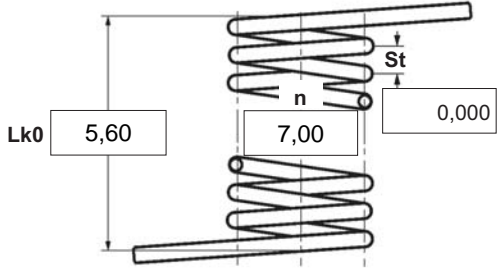





- $\alpha$  degree Unstressed leg position
- $\alpha 1$  degree Prestressed rotational angle
- $\alpha 2$  degree Loaded rotational angle
- $\alpha h$  degree Excursion
- $\alpha n$  degree Maximum rotational angle
- d mm Wire diameter
- Ddmin mm Min. possible mandrel diameter
- Ddmax mm Max. possible 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

| <p><b>1 Coiling direction</b></p> <p><input checked="" type="checkbox"/>  left    <input type="checkbox"/>  right</p> | <p><b>5 Excursion <math>\alpha h</math></b> <input type="text"/> degr.</p>                                                                                     | <p><b>12 Tolerances to DIN 2194</b></p> <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></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></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"/> |          | 2  | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" 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"/>            |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 2                                                                                                                                                                                                                                                                                           | <input checked="" type="checkbox"/>                                                                                                                            | <input checked="" type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 3                                                                                                                                                                                                                                                                                           | <input type="checkbox"/>                                                                                                                                       | <input type="checkbox"/>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <input type="checkbox"/>            | <input type="checkbox"/>            | <input type="checkbox"/>            | <input checked="" type="checkbox"/> |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| <p><b>2 Form of legs</b></p> <p>tangential, straight, no bends *</p> <p></p> <p>*We can also supply torsion springs with any form of leg for an extra charge.</p>                                        | <p><b>6 Stress cyc. end. N</b> <input type="text"/></p>                                                                                                        | <p><b>13 Production compensation through</b></p> <p>A spring torque and the associated swing angle    <math>\alpha</math> <input checked="" type="checkbox"/></p> <p>A spring torque and the associated swing angle and <math>\alpha 0</math>    n, d <input type="checkbox"/></p> <p>Two spring resistances and the associated swing angle    n, Di <input type="checkbox"/></p> <p>Two spring resistances and the associated swing angle    <math>\alpha, n, d</math> <input type="checkbox"/></p> <p>Two spring resistances and the associated swing angle    <math>\alpha, n, Di</math> <input type="checkbox"/></p>                                                                                                                                                                                                                                                                                                                                                                                                                                |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| <p><b>3 Fixing</b></p> <p>Recumbent leg    Lever leg</p> <p><input type="text"/>    <input type="text"/></p>                                                                                                                                                                                | <p><b>7 Stress cycle frequ. n</b> <input type="text"/> /</p>                                                                                                   | <p><b>Prices</b></p> <table style="width: 100%;"> <thead> <tr> <th>Grupa ilociowa</th> <th>Cena jednostkowa [EUR]</th> </tr> </thead> <tbody> <tr><td>1</td><td></td></tr> <tr><td>2</td><td>5,1100 €</td></tr> <tr><td>3</td><td>3,6000 €</td></tr> <tr><td>7</td><td>3,4300 €</td></tr> <tr><td>17</td><td>2,2200 €</td></tr> <tr><td>37</td><td>1,1200 €</td></tr> <tr><td>75</td><td>0,7400 €</td></tr> <tr><td>125</td><td>0,5500 €</td></tr> <tr><td>175</td><td>0,4570 €</td></tr> <tr><td>250</td><td>0,4069 €</td></tr> <tr><td>350</td><td>0,3567 €</td></tr> <tr><td>450</td><td>0,3095 €</td></tr> <tr><td></td><td>0,2652 €</td></tr> </tbody> </table>                                                                                                                                                                                                                                                                                                                                                                                    | Grupa ilociowa                      | Cena jednostkowa [EUR]              | 1                                   |                                     | 2                            | 5,1100 € | 3                           | 3,6000 € | 7                        | 3,4300 €                 | 17                       | 2,2200 €                 | 37                       | 1,1200 € | 75 | 0,7400 €                            | 125                                 | 0,5500 €                            | 175                                 | 0,4570 €                            | 250 | 0,4069 € | 350                      | 0,3567 €                 | 450                      | 0,3095 €                 |                          | 0,2652 €                            |
| Grupa ilociowa                                                                                                                                                                                                                                                                              | Cena jednostkowa [EUR]                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 1                                                                                                                                                                                                                                                                                           |                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 2                                                                                                                                                                                                                                                                                           | 5,1100 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 3                                                                                                                                                                                                                                                                                           | 3,6000 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 7                                                                                                                                                                                                                                                                                           | 3,4300 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 17                                                                                                                                                                                                                                                                                          | 2,2200 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 37                                                                                                                                                                                                                                                                                          | 1,1200 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 75                                                                                                                                                                                                                                                                                          | 0,7400 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 125                                                                                                                                                                                                                                                                                         | 0,5500 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 175                                                                                                                                                                                                                                                                                         | 0,4570 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 250                                                                                                                                                                                                                                                                                         | 0,4069 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 350                                                                                                                                                                                                                                                                                         | 0,3567 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| 450                                                                                                                                                                                                                                                                                         | 0,3095 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
|                                                                                                                                                                                                                                                                                             | 0,2652 €                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| <p><b>4 Load</b></p> <p><input type="checkbox"/> in winding direction</p> <p><input type="checkbox"/> against winding direction</p>                                                                                                                                                         | <p><b>8 Application temp.</b> <input type="text"/> °C</p>                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
| <p><b>Remarks</b></p> <p>Kraj pochodzenia: DE   Numer taryfy celnej: 73202089</p>                                                                                                                                                                                                           | <p><b>9 Material</b></p> <p>EN 10270-3-1.4310</p>                                                                                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
|                                                                                                                                                                                                                                                                                             | <p><b>10 Wire or rod surface</b></p> <p><input checked="" type="checkbox"/> drawn    <input type="checkbox"/> rolled    <input type="checkbox"/> metal-cut</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |
|                                                                                                                                                                                                                                                                                             | <p><b>11 Surface treatment</b></p> <p><input type="text"/></p>                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                     |                                     |                                     |                                     |                              |          |                             |          |                          |                          |                          |                          |                          |          |    |                                     |                                     |                                     |                                     |                                     |     |          |                          |                          |                          |                          |                          |                                     |