

VEGA Journal

INTERVIEW: People make the difference. **TECHNOLOGY:** From sewage to ultra-pure water. **FIELD REPORT:** Instrumentation for sustainable water management. **INTRODUCING:** VEGA's engineering department. **LOOKING FORWARD:** VEGA HQ moves into new annex.

Issue 1/11

Reliable and
service oriented





VEGA has the clearly defined goal of supporting customers through strong, reliable, expert service. That's why VEGA offers, beside the high quality and functionality of the measuring instruments, an extensive service package.

Reliable and service oriented – focussed on the customer

Service at VEGA is not just a word, it's genuine service. Over the years, as the company has grown, so has its offerings, through technology and services, in order to give customers the most valuable commodity of all – time.

The principle is very simple – and it does not consist of superficial friendliness ordered by management or a put-on smile or a text that a call centre employee has learned by heart. The optimal service at VEGA works according to the “common sense” principle. Therefore it does not just begin when the user has a problem with the implemented level or pressure gauge. Neither does it begin when they're facing the challenge of initial installation and commissioning. Optimal service at VEGA starts with the selection of the right instrument – or to be more exact, it's much earlier: during the development of the instrument.

Goal-oriented development

Early in the development stage, mechanisms are created – according to the modular instrument system plics®. These support the user in servicing and maintaining his instrument: e.g. asset management functions like status monitoring and reporting. Precautionary technical features are built-in right from the start, so that later routine testing does not lead to costly production stoppages. An example of this are the detailed test instructions that make it possible to check radar or TDR sensor function during normal operation.

Ultimately, it's the instrument designer who ensures that the engineer on site has all the relevant information they need, before carrying out necessary servicing. This is achieved by using an event memory in the sensor electronics that documents all changes to the parameters or interruptions to the power supply.

Perhaps the most important service principle at VEGA is, "Avoid servicing cases in the first place". To this end, the experts in Schiltach always endeavor to build instruments that work completely reliably and whose operation is self-explanatory.

Full support

But there's no rule without exceptions. Even users of VEGA instruments may occasionally have problems they cannot solve themselves. It's at such times that they really appreciate having a direct hotline to "their" VEGA customer adviser. Again, according to the "common sense" principle. They know the customers in their area and are familiar with the applications and any special features, so they can provide competent assistance. Either technical service employees or product managers stand ready with help and advice in case of special problems or questions.

People make the difference

Round-the-clock availability is the prerequisite for a good partnership. At VEGA, it's the company service technicians who man the technical service hotline. A VEGA employee is always within reach, 24 hours a day, 365 days a year, for fast, individual help at the local phone rate. Also different from other companies: nothing is charged for telephone consultation.

Many service components

Customers benefit in many ways from the numerous components of the VEGA service concept.

The software tools at www.vega.com can help when selecting an instrument. For example, there's the "finder", which simplifies the search for a suitable measuring principle for a particular application. Or the "configurator", which provides an overview of all available instrument options, such as process fittings.

The next service component is the delivery time concept, SPEED. Introduced by VEGA about ten years ago and optimised continuously since then, it guarantees a five-day delivery time for all products marked with a stopwatch symbol in the catalogue.

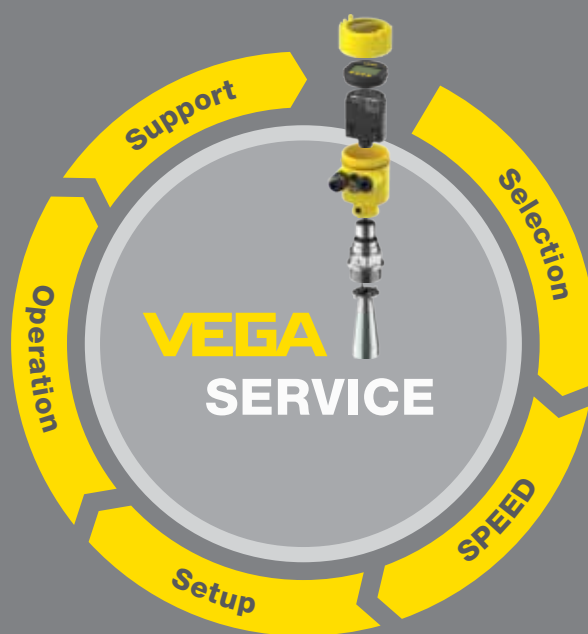
Indeed, the most valuable thing VEGA gives its customers is time. Not just when it comes to receiving product deliveries or looking for a competent contact person, but even earlier, in the tendering phase. SPEED also comes into play when it comes to instrument repairs. Seven working days are VEGA's own aspiration – and in fact, four-fifths of all faulty instruments are repaired within this amount of time.

