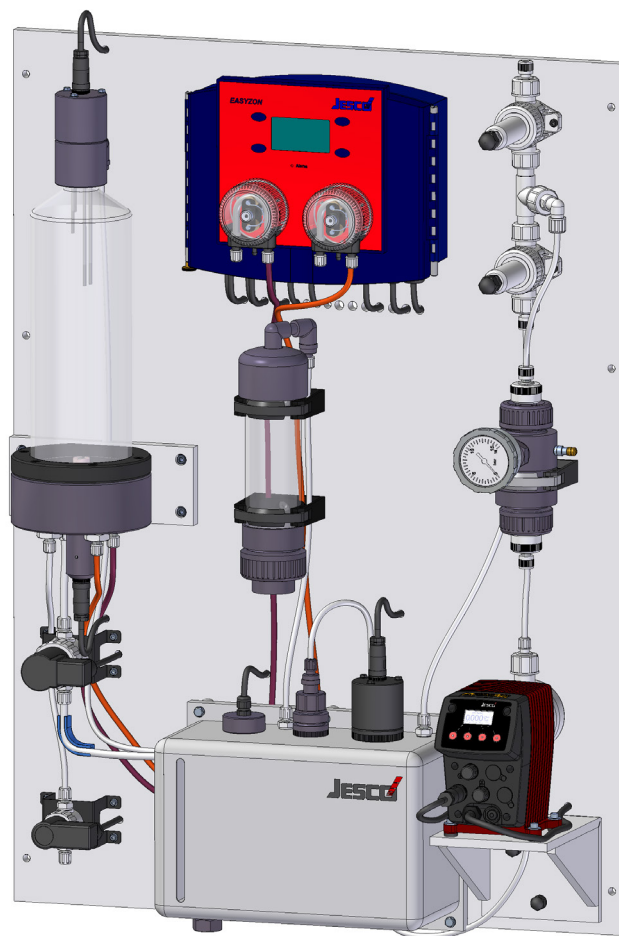


Chlorine Dioxide System **EASYZON 5** Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

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1 Notes for the Reader

This operating manual contains information and behaviour rules for the safe and designated operation of the device.

Observe the following principles:

- Read the entire operating manual prior to starting-up the device.
- Ensure that everyone who works with or on the device has read the operating manual and follows it.
- Maintain the operating manual throughout the service life of the device.
- Pass the operating manual on to any subsequent owner of the device.

1.1 General non-discrimination

In this operating manual, only the male gender is used where grammar allows gender allocation. The purpose of this is to make the text easy to read. Men and women are always referred to equally. We would like to ask female readers for understanding of this text simplification.

1.2 Explanation of the signal words

Different signal words in combination with warning signs are used in this operating manual. Signal words illustrate the gravity of possible injuries if the risk is ignored:

Signal word	Meaning
DANGER	Refers to imminent danger. Ignoring this sign may lead to death or the most serious injuries.
WARNING	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to death or severe injuries.
CAUTION	Refers to a potentially hazardous situation. Failure to follow this instruction may lead to minor injury or damage to property.
NOTE	Refers to a danger which, if ignored, may lead to risk to the machine and its function.

Table 1: Explanation of the signal words

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:








Warning sign	Type of danger
	General danger
	Danger from electrical voltage
	Danger from poisonous substances
	Danger from corrosive substances
	Danger from potentially-explosive substances
	Danger from oxidising substances
	Danger of damage to machine or functional influences

Table 2: Explanation of the warning signs

1.4 Identification of warnings

Warnings are intended to help you recognise risks and avoid negative consequences.

This is how warnings are identified:

Warning sign	SIGNAL WORD
	<p>Description of danger. Consequences if ignored.</p> <p>⇒ The arrow signals a safety precaution to be taken to eliminate the danger.</p>

1.5 Identification of action instructions

This is how pre-conditions for action are identified:

- ✓ Pre-condition for action which must be met before taking action.
- ✘ A resource such as a tool or auxiliary materials required to perform the operating instructions.

This is how instructions for action are identified:


- ➔ Separate step with no follow-up action.
- 1. First step in a series of steps.
- 2. Second step in a series of steps.
 - ▶ Result of the above action.
- ✓ **Action completed, aim achieved.**


2 Safety


2.1 General warnings


The following warnings are intended to help you to eliminate the dangers that can arise while handling the system. Risk prevention measures always apply regardless of any specific action.


Safety instructions warning against risks arising from specific activities or situations can be found in the respective sub-chapters.


	DANGER
<p>Mortal danger from electric shock!</p> <p>Wrongly connected or located cables or damaged ones can injure you.</p> <ul style="list-style-type: none"> ⇒ Perform the electrical installation in accordance with the appropriate circuit diagram. ⇒ Replace damaged cables without delay. ⇒ Do not use extension cables. ⇒ Do not bury cables. ⇒ Secure cables to avoid being damaged by other equipment. 	


	DANGER
<p>Danger to life through explosions!</p> <p>Chlorine dioxide gas (ClO₂) is prone to explode if the concentration in the gas phase becomes too high.</p> <ul style="list-style-type: none"> ⇒ Never use chemicals with a higher concentration than prescribed. ⇒ Never heat the chlorine dioxide solution. ⇒ Comply with the specifications in Chapter 5 „Technical data“ on page 13. 	


	DANGER
<p>Danger to life from poisoning!</p> <p>Mixing sodium chlorite and hydrochloric acid outside the reactor will result in the development of chlorine dioxide gas. Chlorine dioxide is a very toxic substance if inhaled and very irritant for the eyes, the respiratory organs and skin. Prevent the uncontrolled development and re-lease of chlorine dioxide gas by complying with the following instructions.</p> <ul style="list-style-type: none"> ⇒ Avoid contact between sodium chlorite and hydrochloric acid outside the reactor. ⇒ Mark clearly all material-conducting components (e.g. collecting pans, chemicals canisters, suction lines, hoses, pumps) with a colour. Renew the damaged markings regularly. ⇒ Take steps to prevent the mixing of hydrochloric acid and sodium chlorite outside the scope of the controlled processes by separating the chemicals strictly and never swapping suction lines / lances. ⇒ Install a gas sensor or a gas warning device which deactivates the system following the presence of chlorine dioxide in the room air. ⇒ Install an emergency stop switch with which the system can be deactivated from a safe distance. The emergency stop switch should be located outside the room in which the chlorine dioxide system is located. It should be easily recognisable. ⇒ Always wear sufficient personal protective equipment when in the area of the system. ⇒ Comply with the safety instructions outlined in the safety data sheets of the chemicals and meet the corresponding safety precautions. 	


	WARNING
<p>Danger of fire!</p> <p>Dried up sodium chlorite has an oxidising effect and can ignite flammable materials.</p> <ul style="list-style-type: none"> ⇒ Do not allow sodium chlorite to dry on flammable materials. ⇒ Use suction lines with a foot valve to avoid leaks when changing the container. ⇒ Remove any spilt chemicals with large amounts of water. ⇒ Rinse out splashes of chemicals on articles of clothing with large amounts of water immediately. 	

	WARNING
<p>Danger of injury when working on the components.</p> <p>You may come into contact with dosing media when working on the system components.</p> <ul style="list-style-type: none"> ⇒ Secure the system to prevent it from being turned on accidentally. ⇒ Use sufficient personal protective equipment. ⇒ Rinse the system before working on individual components so as to remove dosing medium residue. Only use water. ⇒ Release pressure in hydraulic parts. ⇒ Never look into open ends of plugged pipelines and valves. 	


	WARNING
<p>Caustic burns or other burns through dosing media!</p> <p>The materials of the components and hydraulic parts of the system must be suitable for the dosing medium that is used. Should this not be the case, the dosing media may leak.</p> <ul style="list-style-type: none"> ⇒ Make sure that the materials you are using are suitable for the dosing medium. ⇒ Make sure that the lubricants, adhesives, sealants, etc. that you use are suitable for the dosing medium. 	


	CAUTION
<p>Damage to health from by-product!</p> <p>Chlorine dioxide solutions break down slowly and produce undesired by-products.</p> <ul style="list-style-type: none"> ⇒ Chlorine dioxide must be manufactured on-site. ⇒ The chlorine dioxide solution must be thinned to a concentration of 1 - 2 g/l before storage. ⇒ Too old chlorine dioxide solutions are not suitable for the disinfection of drinking water. 	

	CAUTION
<p>Danger from hazardous materials!</p> <p>Escaped dosing medium can result in health hazards and the chemical attack of components.</p> <ul style="list-style-type: none"> ⇒ Dispose of dosing medium residue in the correct fashion. ⇒ Clean the affected system parts thoroughly with large quantities of water. 	

	CAUTION
<p>Increased risk of accidents due to insufficient qualification of personnel!</p> <p>Chlorine dioxide systems and their accessories must only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.</p> <ul style="list-style-type: none"> ⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications. Comply with Chapter 2.5 „Personnel qualification“ on page 8. ⇒ Those performing system settings require an exact understanding of their effects on the production process and operating behaviour. Settings may only be performed by qualified service personnel. ⇒ Prevent access to the system for unauthorised persons. 	

	NOTE
<p>Corrosion from hydrochloric acid steam</p> <p>Hydrochloric acid steam has a corrosive impact and can damage to insufficiently protected components and parts.</p> <ul style="list-style-type: none"> ⇒ The installation location of the system must have ventilation. ⇒ Unprotected metal components in the chlorine dioxide room should be painted for their protection. 	

	NOTE
<p>Possible corrosion on the piping</p> <p>The chlorine dioxide solution is acidic and alters the pH value of the treated water. This can cause long-term damage to the piping.</p> <ul style="list-style-type: none"> ⇒ Never alter the pH value by more than 0.5 pH. ⇒ We recommend a total water hardness of at least 5° dH or Ks 4.3 = 0.9 mmol/l ⇒ Use the piping made of durable material. 	

	NOTE
<p>Do not dispose of the device in the domestic waste!</p> <p>Do not dispose of electric devices via the domestic waste.</p> <ul style="list-style-type: none"> ⇒ The device and its packaging must be disposed of in accordance with locally-valid laws and regulations. ⇒ Dispose of different materials separately and ensure that they are recycled. 	

2.2 Hazards due to non-compliance with the safety instructions

Failure to follow the safety instructions may endanger not only persons, but also the environment and the device.


The specific consequences can be:

- Failure of major system functions,
- failure of required maintenance and repair methods,
- danger for individuals through dangerous dosing media,
- danger to the environment caused by substances leaking from the system.

2.3 Working in a safety-conscious manner

Besides the safety instructions specified in this operating manual, further safety rules apply and must be followed:

- Accident prevention regulations,
- safety and operating provisions,
- safety provisions for handling dangerous substances (mostly the safety data sheets to dosing media),
- environmental protection provisions,
- applicable standards, specifications and legislation.

 The information from standards and technical regulations contained in these operating instructions are to be understood as supplementary information. In no way do they absolve the reader of the obligation to obtain the relevant information themselves. The manufacturer does not accept any responsibility for the up-to-date nature of the recommendations and instructions from standards and technical regulations published in these operating instructions.

2.4 Personal protective equipment

Based on the degree of risk posed by the dosing medium and the type of work you are carrying out, you must use corresponding protective equipment. Read the Accident Prevention Regulations and the Safety Data Sheets to the dosing media find out what protective equipment you need.

You will require the minimum of the following personal protective equipment:


Personal protective equipment required	
	Respirator mask
	Face protection
	Protective clothing
	Safety shoes
	Protective gloves

Table 3: Personal protective equipment required

Wear the following personal protective equipment when performing the following tasks:

- Commissioning,
- Working on the dosing pump while running,
- Shut-down,
- Maintenance work,
- Disposal.

2.5 Personnel qualification

Any personnel who work on the system must be in possession of the appropriate special knowledge and skills.

Anybody who works on the system must meet the following conditions:

- Attendance at all the training courses offered by the owner,
- personal suitability for the respective activity,
- sufficient qualification for the respective activity,
- Training in handling of the system,
- knowledge of safety equipment and the way this equipment functions,
- knowledge of this operating manual, particularly of safety instructions and sections relevant for the activity,
- knowledge of fundamental regulations regarding health and safety and accident prevention.

All persons must generally have the following minimum qualification:

- Training as specialists to carry out work on the device unsupervised,
- sufficient training that they can work on the device under the supervision and guidance of a trained specialist.

These operating instructions differentiate between these user groups:

2.5.1 Specialist staff

Thanks to their professional training, knowledge, experience and knowledge of the relevant specifications, specialist staff are able to perform the job allocated to them and recognise and/or eliminate any possible dangers by themselves.

2.5.2 Trained electricians

Due to their professional training, knowledge and experience as well as knowledge of specific standards and provisions, trained electricians are able to do the electrical work assigned to them and to recognise and avoid any potential dangers by themselves.

They are specially trained for their specific working environment and are familiar with relevant standards and provisions.

They must comply with the legally binding regulations on accident prevention.

2.5.3 Trained persons

Trained persons have received training from the operator about the tasks they are to perform and about the dangers stemming from improper behaviour.

In the table below you can check what qualifications are the pre-condition for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks!

Qualification	Activities
Specialist staff	<ul style="list-style-type: none"> ■ Assembly ■ Hydraulic installations ■ Make settings on the software and system components ■ Commissioning ■ Control ■ Maintenance ■ Repairs ■ Taking out of operation ■ Storage ■ Disposal ■ Fault rectification
Trained electricians	<ul style="list-style-type: none"> ■ Electrical installation ■ Rectifying electrical faults
Trained persons	<ul style="list-style-type: none"> ■ Control

Table 4: Personnel qualification

3 Intended use

3.1 Notes on product warranty

Any non-designated use of the product can compromise its function or intended protection. This leads to invalidation of any warranty claims!

Please note that liability is on the side of the user in the following cases:

- The system is operated in a manner which is not consistent with these operating instructions, particularly safety instructions, handling instructions and the section "Intended Use".
- If people operate the product who are not adequately qualified to carry out their respective activities.
- No original spare parts or accessories of Lutz-Jesco are used.
- Unauthorised alterations are made to the system.
- The user uses different dosing media than those indicated in the order.
- The user does not use dosing media under the conditions agreed with the manufacturer such as modified concentration, density, temperature, contamination, etc.
- Maintenance and inspection intervals are not adhered to as required or not adhered to at all.
- The system is commissioned before it has been completely and properly installed.
- Safety equipment has been bridged, removed or made inoperative in any other way.

3.2 Intended purpose

The chlorine dioxide system is intended for the following purpose: Production of a chlorine dioxide solution (ClO_2) from sodium chlorite (NaClO_2), hydrochloric acid (HCl) and dilution water. Filling a product tank from which the chlorine dioxide solution can be taken for disinfecting water treatment using further extraction pumps or dosing systems.

