



# Product information

## Process pressure

Process pressure transmitter

VEGABAR 14

VEGABAR 17



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**Take note of safety instructions for Ex applications**



Please note the Ex specific safety information which you can find on our homepage [www.vega.com/downloads](http://www.vega.com/downloads) under "Approvals" and which comes with every instrument. In hazardous areas you should take note of the corresponding regulations, conformity and type approval certificates of the sensors and power supply units. The sensors must only be operated on intrinsically safe circuits. The permissible electrical values are stated in the certificate.

# 1 Measuring principle

## Measuring principle

The pressure of the measured medium acts on the pressure measuring cell, converting this pressure into an electronic signal. The ceramic-capacitive CERTEC® as well as the metallic piezo and strain gauge measuring cells are used.

### VEGABAR 14

The sensor element is the ceramic CERTEC® measuring cell with rugged ceramic diaphragm.

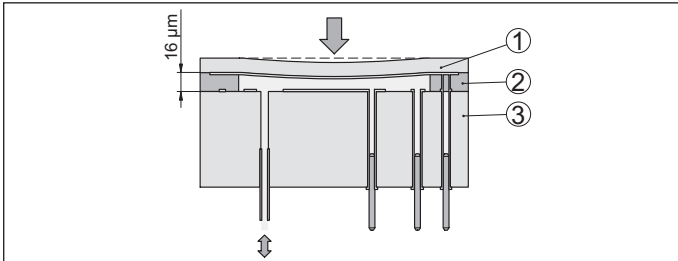


Fig. 1: Configuration of the CERTEC® measuring cell in VEGABAR 14

- 1 Diaphragm
- 2 Soldered glass bond
- 3 Base element

### VEGABAR 17

With measuring ranges up to 40 bar, a piezoresistive sensor element with internal transmission liquid is used. With measuring ranges from 100 bar, a strain gauge (DMS) sensor element on the rear of the stainless steel diaphragm (dry).

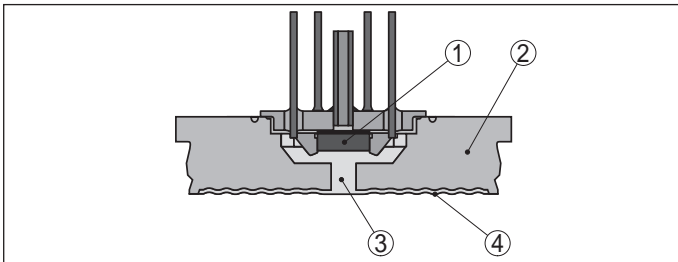


Fig. 2: Configuration of the piezoresistive measuring cell in VEGABAR 17

- 1 Sensor element
- 2 Base element
- 3 Silicone oil filling
- 4 Diaphragm

## Advantages

The measuring instruments cover a particularly large measuring range, from vacuum up to very high pressures. The integrated self-monitoring enables a high operational safety. Process pressure transmitters using the dry, ceramic-capacitive measuring cell offer special safety. They characterize by high overload resistance and long-term stability.

## 2 Type overview

VEGABAR 14



VEGABAR 17



Measuring cell	CERTEC®	Piezoresistive/DMS
Diaphragm	Ceramic	Metal
Media	Gases, vapours and liquids	Gases, vapours and liquids, also viscous products
Process fitting	G½, M20 x 1.5 according to EN 837, G½ A inner G¼ A, ½ NPT inner ¼ NPT, G1½, 1½ NPT	G1 B or G½ B front flush, G½ B, G¼ B, ½ NPT or ¼ NPT manometer connection
Material	316L	316Ti
Process fitting		
Diaphragm material	Al <sub>2</sub> O <sub>3</sub> ceramic	316Ti
Measuring cell seal	FKM, EPDM	-
Isolating liquid	-	Silicone oil, Halocarbon oil
Measuring range	-1 ... +72 bar/-100 ... +7200 kPa (-14.5 ... +1044 psig)	-1 ... +1000 bar/-100 ... +100 MPa (-14.5 ... +14504 psig)
Smallest measuring range	0.1 bar/10 kPa (1.45 psig)	0.1 bar/10 kPa (1.45 psig)
Process temperature	-40 ... +100 °C (-40 ... +212 °F)	-40 ... +150 °C (-40 ... +302 °F)
Deviation	< 0.3 %	< 0.5 %
Signal output	4 ... 20 mA	4 ... 20 mA
Connection	Plug according to ISO 4400, plug M12 x 1, cable outlet	Plug according to ISO 4400, plug M12 x 1, cable outlet, terminal housing
Recalibration	-	Zero/Span ±5 %

