

## Electrical Force Transducers – Model 301



- Capacities: 5kN up to 600kN
- For compression and tension
- Stainless steel
- Hermetically sealed
- Highest accuracy
- Also as calibratable version
- Sensitivity: 2mV/V
- For dynamic applications
- TEDS module (inside sensor) <sup>1)</sup>
- With threaded connector
- For mounting of adapters

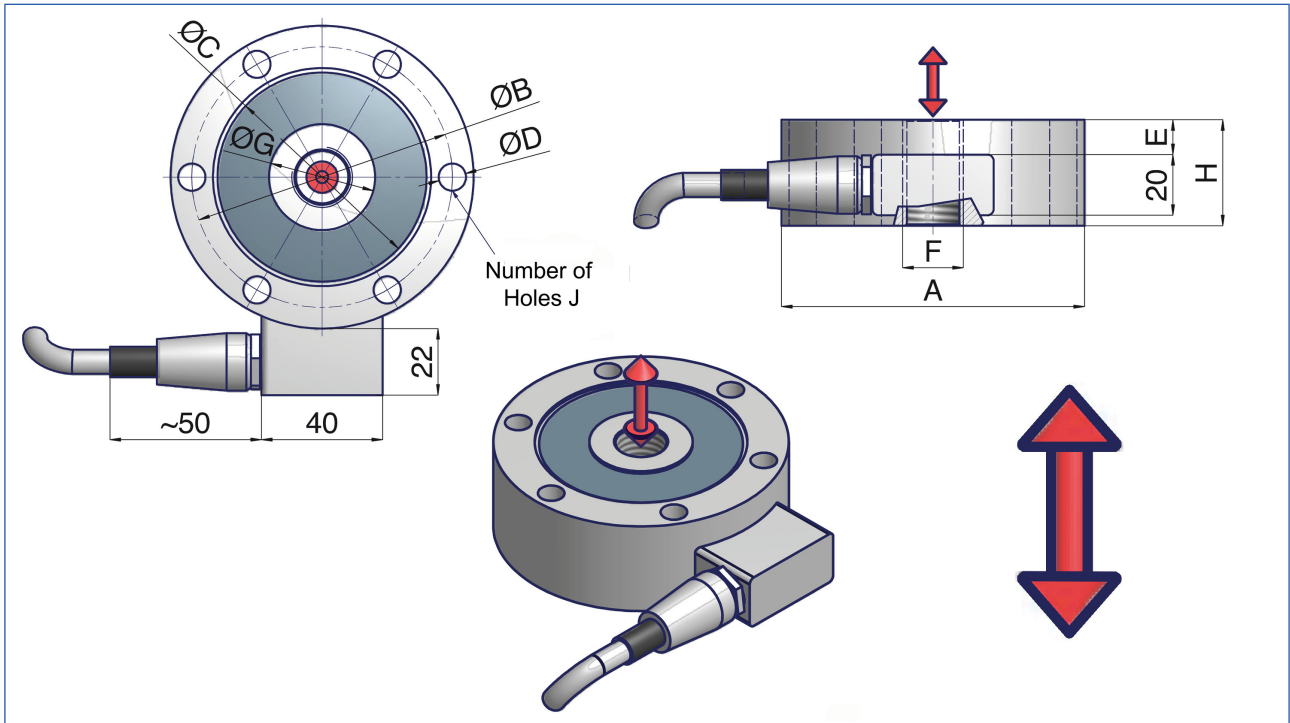
The electrical force transducers of the model series 301 are robust, stiff, corrosion-free and can easily be installed in all positions. They are excellently suitable for tensi-

le and compressive forces, also under dynamic conditions. Their low construction height permits a space-saving application, for example in production integrated

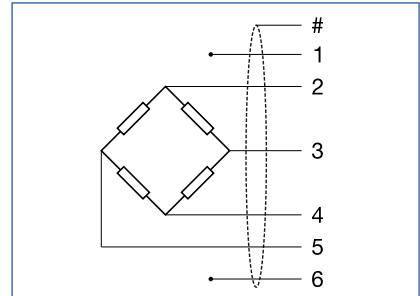
materials testing. A TEDS module is always integrated. The version Cl. 0,5 which achieves the class 0,5 according to ISO 376 is used for calibration purposes. <sup>2)</sup>

