

GEMÜ® news

Magazine for the customers, staff and friends of the GEMÜ Group

Edition 01/2012

Yesterday, today and tomorrow:

Market leading GEMÜ product ideas

GEMÜ®
ACHEMA 8.F4

For almost 50 years GEMÜ has been able to maintain 'pole position' in valve and process technology. Innovations in terms of customer benefits, safety and material economy have always been at the centre of what we do. This is proven by our "golden oldies" as well as our current product presentations at the AICHEMA 2012.



GEMÜ valve block

With the GEMÜ 680 as the first pneumatically operated plastic diaphragm valve, the three valves were totally unrivalled for at least 2 to 3 years. This opened up completely new areas in valve technology: compact design with high performance. The first customer thought the GEMÜ 200 was "on the small side" and was not sure it would work. He ordered five specimens "just for fun". And from then on, the order was another 50 pieces every week - to be used in a neutralization plant.

This enables economic complex valve interfaces to be implemented with an extensive range of functions which are both highly efficient and also conserve the environment. The combination of single valves and blocks provides obvious advantages for plant designers.

Try to beat that! The GEMÜ 215 was installed as a fresh water feed valve in a water treatment plant of the TU Darmstadt in 1975, was used continuously and without a single repair for 37 years, then was passed on to us by GEMÜ External Sales and has now been replaced by a new GEMÜ valve: "Back then, compressed air was often not available for these types of plant. So I had to come up with something", reminisces Fritz Müller. No sooner said than done! Our founder and owner was one of the first to recognize that the expensive compressed air operating process could be replaced with electromagnetic control thanks to the progressive state of process automation in the 60s. Back then it was a revolution in actuator technology - implemented with the GEMÜ 215 for higher operating pressures. In his own words, he did "nothing more than pursue the logic of the industry for new products: if you are going to do something - do it right: smaller, more compact and more reliable", explains Fritz Müller, a true trailblazer.

In the last fifty years a lot has happened in the valve technology market. GEMÜ has continuously co-operated very closely with customers in the development of valve solutions for industrial plant. GEMÜ's engineers develop initial design drafts as early as during the project stage which are then implemented constructively together later. Block solutions are another market-leading GEMÜ product: first made of metal and now also of plastic. They are compact, designed for optimized draining and offer increased safety as a valve unit.

"Right from the start we have been setting high standards in process automation for our customers: high operational safety and economic operation. Apart from basic functions, our products always have additional benefits for the users as well - which means we are making engineering history! Yesterday, today and tomorrow", Fritz Müller is convinced of it.

His company GEMÜ, founded in 1964, was the first in the world to make process valves from plastic: the GEMÜ 200 developed in 1963. Up to this point, valves were to a large extent manufactured from metal and were extremely susceptible to corrosion. The more expensive stainless steel materials were not an option in those days. Another material had to be found: plastic. "With the most compact plastic valve in technical applications at the time, I definitely proved that plastic is stable and not just suitable for toys". Totally convinced of the idea, he started his own business and has been setting high standards in valve design technology ever since. For example, the GEMÜ 200 valve was the only valve - well into the 80s - which could be easily and safely removed for cleaning without using any tools. This reduced the maintenance of these small short-stroke valves to the bare minimum and was utilised for succeeding models. "I designed it at night in my mother's house, manufactured it all by myself by day on an ancient lathe and delivered it on my bike on the Friday! I exhibited it at the "K" trade show in Düsseldorf in 1965: the exhibition stand was a crooked board resting on pipes. Of course, I didn't have my own stall, but was given a corner by the company Mühlheimer Kunststoff - my first business partner, so to speak. Just me and my board were standing there!"



1963: GEMÜ 200

1974: GEMÜ 600

1975: GEMÜ 215

Fritz Müller

GEMÜ products which were groundbreaking at the time of their launch:

- GEMÜ 200 and 215 as industrially manufactured and enclosed plastic solenoid valves
- GEMÜ 600 as compact pneumatically operated diaphragm valves
- GEMÜ 350-354 as pilot valves (also with hollow bolts for direct mounting)
- GEMÜ 554 as a pneumatic angle seat globe valve with plastic operator
- GEMÜ 514 as pneumatically operated angle seat globe valves with high flow rates
- GEMÜ 1201 as a compact electrical position indicator
- GEMÜ 677 plastic manual valve with standard integrated locking device
- GEMÜ 676 with lockable handwheel
- GEMÜ series 800 as flowmeters made of plastic
- GEMÜ is the leading IO-link device supporter in the area of valve and process technology

We'll see you at ACHEMA 2012 from 18 - 22 June 2012 in Frankfurt/Main



Interview with Patrick Zurbuchen, Sales Director, GEMÜ Group

Alberti: This year will see the 30th ACHEMA trade fair. How important is this leading international industry event for us?

Zurbuchen: The ACHEMA is our main trade fair and a global meeting point for the processing industry. It represents a pioneering technology summit for all companies operating in the chemical and pharmaceutical engineering sectors, as well as the environmental systems and the biotechnology industries. This makes it the most important platform for us to present ourselves to a wider professional audience. However, the ACHEMA event is also exciting from an internal company perspective, as it gives GEMÜ staff from across the globe the opportunity to come together and exchange their knowledge and experience over several days. This fair has worldwide appeal and is an excellent opportunity for everyone interested in state-of-the-art valve, measurement and control system technology to learn about the latest innovations and findings. It is therefore vital for us to attend, although we would obviously be happy to take part anyway!

Alberti: GEMÜ continues to present itself "in a new guise" at each ACHEMA event, which then shapes the company's appearance at future events. So what is the thinking behind the current concept?

Zurbuchen: With our new trade fair concept, we are keen to depict the close interaction of R&D and production at GEMÜ over the next three years. Here, we will be focussing both on our six production companies throughout the world and our main facility in Ingelfingen, Germany. System solution expertise working closely together in a customer-oriented way without any loss of information – this is what we are keen to show our customers. The design and visual appearance of our presence are therefore in keeping with our company buildings. For a constructive atmosphere throughout the five days of the fair, it is important for us not to present ourselves in unfamiliar surroundings, but rather to come together in real-world situations. This will help us get our point across more effectively!

Alberti: What are your expectations and objectives when entering into these discussions in Frankfurt in June 2012?

Zurbuchen: Alongside the tried and tested GEMÜ products, we will of course also be presenting new highlights. There is simply no better platform for us to show off our products and services than the ACHEMA trade fair. At this year's event, we will be presenting our latest system solutions for the pharmaceutical and food industries. These will of course be our multi-port valve blocks and our new R series of compact plastic diaphragm valves. Far more than in the past, these will be high-functionality valve combinations which depict an entire process. Working together with our customers, we create so-called Customized Solutions, which are capable of controlling highly complex processes in the tightest spaces while using as little material and energy as possible. We have set ourselves the goal of being one of the leaders in the ACHEMA focus topics. These include topics such as industrial water treatment, process analysis technology – i.e. the road to knowledge-based production – and classic plant engineering. As a provider of



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components and system solutions for complex applications and processes, we will of course have a particularly important part to play in the areas between individual solutions and modules. The topic of "green technologies" – anchored in the Green Engineering initiative at GEMÜ – will also assume a very high priority at ACHEMA. Our goal is to produce more and more products with fewer resources. These products should weigh as little as possible to improve transport costs and then use as little energy as possible during operation. This approach will benefit everyone involved, i.e. customers, GEMÜ itself and the environment.

I firmly believe that visitors to the GEMÜ stand F4 in hall 8 will be just as impressed by our products and discussions as we already are. So why not take a look at our website at www.gemu-achema.com prior to the event and reserve yourself an ACHEMA refreshment? We look forward to your visit.

The interview was held by Dagmar Alberti, Head of Marketing GEMÜ Group.

GEMÜ products and services for key global sectors:

- ⇒ Pharmaceutical, Biotechnology and Cosmetics Industries
- ⇒ Microelectronics and Semiconductor Industries
- ⇒ Food and Beverage Industries
- ⇒ Chemical Industry and Environmental Systems
- ⇒ Water Treatment
- ⇒ Medical Technology
- ⇒ Power Generation
- ⇒ Processing Industry



Product innovation developed over the decades

Founded

1.270

employees worldwide, a presence in 53 countries, 20 sales branches, six manufacturing sites



National to international turnover ratio: 67 % to 33 %



Share of GEMÜ products in the overall market of the pharmaceutical industry: approx. 40 %



National to international ratio of employees: 54 % to 46 %

ACHEMA 2012

Hall 8 · Stand F4
www.gemu-achema.com

High operational safety in pharma water systems

GEMÜ has developed a diaphragm valve with a pneumatic actuator and integrated handwheel for use in ring mains which can, if necessary, be closed from a central control system. Using the new GEMÜ 650 TL manual sampling can be inhibited on a temporary basis.

In a pharmaceutical production process, it is necessary to sanitise and maintain aseptic conditions throughout the storage and distribution system of the pharma water installation at regular intervals during periods of production downtime. Due to the low investment and operating costs involved, chemical sanitisation using ozone and thermal sanitisation using hot water or steam are the sanitisation measures most commonly used in industrial processes.

To be able to check the quality of ultra-pure water, it is necessary to carry out regular checks at precisely defined measuring points in the individual distributor loops. Pharmaceuticals standards require that quality-related measurement variables such as bacteria count, conductance and TOC* values be considered. This data is acquired from samples taken in the return lines of each of the individual distributor loops using sampling valves.

GEMÜ solution protects employees

In some cases, it can be necessary to keep sampling valves closed in order to inhibit manual sampling. This would, for example, be the case if the water temperature in the loop after hot water sanitisation is so high that employees could scald themselves when taking samples. To prevent this, the sampling valves can be kept closed via a central control system and pilot valve until the water temperature has dropped to a safe level again. Only then are employees able to take samples.

Another possible scenario is as follows: if too many tapping points are simultaneously open, the pressure in the distributor loop will decrease and drop below a critical level. In this case, the master control system could intervene and inhibit sampling in the same way. The valves would not be released for manual operation until the pressure in the loop is again within an acceptable range.



For such purposes, the GEMÜ 650 TL has a pneumatic actuator in addition to the integrated handwheel. The valve can be closed automatically via a central control system and pilot valve – regardless of the position the handwheel is in. This increases operational and system reliability.

* Explanations:
TOC-value = cumulative parameter denoting the total amount of organically bound carbon in a sample



GEMÜ 650 TL

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Clean solution for pure steam

GEMÜ 505 / 555 aseptic globe valves

When it comes to applications in complex pure steam systems such as in the foodstuff or pharmaceutical industry, the new GEMÜ 505/555 pure steam valve is made of high-quality materials and offers optimal processing of individual media as well as many advantages in terms of performance and maintenance.

In the foodstuffs industry, the chemical and pharmaceutical industry, and even in other industrial sectors, products must sometimes be manufactured aseptically. As a result, stringent requirements are made of the purity of the working media which are used during manufacture and even the quality of the steam used. If steam comes into contact with surfaces or directly with liquid or gaseous products during aseptic production, this contact must satisfy the purity requirements of these products. The solution is found in complex pure steam systems at product requirement level. GEMÜ has long maintained intensive contacts with plant engineers and operators who have these systems in use and took one particular customer project as a suitable occasion for checking its valve solutions and developing them further.

