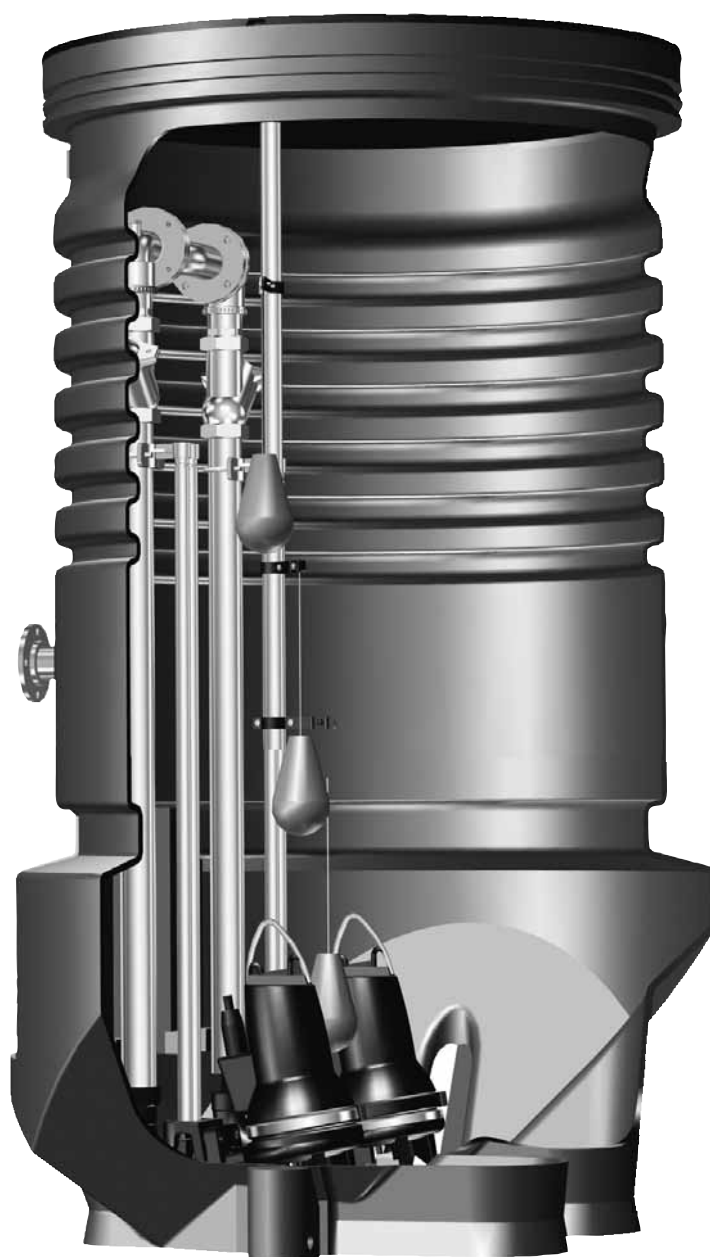


Pumping station systems

PS.R.05 - 17

Installation and operating instructions



Pumping station systems

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English (GB) Installation and operating instructions

Original installation and operating instructions

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Warning

Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

1. Symbols used in this document



Warning

If these safety instructions are not observed, it may result in personal injury.



Warning

If these instructions are not observed, it may lead to electric shock with consequent risk of serious personal injury or death.

Caution

If these safety instructions are not observed, it may result in malfunction or damage to the equipment.

Note

Notes or instructions that make the job easier and ensure safe operation.

2. General description

Grundfos pumping stations are pre-fabricated pumping stations for collection and pumping of wastewater.

The pump pit is made of PE-HD (polyethylene) and comes with outlet pipes and valves fitted.

The pipework is made of PE or stainless steel depending on the location of the pit and the pumped liquid, and thus the pump selected.

Wastewater is led into the pit. When the liquid in the pit reaches the maximum liquid level, the pump will start and pump the liquid further on into the sewer system.

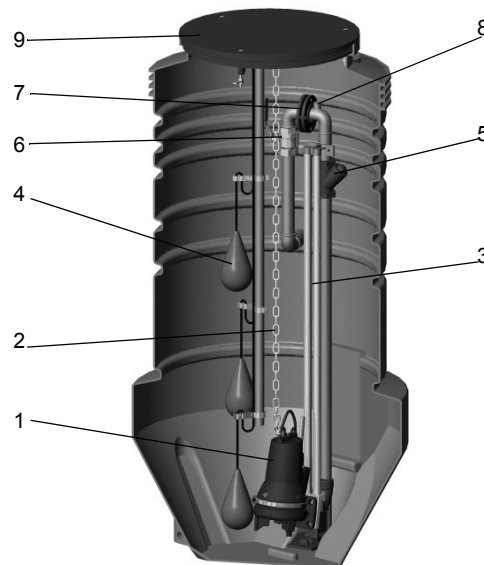


Fig. 1 Example of pumping station

Pos.	Description
1	Pump
2	Chain
3	Guide rails
4	Float switch
5	Non-return valve
6	Isolating valve
7	Flange/coupling
8	Connection, 1/2" internal thread
9	Cover

TM02 9363 2404

3. Applications

Grundfos pumping stations are used for collection and pumping of drainage water, grey wastewater and sewage. The pump type depends on the pumped liquid.

3.1 Liquid temperature

Maximum 40 °C. For higher temperatures, contact Grundfos.

Caution

Select the pump on the basis of knowledge of the liquid temperature. See the installation and operating instructions for the individual pumps.

3.2 Acids and alkalis

The pumping station is resistant to strong acids and alkalis as well as solvents.

The pumps are supplied with the pump pit and normally capable of withstanding pH values between 4 and 10. In case of doubt, please contact Grundfos.

3.3 Viscosity

Very thick wastewater must not be led into the pit. See also the installation and operating instructions for the pump.

3.4 Density

Maximum 1.1 tons/m³.

4. Pumping station system (PS.S)

This section applies only to pumping station systems consisting of Grundfos-approved components/parts mentioned on the nameplate of PS.S.

The pumping station system contains all the elements making the pumping station function as one unit, and can contain the following five elements:

- pit
- pump
- pump controller
- level controller
- accessories.

The pumping station system may not always have all five elements. However, it will always have a pit and a pump, but the pump controller or the level controller may be incorporated in the pump, and/or accessories may be omitted.

4.1 CE approval of PS.S

PS.S is CE approved in accordance with these directives and standards:

- EN 2006/42/EC, EU Machinery Directive
- EN/ISO 12100, Safety of machinery - General principles for design - Risk assessment and risk reduction.

In order to ensure safe transport and to fulfil customer requests, the PS.S elements can be assembled on site. But the CE approval of PS.S is only valid if the following conditions have been fulfilled:

- PS.S has been assembled correctly in accordance with the installation and operating instructions for PS.S and the pit, pump and control systems.
- PS.S contains the Grundfos specified elements stated on the PS.S nameplate. The PS.S nameplate is fitted inside the pit.

4.2 Identification

4.2.1 Nameplate, PS.S

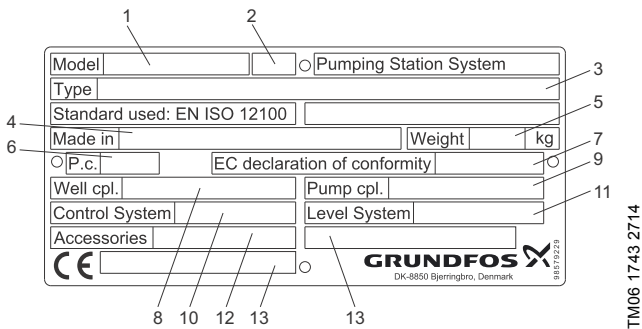


Fig. 2 Nameplate, PS.S

Pos.	Description
1	Product number
2	Production site
3	Type designation
4	Country of origin
5	Weight
6	Production code and date of production (YYWW)
7	Installation and operating instructions, publication number
8	Product number, pit
9	Product number, pump
10	Product number, pump controller
11	Product number, level controller
12	Product number(s), accessories
13	Not filled in

4.2.2 Type key, PS.S

Example	PS. S. R. 17. 25. SEG. LCD110. FS2
Grundfos pumping station	
System	
Pit type and material	
R: Rotation-moulded PE	
G: Glass fibre-reinforced plastic	
Pit sump diameter	
05: 500 mm	
08: 800 mm	
10: 1000 mm	
12: 1200 mm	
17: 1700 mm	
Pit depth	
xx: x 100 mm	
ex:	
15: 1500 mm	
Pump type	
CC: Unilift CC	
KP: Unilift KP	
AP12: Unilift AP12.50	
AP35: Unilift AP35, Unilift AP12.40	
AP50: Unilift AP50	
APB: Unilift AP35B, Unilift AP50B	
SEG: SEG	
DP/EF: DP (0.6 - 1.5 kW), EF	
DP/SL: DP (2.6 kW), SL1.50.65 and SLV.65.65	
SE/SL: SE/SL	
Pump controller	
CU100: Control unit	
LC107: Level controller	
LC108: Level controller	
LC110: Level controller	
LCD107: Level controller - Double pumps	
LCD108: Level controller - Double pumps	
LCD110: Level controller - Double pumps	
DC318: Dedicated Controls	
DC319: Dedicated Controls	
DCD318: Dedicated Controls - Double pumps	
DCD319: Dedicated Controls - Double pumps	
Level controller	
AB2: 2 air bells	
AB3: 3 air bells	
FS2: 2 float switches	
FS3: 3 float switches	
FS4: 4 float switches	
EL3: 3 electrodes	
EL4: 4 electrodes	
EL5: 5 electrodes	
PT: Pressure transducer	

4.3 Nameplate, PS.R.05 - PS.R.17

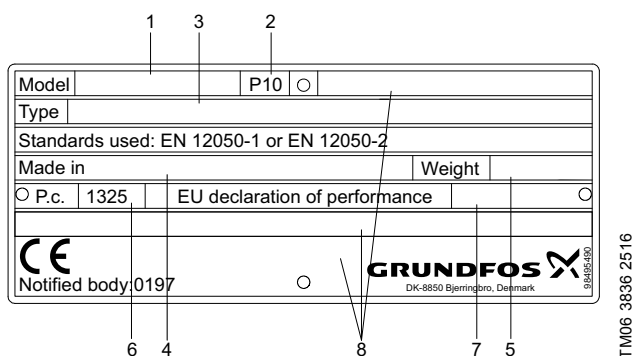


Fig. 3 Nameplate, PS.R.05 - PS.R.17

Pos.	Description
1	Product number
2	Production site
3	Type designation
4	Country of origin
5	Weight
6	Production code and date of production (YYWW)
7	Installation and operating instructions, publication number
8	Not filled in

4.4 Type key, PS.R.17

Example	PS. R. 17. 25. D. GC. SS50. A50. SEG
Pumping station	
Rotation moulded pit	
Diameter [mm]	
05: 500	
08: 800	
10: 1000	
12: 1200	
17: 1700	
Depth [mm]	
xx: x 100 mm	
25: 2500	
S: One pump	
D: Two pumps	
Pipe design	
DC: Direct outlet, common	
GC: Goose neck, common	
VC: Valve chamber	
Pipe material and pipe diameter	
Stainless steel:	
SS40: DN 40 (1 1/2")	
SS50: DN 50 (2")	
SS65: DN 65 (2 1/2")	
SS80: DN 80 (3")	
SS100: DN 100 (4")	
Polyethylene:	
PE40: D40 mm (1 1/2")	
PE50: D50 mm (2")	
PE63*: D63 mm (2")	
PE75: D75 mm (2 1/2")	
PE90: D90 mm (3")	
PE110: D110 mm (4")	
Installation type	
Auto coupling:	
A40: DN 40 pump connection	
A50: DN 50 pump connection	
A65: DN 65 pump connection	
A80: DN 80 pump connection	
A100: DN 100 pump connection	
Free-standing pump:	
S: Free-standing pump	
Pump type	
KP: Unilift KP, Unilift CC	
AP35: Unilift AP12.40, Unilift AP35	
AP50: Unilift AP12.50, Unilift AP50	
APB: Unilift AP35B, Unilift AP50B	
SEG: SEG	
DP/EF: DP (0.6 - 1.5 kW) / EF	
DP/SL: DP (2.6 kW) / SL1.50.65 / SLV.65.65	
SE/SL: SE/SL	

* Maximum 3 m pit depth

5. Pit types

The pits come with pipes and valves, depending on the installation selected. Some pumps are available with a float switch connected directly to the pump and thus require no external or built-in controller.

