

Wilo-Port 800



de Einbau- und Betriebsanleitung
en Installation and operating instructions
fr Notice de montage et de mise en service
es Instrucciones de instalación y funcionamiento
no Monterings- og driftsveiledning
sv Monterings- och skötselansvisning
fi Asennus- ja käyttöohje
hr Upute za ugradnju i uporabu

sr Uputstvo za ugradnju i upotrebu
sl Navodila za vgradnjo in obratovanje
hu Beépítési és üzemeltetési utasítás
pl Instrukcja montażu i obsługi
cs Návod k montáži a obsluze
sk Návod na montáž a obsluhu
ro Instrucțiuni de montaj și exploatare

1.	Introduction	32
1.1.	About this document	32
1.2.	Personnel qualifications	32
1.3.	Copyright	32
1.4.	Subject to change	32
1.5.	Warranty	32
2.	Safety	33
2.1.	Instructions and safety instructions	33
2.2.	General safety	34
2.3.	Electrical work	35
2.4.	Safety and monitoring equipment	35
2.5.	Explosive atmosphere	35
2.6.	Behaviour during operation	35
2.7.	Sound pressure	36
2.8.	Standards and guidelines used	36
2.9.	CE marking	36
3.	Product description	36
3.1.	Intended use and fields of application	36
3.2.	Improper use and fields of application	36
3.3.	Set-up	37
3.4.	Function description	37
3.5.	Materials	38
3.6.	Technical data	38
3.7.	Type key	38
3.8.	Dimensions	39
3.9.	Scope of delivery	39
3.10.	Accessories	39
4.	Transportation and storage	40
4.1.	Delivery	40
4.2.	Transport	40
4.3.	Storage	40
5.	Installation	40
5.1.	Installation types	41
5.2.	Installation	41
5.3.	Electrical connection	52
6.	Commissioning	52
6.1.	Commissioning	53
6.2.	Behaviour during operation	53
7.	Decommissioning/disposal	53
7.1.	Temporary decommissioning	54
7.2.	Complete decommissioning for maintenance work	54
7.3.	Disposal	55
8.	Maintenance	55
9.	Faults, causes and remedies	56
10.	Appendix	56
10.1.	Spare parts	56

1. Introduction

1.1. About this document

The language of the original operating instructions is German.

All other languages of these instructions are translations of the original operating instructions.

This manual is divided into individual sections, which are listed in the table of contents. Each section has a heading which clearly describes its content.

A copy of the EC declaration of conformity is a component of these operating instructions.

If a technical modification is made on the designs named there without our agreement, this declaration loses its validity.

1.2. Personnel qualifications

All personnel who work on or with the pump chamber must be qualified to carry out this work, e.g. electrical work must be performed by a qualified electrician. All personnel must be of legal age.

Operating and maintenance personnel must also observe national accident prevention regulations.

It must be ensured that personnel have read and understood the instructions in this operating and maintenance handbook; if necessary, this manual must be ordered from the manufacturer in the required language.

This pump chamber is not designed to be used by persons (including children) with restricted physical, sensory or mental capacities, or those with a lack of experience and/or knowledge, unless they are supervised by a person responsible for their safety and have received instructions from that person on how the pump chamber is to be used.

Children must be supervised to ensure that they do not play with or in the pump chamber.

1.3. Copyright

This operating and maintenance manual has been copyrighted by the manufacturer. The operating and maintenance manual is intended for use by installation, operating and maintenance personnel. It contains specifications and drawings of a technical nature, which – either in whole or in part – may not be duplicated, disseminated, utilised without authorisation for the purposes of competition or distributed to third parties. The illustrations used may differ from the original and are intended merely as an example representation of the chamber.

1.4. Subject to change

The manufacturer reserves the right to make technical modifications to systems or components. This operating and maintenance manual relates to the pump chamber specified on the title page.

1.5. Warranty

In terms of the warranty, the current version of the "General Terms and Condition of Business" is applicable. You can find these here: www.wilo.com/legal

Any deviations must be contractually agreed and shall then be given priority.

1.5.1. General

The manufacturer has an obligation to resolve any defects on chambers sold if one or more of the following apply:

- The defects are caused by the materials used or the way the product was manufactured or designed.
- The defects were reported in writing to the manufacturer within the agreed warranty period.

- The pump chamber has only been used under the specified usage conditions.

1.5.2. Warranty period

The length of the warranty period is set out in the "General Terms and Conditions of Business".

Any deviations must be contractually agreed.

1.5.3. Spare parts, attachments and modifications

Only genuine spare parts from the manufacturer may be used for repairs, replacements, attachments and modifications. Independent attachments and modifications, or the use of non-genuine parts, can lead to severe damage to the pump chamber and/or to injury to personnel.

1.5.4. Maintenance

The prescribed maintenance and inspection work should be carried out regularly. This work may only be carried out by qualified, trained and authorised personnel.

1.5.5. Damage to the product

Damage and malfunctions that endanger safety must be eliminated immediately by trained personnel. The pump chamber may only be operated in a technically sound condition.

In general, repairs should only be carried out by Wilo customer service.

1.5.6. Disclaimer

No warranty is granted and no liability is accepted for damage to the pump chamber if one or more of the following apply:

- Inadequate configuration by the manufacturer due to the information provided by the operator or customer being insufficient or incorrect
- Non-compliance with safety instructions and working instructions as specified in this operating and maintenance manual
- Improper use
- Incorrect storage and transport
- Improper assembly/dismantling
- Insufficient maintenance
- Incorrect repairs
- Inadequate construction site or construction work
- Chemical, electrochemical and electrical influences
- Wear

This means the manufacturer's liability excludes all liability for personal injury, material damage or financial losses.

2. Safety

This section lists all the generally applicable safety instructions and technical information. In addition, all the other sections contain specific safety instructions and technical information. During the various life cycle phases of the chamber (installation, operation, maintenance, transportation etc.), all instructions must be followed and complied with. The operator is responsible for ensuring that all personnel comply with these instructions.

2.1. Instructions and safety instructions

This manual uses instructions and safety instructions for preventing injury and damage to property. To clearly identify them for personnel, the instructions and safety instructions are distinguished as follows:

- Instructions appear in bold and refer directly to the preceding text or section.

- Safety instructions are slightly indented and bold and always start with a signal word.
 - **Danger**
Serious or fatal injuries can occur!
 - **Warning**
Serious injuries can occur!
 - **Caution**
Injuries can occur!
 - **Caution** (instruction without symbol)
Substantial property damage can occur. Irreparable damage is possible!
- Safety instructions that refer to personal injury appear in black and are always accompanied by a safety symbol. Danger, prohibition or instruction symbols are used as safety symbols.
Example:



Danger symbol: General hazard



Danger symbol, for example, electrical current



Symbol for prohibited action, e.g. No entry.



Instruction symbol, for example, wear protective clothing

The safety symbols used conform to the generally applicable directives and regulations, such as DIN and ANSI.

- Safety instructions that only refer to material damage are printed in grey, without safety symbols.

2.2. General safety

- Personnel may not work alone when installing and removing the pump chamber. A second person must always be present.
- Adequate ventilation must be ensured when working inside the pump chamber.
- All work (assembly, dismantling, maintenance, installation) may only be carried out without a pump installed.
- The operator must report any faults or irregularities that occur to a line manager immediately. The end-user must shut down the equipment immediately if defects occur that represent a safety risk. These include:
 - Material fatigue to pump chamber body
 - Failure of the safety and/or monitoring equipment installed
 - Damage to electrical equipment, cables and insulation
- For welding work and/or work on electrical equipment, it is essential to ensure that there is no risk of explosion.
- Only use lifting gear which is legally defined as such and officially approved.
- The lifting gear must be kept safely and must be suitable for the conditions of use (weather, hooking unit, load, etc.).
- Mobile equipment for lifting loads should be used in such a way that it is guaranteed to remain stable during operation.
- When using mobile equipment for lifting non-guided loads, take action to prevent tipping, shifting, sliding, etc.

- Measures should be taken to ensure that no person is ever directly beneath a suspended load. Furthermore, it is also prohibited to move suspended loads over workplaces where people are present.
- If mobile equipment is used for lifting loads, a second person should be present to coordinate the procedure if required (for example, if the operator's field of vision is blocked).
- The load to be lifted must be transported so that no-one will be injured if there is a power failure. Furthermore, if such work is being carried out outdoors, it must be cancelled if the weather conditions worsen.
- Tools and other objects should only be kept in their designated places so that they can be found quickly.

