

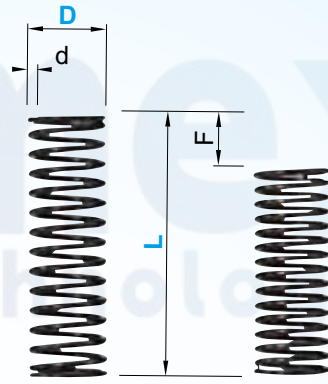
ROUND WIRE COIL SPRINGS

DWL (40% Deflection)

Spring constant

D12, D14 and D20 are not available for DWT type.

D	Type	DWY	DWR	DWF	DWL	DWT	DWM	DWH	DWB
2					0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4) 4.9 (0.5)
3									
4		N/mm 0.1 {kgf/mm} {0.01}							
5			N/mm 0.3 {kgf/mm} {0.03}	N/mm 0.5 {kgf/mm} {0.05}					
6									
8									
10		N/mm 0.2 {kgf/mm} {0.02}							
12									
13									
14									
16									
18									
20			N/mm 0.5 {kgf/mm} {0.05}	N/mm 1.0 {kgf/mm} {0.1}					
22									
27									
Fmax.		F=Lx75%	F=Lx60%	F=Lx45%	F=Lx40%	F=Lx40%	F=Lx35%	F=Lx30%	F=Lx25%



Spring constant $\pm 10\%$
 Outer dia. D $\phi 10$ or less $^{0}_{-0.5mm}$
 $\phi 12$ or more $^{0}_{-0.8mm}$
 Free length L 50 or less $\pm 1.5mm$
 55 or more $\pm 2mm$

M~SWP~A

● DWL : Fmax. (Maximum Allowable Deflection) = L x 40%

Part No. Type D-L	d	Height Solid	F max.	Load N(kgf) max.	
DWL2	5	0.2	1.7	2	0.98 (0.1)
	10	0.26	5.2	4	2.0 (0.2)
	15	0.26	5.2	6	2.9 (0.3)
	20	0.29	9	8	3.9 (0.4)
	25	0.29	9	10	4.9 (0.5)
	30	0.3	10.8	12	5.9 (0.6)
DWL3	5*	0.3	2.1	2	2.0 (0.2)
	10*	0.35	3.9	4	3.9 (0.4)
	15*	0.4	6.5	6	5.9 (0.6)
	20*	0.4	6.5	8	7.8 (0.8)
	25*	0.45	13	10	9.8 (1.0)
	30*	0.45	13	12	11.8 (1.2)
	35*	0.45	13	14	13.7 (1.4)
	40*	0.5	21	16	15.7 (1.6)
DWL4	5*	0.35	2.1	2	2.0 (0.2)
	10*	0.45	5	4	3.9 (0.4)
	15*	0.45	5	6	5.9 (0.6)
	20	0.5	9	8	7.8 (0.8)
	25	0.5	9	10	9.8 (1.0)
	30	0.55	13.9	12	11.8 (1.2)
	35	0.55	13.9	14	13.7 (1.4)
	40	0.6	21.6	16	15.7 (1.6)
	45	0.6	21.6	18	17.7 (1.8)
	50	0.6	21.6	20	19.6 (2.0)
	55	0.6	21.6	22	21.6 (2.2)
	60	0.65	33	24	23.5 (2.4)
DWL5	5*	0.4	2.3	2	2.0 (0.2)
	10*	0.45	3.4	4	3.9 (0.4)
	15*	0.5	5	6	5.9 (0.6)
	20	0.55	7.7	8	7.8 (0.8)
	25	0.6	10.8	10	9.8 (1.0)
	30	0.6	10.8	12	11.8 (1.2)
	35	0.65	15.6	14	13.7 (1.4)
	40	0.65	15.6	16	15.7 (1.6)
	45	0.7	20	18	17.7 (1.8)
	50	0.7	20	20	19.6 (2.0)
	55	0.7	23.1	22	21.6 (2.2)
	60	0.75	33	24	23.5 (2.4)
	65	0.75	32.3	26	25.5 (2.6)
	70	0.75	32.3	28	27.5 (2.8)
DWL6	5*	0.45	2.5	2	2.0 (0.2)
	10	0.55	4.7	4	3.9 (0.4)
	15	0.55	4.7	6	5.9 (0.6)
	20	0.65	9	8	7.8 (0.8)
	25	0.65	9	10	9.8 (1.0)
	30	0.7	13.7	12	11.8 (1.2)
	35	0.7	13.7	14	13.7 (1.4)
	40	0.7	13.7	16	15.7 (1.6)
	45	0.75	18.9	18	17.7 (1.8)
	50	0.75	18.9	20	19.6 (2.0)
	55	0.75	18.9	22	21.6 (2.2)
	60	0.8	26.4	24	23.5 (2.4)
65	0.8	26.4	26	25.5 (2.6)	
70	0.85	30.6	28	27.5 (2.8)	
80	0.85	34.9	32	31.4 (3.2)	

