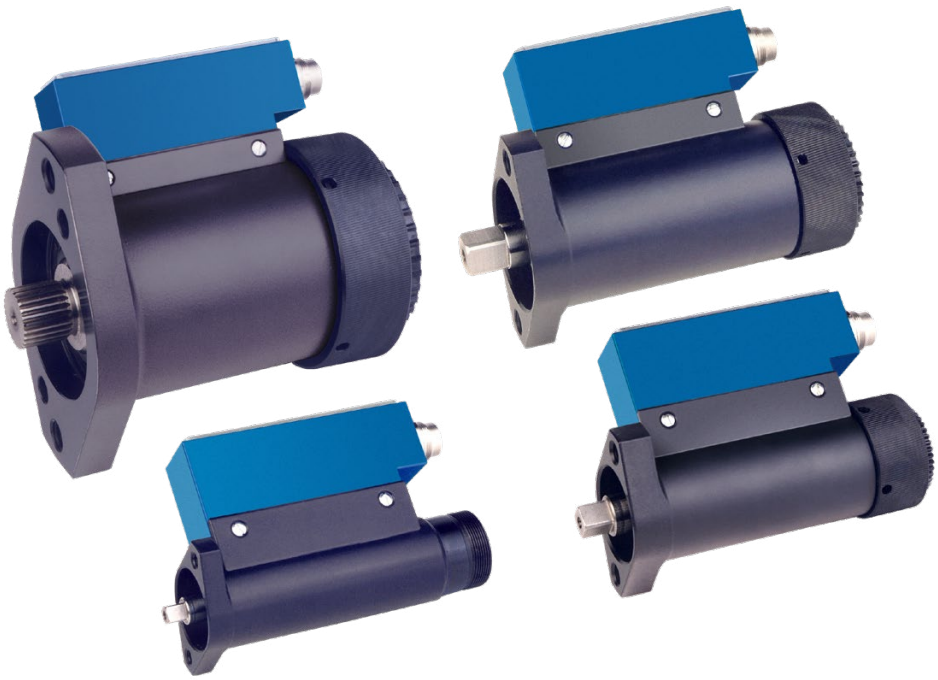
Lorenz® messtechnik gmbh

Rotating Torque Sensors: DR-1986, DR-1987, DR-1988 and DR-2124 (contactless) with Rated Torque from 1 ... 500 N·m

Data sheet



These sensors have a contactless and digital signal transmission from rotor to stator without signal falsification of the measurement data. They are therefore highly accurate and maintenance-free.

Performance Features

- Torque sensor for screw driving systems
- Active output ±5V (optional ±10V)
- Integrated speed/angle measurement
- Speed up to 2000 min^{-1}
- 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

