GEMÜ news

THE GEMÜ GROUP:

THE FUTURE STRENGTHENED

BY INNOVATION

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

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ACHEMA 2018

The "ENSŌ"

A simple circle with great significance. One of the meanings of the Zen ensō symbol is that human achievements are part of something much bigger than us. With this in mind, we would like to invite you to better familiarize yourself with our Pharma, Food & Biotech, Industry and Semiconductor Business Units as sub-departments of the GEMÜ Group.

Visit us at the
ACHEMA 2018 in Frankfurt am Main, Germany, from 11th to 15th June 2018, in hall 8/stand F4

We look forward to seeing you there and enjoying discussions with you.

Dear readers,

The first half of the year is drawing to a close, and it has been both eventful and successful. We have continued to consolidate and expand our new business units (BU) and business segments (BS) as part of our restructuring programme, with a particular focus on enhancing our Service BS. The use of an innovative and specially designed VR (virtual reality) training programme, such as the one developed for GEMÜ CONEXO, has made an entirely new form of learning possible.

On 4th June, we celebrated the opening of our new surface technology centre (the Oberflächentechnologiezentrum, or OTZ) in the Hohenlohe business park. By taking these steps into surface processing, we are entering a whole new territory and thus setting a course for GEMÜ to continue developing at a steady rate. We are continually investing in manufacturing capacity and expertise. The launch of the OTZ represents another ground-breaking step towards increasing the quality of our products even further. The new building consists of a production area of almost 3000 m² and 750 m² of administrative and social spaces. Following the completion of the OTZ, the relocation of certain departments from Criesbach to Waldenburg was the next item on the agenda. I am extremely grateful to all those involved for making this relocation as seamless as possible, and appreciate the support and willingness of our employees in this matter.

The second half of the year looks to be just as eventful. The sales and earnings performance to date has been extremely satisfactory, and I assume from the ongoing positive development that this will continue into the current financial year of 2018. Our restructuring has put the necessary measures in place for our continued growth and is set to strengthen our competitive ability in the long term. Investment in the training and development of our staff members as well as the intensified search for specialist technicians and apprentices will prove key challenges over the next few years, though addressing these will bring growth.

The trade fair season will reach its peak in June with ACHEMA in Frankfurt, the most important exhibition for our company. An internationally leading trade fair in its field, it serves as a global forum for the processing industry and is therefore the ideal opportunity to showcase our company to all who attend. We aim to represent ourselves in a unique way with aspects such as our new products and entirely new stand. The GEMÜ stand for this year's trade fair fully symbolizes change, with an innovative and modern design that reflects the restructuring of our business units (BU) and business segments (BS) in an impressive fashion. I am proud that we are once again able to showcase a variety of product innovations at ACHEMA this year. This would not have been possible without the excellent commitment of GEMÜ's staff members. So I would like to take this opportunity to say a big thank-you to the entire GEMÜ team across the globe for their tireless dedication, outstanding collaboration and terrific performance. I look forward to a successful trade fair with many interesting conversations and encounters.

I invite you all to come and visit us in hall 8.0 at stand F4.

Gert Müller
Managing Partner

A NEW APPROACH TO SERVICE
LEARNING FOR THE FUTURE WITH VIRTUAL REALITY

The high-quality valve, measurement and control components that GEMÜ produces are important elements of a technical processing plant. Proper installation and maintenance are therefore necessary in order for the plant to operate efficiently and in optimal cycles.
In this regard, the best possible form of interaction between manufacturers, plant designers and operators is required so that the product can be operated faultlessly throughout its entire life cycle, from the commissioning through to the servicing.

GEMÜ's Service Business Segment bundles together the activities in the after-sales sector, which can currently be divided into three main areas:

Technical training

Through a multi-stage training system and individual training models, customers are introduced to the functional principle of GEMÜ valve, measurement and control components in thorough detail.
This consequently ensures that assembly and service personnel have all the necessary knowledge and tools to install and service these high-quality products. Exceptionally skilled technical trainers with many years of experience in the sector continue to pass on knowledge using the latest teaching methods, whether this takes place in the GEMÜ training centre at our site in Criesbach or at our customers' sites all over the world.
An innovative and specially developed VR (virtual reality) training programme for GEMÜ CONEXO is just one example of how we are facilitating even more in-depth (i.e. immersive) learning among our participants. Using an application, the necessary actions can be performed, studied and subsequently tested. Thanks to the complete immersion in the learning content, the knowledge that is passed on can then be summoned even quicker in the field.
The training courses are carried out fully in line with the customer's individual requirements with regard to time, location and content. Training courses that accompany servicing, or take place directly in advance of this, are also possible.

In-house and field service

A well-trained squad of service engineers is not only in an ideal position to advise the customer on site in all matters relating to the commissioning of valve, measurement and control components, but can also support customers in inspections, servicing and upgrades. Repair and maintenance of GEMÜ components can be carried out at the Criesbach service centre or directly on site. To ensure the comprehensive efficiency of your machines, our service specialists are available for valve-related plant screenings and technical questions. If you wish, GEMÜ's qualified fitters can also assume responsibility for the component inventory, data management and retrofitting for CONEXO.
For all questions relating to after-sales service, our experts at GEMÜ can be contacted by telephone or e-mail.

Daniela Schautzgy
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GEMÜ CONEXO

SYSTEM EXPANDED TO INCLUDE IMPORTANT FUNCTIONS FOR PLANT DESIGNERS

Ahead of ACHEMA, the leading international trade fair in the processing industry, GEMÜ has released the new version 1.3 of the CONEXO app and the CONEXO portal.

With CONEXO, GEMÜ has brought a system to market which electronically supports the user with a wide variety of identification, traceability, servicing and maintenance tasks. For it to work, each relevant component of a plant is equipped with an RFID chip. This chip can then be read out by the RFID reader, the CONEXO pen. To complement this, the CONEXO app is installed on a mobile device. With this system, the entire servicing process becomes more transparent and easier to document. The app actively guides maintenance technicians through the maintenance schedule and directly provides them with all the information assigned to the components, such as test reports, testing documentation, assembly instructions and maintenance histories. The CONEXO portal acts as a central element, helping to collect, manage and subsequently process all data.

Close communication with users and plant designers helped to improve and supplement the system with significant features with new functions. In the new version 1.3 of the CONEXO portal and the CONEXO app, developers have integrated further practical features such as a notes function, a selective synchronization option for data transfer, and the option to save additional customized attributes for components or locations. Furthermore, optimizations have been carried out regarding the identification and integration of non-GEMÜ products and the import and export function. The latter enables the user to export complete plant documentation as a zip file with a single click, as well as the simple import and export of plant schedules as CSV files.

Mario Niklas
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ACHEMA 2018

SETTING A COURSE FOR THE FUTURE

The ACHEMA trade fair is back again for 2018: From 11th to 15th June, around 3800 exhibitors from 50 different countries will come together at the leading trade fair of the chemical engineering and processing industry.

Every three years, this Frankfurt-based trade fair provides a platform for innovation and the exchange of ideas. As a manufacturer of valves, measurement and control systems, GEMÜ will also be represented at this year's event, with a stand that truly symbolizes change by means of an innovative and modern design. The redesign of the stand aims to represent the restructuring of the different business units (BU) and business segments (BS) in a spectacular fashion.

GEMÜ continues to present itself "in a new guise" at each ACHEMA event, which then shapes the company's appearance at future events. The new trade fair concept showcases the "speaking walls", the name given to the recently redesigned façade of the GEMÜ head office building. The history and future of GEMÜ is represented in the form of a mural with systematically arranged surfaces and colours.

The 225 m^2 trade fair stand is divided into two areas, with three red pillars that dominate the centre. These represent GEMÜ's three key markets: "Pharma, Food & Biotech", "Industry" and "Semiconductors". At each pillar, you can find out more information about market-specific products and even see these in action for yourself, thanks to the use of functional models. For the first time, we can also demonstrate GEMÜ's diverse product range with the aid of augmented reality. Take a look into the future with us – through the virtual reality (VR) headset. A trailblazing technology, VR offers an interesting range of possibilities for service applications and product training sessions. For example, our VR application virtually transports you into a plant where you can carry out a live diaphragm replacement. This educational tool developed by GEMÜ is particularly impressive on account of its intuitive design and simple handling. What's more, it has enabled significant advances in learning to date. This is because the participant is actively integrated into the subject matter, which is introduced in a playful manner.

The culinary aspect of our stand is also extremely well catered for. We have a variety of coffee specialities and light bites for you to indulge in.

