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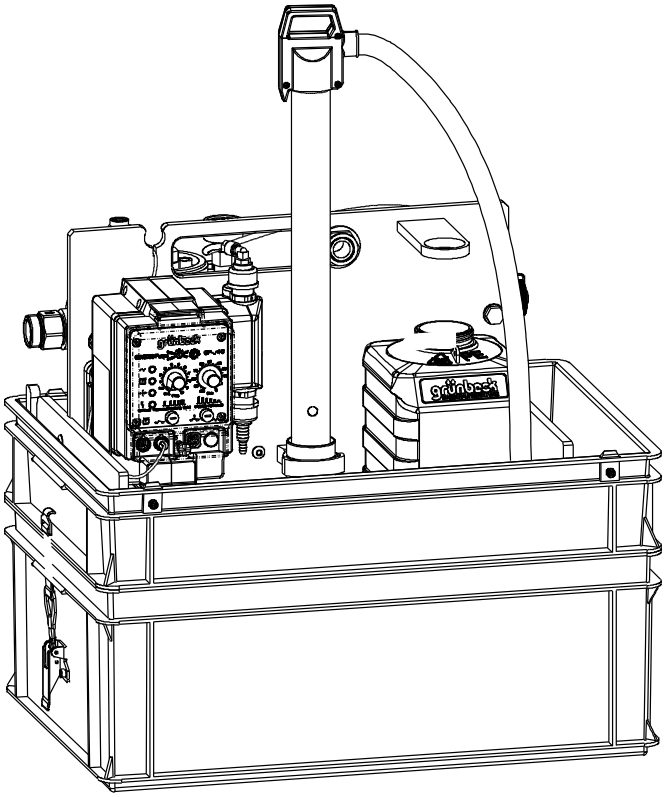
Operating Manual
Dosing System MOBIdos



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Publisher's information

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CE

EU Declaration of Conformity

This is to certify that the system designated below meets the safety and health requirements of the applicable European guidelines in terms of its design, construction and execution.

If the system is modified in a way not approved by us, this certificate will be invalidated.

Manufacturer:	Grünbeck Wasseraufbereitung GmbH Josef-Grünbeck-Strasse 1 89420 Hoechstaedt/Germany
Responsible for documentation:	Markus Pöpperl
System designation:	Dosing system
System type:	MOBIdos
Serial number:	Refer to type designation plate
Applicable guidelines:	Low Voltage (2014/35/EU) EMC (2014/30/EU)
Applied harmonised standards in particular:	DIN EN 61000-6-2:2006-03 DIN EN 61000-6-3:2011-09
Applied national standards and technical specifications, in particular:	
Place, date and signature:	Höchstädt, 21.05.2019 p.p.
	Markus Pöpperl Dipl. Ing. (FH)
Function of signatory:	Head of Technical Product Design

A General information

1 | Preface

Thank you for opting for a Grünbeck product. Backed by decades of experience in the area of water treatment, we provide tailor-made solutions for all kinds of water problems.

Drinking water is classified as food and requires particular care. Therefore always ensure the required hygiene when operating and maintaining all systems involved in the drinking water supply. This also applies to the treatment of water for industrial use if repercussions for the drinking water cannot be completely excluded.

All Grünbeck systems and devices are made of high-quality materials. This ensures reliable operation over many years, provided that you treat your water treatment systems with the required care. This operating manual assists you with important information. Therefore, please read the complete manual before installing, operating or maintaining your system.

Customer satisfaction is our prime objective and providing customers with qualified advice is crucial to Grünbeck. If you have any questions concerning this system, possible extensions or general water and waste water treatment, our field staff, as well as the experts at our headquarters in Hoechstaedt, are available to help you.

Advice and assistance is available from the person responsible for your region (see www.gruenbeck.de). Our service hotline is available for emergencies +49 (0) 90 74 / 41-333. We can connect you with the appropriate expert more quickly if you provide the required system data. In order to have access to this data at all times, please insert the information from the type designation plate into the overview in chapter C, section 1.

2 | How to use this operating manual

This operating manual is intended for the operators of our systems. It is divided into several chapters (a letter is assigned to each of them) that are listed in the “Table of contents” on page 2 in alphabetical order.

3 | General safety information

3.1 Symbols and notes

Important information in this operating manual is characterised by symbols. Please pay particular attention to this information to ensure the hazard-free, safe and efficient handling of the system.

Danger! Failure to adhere to this information will cause serious or life-threatening injuries, extreme damage to property or inadmissible contamination of the drinking water.

Warning! Failure to adhere to this information may cause injuries, damage to property or contamination of the drinking water.

Caution! Failure to adhere to this information may result in damage to the system or other objects.

Note: This symbol characterises information and tips to make your work easier.

Work identified in this way must only be carried out by Grünbeck technical service/an authorised specialist company or by people expressly authorised by Grünbeck.

Tasks with this symbol may only be performed by qualified electrical experts according to the VDE guidelines or according to guidelines from a similar local institution.

Tasks with this symbol may only be performed by the local water works or an approved installation company.

3.2 Operating personnel

Only persons who have read and understood this operating manual are permitted to work on the system. The safety guidelines must be strictly observed.

3.3 Designated use

The system may only be used for the purpose outlined in the product description (chapter C). The guidelines in this operating manual as well as the applicable local guidelines concerning drinking water protection, accident prevention and occupational safety must be observed. In addition, designated application also implies that the system may only be operated when it is in proper working order. Any faults must be repaired at once.

The product is designed exclusively for use in industrial and commercial applications.

3.4 Protection from water damage

Warning! In order to properly protect the installation site from water damage:

1. a sufficiently dimensioned floor drain system must be available or
2. work must be continually supervised.

Warning! Floor drains that are discharged to the lifting system do not function in case of a power failure.

3.5 Indication of specific dangers

Danger due to electrical energy!
Do not touch electrical parts with wet hands.
Disconnect the system from the mains before starting work on electrical parts of the system. Arrange for qualified experts to replace damaged cables immediately.

Danger due to mechanical energy!
System parts may be subject to overpressure. Danger of injury and damage to property due to escaping water and the unexpected movement of system parts. Check the pressure pipes regularly. Depressurise the system before starting repair or maintenance work on the system.

Hazardous to health due to contaminated drinking water!
Arrange for the system to be installed and operated by a specialist company. The operating manual must be strictly observed! Inspections and maintenance must be performed at the intervals specified!

Danger! Disinfectants are hazardous substances. The relevant safety information and safety data sheets are to be observed and the prescribed protective equipment is to be used when using optional disinfectants.

Note: By concluding a maintenance contract, you ensure that all of the required tasks are performed on time. You may perform the interim inspections yourself.

4 | Transport and storage

Caution! The system may be damaged by frost or high temperatures. In order to avoid damage of this kind:

Protect it from frost during transportation and storage!
Do not install or store the system next to objects which radiate a lot of heat.

5 | Disposal

Obey the applicable national regulations.

5.1 Packaging

Dispose of the packaging in an environmentally sound manner.

5.2 Product

If this symbol (crossed-out wheelie bin) is on the product, this product or its electrical and electronic components must not be disposed of as household waste.

Dispose of electrical and electronic products or components in an environmentally sound manner.

If your product contains batteries or rechargeable batteries, dispose of them separately from your product.

For more information on take-back and disposal, go to www.gruenbeck.com .

B Basic information

1 | Laws, regulations, standards

In the interest of good health, rules cannot be ignored when it comes to the processing of drinking water (raw water). This operating manual takes into consideration the current regulations and stipulates information that you will need for the safe operation of your water treatment system.

Among other things, the regulations stipulate that

- only approved companies are permitted to make major modifications to water supply facilities.
- and that tests, inspections and maintenance on installed devices are to be performed at regular intervals.

In order to ensure drinking water quality, the issue of hygiene in installations is becoming increasingly important. On the one hand, when starting up the installation there is the issue of cleaning by means of flushing and then, depending on water hardness, the implementation of measures to prevent lime scale. On the other hand, there are sanitation measures such as sanitation flushing, disinfection, the removal of lime scale and rust as well as the creation of a protective layer by means of mineral dosing. These measures result from the latest requirements of the German drinking water ordinance and standards, in particular DIN EN 806-4.

The DVGW work sheet W 557 describes the "cleaning and disinfection of drinking water installations".
It serves as the basis for avoiding and eliminating microbial contamination and undesired deposits in drinking water installations as defined by the drinking water ordinance. It describes the cleaning of drinking water installations and the system disinfection of drinking water installations or parts thereof and designates which disinfection methods are to be applied and when as well as preventative measures for avoiding microbial contamination.
In contrast, the continuous disinfection of drinking water (drinking water disinfection) is described in DVGW work sheet W 556 (under preparation).

2 | Differentiation between "system disinfection" and the "disinfection of the drinking water"

"System disinfection" is a complete measure for the disinfection of a drinking water installation and during this time drinking water is not available to consumers. "System disinfection" is only a long term solution if the causes of contamination are remedied.

"Disinfection of the drinking water" is transient long-term disinfection before and/or during the technical sanitation of the drinking water installation. The addition of disinfection by the water supplier must be taken into account.

3 | Basis as per W 557, section 4

Drinking water must not impair the health of consumers. In addition to the long-term protection of drinking water resources and preparation and distribution in accordance with the generally recognised codes of practice this also requires a properly planned, set up and operated drinking water installation.

In particular, the drinking water installation can become contaminated when newly constructed and during repairs. Contamination with pathogens is a key danger. As long as the contamination remains suspended or dissolved in the water, it is possible to rinse it out of the drinking water installation without any great difficulties. The first step in eliminating contamination is always cleaning. This is also true with microbial contamination. Micro-organisms embedded in particles or corrosion products are virtually impossible to kill off with disinfectants as these are unable to access the micro-organisms. For this reason, the particles or corrosion products must be removed by rinsing or other cleaning measures. System disinfection may be necessary as an additional safety measure.

In existing drinking water installations with zinc-coated steel pipelines in the hot water area, the water can become discoloured after even a brief stagnation time due to corrosion. Flushing and other cleaning measures are either not effective or only effective for a short time in such cases. The dosing of inhibitors can possibly result in an improvement .

Corrosion causes deposits to build up regardless of whether or not there is immediate discolouration of the water. These can be due to precipitation in the hot water area or from the flushing in of solid particles from the supply network (e.g., rust particles). If there are deposits, there is a risk that these will be mobilised when a large amount of water is withdrawn and, consequently, the water is discoloured or becomes clouded. Moreover, deposits facilitate the multiplication of micro-organisms which can, in turn, result in microbial degradation. In order to prevent this, the installation must be cleaned if it contains deposits.

In drinking water installation which are planned, built, commissioned, operated and maintained in accordance with the generally recognised codes of practice, the microbiological sound quality of the drinking water is ensured at the withdrawal point. In particular the following must be ensured:

- Operation as intended (including regular withdrawal of water at all withdrawal points)
- Temperature of the cold drinking water not in excess of 25 °C
- Temperature of the hot drinking water in the entire circulation system not below 55 °C
- Regular maintenance

If the limit values of the drinking water ordinance are exceeded for microbiological parameters or if the technical action value of the drinking water ordinance is reached or exceeded or the requirements of the UBA (Federal Environmental Agency) recommendations are not complied with, microbial contamination must be eliminated in the interests of health protection. In such cases, system disinfection may additionally bee necessary after cleaning.

Note: Cleaning measures and system disinfection are only effective in the long term if the causes of contamination, in particular in connection with microbial contamination, have been remedied.

4 | Preventative measures as per W 557, section 5

The DVGW work sheet W 557 describes the following points, amongst others, in detail.

W 557, 5.1
Requirements on components, apparatus and materials
In order to prevent the multiplication of micro-organisms in drinking water through the introduction of nutrients from the materials and products used, all system parts that come into contact with the drinking water as intended must be in a perfect hygienic condition and suitable for use in the drinking water sector (see §12 of the AVBWasserV (German Ordinance on General Conditions for the Supply of Water). …

W 557, 5.2
Protection against impurities from the construction through to the commissioning of new drinking water installations
Preventative measures when constructing a new drinking water installation are the professional planning, construction and starting up of the system. The introduction of impurities into the drinking water installation should be prevented. …

W 557, 5.3
Protection against impurities when servicing existing drinking water installations

W 557, 5.4
Avoiding deposits during operation
The formation of undesirable deposits as a result of corrosion can only be completely prevented by replacing corroding components.

The information in DIN 1988-200 and DIN EN 806-4 should be observed to prevent deposits in the drinking water installation caused by lime precipitation.

The rinsing of solid particles (e.g. rust particles) into the drinking water installation can be prevented by installing a filter into the drinking water installation according to DIN EN 13443-1 and DIN 19628.

W 557, 5.5

Designated operation of the drinking water installation

Regular professional servicing is a prerequisite for the hygienically safe designated operation of a drinking water installation. A designated operation occurs when

- the drinking water installation is operated as determined in the planning,
- harmful stagnation in the entire drinking water installation is avoided (including regular water withdrawal),
- the temperatures for cold and heated drinking water are observed and

the measures to protect the drinking water according to DIN EN 806-5, DIN EN 1717 and DIN 1988-100 as well as the servicing intervals and maintenance intervals in particular are observed.

