

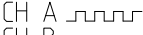
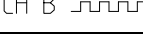
**Schleifringdrehmomentsensor, rotierend**  
**Slipring Torque Sensor, rotating****DR-12**

- Nenndrehmoment von 1 N·m ... 5000 N·m
  - Hohe Messgenauigkeit ab 0,1% v. Endwert
  - Integrierte Drehzahl-/Drehwinkelmessung
  - Antriebs-Innenvierkant
  - Abtriebs-Außenvierkant
  - Sehr kurze axiale Baulänge
  - Hohe Drehsteifigkeit
  - Zuverlässig und robust
  - Einfache Handhabung und Montage
  - Sonderausführungen auf Anfrage
- *Nominal torque from 1 N·m ... 5000 N·m*
  - *High accuracy 0.1% f. scale*
  - *Integrated speed/angle measurement*
  - *Drive-square socket*
  - *Output-square drive*
  - *Very short axial length*
  - *High torsional stiffness*
  - *Reliable and durable*
  - *Simple handling and assembly*
  - *Special versions on request*



**Technische Daten - Specifications**

| Artikel-Nr.<br>Article-No. | Nennmoment<br>Nominal Torque<br>[N·m] | Grenzdrehzahl<br>Limit Speed<br>[min <sup>-1</sup> ] | Federkonstante<br>Springrate<br>[N·m/rad] | Massen-<br>trägheits-<br>moment<br>Mass<br>moment<br>of inertia<br>[kg·m <sup>2</sup> ] |                       | Grenzlängskraft<br>Limit Thrust Load<br>[N] <sup>1</sup> | Grenzquerkraft<br>Limit Shear Force<br>[N] <sup>2</sup> |
|----------------------------|---------------------------------------|--|---|---|-----------------------|--|---|
|                            |                                       |  |   | Antriebsseite<br>Drive side   | Messeite<br>Test side |  |   |
| 101980                     | 1                                     | 2000   | 2,2E+02                                   | 3,5E-06   | 1,5E-06               | 200  | 3   |
| 101981                     | 2                                     | 2000   | 2,2E+02                                   | 3,5E-06   | 1,5E-06               | 200  | 3   |
| 100212                     | 5                                     | 2000   | 5,5E+02                                   | 3,5E-06   | 1,5E-06               | 350  | 7   |
| 101064                     | 12                                    | 2000   | 6,8E+02                                   | 3,5E-06   | 1,5E-06               | 420  | 9   |
| 100232                     | 25                                    | 1500   | 4,4E+03                                   | 1,2E-05   | 1,1E-05               | 1100   | 25  |
| 100233                     | 63                                    | 1500   | 9,2E+03                                   | 1,2E-05   | 1,1E-05               | 1900   | 65  |
| 114359                     | 100                                   | 1500   | 1,3E+04                                   | 1,6E-05   | 1,2E-05               | 2500   | 90  |
| 100234                     | 160                                   | 1500   | 1,3E+04                                   | 1,6E-05   | 1,2E-05               | 2700   | 100   |
| 114360                     | 200                                   | 1500   | 1,3E+04                                   | 1,6E-05   | 1,2E-05               | 2700   | 100   |
| 100235                     | 500                                   | 1000   | 3,4E+04                                   | 9,0E-05   | 3,7E-05               | 5000   | 190   |
| 100236                     | 1000                                  | 1000   | 8,7E+04                                   | 3,5E-04   | 1,0E-04               | 8000   | 350   |
| 100237                     | 2000                                  | 500  | 3,9E+05                                   | 3,2E-03   | 1,2E-03               | 17000  | 950   |
| 100238                     | 5000                                  | 500  | 4,7E+05                                   | 3,3E-03   | 1,3E-03               | 23000  | 1450  |

