CHC dosing station
EASYCHLORMIX
Operating instructions

Read the operating manual!

The user is responsible for installation and operation related mistakes!

Original operating instructions

BA-65100-02-V03

Dosing Conveying Control | Liquids Gases Systems

Table of Contents

1 Notes for the Reader

These operating instructions contain information and behaviour rules for safe and designated operation of the calcium hypochlorite (CHC) dosing station EASYCHLORMIX.

Observe the following principles:

- Read the entire operating manual prior to commissioning the system.
- Ensure that everyone who works with or on the dosing station 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:

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
	Danger point
	Danger from electrical voltage

Table 2: Explanation of the warning signs

Warning sign	Type of danger
	Danger from corrosive substances
	Danger from potentially-explosive substances
	Danger from automatic startup
	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**
Description of danger. Consequences if ignored. ⇨ The arrow signals a safety precaution to be taken to eliminate the danger.	

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

Mortal danger from electric shock!

Wrongly connected or located cables or damaged ones can injure you.

- ⇨ Connect the device only to a SCHUKO socket outlet protected by a ground fault circuit interrupter (GFCI).
- ⇨ Replace damaged cables without delay.
- ⇨ Do not use extension cables.
- ⇨ Do not bury cables.
- ⇨ Secure cables to avoid being damaged by other equipment.

DANGER

Danger to life through explosions!

When using dosing devices without ATEX certification in a potentially explosive area, explosions can occur that result in fatal injuries.

- ⇨ Never use the dosing station EASYCHLORMIX in potentially explosive areas.

WARNING

Uncontrolled development of hazardous substances!

Non-designated use of the dosing station can result in the uncontrolled development of hazardous substances. The calcium hypochlorite intended for use may only be dissolved in water of drinking water quality.

- ⇨ Use exclusively water of drinking water quality to fill the delivery package.

WARNING

Caustic burns or other burns through dosing media!

After connecting to the voltage supply and when working on the dosing pump, valves and connections, dosing medium residue can be emitted from the dosing head.

- ⇨ Before connecting the mains supply, connect the dosing lines.
- ⇨ Check that all the screw connections have been tightened correctly and are leak-proof.
- ⇨ Use sufficient personal protective equipment.
- ⇨ Rinse the dosing station with a liquid (e.g. water) which does not pose any risk.
- ⇨ Release pressure in hydraulic parts.
- ⇨ Never look into open ends of plugged pipelines and valves.

CAUTION

Increased risk of accidents due to insufficient qualification of personnel!

The dosing station may only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.

- ⇨ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications.
- ⇨ Prevent access to the system for unauthorised persons.

NOTE

Comply with the component documentation.

Knowledge of all the component documentation is required for the safe installation, start-up and use of the dosing station.

- ⇨ Read and comply with the documentation of the individual components.

NOTE

Water residue in the components.

A number of the components of the dosing station are checked for their correct function before they are dispatched. This means that water residue can be present in the components during the first installation. This residue is entirely harmless and does not compromise the start-up.

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 vital functions of the dosing pump and the system
- 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 regulations on handling hazardous substances
- Standards and legislation

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	
	Protective goggles
	Protective clothing
	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:

- 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 work unsupervised on the system,
- With sufficient training to enable them to work on the dosing station under the supervision of a trained specialist. These operating instructions differentiate between two user groups:

2.5.1 Qualified persons

A qualified person is someone whose professional training, knowledge, experience and knowledge of the relevant specifications, is able to perform the job allocated to them and recognise and/or eliminate any possible dangers by themselves.

2.5.2 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 personnel qualifications are required for the respective tasks. Only people with appropriate qualifications are allowed to perform these tasks!

Qualification	Activities
Qualified persons	■ Assembly ■ Hydraulic installation ■ Electric installation ■ Commissioning ■ Taking out of operation ■ Maintenance ■ Repairs ■ Disposal ■ Fault rectification
Trained persons	■ Storage ■ Transportation ■ Control ■ Taking out of operation ■ Maintenance ■ Fault rectification

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 dosing station is operated in a fashion which does not accord with these operating instructions.
- If people operate the product who are not adequately qualified to carry out their respective activities.
- No original spare parts or accessories 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.

3.2 Intended purpose

The dosing station EASYCHLORMIX is intended for the following purpose: Local production and dosing of calcium hypochlorite in a watery solution.

3.3 Principles

- Before delivery, the manufacturer inspected the dosing station and operated it under specific conditions (with a specific dosing medium with a specific density and temperature, with specific pipe dimensions, etc.) Since these conditions differ at every location of usage, the delivery capacity of the dosing pump should be measured by gauging it at the operating company's installation.
- Comply with the information regarding the operating and environmental conditions (see chapter 5 „Technical data“ on page 11).
- Any restrictions regarding the viscosity, temperature and density of dosing media must be followed. You must only use dosing media at temperatures above freezing point or below the boiling point of the respective medium.
- The materials of the components and hydraulic parts of the system must be suitable for the dosing medium that is used. In this connection, note that the resistance of these components can change in dependence on the temperature of the media and the operating pressure.

