

## Rotating Slipping Torque Sensor DR-20 with Rated Torque from 1 ... 500 N·m



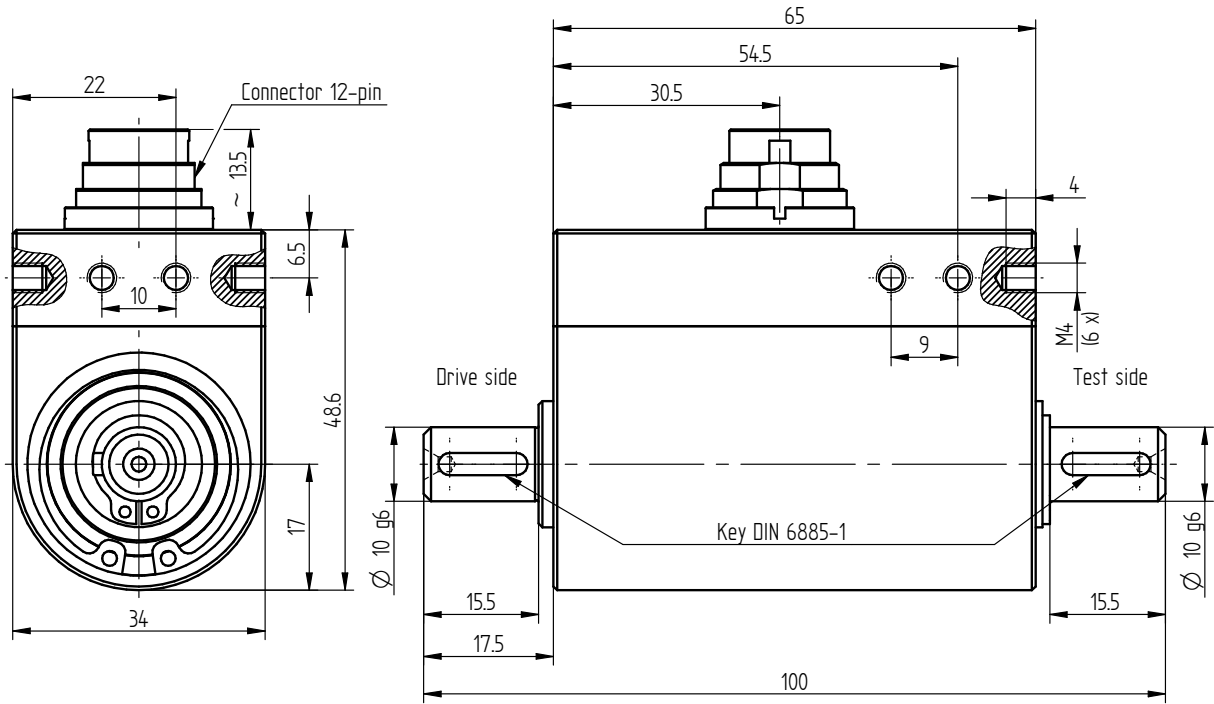
### Performance Features

- Slipping torque sensor for e. g. test bench applications
- TEDS (Transducer Electronic Data Sheet) Standard IEEE 1451.4 (optional)
- High accuracy
- Integrated speed/angle measurement
- Both shaft ends with keys
- Very short axial length
- High torsional stiffness
- Simple handling and assembly
- Special versions on request

