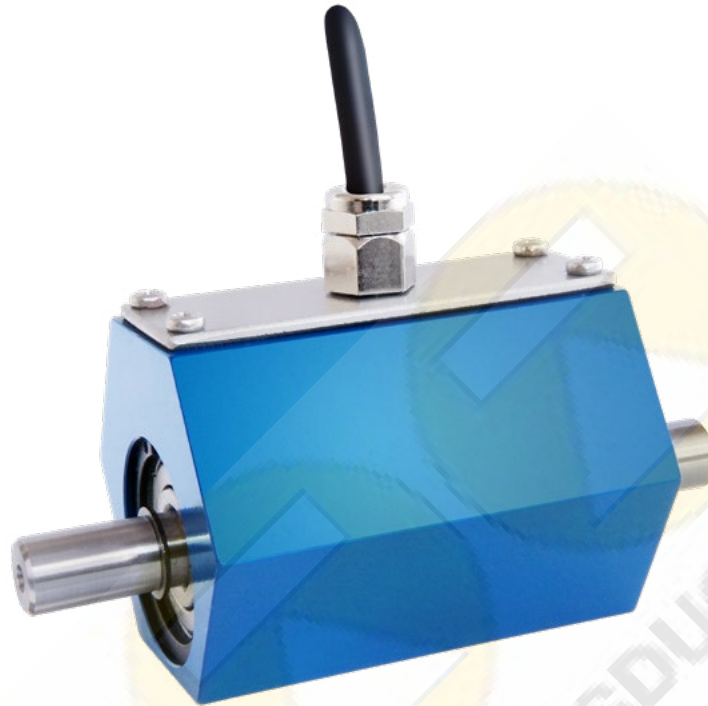


Rotating Torque Sensor DR-2477/DR-2477-P (contactless) with Nominal Torque from 0.2 ... 200 N·m



This sensor has a contactless and digital signal transmission from rotor to stator without signal falsification of the measurement data. It is therefore highly accurate and maintenance-free.

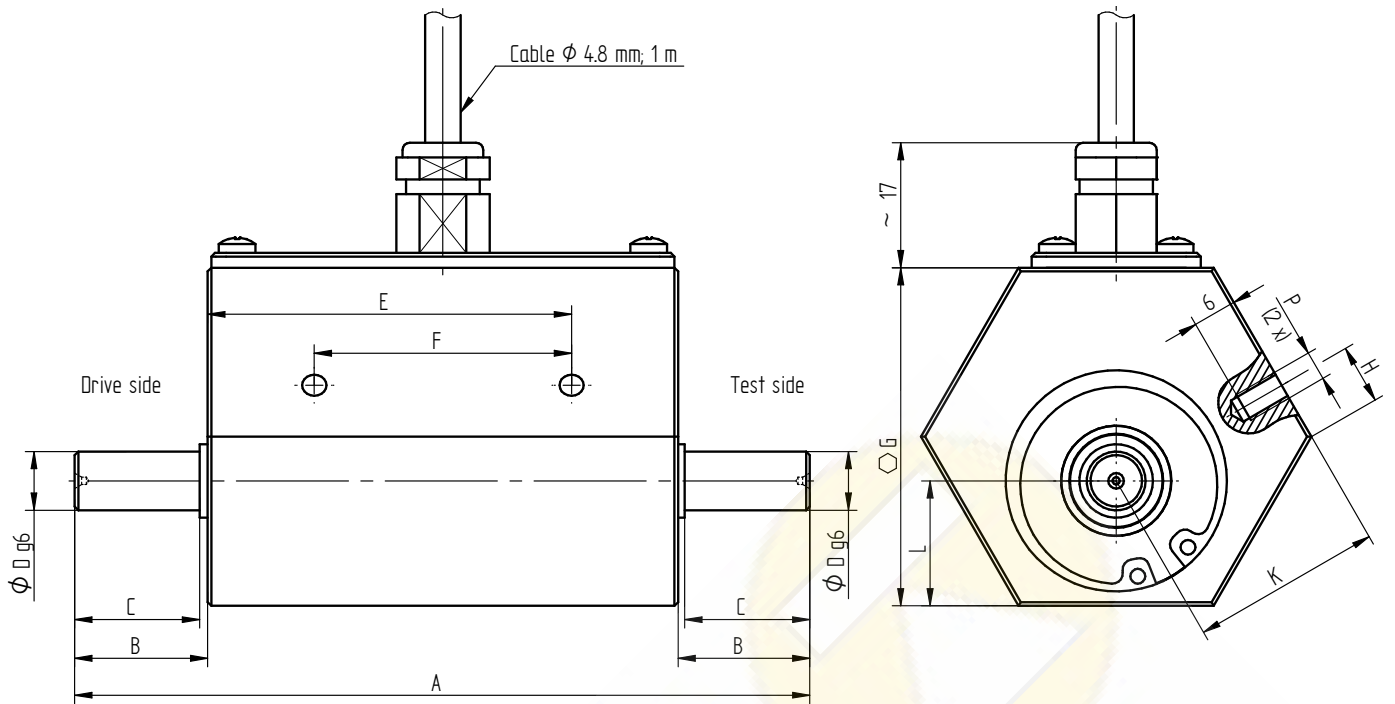
Performance Features

- Torque sensor for e.g. test bench applications
- Active output $\pm 5V$ (optional $\pm 10V$)
- Speed up to 10000 min^{-1}
- For stiff and floating sensor assembly
- Very short axial length
- High torsional stiffness
- Simple handling and assembly
- Special versions on request