> Information on the suitability of materials combined with different dosing media can be found in the Compatibility Chart of the manufacturer.
> The information in this resistance list is based on information from the material manufacturers and on expertise obtained from handling the materials.
> As the durability of the materials depends on many factors, this list only constitutes initial guidance on selecting material. In all cases, test the equipment with the chemicals you use under operating conditions.

- The dosing station is not intended for outdoor use unless appropriate protective measures have been taken.
- Avoid leaks of liquids and dust into the casing and avoid direct exposure to sunlight.
- You must never operate dosing pumps in a potentially explosive atmosphere if they do not have corresponding nameplates or an appropriate EU Declaration of Conformity for potentially explosive atmospheres.

3.4 Prohibited dosing media

The dosing station must not be used for these media and substances:

- Gaseous media
- Solid substances
- Combustible media
- Radioactive media
- All other media that are not suitable for delivery using this dosing station

3.5 Foreseeable misuse

Below, there is information about the applications of the dosing station or associated equipment that are not considered to be intended use. This section is intended to allow you to detect possible misuse in advance and to avoid it.

Foreseeable misuse is assigned to the individual stages of the product lifetime:

3.5.1 Incorrect assembly

- Unstable or unsuitable fixing of the pump bracket

3.5.2 Incorrect hydraulic installation

- Suction and pressure lines dimensioned incorrectly
- Unsuitable connection of the pipes due to wrong material or unsuitable connections.
- Suction and pressure lines mixed-up
- Damage to threads due to them being tightened too much
- Bending of pipelines
- Excessive demand due to the pressure differences between the suction and pressure valves
- Exceeding the admissible pressure on the suction and discharge sides
- Using damaged parts

3.5.3 Incorrect electrical installation

- Connecting the mains voltage without a protective earth
- Unsecured mains or one that does not conform to standards
- Not possible to immediately or easily disconnect the power supply
- Wrong connecting cables for mains voltage
- Protective earth removed

3.5.4 Incorrect start-up

- Start-up with damaged system
- Shut-off valve closed upon start-up

- Closed suction or pressure line, e.g. due to blockages
- Personnel was not informed before the start-up
- System was recommissioned after maintenance without all the protective equipment and fixtures, etc. being reconnected.
- Inadequate protective clothing or none at all

3.5.5 Incorrect operation

- Protective equipment not functioning correctly or dismantled
- Modification of the dosing station without authority
- Ignoring operational disturbances
- Elimination of operational disturbances by personnel without adequate qualifications
- Bridging the external fuse
- Operation made more difficult due to inadequate lighting or machines that are difficult to access
- Operation not possible due to dirty or illegible display of the dosing pump
- Delivery of dosing media for which the dosing station is not designed
- Inadequate protective clothing or none at all

3.5.6 Incorrect maintenance

- Carrying out maintenance during ongoing operation
- Carrying out work that is not described in the operating manual
- No adequate or regular inspection of correct functioning
- No replacement of damaged parts or cables with inadequate insulation
- No securing against reactivation during maintenance work
- Using cleaning materials that can cause reactions with the dosing media
- Inadequate cleaning of the system
- Unsuitable purging medium
- Unsuitable cleaning materials
- Detergents left in system parts
- Using unsuitable cleaning equipment
- Using the wrong spares or lubricants
- Contaminating the dosing medium with lubricant
- Installing spare parts without following the instructions in the operating manual
- Pulling off sections of the plant
- Mixing up the valves
- Not reconnecting all the lines
- Damaging or not installing all the seals
- Not renewing seals
- Not paying attention to safety data sheets
- Inadequate protective clothing or none at all

3.5.7 Incorrect decommissioning

- Not completely removing the dosing medium
- Dismantling lines while the dosing pump is running
- Device not disconnected from the power supply
- Using the wrong dismantling tools
- Inadequate protective clothing or none at all

3.5.8 Incorrect disposal

- Incorrect disposal of dosing media, operating resources and other materials
- No labelling of hazardous substances

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:

EASYCHLORMIX

- Solenoid Diaphragm Dosing Pump MAGDOS LDp
- Multifunctional valve PENTABLOC with the system size EASYCHLORMIX 05 to 6
- Back-pressure valve PENTABLOC with the system size EASYCHLORMIX 10 and 15
- Injection nozzle SKD
- Pump bracket
- Collecting pan
- Hose (PVC web-reinforced, 6/12 mm, 10 m long)
- Drain line
- Set of warning signs
- Filler unit with shutoff valve and adsorption unit
- GF-2 suction line
- Operating instructions of the dosing station
- Operating instructions of the components

EASYCHLORMIX light

- Solenoid Diaphragm Dosing Pump MAGDOS LDp
- Multifunctional valve PENTABLOC with the system size EASYCHLORMIX light 05 to 6
- Back-pressure valve PENTABLOC with the system size EASYCHLORMIX light 10 and 15
- Injection nozzle SKD
- Hose (PVC web-reinforced, 6/12 mm, 10 m long)
- GF-2 suction line
- Operating instructions of the dosing station
- Operating instructions of the components

4.2 Function description

Calcium hypochlorite (CHC) is predominantly used in water treatment as a disinfectant. Conventional dosing stations for calcium hypochlorite are fitted with various chamber or solvent systems before the dosing-ready solution can be used as a dosing medium. The filling procedure with granulate represents a particular hazard.

