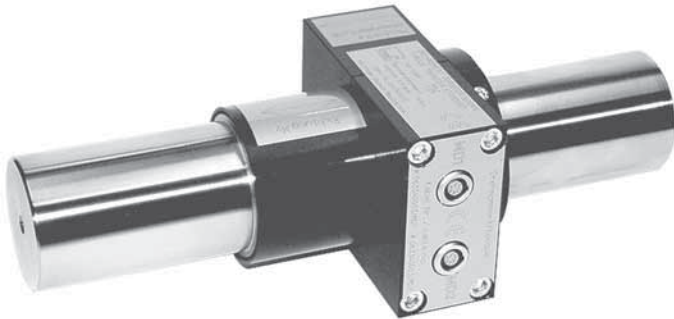


TN

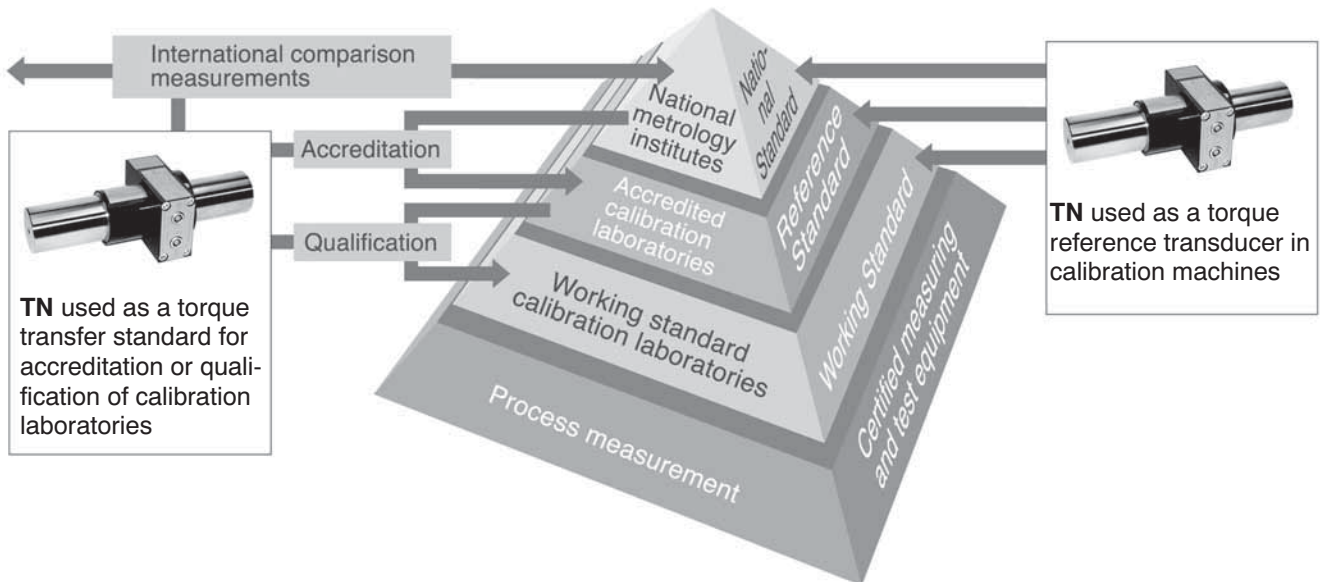
Torque transfer standard



Special features

- Nominal (rated) torques from 100 N·m to 20 kN·m
- Cylindrical shaft ends without keys, dimensions acc. to DIN 51309 and EA-10/14
- Class 0.05 acc. to DIN 51309 or EA-10/14 resp. (in conjunction with DKD calibration certificate)
- Options: TOP Transfer standard (enhanced accuracy); second torque measuring bridge; measuring point for bending moments; integrated temperature measurement