Good consultation, instruments that avoid superfluous servicing, help from competent contact persons and high speed, from the ordering process right through to repair – the set of building blocks for optimal service seems to be complete at VEGA.

Almost. The last component is continually being created. By means of the instrument serial number, which is already providing on-line access to instrument information, such as delivery date and accompanying documentation via the Internet. The customer will also get in future instrument-related history data throughout the entire lifecycle, i.e. they will receive a summary of the repairs already performed, etc.

There again we hear it speaking, that voice of common sense, which turns a service concept into reality in a quite pragmatic way at VEGA.

5 central service building blocks



As a responsible partner, VEGA offers competent all-around service: from one-on-one, individual consultation to time-saving setup to future-oriented instrument technologies. Everything is well thought out in advance and even for the worst-case scenario, VEGA can find a good solution to your application problem.

Selection: Qualified advice for finding the right instrument

SPEED: Fast processing and delivery

Setup: Simple installation and commissioning

Operation: Reliable detection and measurement

Support: Qualified support round-the-clock



“People make the difference.”

VEGA's managing director Günter Kech on service as a business model and the importance of having competent sales employees.

VEGA Journal: Service is becoming a business model in almost all areas of daily life. How is service developing in our industry?

Kech: There is a tendency nowadays to sell services. Whereas in the past you could call directly to the manufacturer with a problem, there is often a 'premium rate' hotline or service number – and, if you're not careful, you can get ripped off. Service is turning into a business model. We don't want to go in that direction.

Who makes sure VEGA always provides optimal service?

Kech: Of course the direct service units of the company, that is, the technical service department as well as the sales department.

Do the sales employees regard themselves as service workers at VEGA?

Kech: Yes, we try to make it clear to everyone that a large part of what we do in sales is actually service. It starts with project planning; the basis for everything is comprehensive knowledge of the instrument technology and the applications. Only then can the customer apply the right instrument and rest assured that he will not have any problems with installation or later operation. This is the stage at which preventative service takes place.

When service workers have to tinker around and experiment to make the system work properly after the installation, something has obviously gone wrong.

Does an archetype of the service concept as VEGA practices it, exist?

Kech: No, but as a pure level and pressure specialist we occupy a niche in the instrumentation market. We must ask ourselves: How can we stay successful? Always be better than the competition – in any case that's what we strive for. And there are plenty of customers who want exactly what we offer – customers who know: If I turn to VEGA, I get a measurement solution I don't have to spend time thinking about later. That's why we live and breathe our service concept – from consulting service to punctual delivery.

Is setup and commissioning also included in this?

Kech: In only about five percent of all applications is it necessary to help the customer with setup and commissioning. It actually makes more sense to ensure already in the development stage that the customer himself can put his instrument into operation in a few quick, simple steps.

Interested parties are often supported by Internet tools when selecting an instrument. What do you think of this option?

Kech: We also provide such a tool – it's called "finder". But it plays a subordinate role. The surest way to choose the right instrument is to tap the know-how of the manufacturer. One call and the customer gets competent consultation; in more complex cases a sales representative visits the customer's location. He's familiar with most applications, in many cases through



experience with other customers, and can bring his competence to bear in helping to select the right instrument. In this way, the risk of ordering the wrong instrument is transferred to the manufacturer. What would your boss say if, after all is said and done, you've selected the wrong instrument?

As a mid-size company, how can you guarantee a competent, 24-hour telephone service?

Kech: There are always four technicians on office duty in Schiltach during the day. After 5 p.m., callers are automatically connected with our service colleagues in the USA and after that with Australia. We are happy to be able to do this. Especially our customers in the petrochemical and chemical industries appreciate knowing they can reach somebody with professional competence at any time, even on Sunday.

Thank you for the interview.

From sewage to ultra-pure water

In the Dutch city of Emmen, the joint venture NieuWater B.V. will be putting one of the most modern sewage treatment plants in the world into operation around the middle of 2011. Using innovative cleaning technologies, this globally unique and highly productive pure-water plant will process sewage to ultra-pure water. The water will be supplied to the Netherlands Mineral Oil Company (NAM), which is soon resuming oil production in Schoonebeekerveld with this ultra-pure water.



