

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



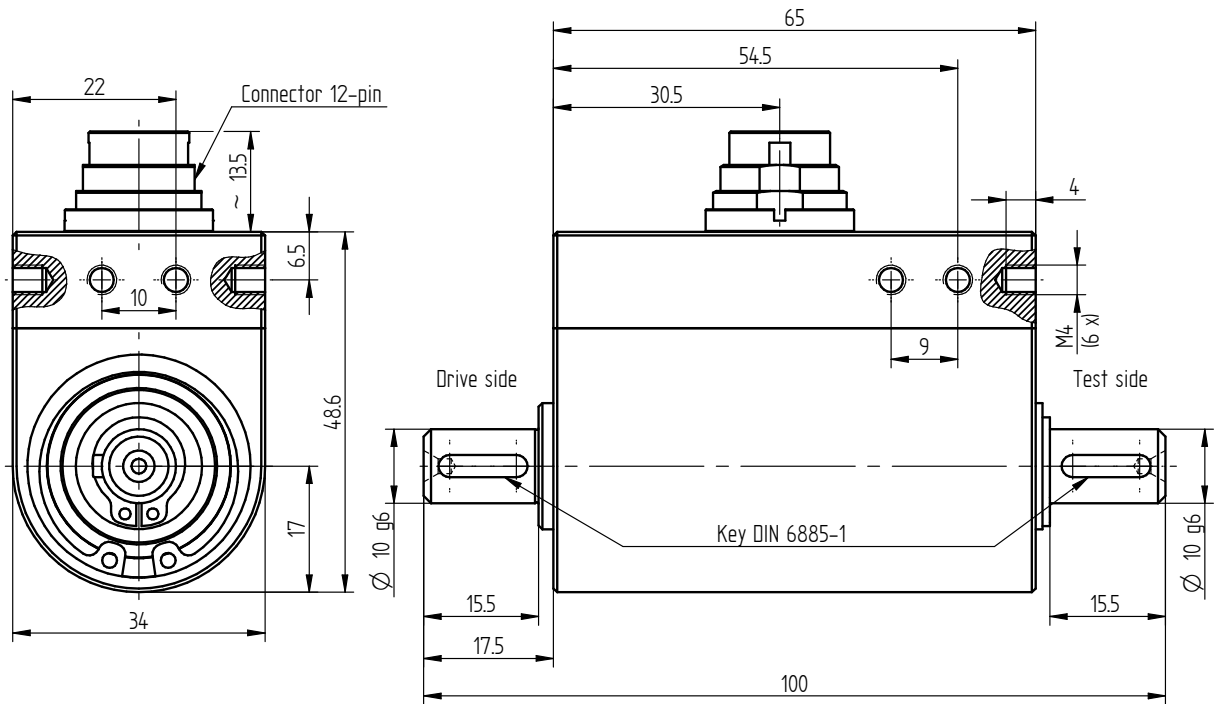
Performance Features

- Slipping torque sensor for e.g. test bench applications
- 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

