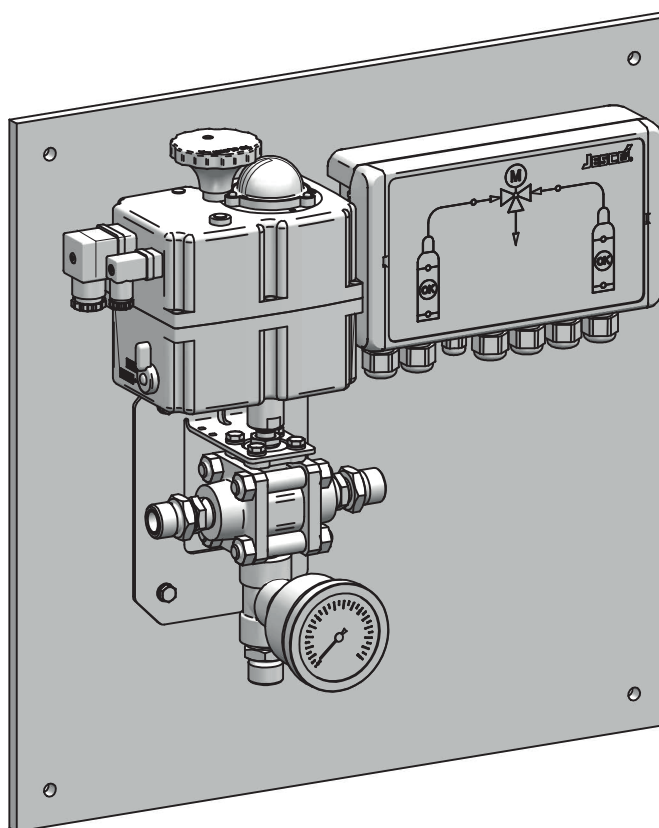


Chlorine changeover unit **C 7524** Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

Table of Contents

1	Notes for the Reader	4	12	Maintenance	27
1.1	General non-discrimination	4	12.1	Maintenance intervals	27
1.2	Explanation of the signal words	4	12.2	Maintenance accessories	27
1.3	Explanation of the warning signs	4	12.3	Preparing the system for maintenance	27
1.4	Identification of warnings	4	12.4	Maintenance on the ball valve	27
1.5	Identification of action instructions	4	12.5	Cleaning the pressure gauge	29
2	Safety	5	12.6	Functional control	29
2.1	General warnings	5	12.7	Finishing maintenance	30
2.2	Information about chlorine	5	13	Troubleshooting	31
2.3	Hazards due to non-compliance with the safety instructions	5	14	Spare parts	32
2.4	Working in a safety-conscious manner	6	14.1	Individual parts for C 7524-20K	32
2.5	Personal protective equipment	6	14.2	Individual parts for C 7524-40K	34
2.6	Personnel qualification	6	14.3	Maintenance sets	35
2.7	Personnel tasks	6	15	EU Declaration of Conformity	36
3	Intended use	7	16	Declaration of no objection	37
3.1	Notes on product warranty	7	17	Warranty claim	38
3.2	Intended purpose	7	18	Index	39
3.3	Device revision	7			
3.4	Prohibited dosing media	7			
4	Product description	8			
4.1	Scope of delivery	8			
4.2	Design and function	8			
4.3	Rating plate	8			
5	Technical data	9			
6	Dimensions	10			
7	Installation	14			
7.1	Installation location	14			
7.2	Installing the device	14			
7.3	Hydraulic installation	14			
7.4	Electric installation	17			
7.5	Completing the installation	19			
7.6	Installation example	20			
8	Control	21			
8.1	Controls	21			
8.2	Operating modes	21			
9	Commissioning	23			
9.1	Inspecting the pressure system	23			
9.2	Turning on the device	24			
9.3	Adjusting the switching contact	24			
10	Operation	25			
10.1	Tank change	25			
10.2	Shutting down in an emergency	25			
10.3	Optical check	25			
11	Shutdown	26			
11.1	Short-term shutdown	26			
11.2	Long-term shutdown	26			
11.3	Disposal of old equipment	26			

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
	Danger to life from chlorine poisoning
	Danger to life due to electric shock
	General danger zone
	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.

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!
<p>Danger to life from chlorine poisoning!</p> <p>Chlorine is poisonous. In severe cases, breathing in chlorine may lead to death. It irritates the eyes, the respiratory system and the skin.</p> <ul style="list-style-type: none"> ⇒ 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!
<p>Danger to life from missing safety device.</p> <p>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.</p> <ul style="list-style-type: none"> ⇒ Install a gas warning device. 	

	WARNING
<p>Increased risk of accidents due to insufficient qualification of personnel!</p> <p>Chlorinators and their accessories must only be installed, operated and maintained by personnel with sufficient qualifications. Insufficient qualification will increase the risk of accidents.</p> <ul style="list-style-type: none"> ⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications. ⇒ Prevent access to the system for unauthorised persons. 	

	PLEASE NOTE
<p>Damage to the plant due to the formation of hydrochloric acid</p> <p>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.</p> <ul style="list-style-type: none"> ⇒ 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 hydrochloric acid).

	PLEASE NOTE
<p>Faults due to insufficient chlorine quality</p> <p>Impurities in the chlorine gas form deposits in devices and valves and can attack the components chemically. This can lead to malfunctions.</p> <ul style="list-style-type: none"> ⇒ Only use technically pure chlorine that meets the following requirements: <ul style="list-style-type: none"> - Mass content of chlorine at least 99.5% - Water content max. 20 mg/kg <p>Chlorine that complies with EN 937 meets these requirements.</p>	

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 important functions of the device and of the corresponding system
- Failure of required maintenance and repair methods
- danger to persons
- Danger to the environment caused by substances leaking from the system

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
	Safety shoes
	Protective gloves

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 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
- Sufficient qualification for the respective activity
- Training in how to handle the device
- Knowledge of safety equipment and the way this equipment functions
- Familiar with this operating manual

- Knowledge of fundamental regulations regarding health and safety and accident prevention

All persons must generally have the following minimum qualification:

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

These operating instructions differentiate between these user groups:

2.6.1 Specialist staff

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

2.6.2 Trained electricians

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

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

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

2.6.3 Trained persons

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

Trained persons have attended all trainings offered by the operator.

2.7 Personnel tasks

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

Qualification	Activities
Specialist staff	<ul style="list-style-type: none"> ■ Transportation ■ Assembly ■ Hydraulic installations ■ Commissioning ■ Taking out of operation ■ Fault rectification ■ Maintenance ■ Repairs ■ Disposal
Trained electricians	<ul style="list-style-type: none"> ■ Electrical installation ■ Rectifying electrical faults ■ Electrical repairs
Trained persons	<ul style="list-style-type: none"> ■ Storage ■ Control

Tab. 4: Personnel qualification

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 9) 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 C 7524 changeover unit is intended for chlorine gas dosing systems only. It serves to switch between two positive pressure supply batteries.

It may only be used with technically pure chlorine with a minimum mass content of 99.5%

3.3 Device revision

This operating manual applies to the following devices:

Device	Month/year of manufacture
Chlorine gas changeover unit C 7524	After 06/2020

Tab. 5: Device revision

The production date is indicated on the rating plate.

3.4 Prohibited dosing media

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

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

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:

- Motor ball valve
- Contact pressure gauge
- Fittings and connections depending on the version
- Wall holder
- Control with power plug
- Plastic wall panel (optional)
- Installation material for wall fixing
- Operating instructions

4.2 Design and function

Chlorine gas dosing systems in a water treatment system must be permanently ready for operation so that the water can be sufficiently disinfected at any point. This explains the fitting of the systems with two supply batteries - one side in operation, the other on stand-by. The chlorine changeover valve effects automatic switching between the two cylinders or drum batteries.

The example installation shows a typical installation (see 7.6 „Installation example“ on page 20).

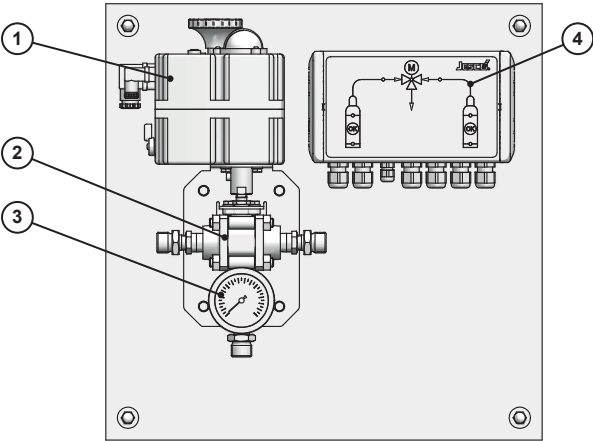


Fig. 1: Structure of the device

When the supply from the operating battery runs out, the pressure in the piping system sinks. The control (4) recognises the chlorine shortage using the contact pressure gauge (3) and activates the motor (1) on the three-way ball valve (2).

The control signals the operating state with coloured LEDs in the flow chart (see section 8 “Operation”). The most important operating signals are available for remote indication as relay contacts.

Manual changeover can be triggered by the push of a button. Mechanical changeover by hand is possible given a power outage.

4.3 Rating plate

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

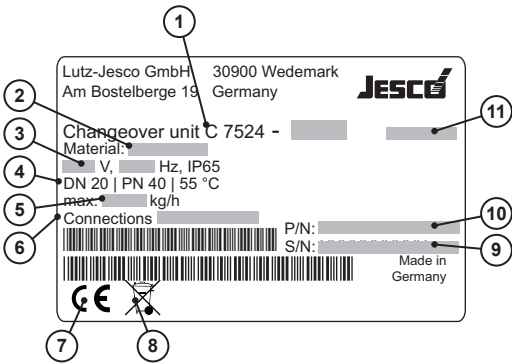


Fig. 2: Rating plate C 7524

No.	Description
1	Product name
2	Components coming into contact with the media
3	Voltage supply IP protection class
4	Nominal width, pressure class and max operating temperature
5	Max. flow rate
6	Specification of the hydraulic connections
7	Label showing conformity with applicable European directives
8	WEEE label
9	Serial number
10	Part number
11	Month/year of manufacture

Tab. 6: Rating plate

5 Technical data

Description			Value
Throughput	C 7524-20K		gaseous: 20 kg/h Cl ₂ bei 3 bar liquid: 80 kg/h Cl ₂
	C 7524-40K		gaseous: 40 kg/h Cl ₂ bei 3 bar liquid: 200 kg/h Cl ₂
Operating pressure		bar	0 – 40
Contact pressure gauge	Measuring range	bar	0 – 16, ±2.5%
	Size	mm	Ø 63
	Overload-protected up to	bar	40
	Switching point adjustable from / to	bar	1 – 13
Material in contact with the media	Ball Valve		Steel, Monel, stainless steel
	Pressure gauge		steel, silver
	fittings, flange		Steel, galvanised brass
	Seals		PTFE
Further materials			Coated steel, PP, ABS
Voltage supply			230 V AC ±10%, 50/60 Hz or 115 V AC ±10%, 50/60 Hz
Current consumption:	Normal mode		max. 0.3 A/max. 20 V A
	Switch-on current		max. 12 A (peak)
Load capacity of the relay			max. 3 A/250 V AC
Weight	without mounting plate	kg	Approx. 7 (with flanges approx. 10)
	with mounting plate	kg	Approx. 9 (with flanges approx. 12)
Protection class			IP65
Ambient temperature		°C	0 – 55 °C (avoid direct sunlight)
Air humidity			max. 95 %, non condensing