The following installation drawings show pits with a free-standing pump, a pump on auto coupling, a pump on wall-mounted auto coupling and a pit with two pumps.



Fig. 4 Pit with free-standing pump

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Fig. 5 Pit with pump on auto coupling

TM02 9363 2404



Fig. 6 Pit with two pumps and goose neck outlet

TM05 84513013

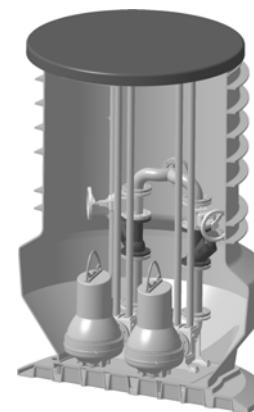


Fig. 7 Pit with two pumps and direct outlet

TM05 8452 3013

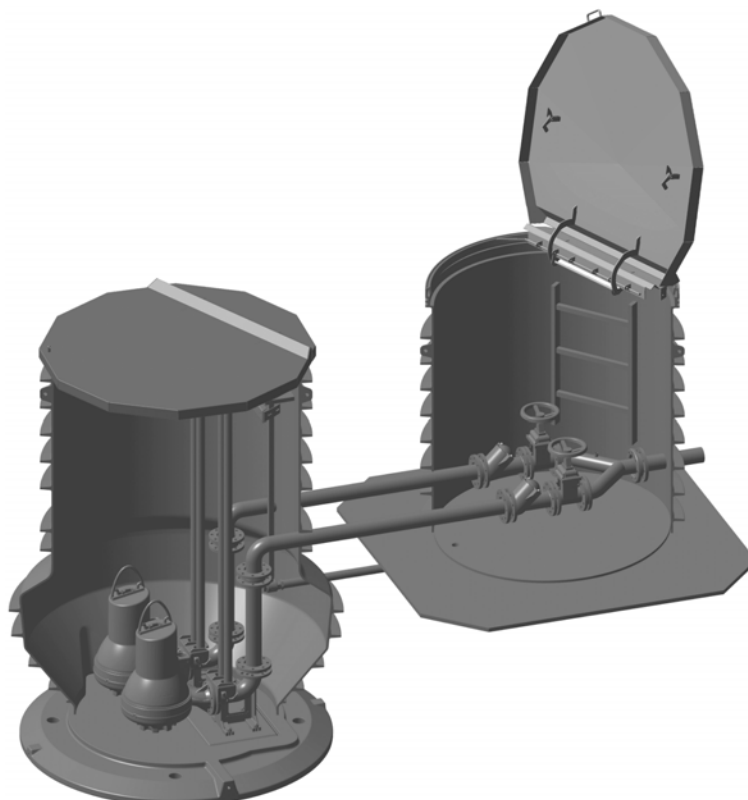


Fig. 8 Pit with valve chamber

TM06 1709 2614

5.1 Cover

Caution

Covers are not approved for traffic unless stated otherwise.

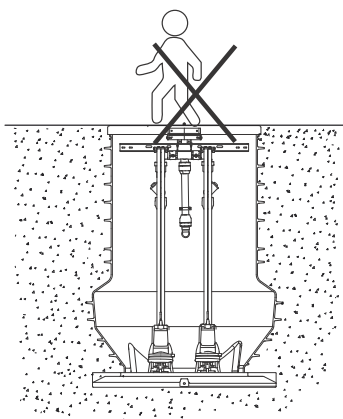


Fig. 9 PE and GRP covers are not approved for pedestrians

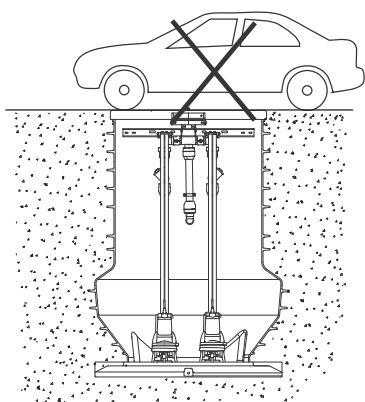


Fig. 10 PE and GRP covers are not approved for vehicles

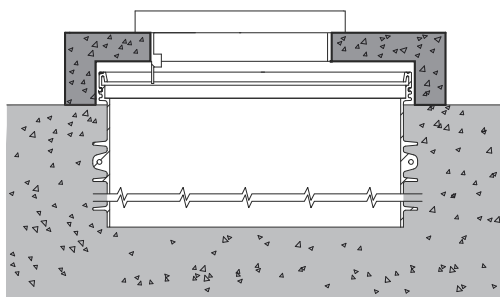


Fig. 11 Cover approved for vehicles according to EN124 Class D

5.1.1 PS.R.05 - PS.R.12

Unless another solution is selected, $\varnothing 400$ to $\varnothing 1000$ pits are supplied with a PE-HD cover locked with a special M10 bolt.



Fig. 12 Cover

5.1.2 PS.R.17 and valve chamber

Covers for $\varnothing 1700$ pits and valve chambers come with padlock system and are made of glass fibre-reinforced plastic (GRP).

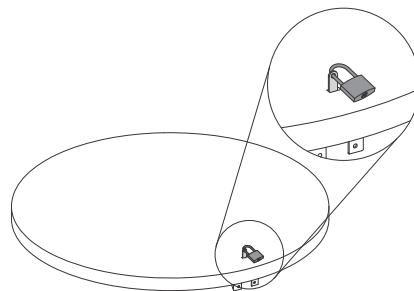


Fig. 13 Cover with padlock

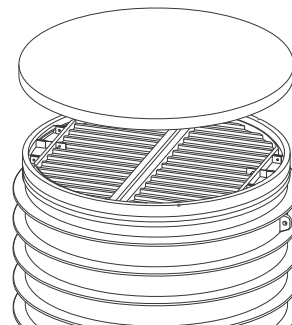


Fig. 14 Cover and safety grid



Warning

The pit must be locked to prevent unwanted access.

5.2 Vent pipe

We recommend that you provide the pit with a vent pipe (accessory).

For installation, see section 8.2 *Pipe connection*.



Fig. 15 Pit with vent pipe

5.3 Cables

The cables for the level switches and the pump(s) can be led into the pit in different ways. Often the cables are led into the pit through a cable entry in the side of the pit. If the pit is equipped with a vent pipe, the pipe can be used as cable entry.

When dismantling or assembling the pump, make sure not to pinch or damage the cables.

Caution

After mounting the pump and cables, the cables must be suspended in such manner that any stress are relieved from the cables.

TM06 0112 4913

TM05 3307 1112

TM06 0113 4913

TM06 0114 4913

TM06 1711 2614

TM02 9498 0805

TM02 9496 2704

6. Sizing

The pit volume depends on the wastewater flow rate and the pump performance.

If the liquid in the pit is static during long periods, sediments may build up in the pit sump. The pump should therefore be started at least twice every 24 hours.

7. Transportation and handling

Note

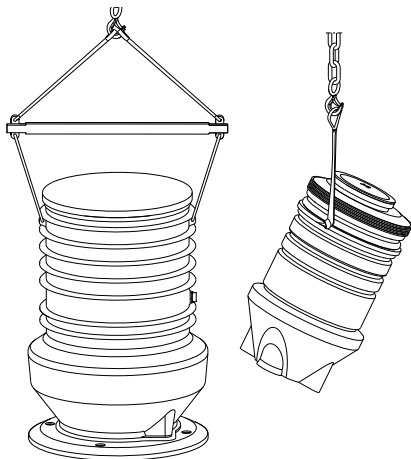
When transporting and handling the pit at low temperatures, take into consideration that the pit impact resistance is reduced.

Precautions in order to avoid damage to the pit during transport and handling:

- Do not dump the pit from the lorry.
- Use approved straps of textile or similar materials when lifting the pit on to or down from a lorry or moving it on the construction site.
Handle and lift the pit according to local regulations.
- When lifting the pumping station with a strap, use the ribs on the pumping station.
- Do not drag the pit over the ground.
- Point loads must not occur.
- The pit must not be exposed to sharp edges.
- Fix the pit securely during transport.
- When the pit is placed on the ground, make sure the ground is even.

Caution

If the pit is equipped with a lifting point, use it during handling.



TM06 0063 4713

Fig. 16 Lifting the pit

Caution

Support for the crane must be placed in a suitable distance from the pit to avoid collapse of pit hole. Work according to local regulations.

Warning



Make sure that the lifting bracket is tightened before attempting to lift the pit.

Tighten if necessary. Carelessness during lifting or transportation may cause injury to persons or damage to the pit.

8. Installation



Warning

Installation of pits must be carried out by an authorised person in accordance with local regulations.

Work in or near wastewater pits must be carried out according to local regulations.

With reference to **DS/EN 1997-1: Eurocode 7: Geotechnical Category 2:**

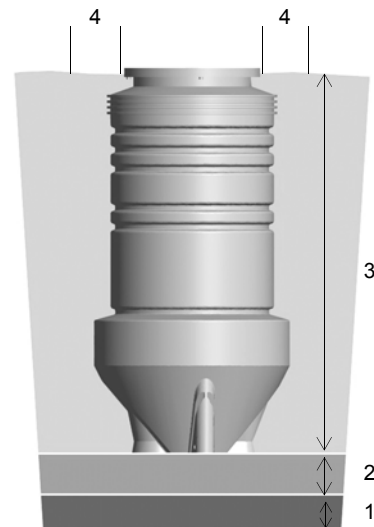
We recommend that you complete a geotechnical investigation of the site conditions before you install the pit.

With reference to **DS/EN 1997-1: Eurocode 7: Geotechnical Category 1:**

The geotechnical investigation can be judged to be unnecessary, if below conditions are fulfilled:

- There is a negligible risk of overall instability, ground movements or adverse ground conditions.
- Comparable local experience shows that the ground conditions are sufficiently uncomplicated.
- There is no excavation below the water table.
- Comparable local experience indicates that the proposed excavation below the water table will be uncomplicated.

In question of doubt, consult a geotechnical specialist.



TM02 9362 2404

Fig. 17 Schematic installation drawing

Pos.	Description
1	Foundation layer
2	Bedding layer
3	Backfill, compacted in layers of maximum 30 cm
4	Distance of 50 cm from cover where heavy loads must not occur

Caution

The location of the pit must be selected so that its installation does not damage other equipment. And the other equipment must not damage the buried pit.

Foundation layer

- The pit must be placed on a foundation layer if soil analyses and information about pit load indicate that the soil is not capable of bearing the weight. The bedding layer on which the pit is placed is not regarded as a foundation layer.
- The foundation layer can be made after the excavation by laying a stable layer of suitable gravel or similar material and compacting it in layers of maximum 30 cm (corresponding to approx. 20 cm after compaction). Such a foundation layer is also required if the excavation has become too deep by mistake.

Bedding layer

- The material for the bedding layer must be compactable and composed so that neither its properties nor the compaction will cause damage to the pit.
- Grains larger than 16 mm must not be present.
- The content of grains between 8 and 16 mm must not exceed 10 %.
- The material must not be frozen.
- Sharp flint etc. must not be present.
- The bedding layer must have a thickness of 10 cm.

Backfill

- The backfill must provide sufficient support of the pit on all sides and ensure that the load can be transferred without detrimental point impacts or similar impacts.
- The backfill must meet the same requirements as those for the bedding layer.
- Backfilling must be carried out so that the pit is not damaged or deformed.
- The backfill must be compacted in layers of maximum 30 cm (corresponding to approx. 20 cm after compaction).



Warning

Before the pit is lowered into position, various connections must be retightened, as they may have become loose during the transport.

Note

Check the pit for external damage before lowering it into position. When the pit has been installed, Grundfos cannot be held responsible for possible damage.

Place the pit on the bedding layer.

Check that the pit is vertical.

Groundwater must not rise above the bedding layer until backfilling has been completed.

Note

Compact the backfill under the inlet and outlet pipes properly so that they are not exposed to downward loads when the backfill settles. See fig. 18.

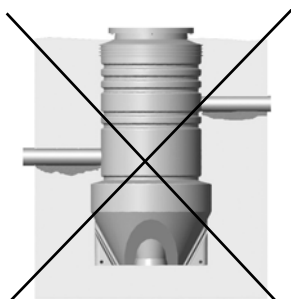


Fig. 18 Insufficient compaction under pipes

Note

During backfilling, the cover must be fitted on the pit to ensure that the pit is not deformed (becomes oval).

