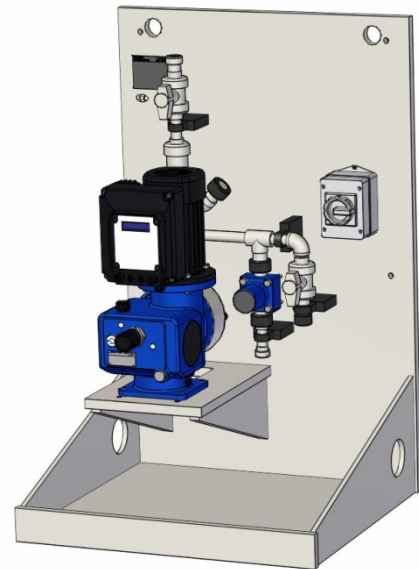
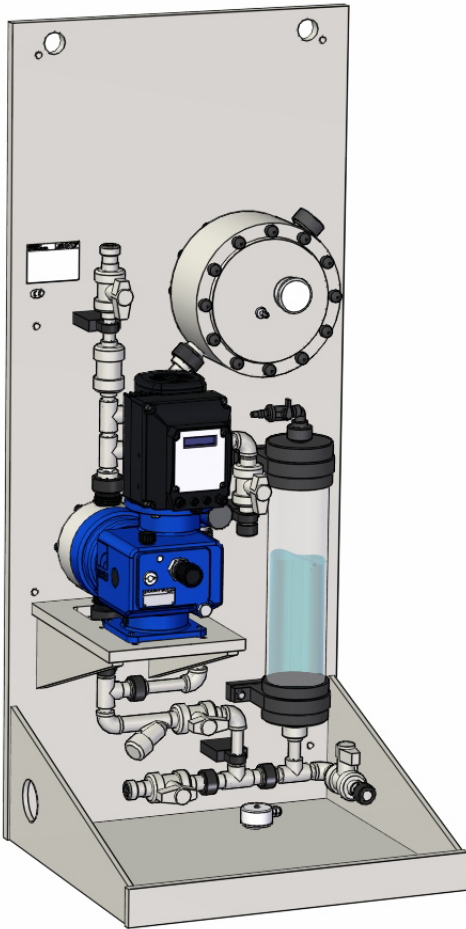


Product: Dosing systems
vertical construction

Type: CVD1 – 60.1
CVD1 – 550.1
CVD1 – 1500.1

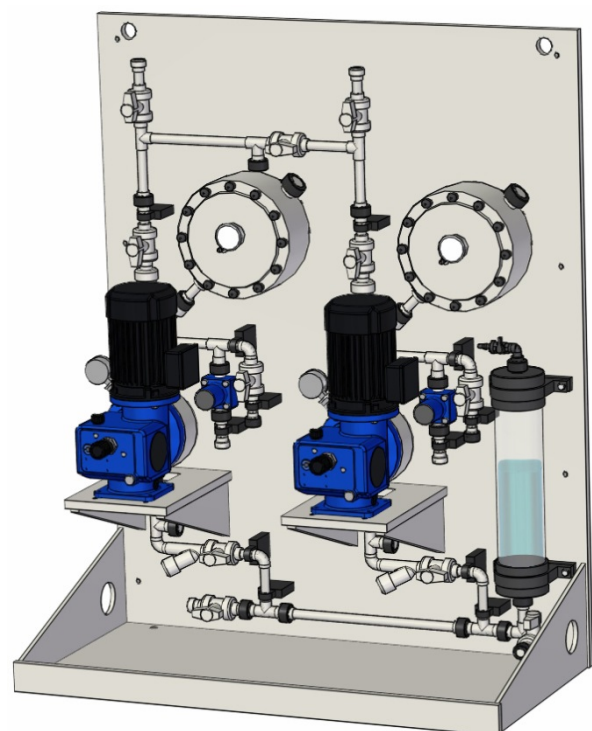
Type: CVD1s – 60.1
CVD1s – 550.1
CVD1s – 1500.1



Type: CVD2 – 60.1
CVD2 – 550.1
CVD2 – 1500.1

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**Translation of the original
operating instructions!**

Operating Instructions

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1 General

CAUTION !



Operating instructions of the system subassemblies (pump, fittings etc.) on the enclosed data carrier must be observed by all means! (please see Chapter 16, page 19)

Pay attention to the general local instructions which apply for commissioning and operating **sera** products. **sera** products are delivered ready for operation. Carefully read these instructions and especially the safety instructions herein contained before putting the system into operation. 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.


2 Types

2.1 Type code

Example: Dosing system, vertical construction
(Compact Vertical Dosing unit) CVD1 – 60.1

CVD	1	60.1	Construction
CVD	1	60.1	Number of pumps
CVD	1	60.1	Size

2.2 Type plate

sera GmbH www.sera-web.com			
Typ Type	:	CVD1 - 60.1	
Werk-Nr. Serial-No.	:	WD 00000	
Baujahr Year of construction	:	2013	
Fördermedium Medium	:	NaOH	

(example)

Fig. 01 Type plate (example)

2.3 Materials

The materials used are stated in the product description in the Appendix. The suitability of the materials for the pumped medium must be checked.

2.4 Performance and design data

The performance and design data are indicated in the product description in the Appendix.

2.5 Noise measurement

According to DIN 45635 the sound pressure level measured of the dosing system is between 50 and 70 dB (A).

2.6 Water quality

Water used for start-up, maintenance and closing down must be similar to drinking water, i.e. chemically neutral, free from solid and suspended matters and disturbing ion concentrations.

CAUTION !



Note the compatibility of the chemical with water and take appropriate measures, if necessary. Pay attention to the safety data sheet of the medium.

3 Safety instructions

3.1 Note on quality

Read these operating instructions attentively before starting up or maintaining the system. Observance of these operating instructions and, in particular, safety instructions, helps to

- Avoid danger to staff, machines, and environment.
- Increase the reliability and service life of the equipment and the entire system.
- Reduce expenses for repairs and downtimes.

The **sera** quality management system is certified according to ISO 9001:2008.

sera – products comply with the valid safety requirements and accident prevention regulations.

CAUTION !



Always keep these operating instructions within reach at the workplace!

CAUTION !



Pay attention to the safety data sheet of the pumped medium! The owner must take corresponding accident prevention measures to protect operating personnel from danger by the pumped media used!

Operating Instructions

3.2 Purpose of these operating instructions

These operating instructions contain basic notes which must be observed for installation, operation and maintenance work. Therefore, these operating instructions are to be read by the responsible fitter and the qualified personnel / operator before the system is installed and must be kept within reach at the place of installation of the machine/system.

The general safety instructions stated in this main section "Safety" and the special safety instructions given in the other sections must be observed.

3.3 Marking of notes

3.3.1 Marking of notes in these operating instructions

Special notes in these operating instructions are marked with the general danger symbol



(safety symbol in compliance with DIN 4844 – W9)

3.3.2 Marking of notes on the product

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.

3.4 Personnel qualification and training

The personnel who operate, service, check and install the system must be suitably qualified. Range of responsibility, and supervision of the personnel are to be clearly defined by the owner. If the personnel do not have the knowledge required it is to be trained and instructed accordingly. If required such a training can be carried out by the manufacturer / supplier upon order of the owner. The owner must also ensure that the personnel have understood the operating instructions.

3.5 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 machine/system/unit
- 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

3.6 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.

3.7 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.

Dangers through electric energy are to be ruled out.

3.8 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.

CAUTION !



All screwed connections and connections may only be removed when the system is not under pressure. The notes in Chapter 8 must be observed!

Pumps, systems or units which are used for conveying hazardous media must be decontaminated before start of work.

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

The instructions in the section "Commissioning" are to be observed before the system is restarted.

Operating Instructions

3.9 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. Any guarantee claims against the manufacturer / supplier are nullified if non-authorised parts are used or if the system or system parts are modified arbitrarily.

3.10 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 3.11 of these operating instructions.

3.11 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:

- 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)
- Stability of the materials which come into contact with the pumped medium
- Operating conditions at the place of installation
- Pressure and temperature of the pumped medium
- Place of installation (environmental conditions)

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

3.12 Personal protection for maintenance and repair

In order to avoid risks to health, the provisions of the German Ordinance on Hazardous Substances (GefStoffV) (§14 Safety Data Sheet) and the relevant national safety regulations for the pumped medium and the operating conditions must strictly be adhered to.

In case of an incident pay attention to possibly leaking media.

Emissions are to be monitored by corresponding monitoring devices.

CAUTION !



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

CAUTION !



Personal protective equipment must be provided by the owner of the system at all times!

3.13 Utilities

If not agreed otherwise in the contract conditions, **sera** products will always be supplied with the necessary utilities. (Type and quantity of the utilities / lubricants are stated in the operating instructions of the dosing pumps and valves).

3.14 Operating conditions

For the operating conditions, please see Chapter 2.4 Performance- and design data.

Different operating conditions must be agreed upon with **sera** beforehand.

The control system is not included in the scope of supply.

CAUTION !



Protective measures against unintentional start of the system due to changed operating modes, a voltage loss, shutdown, actuation of EMERGENCY STOP switches etc. must be defined by the owner!

Operating Instructions

4 Transport and storage

4.1 General

Before shipment **sera** products are checked for proper condition and functioning.

The products are packed according to the transport conditions. The system is transported horizontally.

The customer has to check the product for transport damage immediately after receipt. Any damage detected is to be reported immediately to the responsible carrier and the supplier.

The unit should only be transported using suitable means of transport or hoists. Pay attention to the weight of the system and the carrying capacity of the means of transport.

4.2 Storage

An undamaged packaging protects the unit during subsequent storage and should only be opened just before the system is installed.

Proper storage increases the service life of the unit and protects from negative influences such as heat, humidity, dust, chemicals etc.

The following storage instructions are to be observed:

- Storage place: cool, dry, dust-free, no exposure to direct sunlight, and slightly ventilated
- Storage temperatures between +2°C and +25°C
- Relative air humidity not more than 50%.

If these values are exceeded, metal products should be air-sealed in foil and protected from condensation water with a suitable desiccant.

