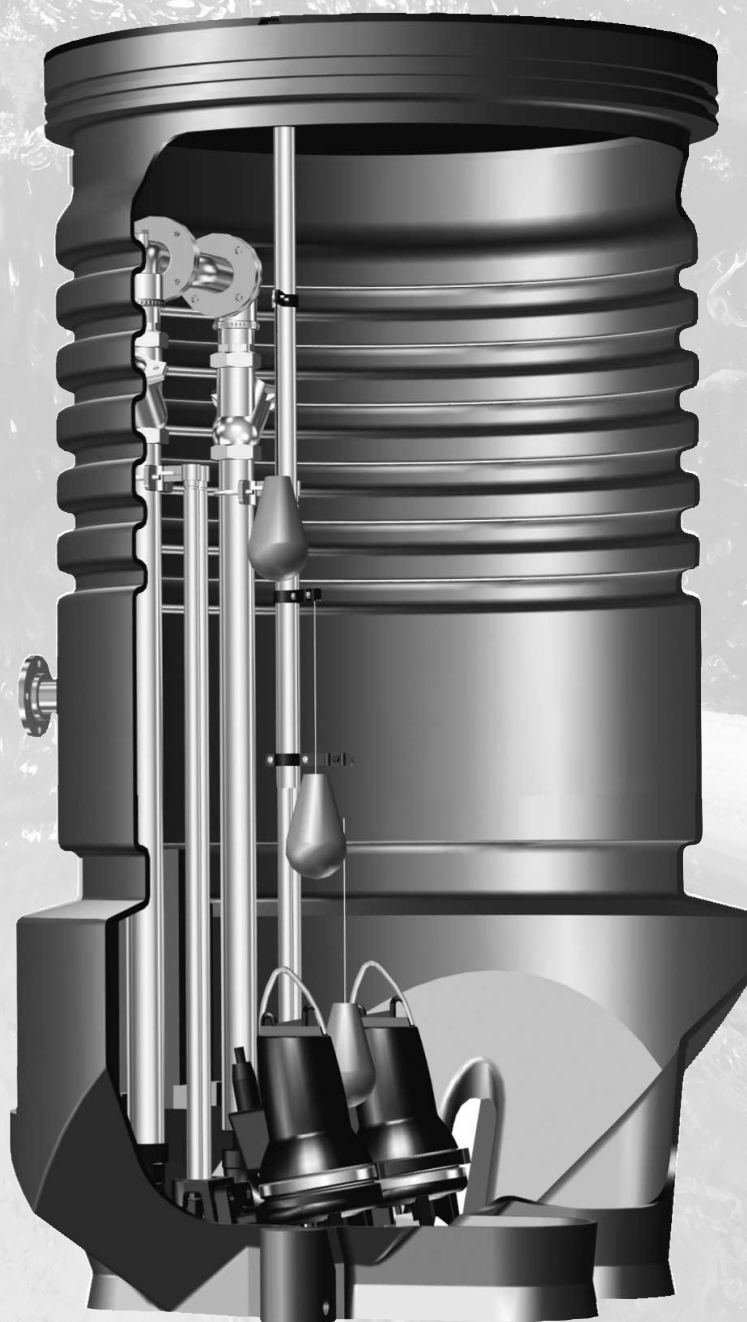


Pumping station systems

PS.R.05-17



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1. Introduction

Grundfos prefabricated pumping stations are designed for collection and pumping of drainage water, rainwater or wastewater.

The pump pit is made of polyethylene (PE-HD) and comes with outlet pipe and valves fitted. The pump(s) may be supplied separately.

The pipes are made of polyethylene (PE) or stainless steel (AISI 304 or AISI 316).

Unless another cover solution is selected, D500 to D1200 pits are supplied with a polyethylene cover (PE-HD), locked with a special M10 bolt. The D1700 pit has an aluminium cover, locked with a padlock. As an option, the D1700 pit can be modified with a reduced top to use the D1200 PE cover.

The pump type depends on the type of the pumped liquid and the output power is limited to 7.5 kW.

The drainage water, rainwater or wastewater is led into the pit. When the liquid in the pit reaches the start level, the pump(s) starts and pumps the liquid further in the system to a sewage treatment plant or sewer.

Features and benefits

Corrosion-free materials

Grundfos pumping stations are made of corrosion-free materials.

Modular flexibility

The prefabricated pumping stations consist of four main elements:

- one or two pumps
- a pit
- pipes and valves
- controllers to ensure operational efficiency and safety.

Available sizes

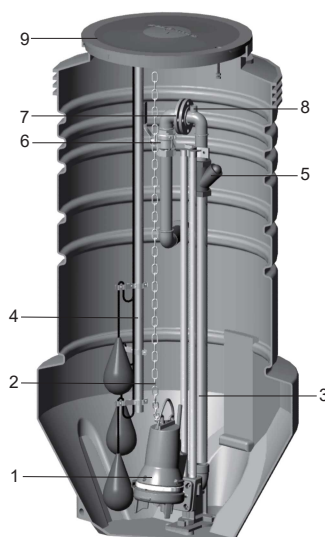
The pits are available various sizes, comprising five standard diameters and up to four standard depths. The standard range is regularly updated with more variants. For the latest updates, see www.grundfos.com.

Installation- and service-friendly design

The pit has an extended sump to secure it against uplift when installed in areas with high groundwater level (DS/EN 1997-1 DK NA:2015, safety against uplift). The extended cone-shaped sump also improves the self-cleaning effect and limits sludge and odour problems. All components in the pumping station can be reached from the top. In pit sizes below D1200, the auto coupling is secured in the bottom position without the use of screws. It is possible to remove the coupling together with the pipework without entering the pit.

Component overview

The components of the pumping station are selected according to Grundfos' principles of high reliability, long life and great consideration for the environment during production, operation and disposal.



TM044617

Example of a pumping station

Pos.	Description
1	Pump
2	Lifting chain
3	Guide rails
4	Level control system
5	Non-return valve
6	Isolating valve
7	Flange connection
8	Connection, 1/2" internal thread
9	Cover

Grundfos offers a number of standard pits. Use the Grundfos Pumping Station Creator to size and configure a pumping station based on your specific needs. See section on Selection tool or follow the link below.

Grundfos Pumping Station Creator



<https://app.grundfos.com/pust/frontpage>

Related information

[Selection tool](#)

Pumped liquids

The pumping stations are designed to collect and pump the following liquids:

- drainage water
- rainwater (surface water)
- wastewater.

Liquid temperature

The liquid temperature that can be handled depends on the selected pump. See the installation and operating instructions of the pump.

In general, the maximum liquid temperature is 40 °C. For higher temperatures, contact Grundfos.

For certain pump types, 60 °C are permissible for short periods. At 60 °C, the pit material begins to soften.

Acids and alkalis

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

The pumps supplied with the pumping station are resistant to pH values between 4 and 10. For further information, contact Grundfos.

Viscosity

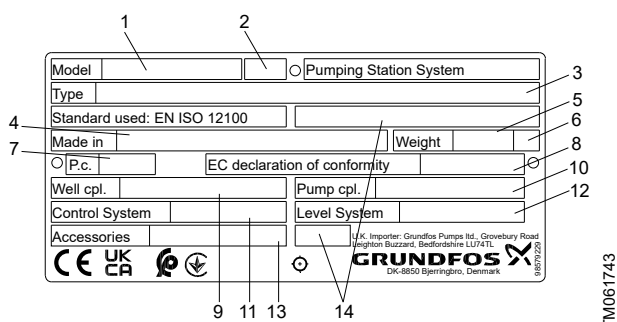
Thick wastewater must not be led into the pit. See also the installation and operating instructions of the pump.

Density

Maximum 1100 kg/m³.

