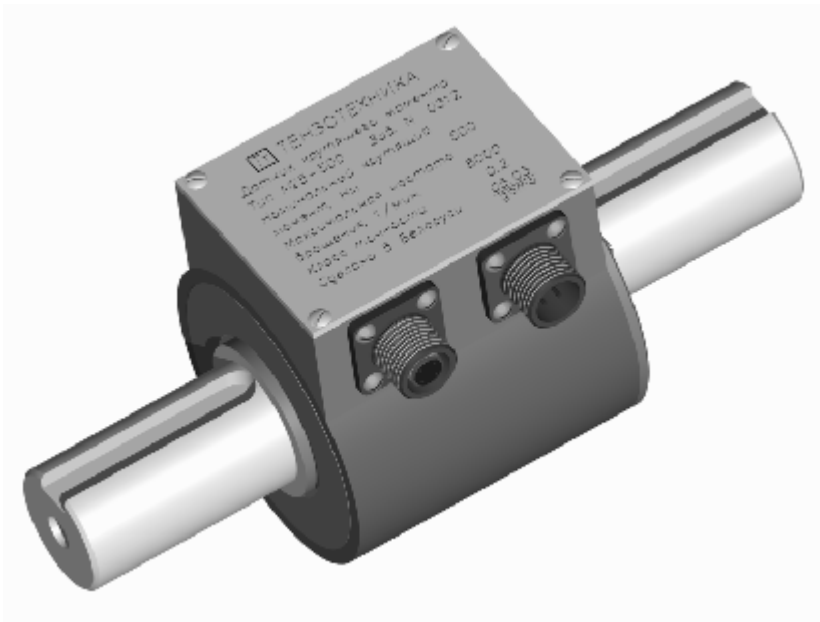


## M25 Torque Transducers



The M25 type Torque Transducers are used for torque and rotation speed measurements.

Torque Transducers are designed without slip-rings. The measured signals are transmitted from the rotor to the stator by telemetry. The excitation voltage for the strain gauges and rotating electronics is inductively coupled to the rotor. The stator housing is supported on the rotor by two ball bearings. Cylindrical shaft ends of the rotor are fitted with keyways for installation.

Transducers equipped with rotation speed measuring system.

M25 Torque Transducers are maintenance-free.

