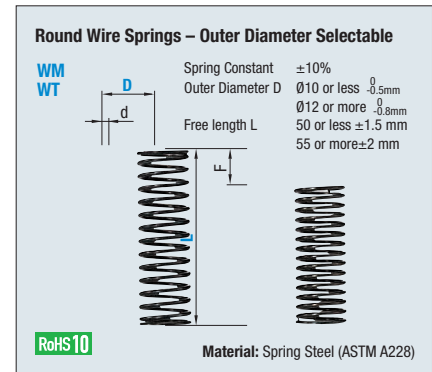


# Round Wire Springs

## WT / WM Outer Diameter Selectable



Spring Constant N/mm (kgf/mm)

Type	WY	WR	WF	WL	WT	WM	WH	WB
D				0.5(0.05)				
2					1.5 (0.15)	2.0 (0.2)		3.9(0.4)
3								4.9(0.5)
4	0.1 (0.01)						2.9(0.3)	
5								
6								
8		0.3 (0.03)	0.5 (0.05)	1.0 (0.1)			5.9 (0.6)	9.8 (1.0)
10					2.0 (0.2)	2.9 (0.3)		
12								
13	0.2 (0.02)						9.8 (1.0)	19.6 (2.0)
14								
16								
18								
20		0.5 (0.05)	1.0 (0.1)	2.9 (0.3)	3.9 (0.4)	4.9 (0.5)	14.7 (1.5)	29.4(3.0)
22								
27								29.4 (3.0)
Fmax.	F=Lx75%	F=Lx60%	F=Lx45%	F=Lx40%	F=Lx40%	F=Lx35%	F=Lx30%	F=Lx25%

Ⓢ D12 and 14 for WY Type and D12,14 and 20 for WT Type are not available.

### WM: Fmax. (Allowable Deflection) = L x 35%

d	Solid Length	F max.	Load N (kgf) max.	Part Number
Type	D - L			
0.35	2.5	1.8	3.4 (0.4)	WM 3 - 5*
0.38	3.3	3.5	6.9 (0.7)	10*
0.45	7	5.3	10.3 (1.1)	15*
0.5	11.5	7	13.7 (1.4)	20*
0.5	11.5	7.5	14.7 (1.5)	(25)
0.55	20.4	9	17.7 (1.8)	(30)
0.4	2.3	1.7	3.9 (0.4)	WM 4 - 5*
0.45	3.4	3.5	6.9 (0.7)	10*
0.5	5.1	5.2	10.8 (1.1)	15*
0.55	7.7	7	13.7 (1.4)	20
0.6	11.7	8.7	17.7 (1.8)	25
0.6	11.7	10.5	20.6 (2.1)	30
0.65	17.6	12.2	24.0 (2.5)	35
0.65	17.6	12	23.5 (2.4)	(40)
0.5	2.8	1.7	4.9 (0.5)	WM 5 - 5*
0.6	4.2	3.5	9.8 (1.0)	10
0.65	6.5	5.2	14.7 (1.5)	15
0.65	6.5	7	20.6 (2.1)	20
0.7	9.1	8.7	25.5 (2.6)	25
0.75	12.7	10.5	30.4 (3.1)	30
0.8	17.4	12.2	35.3 (3.6)	35
0.85	23.8	14	41.2 (4.2)	40
0.85	23.8	15.8	46.1 (4.7)	45
0.9	23.8	15	43.5 (4.5)	(50)
0.9	30	16.5	49.0 (5.0)	(55)
0.9	30	18	53.0 (5.4)	(60)
0.9	30	17.6	52.0 (5.3)	(65)
0.9	30	19.6	58.8 (6.0)	(70)
0.55	2.8	1.7	4.9 (0.5)	WM 6 - 5*
0.65	4.7	3.5	9.8 (1.0)	10
0.75	8	5.2	14.7 (1.5)	15
0.75	8	7	20.6 (2.1)	20
0.85	13.6	8.7	25.5 (2.6)	25
0.85	13.6	10.5	30.4 (3.1)	30
0.9	18	12.2	35.3 (3.6)	35
0.9	18	14	41.2 (4.2)	40
0.9	18	15.8	46.1 (4.7)	45
0.9	18	17.5	51.0 (5.2)	50
1.0	31	19.2	55.9 (5.7)	55
1.0	31	18	53.0 (5.4)	(60)
1.0	31	18.8	54.9 (5.6)	(65)
1.1	47.3	20	58.8 (6.0)	(70)
1.1	48.4	22.4	65.9 (6.7)	(80)
0.75	4.2	3.5	9.8 (1.0)	WM 8 - 10
0.9	8.5	5.2	14.7 (1.5)	15
0.9	8.5	7	20.6 (2.1)	20
0.9	8.5	8.7	25.5 (2.6)	25
0.9	8.5	10.5	30.4 (3.1)	30
1.0	13	12.2	35.3 (3.6)	35
1.0	13	14	41.2 (4.2)	40
1.1	19.8	15.8	46.1 (4.7)	45
1.1	19.8	17.5	51.0 (5.2)	50
1.2	31.2	19.2	55.9 (5.7)	55
1.2	31.2	21	61.8 (6.3)	60
1.2	31.2	22.7	64.7 (6.6)	65
1.2	31.2	24.5	71.6 (7.3)	70
1.3	44.2	28	82.4 (8.4)	80

