

# COIL SPRINGS -SWL-

## コイルスプリング

### -SWL-



D	d	L	ばね定数		F=L×32%		F=L×36%		F=L×40%		型式 Type D-L
			N/mm(kgf/mm)	Fmm	Fmm	荷重 N(kgf)	Fmm	荷重 N(kgf)	Fmm	荷重 N(kgf)	
6	3	15	13.1(1.33)	4.8	5.4	6.0	63 (6.4)	71 (7.2)	8.0	78 (8.0)	SWL6-15
		20	9.8(1.00)	6.4	7.2	8.0					20
		25	7.8(0.80)	8.0	9.0	10.0					25
		30	6.5(0.67)	9.6	10.8	12.0					30
		35	5.6(0.57)	11.2	12.6	14.0					35
		40	4.9(0.50)	12.8	14.4	16.0					40
8	4	10	24.5(2.50)	3.2	3.6	4.0	78 (8.0)	88 (9.0)	98 (10)	SWL8-10	
		15	16.3(1.67)	4.8	5.4	6.0				15	
		20	12.3(1.25)	6.4	7.2	8.0				20	
		25	9.8(1.00)	8.0	9.0	10.0				25	
		30	8.2(0.83)	9.6	10.8	12.0				30	
		35	7.0(0.71)	11.2	12.6	14.0				35	
		40	6.1(0.63)	12.8	14.4	16.0				40	
		45	5.4(0.56)	14.4	16.2	18.0				45	
		50	4.9(0.50)	16.0	18.0	20.0				50	
		55	4.5(0.45)	17.6	19.8	22.0				55	
		60	4.1(0.42)	19.2	21.6	24.0				60	
		65	3.8(0.38)	20.8	23.4	26.0				65	
		70	3.5(0.36)	22.4	25.2	28.0				70	
		75	3.3(0.33)	24.0	27.0	30.0				75	
80	3.1(0.31)	25.6	28.8	32.0	80						
10	5	10	34.3(3.50)	3.2	3.6	4.0	110 (11)	124 (13)	137 (14)	SWL10-10	
		15	22.9(2.33)	4.8	5.4	6.0				15	
		20	17.2(1.75)	6.4	7.2	8.0				20	
		25	13.7(1.40)	8.0	9.0	10.0				25	
		30	11.4(1.17)	9.6	10.8	12.0				30	
		35	9.8(1.00)	11.2	12.6	14.0				35	
		40	8.6(0.88)	12.8	14.4	16.0				40	
		45	7.6(0.78)	14.4	16.2	18.0				45	
		50	6.9(0.70)	16.0	18.0	20.0				50	
		55	6.2(0.64)	17.6	19.8	22.0				55	
		60	5.7(0.58)	19.2	21.6	24.0				60	
		65	5.3(0.54)	20.8	23.4	26.0				65	
		70	4.9(0.50)	22.4	25.2	28.0				70	
		75	4.6(0.47)	24.0	27.0	30.0				75	
80	4.3(0.44)	25.6	28.8	32.0	80						
90	3.8(0.39)	28.8	32.4	36.0	90						
12	6	15	34.3(3.50)	4.8	5.4	6.0	165 (17)	185 (19)	206 (21)	SWL12-15	
		20	25.7(2.63)	6.4	7.2	8.0				20	
		25	20.6(2.10)	8.0	9.0	10.0				25	
		30	17.2(1.75)	9.6	10.8	12.0				30	
		35	14.7(1.50)	11.2	12.6	14.0				35	
		40	12.9(1.31)	12.8	14.4	16.0				40	
		45	11.4(1.17)	14.4	16.2	18.0				45	
		50	10.3(1.05)	16.0	18.0	20.0				50	
		55	9.4(0.95)	17.6	19.8	22.0				55	
		60	8.6(0.88)	19.2	21.6	24.0				60	
		65	7.9(0.81)	20.8	23.4	26.0				65	
		70	7.4(0.75)	22.4	25.2	28.0				70	
		75	6.9(0.70)	24.0	27.0	30.0				75	
		80	6.4(0.66)	25.6	28.8	32.0				80	
90	5.7(0.58)	28.8	32.4	36.0	90						
14	7	20	34.3(3.50)	6.4	7.2	8.0	220 (22)	247 (25)	275 (28)	SWL14-20	
		25	27.5(2.80)	8.0	9.0	10.0				25	
		30	22.9(2.33)	9.6	10.8	12.0				30	
		35	19.6(2.00)	11.2	12.6	14.0				35	
		40	17.2(1.75)	12.8	14.4	16.0				40	
		45	15.3(1.56)	14.4	16.2	18.0				45	
		50	13.7(1.40)	16.0	18.0	20.0				50	
		55	12.5(1.27)	17.6	19.8	22.0				55	
		60	11.4(1.17)	19.2	21.6	24.0				60	
		65	10.6(1.08)	20.8	23.4	26.0				65	
		70	9.8(1.00)	22.4	25.2	28.0				70	
		75	9.2(0.93)	24.0	27.0	30.0				75	
		80	8.6(0.88)	25.6	28.8	32.0				80	
		90	7.6(0.78)	28.8	32.4	36.0				90	
100	6.9(0.70)	32.0	36.0	40.0	100						