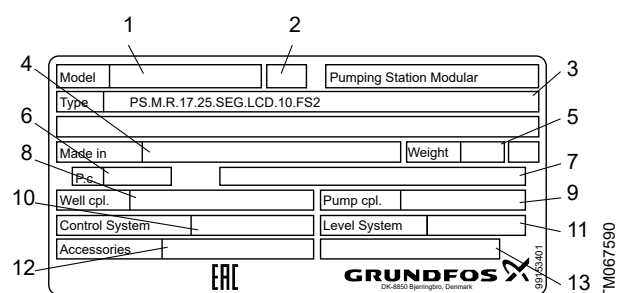
2. Identification

Nameplate, PS.S and PS.M



TM061743

Nameplate, PS.S



TM067590

Nameplate, PS.M

Pos.	Description
1	Product number
2	Production site
3	Type designation
4	Country of origin
5	Weight
6	Production code (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

Type key, PS.S and PS.M

Example: PS.S.R.17.25.SEG.LCD110.FS2

Code	Explanation	Designation
PS	Grundfos pumping station	
S	CE-marked system	
M	Modular system ¹⁾	System type
R	Rotation-moulded PE	Pit type and material
05	500 mm	
08	800 mm	XX × 100 = Pit sump diameter [mm]
10	1000 mm	Example:
12	1200 mm	08 × 100 = 800 mm
17	1700 mm	

Code	Explanation	Designation
25	2500 mm	XX × 100 = Pit depth [mm] Example: 25 × 100 = 2500 mm
CC	Unilift CC	
KP	Unilift KP	
AP12	Unilift AP12.50	
AP35	Unilift AP35, Unilift AP12.40	
AP50	Unilift AP50	
APB	Unilift AP35B, Unilift AP50B	
APG	Unilift APG	Pump type
SEG	SEG	
DP/EF	DP (0.6 - 1.5 kW), EF	
DP/SL	DP (2.6 kW), SL1.50.65 and SLV.65.65	
DPK	DPK, DPK.V	
SE/SL	SE/SL (max. 7.5 kW)	
X	No Grundfos controller	
BIP	Built into the pump	
CU	Control unit	
LC107		
LC108		
LC110		
LC115	Level controller	
LC231S		
LC241S		
LC231D		Pump controller
LC241D		
LCD107		
LCD108	Level controller - two pumps	
LCD110		
LCD115		
DC318	Dedicated Controls	
DC319		
DCD318	Dedicated Controls - two pumps	
DCD319		
BIP	Built into the pump	
AB2	Two air bells	
AB3	Three air bells	
FS2	Two float switches	
FS3	Three float switches	
FS4	Four float switches	
FS5	Five float switches	
EL3	Three electrodes	Level controller
EL4	Four electrodes	
EL5	Five electrodes	
PT	Pressure transducer	
PF1	Pressure transducer and one float switch	
PF2	Pressure transducer and two float switches	

1) Without CE approval.

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

1 3 2 6

Model	P10		
Type			
Standards used: EN 12050-1 or EN 12050-2			
Made in		Weight	kg
P.c.	1325	EU declaration of performance	

7 4 9 8 5

TM063836

Pos.	Description
1	Product number
2	Production site
3	Product name
4	Country of origin
5	Net weight
6	Weight unit
7	Production code (YYWW)
8	Publication number of the installation and operating instructions
9	Not filled in

Type key, PS.R

Example: PS.R.17.25.D.GC.304.50.A50.SEG

Code	Explanation	Designation
PS	Pumping station	
R	Rotation-moulded pit	
05	500	
08	800	XX × 100 = Pit sump diameter [mm]
10	1000	Example:
12	1200	08 × 100 = 800 mm
17	1700	
25	2500	XX × 100 = Pit depth [mm] Example: 25 × 100 = 2500 mm
S	One pump	Number of pumps
D	Two pumps	
DC	Direct outlet, common	Pipe design
GC	Goose neck, common	
VC	Valve chamber	
304.40	DN 40 (1 1/2")	Pipe material and pipe diameter
304.50	DN 50 (2")	
304.65	DN 65 (2 1/2")	
304.80	DN 80 (3")	
304.100	DN 100 (4")	Stainless steel EN 1.4301 / AISI 304
316.40	DN 40 (1 1/2")	
316.50	DN 50 (2")	
316.65	DN 65 (2 1/2")	
316.80	DN 80 (3")	Stainless steel EN 1.4401 / AISI 316
316.100	DN 100 (4")	

Code	Explanation	Designation
PE.40	D40 mm (1 1/4")	Pipe material and pipe diameter
PE.50	D50 mm (1 1/2")	
PE.63 ²⁾	D63 mm (2")	
PE.75	D75 mm (2 1/2")	
PE.90	D90 mm (3")	
PE.110	D110 mm (4")	Installation type
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	
S	Free-standing pump	Installation type Free-standing pump
H40	DN 40 pump connection	Installation type Hookup auto coupling
KP	Unilift KP, Unilift CC	Pump type
AP35	Unilift AP12.40, Unilift AP35	
AP50	Unilift AP12.50, Unilift AP50	
APB	Unilift AP35B, Unilift AP50B	
APG	Unilift APG	
SEG	SEG	
DP/EF	DP (0.6 - 1.5 kW) / EF	
DP/SL	DP (2.6 kW), SL1.50.65 and SLV.65.65	
DPK	DPK, DPK.V	
SE/SL	SE/SL (max. 7.5 kW)	

2) Maximum 3 m pit depth.

3. Selection of products

When ordering a Grundfos pumping station, take the following six aspects into consideration:

1. pump
2. installation type of the pump
3. diameter and depth of pit
4. level control system
5. pump controller
6. accessories.

1. Pump

See the data booklet of the selected pump in the Grundfos Product Center at www.grundfos.com. For further information, see section on Grundfos Product Center.

2. Installation type of the pump

See section on Type key, PS.R.

The pump(s) can be installed in three ways:

- on a standard auto-coupling system on the bottom of the pit
- on a hookup auto-coupling system at the top of the pit
- free-standing.

3. Diameter and depth of pit

The pump pit is available in various sizes. See section on Dimensions and weights for dimensions and for calculation of needed volume.

Depth [mm]	D500	D800	D1000, one pump	D1000, two pumps	D1200, one pump	D1200, two pumps
1000		•				
1500		•	•			
2000	•	•	•	•	•	•
2500		•	•	•	•	•
3000		•	•		•	•

Depth [mm]	D1700, two pumps		
	Pipe, SS	Pipe, PE	
	DN 50-DN 100	D63 mm	D75-D110 mm
2000	•	•	•
2500	•	•	•
2840	•	•	•
3000	•	•	•
3170	•		•
3340	•		•
3500	•		•
3670	•		•
3840	•		•
4000	•		•
4170	•		•
4340	•		•
4500	•		•
4670	•		•
4840	•		•
5000	•		•

Depth [mm]	D1700, two pumps		
	Pipe, SS	Pipe, PE	
	DN 50-DN 100	D63 mm	D75-D110 mm
5170	•		•
5340	•		•
5500	•		•
5670	•		•
5840	•		•
6000	•		•

4. Level control system

See section on Pump controllers or the Grundfos Product Center.

5. Pump controller

See section on Pump controllers or the Grundfos Product Center.

6. Accessories

Depending on the installation type, accessories may be required. To select the correct accessories, see section on Accessories.

Related information

[Type key, PS.R](#)

[5. Pump controllers](#)

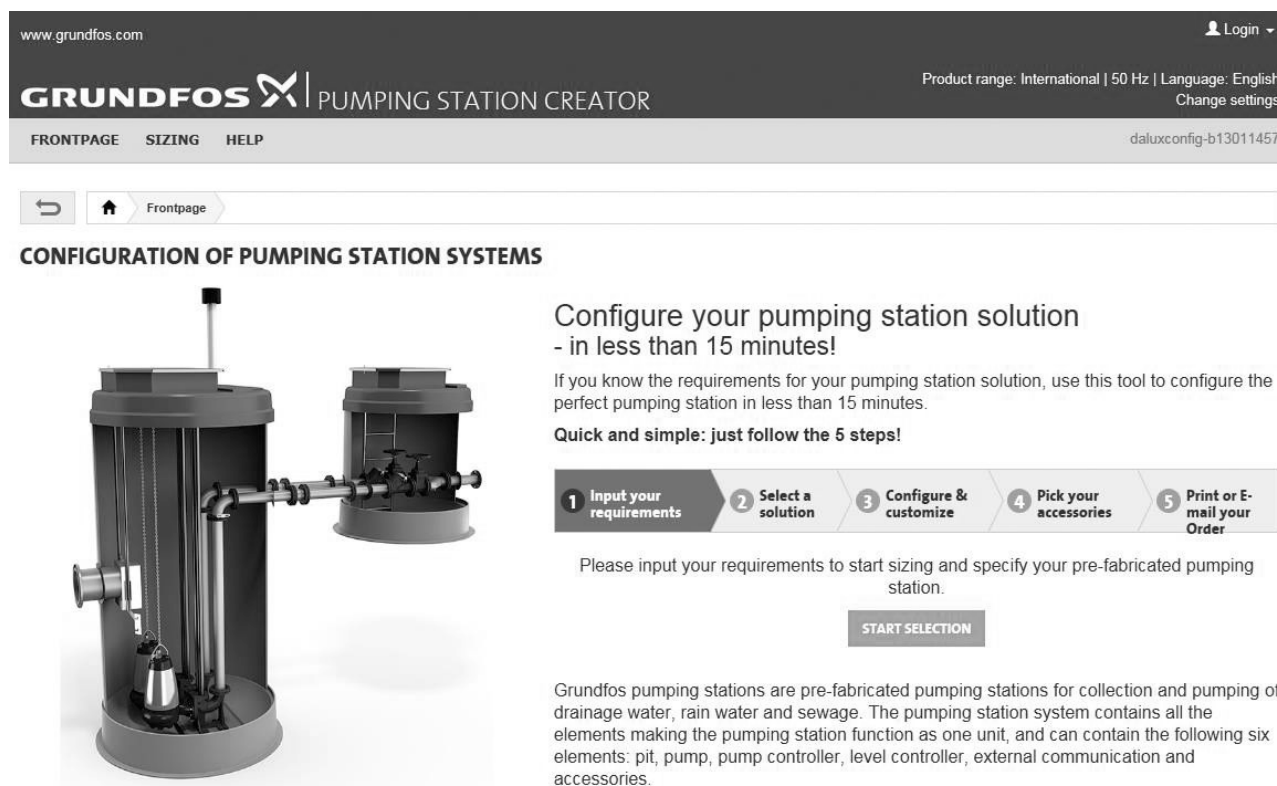
[6. Accessories](#)