Aseptic globe valve scores highly on performance and maintenance

In a close exchange of ideas with a well-known customer from the pharmaceutical industry, the GEMÜ 505 and GEMÜ 555 angle seat globe valves were created for pure steam shut-off valves, as described below. The pneumatic (GEMÜ 555) and hand-operated (GEMÜ 505) angle seat globe valves have been specially developed for this application and are available in the nominal sizes DN8 to DN80. The valves provide a genuine alternative to the valve types which have usually been employed until now. Because the handwheel does not rise in height when the valve is manually operated, it is now possible to open the valve slowly and steadily. As a result, the steam does not flow suddenly into the piping system when the valves are opened. In contrast to 90° turn valves, such as ball valves or butterfly valves, this benefit is highly appreciated by users of the GEMÜ 505. Also when compared with diaphragm valves, the globe valves have benefits in these applications as they require significantly less maintenance, especially at the high temperatures produced by the steam.

High quality – High value for money

When designing the new globe valve range, it was important to meet the high quality and safety requirements demanded of the pure steam processes without losing sight of the question of the purchasing cost. For reasons of quality, all wetted parts are made of high quality stainless steel (316L), while internally the valve body is actually mechanically machined clean and

externally electropolished. As far as surface quality is concerned, we are able, thanks to the body geometry on the inside of the body, not only to produce Ra values of down to 0.4 µm but to even reproduce them. In addition, particular importance was also attached to the seal materials (seat code 5P) which also satisfy the stringent requirements of the FDA. The seals were tested according to USP Class VI at 121°C.

Even in the actuators, the basic materials and the processing of the individual materials are impressive, whether it is the stainless steel bellows which accomplishes up to 100,000 cycle duties without problems and enables the actuator to use non-ferrous metals. Or whether it is the valve plug which is designed without threads and, as a result, requires little maintenance and which is provided with a seal made of extremely inert, acid and heat-resistant thermoplastic synthetic material (PTFE). Or it may be the special feature that the valve plug is sealed with the valve spindle and then smoothed and, as a result, eliminates the otherwise usual "dirt pockets" which occur with valve plug solutions which are bolted together. Because of these and other finer points, both angle seat globe valve variants provide a long service life including outstanding material properties and body geometries.

Traceability is assured

As early as the creation stage of the user specification, particular requirements were defined for the production process and the maintenance of these angle seat globe valves. In particular, this included the creation of a traceability chain for all wetted parts. For this reason, valve bodies, retaining nut, seat, valve plug, spindle, bellows and actuator seal of the GEMÜ 555 and GEMÜ 505 are manufactured in specific batches and combined together in one production run. As a result, material test certificates in accordance with 3.1 DIN EN 10204 can be issued and supplied with the product if required. In addition to the design of the valve as a low maintenance fitting in terms of material, it was also ensured that an actuator change can be carried out quickly, directly on the piping. This means it is possible to perform cost-effective maintenance and repair work and protects materials over the long term. If desired by the customer, the valve solution can also be subsequently automated, for example by switching from manual to pneumatic operation or by later attaching electrical position indicators or positioners.



GEMÜ 555
angle seat
globe valve

Details:

- ⇒ Nominal size DN8-DN80
 - ⇒ 4 actuator sizes (sizes 2, 3, 4, 5)
 - ⇒ Media temperature -10 °C to +180 °C
 - ⇒ Connection: butt weld spigots in accordance with ASME BPE, DIN 11866, DIN EN ISO 1127
- Further information can be found in the data sheet as well as in the operating instructions.

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Intelligent combi switchbox

GEMÜ 4242

Thanks to its intelligent position sensor, integrated travel sensor and an optical high-visibility position display, the new 4242 combi switchbox is setting new standards for controlling complex procedures. It is ideally suited to high-integrity applications in most industrial sectors and process plant and is ideal for pneumatically operated linear actuators.

GEMÜ 4242 is considerably smaller and lighter than competitors' products and is designed to be entirely compatible with other plant. The pneumatic and electrical connections of the combi switchbox are therefore space-saving and enable easy access in a single direction. It can be fitted quickly with reduced cabling and is easy to maintain. A speed-AP function simplifies commissioning, and a manual override means that the process valve diaphragm can be changed quickly.

For extensive diagnostic facilities, the combi switchbox is equipped with a microprocessor-controlled, intelligent position sensor and an analogue, integrated travel sensor. The optical high-visibility display reports various programming, sensor and pneumatic errors. The end positions are programmed on site via a reed contact, using a solenoid on the top of the housing, but without a PLC connection. It is connected via a standard M12 connector.

In addition to discrete switching and feedback, there are field bus connections for the AS interface, DeviceNet and also the option to connect using the IO link communication interface. With the GEMÜ 4242, more parameters can be set and controlled by software than for comparable models. In particular with

regard to the increasing degree of process automation, the IO link interface allows simple transmission of process, parameter and diagnostics data to the control unit.



GEMÜ 4242
combi switchbox
on GEMÜ 625
diaphragm valve

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System module

for process system safety

In nearly all applications involving liquid media, it is necessary to use a check valve in order to prevent evacuation of the pipe system while the plant is idle. A liquid pump also requires a check valve as protection against dry running, to ensure that it is not running empty after restarting the machine.

To fulfil this function, GEMÜ can supply the GEMÜ 560, a rugged low-cost check valve with a high level of connectivity. The investment cast body made of 1.4435 stainless steel is available in a total of seven butt weld spigot versions. This means that the check valve is suitable for industrial applications in all continents. A high quality, highly resistant PTFE plastic gasket provides the highest possible degree

of safety. The angle seat check valve can, dependent on version, be used at temperatures ranging from -10 to +180 °C and is rated at PN25 pressure.



GEMÜ 560



The art of the Butterfly Valve

Incorporating a GEMÜ Butterfly Valve into our range was not considered for a long time by the product strategists at GEMÜ, perhaps because it just seemed too simple compared to our history with complex diaphragm valve technology which was at the core of our product portfolio. GEMÜ always aspired to continue to be a technology leader and to stay ahead of any competition. However, GEMÜ has since “discovered the Butterfly Valve and made it an integral part of our product range, as well as learning how to maximize its potential for customers who value expert service and support.

Claudio Darpin holds a Butterfly Valve model in his hand almost affectionately. Claudio, head of the Industrial Products Department at GEMÜ, has been closely involved with the Butterfly Valve market for many years which has gained considerable momentum since 2009. Sales of these valves, previously bought in from a trading partner, grew disproportionately as more and more money was being invested in the water and waste water sectors. Tremendous growth came from Asia, where GEMÜ continues to go from strength to strength and already has its own manufacturing facility.

“This encouraged us to invest in this sector“, explained Patrick Zurbuchen, who has responsibility at GEMÜ for Group-wide sales. Naturally, our first priority is to invest in product development and manufacturing but also in technical expertise, market proximity and application knowledge. Claudio seems to personify all of these aspects, epitomizing the manpower GEMÜ has put behind the effort to conquer this new market segment. “Of course, it is essential that we continue to develop and expand our Butterfly Valve product range“, said Claudio. “However, what makes or breaks a business is often the right product mix – and, of course, service.“ The key factors, said Claudio, are customer dialogue, collaboration with the customer to find an optimal solution, customized packaging and effective solution delivery. “That is what sets a systems provider such as GEMÜ apart from others who only sell Butterfly Valves.“

“ When it comes to projects, GEMÜ has years of experience in outfitting large pharmaceutical plants. These are international projects involving partners and stakeholders from four, five or more countries. “A special project group handles all aspects of a project through to co-ordinating the delivery of valves for the finished installation. The reason is that there is an art to getting all this work done on time and with all the required documentation and validation“, stressed Patrick Zurbuchen.



“ We work with the customer to find the solution that offers the best value for money. “

Claudio Darpin, Head of Industrial Products Department at GEMÜ



Jacketed pharma butterfly valve with steam connection

Whether in the waste water sector, in flue gas cleaning or in mining applications – a large butterfly valve range covers almost all requirements.



Transferring project experience in the pharmaceuticals sector to the environmental sector

These skills will be utilized to generate business in the water/waste water sector, particularly in large industrial installations and large-scale municipal projects. GEMÜ is not expecting to sell vast numbers of units. The existing Butterfly Valve range for small and medium nominal sizes is nearly complete, both in metal and plastic versions. However, in projects like this, large nominal sizes are needed such as Butterfly Valves with matching actuators in sizes from 700 to 1400 mm. The present product portfolio is under development and still has some catching up to do. Staff at the GEMÜ Dome, the company's in-house think-tank, are hard at work putting together such a portfolio. Patrick predicts that GEMÜ will be "a key player in the water treatment market in five years' time. By then, we also want to be a leading components supplier for environmental systems and in the high-purity sector." To this end, new products are in the pipeline and the focus is always on finding a system solution" said Patrick. "We want to stay one step ahead of the market technologically and to deliver integrated process solutions – which means: valves complete with actuators and sensors". When it comes to Butterfly

Valves for the water sector, system packages and consultation expertise are particularly important in safety-critical applications such as coolant circulation systems for power stations. In Claudio's experience, a great deal of certification and testing is needed to achieve a well-balanced product package. Of course, it also demands the quality and reliability customers have come to expect from GEMÜ, with its experience in high-tech sectors. What sets a good Butterfly Valve apart from a standard, run of the mill Butterfly Valve are the details – these are crucial. They include seats made from a variety of elastomers and having the expertise to choose the most suitable product. It's about precision design and the quality of the materials used. And being able to supply high-quality plastic Butterfly Valves, where needed. Right now, GEMÜ can tick all these boxes. Claudio Darpin: "Today, we consider ourselves one of the market leaders in the plastic Butterfly Valves sector." GEMÜ has already demonstrated its expertise in a number of projects – such as in sea water desalination plants, which are increasingly using plastic-based technology in view of the aggressive environment. Or, for example, in flue gas cleaning solutions for power stations. The decision to use plastic or metal Butterfly Valves has to be made on a case-by-case basis. It is

important to strike a good balance between price and performance, said the head of the industrial products department. Plastics are limited in application to moderate pressures and temperatures as upwards of a certain threshold, they are simply too expensive. Metal Butterfly Valves, on the other hand, have to be maintained and replaced on a regular basis. If corrosion is an issue, and if the high availability of the plant is critical to market success for the customer or process safety, this can justify the higher price tag of alternative Plastic Butterfly Valves. "A faulty Butterfly Valve can shut down an entire process", warns Claudio. Who also asserts that safety and reliability also depend on the actuator technology including the control modules and the sensors. As with Butterfly Valves, GEMÜ also has in-house expertise in these matters. To maximize safety, GEMÜ will do almost anything the customer asks: x-ray images, verification of foodstuff compatibility, tests on specific grades of water. Claudio: "The key to achieving this is highly qualified personnel, a high degree of organization and proximity to the customer." Customers, he says, are becoming increasingly conscious of the value of quality. Total Cost of Ownership is a compelling argument – for example, for the plant designer who subsequently operates the plant and is bound by a BOT contract (Build, Operate, Transfer) on a long-term basis. Anyone who produces drinking water by sea water desalination based on a model like this knows how important it is to keep costs under control in the long run so they don't incur unnecessary expense over the duration of the contract. Operators of installations of this kind are, said Claudio, prepared to dig deep into their pockets and invest in energy recovery. Investments of this sort pay off quickly, particularly if they significantly boost productivity.

