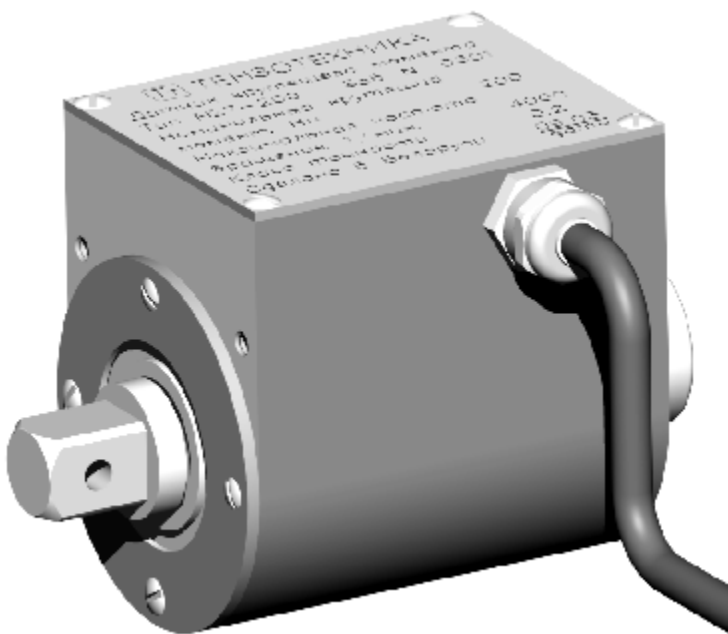


## M27 Torque/Screw Torque Transducers

The M27 Torque/Screw Torque Transducers are used to measure torque and the angle of rotation when screw connections are being tightened. These transducers are bi-directional that is why both tightening and break-away torques can be measured. The M27 transducers are designed with bearings between the rotor and the stator and with the contactless transmission of data and power.



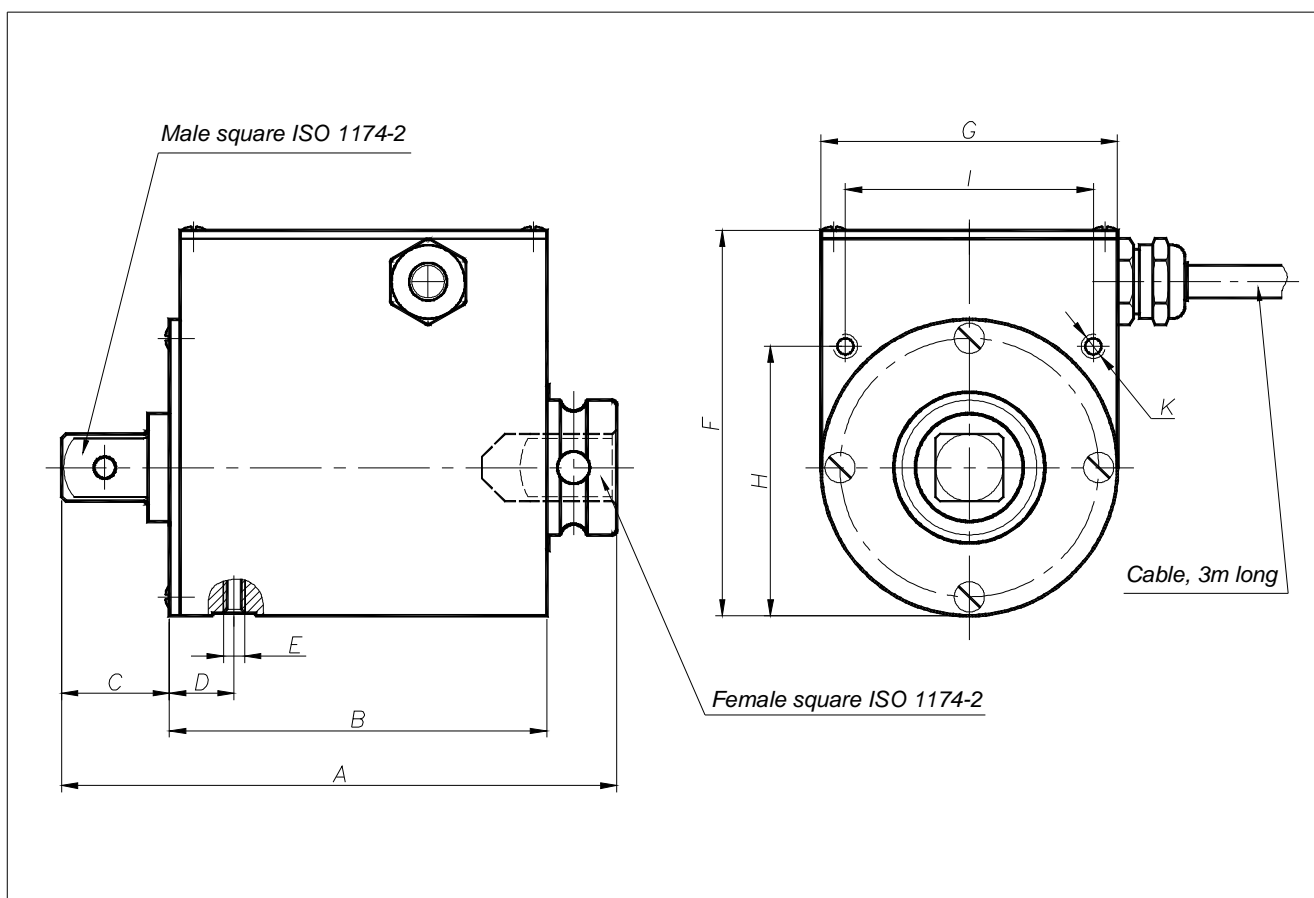
### Special features:

