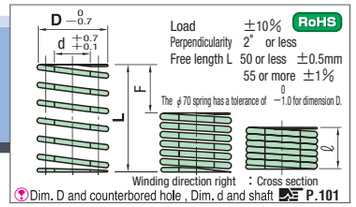
COIL SPRINGS
—HEAVY LOAD SWH—

Light — Load — Heavy
SWH

SGP Stock

Printed in Red



Dim. D and counterbored hole , Dim. d and shaft P.101

The volume discount rate is also applicable to alteration cost.
All price & lead time are to be quoted.

D	d	L	Spring constant N/mm{kgf/mm}	Solid height ℓ min	F=LX19.2% Fmm	F=LX19.2% Load N{kgf}	F=LX21.6% Fmm	F=LX21.6% Load N{kgf}	F=LX24% Fmm	F=LX24% Load N{kgf}	Catalog No. TypeD—L	U/Price Q'ty : 1~19
6	3	15	38.1 {3.9}	11.0	2.9	110 {11}	3.2	123 {13}	3.6	137 {14}	SWH 6— 15	
		20	28.5 {2.9}	14.7	3.8		4.3		4.8		20	
		25	22.8 {2.3}	18.4	4.8		5.4		6.0		25	
		30	19.0 {1.9}	22.0	5.8		6.5		7.2		30	
		35	16.3 {1.7}	25.7	6.7		7.6		8.4		35	
		40	14.3 {1.5}	29.4	7.7		8.6		9.6		40	
		45	12.7 {1.3}	33.0	8.6		9.7		10.8		45	
		50	11.4 {1.2}	36.7	9.6		10.8		12.0		50	
		55	10.4 {1.1}	40.4	10.6		11.9		13.2		55	
		60	9.5 {1.0}	44.0	11.5		13.0		14.4		60	
8	4	10	85.8 {8.8}	7.4	1.9	165 {17}	2.2	185 {19}	2.4	206 {21}	SWH 8— 10	
		15	57.2 {5.8}	10.8	2.9		3.2		3.6		15	
		20	42.9 {4.4}	14.4	3.8		4.3		4.8		20	
		25	34.3 {3.5}	18.0	4.8		5.4		6.0		25	
		30	28.6 {2.9}	21.6	5.8		6.5		7.2		30	
		35	24.5 {2.5}	25.2	6.7		7.5		8.4		35	
		40	21.5 {2.2}	28.8	7.7		8.6		9.6		40	
		45	19.1 {1.9}	32.4	8.6		9.7		10.8		45	
		50	17.2 {1.8}	36.0	9.6		10.8		12.0		50	
		55	15.6 {1.6}	39.6	10.6		11.8		13.2		55	
		60	14.3 {1.5}	43.2	11.5		13.0		14.4		60	
		65	13.2 {1.3}	47.7	12.5		14.0		15.6		65	
		70	12.3 {1.3}	51.4	13.4		15.1		16.8		70	
		75	11.4 {1.2}	55.1	14.4		16.2		18.0		75	
		80	10.7 {1.1}	58.7	15.4		17.3		19.2		80	
10	5	10	123 {12.5}	7.4	1.9	235 {24}	2.2	265 {27}	2.4	294 {30}	SWH10— 10	
		15	81.7 {8.3}	11.0	2.9		3.2		3.6		15	
		20	61.3 {6.3}	14.4	3.8		4.3		4.8		20	
		25	49.0 {5.0}	18.0	4.8		5.4		6.0		25	
		30	40.8 {4.2}	21.6	5.8		6.5		7.2		30	