Obvious benefits for OEMs and operators

The task is to find the best possible solution – and GEMÜ, as a valve manufacturer, is better placed to find and support a solution than it once was, when it only sold trade Butterfly Valves. That is because GEMÜ can now influence the production process and make adjustments. "This includes" said Claudio, "a completely new type of steel disc design which benefits the larger valve sizes and provides a more lightweight design". Despite this, his favourite is still the plastic version, as being a chemist, he has given much thought to the processes involved in metal extraction: "Plastic Butterfly Valves would be ideal for handling the solvents and acids used in these processes". "Of course" said Claudio "PTFE/PFA-lined metal Butterfly Valves could be used, but we always work with the customer to find the solution that offers the best value for money."

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 Butterfly Valves
 brochure



GEMÜ 481



GEMÜ 457



GEMÜ 490

GEMÜ measurement systems for safe process monitoring



Reliable and precise process monitoring using the GEMÜ SonicLine® and HydraLine® series not only increases process and system reliability, but also helps to maximise the cost efficiency of a plant.

Exact representation of process parameters is vitally important for the safe operation of a plant and a basic requirement for automation. Keeping tabs means ensuring the highest possible degree of safety and repeatability. After all, a stable process ensures consistent quality and conserves valuable resources. This means that process monitoring devices make a valuable contribution to "Green Engineering". They enable the customer to exactly detect media consumption and for example, monitor filters effectively. In this way, filter service life can be determined on demand and purification processes can be carried out in a timesaving fashion and using an optimised quantity of cleaning medium.

With the SonicLine® non-contact sensor flowmeter and the HydraLine® series of pressure measurement systems, GEMÜ offers reliable and precise measurement systems for critical media and chemical environments. Devices can be used flexibly according to application - from simple system status feedback (pressure, flow or accumulated flow, i.e. total quantity) to programming alarm thresholds and complex pressure or flow control. Thanks to the high accuracy and reproducibility of the devices, process conditions can be perfectly represented.

High stability and "stress-free" volumetric flow

The devices were originally designed for applications in the semiconductor industry and meet the stringent requirements of this high-tech sector. Highly aggressive and corrosive media such as nitric acid, hydrofluoric acid, acetic acid and caustic soda are standard media used in many processes for etching contours and in cleaning operations in the Semiconductor Industry. These devices are very often used in wet process equipment, in media preparation and media supply, as well as in systems for making up "recipes" in a day tank. In addition to the high resistance requirements, other key factors are minimal deadleg design and the total absence of particles and metals. It is also important that volumetric flow be as "stress-free" as possible, in order to avoid sharp edges and sudden changes in the direction of flow. This reduces not only Kv value loss but also helps to maintain the effectiveness of a process medium.

To make "high-tech" products, it is absolutely necessary to apply stringent requirements to plant, components and processes and thereby gain a technological edge - not only in the semiconductor industry.

"More and more GEMÜ customers are discovering the advantages of the SonicLine® and HydraLine® series, and we have noticed increasing demand from our core markets in the semiconductor and solar energy industry for applications beyond classic chemical supply and wet process equipment", said Tobias Glattbach, GEMÜ Product Manager with responsibility for Semiconductor Systems.

Adaptation to customer requirements

These measurement systems allow both flow rates and pressure to be monitored easily and measured data to be transferred to, for example, a control system. Actual values can be measured and represented reliably, and with a high degree of accuracy, based on analogue and digital signals. All types of valve can be adapted to customer specifications or process requirements by using special functions and settings. Regardless of whether they are to be used as limit switches with operating points, for dosing processes or for simple flow rate and pressure monitoring - GEMÜ SonicLine® and GEMÜ HydraLine® deliver actual process parameters with high speed and precision.

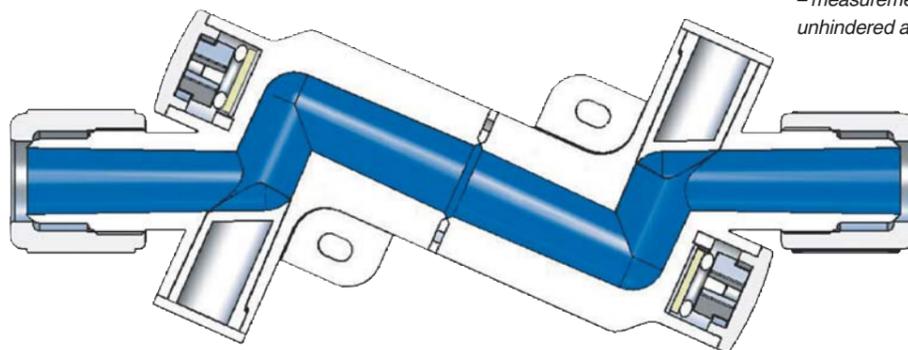
Use with critical media

All medium wetted components are 100 percent PFA-HP (a perfluoroalkoxy copolymer). This explains not only the outstanding stability but also the very low surface tension of the material. And that in turn is a major advantage when it comes to handling media such as paint, where it is necessary to clean lines swiftly and thoroughly directly after processing. The SonicLine® and HydraLine® products have standard semiconductor industry Flare unions, so they can easily be coupled to other components and integrated into processes. They offer potential savings by allowing simple and fast piping layouts. This means that plant designers have more flexibility when designing

valve configurations and enjoy the advantages of fast connection and disconnection, particularly when it comes to experimental set-ups and servicing work. An extensive line of GEMÜ valves, fittings and tubing rounds off the product range. Whether for manufacturing ultra pure chemicals or for handling paint, lacquers or CIP equipment - PFA-HP with its chemical stability and very low surface tension offers obvious advantages.

Non-contact flow rate measurement using ultrasound

The measurement principle of the GEMÜ SonicLine® (C38) is based on precision ultrasound sensors. These sensors are able to detect even small media flows over a defined measurement distance, thereby allowing flow direction and quantity to be calculated using the phase differential principle. The integrated ultrasound sensors record 250 measured values per second. Even at heavily fluctuating flow rates, this translates to very high accuracy (e.g. in piston diaphragm pumps). In the standard version, the user has a choice of an analogue output, two digital outputs, a digital input and the RS485 interface. The RS485 interface and the "FlowSoft" service and configuration software can be used to display other functions, such as data logger and graphical flow rate, and to adjust initial settings.



SonicLine (C38)
Cross section of the flowmeter housing - measurement is made across an unhindered and clear flow path

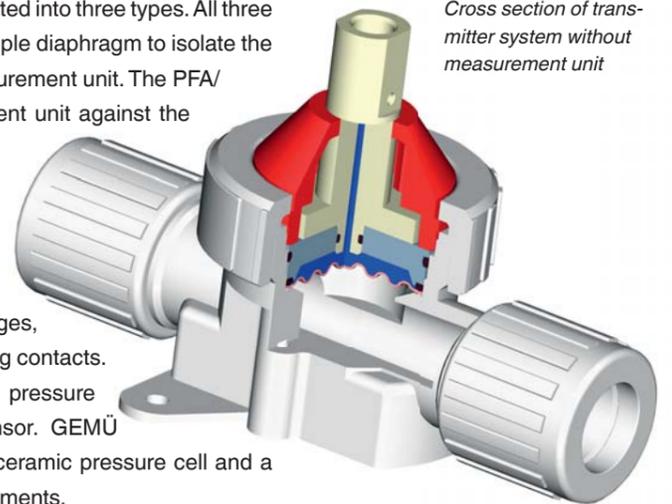
Patented diaphragm offers a high standard of safety

The GEMÜ HydraLine® series can be differentiated into three types. All three have a media isolator, which uses a patented triple diaphragm to isolate the process or the process medium from the measurement unit. The PFA/ETFE/PFA diaphragm protects the measurement unit against the medium. It also ensures that the medium does not come into contact with metal and that the system can easily be cleaned without undercutting or media entrapment.

The products from the GEMÜ HydraGauge® (C30) series are Teflon-coated pressure gauges, which are also optionally available with switching contacts.

The GEMÜ HydraSensor® (C31) series are pressure gauges fitted with a standard industrial sensor. GEMÜ HydraDry® (C32) is a pressure sensor with a ceramic pressure cell and a PVDF housing ideal for use in chemical environments.

These extensive product lines offer the right solution whatever the challenge!



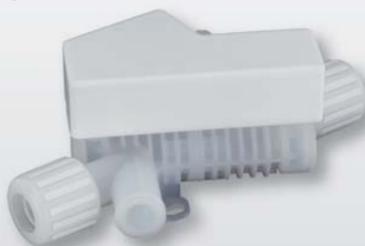
HydraLine
Cross section of transmitter system without measurement unit

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HydraGauge (C30)
Teflon-coated stainless steel pressure gauge, with optional switching contacts

HydraDry (C32)
Precise ceramic sensor without transmission fluid and without external metal parts

SonicLine (C38)
Contactless flow measurement of liquid media



The first choice for industrial environments!

Lined GEMÜ diaphragm valves



Different applications have different valve requirements. The chemical and physical properties of the working media have a direct influence on the materials used in these components. To cater to specific process requirements stipulated by the application, GEMÜ offers a broad spectrum of valve materials which can be combined with various connections and actuators to create a large number of different valve solutions.

In no other sector are the requirements as diverse as in industrial applications. Whether in the field of water treatment, the chemical industry, the paper industry or the mining industry, to name just a few, GEMÜ diaphragm valves with various different linings are the first process valve of choice. In many cases, a valve with a full metal body cannot be used, since the corrosive medium attacks and can even destroy the material. A purely plastic body is often also unsuitable, since the temperatures can be higher than the material allows. GEMÜ has the right solution with its lined metal valve bodies, which meet even the strictest requirements in conjunction with the appropriate diaphragm material and thereby ensure a high degree of operational reliability.

Hard rubber protects against micro-pitting

Full bore diaphragm valves as opposed to weir-type diaphragm valves have specific advantages in certain media applications.

Full bore diaphragm valves are primarily used in the fields of water and waste water treatment, mining, the mineral, paper and cellulose processing industry, the chemical industry or at power stations and steelworks. Their virtually full bore gives them an advantage over other conventional shut-off valves, particularly when working with viscous liquids such as slurry and liquids with a high solid or fibre content. A metal valve body with hard rubber lining can be used when processing abrasive media such as surface water with sand content or milk of lime for water treatment. The entire medium wetted part is therefore protected by the lining, which prevents micro-pitting (hydro-abrasion).