5 Disinfection as per W 557, section 7

W 557, 7.1

Objective of the disinfection

If the microbiological limit values of the German Drinking Water Ordinance are exceeded or the requirements of the Federal Environment Agency (UBA) recommendation for Pseudomonas aeruginosa are not observed, the microbial contamination must be eliminated in the interests of health protection. The system needs to be disinfected (system disinfection) if this cannot be achieved by rinsing or other cleaning measures. The objective of the system disinfection is to restore the drinking water installation to a perfect hygienic condition. To do this, it is necessary to kill or deactivate undesirable micro-organisms that are present in both the body of water and biofilms.

A temporary disinfection of the drinking water (drinking water disinfection) can be useful as an additional measure until the technical sanitation of the drinking water installation. The materials and procedures approved for this are included in the list of treatment substances and disinfection procedures adopted by the Federal Environment Agency on the basis of § 11 of the German Drinking Water Ordinance. Drinking water is available to consumers in the course of this measure.

A permanent, prophylactic, chemical/electrochemical disinfection of drinking water in drinking water installations that is set up and operated in accordance with the generally recognised codes of practice is neither necessary nor appropriate. A permanent chemical disinfection of the drinking water whilst simultaneously reducing the hot water temperature with the objective of saving energy does not comply with the generally recognised codes of practice; it also contradicts the minimisation requirements of the German Drinking Water Ordinance (TrinkwV 2001).

W 557, 7.2 System disinfection 7.2.1

Principles

In contrast to the drinking water disinfection, the system disinfection is a discontinuous measure that includes the drinking water installation from the contaminated area through to the point at which it is withdrawn by consumers. The system disinfection should always be carried out by specialist companies.

Drinking water is not available to consumers from the drinking water installation whilst the system is being disinfected. It must be ensured that no water intended for drinking can be withdrawn from the treated system by taking suitable measures. If necessary, drinking water must be made available from a different source. A safety device should be fitted vis-à-vis the public drinking water supply during a chemical disinfection of the system in accordance with the generally recognised codes of practice (particularly DIN EN 1717 and DIN 1988-100). There must be a sufficient number of personnel available to carry out the system disinfection. The personnel must be instructed beforehand; if necessary suitable safety equipment should be made available. Risks due to chemicals or scalding should be avoided by taking suitable measures.

Before initiating a disinfection measure, the cause and location of the contamination must be established as far as possible. System disinfection is only a long term solution if the causes of contamination are remedied. Otherwise the success hereof is only short term. The system should be cleaned before a system disinfection (see W557, section 6). In order to disinfect all withdrawal points, these must be identified, documented and made accessible for disinfecting beforehand. An up-to-date as-completed drawing (revision plan) should be available.

The system disinfection is carried out thermally or with the use of chemical disinfectants. Every system disinfection places a strain on the components and materials used in the drinking water installation which can result in the drinking water installation being damaged (see 7.5). Regular system disinfection in order to prevent contamination is thus not recommended. Contaminated components, e.g., apparatus and fittings, which cannot be disinfected by taking the designated measure, must be removed and either disinfected separately or replaced. Dead lines must be removed from the drinking water installation prior to the disinfection. Apparatus and components should be handled according to 7.3.

The disinfection should be fully documented with all the relevant circumstances (see W 557, section 10).

After a system disinfection, the microbiological quality of the water should be checked by an investigation body in accordance with the German Drinking Water Ordinance (see W 557, section 8).

C Product description

1 | Type designation plate

Queries or orders can be processed more quickly if you quote the data on the type designation plate (Fig. C-1) of your dosing system. Please add the serial number to the overview below in order to always have the data required at hand.

Dosing system MOBIdos

Serial number: ☐☐☐☐☐☐

Order no.: 160 150.inter

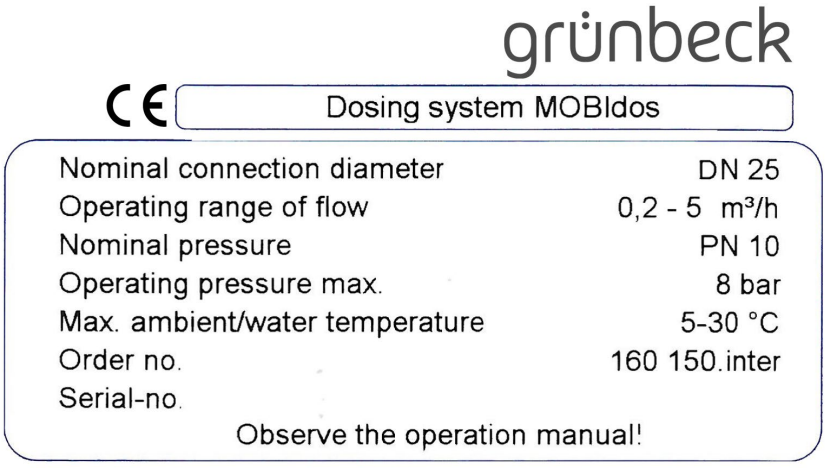
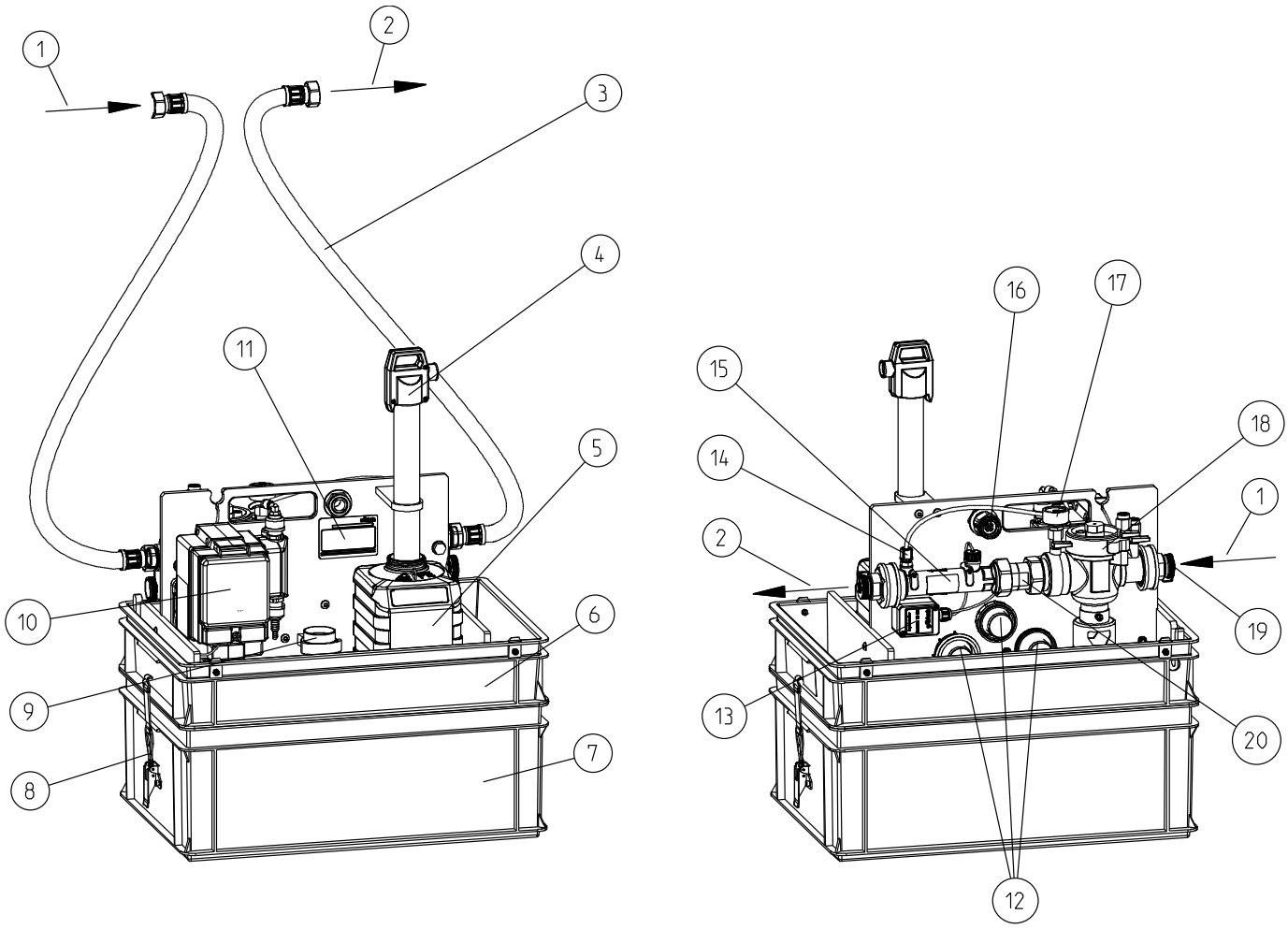


Fig. C-1: Dosing system MOBIdos type designation plate

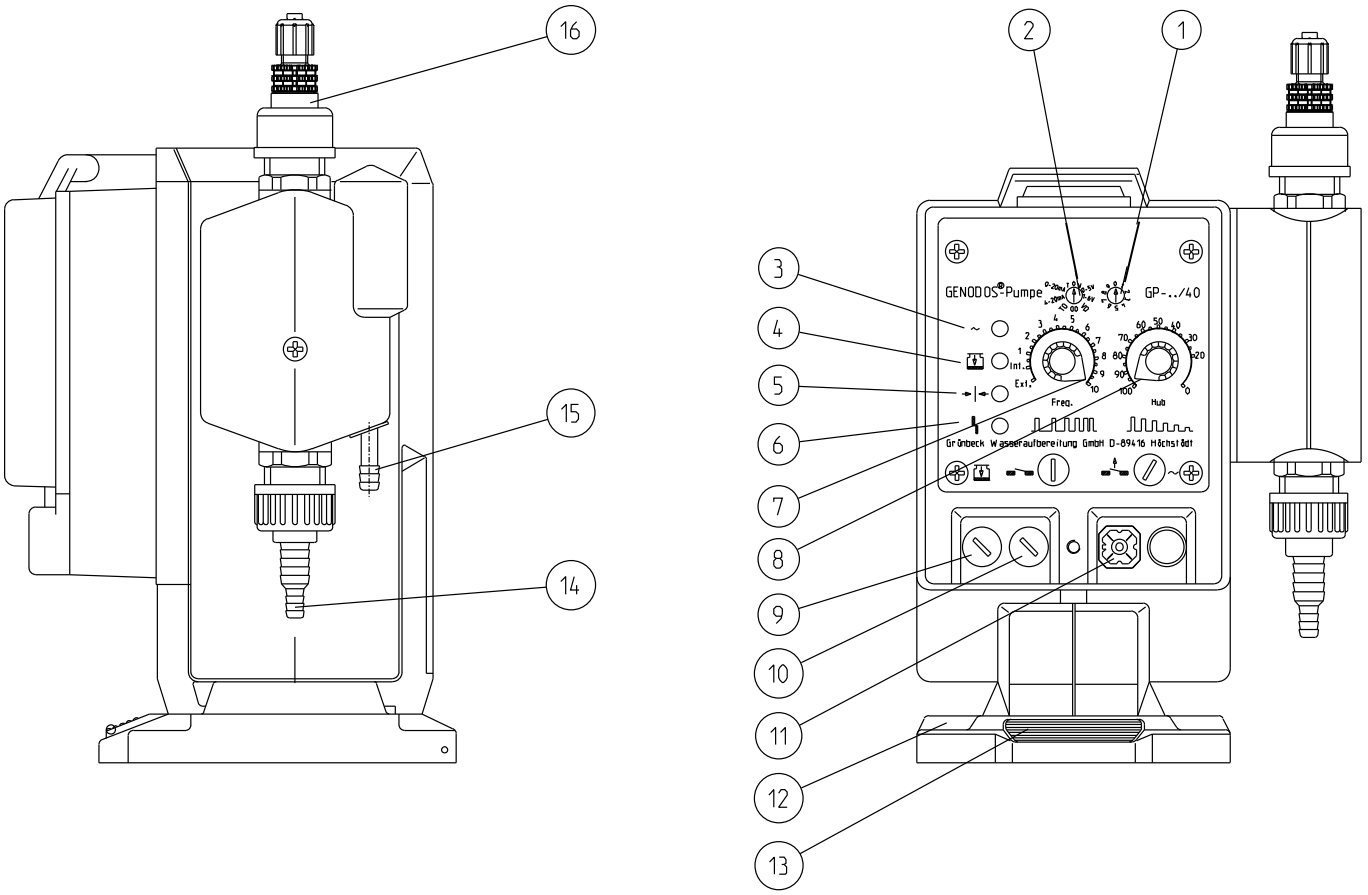
2 | Dosing system MOBIdos components



① Inlet connection
② Drain connection
③ Connection hoses 1.5 m
④ Suction lance with pre-alarm and empty signal
⑤ Dosing agent tank or water tank 3 litres
⑥ Lower part of transport box (collection tray)
⑦ Upper part of transport box (collection tray for 10 and 20 litre canisters)
⑧ Transport box lock
⑨ Suction lance bracket
⑩ GENODOS dosing pump
⑪ Type designation plate
⑫ Suction lance screw cap with seal (for 3, 10 and 20 litre Grünbeck canisters)
⑬ Pulse divider
⑭ Dosing valve
⑮ Contact water meter
⑯ Screw-on flow limiter 1.2 m³/h for inlet (only for Baktox 6 mg/l)
⑰ Water pressure gauge
⑱ Euro system separator GENO-DK 2
⑲ Sealing cap
⑳ Flow limiter 5 m³/h

Fig. C-2: Dosing system MOBIdos components

2.1 Dosing pump GENODOS components



① Pulse dividing or pulse multiplication factors
② Operating mode switch
③ Operating display
④ Empty warning display
⑤ Membrane monitoring
⑥ Dosing monitoring
⑦ Selector switch for internal and external control
⑧ Stroke length control
⑨ Input connector for empty signal
⑩ Input connector for external control
⑪ Fault message output
⑫ Pump base
⑬ Release button
⑭ Connection set D 6-12 on suction side
⑮ Connection set for recirculating hose
⑯ Connection set D 2-4 on pressure side

Fig. C-3: Dosing pump GENODOS GP

3 | Design

The mobile dosing system MOBIdos is installed on a plastic frame ready for connection and protected for transportation in a plastic box.