3.3 Principles

- The system may only use 7 % sodium chlorite (NaClO_2) in accordance with EN 938.
- The system may only use 9 % hydrochloric acid (HCl) in accordance with EN 939.
- Comply with the information regarding the operating and environmental conditions (see section "Technical Data" on page 15).
- The manufacturer's / chemical supplier's EEC safety data sheets for the chemicals included in the scope of delivery of the system are to be complied with and must be held accessible to every user of the system.

4 Product description

4.1 Properties

The chlorine dioxide system unit is fitted with the following components and provides the following characteristics:

- Plastic base plate for wall mounting prepared
- Dosing of the dosing medium via peristaltic pumps
- Dosing of the dilution water via the solenoid valve
- Glass reactor with level sensors and agitator
- Product tank with level sensors and overflow monitor, volume, approx. 5.7 litres.
- Extraction pump with a back-pressure and pressure-relief valve and pulsation damper
- Intuitively operable control with LCD display: all messages in plain text.
- Suction lines for commercially-available canisters with level alarms.

A comprehensive range of accessories is available for the EASYZON 5. This comprises e.g. catch basins, warning signs, measuring equipment, a surrounding air sensor, leakage sensors (see section 12 „Accessories“ on page 38).

4.2 Scope of delivery

Check the scope of delivery for completeness against the delivery note carefully before beginning with the installation and check that the components have not suffered any damage during transport. Notify the supplier or transport company of any damage suffered during transport.



The system can contain water residue from tests on the test stand.

4.3 Chlorine dioxide (ClO₂) in water treatment

Chlorine dioxide is a potent, fast-acting oxidizing and disinfectant agent, with the following properties:

- A good effect against bacteria, viruses, spores and algae
- Full disinfecting power across a broad pH range (5-11)
- A higher disinfecting power than chlorine
- The odour and taste threshold of ClO₂ is higher than chlorine
- Its use does not produce any trihalomethanes (THM) or chloramines
- ClO₂ has a better repository effect than chlorine

4.3.1 The applications of chlorine dioxide

- Process water treatment
- Raw water treatment
- Legionella prevention
- Emergency chlorinating systems
- Water works
- Breweries
- Beverage manufacturer
- Treating food
- Controlling bio films as on e.g. cooling water systems

The chlorine dioxide system EASYZON is especially suitable for applications with a low water consumption (hotels, hospitals, care homes, rehabilitation centres).

4.3.2 The preparation of Chlorine dioxide

EASYZON 5 produces chlorine dioxide via the acid-chlorite method using diluted chemicals. Both chemicals are mixed with water in a reactor and react to produce chlorine dioxide.



A circa fivefold surplus of hydrochloric acid in the reactor enables almost complete implementation of the sodium chlorite to chlorine dioxide with a concentration of up to 2 g/l. The remaining hydrochloric acid generates a low pH value of the product, which is required for its storability.

4.3.3 Description of the unit / Flow chart

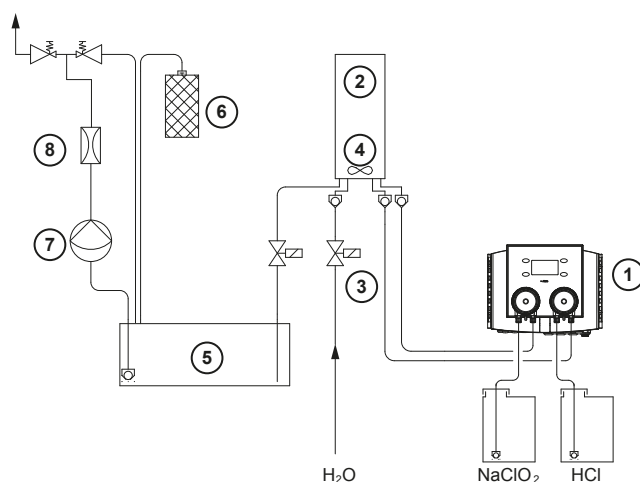


Fig. 1: Flow chart of the unit

EASYZON produces the chlorine dioxide in a batch process. Integrated hose pumps integrated in the control system, ① feed both of the output chemicals into reactor ② and the solenoid valve ③ injects the dilution water from the drinking water line. Mixer ④ ensures that the chemicals are thoroughly mixed and thus for an optimal reaction result. The product flows into the product tank ⑤ after a complete reaction. The activated carbon cartridge ⑥ ensures that chlorine dioxide is unable to escape into the room air.

An extraction pump ⑦ is controlled on-site by a flow meter or regulator and is supplied from the supply tank.

A pulsation damper ⑧ ensures an equal flow.

The control ① monitors all fluid levels and ensures a constant reserve in the product tank ⑤. It monitors the remaining chemical supply and notifies the need of a canister replacement before production comes to a halt.

4.3.4 Additional functions

Gas warning device

The functionality of a gas warning device is integrated in the control system. It has to be activated in the control system after the ambient air sensor has been connected. When the gas alarm goes off the production stops and the unit activates the alarm.

Leakage monitoring

Leakage sensors can be recorded in the catch basins and be analysed.

Service life control

As chlorine dioxide has a limited service life, a safe disinfection can no longer be guaranteed after the storage time has been exceeded. The control warns of the use of old solutions. The dosing can be automatically interrupted.

4.4 Dosing of chlorine dioxide

Drinking water may contain max. 0.2 mg/l ClO_2 after treatment. As some contents in the water cause a loss of ClO_2 , the drinking water is only allowed max. 0.4 mg/l ClO_2 .

Therefore the addition is done in drinking water circuits proportionally to the quantity of water fed through. We do not recommend automatic regulation dependent on the ClO_2 content of the water.

i If chlorine dioxide was already added to the water in other preparatory steps, this must be considered. The limit values apply to the total of all the stages of the treatment.

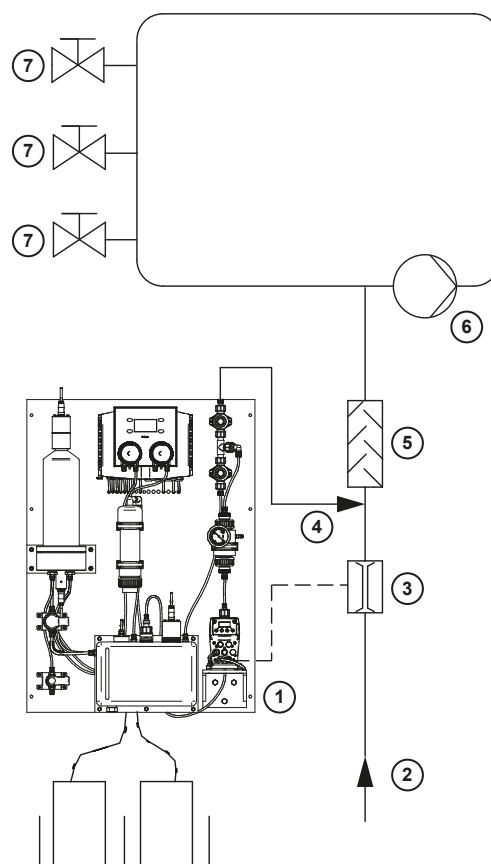


Fig. 2: Dosing for a water circuit

Position	Description
①	Chlorine dioxide system
②	Water supply
③	Flow meter
④	Injection nozzle
⑤	Mixing section
⑥	Circulation pump
⑦	Tap connection

Fig. 3: Dosing for a water circuit

4.5 Components of the basic system

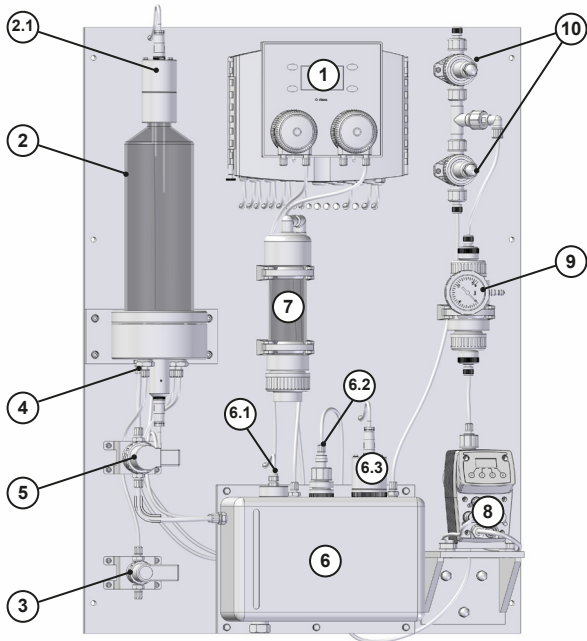


Fig. 4: Components of the basic system

No.	Description
1	Control system with integrated hose pumps
2	Reactor
2.1	Level sensor
3	Water solenoid valve
4	Agitator
5	ClO ₂ outlet solenoid valve
6	ClO ₂ tank
6.1	Safety switch
6.2	Suction lance
6.3	Level sensor
7	activated carbon
8	Extraction pump
9	Pulsation dampener
10	Back-pressure / pressure-relief valve

Table 5: Components of the basic system

4.6 Rating plate

The rating plate contains information on the safety and functional method of the product. The rating plate must be kept legible for the duration of the service life of the product.

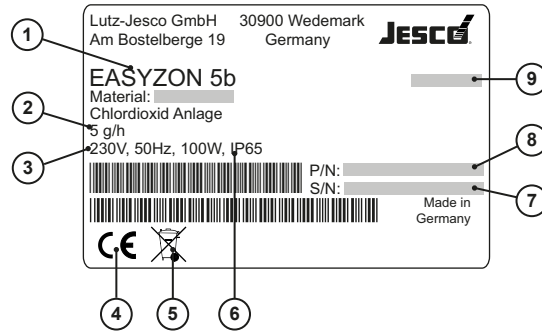


Fig. 5: Rating plate EASYZON 5

No.	Description
1	Product name
2	Production capacity ClO ₂ /h
3	Voltage supply, frequency, power consumption
4	Label showing conformity with applicable European directives
5	WEEE label
6	Protection classification
7	Serial number
8	Part number
9	Month / year of manufacture

Table 6: Rating plate

5 Technical data

Description	Value
Production capacity	5 g/h ClO ₂
Product concentration	2 g/l ClO ₂
Weight with filled tank	approx. 32 kg
Operating voltage	230 V AC, 50/60 Hz
Protection class	IP 65
Power consumption	max. 100 W
Current consumption during dosing stroke	max. 2.3 A
Alarm relay	max. 230 V AC, 3 A max. 30 V DC, 8 A max. 110 V DC, 0.3 A max. 220 V DC, 0.12 A
External isolation	potential-free
Ambient temperature	10 ... 40 °C
Dilution water	Drinking water quality min. 2.5 l/h, 1 ... 5 bar, 5 ... 30 °C
Chemicals used	Hydrochloric acid concentrate (9%) as per EN939 Sodium chlorite concentrate (7.5%) as per EN938
Chemical consumption with full production capacity	Hydrochloric acid: 12 l/day Sodium hydroxide: 3 l/day
Utilisable volume of the product tank	5700 cm ³
Service life of the ClO ₂ solution at 15 °C	> 24 hours
pH value of the ClO ₂ solution	approx. pH 1.3
Chloride loading of the ClO ₂ solution	19 g/l (shown as Cl)
ClO ₂ extraction pump	Max. 3.8 l/h at 8 bar
Controlling the extraction pump	Pulse frequency (up to 100 pulses/min) or 0/4 ... 20 mA-Signal
Hydraulic connections	Water feed and suction lines: hose 4/6 mm Dosing line: hose 6/9 mm

Table 7: Technical data

EASYZON is a system for the "in situ" production of the biocidal active agent "chlorine dioxide": In accordance with the biocide ordinance, as of 01/09/2015, the member states of the European Union may only use precursors for biocidal active agents produced "in situ" and which are used as disinfectants. These precursors must satisfy the quality requirements made of these substances by DIN EN and be sourced from a manufacturer or supplier listed in accordance with article 95 of the biocide ordinance. Please ask your supplier to confirm conformity with the biocide ordinance (certificate).

Biocidal active agent:

Chlorine dioxide: EC-Nr. 233-162-8; CAS-Nr. 10049-04-4; DIN EN 12671

Precursors:

Hydrochloric acid (9.0 %): EC-Nr. 231-595-7; CAS-Nr. 7647-01-0; DIN EN 939

Sodium chlorite (7.5 %): EC-Nr. 231-836-6; CAS-Nr. 7758-19-2; DIN EN 938

6 Dimensions

All dimensions in millimetres (mm).

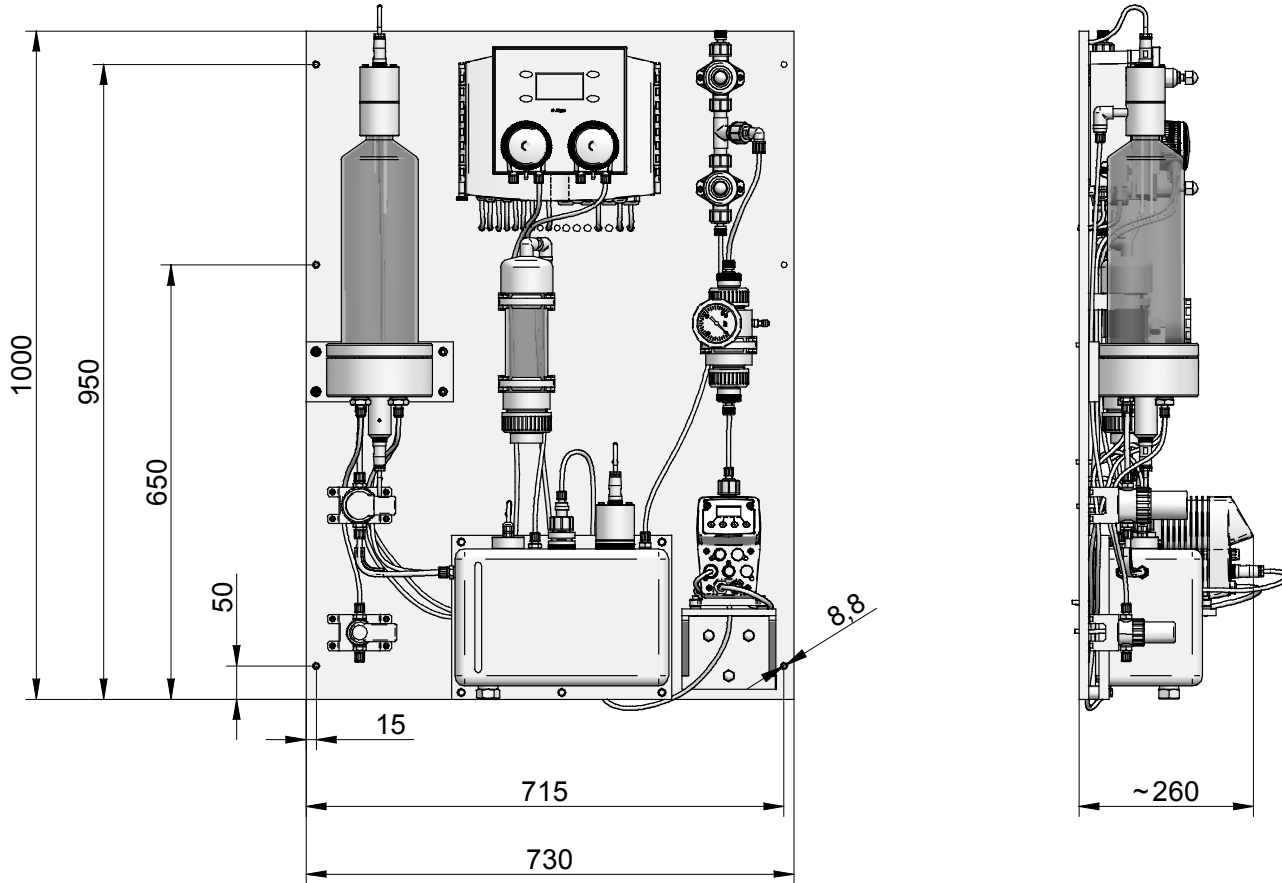


Fig. 6: Dimensions

7 Installation

7.1 General Notes



For installation, the local directions and regulations have to be adhered to. This applies to the choice of suitable materials, the handling of chemicals, the hydraulic and electrical installation.