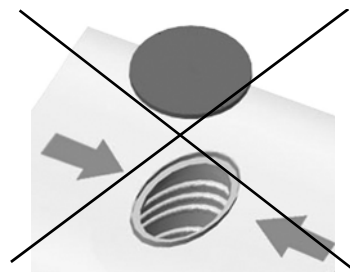
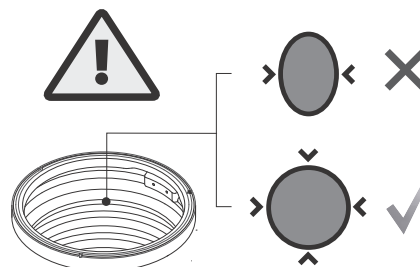
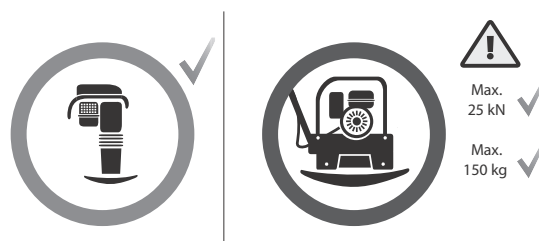


Fig. 19 Oval pit after compaction



Caution

If the hole for the pit is drilled, pay special attention to the compaction of the backfill to prevent uplift.



Caution

Use mechanical compacting equipment and compact the backfill to 98-100 % proctor density.

Uplift prevention

- The pit design ensures that the pit is protected against uplift if installed correctly. Requirements for uplift prevention depend on the geotechnical conditions. They should be determined by the engineer/contractor and are outside Grundfos' area of responsibility.

Caution

The above requirements are minimum requirements. Observe local regulations.

TM02 9361 2404

TM06 3603 0615

TM06 3602 0615

TM02 9360 2404

8.1 Installation of valve chamber

When installing the valve chamber, follow the same instructions as for installation of the pit. See section 8. *Installation*.

Note The valve chamber is only to be installed for PS.R.17 pits.

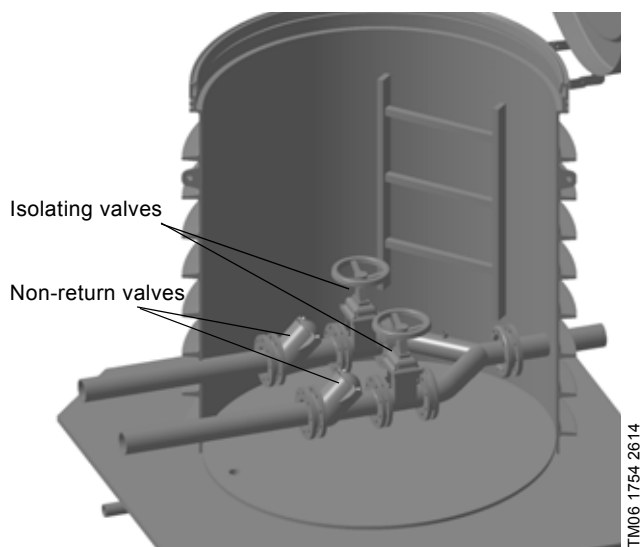


Fig. 20 Valve chamber

8.2 Pipe connection

Holes for inlet pipe, electrical connection and venting are to be drilled on site.

Caution Placement of inlet and outlet pipe connections must be carried out in accordance with local regulations.

Mark the pit where the inlet is to be. Drill the marked spot with a hole saw. Remove all burrs from the hole. The hole saw is available as an accessory. See table below.

Sleeve	Pipe diameter	Product number	Hole saw [mm]	Borehole tolerance [mm]	Product number
LM50/40	40	96230763	51	- 2/+ 1	96571532
LM50/50	50	96230753	60	- 2/+ 1	96571533
LM50/63	63	96571523	75	- 2/+ 1	96571534
LM50/75	75	96571527	86	- 2/+ 1	96571535
LM50/90	90	96571528	102	- 2/+ 1	96571536
L965/110	110	91716040	127	- 0/+ 2	91713756
L965/160	160	91713754	177	- 0/+ 2	91713755
LM100/200	200	91712032	212	- 2/+ 1	91712025
Pilot drill					91712026

8.2.1 PS.R.05 - PS.R.10

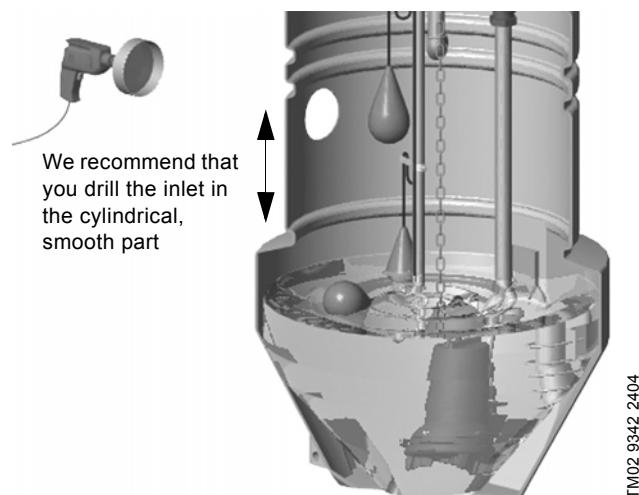


Fig. 21 Drilling the inlet, Ø400-1000

8.2.2 PS.R.17

Note The hole saw must have a cup depth of minimum 90 mm.

Caution The inlet must not be drilled in the pit close to pipes, float switches or other parts of the pit installation.

Drilling from the outside

If the hole diameter is greater than 150 mm or the hole is to be drilled into a rib, drill in the centre of a rib. See fig. 22.

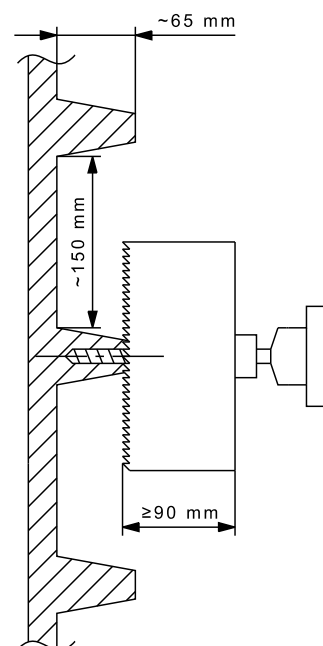
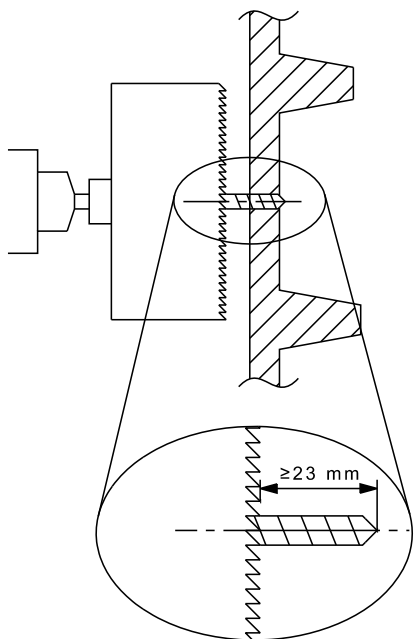


Fig. 22 Drilling from the outside

Drilling from the inside

Due to the circular pit shape, the pilot drill must extend beyond the cutting edge of the hole saw by at least 23 mm. The position of the hole is not an issue. See fig. 23.



TM04 9573 4610

Fig. 23 Drilling from the inside

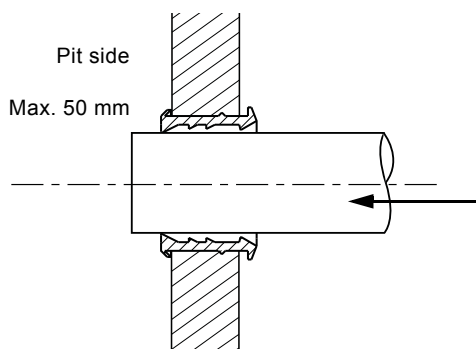
8.3 Fitting the sleeve

1. Fold the sleeve and insert it into the hole (from the outside of the pit).
2. Unfold the sleeve so that it lies evenly in the hole.
3. **LM50/100 sleeves:** Pull the sleeve outwards until its collar touches the inside of the pit all around the hole.
L965 sleeves: Pull the sleeve outwards until its collar touches the inside of the pit at the positions 3 and 9 o'clock. See fig. 26.
4. Lubricate the inside of the sleeve with a water-based lubricant.
5. Chamfer the pipe and press it home.

LM50/100 sleeves: Push the inlet pipe through the sleeve. See fig. 24.

Note

As it must be possible to pull the pump up through the pit, the inlet pipe must not project beyond the sleeve by more than 5 cm.



TM03 3709 0806

Fig. 24 Pipe with LM50/100 sleeve, seen from side

L965 sleeves: Push the inlet pipe into the sleeve and against the stop. See fig. 25.

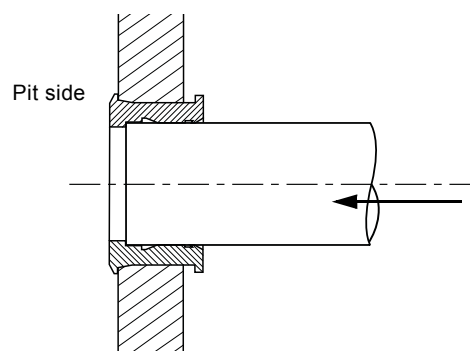


Fig. 25 Pipe with L965 sleeve, seen from side

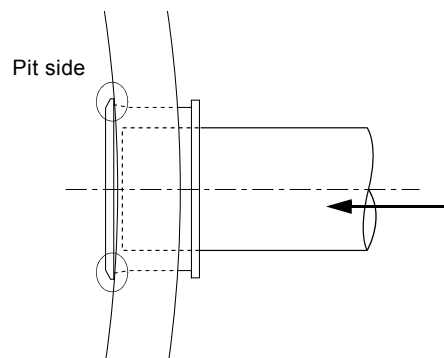


Fig. 26 Pipe with L965 sleeve, seen from top

8.4 Installation of pump(s)

Some versions come without the pump(s) installed.

For installation and startup of the pump, see the installation and operating instructions for the pump.

Caution

Lower the pump carefully into the pit in order to avoid damage to pump and pit.

8.5 Pipework with flange connections

Note

If the pit is to be installed at a temperature below 0 °C, loosen all bolts of the flange and retighten them when the pit has been installed.

This will prevent stress in the pipes.

8.6 Fitting the chain

For pumps on auto coupling, we recommend that you fit the chain in the foremost lifting eye of the lifting bracket. The number of lifting eyes depends on the pump.



Fig. 27 Chain fitted to pump

TM02 9341 2404



Warning

The lifting equipment used for lifting the pump must be rated for the weight of the pump, approved and maintained according to local regulations.

Warning

Grundfos supplied chains are marked with maximum load and production date.



Maximum load must not be exceeded.

Maintenance according to local regulations.

We recommend that Grundfos supplied chains and shackles must be checked minimum once per year for cracks, corrosion or other irregularities. If any defects are found, replace the chain or shackles.

9. Pump control

Note

If the pit is equipped with an AUTO_{ADAPT} controlled pump, an external level controller is not needed.

When installing the level switches, observe the following points:

- To prevent air intake and vibrations in the pump, the stop level switch must be fitted in such a way that the pump is stopped before air is sucked into the pump.
- In the case of 1-pump operation, the start level switch should be installed in such a way that the pump is started at the required level; however, the pump must always be started before the liquid level reaches the lower edge of the bottom inlet pipe.
- In the case of 2-pump operation, the start level switches should be installed in such a way that pump 2 is started before the liquid level reaches the lower edge of the bottom inlet pipe, and so that pump 1 is started correspondingly earlier.
- The high-level alarm switch should always be installed about 100 mm above the start level switch; however, the alarm must always be given before the liquid level reaches the inlet pipe.

For further settings, see the installation and operating instructions for the pump controller selected.

9.1 Start and stop levels

The effective volume of the pit must be so large that the number of starts does not exceed the maximum permissible number. See the installation and operating instructions for the pump.

9.2 Installation of pump controller

See the installation and operating instructions for the pump controller.

9.3 Installation of level controllers

9.3.1 Float switches

If float switches have been selected, they can be fitted on a tube which can be lifted out of the pit. This ensures easy adjustment of float switches.

