

Round Wire Springs

UL / UTT: Outer Diameter Selectable, Stainless Steel

Round Wire Springs – Outer Diameter Selectable Stainless Steel

Spring Constant $\pm 10\%$
 Outer Diameter D $\pm 0.5\text{mm}$
 $\pm 0.8\text{mm}$
 Free length L $\pm 1.5\text{mm}$
 $\pm 2.5\text{mm}$

Material: 304 Stainless Steel-WPB

UL: Fmax. (Allowable Deflection) = L x 40%

Part Number	d	Solid Length	F max.	N(kgf) max.
UL 2 - 5*	0.2	1.65	2	0.98 (0.1)
UL 10*	0.26	5.07	4	1.96 (0.2)
UL 15*	0.26	5.07	6	2.94 (0.3)
UL 20*	0.3	9.9	8	3.92 (0.4)
UL 25*	0.32	14.1	10	4.90 (0.5)
UL 30*	0.32	14.1	12	5.88 (0.6)
UL 3 - 5*	0.30	2	2	2.0 (0.2)
UL 10*	0.35	3.7	4	3.9 (0.4)
UL 15*	0.4	6.6	6	5.9 (0.6)
UL 20*	0.4	6.6	8	7.8 (0.8)
UL 25*	0.45	11.7	10	9.8 (1)
UL 30*	0.45	11.7	12	11.8 (1.2)
UL 35*	0.45	11.7	14	13.7 (1.4)
UL 40*	0.5	20	16	15.7 (1.6)
UL 4 - 5*	0.35	2.1	2	2.0 (0.2)
UL 10*	0.45	5.3	4	3.9 (0.4)
UL 15*	0.45	5.3	6	5.9 (0.6)
UL 20*	0.5	8	8	7.8 (0.8)
UL 25*	0.5	8	10	9.8 (1)
UL 30*	0.55	12.7	12	11.8 (1.2)
UL 35*	0.55	12.7	14	13.7 (1.4)
UL 40	0.6	19.8	16	15.7 (1.6)
UL 45	0.6	19.8	18	17.7 (1.8)
UL 50	0.6	19.8	20	19.6 (2)
UL 60	0.65	29.9	24	23.5 (2.4)
UL 5 - 5*	0.4	2.2	2	2.0 (0.2)
UL 10*	0.5	4.75	4	3.9 (0.4)
UL 15*	0.5	4.75	6	5.9 (0.6)
UL 20*	0.55	6.88	8	7.8 (0.8)
UL 25*	0.55	6.88	10	9.8 (1)
UL 30	0.65	14.95	12	11.8 (1.2)
UL 35	0.65	14.95	14	13.7 (1.4)
UL 40	0.65	14.95	16	15.7 (1.6)
UL 45	0.7	21.7	18	17.7 (1.8)
UL 50	0.7	21.7	20	19.6 (2)
UL 60	0.75	30.75	24	23.5 (2.4)
UL 6 - 5*	0.45	2.3	2	2.0 (0.2)
UL 10*	0.55	4.4	4	3.9 (0.4)
UL 15*	0.55	4.4	6	5.9 (0.6)
UL 20	0.65	8.5	8	7.8 (0.8)
UL 25	0.65	8.5	10	9.8 (1)
UL 30	0.7	12.6	12	11.8 (1.2)
UL 35	0.7	12.6	14	13.7 (1.4)
UL 40	0.7	12.6	16	15.7 (1.6)
UL 45	0.75	17.3	18	17.7 (1.8)
UL 50	0.75	17.3	20	19.6 (2)
UL 60	0.8	24.8	24	23.5 (2.4)
UL 70	0.8	24.8	28	27.5 (2.8)
UL 8 - 10	0.65	4.6	4	3.9 (0.4)
UL 15	0.75	8.3	6	5.9 (0.6)
UL 20	0.75	8.3	8	7.8 (0.8)
UL 25	0.75	8.3	10	9.8 (1)
UL 30	0.8	10.4	12	11.8 (1.2)
UL 35	0.8	10.4	14	13.7 (1.4)
UL 40	0.8	10.4	16	15.7 (1.6)
UL 45	0.85	14.5	18	17.7 (1.8)
UL 50	0.85	14.5	20	19.6 (2)
UL 60	0.9	18	24	23.5 (2.4)
UL 70	1.0	30	28	27.5 (2.8)
UL 80	1.0	30	32	31.4 (3.2)

