

ROUND WIRE COIL SPRINGS

— WL (40% DEFLECTION) · WT (40% DEFLECTION) —



Order

Catalog No.
WL13-60



Days to Ship

Quotation



Price

Quotation



Spring constant $\pm 10\%$
Outer dia. D $\phi 10$ or less $\phi 0.5$ mm
 $\phi 12$ or more $\phi 0.8$ mm
Free length L 50 or less ± 1.5 mm
55 or more ± 2 mm



SWP-A

Spring constant

D	Type	WY	WR	WF	WL	WT	WM	WH	WB		
2	3	N/mm 0.1 (kgf/mm) (0.01)	N/mm 0.3 (kgf/mm) (0.03)	N/mm 0.5 (kgf/mm) (0.05)	0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
3	4				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
4	5				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
5	6				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
6	8				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
8	10				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
10	12				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
12	13				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
13	14				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
14	16				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
16	18	N/mm 0.2 (kgf/mm) (0.02)	N/mm 0.3 (kgf/mm) (0.03)	N/mm 0.5 (kgf/mm) (0.05)	0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
18	20				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
20	22				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
22	27				0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
27					0.5 (0.05)	1.5 (0.15)	2.0 (0.2)	2.9 (0.3)	3.9 (0.4)		
Fmax.	F=LX75%				F=LX60%	F=LX45%	F=LX40%	F=LX40%	F=LX35%	F=LX30%	F=LX25%

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

WL : Fmax. (maximum allowable deflection) = L X 40%

d	Solid height	F max.	Load N (kgf) max.	Catalog No. Type D—L	Base unit price
0.2	1.7	2	0.98 (0.1)	WL2-5*	5*
0.26	5.2	4	2.0 (0.2)	10*	10*
0.26	5.2	6	2.9 (0.3)	15*	15*
0.29	9	8	3.9 (0.4)	20*	20*
0.29	9	10	4.9 (0.5)	25*	25*
0.3	10.8	12	5.9 (0.6)	30*	30*
0.3	2.1	2	2.0 (0.2)	WL3-5*	5*
0.35	3.9	4	3.9 (0.4)	10*	10*
0.4	6.5	6	5.9 (0.6)	15*	15*
0.4	6.5	8	7.8 (0.8)	20*	20*
0.45	13	10	9.8 (1.0)	25*	25*
0.45	13	12	11.8 (1.2)	30*	30*
0.45	13	14	13.7 (1.4)	35*	35*
0.5	21	16	15.7 (1.6)	40*	40*
0.35	2.1	2	2.0 (0.2)	WL4-5*	5*
0.45	5	4	3.9 (0.4)	10*	10*
0.45	5	6	5.9 (0.6)	15*	15*
0.5	9	8	7.8 (0.8)	20*	20*
0.5	9	10	9.8 (1.0)	25*	25*
0.55	13.9	12	11.8 (1.2)	30*	30*
0.55	13.9	14	13.7 (1.4)	35*	35*
0.6	21.6	16	15.7 (1.6)	40*	40*
0.6	21.6	18	17.7 (1.8)	45*	45*
0.6	21.6	20	19.6 (2.0)	50*	50*
0.6	21.6	22	21.6 (2.2)	55*	55*
0.65	33	24	23.5 (2.4)	60*	60*
0.4	2.3	2	2.0 (0.2)	WL5-5*	5*
0.45	3.4	4	3.9 (0.4)	10*	10*
0.5	5	6	5.9 (0.6)	15*	15*
0.55	7.7	8	7.8 (0.8)	20*	20*
0.6	10.8	10	9.8 (1.0)	25*	25*
0.6	10.8	12	11.8 (1.2)	30*	30*
0.65	15.6	14	13.7 (1.4)	35*	35*
0.65	15.6	16	15.7 (1.6)	40*	40*
0.7	20	18	17.7 (1.8)	45*	45*
0.7	20	20	19.6 (2.0)	50*	50*
0.7	23.1	22	21.6 (2.2)	55*	55*
0.75	33	24	23.5 (2.4)	60*	60*
0.75	32.3	26	25.5 (2.6)	65*	65*
0.75	32.3	28	27.5 (2.8)	70*	70*
0.45	2.5	2	2.0 (0.2)	WL6-5*	5*
0.55	4.7	4	3.9 (0.4)	10*	10*
0.55	4.7	6	5.9 (0.6)	15*	15*
0.65	9	8	7.8 (0.8)	20*	20*
0.65	9	10	9.8 (1.0)	25*	25*
0.7	13.7	12	11.8 (1.2)	30*	30*
0.7	13.7	14	13.7 (1.4)	35*	35*
0.7	13.7	16	15.7 (1.6)	40*	40*
0.75	18.9	18	17.7 (1.8)	45*	45*
0.75	18.9	20	19.6 (2.0)	50*	50*
0.75	18.9	22	21.6 (2.2)	55*	55*
0.8	26.4	24	23.5 (2.4)	60*	60*
0.8	26.4	26	25.5 (2.6)	65*	65*
0.85	30.6	28	27.5 (2.8)	70*	70*
0.85	34.9	32	31.4 (3.2)	80*	80*