The delivery package containing the CHC granulate is filled with water up to four times; this can be documented using a tear-off banderole.

The solution is constantly stirred using a modified aerator which presses air into the delivery package via the suction line; it is maintained in solution. This dosing medium can be dosed into the swimming or wading pool or another water body using the dosing pump MAGDOS LDp. This is controlled via a measurement system or a water meter.

4.3 Structure of the dosing station

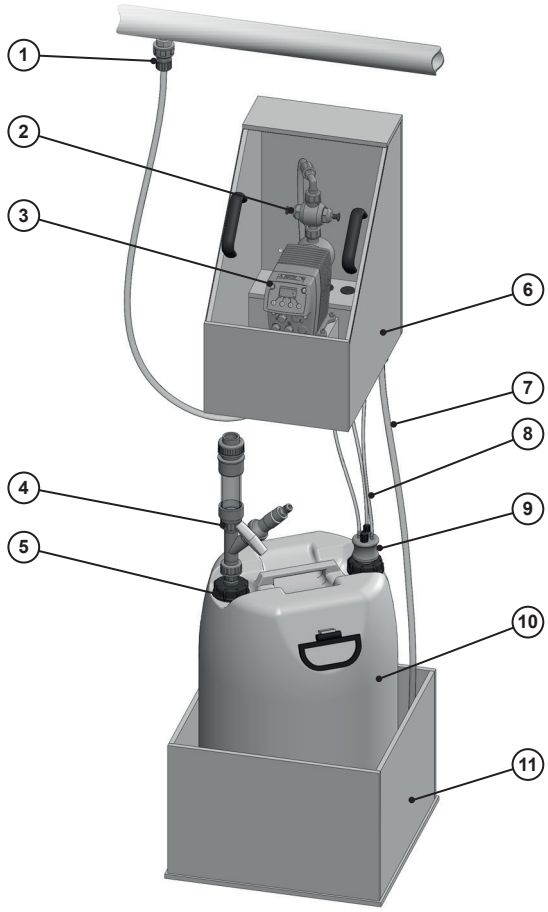

Fig. 1: Overview of the EASYCHLORMIX dosing station

Item	Description
1	Injection nozzle SKD
2	Multifunctional valve PENTABLOC / Back-pressure valve (with LDp 10 and LDp 15)
3	MAGDOS LDp dosing pump
4	Filler unit
5	Adapter K60x6 (with 60 L packages)
6	Pump bracket
7	Drain line
8	Hoses
9	GF-2 suction line
10	Delivery package
11	Collecting pan

Table 5: Position numbers

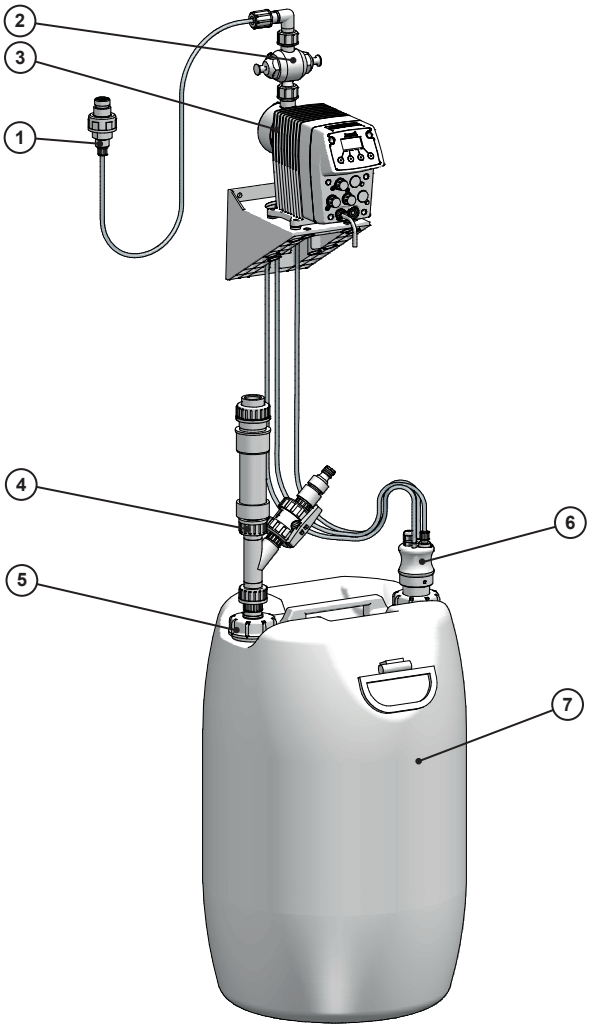

Fig. 2: Overview of the EASYCHLORMIX light dosing station

Item	Description
1	Injection nozzle SKD
2	Multifunctional valve PENTABLOC / Back-pressure valve (with LDp 10 and LDp 15)
3	MAGDOS LDp dosing pump
4	Filler unit
5	Adapter K60x6 (with 60 L packages)
6	GF-2 suction line
7	Delivery package

Table 6: Position numbers

5 Technical data

Please note that some of this data only represents guide values. The actual capacity of a dosing station depends on various factors. Approximate values for the delivery capacity under different pressures are specified in the operating instructions of the MAGDOS LDp dosing pump.