So why not visit us at ACHEMA 2018 and see the spirit of GEMÜ for yourself? You will find us in hall 8.0 at stand F4. We look forward to meeting you!

Thomas Schmeißer
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LATEST GENERATION OF DIRECTLY CONTROLLED PROCESS SOLENOID VALVES
GEMÜ M75 AND GEMÜ M76

Reducing complexity results in increasing clarity. With the latest generation of GEMÜ M75 and GEMÜ M76 process solenoid valves, GEMÜ is doing exactly that. Five series are set to become two, which will greatly simplify product selection for customers in the area of plastic solenoid valves. At the same time, the new development also offers multiple functional advantages.

Solenoid valves are characterized by short operating times and are therefore suitable for dosing steps in mixing technology. Whether in water treatment, washing and cleaning installations or in electroplating – solenoid valves are a low-maintenance, cost-effective alternative to pneumatic or motorized valves, since no additional effort is required, e.g. for pilot control systems.

The new, directly controlled GEMÜ M75 and GEMÜ M76 process solenoid valves are intended as successors to the tried and tested GEMÜ 52, 102, 202, 205 and 225 series. The complete range of nominal sizes and wide variety of high-quality body materials, together with numerous standardized connection options, means that the new process solenoid valves can easily replace the old series – with higher performance capability.

GEMÜ M75

Tobias Hasenfuß-Rüdele
Strategic Product Manager
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Compact solution for shut-off and control applications

The directly controlled, pressure-relieved GEMÜ M75 and GEMÜ M76 2/2-way solenoid valves have an epoxy-encapsulated coil, available in a range of different supply voltages. The valves also help to save resources thanks to an energy-saving reduction in holding current.
Dynamic and static pressure forces are compensated by the robust design. This enables a maximum operating pressure of 6 bar over the whole range of nominal sizes. While the GEMÜ type M75 was developed as an open/close valve, the GEMÜ type M76 with proportional function is currently in the planning process, which will also enable precise control applications.

Resistant against corrosive media

Thanks to a wide range of high-quality body materials and hermetic separation between the medium and the actuator using O-rings in various designs, the new process solenoid valve guarantees a reliable process sequence – including for critical media.

The latest generation of directly controlled process solenoid valves is set to make its market debut from mid 2019.

BESPOKE SOLUTIONS
COMBINING INNOVATION WITH A STANDARD APPROACH

You will benefit from:

- ⇒ **More than 50 years of experience and engineering expertise in the field of customized valve designs**
- ⇒ **Extensive competence in industrial plant and process engineering**
- ⇒ **GEMÜ's wide range of products and modular system**
- ⇒ **Maximum reliability and performance in manufacturing, even for new assignments**

GEMÜ has an extensive range of products. Nevertheless, there are times when a specific solution has to be found. That is why, alongside our wide range of standard products, we also offer specially developed solutions and bespoke valve concepts for our customers and sales prospects.

Whether it concerns a modification or a new development, our modular system with proven standard modules allows plenty of flexibility for individual design possibilities.
When searching for reliable plant components, our engineers begin by drawing on our tried and tested standard modules, even for new developments. Wherever possible, they combine new technologies with these proven components. This is not only cost-effective, but also guarantees safety.

Space-saving and multi-functional
Multi-port valve blocks for industrial engineering

The GEMÜ valve blocks made from plastic and metal are an example of flexible, customized valve design. Multi-port valves or multi-port valve blocks unite a variety of functions in the smallest of spaces thanks to their individual design, such as:

- ⇒ Mixing
- ⇒ Dividing
- ⇒ Channelling
- ⇒ Draining and feeding of various media

They can also fulfil safety functions, double shut-off (double block and bleed), cross connections and control functions. These individual functions serve very specific purposes in individual situations, such as the taking of samples, the distribution of chemicals, the connection of cleaning media (CIP) and ensuring a minimum flow rate.

There are also numerous more complex functions in connection with process automation. Pressure or temperature sensors can be integrated for example. Intelligently designed multi-port valve blocks can be developed into compact systems with a high degree of functionality.

Solutions are developed together with the customer

We begin supporting our customers as early as the planning phase by providing them with ideas and initial drafts. The drafts are laid out for design purposes in the 3D CAD system, agreed in close cooperation with the customer and finally processed in a state-of-the-art efficient machining centre. Every day, our design centre turns out new customized block designs. Whatever you envisage or whatever we work out together with you – as long as it is technically feasible, we will make it a reality at GEMÜ.

Sarah Mann
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INTRODUCING THE BUSINESS SEGMENT MEDICAL
INTERVIEW WITH RAIMUND BISLIN

In this issue of GEMÜnews, we would like to complete the introductions to our GEMÜ business units and segments with the Medical business segment. Raimund Bislin, head of the Medical business segment, answered our questions in the following interview.

GEMÜnews: Mr. Bislin, please tell us a little bit about yourself?

Raimund Bislin: My name is Raimund Bislin. I have been married for 22 years and I have two children. My daughter Patrizia is 20 and my son Marcel is 18. As is common practice in Switzerland, I completed a vocational course. As a mechanic, I worked in aviation at what is now RUAG in Emmen, Germany, for many years. 20 years ago, I switched to the plastics industry quite by chance. The technologies employed and the possibilities that could be explored fascinated me from the beginning. With Advaltech AWM, I had the opportunity to work in a company that was among the leading providers of injection moulding tools and components. In a variety of management roles, I got to know the business from the ground up. Ten years ago, I was made responsible for sales in the foodstuff industry and medical systems areas at Advaltech. I have been head of the Medical business segment at GEMÜ since May 2014. My main tasks are to build up and further develop this area.

GEMÜnews: Could you please give us a brief overview of the Medical business segment?

Raimund Bislin: The Medical business segment was formed in 2003. The initial strategy of entering the market as a manufacturer of medical systems products unfortunately did not meet the success we had hoped for. This motivated us to adopt a different strategy. Today, we position ourselves on the market as a supplier of OEM products for well-known companies. Our principle focal points are the technical options in cleanroom manufacturing and our expertise in the development of complex customer projects. These include the development of component designs as well as the use of complex tool and automation technologies. In line with the expertise mentioned above, our core tasks include providing technical consultation for customers. The use of compliant plastics, manufacturing according to defined processes, and a traceable history of over 15 years form the basis of our presence as a supplier in the plastic-based medical systems sector. As such, it is essential that we have a team which has the required knowledge. Together with my seven colleagues, our team's expertise spans the areas of sales, product/project management, engineering, and qualification/validation

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GEMÜnews: What has the recent restructuring changed for the Medical business segment?

Raimund Bislin: To ensure market success, in addition to our expertise mentioned before, we also require speed, reliability, and professional communication. In addition to the strategy change, at the start of my role at GEMÜ I also adapted the organisation in the medical area. We now have a more streamlined structure, and responsibilities within projects have been transferred to the project managers. Furthermore, the Internal Sales role has also been created, which ensures that customer requirements are translated into practice in the best possible way. The implementation of these measures has enabled us to successfully make new projects with major customers a reality and to massively increase turnover in the manufacturing of injection-moulded components and complete systems. The future challenge will be to further meet the increased demands made of products. Driven by the European medical device regulation, the bar is set to be raised even higher for suppliers. While on the one hand this represents an opportunity for us to differentiate ourselves from our competitors, it is also becoming more difficult to employ qualified personnel with the required experience. The continuous further education and training of our own employees are essential, and will become even more important in future.

GEMÜnews: Where are you specifically focusing your efforts?

The current growth in the OEM business is positive, but it is not sufficient to satisfy the ambitious objectives set by management and to ensure that the cleanroom plant in Emmen is fully utilized quickly. For this reason, together with management, we have decided to operate a "dual business strategy" in future. From 2020 onwards, we plan to grow twice as quickly as originally planned. We are currently developing a system for the application of pharmaceutical active substances for the nose and throat area. This system will be presented for the first time at the CPhI pharmaceutical trade fair in Boston, USA, in June 2018. For this reason, we are strengthening our team with a new colleague in the sales division from May. In the marketing area, we have developed a personal "brand promise". The core statements are forward-looking, accessible, and reliable. From these core statements, we need to derive a uniform message that can be used across the board in presentations, trade fair appearances and on our website. This message is also intended to accompany us in all our daily work and actions. Personally, I think it is very important to continue pursuing our aim of continuity. We will only be able to meet the increasing requirements and achieve the set objectives when we can keep personnel fluctuation to a minimum.