Do not store solvents, fuels, lubricants, chemicals, acids, disinfectants and similar in the storage room.

4.3 Transport

CAUTION !



The accident prevention regulations must be observed for transport!

CAUTION !



Keep a sufficient distance from high-tension lines when transporting the system

CAUTION !



Check the system for loose parts.
Secure loose parts for transport!

The unit should only be transported using suitable lifting gears.

Example:

Lift by means of a tie-bar (not included in the scope of supply). Lead the carrying belts through the transport holes and lift.

CAUTION !



Be careful when lifting the system. Pay attention to the center of gravity! Fasten the system sufficiently!

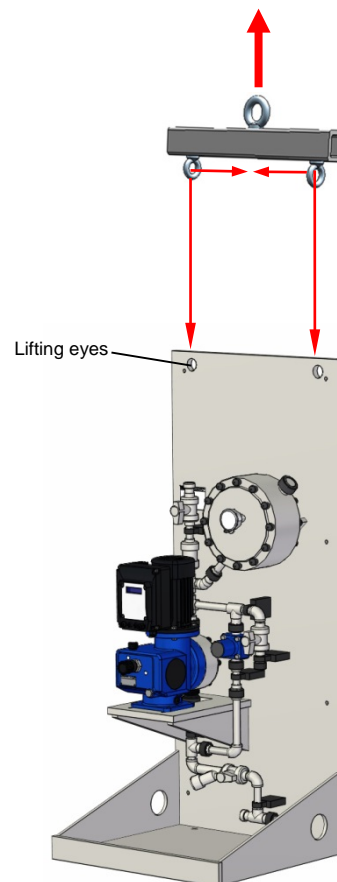


Fig. 02 Transport (e.g. with tie-bar)

CAUTION !



Do not place the system on the collecting basin while working!
If this note is not observed, the drain plug of the collecting basin may break off.

5 Technical specifications

CVD 1 (s)					
Type	Flow rate l/h	Admissible backpressure bar	Admissible suction height mWC	Number of pumps	Pump series
CVD 1 – 60.1	up to max. 60	up to 10	up to 3	1	C 204.1-2,4e ... C 204.1-35e
					iSTEP S 20 ... iSTEP S 50
					RF 409.2-2,4e ... RF 409.2-50e
					C 409.2-25e ... C 409.2-50e
CVD 1 – 550.1	up to max. 550	up to max. 10	up to 3	1	RF/C 410.2-11ML ... RF/C 410.2-45ML
					RF/C 409.2-75e ... RF/C 409.2-350e
					RF/C 410.2-280e ... RF/C 410.2-570e
CVD 1 – 1500.1	up to max. 1500	up to max. 6	up to 3	1	RF/C 409.2-110ML ... RF/C 410.2-500ML
					RF/C 410.2-570e ... RF/C 410.2-1450e
					RF/C 410.2-1200ML



CVD 2					
Type	Flow rate l/h	Admissible backpressure bar	Admissible suction height mWC	Number of pumps	Pump series
CVD 2 – 60.1	up to 2x max. 60	up to 10	up to 3	2	C 204.1-2,4e ... C 204.1-35e
					iSTEP S 20 ... iSTEP S 50
					RF 409.2-2,4e ... RF 409.2-50e
					C 409.2-25e ... C 409.2-50e
CVD 2 – 550.1	up to 2x max. 550	up to max. 10	up to 3	2	RF/C 410.2-11ML ... RF/C 410.2-45ML
					RF/C 409.2-75e ... RF/C 409.2-350e
					RF/C 410.2-280e ... RF/C 410.2-570e
CVD 2 – 1500.1	up to 2x max. 1500	up to max. 6	up to 3	2	RF/C 409.2-110ML ... RF/C 410.2-500ML
					RF/C 410.2-570e ... RF/C 410.2-1450e
					RF/C 410.2-1200ML

Operating Instructions

6 Dimensions

6.1 Dimensions of the CVD 1

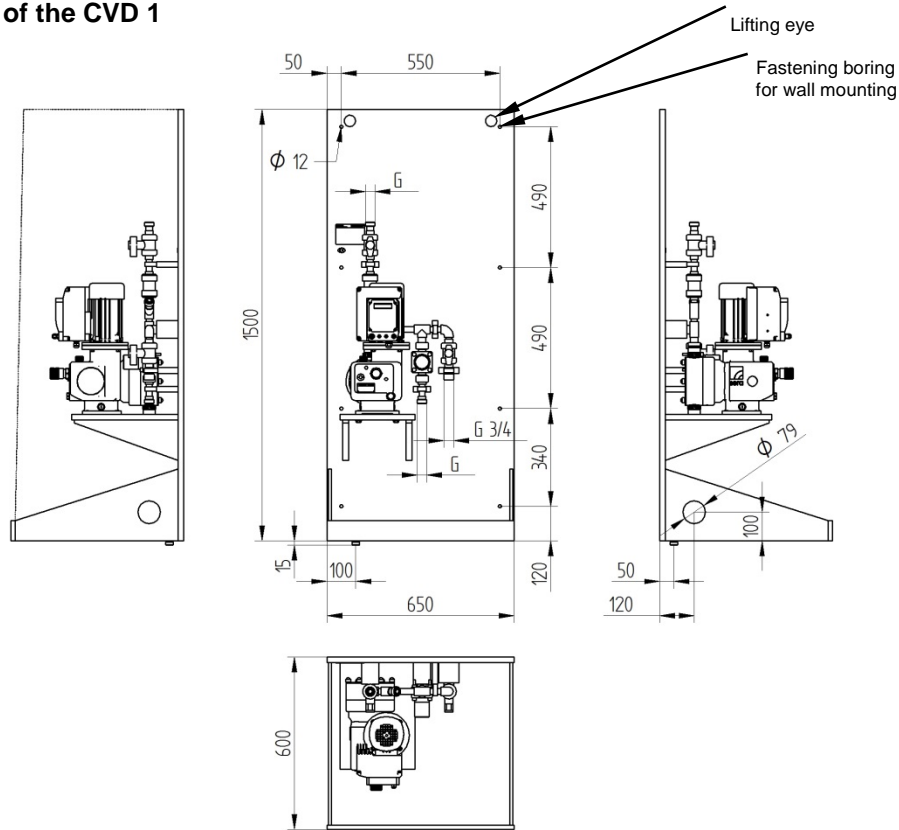


Fig. 3.1 Dimensions of the CVD1 (wall mounting)

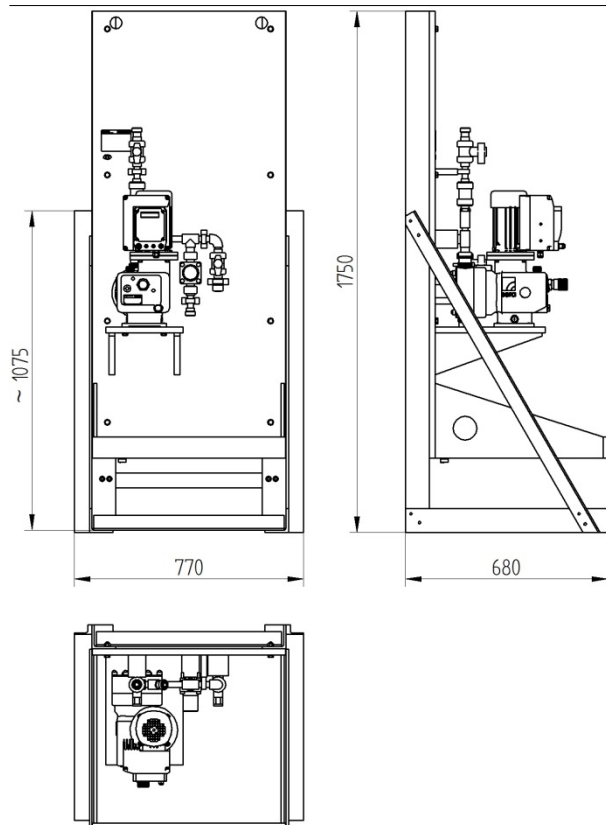


Fig. 4.1 Dimensions of the CVD1 (floor mounting, GFK stand)

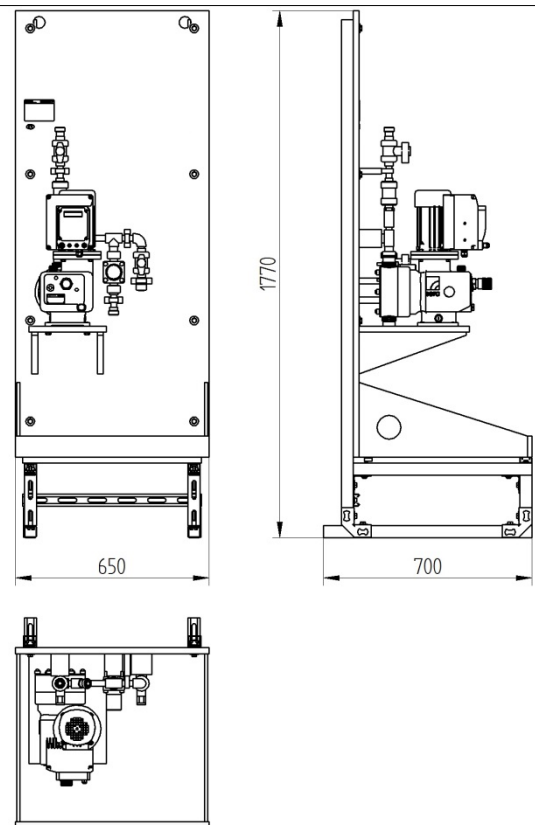


Fig. 5.1 Dimensions of the CVD1 (floor mounting, steel stand)

