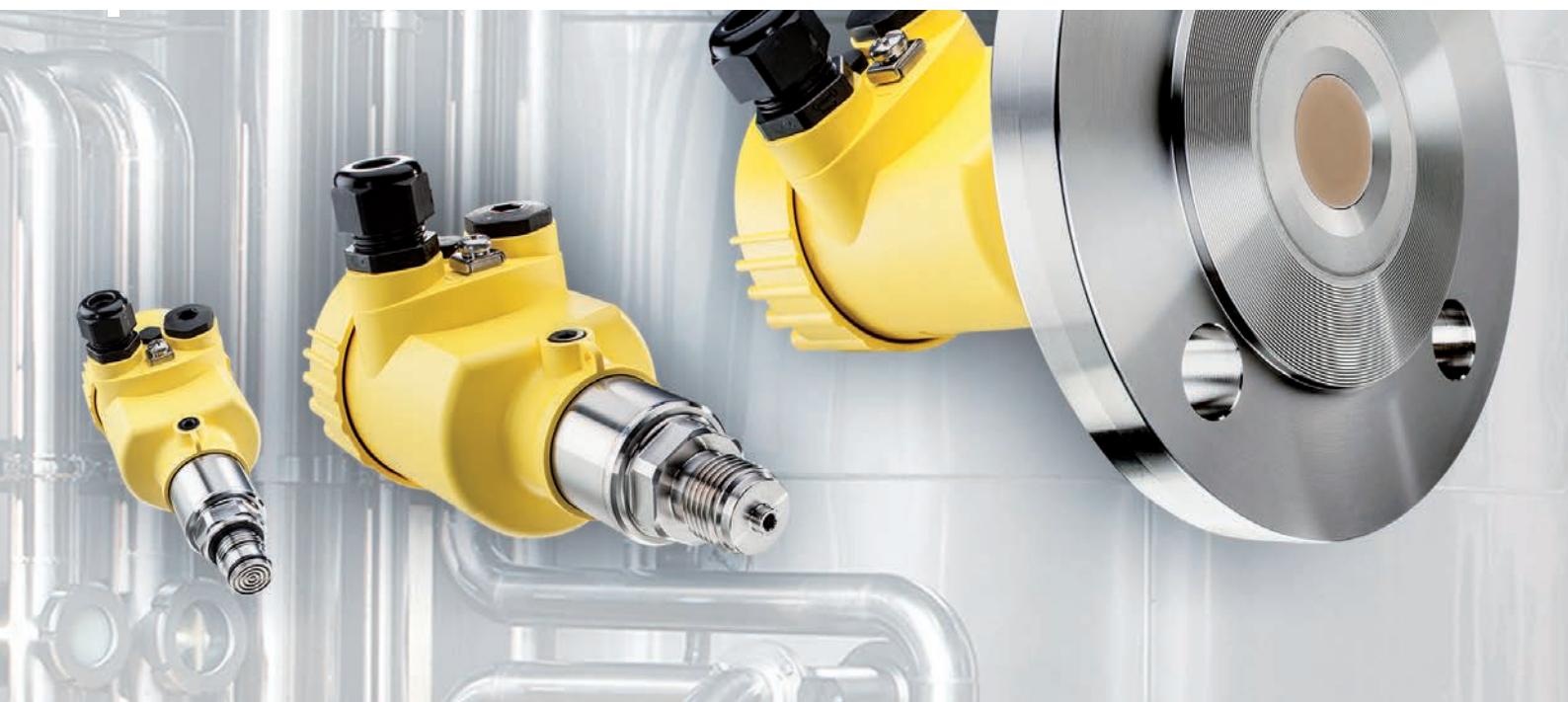




Process pressure, hydrostatic, differential pressure

Pressure instrumentation for all media

Looking Forward **VEGA**



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# Pressure measurement – reliable, precise, custom made

**Process pressure, hydrostatic and differential pressure: VEGA has over 40 years of experience in developing and manufacturing pressure and level measuring instruments for the process industries.**

## **Pressure sensors with the smarts**

Pressure measurement is used across many industries for level, volume, density or flow measurement. Whether gas, vapour or liquids: VEGA pressure transmitters deliver reliable and highly accurate readings in all media. The measuring range of VEGA instruments begins already at tiny pressures as low as 25 mbar and extends to extreme pressures up to 1,000 bar at process temperatures from -20 to +400 °C.

How does that work? Quite simple: VEGA has developed a variety of measuring cells that are specially adapted to specific measurement conditions.

## **Better safe than sorry**

Safety and efficiency always take top priority in complex processes. Nowadays, measuring instruments are involved to a large degree in process control. That's why VEGA adheres to the highest standards in all areas of the company: in development, production, quality assurance and certification as well as in application consulting.

## **Innovation VEGABAR 80**

The new VEGABAR series 80 is a testament to VEGA's innovative strength.

The advantages speak for themselves:

- **Temperature shock compensation**

Even extremely fast temperature changes have no influence on the measuring result

- **Small measuring ranges**

Maximum measurement accuracy already at 25 mbar

- **Ceramic measuring cell up to 100 bar**

Front-flush mounting even in abrasive media

- **Electronic differential pressure**

Every sensor of the VEGABAR series 80 can be configured as a differential pressure system

- **Second Line of Defense**

Gas-tight thanks to encapsulated process module

# In-house development and manufacturing

**VEGA develops and manufactures all the core technologies of its instruments itself. In addition, it employs the modular instrument platform plics®, which is now the very heart of VEGA measurement technology. That intelligent product concept makes it possible to put together an instrument perfectly optimized for the customer's specific measuring task.**

## Consistently the best technology

All pressure transmitters are conceived, realized and perfected in VEGA's own development department. The production of CERTEC® and METEC® measuring cells and the assembly of the circuit boards are also carried out solely at the company headquarters in Schiltach. This ensures that only the very best technology is built into the instruments. For VEGA, environmental aspects also play a key role: from the selection of raw materials, to production, to final disposal.

## Measuring cell production in the in-house clean room

VEGA manufactures CERTEC® ceramic-capacitive measuring cells and metallic METEC® measuring cells under "Class 100 clean room" conditions.

In this completely dust-free atmosphere, the CERTEC® measuring cells are printed and fired in thick film technology. The glass solder joint between the body and the ceramic diaphragm has to lie within a spacing tolerance of only +/- 1 micron.

## Quality checked at every step

With pressure instruments, everything depends on the tightness of the measuring cell. That's why VEGA quality assurance staff check every single cell for helium tightness in a helium leak tester. What is more, each cell is sent to the "sauna" and the "freezer": to rule out any temperature-related malfunctioning, the test run exposes the measuring cells to temperatures from -20 to +100 °C. On top of this, each individual production step is checked and documented. An individual serial number ensures that each pressure transmitter is traceable.

## Calibration with certificate

Crucial for the accuracy of the pressure transducers is their calibration. Complex calibration runs on DKD certified test benches ensure maximum measurement precision. The test facilities themselves and the test software are of course also made by VEGA. The company can thus respond quickly and flexibly to customer requirements. Every pressure transducer gets a test certificate confirming that it has gone through the calibration procedure.

Not a speck of dust in the air: CERTEC® ceramic measuring cells are produced in Schiltach under "Class 100 clean room" conditions.



# All technologies at a glance



## Ceramic-capacitive measuring cell

### Ceramic-capacitive CERTEC® measuring cell of sapphire-ceramic® with absolutely front-flush or internal diaphragm

- Measuring range -1 ... +100 bar
- Temperature range -40 ... +150 °C
- Dry measuring cell
- Excellent long-term stability
- High overload and abrasion resistance

Applications include: the chemical industry, paper production and water management.



## Chemical seal system

### Chemical seal system for decoupling from high temperatures or aggressive media

- Measuring range -1 ... +1,000 bar
- Temperature range -90 ... +400 °C
- Wetted parts e.g. of high-grade steel 316 L, Tantalum and Hastelloy
- Diaphragm coatings e.g. of PA, PP or gold

Applications include: the pharmaceutical and food industry, chemical reactors and distillation columns.



