

05.2025

|    |    |                              |
|----|----|------------------------------|
| d  | mm | Wire diameter                |
| D  | mm | Mean coil diameter           |
| De | mm | Diameter of mandrel          |
| Dd | mm | Outer coil diameter          |
| Dh | mm | Diameter of bush             |
| e1 | mm | Perm.dev. perpendicular line |
| e2 | mm | Perm.dev. parallel line      |
| F1 | N  | Prestressed spring force     |
| F2 | N  | Loaded spring force          |

|                |     |                                           |
|----------------|-----|-------------------------------------------|
| F <sub>n</sub> | N   | Maximum force in static use               |
| F <sub>c</sub> | N   | Theoretic maximum force at L <sub>c</sub> |
| L <sub>0</sub> | mm  | Length of unstressed spring               |
| L <sub>1</sub> | mm  | Prestressed spring length                 |
| L <sub>2</sub> | mm  | Loaded spring length                      |
| L <sub>k</sub> | mm  | Buckling length                           |
| L <sub>n</sub> | mm  | Minimum length in static use              |
| L <sub>c</sub> | mm  | Block length                              |
| n              | pc. | Active coils                              |

|        |      |                                          |     |
|--------|------|------------------------------------------|-----|
| nt     | pc.  | Total coils                              | 05. |
| R      | N/mm | Spring rate                              |     |
| S      | mm   | Pitch (distance between coils)           |     |
| s1     | mm   | Prestressed spring deflection            |     |
| s2     | mm   | Loaded spring deflection                 |     |
| sh     | mm   | Maximum stroke in static use             |     |
| sn     | mm   | Maximum spring deflection in static use  |     |
| Weight | g    | Weight of one spring in grammes          |     |
| Fndyn  | N    | Maximum force in dynamic force           |     |
| Fndtol | N    | (+/-) tolerance of maximum dynamic force |     |
| Lndyn  | mm   | Minimum length in dynamic use            |     |
| shdyn  | mm   | Maximum stroke in dynamic use            |     |

\* The spring data for the dynamic applications is relevant only for springs having a shot peened hardened surface !

Technical drawing of a helical spring showing Form 1 (Spring ends closed and ground) and Form 2 (Spring ends closed). The drawing includes various dimensions and a table of values.

**Form 1: Spring ends closed and ground**

**Form 2: Spring ends closed**

**Dimensions and Values:**

- $L_{dyn}$  mm: Minimum length in dynamic use
- $s_{hdyn}$  mm: Maximum stroke in dynamic use
- $Dd$ : 1,50
- $e1$
- $e2$
- $S$
- $De$ : 2,50  $\pm$  0,10
- $D$ : 2,20
- $0,30$
- $Dh$ : 2,80
- $d$
- $F1$
- $F2$
- $F_n$ : 2,12  $\pm$  0,36
- $F_c$
- $sh$
- $sn$ : 1,50
- $L0$ : 4,50  $\pm$  0,23
- $L1$
- $L2$
- $Ln$ : 3,00
- $Lc$
- $s1$
- $s2$

**Table of Values:**

|  | $n$  | $nt$ | $R$   | Weight |
|--|------|------|-------|--------|
|  | 5,50 |      | 1,409 | 0,029  |

\* The spring data for the dynamic applications is relevant only for springs having a shot peened hardened surface !

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

**1 Coiling direction**

☐ left ☒ right

| 2 Dynamic load * |      |
|------------------|------|
| Fndyn            | 1,90 |
| Fndtol           | 0,36 |
| Lndyn            | 3,15 |
| shdyn            | 1,35 |

**3** Excursion sh  m

4 Stress cyc. end. N

5 Stress cycle frequ. n /

|                            |  |
|----------------------------|--|
| <b>6</b> Application temp. |  |
|----------------------------|--|

RemarksPaís de origen: DE | Número de arancel aduanero: 73202081

**7 Guidance and seat to DIN EN 13906-1**

☐ mandrel    ☐ bush

Buckling length **L<sub>k</sub>** at

v=0,5 / Bild 5     mm



|          |                 |
|----------|-----------------|
| <b>8</b> | <b>Material</b> |
|          | EN 10270-1      |

**9 Wire or rod surface**  
☒ drawn    ☐ rolled    ☐ metal-cut

**10 Springs deburred** ☐ inside ☐ outside

**11** Surface treatment ☐ shot needed

[illegible]

| Grade | De,Di,D                             | L0                                  | F1,F2                               | e1,e2                               | Wire diameter<br>d to<br>DIN 2076   |
|-------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 1     | <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"/>            |                                     |

| 13 Prouction compensation                                      |                        | through                                                         |
|----------------------------------------------------------------|------------------------|-----------------------------------------------------------------|
| A spring resistance and associated length of tensed spring     | L0                     | <input type="checkbox"/>                                        |
| A spring resistance, associated length of tensed spring and L0 | n, d<br>n, De, Di      | <input checked="" type="checkbox"/><br><input type="checkbox"/> |
| Two spring resistances and associated lengths of tensed spring | L0, n, d<br>L0,n,De,Di | <input type="checkbox"/><br><input type="checkbox"/>            |

#### 14 Setting springs

All springs which show setting tendency because of their size are pre-set within the production process.

| Prices              |                     |
|---------------------|---------------------|
| Cantidad progresiva | Precio unidad [EUR] |
| 1                   | 4,6100 €            |
| 2                   | 3,2500 €            |
| 3                   | 3,1000 €            |
| 7                   | 1,7300 €            |
| 17                  | 0,6900 €            |
| 37                  | 0,3600 €            |
| 75                  | 0,1900 €            |
| 125                 | 0,1503 €            |
| 175                 | 0,1189 €            |
| 250                 | 0,0939 €            |
| 350                 | 0,0694 €            |
| 450                 | 0,0630 €            |