Model 301					
>> Technical data according to VDI / VDE directive 2638					
	Symbol	Unit	Standard	Kl. H	Cl. 0,5
Zero signal when removed	S <sub>0</sub>	mV/V	0,02	0,02	0,02
Rated characteristic value	C <sub>nom</sub>	mV/V	2	2	2
Relative error of characteristic value	d <sub>c</sub>	% (≤ ±)	0,1	0,1	0,1
Relative linearity error	d <sub>lin</sub>	% (≤ ±)	0,05	0,03	0,02
Relative repeatability error in unchanged mounting position	b <sub>rg</sub>	% (≤ ±)	0,02	0,02	0,02
Combined error	F <sub>comb</sub>	% (≤ ±)	0,08	0,05	0,03
Reference temperature	T <sub>ref</sub>	°C	21	21	21
Rated temperature range	B <sub>T, nom</sub>	°C	-10...+40	-10...+40	-10...+40
Operating temperature range	B <sub>T, G</sub>	°C	-15...+60	-15...+60	-15...+60
Storage temperature range	B <sub>T, S</sub>	°C	-20...+70	-20...+70	-20...+70
Relative creep after 30 min	K <sub>0,5</sub>	% (≤ ±)	0,06	0,03	0,03
Relative creep after 8 h	K <sub>8</sub>	% (≤ ±)	0,08	0,07	0,07
Temperature effect on characteristic value per 10K	TK <sub>C</sub>	% (≤ ±)	0,03	0,01	0,0028
Temperature effect on zero signal per 10K	TK <sub>0</sub>	% (≤ ±)	0,04	0,02	0,008
Input resistance	R <sub>e</sub>	Ω	400 ± 25	400 ± 25	400 ± 25
Output resistance	R <sub>a</sub>	Ω	350 ± 2	350 ± 2	350 ± 2
Insulation resistance	R <sub>is</sub>	GΩ	> 5	> 5	> 5
Max. excitation voltage	U	V	15	15	15
Rated range of excitation voltage	B <sub>U, nom</sub>	V	5...10	5...10	5...10
Limit force	F <sub>L</sub>	%	≤ 150	≤ 150	≤ 150
Breaking force	F <sub>B</sub>	%	≥ 300	≥ 300	≥ 300
Max. permissible dynamic load <sup>3)</sup>	L <sub>dy</sub>	%	≤ 75	≤ 75	≤ 75
Degree of protection acc. to DIN 60529			IP67	IP67	IP67
<sup>1)</sup> TEDS = Transducer Electronic Data Sheet acc. to IEEE 1451.4			<sup>3)</sup> Oscillation amplitude acc. to DIN 50100		
<sup>2)</sup> The class 0,5 is suitable as reference force transducer acc. to ISO 376 and also suitable for calibrations of materials testing machines acc. to ISO 7500-1.					

# Electrical Force Transducers – Model 301



Dimensions in mm			
Model 301			
	5kN	50kN	200kN
	10kN	100kN	300kN
	20kN		500kN
			600kN
A	100	127	165
B	86	110	138
C	72	92	108
D	9	11	13
E	3,5	3,5	5
F	M20 x1,5	M30 x2	M42 x3
G	32	47	62
H	35	35	50
J	6	8	12



Connection Drawing		
1	white	TEDS Data
2	red	Excitation +
3	yellow	Output +
4	blue	Excitation -
5	green	Output -
6	black	TEDS GND
#		Shield

Classification according to ISO 376							
Relative deviation of the force gauge %							Expanded uncertainty of applied calibration force (level of confidence 95 %) %
Class	of reproducibility b	of repeatability b'	of interpolation fc	of zero fo	of reversability v	of creep c	
0,5	0,10	0,05	± 0,05	± 0,025	0,15	0,05	± 0,02