

# GEMÜ® news

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

Edition 01/2015

## Innovative. Individual. Inspiring. Valves, measurement and control systems

It's just one event after another. We have only just said goodbye to our anniversary year celebrating the 50th birthday of our family-owned enterprise and it's already time for another highlight: ACHEMA, the leading trade fair in the processing industry for chemical engineering, process engineering and the biotechnology industry is just around the corner.

Every three years, we spend months focusing on this week in June. ACHEMA is a pioneering technology summit and an innovation platform which GEMÜ's valves, measurement and control systems cannot afford to miss out on. The GEMÜ team will once again welcome a varied public from all over the world to the 225 m<sup>2</sup> stand in hall 8. We will present a wide variety of products from our GEMÜ modular system as well as our individual system solutions. From customized multi-port valve blocks made of stainless steel or plastic, through to the smallest dosing valve in our in-house GEMÜ iComLine® series and the first controllable diaphragm valve for single-use processes, GEMÜ SUMONDO® – we will be presenting our extensive range of products here unlike at any other trade fair.

As the technological leader in customized multi-port valve blocks made of plastic, GEMÜ can select the right material and configuration for every customer request – both for industrial plastic applications made of standard plastics such as PP or for the distribution of critical media made of high-performance plastics such as PFA. Of course, this also applies to our tried and tested multi-port valve blocks made of stainless steel for pharmaceutical applications which have been in use for more than 20 years.

Every three years, ACHEMA plays host to a large reunion of GEMÜ employees from engineering and sales around the globe. They meet here for several days

in order to exchange business knowledge in a collegial atmosphere. For many, it is also an opportunity to get to know new colleagues in person. GEMÜ considers trusting and sincere cooperation to be extremely important – it is an essential part of the GEMÜ spirit. Other key factors include the cross-departmental exchange of ideas, mutual respect and supporting each other.

For over 50 years, we have been a reliable employer and place particular value on a sophisticated personnel development programme, to enable the next generation of employees to be developed and nurtured from within the ranks. We look forward to presenting our innovative components and system solutions to interested parties at ACHEMA – especially our new developments with which we want to set pioneering standards. Join us in looking forward to an inspiring ACHEMA trade fair and experience the GEMÜ spirit in Frankfurt on the Main up close:

**Emotion** in our daily work for our customers.  
**Inspiration** through close collaboration with our customers.  
**Innovation** through our understanding of current and future customer requirements.



**Gert Müller**  
Managing Director/Partner  
Engineering & Sales

**Stephan Müller**  
Managing Director  
Finance & Operations



## You request it – we test it. New CIP/SIP test rig in the GEMÜ Technology Centre

The pharmaceutical industry is on the way to defining new standards which are intended to optimize the standardization and comparability of validations and qualifications in the area of sterile systems. In order to be able to comply with future requirements with regard to testing diaphragm valves and the real simulation of cleaning and sterilization processes, GEMÜ began planning a CIP/SIP test rig in-house at an early stage. Using this test rig, from now on CIP and SIP processes can be carried out according to specifications and/or customer requirements, whereby the media, as well as the number and duration of the cycles, can be individually stipulated.

Even though authorities publish guidelines on process validations and qualifications for individual components, it is often left to the manufacturers themselves to interpret these accordingly. This results in too much freedom and makes the options for comparability complicated. The American organisation BPOG (BioPhorum Operations Group), which comprises numerous representatives of the pharmaceutical industry, has therefore started an initiative in a work group. This is intended to foster a general understanding across multiple industrial sectors, develop implementation methods and, furthermore, to create a basis for continuous exchange with the responsible authorities. The objective of the initiative is to create a regulatory code for the seal testing process which is to be integrated into the ASME BPE (American Society of Mechanical Engineers – Bioprocess Equipment) in

2016. At GEMÜ, this involves testing sealing diaphragms in diaphragm valves. With GEMÜ's new CIP/SIP test rig, it will be possible in the future not just to test the diaphragms in accordance with these new specifications of the BPOG. The rig also enables our customers to test diaphragms individually and under real conditions using various cleaning media or steam. This is because the diaphragms experience the highest loads in the area of cleaning using corrosive media (CIP; Cleaning-In-Place) or during temperature load through sterilization with steam (SIP; Sterilization-in-Place).

Continued on page 2 >>



>> continued from title page

## Construction of the test rig and how it works

The new CIP/SIP test rig in the GEMÜ Technology Centre enables all diaphragm sizes in the most varied customized cleaning and sterilization processes to be tested. In addition, it is used to determine the service life of diaphragms, for quality and validation tests and for testing new developments against specifications.

The test rig comprises six test routes which can be programmed individually, equipped with all diaphragm sizes and each tested with different media. There are entry points for eight test media which can be selected via the control on the control panel; these include compressed air, hot water (up to 85 °C), cold water, vacuum, steam (up to 150 °C), acids, alkalis and cleaning agents. Using an ozone generator, it is also possible to carry out tests with ozonated cold water. A vacuum is generated in order to simulate cooling down after a sanitization process (reduction in germ numbers, in this case using hot water). Acids, alkalis and cleaning agents are premixed to the required concentration and temperature (max. 85 °C) in separate skids. The required concentration is determined and adjusted using the conductivity measurement in the tank. All other media are provided by the individual units.



## Testing procedure

To prepare the test route, the actuator with the diaphragm to be tested is mounted onto the body, which in turn is fitted in the test route using a clamp connection. For one test cycle, the test circuit, comprising a flow and feed, is filled with alkalis, for example. Next, this is fed, within the closed system, to a circuit until a specified time with the corresponding number of cycles comes to an end. At the end of the test cycle, the mixture may, if necessary, remain in the system for further test cycles or be drained from the test route immediately. After emptying the test route, the test can be continued using another medium. At the end of the tests, the diaphragm is checked and evaluated.

If the diaphragm is damaged during a test, whereby fluid enters the distance piece of the diaphragm valve, a fluid sensor detects this and the test procedure on the affected test circuit is immediately aborted. Before the test media are fed into the local drainage system, they enter a neutralization bath. When this is 75 % full, the neutralization process begins. A conductivity measurement adjusts the pH value to 7 and then starts the drainage process.

## Equipped for the future

This new CIP/SIP test rig enables GEMÜ to handle defined test cycles and to carry out cleaning cycles in accordance with individual customer specifications. Our customers therefore benefit from significant time savings due to low validation costs, for example. Process reliability is being increased at the same time.

