

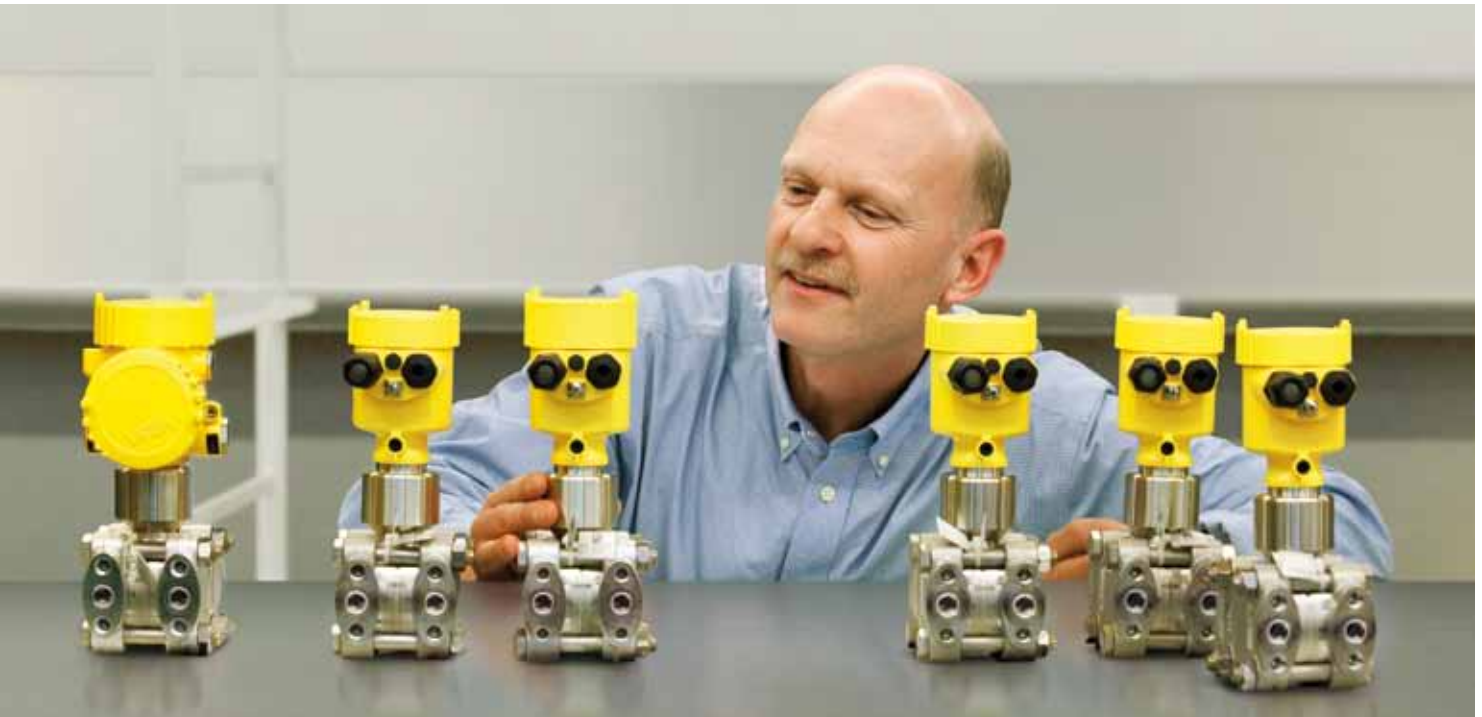
VEGA Journal

INTERVIEW: Successful partnership is based on constructive collaboration. **TECHNOLOGY:** On course with De Vries. **FIELD REPORT:** Water roller coaster – safe landing with VEGABAR. **PRESENTATION:** One ceramic, thousands of applications. **LOOKING FORWARD:** Fast, free and always up to date.

Issue 3/10

A man with a beard, wearing a yellow hard hat and a grey polo shirt, stands in the foreground with his arms crossed, holding a clipboard. He is looking directly at the camera with a slight smile. The background is a large, complex industrial structure, possibly a water roller coaster, with curved metal tracks and various mechanical components. The lighting is bright, creating a high-tech, industrial atmosphere.

Pressure instrumentation
through the years



VEGA has been extending its range of pressure transmitters consistently for many years.