The designer and operating company are responsible for ensuring that the entire system, including the integrated equipment, are designed in such a way that neither system equipment nor buildings are damaged in the case of chemical leakage due to the failure of wearing parts (e.g. pump hose) or burst hoses. The installation must be arranged in such a way that even if the device breaks down no disproportionately high consequential damages can arise. We therefore recommend installing leakage monitors and collecting pans.

The functional security requires, depending on the application, the use of suitable accessories, for example: injection nozzle and static mixer.

7.2 Installation location

The installation room of the production and dosing system must satisfy the following requirements and specifications:

- The room must be lockable and the chemicals must be stored in a lockable room.
- People are not permitted to remain in the room. An exception is provided by the presence in the room of only those chemicals required for the continuation of works.
- The room must be secured against access by unauthorised persons.
- The room air temperature must lie between 5 °C and 40 °C.
- It must be possible to ventilate the room.
- It must be possible to dispose of chemicals safely (recommendation: water connection, sink, water hose, floor drain with odour trap).
- The room is to be marked with warning signs (hazard warnings and safety precautions).
- The installation location must be separated from other spaces by fire-proof equipment.

The following must also be observed:

- Install the system in such a way that permits easy access from all sides. A minimum of a half a metre clearance to other objects from all sides must be maintained. If the chemical containers are placed in direct proximity to the system, space requirements can increase accordingly.
- The device is to be mounted vertically. The underside of the unit should be approx. 1 m above the ground.
- The system is not intended for outdoor use.
- Fluid, dust and other foreign objects may not be permitted to enter the components.
- Avoid exposure to direct sunlight.
- Relative humidity may not be permitted to exceed 92%.
- The atmosphere may not be condensing or corrosive.
- An escape route must be present.
- It must be possible to mount a gas warning device.
- It must be possible to mount an emergency-stop switch outside the room in which the chlorine dioxide system is located.

7.3 Wall mounting

In the delivery scope of the device there is mounting material for brickwork or concrete. Suitable material has to be provided by the customer for any other sub-surface.

The position of the fastening point is to be inferred from the dimensioned drawing (Chapter 6). All 6 drill-holes have to be used.

The wall panel is clamped on the mounting bolts between two nuts with washers. The unevenness of the wall can be levelled out by adjusting the nuts until the wall panel is kept level and free from tension.

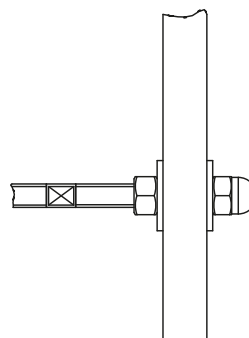


Fig. 7: Wall mounting

7.4 Hydraulic Installation

Always use appropriate tools for the installation of plastic connection parts. To avoid damage, never apply excessive force.

7.4.1 Hose connections

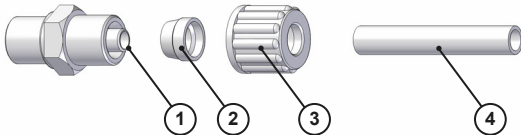


Fig. 8: Hose connection for PE-HD and PTFE hoses

Perform the following working steps:

1. Cut the hose ④ to length neatly and at an exact right angle.
2. Push the union nut ③ and the clamping ring ② onto the hose end. In doing so, maintain the order and alignment of clamping ring and union nut.
3. Push the hose ④ to the end of the hose taps ①.
4. Push the clamping ring ② on the hose taps ①.
5. Tighten the union nut ③ by hand (approx. 10 Ncm).

7.4.2 Water connection

EASYZON requires a water supply in drinking water quality at a temperature of 5 ... 30 °C.

i When connecting to the drinking water supply the local regulations have to be observed. In most cases the installation of a piping or system separator is mandatory.

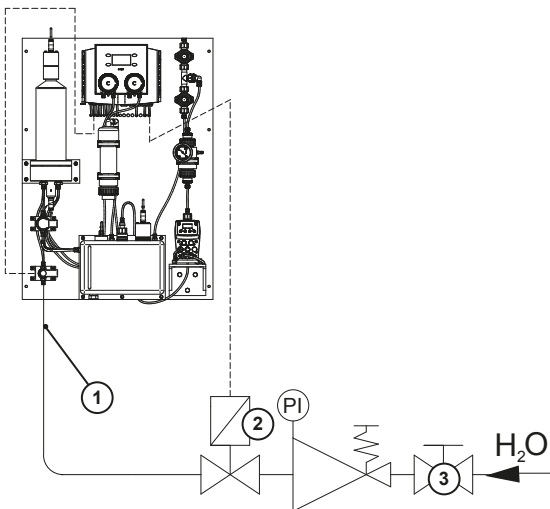


Fig. 9: Water valves

EASYZON controls two independently switching supply valves for the dilution water. Valve ① (in Fig. 6.3.2) is mounted on the wall panel and controls the quantity of water in the reactor. Valve ② is optional. EASYZON turns this valve OFF during the operational mode and during disturbances such as power failure or, for example, report of a leak.

The pressure reducing valve ③ is required if the line pressure is over the permissible supply pressure level of 1 ... 5 bar.

7.4.3 Pressure lines

Use a PTFE-hose as the pressure line from the extraction pump for the chlorine dioxide solution to the injection nozzle. The diameter and compression stroke are to be interpreted according to the installation. The hose line has to be fastened in a suitable hose support.

i When selecting the pressure hose the total pressure of the installation has to be taken into consideration, it consists of the system pressure and all the pressure losses at the fittings in the hoses. This total pressure must not exceed the specification in the technical data (Chapter 5).

i The local valid regulations must be taken into consideration when laying the hose line. It may be necessary to lay down a protective pipe, for example, under unfavourable conditions. The labelling of the lines is stipulated in part in accordance with the materials conveyed.

7.4.4 Suction lines



DANGER

Danger of an uncontrolled build-up of chlorine dioxide!

Swapping the suction lines results in an uncontrolled generation of chlorine dioxide gas.

- ⇒ Follow the instructions contained in Chapter 2.1 „General warnings“ on page 5.
- ⇒ Comply with the coloured markings of the suction lines and the connected hoses.
- ⇒ Do not switch the suction lines.

The standard suction lines provided are suitable for customary chemical canisters. The screw cap can be adjusted to fit the different receptacle sizes on the suction line.

The suction lines are fitted with float switches to monitor the level in the canister.

The suction hoses are led through behind the product and respectively attached at the left connection of the hose pump.

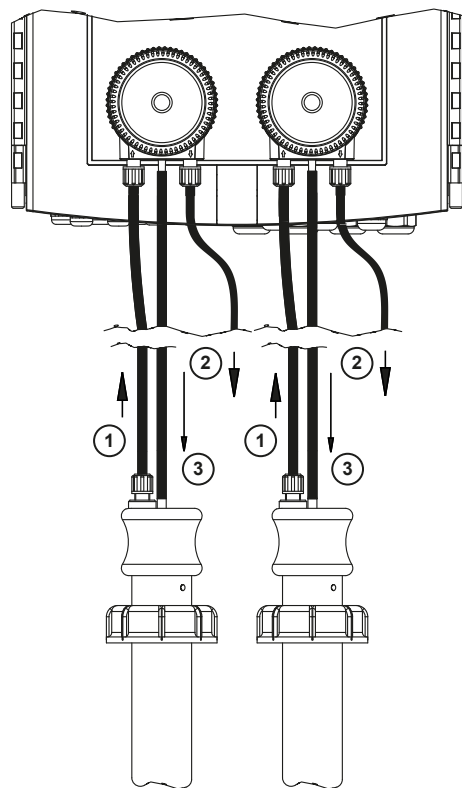


Fig. 10: Hose guidance

No.	Description
1	Suction line
2	Line to reactor
3	Drain pipe

Table 8: Hose guidance

Connect the drain pipes (3) to the return connection of the corresponding suction line.

7.4.5 Injection nozzle

Injection nozzles are used to inject the metered medium into the main flow, while at the same time acting as non-return valve. The piping near the injection nozzle must be sufficiently resistant to chemicals. It is recommended to use a chemical resistant plastic piping with a static mixer.

i The nominal pressure of the injection nozzles and flange is PN16 and applies to a water temperature of up to 20°C. At increased temperatures the pressure resistance lessens (30°C: 13 bar / 40°C: 10 bar).

i If an electro-conductive pipe is interrupted with the installation of the injection nozzle, then a electrically conductive connection must be made between the two pipe ends.

i The water line must be removable in front and behind the injection nozzle so that injection nozzle can be dismantled for maintenance purposes.

7.4.6 Emptying the product tank

The residual product must be able to be disposed of according to the local regulations upon activation of the service life control for the chlorine dioxide solution (neutralisation of the solution, see section 9.2). In addition, a drain valve can be installed on the product tank in place of the blanking plug. An O-ring serves to seal it.

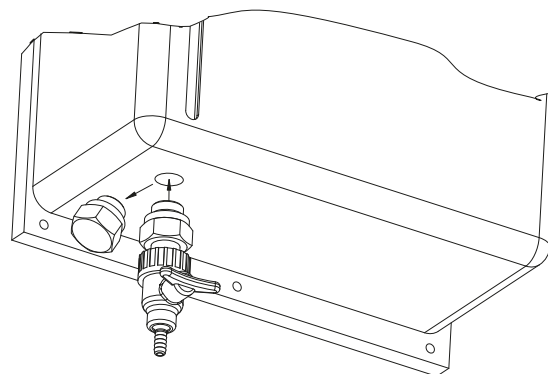


Fig. 11: Drain valve

i Only materials that are chemically resistant to chlorine dioxide may be used.

7.4.7 Example installation with analysis device

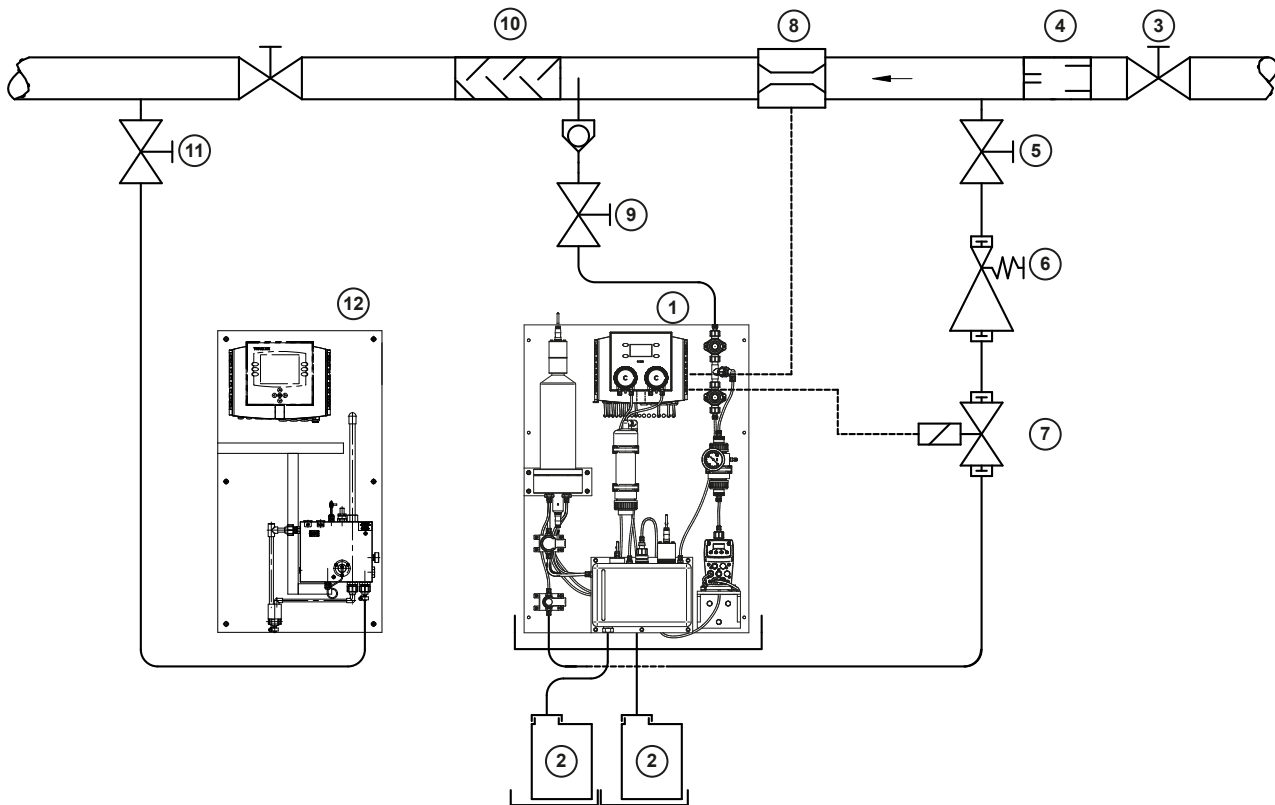
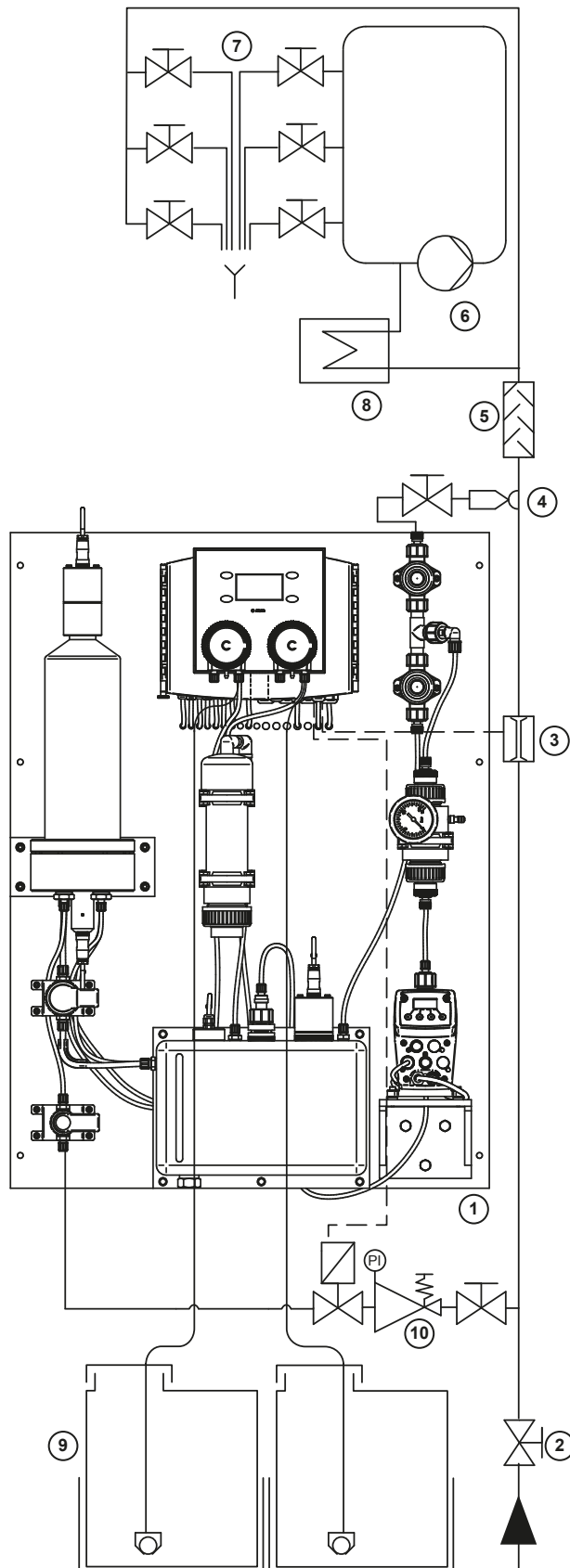


