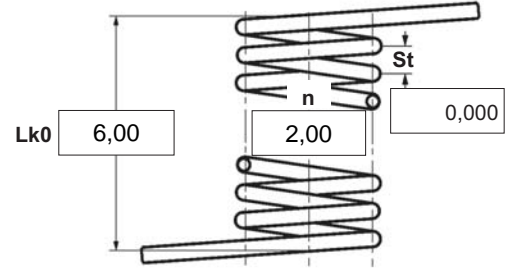



- $\alpha$  degree Unstressed leg position
- $\alpha 1$  degree Prestressed rotational angle
- $\alpha 2$  degree Loaded rotational angle
- $\alpha h$  degree Excursion
- $\alpha n$  degree Maximum rotational angle
- d mm Wire diameter
- Ddmin mm Min. possible mandrel diameter
- Ddmax mm Max. possible 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 type="checkbox"/> left <input checked="" type="checkbox"/> right  | <b>5 Excursion <math>\alpha h</math></b> <input type="text"/> degr.  | <b>12 Tolerances to DIN 2194</b><br><table border="1" style="width: 100%; border-collapse: collapse;"> <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>7 Stress cycle frequ. n</b> <input type="text"/> /   |  |                                     |                                     |   |                              |                          |                             |          |                          |   |                          |                          |                          |                          |                          |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| <b>3 Fixing</b><br>Recumbent leg <input type="checkbox"/> Lever leg <input type="checkbox"/>   | <b>8 Application temp.</b> <input type="text"/> °C   | <b>9 Material</b><br>EN 10270-3-1.4310  |  |                                     |                                     |   |                              |                          |                             |          |                          |   |                          |                          |                          |                          |                          |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| <b>4 Load</b><br><input type="checkbox"/> in winding direction<br><input type="checkbox"/> against winding direction   | <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"/>   |  |                                     |                                     |   |                              |                          |                             |          |                          |   |                          |                          |                          |                          |                          |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| <b>Remarks</b><br>Country of origin: DE   Customs tariff number: 73202089  | <b>13 Production compensation through</b><br><table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>A spring torque and the associated swing angle</td> <td><math>\alpha</math></td> <td><input checked="" type="checkbox"/></td> </tr> <tr> <td>A spring torque and the associated swing angle and <math>\alpha 0</math></td> <td>n, d</td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td>n, Di</td> <td><input type="checkbox"/></td> </tr> <tr> <td>Two spring resistances and the associated swing angle</td> <td><math>\alpha, n, d</math></td> <td><input type="checkbox"/></td> </tr> <tr> <td></td> <td><math>\alpha, n, Di</math></td> <td><input type="checkbox"/></td> </tr> </table> |   | A spring torque and the associated swing angle | $\alpha$                            | <input checked="" type="checkbox"/> | A spring torque and the associated swing angle and $\alpha 0$ | n, d                         | <input type="checkbox"/> |                             | n, Di    | <input type="checkbox"/> | Two spring resistances and the associated swing angle | $\alpha, n, d$           | <input type="checkbox"/> |                          | $\alpha, n, Di$          | <input type="checkbox"/> |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| A spring torque and the associated swing angle   | $\alpha$   | <input checked="" type="checkbox"/>   |  |                                     |                                     |   |                              |                          |                             |          |                          |   |                          |                          |                          |                          |                          |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| A spring torque and the associated swing angle and $\alpha 0$  | n, d   | <input type="checkbox"/>  |  |                                     |                                     |   |                              |                          |                             |          |                          |   |                          |                          |                          |                          |                          |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
|  | n, Di  | <input type="checkbox"/>  |  |                                     |                                     |   |                              |                          |                             |          |                          |   |                          |                          |                          |                          |                          |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| Two spring resistances and the associated swing angle  | $\alpha, n, d$   | <input type="checkbox"/>  |  |                                     |                                     |   |                              |                          |                             |          |                          |   |                          |                          |                          |                          |                          |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
|  | $\alpha, n, Di$  | <input type="checkbox"/>  |  |                                     |                                     |   |                              |                          |                             |          |                          |   |                          |                          |                          |                          |                          |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |
| <b>Prices</b><br><table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Quantity scale</th> <th>Single price [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> |  |   | Quantity scale                                 | Single price [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 €                 |                          |                                     |
| Quantity scale   | Single price [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 €   |   |  |                                     |                                     |   |                              |                          |                             |          |                          |   |                          |                          |                          |                          |                          |                                     |                                     |                                     |                                     |                                     |                          |          |                          |                          |                          |                          |                          |                                     |