		35	35.0 {3.6}	25.2	6.7		7.5		8.4		35	
		40	30.6 {3.1}	28.8	7.7		8.6		9.6		40	
		45	27.2 {2.8}	32.4	8.6		9.7		10.8		45	
		50	24.5 {2.5}	36.0	9.6		10.8		12.0		50	
		55	22.3 {2.3}	39.6	10.6		11.8		13.2		55	
		60	20.4 {2.1}	43.2	11.5		13.0		14.4		60	
		65	18.8 {1.9}	46.8	12.5		14.0		15.6		65	
		70	17.5 {1.8}	50.4	13.4		15.1		16.8		70	
		75	16.3 {1.7}	54.0	14.4		16.2		18.0		75	
		80	15.3 {1.6}	57.6	15.4		17.3		19.2		80	
		90	13.6 {1.4}	64.8	17.3		19.4		21.6		90	
12	6	15	117 {11.9}	11.0	2.9	337 {34}	3.2	379 {38}	3.6	421 {43}	SWH12— 15	
		20	87.7 {8.9}	14.4	3.8		4.3		4.8		20	
		25	70.2 {7.2}	18.0	4.8		5.4		6.0		25	
		30	58.5 {6.0}	21.6	5.8		6.5		7.2		30	
		35	50.1 {5.1}	25.2	6.7		7.5		8.4		35	
		40	43.9 {4.5}	28.8	7.7		8.6		9.6		40	
		45	39.0 {4.0}	32.4	8.6		9.7		10.8		45	
		50	35.1 {3.6}	36.0	9.6		10.8		12.0		50	
		55	31.9 {3.3}	39.6	10.6		11.8		13.2		55	
		60	29.2 {3.0}	43.2	11.5		13.0		14.4		60	
		65	27.0 {2.8}	46.8	12.5		14.0		15.6		65	
		70	25.1 {2.6}	50.4	13.4		15.1		16.8		70	
		75	23.4 {2.4}	54.0	14.4		16.2		18.0		75	
		80	21.9 {2.2}	57.6	15.4		17.3		19.2		80	
		90	19.5 {2.0}	64.8	17.3		19.4		21.6		90	
14	7	20	120 {12.3}	14.7	3.8	462 {47}	4.3	520 {53}	4.8	578 {59}	SWH14— 20	
		25	96.3 {9.8}	18.0	4.8		5.4		6.0		25	
		30	80.3 {8.2}	21.6	5.8		6.5		7.2		30	
		35	68.8 {7.0}	25.2	6.7		7.5		8.4		35	
		40	60.2 {6.1}	28.8	7.7		8.6		9.6		40	
		45	53.5 {5.5}	32.4	8.6		9.7		10.8		45	
		50	48.2 {4.9}	36.0	9.6		10.8		12.0		50	
		55	43.8 {4.5}	39.6	10.6		11.8		13.2		55	
		60	40.1 {4.1}	43.2	11.5		13.0		14.4		60	
		65	37.1 {3.8}	46.8	12.5		14.0		15.6		65	
		70	34.4 {3.5}	50.4	13.4		15.1		16.8		70	
		75	32.1 {3.3}	54.0	14.4		16.2		18.0		75	
		80	30.1 {3.1}	57.6	15.4		17.3		19.2		80	
		90	26.8 {2.7}	64.8	17.3		19.4		21.6		90	
		100	24.1 {2.5}	72.0	19.2		21.6		24.0		100	
Operation frequency					1X10⁶ times		5X10⁵ times		3X10⁵ times			

