

BREWERY TECHNOLOGY



Product solutions for brewery technology

The image shows a low-angle shot of a modern building's facade. The building has a mix of grey panels and large glass windows. On the right side, the word "sera" is mounted on the wall in large, white, three-dimensional letters. The sky is a clear, deep blue, and the sun is visible on the left, creating a bright lens flare effect. A semi-transparent blue rectangular box is overlaid on the right side of the image, containing the company's name and a short description.

sera

Competence in dosing, conveying and compressing liquids and gases

The **sera Group** is an independent family-run company group with headquarters in Immenhausen at the heart of Germany.

Since the company founding in 1945, the **sera** name has stood for quality, competence, innovation, reliability and flexibility. As one of the world's leading companies in dosing and compressor technology, **sera** today offers efficient application solutions optimally tailored to customer requirements which ensure the precise dosing, conveying and compression of liquids and gases.

EXCELLENCE IN FLUID TECHNOLOGY

We create added value for people and the environment.

sera has a wide range of products, which provide the right solutions for many of your ranges of application all over the world: whether for water and wastewater treatment and disinfection, or for the precise dosing and conveying of chemicals and liquids.

Products for system monitoring and planning as well as customised solutions round off our portfolio. Our customers all over the world also benefit from our extensive range of services: From providing support in planning and commissioning systems, to quickly and easily replacing devices all over the world, through to developing innovative technologies.



Comprehensive product portfolio

Whatever you require, we create customised solutions for your applications.

This means that you can choose from a wide range of standard products and also configure customised systems completely according to your needs.



Speed, reliability and flexibility

Our reliable and competent contacts will provide you with the best possible customer service and support throughout the entire offer, order and project realisation process.

We always respond flexibly to your requirements and process and handle everything quickly and reliably. From engineering to production, through to after-sales service, we provide high-quality products and services.



Long-lasting products and high quality

For over 70 years, the name **sera** has stood for exceptional quality and know-how.

As part of this, we develop dosing pumps and systems for extreme operating conditions and long operating times. That's why the quality and reliability of our products always comes first. You can always rely on the expertise and experience of our team.



GOOD DOSING IS HALF THE BREWING

Our Expertise for Your Success

Wherever food is handled, the work area must be regularly cleaned and kept hygienic. This is especially true for beer brewing. Producing great-tasting beer requires not only a sophisticated brewing process but also ways to clean and disinfect industrial production systems as well as methods to treat all the water needed for the brewing process.

That's exactly why **sera** pumps and dosing systems have been an important and reliable building block in the production plants of many breweries for decades.

