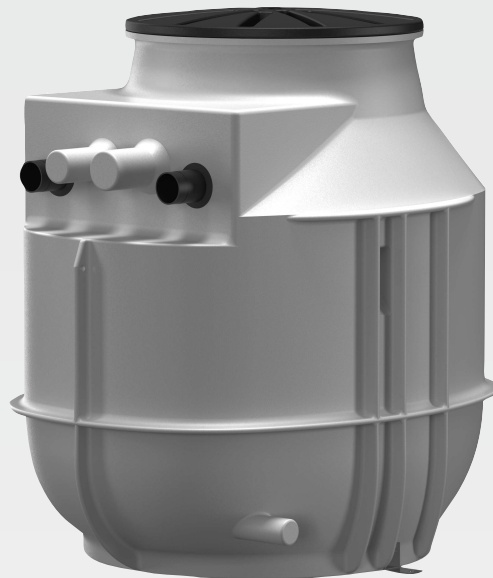


Wilo-DrainLift WS 40/50 Basic



de Einbau- und Betriebsanleitung
en Installation and operating instructions

fr Notice de montage et de mise en service
it Istruzioni di montaggio, uso e manutenzione

Fig.2.1: DrainLift WS 40E Basic

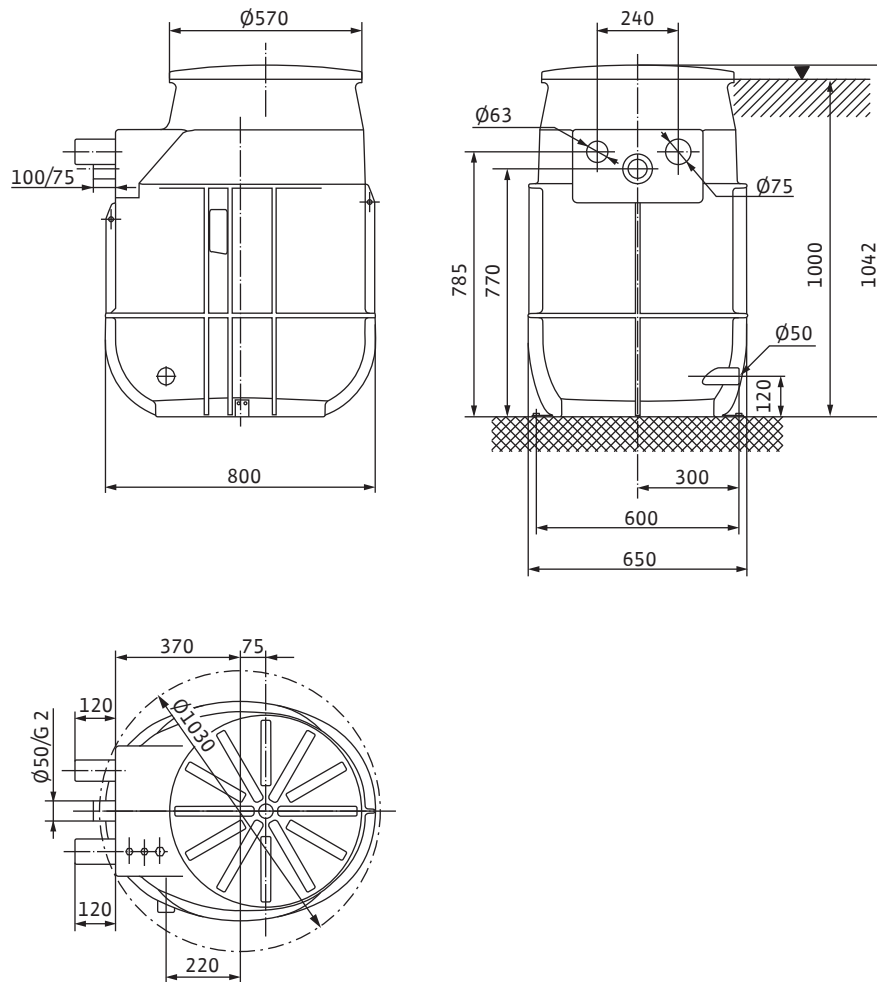


Fig.2.2: DrainLift WS 40D Basic

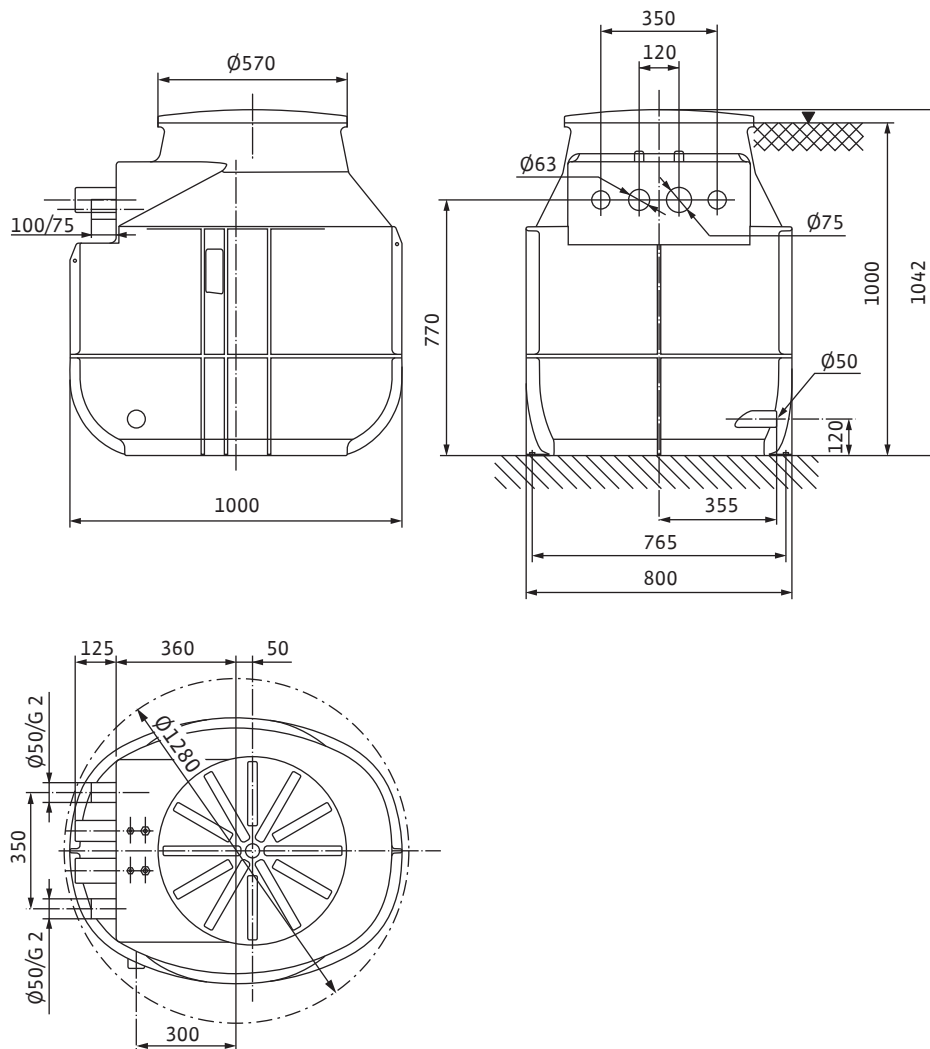


Fig.2.3: DrainLift WS 50E Basic

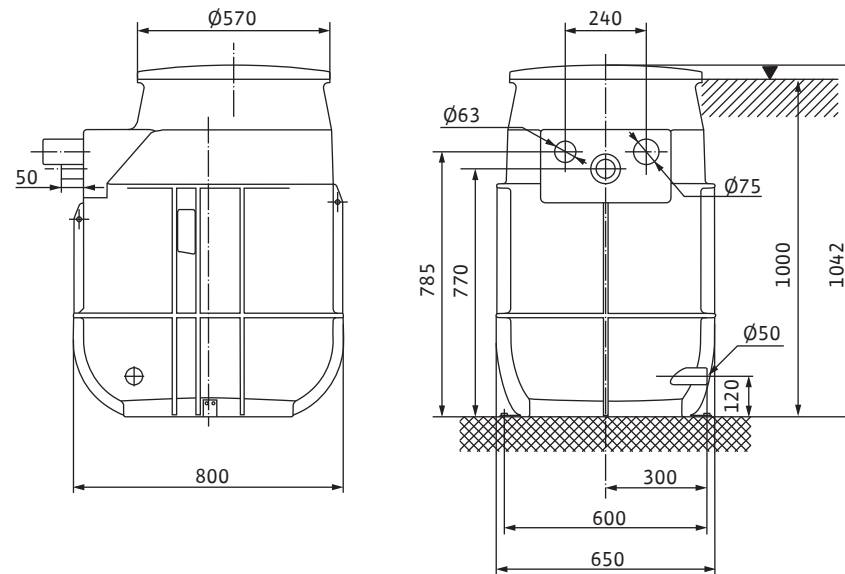


Fig.2.4: DrainLift WS 50D Basic

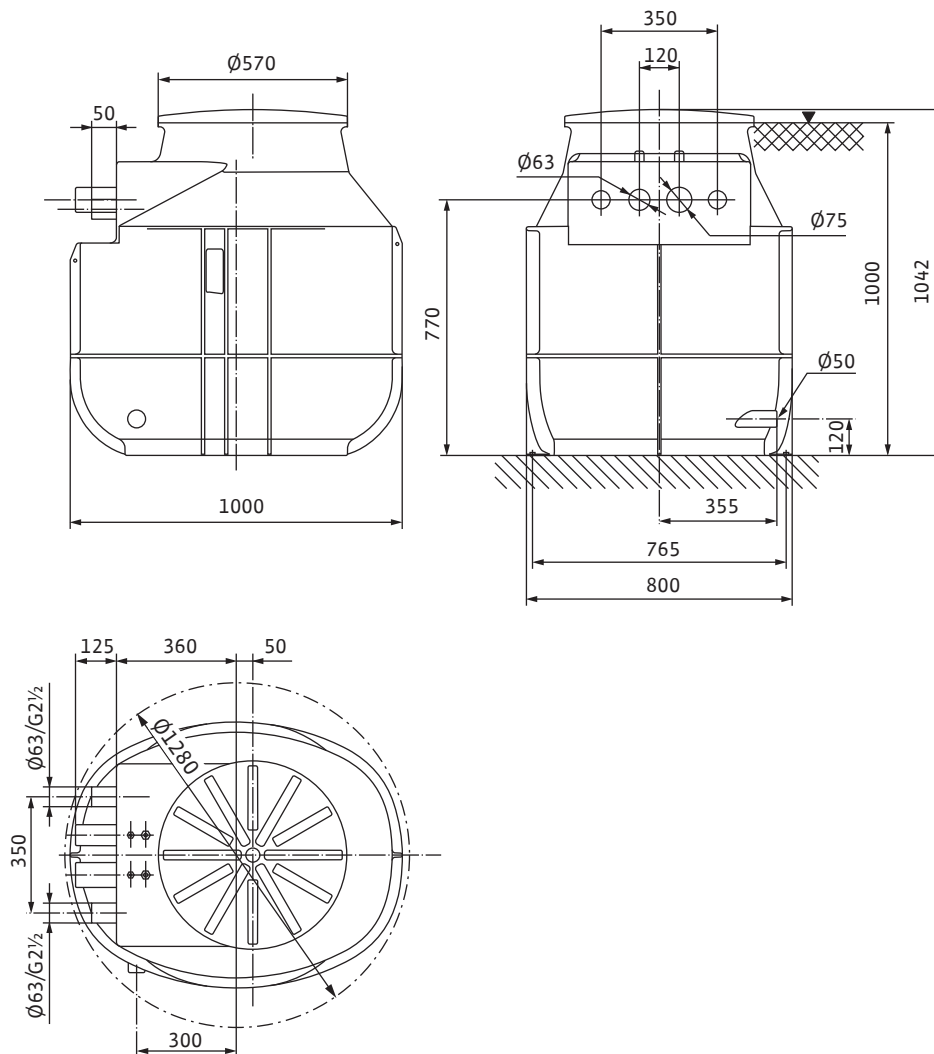


Table of contents

1	General information	38
1.1	About these instructions	38
1.2	Copyright	38
1.3	Subject to change	38
1.4	Exclusion from warranty and liability	38
2	Safety	38
2.1	Identification of safety instructions	38
2.2	Personnel qualifications	39
2.3	Electrical work	40
2.4	Monitoring devices	40
2.5	Explosive atmosphere in the collection reservoir	40
2.6	Transport	40
2.7	Installing/dismantling	41
2.8	During operation	41
2.9	Maintenance tasks	41
2.10	Operator responsibilities	41
3	Application/use	41
3.1	Intended use	41
3.2	Improper use	42
4	Product description	42
4.1	Construction	43
4.2	Mode of operation	43
4.3	Type key	44
4.4	Scope of delivery	44
4.5	Accessories	44
5	Transportation and storage	44
5.1	Delivery	44
5.2	Transport	45
5.3	Storage	46
6	Installation and electrical connection	46
6.1	Personnel qualifications	46
6.2	Installation types	46
6.3	Operator responsibilities	46
6.4	Installation	47
6.5	Electrical connection	60
7	Commissioning	60
7.1	Personnel qualifications	60
7.2	Operator responsibilities	60
7.3	Operation	61
7.4	Test run	61
7.5	Operation	61
7.6	During operation	62
8	Shut-down/dismantling	62
8.1	Personnel qualifications	62
8.2	Operator responsibilities	62
8.3	Shut-down	62
8.4	Clean and disinfect	63
8.5	Pump removal	63
9	Maintenance and repair	64
10	Spare parts	64
11	Faults, causes and remedies	64

1 General information

1.1 About these instructions

These instructions form part of the product. Adherence to these instructions is a requirement for the intended use and correct operation of the product:

- Carefully read the instructions prior to any activities on and with the product.
- Keep the instructions in an accessible place at all times.
- Observe all product specifications and labels on the device.

The language of the original operating instructions is German. Versions of these instructions in any other language are translations of the original operating instructions.

1.2 Copyright

Copyright remains with Wilo. Do not:

- Reproduce any content.
- Distribute any content.
- Use any content for competition purposes without authorisation.

Wilo shall reserve the right to change the listed data without notice and shall not be liable for technical inaccuracies and/or omissions.

1.3 Subject to change

Wilo shall reserve the rights to make technical changes to the product and individual components. The illustrations used may differ from the original and are intended as a sample representation of the device.

1.4 Exclusion from warranty and liability

Wilo shall specifically not assume any warranty or liability in the following cases:

- Inadequate configuration due to inadequate or incorrect instructions by the operator or the client
- Non-compliance with these instructions
- Improper use
- Incorrect storage or transport
- Incorrect installation or dismantling
- Insufficient maintenance
- Unauthorised repairs
- Inadequate construction site
- Chemical, electrical or electrochemical influences
- Wear

2 Safety

This chapter contains basic information for the individual phases of the life cycle. Failure to observe this information carries the following risks:

- Injury to persons from electrical, mechanical and bacteriological factors as well as electromagnetic fields
- Environmental damage from discharge of hazardous substances
- Property damage
- Failure of important functions of the product

Failure to observe the information contained herein will result in the loss of claims for damages.

The instructions and safety instructions in the other chapters must also be observed!

2.1 Identification of safety instructions

These installation and operating instructions set out safety instructions for preventing personal injury and damage to property. These safety instructions are shown differently:

- Safety instructions relating to personal injury start with a signal word, are **preceded by a corresponding symbol** and are shaded in grey.



DANGER

Type and source of the danger!

Consequences of the danger and instructions for avoidance.

- Safety instructions relating to property damage start with a signal word and are displayed **without** a symbol.

- Ground installation (underground): trained specialist in underground and pipeline construction
Excavate and prepare the pit, backfill the pit, buoyancy safeguards, connection of plastic pipes.
- Maintenance work: Skilled person (trained specialist in plant technology for sanitary facilities)
Hazards caused by sewage, basic knowledge of lifting units, requirements EN 12056
- Lifting work: trained specialist for the operation of lifting devices
Lifting equipment, lifting gear, attachment points
- Personnel have been instructed on locally applicable regulations governing accident prevention.
- Personnel have read and understood the installation and operating instructions.

2.3 Electrical work

- Electrical work must be carried out by a qualified electrician.
- Disconnect device from the mains and secure it against being switched on again without authorisation.
- Observe applicable local regulations when connecting to the mains power supply.
