2		11.5		12.8		40	
		45	85.1{8.68}	11.5		13.0		14.4		45	
		50	76.6{7.81}	12.8		14.4		16.0		50	
		55	69.6{7.10}	14.1		15.8		17.6		55	
		60	63.8{6.51}	15.4		17.3		19.2		60	
		65	58.9{6.01}	16.6		18.7		20.8		65	
		70	54.7{5.58}	17.9		20.2		22.4		70	
		75	51.0{5.21}	19.2		21.6		24.0		75	
		80	47.9{4.88}	20.5		23.0		25.6		80	
		90	42.5{4.34}	23.0		25.9		28.8		90	
		100	38.3{3.91}	25.6		28.8		32.0		100	
		125	30.6{3.13}	32.0		36.0		40.0		125	
		150	25.5{2.60}	38.4		43.2		48.0		150	
		175	21.9{2.23}	44.8		50.4		56.0		175	
Usage Count				1 Million Times		500,000 Times		300,000 Times			

How to use coil springs, and precautions P328
About D dimension and back facing hole, and D dimension and shaft, see P.1881.
Sizes larger than D25 are listed in "Press Die and Mold Components".