Chlorine Dioxide System
EASYZON Da
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 system.

Observe the following principles:

- Read the entire operating manual prior to commissioning the system.
- Ensure that everyone who works with or on the system has read the operating instructions and follows them.
- Keep the operating instructions for the entire service life of the system.
- Pass on the operating instructions to any subsequent owner of the system.

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:

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

Table 1: Explanation of the signal words

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:

<table>
<thead>
<tr>
<th>Warning sign</th>
<th>Type of danger</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="General danger zone" /></td>
<td>General danger zone</td>
</tr>
<tr>
<td><img src="#" alt="Danger from poisonous substance" /></td>
<td>Danger from poisonous substance</td>
</tr>
<tr>
<td><img src="#" alt="Danger from electric shock" /></td>
<td>Danger from electric shock</td>
</tr>
<tr>
<td><img src="#" alt="Danger from corrosive substance" /></td>
<td>Danger from corrosive substance</td>
</tr>
<tr>
<td><img src="#" alt="Danger from oxidising substance" /></td>
<td>Danger from oxidising substance</td>
</tr>
<tr>
<td><img src="#" alt="Danger of damage to machine or functional influences" /></td>
<td>Danger of damage to machine or functional influences</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Warning sign</th>
<th>SIGNAL WORD</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="#" alt="Description of danger" /></td>
<td>Description of danger.</td>
</tr>
<tr>
<td><img src="#" alt="Consequences if ignored." /></td>
<td>Consequences if ignored.</td>
</tr>
<tr>
<td><img src="#" alt="The arrow signals a safety precaution to be taken to eliminate the danger." /></td>
<td>The arrow signals a safety precaution to be taken to eliminate the danger.</td>
</tr>
</tbody>
</table>
1.5 Instruction for action identification

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 eliminate the dangers that can arise while handling the device. 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**

**Danger to life from missing safety device.**

The use of chlorine dioxide without a gas warning device represents an increased security hazard, as it could mean that gas leaks are either not recognised or are recognised too late. Gas leaks can result in poisoning or explosions.

- Install a gas warning device.
- Install an emergency stop switch with which the system can be disconnected safely from the power supply. The emergency stop switch should be located outside the room in which the chlorine dioxide system is located.
- Comply with the specifications of the chemical documentation.

---

**DANGER**

**Danger to life from poisoning!**

Sodium chlorite and hydrochloric acid combine to produce chlorine dioxide gas. Chlorine dioxide is a very toxic substance and is an irritant for the eyes, the respiratory organs and skin.

- Wear personal protective equipment in the environment of the system.
- Avoid contact between sodium chlorite and hydrochloric acid outside the EASYZON reactor.
- Make sure that the chemicals container is marked and cannot be mistaken for something else.
- Make sure that the suction lines and dosing pumps are marked and that they are only used for a single chemical.
- Make sure that after maintenance and repairs, the components can be used again for the chemicals for which they were previously used.
- Use separate catch basins for the chemicals container with differing content.

---

**WARNING**

**Caustic burns or other burns through dosing media!**

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

- Use sufficient personal protective equipment.
- Rinse the system with a non-dangerous liquid (e.g. water) Ensure that the liquid is compatible with the dosing medium.
- Release pressure in hydraulic parts.
- Never look into open ends of plugged pipelines and valves.

---

**WARNING**

**Danger from unsuitable materials**

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.

- 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.
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 to persons,
- danger to the environment caused by substances leaking from the system.

2.3 Information about chemicals

This section provides general information about the chemicals used. Please also comply with the specifications of the safety data sheets provided by the suppliers of the sodium chlorite and hydrochloric acid.

Store the chemical containers in separate collecting pans. Always use the collecting pans and suction lines for the same chemicals and mark them accordingly.

2.3.1 Hydrochloric acid

Use only 9% hydrochloric acid (HCl) on accordance with EN 939. Never use other concentrations.

2.3.2 Sodium chlorite

Use only 7.5% sodium chlorite (NaClO₂) in accordance with EN 938. Never use other concentrations.

2.3.3 Chlorine dioxide

Chlorine dioxide (ClO₂) is an orange-yellow gas featuring a density of 3 kg/m³, in standard conditions. It is heavier than air and thus accumulates itself at ground level. Chlorine dioxide is a highly toxic substance and is an irritant for the eyes, the respiratory organs and skin. Danger of explosion with high concentrations!

The following rules must thus be held valid at all times:
- The plant can be operated only at the specifically prescribed chemical concentrations
- The chemicals cannot be mixed outside of the reactor.
- The reactor must consistently be maintained at an overpressure level of at least 1 bar.
- The chlorine dioxide solution must be diluted with water directly at the reactor outlet, at max. 2 g ClO₂/l.
- Prior to commissioning plant operations, the reactor must be filled with water.
- The chlorine dioxide solution must not be warmed up.

Chlorine dioxide solutions are chemically unstable. Meaning that long-term storage is not possible.

2.4 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.
2.5 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

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respirator mask</td>
</tr>
<tr>
<td>Face protection</td>
</tr>
<tr>
<td>Protective clothing</td>
</tr>
<tr>
<td>Safety shoes</td>
</tr>
<tr>
<td>Protective gloves</td>
</tr>
</tbody>
</table>

Table 3: Personal protective equipment required

Wear the following personal protective equipment when performing the following tasks:
- Commissioning,
- all work on gas-bearing sections of the plant
- Shutdown,
- Maintenance work,
- Disposal.

2.6 Personnel qualification

Any personnel who work on the device must have appropriate special knowledge and skills.

Anybody who works on the device must meet the conditions below:
- attendance at all the training courses offered by the owner,
- sufficient qualification for the respective activity,
- Training in handling of the system,
- knowledge of safety equipment and the way this equipment functions,
- Familiar with this operating manual.
- 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:

2.6.1 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.

2.6.2 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.

2.6.3 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.

Trained persons have attended all trainings offered by the operator.

2.7 Personnel tasks

In the table below, you can check what personnel qualifications are required for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks!

### Table 4: Personnel qualification

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist staff</td>
<td>Transportation</td>
</tr>
<tr>
<td></td>
<td>Assembly</td>
</tr>
<tr>
<td></td>
<td>Hydraulic installations</td>
</tr>
<tr>
<td></td>
<td>Make settings on the software and system components</td>
</tr>
<tr>
<td></td>
<td>Commissioning</td>
</tr>
<tr>
<td></td>
<td>Control</td>
</tr>
<tr>
<td></td>
<td>Taking out of operation</td>
</tr>
<tr>
<td></td>
<td>Fault rectification</td>
</tr>
<tr>
<td></td>
<td>Maintenance</td>
</tr>
<tr>
<td></td>
<td>Repairs</td>
</tr>
<tr>
<td></td>
<td>Disposal</td>
</tr>
<tr>
<td>Trained electricians</td>
<td>Electrical installation</td>
</tr>
<tr>
<td></td>
<td>Rectifying electrical faults</td>
</tr>
<tr>
<td></td>
<td>Electrical repairs</td>
</tr>
<tr>
<td>Trained persons</td>
<td>Control</td>
</tr>
</tbody>
</table>

Table 4: Personnel qualification
Chlorine Dioxide System EASYZON Da

Operating instructions

3 Intended use

3.1 Notes on product warranty

Any non-designated use of the system 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”.
- Information on usage and environment (see section 5 „Technical data“ on page 13) is not adhered to.
- Operation of the system by those not adequately qualified to carry out the respective activities.
- No original spare parts or accessories of Lutz-Jesco GmbH are used.
- Unauthorised changes are made to the device.
- Maintenance and inspection intervals are not adhered to as required or not adhered to at all.
- The system is commissioned before it or the appendant system has been correctly and completely installed.
- Safety equipment has been bridged, removed or made inoperative in any other way.

3.2 Intended purpose

EASYZON Da 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)

Hydrochloric acid (HCl) and sodium chlorite (NaClO2) are mixed into a reactor, where they undergo a reaction process resulting in chlorine dioxide:

\[ 4 \text{HCl} + 5 \text{NaClO}_2 \rightarrow 4 \text{ClO}_2 + 5 \text{NaCl} + 2 \text{H}_2\text{O} \]

A significant surplus of Hydrochloric acid in the reactor provides for the virtually total transformation of the sodium chlorite into chlorine dioxide. Directly at the reactor outlet, the chlorine dioxide preparation is then diluted with water.

![Fig. 1: Simplified scheme of the installations](image_url)

The preparation of 1 kg of chlorine dioxide requires:
- 25 litres of 9% hydrochloric acid solution and
- 25 litres of 7.5% sodium chlorite solution.