Tab. 7: Technical data

6 Dimensions

All dimensions in mm

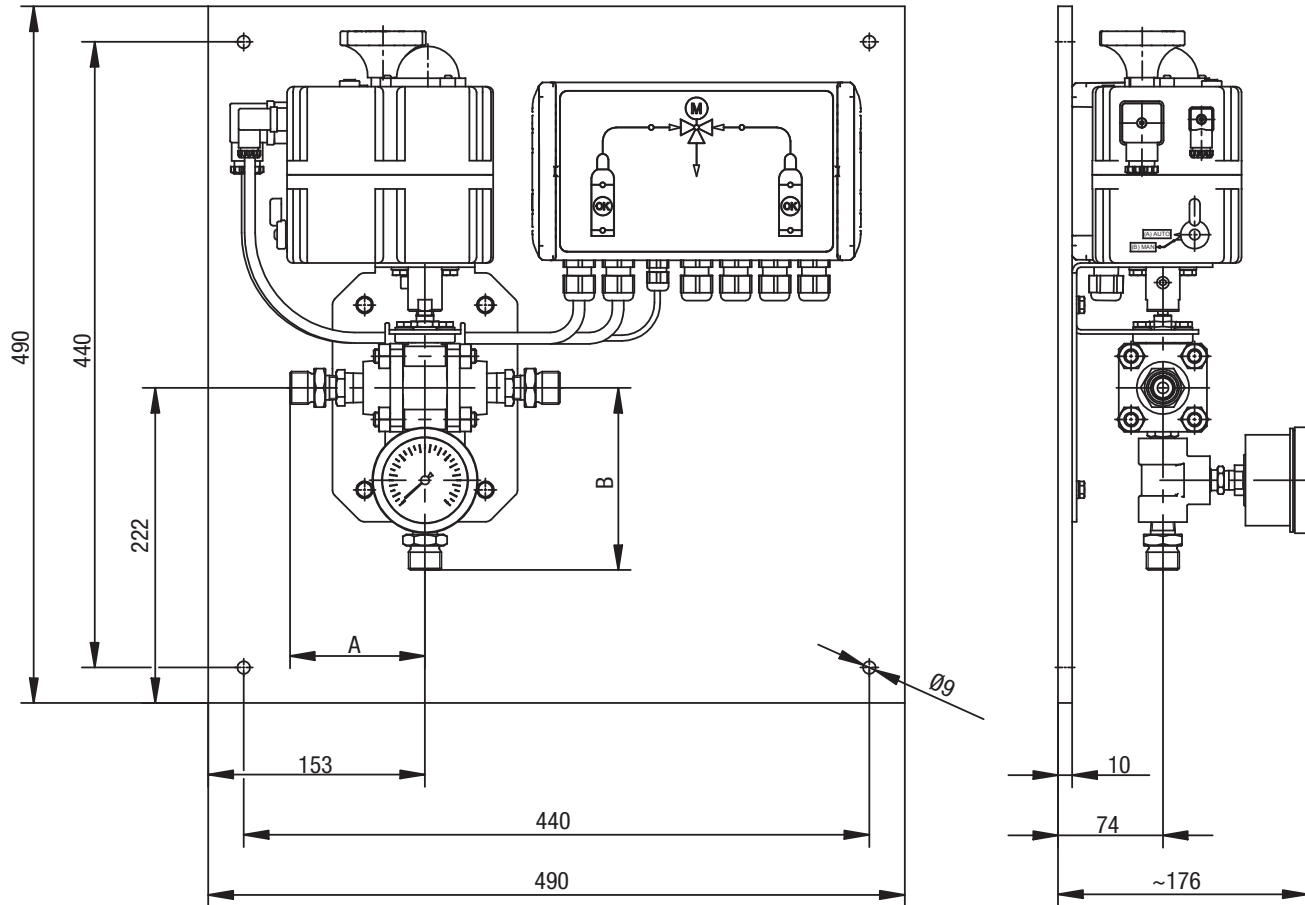


Fig. 3: Dimensioned drawing C 7524 on mounting plate

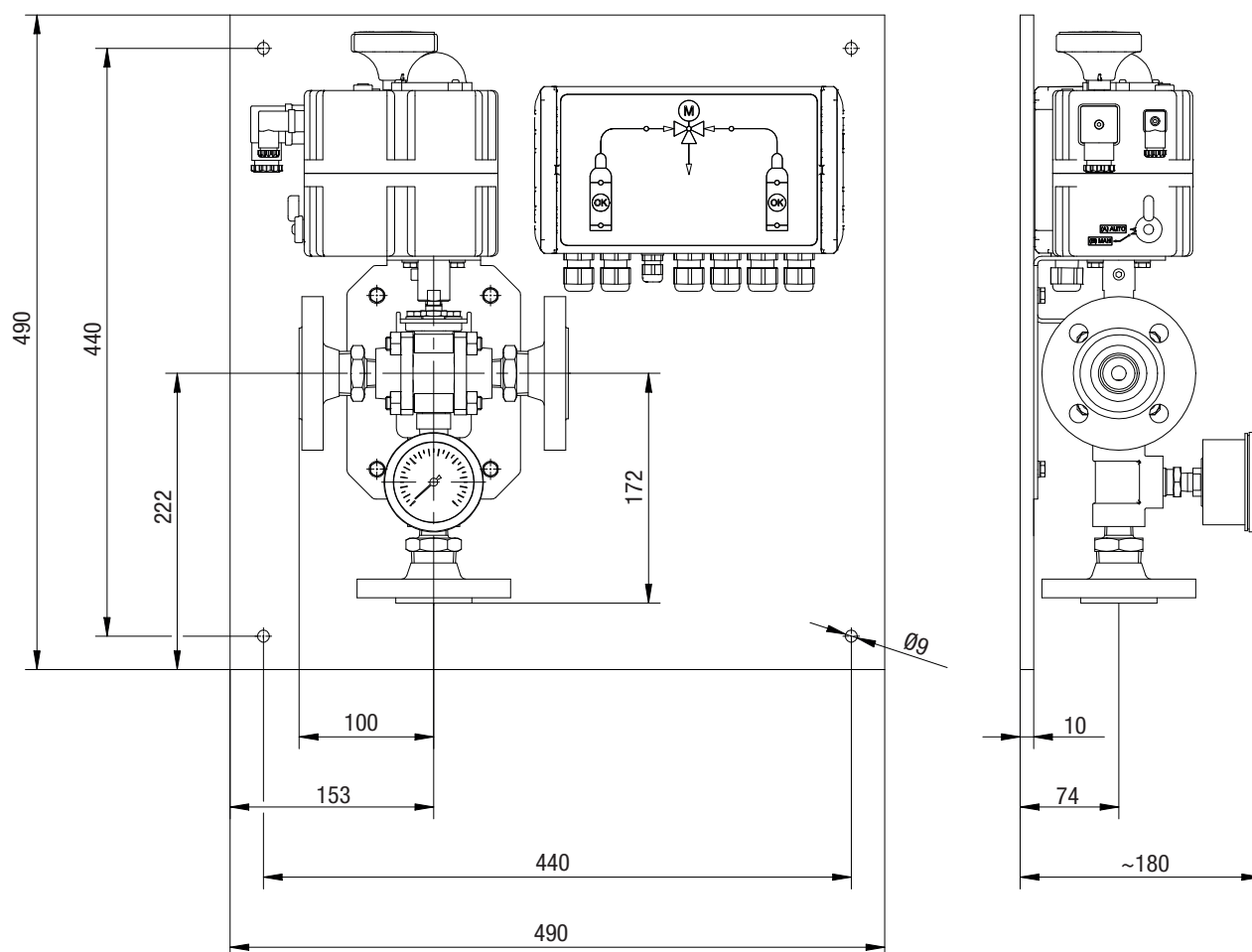


Fig. 4: Dimensioned drawing C 7524 with flanges on mounting plate

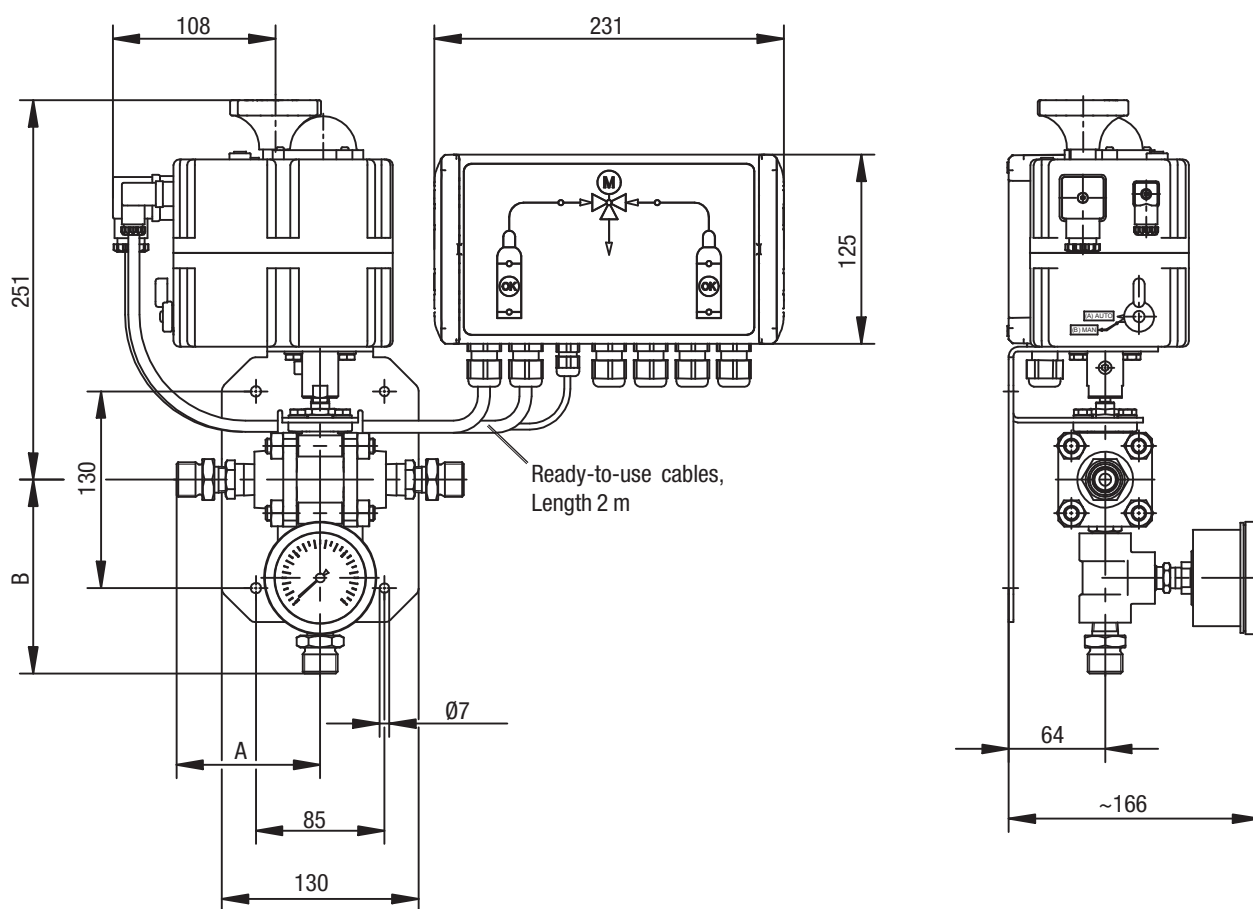


Fig. 5: Dimensioned drawing C 7524 as fitting set

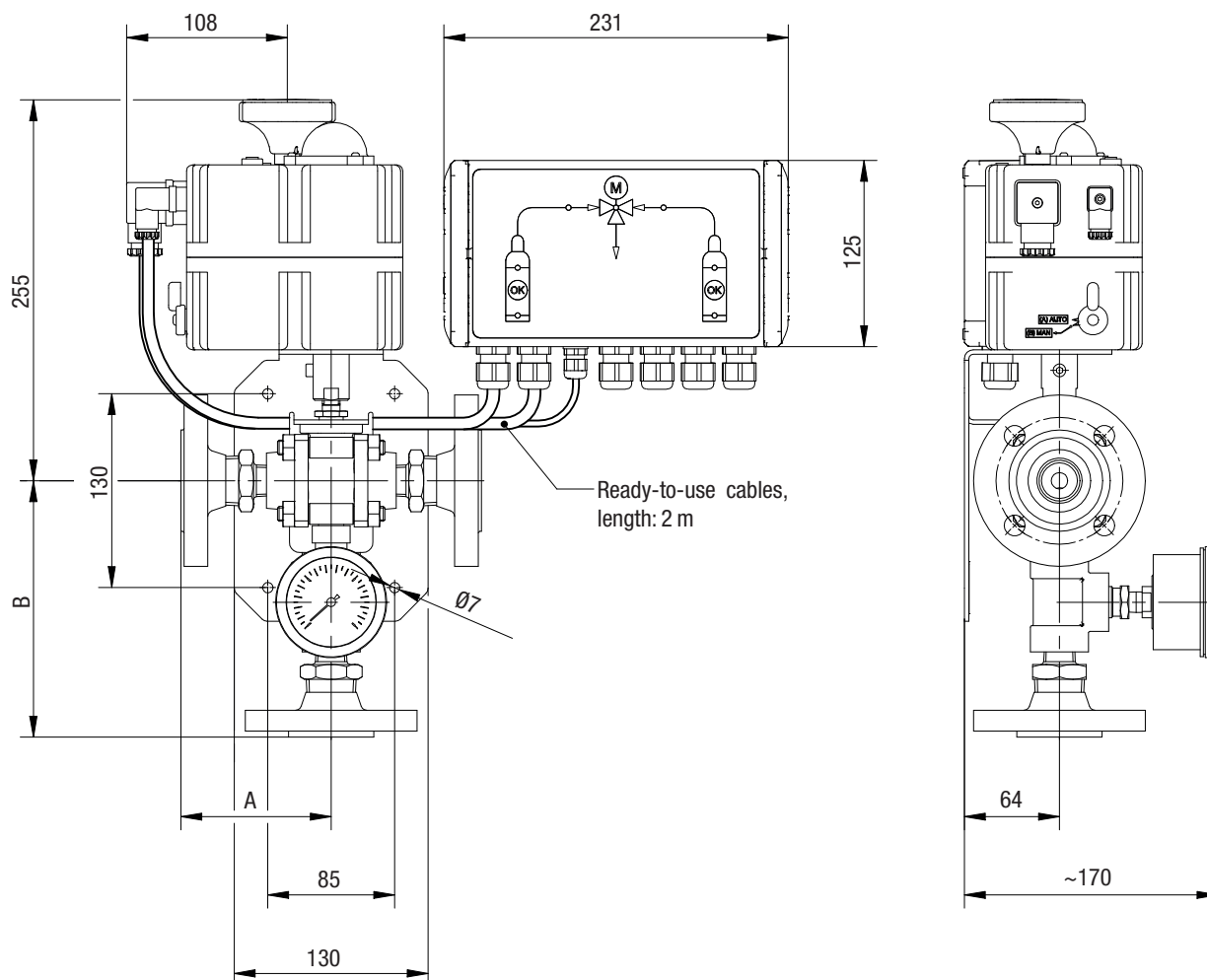


Fig. 6: Dimensioned drawing C 7524 with flanges

Power output	Input ØA and Output ØB	A	B
C 7524-20K	Threaded pin G 5/8	95	128
	Threaded pin G 3/4	95	128
	Threaded pin BSW 1"	97	130
	Threaded pin 1.030" x 14 NGO	95	128
C 7524-40K	Internal thread 1/2" NPT	44	95
	Flange DN25/PN40 Inputs: with groove EN1092 Form D Output: with spring EN1092 Form C	99	167

Tab. 8: Hydraulic connections (all dimensions in mm).

7 Installation



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 suitable tools.
- ⇒ Note the specified torque.

- ✓ The mounting material is suitable for the wall.

Resources required:

- ✗ Water level
- ✗ Drill
- ✗ 2 open-end spanners AF 13

Perform the following working steps:

1. Hold the device against the wall and align it horizontally.
2. Mark the mounting point on the wall.
3. Drill in the marked holes and insert the rawlplug.
4. Screw in the stair bolts (1) a into the rawlplug until the wooden thread seals with the wall surface.
5. Place a nut (2) and washer (3) on every screw.
6. Slide the mounting plate (4) on the stair bolts.
7. Place a washer (3) and a cap nut (5) on every screw.
8. Insert the nuts (2 + 5) in such a way that the mounting plate is held level and voltage-free.
9. Tighten the nuts.

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

7.1 Installation location

The changeover unit is fitted in the room of the chlorine supply.

The room must fulfil the following requirements:

- Secured against access by unauthorised persons
- Protected against weather conditions
- Frost-free
- Permissible ambient temperature adhered to (see Section 5 "Technical data" on page 9)
- Room of sufficient size to allow trouble-free assembly as well as inspection and maintenance of the device at all times
- Power supply available
- Room must comply with the locally valid prescriptions

7.2 Installing the device



This section applies to devices with a mounting plate. Devices without a mounting plate require the same steps.

Fit the device on an easily-accessible, vertical wall surface. The control should be mounted at roughly at eye-level.

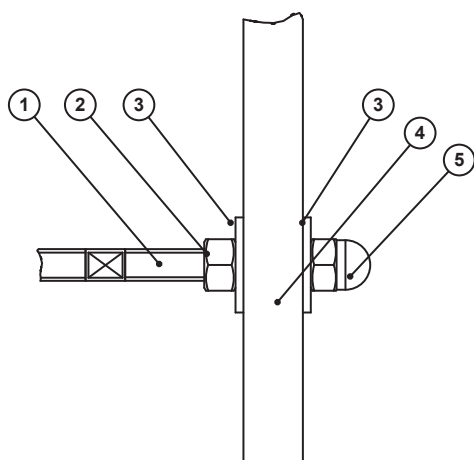


Fig. 7: Fitting the mounting plate

Precondition for action:

- ✓ A flat wall

7.3 Hydraulic installation

You can use the following connection types:

- Flexible connection lines with union nut connection
- Fixed piping with NPT thread
- Fixed piping with flange connection

All connection types are suitable for gaseous chlorine and liquid chlorine.