**Contact:**  
**Mareike Monninger**  
 Application specialist  
 mareike.monninger@gemue.de



### Comment by Joachim Brien

The need for a uniform testing standard for the qualification and validation of diaphragms for use in bio/pharmaceutical facilities has been discussed amongst experts from ASME and BPOG for some years now. GEMÜ is a member of this work group and has closely followed and been involved in the discussions relating to it.

In addition to the steam and hot water tests, we can now simulate CIP/SIP processes in-house and perform resistance tests using ozone. With regard to the future regulatory codes, GEMÜ has already invested in the new test rig. Furthermore, as the global market leader in the bio/pharmaceutical segment, we always want to be one step ahead. We therefore offer our customers testing

technologies at a high level. The certification process at the reputable US test laboratory BPI (Bio Process Institute) is now almost complete.

The precision technology department took on primary responsibility for the planning and system design of the new CIP/SIP test rig. This involved coordinating various functions and partners both internally and externally, including the GEMÜ employees Rolf Buck, Matthias Beez and Sascha Killian in particular, who ensured perfect implementation to deadline. The new test rig has been successfully in use since November 2014.



**Contact:**  
**Patrick Zurbuchen**  
 Head of Sales & Marketing Group  
 patrick.zurbuchen@gemue.de

**Contact:**  
**Joachim Brien**  
 Head of Technical Department  
 joachim.brien@gemue.de

### Comment by Patrick Zurbuchen

Our customers consider the highest possible process reliability to be crucial. During a production cycle, a faulty diaphragm or other seal can cause complications in the production process and, in the worst case scenario, result in the batch being rejected. This can lead to losses of several million euros. Since the cleaning media have different compositions, temperatures and concentrations depending on the production process and product, it is difficult

to determine the durability of the diaphragm. With our new test rig, we can simulate customized processes and assess their influence on the diaphragms more accurately.

Alongside process reliability, maintenance intervals are an important cost factor. Our objective is to be able to suggest customized maintenance intervals which have been adjusted to the production process and the cleaning cycles of the operator. This means that loss of production can be avoided and plant maintenance can be better planned. Our new CIP/SIP test rig represents a major step towards reaching our goal.

# Container cleaning after tablet manufacture

## Versatile usage for GEMÜ valves



When manufacturing tablets, the containers in which the various ingredients and active substances are mixed must be cleaned before every new batch. The company Rotan, based in Dannstadt, plans, designs and builds tailor-made GMP- and FDA-compliant cleaning installations for this purpose. GEMÜ supplies the entire valve technology, from sterile stainless steel diaphragm valves to butterfly valves with suitable electrical position indicators and positioners.

First, the raw materials are taken from bags and containers and placed according to type into batch containers under dustproof conditions. Depending on the formulation, fillers and carriers are then poured from the batch containers into load containers, where they are automatically weighed. Active substances are weighed manually and delivered to the load container via the corresponding filling station. Once all the components are in the container, it is brought to the container mixer, which uses defined rotary movements to ensure homogeneous mixing of the ingredients during a specified period. After the mixing process, the containers are delivered to the tablet press and fixed on top. The discharge can be speeded up by using vibrations.

### Cleaning the containers

At the production plant, the containers must always be cleaned whenever a different formulation with different ingredients is to be run subsequently. For this purpose, the containers are placed in an automatic cleaning installation. In this case, it is a validated, fully automatic cleaning installation by Rotan. The washing and drying processes take place in a cabin, and pre-treatment is carried out separately in a personal protection cabin upstream. Each



GEMÜ 650 with GEMÜ 1436



GEMÜ 481 with GEMÜ 1436



GEMÜ 650 with GEMÜ 1236

corresponding treatment plant for washing solutions and air supply has been incorporated. The cleaning installations have a fully automatic transport system, in which the containers are transported via chain conveyors.

First of all, pre-treatment takes place in the personal protection cabin. This is where employees have the option to use gloves to remove spigot covers and remove any residual content. In the subsequent cleaning chamber, the containers are cleaned inside using hot water (PW = pure water) from retracting nozzles. Depending on the ingredients of the powder mix, it may also be necessary to clean with an acid or an alkali. The last cleaning stage is carried out with WFI (water for injection). Water and cleaning media are supplied via GEMÜ 650 stainless steel diaphragm valves with GEMÜ 1236 electrical position indicators or GEMÜ 1436 intelligent positioners. GEMÜ 695 diaphragm valves are used in waste pipes. After drying with hot air, cooling

then takes place. GEMÜ 481 pneumatically operated butterfly valves ensure air distribution. The thoroughly sealed and therefore dustproof system, as well as minimal deadleg diaphragm valves, rule out any contamination.

# Automatic dosing system for CIP media

## Compact design using GEMÜ iComLine®

An innovative and compact dosing system for CIP media from a well-known manufacturer in the food and beverage industries has resulted in numerous improvements compared with the previous system. The system uses GEMÜ multi-port valve blocks made from high-grade fluoroplastics; these not only make the system more resistant, versatile and more reliable with regard to leakage, but they also enable it to have a compact, space-saving design.

Strict demands are placed on hygiene in the production and filling of foodstuffs and beverages, which is why reliable and efficient cleaning of process plants is absolutely essential. The CIP procedure enables processing and filling machines, piping, tanks and silos to be cleaned without needing to be disassembled first and without opening the system. A CIP system normally consists of an alkali, acid and fresh water tank and, if required, tanks for additional cleaning media. Pumps are used to pump the required media in a specified sequence in a circuit through the plant sections to be cleaned, along with the required dosing of cleaning media.

Our customer's original system for dosing CIP media was made from stainless steel and, due to the high number of fittings and welds, had many potential leakage points. It became evident that, with regard to corrosion, stainless steel was not the most suitable material for the highly concentrated media in this application. Furthermore, problems occurred as media would unintentionally flow back into the tanks and thereby mix in an uncontrolled manner.

