

DOSING SYSTEMS



NOTE

Keep the operating manual for future use!

ATTENTION

Subject to technical modifications!

Quality notes

The **sera** quality management and quality assurance system is certified in accordance with DIN EN ISO 9001:2015. The **sera** product complies with the applicable safety requirements and accident prevention regulations.

About this instructions

Special notes in these instructions are marked with text and danger symbols.

NOTE

Notes or instructions that facilitate work and ensure a safe operation.

ATTENTION

The non-observance of these safety instructions can result in malfunctions or material damages.

WARNING

The non-observance of these safety instructions can lead to material damages and personal injuries.

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WARNING

Before commissioning, installation and during operation of the **sera** products the respective regulations valid at the place of installation, these instructions, safety data sheet of the pumped medium (for medium touched products) and especially the safety instructions are to be observed.

Observance of these operating instructions and, in particular, the safety instructions, helps to:

- Avoid dangers to persons, machines and environment.
- Increase reliability and service life of the product and the complete system.
- Reduce repair cost and downtime.



WARNING

When mounting the system the owner is responsible that the requirements according to the regulations on pressure vessels 2014/68/EU as well as the valid regulations for prevention of accidents are observed.



NOTE

Safety instructions of the system components (pump / electric agitator etc.) must be observed!

Personnel qualification and training

The personnel for operation, maintenance, inspection and installation must be suitably qualified for their tasks. The owner must clearly define responsibility and supervision of the personnel.

If the personnel do not have the knowledge required, then personnel is to be trained and instructed correspondingly. Such training can be provided by the manufacturer / supplier upon order of the owner. In addition, the owner has to ensure that personnel have understood the operating instructions completely.

Dangers in case of inobservance of the safety instructions

Inobservance of these safety instructions can result in danger to persons, hazards to the environment and damage to the machine. Inobservance can result in:

- Failure of important functions of the product.
- Failure of prescribed methods regarding maintenance and service.
- Danger to persons through electrical, mechanical and chemical influences.
- Hazards to the environment through leaking dangerous media.

Safety conscious working

The safety instructions specified in these operating instructions, the national regulations concerning accident prevention as well as internal working-, operating-, and safety instructions of the owner are to be observed.

Safety instructions for the owner / operator

The corresponding machine parts must be protected against contact if hot media are used.

Protective devices against accidental contact of moving parts (e.g. coupling) must not be removed during operation.

Leaking pumped media and utilities must be disposed off in such a way that any danger to persons and hazards to the environment are excluded. The legal regulations are to be observed.

Safety instructions for maintenance-, inspection- and installation work

The owner must ensure that all maintenance-, inspection- and installation work are exclusively carried out by authorized and qualified personnel who have read the operating instructions carefully. Only such work described in the operating instructions may be carried out.

The original spare parts and utilities used must comply with the requirements of the corresponding operating conditions.

WARNING

All screwed connections and connections may only be removed when the system is not under pressure!

Have defective mains connection lines or signal lines replaced by qualified personnel!

All units of the system that come into contact with media that are hazardous to health must be decontaminated before starting work!!

ATTENTION

All safety- and protective devices must be reinstalled or made operative immediately after the work was finished.

Arbitrary modification and spare parts production

Modification to and changes of the system are only permitted after previous consultation with **sera**. Original spare parts and accessories approved by the manufacturer increase safety.

WARNING

Any guarantee claims against the manufacturer are nullified if non-authorized parts are used or if the system or system parts are modified arbitrarily.

Improper operation

Operational reliability of the supplied system or machine is only guaranteed if the product is used as intended, according to the descriptions in Chapter „Proper use“ of these operating instructions.

Proper use

sera products are exclusively to be deployed according to the intended use stated in the corresponding product description and the acceptance test certificate.

If the dosing system is to be used for other applications, then the suitability of the system for the new operating conditions must be discussed with **sera** beforehand!

Criteria for proper use:

- Operating and environmental conditions at the place of installation.
- Supply voltage.

Additionally for products in contact with media:

- Observe characteristics of the pumped medium (please see safety- and product data sheet of the pumped medium used – the safety data sheet is to be provided by the supplier of the chemical / owner of the system).
- Pressure and temperature of the pumped medium.

GENERAL



WARNING

Check the resistance of the materials in contact with the pumped medium!



NOTE

sera does not assume any responsibility if these criteria are not or only partly observed by the owner / operator!

Personal protection for maintenance and repair

The provisions of the German Ordinance on Hazardous Substances (GefStoffV) (§14 Safety Data Sheet) and relevant national safety regulations for the pumped medium must strictly be adhered to.

In case of accidents check whether the following substances are emitted:

- Leaking fluids.
- Leaking vapours.
- Noise emissions (sound level).

Emissions are to be monitored by corresponding control systems of the total installation.



WARNING

Wear protective clothing, gloves, breathing mask and a face protecting mask!



