

Rotating Slipping Torque Sensor DR-12 with Nominal Torque from 1 ... 5000 N·m



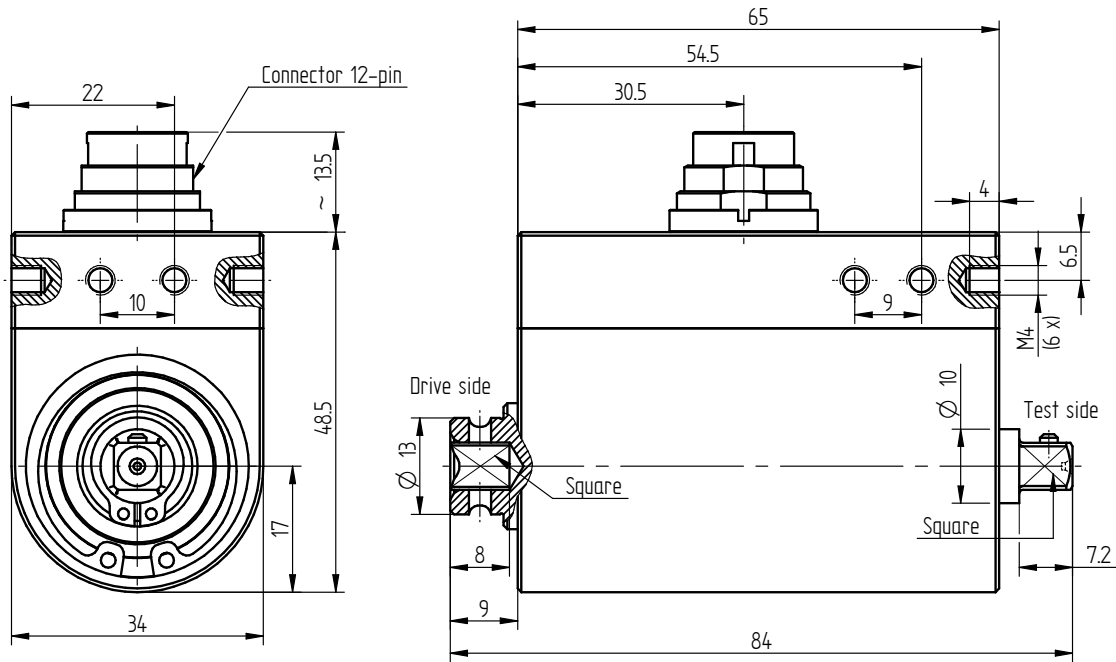
Performance Features

- Slipping torque sensor for screw driving systems
- High accuracy
- Integrated speed/angle measurement
- Drive-square socket
- Output-square drive
- Very short axial length
- High torsional stiffness
- Simple handling and assembly
- Special versions on request

