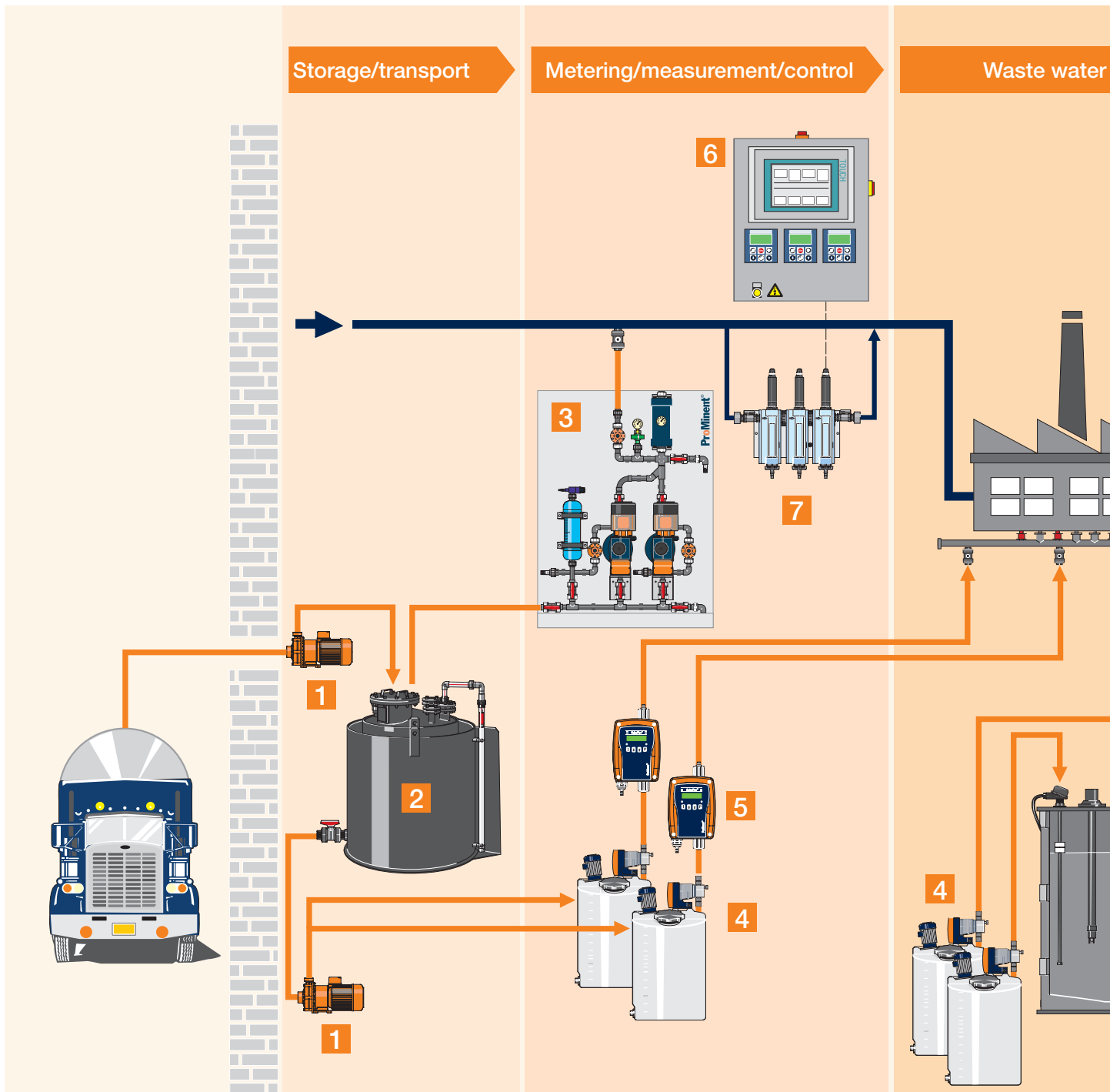


# Metering technology from one source

The right solution for every application

**Pro**minent®





**1** Chemical transfer pumps

**2** Storage tanks

**3** Panel-mounted metering systems

**4** Standard metering systems

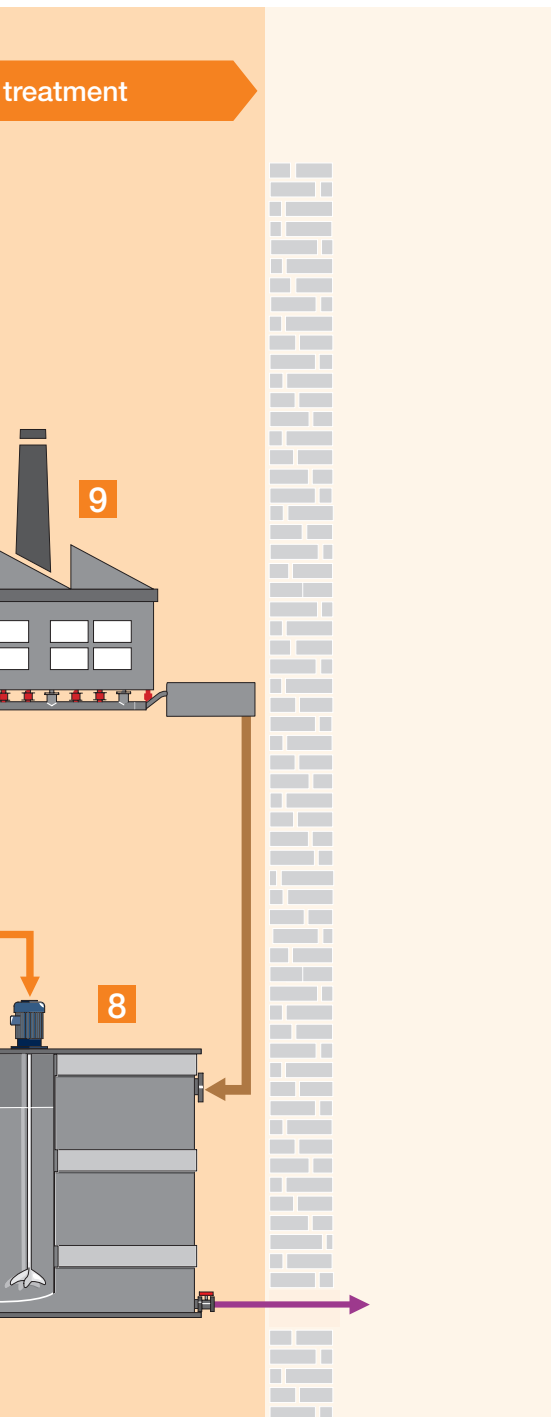
**5** Ultrasound flow meters

**6** Measuring and control technology

**7** Sensor technology

**8** Neutralisation systems

# Perfect metering by the optimum coordination of all components



9 Industrial processes

For over 50 years our customers have benefited from the application-specific experience and the comprehensive knowledge of our fluid metering technology experts across the globe.

The modular program, comprising high-performance individual products and complete system solutions, offers every customer maximum flexibility and cost-effectiveness in terms of chemical supply, metering in specific processes and waste water treatment – any time, anywhere.

Three criteria have to be taken into account when planning a metering solution: the chemical being metered, the required dosing precision and the demands placed on the measuring and control technology. Our products reliably and efficiently store, transfer and meter chemicals at rates of 0.1 l/h to 1,000 l/h at a pressure of 2 to 16 bar in all industrial applications. Automated metering systems also improve process and product quality by the reliable metering of chemicals. Durable pumps and energy-saving solutions preserve the environment and also reduce operating costs.

## ■ Storage and transport

ProMinent storage and receiver tanks keep chemicals ready where they are needed. Appropriate chemical transfer pumps ensure smooth transport.

## ■ Metering, measurement and control

ProMinent offers metering systems with maximum resistance to almost all types and concentrations of chemicals. Thanks to the wide product range that meets all requirements, customers have the correct metering pumps, ideal measuring and control technology and the perfectly coordinated accessories for precise and efficient metering of the requisite chemicals in their specific processes.

## ■ Waste water treatment

pH correction or special neutralisation processes ensure that any waste water produced can be fed into the public sewage system with ease.

## Benefits for our customers

- Standard solutions and customer-specific systems for the metering of all chemicals for all capacity ranges
- Complete range of metering pumps and metering systems
- Perfectly coordinated sensors and controllers
- Extensive range of accessories with their own storage tanks and chemical transfer pumps
- Advice, products and global service from one source

# Storage and transfer

ProMinent not only supplies a wide range of different designs of standard storage tanks as well as tailor-made storage tanks to meet customers' specifications for the secure decentralised storage and reliable transfer of chemicals.