Fig. 12: Installation plan

No.	Description
1	Chlorine Dioxide System
2	Chemical container
3	Shut-off valve
4	Piping or system separator
5	Water extraction
6	Pressure reducer
7	Additional shut-off valve
8	Water meter
9	ClO ₂ injection nozzle
10	Mixing section
11	Sample water extraction (after good mixing and sufficient contact time)
12	Analysis device

Table 9: Installation plan

7.4.8 Example installation in hot water circuit





No.	Description
1	Chlorine Dioxide System
2	Water supply
3	Flow meter (e.g. contact water meter)
4	Injection nozzle
5	Mixing section
6	Hot water circuit circulation pump
7	Tap connection
8	Boiler
9	Chemicals
10	Solenoid valve, pressure-relief valve and shut-off valve


Table 10: Installation plan

Fig. 13: Installation example

7.5 Electrical installation

	DANGER
<p>Mortal danger from electric shock!</p> <p>Wrongly connected or located cables or damaged ones can injure you.</p> <ul style="list-style-type: none"> ⇒ Perform the electrical installation in accordance with the appropriate circuit diagram. ⇒ Replace damaged cables without delay. ⇒ Do not use extension cables. ⇒ Do not bury cables. ⇒ Secure cables to avoid being damaged by other equipment. 	

	NOTE
<p>Damage due to incorrect mains voltage</p> <p>The system can be damaged if you connect it to the wrong mains voltage.</p> <ul style="list-style-type: none"> ⇒ Observe the information on the mains supply that is given on the rating plate. 	

	NOTE
<p>Corrosion from hydrochloric acid steam</p> <p>Hydrochloric acid steam has a corrosive effect and can cause damage to insufficiently protected cable screw connections and cable passages on the control cabinet and the control housing.</p> <ul style="list-style-type: none"> ⇒ Seal any unused cable screw connections and cable passages against gas and water. ⇒ Protection class IP 55 must be given on all electrical connections. 	

The electrical connection of the device must correspond to local regulations and may only be carried out by qualified personnel.

The device does not have a mains plug. The voltage is supplied via the mains cable with a mains plug. A suitable plug socket that is sufficiently fused is to be provided in the proximity of the device. The system power supply should be disconnectable from outside the room.

The required protection degree must be ensured by installing the connections professionally. Unused cable entry points must be capped shut.

All mounted units and sensors are attached for the delivery. Only the electrical connections to the on-site units are to be made during installation. The extraction pump is attached directly to the signal generator for the dosing signal (e.g. water contact meter).

7.5.1 Opening the housing

The hinge axes on the housing are all screwed tight. A slotted screwdriver or a coin of the right size is required for the slotted nut in order to open the housing.

Perform the following working steps:

1. Remove the slotted nut ② from the left hinge axis ① located above.
2. Pull and remove the hinge axis ② downwards. To do so, use the curled thumb screw ③ which is screwed on.

✓ **The housing is open. The housing door can be swung open rightwards.**

Monitor the slotted nut when reassembling the housing.

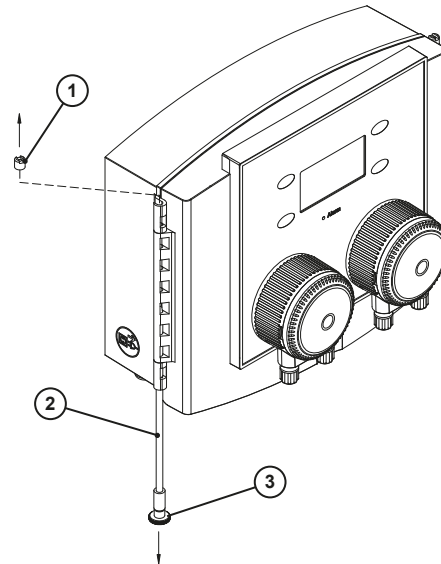


Fig. 14: Opening the casing

7.5.2 View of the circuit boards

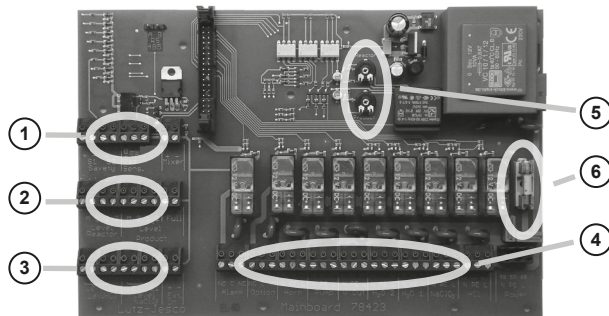


Fig. 15: Mainboard

No.	Description
1	Terminal strip 1
2	Terminal strip 2
3	Terminal strip 3
4	Terminal strip 4
5	Adjustment of the voltage of the probe sensors (set to 5 V ± 0.5 V)
6	Microfuse (230 V AC, 6.3 A slow)

Table 11: Mainboard

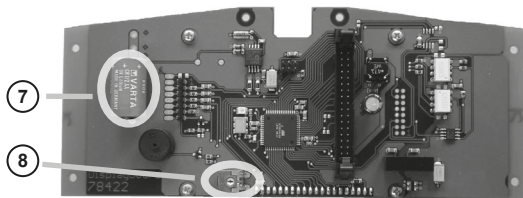


Fig. 16: Display circuit board

No.	Description
7	Soldered battery (life expectancy of approx. 10 years)
8	Adjustment display contrast

Table 12: Display circuit board

7.5.3 Connection specifications

Terminal	Function		
1	+	Digital input	Leak sensor
2	-	Safety S1	Catch basin unit
3	+	Digital input	Leakage sensors
4	-	Safety S2	Chemical catch basins
5	U+	Analog input Gas sensor	Gas sensor with 20 mA output and 3 wire connection see 7.8.1
6	4 - 20		
7	GND		
8		Not used	
9	+	Output	Stirring unit in the reactor
10	-	Mixer	

Table 13: Terminal strip 1

Terminal	Function		
11	M	Level monitoring in the reactor	Ground
12	1		Level 1
13	2		Level 2
14	3		Level 3
15	M	Level monitoring in product tank	Ground
16	0		Protection against dry running
17	1		Start new production
18	2		Increased supply (see 7.8.4)
19	+		Overfill monitor product tank
20	-		

Table 14: Terminal strip 2

Terminal	Cable	Function	
Suction line hydrochloric acid (HCl)			
21	+	BK (black)	Level alarm Hydrochloric acid
22	-	RD (red)	
23	+	= 21	Level pre-alarm Hydrochloric acid
24	-	WH (white)	
Suction line sodium chlorite (NaClO ₂)			
25	+	BK (black)	Level alarm Sodium chlorite
26	-	RD (red)	
27	+	= 25	Level pre-alarm Sodium chlorite
28	-	WH (white)	
External shut-down			
29	+	Production stop upon contact interruption	
30	-		

Table 15: Terminal strip 3

Terminal	Function	
31	N.O.	Alarm relay (two-way contact)
32	C	Alarm or power failure
33	N.C.	Middle contact
34	N.O.	Reserve relay (two-way contact)
35	C	Active if there is no alarm
36	N.C.	Not used
37	N	Horn relay
38	PE	Active if alarm
39	L	Normally Closed (N.C.) can be acknowledged
40	N	Relay output
41	PE	Voltage supply
42	L	Extraction pump
43	N	Relay output
44	PE	Emptying the reactor
45	L	Solenoid valve between reactor and product tank closed without power
46	N	Relay output
47	PE	Water intake 2
48	L	Solenoid valve mounted on the wall panel closed - without power
49	N	Relay output
50	PE	Water intake 1
51	L	On-site solenoid valve in water supply closed - without power
52	N	Relay output
53	PE	NaClO ₂
54	L	Peristaltic pump for sodium chlorite
55	N	Relay output
56	PE	HCl
57	L	Peristaltic pump for hydrochloric acid
58	N	Voltage supply
59	PE	
60	L	

Table 16: Terminal strip 4

7.6 Basic settings

All the parameters of the control system are set in such a way by the factory so that the unit can produce and dose chlorine dioxide under normal conditions. Special requirements at the operator's site may necessitate adjusting the settings.

Changes to the functions can be made in the sub-item SETUP in the Service Menu. It is protected with a four digit code against unauthorised entries. When changing the code, remember the new code. Otherwise, access is impossible. The factory settings are presented below:

Display	Standard	Limit values	Meaning
Time HCl	800 s	200 - 1500	Max. cycle duration of the hydrochloric acid pump for a reactor filling
Time NaClO ₂	400 s	100 - 500	Max. cycle duration of the sodium chlorite pump for a reactor filling
Time water	120 s	60 - 300	Max. filling time of the dilution water for a reactor filling
Time emptying	360 s	60 - 500	Time needed to empty the reactor into the product tank
Time reaction	2520 s	900 - 3600	Reaction time for the production of chlorine dioxide in the reactor
Gas warning delay	10 s	0 - 120	Before a gas warning is triggered, the measured value must exceed the danger threshold for this period of time.
Gas warning limit	0.20 ppm	0.1 - 0.5	Measured value to trigger the gas warning
Gas alarm limit	0.40 ppm	0.2 - 1.0	Measured value to trigger the gas alarm
Language	German	German/English	Language selection
Mixer slow	45	40 - 50	Signal strength for slow mixer speed
Mixer fast	70	50 - 75	Signal strength for fast mixer speed
Time mixer	200 s	60 - 360	Duration of the mixing in time-controlled procedural steps
External Deactivation	not active	active / not active	Mode of operation of the external shutdown (see section 7.8.5)
Product service life	24 h	12 - 48	Time basis for the service life monitoring (see section 7.8.3)
Service life control	on	On/Off	Activation or deactivation of the service life control (see section 7.8.3)
Increased supply	Off	On/Off	Activates the option of stocking greater product quantities. (see section 7.8.4)
Gas sensor	Off	On/Off	Activates the functions of the gas warning device. (see section 7.8.1)
Service code	4321		

Table 17: SETUP menu

7.7 Navigation / Programme structure

The keys to operate the controls are on both sides of the display and are not marked. The function of each key is indicated on the display as is relevant for the operating situation at that time.

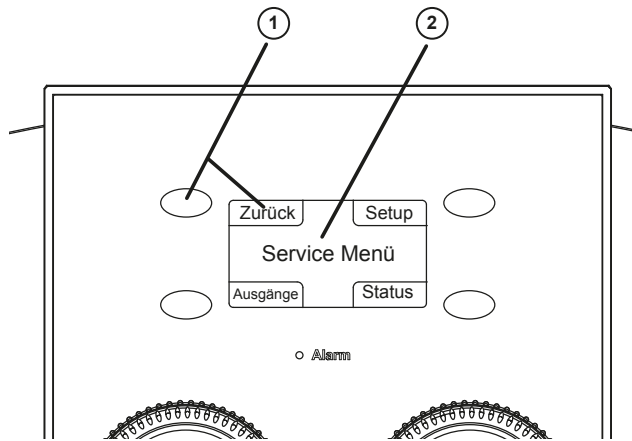


Fig. 17: Function keys ① and display ②

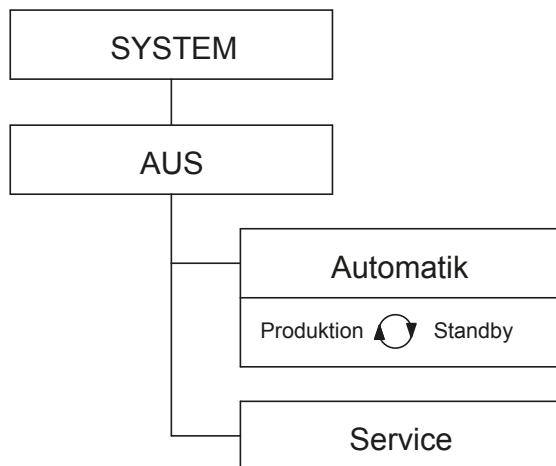


Fig. 18: Program structure

7.7.1 Operating modes

Operating mode OFF

In the operating mode „OFF“, all of the safety functions are active and the voltage supply for the ClO₂-extraction pump is switched on as long as there is sufficient supply in the product tank.