[Dimensions and weights](#)

[9. Grundfos Product Center](#)

Selection tool

You can find the selection tool PUMPING STATION CREATOR in Grundfos Product Center at www.grundfos.com or follow the link in the QR code below.



www.grundfos.com Login

GRUNDFOS | PUMPING STATION CREATOR

Product range: International | 50 Hz | Language: English
Change settings

FRONTPAGE SIZING HELP daluxconfig-b13011457

Frontpage

CONFIGURATION OF PUMPING STATION SYSTEMS

Configure your pumping station solution
- in less than 15 minutes!

If you know the requirements for your pumping station solution, use this tool to configure the perfect pumping station in less than 15 minutes.

Quick and simple: just follow the 5 steps!

- 1 Input your requirements
- 2 Select a solution
- 3 Configure & customize
- 4 Pick your accessories
- 5 Print or E-mail your Order

Please input your requirements to start sizing and specify your pre-fabricated pumping station.

START SELECTION

Grundfos pumping stations are pre-fabricated pumping stations for collection and pumping of drainage water, rain water and sewage. The pumping station system contains all the elements making the pumping station function as one unit, and can contain the following six elements: pit, pump, pump controller, level controller, external communication and accessories.

TM063497

Selection tool in Grundfos Product Center

1. Input (enter) your requirements

Here you enter information about flow rate, head, number of pumps and operating mode. This will ensure that we offer the right pump for the task. Please also enter information about the depth of the lowest inlet to the pumping station to get some good suggestions for solutions. The selection tool offers a list of pumps from which you can select the pump that best fits your requirements.

2. Select a solution

Here a number of possible solutions are presented, and you can select the one that fits your requirements.

3. Configure & customize

Here you can make the detailed configuration of the selected solution. Drawings of the selected solution are presented.

4. Pick your accessories

Here you can select accessories for your customised solution.

5. Print or e-mail your order

Here the final solution is presented as a CAD drawing that can be downloaded. Specification reports for the customised solution can be generated, printed and sent to Grundfos. This is the information Grundfos needs to give you a quotation and lead time for delivery.



<https://app.grundfos.com/pust/frontpage>

Pipe variants

Pipe design		Stainless steel (EN 1.4301/AISI 304 or EN 1.4401/AISI 316)					Polyethylene (PE)					
		DN 40	DN 50	DN 65	DN 80	DN 100	D40	D50	D63	D75	D90	D110
GC	Goose neck ³⁾	•	•	•			•	•	•			
GC	Goose neck, common ⁴⁾		•	•	•	•			•	•	•	•
DC	Direct outlet, common		•	•	•	•			•	•	•	•
VC	Valve chamber								•	•	•	•

³⁾ For one pump installations.

⁴⁾ For two pump installations.

Examples of pipe design



DC, pipe system with direct, common outlet



TM053322

TM053319

GC, pipe system with goose neck and common outlet



TM068826

DC, pipe system on hookup auto coupling (stainless steel, DN 40) with direct, common outlet



TM062674

VC, valve chamber (no valves inside the pumping station)



GC, pipe systems with goose neck, PE D63, stainless steel DN 50, and common outlet

TM062675



TM062676

GC, pipe systems with goose neck, PE D63, stainless steel DN 50, and common outlet



TM084442

GC, pipe system with auto coupling and goose neck, stainless steel DN40, PE D50 outlet

Pumping station variants

If the required pumping station is not in the standard range, contact Grundfos. There are other ranges of prefabricated pumping stations, but they vary regionally. For large prefabricated pumping stations, see the Grundfos Product Center, or contact your local Grundfos company for information about range and designs available in your region. A huge range of large prefabricated pumping stations is offered to fit customer requests. This range covers versions up to 3 metres in diameter and 12 metres in depth in both glass-fibre-reinforced polyester, polyethylene and polypropylene.

CE mark

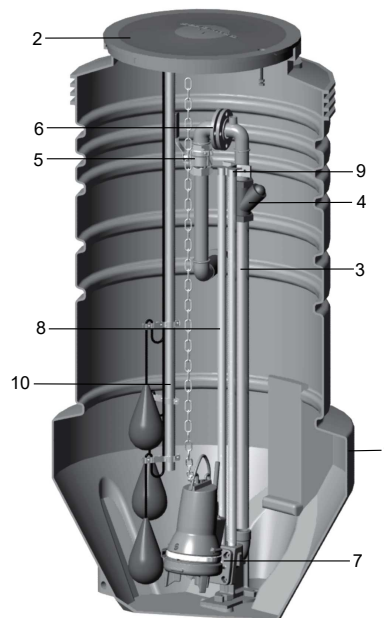
Grundfos pumping stations are CE-marked. Depending on selected the pump and controller, they are marked according to one or several of the following directives:

- EMC Directive
- Low Voltage Directive
- ATEX Directive
- Machinery Directive.

The declaration of conformity and declaration of performance can be seen in the installation and operating instructions of the products.

4. Construction

Pumping station



TM078712

Grundfos pumping station

Components and material specification

Pos.	Component	Material	D500-D1200	D1700	DIN W.-No./ EN standard	AISI/ASTM
1	Pit	PE HD ⁵⁾	•	•		
2	Cover	PE HD	•	• ⁶⁾		
		Aluminium	-	•		
		Stainless steel	-	• ⁶⁾	1.4301 / 1.4401	304 / 316
		Aluminium	-	•		
3	Pipes	Stainless steel	•	•	1.4301 / 1.4401	304 / 316
		PE	•	•		
4	Non-return ball valve	NBR rubber and stainless steel	•	-	1.4301 / 1.4401	304 / 316
		Stainless steel	•	•	1.4401	316
		Epoxy-coated cast iron	-	•	GJS-400-15 / GGG-40	
5	Isolating ball valve	PP ⁷⁾	•	•		
		Stainless steel	•	•	1.4301 / 1.4401	304 / 316
	Isolating valve	Epoxy-coated cast iron	-	•	GJS-500-7 / GGG-50	
6	Pipe connection	PP, quick coupling	•	•		
		Stainless steel, quick coupling	•	-	1.4301 / 1.4401	304 / 316
		PE, flanged	-	•		
		Stainless steel, flanged	•	•	1.4301 / 1.4401	304 / 316

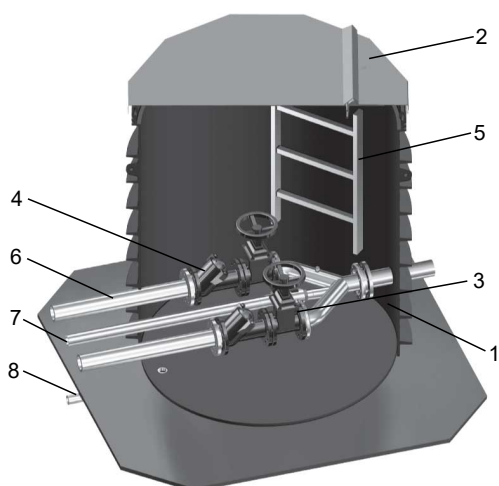
Pos.	Component	Material	D500-D1200	D1700	DIN W.-No./ EN standard	AISI/ASTM
7	Auto coupling	Cast iron (EN-GJL-250/EN-JL 1040)	•	•		
		Stainless steel	•	-	1.4301 / 1.4401	304 / 316
8	Guide rails	Stainless steel	•	•	1.4301 / 1.4401	304 / 316
9	Guide rail brackets	Stainless steel	•	•	1.4301 / 1.4401	304 / 316
10	Brackets for level sensors	Stainless steel	•	•	1.4301 / 1.4401	304 / 316
	Screws	Stainless steel	•	•	1.4301 / 1.4401	304 / 316

5) PE HD: Polyethylene, high density.

