

## Catchpot Operating Instructions



**Read the Operating Instructions!**

**The user is responsible for installation and operation related mistakes!**



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# 1 Notes for the Reader

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

Observe the following principles:

- read the entire operating manual prior to starting-up the product.
- ensure that everyone who works with or on the product has read the operating manual and follows the instructions.
- maintain the operating manual throughout the service life of the product.
- pass the operating manual on to any subsequent owner of the product.

## 1.1 General non-discrimination

In these operating instructions, 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.
NOTICE	Refers to a danger which, if ignored, may lead to risk to the machine and its function.

Table 1-1: 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
	General danger zone
	Danger of damage to machine or functional influences

Table 1-2: Explanation of the warning signs

## 1.4 Identification of warnings

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

This is how warnings are identified:

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

## 1.5 Instruction for action identification

This is how pre-conditions for action are identified:

- ✓ Pre-condition for action which must be met before taking action.

This is how instructions for action are identified:

- ➔ Separate step with no follow-up action.

1. First step in a series of steps.
2. Second step in a series of steps.
  - ▶ Result of the above action.

- ✓ **Action completed, aim achieved.**

## 2 Safety

### 2.1 General warnings

The following warnings are intended to help you to eliminate the dangers that can arise while handling the product. 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.

	<b>DANGER</b>
<b>Danger to life from chlorine poisoning!</b>	
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 assembly and maintenance work, always use breathing apparatus 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.	

	<b>DANGER</b>
<b>Danger to life from chlorine poisoning!</b>	
If chlorine gas escapes, a filter mask is ineffective, since it is not a self-contained breathing apparatus.	
⇒ If chlorine gas escapes, wear a Type 2 self-contained breathing apparatus that complies with EN 137.	

	<b>DANGER</b>
<b>Danger to life from chlorine poisoning!</b>	
Leaks may allow chlorine gas to escape. In severe cases, breathing in chlorine may lead to death.	
⇒ Get rid of leaks without delay.	
⇒ Only use seals once. Reusing them leads to leaks.	

	<b>DANGER</b>
<b>Danger to life from chlorine poisoning!</b>	
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.	

	<b>WARNING</b>
<b>Increased risk of accidents due to insufficient qualification of personnel!</b>	
Chlorinators and their accessories must 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.	

	<b>NOTICE</b>
<b>Damage to the plant due to the formation of hydrochloric acid</b>	
Chlorine gas is highly hygroscopic. This means that humidity enters the system at any open connection on equipment or pipes, which results in the formation of hydrochloric acid thus inevitably causing damage to the units.	
⇒ Keep all connections closed at any time.	
⇒ You must get rid of even very minor leaks without delay. Together with the humidity, chlorine forms hydrochloric acid and corrosion results in increased leakage.	

### 2.2 Information about chlorine

Chlorine is a hazardous substance. The chemical element chlorine is a green-yellow, toxic gas with pungent odour. It 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 0.51% 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).

### 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 device and corresponding system functions,
- failure of required maintenance and repair methods,
- danger for individuals due to chlorine gas escaping,
- 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

Depending on the type of work you are carrying out, you must use appropriate protective equipment. Read the Accident Prevention Regulations and the Safety Data Sheets to the dosing media find out what protective equipment you need.

As a minimum, the following protective equipment is recommended:



Mask



Protective clothing



Gloves



Safety footwear

Corresponding protective equipment must be used during these tasks:

- commissioning,
- all work on gas-bearing sections of the plant,
- changing the chlorine gas containers,
- shutdown,
- maintenance work,
- disposal.

## 2.6 Personnel qualification

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

Anybody who works on the product 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 into the handling of 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 product unsupervised,
- sufficient training that they can work on the product under the supervision and guidance of a trained specialist.

These Operating instructions differentiate these user groups:

### 2.6.1 Specialist staff

Specialist staff are able, thanks to their professional training, knowledge and experience as well as knowledge of the respective provisions, to do 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 been trained by the user into the tasks they are supposed to perform and into the dangers stemming from improper behaviour.

Trained persons have attended all trainings offered by the owner.

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

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

Table 2-1: Personnel qualification

## 3 Intended Use

### 3.1 Notes on product warranty

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

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

- the product is operated in a manner which is not consistent with these operating instructions, particularly safety instructions, handling instructions and chapter "Intended Use"
- if people operate the product who are not adequately qualified to carry out their respective activities.
- no original spare parts or accessories of Lutz-Jesco GmbH are used.
- Unauthorised changes are made to the product by the user.
- The user uses different dosing media than those indicated in the order.
- The user does not use dosing media under the conditions agreed with the manufacturer such as modified concentration, density, temperature, contamination, etc.
- Maintenance and inspection intervals are not adhered to as required or not adhered to at all.
- The product 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

Chlorinators are suited for gaseous chlorine, however they must be protected against ingress of liquid chlorine. Liquid chlorine may cause major contamination in and to some extent also damage to the devices. Vacuum regulators are particularly affected hereof.

Catchpots are vertically positioned containers where liquid chlorine is collected. Liquid chlorine in the container slowly evaporates by the energy in the atmosphere or by means of a heating collar which heats up the catchpot. In doing so, catchpots effectively protect chlorinators from damage caused by liquid chlorine.