Operating mode AUTOMATIC

In the operating mode AUTOMATIC the device changes between PRODUCTION and STANDBY depending on the level in the product tank. Thus the unit constantly ensures there is sufficient supply in the product tank. All safety functions are active and the voltage supply for the ClO₂-extraction pump is switched on as long as there is sufficient supply in the product tank.

During the PRODUCTION the actual procedural step is shown on the display screen and the progress can be seen on a time bar.

The production can be interrupted at any time. After pressing the key at the top left twice the unit switches to OFF.

Monitoring the level of chemicals

With the help of the float switches, the control system checks the supply of chemicals in the canisters. The monitoring is done in two stages.

Low level alert is visually and audibly signalled, the unit continues to run unchanged. The alarm relay is released. The alerting cannot be quit.

The main level alarm is also visually and audibly signalled. The alarm relay is released. The initiated filling of the reactor is sealed off until the reactor is emptied, if the pumps still deliver sufficient residual chemicals. The exchange of the chemical canisters is acknowledged at the control system.

7.7.2 Status display

The status display is a sub-item in the Service Menu. It is not protected by a password. It shows system information, which is in part helpful for diagnostic purposes.

Status display 1	
Display	Meaning
Reactor 0 0 0	Level status in the reactor. Each digit represents a probe of the level sensor. The left digits represent the lowest level. "1" indicates that the bars are immersed.
Product 0 0 0 Max 0	Level status in the reactor. Each digit represents a probe of the level sensor. The left digits represent the lowest level. "1" indicates that the bars are immersed. The digits behind Max represent the float switches of the overfill safety device. At "1" the float is above.
HCl E:1 L:1	Level status of the hydrochloric acid canisters E= empty container, L=low level alert
NaClO ₂ E:1 L:1	Level status of the sodium chlorite canisters E= empty container, L=low level alert
Safety S1:0 S2:0	Leakage sensors in the catch basins S1: catch basins under the system S2: catch basins for the chemical canister At "0" the float is below

Table 18: Status display 1

Status display 2	
Display	Meaning
Ext.On: 0	Release input Clearance is given at "0"
ClO ₂ Gas: 0.00 ppm	Gas sensor reading "sensor fault": There is a fault with the sensor. "no sensor": The sensor is not connected.
ProdTimer: 01:23	Age of the product in hours and minutes. With new manufacture the time is reset.
Runtime: 123:45	Run time meter. Meters the voltage supply time.
ProdLoops: 123	Batch meter Number of reactor fillings made.

Table 19: Status display 2

7.8 Special functions

7.8.1 Gas warning device

The control includes the function of a gas warning device, which can be activated upon connection of a suitable gas sensor in SETUP. Then as soon as the power is connected the gas warning device is always active. The measuring range amounts to 0...1 ppm ClO₂.

The gas sensor supplies usable signals only after approx. 90 seconds after the voltage supply has been switched on.

Installation

The sensor is assembled with the measuring opening facing downwards approx. 40 cm above the bottom. It is a 4 - 20 mA-Sensor in a 3-wire-system, powered by the control system with a 24 V operating voltage. A screened line is used. The screen is to be clamped under the cable connection to the sensor. It is not connected to the power system.

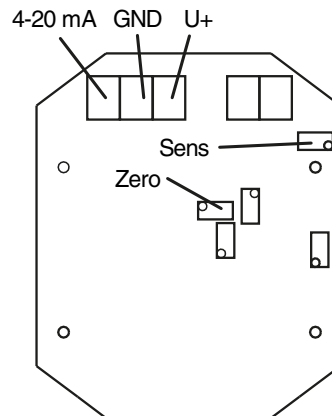


Fig. 19: Terminal connection gas sensor

Functions

The gas warning device has two limit values: the lower value for a gas warning and an upper value for a gas alarm. The values can be set in the SETUP.

The unit continues to run as under normal operating conditions during the gas warning. After an adjustable delay time, the display shows "gas warning" and the measured value of the gas sensor. The alarm relay is released and the warning is signalled visually and acoustically on the unit. When the reading falls below the limit value, the warning is automatically triggered.

With the gas alarm the production process for the chlorine dioxide is also aborted and the relay connects the horn. The gas alarm has to be manually acknowledged.

7.8.2 Leakage monitoring


The control is prepared for monitoring leakages in the collecting pans. The digital entries are co-ordinated for the use of float switches as per the closed current principle, which interrupts the contact when they float upwards.

Installation

The float switch is appropriately installed on the wall of the catch basin in a pipe clamp for pipes measuring Ø 16mm. Turning the float on the shaft can set the switch direction. If a sensor is not connected then the inlet has to be closed with a cable protector.

Input	Allocation
Safety S1	Catch basin unit
Safety S2	Chemical catch basins

Table 20: Allocation of the inlets


 The float switches for the hydrochloric acid and sodium chlorite catch basins are connected together in the series connection to S2.

Functions

When a float switch responds the production and dosing are interrupted, the alarm relay is released and the disturbance is visually and acoustically signalled on the unit. The loop relay switches and can be acknowledged manually.

7.8.3 Service life control

Chlorine dioxide solutions are subject to a chemical breakdown. When the max. storage time is exceeded (see technical data) the solution should no longer be dosed into the drinking water, because its disinfection effect is weakened. A drain valve is required on the product tank to discard the old solution (see 7.4.6).


	WARNING
Danger from chlorine dioxide steam!	
The solution creates a dangerous chlorine dioxide steam.	
⇒ Neutralise the solution immediately as described in Chapter 9.2 „Disposal of the chemicals“ on page 29.	
⇒ Wear personal protective equipment when draining the product tank.	

Functions

The service life control is activated or deactivated in the SETUP and the control time can be adjusted. It starts again respectively with each new production. The time that has already transpired can be read off the status display.

If the set permissible storage time is exceeded then the dosing of the solution is interrupted, the alarm relay is released and the timeout is visually and acoustically signalled on the control unit.

After the solution has been professionally disposed of, the alarm is to be stopped manually and a new production will start.


 If the application process does not allow the dosing to be interrupted at all, the service life control should be deactivated. Given a very long storage time, degradation of the product will result in a reduced disinfectant power, not its complete interruption.

7.8.4 Increased supply

A considerably higher supply quantity might be needed for applications with a higher supply need in a limited timeframe. In such cases of application a larger product tank is used, its volume has to be calculated on an individual basis. The system control is fitted with this function as standard, but is deactivated in SETUP when delivered.

Installation

The standard product tank is not suitable for this function. A sufficiently chemical resistant tank has to be used, its volume has to be co-ordinated with the individual supply need. The tank is fitted with a 4-bar electrode instead of the standard 3-bar electrode, the length of the bars are co-ordinated with the case of application.

 The size of the tank should not exceed the daily production of the system, otherwise the effect of the solution will be reduced by chemical breakdown before the solution is dosed.

All system connections - cables and hoses - to the standard product tank must be converted on the extended product tank.

7.8.5 External shut-down

The chlorine dioxide system is fitted with a digital entry for external switch-off so as to integrate it into a central process control system. It works according to the closed current principle – when the contact is interrupted, the unit is switched off. The SETUP offers three possible settings:

Selection	Meaning
Production off	Production is switched off, but the extraction pump can continue to extract until the dry run safety device reacts.
Dosing off	Production and extraction pump are switched off.
Not active	The entry for the external shut-off is not evaluated.

Table 21: Options for the external shut-off

A production that has been initiated is completed according to the normal time sequence even with an external shut-off to and filled into the product tank.


7.8.6 Operating meter


In total there are three meters running in the control system, which are shown in the status display.

- Operating hours: Meters the voltage supply time. The meter cannot be reset.
- Batch meter: Batch meter counts the number of times the reactor is filled. The meter cannot be reset.
- Service life meter: Service life meter establishes the age of the last chlorine dioxide solution produced. When a new production batch is completed it is reset.

8 Commissioning

The start-up is only carried out after the hydraulic and electric installation has been completed.

	WARNING
Caustic burns or other burns through dosing media!	
You may come into contact with dosing media when working on the system components.	
⇒ Secure the system to prevent it from being turned on accidentally.	
⇒ Use sufficient personal protective equipment.	
⇒ Rinse the system to remove dosing medium residue. Only use water.	
⇒ Release pressure in hydraulic parts.	
⇒ Never look into open ends of plugged pipelines and valves.	

	CAUTION
Danger of personal injury and material damage!	
Dosing medium can escape if you loosen connections (e.g. for venting) during operation.	
⇒ Follow the safety data sheet of the dosing medium.	
⇒ Should the dosing medium escape, clean the system parts affected.	
⇒ Dispose of the dosing medium correctly.	

8.1 Switching on the system

The equipment does not have a mains switch and is switched on by connecting it to the mains. After it has been switched on, the control system displays the programme version for a few seconds and then goes into the operating mode OFF.

8.2 Configuration of the control unit

The configuration options for the control are described in the service instructions. All settings are adjusted in the Service Menu s sub-menu SET-UP. This Menu is protected with a code against unauthorised access.

8.3 Production start

Before the start of the production, the extraction pump has to be switched to STOP (see the extraction pump operating manual) in order to avoid inadvertent dosing of the chlorine dioxide.

Item	Menu item	Work procedure
1	INFLOW	Open the solenoid valve until the reactor is half full.
2	Pump HCl (Hydrochloric acid)	Operate pump until no more air bubbles are rising.
3	Pump NaClO ₂ (Sodium chlorite)	Operate pump until no more air bubbles are rising.
4	DRAINAGE	Open the solenoid valve until the reactor is empty.
5	Let out and dispose of the medium in the product tank.	

Table 22: Menu output sequence

The production is started with the ON key on the control system and the unit switches to the AUTOMATIC operating mode. The unit produces chlorine dioxide until the product tank is sufficiently filled and then switches to STANDBY. A condition of the process is not to fill the tank up to the top.

8.4 Start of dosing

The extraction pump has to be adjusted according to the conditions on-site with the help of the extraction pump operating manual. The fundamental information regarding the dosing of the chlorine dioxide in the drinking water has to be considered when calculating the setting.

The pulsation damper smoothens the pulsing flow of the dosing pump.

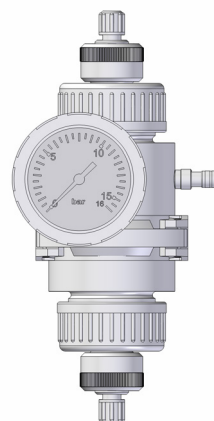


Fig. 20: Pulsation dampener

The back pressure can be read off on the pulsation damper pressure gauge. Consult the operating instructions of the pulsation damper for further information.

The extraction pump must first be vented when the system is commissioned. The system is fitted with a back-pressure / pressure-relief valve. Release the pressure-relief valve (below) completely to ventilate by screwing out the adjustment screw. The counter nut for fixing the screw must be released (open-end spanner WAF 17).

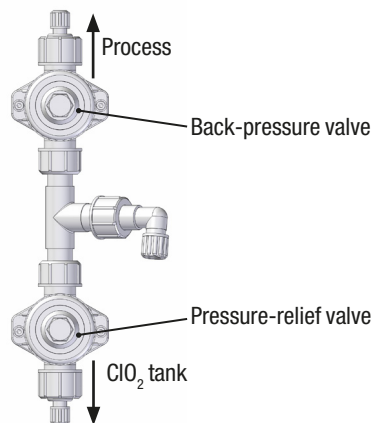


Fig. 21: Back-pressure valve

Pre-conditions for actions:

- ✓ The pressure-relief valve is fully opened.

Perform the following working steps:


1. Start the pump manually.
2. Allow the pump to run until the fluid flows through the circulation line in the product tank.
3. Set the pressure-relief valve to the desired pressure (e.g. 6.5 bar) Maximum tightening of the back-pressure valve enables you to read off the pressure on the pressure gauge.
4. Set the back-pressure valve to a lower pressure (e.g. 1.5 bar) and dose in the process.
5. Fix the adjustment screws of the two valves with the counter nuts.
6. Return the extraction pump to automatic operation.

- ✓ **The extraction pump has been vented. The valves have been set.**

After the dosing has started, the content of chlorine dioxide in the treated water has to be checked and if necessary the extraction pump setting may be adjusted. Suitable check devices, which work according to the DPD methods, are for example a comparison system or a photometer (see section 12 „Accessories“ on page 38).

The sampling has to be repeated on a regular basis depending on the local regulations in order to ensure a consistent disinfection.

8.5 Setting the extraction pump


-  Read the operating manual of the extraction pump

The extraction pump is set via the pump menu, as described in the chapter "Operating modes". We recommend that you use a contact water meter to ensure proportional dosing of the chlorine dioxide.

Connect your water meter to the pulse input of your extraction pump as described in the operating manual in chapter "Electrical installation".

The pulse input provides 3 methods of control:

- To increase or reduce the number of strokes per impulse
- The contact water meter (recommended)
- Delivery rate per pulse

-  The delivery rate is dependent on the back pressure on your system. Calibrate your extraction pump as described in the chapter "Calibrating the extraction pump" in the operating manual of the pump.




NOTE

Shortened service life of the diaphragm


Operating the extraction pump in a mode other than ECO-Mode 2 can reduce the service life of the diaphragm.

⇒ Only ever operate the extraction pump in ECO-Mode 2 (see the operating manual of the extraction pump).

9 Shutdown and disposal


	WARNING
Caustic burns or other burns through dosing media!	
You may come into contact with dosing media when working on the system components.	
⇒ Secure the system to prevent it from being turned on accidentally.	
⇒ Use sufficient personal protective equipment.	
⇒ Rinse the system to remove dosing medium residue. Only use water.	
⇒ Release pressure in hydraulic parts.	
⇒ Never look into open ends of plugged pipelines and valves.	

No special measures are necessary for a brief shutdown of the system (e.g. a few days). After the changeover to the operating mode OFF it is advisable to have the residual chlorine dioxide in the product tank disposed of professionally.

	With this procedure the chemicals are still attached so that the renewed start-up can be quickly accomplished. Therefore the voltage supply should be left on so that all of the safety devices remain functional.
--	--

For lengthier interruptions to the running of the unit it must be rinsed off thoroughly with water. The suction lines are taken out of the chemical canisters, the canisters are closed and the water supply is turned off. The voltage supply can be disconnected.