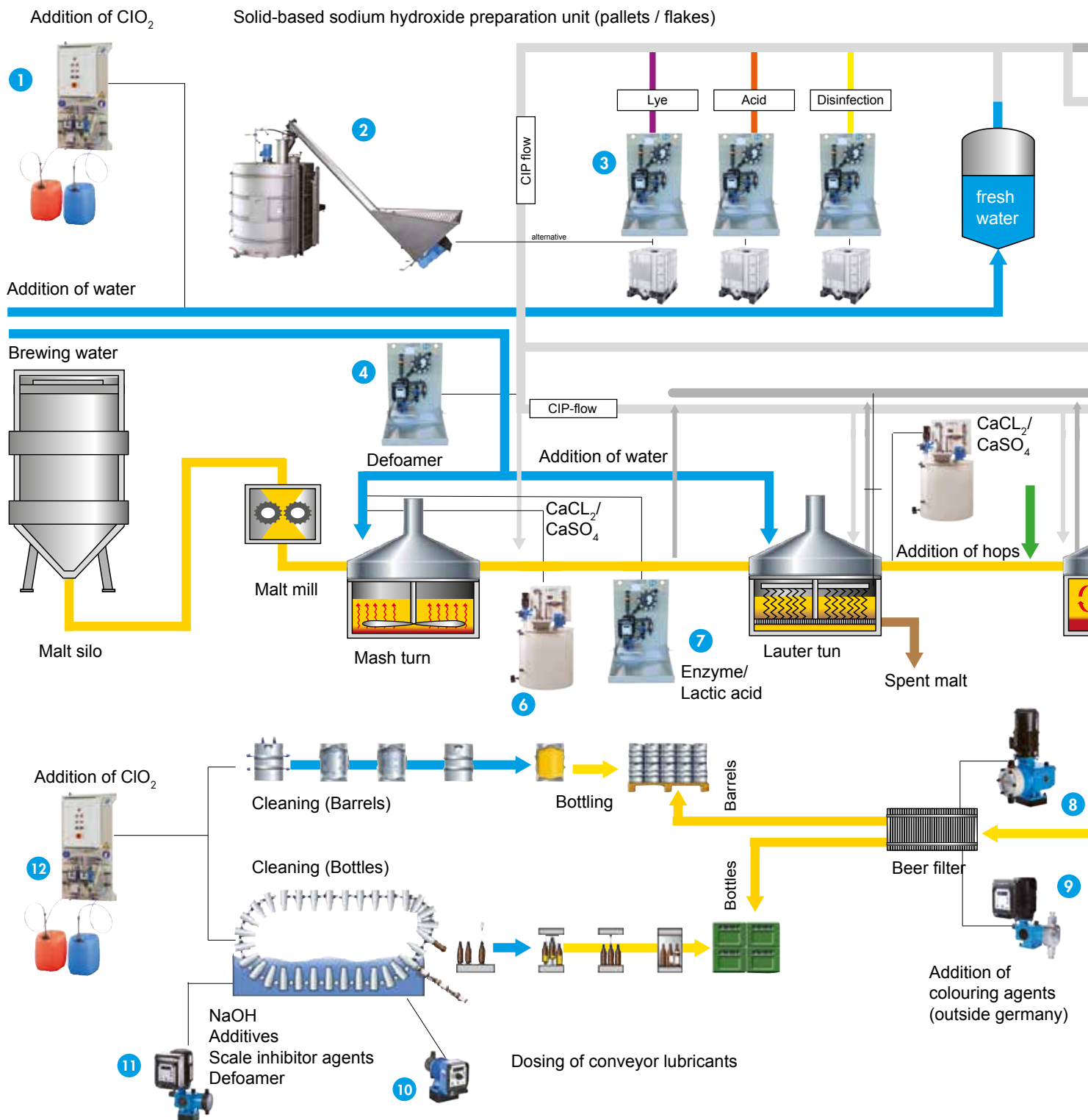
Our comprehensive range of products and services includes metering and feeding pumps, standardised dosing units and systems, and customised system and plant solutions for:

