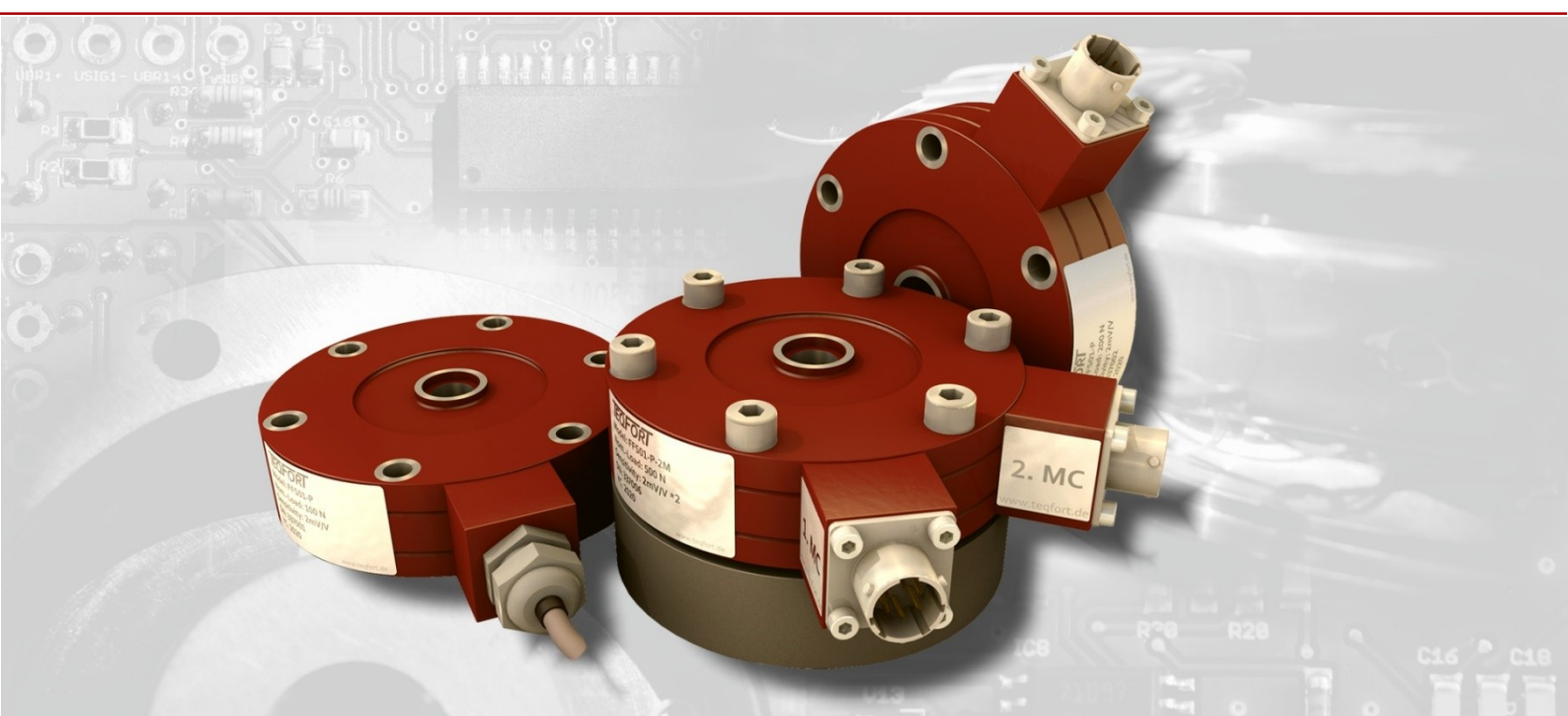


Short description force transducer FFS01-P

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.

