

# VEGA Journal

**INTERVIEW:** Full speed ahead! **FIELD REPORT:** Reliable service in the Leipzig district heating network. **FIELD REPORT:** Production of sanitary paper. **FIELD REPORT:** Energy booster cereals. **FOCUS:** Radar sensor for bulk solids.

Issue 1/15



Pressure  
instrumentation  
for all media



## Of savouries and sweets

I'm a loyal customer of a little bakery in the middle of the town where I live. The folks there greet me by name and serve me with a smile. Here I know that the baked goods are made by skilled craftspeople and that the ingredients are selected with care. The breads and rolls (and don't forget the pretzels) are as they should be: fresh, crisp, fragrant, delicious. I know what a treasure my local bakery is.

Recently I had an eye-opening experience. I'm not much of a sweet-tooth type of person, I prefer savoury things. But for some reason, during my last visit to the bakery, the French 'Cruller' doughnuts with icing caught my eye. I didn't hesitate a second – I took the plunge, had one wrapped up and added to my other purchases.

I couldn't resist, on the way home I took a bite of the cruller – and marveled: it was so sweet and had that wonderful deep-fried taste, yet it was also light and infinitely soft! Quite surprised, I asked myself: Why didn't I ever think of this before? My baker has supplied me with excellent bread and rolls for years, so why haven't I ever tried the sweet goods he makes? It was pretty clear that, as a professional in his field, he would also produce sweet pastries of the highest quality ...

It's easy to see the parallel to VEGA measurement technology. You already know us as a manufacturer of high-tech instruments for level measurement? Then why not try our "baked sweets" sometime: VEGA pressure transmitters, perhaps some of the articles in this Journal will catch your eye!

### **Günter Kech**

VEGA Managing Director

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# Pressure instrumentation made to order!

**When it comes to cutting-edge level measurement technology, practically anyone in the world you ask immediately thinks of the name VEGA. But VEGA also stands for pressure – with over 40 years of experience in this field – the company is also a leader in process, hydrostatic and differential pressure measurement.**

VEGA, from the Black Forest in Germany, is one of the few instrumentation manufacturers worldwide who not only design and develop their own pressure measuring cells, but even produce them themselves as a core technology – under clean room conditions.

## **VEGABAR Series 80**

The ultimate in pressure measurement from VEGA is the VEGABAR 80 series. These pressure transmitters measure gauge, absolute or differential pressure reliably – in all liquids, gases and slurry type media. To ensure high-precision measurement with these sensors, VEGA has integrated two of its own innovations: the metallic measuring cell METEC®, the world's first metallic measuring cell with self-compensating temperature behaviour, and the ceramic-capacitive measuring cell CERTEC®, which has risen to become the top seller. More than a million VEGA CERTEC® cells are already in use around the world. Just recently, the ceramic-capacitive measuring cell was upgraded with a temperature sensor and a temperature shock compensation system, which ensures that the measuring results remain unaffected by rapid temperature changes.

The yellow pressure sensors from the Black Forest also score a lot of points with other outstanding features: They have measuring ranges from 25 mbar to 1000 bar. They can be installed front-flush even in applications with abrasive media. They are absolutely gas tight thanks to their sealed process assembly. On top of all that, any sensor from the series can be easily integrated into an electronic differential pressure system.



## **Three for any eventuality**

With the new VEGABAR series, selecting the right instrument has never been easier. Because, only three instrument versions cover the entire spectrum of pressure measurement applications! Whether it's the pressure in a hydraulic system with over 1000 bar that has to be monitored and controlled, or the level in a tank of hot bitumen at 200 °C or the pressure differential of 50 Pa in a clean room (with a 25 mbar measuring cell without turn-down): the solution is always VEGABAR series 80.

First there's VEGABAR 82, the all-rounder with a ceramic measuring cell, a sensor that can easily handle more than half of all applications. Then the VEGABAR 83 with metallic measuring cell is the first choice for applications with really high operating pressures. Finally, we come to VEGABAR 81 with chemical seal, the classic pressure transmitter that is always used when high temperature and chemical resistance is required.

The instruments of the VEGABAR family were entirely designed within the plics® concept. This standardized plics® instrument platform offers a comprehensive housing, electronics and operating system for all VEGA measuring methods – whether for pressure or level – and thus makes their use simple and cost effective.

## Info

In addition to hydraulic and electro-hydraulic remote control valves for the pipeline systems of ships, Pleiger Maschinenbau supplies the associated automation equipment, including tank level gauges, point level switches and pump pressure sensors.