The maximum flow rate of the device is stated in section 5 „Technical data“ on page 9. It has been calculated for the entire piping system: from the chlorine drum to the vacuum regulator. The calculation was performed with the usual pipe lengths:

Connection type	Pipe length between the chlorine drum and the vacuum regulator
Flexible connection lines with union nut	Up to 6 m
Fixed 1" line with thread or flange	Up to 30 m

Tab. 9: Pipe lengths of the calculation

The max flow rate is a little higher with shorter pipe lengths and slightly lower with longer pipes.

Where required, a large distance can be bridged with pipes of a higher nominal width. A pipe line with a connection nominal width is only used for shorter sections shortly before and after the device.

If the dosing system is also to be operated during maintenance of the changeover unit, install five manual valves (see 7.6 „Installation example“ on page 20).

7.3.1 Connect the flexible lines with union nuts

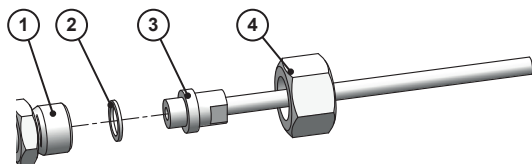


Fig. 8: Connecting the flexible line

Precondition for action:

- ✓ The union nut fit the device connection.
- ✓ The sealing surfaces are free of contamination and damage.
- ✓ The inside of the line is clean and dry.

Resources required:

- ✂ New seal for flexible connection lines
- ✂ 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.
- ✓ **Flexible connection line connected.**

7.3.2 Creating the threaded connection



PLEASE NOTE

Leakage due to incorrect installation

In order to provide safe and long-term effective sealing, the thread sealant must form an even layer. Errors during installation can result in the thread sealant losing its sealant properties (uneven application or air bubbles) which will result in leakages.

- ⇒ Only turn the thread clockwise and never in two directions. This can result in air bubble formation.
- ⇒ If the orientation needs to be corrected after the connection has been tightened, repeat steps 1 – 5.



DANGER!

Leakage due to incorrect sealant.

Pipe connections and fittings in pressurized lines must be sealed with chlorine-resistant substances. Unsuitable sealants react with the chlorine and lead to leakages.

- ⇒ Use only sealants that are resistant in contact with chlorine (e.g. anaerobic sealants).

Precondition for action:

- ✓ The inside of the line is clean and dry.
- ✓ The threads are metallic bright.
- ✓ The pipe line is fixed with pipe clamps and meets the connection in an voltage-free state.

Resources required:

- ✂ Grease-dissolving cleaner
- ✂ Liquid thread sealant

Perform the following working steps:

1. Clean the thread with a fat-dissolving cleaning agent, e.g. alcohol.
2. Allow the thread to dry completely.
3. Apply the thread sealant to the external thread in a circular motion to the start of the thread. Leave the first thread clear. Apply the thread sealant all the way down to the root of the thread to thoroughly grease the thread flank.