6.2 Dimensions of the CVD 1s

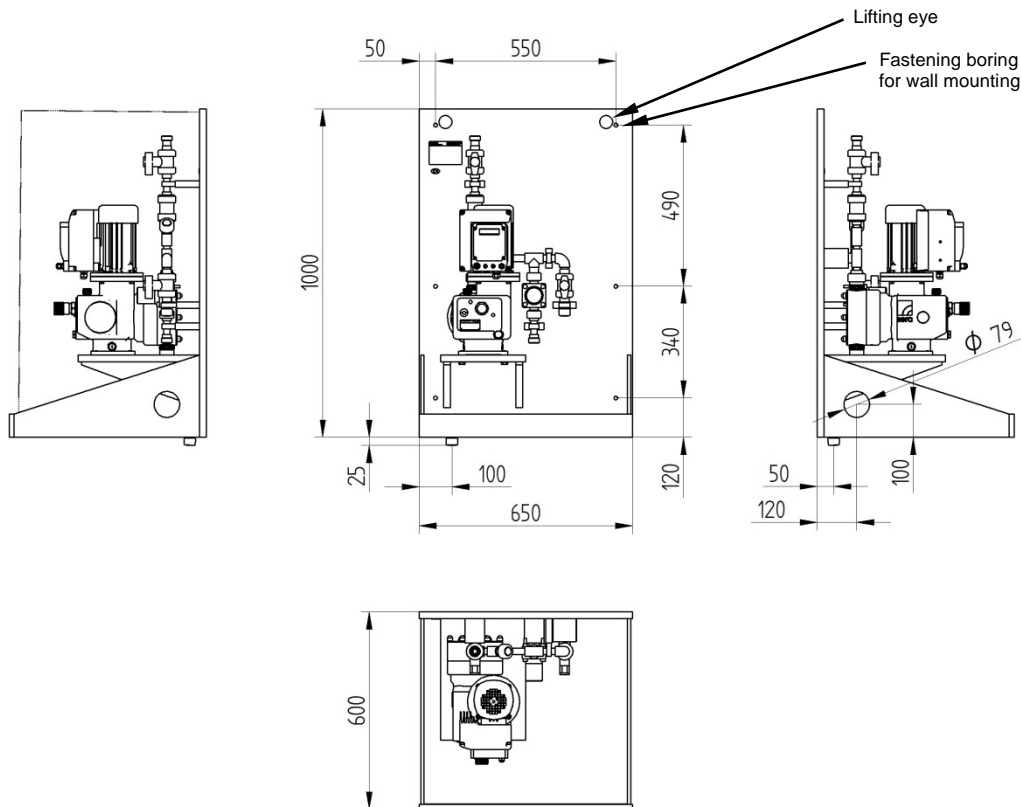


Abb. 3.2 Dimensions of the CVD1s (wall mounting)

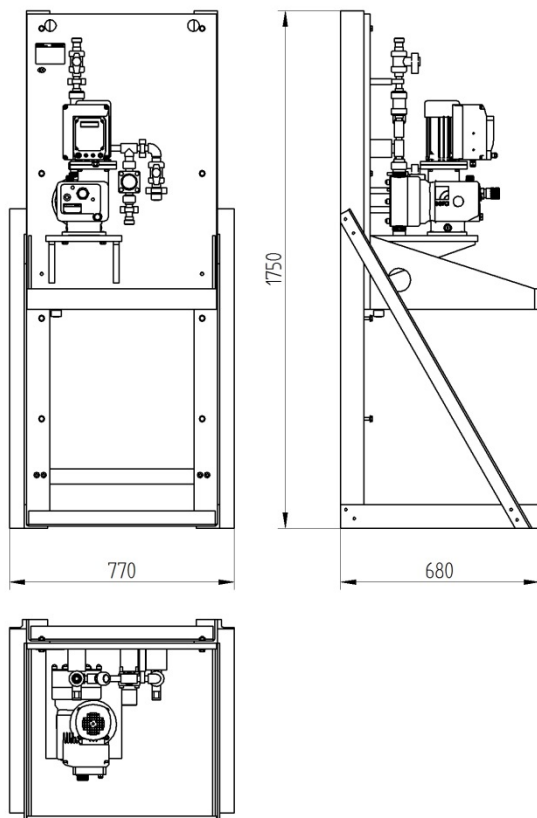


Abb. 4.2 Dimensions of the CVD1s (floor mounting, GFK stand)

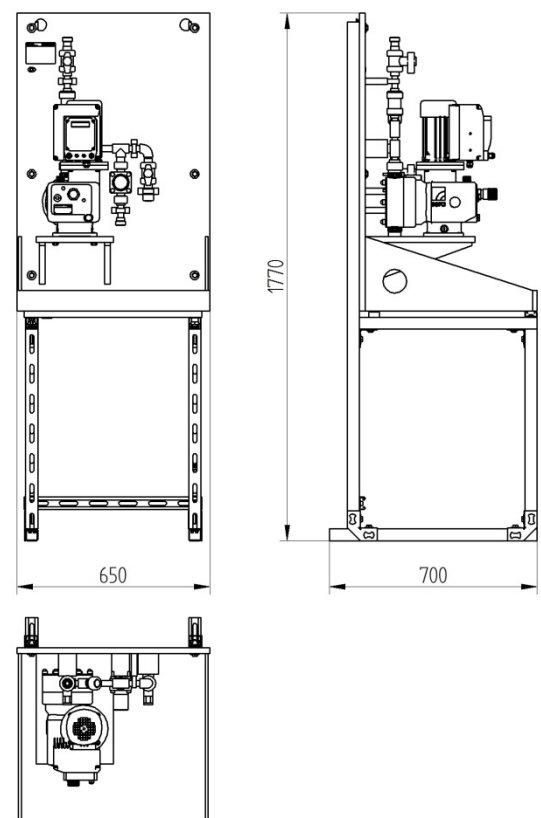


Abb. 5.2 Dimensions of the CVD1s (floor mounting, steel stand)

6.3 Dimensions of the CVD 2

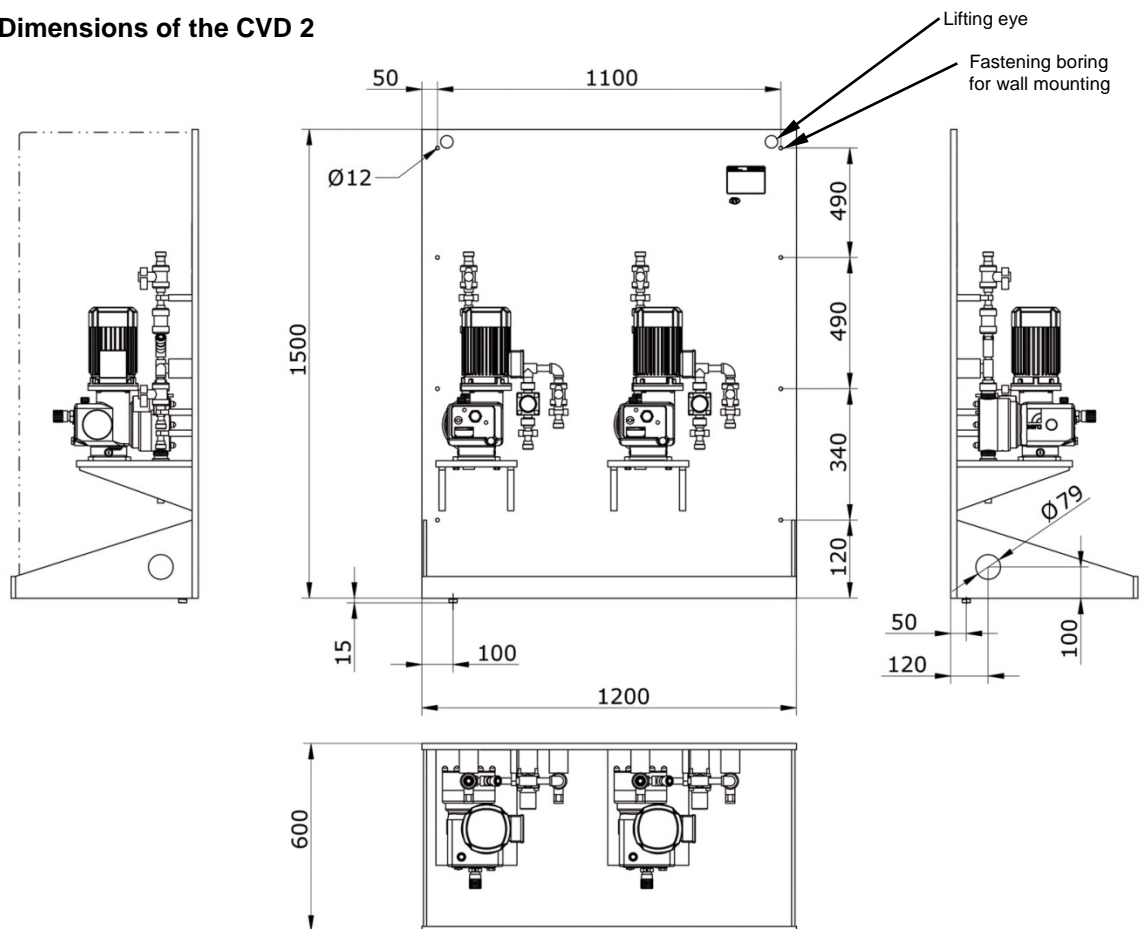


Abb. 06 Dimensions of the CVD2 (wall mounting)

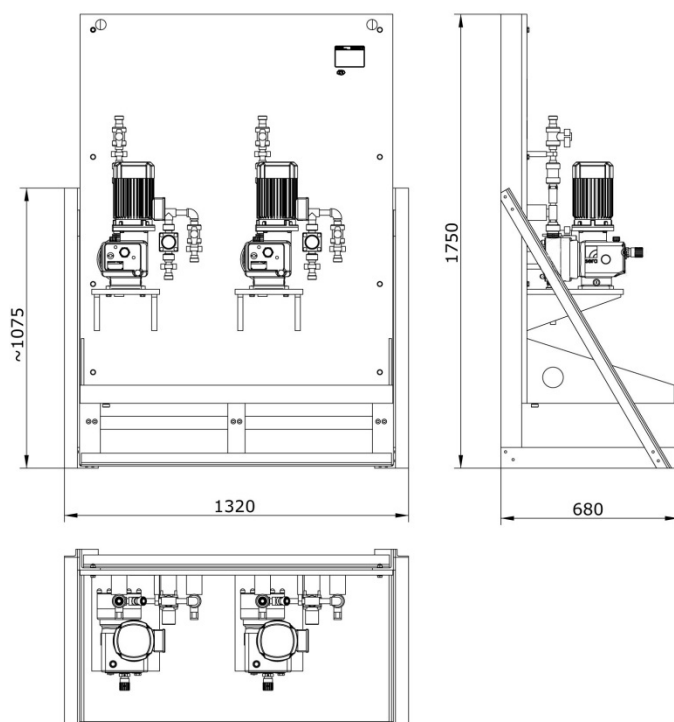


Abb. 07 Dimensions of the CVD2 (floor mounting, GFK stand)

