

ROUND WIRE COIL SPRINGS

— WM (35% DEFLECTION), WH (30% DEFLECTION) —



The quantity discount rate is also applicable to alteration cost. All price & lead time are to be quoted.



Order

Catalog No.
WM 13-60



Delivery

Printed in Red
SGP Stock

Printed in Blue
3 Days

Quantity discount rate

Quantity	1~9	10~19	20~99	100~500
Rate	—	5%	10%	15%

For area out of Singapore please refer to P.I.

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WM : Fmax. (Allowable deflection) = L × 35%

d	Solid height	F max.	N(kgf) max.	Catalog No. Type D-L	U/Price Qty: 1-9
0.35	2.5	1.8	3.4 {0.4}	WM 3-5*	10*
0.38	3.3	3.5	6.9 {0.7}		
0.45	7	5.3	10.3 {1.1}		
0.5	11.5	7	13.7 {1.4}		
0.5	11.5	7.5	14.7 {1.5}		
0.55	20.4	9	17.7 {1.8}	(30)	
0.4	2.3	1.7	3.9 {0.4}	WM 4-5*	10*
0.45	3.4	3.5	6.9 {0.7}		
0.5	5.1	5.2	10.8 {1.1}		
0.55	7.7	7	13.7 {1.4}		
0.6	11.7	8.7	17.7 {1.8}		
0.6	11.7	10.5	20.6 {2.1}	(25)	
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*	10*
0.6	4.2	3.5	9.8 {1.0}		
0.65	6.5	5.2	14.7 {1.5}		
0.65	6.5	7	20.6 {2.1}		
0.7	9.1	8.7	25.5 {2.6}		
0.75	12.7	10.5	30.4 {3.1}	(20)	
0.8	17.4	12.2	35.3 {3.6}	(30)	
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*	10*
0.65	4.7	3.5	9.8 {1.0}		
0.75	8	5.2	14.7 {1.5}		
0.75	8	7	20.6 {2.1}		
0.85	13.6	8.7	25.5 {2.6}		
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	15
0.9	8.5	5.2	14.7 {1.5}		
0.9	8.5	7	20.6 {2.1}		
0.9	8.5	8.7	25.5 {2.6}		
0.9	8.5	10.5	30.4 {3.1}		
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)	
1.2	31.2	24.5	71.6 {7.3}	(70)	
1.3	44.2	28	82.4 {8.4}	(80)	
1.3	44.2	28	82.4 {8.4}	(80)	

d	Solid height	F max.	N(kgf) max.	Catalog No. Type D-L	U/Price Qty: 1-9
0.9	5.2	3.5	9.8 {1.0}	WM10-10	15
1.0	7.7	5.2	14.7 {1.5}		
1.0	7.7	7	20.6 {2.1}		
1.1	11	8.7	25.5 {2.6}		
1.1	11	10.5	30.4 {3.1}		
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}	WM12-10	15
1.1	7.4	5.2	14.7 {1.5}		
1.1	7.4	7	20.6 {2.1}		
1.1	7.4	8.7	25.5 {2.6}		
1.2	10.2	10.5	30.4 {3.1}		
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}	WM13-10	15
1.2	8.4	5.2	14.7 {1.5}		
1.3	11.7	7	20.6 {2.1}		
1.3	11.7	8.7	25.5 {2.6}		
1.4	14.5	10.5	30.4 {3.1}		
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}	WM14-15	20
1.3	9.8	7	20.6 {2.1}		
1.4	13.3	8.7	25.5 {2.6}		
1.4	13.3	10.5	30.4 {3.1}		
1.4	13.3	12.2	35.3 {3.6}		
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)	
2.3	14	10.5	51.0 {5.2}	WM27-30	35
2.4	17	12.2	58.8 {6.1}		
2.4	17	14	68.6 {7.0}		
2.4	18	15.8	77.5 {7.9}		
2.6	23	17.5	85.3 {8.7}		
2.6	23	19.2	94.1 {9.6}		
2.6	23	21	103.0 {10.5}		
2.8	31	22.7	110.8 {11.3}		
2.8	31	24.5	119.6 {12.2}		
2.8	31	28	137.3 {14.0}		
3.0	43.5	31.5	154.0 {15.7}		
3.0	43.5	35	171.6 {17.5}		