Interms of full bore diaphragm valves, both manually operated valves (GEMÜ 655) and pneumatically operated valves (GEMÜ 656) are available in the nominal sizes from DN 25 up to and including DN 300. The GEMÜ 638 is another range, consisting of motorized valves that have been adapted with a robust Auma motorized actuator and are

available in the nominal sizes from DN 32 up to and including DN 150.

Solution for the highest flow rates

A new product that rounds off our portfolio of full bore diaphragm valves is the GEMÜ 657. This is also a manually operated valve that has been designed with specific emphasis on achieving the highest Kv values. The high-flow valve, which is available in nominal sizes from DN 25 to DN 200, has been designed in such a way that the full pipe diameter is available when the valve is open. In various applications, this allows smaller nominal sizes to be used than would be the case with conventional valves, which in turn helps reduce costs.

Plastic for the greatest process system safety

Weir-type diaphragm valves are used far more frequently as shut-off valves than full bore diaphragm valves. Indeed, they can be used in around 90% of all industrial applications. Depending on the application in question, valves with purely metal bodies made of cast iron or stainless steel sometimes do not offer the necessary protection. Indeed, they can quickly reach their limits, particularly when processing corrosive media. For these cases, metal bodies made of GGG40.3 spheroidal iron or even 1.4408 investment casting stainless steel are lined with PFA (perfluoroalkoxy) using the latest plastic injection moulding machines. The advantages of this process, coupled with our many years of expertise, produce high quality, precisely definable geometric features, a consistent wall thickness, as well as a high degree of process system safety and reproducibility of the linings. Other high quality materials such as PP (polypropylene) and hard rubber are also incorporated in the metal bodies using the same process. The following highlights show some typical applications:

Sulphuric acid

Sulphuric acid is used in the chemicals industry, in mineral

extraction, the metal industry, the fertiliser industry, as electrolyte in rechargeable batteries or in the manufacture of detergents and soaps. When working with high concentrations of between 80% and 100% sulphuric acid, there is simply no alternative to a PFA-lined valve body with PTFE diaphragm. When working with weaker concentrations and lower temperatures, a PP-lined valve body used in conjunction with a PTFE diaphragm can often provide adequate protection. When working with heavily diluted sulphuric acid (0.1% to 5%), a body lined with hard rubber using an EPDM diaphragm is also sufficient.

Chlorine

Chlorine is used very effectively as a water disinfectant in swimming pools and drinking water. However, it is also used in the production of vinyl chloride, which itself is subsequently used as a raw material for PVC production. Further applications include the paper industry, the dye and bleach industry or silicone production. PFA-lined valve bodies are often used in conjunction with PTFE shut off diaphragms for these applications. When processing low concentrations of chlorine at suitable temperatures, experience has shown that the more affordable version with PP lining is also suitable.

Caustic soda

For caustic soda (sodium hydroxide), which for example plays an important part in fertiliser production or the manufacture of cleaning agents (drain unblockers), valve bodies lined with hard rubber and employing EPDM diaphragms can also be used.

Broad GEMÜ product portfolio of nominal sizes and actuators

In terms of weir-type diaphragm valves, the product portfolio contains the GEMÜ 675 products as the basic types for manually operated valves and the GEMÜ 620 products for pneumatically operated valves. When using a lined stainless steel valve body, these can also be adapted up to and including DN 100 for pneumatic use with actuators employing a stainless steel distance piece (GEMÜ 687) or with a full stainless steel housing (GEMÜ 650). In the manual range, the GEMÜ 671 can be used as a purely plastic actuator up to DN 100. If options such as limitation of opening and closing stroke or an electrical position indicator are required, the GEMÜ 653 or GEMÜ 654 can also be used. For control tasks, the pneumatic valves can optionally be equipped with an electro-pneumatic positioner. Motorized valves are available for the GEMÜ 628, GEMÜ 648 and GEMÜ 698 series, thereby rounding off the actuation options. Our PP linings are available in the nominal sizes from DN 15 to DN 100, our PFA linings are available in the nominal sizes from DN 15 to DN 200 and our hard rubber linings are available in the nominal sizes from DN 15 to DN 300.

GEMÜ 653
Weir-type diaphragm valve in stainless steel, manually operated DN 10 – DN 100

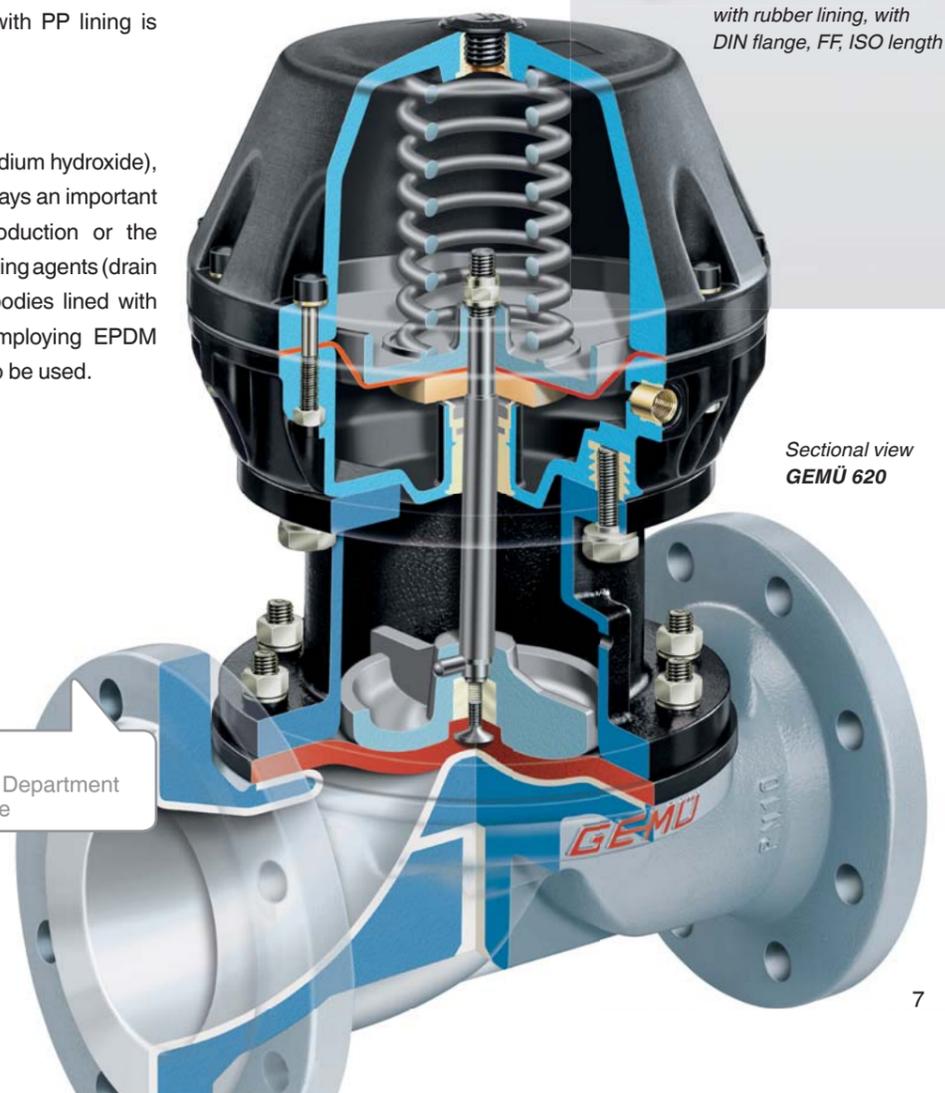


Valve body in cast iron with hard rubber lining

GEMÜ 656
Full bore diaphragm valve, pneumatically operated "normally closed" (NC), "normally open" (NO), "double acting" (DA) DN 25 – 250



Valve body in cast iron with rubber lining, with DIN flange, FF, ISO length



Sectional view GEMÜ 620

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Between GEMÜ production and vision

New exhibition stand at ACHEMA 2012



Three-dimensional and bright red – you can't help but notice the three GEMÜ logos at the GEMÜ exhibition stand at this year's ACHEMA: on the two inside faces of the stand and high above the passageway - which visitors cannot fail to see. "The view from a distance is fantastic and invites everyone in Hall 8 to come and visit our stand", says Thomas Schmeisser, the Trade Fairs team leader at GEMÜ. He has been planning this exhibition for three years. Now, just a few weeks before the ACHEMA, the new concept can be clearly seen. "Our aim is to provide a visual presentation of the GEMÜ company philosophy and to reflect this in the selection and use of materials", he says.

High-quality product presentation

The stand is clearly structured and makes you focus on the main things. Covering around 272 square metres, the "GEMÜ brand identity" can be clearly seen between the production hall, ideas workshop and interactive communications platform. The ambience is elegant and prestigious. White, red and charcoal grey are the predominant colours. The furnishings are modern and stylish. LED light strips illuminate streamlined plexiglass cubes. The products themselves are draped effectively as ensembles in these displays on plexiglass shelves or are highlighted as individual pieces on plexiglass columns. They look like pieces of modern art with industrial designs and create an aura of the special and sublime. "In view of the general media overload, visual appearance plays a decisive role at exhibitions. Our trend-setting displays and artistic arrangements for the products give a very clear signal: GEMÜ is a state-of-the-art, dynamic company that manufactures high-quality products, faces future challenges head-on and is always and continually innovating", Thomas Schmeisser explains the thinking behind the exhibition stand.

GEMÜ: creating solutions for the future

The wiry exhibition specialist is not afraid of new creations. "Visual and visionary" are the words he uses to describe the central theme for the exhibition stand. These are values that represent the future plans and aspirations of GEMÜ. Take, for example, the futuristic touch pillars on each exhibit island on which customers can "play", using touch functions to investigate and research the individual products and their various applications in more detail. And the 3 x 4 metre split video wall on which the products fly and turn, are magnified or opened up by pointing with your finger. "We use 3D simulations to present our products and their functions in a fun and user-friendly way. The split video wall will no doubt act as a magnet and will grab the attention of the exhibition visitors", Thomas Schmeisser is convinced.

ACHEMA 2012

Hall 8 · Stand F4
www.gemu-achema.com

Focus on green engineering

The focus is very much on the subject of "green engineering". The idea and vision of the new GEMÜ strategy is not only presented visually, however. The trained and highly motivated exhibition team will draw attention to this strategy during their personal conversations, supported by the visual and visionary media. So, for example, there will be an illuminated green showcase on the concrete wall next to the split video wall, highlighting green engineering products. "That has a strong pull. It is helping us to focus attention on our central theme and acts as a real draw for the visitors", the GEMÜ trade fair specialist explains the idea behind the concept.

To make sure that the visitors feel relaxed in and around the stand, it is equipped with an approximately five-metre wide bar and a lounge area with stools and a bench seat. The guests can enjoy some catering in this area. Hot and cold drinks and light snacks are served throughout the day to keep the hunger pangs away. Bistro tables are available for initial introductory chats and there are two small meeting rooms for more in-depth conversations. These are used very intensively by management, but also by GEMÜ product managers.

