

Chlorine neutralisation system

LJ Neutra 200/500

Operating instructions



Read the operating manual!

The user is responsible for installation and operation related mistakes!

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1 Notes for the Reader

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

	DANGER!
<p>Danger to life from chlorine poisoning!</p> <p>If chlorine gas escapes, a filter mask is ineffective, since it is not a self-contained breathing apparatus.</p> <ul style="list-style-type: none"> ⇒ If chlorine gas escapes, wear a Type 2 self-contained breathing apparatus that complies with EN 137. 	

	DANGER!
<p>Danger to life from chlorine poisoning!</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>Chlorine neutralisation devices 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. 	

2.2 Information about chlorine

Chlorine is a hazardous substance. The chemical element chlorine is a greenish-yellow, toxic gas with a pungent odour, which can be detected in the air at concentrations below 1 ppm (= 1 ml/m³). Chlorine is 2.5 times heavier than air and accumulates at ground level.

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

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

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

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.

You will require the minimum of the following personal protective equipment:

Personal protective equipment required	
	Respirator mask

Tab. 3: Personal protective equipment required

Personal protective equipment required	
	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
- 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 device unsupervised
- Sufficient training that they can work on the device under the supervision and guidance of a trained specialist

These operating instructions differentiate between these user groups:

2.6.1 Specialist staff

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

2.6.2 Trained persons

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

Trained persons have attended all trainings offered by the operator.

2.7 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"> ■ Assembly ■ Hydraulic installations ■ Commissioning ■ Taking out of operation ■ Maintenance ■ Repairs ■ Disposal ■ Fault rectification
Trained persons	<ul style="list-style-type: none"> ■ Storage ■ Transportation ■ Control

Tab. 4: Personnel qualification

3 Intended use

3.1 Notes on product warranty

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

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

- The product is operated in a manner which is not consistent with this operating manual, particularly the safety instructions, handling instructions and the section "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

The chlorine neutralisation system is intended for the following purpose only: To supply a water spray system with sodium thiosulphate solution for the purpose of neutralising chlorine released from a chlorine gas dosing system.

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 following items are part of the scope of delivery:

- 200 litre PE tank
- Hand stirrer for mixing neutralisation agents and water
- Jet pump DN20 for evacuating the neutralisation agent from the storage tank
- 2 PVC ball valves DN15 for filling the tank with water and for closing the intake
- Operating instructions

4.2 Function

The use of a sprinkler system to suppress escaping chlorine produces chlorine-containing waste water that must not be allowed to enter the drainage system. The neutralisation system supplies the sprinkler system with sodium thiosulphate ("antichlor") and neutralises the chlorine.

The jet pump is installed in the supply line of the spray nozzles. As soon as water flows into the spray nozzles, the jet pump evacuates neutralisation fluid from the storage tank and mixes it with the water spray.

4.3 Technical data

LJ Neutra 200/500		Description
Operating water pressure	bar	4
Water requirement:	l/h	2500 approx.
Suction volume	l/h	500 approx.
Recommended number of spray nozzles		2 pcs
Volume of the tank	l	200
Max. neutralisation quantity		approx. 100 kg chlorine

Tab. 5: Technical data

4.4 Accessories

- Sodium thiosulphate pentahydrate, 25 kg bag
- Pressure reducer 3/4" (without pressure gauge)
- Pressure gauge 0 – 10 bar for pressure reducer