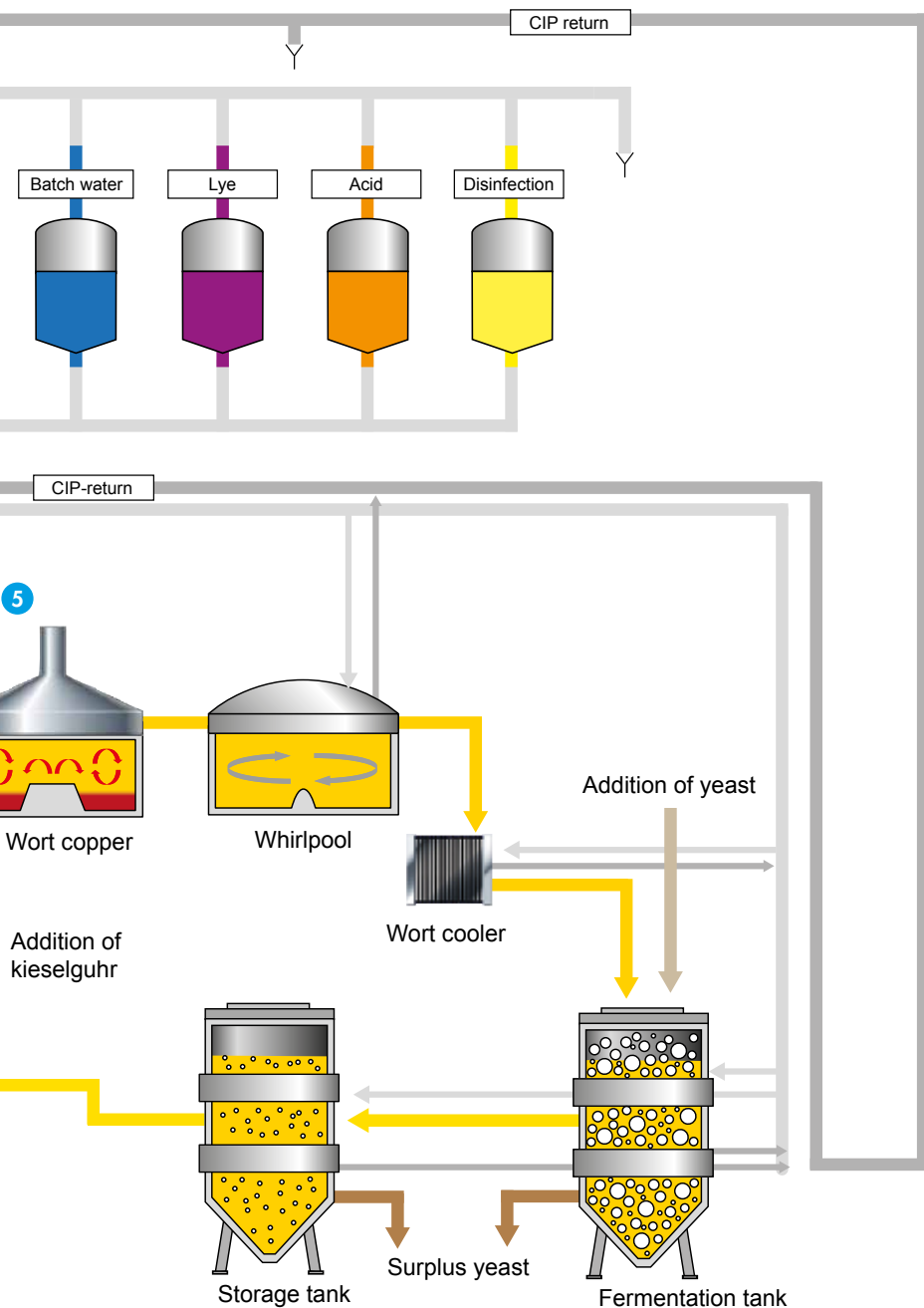
- Disinfection / CIP
- Brewing Water Treatment
- Beer filtration (kieselguhr)
- Brewing water hardening
- Wastewater treatment
- Removal of Biofilm from Pipes
- Process water sterilisation
- Enzyme and additive dosing
- Conveyor Lubricant Dosing