The oil field in Schoonebeek is the largest oil field on the mainland of northern Europe. Some 250 million barrels of crude oil have already been produced there during the period from 1947 to 1996. After that, mineral oil production in Schoonebeek was stopped because production with the classic rocker arm pumps was no longer profitable.

Due to rising oil prices, improved technology and the remaining crude oil deposits estimated at 750 million barrels, extraction will be resumed in 2011 with 18 new wells. During the next 25 years, 100 to 120 million barrels of crude oil are to be produced.

Ultra-pure water plays a decisive role in the extraction of this extremely thick crude oil containing large quantities of paraffin. By heating up and vaporizing the ultra-pure water and injecting the steam into the oil field, the crude oil becomes thinner, i.e. less viscous. Warming up the crude oil simplifies extraction and prevents damage to the modern, high-performance pumps and turbines.

NieuWater's pure water plant in Emmen produces up to 10,000 m³ of ultra-pure water per day. The duration of the contract with NAM is 25 years. The total investment amounts to about 45 million euros.

Sewage as raw material

Water is getting to be a scarce commodity even in the relatively water-rich Netherlands. Due to the shortage of ground and surface water, the reuse of wastewater is becoming more and more important. Treatment and reuse of wastewater has been a vision in that country for many years already. The plant for pure water production in Emmen is a perfect example showing that it is useful and profitable when all involved parties work together in the planning of a water supply system.

The pure water plant uses pre-cleaned waste water from the sewage works as the raw material for production. All substances the pure water plant filters out of the water are fed back to the sewage works and run through the cleaning process a second time. Thanks to this procedure, considerably less dirt reaches the surface water and fulfilling the strict guidelines of the Dutch water laws becomes easier.



The pure water plant processes pre-cleaned waste water from the neighboring sewage works. Waste (sewage) thus becomes an economically and ecologically sustainable raw material for production.

Effective project planning

In this project, reliability and on-time delivery are especially important. Particularly in view of the fluctuating quality of the raw water, sensors that are absolutely reliable and not influenced by process conditions have to be deployed. The heavy demands placed on the quantity and quality of the ultra-pure water have to be fulfilled despite these given boundary conditions.

Engineers from the water provider Maatschappij Drenthe (WMD), process technicians from the Waterlaboratorium Noord (WLN) and experts from the water authority Velt en Vecht designed the process for the pure water plant together.

NieuWater designed the pure water plant entirely anew from the ground up. Exchanges of experience by all involved parties and the close cooperation of specialists in this field provided the basis for this. It took over two years of work on this project to find an optimal solution. The long-standing experience of the planning company with existing and completely new cleaning techniques was crucial for the success of the project. VEGA was engaged to carry out the planning and delivery of an extensive package of level and process pressure gauges.

200 VEGA sensors measure and monitor the cleaning process

In the first stage, an ultra-filtration plant removes very fine solid matter from the effluent. Here, VEGABAR 66 suspension pressure transmitters measure the filling levels, while level switches of type VEGACAP 63 reliably detect the limit levels. The water then passes through the next cleaning stage in the charcoal filter plant. Aided by liquid oxygen, which is fed into the process here, bacteria in the charcoal filter convert difficultly degradable substances into water and carbon dioxide. This considerably reduces dangerous biofouling in the downstream membranes. VEGACAL 63 capacitive rod measuring probes are used for level measurement in the associated process tanks.

The next stage consists of the membrane systems of the reverse osmosis plant, where minerals are removed from the water. In the 6 m-long pressure vessels and pipelines, pressure transmitters VEGABAR 14 and VEGABAR 54 with ceramic measuring cell are applied for process pressure measurement, and differential pressure transmitters VEGADIF for differential pressure measurement.

In still other process-related systems, level measurement is performed by suspension pressure transmitters VEGAWELL 72 as well as non-contact ultrasonic sensors VEGASON 61 and 62 and radar sensors VEGAPULS 61.

Why was VEGA chosen?

NieuWater chose VEGA as a supplier for level and process pressure instrumentation because of the many good experiences it had over the years with VEGA's consulting service and measuring instruments. The customer appreciates VEGA as a reliable, competent and service-oriented company with short delivery times.

Info

The Dutch company NieuWater B.V. is a joint venture between the water supply company Waterleidingmaatschappij Drenthe (WMD) and the water authority Velt en Vecht. NieuWater B.V. was founded in 2004, arising from the wish of WMD and the water authority Velt en Vecht for innovative cooperation within the water chain. NieuWater anticipates that its activities will not be confined just to delivering pure water to the Netherlands Mineral Oil Company (NAM). These experiences with the new innovative pure water plant will certainly prove valuable for the implementation of such techniques at other locations in the world.

