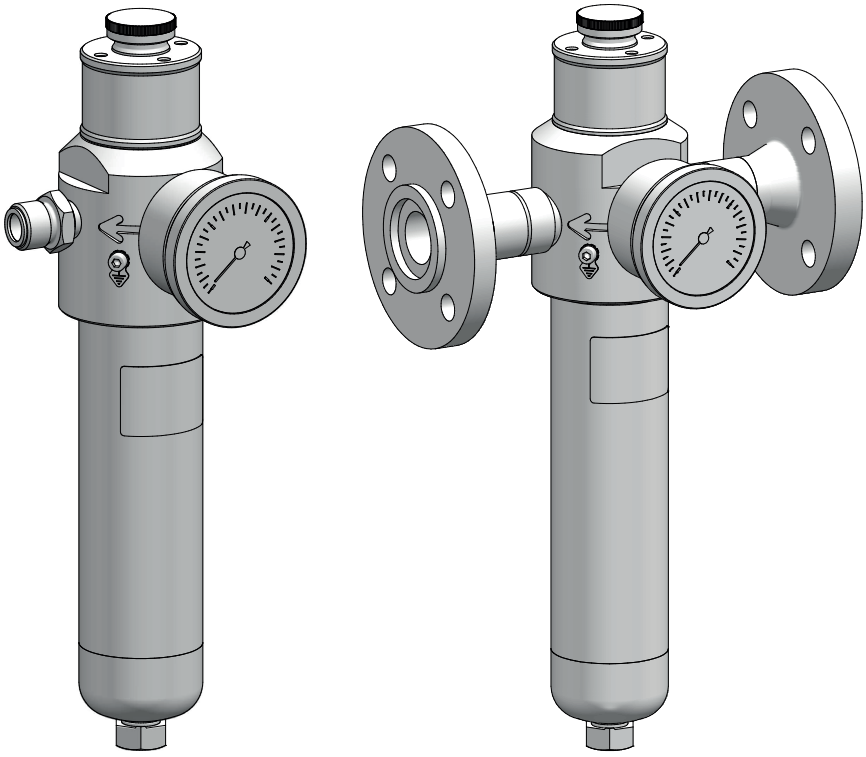
CondiChlor

Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

Original operating instructions
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BA-23120-02-V05

Dosing | Liquids
Conveying | Gases
Control | Systems

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1 Notes for the Reader

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

Observe the following principles:

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

1.1 General non-discrimination

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

1.2 Explanation of the signal words

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

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

Tab. 1: Explanation of the signal words

1.3 Explanation of the warning signs

Warning signs represent the type and source of a danger:

Warning sign	Type of danger
	General danger
	Danger from poisonous substances
	Danger of damage to machine or functional influences

Tab. 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.**

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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 chlorine poisoning!

Chlorine is poisonous. In severe cases, breathing in chlorine may lead to death. It irritates the eyes, the respiratory system and the skin.

- ⇨ Use sufficient personal protective equipment.
- ⇨ When carrying out any work on the system, use a respirator mask with a Type B gas filter that complies with EN 14387.
- ⇨ Always comply with the accident prevention regulations that apply at the place of use.
- ⇨ Get rid of leaks without delay. You must get rid of even very minor leaks without delay. Together with the humidity, chlorine forms hydrochloric acid and corrosion results in rapidly increasing leakage.
- ⇨ Use only chlorine-resistant seals.
- ⇨ Only use seals once. Reusing them leads to leaks.



DANGER

Danger to life from deficient safety equipment!

Chlorinators without gas warning devices are an increased safety risk, since it is not possible to detect escaping chlorine gas in good time or at all.

- ⇨ Install a gas warning device.



CAUTION

Increased risk of accidents due to insufficient qualification of personnel!

The device 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.



PLEASE NOTE

Damage to the plant due to the formation of hydrochloric acid!

Chlorine gas is highly hygroscopic. This means that humidity enters the system at any open connection on devices or pipes, which results in the formation of hydrochloric acid and contamination. thus inevitably causing damage to the units.

- ⇨ Keep all connections (including in the vacuum system and on all devices not currently in use) closed at all times.

2.2 Information about chlorine

Chlorine is a hazardous substance. The chemical element chlorine is a greenish-yellow, toxic gas with a pungent odour, which can be detected in the air at concentrations below 1 ppm (= 1 ml/m³).

Chlorine is 2.5 times heavier than air and accumulates at ground level.

Chlorine is extremely toxic for water organisms. The reason for the toxicity of chlorine is its extraordinary reactivity. It reacts with animal and vegetable tissue and thus destroys it.

Air with a chlorine gas content of 0.5 -1% leads to a quick death in mammals and humans, as it attacks the respiratory tract and the pulmonary alveolus (formation of hydrogen chloride or hydrochloride acid).



PLEASE NOTE

Faults due to insufficient chlorine quality

Impurities in the chlorine gas form deposits in devices and valves and can attack the components chemically. This can lead to malfunctions.

- ⇨ Only use technically pure chlorine that meets the following requirements:
  - Mass content of chlorine at least 99.5%
  - Water content max. 20 mg/kg

  Chlorine that complies with EN 937 meets these requirements.

2.3 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 unit und system functions.
- Failure of required maintenance and repair methods
- Danger for individuals through dangerous dosing media
- danger to the environment caused by chlorine leaking from the system

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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 regulations on handling hazardous substances
- Environmental protection provisions
- Applicable standards 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	
	Respirator mask
	Protective clothing
	Protective gloves
	Safety shoes

Tab. 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
- Changing the chlorine gas tank
- Shut-down
- 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
- Personal suitability for the respective activity
- Sufficient qualification for the respective activity
- Training in how to handle the device
- Knowledge of safety equipment and the way this equipment functions
- Knowledge of this operating manual, particularly of safety instructions and sections relevant for the activity
- Knowledge of fundamental regulations regarding health and safety and accident prevention

All persons must generally have the following minimum qualification:

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

These operating instructions differentiate between these user groups:

2.6.1 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 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.

2.6.3 Personnel tasks

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

Qualification	Activities
Specialist staff	■ Transportation ■ Assembly ■ Hydraulic installations ■ Commissioning ■ Taking out of operation ■ Fault rectification ■ Maintenance ■ Repairs ■ Disposal
Trained persons	■ Storage ■ Control

Tab. 4: Personnel qualification

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3 Intended use

3.1 Notes on product warranty

Any non-designated use of the device can impair its function and the protection provided. This leads to invalidation of any warranty claims!

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

- the device 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 11) is not adhered to.
- If people operate the device who are not adequately qualified to carry out their respective activities.
- No original spare parts or accessories of Lutz-Jesco GmbH are used.
- Unauthorised changes are made to the device.
- The user uses different dosing media than those indicated in the order.
- Maintenance and inspection intervals are not adhered to as required or not adhered to at all.
- The device is commissioned before it or the corresponding system has been correctly and completely installed.
- Safety equipment has been bridged, removed or made inoperative in any other way.

3.2 Intended purpose

The device is deployed exclusively in in systems for the use of gaseous chlorine and serves the following purposes:

- Separating dirt particles from gaseous chlorine
- Separating liquid chlorine
- Pressure reduction to prevent the development of condensation in the piping system and the subsequent devices

3.3 Prohibited dosing media

The device must not be used for the following media and substances:

- All media apart from gaseous chlorine
- Technically not pure chlorine with a mass content of less than 99.5 %

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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:

- The basic device with the main functions filter and pressure reducing valve.
- Pipe clips
- Mounting material (only wall-mounted device)
- Connection seals
- Face spanner Ø 5 mm
- Assembly accessories (only for wall-mounted devices with flanges)

Optional accessories:

- Pressure gauge
- Heating collar
- Flexible connection line

4.2 Design and function

CondiChlor provides the following functions:

- Chlorine gas filter
- Moisture eliminator
- Pressure reducing valve
- Optional pressure gauge

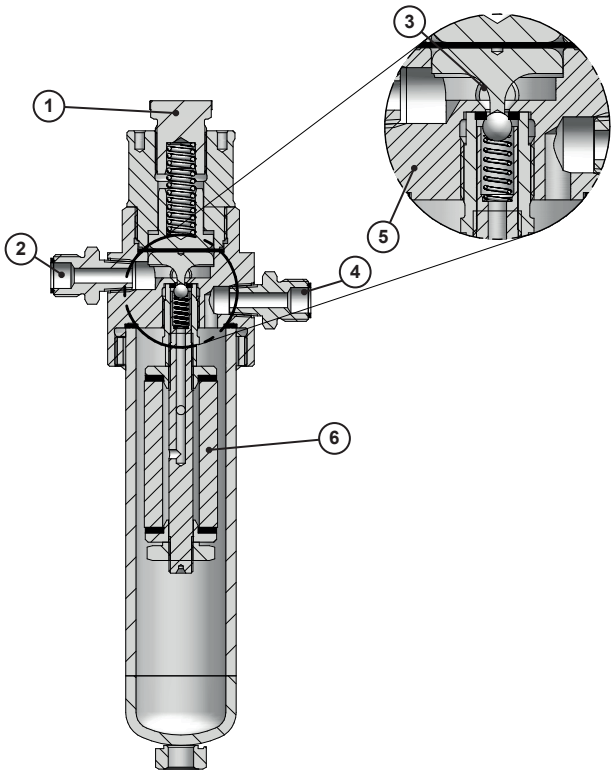


Fig. 1: Cross-section CondiChlor

No.	Description
1	Adjusting screw
2	Output
3	Connection for the pressure gauge
4	Input
5	Pressure reducing valve
6	Ceramic filter

Tab. 5: Description of components

4.2.1 Installation examples

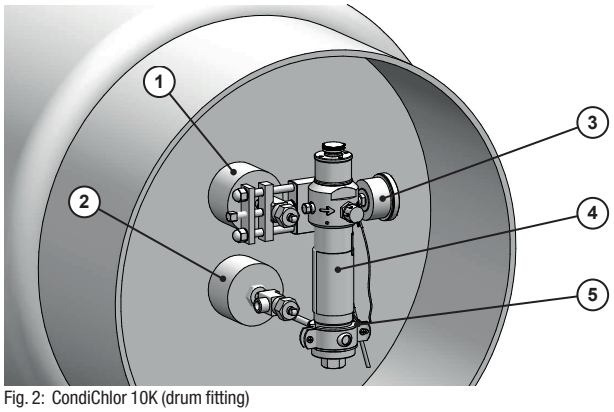


Fig. 2: CondiChlor 10K (drum fitting)

No.	Description
1	Drum valve for gaseous removal
2	Drum valve for liquid removal
3	Optional pressure gauge
4	Heating collar (optional)
5	Spacer

Tab. 6: Description of components

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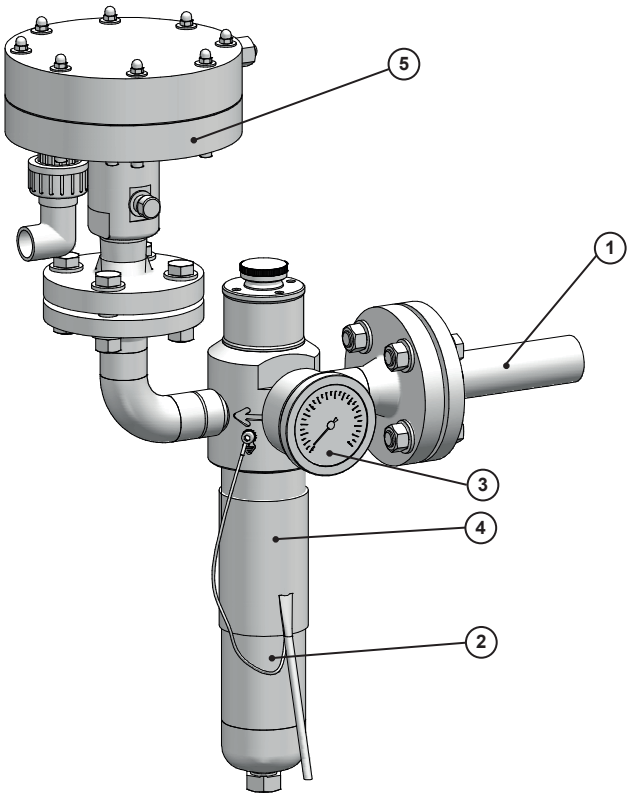


Fig. 3: CondiChlor 25K

No.	Description
1	Pressurized manifold
2	CondiChlor 25K
3	Optional pressure gauge
4	Heating collar (optional)
5	Vacuum regulator (without pressure gauge)

Tab. 7: Description of components

4.3 Liquid chlorine in chlorine gas dosing systems

Liquid chlorine can have two main consequences in vacuum regulators:

- The accretion of dirt can result in malfunctions.
- Liquid chlorine can damage plastic plastic parts which are suitable only for gaseous chlorine.

