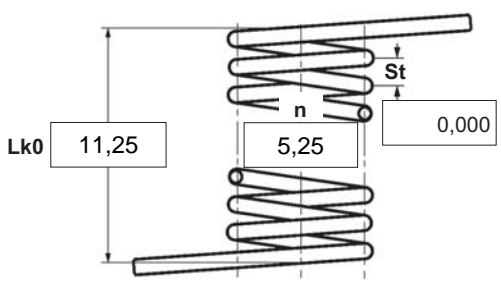



|            |        |                                       |
|------------|--------|---------------------------------------|
| $\alpha$   | degree | Unstressed leg position               |
| $\alpha 1$ | degree | Prestressed rotational angle          |
| $\alpha 2$ | degree | Loaded rotational angle               |
| $\alpha h$ | degree | Excursion                             |
| $\alpha n$ | degree | Maximum rotational angle              |
| d          | mm     | Wire diameter                         |
| Ddmin      | mm     | Min. possible mandrel diameter        |
| Ddmax      | mm     | Max. possible mandrel diameter        |
| De         | mm     | Outer coil diameter                   |
| Di         | mm     | Inner coil diameter                   |
| F1         | N      | Prestressed spring force              |
| F2         | N      | Loaded spring force                   |
| Lk0        | mm     | Length of spring body when relaxed    |
| LS         | mm     | Length of leg                         |
| M1         | Nmm    | Prestressed torque                    |
| M2         | Nmm    | Loaded torque                         |
| Mn         | Nmm    | Maximum torque                        |
| n          | pc.    | Active coils                          |
| RH         | mm     | Distance power flow point from centre |
| St         | mm     | Distance between coils (pitch)        |
| Weight     | g      | Weight of one spring in grammes       |



Spring test acc. to DIN ISO 2859/1 test level II

| <b>1 Coiling direction</b><br><input checked="" type="checkbox"/> left <input type="checkbox"/> right   | <b>5 Excursion <math>\alpha h</math></b> <input type="text"/> degr.   | <b>12 Tolerances to DIN 2194</b> <table border="1" style="width:100%; border-collapse: collapse; font-size: small;"> <thead> <tr> <th>Grade</th> <th>Di</th> <th>Lk0</th> <th>LSH,LSR</th> <th><math>\alpha, \alpha 1, \alpha 2</math></th> <th>M1, M2</th> <th>Wire diameter d to DIN 2076</th> </tr> </thead> <tbody> <tr> <td>1</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>2</td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>3</td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input checked="" type="checkbox"/></td> </tr> </tbody> </table> | Grade                               | Di                                  | Lk0                                 | LSH,LSR                             | $\alpha, \alpha 1, \alpha 2$ | M1, M2   | Wire diameter d to DIN 2076 | 1        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | 3        | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
|---|---|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|------------------------------|----------|-----------------------------|----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|----|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|----------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|
| Grade   | Di  | Lk0   | LSH,LSR                             | $\alpha, \alpha 1, \alpha 2$        | M1, M2                              | Wire diameter d to DIN 2076         |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 1   | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 2   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/>   | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/>            |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 3   | <input type="checkbox"/>  | <input type="checkbox"/>  | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| <b>2 Form of legs</b><br>tangential, straight, no bends *<br><br>*We can also supply torsion springs with any form of leg for an extra charge. | <b>6 Stress cyc. end. N</b> <input type="text"/>  | <b>13 Production compensation through</b><br>A spring torque and the associated swing angle $\alpha$ <input checked="" type="checkbox"/><br>A spring torque and the associated swing angle and $\alpha 0$ <input type="checkbox"/><br>Two spring resistances and the associated swing angle $\alpha, n, d$ <input type="checkbox"/><br>$\alpha, n, Di$ <input type="checkbox"/>   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| <b>3 Fixing</b><br>Recumbent leg <input type="checkbox"/> Lever leg <input type="checkbox"/>  | <b>7 Stress cycle frequ. n</b> <input type="text"/> /   | <b>Prices</b><br><table border="1" style="width:100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Cantidad progresiva</th> <th>Precio unidad [EUR]</th> </tr> </thead> <tbody> <tr><td>1</td><td>5,2700 €</td></tr> <tr><td>2</td><td>3,7200 €</td></tr> <tr><td>3</td><td>3,5400 €</td></tr> <tr><td>7</td><td>2,5100 €</td></tr> <tr><td>17</td><td>1,2200 €</td></tr> <tr><td>37</td><td>0,9000 €</td></tr> <tr><td>75</td><td>0,7300 €</td></tr> <tr><td>125</td><td>0,5070 €</td></tr> <tr><td>175</td><td>0,4444 €</td></tr> <tr><td>250</td><td>0,4132 €</td></tr> <tr><td>350</td><td>0,3853 €</td></tr> <tr><td>450</td><td>0,3536 €</td></tr> </tbody> </table>   | Cantidad progresiva                 | Precio unidad [EUR]                 | 1                                   | 5,2700 €                            | 2                            | 3,7200 € | 3                           | 3,5400 € | 7                        | 2,5100 €                 | 17                       | 1,2200 €                 | 37                       | 0,9000 €                 | 75 | 0,7300 €                            | 125                                 | 0,5070 €                            | 175                                 | 0,4444 €                            | 250                      | 0,4132 € | 350                      | 0,3853 €                 | 450                      | 0,3536 €                 |                          |                                     |
| Cantidad progresiva   | Precio unidad [EUR]   |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 1   | 5,2700 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 2   | 3,7200 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 3   | 3,5400 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 7   | 2,5100 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 17  | 1,2200 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 37  | 0,9000 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 75  | 0,7300 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 125   | 0,5070 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 175   | 0,4444 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 250   | 0,4132 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 350   | 0,3853 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| 450   | 0,3536 €  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| <b>4 Load</b><br><input type="checkbox"/> in winding direction<br><input type="checkbox"/> against winding direction  | <b>8 Application temp.</b> <input type="text"/> °C  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| <b>Remarks</b><br>País de origen: DE   Número de arancel aduanero: 73202089   | <b>9 Material</b><br>EN 10270-3-1.4310  |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
|   | <b>10 Wire or rod surface</b><br><input checked="" type="checkbox"/> drawn <input type="checkbox"/> rolled <input type="checkbox"/> metal-cut |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
|   | <b>11 Surface treatment</b><br><input type="text"/>   |   |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |                          |    |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |