

Components and system solutions for water and waste water applications



Components and system solutions for water and waste water applications

Having excellent references in the water treatment industry shows that we clearly understand your requirements. With our comprehensive range of products, we meet the demands of applications such as sea water desalination and water treatment of WFI (Water For Injection).

Drinking water treatment, public and industrial waste water treatment: The specific requirements of these sectors are met by our flexible product range.

Customized solutions for your project business

GEMÜ provides the optimal solution from a single source. As a system supplier of isolation, actuator and control technology, we can respond very flexibly to your individual project-specific needs. Our worldwide sales network provides fast reaction times, customer oriented service and a committed project management team.





Gert Müller, Managing Partner

GEMÜ Group

Founded in **1964**

Over **1800**employees worldwide

6 manufacturing sites

27 sales companies

GEMÜ structure



The GEMÜ Group is a leading manufacturer of valves, measurement and control systems employing over 1800 members of staff worldwide. With six manufacturing sites and 27 subsidiaries, as well as a large network of commercial partners, GEMÜ is now active in over 50 countries on all continents.

Reorganized - for even greater proximity to our customers

With our wide product range, we offer solutions for the most varied customer groups. We work close to the customer in our strategic business units:

- Pharma, Food & Biotech
- Industry
- Semiconductor
- Service
- Medical

The widely positioned modular system and the adapted automation components enable us to combine individualized standard products and customized solutions to create a large number of different configurations and variants.

Application-focussed configurations and customized solutions

High product quality for different applications

Every application has quite specific requirements with respect to the isolation technology used. Our job is to determine these requirements and offer a configuration tailored to them. This ensures that you get valves with optimal service life and performance characteristics.

In-house design for customized solutions

Our research and development centre is also able to provide entirely customer-specific designs.

Depending on the required operating parameters (pressure, temperature and medium), our staff always develop and calculate the optimal configuration.



GEMÜ 481 with GEMÜ 1436 cPos positioner



GEMÜ multi-port valve block Customized solution for a cost-effective plant design in the water treatment sector.



Tested quality and individual service







Politica de la competition de

9t-1

In-house quality assurance

Our test laboratory is equipped with state-of-the-art measuring equipment to allow comprehensive testing of our products. We are also able to test very customized designs in order to determine the parameters for the most economically efficient operation.

Full service from a single source

As a specialist in isolation technology, we offer a comprehensive range of in-house products. If necessary, we can also provide special valves on a project-specific basis.



Major areas of application

Our range of products and services



Drinking water treatment

Drinking water is generally obtained from ground water. However, since the quality of this untreated water does not always meet drinking water standards, it has to be appropriately treated. Many plant designers rely on tried-and-tested GEMÜ technology for this purpose.



Waste water treatment

GEMÜ can specifically cater for different customer needs: From support with system design through to plant service concepts. Wherever expertise in valve design is needed, our experts are happy to advise.



Sea water desalination

The constant growth of the world's population means that it is not only in industrial nations that water demand will continue to rise in the coming decades. This additional demand can be met in different ways. One efficient method to satisfy the growing demand is the production of drinking water through desalination of sea water. The equipment and control systems required for this can be supplied by GEMÜ from a single source.



Industrial waste water treatment

Waste water treatment in the industrial sector is a very multi-faceted field. On the one hand, the waste water itself always has different characteristics and, on the other, the requirements which the final product must meet also vary.

The varied valve range and associated process controllers from GEMÜ can cater individually to the working medium and the process in use.





Process water treatment

In the industrial sector, process water is often the key material that the system depends on. In almost all sectors, water of differing characteristics and quality levels is essential to the process. For example: as boiler feed water for steam supply, as cooling water in power plants or as a basic material for the pharmaceutical industry. Water has to be distributed, blocked off or supplied on a metered basis everywhere. GEMÜ offers solutions for these requirements in the form of individual valve components or complex multi-port valve blocks.