Application

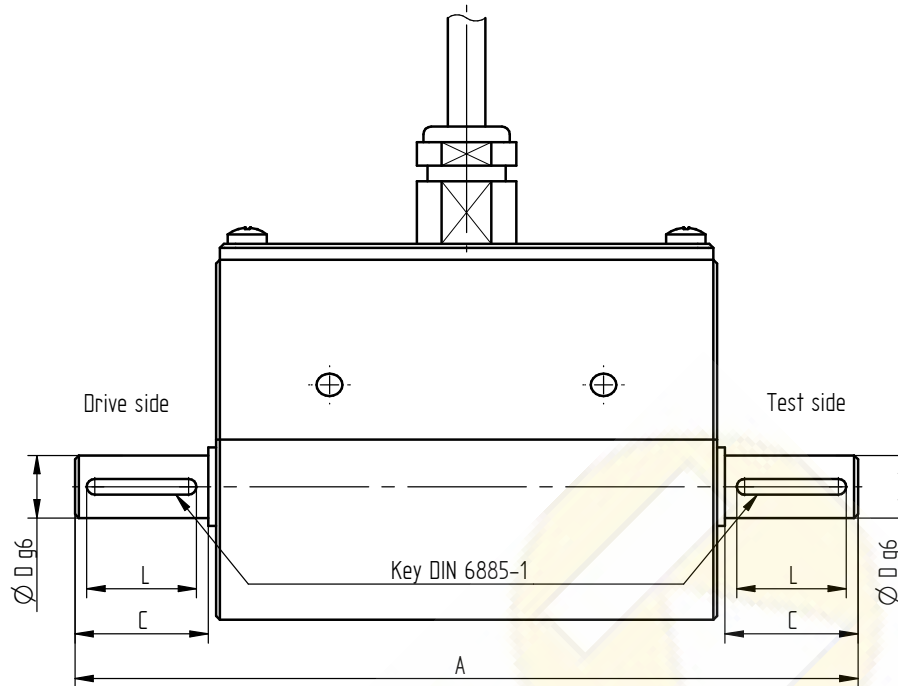
- Research and development
- Process measuring and control technology
- Fully automated machining centres
- Measuring and control devices
- Tool engineering
- Special mechanical engineering

Dimensions of DR-2477/DR-2477-P in mm



| Nominal Torque [N·m] | Dimensions [mm] | | | | | | | | | | | Weight [kg] |
|-------------------------|-----------------|----|----|----|------|----|----|----|------|----|----|----------------|
| | A | B | C | ØD | E | F | ØG | H | K | L | P | |
| 0.2/0.5/1/2 | 100 | 18 | 17 | 8 | 49.5 | 35 | 46 | 8 | 26 | 17 | M4 | 0.4 |
| 5/10 | 100 | 18 | 17 | 10 | 49.5 | 35 | 46 | 8 | 26 | 17 | M4 | 0.4 |
| 20/50 | 140 | 30 | 29 | 18 | 60 | 40 | 65 | 15 | 34.8 | 28 | M5 | 1.1 |
| 100/200 | 160 | 40 | 39 | 22 | 60 | 40 | 65 | 15 | 34.8 | 28 | M5 | 1.3 |

Dimensions of Version with Feather Keys in mm



| Nominal Torque [N·m] | Dimensions [mm] | | | | | Weight [kg] |
|-------------------------|-----------------|----|----|----|--------------------------|----------------|
| | A | ØD | C | L | Feather Key ¹ | |
| 0.2/0.5/1/2 | 100 | 8 | 17 | 14 | 2 x 2 x 14 | 0.4 |
| 5/10 | 100 | 10 | 17 | 14 | 3 x 3 x 14 | 0.4 |
| 20/50 | 140 | 18 | 29 | 25 | 6 x 6 x 25 | 1.1 |
| 100/200 | 160 | 22 | 39 | 36 | 6 x 6 x 36 | 1.3 |

Connection Assignment

Electrical Connection

| | | | |
|--------------|--------|---|--------------|
| Supply (+) | brown | ● | 12 ... 28VDC |
| Supply (GND) | green | ● | 0V |
| Signal (+) | yellow | ● | ±5V (±10V) |
| Signal (GND) | white | ○ | 0V |
| Shield | shield | ⊕ | |

