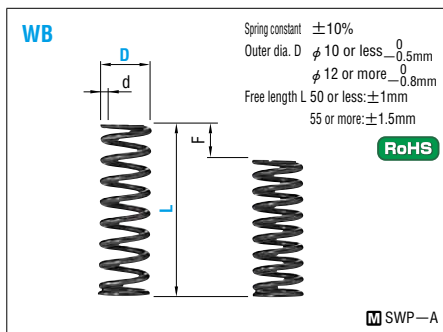


# ROUND WIRE COIL SPRINGS

—WB (25% DEFLECTION)—

# ROUND WIRE COIL SPRINGS

—NWL·NWM (INNER DIAMETER STANDARD TYPE) / WP (70% DEFLECTION, LONG TYPE)—



D	Spring constant								
	Type	WY	WR	WF	WL	WT	WM	WH	WB
2					0.5 (0.05)				3.9 (0.4)
3						1.5 (0.15)			4.9 (0.5)
4							2.0 (0.2)		
5								2.9 (0.3)	
6									N/mm 9.8 (kgf/mm 1.0)
8									N/mm 19.6 (kgf/mm 2.0)
10									29.4 (3.0)
12									
13									
14									
16									
18									
20									
22									
27									

WB : Fmax. (maximum allowable deflection) = L×25%

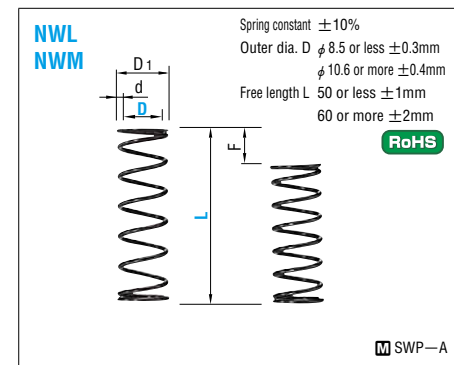
d	Solid height	F max.	Load N (kgf) max.	Catalog No. Type D-L	Base unit price
0.4	3.2	1.3	4.9 (0.5)	WB3-5*	
0.5	6.5	2.5	9.8 (1.0)	10*	
0.55	10.5	3.8	14.7 (1.5)	15*	
0.55	12.7	5	19.6 (2.0)	20*	
0.6	17.4	6.3	24.5 (2.5)	25*	
0.6	21.0	7.5	29.4 (3.0)	30*	
0.65	24.0	8.8	34.3 (3.5)	35*	
0.65	27.0	10.0	39.2 (4.0)	40*	
0.5	3	1.3	5.9 (0.6)	WB4-5*	
0.6	6	2.5	12.3 (1.3)	10	
0.65	9.8	3.8	18.1 (1.9)	15	
0.7	12.6	5	24.5 (2.5)	20	
0.75	16.5	6.3	30.4 (3.1)	25	
0.75	20.3	7.5	36.8 (3.8)	30	
0.8	24	8.8	43.1 (4.4)	35	
0.8	28	10	49.0 (5.0)	40	
0.8	29	11.3	55.4 (5.7)	45	
0.85	34	12.5	61.3 (6.3)	50	
0.65	3.3	1.3	12.7 (1.3)	WB5-5	
0.8	7	2.5	24.5 (2.5)	10	
0.8	7	3.8	37.3 (3.8)	15	
0.9	13	5	49.0 (5.0)	20	
0.9	13	6.3	61.8 (6.3)	25	
1.0	21	7.5	73.5 (7.5)	30	
1.0	25	8.8	86.3 (8.8)	35	
1.0	25	10	98.1 (10.0)	40	
1.1	31	11.3	110.8 (11.3)	45	
1.1	34	12.5	122.6 (12.5)	50	
1.1	39	13.8	135.3 (13.8)	55	
1.1	43	15	147.1 (15.0)	60	
1.1	46	16.3	159.8 (16.3)	65	
1.2	50	17.5	171.6 (17.5)	70	
0.7	3.5	1.3	12.7 (1.3)	WB6-5	
0.9	7	2.5	24.5 (2.5)	10	
0.9	7.5	3.8	37.3 (3.8)	15	
1.0	11.5	5	49.0 (5.0)	20	
1.1	17.5	6.3	61.8 (6.3)	25	
1.1	19.5	7.5	73.5 (7.5)	30	
1.1	20	8.8	86.3 (8.8)	35	
1.2	28	10	98.1 (10.0)	40	
1.2	30	11.3	110.8 (11.3)	45	
1.2	32	12.5	122.6 (12.5)	50	
1.2	32	13.8	135.3 (13.8)	55	
1.3	43	15	147.1 (15.0)	60	
1.3	46	16.3	159.8 (16.3)	65	
1.3	50	17.5	171.6 (17.5)	70	
1.4	57	20	196.1 (20.0)	80	
1.0	6	2.5	24.5 (2.5)	WB8-10	
1.2	10.8	3.8	37.3 (3.8)	15	
1.2	11.5	5	49.0 (5.0)	20	
1.3	17	6.3	61.8 (6.3)	25	
1.3	17	7.5	73.5 (7.5)	30	
1.4	24.5	8.8	86.3 (8.8)	35	
1.4	25.2	10	98.1 (10.0)	40	
1.5	32	11.3	110.8 (11.3)	45	
1.5	33	12.5	122.6 (12.5)	50	
1.5	36.5	13.8	135.3 (13.8)	55	
1.5	36.5	15	147.1 (15.0)	60	
1.6	48	16.3	159.8 (16.3)	65	
1.6	48	17.5	171.6 (17.5)	70	
1.6	55	20	196.1 (20.0)	80	