D	d	L	Spring constant N/mm{kgf/mm}	Solid height ℓ min	F=LX19.2% Fmm	F=LX19.2% Load N{kgf}	F=LX21.6% Fmm	F=LX21.6% Load N{kgf}	F=LX24% Fmm	F=LX24% Load N{kgf}	Catalog No. Type D—L	U/Price Q'ty : 1~19
16	8	20	157 {16.0}	14.7	3.8	604 {62}	4.3	680 {69}	4.8	755 {77}	SWH16— 20	
		25	126 {12.8}	18.0	4.8		5.4		6.0		25	
		30	105 {10.7}	21.6	5.8		6.5		7.2		30	
		35	89.9 {9.2}	25.2	6.7		7.5		8.4		35	
		40	78.6 {8.0}	28.8	7.7		8.6		9.6		40	
		45	69.9 {7.1}	32.4	8.6		9.7		10.8		45	
		50	62.9 {6.4}	36.0	9.6		10.8		12.0		50	
		55	57.2 {5.8}	39.6	10.6		11.8		13.2		55	
		60	52.4 {5.3}	43.2	11.5		13.0		14.4		60	
		65	48.4 {4.9}	46.8	12.5		14.0		15.6		65	
		70	44.9 {4.6}	50.4	13.4		15.1		16.8		70	
		75	41.9 {4.3}	54.0	14.4		16.2		18.0		75	
		80	39.3 {4.0}	57.6	15.4		17.3		19.2		80	
		90	35.0 {3.6}	64.8	17.3		19.4		21.6		90	
		100	31.5 {3.2}	72.0	19.2		21.6		24.0		100	
18	9	20	198 {20.2}	14.7	3.8	761 {78}	4.3	856 {87}	4.8	951 {97}	SWH18— 20	
		25	159 {16.2}	18.0	4.8		5.4		6.0		25	
		30	132 {13.5}	21.6	5.8		6.5		7.2		30	
		35	113 {11.5}	25.2	6.7		7.5		8.4		35	
		40	99.1 {10.1}	28.8	7.7		8.6		9.6		40	
		45	88.1 {9.0}	32.4	8.6		9.7		10.8		45	
		50	79.3 {8.1}	36.0	9.6		10.8		12.0		50	
		55	72.0 {7.3}	39.6	10.6		11.8		13.2		55	
		60	66.0 {6.7}	43.2	11.5		13.0		14.4		60	
		65	61.0 {6.2}	46.8	12.5		14.0		15.6		65	
		70	56.6 {5.8}	50.4	13.4		15.1		16.8		70	
		75	52.8 {5.4}	54.0	14.4		16.2		18.0		75	
		80	49.5 {5.1}	57.6	15.4		17.3		19.2		80	
		90	44.0 {4.5}	64.8	17.3		19.4		21.6		90	
		100	39.6 {4.0}	72.0	19.2		21.6		24.0		100	
20	10	20	245 {25.0}	14.7	3.8	941 {96}	4.3	1058 {108}	4.8	1176 {120}	SWH20— 20	
		25	196 {20.0}	18.0	4.8		5.4		6.0		25	
		30	163 {16.7}	21.6	5.8		6.5		7.2		30	
		35	140 {14.3}	25.2	6.7		7.5		8.4		35	
		40	123 {12.5}	28.8	7.7		8.6		9.6		40	
		45	109 {11.1}	32.4	8.6		9.7		10.8		45	
		50	98.0 {10.0}	36.0	9.6		10.8		12.0		50	
		55	89.1 {9.1}	39.6	10.6		11.8		13.2		55	
		60	81.7 {8.3}	43.2	11.5		13.0		14.4		60	
		65	75.4 {7.7}	46.8	12.5		14.0		15.6		65	
		70	70.0 {7.1}	50.4	13.4		15.1		16.8		70	
		75	65.3 {6.7}	54.0	14.4		16.2		18.0		75	
		80	61.3 {6.2}	57.6	15.4		17.3		19.2		80	
		90	54.4 {5.6}	64.8	17.3		19.4		21.6		90	
		100	49.0 {5.0}	72.0	19.2		21.6		24.0		100	
		125	39.2 {4.0}	90.0	24.0		27.0		30.0		125	
		150	32.7 {3.3}	108.0	28.8		32.4		36.0		150	
22	11	25	237 {24.2}	18.0	4.8	1137 {116}	5.4	1279 {130}	6.0	1421 {145}	SWH22— 25	
		30	197 {20.1}	21.6	5.8		6.5		7.2		30	
		35	169 {17.3}	25.2	6.7		7.6		8.4		35	
		40	148 {15.1}	28.8	7.7		8.6		9.6		40	
		45	132 {13.4}	32.4	8.6		9.7		10.8		45	
		50	118 {12.1}	36.0	9.6		10.8		12.0		50	
		55	108 {11.0}	39.6	10.6		11.9		13.2		55	
		60	98.7 {10.1}	43.2	11.5		13.0		14.4		60	
		65	91.1 {9.3}	46.8	12.5		14.0		15.6		65	
		70	84.6 {8.6}	50.4	13.4		15.1		16.8		70	
		75	78.9 {8.1}	54.0	14.4		16.2		18.0		75	
		80	74.0 {7.5}	57.6	15.4		17.3		19.2		80	
		90	65.8 {6.7}	64.8	17.3		19.4		21.6		90	
		100	59.2 {6.0}	72.0	19.2		21.6		24.0		100	
		125	47.4 {4.8}	90.0	24.0		27.0		30.0		125	
		150	39.5 {4.0}	108.0	28.8		32.4		36.0		150	
Operation frequency					1X10⁶ times		5X10⁵ times		3X10⁵ times			