## Storage tanks

All storage tanks comply with internationally applicable manufacturing certification and are suitable for indoor and outdoor installation. They have a high level of resistance and a storage capacity of between 500 and 50,000 litres (0.5 – 50 m<sup>3</sup>).



## Dosing tanks

Dosing tanks and collecting pans made of UV-stable polyethylene or polypropylene are fitted with threaded sleeves for metering pumps and stirrers. The stable storage tanks are available in different sizes for a useful capacity of between 35 and 1,000 litres.



## Chemical transfer pumps

vonTaine® centrifugal pumps transport liquid media safely and leak-free from storage tank to storage tank at up to 22,500 l/h.

Spectra eccentric screw pumps with a pump capacity of up to 12,000 l/h are available specifically for the metering of polymer solutions – also designed for use with solutions containing oil. Air-driven Duodos dual-diaphragm pumps with a pump capacity of up to 6,700 l/h have no electrical components.

DULCO®Trans barrel pumps ensure the fast, safe bottling, emptying and decanting of liquids from a very wide range of different tanks at a maximum pump capacity of up to 4,800 l/h.

# Metering technology

We offer an unrivalled product range, thanks to ongoing developments in innovative metering technology. We deliver the right solutions, whatever our customers need for their specific applications.



## Metering pumps

Process and operating safety have top priority in industrial applications, which is why our high-performance pumps stand out on account of their dosing precision, robustness and durability.

Regardless of whether a reliable pump is required for a routine or complex application, customers will find the right metering pump in our extensive range, optionally available with integral electronics for connection to a control system if required.

- Solenoid driven metering pumps up to 75 l/h
- Motor driven metering pumps up to 1,000 l/h
- Non-standard metering pumps
- Ultrasound flow meter DulcoFlow®



# Sensor technology



Only the availability of an online measuring parameter enables a limit value to be monitored or a closed control circuit to be constructed. Our DULCOTEST® product range therefore offers a comprehensive, application-specific range of reliable sensors for the huge diversity of measuring applications.

All sensors deliver precise measured values in real-time and can be flexibly connected to the various process interfaces via bypass, immersion or installed fittings.

- pH
- ORP
- Conductivity (inductive and conductive)
- Chlorine
- Chlorine dioxide
- Chlorite
- Bromine
- Ozone
- Dissolved oxygen
- Hydrogen peroxide
- Peracetic acid
- Fluoride
- Temperature

# Measuring and control technology



ProMinent's high-quality controllers can be adapted to any application: Gradual performance increments offer the right technology for every metering application.

ProMinent offers complete product ranges, including simple measuring signal conversion for transmission to a central control unit, calibratable instruments with measured value displays and controllers for complex control tasks. PROFIBUS® DP and CANopen BUS components are available for integrating control circuits into bus systems.

- DULCOMETER® Compact controller
- Single-channel controller DULCOMETER® D1C
- Multi-parameter controller diaLog DACb
- Multi-channel measuring and control system DULCOMARIN® 3
- Process-adapted DULCOMETER® transmitter/controller
- Mobile manual measuring instruments

# Complete metering systems



Ready-mounted complete solutions from ProMinent considerably simplify liquid metering and are immediately available and ready for use in key applications. Customers receive a complete metering system that only needs to be connected up electrically and hydraulically, as sensors, controllers and metering pump form a complete unit with the requisite storage tanks.

Metering systems provide many advantages over single components: only one supplier and contact, no interface problems between the individual components, no complex installation required.

## Standard metering systems

Two hydraulic connection points guarantee simple installation of the metering system. The ready-mounted complete systems consist of components that have been perfectly coordinated to each other, guaranteeing trouble-free operation. What is more, the metering systems can also be individually configured at the time of ordering.

## Application-specific metering systems

Special applications demand metering systems tailored to the process, for instance hydrazine or liquid-enzyme metering. There are also ready mounted, application-specific metering systems for this purpose, precisely designed and configured for the respective application.

- 1 Metering pump with control unit
- 2 Control cabinet
- 3 Shut-off valve
- 4 Vacuum cylinder
- 5 Relief valve
- 6 Pulsation damper
- 7 Pressure manometer
- 8 Back pressure valve
- 9 Non-return valve



## Customer-specific systems



These systems are individually designed, constructed and delivered to the customer. Once again here, there is no complex installation work involved for the customer. We are also happy to make the systems operational on site, should you require.