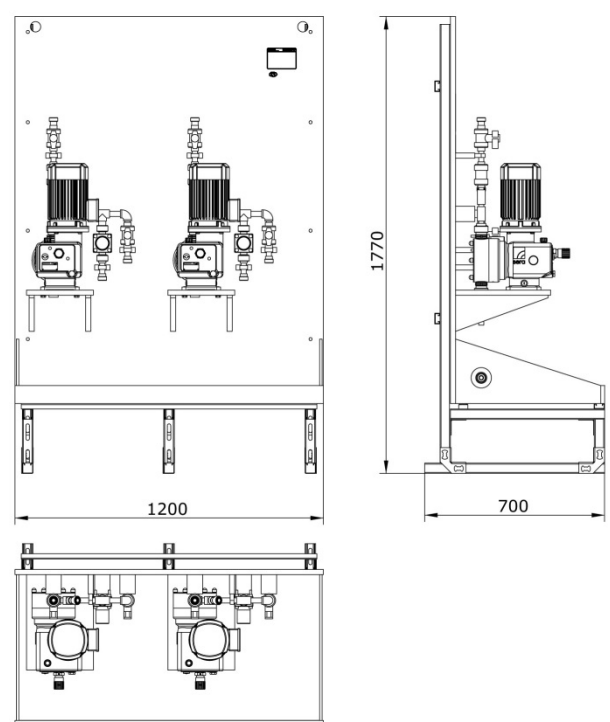


Abb. 08 Dimensions of the CVD2 (floor mounting, steel stand)

Operating Instructions

7 Description of the systems

The system consists of a basic unit which can be supplemented with different options.

7.1 CVD1

7.1.1 CVD1 – Basic unit

The chemical is dosed by a diaphragm pump. The conveying capacity of the pump can be set at the manual stroke length adjustment. Depending on the design of the dosing pump, an additional automatic dosing is possible via pulse or analogue signals.

The piping on the pressure side consists of a taper seat non-return valve and a ball valve as end connection. The pump is protected against overpressure by an overflow valve. A drain ball valve for evacuation/pressure relief is fitted in the pressure pipe.

The pump and the corresponding fittings are mounted on a wall mounting plate with collecting basin.

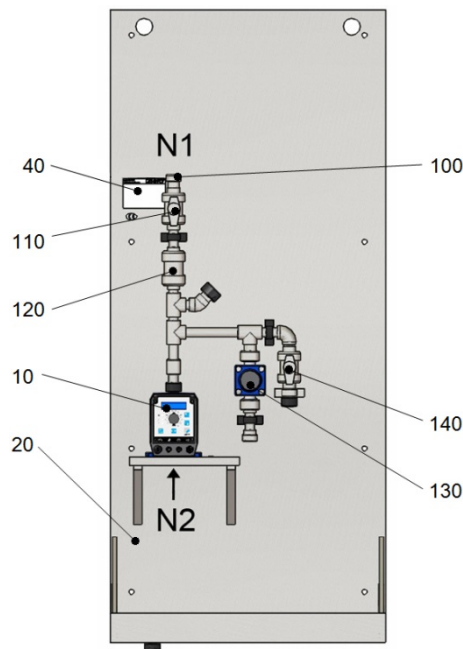


Fig. 09 CVD1 basic unit

10	Diaphragm pump
20	Wall mounting plate of PP (with integrated collecting basin and drain plug)
40	Type plate
100	Piping of PVC-U or PP on the pressure side End connection male thread
110	Two-way ball valves (shut-off valve)
120	Check valve
130	Diaphragm overflow valve
140	Two-way ball valves (discharge valve)

N2	End connection on the suction side Male thread for suction valve of the diaphragm pump
-----------	---

7.1.2 CVD1 - options

The following figure shows the basic unit with all options.

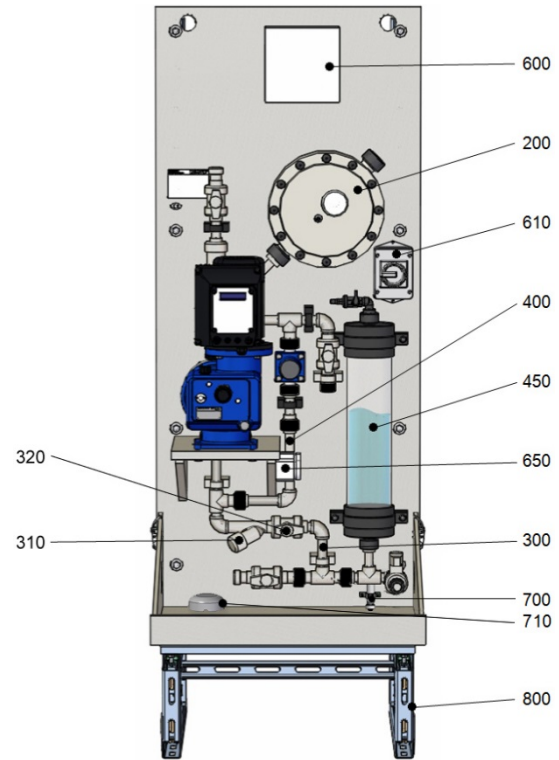


Fig. 10 CVD1 with all options

200	Diaphragm pulsation damper
300	Piping on the suction side (with dirt trap and 2/2 way ball cock)
310	Dirt trap
320	2/2 way ball cock
400	Piping overflow valve back into the suction pipe (only in connection with piping on the suction side)
450	Multifunction device
600	Terminal box
610	Main switch of pump
650	Socket
700	Leakage sensor solenoid float switch
710	Leakage sensor conductive plate electrode
800	Stand for floor mounting (steel (galvanized) or GFK)
without	Protective roof for drive motor
500	Detachable splash guard

**7.1.3 CVD1 – option
suction side (Pos. 300)**

The basic unit can be fitted with a piping on the suction side as option. This piping includes a ball valve as stop valve and a dirt trap.

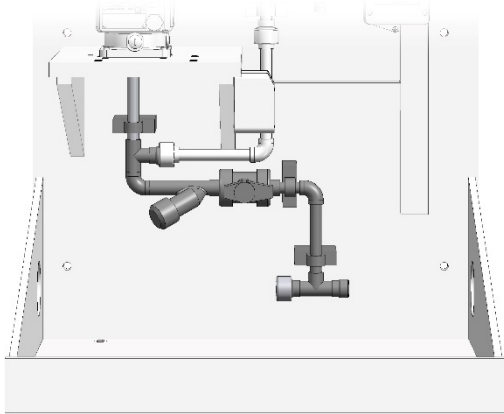


Fig.11 Option suction side

**7.1.4 CVD1 – option
diaphragm pulsation damper (Pos. 200)**

The chemical is dosed by means of an oscillating positive displacement pump. A pulsation damper can be integrated in the pressure pipe for smoothing the pulsating flow of the pump.

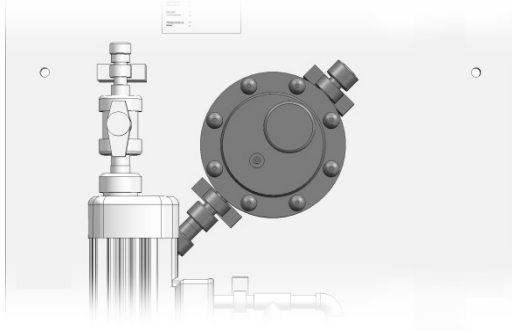


Fig.12 Option diaphragm pulsation damper

**7.1.5 CVD1 – option
piping of the overflow valve (Pos. 400)**

The medium can be led back into the piping on the suction side via a return pipe when the overflow valve opens.

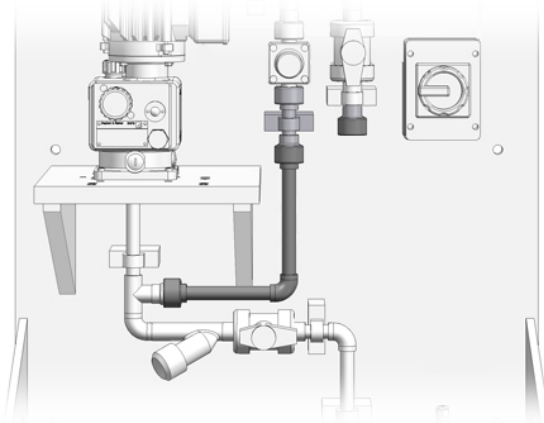


Fig.13 Option piping of the overflow valve

CAUTION !



**This option may only be used when a multifunction device is mounted, or when the backflow of the medium into the corresponding tank is not hindered by a foot valve or similar in the suction pipe.
Inobservance of this note may result in damage to the system, the pump or adjacent system parts.**

CAUTION !



**Whether a pulsation damper must be installed or not, depends on the design of the overall system and must be determined from case to case!
Decisive factors are, among others, the pump size, the pipe geometry (length and diameter), pipe losses, the geodetic height to be negotiated and the opening pressure of injection fittings (which might be present) resulting from the spring load.**

7.1.6 CVD1 – option splash guard (Pos. 500)

A detachable splash guard can be attached to the mounting plate to protect the operating personnel from chemical splashes which may occur due to damage on the system.



Fig.14 Option splash guard

7.1.7 CVD1 – Option terminal box (Pos. 600), socket (Pos. 650 / 660) and main switch (Pos. 610)

The system can be fitted with a terminal box or a socket or a main switch as transition points for power connections or a signal exchange.

