

Rotating Dual Range Torque Sensor DR-2508/DR-2508-P (contactless) with Nominal Torque from 5/0.5 ... 20000/2000 N·m

Data sheet



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.

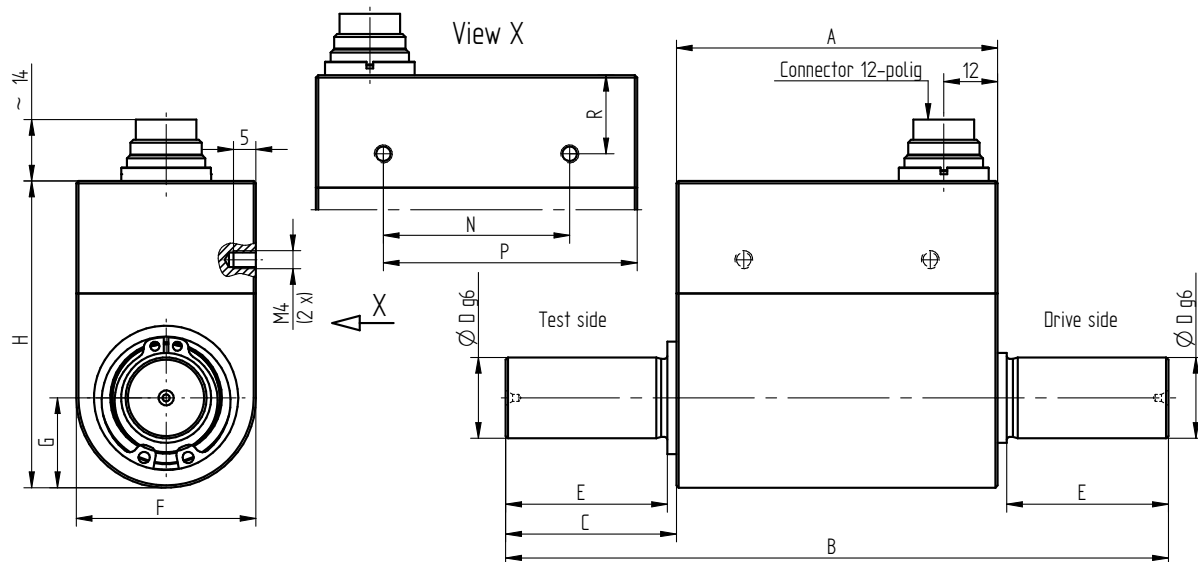
Performance Features

- Torque sensor for e.g. test bench applications
- Accuracy class 0.1%
- Digital output RS485
- Integrated speed/angle measurement, optional
- Speed up to 15000 min⁻¹
- Very short axial length
- High torsional stiffness
- Simple handling and assembly
- Auto identification of: measuring range, serial number, date of calibration
- Special versions on request