### 3 Instrument selection

#### Application area

##### VEGABAR 14

The VEGABAR 14 pressure transmitter can be used universally for measurement of gases, vapours and liquids. The small pressure transmitter offers maximum reliability. The VEGABAR 14 is an economical solution for a multitude of applications in all areas of industry.

##### VEGABAR 17

The VEGABAR 17 pressure transmitter can be used universally for measurement of gases, vapours and liquids. The VEGABAR 17 is an economical solution for a multitude of applications in all areas of industry.

#### Configuration and housing protection classes

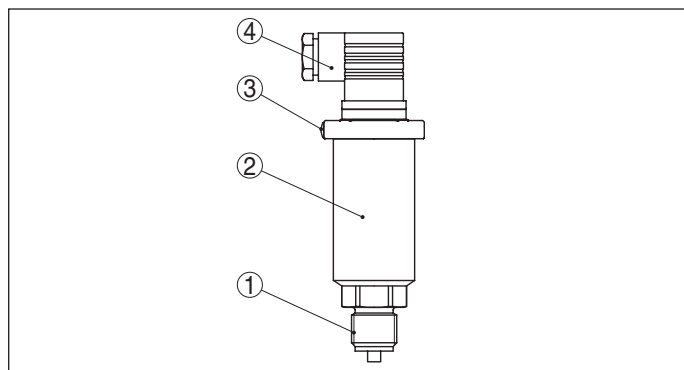


Fig. 3: VEGABAR with plug connector according to ISO 4400

- 1 Process fitting
- 2 Housing with electronics
- 3 Pressure compensation
- 4 Plug connector

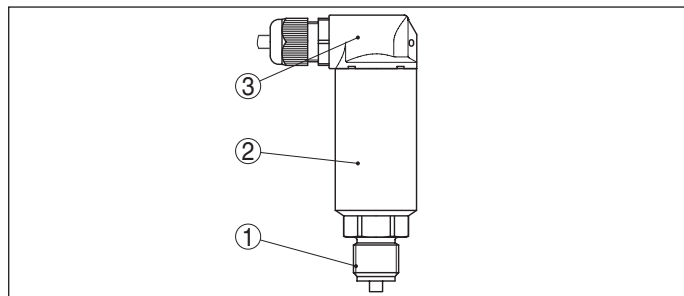


Fig. 4: VEGABAR with cable outlet

- 1 Process fitting
- 2 Housing with electronics
- 3 Cable outlet

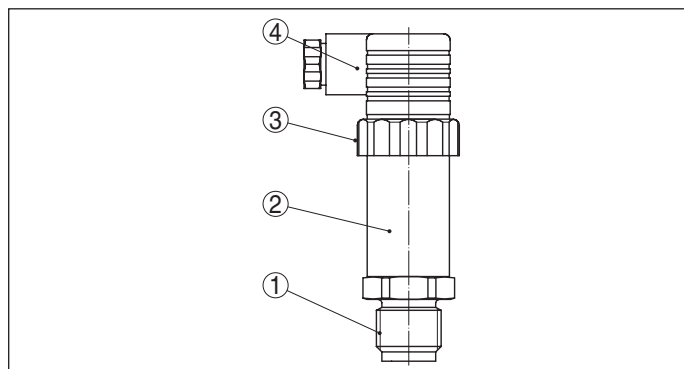


Fig. 5: VEGABAR with plug connector according to ISO 4400

- 1 Process fitting
- 2 Housing with electronics
- 3 Pressure compensation (beneath the knurled nut)
- 4 Plug connector