Note

Note that the bottom float switch (stop) must stop the pump before the level in the pit falls below the minimum level of the pump. See the installation and operating instructions for the pump.

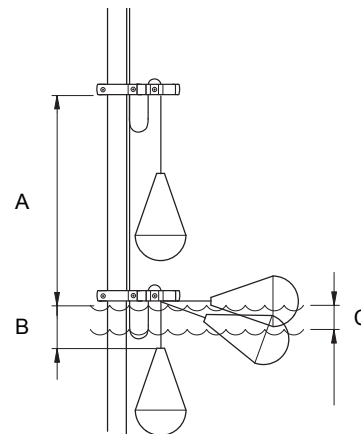


Fig. 28 Adjustment of float switches

A	Min. 300 mm
B	50 to 100 mm
C	Deactivation range 110 mm

Caution

Distance B must not be too big as otherwise the float switch may get stuck in other parts of the installation.

The pit inlet must not be located within the area shown in fig. 29, as it will disturb the function of float switches.

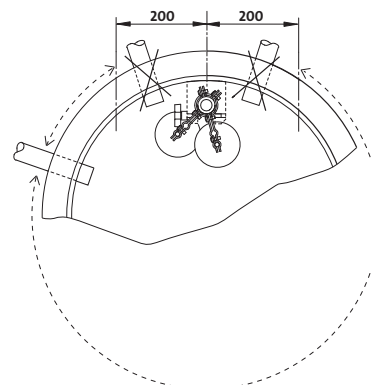


Fig. 29 Location of inlet

TM02 8960 1204

TM02 8961 1204

9.3.2 Electrodes

If electrodes are used for level control, note that the electrodes come in a standard length (1 m). When they are installed, their lengths must therefore be adjusted so that they are activated at the correct levels.

If possible, bend the electrodes away from each other so that paper and similar items cannot get stuck between the electrodes and disturb the signal.

When they have been shortened to the desired length, strip 10 to 15 mm of the lower end of the electrodes.

The electrodes come with a 10 m cable.

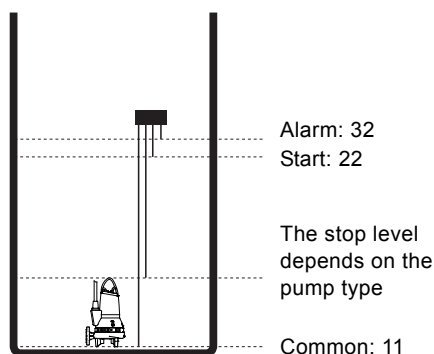


Fig. 30 Electrodes in a pit with one pump

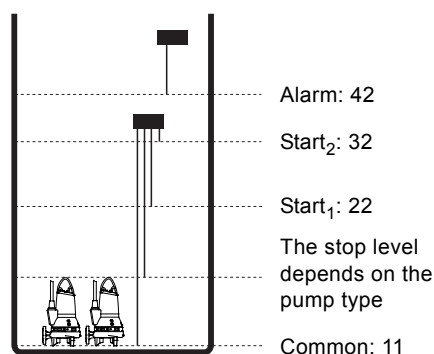


Fig. 31 Electrodes in a pit with two pumps

TM02 8962 1204

TM02 8963 1204

9.3.3 Air bells

Air bells are pulse generators for the pressure switches of the pump controller and function by means of pneumatic pressure changes. The pressure changes when the liquid level changes in the air bell. The air bells are connected to the pressure switches of the controller by means of pressure hoses.

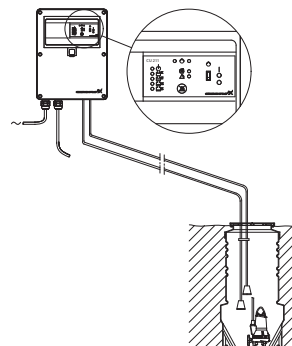


Fig. 32 Air bells in a pit with one pump

9.3.4 Pressure transducer

If a pressure transducer is used, it should be installed in a riser pipe in order to prevent contamination and deposits.

9.3.5 Other types of level control equipment

See the installation and operating instructions for the equipment.

10. Electrical connection and start-up

See the installation and operating instructions for the pump and the pump controller.



Warning

The electrical installation should be carried out by an authorised person in accordance with local regulations.



Warning

The pump or pump controller must be connected to an external emergency stop.

If a power supply circuit breaker is used as emergency stop, it must fulfil EN 60204-1, 10.8.4.



Warning

Before starting work on the pump or valves, make sure that the fuses have been removed or the main switch has been switched off.

Make sure that the power supply cannot be accidentally switched on.

Note

Do not install Grundfos control boxes and the free end of the supply cable inside the pumping station

TM01 9345 2404

11. Maintenance

See the installation and operating instructions for the pump and the pump controller.

Note

We advise you to make all maintenance and service work when the pump is placed outside the pit.



Warning
Do not enter and work inside PS.R.05 - PS.R.12.



Warning
Before entering PS.R.17, make sure that the cover and safety grid are locked in open position and that the pit is ventilated according to local regulations. If not, do not enter the pit.

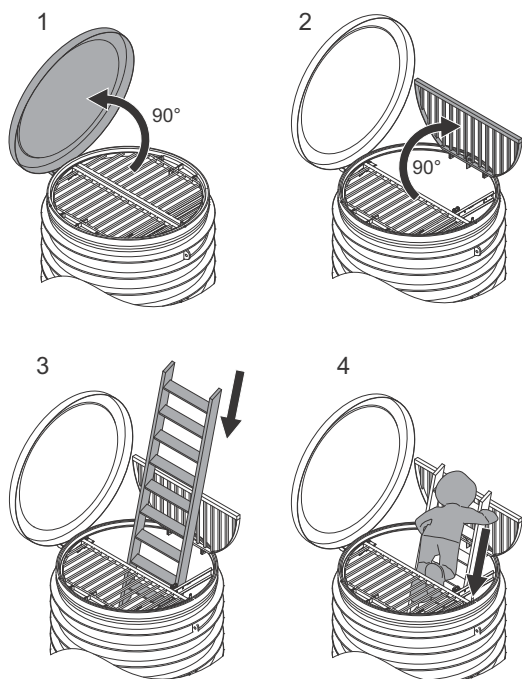


Fig. 33 PS.R.17 opened



Warning
When entering the pit, wear safety harness and use proper ladder and equipment for lifting persons up from the pit.

All work in pits must be carried out according to local regulations and supervised by at least one person outside the pumping station.



Warning
When work is going on in an open, or in the proximity of an open pumping station or valve chamber, place proper warning signs and correct safety barriers around the pit in order to avoid that persons fall into the pit. The warning signs must be visible from all directions.



Warning
If the top opening is up to Ø1000, normal precaution will be sufficient. Openings larger than Ø1000 must be equipped with safety barriers or other safety measures.



Warning
Pumps can be lifted by means of a crane, using lifting points. Proper slings or chains, approved for lifting must be used.



Warning
Gloves and other suitable personal protection equipment must be used in accordance with local regulations. Local regulations on exposure to wastewater must be regarded.

Note

If natural light is insufficient, the maintenance staff must use lamps.

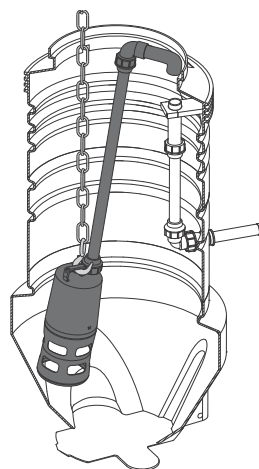


Fig. 34 Lifting a free-standing pump for service

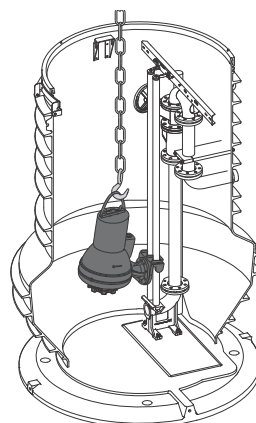


Fig. 35 Lifting a pump on auto coupling for service

TM06 0545 0414

TM06 0546 0414

11.1 Repair of non-return valve



Warning

Make sure that the escaping water does not cause injury to persons or damage to the equipment.



Warning

Before starting work on the non-return valves, make sure that the fuses have been removed or the main switch has been switched off.

Make sure that the power supply cannot be accidentally switched on.



Warning

Make sure the isolating valves cannot be accidentally opened.

Caution

When entering the valve chamber, do not step on pipes or valves

1. Open the valve chamber drainage valve by means of the valve handle in the pit in order to empty the sump of the valve chamber. See fig. 36.
2. Close the isolating valves. See fig. 20.
3. Loosen and remove the two screws on the non-return valve cover. See fig. 37.
4. Replace worn-out valve balls and clean valves inside.
5. Close valve cover and tighten screws.
6. Open isolating valves. See fig. 20.
7. Close the drainage valve inside the pit. See fig. 36.

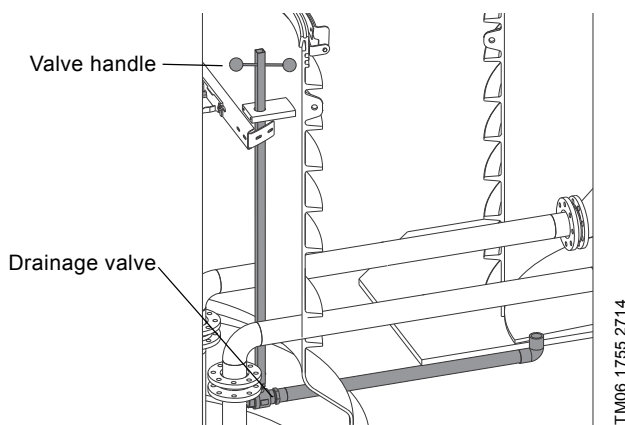


Fig. 36 Drainage valve

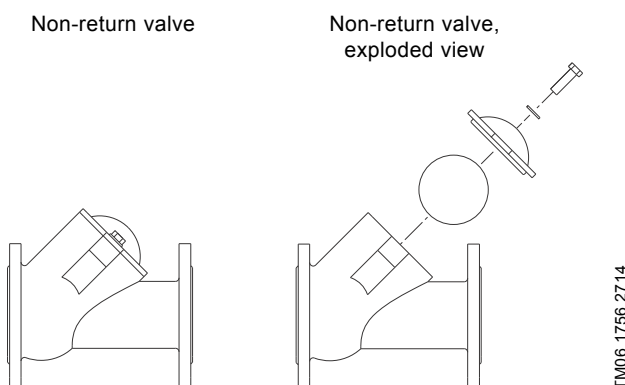


Fig. 37 Non-return valve

11.2 Contaminated pumps



Warning

If a pump has been used for a liquid which is injurious to health or toxic, the pump will be classified as contaminated.

If Grundfos is requested to service the pump, Grundfos must be contacted with details about the pumped liquid, etc. *before* the pump is returned for service. Otherwise Grundfos can refuse to accept the pump for service.

Possible costs of returning the pump are to be paid by the customer.

However, any application for service (no matter to whom it may be made) must include details about the pumped liquid if the pump has been used for liquids which are injurious to health or toxic.

Before a pump is returned, it must be cleaned in the best possible way.

Service instruction and service video can be found on www.grundfos.com.

12. Service contract

It is possible to make a service contract with Grundfos.

13. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.
3. If it is not possible to dispose of the product as a complete unit, the pump and installation equipment can be removed from the pit, and the pit can be filled and covered.

Subject to alterations.

