

# CONTINUOUS LENGTH EXTENSION SPRINGS

## Guide to using tables

### Free Length

length of the spring in the unloaded position, measured from inside the end loops.

### Initial Tension

the force that keeps the coils of an extension spring closed and which must be overcome before the coils start to open.

### Lee Stock Number

Please add suffix **M** for Music Wire or **S** for 302 Stainless Steel when ordering.

### Outside Diameter

arranged through the pages in ascending order of size.

### Wire Diameter

in ascending order of size, within each group of outside diameters.

### Number of Coils

total coils in each spring.

### Price Group

reference to the price list

### Stiffness

change in load or force per inch of extension at the final cut length

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● Music Wire (Lightly Oiled) or Stainless Steel (Natural)												
LEE STOCK NUMBER	OUTSIDE DIAMETER		WIRE DIAMETER		FREE LENGTH		INITIAL TENSION		APPROX NUMBER OF COILS PER		STIFFNESS K	PRICE GROUP
	MM	IN	MM	IN	MM	IN	N	LB	MM	IN		
LEC 014A 12	3.18	0.125	0.36	0.014	304.80	12	0.53	0.12	2.8	71.4	42.1	Y BA BC
LEC 014A 24					609.60	24						
LEC 014A 36					914.40	36						
LEC 016A 12			0.41	0.016	304.80	12	0.89	0.20	2.5	62.5	75.9	Y BA BC
LEC 016A 24					609.60	24						
LEC 016A 36					914.40	36						
LEC 018A 12			0.46	0.018	304.80	12	1.33	0.30	2.2	55.5	128.5	Y BA BC
LEC 018A 24					609.60	24						
LEC 018A 36					914.40	36						
LEC 020A 12			0.51	0.020	304.80	12	1.78	0.40	2.0	50.0	207.3	Y BA BC
LEC 020A 24					609.60	24						
LEC 020A 36					914.40	36						
LEC 022A 12			0.56	0.022	304.80	12	2.00	0.45	1.8	45.4	321.6	Y BA BC
LEC 022A 24					609.60	24						
LEC 022A 36					914.40	36						
LEC 018C 12	6.35	0.250	0.41	0.018	304.80	12	0.44	0.10	2.2	55.5	12.6	Y BB BC
LEC 018C 24					609.60	24						
LEC 018C 36					914.40	36						
LEC 022C 12			0.56	0.022	304.80	12	0.89	0.20	1.8	45.4	29.6	Y BB BC
LEC 022C 24					609.60	24						
LEC 022C 36					914.40	36						
LEC 026C 12			0.66	0.026	304.80	12	1.78	0.40	1.5	38.1	10.0	Y BB
LEC 026C 24					609.60	24						
LEC 026C 36					914.40	36						

### ADDITIONAL INFORMATION

- Continuous length extension springs are available in three lengths: 12, 24 & 36 inch.
- Continuous length extension springs are designed to be cut to the length required by the user.
- All continuous length springs are right hand wound.
- As with extension springs, in order to achieve long life and service, good design suggests that extension springs are not extended beyond 80% of their deflective capability.
- Material specification, finishes and tolerances are detailed on the specification page 173.
- Please note that the stiffness listed in the following extension spring tables relate only to music wire. When choosing stainless steel multiply the factors by 0.833.
- To determine the spring rate per mm of extension at the final cut length use the following formula:
 
$$\text{Rate} = \frac{K}{N} \quad \begin{array}{l} K = \text{Stiffness} \\ N = \text{Number of coils per mm} \times \text{length in mm} \end{array}$$
- To determine load at an extended length multiply deflection by the spring rate.

### VARIOUS LOOPS OR HOOKS CAN BE FORMED ON THE ENDS

#### Step 1



Fold Spring 180° at desired length and cut. Cut shorter than needed by one-half the coil body diameter.

#### Step 2



Across from cut end, bend last coil up at 45° angle. To form double loop, bend last two coils up 45°. Do not use heat!

#### Step 3



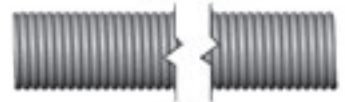
Twist cut end of loop into center of coil body. This may require pliers. You may have to twist past center to allow the loop to flex back.