Generously connected

Thomas Schmeisser is especially proud of the fact that, although the stand is "cut in two" by a walkway, the two halves of the stand combine perfectly on the left and right of the walkway to create visual harmony. Every visitor who wants to keep going can't help but pass by the GEMÜ stand and has to walk right through it. Two flat ramps make sure that passers-by suddenly find themselves right in the middle of the GEMÜ brand identity as they continue on their way. Thomas Schmeisser sees a great opportunity here to make contact with new customers. He is definitely very excited to see how it all works out.

Exhibitions 2012 international

MSR-Spezialmesse	27.06.	Leverkusen (D)
Semicon	09.07.-11.07.	San Francisco (USA)
ElectraMining	10.09.-14.09.	Johannesburg (ZA)
MSR-Spezialmesse	19.09.	Ludwigshafen (D)
China Pharm	24.09.-27.09.	Shanghai (CN)
Semicon	09.10.-11.10.	Dresden (D)
Scanautomatic/Processtechnik	09.10.-11.10.	Gothenborg (SE)
Aquarama	18.10.	Leuven (BE)
MSR-Spezialmesse	07.11.	Bochum (D)
Brau	13.11.-15.11.	Nuremberg (D)
Pharmtech	26.11.-29.11.	Moscow (RU)
Pollutec	27.11.-30.11.	Lyon (FR)
Semicon	05.12.-07.12.	Tokyo (J)

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 Team Leader Trade Fair Communications
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Application: Mixing cocktails

GEMÜ surprise at the Achema

Would you like a vodka passion fruit? No problem at the GEMÜ stand F4, in Hall 8. There may not be a smart bartender juggling the shakers and pouring mixed cocktails into a long drink glass in one smooth movement. Instead, an automated, high-tech, metal multi-port valve mixes the various ingredients using a QR code that has been entered. And out come the cocktails as if by magic.

You can also clearly see how it all works. The "insides" of the mixer can be seen through a plexiglass screen, and it's possible to follow how the valves open and shut, how the glass fills and finally how the entire system is cleaned. At the Achema, GEMÜ is letting people have a good look at how things work, and is using the cocktail mixer, which has been specially developed for the trade fair, to demonstrate the amazing potential of a multi-port valve. "The idea is to give the visitors a very clear demonstration of how this type of multi-port valve works - even if we are using an unusual, slightly offbeat application to do so", says Thomas Schmeisser, the Trade Fair Communications team leader at GEMÜ.

GEMÜ expertise on show

"Of course, customers have full internet access at our stand at the Achema and therefore have the ability to mix a cocktail of their own making", says Thomas Schmeisser. The mixer demonstrates just what GEMÜ can do. After each mix, the multi-port valve is automatically cleaned and at the end of the trade fair is manually sterilized - a normal procedure in everyday use. A temperature sensor is used to enable the staff at the stand to constantly monitor the cooling function.

Customers mix "their" cocktail online

The mixer is filled with three alcoholic drinks (vodka, rum and tequila) and four fruit juices (blood orange, passion fruit, pineapple and cherry). The ratios in which the different ingredients are mixed depends on the choice made by the customer. To make sure people don't have to stand queueing

for too long, GEMÜ set up a website www.gemu-achema.com several weeks before the start of the trade fair. Customers could use this site to create their own personal cocktail from the seven available drinks or alternatively to select one of five ready-mixed drinks. For the individual drink, up to 180 ml can be mixed, made up of two alcoholic ingredients at 10 ml each and up to two non-alcoholic beverages at 80 ml each. Once the drink has been mixed, the customers are assigned a QR code that can be printed out or saved on their smart phone. The GEMÜ cocktail mixer at the Achema reads this code - and mixes the corresponding cocktail.



Mix and enjoy your own cocktail in Hall 8 at Stand F4
 There are many cocktails. The GEMÜ cocktail mixer at the Achema offers a selection of four fruit juices and three alcoholic beverages. Which means it can make a wide range of different cocktails.
 Have a go!
www.gemu-achema.com



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Best in the region in 2012

Youth Research Competition at GEMÜ



Once again, GEMÜ apprentices have celebrated success at the national Youth Research competition. They took first place at the regional competition, which meant a place at the national finals in Stuttgart.

Part of the training schedule for a tool mechanic in the first year of training includes "bending". The problem: sometimes the apprentices have to work with bending jaws and workpieces at the same time. It can be a little bit tricky to clamp the workpiece and the bending jaw in the bench vice at the same time and it doesn't always work out as planned. This sometimes results in the bending jaw and the workpiece being dropped. The workpiece is often affected as well and can then no longer be used. "This happens again and again with apprentices and trainees", says Wolfgang Wick, Training Manager.

Developing a mount for bending jaws

The first-year apprentices were not taking this lying down. "It must be possible to attach the bending jaws to the bench vice to stop them being dropped", thought Jaqueline Keppler and Tobias Langhans. They put their heads together and developed a solution. However, the first mount that they developed themselves for the bending jaws wasn't quite right. "Our jaw still had a lot of play", explains Jaqueline Keppler.

A second version proved to be much better. The trainees replaced slot nuts with flat-head screws which can be screwed in much tighter. Using this sample, a prototype of the bending jaw and mount was made, which the trainees used to participate in the 2012 Youth Research Competition.

The new solution only has a small amount of play. This prevents the jaws from wobbling or moving. The mount holds bending jaws with various radii. "It is easy to clamp the workpiece into the bench vice or to unclamp it as you no longer have to hold on to the bending jaws", enthuses one of the developers, Tobias Langhans. You only have to hold onto the workpiece when opening the jaws. It cannot fall, and scratches to the workpiece can be largely avoided.

Quite the elegant solution that saves time and materials and, not least, a lot of hassle for the trainees. Now they can get on with their work without further ado. And that means a safe and fun training environment!

On 8 May 2012 Wolfgang Wick and Marcel Bissinger appeared on the MDR inventions show "Einfach genial" where they talked about the Youth Research Project 2011 Ladder Safety Device. You will shortly find the excerpt from this programme on our homepage.



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A well rounded package: system solutions made of stainless steel and plastic

As a valve specialist we reduce the space requirements for process plant and, at the same time, increase the performance capability of our system components. GEMÜ multi-port valve blocks made of stainless steel and plastic combine various functions for the control of liquids and gases in the smallest possible space.

In plant involving complex processes in particular, designers and mechanical and plant engineering buyers strive to make the most of cost advantages in terms of "total cost of ownership". They are increasingly focusing on compact, integrated modular solutions which combine several components and can be quickly and easily assembled. As a specialist in valves, measurement and control systems, we continue to use our intelligent design to meet these requirements head on: with blocks and valve series, in addition to saving space, we also offer plant designers the advantage of saving on costs for energy, transport and resource consumption.

For customised block designs we integrate a wide range of functions: blending, splitting, diverting, draining, feeding or cleaning! Double shut offs, cross connections, safety and control functions as well as the integration of sensors, filters and check valves are also possible. We can even integrate tanks, process containers and plant housing walls as well as mounting points. Application orientated tasks are assigned to these individual functions, such as distributing media, sampling, sterile steam or connecting cleaning media. Alternatively, they can be used to implement process engineering solutions, such as a minimum flow rate or a block and bleed safety function. Block solutions provide a greatly simplified alternative to complex pipework with valves, fittings, sensors etc. The block assembly already houses all the required pipework, fittings and connections. In addition to valves, GEMÜ offers a comprehensive range of accessories including controllers, flowmeters, stroke limiters and customised sensors which can be integrated into the multi-port valve block.

Intelligent block solutions: highest process system safety ensured

Combining functions in the smallest of spaces offers several advantages: the hold-up volumes of media in the system are measurably minimised, the flow optimised, the draining improved. This enhances the performance of the entire system and reduces media consumption. Another advantage of blocks is that they provide junction points within plant. This allows easier cleaning and servicing. GEMÜ multi-port valve blocks are tried and tested leak-proof units.



GEMÜ stainless steel products: decades long experience in the pharmaceutical industry

At GEMÜ we can make use of our expertise in the pharmaceutical industry for stainless steel multi-port valve blocks. For decades, we have focussed on the requirements of our customers and complied with all standards in the manufacture and verification of the products. In close co-operation with pharmaceuticals manufacturers and the plant engineering sector, GEMÜ is developing constructive solutions for aseptic products which do not promote the growth of germs. This ensures that we are supporting a GMP-compliant production process for our customers. The areas of use for stainless steel multi-port valve blocks range from industrial applications, to the foodstuff industry through to pharmaceuticals, biotechnology and gene technology.

GEMÜ leads the market: GMP Good Manufacturing Practice

As a manufacturer of components for medicine production plant, GEMÜ is thoroughly committed to the ideas and principles of GMP. Stainless steel valves and multi-port valve blocks produced by GEMÜ have gained an outstanding reputation in the sterile areas of biotechnological plant: GEMÜ valves are at the peak of international competition for functionality and quality in this regard. GMP compliant production is standard in this area. All residues and microscopic ridges in the metal can also be removed during electropolishing. A highly clean, smooth surface is generated which aids corrosion resistance. Just as with standard valves made by GEMÜ, multi-port valve blocks made of stainless steel are also provided with the EHEDG certified GEMÜ sealing system; a sign of the highest process system safety and cleanability for plant designers.

Plastic multi-port valve blocks: wide range of applications

GEMÜ compact, lightweight, plastic multi-port valve blocks are suitable for a wide range of applications in various industrial sectors. The range of cost effective applications extends from installations for chemical processes in the chemicals industry and environmental chemistry and plant solutions in surface finishing, coating and electroplating, as well as municipal and industrial water treatment, all the way through to solutions for power stations. Even when it comes to sensitive processes and technologies, such as reverse osmosis plant, neutralisation, swimming pools with microfiltration systems and chemical processes involving aggressive and corrosive media, multi-port valves are a cost effective alternative to conventional valve designs.

Critical fluid management: block solutions for sanitary/ hygienic applications

The purity of the process media used in many high-tech areas is increasingly decisive for the quality and quantity of the products. The range here extends from sectors such as optics, aeronautics and astronautics or medicine via the pharmaceutical industry, biotechnology and gene technology through to precision mechanics and micromechanics, electronics and microelectronics or semiconductor production (including flat screen production), photovoltaic systems and light emitting diode manufacture. Numerous plant designers and end users select GEMÜ products when equipping their devices and production plant for media control and regulation. The advantages of multi-port valve blocks are increasingly being utilised in process equipment for cleaning, layering, etching, filling, etc. as well as in the accompanying chemicals supply systems and in plant for the treatment and distribution of ultra pure water. Besides the advantage of only having to order one subassembly, the application and customer-specific solutions from GEMÜ also make a significant contribution to the expertise and copy protection for the plant engineer.