FOR EVERY PROCESS STEP THE PERFECT SOLUTION

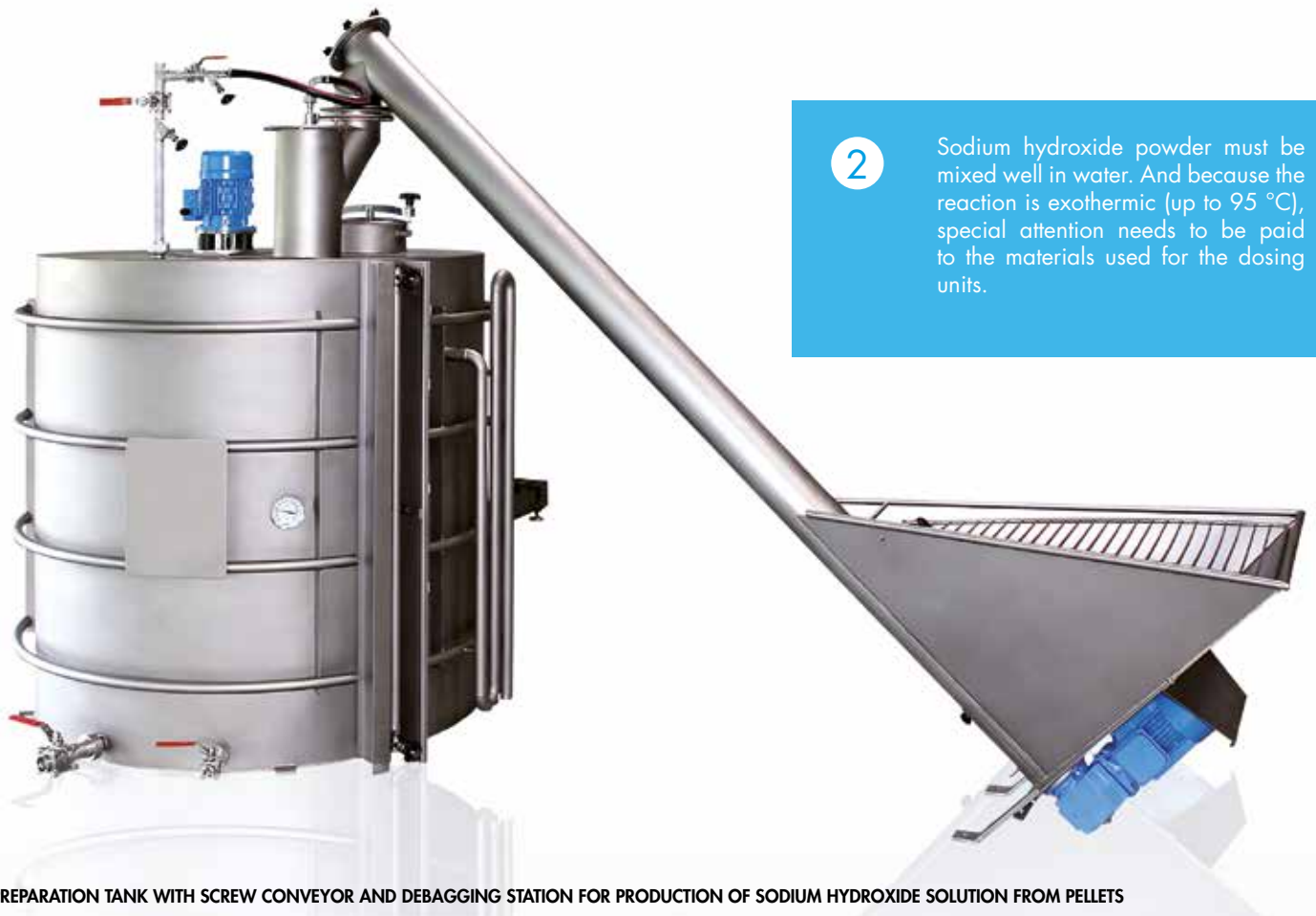
The process of the brewery technology





We provide an extensive product range so that the best possible solutions for each step of the process are always available. Here are some examples of solutions from our comprehensive range, based on typical processes for brewery technology:

- 1 Addition of Cl_2 to disinfect drinking, process and cooling water
- 2 Sodium hydroxide preparation
- 3 Enzyme Dosing, Disinfection, CIP cleaning
- 4 Enzyme Dosing, Disinfection, CIP cleaning
- 5 Dosing of calcium chloride (CaCl_2)
- 6 Dosing of calcium sulphate (CaSO_4)
- 7 Enzyme Dosing, Disinfection, CIP cleaning
- 8 Addition of Kieselguhr / Beer Filtration
- 9 Colouring Agent Dosing
- 10 Conveyor Lubricant Dosing
- 11 Dosing of chemicals
- 12 Addition of Cl_2 to disinfect drinking, process and cooling water



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Sodium hydroxide powder must be mixed well in water. And because the reaction is exothermic (up to 95 °C), special attention needs to be paid to the materials used for the dosing units.

PREPARATION TANK WITH SCREW CONVEYOR AND DEBAGGING STATION FOR PRODUCTION OF SODIUM HYDROXIDE SOLUTION FROM PELLETS

PREPARATION OF SODIUM HYDROXIDE SOLUTION



AREAS OF APPLICATION:

Preparation of solid sodium hydroxide solution from pellets



SET-UP:

The set-up of the system with debagging station separate from the preparation tank ensures a high degree of safety and health protection, thanks to the instant exothermic reaction of the solid sodium hydroxide with water.



DESIGN DATA:

The end product is NaOH solution 20 – 50 %, reaction could raise temperatures to up to approx. 95 °C

AVAILABLE sizes:

- 1000-litre preparation tank
- 3000-litre preparation tank
- 5000-litre preparation tank



CHARACTERISTICS:

- Medium-affected parts are made of stainless steel
- Debagging with screw conveyor approx. 1000 kg/h
- Level indicator with shut-off valve
- Electric agitator
- Temperature control with thermometer
- Overflow pipe with siphon
- Manual addition of water
- Tubular safety guard
- Debagging station is kept away from the hot areas



ACCESSORIES:

- Transfer pump
- Storage tank
- Suction device

DOSING OF CLEANING AGENTS FOR CLEANING-IN-PLACE



AREAS OF APPLICATION:

- Dosing lye, acids and disinfectants as well as a wide range of chemicals
- Defoaming/clarifying of beer
- Dosing of enzymes/lactic acid



SET-UP:

The fully modular design allows users to customise their system with standardised components according to their dosing requirements – much like a construction kit. The CVD models are suitable for use with IBCs, barrels, small containers and storage tanks.