Pressure instrumentation through the years

With its wide array of relative, absolute and differential pressure transmitters, VEGA is able to provide a solution for practically any pressure-specific application – for liquids, gases as well as abrasive and corrosive media. There are only a few companies that can offer a similarly broad product spectrum in the area of pressure.

VEGA has been developing and producing pressure transmitters for all sorts of applications and industries for over 40 years, and the performance characteristics of the sensors are convincing: the pressure transmitters handle media temperatures up to 400 °C, measure process pressures of 1 mbar to 2,500 bar and withstand water depths of up to 600 m. From housing material to process fitting, the modular instrument concept plics®, allows custom combinations that can fulfil any requirement in the area of pressure measurement. In-house developments and enhancements are always carried out at VEGA for a good reason: ensure that all requirements are fulfilled with the right measurement technology. Our credo: put the most suitable measuring cell in every measurement application!

Top-notch measuring cell concepts

All core technologies, such as the ceramic-capacitive CERTEC® measuring cell (see also page 11) and the metallic METEC® measuring cell are VEGA developments. The ceramic-capacitive measuring cell has, in fact, been the star of

the “yellow” pressure sensors for over 15 years. It is indeed the key to the wide application range. The proof: its numbers grow year after year, and that’s in all industrial sectors.

VEGA improves its pressure transmitters continuously through ongoing research and the development of industry and customer-specific solutions. For example, this led to METEC®, the world’s first metallic measuring cell with self-compensating temperature behaviour, which was launched on the market in 2001. Today it is “the solution” for applications with dynamic temperature variations of up to 200 °C.

In 2005 VEGA introduced the world’s smallest ceramic measuring cell into the process industry: MiniCERTEC®. Originally developed for the paper and sewage industries, it has now taken on measuring tasks in the pharmaceutical and food industry that require small, aseptic process fittings, such as ½" Tri-Clamp or Ingold.

The introduction of piezo and thin film technology extended the product portfolio to include measuring ranges up to 2,500 bar. Seal-free measuring cells are now also possible.

Flexibility is trump

By introducing the VEGADIF 65 differential pressure transmitter in 2009, VEGA closed the last product gap in pressure instrumentation. The universally applicable differential pressure measurement technology opens up applications over and above the classic pressure and level measurements. Flow, density and interfaces can now also be measured with VEGA pressure transmitters. Due to its wide variety of applications and mounting options, there is hardly any other measuring principle as flexible as differential pressure. This measuring technique is indispensable in the petrochemical and chemical sector as well as in energy generation, offshore applications and the pharmaceutical industry.

VEGA applies pressure

A VEGA customer doesn't have to make any compromises. That's because VEGA as a full-range supplier, can always offer a solution.

The portfolio covers pressure and differential pressure as well as hydrostatic pressure measurement. Moreover, VEGA has its own ceramic-capacitive, piezo and thin-film resistive measuring cells. Ergo: the user can always find an optimal solution to his particular measuring problem. Here are a few examples:

- You're looking for a pressure gauge for monitoring a clean room differential pressure of 50 Pa?
No problem. The process pressure transmitter VEGABAR 52 with CERTEC® measuring cell is practically made for this.
- You're in search of a level gauge for a tank holding bitumen at 200 °C?
The hydrostatic pressure transmitter VEGABAR 55 with METEC® measuring cell easily accomplishes this task.
- The 1,000 bar pressure of your hydraulic system has to be monitored and controlled?
In that case, the process pressure transmitter VEGABAR 53 with thin-film measuring cell is your first choice.
- You'd like to measure the contents of a waste water tank in an airplane wing at 12,000 m altitude and -55 °C?
The CERTEC® measuring cell meets this challenge with confidence.
- You need a measuring instrument that determines the flow of oil in a pipeline network?
Then the differential pressure transmitter VEGADIF 65, with integrated orifice plate and shut-off device, is the perfect match.