The company's products are also installed on special ships, such as the first wind turbine installation ship built in Germany. The ship lifts itself out of the water on four steel legs, allowing it to install wind turbines even in rough seas.



# Full speed ahead!

**Interview with Helge Schmuck, Marine Technology Department, Pleiger Maschinenbau GmbH & Co. KG**

**VEGA Journal:** *The company Pleiger Maschinenbau has made a name for itself as an engineering contractor in shipbuilding. What is Pleiger's role in the construction of new ships and where does it use VEGA measurement technology?*

**Mr Schmuck:** A ship is not comparable to a car, which you can simply jump into and drive off. Quite the contrary, in order for a ship to travel safely from A to B, many requirements have to be met. These include high stability, along with an economic and ecological mode of operation. To ensure this, there are many different kinds of tanks on board. These tanks are connected to each other by extremely long pipelines and various pumps. Pleiger provides the hydraulic or electro-hydraulic remote controls for this system. On request we also supply the automation technology, including tank level gauges, point level switches and pump pressure sensors. This is where VEGA technology comes into play. As an example, most often we use the VEGAWELL 52 submersible pressure transmitter for level measurement of the ballast water or fuel tanks.

**VEGA Journal:** *What challenges does the measurement technology from VEGA face in your applications as regards robustness, material properties, measurement accuracy and measurement certainty?*

**Mr Schmuck:** A ship is an industrial plant that is constantly in motion and thus exposed to a constantly changing environment and measuring conditions – weather, ocean

swell – and to a wide variety of media – sea water, fuels and chemicals. These VEGA instruments need to withstand extreme vibration, large temperature differences, changing media properties and at the same time maintain their accuracy and reliability.

**VEGA Journal:** *That's a lot to ask for! Why are VEGA's measuring instruments particularly well suited for these challenges?*

**Mr Schmuck:** VEGA place great emphasis on quality materials that protect us against uncertainties. Take the example of the pressure sensor most frequently used by us, the VEGAWELL 52. It has a housing made of duplex stainless steel and a double seal with two different sealing materials. The sensor can thus be used universally, in practically any medium. So we no longer need different sensors for different applications, we only need VEGAWELL 52.

**VEGA Journal:** *In ship engineering, two factors have top priority: First, safety of the crew, ship and cargo, and second, economic viability. How do VEGA instruments contribute to their optimization?*

**Mr Schmuck:** It's simple: through their absolute reliability, accuracy and versatility.

**VEGA Journal:** *When have you had to make use of VEGA services and how was your problem resolved?*

**Mr Schmuck:** Up to a few years ago Germany was one of the leading shipbuilding nations in the

world. But these days, most ships are being built in the Far East, in countries like China or South Korea. Unfortunately, in these shipyards the workers do not always handle the high-tech measurement and control equipment gently. Sometimes they damage a sensor beyond repair. In such cases we have to act quickly, because the loss of a single sensor can delay the delivery of a ship to the ship owner and easily cost thousands of euros. So a replacement has to be delivered in the shortest time possible. It's exactly in such cases where we rely on VEGA – and VEGA has never failed us.

**VEGA Journal:** *Looking into the future of shipbuilding, what developments and requirements do you foresee being placed on shipboard instrumentation?*

**Mr Schmuck:** The measuring instruments will become more and more a part of the on-board system networks and the interaction of measuring instruments and automation systems increasingly important. Add to this the increasing possibilities for remote querying of gauges and sensors worldwide. It's extremely important that we have a reliable partner like VEGA, one we can explore new avenues together with.

Many thanks for your answers.

# Reliable service in the Leipzig district heating network

**Traditional and modern technologies have always played a part in supplying cities with heat. Over one hundred years ago, a district heating network – considered a high-tech showcase project at the time – was introduced in Leipzig. In those days, as now, reliability of supply was the top priority. Instrumentation from VEGA now plays a part in ensuring the supply in any kind of weather.**



The equalization tanks ensure optimal pressure in Leipzig's district heating network.

For over 100 years, residents of Leipzig have relied on a well developed district heating network. Through a pipeline system approx. 474 km in length, the Leipziger Stadtwerke (Leipzig public utility company) supplies over a third of all Leipzig residents with environmentally friendly district heating. By expanding and densifying its pipeline routes, the company is making it possible for more and more neighbourhoods to enjoy the benefits of this service. Since 2009 it has made new connections amounting to more than 85 MW of thermal energy, which equates to supplying 15,000 more homes. The company also supplies some very unusual customers, including the elephants in the Leipzig Zoo!