- compact design, modular system
- space-saving wall mount
- short delivery times
- high operation and process stability



CHARACTERISTICS:

- high-quality materials (plastic or stainless steel)
- Nominal flow rate of up to 1500 l/h per metering pump

VERSIONS:

Compact dosing systems, vertical

- CVD1: Flow rates of up to 1450 l/h
- CVD2: Flow rates of up to 2x 1450 l/h



COMPACT DOSING STATION
CVD1 WITH C410.2 AND PULSATION DAMPER

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The dosing of cleaning agents, acids, lye and lubricants is essential to the ancillary processes in proper beer brewing. **sera** dosing technology is also suitable for such purposes.

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It is much easier to rinse and design the metering pump because calcium chloride completely dissolves in the solution. To achieve that, the preparation tank is equipped with an electric agitator, from which the salt is carried into the solution from the dissolving basket through the current generated by the agitator. For dosing operation, diaphragm pumps are used in conjunction with external overpressure protection devices.

PREPARATION AND DOSING UNIT FOR CaCl_2

DOSING OF CALCIUM CHLORIDE (CaCl_2)



AREAS OF APPLICATION:

Preparing and dosing CaCl_2
 CaCl_2 approx. 30 % conc.



SET-UP:

- Filling nozzle for liquid
- Manual addition of water for rinsing
- PP tank with tapered bottom for draining
- Electric agitator
- Capacitance liquid level sensor, adjustable
- Overflow nozzle



CHARACTERISTICS:

- cheaper and more effective than CaSO_4
- very aggressive towards stainless steel
- dissolving anhydrous CaCl_2 can generate heat

Different ways to prepare CaCl_2 :

- hydrous CaCl_2 dissolves in water when the temperature falls; the dissolving process is endothermic, no reaction heat
- anhydrous CaCl_2 dissolves in water when the temperature rises; the dissolving process is exothermic, temperatures of 70 to 80 °C



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Calcium sulphate is added to mash to optimise enzymatic activities and therefore control the pH value. It is important to add the right amount of calcium sulphate, otherwise the resulting beer will have a salty taste.

PREPARATION AND DOSING UNITS FOR CaSO_4

DOSING OF CALCIUM SULPHATE (CaSO_4)



AREAS OF APPLICATION:

Preparing and dosing CaSO_4
 CaSO_4 max. 5% conc.



SET-UP:

- Manual preparation of bagged chemicals
- Manual addition of water
- PP tank with tapered bottom for draining
- Feed chutes for bagged chemicals
- Overflow nozzle with pipe
- Electric agitator
- Capacitance liquid level sensor, adjustable



CHARACTERISTICS:

- CaSO_4 is a suspension
- The product has to be kept suspended by the agitator
- CaSO_4 is abrasive
- Pumps with elastic valve seats

DOSING OF CHEMICALS AND DYES



AREAS OF APPLICATION:

For special dosing operations and to meet almost all customer needs



DESIGN DATA:

- output range from 0.4 l/h to 1450 l/h at 10 bar back pressure
- Easy to put into operation thanks to "Plug & Dose" (standard configuration)



CHARACTERISTICS:

- CIP-cleanable pump head
- Electric actuator
- Onboard stroke frequency sensor
- Diaphragm monitoring
- Compliant with FDA/EC 1935 food safety standards



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Beer colour may vary due to production or raw materials. Colouring malt is added to ensure consistency in beer colour. Brewers may produce a large amount of light-coloured beer initially and later "dye" a portion of the beer to a darker shade.

CLEANABLE MEMBRANE METERING PUMP, 409.2, 410.2-CIP (CLEANING IN PLACE), DIAPHRAGM METERING PUMP 409.2, 410.2

DOSING OF DIATOMACEOUS EARTH (KIESELGUR)



AREAS OF APPLICATION:

For special dosing operations and to meet almost all customer needs



CHARACTERISTICS:

- Elastic valve seat
- Diaphragm monitoring



DESIGN DATA:

- output range from 0.4 l/h to 1450 l/h at 10 bar back pressure
- Easy to put into operation thanks to "Plug & Dose" (standard configuration)

All 4-series motor-driven metering pumps are also available with variable, intelligent control electronics (option C).