Energy-efficient longlife LED lights

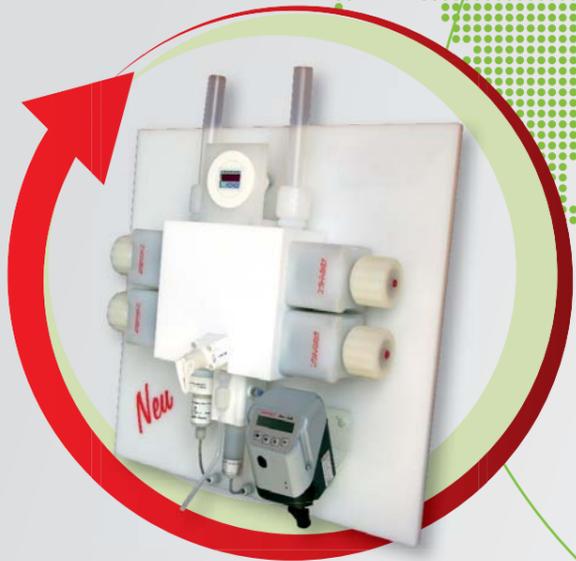


Multi-port valve blocks for cost effective plant design

resource saving

cost effective

integrated



Good planning leads to good construction: the customer calls the shots

A prerequisite for customised block design is a high level of transparency of the requirements and exact planning. Errors in the planning of production plant result in high consequential costs due to delays and extra costs for validation, late commissioning, contaminated batches and later modifications to the plant. GEMÜ co-operates very closely with customers in the development of multi-port valve solutions for industrial plant for this reason. GEMÜ's engineers develop ideas and initial design drafts as early as during the project stage. These are then implemented constructively and manufactured in a highly efficient GEMÜ production process.

To the point: the GEMÜ Department Managers

Christian Bliefertnick: "GEMÜ has been manufacturing innovative, sterile multi-port valve blocks made of stainless steel for 20 years for the pharmaceutical and biotechnology industry. The complexity and compliance with end customer requirements for modern plant engineering would not be possible without this continuously developing multi-port valve block technology. I can see great innovative potential for this area of engineering. GEMÜ has not only met the challenge of designing creative solutions; we have also mastered the production of these complex components using state of the art CNC machining centres. The limits of what we can manufacture have continuously developed over the past 20 years. And we are setting the pace!" Sterile Valves Department bio@gemue.de

Burkhard Müller: "There are three primary areas that we have to acknowledge in the achievement of these plastic system solutions which are based on our market-leading position in the metal valve industry. First, the trust of our customers: in our engineering support, in our highly efficient products and in our service. Second, we need to acknowledge our qualified and motivated GEMÜ teams, whom I would particularly like to thank at this point! Third, there are growing application and market requirements for innovative, compact and ecological multi-port valve solutions. And that is exactly what we have to offer!" Semiconductor Department semicon@gemue.de

Urs Zraggen: "Modules that compress several functions in the smallest of spaces are no longer simply alternatives for special solutions, but are gradually becoming an integral part of plant engineering planning. We offer the correct solutions appropriate to the needs of our customers. Our GEMÜ expertise in designing block solutions and plastics processing combines perfectly for plastic multi-port valves." Plastics Department plastic@gemue.de

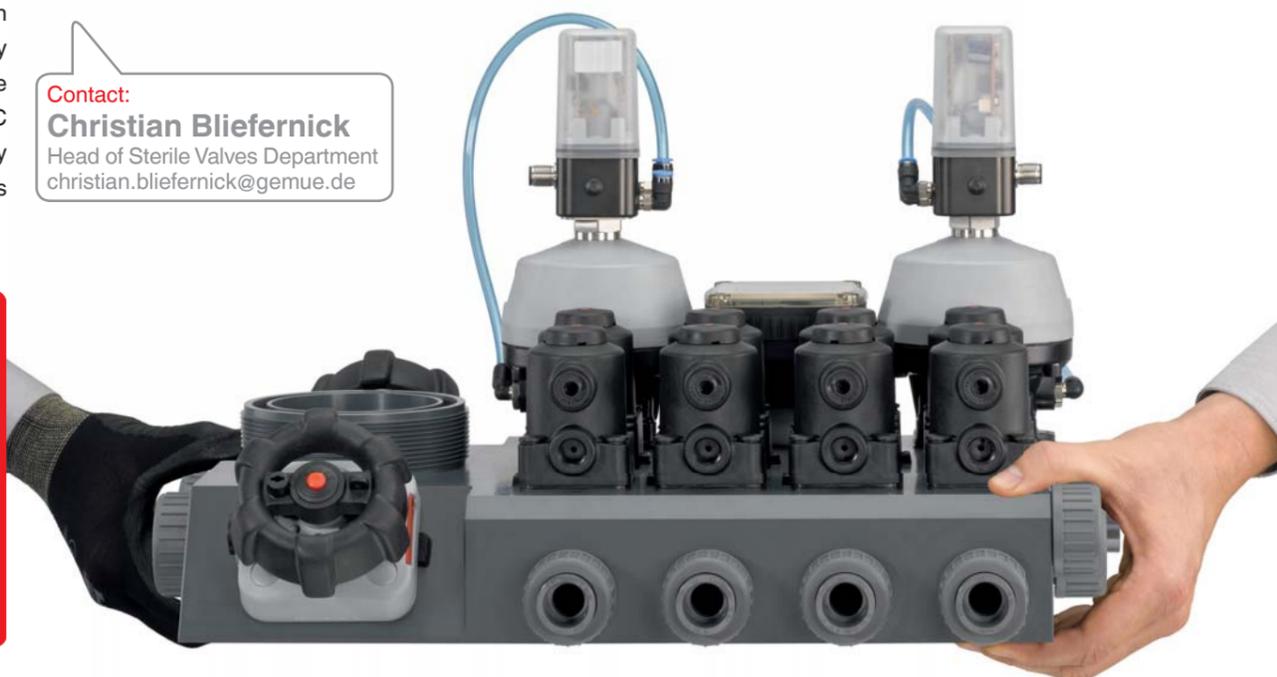
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GEMÜ BLOCK Customer benefits

The application driven block solutions from GEMÜ are compact, light-weight and designed to provide optimized drainage. They have a clearly reduced deadleg, no internal welds or solvent-cemented joints, provide increased product reliability and reduce the total cost of ownership. This enables financially complex valve interfaces to be implemented with an extensive range of functions which are both highly efficient and also conserve the environment. The combination of single valves and blocks provides obvious advantages for plant designers.



GEMÜ multi-port valve block systems

Stainless steel / Biopharma



Areas of application

- Biotechnology
- Pharmaceutical industry
- Foodstuff + beverage production
- Drug production
- Plant engineering/ production plants
- Pharmaceutical filling machines

Application examples

Tasks:

Point of use filling including sampling, condensate outlet, WFI drainage and sterile steam supply for SIP

Solution:

M600 06-04.P1

Advantages:

Compact, reduced deadleg and hold-up volume, no welded seams, machined from a single block of material



Tasks:

Connecting or isolating process and cleaning medium circuits, block & bleed function for leak monitoring applications

Solution:

M600 06-04.N

Advantages:

Compact with reduced thermal bridging, reduced deadleg and hold-up volume, no welded seams, machined from a single block of material



High Purity, Semiconductor and Critical Fluid Management



Areas of application

- Semiconductor industry
- Microchip, flat panel and LED production
- Solar energy industry
- Chemical industry
- Food/Pharma
- Analysis, medical technology
- Ultra pure water treatment/ waste water treatment
- Solvent supply/ slurry supply

Application examples

Tasks:

Maintenance of a constant, adjustable pressure in factory chemicals and slurry supply lines

Solution:

Integrated PTFE multi-port valve (GEMÜ CleanStar C50, C51 and C57), with pressure sensor, control valve, adjustable PID controller with control panel and optical position indicator, bypass and sampling valve

Advantages:

Fully integrated system solution, ultra pure compact unit with minimal deadleg. Space-saving, chemically resistant and low maintenance



Tasks:

Blending of cleaning chemicals with temperature-controlled ultra pure water for cleaning operations

Solution:

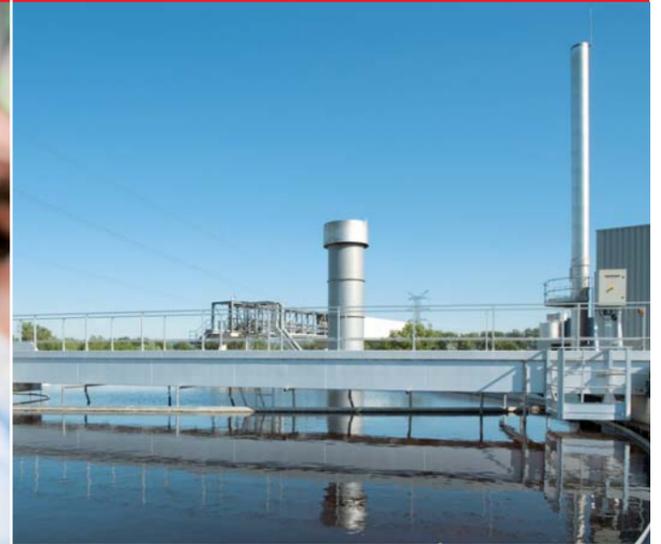
Integrated, two-stage PTFE/ PVDF multi-port valve block (GEMÜ CleanStar C50, C1 and C57), with integrated temperature sensor, control valve, electrical position indicator, check valve and various media connections, incl. clamp connection for quick removal for maintenance

Advantages:

Compact, integrated combined block solution. Low cost and made to customer specification



Plastic / Industry



Areas of application

- Compact water treatment systems
- Environmental systems and decontamination plants
- Tank and plant construction
- Chemical production plants
- Surface finishing and electroplating plants
- Paint production and painting plants
- Air cleaning and filtering systems
- Chemical dosing systems

Application examples

Tasks:

Chemical dosing systems in chemical laundries. Various solutions are used in the washing process for cleaning

Solution:

Modular multi-port valves made of PVC-U with pneumatic actuators. Any number of valves can be realised

Advantages:

Compact, chemically resistant, any number of valves can be selected, approved assembly



Tasks:

Combining multiple valve functions in a water treatment plant as a multi-port valve unit

Solution:

Two multi-port valve blocks made of PP combined by simple piping. Configured from pneumatic actuators and sometimes integrated controller

Advantages:

Fast mounting, compact, reduced time to implementation of complete system





At the heart of the South American growth market

GEMÜ Brazil caters to a wide range of industries

A travel report: The overnight flight lasts almost 12 hours. It is the beginning of February. I am leaving winter in Germany behind. With temperatures of well below minus 10 degrees Celsius – it's colder than it's been in a long time. Now it's off to Brazil, to South America, and warmer weather.

As we get ready to land at São Paulo the first visual impressions: a mass of houses like you've never seen. You can't really talk about a city as such; the urban sprawl seems to go on and on. The landscape is mountainous and, in spite of the great urbanization, very green. The centre stretches for miles, and countless skyscrapers reach for the clouds. São Paulo is the most populated metropolitan area in the southern hemisphere, with over 20 million inhabitants. It is the industrial heartland of Brazil.

We have hardly left the aeroplane when I experience the lovely, warm climate. It's summer here in the sub-tropical climate zone.