3.3 Device revision

This operating manual applies to the following devices:

<table>
<thead>
<tr>
<th>Device</th>
<th>Month / year of manufacture</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASYZON Da-D</td>
<td>01/2014 onwards from software 4.5</td>
</tr>
<tr>
<td>EASYZON Da-B</td>
<td></td>
</tr>
</tbody>
</table>

Table 5: Device revision

3.4 Principles

- Comply with the information regarding the operating and environmental conditions (see chapter 5 „Technical data“ on page 13).
- Two general safety data sheets regarding the maximum usable concentrations of hydrochloric acid and sodium chlorite are included in the scope of delivery of the system. These safety data sheets and this text do not replace the manufacturer’s safety data sheets included in the scope of delivery. Comply with the specifications of the safety data sheets provided by the manufacturer / chemical supplier at all times. They must be held accessible to every system operator.
4 Product description

4.1 Scope of delivery

Please compare the delivery note with the scope of delivery. The following items are part of the scope of delivery:

- Plastic base plate for wall mounting
- Diaphragm dosing pumps with calibration cylinder fitted on the wall plate; back-pressure valves fitted
- Dosing of dilution water with ball valve via the float element flow meter.
- PVC reactor with PVDF non-return valves
- Safety cabinet with ventilation and activated carbon for the reactor
- Intuitively operable control with LCD display: display of all operating states.
- Suction lines for commercially-available canisters as well as float switches for chemical containers
- Control cabinet key and operating manuals

All optional accessories are specified separately on the relative packing list.

Upon delivery, the system can contain harmless water residue from test stand tests.

4.2 Design

The EASYZON Da is available in two versions:

**EASYZON Da-B for batch operation**

- Flow meter with smaller measuring range for the exact setting of the product concentration

**EASYZON Da-D for direct operation**

- Flow meter with high measuring range for high pre-dilution
- With relay box (6) for the dilution system (circulation pump or solenoid valve)
- With ball valve on the output

---

**Table 6: Position numbers**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Electronic control</td>
</tr>
<tr>
<td>2</td>
<td>Static mixer</td>
</tr>
<tr>
<td>3</td>
<td>Reactor</td>
</tr>
<tr>
<td>4</td>
<td>Flow meter</td>
</tr>
<tr>
<td>5</td>
<td>Pressure gauge</td>
</tr>
<tr>
<td>6</td>
<td>Dilution control (only Da-D)</td>
</tr>
<tr>
<td>7</td>
<td>Back-pressure valves</td>
</tr>
<tr>
<td>8</td>
<td>Dosing pumps</td>
</tr>
<tr>
<td>9</td>
<td>Calibration cylinder</td>
</tr>
</tbody>
</table>
4.3 Function description

Fig. 3 gives an overview of the system structure. Two dosing pumps (3) pump the starting chemicals into the reactor (6) in the volume ratio 1:1. A chlorine dioxide solution with a concentration of 20 g ClO₂/l is available after a throughput time of 10 minutes.

The reactor output (7) opens into a static mixer (10), in which the chlorine dioxide solution is highly diluted directly in the system. This diluted solution either flows to the application process or is collected in “batch systems” in a supply tank from which dosing pumps feed the solution into the process.

A control unit (11) is installed directly on the system and connected to all assembly equipment. It controls and monitors all functions of the system:

- Control of the dosing pumps (3)
- Monitoring of each dosing stroke by analysing the flow pulse monitors (5)
- 2-stage monitoring of the remaining chemical supply at the float switches (2)
- Switching on of the dilution water supply
- Monitoring of the dilution water at the flow meter (8)
- Control of the ventilator (13)
- Alerting of faults

The control unit uses fixed settings or acts according to signals from the water meter, the process control or measurement instruments in the production of chlorine dioxide.

4.4 Optional accessories

The optional accessories expand the system with additional functions, which are useful or necessary for certain applications. Most options are assembled individually for the specific application. A principle description is therefore only provided in the following. For details, refer to the separate operating manuals.

4.4.1 Fittings for the dilution water

The basic device can control a solenoid valve or a pump in the feed line for the dilution water (for the arrangement of the devices, refer to the example installations). Upon receipt of an order, the control fittings are selected according to local conditions.

4.4.2 Batch system

If the consumed quantity is subject to strong fluctuation or if several consumers are supplied by one EASYZON unit, a supply tank (batch tank) for the chlorine dioxide solution is installed. Several dosing pumps may for instance feed chlorine dioxide from this tank into different applications.

The system consists of:

- Tank with filling line
- Float switches for level control and monitoring
- Control cabinet for START and STOP of the production installation
- Extraction system and adsorption cartridge for avoidance of chlorine dioxide outlet in the surrounding air.

For batch systems, the dilution water must be controlled by means of a solenoid valve.

---

**Table 7: Position numbers**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Suction line</td>
</tr>
<tr>
<td>2</td>
<td>Float switches</td>
</tr>
<tr>
<td>3</td>
<td>Dosing pump</td>
</tr>
<tr>
<td>4</td>
<td>Back-pressure valve</td>
</tr>
<tr>
<td>5</td>
<td>Flow pulse monitor</td>
</tr>
<tr>
<td>6</td>
<td>Reactor</td>
</tr>
<tr>
<td>7</td>
<td>Reactor output</td>
</tr>
<tr>
<td>8</td>
<td>Flow meter</td>
</tr>
<tr>
<td>9</td>
<td>Non-return valve</td>
</tr>
<tr>
<td>10</td>
<td>Static mixer</td>
</tr>
<tr>
<td>11</td>
<td>Electronic control</td>
</tr>
<tr>
<td>12</td>
<td>Calibration cylinder</td>
</tr>
<tr>
<td>13</td>
<td>Fan</td>
</tr>
</tbody>
</table>
4.4.3 Reactor flushing

Chlorine dioxide that stays in the reactor for several hours due to system shutdown is subject to chemical breakdown and loses its disinfectant effect. The reactor should therefore be flushed before or after longer periods of standstill.

The simplest flushing system consists of several ball valves for manual flushing. For automatic flushing, solenoid valves and a proper control system are required.

4.4.4 Metering Unit

Depending on the application, photometers for manual measuring of chlorine dioxide and automatic systems for permanent monitoring and recording of the chlorine dioxide content in the water are available.

4.4.5 Gas warning device

Warning devices for the monitoring of the surrounding air warn the personnel of dangerous concentrations of chlorine dioxide and may provide for alerting or counter measures.

4.4.6 Signs

Sets of signs belong to the system installation. The container, the piping, the room and the system must all be marked.
## 5 Technical data

<table>
<thead>
<tr>
<th>EASYZON</th>
<th>50 Da</th>
<th>100 Da</th>
<th>200 Da</th>
<th>400 Da</th>
<th>800 Da</th>
<th>1400 Da</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. pressure</td>
<td>bar</td>
<td>12</td>
<td>12</td>
<td>10</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>Max. production capacity at max. pressure</td>
<td>ClO₂ g/h</td>
<td>48</td>
<td>99</td>
<td>130</td>
<td>316</td>
<td>800</td>
</tr>
<tr>
<td>Dosing pumps type MAGDOS</td>
<td></td>
<td>LT 1</td>
<td>LT 3</td>
<td>LT 4</td>
<td>LT 10</td>
<td>DE 20</td>
</tr>
<tr>
<td>Chemicals</td>
<td></td>
<td>Hydrochloric acid (HCl) 9 % according to EN 939</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Consumption per chemical for 100 % production</td>
<td>l/h</td>
<td>1.2</td>
<td>2.5</td>
<td>3.2</td>
<td>7.9</td>
<td>20</td>
</tr>
<tr>
<td>Flow meter for the dilution water</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EASYZON Da-B</td>
<td>l/h</td>
<td>100</td>
<td>150</td>
<td>250</td>
<td>600</td>
<td>1000</td>
</tr>
<tr>
<td>EASYZON D</td>
<td>l/h</td>
<td>150</td>
<td>250</td>
<td>400</td>
<td>1000</td>
<td>1500</td>
</tr>
<tr>
<td>Pressure loss water</td>
<td>bar</td>
<td></td>
<td></td>
<td></td>
<td>Max. 0.2</td>
<td></td>
</tr>
<tr>
<td>Concentration in the reactor</td>
<td>ClO₂ g/h</td>
<td></td>
<td></td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Product concentration after pre-dilution</td>
<td>ClO₂ g/h</td>
<td></td>
<td></td>
<td></td>
<td>EASYZON Da-B: 0.5 - 2 EASYZON Da-D: &lt; 2</td>
<td></td>
</tr>
<tr>
<td>Operating voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>230 V / 50 Hz</td>
<td></td>
</tr>
<tr>
<td>Protection class</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>IP 54</td>
</tr>
<tr>
<td>Power consumption</td>
<td>W</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>200</td>
</tr>
<tr>
<td>Max. current consumption during dosing stroke</td>
<td>A</td>
<td>2.9</td>
<td></td>
<td></td>
<td></td>
<td>4.1</td>
</tr>
<tr>
<td>Weight</td>
<td>kg</td>
<td>25</td>
<td>25</td>
<td>25</td>
<td>50</td>
<td>70</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>°C</td>
<td>5 - 40 (no exposure to direct sunlight)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature of the medium</td>
<td>°C</td>
<td>5 - 35</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air humidity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8: Technical data
# 6 Dimensions and connections

![Dimensional drawing](image)

