

Miniature Compression Force Sensor K-13/K-13B with Rated Force from 0.01 ... 100 kN



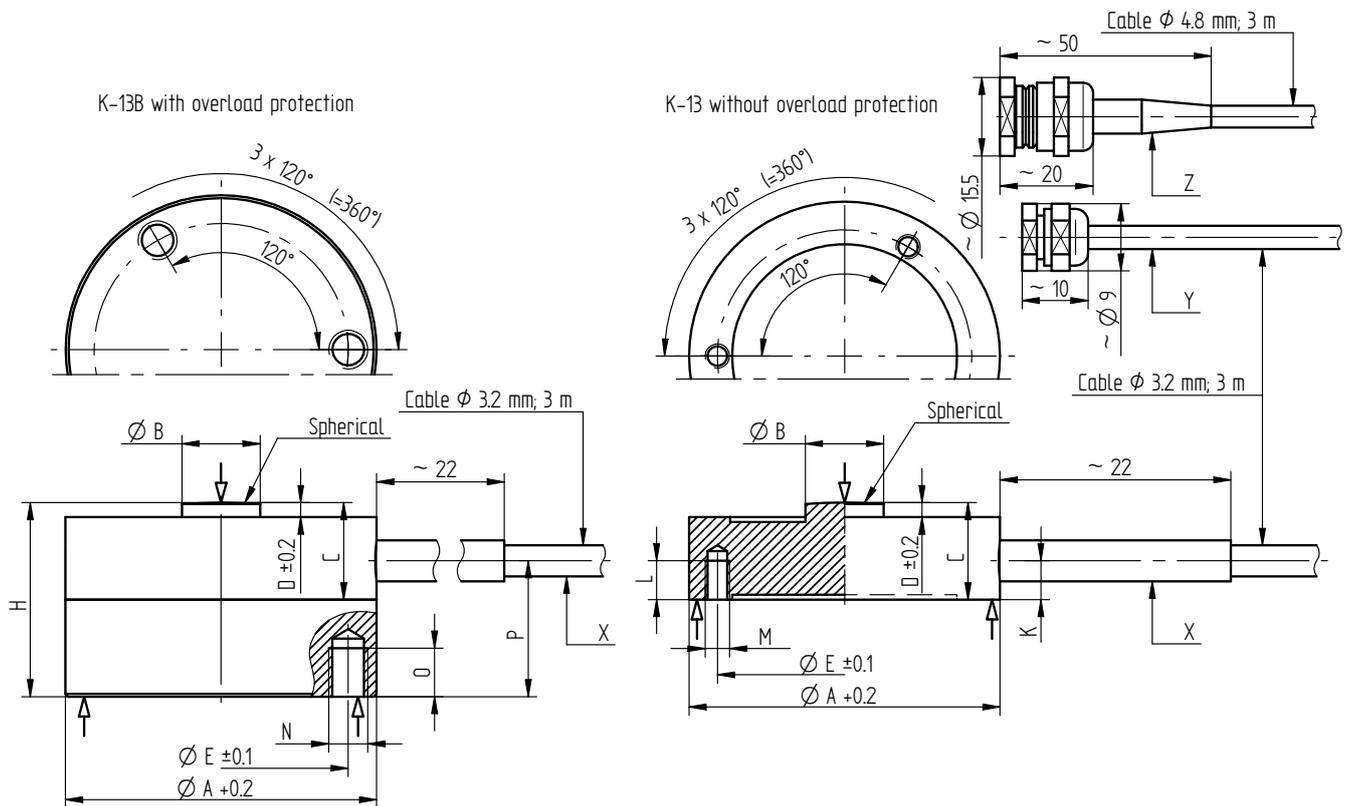
Performance Features

- Miniature sensor for press-in force survey
- TEDS (Transducer Electronic Data Sheet) Standard IEEE 1451.4 (optional)
- K-13B with integrated overload protection
- Simple handling and assembly
- Stainless steel
- Level of protection IP65 [≤ 50 N; IP60]
- Long-term stability
- Special versions on request