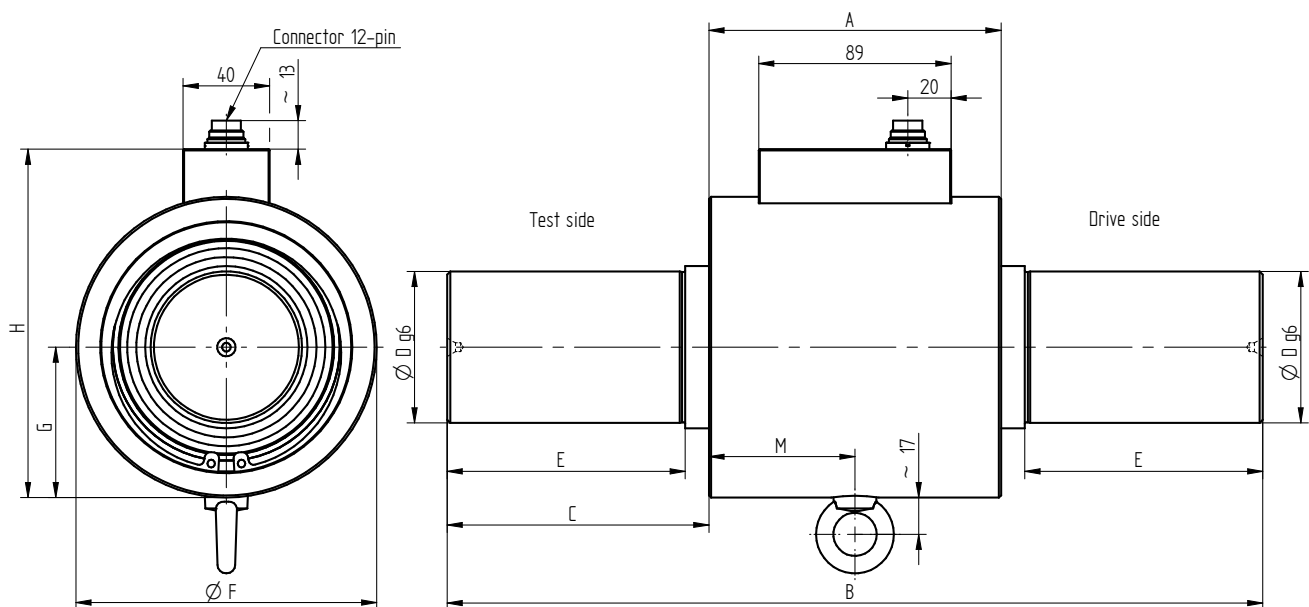
Application

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

Dimensions of DR-2508/DR-2508-P in mm

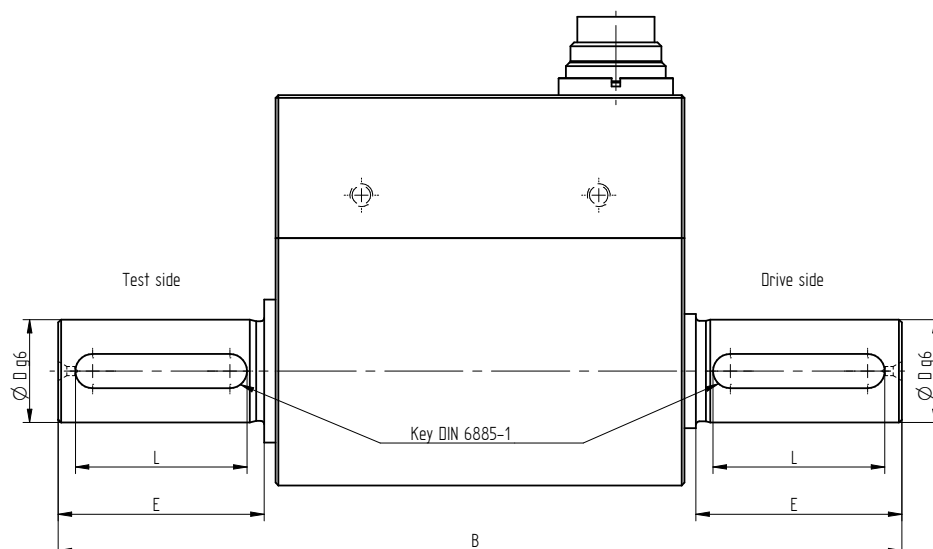


Nominal Torque [N·m]	Dimensions [mm]											Weight [kg]
	A	B	C	ØD	E	F	G	H	N	P	R	
5/0.5	71.5	107.5	18	8	17	40	20	68.2	41.5	56.5	17.5	0.4
10/1	71.5	107.5	18	10	17	40	20	68.2	41.5	56.5	17.5	0.5
20/2; 30/3	71.5	111.5	20	18	18	40	20	68.2	41.5	56.5	17.5	0.5
50/5; 100/10	71.5	147.5	38	18	36	40	20	68.2	41.5	56.5	17.5	0.6
200/20; 500/50	80.5	159.5	39.5	32	38	61	30.5	86.2	29.5	55.5	17	1.5