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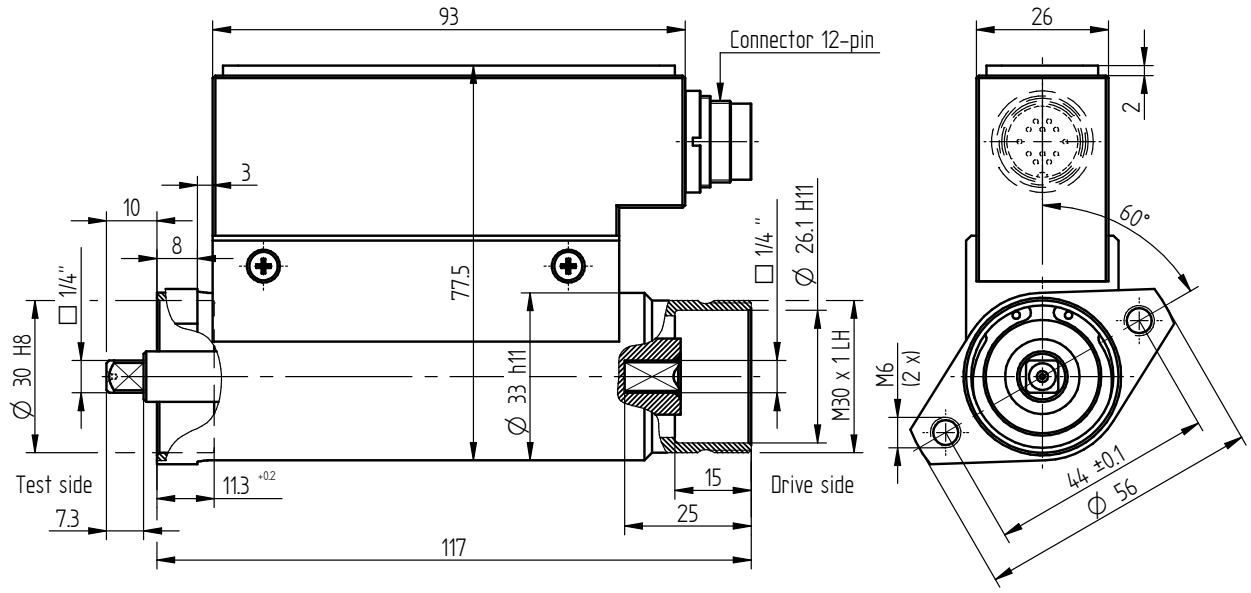
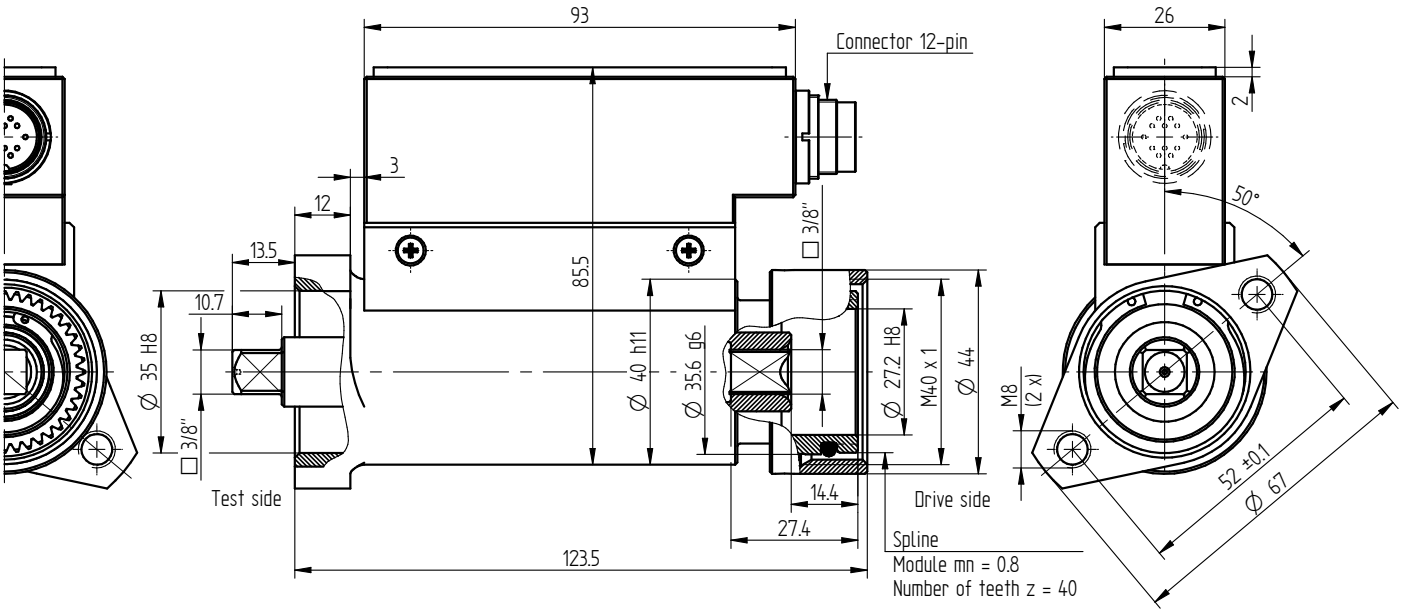
Dimensions of DR-1986 in mm