Table 9: Dimensions and connections

<table>
<thead>
<tr>
<th>Type</th>
<th>Dimensions X x Y x Z</th>
<th>Connection for the suction lines (1)</th>
<th>Connection for the dilution water (2) and (3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>750 x 1000 x 315 mm</td>
<td>hose 4/6 mm</td>
<td>PVC pipe d20/DN15</td>
</tr>
<tr>
<td>100</td>
<td>850 x 1200 x 315 mm</td>
<td>hose 6/8 mm</td>
<td>PVC pipe d20/DN15</td>
</tr>
<tr>
<td>200</td>
<td>900 x 1350 x 365 mm</td>
<td>hose 8/12 mm</td>
<td>PVC pipe d25/DN20</td>
</tr>
<tr>
<td>400</td>
<td></td>
<td></td>
<td>PVC pipe d32/DN25</td>
</tr>
<tr>
<td>800</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
7 Installation

7.1 Installation examples

Table 10: Position numbers

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EASYZON Da-B chlorine dioxide unit</td>
</tr>
<tr>
<td>2</td>
<td>Inlet dilution water with pressure-relief valve and solenoid valve</td>
</tr>
<tr>
<td>3</td>
<td>Back-pressure valve in the product line</td>
</tr>
<tr>
<td>4</td>
<td>Supply tank for chlorine dioxide solution</td>
</tr>
<tr>
<td>5</td>
<td>Level switch in the product tank</td>
</tr>
<tr>
<td>6</td>
<td>Control unit for batch operation</td>
</tr>
<tr>
<td>7</td>
<td>Adsorption unit against ClO₂ emission in the surrounding air</td>
</tr>
<tr>
<td>8</td>
<td>Extraction unit for the product tank with pressure-relief valve, solenoid valve and injector</td>
</tr>
<tr>
<td>9</td>
<td>Dosing pump for the extraction of chlorine dioxide solution</td>
</tr>
<tr>
<td>10</td>
<td>Injection nozzle</td>
</tr>
</tbody>
</table>

Fig. 5 “Installation with batch operation” shows an installation with supply tank (4). If the level switch in the tank indicates a requirement, the control unit (6) activates the system. The solenoid valve opens and provides for sufficient dilution of the produced chlorine dioxide. The valve provides for a certain pressure behind the reactor to avoid the production of dangerous chlorine dioxide gas bubbles. When the supply tank is full, the control unit interrupts the production and the flow of water.

During the filling of the tank the extraction unit (8) is activated, which extracts atmosphere containing chlorine dioxide from the tank. During breaks in production, the adsorption cartridge (7) ensures odour-free operation.

Any number of consumers can be supplied by the tank. The dosing pump (9) is directly controlled by the consumer process.

Table 11: Position numbers

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chlorine dioxide system EASYZON Da-D</td>
</tr>
<tr>
<td>2</td>
<td>Water flow that is treated with chlorine dioxide</td>
</tr>
<tr>
<td>3a</td>
<td>Circulation pump for dilution water</td>
</tr>
<tr>
<td>3b</td>
<td>Solenoid valve for dilution water</td>
</tr>
<tr>
<td>4</td>
<td>Control unit for the dilution water</td>
</tr>
<tr>
<td>5</td>
<td>Injection nozzle</td>
</tr>
</tbody>
</table>

Fig. 6 “Installation with direct dosing” shows a typical installation for the dosing in a water flow (2). Water must be provided for the dilution of the produced chlorine dioxide. Either a circulation pump (3a) supplies the pressure for the flow or the dilution water comes from a line with a higher pressure. Pressure-relief valves and solenoid valves are installed in this case (3b). The water dilutes the chlorine dioxide solution directly at the reactor output to approx. 1 g/l and transports it to the injection nozzle (5).

At a constant water flow the dosing rate of the system is set to a fixed value. If the water supply fluctuates, the system can be controlled proportionally via a 0/4-20 mA or a pulse signal.
7.2 General Notes
For installation, the local directions and regulations have to be adhered to. This applies to the selection of appropriate materials, the handling of chemicals, and hydraulic and electrical installation.

The designer and operating company are responsible for ensuring that the entire system, including the integrated equipment, is 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 diaphragm) or burst hoses. We therefore recommend installing leakage monitors and collecting pans.

7.3 Installation location
The assembly site must be selected in line with the local regulations accordingly.

Principles:
- The room must be lockable.
- If the room is intended for permanent presence of people, the system has to be protected against access by unauthorised persons and only the chemicals which are instantaneously needed may be stored there.
- The room must be frostproof.
- There must be a possibility of ventilation.
- There must be the possibility to dispose of the chemicals without any risk. A water connection and a floor drain must therefore be available.
- The location must be separated from other spaces by fireproof equipment.

The ambient conditions are to be maintained in accordance with the technical data. Exposure of the unit to direct heat and sunlight must be avoided.

The German regulation for the prevention of industrial accidents recommends the following warning signs:

- DO NOT USE CONTAINERS AND DEVICES ALTERNATELY!
- SODIUM CHLORITE + CHLORINE GAS -> HIGHLY TOXIC
- SODIUM CHLORITE + ACID -> CHLORINE DIOXIDE GAS!
- DANGER TO LIFE!

Fig. 7: At the system or near the system

7.4 Wall mounting
The installation height has to allow for easy operation of the control unit and an uphill installation of the suction lines for the chemicals.

Choose a vertical wall and align the system with a water level.

The system is installed on the wall with screws and rawlplugs at six points. The installed plate must be free of stress.

7.5 Hydraulic connections
Always use appropriate tools for the installation of plastic connection parts. To avoid damage, only apply adequate force. Apply a thin layer of silicone grease to plastic threads for smooth running.

The piping must be installed on the system free of stress.

7.5.1 Water supply
The dilution water must be free from impurities. If necessary, install a particle filter (80 µm).

The manufacturer recommends drinking water quality.

Take into account the local legal specifications when connecting the system to the drinking water supply. Often, the installation of a piping and system separator is mandatory.

Depending on the type of installation (see example installations), a circulation pump or a solenoid valve is used. Before the installation, make sure that the technical data (pressure class, flow rate, delivery characteristic curve, operating voltage) is appropriate for the respective application. If a solenoid valve is used, an upstream pressure-relief valve is recommended.

7.5.2 Suction lines
Each suction line is installed in a cover of the chemical tank. The hole diameter for flexible suction lines must be selected to fix the hose in the hole so that the immersion depth can be set as required.

The length of the hose must be adapted to allow for a replacement of the container without detaching the hose from the system. The hose should be installed with a constant uphill gradient.

For the connection of the suction lines to the chemical supply, the system is equipped with hose clamp connections. For a sound connection, proceed as follows:
- Cut off the hose end straight and cleanly
- Push the union nut and clamping ring on the end of the hose (pay attention to the alignment of the clamping ring)
- Push the hose on the connection to the end stop
- push the clamping ring on the taps
- Tighten the union nut by hand

7.5.3 Chlorine dioxide line
PVC pipes with FPM sealings are used as lines for chlorine dioxide solution.
PVC becomes brittle when exposed to chlorine dioxide for a long time. The pressure class of the pipe must therefore be higher than actually required by the system pressure.

Example: System pressure 10 bar, piping PN16
The piping must be installed with a constant uphill gradient to avoid any accumulation of gas bubbles. If a downhill gradient of the piping cannot be avoided, a permanent positive pressure of at least 1 bar in the reactor must be maintained, for example by means of a back-pressure valve.

The injection nozzle is installed in the piping from below, for vertical lines in a horizontal position.

7.5.4 Batch system
A back-pressure valve is mandatory for batch systems (see example installation). Adjust the valve to a minimum holding pressure of 1 bar.

The filling line in the tank goes down to ground level and its diameter should be generously measured. The maximum flow velocity is 2m/s.

Recommendations:

<table>
<thead>
<tr>
<th>Model</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>EASYZON 50 D - 400 D</td>
<td>DN 15</td>
</tr>
<tr>
<td>EASYZON 800 D - 1400 D</td>
<td>DN 25</td>
</tr>
</tbody>
</table>

Table 12: Cross-section filling line

Dosing pumps should either be connected with a PVC pipe or with a PTFE hose. PE or PVC hoses may not be used for this purpose. Holes are drilled into the tank for the installation of the suction lines. The hole diameter depends on the diameter of the suction line. Make sure that the connections are gas-tight. The suction lines must have a foot valve and should end about 1-3 cm above the ground.

The waste water from the extraction unit must be able to drain off without any backpressure. The extraction unit must be adjusted to extract the same volume flow of gas as the amount of chlorine dioxide solution that flows in. A pressure-relief valve is necessary for this purpose.

7.6 Electrical connection

**DANGER**
Mortal danger from electric shock!
Wrongly connected or located cables or damaged ones can injure you.

- Connect the device to a SCHUKO socket outlet protected by a fault current circuit breaker or with a fused control cabinet.
- Arrange for the electrical connection of the system to be checked (only) by an electrician.
- Deactivate the power supply and secure it against reactivation, if work is to be performed on the live parts.

For the cable passage, use cable screw connections with at least IP65, which are tightened after the installation, to maintain the IP protection class of the system.

Respect the voltage values in accordance with the technical data. Power supply fuse of max. 16 A.

Immerge the level switches in the chemical tank until they almost touch the ground. Drill a hole in the cover of the chemical tank to put through the cable and attach it in this position. For suction lines with integrated float switches, these steps are not necessary.

