

## Short description torque transducer TTT01-P

The TEQFORT GmbH develop, produce and marketed on strain gauge based sensors for force and torque measuring as well as the required electronic. The name TEQFORT represent for - Test Equipment Force Torque - and for quality at high and highest precision.

The torque transducer of the model range TTT01-P is particularly well suited for all requirements in the field of non-rotating measurements. Especially for measuring tasks, where a high precision measurement at high bandwidth is required, it is characterized. Due to its construction with threaded flange, this model range can be very well built with our force transducer **FFB01-P** to a force / torque combination.



- **Nominal load 10 Nm – 500 Nm**
- **For static and dynamic Application**
- **Accuracy 0,05 %**
- **Fatigue resistant up to  $\pm 80$  % (100 %) nominal load**
- **Against parasitic forces and bending moments insensitive**

## Short description torque transducer TTT01-P

The model TTT01-P can be used directly or via various adapters flexibly. The various loads of the program as well as versions in 1 mV / V, for dynamic applications up to 100% nominal load, make this torque sensor so versatile. The combination of size and accuracy distinguishes our model TTT01-P in such a way that it can be used in the most diverse applications of the automotive, railway, aerospace and even medical technology sector.



### Options

Second measuring circuit for redundancy

Bending measuring circuits for  $M_x$  and  $M_y$

Various add-on parts for mounting and introduction of torque loads

Direct connection with model FFB01-P to a force / torque combination

### Technical Data

Nominal load	$\pm M_{nom}$	Nm	10	20	50	100	200	500
Accuracy		%						0,05
Linearity error	$d_{lin}$	%						0,05
Measuring range		%						1 – 100
Hysteresis	$h$	%						0,05
Interpolation error	$f_c$	%						0,4
Reversibility error	$v$	%						0,2
Reproducibility		%						0,003
Zero-point deviation	$f_o$	%						0,5
Creep		%						0,025
Characteristic value tolerance	$d_c$	%						0,2
left-/ right-characteristic value difference	$d_{LR}$	%						0,2
Nominal temperature range		°C						+ 10 - + 60
Temperature effect on characteristic value	$TK_c$	%/10K						0,04
Temperature effect on zero signal	$TK_o$	%/10K						0,025
Rated characteristic value (1*)	$C_{nom}$	mV/V	1,5 (0,8)					2 (1)
Input resistance	$R_e$	$\Omega$						ca. 1000
Range of supply voltage	$B_{U,G}$	V						5 – 15
Protection class (EN 60529)		IP						54

(1\*) In the model range TTT01-P, all sensors can be carried out in a 1 mV/V or 0.8 mV/V version for dynamic applications.

## Technical Data

Nominal load	$\pm M_{nom}$	Nm	10	20	50	100	200	500
Lateral force limit		kN	5	15	25	40	65	100
Torque limit		%	150					
Braking torque		%	> 300					
Bending moment limit	$M_{bzul}$	%	100					
Axial force limit	$F_{azul}$		10	20	40	60	90	160
Permissible vibration stress		%	80 (100) <sup>2*</sup>					
Base resonance frequency	$f_G$	khz	30		40	50	30	40
Nominal torsion angle	$j_{nom}$	rad	0,01	0,018	0,013	0,011	0,009	0,007
Torsional rigidity	$c_T$	Nm/rad	1000	1111	3846	9090	22220	71428

(2\*) At a nominal characteristic value of 1 mV/V or 0,8 mV/V a vibration stress of up to  $\pm 100\%$  is applicable.

## Measuring line connection



### Options for connection and measuring line

Bayonet connection for rough weather and offshore area

Fixed line connection

Standard measuring line length 5 meters, other lengths individually

Extended temperature range of the sensor with measuring line available for temperatures up to 200 °C

Amplifier in the measuring line or in the connection housing, see **EAW01**

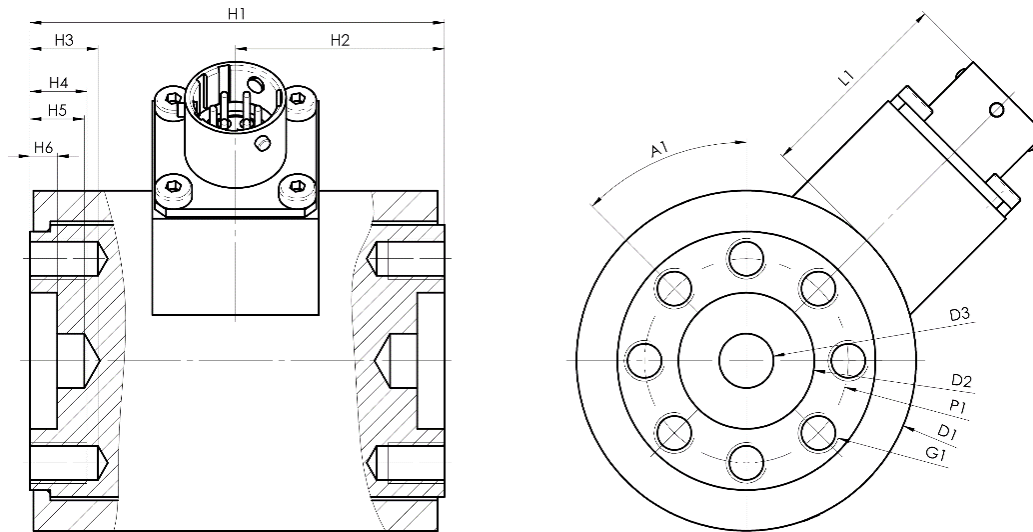


### Options for adapters and mechanical coupling

Individual adapters for mechanical integration into measuring systems can be supplied

At a direct screwed connection with our force transducer **FFB01-P**, a force / torque combination can be built up, which can have multiple channels (e.g.,  $M_z$ ,  $F_z$ ,  $M_x$ ,  $M_y$ ).

## Sensor dimensions



Nominal load	$\pm M_{nom}$	Nm	10	20	50	100	200	500
Height	H1	mm	61		82			
Height	H2	mm	30,5		41			
Height	H3	mm						
Height	H4	mm	8		15			
Height	H5	Mm	8					
Height	H6	mm	4					
Diameter	D1	mm	50		73			
Diameter	D2	mm	20 <sub>H7</sub>		30 <sub>H7</sub>			
Diameter	D3	mm	8 <sub>H8</sub>		10 <sub>H8</sub>			
Pitch circle diameter	P1	mm	30		45			
Thread	G1	mm	8 x M6		8 x M10			
Angle	A1		45°					
Length	L1	mm	30					
Mass, ca.		kg	0,5		1,6			

### Version with redundant measuring circuit

For design with a second (redundant) measuring circuit, the same technical data apply as for the first measuring circuit.

### Version with bending moment circuits

For design with bending moment circuits  $M_x$  and  $M_y$ , there will be two more full bridge strain gauge outputs, led out on the sensor housing.