These instructions must be strictly observed. Non-observance can result in injury or substantial material damage.

2.3. Electrical work



ELECTRICAL hazard!
Incorrectly performed electrical work can result in fatal injury!
This work may only be carried out by a qualified electrician.

A pump must be fitted to pump the accumulated sewage. It can be operated using an alternating or three-phase current. The applicable national directives, standards and regulations (e.g. VDE 0100) and the specifications of the local energy supply company must be observed.

The operator must be instructed in the electrical power supply to the pump and how to shut it off.

For the connection, refer to the operating and maintenance manual for the pump installed.

The pump installed must always be earthed.

2.4. Safety and monitoring equipment

The pump chamber is used to collect sewage containing faeces, which is then pumped out using a submersible pump. If there is a malfunction in the system, the accumulated sewage can become backed up as far as the inlet.

To guarantee operational reliability, we recommend always using a high water alarm. This reports a fault if the water level in the pump chamber is too high. For increased reliability, this alarm signal should be issued using the GSM network. This ensures that service personnel can offer an appropriately rapid response time.

2.5. Explosive atmosphere

When pumping sewage containing faeces, gas can accumulate in the collection reservoir. According to the local directives and standards, it may be necessary for the pump chamber to be declared as an Ex zone.



RISK of explosive atmosphere!
This Ex zone definition is the responsibility of the operator in line with the local directives. If an Ex zone is defined, all components must have appropriate approval.

2.6. Behaviour during operation

During operation, no personnel may be present in the pump chamber, and the pump chamber must be completely sealed.

The control and the level control for automatic operation must function properly.

The laws and regulations applicable at the usage location for operation of sewage pumping stations must be observed. All personnel are responsible for ensuring that regulations are observed.

2.7. Sound pressure

The pump chamber itself does not produce any noise. However, the actual sound pressure of the system depends on several factors, e.g. pump installed, installation depth, attachment of accessories and piping, duty point etc.

We recommend that the operator carries out an additional measurement when the system is running at its duty point under all operating conditions.



CAUTION: Wear ear defenders!

According to applicable laws and regulations, ear protection must be worn if the sound-pressure level is 85 dB(A) or more! The end-user must make sure that this is complied with!

2.8. Standards and guidelines used

The pump chamber is subject to various European directives and harmonised standards. Refer to the EC declaration of conformity for precise information about these.

There are also various additional regulations that are prerequisites for use, installation and dismantling of the pump chamber.

2.9. CE marking

The CE marking is attached to the rating plate.

3. Product description

The pump chamber is manufactured with the utmost care and is subject to continuous quality assurance. Fault-free operation is guaranteed if it is installed and maintained correctly.

3.1. Intended use and fields of application



RISK of explosive atmosphere!

Sewage containing faeces can lead to gas accumulation in the collection reservoir, which can ignite as a result of improper installation and operation.

When using the system for sewage containing faeces, the local directives and regulations for Ex protection must be checked and observed.



RISK due to explosive media!

Collection of explosive media (e.g. petrol, kerosene etc.) is strictly prohibited. The pump chamber is not designed for these media.

Combined with a submersible pump, the Wilo-Port 800 acts as a pumping station for sewage containing faeces and free of faeces in a domestic setting. Its field of application is in drainage of building discharge points and sites below the backflow level, where the sewage cannot drain into the public channel due to natural fall.

Intended use includes compliance with this manual. Any other use is considered to be outside the intended use.

3.2. Improper use and fields of application



WARNING – Injuries hazardous to health!

Because of the materials used, the pump chamber is not suitable for pumping of drinking water.

- If it comes into contact with sewage, there is a risk of damage to health.
- Do not use the pump chamber inside buildings.

CAUTION!

Introduction of prohibited media can cause damage to the pump chamber.

- Never introduce solid materials, fibres, tar, sand, cement, ash, coarse paper, paper towels, cardboard, rubble, rubbish, slaughtering waste, grease or oils.
- If greasy sewage occurs, a grease trap must be provided.
- Improper use and overloading leads to damage to the pump chamber.
- The maximum possible inflow must always be lower than the volume flow of the pump installed at the relevant duty point.

The following media may not be introduced:

- Sewage from drainage objects that are located above the back-flow level and can be drained by natural fall (in accordance with EN 12056-1)
- Explosive and harmful media such as solid materials, rubble, ash, rubbish, glass, sand/grit, plaster, cement, lime, mortar, fibres, textiles, paper towels, nappies, cardboard, coarse paper, synthetic resin, tar, kitchen waste, grease, oils, waste from slaughtering, carcass disposal and keeping of animals (manure...)
- Toxic, aggressive and corrosive media such as heavy metals, biocides, pesticides, acids, alkalis, salts, cleaning agents, disinfectant, washing-up liquid and detergent in excess quantities and any media that form a disproportionate amount of foam, swimming pool water (in Germany in accordance with DIN 1986-3).

3.3. Set-up

Fig. 1: Overview

1	Pump chamber	9	Inlet connection
2	Discharge pipe	10	Venting/cable ducts
3	Non-return ball valve	11	Pump
4	Surface coupling	12	Level control
5	Shut-off valve	13	Eyes for lifting equipment
6	Pressure connection	14	Hook for attachment of chain
7	Lifting equipment (chain)	15	Pump chamber cover
8	Cross member		

The Wilo-Port 800 is a pump chamber with strong finning for vertical concealed floor installation outside buildings.

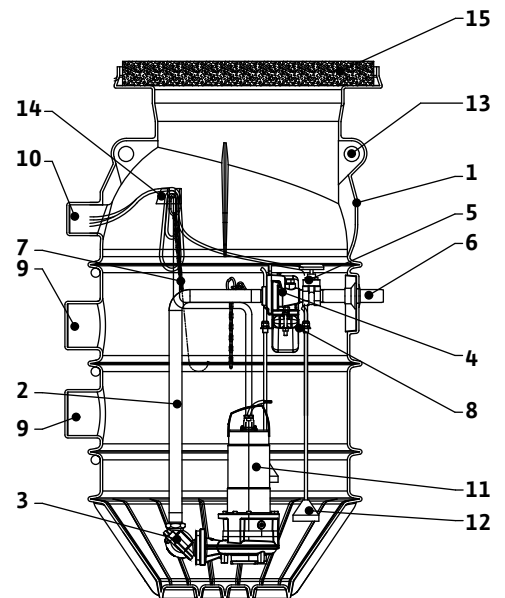
The pump chamber has three inlet connections and a connection port for venting and cable ducts. As standard, the pump chamber is supplied with internal pipework including a non-return valve for connection of a macerator pump.

For use as a pumping station, additional accessories are required.

3.4. Function description

The pump chamber works fully automatically in conjunction with a submersible pump and level control. The accumulated sewage is fed to the pump chamber using the inlet connection (3), and is initially collected. When the collected sewage reaches the switch-on level, the submersible pump switches on. The submersible pump pumps the sewage through the discharge pipe and the pressure connection into the onsite pressurised discharge pipe. The water level in the pump chamber falls. The control switches off the submersible pump again after a set time or when the switch-off level is reached (depending on the signal transmitter used).

Fig. 1



The non-return ball valve in the discharge pipe prevents the sewage from flowing back out of the onsite pressurised discharge pipe.

3.5. Materials

- Pump chamber: PE
- Non-return ball valve: Cast iron
- Pipework: Stainless steel
- Surface coupling: Cast iron
- Gate valve: Red brass

3.6. Technical data

Description	Value	Comments
Max. permitted pressure in pressure pipe:	10 bar	
Discharge pipe connection:	R 1¼ (DN 32)	Stainless steel pipe (VA) with thread
Inlet connection:	1x DN 200, 2x DN 150	
Ventilation connection / cable bushing:	1x DN 100	
Max. permitted ambient temperature:	20 °C	Ground, below depth of 0.5 m
Max. permitted groundwater level:	Ground level	
Impoundment volume:	See data sheet/catalogue	
Suitable pump types:	Rexa CUT Drain MTS 40 Drain MTC 40 Drain MTC 32	
Suitable pump cover:	Class A15, B125 or D400	Observe field of application in accordance with EN 124!

