



Force sensor according to the deflecting beam principle

The deflecting beam principle (shear force sensor)

Since a force and the deflection of a beam is proportional, this sensor is able to determine a force by measuring its elongation or change in length.

Due to its compact design, these traction-pressure force sensors can be used in the laboratory, as well as in industrial environments. Made with corrosion-proof steel, the sensors have a standardized nominal characteristic value. They can be mounted easily allowing simple integration into existing structures.

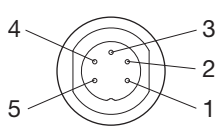
Measuring / collection of

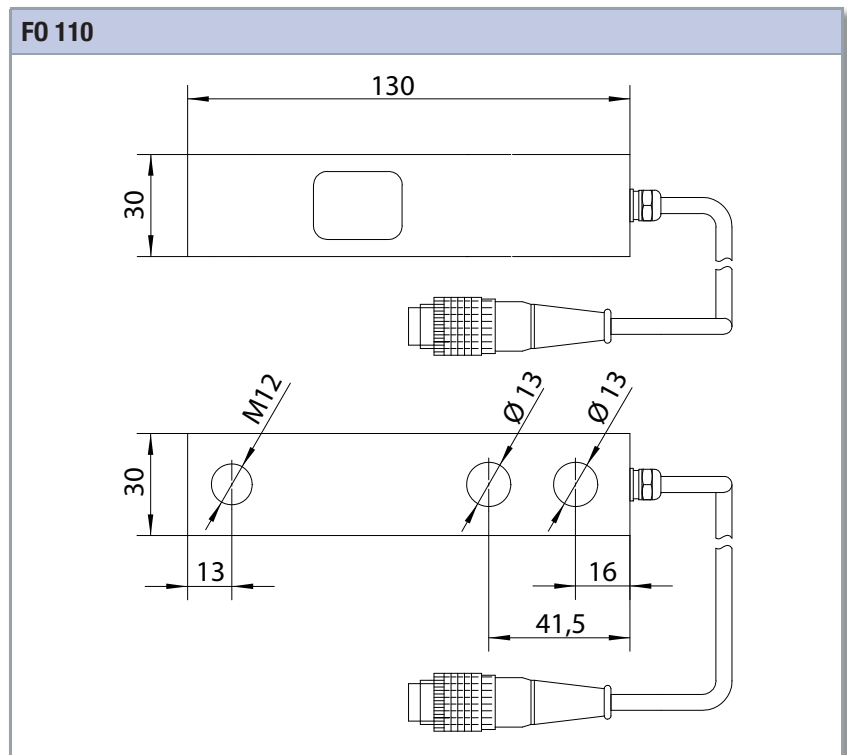
- moulding and insertion forces
- spring forces
- cutting forces
- force and force control during assembly
- pressing forces in drilling machines

Qualities

| | |
|--------------------------------------|---------------------------------------|
| Measuring principle | flexural beam |
| Output signal | 4 ... 20 mA |
| Electrical measuring connector | 5 pole device connector, M16 x 0.75 |
| Protection type (EN 60529 / IEC 529) | IP 65 |
| Material casing | steel |
| Signal type | three wires |
| Supply voltage U_b | 10 ... 24 VDC |
| Current consumption | max. 40 mA |
| Error limit | < 0.5 % of final value |
| Temperature error NP | < ± 0.04 % of final value / K |
| Temperature error receiver | < ± 0.04 % of measuring range / K |
| Non-linearity | < ± 0.15 % of final value |
| Hysteresis | max. 0.1 % of final value |
| Calibration in | N |
| Calibration tolerance | < 0.25 % of final value |
| Environmental temperature | -15 ... +85 °C |
| Storage temperature | -15 ... +85 °C |

Pin assignment

| Pin assignment | 4 ... 20 mA |
|---|----------------------------|
|  | Pin 1 = signal + |
| | Pin 2 = - U_b / signal - |
| | Pin 3 = + U_b |
| | Pin 4 = free |
| | Pin 5 = shield |



| Measuring range | Overload capability | Breaking load | Material | Weight | Order number |
|-----------------|---------------------|------------------|-----------|--------|---------------|
| kN | of nominal value | of nominal value | | g | |
| 0 ... 1.0 | 100 % | 600 % | aluminium | ~ 350 | 3183-4G-01.37 |
| 0 ... 1.5 | 50 % | 400 % | | | 3183-4G-02.37 |
| 0 ... 2.0 | 50 % | 400 % | | | 3183-4G-03.37 |
| 0 ... 5.0 | 100 % | 600 % | steel | ~ 750 | 3183-4G-04.37 |
| 0 ... 10.0 | 50 % | 400 % | | | 3183-4G-05.37 |
| 0 ... 20.0 | 50 % | 400 % | | | 3183-4G-06.37 |