Fields of application



Specifications

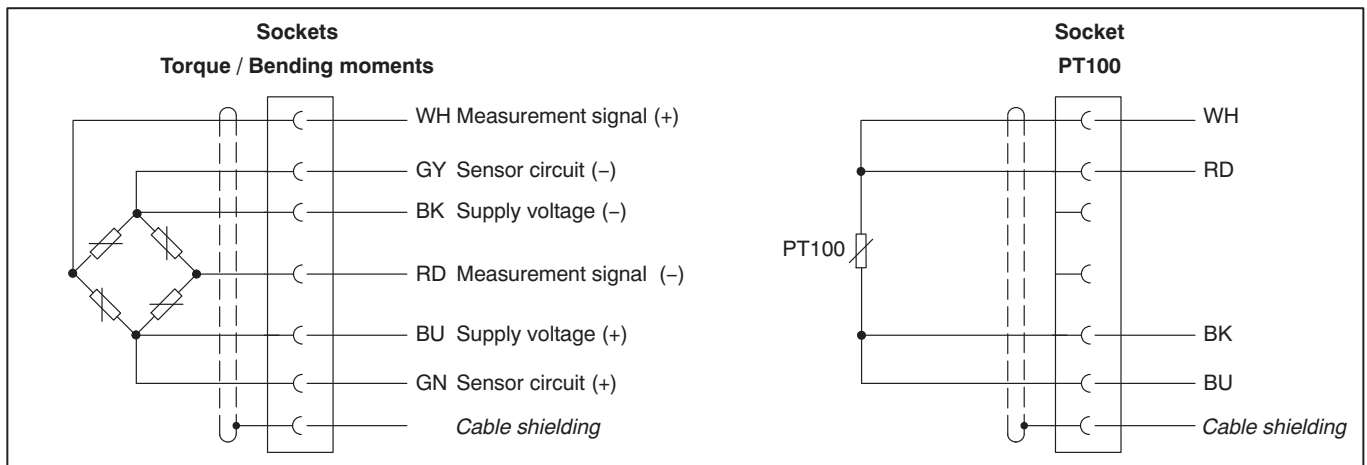
Type		TN									
Accuracy class		0.02									
Nominal (rated) torque M_{nom} for reference only	N·m	100	200	500							
	kN·m				1	2	5	10	20		
	ft·lb	75	150	375	750	1,500	3,750	7,500	15,000		
Sensitivity range		mV/V 1.5 to 2.0									
Zero signal tolerance		mV/V ± 0.25									
Temperature effect per 10K in the nominal (rated) temperature range											
on the output signal, related to the actual value		%		$\leq \pm 0.01$							
on the zero signal, related to the nominal (rated) sensitivity		%		$\leq \pm 0.01$							
Linearity deviation including hysteresis , relative to the nominal (rated) sensitivity		%		$\leq \pm 0.02$							
Relative standard deviation of repeatability acc. to DIN 1319, related to the variation of the output signal		%		$\leq \pm 0.01$							
Input resistance at reference temperature		Ω		approx. 400							
Output resistance at reference temperature		Ω		approx. 350							
Reference excitation voltage		V		5							
Operating range of the excitation voltage		V		2.5 ... 12							
General data											
EMC											
Emission acc. to EN 61326-1, Table 4 RFI field strength		Class B									
Immunity from interference (EN 61326-1, Table A.1)											
Electromagnetic field (AM)		V/m		10							
Magnetic field		A/m		100							
Electrostatic discharge (ESD)											
Contact		kV		4							
Air		kV		8							
Burst (rapid transients)		kV		2							
Surge (impulse voltages)		kV		1							
Line-related interference (AM)		V		10							
Degree of protection according to EN 60 529		-		IP20							
Reference temperature		$^{\circ}\text{C}$ [$^{\circ}\text{F}$]		+22 [+71.6]							
Nominal (rated) temperature range		$^{\circ}\text{C}$ [$^{\circ}\text{F}$]		+10...+30 [+50 ... +86]							
Operating temperature range		$^{\circ}\text{C}$ [$^{\circ}\text{F}$]		+10...+40 [+50 ... +104]							
Storage temperature range		$^{\circ}\text{C}$ [$^{\circ}\text{F}$]		+10...+40 [+50 ... +104]							
Electrical connection		Lemo [®] connector									
Weight, approx.		kg		3.8	3.8	4.0	4.2	8.8	11.5	32.5	36.5
Impact resistance, test severity level to IEC 68, part 2-27; IEC 68-2-27-1987											
Number of impacts		n		1000							
Duration		ms		3							
Acceleration (half-sine)		m/s^2		650							
Vibration resistance, test severity level to IEC 68, part 2-6; IEC 68-2-6-1982											
Frequency range		Hz		5 – 65							
Duration		h		1.5							
Acceleration (amplitude)		m/s^2		50							
Load limits											
Limit torque , related to M_{nom}		%		130							
Breaking torque , related to M_{nom}		%		>300							
Vibration bandwidth acc. to DIN 50100 (peak-to-peak)		%		200							

