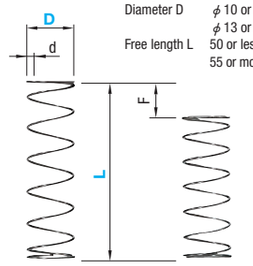
HEAT PROOF WIRE SPRINGS

—WFH (60% DEFLECTION) • WLH (50% DEFLECTION)— ●Heat resistant up to 200℃

Non JIS material definition is listed on P.1351 - 1352

WFH
WLH

RoHS



Spring constant ±10%
Diameter D φ10 or less —0.5mm, φ13 or more —0.8mm
Free length L 50 or less±1mm, 55 or more±1.5mm

M SUS631

■Spring constant

D \ Type	WFH	WLH	WMH	WHH
4	N/mm 0.5 {kgf/mm} {0.05}	N/mm 1.0 {kgf/mm} {0.1}	2.0{0.2}	2.9{0.3}
5				
6			N/mm 2.9 {kgf/mm} {0.3}	N/mm 5.9 {kgf/mm} {0.6}
8				
10				
13				N/mm 9.8 {kgf/mm} {1.0}
16				
18	1.0{0.1}	2.9{0.3}	4.9{0.5}	14.7{1.5}
Fmax.	F=L×60%	F=L×50%	F=L×40%	F=L×35%

Order — Part Number: WFH13—60, WLH13—60

Days to Ship — Quotation

Price — Quotation

●N (load)=N/mm (spring constant)×Fmm (deflection)
Load {kgf}=Load N×0.101972

No grinding on both ends of springs marked with *.
The solid height values are for reference only. There may be some dispersions depending on the lot.
Times used: 1 million
Instructions and notes for coil springs P.1221
Coil springs marked with ● have spring seat(s) on one end or both ends in order to reduce excessive stress or potential breakage when deflecting.
(The seat becomes 4 rolling extent from 0.5))
Solid height/spring constant values are the same as those without spring seats.

■WFH:Fmax.(allowable deflection)=L×60%

Fmax.(Allowable deflection) is due to the measurement at normal temperature (40℃). Refer to P.1220 for the maximum allowable deflection at high temperature (150℃/200℃).

d	Solid Height	F max.	N{kgf} max.	Part Number Type D — L	U/Price 1~19
0.29	1.8	3	1.5{0.15}	WFH4— 5*	
0.35	3.2	6	2.9{0.3 }	10*	
0.35	3.2	9	4.4{0.45}	15*	
0.4	5.2	12	5.9{0.6 }	20*	
0.4	6	15	7.4{0.75}	25*	
0.4	6.8	18	8.8{0.9 }	30*	
0.45	10.4	21	10.3{1.05}	35*	
0.45	11.3	24	11.8{1.2 }	40*	
0.3	1.2	3	1.5{0.15}	WFH5— 5*	
0.4	3.2	6	2.9{0.3 }	10*	
0.4	3.2	9	4.4{0.45}	15*	
0.45	5.5	12	5.9{0.6 }	20	
0.45	6.3	15	7.4{0.75}	25	
0.5	8	18	8.8{0.9 }	30	
0.5	9.5	21	10.3{1.05}	35	
0.5	9.5	24	11.8{1.2 }	40	
0.55	13.0	27	13.2{1.35}	45	
0.55	13.7	30	14.7{1.5 }	50	
0.35	1.4	3	1.5{0.15}	WFH6— 5*	
0.45	3.2	6	2.9{0.3 }	10*	
0.45	3.2	9	4.4{0.45}	15*	
0.5	5.5	12	5.9{0.6 }	20	
0.5	5.5	15	7.4{0.75}	25	
0.6	10	18	8.8{0.9 }	30	
0.6	10	21	10.3{1.05}	35	
0.6	11	24	11.8{1.2 }	40	
0.6	11.5	27	13.2{1.35}	45	
0.65	15	30	14.7{1.5 }	50	
0.65	17	33	16.2{1.65}	55	
0.65	17	36	17.7{1.8 }	60	
0.7	23	39	19.1{1.95}	65	
0.7	23	42	20.6{2.1 }	70	
0.7	24	48	23.5{2.4 }	80	