6) Only available with reduced top.

7) PP: Polypropylene.

Valve chamber



TM064265

Valve chamber

Components and material specification

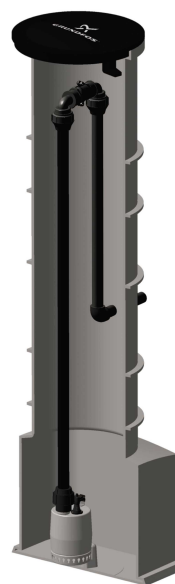
The valve chamber always includes a drainage pipe leading to the pumping station.

Pos.	Component	Material	DIN W.- No./EN standard	AISI/ASTM
1	Valve chamber	PE HD ⁸⁾	-	-
2	Cover	Aluminium or PE HD ⁹⁾	-	-
3	Isolating valve	Epoxy-coated cast iron	GJS-500-7 / GGG-50	-
4	Non-return valve	Epoxy-coated cast iron	GJS-400-15 / GGG-40	-
5	Ladders	Aluminium	-	-
6	Pipes	Stainless steel	1.4301 / 1.4401	304 / 316
		PE	-	-
7	Return pipe	Stainless steel	-	-
		PE	-	-
8	Drainage pipe	PE	-	-

⁸⁾ PE HD: Polyethylene, high density.

⁹⁾ Only available with reduced top.

Pumping station variants



TM062667

Pit with free-standing pump with goose neck outlet



TM029363

Pit with pump on auto coupling with goose neck outlet

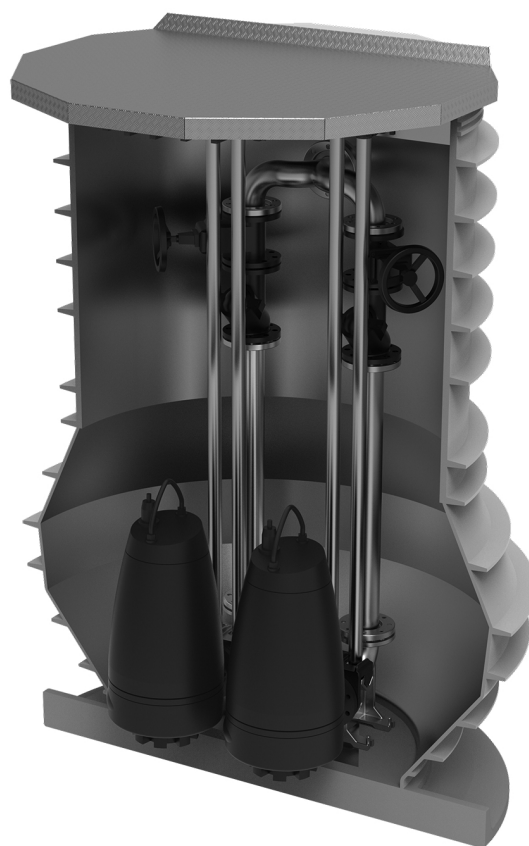


TM068856

D1000 pit with two pumps on hookup auto coupling

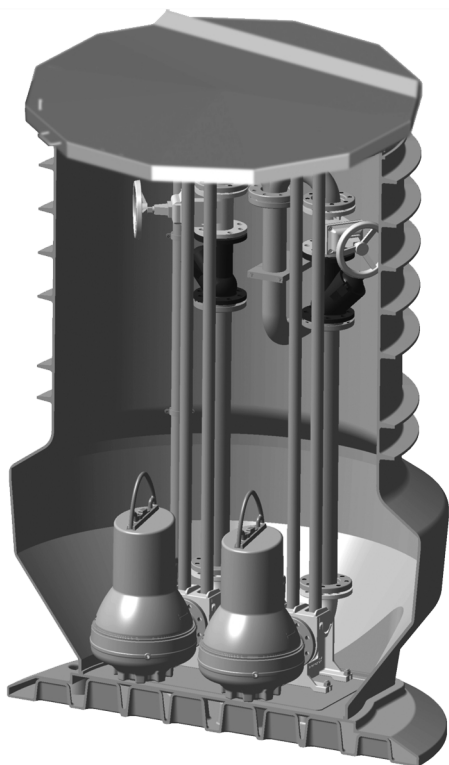


Hookup auto coupling is also available for single-pump installation in pits of D1000.



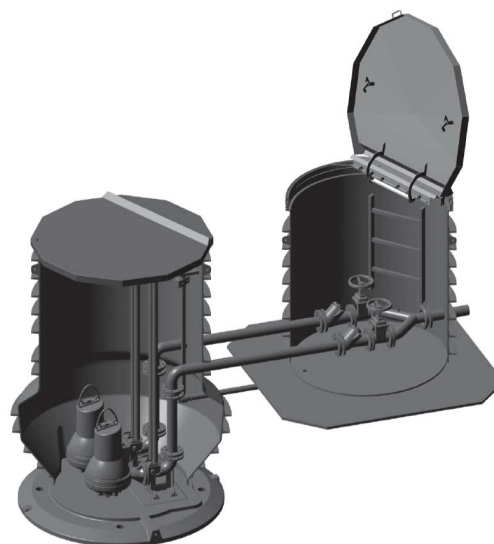
TM084335

Pit with two pumps and direct outlet



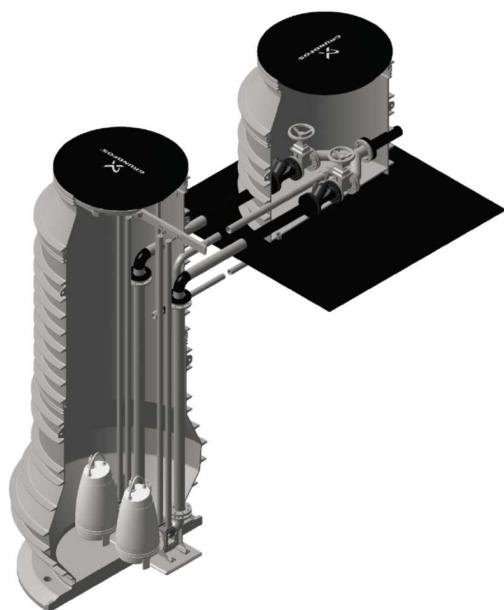
TM058451

Pit with two pumps and goose neck outlet



TM061709

D1700 pit with two pumps on auto coupling and D1700 valve chamber



D1700 pit with reduced top (suitable for PE cover of D1200).

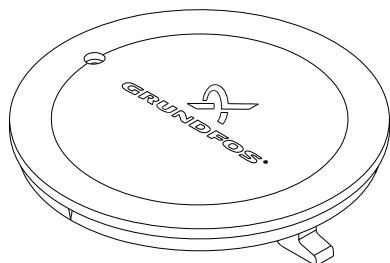
Covers

All pumping stations are equipped with a cover that can be locked. Pits with D1700 cover have a safety grid.

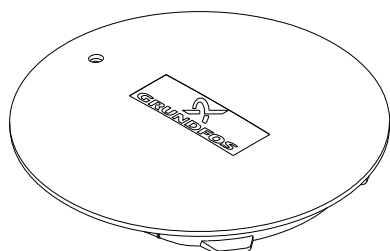
Standard covers

Standard covers for pits D500-D1200 are made of PE and load tested according to EN124, class A15.

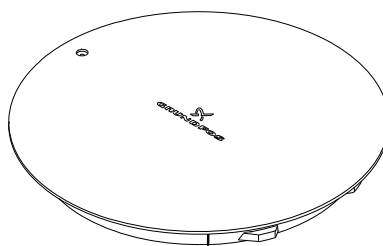
The covers can be locked with a special stainless steel A2 bolt.