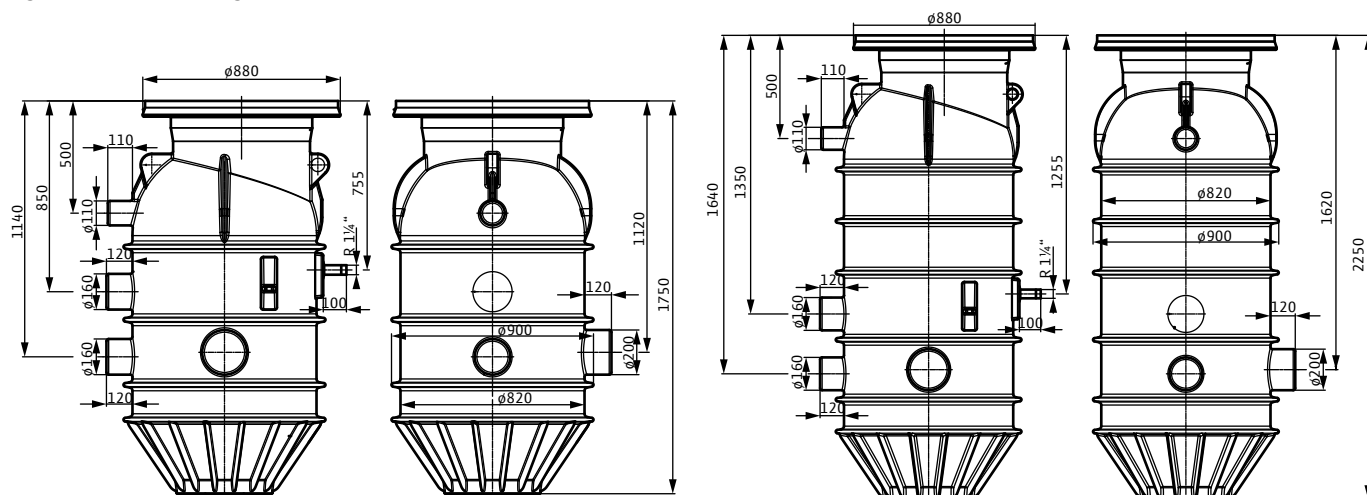
3.7. Type key

Example: Wilo-Port 800.1-2250-03B	
Port	Product family: Pump chamber
800	Nominal chamber diameter in mm
1	1 = Single pump chamber 2 = Double pump chamber
2250	Monolithic chamber height without cover in mm
03	Pressure connection DN 32
B	Pipework for pump type: B = Rexa CUT, Drain MTS 40, Drain MTC 40, Drain MTC 32F39 C = Drain MTC 32F49, Drain MTC 32F55

3.8. Dimensions

Fig. 2: Dimension drawing

Fig. 2



The height dimensions increase by the upward protruding part of the selected pump cover.

3.9. Scope of delivery

- Pump chamber with complete pipework, consisting of
 - Discharge pipe with surface coupling, 90° non-return ball valve and pressure connection
 - Shut-off device
- Cross member
- Chain (lifting equipment for pump installation)
- Installation materials for pumps
- Installation and operating instructions



NOTE:

For use as a pumping station, accessories are required that have to be ordered separately.

3.10. Accessories

- Clamp bolting for connection to a PE discharge pipe
 - Pump chamber extension
 - Pump cover in classes A15, B125 or D400 (in accordance with EN 124)
 - Operating crank for shut-off device
 - Flush connection with Storz C connection
 - Flush connection extension
 - Vacuum relief valve
 - Level control using:
 - Dynamic pressure bell, optionally with bubbling-through system
 - Level sensor
 - Float switch
 - Macerator pump
 - Switchgear (depending on level control device)
 - Ex cut-off relay and Zener barrier as separate accessories for connection of float switch or level sensor in potentially explosive areas
 - Alarm switchgear
 - Flash light
- For further information, see catalogue.

4. Transportation and storage

4.1. Delivery

On delivery, check immediately that the shipment is complete and undamaged. If any parts are damaged or missing, the transport company or the manufacturer must be notified on the day of delivery. Claims made after this date cannot be recognised. Damage to parts must be noted on the freight documentation.

4.2. Transport

Only the designated and approved sling gear, transport and lifting equipment are to be used for transportation. They must have sufficient load bearing capacity and lifting force to enable the pump chamber to be transported safely. When using chains, they must be secured against slipping.

The personnel must be qualified for the tasks and must follow all applicable national safety regulations during the work.

The pump chamber is supplied in suitable packaging by the manufacturer or supplier. This normally precludes the possibility of damage occurring during transportation and storage.

4.3. Storage

When delivered, new pump chambers are prepared in such a way that they can be stored for at least 1 year. For intermediate storage, the pump chamber must be cleaned thoroughly before storage.

The following should be taken into consideration for storage:

- Place the pump chamber securely on a solid bearing surface and secure it against falling over or sliding away. Pump chambers are stored vertically.



DANGER due to falling over!

Never set down the pump chamber without it being secured. There is a risk of injury if the pump chamber falls over.

- The pump chamber must be stored in a dry, frost-proof room. We recommend a room temperature of between 5 °C and 25 °C.
- The pump chamber may not be stored in rooms where welding work is carried out, as the resulting gases and radiation can attack the elastomer parts.
- All connection ports and the pump chamber inlet must be securely sealed to prevent contaminants.
- Accessories such as the pump and level sensors must be dismantled.
- The pump chamber must be protected from direct sunlight, heat, dust and frost. Heat or frost can result in damage to the elastomer parts.
- After a long period of storage, the pump chamber must be cleaned of impurities before commissioning.

Note that elastomer parts are subject to a natural process of embrittlement. We recommend checking them if stored for more than 6 months. Consult the manufacturer for further details.

5. Installation



RISK of death due to improper handling!

Incorrect installation and improper electrical connections can be life-threatening.

- **Installation and electrical connection may only be carried out by specialist personnel and in accordance with the applicable regulations.**
- **Adhere to regulations for accident prevention!**

**DANGER of suffocation!**

Toxic or harmful substances in sewage pump chambers can lead to infections or suffocation.

- **During any work in pump chambers, a second person must be present for safety reasons.**
- **Ensure that the pump chamber and the surrounding area are adequately ventilated.**

**NOTE:**

During dimensioning and installation, the applicable national and regional standards and regulations for installation of sewage technology systems must be observed, e.g. EN 1610. Likewise, the installation and operating instructions for the accessories must be observed.

In order to prevent damage to the product or serious injury during installation, the following points must be observed:

- The installation work – assembly and installation of the pump chamber – may only be performed by qualified personnel in compliance with the safety instructions.
- Before starting the installation work, the pump chamber must be checked for transport damage.
Failure to comply with instructions for assembly and installation jeopardises the safety of the pump chamber/personnel and voids the safety declarations issued.

5.1. Installation types

- Concealed floor installation outside buildings

5.2. Installation**DANGER due to falling!**

Personnel can fall into the open pump chamber during installation and suffer serious injuries.

- **During installation, the installation location must be appropriately marked and secured.**
- **Always close the installed pump chamber with an appropriate pump cover.**

Note the following for installation of the pump chamber:

- This work must be performed by specialist personnel and electrical work must be performed by a qualified electrician.
- The installation location must be frost-free.
- A second person must be present for safety reasons. Take the necessary counter measures if there is a risk of toxic or suffocating gases collecting.
- If lifting equipment is to be used for installation of the pump chamber, problem-free installation of the lifting equipment must be ensured. The location where the pump chamber is used and set down must be safely accessible with the lifting equipment. The set-down location must have a solid bearing surface. To transport the pump chamber, the lifting gear must be attached to the specified lifting eyes. When using chains, these must be connected to the lifting eyes using a shackle. Only structurally approved lifting gear may be used.
- The power supply cables for the pump used and for the signal transmitters must be laid in such a way that safe operation and problem-free installation/dismantling are possible at any time. Check the cable cross-section used and the selected routing to make sure the available cable length is sufficient.
- Check the dimensioning documents (installation plans, inlet and outlet conditions) for completeness and accuracy.

- Also refer to all regulations, rules and laws for working with heavy and suspended loads. Wear appropriate protective clothing/equipment.
- Please also observe the applicable national accident prevention regulations and trade association safety provisions.