Load Calculation Method: Load = Spring Constant x Deflection  
 (Int'l Unit) N = N / mm x Fmm; kgf = kgf / mm x Fmm;  
 (kgf = N x 0.101972)

Ⓢ The values of solid length are for reference only. There may be some variations depending on the lot. Ⓢ Operation frequency: One million times Ⓢ Product Overview P.2512 Ⓢ How to use coil springs and precautions P.2513

d	Solid Length	F max.	Load N (kgf) max.	Part Number
Type	D - L			
0.9	5.2	3.5	9.8 (1.0)	WM 10 - 10
1.0	7.7	5.2	14.7 (1.5)	15
1.0	7.7	7	20.6 (2.1)	20
1.1	11	8.7	25.5 (2.6)	25
1.1	11	10.5	30.4 (3.1)	30
1.2	16.2	12.2	35.3 (3.6)	35
1.2	16.2	14	41.2 (4.2)	40
1.3	22.1	15.8	46.1 (4.7)	45
1.3	22.1	17.5	51.0 (5.2)	50
1.3	22.1	19.2	55.9 (5.7)	55
1.4	32.1	21	61.8 (6.3)	60
1.4	32.1	22.7	64.7 (6.6)	65
1.4	32.1	24.5	71.6 (7.3)	70
1.4	32.2	28	82.4 (8.4)	80
1.0	5.5	3.5	10.3 (1.1)	WM 12 - 10
1.1	7.4	5.2	14.7 (1.5)	15
1.1	7.4	7	20.6 (2.1)	20
1.1	7.4	8.7	25.5 (2.6)	25
1.2	10.2	10.5	30.4 (3.1)	30
1.2	10.2	12.2	35.3 (3.6)	35
1.3	14.3	14	41.2 (4.2)	40
1.3	14.3	15.8	46.1 (4.7)	45
1.3	14.3	17.5	51.0 (5.2)	50
1.4	19.6	19.2	55.9 (5.7)	55
1.4	19.6	21	61.8 (6.3)	60
1.5	26.3	22.7	64.7 (6.6)	65
1.5	26.3	24.5	71.6 (7.3)	70
1.6	36.8	28	82.4 (8.4)	80
1.0	5	3.5	10.3 (1.1)	WM 13 - 10
1.2	8.4	5.2	14.7 (1.5)	15
1.3	11.7	7	20.6 (2.1)	20
1.3	11.7	8.7	25.5 (2.6)	25
1.4	14.5	10.5	30.4 (3.1)	30
1.4	14.5	12.2	35.3 (3.6)	35
1.4	14.5	14	41.2 (4.2)	40
1.4	14.5	15.8	46.1 (4.7)	45
1.4	14.5	17.5	51.0 (5.2)	50
1.5	22.5	19.2	55.9 (5.7)	55
1.5	22.5	21	61.8 (6.3)	60
1.6	28.8	22.7	64.7 (6.6)	65
1.6	28.8	24.5	71.6 (7.3)	70
1.7	37.4	28	82.4 (8.4)	80
1.7	37.4	31.5	92.9 (9.5)	90
1.2	7.5	5.2	14.7 (1.5)	WM 14 - 15
1.3	9.8	7	20.6 (2.1)	20
1.4	13.3	8.7	25.5 (2.6)	25
1.4	13.3	10.5	30.4 (3.1)	30
1.4	13.3	12.2	35.3 (3.6)	35
1.4	13.3	14	41.2 (4.2)	40
1.5	17.3	15.8	46.1 (4.7)	45
1.5	17.3	17.5	51.0 (5.2)	50
1.5	17.3	19.2	55.9 (5.7)	55
1.6	23.2	21	61.8 (6.3)	60
1.6	23.2	22.7	64.7 (6.6)	65
1.7	30.6	24.5	71.6 (7.3)	70
1.7	30.6	28	82.4 (8.4)	80
1.8	39.6	31.5	92.9 (9.5)	90