翻译原来的英文版

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**警告**

装机前, 先仔细阅读本安装操作手册。安装和运行必须遵守当地规章制度并符合公认的良好操作习惯。

1. 本文献中所用符号

**警告**

不执行这些安全须知可能会引起人身伤害。

**警告**

如果不遵守这些操作指导会有触电危险并造成严重的人身伤害或死亡后果。

小心

不遵守这些指导可能会造成设备故障或设备损坏。

注意

遵守注意事项或使用说明可以简化作业并可保证操作安全。

2. 概述

格兰富泵站是用于收集和泵送污水的预制泵站。

泵罐体由PE-HD (聚乙烯) 制成, 并配有出口管和阀门。

管路由PE或不锈钢制成, 具体取决于罐体的位置和泵送液体, 以及所选择的泵。

废水被引入罐体内。当罐体内的液体达到最大液位时, 泵将启动, 将液体泵入下水道系统。

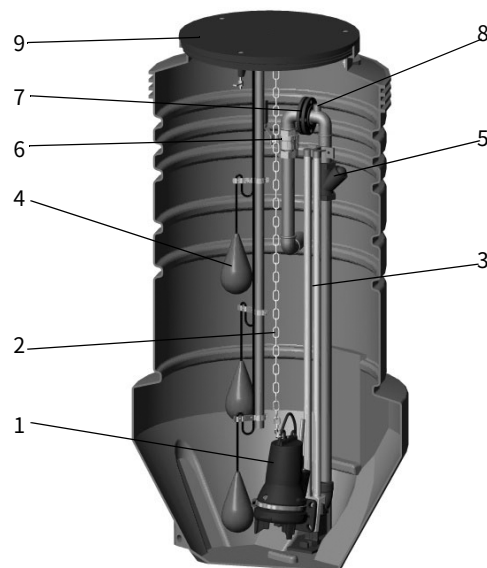


图 1 泵站示例

位号	描述
1	泵
2	提升链条
3	导轨
4	浮子开关
5	单向阀
6	隔离阀
7	法兰/连接接口
8	连接口1/2"内螺纹
9	盖子

3. 应用

格兰富泵站用于收集和泵送排放水、灰废水和污水。泵类型取决于泵送的液体。

3.1 液体温度

最高40 °C。对于更高的温度, 请与格兰富联系。

小心

根据液体温度方面的知识选择泵。见特定泵的安装与操作说明。

3.2 酸和碱

泵站耐强酸、碱和溶剂。

泵配有泵罐体, 通常能够适合4到10的pH值。若存在任何疑问, 请联系格兰富。

3.3 粘度

不得将非常浓稠的污水引入配套罐体内。另请参阅泵的安装和操作说明。

3.4 密度

最大1.1 tons/m³。

TM02 9363 2404

4. 泵站系统 (PS.S)

本节仅适用于采用PS.S的铭牌上显示的格兰富认证组件/零件的泵站系统。

泵站系统包含使泵站能够作为一个整体工作的所有组件，通常包含下列五个组件：

- 罐体
- 泵
- 泵控制器
- 液位控制器
- 配件。

泵站系统可能并不总是有五个组件。然而，其中一定包含一个罐体和一个泵，但泵控制器或液位控制器可以整合到泵中，和/或附件可被省略。

4.1 PS.S的CE认证

PS.S根据这些指令和标准通过了CE认证：

- EN 2006/42/EC，欧盟机械指令
 - EN/ISO 12100，机械安全 - 设计通则 - 风险评估和风险减少。
- 为了保证安全运输，并满足客户的要求，PS.S部件可以在现场组装。但是，只有下列条件均已得到满足时，PS.S的CE认证才有效：
- PS.S已经按照PS.S和罐体、泵及控制系统的安装和操作说明正确组装。
 - PS.S包含格兰富指定的PS.S铭牌上标明的组件。PS.S铭牌安装在罐体内。

4.2 型号

4.2.1 铭牌，PS.S

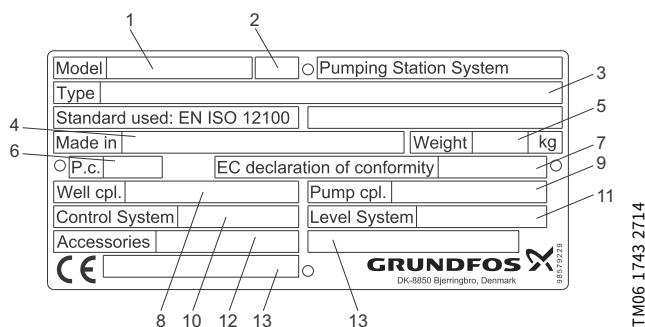


图 2 铭牌，PS.S

位号	描述
1	产品号
2	生产现场
3	型号
4	原产国
5	重量
6	产品代码与生产日期 (YYWW)
7	安装和操作指导，认可日期
8	产品编号，坑
9	产品编号，水泵号
10	产品编号，泵控制器
11	产品编号，液位控制器
12	产品编号，配件
13	未填写

4.2.2 型号说明，PS.S

举例 PS. S. R. 17. 25. SEG. LCD110. FS2

Grundfos泵站

系统

坑型和材料

R: 旋转模制聚乙烯

G: 玻璃纤维增强塑料

污水罐体直径

05: 500 mm

08: 800 mm

10: 1000 mm

12: 1200 mm

17: 1700 mm

罐体深

xx: x 100 mm

例如：

15: 1500 mm

型号

CC: Unilift CC

KP: Unilift KP

AP12: Unilift AP12.50

AP35: Unilift AP35, Unilift AP12.40

AP50: Unilift AP50

APB: Unilift AP35B, Unilift AP50B

SEG: SEG

DP/EF: DP (0.6 - 1.5 kW), EF

DP/SL: DP (2.6 kW), SL1.50.65和SLV.65.65

SE/SL: SE/SL

泵的控制装置

CU100: 控制单元

LC107: 液位控制器

LC108: 液位控制器

LC110: 液位控制器

LCD107: 液位控制器 - 双泵

LCD108: 液位控制器 - 双泵

LCD110: 液位控制器 - 双泵

DC318: Dedicated Controls

DC319: Dedicated Controls

DCD318: 专用控制器 - 双泵

DCD319: 专用控制器 - 双泵

液位控制器

AB2: 2气流罩

AB3: 3气流罩

FS2: 2浮子开关

FS3: 3浮子开关

FS4: 4浮子开关

EL3: 3电极

EL4: 4电极

EL5: 5电极

PT: 压力传感器

4.3 铭牌, PS.R.05 - PS.R.17

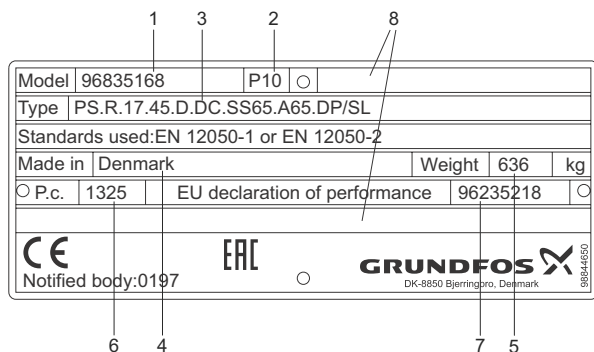


图3 铭牌, PS.R.05 - PS.R.17

位号	描述
1	产品号
2	生产现场
3	型号
4	原产国
5	重量
6	产品代码与生产日期 (YYWW)
7	安装和操作指导, 认可日期
8	未填写

4.4 型号说明, PS.R.17

举例 PS. R. 17. 25. D. GC. SS50. A50. SEG

泵站

旋转模制罐体

直径 [mm]

05: 500

08: 800

10: 1000

12: 1200

17: 1700

深度 [mm]

xx: x 100 mm

25: 2500

S: 单泵

D: 两个泵

管设计

DC: 直接出口管, 通用

GC: 鹅颈管, 通用

VC: 阀门腔体

管材及管直径

不锈钢:

SS40: DN 40 (1 1/2")

SS50: DN 50 (2")

SS65: DN 65 (2 1/2")

SS80: DN 80 (3")

SS100: DN 100 (4")

聚乙烯:

PE40: D40 mm (1 1/2")

PE50: D50 mm (2")

PE63:* D63 mm (2")

PE75: D75 mm (2 1/2")

PE90: D90 mm (3")

PE110: D110 mm (4")

安装类型

自动耦合:

A40: DN 40泵连接

A50: DN 50泵连接

A65: DN 65泵连接

A80: DN 80泵连接

A100: DN 100泵连接

自立式泵:

S: 自立式泵

型号

KP: Unilift KP, Unilift CC

AP35: Unilift AP12.40, Unilift AP35

AP50: Unilift AP12.50, Unilift AP50

APB: Unilift AP35B, Unilift AP50B

SEG: SEG

DP/EF: DP (0.6 - 1.5 kW) / EF

DP/SL: DP (2.6 kW) / SL1.50.65 / SLV.65.65

SE/SL: SE/SL

* 最大3米罐体深度

5. 罐体类型

罐体设有管道和阀门，这取决于选择的安装。一些泵可直接连接到泵的浮子开关，因此不需要外部或内置控制器。

下面的安装图分别显示了带自立式泵、自动耦合泵、壁挂式自动耦合泵的泵罐体和带两台泵的泵罐体。



图 4 带自立式泵的泵罐体

TM02 9364 2404



图 5 带自动耦合泵的泵罐体

TM02 9363 2404

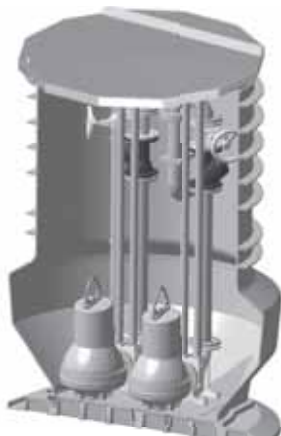


图 6 带两台泵和鹅颈出口管的泵罐体

TM05 84513013

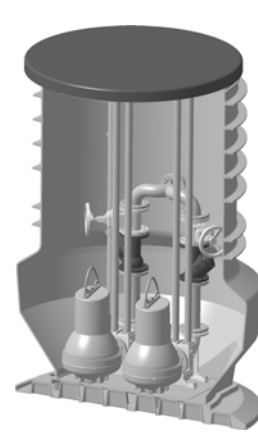


图 7 带两台泵和直接出口管的泵罐体

TM05 8452 3013

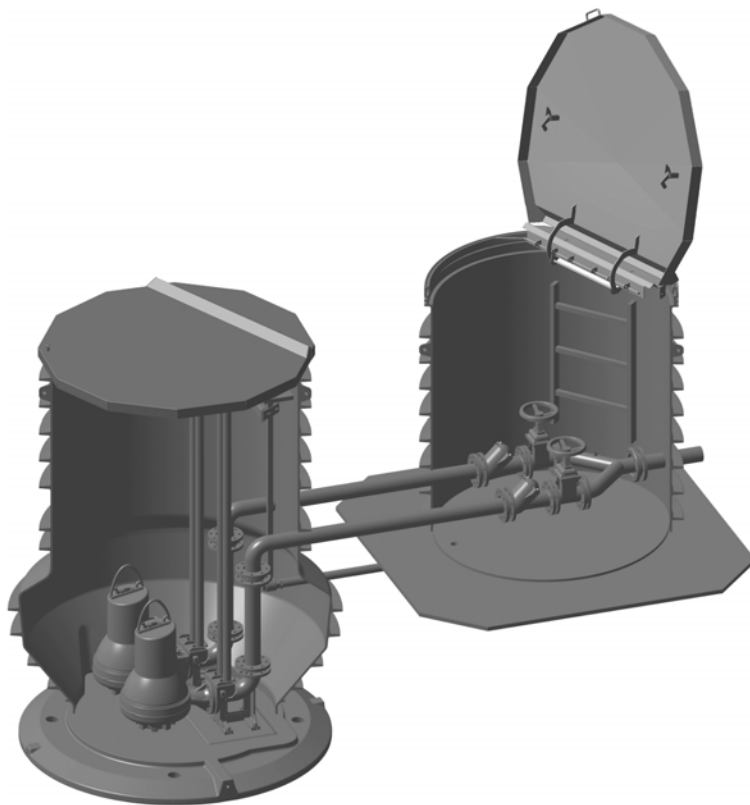


图 8 带阀室的泵罐体

TM06 1709 2614

5.1 盖子

小心 除非另有说明，坑盖不能用于交通通行。

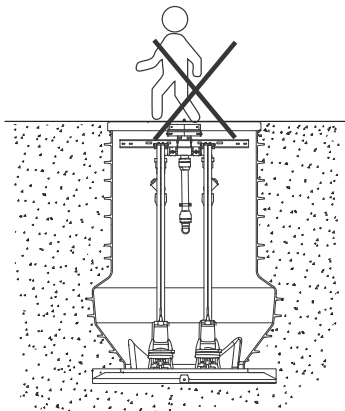


图 9 PE和GRP坑盖不能准用于行人通行

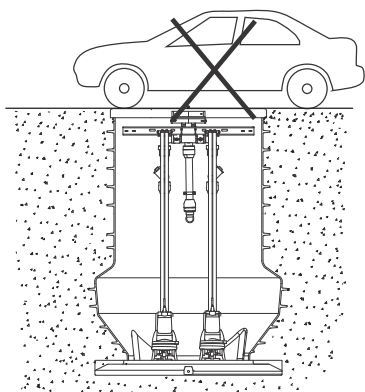


图 10 PE和GRP坑盖不能用于车辆通行

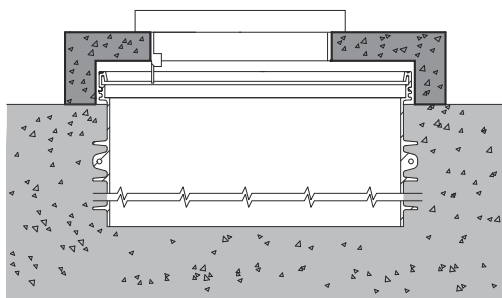


图 11 依据EN124 Class D批准用于车辆通行的坑盖

5.1.1 PS.R.05 - PS.R.12

除非选择了另一种解决方案， $\varnothing 400$ 到 $\varnothing 1000$ 泵坑均配备PE-HD罐体盖，用一个特殊的M10螺栓锁定。



