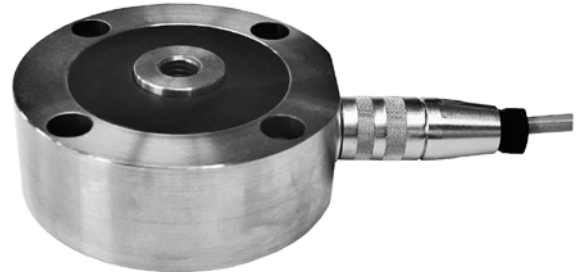


## Tension-/compression force transducer for material testing, high dynamic

with electrical output



### Description

These load cells are notable for high accuracy and low overall height. They can be used in harsh industrial environments, in laboratories or test bays, for static or dynamic measuring functions.

The load cells have a bore with internal thread leading through the centre, they are splash water protected and function reliably even under difficult service conditions.

The load cells are to be mounted on a level surface of at least the same size if the technical data listed on page 2 are to be maintained.

### Note

In order to avoid overloading, it is advantageous to connect the load cell electrically during installation and to monitor the measured value.

The force to be measured must be applied concentrically and free of transverse force.  
The load cells are to be mounted on a level surface.

### Features

- For tension and compression force measurements
- Simple installation
- Low installation height
- Protection class IP 67
- Accuracy 0.05% or 0.2% of full scale value

### Measuring ranges

- 0.5 kN ... 2000 kN

### Applications

- Material test facilities
- Plant engineering
- Production lines
- Measurement and monitoring facilities
- Special equipment and machinery construction
- Test systems

### Specific information

- Calibration control:  
100% Signal (option)
- Load input elements available (option)