GEMÜnews: OK, we have now talked quite a lot about your duties at GEMÜ. What about the rest of Raimund Bislin? What do you enjoy doing in your free time?

Raimund Bislin: For many years, I was actively involved in public organizations. Since starting a family, I enjoy spending time with my wife and our children. Nowadays, I prefer individual pursuits, such as long walks and working in our large garden. Sport is another important component in my work-life balance. I enjoy skiing, jogging, and cycling in the hills around the region. Living in central Switzerland is the perfect location for a wide variety of leisure activities.

TRADE FAIRS 2018
NATIONAL | INTERNATIONAL

Achema	DE	Frankfurt	11.06.2018	15.06.2018
CPHI China	CN	Shanghai	21.06.2018	22.06.2018
Interphex Japan	JP	Tokyo	27.06.2018	29.06.2018
Semicon West	US	San Francisco	10.07.2018	12.07.2018
Bio Taiwan	TW	Taipei	19.07.2018	22.07.2018
ISPE Singapore	SG	Singapore	01.08.2018	01.08.2018
SASTA Congress	ZA	Durban	01.08.2018	01.08.2018
Innoprom	RU	Ekaterinburg	09.08.2018	12.08.2018
Semicon Taiwan	TW	Taipei, Nangang	05.09.2018	07.09.2018
Electra Mining	ZA	Johannesburg	10.09.2018	14.09.2018
MSR Spezialmesse Südwest	DE	Ludwigshafen	12.09.2018	12.09.2018
TiGiS	TW	Taipei	19.09.2018	21.09.2018
PPMA	GB	NEC Birmingham	25.09.2018	27.09.2018
VA-Mässan	SE	Jönköping	25.09.2018	27.09.2018
Medical Technology Ireland	IR	Galway Racecourse	26.09.2018	27.09.2018
WEFTEC	US	New Orleans	01.10.2018	03.10.2018
Aquarama	BE	Leuven	01.10.2018	01.10.2018
Scanautomatic & ProcessTeknik	SE	Göteborg	09.10.2018	11.10.2018
MSR Spezialmesse Rhein-Ruhr	DE	Bochum	10.10.2018	10.10.2018
Healthcare Packaging Expo	US	Chicago	14.10.2018	17.10.2018
China Brew China Beverage	CN	Shanghai	23.10.2018	26.10.2018
Allpack Indonesia	SG	Jakarta	01.11.2018	01.11.2018
Pharmtech	RU	Moscow	01.11.2018	01.11.2018
CIPM	CN	Wuhan	05.11.2018	07.11.2018
Foodtech	DK	Herning	13.11.2018	15.11.2018
Semicon Europa	DE	Munich	13.11.2018	16.11.2018
Brau Beviale	DE	Nuremberg	13.11.2018	15.11.2018
POLLUTEC	FR	LYON	27.11.2018	30.11.2018
BioProcess	GB	Edinburgh	29.11.2018	30.11.2018

OPTIMIZED PERFORMANCE
NEW GENERATION DIAPHRAGMS

GEMÜ diaphragm valves have been used successfully for many years in a wide variety of processes in the pharmaceutical, foodstuff, and biotechnology industries. In many applications, the diaphragms themselves are subject to extreme stress.

Temperatures of up to 150 °C, pressures up to 10 bar, dynamic movements, and a wide variety of media have a strong influence on the valve service life. The variety of components and differences in their material characteristics means that diaphragm manufacturing itself is a highly complex process. GEMÜ has together with Intercarat already achieved the very highest level in this area, and has spent many years developing expertise in the field.

With the development of the new EPDM (code 19) and PTFE/EPDM (code 5M) diaphragm generations, GEMÜ has set itself the challenge of continuously driving this improvement still further. They have been able to use and further expand on knowledge gained over the past years. "It is invaluable that we can rely on the existing research, development and manufacturing capabilities within the GEMÜ Group. We developed, manufactured, and tested a number of different diaphragm compositions – always with the aim of fulfilling customer requirements to the highest possible level," reports Thomas Köder, strategic product manager for diaphragm valves.

Diaphragm Code 19

Diaphragm Code 5M

The new EPDM mixture of diaphragm code 19 is also used as a support for PTFE diaphragms with code 5M. The EPDM support has four bolt holes as standard for the early detection of leaks. The seal contours of the PTFE face have been revised to guarantee further improved tightness.

See for yourself! The new diaphragms are now ready for launch, just in time for Achema 2018. Optimizations with regard to geometry, mixture, and production process promise even better performance than existing diaphragms.

Thomas Köder
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NEW FILLING VALVE PLATFORM
WITH PD DESIGN AT THE ACHEMA TRADE FAIR

Based on the PD design, GEMÜ has applied state-of-the-art technology to design a new filling valve platform to expand on previous solution approaches, and to highlight new solutions in the area of fluid filling applications in the pharmaceutical, food, and biotech sectors.

Over many years, GEMÜ has developed relevant expertise in the area of filling processes in order to provide support for machine users and plant designers in overcoming application problems and supporting new technologies, and in designing the relevant new valve solutions. The PD design enables the moving parts of the actuator to be hermetically separated from the product area by the PD diaphragm, enabling a very high number of switching cycles and a high positioning accuracy. The filling valve platform achieves impressive, previously unheard of actuator speeds of up to 300 mm/s (over ten times the opening and closing speeds of previous valves), while at the same time offering unparalleled protection for the diaphragm.
At this year's Achema, GEMÜ will be presenting the F40 valve as a pneumatic version, and the types F60 and F62 as the first electrical filling valve versions. The pneumatically operated F40 versions (depending on version) can be equipped with all GEMÜ automation components such as stroke limiters, electrical position indicators, and controllers.

The filling valve platform from GEMÜ has impressive features:

⇒ High number of switching cycles (up to 10 million cycle duties)
⇒ Actuator is hermetically separated from the product area thanks to PD diaphragm
⇒ Pure PTFE sealing concept (PD design)
⇒ Lightweight, fast, and error-optimized servicing thanks to:
  - Quick-Lock connection system
  - Innovative cartridge replacement part system
  - Only one assembly tool required
  - No retightening of the seal
⇒ Compact design due to control air connector at top
⇒ High Kv value
⇒ CIP/SIP capable
⇒ Optimized draining design
⇒ Individual, customized block designs possible
⇒ Stroke limiter, position indicator and positioner optionally available
⇒ Operating pressure: up to 7 bar
⇒ Control pressure: 6 bar

⇒ Temperature for steam sterilization: 160 degrees for 30 minutes
⇒ Approvals, certificates and conformities: Designed according to 3A and EHEDG Guidelines, FDA, USP Class VI
⇒ Nominal sizes: Planned up to DN 25
⇒ Surface: Standard Ra 0.8 µm (cast body) up to Ra 0.25 µm, e-polished (block material)
⇒ Material: 1.4435/316L; cast body and block material

Advantages of the new innovative electrical actuator versions in the GEMÜ F60 series:

⇒ Different actuator speeds possible:
F60: from 200 to 300 mm/s
F62: from 25 to 100 mm/s
⇒ Extremely high positioning accuracy (up to approx. ±20 µm at 10 mm spindle pitch/rotation), with a repeatability of up to ±10 µm
⇒ Freely programmable filling speeds over the filling time for adaptation to diverse media, container geometries, etc.
⇒ Maximum flexibility, optional filling curves can be produced
⇒ Positioner and process controller functions are possible
⇒ Can be integrated into any Bus and control environment
⇒ Stainless steel version in IP69K

GEMÜ F60

The unique, innovative filling valve platform can be used in all filling processes, in hygienic areas right up to aseptic plants in the pharmaceutical, biotechnology, and food and beverage industries. The new filling valves are also suitable for industrial processes and corrosive media. In particular due to its unique PTFE seal system without lift effect, the newly developed filling valve platform is ideally suited to all media containing oils and fat, pharmaceutical and cosmetic products. At the same time, the flow-optimized valve body and PD geometry enable optimized CIP/SIP processes, which is particularly important for improved cleaning of all media-wetted parts, especially for viscous media.

The pneumatic version of GEMÜ F40 is also ideally suited for the media distribution (vacuum, liquid, and gaseous media) for all types of filling machines.

The F40 type enables the ideal implementation of many processes:

⇒ Pre-evacuation
⇒ Gas rinsing
⇒ Inert gas suppositions
⇒ Overflow functions for shard removal in glass plants
⇒ Filling pressure controls
⇒ Cyclical or ongoing flooding of sanitisers and CIP/SIP processes.