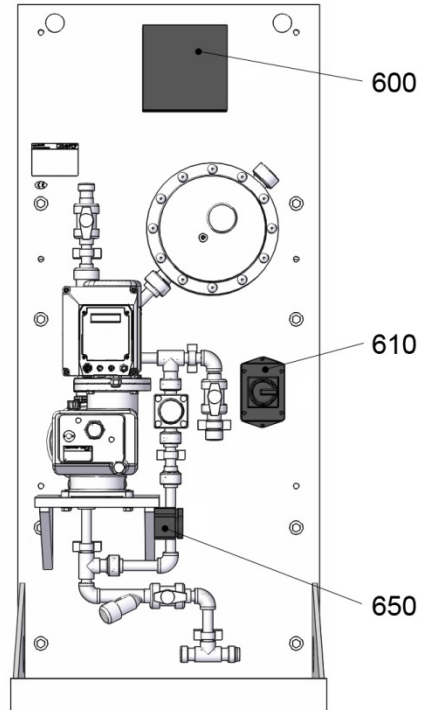


Fig.15 Option terminal box, socket and main switch

7.1.8 CVD1 – option leakage sensor (Pos. 700 / 710)

A magnetic float switch (pos. 700) or a leakage sensor (pos. 710) detects leakages at the system. This optional device can be integrated in the collecting basin.

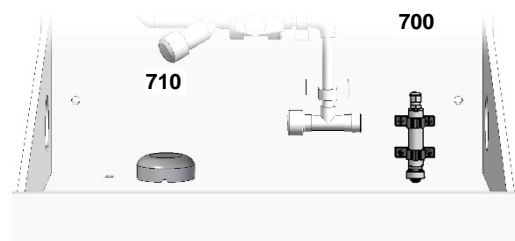


Fig.16 Option leakage sensor

CAUTION !	
The magnetic float switch (Pos. 700) is not approved according to WHG!	

7.1.9 Option multifunction device (Pos. 450)

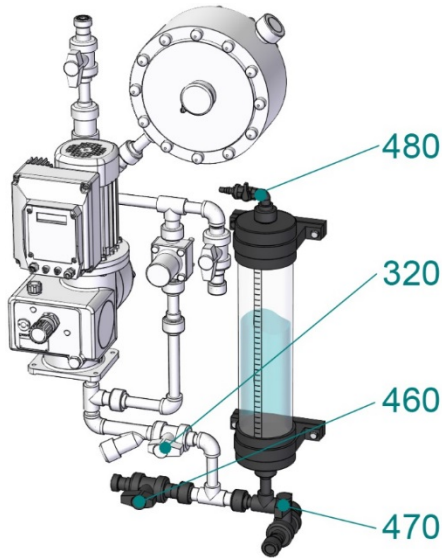


Fig.17 Option multifunction device (Pos. 450)

Pt.	Function	Position			
		480	320	460	470
1	Filling	<i>open</i>	<i>closed</i>	<i>open</i>	<i>closed</i>
2	Volumetric measurement	<i>open</i>	<i>open</i>	<i>closed</i>	<i>closed</i>
3	Priming aid / Siphon vessel	<i>closed</i>	<i>open</i>	<i>open</i>	<i>closed</i>

Volumetric measurement of dosing pump:

- Setting the ball cocks acc. pt 1 of the table
- Fill the device either according to the principle of interconnected tanks or with the help of a hand vacuum pump
- Setting the ball cocks acc. pt 2 of the table
- Volumetric measurement of pump, Read flow rate on scale, Setting the pump, repeat the process

CAUTION !



Don't overfill device (max. up to nominal contents) as otherwise medium can leak in the venting ball cock (resp. intake hose).

Filling of multifunction device:

- Setting the ball cocks acc. pt 1 of the table
- Fill multifunction device
- Setting the ball cocks acc. pt 3 of the table

Operate as Priming aid / Siphon vessel:

- Setting the ball cocks acc. pt 1 of the table
- Fill multifunction device
- Setting the ball cocks acc. pt 3 of the table
- Operate the dosing pump

**7.1.10 CVD1 - Option
stand for floor mounting**

The system is installed on a mounting plate for wall mounting as standard. A stand for floor mounting is available as option if there are no possibilities for wall mounting at the installation site.

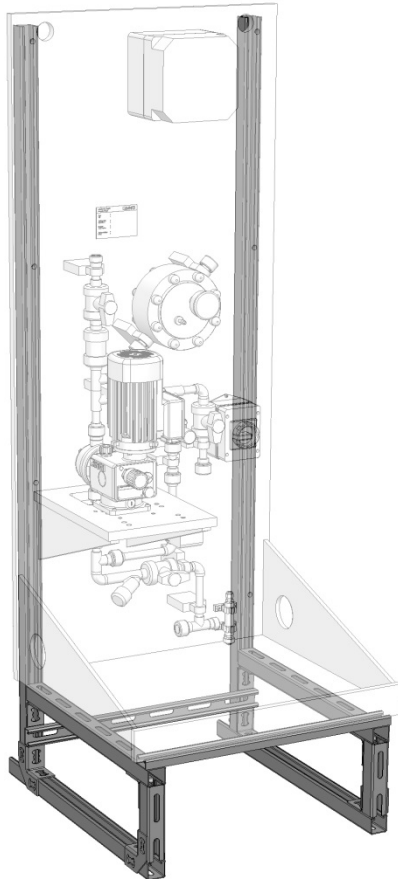


Fig.18 Option stand for floor mounting

7.2 CVD2

7.2.1 CVD2 – Basic unit

The chemical is dosed by two diaphragm pumps. The conveying capacities of the pump can be adjusted at the manual stroke length adjustment. Depending on the design of the dosing pump, an additional automatic dosing is possible via pulse or analogue signals.

The piping on the pressure side consists of a taper seat non-return valve and a ball valve as end connection. The pumps are protected against overpressure by an overflow valve. A drain ball valve for evacuation/pressure relief is fitted in the pressure pipe.

The pipes on the pressure and the suction side of the basic unit are not connected with each other.

The pumps and the corresponding fittings are mounted on a wall mounting plate with collecting basin.

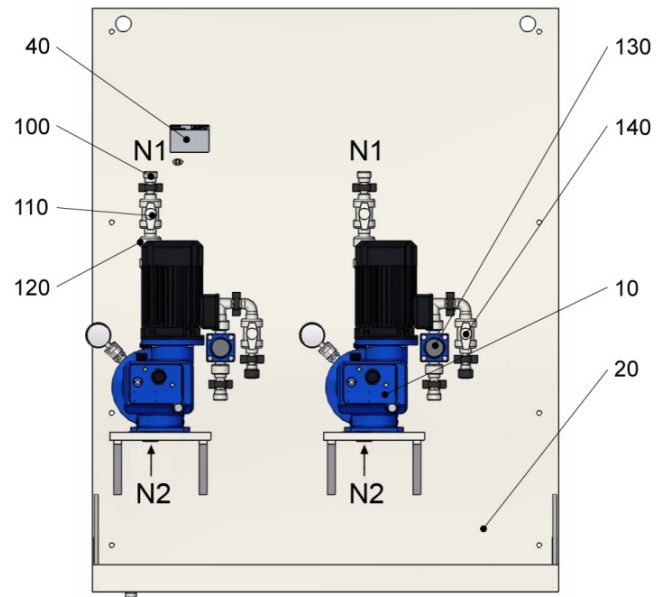


Fig. 19 CVD2 basic unit

10	2 pcs. diaphragm pumps
20	Wall mounting plate of PP (with integrated collecting basin and drain plug)
40	Type plate
100	Piping of PVC-U or PP on the pressure side End connection male thread
110	2 pcs. two-way ball valves (shut-off valves)
120	2 pcs. check valves
130	2 pcs. diaphragm overflow valves
140	2 pcs. two-way ball valves (discharge valves)
N2	End connection on the suction side: Male thread for suction valve of the diaphragm pumps

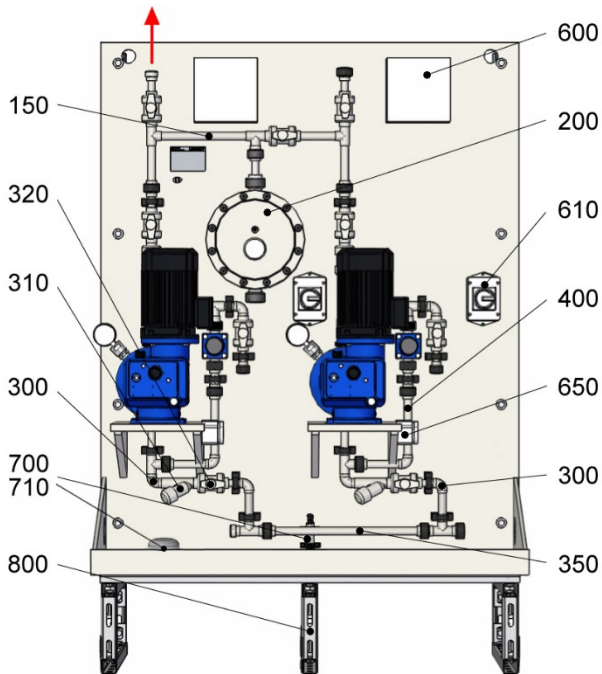
without	Protective roof for drive motor
500	Detachable splash guard

Operating Instructions

7.2.2 CVD2 - options

“Standby installation”

with connected pressure side (1 common pulsation damper)