### GEMÜ multi-port valve block solves problems

The new dosing system was able to solve all of these problems by using a multi-port valve block from GEMÜ. Using a suction lance, the corrosive chemicals are fed to the GEMÜ multi-port valve block via the individual connections and then introduced into the CIP system via a flowmeter. This solution only uses components (such as fittings, tubes and valves) that made of ultra-pure and corrosion-resistant plastics like PVDF, PFA and PTFE. All components are located in a closed housing. By combining all relevant components in one unit – a multi-port valve block – dead space is minimized and cleaning is made much easier. Plant reliability is also improved as potential



System for dosing CIP media in the housing

Contact:  
Mareike Monninger  
Application specialist  
mareike.monninger@gemue.de



GEMÜ iComLine® C50

GEMÜ FlareStar®

leakage points either no longer exist or are replaced by safe GEMÜ FlareStar® fittings. In addition, check valves have been integrated in the multi-port valve block, which prevent the medium from unintentionally flowing back and causing dangerous mixtures in the tanks.

The design, comprising the multi-port valve block and compact actuators from the GEMÜ iComLine® series, enabled the entire dosing system to be designed and manufactured with space savings of 50 %. The combination of ultra-pure PVDF with innovative PTFE seat diaphragm technology also provides very high switching cycles and temperature resistance up to 150 °C. Tested to five million switching cycles, the unit allows maintenance friendly and safe operation up to six bar. In this application, up to six chemical lines can be connected to

the multi-port valve block. This means that several different cleaning cycles – depending on application – can be carried out with a single dosing system.

## GEMÜ at ACHEMA 2015

GEMÜ will focus entirely on the motto "process reliability" at this year's ACHEMA trade fair: As a manufacturer of high-quality products, GEMÜ has always placed great importance on ensuring that these products are manufactured as precisely and reliably as possible. This is what ensures that the customer's systems in which the GEMÜ products are installed can be operated as reliably and cost-effectively as possible.

Perfect examples of current innovations include the impressive new two-piece 5M diaphragm which boasts an even longer service life in conjunction with the tried and tested GEMÜ seal system.

GEMÜ will also present the new 553 distribution valve. Its modular construction offers unprecedented flexibility. This valve is ideally suited for use anywhere where liquids have to be collected or mixed, for example in the distribution of coolants and lubricants in machine tools. It is also compatible with the GEMÜ modular system – actuators and sensors can be effortlessly integrated.

### Intelligent networking

The GEMÜ F4 stand in hall 8 will have a large Y at its centre. It is from here that GEMÜ will present the future of the intelligent networking of valve components. These will in the future be equipped with an RFID chip, making them even easier to trace. Furthermore, the process and manufacturing parameters can be read out by the customers as a result of the corresponding database integration. This will optimize the maintenance processes of the systems and thus make a significant contribution to increasing process reliability and system availability. In conjunction with the GEMÜ RFID reader and the GEMÜ maintenance app (WartungsApp), the maintenance process can be documented and carried out even more efficiently and reliably.

This represents the first important step towards networking valve components and helps customers to understand and interpret the procedures in their systems even better and always with a higher-level objective in mind – increasing system availability.

The next few pages provide an insight into additional GEMÜ ACHEMA-Highlights.

Visit us at ACHEMA  
in Frankfurt on the Main  
from 15 to 19 June 2015  
in hall 8, stand F4.

**GEMÜ®  
ACHEMA 8.F4**



GEMÜ SUMONDO®

## Reliable, flexible and precise GEMÜ pressure control valves

GEMÜ pressure control valves are manufactured from plastic, require little maintenance and allow flexibility of use, while providing optimal pressures in the most varied of process plants.

Pressure control valves control the upper pressure limits, lower the pressure or balance out pressure fluctuations. Three versions are available depending on the operation required. The valves can be obtained in the nominal sizes of DN 10 to DN 100.

The desired pressures can be conveniently adjusted according to requirements using a set screw. Excellent flow rate values are guaranteed by the flow-efficient design of the valve bodies, which have minimal deadleg. The pressure control valves can be installed regardless of position and no auxiliary power is required for operating the equipment. Hermetic separation of the actuator from the medium ensures long service life and operational safety. All media wetted parts are manufactured from high-grade plastic and can withstand even corrosive media. Depending on the area of application, the customer can choose from a range of different materials for the body and seal material. A range of different connection types is also available.



Contact:  
Plastics Department  
plastic@gemue.de

## Controllable diaphragm valve for single-use systems GEMÜ SUMONDO®

Single-use technology is becoming increasingly important, as it helps avoid cross-contamination risks and boasts excellent flexibility. It also offers comparable process reliability to existing stainless steel systems.

However, the key difference lies in the lower investment costs and faster availability of the components for single-use systems. These advantages really come to the fore when working with small batch sizes, such as those typically required when developing new active substances in pilot systems.

Although systems can already be partially automated with the valve technology currently available in the single-use field, their control accuracy is very limited. In addition, the process for documenting and validating the processes is rather complex.

Thanks to an innovative new diaphragm bonding technology, it is now possible to use an actuator unit and control module that have already been proven in the field of conventional plant engineering for single-use processes. As is also the case with internal welded diaphragms, the valve body comes with extensive approvals, such as those required in the pharmaceutical and medical industries.

### Multi-use actuator

The GEMÜ SUMONDO® single-use diaphragm valve comprises a pneumatic actuator and a distance piece with stainless steel mounting plate, as well as a plastic valve body. This is gamma-sterilizable and is manufactured in a cleanroom under controlled conditions. During assembly, a pin located on the welded diaphragm of the single-use diaphragm valve body is introduced into the thrust piece of the pneumatic actuator and locked in place using an indexing plunger. After use, the valve body with its diaphragm can be removed from the actuator and disposed. The actuator and mounting plate can be used multiple times and remain in the plant.

Contact:  
Plastics Department  
plastic@gemue.de

## Distribute, mix and collect GEMÜ 553 with modular body concept

Modern and compact valve solutions are much in demand in plant engineering, for use in a wide range of applications. In addition to demanding requirements in terms of pressure and temperature, modular-style and expandable valve solutions are becoming increasingly popular. Through their adaptability to individual situations, a high level of flexibility can be achieved for a range of different applications with the modular GEMÜ 553 distribution valve.

The GEMÜ 553 series consists of high-quality, stainless steel investment cast bodies that can be very easily connected together in series using a tried-and-tested seal system. In terms of actuator unit, pneumatically operated actuators made of stainless steel or plastic are available from the GEMÜ modular system. These can, depending on requirements, be used in combination with a widely varied range of accessories, such as electrical position indicators, combi switchboxes and pilot valves.