Load calculation method: Load=Spring constantXDeflection (SI units) N=N/mmXFmm kgf=kgf/mmXFmm (kgf=Nx0.101972)

- 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 P.1397

d	Solid height	F max.	Load N (kgf) max.	Catalog No. Type D—L	Base unit price
0.65	4.7	4	3.9 (0.4)	WL8-10	10
0.75	8.5	6	5.9 (0.6)	15	15
0.75	8.5	8	7.8 (0.8)	20	20
0.75	8.5	10	9.8 (1.0)	25	25
0.8	11.2	12	11.8 (1.2)	30	30
0.8	11.2	14	13.7 (1.4)	35	35
0.8	11.2	16	15.7 (1.6)	40	40
0.85	15.3	18	17.7 (1.8)	45	45
0.85	15.3	20	19.6 (2.0)	50	50
0.85	15.3	22	21.6 (2.2)	55	55
0.9	19.4	24	23.5 (2.4)	60	60
0.9	19.4	26	25.5 (2.6)	65	65
1.0	31	28	27.5 (2.8)	70	70
1.0	31	32	31.4 (3.2)	80	80
0.75	5.3	4	3.9 (0.4)	WL10-10	10
0.8	6.4	6	5.9 (0.6)	15	15
0.8	6.4	8	7.8 (0.8)	20	20
0.9	10.8	10	9.8 (1.0)	25	25
0.9	10.8	12	11.8 (1.2)	30	30
0.9	10.8	14	13.7 (1.4)	35	35
0.9	10.8	16	15.7 (1.6)	40	40
1.0	17	18	17.7 (1.8)	45	45
1.0	17	20	19.6 (2.0)	50	50
1.0	17	22	21.6 (2.2)	55	55
1.0	17	24	23.5 (2.4)	60	60
1.1	24	26	25.5 (2.6)	65	65
1.1	24	28	27.5 (2.8)	70	70
1.1	24.2	32	31.4 (3.2)	80	80
0.8	4.8	4	4.0 (0.4)	WL12-10	10
0.9	7.2	6	5.9 (0.6)	15	15
0.9	7.2	8	7.8 (0.8)	20	20
0.9	7.2	10	9.8 (1.0)	25	25
1.0	10.5	12	11.8 (1.2)	30	30
1.0	10.5	14	13.7 (1.4)	35	35
1.0	10.5	16	15.7 (1.6)	40	40
1.1	15.4	18	17.7 (1.8)	45	45
1.1	15.4	20	19.6 (2.0)	50	50
1.1	15.4	22	21.6 (2.2)	55	55
1.2	22.8	24	23.5 (2.4)	60	60
1.2	22.8	26	25.5 (2.6)	65	65
1.2	22.8	28	27.5 (2.8)	70	70
1.3	34.5	32	31.4 (3.2)	80	80
0.85	5.1	4	4.0 (0.4)	WL13-10	10
0.9	6.3	6	5.9 (0.6)	15	15
1.0	8.7	8	7.8 (0.8)	20	20
1.0	8.7	10	9.8 (1.0)	25	25
1.1	13.2	12	11.8 (1.2)	30	30
1.1	13.2	14	13.7 (1.4)	35	35
1.1	13.2	16	15.7 (1.6)	40	40
1.1	13.2	18	17.7 (1.8)	45	45
1.1	13.2	20	19.6 (2.0)	50	50
1.1	13.2	22	21.6 (2.2)	55	55
1.1	13.2	24	23.5 (2.4)	60	60
1.2	18.6	26	25.5 (2.6)	65	65
1.2	18.6	28	27.5 (2.8)	70	70
1.4	37.8	32	31.4 (3.2)	80	80
1.4	37.8	36	35.3 (3.6)	90	90
1.0	7.5	6	5.9 (0.6)	WL14-15	15
1.0	7.5	8	7.8 (0.8)	20	20
1.0	7.5	10	9.8 (1.0)	25	25
1.1	11	12	11.8 (1.2)	30	30
1.1	11	14	13.7 (1.4)	35	35
1.1	11	16	15.7 (1.6)	40	40
1.2	15.6	18	17.7 (1.8)	45	45
1.2	15.6	20	19.6 (2.0)	50	50
1.2	15.6	22	21.6 (2.2)	55	55
1.2	15.6	24	23.5 (2.4)	60	60
1.3	22.1	26	25.5 (2.6)	65	65
1.3	22.1	28	27.5 (2.8)	70	70
1.3	22.1	32	31.4 (3.2)	80	80
1.5	43.5	36	35.3 (3.6)	90	90