Quotation

d	Solid Height	F max.	N{kgf} max.	Part Number Type D — L	U/Price 1~19
0.5	2.8	6	2.9{0.3 }	WFH 8—10	
0.5	3	9	4.4{0.45}	15	
0.6	5.3	12	5.9{0.6 }	20	
0.6	5.3	15	7.4{0.75}	25	
0.65	7.3	18	8.8{0.9 }	30	
0.65	7.3	21	10.3{1.05}	35	
0.7	10	24	11.8{1.2 }	40	
0.7	10	27	13.2{1.35}	45	
0.7	10.5	30	14.7{1.5 }	50	
0.8	18	33	16.2{1.65}	55	
0.8	18	36	17.7{1.8 }	60	
0.8	20	39	19.1{1.95}	65	
0.8	20	42	20.6{2.1 }	70	
0.8	21	48	23.5{2.4 }	80	
0.6	3	6	2.9{0.3 }	WFH10—10	
0.6	3.2	9	4.4{0.45}	15	
0.7	5.3	12	5.9{0.6 }	20	
0.7	5.3	15	7.4{0.75}	25	
0.7	5.6	18	8.8{0.9 }	30	
0.8	10	21	10.3{1.05}	35	
0.8	10	24	11.8{1.2 }	40	
0.8	10.5	27	13.2{1.35}	45	
0.8	10.5	30	14.7{1.5 }	50	
0.8	11	33	16.2{1.65}	55	
0.9	17.6	36	17.7{1.8 }	60	
0.9	18	39	19.1{1.95}	65	
0.9	18	42	20.6{2.1 }	70	
0.9	19	48	23.5{2.4 }	80	
0.7	3.5	9	4.4{0.45}	WFH13—15	
0.8	5	12	5.9{0.6 }	20	
0.8	5	15	7.4{0.75}	25	
0.8	5	18	8.8{0.9 }	30	
0.9	7.7	21	10.3{1.05}	35	
0.9	7.7	24	11.8{1.2 }	40	
0.9	8.6	27	13.2{1.35}	45	
0.9	8.6	30	14.7{1.5 }	50	
1.0	12.5	33	16.2{1.65}	55	
1.0	13.5	36	17.7{1.8 }	60	
1.0	13.5	39	19.1{1.95}	65	
1.1	20	42	20.6{2.1 }	70	
1.1	20	48	23.5{2.4 }	80	
1.1	21	54	26.5{2.7 }	90	

Quotation

d	Solid Height	F max.	N{kgf} max.	Part Number Type D — L	U/Price 1~19
0.8	3.6	9	4.4{0.45}	WFH16—15	
0.9	5.3	12	5.9{0.6 }	20	
0.9	5.3	15	7.4{0.75}	25	
1.0	8	18	8.8{0.9 }	30	
1.0	8	21	10.3{1.05}	35	
1.0	9	24	11.8{1.2 }	40	
1.0	9	27	13.2{1.35}	45	
1.0	9	30	14.7{1.5 }	50	
1.0	9	33	16.2{1.65}	55	
1.1	12	36	17.7{1.8 }	60	
1.1	12	39	19.1{1.95}	65	
1.2	17	42	20.6{2.1 }	70	
1.2	17	48	23.5{2.4 }	80	
1.2	17	54	26.5{2.7 }	90	
1.0	5	12	11.8{1.2 }	WFH18—20	
1.1	5.5	15	14.7{1.5 }	25	
1.1	5.5	18	17.7{1.8 }	30	
1.2	8	21	20.6{2.1 }	35	
1.2	8	24	23.5{2.4 }	40	
1.2	8	27	26.5{2.7 }	45	
1.4	14	30	29.4{3.0 }	50	
1.4	14	33	32.4{3.3 }	55	
1.4	14	36	35.3{3.6 }	60	
1.4	14	39	38.2{3.9 }	65	
1.5	20	42	41.2{4.2 }	70	
1.5	20	48	47.1{4.8 }	80	
1.6	26	54	53.0{5.4 }	90	
1.6	26	60	58.8{6.0 }	100	

Quotation

■WLH:Fmax.(allowable deflection)=L×50%

Fmax.(Allowable deflection) is due to the measurement at normal temperature (40℃). Refer to P.1220 for the maximum allowable deflection at high temperature (150℃/200℃).

d	Solid Height	F max.	N{kgf} max.	Part Number Type D — L	U/Price 1~19
0.35	2.1	2.5	2.5{0.25}	WLH4— 5*	
0.4	3.6	5	4.9{0.5 }	10*	
0.45	5	7.5	7.4{0.75}	15*	
0.5	8.5	10	9.8{1.0 }	20	
0.5	9	12.5	12.3{1.25}	25	
0.5	10.5	15	14.7{1.5 }	30	
0.55	12	17.5	17.2{1.75}	35	
0.55	16	20	19.6{2.0 }	40	
0.4	1.8	2.5	2.5{0.25}	WLH5— 5*	
0.45	3.2	5	4.9{0.5 }	10*	
0.5	5	7.5	7.4{0.75}	15	
0.55	6.6	10	9.8{1.0 }	20	
0.6	10	12.5	12.3{1.3 }	25	
0.6	12	15	14.7{1.5 }	30	
0.65	14.3	17.5	17.2{1.8 }	35	
0.65	16.3	20	19.6{2.0 }	40	
0.65	17.6	22.5	22.1{2.3 }	45	
0.7	21	25	24.5{2.5 }	50	
0.5	2.2	2.5	2.9{0.3 }	WLH6— 5*	
0.5	3.3	5	4.9{0.5 }	10	
0.6	6.5	7.5	7.8{0.8 }	15	
0.6	8.5	10	9.8{1.0 }	20●	
0.6	10	12.5	12.7{1.3 }	25●	
0.7	13	15	14.7{1.5 }	30	
0.7	15	17.5	17.7{1.8 }	35●	
0.7	17	20	19.6{2.0 }	40●	
0.7	20	22.5	22.6{2.3 }	45●	
0.8	23.5	25	24.5{2.5 }	50	
0.8	23.5	27.5	27.0{2.8 }	55	
0.8	27	30	29.4{3.0 }	60●	
0.8	27	32.5	31.9{3.3 }	65	
0.8	31	35	34.3{3.5 }	70●	
0.8	35	40	39.2{4.0 }	80	