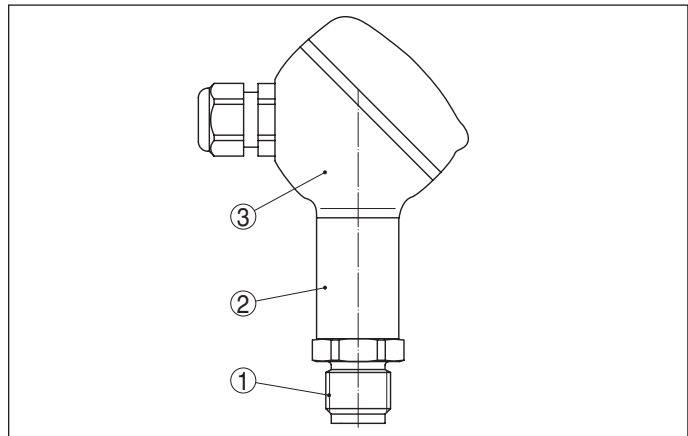


Fig. 6: VEGABAR with terminal housing

- 1 Process fitting
- 2 Housing with electronics
- 3 Terminal housing

## 4 Selection criteria

		VEGABAR 14	VEGABAR 17
Measuring cell	Ceramic	●	–
	Metallic	–	●
Front-flush version		●	●
Measuring system	Dry	●	–
	Oil-filled	–	●
Wear through process medium	Abrasive	●	–
	Aggressive	–	●
Max. process temperature	+100 °C (+212 °F)	●	●
	+150 °C (+302 °F)	–	●
Hygienic process fittings		●	●
Measuring ranges	from 0.1 bar (10 kPa)	●	●
	up to 1000 bar (100 MPa)	–	●

## 5 Electronics - VEGABAR 14

### Voltage supply

Depending on the version, the supply voltage and the current signal are carried on the same two-wire connection cable.

The VEGA power supply units VEGATRENN 149AEx, VEGASTAB 690, VEGADIS 371 as well as VEGAMET signal conditioning instruments are suitable for power supply. When one of these instruments is used, a reliable separation of the supply circuits from the mains circuits according to DIN VDE 0106 part 101 is ensured for the sensor.

- Operating voltage
  - 8 ... 30 V DC

### Connection cable

The sensors are connected with standard cable without screen. An outer cable diameter of 5 ... 9 mm ensures the seal effect of the cable entry.

If electromagnetic interference is expected which is above the test values of EN 61326 for industrial areas, shielded cable should be used.

### Cable screening and grounding

If shielded cable is necessary, the cable screen must be connected on both ends to ground potential. If potential equalisation currents are expected, the connection on the evaluation side must be made via a ceramic capacitor (e.g. 1 nF, 1500 V).

### Connection plug connector according to ISO 4400

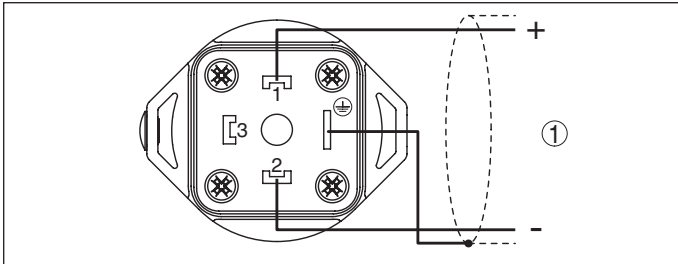


Fig. 7: Wiring plan for plug connector according to ISO 4400, view to the connection on the instrument side

- 1 Voltage supply and signal output

### Connection direct cable outlet

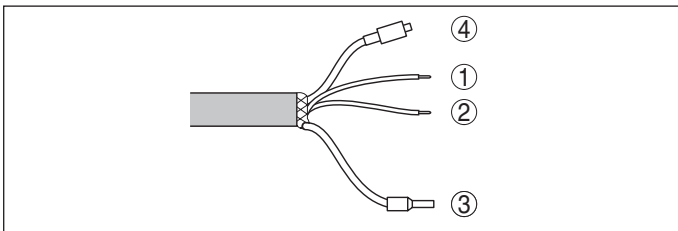


Fig. 8: Wiring plan cable outlet<sup>1)</sup>

- 1 Brown (+) power supply and signal output  
 2 Blue (-) power supply and signal output  
 3 Cable screen  
 4 Breather capillaries

<sup>1)</sup> The other cables are not connected.