### Versatile application possibilities

Thanks to the diversity of combination options, as well as the technical properties it possesses, the valve can be deployed for a variety of different processes. In this regard, it can be used in applications where an extremely wide variety of different media are distributed, mixed or collected. In particular, the GEMÜ 553 is ideally suitable for the distribution of cooling and lubricating fluids on machine tools. In the mixing function, media with different properties can be mixed together, such as hot and cold water. In the collection application, a same medium is guided in the back flow to a common outlet. In the distribution function, a medium is guided to a variety of different consumers. With the aid of a universal module, it is possible to integrate temperature and pressure measuring directly into the process. Furthermore, media can be separated along the pipe train. As a result, it is possible to control the flow of two media or types of media (e.g. liquid or gaseous) independently of one another via the same valve configuration.

Thanks to the possibility of locking the individual connections in place in 90° increments, the valve arrangement can be ideally adapted to the most different of process and mounting conditions. Female threads in G1/2 and G3/4 are available for the connections. The module can be terminated at a desired point through separate connection and blanking flanges. The valve bodies are designed in pressure rating PN 25 and can be quickly and straightforwardly connected together via a threaded connection. When connected, the valve bodies are mutually sealed using O-rings.

**Contact:**

Automation Department  
auto@gemue.de



*GEMÜ 553  
distribution valve with  
modular body concept*



## Large nominal size for large projects GEMÜ C480 butterfly valve

With the expansion of the tried and tested Victoria® series to include the GEMÜ C480, GEMÜ is responding to customer requirements from the project business.

“With the robust and versatile GEMÜ C480 butterfly valve, we are not only able to offer our customers a high-quality and cost effective solution for standard applications, but more importantly also for project-based deployments,” comments René Speckmaier, Head of the Industrial department at GEMÜ.

The new butterfly valve is available in the nominal sizes DN 700 to DN 1600 and thereby supplements the soft seated concentric butterfly valves in the Victoria® series with additional sizes. A corresponding selection of connection types, as well as sealing and disc materials provides an optimum platform for addressing individual customer requirements. The configuration with a valve disc made of Super Duplex steel is particularly worthy of note here. This is complemented by a high-quality coating for the valve body with a bonding thickness of 250 µm. The class C5-M corrosion protection employed here is ideally suited to applications in the coastal and offshore sectors.

### Modular actuator concept

Butterfly valves such as the GEMÜ C480 are primarily used in the fields of water treatment and sea water desalination, as well as in power plants. A wide range of actuator options is available to cover a broad spectrum of applications.

Alongside a handwheel with gearing, a modular concept can be employed with the pneumatically actuated version. The ultimate design is based entirely on the intended use and individual customer requirements. Various options are available, such as a hydraulic or manual override or an actuator module with stroke limiter. To cater for highly individual requirements, the GEMÜ C480 butterfly valve can also be equipped with actuators from other manufacturers.



*GEMÜ C480  
butterfly valve  
in nominal size DN 1000  
with pneumatic actuator*

**Contact:**

Industrial Department  
industry@gemue.de

## For sensitive media Flow and pressure measurement devices

Process monitoring is playing an increasingly important role in modern operations as a way of ensuring safety and reliability, and targeting improvements in terms of resource and cost efficiency. It is therefore all the more important to understand and record the conditions in plants and systems. With the SonicLine® and HydraLine series, GEMÜ offers an optimum flow and pressure measurement solution for precisely this application.

Alongside their use in the semiconductor industry, the chemical resistance and purity of the GEMÜ SonicLine® and GEMÜ HydraLine products also make them perfectly suited for use in other sectors that process sensitive media.

The GEMÜ SonicLine® flowmeter is characterized by reliability and precision. The integrated ultrasonic sensors record up to 250 measured values per second. This means that heavily fluctuating flow rates can also be precisely detected. All media wetted components are manufactured from ultra-pure PFA.

### Also for dosing applications

The GEMÜ SonicLine® is particularly well suited for use with ultra pure media, such as DI water. However, ultra high purity chemicals can also be processed without any issues. The device can also be used in processes which need to be completely metal-free. In addition to pure flow measurement, SonicLine® is also used for dosing applications. The valve actuation required for this can be performed using the integrated electronic system. There are no moving or fixed parts in the measurement area, so the medium can flow through unhindered.

### Innovative dual-diaphragm technology

The pressure measurement system in the GEMÜ HydraLine series has established itself as the ideal solution for monitoring sensitive media, primarily due to its high measurement accuracy. The entire media wetted area of these devices is manufactured from PTFE or PFA. Depending on the application, various plug-in units such as



GEMÜ HydraLine in use

analogue or digital displays are available to complement the purely electrical transmission of the measured values. The process medium is also reliably sealed off thanks to innovative dual-diaphragm technology.



GEMÜ SonicLine®

GEMÜ HydraLine

Contact:  
Semiconductor Department  
semicon@gemue.de

## Compact block valves series welcomes new additions GEMÜ iComLine®

The new and also smallest of the five GEMÜ iComLine® actuator sizes sets standards in the field of miniature valve technology. This valve size offers a flow capability of 1.8 litres per minute, whereby the height of the pneumatic actuator is scarcely larger than the diameter of a € 2 coin. The seat of the new valve was intentionally kept as small as possible and measures just 20 x 20 mm.

Developed primarily for customers from the chemical and semiconductor industries, the GEMÜ iComLine® product line can now cover a wide range of uses. Alongside their compact design and high resistance to media, the key benefit lies in the ability to use the valves as a multi-functional unit in the form of a multi-port valve block. In addition to this, various actuator and connection options are available, together with a matching range of accessories. These include the compact electrical position indicator, which is based on a contactless functional principle.

These options, coupled with the performance capability of the valves, open up numerous new areas of use. The new actuator size also facilitates further applications in the fields of biotechnology, semiconductor production, the foodstuff industry, laboratory and process analytics, as well as the manufacture of energy stores. The visual design and necessary operating parameters are identical to all other valves in the GEMÜ iComLine® series.

### Product presentation at the ACHEMA trade fair

The new actuator size is to be presented to the public for the first time at the ACHEMA trade fair. The various application possibilities will be demonstrated in a practical environment using a functional model. Alongside an economical coating method for silicon wafers, the other applications on show will include an individual, automated filling process in the field of laboratory and process analytics.