Liquid chlorine is generated in chlorinators as follows:

- Liquid chlorine generated by the condensation of chlorine gas: Condensation occurs at any place in the pressure system which is colder than the chlorine tank. These situations occur, for example, due to extremely varying temperatures during day and night. Chlorine barrel or chlorine cylinders have a large mass which cools down more slowly than pipes and devices during the night.
- Liquid chlorine when connecting a new barrel: Chlorine barrels have two valves for chlorine discharge. Bent pipes are connected inside the barrel. Therefore, the upper valve discharges gaseous chlorine from the barrel filled with liquid chlorine. After the transportation of the chlorine barrel, this pipe is filled with liquid chlorine; therefore when opening the gas valve, up to 100 cm<sup>3</sup> of liquid chlorine escape from the valve.

For this purpose, it is useful to apply a catchpot in order to protect the dosing devices.

### 3.3 Foreseeable misuse

- Liquid chlorine gas may be generated by incorrect installation. A constantly rising pipe from the tank to the dosing device is very important for drops of liquid chlorine to flow back into the tank. However, this is sometimes not possible due to the local conditions, or the drops are carried away by the high flow velocity of chlorine gas. In this case, liquid chlorine is continuously produced. However, the catchpot is only suited for the collection of periodically produced smaller amounts of liquid chlorine. Therefore, a pressure reducing valve must be used in this case instead of a catchpot.
- The device is only intended for the applications described in Section 3.2 "Intended purpose".
- Information on the usage and environment (see „Technical data“ on page 8) must be observed.
- The device is not intended for outdoor use.
- The device must not be operated if protective equipment has been removed or has not been properly installed or is not fully functional.

## 4 Product description

### 4.1 Scope of delivery

Carefully check the delivery prior to installation and refer to the delivery note to ensure the delivery is complete and to check for any transport damage. Contact the supplier and/or carrier regarding any questions concerning the delivery and/or transport damage. Do not operate defective devices.

The product is assembled ready-to-install. All the flange openings are closed by transportation locks.

The heating collar is an optional accessory and is separately ordered and supplied.

#### 4.1.1 Catchpot for barrel assembly

The version for barrel assembly includes the following scope of delivery:

- catchpot for barrel assembly,
- connection seals,
- distance piece,
- operating instructions.

#### 4.1.2 Catchpot for wall mounting

The version for barrel assembly includes the following scope of delivery:

- catchpot for wall mounting,
- assembly accessories (wall holder, screws, nuts, washers, connection seals),
- operating instructions.

### 4.2 Structure of the device

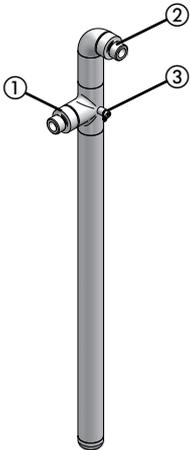


Fig. 4-1: Structure of the device

Position	Description
①	Inlet
②	Outlet
③	Screw for the connection of the ground loop of the heating collar

### 4.2.1 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.

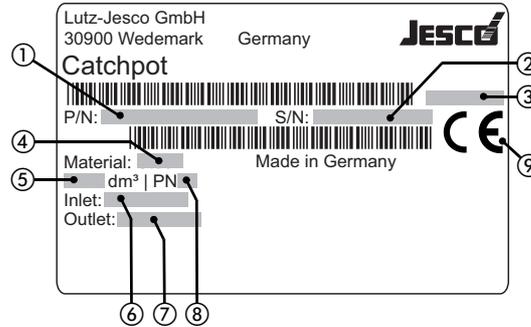


Fig. 4-2: Rating plate

Position	Meaning
①	Part number
②	Serial number
③	Month / year of manufacture
④	Material
⑤	Capacity in dm <sup>3</sup>
⑥	Inlet type
⑦	Outlet type
⑧	Nominal pressure
⑨	Symbol of conformity with the applicable European directives (only for catchpots with a capacity of 1000 ml)

Table 4-1: Information on the rating plate.

### 4.3 Technical data

Description	Value	
Nominal pressure	PN25	
Weight	125 ml	approx. 3 kg
	250 ml	approx. 3 kg (+ approx. 1 kg per flange)
	1000 ml	approx. 8 kg
Max. operating temperature:	50 °C	
Connection of pipework	see tables in chapter "Dimensions" auf Seite 9 ff.	
Material of the housing	Carbon steel	

Table 4-2: Technical data

## 5 Dimensions

All dimensions in mm

### 5.1 Catchpots for barrel assembly

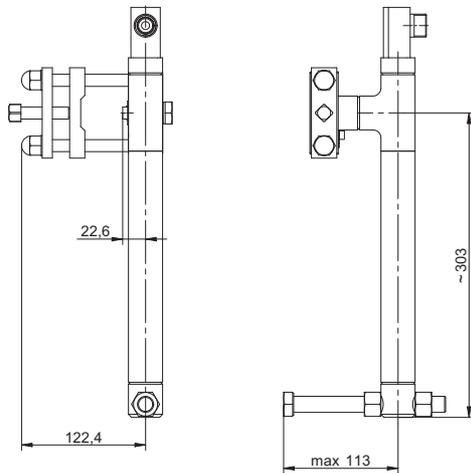


Fig. 5-1: Device for barrel assembly with YOKE connection suitable for 90° barrel valves (outlet to the right or to the left)  
 BSP 5/8 according to BS 341  
 BSP 3/4 according to AS 2473  
 1.030"x14 NGO RH according to CGA V-1 (820)