Therefore the penetration of liquid chlorine into the units must be avoided.

Liquid chlorine in chlorinators can be caused by the condensation of chlorine gas and the connection of a new drum.

4.3.1 Liquid chlorine when connecting a new drum:

When connecting a new chlorine drum, up to 100 cm³ liquid chlorine can leave the gaseous withdrawal valve, as the bent pipe in the drum is filled with liquid chlorine after transportation.

The CondiChlor housing was dimensioned to collect this volume and prevent liquid chlorine from entering the upper section of the device.

The liquid chlorine in the filter housing will evaporate before the attachment of the next full drum due to the temperature of the atmosphere. A heating collar (optional accessory) causes this chlorine to evaporate even during system shutdown, so that it flows back into the chlorine drum.

4.3.2 Liquid chlorine from condensation

The line system from the chlorine gas tank to the vacuum regulator is under the positive pressure from the chlorine gas tank. This pressure depends on the temperature. Example: At 20 °C, the system has a positive pressure of approx. 5.7 bar.

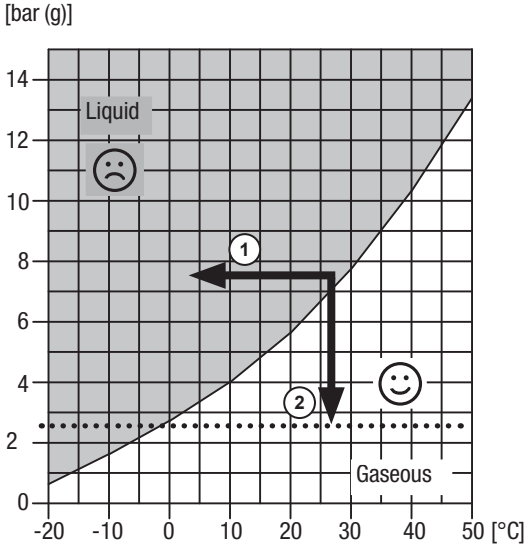


Fig. 4: Vapour pressure curve for chlorine

Item	Alteration	Effect
1	Cooling	Gaseous chlorine condenses
2	Reducing the pressure	Chlorine remains gaseous

Tab. 8: Change of state in the diagram

Condensation occurs at any place in the pressure system which is colder than the chlorine gas tank. The diagram shows a leftwards movement (arrow 1) in the area "liquid".

These situations occur, for example, due to extreme temperature variations during day and night. Chlorine barrel or chlorine cylinders have a large mass which cool down more slowly than pipes and devices during the night. The line is cooler and fills with liquid chlorine.

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4.3.3 Effect of the pressure reducing valve

The pressure reducing valve reduces the pressure. In the diagram, this means a move downwards into the "gaseous" area" (arrow 2). The danger of condensation is prevented for the subsequent installation. If the valve is set to 2.5 bar, chlorine can only condense below 0 °C (dashed line).

The controlled pressure on the valve output is marginally dependent on the flow rate. With full flow, the pressure falls by approx. 0.5. This pressure tolerance is not damaging, as this is not an exact pressure regulator, rather a pressure reducing valve.

4.4 Rating plate

There is information on the equipment about safety or the product's way of functioning. The information must stay legible for the duration of the service life of the product.

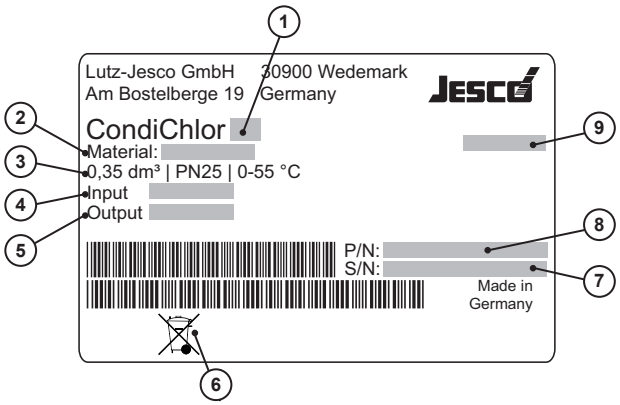


Fig. 5: Rating plate CondiChlor

No.	Description
1	Product name
2	Components coming into contact with the media
3	Contents, pressure class and operating temperature
4	Specification of the input
5	Specification of the output
6	WEEE label
7	Serial number
8	Part number
9	Month/year of manufacture

Tab. 9: Rating plate

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5 Technical data

Indication and unit			Value
Chlorine gas flow rate		kg/h	10/25/40
Nominal pressure			PN25
Required supply pressure		bar	3
Adjustment range output pressure		bar	1 – 3
Max. pressure loss		bar	0.5
Absolute filter unit for particles		µm	> 2,5
Volume of the moisture eliminator	10 kg/h chlorine gas	ml	125
	25 kg/h chlorine gas		250
	40 kg/h chlorine gas		500
Optional pressure gauge	Measuring range	bar	0 – 16
	Size	mm	Ø63
	Accuracy	%	±2.5 % of scale value
	Contact load rating		50 V / 0.5 A / 10 W
Material in contact with the media	Housing		Carbon steel, nickel-plated brass, monel
	Filter, ball		Ceramic
	Spring		Hastelloy
	Diaphragms		FPM
	Seals		FPM
Weight (with pressure gauge)	10 kg/h chlorine gas	kg	6 approx.
	25 kg/h chlorine gas		approx. 8 (11 with flanges)
	40 kg/h chlorine gas		approx. 12
Max. ambient temperature		°C	+55
Air humidity		%	max. 95, non condensing

Tab. 10: Technical data

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6 Dimensions

All dimensions in mm

6.1 CondiChlor 10K for wall mounting

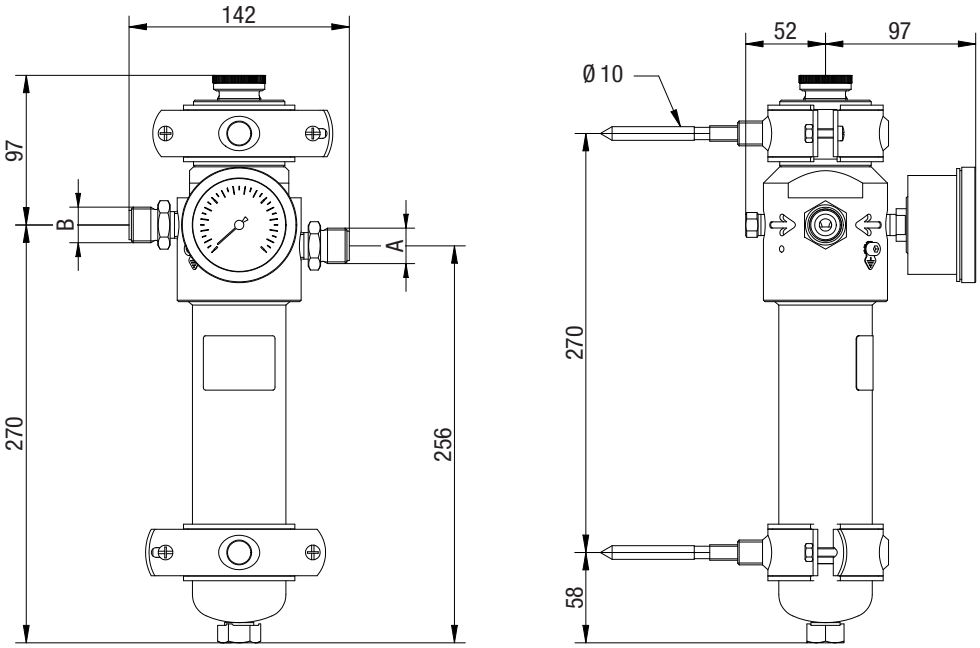


Fig. 6: Dimensioned drawing of the CondiChlor 10K for wall mounting

Input (A)/Output (B)	Standard
BSW 1"	DIN 477
G5/8	BS 341
G3/4	AS 2473
1,030"-14 NGO	CGA V-1 (660)

Tab. 11: Connections

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6.2 CondiChlor 10K for drum fitting

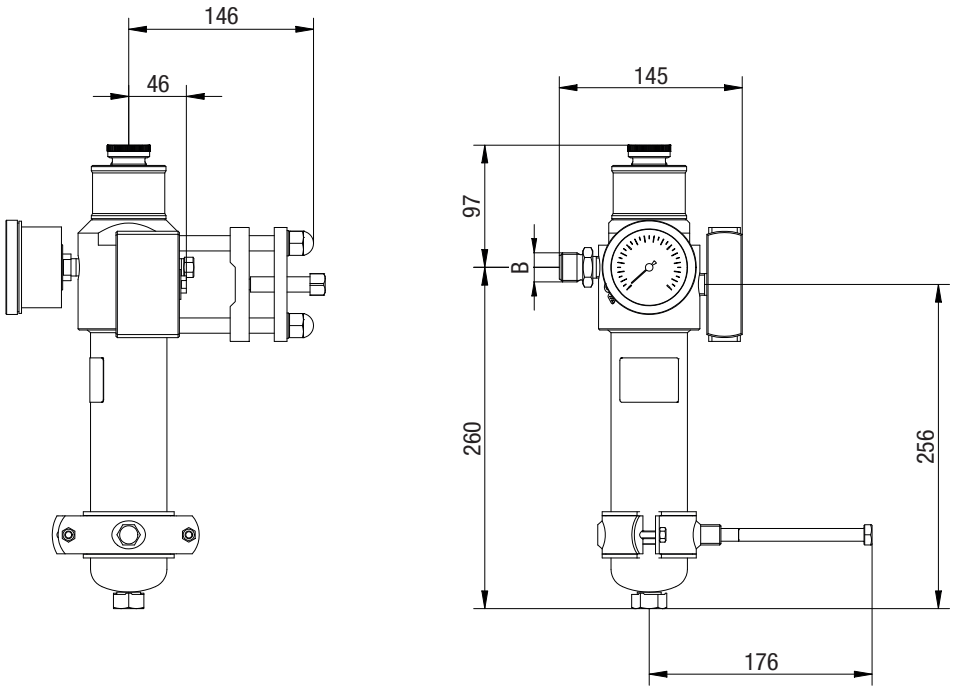


Fig. 7: Dimensioned drawing of the CondiChlor 10K for drum fitting

Input	Output (B)
Universal yoke	BSW 1"
	G5/8
	G3/4
	1,030“-14 NGO

Tab. 12: Connections

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6.3 CondiChlor 25K

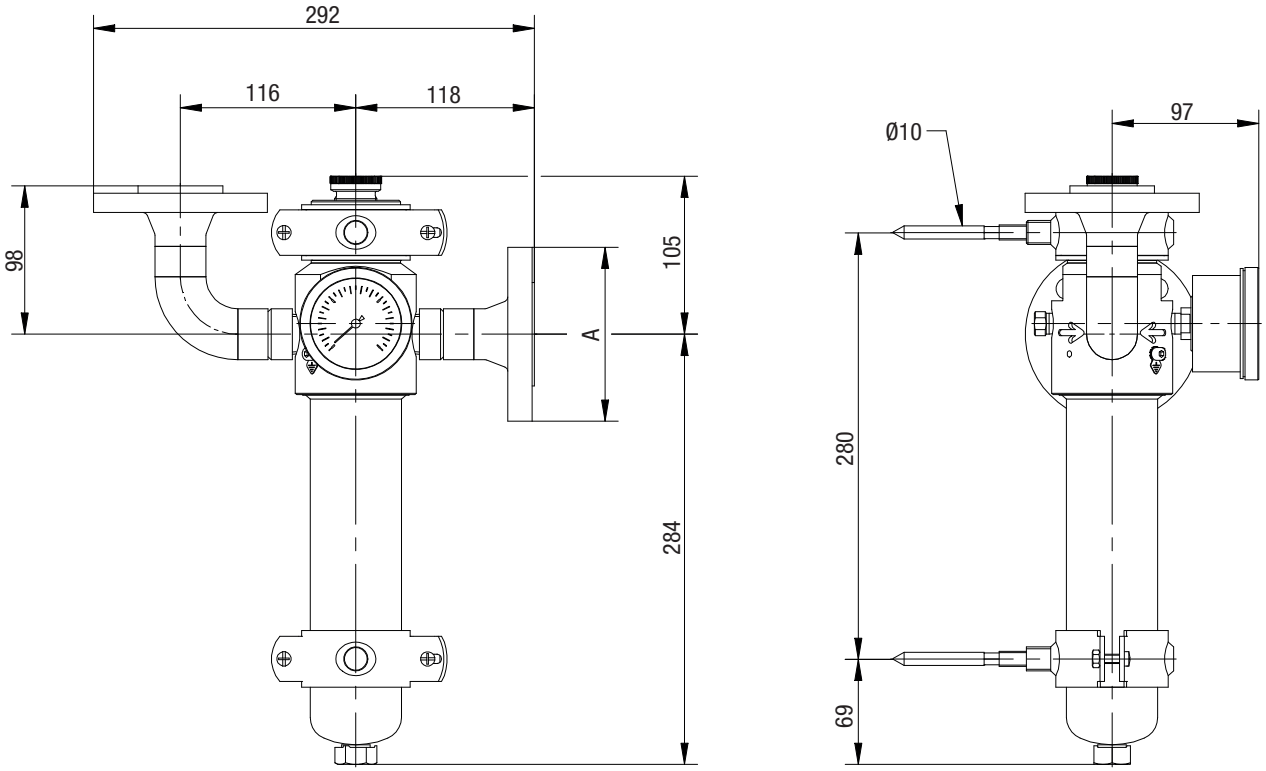


Fig. 8: Dimensional drawing CondiChlor 25K (side entrance, top exit)