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After the conditioning process, the beer is passed through a filter system to increase its shelf life and improve its appearance. Consumers prefer crystal-clear beer. The filters are charged with – amongst other things – kieselguhr, a porous stone that retains the smallest of particles (yeast cell, protein or hops residue). The diaphragm pumps from the 409.2 and 410.2 series are ideal for dosing a suspension of kieselguhr as a filter aid.

DIAPHRAGM METERING PUMP TYPE C409.2, 410.2

CONVEYOR LUBRICANT DOSING



AREAS OF APPLICATION:
Conveyor Lubricant Dosing



SET-UP:
the magnetic diaphragm pumps are available with simple and comprehensive (C204.1) control electronics.

We offer a range of features for special dosing operations and to meet diverse customer needs, such as:

- Multifunctional valves
- Complete with dosing sets (Plug & Dose)
- Option with Profibus DP interface



DESIGN DATA

- output range from 0.4 l/h to 35 l/h
- Back pressures of up to 10 bars
- Easy to put into operation thanks to "Plug & Dose"



SOLENOID DIAPHRAGM DOSING PUMPS, TYPES C204.1, ECOBLUE

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Bottle conveyor systems are needed to move bottles from one unit to another. To ensure that conveyor systems do not show signs of wear and tear, the conveyor belt needs to be lubricated regularly. Lubricants are applied to a conveyor belt using a magnetic diaphragm pump.



CHLORINE DIOXIDE GENERATOR CDG 200.1

1 Chlorine dioxide helps to keep fresh water and process water in the brewing process free from bacteria, spores, yeast cells and viruses, and it also helps remove biofilm. Chlorine dioxide is absolutely safe for the environment despite its high disinfection performance.

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DISINFECTION OF DRINKING WATER, PROCESS WATER AND COOLING WATER



AREAS OF APPLICATION:

- Addition of Cl_2 to disinfect drinking, process and cooling water
- Breaking down biofilm in pipe systems
- Destroying bacteria, spores, yeast cells and viruses



SET-UP:

The system consists of two selectable metering pumps, two flow meters, a reactor and a control unit. The chemicals are fed into the reactor at a 1:1 mix.



DESIGN DATA:

hydrochloric acid 9 %, sodium chloride 7.5 % = the end product chlorine dioxide solution



CHARACTERISTICS:

- Outstanding bactericidal, sporicidal, virucidal and algicidal characteristics
- pH-independent disinfection
- No chlorophenol formation
- No THM formation
- Elimination of odour, flavour and colouring
- Operating parameters are monitored
- Continuous operation
- The display always shows the current pump capacity

 **Krombacher**

 **corosys**
Prozeßsysteme und Sensoren GmbH

 **PALL**

 **VAN DER MOLEN**
PROCESS SYSTEMS

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Carlsberg



Coca-Cola




König Pilsener


JEVER

 **Kronen**


KIESELMANN
FLUID PROCESS GROUP

GEA

 **KRONES**

 **corosys**
Prozeßsysteme und Sensoren GmbH

 **PALL**



OUR REFERENCES AT A GLANCE

sera dosing technology with high-quality metering pumps and dosing systems has been used for more than 70 years in a wide range of industries all over the world. The products create added value every day and provide high-quality results for the consumer. We offer you:



High-quality pumps, dosing units and systems

We offer you a comprehensive portfolio of reliable, durable and precise metering pumps for output capacities from 0.4 l/h to 1,900 l/h at pressures of up to 220 bars. Or choose from a range of feeding pumps with a pump capacity of up to 3,100 l/h.



A wide variety of versions and materials

For over 70 years, we have stood for experience and know-how. That way, we are able to quickly and flexibly modify your designs or realise the designs you require.



Individual customised solutions

Developing and implementing customised solutions perfectly tailored to meet the needs of each specific application.



Economical solutions

Short delivery times and high availability at great price without compromising on performance. Sophisticated product lines for a wide range of applications with extensive upgrading options and accessories.



Maintenance and service

Our services include maintenance and repair services, providing spare parts, assembly and installation, technical support, and customer training.