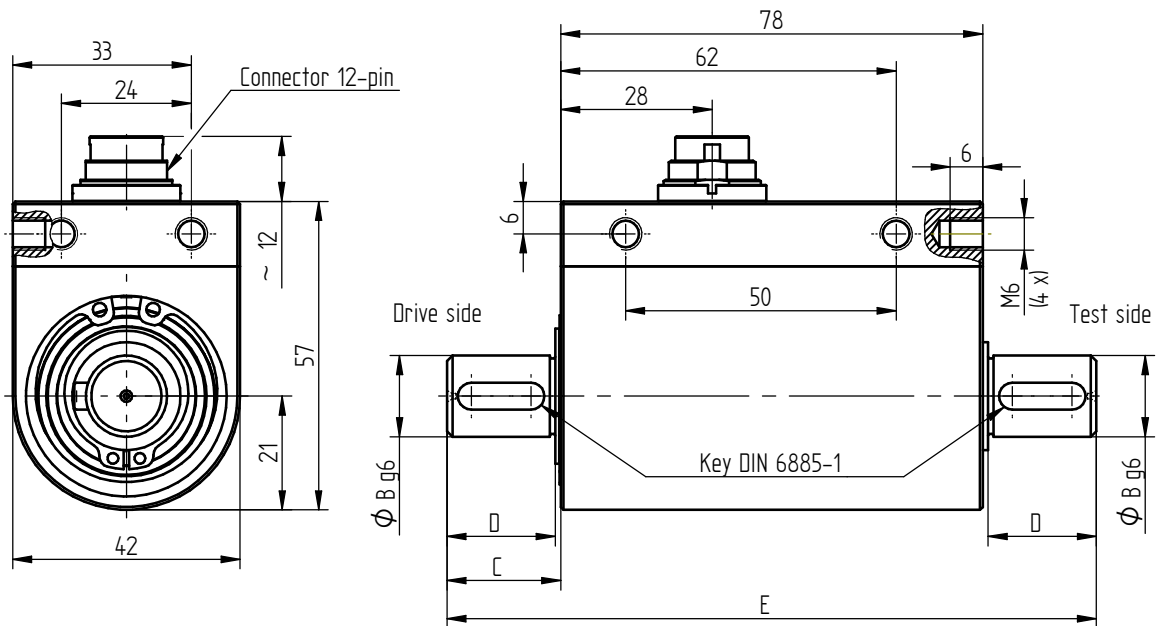
### Application

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

## Dimensions in mm

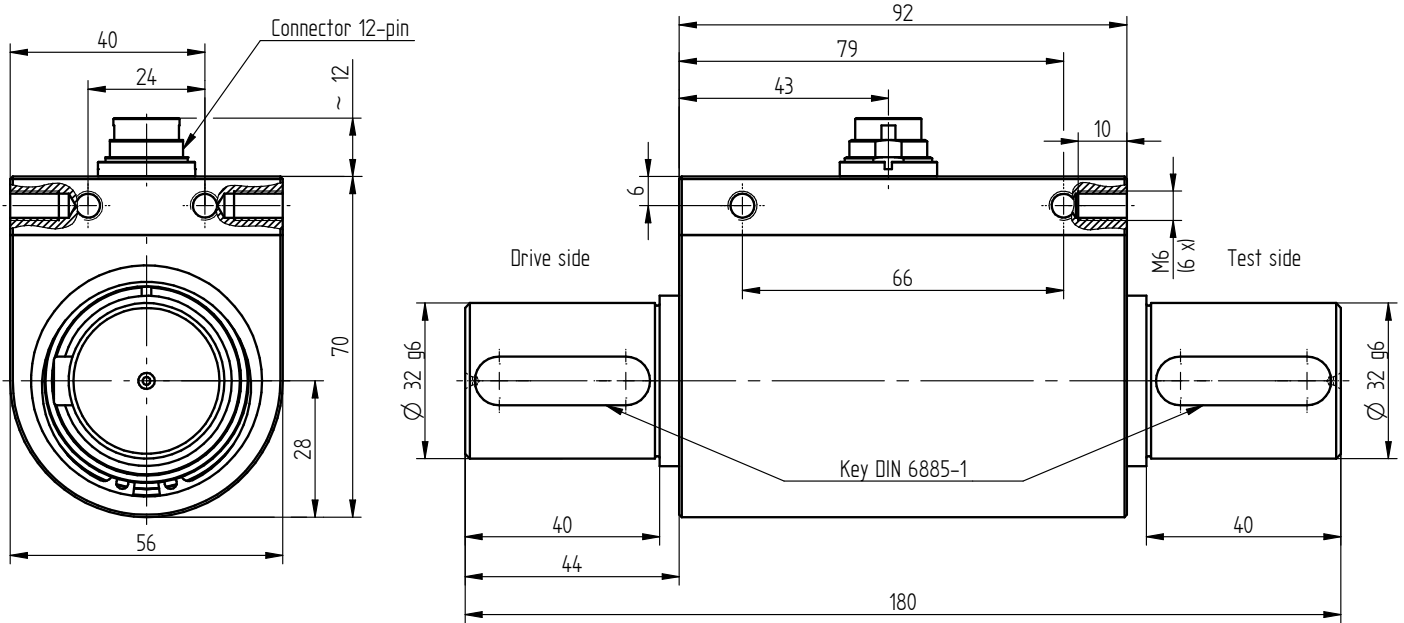


Rated Torque [N·m]	Weight [kg]
1/2/5/10	0.3



Rated Torque [N·m]	Dimensions [mm]				Weight [kg]
	ØB	C	D	E	
20/50	15	21	20	120	0.5
100	18	25	24	128	0.6

