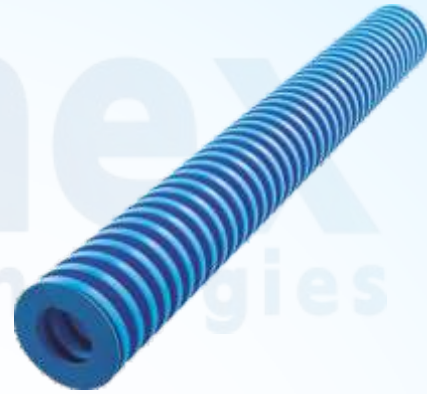
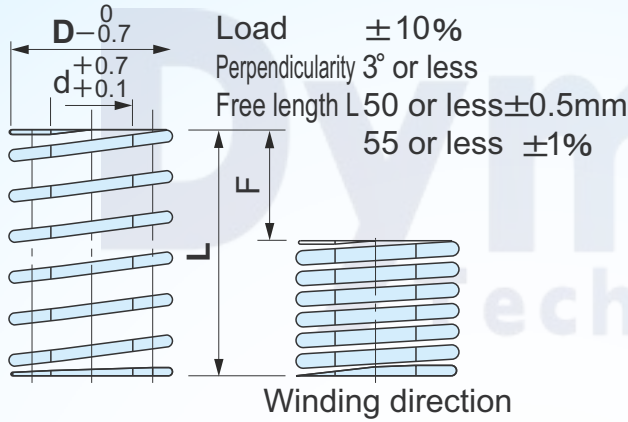


ROUND WIRE COIL SPRINGS

DX-SWL



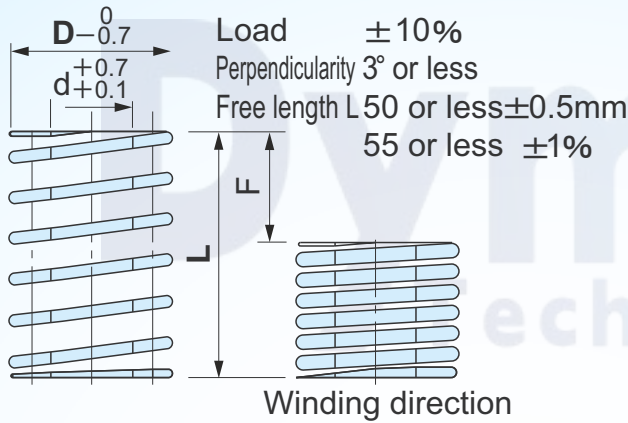
Part Number	D	d	L	Spring Constant N/mm (kgf/mm)	F = L x 32%		F = L x 36%	
					Fmm	Load N(Kgf)	Fmm	Load N(Kgf)
Type D - L	Operation Count			1000000	500000			
DX - SWL8 - 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80	8	4	10	24.5 (2.50)	3.2		3.6	
			15	16.3 (1.67)	4.8	5.4		
			20	12.3 (1.25)	6.4	7.2		
			25	9.8 (1.00)	8	9		
			30	8.2 (0.83)	9.6	10.8		
			35	7.0 (0.71)	11.2	12.6		
			40	6.1 (0.63)	12.8	14.4		
			45	5.4 (0.56)	14.4	16.2	78 (8.0)	88 (9.0)
			50	4.9 (0.50)	16	18		
			55	4.5 (0.45)	17.6	19.8		
			60	4.1 (0.42)	19.2	21.6		
65	3.8 (0.38)	20.8	23.4					
70	3.5 (0.36)	22.4	25.2					
75	3.3 (0.33)	24	27					
80	3.1 (0.31)	25.6	28.8					
DX - SWL10 - 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 90	10	5	10	34.3 (3.50)	3.2		3.6	
			15	22.9 (2.33)	4.8	5.4		
			20	17.2 (1.75)	6.4	7.2		
			25	13.7 (1.40)	8	9		
			30	11.4 (1.17)	9.6	10.8		
			35	9.8 (1.00)	11.2	12.6		
			40	8.6 (0.88)	12.8	14.4		
			45	7.6 (0.78)	14.4	16.2	110 (11)	124 (13)
			50	6.9 (0.70)	16	18		
			55	6.2 (0.64)	17.6	19.8		
			60	5.7 (0.58)	19.2	21.6		
65	5.3 (0.54)	20.8	23.4					
70	4.9 (0.50)	22.4	25.2					
75	4.6 (0.47)	24	27					
80	4.3 (0.44)	25.6	28.8					
90	3.8 (0.39)	28.8	32.4					
DX - SWL12 - 20 25 30 35 40 45 50 55 60 65 70 75 80 90	12	6	20	25.7 (2.63)	6.4		7.2	
			25	20.6 (2.10)	8	9		
			30	17.2 (1.75)	9.6	10.8		
			35	14.7 (1.50)	11.2	12.6		
			40	12.9 (1.31)	12.8	14.4		
			45	11.4 (1.17)	14.4	16.2		
			50	10.3 (1.05)	16	18	165 (17)	185 (19)
			55	9.4 (0.95)	17.6	19.8		
			60	8.6 (0.88)	19.2	21.6		
			65	7.9 (0.81)	20.8	23.4		
			70	7.4 (0.75)	22.4	25.2		
75	6.9 (0.70)	24	27					
80	6.4 (0.66)	25.6	28.8					
90	5.7 (0.58)	28.8	32.4					
DX - SWL14 - 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100	14	7	20	34.3 (3.50)	6.4		7.2	
			25	27.5 (2.80)	8	9		
			30	22.9 (2.33)	9.6	10.8		
			35	19.6 (2.00)	11.2	12.6		
			40	17.2 (1.75)	12.8	14.4		
			45	15.3 (1.56)	14.4	16.2		
			50	13.7 (1.40)	16	18	220 (22)	247 (25)
			55	12.5 (1.27)	17.6	19.8		
			60	11.4 (1.17)	19.2	21.6		
			65	10.6 (1.08)	20.8	23.4		
			70	9.8 (1.00)	22.4	25.2		
75	9.2 (0.93)	24	27					
80	8.6 (0.88)	25.6	28.8					
90	7.6 (0.78)	28.8	32.4					
100	6.9 (0.70)	32	36					