The heat distributed via the district heating system is produced through high-efficiency cogeneration, also known as combined heat and power (CHP). This process uses the waste heat produced in electricity generation to supply heating and hot water to buildings. Compared to generating electricity in power plants and heat in domestic boilers separately, it consumes much less fuel and thus makes an active contribution to resource conservation and climate protection.

To ensure security of supply in the entire district heating grid, the pressure in the equalization tanks has to be maintained. The necessary level measurement in these tanks had been causing the company headaches for a number of years. "Although the provision of heat to customers was never seriously threatened, our measurement technology was simply not up to par," explains Lutz Riedel, the employee responsible for control technology at Netz Leipzig GmbH.

The eight, 21 meter-high equalization tanks compensate for possible leaks or temperature-dependent volume fluctuations in the network. If two of the tanks send a message to the control system indicating that there is no measuring signal, the whole system switches to a safe condition. The pressure maintenance pumps in the pump station must be protected against the possibility of dry run, which could lead to pump failure.

## Precarious measuring situation

Level measurement in these equalizing tanks has traditionally relied on the principle of differential pressure measurement. The pressure difference resulted from the liquid pressure at the bottom of the tank subtracted from the vapour pressure in the upper part of the tank. In each tank there was also an addi-

tional bottom pressure measurement. These measured values were transferred to the control system. Unfortunately, the measurements were not always sufficiently accurate and reliable. This was due to the long oil filled capillaries that were installed outdoors and thus had to be equipped with electric trace heating as they were susceptible to temperature fluctuations.

### VEGABAR measures at a key position

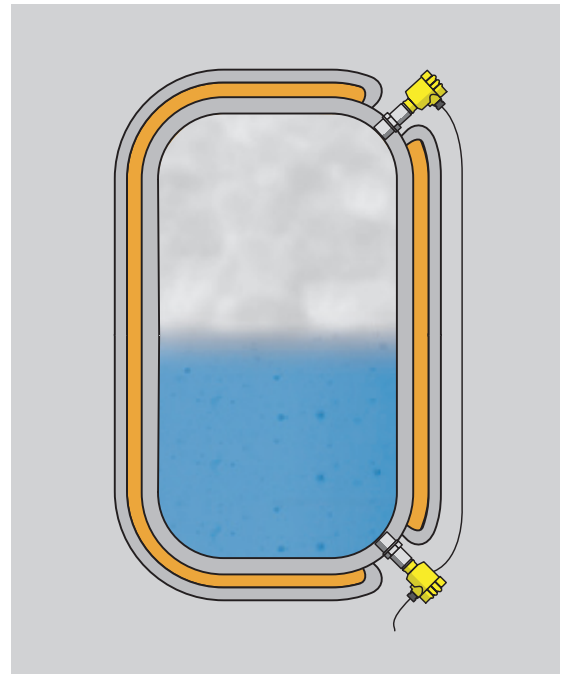
“We always watched the measuring points especially carefully because these eight tanks occupy key positions in the district heating network and are thus responsible for ensuring uninterrupted supply,” explains Lutz Riedel further. When some problems arose again last winter, the company’s district heating team decided to do something about it.

When they attended a VEGA power plant seminar they had the opportunity to work out a solution to the troublesome measuring points. “The seminar and the contacts with technology experts at VEGA provided us with very concrete assistance: we discussed our problem in the seminar and found a solution together. Ultimately, we decided to go for electronic differential pressure measurement.” They were totally convinced by VEGA’s measurement technology and, in September 2014, all eight equalization tanks were equipped with VEGABAR 83.

The VEGABAR 83 pressure transmitter is considered to be a robust all-rounder and has an innovative metallic measuring cell manufactured by VEGA. The versatile standard instrument handles temperatures up to 200 °C and has an extremely high overload resistance factor of 150. Another advantage: it can be used as part an electronic differential pressure system. So in Leipzig a standard sensor was connected with another sensor of the same type, but with “slave” electronics. Although this arrangement requires two sensors, installation costs are low. Compared to conventional differential pressure measuring systems, electronic differential pressure measurement is cheaper and much easier to handle.