Pure and ultra pure water treatment In many sectors, the purity of process media is crucial to the quality of the final product. For example, the production of ultra pure water of the highest possible quality is a competitive advantage in the semiconductor industry. This also places stringent requirements on the plant components. GEMÜ solutions using fluoroplastics provide optimal results for the highly complex manufacturing processes used in this field.



Drinking water treatment

High drinking water quality starts with high-quality plant components. At GEMÜ, we only use carefully selected materials and our quality management system ensures continuous monitoring. We are also certified by external institutes (e.g. DVGW, ACS or WRAS).

Various treatment stages are required depending on the quality of the raw water:

- · Precipitation or flocculation of suspended matter
- · Adsorption of dissolved organic substances with activated charcoal
- Ultra-filtration
- Sterilisation through the addition of chlorine or irradiation with UV light

In order to operate a treatment plant as efficiently as possible, all of the products used must be adapted to the respective parameters. Our many years of experience make this possible.













Ultra-filtration plant

Ultra-filtration

Ultra-filtration is already well established in drinking water treatment and is suitable for generating drinking water from an extremely wide range of raw water sources.

The water requiring treatment is fed under low pressure (< 1 bar) through porous membranes with a pore size of approx. 0.01 μ m. This enables not only the finest solids, turbidity, pollens and bacteria to be retained but also, in some cases, also viruses. The water, dissolved ingredients such as hardening salts or minerals, and small molecules can pass through the membrane.

GEMÜ: Isolation technology with drinking water approval







Water softening plant

Ion exchange

The ground water in some regions can contain high concentrations of alkaline earth ions, carbonic acid species and sulphate ions. Hardening salts are removed from drinking water since hard water causes major problems, not only in private households but also in trade and industry. For partial deionization, the drinking water flows through the mixed-bed of the ion exchanger. This reduces the levels of nitrates, sulphates, chlorides, hydrocarbonates (HCO3_) and the hardening salts of calcium and magnesium. The carbon dioxide which forms as a reaction product is removed in a secondary pure water sprinkler.

GEMÜ: Butterfly valves for feeding ion exchangers







Irradiation chamber. Source: HydroGroup/ Hydro-Elektrik GmbH

UV disinfection

Before the treated drinking water is introduced into the domestic water supply system, it is disinfected using UVC radiation. This is a physical process in which any micro-organisms still present in the water are inactivated in such a way that they are no longer able to multiply. The UV systems comprise a stainless steel irradiation chamber. The UV lamp is located in a lamp protection tube which is made of quartz glass and built into the reactor chamber.

GEMÜ: Modified, stainless butterfly valves for low-pressure ranges below 4 bar







Many different solids found in waste water present a difficult challenge for treatment processes.

The term "waste water" refers to useful water which has since been used. The type and extent of the processing demands placed on a sewage treatment plant and its components depend on the type and quantity of the waste water which requires treatment and on the concentration of the different impurities in the water. The extent of contamination of domestic sewage is primarily defined by the quantity of degradable, dissolved and particulate-based organic compounds it contains. These are biologically degraded by microorganisms in activated sludge. The quantity of carbon compounds is indicated by the sum parameters of COD (Chemical Oxygen Demand), BOD5 (Biochemical Oxygen Demand) and TOC (Total Organic Carbon).

It is very important for operators of sewage treatment plants to carefully and reliably control the treatment process in order to meet the legal requirements for treated waste water.

GEMÜ offers optimal solutions in the area of isolation technology. Our valves are made of suitable materials to meet the stringent requirements and feature suitable coatings and designs to make them corrosion resistant to the inside and outside. They are also equipped with the smallest possible actuator sizes to ensure an optimised low weight design.



Classic activated sludge basin

Biological waste water treatment: Activated sludge process

In the activating basin, the waste water requiring treatment is brought into contact with microorganisms in the presence of oxygen and separated from organic impurities. As the substances contained in the waste water are broken down, the microorganisms multiply and accumulate as excess sludge. This is subsequently separated from the treated waste water by means of a settling process in the final sedimentation basin. Biomass separated in the final sedimentation basin is partly recycled back into the activating basin. The remainder is fed into a sludge treatment process. The treated waste water passes over an overflow weir to a further treatment stage or to the receiving basin.