5.2.1. Work steps

1. Preparatory tasks
2. Pump chamber installation
3. Setting up pipe connections
4. Installing the pump chamber extension
 - With pump chamber cover class A15 and B125
 - With pump chamber cover class D400
5. Filling the pit
6. Installing the pump
7. Installing the level control device
8. Laying the pipes and connection cables
9. Installing the pump cover
10. Final tasks

5.2.2. Preparatory tasks

- Select installation location:
 - Outside buildings
 - Not in the immediate vicinity of living and sleeping areas
 - Max. height adjustment with concrete rings: 200 mm
 - Max. height adjustment with plastic pump chamber extension: 500 mm

CAUTION!

The pump chamber may not be installed in peaty ground. This can lead to destruction of the pump chamber.

- Pump cover
 - Must be ordered separately.
 - Classes in accordance with EN 124: A15, B125 or D400
For class D400 a load distribution plate **must** be provided **onsite**.
 - Load distribution plate:
Dimensions: External \varnothing : 1700 mm; Internal \varnothing : 700 mm; Thickness: 300 mm; Concrete grade: C 35/45; Reinforcement: Concrete steel B500A 10 mm, spacing 150 mm longitudinal + lateral, up + down

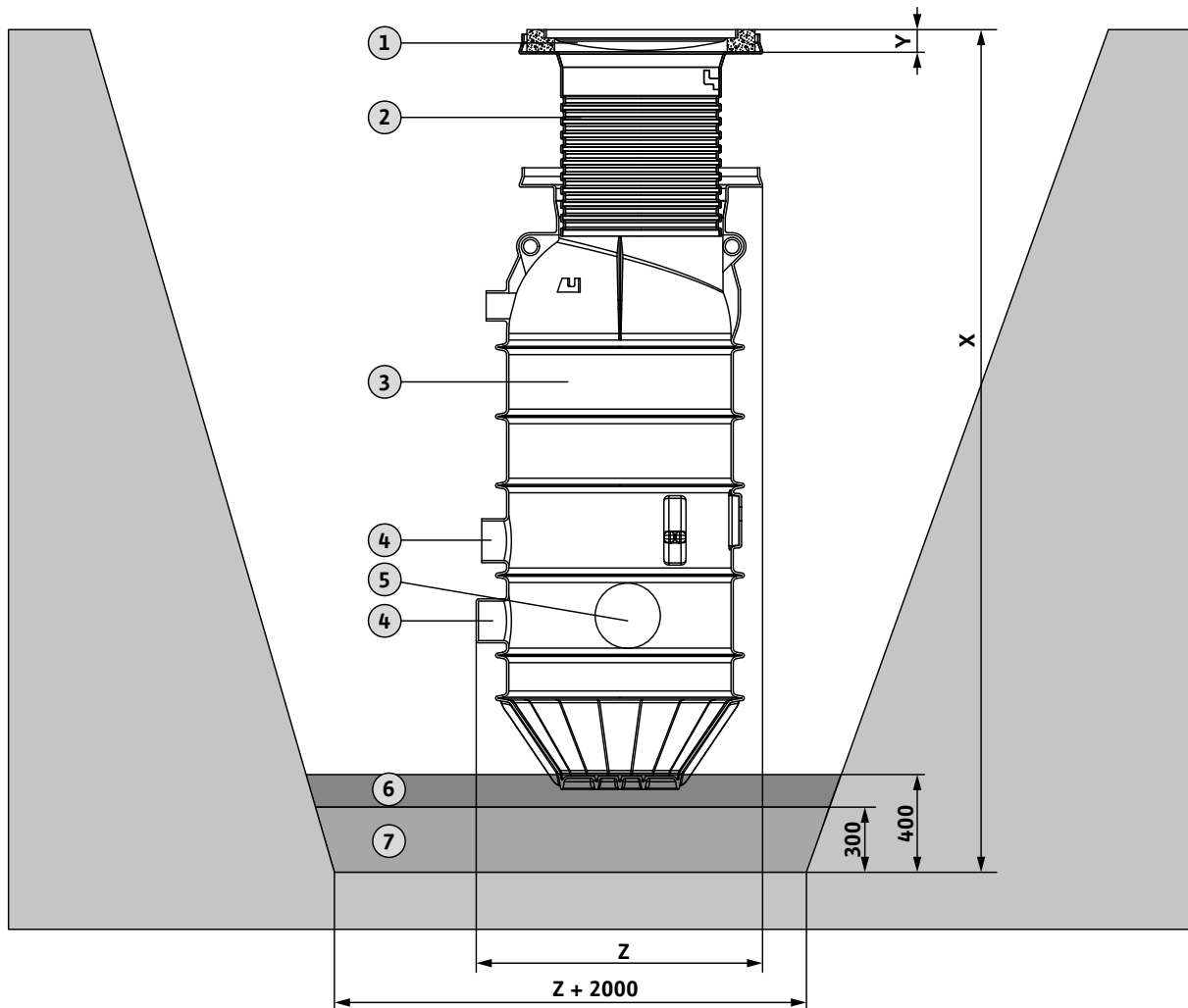
5.2.3. Pump chamber installation

- Take into account the direction of the inlet, pressure and ventilation connection.
- Take into account the cable length for the pump and level control device, so that the pump and level control device can be lifted out of the pump chamber.
- Have the pump cover ready.

Fig. 3: Pump chamber installation

1	Pump cover	X	Required pit depth
2	Pump chamber extension	Y	Pump cover height
3	Pump chamber	Z	Max. pump chamber diameter
4	Connection port DN 150		
5	Connection port DN 200		
6	Levelling layer		
7	Underlay		

Fig. 3



1. Excavate the pit taking into account the following points:
 - Pump chamber height
 - Inlet pipe depth
 - Connection port DN 150 or DN 200 height
 - Underlay approx. 300 mm
 - Levelling layer approx. 100 mm
 - Pump cover height
 - Pump chamber extension height, max. 500 mm
 - The pit diameter on the ground must be 2 m larger than the pump chamber diameter.
 - Observe the applicable regulations for earthworks in underground engineering and road building (slope angle, installation).
 - If required due to the groundwater level, the pit must be protected using a groundwater drawdown.



NOTE:

If a class D400 pump cover is to be used, a load distribution plate must also be installed. To do this, the additional height of 300 mm and the corresponding substructure must be taken into account.

2. Check the floor of the pit for bearing capacity.
3. Install the load-bearing mineral mixture underlay properly and seal it (Dpr 97%).
4. Add a levelling layer of sand approx. 100 mm thick and level off.
5. Prepare the onsite inlet, venting and pressure pipes.
6. Install the pump chamber in the pit, align the connections with the onsite piping and drive in evenly.

The ground fins must sink completely into the levelling layer.

7. Check the plumb-vertical alignment and position of the pump chamber, including the height of the pump cover and any pump chamber extension, against the surrounding surface level and adjust if necessary.

5.2.4. Setting up pipe connections

Fig. 4: Preparing pipe connections

Install and lay all pipes so that they are stress-free.

1. Cut out the selected connection ports for the inlet and venting pipe and remove burrs.
2. Lay the piping with a downward slope to the pump chamber and connect to the opened connection ports with a KG sleeve using lubricants.



NOTE:

For easier laying of the electrical connection cables (pump/level control device) max. 30° pipe bends are to be used in the onsite ventilation line and a tie rod should be fitted.

3. Connect the onsite pressure pipe to the pressure connection using clamp bolting and ensure frost-proof routing.
4. Perform a leak test in accordance with the applicable regulations.

5.2.5. Installing the pump chamber extension – When using A15 and B125 pump cover

CAUTION!

The max. installation depth of 2750 mm including extension, concrete adjusting rings and pump cover may not be exceeded. Otherwise, deformation or cracks in the body of the pump chamber could occur.

To compensate for the height difference between the top edge of the pump chamber and the surface level, a plastic pump chamber extension can be installed or concrete adjusting rings can be used.

Plastic pump chamber extension

Fig. 5: Installing the pump chamber extension

1	Pump chamber	4	Groove for O-ring
2	Pump chamber extension	5	O-ring
3	Surface level	6	Pump cover

The plastic pump chamber extension can be used to extend the pump chamber by 200 to 500 mm. The pump chamber extension is made of PE material and must be ordered as an accessory.