Part Number	d	Solid Length	F max.	N(kgf) max.
UL 10 - 10	0.75	4.7	4	3.9 (0.4)
UL 15	0.8	6.2	6	5.9 (0.6)
UL 20	0.8	6.2	8	7.8 (0.8)
UL 25	0.9	9.5	10	9.8 (1)
UL 30	0.9	9.5	12	11.8 (1.2)
UL 35	0.9	9.5	14	13.7 (1.4)
UL 40	1.0	15.5	16	15.7 (1.6)
UL 45	1.0	15.5	18	17.7 (1.8)
UL 50	1.0	15.5	20	19.6 (2)
UL 60	1.1	23.7	24	23.5 (2.4)
UL 70	1.1	23.7	28	27.5 (2.8)
UL 80	1.1	23.7	32	31.4 (3.2)
UL 12 - 15	0.9	6.5	6	5.9 (0.6)
UL 20	1	9	8	7.8 (0.8)
UL 25	1	9	10	9.8 (1.0)
UL 30	1.1	12.5	12	11.8 (1.2)
UL 35	1.1	12.5	14	13.7 (1.4)
UL 40	1.2	17	16	15.7 (1.6)
UL 45	1.2	17	18	17.7 (1.8)
UL 50	1.2	17	20	19.6 (2.0)
UL 60	1.3	24	24	23.5 (2.4)
UL 70	1.3	24	28	27.5 (2.8)
UL 80	1.4	32	32	31.4 (3.2)
UL 13 - 15	0.9	5.4	6	5.9 (0.6)
UL 20	1.0	8.25	8	7.8 (0.8)
UL 25	1.0	8.25	10	9.8 (1)
UL 30	1.1	12.1	12	11.8 (1.2)
UL 35	1.1	12.1	14	13.7 (1.4)
UL 40	1.1	12.1	16	15.7 (1.6)
UL 45	1.2	16.8	18	17.7 (1.8)
UL 50	1.2	16.8	20	19.6 (2)
UL 60	1.2	16.8	24	23.5 (2.4)
UL 70	1.4	35	28	27.5 (2.8)
UL 80	1.4	35	32	31.4 (3.2)

Part Number	d	Solid Length	F max.	N(kgf) max.
UL 16 - 15	1.1	7.7	6	5.9 (0.6)
UL 20	1.1	7.7	8	7.8 (0.8)
UL 25	1.2	10.8	10	9.8 (1)
UL 30	1.2	10.8	12	11.8 (1.2)
UL 35	1.3	14.3	14	13.7 (1.4)
UL 40	1.3	14.3	16	15.7 (1.6)
UL 45	1.4	19.6	18	17.7 (1.8)
UL 50	1.4	19.6	20	19.6 (2)
UL 60	1.4	19.6	24	23.5 (2.4)
UL 70	1.5	27	28	27.5 (2.8)
UL 80	1.5	27	32	31.4 (3.2)
UL 20 - 20	1.6	10.4	8	23.5 (2.4)
UL 25	1.6	10.4	10	29.4 (3)
UL 30	1.7	12.8	12	35.3 (3.6)
UL 35	1.7	12.8	14	41.2 (4.2)
UL 40	1.8	15.3	16	47.1 (4.8)
UL 45	1.8	15.3	18	53.0 (5.4)
UL 50	2	23	20	58.8 (6)
UL 60	2	23	24	70.6 (7.2)
UL 70	2.2	35.2	28	82.4 (8.4)
UL 80	2.2	35.2	32	94.1 (9.6)

kgf (Load)=N/mm (Spring Constant) x 0.101972 x F (Deflection)
 (kgf)=Nx0.101972
 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.
 Operation frequency: One million times