d	Solid height	F max.	Load N (kgf) max.	Catalog No. Type D-L	Base unit price
1.2	6	2.5	24.5 (2.5)	WB10-10	
1.3	8.5	3.8	37.3 (3.8)	15	
1.4	12	5	49.0 (5.0)	20	
1.5	16.5	6.3	61.8 (6.3)	25	
1.5	17	7.5	73.5 (7.5)	30	
1.6	23	8.8	86.3 (8.8)	35	
1.6	24	10	98.1 (10.0)	40	
1.7	30	11.3	110.8 (11.3)	45	
1.7	31.5	12.5	122.6 (12.5)	50	
1.8	40	13.8	135.3 (13.8)	55	
1.8	40	15	147.1 (15.0)	60	
1.8	43	16.3	159.8 (16.3)	65	
1.8	43	17.5	171.6 (17.5)	70	
1.8	54	20	196.1 (20.0)	80	
1.4	6.5	2.5	24.5 (2.5)	WB12-10	
1.4	7.7	3.8	36.3 (3.7)	15	
1.6	12.5	5	49.0 (5.0)	20	
1.6	13.6	6.3	60.8 (6.2)	25	
1.7	18	7.5	73.5 (7.5)	30	
1.8	22.5	8.8	85.3 (8.7)	35	
1.8	24	10	98.1 (10.0)	40	
1.8	24	11.3	109.8 (11.2)	45	
1.9	34	12.5	122.6 (12.5)	50	
2.0	38	13.8	134.4 (13.7)	55	
2.0	40	15	147.1 (15.0)	60	
2.0	42	16.3	158.9 (16.2)	65	
2.1	48.5	17.5	171.6 (17.5)	70	
2.1	52.5	20	196.1 (20.0)	80	
1.6	6.4	2.5	49.0 (5.0)	WB13-10	
1.8	11	3.8	74.5 (7.6)	15	
1.8	11	5	98.1 (10.0)	20	
2.0	17	6.3	123.6 (12.6)	25	
2.0	18	7.5	147.1 (15.0)	30	
2.1	22	8.8	172.6 (17.6)	35	
2.1	22	10	196.1 (20.0)	40	
2.3	32	11.3	221.6 (22.6)	45	
2.3	32	12.5	245.2 (25.0)	50	
2.4	40	13.8	270.7 (27.6)	55	
2.4	42	15	294.2 (30.0)	60	
2.4	42	16.3	319.7 (32.6)	65	
2.5	50	17.5	343.2 (35.0)	70	
2.5	50	20	392.3 (40.0)	80	
1.8	9	3.8	72.6 (7.4)	WB14-15	
2.0	13	5	98.1 (10.0)	20	
2.0	14	6.3	121.6 (12.4)	25	
2.1	18	7.5	147.1 (15.0)	30	
2.1	23	8.8	170.6 (17.4)	35	
2.3	26.3	10	196.1 (20.0)	40	
2.3	27.6	11.3	219.7 (22.4)	45	
2.4	31	12.5	245.2 (25.0)	50	
2.5	37.5	13.8	268.7 (27.4)	55	
2.5	41	15	294.2 (30.0)	60	
2.5	43.5	16.3	317.7 (32.4)	65	
2.6	48	17.5	343.2 (35.0)	70	
2.6	52	20	392.3 (40.0)	80	