D500 cover



D800, D1000 cover



D1200 and D1700 with reduced cover

The standard cover for D1700 is made of aluminium and load tested according to EN124, class A15. The cover is equipped with a safety grid and can be locked with a padlock.



D1700 cover with safety grid

TM062657

TM068851

TM053321

TM062655

TM062656

Covers approved for traffic

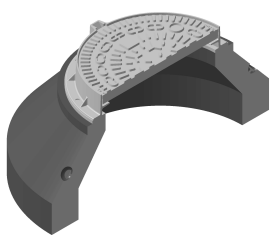
The traffic covers come in three versions as shown below. The covers are load approved according to EN 124, class D400.

Pit diameter	Cover type		
	Fixed	Adjustable	Flush
D800	•	•	
D1000	•	•	
D1200	•	•	
D1700RT ¹⁰⁾	•	•	
D1700		•	•

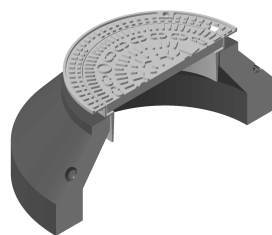
¹⁰⁾ RT = Reduced top.

The fixed cover has a concrete cone or ring and a cast iron hatch.

Traffic covers for D800 - D1000 pits



TM068867

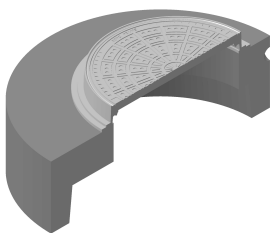


TM068866

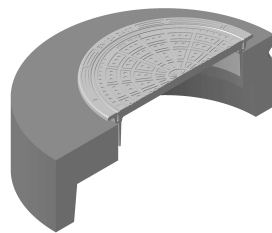
Fixed

Adjustable

Traffic cover for D1200 and 1700RT pits



TM068865



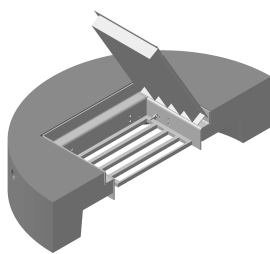
TM068864

Fixed

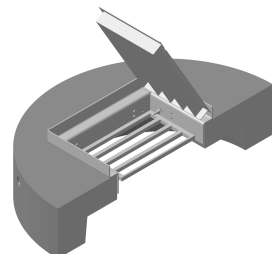
Adjustable

D1700 pits have a concrete ring and an adjustable or fixed flush cover. They are equipped with a galvanised steel hatch and a safety grid.

Traffic covers for D1700 pits



TM068860



TM068861

Flush

Adjustable

Baffle plate

The baffle plate slows the incoming flow of liquid and prevents splattering inside the pit.

The baffle plate is available for D1700 pits for all pipe sizes.



TM068853

Baffle plate

Screen basket

The screen basket holds back solid materials, such as stones and branches in the incoming flow of liquid.

The screen basket is available for D1700 pits as standard for all pipe sizes.



TM068852

Screen basket

5. Pump controllers

IO 113

IO 113 is a protection module for Grundfos wastewater pumps.

The module has inputs for digital and analog sensors and can stop the pump if a sensor indicates a pump fault.

The module is connected to the Dedicated Controls system and allows advanced monitoring functions, such as:

- motor temperature
- moisture in the motor
- water in oil or water in air
- insulation resistance.

SM 113

SM 113 is used for collection and transfer of sensor data.

The module works together with IO 113 through power line communication using the Grundfos GENibus protocol.

The module can collect data from these devices:

- 3 current sensors, 4-20 mA
- 3 Pt1000 thermal sensors
- 1 thermistor circuit (3 sensors in series)
- 1 digital input.

Level controllers

Grundfos offers dedicated pump controllers for monitoring liquid levels in the wastewater collecting tanks to ensure correct operation and protection of the pumps.

Grundfos pump controllers that are ideal to be connected to Grundfos wastewater pumps include:

- Grundfos Dedicated Controls (DC)
- Grundfos LC controllers.

Grundfos DC Controllers



Grundfos Dedicated Controls control cabinet

Grundfos Dedicated Controls (DC) is a control system designed for installation in municipal wastewater transport, commercial buildings or network pumping stations with up to six wastewater pumps and an optional mixer or a flush valve.

Advanced control and data communication are also possible with the Grundfos Dedicated Controls system. The control cabinets are delivered with a built-in main switch and thermal magnetic circuit breaker.

Features and benefits:

- advanced flow calculation
- automatic energy optimisation
- easy installation and configuration
- configuration wizard
- electrical overview
- advanced data communication
- advanced alarm and warning priority
- supports several languages
- daily emptying
- mixer control or flush valve
- user-defined functions
- anti-blocking
- start level variation
- advanced pump alternation with pump groups
- SMS scheduling
- communication to SCADA, BMS, GRM or cell phone.

Dedicated Controls is ordered either with or without a built-in communication interface module (CIM).

The communication module enables the possibility for fieldbus protocol (e.g. PROFIBUS DP, Modbus RTU and PROFINET IO/Modbus TCP) and the communication line.

For further information, see the Grundfos Product Center:

- Grundfos Dedicated Controls, brochure <http://net.grundfos.com/qr/i/96925597>
- Grundfos iSolutions, brochure <http://net.grundfos.com/qr/i/99249771>
- Grundfos Controls Guide, product guide <http://net.grundfos.com/qr/i/97954965>

Additional features, CUE or VFD

The CUE/VFD (optional), which is either a Grundfos variable frequency drive or a general variable frequency drive, offers better pump protection and a steadier flow through the pipe system.

Features and benefits:

- anti-blocking
- automatic energy optimisation
- specific-energy test
- output frequency
- monitoring of:
 - voltage ¹¹⁾
 - current ¹¹⁾
 - phase sequence ¹¹⁾
 - power ¹¹⁾
 - energy ¹¹⁾
 - torque ¹¹⁾
- reverse start ¹²⁾
- run flushing
- stop flushing
- PID control.

¹¹⁾ These functions are only available with a Grundfos CUE.

¹²⁾ Do not reverse at full speed at any time. When reduced reverse operation settings are set, make sure that constant torque is enabled in Variable Frequency Drive (VFD) (i.e. Grundfos CUE, Siemens Simatic, ABB, Schneider Electric or similar brands) to have maximum torque available when reversing.

LC range

Grundfos LC level controllers are available in two variants:

- LC 231: a compact solution complete with certified motor protection
- LC 241: a cabinet solution offering modularity and customization.

Designed for installations with one or two pumps, the Grundfos LC level controller is ideal for emptying and filling related to small wastewater transport, commercial buildings and tank-filling applications.

The controller can support up to five control levels for both analogue level transmitter or float switch operation.

If the tank or pit is completely filled, the controller runs all pumps for emptying applications.

The controller is equipped with Grundfos configurable input/output terminals, giving full flexibility for all applications. Daily control, supervision and commissioning is straightforward with the intuitive and easy-to-use user interface. This saves you valuable time when getting started, and in your daily interaction with pumps and the controller. The controller integrates seamlessly into the Grundfos range of communication modules, ensuring an easy fit into any supervisory system such as SCADA or Grundfos CLOUD Solution.



LC 231 Compact solution



LC 241 Cabinet solution

CU 100

The CU 100 control box is designed for the starting, operation and protection of small wastewater pumps. The control box is available in several variants which can be used for the following pumps:

- single-phase pumps (up to and including 9 A)
- three-phase pumps (up to and including 5 A).

The control box is also suitable for the following functions:

- start/stop by a float switch
- manual start/stop.

During manual operation, the pump is started and stopped by the on/off switch.

During automatic operation, the float switch starts and stops the pump.

For further information, see the installation and operating instructions of CU 100 in the Grundfos Product Center at www.grundfos.com.



CU 100

GR-1031087

GR-1031129

TM026459

CUE

Grundfos CUE is a complete range of external frequency converters designed for speed control of a wide range of Grundfos pumps.



GR-1015227-BLACK

CUE

CUE has a built-in PI controller and offers the same functionality and user-interface as Grundfos S-pumps. CUE solutions can thus be seen as an extension to the S-pump range.

CUE offers the following benefits:

- speed control of pumps up to 250 kW (also pumps installed in potentially explosive environments)
- 2 alarm outputs (C, NO, NC)
- 1 sensor (4-20 mA)
- 2 Pt100 or Pt1000 sensors.