NOTE

Personal protective equipment must be provided by the owner!



Marking of notes on the product



ATTENTION

Symbols which are directly attached to the system, e.g. warning notes or symbols for fluid connections are to be observed and kept in a legible condition.

Description of symbols see „INTRODUCTION“	Life cycle phase									Safety instructions	
	Transport/Storage	Installation/Electrical connections	Start-up/Operation	Operation	Maintenance	Cleaning	Repair	Shut-down	Disassembly		Disposal
	■	■		■	■		■	■	■		Pay attention to the center of gravity! There is a risk of tipping. A suitable fastening must be provided at the installation site. Also ensure that the machine is adequately fixed during maintenance and repair work as well as during dismantling and disposal.
	■	■									Pay attention to weights when lifting and when selecting the installation site and fasteners!
	■										The packaging material must be disposed of properly!
	■										The accident prevention regulations must be observed for transport!
	■		■	■							Keep a sufficient distance from high-tension lines!
	■										Check the system for loose parts. Secure loose parts for transport!
	■										Be careful when lifting the dosing system. Ensure that the tank superstructures don't get damaged by the tension belts. Never hang the dosing station at the tank superstructures (e.g. pump/electric agitator).
	■										The mounting area must be flat. Take appropriate measures in order to compensate for height differences.
		■	■	■	■		■				Only use intact electrical supply, signal or control cables!
		■									The fastening material is not included in the scope of supply and must be provided by the customer depending on the condition of the wall!
		■									If the dosing station is not fitted with a diaphragm overflow valve or a multi-function valve the owner of the system must ensure that the pump is protected against impermissible overpressure.
		■									Do not lay electric leads near the contact area of the chemicals (e.g. on the screw cap).
		■		■			■	■			The electrical connection must only be done by qualified personnel! The local safety regulations must be observed!
		■									The fuse protection and the characteristics of the electrical components are indicated in the separate manuals.
		■									Have the electrical installation checked by the responsible safety officer after the work was finished. Carry out an insulation measurement if necessary!

Description of symbols see „INTRODUCTION“	Life cycle phase									Safety instructions
	Transport/Storage Installation/Electrical connections	Start-up/Operation	Operation	Maintenance	Cleaning	Repair	Shut-down	Disassembly	Disposal	
	■									If toxic, crystallising or corrosive liquids are conveyed, the pipe system must be equipped with facilities for emptying, cleaning and if necessary rinsing with an appropriate medium
	■	■	■	■	■	■	■	■	■	Pay attention to the safety data sheet of the pumped medium! The instructions in the safety data sheet regarding handling of the medium must be observed! The owner must take corresponding accident prevention measures to protect operating personnel from danger by the pumped media used!
	■									In principle the system is started up with water.
	■		■	■	■	■				Rinse the system with water or a suitable medium until the system is free from any chemical residues! Water must be similar to drinking water, i.e. chemically neutral, free from solid and suspended matters and disturbing ion concentrations.
	■		■	■	■	■				Verträglichkeit der Chemikalie mit Wasser beachten und ggf. entsprechen Maßnahmen treffen!
	■		■	■	■	■				Exothermic reactions must be avoided by all means!
	■	■	■							Avoid contact of pumped medium with live cables!
	■	■								Avoid clogged, closed or shut-off suction and pressure lines!
		■								Only operate the system on a fused mains supply!
	■	■	■							The system is exclusively intended for the designed operating conditions in the operating manual and order confirmation!
	■									Start the dosing system only after it was approved by the responsible safety officer!
	■									Before connecting the power, ensure that all seals and the hydraulic connection lines are correctly installed and that unused connections are sealed with protective caps.
	■									It is the owner's task to ensure that the local regulations for prevention of accidents are observed.
		■								Ensure that there is adequate lighting!

Description of symbols see „INTRODUCTION“	Life cycle phase										Safety instructions
	Transport/Storage	Installation/Electrical connections	Start-up/Operation	Operation	Maintenance	Cleaning	Repair	Shut-down	Disassembly	Disposal	
	■	■	■	■	■	■	■	■	■	■	Wear suitable protective clothing such as protective suit, protective gloves and suitable face and respiratory protection. Observe safety data sheets!
					■		■				Contamination from operating materials can cause slippery surfaces. Clean contaminated surfaces.
					■						Only use sera spare parts!
					■	■	■	■	■		Disconnect the system from the power supply and secure against being switched on again by appropriate measures. Consult a specialized electrician.
					■						All maintenance work must only be carried out on a depressurised and de-energised system!
					■		■				Pay attention to the cleanliness of sealing surfaces when replacing wear parts. Any soiling can result in inadequate leak tightness!
						■					Only clean parts that are not in contact with the media with water or a mild alkaline cleaning agent. Pay attention to compatibility with the pumped medium!
						■					When cleaning, completely remove the pumped medium. Pay attention to the safety data sheet of the pumped medium!
										■	Close the pipe openings for transport!
							■	■	■		Only let authorised and qualified personnel perform work on the machine!
										■	Ensure proper disposal!
										■	The consignor is responsible for damage caused by leaking lubricants or liquid residues!
										■	Dispose of electronics separately!
										■	CVD: Transport the system in a horizontal position! CTD: Transport the system in an upright position.
										■	Check if the transport lock of Pump is mounted!

