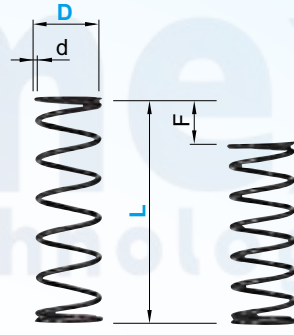


# ROUND WIRE COIL SPRINGS

## DWF (45% Deflection)

### Spring constant

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)
3									4.9 (0.5)
4		N/mm 0.1 (kgf/mm) (0.01)						N/mm 5.9 (kgf/mm) (0.6)	N/mm 9.8 (kgf/mm) (1.0)
5			N/mm 0.3 (kgf/mm) (0.03)						
6				N/mm 0.5 (kgf/mm) (0.05)					
8					N/mm 1.0 (kgf/mm) (0.1)	N/mm 2.0 (kgf/mm) (0.2)	N/mm 2.9 (kgf/mm) (0.3)		
10		N/mm 0.2 (kgf/mm) (0.02)						N/mm 9.8 (kgf/mm) (1.0)	N/mm 19.6 (kgf/mm) (2.0)
12									
13									
14									
16			N/mm 0.5 (kgf/mm) (0.05)						29.4 (3.0)
18				N/mm 1.0 (kgf/mm) (0.1)	N/mm 2.9 (kgf/mm) (0.3)	N/mm 3.9 (kgf/mm) (0.4)	N/mm 4.9 (kgf/mm) (0.5)		
20									N/mm 29.4 (kgf/mm) (3.0)
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.  $D \varnothing 10$  or less  $0.5mm$   
 $\varnothing 12$  or more  $0.8mm$   
 Free length  $L 50$  or less  $\pm 1.5mm$   
 $55$  or more  $\pm 2.5mm$

M~SWP~A

### ● DWF : Fmax. ( Maximum Allowable Deflection ) = L x 45%

Part No. Type D-L	d	Height Solid	F max.	Load N(kgf) max.
DWF3 5*	0.26	2	2.25	1.1 (0.11)
10*	0.32	5	4.5	2.2 (0.22)
15*	0.32	5	6.7	3.2 (0.33)
20*	0.35	7	9	4.4 (0.45)
25*	0.35	7	11.2	5.5 (0.56)
30*	0.4	13.2	13.5	6.6 (0.67)
35*	0.4	13.2	15.7	7.6 (0.78)
40*	0.4	13.2	18	8.8 (0.9)
DWF4 5*	0.32	2.3	2.25	1.1 (0.11)
10*	0.35	3.1	4.5	2.2 (0.22)
15*	0.4	5.6	6.7	3.2 (0.33)
20*	0.4	5.6	9	4.4 (0.45)
25*	0.45	9.9	11.2	5.5 (0.56)
30*	0.45	9.9	13.5	6.6 (0.67)
35	0.5	16.5	15.7	7.6 (0.78)
40	0.5	16.5	18	8.8 (0.9)
45	0.5	16.5	20	9.8 (1.0)
50	0.5	16.5	22.5	10.8 (1.1)
55	0.5	16.5	24.7	12.1 (1.23)
60	0.5	16.5	27	12.7 (1.3)
65*	0.55	26.4	29.2	14.3 (1.46)
70*	0.55	26.4	31.5	15.4 (1.58)
DWF5 5*	0.35	2	2.25	1.1 (0.11)
10*	0.38	2.8	4.5	2.2 (0.22)
15*	0.4	3.4	6.7	3.2 (0.33)
20*	0.45	5.4	9	4.4 (0.45)
25*	0.5	8.5	11.2	5.5 (0.56)
30	0.55	13.2	13.5	6.6 (0.67)
35	0.55	13.2	15.7	7.6 (0.78)
40	0.55	20.4	18	8.8 (0.9)
45	0.6	20.4	20	9.8 (1.0)
50	0.6	20.4	22.5	10.8 (1.1)
55	0.6	20.4	24.7	12.1 (1.23)
60	0.6	20.4	27	12.7 (1.3)
65	0.6	20.4	29.2	14.3 (1.5)
70	0.6	20.4	31.5	15.4 (1.6)
DWF6 5*	0.4	2.3	2.25	1.1 (0.11)
10	0.5	5	4.5	2.2 (0.22)
15	0.55	8	6.7	3.2 (0.33)
20	0.55	8	9	4.4 (0.45)
25	0.6	12	11.2	5.5 (0.56)
30	0.65	16	13.5	6.6 (0.67)
35	0.65	17	15.7	7.6 (0.78)
40	0.65	17	18	8.8 (0.9)
45	0.65	17	20	9.8 (1.0)
50	0.7	25.2	22.5	10.8 (1.1)
55	0.7	25.2	24.7	12.1 (1.23)
60	0.7	25.2	27	12.7 (1.3)
65	0.7	25.2	29.2	14.3 (1.46)
70	0.7	25.2	31.5	14.7 (1.5)
80	0.7	25.2	36	17.7 (1.8)
DWF8 10	0.6	5	4.5	2.2 (0.22)
15	0.65	7.5	6.7	3.2 (0.33)
20	0.7	10.8	9	4.4 (0.45)
25	0.7	10.8	11.2	5.5 (0.56)
30	0.75	14.5	13.5	6.6 (0.67)
35	0.75	14.5	15.7	7.6 (0.78)
40	0.8	20	18	8.8 (0.9)
45	0.8	20	20	9.8 (1.0)
50	0.8	20	22.5	10.8 (1.1)
55	0.8	20	24.7	12.1 (1.23)
60	0.85	27.6	27	12.7 (1.3)
65	0.85	27.6	29.2	14.3 (1.46)
70	0.85	27.6	31.5	14.7 (1.5)
80	0.85	28.1	36	17.7 (1.8)