图 12 盖子

5.1.2 PS.R.17和阀室

用于 $\varnothing 1700$ 泵罐体和阀室的罐体盖配备挂锁系统，由玻璃纤维增强塑料 (GRP) 制成。

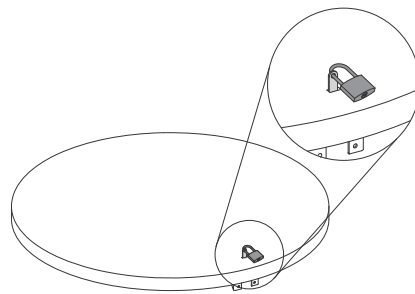


图 13 带挂锁的罐体盖

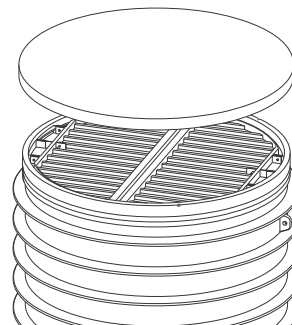


图 14 带安全网的罐体盖



警告
泵罐体必须上锁，以防止意外进入。

5.2 排气管

我们建议您为泵坑安装一根排气管（附件）。对于安装，见章节 8.2 管路连接。



图 15 带排气管的泵罐体

5.3 电缆

用于液位开关和泵的电缆可以通过不同方式引入泵坑。通常情况下，电缆穿过泵坑一侧的电缆入口进入泵坑。如果泵坑配有排气管，该管可以被用作电缆入口。

小心 当拆卸或组装泵时，确保不要挤压或损坏电缆。安装泵和电缆后，电缆必须悬挂起来，以免承受任何应力。

6. 规格

泵罐体容积取决于污水流量和泵的性能。

如果泵罐体内的液体中长时间静止不流动，罐体内可能会积聚沉积物。因此每24小时应至少启动泵两次。

7. 运输和装卸

注意

在低温下运输和装卸泵坑时，需要考虑到泵罐体的耐冲击性降低。

为避免运输和装卸过程中损坏泵坑需要采取的预防措施：

- 不要将泵坑从卡车上倾倒下来说。
- 使用经批准的织物或类似材料的吊带，将泵罐体从货车上抬下或抬上货车，或在施工现场移动。
根据当地法律法规装卸和提升泵坑。
- 当用吊带提升泵站时，必须使用泵站上的凸缘。
- 不得在地面上拖动泵坑。
- 不得产生应力集中的情况。
- 泵罐体不得暴露于锐边。
- 在运输过程中牢固地固定泵坑。
- 当泵罐体被放置在地面上时，确保地面平坦。

小心

如果泵罐体配有吊耳，需要使用吊耳进行搬运。

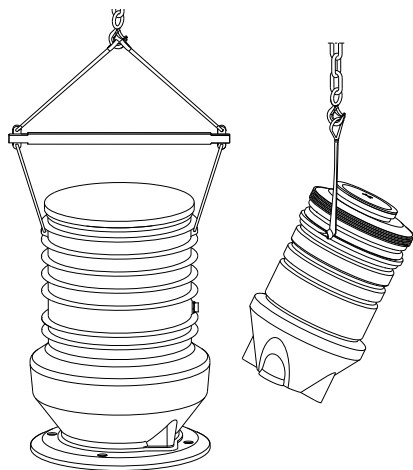


图 16 提升泵坑

小心

支护必须放置在与泵坑距离合适的位置，以免泵罐体倒塌。
根据当地法规进行工作。



警告

在起吊水泵前，应确保吊装支架已拧紧。
若有必要，进行紧固。起吊或运输工作中的粗心大意会导致人身伤害或泵坑损坏。

8. 安装



警告

泵坑的安装必须由获得授权的人员按照地方有关规范来完成。

在泵坑下或在周围开展工作时必须遵守地方规范。

参照DS/EN 1997-1: Eurocode 7: 岩土工程类别2:

我们建议您在安装泵坑前先对现场条件进行岩土工程勘察。

参照DS/EN 1997-1: Eurocode 7: 岩土工程类别1:

如果下面条件同时满足，则不需要进行岩土工程勘察：

- 整体失稳、地面活动或不利的地面条件的风险非常微小。
- 可比本地经验表明，地面条件足够简单。
- 未挖掘到地下水位以下。
- 可比地方的经验表明，建议的地下水位以下挖掘将会很简单。

如有疑问，请咨询岩土工程专家。

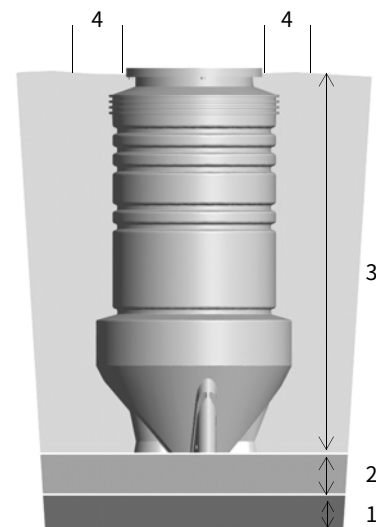


图 17 安装示意图

位号	描述
1	基层
2	垫层
3	回填，逐层回填，逐层回填深度不超过30 cm,并压实至20 cm左右
4	距离盖子50 cm的范围内，可见材料与回填材料一致

小心

所选的泵罐体位置必须确保其安装不会损坏其他设备。
而且其他设备必须不会对掩埋的泵坑造成损坏。

TM02 9362 2404

TM06 0063 4713

基层

- 如果土壤分析和有关泵坑负载的信息表明土壤无法承受重量，则泵坑必须放在一个底座上。放置泵坑的垫层不被视为基层。
- 基层的制作可以采用如下方法：
合适的砾石或者类似材料，铺设厚度为30 cm，夯实后厚度为20 cm。如果基坑挖掘深度过深，也可以采用这样的方法弥补。

垫层 (垫层材料除符合下述要求外，还可以制作10cm厚度的混凝土基板。)

- 垫层材料必须紧凑的，可以压实的；同时材料本身的属性和压实不会破坏产品。
- 不得有大于16 mm的颗粒物。
- 8 mm至16 mm颗粒的含量不得超过10 %。
- 材料不得被冻结。
- 垫层材料不允许出现锋利的、极硬的尖角等，可能破坏产品。垫层的厚度必须达到10 cm。

回填

- 回填必须在所有方向给泵罐体提供足够的支撑，并确保负载可以在没有破坏性点冲击或类似冲击的情况下进行传输。
- 回填材料必须符合上述垫层回填材料的要求；或者可以考虑使用黄沙代替。
- 回填必须确保泵站不被损坏或变形。
- 回填过程需要层层回填，逐层回填高度不超过30cm,并压实至20cm左右。



警告

泵站下降到位前，必须将各个连接重新拧紧，因为它们可能在运输过程中已经松动。

注意

将泵站降入到位之前检查是否存在外部损坏。如果泵站已经安装，格兰富对于可能存在的损坏不承担责任。

将泵站放置在垫层上。

检查泵站是否垂直。

回填完成之前，地下水不能上升垫层以上。

注意

适当压缩入口管和出口管下的回填土，使得回填土沉降时入口管和出口管不会受到向下载荷。见图18。

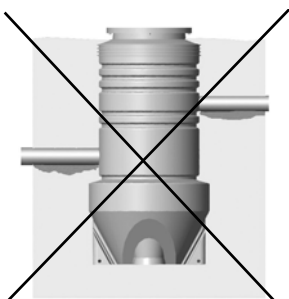


图 18 管下压实不足

注意

回填过程中，坑盖必须装在泵站上，以确保泵站不变形（变为椭圆形）。

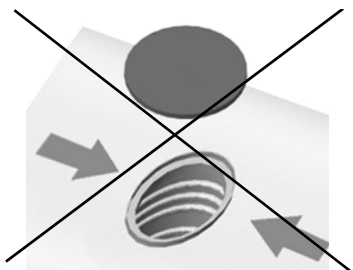
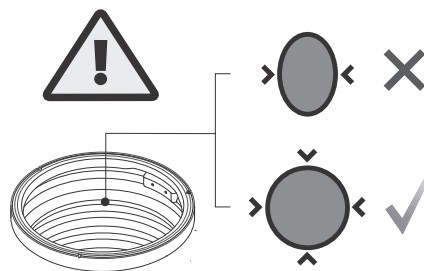
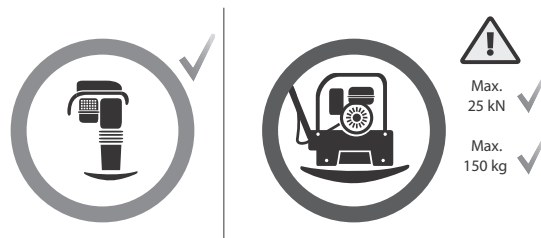


图 19 压实后的椭圆形泵站



小心

如果泵坑上孔钻，要特别注意回填土的压实程度，以防止隆起。



小心

使用机械压实设备，将回填土压实到98-100 %葡氏密度。

预防隆起

- 泵的设计保证了正确安装后可以防止出现隆起。预防隆起的要求取决于地质条件。它们应该由工程师/承包商确定，不属于格兰富的责任。

小心

上述要求是最低要求。遵守地方性规范。

8.1 阀室的安装

当安装阀室时，需要遵循与泵坑安装相同的规定。见章节 8. 安装。

注意

阀室仅用于PS.R.17泵站。

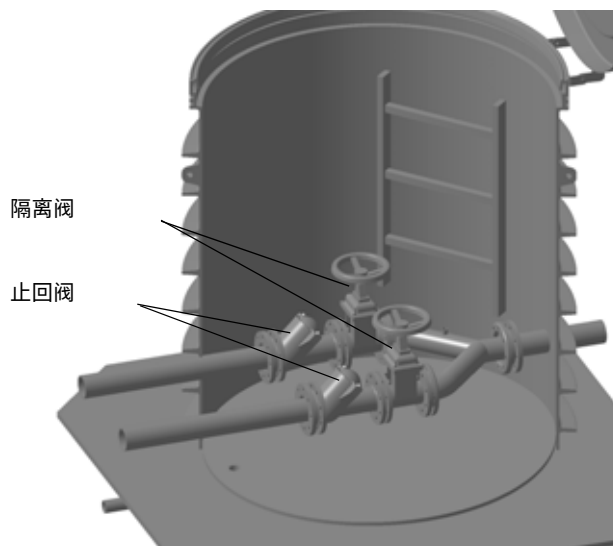


图 20 阀门腔体

8.2 管路连接

用于入口管、电气连接和通风的孔在现场钻孔。

小心 入口和出口管连接的放置必须按照当地的规定进行。

在泵坑上标记入口的位置。用孔锯在标记点上钻孔。除去孔中的所有毛刺。孔锯可以作为附件供货。参见下表。

外套	管直径	产品号	孔锯 [mm]	钻孔公差 [mm]	产品号
LM50/40	40	96230763	51	- 2/+ 1	96571532
LM50/50	50	96230753	60	- 2/+ 1	96571533
LM50/63	63	96571523	75	- 2/+ 1	96571534
LM50/75	75	96571527	86	- 2/+ 1	96571535
LM50/90	90	96571528	102	- 2/+ 1	96571536
L965/110	110	91716040	127	- 0/+ 2	91713756
L965/160	160	91713754	177	- 0/+ 2	91713755
LM100/200	200	91712032	212	- 2/+ 1	91712025
定心钻					91712026

