Grundfos small pumping stations

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1. Introduction

Introduction

Grundfos pumping stations are pre-fabricated pumping stations for collection and pumping of drainage water, rainwater or wastewater.

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

The pipework is made of PE or stainless steel (AISI 304).

Unless another solution is selected, the ∅400 to ∅1000 tanks have a PE-HD cover, locked with a special M10 bolt.
The ∅1700 tank has a fibre glass cover, locked with a temporary padlock.

Applications

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

Wastewater is led into the tank. When the liquid in the tank reaches the maximum liquid level, the pump will start and pump the liquid further in the system to a sewage treatment plant or sewer.

Main constructional features

Get the complete package from Grundfos.

Now, your pumping stations can be Grundfos quality all the way. To complement our range of high-quality pumps and pumping equipment, we have developed a pumping station range that has everything you need: sturdy, well-designed polyethylene pump tanks, all necessary accessories such as piping and valves, as well as reliable controllers. That way, you can get a complete pumping station ready to go into the ground. Getting everything from one supplier, you can be certain that every part meets the most stringent quality requirements and fits perfectly together.

Once the pumping station is installed, you will find that maintenance is reduced to an absolute minimum.

The combination of sturdy materials and convenient access to valves and pumps not only makes service easier – it also makes it much less frequent.

Powerful advantages

- **Corrosion-free materials**
  Grundfos pumping stations are made from corrosion-free materials throughout. This uncompromising choice of materials and the unique design make the units remarkably service-friendly and reliable.
- **Modular flexibility**
  The prefabricated pumping stations consist of four main elements: one or two of our highly efficient and reliable pumps, a pump tank in the size to suit your requirements, all piping and valves, and finally controllers to ensure operational efficiency and safety.
- **Many sizes available**
  The pumping stations are available various sizes, comprising four standard diameters and up to four standard depths. The standard range is regularly updated with more variants – for the latest updates, check www.grundfos.com/pumping stations.
- **Installation- and service-friendly**
  The pump tank has an extended sump, for example, to secure the tank against uplift when installed in areas with high groundwater level.
  At the same time, this extended cone-shaped sump improves the self-cleaning effect and thereby limits sludge and odour problems.
  All components needed in the pumping station can be reached from the top. In tank sizes less than ∅1250, the auto-coupling is secured in the bottom position without any use of screws. It is possible to remove the coupling together with the pipework without entering the tank.

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

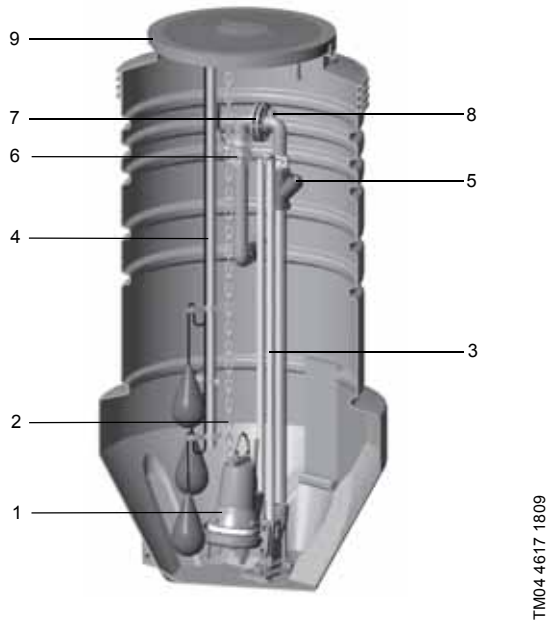


Fig. 1 Example of version

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

The pump tanks come in many variants and for many applications. Grundfos offers a number of standard tanks, but can also supply special tanks on request.

2. Pumped liquids

Pumped liquids

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

Liquid temperature

Maximum 40 °C. For higher temperatures, contact your local Grundfos company.

The liquid temperature depends on the pump selected. See the installation and operating instructions of the individual pumps. For certain pump types, 60 °C is permissible for short periods. At 60 °C, the tank begins to soften.

Acids and alkalis

The pump tank is resistant to strong acids and alkalis as well as solvents.

The pumps are supplied with the pump tank and normally stand pH values between 4 and 10. In case of doubt, contact your local Grundfos company.

Viscosity

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

Density

Maximum 1.1 tons/m^3.

3. Identification

Type key

Type key, PUST04 - PUST10

Example	PUST	08.	20.	S.	A.	SS.	SEG
Grundfos pumping station (standard)							

Diameter [mm] *
04: 400
06: 600
08: 800
10: 1000

Length [mm]
15: 1500
20: 2000
25: 2500
30: 3000

S: Single pump
D: Double pumps

Installation of pump
A: Auto coupling on tank bottom
W: Auto coupling on tank wall
S: Free-standing

Pipe material
PE: Polyethylene
SS: Stainless steel, AISI 304

Prepared for pump type
KP: Unilift KP, Unilift CC
AP35: Unilift AP12.40, Unilift AP35
AP50: Unilift AP12.50, Unilift AP50
APB: Unilift AP35B, Unilift AP50B
DPEF: DP (0.6 - 1.5 kW), EF
DPSE: DP (2.6 kW), SL1.50.65 and SLV.65.65 (up to 3 kW)
SEG: SEG

* Refers to the riser pipe diameter.

Type key, PUST17

Example	PUST	17.	45.	D.	A.	SS.	DC.	PE.	80
Grundfos pumping station (standard)									

Diameter [mm] *
17: 1700

Length [mm]
20: 2000
25: 2500
28: 2840
30: 3000
32: 3170
33: 3340
35: 3500
37: 3670
38: 3840
40: 4000
42: 4170
43: 4340
45: 4500
47 4670
48: 4840
50: 5000
52: 5170
53: 5340
55: 5500
57: 5670
58: 5840
60: 6000

S: Single pump
D: Double pumps
T: Triple pumps

Installation of pump
A: Auto coupling on tank bottom
S: Free-standing

Pipe material
PE: Polyethylene
SS: Stainless steel

Pipe design
DC: Direct outlet, common
DS: Direct outlet, separate
GC: Goose neck, common
NV: No valves

Pit material
GR: Glass-reinforced plastic
PE: Polyethylene
CO: Concrete

Pipe diameter
Stainless steel:
50: DN 50 (2")
65: DN 65 (2 1/2")
80: DN 80 (3")
100: DN 100 (4")
150: DN 150 (5")
200: DN 200 (6")
PE:
63: D 63 mm
75: D 75 mm
90: D 90 mm
110: D 110 mm

* Refers to the sump diameter

Nameplate

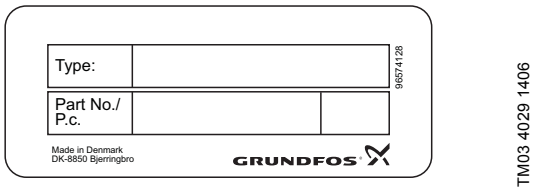


Fig. 2 Nameplate

Key to the nameplate

Pos.	Description
Type	Type designation
Part No.	Part number
P.c.	Year-week code

4. Selection of products

Selection of products

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

1. Pump
2. Installation of pump and pipe material
3. Diameter and depth of pump tank
4. Level system
5. Pump controller
6. Accessories.

1. Pump

See the data booklet for the specific pump or WebCAPS, and section *Type key* on page 6.

2. Installation of pump and pipe material

See section *Type key* on page 6.

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

- On an auto-coupling on the bottom of the tank.
- On an auto-coupling on the wall of the tank.
- Free-standing.

3. Diameter and depth of pump tank

The pump tank is available in various sizes.
See section *Dimensions* on page 26 for dimensions and for calculation of needed volume.