Switch direction of the float switches. The contact is closed if there is a lack of chemicals. The float switches are connected to the terminals 29-33 in the control unit. If there is a lack of chemicals, the red LED’s L2 or L3 are lit.

When you connect the input signals, check if 4...20 mA signals or pulse signals are available. The terminal connection varies and the respective adjustment must be made in the main menu (code 1000). The possibilities of remote control and remote indication are described in detail in section 8 „Electrical control“ on page 19.

The dilution system (solenoid valve or circulation pump) is not connected to the electronic control, but to the control unit of the dilution system. This control unit provides a power output (see 7.6.1).

Control cabinet for the batch system

Consult the separate circuit diagram for the connections to the control cabinet.

Voltage supply with fuse max. 16 A.

The level switches in the batch tank are connected to terminals X3 (1-8).

Switch direction of the float switches. The contact is closed when the float is in the bottom position.

The switching height of the float switches is adjustable and allows for an adaption of the minimum supply to the application.

The output at terminal X2 (1+2) is connected to terminal 34+35 of the central control unit. If the tank is full, the production is interrupted via this contact.

The output at terminal X2 (3+4) is an alarm output. The contact is closed if:
- the product tank is empty
- the product tank is overfilled
- there is a power failure

The solenoid valve for the extraction unit is controlled together with the valve for the dilution water. That is why it is connected to the control unit of the dilution system.

The control and the power supply of the dosing pumps for the withdrawal of chlorine dioxide are provided by the operating company. It is recommended to interlock the pumps with the alarm relay of the batch control to avoid the intake of air in the case of an empty product tank.
7.6.1 Dilution control

Fig. 9: Relay box for the dilution control
8 Electrical control

8.1 Display and controls

**Table 13: Description of the key functions**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>On/Off</td>
<td>Switch the device on and off</td>
</tr>
<tr>
<td>Select</td>
<td>Select manual or automatic operation</td>
</tr>
<tr>
<td>Reset</td>
<td>Display of alarms (press &quot;OK&quot; to acknowledge)</td>
</tr>
<tr>
<td>Conf</td>
<td>Switch to the configuration mode</td>
</tr>
<tr>
<td>Start up</td>
<td>Vent the system</td>
</tr>
<tr>
<td>⚫</td>
<td>Activate the ventilator of the reactor cabinet for 1 minute</td>
</tr>
<tr>
<td>OK</td>
<td>Switch to the EDIT mode</td>
</tr>
<tr>
<td>▼</td>
<td>Modify the cursor position</td>
</tr>
<tr>
<td>▲</td>
<td>Go to the next display window</td>
</tr>
</tbody>
</table>

**Table 14: Description of the LED’s**

<table>
<thead>
<tr>
<th>LED no.</th>
<th>Colour</th>
<th>Designation</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>red</td>
<td>Fault</td>
<td>is lit in the case of a fault (level, dilution water, dosing)</td>
</tr>
<tr>
<td>11</td>
<td>red</td>
<td>Error</td>
<td>is lit in the case of an alarm (dosing)</td>
</tr>
<tr>
<td>12</td>
<td>green</td>
<td></td>
<td>is lit when the cabinet ventilator is switched on</td>
</tr>
<tr>
<td>13</td>
<td>green</td>
<td></td>
<td>is lit during the venting phase</td>
</tr>
</tbody>
</table>

**8.2 Terminal connection**

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>L input supply voltage</td>
</tr>
<tr>
<td>2</td>
<td>N</td>
</tr>
<tr>
<td>3</td>
<td>PE</td>
</tr>
<tr>
<td>4</td>
<td>L output voltage supply for the dosing pumps</td>
</tr>
<tr>
<td>5</td>
<td>N</td>
</tr>
<tr>
<td>6</td>
<td>PE</td>
</tr>
<tr>
<td>7</td>
<td>+ 24 V DC for terminals 38 and 40, if these terminals are used as pulse inputs</td>
</tr>
<tr>
<td>8</td>
<td>- no function</td>
</tr>
<tr>
<td>9</td>
<td>+ Voltage supply 24 V DC for the ventilator</td>
</tr>
<tr>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>+ pulse output acid pump</td>
</tr>
<tr>
<td>12</td>
<td>-</td>
</tr>
<tr>
<td>13</td>
<td>+ pulse output chlorite pump</td>
</tr>
<tr>
<td>14</td>
<td>-</td>
</tr>
<tr>
<td>15</td>
<td>- no function</td>
</tr>
<tr>
<td>16</td>
<td>+ control output dilution system max. 24 V/0.1 A for pump or solenoid valve, closed when water is required</td>
</tr>
<tr>
<td>17</td>
<td>- common ground</td>
</tr>
<tr>
<td>18</td>
<td>+ flow monitor acid pump</td>
</tr>
<tr>
<td>19</td>
<td>+ flow monitor chlorite pump</td>
</tr>
<tr>
<td>20</td>
<td>+ no function</td>
</tr>
<tr>
<td>21</td>
<td>- flow monitor dilution water</td>
</tr>
<tr>
<td>22</td>
<td>+ no function</td>
</tr>
<tr>
<td>23</td>
<td>- no function</td>
</tr>
<tr>
<td>24</td>
<td>+ no function</td>
</tr>
<tr>
<td>25</td>
<td>+ no function</td>
</tr>
<tr>
<td>26</td>
<td>+ no function</td>
</tr>
<tr>
<td>27</td>
<td>- no function</td>
</tr>
<tr>
<td>28</td>
<td>+ no function</td>
</tr>
<tr>
<td>29</td>
<td>- common ground connection for flow monitors at the reactor input</td>
</tr>
<tr>
<td>30</td>
<td>+ acid empty</td>
</tr>
<tr>
<td>31</td>
<td>+ acid low level alert</td>
</tr>
<tr>
<td>32</td>
<td>+ chlorite empty</td>
</tr>
<tr>
<td>33</td>
<td>+ chlorite low level alert</td>
</tr>
<tr>
<td>34</td>
<td>- common ground function is activated if contact is closed (35+36 are invertible)</td>
</tr>
<tr>
<td>35</td>
<td>+ remote contact OFF</td>
</tr>
<tr>
<td>36</td>
<td>+ remote contact RESET</td>
</tr>
<tr>
<td>37</td>
<td>+ remote contact reduced production</td>
</tr>
<tr>
<td>38</td>
<td>+ 20 mA input guide signal, e.g. flow meter or SPS if pulse signal, terminals 7/38</td>
</tr>
<tr>
<td>39</td>
<td>-</td>
</tr>
<tr>
<td>40</td>
<td>+ 20 mA input chlorite dioxide controller (signal is invertible) if chlorine dioxide controller with pulse signal, terminals 7/40</td>
</tr>
<tr>
<td>41</td>
<td>-</td>
</tr>
</tbody>
</table>
8.3 Internal fuses

The internal fuses of the control unit are installed on the bottom left-hand side of the circuit board.

<table>
<thead>
<tr>
<th>Internal fuse</th>
<th>Function</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>F6</td>
<td>voltage supply of the control unit</td>
<td>250 V 1 A (delay fuse)</td>
</tr>
<tr>
<td>F1</td>
<td>voltage supply of the dosing pumps</td>
<td>250 V 4 A (delay fuse)</td>
</tr>
</tbody>
</table>

Table 16: Internal fuses

Use only fuses with identical technical data.

8.4 Menu structure

The following figure gives an outline of the menu structure of the control unit.

Adjustments can only be made when the system is switched OFF.

---

### Table 15: Terminal connection

<table>
<thead>
<tr>
<th>Loading</th>
<th>Internal fuses</th>
<th>Function</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mA input for reduced production or 20 mA input gas sensor (JP7: 1-2 passive / 2-3 active 24 V DC)</td>
<td>F6</td>
<td>voltage supply of the control unit</td>
<td>250 V 1 A (delay fuse)</td>
</tr>
<tr>
<td>20 mA output for current production</td>
<td>F1</td>
<td>voltage supply of the dosing pumps</td>
<td>250 V 4 A (delay fuse)</td>
</tr>
<tr>
<td>relay output system in operation closed while operating</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>relay output dosing fault closed when dosing fault or chemicals empty</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>relay output dilution water fault closed when lack of water</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>relay output warning closed when low level alert, gas warning, gas alarm, analogue&lt;4 mA</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

All relay outputs max. 250 V AC / 1 A (ohmic resistive load)

Load of the analogue inputs approx. 50 ohms

---

Password

Access is protected via a 4-character password (factory setting: 0000). The changeable characters are highlighted.

Use the arrow button to enter the desired password and then confirm with OK.
8.5 Basic settings

The default settings apply independently of the operating mode selected.

1. Press the “On/Off” button to switch off the system.
2. Press the key “Conf”.
3. Enter the password and press “OK”.
4. Enter the code “1000” and press OK.

You are now in the default settings menu. You can change the default settings in accordance with the following table.