## Differential pressure measuring cell

### Piezoresistive differential pressure measuring cell

- $\Delta p$  measuring range 0.01 ... 40 bar
- Temperature range -40 ... +120 °C
- Dynamic overload resistance up to +630 bar
- Chemical seal single side assembly (CSS)
- Chemical seal both side assembly (CSB)

Applications include: filter monitoring, flow measurement and pressurized vessels.

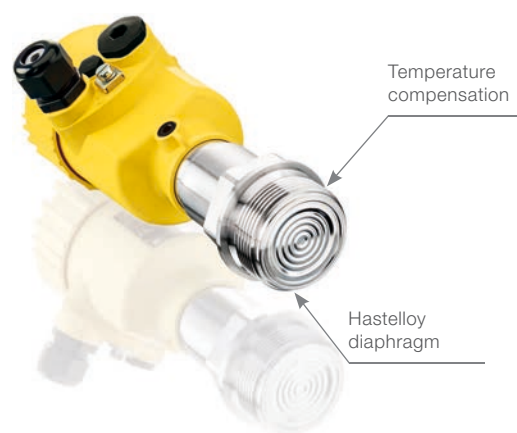


## Metallic measuring cells

### Metallic METEC® measuring cell with Hastelloy diaphragm and self-compensating temperature characteristics

- Measuring range -1 ... +25 bar
- Temperature range -12 ... +200 °C
- Elastomer-free
- Absolutely vacuum resistant
- Good temperature shock reaction

Applications include:  
the food industry,  
corrosive products and  
bitumen storage.



### Piezoresistive metallic measuring cell with absolutely front-flush or internal diaphragm and FDA compliant oil filling

- Measuring range -1... +16 bar
- Temperature range -40 ... +150 °C
- Insensitive to condensed moisture
- Elastomer-free
- Vacuum resistant

Applications include:  
power plant technology,  
water extraction and  
petrochemical.



### Metallic thin film measuring cell in very compact design – dry measuring cell for high pressure

- Measuring range +25 ... +1,000 bar
- Temperature range -40 ... +105 °C
- Vacuum resistant
- Insensitive to condensed moisture
- Vibration and shock resistant

Applications include:  
hydraulics technology,  
engine test benches  
and gas compressor  
stations.





## plics® – easy is better

### Instrument platform plics®: pressure measurement made to order

Commercially available standard solutions for pressure measurement do not leave the user much leeway for a truly optimal instrumentation. In contrast, the instrument platform plics® allows the most suitable combination of sensor, process fitting, electronics and housing to be created. The result is an instrument that is highly reliable, economical and user friendly.

## Industry leading technology

### VEGA goes its own way

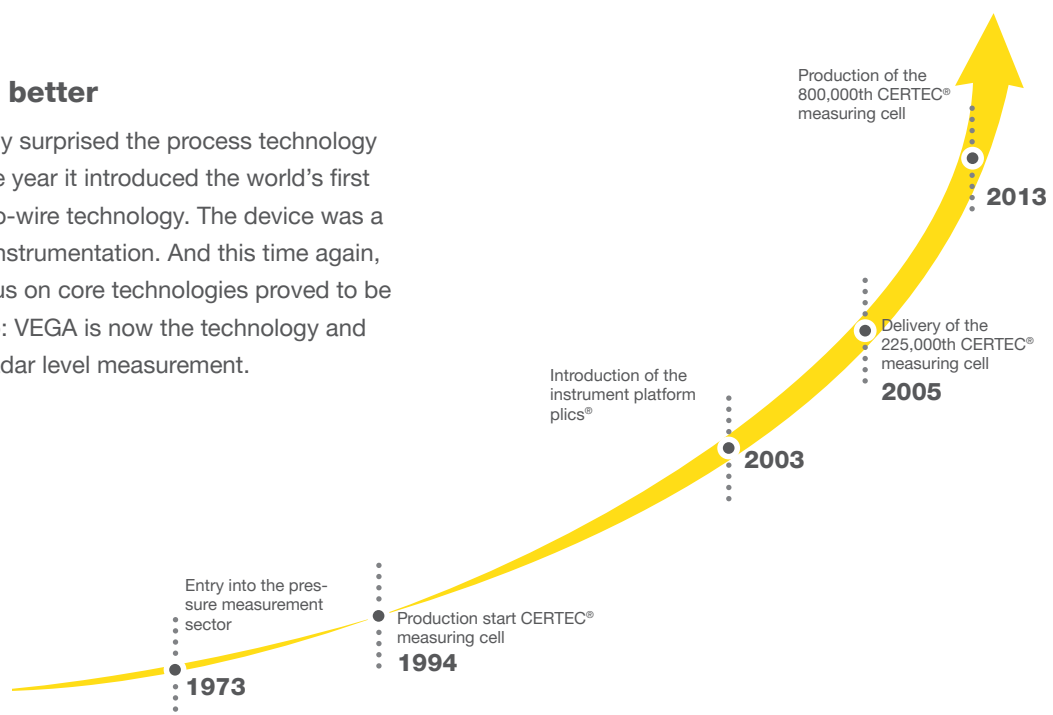
20 years ago, aluminum oxide ceramic was still a very young sensor material – and a sensation in a measurement technology world, which had thus far only worked with metallic measuring cells. This type of ceramic proved to be almost as hard as diamond and therefore extremely resistant to abrasion and overloading. VEGA recognized the material's potential very early and went on to develop the novel ceramic-capacitive CERTEC® measuring cell.

### Be faster and better

In 1997 VEGA really surprised the process technology world: that was the year it introduced the world's first radar sensor in two-wire technology. The device was a milestone in field instrumentation. And this time again, the consistent focus on core technologies proved to be the right way to go: VEGA is now the technology and market leader in radar level measurement.

### Solid growth with hard ceramic

After level instrumentation comes pressure measurement technology as VEGA's second largest business segment. With its long service life and outstanding properties, the CERTEC® measuring cell is a guarantee for continuous growth in the future. Front-flush mounting with self-cleaning effect, for example, protects the diaphragm permanently against buildup and deposits.







**Indicating and adjustment module**



PLICSCOM



VEGACONNECT

**Electronics**



4 ... 20 mA



4 ... 20 mA/  
HART



Profibus PA



Foundation  
Fieldbus



Modbus

**Housing**



Plastic



Stainless steel



Aluminium



Plastic  
double chamber



Stainless steel  
double chamber



Aluminium  
double chamber

**Process fitting**



Thread



Flange



Hygienic  
connection



Custom-  
design

**Sensor**



Process  
pressure



Hydrostatic



Differential  
pressure

**Measuring cell**



Ceramic-capacitive  
measuring cell CERTEC®



Differential pressure  
measuring cell



Chemical seal  
system



Metallic measuring cell  
METEC®



Piezoresistive  
measuring cell



Metallic thin film  
measuring cell



Explosion protection



Hygienic standards



Safety standards



Ship approvals

# VEGABAR 14 and VEGABAR 17 – the compact ones

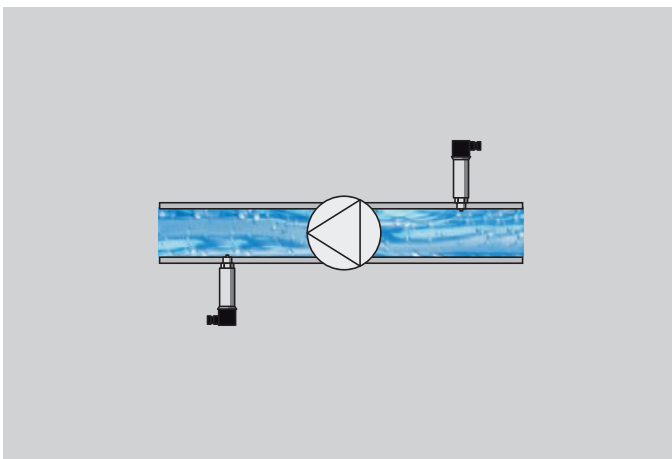
## Well adapted and robust: VEGABAR 14 and VEGABAR 17

### Small, compact pressure transmitters for maximum reliability and operational stability.

These compact sensor models are the ideal combination for applications in mechanical engineering, as they complement one another in their features. The ceramic-capacitive CERTEC® measuring cell in VEGABAR 14 and the metallic measuring cell in VEGABAR 17 offer a wide variety of potential solutions.