The water path of the dosing system MOBIdos consists of a system separator, flow limiter, pressure gauge and contact water meter with dosing valve.

The self-venting and contact water meter-controlled dosing pump GENODOS is equipped with a gas-tight suction lance for 3, 10 and 20 litre containers and an empty signal. Corresponding brackets are available on the plastic frame to accommodate the suction lance and 3 litre container.

An empty 3 litre container to rinse the system with water and 2 x 1.5 m flexible connection hoses are also included in the delivery. The transport box is used to protect against contamination and damage and also as a collection tray for the dripping water and chemicals used.

4 | Function

The dosing system MOBIdos is set up on the floor and connected into the pipe with the flexible connection hoses (see Fig. C-7).

When the withdrawal points on-site are opened up, disinfectant is dosed in proportion to the volume of water flowing through the system. The disinfectant is suctioned directly from the 3, 10 or 20 litre containers supplied, which are placed in an upright position in the collection tray. The disinfectant concentration can be adjusted on the dosing pump and switched off to fill and rinse out the drinking water installation.

Once the disinfection of the system has been completed, the dosing system MOBIdos is rinsed with water using the 3 litre container supplied.

5 | Designated use

The dosing system MOBIdos is intended for the disinfection of systems as per DIN EN 806-4 and DVGW work sheet W 557.

Drinking water installations are disinfected with the proven disinfectants listed in W 557: GENOperox (hydrogen peroxide), GENOBaktox (chlorine dioxide) or GENOChlor A (sodium hypoclorite) (refer to consumables). The dosing system MOBIdos suctions the disinfectant directly from the 3, 10 or 20 litre containers supplied, which are placed in an upright position in the collection tray.

The integrated Euro system separator GENO-DK 2 offers complete protection of the drinking water as per DIN EN 1717.

The dosing system MOBIdos is set up on the floor and connected into the pipe with the flexible connection hoses. By using the optional connection fitting cases ¾" - 2" or 1 ½" – DN 80, the flexible connection to pipes is virtually universal, e.g. they can be used in place of an existing filter (see accessories).

Its low weight and fully enclosed plastic box make the dosing system MOBIdos easy to transport. It is also packed in an outer carton suitable for shipping by a freight carrier.

The dosing system MOBIdos may only be operated if all components are installed properly. Safety devices must never be removed, bridged or otherwise rendered ineffective.

Designated application also involves following the information given in this operating manual and the safety regulations which apply at the site of operation as well as compliance with the maintenance and inspection intervals.

The separate operating manual enclosed for the Euro system separator GENO-DK 2 should also be observed.

6 | Application limits

The application limits are derived from the information on the "Designated application" and the "Technical specifications."

Danger! This dosing system MOBIdos is not approved for disinfecting the drinking water (drinking water disinfection).

7 | Technical specifications

All the dosing system MOBIdos data is listed in table C-1. The data refers to the standard version of the dosing system MOBIdos. Possible deviations in case of special versions are listed separately, if applicable.

Table C-1: Technical specifications		Dosing system MOBIdos
Connection data		
Nominal connection diameter		1" (with optional connection fitting cases ¾" to DN 80)
Power supply	[V]/[Hz]	230/50
Max. power consumption	[W]	18
Protection/protection class		IP 54/I
Performance data		
Flow rate Qmax	[m³/h]	5
Working range flow rate	[m³/h]	0.2 - 5
Max. operating pressure	[bar]	8
Nominal pressure		PN 10
Dimensions and weights		
Width	[mm]	600
Height during operation approx.	[mm]	570 (780*)
Depth	[mm]	400 (800**)
Transport dimensions without packaging W x H x D	[mm]	600 x 340 x 400
Weight without packaging	[kg]	17.6
Shipping weight with packaging	[kg]	20
* With a collection tray below (possible when suctioning from a 3 litre container). ** With the separate installation of a collection tray for 10 and 20 litre containers.		
General		
Ambient / water temperature	[°C]	5 - 30
Dosing agent temperature	[°C]	5 - 40
Order no.		**160 150**

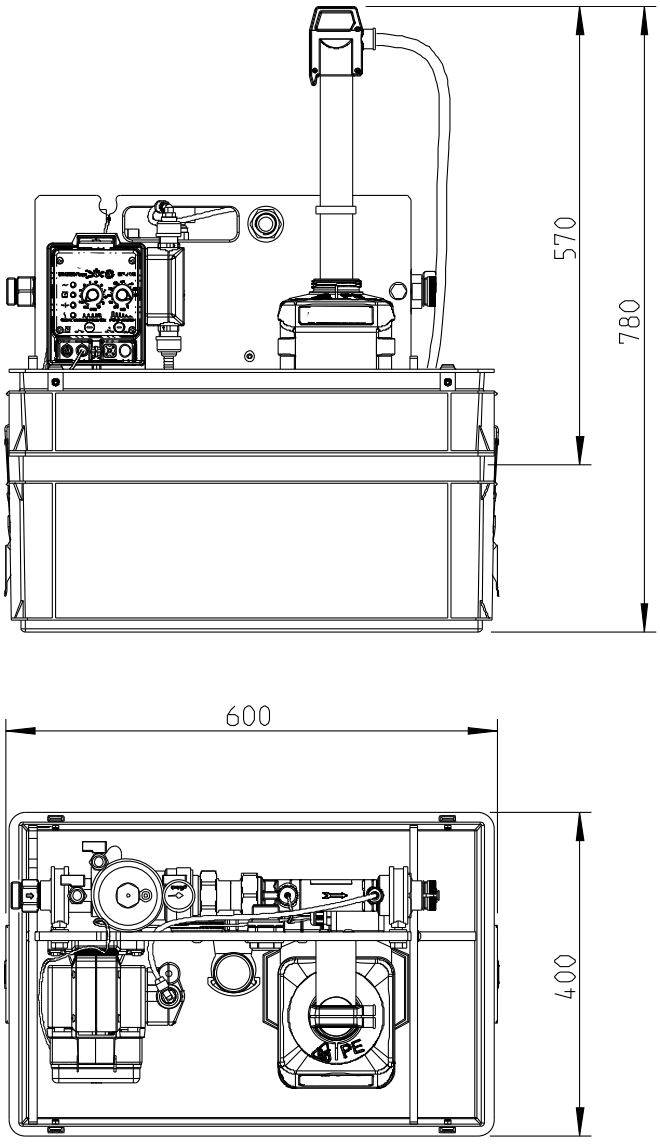


Fig. 3: Dimensional drawing of the dosing system MOBIdos

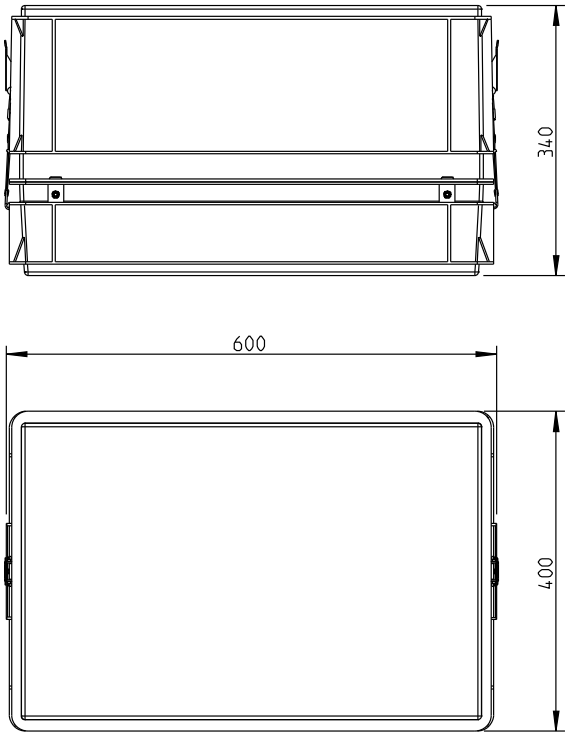


Fig. 4: Transport dimensions of the dosing system MOBIdos

8 | Scope of supply

8.1 Basic configuration

Dosing system MOBIdos complete with operating manual and 2 flexible connection hoses (each 1.5 m) with spare O-rings in the transport box. Also packed in a sturdy outer carton for shipping by freight carrier.

A separate operating manual is enclosed for the integrated Euro system separator GENO-DK 2 (order no. 132 970).

8.2 Consumables

Hydrogen peroxide	
Disinfectant GENO-perox 11 kg	170 335
GENO-perox 10 kg (8.84 litres)	170 325
Water inspection system for peroxide 100 - 1.000 mg/l (100 analyses)	170 167
Water inspection system for peroxide 0.5 - 25 mg/l (100 analyses)	170 136
Disinfectant spray 250 ml hydrogen peroxide for spray disinfection as per W 557, section 7.4.2	156 868
Chlorine dioxide	
GENO-Baktox (3 litres)	170 450
GENO-Baktox (10 litres)	170 460
GENO-Baktox (20 litres)	170 470
Neutralising powder for GENO-Baktox Sodium sulphite (5 kg)	170 306
Water inspection system for chlorine dioxide testing 0.02 – 0.55 ppm (300 analyses)	170 430
Digital tester Scuba+	211 145
Indicator for Scuba+, DPD1 (50 tablets)	211 221
Sodium hypochlorite	
GENO-Chlor A 25 kg (20 litres)	210 012
Water inspection system for chlorine 10 - 160 mg/l (20 analyses)	170 138
Water inspection system for chlorine 0.1 - 2.0 mg/l and pH value 6.9 - 8.2 (150 analyses)	170 128

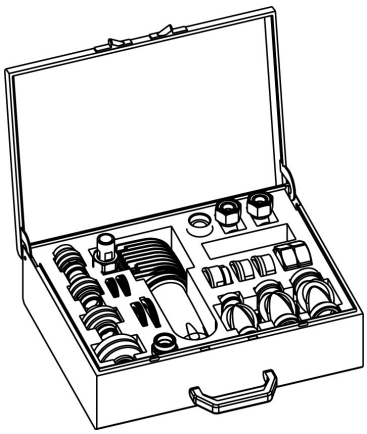
8.3 Accessories

Note: It is possible to retrofit the dosing system MOBIdos with accessories. Please contact your local Grünbeck representative or Grünbeck's headquarters in Hoechstaedt for more details.

Hose extension set for the flushing compressor and dosing system MOBIdos
Consisting of:

- 2 flexible connection hoses, each 1.5 m long
- 2 coupling pieces
- 4 spare O-rings

Packed in a carton 151 820



Connection fitting cases ¾", 1", 1¼", 1½", 2"
To connect a flushing compressor or dosing system MOBIdos to pipes, e.g. in place of an existing filter, adjusting piece, water softener or dosing system. Consisting of:

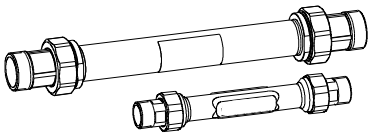
- Connection fittings, e.g. for installation in place of an adjusting piece, for ¾", 1", 1¼", 1½", 2" (variable installation length, as of approx. 175 mm), 2 adapters with seals for each nominal width.
- Connection fittings to be fitted in place of a filter with an installation length of 100 mm, with one of the following flushing adapters ¾", 1", 1 ¼" (fixed installation length, 100 mm).
- Boxer K fine filter with connection set
  for assembly of the fine filter on the flushing compressor inlet.
- Connection set for system separator
  for installation of an optional system separator DN25/32 on the flushing compressor inlet.
- 2 connection brackets with spare O-rings.
- Installation instructions.

Complete in 130 mm Sortimo case, suitable for Sortimo vehicle equipment. 151 070

Connection fitting cases 1½", 2", DN 65, DN 80
To install two - in case of DN 80 up to three - flushing compressors in parallel or the dosing system MOBIdos in the pipes, e. g. in place of an existing filter, adjusting piece, water softener or dosing system.
Consisting of:

- Connection fittings for 1 ½", 2", DN 65, DN 80
  (variable installation length, as of approx. 190 mm)
  2 adapters or reducing flange with seals for each nominal width.
- 2 blind caps.
- 6 connection brackets with spare O-rings.
- Installation instructions.

Complete in 130 mm Sortimo case, suitable for Sortimo vehicle equipment. 151 080



Adjusting pieces
for installation downstream of the entrance filter, e.g. for installation of the flushing compressor, dosing system, softening or as an intermediate piece for rinsing longer pipelines (screen connections and seals are included in the scope of supply).

