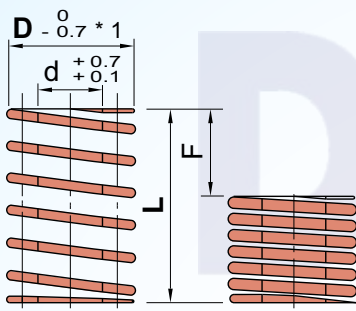


# Coil Springs – DSWB



Load  $\pm 10\%$   
 Perpendicularity  $2^\circ$  or less  
 Free length L 50 or less  $\pm 0.5\text{mm}$   
 55 or more  $\pm 1\%$   
 Winding Direction : Right

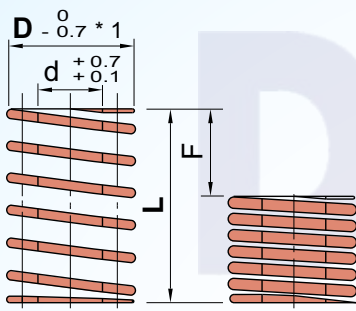
\*1 For D70, the D dimension tolerance is  $-1.0$

Part No. Type D-L	D	d	L	Spring Constant N/mm(kgf/mm)	F = L x 16%		F = L x 18%		F = L x 20%		
					Fmm	Load N(kgf)	Fmm	Load N(kgf)	Fmm	Load N(kgf)	
<b>Operation Count</b>											
					1,000,000	500,000	300,000				
DSWB6 -	15	6	3	15	59.0 {6.0}	2.4	2.7	3.0			
20	20			44.3 {4.5}	3.2	3.6	4.0				
25	25			35.4 {3.6}	4.0	4.5	5.0				
30	30			29.5 {3.0}	4.8	5.4	6.0				
35	35			25.3 {2.6}	5.6	6.3	7.0	142	159	177	
40	40			22.1 {2.3}	6.4	7.2	8.0	(14)	(16)	(18)	
45	45			19.7 {2.0}	7.2	8.1	9.0				
50	50			17.7 {1.8}	8.0	9.0	10.0				
55	55			16.1 {1.6}	8.8	9.9	11.0				
60	60			14.8 {1.5}	9.6	10.8	12.0				
DSWB8 -	10			8	4	10	162 {16.5}	1.6	1.8	2.0	
15	15	108 {11.0}	2.4			2.7	3.0				
20	20	80.8 {8.2}	3.2			3.6	4.0				
25	25	64.6 {6.6}	4.0			4.5	5.0				
30	30	53.8 {5.5}	4.8			5.4	6.0				
35	35	46.1 {4.7}	5.6			6.3	7.0				
40	40	40.4 {4.1}	6.4			7.2	8.0	258	291	323	
45	45	35.9 {3.7}	7.2			8.1	9.0	(26)	(30)	(33)	
50	50	32.3 {3.3}	8.0			9.0	10.0				
55	55	29.4 {3.0}	8.8			9.9	11.0				
60	60	26.9 {2.7}	9.6			10.8	12.0				
65	65	24.8 {2.5}	10.4	11.7	13.0						
70	70	23.1 {2.4}	11.2	12.6	14.0						
75	75	21.5 {2.2}	12.0	13.5	15.0						
80	80	20.2 {2.1}	12.8	14.4	16.0						
DSWB10 -	10	10	5	10	221 {22.5}	1.6	1.8	2.0			
15	15			147 {15.0}	2.4	2.7	3.0				
20	20			110 {11.2}	3.2	3.6	4.0				
25	25			88.2 {9.0}	4.0	4.5	5.0				