## VEGABAR 14

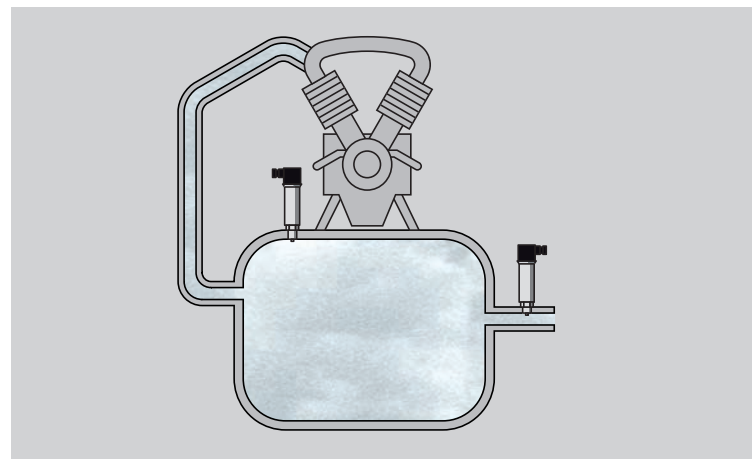
- Ceramic-capacitive CERTEC® measuring cell
- Measuring range: -1 ... +60 bar
- Temperature range: -40 ... +100 °C
- Measurement deviation: 0.3 %
- Response time: < 30 ms
- Output signal: 4 ... 20 mA



### Monitoring a chlorine/water pump

VEGABAR 14 with PVDF connection makes reliable pressure measurement possible in chlorinated water, seawater and brine.

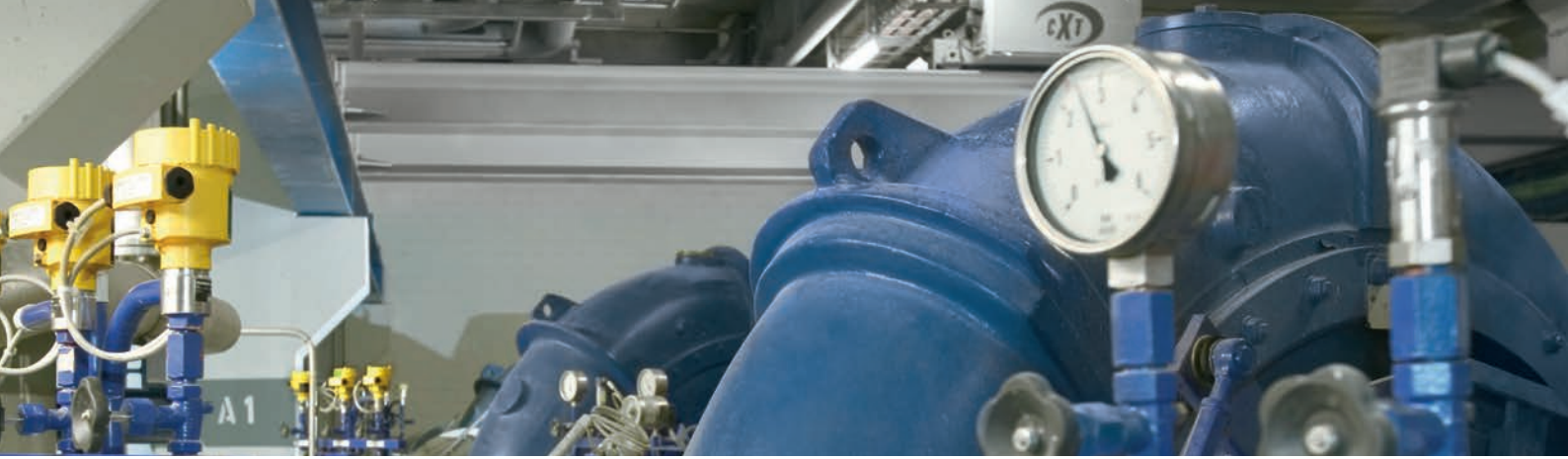
- Acid and chloride resistant PVDF plastic
- Double seal for increased reliability
- Vacuum and pressure impact resistant



### Compressed air monitoring

Monitoring of the compressed air tank and the pressure lines of tools and machinery with VEGABAR 14.

- Process fittings of 316 L
- Small compact design
- Highly overload-resistant ceramic measuring cell



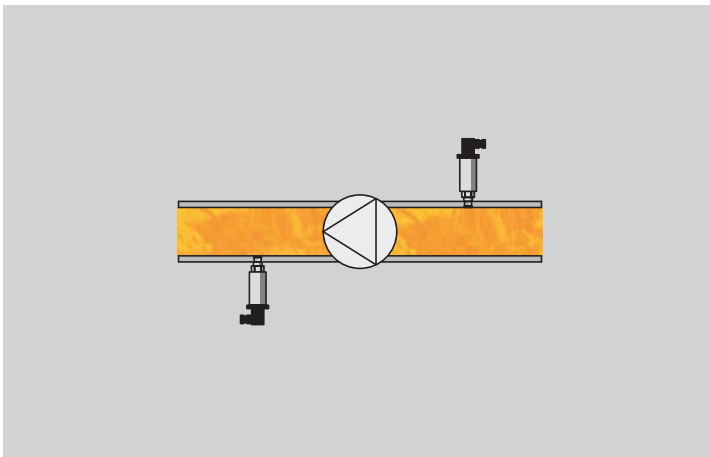
## VEGABAR 17

- Metallic measuring cell (piezoresistive or thin film)
- Measuring range: -1 ... +1,000 bar
- Temperature range: -40 ... +150 °C
- Measurement deviation: 0.5 %
- Response time: < 10 ms
- Output signal: 4 ... 20 mA



## Technology highlight: Pressures up to 1,000 bar

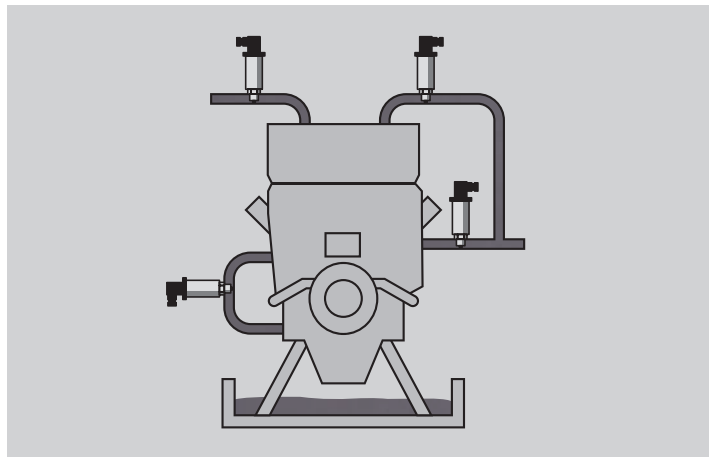
The service-proven metallic thin film measuring cell can handle measuring tasks reliably up to +1,000 bar and – when equipped with a cooling element – can also operate in product temperatures up to +150 °C.



### Feed pressure control in viscous media

VEGABAR 17 measures process pressure in hot or viscous media.

- Buildup resistant through front-flush diaphragm
- High temperature resistance up to +150 °C
- Compact design
- Front-flush process fittings from 1/2" thread



### Measurement on the engine test bench

VEGABAR 17 measures dynamically and accurately the pressure of exhaust fumes, oil, fuel and combustion air on an engine test bench.

- Ex approval
- Vibration and impact resistant
- Process fittings from 1/4" thread

# VEGABAR 81 – the specialist for extreme temperatures

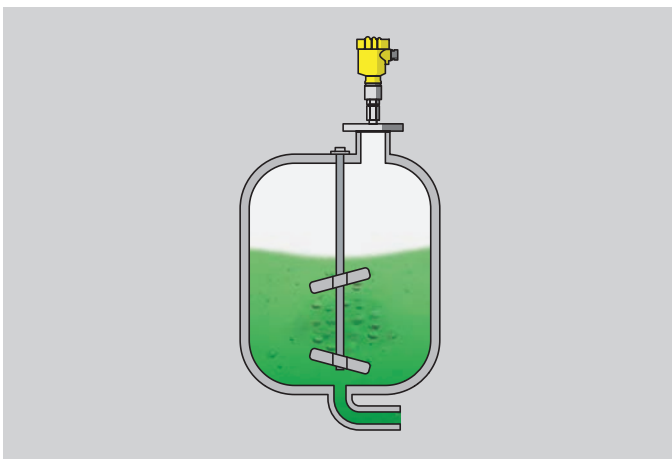
## Versatile and tough: VEGABAR 81

**All wetted parts are made of select diaphragm materials.**

The pressure transmitter VEGABAR 81 is characterized by high application flexibility. Its wide range of available diaphragm materials and coatings make VEGABAR 81 a basic piece of equipment for the chemical and petrochemical industry.