GEMÜ: Valves used to feed air into an aeration basin







Activated sludge basin for fixed bed filtration

Fixed-bed filtration process

In contrast to the classic activated sludge process, the bacteria in this process do not flow freely and are instead present in the form of a microbial film on pellets of expanded clay or plastic e.g. polystyrene. Aerated and non-aerated zones are physically separated from each other, with the biological waste water purification, the retention of biomass and the filtration of solids taking place in a reactor. The bacteria adhering to the fixed bed convert the contaminants into biomass. This is then also held back by the filter material along with the solids contained in the waste water.

GEMÜ: Valves used to feed air into an aeration basin



Digester. Source: Dahlem Beratende Ingenieure

Sludge treatment: Dehydration and digestion

The excess sludge undergoes a primary mechanical dehydration process and is then further treated in a digester together with the primary sludge from the presettling basin. Here, microorganisms convert the organic material into methane gas and carbon dioxide in a multi-stage anaerobic process which takes place at a temperature of roughly 40 °C. The resulting methane is fed into a gas tank and used to produce energy. The digested sludge is further reduced and then disposed of thermally after an intermediate storage period.

GEMÜ: Valves for routing the gas into the gas tank in digesters





Various technologies are used for the desalination of sea water. The first stage required is pre-treatment, consisting of e.g.:

- pH value correction
- Flocculation or precipitation to remove suspended matter and other impurities
- · Chlorination to kill bacteria and other microorganisms

Depending on the quality of the raw water, ultra-filtration is also used for pre-treatment. The pre-treated sea water is then fed into the actual desalination process. This is generally carried out by means of evaporation or osmosis.

Using a re-mineralization process, the desalinated water is upgraded to drinking water quality and made ready for distribution. GEMÜ can supply plant which fulfils the common drinking water approval standards such as DVGW, ACS or WRAS.



Reverse osmosis system. Source: Watertec T.A. GmbH

Reverse osmosis

In recent years, osmosis processes have gained a lot of market share in the field of sea water desalination. Compared with thermal separation processes, the reverse osmosis (RO) process requires less energy and has lower investment costs. In the case of reverse osmosis, the process of natural osmosis is reversed: Sea water is fed through a semi-permeable membrane at high pressure (55 to 80 bar). This membrane only allows water molecules to pass through it, but not dissolved salts. This water represents the permeate, which can be used as drinking water.

GEMÜ: Distribution of sea water





MSF sea water desalination

MSF process (= Multistage Flash Evaporation)

The MSF (Multistage Flash Evaporation) process is predominantly used in applications where thermal energy is available in the form of excess steam, such as near a power station. The raw water is heated up in several stages. The brine flows through the downstream evaporation chambers, in which the pressure is lowered further on a step-by-step basis. The resulting steam condenses on the condensation coils as drinking water, pre-heats the incoming sea water as a result, and is forwarded on for further treatment after the last stage.

GEMÜ: Feed into evaporation chambers



MED sea water desalination

MED process (=Multiple-Effect Distillation)

The MED process also makes use of excess energy from nearby power stations. Here, the evaporation takes place under a gradually increasing vacuum. The process involves repeatedly spraying the raw water over tube clusters in stages (effects), which are heated from the inside by condensing steam. The water thus evaporates and then condenses in the tube clusters of the next chamber, while the condensation heat is also recovered. The resulting distillate is carried off.

GEMÜ: Feeding a tube cluster heat exchanger





Industrial waste water treatment

Areas of application are typically found in almost all industrial sectors which produce waste water e.g. in the foodstuff industry, in breweries and in the chemical industry. Industrial waste water can contain a very wide range of impurities depending on the sector in question. This is one of the reasons why treating it is a particular challenge. Depending on the location, the treatment process can have various objectives e.g. recirculating the water back into the process, feeding it directly into the receiving basin or feeding it in directly into the municipal sewage system.

