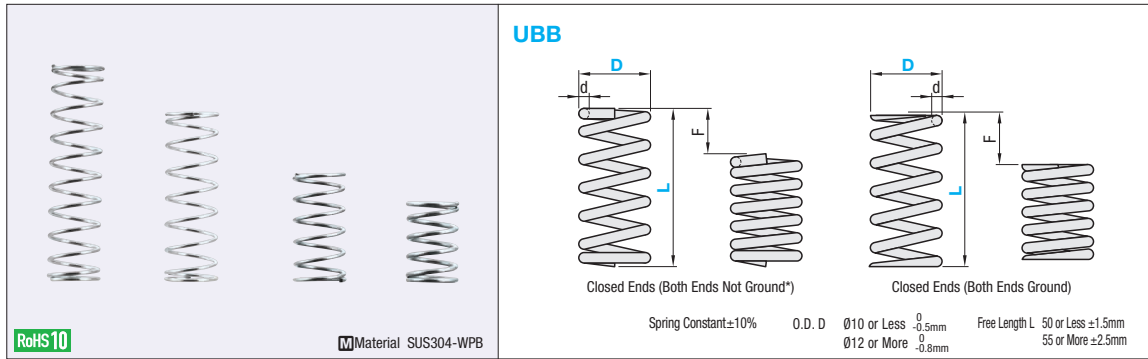


Round Coil Springs

O.D. Referenced Stainless Steel

Round Coil Springs

L Dimension Configurable / O.D. Referenced Stainless Steel



UBB: Fmax. (Allowable Deflection)=LxFa%

Part Number Type D-L	d	Solid Length	F max.	N{kgf} max.	Fa%	Unit Price
UBB4-5	0.55	3.3	1.25	6.1 (0.63)		
10	0.65	7.0	2.5	12.3 (1.3)	25	
15	0.7	10.3	3.75	18.4 (1.9)		
20	0.75	14.4	5	24.5 (2.5)		
25	0.8	19.4	7.5	36.8 (3.8)	20	
UBB5-5	0.6	2.9	1.25	6.1 (0.63)		
10	0.75	6.9	2.5	12.3 (1.3)	25	
15	0.8	9.8	3.75	18.4 (1.9)		
20	0.85	13.4	5	24.5 (2.5)		
25	0.9	17.8	7.5	36.8 (3.8)	20	
30	0.9	21.8	10	49.0 (5.0)		
UBB6-5	0.8	3.6	1.25	12.3 (1.3)		
10	0.9	6.8	2.5	24.5 (2.5)	25	
15	1	10.5	3.75	36.8 (3.8)		
20	1.1	14.6	5	49.0 (5.0)		
25	1.1	17.9	7.5	61.3 (6.3)	20	
30	1.2	23.1	10	88.3 (9.0)		
35	1.2	27.3	15	115.3 (11.7)		
40	1.2	31.2	20	150.8 (15.3)	15	
45	1.3	34.8	25	184.3 (18.4)		
50	1.3	38.4	30	216.0 (21.6)		
60	1.3	44.2	40	290.0 (29.0)		
70	1.4	58.5	50	390.0 (39.0)		
UBB8-10	1.1	6.9	2.5	24.5 (2.5)	25	
15	1.2	9.9	3.75	36.8 (3.8)		
20	1.3	14.0	5	49.0 (5.0)		
25	1.3	14.5	6.25	61.3 (6.3)		
30	1.4	21.4	7.5	73.5 (7.5)		
35	1.4	22.0	8.75	85.8 (8.8)		
40	1.5	28.9	10	109.0 (10.9)		
45	1.5	32.6	12.5	127.5 (12.7)		
UBB10-10	1.3	7.2	2.5	24.5 (2.5)	25	
15	1.4	10.2	3.75	36.8 (3.8)		
20	1.5	13.9	5	49.0 (5.0)		
25	1.5	16.1	6.25	61.3 (6.3)		
30	1.6	20.4	7.5	73.5 (7.5)		
35	1.6	22.8	8.75	85.8 (8.8)		
40	1.7	27.2	10	109.0 (10.9)		
45	1.7	30.6	12.5	127.5 (12.7)		
50	1.8	36.5	15	154.5 (15.4)		
60	1.8	41.4	20	198.0 (19.8)		
70	1.9	50.8	25	247.5 (24.7)		
UBB12-15	1.5	9.4	3.75	36.8 (3.8)	25	
20	1.6	12.4	5	49.0 (5.0)		
25	1.7	16.2	6.25	61.3 (6.3)		
30	1.8	20.3	7.5	73.5 (7.5)		
40	1.9	28.0	10	109.0 (10.9)		
50	2	35.5	12.5	127.5 (12.7)		
60	2.1	43.6	15	154.5 (15.4)		
70	2.1	48.8	17.5	172.5 (17.2)		
80	2.2	58.5	20	198.0 (19.8)		

kgf (Load) = N/mm (Spring Constant) x 0.101972 x F (Deflection)
 (kgf) = N x 0.101972

- For Types marked with *, both ends are not ground.
- The values of solid length are for reference only. There may be some variations depending on the lot.
- Usage Count: 1 Million Times

Spring Constant

ⓂD12 is applicable to UY, UR, UF, UL and UBB Types only. D14 is applicable to UBB Type only.