d	Solid height	F max.	Load N (kgf) max.	Catalog No. Type D—L	Base unit price
1.1	8.2	6	5.9 (0.6)	WL16-15	15
1.1	8.2	8	7.8 (0.8)	20	20
1.2	10	10	9.8 (1.0)	25	25
1.2	10	12	11.8 (1.2)	30	30
1.2	10	14	13.7 (1.4)	35	35
1.2	10	16	15.7 (1.6)	40	40
1.4	21	18	17.7 (1.8)	45	45
1.4	21	20	19.6 (2.0)	50	50
1.4	21	22	21.6 (2.2)	55	55
1.4	21	24	23.5 (2.4)	60	60
1.5	29.7	26	25.5 (2.6)	65	65
1.5	29.7	28	27.5 (2.8)	70	70
1.5	29.7	32	31.4 (3.2)	80	80
1.6	40	36	35.3 (3.6)	90	90
1.5	10	8	23.5 (2.4)	WL18-20	20
1.6	12	10	29.4 (3.0)	25	25
1.6	12	12	35.3 (3.6)	30	30
1.7	16.2	14	41.2 (4.2)	35	35
1.7	16.2	16	47.1 (4.8)	40	40
1.8	19.8	18	53.0 (5.4)	45	45
1.8	19.8	20	58.8 (6.0)	50	50
1.8	19.8	22	64.7 (6.6)	55	55
1.8	19.8	24	70.6 (7.2)	60	60
2.0	32	26	76.5 (7.8)	65	65
2.0	32	28	82.4 (8.4)	70	70
2.0	32	32	94.1 (9.6)	80	80
2.2	43	36	105.9 (10.8)	90	90
2.2	43	40	117.7 (12.0)	100	100
1.6	10.4	8	23.5 (2.4)	WL20-20	20
1.6	10.4	10	29.4 (3.0)	25	25
1.7	12.8	12	35.3 (3.6)	30	30
1.7	12.8	14	41.2 (4.2)	35	35
1.8	15.8	16	47.1 (4.8)	40	40
1.8	15.8	18	53.0 (5.4)	45	45
1.8	15.8	20	58.8 (6.0)	50	50
1.8	15.8	22	64.7 (6.6)	55	55
2.0	24	24	70.6 (7.2)	60	60
2.0	24	26	76.5 (7.8)	65	65
2.0	24	28	82.4 (8.4)	70	70
2.2	37.4	32	94.1 (9.6)	80	80
2.2	37.4	36	105.9 (10.8)	90	90
2.2	37				