Specifications		EASYCHLORMIX-sizes						
		05	1	2	4	6	10	15
Chlorine performance	g/h	33	67	159	246	383	524	713
Chlorine concentration	g/l	50 approx.						
Delivery capacity at approx. 2 bar back pressure	l/h	0.661	1.337	3.171	4.914	7.669	10.48	14.26
Power consumption	W	8	13	19	25			
Voltage supply		230 V AC 50 Hz						
Protection class		IP65						
Max. ambient temperature*	°C	5 – 40						
Max. temperature of the medium	°C	35						
Adjustable dosing range	%	0 – 100						
Weight (overall system)	kg	23						
Weight (wall bracket)	kg	12						

Table 7: Technical data

* Use of the dosing pump at ambient temperatures below 5 °C must be checked individually. In such cases, please contact the manufacturer.

6 Dimensions

All dimensions in mm

6.1 Dimensions of the pump bracket

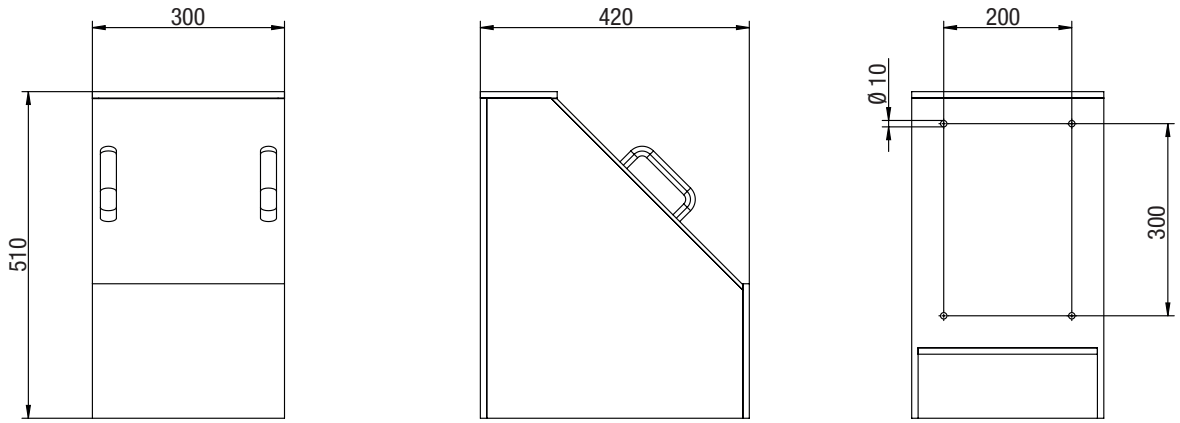

Fig. 3: Dimensions of the pump bracket

6.2 Dimensions of the collecting pan

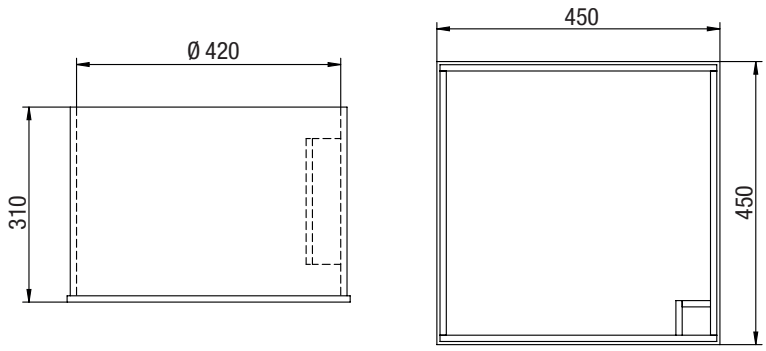

Fig. 4: Dimensions of the collecting pan

6.3 Dimensions of the package

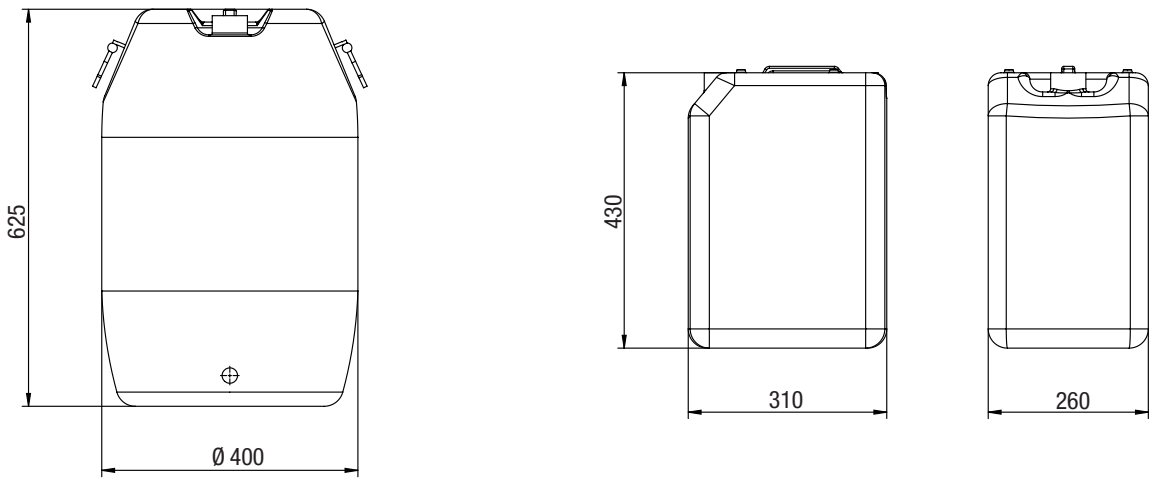

Fig. 5: Dimensions of the package

7 Installation

DANGER

Mortal danger from electric shock!

Electrically conductive liquid can enter pump housings, cable screw connections and mains connectors.

⇨ Make sure that all components comply at least with the requirements of protection class IP 55.

⇨ Always set up the dosing pump such that water cannot enter the housing.

CAUTION

Danger of personal injury and material damage!

Hazardous situations can develop during the installation of the dosing station, their components or accessories, especially resulting from disasters or heavy weights.

⇨ Only ever perform the installation with a number of people.

⇨ If necessary, use external lifting equipment during installation, should it not be possible to deal safely with heavy weights.

7.1 Set up information

When installing, follow the basic principles below:

- Install the dosing pump bracket at a good height for operation.
- The maximum ambient temperature and that of the dosing medium must be complied with in accordance with chapter 5 „Technical data“ on page 11.
- Avoid direct sunlight.
- The dosing station is not intended for use out of doors unless appropriate protective measures have been taken to prevent dust and water from entering the housing.

7.2 Installing the components

Your CHC dosing station EASYCHLORMIX is delivered partially pre-fitted. This chapter highlights the individual components which require additional action and points to the further information contained in the component documentation.