Part No. Type D-L	d	Height Solid	F max.	Load N(kgf) max.
DWF10 10	0.65	5	4.5	2.2 (0.22)
15	0.65	5	6.7	3.2 (0.33)
20	0.8	10.4	9	4.4 (0.45)
25	0.8	10.4	11.2	5.5 (0.56)
30	0.85	14	13.5	6.6 (0.67)
35	0.85	14	15.7	7.6 (0.78)
40	0.9	17.5	18	8.8 (0.9)
45	0.9	17.5	20	9.8 (1.0)
50	0.9	17.5	22.5	10.8 (1.1)
55	0.9	17.5	24.7	12.1 (1.23)
60	1.0	31	27	12.7 (1.3)
65	1.0	31	29.2	14.3 (1.46)
70	1.0	31	31.5	14.7 (1.5)
80	1.0	31	36	17.7 (1.8)
DWF12 10	0.7	4.6	4.5	2.3 (0.23)
15	0.7	4.6	6.7	3.2 (0.33)
20	0.8	7.2	9	4.4 (0.45)
25	0.8	7.2	11.2	5.5 (0.56)
30	0.9	11.3	13.5	6.6 (0.67)
35	0.9	11.3	15.7	7.6 (0.78)
40	0.9	11.3	18	8.8 (0.9)
45	0.9	11.3	20	9.8 (1.0)
50	1.0	18	22.5	10.8 (1.1)
55	1.0	18	24.7	12.1 (1.23)
60	1.0	18	27	12.7 (1.3)
65	1.0	18	29.2	14.3 (1.46)
70	1.1	28.1	31.5	14.7 (1.5)
80	1.1	27.5	36	17.7 (1.8)
DWF13 15	0.75	4.9	4.5	2.3 (0.23)
20	0.8	6	6.7	3.2 (0.33)
25	0.8	6	9	4.4 (0.45)
30	0.85	7.2	11.2	5.5 (0.56)
35	1.0	15	13.5	6.6 (0.67)
40	1.0	15	15.7	7.6 (0.78)
45	1.0	15	18	8.8 (0.9)
50	1.0	15	20	9.8 (1.0)
55	1.0	15	22.5	10.8 (1.1)
60	1.1	22	24.7	12.1 (1.23)
65	1.1	22	27	12.7 (1.3)
70	1.1	22	29.2	14.3 (1.46)
80	1.1	22	31.5	14.7 (1.5)
90	1.1	22	36	17.7 (1.8)
DWF13 10	1.2	33.6	40.5	19.9 (2.0)
15	0.8	5.2	6.7	3.2 (0.33)
20	0.9	7.9	9	4.4 (0.45)
25	0.9	7.9	11.2	5.5 (0.56)
30	1.0	12	13.5	6.6 (0.67)
35	1.0	12	15.7	7.6 (0.78)
40	1.0	12	18	8.8 (0.9)
45	1.0	12	20	9.8 (1.0)
50	1.1	18.2	22.5	10.8 (1.1)
55	1.1	18.2	24.7	12.1 (1.23)
60	1.1	18.2	27	12.7 (1.3)
65	1.2	27.6	29.2	14.3 (1.46)
70	1.2	27.6	31.5	14.7 (1.5)
80	1.2	27.6	36	17.7 (1.8)
90	1.3	39.7	40.5	19.9 (2.0)