30	30			73.5 {7.5}	4.8	5.4	6.0				
35	35			63.0 {6.4}	5.6	6.3	7.0				
40	40			55.1 {5.6}	6.4	7.2	8.0	353	397	441	
45	45			49.0 {5.0}	7.2	8.1	9.0	(36)	(41)	(45)	
50	50			44.1 {4.5}	8.0	9.0	10.0				
55	55			40.1 {4.1}	8.8	9.9	11.0				
60	60			36.8 {3.7}	9.6	10.8	12.0				
65	65	33.9 {3.5}	10.4	11.7	13.0						
70	70	31.5 {3.2}	11.2	12.6	14.0						
75	75	29.4 {3.0}	12.0	13.5	15.0						
80	80	27.6 {2.8}	12.8	14.4	16.0						
90	90	24.5 {2.5}	14.4	16.2	18.0						
DSWB12 -	15	12	6	15	190 {19.3}	2.4	2.7	3.0			
20	20			142 {14.5}	3.2	3.6	4.0				
25	25			114 {11.6}	4.0	4.5	5.0				
30	30			94.8 {9.7}	4.8	5.4	6.0				
35	35			81.3 {8.3}	5.6	6.3	7.0				
40	40			71.1 {7.3}	6.4	7.2	8.0				
45	45			63.2 {6.4}	7.2	8.1	9.0	353	397	441	
50	50			56.9 {5.8}	8.0	9.0	10.0	(36)	(41)	(45)	
55	55			51.7 {5.3}	8.8	9.9	11.0				
60	60			47.4 {4.8}	9.6	10.8	12.0				
65	65			43.8 {4.5}	10.4	11.7	13.0				
70	70	40.6 {4.1}	11.2	12.6	14.0						
75	75	37.9 {3.9}	12.0	13.5	15.0						
80	80	35.6 {3.6}	12.8	14.4	16.0						
90	90	31.6 {3.2}	14.4	16.2	18.0						
DSWB14 -	20	14	7	20	184 {18.8}	3.2	3.6	4.0			
25	25			147 {15.0}	4.0	4.5	5.0				
30	30			123 {12.5}	4.8	5.4	6.0				
35	35			105 {10.7}	5.6	6.3	7.0				
40	40			92.0 {9.4}	6.4	7.2	8.0				
45	45			81.8 {8.3}	7.2	8.1	9.0				
50	50			73.6 {7.5}	8.0	9.0	10.0	589	662	736	
55	55			66.9 {6.8}	8.8	9.9	11.0	(60)	(68)	(75)	
60	60			61.3 {6.3}	9.6	10.8	12.0				
65	65			56.6 {5.8}	10.4	11.7	13.0				
70	70			52.6 {5.4}	11.2	12.6	14.0				
75	75	49.1 {5.0}	12.0	13.5	15.0						
80	80	46.0 {4.7}	12.8	14.4	16.0						
90	90	40.9 {4.2}	14.4	16.2	18.0						
100	100	36.8 {3.8}	16.0	18.0	20.0						