- Comply with the requirements of the local energy supply company.
- Train personnel on how to make electrical connections.
- Train personnel on the options for switching off the device.
- Observe the technical information in these installation and operating instructions as well as on the rating plate.
- Earth the device.
- Arrange switchgears so as to be overflow-proof.
- Replace defective connection cables. Contact customer service.

2.4 Monitoring devices

The following monitoring devices must be provided on-site:

Circuit breaker

The size and switching characteristics of the circuit breakers must conform to the rated current of the connected product. Observe local regulations.

Residual-current device (RCD)

- Install a residual-current device (RCD) in accordance with the regulations of the local energy supply company.
- If people can come into contact with the device and conductive fluids, install a residual-current device (RCD).

2.5 Explosive atmosphere in the collection reservoir

Sewage containing faeces can lead to gas accumulations in the tank. These gas accumulations can escape into the operating space and create an explosive atmosphere as a result of incorrect installation or maintenance work. This atmosphere can ignite and lead to an explosion. In order to prevent an explosive atmosphere, observe the following points:

- Tank must be undamaged (no cracks, leaks, porous material)! Take any defective lifting units out of operation.
- Ensure all connections for the inlet, pressure pipe and aeration and venting are sealed tightly and in accordance with regulations!
- Guide the aeration and venting line over the roof.
- When opening the tank (e.g. during maintenance work), ensure appropriate exchange of air!

2.6 Transport

- Wear the following protective equipment:
 - Safety footwear
 - Hard hat
- Locally applicable laws and regulations on work safety and accident prevention must be complied with.
- Demarcate and cordon off the working area.
- Keep unauthorised persons away from the working area.
- Remove loose components from the product.
- Only use legally prescribed and approved lifting and hoisting gear.
- Select the lifting gear based on the prevailing conditions (weather, attachment point, load, etc.).
- Always attach the lifting gear to the attachment points.
- Ensure that the lifting gear is securely attached.
- Ensure that the hoisting gear is stable.

- Observe the swivel range.
 - Ensure a second person is present to coordinate the procedure if required (e.g. if the operator's field of vision is blocked).
 - Standing under suspended loads is not permitted. Do **not** move suspended loads over workplaces where people are present.
- 2.7 Installing/dismantling**
- Wear the following protective equipment:
 - Safety footwear
 - Safety gloves for protection against cuts
 - Locally applicable laws and regulations on work safety and accident prevention must be complied with.
 - Disconnect device from the mains and secure it against being switched on again without authorisation.
 - Close the inlet and pressure pipe.
 - Ensure enclosed spaces have sufficient ventilation.
 - When working in enclosed spaces, a second person must be present for safety reasons.
 - Toxic or asphyxiating gases may build up in enclosed spaces or buildings. Observe protective measures in accordance with work regulations, e.g. carry a gas detector with you.
 - Clean the device thoroughly.

WARNING! Risk of fire if inappropriate clothing is worn and highly flammable cleaning agents are used!

Static charging may occur when cleaning plastic parts. There is a risk of fire! Only wear anti-static clothing and do not use highly flammable cleaning agents.
- 2.8 During operation**
- Open all gate valves in the inlet and pressure pipe!
 - The maximum inflow must be lower than the maximum output of the system.
 - Do not open the inspection openings!
 - Ensure aeration and venting!
- 2.9 Maintenance tasks**
- Wear the following protective equipment:
 - Sealed safety goggles
 - Safety gloves for protection against cuts
 - Safety footwear
 - Disconnect installed products from the mains and secure against unauthorised re-start.
 - Close the inlet and pressure pipe.
 - Carry out maintenance work according to the instructions of the installed products.
 - Only carry out maintenance tasks described in these installation and operating instructions.
 - Only original parts of the manufacturer may be used. The use of any non-original parts releases the manufacturer from any liability.
 - Collect any leakage of fluid and operating fluid immediately and dispose of it according to the locally applicable guidelines.
- 2.10 Operator responsibilities**
- Provide installation and operating instructions in a language which the personnel can understand.
 - Make sure that the personnel have received the required training for the specified work.
 - Provide protective equipment. Ensure that the protective equipment is worn by personnel.
 - Ensure that safety and information signs mounted on the device are always legible.
 - Train the personnel on how the system operates.
 - Eliminate any risk from electrical current.
 - Demarcate and cordon off the working area.
- Observe the following points when handling the device:
- Use is not permitted for persons under the age of 16.
 - Persons under the age of 18 must be supervised by a technician!
 - Use is not permitted for persons with limited physical, sensory or mental capacities!
- 3 Application/use**
- 3.1 Intended use**
- Pumping of sewage:
- In cases where sewage cannot be led to the sewer system via a natural fall.