AUTOADAPT pumps

Grundfos Communication Interface Unit (CIU)

The Grundfos Communication Interface Unit (CIU) is used as a communication interface between a Grundfos product and a main network. The CIU is used as an interface for the following functions:

- configuration of pump parameters required for water level control
- online monitoring of pit and pump values
- manual water level control (forced start/stop)
- obtaining of measured and logged data that are valuable for pump service and pit optimisation.

The CIU is designed for use together with Grundfos AUTOADAPT pumps. Communication can be established with Grundfos GO or by using the main network interface of the CIU.

Available CIUs:

- CIU 152 PROFIBUS DP
- CIU 902 (without CIM)
- CIU 202 Modbus
- CIU 252 GSM, GPRS
- CIU 272 GRM (Grundfos Remote Management).

The CIU incorporates one or two modules:

- multipurpose I/O module with I/O functionality, IR communication interface and power line communication
- Communication Interface Module (CIM) (optional).

For further information, see the installation and operating instructions of the CIM.

If a CIM is fitted in the CIU, the sensors connected to the digital input of the I/O module can be remotely monitored from a centrally located SCADA system.

Grundfos GO

Grundfos GO is designed for wireless IR communication with Grundfos products. Grundfos GO can communicate with the AUTOADAPT pumps via a CIU.

Grundfos GO is regarded as an ordinary service and measuring tool so it is designed to withstand wear and stress from everyday use.

ADC

The ADC fuse box is designed for the protection of the power supply for small wastewater pumps.



GR-1016011

ADC

The fuse box enables communication with the following devices:

- Grundfos Remote Management, GRM
- Grundfos GO
- SCADA.

The fuse box can be used with the following systems and devices:

- one-pump installation with or without CIU ¹³⁾
- two-pump installation with or without CIU ¹³⁾
- Available CIUs:
 - CIU 202 Modbus RTU ¹⁴⁾
 - CIU 272 GRM ¹⁴⁾
 - CIU 902 ¹⁴⁾
 - CIU 252 GSM complete ¹⁴⁾
- optional service socket 230 V ¹⁵⁾/50 Hz ¹⁴⁾
- optional socket for PC Tool link box ¹⁴⁾
- optional fault indicator light mounted on top ¹⁴⁾
- optional audio alarm, 100 dB. ¹⁴⁾

¹³⁾ With CIU, a CIM is needed.

¹⁴⁾ Must be ordered with the control box.

¹⁵⁾ The modules come as two parts and must be assembled.

For further information, see the installation and operating instructions of ADC in the Grundfos Product Center at www.grundfos.com.

Name	DC	DCD	LC	CU 100	AUTOADAPT	CIU
Application						
One pump	•		•	•	•	•
Two pumps		•	•		•	•
Mixer	•	•				
Backup battery	•	•				
Level sensor						
Float switches	•	•	•	•		• ¹⁶⁾
Electrodes			•			• ¹⁶⁾
Air bells			•			• ¹⁶⁾
Pressure transducer	•	•	•		• ¹⁷⁾	• ¹⁶⁾
Ultrasonic sensor	•	•				• ¹⁶⁾
Analog level sensor with safety float switches	•	•				• ¹⁶⁾
Starting method						
Direct-on-line starting	•	•	•	•	•	•
Star-delta starting	•	•	•			
Soft starter	•	•				
Basic functions						
Start and stop of pump(s)	•	•	•	•	•	•
Pump alternation		•	•		•	•
High-level alarm	•	•	•		•	•
Dry-running alarm	•	•	•		•	•
Flow measurement (calculated or via flow sensor)	•	•				
Pump statistics	•	•			• ¹⁸⁾	•
Conflicting levels alarm	•	•				
Advanced functions						
Start and stop delays	•	•	•		•	•
Motor temperature sensor	•	•	•		• ¹⁸⁾	•
Test run/anti-seizing	•	•	•		•	•
Daily emptying (once a day)	•	•				•
Water-in-oil sensor input	•	•				
Communication						
SMS messaging	• ¹⁹⁾	• ¹⁹⁾	• ²⁰⁾			• ¹⁹⁾
SCADA communication GSM/GPRS	• ¹⁹⁾	• ¹⁹⁾	• ¹⁹⁾			• ²¹⁾
User interface						
Level indication	•	•	•			• ²²⁾
Graphical display	•	•				• ²²⁾
PC Tool WW Controls	•	•			•	

¹⁶⁾ Inputs for external sensors (NO or NC).

¹⁷⁾ Built-in pressure transducer and dry-running sensor.

¹⁸⁾ Built-in, but a Grundfos CIU is required to get access to data or setting of parameters.

¹⁹⁾ If a CIM 252 GSM/GPRS module is fitted.

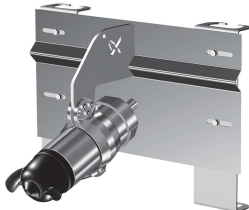
²⁰⁾ If an SMS module is fitted.

²¹⁾ Modbus, GSM, GPRS, SMS and GRM options.

²²⁾ If Grundfos GO is used.

6. Accessories

Pos.	Illustration	Pipe diameter [mm]	Product range	Designation	Product number
1		40	PS.R.05 - 12	Sleeve LM50	96230763
		50	PS.R.05 - 12	Sleeve LM50	96230753
		63	PS.R.05 - 12	Sleeve LM50	96571523
		75	PS.R.05 - 12	Sleeve LM50	96571527
		90	PS.R.05 - 12	Sleeve LM50	96571528
		110	PS.R.05 - 12	Sleeve L60	91716040
		160	PS.R.05 - 12	Sleeve L90	96641838
		200	PS.R.05 - 12	Sleeve L90	91712032
		40	PS.R.17	Sleeve LM50	96230763
		50	PS.R.17	Sleeve LM50	96230753
		63	PS.R.17	Sleeve LM50	96571523
		75	PS.R.17	Sleeve LM50	96571527
		90	PS.R.17	Sleeve LM100	91712029
		110	PS.R.17	Sleeve LM100	91712030
		160	PS.R.17	Sleeve L90	96641838
		200	PS.R.17	Sleeve L90	91712032
			PS.R.05 - 12	Centre drill (L = 50mm)	91712026
		40	PS.R.05 - 12	Hole saw, 51 mm	96571532
		50	PS.R.05 - 12	Hole saw, 60 mm	96571533
		63	PS.R.05 - 12	Hole saw, 75 mm	96571534
2		75	PS.R.05 - 12	Hole saw, 86 mm	96571535
		90	PS.R.05 - 12	Hole saw, 102 mm	96571536
		110	PS.R.05 - 12	Hole saw, 127 mm	91713756
		160	PS.R.05 - 12	Hole saw, 177 mm	91713755
		200	PS.R.05 - 12	Hole saw, 212 mm	91712025
			PS.R.17	Centre drill (L = 97mm)	91712026
		40	PS.R.17	Hole saw, 51 mm	96571532
		50	PS.R.17	Hole saw, 60 mm	96571533
		63	PS.R.17	Hole saw, 75 mm	96571534
		75	PS.R.17	Hole saw, 86 mm	96571535
		90	PS.R.17	Hole saw, 102 mm	96571536
		110	PS.R.17	Hole saw, 127 mm	91713756
		160	PS.R.17	Hole saw, 177 mm	91713755
		200	PS.R.17	Hole saw, 212 mm	91712025

Pos.	Illustration	Pipe diameter [mm]	Designation	Product number
3		Up to DN 65	Insulation jacket for single-pump installation For frost protection, fit the insulation jacket directly over the pipes and valves.	96571529
		Up to DN 65	Insulation jacket for two-pump installation For frost protection, fit the insulation jacket directly over the pipes and valves.	96653751
		50 mm		96571531
4		90 mm	Vent pipe package	98171612
5		DN 25		99044262
		DN 40		99044290
		DN 50	Mixer kit including bracket for AMD.05-08 mixer and 8 m chain. Note: Only available for PS.R.17.	99044296
6		DN 50 / DN 65	Expansion cone	99134840
		DN 50 / DN 80		99134841
		DN 65 / DN 80		99134842
		DN 65 / DN 100		99135003
		DN 80 / DN 100		99135004
		DN 80 / DN 125		99135005
		DN 100 / DN 125		99135006
		DN 100 / DN 150		99135007
		DN 125 / DN 150		99135008
		DN 125 / DN 200		99135009
		DN 150 / DN 200		99135010
		DN 150 / DN 250		99135011
		DN 200 / DN 250		99135012
		DN 200 / DN 300		99135043
		DN 250 / DN 300		99135044
		DN 250 / DN 350		99135045

7. Installation

Installation

Local regulations and legal requirements must always be followed. For more information, see the installation and operating instructions of the pumping station.