Depth [mm]	∅400	Ø600	Ø800	Ø1000 One pump	∅1000 Two pumps
1000		•	•		
1500		•	•		
2000	•	•	•	•	•
2500		•	•	•	•
3000		•	•	•	•

Depth [mm]	∅1700, two pumps		
	Pipe, SS	Pipe, PE	
	DN 50-DN 100	63 mm	75-100 mm
2000	•	•	•
2500	•	•	•
2840	•	•	•
3000	•	•	•
3170	•		•
3340	•		•
3500	•		•
3670	•		•
3840	•		•
4000	•		•
4170	•		•
4340	•		•
4500	•		•
4670	•		•
4840	•		•
5000	•		•
5170	•		•
5340	•		•
5500	•		•
5670	•		•
5840	•		•
6000	•		•

4. Level system

For level system, see *Accessories*, section *Level system*, page 18 or WebCAPS.

5. Pump controller

For pump controller, see *Accessories*, section *Level controllers*, page 15 or WebCAPS.

6. Accessories

Depending on the installation type, accessories may be required. For selection of the correct accessories, see section *Accessories* from page 15.

5. Product range

Product range, ∅400-∅1000

The table shows product numbers of pump tanks without pump and controller.

Note: Remember to order the type of level system to be delivered together with the pump tank.

Type	Diameter [mm]	Depth [mm]	Prepared for number of pumps	Installation of pump[1]	Pipe material[2]	Prepared for pump type	Pipe diameter	Sump volume without pump [m^3]	Weight without pump [kg]	Product number
PUST04.20.S.S.PE.KP	400	2000	1	S	PE	KP	DN40	0,10	45	96235288
PUST06.20.S.A.SS.SEG	600	2000	1	A	SS	SEG40	DN40	0,28	84	97939559
PUST06.25.S.A.SS.SEG	600	2500	1	A	SS	SEG40	DN40	0,28	98	97939560
PUST06.30.S.A.SS.SEG	600	3000	1	A	SS	SEG40	DN40	0,28	141	97940041
PUST06.20.S.A.SS.SEG	600	2000	1	A	SS	SEG40	DN50	0,28	95	96235289
PUST06.25.S.A.SS.SEG	600	2500	1	A	SS	SEG40	DN50	0,28	131	96235290
PUST06.30.S.A.SS.SEG	600	3000	1	A	SS	SEG40	DN50	0,28	157	97943015
PUST06.20.S.W.SS.SEG	600	2000	1	W	SS	SEG40	DN50	0,28	95	96235291
PUST06.25.S.W.SS.SEG	600	2500	1	W	SS	SEG40	DN50	0,28	131	96235292
PUST06.20.S.A.SS.APB	600	2000	1	A	SS	AP35B/AP50B	DN50	0,28	95	96235293
PUST06.25.S.A.SS.APB	600	2500	1	A	SS	AP35B/AP50B	DN50	0,28	131	96235294
PUST06.30.S.A.SS.APB	600	3000	1	A	SS	AP35B/AP50B	DN50	0,28	157	97943017
PUST06.20.S.S.PE.AP50	600	2000	1	S	PE	AP12.50/AP50	DN50	0,28	58	96235295
PUST06.25.S.S.PE.AP50	600	2500	1	S	PE	AP12.50/AP50	DN50	0,28	71	96235296
PUST06.30.S.S.PE.AP50	600	3000	1	S	PE	AP12.50/AP50	DN50	0,28	119	97943019
PUST06.20.S.S.PE.AP35	600	2000	1	S	PE	AP12.40/AP35	DN50	0,28	58	96235297
PUST06.25.S.S.PE.AP35	600	2500	1	S	PE	AP12.40/AP35	DN50	0,28	96	96235298
PUST06.30.S.S.PE.AP35	600	3000	1	S	PE	AP12.40/AP35	DN50	0,28	119	97943032
PUST06.20.S.A.SS.DP/EF	600	2000	1	A	SS	DP10.50/EF30	DN50	0,28	95	98105519
PUST06.25.S.A.SS.DP/EF	600	2500	1	A	SS	DP10.50/EF30	DN50	0,28	131	98105550
PUST06.30.S.A.SS.DP/EF	600	3000	1	A	SS	DP10.50/EF30	DN50	0,28	157	98105563
PUST06.20.S.S.PE.DP/EF	600	2000	1	S	PE	DP10.50/EF30	DN50	0,28	62	96235299
PUST06.25.S.S.PE.DP/EF	600	2500	1	S	PE	DP10.50/EF30	DN50	0,28	76	96235300
PUST06.30.S.S.PE.DP/EF	600	3000	1	S	PE	DP10.50/EF30	DN50	0,28	120	97943036
PUST08.15.S.A.SS.SEG	800	1500	1	A	SS	SEG	DN40	0,42	93	97940042
PUST08.20.S.A.SS.SEG	800	2000	1	A	SS	SEG	DN40	0,42	113	97940043
PUST08.25.S.A.SS.SEG	800	2500	1	A	SS	SEG	DN40	0,42	135	97940044
PUST08.30.S.A.SS.SEG	800	3000	1	A	SS	SEG	DN40	0,42	169	97940045
PUST08.15.S.A.SS.SEG	800	1500	1	A	SS	SEG40	DN50	0,42	98	96235270
PUST08.20.S.A.SS.SEG	800	2000	1	A	SS	SEG40	DN50	0,42	123	96235271
PUST08.25.S.A.SS.SEG	800	2500	1	A	SS	SEG40	DN50	0,42	166	96235272
PUST08.30.S.A.SS.SEG	800	3000	1	A	SS	SEG	DN50	0,42	186	97943016
PUST08.15.S.W.SS.SEG	800	1500	1	W	SS	SEG40	DN50	0,42	103	96235273
PUST08.20.S.W.SS.SEG	800	2000	1	W	SS	SEG40	DN50	0,42	123	96235274
PUST08.25.S.W.SS.SEG	800	2500	1	W	SS	SEG40	DN50	0,42	166	96235275
PUST08.15.S.A.SS.APB	800	1500	1	A	SS	AP35B/AP50B	DN50	0,42	103	96235276
PUST08.20.S.A.SS.APB	800	2000	1	A	SS	AP35B/AP50B	DN50	0,42	123	96235277
PUST08.25.S.A.SS.APB	800	2500	1	A	SS	AP35B/AP50B	DN50	0,42	166	96235278
PUST08.30.S.A.SS.APB	800	3000	1	A	SS	AP35B/AP50B	DN50	0,42	186	97943018
PUST08.15.S.S.PE.AP50	800	1500	1	S	PE	AP12.50/AP50	DN50	0,42	69	96235279
PUST08.20.S.S.PE.AP50	800	2000	1	S	PE	AP12.50/AP50	DN50	0,42	86	96235280
PUST08.25.S.S.PE.AP50	800	2500	1	S	PE	AP12.50/AP50	DN50	0,42	106	96235281
PUST08.30.S.S.PE.AP50	800	3000	1	S	PE	AP12.50/AP50	DN50	0,42	148	97943031
PUST08.15.S.S.PE.AP35	800	1500	1	S	PE	AP12.40/AP35	DN50	0,42	69	96235282
PUST08.20.S.S.PE.AP35	800	2000	1	S	PE	AP12.40/AP35	DN50	0,42	86	96235283
PUST08.25.S.S.PE.AP35	800	2500	1	S	PE	AP12.40/AP35	DN50	0,42	106	96235284
PUST08.30.S.S.PE.AP35	800	3000	1	S	PE	AP12.40/AP35	DN50	0,42	148	97943033
PUST08.15.S.A.SS.DP/EF	800	1500	1	A	SS	DP10.50/EF30	DN50	0,42	98	98105564
PUST08.20.S.A.SS.DP/EF	800	2000	1	A	SS	DP10.50/EF30	DN50	0,42	123	98105566
PUST08.25.S.A.SS.DP/EF	800	2500	1	A	SS	DP10.50/EF30	DN50	0,42	166	98105567
PUST08.30.S.A.SS.DP/EF	800	3000	1	A	SS	DP10.50/EF30	DN50	0,42	186	98105569
PUST08.15.S.S.PE.DP/EF	800	1500	1	S	PE	DP10.50/EF30	DN50	0,42	73	96235285
PUST08.20.S.S.PE.DP/EF	800	2000	1	S	PE	DP10.50/EF30	DN50	0,42	90	96235286
PUST08.25.S.S.PE.DP/EF	800	2500	1	S	PE	DP10.50/EF30	DN50	0,42	112	96235287