4.5 Spare parts

- Jet pump DN20
- Ball valve DN10 PVC/FPM

5 Dimensions

All dimensions in mm

5.1 Tank with hand stirrer and connections

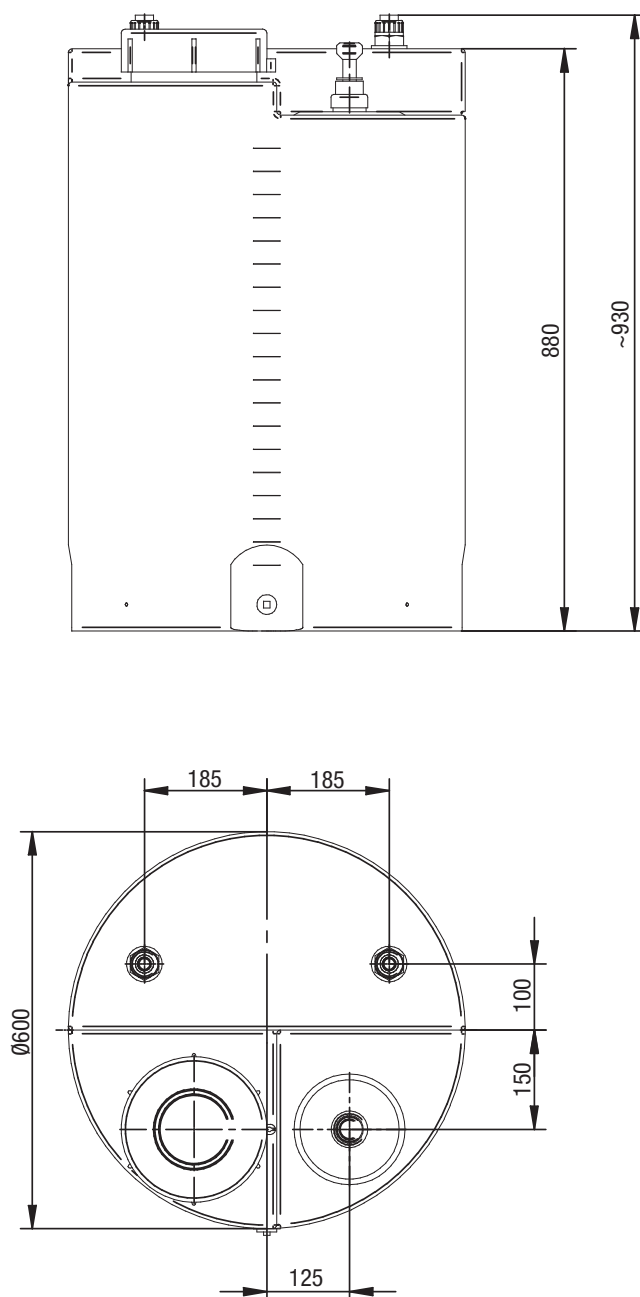


Fig. 1: Dimensions tank with hand stirrer and connections

5.2 Jet pump

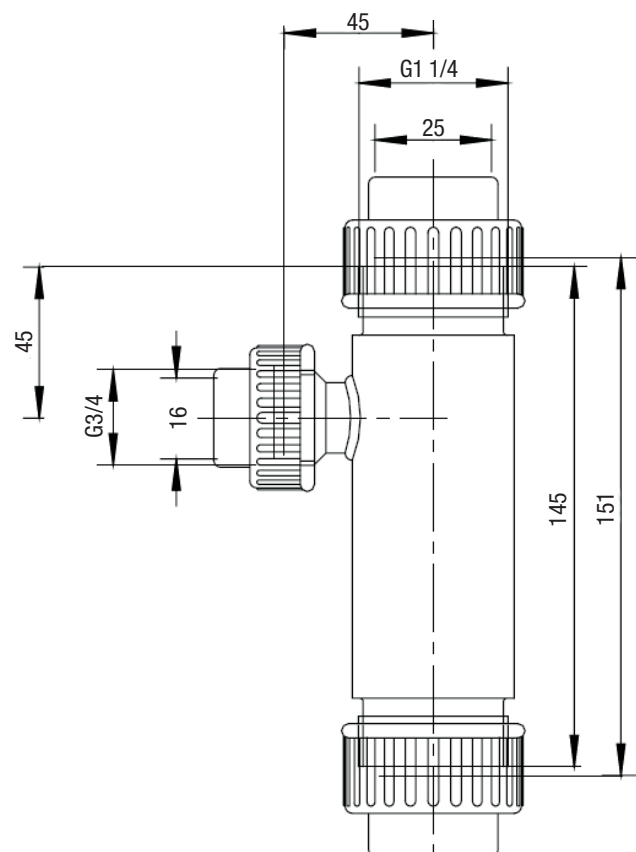


Fig. 2: Dimensions jet pump

6 Installation

6.1 Installation example

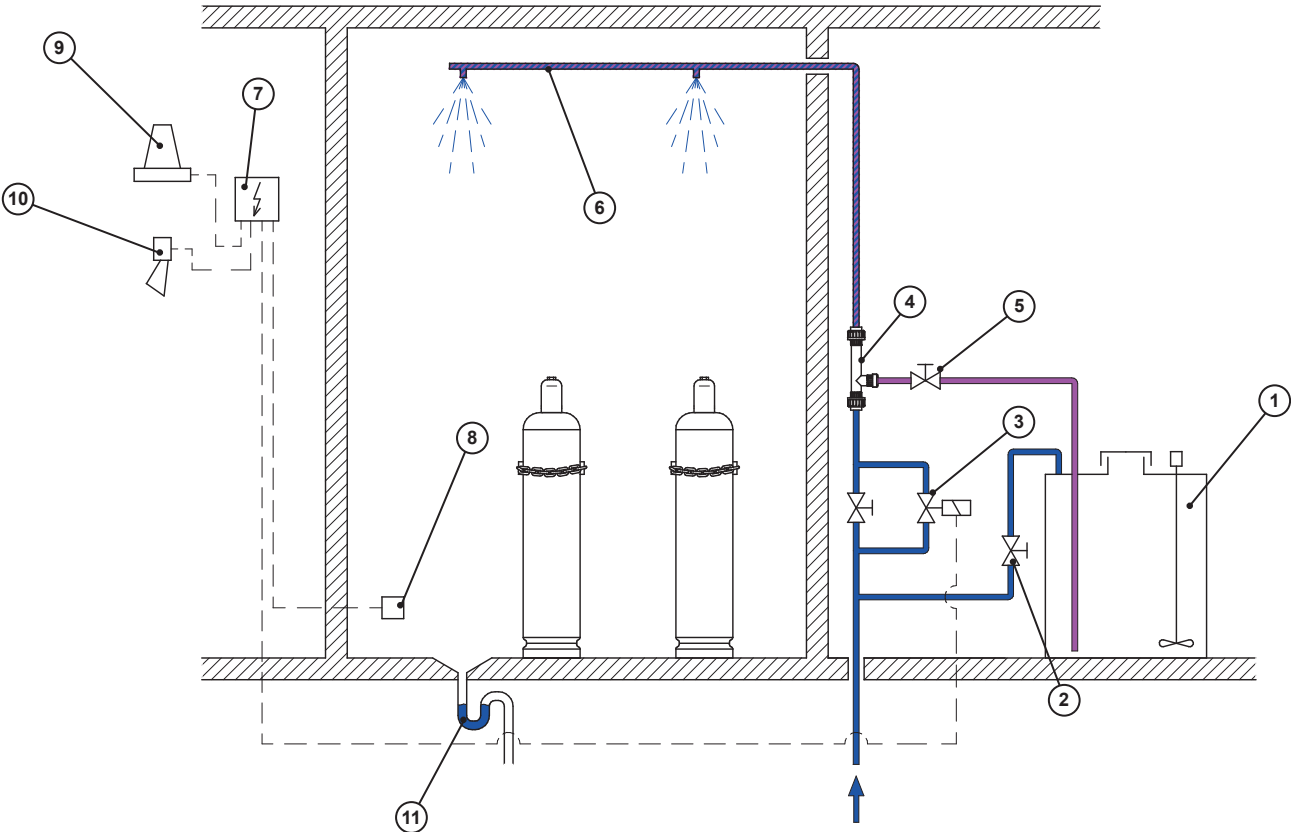


Fig. 3: Installation example

Position	Description
1	Storage tank with hand stirrer
2	Filler valve
3	Valves for the sprinkler system
4	Jet pump
5	Shut-off valve
6	Sprinkler system in the chlorine gas room
7	Gas warning device
8	Gas sensor
9	Indicator lamp
10	Horn
11	Floor drain with odour trap

Tab. 6: Technical data

WARNING

Increased risk of accidents due to insufficient qualification of personnel!

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.

