

# EXTENSION SPRINGS

## Guide to using tables

**Maximum Load**  
each spring will accept, excess load will cause damage (See note 5).

**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.

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

**Price Group**  
reference to the price list

**Maximum Extension**  
the total overall length available before the spring will fail.

**Spring Rate**  
change in load or force per unit of deflection (See note 5).

| LEE STOCK NUMBER | OUTSIDE DIAMETER |       | NOMINAL WIRE DIAMETER |       | MAXIMUM LOAD |      | INITIAL TENSION |      | NOMINAL FREE LENGTH |       |       | SPRING RATE |       | MAXIMUM EXTENDED LENGTH |   | PRICE GROUP |  |
|------------------|------------------|-------|-----------------------|-------|--------------|------|-----------------|------|---------------------|-------|-------|-------------|-------|-------------------------|---|-------------|--|
|                  | MM               | IN    | MM                    | IN    | N            | LB   | N               | LB   | MM                  | IN    | N/mm  | lb/in       | MM    | IN                      | M | S           |  |
| EIM 020A 01      | 2.00             | 0.079 | 0.20                  | 0.008 | 1.96         | 0.44 | 0.13            | 0.03 | 10.00               | 0.394 | 0.099 | 0.1         | 38.30 | 1.508                   | K | M           |  |
| EIM 020A 02      |                  |       |                       |       |              |      |                 |      | 12.50               | 0.492 | 0.070 | 0.40        | 50.70 | 1.996                   | K | M           |  |
| EIM 020A 03      |                  |       |                       |       |              |      |                 |      | 15.00               | 0.591 | 0.055 | 0.31        | 63.09 | 2.484                   | K | M           |  |
| EIM 020A 04      |                  |       |                       |       |              |      |                 |      | 17.50               | 0.689 | 0.045 | 0.25        | 68.48 | 2.972                   | K | M           |  |
| EIM 020A 05      |                  |       |                       |       |              |      |                 |      | 20.00               | 0.787 | 0.038 | 0.22        | 87.25 | 3.460                   | K | M           |  |
| EIM 025A 01      |                  |       | 0.25                  | 0.010 | 3.87         | 0.87 | 0.27            | 0.06 | 10.00               | 0.394 | 0.326 | 1.86        | 31.00 | 1.221                   | K | M           |  |
| EIM 025A 02      |                  |       |                       |       |              |      |                 |      | 12.50               | 0.492 | 0.232 | 1.33        | 40.41 | 1.591                   | K | M           |  |
| EIM 025A 03      |                  |       |                       |       |              |      |                 |      | 15.00               | 0.591 | 0.181 | 1.03        | 49.82 | 1.961                   | K | M           |  |
| EIM 025A 04      |                  |       |                       |       |              |      |                 |      | 17.50               | 0.689 | 0.148 | 0.84        | 59.23 | 2.382                   | K | M           |  |
| EIM 025A 05      |                  |       |                       |       |              |      |                 |      | 20.00               | 0.787 | 0.125 | 0.71        | 68.64 | 2.702                   | K | M           |  |
| EIM 025A 06      |                  |       |                       |       |              |      |                 |      | 22.50               | 0.886 | 0.108 | 0.62        | 78.04 | 3.073                   | K | M           |  |
| EIM 025A 07      |                  |       |                       |       |              |      |                 |      | 25.00               | 0.984 | 0.096 | 0.55        | 87.45 | 3.443                   | K | M           |  |
| EI 010B 01       | 2.38             | 0.094 | 0.25                  | 0.010 | 2.67         | 0.60 | 0.22            | 0.05 | 9.53                | 0.375 | 0.210 | 1.20        | 21.17 | 0.833                   | J | L           |  |
| EI 010B 02       |                  |       |                       |       |              |      |                 |      | 11.11               | 0.438 | 0.165 | 0.94        | 25.97 | 1.023                   | J | L           |  |
| EI 010B 03       |                  |       |                       |       |              |      |                 |      | 12.70               | 0.500 | 0.133 | 0.76        | 31.08 | 1.224                   | J | L           |  |
| EI 010B 04       |                  |       |                       |       |              |      |                 |      | 15.88               | 0.625 | 0.098 | 0.56        | 40.83 | 1.607                   | J | L           |  |