The following values can be adjusted:

<table>
<thead>
<tr>
<th>Value</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>JESCO GmbH SOFTWARE</td>
<td>Version of the installed software</td>
</tr>
<tr>
<td>AUT. RUN_MODE=1</td>
<td>Selection of the operating mode for automatic operation (explanations refer to the next section)</td>
</tr>
<tr>
<td>1=FLOW RATE RUN MODE</td>
<td></td>
</tr>
<tr>
<td>2=DIRECT RUN MODE</td>
<td></td>
</tr>
<tr>
<td>3=FLOW+AN.RUN MODE</td>
<td></td>
</tr>
<tr>
<td>REM_OFF[1=NO,0=NC]=0</td>
<td>Mode of action of the remote contact OFF (terminals 34+35)”NC”: A closed contact switches OFF the system</td>
</tr>
<tr>
<td>REM_RES[1=NO,0=NC]=0</td>
<td>Mode of action of the remote contact RESET (terminals 34+36)”NC”: A closing contact initiates a RESET</td>
</tr>
<tr>
<td>LANGUA[0=IT,1=ENG]=1</td>
<td>Selection of the user language Italian or English</td>
</tr>
<tr>
<td>START_UP_S[str]=100</td>
<td>Number of dosing strokes to be performed to vent the system after pressing the “Start up” key.</td>
</tr>
<tr>
<td>PRED_S_DELAY[sec]=10</td>
<td>Time delay between the switching ON of the unit and the beginning of the monitoring of the dilution water by the flow meter.</td>
</tr>
<tr>
<td>A_BLEED[1=YES0=NO]=0</td>
<td>This function allows for one automatic venting of the dosing pumps if dosing faults have been detected. Number of strokes see START_UP_S[str].</td>
</tr>
<tr>
<td>MAIN_S[1=mA,0=fre]=0</td>
<td>Signal type of the main signal (water meter or PLC) 4...20 mA: Terminals 38+39 0...100 Imp/min: Terminals 7+38 (see notes regarding the 4...20 mA inputs)</td>
</tr>
<tr>
<td>ANALIS[1=mA,0=fre]=0</td>
<td>Signal type of the auxiliary signal (chlorine dioxide controller) 4...20 mA: Terminals 40+41 0...100 Imp/min: Terminals 7+40 (see notes regarding the 4...20 mA inputs)</td>
</tr>
</tbody>
</table>

Table 17: Basic settings

DLY_OFF_PRED[sec]=00  Additional rinse time of the dilution water when switching off production

PASSWORD=0000  Remember the password after changing it. Otherwise, access is impossible.

TIME ADJUST
Day(0=Mo, 6=Su)=2
HOU=07 MIN=10 SEC=13
DAY=11 MON=01 YEAR=12  Setting of date and time

5. If a parameter has not been selected and you wish to exit the menu, press “Conf”.

Default settings have been performed successfully.

If the signal type 4...20 mA is selected for incoming signals, cable break monitoring is active and triggers an alarm if 4 mA is undercut. This setting must therefore only be made when a 4...20 mA signal is connected. The factory setup of the system is “0=fre” (pulse signal).

8.6 Setting operating modes

You can set one of three automatic operating modes or manual operation. Manual operation is possible in all automatic operating modes by pressing the SELECT key.

8.6.1 Manual operation „MANUAL RUN MODE“

The desired production output is entered in the control unit and the system operates without external signals. If connected, remote signals can initiate Start and Stop and reduced production. All monitoring devices of the system are active.

Typical application examples for this operating mode are batch systems and applications with a fixed required supply.

Changing the settings:

1. Press the “On/Off” button to switch off the system.
2. Press the key “Conf”.
3. Enter the password and press “OK”.
4. Enter the code “0000” and press OK.

You are now in the settings menu. You can change the settings in accordance with the following table.

<table>
<thead>
<tr>
<th>Value</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DLY_OFF_PRED[sec]=00</td>
<td>Additional rinse time of the dilution water when switching off production</td>
</tr>
<tr>
<td>PASSWORD=0000</td>
<td>Remember the password after changing it. Otherwise, access is impossible.</td>
</tr>
<tr>
<td>TIME ADJUST</td>
<td>Setting of date and time</td>
</tr>
<tr>
<td>Day(0=Mo, 6=Su)=2</td>
<td></td>
</tr>
<tr>
<td>HOU=07 MIN=10 SEC=13</td>
<td></td>
</tr>
<tr>
<td>DAY=11 MON=01 YEAR=12</td>
<td></td>
</tr>
</tbody>
</table>

Table 17: Basic settings
The operating company enters the desired dosing concentration and the system calculates the dosing quantity on the basis of the characteristics of the water meter. If connected, remote signals can initiate Start and Stop and reduced production.

Typical application examples for this operating mode are water works in which EASYZON is directly connected to the water meter.

Changing the settings:
1. Press the “On/Off” button to switch off the system.
2. Press the key “Conf”.
3. Enter the password and press “OK”.
4. Enter the code “0000” and press OK.
   ▶ You are now in the settings menu. You can change the settings in accordance with the following table.

The following values can be adjusted:

<table>
<thead>
<tr>
<th>Value</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set: 0240 g/h of 0310</td>
<td>Production capacity before the influence of the reduction. The control unit calculates the maximum settable value (here 310 g/h) on the basis of the delivery capacity of the pumps.</td>
</tr>
<tr>
<td>StrokeLength: 100 %</td>
<td>Stroke length of dosing pumps. If the stroke length is reduced, the control unit increases the pulse frequency of the pumps. It does not make sense to change this value.</td>
</tr>
<tr>
<td>C_P ACID [ml/s] = 1.64</td>
<td>Stroke volume of the acid pump in ml/stroke. Must be entered after calibration.</td>
</tr>
<tr>
<td>% PROD [1 = YES, 0 = NO] = 0</td>
<td>Allows for a reduction of the production by an analogue signal (terminals 42+43). 4 mA lead to a 0% production. To be activated only if a mA signal is connected. Otherwise error message!</td>
</tr>
<tr>
<td>RED % PROD[ %] = 80</td>
<td>Production is reduced to this value when terminals 34+37 are closed. In the example 240 g/h x 80% = 192 g/h</td>
</tr>
</tbody>
</table>

Table 18: Setting manual operation

5. If a parameter has not been selected and you wish to exit the menu, press “Conf”.

✓ Manual operation has been set.

Example

![MANUAL RUN MODE][1]

In the example, the production is reduced by 25% via a remote signal. Current production amounts to 240 g/h – 25% = 180 g/h.

8.6.2 Flow rate controlled operation „FLOW RATE RUN MODE“

The system receives an electrical signal from a flow meter and doses proportionally to the water flow. For fluctuations in the water flow, the addition of ClO₂ is automatically adapted.
Example

FLOW RATE RUN MODE
Set: 0.50 mg/l  of 0.62
StokeLength: 100%
RUN
▲▼

FLOW RATE RUN MODE
Flow Rate: 040%
Reduction: 000%
RUN

In the example, production is set to 0.50 mg/l. The current signal of the flow meter amounts to 40 %. The production is not reduced by a remote signal.

8.6.3 Directly controlled operation „DIRECT RUN MODE“

The system doses proportionally to an electrical signal from a process control system. If connected, remote signals can initiate Start and Stop and reduced production.

Typical application examples for this operating mode are all installations with a process control system.

Changing the settings:
1. Press the “On/Off” button to switch off the system.
2. Press the key “Conf”.
3. Enter the password and press “OK”.
4. Enter the code “0000” and press OK.
   ▶ You are now in the settings menu. You can change the settings in accordance with the following table.

The following values can be adjusted:

<table>
<thead>
<tr>
<th>Value</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SignalInput : 075 %</td>
<td>Signal from the process control system. Only for information purposes.</td>
</tr>
<tr>
<td>StrokeLength: 100 %</td>
<td>Stroke length of the dosing pumps. If the stroke length is reduced, the control unit increases the pulse frequency of the pumps. It does not make sense to change this value.</td>
</tr>
<tr>
<td>C_P_ACID [ml/s] = 1.64</td>
<td>Stroke volume of the acid pump in ml/stroke. Must be entered after calibration.</td>
</tr>
<tr>
<td>C_P_CHLOR [ml/s] = 1.62</td>
<td>Stroke volume of the chlorite pump in ml/stroke. Must be entered after calibration.</td>
</tr>
<tr>
<td>%_PROD[1=YES,0=NO]=0</td>
<td>Allows for a reduction of the production by an analogue signal (terminals 42+43). 4 mA lead to a 0 % production. To be activated only if a mA signal is connected. Otherwise error message!</td>
</tr>
</tbody>
</table>

MAX.METERING[ %]= 100 ◁ Restriction of the dosing capacity in automatic operation.
F_MAX_INF [str/m] = 100 ◁ Maximum pulse frequency of the guide signal
Setting range: 1 - 120 pulses / minute
If the analogue signal is selected for the main signal in the menu 1000, this parameter is ineffective.

In the example, the process control system requests 75 % production. The production is not reduced by a remote signal.