- For the backflow resistant drainage in cases where the discharge point is below the backflow level.
- As a lifting unit within buildings (above ground installation).
- As a pump chamber outside buildings (concealed floor installation).

NOTICE! Install grease traps upstream of the pump chamber if pumping greasy sewage!

Pumping station	Sewage in acc. with DIN EN 12050-1	Sewage in acc. with EN 12050-1	Sewage in acc. with EN 12050-2
WS 40E Basic with Rexa MINI3...	-	-	•
WS 40D Basic with Rexa MINI3...	-	-	•
WS 50E Basic with Rexa MINI3...	-	•	•
WS 50E Basic with Rexa UNI...	-	•	•
WS 50D Basic with Rexa MINI3...	-	•	•
WS 50D Basic with Rexa UNI...	-	•	•

CAUTION

Overpressure in the tank!

If there is overpressure in the tank, it can burst. Observe the following points to prevent overpressure:

- The maximum positive suction head is 5 m (16.5 ft)
- The maximum inlet volume flow must be less than the maximum flow rate at the duty point!

3.2 Improper use



DANGER

Explosion due to use of explosive fluids!

Use of highly flammable and explosive fluids (gasoline, kerosene, etc.) in their pure form is prohibited. There is a risk of fatal injury due to explosion! The lifting unit is not designed for these fluids.

Do **not** use the following fluids:

- Sewage from drainage objects that are located above the backflow level and can be drained by natural fall.
- Debris, ash, rubbish, glass, sand, plaster, cement, lime, mortar, fibrous materials, textiles, paper towels, wet-wipes (e.g. fleece cloths, moist toilet paper wipes), nappies, cardboard, coarse paper, synthetic resins, tar, kitchen waste, grease, oil
- Slaughterhouse waste, disposal of slaughtered animals and animal waste (liquid manure etc.)
- Toxic, aggressive and corrosive fluids, such as heavy metals, biocides, pesticides, acids, bases, salts, swimming-pool water
- Cleaning agents, disinfectants, dishwashing or laundry detergents in excess amounts, and such that have a disproportionately high degree of foam formation
- Drinking water

Intended use also includes compliance with this manual. Any other use is regarded as non-compliant with intended use.

4 Product description

4.1 Construction

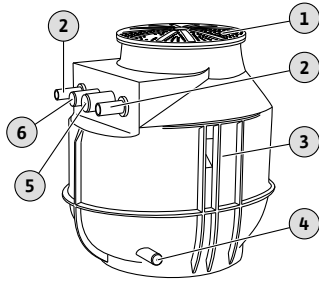


Fig. 1: Structure

1	Chamber cover
2	Pressure pipe connection
3	Pump chamber
4	Drain pipe/diaphragm hand pump connection
5	Venting line connection
6	Cable pipe connection

Chamber

Pump chamber with optimised geometry for deposit-free operation. Chamber component with ribbing for high inherent stability and buoyancy safety. The inlets are freely configurable. Two lifting eyes are integrated for attaching the lifting equipment. The chamber cover can be walked on and can be loaded with max. 200 kg. For the building installation, the pump chamber is equipped with a floor fixation.

Pipework

- Discharge pipe with threaded connection on the pump side
- Shut-off ball valve
- Non-return ball valve

Level control

Depending on the type, the level is controlled via the float switch of the pump, a separate float switch or a level sensor. If the level is controlled with a separate float switch or level sensor, it is controlled via switchgear.

4.1.1 Technical data

- Vessel volume: 255 l/67 US.liq.gal. (WS...E)/400 l/105 US.liq.gal. (WS...D)
- Maximum pressure in the pressure pipe: 1.5 bar (22 psi)
- Pressure connection: G 2/50 mm (WS 40), G 2½/63 mm (WS 50)
- Inlet connection: DN 100/150/200
- Aeration and ventilation connection: 75 mm (3 in)
- Cable pipe for ground installation: 63 mm (2.5 in)
- Threaded cable glands for building installation:
 - WS...E: 1x M25 + 2x M16
 - WS...D: 2x M16 + 2x M25
- Fluid temperature: 3 ... 40 °C (37 ... 104 °F)
- Max. ambient temperature: 3 ... 40 °C (37 ... 104 °F)
- Max. ground water level: 500 mm

4.1.2 Dimensions

Refer to the dimension drawing for the dimensions:

1	DrainLift WS 40E
2	DrainLift WS 40D
3	DrainLift WS 50E
4	DrainLift WS 50D

Fig. 2: Dimension drawings

When the pump chamber extension is installed, the dimensions change as follows:

	DrainLift WS ... E	DrainLift WS ... D
Pump chamber extension height	300 mm (12 in)	300 mm (12 in)
Pump chamber total height	1342 mm (53 in)	1342 mm (53 in)
Max. vessel volume	325 l (86 US.liq.gal)	470 l (124 US.liq.gal)
Max. ground water level	1000 mm (39 in)	500 mm (19.5 in)

4.1.3 Materials

- Pump chamber: PE
- Pipework: 1.4404 (AISI 316L)
- Stopcock: PVC
- Non-return valve: Grey cast iron

4.2 Mode of operation

The sewage produced is channelled into the pump chamber via the inlet, where it collects. When the water level reaches the switch-on level, the pump is switched on. The collected sewage is pumped into the on-site pressure pipe via the discharge pipe. When

the switch-off level is reached, the pump is immediately deactivated. When switchgear is used for the control, the pump is deactivated after the set follow-up time.

Pump chambers with two pumps operate according to the base load and peak load principle. The pumps are switched on depending on the fill level. Pump cycling is carried out after every pumping procedure. If one pump malfunctions, the other pump is automatically used.

4.3 Type key

Example: **DrainLift WS 40E Basic/Rexa...**

DrainLift	Product family
WS	Pump chamber
40	Size
E	Chamber design: → E = Single-pump system → D = Double-pump system
Basic	Pump chamber with pump and level control
Rexa...	Installed pump

4.4 Scope of delivery

Pumping station	DrainLift WS 40E Basic (1~230 V)	DrainLift WS 40E Basic (3~400 V)	DrainLift WS 40D Basic	DrainLift WS 50E Basic	DrainLift WS 50D Basic
Pump chamber with pipework, shut-off ball valve and non-return ball valve	•	•	•	•	•
Chamber cover with gasket	•	•	•	•	•
Pump with float switch and plug	•	–	–	•	–
Pump	–	•	•	–	•
Switchgear with float switch and plug	–	•	–	–	–
Switchgear with level sensor and plug	–	–	•	–	•
Hose section 50 mm (2 in) for drain connection, incl. 2 hose clips	•	•	•	•	•
Inlet set with hole saw 124 mm (5 in) and gasket DN 100	•	•	•	•	•
Fixation material	•	•	•	•	•
Installation and operating instructions	•	•	•	•	•

Key

• = Included in the scope of delivery, – = not included in the scope of delivery

4.5 Accessories

- Pump chamber extension
- Clamp bolting
- Gate valve
- Inlet set (gasket and hole saw)
- Diaphragm hand pump
- Alarm switchgear
- Flash light
- Horn

5 Transportation and storage

5.1 Delivery

After receiving the shipment, this must be checked immediately for defects (damage, completeness). Defects must be noted on the freight documentation! Furthermore, defects must be notified to the transport company or the manufacturer immediately on the day of receipt of shipment. Subsequently notified defects can no longer be asserted.

5.2 Transport



DANGER

Risk of fatal injury if the load is incorrectly secured!

Faulty or incorrect load securing can lead to life-threatening situations! Secure the load in accordance with local regulations. Check the load is secure before transport!



WARNING

Standing under suspended loads!

Never allow anyone to stand under suspended loads! Danger of (serious) injuries caused by falling parts. Loads may not be carried over work places where people are present!



WARNING

Head and foot injuries due to a lack of protective equipment!

Danger of (serious) injuries during work. Wear the following protective equipment:

- Safety shoes
- Safety helmet must be worn if lifting equipment are used!



NOTICE

Use only properly functioning lifting equipment!

Use only properly functioning lifting equipment to lift and lower the pump chamber. Ensure that the pump chamber does not become jammed during lifting and lowering. Do **not** exceed the maximum bearing capacity of the lifting equipment! Check that lifting equipment is functioning properly before use!

To avoid damage during transport, please observe the following points:

- Always transport the pump chamber on a pallet.
- Always set down the pump chamber vertically on the pallet.
- Secure the pump chamber against slipping. When lashing, make sure that the plastic parts do not deform.
- Close any openings, ensuring they are sealed watertight.
- Remove loose accessories from the pump chamber and pack them separately.
- To avoid damage to the pipework and pipe adaptors, always keep the pump chamber vertical during transport.

NOTICE! Thoroughly clean used pump chambers before shipping and disinfect them if necessary.

The following points must also be observed during attachment:

- Adhere to the applicable national safety regulations.
- Use legally specified and approved lifting gear.
- Select the lifting gear based on the existing conditions (weather, attachment point, load, etc.).
- Only attach the lifting gear to the attachment point. Fix with a shackle.
- Use lifting equipment with sufficient bearing capacity.
- The stability of the lifting equipment must be ensured during operation.
- When using lifting equipment, a second person must be present to coordinate the procedure if required (e.g. if the operator's field of vision is blocked).

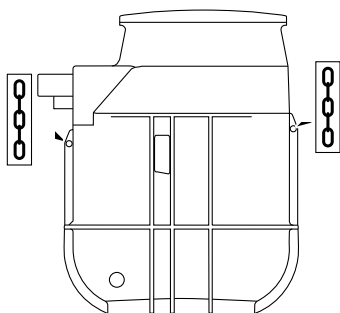


Fig. 3: Attachment points

5.3 Storage



DANGER

Risk of fatal injury from fluids hazardous to health!