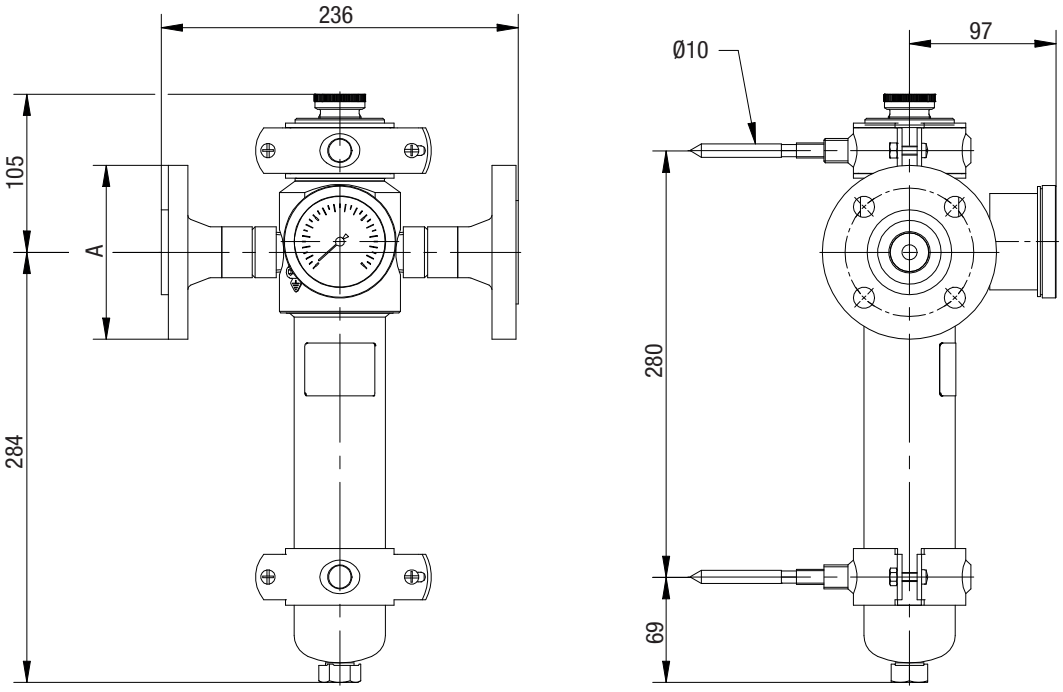


Fig. 9: Dimensional drawing CondiChlor 25K (side entrance, side exit)

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6.4 CondiChlor 25K with service valves

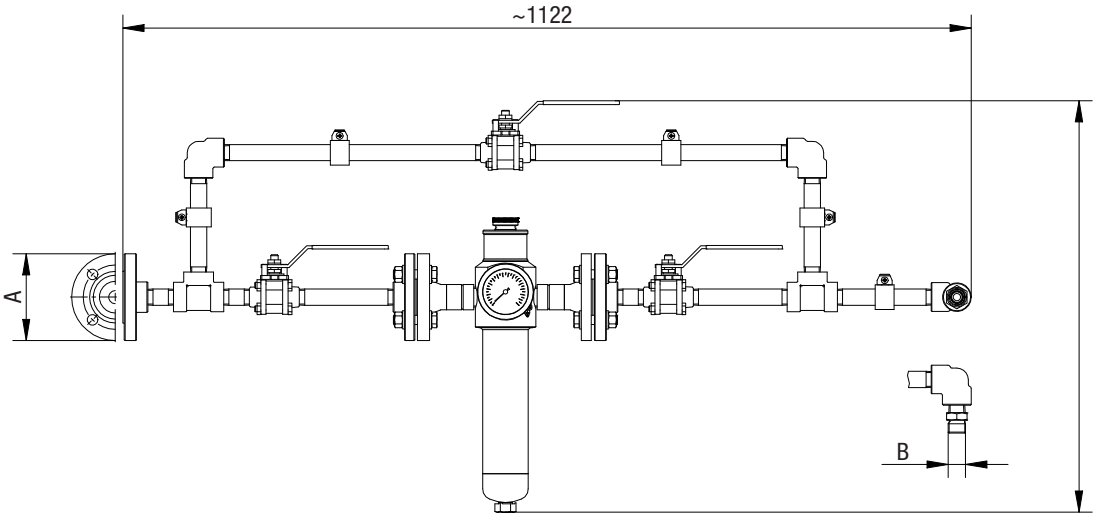


Fig. 10: Dimensional drawing CondiChlor 25K (side entrance, exit with threaded pin)

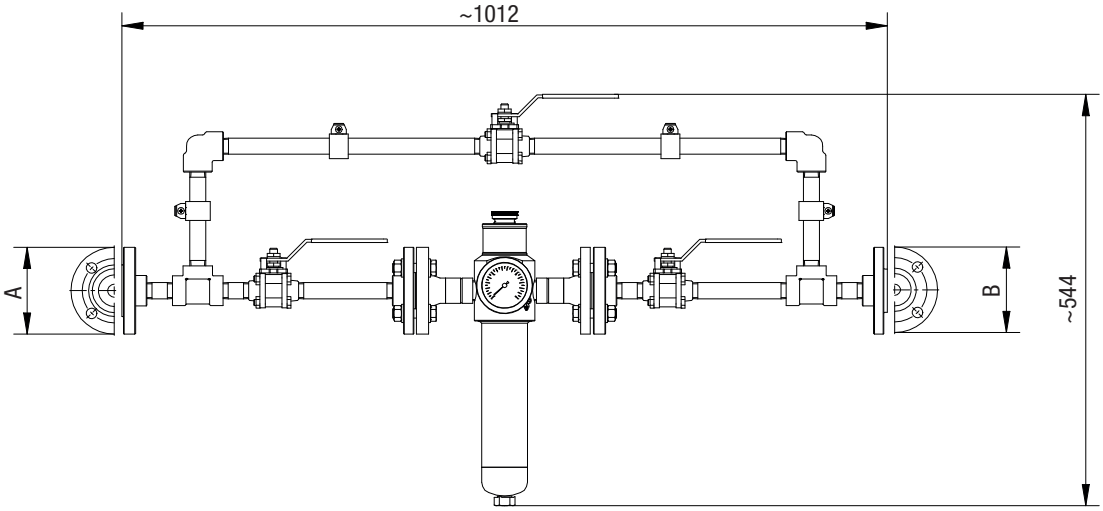


Fig. 11: Dimensional drawing CondiChlor 25K (side entrance, exit outlet with flange on the side)

Input (A)	Output (B)	
Flange DN25/PN40 (with groove)	Threaded pin	BSW 1"
		G5/8
		G3/4
		1,030"-14 NGO
	Flange DN25/PN40 (with a spring)	

Tab. 13: Connections

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6.5 CondiChlor 40K

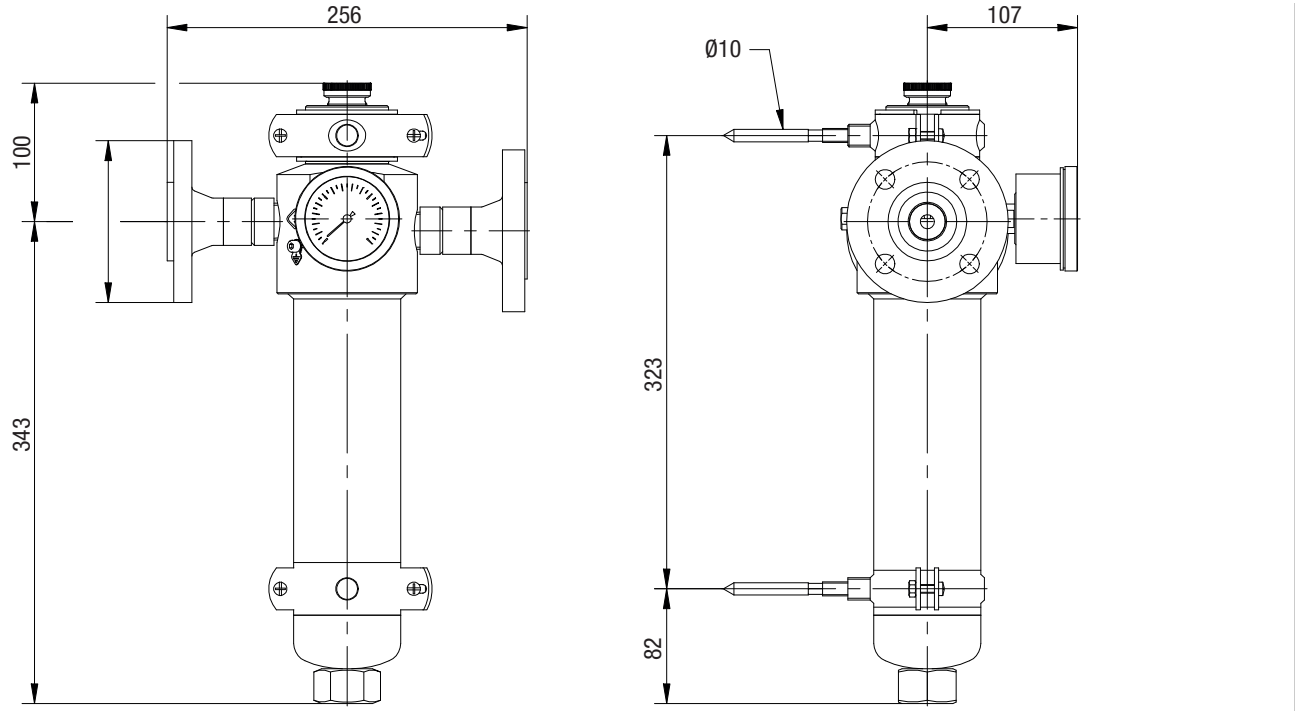


Fig. 12: Dimensional drawing CondiChlor 40K (side entrance, side exit)