## Dimensions in mm



Rated Torque [N·m]

200/500

Weight [kg]

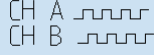
1.7

## Connection Assignment

12-pin	DR-20	Series 581
Pin A	Excitation (-)	
Pin B	Excitation (+)	
Pin C	Signal (+)	
Pin D	Signal (-)	
Pin E	Excitation angle (GND)	
Pin F	Excitation angle (5V)	
Pin G	Signal angle A (5V TTL)	
Pin H	Signal angle B (5V TTL)	
Pin J	Signal angle (GND)	
Pin K	Control signal or TEDS (option)	
Pin L	NC	
Pin M	Shielding	

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

### Rotating Slipring Torque Sensor DR-20

Rated torque $M_{nom}$	N·m	1 ... 500
Accuracy class	% $M_{nom}$	0.1
Relative repeatability error in unchanged mounting position $b'$	% $M_{nom}$	$\pm 0.05$
Rated characteristic value $C_{nom}$	mV/V	1 [1 N·m; 0.5] $\pm 0.1\%$
Bridge resistance $R_{Br}$	$\Omega$	350
Rated range of excitation voltage SG	VDC	2 ... 12
Rated range of excitation voltage angle	VDC	5
Electrical connection		12-pin series 581 <sup>1</sup>
Reference temperature $T_{ref}$	$^{\circ}C$	23
Rated temperature range	$^{\circ}C$	5 ... 50
Operating temperature range	$^{\circ}C$	-10 ... 60
Storage temperature range	$^{\circ}C$	-20 ... 70
Temperature effect on zero signal $TK_0$	% $M_{nom}/10 K$	$\pm 0.4$
Temperature effect on characteristic value $TK_C$	% $M_{nom}/10 K$	$\pm 0.2$
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
Durability of brushes	rev.	$5 \times 10^7$
Permissible oscillation stress when subjected to torque $M_{df}$	% $M_{nom}$	70 (peak-to-peak)
Speed/angle measurement, 2 x 360 impulses, 90° displaced, 5V TTL		CW-turn 
Level of protection		IP50

Article-No.	Rated Torque [N·m]	Limit Speed [min <sup>-1</sup> ]	Springrate [N·m/rad]	Mass Moment of Inertia [kg·m <sup>2</sup> ]		Axial force limit [N] <sup>2</sup>	Lateral force limit [N] <sup>2</sup>
				Drive Side	Test Side		
100614	1	2000	2.2E+02	3.5E-06	1.6E-06	380	4.5
100615	2	2000	2.2E+02	3.5E-06	1.6E-06	380	4.5
100616	5	2000	5.6E+02	3.5E-06	1.6E-06	690	11
100617	10	2000	6.5E+02	3.5E-06	1.7E-06	780	13
101067	20	1500	3.4E+03	1.1E-05	1.1E-05	1750	31
100619	50	1500	8.2E+03	1.2E-05	1.2E-05	3300	80
100620	100	1500	1.3E+04	1.4E-05	1.4E-05	5300	150
100621	200	1000	4.6E+04	3.8E-04	1.1E-04	8400	230
100622	500	1000	7.4E+04	4.0E-04	1.2E-04	15000	560

## Options

Article-No.	Description	
100218	Control signal	100 % $M_{nom}$
100739	Control signal	80 % $M_{nom}$
106154	Control signal	50 % $M_{nom}$
113134	TEDS-standard IEEE 1451.4	

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

<sup>2</sup> 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
401023	Proprietary calibration for rotation angles 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
10267	Connection cable, 3 m, with 12-pin female cable connector series 581 and free strands
10374	Connection cable angled, 3 m, with 12-pin female angled connector series 682 and free strands

### Amplifiers

Examples of suitable amplifiers for the slipring torque sensor DR-20:

LCV	SI-USB	GM 40	GM 80	GM 80-PA
				

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