## VEGABAR 81

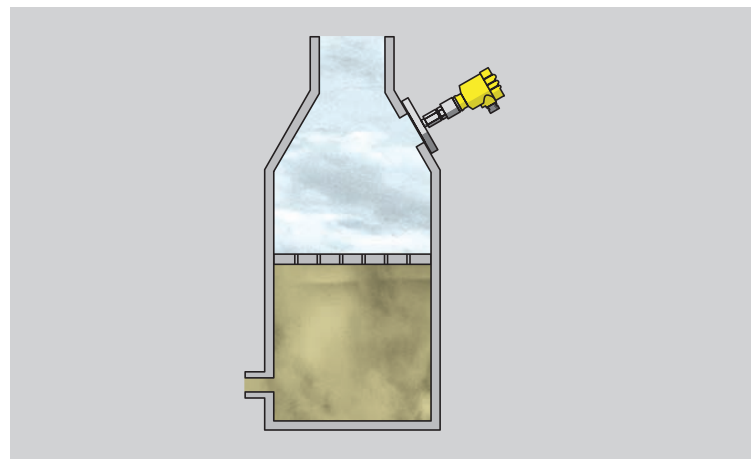
- Chemical seal system
- Measuring range: -1 ... +1,000 bar
- Temperature range: -90 ... +400 °C
- Measurement deviation: 0.2 %
- Output signal:  
4 ... 20 mA, 4 ... 20 mA/HART,  
Profibus PA, Foundation Fieldbus,  
Modbus



### Process pressure in a reactor

For safety reasons, the excess pressure arising in the process must be monitored continuously. VEGABAR 81 is the versatile solution for all products.

- Application temperatures up to +400 °C
- High-resistance diaphragm materials
- Large selection of flange and hygienic connections



### Flue gas measurement in waste incineration

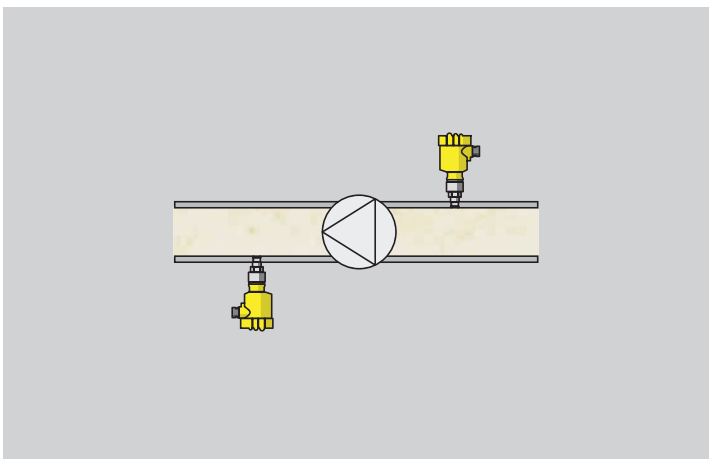
The flue gas in a flue gas scrubber is hot and highly corrosive. VEGABAR 81 measures the pressure of the exhaust fumes reliably.

- Highly chemically resistant metallic diaphragm of e.g. tantalum
- Very small measuring ranges of 0 ... +400 mbar
- Wide variety of flange and tube versions



### Technology highlight: Diaphragm materials and coatings

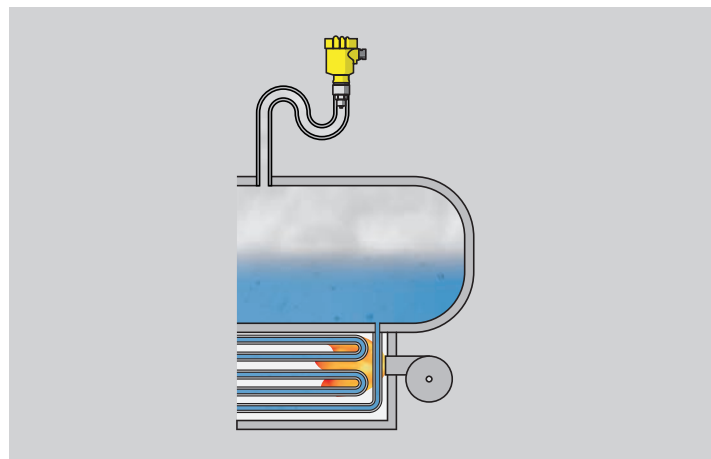
The chemical seal system of VEGABAR 81 can be optimally adapted to each process. This is made possible by a variety of different diaphragm materials and coatings that are selected according to the measuring requirements. The process pressure is transmitted to the pressure measuring cell through a minimized volume of oil.



#### Pipeline pressure in a dairy

The high hygienic standard in milk processing makes frequent CIP and SIP cleaning cycles necessary. Extreme temperature fluctuations in the pipes can encourage condensate formation in the housing. VEGABAR 81 measures reliably even under these conditions.

- CIP and SIP capable metallic measuring cell
- Insensitive to condensed moisture
- Stainless steel housing in IP 66/IP 67 and IP 68



#### Steam drum pressure measurement

Steam is produced in the vapour drum and introduced into the process. A VEGABAR 81 monitors the permissible steam pressure.

- Maximum direct temperature up to +400 °C
- Fully welded measuring cell
- Diffusion and vacuum resistant

# VEGABAR 82 – the all-rounder

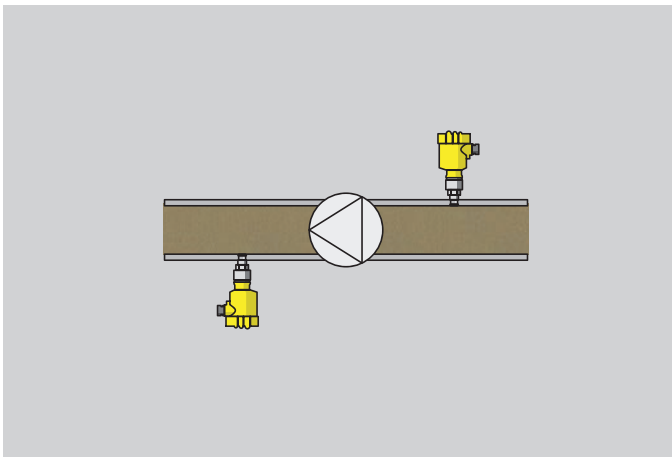
## Versatile and robust: VEGABAR 82

### Two separate temperature measurements in the measuring cell compensate for temperature shocks.

The instrument type VEGABAR 82 with oil-free ceramic-capacitive CERTEC® measuring cell is characterized especially by its high abrasion and hydraulic shock resistance as well as its self-monitoring measuring cell.

## VEGABAR 82

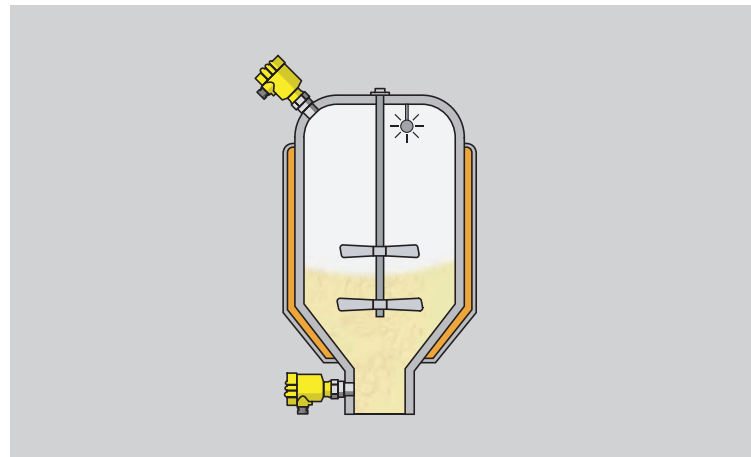
- Ceramic-capacitive CERTEC® measuring cell
- Measuring range: -1 ... +100 bar
- Temperature range: -40 ... +150 °C
- Measurement deviation: 0.2 %; 0.1 %; 0.05 %
- Output signal: 4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus



## Monitoring sewage pumps

VEGABAR 82 measures the feed pressure in sewage pipes. The robust ceramic, front-flush measuring cell is resistant to abrasion from foreign objects, grit and mud.