1. Determine the required extension for the surface level.
Take into account the height of the pump cover.
2. The required dimension is defined by the selected groove at the taper of the extension.

Fig. 4

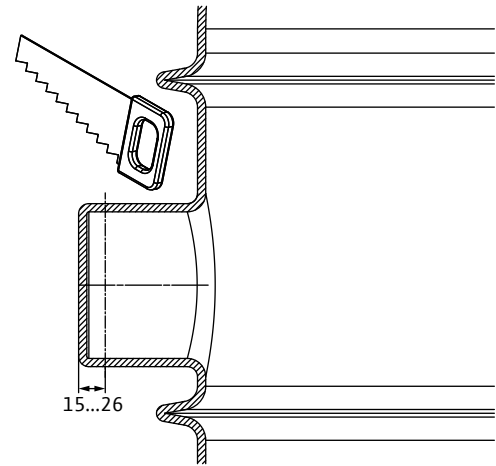
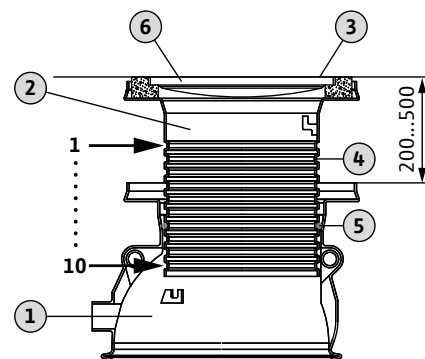


Fig. 5



Select the appropriate groove using the following table:

Groove	Extension in mm (from top edge of pump chamber to top edge of extension)
3	200
4	250
5	300
6	350
7	400
8	450
9	500

Grooves 1, 2 and 10 may not be used.

3. Insert the O-ring supplied in the selected groove in the extension.
4. Coat the O-ring and the inside of the taper on the pump chamber with lubricant (washing-up liquid or even water in an emergency).
5. Slide the pump chamber extension into the pump chamber until the O-ring wedges securely in the cone in the taper.

Do not push the O-ring beyond the cone. Make sure that the O-ring slides cleanly into the taper, does not twist and is not pushed out of the groove. If necessary, push the O-ring further by hand when fitting the extension.

Concrete adjusting rings

Fig. 6: Installing concrete rings

1	Cover flange	4	Pump cover with frame
2	Filling (sand or mortar)	5	Filling / compacting layer
3	Concrete adjusting rings	6	Surface level substructure

Standard concrete adjusting rings can be used for height compensation to the surface level, up to a maximum of 200 mm above the top edge of the pump chamber including the pump cover height. The concrete rings should be provided by the customer.

1. Place the concrete ring centrally on the cover flange
2. Fill the gap between the concrete ring and the cover flange with sand or mortar.
3. Place further concrete rings centrally.
To ensure a solid and full-faced contact between the concrete rings and the cover frame and to minimise additional water ingress by ground water or surface water, a thin layer of mortar must be applied to the mating surfaces on the concrete rings and the cover frame.

5.2.6. Installing the pump chamber extension – When using D400 pump cover

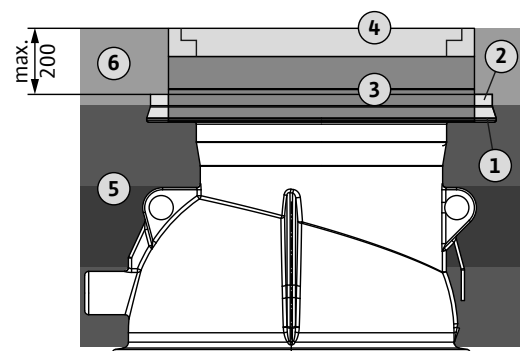
CAUTION!

The max. installation depth of 2750 mm including load distribution plate, concrete adjusting rings and pump cover may not be exceeded. Otherwise, deformation or cracks in the body of the pump chamber could occur.

CAUTION!

When using the load distribution plate, absolute impermeability to the interior of the pump chamber is not achieved. This can lead to increased ingress of water into the pump chamber at a high ground water level. In turn, this can overload the pump and cause consequential damage to the pumping station.

Fig. 6



**NOTE:**

When using the class D400 pump cover, a load distribution plate must also be installed. To do this, the cover flange on the pump chamber or on the pump chamber extension has to be cut off. The load distribution plate must be provided by the customer.

When using the D400 pump cover, a maximum pump chamber extension of 570 mm is possible. However, the required load distribution plate necessarily results in an extension of at least 300 mm. This must be taken into account during the installation work.

The load distribution plate must be provided by the customer.

If an additional extension of more than this minimum 300 mm is required, we recommend that this is achieved using standard concrete adjusting rings.

In addition, to ensure that the load distribution plate can be properly installed, the cover flange on the pump chamber must be cut off.

Fig. 7: Removing the cover flange

For proper operation when subject to road traffic requirements, a corresponding substructure must also be installed. This is incorporated when filling the pit.

The load distribution plate may rest on the pump chamber, but must rest completely on the corresponding substructure.

All further details can be found in the "Filling the pit" section.

5.2.7. Filling the pit

During filling, the pump chamber must be continuously checked for a plumb-vertical and constant position, and for any deformation or other indications of installation errors.

The areas directly adjacent to the pump chamber wall and the cover flange of the pump chamber and the pump chamber extension must be filled manually and compacted (shovel, hand rammer).

In addition, the pump chamber and any pump chamber extension installed must be held in position and may not rise up. If necessary, this can be ensured by filling the pump chamber with water before filling and compacting.

Using the A15 and B125 pump cover

Fig. 8: Filling the pit (with A15 and B125 pump cover)

1	Underlay
2	Levelling layer
3	Sand/gravel layer with no sharp-edged content, grain size 0...32 mm, max. layer thickness 300 mm
4	Concrete adjusting rings for pump chamber extension
5	Surface level substructure
6	Pump cover class A15 or B125

The class A15 and B125 pump covers can be directly fitted in the cover flange on the pump chamber or the pump chamber extension using the cover frame supplied (maximum outer diameter 825 mm).

1. Fill the pit a layer at a time (layer thickness max. 300 mm) with coarse-grained soil all the way around to an even height (sand/gravel with no sharp-edged content, grain size 0-32 mm) and compact properly (Dpr. 97%). Compact by hand at the pump chamber wall and at the cover flange on the pump chamber and pump chamber extension, ensuring that the pump chamber is in a plumb-vertical position and avoiding deformation.

Fig. 7

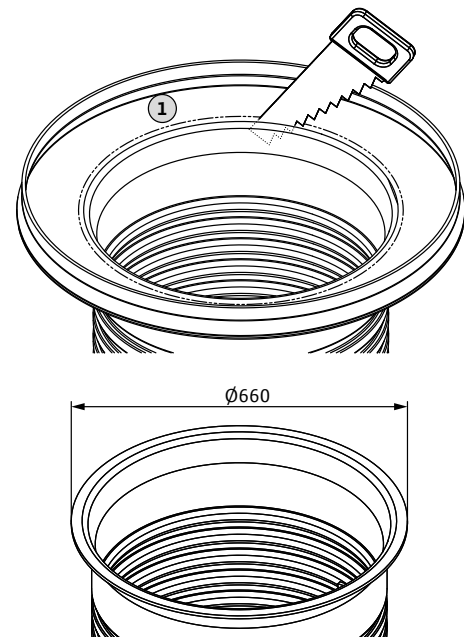
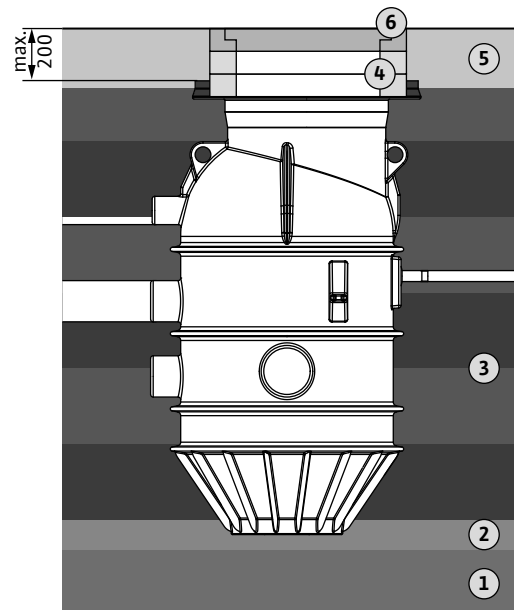


Fig. 8



The top sand/gravel layer (compacting layer) must reach as far as the cover flange.