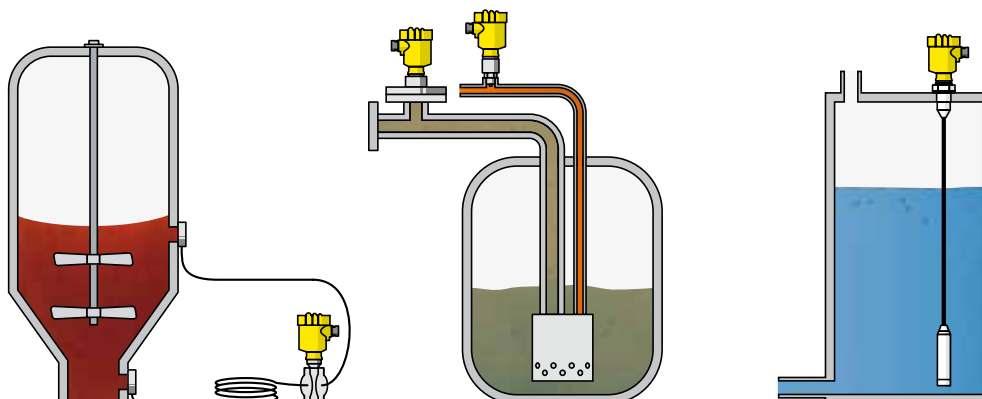


From left to right:

Density measurement in a fruit juice tank

Monitoring of hydraulic feed pumps and product pipelines

Level measurement in fully desalinated water



VEGA pressure transmitters – the right solution for every application – are also available as single units.



“Successful partnership is based on constructive collaboration.”

Interview with Thomas Köberl, director of Voith Paper Automation Fiber Systems and responsible for all field instruments at Voith Paper Automation.

VEGA Journal: Mr Köberl, what are Voith's markets and what does Voith Paper stand for?

Köberl: Voith was founded on January 1st, 1867, and is today one of the largest family businesses in Europe, with 39,000 employees, 5 billion € turnover and over 280 locations worldwide. Voith sets worldwide standards in the paper, energy, mobility and service markets.

Voith Paper is a division of the Voith Group and the leading partner of the paper industry. As a process supplier, Voith Paper delivers complete systems – from waste paper processing to paper machine, inclusive of automation. For us, economical and sustainable paper production go hand in hand.

What led to the collaboration between Voith Paper and VEGA?

Köberl: Voith and VEGA already had an ongoing collaboration for more than ten years without it actually being official. Together with the VEGA team in Schiltach, we were able to realize new product ideas relating especially to applications in the paper industry. The teamwork between Voith and VEGA was always very constructive and things were accomplished quickly.

This really motivated both teams to intensify cooperation and further improve the products.

In which processes do you implement VEGA sensors?

Köberl: At Voith Paper we use many different kinds of VEGA instruments and nearly all the available measuring principles. This begins in stock preparation and runs through the entire paper production process right up to the processing of finished paper. We also equip the secondary systems, such as water treatment and pneumatic technology as well as oil hydraulic systems, with VEGA products. The big advantage is that, during the engineering phase, we can allow for the use of many identical parts throughout the entire production line and thus simplify the spare part stocks of our customers.

How does Voith benefit from VEGA, and particularly from VEGA pressure transmitters?

Köberl: For us it's important to be able to offer a good solution for every requirement – whether it has to do with connecting to the process or integrating the instrument into the control system. The VEGA modular system and its many housing versions can fulfil all of our wishes.

Pressure is one of the most important measurements in the paper-making process. We attach great importance to robust instruments that can deliver stable measurements over long periods. The flush fitting ceramic measuring cell from VEGA has turned out to be the best solution for us, especially



for waste paper stock preparation facilities. Foreign materials in the suspension, particularly abrasive substances like glass, sand and metal parts, have often destroyed measuring diaphragms. Ceramic, however, easily withstands this onslaught.

Mr Köberl, what do you personally expect from VEGA as a business partner?

Köberl: Continued good collaboration with all Voith locations worldwide and an expansion of the VEGA service network. We especially appreciate VEGA's short reaction and delivery times, which our customers also profit from.

We've just recently carried out a supplier evaluation at Voith. VEGA achieved a degree of fulfilment of 94 % and was therefore evaluated as "Excellent". I can only say: keep up the good work, and many, many thanks for your excellent collaboration.



On course with Koninklijke De Vries

“Koninklijke De Vries Scheepsbouw” builds custom dream boats in the Dutch towns of Aalsmeer and Makkum. These floating palaces offer every conceivable comfort for owners as well as guests and are technically perfect, self-sufficient systems for a stay at sea.

A visit with the exclusive ship builder

A talk with Mark Jansen, technical director at De Vries, about the passion of building luxury yachts – or as he calls it, “building dreams”. Dreams with luxurious interior décors fashioned from the most precious, exotic materials, sundecks with Jacuzzi and bar, bathrooms of marble, a health centre, a cinema and kitchen equipment that would make the mouth of any restaurateur water.