Part Number	D	d	L	Spring Constant N/mm (kgf/mm)	F = L x 32%		F = L x 36%	
					Fmm	Load N(Kgf)	Fmm	Load N(Kgf)
Type D - L	Operation Count			1000000	500000			
DX - SWL16 - 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125	16	8	20	42.9 (4.38)	6.4		7.2	
			25	34.3 (3.50)	8	9		
			30	28.6 (2.92)	9.6	10.8		
			35	24.5 (2.50)	11.2	12.6		
			40	21.5 (2.19)	12.8	14.4		
			45	19.1 (1.94)	14.4	16.2		
			50	17.2 (1.75)	16	18		
			55	15.6 (1.59)	17.6	19.8	275 (28)	309 (32)
			60	14.3 (1.46)	19.2	21.6		
			65	13.2 (1.35)	20.8	23.4		
			70	12.3 (1.25)	22.4	25.2		
			75	11.4 (1.17)	24	27		
			80	10.7 (1.09)	25.6	28.8		
90	9.5 (0.97)	28.8	32.4					
100	8.6 (0.88)	32	36					
125	6.9 (0.70)	40	45					
DX - SWL18 - 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125	18	9	20	52.7 (5.38)	6.4		7.2	
			25	42.2 (4.30)	8	9		
			30	35.1 (3.58)	9.6	10.8		
			35	30.1 (3.07)	11.2	12.6		
			40	26.4 (2.69)	12.8	14.4		
			45	23.4 (2.39)	14.4	16.2		
			50	21.1 (2.15)	16	18	337 (34)	380 (39)
			55	19.2 (1.95)	17.6	19.8		
			60	17.6 (1.79)	19.2	21.6		
			65	16.2 (1.65)	20.8	23.4		
			70	15.1 (1.54)	22.4	25.2		
			75	14.1 (1.43)	24	27		
			80	13.2 (1.34)	25.6	28.8		
90	11.7 (1.19)	28.8	32.4					
100	10.5 (1.08)	32	36					
125	8.4 (0.86)	40	45					
DX - SWL20 - 20 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150	20	10	20	66.2 (6.75)	6.4		7.2	
			25	53.0 (5.40)	8	9		
			30	44.1 (4.50)	9.6	10.8		
			35	37.8 (3.86)	11.2	12.6		
			40	33.1 (3.38)	12.8	14.4		
			45	29.4 (3.00)	14.4	16.2		
			50	26.5 (2.70)	16	18		
			55	24.1 (2.45)	17.6	19.8	424 (43)	477 (48)
			60	22.1 (2.25)	19.2	21.6		
			65	20.4 (2.08)	20.8	23.4		
			70	18.9 (1.93)	22.4	25.2		
			75	17.7 (1.80)	24	27		
			80	16.5 (1.69)	25.6	28.8		
90	14.7 (1.50)	28.8	32.4					
100	13.2 (1.35)	32	36					
125	10.6 (1.08)	40	45					
150	8.8 (0.90)	48	54					
DX - SWL22 - 25 30 35 40 45 50 55 60 65 70 75 80 90 100 125 150	22	11	25	65.7 (6.70)	8		9	
			30	54.8 (5.58)	9.6	10.8		
			35	46.9 (4.79)	11.2	12.6		
			40	41.1 (4.19)	12.8	14.4		
			45	36.5 (3.72)	14.4	16.2		
			50	32.9 (3.35)	16	18		
			55	29.9 (3.05)	17.6	19.8		
			60	27.4 (2.79)	19.2	21.6	526 (54)	591 (60)
			65	25.3 (2.58)	20.8	23.4		
			70	23.5 (2.39)	22.4	25.2		
			75	21.9 (2.23)	24	27		
			80	20.5 (2.09)	25.6	28.8		
			90	18.3 (1.86)	28.8	32.4		
100	16.4 (1.68)	32	36					
125	13.1 (1.34)	40	45					
150	11.0 (1.12)	48	54					