- Install the system as shown in the example installation.
- The connection between the sprinkler system and the storage tank is made without an immersion tube.
- The jet pump is connected to the storage tank at the connection with an immersion tube.

7 Operation



PLEASE NOTE

Operational disturbance due to blocked jet pump or blocked spray nozzles

Operating the sprinkler system if the salt in the storage tank is not fully dissolved can cause the jet pump to become blocked. This can impede operation of the sprinkler system.

- ⇒ Only operate the sprinkler system if the fluid is clear and there are no longer any crystals on the bottom of the storage tank.
- ⇒ Close the shutoff valve between the storage tank and the jet pump until the crystals have fully dissolved. This process can take up to an hour depending on the temperature of the water.
- ⇒ After using the system, flush the sprinkler system for several minutes without sodium thiosulphate. This prevents the formation of crystals as it dries, which could cause the jet pump or the spray nozzles to malfunction.



If you want to test the sprinkler system, we recommend closing the shutoff valve between the storage tank and jet pump to avoid wasting sodium thiosulphate. Then open the shutoff valve again.

7.2 Maintenance

The components of the system are maintenance-free. To keep the system in an operable condition, you should carry out the following maintenance work:

- Check the level status of the storage tank
- Stir the contents of the storage tank

7.3 Disposal

The sodium thiosulphate solution is not hazardous waste according to the Waste Catalogue Ordinance (AVV). If recycling is not possible, waste must be disposed of in accordance with local official regulations. After neutralisation of the chlorine, the reaction solution contains sodium hydrogen sulphate and hydrochloric acid. Both lower the pH value of the water.

7.1 Adding neutralisation solution



To neutralise 1 kg of chlorine, theoretically 0.8 kg of sodium thiosulphate is required.
According to DIN 19606, adding a 3 to 8 Ma-% sodium thiosulphate solution to the water spray system is common practice.
With the steps described below, you can produce a neutralisation solution with a mass fraction of approx. 5.5 %.

Precondition for action:

- ✓ After it was installed, the system operated on a trial basis using water to ensure that it could be primed with fluid.
- ✓ The shutoff valve between the storage tank and jet pump is closed.
- ✓ The storage tank is empty or almost empty.

Perform the following working steps:

1. Add max. 100 kg sodium thiosulphate to the empty tank.
 2. Fill the storage tank with water up to the 200 l marking.
 - ▶ The salt dissolves slowly in water and the solution becomes very cold in the process. This process can take up to an hour depending on the temperature of the water.
 3. Use the hand stirrer to accelerate the process.
- ✓ **Neutralisation solution prepared.**

8 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:

9 Warranty claim

Warranty claim

Please copy and send it back with the unit!

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

Sender

Company: Phone: Date:

Address:

Contact person:

Manufacturer order no.: Date of delivery:

Device type: Serial number:

Nominal capacity / nominal pressure:

Description of fault:.....

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Service conditions of the device

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

.....

.....

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

.....

.....

.....

.....

.....

Commissioning (date):

Duty period (approx. operating hours):

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

10 EU Declaration of Incorporation



(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 directiva 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 directiva. 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 directiva 2006/42/CE de máquinas e com a declaração de conformidade 2006/42/CE.

Bezeichnung des Gerätes:	Chlorneutralisationsanlage	Descripción de la mercancía:	Sistema de neutralización de cloro
Description of the unit:	Chlorine Neutralization Device	Designação do aparelho:	
Désignation du matériel:			
Typ / Type:	LJ Neutra 200/500		
Volumen / Volume:			

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

2006/42/EG	Maschinenrichtlinie	Machinery Directive
2014/68/EU	Druckgeräterichtlinie	Pressure Equipment Directive

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

-

Folgende nicht-harmonisierte Normen und Technische Regelwerke wurden angewandt:
The following harmonised standards were applied:

DIN 19606 **Chlorgasdosieranlagen zur Wasseraufbereitung**

Heinz Lutz

Heinz Lutz

Geschäftsführer / Chief Executive Officer

Lutz-Jesco GmbH

Wedemark, 02.10.2020

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Operating instructions
LJ Neutra 200/500