## 6 Electronics - VEGABAR 17

The supply voltage and the current signal are carried on the same two-wire connection cable.

The VEGA power supply units VEGATRENN 149AEx, VEGASTAB 690, VEGADIS 371 as well as the VEGAMET signal conditioning instruments are suitable for power supply. When one of these instruments is used, a reliable separation of the supply circuit from the mains circuits according to DIN VDE 0106 part 101 as well as the protection class are ensured.

- Operating voltage
  - 10 ... 30 V DC (plug or cable outlet)
  - 11 ... 30 V DC (terminal housing)

### Connection cable

The sensors are connected with standard cable without screen. An outer cable diameter of 5 ... 9 mm ensures the seal effect of the cable entry.

If electromagnetic interference is expected which is above the test values of EN 61326 for industrial areas, shielded cable should be used.

### Cable screening and grounding

If shielded cable is necessary, the cable screen must be connected on both ends to ground potential. If potential equalisation currents are expected, the connection on the evaluation side must be made via a ceramic capacitor (e.g. 1 nF, 1500 V).

### Connection plug connector according to ISO 4400

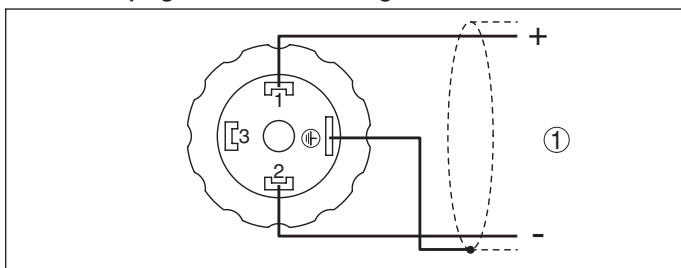


Fig. 9: Wiring plan, angle plug connector according to ISO 4400, top view to VEGABAR

- 1 Voltage supply and signal output

### Connection cable outlet

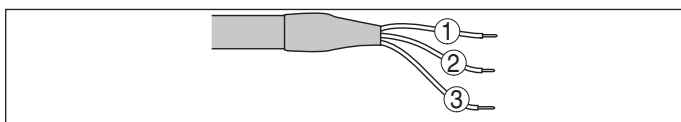


Fig. 10: Wiring plan cable outlet<sup>2)</sup>

- 1 Brown (+) power supply and signal output
- 2 Green (-) power supply and signal output
- 3 blue = cable screen

### Connection terminal housing

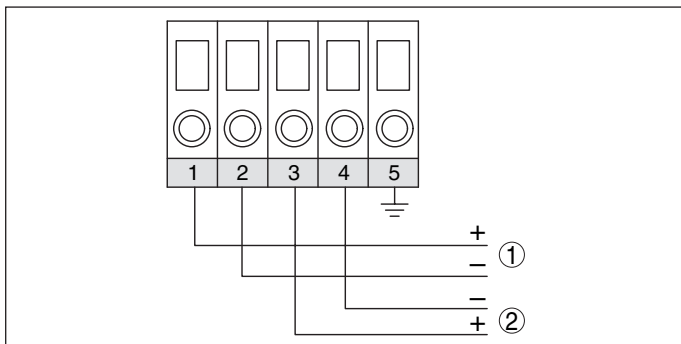


Fig. 11: Wiring plan, terminal housing

- 1 To voltage supply or processing system
- 2 Control instrument (4 ... 20 mA measurement)

<sup>2)</sup> The wires in blue, yellow, black, white are not connected.



## 7 Adjustment

### 7.1 Recalibration with VEGABAR 17

VEGABAR 17 offers a Zero-/Span adjustment  $\pm 5\%$  via two integrated potentiometers for recalibration.