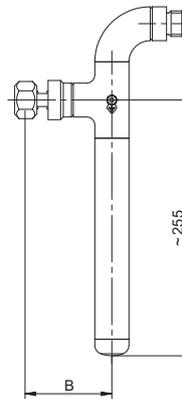


Fig. 5-2: Device for barrel assembly with union nut suitable for barrel valves with straight outlet

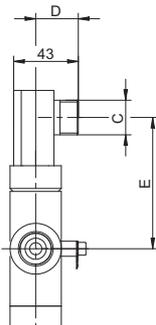


Fig. 5-3: : with universal head BSP 5/8  
 suitable for devices with union nut BSP 5/8 according to BS 341  
 and for devices with YOKE connection according to CGA V-1 (820)

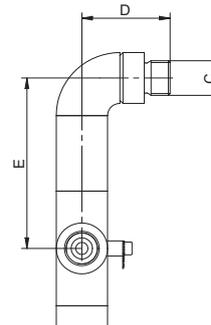


Fig. 5-4: Outlet with threaded pin suitable for devices with union nuts  
 BSP 3/4 according to AS 2473  
 BSW 1" according to DIN 477  
 1.030"x14 NGO RH according to CGA V-1 (660)

Volume	Inlet			Outlet			
		Figure	Dim. B	Dim. C	Figure	Dim. D	Dim. E
125 ml (for one barrel)	Universal YOKE	fig. 5-1	-	BSP 5/8	fig. 5-3	28	137
				BSP 3/4			
				BSW 1"			
	Union nut BSW 1" Union nut BSW 1 1/4"	fig. 5-2	98 86	1.030" x14 NGO	fig. 5-4	58	63
				BSW 1"			

Table 5-1: Dimensions of catchpots for barrel assembly

## 5.2 Catchpot for wall mounting

Figures 5-5 – 5-8 show the device with inlet from the left side.

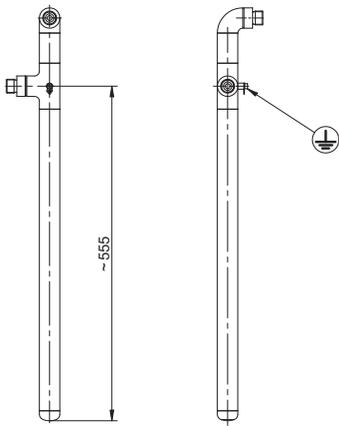


Fig. 5-5: : Main dimensions for all wall-mounted devices

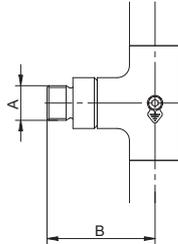


Fig. 5-6: : Inlet BSP 5/8  
Threaded pin for union nut according to BS341

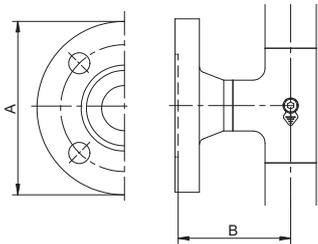


Fig. 5-7: : Inlet with flange  
DN25/PN40 with groove according to EN 1092 shape D

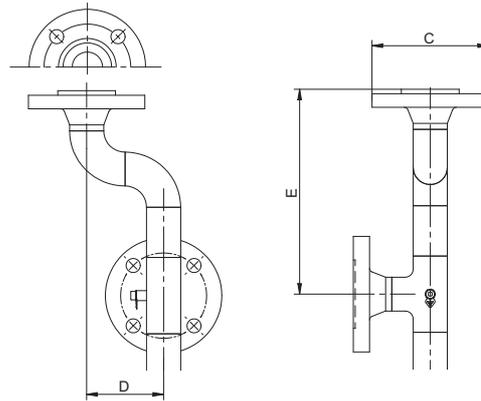


Fig. 5-8: : Outlet with flange  
DN25/PN40 with spring according to EN 1092 shape C

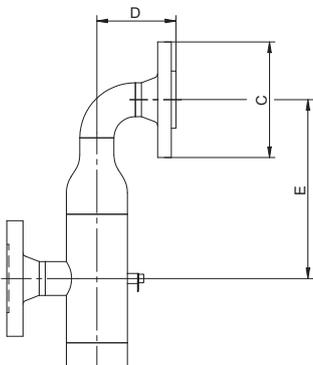


Fig. 5-9: : Outlet with lateral flange  
Flange DN25/PN40 with spring according to EN 1092 shape C

Volume	Inlet			Outlet			
	Dim. A	Figure	Dim. B	Dim. C	Figure	Dim. D	Dim. E
250 ml (for max. 2 barrels)	BSP 5/8	fig. 5-6	71	BSP 5/8	fig. 5-3	28	137
				BSP 3/4	fig. 5-4	58	113
				BSW 1"			
				1.030" x14 NGO			
	flange with groove	fig. 5-7	74	BSP 5/8	fig. 5-3	28	137
				BSP 3/4	fig. 5-4	58	113
				BSW 1"			
				1.030" x14 NGO			
1000 ml (for max. 8 barrels)			87	flange with tongue	fig. 5-8	76	204
					fig. 5-9	78	178

Table 5-2: Dimensions of catchpots for wall mounting

## 6 Installation



### WARNING

#### Danger of personal injury and material damage!

The device is very heavy. If the device is not fixed adequately, there is a danger of injury due to pipes bursting. During operation, this can also lead to chlorine gas escaping.