Piping must be properly embedded, filled and sealed in accordance with the applicable national standards.

- Align the surface level including substructure with the pump cover.



NOTE:

If the surrounding ground is made up of cohesive material (e.g. topsoil), for better assimilation to the surroundings can be achieved by filling and compacting the "substructure to surface level" with this material (max. grain size 20 mm).

Using the D400 pump cover

Fig. 9: Filling the pit (with D400 pump cover)

1	Underlay
2	Levelling layer
3	Sand/gravel layer with no sharp-edged content, grain size 0...32 mm, max. layer thickness 300 mm
4	Substructure as for traffic surface, but at least gravel or rubble layer, min. layer thickness 400 mm and a friction angle of >37.5°
5	Sand layer, max. grain size 16 mm, minimum layer thickness 100 mm
6	Load distribution plate
7	Concrete adjusting rings for pump chamber extension
8	Traffic surface substructure
9	Class D400 pump cover

- Fill the pit a layer at a time (layer thickness max. 300 mm) with coarse-grained soil all the way around to an even height (sand/gravel with no sharp-edged content, grain size 0–32 mm) as far as the base of the substructure and compact properly (Dpr. 97%). Compact by hand at the pump chamber wall, ensuring that the pump chamber is in a plumb-vertical position and avoiding deformation.

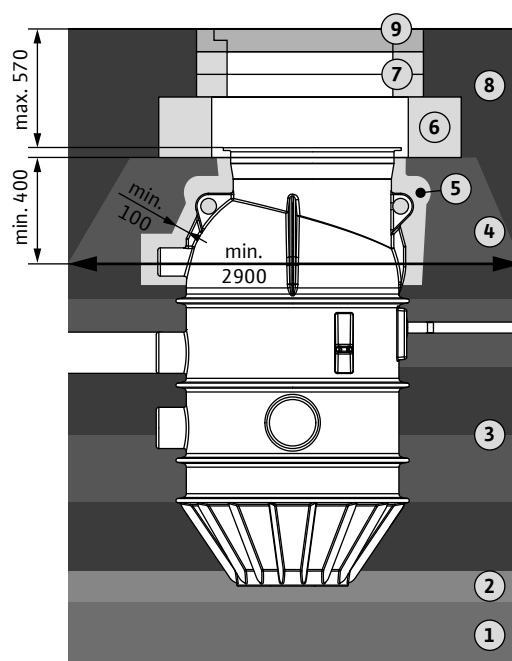
Piping must be properly embedded, filled and sealed in accordance with the applicable national standards.

- Install the substructure for the load distribution plate in the same way as the substructure for traffic surfaces in accordance with the valid directives. Minimum requirement:
 - Gravel or rubble layer with a min. layer thickness of 400 mm and a friction angle of >37.5°
 - The substructure (if not planar) should have an outer diameter of at least 2.90 m at the base.

There must be a protective sand layer (max. grain size 16 mm) of at least 100 mm between the substructure for the load distribution plate and the body of the pump chamber or the pump chamber extension.

- Place the load distribution plate centrally.
Make sure that the load distribution plate has a full-faced contact with the substructure.
- If an additional pump chamber extension with concrete rings is required, they can now be placed centrally on the load distribution plate. To ensure a solid and full-faced contact between the concrete rings and to minimise additional water ingress by ground water or surface water, a thin layer of mortar must be applied to the mating surfaces on the concrete rings.

Fig. 9



5. Place the cover flange centrally on the load distribution plate or on the last concrete ring.
6. Align the traffic surface including substructure with the pump cover.

5.2.8. Installing the pump

Observe the installation and operating instructions for the pump.

CAUTION!

Stud bolts not removed from the hydraulics (Drain MTS, Rexa CUT) can lead to malfunctions and damage to the pump chamber wall.

Some parts of the fluid can accumulate on the stud bolts, impairing free access to the intake area and macerator in the pump.

The intake area and macerator in the pump must be kept free of deposits.

Fig. 10: Preparing the pump

1	Pump	3	Attachment for chain
2	Discharge pipe	4	Cable tie

- Remove coarse contaminants in the pump chamber.
- Screw together the pump and discharge pipe outside the pump chamber using the assembly materials supplied.
- Attach the connection cable to the horizontal section of the discharge pipe using the cable tie supplied. The cable should run from the pump to the cable tie with slight tension and with no slack.
- Close the shut-off device
- Suspend the chain from the discharge pipe (observing the separate installation and operating instructions for the chain) and lower the pump and discharge pipe into the pump chamber until the two couplings have completely engaged with one another.

When lowering the pump, guide it in such a way that it does not remain suspended on the pump chamber fittings.



NOTE:

For problem-free installation of the pump, it must be twisted laterally by around 90° so that it can be guided past the cross member.

- After suspending the pump, check that it is suspended freely and with sufficient clearance from the pump chamber wall and that it cannot touch the pump chamber wall.
- Detach the chain from the lifting equipment and suspend it from the chain hooks in the pump chamber.

CAUTION!

Improper handling of the pump can lead to damage. Only suspend the pump from the installed discharge pipe with a chain, never from the connection cable.

5.2.9. Installing the level control device

Observe the installation and operating instructions for the level control device.

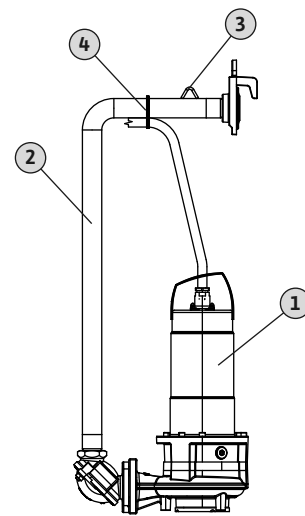


RISK of explosive atmosphere!

If the operator has declared the operating space as an Ex zone, the signal transmitters must be connected using an intrinsically safe electric circuit.

Consult your electrician for further details.

Fig. 10



CAUTION!

To prevent damage to the pumping station, the following points must be observed:

- The switching points must be set so that no backing up occurs in the inlet pipe.
- To ensure that correct level measurement is possible, the signal transmitters may not be located directly in the inlet flow.
- Check the operating mode for which the pump is approved for non-immersed operation. For S2 or S3 operation, the specified operating and idle times must be observed when setting the level control device.

Level measurement can be carried out in different ways:

- Dynamic pressure bell
- Level sensor
- Float switch

The signal transmitters used depend on the switchgear used.

Fig. 11: Attaching the signal transmitters

1	Cross member	3	Dynamic pressure bell
2	Mount for dynamic pressure bell and level sensor		

Dynamic pressure bell

When using a dynamic pressure bell, level measurement is carried out by measuring the static pressure in the pump chamber. Note that the dynamic pressure bell must emerge after each pumping procedure so that it can be vented. Alternatively, a bubbling-through system can be used. In this case, a small compressor continuously pumps air into the dynamic pressure bell.

In addition, we recommend installation of an additional second dynamic pressure bell for autarkic measurement and signalling of the high water alarm.

Level sensor

When using a level sensor, level measurement is carried out using a diaphragm. Make sure that the diaphragm (the lower section of the level sensor) remain constantly immersed. The level sensor may not rest on the base of the pump chamber.

Float switch

When using float switches, level measurement is carried out using floats. Make sure that the float switches have sufficient freedom of movement and do not bump into the pump chamber.

Installation

The dynamic pressure bell and the level sensor are fitted directly in the mount on the cross member from above using the accessories supplied.

The float switch is attached to the vertical discharge pipe using cable ties. For fault-free level measurement, a free cable length of approx. 250 mm is required.

To prevent deposits as effectively as possible, the fluid must be replaced regularly. Therefore, we recommend using the switching points for the lower inlet. The corresponding switching points are shown in the following tables.