Load calculation method : N (load) = N/mm (spring constant) × F (deflection)
(International units) N = N/mm × Fmm
kgf = kgf/mm × Fmm
(kgf = N × 0.101972)

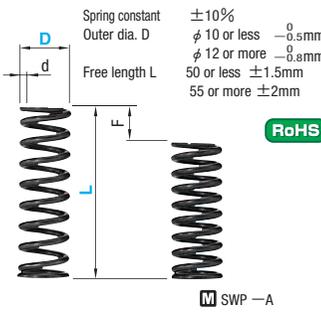
Allowable deflection for (L) size
WM3-25 Fmax. = L × 30%
WM3-30 Fmax. = L × 30%
WM4-40 Fmax. = L × 30%
WM5-50 Fmax. = L × 30%
WM5-55 Fmax. = L × 30%
WM5-60 Fmax. = L × 30%
WM5-65 Fmax. = L × 27%
WM5-70 Fmax. = L × 28%
WM6-60 Fmax. = L × 30%
WM6-65 Fmax. = L × 29%
WM6-70 Fmax. = L × 28%
WM6-80 Fmax. = L × 28%

- The solid height values are reference only. There may be some variations depending on lots.
- Operation frequency : 1 million times.
- Product Outline
- Directions and precautions for coil springs

No grinding on both ends of * marked WM type springs.

Stocks Availability Subjected to Prior Sales.

WM
WH



Spring constant ±10%
Outer dia. D
Free length L

Type	WY	WR	WF	WL	WT	WM	WH	WB
2	N/mm 0.1 (kgf/mm) {0.01}	N/mm 0.3 (kgf/mm) {0.03}	N/mm 0.5 (kgf/mm) {0.05}	N/mm 1.0 (kgf/mm) {0.1}	N/mm 1.5 (kgf/mm) {0.15}	N/mm 2.0 (kgf/mm) {0.2}	N/mm 2.9 (kgf/mm) {0.3}	3.9 {0.4}
3								4.9 {0.5}
4								
5								
6								
8	N/mm 0.2 (kgf/mm) {0.02}	N/mm 0.3 (kgf/mm) {0.03}	N/mm 0.5 (kgf/mm) {0.05}	N/mm 1.0 (kgf/mm) {0.1}	N/mm 1.5 (kgf/mm) {0.15}	N/mm 2.0 (kgf/mm) {0.2}	N/mm 2.9 (kgf/mm) {0.3}	N/mm 9.8 (kgf/mm) {1.0}
10								N/mm 9.8 (kgf/mm) {1.0}
12								
13								
14								
16	N/mm 0.5 (kgf/mm) {0.05}	N/mm 1.0 (kgf/mm) {0.1}	N/mm 1.5 (kgf/mm) {0.15}	N/mm 2.0 (kgf/mm) {0.2}	N/mm 2.9 (kgf/mm) {0.3}	N/mm 3.9 (kgf/mm) {0.4}	N/mm 4.9 (kgf/mm) {0.5}	N/mm 19.6 (kgf/mm) {2.0}
18								N/mm 19.6 (kgf/mm) {2.0}
20								
22								
27								