8.6.4 Flow rate and controller-controlled operation “FLOW+AN.RUN MODE“

The system follows the combination of two electrical signals. The signal from the water meter is the main signal. The system uses this signal to calculate the general dosing. The auxiliary signal from the chlorine controller effects additional dosing and the influence of this signal is adjusted with the value BEARING_ANALIS. The signal from the chlorine dioxide controller is multiplied internally with the flow rate signal. The chlorine dioxide controller is therefore only effective when there is a flow of water. The table illustrates this with examples.
Chlorine Dioxide System EASYZON Da

Operating instructions

Table 21: Mode of action Flow+AN. Run Mode

<table>
<thead>
<tr>
<th>Signals</th>
<th>Setting</th>
<th>Power output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water meter</td>
<td>ClO2 controller</td>
<td>BEARING ANALIS</td>
</tr>
<tr>
<td>0 %</td>
<td>0 %</td>
<td>20 %</td>
</tr>
<tr>
<td>100 %</td>
<td>0 %</td>
<td>20 %</td>
</tr>
<tr>
<td>0 %</td>
<td>100 %</td>
<td>20 %</td>
</tr>
<tr>
<td>50 %</td>
<td>0 %</td>
<td>20 %</td>
</tr>
<tr>
<td>50 %</td>
<td>100 %</td>
<td>20 %</td>
</tr>
<tr>
<td>50 %</td>
<td>100 %</td>
<td>50 %</td>
</tr>
<tr>
<td>100 %</td>
<td>100 %</td>
<td>20 %</td>
</tr>
<tr>
<td>100 %</td>
<td>100 %</td>
<td>50 %</td>
</tr>
</tbody>
</table>

The settings MAX.METERING and the dosing concentration have a multiplying effect on the dosing rate which is thus calculated.

The operator enters the desired dosing concentration. EASYZON calculates the dosing quantity on the basis of the characteristics of the water meter and the signal of the chlorine dioxide controller. If connected, remote signals can initiate Start and Stop and reduced production.

Changing the settings:

1. Press the “On/Off” button to switch off the system.
2. Press the key “Conf”.
3. Enter the password and press “OK”.
4. Enter the code “0000” and press OK.
   - You are now in the settings menu. You can change the settings in accordance with the following table.

The following values can be adjusted:

<table>
<thead>
<tr>
<th>Value</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set: 0.50 mg/l of 0.62</td>
<td>Dosing concentration before the influence of the reduction. The maximum \set\ value of 0.62 mg/l is calculated by the control unit on the basis of the delivery capacity of the pumps and the water meter data.</td>
</tr>
<tr>
<td>StrokeLength: 100%</td>
<td>Stroke length of the dosing pumps. If the stroke length is reduced, the control unit increases the pulse frequency of the pumps. It does not make sense to change this value.</td>
</tr>
<tr>
<td>C_P_ACID[ml/s]=1.64</td>
<td>Stroke volume of the acid pump in ml/stroke. Must be entered after calibration.</td>
</tr>
<tr>
<td>C_P_CHLOR[ml/s]=1.62</td>
<td>Stroke volume of the chlorite pump in ml/stroke. Must be entered after calibration.</td>
</tr>
<tr>
<td>MAX.FLOW[m3/h]=5000</td>
<td>Maximum flow rate of the flow meter</td>
</tr>
</tbody>
</table>

Table 22: Setting FLOW+AN. RUN MODE

5. If a parameter has not been selected and you wish to exit the menu, press “Conf”.

✔ Flow rate controlled operation set successfully.

Example

FLOW+AN. RUN MODE
Set: 0.50 mg/l of 0.62
StrokeLength: 100%
RUN

FLOW+AN. RUN MODE
Flow Rate: 040%
Signal Analysis: 010%
RUN

FLOW+AN. RUN MODE
Reduction: 000%
RUN

In the example, production is set to 0.50 mg/l. The current signal of the flow meter amounts to 40%. The chlorine dioxide controller requires additional dosing via the 10% signal. The production is not reduced by a remote signal.
9 Commissioning

To avoid unintentional dosing of chlorine dioxide, commissioning is performed initially with water. Before commissioning, put the suction lines for the chemicals in a tub filled with water.

9.1 Configuration of the control unit

The device does not have a mains switch and when the voltage supply is switched on, the display is illuminated. Press the “On/Off” key to switch off the system. The display shows “OFF”.

Configure the default settings as described in chapter 8.5 „Basic settings“ on page 21. Then switch the system into “MANUAL RUN MODE”.

9.2 Setting the dilution water.

1. Press the “Select” button to switch the system into “MANUAL RUN MODE”.
2. Press the “On/Off” button to switch the system “On”.

Bypass the error messages which develop during this procedure. To do so, press the “Reset” and “OK” buttons to acknowledge the error messages.

3. Using the ball valve under the flow meter, adjust the water flow rate so that at least 1 litre of water flows for every gramme of chlorine dioxide produced. Example: For an EASYZON with 200 grammes production, you need to set min. 200 litres per hour.
4. Set the reed switch of the float flow meter so that the LED “PREDIL SENSOR” illuminates.
5. Switch the system with the “On/Off” button off again and return it to the previous operating mode using the “Select” button.

✓ You have successfully set the flow volume for the dilution water.

9.3 Vent the pump

1. Put the suction lines in a tub filled with water.
2. Fill the calibration cylinders with water.
3. Adjust the ball valves until the dosing pumps extract water from the calibration cylinders. Please note the red markings on the ball valves.
4. Switch on the dilution water supply. With dilution water systems with a circulation pump or a solenoid valve, the systems starts automatically when you press the “Start Up” button.

5. Press the “Start Up” key to start the dosing pumps. The dosing pumps now perform a fixed number of dosing strokes without the flow meters at the reactor input being active.
6. While the dosing pumps are operating, do the following steps:
   ▶ Set the stroke length of the pumps to 100 %.
   ▶ If the pumps do not vent automatically, turn up the venting above the pumps by a single revolution. The pump now pumps into the vent line. If no further air bubbles develop, close the venting again.
7. Refill the water in the calibration cylinder to avoid intake of air.
8. Switch the ball valves to intake from the suction lines and vent them in the same way.
9. Press the “Start Up” key again to restart the venting procedure. If you press the key while the pumps are operating, EASYZON stops the process.

✓ You have successfully vented the pumps.

9.4 Setting the back-pressure valves

The back-pressure valves are set with the screw on the face. If the screw is screwed loosely against the initial resistance, every further turn of the screw means c. 1.5. Increase as a reference value. The screw must be fixed with the counter nut after setting.

<table>
<thead>
<tr>
<th>Revolutions</th>
<th>Pressure (bar)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>4.5</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>4</td>
<td>7.5</td>
</tr>
<tr>
<td>5</td>
<td>9</td>
</tr>
</tbody>
</table>

Table 23: Setting the back-pressure valves

Setting the back-pressure valves:

1. Loosen the counter nuts on the back-pressure valve.
2. Unscrew the screw almost completely.
3. Screw the adjustment screw back in until you feel a slight counter-pressure. The adjustment screw now lies on the compression spring; this spring in the valve is not tightened at this point.
4. Set the back-pressure valve to the desired opening pressure in accordance with Table 23.
5. Re-fix the counter nuts.

✓ You have set the back-pressure valve.
9.5 Setting the dosing control

Precondition for action:

✔ The system pumps are running.

1. Push the green sensor of the dosing control at the reactor input to the top position.

2. Push the sensor slowly down while the dosing pump is operating until the LED at the control unit goes off for a short time with each pump stroke.

3. To be sure, reduce the stroke of the dosing pump. After eight non-registered dosing strokes, the control switches to alarm.

✔ You have now successfully set the dosing control.

9.6 Calibrating the dosing pumps

**NOTE**

**Restricted function**

When reducing the delivery capacity using stroke length adjustment directly to the dosing pumps, there is the danger that gas bubbles develop in the dosing head. This can impair the function of the system.

⇒ Only alter the delivery capacity of the pumps via the control unit.

⇒ The stroke length adjustment of the pumps should always be set to 10.

Precondition for action:

✔ Before calibration of the dosing pumps, the pumps must be vented and the operating pressure of the system must comply with the final application. If there is a change of pressure, another calibration is required.

1. Switch the EASYZON control unit to "OFF".

2. Fill the calibration cylinders up to the top line of scale "0".

3. Switch the two ball valves to intake from the calibration cylinder (see Fig. 12).

4. Press the "Start Up" key to start the dosing pumps. The dosing pumps now perform a fixed number of dosing strokes.

5. Determine the withdrawn quantity for each pump.

6. Divide the values by the number of dosing strokes performed (the value START_UP_S can be checked or modified with code 1000 in the default settings).

   Reading value / START_UP_S = entry value

7. Press "Conf" and "OK" to go to the calibration menu. (code 0000)

8. Enter the calculated values in ml/stroke

9. Press "OK" to confirm several times until none of the values is highlighted on the display.

10. Press "Conf" to exit the menu.

11. Switch the two ball valves to intake from the suction lines (see Fig. 12).

✔ You have successfully calibrated the dosing pumps.
9.7 Batch system

For batch systems, switch the system to MANUAL RUN MODE. In batch systems, the flow rate of the dilution water determines the product concentration. Adjust the dilution water supply carefully. The recommended concentration in the storage tank is 1 g/l.