Quotation

d	Solid Height	F max.	N{kgf} max.	Part Number Type D — L	U/Price 1~19
0.6	3.5	5	4.9{0.5}	WLH 8—10	
0.7	6	7.5	7.8{0.8}	15	
0.7	7.5	10	9.8{1.0}	20	
0.8	10	12.5	12.7{1.3}	25	
0.8	12	15	14.7{1.5}	30●	
0.8	15	17.5	17.7{1.8}	35●	
0.9	17.5	20	19.6{2.0}	40	
0.9	19.5	22.5	22.6{2.3}	45●	
0.9	21	25	24.5{2.5}	50●	
0.9	20	27.5	27.0{2.8}	55●	
0.9	25	30	29.4{3.0}	60●	
1.0	29	32.5	31.9{3.3}	65	
1.0	30.5	35	34.3{3.5}	70●	
1.0	35	40	39.2{4.0}	80●	
0.7	4	5	4.9{0.5}	WLH10—10	
0.8	6	7.5	7.8{0.8}	15	
0.9	8.5	10	9.8{1.0}	20	
0.9	9.5	12.5	12.7{1.3}	25	
0.9	11.5	15	14.7{1.5}	30●	
1.0	15	17.5	17.7{1.8}	35	
1.0	17.5	20	19.6{2.0}	40●	
1.0	20	22.5	22.6{2.3}	45●	
1.0	22.5	25	24.5{2.5}	50●	
1.1	23	27.5	27.0{2.8}	55	
1.1	24	30	29.4{3.0}	60●	
1.1	25.5	32.5	31.9{3.3}	65●	
1.1	28	35	34.3{3.5}	70●	
1.2	36	40	39.2{4.0}	80	
0.9	5.2	7.5	7.8{0.8}	WLH13—15	
1.0	7.5	10	9.8{1.0}	20	
1.0	7.5	12.5	12.7{1.3}	25	
1.1	10.5	15	14.7{1.5}	30	
1.1	11	17.5	17.7{1.8}	35	
1.2	17	20	19.6{2.0}	40	
1.2	17	22.5	22.6{2.3}	45	
1.2	20	25	24.5{2.5}	50●	
1.2	21	27.5	27.0{2.8}	55●	
1.2	22	30	29.4{3.0}	60●	
1.2	22	32.5	31.9{3.3}	65●	
1.2	25	35	34.3{3.5}	70●	
1.4	35	40	39.2{4.0}	80	
1.4	40	45	44.1{4.5}	90	

Quotation

d	Solid Height	F max.	N{kgf} max.	Part Number Type D — L	U/Price 1~19
1.0	5.5	7.5	7.8{ 0.8 }	WLH16—15	
1.1	7.5	10	9.8{ 1.0 }	20	
1.2	10	12.5	12.7{ 1.3 }	25	
1.2	12.5	15	14.7{ 1.5 }	30●	
1.2	13	17.5	17.7{ 1.8 }	35●	
1.2	15	20	19.6{ 2.0 }	40●	
1.4	19.5	22.5	22.6{ 2.3 }	45	
1.4	22	25	24.5{ 2.5 }	50●	
1.4	23	27.5	27.0{ 2.8 }	55●	
1.4	25	30	29.4{ 3.0 }	60●	
1.4	25	32.5	31.9{ 3.3 }	65●	
1.4	29	35	34.3{ 3.5 }	70●	
1.6	36	40	39.2{ 4.0 }	80	
1.6	37	45	44.1{ 4.5 }	90●	
1.4	7	10	29.4{ 3.0 }	WLH18—20	
1.6	10.5	12.5	37.3{ 3.8 }	25	
1.6	13	15	44.1{ 4.5 }	30●	
1.8	15	17.5	52.0{ 5.3 }	35●	
1.8	17	20	58.8{ 6.0 }	40	
1.8	20	22.5	66.7{ 6.8 }	45●	
2	22	25	73.5{ 7.5 }	50●	
1.8	19	27.5	80.9{ 8.25}	55	
2	28	30	88.3{ 9.0 }	60	
2	28	32.5	95.6{ 9.75}	65	
2	31	35	103.0{10.5 }	70●	
2	35	40	117.7{12.0 }	80●	
2	40	45	132.4{13.5 }	90●	
2.1	47	50	147.1{15.0 }	100	

Quotation