Ⓢ Maximum allowable deflection for size (L)  
 WM3-25 Fmax.=Lx30% WM5-65 Fmax.=Lx27%  
 WM3-30 Fmax.=Lx30% WM5-70 Fmax.=Lx28%  
 WM4-40 Fmax.=Lx30% WM6-60 Fmax.=Lx30%  
 WM5-50 Fmax.=Lx30% WM6-65 Fmax.=Lx29%  
 WM5-55 Fmax.=Lx30% WM6-70 Fmax.=Lx28%  
 WM5-60 Fmax.=Lx30% WM6-80 Fmax.=Lx28%

Ⓢ No grinding on either end of WM types marked with \*

d	Solid Length	F max.	Load N (kgf) max.	Part Number
Type	D - L			
1.3	7.8	5.2	14.7 (1.5)	WM 16 - 15
1.4	9.8	7	20.6 (2.1)	20
1.5	12.5	8.7	25.5 (2.6)	25
1.5	12.5	10.5	30.4 (3.1)	30
1.6	15	12.2	35.3 (3.6)	35
1.6	15	14	41.2 (4.2)	40
1.7	20.4	15.8	46.1 (4.7)	45
1.7	20.4	17.5	51.0 (5.2)	50
1.8	27	19.2	55.9 (5.7)	55
1.8	27	21	61.8 (6.3)	60
1.8	27	22.7	64.7 (6.6)	65
1.8	27	24.5	71.6 (7.3)	70
1.8	27	28	82.4 (8.4)	80
1.9	34.2	31.5	92.9 (9.5)	90
1.7	11.9	7	34.3 (3.5)	WM 18 - 20
1.8	14.4	8.7	42.2 (4.3)	25
1.8	14.4	10.5	51.0 (5.2)	30
1.8	14.4	12.2	59.8 (6.1)	35
1.8	14.4	14	68.6 (7.0)	40
2.0	22	15.8	77.5 (7.9)	45
2.0	22	17.5	85.3 (8.7)	50
2.0	22	19.2	94.1 (9.6)	55
2.0	22	21	103.0 (10.5)	60
2.2	34.1	22.7	110.8 (11.3)	65
2.2	34.1	24.5	119.6 (12.2)	70
2.2	34.1	28	137.3 (14.0)	80
2.3	41.4	31.5	154.0 (15.7)	90
2.3	41.4	35	171.6 (17.5)	100
1.8	11.7	7	34.3 (3.5)	WM 20 - 20
1.8	11.7	8.7	42.2 (4.3)	25
1.9	14.3	10.5	51.0 (5.2)	30
1.9	14.3	12.2	59.8 (6.1)	35
1.9	14.3	14	68.6 (7.0)	40
2.0	17	15.8	77.5 (7.9)	45
2.0	17	17.5	85.3 (8.7)	50
2.2	24.8	19.2	94.1 (9.6)	55
2.2	24.8	21	103.0 (10.5)	60
2.2	24.8	22.7	110.8 (11.3)	65
2.2	24.8	24.5	119.6 (12.2)	70
2.4	36	28	137.3 (14.0)	80
2.4	36	31.5	154.0 (15.7)	90
2.4	36	35	171.6 (17.5)	100
1.9	12	7	34.3 (3.5)	WM 22 - 20
2.0	14	8.7	42.2 (4.3)	25
2.0	14	10.5	51.0 (5.2)	30
2.0	14	12.2	59.8 (6.1)	35
2.0	14	14	68.6 (7.0)	40
2.3	23	15.8	77.5 (7.9)	45
2.3	23	17.5	85.3 (8.7)	50
2.3	23	19.2	94.1 (9.6)	55
2.3	23	21	103.0 (10.5)	60
2.4	30	22.7	110.8 (11.3)	65
2.4	30	24.5	119.6 (12.2)	70
2.4	30	28	137.3 (14.0)	80
2.6	40	31.5	154.0 (15.7)	90