The appropriate processes depend on the specific composition of the waste water produced:

- · Ultra-filtration for removing solids and suspended matter, bacteria, viruses
- · Nano-filtration for reducing levels of solutes such as hardening salts
- · Reverse osmosis for reducing levels of all solutes
- · Additional separation processes such as demulsification and grease separation

The variety of applications necessitates a comprehensive product range so that the optimal technology is always available. GEMÜ is a reliable partner in this regard, with access to vast experience and an extensive product range.



Slurry supply (Pürstinger company)

Treatment of waste water from the solar wafer industry

The treatment of used cutting slurry in the solar energy industry results in large quantities of waste water with various compositions. The contaminants found in this kind of waste water are typically substances such as oils, acids, alkalis and heavy metals. Sometimes the waste water is highly organically contaminated and has a high solid matter content. Appropriate pre-treatment is therefore required in order to comply with statutory requirements before this waste water is disposed of and introduced into the sewer network. The raw water is first filtered and neutralized before it can be introduced into the local sewer network after passing through a reverse osmosis plant.

GEMÜ: Highly resistant plastics and seal materials







Separation of zinc and nickel

Treatment of waste water from the electroplating industry

The main components of waste water from electroplating processes are metal ions, toxic anions, such as cyanide or chromate, and neutral salts. The dissolved metal ions are transformed into poorly soluble compounds by means of chemical precipitation with caustic soda and/or milk of lime. In addition, carbonates and sulphides can also be used as precipitants. Toxic anions are broken down through oxidation or reduction.

GEMÜ: Valves for neutralising waste water from electroplating







Demulsification. Source: Eisenmann

Treatment of waste water from the foodstuff industry

Highly organically contaminated waste water is produced in all sectors of the foodstuff industry. Various processes are required to treat it, for example: Grease separation, demulsification, sludge treatment or neutralisation.

Neutralisation plants continuously record the pH value of the waste water. Before it can be fed into the public network, the pH value has to be adjusted as necessary to a value of between 6.5 and 9.5. The waste water is neutralised accordingly by pumping it between and mixing it inside buffer tanks.

GEMÜ: Isolation technology for handling highly contaminated waste water







Process water is used in the following applications:

- · Generation of boiler feed water
- · Heating processes and cooling water systems
- · Manufacturing of chemical solutions

Industrial plants have different requirements with respect to the process water they use. The different factors include, for example, water hardness, conductivity or gas content.

Depending on the particular application, a supply of water of the required quality has to be maintained so that, on the one hand, it has the particular chemical properties required for the respective process and, on the other hand, the relevant plant components are not damaged. GEMÜ supplies reliable valves for shutting off the corresponding pipe sections of plants for this type of application.

GEMÜ's valves and control components also serve to distribute and perform reliable dosing of chemicals.



Power station water treatment

Power stations

Power stations have a number of different process water circuits for which the raw water has to be treated accordingly, or from which the waste water has to be treated before it is fed into the sewage system. For example, cooling tower make-up water consists of river, sea or spring water which has to be treated before introduction by means of flocculation, sedimentation or decarbonisation. Condensate cleaning is carried out using highly efficient tube filters with downstream ion exchangers. Before waste water from flue gas desulphurisation is introduced, it is subjected to a solid matter reduction and heavy metal removal process.

GEMÜ: Water distribution







Ion exchangers

Boiler feed water

In steam boiler systems, salts that have dissolved in the water lead to corrosion and deposits. To avoid corrosion and deposits, depending on the operational mode and design of the steam generator, there are important requirements regarding the quality of the boiler feed water. In a deionization system, the salts that have dissolved in the water are removed using ion-exchange resins. These salts are present in dissociated form i.e. as positive particles (cations) and negative particles (anions) and the deionization line is set up as follows: cation exchanger – CO_2 degasifier – anion exchanger – mixed-bed filter.