#### Step 4



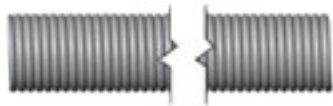
Cut end of newly formed loop to obtain any gap needed for mounting.

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## ● Music Wire (Lightly Oiled) or Stainless Steel (Natural)

LEE STOCK NUMBER	OUTSIDE DIAMETER		WIRE DIAMETER		FREE LENGTH		INITIAL TENSION		APPROX NUMBER OF COILS PER		STIFFNESS	PRICE GROUP							
	MM	IN	MM	IN	MM	IN	N	LB	MM	IN		K	Music Wire	302 Stainless					
											M		S						
LEC 014A 12 LEC 014A 24 LEC 014A 36	3.18	0.125	0.36	0.014	304.80	12	0.53	0.12	2.8	71.4	42.1	Y	Y						
609.60					24	BA						BA							
914.40					36	BC						BC							
LEC 016A 12 LEC 016A 24 LEC 016A 36			3.18	0.125	0.41	0.016	304.80	12	0.89	0.20	2.5	62.5	75.9	Y	Y				
609.60							24	BA						BA					
914.40							36	BC						BC					
LEC 018A 12 LEC 018A 24 LEC 018A 36					3.18	0.125	0.46	0.018	304.80	12	1.33	0.30	2.2	55.5	128.5	Y	Y		
609.60									24	BA						BA			
914.40									36	BC						BC			
LEC 020A 12 LEC 020A 24 LEC 020A 36							3.18	0.125	0.51	0.020	304.80	12	1.78	0.40	2.0	50.0	207.3	Y	Y
609.60											24	BA						BA	
914.40											36	BC						BC	
LEC 022A 12 LEC 022A 24 LEC 022A 36	3.18	0.125							0.56	0.022	304.80	12	2.00	0.45	1.8	45.4	321.6	Y	Y
609.60											24	BA						BA	
914.40											36	BC						BC	
LEC 018C 12 LEC 018C 24 LEC 018C 36			6.35	0.250					0.41	0.018	304.80	12	0.44	0.10	2.2	55.5	12.6	Y	Y
609.60											24	BB						BB	
914.40											36	BC						BE	
LEC 022C 12 LEC 022C 24 LEC 022C 36					6.35	0.250			0.56	0.022	304.80	12	0.89	0.20	1.8	45.4	29.6	Y	Y
609.60											24	BB						BB	
914.40											36	BC						BE	
LEC 026C 12 LEC 026C 24 LEC 026C 36							6.35	0.250	0.66	0.026	304.80	12	1.78	0.40	1.5	38.4	61.0	Y	Y
609.60											24	BB						BB	
914.40											36	BC						BE	
LEC 029C 12 LEC 029C 24 LEC 029C 36	6.35	0.250							0.74	0.029	304.80	12	2.45	0.55	1.4	34.4	98.3	Y	Y
609.60											24	BB						BB	
914.40											36	BC						BE	
LEC 031C 12 LEC 031C 24 LEC 031C 36			6.35	0.250					0.79	0.031	304.80	12	3.11	0.70	1.3	32.2	131.9	Y	Y
609.60											24	BB						BB	
914.40											36	BC						BE	
LEC 034C 12 LEC 034C 24 LEC 034C 36					6.35	0.250			0.86	0.034	304.80	12	3.78	0.85	1.2	29.4	198.9	Y	Y
609.60											24	BB						BB	
914.40											36	BC						BE	
LEC 037C 12 LEC 037C 24 LEC 037C 36							6.35	0.250	0.94	0.037	304.80	12	4.45	1.00	1.1	27.0	290.9	Y	Y
609.60											24	BB						BB	
914.40											36	BC						BE	
LEC 041C 12 LEC 041C 24 LEC 041C 36	6.35	0.250							1.04	0.041	304.80	12	4.67	1.05	1.0	24.3	464.3	Y	Y
609.60											24	BB						BB	
914.40											36	BC						BE	
LEC 026D 12 LEC 026D 24 LEC 026D 36			9.53	0.375					0.66	0.026	304.80	12	0.98	0.22	1.5	38.4	16.1	Y	Z
609.60											24	BB						BC	
914.40											36	BC						BE	
LEC 031D 12 LEC 031D 24 LEC 031D 36					9.53	0.375			0.79	0.031	304.80	12	1.33	0.30	1.3	32.2	34.0	Y	Z
609.60											24	BB						BC	
914.40											36	BC						BE	
LEC 034D 12 LEC 034D 24 LEC 034D 36							9.53	0.375	0.86	0.034	304.80	12	2.22	0.50	1.2	29.4	50.6	Y	Z
609.60											24	BB						BC	
914.40											36	BC						BE	
LEC 037D 12 LEC 037D 24 LEC 037D 36	9.53	0.375							0.94	0.037	304.80	12	3.11	0.70	1.1	27.0	72.8	Y	Z
609.60											24	BB						BC	
914.40											36	BC						BE	