GEMÜ iComLine®  
actuator size 0



GEMÜ iComLine®  
actuator size 0 with  
position indicator

Contact:  
Automation Department  
auto@gemue.de

## GEMÜ valves in CONVAL® database

GEMÜ valves are now available in the CONVAL® database.

CONVAL® is a non-proprietary software program for engineers, designers and operators of industrial plants. It offers a wide range of calculation options for various components and procedures in industrial processes. These are based on tried-and-tested procedures carried out in accordance with various directives and standards, such as DIN and VDI. In addition to numerous functions for calculating the physical properties of pipes and materials, the program also boasts a number of databases for positioning valves, safety valves and throttle elements.

Version 9.0.5 SP2 has incorporated GEMÜ valves into its positioning valve database as well. This now makes it possible for users of the software to use GEMÜ valves in their designs and calculations.

## Extended portfolio of motorized actuators for quarter turn valves

Motorized quarter turn actuators are used, amongst other things, to actuate butterfly valves and ball valves. They can perform simple open/close movements and, depending on the version, also carry out control tasks.

The GEMÜ 9428 and GEMÜ 9468 series have already been established for some time now and boast a robust and reliable design. The special feature of these actuators, in addition to a solid and low-wear design, is the way in which power is transmitted to the shaft of the respective valve.

More specifically, this means that the torque in the end positions with a constant motor load increases and the speed at a constant motor speed decreases simultaneously. This special design feature brings the nominal torque of the actuator into line with the closing characteristic curve of a quarter turn valve. This not only achieves a constant load on the electric motor being used by avoiding peak loads, it also improves controllability.

### Comprehensive product range

The new version of the GEMÜ 9428 actuator with a nominal torque of 55 Nm completes the two series. With this extension to the portfolio, we now offer a comprehensive product range with nominal torques from 6 Nm up to 400 Nm. Depending on the version, travel times of between 4 and 29 seconds can be implemented. The actuators feature an optical position indicator as standard, as well as a manual override. The end positions of the quarter turn valve can be adjusted via a microswitch. In addition to an emergency power supply, there is also an option to activate different

signalling devices using two potential-free limit switches. A control module can also be integrated. The GEMÜ 9428 and 9468 motorized quarter turn actuators feature a compact design and can be used not only for GEMÜ butterfly valves and ball valves, but for all valves with a travel range of 90° and a standard flange in accordance with EN ISO 5211. The motor and gearbox are housed in a weather-resistant plastic housing. Both quarter turn actuators are designed for DC and AC operating voltages and can be supplied with different electrical connection options depending on the applications.

GEMÜ 9428



GEMÜ 9468

**Contact:**  
Werner Flögel  
Head of Electronics and  
Measurement & Control Product  
Management  
werner.floegel@gemu.de

**Contact:**  
Automation Department  
auto@gemu.de

## SIL assessment of GEMÜ products

Together with the independent testing organization EXIDA, GEMÜ has assessed a selection of different products in accordance with SIL.

This assessment according to SIL covers the functional safety of the products and is used to evaluate the systems in relation to the reliability of fail safe functions. The result is safety-relevant design principles which must be complied with in order to minimize the risk of a malfunction. SIL itself is a measure of the probability that a system will correctly fulfil the required fail safe functions for a specific time period.

In addition to pilot valves, the GEMÜ products assessed include globe and diaphragm valves and electrical position indicators.

By assessing the product selection referred to here, GEMÜ is complying with its customers' requirements primarily from the process and manufacturing industries. With the data made available, these can now carry out assessments of entire plants.

## GEMÜ Group has a new Internet presence

The redesigned GEMÜ website has now been up and running since the spring. The web presences of the European, African and Australian GEMÜ subsidiaries, as well as the global presence are now all grouped together at [www.gemu-group.com](http://www.gemu-group.com).

In addition to cross-country content and the representation of all standard products, the site also includes information about the individual locations. Thus, for example, the German version features the topic of GREEN ENGINEERING and the Swiss sub-pages provide information on the cleanroom plant in Emmen.

The new design has focused on key product and company information in particular. Alongside the creation of multiple navigation paths to technical data, datasheets etc., the website also began a new era of internationalization. With its current eight languages, customers and interested parties from countries such as Scandinavia or the Benelux countries can now also get an overview in their native language.

Additional functionalities have also been implemented. In the product area, the website provides multiple filters and an enhanced search function. A "quick finder" for valves has also been set up. Visitors can use this to generate overview lists; for example, they can display all valves with the PP body material.

For the time being, the US and Asian subsidiaries are each still operating separate websites. The US website can be found at [www.gemu.com](http://www.gemu.com), while the Chinese website is at [www.gemu.com.cn](http://www.gemu.com.cn).

**Contact:**  
GEMÜ Webmaster  
webmaster@gemu.de



# Sophisticated valve designs for filling and dosing processes

Cleverly designed modern valves have now become an essential component of numerous filling and dosing processes. GEMÜ offers its customers a wide range of solutions for carrying out such challenging tasks.

Various requirements are placed on the design of valves, depending on the application and the industrial sector in which they are used. The type of valve and actuator must be matched to the right body material and selected based on the required dosing accuracy, the type of media in use, the aggregate state and the quantity that will need to be dosed or filled.

The valve that is selected varies greatly depending on the particular requirements that it must fulfil: Whether dosing powdered or liquid colouring pigments in the concrete or textile industry, dosing chemicals for

use in water treatment and battery production, or dosing aromas or additives. GEMÜ also offers its customers solutions that are suitable for dosing gases, such as the GEMÜ 554 globe valve or the GEMÜ 660 diaphragm valve for filling processes, which can be used when expanding polystyrene foam or filling drinks, for example.