- Insensitive to pressure and vacuum shocks
- Vibration proof and highly resistant to abrasion
- Buildup not possible due to front-flush diaphragm
- Self-monitoring ceramic measuring cell



## Batch vessels in the pharmaceutical industry

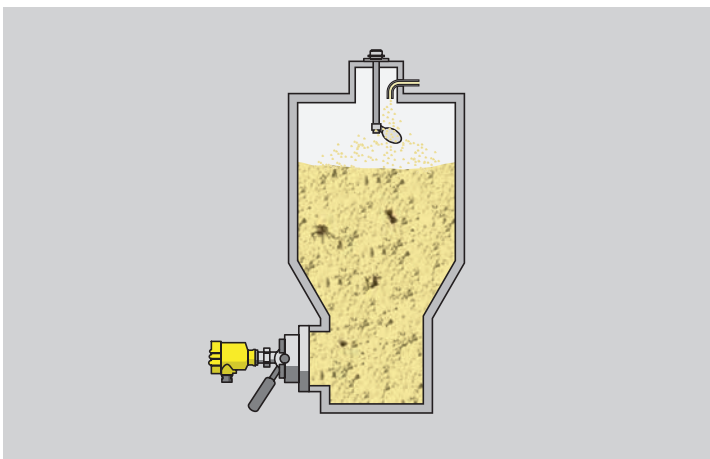
Level and gauge pressure are measured by means of two VEGABAR 82 pressure transmitters.

- Absolutely front-flush diaphragm
- Vacuum and overload resistant
- Self-monitoring ceramic measuring cell
- Increased reliability through double seal



### Technology highlight: Ceramic-capacitive CERTEC® measuring cell

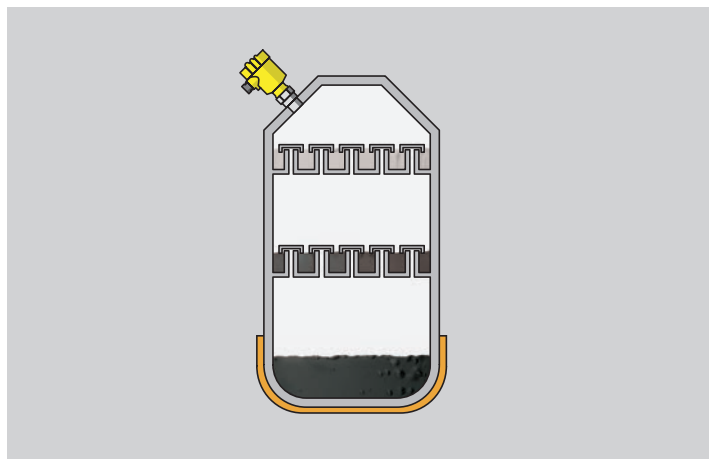
The ceramic-capacitive CERTEC® measuring cell of SapphireCeramic® is one of the most mechanically robust and dynamically resilient pressure measuring cells in existence. Its extremely high purity, 99.9 %  $Al_2O_3$ , guarantees extraordinary chemical and abrasive resistance.



### Bleaching tower level measurement in the paper mill

In conjunction with a ball valve fitting, the VEGABAR 82 pressure transmitter with ceramic measuring cell effectively prevents the discharge pump from running dry.

- Installation and removal without draining the bleaching tower
- Front-flush installation in ball valve fitting
- Abrasion and hydraulic shock resistant



### Vacuum monitoring in a distillation column

To raise product quality and save energy, distillation columns are frequently operated under high vacuum. VEGABAR 82 monitors the underpressure up to absolute vacuum.

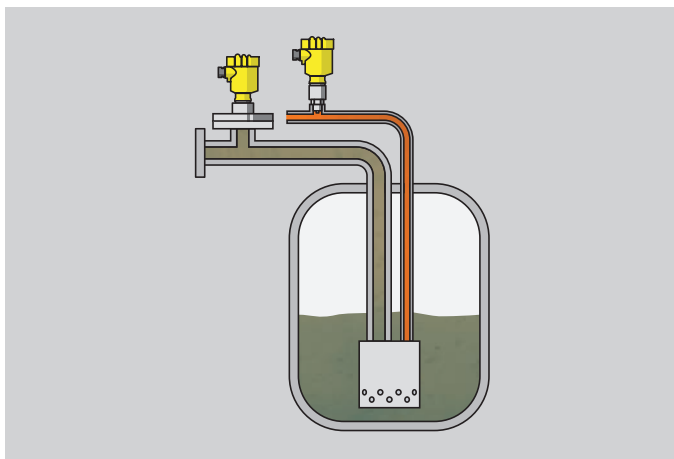
- Measurement up to absolute vacuum
- Dry ceramic measuring cell
- Increased reliability through double seal

# VEGABAR 83 – the specialist for high pressure

## Elastomer-free and completely welded: VEGABAR 83

**VEGABAR 83 handles measurement tasks reliably  
in systems with high process pressures.**

VEGABAR 83 is available in versions for maximum product temperatures up to +200 °C, with FDA compliant oil filling, and for processes that require elastomer-free seals.



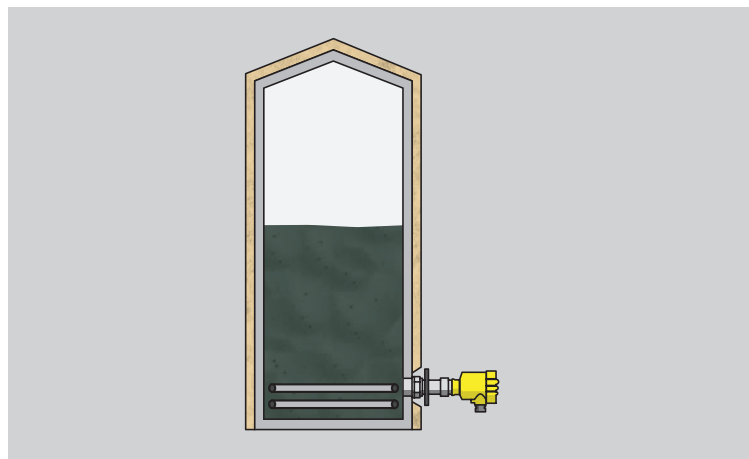
## Monitoring hydraulic feed pumps and product pipelines

VEGABAR 83 reliably measures the control pressures of hydraulic pumps as well as the feed pressures of product pipelines.