GEMÜ: Distribution of water and chemicals







Water supply

Building technology (HVAC)

The range of applications in the area of heating, ventilation and air conditioning (HVAC) is varied and forms the main topic of interest in the building technology field. The various subsystems found in HVAC applications include heating, ventilation and air conditioning systems, refrigeration systems and sanitary facilities. The latter include water supply and water disposal facilities as well as gas supply, compressed air and vacuum systems. The individual subsystems incorporate the respective generation/treatment process for the medium as well as storage, distribution and finally the outlet/tapping points.

GEMÜ: Control valves for hot water supply in buildings







Pure and ultra pure water of differing qualities is required in the pharmaceutical and biotechnology industries for the manufacture of medicinal products and active substances

as well as in the microelectronics industry.

As of 2002, the European Drugs and Medicines Register has listed not only the water quality grades of PW (Purified Water) and WFI (Water For Injection) but also HPW (Highly Purified Water). This has to satisfy the same quality requirements as WFI, but its production is not restricted to distillation. HPW can be produced more cost efficiently using a membrane separation process. This means that HPW can be used for processes which only come into contact with the product indirectly e.g. for cleaning plant sections or flushing receptacles. WFI, on the other hand, is used to manufacture preparations or for final-rinse operations.

The semiconductor industry uses the term UPW (Ultra Pure Water). With the structural dimensions of some manufactured components measuring just a few nanometres, the requirements placed on the ultra pure water are particularly high. Its conductivity is thus only 0.055 μ S/cm (theoretical value) and it has a crucial influence on the product quality and efficiency of the manufacturing process.

Our High Purity diaphragm valves have been specifically developed for ultra pure water treatment and distribution plants as well as for process equipment.



Distribution of HPW. Source: SH+E GROUP

Purified Water (PW) and Highly Purified Water (HPW)

A combination of a membrane separation process and ion exchange is frequently used to produce PW. Electro-deionisation (EDI) combines these two processes. This involves using DC voltage to perform electrodialysis. The ions pass over the resin surface and through the special semi-permeable membranes, which hold back ions depending on their charge.

The last process stage in the production of HPW is generally a downstream ultra-filtration process used to ensure the microbiological quality of the product.

GEMÜ: Equipment for EDI plant







WFI storage and distribution system. Source: SH+E GROUP



Two main distillation processes are used to produce WFI. These are the multi-stage pressure column process, whereby distillation is performed multiple times in succession, and thermocompression.

The thermocompression process makes use of a compressor which acts as a heat pump. The resulting steam is compressed, with its temperature increasing from 100 °C to 140 °C. The heat energy thus generated is used to heat up the feed water.

The process which is actually used depends on the required quantity and temperature of the distillate.

GEMÜ: Distribution of WFI







Distribution of UPW

Ultra Pure Water (UPW)

Semiconductor and solar wafer production require large quantities of UPW of the highest quality. The raw wafers are freed of abrasives (slurry) in a cleaning process and then washed with UPW in the last rinsing cycle. The subsequent texturing process for the surfaces and the various etching baths also require additional rinsing with ultra pure water in order to remove the residues from the etching baths.

A clean wafer surface before machining and during subsequent processing into modules is essential in order to achieve maximum solar cell efficiency.

GEMÜ: Distribution and volume flow measurement of UPW





Overview of our product range GEMÜ butterfly valves







Metal butterfly valves

- Available up to DN 1600
- Improved sealing due to special seal geometry – even for larger diameters
- Modular construction
- Extensive applications using a variety of materials
- DVGW approval, FDA, ACS, WRAS

Plastic butterfly valves

- · Excellent corrosion protection
- Low weight
- Minimal pressure loss
- UV resistant
- · Easy installation

Metal butterfly valves with highly resistant seal materials

- High corrosion resistance
- Suitable for high-purity applications
- High temperature resistance
- Can be used for the toughest applications
- Suitable for vacuum



Overview of our product range GEMÜ diaphragm valves







Metal diaphragm valves

- Suitable for inert, corrosive, liquid and gaseous media
- Insensitive to particlecarrying media
- Versions according to ATEX on request
- Also available as full bore diaphragm valve