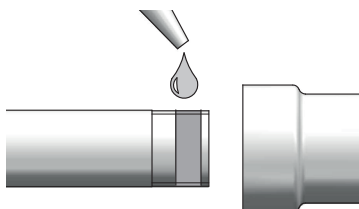


Fig. 9: Seal in the thread

4. Insert the threaded pin into the internal thread and apply a little thread sealant to the internal thread. Screw the parts by hand.
5. Use a tool to tighten the connection. The necessary tightening torque depends on the thread size.

thread	Tightening torque
1/4" NPT	up to 50 Nm
1/2" NPT	up to 100 Nm
1" NPT	up to 150 Nm

Tab. 10: Tightening torque

6. Remove excess thread sealant with a cloth.
 7. Allow the bond to harden for at least 12 hours prior to the leak test.
- ✓ **The threaded connection is now complete.**

7.3.3 Creating the flange connection

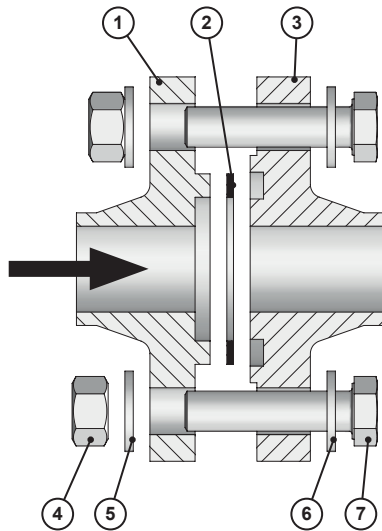


Fig. 10: Installing the flange connection

Precondition for action:

- ✓ The inside of the line is clean and dry.
- ✓ The sealing surfaces are free of contamination and damage.
- ✓ Seals must be clean, undamaged and dry.
- ✓ Bolts, nuts and washers are clean and undamaged.



Any bolts, nuts and washers that are removed during assembly work must be replaced with new ones if they are damaged. Install only new screws, nuts and washers.

Resources required:

✖ Torque wrench AF 19 (10 – 25 Nm)

1. Lubricate the sliding faces and thread of bolts, nuts and washers e.g. using fitting grease or PTFE grease.
2. Place the flat gasket (2) into the groove of the connection flange (3). Assemble the seal in dry condition.
3. Mount the tongue flange (1). Make sure that the flat gasket (2) does not slip.
4. Fit the bolts (7), washers (6, 5) and nuts (4) by hand.
5. Tighten the bolts evenly alternately crosswise in three stages: 10 Nm, 18 Nm, 25 Nm.
6. Retighten all the bolts to the full target tightening torque (25 Nm).
7. Setting the seal (adapting to the flange seal surface) can make it necessary to retighten the bolts. For this reason, retighten the bolts to 25 Nm after a few hours.

✓ **Flange connection assembled**

7.3.4 Connect the chlorine drum

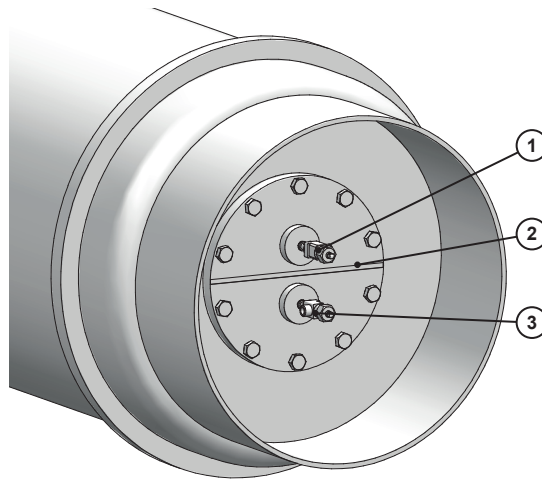


Fig. 11: Chlorine barrel

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

Precondition for action:

- ✓ The protective housing of the chlorine tank has been removed.
- ✓ The chlorine tank valve is closed.
- ✓ The screw cap on the connection of the tank valve has been removed.

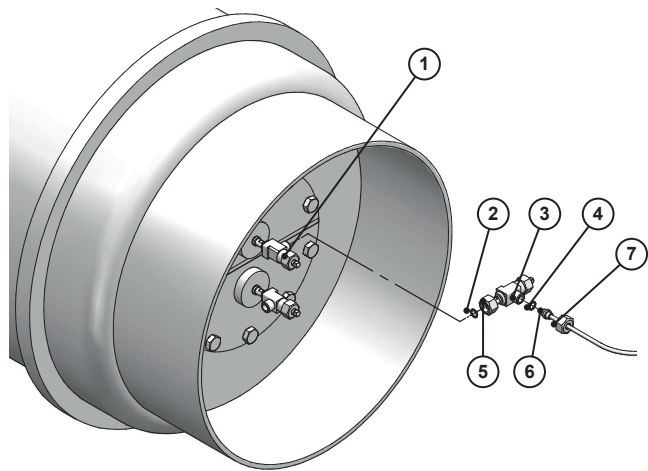



Fig. 12: Connect to the chlorine tank

Perform the following working steps:

1. Insert a new seal (4) on the sealing surface on the connection (6) 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 tank valve (1) with the union nut (5). The tightening torque is approx. 40 Nm.

✓ **Chlorine drum connected.**

7.4 Electric installation

	DANGER!
<p>Mortal danger from electric shock!</p> <p>Improperly installed or damaged components in the electronics installation can cause injury.</p> <ul style="list-style-type: none"> ⇒ Ensure that all work on the electrical installation is performed by a qualified electrician. ⇒ Ensure that all work on the electrical installation is performed in a de-energised state. ⇒ Ensure that the power supply is secured with a fault current protective circuit. ⇒ Replace damaged cables or components without delay. 	

Open the control housing

Resources required:

✂ Flat-bladed screwdriver, size 3

Perform the following working steps:

1. Hold the screwdriver in the right-hand clearance on the front of the housing.
2. Move the screwdriver grip towards the lid of the housing until the hinge part disconnects from the adjustment lock.
3. Pivot the housing lid to the left.

✓ **Housing opened.**

Close the control housing

Perform the following working steps:

1. Pivot the housing lid towards the housing floor.
2. Pivot the hinge part towards the lid until it snaps in audibly.
3. Press against the hinge part with your hand until it locks audibly in place.

✓ **Housing closed.**

Terminal plan

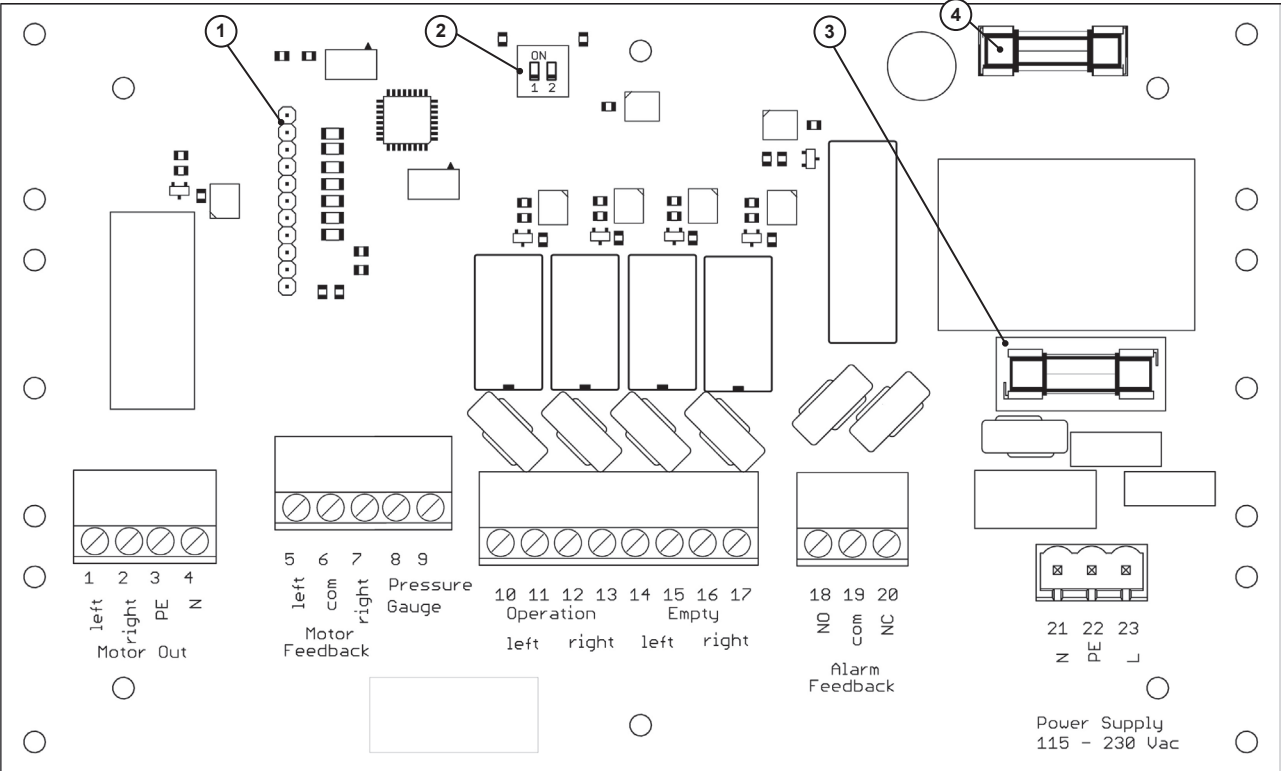


Fig. 13: Control circuit board

Position	Description
1	Connector for the ribbon cable
2	Switch SW 1/AF 2
3	Microfuse 3.15 A (T)
4	Reserve fuse

Tab. 11: Elements of the circuit board

Switch	Function	Switch downwards	Switch upwards
AF 1	Residue discharge	OFF (delivery state)	ON
AF 2	Service switch	Normal mode (delivery state)	Diagnosis (only for the factory customer services dept.)

Tab. 12: Functions of the switch AF 1/AF 2

Terminal		Function	
1	L	Left-hand rotation phase	Voltage output to the motor ball valve
2	L	Right-hand rotation phase	
3	PE	protective conductor	
4	N	neutral conductor	
5	Left	Position feedback from the motor ball valve	
6	com		
7	Right		
8	+	Input for contact pressure gauge	
9	-		
10		Relay output operation left (NO max. 3 A/250 V AC)	
11			
12		Relay output operation right (NO max. 3 A/250 V AC)	
13			
14		Relay output left battery empty (NO max. 3 A/250 V AC)	
15			

Tab. 13: Terminal connection

Terminal		Function	
16		Relay output right battery empty (NO max. 3 A/250 V AC)	
17			
18	NO	Relay output fault (max. 3 A/250 V AC) active if both side are empty or fault on the motor	
19	com		
20	NC		
21	N	neutral conductor	Mains input (see type plate)
22	PE	protective conductor	
23	L	phase	

Tab. 13: Terminal connection

In its delivery state, the motor of the ball valve is connected in accordance with the following plan.