With EASYCHLORMIX light, steps 1 - 3 are omitted.

Pre-conditions for actions:

✓ All component documentation is available.

Perform the following working steps:

1. Install the pump bracket (pos 6) on the wall in an upright position using the screws provided. Ensure installation at a user-friendly height.
2. Position the collecting pan (pos 11) underneath the pump bracket.
3. Position the delivery package (pos. 10) in the collecting pan.
4. Open the 24x3 or the K60x6 seal and install the filler unit in accordance with the specifications of the operating instructions of the filler unit.
5. Open the second seal of the delivery package and install the suction line GF-2 (pos. 9) in accordance with the instructions in the operating instructions of the PVC suction line GF-2.
6. Install the multifunctional valve PENTABLOC / the back-pressure valve (with the LDp 10 and LDp 15) in accordance with the instructions in the respective operating instructions.
7. Install the injection nozzle SKD (pos. 1) in accordance with chapter 7.4 „Installing the injection nozzle“ on page 14.

✓ **The components were installed correctly.**

7.3 Installing the drain line

Not with EASYCHLORMIX light.

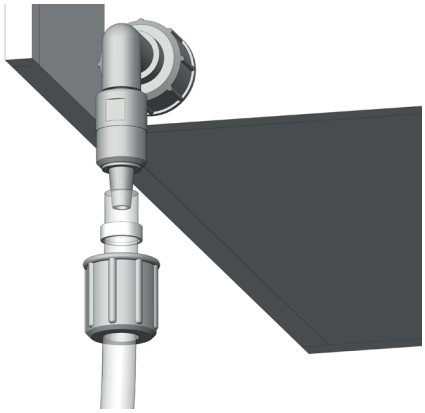

Fig. 6: Installing the drain line

This chapter describes the installation of the drain line (pos. 7).

Pre-conditions for actions:

✓ The chapter 7.2 „Installing the components“ on page 13 was concluded successfully.

Perform the following working steps:

➔ Connect the drain line to the hose connection on the rear side and insert the drain line in the collecting pan.

✓ **The drain line has been installed successfully.**

7.4 Installing the injection nozzle

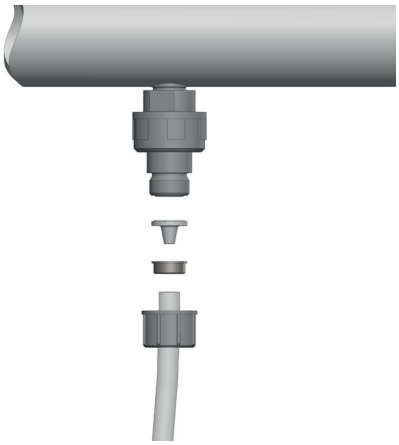

Fig. 7: Exploded diagram of the injection nozzle

This chapter describes the installation of the injection nozzle on the dosing pump.

Pre-conditions for actions:

✓ The chapter 7.2 „Installing the components“ on page 13 was concluded successfully.

✓ A connection hose is available.

Perform the following working steps:

1. Connect the connection hose with the PENTABLOCs / Back-pressure valve connection nozzle and tighten the union nut by hand.
2. Connect the connection hose to the injection nozzle.
3. Install the injection nozzle in your external line system. You can support the mixing by placing the discharge opening of the injection nozzle in the centre of the line.