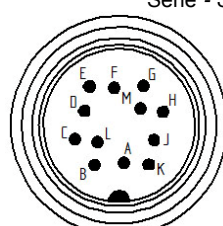
| <b>DR-12</b>  |                     |   |
|---|---------------------|---|
| Genauigkeitsklasse - Accuracy class   | % v. E - f. s.      | 0,1   |
| Reproduzierbarkeit - Repeatability (DIN 1319)   | %                   | ±0,05   |
| Speisespannung DMS - Excitation voltage SG  | VDC                 | 2 ... 12  |
| Speisespannung Winkel - Excitation voltage angle  | VDC                 | 5   |
| Brückenwiderstand - Bridge resistance   | Ω                   | 350   |
| Nennkennwert - Sensitivity  | mV/V                | 1 [1 N·m; 0,5] ±0,1%  |
| Referenztemperatur - Reference temperature  | °C                  | 23  |
| Nenntemperaturbereich - Nominal temperature range   | °C                  | 5 ... 50  |
| Gebrauchstemperaturbereich - Service temperature range  | °C                  | -10 ... 60  |
| Temp. koeff. des Nullsignals - Temp. coeff. of zero signal  | % v. E./K - f. s./K | ±0,04   |
| Temp. koeff. des Kennwerts - Temp. coeff. of sensitivity  | % v. E./K - f. s./K | ±0,02   |
| Gebrauchsdrehmoment (statisch) - Service torque (static)  | % v. E - f. s.      | 150   |
| Grenzdrehmoment (statisch) - Limit torque (static)  | % v. E - f. s.      | 200   |
| Bruchdrehmoment (statisch) - Ultimate torque (static)   | % v. E - f. s.      | >300  |
| Standzeit der Bürsten ca. - Durability of brushes   | Umdr. - rev.        | 5x10 <sup>7</sup>   |
| Schwingbreite - Bandwidth (DIN 50100)   | % v. E - f. s.      | 70 (Spitze - Spitze) - (peak - peak)  |
| Drehzahl-/Drehwinkelmessung, 2 x 360 Impulse, 90° versetzt, 5 V TTL - Speed/angle measurement, 2 x 360 impulses, 90° displaced, 5 V TTL |                     | Rechtsdrehung - CW-turn<br>CH A <br>CH B  |
| Schutzart - Level of protection (DIN EN 60529)  |                     | IP50  |
| Elektrischer Anschluss - Electrical connection  |                     | 12-polig Serie 581 - 12-pin series 581 <sup>3</sup>   |

<sup>1</sup> Ungelagerte Welle - Unsupported shaft

<sup>2</sup> Ungelagerte Welle - Unsupported shaft

<sup>3</sup> Kabeldose bei Erstauslieferung im Lieferumfang enthalten - Female cable connector in scope of delivery at first delivery

**Anschlussbelegung - Pin connection**

| 12-polig - 12-pin | DR-12  |  |
|-------------------|--|--|
| Pin A             | Speisung (-) - Excitation (-)                      |  <p>Serie - Series 581</p> <p>Draufsicht - Top view</p> |
| Pin B             | Speisung (+) - Excitation (+)                      |  |
| Pin C             | Signal (+) - Signal (+)                            |  |
| Pin D             | Signal (-) - Signal (-)                            |  |
| Pin E             | Speisung Winkel (GND) - Excitation angle (GND)     |  |
| Pin F             | Speisung Winkel (5V) - Excitation angle (5V)       |  |
| Pin G             | Signal Winkel A (5V TTL) - Signal angle A (5V TTL) |  |
| Pin H             | Signal Winkel B (5V TTL) - Signal angle B (5V TTL) |  |
| Pin J             | Signal Winkel (GND) - Signal angle (GND)           |  |
| Pin K             | Kontrolle (Option) - Calibration control (option)  |  |
| Pin L             | NC   |  |
| Pin M             | Schirm - Shield                                    |  |