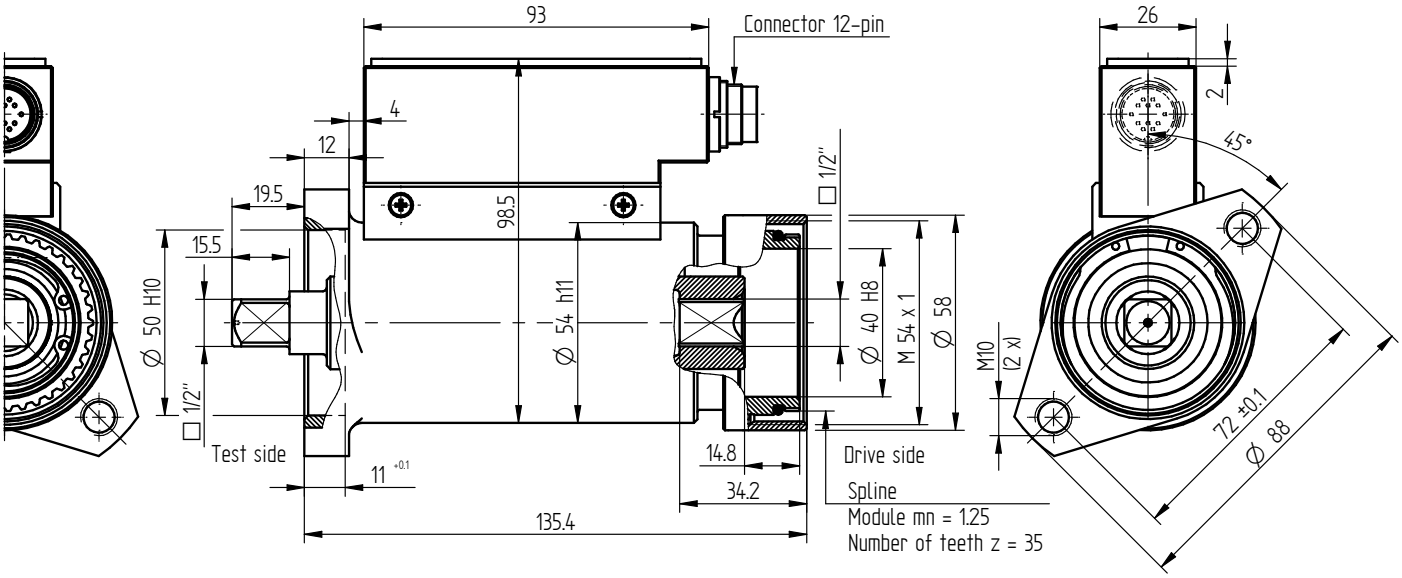
Article-No.	Rated Torque [N·m]	Weight [kg]
100492	1	0.5
100778	3	0.5
100779	6	0.5
100780	12	0.5

Dimensions of DR-1987 in mm



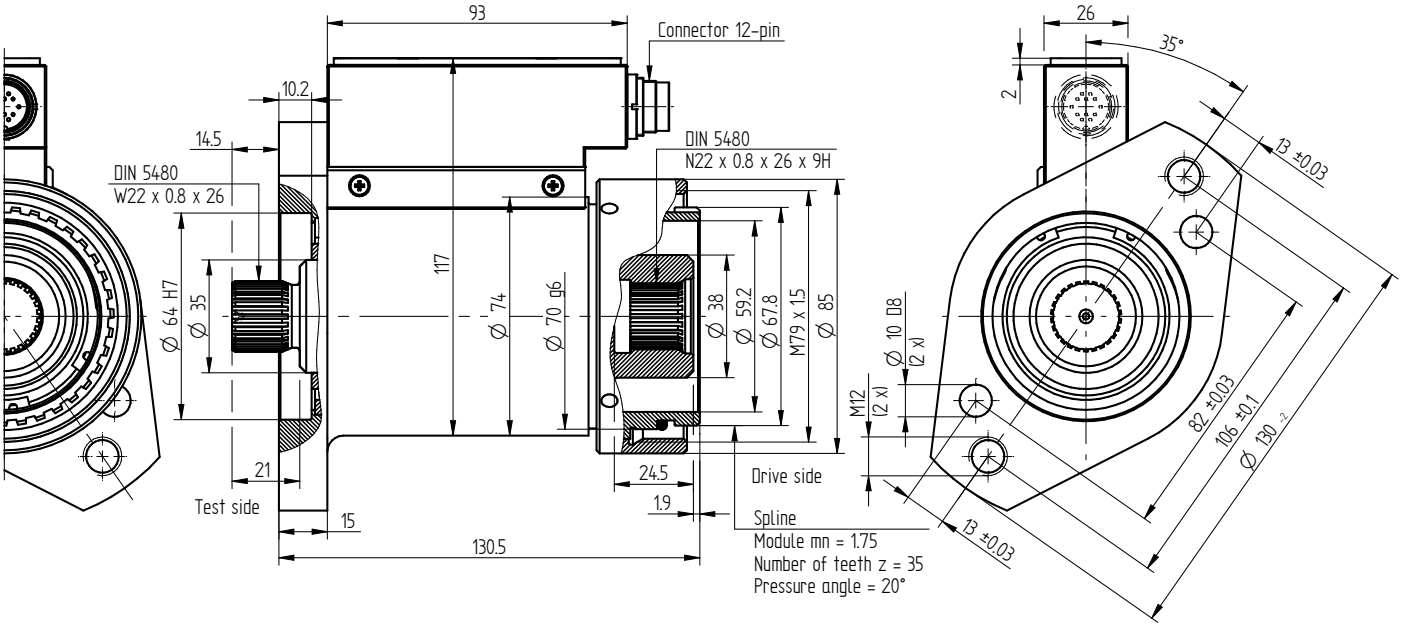
Article-No.	Rated Torque [N·m]	Weight [kg]
108157	4	0.8
108154	6	0.8
100781	12	0.8
100782	35	0.8
100783	60	0.8
107212	80	0.9