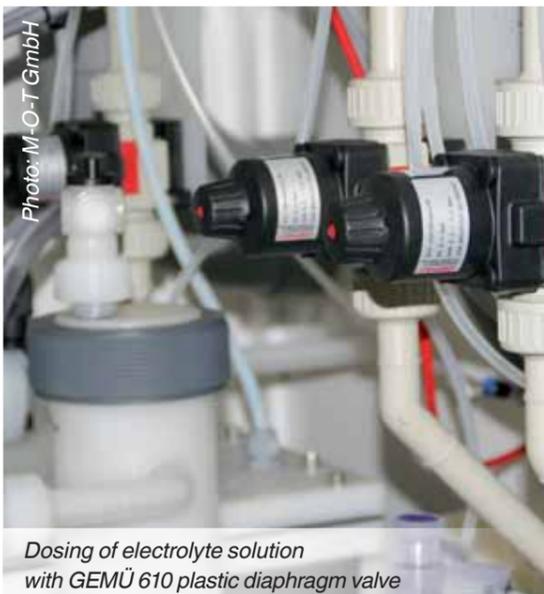
### For sensitive media

In addition to resistance to the medium used and the temperatures that will be reached in the process, the switching speed is another key variable that needs to be taken into consideration. Valves in the GEMÜ iComLine® series are used primarily in processes in which having an adequate resistance to media is just as important as the dosing output. The GEMÜ SonicLine® flowmeter, which takes fully contactless ultrasonic measurements, is another

highlight of the product range. An integrated batch control function can be set to actuate the relevant valve.

Offering not only a broad product range but also the GEMÜ modular system means that customers can choose from a wide variety of valves and different design options. As regards the necessary process automation, GEMÜ offers the convenient option to provide its valves with the appropriate positioners and process controllers ex-works.

Contact:  
**Timo Hanselmann**  
Product Marketing Manager  
timo.hanselmann@gemue.de



Dosing of electrolyte solution with GEMÜ 610 plastic diaphragm valve



Ultra-pure water dosing with a multi-port valve block from the GEMÜ iComLine® series



Drinks filling with GEMÜ 660 diaphragm valve



Flow measurement and dosing of cleaning media with GEMÜ SonicLine®

## Topical training dates

### ALL-ROUNDER LEVEL

#### ⇒ Basic principles of application technology

- GA01GB Processes in the biotechnology, pharmaceutical, foodstuffs and cosmetics industries  
*10 June 2015*
- GA02GB Processes in the high purity, semiconductors and critical media industries  
*11 June 2015*
- GA03GB Processes in the chemical, processing and water industries  
*15 June 2015*

#### ⇒ Basic principles of measurement and control systems

- GM01GB Introduction to electrics, electronics and pneumatics (basic module)  
*18 November 2015*
- GM02GB Measurement variables and measurement principles in process engineering  
*19 November 2015*
- GM03GB Control circuits, their design and function  
*20 November 2015*

### SPECIALIST LEVEL

#### ⇒ Product training in valve designs

- PV01GB Valves for biotechnology, pharmaceutical, foodstuffs and cosmetics industries  
*22 June 2015*
- PV02GB Valves for high purity, semiconductors and critical media industries  
*24 June 2015*
- PV03GB Linear valves for chemical, processing and water industries  
*16 and 17 June 2015*
- PV04GB Valve designs – accessories and instrumentation  
*25 June 2015*
- PV06GB Single-use valves for biotechnology and pharmaceutical industries  
*23 June 2015*
- PV07GB Quarter turn valves for chemical, processing and water industries  
*18 and 19 June 2015*

The training courses will be held in English.

Contact:  
**Bettina Berger**  
Sales Marketing Team Assistant  
training@gemue.de

# Promoting new technologies

## GEMÜ donates a charging point to Künzelsau



Over a year has passed since GEMÜ started operating an electric shuttle to take employees around sites and installed the necessary charging infrastructure to make it run – now the company is sponsoring a charging point for electric cars in Künzelsau. The Mayor of Künzelsau, Stefan Neumann, invited GEMÜ to the inauguration ceremony on 26th February 2015.

Beautiful sunshine accompanied the 20 excited guests who assembled at the new EV charging station in the Wertwiesen car park in Künzelsau. In his speech, Stefan Neumann made it clear that the town owed the installation of the charging point to GEMÜ: “The town of Künzelsau provided the place and GEMÜ provided the means to finance it – a winning combination.” He continued by saying that GEMÜ had played a leading role in the project and expressed his heartfelt thanks for the company’s support. He then presented the Managing Director of

GEMÜ, Gert Müller, with an EnBW charging card which is used to pay for the electric energy drawn when “refuelling” at the EV charging station. In return, Gert Müller thanked the residents of Künzelsau for welcoming his idea of providing a charging point for everyone in the town to use. He said he was pleased that electromobility had now arrived in Künzelsau and delighted that GEMÜ was able to play a part in bringing it there. “Technology is only worth advancing if there is the infrastructure required to support it as well. This means that electromobility cannot progress without charging points,” stated Gert Müller.

**Contact:**  
Eva Zink  
Corporate Communication  
eva.zink@gemue.de

### GEMÜ GREEN MOVE

The goal of environmentally friendly mobility is to get everyone using electric cars that are fuelled by 100% renewable energy and give out minimal CO<sub>2</sub> emissions. There is still a long way to go before this dream is realised, but every journey has to start with the first steps. This is why GEMÜ has launched the GREEN MOVE initiative. GEMÜ is not only aiming to set a good example as a company – it is also giving its employees the opportunity to try an electric car for themselves: The Smart Fortwo Electric Drive Coupé, called the E-Smart for short. One of the three white-and-green E-Smart models is available at each GEMÜ office in Hohenlohe to take employees from one site to another with as little noise and emissions as possible.

Public charging points are still very rare, especially in rural areas, which is why all employees can also recharge their electric cars free of charge at the company’s own EV charging stations.



GEMÜ Managing Director Gert Müller (centre), Mayor Stefan Neumann and Brigitte Bayer (EnBW) inaugurating the EV charging station together.

# Minister Theresia Bauer visits Production and Logistics Centre

On 19th February 2015, Federal State Minister for Science, Research and Art, Theresia Bauer, visited GEMÜ’s European Production and Logistics Centre in the Hohenlohe business park.

Theresia Bauer and her guests were welcomed by GEMÜ Managing Director, Stephan Müller, and Head of Logistics & Supply Chain Management, Matthias Fick. Stephan Müller provided the visitors with information on GEMÜ’s history and current operations, its wide range of products and the various sectors in which these products are used.

Theresia Bauer was also interested in the company’s training and study opportunities. The group then took a tour of the Assembly and Logistics Halls with Matthias Fick, who was happy to explain the coordinated procedures of a Production and Logistics Centre.