⇒ Make sure that the device is adequately fixed in the pipe.

### 6.1 Installation location

The catchpot is installed directly upstream of the vacuum regulator. For devices of up to 10 kg/h this might be directly at the barrel. Larger systems must be mounted to the wall.

### 6.2 Installing the device

#### 6.2.1 Installing the flange connections

Precondition for action:

- ✓ 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 mint condition.

Perform the following working steps:

1. Before tightening, lubricate the sliding surfaces of the bolts, nuts and washers with suitable lubricants.
  2. To make the connection to the chlorine gas line, inflow and outflow flanges with tongues and grooves are welded on the device. These flanges are connected to the corresponding counterflanges of the chlorine gas line.
  3. Insert dry seals into the groove of the flange.
  4. Tighten the bolts evenly crosswise in three stages: 20 Nm, 35 Nm and 50 Nm. After this, retighten all the bolts to the full target tightening torque (50 Nm).
  5. 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.**

#### 6.2.2 Installing the yoke connection

Precondition for action:

- ✓ The protective elements at the catchpot and the barrel valve are removed.
- ✓ The sealing surfaces are free of contamination and damage.
- ✓ Seals must be clean, undamaged and dry. You are not allowed to use adhesive paste and fitting lubricant.

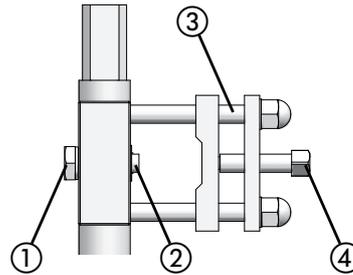


Fig. 6-1: Catchpot with yoke connection.



The output of the barrel valve for the discharge of gaseous chlorine points to the right in most of the cases. Therefore, the catchpot for barrel assembly is supplied with inlet from the left side. If the barrel valve is open towards the left side, the catchpot can be installed inversely. To this end, you must swap the centring pin ② and the plug ① and install the clamping yoke ③ at the right side.

Perform the following working steps:

1. Fit a new seal on the centring pin ② at the input of the catchpot.
  2. Hold the catchpot to the barrel valve and tighten the clamping screw ④ by hand.
  3. Adjust the distance piece (see fig. 6-2 on page 14) such that the catchpot is in an upright position.
  4. Carefully tighten the clamping screw ④ with a size 13 spanner wrench. The tightening torque is approx. 12 Nm. If leakage is detected after the leak test, the screw may be retightened by max. 20 Nm.
  5. Install the consumer according to the appropriate operating manual.
- ✓ **Device is installed.**

### 6.2.3 Installing the connection with union nut

Precondition for action:

- ✓ The protective elements at the catchpot and the barrel valve are removed.
- ✓ The sealing surfaces are free of contamination and damage.
- ✓ The thread of the union nut and the cylinder valve are clean and smoothly running.
- ✓ Seals must be clean, undamaged and dry. You are not allowed to use adhesive paste and fitting lubricant.

Perform the following working steps:

1. Fit a new seal on the centring pin at the input of the catchpot.
  2. Hold the catchpot to the barrel valve and tighten the union nut by hand.
  3. Adjust the catchpot in upright position.
  4. Tighten the union nut with a size 32 or size 41 spanner wrench. Secure the device against distortion using a second spanner wrench.  
Tightening torque for size 32: approx. 20 Nm, retightening with max. 30 Nm  
Tightening torque for size 41: approx. 30 Nm, retightening with max. 45 Nm
  5. Install the consumer according to the appropriate operating manual.
- ✓ **Device is installed.**

### 6.3 Installing the heating collar



Installation instructions are provided in the operating manual of the heating collar.

### 6.4 Completing the installation

After completing installation, you must check that all the connections are leak-proof (see "Inspecting the pressure system" on page 16).

## 6.5 Installation examples

### 6.5.1 Installation of the barrel

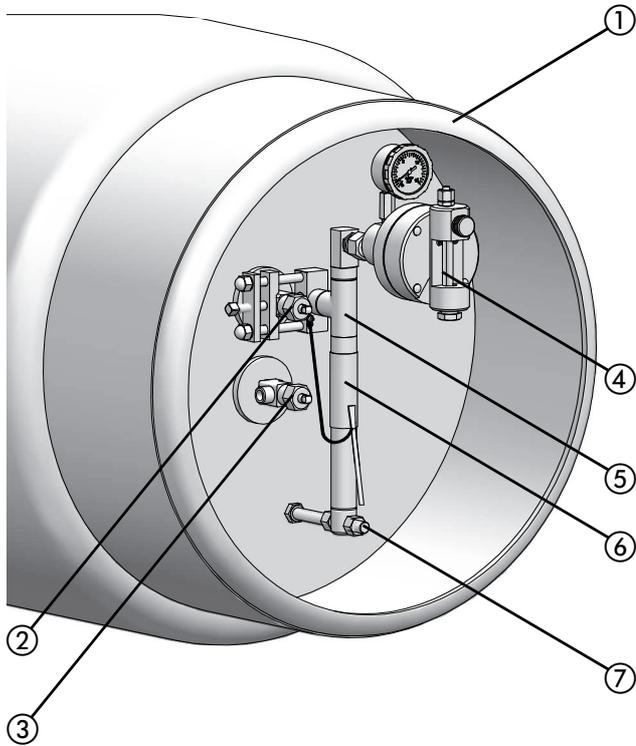


Fig. 6-2: Barrel assembly with YOKE connection

Position	Description
①	Chlorine barrel
②	Outlet for gaseous discharge
③	Outlet for liquid discharge
④	Vacuum regulator
⑤	Catchpot
⑥	Heating collar
⑦	Distance piece