Specifications

Mechanical data									
Nominal (rated) torque M_{nom}	N·m	100	200	500					
	kN·m				1	2	5	10	20
	ft·lb	75	150	375	750	1,500	3,750	7,500	15,000
for reference only									
Torsional stiffness	kN·m/rad	8	11	27	66	100	320	720	1640
Torsion angle at M_{nom}	degree	0.7	1.0	1.1	0.9	1.1	0.9	0.8	0.7

Supplementary information according to DIN 51309 or EA-10/14			
Class according to DIN 51309 or EA-10/14		0.05	TOP Transfer standard (for torque measuring bridge 1)
Relative zero error (zero signal return)	%	≤ 0.0125	≤ 0.004
Relative reproducibility and repeatability error ($0.2 \cdot M_{nom}$ to M_{nom})	without rotation	≤ 0.025	≤ 0.005
	with rotation	≤ 0.05	≤ 0.01
Relative interpolation error	%	$\leq \pm 0.025$	$\leq \pm 0.025$
Relative reversibility error ($0.2 \cdot M_{nom}$ to M_{nom})	%	≤ 0.063	≤ 0.04

Cable assignment



Scope of supply:

TN Torque Transfer Standard

Connection cable, 3m, (Lemo® connector on transducer side, pigtails on amplifier side)

Test report

Options:

Temperature measurement (PT100)

Second torque measuring bridge

Measuring bridges for bending moment (x and y direction)

Enhanced accuracy (TOP Transfer standard; only in conjunction with a DKD calibration)

Accessories:

Transport case (for TN with nominal (rated) torques from 100 N·m to 1 kN·m)

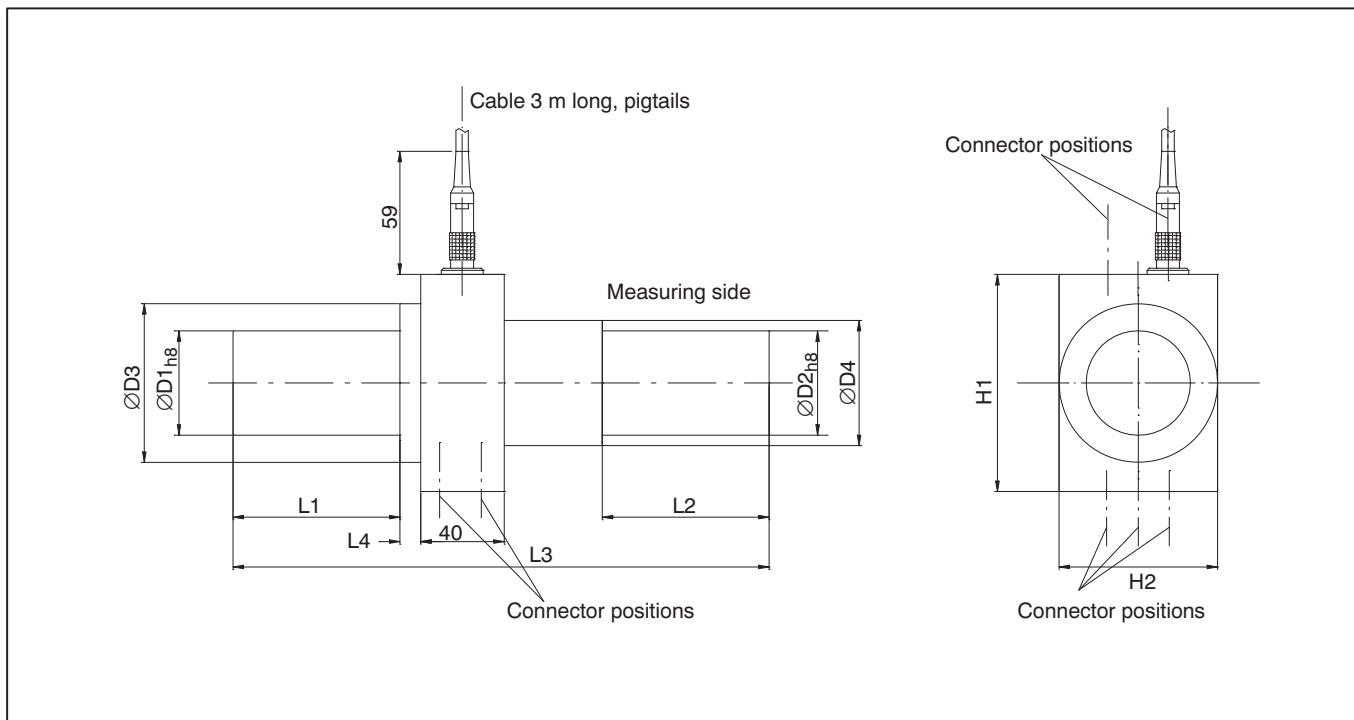
Transport box (for TN with nominal (rated) torques from 2 kN·m to 20 kN·m)