Part No. Type D-L	D	d	L	Spring Constant N/mm(kgf/mm)	F = L x 16%		F = L x 18%		F = L x 20%		
					Fmm	Load N(kgf)	Fmm	Load N(kgf)	Fmm	Load N(kgf)	
<b>Operation Count</b>											
					1,000,000	500,000	300,000				
DSWB16 -	20	16	8	20	245 {25.0}	3.2	3.6	4.0			
25	25			196 {20.0}	4.0	4.5	5.0				
30	30			163 {16.7}	4.8	5.4	6.0				
35	35			140 {14.3}	5.6	6.3	7.0				
40	40			123 {12.5}	6.4	7.2	8.0				
45	45			109 {11.1}	7.2	8.1	9.0				
50	50			98.0 {10.0}	8.0	9.0	10.0	784	882	980	
55	55			89.1 {9.1}	8.8	9.9	11.0	(80)	(90)	(100)	
60	60			81.7 {8.3}	9.6	10.8	12.0				
65	65			75.4 {7.7}	10.4	11.7	13.0				
70	70			70.0 {7.1}	11.2	12.6	14.0				
75	75	65.3 {6.7}	12.0	13.5	15.0						
80	80	61.3 {6.3}	12.8	14.4	16.0						
90	90	54.4 {5.6}	14.4	16.2	18.0						
100	100	49.0 {5.0}	16.0	18.0	20.0						
DSWB18 -	20	18	9	20	306 {31.2}	3.2	3.6	4.0			
25	25			245 {25.0}	4.0	4.5	5.0				
30	30			204 {20.8}	4.8	5.4	6.0				
35	35			175 {17.8}	5.6	6.3	7.0				
40	40			153 {15.6}	6.4	7.2	8.0				
45	45			136 {13.9}	7.2	8.1	9.0				
50	50			123 {12.5}	8.0	9.0	10.0	980	1103	1225	
55	55			111 {11.4}	8.8	9.9	11.0	(100)	(113)	(125)	
60	60			102 {10.4}	9.6	10.8	12.0				
65	65			94.2 {9.6}	10.4	11.7	13.0				
70	70			87.5 {8.9}	11.2	12.6	14.0				
75	75	81.7 {8.3}	12.0	13.5	15.0						
80	80	76.6 {7.8}	12.8	14.4	16.0						
90	90	68.1 {6.9}	14.4	16.2	18.0						
100	100	61.3 {6.2}	16.0	18.0	20.0						
DSWB20 -	20	20	10	20	392 {40.0}	3.2	3.6	4.0			
25	25			314 {32.0}	4.0	4.5	5.0				
30	30			261 {26.6}	4.8	5.4	6.0				
35	35			224 {22.8}	5.6	6.3	7.0				
40	40			196 {20.0}	6.4	7.2	8.0				
45	45			174 {17.8}	7.2	8.1	9.0				
50	50			157 {16.0}	8.0	9.0	10.0				
55	55			143 {14.5}	8.8	9.9	11.0	1254	1411	1568	
60	60			131 {13.3}	9.6	10.8	12.0	(128)	(144)	(160)	
65	65			121 {12.3}	10.4	11.7	13.0				
70	70			112 {11.4}	11.2	12.6	14.0				
75	75	105 {10.7}	12.0	13.5	15.0						
80	80	98.0 {10.0}	12.8	14.4	16.0						
90	90	87.1 {8.9}	14.4	16.2	18.0						
100	100	78.4 {8.0}	16.0	18.0	20.0						
125	125	62.7 {6.4}	20.0	22.5	25.0						
150	150	52.3 {5.3}	24.0	27.0	30.0						
DSWB22 -	25	22	11	25	382 {39.0}	4.0	4.5	5.0			
30	30			319 {32.5}	4.8	5.4	6.0				
35	35			273 {27.9}	5.6	6.3	7.0				
40	40			239 {24.4}	6.4	7.2	8.0				
45	45			212 {21.7}	7.2	8.1	9.0				
50	50			191 {19.5}	8.0	9.0	10.0				
55	55			174 {17.7}	8.8	9.9	11.0				
60	60			159 {16.2}	9.6	10.8	12.0	1530	1721	1912	
65	65			147 {15.0}	10.4	11.7	13.0	(156)	(175)	(195)	
70	70			137 {13.9}	11.2	12.6	14.0				
75	75			127 {13.0}	12.0	13.5	15.0				
80	80	120 {12.2}	12.8	14.4	16.0						
90	90	106 {10.8}	14.4	16.2	18.0						
100	100	95.6 {9.8}	16.0	18.0	20.0						
125	125	76.5 {7.8}	20.0	22.5	25.0						
150	150	63.7 {6.5}	24.0	27.0	30.0						