Concentrations superior to 1 g/l tend to result in a quick chemical breakdown of the chlorine dioxide and the production of odour. Lower concentrations reduce the storage capacity of effective chlorine dioxide and the withdrawing dosing pumps have to be larger than actually necessary.

9.7.1 Setting the extraction unit

The extraction unit for the product tank is adjusted to extract the same volume of air as the amount of product that flows into the tank. The adjustment is done at the pressure-relief valve. The performance curves (Fig. 14 to Fig. 17) of the injectors in use serve as a reference value.

To check if the extracted quantity is correct, you can for instance put a sheet of paper on the adsorption cartridge. It must be slightly sucked in. Remove the paper after the check.

9.7.2 Setting up the level switch

The product tank has four level switches. The function from the top down is:
- MAXMAX Overfill alarm
- MAX Production stop
- MIN Production start
- MINMIN Protection against dry running

At the container passage, the level switches have a clamp connection that allows for an adjustment of the height.

The protection against dry running is adjusted to allow for switching off the withdrawing dosing pumps before they take in air from the empty container.

Start and Stop of the production can be adjusted to adapt to the consumer process. Criteria for the adjustment are:
- The quantity stored between MIN and MINMIN allows a higher consumption of chlorine dioxide than the system can produce for a short time.
- The operating time of the system between Start and Stop should not be less than 30 minutes.

Fig. 14: EASYZON 35 D - 130 D, DN10, nozzle Ø 1.5mm
p1: Motive water pressure, Q1: Motive water quantity, Q2: Intake quantity (air)
Valid without backpressure

Fig. 15: EASYZON 300 D, DN10, nozzle Ø 2.0mm
p1: Motive water pressure, Q1: Motive water quantity, Q2: Intake quantity (air)
Valid without backpressure

Fig. 16: EASYZON 800 D, DN15, nozzle Ø 3.0mm
p1: Motive water pressure, Q1: Motive water quantity, Q2: Intake quantity (air)
Valid without backpressure

Fig. 17: EASYZON 1400 D, DN20, nozzle Ø 4.5mm
p1: Motive water pressure, Q1: Motive water quantity, Q2: Intake quantity (air)
Valid without backpressure
9.8 Production start

Immerge the suction lines in the respective chemicals and close the covers of the tanks. Check the position of the ball valves at the calibration cylinders (see Fig. 12).

Enter all parameters in the control unit which are required for the desired operating mode and activate the desired operating mode (see chapter 8.6 „Setting operating modes“ on page 21).

Make repeated checks of the chlorine dioxide concentration in the treated water until the desired results are achieved. If necessary, check the values set on the control unit. Suitable instruments for the measurement of the concentration of chlorine dioxide in the water, which work according to the DPD method, are for example comparison systems or photometers.
10 Shutdown and disposal

No special measures are necessary for a brief shutdown of the system (e.g., several hours). Press the “On/Off” key to switch off the system.

For lengthier interruptions to the running of the unit it must be rinsed off thoroughly with water. Remove the suction lines from the chemical tanks and close the tanks. After you have flushed the system, close the supply line for the dilution water and, if required, close the ball valve at the injection nozzle.

10.1 Rinsing the system

DANGER

Danger to life from overdosing!

During the rinsing of the system, a pulsed input of chlorine dioxide in the process system can take place.

☞ Make sure that the chlorine dioxide is diluted adequately.

☞ Make sure that the increased concentration resulting from the pulse is not able to pose any hazard.

It is necessary to rinse the unit before a long shutdown for maintenance purposes.

The suction lines are taken out of the chemical tanks for flushing and put into tubs filled with water. The tanks are closed.

Switch the system to “MANUAL RUN MODE” and operate the system for about 15 minutes at maximum production capacity. The dosing pumps feed water into the reactor thus flushing the entire system.

In batch systems, a weak chlorine dioxide solution remains in the supply tank after flushing. If the remaining solution must not be used in the process, it must be neutralised before it can be drained off into the waste water.

10.2 Disposal of the chemicals

The chemicals must be disposed of in accordance with the locally-applicable regulations in order to prevent any long-term risk of an impact on people, equipment and the environment. On this background, the following instructions must be followed.

Neutralisation of the chlorine dioxide solution

For 1 g chlorine dioxide, approx. 18 g sodium thiosulphate pentahydrate are required. An overdosing is not harmful. Sodium thiosulphate pentahydrate is usually available as crystals. For the dissolving of 1 kg, approx. 5 l water are required.

Example: A supply tank with 100 l chlorine dioxide solution with a concentration of 1 g/l should be neutralised. Dissolve 1,800 g sodium thiosulphate pentahydrate in a tub with 10 l water and slowly add the chlorine dioxide solution.

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

Disposal of used 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.

Put the content of the activated carbon cartridge into a neutralisation solution that consists of 1 l water and 200 g sodium thiosulphate pentahydrate.

10.3 Disposal of old equipment

If the equipment is to be disposed of after its service life, it has to be thoroughly flushed. The equipment was manufactured in accordance with the ROHS guideline and the waste electrical equipment legislation. The manufacturer will take care of disposal if the equipment is returned free of charge. It should not be included with domestic waste.
11 Maintenance

11.1 Basic maintenance information

EASYZON Da is a device manufactured to the highest quality standards and has a long service life. Some parts are subject to wear due to chemical and mechanical stress. Regular visual inspections are therefore necessary in order to ensure a long operating life. Regular preventative maintenance of the unit protects it against operational failure.

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.

11.2 Maintenance intervals

The device require regular maintenance to prevent errors. This table gives you an overview of maintenance work and the intervals at which you must carry it out. The next few sections contain instructions for carrying out this work.

<table>
<thead>
<tr>
<th>Interval</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>daily</td>
<td>▪ Visual inspection of all components</td>
</tr>
<tr>
<td>annually</td>
<td>▪ Note the parameters set</td>
</tr>
<tr>
<td></td>
<td>▪ Check the function of the gas sensor (if present)</td>
</tr>
<tr>
<td></td>
<td>▪ Replace the activated carbon insert for the fan</td>
</tr>
<tr>
<td></td>
<td>▪ Perform maintenance on the dosing pumps</td>
</tr>
<tr>
<td></td>
<td>▪ Replace all the seals in the reactor valve</td>
</tr>
<tr>
<td></td>
<td>▪ Replace the wearing parts on the flow monitor</td>
</tr>
<tr>
<td></td>
<td>▪ Replace the diaphragms of the back-pressure valve of the pumps</td>
</tr>
<tr>
<td></td>
<td>▪ Refill the activated carbon cartridge on the batch tank (batch system only)</td>
</tr>
<tr>
<td></td>
<td>▪ Rinse the filter in the pressure-relief valve of the extraction system (batch-system only)</td>
</tr>
<tr>
<td></td>
<td>▪ Replace the wearing parts of the injector non-return valve (batch system only)</td>
</tr>
<tr>
<td></td>
<td>▪ Replace the diaphragm on the ClO₂ back-pressure valve</td>
</tr>
<tr>
<td></td>
<td>▪ Check the safety equipment</td>
</tr>
<tr>
<td></td>
<td>▪ Perform a test run on the system</td>
</tr>
<tr>
<td></td>
<td>▪ Check the system for leakages</td>
</tr>
<tr>
<td></td>
<td>▪ Check the product concentration</td>
</tr>
<tr>
<td></td>
<td>▪ Clean the system exterior</td>
</tr>
</tbody>
</table>

Table 24: Maintenance intervals

11.3 Maintenance

Dosing pumps

At the dosing pumps, maintenance is restricted to the replacement of the seals and the balls in the non-return valves at the dosing head and the replacement of the pump diaphragms. The maintenance work is described in the operating manual of the dosing pumps.

Back-pressure valve

Only the diaphragm in the back-pressure valve must be replaced. Loosen the union nut to remove the diaphragm. Unfastening the adjustment screw makes the procedure easier. Make sure that you mark the position beforehand so that the same pressure can be applied during re-assembly.

Further information about the back-pressure valve is provided in the separate documentation.
Flow monitor

The flow monitors for the chemicals are subject to mechanical wear and the float and the housing are replaced as part of the maintenance. The ring sensors are installed with the cable pointing to the bottom and must not be mixed up. It is recommended to mark them before disassembly.

Reactor valves

All seals for the reactor valves are included in the maintenance set. To disassemble the valve, push the valve ball with a blunt object. The valve ball is no wear part.

Make sure not to mix up the valve parts as the valves at the reactor input and output are not identical. Apply a thin layer of silicone grease to all O-rings before you install them.

Batch system

Replace the filling of the adsorption cartridge at the supply tank. Follow the instructions on neutralisation and disposal in section 10.2.

In the extraction system, flush the filter in the pressure relief valve, replace the inner parts of the injector non-return valve and check the extraction unit for correct functioning.

Replace the diaphragm at the back-pressure valve in the line between the reactor and the product tank.

Other components

All other parts are usually not subject to wear. If you detect leakages or other damages, replace the seals or replace the entire part.

Safety equipment

Push up the contactor at the flow meter for dilution water. If the system is being operated, an alarm must be issued after c. 10 seconds. Check the set delay time PRE_S_DELAY in menu 1000.