### Conclusion and outlook

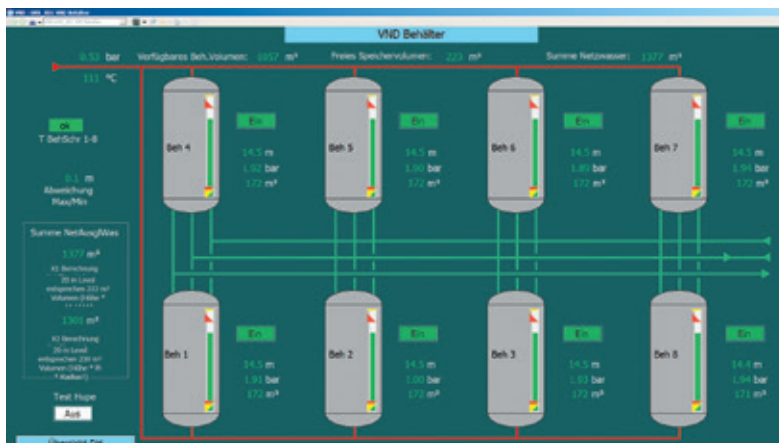
“In the end we decided to equip the entire measuring point with state-of-the-art technology, precisely because it has such an important function in the system,” comments Lutz Riedel on the decision. It only took one week to make the change. The Netz Leipzig team also decided to do the setup and commissioning together with VEGA. “VEGA’s office and field



Electronic differential pressure measurement with VEGABAR 83.

staff work perfectly together, both are easy to reach by phone and both provide all the help you need,” he says, describing the collaboration with VEGA. “We always felt we were in good hands.”

Even if the worst case scenario – an extremely cold winter – hasn’t yet happened, it is now already clear that the conversion of the measuring point was worth the effort. “Thanks to the higher accuracy of VEGABAR 83, the limit values of the tanks can now be precisely set, thus increasing the efficiency of the adjoining new heat accumulator. And as an added plus, we were able to drastically reduce power consumption here,” notes Riedel, summing up the positive results.



When installing the new VEGA instruments, Netz Leipzig GmbH entrusted VEGA with the setup and commissioning.



Thanks to the higher accuracy of VEGABAR 83, the limits of the container can now be precisely set.



## Sanitary paper – at the forefront of process technology

**In November 2014, at the Fripa production site in Miltenberg between Darmstadt and Würzburg, a new production line with paper machine PM 7 went into operation manufacturing high quality sanitary paper. Thanks to cutting-edge technology, the facility was able to produce finished marketable paper right from the start.**

With a paper width of 2,700 mm, the machine from Voith is designed to operate at a speed of 2,100 m/min, producing toilet paper and paper towels from 100 % virgin pulp. This production capacity makes Miltenberg PM 7 currently one of the most high-performance tissue machines in the world. During the design of the manufacturing process, special attention was given to ensuring low energy and water consumption as well as minimum wastewater output. Due to its long-standing partnership with Voith and VEGA, Fripa decided again

in favour of Voith and VEGA sensors for measurement of the process parameters pressure and level for this project. From among the numerous measuring points in the machine, several of the most interesting are presented here.

### **Vacuum system**

A powerful vacuum system is needed for dewatering on high-speed paper machines. The high vacuum is generated by a centrifugal fan and must be measured continuously. It is also



necessary to monitor the fan's bearing lubrication system to ensure long-term operation. To that end, the pressure in the lubricating oil lines and the level in the supply tank are measured. The pressure measurement in the lubricating oil lines must function reliably even when subjected to strong vibration, and the vacuum measurement must work stably over longer periods. Both requirements are fulfilled by the oil-free ceramic measuring cell CERTEC®.

### Refiner

In the paper production process, special machines called refiners are used to grind the paper pulp. Depending on the type of grinding carried out, the paper becomes very absorbent, e.g. for sanitary paper, or very firm, e.g. for greaseproof paper. Every refiner has a grinding set consisting of a stationary part and a rotating part. The pressures at the inlet and outlet are measured to control the load release of the grinding set and provide data for visual indication. Reliable readings help avoid damage to the grinding set as well as system downtime.

### Wet strength agent

The bonds between the paper fibres are weakened if the paper is exposed to water. Wet strength agents are polymeric additives that reduce this sensitivity. They are mixed into the paper suspension. Because of their high pH value, they are stored in double-walled GRP tanks. For safety and operational reasons, multiple level measurements are needed here. The installed VEGA level devices ensure safe and reliable filling by protecting against overflow and detecting leaks between the vessel walls and allow optimal utilization of the container volume.