# Coil Springs – DSWB



Load  $\pm 10\%$   
 Perpendicularity  $2^\circ$  or less  
 Free length L 50 or less  $\pm 0.5\text{mm}$   
 55 or more  $\pm 1\%$   
 Winding Direction : Right

\* 1 For D70, the D dimension tolerance is  $-1.0$

Part No. Type D-L	D	d	L	Spring Constant N/mm(kgf/mm)	F = L x 16%		F = L x 18%		F = L x 20%	
					Fmm	Load N(kgf)	Fmm	Load N(kgf)	Fmm	Load N(kgf)
DSWB25 - 25	25	12.5	25	481 (49.0)	4.0	4.5	5.0	1922 (196)	2162 (220)	2403 (245)
30			30	400 (40.8)	4.8	5.4	6.0			
35			35	343 (35.0)	5.6	6.3	7.0			
40			40	300 (30.6)	6.4	7.2	8.0			
45			45	267 (27.2)	7.2	8.1	9.0			
50			50	240 (24.5)	8.0	9.0	10.0			
55			55	218 (22.3)	8.8	9.9	11.0			
60			60	200 (20.4)	9.6	10.8	12.0			
65			65	185 (18.8)	10.4	11.7	13.0			
70			70	172 (17.5)	11.2	12.6	14.0			
75			75	160 (16.3)	12.0	13.5	15.0			
80			80	150 (15.3)	12.8	14.4	16.0			
90			90	133 (13.6)	14.4	16.2	18.0			
100			100	120 (12.2)	16.0	18.0	20.0			
125			125	96.1 (9.8)	20.0	22.5	25.0			
150	150	80.1 (8.2)	24.0	27.0	30.0					
175	175	68.6 (7.0)	28.0	31.5	35.0					
DSWB27 - 25	27	13.5	25	569 (58.0)	4.0	4.5	5.0	2275 (232)	2560 (261)	2844 (290)
30			30	474 (48.3)	4.8	5.4	6.0			
35			35	406 (41.4)	5.6	6.3	7.0			
40			40	355 (36.2)	6.4	7.2	8.0			
45			45	316 (32.2)	7.2	8.1	9.0			
50			50	284 (29.0)	8.0	9.0	10.0			
55			55	259 (26.4)	8.8	9.9	11.0			
60			60	237 (24.2)	9.6	10.8	12.0			
65			65	219 (22.3)	10.4	11.7	13.0			
70			70	203 (20.7)	11.2	12.6	14.0			
75			75	190 (19.3)	12.0	13.5	15.0			
80			80	178 (18.1)	12.8	14.4	16.0			
90			90	158 (16.1)	14.4	16.2	18.0			
100			100	142 (14.5)	16.0	18.0	20.0			
125			125	114 (11.6)	20.0	22.5	25.0			
150	150	94.8 (9.7)	24.0	27.0	30.0					
175	175	81.3 (8.3)	28.0	31.5	35.0					
DSWB30 - 25	30	15	25	706 (72.0)	4.0	4.5	5.0	2824 (288)	3177 (324)	3530 (360)
30			30	588 (60.0)	4.8	5.4	6.0			
35			35	504 (51.4)	5.6	6.3	7.0			
40			40	441 (45.0)	6.4	7.2	8.0			
45			45	392 (40.0)	7.2	8.1	9.0			
50			50	353 (36.0)	8.0	9.0	10.0			
55			55	321 (32.7)	8.8	9.9	11.0			
60			60	294 (30.0)	9.6	10.8	12.0			
65			65	272 (27.7)	10.4	11.7	13.0			
70			70	252 (25.7)	11.2	12.6	14.0			
75			75	235 (24.0)	12.0	13.5	15.0			
80			80	221 (22.5)	12.8	14.4	16.0			
90			90	196 (20.0)	14.4	16.2	18.0			
100			100	177 (18.0)	16.0	18.0	20.0			
125			125	141 (14.4)	20.0	22.5	25.0			
150	150	118 (12.0)	24.0	27.0	30.0					
175	175	101 (10.3)	28.0	31.5	35.0					
200	200	88.3 (9.0)	32.0	36.0	40.0					
DSWB35 - 40	35	17.5	40	600 (61.2)	6.4	7.2	8.0	3842 (392)	4322 (441)	4802 (490)
45			45	534 (54.4)	7.2	8.1	9.0			
50			50	480 (49.0)	8.0	9.0	10.0			
55			55	437 (44.5)	8.8	9.9	11.0			
60			60	400 (40.8)	9.6	10.8	12.0			
65			65	369 (37.7)	10.4	11.7	13.0			
70			70	343 (35.0)	11.2	12.6	14.0			
75			75	320 (32.6)	12.0	13.5	15.0			
80			80	300 (30.6)	12.8	14.4	16.0			
90			90	267 (27.2)	14.4	16.2	18.0			
100			100	240 (24.5)	16.0	18.0	20.0			
125			125	192 (19.6)	20.0	22.5	25.0			
150			150	160 (16.3)	24.0	27.0	30.0			
175			175	137 (14.0)	28.0	31.5	35.0			
200			200	120 (12.2)	32.0	36	40.0			

