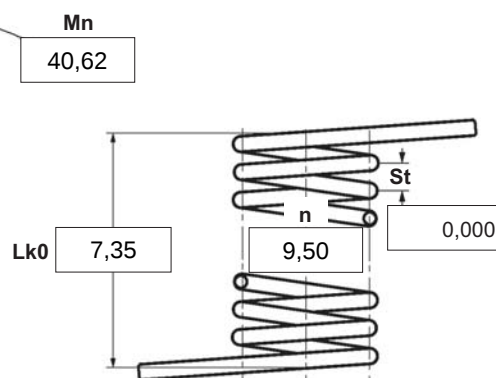


|            |        |                                       |
|------------|--------|---------------------------------------|
| $\alpha$   | degree | Unstressed leg position               |
| $\alpha_1$ | degree | Prestressed rotational angle          |
| $\alpha_2$ | degree | Loaded rotational angle               |
| $\alpha h$ | 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       |



|               |       |
|---------------|-------|
| <b>Weight</b> | 0,665 |
|---------------|-------|

| <b>1 Coiling direction</b><br><input type="checkbox"/> left <input checked="" type="checkbox"/> right                                                                                                                                                                                        | <b>5 Excursion</b> $\alpha h$ <input style="width: 100px;" type="text"/> deg.                                           | <b>12 Tolerances to DIN 2194</b><br><table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <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> <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 rowspan="3"><input checked="" 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> </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> </tr> </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 checked="" 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"/> |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|------------------------------------------------|----------------------------------------------|---------------------------------------------------------------|---------------------------------|-------------------------------------|----------------------------------|-------------------------------------------------------|-----------------------------------------|--------------------------|------------------------------------------|--------------------------|--------------------------|--------------------------|-------------------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 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 checked="" 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"/>                     |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
| <b>2 Form of legs</b><br><div style="border: 1px solid black; padding: 5px; min-height: 60px; margin-bottom: 5px;">           tangential, straight, no bends *         </div> <p style="font-size: small;">*We can also supply torsion springs with any form of leg for an extra charge.</p> | <b>6 Stress cyc. end.</b> $N$ <input style="width: 100px;" type="text"/>                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                |                                              |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
| <b>3 Fixing</b><br>Recumbent leg      Lever leg<br><div style="display: flex; justify-content: space-between; width: 100%;"> <input style="width: 45%;" type="text"/> <input style="width: 45%;" type="text"/> </div>                                                                        | <b>7 Stress cycle frequ.</b> $n$ <input style="width: 100px;" type="text"/> / <input style="width: 30px;" type="text"/> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                |                                              |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
| <b>4 Load</b><br><input type="checkbox"/> in winding direction<br><input type="checkbox"/> against winding direction                                                                                                                                                                         | <b>8 Application temp.</b> <input style="width: 100px;" type="text"/> °C                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                |                                              |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
| <b>9 Material</b><br><input style="width: 100px;" type="text"/> 1.4310                                                                                                                                                                                                                       |                                                                                                                         | <b>13 Production compensation through</b><br><table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">A spring torque and the associated swing angle</td> <td style="width: 20%; text-align: center;"><math>\alpha</math> <input checked="" type="checkbox"/></td> </tr> <tr> <td>A spring torque and the associated swing angle and <math>\alpha 0</math></td> <td style="text-align: center;"><math>n, d</math> <input type="checkbox"/></td> </tr> <tr> <td></td> <td style="text-align: center;"><math>n, Di</math> <input type="checkbox"/></td> </tr> <tr> <td>Two spring resistances and the associated swing angle</td> <td style="text-align: center;"><math>\alpha, n, d</math> <input type="checkbox"/></td> </tr> <tr> <td></td> <td style="text-align: center;"><math>\alpha, n, Di</math> <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>10 Wire or rod surface</b><br><input checked="" type="checkbox"/> drawn <input type="checkbox"/> rolled <input type="checkbox"/> metal-cut                                                                                                                                                |                                                                                                                         | <b>Prices</b><br><table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 40%;">Cantidad progresiva</th> <th style="width: 60%;">Precio unidad [EUR]</th> </tr> <tr> <td>1</td> <td>5,1100 €</td> </tr> <tr> <td>2</td> <td>3,6000 €</td> </tr> <tr> <td>3</td> <td>3,4200 €</td> </tr> </table>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                     | Cantidad progresiva                            | Precio unidad [EUR]                          | 1                                                             | 5,1100 €                        | 2                                   | 3,6000 €                         | 3                                                     | 3,4200 €                                |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
| Cantidad progresiva                                                                                                                                                                                                                                                                          | Precio unidad [EUR]                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                |                                              |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
| 1                                                                                                                                                                                                                                                                                            | 5,1100 €                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                |                                              |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
| 2                                                                                                                                                                                                                                                                                            | 3,6000 €                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                |                                              |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
| 3                                                                                                                                                                                                                                                                                            | 3,4200 €                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                |                                              |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
| <b>11 Surface treatment</b><br><input style="width: 100px;" type="text"/>                                                                                                                                                                                                                    |                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                |                                              |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |
|                                                                                                                                                                                                                                                                                              |                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                     |                                                |                                              |                                                               |                                 |                                     |                                  |                                                       |                                         |                          |                                          |                          |                          |                          |                                     |   |                                     |                                     |                                     |                                     |                                     |   |                          |                          |                          |                          |                          |

### Remarks

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