Adjusting piece 1" 128 001
(installation length without screw connection 190 mm)

Adjusting piece 1 1/4" 128 401
(installation length without screw connection 190 mm)

Adjusting piece 1 1/2" 128 402
(installation length without screw connection 330 mm)

Adjusting piece 2" 128 403
(installation length without screw connection 330 mm)

8.4 Spare parts

You may order spare parts and consumables from your local Grünbeck representative (refer to www.gruenbeck.de).

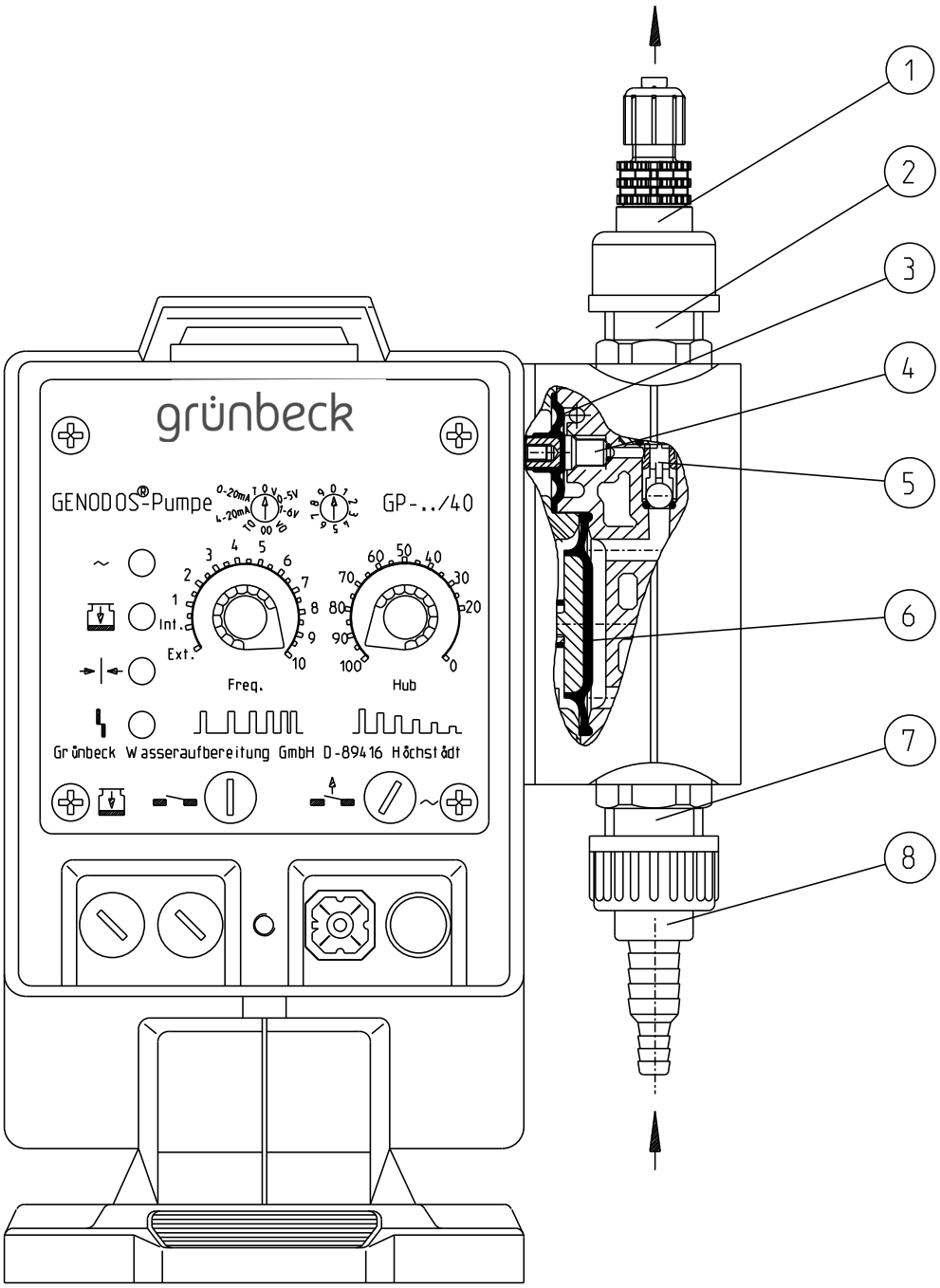
8.5 Wearing parts

Seals and moving parts are subject to a certain degree of wear and tear.

Note: Although these are wearing parts, we grant a limited warranty period of 6 months.

Wearing parts:

- Euro system separator GENO-DK 2, refer to separate operating manual (order no. 132 970).
- Dosing valve
- Connection hose O-rings
- The dosing pump consists of a suction valve, pressure valve and deaeration valve, dosing membrane, deaeration membrane and valve pintle – refer to Fig. H-2. "Pump head GP-1/.."



① Connection set on pressure side
② Pressure valve
③ Deaeration membrane
④ Valve pintle
⑤ Intermediate valve
⑥ Dosing membrane
⑦ Suction valve
⑧ Connection set on suction side

Fig. H-2: Pump head GP-1/.."

D Installation of the dosing system MOBIdos

1 | General installation information

Note: The general and safety instructions in chapter A as well as the designated application, application limits and technical specifications in chapter C must be observed.

Note: The relevant operating manuals must also be observed for the installation of the dosing system MOBIdos with accessories (see chapter C).

Note: It may be necessary to carry out work described under maintenance and care in chapter H prior to using the dosing system MOBIdos.

Note: Observe the local installation guidelines and general regulations.

Note: Prerequisites for flushing, disinfection and commissioning of a drinking water installation:

- a house connection for the water supply which has been flushed through by a water company and approved for use,
- availability of water as per the German Water Drinking Ordinance (TrinkwV),
- that pressure and leakage tests have been performed on the drinking water installations as per DIN EN 806-4 6.1 and that the results have been documented
- that a filter is fitted on the house connection as per DIN EN 13443-1.

1.1 Electrical installation

A Schuko socket is required for electrical installation. This must comply with the specifications in chapter C, "Technical specifications" or the type designation plate. The dosing system MOBIdos should be set up close to this Schuko socket. The dosing system MOBIdos mains cable is approx. 1.8 m in length.

1.2 Sanitary installation

Certain binding rules must always be observed when installing the dosing system MOBIdos. Additional recommendations facilitate the operating of the dosing system MOBIdos.

Binding rules

The installation of a dosing system MOBIdos represents a major intervention into the drinking water installation and, therefore, only authorised experts should install these systems.

Suitable connections must be ensured on-site for integration of the dosing system MOBIdos into the installation. That's why, during planning and installation, an adjusting piece should be fitted immediately downstream of the filter (see chapter C, accessories) in order, when commissioning, to have the option of temporarily connecting the relevant devices, such as a pressure booster, flushing compressor or disinfection device. In subsequent operation, water treatment systems, e.g., water softeners, can be integrated at this point if the quality of the water should render this necessary.

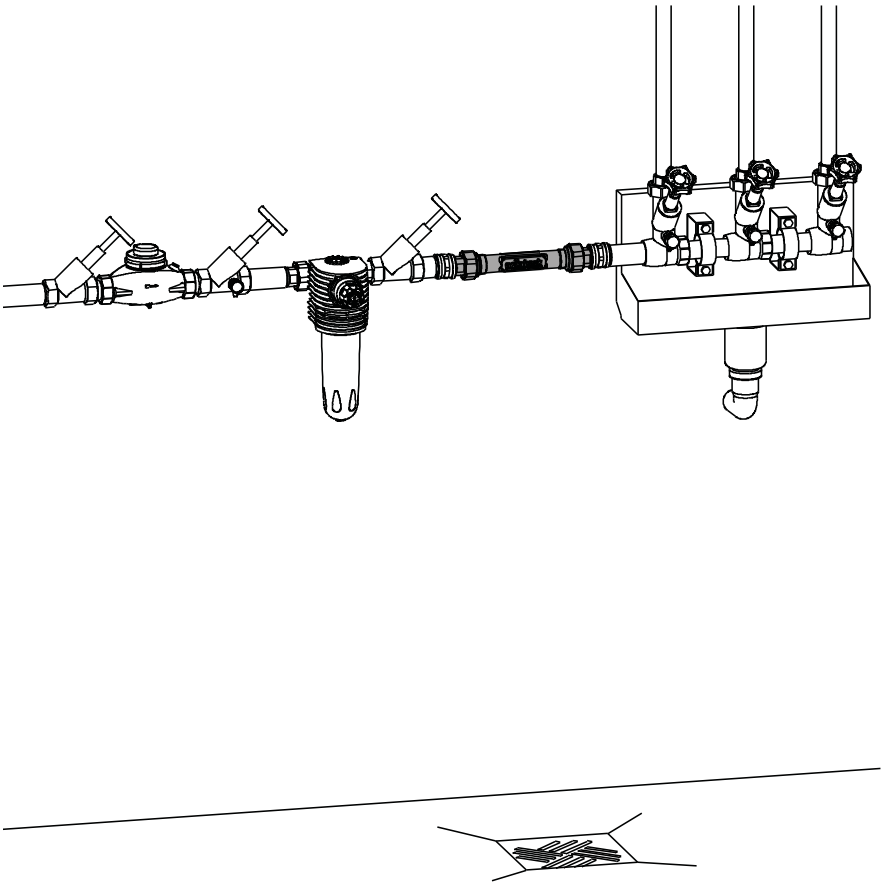


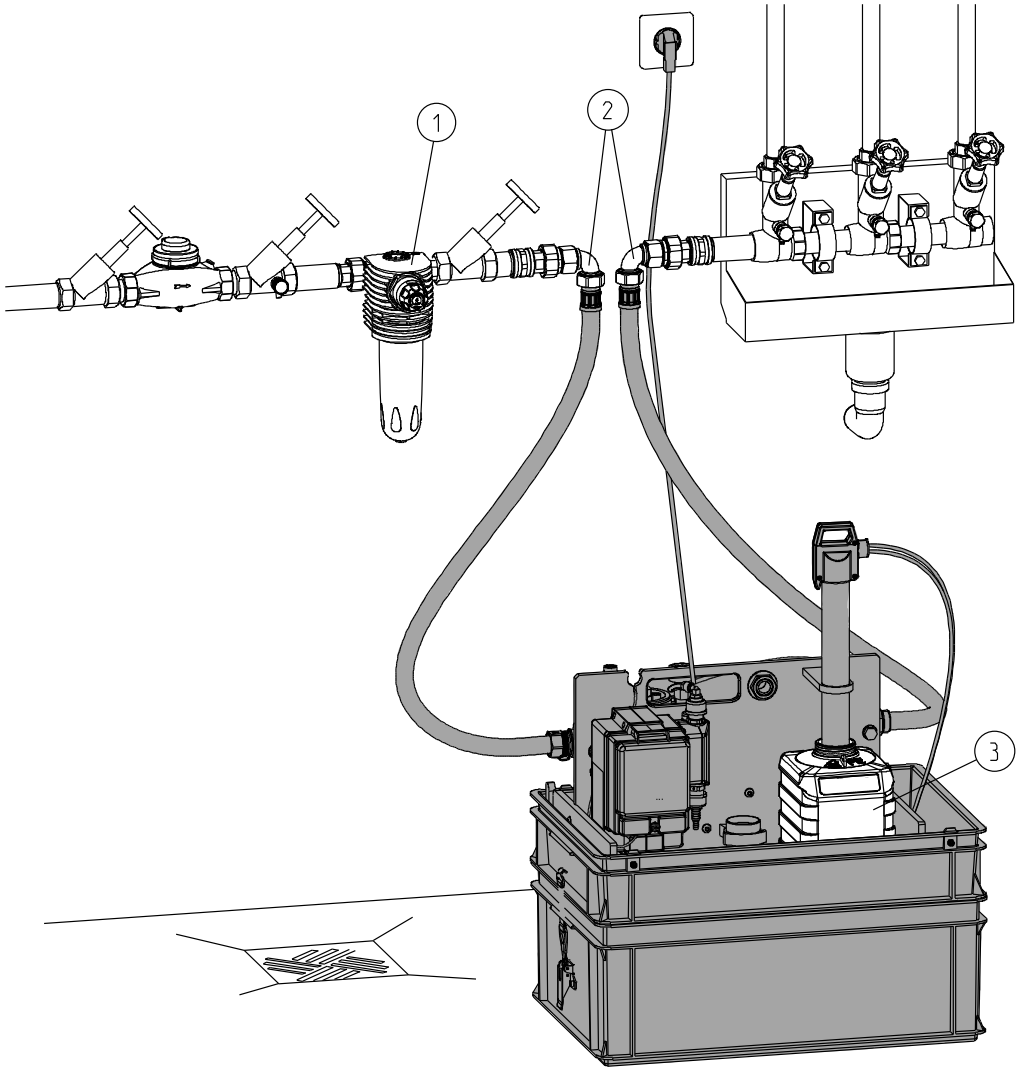
Fig. D-1: House connection with fine filter and adjusting piece

2 | Installation of the dosing system MOBIdos

The dosing system MOBIdos is integrated into the installation using the flexible connection hoses included with the delivery.