Plastic diaphragm valves

- Flow-optimized, compact design
- Reduced control air consumption
- · Varied accessory options
- Extensive applications due to connection and material variety

Stainless steel diaphragm valves

- CIP/SIP cleaning and sterilising capabilities
- Autoclave-capable, depending on version
- Surface finishes down to 0.25 μm, electropolished
- Hermetic separation between medium and actuator



Overview of our product range GEMÜ globe and control valves









Regulating cone

cage

Metal angle seat globe valves

- · Comprehensive accessory package
- Very suitable for high cycle duties
- · Low weight
- · High flow rates
- · Various connections and body materials available

Metal globe valves

- · Good control characteristics
- Comprehensive accessory package •
- Robust design ٠
- Flanged body in stainless steel or SG iron

Throttle bodies

- Customized design of control characteristics
- Standard versions available .
- · High-quality materials



Overview of our product range GEMÜ multi-port valve blocks







Metal multi-port valve blocks

- Minimal deadleg
- Space-saving
- Customized
- · Low hold-up volume

Plastic multi-port valve blocks

- · Tested, certified unit
- Integration of various functions e.g. filter, pressure sensors, temperature measurements
- Increased plant reliability, fewer fittings, solvent cemented joints
- · Space-saving design

PVDF multi-port valve blocks

- Manifolds as space-saving design solution
- · Ideally suited for corrosive media
- Integration of display, measurement and control devices and sensors possible
- Safe due to reduction of joints (connections)



Overview of our product range GEMÜ add-on components and accessories



Positioners and process controllers

Intelligent positioners and process controllers for linear and guarter turn actuators, remote mounting possible, fast mounting and commissioning due to speed-AP function.

Electrical position indicators

Electrical position indicators in a wide range of versions, manual/automatic stroke adjustment, depending on version also with self-learning speed-AP function, LED display and optional field bus connection.



Intelligent combi switchbox

Combi switchbox for linear actuators, integrated position feedback, manual/ automatic stroke adjustment, integrated pilot valve, optional field bus connection.





Pilot valves

Pilot valves for pneumatically operated valves, cylinders and other process components.



Flowmeters

Flowmeters with various functional principles for inert and corrosive liquids and gases. Depending on version, mounting of electrical limit switches and instrument sensors possible as well as field bus connection.



Accessories

Available accessories include stroke limiters and optical position indicators, various mounting kits, control air adapters and NAMUR mounting brackets, plugs and cable connectors, travel sensors for controllers and many other items.

Product overview

					THE	
		Butterfly valve	Butterfly valve	Butterfly valve	Diaphragm valve	Globe valve
	Design	plastic	metal	metal	plastic	metal
Features	GEMÜ types	410, 417, 423, D451, D457, D458	481, 487, 488, C481, C487, C488	491, 497, 498	R690, R677, R680	530, 532, 534, 536, 537
	Pressure range	0 to 10 bar	0 to 16 bar	0 to 10 bar	0 to 10 bar	0 to 40 bar
	Temperature	max. 90 °C	max. 150 °C	max. 200 °C	max. 80 °C	max. 180 °C
	Nominal size	DN 15 to 300	DN 25 to 1600	DN 40 to 900	Image: series of the series	DN 15 to 100
	Manual	•	۰	•	۰	•
Operator	Pneumatic	•	٠	•	٠	•
	Motorized	•	٠	•	٠	•
	Stainless steel			•		•
Housing/ body material	SG iron		•	•		•
Housing/	ABS				٠	
body material	PVDF				Sutterfly valve metal Diaphragm valve plastic Clobe valve metal 491, 497, 498 R690, R677, R680 530, 532, 534, 536 537 10 to 10 bar 0 to 10 bar 0 to 40 bar max. 200 °C max. 80 °C max. 180 °C max. 200 °C max. 80 °C max. 180 °C N 40 to 900 DN 10 to 100 DN 15 to 100 • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • • •	
	PP	•				
	PVC	•				
	PTFE			•	•	•
	EPDM	•	•	•	٠	
Soal motorial	NBR		•		٠	
Searmateria	Steel					•
	Silicone			•		
	FPM	•	•		•	
	Stainless steel			•		
	Cast steel		•			
	tures bis bis bis bis bis bis bis bis bis bi	•				
				•		
	Hastelloy		• • • • • <			
Disc material	PFA encapsulated			•		
	PVDF	•				
	PVC	•				
	PP	•				
	CF8M		•			
	Super Duplex		•			
	Flange	•	•	•	•	•
Connection	Welding/solvent cement spigot				•	
	Union end	•			•	

