

High Pressure Transducer

Model 8270 "A5 - UHP"

Code:	8270 EN
Delivery:	approx. 12 weeks
Warranty:	24 months



- Measuring ranges between 0 ... 50 kpsi to 0 ... 175 kpsi (0 ... 3.5 kbar to 0 ... 12 kbar)
- Accuracy from < 0.5 %
- Burst protection through integrated exhaust opening
- Robust version
- Made of stainless steel

Application

This transducer is used to measure very high pressures in industry and research. It is robust and accurate. Special stainless steels allow its use even in corrosive liquid or gaseous media.

The transducer can be customized with various options at specific request, such as built-in instrumentation amplifiers or extended temperature-compensated ranges.

Description

The pressure transducer has been designed and built for reliable measurement of high pressures. In the event of a pressure overload of the sensor element, a safety valve (a hole in the outer body wall having a defined resistance) reduces the pressure in a controlled manner. This prevents the body from bursting.

Four film strain gauges connected in a Wheatstone bridge are applied to the sensor element to convert the physical variable (pressure) into an electrical variable.

A double-ended sealing cone seals the transducer at its pressure connection. The screw connection must be tightened to the specified torque.

Technical Data

Order Code	Measuring Range	Accuracy * [% F.S.]
8270-3.5	0 ... 50 kpsi Δ approx. 0 ... 3.5 kbar	< \pm 0.5
8270-5	0 ... 75 kpsi Δ approx. 0 ... 5.0 kbar	< \pm 0.5
8270-6.9	0 ... 100 kpsi Δ approx. 0 ... 6.9 kbar	< \pm 0.75
8270-10	0 ... 150 kpsi Δ approx. 0 ... 10.0 kbar	< \pm 1.0
8270-12	0 ... 175 kpsi Δ approx. 0 ... 12.0 kbar	< \pm 1.0

* Combined error consisting of non-linearity, hysteresis and variation

Electrical values

Bridge resistance: foil strain gauges 350 Ω , nominal
 Calibration resistor: 59 k Ω \pm 0.1 %
 The bridge output voltage caused by a shunt of this value is given in the calibration protocol.
 Excitation voltage: 10 V DC or AC
 Nominal sensitivity: 1 mV/V, nominal

Environmental conditions

Range of operating temperature: - 50 $^{\circ}$ C ... 120 $^{\circ}$ C
 Nominal temperature range: 15 $^{\circ}$ C ... 70 $^{\circ}$ C
 Influence of temperature on zero: \leq \pm 0.01 % F.S./K
 Influence of temperature on sensitivity: \leq \pm 0.01 % Rdg./K

Mechanical values

Error of measurement: refer to table
 Kind of measurement: against sealed atmosphere
 Dead volume: approx. 1 cm³
 Overload: 10 % over capacity
 Dynamic load:
 recommended 70 % of capacity
 possible 100 % of capacity
 Burst pressure:
 There is no danger of destroying the measurement element. Over pressure is let out by an integrated exhaust opening.
 Material:
 measuring range \leq 0 ... 100 kpsi stainless steel 17-4 PH (similar to material 1.4542)
 measuring range \geq 0 ... 150 kpsi stainless steel Carpenter Custom 455

Pressure connection:
 measuring range \leq 0 ... 100 kpsi external thread 3/4 - 16 UNF
 measuring range \geq 0 ... 150 kpsi external thread 1 1/4 - 12 UNF

Mounting torque: 150 Nm, greased

Sealing: sealed by a double ended sealing cone in the pressure connection (the cone is included in scope of delivery).

Electrical connection: 6 pin screw connector GS 02-14S-6P-251

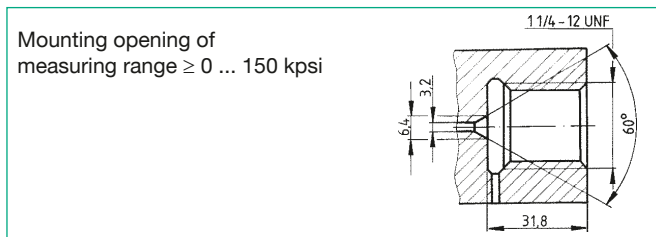
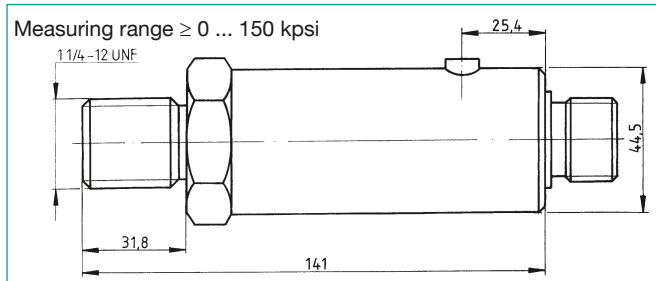
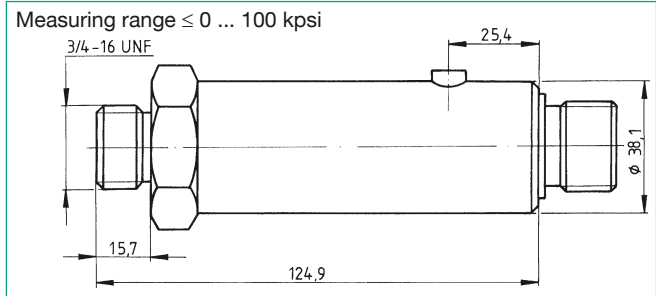
Wiring (standard):
 pins A + B excitation voltage positive
 pins C + D excitation voltage negative
 pin E output signal negative
 pin F output signal positive

Connector: Model 9946
 Amphenol MS 3106A - 14S - 6S included in scope of delivery

Dimensions: refer to dimensional drawing

Weight:
 measuring range \leq 0 ... 100 kpsi approx. 460 g
 measuring range \geq 0 ... 150 kpsi approx. 1040 g

Dimensional drawing model 8270



Order Information

High pressure transducer measuring range 0 ... 5000 bar, refer to table.
 please mention additional options.

Model 8270-5

Accessories

Connecting cable for transducers with bridge output, complete with connector and socket, 6 pin, shielded, bending radius > 5 mm, PVC insulated, length 3 m

for burster evaluation electronics, desktop version with 12 pin connector **Model 9912**

with open, color coded and tinned cable ends **Model 99546-000A-0150030**

Measurement amplifiers or process controllers like modular amplifier model 9243, process indicator model 9163 or model 9180 **refer to section 9 of the catalog**

Options

Option **...-VxFxxxxx**
 Extension of the nominal temperature range to 20 $^{\circ}$ C ... 120 $^{\circ}$ C

Option **...-V1xxxxxx**
 Integrated measurement amplifier with voltage output 0 ... 5 V DC technical data refer to data sheet 83-IMV

Option **...-V4xxxxxx**
 Integrated measurement amplifier with current output 4 ... 20 mA technical data refer to data sheet 83-IMV