

Force Sensor K1A125 90kN

Item number: 16917



Highlights

- Single-axis force sensor for tension/compression
- Based on proven K3A technology
- Secure and rigid flange mounting
- High resistance to bending moments
- Stable under eccentric force introduction
- Robust design for industrial environments
- Precise and reliable measurement results

The **single-axis force sensors of the K1A series** represent precise and robust force measurement technology for tension and compression forces in one axis. Their mechanical design is derived from the proven K3A 3-axis sensor series, using the same high-quality structural concept and established strain gauge technology. Unlike the K3A sensors, however, the K1A sensors are consistently optimized for a single Z-axis – essentially the same stable construction, focused on one measurement direction.

A key feature of the series is the **flange mounting design**, which enables secure, backlash-free, and highly rigid installation within the surrounding structure. This ensures reliable and repeatable force transmission and simplifies integration into test benches, machinery, and automation systems.

Due to their mechanical design, K1A sensors are **significantly more resistant to bending moments** than conventional single-axis force sensors. They also provide high robustness

against **eccentric force introduction** and deliver reliable measurement results within their specified operating point, even under non-ideal loading conditions. Their robust construction makes them particularly suitable for demanding industrial applications requiring stability, repeatability, and long-term reliability.

Optional special version

- Protection class IP68: from rated force 200 N
- Pressure range up to 8 bar

Technical Drawing



Technical Data

| Basic Data | | Unit |
|--------------------|---------------------|------|
| Type | Kraftsensor | |
| Force direction | Tension/Compression | |
| Rated force Fz | 90 | kN |
| Force introduction | Internal thread | |
| Dimension 1 | 8xM12x1,75 | |
| Sensor Fastening | Internal thread | |
| Dimension 2 | 8xM12x1,75 | |
| Operating force | 300 | %FS |
| Material | Stainless steel | |
| Dimensions | Ø125 x 90 | mm |
| Height | 90 | mm |
| Length or Diameter | 125 | mm |
| Variants | 90kN, 120kN | |

| Electrical Data | | Unit |
|--|------|-----------|
| Insulation resistance | 5 | GOhm |
| Rated range of excitation voltage from | 2.5 | V |
| Rated range of excitation voltage to | 5 | V |
| Operating range of excitation voltage from | 1 | V |
| Operating range of excitation voltage to | 10 | V |
| Zero signal | 0.05 | mV/V |
| Rated output | 0.8 | mV/V / FS |

| Accuracy Data | | Unit |
|--|------|-------|
| Accuracy class | 0,2 | |
| Relative linearity error | 0.2 | %FS |
| Temperature effect on zero signal | 0.01 | %FS/K |
| Temperature effect on characteristic value | 0.01 | %RD/K |
| Relative creep | 0.01 | %FS |
| Environmental Data | | Unit |
| Rated temperature range from | -10 | °C |
| Rated temperature range to | 70 | °C |
| Operating temperature range from | -10 | °C |
| Operating temperature range to | 85 | °C |
| Environmental protection | IP65 | |

Abbreviation: RD: „Reading“; FS: „Full Scale“ The exact nominal sensitivity is indicated in the test report