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LEE STOCK NUMBER	OUTSIDE DIAMETER		WIRE DIAMETER		FREE LENGTH		INITIAL TENSION		APPROX NUMBER OF COILS PER		STIFFNESS	PRICE GROUP							
	MM	IN	MM	IN	MM	IN	N	LB	MM	IN	K	Music Wire	302 Stainless						
												M	S						
LEC 039D 12 LEC 039D 24 LEC 039D 36	9.53	0.375	0.99	0.039	304.80	12	3.56	0.80	1.0	25.6	91.5	Y	Z						
609.60					24	BB						BC							
914.40					36	BC						BE							
LEC 041D 12 LEC 041D 24 LEC 041D 36			9.53	0.375	1.04	0.041	304.80	12	4.00	0.90	1.0	24.3	113.8	Y	Z				
609.60							24	BB						BC					
914.40							36	BC						BE					
LEC 045D 12 LEC 045D 24 LEC 045D 36					9.53	0.375	1.14	0.045	304.80	12	5.34	1.20	0.9	22.2	171.2	Y	Z		
609.60									24	BB						BC			
914.40									36	BC						BE			
LEC 049D 12 LEC 049D 24 LEC 049D 36							9.53	0.375	1.24	0.049	304.80	12	6.67	1.50	0.8	20.4	249.6	Y	Z
609.60											24	BB						BC	
914.40											36	BC						BE	
LEC 052D 12 LEC 052D 24 LEC 052D 36	9.53	0.375							1.32	0.052	304.80	12	7.79	1.75	0.8	19.2	325.5	Y	Z
609.60											24	BB						BC	
914.40											36	BD						BF	
LEC 055D 12 LEC 055D 24 LEC 055D 36			9.53	0.375					1.40	0.055	304.80	12	8.90	2.00	0.7	18.1	418.9	Y	Z
609.60											24	BB						BC	
914.40											36	BD						BF	
LEC 058D 12 LEC 058D 24 LEC 058D 36					9.53	0.375			1.47	0.058	304.80	12	11.12	2.50	0.7	17.2	532.9	Y	Z
609.60											24	BB						BC	
914.40											36	BD						BF	
LEC 034E 12 LEC 034E 24 LEC 034E 36							12.70	0.500	0.86	0.034	304.80	12	1.33	0.30	1.2	29.4	19.8	Z	BB
609.60											24	BC						BD	
914.40											36	BE						BH	
LEC 037E 12 LEC 037E 24 LEC 037E 36	12.70	0.500							0.94	0.037	304.80	12	1.78	0.40	1.1	27.0	28.3	Z	BB
609.60											24	BC						BD	
914.40											36	BE						BH	
LEC 041E 12 LEC 041E 24 LEC 041E 36			12.70	0.500					1.04	0.041	304.80	12	2.22	0.50	1.0	24.3	43.8	Z	BB
609.60											24	BC						BD	
914.40											36	BE						BH	
LEC 045E 12 LEC 045E 24 LEC 045E 36					12.70	0.500			1.14	0.045	304.80	12	3.11	0.70	0.9	22.2	65.3	Z	BB
609.60											24	BC						BD	
914.40											36	BE						BH	
LEC 049E 12 LEC 049E 24 LEC 049E 36							12.70	0.500	1.24	0.049	304.80	12	3.92	0.88	0.8	20.4	94.3	Z	BB
609.60											24	BC						BD	
914.40											36	BE						BH	
LEC 055E 12 LEC 055E 24 LEC 055E 36	12.70	0.500							1.40	0.055	304.80	12	5.78	1.30	0.7	18.1	155.8	Z	BB
609.60											24	BC						BD	
914.40											36	BE						BJ	
LEC 063E 12 LEC 063E 24 LEC 063E 36			12.70	0.500					1.60	0.063	304.80	12	8.90	2.00	0.6	16.0	273.3	Z	BB
609.60											24	BC						BE	
914.40											36	BE						BJ	
LEC 067E 12 LEC 067E 24 LEC 067E 36					12.70	0.500			1.70	0.067	304.80	12	15.57	3.50	0.6	14.9	372.3	Z	BB
609.60											24	BC						BE	
914.40											36	BE						BJ	
LEC 075E 12 LEC 075E 24 LEC 075E 36							12.70	0.500	1.91	0.075	304.80	12	22.25	5.00	0.5	13.3	618.3	Z	BB
609.60											24	BC						BE	
914.40											36	BE						BJ	
LEC 049G 12 LEC 049G 24 LEC 049G 36	19.05	0.750							1.24	0.049	304.80	12	2.63	0.59	0.8	20.4	25.1	BD	BD
609.60											24	BE						BH	
914.40											36	BH						BL	