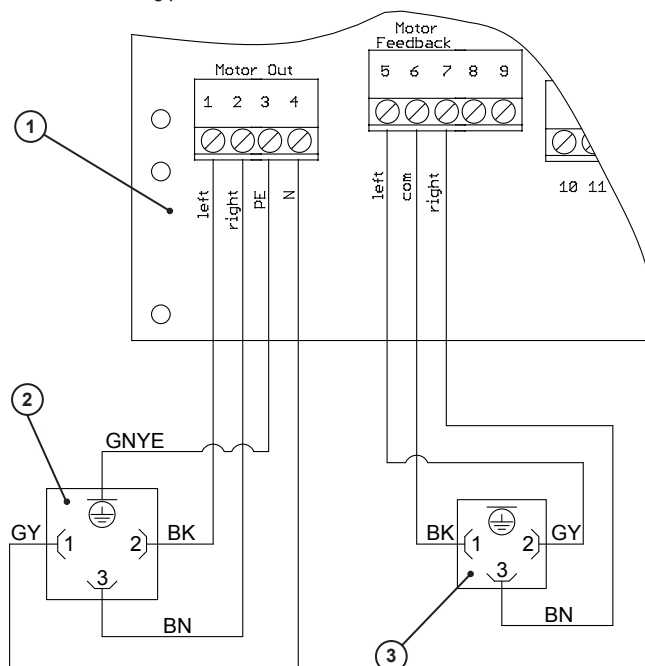


Fig. 14: Motor connection

Position	Description
1	Control circuit board
2	Large plug on the motor
3	Small plug on the motor

Tab. 14: Motor connection

7.5 Completing the installation

Perform the following working steps:

1. Tighten all cable screw connections to guarantee the IP protection class of the installation.

2. Check all connections for leak-tightness (see section 9 „Commissioning“ on page 23).
3. Touch up damaged paint.

i All exposed bright metal surfaces must be painted as the atmosphere in chlorine gas rooms is highly corrosive. A suitable paint is e.g. 2-Component epoxy resin lacquer RAL 1003 (yellow). Paint must only be applied after a successful leak test has been completed.

✓ **Installation completed.**

7.6 Installation example

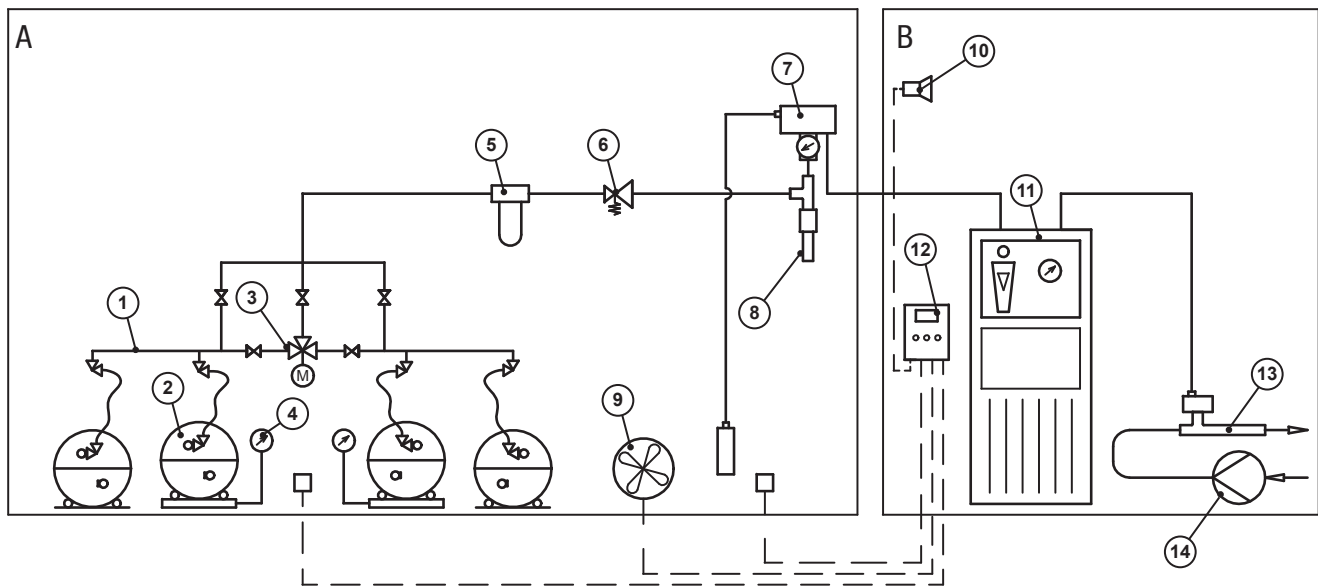


Fig. 15: Installation example

Position	Description
A	Room for the chlorine gas supply
B	Dosing device room
1	Pressurized manifold
2	Chlorine barrel
3	Changeover unit with 5 service valves
4	Chlorine barrel scale
5	Chlorine gas filter
6	Pressure reducing valve

Position	Description
7	Vacuum regulator
8	Moisture eliminator with heating collar
9	Entrance port of the chlorine eliminator
10	Horn
11	Dosing device
12	Gas warning device
13	Injector with non-return valve
14	Motive water pump

Tab. 15: Designation of components

8 Control

8.1 Controls

8.1.1 Operator controls of the control unit

All operating states are displayed on the control.

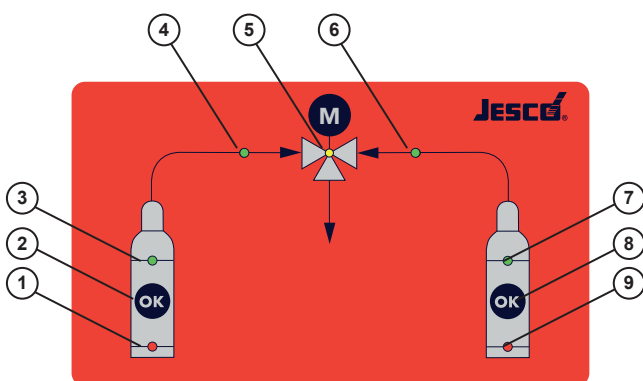


Fig. 16: Control elements

Position	Description	Meaning
1	LED red	Left battery empty
2	Key	Acknowledge the cylinder change left and switch left manually
3	LED green	Left battery full
4	LED green	Operation left battery
5	LED yellow	Motor works
6	LED green	Operation right battery
7	LED green	Right battery full
8	Key	Acknowledge the cylinder change right and switch right manually
9	LED red	Right battery empty

Tab. 16: Control elements

8.1.2 Motor operating elements

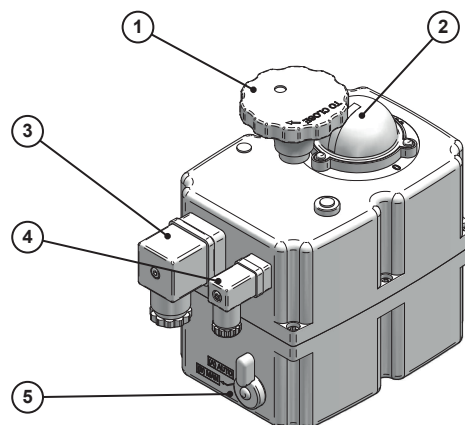


Fig. 17: Motor operating elements

Position	Description	Meaning	
1	Hand wheel	Manual operation, if the selector lever (5) is set to MAN	
2	Position indicator	The yellow marking points in the opened direction of the ball valve	
3	Plug large	Voltage supply	
4	Plug small	Position switch	
5	Selector lever	MAN	Manual operation
		AUTO	Automatic operation

Tab. 17: Motor operating elements

8.2 Operating modes

8.2.1 Automatic operation

Control element	Position
Switch SW2 on the circuit board	OFF
Selector lever on the motor	AUTO

Tab. 18: Set automatic operation

When in automatic operation, the changeover unit reacts to the switching status of the contact gauge. When receiving notification that the current supply battery is empty, the changeover unit changes to the standby battery.

All empty

If both batteries are empty, the valve on the battery last used remains stationary.

Signal	Empty battery	Used battery
LED battery empty (red)	Flashes	Flashes
Relays empty	ON	ON
LED battery full (green)	OFF	OFF
Operation LED (green)	OFF	ON
Relays operation	OFF	ON
Relays malfunction	ON	

Tab. 19: State of the control during "Everything empty"

The notification of 2 empty batteries is issued with two minutes delay; installations with very long pipes can experience a delay in the issue of the OK notification from the contact pressure gauge. The green LED flashes in the newly-connected cylinder during the waiting time.

Residue discharge



The residual emptying function is usually used with systems with a vacuum collective line. As the C 7524 changeover unit works in positive pressure, this function is only used in exceptional circumstances.

Residue discharge is an optional function in automatic operation.

Control element	Position
Switch SW1 on the circuit board	ON

Tab. 20: Setting residue discharge

Changeover can occur even when not all of the chlorine tanks of the battery are completely empty. This is due to the strong cooling of the tanks following the extraction of too large a quantity of chlorine.

With active residue discharge, the changeover unit switches to the supply battery notified as empty from which the residual quantity is removed. This is performed in a 15 minute rhythm. Changing the tank and pressing the "OK" button ends the residual emptying function.

Signal	Empty battery	Used battery
LED battery empty (red)	ON	OFF
Relays empty	ON	OFF
LED battery full (green)	Flashes	ON
Operation LED (green)	ON	OFF
Relays operation	ON	OFF
Relays malfunction	OFF	

Tab. 21: State of the control during "Residue discharge"

8.2.2 Manual operation

Control element	Position
Selector lever on the motor	MAN

Tab. 22: Setting residue discharge

The ball valve on the hand grip of the motor is activated in manual operation. The motor no longer follows the signals of the control. This can lead to fault messages during manual operation.

Signal	Condition
LED valve	flashes
Relays malfunction	ON

Tab. 23: Malfunction state of the control with MAN


9 Commissioning

9.1 Inspecting the pressure system

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

1. Leakage test with nitrogen
2. Leakage test with chlorine

9.1.1 Performing the leakage test with nitrogen

 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.

Resources required:

- ✂ Nitrogen cylinder with pressure-relief valve (e.g. 0 – 25 bar)
- ✂ Leak detection spray

Perform the following working steps:

1. Connect the nitrogen cylinder to the left-hand collecting pipe.
2. Interrupt the voltage supply of the changeover unit.


 If the voltage supply is activated, the behaviour of the control can be distracting during the inspection.

3. Switch the selection lever on the motor of the changeover unit to MAN (= manual operation)
4. Turn the hand wheel on the motor until the left supply battery is connected.
5. Slowly raise the system pressure at the nitrogen cylinder's pressure reducer to 10 bar.
6. Close the nitrogen cylinder's valve.
7. Spray all the locations of a potential leakage with leak detection spray.
 - ▶ Bubbles will appear at leak locations.
8. Move the ball valve control rod. To do so, turn the hand wheel on the motor. The control rod may be turned by up to 45°.
- ▶ No bubbles may be permitted to form, even during the movement.
9. 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.
10. Repeat steps 1 to 9 for the right-hand supply side.

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

Leaks found:

Repair the leak. Allow any adhesive surfaces to harden sufficiently and repeat the leak test.

 Given a leakage on the control rod of the ball valve, the control rod seal can be tightened. See section 12.4.3 „Fit new seals“ on page 29.

9.1.2 Carrying out the leak test with chlorine gas



DANGER!

Danger to life from chlorine gas!