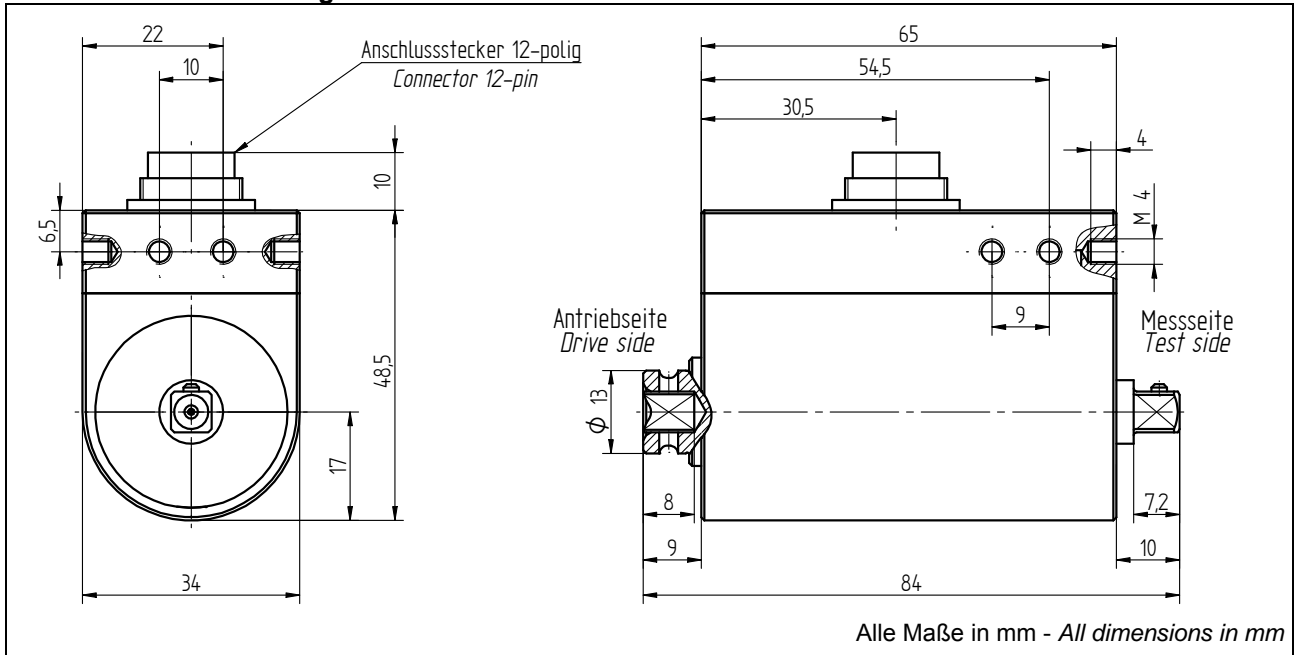
**Optionen/ Zubehör - Options/ Accessories**

| Artikel-Nr. - Article-no. | Bezeichnung - Description  |                |     |
|---------------------------|--|----------------|-----|
| 100218                    | Kontrollsignal - Control signal  | % v. E - f. s. | 100 |
| 41382                     | Kabeldose 12-polig Serie 581 - Female cable connector 12-pin series 581  |                |     |
| 45598                     | Winkeldose 12-polig Serie 682 - Female angled connector 12-pin series 682  |                |     |
| 10267                     | Anschlusskabel, 3 m, 12-polig Serie 581, freien Lötenden - Connection cable, 3 m, 12-pin series 581, free soldered ends                |                |     |
| 10374                     | Anschlusskabel winklig, 3 m, 12-polig Serie 682, freien Lötenden - Connection cable angled, 3 m, 12-pin series 682, free soldered ends |                |     |

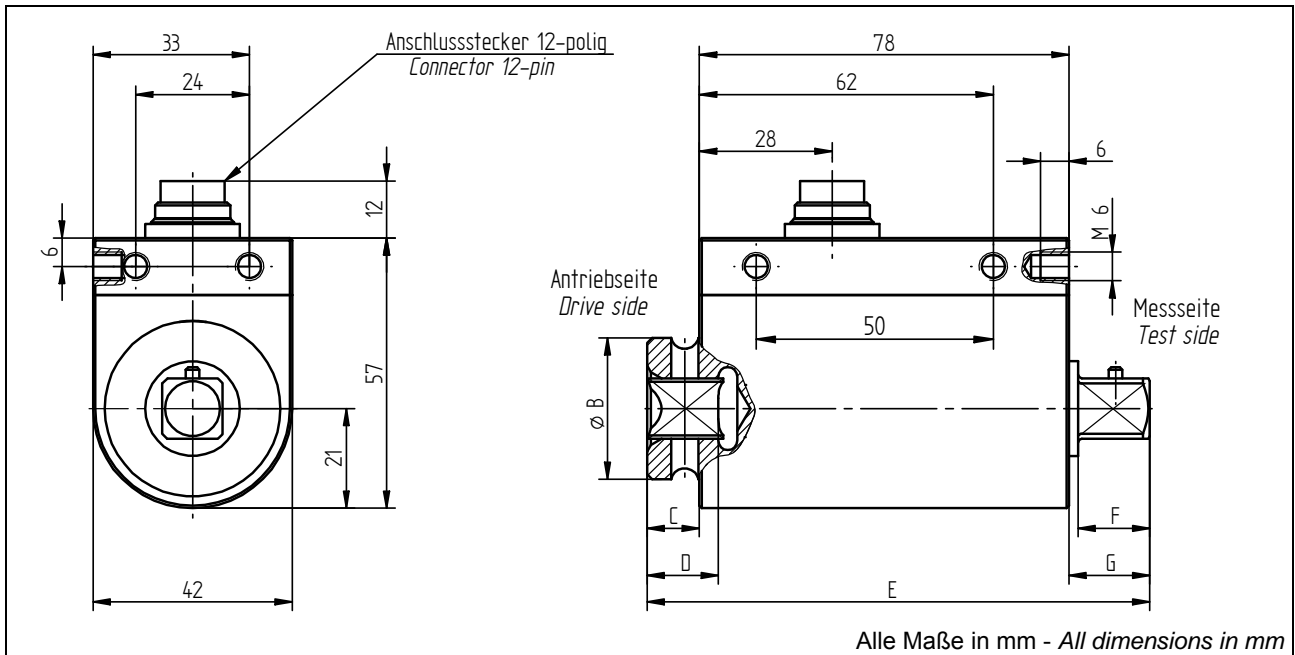
**Option Kalibrierungen - Option Calibrations**