Note: The information on the flow direction must be followed when installing the dosing system MOBIdos in the piping.

Note: The optional connection fitting cases are required (see accessories) for the installation examples shown below.



① Drinking water filter, e.g., BOXER KD
② Connection pieces (accessories in case with connection fittings ¾“-2“)
③ Dosing solution (consumables)

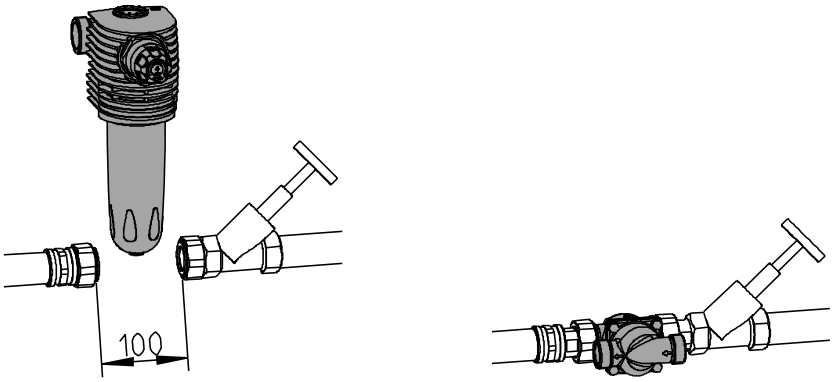
Fig. D-2: Installation sample of a dosing system MOBIdos

2.1 Installation of the dosing system MOBIdos in place of a filter with an installation length of 100 mm

Warning! When using the filter from the connection fitting case, a new filter cartridge must be used for each flushing operation.

For this connection type, the parts for the nominal widths ¾", 1" and 1¼" are included in the connection fitting cases ¾" - 2". In each case the installation length is 100 mm.

- Replace the on-site filter with a flushing adapter.



- Fit the BOXER K fine filter with double screw connection G1" to the dosing system MOBIdos. Fit the adapter IG 1"-24 mm on the filter on the inlet side. Then connect with the connection hoses.

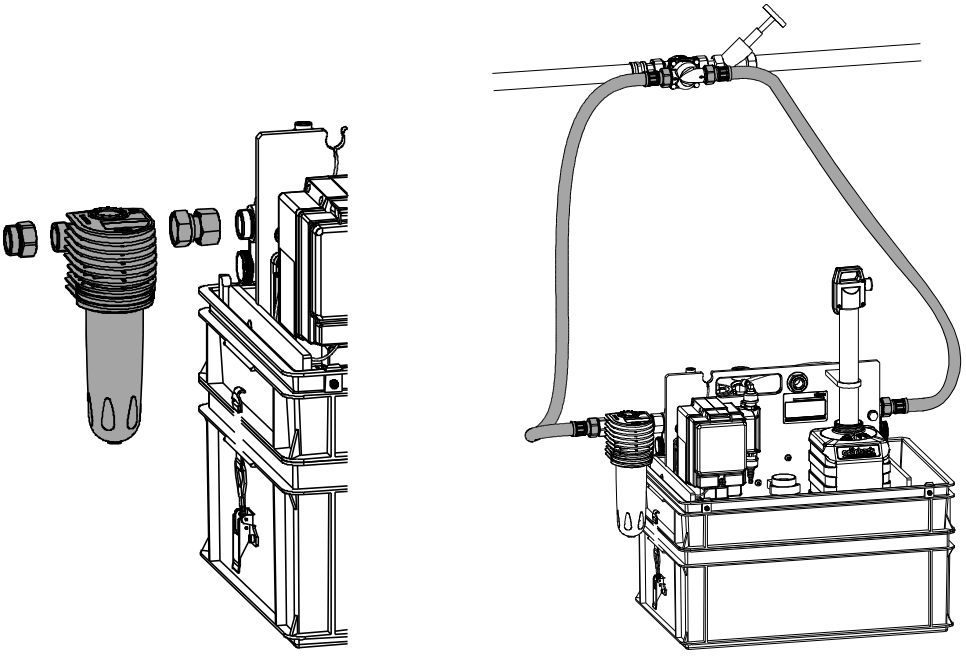


Fig. D-3: Installation example of the integration of a dosing system MOBIdos, in place of a fine filter

2.2 Installation of the dosing system MOBIdos, in pipes, e.g. in place of an adjusting piece

For this connection type, the parts for nominal widths ¾", 1", 1 ¼", 1 ½" and 2" are available in the connection fittings cases ¾" - 2".

The installation length of these fittings is variable and in conjunction with the connection bracket they can be used as of an installation length of approx. 175 mm.
As of an installation length of approx. 300 mm, connection is possible without a bracket.

With shorter distances, installation with a connection bracket (e.g., in place of a 1" and 1¼" adjusting piece with 190 mm).

- Replace the on-site adjusting piece with adapters and brackets and integrate the dosing system MOBIdos compressor with connection hoses.

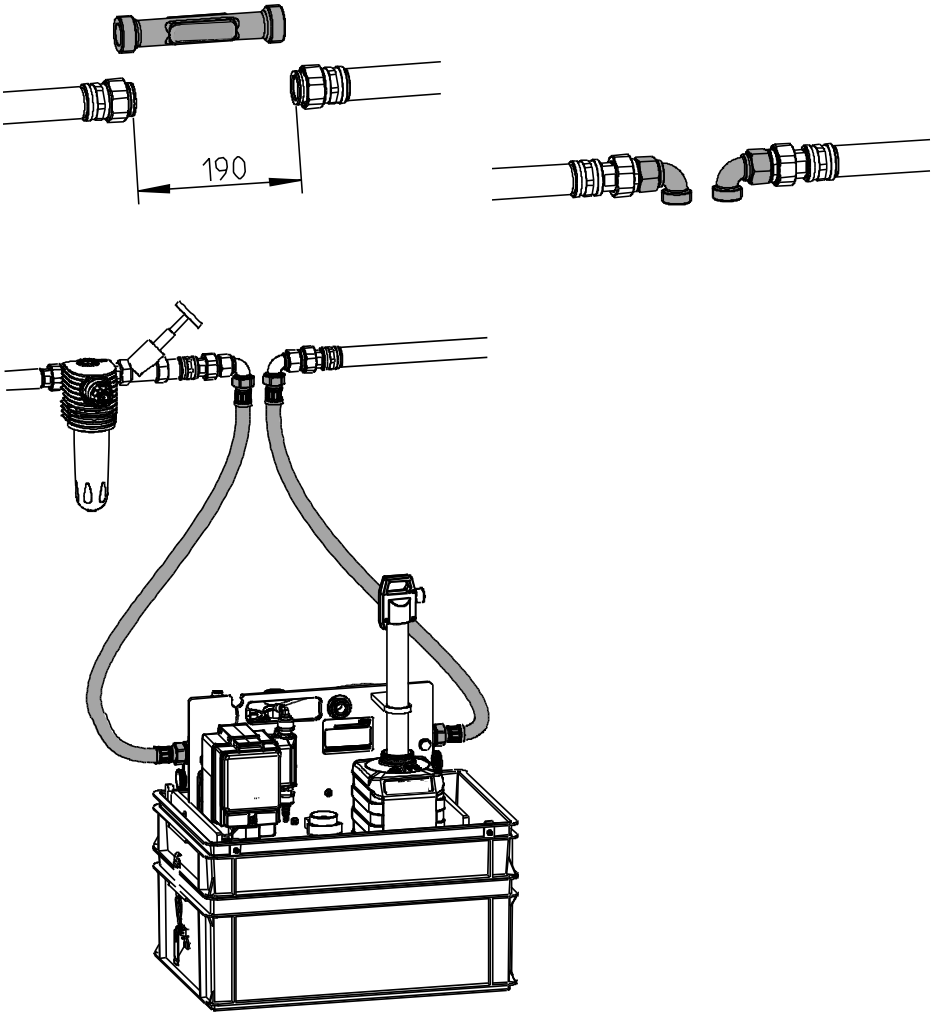


Fig. D-4: Installation example of the integration of a dosing system MOBIdos with a connection bracket

With longer distances, connection without a connection bracket
(e.g. in place of a 1 ½" and 2" adjusting piece with 330 mm).

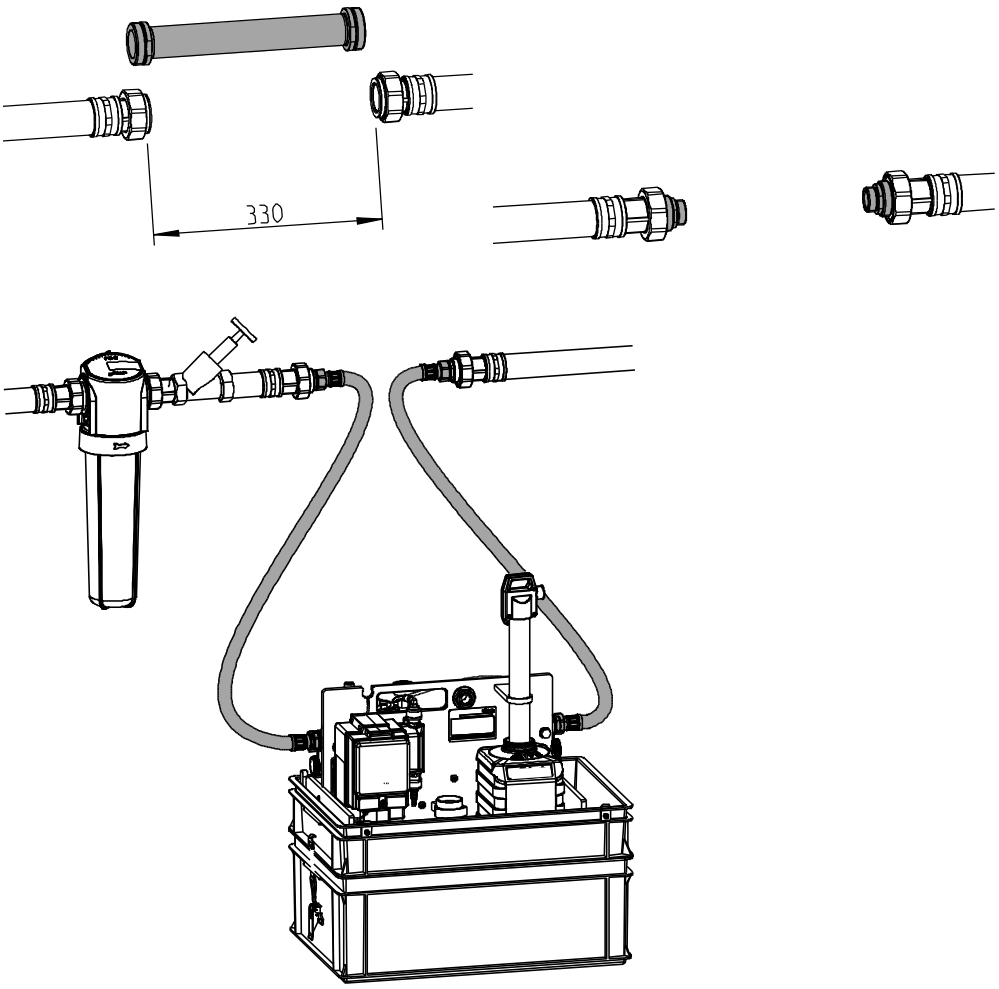


Fig. D-5: Installation example of the integration of a dosing system MOBIdos without a connection bracket

2.3 Installation of the dosing system MOBIdos in a pipe 1½"- DN 80 e.g. in place of an adjusting piece

For this connection type, the parts for the nominal widths 1½", 2", DN 65 and DN 80 are included in the connection fitting cases 1½" - DN 80. Two additional 1" sealing caps are required with DN 80.

The installation length of these fittings is variable.

- As of an installation length of approx. 300 mm, the connection pipes can be fitted directly on the adapters as shown below.
- If the connection bracket is also used, a connection can be made as of an installation length of approx. 190 mm.

The other connections on the reducing flanges are sealed with caps with DN 65 and DN 80.

- Replace the on-site adjusting piece or device with an adapter and integrate the dosing system MOBIdos with connection hoses.