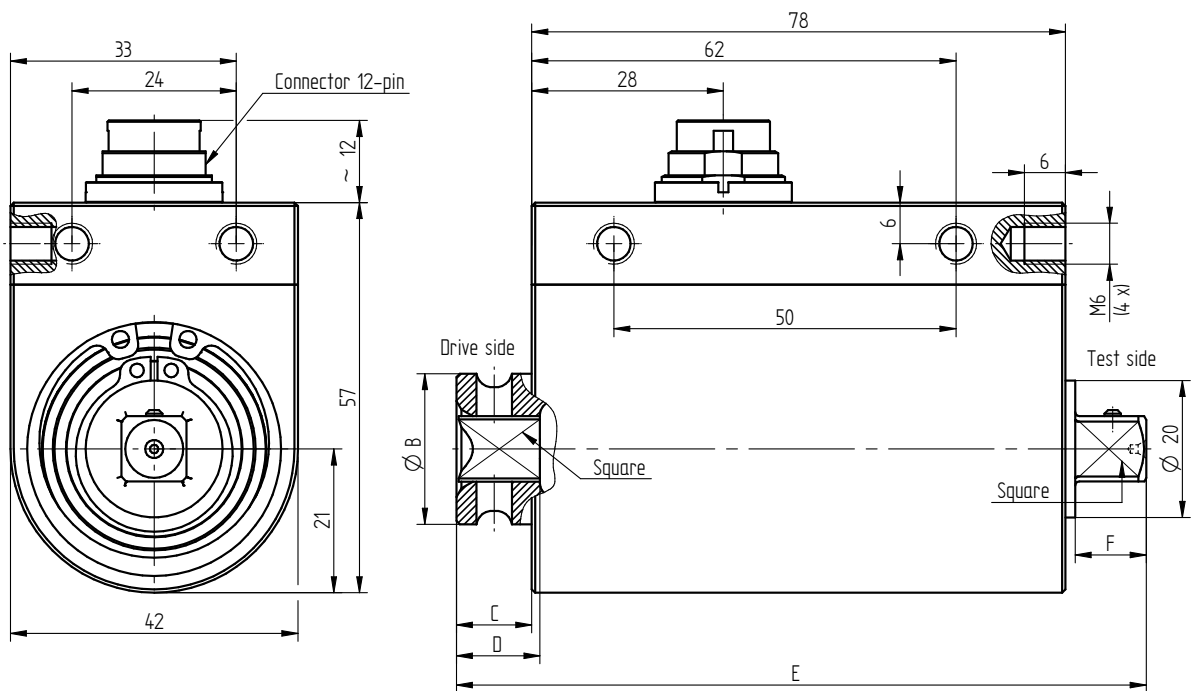
Application

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

Dimensions of DR-12 in mm

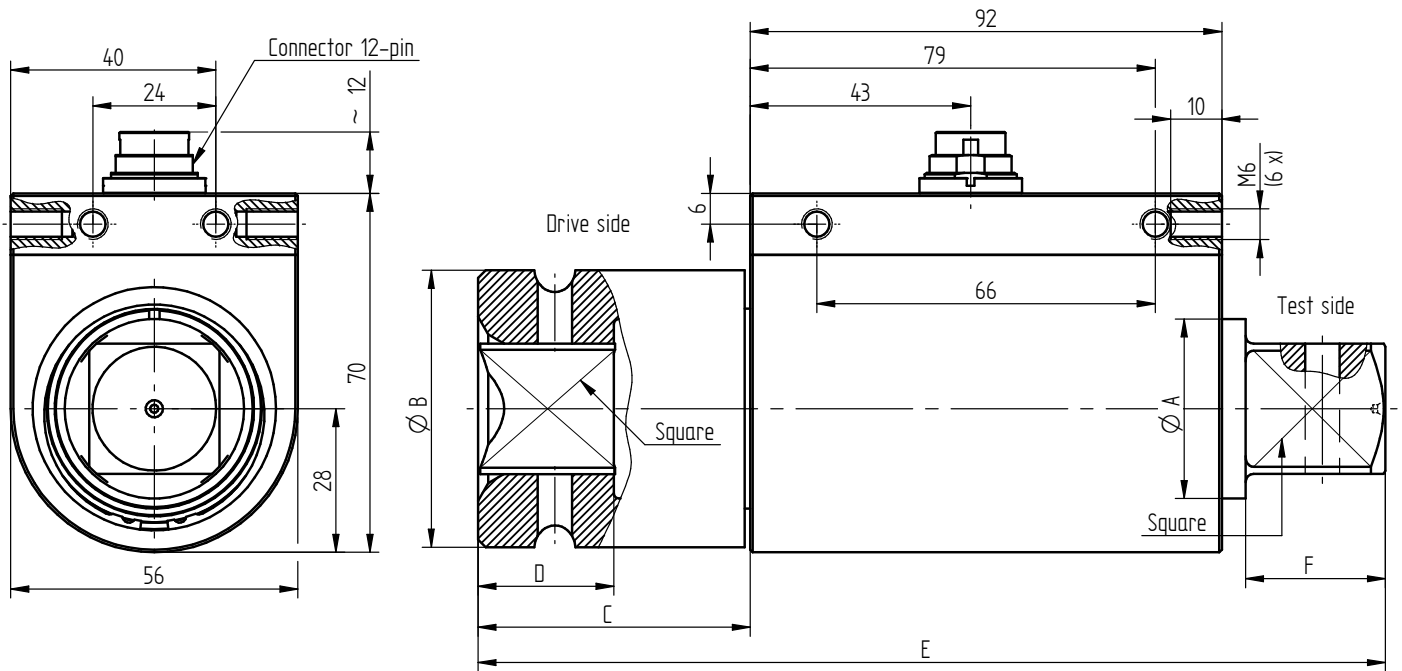


Nominal Torque [N·m]	Square	Weight [kg]
1/2/5/12	1/4"	0.3

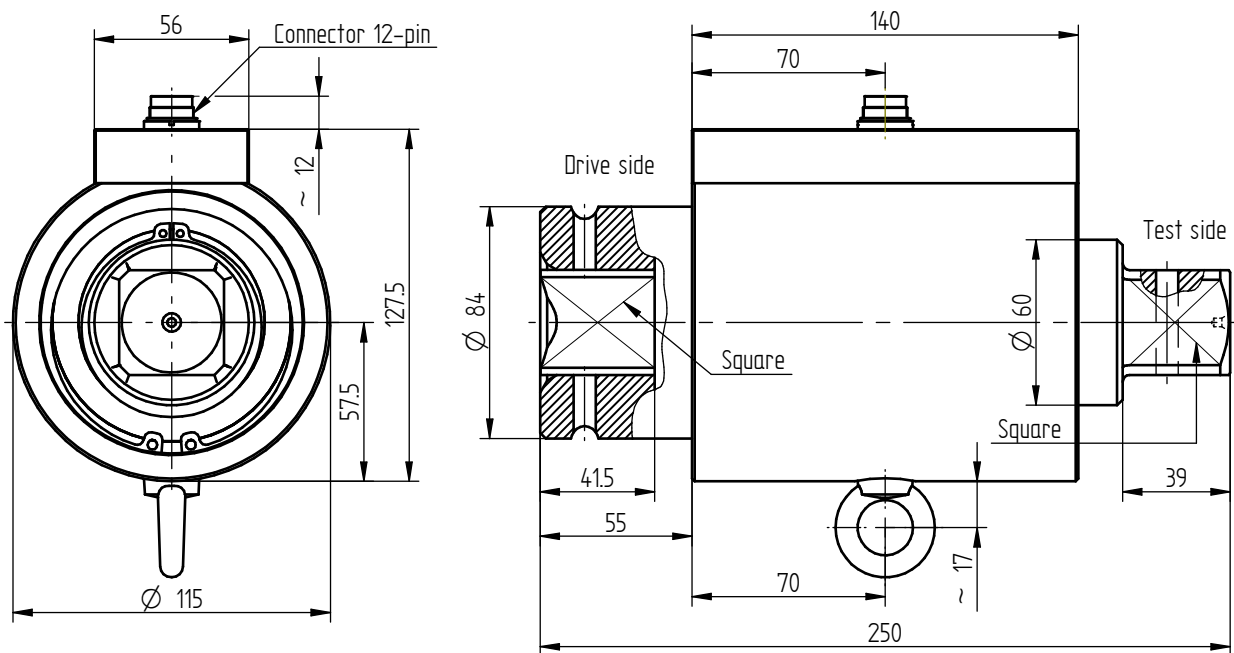


Nominal Torque [N·m]	Square	Dimensions [mm]					Weight [kg]
		$\varnothing B$	C	D	E	F	
25/63	3/8"	22	11	12.2	100.8	10.4	0.5
100/160/200	1/2"	29.8	12	15	106	15.1	0.6

Dimensions of DR-12 in mm



Nominal Torque [N·m]	Square	Dimensions [mm]						Weight [kg]
		$\varnothing A$	$\varnothing B$	C	D	E	F	
500	3/4"	25	44	18	24	135	22.9	1.1
1000	1"	35	54	53	26.5	177	27.4	2.0




Nominal Torque [N·m]	Square	Weight [kg]
2000/5000	1 1/2"	8.0

Connection Assignment

12-pin	DR-12	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-12		
Nominal torque M_{nom}	N·m	1 ... 5000
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

¹ Female cable connector in scope of delivery at first delivery

Technical Data acc. to VDI/VDE/DKD 2639 (continued)