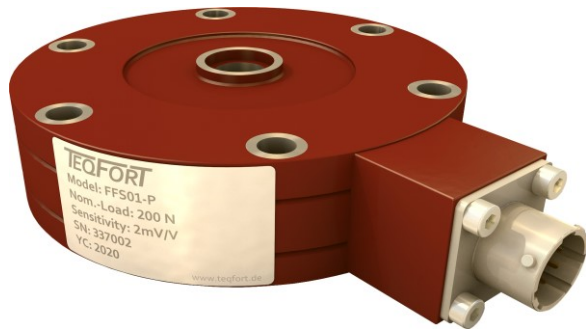
The force transducer of the model range FFS01-P is determined by its design in high-strength aluminum and high accuracy. With its precision at lower loads, it is particularly well suited for all tension and compression applications in the field of complex requirements. Especially for measuring tasks, where a large measuring bandwidth at low weight is required, it is characterized.



- Nominal load 100 N – 500 N
- For static and dynamic application
- Accuracy 0,03 %
- Fatigue resistant up to ± 100 % at 1 mV/V version
- Sensors hermetically sealed

Short description force transducer FFS01-P

The model FFS01-P can be mounted directly via the outer flange and the central thread. The small loads of the program as well as versions in 1 mV/V, for dynamic applications up to 100 %, make this force sensor so versatile. The combination of size and accuracy distinguish our FFS01-P model in such a way that it can be found in a wide variety of applications in research, the automotive sector and even in medical technology.



Options

Second measuring circuit for redundancy

Attachments for mounting and initiation of tensile and compression forces

Technical Data

Nominal load	$\pm F_{nom}$	N	100	200	500
Accuracy		%		$\pm 0,03$	
Linearity error	d_{lin}	%		$\pm 0,03$	
Hysteresis	h	%		$\pm 0,03$	
Reversibility error	v	%		$\pm 0,2$	
Measuring range		%		1 - 100	
Reproducibility		%		$\pm 0,003$	
Creep		%		$\pm 0,03$	
Eccentricity effect		%/mm		0,015	
Torque effect		%/mm F_{nom}		0,005	
Bending moment effect		%/Nm		< 0,003	
Lateral force effect		%/0,1 · F_{nom}		0,02	
Characteristic value difference, tension/compression force	d_{zD}	%		0,07	
Temperature effect on characteristic value per 10 K	TK_c	%/10K		0,015	
Temperature effect on zero signal per 10 K	TK_0	%/10K		0,015	
Nominal temperature range	$B_{T,nom}$	°C		+ 10 up to +60	
Operating temperature range	$B_{T,G}$	°C		- 40 up to + 120	
Rated characteristic value (1*)	C_{nom}	mV/V		2 (1)	
Zero signal deviation	$d_{s,0}$	%		0,5	
Characteristic value tolerance	d_c	%		0,2	
Input resistance	R_e	Ω		ca. 1000	
Isolation resistance	R_{is}	Ω		> 10^9	
Range of supply voltage	$B_{U,G}$	V		5 up to 15	
Protection class (EN 60529)		IP		67	

(1*) In the model range FFS01-P, all sensors can be carrying out in 1 mV/V version for dynamic applications.

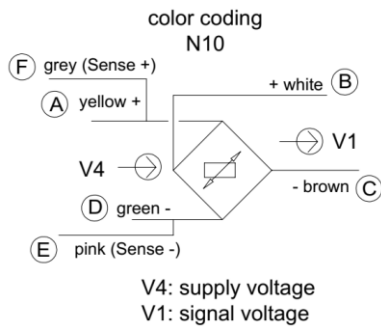
Technical Data

Nominal load	$\pm F_{nom}$	N	100	200	500
Permissible vibration stress ^(2*)		%	$\pm 80 / (\pm 100)$		
Basic resonance frequency ^(3*)		kHz	8		
Proportionally moved mass	m_{mess}	kg	0,01		
Mass	m	kg	0,3		
Nominal deflection		mm	0,05		
Static limit force		%	150		
Static transverse force limit		%	100		
Static breaking load		%	300		
Permitted static eccentricity		mm	10		
Static bending moment limit		Nm	1,25	2,5	5

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

(3*) All information of the sensor FFS01-P for 2 mV / V version; Data for 1 mV / V available on request.