Every yacht is a custom creation and manufactured according to the personal wishes of the customer – as far as those wishes can be technically realized. Because, when it comes to yacht construction, function and safety always take priority over aesthetics.

“To build dream boats, you need most of all, besides expertise and high-quality materials, motivated employees and

dedicated subcontractors for the many thousands of components needed to achieve the desired result,” explains Mark Jansen.

Comfort and safety

Since a ship has to be completely self-sufficient while away on the high seas, all facilities on board, not just the propulsion systems, are designed to be reliable and to make life as pleasant as possible. Numerous tanks are needed on board: fuel and lubricant tanks for the engines, water tanks for the ship’s own drinking water purification system and swimming pool as well as sewage tanks.

For tank monitoring, De Vries relies on the proven measurement technology from the Black Forest specialist for level and pressure measurement. VEGA has been the preferred supplier for De Vries for over 10 years.



View into the engine room of a yacht:
A VEGABAR 52 process pressure transmitter measures the level in the so-called header tank. The sensor ensures that there is sufficient fuel on hand for the engines.

With a length of 72 metres and 23,000 h.p., Predator is the biggest De Vries luxury yacht ever. It was built in the shipyards of “Koninklijke De Vries Scheepsbouw”, one of the leading addresses worldwide for custom-made luxury yachts.

Precision on board

The pressure transmitters VEGABAR 52, VEGABAR 66 and VEGAWELL 52 are employed for the level measurement in the various tanks.

The ceramic-capacitive CERTEC® measuring cell in these pressure transmitters enables precise monitoring of the tank internal pressure down to several millibars and also withstands severe pressure blows generated by the contents of the tank in heavy seas.

The pressure transmitters are delivered with a standard measuring range. The employees of the shipyard then carry out the sensor adjustment themselves. Calibration of the fuel tanks is carried out by filling them incrementally with diesel oil. Every small change in level and volume is detected in the process. This yields a very exact, linearized volume measurement. A very time-consuming procedure – but absolutely typical of the high quality standards that are demanded and lived at De Vries. A VEGASWING 61 vibrating level switch is used to detect the 98 % alarm level. Robust construction, a tough tuning fork and reliable switching characteristics – the outstanding

features of this instrument – ensure reliable monitoring of the limit level.

The signals from the different sensors are collected centrally in a modern “ship alarm and monitoring system”. There the signals are registered by the control system and displayed on the terminals in the engine room, on the bridge, in the cockpit and in all other places where this information is needed.

Enduring values

VEGA has been a supplier to De Vries for many years. To answer the question of why “Koninklijke De Vries Scheepsbouw” decided in favour of measurement technology from VEGA, Mark Jansen doesn’t need to think long: “We place very high demands on any product we use. Longevity and high quality are the critical factors for us. Sensors must work accurately and reliably – not just at the time of commissioning but for the long haul.”

Product features, however, are not the only factors important to Jansen. “Beside high-quality products, a distinguishing characteristic of VEGA is outstanding collaboration – collaboration with our engineers in selecting sensors and, if required, in setup and commissioning. VEGA supports us whole-heartedly throughout the planning and realization of the systems on board, which are getting more and more complex. VEGA is very committed, recognizes possible difficulties and offers solutions.”

“The chemistry between the customer and the supplier is a vital key to long-term success”, says Mark Jansen in conclusion. “VEGA fulfils all these criteria and is a reliable partner in building dreams.”

Where true dreams are built

Koninklijke De Vries Scheepsbouw was founded in 1906 and is based in the Dutch town of Aalsmeer. De Vries has had a second shipyard for several years now in the historical small town of Makkum in the Dutch province Friesland.

In the beginning, De Vries built the ships of wood. Already after a few years, the sailing and motor yachts were being built of steel and aluminium. In 1949 De Vries amalgamated with Royal Van Lent Shipyard and De Voogt Naval Architects. Feadship (First Export Association of Dutch Shipbuilders) was then founded.

Feadship is one of the premier addresses for custom-built luxury ships worldwide and specialized in the construction of motor yachts up to 100 metres long. These true dreams are built for clients all over the world.

Water roller coaster – safe landing with VEGABAR



The water roller coaster “Poseidon” is an exciting pleasure of a special kind. This unique combination of roller coaster and boat trip guarantees fun and action for the whole family.