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LEE STOCK NUMBER	OUTSIDE DIAMETER		WIRE DIAMETER		FREE LENGTH		INITIAL TENSION		APPROX NUMBER OF COILS PER		STIFFNESS	PRICE GROUP							
	MM	IN	MM	IN	MM	IN	N	LB	MM	IN	K	Music Wire	302 Stainless						
												M	S						
LEC 055G 12 LEC 055G 24 LEC 055G 36	19.05	0.750	1.40	0.055	304.80	12	3.56	0.80	0.7	18.1	40.9	BD	BD						
609.60					24	BE						BH							
914.40					36	BH						BL							
LEC 063G 12 LEC 063G 24 LEC 063G 36			19.05	0.750	1.60	0.063	304.80	12	5.34	1.20	0.6	16.0	70.4	BD	BD				
609.60							24	BE						BJ					
914.40							36	BH						BM					
LEC 069G 12 LEC 069G 24 LEC 069G 36					19.05	0.750	1.75	0.069	304.80	12	7.12	1.60	0.6	14.5	107.7	BD	BE		
609.60									24	BE						BJ			
914.40									36	BH						BN			
LEC 075G 12 LEC 075G 24 LEC 075G 36							19.05	0.750	1.91	0.075	304.80	12	8.90	2.00	0.5	13.3	154.3	BD	BE
609.60											24	BG						BJ	
914.40											36	BJ						BN	
LEC 085G 12 LEC 085G 24 LEC 085G 36	19.05	0.750							2.16	0.085	304.80	12	12.46	2.80	0.5	11.7	266.3	BD	BE
609.60											24	BG						BJ	
914.40											36	BJ						BN	
LEC 093G 12 LEC 093G 24 LEC 093G 36			19.05	0.750					2.36	0.093	304.80	12	15.57	3.50	0.4	10.7	395.7	BD	BE
609.60											24	BG						BJ	
914.40											36	BJ						BP	
LEC 105G 12 LEC 105G 24 LEC 105G 36					19.05	0.750			2.67	0.105	304.80	12	26.70	6.00	0.4	9.5	651.2	BD	BF
609.60											24	BG						BK	
914.40											36	BJ						BR	
LEC 112G 12 LEC 112G 24 LEC 112G 36							19.05	0.750	2.84	0.112	304.80	12	35.60	8.00	0.4	8.9	871.0	BD	BF
609.60											24	BG						BK	
914.40											36	BK						BR	
LEC 085JK 12 LEC 085JK 24 LEC 085JK 36	28.58	1.125							2.16	0.085	304.80	12	8.41	1.89	0.5	11.7	69.6	BE	BG
609.60											24	BH						BL	
914.40											36	BL						BT	
LEC 105JK 12 LEC 105JK 24 LEC 105JK 36			28.58	1.125					2.67	0.105	304.80	12	15.13	3.40	0.4	9.5	164.7	BE	BH
609.60											24	BJ						BN	
914.40											36	BN						BU	
LEC 125JK 12 LEC 125JK 24 LEC 125JK 36					28.58	1.125			3.18	0.125	304.80	12	24.52	5.51	0.3	8.0	351.0	BG	BJ
609.60											24	BL						BQ	
914.40											36	BQ						BV	