9.1 Rinsing the system

	DANGER
Explosion hazards!	
Failure to comply with the rinse procedure sequence can result in an over-concentration of chlorine dioxide.	
⇒ Maintain the work steps sequence for the rinse procedure.	

Rinse out the system before longer shutdown periods and twice before opening the system for maintenance work.

Pre-conditions for actions:


- ✓ The peristaltic pump and the extraction pump have been deactivated.
- ✗ Two buckets of clear water are ready.

Perform the following working steps:

1. Remove both suction lines from the chemical cannisters and place them in the buckets with water.
 2. Close the chemical cannisters with their lids.
 3. Working in the control, select the "SERVICE" menu.
 4. Select the menu item "OUTPUTS".
 5. Select the menu item "INLET". Activate the rinsing procedure with the ON/OFF key. As soon as the reactor is 3/4 full (up to level 1), deactivate the "INLET" with the "ON/OFF" key.
 6. Select the menu item "Pump HCl". Activate the rinsing procedure with the ON/OFF key. After approx. 2 minutes / once level 2 has been reached, deactivate the "Pump HCl" with the "ON/OFF" key.
 7. Select the menu item "Pump NaClO₂". Activate the rinsing procedure with the ON/OFF key. After approx. 2 minutes / once level 3 has been reached, deactivate the "Pump NaClO₂" with the "ON/OFF" key.
 8. Select the menu item "Mixer". Activate the mixing procedure with the "ON/OFF key". After approx. 1 minute, deactivate the "Mixer" with the "ON/OFF key".
 9. Select the menu item "OUTLET". Activate the outlet with the "ON/OFF key". Once the reactor has emptied, deactivate the outlet using the ON/OFF key.
 10. Empty the product tank and neutralise the chemicals in accordance with the instructions in the Chapter 9.2 „Disposal of the chemicals“ on page 29.
 11. Repeat steps 5-10 for a second rinse procedure.
 12. Rinse the extraction pump in accordance with its documentation.
- ✓ **The system and the extraction pump were rinsed successfully.**

9.2 Disposal of the chemicals

It is imperative that the chemicals be removed in such a way as to rule out any detrimental effects for people, equipment and the environment.

	DANGER
<p>Danger to life from poisoning!</p> <p>Chlorine dioxide is a very toxic substance if inhaled and very irritant for the eyes, the respiratory organs and skin.</p> <ul style="list-style-type: none"> ⇒ Always wear sufficient personal protective equipment when in the area of the system. ⇒ Comply with the safety instructions outlined in the safety data sheets of the chemicals and meet the corresponding safety precautions. 	

9.2.1 Disposal of the chlorine dioxide solution

The chlorine dioxide solution to be disposed of is conveyed directly into a solution of sodium thiosulphate pentahydrate for neutralisation (available, for example, as chlorine eliminator in the specialised swimming pool trade). For a completely filled product tank approx. 150 g of sodium thiosulphate pentahydrate is dissolved into 2 litres of water in a 10l-tub.

A hose is attached to the drain valve of the product tank, its end is submerged in the neutralisation liquid.

After a reaction time of approx. 5 minutes the solution can be disposed of via the drainage system.

9.2.2 Disposal of activated carbon

The activated carbon absorbs the chlorine dioxide from the atmosphere in the product tank. Completely loaded activated carbon has a strong smell of chlorine dioxide and has to be neutralised.

For this purpose the contents of the activated carbon cartridge are put in a neutralisation solution. After 5 minutes of reaction time the liquid is disposed of via the drainage system and the used activated carbon via domestic waste.

10 Maintenance

The products are produced to the highest quality standards and have a long service life. However, some parts are subject to operational wear.

This means that regular visual inspections are necessary to ensure a long operating life. Regular maintenance will protect the components from causing unplanned operation interruptions.

Maintenance intervals depend only on how frequently the equipment is used. Chemical wear, for example of rubber parts, begins with the initial medium contact and continues irrespective of the usage.

Failure to maintain the maintenance intervals or neglect of the maintenance can result in loss of the guarantee.

DANGER

Mortal danger from electric shock!

Live parts can inflict fatal injuries.

- ⇒ Always disconnect the system from the power supply before carrying out any maintenance work.
- ⇒ Secure the system to prevent it from being turned on accidentally.

WARNING

Caustic burns or other burns through dosing media!

You may come into contact with dosing media when working on the system components.

- ⇒ Secure the system to prevent it from being turned on accidentally.
- ⇒ Use sufficient personal protective equipment.
- ⇒ Before starting with the maintenance, rinse out the system as described in Chapter 9.1 „Rinsing the system“ on page 28.
- ⇒ Release pressure in hydraulic parts.
- ⇒ Never look into open ends of plugged pipelines and valves.

CAUTION

Danger of personal injury and material damage!

The extraction pump can generate a pressure that is many times the rated one. The dosing medium can escape in the case of material failure or wear on the dosing head, the connection pipe or the seals that are used.

- ⇒ Carry out maintenance work at the recommended intervals.

NOTE

Damage from incorrect or insufficient maintenance.

Incorrect or insufficient maintenance can result in damage to the system.

- ⇒ Always arrange for maintenance to be performed by the manufacturer or a trained specialist.

NOTE

Plastic threads (especially PVC threads) are easier to screw on and unscrew again if they are lightly rubbed with silicon grease beforehand.

10.1 Maintenance intervals

Unless the locally applicable regulations stipulate greater frequency, the manufacturer recommends the following maintenance intervals:

Maintenance		Range	Interval	Section
None	Size			
	x	Peristaltic pumps	Annually	10.2
	x	Reactor	Annually	10.3
x	x	Adsorption cartridge	Bi-annually	10.4
	x	Production tank	Annually	10.5
x	x	Gas warning device	Bi-annually	10.5.4
x	x	Solenoid valve	Bi-annually	10.6
x	x	Pressure reducer	Bi-annually	10.7
x	x	Dosing system	Bi-annually	10.8
x	x	Test operation	Bi-annually	10.9
x	x	Commissioning	Bi-annually	10:10
2.5 h	4.5 h	Max. duration of the maintenance		

Table 23: Maintenance intervals

10.1.1 Tools

- Torch
- Collection vessel (5 litre tub) for emptying + neutralising the ClO₂ from the product tank.
- Lifting point set, O-ring extractor
- Waterproof recorder
- Labels
- Screwdriver
- Tool for screwing out the filter element on the pressure-relief valve
- Hand-held photometer and test tubes for chlorine dioxide
- Hexagon socket 3 mm and 5 mm
- Torque key (25 Ncm) with 5mm hexagon socket
- Extension screwdriver / torque key
- Hexagon wrench WAF 7, WAF 17 and WAF 27

10.1.2 Preparation

Perform the following working steps:

1. Note the pump settings and the operating status of the EASYZON in the maintenance log (see appendix).
 - ▶ Batch meter > Service > Status2 > Prod. loops
 - ▶ Run time meter > Service > Status2 > Runtime
 - ▶ Setting the extraction pump
 - ▶ Set the pressure-relief valve for dilution water.
 2. Rinse the system (see section 9.1).
 3. Switch off the device and secure against reactivation.
 4. Empty the chemicals from the tank, neutralise and dispose (see section 9.2).
 5. Switch off the water supply for the dilution water.
- ✓ **Preparations are completed.**

10.2 Peristaltic pumps

Peristaltic pumps are low maintenance pumps. Only peristaltic pumps that are under considerable chemical and mechanical stress are subject to wear. A worn hose loses its elasticity. As a consequence it has a lower delivery capacity. A break in the hose only arises during the later stages of wear.

If there is a chemical attack at the rotor due to a hose break, this can also be replaced.

If the pump head has to be replaced, the fixing bolts should be tightened with approx. 15 Ncm.

10.2.1 Hose replacement

Tools are not required for changing a hose. The replacement hose is already installed on the hose mount at the factory of manufacture.

Perform the following working steps:

1. Separate the hose connections from the process hose.
2. Dismantle the pump head cover. If necessary it is helpful to use a coin for the side clearances at the pump head. Care must be taken to ensure that the ball bearing does not fall down.
3. Position the spring at the rotor at a right angle.
4. Turn the rotor in a clockwise direction with the help of the spring and simultaneously pull out the hose mount with the pump hose in a forwards direction.

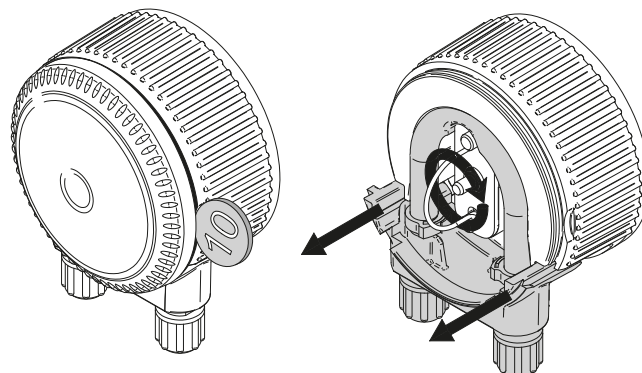


Fig. 22: Hose replacement

5. Insert the new pump hose in reverse order. When assembling, the rotor has to be turned again by hand. Care must be taken to ensure that the pump hose lies in the centre of the flow track.
 6. Press the spring back into the starting position at the rotor.
 7. Place the ball bearing on the taps of the rotor.
 8. The pump head cover has to lock into the pump head.
 9. Attach the process hose.
- ✓ **Hose changed successfully.**

10.2.2 Changing the rotor

The rotor is pushed onto the shaft of the drive motor. After the pump hose has been dismantled, it can be dismantled by pulling on the tension spring.

When the new rotor is installed the flat areas on the shaft and rotor have to correspond.

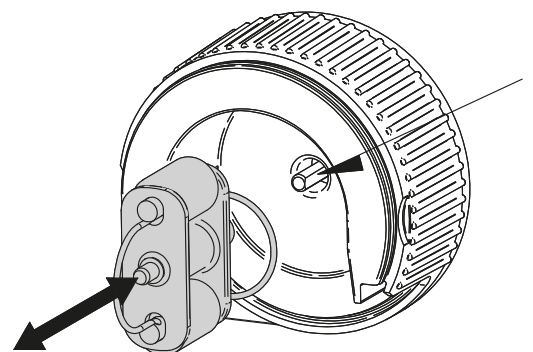


Fig. 23: Changing the rotor

10.3 Maintenance of the reactor

The reactor is made from chemically resistant materials. Maintenance is limited to the exchange of seals and valve parts.



WARNING

Danger from chlorine dioxide gas!

There is poisonous chlorine dioxide gas in the reactor.

⇒ Rinse the system thoroughly before opening the reactor as described in Chapter 9.1 „Rinsing the system“ on page 28.

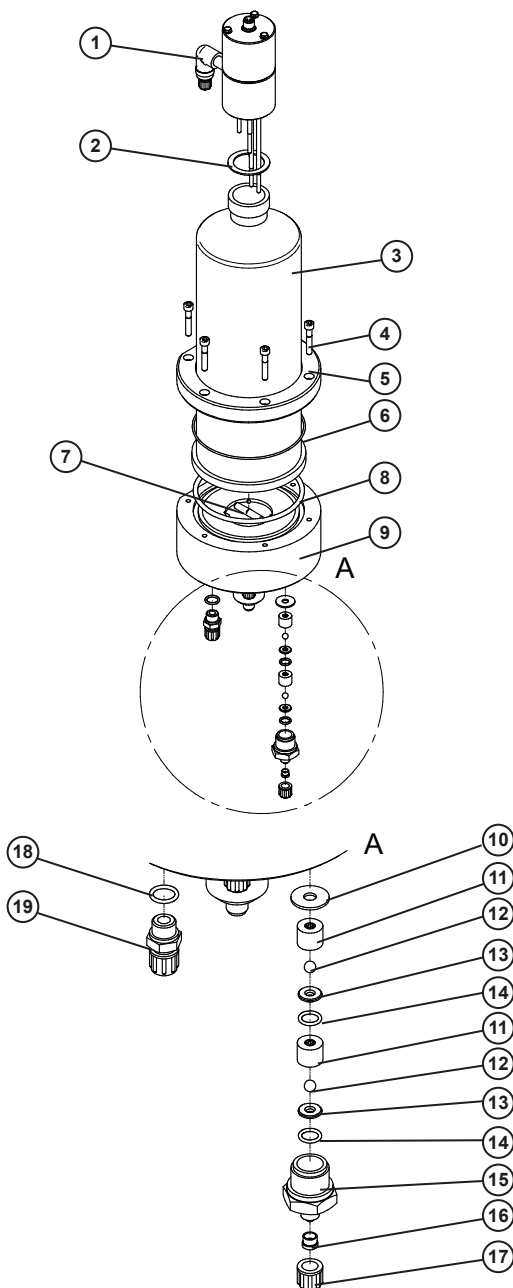


Fig. 24: Exploded diagram of the reactor

Item	Description	No.
1	Reactor head complete	1
2*	Seal for the reactor head	1
3	Reactor pipe	1
4	Cylinder head screw	6
5	Clamp flange	1
6*	O-ring	1
7	Mixing bar magnet	1
8*	O-ring	1
9	Reactor floor	1
10*	Flat gasket	3
11	Valve retainer	6
12*	Valve ball	6
13*	Valve seat	6
14*	O-ring	6
15	Screw-in connection 4/6	3
16	Clamping ring 4/6	3
17	Cap nut 4/6	3
18*	O-ring	1
19	Clamping connection 6/8 mm	1

Table 24: All of the parts marked with an * are included in the servicing kit.

10.3.1 Seals on the glass tube

The main seal (8) of the reactor between the glass tube (3) and the reactor floor (9) has to be changed during every maintenance. It can be accessed after the clamping flange (5) has been dismantled. Seal (2) between the glass tube (3) and the reactor head (1) must also be replaced. The glass tube has an external thread. To unscrew the reactor head, the M12x1 male connector and hose clamp connection must first be removed.

Gasket (2) has to be dismantled with a blunt tool so that the sealing surface in the reactor head is not grazed.

Before assembly, first make ensure that the mixing bar magnet (7) is in the reactor. Both of the seals (2) and (8) are lightly rubbed with silicone grease. The O-Ring (6) in the clamping flange (5) is glued into the clamping flange groove with a little silicone grease before assembly so that it does not fall out during assembly.

The flange screws are lightly moistened in the threads with silicone grease and tightened crosswise with approx. 25 Ncm.