| Artikel-Nr. - Article-no | Bezeichnung - Description                   | Stufen - Steps | Norm - Norm                  |
|--------------------------|---|----------------|------------------------------|
| 400676                   | Linearitätsdiagramm - Linearity diagram     | 25%            | Werksnorm - Factory standard |
| 400664                   | Linearitätsdiagramm - Linearity diagram     | 10%            |                              |
| 400961                   | Werkskalibrierung - Proprietary calibration | 3              | VDI/DE 2646                  |
| 400700                   | Werkskalibrierung - Proprietary calibration | 5              |                              |
| 400688                   | Werkskalibrierung - Proprietary calibration | 8              |                              |
|                          | DAkKS-Kalibrierung - DAkKS-Calibration      |                | auf Anfrage - on request     |

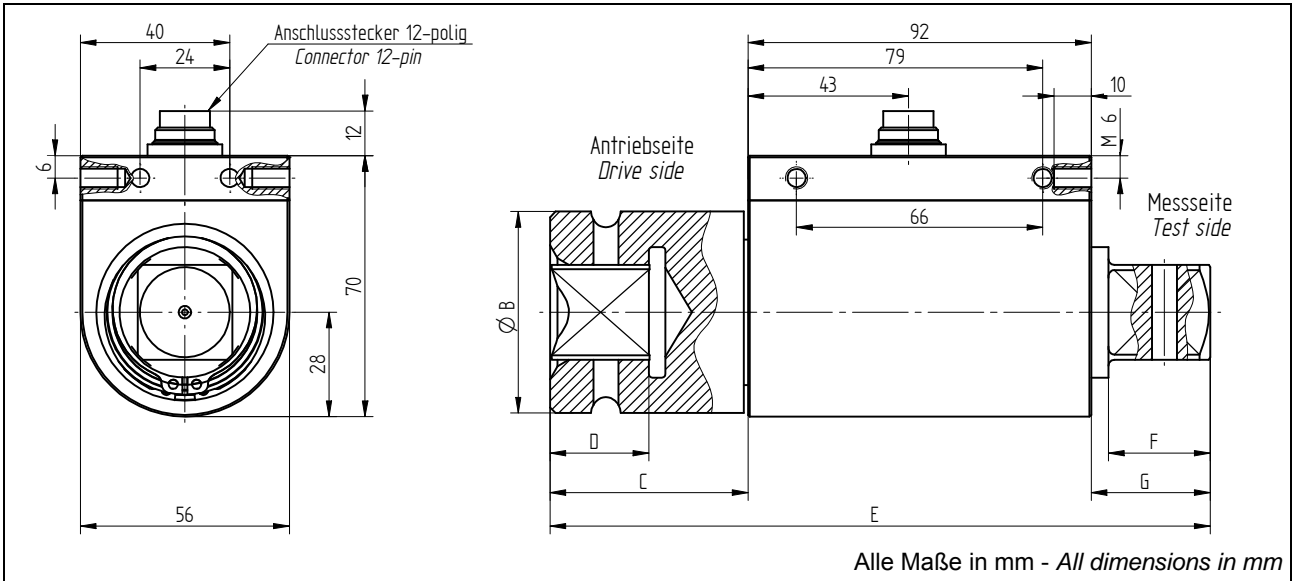
**Mechanische Abmessungen – Dimensions**