D	d	L	Spring constant N/mm{kgf/mm}	Solid height ℓ min	F=LX19.2% Fmm	F=LX19.2% Load N{kgf}	F=LX21.6% Fmm	F=LX21.6% Load N{kgf}	F=LX24% Fmm	F=LX24% Load N{kgf}	Catalog No. TypeD—L	U/Price Q'ty : 1~19
25	12.5	25	306 {31.2}	18.0	4.8	1466 {150}	5.4	1650 {168}	6.0	1833 {187}	SWH25— 25	
		30	255 {26.0}	21.6	5.8		6.5		7.2		30	
		35	218 {22.3}	25.2	6.7		7.6		8.4		35	
		40	191 {19.5}	28.8	7.7		8.6		9.6		40	
		45	170 {17.3}	32.4	8.6		9.7		10.8		45	
		50	153 {15.6}	36.0	9.6		10.8		12.0		50	
		55	139 {14.2}	39.6	10.6		11.9		13.2		55	
		60	127 {13.0}	43.2	11.5		13.0		14.4		60	
		65	118 {12.0}	46.8	12.5		14.0		15.6		65	
		70	109 {11.1}	50.4	13.4		15.1		16.8		70	
		75	102 {10.4}	54.0	14.4		16.2		18.0		75	
		80	95.5 {9.7}	57.6	15.4		17.3		19.2		80	
		90	84.9 {8.7}	64.8	17.3		19.4		21.6		90	
		100	76.4 {7.8}	72.0	19.2		21.6		24.0		100	
		125	61.1 {6.2}	90.0	24.0		27.0		30.0		125	
		150	50.9 {5.2}	108.0	28.8		32.4		36.0		150	
		175	43.6 {4.5}	126.0	33.6		37.8		42.0		175	
27	13.5	25	358 {36.5}	18.0	4.8	1717 {175}	5.4	1931 {197}	6.0	2146 {219}	SWH27— 25	
		30	298 {30.4}	21.6	5.8		6.5		7.2		30	
		35	255 {26.1}	25.2	6.7		7.6		8.4		35	
		40	224 {22.8}	28.8	7.7		8.6		9.6		40	
		45	199 {20.3}	32.4	8.6		9.7		10.8		45	
		50	179 {18.2}	36.0	9.6		10.8		12.0		50	
		55	163 {16.6}	39.6	10.6		11.9		13.2		55	
		60	149 {15.2}	43.2	11.5		13.0		14.4		60	
		65	138 {14.0}	46.8	12.5		14.0		15.6		65	
		70	128 {13.0}	50.4	13.4		15.1		16.8		70	
		75	119 {12.2}	54.0	14.4		16.2		18.0		75	
		80	112 {11.4}	57.6	15.4		17.3		19.2		80	
		90	99.4 {10.1}	64.8	17.3		19.4		21.6		90	
		100	89.4 {9.1}	72.0	19.2		21.6		24.0		100	
		125	71.5 {7.3}	90.0	24.0		27.0		30.0		125	
		150	59.6 {6.1}	108.0	28.8		32.4		36.0		150	
		175	51.1 {5.2}	126.0	33.6		37.8		42.0		175	
30	15	25	441 {45.0}	18.0	4.8	2117 {216}	5.4	2381 {243}	6.0	2646 {270}	SWH30— 25	
		30	368 {37.5}	21.6	5.8		6.5		7.2		30	
		35	315 {32.1}	25.2	6.7		7.6		8.4		35	
		40	276 {28.1}	28.8	7.7		8.6		9.6		40	
		45	245 {25.0}	32.4	8.6		9.7		10.8		45	
		50	221 {22.5}	36.0	9.6		10.8		12.0		50	
		55	200 {20.4}	39.6	10.6		11.9		13.2		55	
		60	184 {18.7}	43.2	11.5		13.0		14.4		60	
		65	170 {17.3}	46.8	12.5		14.0		15.6		65	
		70	158 {16.1}	50.4	13.4		15.1		16.8		70	
		75	147 {15.0}	54.0	14.4		16.2		18.0		75	
		80	138 {14.1}	57.6	15.4		17.3		19.2		80	
		90	123 {12.5}	64.8	17.3		19.4		21.6		90	
		100	110 {11.2}	72.0	19.2		21.6		24.0		100	
		125	88.2 {9.0}	90.0	24.0		27.0		30.0		125	
		150	73.5 {7.5}	108.0	28.8		32.4		36.0		150	
		175	63.0 {6.4}	126.0	33.6		37.8		42.0		175	
		200	55.1 {5.6}	144.0	38.4		43.2		48.0		200	
35	17.5	40	375 {38.2}	28.8	7.7	2878 {293}	8.6	3237 {330}	9.6	3597 {367}	SWH35— 40	
		45	333 {34.0}	32.4	8.6		9.7		10.8		45	
		50	300 {30.6}	36.0	9.6		10.8		12.0		50	
		55	273 {27.8}	39.6	10.6		11.9		13.2		55	
		60	250 {25.5}	43.2	11.5		13.0		14.4		60	
		65	231 {23.5}	46.8	12.5		14.0		15.6		65	
		70	214 {21.8}	50.4	13.4		15.1		16.8		70	
		75	200 {20.4}	54.0	14.4		16.2		18.0		75	
		80	187 {19.1}	57.6	15.4		17.3		19.2		80	
		90	167 {17.0}	64.8	17.3		19.4		21.6		90	
		100	150 {15.3}	72.0	19.2		21.6		24.0		100	
		125	120 {12.2}	90.0	24.0		27.0		30.0		125	
		150	99.9 {10.2}	108.0	28.8		32.4		36.0		150	
		175	85.6 {8.7}	126.0	33.6		37.8		42.0		175	
		200	74.9 {7.6}	144.0	38.4		43.2		48.0		200	
Operation frequency					1X10⁶ times		5X10⁵ times		3X10⁵ times			