ROUND WIRE COIL SPRINGS

DX-SWL



Part Number	D	d	L	Spring Constant		F = L x 32%		F = L x 36%	
				N/mm {kgf/mm}	Fmm	Load N(Kgf)	Fmm	Load N(Kgf)	
Type D - L	Operation Count			1000000	500000				
DX - SWL25-	25	12.5	25	82.4 (8.40)	8	9	669 (67)	741 (76)	
			30	68.6 (7.00)	9.6	10.8			
			35	58.8 (6.00)	11.2	12.6			
			40	51.5 (5.25)	12.8	14.4			
			45	45.8 (4.67)	14.4	16.2			
			50	41.2 (4.20)	16	18			
			55	37.4 (3.82)	17.6	19.8			
			60	34.3 (3.50)	19.2	21.6			
			65	31.7 (3.23)	20.8	23.4			
			70	29.4 (3.00)	22.4	25.2			
			75	27.5 (2.80)	24	27			
			80	25.7 (2.63)	25.6	28.8			
			90	22.9 (2.33)	28.8	32.4			
			100	20.6 (2.10)	32	36			
			125	16.5 (1.68)	40	45			
150	13.7 (1.40)	48	54						
175	11.8 (1.20)	56	63						
200	10.3 (1.05)	64	72						
DX - SWL27-	27	13.5	30	81.7 (8.33)	9.6	10.8	785 (80)	883 (90)	
			35	70.0 (7.14)	11.2	12.6			
			40	61.3 (6.25)	12.8	14.4			
			45	54.5 (5.56)	14.4	16.2			
			50	49.0 (5.00)	16	18			
			55	44.6 (4.55)	17.6	19.8			
			60	40.9 (4.17)	19.2	21.6			
			65	37.7 (3.85)	20.8	23.4			
			70	35.0 (3.57)	22.4	25.2			
			75	32.7 (3.33)	24	27			
			80	30.6 (3.13)	25.6	28.8			
			90	27.2 (2.78)	28.8	32.4			
			100	24.5 (2.50)	32	36			
			125	19.6 (2.00)	40	45			
			150	16.3 (1.67)	48	54			
175	14.0 (1.43)	56	63						
200	12.3 (1.25)	64	72						
DX - SWL30-	30	15	25	119.0 (12.1)	8	9	949 (97)	1067 (109)	
			30	98.8 (10.1)	9.6	10.8			
			35	84.7 (8.64)	11.2	12.6			
			40	74.1 (7.56)	12.8	14.4			
			45	65.9 (6.72)	14.4	16.2			
			50	59.3 (6.05)	16	18			
			55	53.9 (5.50)	17.6	19.8			
			60	49.4 (5.04)	19.2	21.6			
			65	45.6 (4.65)	20.8	23.4			
			70	42.4 (4.32)	22.4	25.2			
			75	39.5 (4.03)	24	27			
			80	37.1 (3.78)	25.6	28.8			
			90	32.9 (3.36)	28.8	32.4			
			100	29.7 (3.02)	32	36			
			125	23.7 (2.42)	40	45			
150	19.8 (2.02)	48	54						
175	16.9 (1.73)	56	63						
200	14.8 (1.51)	64	72						