MS 3106PEMV connector, fitted to cable

15-pin D connector, fitted to cable

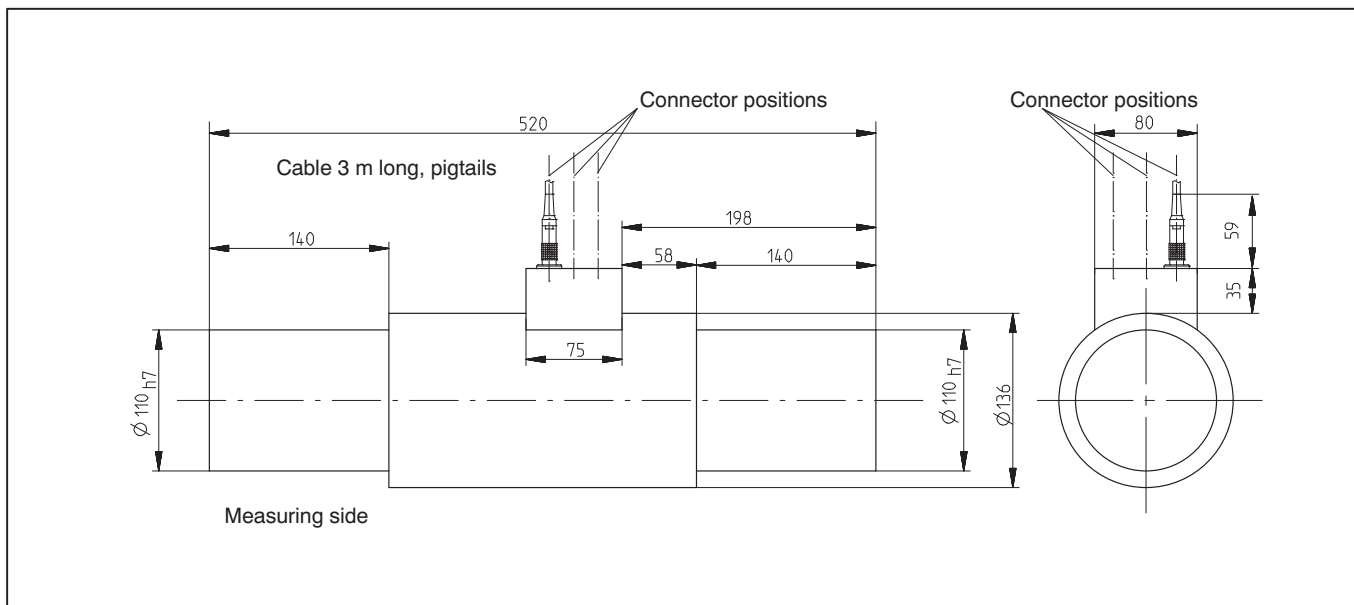
DKD calibration certificate according to DIN 51309 or EA-10/4

Dimensions in mm (1 mm = 0.03937 inches); nominal (rated) torques 100 N·m ... 5 kN·m



Nominal (rated) torque	D1	D2	D3	D4	L1	L2	L3	L4	H1	H2
100/ 200/ 500 N·m	50	50	76	60	80	80	257	10	104	76
1kN·m	50	50	76	60	80	80	257	10	104	76
2 kN·m	70	70	96	80	115	115	350	15	124	96
5 kN·m	70	70	96	80	115	115	396	15	124	96

Dimensions in mm; nominal (rated) torques 10 kN·m and 20 kN·m



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