### 6.5.2 Wall mounting

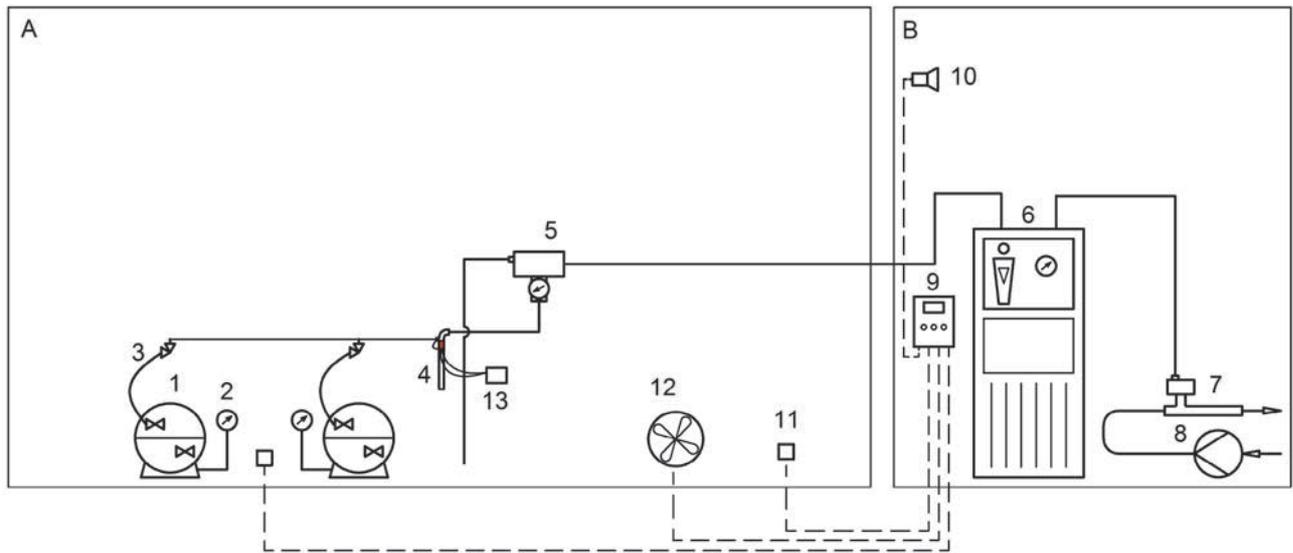


Fig. 6-3: Wall mounting

Position	Description
A	Room for the chlorine supply
B	Dosing device room
1	Chlorine barrel
2	Chlorine barrel scale
3	Manifold
4	Catchpot with heating collar
5	Vacuum regulator
6	Dosing device
7	Injector with non-return valve
8	Motive water pump
9	Gas warning device
10	Horn
11	Gas sensor
12	Entrance port of the chlorine eliminator
13	Junction box

## 7 Operation

### 7.1 Start-up

	<b>DANGER</b>
<p><b>Chlorine gas can escape due to systems that are leaky or not installed correctly!</b></p> <p>There is an increased safety risk due to chlorinators that are commissioned without having previously been inspected for adequate tightness and correct installation as well as for all components being in the proper condition.</p> <ul style="list-style-type: none"> <li>⇒ Before commissioning the system, have an expert inspect that it is tight and in the proper condition.</li> <li>⇒ The condition of the installation must be checked for adequate tightness on a regular basis.</li> </ul>	

#### 7.1.1 Inspecting the pressure system

The pressure system is checked for tightness in two work steps:

##### 7.1.1.1 Carrying out the leak test with nitrogen

	<p>You are strongly recommended to carry out this inspection before carrying out the leak test with chlorine, since it demonstrates leaks in the pressure system without the risk of chlorine escaping. As an alternative, you can carry out the inspection using dry compressed air.</p> <p>Leak tests with nitrogen or compressed air cannot be carried out with catchpots for barrel assembly.</p>
--	---

Precondition for action:

- ✓ All the open connections of the overpressure installation were closed.
- ✓ All the shut-off valves in the pipe system were opened.
- ✓ A nitrogen cylinder was connected.