Dimensions of DR-1988 in mm



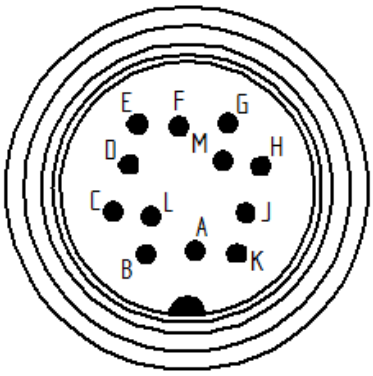
Article-No.	Rated Torque [N·m]	Weight [kg]
100784	60	1.5
100785	90	1.5
103588	95	1.5
100786	160	1.5
102385	200	1.5
105610	240	1.5

Dimensions of DR-2124 in mm

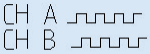


Article-No.	Rated Torque [N·m]	Weight [kg]
109706	150	3.3
102631	250	3.3
102198	500	3.3

Connection Assignment

12-pin	DR-1986/DR-1987/DR-1988/DR-2124		Series 581
Pin A	NC	-	
Pin B	Signal angle B	5V TTL	
Pin C	Signal (+)	±5V (±10V)	
Pin D	Signal (GND)	0V	
Pin E	Supply (GND)	0V	
Pin F	Supply (+)	12 ... 28VDC	
Pin G	Signal angle A	5V TTL	
Pin H	NC	-	
Pin J	NC	-	
Pin K	Control signal	L <2.0V; H >3.5V	
Pin L	NC	-	
Pin M	Shield		

Technical Data acc. to VDI/VDE/DKD 2639

Torque Sensors		DR-1986/DR-1987/DR-1988/DR-2124
Rated torque **M_{nom}**	N·m	1 ... 500
Accuracy class	% M_{nom}	0.3
Relative repeatability error in unchanged mounting position **b'**	% M_{nom}	±0.05
Rated range of supply voltage	VDC	12 ... 28
Current consumption	mA	≤60
Output signal	V	±5
Control signal excitation	V	L <2.0; H >3.5
Control signal adjustable	% M_{nom}	80 ... 100
Sample rate	kSample/s	10
Electrical connection		12-pin series 581[1]
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	±0.5
Temperature effect on characteristic value **TK_C**	% M_{nom}/10 K	±0.2
Maximum operating torque **M_G** (static)	% M_{nom}	130
Torque limit **M_{max}** (static)	% M_{nom}	150
Breaking torque **M_B** (static)	% M_{nom}	>300
Maximum speed	min^{-1}	2000
Permissible oscillation stress when subjected to torque **Mdf**	% 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

Options

Article-No.	Description	
103562	Output signal	±10V

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

Amplifiers

Examples of suitable amplifiers for the torque sensors DR-1986 / DR-1987 / DR-1988 / DR-2124:

LCV-USB3	SI-ETH	SI-USB3	GM 80	GM 80-PA
				

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