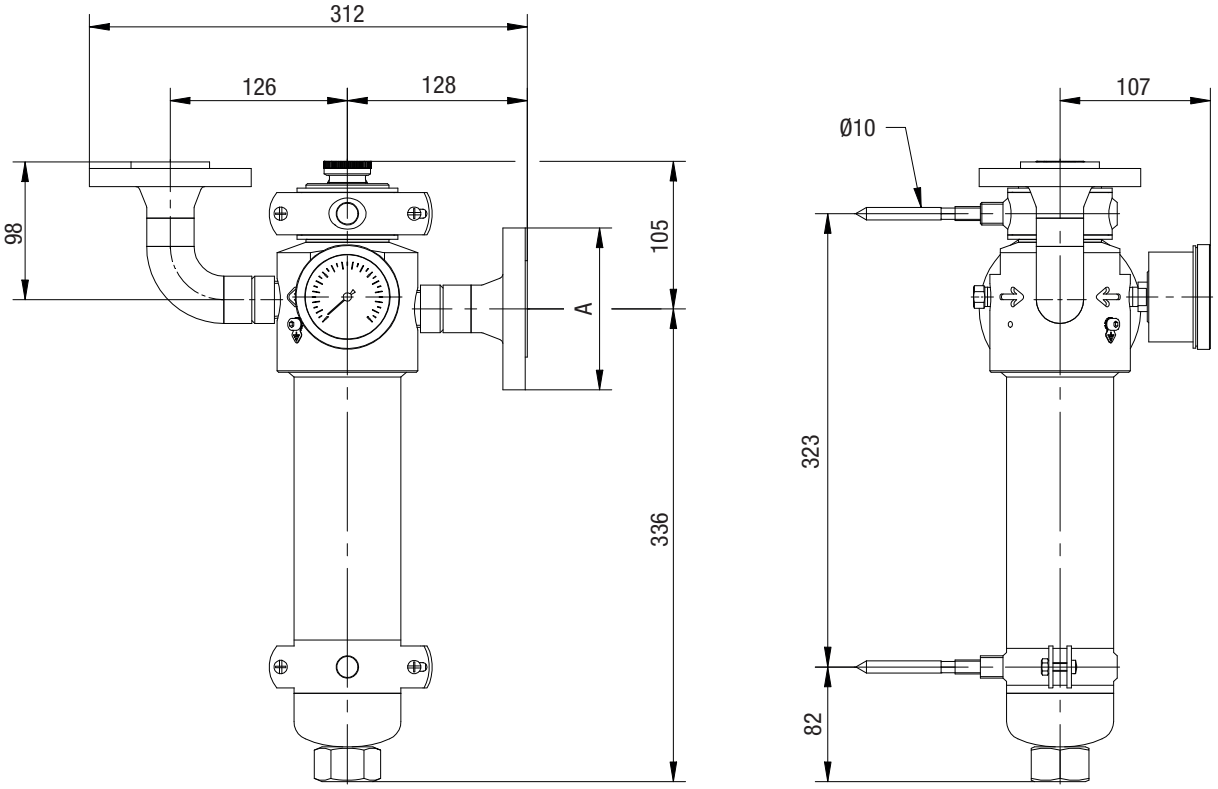


Fig. 13: CondiChlor 40K (side entrance, top exit)

Input (A)	Output
Flange DN25/PN40 (with a groove)	Flange DN25/PN40 (with a spring)

Tab. 14: Connections

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7 Installation

DANGER

Danger to life from chlorine poisoning!

There is an increased risk of accidents during the installation of the device to a chlorine gas tank. Chlorine can escape if the chlorine gas tank valve is opened before installation of the system piping has been completed.

⇨ Make sure that the chlorine gas tank valve is closed and the residual chlorine has been sucked up using the injector before performing any work on the device.

⇨ Secure the chlorine gas tank valve against unintentional opening.

⇨ Make sure that all the components in the system have been installed correctly and the injectors are ready for operation before opening the chlorine gas tank valve.

PLEASE NOTE

Damage to the system due to incorrect installation!

The failure to observe installation instructions (e.g. use of unsuitable tools, incorrect torque) can damage the system parts.

⇨ Use the tool intended for this purpose.

⇨ Note the specified torque.

7.1 Principles

CondiChlor is installed directly upstream of the vacuum regulator. For devices of up to 10 kg/h this also might be directly with yoke connection at the barrel. Devices of more than 10 kg/h need wall mounting.

The room must fulfil the following minimum requirements:

- Secured against access by unauthorised persons
- Protected against weather conditions
- Frost-free
- Permissible ambient temperature adhered to (see Section 5 "Technical data")
- Room of sufficient size to allow trouble-free assembly as well as inspection and maintenance of the device at all times
- Good ventilation possible
- Complies with the locally valid prescriptions

7.2 Installing the device

7.2.1 Devices up to 10 kg/h Cl_2 with yoke connection

Devices with a yoke connection can be connected directly to the tank valve.

Precondition for action:

✓ The protective elements at the CondiChlor and the barrel valve are removed.

✓ The sealing surfaces are free of contamination and damage.

✓ Seals must be clean, undamaged and dry.

Resources required:

🛠 Open-end spanner AF 13

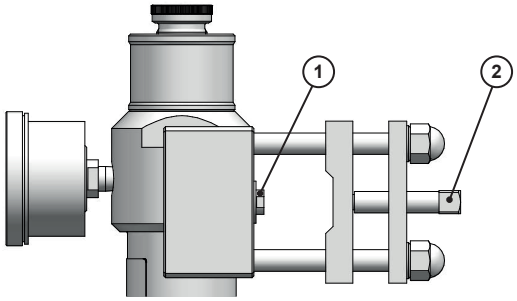


Fig. 14: Yoke connection

The output of the barrel valve for the discharge of gaseous chlorine points to the right in most of the cases. This is why the CondiChlor for drum fitting is delivered with a yoke connection on the left-hand side. If necessary, you can rotate the yoke connection 180° onto the right-hand side.
To do so, it is first necessary to unscrew the yoke connection from the device and screw it back into the desired position using the PTFE strip. Fit the pressure gauge on the other side.

Perform the following working steps:

1. Fit a new seal on the centring pin (1) at the input of the device.
2. Hold the device to the drum valve and tighten the clamping screw (2) by hand.
3. Tighten the clamping screw with a tightening torque of c. 12 Nm using an AF 13 open-end spanner.

➔ Should a leak test determine a leakage, tighten the screw with up to 20 Nm.

✓ **Fitted to a chlorine drum.**

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7.2.2 Devices up to 10 kg/h Cl_2 with threaded pin

Devices up to 10 kg/h Cl2 with threaded pin are mounted to the wall with a pipe clamp. The device is then connected directly to a chlorine drum by means of a flexible connecting line. The connecting line must be laid at an incline so that liquid chlorine can flow back into the chlorine gas container.

PLEASE NOTE

Breaking the flexible connection lines

The flexible connection lines are made of copper. Copper is flexible but repeated bending of the line can lead its becoming brittle. This can cause the line to break.

⇨ Renew the line, e.g. if it suffers kinks or other damage.

⇨ Renew the flexible connection line after two years at the latest.

The pressure gauge can be affixed on the opposite side of the device. To do so, swap the pressure gauge and the threaded plug. They are fitted with PTFE strips.

7.2.2.1 Installation on the wall

Precondition for action:

✓ A flat wall

Resources required:

🛠 Water level

🛠 Drill

Perform the following working steps:

1. Mark the mounting point on the wall.
2. Drill in the marked holes and insert the rawlplug.
3. Screw the bolts into the rawlplug until the wooden thread seals with the wall surface.
4. Screw the pipe clamps onto the bolts.
5. Adjust the pipe clamps so that they stand vertically over each other.
6. Hold the device in the pipe clamps
7. Close the pipe clamps and tighten the screws with approx. 1 Nm.

✓ **The device is fitted on the wall.**

7.2.2.2 Fitting the connecting line on the device

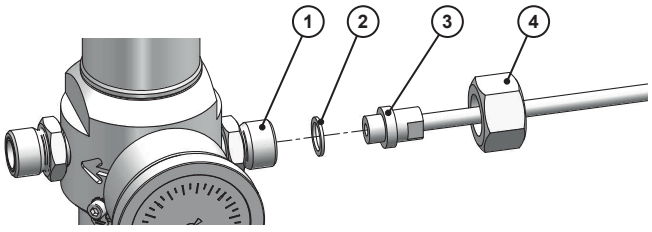


Fig. 15: Fitting the connection line

Precondition for action:

✓ The sealing surfaces are free of contamination and damage.

✓ The inside of the line is clean and dry.

Resources required:

🛠 New seals for the connection line

🛠 Open-end spanner AF 32 and AF 13

Perform the following working steps:

1. Insert a new seal (2) on the sealing surface on the connection (3) of the flexible connection line.
2. Screw the flexible connection line to the union nut (4) on the device connection (1). The tightening torque is approx. 40 Nm.

✓ **Connection line installed.**

7.2.2.3 Connection line on chlorine drum with auxiliary valve

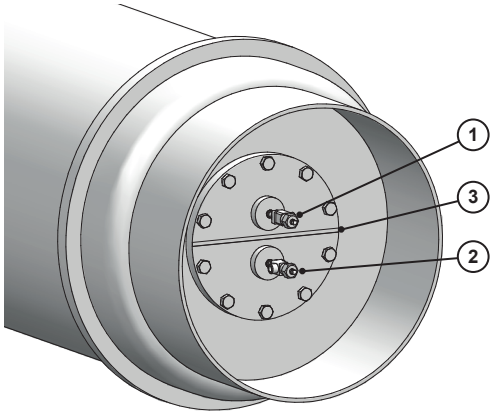


Fig. 16: Chlorine barrel

The chlorine drums are fitted with two tank valves. The upper valve (1) provides gaseous chlorine, the lower valve (2) provides fluid chlorine. The marking (3) on the drum must be located horizontally.

Precondition for action:

✓ The protective housing of the chlorine gas tank has been removed.

✓ The chlorine gas tank valve is closed.

✓ The screw cap on the connection of the tank valve has been removed.

Resources required:

🛠 New seals for the connection line and if necessary, for the auxiliary valve

🛠 Open-end spanner AF 32 and AF 13

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Perform the following working steps:

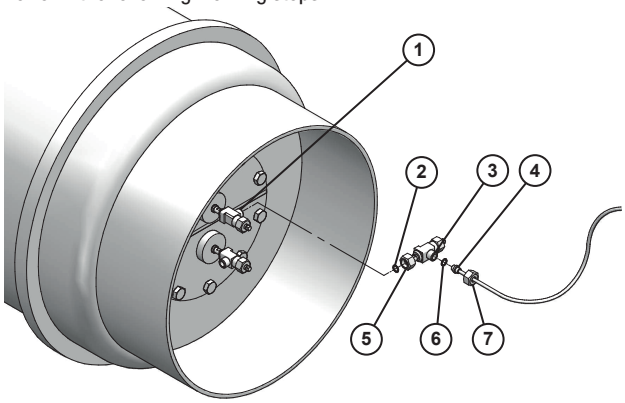


Fig. 17: Connect to the chlorine gas tank

1. Insert a new seal (6) on the sealing surface on the connection (2) of the flexible connection line.
2. Screw the flexible connection line to the auxiliary valve connection (3) with the union nut (7). The tightening torque is approx. 40 Nm.
3. Insert a new seal (2) on the sealing surface of the auxiliary valve.
4. Screw the auxiliary valve to the connection of the chlorine gas tank valve (1) with the union nut (5). The tightening torque is approx. 40 Nm.

✓ **Line connected to the chlorine drum.**

7.2.3 Device with flange connection

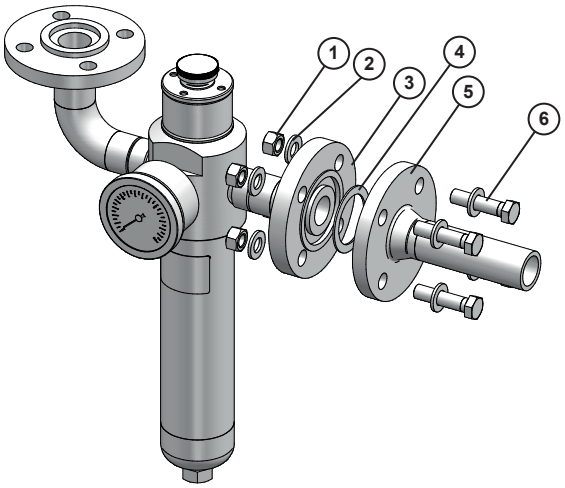


Fig. 18: Device with flange connection

Devices with a capacity of more than 10 kg/h Cl_2 have flanges for connection to a chlorine gas pipeline.

Pre-conditions for actions:

✓ The flanges are free from temporary coatings, e.g. to protect from corrosion.

✓ The sealing surfaces are free of contamination and damage.

✓ Bolts, nuts and washers are clean and undamaged. In this connection, pay particular attention to the thread and the supporting surfaces.

✓ Seals must be clean, undamaged and dry. You are not allowed to use adhesive paste and fitting lubricant.

> Any bolts, nuts and washers that are removed during installation must be replaced with new ones. Used bolts, nuts and washers may only be installed if they are in at least new condition.