Perform the following working steps:

1. Slowly raise the system pressure on the nitrogen cylinder's pressure reducer to the maximum system pressure.
  2. Close the nitrogen cylinder's valve.
  3. Apply soap solution to all the potential leaks. Bubbles will appear at leak locations.
  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. If necessary, repair leaks and repeat the leak test.
- ✓ **Leak test with nitrogen carried out.**

##### 7.1.1.2 Carrying out the leak test with chlorine

	<b>DANGER</b>
<p><b>Danger to life from chlorine poisoning!</b></p> <p>If you start the leak test with chlorine before the entire plant has been installed and the injectors are ready for operation, chlorine may not be extracted immediately in the case of a leak.</p> <ul style="list-style-type: none"> <li>⇒ 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.</li> <li>⇒ Put on protective clothing before carrying out the leak test.</li> </ul>	

Precondition for action:

- ✓ Leak test with nitrogen carried out successfully (except for catchpots for barrel assembly).
- ✓ All the open connections of the pressure system were closed correctly.
- ✓ A chlorine container was connected.

Perform the following working steps:

1. Briefly open the chlorine container valve and close it again.
2. Carry out the ammonia test on the entire pressure system: Ammonia steam with chlorine forms a white vapour and makes even very small leaks visible. With the ammonia test, you hold an open bottle containing the ammonia solution close to the pipe and make a slight pumping motion with the plastic bottle.

	<b>NOTICE</b>
<p><b>Damage to the plant by the ammonia solution</b></p> <p>If the ammonia solution comes into contact with the plant, this leads to corrosion on the equipment.</p> <ul style="list-style-type: none"> <li>⇒ Make sure that you do not spill any ammonia.</li> </ul>	

3. If you find leaks: Use the injector to suck off the chlorine immediately!
4. After this, repair the leak.
5. Carry out the leak test again.
6. If you do not find any leaks: Briefly open the chlorine container valve and leave it open.
7. Carry out the ammonia test again.

	<p>You must get rid of even very minor leaks without delay. Together with the humidity, chlorine forms hydrochloric acid and corrosion results in increased leakage.</p>
--	--

- ✓ **Leak test with chlorine carried out.**

## 7.2 Test intervals

You must check the components of the chlorinator for leaks on a daily basis and after maintenance or commissioning work.

## 7.3 Shutdown

### 7.3.1 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. Switch off the injector.

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

### 7.3.2 Long-term shutdown

Precondition for action:

- ✓ The chlorine gas container valves were closed
- ✓ The remaining chlorine was sucked off using the injector.
- ✓ The injector was switched off.

Perform the following working steps:

1. Run the chlorinator for approximately five minutes with nitrogen.
2. Close all the connections to protect the lines and equipment from humidity and dirt.

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

## 7.4 Troubleshooting

Problem	Possible cause	Remedy
Leaking connection	The seal is not correctly positioned.	Insert a new seal and make sure that it is correctly positioned.
	The seal is defective.	Insert a new seal.
	The sealing surfaces are not clean.	Clean them and fit them with a new seal.
	Damage to the sealing surface.	Replace the part, if possible. Otherwise, the device cannot be used anymore.
Damage to downstream devices caused by liquid chlorine.	The capacity of the catchpot is too low for the application, e.g. too many chlorine barrels.	Install a suitable catchpot.
	Not the upper valve (gaseous discharge) but the lower valve (liquid discharge) was used for the chlorine barrels.	Correctly connect the chlorine barrels.
	During cold times of the day, more chlorine is condensed than the catchpot can collect.	Mount the heating collar.
Modify the incline of the pipes such that liquid chlorine can flow back into the barrel.		
	Mount the pressure reducing valve.	

Table 7-1: Troubleshooting

## 7.5 Disposal of old equipment

- Before the disposal of the old equipment, you must clean off the remaining chlorine by rinsing it with nitrogen or air.
- Any residual dosing media must be removed in a professional manner.
- The equipment 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.

## 8 Maintenance

	<b>DANGER</b>
<p><b>Danger to life from chlorine poisoning!</b></p> <p>Do not carry out maintenance or any other work on the chlorinator until the plant has been decommissioned and there is no more chlorine gas in the pipes. Otherwise, chlorine gas may escape.</p> <p>⇒ Close the chlorine container valves before carrying out any work.</p> <p>⇒ Use the injector to suck out all the chlorine-bearing pipes.</p>	

	<b>WARNING</b>
<p><b>Increased risk of accidents due to insufficient qualification of personnel!</b></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> <p>⇒ Ensure that all action is taken only by personnel with sufficient and corresponding qualifications.</p> <p>⇒ Prevent access to the system for unauthorised persons.</p>	

- In order to avoid hazardous incidents, chlorinators must be maintained and tested at least once a year.
- In some cases, regional regulations may require shorter maintenance intervals. Working on the system requires special safety precautions and may only be carried out by instructed technical personnel.
- Carry out maintenance before recommissioning the system after a long period out of service.

### 8.1 Device maintenance

Perform the following working steps:

1. Check the sealing surfaces for leakages.
2. Renew all connecting seals.
3. Carry out the leak test.
4. Check the heating collar for correct function, if necessary.