Steely savings measured at TATA Steel

TATA Steel Europe produces raw products for the world market – from steel plates to railroad tracks and steel wire. The company stands at the pinnacle of the processing industry in Great Britain and places its focus on operating efficiency and strategic process improvement. Level measurement with radar will be contributing to £12 million of savings at the company every year.

In the steelworks in Scunthorpe (Great Britain) steel is produced from the raw material iron. The liquid pig iron is transported from the blast furnace to the LD plant in a so-called torpedo car, where it is refined to steel in the Linz-Donawitz procedure (LD). In the LD plant the liquid iron is emptied into 300-ton capacity ladles and later filled into the converters from there. At the end of the conversion process the liquid steel is again filled into huge ladles.

The distance from the top edge of the ladle to the surface of the molten metal is an important parameter in steelmaking. Determining this distance exactly and repeatedly, particularly during filling, is very difficult. After the steel has been filled into the ladle, it is mixed with an argon lance to prevent stratification and to homogenize the additives. If the level of the molten steel is too high, any turbulence could cause dangerous overflows. The capacity of the ladle should nevertheless be used to the full: each and every filling contributes to the profitability of the plant – even a few centimetres represents several tons of steel.

Increasing production through reliable measurement technology

In the past, the operator always judged the level of the ladle filling by eye. The levels varied greatly due to the different ladle forms and the visual judgment of the individual operator. For safety reasons, the filling level was always kept far below the maximum upper limit. Today, thanks to a reliable level measurement, the capacities of the ladles can be optimally utilized.

TATA decided in favour of the non-contact radar sensor VEGAPULS 62 for precise detection of the maximum upper limit in the ladle. The radar sensor is mounted about 8 m above the lowest filling level and measures the level with a reproducibility of 2 mm – even during filling.

For this application, VEGA delivered radar sensors with an angled antenna extension that keeps the electronics away from the hot area. A rinsing air system was also installed to prevent dust from accumulating on the antenna over the course of time. If required, this system can also be used for cooling.



Info

TATA Steel Europe is a subsidiary firm of the Indian Tata group and the second largest steel producer in Europe. Its raw steel production amounts to more than 28 million tons annually. The company supplies steel and associated services to the building, automotive, packaging and material flow industries as well as other industries worldwide.

Just in the Scunthorpe steelworks alone TATA Steel employs over 4,000 people. It is TATA's second largest operation in Great Britain.

Thanks to the reliable and more precise filling of the torpedo cars, TATA achieves on average a 10-cm higher level with every ladle charging, which corresponds to 10 additional tons of steel per filling. This improvement at all three transfer stations is contributing towards a package of production savings of £12m every year.

VEGA provides not only radar sensors but comprehensive after-sales care as well – from technical support to setup and commissioning or on-site training for technicians.

Instrumentation for sustainable water management

To protect the environment from the harmful consequences of municipal sewage, the Urban Waste Water Treatment Directive was adopted by the EU in 1991. It defines the requirements on the building and equipping of sewage disposal plants. Since 2007, another official ordinance requires sewage plants in France to monitor floodwater flow, water levels, overflow as well as possible foreign influx.

Increased measuring precision

The French municipal association SIVOM has been implementing the official ordinance in its sewer networks since 2007. Continuous monitoring and maintenance of the sewer network in the district of Mühlhausen is the responsibility of the water provider Lyonnaise des Eaux in the Alsatian city of Illzach.

The flow of high water is continuously monitored according to the measuring principle used for open channels. In the past, the level measurement required for this was often carried out with ultrasonic sensors that didn't always provide satisfying measuring results. Process influences in the sewer network, such as temperature fluctuations or gas blanketing, occasionally led to measurement errors.