Nominal Torque [N·m]	Dimensions [mm]									Weight [kg]
	A	B	C	ØD	E	ØF	G	H	M	
1000/100	130	262	66	50	58	115	57.5	136	64.5	7.2
2000/200; 5000/500	135	377	121	70	110	139	69.5	161	67.5	15.5
10000/1000; 20000/2000	190	470	140	110	120	210	105	233	95	47.5

Dimensions of Version with Feather Keys in mm



Nominal Torque [N·m]	Dimensions [mm]					Weight [kg]
	B	ØD	E	L	Feather Key ¹	
5/0.5	107.5	8	17	14	2 x 2 x 14	0.4
10/1	107.5	10	17	14	3 x 3 x 14	0.5
20/2; 30/3	111.5	18	18	14	6 x 6 x 14	0.5
50/5; 100/10	147.5	18	36	30	6 x 6 x 30	0.6
200/20; 500/50	159.5	32	38	36	10 x 8 x 36	1.5
1000/100	262	50	58	50	14 x 9 x 50	7.2
2000/200; 5000/500	377	70	110	100	20 x 12 x 100	15.5
10000/1000; 20000/2000	570	110	170	160	28 x 16 x 160	47.5

Connection Assignment

12-pin	DR-2508/DR-2508-P		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	Speed measurement (option) ²	5V TTL	
Pin H	NC	-	
Pin J	RS485	RS485 (B)	
Pin K	NC	-	
Pin L	RS485	RS485 (A)	
Pin M	Shield	-	

¹ Calculated load type for feather key: single side light shocks

² Nominal torque ≥ 2000 N·m

Technical Data acc. to VDI/VDE/DKD 2639

Torque Sensor		DR-2508/DR-2508-P
Nominal torque M_{nom}	N·m	5/0.5 ... 20000/2000
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 channel A or B	kSample/s	5
Sample rate channel A and B	kSample/s	3.5
Electrical connection		12-pin series 581 ³
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 TK₀	% 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. DR-2508	Article-No. DR-2508-P ⁴	Nominal Torque [N·m]	Limit Speed [min ⁻¹]	Springrate [N·m/rad]	Mass Moment of Inertia [kg·m ²] ⁵		Axial Force Limit [N] ⁶	Lateral Force Limit [N] ⁶
					Drive Side	Test Side		
109845	115726	5/0.5	15000	2.1E+02	9.0E-06	8.4E-06	450	3
104176	115727	10/1	15000	7.1E+02	9.3E-06	8.5E-06	710	12
104177	115731	20/2	15000	1.9E+03	1.1E-05	9.9E-06	1150	23
104178	115732	30/3	15000	2.9E+03	1.1E-05	9.9E-06	1500	35
104179	115733	50/5	15000	5.4E+03	1.3E-05	1.1E-05	2150	45
104180	115734	100/10	12000	8.0E+03	1.3E-05	1.2E-05	3400	90
109214	115735	200/20	12000	3.4E+04	1.1E-04	8.4E-05	5800	175
109216	115736	500/50	10000	6.3E+04	1.2E-04	8.6E-05	10000	410
109217	115739	1000/100	8000	2.0E+05	1.6E-03	1.1E-03	16200	530
109218	115740	2000/200	5500	5.1E+05	5.3E-03	4.2E-03	25000	720
109220	115741	5000/500	5500	7.2E+05	5.3E-03	4.3E-03	42000	1850
109221	115742	10000/1000	5000	3.1E+06	4.1E-02	3.6E-02	66000	2700
109212	115757	20000/2000	5000	3.7E+06	4.1E-02	3.7E-02	98000	5200

³ Female cable connector in scope of delivery at first delivery

⁴ Version „P“ feather key

⁵ Without option speed/angle measurement

⁶ Unsupported shaft

Options

Article-No.	Description	
115391	Speed/angle measurement, RS485	
	Speed resolution	1 min ⁻¹
	Speed accuracy	1 % full scale ±1 digit
	Angle of rotation resolution	0.25 degree
	Output signal speed / angle of rotation	±32511 digits
104097 ⁷	Speed measurement, 1x60 impulses	5V TTL

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

⁷ Nominal torque ≥2000 N·m