Part No. Type D-L	d	Height Solid	F max.	Load N(kgf) max.	
DWL8	10	0.65	4.7	4	3.9 (0.4)
	15	0.75	8.5	6	5.9 (0.6)
	20	0.75	8.5	8	7.8 (0.8)
	25	0.75	8.5	10	9.8 (1.0)
	30	0.8	11.2	12	11.8 (1.2)
	35	0.8	11.2	14	13.7 (1.4)
	40	0.8	11.2	16	15.7 (1.6)
	45	0.85	15.3	18	17.7 (1.8)
	50	0.85	15.3	20	19.6 (2.0)
	55	0.85	15.3	22	21.6 (2.2)
	60	0.9	19.4	24	23.5 (2.4)
	65	0.9	19.4	26	25.5 (2.6)
DWL10	10	0.75	5.3	4	3.9 (0.4)
	15	0.8	6.4	6	5.9 (0.6)
	20	0.8	6.4	8	7.8 (0.8)
	25	0.9	10.8	10	9.8 (1.0)
	30	0.9	10.8	12	11.8 (1.2)
	35	0.9	10.8	14	13.7 (1.4)
	40	0.9	10.8	16	15.7 (1.6)
	45	1.0	17	18	17.7 (1.8)
	50	1.0	17	20	19.6 (2.0)
	55	1.0	17	22	21.6 (2.2)
	60	1.0	17	24	23.5 (2.4)
	65	1.1	24	26	25.5 (2.6)
DWL12	10	0.8	4.8	4	4.0 (0.4)
	15	0.9	7.2	6	5.9 (0.6)
	20	0.9	7.2	8	7.8 (0.8)
	25	0.9	7.2	10	9.8 (1.0)
	30	1.0	10.5	12	11.8 (1.2)
	35	1.0	10.5	14	13.7 (1.4)
	40	1.0	10.5	16	15.7 (1.6)
	45	1.1	15.4	18	17.7 (1.8)
	50	1.1	15.4	20	19.6 (2.0)
	55	1.1	15.4	22	21.6 (2.2)
	60	1.2	22.8	24	23.5 (2.4)
	65	1.2	22.8	26	25.5 (2.6)
DWL13	10	0.85	5.1	4	4.0 (0.4)
	15	0.9	6.3	6	5.9 (0.6)
	20	1.0	8.7	8	7.8 (0.8)
	25	1.0	8.7	10	9.8 (1.0)
	30	1.1	13.2	12	11.8 (1.2)
	35	1.1	13.2	14	13.7 (1.4)
	40	1.1	13.2	16	15.7 (1.6)
	45	1.1	13.2	18	17.7 (1.8)
	50	1.1	13.2	20	19.6 (2.0)
	55	1.1	13.2	22	21.6 (2.2)
	60	1.1	13.2	24	23.5 (2.4)
	65	1.2	18.6	26	25.5 (2.6)
DWL14	15	1.0	7.5	6	5.9 (0.6)
	20	1.0	7.5	8	7.8 (0.8)
	25	1.0	7.5	10	9.8 (1.0)
	30	1.1	11	12	11.8 (1.2)
	35	1.1	11	14	13.7 (1.4)
	40	1.1	11	16	15.7 (1.6)
	45	1.2	15.6	18	17.7 (1.8)
	50	1.2	15.6	20	19.6 (2.0)
	55	1.2	15.6	22	21.6 (2.2)
	60	1.2	15.6	24	23.5 (2.4)
	65	1.3	22.1	26	25.5 (2.6)
	70	1.3	22.1	28	27.5 (2.8)
80	1.3	22.1	32	31.4 (3.2)	
90	1.5	43.5	36	35.3 (3.6)	