### Hydraulic oil station

In the press section of a paper machine, high pressures must be available for the dewatering process. Pressure oil stations provide the hydraulic oil required for pressure transmission. They also supply the circulating lubrication system and filter and cool the oil. To guarantee automatic operation of the station, the oil flow rate and the filling level in the



Level measurement and leak detection in the storage tank for wet strength agent.

## Fripa

Fripa stands for high-quality sanitary paper that meets the increasing hygienic requirements of our modern civilization. The company's roots go back to 1911; today it is a sought-after partner in the international sanitary paper market and is known for its exceptional flexibility and reliability.

## Voith Paper

Voith Paper is a corporate division of the Voith corporation and the leading partner and pioneer of the paper industry. Its focus is on the development of resource-saving products in order to reduce the use of energy, water and fibrous materials. Voith sets standards in the energy, oil & gas, paper, raw materials as well as transport & automotive markets.

storage tank have to be continuously measured. A VEGADIF differential pressure transmitter with a pitot tube provides simple, cost-effective oil flow measurement. This reliable instrumentation ultimately ensures smooth, trouble-free operation of the paper machine.



Level measurement in the lubricating oil storage tank of the vacuum pump.



## Cereals – the breakfast energy booster

**The history of breakfast cereals began in 1875, in Battle Creek in the US state of Michigan, as the newly graduated Dr. John Harvey Kellogg took up his work in the “Western Health Reform Institute”. While searching for healthy food for his patients, John Harvey Kellogg, together with his brother Will Keith, developed numerous new products and product variants based on cereals.**

One day, purely by accident, some boiled wheat was left standing overnight. The next morning they had the brilliant idea to run this wheat through rollers and then dry it with heat: beautifully shaped flakes were the result. Light and crisp, they were delicious.

There are two different methods for producing cereals. The traditional way is the cooking and rolling process. After the germ is removed, the corn kernels are cooked until they are soft. The result is a hot grain porridge that is immediately rolled into cereals and then toasted. This batch process, however, is very time consuming and costly.

For that reason, cereals are often produced through a continuous extrusion process. In this method the corn germ is also first removed from the kernels. The kernels are processed into corn flour, which is then mixed with water and fed into the extruder. Inside the extruder the corn flour/water mix is boiled through brief heating under pressure. The typical shape of the final product is created by appropriate outlet nozzles. After further production steps, such as coating and drying, the



Level measurement in holding tank with VEGABAR 82.

flakes come off the production line as popular brands like Corn Pops, All Bran Flakes, Corn Flakes and others.

To ensure a steady supply of material to the extruder, the ingredients – corn flour, flavourings, colorants and water – are fed in at a temperature of about 45 °C from small holding tanks. The final quality of the product depends on the correct mixing ratio. That's why the levels in these tanks are measured with VEGABAR 82 pressure transmitters in the 0.1 bar range.

This measurement is extremely important for the production process. With millilitre accuracy, it shows the plant operator whether the correct amount of each ingredient has been added. The tanks are refilled quickly, and VEGABAR 82, with its super-fast response time, monitors this and

## Info

With more than 30,000 employees, the Kellogg Company (aka Kellogg's®) is the world's leading producer of cereals and the second largest producer of cookies and crackers. It was founded in 1906 under the name "Battle Creek Toasted Corn Flake Company" by Will Keith Kellogg in Battle Creek, Michigan. The popular brand products are manufactured in 18 countries and sold in over 180 countries. In South Africa, Kellogg's® is one of the 10 brands that enjoy the highest consumer confidence and, with the largest market share in the country, the undisputed Number 1 among breakfast cereal manufacturers.

prevents overfilling. Thanks to the sensor's high-end performance, costly problems such as plant downtime, loss of valuable raw materials through incorrect mixing and after-hours service calls are now a thing of the past.

The decision to use VEGABAR 82 has made life a lot easier for the people in production and helped maintain Kellogg's high product quality and that special taste experience for the consumer.



Holding tank for multiple ingredients.



## Leading technologies – over 40 years of pressure measurement at VEGA

**Safety and efficiency have top priority in today's complex processes and depend largely on the functionality and quality of the deployed instrumentation. That's why VEGA adheres to the highest standards in all areas: in development, production, quality assurance and certification as well as giving application advice.**

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 in the manufacturing process: from the selection of raw materials to production to final disposal.

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. Every year up to 100,000 of these high-tech measuring cells are manufactured at VEGA's factory in the Black Forest.