✓ **Device is maintained.**

### 8.2 Spare parts

The following spare parts are available for maintenance:

#### 8.2.1 Connection seals at the inlet

Connection type	Part number
Threaded pin BSP 5/8	81832
Union nut BSW 1"	81043
Union nut BSW 1 1/4"	81835
Flange DN25/PN40 with groove/tongue	81421

#### 8.2.2 Connection seals at the outlet

Connection type	Part number
Universal head BSP 5/8	81832
Threaded pin BSP 3/4	81833
Threaded pin BSW 1"	81834
Threaded pin 1.030"x14NGO	81836
Flange DN25/PN40 with groove/tongue	81421

#### 8.2.3 Spare parts for flange connections

Description	Part number
Assembly accessories for flanges: screws, nuts, washers, seals (suitable for flanges DN25/PN40 with groove/tongue)	38712

## 9 EC Declaration of Incorporation (for devices with a capacity of 125 ml – 250 ml)



**(DE) Einbauerklärung im Sinne der EG-Richtlinie 2006/42/EG über Maschinen (Anhang II B)**

Hiermit erklären wir, dass die nachstehend beschriebene unvollständige Maschine alle grundlegenden Anforderungen der Maschinenrichtlinie 2006/42/EG erfüllt, soweit es im Rahmen des Lieferumfangs möglich ist. Ferner erklären wir, dass die speziellen technischen Unterlagen gemäß Anhang VII Teil B dieser Richtlinie erstellt wurden. Wir verpflichten uns, den Marktaufsichtsbehörden auf begründetes Verlangen die speziellen Unterlagen zu der unvollständigen Maschine über unsere Dokumentationsabteilung zu übermitteln. Die unvollständige Maschine darf erst dann in Betrieb genommen werden, wenn ggf. festgestellt wurde, dass die Maschine oder Anlage, in welche die unvollständige Maschine eingebaut werden soll, den Bestimmungen der Richtlinie 2006/42/EG über Maschinen entspricht und die EG-Konformitätserklärung gemäß Anhang II A ausgestellt ist.

**(EN) Declaration of Incorporation according to EC directive 2006/42/EC on machinery (Annex II B)**

Herewith we declare, that the partly completed machinery described below is complying with all essential requirements of the Machinery Directive 2006/42/EC, as far as the scope of delivery allows. Additional we declare that the relevant technical documentation is compiled in accordance with part B of Annex VII. We commit to transmit, in response to a reasoned request by the market surveillance authorities, relevant documents on the partly completed machinery by our documentation department. The partly completed machinery must not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with the provisions of Directive 2006/42/EC on Machinery, where appropriate, and until the EC Declaration of Conformity according to Annex II A is issued.

**(FR) Notice de montage dans le cadre de la directive européenne 2006/42/CE relative aux machines (annexe II B)**

Nous expliquons ici que la machine incomplète décrite ci-après répond à toutes les exigences fondamentales de la directive relative aux machines 2006/42/CE, pour autant que cela soit possible dans le cadre du volume de livraison. Plus loin nous expliquons que les documents techniques spéciaux sont établis conformément à l'annexe VII partie B de cette directive. Pour ce qui est de notre service de documentation, nous nous engageons à communiquer aux autorités de surveillance du marché les explications fondées des documents spéciaux pour la machine incomplète. La machine incomplète doit d'abord être mise en service, quand il est constaté que la machine ou l'installation dans laquelle la machine incomplète doit être montée répond aux dispositions de la directive 2006/42/CE relative aux machines, et que la notice de conformité européenne est présentée conformément à l'annexe II A.

**(ES) Declaración de incorporación según la Directiva 2006/42/CE sobre máquinas (Anexo II B)**

Por la presente declaramos que la siguiente cuasi máquina cumple con todas las disposiciones pertinentes de la Directiva 2006/42/CE de máquinas, siempre y cuando lo permita el volumen de suministro. También declaramos que la documentación técnica descrita en el anexo VII parte B se ha elaborado conforme a la presente Directiva. Nos comprometemos a enviar los documentos de la cuasi máquina a las autoridades de vigilancia del mercado a través de nuestro departamento de documentación en respuesta a una previa solicitud motivada. La cuasi máquina no puede ponerse en servicio sin antes verificar que la máquina o el sistema en el que se instale la cuasi máquina, cumpla con las disposiciones de la Directiva 2006/42/CE de máquinas y con la declaración CE de conformidad según el anexo II A.

**(PT) Declaração de Construção de acordo com a Directiva-CE 2006/42/CE de máquinas (Anexo II B)**

Esclarecemos por meio deste que a máquina incompleta descrita a seguir segue os requerimentos da diretiva de máquinas 2006/42/CE, contanto que sua utilização seja mantida dentro do escopo original. Esclarecemos ainda que a documentação técnica especial segue o disposto no Anexo VII Parte B de tal diretiva. Comprometemo-nos a cumprir com as exigências das autoridades de fiscalização que forem feitas a nosso departamento de documentação que estejam relacionadas a qualquer documentação da máquina incompleta. A máquina poderá ser colocada em operação, se necessário for, desde que seja verificado que o sistema ou a máquina na qual a máquina incompleta será instalada foi montada, em conformidade com a diretiva 2006/42/CE de máquinas e com a declaração de conformidade 2006/42/CE.