8.2.1 PS.R.05 - PS.R.10



图 21 钻入口孔, $\varnothing 400-1000$

TM02 9342 2404

8.2.2 PS.R.17

注意 孔锯的杯深必须小于90 mm。

小心 不得在泵站上靠近管道、浮子开关或泵坑安装其他零件处钻入口孔。

从外向内钻

如果孔直径大于150 mm或孔要钻入凸缘, 需要在凸缘的中心钻孔。见图22。

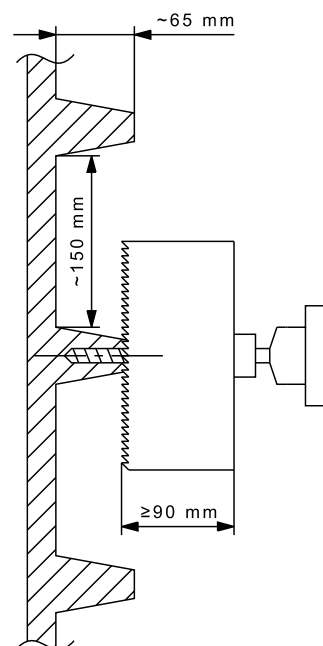


图 22 从外向内钻

从内向外钻

由于圆形泵罐体形状, 定心钻必须超出孔锯的切割边缘至少23 mm。孔的位置不是一个问题。见图23。

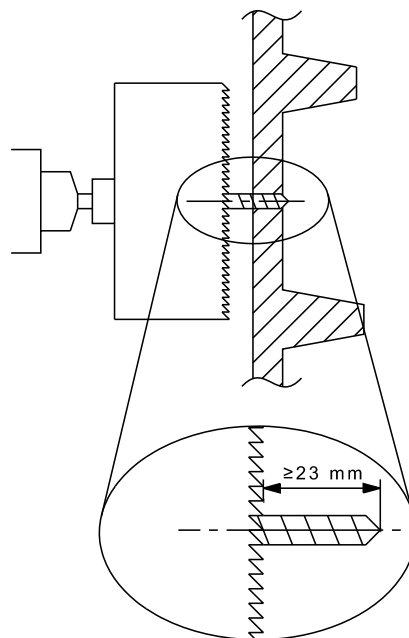


图 23 从内向外钻

TM04 9441 4210

TM04 9573 4610

8.3 安装套筒

1. 折叠套筒并将其插入孔内（从泵坑外部）。
2. 展开套筒，使其均匀地处于孔内。
3. **LM50/100套筒**：向外拉套筒，直到其套环碰到孔周围泵罐体的内部。
L965套筒：向外拉套筒，直到其套环碰到3点和9点处泵罐体的内部。
见图26。
4. 用水基润滑剂润滑套筒的内部。
5. 对管道倒角，然后将其推回。

LM50/100套筒：将入口管推入套筒。见图24。

注意

因为泵需要自由安装上下。所以入口管不得伸出套管5 cm以上。

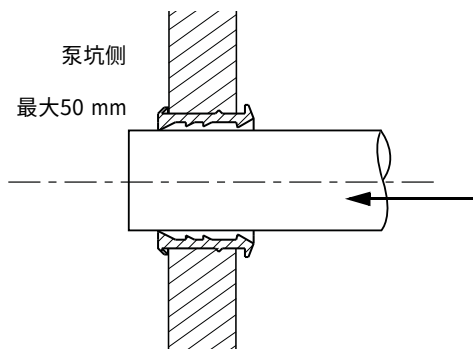


图 24 带LM50/100套筒的管道，侧视图

L965套筒：将入口管推到套筒内并抵住挡块。见图25。

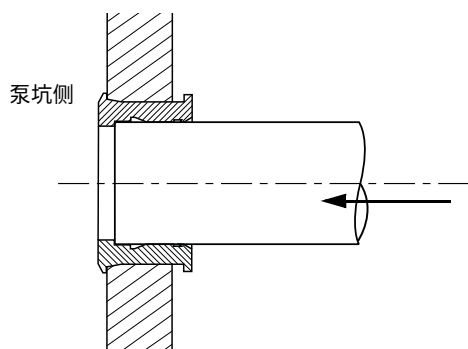


图 25 带L965套筒的管道，侧视图

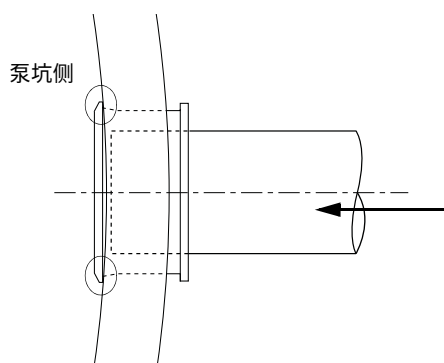


图 26 带L965套筒的管道，顶视图

8.4 泵的安装

有些版本没有水泵安装的说明。关于泵的安装和启动，请参见泵的安装和操作说明。

小心

小心地将水泵放入泵坑内，以避免损坏泵和泵坑。

8.5 带法兰连接的管道

注意

如果泵坑要在低于0 °C的温度下进行安装，在泵坑安装后松开法兰的所有螺栓并拧紧。这样可以防止管道内的应力。

8.6 安装链条

对于自动耦合泵，我们建议您将链条装在提升支架最重要的吊环上。吊耳的数目取决于泵。



图 27 安装在泵上的链条



警告

用于提升泵的提升设备必须按当地规定评估泵的重量、批准和维护。



警告

格兰富供应的链条标有最大负荷和生产日期。不得超过最大负荷。

根据当地法规进行的维护。我们建议，每年至少对格兰富供应的链条和钩环进行一次检查，检查是否有裂纹、腐蚀或其他不符合规范的情况。如果发现任何缺陷，更换链条或钩环。

9. 水泵控制

注意

如果泵坑配备有AUTO_{ADAPT}控制泵，不需要外部液位控制器。

安装液位开关时，请遵守以下几点：

- 为了防止泵内吸入空气及振动，必须照此方式安装停止液位开关，使其在空气被吸入泵之前即停止水泵运行。
- 在单泵运行的情况下，启动液位开关的安装应当使泵能在要求的液位启动；但是泵必须总是在液位到达最低的入水管边沿之前启动。
- 在双泵运行的情况下，启动液位开关的安装应当使泵2能在液位到达最低的入水管边沿之前启动，而且使泵1被相应更早地启动。
- 高液位报警开关应始终将其安装在启动液位开关之上100 mm处；无论如何，必须在液位触及入口管之前发出报警。

关于进一步的设置，请参阅所配水泵控制器的安装与操作手册。

9.1 启动和停止液位

泵坑的有效容积必须足够大，以使启动次数不超过允许的最大次数。参阅 水泵安装和操作指导。

9.2 泵控制器的安装

参阅泵控制器安装和操作指导。

9.3 泵控制器的安装

9.3.1 浮子开关

如果选择了浮子开关，可以将它们安装在一个可提升出泵坑的管上。这确保了浮子开关便于调整。

注意

注意，底部浮子开关（停止）必须在泵坑液位低于最低液位之前停止泵。参阅水泵安装和操作指导。

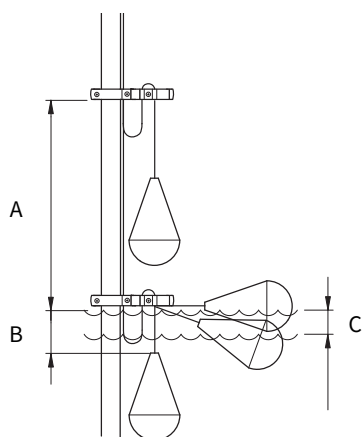


图 28 调整浮子开关

A	最小300 mm
B	50至100 mm
C	停用范围110 mm

小心

距离B必须不能太大，否则浮子开关可能会卡在安装的其他部分。

泵坑入口不能位于图29中所示的区域内。

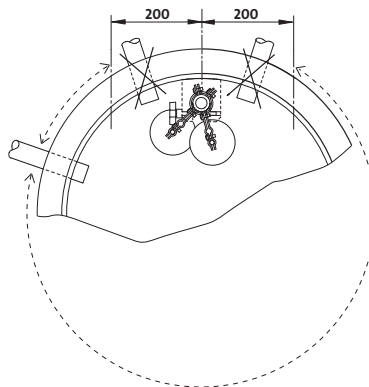


图 29 入口管位置

9.3.2 电极

如果电极用于电平控制，请注意，电极来，在标准长度（1米）。当要安装它们时，必须对它们的长度进行调整，使其能够在正确的液位上激活。

如果可能的话，将电极相互分开，使得纸张和类似物品不能卡在电极之间而扰乱信号。

当它们已被缩短到所需长度，剥去电极下端10至15 mm的外皮。

电极配有10 m电缆。

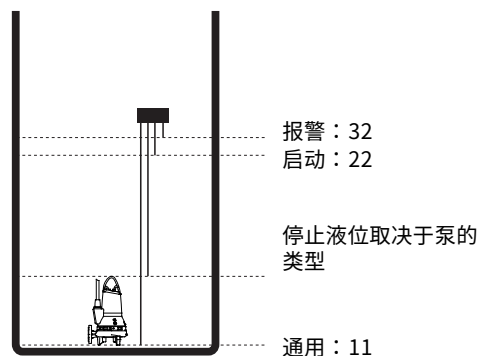


图 30 带一台泵的泵坑内的一个电极

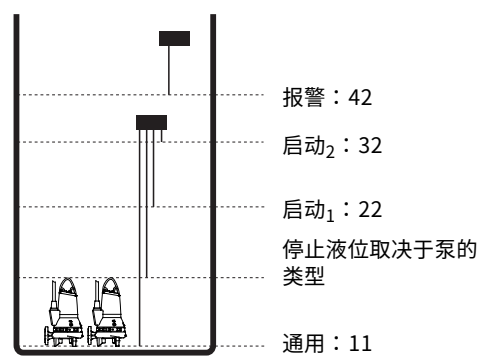


图 31 带两台泵的泵坑内的电极

TM02 8961 1204

TM02 8962 1204

TM02 8963 1204

9.3.3 气压罩

气流罩是用于泵控制器压力开关的脉冲发生器，通过气压变化的方式工作。当气流罩的液面变化时，压力改变。气流罩通过压力软管连接到控制器压力开关。

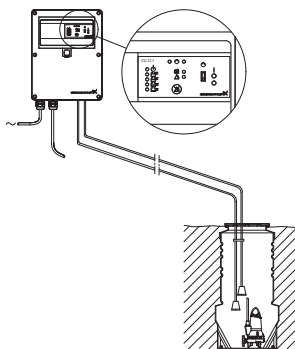


图 32 带一台泵的泵坑内的气压罩

9.3.4 压力传感器

如果使用了压力换能器，它应安装在一个立管内，以防止污染和沉积。

9.3.5 其他类型的液位控制设备

参见设备安装和操作指导。

10. 电气连接和启动

关于泵和泵控制器，参见安装和操作说明。



警告
电气连接必须由授权人员按照当地规章来完成。



警告
泵或泵控制器必须被连接到一个外部紧急停止装置。如果一个电源断路器被用作紧急停止装置，它必须符合EN 60204-1, 10.8.4。



警告
在对泵或阀门开展工作之前，请务必保证保险丝已经拆去或主电源开关已经断开。
确保电源不会被意外接通。

注意 不得在泵站内安装格兰富控制盒和电源电缆的自由端

11. 保养

关于泵和泵控制器，参见安装和操作说明。

注意

我们建议，当泵放置在坑外时，进行所有维护和维修工作。



警告
不得进入PS.R.05 - PS.R.12并在内部工作。



警告
进入PS.R.17之前，确保罐体盖和安全网被锁定在开启位置，而且泵罐体根据当地法规通风。如果不是，不要进入泵坑。

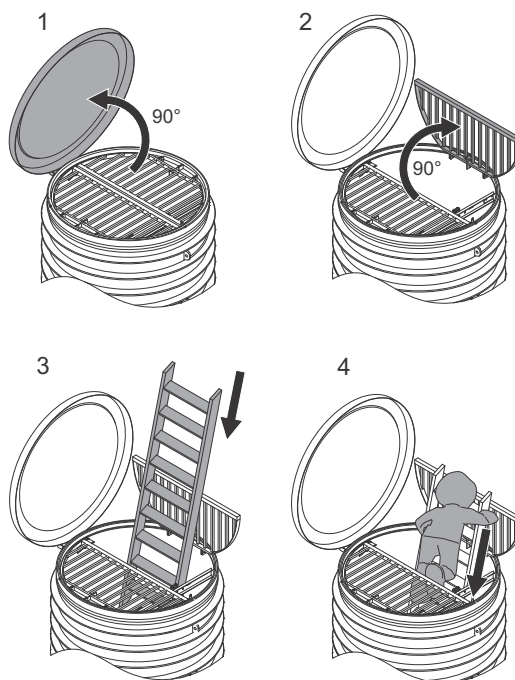


图 33 PS.R.17打开



警告
进入泵罐体时，必须戴上安全带，并使用适当的梯子和设备，用于将人员从泵罐体中提起。
泵坑内的所有工作必须按照当地法规进行，由泵站外的至少一人监督。



警告
当在一个开放的泵站或阀室或者在其附近工作时，需要在泵罐体周围放置适当的警告标志和正确的安全屏障，以避免有人掉入泵坑。警告标志必须在任何方向上可见。

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TM01 9345 2404

**警告**

如果顶部开口最大 $\varnothing 1000$ ，采用正常预防措施即可。
大于 $\varnothing 1000$ 的开口必须配备安全屏障或其他安全措施。