### Quality checked at every step

In pressure gauges, everything depends on the tightness of the measuring cell. That's why every single cell is tested for helium tightness in a helium leak tester. The VEGA quality assurance department also sends each cell to the "sauna" and the "freezer", to rule out temperature-related malfunctions. The tests expose the measuring cells to temperatures from -40 to +150 °C. On top of this, each individual production step is checked and documented. Individual serial numbers ensure that each pressure transmitter is traceable.

The crucial factor for the accuracy of the pressure transducers is calibration. Complex calibration procedures on test benches certified by Deutscher Kalibrierdienst DKD (German Calibration Service) guarantee maximum measurement precision. The test facilities themselves and the test software are of course also made by VEGA. This allows the company to respond quickly and flexibly to individual customer requirements. Every pressure transducer receives a test certificate confirming that it has undergone calibration.

### One ceramic, thousands of applications

Twenty years ago, aluminium oxide ceramic was still a very new sensor material – and a sensation in the world of measurement technology where, until then, metallic measuring cells had been commonly used. 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 early on and used it to develop the ceramic-capacitive CERTEC® measuring cell.

In the new instrument generation, VEGABAR Series 80, the ceramic measuring cell has experienced even further development. The temperature of the measuring cell is now measured close to the process via a resistor mounted directly behind the diaphragm. This allows the temperature behaviour of the measuring cell to be precisely detected, and even very fast temperature jumps, arising e.g. when cold water is pumped through the system, can be compensated electronically without time lag. The measured temperature is transmitted via a separate 4 ... 20 mA current output as well as a digital HART® output. When very cold media are processed in a moist, warm environment, condensation inside transducers is inevitable. As an innovative measure, the active

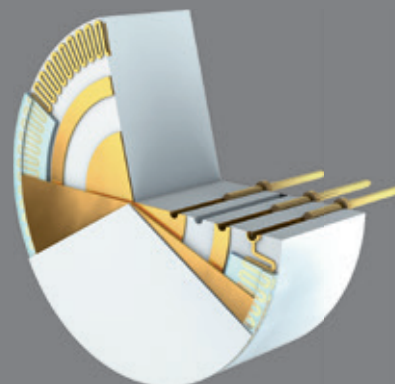
components inside the measuring cell were coated with a very thin layer of glass. This passivation layer protects them from direct conductive contact with moisture. Measurement drift is thus prevented and operational reliability increased.

### At home everywhere

It's not without reason that many well-known companies put their trust in cutting-edge technologies from VEGA. CERTEC® measuring cells can be found even on the largest aircraft in the world, the Airbus A380: they measure the level in the waste water tank and the vacuum in the sewage vacuum system. On board Germany's ultra-modern research vessel, the Maria S. Merian, VEGA ceramic ensures safe and reliable pressure measurement in the ballast, service and fuel tanks. The energy group RWE uses the ceramic technology to control deep well pumps in open pit mines. The Norwegian company Statoil relies fully on ceramic measuring cells from VEGA to ensure the stability of its oil platforms. They measure the level in the ballast and anti-heeling tanks and thus prevent the platforms from tilting. So you can see: leading technologies, like the pressure instrumentation from VEGA, have thousands of applications and bring safety and reliability to industrial facilities, in virtually all sectors, around the world.

## The CERTEC® measuring cell

The CERTEC® measuring cell is a ceramic-capacitive measuring cell made of sapphire ceramic® with an absolutely front-flush diaphragm.



## Focusing on the essentials!

**The new radar sensor for bulk solids, VEGAPULS 69, is characterized especially by its extremely wide application spectrum. With a measuring range of up to 120 m and an accuracy of  $\pm 5$  mm, it has sufficient performance reserves for even the most unusual applications.**

New microwave components allow the sensor to detect even the smallest reflected signals. Media with poor reflective properties such as plastic powders or wood chips, which until recently were very difficult to measure, can now be measured with absolute confidence. This considerably extends the application range of radar technology in the bulk solids industry and even opens up completely new areas of application.