Fig. 11

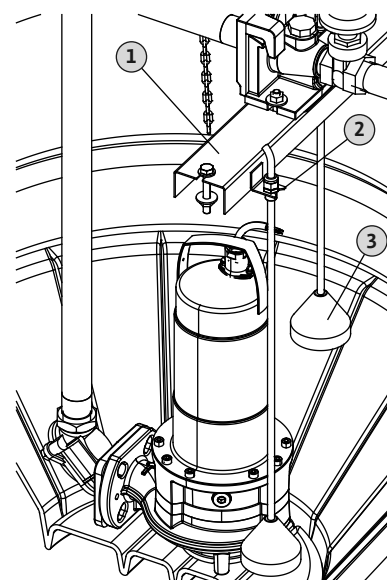


Fig. 12: Switching points for single pump operation

Dimension	Description	MTS 40 CUT GI	CUT GE	MTC 32F39	MTC 32F 49 MTC 32F 55	MTC 40
A	'Pump off'	730	740	720	680	670
B	Lower edge of dynamic pressure bell 1	680	690	670	630	620
C*	'Pump off' signal	610	620	600	560	550
D1	'Pump on'	400	400	400	400	400
E	High water: Alarm signal and 'Pump on'	330	330	330	330	330
F	Lower edge of dynamic pressure bell 2 (high water alarm)	550	550	550	550	550
G	Level fall during follow-up time	120	120	120	120	120

* Switching point C: Set 'Pump off' signal when using dynamic pressure bell and level sensor; then set follow-up time up to 'dimension A' (pump off); set follow-up time if there is no inlet

Fig. 13: Switching points for dual pump operation

Dimension	Description	MTS 40 CUT GI	CUT GE	MTC 32F39	MTC 32F 49 MTC 32F 55	MTC 40
A	'Pump off'	630	640	620	-	570
B	Lower edge of dynamic pressure bell 1	580	590	570	-	520
C*	'Pump off' signal	510	520	500	-	450
D1	'Pump 1 on'	400	400	400	-	400
D2	'Pump 2 on'	360	360	360	-	360
E	High water: Alarm signal and 'Pump 1 and 2 on'	330	330	330	-	330
F	Lower edge of dynamic pressure bell 2 (high water alarm)	550	550	550	-	550
G	Level fall during follow-up time	120	120	120	-	120

* Switching point C: Set 'Pump off' signal when using dynamic pressure bell and level sensor; then set follow-up time up to 'dimension A' (pump off); set follow-up time if there is no inlet

If a higher impoundment volume is required due to a higher inflow, the following switching points can also be used for the upper inlet.

Switching points for upper inlet

Description	Single pump operation	Dual pump operation
'Pump 1 on' at upper inlet	110	130
'Pump 2 on' at upper inlet	-	90
High water at upper inlet: all pumps on	60	60

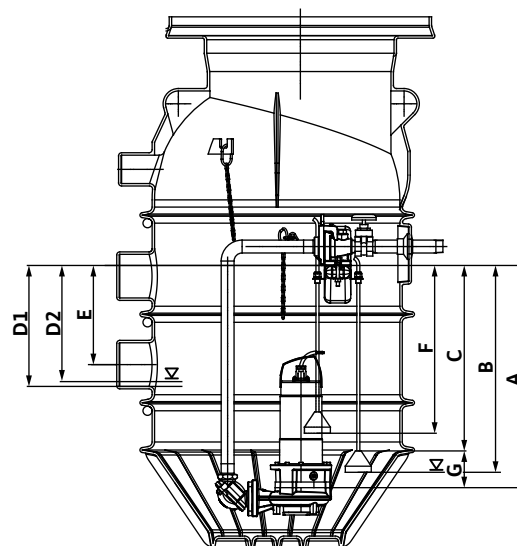
Alarm signal for high water level

For fault-free operation of the pumping station, we recommend using a high water alarm. To do this, the switchgear must have the necessary function.

5.2.10. Laying the pipes and connection cables

- Run all connection pipes (pump, level control device) through the venting / cable bushing connection to the control device.
Ensure that the connection pipes have sufficient lengths to allow the pump and the level control device to be removed from the pump chamber if required.
- Suspend all connection pipes (**Attention:** NOT the hose pipe) over the chain hooks in the pump chamber. If necessary, connect them using the cable ties supplied so that they cannot get into the fluid or into the pump suction opening. Do not squash or kink the pipes, avoid sharp edges!
- Clean the pump chamber and supply lines of coarse contaminants.

Fig. 12/13



5.2.11. Installing the pump cover



WARNING! Danger of injury!

Personnel can fall into the open pump chamber and suffer serious injuries. Always keep the pump chamber sealed and ensure that the pump cover is fitted securely.

Dimensions

Class in accordance with EN 124	Dimensions
A15	Ø785x80 mm
B125	Ø750x120 mm
D400	Ø785x160 mm

The pump cover is fitted in the cover flange with the cover frame (maximum outer diameter 825 mm).

Ensure that it is seated centrally.

To ensure secure and full-faced contact in the cover flange, a thin layer of mortar should be applied. Fill the gap between the pump cover and the cover flange with mortar or an equivalent material.

5.2.12. Final tasks

A flush connection can be installed for flushing the pressure pipe using compressed air or water pressure. In addition, a vacuum relief valve can be installed to protect against the pump chamber being drained dry. Both of these components are available as accessories.

Flush connection

Fig. 14: Flush connection installation

1	Surface coupling	4	Flush connection extension (L = 300 mm)
2	Gate valve	5	Flush connection (L = 300 mm)
3	Flush connection (1")	6	Flush connection cover (dummy coupling Storz C-52)

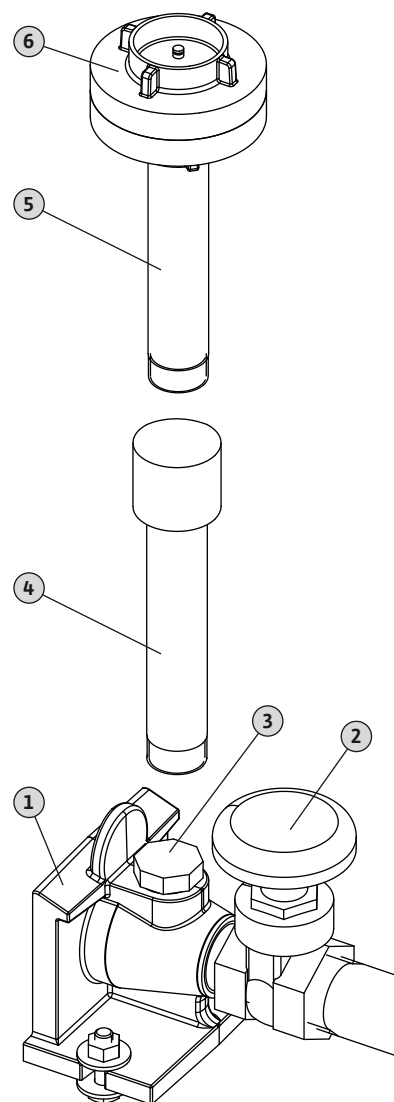
The flush connection is installed directly on the surface coupling. The inlet is connected using a Storz coupling C-52.

1. Remove the sealing plug on the 1" connection on the surface coupling.
2. Wrap the thread on the flush connection with a standard sealant (hemp, Teflon tape).
3. Screw the flush connection into the connection on the surface coupling.
4. To connect the inlet, remove the dummy coupling on the flush connection and connect the inlet.

If the flush connection is positioned too low, it can be adjusted using an extension. A corresponding number of extensions can be screwed into one another depending on the required height.

Each thread connection must be sealed using a standard sealant (hemp, Teflon tape).

Fig. 14



Vacuum relief valve

Fig. 15: Vacuum relief valve installation

If the end of the pressure pipe is lower than the pump chamber, underpressure in the pressure pipe can cause the pump chamber to be drained dry. A vacuum relief valve can be installed to prevent the pump chamber from being drained dry.

Installation is only possible in conjunction with the flush connection as the vacuum relief valve is fitted on the Storz coupling. During installation, pay attention to the alignment of the vacuum relief valve to ensure that installation/dismantling of the pump is possible at any time without danger and to guarantee proper functioning of the gate valve.

5.3. Electrical connection



ELECTROCUTION hazard!

Incorrect electrical connections can cause fatal electric shocks. Electrical connections may only be carried out by a qualified electrician approved by the local energy supply company, in accordance with locally applicable regulations.