- Measuring range up to +1,000 bar
- Particularly vibration and shock resistant
- Front-flush diaphragm of high resistance alloy 2.4711

## VEGABAR 83

- Metallic measuring cell piezoresistive, thin film, METEC®
- Measuring range: -1 ... +1,000 bar
- Temperature range: -40 ... +200 °C
- Measurement deviation: 0.2 %; 0.1 %; 0.075 %
- Output signal: 4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus

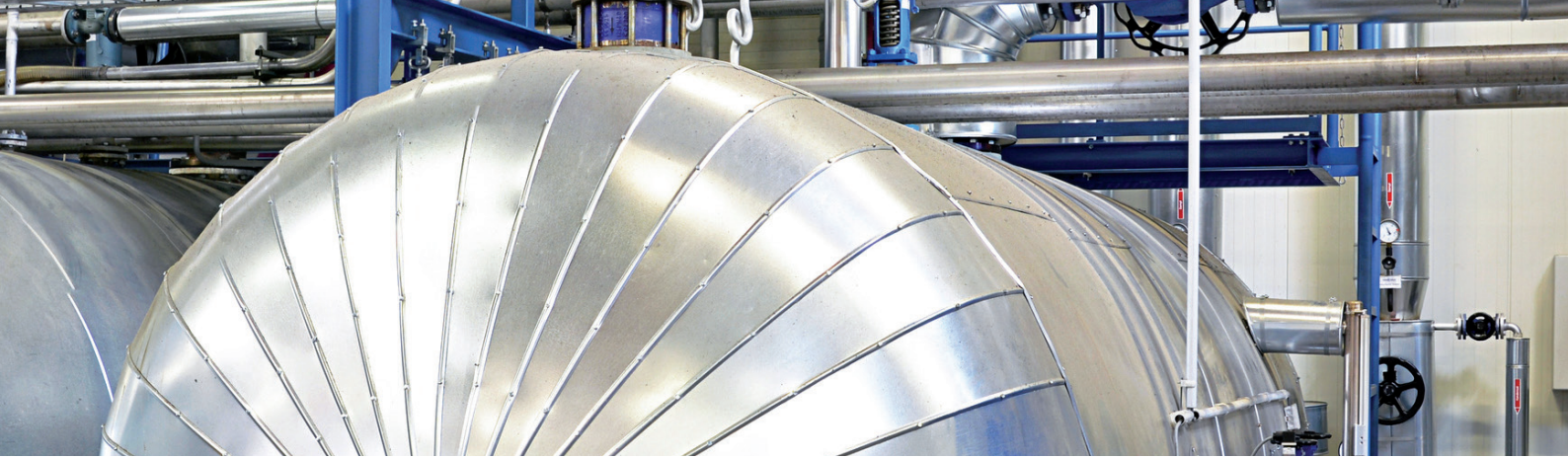


## Level measurement in a bitumen tank

In asphalt mixing systems, bitumen is kept ready at temperatures between +150 °C and +200 °C. A VEGABAR 83 measures the level reliably here.

- Metallic METEC® measuring cell with self-compensating temperature characteristics
- Application temperatures up to +200 °C
- High resistance diaphragm of alloy C276
- Thread and flange versions

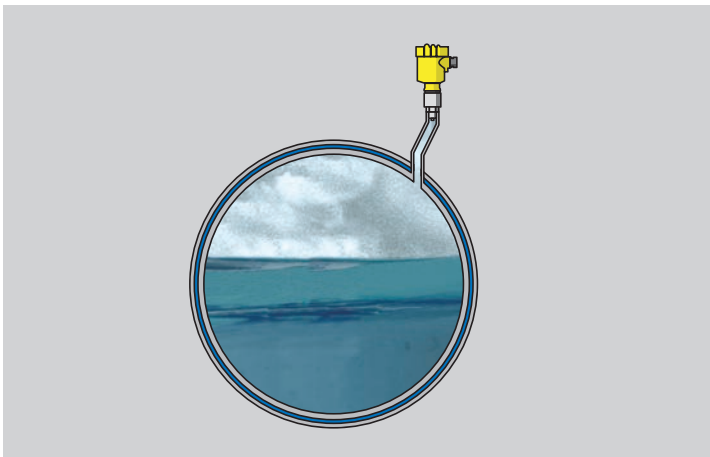




### Technology highlight: Metallic measuring cell

METEC® measuring cells handle pressures up to +25 bar and product temperatures up to +200 °C. With the piezoresistive measuring cell, flush mounted flanges with a maximum measuring range of 250 bar can be deployed up to “Class 1,500”.

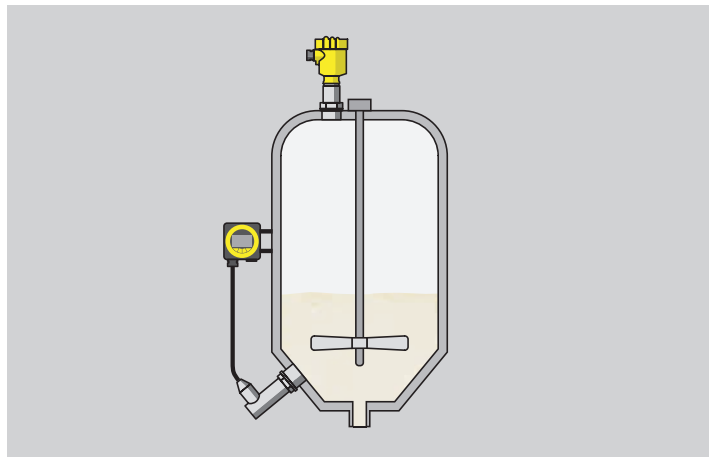
For increased safety in oxygen applications, inert filling oils are used.



### Gas pressure measurement

The pressure in LNG tanks must be monitored continuously. The gas is cooled by refrigeration and transported at low temperature and pressures of typically -163 °C and +250 mbar. Tank pressure monitoring is carried out with a VEGABAR 83.

- Insensitive to condensed moisture
- Elastomer-free process fitting
- Shut-off valves available as accessories



### Level measurement in a dairy

Milk is stored in storage tanks at a temperature of approx. +4 °C. Extreme conditions occur inside the tanks during cleaning cycles, VEGABAR 83 is well suited to handle level measurement here.

- Very good temperature shock reaction
- Hygienic, front-flush process fittings (CIP and SIP capable)
- Insensitive to condensed moisture
- Numerous process fittings for the food industry

# VEGABAR series 80 and VEGADIF 65 – perfect for differential pressure

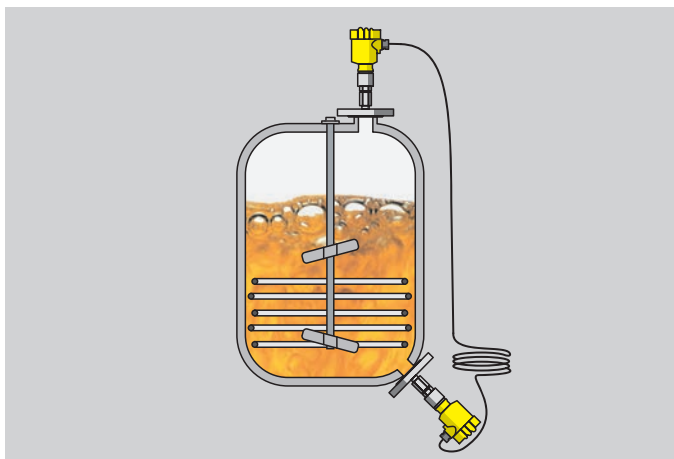
## Electronic differential pressure measurement with VEGABAR series 80

### Simple differential pressure measurement with ceramic-capacitive measuring cell.

An innovative software and hardware concept makes it possible to combine any pair of sensors from the VEGABAR 80 series, whether all-rounder, high-pressure or high-temperature sensor, into an electronic differential pressure system.

## VEGABAR Serie 80

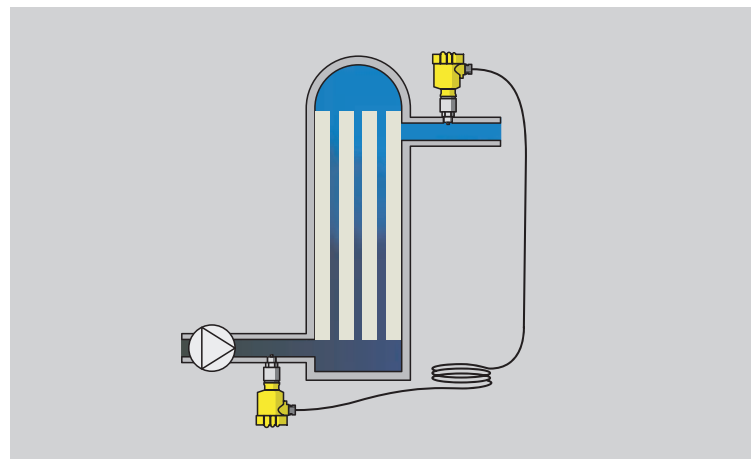
- Combinations from the VEGABAR 80 series
- Measuring range: 0.025 bar ... 1,000 bar
- Temperature range: -40 ... +400 °C
- Measurement deviation: 0.2 %; 0.1 %; 0.05 %
- Output signal: 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus



## Level measurement in a reactor

The electronic differential pressure system also measures the level reliably in pressurized vessels containing foam-generating products.