### Better focusing

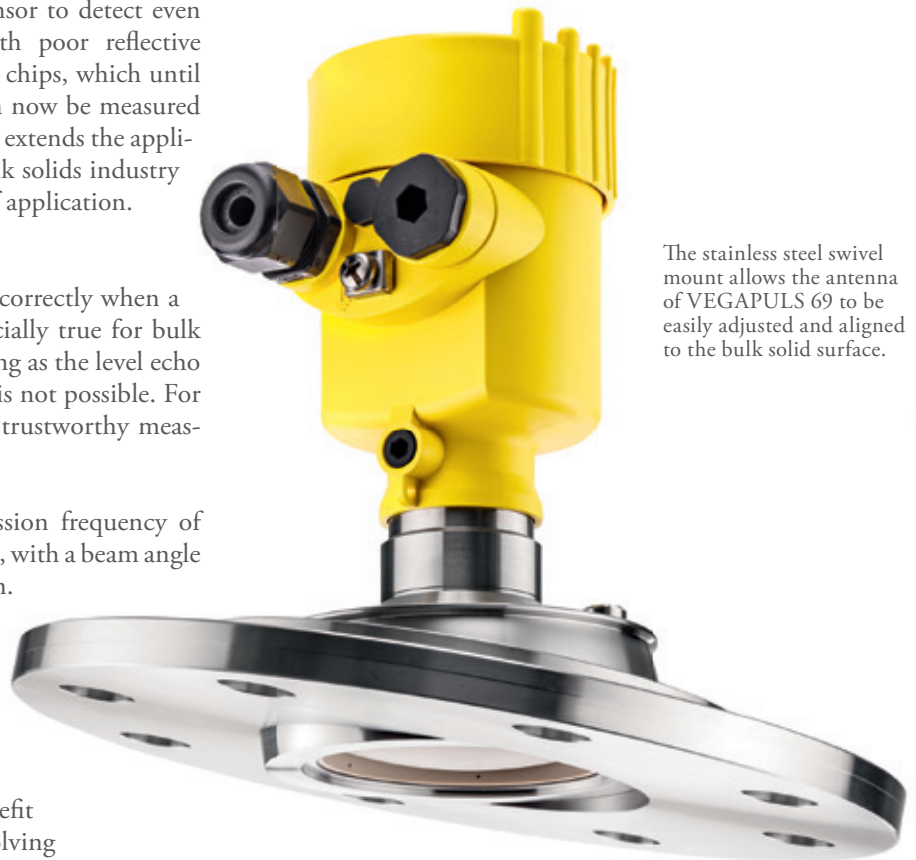
A radar sensor can only measure the level correctly when a distinct level echo is present. This is especially true for bulk solids: when interference signals are as strong as the level echo itself, maintaining a reliable measurement is not possible. For that reason, good focusing is the key to a trustworthy measurement.

VEGAPULS 69 operates with a transmission frequency of 79 GHz and an antenna diameter of 75 mm, with a beam angle of only 4° resulting from this configuration. The narrow 79 GHz beam is able to simply bypass any internal installations or vessel wall buildup, which means it delivers a more efficient and reliable measurement.

Applications that typically particularly benefit from the narrow beam angle are those involving level measurement in segmented containers or mixing silos in the cement and building materials industry. These usually have internal partitions made of trapezoidal profiled corrugated metal sheet. In contrast to the bulk solid materials, these metal partitions generate strong interference signals, which previously had to be filtered out with great care utilising complex evaluation algorithms. The improved focusing of VEGAPULS 69 avoids this problem completely to ensure a more accurate and reliable, level measurement.

### Higher dynamics

The large, 120-dB dynamic range of the new VEGAPULS 69 now makes it possible to pick up and measure the tiniest of reflections. For media with good reflective properties such as coal, ore and rocks, this results in even higher measurement certainty and reliability. Thanks to this new technology, the measurement of media with poor reflective properties, such as plastic powders, fly ash or dry saw dust, is of a significantly higher quality. The ability to measure ever smaller reflection signals even allows applications with polystyrene pellets or



The stainless steel swivel mount allows the antenna of VEGAPULS 69 to be easily adjusted and aligned to the bulk solid surface.

AEROSIL®s. Especially in applications where very different media are stored, the universal applicability of the sensor offers significant advantages. In the grain processing industry, for example, it is common to fill individual silo cells with different products. Wheat, corn or bran is stored depending on what is needed. The different media with very different reflective properties were often a big challenge for radar measurement technology. The high dynamics of the sensor now allow it to cover a really wide range of products and applications.