¹ Calculated load type for feather key: single side light shocks

Technical Data acc. to VDI/VDE/DKD 2639

Torque Sensor DR-2477/DR-2477-P

| | | |
|--|------------------|------------------------------|
| Nominal torque M_{nom} | N·m | 0.2 ... 200 |
| Accuracy class | % M_{nom} | 0.25 |
| Relative repeatability error in unchanged mounting position b' | % M_{nom} | ±0.05 |
| Rated range of supply voltage | VDC | 12 ... 28 |
| Current consumption | mA | ≤50 |
| Output signal | V | ±5 |
| Electrical connection | | Cable, 1 m with free strands |
| Reference temperature T_{ref} | °C | 23 |
| Rated temperature range | °C | 5 ... 45 |
| Operating temperature range | °C | 0 ... 60 |
| Storage temperature range | °C | -10 ... 70 |
| Temperature effect on zero signal TK_0 | % $M_{nom}/10 K$ | ±0.4 |
| Temperature effect on characteristic value TK_C | % $M_{nom}/10 K$ | ±0.2 |
| Maximum operating torque M_G (static) | % M_{nom} | 150 |
| Torque limit M_{max} (static) | % M_{nom} | 200 |
| Breaking torque M_B (static) | % M_{nom} | >300 |
| Permissible oscillation stress when subjected to torque M_{df} | % M_{nom} | 70 (peak-to-peak) |
| Level of protection | | IP50 |

| Article-No. DR-2477 | Article-No. DR-2477-P ² | Nominal Torque [N·m] | Limit Speed [min ⁻¹] | Springrate [N·m/rad] | Mass Moment of Inertia [kg·m ²] | | Axial Force Limit [N] ³ | Lateral Force Limit [N] ³ |
|------------------------|---------------------------------------|-------------------------|-------------------------------------|-------------------------|--|-----------|---------------------------------------|---|
| | | | | | Drive Side | Test Side | | |
| 108187 | 115386 | 0.2 | 10000 | 1.8E+01 | 1.6E-06 | 1.0E-06 | 58 | 1.5 |
| 108188 | 110178 | 0.5 | 10000 | 1.1E+02 | 1.6E-06 | 1.0E-06 | 185 | 2.1 |
| 106433 | 108911 | 1 | 10000 | 2.2E+02 | 1.6E-06 | 1.1E-06 | 340 | 5.1 |
| 106475 | 110244 | 2 | 10000 | 2.1E+02 | 1.6E-06 | 1.1E-06 | 340 | 5.1 |
| 106434 | 109467 | 5 | 10000 | 8.9E+02 | 1.7E-06 | 1.1E-06 | 1050 | 29 |
| 106476 | 110179 | 10 | 10000 | 8.9E+02 | 1.7E-06 | 1.1E-06 | 1050 | 29 |
| 106541 | 109127 | 20 | 8000 | 8.4E+03 | 4.2E-05 | 2.1E-05 | 2600 | 98 |
| 106542 | 109191 | 50 | 8000 | 8.4E+03 | 4.2E-05 | 2.1E-05 | 2600 | 98 |
| 106543 | 110233 | 100 | 8000 | 2.0E+04 | 4.7E-05 | 2.7E-05 | 6400 | 250 |
| 106544 | 106854 | 200 | 8000 | 2.0E+04 | 4.7E-05 | 2.7E-05 | 6400 | 250 |

Options

| Article-No. | Description | |
|-------------|-----------------------------------|------|
| 103562 | Output signal | ±10V |
| 103861 | Extension measuring cable per 1 m | |

² Version „-P“ feather key

³ Unsupported shaft

Calibrations

| Article-No. | Description | |
|-------------|---|------------|
| 400676 | Linearity diagram in accordance to factory standard | 25 % steps |
| 400664 | Linearity diagram in accordance to factory standard | 10% steps |
| 400961 | Proprietary calibration acc. to VDI/VDE 2646 | 3 steps |
| 400700 | Proprietary calibration acc. to VDI/VDE 2646 | 5 steps |
| 400688 | Proprietary calibration acc. to VDI/VDE 2646 | 8 steps |
| | DAkkS-Calibration/Standard on request | |

Accessories

Electrical Connection

| Article-No. | Description |
|-------------|---|
| 10320 | Cable connector KSSH15 (15-polig) incl. sensor mounting |
| 10337 | Cable connector KS12 (12-polig) incl. sensor mounting |

Amplifiers

Examples of suitable amplifiers for the torque sensors DR-2477/DR-2477-P:

| LCV-USB2 | SI-ETH | SI-USB3 | GM 80 | GM 80-PA |
|--|--|--|--|--|
|  |  |  |  |  |