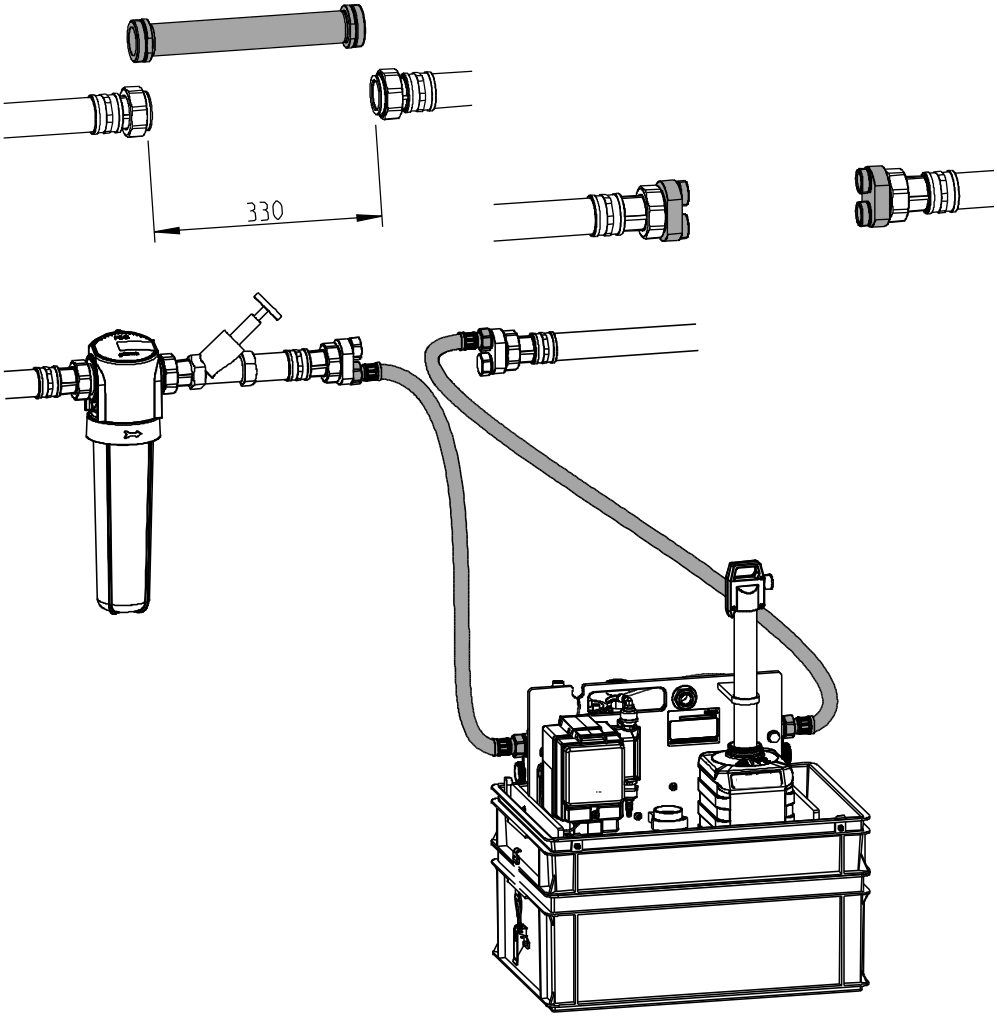


Fig. D-6: Installation example of the integration of the dosing system MOBIdos

E Installation for system disinfection according to DVGW work sheet W 557

1 | General instructions for system disinfection

Danger! During disinfection of the system, drinking water is not available to consumers from the drinking water installation. It must be ensured that no water intended for drinking can be withdrawn from the treated system by taking suitable measures. If necessary, drinking water must be made available from a different source.

Danger! There must be a sufficient number of personnel available to carry out the system disinfection. The personnel must be instructed beforehand; if necessary suitable safety equipment should be made available. Risks due to chemicals are to be avoided by taking suitable measures.

Note:

- Before initiating a disinfection measure, the cause and location of the contamination must be established as far as possible. System disinfection is only a long term solution if the causes of contamination are remedied. Otherwise the success hereof is only short term.
- As per DVGW work sheet W 557 the system must always be cleaned prior to system disinfection. This essentially involves flushing the piping with a mixture of water/air and cleaning (e.g., descaling ...) the apparatus and parts.
- In order to disinfect all withdrawal points, these must be identified, documented and made accessible for disinfecting beforehand. An up-to-date as-completed drawing (revision plan) should be available.
- Every system disinfection places a strain on the components and materials used in the drinking water installation which can result in the drinking water installation being damaged (see W 557 7.5 or chapter E, section 2 of this operating manual). Regular system disinfection in order to prevent contamination is thus not recommended. Contaminated components, e.g., apparatus and fittings, which cannot be disinfected by taking the designated measure, must be removed and either disinfected separately or replaced. In order to minimise partial material corrosion, it is recommended that disinfection be performed in stages.
- Dead lines must be removed from the drinking water installation prior to disinfection.
- As a general rule micro-organisms can only be effectively killed or inactivated when the disinfectant can act directly on the micro-organisms. Therefore, sufficient concentrations of the disinfectant must be able to access all areas of the drinking water installation.
- Dosing of the disinfectant is done in a volume-controlled manner upstream of the system section to be disinfected.

2 | Disinfectants and materials

2.1 Disinfectants

Various disinfectants are used for system disinfection.

The following disinfectant chemicals have proven to be particularly successful in practice according to W 557 7.4.2.:

- Sodium hypochlorite NaOCl
- Chlorine dioxide ClO_2
- Hydrogen peroxide H_2O_2

An overview of applications, application concentrations and reaction times can be found in the following table E-1
(excerpt from W 557). The disinfectant chemicals used must still be detectable at the end of the reaction time.

Table E-1: Chemicals for the disinfection of drinking water installations in buildings

Designation	Specification	Type of business	Notes	Application concentration[c] and reaction time
Hydrogen peroxide H_2O_2	DIN EN 902	Aqueous solutions up to 50%	Use as a dosing solution for system disinfection	150 mg H_2O_2/l 24 h
		Aqueous solutions 3%	Direct application for spray disinfection	Maximum 3% for a short time
Sodium hypochlorite NaOCl	DIN EN 901	Aqueous solutions with a maximum of 150 g/l "free chlorine"[a]	Use as a dosing solution for system disinfection	50 mg Cl_2/l[c] 12 h
Chlorine dioxide ClO_2	DIN EN 12671	Two components[b] A: Sodium chlorite B: Persulphate and/or acid	Use as a dosing solution with a maximum of 3 g ClO_2/l for system disinfection	6 mg ClO_2/l 12 h

[a] Observe the shelf life, refer to DVGW W 229 (A)

[b] Preparation of the dosing solution, refer to DVGW W 224 (A)
Sodium chlorite as per DIN EN 938, potassium peroxomonosulphate as per DIN EN 12678, sodium hydrogen sulphate as per DIN 16037, hydrochloric acid as per DIN EN 939

[c] The concentration of chlorine/hypochlorite/hypochloric acid is determined as "free chlorine."

Note: The corresponding application products GENO-perox, GENO-Baktox and GENO-Chlor A can be found in chapter C, section 8.2 Consumables.

2.2 Materials

Every system disinfection places a strain on the components and materials used in the drinking water installation which can result in the drinking water installation being damaged.

Irrespective of this, materials, components and systems in the drinking water installation exhibit a different sensitivity to thermal disinfection as well as to the different disinfectants (disinfectant chemicals and additives).

The manufacturer's information should be observed with regard to the system's resistance to disinfection measures. Appendix B to the W 557 gives an orientating overview of materials that are deemed to be resistant to the disinfectant chemicals listed in table 3 for a one-off system disinfection when observing the application concentrations, reaction times and temperatures of ≤ 25 °C according to the manufacturer's information. However, damage can also not be ruled out here. The manufacturer should be consulted in case of doubt or if carrying out multiple disinfections.

Excerpt from W 557 Appendix B (informative) – Material overview:

Table B.1 – Overview of materials that are deemed to be resistant to the following disinfectant chemicals listed in Table E-1 for system disinfection when observing the recommended applications concentrations, reaction times and temperatures of ≤ 25 °C according to the manufacturer's information: hydrogen peroxide ($H2O_2$), sodium hypochlorite (NaOCl) and chlorine dioxide (ClO_2)

Material designation:

Stainless steel
1.4401, 1.4404, 1.4435, 1.4462, 1.4571, 1.4521, 1.4529, 1.4539, 1.4436, 1.4581, 1.4408

Copper
Cu-DHP and Cu-DHP with internal tin plating

Cu-Sn-Zn alloys

CC490K, CC491K, CC499K, CC492K, CC493K, CC480K

Cu-Zn alloys and copper-zinc-arsenic alloys

CW617N, CW612N, CW603N, CW614N, CW602N, CC752S, CC754S

Hot dip galvanised ferrous materials

Silicon-based copper alloys

CuZn21Si3P, CuZn10Si4MnP

Butyl/EPDM elastomers (as seals for press-fit connectors), FKM fluorinated rubber, NBR nitrile butadiene rubber*, PTFE, silicone

Note: DIN 11483-2
PE-X, PE-MDX, PE-RT, PB, PVDF, PPSU, PSU, PVC-C
POM, PP, PPE, PPO

3 | Carrying out the system disinfection

Danger! Dosing of the disinfectant may only be performed in cold water, for this reason the hot water heater must be switched off and prevented from being accidentally turned on again.

Danger! The water does not comply with the German Drinking Water Ordinance during the entire disinfection process. The unauthorised withdrawal of water must be prevented by taking suitable measures. Shut off/block the installation involved in the disinfection measure from the other parts of the installation.

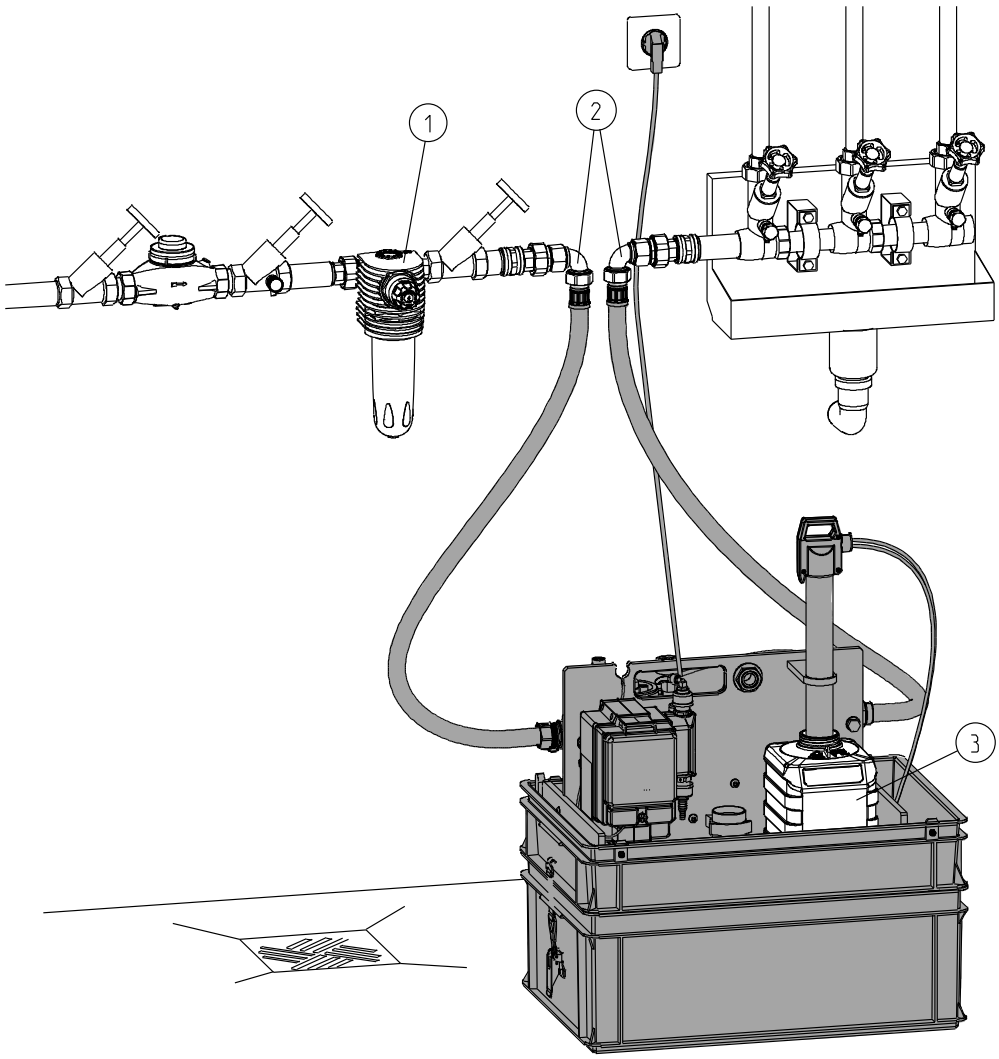
Danger! The safety data sheets, application instructions and information on disposal of the disinfectant used are to be observed and the designated personal protective equipment is to be worn.

Warning! The dosing system MOBIdos as well as the accessories used must be in a hygienically perfect condition and disinfected beforehand, particularly when not used for extended periods.

Note: The work sheet DVGW W 557 "Cleaning and disinfection of drinking water installations" summarises the key requirements on this topic for practical use.

Note: Disinfection should be performed in stages in order to minimise partial material corrosion.

Note: You can find more information on the operation of the GENODOS dosing pump in chapter F.



① Drinking water filter, e. g. BOXER KD
② Connection pieces (accessories in case with connection fittings ¾“-2“)
③ Dosing solutions (accessory)

Fig. D-7: Installation example of the dosing system MOBIdos

3.1 Preliminary work

- Prepare the drinking water installation for the disinfection measure (remove/bypass sensitive components or those that need to be disinfected separately).
- Set up the dosing system MOBIdos at a suitable place.
- The collection trays can be stacked one upon the other when using the 3 litre dosing container. The collection trays are placed side by side when using 10 or 20 litre canisters.
- The screw-on flow limiter (Fig. C-2, pos. 16) must also be fitted to the inlet connection of the dosing system MOBIdos only for dosing 6 mg/l of chlorine dioxide (GENO-Baktox).
- Fill the 3 litre water container (Fig. C-2, pos. 5) of the dosing system MOBIdos with drinking water (to rinse out the dosing system).
- Insert the suction lance into the 3 litre water container
- Make the settings on the GENODOS dosing pump according to the designated disinfectant stipulated in Table E-2.