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

d	Solid height	F max.	Load N (kgf) max.	Catalog No. Type D-L	Base unit price
2.0	10	3.8	74.5 (7.6)	WB16-15	
2.1	12.5	5	98.1 (10.0)	20	
2.3	17	6.3	123.6 (12.6)	25	
2.3	18.5	7.5	147.1 (15.0)	30	
2.4	21.5	8.8	172.6 (17.6)	35	
2.4	21.5	10	196.1 (20.0)	40	
2.5	27.5	11.3	221.6 (22.6)	45	
2.5	27.5	12.5	245.2 (25.0)	50	
2.6	32	13.8	270.7 (27.6)	55	
2.6	32	15	294.2 (30.0)	60	
2.8	46	16.3	319.7 (32.6)	65	
2.8	46	17.5	343.2 (35.0)	70	
2.9	55	20	392.3 (40.0)	80	
2.5	13.5	5	147.1 (15.0)	WB18-20	
2.6	17	6.3	185.3 (18.9)	25	
2.6	17	7.5	220.6 (22.5)	30	
2.8	23.5	8.8	258.9 (26.4)	35	
2.9	27.5	10	294.2 (30.0)	40	
2.9	27.5	11.3	332.4 (33.9)	45	
3.0	33	12.5	367.7 (37.5)	50	
3.0	33	13.8	406.0 (41.4)	55	
3.2	43	15	441.3 (45.0)	60	
3.2	44.5	16.3	479.5 (48.9)	65	
3.2	44.5	17.5	514.8 (52.5)	70	
3.4	58	20	588.4 (60.0)	80	
3.4	61	22.5	661.9 (67.5)	90	
3.5	71	25	735.5 (75.0)	100	
2.8	13.5	5	147.1 (15.0)	WB22-20	
2.9	16	6.3	185.3 (18.9)	25	
3.0	18	7.5	220.6 (22.5)	30	
3.0	18	8.8	258.9 (26.4)	35	
3.2	24	10	294.2 (30.0)	40	
3.2	24	11.3	332.4 (33.9)	45	
3.5	36	12.5	367.7 (37.5)	50	
3.5	36	13.8	406.0 (41.4)	55	
3.5	36	15	441.3 (45.0)	60	
3.6	45	16.3	479.5 (48.9)	65	
3.6	45	17.5	514.8 (52.5)	70	
3.8	57	20	588.4 (60.0)	80	
3.8	57	22.5	661.9 (67.5)	90	
4.0	72	25	735.5 (75.0)	100	
3.5	19	7.5	220.6 (22.5)	WB27-30	
3.6	21	8.8	258.9 (26.4)	35	
3.6	21	10	294.2 (30.0)	40	
3.8	30	11.3	332.4 (33.9)	45	
3.8	30	12.5	367.7 (37.5)	50	
4.0	38	13.8	406.0 (41.4)	55	
4.0	38	15	441.3 (45.0)	60	
4.0	38	16.3	479.5 (48.9)	65	
4.0	38	17.5	514.8 (52.5)	70	
4.3	57	20	588.4 (60.0)	80	
4.5	63	22.5	661.9 (67.5)	90	
4.5	67	25	735.5 (75.0)	100	

⚠ No grinding on either end of WB 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



NWL : Fmax. (Maximum allowable deflection) = L×40%

Pin dia.	D	D1	d	F max.	Solid height	Load N (kgf) max.	Spring constant N/mm (kgf/mm)	Catalog No. Type D-L	Base unit price
5	5.5	7	0.75	12	10.9	13.7 (1.4)	1.1 (0.12)	NWL5.5-30	
				14	12		1.0 (0.10)	35	
				16	13.5		0.9 (0.09)	40	
				18	15		0.8 (0.08)	45	
				20	16.5		0.7 (0.07)	50	
6	6.5	8.1	0.8	12	9.6	13.7 (1.4)	1.1 (0.12)	NWL6.5-30	
				14	10.8		1.0 (0.10)	35	
				16	12		0.9 (0.09)	40	
				18	13.2		0.8 (0.08)	45	
				20	14.4		0.7 (0.07)	50	
8	8.5	10.5	1.0	12	9.8	20.6 (2.1)	1.7 (0.18)	NWL8.5-30	
				14	10.8		1.5 (0.15)	35	
				16	12		1.3 (0.13)	40	
				18	13		1.1 (0.12)	45	
				20	14		1.0 (0.10)	50	