✓ **The injection nozzle was installed successfully.**

7.5 Installing the dosing station

This chapter describes the connection of the dosing station to an external water and power supply.

Pre-conditions for actions:

✓ The hose connections to the dosing pump are held as short as possible.

✓ All hose connections are free and the throughflow is ensured.

✓ Loops are avoided to prevent the development of gas bubbles.

Perform the following working steps:

1. Ensure that the filler unit shutoff valve has been closed and connect the filler unit to an external water line.
2. Ensure that all components of the dosing station have been installed correctly and connect the dosing pump power cable to the external power supply.

✓ **The dosing station was installed successfully.**

7.6 Setting the dosing pump

Further information regarding the setting of the dosing pump MAG-DOS LDp is provided in the separate operating instructions.

8 Operation

WARNING

Chemical burns or other burns through dosing medium!

While working on the dosing head, valves and connections, you may come into contact with dosing media. Dosing medium residue can be emitted from the dosing head after connecting to the voltage supply

- ⇨ Use sufficient personal protective equipment.
- ⇨ Before connecting the mains supply, connect the dosing lines.
- ⇨ Check that all the screw connections have been tightened correctly and are leak-proof.
- ⇨ Rinse the dosing station with a liquid (e.g. water) which does not pose any risk. Ensure that the liquid is compatible with the dosing medium.
- ⇨ 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 on the dosing head (e.g. for venting) during operation.

- ⇨ Comply with the specifications in the safety data sheet of the calcium hypochlorite.
- ⇨ Clean the dosing station if dosing medium escapes.
- ⇨ Dispose of the dosing medium correctly.

CAUTION

Danger of automatic start up!

The dosing pump does not have an ON/OFF switch and may start to pump as soon as it is connected to the external power supply. This means that dosing medium can escape. Depending on the type and hazardousness of the dosing medium, this can result in injury.

- ⇨ Stop the dosing pump before disconnecting it from the mains supply.
- ⇨ Ensure that the dosing pump has been installed correctly before connecting it to the mains supply.

8.1 Commissioning the dosing station

Precondition for action:

- ✓ The dosing station has been assembled and installed in accordance with chapter 7 „Installation“ on page 13.
- ✓ All the mechanical fastenings have been inspected to ensure adequate load-bearing capacity.
- ✓ The dosing head screws were tightened by hand.
- ✓ All the hydraulic sections have been inspected to ensure they are adequately leak-proof and that the through flow direction is correct.
- ✓ The operating instructions and all component documentation has been read and understood.

For initial commissioning, it is advisable to use water as the dosing medium to check that the system is leak-proof and that the dosing pump is functioning correctly.

At initial commissioning, it is advisable to prime the pump without backpressure. To this end, we recommend relief of the PENTABLOC multifunctional valve.

Perform the following working steps:

1. Connect the water hose to the hose plug connection on the filler unit.
2. Open the filler unit shutoff valve and allow the water the flow into the delivery package.
3. Stop the filling as soon as the maximum fill level has been reached in accordance with the delivery package.
4. Close the shutoff valve and disconnect the water hose from the filler unit.

➔ Never leave the area during filling!

➔ Always close the shutoff valve by hand, thereby ensuring that the delivery package is not able to overflow.

➔ After filling, always close the external water supply and disconnect the water hose from the filler unit.

5. Startup the dosing pump.

▸ The necessary settings are specified in the operating instructions of the dosing pump.

✓ **The device has been commissioned.**

8.2 Filling the delivery package

The delivery package can be filled up to four times.

Tear-off banderoles on the delivery package can be used to document the individual filling procedures. Document every filling of the delivery package.

8.3 Changing the delivery package

The delivery package must be changed after the fourth filling at the latest. Follow the same procedure for connecting the filler unit as described in chapter 7.2 „Installing the components“ on page 13.

9 Shutdown

9.1 Long-term shutdown

CAUTION

Danger of blocking!

Shutdown over the long term can result in blockage of the dosing station. A constitute part of calcium hypochlorite is chalk, which accretes following longer station shut down and can result in blockages.

⇨ Pump approx. 1 litre of clear water through the dosing station before shutting it down.

The chapter describes the long-term shutdown of the dosing station.

Pre-conditions for actions:

✓ A container with a minimum of 1 litre of clear water is ready.

Perform the following working steps:

1. Deinstall the suction line GF-2 (pos. 9) from the delivery package and submerge it in a container with clear water. Seal the delivery package with the original package cover.
2. Deinstall the filler unit (pos. 4) from the delivery package. Seal the delivery package with the original package cover.
3. Wait until the dosing pump (pos. 3) has conveyed 1 litre of clear water.
4. Disconnect the dosing pump from the power supply.
5. Disconnect the hose (pos. 8) from the dosing pump and place the suction line in the corner of the collecting pan intended for this purpose.

✓ **The dosing station was decommissioned successfully.**

9.2 Storage

The chapter describes the storage of the dosing station.

Storing the dosing station correctly extends its service life. Avoid negative influences such as extreme temperatures, high humidity, dust, chemicals, etc.