10.3.2 Non-return valves at the reactor

The reactor is fitted with double ball non-return valves at all three intakes. During maintenance the valve balls, valve seatings and seals are exchanged. The construction of the valves can be seen in the exploded diagram.

The flat gasket (10) has to be dismantled with a blunt tool so that the sealing surface in the reactor floor is not grazed.


For the assembly it makes sense to put the two individual non-return valves together first and then arrange them as a complete unit in the screw-in cap. The valves are then screwed in by hand and then tightened.

10.3.3 Disassembly and assembly

Perform the following working steps:

The reactor floor ⑨ is not dismantled by EASYZON as standard.

1. Replace the reactor chamber seals.
2. Remove the ventilation hose on the reactor head ①.
3. Remove the 6 screws ④ on the clamping flange.
4. Remove the flat gasket ② on the reactor head. To this end, the glass reactor pipe is unscrewed from the reactor head. The cable connection of the reactor head can be disconnected on the M12 plug.
5. Visual inspection of the probe sensor. Only replace if damaged.
6. Replace the O-ring ⑥ in the clamping flange ⑤.
7. "Glue in" the new O-ring in the clamping ring groove with a little silicone grease.
8. Rub in a little silicone grease in the new flat gasket ②, insert it and screw in (hand-tight) the reactor pipe in the reactor head.
9. Replace the O-ring ⑧ in the reactor floor.
10. Lightly grease the new seal with the silicone grease.
11. Replace the glass reactor pipe. Ensure that the mixing bar magnet ⑦ is in the reactor.
12. Insert the screws ④ with a little silicone grease.
13. Tighten the screws crosswise with approx. 25 Ncm.
14. Refit the ventilation hose on the reactor head.

 The screws with which to fix the reactor pipe to the reactor floor are to be tightened crosswise and with 25 Ncm.

All three non-return valves on the reactor are double-ball valves and consist of the same components.

15. Disconnect the inlet hoses from the valves. The union nuts and clamping rings are to remain fitted on the hoses.
16. Unscrew the valve body ⑮.
17. Remove the valve parts from the valve body.
18. Replace the balls ⑫, valve seats ⑬ and seals ⑭ and insert the components in the valve body in the correct order.
19. Lightly grease the seals with the silicone grease.
20. Remove the flat gasket ⑩ from the reactor floor with a blunt object. Do not damage the sealing surface in the reactor.
21. Lightly grease the new seal with the silicone grease and insert.
22. Screw in the pre-fitted valves and tighten carefully.
23. Reconnect the hoses and tighten the union nut by hand.
24. Remove the reactor outlet fixing bolts for the solenoid valve on the reactor outlet.

25. Remove the union nut on the hose connection ⑲ on the reactor outlet and pull down the hose together with the solenoid valve.
26. Unscrew the hose connection.
27. Replace the O-ring ⑲ and grease lightly with silicone grease.
28. Screw in the hose connection and tighten carefully.
29. Reconnect the hose and tighten the union nut by hand.


✓ **The seals on the reactor have been replaced successfully.**

10.4 Adsorption cartridge

The activated carbon removes the chlorine dioxide out of the air buffer in the product tank when it is displaced by liquid. It must be replaced during regular maintenance work as a precautionary measure or if the smell of chlorine dioxide penetrates through (the optional gas sensor reacts).

The activated carbon in the adsorption cartridge is to be replaced during every service.

When opening the adsorption cartridge, hold a neutralisation solution to hand.

 It is imperative that the instructions for handling and neutralising the activated carbon are observed.

10.4.1 Replacing the activated charcoal

Perform the following working steps:

1. Dissolve 150 g sodium thiosulphate pentahydrate in a tub with 2 l water
2. Disconnect hose from adsorption cartridge. The union nut and clamping ring are to remain fitted on the hoses.
3. Remove the wall holder brackets with a large screwdriver.
4. Remove the adsorption cartridge from wall brackets.
5. Hold the cartridge upside down and open at the union nut.
6. Remove the seal, net and grid and place the exhausted activated carbon in the neutralisation solution. The activated carbon is neutralised after 5 minutes reaction time.
7. The fluid can be disposed of in a drain, the damp activated carbon via the domestic waste.
8. Fill the cartridge with fresh activated carbon.
9. First the fine-mesh net is installed facing the activated carbon, then the fine net followed by the rougher grid and finally the gasket.
10. Close the housing with the union nut and insert.
11. Unscrew the transparent dust trap cap, wipe out (dry) and return without using force. Moisten the thread with silicone grease beforehand.
12. Insert the adsorption cartridge in the wall holder and fit with brackets.
13. Reconnect the hose and tighten the union nut by hand (approx. 10 Ncm).

✓ **The activated carbon filter has been successfully replaced.**

10.5 Product tank

All seals on the product tank are replaced for maintenance.

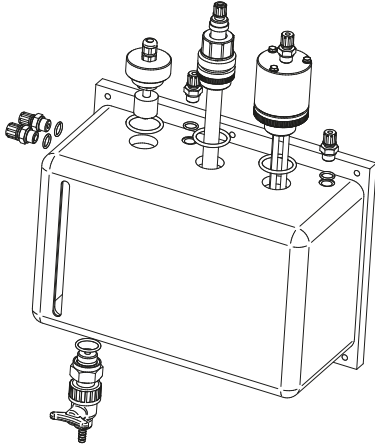


Fig. 25: Product tank

Perform the following working steps:

1. Unscrew the drain plugs or drain taps on the underside.
2. Replace the O-ring and grease lightly with silicone grease.
3. Replace the connection.
4. Remove the hose connections for the product inflow, reactor venting and the connection to the adsorption cartridge. The union nut and clamping ring are to remain fitted on the hoses. During product inflow, ensure that the hose does not become kinked; if necessary, remove the solenoid valve from the wall panel.
5. Unscrew the hose connection.
6. Replace the O-ring and grease lightly with silicone grease.
7. Replace the hose connection.
8. Reconnect the hoses and tighten the union nuts by hand.

✓ **Product tank maintained successfully.**

10.5.1 Three-bar level sensor

Perform the following working steps:

1. Disconnect the M12x1 connector.
2. Unscrew the level sensor.
3. Replace the O-ring and grease lightly with silicone grease.
4. Screw in the level sensor.
5. Reconnect the M12x1 connector.

✓ **Level sensor maintenance successful.**

10.5.2 Float switch

Perform the following working steps:

1. First unscrew the level sensor. The cable twists; it may not be allowed to disconnect from the sensor.
2. Change the O-ring between the sensor and the tank and rub in lightly with silicone grease.
3. Check whether the float moves without friction.

4. Screw in the level sensor so that the cable is free from mechanical tension after fitting.

✓ **Float switch has been checked successfully and the O-ring has been changed.**

10.5.3 Suction line for dosing pump

Perform the following working steps:

1. Disconnect the hose from the connection. The union nut and clamping ring are to remain fitted on the hoses. Ensure that the hose does not become kinked; remove the extraction pump if necessary.
2. Unscrew the suction line with the clamping socket from the tank completely.
3. Replace the O-ring on the large thread and grease lightly with silicone grease.
4. Remove the union nut from the clamping socket and push upwards together with the clamping ring,
5. Push the clamping ring upwards to its fullest extent.
6. Lubricate the O-ring between clamping ring and clamping socket lightly with silicone grease.
7. Push the clamping socket upwards to its fullest extent and mount loosely.
8. Insert the suction line in the tank and screw in the clamping socket in the tank.
9. Refit the hose to the suction line. If necessary, push the suction line in the clamping socket a little upwards in order to do so.
10. Tighten the union nut on the clamping socket by hand.

✓ **Suction line serviced successfully.**

10.5.4 Gas warning device (optional)

Maintenance for the gas warning device is limited to the sensor. Under normal working conditions it has a service life of approx. 2 years. Aging and wear are very dependent on the prevailing ambient conditions of the place of work. That is why the sensor is not under warranty.

10.5.5 Performance check

Perform the following working steps:

1. Pour approx. 10 ml of chlorine dioxide solution from the product tank into a container.
2. Hold this container under the sensor.
3. Access menu > Service > Status 2. Observe the display in the status screen.

The function test has been passed if both alarm levels have been overstepped after 1 minute and the alarm has been issued.

Should the function test not be passed successfully, replace the sensor block in the sensor.

The measured value on the control display must have returned to under 0.05 ppm 10 minutes after removing the chlorine dioxide solution at the latest.



A central control room and personnel have to have been informed before the release of the test alarm, in order to avoid a false alarm. The control of the alarm fitting may be temporarily interrupted for maintenance purposes if activation is assured after completion of the maintenance work.

10.5.6 Replace the sensor block in the sensor

Perform the following working steps:

1. The exchange of the sensor block is carried out when the EASYZON is disconnected from the power supply. Disconnect the system from the mains.
2. The ribbon cable connector must be disconnected after opening the casing cover on the sensor. This connects the sensor block to the electronics.
3. Then the three screw connections that connect the sensor cap, the basic casing and the sensor block can be slackened
4. Removed and replace the old sensor block.
5. After closing the casing, the voltage supply to the EASYZON is switched on again and the gas warning device is active again after the set time delay.
6. The manufacturer will dispose of the exchanged sensor block if it is returned free of charge.

✓ **Sensor changed successfully.**

10.6 Solenoid valve

The maintenance service subjects the two solenoid valves ("ClO₂ valves" and "water valves") to a visual check and then cleans them. Maintenance sets are available for the solenoid valves which should be used within the scope of the major annual maintenance. Should e.g. extensive have developed corrosion on the magnet armature, it is no longer possible to guarantee a correct function. The entire solenoid valve must be replaced.

10.7 Pressure-relief valve (dilution water supply)

Check the setting of the pressure-relief valve and correct if necessary. The pressure should be set to 3 bar.

10.7.1 Filter

Perform the following working steps:

1. Unscrew and remove the transparent strainer with the appropriate tool.
2. Remove, clean or replace the filter element as necessary.
3. Insert the filter element in the pressure-relief valve.
4. Screw in the strainer and tighten carefully.

✓ **Filter successfully cleaned**

10.8 Dosing system

The maintenance of the extraction pump and accessories follows the operating instructions of the respective device. The following steps for maintenance of the dosing components are usually required:

- Maintenance of the extraction pump wearing parts (valves) and diaphragm change
- Diaphragm on the back-pressure and pressure-relief valves
- Replacement of the diaphragm and wearing parts/seals on the pulsation damper.
- Visual check of the injection nozzle and if necessary, replacement of the wearing parts. Alternatively, ask the operating company to arrange for professional replacement of the injection nozzle.

10.9 Test operation

Perform the following working steps:

1. Activate the voltage supply.
2. Activate the supply for the dilution water.
3. Set the pressure-relief valve.
4. Place the suction lines for the chemicals in water.
5. Working on the control, access the Menu > Service > Outputs. All devices can be switched by hand in this menu item.
6. Operate the peristaltic pumps until water enters the reactor. Then deactivate.
7. Open the solenoid valve until the reactor is half filled.
8. Open the solenoid valve until the reactor contents has flown into the product tank.

9. Navigate to the menu > Service > Status 2. The display shows Product "1 0 0 Max 0".
 10. Leave the service menu, the extraction pump will be released automatically.
 11. Ventilate the extraction pump (if required).
 12. Set the back-pressure and pressure relief valves.
 13. Leakage control on all parts (upon every maintenance).
- ✓ **Test operation performed successfully.**

10.10 Commissioning

Perform the following working steps:

1. Insert the suction lines in the chemical canister. Maintain the correct allocation!
 2. Switch on the system.
 3. Production starts.
 4. Check the function of the agitator (visual check).
 5. Monitor initial production until the product tank has been emptied.
- ✓ **System successfully commissioned.**

10.11 Final tasks

Perform the following working steps:

1. Clean the system exterior
 2. Fill out maintenance log
 3. Clear system for regular operation
- ✓ **Maintenance of the system performed.**

11 Fault resolution

The following table highlights common faults that may occur and the simple measures the operator can take to solve them. A professional firm should in all cases deal with the more complex issues regarding the unit.

In most incidents the display shows the cause of the fault in plain text.

Error	Possible cause	Fault remedy
The unit does not produce any chlorine dioxide	The unit is switched off	Switch on the system.
	The product tank is sufficiently filled.	When it has fallen below the minimum level the product tank will then automatically begin a new production.
	A chemical canister is empty.	Attach a new chemical canister.
	Overrunning the time limit in a procedural step	Rectify the source of the fault and continue with the production.
	The rod sensors are not reading the level in the reactor or in the product tank correctly	Adjust the potentiometer on the circuit board.
	No water	Switch the water supply on.
	External shut-down	Check to see if the external shut-off was knowingly activated, otherwise disconnect in the SETUP.
	Leakage detected	Check to see if there really is a leak and then remove it. A float switch has possibly floated upwards or there is a break in the cable.
No dosing despite having a supply in the tank	External shut-down	Check to see if the external shut-off was knowingly activated, otherwise disconnect in the SETUP.
	Permitted service life exceeded	Drain the tank contents and neutralise (see section 9.2).
	The extraction pump is receiving power but is not dosing.	Check the application process, whether the extraction pump is activated. The extraction pump may be switched off.
	Gas bubbles in the dosing head of the pump	Vent dosing head
Gas alarm or pungent odour	Activated carbon depleted	Exchange the activated carbon (see section 10.4.1).
	Faulty seal	Find leaks and redress them.

Table 25: Troubleshooting

12 Accessories

Withdrawal console chlorine dioxide

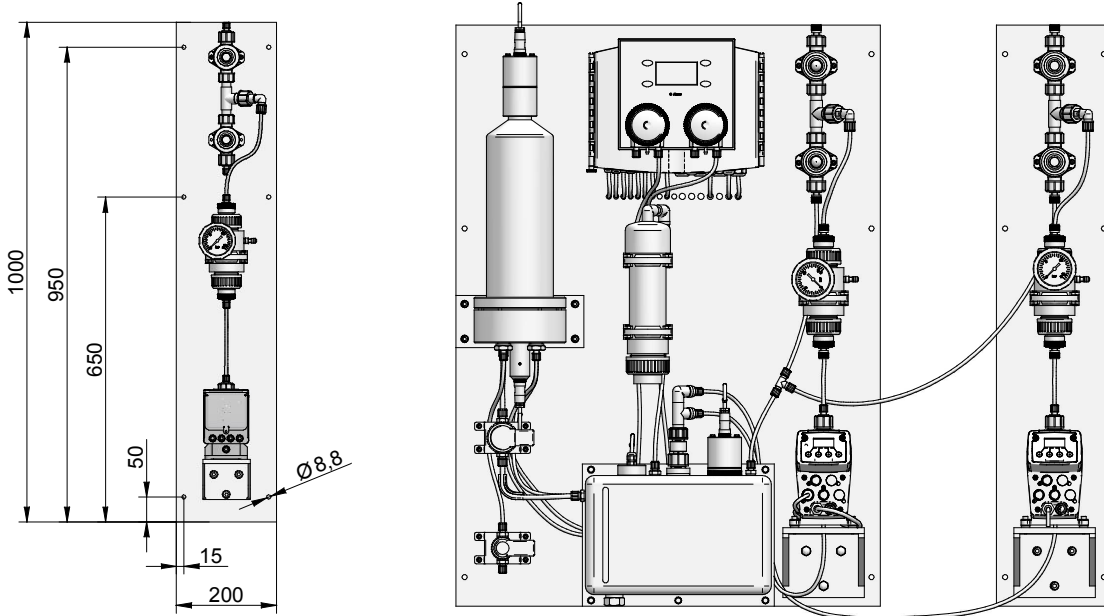


Fig. 26: Withdrawal console

The withdrawal console consists of a base plate constructed to match the appearance of the chlorine dioxide system with the three most important dosing components: extraction pump, pulsation damper and back-pressure / pressure-relief valve.