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		
101980	1	2000	2.2E+02	3.5E-06	1.5E-06	380	5.3
101981	2	2000	2.2E+02	3.5E-06	1.5E-06	380	5.3
100212	5	2000	5.5E+02	3.5E-06	1.5E-06	690	13
101064	12	2000	6.8E+02	3.5E-06	1.5E-06	840	17
100232	25	1500	4.4E+03	1.2E-05	1.1E-05	2100	45
100233	63	1500	9.2E+03	1.2E-05	1.1E-05	3900	115
114359	100	1500	1.3E+04	1.6E-05	1.2E-05	5200	170
100234	160	1500	1.3E+04	1.6E-05	1.2E-05	5500	180
114360	200	1500	1.3E+04	1.6E-05	1.2E-05	5500	180
100235	500	1000	3.4E+04	9.0E-05	3.7E-05	10000	360
100236	1000	1000	8.7E+04	3.5E-04	1.0E-04	16200	680
100237	2000	500	3.9E+05	3.2E-03	1.2E-03	34100	1800
100238	5000	500	4.7E+05	3.3E-03	1.3E-03	46000	2750

Options

Article-No.	Description	
100218	Control signal	100 % M _{nom}

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

² Unsupported shaft

Amplifiers

Examples of suitable amplifiers for the slipping torque sensor DR-12:

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/>.