Fittings and Accessories

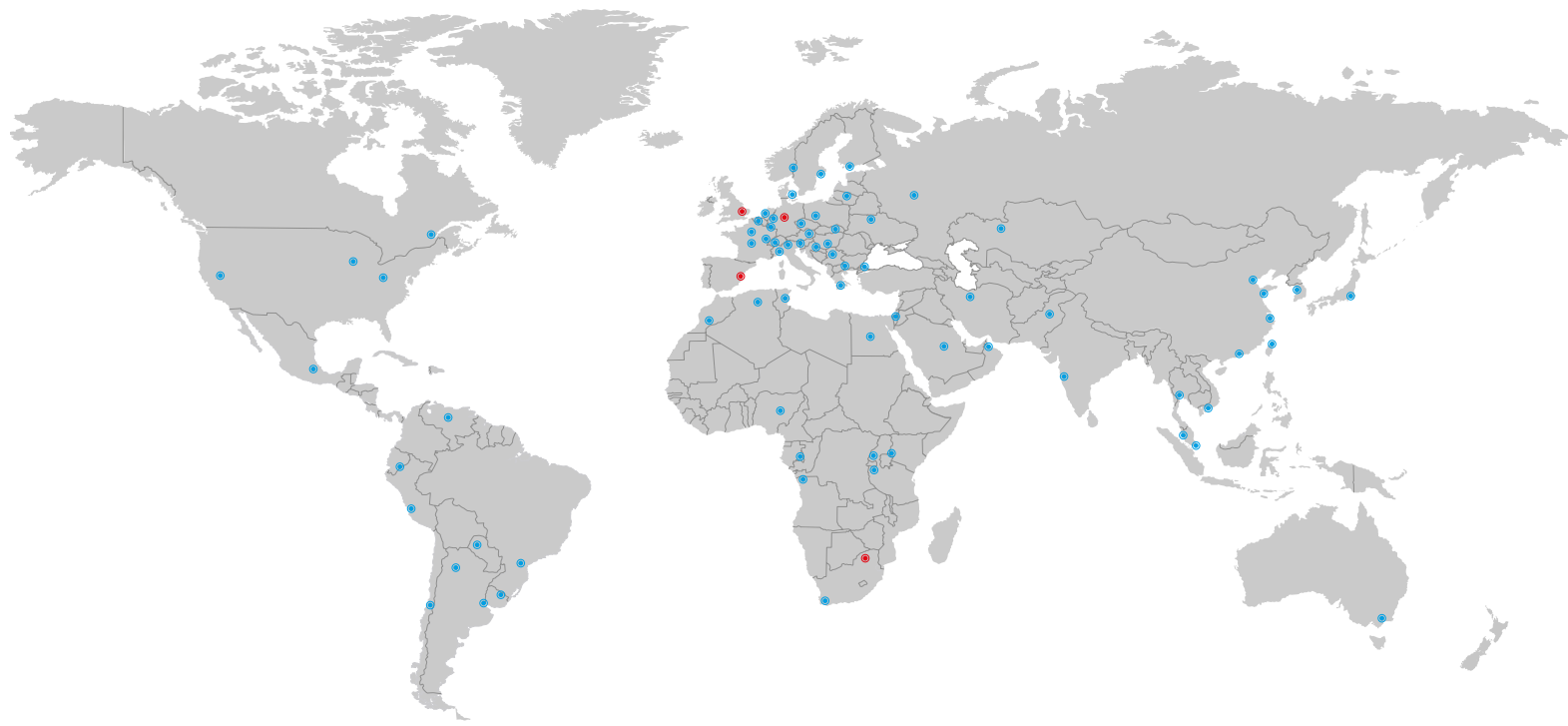
We provide an extensive range of fittings and accessories, thanks to our dosing systems and metering pumps. Feel free to contact us.



CUSTOM SOLUTIONS FOR YOUR NEEDS

Often, standardised dosing systems cannot sufficiently meet the respective requirements.

Developing customised solutions is one of our strengths. Thus, together with you, our application engineers develop your very own customised solution for your specific application(s).



ENGAGED WORLDWIDE FOR YOU

Your sera contact

With headquarters in Germany and subsidiaries in England, Spain and South Africa, as well as a global sales and service network with over 30 partners in more than 80 countries all over the world, **sera** guarantees optimal customer care on-site.



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