Perform the following working steps:

1. Before tightening, lubricate the sliding surfaces of the bolts (6), nuts (1) and washers (2) with suitable lubricants.
2. To make the connection to the chlorine gas line, inflow flange (3) and outflow flange with tongues and grooves are welded on the device. These flanges are connected to the corresponding counterflanges (5) of the chlorine gas line.
3. Insert dry seals (4) into the groove of the flange.
4. Tighten the bolts evenly crosswise in three stages: 20 Nm, 35 Nm and 50 Nm.
5. Retighten all the bolts to the full target tightening torque (50 Nm).
6. Setting the seal (adapting to the flange seal surface) can make it necessary to retighten the bolts. This means that you should retighten the bolts again after a few hours with the flange connection depressurized.

✓ **Device is installed.**

7.2.4 Device with service valves

Devices with service valves have a flange connection on the inlet side for connection to a chlorine gas line. On the outlet side, they have a threaded pin or a second flange for connection to a vacuum regulator.

The assembly is carried out as described in the chapters 7.2.2.2 “Fitting the connecting line on the device” on page 18 and 7.2.3 “Device with flange connection” on page 19.

7.3 Fit the vacuum regulator

7.3.1 Vacuum regulator with union nut (up to 10 kg/h)

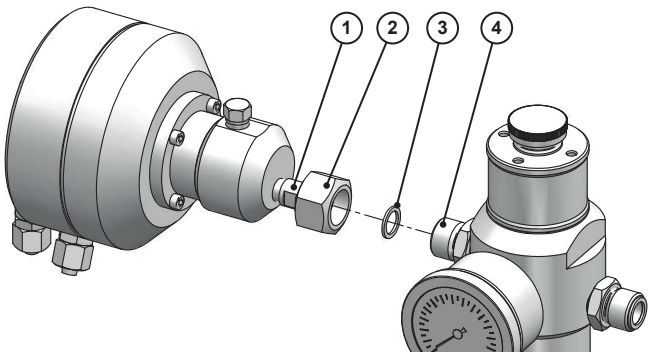


Fig. 19: Connecting the vacuum regulator

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The vacuum regulator can be connected directly to the output of the CondiChlor 10K.

Precondition for action:

✓ The sealing surfaces are free of contamination and damage.

✓ The inside of the vacuum regulator input is clean and dry.

Resources required:

🛠 New seals for the connection line

🛠 Open-end spanner AF 32 and AF 13

Perform the following working steps:

1. Insert a new seal (3) on the sealing surface on the connection (1) of the vacuum regulator.
2. Screw the vacuum regulator to the device connection (4) using the the union nut (2). The tightening torque is approx. 40 Nm.

✓ **Vacuum regulator connected**

7.3.2 Vacuum regulator with flange connection

Precondition for action:

✓ The sealing surfaces are free of contamination and damage.

✓ The inside of the vacuum regulator input is clean and dry.

✓ The sealing surfaces are free of contamination and damage.

✓ Bolts, nuts and washers are clean and undamaged. In this connection, pay particular attention to the thread and the supporting surfaces.

✓ Seals must be clean, undamaged and dry. You are not allowed to use adhesive paste and fitting lubricant.

Resources required:

🛠 Fitting grease (e.g. Molycote Longterm W2)

> Any bolts, nuts and washers that are removed during assembly work must be replaced with new ones if they are damaged. Used bolts, nuts and washers may only be installed if they are in new condition.

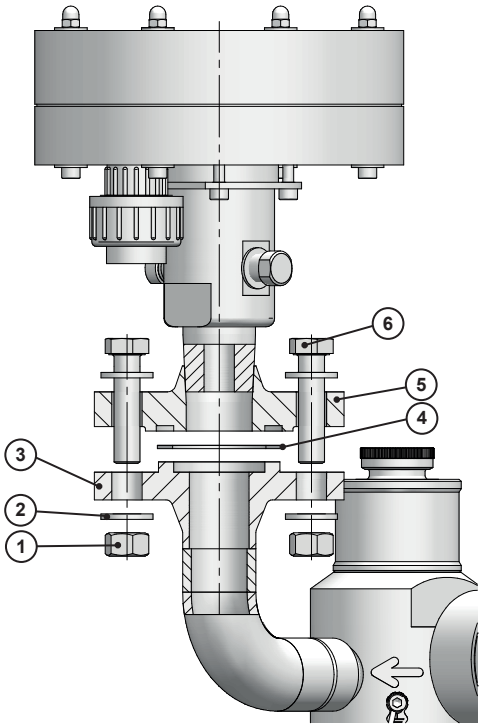


Fig. 20: Installing the flange connection

Perform the following working steps:

1. Before tightening, lubricate the sliding surfaces of the bolts (6), nuts (1) and washers (2) with suitable lubricants.
2. Place the flat gasket (4) on the groove of the connection flange (3). Assemble the seal in dry condition.
3. Fit the groove flange (5) of the vacuum regulator. Make sure that the flat gasket does not slip.
4. Fit the bolts (6), washers (2) and nuts (1) by hand.
5. Tighten the bolts evenly crosswise in three stages: 20 Nm, 35 Nm and 50 Nm.
6. Retighten all the bolts to the full target tightening torque (50 Nm).
7. Setting the seal (adapting to the flange seal surface) can make it necessary to retighten the bolts. This means that you should retighten the bolts again after a few hours with the flange connection depressurized.

✓ **Vacuum regulator mounted with flange connection.**

7.4 Installing the heating collar

You have the option of installing a heating collar as an accessory on the device to support its function as a moisture eliminator. Comply with the instructions and safety instructions in the separate operating manual for the heating collar.

The lower diagram shows the connection of the earth cable on the CondiChlor.

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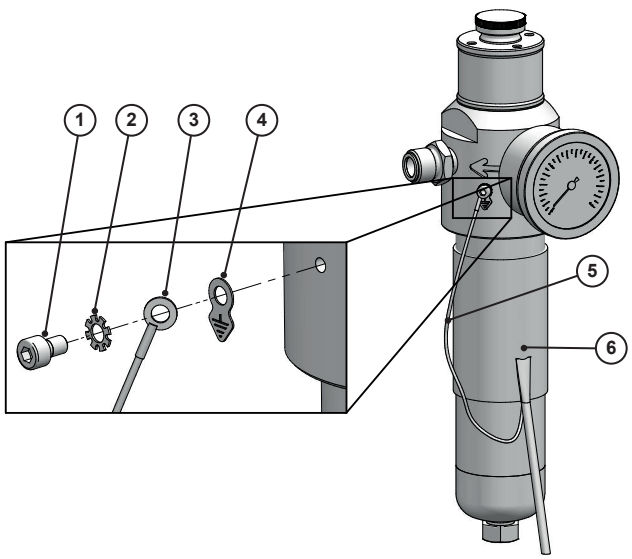


Fig. 21: Eyelet for earth cable

No.	Description
1	Screw
2	Toothed washer
3	Eyelet on the earth cable
4	Metal plate earthing
5	Earth cable
6	Heating collar

Tab. 15: Legend

7.5 Completing the installation

Check that all the connections are leak proof after completing installation.

DANGER

Chlorine gas can escape due to systems that are leaky or not installed correctly!

Chlorinators constitute an increased safety risk if they have not been properly installed, if an adequate leak test has not been performed or if the devices are not in good condition.

⇨ Before placing the system into operation, have it checked by technical personnel to ensure that it is in the proper condition and leaktight.

⇨ Get rid of leaks without delay. You must get rid of even very minor leaks without delay. Together with the humidity, chlorine forms hydrochloric acid and corrosion results in rapidly increasing leakage.

CAUTION

Damage on the device from a corrosive atmosphere!

In the long-term, the atmosphere in the chlorine gas room can have a corrosive effect on the exposed metal surfaces. The corrosive effect can cause damage even if no major leaks develop and the limit values for oxidative materials in the atmosphere is maintained.

⇨ Protect your device against long-term damage by painting it after performing installation and a successful leak test.

⇨ Paint all uncovered metal surfaces on the device. You must dismantle the device again for maintenance.

Check the pressure system of the chlorine gas tank for leaks up to the vacuum regulator in two stages:

1. Leak test with nitrogen
2. Leak test with chlorine

7.5.1 Carrying out the leak test with nitrogen

A leak test with nitrogen is only possible with wall mounting. Given installation on the chlorine gas tank, it is impossible to introduce the nitrogen in front of the device.

With installation on the chlorine gas tank, comply with section 7.5.2 “Carrying out the leak test with chlorine gas” on page 22.

You are strongly recommended to carry out this inspection before carrying out the leak test with chlorine, since it shows leaks in the pressure system without the risk of chlorine escaping.
As an alternative, you can carry out the inspection using dry compressed air.

Precondition for action:

✓ All the open connections of the pressure system were closed correctly.

✓ All the shut-off valves in the pipe system were opened.

✓ A nitrogen cylinder with a pressure reducer (0 – 25 bar) has been connected.

Perform the following working steps:

1. Slowly raise the system pressure at the nitrogen cylinder's pressure reducer to 10 bar.
2. Close the nitrogen cylinder's valve.
3. Apply soap solution to all the potential leaks.
   ▶ Bubbles form at leak locations (with a possible time delay).
4. Close the outlet on the nitrogen cylinder's pressure reducer and observe the pressure gauge in the installation.
   ▶ The pressure must not drop within one hour.
5. Repair the leak. Allow any adhesive surfaces to harden sufficiently and repeat the leak test with nitrogen.

✓ **Leak test with nitrogen carried out.**

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7.5.2 Carrying out the leak test with chlorine gas

DANGER

Danger to life from chlorine poisoning!

If you start the leak test with chlorine gas before the entire system has been installed and the injectors are ready for operation, chlorine gas may not be extracted immediately in the event of a leak.

⇨ Make sure that all the components in the plant are installed correctly and the injectors are ready for operation before starting the leak test with chlorine gas.

⇨ Put on protective clothing before carrying out the leak test with chlorine gas.

Precondition for action:

✓ The leak test with nitrogen has been carried out successfully.

✓ All the open connections of the pressure system were closed correctly.

✓ All shutoff valves in the piping system have been closed.

✓ The injector is ready for operation.

Resources required:

🛠 Cylinder with ammonia solution

Perform the following working steps:

1. Briefly open the chlorine gas tank valve and close it again.
2. Open the first valve in the pipe line, starting from the chlorine gas tank.

PLEASE NOTE

Damage to the plant by the ammonia solution

If the ammonia solution comes into contact with the plant, this leads to corrosion on the equipment.

⇨ Make sure that you do not spill any ammonia.

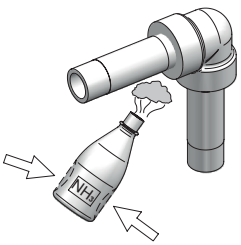


Fig. 22: Leak test with ammonia

3. Carry out the ammonia test at the pipeline section up to the first closed valve: Hold an open bottle containing the ammonia solution close to the pipe and make slight pumping motions with the plastic bottle. Ammonia steam with chlorine forms a white vapour and makes even very small leaks visible.
4. Open additional downstream valves in the pipe line in sections. In each case, let a little chlorine gas into the system and close the valves again. Then carry out the ammonia test at this pipe line section and the associated fittings.
5. Proceed in this manner until all piping and fittings have been tested for leaks.

If you find leaks:

1. Close the chlorine gas tank valve.
2. Use the injector to suck off the remaining chlorine.
3. Operate the chlorination installation for approx. 5 minutes with nitrogen or dry compressed air at approximately 5 bar.
4. Switch off the injector at the booster pump.
5. Repair the leak. Allow any adhesive surfaces to harden sufficiently and repeat the leak test.

If you do not find any leaks:

1. Close the chlorine gas tank valve.
2. Depressurise the system using the injector to evacuate the piping.
3. Switch off the injector at the booster pump.

✓ **Leak test with chlorine gas completed.**

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8 Operation

8.1 Setting the pressure-relief valve.

The pressure-relief valve is set on the plastic screw above on the device.

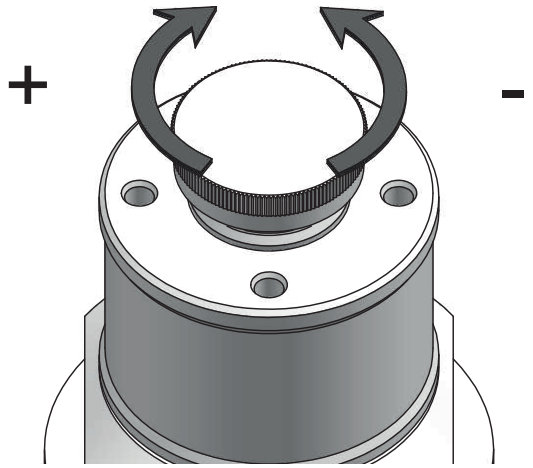


Fig. 23: Setting the pressure-relief valve

Direction of rotation	Effect
Clockwise	Increase pressure
Counter -clockwise	Reducing the pressure

Tab. 16: Setting the pressure-relief valve.