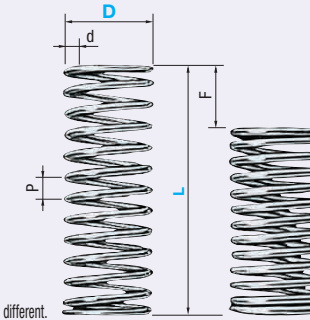
Type	UV	UY	UR	UF	UL	UTT	UM	UH	UBB
2		0.05(0.005)	0.2(0.02)	0.3(0.03)	0.5(0.05)				
3						N/mm 1.5 (kgf/mm) {0.15}			
4	N/mm 0.05 (kgf/mm) {0.005}	N/mm 0.098 (kgf/mm) {0.01}					2.0(0.2)	2.9(0.3)	4.9(0.5)
5									
6			N/mm 0.29 (kgf/mm) {0.03}	N/mm 0.49 (kgf/mm) {0.05}	N/mm 0.98 (kgf/mm) {0.1}				
8						N/mm 2.0 (kgf/mm) {0.2}		N/mm 5.9 (kgf/mm) {0.6}	N/mm 9.8 (kgf/mm) {1.0}
10							N/mm 2.9 (kgf/mm) {0.3}		
12		N/mm 0.2 (kgf/mm) {0.02}						N/mm 9.8 (kgf/mm) {1.0}	N/mm 19.6 (kgf/mm) {2.0}
13									
14									
16									
20		0.3(0.03)	0.5(0.05)	0.98(0.1)	2.9(0.3)	3.9(0.4)	4.9(0.5)	14.7(1.5)	28.4(3.0)
Fmax.	F=Lx70%	F=LxFa%	F=LxFa%	F=Lx45%	F=Lx40%	F=LxFa%	F=LxFa%	F=LxFa%	F=LxFa%



Ordering Example
 Part Number
UBB16-80

Compression Springs

Type	Allowable Deflection	Material
FWR	F=Lx60%	SWP-A
FWF	F=Lx50%	
FWT	F=Lx40%	
FUR	F=Lx60%	SUS304-WPB
FUF	F=Lx50%	
FUT	F=Lx40%	



How to Calculate Spring Constant

$$\text{Spring Constant} = \frac{\text{Max. Load (N(kgf))}}{\text{Lx Allowable Deflection (\%)}}$$

D Tolerance	Ø5~14	±0.3
	Ø5~27	±0.4
L Tolerance	~ 50	±1
	51~100	±2
	101~250	±4

- Use within the range of allowable deflection %.
- No grinding on both ends for d less than 0.9.
- P is for reference only.
- Load types A and B have a different number of coils, so the P dimension is different.

