

# 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 $\triangleq$ approx. 0 ... 3.5 kbar	< $\pm$ 0.5
8270-5	0 ... 75 kpsi $\triangleq$ approx. 0 ... 5.0 kbar	< $\pm$ 0.5
8270-6.9	0 ... 100 kpsi $\triangleq$ approx. 0 ... 6.9 kbar	< $\pm$ 0.75
8270-10	0 ... 150 kpsi $\triangleq$ approx. 0 ... 10.0 kbar	< $\pm$ 1.0
8270-12	0 ... 175 kpsi $\triangleq$ 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  $\Omega$ , nominal  
 Calibration resistor: 59 k $\Omega$   $\pm$  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 cm<sup>3</sup>  
 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

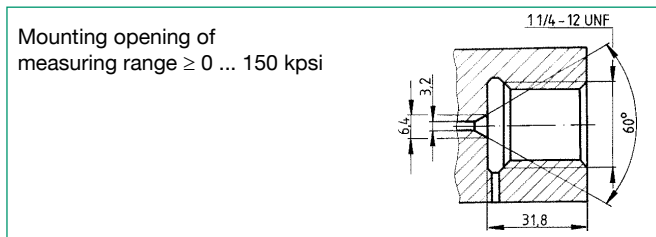
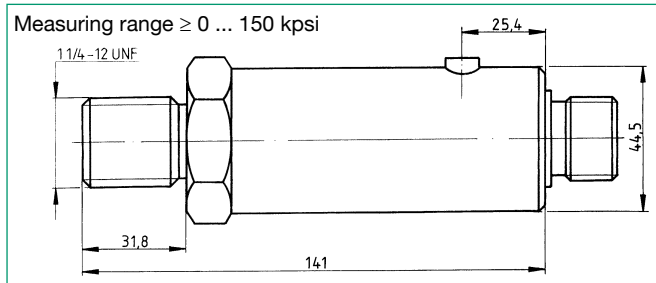
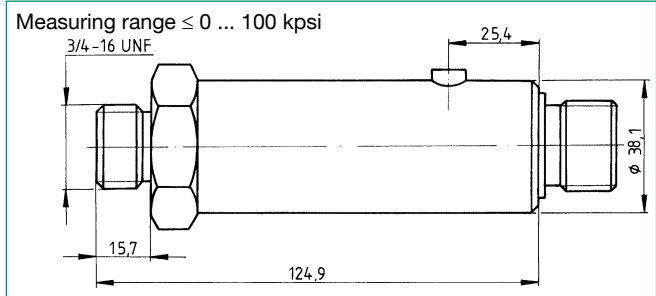
Connector: Model 9946  
 Amphenol MS 3106A - 14S - 6S included in scope of delivery

Dimensions: refer to dimensional drawing

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

**Order Information**

High pressure transducer measuring range 0 ... 5000 bar, refer to table.  
 please mention additional options. **Model 8270-5**

**Dimensional drawing model 8270**

**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

**Test and Calibration Certificate**

Included in delivery, et al. with specification of zero output, sensitivity and shunt calibration factor.

**Options**

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

...-VxFxxxxx

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

...-V1xxxxxx

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

...-V4xxxxxx

**Factory Calibration Certificate (WKS)**

Calibration of a pressure transducer separately as well as connected to an indicator. Standard is a certificate with 11 points, starting at zero, running up and down in 20% increments and covering the complete measuring range. Special calibrations on request. Calculation of costs by base price plus additional costs per point.

**Order Code 82WKS-82...**