Part No. Type D-L	D	d	L	Spring Constant N/mm(kgf/mm)	F = L x 16%		F = L x 18%		F = L x 20%	
					Fmm	Load N(kgf)	Fmm	Load N(kgf)	Fmm	Load N(kgf)
DSWB40 - 40	40	20	40	784 (79.9)	6.4	7.2	8.0	5018 (512)	5645 (576)	6272 (640)
45			45	697 (71.1)	7.2	8.1	9.0			
50			50	627 (64.0)	8.0	9.0	10.0			
55			55	570 (58.1)	8.8	9.9	11.0			
60			60	523 (53.3)	9.6	10.8	12.0			
65			65	482 (49.2)	10.4	11.7	13.0			
70			70	448 (45.7)	11.2	12.6	14.0			
75			75	418 (42.6)	12.0	13.5	15.0			
80			80	392 (40.0)	12.8	14.4	16.0			
90			90	348 (35.5)	14.4	16.2	18.0			
100			100	314 (32.0)	16.0	18.0	20.0			
125			125	251 (25.6)	20.0	22.5	25.0			
150			150	209 (21.3)	24.0	27.0	30.0			
175			175	179 (18.3)	28.0	31.5	35.0			
200			200	157 (16.0)	32.0	36.0	40.0			
225	225	139 (14.2)	36.0	40.5	45.0					
250	250	125 (12.8)	40.0	45.0	50.0					
275	275	114 (11.6)	44.0	49.5	55.0					
300	300	105 (10.7)	48.0	54.0	60.0					
DSWB50 - 50	50	25	50	980 (100.0)	8.0	9.0	10.0	7840 (800)	8820 (900)	9800 (1000)
55			55	891 (90.9)	8.8	9.9	11.0			
60			60	817 (83.3)	9.6	10.8	12.0			
65			65	754 (76.9)	10.4	11.7	13.0			
70			70	700 (71.4)	11.2	12.6	14.0			
75			75	653 (66.7)	12.0	13.5	15.0			
80			80	613 (62.5)	12.8	14.4	16.0			
90			90	544 (55.6)	14.4	16.2	18.0			
100			100	490 (50.0)	16.0	18.0	20.0			
125			125	392 (40.0)	20.0	22.5	25.0			
150			150	327 (33.3)	24.0	27.0	30.0			
175			175	280 (28.6)	28.0	31.5	35.0			
200			200	245 (25.0)	32.0	36.0	40.0			
225			225	218 (22.2)	36.0	40.5	45.0			
250			250	196 (20.0)	40.0	45.0	50.0			
275	275	178 (18.2)	44.0	49.5	55.0					
300	300	163 (16.7)	48.0	54.0	60.0					
350	350	140 (14.3)	56.0	63.0	70.0					
DSWB60 - 60	60	30	60	1176 (120.0)	9.6	10.8	12.0	11290 (800)	12701 (1296)	14112 (1440)
70			70	1008 (102.9)	11.2	12.6	14.0			
80			80	882 (90.0)	12.8	14.4	16.0			
90			90	784 (80.0)	14.4	16.2	18.0			
100			100	706 (72.0)	16.0	18.0	20.0			
125			125	564 (57.6)	20.0	22.5	25.0			
150			150	470 (48.0)	24.0	27.0	30.0			
175			175	403 (41.1)	28.0	31.5	35.0			
200			200	353 (36.0)	32.0	36.0	40.0			
225			225	314 (32.0)	36.0	40.5	45.0			
250			250	282 (28.8)	40.0	45.0	50.0			
275			275	257 (26.2)	44.0	49.5	55.0			
300			300	235 (24.0)	48.0	54.0	60.0			
350			350	202 (20.6)	56.0	63.0	70.0			
DSWB70 - 70			70	38.5	70	1219 (124.3)	11.2	12.6	14.0	13655 (1392)
80	80	1067 (108.8)			12.8	14.4	16.0			
90	90	948 (96.7)			14.4	16.2	18.0			
100	100	853 (87.0)			16.0	18.0	20.0			
125	125	683 (69.6)			20.0	22.5	25.0			
150	150	569 (58.0)			24.0	27.0	30.0			
175	175	488 (49.7)			28.0	31.5	35.0			
200	200	427 (43.5)			32.0	36.0	40.0			
250	250	341 (34.8)			40.0	45.0	50.0			
300	300	284 (29.0)			48.0	54.0	60.0			
350	350	244 (24.9)			56.0	63.0	70.0			

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

Alteration	Code	Spec.
	NT	<b>Coating removal</b> Removal of the coil spring coating by shot peening ⚠ Springs with the coating removed are extremely susceptible to corrosion. Handle them with care. Corrosion of the spring will result in early breakage. ⚠ There may be greater variation in the load capacity and other characteristics between lots than with ordinary coated products.
No coating		

## ORDERING GUIDE