Application

- Equipment engineering
- Fully automated machining centres
- Measuring and control devices
- Materials testing machines
- Tool engineering
- Special mechanical engineering

Dimensions in mm



| Article-No. K-13B | Rated Force [kN] | Dimensions [mm] | | | | | | | | | | | | | Overload Protection | Weight [kg] |
|----------------------|---------------------|-----------------|----|----|-----|----|----|----|---|------|---|---|---|-----|---------------------|-------------|
| | | ØA | ØB | C | D | ØE | H | N | O | P | X | Y | Z | | | |
| 103789 | 0.01 | | | | | | | | | | | | | | 5 x | 0.3 |
| 103790 | 0.02 | | | | | | | | | | | | | | | |
| 102353 | 0.05 | | | | | | | | | | | | | | | |
| 101046 | 0.1 | | | | | | | | | | | | | | | |
| 100101 | 0.2 | 32 | 8 | 10 | 1.5 | 26 | 20 | M4 | 5 | 14 | X | - | - | | | |
| 100102 | 0.5 | | | | | | | | | | | | | | | |
| 100103 | 1 | | | | | | | | | | | | | | | |
| 100104 | 2 | | | | | | | | | | | | | | | |
| 100105 | 5 | | | | | | | | | | | | | 3 x | 0.3 | |
| 100106 | 10 | | | | | | | | | | | | | | | |
| 100107 | 20 | 39 | 11 | 16 | 2 | 32 | 24 | M3 | 5 | 12.5 | - | X | - | 3 x | 0.4 | |
| 100108 | 50 | 52 | 15 | 25 | 3 | 42 | 40 | M4 | 5 | 25 | - | - | X | 3 x | 0.7 | |
| 100109 | 100 | 79 | 20 | 39 | 5 | 65 | 50 | M5 | 6 | 21 | - | - | X | 3 x | 1.7 | |

| Article-No. K-13 | Rated Force [kN] | Dimensions [mm] | | | | | | | | | | | Weight [kg] | |
|---------------------|---------------------|-----------------|----|----|-----|----|---|---|------|---|---|---|-------------|-----|
| | | ØA | ØB | C | D | ØE | K | L | M | X | Y | Z | | |
| 103787 | 0.01 | | | | | | | | | | | | | 0.2 |
| 103788 | 0.02 | | | | | | | | | | | | | |
| 102352 | 0.05 | | | | | | | | | | | | | |
| 102718 | 0.1 | | | | | | | | | | | | | |
| 100092 | 0.2 | 32 | 8 | 10 | 1.5 | 26 | 4 | 4 | M2.5 | X | - | - | | |
| 100093 | 0.5 | | | | | | | | | | | | | |
| 100094 | 1 | | | | | | | | | | | | | |
| 100095 | 2 | | | | | | | | | | | | | |
| 100096 | 5 | | | | | | | | | | | | | |
| 100097 | 10 | | | | | | | | | | | | | |

| Article-No. K-13 | Rated Force [kN] | Dimensions [mm] | | | | | | | | | | | Weight [kg] |
|---------------------|---------------------|-----------------|----|----|---|----|-----|---|----|---|---|---|-------------|
| | | ØA | ØB | C | D | ØE | K | L | M | X | Y | Z | |
| 100098 | 20 | 39 | 11 | 16 | 2 | 32 | 4.5 | 6 | M3 | - | X | - | 0.3 |
| 100099 | 50 | 52 | 15 | 25 | 3 | 42 | 10 | 6 | M4 | - | - | X | 0.5 |
| 100100 | 100 | 79 | 20 | 39 | 5 | 65 | 10 | 6 | M5 | - | - | X | 1.2 |

Connection Assignment

Electrical connection

| | | |
|---------------------------------|--------|---|
| Excitation (-) | Green | ● |
| Excitation (+) | Brown | ● |
| Signal (+) | Yellow | ● |
| Signal (-) | White | ○ |
| Control signal or TEDS (option) | Gray | ● |
| Shielding | Shield | ⊕ |