| EI 010B 05       |                  |       |                       |       |              |      |                 |      | 19.05               | 0.750 | 0.077 | 0.44        | 50.80 | 2.000                   | J | L           |  |
| EI 010B 06       |                  |       |                       |       |              |      |                 |      | 22.23               | 0.875 | 0.063 | 0.36        | 61.04 | 2.403                   | J | L           |  |
| EI 010B 07       |                  |       |                       |       |              |      |                 |      | 25.40               | 1.000 | 0.054 | 0.31        | 70.46 | 2.774                   | J | L           |  |
| EI 011B 01       |                  |       | 0.28                  | 0.011 | 3.56         | 0.80 | 0.31            | 0.07 | 9.53                | 0.375 | 0.350 | 2.00        | 18.80 | 0.740                   | J | L           |  |
| EI 011B 02       |                  |       |                       |       |              |      |                 |      | 11.11               | 0.438 | 0.268 | 1.53        | 23.23 | 0.915                   | J | L           |  |
| EI 011B 03       |                  |       |                       |       |              |      |                 |      | 12.70               | 0.500 | 0.221 | 1.26        | 27.42 | 1.079                   | J | L           |  |
| EI 011B 04       |                  |       |                       |       |              |      |                 |      | 15.88               | 0.625 | 0.163 | 0.93        | 35.82 | 1.410                   | J | L           |  |
| EI 011B 05       |                  |       |                       |       |              |      |                 |      | 19.05               | 0.750 | 0.128 | 0.73        | 44.45 | 1.750                   | J | L           |  |
| EI 011B 06       |                  |       |                       |       |              |      |                 |      | 22.23               | 0.875 | 0.105 | 0.60        | 53.13 | 2.092                   | J | L           |  |
| EI 011B 07       |                  |       |                       |       |              |      |                 |      | 25.40               | 1.000 | 0.091 | 0.52        | 61.06 | 2.404                   | J | L           |  |
| EI 012B 01       |                  |       | 0.30                  | 0.012 | 4.45         | 1.00 | 0.44            | 0.10 | 9.53                | 0.375 | 0.560 | 3.20        | 16.67 | 0.656                   | J | L           |  |
| EI 012B 02       |                  |       |                       |       |              |      |                 |      | 11.11               | 0.438 | 0.420 | 2.40        | 20.64 | 0.813                   | J | L           |  |
| EI 012B 03       |                  |       |                       |       |              |      |                 |      | 12.70               | 0.500 | 0.350 | 2.00        | 24.13 | 0.950                   | J | L           |  |
| EI 012B 04       |                  |       |                       |       |              |      |                 |      | 15.88               | 0.625 | 0.263 | 1.50        | 31.12 | 1.225                   | J | L           |  |
| EI 012B 05       |                  |       |                       |       |              |      |                 |      | 19.05               | 0.750 | 0.210 | 1.20        | 38.10 | 1.500                   | J | L           |  |
| EI 012B 06       |                  |       |                       |       |              |      |                 |      | 22.23               | 0.875 | 0.168 | 0.96        | 46.04 | 1.813                   | J | L           |  |
| EI 012B 07       |                  |       |                       |       |              |      |                 |      | 25.40               | 1.000 | 0.144 | 0.82        | 53.28 | 2.098                   | J | L           |  |
| EI 013B 01       |                  |       | 0.33                  | 0.013 | 5.56         | 1.25 | 0.58            | 0.13 | 9.53                | 0.375 | 0.841 | 4.80        | 15.46 | 0.608                   | J | L           |  |
| EI 013B 02       |                  |       |                       |       |              |      |                 |      | 11.11               | 0.438 | 0.648 | 3.70        | 18.80 | 0.741                   | J | L           |  |
| EI 013B 03       |                  |       |                       |       |              |      |                 |      | 12.70               | 0.500 | 0.543 | 3.10        | 21.88 | 0.861                   | J | L           |  |
| EI 013B 04       |                  |       |                       |       |              |      |                 |      | 15.88               | 0.625 | 0.396 | 2.26        | 28.47 | 1.121                   | J | L           |  |