Part No. Type D-L	d	Height Solid	F max.	Load N(kgf) max.	
DWL16	15	1.1	8.2	6	5.9 (0.6)
	20	1.1	8.2	8	7.8 (0.8)
	25	1.2	10	10	9.8 (1.0)
	30	1.2	10	12	11.8 (1.2)
	35	1.2	10	14	13.7 (1.4)
	40	1.2	10	16	15.7 (1.6)
	45	1.4	21	18	17.7 (1.8)
	50	1.4	21	20	19.6 (2.0)
	55	1.4	21	22	21.6 (2.2)
	60	1.4	21	24	23.5 (2.4)
	65	1.5	29.7	26	25.5 (2.6)
	70	1.5	29.7	28	27.5 (2.8)
DWL18	20	1.5	10	8	23.5 (2.4)
	25	1.6	12	10	29.4 (3.0)
	30	1.6	12	12	35.3 (3.6)
	35	1.7	16.2	14	41.2 (4.2)
	40	1.7	16.2	16	47.1 (4.8)
	45	1.8	19.8	18	53.0 (5.4)
	50	1.8	19.8	20	58.8 (6.0)
	55	1.8	19.8	22	64.7 (6.6)
	60	1.8	19.8	24	70.6 (7.2)
	65	2.0	32	26	76.5 (7.8)
	70	2.0	32	28	82.4 (8.4)
	80	2.0	32	32	94.1 (9.6)
DWL20	20	1.6	10.4	8	23.5 (2.4)
	25	1.6	10.4	10	29.4 (3.0)
	30	1.7	12.8	12	35.3 (3.6)
	35	1.7	12.8	14	41.2 (4.2)
	40	1.8	15.8	16	47.1 (4.8)
	45	1.8	15.8	18	53.0 (5.4)
	50	1.8	15.8	20	58.8 (6.0)
	55	1.8	15.8	22	64.7 (6.6)
	60	2.0	24	24	70.6 (7.2)
	65	2.0	24	26	76.5 (7.8)
	70	2.0	24	28	82.4 (8.4)
	80	2.2	37.4	32	94.1 (9.6)
DWL22	20	1.7	10.8	8	23.5 (2.4)
	25	1.8	13.3	10	29.4 (3.0)
	30	1.8	13.3	12	35.3 (3.6)
	35	1.8	13.3	14	41.2 (4.2)
	40	2.0	20	16	47.1 (4.8)
	45	2.0	20	18	53.0 (5.4)
	50	2.0	20	20	58.8 (6.0)
	55	2.0	20	22	64.7 (6.6)
	60	2.2	28.6	24	70.6 (7.2)
	65	2.2	28.6	26	76.5 (7.8)
	70	2.2	28.6	28	82.4 (8.4)
	80	2.2	28.6	32	94.1 (9.6)
DWL27	30	2.1	14	12	35.3 (3.6)
	35	2.1	14	14	41.2 (4.2)
	40	2.3	19	16	47.1 (4.8)
	45	2.3	19	18	53.0 (5.4)
	50	2.3	19	20	58.8 (6.0)
	55	2.3	19	22	64.7 (6.6)
	60	2.5	28	24	70.6 (7.2)
	65	2.5	28	26	76.5 (7.8)
	70	2.6	34.5	28	82.4 (8.4)
	80	2.6	34.5	32	94.1 (9.6)
	90	2.8	46.7	36	105.9 (10.8)
	100	2.8	46.7	40	117.7 (12.0)

● 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)

No grinding on either end of WL types marked with*
 The solid height values are for reference only.
 There may be some variation between lots.
 Operation count: 1 million
 Instructions and precautions for the use of coil springs