Theresia Bauer and her guests with GEMÜ Managing Director Stephan Müller (right)

**Contact:**  
Gabriela Mildner  
Print Production / DTP  
gabriela.mildner@gemue.de

# Exhibitions 2015 National – international

Achema	15.06. – 19.06.	Frankfurt (DE)
Interpex Japan	01.07. – 03.07.	Tokio (JP)
Semicon West	14.07. – 16.07.	San Francisco (USA)
ProPak China	15.07. – 17.07.	Shanghai (CN)
Semicon Taiwan	02.09. – 04.09.	Nangang (TW)
MSR Spezialmesse Südost	16.09.	Landshut (DE)
Herning Industry	22.09. – 24.09.	Herning (DK)
WEFTEC	26.09. – 30.09.	Chicago (USA)
PPMA	29.09. – 01.10.	Birmingham (UK)
SIPEC	30.09. – 01.10.	Orléans (FR)
Pumps & Valves	30.09. – 01.10.	Rotterdam (NL)
Agroprodmash	05.10. – 09.10.	Moscow (RU)
Automaatio	06.10. – 08.10.	Helsinki (FI)
MSR Spezialm. Niedersachsen	14.10.	Braunschweig (DE)
Aquarama	23.10.	Leuven (BE)
Khimia	27.10. – 30.10.	Moscow (RU)
Aquatech	03.11. – 06.11.	Amsterdam (NL)
Brau Beviale	10.11. – 12.11.	Nuremberg (DE)
China-Pharm	17.11. – 20.11.	Shanghai (CN)
SPS IPC Drives	24.11. – 26.11.	Nuremberg (DE)
PharmTech	24.11. – 27.11.	Moscow (RU)
INCHEM TOKYO	25.11. – 27.11.	Tokio (JP)
POWER-GEN	08.12. – 10.12.	Las Vegas (USA)

# Jobs with a future Industrial and technical apprenticeships at GEMÜ



At GEMÜ, educating young trainees has always been of great importance. GEMÜ offers a wide range of industrial and technical training opportunities alongside training professions in the commercial sector. Read on to find out what six of our GEMÜ apprentices enjoy about their industrial and technical training and why.



**Felix Pfeiffer**  
Apprentice electronics technician  
for devices and systems  
Third year

*What brought GEMÜ to your attention?*

I became aware of GEMÜ at the regional careers information day that the company was also attending.

*What do you like most about your apprenticeship?*

I particularly enjoy being trained in different departments – every sector presents a new set of interesting technologies. Team work is another attractive part of the apprenticeship.

*What are the educational and personal requirements for an apprenticeship as an electronics technician for devices and systems?*

You must have a secondary education certificate, as well as mathematical and technical understanding and diligence.

*Where do lessons take place and which subjects are taught?*

Lessons are held at the vocational school in Künzelsau. Vocational theory, English, German, social studies, economics, laboratory and workshop training, and religious studies are just some of the subjects taught.



**Patrick Häfner**  
Apprentice machine and  
plant operator  
Second year

*Why did you choose a machine and plant operator apprenticeship?*

I had some initial experience in the industrial and technical sector from holiday work and work placements. I identified with this area of responsibility early on.

*What do you like most about your apprenticeship?*

I enjoy working independently on the turning and milling machines and working with metal most of all.

*What do you value most about your training company, GEMÜ?*

The spacious apprentice workshop where all the machine and plant operators and tool mechanics spend the first year together. I also like that there is an annual apprentice excursion and an apprentice sports' day. The behaviour within the company is so friendly you settle in straight away.

*What are the requirements for anyone applying for the job of machine and plant operator?*

A certificate of secondary education is essential, as well as an interest in metal and enjoying independent work.

**GEMÜ trainers**

**Alois Walter**  
Electronics technician and  
industrial electrician trainer  
alois.walter@gemue.de

**Wolfgang Wick**  
Tool mechanic/machine and  
plant operator trainer  
wolfgang.wick@gemue.de

**Stephanie Hohenfeld**  
Technical product  
designer trainer  
stephanie.hohenfeld@gemue.de

**Heiko Glattbach**  
Process mechanic for plastic and  
rubber technology trainer  
heiko.glattbach@gemue.de



**Anton Senger**  
Apprentice industrial electrician  
for devices and systems  
First year

*What made you choose this apprenticeship in particular?*

I have always found electronics systems interesting, so an apprenticeship in the field of electronics seemed to be the obvious choice.

*What do you enjoy most about your apprenticeship?*

I always really enjoy complex and varied tasks and being introduced to new ideas.

*Why did you choose an apprenticeship with GEMÜ?*

At my interview I received a wide range of information about the company and the apprenticeship in particular. This and the presentation given by the electronics apprenticeship department left me with a very positive impression.

*What interests should applicants be able to offer for this job?*

I think, as well as being proactive and competent in social situations, having enthusiasm for electrical technology is very important.



**Annika Eichhorn**  
Apprentice technical  
product designer  
Second year

*Why did you apply for this training profession?*

Having studied at a technical vocational school, I wanted to remain in the technical sector even after I left. But I could never picture myself in a purely workshop-based vocation. Although the technical product designer apprenticeship involves lengthy periods in the apprentice workshop, its actual operational area is in the various design departments.

*How did you come to choose GEMÜ?*

I was won over by a number of options that were particular to GEMÜ, such as a three-week long trip abroad to a subsidiary, and the opportunity to be given the apprentice car for a certain period if you perform well academically and operationally.

*Which aspects of GEMÜ do you like in particular?*

Firstly, GEMÜ does not have a department solely for training. Instead, there is a training department integrated in every operational department. After spending some time on training tasks, you get to work in operations alongside the others and you are given your own projects. I also like the canteen and the good atmosphere at work, as well as the pleasant design of the workstations.

*What skills and qualifications do applicants need for this job?*

Applicants should have a good secondary school leaving certificate, good spatial awareness and an aptitude for maths.



## IMPRINT

**Publisher:**  
GEMÜ Gebr. Müller Apparatebau  
GmbH & Co. KG  
Fritz-Müller-Straße 6–8  
74653 Ingelfingen-Criesbach  
Phone +49 (0) 7940/123-0  
gemuenews@gemue.de  
www.gemu-group.com

**Editors:**  
Annette Wenk (Text)  
Birgit Seuffert (factum | adp)  
Gabriela Mildner (GEMÜ)  
Eva Zink (GEMÜ)

**Circulation:**  
4,000 in German  
2,000 in English

# Making those first contacts

## GEMÜ at the Careers Day in Künzelsau

7th February 2015 saw the Eberhard Gienger Halle in Künzelsau become an exhibition hall. Numerous Hohenlohe-based companies had stands at the Careers Day and presented their training programmes. The Careers Day proved once again to be a good opportunity for GEMÜ to showcase its various training schemes.