Germany’s largest amusement park offers visitors a roller coaster experience on tracks and on water. During of the water roller coaster ride “Poseidon”, passengers plunge into the depths from a height of 23 m and are braked safety by water at the bottom.

Successfully operating since 1975

Europa-Park can look back with pride on an extremely successful company history. It was opened on July 12th, 1975 in the park of the castle Balthasar belonging to the Mack family, owner of a carousel and vehicle building firm in Waldkirch. Since then, it has been continuously enlarged and

upgraded. Today the amusement park offers a mixture of rides, theme areas and parks. The main attractions are the roller coasters, primarily the Silver Star – and of course the water roller coaster “Poseidon”.

Fun and thrills

The 23 metre high and 823 metre long water roller coaster “Poseidon” (in reference to the Greek god of the sea) has developed into one of the main attractions of the park, since it offers a refreshing cooling off, especially in summer. The ride alternates between a roller coaster and a boat, one minute racing at up to 70 km/h on a downhill slope of nearly -50° and the next slowly floating through a water channel. At times the passengers experience forces in the boats of up to 3G!

Safety first

Extensive measures have of course been taken for passenger safety, a water cushion acts as a “hydraulic” brake for the plummeting boats. An ingenious water level regulation system ensures sufficient cushioning. The level is maintained a depth of approx 1m and is measured redundantly with two VEGABAR 66 suspension pressure transmitters in tube version. Due to the turbulent surface of the water, high precision and reliability are an absolute must here.

The 4 ... 20 mA/HART output signal is processed in a PLC and used to control powerful pumps. These deliver up to 3,000 litres of water per second from the reservoir lake to the braking channel – so that passengers in the following boat also land safely and refreshed!

Europa-Park Rust

With a total area of about 850,000 m², Europa-Park is the largest amusement park in Germany. The entire Europa-Park resort complex covers approx. 970,000 m² and is located in Rust just off the A5 motorway near Freiburg in Breisgau. Over 120 attractions and a number of different shows can be found in 15 different theme areas.

There are four theme hotels and a cinema in the park. Europa-Park is also a set for TV productions and a well-known venue for conventions and other events. Europa-Park has become a regular location for VEGA too, at which they hold events, like the “VEGA Technology Days.”



For safety's sake – VEGADIF 65 in paper production

Just as it did with paper machine PM 1, the company Propapier in Eisenhüttenstadt decided in favour of the extremely robust measurement technology from VEGA for project PM 2. These instruments contribute to the safety of people and processes in nearly all areas of the new plant – from stock preparation to paper machine, right through to auxiliary materials and chemicals handling.

All-rounder – from steam feed system ...

Due to high temperatures up to 190 °C and pressures up to 12 bar, steam and condensate belong typically to the domain of the differential pressure transmitter VEGADIF 65. The instrument is used in connection with DP flow elements for flow measurement in the steam feed system, precisely recording the pressure difference at orifice plates or Pitot tubes.

... to condensate vessel

The steam feed is used in many different ways. For example, steam-heated cylinders in the drying section of the paper machine remove residual moisture from the paper. A VEGADIF 65 monitors the heat transfer from the drying cylinder to the paper via a differential pressure measurement between the inlet and the outlet. The condensate that forms on the inside wall of the cylinder is continuously skimmed off via a siphon and collected in condensate containers. VEGADIF 65 is also used here for level measurement – at temperatures up to 100 °C, from residual steam and overpressure.

plics® – the optimal instrument concept

The advantages of the universal plics® concept of VEGA instruments become evident especially in large-scale projects like PM 2, which have numerous measuring points. It reduces work already in the engineering phase and also allows the instruments to be delivered in Propapier's signature colour "Pro-Red".



That's VEGA service: all instruments for Propapier are delivered in the housing colour "Pro-Red" – the company's signature colour.

Innovation and speed – the Progroup

Progroup AG produces corrugated cardboard formats with high-tech systems that are among the fastest in the world. In March 2010, its subsidiary firm Propapier PM 2 GmbH started production in a newly built paper mill in Eisenhüttenstadt/Germany. With the help of the world's most productive paper machine in this sector, the plant is manufacturing raw paper for corrugated cardboard based on 100 % waste paper. The innovative, high-tech paper machine with 10.2 m working width and 1,800 m/min operating speed has an annual capacity of 650,000 tons.