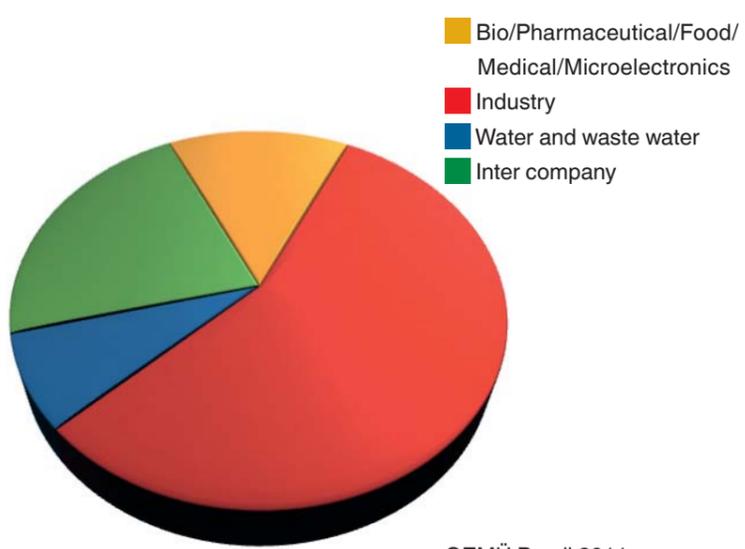
Measures successfully implemented

The advanced industrialization, political stability and enormous wealth of raw materials make Brazil a very dynamic market. In order to keep up with the growth and the needs of the Brazilian and South American economies, which are developing very strongly, a new era was ushered in for GEMÜ Brazil at the end of 2010. "Restructuring brings new impetus" was the announcement in the March Edition 2011 of GEMÜnews. Today, just over a year later, I can already see a number of measures that have been introduced by the new Managing Director, Johann Strasser, and his team are already bearing fruit. The capacity of the production plant at São José dos Pinhais near Curitiba has been expanded, the Brazilian subsidiary has been restructured, the sales structures and the market presence in Brazil have been strengthened and new sales offices opened in São Paulo, Rio de Janeiro and Recife.

2011 marks record turnover

The most important products that are produced by GEMÜ Brazil are metal diaphragm valves. Various versions are manufactured with different body materials and linings. With the wide range of diaphragm valves, GEMÜ is meeting all the requirements currently demanded by the market. Thanks to this starting position, GEMÜ do Brasil is proving to be a flexible market partner with a wide range of products and services.

In the year 2011, our Brazilian subsidiary achieved a record turnover. This is divided among the following market segments:



The breakdown of the turnover into various application areas clearly shows that the industrial sector is the most important revenue driver for GEMÜ in South America. For the current business year 2012, GEMÜ Brazil has set itself very ambitious growth and sales targets.

Great potential for butterfly valves

One way of achieving these objectives is the introduction of new product lines in the industrial sector. Thanks to the already strong market presence and existing contacts in the industrial sector, there is great potential for synergies. Wherever diaphragm valves are already in use, there is practically always



Fritz Müller with Johann Strasser, Managing Director GEMÜ Brazil



São Paulo office



Valve bodies from the manufacturing site in Brazil

the need for other fittings, for example butterfly valves.

According to statistics* the market potential for flow control technology in Brazil runs to the value of over USD 600 million. Approximately half of this applies to generally used equipment (for example household taps). Of this, the proportion of diaphragm valves is relatively low, at 2 per cent. But it is a different story for butterfly valves. These make up almost 30 per cent of the total.

Whether in water treatment or in the mining industry, in the chemical or paper industry, to name but a few, butterfly valves are used extensively in the markets. Butterfly valves, like the soft-sealing Victoria (GEMÜ 480) or the Teflon-coated chemical butterfly valve GEMÜ 490. Since the beginning of this year, therefore, various measures have been taken to gain further ground with the GEMÜ "butterfly valves" product line in the industrial sector.

GEMÜ products "Made in Brazil"

One of the most important criteria for the successful introduction and sale of butterfly valves is a suitable delivery time. Another very important point is the origin of the products that are sold. If more than 60 per cent of the value creation takes place in the country of Brazil, the product can be assessed as being "Made in Brazil". This means that high import taxes can be avoided, enabling GEMÜ to secure important market advantages. At the same time competitive ability is considerably increased.

So this year, the prerequisites will be put in place at the Curitiba site to be able to store, assemble and check butterfly valves. The individual components will be sent to Brazil where they will then be processed to make finished products. They will also be partially procured or delivered locally. This is where we can benefit in particular from the extensive experience of Andreas Müller, much of which was gained in China, who was until recently the Head of the Industrial Products Department at GEMÜ Germany. For some months now he has been supporting Brazil in order to integrate successfully GEMÜ's growth and development objectives in these markets.

GEMÜ is growing in South America

In order to achieve the growth objectives that have been set, the two newly occupied posts in Chile and Peru will also make their contribution. Two sales engineers have been further expanding market presence in these countries since the start of 2012. The economy in Peru and Chile has developed very strongly in recent years. There has been enormous growth in the areas of mining and metal extraction in particular. Both new projects as well as day-

to-day spare parts business are opening up various opportunities for GEMÜ Brazil.

Three weeks have now passed. In this time I have been able to see and experience a lot. Whether in the sheer unending industrial pool of São Paulo, or the metal refineries and huge pulp mills in Chile, or in the gold mine in the uplands of Peru, but also during visits to engineering companies - it is noticeable how modern everything is and the extent to which work is carried out at such a professional level.

The joie de vivre and the Brazilian temperament, paired with high levels of motivation and identification of the entire GEMÜ team have left an impression on me.

There is nothing to stop the further development of the South American region and with it, continued expansion - it's full steam ahead...

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*Source: The World Valve & Actuator Market 2009-2014, by European Industrial Forecasting (EIF)

Clear statement on growth in Russia by the GEMÜ Sales Team

The team under Head of International Sales Uwe Schmezer proves that even more promising business opportunities await in the sales region of Russia.

Alberti: What do you and your team hope to achieve in the Russian sales region?

Schmezer: One of the goals of our work in the Russian market is to achieve the sales target we have set for 2012: every hour, every day and every month. This sounds very ambitious, and it is. The strategic goal for GEMÜ is growth. We aim to achieve positive growth in sales firstly by expanding the existing GEMÜ dealer network. Secondly, we will work to broaden our base of direct customers, particularly in the field of water treatment. Given such a vast country, our prospects are good!

Alberti: What are our focal points in the Russian market and what are the challenges?

Schmezer: The challenges in Russia currently lie in the development of an effective dealer network. In such a large sales region, we have no alternative but to do so. We are not talking here about the territory of the former Soviet Union but "only" about Russia, where without an extensive dealer network we would be far less successful. By comparison: Russia is the largest country in the world with an area even greater than that of Canada, the USA and China. But not only the distances involved present a challenge. Doing business here generally requires more patience than in Central Europe: it simply takes longer to get a contract signed!

Russia – Statistical data

Area	17,075,400 km ²
Population	141,750,000
Capital	Moskwa (Moscow)
Official language	Russian
Per capita GNI	9,900 US-\$
Currency	1 ruble (Rbl) = 100 kopeks
Political leadership	President: Vladimir Putin, Prime Minister: Dmitry Medvedev, Foreign Minister: Sergey Lavrov
National holiday	12.6. (Independence Day)
National structure	8 federal districts with 83 territorial units (federal entities): 21 republics, 9 territories (krai), 46 regions (oblast), 1 autonomous region, 4 autonomous districts (okrug) and 2 cities with federal city status (Moscow and St. Petersburg)
Political system	Constitution of 1993 – Presidential republic – Parliament (Federalnoje Sobranie): State Duma (Gosudarstvennaja Duma) with 450 members, elections every 5 years; Federation Council (Sowjet Federatsii) with 166 members (2 representatives from each of the 83 federal entities, appointed by the president) – Head of state is elected directly every 6 years (eligible for re-election, but only once) – Voting age is 18+
	After the presidential elections on 4.3.2012 Prime Minister Vladimir Putin was officially declared the winner. According to figures released by the Russian election commission, Putin received 63.75% of the votes in the first ballot. He was sworn in on 7.5.2012.

Alberti: How are you going to manage, cover and oversee such a large area?

Schmezer: We have a super team at our office in Moscow: Leonid Tkachenya, Dinara Fattiakhdinova and Alexander Mashinistov. All three are highly motivated. They have been with us from the outset, regularly attend product training courses in Germany and have a good knowledge of the Russian valve technology market. The team has been strengthened by the addition of Sergei Shkor as Area Sales Manager at GEMÜ Germany with responsibility for this sales region. He has been living in Germany with his family for some time now and has an excellent knowledge and contacts through his previous work in the field of water treatment. An equally important contribution is made by Tatjana



The Team: MD Leonid Tkachenya, Dinara Fattiakhdinova and Alex Mashinistov (f.l.t.r.), GEMÜ office Moscow

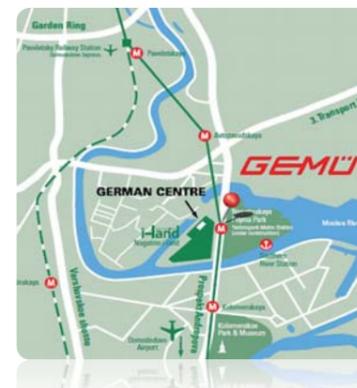
Junker, who tirelessly supports the Russian team day by day with her in-depth knowledge, dedication and hard work. By making a concerted effort, we can meet the expectations of GEMÜ's business and sales management. Their involvement is also a sign of commitment to the location!

Alberti: GEMÜ has moved to a new address in Moscow - why?

Schmezer: After five years of doing marketing groundwork in Russia, GEMÜ GmbH has moved to a new office location directly on the Prospekt Andropova. Located opposite the German Center (GC of the Baden-Württemberg regional bank), the office is now more central for us. In Moscow central does not mean downtown, rather that it has a good traffic infrastructure and is in an affordable prime location. Both of Moscow's international airports - Sheremetyevo and Domodedovo - are within easy reach. By Moscow's standards, that could mean anywhere from 40 minutes to three hours - depending on traffic! Of course, we would have liked our office to have been in the German Center directly. That would have been even more representative but the rents here are around 40 percent higher. That's a no-go. In late 2011, with temperatures 26° below zero, we did a thorough reconnaissance of Moscow, and are now very happy with our new office overlooking the Moskwa River.



GEMÜ office in Moscow



Alberti: What part does Russia currently play in the so-called BRIC countries (Brazil, Russia, India, China), and what is different about Russia?