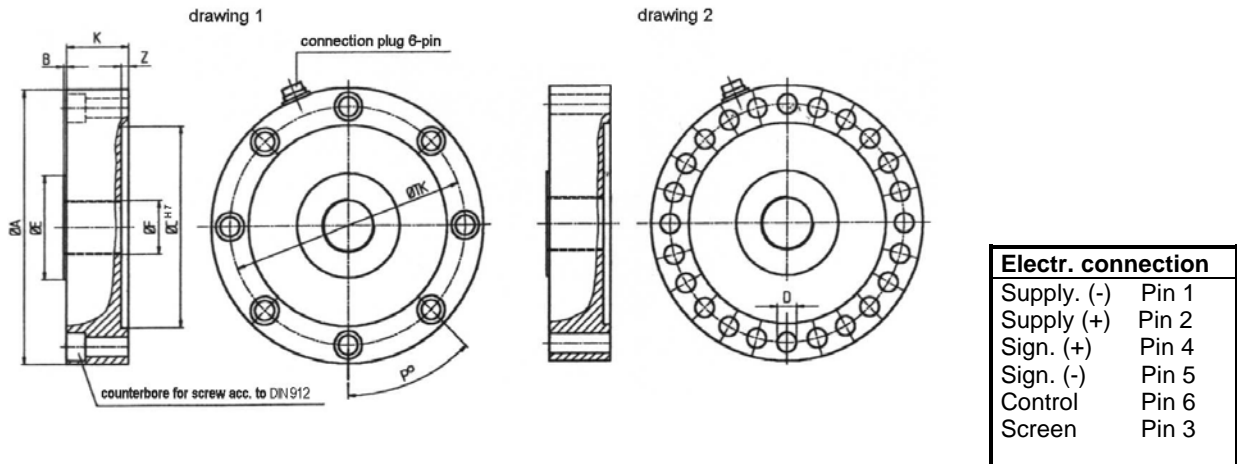
**Model: F2210**

## Technical data

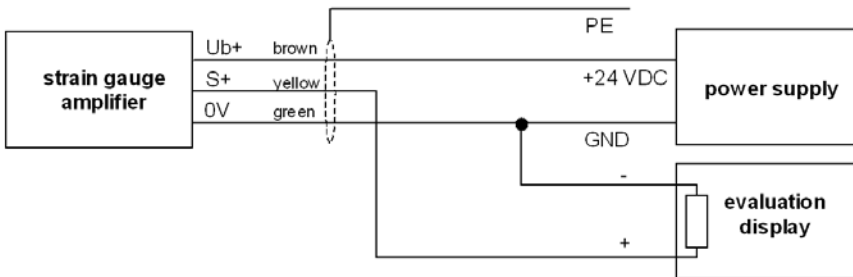
Model	F2210	Options
Nominal load $F_{nom}$	0.5, 1, 2, 5, 10, 20, 50, 100, 200, 500, 1000, 2000 kN	higher accuracy
Limit load	150% $F_{nom}$	
Breaking load	>300% $F_{nom}$	
Combined error	$\leq \pm 0.15\%$ of F.S. (tension force) $\leq \pm 0.3\%$ of F.S. (tension and compression force)	$\leq \pm 0.05\%$ of F.S. $\leq \pm 0.10\%$ of F.S.
Max. dynamic load	$\pm 80\%$ $F_{nom}$ acc. to DIN 50100	
Creep, 30 min. at $F_{nom}$	$\leq \pm 0.08\%$ of F.S.	$\leq \pm 0.03\%$ of F.S.
Nominal deflection	<0.12 mm	
Nominal temperature range	-10 ... +55°C	
Service temperature range	-30 ... +65°C	
Storage temperature range	-50 ... +90°C	
Reference temperature	23°C	
Temperature effect	-span $\leq \pm 0.07\%$ / 10K -zero $\leq \pm 0.05\%$ / 10K	$\leq \pm 0.05\%$ / 10K $\leq \pm 0.03\%$ / 10K
Protection type (acc. to EN 60 529/IEC 529)	IP 67	
Insulation resistance	> 2 G $\Omega$	
Non repeatability	0.08% of F.S.	0.03% of F.S.
Analogue output		
- Output signal	2 mV/V	
- Bridge resistance	350 $\Omega$	
- Option	Cable integrated amplifier 0 (4) ... 20 mA, 0 ... 10 V DC	
- Tolerance of span	$\leq \pm 0.1\%$ of F.S.	
- Excitation voltage	2 ... 12 V (max. 15 V), 12 ... 28 V DC for cable integrated amplifier	
- Electrical connection	Plug, 6-pin (DIN 45 322)	
Calibration control		100% signal
Mounting equipment	see sep. data sheet	
Material of measuring device	Stainless steel	
Weight (kN)		
- 0,5 - 2	1,0 kg	
- 5 - 10	1,1 kg	
- 20 - 50	3,4 kg	
- 100	5,5 kg	
- 200	6,0 kg	
- 500	15,0 kg	
- 1000	34,2 kg	
- 2000	70,0 kg	

of F.S. = full scale value

## Dimensions



Nominal load [ kN ]	Dimensions in [mm]											Screw torque in [Nm]	
	$\varnothing A$	B	$\varnothing C$	$\varnothing D$	$\varnothing E$	$\varnothing F$	K	$\varnothing TK$	P	S	Z		Picture
0.5 / 1 / 2 / 5 / 10	90	2	60	6.6	25	M 12	32	75	4 x 90°	for M6	2	1	0.8
20 / 50	150	2	105	11	55	M 24 x 2	38	130	8 x 45°	for M10	2	1	40
100 / 200	185	2	135	13	70	M 36 x 3	42	160	8 x 45°	for M12	2	1	70
500	240	2	160	17	90	M 45 x 3	60	200	12 x 30°	for M16	2	1	160
1000	295	5	200	21	130	M 80 x 4	95	250	12 x 30°	for M20	5	2	610
2000	390	3	270	26	190	M 120 x 4	117	330	24 x 15°	for M24	3	2	1050



Pin assignment for cable integrated amplifier

Subject to technical changes