If you start the leakage test with chlorine gas before the entire system has been installed and the injectors are ready for operation, the chlorine gas cannot be extracted from the piping system in the case of a leakage.

- ⇒ Make sure that all the components in the plant are installed correctly and the injectors are ready for operation.
- ⇒ 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.
- ✓ A chlorine tank (gaseous) is connected to every collecting pipe.
- ✓ The injector is ready for operation.

Resources required:

- ✂ Cylinder with ammonia solution

Perform the following working steps:

1. Interrupt the voltage supply of the changeover unit.

 If the voltage supply is activated, the behaviour of the control can be distracting during the inspection.

2. Switch the selection lever on the motor of the changeover unit to MAN (= manual operation)
3. Turn the hand wheel on the motor until the left supply battery is connected.
4. Briefly open the chlorine container valve and close it again.
5. Open the first valve in the pipe line, starting from the chlorine tank.
6. 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 forms a white vapour and makes even very small leaks visible.

**PLEASE NOTE****Damage from 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.
- ⇒ Rinse away the ammonia solution with water and dry the system.

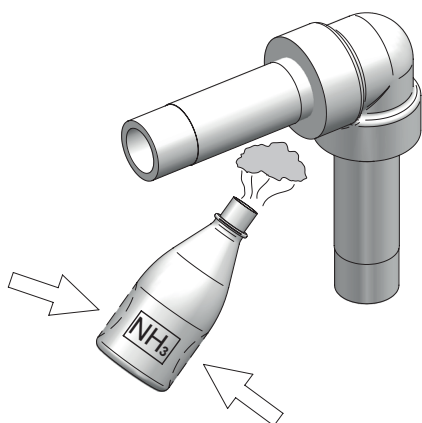


Fig. 18: Leakage test with ammonia

7. 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. Proceed in this manner until all piping and fittings have been tested for leaks.
 8. Move the ball valve control rod. To do so, turn the hand wheel on the motor. The control rod may be turned by up to 45°. No leakage may be visible even during the movement.
 9. Repeat the test for the right-hand supply side.
- ✓ **The leak test with chlorine gas has been carried out successfully.**

Leaks found:

1. Close the chlorine tank valve.
2. Extract the chlorine from the piping system using the injector.
3. Operate the chlorine gas system for approx. 5 minutes with nitrogen or dry compressed air at approximately 5 bar to remove any residual chlorine from the pipe lines.
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.

9.2 Turning on the device

Precondition for action:

- ✓ The device is fully assembled.
- ✓ The leakage test was performed.

Perform the following working steps:

1. Switch on the voltage supply.
 2. Ensure that the selection lever on the motor is set to AUTO.
 - The motor moves automatically to the operating position last set.
- ✓ **Device switched on.**

9.3 Adjusting the switching contact

The factory settings of the pressure gauge switching point have been set to approx. 3 bar. It can be changed if required.

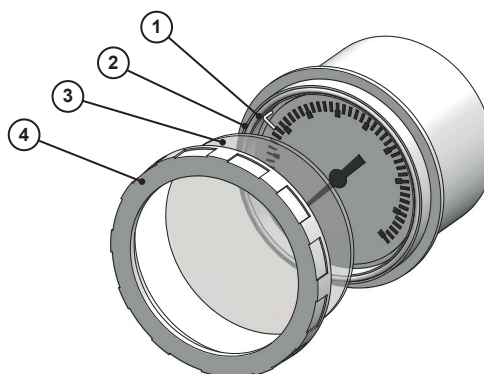



Fig. 19: Adjusting the switch point

Perform the following working steps:

1. Remove the transparent lid (3) from the contact pressure gauge. To do so, unscrew the outside ring (4) from the device. Observe the seal (2).
 2. Move the red marking (1) on the desired switch point.
 3. Refit the transparent lid and tighten the ring nut by hand. Ensure the correct position of the seal.
- ✓ **Switching point of the contact pressure gauge adjusted.**

10 Operation



DANGER!

Danger to life from leaking or incorrectly-installed systems.

Chlorinators constitute an increased safety risk if they have not been properly installed, if a 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.
- ⇒ The condition of the installation must be checked for adequate tightness on a regular basis.
- ⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications.

In normal operation, the device operates automatically and does not require operation. The change to the standby battery is performed automatically.

10.1 Tank change

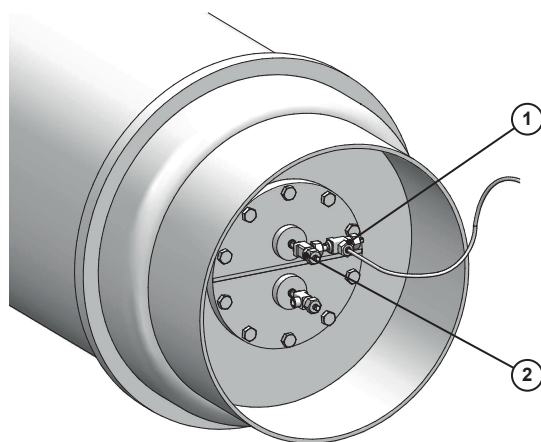


Fig. 20: Chlorine drum with auxiliary valve

To enable interruption-free dosing, the empty chlorine tank must be replaced by full chlorine tanks.

Precondition for action:


- ✓ The control indicates an empty supply battery and the LED illuminates red.
- ✓ Full chlorine tanks are available.

Equipment required:

- ✂ Cylinder with ammonia solution.
- ✂ New seals for the chlorine tank connections.


Perform the following working steps:

1. Close the chlorine tank valve (2).
2. Use the injector to suck off the remaining chlorine. To do so, switch the selection lever on the motor of the changeover unit to MAN. Switch the changeover unit by turning the hand wheel on the empty drum.
 - ▶ The pressure gauge shows the pressure of the line to the empty chlorine drum.

 The relay switches in the control for remote indication. Inform the connection locations about the chlorine tank change.

3. If the pressure gauge indicates "0", return the selection lever to AUTO.
 - ▶ The motor switches the ball valve to the full chlorine drum.
 4. Close the auxiliary valve (1).
 5. Interrupt the connection between the auxiliary valve and the chlorine tank valve.
 6. Seal all open connections.
 7. Replace the empty chlorine drum with a full chlorine drum.
 8. Connect the new chlorine drum. Use a new seal. A detailed description is presented in section 7.3.4 „Connect the chlorine drum“ on page 16.
 9. Briefly open the chlorine container valve and close it again.
 10. Perform a leakage test (see section 9.1.2 „Carrying out the leak test with chlorine gas“ on page 23).
 11. If the leakage test does not show a leakage, open the chlorine tank valve and the auxiliary valve.
 12. Press the OK button in the cylinder symbol.
 - ▶ The display in the cylinder symbol changes from red to green.
- ✓ Chlorine tank replaced.

10.2 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.
- ⇒ Given a serious escape and insufficient equipment or qualifications, leave the work to professional emergency services personnel. Do not take any unnecessary risks.

The measures depend on the type of accident and should be planned and executed by professional personnel.

10.3 Optical check

The components of the chlorination installation must be subject to a daily visual check. Inform service personnel of anything conspicuous or a chlorine smell.

11 Shutdown

11.1 Short-term shutdown

Perform the following working steps:

1. Close the chlorine tank valves.
2. Use the injector to suck off the remaining chlorine.
3. Switch off the injector.

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

11.2 Long-term shutdown

Perform the following working steps:

1. Close the chlorine tank valves.
2. Use the injector to suck off the remaining chlorine.
3. If possible, operate the chlorine gas system for approximately five minutes with nitrogen or dry compressed air.
4. Switch off the injector.
5. Close all the connections to protect the lines and devices from humidity and dirt.

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

The device remains in the installation location during the operating pause. All connections remain closed. The voltage supply should remain active so that condensate is unable to gather in the electrical devices.

Ensure ideal storage conditions where possible:

- The storage place must be cold, dry, dust-free and generously ventilated.
- Climactic conditions: see 5 „Technical data“ on page 9.



We recommend a leak test after a longer standstill period (see chapter 9.1 „Inspecting the pressure system“ on page 23).

11.3 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.

In Germany, the manufacturer must provide free-of-charge disposal provided the device has been safely returned along with a declaration of no objection (see page 37).

12 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!

Mortal danger from electric shock!

Live parts can inflict fatal injuries.

- ⇒ Before carrying out any maintenance work, always disconnect the device from the power supply.
- ⇒ Secure the system to prevent it from being switched on by accident.




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 12.3 „Preparing the system for maintenance“ on page 27.



PLEASE NOTE

Damage from corrosion

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

- ⇒ After completing maintenance work, remove all the water residue from the system before returning it to operation.
- ⇒ Keep the connection of the contact vacuum meter closed so that humidity cannot penetrate

12.1 Maintenance intervals

Subject the chlorinator to regular maintenance, to prevent malfunctions. Perform the maintenance in the following intervals:

Interval	Maintenance
After 3 years	<ul style="list-style-type: none"> ■ Cleaning the device ■ Replace all seals ■ Functional control
After 5 years	<ul style="list-style-type: none"> ■ Replace the pressure gauge

Tab. 24: Maintenance intervals



In some cases, regional regulations may require shorter maintenance intervals. Carry out maintenance before recommissioning the system after a long period out of service. Maintenance intervals not 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.

12.2 Maintenance accessories

You do not require any special commodities or tools for maintenance. Maintenance sets with spare parts are listed in section 14.3 „Maintenance sets“ on page 35.

12.3 Preparing the system for maintenance

Perform the following working steps:

1. Close the valves of the chlorine tanks.
 2. Use the injector to suck off the remaining chlorine.
 3. If possible, operate the chlorine gas system for approximately five minutes with nitrogen or dry compressed air.
 4. Switch off the injector.
- ✓ **The system is prepared for maintenance.**

12.4 Maintenance on the ball valve

Precondition for action:

- ✓ The system is prepared in accordance with section 12.3 „Preparing the system for maintenance“ on page 27.
- ✓ The system is depressurized.
- ✓ The voltage supply has been switched off.

12.4.1 Remove the ball valve and open



It is possible to change the seal on the ball valve even if the ball valve has not been removed, but removing it makes work easier.