#### Angled and round plug connector, cable outlet

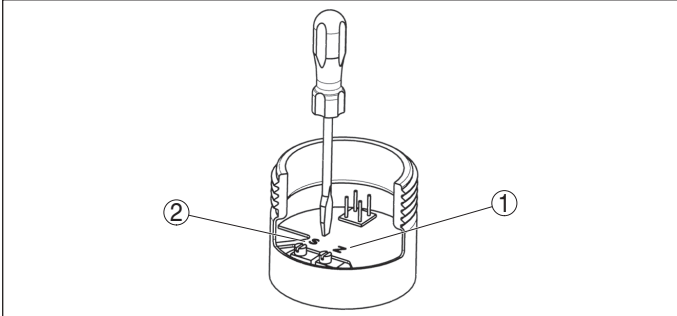


Fig. 12: Adjustment zero and span

S Span  
Z Zero

#### Terminal housing

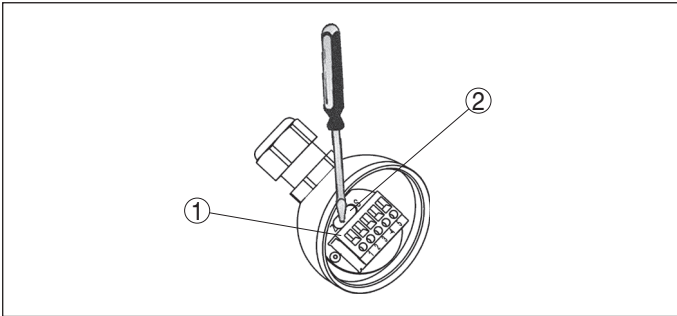
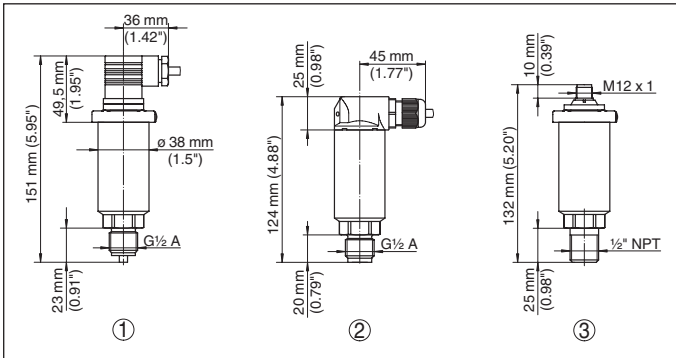


Fig. 13: Adjustment zero and span

Z Zero  
S Span

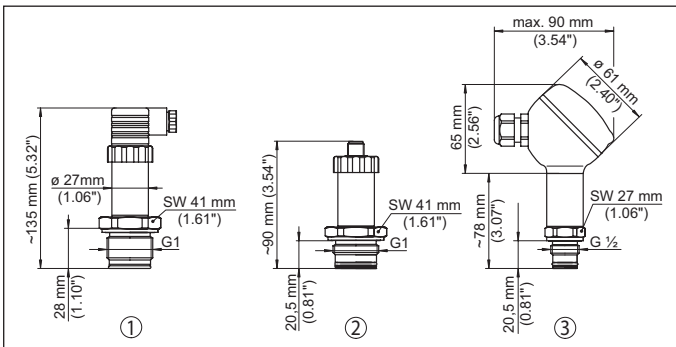
## 8 Dimensions

### VEGABAR 14



- 1 Threaded version G $\frac{1}{2}$ , manometer connection EN 837 with plug connection ISO 4400
- 2 Threaded version G $\frac{1}{2}$ , inner G $\frac{1}{4}$  with direct cable outlet
- 3 Threaded version  $\frac{1}{2}$  NPT, inner  $\frac{1}{4}$  NPT with plug connection M12 x 1

### VEGABAR 17



- 1 Threaded version G1, hygienic with angle plug connection ISO 4400
- 2 Threaded version G1, front-flush with plug connection M12 x 1
- 3 Threaded version G $\frac{1}{2}$ , front-flush with terminal housing

The listed drawings represent only an excerpt of the available process fittings. You can find more drawings at [www.vega.com/downloads](http://www.vega.com/downloads) under "Drawings".





All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.  
Subject to change without prior notice

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