- Design without slip-rings
- Operating on the strain gauge principle
- Measurement of static and dynamic, positive and negative torque on rotating and stationary parts
- Contactless transmission of data and power
- Built-in angle of rotation measurement system
- Maintenance-free
- Accuracy class: 0.2
- Torque output signal:  $\pm 5V$

### Type-Survey

Type	Nominal torque	Nominal speed
M27-5	5Nm	4 000 min <sup>-1</sup>
M27-10	10Nm	4 000 min <sup>-1</sup>
M27-20	20Nm	4 000 min <sup>-1</sup>
M27-50	50Nm	4 000 min <sup>-1</sup>
M27-100	100Nm	4 000 min <sup>-1</sup>
M27-200	200Nm	4 000 min <sup>-1</sup>
M27-500	500Nm	4 000 min <sup>-1</sup>
M27-1k	1kNm	4 000 min <sup>-1</sup>

## Dimensions, mm



Type	A	B	C	D	E	F	G	H	I	K
M27-5...M27-10	97	66	19	9	M4	59,5	43	39	36	M3
M27-20...M27-50	100	68	19,5	11	M4	66,5	50	45	42	M4
M27-100...M27-200	103	70	20	12	M4	71,5	55	50	46	M4
M27-500	120	76	29	12	M4	86	70	65	60	M4
M27-1κ	135	83	32	15	M5	102	86	80	74	M5

## Technical data

1. **Nominal torque** and nominal speed are given in the «Type-Survey» table.

### 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...100
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

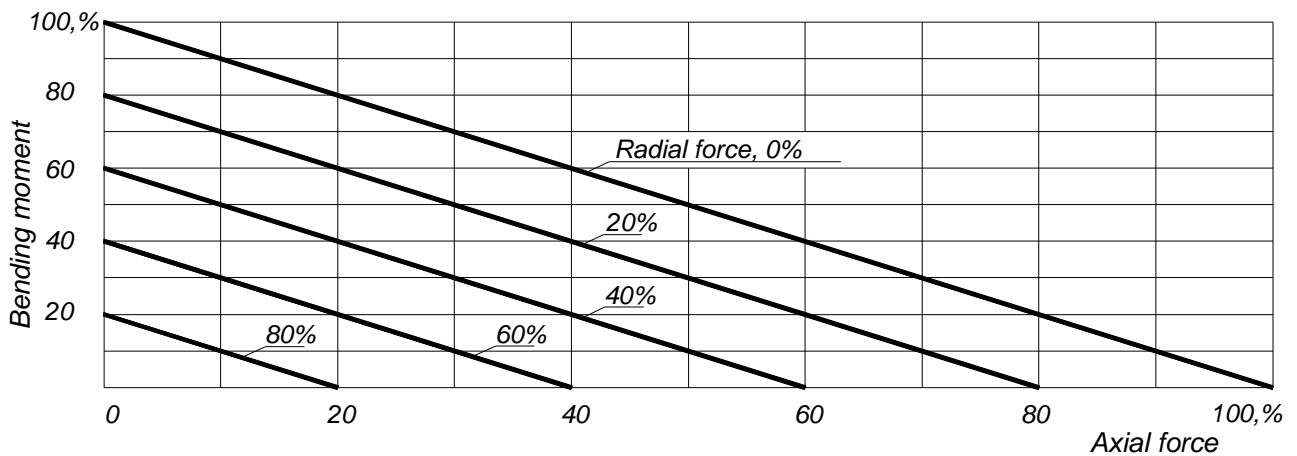
Nominal torque $M_N$	Nm	5	10	20	50	100	200	500	1000
Limit torque, related to $M_N$	%	150							
Axial limit force on the rotor	kN	0.3	0.6	1.8	3.0	5.0	8.0	16.0	25.0
Lateral limit force on the rotor	N	5	10	20	50	80	120	200	300
Bending limit moment on the rotor	Nm	0.6	1.4	2.8	5	10	20	50	100
Weight	kg	0.5	0.6	1.0	1.1	1.4	1.5	2.0	2.8

### 5. Rotation speed measuring system

Measuring system		Optical
Number of pulses per revolution		180/360
Minimum measurable speed	min <sup>-1</sup>	0
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.

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



Graph 1

## Scope of delivery

M27 Torque Transducer	1
Connecting cable M27.70, 3m length	1
Operating manual	1

## Accessories (to be ordered separately)

T20 Measuring Unit	1
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Modifications reserved.

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

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