Note: The stroke length control can only be set when the dosing is running.

Set the selector switch for internal and external control (Fig. C-3, pos. 7) to "Int"

Insert the GENODOS dosing pump power plug and temporarily set the selector switch for internal and external control (Fig. C-3, pos. 7) to "10" until the stroke length is preset and water emerges from the drain connection (Fig. C-2, pos. 2).

Then reset the selector switch for internal and external control (Fig. C-3, pos. 7) to "INT."

- Then make the other settings according to table E-2.

Table E-2: Setting the GENODOS dosing pump						
Disinfectants	**Disinfectant chemicals**	**Application concentration**	**Water pressure**	**Setting the GENODOS dosing pump**		
				Stroke length control Fig. C-3, pos. 8	Operating mode switch Fig. C-3, pos. 2	Factor switch Fig. C-3, pos. 1
GENO-perox	Hydrogen peroxide H_2O_2	150 mg H_2O_2/l	2 4 6 8	40 46 53 60	T0	1
GENO-Chlor A[a]	Sodium hypochlorite NaOCl	50 mg Cl_2/l[b]	2 4 6 8	36 42 49 55	T0	1
GENO-Baktox	Chlorine dioxide ClO_2	2 mg ClO_2/l	2 4 6 8	88 94 100 -	T0	1
		6 mg ClO_2/l	2 4 6 8	48 54 60 66	V0 In addition, use the screw-on flow limiter (Fig. C-2, pos. 16)	1

[a] Observe the shelf life, refer to DVGW W 229 (A)

[b] The concentration of chlorine/hypochlorite/hypochloric acid is determined as "free chlorine."

- Integrate the dosing system MOBIdos into the drinking water installation according to chapter D.
- Rinse out and fully deaerate the drinking water installation by opening the withdrawal points. Then close them again.
- Set the selector switch for internal and external control (Fig. C-3, pos. 7) to "EXT."
- With GENO-Baktox the dosing solution must be produced on-site according to the instructions for use from both components supplied.
- Insert disinfectant into the collection tray.
- Push the suction lance screw cap with seal for the right canister size
  onto the suction lance (Fig. C-2, pos. 12).
- Insert the suction lance slowly into the dosing agent and screw on the suction lance screw cap.
- The dosing system MOBIdos is now ready to use for the disinfection measure.

3.2 Disinfection of the drinking water installation

Caution! The line must be completely filled with water before the disinfection measure is carried out. There must be no air left in the line otherwise the disinfectant will not reach all the inner walls of the pipe that are coated with bacteria.

Danger! Check the installation for leaks before adding the disinfectant.

- Opening the withdrawal points of the areas of the system to be disinfected one after the other ensures that the disinfectant reaches all areas.
- First of all, determine the concentration at a nearby withdrawal point with the appropriate test device. It may be necessary to correct the setting on the stroke length control of the GENODOS dosing pump.
- The addition of dosing solution should only be terminated if the entire area of the drinking water installation to be disinfected exhibits the required initial concentration of disinfectant at each withdrawal point.
- It is necessary to ensure the appropriate reaction time (see table E-1) depending on the concentration of disinfectant.
- It is important to ensure the necessary minimum concentration at all withdrawal points at the end of the reaction time to safeguard the disinfection. depending on the initial disinfectant concentration and reaction time. This should be checked at each of the withdrawal points in the individual sections that are furthest from the dosing point.
- If the appropriate concentration of disinfectant can no longer be detected, the process is repeated until the minimum necessary concentration is present at the end.
- If the disinfectant measure is terminated, the disinfectant tank is replaced again by the water container.

Danger! GENO-Baktox (chlorine dioxide) must not be transported, but instead neutralised and disposed of according to the instructions for use.

- The drinking water is completely flushed out with drinking water. The following sections "4 Removing the disinfectant solution" and "5 Control inspections" should be observed.
- If the dosing pump has been rinsed out with water, set the selector switch for internal and external control (Fig. C-3, pos. 7) to "INT."
- Disconnect the dosing system MOBIdos power plug from the power supply.
- Remove the dosing system MOBIdos from the installation and wash and dry all the components that have come into contact with disinfectant. Empty the remaining water from the water path through tilting.
- Remove and dry the collection trays.

3.3 Disinfection of apparatus and components

If only individual components or apparatus are identified as being the source of the contamination, these need to be cleaned first and then disinfected individually if necessary. To do this, the components and apparatus should either be removed or shut off from the rest of the drinking water installation that is not contaminated.

All measures should be documented.

The specification and requirements of the manufacturers should be observed during the disinfection of apparatus and components.

It is important to ensure that work is done in a clean and hygienic environment when installing the disinfected components and apparatus; use disinfectant spray if necessary (see consumables).

3.3.1 Drinking water heater and storage tank

The disinfection can be carried out thermally or chemically using (an existing storage charging system) or a closed circuit system device.

The water in the entire drinking water heater and storage tank if applicable must have a minimum temperature of 70 °C during the thermal disinfection. Water must flow through the drinking water heater and storage tank if applicable from top to bottom. It is important to ensure that the temperature on floor drain is maintained at a minimum of 70 °C for longer than three minutes. The temperature resistance must be taken into consideration with plastic storage tanks.

The chemical disinfection should be carried out using cold water. The heating devices in the drinking water heater should be put out of operation. The temperature in the drinking water heater and storage tank if applicable must not exceed 25 °C.

The drinking water heater and storage tank if applicable must be completely filled from top to bottom with the disinfectant dosing solution during the chemical disinfection. The disinfectant should be added until a minimum concentration for the appropriate reaction time can be guaranteed at the floor drain. It may be necessary to top up the dosing solution.

The disinfection procedure when using the dosing system MOBIdos is basically carried out in the same way as section "3.2 Disinfection of the drinking water installation." The dosing system MOBIdos is connected to a drinking water installation withdrawal point on the inlet side that is in a perfect hygienic condition as well as the top of the drinking water heater on the drain side. A shut-off fitting to discharge the water is fitted at the bottom of the drinking water heater.

3.3.2 Other apparatus and components

Water treatment devices, fittings, shower hoses, flexible hose lines and other components should be disinfected according to the manufacturer's information.

4 | Removing the disinfectant solution

After completing the system disinfection, the disinfectant solution must be removed in such a way that it does not cause any damage to the environment. The oxidising effect of the disinfectant can be rendered ineffective by adding reducing agent. The pH value should also be observed and corrected if necessary.

Water containing disinfectant should be introduced into the public sewage system in accordance with the operator's requirements for waste water disposal. If larger volumes of liquid are generated, it is necessary to consult with the relevant local waste water company.

Special precautions need to be taken in buildings that have decentralised waste water treatment.

5 | Control inspections and start-up

Inspections of the drinking water are required at representative withdrawal points after cleaning and disinfection measures as per W 557 to document that the microbiological quality of the water is in a perfect condition.

The disinfectant must be removed from the drinking water installation without leaving any residue prior to sampling, the starting or restarting of the system. To do this, the entire drinking water installation should be rinsed until the disinfectant used can no longer be detected. If the water supply contains chlorine or chlorine dioxide, the system should be rinsed until the measured concentration is reached at the transition point from the central water supply to the drinking installation.

Sampling as well as inspections must be carried out by an investigation body listed in the German Drinking Water Ordinance. The scope of the inspection including sampling points should be determined after consultation with the health authorities if necessary.

When restarting the system, the selection of microbiological parameters can be based on the previously identified microbial contamination.
The sustainability of the measure should be proven by a further microbiological inspection. The inspections for the occurrence of legionella in a drinking water installation are based on the provisions of the German Drinking Water Ordinance, the health authorities and the DVGW worksheet W 551 both for the initial start-up and the restarting of the system.

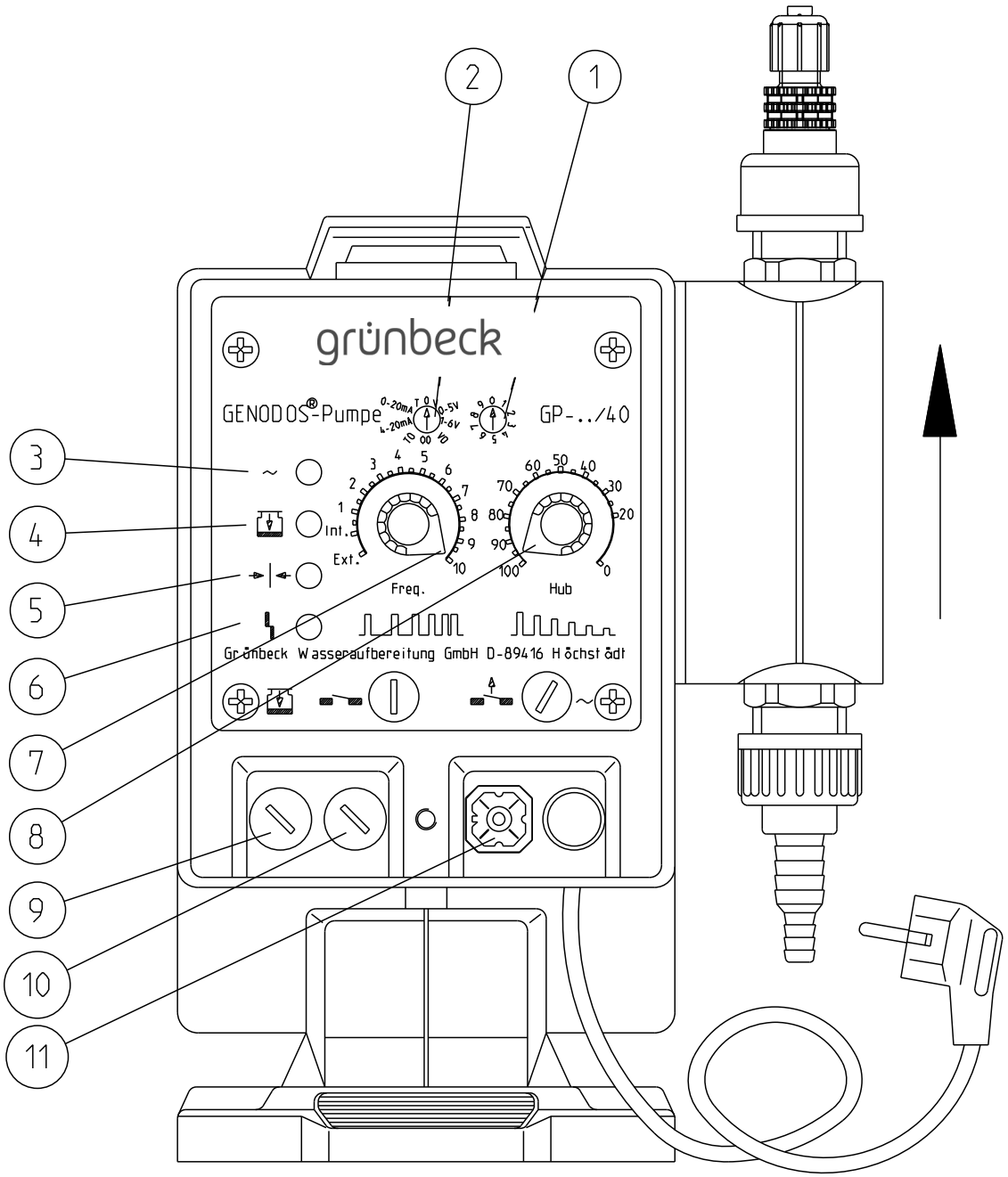
If the limit values, requirements and technical values of the measures of the German Drinking Water Ordinance and the recommendations of the Federal Environment Agency are observed, the inspected drinking water can be put into operation

6 | Documentation

Cleaning and disinfection measures in the drinking water installation should be documented in a comprehensive and detailed manner. Examples of forms can be found in W 557 Appendix C for cleaning and Appendix D for the disinfection of drinking water installations.

F Operation

1 | GENODOS pump control unit



① Pulse dividing or pulse multiplication factors
② Operating mode switch
③ Operating display
④ Empty warning display
⑤ Membrane monitoring
⑥ Dosing monitoring
⑦ Selector switch for internal and external control
⑧ Stroke length control
⑨ Input connector for empty signal
⑩ Input connector for external control
⑪ Fault message output

Fig. F-1: GENODOS pump GP-../40 operating modes

1 Operating mode switch
The different dosing pump operating modes in external control should be set on this switch. The selector switch for the stroke frequency must be set to "EXT." It is possible to choose between the following operating modes:

- **0:** The incoming pulses are processed 1:1.
  Every incoming water meter pulse triggers a dosing stroke.
- **T:** Pulse separation, pulse scaling with the selected factor (setting the factor, item K).
- **V:** Pulse multiplication, pulse transmission with the selected factor (setting the factor, item K).
- **T0:** Pulse separation, pulse scaling with the selected factor (setting the factor, item K),
  but without pulse storage when exceeding the stroke frequency of max. 109 strokes/min.
- **V0:** Pulse multiplication, pulse transmission with the selected factor (setting the factor, item K),
  but without pulse storage when exceeding the stroke frequency of max. 109 strokes/min.
- Analogue control: 0-5 V / 1-6 V / 0-20 mA / 4-20 mA.