Wall mounting is performed as with the chlorine dioxide system. The hydraulic assembly is performed via T-pieces with hose clamp connections in the circulation and withdrawal line on the tank of the EASYZON.

12.1 List of accessories

Description		Article no.
Dosing console	<ul style="list-style-type: none"> ■ For chlorine dioxide ■ With extraction pump ■ With pulsation damper ■ With back-pressure / pressure-relief valve ■ Mounted on a wall panel 	62001035
Photometer for water parameters	<ul style="list-style-type: none"> ■ For chlorine dioxide ■ Cyanuric acid and acid capacity ■ Battery-operated photometer ■ 3 round cuvettes with screw-top lid ■ Stirrer ■ Reagent tablets for 50 measurements ■ Operating instructions ■ Quick tester for acid capacity KS 4,3 	23800003
Collecting pan	<ul style="list-style-type: none"> ■ 66 litre ■ 600 x 400 x 350 ■ PE 	12000118
Protective Equipment Kit	<p>For handling of liquid chemicals</p> <ul style="list-style-type: none"> ■ 1 full-view eye protection ■ 1 pair rubber gloves ■ 1 pair rubber boots, size 45 ■ 1 rubber apron ■ 1 warning sign: Danger - Chemicals 	19800001
Set of warning signs large	<p>German</p> <ul style="list-style-type: none"> ■ Symbol "Fire forbidden" ■ "Sodium chlorite" NaClO₂ ■ "Do not use containers and devices alternately" ■ Symbol "Poisonous substances" ■ "Chlorine system - entrance for authorized personnel only" 	29800011
Set of warning signs large	<p>English</p>	29800012
Mandatory sign Ø10 cm	Use eye protection	87926
	Wear Foot Protection!	87929
	Use hand protection	87927
	Use protective clothing	87928

12.2 Installation accessories

Description		Article no.
PTFE strip	<ul style="list-style-type: none"> ■ VPE roll 	1083
Silicone grease	<ul style="list-style-type: none"> ■ VPE tube 	35537
PTFE h 4/6 natural	<ul style="list-style-type: none"> ■ Sold by the metre, state length with order 	97389
PTFE hose 4/6 orange (acid)	<ul style="list-style-type: none"> ■ Sold by the metre, state length with order 	97824
PTFE hose 4/6 purple (lye)	<ul style="list-style-type: none"> ■ Sold by the metre, state length with order 	97823
PTFE h 6/8 natural	<ul style="list-style-type: none"> ■ Sold by the metre, state length with order 	97620
PTFE h 6/9 natural	<ul style="list-style-type: none"> ■ Sold by the metre, state length with order 	97758
Hose clamp connection 4/6 PVDF	<ul style="list-style-type: none"> ■ With tap G1/4 	88079
Hose clamp connection 6/8 PVDF	<ul style="list-style-type: none"> ■ With tap G1/4 	35244

12.3 Spare parts and maintenance sets

Description	No.	Article no.
Maintenance set, large	1	41394
Maintenance set for the withdrawal console	1	41395
Hose mount with hose for the peristaltic pump	2	38106
Replacement rotor for hose pump	2	38105
Maintenance set for the reactor (all seals, balls and valve seats)	1	38520
Extraction pump maintenance set including diaphragm	1*	41396 + 38985
Only the diaphragm	1*	81888
Replacement filling for the activated carbon cartridge	1	28552
Chlorine dioxide valve	1	79620
Maintenance set chlorine dioxide valve	1	40913
Water valve	1	79621
Water valve servicing kit	1	39186
Maintenance kit for the product tank (all seals)	1	38523
Hose diaphragm PDS 80 FPM	1*	22719
O-ring Ø15.5x2.62 for PDS 80	2	80008
Pressure gauge 16 bar plastic for PDS 80	1*	40920
FPM seal for back-pressure / pressure-relief valve	5*	81825
FPM diaphragms for back-pressure / pressure-relief valve	2*	81899



Further parts can be ordered from Lutz-Jesco.

13 Maintenance log

Maintenance log

Copy the template and complete during every maintenance.

1. General specifications

Installation location _____
 Object _____
 Part No. _____
 S/N _____

Start of the maintenance (date, time): _____
 End of the maintenance (date, time): _____

2. Status display

Runtime _____: _____ h
 Pros.Loops _____

3. Settings system components

Extraction pump MAGDOS LK 4
 or _____
 Stroke frequency _____ 1/min
 Control impulse with
 pulse multiplication: _____: 1
 pulse division: 1 : _____
 Pressure-relief valve _____ bar
 Gas warning device limit value low level alert: _____ ppm
 Limit value alarm: _____ ppm

4. Comments

5 maintenance steps

1. Peristaltic pump
 - Pump for hydrochloric acid (HCl)
 - Pump hose changed
 - Rotor changed sodium chlorite (NaClO₂)
 - Pump hose changed
 - Rotor changed
2. Reactor
 - Seals changed
 - Wearing parts of the valves changed
 - Functional check agitator
3. Adsorption cartridge
 - Filling changed
4. Product tank
 - Seals changed
 - Functional check float switch
 - Functional check level sensor
5. Solenoid valve
 - Functional check water valve (PVC)
Valve changed: yes / no
 - Functional check chlorine dioxide valve (PVDF) valve changed: yes / no
6. Pressure-relief valve (dilution water supply)
 - Filter
 - Cleaned
 - Changed
7. Dosing system
 - Maintenance dosing pump
diaphragm changed: yes / no
Suction / discharge valve changed: yes / no
 - Maintenance PDS + back-pressure / pressure release valve seals and diaphragms changed:
yes/no
 - Visual check injection nozzle
 - Visual check dosing lines
8. Test operation
 - Successfully performed: yes / no
9. Start-up
 - Successfully performed: yes / no

Service technician _____ Operating company _____

Date, name, signature _____ Date, name, signature _____

14 Handover / commissioning record

Please copy and complete.

Distribution list: Owner, system operator (copy), Lutz-Jesco GmbH (copy)

1. Plant manufacturer

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark

Tel.: +49 (0)5130 5802 0
Fax.: +49 (0)5130 5802 68
www.Lutz-Jesco.de
info@Lutz-Jesco.com

2. Plant operator

Name / Company : _____

Street : _____

Town : _____

Tel. / Fax : _____

E-mail, Internet : _____

Contact partner, extension: _____

3. Plant location (if not identical with the plant operator)

Name / Company : _____

Street : _____

Town : _____

Building / room : _____

Tel. / Fax : _____

E-mail, Internet : _____

Contact partner, extension: _____

4. Start-up

Company : _____

Member of staff : _____

Street : _____

Location : _____

Tel. / Fax : _____

E-mail, Internet : _____

5. System information, settings

Location information

Elec. Fusing _____ A

Process water pressure (back pressure)

_____ bar room volumes _____ m³

- Room ventilation
 sink
 floor drain
 water hose
 Stop valve in the supply line

Other: _____

System information

System name: _____

Article number: _____

Serial number: _____

Year of manufacture: _____

Software version: _____

Periphery

- Canisters set up in the collecting pan (separate)
 Gas warning device, gas warning sensor
 Other: _____

Start-up settings

Hydraulic settings:

Back-pressure valve settings c. _____ bar

pressure-relief valve settings c. _____ bar

Pulsation dampener inlet pressure c..
_____ bar

Control settings:

Time HCL _____ s

Time NaClO₂ _____ s

Time water _____ s

Time emptying _____ s

Reaction time _____ s

Gas warning delay _____ s

Gas warning threshold _____ s

Gas alarm threshold _____ s

Language _____

Mixer slow _____

Mixer fast _____

Time mixer _____ s

External switch-off Active Not active

Product service life _____ h

Service life check On OffIncreased reserve On OffGas sensor On Off

Other:

6. Meaning

] Visual check of the system

performed safety functions

checked:

-] Float switch product tank Δ Safety S1 collecting pan system (if installed)
-] Gas warning sensor (if present) Δ Safety S2 collecting pan chemicals (if installed)

] Trouble-free system operation possible

Defects found: _____

Defect redressed by: _____

We herewith declare that the work and settings undertaken on the system have been performed completely and properly, not taking into account any defects detected. All legal requirements, prescriptions and other standards and rules were complied with in accordance with the current state of technology.

The system was checked and the hand-over settings of the system were recorded in this log. The system is cleared for its specified use and has been handed over.

Commissioner

Date, Signature

The person signing this document confirms the handover of the system to their area of responsibility.

System operator

Owner

15 Warranty claim

Warranty claim

Please copy and send it back with the unit!

If the device breaks down within the period of warranty, please return it in a cleaned condition with the complete warranty claim.

Sender

Company: Phone: Date:

Address:

Contact person:

Manufacturer order no.: Date of delivery:

Device type: Serial number:

Nominal capacity / nominal pressure:

Description of fault:.....

.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....
.....

Service conditions of the device

Point of use / system designation:.....

.....
.....

Accessories used (suction line etc.):.....

.....
.....
.....
.....

Commissioning (date):

Duty period (approx. operating hours):

Please describe the specific installation and enclose a simple drawing or picture of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.

16 Declaration of no objection

Declaration of no objection

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type: Part-no.:

Order No.: Date of delivery:

Reason for repair:

.....

.....

Dosing medium

Description: Irritating: Yes No

Properties: Corrosive: Yes No

We hereby certify, that the product has been cleaned thoroughly inside and outside before returning, that it is free from hazardous material (i.e. chemical, biological, toxic, flammable, and radioactive material) and that the lubricant has been drained.

If the manufacturer finds it necessary to carry out further cleaning work, we accept the charge will be made to us.

We assure that the aforementioned information is correct and complete and that the unit is dispatched according to the legal requirements.

Company / address: Phone:

..... Fax:

..... Email:

Customer No.: Contact person:

Date, Signature:

17 EU Declaration of Conformity



(DE) EG-Konformitätserklärung

Hiermit erklären wir, dass das nachfolgend bezeichnete Gerät aufgrund seiner Konzipierung und Bauart sowie in der von uns in Verkehr gebrachten Ausführung den einschlägigen grundlegenden Sicherheits- und Gesundheitsanforderungen der aufgeführten EG-Richtlinien entspricht. Bei einer nicht mit uns abgestimmten Änderung am Gerät verliert diese Erklärung ihre Gültigkeit.

(EN) EC Declaration of Conformity

We hereby certify that the device described in the following complies with the relevant fundamental safety and sanitary requirements and the listed EC regulations due to the concept and design of the version sold by us.

If the device is modified without our consent, this declaration loses its validity.

(FR) Déclaration de conformité CE

Nous déclarons sous notre propre responsabilité que le produit ci-dessous mentionné répond aux exigences essentielles de sécurité et de santé des directives CE énumérées aussi bien sur le plan de sa conception et de son type de construction que du modèle que nous avons mis en circulation.

Cette déclaration perdra sa validité en cas d'une modification effectuée sur le produit sans notre accord explicite.

(ES) Declaración de conformidad CE

Por la presente declaramos que, dados la concepción y los aspectos constructivos del modelo puesto por nosotros en circulación, el aparato mencionado a continuación cumple con los requisitos sanitarios y de seguridad vigentes de las directivas de la U.E. citadas a continuación.

Esta declaración será invalidada por cambios en el aparato realizados sin nuestro consentimiento.

(NL) EU-overeenstemmingsverklaring

Ondergetekende Lutz-Jesco GmbH, bevestigt, dat het volgende genoemde apparaat in de door ons in de handel gebrachte uitvoering voldoet aan de eis van, en in overeenstemming is met de EU-richtlijnen, de EU-veiligheidsstandaard en de voor het product specifieke standaard. Bij een niet met ons afgestemde verandering aan het apparaat verliest deze verklaring haar geldigheid.

(PT) Declaração de conformidade CE

Declaramos pelo presente documento que o equipamento a seguir descrito, devido à sua concepção e ao tipo de construção daí resultante, bem como a versão por nós lançada no mercado, cumpre as exigências básicas aplicáveis de segurança e de saúde das directivas CE indicadas.

A presente declaração perde a sua validade em caso de alteração ao equipamento não autorizada por nós.

Bezeichnung des Gerätes:

Anlage zur Herstellung und Dosierung von Chlordioxid

Description of the unit:

Chlorine dioxide system

Désignation du matériel:

Dioxyde de chlore

Descripción de la mercancía:

Diocido de cloro

Omschrijving van het apparaat:

Installatie voor aanmaak en dosering van Chloordioxide

Designação do aparelho:

Instalações de produção e medição de dióxido de cloro

Typ:

EASYZON 5

Type:

EG-Richtlinien:

2006/42/EG, 2014/35/EU, 2014/30/EU

EC directives:

Die Schutzziele der Niederspannungsrichtlinie 2014/35/EU wurden gemäß Anhang I, Nr. 1.5.1 der Maschinenrichtlinie 2006/42/EG eingehalten.

The protective aims of the Low Voltage Directive 2014/35/EU were adhered to in accordance with Annex I, No. 1.5.1 of the Machinery Directive 2006/42/EC.

Harmonisierte Normen:

DIN EN ISO 12100:2011-03, DIN EN 809:2012-10

Harmonized standards:

DIN EN 61000-6-2:2005, DIN EN 61000-6-3:2007 + A1:2011, DIN EN 61000-6-4:2007

Dokumentationsbevollmächtigter:

Lutz-Jesco GmbH

Authorized person for documentation:

Heinz Lutz
Geschäftsführer / Chief Executive Officer
Lutz-Jesco GmbH
Wedemark, 02.05.2018

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

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