D	d	L	ばね定数		F=L×32%		F=L×36%		F=L×40%		型式 Type D-L
			N/mm(kgf/mm)	Fmm	Fmm	荷重 N(kgf)	Fmm	荷重 N(kgf)	Fmm	荷重 N(kgf)	
16	8	20	42.9(4.38)	6.4	7.2	8.0	275 (28)	309 (32)	343 (35)	SWL16-20	
		25	34.3(3.50)	8.0	9.0	10.0				25	
		30	28.6(2.92)	9.6	10.8	12.0				30	
		35	24.5(2.50)	11.2	12.6	14.0				35	
		40	21.5(2.19)	12.8	14.4	16.0				40	
		45	19.1(1.94)	14.4	16.2	18.0				45	
		50	17.2(1.75)	16.0	18.0	20.0				50	
		55	15.6(1.59)	17.6	19.8	22.0				55	
		60	14.3(1.46)	19.2	21.6	24.0				60	
		65	13.2(1.35)	20.8	23.4	26.0				65	
		70	12.3(1.25)	22.4	25.2	28.0				70	
		75	11.4(1.17)	24.0	27.0	30.0				75	
18	9	20	52.7(5.38)	6.4	7.2	8.0	337 (34)	380 (39)	422 (43)	SWL18-20	
		25	42.2(4.30)	8.0	9.0	10.0				25	
		30	35.1(3.58)	9.6	10.8	12.0				30	
		35	30.1(3.07)	11.2	12.6	14.0				35	
		40	26.4(2.69)	12.8	14.4	16.0				40	
		45	23.4(2.39)	14.4	16.2	18.0				45	
		50	21.1(2.15)	16.0	18.0	20.0				50	
		55	19.2(1.95)	17.6	19.8	22.0				55	
		60	17.6(1.79)	19.2	21.6	24.0				60	
		65	16.2(1.65)	20.8	23.4	26.0				65	
		70	15.1(1.54)	22.4	25.2	28.0				70	
		75	14.1(1.43)	24.0	27.0	30.0				75	
		80	13.2(1.34)	25.6	28.8	32.0				80	
		90	11.7(1.19)	28.8	32.4	36.0				90	
100	10.5(1.08)	32.0	36.0	40.0	100						
125	8.4(0.86)	40.0	45.0	50.0	125						
20	10	20	66.2(6.75)	6.4	7.2	8.0	424 (43)	477 (48)	530 (54)	SWL20-20	
		25	53.0(5.40)	8.0	9.0	10.0				25	
		30	44.1(4.50)	9.6	10.8	12.0				30	
		35	37.8(3.86)	11.2	12.6	14.0				35	
		40	33.1(3.38)	12.8	14.4	16.0				40	
		45	29.4(3.00)	14.4	16.2	18.0				45	
		50	26.5(2.70)	16.0	18.0	20.0				50	
		55	24.1(2.45)	17.6	19.8	22.0				55	
		60	22.1(2.25)	19.2	21.6	24.0				60	
		65	20.4(2.08)	20.8	23.4	26.0				65	
		70	18.9(1.93)	22.4	25.2	28.0				70	
		75	17.7(1.80)	24.0	27.0	30.0				75	
		80	16.5(1.69)	25.6	28.8	32.0				80	
		90	14.7(1.50)	28.8	32.4	36.0				90	
100	13.2(1.35)	32.0	36.0	40.0	100						
125	10.6(1.08)	40.0	45.0	50.0	125						
150	8.8(0.90)	48.0	54.0	60.0	150						
22	11	25	65.7(6.70)	8.0	9.0	10.0	526 (54)	591 (60)	657 (67)	SWL22-25	
		30	54.8(5.58)	9.6	10.8	12.0				30	
		35	46.9(4.79)	11.2	12.6	14.0				35	
		40	41.1(4.19)	12.8	14.4	16.0				40	
		45	36.5(3.72)	14.4	16.2	18.0				45	
		50	32.9(3.35)	16.0	18.0	20.0				50	
		55	29.9(3.05)	17.6	19.8	22.0				55	
		60	27.4(2.79)	19.2	21.6	24.0				60	
		65	25.3(2.58)	20.8	23.4	26.0				65	
		70	23.5(2.39)	22.4	25.2	28.0				70	
		75	21.9(2.23)	24.0	27.0	30.0				75	
		80	20.5(2.09)	25.6	28.8	32.0				80	
		90	18.3(1.86)	28.8	32.4	36.0				90	
		100	16.4(1.68)	32.0	36.0	40.0				100	
125	13.1(1.34)	40.0	45.0	50.0	125						
150	11.0(1.12)	48.0	54.0	60.0	150						
使用回数			100万回	50万回	30万回						

- 材質 ばね用オイルテンパー線
- 荷重の算出方法: 荷重=ばね定数×タワミ量  
(国際単位) N=N/mm×Fmm  
(kgf=kgf/mm×Fmm  
(kgf=N×0.101972))
- ①荷重グラフ参照 P.1532
- ②コイルスプリング使用上の注意参照 P.1533