| EI 013B 05       |                  |       |                       |       |              |      |                 |      | 19.05               | 0.750 | 0.315 | 1.80        | 34.85 | 1.372                   | J | L           |  |
| EI 013B 06       |                  |       |                       |       |              |      |                 |      | 22.23               | 0.875 | 0.263 | 1.50        | 41.20 | 1.622                   | J | L           |  |
| EI 013B 07       |                  |       |                       |       |              |      |                 |      | 25.40               | 1.000 | 0.222 | 1.27        | 47.80 | 1.882                   | J | L           |  |
| EI 014B 01       |                  |       | 0.36                  | 0.014 | 6.67         | 1.50 | 0.76            | 0.17 | 9.53                | 0.375 | 1.243 | 7.10        | 14.29 | 0.562                   | J | L           |  |
| EI 014B 02       |                  |       |                       |       |              |      |                 |      | 11.11               | 0.438 | 0.963 | 5.50        | 17.25 | 0.680                   | J | L           |  |
| EI 014B 03       |                  |       |                       |       |              |      |                 |      | 12.70               | 0.500 | 0.806 | 4.60        | 20.04 | 0.789                   | J | L           |  |
| EI 014B 04       |                  |       |                       |       |              |      |                 |      | 15.88               | 0.625 | 0.595 | 3.40        | 25.82 | 1.016                   | J | L           |  |
| EI 014B 05       |                  |       |                       |       |              |      |                 |      | 19.05               | 0.750 | 0.473 | 2.70        | 31.56 | 1.243                   | J | L           |  |
| EI 014B 06       |                  |       |                       |       |              |      |                 |      | 22.23               | 0.875 | 0.385 | 2.20        | 37.59 | 1.480                   | J | L           |  |
| EI 014B 07       |                  |       |                       |       |              |      |                 |      | 25.40               | 1.000 | 0.333 | 1.90        | 43.18 | 1.700                   | J | L           |  |
| EI 016B 01       |                  |       | 0.41                  | 0.016 | 10.06        | 2.26 | 0.85            | 0.19 | 9.53                | 0.375 | 2.488 | 14.20       | 13.23 | 0.521                   | J | L           |  |
| EI 016B 02       |                  |       |                       |       |              |      |                 |      | 11.13               | 0.438 | 1.927 | 11.00       | 15.91 | 0.626                   | J | L           |  |
| EI 016B 03       |                  |       |                       |       |              |      |                 |      | 12.70               | 0.500 | 1.612 | 9.20        | 18.42 | 0.725                   | J | L           |  |
| EI 016B 04       |                  |       |                       |       |              |      |                 |      | 15.88               | 0.625 | 1.191 | 6.80        | 23.61 | 0.929                   | J | L           |  |
| EI 016B 05       |                  |       |                       |       |              |      |                 |      | 19.05               | 0.750 | 0.928 | 5.30        | 28.97 | 1.141                   | J | L           |  |
| EI 016B 06       |                  |       |                       |       |              |      |                 |      | 22.23               | 0.875 | 0.771 | 4.40        | 34.18 | 1.345                   | J | L           |  |
| EI 016B 07       |                  |       |                       |       |              |      |                 |      | 25.40               | 1.000 | 0.648 | 3.70        | 39.61 | 1.559                   | J | L           |  |

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Spring rates and maximum loads relate only to music wire. When using stainless steel, multiply by 0.833.

### ADDITIONAL INFORMATION

- To find the load at any working length, when free length, spring rate and initial tension are given, use the formula  $F = (S \times L) + F_0$  (where  $F$  is the load;  $S$  is the spring rate;  $L$  is the deflection from free length;  $F_0$  is the initial tension).
- The free length of an extension spring is measured from inside the end loops. To obtain the overall length add two wire diameters to the given length.
- As with compression 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 specifications, finishes and tolerances are detailed on page 163.
- Please note that the spring rates and maximum loads listed in the following extension spring tables relate only to music wire. **When choosing stainless steel multiply the factors by 0.833.**