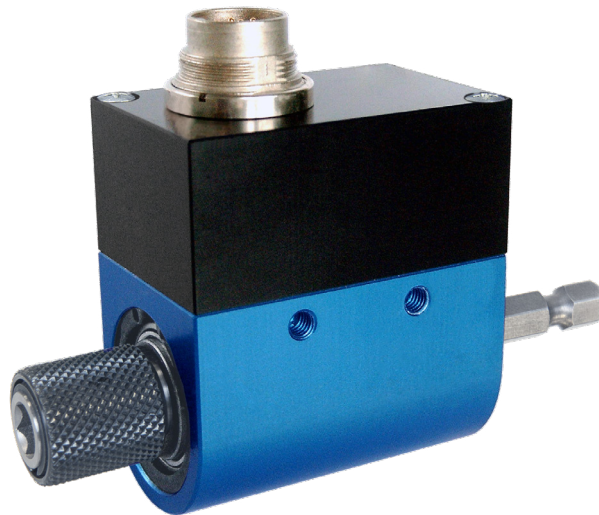


## Rotating Torque Sensor DR-2453 (contactless) with Rated Torque from 0.1 to 20 N·m



*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.*

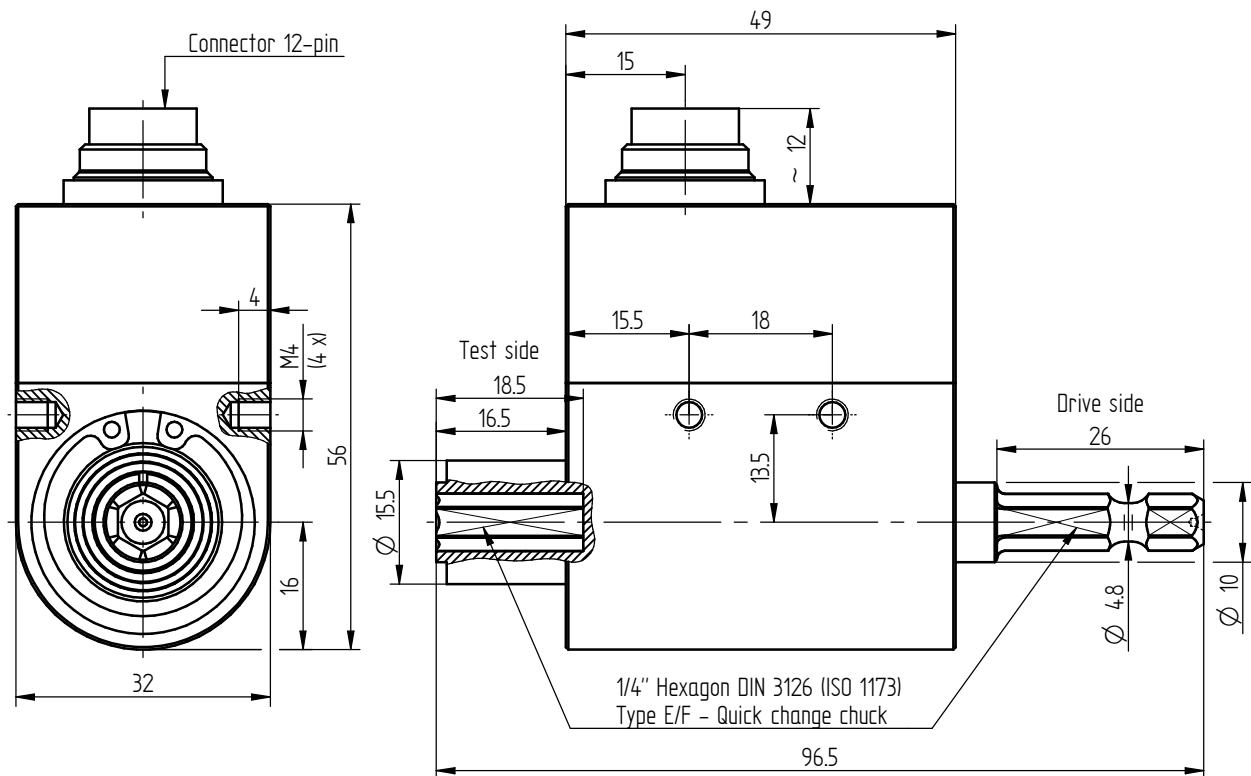
### Performance Features

- Torque sensor for screw driving systems
- High accuracy
- Digital output RS485
- Integrated speed/angle measurement (option)
- Speed up to 4000 min<sup>-1</sup>
- Very short axial length
- High torsional stiffness
- Simple handling and assembly
- Auto identification of measuring range, serial number and date of calibration
- Special versions on request