Perform the following working steps:

1. Disconnect all hydraulic connections from the changeover unit.
 2. Remove the pressure gauge cable from the control and remove it from the cable conduit.
 3. Remove the four screws above on the ball valve and then pull the ball valve downwards.
- ✓ **The ball valve has been removed.**

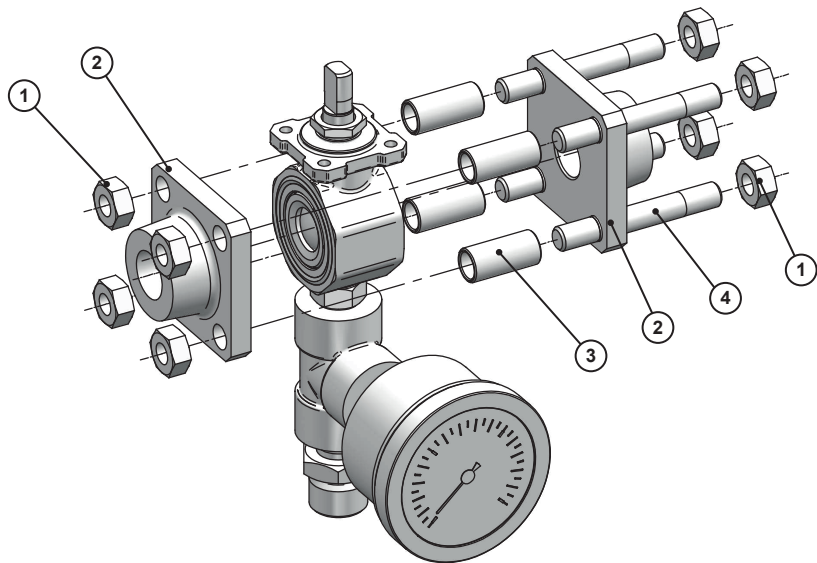


Fig. 21: Ball valve open

Perform the following working steps:

- 1. Loosen the nuts (1) individually by approx. 1 to 2 turns. Only remove the nuts completely afterwards doing this.
- 2. Remove the tension rods (4) the centring sleeves (3) and the flange (2).

✓ **Ball valve opened**

12.4.2 Remove the seals

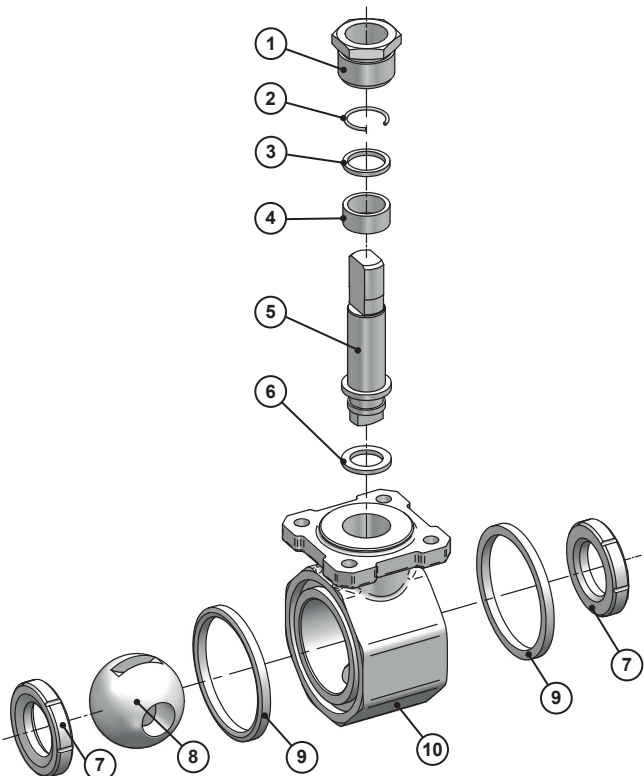


Fig. 22: Seals in the ball valve

Position	Description
1	Pressure screw
2	Antistatic ring
3	Pressure ring (metal)
4	Packing
5	Control rod
6	Friction disc (PTFE)
7	Ball seat
8	Ball
9	Housing seal
10	Housing

Tab. 25: Seals in the ball valve

Perform the following working steps:

- 1. Turn the control rod as shown in Fig. 21.
- 2. Remove the ball seat. To do so, push against the ball with a blunt object.
 - Dismantle the ball seats.
- 3. Remove the housing seals. Press into the seal with a pointed implement. Make sure that you do not damage the metal surfaces.
 - Housing seal removed.
- 4. Unscrew the pressure screw.
- 5. Grip the spanner flat of the control rod in a vice and pull on the housing until the control rod slides out approx. 1 mm.
- 6. Pull on the housing whilst turning it anti-clockwise.
 - A thread in the ball valve interior pushes the control rod and seals outwards.

7. Remove the control rod with all seals from the housing. Take account of the antistatic ring. It is fitted in a depression in the pressure screw.
 - ▶ Control rod seals removed.

✓ **Seals removed.**

12.4.3 Fit new seals

Perform the following working steps:

1. Clean all parts with warm water or cleaning alcohol. Allow all components to dry well.
2. Check all the sealing surfaces for damage. Do not reuse damaged parts.
3. Fit the control rod with the parts 3 – 6 in the housing.
4. Press the antistatic ring in the recess of the pressure screw and fit the pressure screw with approx. 10 Nm.
5. Turn the control rod. Tighten the pressure screw with max. 20 Nm.
 - ▶ The control rod has been fitted.
6. Fit a ball seat in the housing. The 45° chamfer must point towards the ball (see symbol in Fig. 22). Make sure that the ball seat does not twist.
7. Fit the ball in the housing. Turn the control rod so that it can slide into the ball slot.
8. Fit the second ball seat.
9. Fit the housing seals. One side of the seal is flat, the other is slightly convex. The convex surface of the seal must point outwards (see symbol in Fig. 22).

✓ **Seals fitted.**

12.4.4 Assembling the ball valve

Perform the following working steps:

1. Clean the thread of the four tension rods and oil them lightly.
2. Fit the flange with the tension rods on the housing. Do not forget the centring sleeves.
3. Fit the nuts and tighten them equally by hand.
4. Tighten the nuts with a tool equally in a number of stages (torque up to 40 Nm).
 - ▶ Ball valve closed.



The centring sleeves remain movable even after the screws have been tightened. They ensure that the housing is centred between the screw holes.

5. Hold the ball valve in the wall bracket from below and fit the coupling piece between the motor and the ball valve. If necessary, correct the switch position of the ball valve. The display on the motor and the coupling must point in the direction of the open connection.
6. Fix the ball valve with the four screws.
7. Return the pressure gauge cable to the control and reconnect it.

✓ **Ball valve fitted.**

12.5 Cleaning the pressure gauge



PLEASE NOTE

Damage to pressure gauges

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. pressure gauges are highly complicated which cannot be emptied entirely.
- ⇒ 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 is prepared in accordance with section 12.3 „Preparing the system for maintenance“ on page 27.
- ✓ The changeover unit is free of stress.

Resources required:

- ✂ PTFE strip
- ✂ Cotton swabs
- ✂ Cleaning alcohol

Perform the following working steps:

1. Disconnect the pressure gauge cable.
2. Unscrew the pressure gauge from the pressure gauge connection. Remove the old PTFE strip from the thread.
3. Clean the input of the pressure gauge with cleaning alcohol. At the same time, hold the pressure gauge with the connection facing downwards so that soiling cannot fall into the device. 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 vacuum meter with approx. 5 long PTFE strips.
6. Reconnect the pressure gauge cable.

✓ **Pressure gauge cleaned.**

12.6 Functional control

Precondition for action:

- ✓ The changeover unit is ready for operation.

Perform the following working steps:

1. Switch the selector switch on the motor to AUTO.
2. Switch on the voltage supply.
 - ▶ The motor may start a changeover.

3. Remove the screw cap on the pressure gauge.
4. Simulate full supply batteries: Carefully move the pressure gauge pointer in a clockwise direction past the red marking and hold it in this position.
5. Press the OK button on the control until the green LEDs of both cylinders signal that they are full.
6. Allow the pressure gauge pointer return to "0".
 - ▶ The control triggers a changeover to the other supply battery.
7. Then fit the screw cap on the pressure gauge and tighten it carefully by hand. Ensure the correct position of the seal.

✓ **Functional check performed.**

12.7 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. Close the control and tighten the cable screw connections.
4. Restore all the other hydraulic connections of the changeover unit.
5. Touch up damaged paint.
6. To restart the system, proceed in accordance with the instructions in section 9 „Commissioning“ on page 23.

✓ **Maintenance completed.**

13 Troubleshooting

All possible errors are listed in this table.

Problem	Possible cause	Remedy
The changeover unit does not change even though the battery connected is empty and a full battery has been connected to the other side.	After connecting the new chlorine tank, the OK button in the cylinder symbol was not pressed.	The OK button in the cylinder symbol must be pressed after changing the cylinder. The display changes from red to green.
	The voltage supply has been interrupted. All LEDs are off.	Reactivate the voltage supply.
The changeover unit changes during normal operation, even though the chlorine tanks are still full.	The "residual emptying" function is active. Recognisable on the illumination pattern of the LEDs. The LED of the empty cylinder flashes green.	If the residual emptying function is not required, set the switch SW 1 to OFF (see Tab. 12).
	<p>The maximum supply volume from the battery was exceeded.</p> <ul style="list-style-type: none"> ■ Insufficient chlorine tanks connected ■ Not all tank valves were opened. ■ Short-term strongly increased extraction due to shock chlorination ■ A number of tanks are already empty 	<ul style="list-style-type: none"> ■ Connect sufficient chlorine tanks and open the valves. ■ Remove simultaneously from both tank batteries for a shock chlorination
The yellow LED valve symbol flashes.	<ul style="list-style-type: none"> ■ The switch on the motor is set to MAN. ■ A cable connection between motor and control has been interrupted. ■ The position switches in the motors are misaligned. 	<ul style="list-style-type: none"> ■ Move the switch on the motor to AUTO. Press an OK button. ■ Check whether plugs on the motor are loose. ■ No success: inform Lutz-Jesco service.
A number of LEDs flash simultaneously.	The control is in test operation because switch SW2 is set to ON.	Switch SW2 to OFF.
The operating display on the control is mirror inverse to the hydraulic function.	The switching position of the ball valve is 180° offset to the switching position of the motor.	Fit the motor in the correct switching position. The display on the motor and the coupling must point in the direction of the open connection.