- The electrical connection for the individual components must comply with the associated installation and operating instructions.
- The pumping station must be earthed in line with the regulations. Equipotential bonding must be installed in accordance with the valid regulations.

6. Commissioning

The "Commissioning" chapter contains all the important instructions required by the operating personnel for safe commissioning and operation of the pump chamber.

The following general conditions must always be met and checked:

- The maximum inflow must be lower than the maximum output of the pump installed at the relevant duty point.
- Level control device switching points

These general conditions must also be checked after a lengthy period without operation, and any defects detected must be repaired!

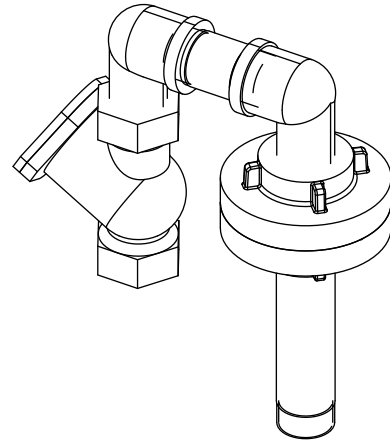
These instructions must always be stored with the pump chamber or in a designated location where they are always accessible to all operating personnel.

To prevent damage and injuries to personnel during commissioning of the pump chamber, the following points must be observed:

- Commissioning may only be performed by qualified and trained personnel in accordance with the safety instructions.
- All personnel who work on the pumping station must have received, read and understood these instructions.
- All safety equipment and emergency stop mechanisms on the pumping station are connected and have been tested for proper functioning.
- Electrical engineering and mechanical adjustments must be carried out by qualified personnel. A second person must always be present when working in the pump chamber. If there is a risk of toxic gases forming, sufficient ventilation must be ensured.
- The pump chamber is suitable for use under the specified operating conditions.
- No personnel may be present in the pump chamber during activation and/or operation.

It is recommended to have commissioning carried out by Wilo customer service.

Fig. 15



6.1. Commissioning

CAUTION!

Contaminants and solids, as well as improper commissioning, can lead to damage to the pumping station or individual components during operation.

- Before commissioning, clean the entire pumping station of contaminants, particularly solids.
- Observe the installation and operating instructions for the pump, switchgear, level control device and other accessories.



NOTE:

At sustained outside temperatures below 0 °C, particularly if use is restricted or suspended, there is a risk of frost in the pump chamber due to insufficient water exchange.

- In this case, appropriate insulation measures must be taken in the area above the pump cover.
- If the pump chamber is not to be operated at all, we recommend completely draining the pump chamber and pressure pipe.

Commissioning may only be carried out if the system has been installed in accordance with these installation and operating instructions and the installation and operating instructions for the individual components, and all protective measures are effective and the applicable safety regulations, VDE regulations and any regional regulations are met.

Check that all required components and connections (inlet, discharge pipe with shut-off device, venting, electrical connection) are present and properly installed.

1. Open the pump cover.
2. Completely open the shut-off device. If the handle of the shut-off device is not easily accessible, an operating crank is available as an accessory.
3. Check that the pump and piping are installed securely and pressure tight.
4. Set the switchgear to 'automatic mode'
5. Fill the system using the connected inlet.
6. Function test: Observe at least two on/off cycles and check that the pump is functioning properly and the switching points are set correctly.

If backing up occurs in the inlet pipe, the switching points should be corrected accordingly.

7. When the function test has been completed successfully, install the pump cover and check that it is fitted securely.
8. The system is now operational.

6.2. Behaviour during operation

The pump cover must be fitted during operation of the pumping station. No personnel may be present in the pump chamber.

7. Decommissioning/disposal

- The system must be decommissioned for maintenance work or dismantling.
- When the pump chamber is open, the working area must be marked accordingly and cordoned off. There is a risk of falling.
- Technically sound lifting equipment and officially approved lifting gear must be used to lift and lower the installed pump.



RISK of death due to malfunction!

The lifting gear and lifting equipment must be in a technically sound condition. Work may only commence if the lifting equipment has been checked and found to be in perfect working order. If it is not inspected, fatal injuries may result.

7.1. Temporary decommissioning

For temporary decommissioning, the pump remains installed and the system remains connected to the mains. To protect the system against frost damage, a pumping procedure must be carried out at regular intervals depending on the outside temperature.



NOTE:

At sustained outside temperatures below 0 °C, particularly if use is restricted or suspended, there is a risk of frost in the pump chamber due to insufficient water exchange.

- In this case, appropriate insulation measures must be taken in the area above the pump cover.
- If the pump chamber is not to be operated at all, we recommend completely draining the pump chamber and pressure pipe.

7.2. Complete decommissioning for maintenance work



DANGER due to toxic substances!

Pumps that convey media hazardous to health must be decontaminated after being lifted out of the pump chamber before any other work is carried out. Otherwise there is a risk of death. Wear the necessary physical protection equipment!



BEWARE of burns!

The housing components of the pump can heat up to well above 40 °C. There is a risk of burns! After switching it off, let the pump cool down to ambient temperature.

Dismantling is to be carried out by specialist personnel only. Before work on pressurised parts, they must be depressurised.

1. Close the inlet
2. Remove the pump cover.
3. Drain the pump chamber in manual mode.
4. Flush the pressure pipe with the flush connection connected. Then disconnect the flush connection.
5. Close the shut-off device.
6. Have the system disconnected from the electrical supply by a qualified electrician and secure it against reactivation.
7. Have the pump disconnected from the switchgear by a qualified electrician.
8. Carefully lift the pump and discharge pipe out of the coupling. After uncoupling, immediately twist the pump and discharge pipe by 90° and guide it along the opposite wall of the pump chamber.
For longer stoppages, we recommend flushing out the pump chamber with clear water and pumping out the sewage with a suitable pump.

If the pump is to be removed, use the chain contained in the pump chamber for this purpose.

7.3. Disposal

7.3.1. Protective clothing

Protective clothing worn for cleaning and maintenance work is to be disposed of in accordance with the German Waste Code TA 524 02 and EC Directive 91/689/EEC.

7.3.2. Product

Proper disposal of this product avoids damage to the environment and risks to personal health.

- Use the services of public or private waste disposal companies, or consult them for the disposal of the product or parts thereof.
- For more information on proper disposal, please contact your local council or waste disposal office or the supplier from whom you purchased the product.

8. Maintenance



RISK of death due to electrocution!

There is a risk of fatal electric shocks when performing work on electrical devices.

- **For any maintenance and repair work, the system must be disconnected from the electrical supply and secured against unauthorised reactivation.**
- **Work on the electrical section of the system may only be performed by a qualified electrical engineer.**



DANGER due to toxic or harmful substances!

Toxic or harmful substances in sewage pump chambers can lead to infections or suffocation.

- **The installation location must be adequately ventilated before all work.**
- **Appropriate protective equipment must be worn to prevent any possible risk of infection.**
- **Risk of explosion when opening (avoid open ignition sources)!**

Maintenance, repair and cleaning work may only be performed by qualified specialist personnel.

The pump chamber itself is maintenance-free. We recommend checking for correct function of the surface coupling and the gate valve at regular intervals.

In addition, the maintenance measures for the individual components must be carried out. Refer to the information in the corresponding installation and operating instructions.

We also recommend having the system maintained by expert personnel in accordance with EN 12056-4. The intervals may not exceed:

- ¼ year in the case of commercial companies,
- ½ year for systems in multi-family houses,
- 1 year for systems in single-family houses.

A maintenance report must be drawn up.

Before all maintenance work, the pumping station must be shut down as described in the "Decommissioning" chapter. Once all maintenance work has been carried out, the pumping station must be recommissioned as described in the "Commissioning" chapter.

**NOTE:**

Creating a maintenance plan enables expensive repairs to be avoided and fault-free operation of the unit to be achieved with a minimum of maintenance effort. Wilo customer service is available for commissioning and maintenance work.

9. Faults, causes and remedies

Faults may only be repaired by qualified specialist personnel.

- Observe the installation and operating instructions for the pump, level control device and other accessories.
- If the operating fault cannot be resolved, contact a professional installer or Wilo customer service.

10. Appendix**10.1. Spare parts**

Spare parts are ordered through the local installer and/or Wilo customer service. To avoid queries and incorrect orders, all data from the rating plate must be specified with every order.

Subject to change without prior notice.

wilo

Pioneering for You