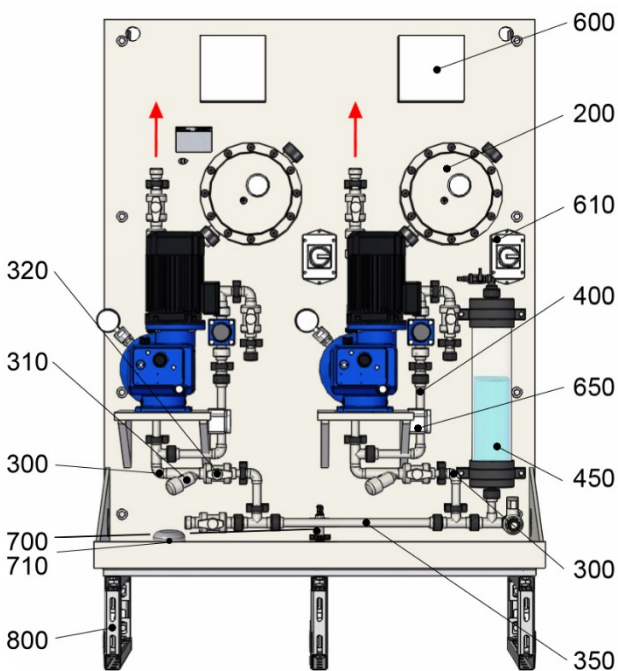


150	Connecting conduit on the pressure side (between pump 1 and pump 2)
200	Diaphragm pulsation damper
300	Piping on the suction side (with dirt trap and ball valve, 1x per pump)
310	Dirt trap
320	2/2 way ball cock
350	Connecting conduit on the suction side (between pump 1 and pump 2)
400	Piping overflow valve back into the suction pipe (only in connection with piping on the suction side, 1x per pump)
600	Terminal box
610	Main switch of pump
650	Socket (1x per pump)
700	Leakage sensor solenoid float switch
710	Leakage sensor conductive plate electrode
800	Stand for floor mounting (steel (galvanized) or GFK)

Fig. 20 „Standby installation“

“2x100% installation”

with separate pressure side (2 separate pulsation dampers)



200	Diaphragm pulsation damper
300	Piping on the suction side (with dirt trap and ball valve, 1x per pump)
310	Dirt trap
320	2/2 way ball cock
350	Connecting conduit on the suction side (between pump 1 and pump 2)
400	Piping overflow valve back into the suction pipe (only in connection with piping on the suction side, 1x per pump)
450	Multifunction device
600	Terminal box
610	Main switch of pump
650	Socket (1x per pump)
700	Leakage sensor solenoid float switch
710	Leakage sensor conductive plate electrode
800	Stand for floor mounting (steel (galvanized) or GFK)

Fig. 21 „2x100%-installation“

7.2.3 CVD2 – option suction side (Pos. 300+350)

The dosing pumps can be equipped with a piping on the suction side as option. Each of these pipings includes a ball valve as stop valve and a dirt trap.

The suction sides of each pump are separated from one another so that the medium can be taken from different barrels. The suction sides of the pumps can be connected when a further option "Connecting conduit on the suction side of pump 1 and pump 2" (Pos. 350) is added.

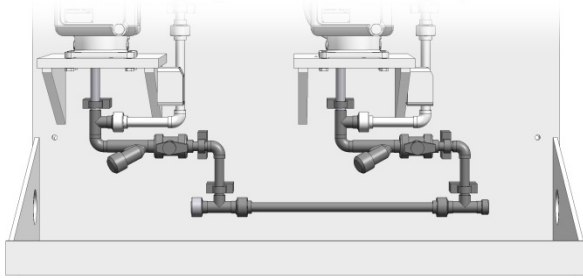


Fig.22 Option suction side

7.2.4 CVD2 – option diaphragm pulsation damper (Pos. 200)

The chemical is dosed by means of oscillating positive displacement pumps. A pulsation damper can be integrated in the pressure pipes for smoothing the pulsating flow of the pumps.

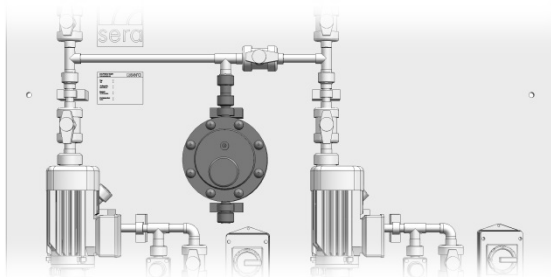


Fig.23 Option diaphragm pulsation damper

The following possibilities are given for the pump series CVD2

- Installation of a pulsation damper in each dosing leg and thus an independent operation of the pumps for different applications
- Connection of the dosing pumps through the additional option "Connection of the pressure side of pump 1 and pump 2" and installation of a common pulsation damper
- Connection of the dosing pumps through the additional option "Connection of the pressure side of pump 1 and pump 2" and installation of a common pulsation damper in each dosing leg. This enables a 100% standby operation of the dosing pumps.
(Connection of pressure side only possible on left connection N1).

CAUTION !



Whether pulsation dampers must be installed or not, depends on the design of the overall system and must be determined from case to case!

Decisive factors are, among others, the pump size, the pipe geometry (length and diameter), pipe losses, the geodetic height to be negotiated and the opening pressure of injection fittings (which might be present) resulting from the spring load.

7.2.5 CVD2 – option piping of the overflow valve (Pos. 400)

When the overflow valves open, the medium can be led back into the suction pipes via return pipes.

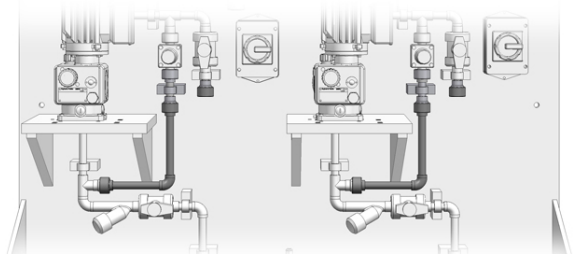


Fig.24 Option piping of the overflow valve

CAUTION !



This option may only be used when a multifunction device is mounted, or when the backflow of the medium into the corresponding tank is not hindered by a foot valve or similar in the suction pipe.

Inobservance of this note may result in damage to the system, the pump or adjacent system parts.

7.2.6 Option multifunction device (Pos. 450)

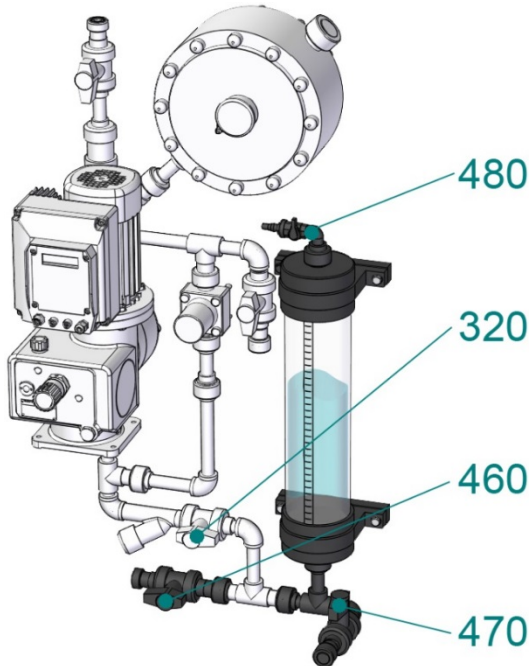


Fig.25 Option multifunction device (Pos. 450)

Pt.	Function	Position			
		480	320	460	470
1	Filling	open	closed	open	closed
2	Volumetric measurement	open	open	closed	closed
3	Priming aid / Siphon vessel	closed	open	open	closed

Volumetric measurement of dosing pump:

- Setting the ball cocks acc. pt 1 of the table
- Fill the device either according to the principle of interconnected tanks or with the help of a hand vacuum pump
- Setting the ball cocks acc. pt 2 of the table
- Volumetric measurement of pump, Read flow rate on scale, Setting the pump, repeat the process

CAUTION !



Don't overfill device (max. up to nominal contents) as otherwise medium can leak in the venting ball cock (resp. intake hose).

Filling of multifunction device:

- Setting the ball cocks acc. pt 1 of the table
- Fill multifunction device
- Setting the ball cocks acc. pt 3 of the table

Operate as Priming aid / Siphon vessel:

- Setting the ball cocks acc. pt 1 of the table
- Fill multifunction device
- Setting the ball cocks acc. pt 3 of the table
- Operate the dosing pump

7.2.7 CVD2 – option terminal box (Pos. 600), socket (Pos. 650 / 660) and main switch (Pos. 610)

The system can be fitted with terminal boxes or sockets or main switches as transition points for power connections or a signal exchange.

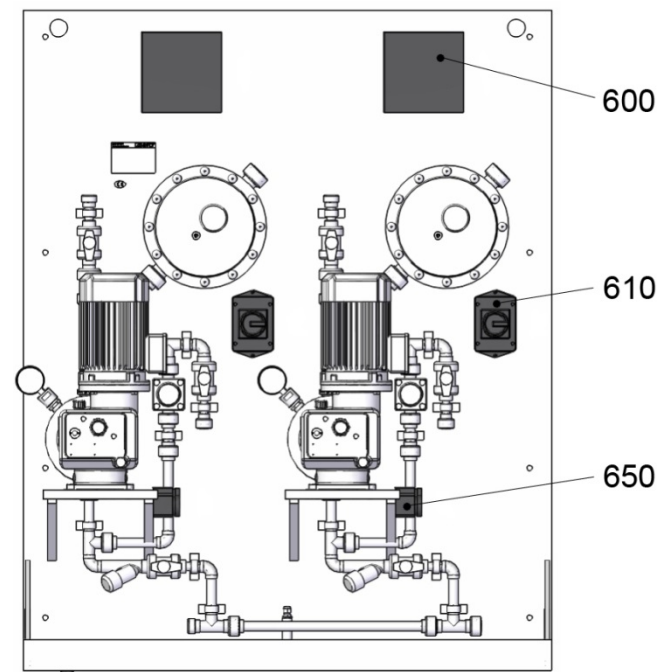


Fig.26 Option terminal box, socket and main switch

7.2.8 CVD2 – option splash guard (Pos. 500)

A splash guard is available as option to protect the operating personnel against chemical splashes which may occur due to damage on the system. The splash guard consists of three parts. The side parts are fixed, the front part is removable.