- Product temperature -40 ... +400 °C
- Simple and reliable measurement
- Chemical seal coatings of PA, PP, ceramic or gold



## Monitoring of filtration systems

The effectiveness of a filtration system depends on the permeability of the filter. This electronic based system can measure even the smallest differential between the filter input and output to detect the degree of contamination of the filter.

- For liquid and gaseous media
- Chemical seal mountings
- Measuring ranges from 25 mbar



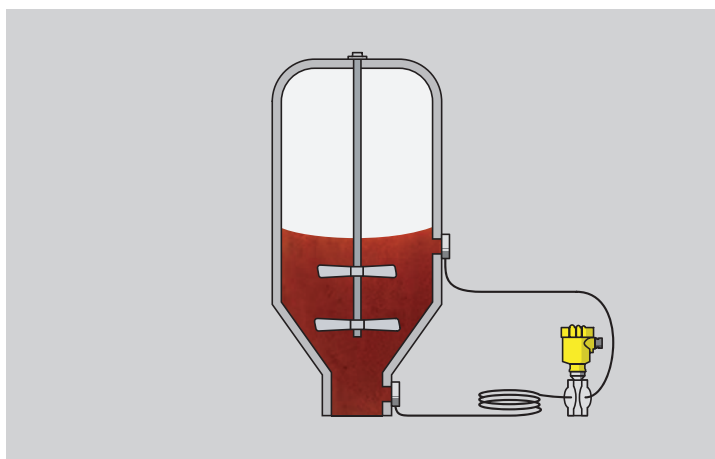
## Universal and service proven: VEGADIF 65

**The basis for this precise and stable measurement is the metallic, highly overload resistant differential pressure measuring cell.**

Hardly any other measuring principle is as versatile as differential pressure technology. Along with regular and differential pressure measurement, level, flow and density measurement can also be realized with it.

### VEGADIF 65

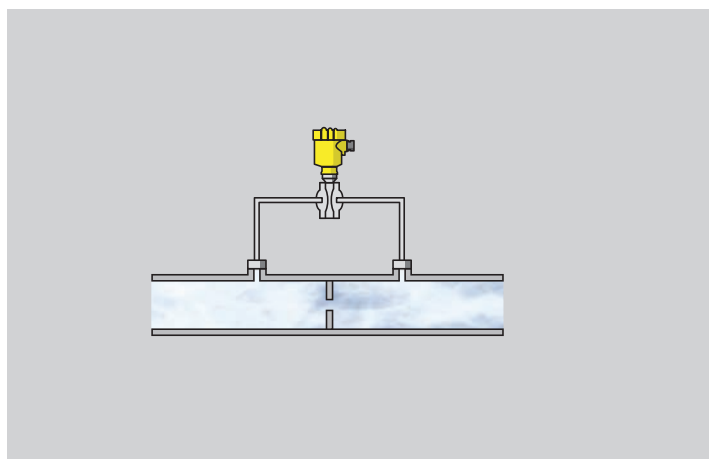
- Piezoresistive differential pressure transmitter
- $\Delta p$  measuring range: 0.01 ... 40 bar
- Temperature range: -40 ... +120 °C
- Measurement deviation: 0.15 %; 0.075 %
- Output signal:  
4 ... 20 mA, 4 ... 20 mA/HART,  
Profibus PA, Foundation Fieldbus



### Density measurement in a fruit juice tank

The differential pressure transmitter VEGADIF 65 also enables the density measurement of fruit juice. A change of medium density causes a change of differential pressure, which is easily detected by the calibrated instrument.

- Hygienic, front-flush process fittings
- Independent of superimposed pressures
- Simple installation and setup



### Quantity measurement of combustion air

The throughput of combustion air can be measured with the VEGADIF 65 via the differential pressure drop across a measuring orifice.

- $\Delta p$  measuring range 0 ... 10 mbar
- Direct mounting on the effective DP flow element
- Overload resistant up to +630 bar
- Shut-off valves for impulse lines available as accessories

# VEGABAR 86 and VEGABAR 87 – tried and trusted for level

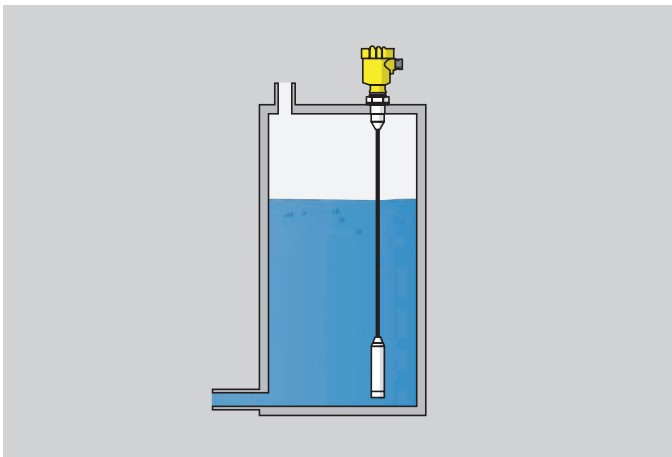
## Solutions with a ceramic or metallic measuring cell

**For critical level measurements, for example in food containers, high purity water or in sewers.**

The suspension pressure transmitter VEGABAR 86 with ceramic-capacitive measuring cell features high abrasion resistance and is available in numerous plastic versions. VEGABAR 87 with gap-free stainless steel tube and metallic measuring cell is deployed in food vessels.

## VEGABAR 86

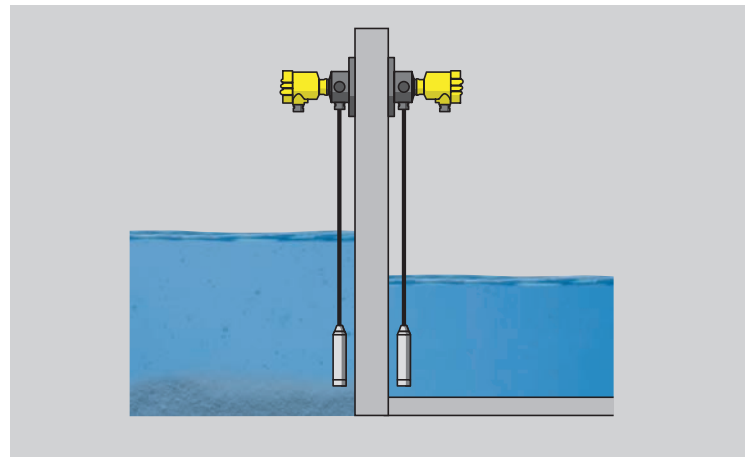
- Ceramic-capacitive CERTEC® measuring cell
- Measuring range: 0 ... +25 bar
- Temperature range: -20 ... +100 °C
- Measurement deviation: 0.1 %
- Output signal:  
4 ... 20 mA, 4 ... 20 mA/HART, Profibus PA, Foundation Fieldbus, Modbus



## Level measurement in purified water

VEGABAR 86 for level measurement in ultra high purity water: the sensor is protected from the highly ionized water by a PVDF body and ceramic measuring cell.

- High chemical stability through metal-free materials
- Application temperatures up to +80 °C
- Increased reliability through double seal



## Level measurement in a sluice

To control a sluice, the level inside, in front and behind the sluice basin is measured with a VEGABAR 86.