Part Number	D	d	L	Spring Constant		F = L x 32%		F = L x 36%	
				N/mm {kgf/mm}	Fmm	Load N(Kgf)	Fmm	Load N(Kgf)	
Type D - L	Operation Count			1000000	500000				
DX - SWL35 -	35	17.5	40	101.0 (10.3)	12.8	14.4	1294 (132)	1455 (148)	
			45	89.8 (9.16)	14.4	16.2			
			50	80.9 (8.24)	16	18			
			55	73.5 (7.49)	17.6	19.8			
			60	67.4 (6.87)	19.2	21.6			
			65	62.2 (6.34)	20.8	23.4			
			70	57.8 (5.89)	22.4	25.2			
			75	53.9 (5.50)	24	27			
			80	50.5 (5.15)	25.6	28.8			
			90	44.9 (4.58)	28.8	32.4			
			100	40.4 (4.12)	32	36			
			125	32.3 (3.30)	40	45			
			150	27.0 (2.75)	48	54			
			175	23.1 (2.36)	56	63			
			200	20.2 (2.06)	64	72			
DX - SWL40 -	40	20	40	132.0 (13.50)	12.8	14.4	1694 (173)	1905 (194)	
			45	118.0 (12.00)	14.4	16.2			
			50	106.0 (10.80)	16	18			
			55	96.2 (9.81)	17.6	19.8			
			60	88.2 (8.99)	19.2	21.6			
			65	81.4 (8.30)	20.8	23.4			
			70	75.6 (7.71)	22.4	25.2			
			75	70.6 (7.20)	24	27			
			80	66.2 (6.75)	25.6	28.8			
			90	58.8 (6.00)	28.8	32.4			
			100	52.9 (5.40)	32	36			
			125	42.3 (4.32)	40	45			
			150	35.3 (3.60)	48	54			
			175	30.2 (3.08)	56	63			
			200	26.5 (2.70)	64	72			
DX - SWL50 -	50	25	50	166.0 (16.9)	16	18	2650 (270)	2981 (304)	
			55	151.0 (15.4)	17.6	19.8			
			60	138.0 (14.1)	19.2	21.6			
			65	127.0 (13.0)	20.8	23.4			
			70	118.0 (12.1)	22.4	25.2			
			75	110.0 (11.3)	24	27			
			80	104.0 (10.6)	25.6	28.8			
			90	92.0 (9.38)	28.8	32.4			
			100	82.8 (8.44)	32	36			
			125	66.2 (6.75)	40	45			
			150	55.2 (5.63)	48	54			
			175	47.3 (4.82)	56	63			
			200	41.4 (4.22)	64	72			
			225	36.8 (3.75)	72	81			
			DX - SWL60 -	60	30	60			
70	170.0 (17.4)	22.4				25.2			
80	149.0 (15.2)	25.6				28.8			
90	133.0 (13)	28.8				32.4			
100	119.0 (12.2)	32				36			
125	95.4 (9.73)	40				45			
150	79.5 (8.11)	48				54			
175	68.1 (6.95)	56				63			
200	59.6 (6.08)	64				72			
225	53.0 (5.40)	72				81			
250	47.7 (4.86)	80				90			
275	43.4 (4.42)	88				99			
300	39.8 (4.05)	96				108			
350	34.1 (3.47)	112				126			
400	29.8 (3.04)	128				144			
450	26.5 (2.70)	144	162						
500	23.9 (2.43)	160	180						

Load calculation method: Load = Spring constant x Deflection

(SI units) $N = N/mm \times Fmm$
 $kgf = kgf/mm \times Fmm$
 $(kgf = N \times 0.101972)$