1 A: Auto coupling
S: Free-standing
W: Wall-hanging

2 SS: Stainless steel
PE: Polyethylene

Type	Diameter	Depth	Prepared for number of pumps	Installation of pump[1]	Pipe material[2]	Prepared for pump type	Pipe diameter	Sump volume without pump	Weight without pump	Product number
	[mm]	[mm]						[m³]	[kg]	
PUST08.30.S.S.PE.DP/EF	800	3000	1	S	PE	DP10.50/EF30	DN50	0,42	149	97943037
PUST10.20.S.A.SS.SEG	1000	2000	1	A	SS	SEG40	DN40	0,52	144	97940047
PUST10.25.S.A.SS.SEG	1000	2500	1	A	SS	SEG40	DN40	0,52	175	97940048
PUST10.30.S.A.SS.SEG	1000	3000	1	A	SS	SEG40	DN40	0,52	200	97940049
PUST10.20.S.A.SS.SEG	1000	2000	1	A	SS	SEG40	DN50	0,52	156	96235302
PUST10.25.S.A.SS.SEG	1000	2500	1	A	SS	SEG40	DN50	0,52	206	96235303
PUST10.30.S.A.SS.SEG	1000	3000	1	A	SS	SEG40	DN50	0,52	217	96738193
PUST10.20.S.W.SS.SEG	1000	2000	1	W	SS	SEG40	DN50	0,52	156	96235305
PUST10.25.S.W.SS.SEG	1000	2500	1	W	SS	SEG40	DN50	0,52	206	96235306
PUST10.30.S.W.SS.SEG	1000	3000	1	W	SS	SEG40	DN50	0,52	206	96842395
PUST10.20.S.A.SS.APB	1000	2000	1	A	SS	AP35B/AP50B	DN50	0,52	156	96235308
PUST10.25.S.A.SS.APB	1000	2500	1	A	SS	AP35B/AP50B	DN50	0,52	206	96235309
PUST10.30.S.A.SS.APB	1000	3000	1	A	SS	APB50B	DN50	0,52	217	96842397
PUST10.20.S.S.PE.AP50	1000	2000	1	S	PE	AP12.50/AP50	DN50	0,52	119	96235311
PUST10.25.S.S.PE.AP50	1000	2500	1	S	PE	AP12.50/AP50	DN50	0,52	146	96235312
PUST10.30.S.S.PE.AP50	1000	3000	1	S	PE	AP12.50/AP50	DN50	0,52	178	96842571
PUST10.20.S.S.PE.AP35	1000	2000	1	S	PE	AP12.40/AP35	DN50	0,52	119	96235314
PUST10.25.S.S.PE.AP35	1000	2500	1	S	PE	AP12.40/AP35	DN50	0,52	146	96235315
PUST10.30.S.S.PE.AP35	1000	3000	1	S	PE	AP12.40/AP35	DN50	0,52	178	96842652
PUST10.20.S.A.SS.DP/EF	1000	2000	1	A	SS	DP10.50/EF30	DN50	0,52	156	98105572
PUST10.25.S.A.SS.DP/EF	1000	2500	1	A	SS	DP10.50/EF30	DN50	0,52	206	98105573
PUST10.30.S.A.SS.DP/EF	1000	3000	1	A	SS	DP10.50/EF30	DN50	0,52	217	98105574
PUST10.20.S.S.PE.DP/EF	1000	2000	1	S	PE	DP10.50/EF30	DN50	0,52	123	96235317
PUST10.25.S.S.PE.DP/EF	1000	2500	1	S	PE	DP10.50/EF30	DN50	0,52	151	96235318
PUST10.30.S.S.PE.DP/EF	1000	3000	1	S	PE	DP10.50/EF30	DN50	0,52	179	96738700
PUST10.20.S.A.SS.DP/SE	1000	2000	1	A	SS	DP10.65/SL	DN65	0,52	0	96235320
PUST10.25.S.A.SS.DP/SE	1000	2500	1	A	SS	DP10.65/SL	DN65	0,52	190	96235321
PUST10.30.S.A.SS.DP/SE	1000	3000	1	A	SS	DP10.65/SL	DN65	0,52	270	96739056
PUST10.20.D.A.SS.SEG	1000	2000	2	A	SS	SEG40	DN40	0,55	210	98137178
PUST10.25.D.A.SS.SEG	1000	2500	2	A	SS	SEG40	DN40	0,55	230	98137180
PUST10.30.D.A.SS.SEG	1000	3000	2	A	SS	SEG40	DN40	0,55	220	98137181
PUST10.20.D.A.SS.SEG	1000	2000	2	A	SS	SEG40	DN50	0,55	222	96235322
PUST10.25.D.A.SS.SEG	1000	2500	2	A	SS	SEG40	DN50	0,55	248	96235323
PUST10.30.D.A.SS.SEG	1000	3000	2	A	SS	SEG40	DN50	0,55	234	96703321
PUST10.20.D.W.SS.SEG	1000	2000	2	W	SS	SEG40	DN50	0,55	211	96235324
PUST10.25.D.W.SS.SEG	1000	2500	2	W	SS	SEG40	DN50	0,55	234	96235325
PUST10.30.D.W.SS.SEG	1000	3000	2	W	SS	SEG40	DN50	0,55	234	96842437
PUST10.20.D.A.SS.APB	1000	2000	2	A	SS	AP35B/AP50B	DN50	0,55	200	96235326
PUST10.25.D.A.SS.APB	1000	2500	2	A	SS	AP35B/AP50B	DN50	0,55	234	96235327
PUST10.30.D.A.SS.APB	1000	3000	2	A	SS	APB50B	DN50	0,55	234	96842438
PUST10.20.D.S.PE.AP50	1000	2000	2	S	PE	AP12.50/AP50	DN50	0,55	135	96235328
PUST10.25.D.S.PE.AP50	1000	2500	2	S	PE	AP12.50/AP50	DN50	0,55	163	96235329
PUST10.30.D.S.PE.AP50	1000	3000	2	S	PE	AP12.50/AP50	DN50	0,55	163	96842655
PUST10.20.D.S.PE.AP35	1000	2000	2	S	PE	AP12.40/AP35	DN50	0,55	135	96235330
PUST10.25.D.S.PE.AP35	1000	2500	2	S	PE	AP12.40/AP35	DN50	0,55	163	96235331
PUST10.30.D.S.PE.AP35	1000	3000	2	S	PE	AP12.40/AP35	DN50	0,55	163	96772124
PUST10.20.D.A.SS.DP/EF	1000	2000	2	A	SS	DP10.50/EF30	DN50	0,55	222	98105575
PUST10.25.D.A.SS.DP/EF	1000	2500	2	A	SS	DP10.50/EF30	DN50	0,55	248	98105576
PUST10.30.D.A.SS.DP/EF	1000	3000	2	A	SS	DP10.50/EF30	DN50	0,55	234	98105577
PUST10.20.D.S.PE.DP/EF	1000	2000	2	S	PE	DP10.50/EF30	DN50	0,55	166	96235332
PUST10.25.D.S.PE.DP/EF	1000	2500	2	S	PE	DP10.50/EF30	DN50	0,55	172	96235333
PUST10.30.D.S.PE.DP/EF	1000	3000	2	S	PE	DP10.50/EF30	DN50	0,55	173	96738699
PUST10.20.D.A.SS.DP/SE	1000	2000	2	A	SS	DP10.65/SL	DN65	0,55	283	96235334
PUST10.25.D.A.SS.DP/SE	1000	2500	2	A	SS	DP10.65/SL	DN65	0,55	290	96235335
PUST10.30.D.A.SS.DP/SE	1000	3000	2	A	SS	DP10.65/SL	DN65	0,55	312	96739055