### Application

- Assembly technology
- Process measuring and control technology
- Automotive industry
- Measuring and control devices
- Tool engineering
- Special mechanical engineering

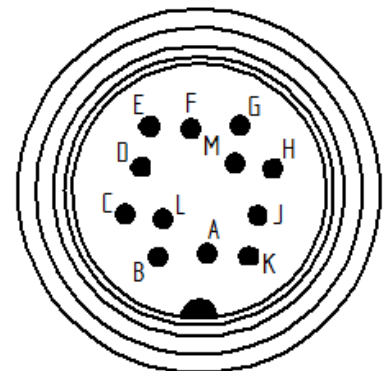
## Dimensions of DR-2453 in mm



Rated Torque [N·m]	Hexagon Drive	Weight [kg]
0.1/0.2/0.5/1/2/5/10/15/20	1/4"	0.2

## Connection Assignment

12-pin	DR-2453	Series 581
Pin A	NC	-
Pin B	NC	-
Pin C	NC	-
Pin D	NC	-
Pin E	Supply (GND)	0V
Pin F	Supply (+)	12 ... 28VDC
Pin G	NC	-
Pin H	NC	-
Pin J	RS485	RS485 (-)
Pin K	NC	-
Pin L	RS485	RS485 (+)
Pin M	Shielding	



## Technical Data acc. to VDI/VDE/DKD 2639

Torque Sensor DR-2453		
Rated torque $M_{nom}$	N·m	0.1 ... 20
Accuracy class	% $M_{nom}$	0.1
Relative repeatability error in unchanged mounting position $b'$	% $M_{nom}$	±0.02
Rated range of supply voltage	VDC	12 ... 28
Current consumption	mA	≤60
Output signal	digits	±25000
Control signal excitation	V	per software
Sample rate	kSample/s	5
Electrical connection		12-pin series 581 <sup>1</sup>
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	±0.2
Temperature effect on characteristic value $TK_C$	% $M_{nom}/10$ K	±0.1
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.	Rated Torque [N·m]	Limit Speed [min <sup>-1</sup> ]	Spring Rate [N·m/rad]	Mass Moment of Inertia [kg·m <sup>2</sup> ] <sup>2</sup>		Axial Force Limit [N] <sup>3</sup>	Lateral Force Limit [N] <sup>3</sup>
				Drive Side	Test Side		
104167	0.1	3000	1.8E+01	2.6E-06	2.9E-07	43	1.2
104168	0.2	3000	1.8E+01	2.6E-06	2.9E-07	58	1.6
104169	0.5	3000	1.1E+02	2.6E-06	2.9E-07	185	1.6
104170	1	4000	1.1E+02	2.6E-06	2.9E-07	260	2.6
104171	2	4000	2.9E+02	2.6E-06	3.0E-07	480	6.6
104172	5	4000	4.6E+02	2.6E-06	3.1E-07	865	17
104173	10	4000	5.2E+02	2.6E-06	3.3E-07	1150	24
104174	15	4000	5.2E+02	2.6E-06	3.3E-07	1150	24
104175	20	4000	5.2E+02	2.6E-06	3.3E-07	1150	24

## Options

Article-No	Description	
115391	Speed/angle measurement, RS485	
	Speed resolution	1 min <sup>-1</sup>
	Speed accuracy	1 % full scale ±1 digit
	Angle of rotation resolution	0.25 degree
	Output signal speed/angle of rotation	±32511 digits
106154	Control signal	50 % $M_{nom}$
100739	Control signal	80 % $M_{nom}$

<sup>1</sup> Female cable connector in scope of delivery at first delivery

<sup>2</sup> Without option speed/angle measurement

<sup>3</sup> Unsupported shaft (free floating assembly)

## 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
401023	Proprietary calibration for the angle of rotation acc. to VDI/VDE 2648-1	
	DAkKS-Calibration/Standard on request	

## Accessories

### Electrical Connection

Article-No.	Description
41382	Female cable connector 12-pin series 581
45598	Female angled connector 12-pin series 682
10270	Connection cable, 3 m, with 12-pin female cable connector series 581 and free strands
10345	Connection cable angled, 3 m, with 12-pin female angled connector series 682 and free strands