* For complete technical information, see datasheets

Butterfly valves

Butterfly valves - our range of products



Opera	Operators		Accessories		
Motor GEMÜ 9428 GEMÜ 9428	ized GEMÜ 9468	for motor GEN Emergence	ized actuators AÜ 1570		
Pneun GEMÜ 9415	natic GEMÜ DR/SC	for pneum GEMÜ 8506	atic actuators GEMÜ LS series		
	GEMÜ ADA/ASR				
Man Hand lever	Gearbox				



Worldwide presence

GAUSTRALIA

GEMÜ Australia Pty. Ltd Unit 4 - 8/10 Yandina Road West Gosford, NSW 2250 Phone: +61-2-43 23 44 93 Fax: +61-2-43 23 44 96 mail@gemu.com.au

GAUSTRIA

GEMÜ GmbH Europaring F15 401 2345 Brunn am Gebirge Phone: +43 22-36 30 43 45-0 Fax:+43 22-36 30 43 45-31 info@gemue.at

BELGIUM

GEMÜ Valves bvba/sprl Koning Albert 1 laan, 64 1780 Wemmel Phone: +32 2 702 09 00 Fax: +32 2 705 55 03 info@gemue.be

BRAZIL / SOUTH AMERICA

GEMÜ Indústria de Produtos Plásticos e Metalúrgicos Ltda. Rue Marechal Hermes, 1141 83.065-000 São José dos Pinhais, Paraná Phone: +55-41-33 82 24 25 Fax: +55-41-33 82 35 31 gemu@gemue.com.br

CANADA

GEMÜ Valves Canada Inc. 2572 Daniel-Johnson Boulevard Laval, Quebec H7T 2R8 Phone: +1-450-902-2690 Fax: +1-404-3 44 4003 info@gemu.com

CHINA

GEMÜ Valves (China) Co., Ltd No.518, North Hengshahe Road Minhang District, 201108 Shanghai Phone: +86-21-2409 9878 info@gemue.com.cn

DENMARK

GEMÜ ApS Industriparken 16-18 2750 Ballerup Phone: +45 70 222 516 Fax: +45 70 222 518 info@gemue.dk

FRANCE

GEMÜ S.A.S 1 Rue Jean Bugatti CS 99308 Duppigheim 67129 Molsheim Cedex Phone: +33-3 88 48 21 00 Fax: +33-3 88 49 12 49 info@gemu.fr

INTERCARAT

1 Rue Jean Bugatti CS 99308 Duppigheim 67129 Molsheim Cedex Phone: +33-3 88 48 21 20 Fax: +33-3 88 49 14 82 sales@intercarat.com

GERMANY

GEMÜ Gebr. Müller GmbH & Co. KG Fritz-Müller-Straße 6 - 8 74653 Ingelfingen-Criesbach Postfach 30 74665 Ingelfingen-Criesbach

Phone: +49 (0)7940-12 30 Fax: +49 (0)7940-12 31 92 (Domestic) Fax: +49 (0)7940-12 32 24 (Export) info@gemue.de

GREAT BRITAIN / UK

GEMÜ Valves Ltd. 10 Olympic Way Birchwood, Warrington WA2 0YL Phone:+44-19 25-82 40 44 Fax:+44-19 25-82 80 02 info@gemu.co.uk

G HONG KONG

GEMÜ (Hong Kong) Co., Ltd. Room 2015, Tower B, Regent Centre, 70 TA Chuen Ping Street Kwai Chung, N.T., Hong Kong P.R. China Phone: +852 6873 8280 Fax: +852 6873 8280 info@gemue.com.cn