1 A: Auto coupling
S: Free-standing
W: Wall-hanging

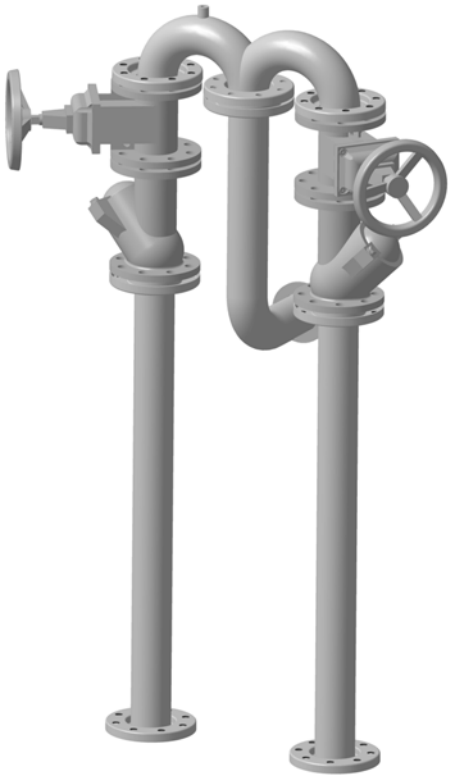
2 SS: Stainless steel
PE: Polyethylene

Produkt range, ∅1700

PUST 1700 pipe design		Stainless steel, AISI 304				Polyethylene, PE			
		DN 50	DN 65	DN 80	DN 100	63 mm	75 mm	90 mm	110 mm
GC:	Goose neck, common	•	•	•	•	•	•	•	•
DC:	Direct outlet, common	•	•	•	•	•	•	•	•
DS:	Direct outlet, separate								
NV:	No valves								

TM05 3322 1112

Pipe system direct outlet common, DC



TM05 3319 1112

Pipe system goose neck common, GC

Fig. 3 Goose neck and direct outlet

Variants

If you did not find the needed pumping station in our standard range, please contact your local Grundfos company. We have other ranges of prefabricated pumping stations, but they vary from region to region.

For large prefabricated pumping stations, please see WebCAPS or contact your local Grundfos company for information about range and designs available in your region. We offer a huge range of large prefabricated pumping stations to fit our large pump range. This range covers versions up to 3 metres in diameter and 12 metres in depth in both glass fibre and polyethylene.

6. Construction

Construction

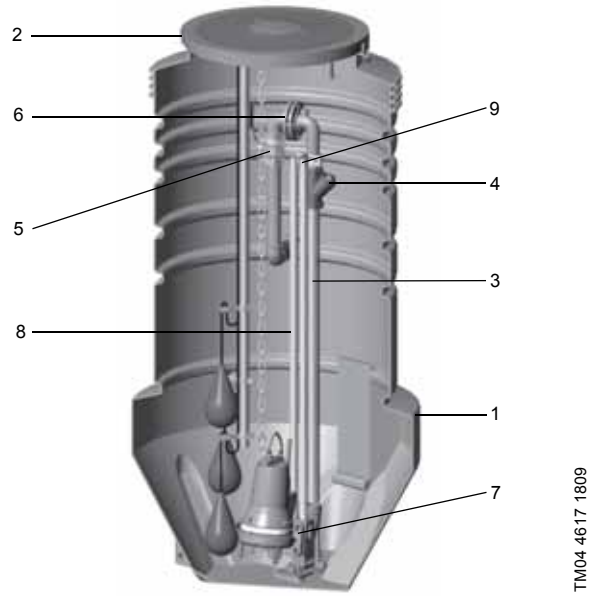


Fig. 4 Grundfos small pumping station

Material specification

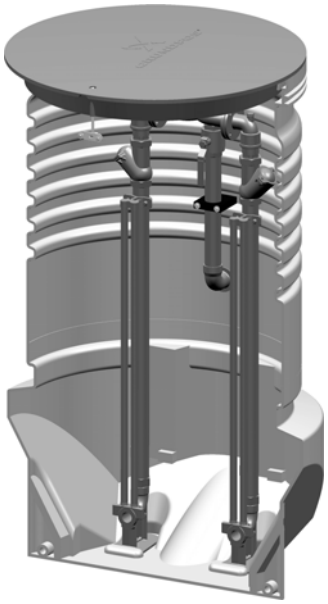
Pos.	Component	Material description	DIN W.-Nr./EN standard	AISI/ASTM	Ø400-Ø1000	Ø1700
1	Tank	PE HD	-	-	●	●
2	Cover	PE HD	-	-	●	-
		GRP	-	-	-	●
	Safety grating	Aluminium	-	-	-	●
3	Piping	Stainless steel	1.4301	304	●	●
		PE	-	-	●	●
4	Non-return ball valve	NBR rubber and stainless steel	1.4301	304	●	-
		Stainless steel	1.4401	316	●	●
		Cast iron	GJS-400-15 (GGG-40)	-	-	●
5	Ball closing valve	PP	-	-	●	●
		Stainless steel	1.4301	304	●	●
	Isolating valve	Cast iron	GJS-500-7 (GGG-50)	-	-	●
6	Pipe coupling	PP, quick coupling	-	-	●	●
		Stainless steel, quick coupling	1.4301	304	●	-
		PE, flanged	-	-	-	●
		Stainless steel, flanged	1.4301	304	●	●
7	Auto coupling	Cast iron	EN-GJL-250/EN-JL 1040	-	●	●
		Stainless steel	1.4301	304	●	-
8	Guide rails	Stainless steel	1.4301	304	●	●
9	Guide rail holders	Stainless steel	1.4301	304	●	●
10	Holders for level sensors	Stainless steel	1.4301	304	●	●
	Screws	Stainless steel	1.4301	304	●	●

PE HD: Polyethylene, high density
PP: Polypropylene
GRP: Glas-reinforced plastic

Tank versions

Tank with one pump on auto coupling

TM04 4617 1809

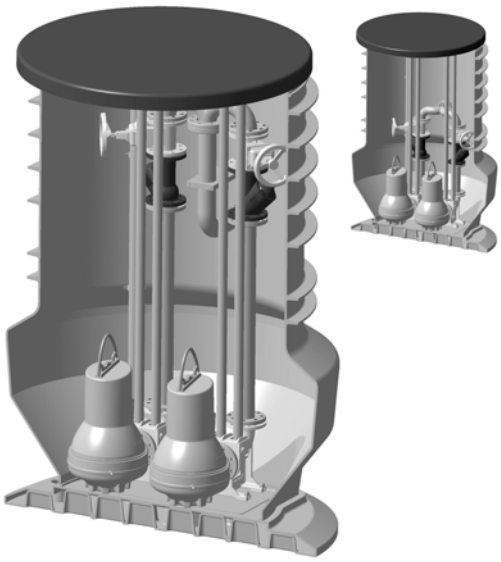


Tank with two pumps on auto coupling

TM05 3707 1612

Tank with free-standing pump

TM04 4596 1709



Ø1700 tank with two pumps on auto coupling

TM05 3323 1112

Fig. 5 Examples of tank version

Cover, ∅400-∅1000

The cover is locked by means of a special bolt in stainless A2 material. It can thus only be removed by persons with legitimate access to the tank.