The recommended setup is dependent on the ambient temperature. Condensation may not develop with the lowest temperatures to be expected The valve must therefore be set lower than the vapour pressure of the chlorine. In the majority of cases, a setting to 2 - 3 bars is expedient.

The table states a number of values from the vapour pressure curve for chlorine (see Fig. 4 on page 9)

Temperature	Vapour pressure
-10 °C	1.6 bar
-5 °C	2.1 bar
0 °C	2.7 bar
5 °C	3.3 bar
10 °C	4.0 bar

Tab. 17: Vapour pressure chlorine

The pressure-relief valve can be set to 0 bar.
It is not suited to use as a shutoff valve.

8.2 Shutting down in an emergency

DANGER

Danger to life from chlorine poisoning!

Chlorine is poisonous. In severe cases, breathing in chlorine may lead to death. It irritates the eyes, the respiratory system and the skin.

- ⇨ If chlorine escapes, leave the room immediately.
- ⇨ Use sufficient personal protective equipment.
- ⇨ If chlorine gas escapes, wear a Type 2 self-contained breathing apparatus that complies with EN 137.
- ⇨ Only initiate counter measures after putting on the protective equipment.

The chlorine gas tank valves must be closed.

The further procedure depends on the type of accident and should be planned and executed by professional personnel.

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9 Shutdown

9.1 Short-term shutdown

Perform the following working steps:

1. Close the chlorine gas container valves.
2. Use the injector to suck off the remaining chlorine.
3. If present, connect the service valve between the dosing device and the injector.
4. Switch off the injector.

✓ **Chlorinator shut down for the short term.**

9.2 Long-term shutdown

Perform the following working steps:

1. Close the chlorine gas container valves.
2. Use the injector to suck off the remaining chlorine.
   ▶ The vacuum in the piping system increases. Check the vacuum using a pressure gauge until a constant value has been reached.
3. Switch off the injector.
4. If present, connect the service valve between the dosing device and the injector.
5. Close all the open connections to protect the lines and devices from humidity and dirt.

✓ **Chlorinator shut down for the long term.**

9.3 Storage

Ensure ideal storage conditions where possible:

- The storage place must be cold, dry, dust-free and generously ventilated.
- temperatures between +0 °C and +55 °C.
- Relative air humidity must not exceed 95 %.

Perform device maintenance when commissioning after a long operating downtime.

9.4 Disposal of old equipment

- Before disposing of the old equipment, you must clean off the remaining chlorine by rinsing it with nitrogen or air.
- The device must be disposed of in accordance with applicable local laws and regulations. It should not be disposed of as domestic waste!

As the disposal regulations may differ from country to country, please consult your supplier if necessary.

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10 Maintenance

Products by Lutz-Jesco are manufactured to the highest quality standards and have a long service life. However, some parts are subject to operational wear. This means that regular visual inspections are necessary to ensure a long operating life. Regular maintenance will protect the device from operation interruptions.

DANGER

Danger to life from chlorine poisoning!

Do not carry out maintenance or any other work on the chlorinator until the system has been decommissioned and all of the chlorine gas has been removed from the lines. The failure to follow this instruction presents a significant risk of injury.

⇨ Prior to any maintenance work, prepare the system in accordance with section 10.2 “Preparing the device for maintenance” on page 25.

PLEASE NOTE

Damage to the system due to corrosion

Water in chlorine carrying system components combines with chlorine to form hydrochloric acid and leads to corrosion

⇨ After maintenance work is complete, remove all water residues from the system before placing it into operation.

⇨ Keep the connection of the contact vacuum meter closed so that humidity cannot penetrate

10.1 Maintenance intervals

To avoid hazardous incidents, chlorinators must be regularly maintained. This table gives you an overview of maintenance work and the intervals at which you must carry it out. The next few sections provide instructions for carrying out this work.

Interval	Maintenance
With a strongly-soiled filter	■ Replace the filter and seals
After 1 year	■ Cleaning the device ■ Replace the filter ■ Replace the wearing parts of the pressure-relief valve ■ Replace all seals ■ Functional control
After 5 years	■ Replace the pressure gauge

Tab. 18: Maintenance intervals

In some cases, regional regulations may require shorter maintenance intervals. Maintenance intervals depend only on how frequently the equipment is used. Chemical wear of rubber parts, for example, begins with the initial medium contact and continues irrespective of the usage.

10.2 Preparing the device for maintenance

Perform the following working steps:

1. Close the chlorine gas container valves.
2. Use the injector to suck off the remaining chlorine.
   ▸ The vacuum in the piping system increases. Check the vacuum using a pressure gauge until a constant value has been reached.
3. Switch off the injector.
4. Dismantle the device so that the maintenance can be performed on a workbench.
5. Close all the connections to protect the lines and devices from humidity and dirt.

✓ **The device has been prepared for maintenance.**

10.3 Device maintenance

Precondition for action:

✓ The system has been prepared for maintenance.

✓ The maintenance set is available.

Resources required:

- Bench vice
- Face spanner Ø5 mm
- Cleaning alcohol
- Silicone grease
- Plastic tool for dismantling O-rings

10.3.1 Dismantle the device

Devices up to 25 kg/h

The numbers stated here related to Fig. 28 “Exploded view for CondiChlor 25K” on page 34.

Perform the following working steps:

1. Remove the filter in accordance with section 10.3.4 “Removing the filter element” on page 27.
2. Unscrew and remove the filter carrier (10) with the filter bolt (16) from the valve body (7) using an open-end spanner AF 17.
3. Detach the filter carrier from the filter bolt and remove the ball spring and valve seat (wearing parts of the pressure-relief valve).
4. Remove the pressure gauge (18).

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5. Remove the adjusting screw (1) and spring (2) from the housing flap (3).
6. Unscrew and remove the housing flap from the valve body with a face spanner and remove the parts from inside.

✓ **Device is dismantled.**

Device 40 kg/h

The numbers stated here related to Fig. 29 “Exploded view for CondiChlor 40K” on page 36.

Perform the following working steps:

1. Remove the filter in accordance with section 10.3.4 “Removing the filter element” on page 27.
2. Unscrew and remove the filter carrier (10) with the filter bolt (16) from the valve body (7) using an open-end spanner AF 21.
3. Remove ball, spring and valve seat (wearing parts of the pressure-relief valve) from the filter carrier.
4. Detach the filter carrier from the filter bolt.
5. Remove the pressure gauge (17).
6. Remove the adjusting screw (1) and spring (2) from the housing flap (3).
7. Unscrew and remove the housing flap from the valve body with a face spanner and remove the parts from inside.

✓ **Device is dismantled.**

10.3.2 Cleaning the device

Perform the following working steps:

1. Clean all parts thoroughly with a soft cloth. Warm water or alcohol is suitable for this purpose.
2. Clean the pressure gauge (see 10.4 on page 27).
3. Allow all components to dry well.
4. Perform a visual check on all parts. Pay especial attention to the tensioning surfaces for the diaphragm and the sealing surfaces for the flat gaskets. Replace the damaged parts.

✓ **Device cleaned.**

10.3.3 Assembling the device

Devices up to 25 kg/h

The numbers stated here related to Fig. 28 “Exploded view for CondiChlor 25K” on page 34.

Perform the following working steps:

1. Fit the valve body (7) and insert the valve disc (6) in the device. The level surface must be horizontal.
2. Rub the diaphragm (5) with a little silicone grease.
3. Place the diaphragm on the valve poppet.
4. Place the spring plate (4) on the diaphragm.
5. Rub a little silicone grease on the thread on the housing flap (3) and screw the housing cap into the valve body. Tighten the housing flap with a 5 mm diameter face wrench until you feel resistance from the diaphragm. Then tighten the housing flap half a turn further.
6. Mount the spring (2) and the adjusting screw (1).
7. Rub the filter bolt thread (16) with a little silicone grease.
8. Insert a new spring (12) in the filter bolt. Place a new ball (11) on the spring and screw the filter carrier and the filter bolt together hand tight.
9. Place a valve seat in the recess of the filter carrier.
10. Screw the group into the valve body (7) using an open-end spanner AF 17. The tightening torque is approx. 10 Nm.
11. Install the filter in accordance with section 10.5.2 “Mounting the filter element”.

✓ **Device is assembled.**

Device 40 kg/h

The numbers stated here related to Fig. 29 “Exploded view for CondiChlor 40K” on page 36.

Perform the following working steps:

1. Fit the valve body (7) and insert the valve disc (6) in the device. The level surface must be horizontal.
2. Rub the diaphragm (5) with a little silicone grease.
3. Place the diaphragm on the valve poppet.
4. Place the spring plate (4) on the diaphragm.
5. Rub a little silicone grease on the thread on the housing flap (3) and screw the housing cap into the valve body. Tighten the housing flap with a 5 mm diameter face wrench until you feel resistance from the diaphragm. Then tighten the housing flap half a turn further.
6. Mount the spring (2) and the adjusting screw (1).
7. screw the filter carrier and the filter bolt together hand tight.
8. Insert a new spring (12) in the filter carrier. Place a new ball (11) on the spring.
9. Place a valve seat in the recess of the filter carrier.
10. Screw the group into the valve body (7) using an open-end spanner AF 21. The tightening torque is approx. 10 Nm.
11. Install the filter in accordance with section 10.5.2 “Mounting the filter element”.

✓ **Device is assembled.**

Replacing the filter elements

Precondition for action:

✓ The system has been prepared for maintenance.

✓ The replacement filter with seals is available.

Resources required:

🛠 Open-end spanner AF 21 (up to 25kg/h), AF 32, AF 41 (40 kg/h)

🛠 Bench vice

🛠 Cleaning alcohol

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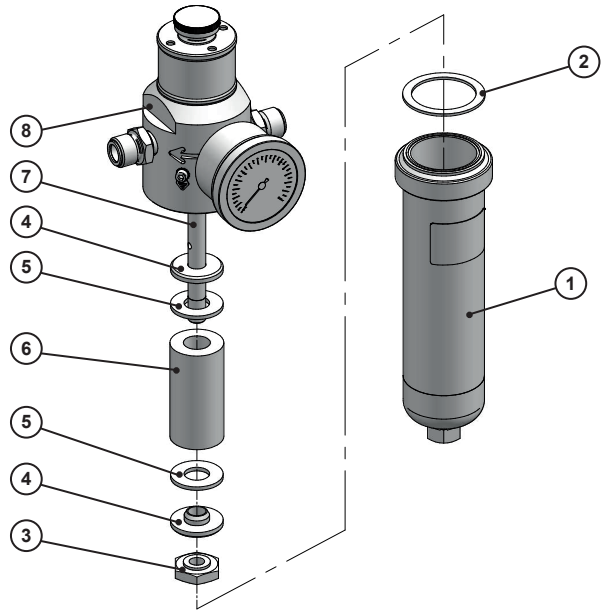


Fig. 24: Replacing the filter element, devices up to 25 kg/h

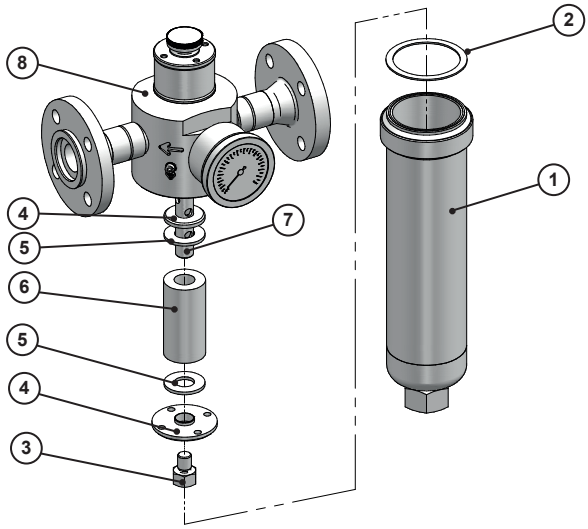


Fig. 25: Replacing the filter element, device 40 kg/h

10.3.4 Removing the filter element

Devices up to 25 kg/h

Perform the following working steps:

1. Loosen and remove the housing pipe (1) with seal (2).
   ▶ This reveals the filter element (6).
2. Loosen and remove the filter nut (3).