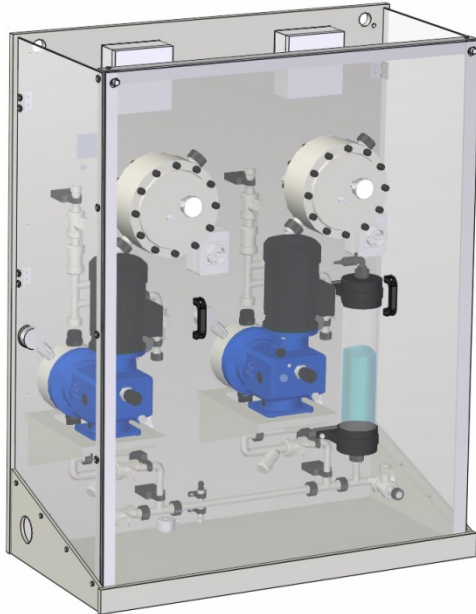


Fig.27 Option splash guard

7.2.9 CVD2 – option leakage sensor (Pos. 700 / 710)

A magnetic float switch (pos. 700) or a leakage sensor (pos. 710) detects leakages at the system. This optional device can be integrated in the collecting basin.

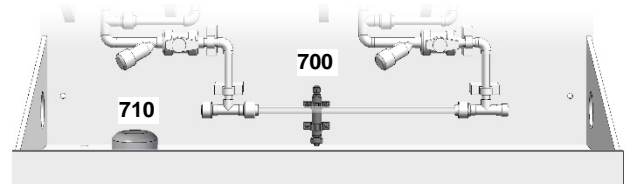


Fig.28 Option leakage sensor

CAUTION !



The magnetic float switch (Pos. 700) is not approved according to WHG!

7.2.10 CVD2 - option stand for floor mounting

The system is installed on a mounting plate for wall mounting as standard. A stand for floor mounting is available as option if there are no possibilities for wall mounting at the installation site.

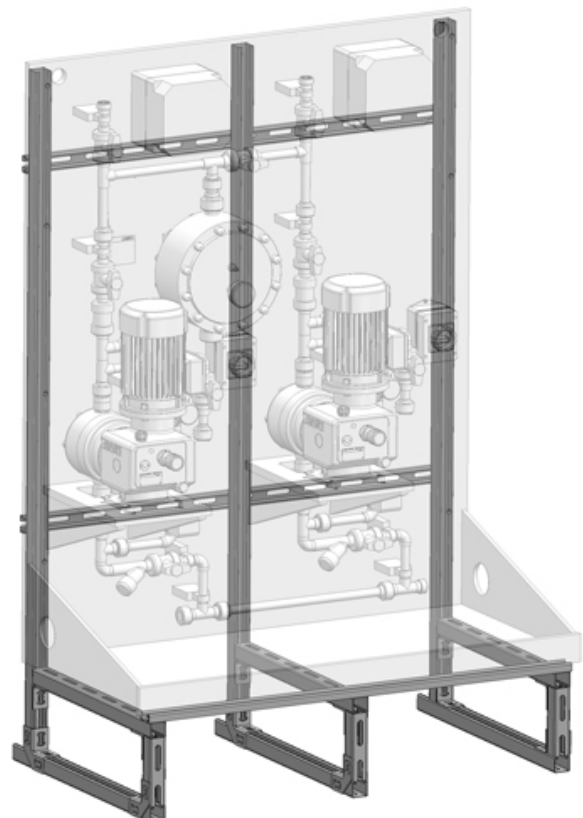


Fig.29 Option stand for floor mounting

7.3 Accessories

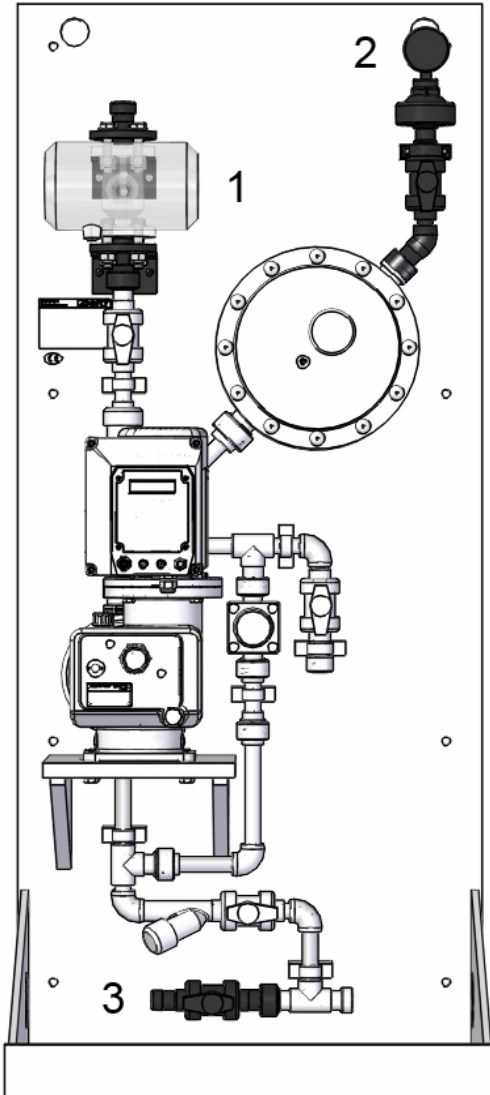


Fig.30 Accessories 1-3

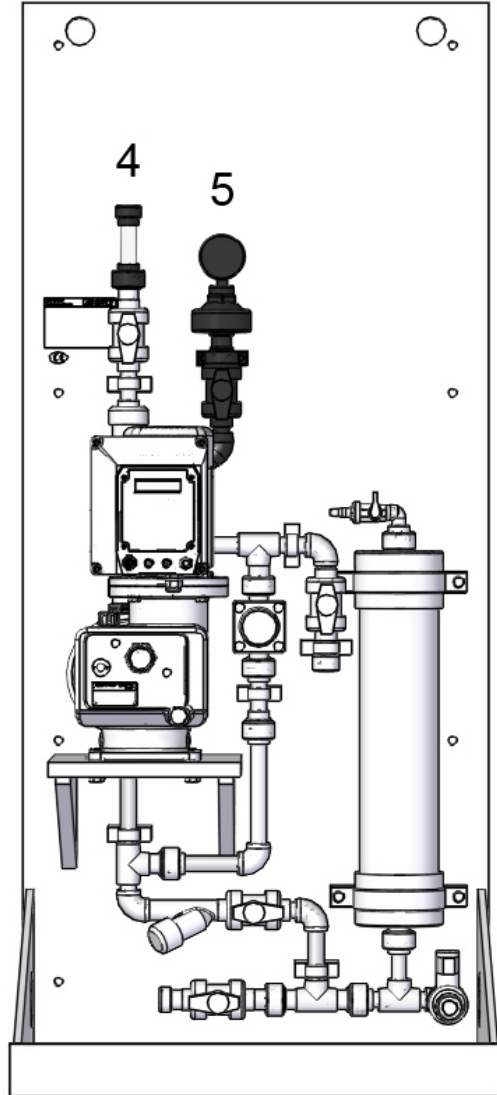


Fig.31 Accessories 4-5

1. MID Mounting for flow meter
2. Manometer
3. Rinsing ball cock

1. Inspection glas
2. Manometer

Operating Instructions

8 Installation and assembly

The following points must be observed when the dosing system is installed:

- Check the complete dosing system for damage (e.g. transport damage).
- The system is designed for indoor installation and must be protected from direct sunlight.
- Build in the dosing system and attach it with appropriate material.
- The pipings on the suction and pressure side must be sufficiently dimensioned.
- Connect all pipes and make sure that they are tension- and vibration-free. An offset of the pipes within the area of the screwed and flanged connections must be avoided by all means.
- Connect the return pipe from the overflow valve so that a free and unhindered backflow of the medium is guaranteed (directly into the corresponding tank or using the option according to Chapter 5.2.3.).
- Replace the transport closure (oil sight glass with seal) at the oil filler cap of the pump with the attached vent screw (**observe the notes on the pump!**).
- The electrical connections are to be made in accordance with the VDE (Association of German Electrotechnical Engineers) or the local electrical regulations applicable. Please see Chapter 8.4 "Electrical connection".

8.1 Place of installation

- The place of installation must be frost resisting and ventilated.
- An installation in an aggressive or explosion-hazardous area is not permitted.
- The installation data according to the Appendix must be regarded.
- The installation site must be equipped with proper lighting for all works to be carried out (installation, operation, maintenance etc.).
- Leaking chemicals must be disposed off in a safe and secure manner at the installation site.

CAUTION !



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!

8.2 Wall mounting

Attach the system to the wall at a suitable height. Select the installation height so that operation and maintenance of the system are possible at any time.

The position of the bore holes is shown in figure 03 for the CVD1 and figure 06 for the CVD2 in Chapters 6.1 and 6.2 "Dimensions".

CAUTION !



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!

CAUTION !



Pay attention to the carrying capacity of the wall. The wall must be flat so that the wall mounting plate can be fixed without tension.

8.3 Floor mounting

Fasten the stand to the floor. Place the system in such a way that operation and maintenance are possible at any time.

See in figures 04/05 for the CVD1 and figures 07/08 for the CVD2 in Chapters 6.1 and 6.2 "Dimensions".

CAUTION !



The fastening material is not included in the scope of supply and must be provided by the customer depending on the condition of the floor!

CAUTION !



The mounting area must be flat. Take appropriate measures in order to compensate for height differences so that the stand can be fastened without tension.

Operating Instructions

8.4 Electrical connection

The electrical connection of the system is to be made depending on the system design (please see the product description in the Appendix) and according to the wiring diagrams on the data carrier supplied.

CAUTION !



The electrical connection must only be done by qualified personnel! The local safety regulations must be observed!

CAUTION !



The fuse protection and the characteristics of the electrical components are indicated in the separate manuals.

CAUTION !



Have the electrical installation checked by the responsible safety officer after the work was finished. Carry out an insulation measurement if necessary!

9 Commissioning

CAUTION !



Start the system only after it was released by the responsible safety officer!

CAUTION !



In principle the system is started up with water.

CAUTION !



It is the owner's task to ensure that the local regulations for prevention of accidents are observed!