- Absolutely front-flush diaphragm
- Insensitive to corrosion
- Self-monitoring ceramic measuring cell



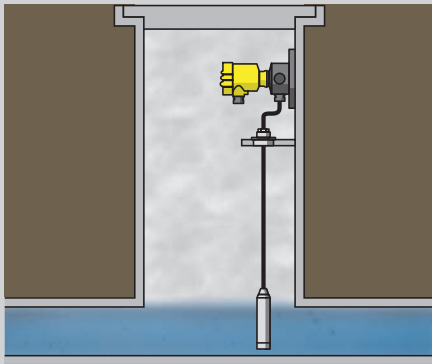
## VEGABAR 87

- Metallic METEC® measuring cell
- Measuring range: 0 ... +25 bar
- Temperature range: -12 ... +100 °C
- Measurement deviation: 0.1 %
- Output signal:  
4 ... 20 mA, 4 ... 20 mA/HART,  
Profibus PA, Foundation Fieldbus,  
Modbus



## Technology highlight: Condensation-proof measurement

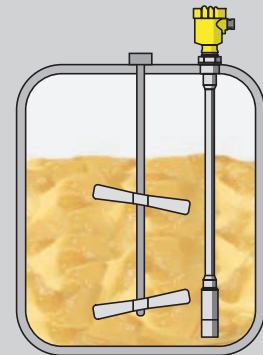
The climate-compensated electronics module allows application of the measuring cell even under the extreme influence of condensation. Equipped with two absolute pressure measuring cells, the instrument itself is insensitive to environmental moisture and offers highest reliability.



### Level measurement in the sewage shaft

The maintenance-free suspension pressure transmitter VEGABAR 86 reliably detects the water level in a sewage shaft.

- Absolutely front-flush and abrasion resistant ceramic measuring cell
- Insensitive to condensed moisture
- No buildup and sticking of foreign material



### Level measurement in yoghurt production

The level in the batch mixing tank is measured with a VEGABAR 87 suspension pressure transmitter.

- Rigid tube version of stainless steel with material certificate
- Elastomer and gap-free
- Cleaning temperature up to +120 °C
- High resistance diaphragm of alloy C276

# VEGAWELL 52 – universal for water level measurement

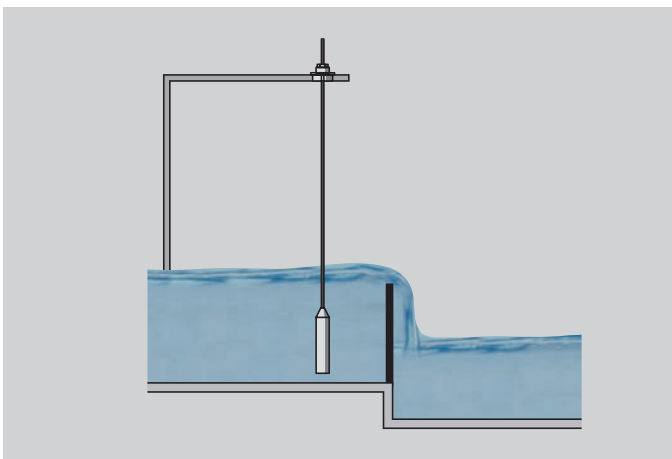
## Compact and reliable: VEGAWELL 52

All versions of VEGAWELL 52 are equipped with integrated overfill protection.

With its multitude of cable and housing materials, the suspension pressure transmitter VEGAWELL 52 can take on virtually any task in water level measurement. The front-flush CERTEC® measuring cell is abrasion resistant and chemically stable in sewage and saltwater. The high pressure shock resistance protects the instrument from the effects of breaking waves and debris of the measured medium.

## VEGAWELL 52

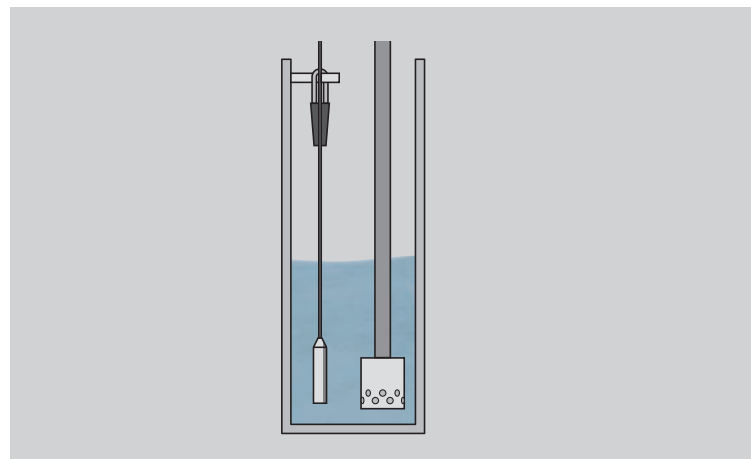
- Ceramic-capacitive CERTEC® measuring cell
- Measuring range: 0 ... +60 bar
- Temperature range: -20 ... +80 °C
- Measurement deviation: 0.2 %; 0.1 %
- Output signal:  
4 ... 20 mA, 4 ... 20 mA/HART + PT100



## Flow rate measurement in a weir spillway

Overflow measurement in the weir is carried out with a VEGAWELL 52 suspension pressure transmitter.

- Long-term stable ceramic measuring cell
- Insensitive to abrasion
- Simple adjustment and measured value indication with the indicating and adjustment module VEGADIS
- Pump control in conjunction with VEGAMET 391



## Control of groundwater pumps

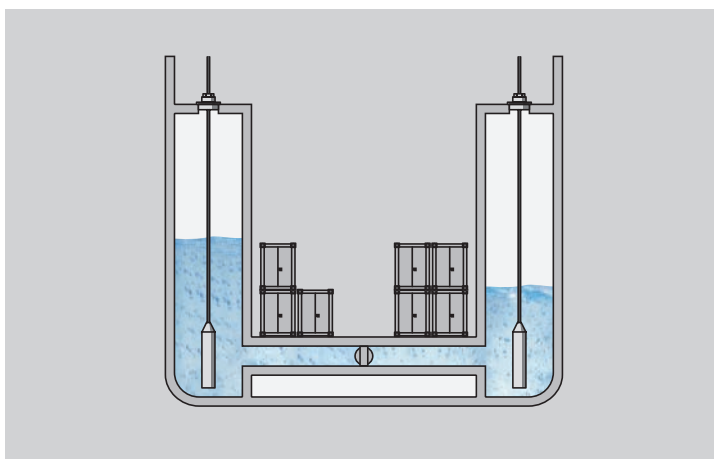
VEGAWELL 52 is insensitive to water shocks and is well protected against EMC radiation from high-performance pumps.

- Maintenance-free and reliable
- Front-flush diaphragm offers protection against deposits
- Long-term stability better than 0.1 %/2 years
- Self-monitoring ceramic measuring cell



### Technology highlight: Immersion in 600 m depth of water

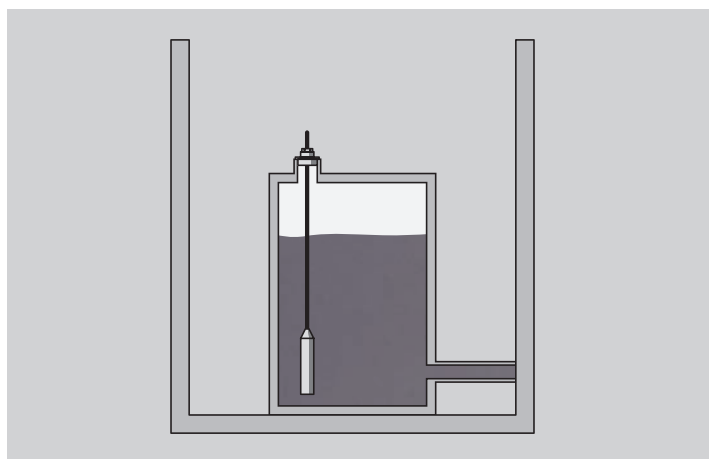
The body of the suspension pressure transmitter VEGAWELL resists ambient pressures up to +60 bar and can therefore be immersed in water down to a depth of 600 m. Additionally, every VEGAWELL version is equipped with an integrated lightning protection system that protects the device from lightning strikes and electrical surges.



#### Ballast water measurement on ships

VEGAWELL 52 measures the contents of the ballast tanks to the millimetre and provides exact information for correcting the ship's attitude.

- Resistant to overload from breaking waves
- Housing material 1.4462 (duplex) and double sealing protect against corrosion
- Resistant to abrasion from crustacea and sand
- Linearization for vessel shape



#### Level measurement in an oil tank

The hydrostatic pressure transmitter VEGAWELL 52 can also accurately measure the level of oils and fuels.

- Oil-proof elastomer seals and cable materials
- Self-monitoring ceramic measuring cell
- Simple adjustment and measured value indication with the indicating and adjustment module VEGADIS



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Looking Forward **VEGA**