GEMÜ F40

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BUTTERFLY VALVES CONNECTED IN PARALLEL
ENSURE A FAIL-SAFE FILTRATION PROCESS

Through collaboration with customers, GEMÜ has developed a fail-safe and cost-effective solution for the synchronized control of opening and closing cycles in backwashing processes.

The operation of complex plants and processes requires customized solutions for plant engineering as well as exact adherence to performance parameters. This can include the synchronized control of opening and closing cycles of valves, for example.
For many customers, backwashing filtrations constitute a critical sub-process of their plant. The backwashing cleans the filter of solids and small particles. A malfunction of the filtration system can compromise the entire process. The medium to be filtered is fed into the filtration system, which comprises at least two filter elements, by means of a feed. The filter residue is removed via a separate pipeline. The purified medium is subsequently fed back into the production process via the outlet.

In order to guarantee a consistent and long-lasting process cycle, reversible flow filters are implemented in parallel. The means that the second filtration unit can be used accordingly during the backwashing process or in servicing work. The parallel operation of the filtration units makes the synchronized connection and disconnection of the parallel filtration unit a necessity.

Customized standard components are used

IAs a supplier of valve designs for the industrial and pharmaceutical sector, GEMÜ has made individual customer solutions a key part of its range of services for decades. With its own business unit for special engineering, GEMÜ is extremely well prepared to handle the most diverse requirements for design and flexibly adapt its manufacturing process accordingly. The focus is always on finding a reliable and efficient solution for the customer.
For equipping the reversible flow filters and the pipelines that are linked to them, GEMÜ has developed the double T-distributor, which comprises four butterfly valves with a parallel manual switching arrangement and guide rod. This means that either the left or right side is situated in the through-flow or shut-off position accordingly.
The GEMÜ 480 Victoria butterfly valve is a technically attractive and simultaneously cost-effective solution for the customer due to its low torques and the flow rate values that are required for the process.

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Draft design of the GEMÜ 487 butterfly valves connected in parallel

RELIABLE EVEN AT HIGH OPERATING PRESSURES
GEMÜ 790 BALL VALVE SERIES

The GEMÜ 790 ball valve series stands out thanks to its compact yet robust design. At the same time, it is suitable for use up to a pressure rating of PN125.

Ball valves can be used in a wide variety of applications in industrial processes, and in water supply and water treatment systems in particular. One of the most efficient filtration procedures in water treatment is reverse osmosis. During this procedure, the unclean water is pressed through a semi-permeable diaphragm at high pressure. This filters unwanted substances out of the water. The differing electrolyte loads of the raw water fundamentally determine the treatment process with regard to the water quality that must be achieved. The higher the concentration of electrolytes, the higher the pressure must be in the system. Thus, the operating pressure range for ball valves in industrial waste water treatment, for example, is 60 to 70 bar; by contrast, it is between 60 to 80 bar for sea water. A ball valve which is installed in the raw water supply or clean water drain outlet must be able to sustain these demanding operating parameters in order to ensure a safe process sequence.

Dennis Bezold
Operative Product Manager
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GEMÜ 797

High operational safety due to low maintenance engineering

The highly polished and precisely manufactured GEMÜ 790 series ball fits snugly and air-tightly into the internal seal contour. A discharge slit in the seal ensures pressure relief in the valve flow. This not only reduces the seat wear but also lowers the actuating torque required to rotate the ball. This enables both cost-effective and energy-efficient system operation. The additional pressure relief hole in the ball enables pressure compensation, preventing a potential failure due to an internal build-up of pressure. Blow-out protection in the shaft ensures maximum operational safety. The antistatic device provides a permanently conductive connection between the ball and the shaft. A tongue-and-groove-style connection between the shaft and the valve body enables full earthing of the ball valve during installation in the system. This also ensures that it is safe for use in ATEX areas.
The stainless steel ball valves of the GEMÜ 790 series are designed to enable quick and easy servicing of internal wearing parts at all times. The generous valve neck extension has a top flange in accordance with EN ISO 5211. This standardized interface enables the user to fit the ball valve with various different actuators. The solid design of the body with an additional enclosed body seal enables use at pressures up to 137 bar as well as in vacuum applications. Depending on customer requirements, the ball valves are available with full or with reduced through flow.

GEMÜ 567 BIOSTAR CONTROL VALVE
EXTENDED ACTUATOR AND NOMINAL SIZE RANGE

The aseptic GEMÜ 567 BioStar control valve is now available up to a nominal size of DN25, thus allowing a maximum flow rate of 15 m^3/h. At the same time, the selection of motorized actuators for this valve has also been extended.

In order to expand the product range of valves for hygienic, sterile and aseptic applications to include a highly precise control and regulating valve, GEMÜ first developed a completely new sealing technology that provides the optimal addition to the established aseptic GEMÜ valve range. With 567 Biostar control, based on GEMÜ PD design, this novel generation of valves has been designed specifically for the control of small flow rates in the pharmaceutical, food, and biotech sectors.
The PD design means that the moving parts of the actuator are hermetically separated from the product area. This hermetic separation also enables the actuator to be replaced under pressure, with no risk of media contamination. In addition to existing commercially available versions with manual and pneumatic actuators, the new motorized versions have now been fully developed for the market. The motorized version of the GEMÜ 567 Biostar control valve is the world's first real-time-enabled control valve. The combination of PD design and electric actuator as a stainless steel version makes this valve a top choice for the control of small volumes in the pharmaceutical and biotechnological industries, in applications without compressed air, or particularly for applications with stringent precision and speed requirements. The running times of the plants can be greatly extended thanks to the long service life of the PD diaphragm (up to 7 million cycle duties), the low-maintenance design and the operator replacement when medium is present. With the expansion of the range of nominal sizes to include DN 25, GEMÜ has now extended the kv range up to approx. 15 m^3/h. The GEMÜ 567 BioStar control series features the following impressive features.

The GEMÜ 567 BioStar control series features the following impressive features:

⇒ High number of switching cycles (more than 7 million cycle duties)
⇒ Actuator is hermetically separated from the product area thanks to the PD diaphragm (PTFE), making it ideal for all hygienic and aseptic applications
⇒ Lightweight, fast, and error-optimized servicing
⇒ Low maintenance as no retightening of the seal is required
⇒ Actuator cant be replaced quickly and simply under operating pressure without contaminating the medium
⇒ Excellent control characteristics, particularly for small flow volumes, due to the variety of regulating cones available
⇒ CIP/SIP capable, ideal for sterile and aseptic applications
⇒ Angle valve body with compact design for optimized draining
⇒ Individual, customized block designs possible
⇒ Stroke limiter, position indicator and positioner optionally available
⇒ Versatile combination with other components
⇒ Simple integration of a bypass function for easier cleaning or larger flows
⇒ Tried and tested, reliable actuators available in manual, pneumatic, and electrical designs
⇒ FDA compliant and USP class VI seal materials

Advantages of the new electrical actuator versions:

⇒ Different actuator speeds from 25 mm/s to 300 mm/s possible
⇒ Extremely high positioning accuracy (theoretically: Approx. 10 µm at a 10 mm spindle pitch/rotation)
⇒ Freely programmable actuator speeds and valve opening times, can be ideally adapted to the relevant medium and the required process
⇒ Highly precise control during fast processes is possible in real time
⇒ Can be integrated into any Bus and control environment
⇒ Stainless steel version in IP69K
⇒ Pure-batch traceability of all materials that come into contact with media is guaranteed

The GEMÜ 567 Biostar control valve is intended for all control processes in hygienic and sterile areas, right up to aseptic plants in the pharmaceutical, biotechnology, and food and beverage industries, as well as for industrial processes and corrosive media. The PTFE seal system means it is perfectly suited and completely harmless to be used with media containing oil and fats. The valve is suitable for the precise control of small quantities in medical and food engineering (milk, yoghurt, cheese production), the pharmaceutical industry, and in cosmetics. Due to the wide variety of combination possibilities of actuators, bus systems and controls, it can also be adapted for all possible processes according to customer requirements, including real-time applications.