D	d	L	Spring constant N/mm{kgf/mm}	Solid height ℓ min	F=LX19.2% Fmm	F=LX19.2% Load N{kgf}	F=LX21.6% Fmm	F=LX21.6% Load N{kgf}	F=LX24% Fmm	F=LX24% Load N{kgf}	Catalog No. TypeD—L	U/Price Q'ty : 1~19
40	20	40	490 {50.0}	28.8	7.7	3763 {384}	8.6	4234 {432}	9.6	4704 {480}	SWH40— 40	
		45	436 {44.4}	33.0	8.6		9.7		10.8		45	
		50	392 {40.0}	36.0	9.6		10.8		12.0		50	
		55	356 {36.3}	40.4	10.6		11.9		13.2		55	
		60	327 {33.3}	43.2	11.5		13.0		14.4		60	
		65	302 {30.7}	47.7	12.5		14.0		15.6		65	
		70	280 {28.6}	50.4	13.4		15.1		16.8		70	
		75	261 {26.6}	55.1	14.4		16.2		18.0		75	
		80	245 {25.0}	57.6	15.4		17.3		19.2		80	
		90	218 {22.2}	64.8	17.3		19.4		21.6		90	
		100	196 {20.0}	72.0	19.2		21.6		24.0		100	
		125	157 {16.0}	90.0	24.0		27.0		30.0		125	
		150	131 {13.3}	108.0	28.8		32.4		36.0		150	
		175	112 {11.4}	126.0	33.6		37.8		42.0		175	
		200	98.0 {10.0}	144.0	38.4		43.2		48.0		200	
		225	87.1 {8.9}	162.0	43.2		48.6		54.0		225	
		250	78.4 {8.0}	180.0	48.0		54.0		60.0		250	
		275	71.3 {7.3}	198.0	52.8		59.4		66.0		275	
		300	65.3 {6.7}	220.2	57.6		64.8		72.0		300	
50	25	50	613 {62.5}	36	9.6	5880 {600}	10.8	6615 {675}	12.0	7350 {750}	SWH50— 50	
		55	557 {56.8}	39.6	10.6		11.9		13.2		55	
		60	510 {52.0}	43.2	11.5		13.0		14.4		60	
		65	471 {48.0}	46.8	12.5		14.0		15.6		65	
		70	438 {44.6}	50.4	13.4		15.1		16.8		70	
		75	408 {41.6}	54	14.4		16.2		18.0		75	
		80	383 {39.0}	57.6	15.4		17.3		19.2		80	
		90	340 {34.7}	64.8	17.3		19.4		21.6		90	
		100	306 {31.2}	72	19.2		21.6		24.0		100	
		125	245 {25.0}	90	24.0		27.0		30.0		125	
		150	204 {20.8}	108	28.8		32.4		36.0		150	
		175	175 {17.8}	126	33.6		37.8		42.0		175	
		200	153 {15.6}	144	38.4		43.2		48.0		200	
		225	136 {13.9}	162	43.2		48.6		54.0		225	
		250	123 {12.5}	180	48.0		54.0		60.0		250	
		275	111 {11.4}	198	52.8		59.4		66.0		275	
		300	102 {10.4}	216	57.6		64.8		72.0		300	
		350	87.5 {8.9}	256.9	67.2		75.6		84.0		350	
60	30	60	735 {74.9}	43.2	11.5	8467 {863}	13.0	9526 {971}	14.4	10584 {1079}	SWH60— 60	
		70	630 {64.2}	50.4	13.4		15.1		16.8		70	
		80	551 {56.2}	57.6	15.4		17.3		19.2		80	
		90	490 {50.0}	64.8	17.3		19.4		21.6		90	