Bezeichnung des Gerätes:	<b>Tropfenabscheider</b>	Descripción de la mercancía:
Description of the unit:	<b>Catchpot</b>	Designação do aparelho:
Désignation du matériel:		
Typ / Type:	<b>DN25 PN25 (für Fassmontage, für Wandmontage / for barrel assembly, for wall assembly)</b>	
Volumen / Volume:	<b>125 ml / 250 ml</b>	

Die unvollständige Maschine entspricht allen Bestimmungen der Richtlinie(n):  
The partly completed machine is in conformity with all requirements of the directive(s):

<b>2006/42/EG</b>	<b>Maschinenrichtlinie</b>	<b>Machinery Directive</b>
<b>1997/23/EG</b>	<b>Druckgeräterichtlinie</b>	<b>Pressure Equipment Directive</b>

Folgende harmonisierte Normen wurden angewandt:  
The following harmonised standards were applied:

-



i. V. Dipl. Ing. (FH) Gerd-Richard Sacht  
Leiter Abteilung Gasdosierung  
Head of Gas Dosing Department  
Lutz-Jesco, Wedemark, 28.03.2013

Dokumentationsbevollmächtigter:  
Authorized person for documentation:  
Gerd-Richard Sacht  
Adresse: siehe Adresse des Herstellers  
Address: see manufacturer's address

Lutz-Jesco GmbH  
Am Bostelberge 19  
30900 Wedemark  
Germany

## 10 EC Declaration of Conformity (for devices with a capacity of 1000 ml)



**(DE) EG-Konformitätserklärung**

Der Unterzeichnete Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, bestätigt, dass die nachfolgend bezeichneten Geräte in der von uns in Verkehr gebrachten Ausführung die Anforderungen der harmonisierten EG-Richtlinien, EG-Sicherheitsstandards und produktspezifischen Standards erfüllen. Bei einer nicht mit uns abgestimmten Änderung der Geräte verliert diese Erklärung ihre Gültigkeit.

**(EN) EC Declaration of Conformity**

The undersigned Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, hereby certifies that, when leaving our factory, the units indicated below are in accordance with the harmonised EC guidelines, EC standards of safety and product specific standards. This certificate becomes void if the units are modified without our approval.

**(FR) Certificat de conformité aux directives européennes**

Le constructeur, soussigné: Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, déclare qu'à la sortie de ses usines le matériel neuf désigné ci-dessous était conforme aux prescriptions des directives européennes énoncées ci-après et conforme aux règles de sécurité et autres règles qui lui sont applicables dans le cadre de l'Union européenne. Toute modification portée sur ce produit sans l'accord express de Jesco supprime la validité de ce certificat.

**(ES) Declaración de conformidad de la UE**

El que suscribe Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, declara que la presente mercancía, objeto de la presente declaración, cumple con todas las normas de la UE, en lo que a normas técnicas, de homologación y de seguridad se refiere. En caso de realizar cualquier modificación en la presente mercancía sin nuestra previa autorización, esta declaración pierde su validez.

**(NL) EU-overeenstemmingsverklaring**

Ondergetekende Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, 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.

**(HU) EG (EK)– Egyezőségi nyilatkozat**

A Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark ezúton kijelenti, hogy a szóban forgó termék annak tervezése és szerkezeti módja, valamint forgalomba hozott kivitele alapján a vonatkozó alapvető biztonság technikai és egészségügyi követelményeknek és az alábbi felsorolt EG –irányelveknek minden szempontból megfelel. A terméken engedélyünk nélkül végrehajtott módosítások következtében jelen nyilatkozat érvényét veszíti.

**(PT) Certificado de conformidade da UE**

Os abaixo mencionados Lutz-Jesco GmbH, Am Bostelberge 19, 30900 Wedemark, por este meio certificam que ao sair da fábrica o aparelho abaixo mencionado está de acordo com as directrizes harmonizadas da UE, padrões de segurança e de produtos específicos. Este certificado ficará nulo se a unidade for modificada sem a nossa aprovação.

Bezeichnung des Gerätes:	<b>Tropfenabscheider</b>	Descripción de la mercancía:
Description of the unit:	<b>Catchpot</b>	Designação do aparelho:
Désignation du matériel:		
Typ / Type:	<b>DN25 PN25 (für Fassmontage, für Wandmontage / for barrel assembly, for wall assembly)</b>	
Volumen / Volume:	<b>1000 ml</b>	

Die unvollständige Maschine entspricht allen Bestimmungen der Richtlinie(n):  
The partly completed machine is in conformity with all requirements of the directive(s):

<b>2006/42/EG</b>	<b>Maschinenrichtlinie</b>	<b>Machinery Directive</b>
<b>1997/23/EG</b>	<b>Druckgeräterichtlinie</b>	<b>Pressure Equipment Directive</b>

Folgende harmonisierte Normen wurden angewandt:  
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i. V. Dipl. Ing. (FH) Gerd-Richard Sacht  
Leiter Abteilung Gasdosierung  
Head of Gas Dosing Department  
Lutz-Jesco, Wedemark, 28.03.2013

Dokumentationsbevollmächtigter:  
Authorized person for documentation:  
Gerd-Richard Sacht  
Adresse: siehe Adresse des Herstellers  
Address: see manufacturer's address

Lutz-Jesco GmbH  
Am Bostelberge 19  
30900 Wedemark  
Germany

## 11 Declaration of Harmlessness

In the event of a repair, copy the declaration of harmlessness and complete it separately for each device. Enclose one copy to the device you are sending. Please send the declaration of no objection to us also in advance per fax or e-mail!

### Declaration of Harmlessness

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: .....

## 12 Warranty application

In the event of a repair, copy the warranty application and complete it separately for each device. Enclose one copy to the device you are sending. Please send the warranty claim to us also in advance per fax or e-mail!

### Warranty Application

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 application, filled out.

#### 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 of the chemical feed system, showing materials of construction, diameters, lengths and heights of suction and discharge lines.

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