Tab. 26: Troubleshooting

14 Spare parts

14.1 Individual parts for C 7524-20K

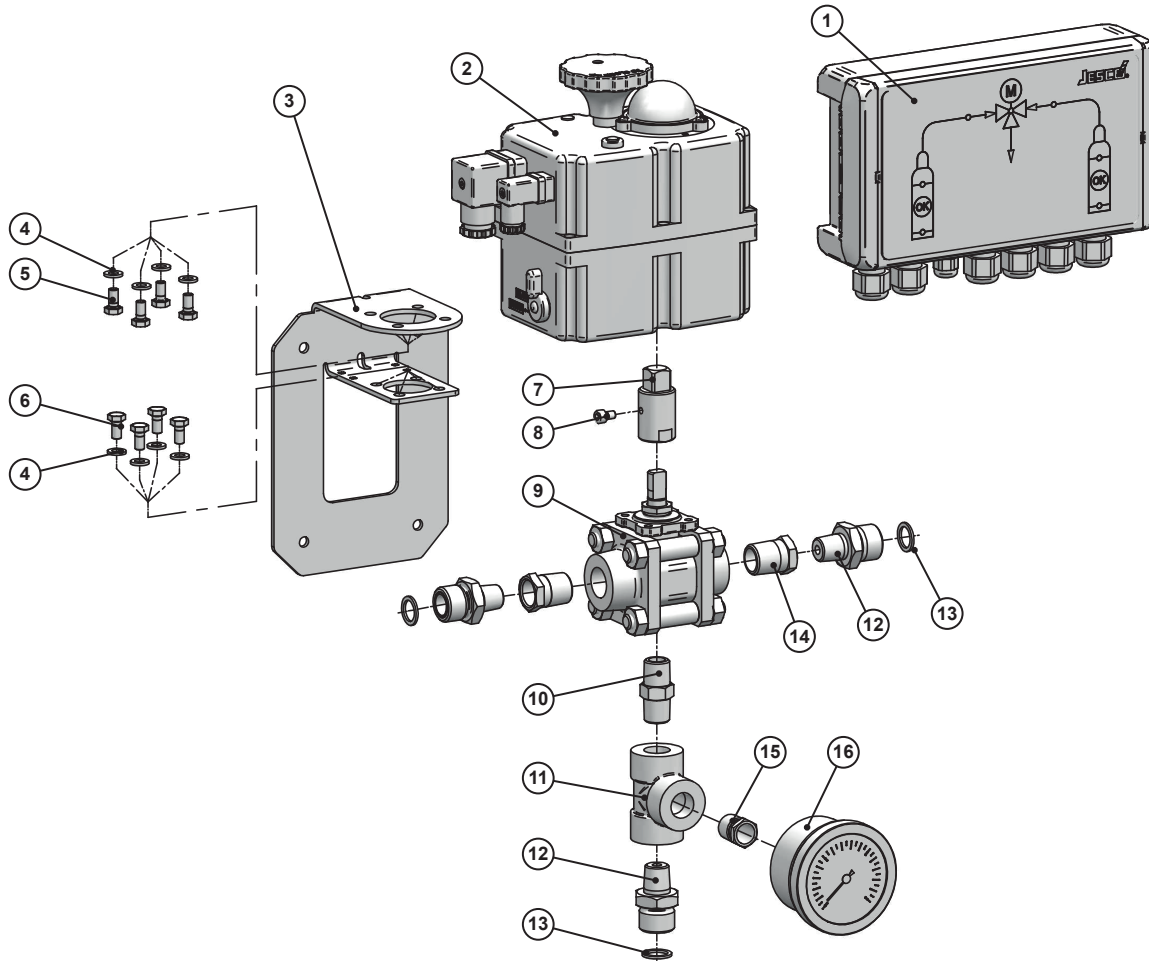


Fig. 23: Single parts for C 7524-20K

Item	No.	Description
1	1	Control box
2	1	Motor
3	1	Wall bracket
4	8	Washer
5	4	Screw M6x12
6	4	Screw M6x10
7	1	Adapter
8	1	Screw
9	1	Ball Valve
10	1	Double nipple
11	1	T-piece
12	3	Reduction
13	3	Flat gasket
14	2	Reduction 1/2"-3/8" NPT
15	1	Reduction 3/8"-1/4" NPT
16	1	Contact pressure gauge

Tab. 27: Single parts for C 7524-20K

14.2 Individual parts for C 7524-40K

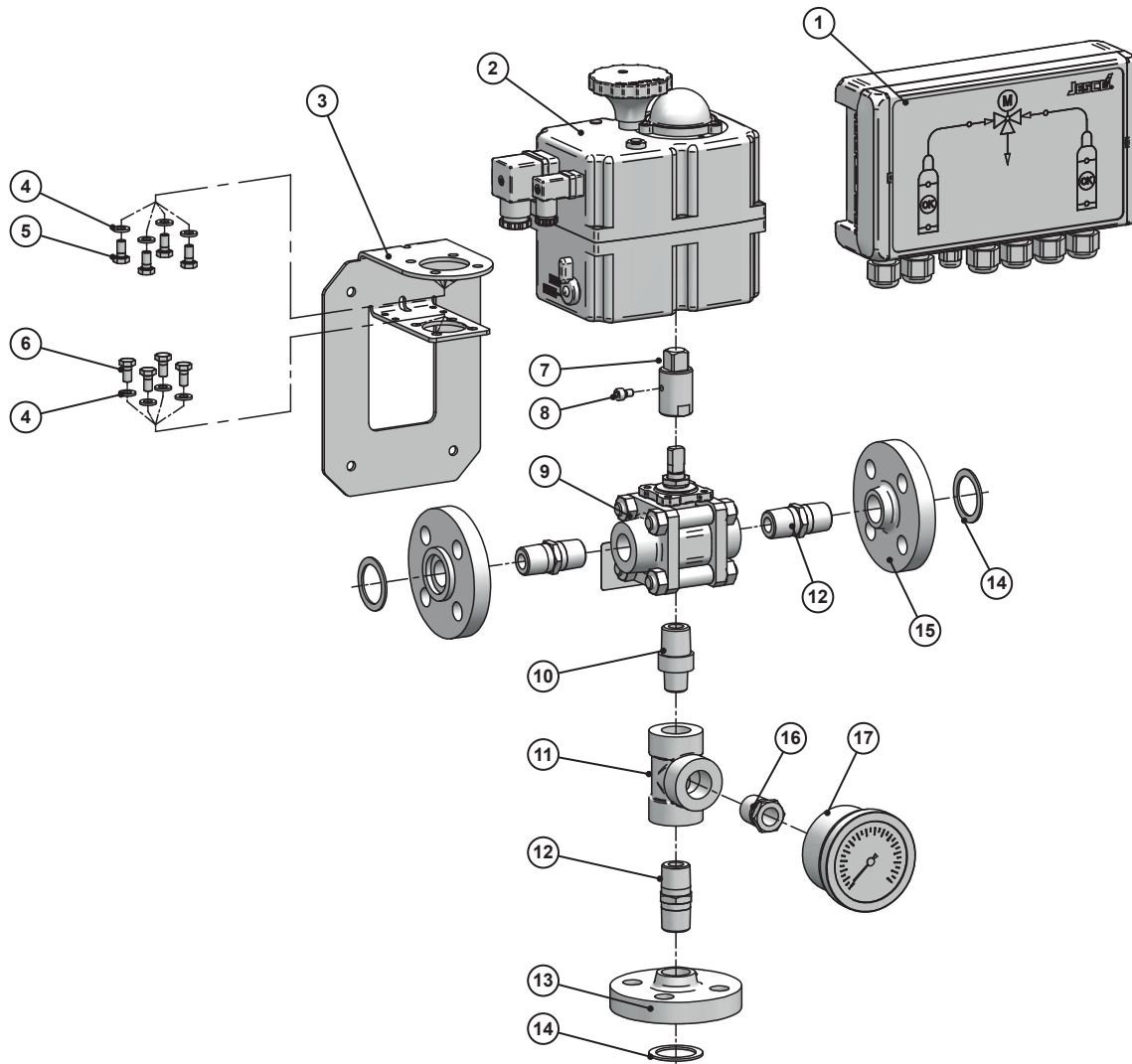


Fig. 24: Single parts for C 7524-40K

Position	No.	Description
1	1	Control box
2	1	Motor
3	1	Wall bracket
4	8	Washer
5	4	Screw M6x12
6	4	Screw M6x10
7	1	Adapter
8	1	Screw
9	1	Ball Valve
10	1	Reduction 3/8"-1/2" NPT
11	1	T-piece
12	3	Reduction 1"-1/2" NPT
13	1	flange with groove
14	3	Seal
15	2	flange with tongue
16	1	Reduction 1/2"-1/4" NPT
17	1	Contact pressure gauge

Tab. 28: Single parts for C 7524-40K

14.3 Maintenance sets

Part	Content
Maintenance set for the C 7524-20K (after 3 years)	<ul style="list-style-type: none"> Seal set for ball valve per 3 connection seals for each thread
Maintenance set for the C 7524-40K (after 3 years)	<ul style="list-style-type: none"> Seal set for ball valve 3 flange seals 3 screw sets for the flange

Tab. 29: Maintenance sets

15 EU Declaration of Conformity



(DE) EU-Konformitätserklärung

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

(EN) EC Declaration of Conformity

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

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

(FR) Déclaration de conformité CE

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

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

(ES) Declaración de conformidad CE

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

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

(NL) EU-overeenstemmingsverklaring

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

(PT) Declaração de conformidade CE

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

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

Bezeichnung des Gerätes:

Chlorgas-Umschalter

Description of the unit:

Chlorine gas change over

Désignation du matériel:

Commutation du chlore

Descripción de la mercancía:

Commutador de cloro

Omschrijving van het apparaat:

Chloorgas-schakelaar

Designação do aparelho:

Comutador de cloro

Typ:

C 7524

Type:

EU-Richtlinien:

2006/42/EG, 2014/30/EU

EC directives:

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

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

Harmonisierte Normen:

EN ISO 12100:2013-08

Harmonized standards:

EN 61000-6-2:2011-06

EN 61000-6-4:2011-09

Dokumentationsbevollmächtigter:

Lutz-Jesco GmbH

Authorized person for documentation:

Heinz Lutz
Geschäftsführer / Chief Executive Officer
Lutz-Jesco GmbH
Wedemark, 01.08.2016

Lutz-Jesco GmbH
Am Bostelberge 19
30900 Wedemark
Germany

16 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:

17 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.

18 Index

C

Checking for leaks	
Chlorine gas	23
Nitrogen	23
Commissioning	23
Controls	21

D

Device revision	7
Dimensioned drawings	10
Dimensions	10
Disposal of old equipment	26
Dosing media	
Prohibited dosing media	7

E

Electrical installation	17
EU Declaration of Conformity	37

G

General warnings	5
------------------	---

H

Handling instructions	
Marking	4
Hazards due to non-compliance with the safety instructions	5

I

Information about chlorine	5
Inspecting the pressure system	23
Installation	14
Creating the flange connection	16
Creating the threaded connection	15
Electric installation	17
Hydraulic installation	14
Installation example	20
Installing the device	14
Intended purpose	7
Intended use	7

M

Maintenance	27
Accessories	27
Maintenance intervals	27
Maintenance accessories	27

N

Notes for the Reader	4
----------------------	---

O

Operating modes	21
Operation	25

P

Personal protective equipment	6
Personnel qualification	6
Product description	8
Product warranty	7
Prohibited dosing media	7

R

Rating plate	8
--------------	---

S

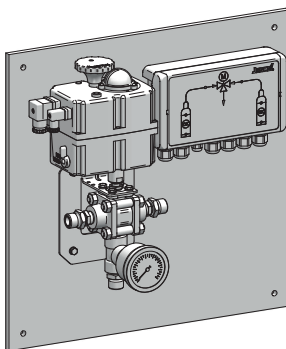
Safety	5
Scope of delivery	8
Shut-down	26
Long-term shut-down	26
Short-term shut-down	26
Signal words	
Explanation	4
Spare parts	32
C 7524-20K	32
C 7524-40K	34
Maintenance sets	36
Specialist staff	6
Structure of the device	8

T

Technical data	9
Terminal plan	18
Trained electricians	6
Trained persons	6
Troubleshooting	31

W

Warnings	
General warnings	5
Marking	4
Warning sign	
Explanation	4
Warranty claim	39
Working in a safety-conscious manner	6



Lutz-Jesco GmbH

Am Bostelberge 19
D-30900 Wedemark

Phone: +49 5130 5802-0
info@lutz-jesco.com
www.lutz-jesco.com

Operating instructions
C 7524