Pre-conditions for actions:

✓ The dosing station has been shut down in accordance with chapter 9.1 „Long-term shutdown“ on page 16.

Ensure ideal storage conditions where possible:

- The storage place must be cold, dry, dust-free and generously ventilated.
- The temperatures lie between + 0 °C and + 50 °C.
- Relative air humidity does not exceed 90 %.

9.3 Disposing of the dosing station

NOTE

Do not dispose via domestic waste!

The dosing station can also contain hypochlorite solution residue after long-term shutdown in accordance with chapter 9.1 „Long-term shutdown“ on page 16. It may not be disposed of via the domestic waste.

⇨ The device must be disposed of in accordance with applicable local laws and regulations.

⇨ Consult your supplier to learn more about the various methods of disposal.

⇨ Comply with the operating instructions and safety date sheets for the calcium hypochlorite and the hypochlorite solution.

Pre-conditions for actions:

✓ Chapter 9 „Shutdown“ on page 16 was concluded successfully.

Perform the following working steps:

1. Consult your supplier or the manufacturer to learn more about the various methods of disposal.
2. Ensure that the dosing station can be dispatched safely.
3. Take advantage of the manufacturer's offer for free-of-charge disposal.

✓ **The dosing station was disposed of successfully.**

9.4 Returning the delivery package

Pre-conditions for actions:

✓ The delivery package was sealed correctly using the original seal cover.

Perform the following working steps:

1. Fit the delivery package with the return label for hypochlorite solution.
2. Ensure that the delivery package can be dispatched safely.
3. Return the delivery package to the supplier.

✓ **The delivery package was dispatched successfully.**

10 Maintenance

DANGER

Mortal danger from electric shock!

Live parts can inflict fatal injuries.

⇨ Before carrying out any maintenance work, always disconnect the dosing pump from the power supply.

⇨ Secure the dosing pump from accidental power-up.

WARNING

Chemical burns or other burns through dosing medium!

While working on the dosing head, valves and connections, you may come into contact with dosing media. Dosing medium residue can be emitted from the dosing head after connecting to the voltage supply

⇨ Use sufficient personal protective equipment.

⇨ Before connecting the mains supply, connect the dosing lines.

⇨ Check that all the screw connections have been tightened correctly and are leak-proof.

⇨ Rinse the dosing station with a liquid (e.g. water) which does not pose any risk. Ensure that the liquid is compatible with the dosing medium.

⇨ Never look into open ends of plugged pipelines and valves.

CAUTION

Danger of personal injury and material damage!

The dosing 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.

Maintenance intervals

This table gives you an overview of maintenance work and the intervals at which you must carry it out.

Please consult the relevant operating instructions for the maintenance intervals of the individual components.

Maintenance work to be carried out	Frequency
Visual inspection	Before every use
Check the connections for secure seat	Before every use
Clean suction and pressure valves	Regularly
Check that electrical connections are not damaged	Regularly
Replacing the activated carbon on the filler unit.	Annually

Table 8: Maintenance information and maintenance intervals

11 Troubleshooting

See below for information about how to rectify faults on the device or the system. If you cannot eliminate the fault, please consult with the manufacturer on further measures or return the dosing pump for repair.

11.1 Dosing pump not delivering or output too low

Possible cause	Remedy
Wrong type of dosing pump selected	➔ Check the dosing pump's technical data and if necessary select a type with a higher delivery capacity.
Valve leaking or blocked	➔ Clean the valve and vent the dosing pump. ➔ Tighten the screw connections.
Valve installed incorrectly	➔ Reassemble the valve. Ensure that the valve balls are located above the valve seats.
Valve damaged (e.g. valve balls)	➔ Remove the damaged parts or install a new valve.
Suction line is leaking	➔ Seal the leak locations or replace the parts.
The suction line is blocked	➔ Clean the suction line.
Shut-off valves closed	➔ Open the shut-off valves. Inspect the dosing pump for possible damage.
Suction head too high	➔ Set the dosing pump to feed or reduce the suction head. ➔ Install a priming aid.
Current supply interrupted	➔ Reconnect the current supply
The dosing pump's electrical data does not match that of the mains supply	➔ Check the electrical installation.
System backpressure too high (measured at discharge connection of dosing pump)	➔ Clean blocked injection nozzle. ➔ Install pulsation dampeners to reduce pressure peaks if pipes are too long. ➔ Check function of safety valves.

Table 9: Type of fault: Dosing pump not delivering or output too low

11.2 Dosing pump does not prime

Possible cause	Remedy
Valve leaking or blocked	➔ Clean the valve and vent the dosing pump. ➔ Tighten the screw connections.
Valve installed incorrectly	➔ Reassemble the valve. Ensure that the valve balls are located above the valve seats.
Valve damaged (e.g. valve balls)	➔ Remove the damaged parts or install a new valve.
Suction line is leaking	➔ Seal the leak locations or replace the parts.
Suction line is blocked (e.g. screen in foot valve)	➔ Clean the suction line.
Shut-off valves closed	➔ Open the shut-off valves. Inspect the dosing pump for possible damage.
Suction head too high	➔ Set the dosing pump to feed or reduce the suction head. ➔ Install a priming aid.
Current supply interrupted	➔ Reconnect the current supply
Dry the valves	➔ Dampen the dosing head and the valves ➔ Vent the dosing head.
Air in the suction line with simultaneous pressure on the pressure valve	➔ Vent the dosing head or the lines.