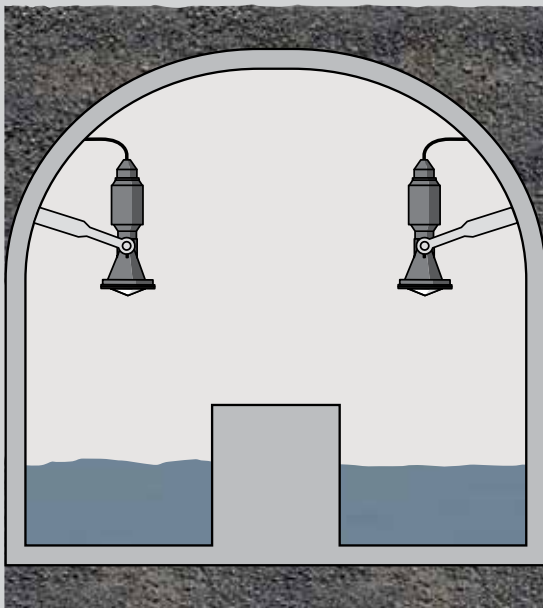
To optimize measuring accuracy, the ultrasonic sensors at Lyonnaise des Eaux were replaced with VEGAPULS WL 61 (IP 68) radar sensors. Due to the physical properties of microwave pulses, these non-contact level sensors operate completely independent of temperature fluctuations, gas stratifications or weather effects and deliver reliable measurement data.

“Since the costs of radar sensors and ultrasonic sensors are roughly the same, we didn't hesitate to implement the superior technology here”, explains Ms Aude Napoly, the person responsible for monitoring the sewer network at Lyonnaise des Eaux in Illzach.

A cost-efficient solution

With regard to its field of application, VEGAPULS WL 61 offers many advantages; for example, its rotating mounting system allows a perfectly vertical orientation to the surface of the water. Unlike ultrasonic sensors, radar sensors do not have a blocking range, or so-called dead band. “With radar sensors you gain 30 cm in the upper measuring range”, adds Ms Napoly. To further increase this value, a 45° angle deflection system for redirecting the radar signal can be applied. The sensor is then mounted parallel to the direction of flow.

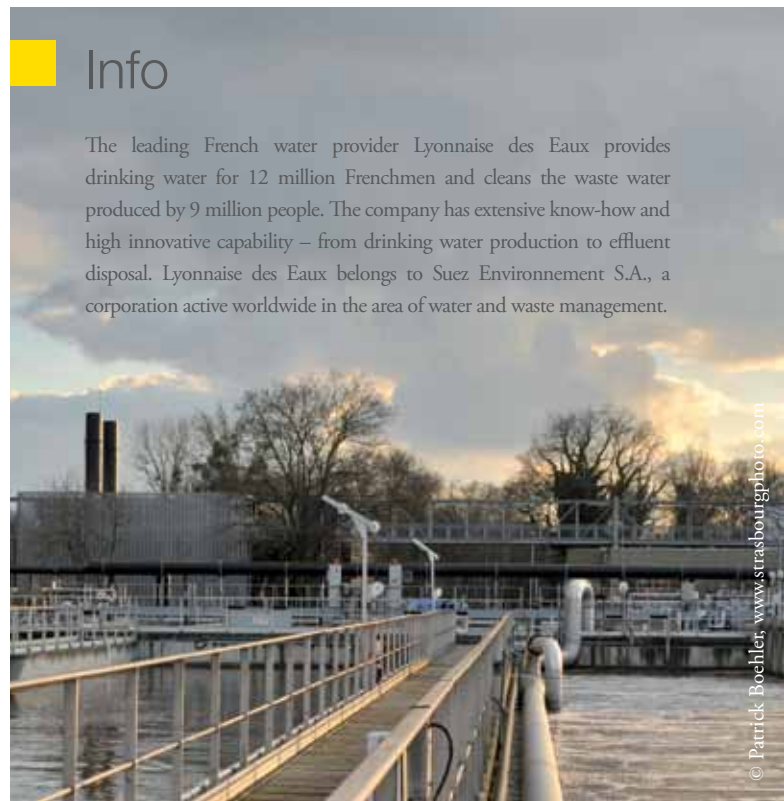
In Illzach all ultrasonic sensors are gradually being replaced by radar sensors. For Lyonnaise des Eaux this is an important step in improving the accuracy of effluent measurement in the sewer network.



VEGAPULS WL 61 measures the flow in sewer networks reliably and can be easily installed thanks to the many different mounting options.

Info

The leading French water provider Lyonnaise des Eaux provides drinking water for 12 million Frenchmen and cleans the waste water produced by 9 million people. The company has extensive know-how and high innovative capability – from drinking water production to effluent disposal. Lyonnaise des Eaux belongs to Suez Environnement S.A., a corporation active worldwide in the area of water and waste management.



VEGA's engineering department: the "inner sanctum" of the company

Launching a new VEGA instrument on the market requires that many different departments of the company act in complete harmony, just like a large orchestra. Many steps take place in parallel: housing manufacture, software development, technical documentation, approvals and certifications as well as quality checks, field tests and marketing activities. At the centre of all these activities is the work of the engineering department – the closely safeguarded "inner sanctum" of the company.