Disinfect the pump chamber after draining and before removal! Observe the specifications of the work regulations! Make sure that the personnel have received and read the work regulations!

Newly supplied pump chambers can be stored for one year. For longer storage periods, contact customer service.

When storing the pump, please note the following points:

- Drain the pump chamber completely.
- Place the pump chamber on a firm surface. Check the stability.
- Secure the pump chamber against falling over and slipping!
- Max. storage temperature: -15 ... 60 °C (5 ... 140 °F). Max. humidity: 90 %, non-condensing.
We recommend frost-proof storage. Ambient temperature: 5 ... 25 °C (41 ... 77 °F), relative humidity: 40 ... 50 %.
- Close all openings, ensuring they are sealed watertight.
- Do not store the pump chamber in spaces where welding work is carried out. The resulting gases or radiation can corrode the plastic parts.
- Protect the pump chamber from direct exposure to sunlight. Extreme heat can cause the plastic parts to deform!

If pumps or signal transmitters are installed, please also observe the following points:

- Seal the ends of the connection cables against water ingress.
- Coil up connection cables and attach in the pump chamber.
- Observe information on the max. storage temperature of the pumps and signal transmitters.
- Store the switchgear according to the manufacturer's instructions.

6 Installation and electrical connection

6.1 Personnel qualifications

- Installation/dismantling work: trained specialist in plant technology for sanitary facilities
Fixation and buoyancy safeguards, connection of plastic pipes
- Ground installation (underground): trained specialist in underground and pipeline construction
Excavate and prepare the pit, backfill the pit, buoyancy safeguards, connection of plastic pipes.
- Lifting work: trained specialist for the operation of lifting devices
Lifting equipment, lifting gear, attachment points
- Electrical work: qualified electrician
Person with appropriate technical training, knowledge and experience who can identify and prevent electrical hazards.
- Personnel have been instructed on locally applicable regulations governing accident prevention.
- Personnel have read and understood the installation and operating instructions.

6.2 Installation types

- Installation in buildings
- Ground installation outside buildings

6.3 Operator responsibilities

- Observe locally applicable accident prevention and safety regulations.
- Observe all regulations for working with heavy loads and under suspended loads.
- Provide protective equipment. Ensure that the protective equipment is worn by personnel.
- Observe local sewage technology regulations for the operation of sewage systems.
- Structural components and foundations must be of sufficient stability in order to allow the device to be fixed in a secure and functional manner. The operator is responsible for the provision and suitability of the structural component/foundation!
- Demarcate the working area.
- Keep unauthorised persons away from the working area.
- Ensure free access to the installation location.

- Horizontal and flat installation surface!
- Carry out the installation work according to locally applicable regulations.
- If the weather conditions (e.g. ice formation, strong wind) mean it is no longer possible to work safely, stop work.
- Check that the available consulting documents (installation plans, installation location, inflow conditions) are complete and accurate.
- Lay and prepare the pipes according to the consulting documents.
- Mains connection is overflow-proof.

6.4 Installation



DANGER

Danger due to fluids hazardous to health during installation!

Ensure that the installation site is clean and disinfected during installation. If contact with fluids that are hazardous to health is possible, observe the following points:

- Wear protective equipment:
 - ⇒ sealed safety goggles
 - ⇒ mouth protection
 - ⇒ protective gloves
- Wipe up drips immediately.
- Observe the specifications of the work regulations! The operator must make sure that personnel have received and read the work regulations!



DANGER

Risk of fatal injury due to dangerous lone working practices!

Work in chambers and narrow rooms as well as work involving risk of falling are dangerous work. Such work may not be carried out autonomously! A second person must be present for safety reasons.



WARNING

Hand and foot injuries due to lack of protective equipment!

Danger of (serious) injuries during work. Wear the following protective equipment:

- Safety gloves for protection against cuts
- Safety shoes
- Safety helmet must be worn if lifting equipment are used!



WARNING

Standing under suspended loads!

Never allow anyone to stand under suspended loads! Danger of (serious) injuries caused by falling parts. Loads may not be carried over work places where people are present!



NOTICE

Use only properly functioning lifting equipment!

Use only properly functioning lifting equipment to lift and lower the pump chamber. Ensure that the pump chamber does not become jammed during lifting and lowering. Do **not** exceed the maximum bearing capacity of the lifting equipment! Check that lifting equipment is functioning properly before use!

Building installation**NOTICE****Installation of the pump chamber inside buildings**

Observe EN 12056 and local regulations during installation!

- Prepare the installation site:
 - Clean, free of coarse solids
 - Dry
 - Frost-free
 - Well lit
- Ensure operating space has sufficient ventilation.
- Ensure a clearance area of min. 60 cm (2 ft) around the unit.
- In the event of an accident: Provide pump sump in the operating space, min. dimensions: 500x500x500 mm (20x20x20 in). Select pump accordingly. Ensure that manual drainage is possible.
- All connection cables must be laid properly. The connection cables must not pose any risk (i.e. tripping, damage during operation). Check whether the cable cross-section and the cable length are sufficient for the selected installation type.
- The mounted switchgear is not overflow-proof. Install the switchgear at an adequate height. Ensure good operation!

Ground installation**CAUTION****Beware of high ground water levels!**

Elevated ground water can cause the pump chamber to float up. Observe information on the maximum permissible ground water level!

CAUTION**Beware of frost!**

Frost can cause malfunctions and damage. Pay attention to local frost depths. If the unit or pressure outlet are in the freezing zone, take the unit out of operation during freezing periods.

**NOTICE****Installation of the pump chamber outside buildings**

Observe EN 1610 and local regulations during ground installation!

- Prepare the installation site:
 - Clean, free of coarse solids
 - Dry
 - Frost-free
- Take immediate countermeasures if there is a build-up of toxic or asphyxiating gases!
- Work must always be carried out by two persons.
- Install lifting equipment: even surface, clean, firm base. Warehouse and installation location must be easily accessible.
- Attach the chain or wire rope to the attachment points with a shackle. Only use lifting gear that has been technically approved.
- Do not stay within the swivel range of the hoisting gear.
- Provide threading strip for the installation of the connection cables.
- The mounted switchgear is not overflow-proof. Install the switchgear at an adequate height. Ensure good operation!

6.4.1 Note on fixation material

The lifting unit can be installed on various constructions (concrete, steel, etc.). Select the fixation material which is suitable for the relevant construction. For correct installation, observe the following instructions for the fixation material:

- Avoid tearing or chipping of the construction surface, **observe the minimum edge distances.**
- Ensure tight and secure installation, **adhere to the prescribed borehole depth.**
- Drilling dust impairs holding strength, **always blow out or vacuum out the borehole.**
- Only use components (e.g. screws, anchors, mortar cartridges) which are in perfect condition.

6.4.2 Note on pipework

The pipework is subjected to different pressures during operation. Pressure peaks can also occur (e.g. when closing the swing check valve) which may be several times higher than the pump pressure, depending on the operating conditions. These different pressures put a strain on the piping and the pipe adaptors. In order to ensure safe and faultless operation, the piping and pipe adaptors must be checked based on the following parameters and designed according to the requirements:

- Pipes are self-supporting.
No tensile or compressive forces may act on the lifting unit.
- Pressure resistance of pipework and pipe adaptors
- Tensile strength of the pipe adaptors (= longitudinal force fit connection)
- Connect the pipes free of stress and vibrations.
- Provide a gate valve in the inlet and the pressure pipe on-site!

6.4.3 Work steps

Building installation

- Preparatory tasks.
- Install the pump chamber.
- Connect the pressure pipe.
- Connect the inlet.
- Connect the aeration and venting.
- Connect the emergency drain.
- Check the pump is properly fitted.
- Install the level control device.
- Lay the connection cable.
- Fit the chamber cover.
- Final tasks.

Ground installation

- Preparatory tasks.
- Install the pump chamber.
- Connect the pressure pipe.
- Connect the inlet.
- Connect the aeration and venting.
- Connect the cable pipe.
- Fit the pump chamber extension.
- Backfill the pit.
- Check the pump is properly fitted.
- Install the level control device.
- Lay the connection cable.
- Fit the chamber cover.
- Final tasks.

The pump chamber is installed in the following steps:

6.4.4 Preparatory tasks

Building installation

- Unpack the pump chamber.
 - Remove the securing mechanisms.
 - Check the scope of delivery.
 - Check all components are in proper working condition.
- CAUTION! Do not install defective components! Defective components can lead to system failures!**
- Prepare the installation location:
 - Horizontal and flat installation surface!
 - Space for an additional clearance area of at least 60 cm (2 ft) provided!
 - Fixation with dowels possible.
 - Clean, free of coarse solids
 - Dry
 - Frost-free
 - Well lit
 - Place accessories to one side and keep them for later use.
 - Keep accessories available for later use:
 - Chamber cover
 - Y-piece

The pump chambers WS 40...D and WS 50...D have separate pipework for each pump. They therefore also have two pressure connections.

 - Switchgear
 - Level control

Ground installation

- Unpack the pump chamber.
 - Remove the securing mechanisms.
 - Check the scope of delivery.
 - Check all components are in proper working condition.
- CAUTION! Do not install defective components! Defective components can lead to system failures!**
- Select installation site:
 - Outside buildings.
 - Not in the immediate vicinity of living and sleeping areas.
 - Pit depth and diameter.

CAUTION! Do not install in peaty soil! Peaty soil leads to destruction of the tank!

 - Ground water level

The pump chamber is anti-buoyant up to a max. ground water level of 500 mm (above the bottom edge of the chamber base).

 - Pay attention to local frost depths.
 - Place accessories to one side and keep them for later use.
 - Keep accessories available for later use:
 - Chamber cover
 - Y-piece

The pump chambers WS 40...D and WS 50...D have separate pipework for each pump. They therefore also have two pressure connections.