WH : Fmax. (Allowable deflection) = L × 30%

d	Solid height	F max.	N(kgf) max.	Catalog No. Type D-L	U/Price Qty: 1-9
0.45	2.7	1.5	4.9 {0.5}	WH 4-5*	10*
0.45	2.7	3	8.8 {0.9}		
0.55	5.8	4.5	13.7 {1.4}		
0.6	8.4	6	17.7 {1.8}		
0.65	12.4	7.5	22.6 {2.3}		
0.65	12.4	9	26.5 {2.7}	(30)	
0.6	3.3	1.5	8.8 {0.9}	WH 5-5*	10
0.7	5.5	3	17.7 {1.8}		
0.75	7.5	4.5	26.5 {2.7}		
0.75	7.5	6	35.3 {3.6}		
0.85	13.6	7.5	44.1 {4.5}		
0.85	13.6	9	52.9 {5.3}	(30)	
0.9	17.1	8.8	51.6 {5.3}	(35)	
0.9	17.1	8.8	51.9 {5.3}	(40)	
0.65	3.3	1.5	8.8 {0.9}	WH 6-5*	10
0.75	5.2	3	17.7 {1.8}		
0.8	6.4	4.5	26.5 {2.7}		
0.9	9.9	6	35.3 {3.6}		
0.9	9.9	7.5	44.1 {4.5}		
1.0	16	9	53.0 {5.4}	(30)	
1.0	16	10.5	61.8 {6.3}	(35)	
1.1	25	12	70.6 {7.2}	(40)	
1.1	25	11.3	66.7 {6.8}	(45)	
1.2	39.6	10	58.8 {6.0}	(50)	
1.2	39.6	14.5	85.3 {8.7}	(55)	
1.2	39.6	14	82.4 {8.4}	(60)	
1.2	39.6	14	82.4 {8.4}	(65)	
1.2	39.6	15	88.3 {9.0}	(70)	
0.9	5.4	3	17.7 {1.8}	WH 8-10	15
1.0	8	4.5	26.5 {2.7}		
1.1	11.5	6	35.3 {3.6}		
1.1	11.5	7.5	44.1 {4.5}		
1.2	16.8	9	53.0 {5.4}		
1.2	16.8	10.5	61.8 {6.3}	(35)	
1.2	16.8	12	70.6 {7.2}	(40)	
1.3	24.7	13.5	79.4 {8.1}	(45)	
1.3	24.7	15	88.3 {9.0}	(50)	
1.4	35	16.5	97.1 {9.9}	(55)	
1.4	35	18	105.9 {10.8}	(60)	
1.4	35	17	100.0 {10.2}	(65)	
1.4	35	19	111.8 {11.4}	(70)	
1.0	5.4	3	17.7 {1.8}	WH10-10	15
1.1	7	4.5	26.5 {2.7}		
1.2	9.6	6	35.3 {3.6}		
1.2	9.6	7.5	44.1 {4.5}		
1.3	13.9	9	53.0 {5.4}		
1.4	18	10.5	61.8 {6.3}	(35)	
1.4	18	12	70.6 {7.2}	(40)	
1.5	25	13.5	79.4 {8.1}	(45)	
1.5	25	15	88.3 {9.0}	(50)	
1.5	25	16.5	97.1 {9.9}	(55)	
1.5	25	18	105.9 {10.8}	(60)	
1.6	35	19.5	114.7 {11.7}	(65)	
1.6	35	21	123.6 {12.6}	(70)	
1.7	45.9	24	141.0 {14.4}	(80)	

Load calculation method : N (load) = N/mm (spring constant) × F (deflection)
(International units) N = N/mm × Fmm
kgf = kgf/mm × Fmm
(kgf = N × 0.101972)

- The solid height values are reference only. There may be some variations depending on lots.
- Operation frequency : 1 million times.
- Product Outline
- Directions and precautions for coil springs

The quantity discount rate is also applicable to alteration cost. All price & lead time are to be quoted.

d	Solid height	F max.	N(kgf) max.	Catalog No. Type D-L	U/Price Qty: 1-9
1.2	6.9	3	17.7 {1.8}	WH12-10	15
1.3	9.1	4.5	26.5 {2.7}		
1.3	9.1	6	35.3 {3.6}		
1.3	9.1	7.5	44.1 {4.5}		
1.4	11.9				