✓ **Filter element removed.**

Device 40 kg/h

Perform the following working steps:

1. Loosen and remove the housing pipe (1) with seal (2).
   ▶ This reveals the filter element (6).
2. Loosen and remove the floor screw (3).

✓ **Filter element removed.**

10.3.5 Mounting the filter element

Perform the following working steps:

1. Check the state of all sealing surfaces. They must be clean and undamaged.
2. Clean all threads.
3. Tighten the valve body with the filter bolt pointing upwards.
4. Place a flat gasket (5) and a filter support (4) on the new filter element (6). The filter support reaches into the flat gasket and filter element.
5. Slide this group onto the filter bolt (7).
6. Place a further flat gasket and filter support on the filter element one after each other.
7. Screw on the filter nut (3) loosely by hand.
8. Make sure that positions 3 to 6 are concentric to each other. Tighten the nut by approx. 1/4 turn with an open-end spanner SW 32.
   ▶ Filter element is mounted.
9. Rub the flat gasket (2) with a little silicone grease and place the flat gasket into the groove of the valve body (8).
10. Rub the external thread on the housing pipe (1) with some silicone grease. Screw the housing pipe into the valve body. Tighten the housing pipe on the nut with an open-end spanner AF 24. The tightening torque is approx. 120 Nm.

✓ **Housing closed.**

10.4 Cleaning the pressure gauge

CAUTION

Damage to the pressure gauge!

Pressure gauges are measurement devices which are adjusted by specialists when manufactured. Pressure gauges that have been disassembled must be tested and readjusted by the manufacturer.

⇨ Do not dismantle pressure gauges.

⇨ Do not allow any soiling to enter the pressure gauge.

⇨ Do not allow any water to enter the pressure gauge.

The maintenance on the pressure gauge restricts itself to a visual check and the cleaning of the connection.

Precondition for action:

✓ The system has been prepared for maintenance (see 10.2).

Resources required:

🛠 PTFE strip

🛠 Cotton swabs

🛠 Cleaning alcohol

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Perform the following working steps:

1. Unscrew the pressure gauge from the device.
2. Remove the PTFE strip from the thread.
3. Check the input of the pressure gauge for contamination. Remove the soiling with cleaning alcohol. At the same time, hold the pressure gauge with the connection facing downwards so that soiling cannot fall into the pressure gauge. Do not use a pointed tool, so that the protective film on the plate spring is not destroyed.
4. If the pressure gauge is not immediately reconnected, seal the connection airtight.
5. Fit the pressure gauge with approx. 5 long PTFE strips.

✓ **Pressure gauge cleaned.**

10.5 Finishing maintenance

Perform the following working steps:

1. Make a note of the date and scope of the maintenance performed.
2. Attach a sticker displaying the maintenance date to the device.
3. Follow the instructions in section 7 “Installation” on page 17.

✓ **Maintenance completed.**

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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 device for repair.

Fault	Possible cause	Remedy
Throughflow too low	The vacuum regulator requires a higher supply pressure for the desired flow meter.	Increase the pressure on the adjusting screw.
	Insufficient chlorine gas tanks connected or some are empty. Note: At 25 °C, a chlorine drum can provide a max. 10 kg/h continuously. The delivery rate is lower at lower temperatures.	Replace empty chlorine gas tanks and connect more tanks if necessary.
	The filter is strongly soiled.	Replace filter element.
Ice formation on the valve body	The flow rate is too high.	Set the withdrawal on the dosing device lower.
	The reduced pressure is too low.	Set the reduced pressure higher.
Ice formation below on the device	Liquid chlorine in the device: ■ Because the lower drum valve is connected and liquid chlorine is taken from the drum. ■ Because the device is colder than the chlorine drum. ■ Because the device is mounted too low.	■ Use the upper drum valve so that gaseous chlorine is taken out. ■ Install the CondiChlor and chlorine drum in the same room, avoid direct sunlight and fit the heating collar on the CondiChlor. ■ Mount the device higher and ensure an increasing gradient for the line.
Liquid chlorine damage on the devices behind the valve	The reduced pressure is higher than the vapour pressure with the lowest temperature.	Determine the lowest temperature in the day and night and then set a correspondingly reduced pressure.
Vibrations on the vacuum regulator	The vacuum regulator and the pressure reducing valve coincidentally have the same resonating frequency.	Adjust the reduced pressure a little.
The output pressure rises slowly upon system shutdown until the input pressure is reached.	The valve is soiled. Note: Should the output pressure upon system shutdown be 0.5 bar higher than during operation, this does not represent an error.	Carry out maintenance.

Tab. 19: Troubleshooting

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12 Spare parts

12.1 Exploded view CondiChlor 10K with threaded pin

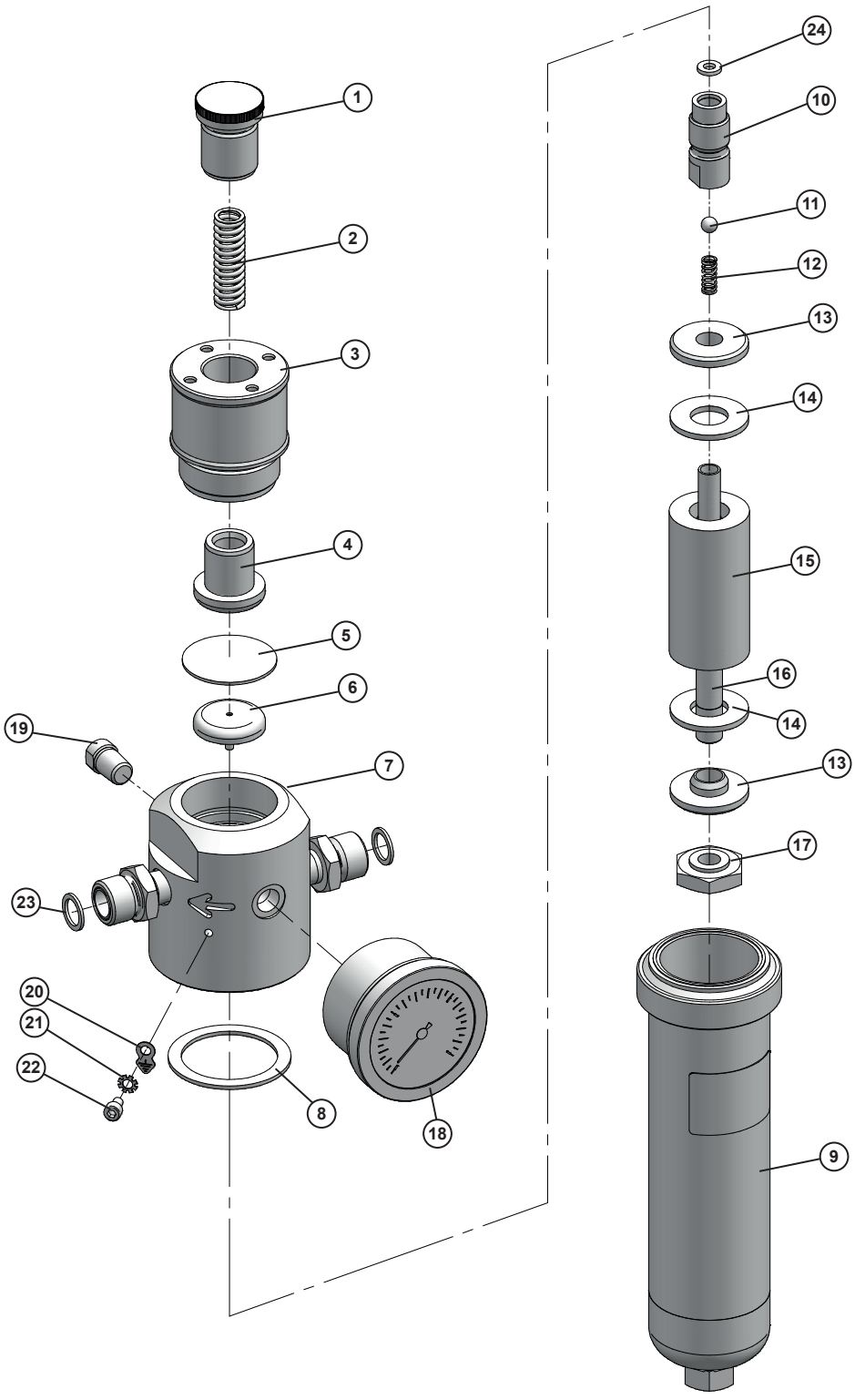


Fig. 26: Exploded view CondiChlor 10K with threaded pin

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Position	No.	Description
1	1	Adjusting screw
2	1	Spring d15
3	1	Housing flap
4	1	Spring plate
5	1	Diaphragms
6	1	Valve poppet
7	1	Housing with threaded pin: G5/8 G3/4 BSW 1" 1.030“-14 NGO
8	1	Flat gasket Ø61/48
9	1	Housing pipe
10	1	Filter carrier
11	1	Ball
12	1	Spring d7,5
13	2	Filter support
14	2	Flat gasket Ø39/19
15	1	Filter element
16	1	Filter bolt
17	1	Filter nut
18	1	Optional pressure gauge
19	1-2	Threaded plug ¼“ NPT
20	1	Ground label
21	1	Toothed washer
22	1	Screw M5x8
23	2	Seal: G5/8 G3/4 BSW 1“ 1,030“-14 NGO
24	1	Valve seat

Tab. 20: Individual parts CondiChlor 10K

Maintenance sets

Part	Content
Replacement filter with seals	■ Filter element ■ All necessary seals
Maintenance kit (for annual service)	■ Filter element ■ All seals ■ Diaphragms ■ Ball ■ Small spring ■ PTFE strip ■ Silicone grease

Tab. 21: Maintenance sets

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12.2 Exploded view of the yoke connection

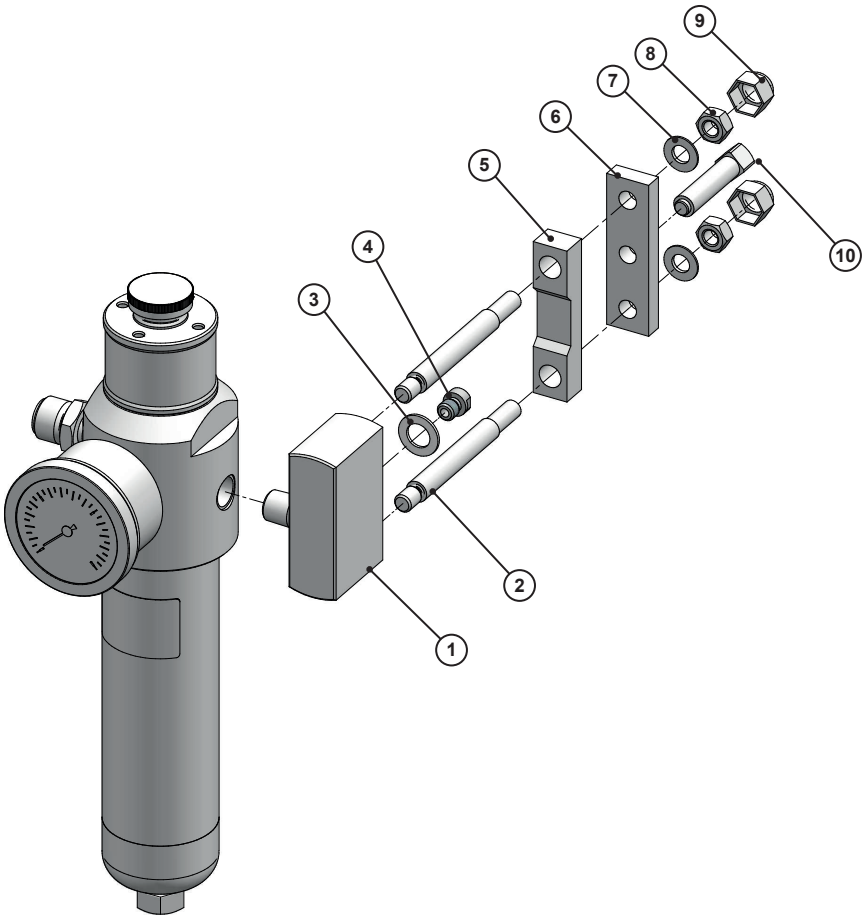


Fig. 27: Exploded view of the yoke connection

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Item	No.	Description
1	1	Yoke connection for the CondiChlor 10K
2	2	Tension rod
3	1	Flat gasket
4	1	Centring pin
5	1	Pressure piece for the yoke connection
6	1	Yoke for the yoke connection
7	2	Washer
8	2	Hexagon nut
9	2	Protective cap
10	1	Square head bolt