 - Pump chamber extension (for height adjustment)
 - Switchgear
 - Level control

6.4.5 Install the pump chamber

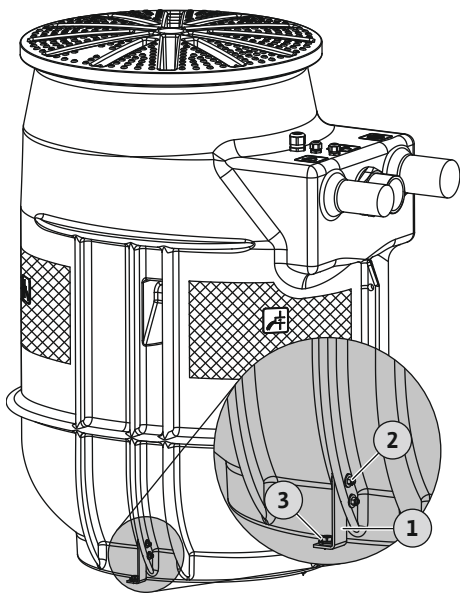


Fig. 4: Install the pump chamber

Building installation

1	Mounting bracket (2 pieces)
2	Fixation for mounting bracket: → 4x M5x25 hexagon head screw → 4x M5 hexagon nut → 8x washers
3	Floor fixation: with → 2x SXRL 10x80FUS long-shaft dowel → 2x 7 mm hexagon head screw

Install pump chamber so as to protect against buoyancy and twisting. Anchor the lifting unit to the floor for this.

- ✓ Preparatory tasks have been completed.
 - ✓ Installation site prepared according to consulting documents.
 - ✓ Enclosed fixation material can be used for the existing building ground. **NOTICE! Observe the information on the building ground!**
 - ✓ SW8 and SW13 wrench
1. Place the pump chamber at the installation site and align it with the pipework.
NOTICE! The pump chamber must be vertical!
 2. Mount the mounting bracket on the chamber ribs (fixation for mounting bracket).
 3. Mark the boreholes.
 4. Place the pump chamber to one side.
 5. Drill and clean the boreholes.
 6. Insert the dowels (floor fixation)
 7. Align the pump chamber with the boreholes.
 8. Attach the pump chamber to the floor (floor fixation).

- Pump chamber installed so as to protect against buoyancy and twisting. Next step: Connect the pressure pipe.

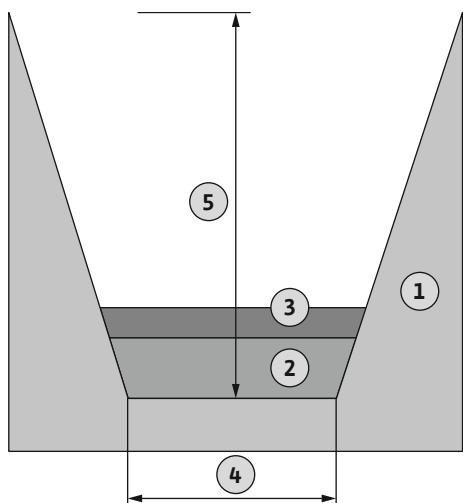


Fig. 5: Excavating the pit

Ground installation

1	Ground
2	Underlay
3	Levelling layer
4	Min. pit diameter
5	Min. pit depth

To install the pump chamber, excavate the pit, taking into account the following points:

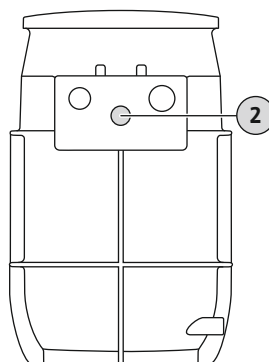
- Observe local regulations for earthworks in underground construction. (Slope angle, pit lining etc.)
 - Min. pit depth
Chamber height + 300 mm (12 in) underlay + 200 mm (8 in) levelling layer + height of chamber cover
 - Pit diameter
Min. pit diameter at ground level 2 m (6.5 ft) larger than chamber diameter.
 - Position of the inlet, pressure and venting line
 - Pump chamber extension (300 mm/12 in) for height compensation to the surface level.
 - Ground water
Pump out any groundwater with a ground water lowering system.
 - Consider local frost depths.
- ✓ Preparatory tasks completed.
 - ✓ Pit dimensions specified.
 - ✓ Prepare the on-site piping.
 - ✓ Height adjustment available.
 - ✓ Ground water lowering system installed.

1. Excavate the pit.
2. Install the load-bearing mineral mixture underlay properly and seal it (Dpr 97 %).
3. Add a levelling layer of sand (non-cohesive, grain size 0...32 mm) and level off.
4. Insert the pump chamber into the pit.
5. Align the pump chamber with the on-site piping.
6. Vibrate the pump chamber evenly into the levelling layer.
NOTICE! Vibrate the chamber base and base ribs completely into the levelling layer!
7. Check the position of the pump chamber and correct if necessary:
 - Pump chamber vertical
 - Chamber cover flat to surface level

- Pump chamber installed. Next step: Connect the pressure pipe.

6.4.6 Connecting the pressure pipe

DrainLift WS 40E/50E Basic



DrainLift WS 40D/50D Basic

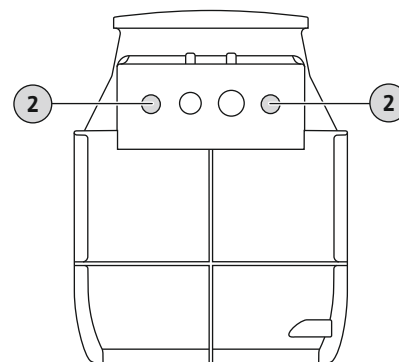


Fig. 6: Pressure connection

2 Pressure connection

Observe the following information when connecting the pressure pipe:

- Flow rate in the pressure pipe: 0.7 m/s (2.3 ft/s) to 2.3 m/s (7.5 ft/s)!
- Reducing the pipe diameter is not permitted!
- All connections must be completely tight!
- Lay the pressure pipe so that it is protected from frost.
- Install the gate valve.
- **Building installation:** Install the pressure pipe as a “pipe loop” to avoid backflow from the public sewer.
At its highest point, the bottom edge of the pipe loop must be above the locally determined backflow level!
- ✓ Pump chamber installed properly.
- ✓ Pressure pipe installed correctly to the discharge port according to consulting documents.
- ✓ Installation materials available:
1x clamp bolting or thread fitting
- 1. Push the clamp bolting onto the discharge port.
- 2. Insert the on-site pressure pipe into the clamp bolting.
- 3. Screw on the clamp bolting.
- Pressure pipe connected. Next step: Connect the inlet.

6.4.7 Connect the inlet

The inlet can be in the areas indicated for the chamber wall, as desired.

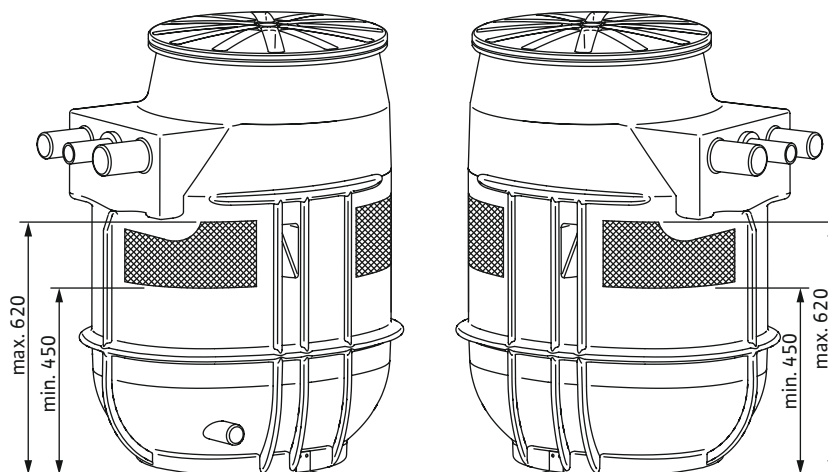


Fig. 7: Inlet areas

Note the following when connecting the inlet:

- Connect the inlet within the marked areas. If the inlet is outside the marked areas, the following problems can occur:
 - The connection leaks.
 - Statics of the pump chamber are affected.
 - Backflow into the inlet pipe.
- Avoid an inlet surge and air intake into the pump chamber. Lay the inlet properly.
CAUTION! Inlet surges or air intake into the pump chamber can cause the level control device to malfunction!
- Lay the inlet pipe with a slope to the pump chamber so that it can drain automatically.
- All connections must be completely tight!
- Install gate valve in the inlet!

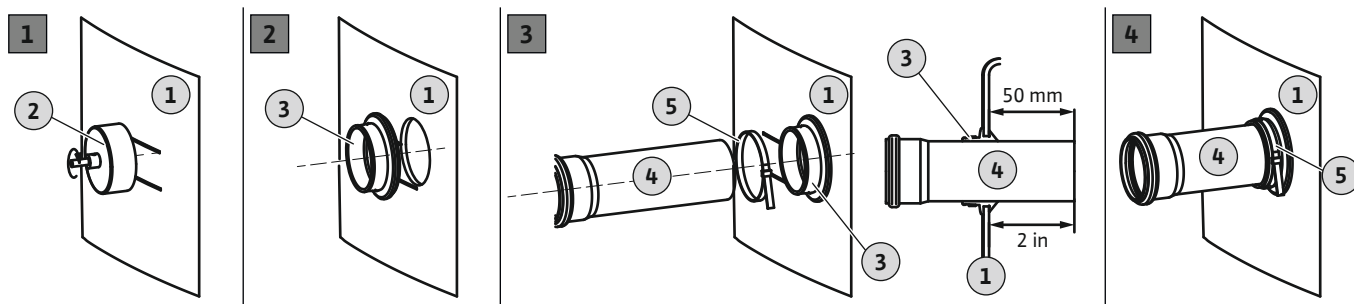


Fig. 8: Connect the inlet

1	Tank wall
2	Hole saw for drill
3	Inlet seal
4	Inlet pipe
5	Pipe clamp

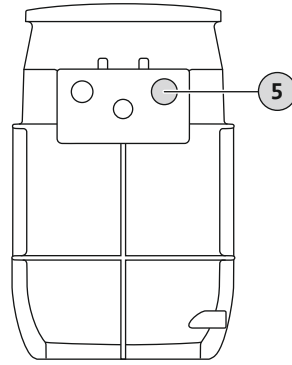
- ✓ Pump chamber installed properly.
 - ✓ Inlet pipe installed properly up to the pump chamber and according to consulting documents.
 - ✓ Installation materials provided:
 - 1x hole saw
 - 1x drill
 - 1x inlet seal
 - 1x pipe clamp
1. Mark the inlet point on the pump chamber.
 2. Use the supplied hole saw to cut the hole for the inlet into the pump chamber wall. When drilling holes on the pump chamber, observe the following points:
 - Observe the dimensions of the inlet surfaces. **CAUTION! The drilled hole must be completely within the marked inlet surfaces!**
 - Max. speed of the drill: 200 rpm.
 - Check the hole diameter: DN 100 = 124 mm (5 in). **NOTICE! Drill the connection carefully. Impermeability of the connection depends on the drilled hole!**
 - Make sure the excess material in the drill bit is removed completely! If the excess material removal rate decreases, the material will heat up too quickly and melt.
 - ⇒ Stop the drilling process, allow the material to cool down and clean the hole saw!
 - ⇒ Reduce the speed of the drill.
 - ⇒ Vary the feed pressure when drilling.
 3. Deburr and smooth the cut surface.
 4. Insert the inlet seal into the hole.
 5. Push the pipe clamp onto the inlet seal.
 6. Coat the inner surface of the inlet seal with lubricant.
 7. Push the inlet pipe into the inlet seal. Push the inlet pipe 50 mm (2 in) into the pump chamber.
 8. Connect the inlet seal and pipe firmly to the pipe clamp. **Tightening torque: 5 Nm (3.7 ft·lb).**
- Inlet connected. Next step: Connect the aeration and venting.

