

Load cells

for application in pressure cells

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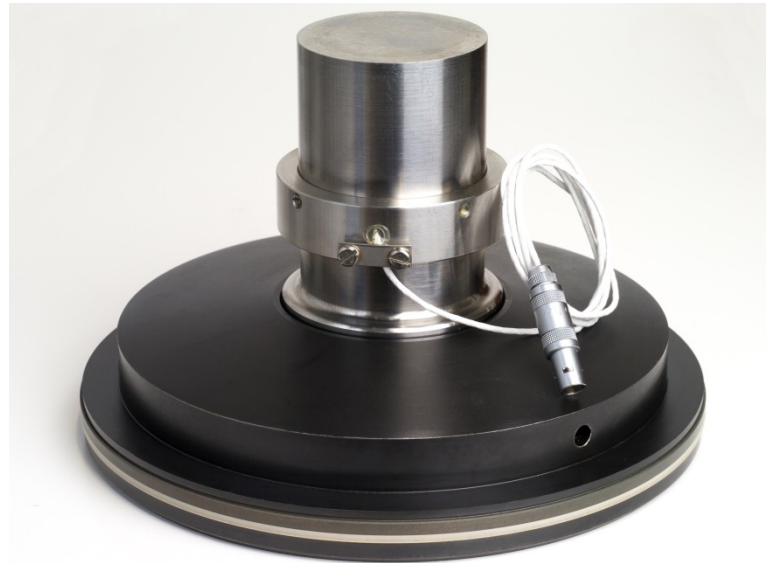
Characteristics

Reproducible, high precision measurements of the axial force are an indispensable prerequisite for meaningful results in geotechnical stress-strain testing. Deformation elements equipped with strain gauges are characterized by their extreme accuracy of measurements. A custom-built bonding technique and an optimized design guarantee greatest robustness against external stresses.

Application under high pressure

For many geotechnical problems it is necessary to test specimens under in situ conditions, i.e. they are placed into pressure vessels and exposed to high pressure and, possibly also, to high temperature. Despite these harsh conditions, the in-vessel measurement is the only reliable measuring technique for deriving authentic axial stress data without producing artefacts from friction effects at the axial pressure piston of the triaxial cell.

Our load cells were specifically developed for in-vessel use at high confining pressure. They withstand the external pressure of a hydraulic fluid medium (such as mineral oil) of up to 100 MPa (14,500 psi) as well as a temperature of up to 200°C (400°F).



Load cell for blunt coupling of a test plug; it is mounted at the lower seal of a pressure vessel



Extra compact and chamfered version of a load cell for the reception of pressure platens between specimen and load cell

Load cells

Technical specifications

- Metering range
 - 600 kN at Ø50/50.8mm (2")
 - 300 kN
 - 100 kN
- Deformation element
 - Material: stainless steel, pressure-resistant
 - Base-Ø 60g6mm
 - Head-Ø 25.4 -50.8f8mm
 - Weight: 1.3 – 1.9 kg
- Electrical data
 - Output signal 2.1-2.5 mV/V
 - Supply voltage max 20 V
 - Accuracy class 1/0.5
 - insulating resistance $>5 \times 10^9 \Omega$
- Ambient conditions
 - Operating temperature: -20 to 200°C
 - Ambient pressure: up to 100 MPa (14,500 psi)
 - Application of mineral oil as fluid medium is possible
- Pin
 - Open ends
 - Lemo 0S 4 wire
 - According to customer request



Triaxial cell set up for the measurement of both, axial load as well as axial and radial deformation