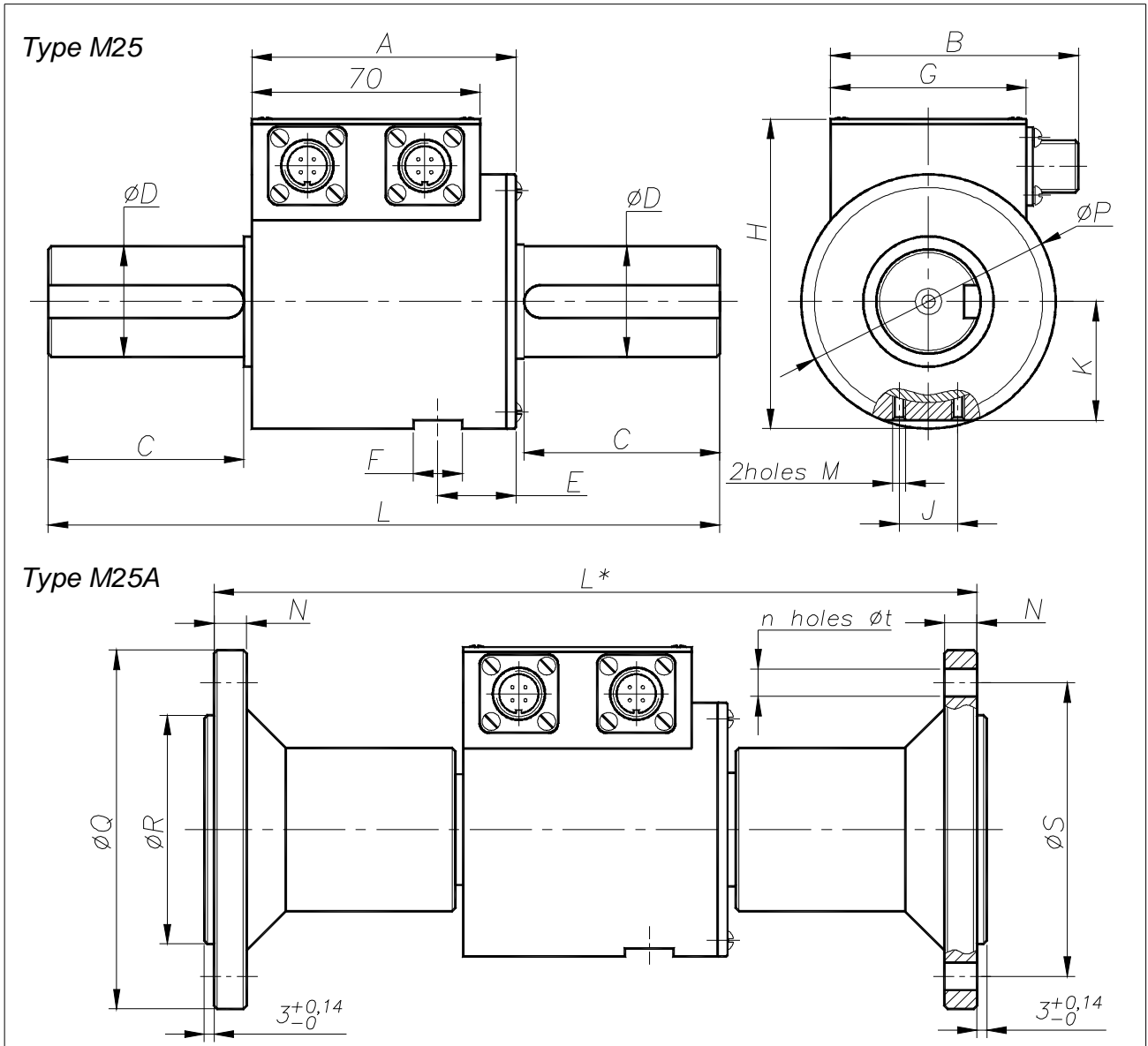
Accuracy class is 0.2

The torque output signal is  $\pm 5V$ .

### Type-Survey

Type	Nominal torque	Nominal speed
M25-10	10Nm	12 000 min <sup>-1</sup>
M25-20	20Nm	12 000 min <sup>-1</sup>
M25-50	50Nm	12 000 min <sup>-1</sup>
M25-100	100Nm	12 000 min <sup>-1</sup>
M25-200	200Nm	10 000 min <sup>-1</sup>
M25-500	500Nm	10 000 min <sup>-1</sup>
M25-1k	1kNm	8 000 min <sup>-1</sup>
M25-2k	2kNm	6 500 min <sup>-1</sup>

# Dimensions, mm



Type	A	B	C	ØD	E	F	G	H	J	K
M25-10...M25-50	70	62	28	16g6	20	12	54	71	12	25
M25-100	70	72	40	18g6	20	14	56	74	12	26
M25-200	73	78	50	24g6	20	14	62	80	14	29
M25-500	81	76	60	34g6	24	16	60	95	18	36
M25-1k	92	76	70	48g6	30	20	60	115	22	46
M25-2k	97	76	90	58g6	35	20	60	128	24	52

Type	L	L*	M	N	ØP	ØQ	ØR	ØS	n	Øt
M25-10...M25-50	130	144	M4	7	54	74	46g6	60±0.1	8	6.4H12
M25-100	158	172	M4	7	56	80	52g6	66±0.1	8	6.4H12
M25-200	178	198	M4	8	62	90	60g6	76±0.1	8	6.4H12
M25-500	206	234	M5	10	78	110	70g6	90±0.1	8	6.4H12
M25-1k	238	260	M5	11	98	122	80g6	104±0.1	12	8.4H12
M25-2k	285	314	M5	13	110	142	90g6	120±0.12	12	10.5H12

## Technical data

1. **Nominal torque** and nominal speed see table «Type-Survey».