Computer workstations, shelves full of files, a low noise level – at first glance, the engineering department at VEGA seems hardly different from the other open-plan offices in the company. No complex testing equipment, no experiment tables, no people in white lab coats? "If our main focus were on research, then it would look like a laboratory here", explains VEGA managing director Günter Kech. "Research, however, makes up only about 20 percent of our work at VEGA. We draw mainly on existing technologies and build instruments using these as the basis."

From idea to instrument

The idea to create a new instrument – or further develop an existing technology – emerges from close coordination between the respective product manager and the engineering department. The product manager is the link between the

customers and the engineering department. He learns directly from customers what they need, which instruments with which features. The engineering department then compares this need with what is technically feasible. On the other hand, ideas that originate in the engineering department are communicated via the product manager to the customer to assess suitability and requirement. Because: "Not everything that is technically possible is sensible and affordable", says Günter Kech. "But sometimes a technology suddenly becomes red-hot, because a new component that did not exist before appears on the market."

Therefore if the need is there, it is technically possible and is financially viable a time schedule for the development project is prepared.





Usually, at least two years of development work lie between the initial idea and the production-ready instrument. “Writing the product requirement and functional specification sheet is often a very long procedure”, explains Günter Kech. Hardware construction and software development start first. Already a few months later, work on the technical documentation begins and applications for approvals and certifications are submitted. “Indeed, some certificates are relevant for the development process itself.”

But regardless of how well planned and organised a development project may be, there is no “cut-and-dried” method that can be applied to every development project to make it run smoothly. Every new instrument is a challenge which requires the total commitment of all VEGA specialists: “The quality tests begin during the course of the second year of development. These always lead to a redesign”, notes Mr Kech. As a rule, every new instrument is sent back and forth between engineering and quality control three to ten times until everything works just right according to the company’s own high standards. Günter Kech: “Our equipment is not developed with the lowest possible manufacturing costs, but with optimal performance in mind. For us, user-friendly operation and measurement reliability always have top priority. But on the other hand, of course, we have to stay competitive and keep up with the market.”

The engineering department is VEGA’s success engine. The people who work here are full of ideas and have the technical know-how to transform these ideas into new technologies.

Electronics and software

Whereas the development of the hardware is completed at some point, the software usually takes longer, with the engineering department fine-tuning it right to the last minute. “If the software is ready four weeks before the sales launch, then things have gone very well”, Günter Kech sums it up equably. This is standard procedure in most German companies. “In some other countries, a product is developed and then sold – perhaps unchanged – for 20 years. In Germany, we continually improve our products.” That’s why the engineering department employs 80 people, an impressive number, considering that it represents about one seventh of the entire staff at the VEGA headquarters in Schiltach. “This is absolutely normal for German conditions, while in some other countries it would be regarded as a very large number.”

The future

And which entirely new technologies does the managing director see on the horizon? “At present, further development and enhancement of existing products is more of a topic than completely new technologies”, says Kech. “Theoretically, the laser could be seen as an interesting new technology in instrumentation. But its range of application is very narrow: it doesn’t work when steam and dust get in the way.” Therefore, laser technology is not regarded as a hot candidate for new instrument development. But who knows? Long-cherished ideas are sometimes good for a surprise: “The microwave barrier was an idea we had lying in the drawer for ten years”, Günter Kech relates, naming an example. “Once the time was ripe for it, we needed only one and a half years of development to get it ready for production.”

VEGA HQ moves into new annex



Within the last ten years, VEGA has more than doubled its sales volume and created 100 new jobs. Today VEGA employs about 1,000 people worldwide and generates an annual turnover of 226 million euros. Due to this growth, the production and office space at the Schiltach headquarters quickly reached its limits.

That's why VEGA has invested about 15 million euros since 2009 in a five-story annex, which is now finished. At the moment, the various VEGA departments are in the process of moving into the new building. It certainly offers plenty of space for further growth: the extension has increased the floor space of the company by about a third, to 38,000 square meters.

As the first department to do so, pressure measuring cell production moved (November 2010) into the spacious, well-lit rooms that provide floor area for efficient production with state-of-the-art production equipment.

The recently vacated rooms in the existing building are being modernized one after the other and will soon offer other departments space to expand and develop and contribute to the overall growth of the company.

“We've made a clear commitment to the location in Schiltach and the people who work there.”

Jürgen Grieshaber,
Managing partner



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