Part No. Type D-L	d	Height Solid	F max.	Load N(kgf) max.
DWF16 15	0.9	6.3	6.7	3.2 (0.33)
20	1.0	8.7	9	4.4 (0.45)
25	1.0	8.7	11.2	5.5 (0.56)
30	1.1	12.8	13.5	6.6 (0.67)
35	1.1	12.8	15.7	7.6 (0.78)
40	1.2	18.6	18	8.8 (0.9)
45	1.2	18.6	20	9.8 (1.0)
50	1.2	18.6	22.5	10.8 (1.1)
55	1.2	18.6	24.7	12.1 (1.23)
60	1.3	26.8	27	12.7 (1.3)
65	1.3	26.8	29.2	14.3 (1.46)
70	1.3	26.8	31.5	14.7 (1.5)
80	1.4	36	36	17.7 (1.8)
90	1.4	36.4	40.5	19.9 (2.0)
DWF18 20	1.2	9	9	8.8 (0.9)
25	1.3	12.4	11.2	10.8 (1.1)
30	1.3	12.4	13.5	12.7 (1.3)
35	1.4	16.1	15.7	14.7 (1.5)
40	1.5	21	18	17.7 (1.8)
45	1.5	21	20	19.9 (2.03)
50	1.5	21	22.5	22.1 (2.25)
55	1.6	28.8	24.7	24.3 (2.48)
60	1.6	28.8	27	26.5 (2.7)
65	1.6	28.8	29.2	28.7 (2.93)
70	1.7	37.4	31.5	30.9 (3.15)
80	1.7	37.4	36	35.3 (3.6)
DWF20 20	1.2	7.2	9	8.8 (0.9)
25	1.3	9.8	11.2	10.8 (1.1)
30	1.4	12.6	13.5	12.7 (1.3)
35	1.4	12.6	15.7	14.7 (1.5)
40	1.5	16.5	18	17.7 (1.8)
45	1.5	16.5	20	19.9 (2.03)
50	1.6	21.6	22.5	22.1 (2.25)
55	1.6	21.6	24.7	24.3 (2.48)
60	1.6	21.6	27	26.5 (2.7)
65	1.7	28.1	29.2	28.7 (2.93)
70	1.7	28.1	31.5	30.9 (3.15)
80	1.7	28.1	36	35.3 (3.6)
DWF22 20	1.3	7.8	9	8.8 (0.9)
25	1.4	10.5	11.2	11.0 (1.12)
30	1.4	10.5	13.5	13.2 (1.35)
35	1.5	13.5	15.7	15.4 (1.57)
40	1.5	13.5	18	17.7 (1.8)
45	1.7	22.1	20.2	19.8 (2.02)
50	1.7	22.1	22.5	22.1 (2.25)
55	1.7	22.1	24.7	24.2 (2.47)
60	1.8	28.8	27	26.5 (2.7)
65	1.8	28.8	29.2	28.6 (2.92)
70	1.8	28.8	31.5	30.9 (3.15)
80	1.8	28.8	36	35.3 (3.6)
DWF27 30	1.7	14.1	13.5	13.2 (1.35)
35	1.7	14.1	15.7	15.4 (1.57)
40	1.7	14.1	18	17.7 (1.8)
45	1.9	21.4	20.2	19.8 (2.02)
50	1.9	21.4	22.5	22.1 (2.25)
55	2.0	26	24.7	24.2 (2.47)
60	2.0	26	27	26.5 (2.7)
65	2.0	26	29.2	28.6 (2.92)
70	2.0	26	31.5	30.9 (3.15)
80	2.0	26	36	35.3 (3.6)

● Load calculation method: Load = Spring constant x Deflection

(SI units)  $N = N/mm \times Fmm$   
 $kgf = kgf/mm \times Fmm$   
 $(kgf = N \times 0.101972)$

No grinding on either end of WF 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

