

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 ± 80 % (100 %) nominal load**
- **Against parasitic forces and bending moments insensitive**

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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

Nennlast	$\pm M_{nom}$	Nm	10	20	50	100	200	500
Genauigkeit		%				0,05		
Linearitätsabweichung	d_{lin}	%				0,05		
Messbereich		%				1 – 100		
Hysteresese	h	%				0,05		
Interpolationsabweichung	f_c	%				0,4		
Umkehrspanne	v	%				0,2		
Reproduzierbarkeit		%				0,003		
Nullpunktabweichung	f_o	%				0,5		
Kriechen		%				0,025		
Kennwerttoleranz	d_c	%				0,2		
Links-/ Rechts-Kennwertunterschied	d_{LR}	%				0,2		
Nenntemperaturbereich		°C				+ 10 bis + 60		
Temperatureinfluss auf den Kennwert	TK_c	%/10K				0,04		
Temperatureinfluss auf das Nullsignal	TK_o	%/10K				0,025		
Nennkennwert ^{1*}	C_{nom}	mV/V	1,5 (0,8)			2 (1)		
Eingangswiderstand	R_e	Ω				ca. 1000		
Versorgungsspannung	$B_{U,G}$	V				5 – 15		
Schutzart (EN 60529)		IP				54		

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

Technical Data

Nennlast	$\pm M_{nom}$	Nm	10	20	50	100	200	500
Grenzquerkraft		kN	5	15	25	40	65	100
Grenzdrehmoment		%	150					
Bruchdrehmoment		%	> 300					
Grenzbiegemoment	$M_{b,zul}$	%	100					
Grenzlängskraft	$F_{a,zul}$		10	20	40	60	90	160
Zulässige Schwingbeanspruchung		%	80 (100) ^{2*}					
Grundresonanzfrequenz	f_G	khz	30		40	50	30	40
Nennrehwinkel	j_{nom}	rad	0,01	0,018	0,013	0,011	0,009	0,007
Drehsteifigkeit	c_T	Nm/rad	1000	1111	3846	9090	22220	71428

(2*) Bei einem Nennkennwert von 1 mV/V bzw. 0,8 mV/V ist eine Schwingbeanspruchung bis $\pm 100\%$ anwendbar.

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

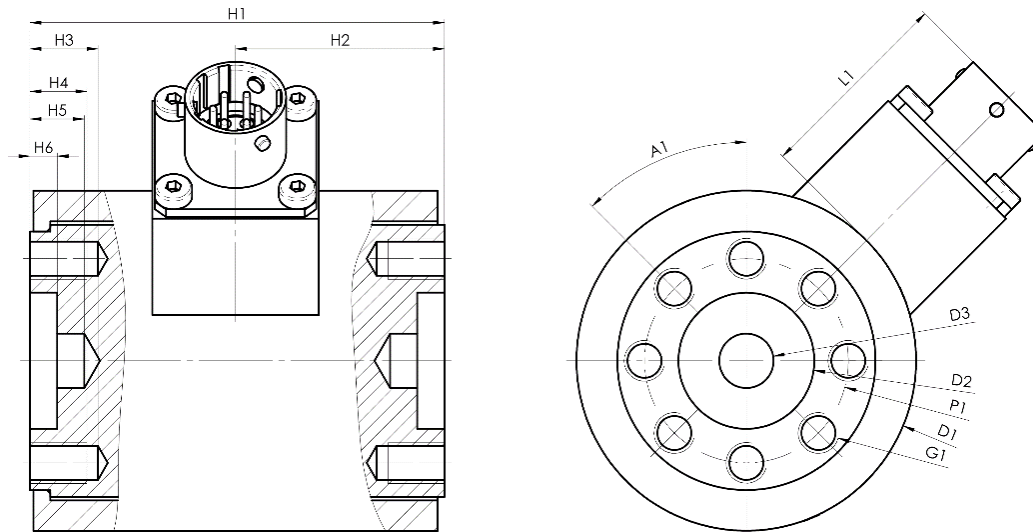
Amplifier in the measuring line or in the connection housing, see **EAW01**

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



Nennlast	$\pm M_{nom}$	Nm	10	20	50	100	200	500
Höhe	H1	mm	61		82			
Höhe	H2	mm	30,5		41			
Höhe	H3	mm						
Höhe	H4	mm	8		15			
Höhe	H5	Mm			8			
Höhe	H6	mm			4			
Durchmesser	D1	mm	50		73			
Durchmesser	D2	mm	20 _{H7}		30 _{H7}			
Durchmesser	D3	mm	8 _{H8}		10 _{H8}			
Lochkreisdurchmesser	P1	mm	30		45			
Gewinde	G1	mm	8 x M6		8 x M10			
Winkel	A1				45°			
Länge	L1	mm			30			
Masse, 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.