**警告**

泵可以通过吊耳，用起重机来进行吊装。
必须使用批准用于吊装的正确的吊索或链条。

**警告**

必须按照当地法规使用手套和其他适当的个人防护装备。
必须遵守关于废水暴露的当地法规。

注意

如果自然光不足，维修人员必须使用照明灯。

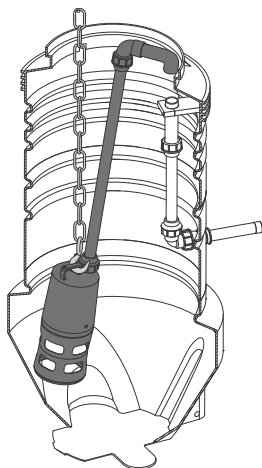


图 34 提升一台自立式泵以进行维修

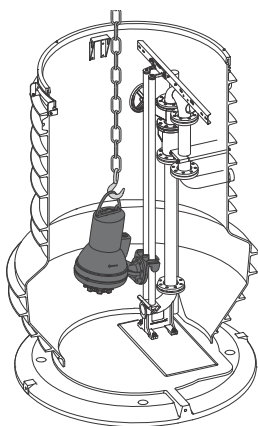


图 35 提升一台自动耦合泵以进行维修

11.1 止回阀的维修



确保溢出的水不会对人员或设备造成损伤。

**警告**

在对止回阀开展工作之前，请务必保证保险丝已经拆去或主电源开关已经断开。
确保电源不会被意外接通。

**警告**

确保隔离阀不能被意外打开。

小心

进入阀室时，不要踩在管道或阀门上

1. 使用泵罐体内的阀门手柄打开阀室排水阀，以清空阀室的水槽。见图36。
2. 关闭隔离阀。见图20。
3. 松开并卸下止回阀盖上的两个螺丝。见图37。
4. 更换旧阀球并清洁阀的内部。
5. 关闭阀盖，并拧紧螺丝。
6. 打开隔离阀。见图20。
7. 关闭泵罐体内的排水阀。见图36。

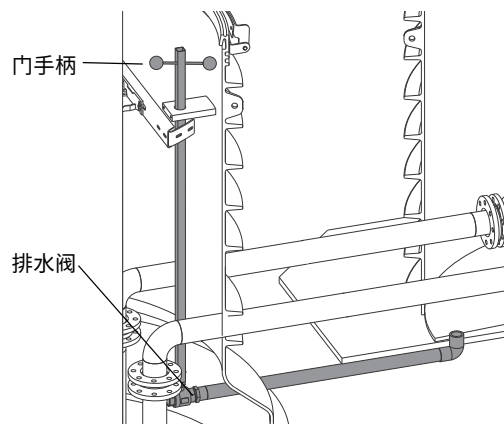


图 36 排水阀

单向阀

止回阀，分解图

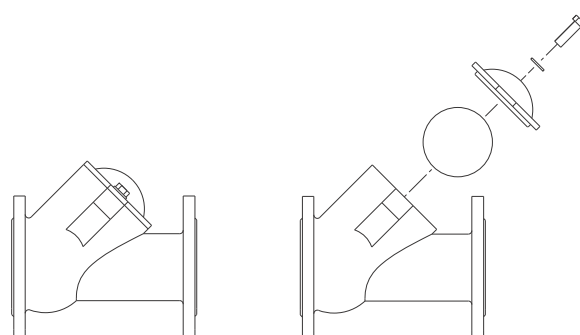


图 37 单向阀

TM06 1756 2714

TM06 1755 2714

TM06 0545 0414

TM06 0546 0414

11.2 受污染的泵



警告

若水泵用于泵送会对人体产生危害的有毒液体，则必须将其归类为受污染水泵。

若要求格兰富进行维修水泵，必须在将水泵退回维修之前，向格兰富提供泵送液体的具体信息。否则，格兰富有权拒绝对该泵进行维修。

因退泵可能产生的费用由客户承担。

无论如何，如果该泵泵送过对人体有害或有毒的液体，那么任何维修申请（不管由谁来实施）都必须包含泵送液体的详细资料。

退泵前必须尽最大可能对水泵进行清洁处理。

服务指导和服务录像可以在以下网站找到：www.grundfos.com。

12. 服务合同

可能会与格兰富签署维修合同。

13. 回收处理

必须以环境友好的方式对本产品或产品的部件进行回收处理。

1. 使用公立或私立废品回收服务设施。
2. 如果以上无法做到，与附近的格兰富公司或服务站联系。
3. 如果无法处置整套设备，泵和安装设备可以从泵坑移除，泵坑可以填埋并覆盖。

内容可有变动。

Declaration of conformity

GB: EC declaration of conformity for Grundfos pumping station system, type PS.S

This EC declaration of conformity applies only to Grundfos pumping station system, type PS.S, marked with the CE mark on the nameplate. It is a condition for the validity of the declaration that the pumping station system at any time consists of the correct and Grundfos-approved components and products mentioned in the nameplate of the pumping station system.

We, Grundfos, declare under our sole responsibility that the pumping station system, type PS.S, to which this declaration relates, is in conformity with the Council directive on the approximation of the laws of the EC member states listed below:

The pumping station system, type PS.S, always consists of a pit, minimum one pump and, depending on the pump type, also a pump controller and a level controller, and possibly accessories, all selected from the list below:

Please find the EC declaration of conformity and/or EU declaration of performance of components and products in the installation and operating instructions delivered with these components and products.

CN: PS.S 型格兰富泵站系统 EC 合格声明

此 EC 合格声明仅适用于铭牌上带有 CE 标志的 PS.S 型格兰富泵站系统。这是声明泵站系统在任何时候都包含泵站系统铭牌上说明的正确和格兰富批准的部件和产品的有效条件。

我们，格兰富，在我们的全权责任下声明，PS.S 型泵站系统，即该合格证所指之产品，符合欧共体使其成员国法律趋于一致的以下欧盟指令：

PS.S 型泵站系统始终包含一个罐体、至少一台泵，根据泵的类型，可能还包含一个泵控制器和一个液位控制器，以及可能的配件，从以下列表中选择：

请在随这些部件和产品一起提供的安装和使用说明书中查看部件和产品的 EC 合格声明和 / 或 EC 性能声明。

Directive:

— Machinery Directive (2006/42/EC).
Standard used: EN ISO 12100:2010.

Components and products:

Pit: PS.R.05, PS.R.08, PS.R.10, PS.R.12, PS.R.17

Pump: CC, KP, AP12, AP35, AP50, APB, SEG, DP/EF, DP/SL, SE/SL, CC-A, KP-A, AP12-A, AP35-A, AP50-A, APB-A, SEG AUTO_{ADAPT}, DP/EF AUTO_{ADAPT}, DP/SL AUTO_{ADAPT}, SE/SL AUTO_{ADAPT}

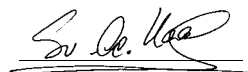
Pump controller: CU, DC/DCD, LC/LCD

Level controller: Air bells, float switches, electrodes, pressure transducer.

Accessories: Ventilation package, vacuum breaker, pressure gauge, sleeves, chains.

This EC declaration of conformity is only valid when published as part of the Grundfos installation and operating instructions (publication number 96235218).

Bjerringbro, 29th June 2016



Svend Aage Kaas
Director of product engineering, Western Europe
Grundfos Holding A/S
Poul Due Jensens Vej 7
8850 Bjerringbro, Denmark

Person authorised to compile the technical file and empowered to sign the EC declaration of conformity.

Declaration of performance

GB:

**EC declaration of performance in accordance with Annex III
of Regulation (EU) No 305/2011
(Construction Product Regulation)**

1. Unique identification code of the product type:
– EN 12050-1 or EN 12050-2.
2. Type, batch or serial number or any other element allowing identification of the construction product as required pursuant to Article 11(4):
– Pumping stations marked with EN 12050-1 or EN 12050-2 on the nameplate.
3. Intended use or uses of the construction product, in accordance with the applicable harmonised technical specification, as foreseen by the manufacturer:
– Pumping stations for pumping of wastewater containing faecal matter marked with EN 12050-1 on the nameplate.
– Pumping stations for pumping of faecal-free wastewater marked with EN 12050-2 on the nameplate.
4. Name, registered trade name or registered trade mark and contact address of the manufacturer as required pursuant to Article 11(5):
– Grundfos Holding A/S
Poul Due Jensens Vej 7
8850 Bjerringbro
Denmark.
5. NOT RELEVANT.
6. System or systems of assessment and verification of constancy of performance of the construction product as set out in Annex V:
– System 3.
7. In case of the declaration of performance concerning a construction product covered by a harmonised standard:
– TÜV Rheinland LGA Products GmbH, identification number: 0197.
Performed test according to EN 12050-1 or EN 12050-2 under system 3.
(description of the third party tasks as set out in Annex V)
– Certificate number: LGA-Certificate No 7310150. Type-tested and monitored. LGA test report No. 7313401-01a.
8. NOT RELEVANT.
9. Declared performance:
The products covered by this declaration of performance are in compliance with the essential characteristics and the performance requirements as described in the following:
– Standards used: EN 12050-1:2001 or EN 12050-2:2000.
10. The performance of the product identified in points 1 and 2 is in conformity with the declared performance in point 9.

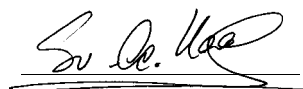
CN:

**EU产品性能声明，根据欧盟第305/2011号法规
(建筑用产品法规) 附录三的要求提供**

1. 产品类型的唯一识别码:
– EN 12050-1 或 EN 12050-2。
2. 按照第 11 (4) 条规定应提供的产品类型、批次、序列号或其它可用于识别建筑产品的标识:
– 铭牌上有 "EN 12050-1" 或 "EN 12050-2" 字样的 PUST 泵站。
3. 制造商预见的建筑产品用途 (与适用的统一技术指标相一致):
– 铭牌上有 "EN 12050-1" 字样的、用于抽取含渣废水的泵站。
– 铭牌上有 "EN 12050-2" 字样的、用于抽取无渣废水的泵站。
4. 按照第 11 (5) 条规定应提供的制造商名称、注册商户名称或注册商标以及地址等信息。
– Grundfos Holding A/S
Poul Due Jensens Vej 7
8850 Bjerringbro
丹麦
5. 不适用
6. 按照附录五规定应提供的建筑产品性能一致性评估和验证系统:
– 系统 3。
7. 如果产品性能声明中涉及的某个建筑产品属于某个协调标准的管辖范围:
– TÜV Rheinland 的 LGA 产品 GmbH, 识别号码: 0197.
根据 EN 12050-1 或 EN 12050-2 的规定在系统 3 的环境中进行了性能测试
(根据附录五的规定提供了第三方在测试中的任务)
– 证书号码: LGA 证书号: 7310150。已通过测试和监控。LGA 测试报告号 7313401-01a
8. 不适用
9. 声明的性能:
本产品性能声明中所涉及的产品符合以下标准所规定的主要特性和性能指标:
– 所用标准: EN 12050-1:2001 或 EN 12050-2:2000。
10. 第 1 点和第 2 点中所认定的产品达到第 9 点中所声明的性能。

EU declaration of performance reference number: 96235218.

Bjerringbro, 15th May 2013



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