One ceramic, thousands of applications

Reliability through quality

For over 15 years VEGA has been producing CERTEC® measuring cells in Schiltach under clean room conditions.



Applications of CERTEC® measuring cells can be found not only on land – for example on the research vessel Maria S. Merian or on oil rigs – and in the air, on board the Airbus A380.



It's a genuine blue chip – and is so successful because it is versatile like no other product. It stands up to application challenges high in the sky just as bravely as those on the high seas. It is called CERTEC®, the ceramic-capacitive pressure measuring cell from VEGA.

Technology with added value

The ceramic-capacitive measuring cell CERTEC® has been the top seller and centrepiece of VEGA's pressure instrumentation for over 15 years. There is only a handful of companies in the world who have mastered this technology. Compared with the more common ceramic-monolithic measuring cells, the capacitive cells are far more precise and possess a considerably higher overload resistance. What is more, the ceramic-capacitive CERTEC® boasts excellent long-term stability and high temperature durability.

It came, saw and convinced

The ceramic-capacitive measuring cell was designed and developed by VEGA, is improved continuously and finds its way into new fields of application over and over again. Every year 75,000 of these third-generation, high-tech measuring cells are manufactured at the VEGA plant in the Black Forest. And all signs point to further growth: a new clean room designed for an annual production of 350,000 measuring cells goes into operation in 2011.

Winning features

The double seal concept – unique in the whole world – offers high reliability, as the sealing material consists of two different materials which protect the measuring cell against dangerous chemical and physical effects. VEGA customers profit not only from the resulting high stability and reliability, but also from the broad applicability in widely different media. The choice of materials for the seal allows its use just as well in hygienic liquids in pharmaceuticals production as in aggressive media, such as heavy oil. But that's not all: because ceramic is ten times harder than stainless steel, the pressure

measuring cells have an extremely high resistance to abrasion e.g. from sand and mussels in seawater or paper clips in waste paper. The excellent pressure shock resistance, which derives from the special construction, protects the measuring cell from pressure peaks in front of or behind fast acting valves or breaking waves on ships.

Everywhere at home

It's not without reason that many well-known companies rely on this cutting-edge technology from VEGA. CERTEC® measuring cells also fly in the world's largest airplane, the Airbus 380: they measure the level in the sewage tanks.

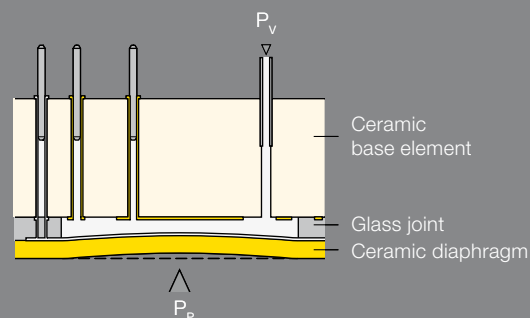
In the world's most modern research vessel, the Maria S. Merian of the Federal Republic of Germany, VEGA ceramic ensures safe and reliable pressure measurement in the ballast, service and fuel tanks.

The energy group RWE uses the ceramic technology to control deep well pumps in open-cast mining operations. The Norwegian mineral oil corporation Statoil relies entirely on VEGA's CERTEC® ceramic measuring cells to guarantee the stability of its oil rigs – they measure the level in the ballast and anti-heeling tanks, thus preventing the platforms from leaning.

The bottom line: CERTEC® ceramic measuring cells offer thousands of application possibilities and bring safety and reliability to industrial plants everywhere in the world and in all industries.

The CERTEC® measuring cell

The CERTEC® measuring cell is a ceramic-capacitive measuring cell made of sapphire ceramic® with an absolutely front-flush diaphragm. It is ideal for use in the pharmaceutical industry, paper industry or sewage treatment plants.



- Measuring range -1 ... +72 bar
- Temperature range -40 ... +150 °C
- Dry measuring cell
- Excellent long-term stability
- Highly overload and abrasion resistant



Fast, free and always up to date



Simple downloading of all information

We've set up a very extensive download area on the VEGA home page. There you can find information on product selection as well as technical specifications – and that in many different languages.

Ready for downloading:

- Operating instructions
- Product information
- Software
- Catalogues and brochures
- Drawings
- and much, much more

You can select what you need and access it directly without logging in. All information is available in the form of PDF files which can be easily viewed with the free Adobe Reader®.

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