6.4.8 Connect the aeration and venting.

The connection of an aeration and venting line is a specified requirement. Observe the following points when connecting the aeration and venting line:

- For **building installation**: Guide the aeration and venting line over the roof.
- All connections must be completely tight.

DrainLift WS 40E/50E Basic



DrainLift WS 40D/50D Basic

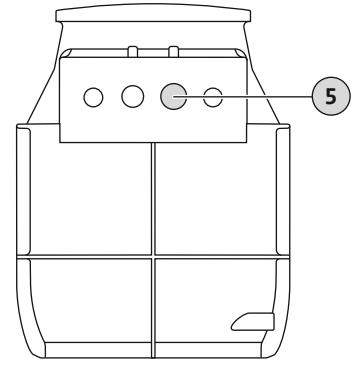


Fig. 9: Aeration and venting connection

5 Aeration and venting line connection

- ✓ Pump chamber is installed properly.
 - ✓ On-site aeration and venting line is laid properly.
 - ✓ HT sleeve socket available
1. Open the aeration and venting connection piece: Sawing edge approx. 25 mm.
 2. Deburr and smooth the sawing edge.
 3. Place the HT sleeve socket onto an open aeration and venting connection piece.
 4. Insert the on-site aeration and venting pipe into the HT sleeve socket.
- Aeration and venting installed. Next step: Connect the emergency drain (only building installation).

6.4.9 Connect the emergency drain (only building installation)



NOTICE

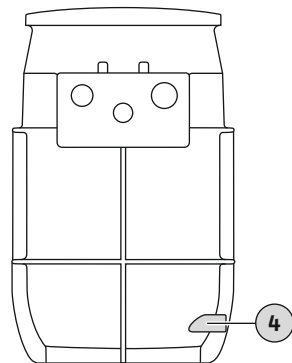
Do not connect inlet to the emergency drain!

The pump chamber is pumped out via the emergency drain in the event of an accident. Do not connect inlets to the emergency drain! The pump chamber cannot be drained in case of emergency otherwise!

In case of maintenance work or pump malfunction, the pump chamber can be emptied via the emergency drain. It is recommended to install a diaphragm hand pump for this purpose.

CAUTION! If the pumps malfunction, there is backflow into the inlet and the pump chamber can burst! Shut off the inlet and drain the pump chamber.

DrainLift WS 40E/50E Basic



DrainLift WS 40D/50D Basic

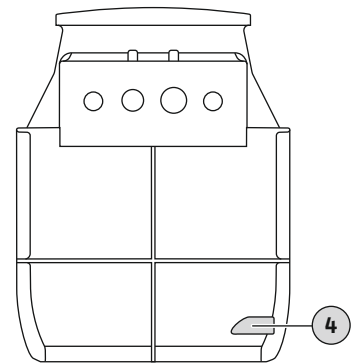


Fig. 10: Emergency drain connection

4 Emergency drain connection

Observe the following points when installing a diaphragm hand pump:

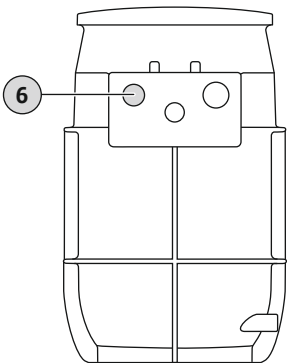
- Select an installation height which is optimal for operation.
- Connect the diaphragm hand pump to the emergency drain (lowest point, almost complete drain possible).
- A hole saw 30 mm (1.3 in) is required to open the drain connection.
- Connect the pressure pipe downstream of the gate valve on the pressure side.
Alternatively, the connection can be made via a pipe loop directly to the sewer.
- All connections must be completely tight!
- Observe the installation and operating instructions for the diaphragm hand pump!

6.4.10 Connect the cable pipe (only ground installation)

The electrical connection cables can be routed to the outside via a separate cable pipe. Alternatively, the connection cables can also be routed to the outside via the venting line. Observe the following points when connecting the cable pipe:

- Before connecting the cable pipe, pull in the threading strip.
- All connections must be completely tight.

DrainLift WS 40E/50E Basic



DrainLift WS 40D/50D Basic

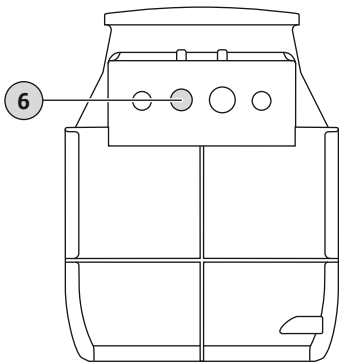


Fig. 11: Cable pipe connection

6	Cable pipe connection
<ul style="list-style-type: none">✓ Pump chamber is installed properly.✓ On-site cable pipe is laid properly.✓ HT sleeve socket available <ol style="list-style-type: none">1. Open the connection piece for the cable pipe: Sawing edge approx. 25 mm.2. Deburr and smooth the sawing edge.3. Put the HT sleeve socket on the connection port.4. Pull-in the threading strip.5. Insert the on-site cable pipe into the HT sleeve socket. <p>► Cable pipe installed. Next step: Install the pump chamber extension (if necessary).</p>	

6.4.11 Fit the pump chamber extension

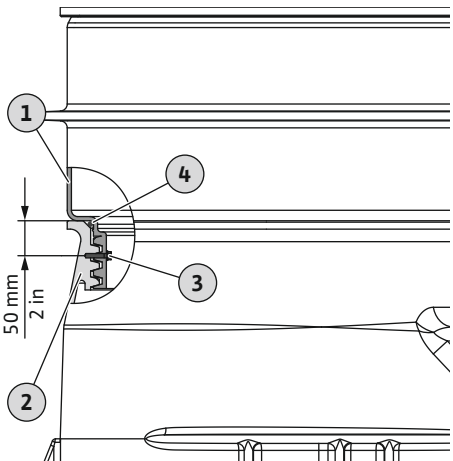


Fig. 12: Fit the pump chamber extension

A height compensation of 300 mm (12 in) can be achieved with the pump chamber extension.

1	Pump chamber extension
2	Pump chamber
3	Fastening screw
4	O-ring
<ul style="list-style-type: none">✓ Height adjustment: 300 mm (12 in).✓ Pump chamber extension available.✓ Installation materials required:<ul style="list-style-type: none">- Fastening screw- O-ring <ol style="list-style-type: none">1. Push the gasket (O-ring) over the thread of the pump chamber extension up to the stop.2. Screw the pump chamber extension onto the pump chamber.3. Lock the pump chamber extension with the enclosed screw.<ul style="list-style-type: none">- Make a 3 mm drilled hole approximately 50 mm (2 in) from the top of the pump	

chamber.

– Screw in the enclosed wood screw as far as it will go.

► Pump chamber extension installed. Next step: Backfill the pit.

6.4.12 Backfill the pit

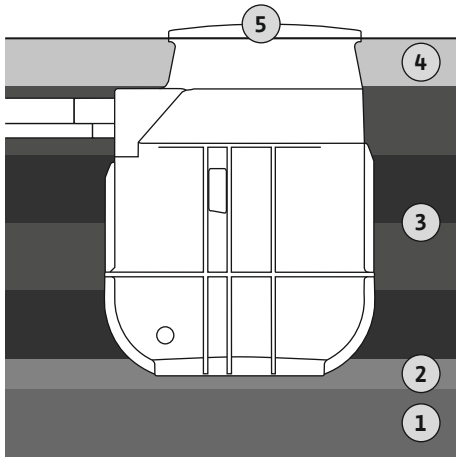


Fig. 13: Backfill the pit

Observe the following points when backfilling the pit:

- Make sure that the pump chamber is in a consistent and vertical position.
- Backfill and compress the pump chamber and pump chamber extension by hand (vane, hand rammer).
- Secure pump chamber against buoyancy. If necessary, fill the pump chamber with water.
- The details of the filling material are minimum requirements. Check and comply with local regulations.
- Backfill and compress the pipes according to local regulations.

1	Underlay
2	Levelling layer
3	Compression layers
4	Substructure to the surface level
5	Chamber cover

- ✓ Pump chamber is vertical.
- ✓ The chamber base is completely embedded in the levelling layer.
- ✓ All pipe adaptors are connected and sealed.
- ✓ Pump chamber extension installed.
- ✓ Filling material available:
Non-cohesive material (sand or gravel) without sharp-edged components, grain size 0 – 32 mm)

1. Backfill the pit in layers all around at the same height. Max. layer thickness: 300 mm (12 in). Compress the individual layers properly (Dpr. 97 %).

NOTICE! The compression layers must extend to the chamber neck!

2. Align the surface level with the chamber cover using the substructure.

NOTICE! If the surrounding grown soil consists of cohesive material, the sub-structure can be made with this material. Max. grain size: 20 mm!

► The pit is backfilled. Next step: Install the pump.

6.4.13 Check the pump is properly fitted.

- ✓ The pit is backfilled.
 1. Pump any existing water out of the pump chamber.
 2. Remove coarse contaminants in the pump chamber.
 3. Check the pump is properly fitted:
 - Discharge pipe vertical
 - Screwed connection on the shut-off ball valve tight.
- Proper fit of the pump checked. Next step: Install the level control device.