GEMÜ India Representative Office 301, K.B. Complex, Rambaug, L.G.Hospital Road, Maninagar, Ahmedabad-380 008 Phone: +91-79-25450438 +91-79-25450440 Fax: +91-79-25450439 sales@gemu.in

GINDONESIA

GEMU Valves Pte Ltd (Indonesia Representative Office) Rukan Mangga Dua Square Block F17, 2nd Floor Jl. Gunung Sahari Raya No. 1 Jakarta Utara 14420 Indonesia Phone: +62 (21) - 6231 0035 Fax +62 (21) - 2907 4643 info@gemu.co.id

IRELAND

GEMÜ Ireland Ltd 15 Eastgate Drive Eastgate Business Park Little Island Co. Cork Phone: +353 (0)21 4232023 Fax: +353 (0)21 4232024 info@gemu.ie

GEMÜ S.r.l. Via Giovanni Gentile, 3 20157 Milano Phone: +39-02-40044080 Fax: +39-02-40044081 info@gemue.it

G JAPAN

GEMÜ Japan Co., Ltd. 2-5-6, Aoi, Higashi-ku, Nagoya, Aichi, 461-0004 Phone: +81-52-936-2311 Fax: +81-52-936-2312 info@gemu.jp

MALAYSIA

GEMU VALVES PTE LTD (Malaysia Representative Office) D-8-09, Block D, No. 2A Jalan PJU 1A/7A Oasis Square, Oasis Damansara 47301 Petaling Jaya Selangor Darul Ehsan Phone: +(603)- 7832 7640 Fax: +(603)- 7832 7649 info@gemu.com.sg

MEXICO

GEMU Valvulas S.A. de C.V. German Centre, Av. Santa Fe No. 170 – OF. 5-1-05 Col. Lomas de Santa Fe, Del. Alvaro Obregon 01210 Mexico, D.F. Phone: +52 55 7090 4161 +52 55 7090 4179

RUSSIA

000 "GEMÜ GmbH" Uliza Shipilovskaya, 28A 115563, Moskau Phone: +7(495) 662-58-35 Fax: +7(495) 662-58-35 info@gemue.ru

SINGAPORE

GEMÜ Valves PTE. LTD. 25 International Business Park German Centre #03-73/75 Singapore 609916 Phone: +65-65 62 76 40 Fax: +65-65 62 76 49 info@gemu.com.sg

SOUTH AFRICA

GEMÜ Valves Africa Pty. Ltd Stand 379 Northlands Business Park, Hoogland Ext 45 Northriding, Randburg Phone: +27(0)11 462 7795 Fax: +27(0)11 462 4226 office@gemue.co.za

SWEDEN

GEMÜ Armatur AB Box 5 437 21 Lindome Phone: +46-31-99 65 00 Fax: +46-31-99 65 20 order@gemu.se

SWITZERLAND

GEMÜ GmbH Seetalstr. 210 6032 Emmen Phone: +41-41-7 99 05 05 Fax: +41-41-7 99 05 85 info@gemue.ch

GEMÜ Vertriebs AG Lettenstrasse 3 6343 Rotkreuz Phone: +41-41-7 99 05 55 Fax: +41-41-7 99 05 85 vertriebsag@gemue.ch

GTAIWAN

GEMÜ Taiwan Ltd. 9F.-5, No.8, Ziqiang S. Rd. Zhubei City Hsinchu County 302, Taiwan (R.O.C.) Phone: +886-3-550-7265 Fax: +886-3-550-7201 office@gemue.tw

UNITED STATES

GEMÜ Valves Inc. 3800 Camp Creek Parkway Suite 120, Building 2600 Atlanta, Georgia 30331 Phone: +1-678-5 53 34 00 Fax: +1-404-3 44 93 50 info@gemu.com

In addition to these subsidiaries, GEMÜ has a global partner network.

Contact details: https://www.gemu-group. com/en_GB/kontakte/