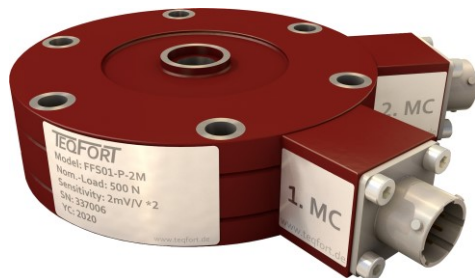
Measuring line connection



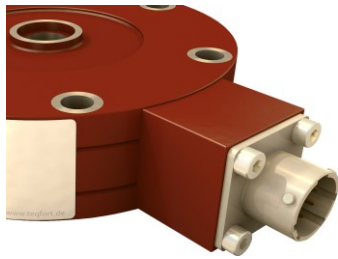
Plug-in cable connection ¹⁾		Fixed connection, cable ends open	
connection socket	plug		
		grey cable sheath $\varnothing 6,6$ mm in pairs twisted, $3 \times 2 \times 0,25$ mm ² temperature range -40°C bis + 80°C	
Connection	U	Contact	Colour of conductor
Supply voltage (+)	U_{in+}	A	yellow
Supply voltage (-)	U_{in-}	D	green
Measuring signal (+)	U_{out+}	B	white
Measuring signal (-)	U_{out-}	C	brown
Sense signal (+)	Sense +	F	grey
Sense signal (-)	Sense -	E	pink
Screen			black

1) Connection view each solder side

Version with redundant measuring circuit



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



Options for connection and measuring line

Bayonet connection for rough weather and offshore area

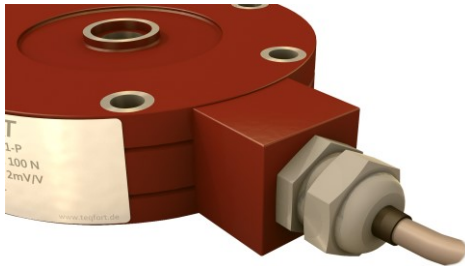
Fixed line connection

Tangential arrangement of the connection on request

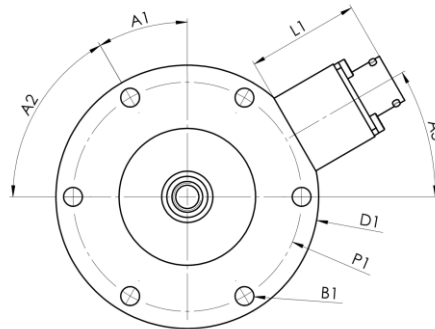
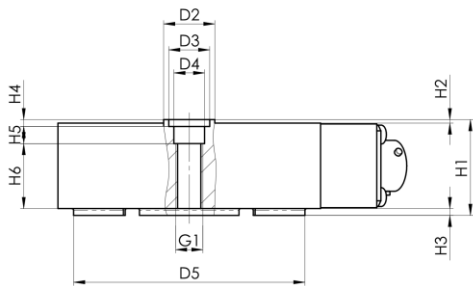
Standard line length 5 meters, other lengths individually

Extended temperature range of the sensor with measuring line available for temperatures up to 180 °C

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



Sensor dimensions 100 N – 500 N



Nominal load	$\pm F_{nom}$	N	100	200	500
Height	H1	mm		28	
Height	H2	mm		1	
Height	H3	mm		2	
Height	H4	mm		2	
Height	H5	mm		5	
Height	H6	mm		19	
Diameter	D1	mm		77	
Diameter	D2	mm		15	
Diameter	D3	mm		12 $\pm 0,1$	
Diameter	D4	mm		9	
Diameter	D5	mm		68	
Pitch circle diameter	P1	mm		67 $\pm 0,1$	
Bore	B1	mm		5,5	
Thread	G1			M8 x 1	
Angle	A1			30°	
Angle	A2			6 x 60	
Angle	A3			30°	
Length connection	L	mm		31	