Change the position of one of the ring sensors at the flow monitor for chemicals. If the LED does not flash at each dosing stroke any more, an alarm must be signalised after eight dosing strokes.

For batch systems, check the overfill monitor for correct functioning. Lift the float of the level switch MAXMAX and check if the safety functions react.

Dosing result

If not checked during daily operation, you must perform a check during maintenance at the latest as to whether the dosing concentration complies with the requirements in the application process.
12  

Spare parts

EASYZON basic device

![Diagram of EASYZON basic device]

Fig. 18: Spare parts basic device

<table>
<thead>
<tr>
<th>EASYZON</th>
<th>50 D</th>
<th>100 D</th>
<th>200 D</th>
<th>400 D</th>
<th>800 D</th>
<th>1400 D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance kit</td>
<td>38817</td>
<td>38818</td>
<td>38819</td>
<td>38820</td>
<td>38821</td>
<td>38822</td>
</tr>
<tr>
<td>(Contents see below)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spare parts</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosing pump (1)</td>
<td>38753</td>
<td>38754</td>
<td>38755</td>
<td>38756</td>
<td>38748</td>
<td>38749</td>
</tr>
<tr>
<td>Back-pressure valve (2)</td>
<td>12601062</td>
<td>12500003</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Activated carbon filter for the ventilator (5)</td>
<td>38823</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow meter (6)</td>
<td>38887</td>
<td></td>
<td>38889</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contactor for flow meter (6)</td>
<td>38888</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 25: Spare parts basic device

The maintenance set includes:
- Diaphragms and valve seals for the dosing pumps (1)
- Diaphragms and seals for the back-pressure valve (2)
- Float element and housing for the flow monitors (3)
- Seals for valves (4) and (7)

Batch system (additionally to the basic device)

<table>
<thead>
<tr>
<th>EASYZON</th>
<th>50 D</th>
<th>100 D</th>
<th>200 D</th>
<th>400 D</th>
<th>800 D</th>
<th>1400 D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance set for the batch system (Contents see below)</td>
<td>39005</td>
<td></td>
<td></td>
<td>38824</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Spare parts</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Back-pressure valve</td>
<td>DN15 12500068</td>
<td>DN25 12500052</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injector</td>
<td>88617</td>
<td>88618</td>
<td>88619</td>
<td>88620</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Injector non-return valve</td>
<td>20400018</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pressure-relief valve</td>
<td>G 1/2</td>
<td>36022</td>
<td>G 3/4</td>
<td>82027</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Solenoid valve</td>
<td>G 1/2</td>
<td>88099</td>
<td>G 1/2</td>
<td>82029</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 26: Spare parts batch system

The maintenance set includes:
- Replacement filling for the adsorption cartridge
- Ball, spring and seals for the injector non-return valve
- Diaphragms for the back-pressure valve between reactor and product tank
# 13 Troubleshooting

## 13.1 Error messages of the control unit

The control unit detects error conditions at sensors or incoming signals and indicates them with the message "ERROR DEVICE" in the bottom line of the display. The production is interrupted and an internal acoustic warning device indicates the fault. Depending on the type of fault, different relays are operated.

If you press the "RESET" key, a message appears and the acoustic signal stops. Press the "OK" key to acknowledge the fault. Depending on the type of fault, the system restarts after acknowledgment of the fault or the fault must first be eliminated.

<table>
<thead>
<tr>
<th>Message</th>
<th>Relays</th>
<th>Possible cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMPTY LEVEL ACID TANK</td>
<td>48+40</td>
<td>The acid tank is empty</td>
<td>Fill the acid tank or replace it</td>
</tr>
<tr>
<td>EMPTY LEVEL CHLORITE TANK</td>
<td>48+40</td>
<td>The chlorite tank is empty</td>
<td>Fill the chlorite tank or replace it</td>
</tr>
<tr>
<td>ERROR PREDILUITION WATER FLOW LESS</td>
<td>50+51</td>
<td>The flow rate of the dilution water is too low</td>
<td>Open the valve further, increase the pressure or eliminate impurities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The contact at the flow meter is manipulated</td>
<td>Re-adjust the contact</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cable break</td>
<td>Replace the cable</td>
</tr>
<tr>
<td>FAILURE ACID DOSING or FAILURE CHLORITE DOSING</td>
<td>48+40</td>
<td>Gas bubble in the dosing pump</td>
<td>Vent the pump</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The three-way ball valve at the calibration cylinder is incorrectly adjusted</td>
<td>Vent the pump and adjust the ball valve</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The suction line is not immersed in the chemical</td>
<td>Immersion the suction line, fix it and vent the pump</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The suction line is bented or blocked</td>
<td>Install the hose correctly or clean it</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The stroke sensor at the reactor input is manipulated</td>
<td>Re-adjust the sensor</td>
</tr>
<tr>
<td>READING FAILURE WATER FLOW METER (4-20 mA)</td>
<td>52+53</td>
<td>The signal is 0-20 mA, EASYZON requires 4-20 mA</td>
<td>Adjust the signal output at the device to 4-20 mA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No cable is connected or cable break</td>
<td>Check the cables and terminals 38-39</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The signal type is set to mA, but the connected device transmits pulses</td>
<td>Set the signal type to pulses in code 1000 or connect a mA signal</td>
</tr>
<tr>
<td>READING FAILURE CLO₂ CONTROLLER (4-20 mA)</td>
<td>52+53</td>
<td>see above</td>
<td>see above but terminals 40-41</td>
</tr>
<tr>
<td></td>
<td></td>
<td>FLOW+AN.RUN MODE is selected, but no controller signal is available</td>
<td>Select FLOW RATE RUN MODE in code 1000 or connect a signal</td>
</tr>
<tr>
<td>READING FAILURE % PRODUCTION OR GAS DETECTOR (4-20 mA)</td>
<td>52+53</td>
<td>see above</td>
<td>see above but terminals 42-43</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The reduced operation with mA signal is selected, but not connected</td>
<td>Switch off %_PROD in code 0000 or connect a signal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The option gas sensor is activated, but no gas sensor is connected</td>
<td>Deactivate the gas sensor in code 3000</td>
</tr>
</tbody>
</table>

## 13.2 Faults in the hydraulic system

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible cause</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>The dosing pump does not deliver chemicals</td>
<td>Gas bubble in the dosing head</td>
<td>Vent the pump (see 9.3)</td>
</tr>
<tr>
<td></td>
<td>The ball valve at the calibration cylinder is in the wrong position</td>
<td>Adjust the ball valve and vent the pump</td>
</tr>
<tr>
<td></td>
<td>The suction line is not immersed in the chemical</td>
<td>Push the suction line further into the tank and fix it in this position</td>
</tr>
<tr>
<td></td>
<td>The suction line is bented or blocked</td>
<td>Install the hose correctly or flush the suction line with water</td>
</tr>
<tr>
<td>The tank of the batch system is temporarily emptied</td>
<td>The withdrawal quantity is temporarily superior to the production output</td>
<td>Adjust the level switch in the batch tank to make a larger supply available (see 9.7.2)</td>
</tr>
<tr>
<td>Strong production of smell at the batch system</td>
<td>The adsorption cartridge is charged with chlorine dioxide</td>
<td>Replace the filling</td>
</tr>
<tr>
<td></td>
<td>The filter in the water supply for the extraction unit is blocked</td>
<td>Clean the filter</td>
</tr>
<tr>
<td></td>
<td>The pressure-relief valve in the extraction unit is not correctly adjusted</td>
<td>Adjust the pressure-relief valve (see 9.7.1)</td>
</tr>
</tbody>
</table>
14 EU Declaration of Conformity

(EN) EU 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 EU 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.

BEACON DE-62010-02-V04
EASYZON Da
Operating instructions

(ES) Declaración de conformidad UE
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.

Heinz Lutz
Geschäftsführer / Chief Executive Officer
Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

Anlage zur Herstellung und Dosierung von Chlordioxid
Chlorine dioxide system
Dioxyde de chlore
Diocido de cloro
Instalación de producción y medida de dióxido de cloro

EASYZON Da-D / Da-B

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

Lutz-Jesco GmbH
15 Declaration of no objection

Please copy the declaration, stick it to the outside of the packaging and return it with the device.

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: ...........................................................................
16 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.
Product Range
Lutz Pumpen GmbH
P.O. Box 1462 • D-97864 Wertheim
www.lutz-pumpen.com

Product Range
Lutz-Jesco GmbH
P.O. Box 100164 • D-30891 Wedemark
www.lutz-jesco.com

Barrel and Container Pumps
Dosing Pumps
Flow Meters
Chemical Centrifugal Pumps
Centrifugal Pumps
Double Diaphragm Pumps
Chlorinators
Disinfection

The Lutz-Jesco App for iPads and iPhones is available from the iTunes App Store. Additional information can be found at www.lutz-jesco.com

Available on the App Store

The Fluid Managers

Barrel and Container Pumps
Dosing Pumps
Flow Meters
Chemical Centrifugal Pumps
Centrifugal Pumps
Double Diaphragm Pumps
Chlorinators
Disinfection

Products for the disinfection of swimming pool water based on salt water electrolysis and domestic water technology