Installation of pump

Some versions come without the pump installed. For further information, see the installation and operating instructions of the pump.



The pump must be lowered carefully into the pit to avoid damage to the pump and pit.

Pipework with flange connections

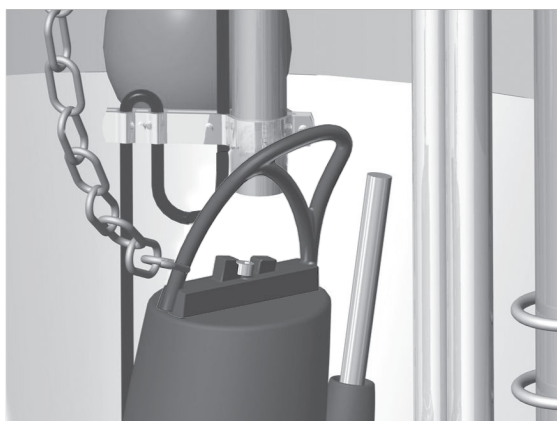
If the pit is installed at a temperature below 0°C, loosen all flange bolts and retighten them when the pumping station has been installed. This prevents stress in the pipes.

Fitting the chain

For pumps on auto coupling, fit the chain in the foremost lifting eye of the lifting bracket.

When lifting the pump, use a lifting device that is approved for the weight of the pump.

Make sure to keep body parts away from a lifted pump.



TM029341

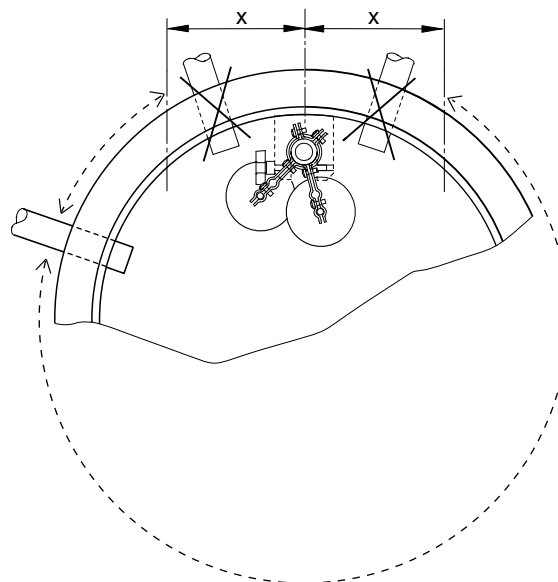
Chain fitted to pump

Installation of level controller

See the installation and operating instructions of the controller.

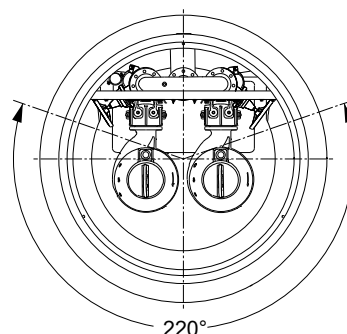
Location of the inlet

The pit inlet must not be located within the area shown in the figure below as the inflow of liquid disturbs the function of the float switches.



TM028961

Location of inlet, D500-D1200 ($x = 200 \text{ mm}$)



TM053261

Location of inlet, D1700

Startup

See the installation and operating instructions of the pump and the controller, respectively.



The controller must not be installed in the pit.

Maintenance

See the installation and operating instructions of the pump and the controller, respectively.

Secure the pit cover properly so unauthorised persons cannot remove it.

8. Technical data

Starting frequency

In a pumping station, the total water volume consists of the volume below the lowest pump stop level and the effective volume above this level. The effective volume varies with pump usage and the incoming flow rate. The starting frequency of the pumps depends on the available effective volume and the incoming flow rate. The starting frequency Z is a function of the ratio between Q_{in}/Q and V_h .

Q_{in} = incoming flow rate [l/s]

Q = pump performance [l/s]

V_h = accumulated (effective) volume between start and stop [m^3]



If the maximum incoming flow rate is equal to the pump performance, the pump runs permanently.

Z_{max} : maximum number of starts per hour.

$$Z_{max} = \frac{Q \times 3.6}{4 \times V_h}$$

V_h : necessary, minimum accumulated volume between start and stop.

$$V_h = \frac{Q \times 3.6}{4 \times Z_{max}}$$

Sump volume

In installations where the expected maximum incoming flow rate, Q_{in} , is less than 60 % of the selected pump performance, the accumulated sump volume must be calculated in a way that there are at least two pump starts a day to prevent sedimentation in the sump.

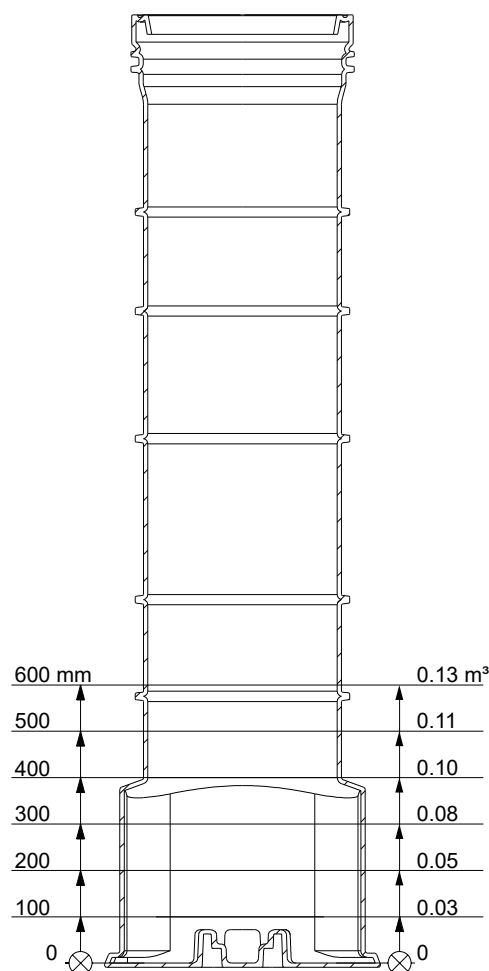
Total volume: the volume of the complete tank.

Emergency volume: the volume from the bottom of the pit to the lowest inlet.

Sump volume: the volume from the bottom of the pit to the start level.

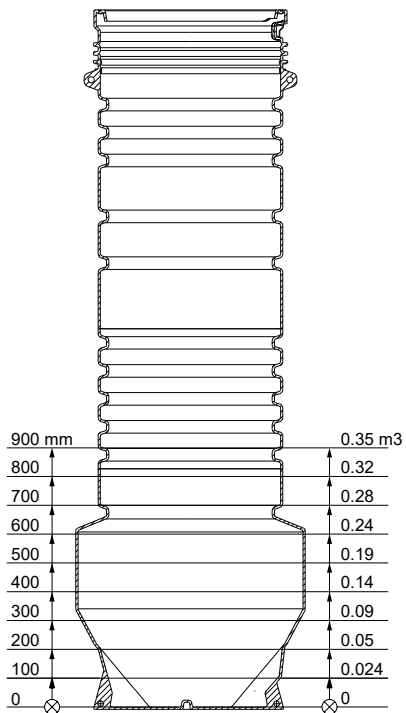
Effective volume: the volume pumped in every pump cycle - the volume between the start and stop level.

The following drawings show values of empty pits without pump, pipes or other accessories.