- Custom-designed and built, complete ready-to-use metering systems
- On-site commissioning on request
- Any customer requirements can be rapidly implemented, thanks to in-house production
- A range of simple, decentralised systems through to explosion-proof systems in accordance with ATEX regulations with interfaces to a central PLC Programmable Logic Controller via PROFIBUS®
- From proportional flow dosing to complex systems with reaction tanks
- Also complete metering systems installed in walk-around containers including heating and/or air conditioning systems
- Virtually unlimited capacity range and use of chemicals

# Accessories



Only the right accessories for the respective metering system guarantee safe operation in an appropriate environment. The range includes pulsation dampers for low-pulsation metering and to reduce flow resistance in long pipes, as well as diaphragm rupture indicators that automatically switch off the metering pump in the event of damage to the diaphragm to prevent the leakage of chemicals. Every metering station can therefore be individually added to and optimised in this manner.

## Hydraulic accessories

### 1 Injection valves and back pressure valves

The use of injection valves and back pressure valves guarantees a high level of dosing precision from the system by generating a defined back pressure.

### 2 Relief valves

Relief valves protect all components of the system from damage caused by pressure overloads.

### 3 Foot valves

### 4 Suction lances and suction assemblies

Accessories ensure a system ready for operation. They protect the suction line and valves from coarse dirt and prevent the line from running dry when the pump is not in operation.

### 5 Pulsation damper

Metering pumps can be easily used with long lines with pulsation dampers.

The low-pulsation flow generates only minimal pressure losses and prevents annoying vibrations.

# References



## Optimum cooling water quality in industrial gas production

**Messer Group GmbH, based in Bad Soden near Frankfurt/Main, has been producing industrial gases for applications in a number of industries for over 100 years. The company extracts inert gases from air in air separation plants at temperatures of up to minus 200 degrees – processes that require a reliable and high-performance cooling circuit.**

### **Protection against corrosion and sedimentation**

A ProMinent panel-mounted measuring and metering system with an integrated corrosion measuring section controls the cooling water circuit and extremely effectively prevents the growth of algae, bacteria and fungi by adding corresponding amounts of biocides and inhibitors. This prevents corrosion and sedimentation from forming in pipes and heat exchangers, which could reduce the performance of the system and, even worse, damage the cooling system.

### **Reliable pH measurement**

To improve operating safety, the system performs a double pH value measurement to guarantee the correct pH value at all times. An alarm message is immediately emitted in the event of a deviation. Conductivity is also controlled with inductive sensors for virtually maintenance-free operation. This measurement is extremely important, as make-up water constantly has to be added to the cooling water. However, this process increases the salt concentration, resulting in scaling and corrosion. By measuring the conductivity of the cooling water by induction, the salt content can be measured reliably and the system can be bled as required.

### **Germ-free cooling water**

The Messer Group GmbH has also installed three delta® diaphragm metering pumps. Based on special optoDrive® drive technology, these pumps meter even the smallest quantities with high precision and, instead of releasing the feed chemical drop by drop, they release it in a continuous stream into the pipe, ensuring that the feed chemical mixes well with the cooling water. Suction

lances fitted with level switches are used to convey the feed chemicals from the storage tanks to the pumps. Depending on the measured values, delta® diaphragm metering pumps release the biocides chlorine and bromine and an inhibitor into the cooling water – fully automatically.

### **Everything from one source**

The virtually maintenance-free components of the system were delivered assembled ready for connection on a PE plate with drip tray and on a stainless steel frame to the Messer Group GmbH, who were persuaded by the high quality standards and the precise measuring results of the ProMinent® products. Since the tailor-made measuring and metering system has been commissioned, the company has been able to significantly reduce its operating costs in industrial gas production. Less fresh water has to be fed in owing to the high quality of the cooling water and significantly fewer chemicals have to be used – a customer-specific solution that works reliably, efficiently and in an environmentally-friendly manner.

## Contact worldwide

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### Experts in Chemical Feed and Water Treatment

The ProMinent® Group is at home in over 100 countries across the globe. We supply products, systems and service solutions with the same standards

all over the world: quality and reliability. All our experience and expertise in water treatment and metering technology is at your disposal – any time, anywhere.

**ProMinent Group**

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