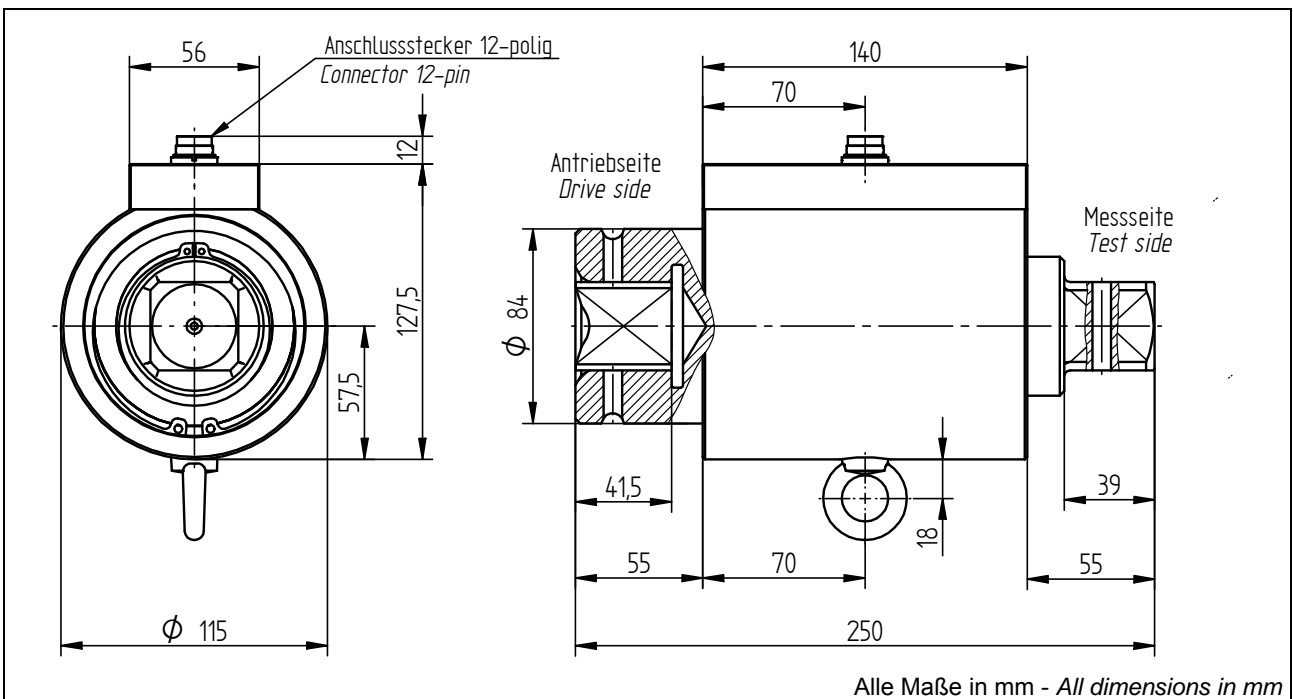
|  |                          |
|--|--------------------------|
| <b>Messbereich -<br/>Measuring<br/>range<br/>[N·m]</b> | <b>Vierkant - Square</b> |
| 1 / 2 / 5 / 12   | 1/4"                     |



| <b>Messbereich -<br/>Measuring<br/>range<br/>[N·m]</b> | <b>Vierkant<br/>-<br/>Square</b> | <b>Abmessungen - Dimensions<br/>[mm]</b> |          |          |          |          |          |
|--|----------------------------------|--|----------|----------|----------|----------|----------|
|  |                                  | <b>B</b>                                 | <b>C</b> | <b>D</b> | <b>E</b> | <b>F</b> | <b>G</b> |
| 25 / 63  | 3/8"                             | 22                                       | 11       | 12,2     | 100,8    | 10,4     | 11,8     |
| 100 / 160 / 200  | 1/2"                             | 29,8                                     | 12       | 15       | 106      | 15,1     | 16       |



| Messbereich -<br>Measuring<br>range<br>[N·m] | Vierkant<br>-<br>Square | Abmessungen - Dimensions<br>[mm] |    |      |     |      |    |
|--|-------------------------|----------------------------------|----|------|-----|------|----|
|  |                         | B                                | C  | D    | E   | F    | G  |
| 500  | 3/4"                    | 44                               | 18 | 24,9 | 135 | 22,9 | 25 |
| 1000   | 1"                      | 54                               | 53 | 29,9 | 177 | 27,4 | 32 |



| Messbereich -<br>Measuring<br>range<br>[N·m] | Vierkant - Square |
|--|-------------------|
|  |                   |