Part Number Type	D	1mm Increment L	Load Type Selection	Max. Load N{kgf}						d			P (Reference)		
				FWR60%	FWF50%	FWT40%	FUR60%	FUF50%	FUT40%	FWR	FWF	FWT	FWR	FWF	FWT
5	15~65	A	A	2.8(0.29)	5.2(0.53)	8.1(0.83)	2.5(0.25)	4.5(0.46)	7.1(0.73)	0.4	0.5	0.6	1.8	1.5	1.3
			B	3.7(0.38)	6.7(0.69)	10.6(1.08)	3.3(0.33)	5.9(0.60)	9.3(0.95)	2.3	1.9	1.7			
6	15~80	A	A	2.9(0.30)	7.3(0.75)	9.9(1.01)	2.5(0.26)	6.4(0.65)	8.7(0.89)	0.45	0.6	0.7	2.0	1.7	1.5
			B	3.8(0.38)	9.6(0.97)	12.9(1.32)	3.3(0.34)	8.4(0.85)	11.3(1.15)	2.6	2.3	1.9			
7	15~90	A	A	3.1(0.32)	10.1(1.03)	11.5(1.17)	2.7(0.28)	8.8(0.90)	10.0(1.02)	0.5	0.7	0.8	2.2	2.0	1.7
			B	4.0(0.41)	13.1(1.34)	14.9(1.52)	3.5(0.36)	11.5(1.17)	13.0(1.33)	2.9	2.7	2.2			
8	20~100	A	A	5.2(0.53)	12.2(1.24)	13.8(1.41)	4.6(0.47)	10.7(1.09)	12.1(1.23)	0.6	0.8	0.9	2.7	2.2	1.9
			B	6.8(0.70)	15.9(1.62)	17.9(1.83)	6.0(0.61)	13.9(1.42)	15.7(1.60)	3.5	2.9	2.4			
9	19~110	A	A	8.1(0.83)	17.4(1.78)	22.1(2.25)	7.1(0.72)	15.2(1.56)	19.3(1.97)	0.7	0.9	1.0	2.9	2.5	2.6
			B	10.0(1.02)	20.6(2.09)	27.5(2.80)	8.7(0.89)	17.9(1.83)	24.0(2.45)	3.5	2.9	3.3			
10	20~120	A	A	10.6(1.08)	19.2(1.96)	30.5(3.11)	9.3(0.95)	16.9(1.72)	26.7(2.72)	0.8	1.0	1.2	3.4	2.8	2.5
			B	13.7(1.40)	24.9(2.54)	39.5(4.03)	12.1(1.23)	21.8(2.22)	34.6(3.53)	4.4	3.6	3.2			
11	21~130	A	A	9.0(0.92)	17.2(1.75)	27.9(2.85)	7.9(0.80)	15.0(1.53)	24.4(2.49)	0.8	1.0	1.2	3.5	3.3	2.9
			B	12.6(1.28)	22.9(2.33)	36.3(3.70)	11.0(1.12)	20.0(2.04)	31.7(3.24)	4.9	4.3	3.8			
12	25~140	A	A	11.0(1.12)	27.6(2.81)	37.7(3.84)	9.6(0.98)	24.1(2.46)	33.0(3.34)	0.9	1.2	1.4	3.8	3.3	2.9
			B	14.2(1.45)	35.8(3.65)	48.9(4.99)	12.5(1.27)	31.3(3.19)	42.9(4.37)	4.9	4.3	3.8			
13	24~150	A	A	10.5(1.07)	26.5(2.70)	35.7(3.63)	9.1(0.93)	23.2(2.37)	31.1(3.18)	0.9	1.2	1.4	4.2	3.9	3.3
			B	13.4(1.37)	34.6(3.52)	46.4(4.73)	11.7(1.20)	30.2(3.08)	40.5(4.13)	5.5	5.1	4.3			
14	30~160	A	A	11.6(1.18)	37.7(3.84)	45.9(4.68)	10.1(1.03)	33.0(3.36)	40.2(4.10)	1.0	1.4	1.6	4.2	3.9	3.3
			B	15.1(1.54)	48.9(4.99)	59.6(6.08)	13.1(1.34)	42.8(4.36)	52.2(5.32)	5.5	5.1	4.3			
15	27~170	A	A	11.4(1.16)	36.8(3.75)	44.4(4.53)	9.9(1.01)	32.1(3.28)	38.8(3.96)	1.0	1.4	1.6	5.0	4.5	3.7
			B	14.9(1.51)	47.1(4.80)	56.6(5.77)	14.9(1.53)	41.1(4.20)	49.4(5.05)	6.5	5.8	4.8			
16	30~180	A	A	19.4(1.98)	49.7(5.07)	55.1(5.62)	17.0(1.73)	43.4(4.43)	48.2(4.91)	1.2	1.6	1.8	5.0	4.5	3.7
			B	25.1(2.56)	64.5(6.58)	71.2(7.26)	22.0(2.24)	56.5(5.76)	62.6(6.38)	6.5	5.8	4.8			
17	31~190	A	A	19.6(2.00)	47.9(4.88)	53.5(5.45)	17.1(1.75)	41.8(4.27)	46.7(4.77)	1.2	1.6	1.8	5.9	5.0	4.1
			B	25.3(2.57)	62.0(6.32)	69.9(7.13)	22.0(2.25)	54.1(5.53)	61.0(6.24)	7.7	6.5	5.4			
18	35~200	A	A	29.9(3.05)	62.1(6.33)	65.2(6.65)	26.2(2.67)	54.3(5.54)	57.1(5.82)	1.4	1.8	2.0	5.9	5.0	4.1
			B	38.9(3.97)	80.7(8.23)	84.6(8.63)	34.0(3.47)	70.6(7.2)	74.0(7.55)	7.7	6.5	5.4			
20	40~200	A	A	42.7(4.35)	76.9(7.84)	99.0(10.1)	37.4(3.81)	67.3(6.86)	86.6(8.83)	1.6	2.0	2.3	6.7	5.5	4.8
			B	55.2(5.63)	100 (10.2)	128 (13.1)	48.3(4.93)	87.2(8.89)	113 (11.5)	8.7	7.2	6.3			
23	45~200	A	A	51.9(5.29)	103.0(10.50)	121.0(12.34)	45.4(4.63)	90.2(9.20)	106.0(10.81)	1.8	2.3	2.6	7.8	6.4	5.5
			B	67.4(6.87)	133.0(13.56)	156.0(15.91)	58.9(6.01)	113.0(11.52)	137.0(13.97)	10.1	8.1	7.1			
25	50~250	A	A	64.5(6.58)	153.5(15.64)	178.6(18.20)	56.3(5.75)	133.9(13.68)	155.9(15.93)	2.0	2.6	2.9	7.8	7.1	6.3
			B	82.4(8.39)	172.0(17.53)	214.3(21.84)	71.9(7.34)	150.1(15.34)	187.0(19.11)	10.2	8.0	7.9			
27	70~250	A	A	86.0(8.77)	195.0(19.87)	220.3(22.45)	75.0(7.67)	170.2(17.39)	192.3(19.64)	2.3	2.9	3.2	7.5	7.4	6.7
			B	110.9(11.30)	214.2										