Table 10: Type of fault: Dosing pump does not prime

11.3 Delivery rate varies

Possible cause	Remedy
Valve leaking or blocked	➔ Clean the valve and vent the dosing pump. ➔ Tighten the screw connections.
Valve damaged (e.g. valve balls)	➔ Remove the damaged parts or install a new valve.
Suction line is leaking	➔ Seal the leak locations or replace the parts.
The suction line is blocked	➔ Clean the suction line.
The dosing pump's electrical data does not match that of the mains supply	➔ Check the electrical installation.

Table 11: Type of fault: Delivery rate varies

Possible cause	Remedy
Suction side pressure too high (pump siphoning)	➔ Install a back-pressure valve in the pressure line.
Pressure peaks due to acceleration with long suction lines	➔ Install a suction pressure regulator.
Imprecise dosing due to changeable positive and negative suction heads.	➔ Install a suction pressure regulator.
System backpressure too high (measured at discharge connection of dosing pump)	➔ Clean blocked injection nozzle. ➔ Install pulsation dampeners to reduce pressure peaks if pipes are too long. ➔ Check function of safety valves.

Table 11: Type of fault: Delivery rate varies

11.4 No stroke movement observed

Possible cause	Remedy
Diaphragm return spring broken.	➔ Contact the manufacturer.
Current supply interrupted	➔ Reconnect the current supply
The dosing pump's electrical data does not match that of the mains supply	➔ Check the electrical installation.
Pressure peaks due to acceleration with long suction lines	➔ Install a suction pressure regulator.
System backpressure too high (measured at discharge connection of dosing pump)	➔ Clean blocked injection nozzle. ➔ Install pulsation dampeners to reduce pressure peaks if pipes are too long. ➔ Check function of safety valves.

Table 12: Type of fault: No stroke movement observed

11.5 Dosing pump delivery rate too high

Possible cause	Remedy
Suction side pressure too high (pump siphoning)	➔ Install a back-pressure valve in the pressure line.
Pressure peaks due to acceleration with long suction lines	➔ Install a suction pressure regulator.

Table 13: Type of fault: Dosing pump delivery rate too high

11.6 Diaphragm is torn or tears too often

Possible cause	Remedy
Shut-off valves closed	➔ Open the shut-off valves. Inspect the dosing pump for possible damage.
Pressure peaks due to acceleration with long suction lines	➔ Install a suction pressure regulator.
The materials are not suitable for the dosing medium being used	➔ Check the resistance of the materials.
Diaphragm not screwed up to the end stop on the diaphragm rod	➔ Screw a new diaphragm up to the end stop.
System backpressure too high (measured at discharge connection of dosing pump)	➔ Clean blocked injection nozzle. ➔ Install pulsation dampeners to reduce pressure peaks if pipes are too long. ➔ Check function of safety valves.
Media sediment in dosing head	➔ Clean the dosing head.

Table 14: Type of fault: Diaphragm is torn or tears too often

11.7 Aerator is not functioning correctly

Possible cause	Remedy
Suction felt soiled	➔ Clean or renew the suction felt.
Air hose kinked	➔ Renew the air hose.
Gas pump defective	➔ Contact the manufacturer.

Table 15: Type of fault: Aerator is not functioning correctly

12 Spare parts and Accessories

12.1 Spare parts

Description	Part No.
Membrane spare parts kit ■ LDp 05, LDp 1 ■ LDp 2, LDp 4 ■ LDp 6, LDp 10, LDp 15	 41431 41441 41443
Dosing head spare parts kit with valves ■ LDp 05, LDp 1 ■ LDp 2, LDp 4 ■ LDp 6, LDp 10, LDp 15	 41433 41445 41447
Spare parts set PENTABLOC PVC	41435
Sealing set for filler unit	41427
Activated carbon filter 0.1 litre	41437
3 litres activated carbon filling	41439

Table 16: Spare parts

12.2 Accessories

Description	Part No.
PVC hose ■ 4/6 mm ■ 6/12 mm	 97181 97120
Connection for filler unit ■ fitting for a 25 litres delivery package ■ fitting for a 60 litres delivery package	 41428 41429
Hose adapter G1/2“ (ext. water connection)	41415
Angle hose adapter G1/2“ (ext. water connection)	88860
Injection nozzle cpl. 6/12	12300366
Multifunctional valve PENTABLOC	12601075
Back-pressure valve set PN16	12500372
Suction Line PVC ■ 460 mm for 25 l package ■ 630 mm for 60 l package	 12200982 12200983
Calcium hypochlorite granulate ■ 25 l package ■ 60 l package	 97915 97925
Activated carbon grain size 2 mm ■ 0.1 l ■ 3.0 l	 41437 41439
Chemicals protective equipment	19800021

Table 17: Accessories

13 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: .....

14 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: .....

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.....

.....

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.

15 Index

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Operating instructions
EASYCHLORMIX