TM02 9499 0805

Fig. 6 Cover

TM02 9498 0805

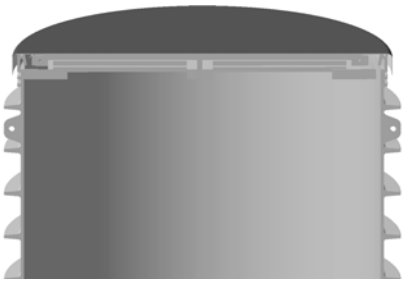
Fig. 7 Locked cover

Cover, ∅1700

The cover is locked by means of a special bolt prepared for a padlock.

TM05 3321 1112

Fig. 8 Cover



TM05 3320 1112

Fig. 9 Locked cover

7. Accessories

Level controllers

Grundfos offers a wide range of pump controllers to keep a watchful eye on liquid levels in the wastewater collecting tank, ensuring correct operation and protection of the pumps.

Controller ranges:

- Dedicated Controls, DC and DCD control cabinets
- LC and LCD level controllers
- CU 100 control box.

The DC, LC and CU 100 are designed for one-pump installations, and the DCD and LCD are designed for two-pump installations.

Dedicated Controls

Grundfos Dedicated Controls is a control system that can control and monitor one or two Grundfos wastewater pumps and a mixer or a flush valve.

Dedicated Controls is used in installations requiring advanced control and data communication.

Main components of the Dedicated Controls system:

- CU 361 control unit
- IO 351B module (general I/O module).

Dedicated Controls is available either as separate components or as control cabinets, i.e. DC and DCD.

The control system can be operated by the following:

- float switches
- a level sensor
- a level sensor and safety float switches.

The control cabinet is available for the following pump sizes and starting methods:

- pumps up to and including 9 kW, direct-on-line starting
- pumps up to and including 30 kW, star-delta starting
- pumps up to and including 30 kW, soft starter.

The separate control unit and modules can be built for practically any size of system.

GrA6270

Fig. 10 Dedicated Controls control cabinet

The DC and DCD control cabinets can be fitted with various units:

- The CU 361 control unit, which is the 'brain' of the Dedicated Controls system, is fitted in the cabinet front. The CU 361 can be fitted with one of the Grundfos CIM communication modules mentioned below, depending on the monitoring needs or the SCADA system:
  - The CIM 200 is a communication module used for the Modbus RTU fieldbus protocol.
  - The CIM 250 is a communication module used for GSM/GPRS communication. The CIM 250 establishes communication between the CU 361 and a SCADA system, thereby allowing the application to be monitored and controlled remotely. This module also offers SMS messaging, for example status and alarm messages.
  - The CIM 270 is a communication module for the Grundfos Remote Management system (GRM). The CIM 270 establishes communication between the CU 361 and the GRM, thereby allowing the application to be monitored and controlled remotely.
- The IO 351B module, which is a general I/O module. The IO 351B communicates with the CU 361 via GENIbus.
- The MP 204 motor protector (optional), which provides many electrical status values, for example voltage, current, power, insulation resistance and energy. The MP 204 offers better protection of the pumps than a conventional motor protection device.
- The CUE/VFD (optional), which is either a Grundfos variable-frequency converter or a general variable-frequency converter, also offers better pump protection and a more steady flow through the pit pipes, so the pumps are treated well and the energy consumption is kept at a minimum.

For further information, see the data booklet or installation and operating instructions for Dedicated Controls on www.Grundfos.com (WebCAPS).

LC and LCD

The Grundfos LC and LCD ranges of level controllers comprise three series with a total of six variants:

- LC and LCD 107 operated by air bells
- LC and LCD 108 operated by float switches
- LC and LCD 110 operated by electrodes.

All controllers are ideally suited for applications requiring up to 11 kW motors for direct-on-line starting. The LC and LCD can also be supplied with an integrated star-delta starter for applications requiring larger motors up to and including 30 kW.

Features and benefits

- Control of one pump (LC) or two pumps (LCD).
- Automatic alternating operation of two pumps (LCD).
- Automatic test run (prevents shaft seals from becoming jammed in the event of long periods of inactivity).
- Water hammer protection.
- Starting delay after power supply failure.
- Automatic alarm resetting, if required.
- Automatic restarting, if required.
- Alarm outputs as NO and NC.

TM04 2360 2408

Fig. 11 LCD 110 for two-pump installations

When an SMS module (optional) is fitted in an LC or LCD controller, it acts as a time recorder for the pumps, and when programmed (using an ordinary mobile phone with text messaging facility), it can send text messages containing "high-level alarm", "general alarm", information about operation and the number of times the pump has started. The SMS module is also available with battery and can thus send text messages that will inform you of power failure and when the power has been restored.

For further information, see the data booklet or installation and operating instructions for the LC and LCD controllers on www.Grundfos.com (WebCAPS).

SEG AUTO$_{ADAPT}$ pumps

Grundfos CIU unit

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

- 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 is valuable for pump service and pit optimisation.

The CIU unit is designed for use together with Grundfos SEG AUTO$_{ADAPT}$ pumps. Communication can be established with the Grundfos R100 remote control or by using the main network interface of the CIU unit. Available CIU units:

- CIU 902 unit (without CIM module)
- CIU 202 Modbus unit
- CIU 252 GSM/GPRS unit
- CIU 272 GRM unit (Grundfos Remote Management).

The CIU unit incorporates one or two modules:

- Multi-purpose IO module with I/O functionality, IR communication interface and powerline communication.
- CIM 2XX module (optional).

For further information about the CIM module fitted, see installation and operating instructions for the relevant CIM module.

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

Grundfos R100 remote control

The Grundfos R100 remote control is designed for wireless IR communication with Grundfos products. The R100 can communicate with the SEG AUTO$_{ADAPT}$ pumps via a CIU unit.

The R100 is to be regarded as an ordinary service and measuring tool and is therefore designed to withstand wear and stress from everyday use.

Level system

Please make sure that the level system fits the controller selected and the depth of the pump tank selected.

Level system kit

TM04 3454 4408

Float switches

GR7389

Air bells

Note: If air bells are ordered, the level system is supplied with the controller.

TM04 3453 4408

Electrodes

Product number	Description	Float switches
96905147	Level system for LC 108, tank depth = 1500	2
96905148	Level system for LC 108, tank depth = 2000	2
96905149	Level system for LC 108, tank depth = 2500	2
96905150	Level system for LC 108, tank depth = 3000	2
96905151	Level system for LC, LCD 108, tank depth = 1500	3
96905162	Level system for LC, LCD 108, tank depth = 2000	3
96905163	Level system for LC, LCD 108, tank depth = 2500	3
96905164	Level system for LC, LCD 108, tank depth = 3000	3
96905171	Level system for LCD 108, tank depth = 1500	4
96905172	Level system for LCD 108, tank depth = 2000	4
96905173	Level system for LCD 108, tank depth = 2500	4
96905174	Level system for LCD 108, tank depth = 3000	4

Product number	Description	Electrodes
96905165	Level system for LC, LCD 110, tank depth = 1500	4
96905168	Level system for LC, LCD 110, tank depth = 2000	4
96905169	Level system for LC, LCD 110, tank depth = 2500	4
96905170	Level system for LC, LCD 110, tank depth = 3000	4
96905175	Level system for LCD 110, tank depth = 1500	5
96905178	Level system for LCD 110, tank depth = 2000	5
96905179	Level system for LCD 110, tank depth = 2500	5
96905181	Level system for LCD 110, tank depth = 3000	5

Pos.	Type		Pipe diameter [mm]	Description	Product number
1	Sleeve 	TM04 4605 1709	40	Sleeve	96230763
			50	Sleeve	96230753
			63	Sleeve	96571523
			75	Sleeve	96571527
			90	Sleeve	96571528
			110	Sleeve (in-situ)	91716040
			160	Sleeve (in-situ)	91713754
			200	Sleeve (in-situ)	91712032
2	Hole saw 	TM04 4601 1709		Centre drill	91712026
			40	Hole saw, 51 mm	96571532
			50	Hole saw, 60 mm	96571533
			63	Hole saw, 75 mm	96571534
			75	Hole saw, 86 mm	96571535
			90	Hole saw, 102 mm	96571536
			110	Hole saw, 127 mm	91713756
			160	Hole saw, 177 mm	91713755
			200	Hole saw, 212 mm	91712025
3	Insulation jacket 	TM04 4602 1709	SIngle pump installation	For frost protection, the insulation jacket is fitted directly over pipes and valves. Up to DN 65	96571529
			Double pump installation	For frost protection, the insulation jacket is fitted directly over pipes and valves. Up to DN 65	96653751
4	Ventilation kit 	TM04 4603 1709		Ventilation kit (50 mm) Ventilation kit (90 mm)	96571531 98171612
5	Air bell 	TM04 4604 1709		Please refer to the brochure on LC, LCD level controllers. For further information, contact your local Grundfos company.	

