Force sensor for measuring injection pressure of injection molding machines

Compression force transducer

XC-170

Load cell with flat design up to 3.000 kN
customizable

Features

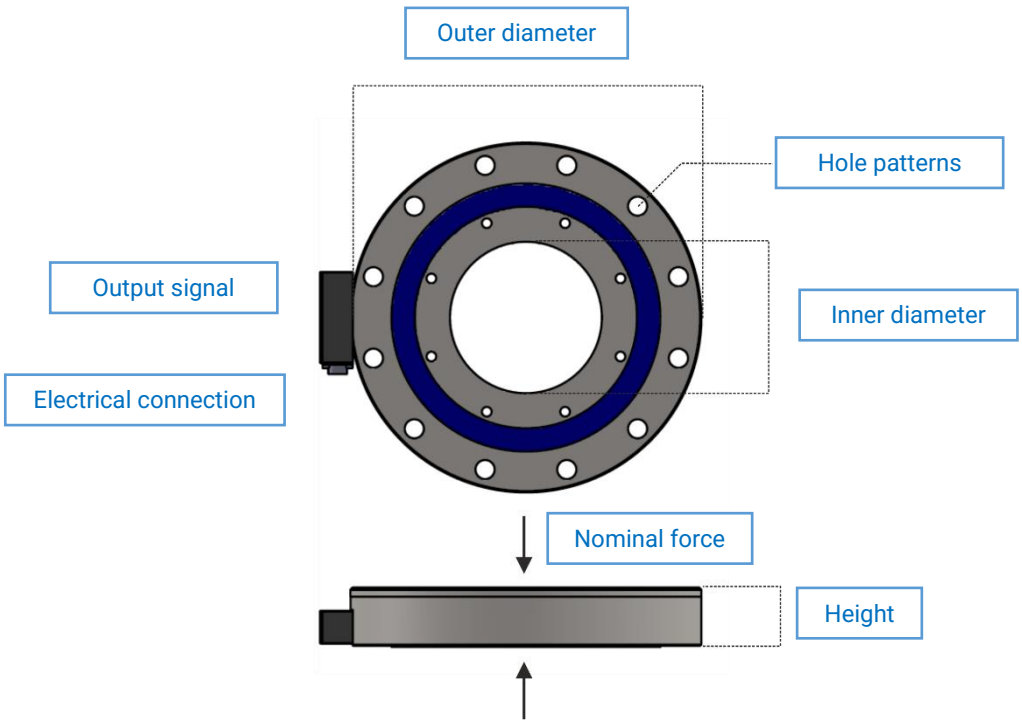
- Very high linearity and zero stability
- High temperature stability
- Flat, compact design
- Suitable for high torques
- Customizable to different machine types
- Specific measuring ranges and dimensions available

Application

The force sensors of the XC-170 series measure the injection pressure in fully electric injection molding machines behind the mixing screw. The sensor is very linear, has a very stable zero-point and an overload resistance of 150% of the final value. The massive steel construction and the sealed design (IP 54) guarantee trouble-free operation, even under harsh environmental conditions. The sensors are very temperature stable and allow a maximum consistency of the shot weight.

The force sensors have either a passive strain gauge full bridge output or an amplified ± 10 V or 4 ... 20 mA output signal. The measuring range can be adjusted exactly to the required injection force. The dimensions and the hole pattern can also be tailored to your application and the required force range.

Ordering code



Individually developed sensors adapted to your task:

In order to obtain reliable measurement results, it is often unavoidable to adapt the force sensors and force transducers to the specific requirements in order to best meet the environment and the measuring task. Tell us your requirements for the force sensor XC-170:

Type / Description
Nominal force
Output signal
Electrical connection (cable length / plug type)
Outer diameter
Inner diameter
Height
Mounting holes

We are available to you via info@x-sensors.com or +41 52 543 19 60. Please do not hesitate to contact us!

Force sensor XC-170

Load cell with flat design up to 3.000 kN,
customizable

Specifications

Performance	
Measuring range	50 - 3.000 kN
Sensitivity / Output signal	+ 1.3 mV/V ± 10 V 4-20 mA
Linearity	< 0.3 % from full-scale
Hysteresis	< 0.3 % from full-scale
Repeatability	< 0.1 % from full-scale
Temperature influence on final value	± 0.02 % FS / 10 K
Temperature influence on zero point	± 0.01 % FS / 10 K

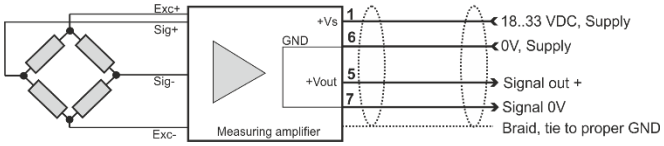
Electrical data	
Power supply	5 ... 15 VDC (without amplifier) 18 ... 30 VDC (with amplifier)
Sensitivity / Output signal	+ 1.3 mV/V ± 10 V 4-20 mA
Cut-off frequency	2000 Hz

Materials	
Housing	1.7225, hardened
Expansion coefficient sensor material	11.6x10-6 ppm/°C
Encapsualting material	PUR

Mechanical data	
Dimensions	Individually according requirements
Overload	150 % from full-scale
Wechsellastfestigkeit (100 %)	60 million cycles
Electrical connection	Individually according requirements

Environmental data	
Storage temperature	-40 ... 85 ° C
Compensated temperature range	20 ... 80 ° C
Ambient temperature	0 ... 80 ° C
Protection rate	IP 54

Wiring



Ordering code

The force transducer is supplied without a calibration certificate.
Calibration certificate available on request.

For detailed ordering information, see page 2.

Definition of accuracy

The accuracy includes the following parameters:

1. Linearity and Repeatability
   The linearity and hysteresis specifies the measurement deviation in reference to the ideal BFSL-characteristic curve. This maximum measurement error is given in reference to the full scale value. This means that an accuracy of 0.5% FS at a force transducer with a measuring range of 0 ... 600 kN corresponds to a maximum measuring deviation of only 3 kN over the entire measuring range.