Technical specifications:
Seal materials: PD made from PTFE block material, FDA and USP Class VI compliant
Operating pressure: 0 to 10 bar
Media temperature: -10 to 160 °C
Nominal sizes: DN 8 to 25
Valve body material: Stainless steel 1.4435/block material (other materials on request)
Cleaning: CIP/SIP capable, autoclavable at 160 degrees for 30 minutes.
Suitable for contact with foodstuffs: in accordance with Regulation (EC) no. 1935/2004 Approvals.
Conformities and approvals: according to 3A and design in accordance with EHEDG directives
Surface: Standard Ra ≤0.4 (other sizes available on request) Design with butt weld spigots, clamps, etc. in all common standard versions (additional sizes available on request)

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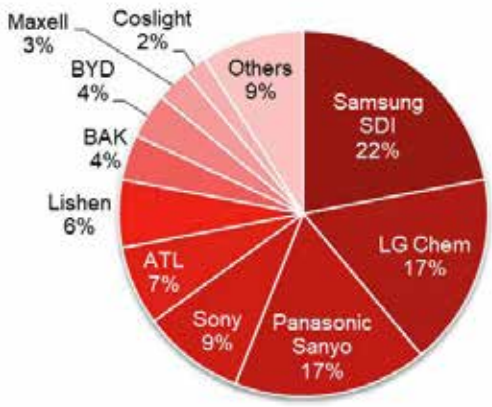
THE BATTERY AS THE CENTREPIECE OF ELECTROMOBILITY

HOW GEMÜ IS MAKING A DECISIVE CONTRIBUTION TO THE PRODUCTION OF LI-ION BATTERIES

Mobile devices play a very important part in our everyday lives – without laptops, tablets and smartphones, our modern world would practically break down. In order to use these devices for as long as possible without the need to plug in, highly efficient battery storage is essential. And due to the high power density it provides for its extremely compact size, the Li-ion battery is the ideal candidate for this.

Asian manufacturers currently occupy a highly dominant position when it comes to Li-ion cell production, controlling between 80–90% of the market with their cells. In addition to mobile device manufacturers, businesses in the automobile industry have gained increasing prominence as purchasers of high-performance batteries. This has resulted in a high dependence on the Asian cell manufacturers, particularly in the field of electromobility. Larger companies such as LG Chem and Samsung SDI are now beginning to establish battery factories in Europe (e.g. in Hungary and Poland) in order to reduce the logistical complexity involved – not to mention the distance between them and their customers. In order to break through the dominance of Asian manufacturers on European soil, companies and organizations such as the TerraE consortium and Northvolt are planning to construct large factories in Europe – which have come to be known as "gigafactories" – in order to serve the local market.

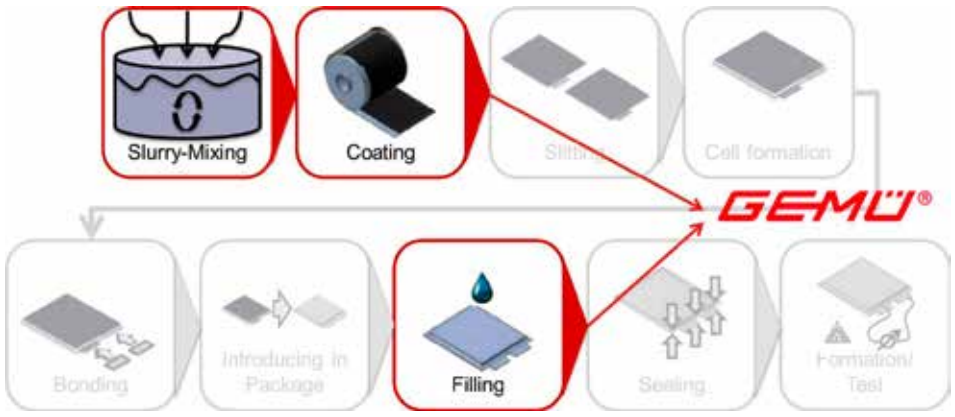
The worldwide demand for Li-ion battery cells will also rise in future, thereby requiring a significant increase in global production capacities. Across the entire value chain of Li-ion batteries, from the transport and manufacture of the basic materials (e.g. anodes, cathodes, separators and electrolytes) to the recycling of the battery cells, the topic of cell manufacture in particular holds great potential for industrial plants and machinery.



Global market shares of Li-ion cell manufacturers in 2016

As a manufacturer of components for valves, measurement and control systems, however, where exactly does GEMÜ begin in this area? To answer this question, we need to take a closer look into the process of battery cell production (see following diagram).

The processes highlighted in the image – mixing, coating and filling – are procedures that GEMÜ is very familiar with,



Production process of a Li-ion cell

having accumulated plenty of experience of these in other areas of application. The process steps of electrode manufacturing, cell filling and cell assembly, including the sealing of the cells, must take place in a clean and dry room. This is necessary to avoid the unwanted entry of moisture and particles in the air during the production process.

Should cell manufacturers wish to automate their slurry mixing processes, a diverse range of components can be selected depending on the requirements for the materials used. Examples of this include stainless steel valves, metal valves lined with fluoroplastics or valves made from high-performance thermoplastics.

The filling of the electrolyte liquid places quite a specific demand on the plant and valve design that is used, as this normally takes place as part of a vacuum filling procedure. Before the filling begins, the interior of the battery is evacuated in order to remove any residual moisture. The cell is then filled with the electrolyte during the filling process. The medium has chemical and mechanical properties that cause considerable complications for industrial handling. The electrolyte must not come into contact with moisture in the air, or else it will react with the chemically aggressive hydrofluoric acid. Moreover, the medium is prone to crystallization and gas diffusion, which places specific demands on the components of a plant.

The demand for Li-ion batteries is also expected to continue growing over the next few years, driven by fields of application such as home storage systems for photovoltaic panels, electromobility and mobile devices. It remains to

iComLine multi-valve block for electrolyte filling

be seen whether the cell manufacturers will be able to keep up with this rapid growth and establish the necessary production capacities in time. The success of European companies such as Northvolt and TerraE will also strongly depend on the investments that are made and whether it will actually be possible to scale the production processes accordingly.

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NEW GEMÜ FUNCTIONAL CASE FOR MEASUREMENT AND CONTROL SYSTEMS

DISCOVER THE MEASUREMENT AND CONTROL TECHNICIAN IN YOU

Anyone interested in the practical learning and demonstration system can get in touch directly with the Technical Training department or GEMÜ Service

What is the best way to demonstrate the functions of electronic and pneumatic devices to customers, training course participants and trained personnel on site? Is it a case of "learning by doing" or more a question of "What do I need to do to learn better?"

Questions such as these have been tackled by GEMÜ Service's Technical Training department over a number of years. In particular, they agreed that any device created for this purpose should be extremely compact, light, easy to transport, robust and reliable. It was also especially important for it to be safe to operate, even by inexperienced users. This task has been extremely well handled by the GEMÜ precision technology specialists, who have created a functional case for measurement and control systems – known as the GEMÜ MSR functional case – that has yielded excellent results in everyday use over the last few years. Against this background, the tried and tested device has now been completely reworked and updated to meet the latest standards in engineering and teaching. And in doing so, the GEMÜ precision technology specialists have yet again managed to put the proverbial icing on the cake.

This is evident just from the exterior of the new functional case. It boasts a timeless yet contemporary look with dirt-resistant coating. The sturdy transport case, which is made from ABS plastic and manufactured by TANOS, has been converted to the new T-Loc version. The TANOS case system is individually stackable and the cases can be interlocked. The operating platform of the GEMÜ MSR case has been redesigned with enhanced electronics so that the device is now even more user-friendly. It now incorporates a programmable logic controller (PLC) with touch panel display. The device software, which has been designed with teaching in mind, and the clear graphic display guarantee intuitive operation. Even inexperienced users can safely work through the self-explanatory menu when using the functional case. Eight languages can be freely selected on the homepage, enabling international usage. These include German, English, French, Swedish, Russian, Spanish, Brazilian Portuguese and Italian. Simply tap the corresponding flag on the display, and the device software will be shown to the user in the requested language. The small compressor integrated in the box and a pressure accumulator enable an adequate supply of compressed air, in order to guarantee – alongside the functions required for the GEMÜ electrical position indicators – the use of all combi switchboxes, positioners and process controllers and the operation of pneumatic valves. Depending on the device selected, only the functions available for the device in question are shown on the display. A deliberate effort was made to avoid overloading the user interface with unnecessary information and functions. This means that the display is always very clearly laid out, allowing the user to easily find their way around.