8. Installation

Installation

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

Installation of pump

Some versions come without the pump installed. For installation and start-up, see the installation and operating instructions of the pump.

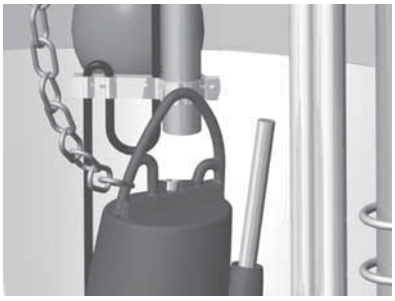
Note: The pump must be lowered carefully into the tank in order to avoid damage to pump and tank.

Pipework with flange connections

If a tank is to be installed at temperatures below 0 °C, it is advisable to slacken all bolts of the flange and retighten them when the tank has been installed. In this way, stress in the pipes is prevented.

Fitting the chain

In the case of pumps on auto-coupling, it is advisable to fit the chain in the foremost lifting eye of the lifting bracket. When lifting the pump make sure to use a lifting device that is approved for the weight of the pump. Make sure to keep body parts away from a lifted pump.



TM04 4593 1709

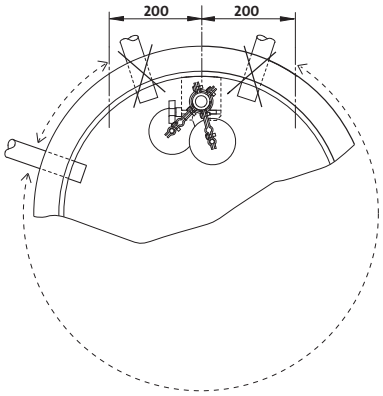
Fig. 12 Chain fitted to pump

Installation of level controller

See the installation and operating instructions of the controller.

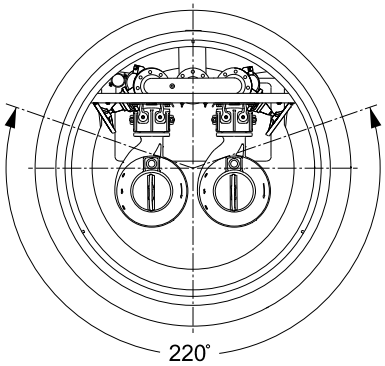
Location of inlet

The tank inlet must not be located within the area shown in fig. 13, as it will disturb the function of the float switches.



TM02 8961 1204

Fig. 13 Location of inlet, ∅400-∅1000



TM05 3261 1012

Fig. 14 Location of inlet, ∅1700

Start-up

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

Note: The controller must not be installed in the tank.

Maintenance

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

It is important that the tank cover is properly secured so that unauthorised persons cannot remove it.

9. CE-marking

CE-marking

The pumping stations are CE-marked. Depending on the pump and controller selected, they are marked in accordance with one or several of the following directives:

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

The declaration of conformity can be found in the installation and operating instructions of the products in question.

10. Dimensions

Starting frequency and pump capacity of pumping station

In a pumping station, the water volume comprises the volume below the lowest pump stop level and the pumpable volume above this level, fluctuating with pump usage and incoming flow rate. The starting frequency of the pumps depends on the available pumpable volume and the incoming flow rate.

The starting frequency Z is a function of the ratio between Q_{in}/Q and V_h, where

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

Q = pump capacity [l/s]

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

Note that when the maximum inflow is equal to the pump capacity, the pump runs permanently. When the actual pump capacity for single-pump operation is equal to the maximum peak inflow, Z_{max}, will always appear when the inflow is half the pump capacity.

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

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

By isolating V_h we get:

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

V_h = necessary minimum accumulated volume between start and stop.

In installations where the expected maximum incoming flow Q_{in} is less than 60 % of the selected pump capacity, the accumulated sump volume is chosen in such a way that there will be at least two pump starts a day in order to prevent sedimentation in the sump.

The following drawings show values of empty tanks without pump, pipe, etc.

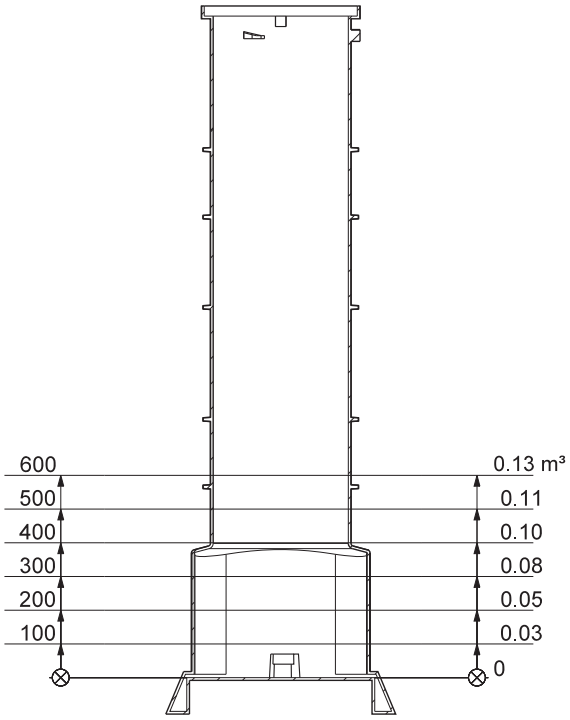
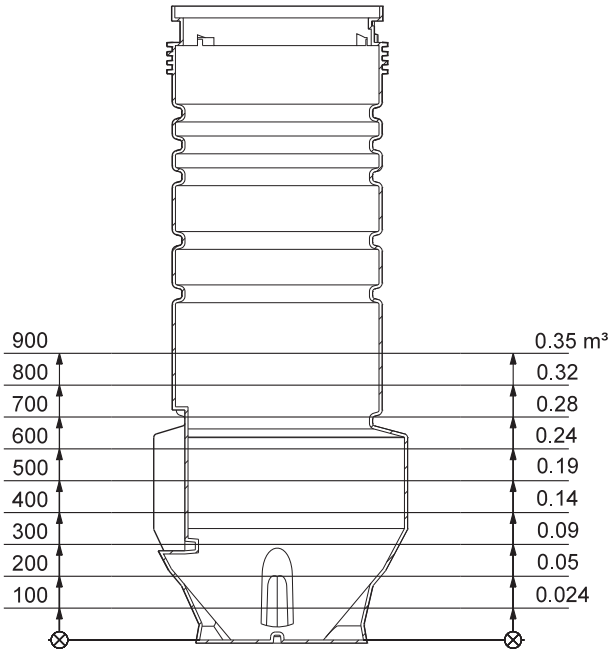
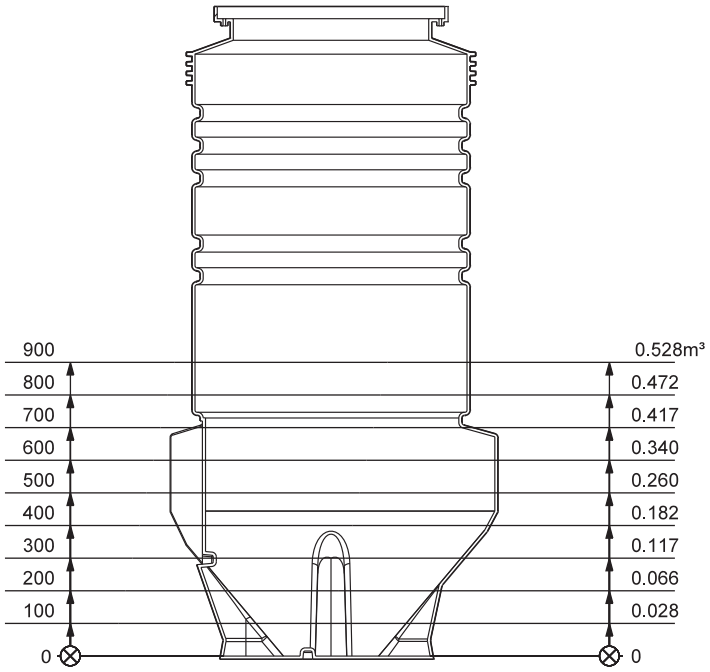