The GENODOS pumps GP-../40 can store and then process a maximum of 65,517 incoming pulses with external control. These stored pulses are deleted with the "power supply off" or when switching over to a different operating mode (operating mode switch K).

2 Pulse division and pulse multiplication factors

Setting the pulse division

Position	0	1	2	3	4	5	6	7	8	9
Pulse input	1	3	5	8	10	15	20	30	40	50
≙ Pump factor	1	0.333	0.200	0.125	0.100	0.066	0.050	0.033	0.025	0.020
Dosing strokes	1	1	1	1	1	1	1	1	1	1

Setting the pulse multiplication

Position	0	1	2	3	4	5	6	7	8	9
Pulse input	1	1	1	1	1	1	1	1	1	1
≙ Pump factor	1	2	4	6	8	10	12	14	16	18
Dosing strokes	1	2	4	6	8	10	12	14	16	18

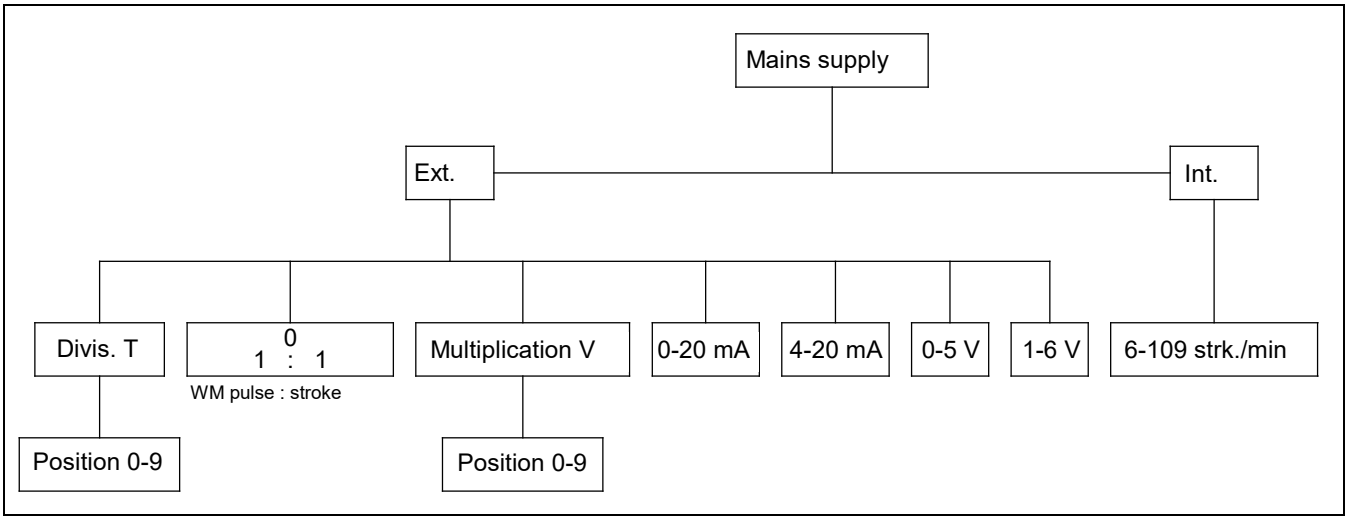


Fig. F-3: GENODOS pump GP-../40 operating modes

Faults are acknowledged by inserting and pulling out the mains plug.

3 Operating display

The operating LED (light emitting diode) indicates that the pump is connected to the power supply. Every dosing stroke is confirmed with a short flash with the GENODOS pumps GP. /40.

4 Empty warning display
The lighting up of the yellow LED on the empty warning display indicates that the volume has dropped below the liquid level in the dosing container. The pump operation is stopped at the same time if an empty warning detector is connected. The pump operation is automatically restarted by refilling the dosing agent. A suction lance with a pre-alarm can also be connected with pump type GP-../40. The yellow empty warning display on the control panel flashes as a pre-warning signal.

5 Membrane monitoring
The lighting up the red LED on the membrane monitoring indicates a membrane leak. The pump operation is immediately stopped in the event of a membrane breakage. The membrane monitoring must be acknowledged by pulling out and inserting the power plug once the leak has been eliminated.

6 Dosing monitoring
The dosing monitoring compares the requested strokes with the processed dosing strokes. If a difference is found, this is displayed via the red LED and the pump operation is stopped. The fault display must be acknowledged by pulling out and inserting the power plug once the fault has been eliminated. If the maximum number of strokes is exceeded, the pump will operate with the maximum stroke frequency (109 strokes/min. at 50 Hz).

7 Selector switch for internal and external control
- Internal control
  The internal control of the pump is set via the selector switch in a scale range of "Int - 10." The stroke frequency (number of dosing strokes per minute) lies at approx. 6 dosing strokes/minute in the "Int" setting and can be infinitely adjusted to "10" at a maximum of 109 dosing strokes/minute (50 Hz).
- External control
  If the selector switch is set to the "Ext" position, the pump only processes signals form external pulse transmitters. Connectivity (see Fig. 3.2.a, pos. H) or the connection diagram in point 5 "External control."

8 Stroke length control
The stroke length control is used to set the dosing capacity per stroke. The rotary knob can be used to infinitely adjust the dosing volume in a scale range of 0 - 100. The effective setting range of the stroke length lies in a scale range of 30 - 100. The adjustment should only be made during operation and during the pump stroke.

9 Input connector for empty signal
A level detector can be connected to this connector. Level detectors with a pre-alarm can also be connected to the GENODOS pumps GP-../40. Connectivity, see the connection diagram in item 5 "Empty signal."
Only suction lances and empty signals with a pre-alarm should be used for the GENODOS pumps GP-../40.

10 Input connector for external control
- Connector for external pulse transmitters (e.g. contact water meter (Reed, Hall), control units, etc.)
- Connector for control units with an analogue signal output (0-5 V / 1-6 V / 0-20 mA / 4-20 mA)
- Connector for an external enable operation (e.g. timer, relay, etc.). The selector switch E must be set in a scale range of "Int - 10" for an external enable operation. Connectivity, see the connection diagram in item 5 "External control."

11 Fault message output
The voltage-free fault signal contact (switchover contact) contains a collective fault message for power failure, an empty signal (but not the pre-alarm with the GP../40), membrane breakages and dosing monitoring.
Connectivity, see the connection diagram in item 5.

The GENODOS pumps GP-../25 and GP-../40 should be operated with a continuous voltage as the fault message is activated when the power is switched off (control room).

G Troubleshooting

1 | Introduction

Even carefully designed and manufactured technical systems and the dosing system MOBIdos that are operated properly may experience malfunctions. Table G-1 provides an overview of possible faults that may occur during the operation of the dosing system MOBIdos and indicates the causes and their elimination.

Note: The general and safety instructions in chapter A as well as the designated application, application limits and technical specifications in chapter C must be observed.

Danger! Before carrying out any care, maintenance or repair work on the dosing system MOBIdos, all components filled with disinfectant (suction lance, hoses, dosing pump, dosing line, dosing valve) must be rinsed out with plenty of water and the exterior of the suction lance must be rinsed. The dosing system must be disconnected from the power supply, depressurised and secured.

Note: It is essential that Grünbeck's technical service/an authorised specialist company is notified in case of errors that cannot be eliminated with the information given in table G-1! When reporting faults please also state the designation, order no. and serial no. of the dosing system MOBIdos.

2 | Faults on the GENODOS pump

Table G-1: Eliminating faults

This is what you observe	This is the cause	This is what to do
Pump does not suction despite the full stroke movement (stroke control Fig. F-1, pos. 8 on 100)	Suction lift exceeded (max. 1.5 m)	• Set the pump lower
	Volume drops below the liquid level	• Refill the dosing chemical
	Suction connection is leaking	• Seal leak
	Valves are dry (possible crystalline deposit)	• Lift up the suction hose for a short time • Rinse out the pump thoroughly • Remove and clean the suction and pressure valve • Remove and clean the deaeration valve
	Suction line is kinked or dirty	• Replace or clean the suction line
Pump is not pulsing. Operating display (Fig. F-1, pos. 3) does not light up	Power failure	• Check the supply line and power supply
	Fuses are defective	• Check the fuses and replace if necessary
Liquid is escaping from the pump head	Pump head has been tightened insufficiently or unevenly	• Tighten the screws on the pump head
	Dosing membrane is defective	• Replace the membrane
	Deaeration membrane is defective	• Replace the membrane
Dosing agent empty warning display (Fig. F-1, pos. 4) is flashing	Pre-alarm has been undershot	• Refill the dosing agent
Lights up	Empty message has been undershot	• Check the suction lance
Membrane monitoring (Fig. F-1, pos. 5) lights up	Dosing membrane is defective	• Replace the membrane
	Deaeration membrane is defective	• Replace the membrane
Dosing monitoring (Fig. F-1, pos. 6) lights up	Overloading of the motor	• Pull out and re-insert the power plug, check the counter pressure
	Power supply has dropped below 230 V	• Check the power supply, pull out and re-insert the power plug
Leak on the connection sets	Hose expanded too far	• Loosen the hose on the connection set in question and cut off approx. 1 cm. Then re-attach and secure the hose
In the event that the fault cannot be eliminated, it is necessary to contact Grünbeck's technical service/authorised specialist company.		

H Maintenance and care

1 | Basic information

In order to guarantee the reliable function of the dosing system MOBIdos over a long period of time, some maintenance work has to be performed at regular intervals. All regulations and guidelines which apply at the installation site must be strictly adhered to.

The following work is to be performed:

- Care work is required regardless of use.
- Inspection at least every 2 months.
- Maintenance at lease once per year.
- An operating log must be kept to document care, inspection and maintenance work (see the appendix for the operating log). In the case of operating failures, the operating log helps to identify possible error sources and verifies the proper monitoring of the dosing system MOBIdos.

Notes: A maintenance contract ensures that any required maintenance work is performed in due time.

Notes: Only use original consumables, accessories and spare parts (see chapter C, consumables)!

Danger! Before carrying out any care, maintenance or repair work on the dosing system MOBIdos, all components filled with disinfectant (suction lance, hoses, dosing pump, dosing line, dosing valve) must be rinsed out with plenty of water and the exterior of the suction lance must be rinsed. The dosing system must be disconnected from the power supply, depressurised and secured.

2 | Care work

This work must be performed regularly by a specialist regardless of how often the system is used.

Perform after use:

- Rinse all components filled with disinfectant with plenty of water. To do this, fill the empty 3 litre container supplied with drinking water.
- Rinse all components that have come into contact with the disinfectant with drinking water.
- Maintain the dosing system MOBIdos in a clean condition.
- Empty the remaining water.
- Dry the collection trays.

3 | Inspection

The regular inspections can be performed by the operator or by a trained expert contracted by him.

- Visually check the safety devices (e.g. housing part, etc.), electric cables and hoses to ensure that they are in a perfect condition.
- Check the separator according to the separate operating manual.

In the case of any damage to electrical or pressurised components, disconnect these from the mains or depressurise them and have them checked/repaired by a specialist.

4 | Maintenance

Maintenance work must be performed regularly after use, or at least once per year, as otherwise the warranty claim will become void. Maintenance work must be carried out by properly trained specialists or the Grünbeck technical customer service/authorised service company.

- As part of maintenance activities, all the work listed under "Care work" and "Inspection" must also be performed.
- Maintain the Euro system separator GENO-DK 2 according to the separate operating manual enclosed (order no. 132 970).
- Check the dosing valve and replace if necessary.
- Check the dosing hose and replace if necessary.
- Clean all the parts on the GENODOS pump that come into contact with chemicals, replace the suction and pressure valve depending on its service life (recommendation is annually).

5 | Operating log

Dosing System MOBIdos **Order no.: 160 150** **Serial no.: ....**

Work performed		Execution confirmed
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description	Company: .... Name: .... Date/ Signature:..

Dosing System MOBIdos **Order no.:** **160 150** **Serial no.:** **.........................**

Work performed		Execution confirmed
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ___ ___ ___ ___ ___ ___ ___	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ___ ___ ___ ___ ___ ___ ___	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ___ ___ ___ ___ ___ ___ ___	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ___ ___ ___ ___ ___ ___ ___	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ___ ___ ___ ___ ___ ___ ___	Company: .... Name: .... Date/ Signature:..

Dosing System MOBIdos **Order no.:** **160 150** **Serial no.:** **............................**

Work performed		Execution confirmed
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ____	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ____	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ____	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ____	Company: .... Name: .... Date/ Signature:..
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ____	Company: .... Name: .... Date/ Signature:..

Dosing System MOBIdos **Order no.:** **160 150** **Serial no.:** **............................**

Work performed		**Execution confirmed**
☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ____________________ ____________________ ____________________ ____________________ ____________________ ____________________ ____________________	Company: .... Name: .... Date/ Signature:..
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Dosing System MOBIdos **Order no.:** **160 150** **Serial no.:** **...........................**

Work performed		Execution confirmed
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☐ Care work ☐ Inspection ☐ Maintenance ☐ Repair	Description ________________________________ ________________________________ ________________________________ ________________________________ ________________________________ ________________________________ ________________________________	Company: .... Name: .... Date/ Signature:..