An additional case with pre-fitted cables for all GEMÜ products that can be connected is supplied in conjunction with the MSR case. This allows a professional electrical connection to the respective devices to be established quickly and securely. Naturally, devices from other manufacturers can also be operated using the new GEMÜ MSR functional case. To this end, the case has freely selectable 10 V, 0–20 mA and 4–20 mA input/output signals, a 24 V/DC device supply system and an Ethernet interface. Even sensors and measurement devices can be activated and evaluated using the display. The MSR case works with an operating voltage of 100 V/AC to 240 V/AC and can therefore be used with all common mains supply networks. This piece of kit makes measurement and control systems an enjoyable affair, even for those with no prior experience in the field of electronics.

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The GEMÜ precision technology team has developed and manufactured the case according to the requirements of the Technical Training department, equipping it with many practical features. This photo shows the handover of the very first case to the technical training team.

ELECTRIFICATION IN PROCESS SYSTEMS
GEMÜ FACES THE CHALLENGE HEAD-ON

The role of electrification is increasingly gaining importance, not only in the automobile industry, but also in process systems.

Where is it going?

For GEMÜ, the answer is clear. The future is electric. Not only is this reflected in our fleet, but it is also substantiated by a wide range of projects involving electrical actuators.
Be it motorized actuators for globe and diaphragm valves, new process solenoid valves, or high-performance actuators for filling valve technology – we are exploring all kinds of alternatives to pneumatic actuators.

Motorized actuators offer a wide range of advantages: Energy efficiency, high control accuracy, and no risk of contamination from compressed air are only a few of them. Electrical actuators also score highly in smaller and mobile plants.
The electronic systems integrated in the actuators enable the implementation of functions that have previously worked to some extent for pneumatic actuators using complex systems involving separate accessories (controllers, electrical position indicators, pilot valves, throttles, stroke limiters, seal adjusters, etc.)

The **GEMÜ eSyDrive** series was the start of our journey. Following the actuator size 2, the actuator sizes 0 and 1 are now also available and will be available to view at the Achema trade fair 2018.
Although they have only just been completed, we have already announced the first expansion. Also at the ACHEMA trade fair, we plan to present our new display, which will be used for the first time in the GEMÜ eSyDrive.

The journey continues

With actuator size 0 of the basic **GEMÜ eSyStep** actuator, the first size in the next series of motorized actuators is waiting in the wings. Can also be used with GEMÜ diaphragm valves, angle seat globe valves and globe valves, GEMÜ eSyStep represents a cost-effective supplement to the GEMÜ eSyDrive series.

Both series were designed with a focus on eliminating the disadvantages of existing motorized actuators, and offer both compact sizes and high actuating speeds as well as simple operation, parameterization, and diagnostics with state-of-the-art engineering.

The journey is far from over

With the combination of these motorized standard actuators, the new process solenoid valves, and filling valve actuators, GEMÜ has laid a solid foundation for future developments.

GEMÜ 539 eSyDrive (actuator size 1)

GEMÜ 649 eSyDrive (actuator size 0)

GEMÜ eSyStep for diaphragm valves

GEMÜ eSyStep for globe valves

Features of the new GEMÜ eSyStep series:

⇒ Can be fitted to GEMÜ diaphragm valves, angle seat globe valves and globe valves

⇒ Open/closed and positioner versions

⇒ Automatic end position programming (teach function)

⇒ Electrical position indicator

⇒ Manual override

⇒ Electrical and mechanical position indicator

⇒ Parametrization via IO Link

⇒ GEMÜ standard accessory interface

⇒ Electrical connection via connectors

⇒ Position and/or power deactivation (incl. overload protection)

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UNIVERSAL INSTALLATION OF ELECTRICAL POSITION INDICATORS
NEW QUARTER-TURN ADAPTERS MAKE IT POSSIBLE

The innovative quarter turn adapters from GEMÜ now enable the operation of electrical position indicators for linear actuators in combination with pneumatic actuators for quarter turn valves.

To date, when choosing electrical position indicators, users have had to decide beforehand whether they want to install these on a valve with a linear actuator or on a quarter turn valve. This limited the selection of possible position indicators and the relevant devices had to previously be permanently kept in stock.
Using the innovative quarter-turn adapter from GEMÜ, it is now possible to install the most varied electrical position indicators for linear actuators from the range even on pneumatically operated quarter turn valves. The quarter turn adapter acts as a translator between the rotation of the valve and the linear movement of the electrical position indicator. The user is therefore no longer limited to the selection of position indicators specifically for quarter turn actuators. This enables the maximum possible flexibility for applications and for your inventory.

A further advantage of this wider choice of position indicators is the option to use components with specific approvals and communication interfaces (AS-Interface, IO link or DeviceNet) and electrical position indicators with integrated pilot valves.

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SAFE INSTALLATION AND COMMISSIONING OF DIAPHRAGM VALVES
WITH GEMÜ PPF MULTIFUNCTION ADAPTERS

GEMÜ PPF (Pressure, Passivation, Flushing) multifunctional adapters can be used to prevent foreign matter from getting through during the installation of diaphragm valves, resulting in enormous cost savings.

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The contamination of pharmaceutical media must be avoided at all costs, and the installation of valves in piping creates a high risk of contamination. The entry of foreign matter or contaminants into piping systems can lead to the need to discard an entire batch of medicine, which can have a substantial impact on business. Even more serious, however, is the risk of contamination not being detected in time which could lead to patients being harmed.
Apart from the human risk, there is the added economic risk that foreign matter can cause plant components such as pumps and heat exchangers to become blocked or even destroyed, resulting in process interruption and impacting scheduling.

But how do foreign matter and contaminants enter the plant?

The installation of valves into piping usually involves disassembling the actuator and the valve body. When welding the valve body, the valve seat must be covered by perforated film, adhesive tape, or similar, allowing the forming gas to escape under throttling. After the welding process, the weld seams of the piping is inspected endoscopically. To provide access, usually the film is removed from the valve seat and, once the inspection is complete, the same film is then reused. This process often cannot be performed reliably, which results in leaks between the film and the diaphragm seat of the valve body.

With static GEMÜ PPF (Pressure, Passivation, Flushing) multifunctional adapters in 1.4435 stainless steel, the penetration of foreign particles during the installation of diaphragm valves is prevented. Immediately following disassembly of the actuator and diaphragm, the adapter is mounted on the valve body, thereby offering protection for the seat. The GEMÜ PPF must be removed after installation is complete but before sterilisation of the plant. The sealing over the weir and to the outside is created by an EPDM seal, which is approved according to FDA and USP Class VI. The fixing method, as we know from diaphragm valves, uses four screws, or for a diaphragm size 100, eight screws.

After the multifunction adapter has been mounted on the valve body, this can be used as a weld gas pipeline for welding the body. The subsequent introduction or conveying of the passivation media to protect the surface against corrosion can also be performed via an adapter.
For an endoscopic examination, the camera can be introduced into the piping systems via the GEMÜ PPF connections or, alternatively, a tube can be connected for flushing. Because the adapter is constructed using the full spigot diameter, this design enables an optimal rinsing process. This can take place in both flow directions. A final pressure test can be performed with GEMÜ PPF up to an operating pressure of 15 bar.
The reusable multifunction adapters have been designed for various membrane sizes and are available from diaphragm sizes 8–100.

IMPRINT

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EXPANDED PRODUCT RANGE
GEMÜ SUMONDO – NOW WITH MANUAL OPERATOR

GEMÜ has expanded its single-use diaphragm valve product range. In addition to the existing pneumatic actuator solution, a manual version is now available. Identical valve bodies are used for both operator types.

The valve body has been designed to be replaced quickly when changing the medium. During the replacement process, the actuator remains in the plant for continued use, while the body with its internally welded diaphragm is exchanged. This avoids time-consuming and cost-intensive cleaning processes, allowing the medium in the plant to be replaced in the shortest space of time.

GEMÜ SUMONDO is available in three valve body versions in the nominal sizes 1/4" to 1" with hose barb or clamp connection. The body is available as a straight way, T- and angle valve design. From DATE, these will feature an increased pressure resistance of 5 bar.

In addition to the manual and pneumatic solutions, we are currently working towards expanding the product variants to include a motorized actuator in future. This would make the plant automation-capable and controllable without the need for pneumatics. A documentation of the process for the plant monitoring system is also possible via the interfaces to the PLC.

The GEMÜ SUMONDO series …

⇒ satisfies the quality requirements for pharmaceutical processes
⇒ stands out due to its mechanically stable, gamma-sterilized valve body materials
⇒ is made safe by hermetic sealing that ensues from an internally welded diaphragm
⇒ uses a proven, reliable actuator design from GEMÜ that can remain in the plant for many years

Valve body GEMÜ SUMONDO

GEMÜ SUMONDO manually operated

GEMÜ SUMONDO with pneumatic actuator and GEMÜ 1434 positioner

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TRIED AND TESTED ENGINEERING FOR DEMANDING AMBIENT CONDITIONS
GEMÜ 1205 ELECTRICAL POSITION INDICATOR

The GEMÜ 1205 electrical position indicator in a flameproof enclosure is based on tried and tested engineering for use in demanding ambient conditions.