FORESEEABLE MISUSE

The following misuse is assigned to the life cycles of the machine.



WARNING

Misuse can result in danger to the operating personnel!

Transport

- Load not sufficiently secured for transport
- Removal of transport lock of the pump.
- Load not sufficiently secured (e.g. old/insufficient tension belts, screwing onto pallet, carrying capacity of loading area too low, loading area too small, missing marking means (weight, storage), not secured against slipping).
- Disregard of the center of gravity when loading/unloading (system packed in a box).
- Superstructures damaged by tension belts.
- Transport by untrained personnel
- Weight for lifting underestimated.
- Climbing on the system.

Installation

- Installation of the dosing station at an improper site (outside, direct sunlight, explosion-hazardous area etc.).
- Uneven surface.
- Dosing station not properly fastened (no fastening to the floor).
- No collecting device for leaking media.
- Confused supply and pressure lines on-site.
- Threads overturned/damaged.
- Transport closure at the oil filler cap not replaced with the vent screw.
- Piping bent when it was mechanically connected.
- Signal confused, LSH / LSL / LSL.
- Electrical leads laid within the contact area of the medium (e.g. at the tank cover).
- Connection cable of sensor confused.
- Non-conforming electrical connection (without ground wire, mains not fuse-protected etc.).
- Inside soiling of the tank.
- Stepping on the tank (e.g. as climbing aid).
- Modification to another tank.
- Installation on an unsuitable surface (e.g. inclined surface).
- Improper fastening (e.g. screwing of the tank bottom).

Commissioning

- Non-observance of the design data/operating conditions (medium, pressure, suction height, temperature etc.).
- Incomplete removal of the test medium (water) before startup with the chemical (dangerous reactions).
- Non-observance of the electrical characteristics (motors, sensors).
- Cover on vent openings (motor).
- Closed pressure pipe.
- Wrong adjustment at the overflow / multifunction valves.
- Cover open / reaching into the tank while electric agitator in operation.
- Conveyance of a wrong medium.
- Maladjustment/damage of the level meters.
- Too high a back pressure.
- Pumped medium too warm failure of material.
- Tank overfilled.
- Sensor cable removed.
- Conveyance without connected pressure pipe.
- Test run without cover.
- Overfilling of the multifunction device during suction.

Operation

- Operation of the pump/overflow valve with defective diaphragm.
- Ignoring of a pump fault.
- Operation of the dosing station beyond the limit values (nominal pressure exceeded, pressure peaks, contaminated medium (with particles)).
- Sudden closure of the pressure pipe.
- Conveying of contaminated pumped medium - foot valve of the suction lance clogged.
- Spillage of liquids / granulates / powder.
- Dosing station run against / shifted / overturn of dosing station by vehicles passing.
- Suction pipe clogged.
- Operation with open cover.
- Personnel not familiar with handling of the pump.
- Wrong pumped medium.
- Tank overfilled.
- Conveyance without connected pressure pipe.

Maintenance / Repair

- Disregard of the maintenance schedule according to the operating instructions.
- Improper maintenance.
- Use of non-original spare parts.
- Insufficient rinsing before maintenance work.
- Use of cables with damaged insulation.
- No shut down / no protection against a restart before maintenance work.
- Repair work by untrained personnel.
- Unsuitable improper rough repair works („hammer repair“).
- Threaded sockets on the tank overturned.
- Wearing of unsuitable protective clothing / no protective clothing at all.
- Poorly ventilated room.
- Valves confused.
- Pipes not connected.

Cleaning

- Protective equipment insufficient or missing.
- Wrong rinsing/cleaning agent (reaction with medium).
- Use of unsuitable cleaning utensils.
- Use of a steam cleaner.
- Rinsing/cleaning agent residues in the dosing station.
- Valves operated (inadvertently to facilitate cleaning).
- Tank tipped for emptying.
- Untrained personnel.
- Poorly ventilated room.
- Tank turned over for discharge.
- Vent openings clogged.

Decommissioning

- Insufficient removal of the pumped medium out of the tank / pipes and subsequent rinsing.
- Disassembly of pipes with the pump running (residual pressure).
- Disconnection from the power supply not ensured.
- Poorly ventilated room.

Disassembly

- Residues of the pumped medium and utilities in the dosing station.
- Use of wrong disassembly tools.
- Wrong or no protective clothing at all.
- Poorly ventilated room.
- Improper execution of repair work.

Disposal

- No marking of hazardous media
- Improper disposal of the pumped medium, utilities and materials..

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