Carry out the following steps to start the system:

- Before commissioning check all the pipe connections, screwed and flanged connections etc. for proper fit and retighten, if necessary.
- Before switching on the system for the first time, the following points should be checked:
 - Check the electrical connections and the terminal assignment.
 - Check the electrical excess-current cut-outs for proper operation and correct setting.
 - Check whether the local supply voltage and frequency correspond with the indications on the type plates.
 - Check proper function of the leakage sensor **(option – must be evaluated by the customer)** by lifting the float switch
 - Check proper function of the leakage sensor solenoid float switch (without admission WHG) **(option – must be evaluated by the customer)** by lifting the float switch.
To check proper function of the leakage sensor plate electrode EP (with admission WHG) **(option – must be evaluated by the customer)** see data sheet.
- Carry out the first start-up with water. Pay attention to the water quality according to Chapter 2.
- Open all shut-off devices that are required for operation. Close the shut-off devices for emptying the pipes.
- Set the stroke adjustment and the stroke frequency adjustment (only for C-pumps) to values lower than 50% and start the pumps slowly.
- Preload the pulsation damper **(option)** to the pressure required for operation according to the separate operating instructions (see data carrier). This corresponds normally to 50% of the operating pressure.
- The overflow valves are factory set to the maximum admissible operating pressure of the dosing pump(s) (see product description).

CAUTION !



Check whether the set pressure of the overflow valves must be reduced in relation to other system parts installed which may only be submitted to a lower load. Correct the settings according to the operating instructions "Diaphragm overflow valve" (TA 048, see data carrier enclosed).

- Have the pump(s) deliver against operating pressure and check the piping for leakage.
- After start-up drain off the water completely from all the pipes, tanks and pumps.
- Start the dosing system with the chemical reagent.

CAUTION !



Note the compatibility of the chemical with water and take appropriate measures, if necessary. Pay attention to the safety data sheet of the medium.

Make sure that no exothermic reactions can occur which may lead to personal injury or damage to the system.

Operating Instructions

10 Maintenance

10.1 General

All maintenance work is to be documented carefully.

All technical devices must be serviced in order to guarantee proper function of the system. Generally valid statements cannot be made as the maintenance schedule depends on various factors.

- Maintain the pumps according to the separate instructions (see data carrier).
- Check the piping for tightness once a week, and repair, if necessary.
- Check the screwed connections for tightness every six months or before starting the system after a longer period of standstill.
- Check the system visually, and check the pressure every six months.
- Check proper function of the leakage sensor every six months
(option – must be evaluated by the customer)
by lifting the float switch
- Check proper function of the leakage sensor solenoid float switch (without admission WHG) every six months by lifting the float switch.
To check proper function of the leakage sensor plate electrode EP (with admission WHG)
see data sheet.
(option – must be evaluated by the customer)
- Service the diaphragm overflow valve according to the separate instructions.
- Check the wires and electrical components for visual damage (loose connections, damaged cables, damaged devices etc.) every six months.
- Check the preload pressure of the pulsation damper (**option**) once a week according to the separate instructions and adjust, if necessary.

CAUTION !



Depressurize the system before starting maintenance work.

CAUTION !



Rinse the system with water (water quality according to Chapter 2) or a suitable medium until the system is free from any chemical residues before starting maintenance or repair work or replacing wearing parts.
Note the compatibility of the rinsing medium with the chemical according to the safety data sheet.

Exothermic reactions must be avoided by all means!

CAUTION !



Disconnect the system from the power supply and secure against being switched on again by appropriate measures, before starting maintenance and repair work or replacing wearing parts.
Consult a specialized electrician.

10.2 Wearing parts

sera recommends to maintain the system twice a year to ensure proper operation.

Yearly maintenance comprises replacement of the gaskets that come into contact with the chemical, diaphragms (yearly or after 3,000 operating hours), suction and pressure valves of the dosing pumps. Please see also the separate instructions on the data carrier for maintenance of the parts.

Maintenance work which is carried out every six months comprises the checking of the complete dosing system.

- Check the overall function.
- Check the complete system for leakages.
- Check proper function of the leakage sensor (**option**).
- Check proper function of the pulsation damper according to the separate instructions (**option**).
- Check the wires and electrical components for visual damage at regular intervals (loose connections, damaged cables, damaged devices etc.).
- Check the oil filling level of the dosing pumps.

11 Decommissioning

The following points must be observed when you decommission the system:

- Drain the chemical from the pipes.
- Rinse the pipes with water (water quality see Chapter 2) or a suitable medium and empty the pipes afterwards.
- Set the stroke length of the pumps to 50% to remove load from the diaphragm.
- Reduce preload pressure of the pulsation damper.
- Disconnect the system from the power supply.

CAUTION !



After the chemical was drained, rinse the system with water (water quality according to Chapter 2) or a suitable medium until there are no more chemical residues in the system!

Note the compatibility of the rinsing medium with the chemical according to the safety data sheet.

Exothermic reactions must be avoided by all means!

Operating Instructions

12 Fault analysis and corrective action

sera products are sophisticated technical products which are only shipped after having been thoroughly tested and checked at our factory.

Should there be any faults, these can be detected and rectified easily and quickly according to the following instructions.

- For fault analysis and corrective action of the dosing pumps, please see the separate instructions on the data carrier.

13 Remaining risk / foreseeable faults

Transport of the system
Load is not sufficiently secured for transport.
Transport by untrained personnel.
Removal of transport lock of the pump.
Installation
Installation of the system at an improper site (outside, direct sunlight, explosion-hazardous area etc.)
Confusion of the suction and pressure pipes.
Threads overturned/damaged
Do not replace the transport closure at the oil filler cap with the vent screw.
Piping bent when it was mechanically connected
Non-conforming electrical connection (without ground wire, mains not fuse-protected etc.)
Commissioning
Non-observance of the design data/operating conditions (medium, pressure, suction height, temperature etc.)
Incomplete removal of the test medium (water) before start-up with the chemical (dangerous reactions)
Non-observance of the electrical characteristics (motors, sensors)
Cover on vent openings (motor)
Closed suction and pressure pipes
Wrong settings of the overflow valves
Overfilling of the multifunction device during suction
Operation
Operation of the pump/overflow valve with defective diaphragm
Ignoring a pump fault
Operation of the system beyond the limit values (nominal pressure exceeded, pressure peaks, contaminated medium (with particles))
Sudden closure of the pressure pipe
Maintenance
Disregard of the maintenance schedule according to the operating instructions
Improper maintenance
Use of non-original spare parts
Insufficient rinsing before maintenance work
Cleaning
Protective clothing insufficient or missing
Wrong rinsing/cleaning agent
Use of unsuitable cleaning utensils
Rinsing/cleaning agent residues in the system
Repair/corrective action
Repair work by untrained personnel
Improper execution of repair work
Decommissioning
Insufficient removal of the pumped medium from the pipes with subsequent rinsing
Disassembly of pipes with the pump running (residual pressure)
Disconnection from the power supply not ensured
Disposal
Improper disposal of the pumped medium, utilities and materials


14 Disposal

Shut-down the system. Please see “Decommissioning”.

14.1 Disassembly and transport

- Remove all fluid residues, clean thoroughly, neutralize and decontaminate.
- Rinse the pipes with water (water quality see Chapter 2) or a suitable medium and empty the pipes afterwards.
- Package the dosing system appropriately and ship.
- If the system is shipped for repair the gearing must be filled with oil.


CAUTION !	
Transport the system in a horizontal position!	

CAUTION !	
Check if the transport lock of Pump is mounted!	

CAUTION !	
Close the pipe openings for transport!	

14.2 Complete disposal

- Remove all fluid residues (incl. utilities) from the unit.
- Drain lubricants and hydraulic fluids and dispose off according to the regulations!
- Rinse the pipes with water (water quality see Chapter 2) or a suitable medium and empty the pipes afterwards.

CAUTION !	
The consignor is responsible for damage caused by leaking lubricants and fluids!	

15 Clearance Certificate

NOTE!



Inspection / repair of machines and machine parts is only carried out after the opposite clearance certificate was filled in correctly and completely by authorized and qualified personnel.

NOTE!



Acceptance will be refused if parts are returned to the manufacturer without a proper clearance certificate.

All industrial companies are obligated by the legal provisions for occupational health, e.g. the workplaces ordinances, the Ordinance on Hazardous Substances, the regulations for prevention of accidents and the environmental protection regulations such as the Waste Management Act and the German Household Water Act to protect their employees or man and the environment from detrimental effects when handling hazardous substances.

Should special safety precautions be necessary despite careful draining and cleaning of the product the necessary information are to be provided.

Machines which are operated with radioactive media shall only be inspected and/or repaired in the safety area of the owner by a sera specialized fitter.

The clearance certificate is part of the inspection-/repair order. sera reserves the right to refuse acceptance of the order for other reasons.

NOTE!



Please make a copy and leave the original with the operating instructions!

(can also be downloaded from: www.sera-web.com)

Operating Instructions

Clearance Certificate

Product

Type Serial-No.

the product was carefully emptied before shipping / delivery, and cleaned inside and outside. YES

Conveying medium

Designation Concentration %

Properties

Please tick!

If either of the listed properties, then enclose the appropriate safety and handling instructions.

Harmless

Toxic Corrosive Flammable Oxidising Unhealthy

Explosive Dangerous for the environment Irritant Bio-hazardous Radioactive

The product was used with health or water-polluting substances and came up with labeling requirements and pollution prone media in contact. YES NO

Special security arrangements with respect to health or water-hazardous media are in the further handling not required required

The following safety precautions regarding rinsing, residual liquids and waste disposal are required:

Process data

The product was used with the following operating conditions described conveying medium:

Temperature °C Pressure bar

Sender

Company: Telephone:

Contact person: FAX:

Address: E-mail:

Zip code, City: Your order No:

We confirm that we have the information in this safety certificate (Clearance Certificate) have been correctly and completely and that the returned parts were carefully cleaned.

The parts are sent free of residues of dangerous amount.

Place, Date

Department

Signature
(and company stamp)

16 Appendix

16.1 Documentation of the system parts

Operating instructions of the system subassemblies (pump, fittings etc.) on the enclosed data carrier must be observed by all means!



Notes