**Lukas Bauer**  
Apprentice tool mechanic  
Second year

*What made you choose this apprenticeship in particular?*

I have always been interested in industry and technology, so an apprenticeship as a tool mechanic seemed like the perfect fit. Manual work has also always given me great enjoyment. After completing a work placement in this vocation, I knew for certain that I wanted to train as a professional.

*What do you like most about your apprenticeship?*

I really enjoy turning and milling. Not just metalworking, but working precisely from a drawing is also always a lot of fun.

I think it is really good that everyone spends the first year together in the apprentice workshop. This means you get to know not just the other apprentices, but also all the relevant basic knowledge.

*Which aspects of GEMÜ do you find most impressive?*

The independent development and execution of projects such as MINTec and the various training partnerships are brilliant. You also settle in straight away because the relationship between colleagues is so friendly.

*What are the requirements for people applying for this job?*

Demonstrating an interest in metal is an advantage. In addition, it helps to have a flair for technology and to enjoy learning new things. It's also important to have a certain amount of team skills to help with team work.



**Kevin Saffrich**  
Qualified apprentice process  
mechanic for plastic and rubber  
technology

*Why did you choose to complete your apprenticeship at GEMÜ?*

I became familiar with GEMÜ during a work placement while at school. Afterwards, it was clear to me that I should complete my apprenticeship there. I was impressed with the company from the outset.

*What did you enjoy most during your apprenticeship?*

Working with the machines – installing tools, operating the machines and handling plastic.

*Which aspects of GEMÜ do you like in particular?*

I really like how friendly colleagues are towards one another, and they are there to offer advice and support if you have any problems.

*What are the educational and personal requirements for the apprenticeship as a process mechanic for plastic and rubber technology?*

Enjoying maths, physics and chemistry and a high school or secondary school leaving certificate are all important.



“We take part every year,” said Training Manager Lena-Kristin Hafner, “the Careers Day is a very important event for us. In previous years, we’ve gone on to offer apprenticeships to a number of students who came and saw us here first. Many of them refer to this directly in their applications as well.” A good example is Mona Stirn, who is training with GEMÜ to be an Industrial Management Assistant: She can clearly remember the day when, still a student herself, she gathered some preliminary information about the company at the Careers Day. But this year it was her staffing the stand – together with Pascal Knaus, an apprentice working to become a Technical Product Designer, and Yannik Steiner, a student of the cooperative study programme in Electrical Technology – and answering visitors’ questions about training at GEMÜ. “People are really interested,” she observed, “GEMÜ has a good reputation. You can see that just from talking to them.”

perspective. “There is a huge demand for information about jobs, courses of study and even work experience opportunities. Lots of students also want to know what they ought to pay attention to when making their application and which documents they need to supply with it. They often ask how much chance they stand of being offered a place on an apprenticeship as well.” This obviously varies depending on the training profession, but it is always

worth applying – and potential applicants are actively encouraged to do just that. And who knows: Maybe next year these students will be manning the stand as apprentices, recounting their first experiences of training at GEMÜ to new visitors.

**Contact:**  
Lena-Kristin Hafner  
Training Manager /  
HR Marketing  
lena.hafner@gemu.de



### GEMÜ apprentices and trainers on hand for information

Budding technical draughtsman Pascal Knaus also took time out from his apprenticeship as a Technical Product Designer to spend nearly every minute of the day answering questions. He too was of the impression that “most students want detailed information. Many of them haven’t decided what training profession they wish to pursue yet.” Visiting the GEMÜ stand was therefore precisely the right thing for them to do. Wolfgang Wick was on hand to provide an insight into the various jobs from a trainer’s

## HR exhibitions

We will be providing information about our various training schemes and study programmes at the following events:

- ⇒ VR Bank Job Fair in Schwäbisch Hall-Craillsheim  
20th June 2015
- ⇒ Family Business Career Day in Winnenden  
26th June 2015
- ⇒ Open Day at the Baden-Württemberg Cooperative State University in Mosbach (DHBW)  
11th July 2015
- ⇒ Aalener Industriemesse – AIM for students  
21st Oct. 2015
- ⇒ inova – Careers Fair at the Ilmenau University of Technology  
27th Oct. 2015

## Valves, measurement and control systems tour the world

GEMÜ employees in the Trade Fair Communication team are travelling around every continent presenting GEMÜ valves, measurement and control systems at industry trade fairs all through the year. This round-the-world tour is giving them the opportunity to showcase GEMÜ products in a whole new light. Come along and share their journey through the world of GEMÜ.



Contact:  
Sales Marketing  
Trade Fair Communication Team  
marketing@gemue.de



TechnoPharm *Nuremberg*



Interphex *New York City*



FoodTech *Herning*



FCE Pharma *São Paulo*



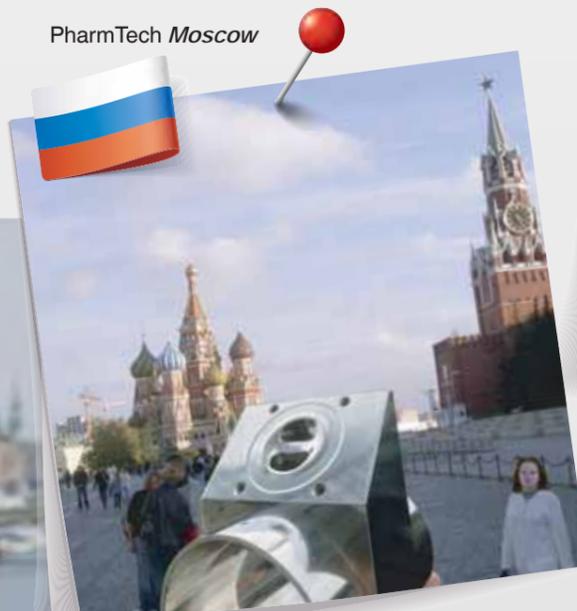
Pumps & Valves *Antwerp*



Scanautomatic & ProcessTeknik *Gothenburg*



VA-mässan *Jönköping*



PharmTech *Moscow*



IFAT *Munich*



Anuga FoodTec *Cologne*