		100	441 {45.0}	72.0	19.2		21.6		24.0		100	
		125	353 {36.0}	90.0	24.0		27.0		30.0		125	
		150	294 {30.0}	108.0	28.8		32.4		36.0		150	
		175	252 {25.7}	126.0	33.6		37.8		42.0		175	
		200	221 {22.5}	144.0	38.4		43.2		48.0		200	
		225	196 {20.0}	162.0	43.2		48.6		54.0		225	
		250	176 {18.0}	180.0	48.0		54.0		60.0		250	
		275	160 {16.4}	198.0	52.8		59.4		66.0		275	
		300	147 {15.0}	216.0	57.6		64.8		72.0		300	
		350	126 {12.8}	256.9	67.2		75.6		84.0		350	
70	38.5	70	747 {76.2}	51.4	13.4	10046 {1024}	15.1	11301 {1152}	16.8	12557 {1280}	SWH70— 70	
		80	654 {66.7}	58.7	15.4		17.3		19.2		80	
		90	581 {59.3}	66.1	17.3		19.4		21.6		90	
		100	523 {53.4}	72.0	19.2		21.6		24.0		100	
		125	419 {42.7}	90.0	24.0		27.0		30.0		125	
		150	349 {35.6}	108.0	28.8		32.4		36.0		150	
		175	299 {30.5}	126.0	33.6		37.8		42.0		175	
		200	262 {26.7}	144.0	38.4		43.2		48.0		200	
		250	209 {21.3}	180.0	48.0		54.0		60.0		250	
		300	174 {17.8}	216.0	57.6		64.8		72.0		300	
		350	149 {15.2}	252.0	67.2		75.6		84.0		350	
Operation frequency					1X10⁶ times		5X10⁵ times		3X10⁵ times			

Order — Catalog No. SWH 20—30

Delivery — • Printed in Red: SGP Stock — • Printed in Black: 3 Days

For area out of Singapore please refer to P.i.

Volume discount rate

Quantity	1~19	20~49	50~199	200~500
Rate	—	5%	10%	15%

M SWOSC —V

●Load calculation method : N (load) = N/mm (spring constant) × F (deflection)
(International units) N = N/mm × Fmm
kgf = kgf/mm × Fmm
(kgf = N × 0.101972)

The solid height values are reference only. There may be some variations depending on lots.

Product Outline P.99

Directions and precautions for coil springs P.101

Alterations — (NT)— Catalog No. NT — SWH 30—50 — 7 Days — For area out of Singapore please refer to P.i.

Alteration	Code	Spec.	Price
No painting	NT	**Paint peeling** Peel the coating by shot peening. Since the springs which have undergone the painting peeling are easy to rust, be careful in handling. A rusty spring could cause early breakage. Compared to painted springs, there may be some variations, etc. depending on the lot.	Free of Charge

Stocks Availability Subjected to Prior Sales.