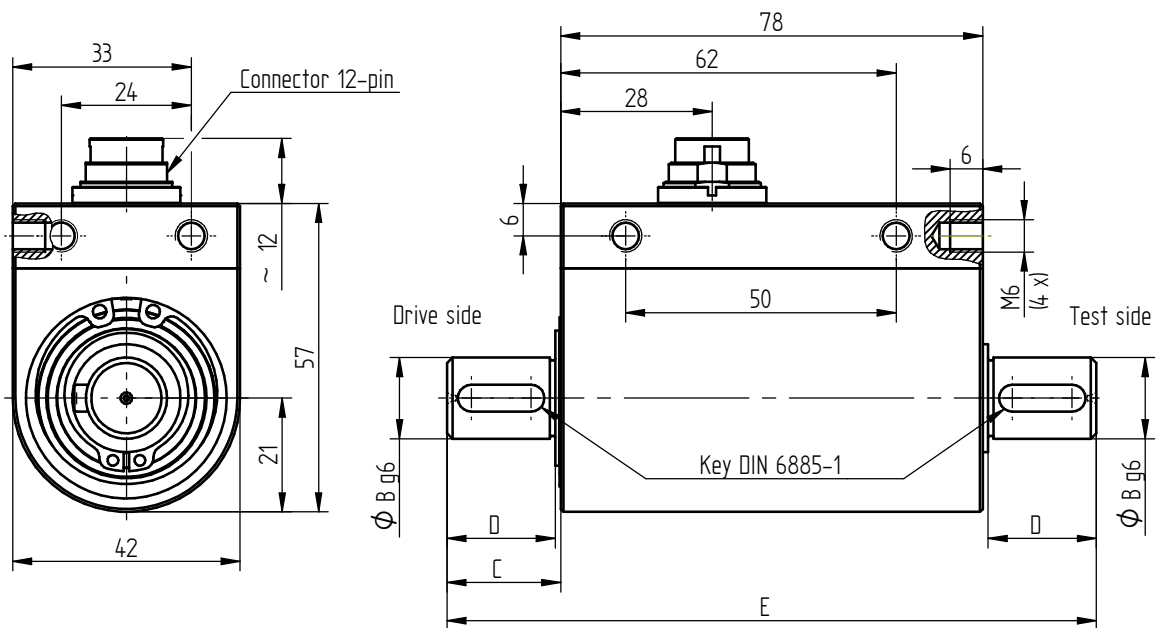
Application

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

Dimensions of DR-20 in mm

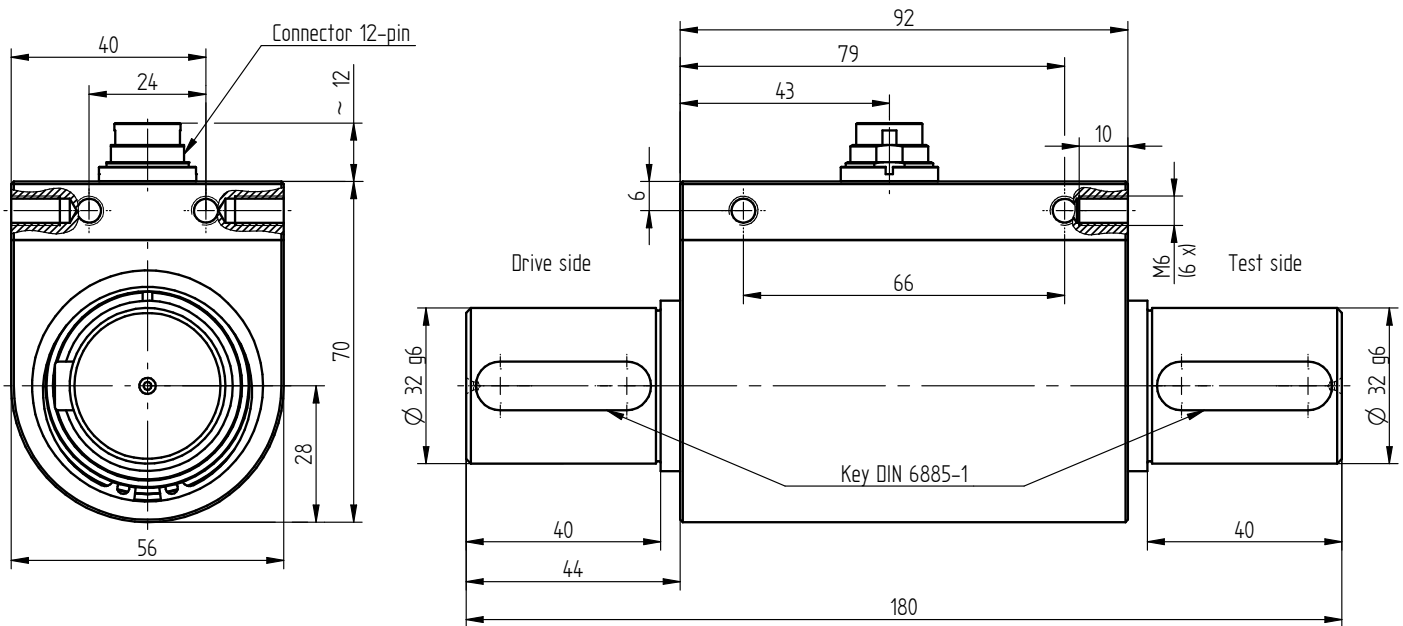


Nominal Torque [N·m]	Weight [kg]
1/2/5/10	0.3



Nominal Torque [N·m]	Dimensions [mm]				Weight [kg]
	$\varnothing B$	C	D	E	
20/50	15	21	20	120	0.5
100	18	25	24	128	0.6

Dimensions of DR-20 in mm




Nominal Torque [N·m]	Weight [kg]
200/500	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 (option)	
Pin L	NC	
Pin M	Shield	

Technical Data acc. to VDI/VDE/DKD 2639

Rotating Slipring Torque Sensor DR-20

Nominal torque M_{nom}	N·m	1 ... 500
Accuracy class	% M_{nom}	0.1
Relative repeatability error in unchanged mounting position b'	% M_{nom}	± 0.05
Rated characteristic value C_{nom}	mV/V	1 [1 N·m; 0.5] $\pm 0.1\%$
Bridge resistance R_{Br}	Ω	350
Operating range of excitation voltage SG	VDC	2 ... 12
Operating range of excitation voltage angle	VDC	5
Electrical connection		12-pin series 581 ¹
Reference temperature T_{ref}	$^{\circ}\text{C}$	23
Rated temperature range	$^{\circ}\text{C}$	5 ... 50
Operating temperature range	$^{\circ}\text{C}$	-10 ... 60
Temperature effect on zero signal TK_0	% $M_{nom}/10\text{ K}$	± 0.4
Temperature effect on characteristic value TK_C	% $M_{nom}/10\text{ K}$	± 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
Durability of brushes	rev.	5×10^7
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.	Nominal Torque [N·m]	Limit Speed [min ⁻¹]	Springrate [N·m/rad]	Mass Moment of Inertia [kg·m ²]		Axial force limit [N] ²	Lateral force limit [N] ²
				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}

¹ Female cable connector in scope of delivery at first delivery

² 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 slipping torque sensor DR-20:



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