Schmezer: Next to China, India and Brazil, Russia is one of the world's biggest future markets. However, the barriers faced by new foreign investors seeking to enter the Russian market vary. On the one hand, many of the rules in Russia are the same as in other emerging markets. On the other hand, a fundamental difference between Russia and these countries is the timescale in Russia. Here a project can easily take three times as long as it normally would elsewhere. Another major difference is that in Asian markets the building of customer relations and the maintenance of a contact network are crucial for success. What is also needed in Russia is a network in order to safeguard business activity in the long term. This network has to be established at all levels. Good relations with high ranking officials provide a "protective shield" when it comes to dealing with the authorities. But what really gets projects going in Russia is the goodwill of the lower ranking officials. And if you make the effort to build cordial relations at all levels, you will find that there is no need for corruption in many parts of the country today! In my opinion, regions where this is not possible should generally be avoided by business people. Russians act quick and decisively! Traditionally, problems are solved as and when they arise. In protracted detail negotiations with Western Europeans, they quickly lose interest. Because contracts are executed very differently in Russia than, for example, in Germany, it is important to tread the fine line between Russian pragmatism and powerplay. The fact that Russians avoid compromises should not be taken as a cue to do likewise. This will often bring the discussion to a grinding halt. You have to go into negotiations well prepared. This means, you have to try to find out the probable positions of the parties involved and lay down clear terms and conditions. In Russia, the way to find a solution that is acceptable to both parties is to make the right compromises!

In their quest for new markets, business people from German companies often find breaking into the Russian market to be anything but easy. To be successful in the Russian market, you have to know it inside out. That includes a knowledge of legal and fiscal requirements as well as other specific national circumstances. We are happy to take on this challenge.

Dear Mr Schmezer, we wish you and your team every success in the growth market of Eastern Europe!

The interview was held by Dagmar Alberti, Head of Marketing GEMÜ Group.

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A strategic decision for GEMÜ

Our distributor AFT increases the product range for Poland



Since January 2012, the entire GEMÜ product range in the Polish market can be obtained from the company AFT Spzoo, with offices in Pozna. The management of AFT took the strategic decision at the end of 2011 to terminate its long-standing collaboration with InterApp and to increase the scope of GEMÜ in Poland instead.

A new addition to the range are centric elastomer and plastomer butterfly valves. The company has represented our interests in the Polish market since it was founded over 20 years ago and has supplied our products successfully since then, with one exception: centric butterfly valves. The range is now completed with this new strategic development.

Poland is experiencing steady and dynamic growth

AFT is celebrating its 22nd anniversary this year. Poland has gone through a very eventful time politically and economically in these past two decades. The economy has accelerated and developed noticeably, particularly since joining the EU in 2004. A strong investment platform has been created for the most varied sectors of the economy in industry, infrastructure and environmental protection thanks to diverse financial aid and grants. The key to these investment endeavours is to awaken the necessary awareness of investors for the technical, economic and environmental vision of scheduled and already implemented investments.

Collaboration strengthens market position

AFT's corporate structure and product range are constantly being adapted to stay in line with continuously shifting market requirements and growing demands and expectations of clients and business partners.

Due to its presence in the Polish market, the team of qualified and long-standing employees has an enormous wealth of experience and know-how in the areas of project consultancy, product selection, control and automation, system commissioning as well as after-sales support. AFT has already delivered countless investment projects in Poland. This includes water and sewage treatment plants, sewage water transfer stations and various industrial plants.

The reputable company has enjoyed a stable and esteemed position in the Polish market for many years and belongs to the group of leading equipment suppliers in Poland. In the near future, the collaboration between GEMÜ and AFT will concentrate on maintaining a strong market position for existing



applications and on acquiring and strengthening new areas of application. We are looking forward to continuing the good work together!

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Starting a career at GEMÜ Training Day

The GEMÜ Training Day takes place from 10 a.m. to 1 p.m. on Saturday, 23rd June. On this day students of both sexes are invited to find out about training opportunities at GEMÜ in Criesbach.

The Training Day will be held jointly by Gemü and neighbouring company REISSER. On this day both companies will open their doors to budding new recruits. Parents, siblings and relatives are cordially invited. Visitors will have the opportunity to see and learn about the training facilities and various workshops.

Invitations have been sent in advance to schools in the area. The date for the event is on posters at the schools and the day of training is being advertised in the local newspapers. "We want to attract as many young people of different ages as possible", explains Head of Training, Ilka Rölke. It is, after all, essential for the well-being and expertise of the company going forward that the future employees of the company are secured today.

Trainees are very welcome

On the day of training, the company makes sure it provides a warm and friendly welcome. Everything is set up for the young visitors. The GEMÜ trainees personally represent their various training professions - such as

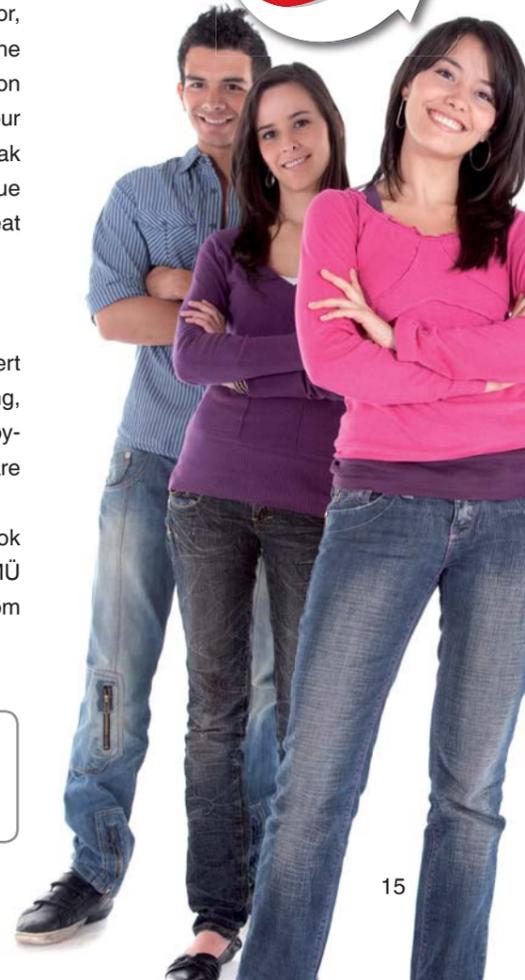
electronics expert, expert information technician, stores logistics specialist, industrial electrician, industrial manager, machine and plant operator, draughtsman, process mechanic and tool mechanic. The trainees staff the various information stands and are ready and available to provide information about their particular areas of training and what they are learning. "With our trainees the schoolchildren can talk eye to eye, as it were. This helps to break down barriers and put the young people at ease. Our trainees also continue to do a great job at conveying their enthusiasm for GEMÜ. This is a great motivation for people to apply for positions with us", says Ilka Rölke.

Insight into the average working day

Of course, GEMÜ trainers are also on hand to support the trainees with expert advice. They are also pleased to answer any questions concerning training, application and recruitment. In addition, they provide information on employment and career opportunities at GEMÜ and explain how trainees are integrated into the average working day.

A short round-up brings the day to a close. The organizers at GEMÜ look forward hopefully to numerous visitors, including family and friends of GEMÜ employees. "We are proud to continue family traditions in our company - from grandfather to father to son", says Ilka Rölke.

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Monument for the salt city Fountain donated to Niedernhall

GEMÜ founder and owner, Fritz Müller, donated a salter fountain to the city of Niedernhall for Fritz-Müller-Platz 1 in front of the GEMÜ Dome in the Niedernhall/Waldzimmern business park on 25th January 2012.



Development and Innovation Centre GEMÜ Dome with new fountain



It was on Fritz Müller's 70th birthday that Niedernhall's mayor, Emil Kalmbach, mentioned something in passing to the birthday celebrant. "A statue would look great in front of the GEMÜ Dome on the Fritz-Müller-Platz", he intimated, voicing a long-held wish, without giving it much further thought. Fritz Müller, however, was captivated by the idea. And anyone who knows him knows that once he sets his mind on something, there is no holding him back until the idea becomes a reality. And they also know: until the idea becomes a reality, it won't be shouted from the rooftops. So when Fritz Müller first heard the idea, he kept his thoughts to himself and didn't say anything. But his mind was already made up: we are going to do something about it!

It must be something unique

As a home-grown businessman, he feels a certain obligation to the region and especially the local community of Niedernhall. The words of mayor Kalmbach therefore fell on fertile ground and stirred up a flurry of thoughts and ideas. "There are already quite a few statues and monuments in the Kochertal area. But they are all connected with wine-growing. I wanted to create something different, something original", he recalls.

An idea cooked up at the kitchen table

He joined together with the artist Leo Wirth from Weikersheim-Laudenbach for a number of "conspiratorial conversations" at the artist's kitchen

table, where the idea for a salter fountain was developed over homemade sausage and a couple of glasses of good wine. "The salt gave the city its name, as 'Hal' is the Celtic word for salt. From the Neolithic era to the modern day, mineral salt has shaped the history and economic development of the city", says Fritz Müller. The artist and the businessman have immersed themselves in the history of the town and salt production; they have read up on it, toured museums, visited the salter festival in Schwäbisch Hall and have collated the wealth of information to develop their final concept. "Our aim was to provide a lifelike insight into historical salt production methods – and at the same time to provide a monument of the city of Niedernhall as a salt city", explains Fritz Müller. Following the initial design drawings and a bozzetto (a roughly modelled sketch), Leo Wirth then modelled the fountain in wax and coordinated the complex cast bronze. Fritz Müller made sure he kept abreast of developments on a regular basis - sometimes from Dubai, or Brazil, or Great Britain – and he always knew



what was going on as the fountain came to life. "The fountain project has helped foster a personal friendship with Leo Wirth", enthuses the CEO of GEMÜ.

A worthy entrance to the business park

The project is a great success. This was also affirmed by the Niedernhall city councillors who were invited to the unveiling of the fountain on 25th January of this year. "The fountain shows two men, so-called salters. You can see the main tasks involved in salt extraction; the boiling of the brine in lead or iron pans and the extraction of the salt minerals. The two tasks merged into one for the creation of the fountain", explains the artist, Leo Wirth. The two figures are standing on a round platform with an inscription running around the edge which reads (in German) "Salters in Niedernhall from 1037 – 1829". With a diameter of 2.6 metres, the fountain weighs a hefty 2000 kilograms. Fritz Müller presented the mayor with the deed of donation to great applause and expressed his wishes to the local community "that you will get a great deal of pleasure from the fountain!" The answer from mayor Emil Kalmbach: "The city of Niedernhall is proud of this work of art. The fountain is a wonderful addition and fits very well in the surrounding area. With the fountain and the Dome, GEMÜ have



Fritz Müller presenting Mayor Emil Kalmbach with the deed of donation



Unveiling of the fountain on 25 January 2012



Fritz Müller, Mayor Emil Kalmbach and his wife

created a very worthy entrance to the Waldzimmern business park. Many thanks for this wonderful gift." Fritz Müller received the words of thanks with pleasure. In the meantime, he is already thinking of his next collaborative project with Leo Wirth: a graduation tower like the ones found in the spa towns of Bad Dürkheim, Bad Salzungen or Bad Kreuznach. Graduation towers are wooden frameworks filled with brushwood over which the brine is channelled. The water evaporates, impurities are filtered out and the brine is concentrated. Another idea that is linked to the salt traditions in Niedernhall. Watch this space.

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