With the GEMÜ 1205 electrical position indicator for linear actuators developed specifically for use in ATEX areas, GEMÜ has relied on application-focussed design with the use of tried and tested engineering. The position indicator has a robust design combined with an aluminium flameproof enclosure and the ignition protection type "increased safety". In addition, all interior movable components are also designed for a long mechanical life.

The GEMÜ 1205 electrical position indicator has continuously adjustable microswitches for recording end positions, with which the closed and/or open position can be reliably recorded with a valve stroke of 2–70 mm.

The electrical position indicator is designed for demanding applications in category 2, zone 1 and/or zone 21 ATEX areas , as well as for robust use at low temperatures down to -20 °C.

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INDIVIDUALITY IN PLANT ENGINEERING
CUSTOMIZED MULTI-PORT VALVE BLOCKS

Whether it concerns fashion, cars or consumer electronics, the issue of customization is gaining ever greater prominence in the B2C sector, along with how these products are tailored to the personal requirements of the end user. It's a trend that has also made its way into the B2B sector, as the GEMÜ multi-port valve blocks show.

GEMÜ has already been implementing customization for years in the area of sterile processes for the pharmaceutical and biotechnology industries with its stainless steel multi-port valve blocks (M blocks). The success of these confirms the benefit they hold for the customer.
This benefit has subsequently been transferred to the plastic diaphragm valve range, for which we have also developed a system with maximum individuality.

Figure 1: Example of a stainless steel multi-port valve block

Figure 2: Example of a plastic multi-port valve block

If we examine the customer benefits of a multi-port valve block in detail, we can quickly recognize that they are not just a "cluster" of valves and measurement systems, but rather a highly complex, individually tailored product.

The product benefit in particular comprises all possible influencing factors which the customer can use to assess the consequences of their purchase decision. Explicit factors that constitute benefits for the customer can include TCO (Total Cost of Ownership), individuality, multi-functionality, low space requirement, specifications, installation time, service, etc. In general, they relate to the product and are important to the user, since these factors will in turn allow them to be successful on the market with their product.

The particular added value that a multi-port valve block offers and the customer benefits associated with this are explained below using a specific example of an existing plant for dosing chemicals.

TCO (Total Cost of Ownership)

In the current industrial environment of plant engineering, it is increasingly important to take into account the overall costs in relation to the global competitiveness that exists. At present, however, these are still only rarely considered in detail. Initially, the direct procurement costs of the product, i.e. the costs of the individual components, are taken into consideration. With regard to multi-port valve blocks, this often results in the impression that the product would be more expensive compared to single valve variants.
However, if all the indirect costs are taken into consideration – starting with the design and followed by the processing, procurement, logistics, storage, supply, installation time and service – it quickly becomes apparent that there is a definite benefit here which is worth examining in more detail.

Design – In general, multi-port valve blocks are used for complex tasks in plant engineering, such as water treatment, basic and fine chemicals distribution and many other industrial applications. The block solution is developed early on in the planning phase of the plant through close dialogue with the customer. The following representation is based on the optimization of an existing plant design that uses a traditional arrangement of individual fittings, pipes and valves. The starting point here is the piping and instrumentation diagram, also referred to as the P&ID. All the components required by the design engineer, such as the valves, are represented and clearly defined here through the use of symbols.

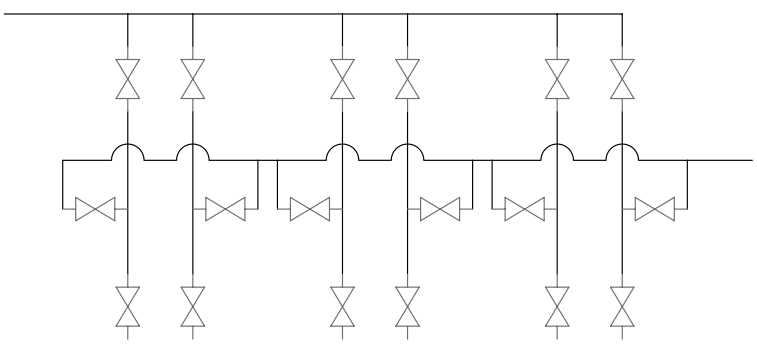

Figure 3: Piping and instrumentation diagram (P&ID)

The task of the design engineer that follows is to take the existing P&ID, which consists of pipework components such as union tees, union elbow sweeps and pipe sections, and encapsulate this into a single valve block. Aspects such as the function, flow path and flow directions, air connector kits to piping, use of suitable actuators and draining direction (if required) are handled during this phase.
As a result, the customer receives real added value in the form of a 3D CAD data set, which they can directly incorporate into their plant design. This makes it is possible for the customer to test the function in their plant and identify any potential interference edges that may occur as a result of the position of the actuators.

Comparing the traditional design (figure 4) with the block solution clearly shows the areas in which a valve block provides added value for the customer, such as:

⇒ Footprint
⇒ Number of pipework components
⇒ Number of connection points
⇒ Reduction of possible leakage points
⇒ Lower deadleg

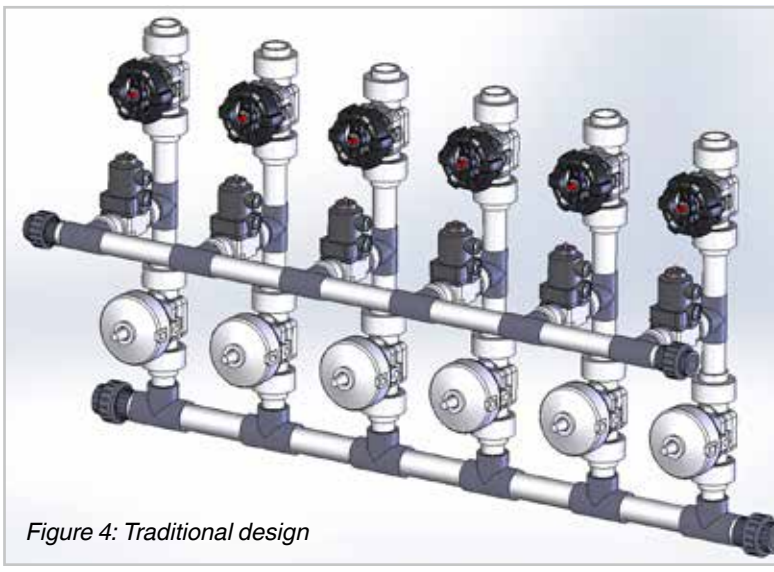

Figure 4: Traditional design

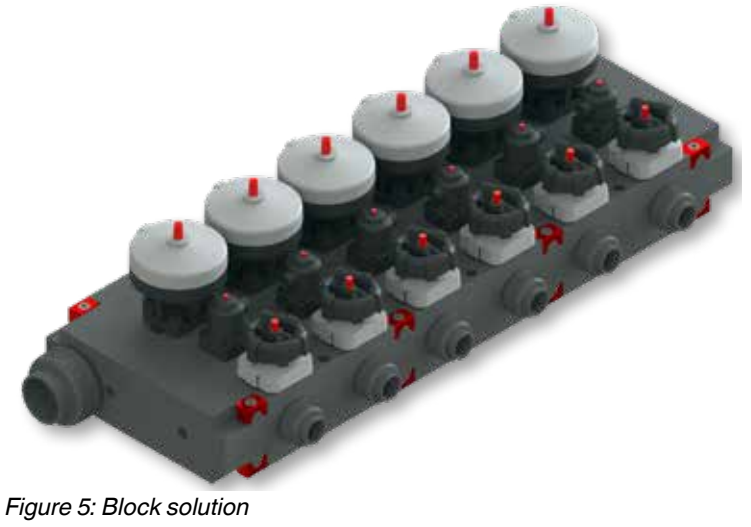

Figure 5: Block solution

The customer gains a significant advantage in the form of the "footprint", as it is referred to. The original design has a footprint of approx. 1200 x 560 mm. The block solution, by contrast, has dimensions of approx. 880 x 335 mm. A comparison of the two designs therefore results in a reduction of approx. 27% in length and 40% in height.
Another significant advantage of the block solution is its modular construction. The design in figure 5 is subdivided into three segments (see figure 6 for an example of a single segment), thereby giving the customer the flexibility to modularize their plant.