6.4.14 Install the level control device

The level is measured in the following ways:

Level measurement	DrainLift WS 40E Basic (1~230 V)	DrainLift WS 40E Basic (3~400 V)	DrainLift WS 40D Basic	DrainLift WS 50E Basic	DrainLift WS 50D Basic
Pump ON/OFF					
Float switch on the pump	•	–	–	•	–
Separate float switch	–	•	–	–	–
Level sensor	–	–	•	–	•
High water alarm					

Level measurement	DrainLift WS 40E Basic (1~230 V)	DrainLift WS 40E Basic (3~400 V)	DrainLift WS 40D Basic	DrainLift WS 50E Basic	DrainLift WS 50D Basic
Level sensor	–	–	•	–	•
Separate float switch	–	0	0	–	0

Key
• = included in the scope of delivery, 0 = available as an accessory, – = not possible

6.4.14.1 Float switch on the pump

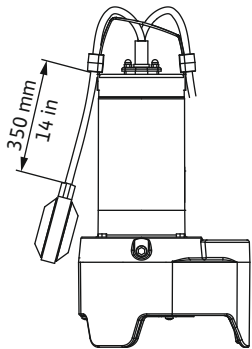


Fig. 14: Rexa MINI3: Float switch cable length

The float switch is fitted to the pump. The cable length is already pre-set. If the pump is replaced, check the cable length and adjust it as specified.

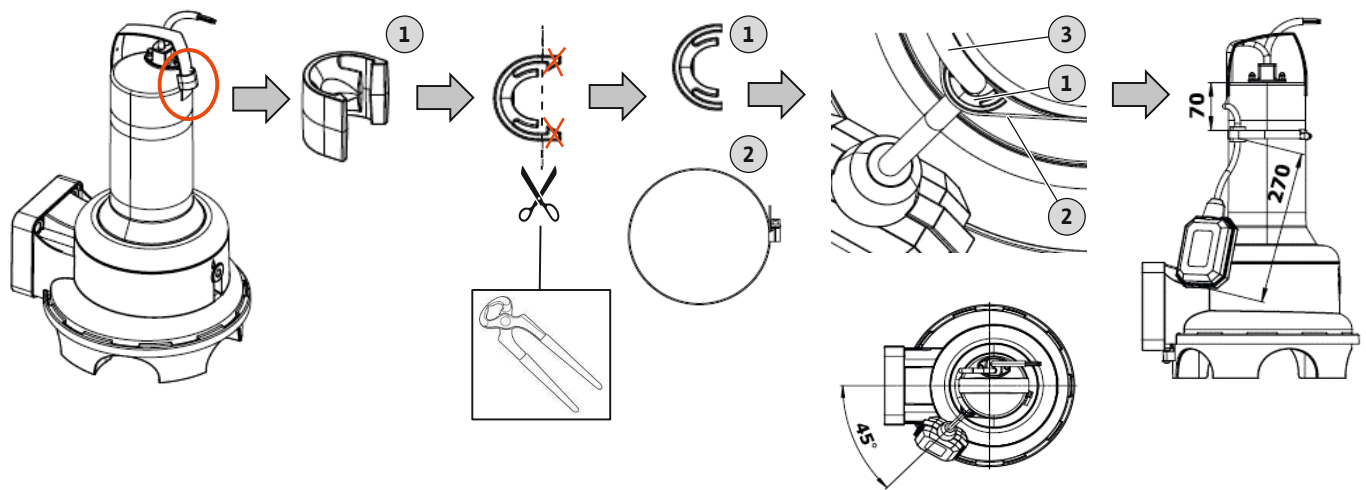


Fig. 15: Rexa UNI: Float switch cable length

1	Cable clip
2	Clamp
3	Cable

6.4.14.2 Float switch

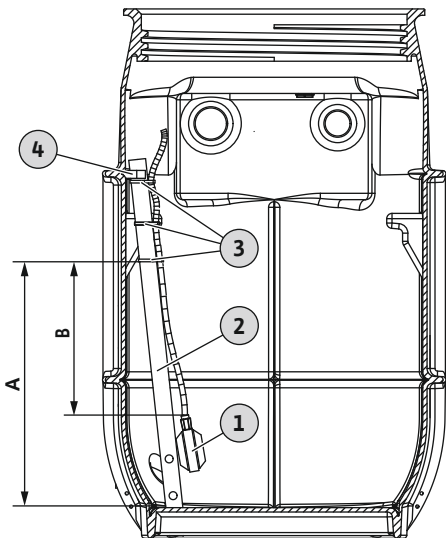


Fig. 16: Float switch installation

1	Float switch
2	Retaining pipe
3	Cable tie
4	Pipe clamp to fix the retaining pipe

- ✓ Do not install the floater directly in the inlet.
 - ✓ Floater has sufficient freedom of movement.
 - ✓ Floater does not bump against the pump chamber.
1. Click the retaining pipe out of the pipe clamp and remove it from the pump chamber.
 2. Float switch attached to the retaining pipe with three cable ties. Observe the cable length and mounting height!
 3. Reinstall the retaining pipe in the pump chamber and clip it into the pipe clamp.

DrainLift	Attachment point Cable tie (A)*	Cable length Floater (B)*
WS 40.../WS 50...	460 mm (18 in)	400 mm (16 in)

* The values refer to an inlet floor of 450 mm. The value can be adjusted if the inlet is higher.

For increased operational reliability, install a separate float switch for high water detection. In order to prevent a backflow in the inlet pipe, trigger the high water alarm at the height of the inlet floor!

6.4.14.3 Level sensor

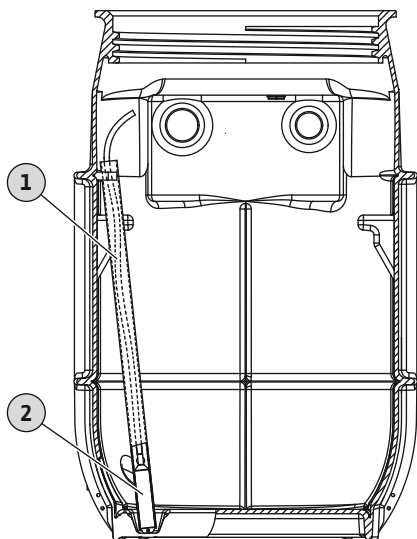


Fig. 17: Level sensor installation

1	Retaining pipe
2	Level sensor

- ✓ To prevent backflow in the inlet pipe, set the switching point "Pump ON" approx. 50 mm (2.5 in) below the inlet floor.
 - ✓ Lower part of the level sensor is permanently immersed.
1. Insert the level sensor into the retaining pipe.
 2. Adjust the switching points in the switchgear.

DrainLift	Pump ON*	Pump OFF	High water alarm*
WS 40.../WS 50...	0.4 m (16 in)	0.13 m (5 in)	0.45 m (18 in)

* The values refer to an inlet floor of 450 mm. The value can be adjusted if the inlet is higher.

NOTICE! For increased operational reliability, install a separate float switch for high water detection!

6.4.15 Lay the connection cable



Building installation

DANGER

Risk of explosion due to escaping gases at the cable bushing!

An explosive atmosphere can form within the pump chamber. If the cable bushing is not sealed airtight, the explosive atmosphere can spread into the operating space. There is a risk of fatal injury due to explosion! Make the cable bushing airtight.

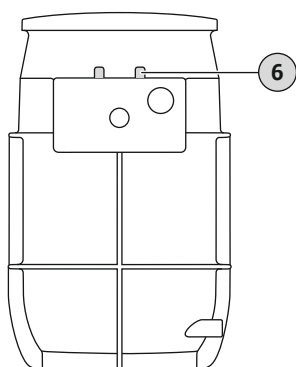


Fig. 18: Cable bushings

6 Cable bushings for installation in buildings:

- WS...E: 1x M25 + 2x M16
- WS...D: 2x M16 + 2x M25

- Route the connection cable to the outside via the cable bushings. Alternatively, the connection cables can also be routed to the outside via the connection for the cable pipe.
- Do not damage the connection cable (squeeze, bend etc.)!
- To prevent the connection cables from hanging individually in the pump chamber, tie the connection cables together with cable ties.
- Secure the connection cable on the chain hook for strain relief.
NOTICE! To be able to lift the pump out of the chamber (e.g. for maintenance), make sure that the connection cables are sufficiently long.
- Lay the connection cable according to the local regulations up to the switchgear or the socket.

Ground installation

- Attach the connection cable to the tie member and lead it through the cable pipe or aeration and venting pipe to the outside.
- Do not damage the connection cable (squeeze, bend etc.)!
- To prevent the connection cables from hanging individually in the pump chamber, tie the connection cables together with cable ties.
- Secure the connection cable on the chain hook for strain relief.
NOTICE! To be able to lift the pump out of the chamber (e.g. for maintenance), make sure that the connection cables are sufficiently long.
- Lay the connection cable according to the local regulations up to the switchgear or the socket.

6.4.16 Fit the chamber cover



DANGER

Risk of explosion due to escaping gases on the chamber cover!

An explosive atmosphere can form within the pump chamber. If the chamber cover is not sealed airtight, the explosive atmosphere can spread into the operating space. There is a risk of fatal injury due to explosion! Insert the gasket correctly into the chamber cover.

- The chamber cover can be secured against unauthorised opening.
- The chamber cover can be walked on.
- The maximum load of the chamber cover is 200 kg (441 lb).

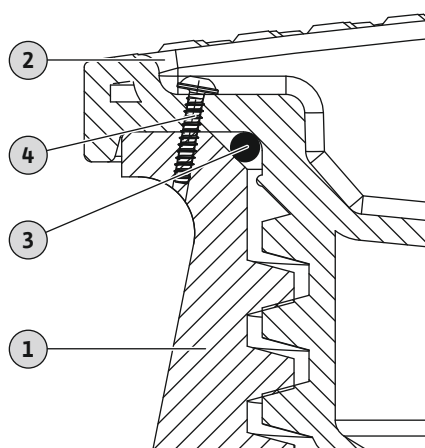


Fig. 19: Install and secure the chamber cover

1	Pump chamber
2	Chamber cover
3	Gasket
4	Safety screw

- ✓ Pump chamber connected to the pipework.
- ✓ Connection cable led to the outside.
- ✓ Pump installation checked.