Fig. 15 Effective volume in relation to level, PUST400



TM03 0575 0205

Fig. 16 Effective volume in relation to level, PUST600



TM03 0578 0205

Fig. 17 Effective volume in relation to level, PUST800

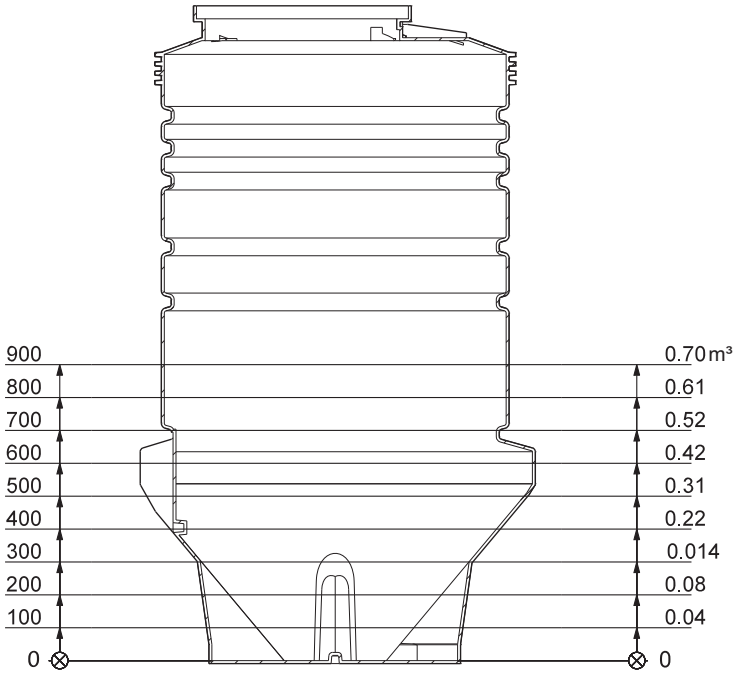


Fig. 18 Effective volume in relation to level, PUST1000 (one pump)

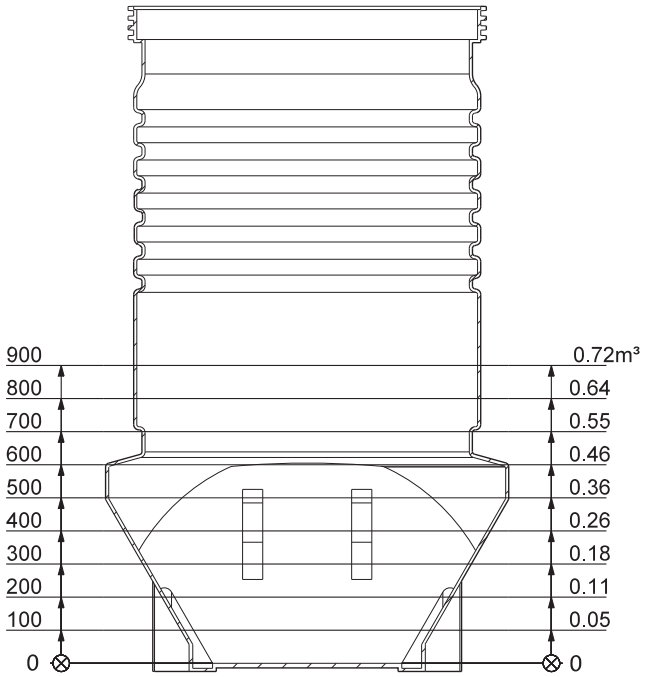


Fig. 19 Effective volume in relation to level, PUST1000 (two pumps)

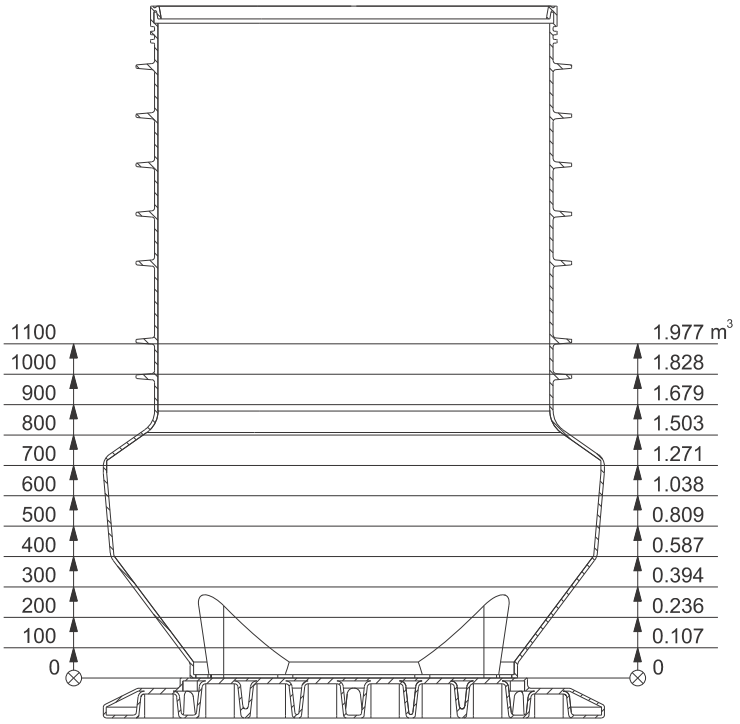


Fig. 20 Effective volume in relation to level, PUST1700

Dimensions

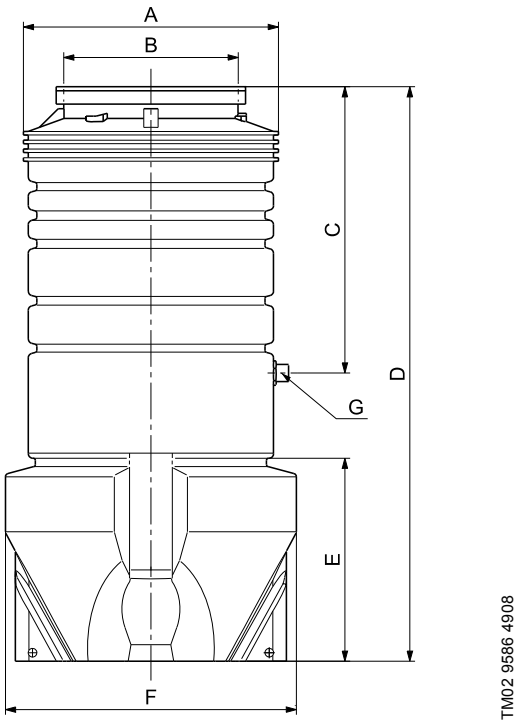


Fig. 21 Dimensional sketch

Well	A	B	C	D	E	F	G
∅400	400	400	1000	2000	390	528	DN 40
∅600	694	590	1000	1000/1500*/2000/2500/3000	690	820	DN 50
∅800	894	590	1000*	1000/1500*/2000/25003000	690	1020	DN 50
∅1000S	1094	590	1000*	2000/2500/3000	690	1220	DN 50/65
∅1000D	1094	980	1000*	2000/2500/3000	690	1220	DN 50/65
∅1700	1430	1355	800/1000/1200	2000-6000	1075	1760	DN50 - DN100