Processing and installation time – Processing can be understood as the actual integration of the multi-port valve block into the actual plant. Low space requirement, quick installation and multi-functionality all make a significant contribution to cost optimization here.

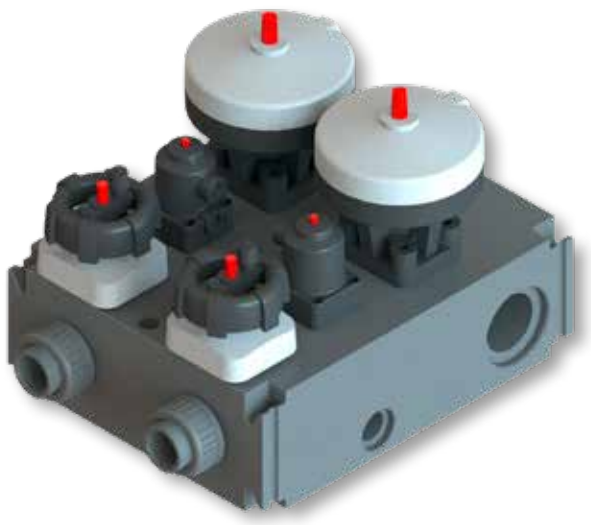

Figure 6: Block module segment

The factor of space requirement and its ramifications are often underestimated. An example of this is the previously described chemical dosing system, in which a significantly more compact distribution resulted in a smaller overall housing size. This reduction minimized the need for plastic panels for the housing in terms of height and width. One indirect cost factor that the customer was pleasantly surprised by was the cost of transport, which was significantly reduced as a result of the decreased plant volume.
Another aspect is the reduction in installation time. Whereas a conventional design consisting of individual components requires more connection points to be manufactured (and thus creates more potential for leakages), the installation process here is reduced simply to the integration of the block. The derived added value for the customer is directly incorporated into their overall calculations and results in cost savings through reduced construction times.

Procurement – As already mentioned, a distribution system that uses a traditional design consists of different components such as valves, fittings, pipes and any measuring components that are required. It is often the case that the individual components originate from different suppliers, and therefore cannot be ordered all at once. The ordering process is therefore divided up into different stages. The customer benefit that GEMÜ produces in this regard is that the individual components of a valve block can be consolidated into a single order reference, saving the customer time and money in their procurement process.

Logistics – Many plant designers today operate complex logistics systems. However, there is always a risk with these that some of the components to be procured may not be available at the right time. Express deliveries and capacity rescheduling are an obvious consequence of this.
Here too, the block solution provides added value for the customer thanks to the "fusion" of the individual components.

Storage and supply – The three basic requirements of a professional storage management system are availability at a moment's notice, a high level of transparency and straightforward processing.
In comparison to a conventional solution, all of these three requirements are met by a multi-port valve block. Here too, potential savings can be found that are underestimated far too often. Yet these can result in a long-term reduction of storage costs alongside a simultaneous increase in availability.

Service – In plant engineering, the availability of a technical system, e.g. in the form of a complex multi-port valve block, is a criterion for quality and thus also a measurable parameter. The downtime of a plant can be measured by the mean time to repair. This relates to the time in which the fault is recognized and the designated component is replaced. The shorter this time, the higher the availability of the plant. If we take the example of a plant with encapsulated individual valves that have been designed to be radially installable/ removable through their air connector kits, a multi-port valve block will have a reduced servicing and replacement time under the same conditions by virtue of the number of components alone. In the application described, the valve block has been constructed in a modular fashion and divided into three segments that can be replaced independently of one another.

Conclusion and outlook – On the basis of the given designs, it is clear that customization in plant engineering can no longer be designated a mere trend, but has instead become an everyday reality. It will be fascinating to see how aspects such as new manufacturing technologies will influence things in this regard. One example of these new, highly promising manufacturing technologies could include additive manufacturing. However, there is still a partial lack of suitable materials at present, and these manufacturing processes cannot yet be implemented in a cost-efficient manner.

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SOCIAL MEDIA
GEMÜ ON INSTAGRAM

Social networks are now an important way in which companies can present themselves. Instagram is now among the world's most popular social media platforms, with increasing numbers of companies represented.

Instagram is largely defined by its variety of colourful pictures, videos and – of course – hashtags. Hashtags are essentially keywords combined with #. When a hashtag is positioned at the start of a word, it becomes a search term. This allows you to more effectively promote your own photos and videos, and filter them according to certain terms.
With ever increasing user numbers currently amounting to 800 million, Instagram is now one of the most popular sharing platforms worldwide. The mobile app is not only an entertaining leisure pastime, but is also used by companies and influencers for commercial purposes. The fact that most under 25s spend more than 32 minutes per day on Instagram on average reveals its huge potential for increasing brand familiarity. Furthermore, we also want to use Instagram to spread the word about us as an employer and training company.

Curious? Then take a look at our gemugroup page. The links to social media are also integrated into our GEMÜ website. In addition to Instagram, you can also find us on Facebook, YouTube, Xing, LinkedIn and Google+.

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INTRODUCTION TO GEMÜ FLOWMETERS
PERFORMANCE AND EFFICIENCY OF TMI SYSTEMS

TMI (Technique Du Mélange Industriel), a company specializing in the development of systems and products for industrial mixing technology, is currently experiencing strong growth.
Over the years, the family-owned enterprise, founded by Jean-Louis Saussac in 1982, has set itself apart from the competition with its customer-specific developments that link new technology with proven quality.

Thanks to its readiness to meet very specific requirements, TMI's expertise has been dominating the market for 35 years. The company's current focus is primarily on the water treatment market. As part of continuing efforts to reduce pollution, TMI offers tailor-made solutions which combine functionality and compliance with standards. In 1992, the company was also one of the first to meet the requirements of the ISO 9001 standard, at a time when other companies had not even considered the changes that were taking place.

Adapting to the current market

The team is made up of around 20 people at a single site in the Loire region. Thanks to this concentration strategy, TMI can implement projects from the planning stage right through to final design. The company also allows the engineers of the future to get involved in the development of real projects for training purposes. On grounds covering around 9000 m^2, including a 2500 m^2 workshop and a 2400 m^3 test basin, TMI guarantees impeccable quality for its end products. Thanks to its expertise and experience, nowadays the company predominantly sells its systems to North-African countries, as well as around the world.

Process reliability as a top priority

The product range on offer from this integration company is predominantly made up of aerators, polymer production and underwater stirrers and mixers. Customized production of racks is one of the company's strengths, primarily as a result of the various checks at each stage of the implementation, but also thanks to the choice of high-quality suppliers.
As part of its strategy for continuous development and improved durability, TMI brought in GEMÜ, an internationally active valve manufacturer, to help improve flow measurement in complex systems. TMI previously used a product that, over time, led to problems in terms of safety, price and technical obsolescence.
Frank Befort, the company's buyer since 1986, has been following this technical and technological development:
"We had a real problem measuring water flow in our systems. The flowmeter was moved by the water pressure and the scale showed the flow subject to the movement, resulting in an inaccurate measurement. The system was also complicated to use, as it was difficult to adjust, and that's without taking into account the fact that particle-containing water modified the flow.

As part of this collaboration, TMI asked GEMÜ to offer a solution that replaces the ageing material, thereby optimizing functions.

GEMÜ was able to tackle this problem and offered a range of internally developed flowmeters: Model 800/850 flowmeters (variable area flowmeters) made of plastic. The GEMÜ range also comprises a control bar as standard for measuring the water flow, which is adjusted according to the particle flow in order to obtain a very precise measurement. "It was a real advantage being able to integrate this. With the old competitor model, this function was not integrated and we had to be creative," TMI chief buyer Frank Befort explains.
The flow measurement is much more visible with the position indicator. With flexible options that require no additional space, the product has provided a solution to the problems and also made cost savings possible.
"This partnership is developing in a very professional way. Thanks to the integration of the globe or diaphragm valve, our systems are more functional and secure, meaning that we can offer our customers racks that are better suited to today's market," adds Frank Befort.

Befort is also convinced of the continuity of personnel at GEMÜ: "In over 30 years of our long-standing partnership with GEMÜ, I have only ever had three different points of contact. It's a real advantage nowadays to keep the same points of contact for a long period of time. My points of contact have remained constant for over 10 years and the previous generation were just as dedicated."

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