Tab. 22: Individual parts for the yoke connection

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12.3 Exploded view for CondiChlor 25K

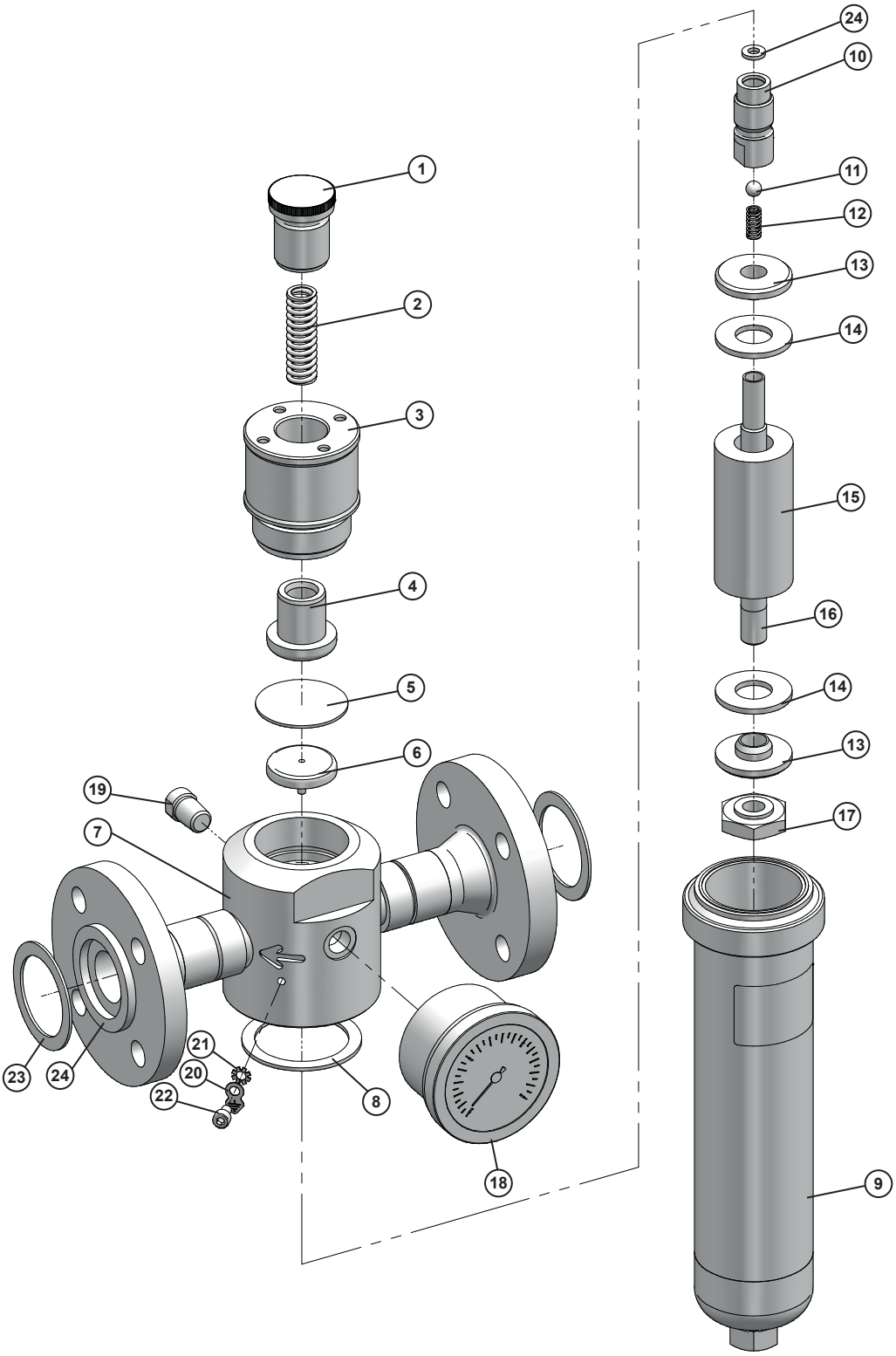


Fig. 28: Exploded view for CondiChlor 25K

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Item	No.	Description
1	1	Adjusting screw
2	1	Spring d15
3	1	Housing flap
4	1	Spring plate
5	1	Diaphragms
6	1	Valve poppet
7	1	Housing with flange DN25/PN40: Input with flange with groove according to EN 1092-1 (Form C) Input with flange with spring according to EN 1092-1 (Form D)
8	1	Flat gasket Ø61/48
9	1	Housing pipe
10	1	Filter carrier
11	1	Ball
12	1	Spring d7,5
13	2	Filter support
14	2	Flat gasket Ø39/19
15	1	Filter element
16	1	Filter bolt
17	1	Filter nut
18	1	Optional pressure gauge
19	1 – 2	Threaded plug 1/4" NPT
20	1	Ground label
21	1	Toothed washer
22	1	Screw M5x8
23	2	Flat gasket Ø57/43
24	1	Valve seat

Tab. 23: Individual parts CondiChlor 25K

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12.4 Exploded view for CondiChlor 40K

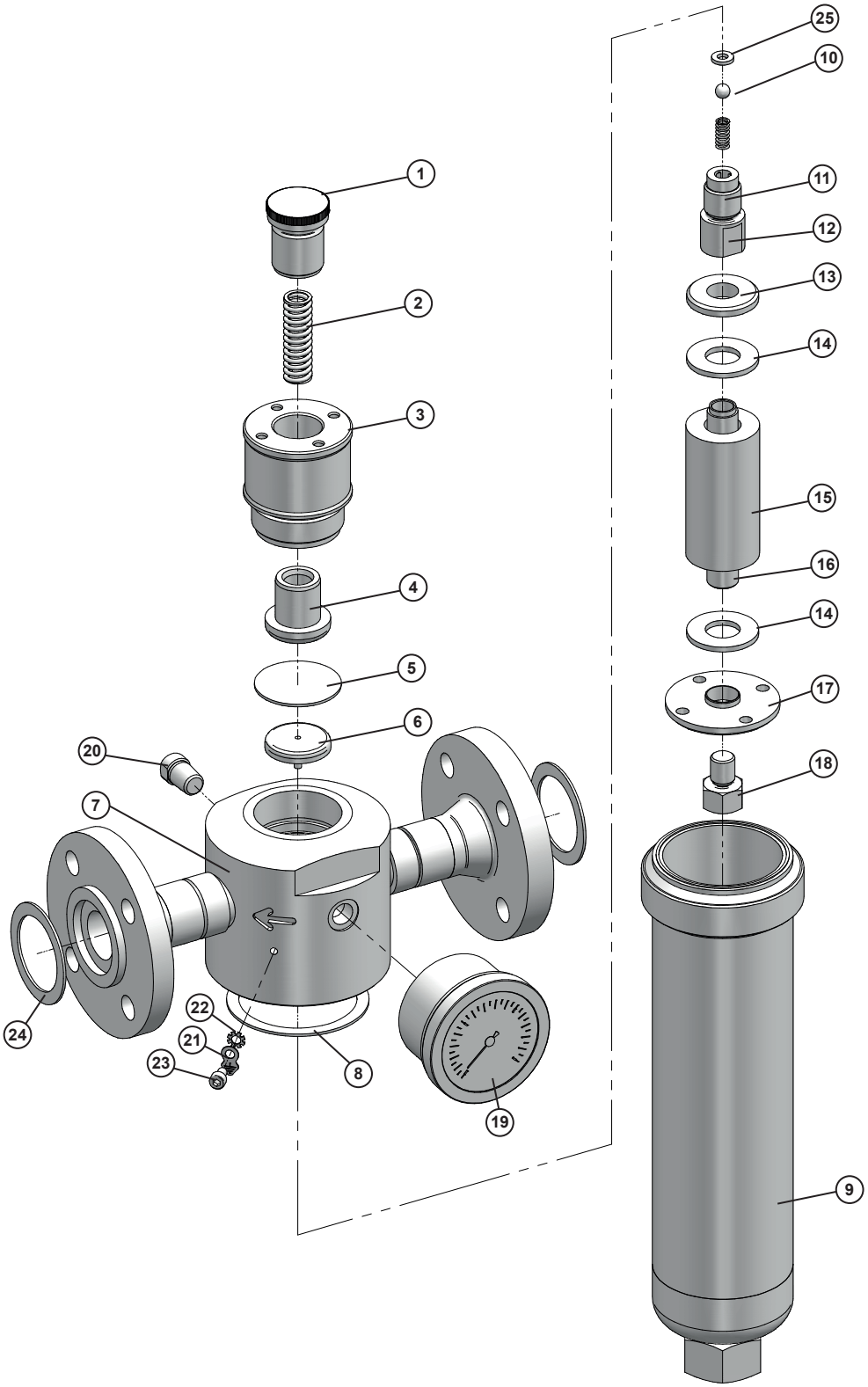


Fig. 29: Exploded view for CondiChlor 40K

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Item	No.	Description
1	1	Adjusting screw
2	1	Spring d15
3	1	Housing flap
4	1	Spring plate
5	1	Diaphragms
6	1	Valve poppet
7	1	Housing with flange DN25/PN40: Input with flange with groove according to EN 1092-1 (Form C) Input with flange with spring according to EN 1092-1 (Form D)
8	1	Flat gasket Ø61/48
9	1	Housing pipe
10	1	Filter carrier
11	1	Ball
12	1	Spring d7,5
13	1	Filter support
14	2	Flat gasket Ø39/19
15	1	Filter element
16	1	Filter bolt
17	1	Filter support with drill-holes
18	1	Floor screw
19	1	Optional pressure gauge
20	1 – 2	Threaded plug 1/4" NPT
21	1	Ground label
22	1	Toothed washer
23	1	Screw M5x8
24	2	Flat gasket Ø57/43
25	1	Valve seat

Tab. 24: Individual parts CondiChlor 40K

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13 Notes to EU conformity

(for devices with a Moisture eliminator capacity of 125 ml – 500 ml)

The device falls under the purview of the pressure equipment directive 2014/68/EU.

The values stated below do not exceed the limit values. Therefore, it is designed and manufactured in accordance with valid good engineering practice This pressure device may not carry a CE marking and an EU declaration of conformity will not be issued.

Device designation:	Pressure reducing valve with filter and moisture eliminator
Type:	CondiChlor 10K/CondiChlor 25K
Pressure stage:	PN25
Volume:	350 ml/500 ml/1000 ml
Max. temperature:	55 °C
Medium:	Chlorine, fluid group 1

The device fulfils all the demands made by the directive(s)

2014/68/EU	Pressure equipment directive

The following harmonized standards were applied:

EN 1092-1	Flange and its connections
EN 10216-2	Seamless steel pipe for compression load
EN 10253-2	Adapter for welding

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14 Declaration of no objection

Declaration of no objection

Please fill out a separate form for each appliance!

We forward the following device for repairs:

Device and device type: ..... Part-no.: .....

Order No.: ..... Date of delivery: .....

Reason for repair: .....

.....

.....

Dosing medium

Description: ..... Irritating: ☐ Yes ☐ No

Properties: ..... Corrosive: ☐ Yes ☐ No

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

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

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

Company / address: ..... Phone: .....

..... Fax: .....

..... Email: .....

Customer No.: ..... Contact person: .....

Date, Signature: .....

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15 Warranty claim

Warranty claim

Please copy and send it back with the unit!

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

Sender

Company: ..... Phone: ..... Date: .....

Address: .....

Contact person: .....

Manufacturer order no.: ..... Date of delivery: .....

Device type: ..... Serial number: .....

Nominal capacity / nominal pressure: .....

Description of fault: .....

.....

.....

.....

.....

.....

.....

.....

Service conditions of the device

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

.....

.....

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

.....

.....

.....

.....

Commissioning (date): .....

Duty period (approx. operating hours): .....

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

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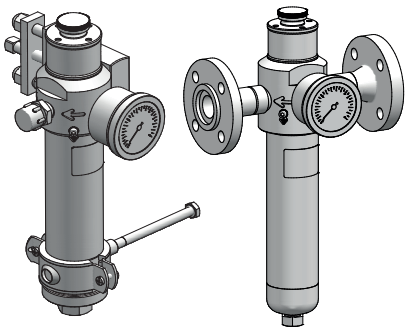
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Operating instructions
CondiChlor

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