Technical Data acc. to VDI/VDE/DKD 2638

| Miniature Compression Force Sensor | | K-13 | K-13B |
|--|--------------------|---|----------------------------|
| Rated force F_{nom} | kN | 0.01 ... 100 | |
| Accuracy class | % F_{nom} | 0.5 | |
| Rel. repeatability error in unchanged mounting position b_{rg} | % F_{nom} | 0.2 | |
| Relative creep | % $F_{nom}/30$ min | <±0.1 | |
| Rated characteristic value C_{nom} | mV/V | 1.00 [0.01 kN; 0.50] ±20 % | |
| Input/output resistance R_e/R_a | Ω | 350 | |
| Insulation resistance R_{is} | Ω | >2*10 ⁹ | |
| Rated range of excitation voltage $B_{U, nom}$ | VDC | 2 ... 12 [≤0.5 kN; 2 ... 6] | 2 ... 12 [≤10 kN; 2 ... 6] |
| Electrical connection | | Cable, PURS, 3 m with free strands [≤20 kN] Cable, PVC, 3 m with free strands [≥50 kN] | |
| Reference temperature T_{ref} | °C | 23 | |
| Rated temperature range $B_{T, nom}$ | °C | -10 ... 70 | |
| Operating temperature range $B_{T, G}$ | °C | -30 ... 80 | |
| Storage temperature range $B_{T, S}$ | °C | -50 ... 95 | |
| Temperature effect on zero signal TK_0 | % $F_{nom}/10$ K | ±0.2 | |
| Temperature effect on characteristic value TK_C | % $F_{nom}/10$ K | ±0.2 | |
| Maximum operating force F_G | % F_{nom} | 130 | |
| Force limit F_L | % F_{nom} | 150 | 300 |
| Breaking force F_B | % F_{nom} | >300 | >800 |
| Permissible oscillation stress F_{rb} | % F_{nom} | 70 | |
| Rated displacement S_{nom} | mm | <0.15 | |
| Material | | Stainless steel | |
| Level of protection | | IP65 [≤0.05 kN; IP60] | |

Options

| Article-No. | Description | |
|-------------|------------------------------|------------------------------------|
| 100218 | Control signal | 100 % F_{nom} |
| 100739 | Control signal | 80 % M_{nom} |
| 106154 | Control signal | 50 % M_{nom} |
| 113134 | TEDS-standard IEEE 1451.4 | |
| 42828 | Extended temperature range | -30 °C ... 100 °C |
| 42829 | Extended temperature range | -30 °C ... 120 °C [≥ 0.2 kN] |
| 42830 | Extended temperature range | -40 °C ... 150 °C [≥ 0.2 kN] |
| 100896 | Rated sensitivity adjustment | |
| 103954 | Calibration in kg or t | |
| 107592 | 6-wire connection | |

Calibrations

| Article-No. | Description | |
|-------------|--|------------|
| 400628 | Linearity diagram in accordance to factory standard | 25 % steps |
| 400170 | Linearity diagram in accordance to factory standard | 10 % steps |
| 400960 | Proprietary calibration acc. to DIN EN ISO 376 and DAkkS-DKD-R 3-3 | 3 steps |
| 400652 | Proprietary calibration acc. to DIN EN ISO 376 and DAkkS-DKD-R 3-3 | 5 steps |
| 400640 | Proprietary calibration acc. to DIN EN ISO 376 and DAkkS-DKD-R 3-3 | 8 steps |
| | DAkkS-Calibration / Standard on request | |

Accessories

Electrical Connection

| Article-No. | Description |
|-------------|---|
| 10323 | Cable connector KS6 (6-pin series 581) incl. sensor mounting |
| 10320 | Cable connector KSSH15 (15-pin) incl. sensor mounting |
| 43418 | Input connector ZA9612FS (ALMEMO) incl. sensor mounting and connector calibration |
| 49205 | Input connector ZKD712FS (ALMEMO 202) incl. sensor mounting and connector calibration |

Amplifiers

Examples of suitable amplifiers for the miniature compression force sensor K-13/K-13B:



Further suitable amplifiers you can find on our homepage under <https://www.lorenz-messtechnik.de/english/products/>