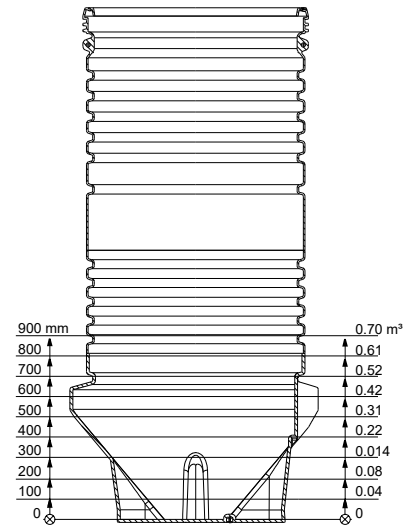


Sump volume in relation to level, PS.R.05

TM030574

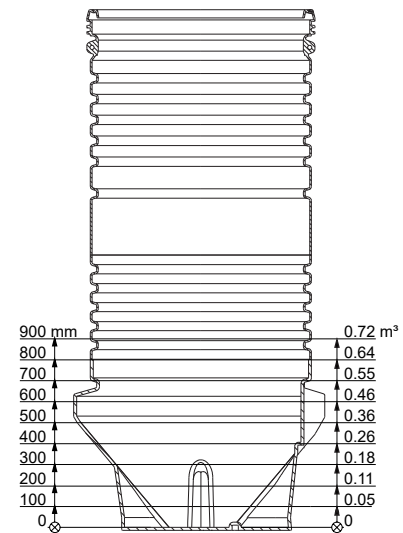


Sump volume in relation to level, PS.R.08



Sump volume in relation to level, PS.R.12 (one pump)

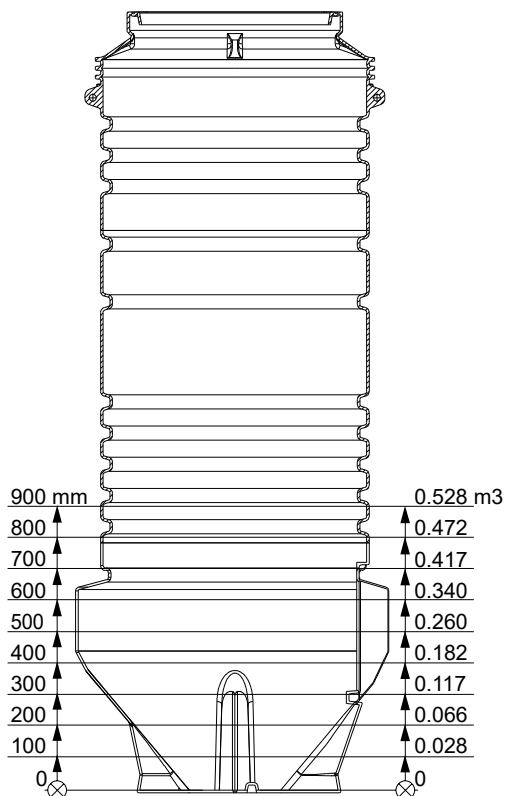
TM030575



Sump volume in relation to level, PS.R.12 (two pumps)

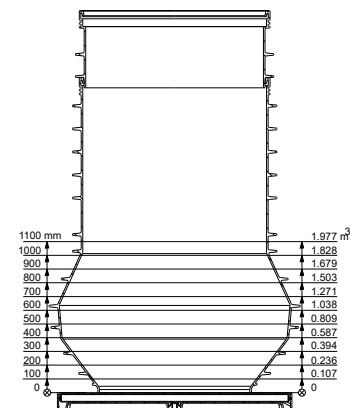
TM030576

TM030577



Sump volume in relation to level, PS.R.10

TM030578

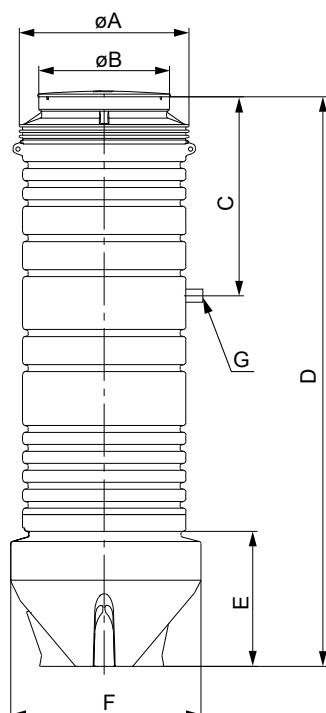


Sump volume in relation to level, PS.R.17

TM069524

Dimensions and weights

Pit dimensions



TM069421

Dimensional sketch



Tolerances for PE material are $\pm 3\%$.

Pit	ØA [mm]	ØB [mm]	C [mm]	D Total height [mm]	E [mm]	F [mm]	G [mm]
D500	400	400	1000	2000 1000 1500	390	528	DN 40
D800	694	590	1000	2000 2500 3000	690	820	DN 50
D1000	894	590		1500 2000 2500 3000	690	1020	DN 50
D1200S	1094	980	23)	2000 2500 3000	690	1220	DN 50 / DN 65
D1200D	1094	980		2000 2500 3000	690	1220	DN 50 / DN 65
D1700RT ²⁴⁾	1430	980		2000-600	1075	1760	DN 50 - DN 100
D1700	1430	1355		0			

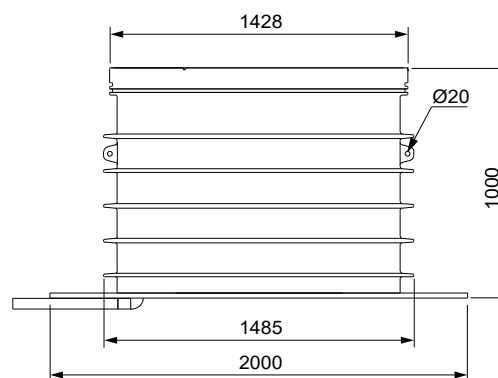
23) Varies from pit to pit. Contact Grundfos for the dimensions.

24) RT = Reduced top.

Pit weights

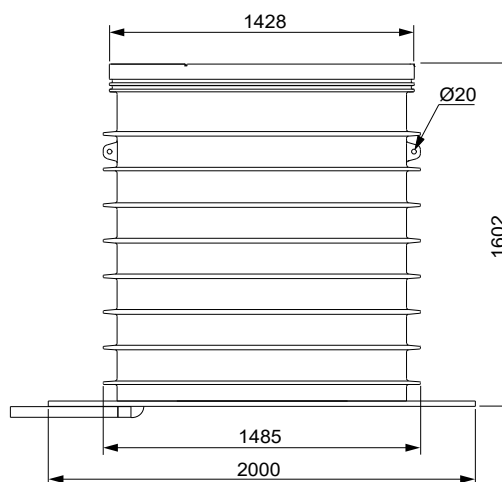
Pit	Maximum weight [kg]
D500	45
D800	157
D1000	186
D1200S	270
D1200D	312
D1700	1000

Valve chamber dimensions



TM064218

Valve chamber, 1 metre



TM064219

Valve chamber, 1.6 metres

Valve chamber weights

Valve chamber	Maximum weight [kg]
1 metre	349
1.6 metres	390

9. Grundfos Product Center

Online search and sizing tool to help you make the right choice.

From the international view, you can select your specific country to view the product range available to you.

International view: <https://product-selection.grundfos.com>

All the information you need in one place

Performance curves, technical specifications, pictures, dimensional drawings, motor curves, wiring diagrams, spare parts, service kits, 3D drawings, documents, system parts. The Product Center displays any recent and saved items - including complete projects - right on the main page.

Downloads

On the product pages, you can download installation and operating instructions, data booklets, service instructions, etc., in PDF format.



The screenshot shows the Grundfos Product Center website. At the top is a navigation bar with the Grundfos logo and links for PRODUCTS & SERVICES, SUPPORT, LEARN, ABOUT US, and CONTACT US. Below this is a search bar with the text 'Find a Grundfos product' and a search icon. The main content area is titled 'Size your product' and includes a form with three sections: 'Select criteria', 'Set Flow and Head', and 'Size product'. The 'Select criteria' section has a dropdown for 'Size by' (set to 'Application') and a dropdown for 'Select application area'. The 'Set Flow and Head' section has input fields for 'Flow (Q)' (set to 'm³/h') and 'Head (H)' (set to 'm'). The 'Size product' section has a right arrow button.

When you select your country, you will see the menus below. Note that some menus may not be available depending on the country.

Example: <https://product-selection.grundfos.com/uk>

Pos.	Description
1	Products & services enables you to find products and documents by typing a product number or name into the search field.
2	Applications enables you to choose an application to see how Grundfos can help you design and optimise your system.
3	Products A-Z enables you to look through a list of all the Grundfos products.
4	Categories enables you to look for a product category.
5	Liquids enables you to find pumps designed for aggressive, flammable or other special liquids.
6	Product replacement enables you to find a suitable replacement.
7	WWW enables you to select the country, which changes the language, the available product range and the structure of the website.
8	Sizing enables you to size a product based on your application and operating conditions.

10. Document quality feedback

To provide feedback about this document, scan the QR code using your phone's camera or a QR code app.



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GRUNDFOS Holding A/S
Poul Due Jensens Vej 7
DK-8850 Bjerringbro
Tel: +45 87 50 14 00
www.grundfos.com

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