Part Number Example: UL16-80 UTT16-80

Part Number Alterations: UL6-20 - LKC

Alterations	Code	Spec.																																				
	LKC	Changes Length and Spring Constant Tolerance (Refer to the below table).																																				
		<table border="1"> <thead> <tr> <th>Part Number</th> <th>L</th> <th>Spring Constant Tol.</th> </tr> </thead> <tbody> <tr> <td rowspan="2">UL 5</td> <td>Specify in 5 mm Increment</td> <td rowspan="10">$\pm 5\%$</td> </tr> <tr> <td>Alterations</td> </tr> <tr> <td>Tolerance</td> </tr> <tr> <td>30-50</td> <td>± 0.5</td> </tr> <tr> <td>60</td> <td>± 0.8</td> </tr> <tr> <td>20</td> <td>± 0.4</td> </tr> <tr> <td>25-50</td> <td>± 0.5</td> </tr> <tr> <td>60, 70</td> <td>± 0.8</td> </tr> <tr> <td>10-20</td> <td>± 0.4</td> </tr> <tr> <td>25-50</td> <td>± 0.5</td> </tr> <tr> <td>60, 70</td> <td>± 0.8</td> </tr> <tr> <td>15-30</td> <td>± 0.5</td> </tr> <tr> <td>35-50</td> <td>± 0.5</td> </tr> <tr> <td>60, 70, 80</td> <td>± 0.8</td> </tr> <tr> <td>20-30</td> <td>± 0.5</td> </tr> <tr> <td>35-50</td> <td>± 0.5</td> </tr> <tr> <td>60, 70, 80</td> <td>± 0.8</td> </tr> </tbody> </table>	Part Number	L	Spring Constant Tol.	UL 5	Specify in 5 mm Increment	$\pm 5\%$	Alterations	Tolerance	30-50	± 0.5	60	± 0.8	20	± 0.4	25-50	± 0.5	60, 70	± 0.8	10-20	± 0.4	25-50	± 0.5	60, 70	± 0.8	15-30	± 0.5	35-50	± 0.5	60, 70, 80	± 0.8	20-30	± 0.5	35-50	± 0.5	60, 70, 80	± 0.8
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Both ends are ground.
 Applicable to D5 or more.

Round Wire Springs

UL / UTT: Outer Diameter Selectable, Stainless Steel, continued

UTT: Fmax. (Allowable Deflection) = L x Fa%

Part Number	d	Solid Length	F max.	N (kgf) max.	Fa%
UTT 3 - 5*	0.35	2.8	2	2.9 (0.3)	40
UTT 10*	0.4	4.8	4	5.9 (0.6)	
UTT 15*	0.45	8.3	6	8.8 (0.9)	
UTT 20*	0.45	8.3	8	11.8 (1.2)	
UTT 25*	0.5	14	10	14.7 (1.5)	
UTT 30*	0.5	14	12	17.7 (1.8)	
UTT 4 - 5*	0.4	2.6	2	2.9 (0.3)	40
UTT 10*	0.45	3.9	4	5.9 (0.6)	
UTT 15*	0.5	6	6	8.8 (0.9)	
UTT 20*	0.55	9.4	8	11.8 (1.2)	
UTT 25	0.6	14.4	10	14.7 (1.5)	
UTT 30	0.6	14.4	12	17.7 (1.8)	
UTT 5 - 5*	0.45	2.6	2	2.9 (0.3)	40
UTT 10*	0.5	3.6	4	5.9 (0.6)	
UTT 15	0.6	7.5	6	8.8 (0.9)	
UTT 20	0.6	7.5	8	11.8 (1.2)	
UTT 25	0.65	10.7	10	14.7 (1.5)	
UTT 30	0.7	15.4	12	17.7 (1.8)	
UTT 35	0.7	15.4	14	20.6 (2.1)	
UTT 6 - 5*	0.5	2.4	2	3.9 (0.4)	40
UTT 10	0.6	4.2	4	7.8 (0.8)	
UTT 15	0.7	7.4	6	11.8 (1.2)	
UTT 20	0.7	7.4	8	15.7 (1.6)	
UTT 25	0.8	13.6	10	19.6 (2.0)	
UTT 30	0.8	13.6	12	23.5 (2.4)	
UTT 35	0.85	17.5	14	27.5 (2.8)	
UTT 40	0.9	23.4	16	31.4 (3.2)	
UTT 45	0.9	23.4	18	35.3 (3.6)	
UTT 50	0.9	23.4	20	39.2 (4.0)	
UTT 60	1.0	41	24	47.1 (4.8)	
UTT 70	1.0	41	28	54.9 (5.6)	