1. Push the gasket over the thread until it is in contact with the chamber cover in the curve.

2. Place the chamber cover onto the chamber opening and screw it in.

WARNING! Chamber cover not sealed! If the chamber cover is screwed in, make sure that the gasket is fitted correctly. The gasket must not slip into the threads. If the gasket slips into a thread, it will be destroyed. The chamber cover is not sealed. Gases and pumped fluid can escape.

3. Drill a 3 mm hole at the intended location in the chamber cover. Drill a hole through the cover and the pump chamber.

4. Screw in the enclosed screw.

- Chamber cover fitted and secured. Make the electrical connection.

6.5 Electrical connection



DANGER

Risk of death due to electrocution!

Improper conduct when carrying out electrical work can lead to death due to electric shock! Electrical work must be carried out by a qualified electrician in accordance with the locally applicable regulations.



NOTICE

Take note of additional literature!

To ensure proper use, additionally read and observe the manufacturer instructions.

- Earth the pump chamber in accordance with local regulations.
- Establish potential equalisation in accordance with local regulations.
- Carry out the electrical connection of the individual components according to the specifications in the respective installation and operating instructions.
- Install the mains connection and switchgear so that they are overflow-proof.

7 Commissioning



WARNING

Foot injuries due to a lack of protective equipment!

Danger of (serious) injuries during work. Wear safety shoes!

CAUTION

Damage in the pump chamber!

Coarse contaminants can cause damage to the pump chamber. Remove coarse contaminants from the pump chamber before commissioning.



NOTICE

Observe additional documentation

Carry out the commissioning measures in accordance with the installation and operating instructions for the overall system!

Observe the installation and operating instructions for the connected products (sensors and pumps) as well as the system documentation!

7.1 Personnel qualifications

- Electrical work: qualified electrician
Person with appropriate technical training, knowledge and experience who can identify and prevent electrical hazards.
- Operation/control: Operating personnel, trained in the functioning of the complete system

7.2 Operator responsibilities

- Provide all installation and operating instructions at the pump chamber or at a designated place.
- Provide all installation and operating instructions in the personnel's language.
- Make sure that the installation and operating instructions have been read and understood by all personnel.
- All on-site safety devices are switched on and function properly.
- The pump chamber and the installed pump are suitable for use under the specified operating conditions.

7.3 Operation

Pump chamber with pump with fitted float switch

The individual pumps are directly controlled by the fitted float switch. After the plug has been inserted into the socket, the respective pump is now ready for operation in automatic mode.

Pump chamber with pump, switchgear and separate level control

CAUTION

Malfunction due to incorrect operation of the switchgear!

When the plug is inserted, the switchgear starts in the last operating mode that was set. In order to be familiar with the operation of the switchgear, the installation and operating instructions for the switchgear must be read before inserting the plug.

The unit is operated by the switchgear. For information on the operation of the switchgear and its individual displays, consult the installation and operating instructions for the switchgear.

7.4 Test run

Perform a test run before putting the pumping station into operation. A test run checks the proper functioning and impermeability of the pumping station. It might be necessary to adjust the pump's switching points and follow-up time to guarantee optimum operation of the pumping station.

- ✓ Pump chamber installed properly.
- 1. Remove the chamber cover.
- 2. Switch on the unit:
 - Insert plug into the socket.
 - Activate the switchgear at the main switch.
- 3. Switchgear: Select automatic mode
- 4. Open the shut-off valve in the pressure pipe.

NOTICE! The shut-off valve in the inlet remains closed!
- 5. Fill the pump chamber with water via the chamber opening.

NOTICE! Malfunction! Do not hold water jet directly above the float switch!
- 6. Pump is switched on and off using the level control.
 - ⇒ Carry out at least two complete pumping procedures of all pumps when conducting a test run.
 - ⇒ With double-pumping stations: The pump must be replaced after each pumping operation.
 - ⇒ Fill the pressure pipe completely with water to check the duty point. Repeat the test run until the pressure pipe is completely full.
- 7. For building installation: Check all connections for impermeability.
 - ⇒ If all connections are tight, the pumping station can be operated.
- 8. Fit the chamber cover and secure it against unauthorised opening.
- Test run completed.
- Pumping station **is put into operation**: Keep gate valve open in the **pressure pipe**.
- Pumping station **in standby mode**: Close the gate valve in the **pressure pipe**.

7.5 Operation

The pumping station operates in automatic mode by default and is switched on and off using the integrated level control device.

- ✓ Commissioning has been carried out.
- ✓ Test run has been completed successfully.
- ✓ The operation and functioning of the pumping station are known.
- ✓ Pressure pipe completely filled with water.
- 1. Activate the pumping station:
 - Insert the plug into the socket.
 - Switchgear: Switch on the main switch.

2. Switchgear: Select automatic mode.
3. Open the gate valve in the inlet and pressure pipe.
- The pumping station operates in automatic mode and the pump is controlled depending on the level.

7.6 During operation

- Open the gate valve in the inlet and pressure pipe!
- The maximum inflow is less than the maximum output of the unit.
- Do not remove the chamber cover!
- Ensure aeration and venting of the pump chamber!
- If the outside temperature remains below 0 °C for a prolonged period of time, there is a risk of frost in the pump chamber if the water exchange is insufficient:
 - Provide insulation measures above the chamber cover.
 - Decommission the pump chamber.

8 Shut-down/dismantling

8.1 Personnel qualifications

- Electrical work: qualified electrician
Person with appropriate technical training, knowledge and experience who can identify and prevent electrical hazards.
- Installation/dismantling work: trained specialist in plant technology for sanitary facilities
Fixation and buoyancy safeguards, connection of plastic pipes
- Ground installation (underground): trained specialist in underground and pipeline construction
Excavate and prepare the pit, backfill the pit, buoyancy safeguards, connection of plastic pipes.
- Lifting work: trained specialist for the operation of lifting devices
Lifting equipment, lifting gear, attachment points

8.2 Operator responsibilities

- Observe locally applicable accident prevention and safety regulations of professional and trade associations.
- Provide the necessary protective equipment and make sure that the personnel wears it.
- Ensure enclosed spaces have sufficient ventilation.
- Take immediate countermeasures if there is a build-up of toxic or suffocating gases!
- When working in enclosed spaces, a second person must be present for safety reasons.
- When using lifting equipment, observe all regulations for working with and under suspended loads!

8.3 Shut-down

1. Close the gate valve in the inlet pipe.
2. Switch the switchgear to standby mode.
3. Drain the pump chamber.
Activate the pump in manual mode and drain the pump chamber.
4. Close the gate valve in the pressure pipe.
5. Pump out the remaining pumped fluid via emergency draining.
6. Switch off the pumping station: **CAUTION! Secure against unauthorised re-start!**
 - Pull the plug out of the socket.
 - Switch off the switchgear at the main switch.
- The pumping station is now out of operation.

If the pumping station is out of operation for an extended period, carry out a functional check at regular intervals (quarterly). **CAUTION! Carry out the functional check as described under “Test run”.**

8.4 Clean and disinfect



DANGER

Danger due to fluids hazardous to health!

Disinfect the pumping station before carrying out any further work! Wear the following protective equipment while performing cleaning tasks:

- sealed safety goggles
- breathing mask
- protective gloves

⇒ The equipment listed here is the minimum requirement; observe the specifications of the work regulations! The operator must make sure that personnel have received and read the work regulations!

✓ Pumping station decommissioned.

✓ A disinfectant in accordance with work regulations is available.

NOTICE! Strictly observe the manufacturer's specifications concerning use!

1. Remove the chamber cover.
2. Switch on the unit:
 - Insert plug into the socket.
 - Activate the switchgear at the main switch.
3. Open the gate valve in the pressure pipe.
4. Spray the pump chamber from the inside via the chamber opening using clean water from top to bottom.
5. Drain the pump chamber.

Activate the pump in manual mode and drain the pump chamber.
6. Repeat steps 4 and 5 until the pump chamber, pump and level control device are cleaned.
7. Close the gate valve in the pressure pipe.
8. Pump out the remaining pumped fluid via emergency draining.
9. Decommission the pumping station.
10. Allow the pumping station to dry out.
11. Fit the chamber cover.

► Pumping station disinfected. The individual components can now be removed.

8.5 Pump removal



DANGER

Danger due to fluids hazardous to health during removal!

During removal, contact with fluids that are hazardous to health may occur. Observe the following points:

- Wear protective equipment:
 - ⇒ Closed safety goggles
 - ⇒ Mouth protection
 - ⇒ Protective gloves
- Immediately wipe up drips.
- Observe the specifications in the work regulations! The operator must make sure that the personnel have received and read the work regulations!



DANGER

Risk of death due to electrocution!

Improper conduct when carrying out electrical work can lead to death due to electric shock! Electrical work must be carried out by a qualified electrician in accordance with the locally applicable regulations.

**DANGER****Risk of fatal injury due to dangerous lone working practices!**

Work in chambers and narrow rooms as well as work involving risk of falling are dangerous work. Such work may not be carried out autonomously! A second person must be present for safety reasons.

The pump can be removed from the pump chamber for maintenance work on the pump.

- ✓ Pumping station decommissioned.
- ✓ Pumping station incl. all components disinfected.
- ✓ Protective equipment used.
- ✓ Working area cordoned off.
 1. Remove the chamber cover.
 2. Loosen the union nut on the shut-off ball valve.
 3. Release the pressure pipe from the shut-off ball valve.
 4. Remove the pump.
 5. Fit the chamber cover.
- Pump removed.

9 Maintenance and repair

Pump chamber

- Chamber cover gasket
Replace every time the chamber cover is removed.
- Surface coupling
Check the pumps are working correctly each time they are removed.

Pump

- Carry out maintenance work according to the manufacturer's instructions in the installation and operating instructions.

Switchgear

- Carry out maintenance work according to the manufacturer's instructions in the installation and operating instructions.

Level control

- Carry out maintenance work according to the manufacturer's instructions in the installation and operating instructions.

10 Spare parts

Spare parts are ordered via customer service. To avoid return queries and incorrect orders, the serial or article number must always be supplied. **Subject to change without prior notice!**

11 Faults, causes and remedies

If faults occur, observe the installation and operating instructions of the individual components.

12 Disposal

12.1 Protective clothing

Used protective clothing must be disposed off in accordance with the locally applicable guidelines.

12.2 Information on the collection of used electrical and electronic products

Proper disposal and appropriate recycling of this product prevents damage to the environment and putting your personal health at risk.