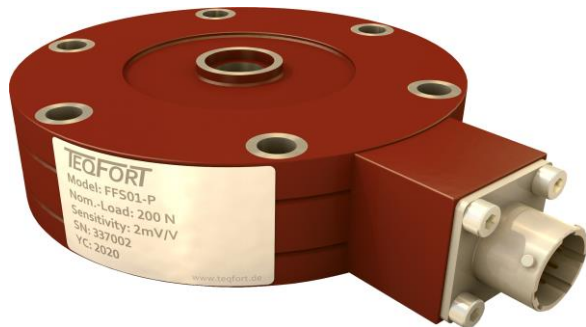




## Short description force transducer FFS01-P

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	$R_e$	$\Omega$		ca. 1000	
Isolation resistance	$R_{is}$	$\Omega$		> $10^9$	
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.

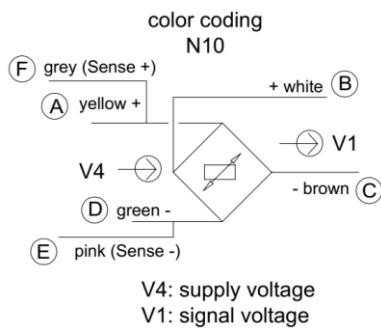
## Technical Data

Nominal load	$\pm F_{nom}$	N	100	200	500
Permissible vibration stress <sup>(2*)</sup>		%	$\pm 80 / (\pm 100)$		
Basic resonance frequency <sup>(3*)</sup>		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.

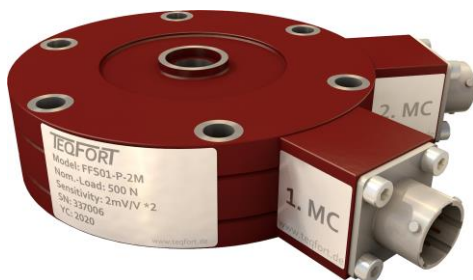
## Measuring line connection



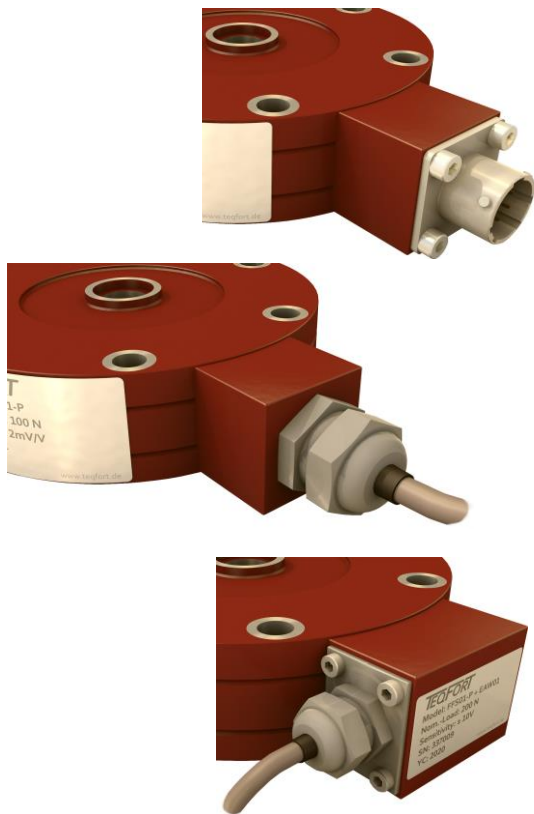
Plug-in cable connection <sup>1)</sup>		Fixed connection, cable ends open	
connection socket	plug		
		grey cable sheath $\varnothing 6,6$ mm in pairs twisted, $3 \times 2 \times 0,25 \text{ mm}^2$ temperature range -40°C bis + 80°C	
Connection	U	Contact	Colour of conductor
Supply voltage (+)	$U_{in+}$	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

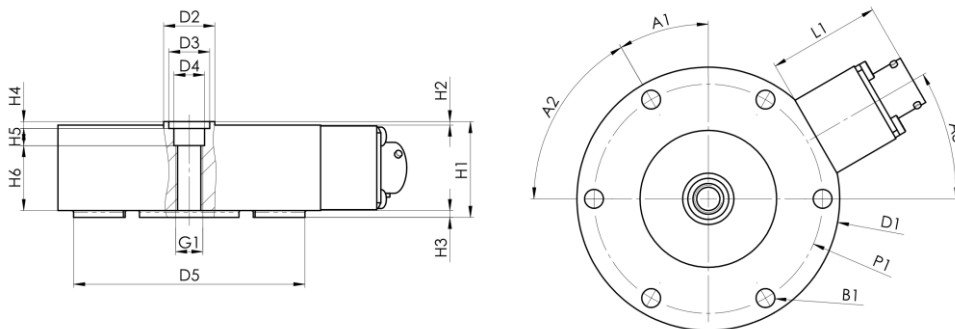
Tangential arrangement of the connection on request

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	