Part Number	d	Solid Length	F max.	N (kgf) max.	Fa%
UTT 8 - 10	0.75	5.3	4	7.8 (0.8)	40
UTT 15	0.75	5.3	6	11.8 (1.2)	
UTT 20	0.9	10.4	8	15.7 (1.6)	
UTT 25	0.9	10.4	10	19.6 (2.0)	
UTT 30	1.0	17	12	23.5 (2.4)	
UTT 35	1.0	17	14	27.5 (2.8)	
UTT 40	1.0	17	16	31.4 (3.2)	
UTT 45	1.1	25.3	18	35.3 (3.6)	
UTT 50	1.1	25.3	20	39.2 (4.0)	
UTT 60	1.1	25.3	24	47.1 (4.8)	
UTT 70	1.2	39.6	28	54.9 (5.6)	
UTT 10 - 10	0.85	5.1	4	7.8 (0.8)	40
UTT 15	0.85	5.1	6	11.8 (1.2)	
UTT 20	1.0	9.5	8	15.7 (1.6)	
UTT 25	1.0	9.5	10	19.6 (2.0)	
UTT 30	1.1	14.3	12	23.5 (2.4)	
UTT 35	1.1	14.3	14	27.5 (2.8)	
UTT 40	1.2	20.4	16	31.4 (3.2)	
UTT 45	1.2	20.4	18	35.3 (3.6)	
UTT 50	1.2	20.4	20	39.2 (4.0)	
UTT 60	1.3	29.9	24	47.1 (4.8)	
UTT 70	1.4	43.4	28	54.9 (5.6)	
UTT 13 - 15	1.0	5.75	6	11.8 (1.2)	40
UTT 20	1.2	10.5	8	15.7 (1.6)	
UTT 25	1.2	10.5	10	19.6 (2.0)	
UTT 30	1.3	15	12	23.5 (2.4)	
UTT 35	1.3	15	14	27.5 (2.8)	
UTT 40	1.4	20.3	16	31.4 (3.2)	
UTT 45	1.4	20.3	18	35.3 (3.6)	
UTT 50	1.5	27.8	20	39.2 (4.0)	
UTT 60	1.5	27.8	24	47.1 (4.8)	
UTT 70	1.6	38.4	28	54.9 (5.6)	
UTT 80	1.6	38.4	32	62.8 (6.4)	

Part Number	d	Solid Length	F max.	N (kgf) max.	Fa%
UTT 16 - 15	1.2	7.2	6	11.8 (1.2)	40
UTT 20	1.3	9.1	8	15.7 (1.6)	
UTT 25	1.3	9.1	10	19.6 (2.0)	
UTT 30	1.4	12.3	12	23.5 (2.4)	
UTT 35	1.5	16.5	14	27.5 (2.8)	
UTT 40	1.6	21.6	16	31.4 (3.2)	
UTT 45	1.6	21.6	18	35.3 (3.6)	
UTT 50	1.7	28	20	39.2 (4.0)	
UTT 60	1.7	28	24	47.1 (4.8)	
UTT 70	1.8	36	28	54.9 (5.6)	
UTT 80	1.8	36	32	62.8 (6.4)	
UTT 20 - 20	1.7	10.6	8	31.4 (3.2)	40
UTT 25	1.8	12.6	10	39.2 (4.0)	
UTT 30	1.8	12.6	12	47.1 (4.8)	
UTT 35	2.0	19	14	54.9 (5.6)	
UTT 40	2.0	19	16	62.8 (6.4)	
UTT 45	2.0	19	18	70.6 (7.2)	
UTT 50	2.2	27.5	20	78.5 (8.0)	
UTT 60	2.2	27.5	24	94.1 (9.6)	
UTT 70	2.3	34.5	28	109.8 (11.2)	
UTT 80	2.4	40.8	32	125.5 (12.8)	

kgf (Load)=N/mm (Spring Constant) x 0.101972 x F (Deflection)
 (kgf)=Nx0.101972
 For Types marked with *, both ends are not ground.