### Large measuring range

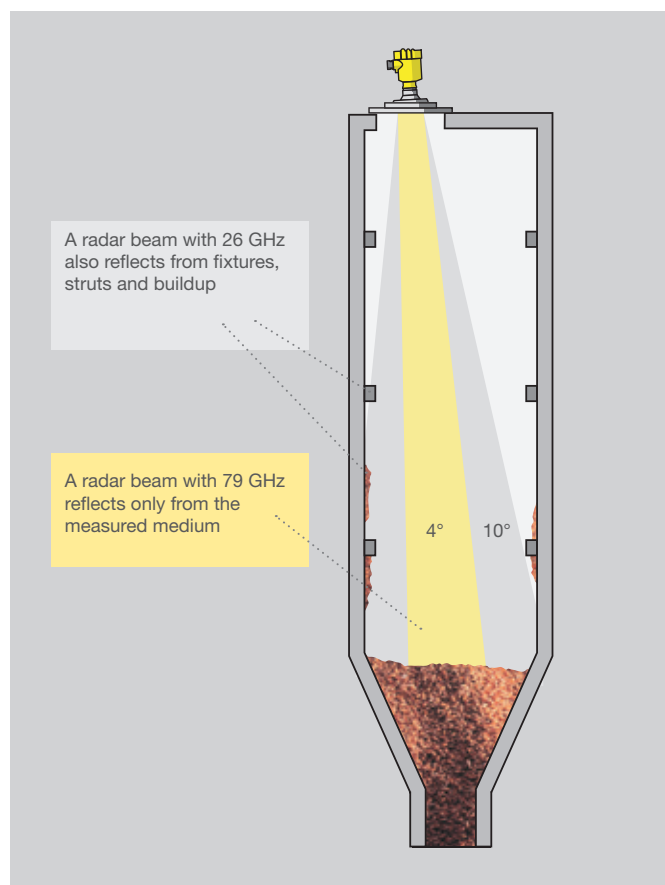
Thanks to its very good signal focusing and high dynamic range, VEGAPULS 69 can detect poorly reflecting bulk solids reliably even at a distance of 120 meters. The system is designed so that the sensor operates with the same performance even over very small measuring ranges. Users of conveyor belt tripper car positioners, on which distance measurements

have to be carried out under very difficult conditions can also benefit greatly. Fast measurement is necessary here because their positions change very quickly. No problem for the new VEGAPULS 69 – with its cycle time of less than one second and  $\pm 5$  mm accuracy, it handles these applications brilliantly.

Large measuring distances are also necessary in the discharge shafts found in mines. The tighter focusing plays an important role in these applications, because the radar beam avoids the rough surfaces of the shaft walls cut in the rock. Interference signals are thus reduced to a minimum.

### Instrument features

The new VEGAPULS 69 is available in two versions: one with a simple, lightweight plastic antenna (PP) and one with a lens antenna integrated into the flange. The antennas are not sensitive to buildup and guarantee trouble-free operation even under harsh field conditions. The flange version has a swivel holder of high-quality stainless steel that allows the sensor and antenna to be optimally aligned within a range of  $\pm 10^\circ$ .



The improved focusing of the new VEGAPULS 69 means higher measurement certainty over the entire measuring range.

## Smartphone app for optimal alignment of radar sensors

With this new function in the VEGA Tools app, optimally aligning radar sensors during installation and putting them into operation is as easy as child's play. After the vessel height and the distance to the discharge opening are entered, the app automatically calculates the correct angle of inclination. The radar sensor can then be aligned with the help of the tilt sensors in the smartphone and graphical representation of the sensor angle in the App.



VEGA Tools App  
for Android in the  
Google Play Store



VEGA Tools App  
for iPhone in the  
Apple App Store



## Our new VEGAPULS 69 cuts the wires in more ways than one!

Looking for the performance of a guided wave radar without the cable? GWR is an often used technology for bulk solids level, because of the way the radar signal is guided along a wire cable in a defined, narrow path down to the product and back. The signal is 'channelled' so no spurious signals from filling, side walls etc. can interfere. However, factors such as installation, roof loading, abrasion and build up on the guide cable can cause issues. Now you can get even better performance on bulk solids level from the non contact VEGAPULS 69 radar, so focused it's like it's guided, but no cable needed!

### Get up close and personal with a VEGAPULS 69.

Our fully functioning VEGAPULS 69 device and bulk solids demonstration case is also cutting out the wires too. It's all battery powered, so you can see and handle a fully working sensor, to evaluate its many features; beam angle, accuracy, responsiveness, versatility, easy set up and the integrated aiming system, to name but a few ... you can even try it directly on your application!\*

Wherever you like; you choose the location, your desk, workshop, even on the application\*, we will bring the radar.

For a VEGAPULS 69 brochure, demonstration, or to discuss your requirements, contact [info.uk@vega.com](mailto:info.uk@vega.com) or call 01444 870055 and ask for our sales team.

\*observing all site, HSE and process safety guidelines



## VEGA Journal

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