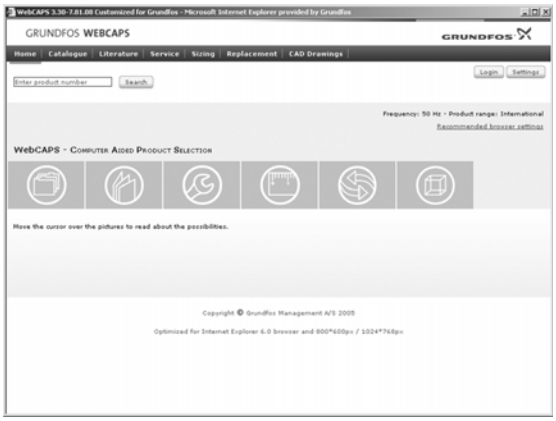
Tolerances for PE material are ± 3 %.

* For 1500 mm tanks, dimension E can vary from 750 mm to 1000 mm.

Weight, see section *Product range, ∅400-∅1000*.

11. Further product documentation

WebCAPS

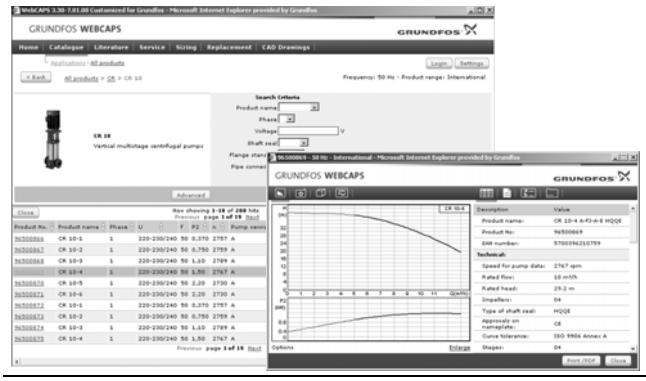


WebCAPS is a **Web**-based **C**omputer **A**ided **P**roduct **S**election program available on www.grundfos.com.

WebCAPS contains detailed information on more than 220,000 Grundfos products in more than 30 languages.

Information in WebCAPS is divided into six sections:

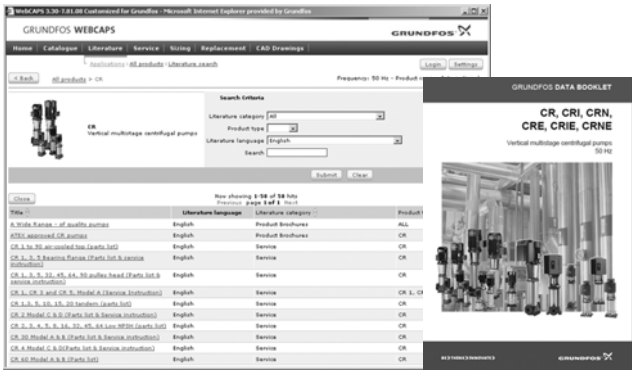
- Catalogue
- Literature
- Service
- Sizing
- Replacement
- CAD drawings.



Catalogue

Based on fields of application and pump types, this section contains the following:

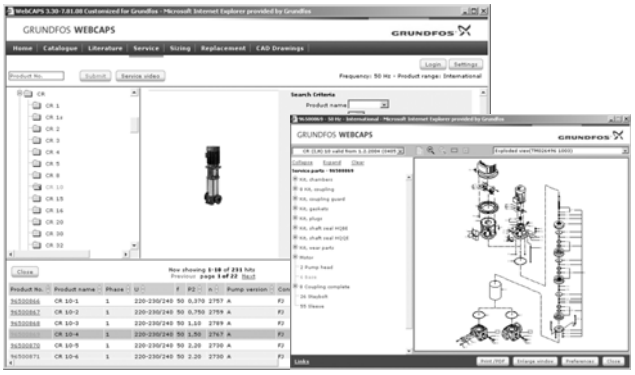
- technical data
- curves (QH, Eta, P1, P2, etc.) which can be adapted to the density and viscosity of the pumped liquid and show the number of pumps in operation
- product photos
- dimensional drawings
- wiring diagrams
- quotation texts, etc.



Literature

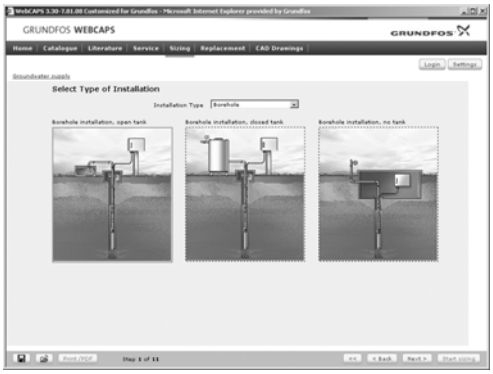
This section contains all the latest documents of a given pump, such as

- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures.



Service

This section contains an easy-to-use interactive service catalogue. Here you can find and identify service parts of both existing and discontinued Grundfos pumps.
Furthermore, the section contains service videos showing you how to replace service parts.



Sizing

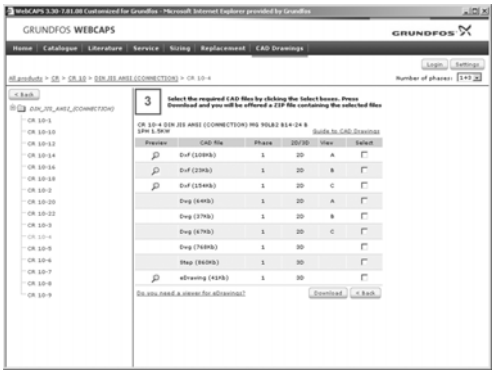
This section is based on different fields of application and installation examples and gives easy step-by-step instructions in how to size a product:

- Select the most suitable and efficient pump for your installation.
- Carry out advanced calculations based on energy, consumption, payback periods, load profiles, life cycle costs, etc.
- Analyse your selected pump via the built-in life cycle cost tool.
- Determine the flow velocity in wastewater applications, etc.

Replacement

In this section you find a guide to selecting and comparing replacement data of an installed pump in order to replace the pump with a more efficient Grundfos pump.
The section contains replacement data of a wide range of pumps produced by other manufacturers than Grundfos.

Based on an easy step-by-step guide, you can compare Grundfos pumps with the one you have installed on your site. When you have specified the installed pump, the guide will suggest a number of Grundfos pumps which can improve both comfort and efficiency.



CAD drawings

In this section, it is possible to download 2-dimensional (2D) and 3-dimensional (3D) CAD drawings of most Grundfos pumps.

These formats are available in WebCAPS:

2-dimensional drawings:

- .dxf, wireframe drawings
- .dwg, wireframe drawings.

3-dimensional drawings:

- .dwg, wireframe drawings (without surfaces)
- .stp, solid drawings (with surfaces)
- .eprt, E-drawings.

WinCAPS

Fig. 22 WinCAPS DVD

WinCAPS is a **Win**dows-based **C**omputer **A**ided **P**roduct **S**election program containing detailed information on more than 220,000 Grundfos products in more than 30 languages.

The program contains the same features and functions as WebCAPS, but is an ideal solution if no internet connection is available.

WinCAPS is available on DVD and updated once a year.

Subject to alterations.

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