### 2. Electrical and metrology parameters

Nominal output signal with positive (right-hand) nominal torque	V	+5
Nominal output signal with negative (left-hand) nominal torque	V	-5
Output signal at torque = zero	V	0
Deviation of the actual output signal at the nominal torque from the nominal value	%	± 0.2
Accuracy class		0.2
Temperature effect on the output signal, related to the actual output value	%/10°C	± 0.1
Temperature effect on the zero signal, related to the nominal output value	%/10°C	± 0.1
Linearity deviation including hysteresis, related to the nominal output value	%	± 0.1
Limit load resistance	kΩ	10
Cut-off frequency (-3 dB)	Hz	0...500 (0...1000 on request)
Nominal excitation voltage	V (DC)	12± 10%
Current consumption	A	< 0.2

### 3. Parameters of resistance to environment and mechanical exposures

Nominal temperature range	° C	0...+60
Storage temperature range	° C	-10...+70
Vibration resistance:		
Frequency range	Hz	10...55
Duration	h	1
Acceleration	m/s <sup>2</sup>	40
Impact resistance:		
Number of impacts	n	1000
Duration	ms	10
Acceleration	m/s <sup>2</sup>	400
Degree of protection		IP 40

### 4. Permissible load limits and mechanical values

Nominal torque $M_N$	Nm	10	20	50	100	200	500	1000	2000	
Limit torque, related to $M_N$	%		150							
Axial limit force on the rotor	kN	1	1.1	1.2	1.2	3	5	8	16	
Lateral limit force on the rotor	N	15	30	40	40	120	200	400	600	
Bending limit moment on the rotor	Nm	2	3	5	5	20	50	80	150	
Lateral limit force applied to the mounting surface of the stator	N	10	20	50	50	50	100	100	100	
Torsional stiffness	Nm/rad	1.4	2.7	6.2	6.2	26.2	73	152	312	
Weight	kg	1.0	1.1	1.1	1.1	1.9	3.2	5.8	8.9	

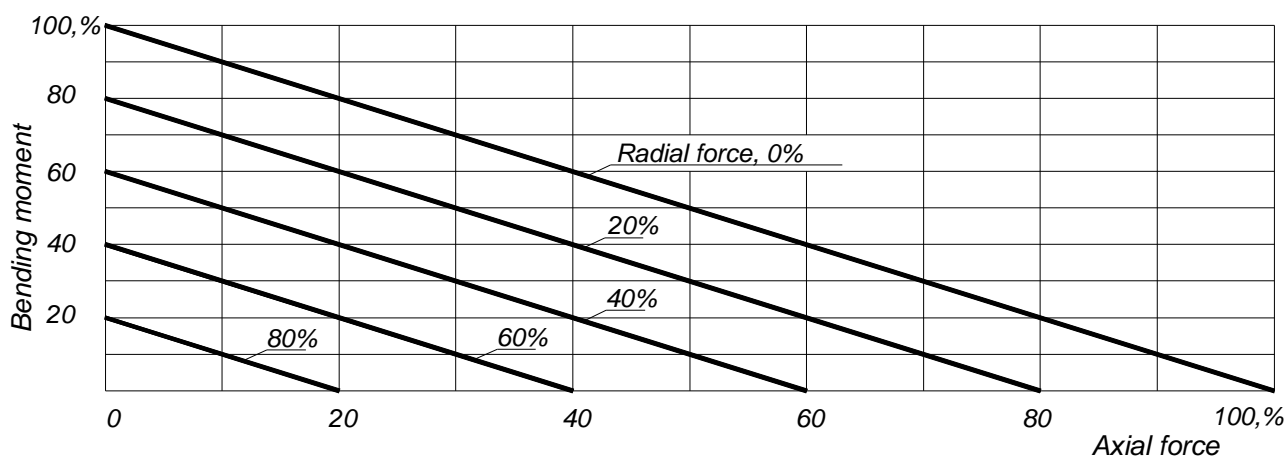
### 5. Rotation speed measuring system

Measuring system		Optical
Number of pulses per revolution		90
Minimum measurable speed	min <sup>-1</sup>	1
Amplitude of output pulse voltage	V	5± 10%
Load resistance	kΩ	10

Axial force, radial force and bending moment have to be reduced according to graph 1, if they act together.

To prevent from excessive stress due to misalignment and thermal influences the transducer should be fitted between flexible couplings. TILKOM offer such flexible torsionally rigid couplings MK series. For technical specification see data sheet entitled "MKICouplings".

In addition to the transducer, there is the T20 measuring unit to supply the operating voltage and indicate torque measured value, speed rotation and power. For technical data see the "T20 Measuring Unit" data sheet.



Graph 1

## Scope of delivery

M25 Torque Transducer	1
Connecting cable M25.70, 6m length	1
Operating manual	1

## Accessories (to be ordered separately)

MK series flexible torsionally rigid couplings	2
T20 Measuring Unit	1

Modifications reserved.

TILKOM can produce torque transducers in accordance with Customized specific requirements.

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