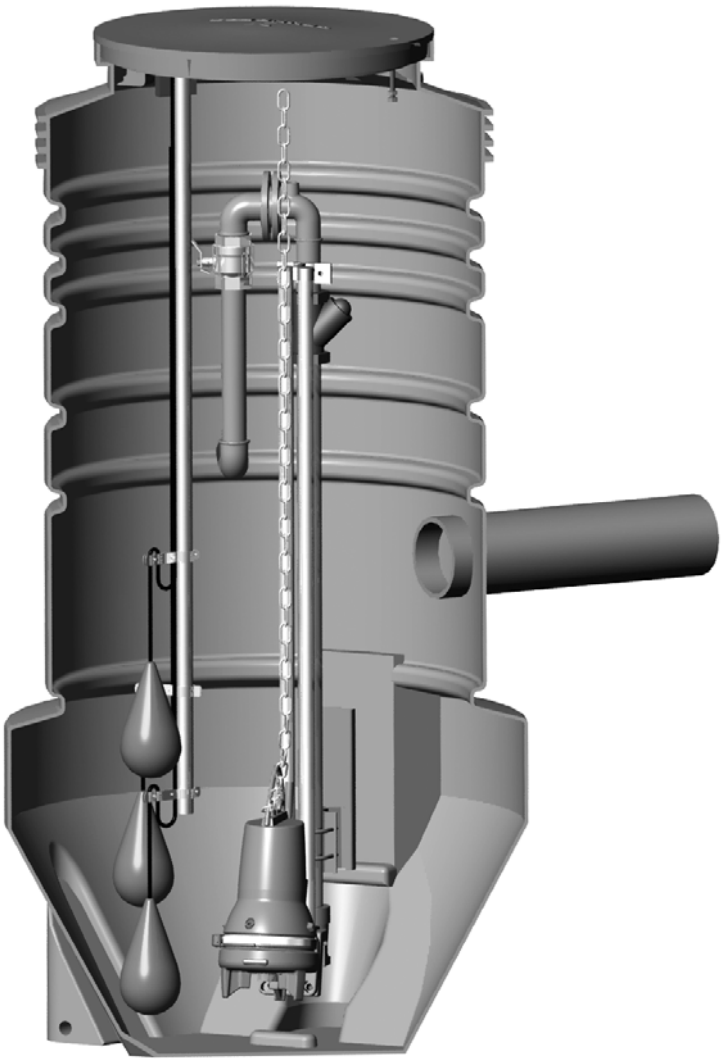
Grundfos small pumping stations



Contents

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/PP or stainless steel (AISI 304).

Unless another solution is selected, the tanks are supplied with a PE-HD cover which is locked with a special M10 bolt.

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 with a diameter 200 mm bigger than that of the tank 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 needed components in the pumping station can be reached from the top. As the auto-coupling is fixed on the bottom without screws, it is possible to remove it together with the pipework without entering the tank.

Introduction

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.

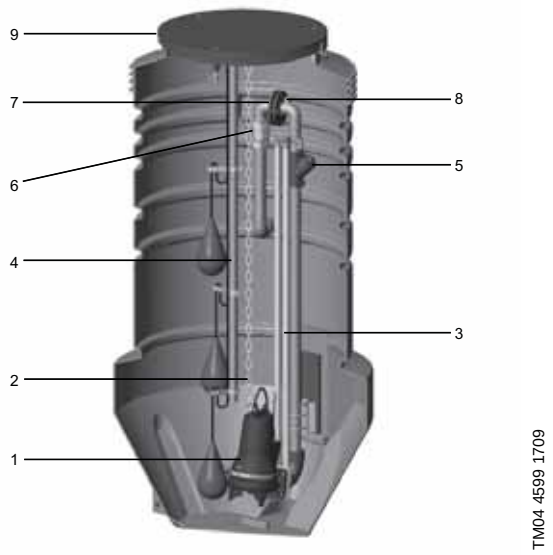


Fig. 1 Example of version

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.

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.

Identification

Identification

Type key

Example	PUST 08.	20.	S.	A.	SS.	SEG

Grundfos pumping station (standard)

Diameter:
04 = ∅400 mm
06 = ∅600 mm
08 = ∅800 mm
10 = ∅1000 mm

Depth:
15 = 1500 mm
20 = 2000 mm
25 = 2500 mm
30 = 3000 mm

S = One pump
D = Two 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 and Unilift AP35
AP50 = Unilift AP12.50 and Unilift AP50
APB = Unilift AP35B and Unilift AP50B
DPEF = DP (0.6 - 1.5 kW) and EF
DPSE = DP (2.6 kW), SL1.50.65 and SLV.65.65 (up to 3 kW)
SEG = SEG

Nameplate

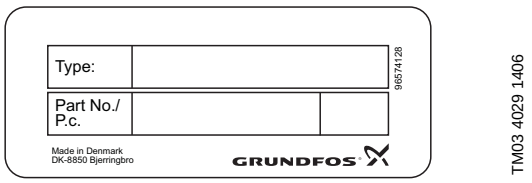


Fig. 2 Nameplate

Key to the nameplate

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

Selection of products

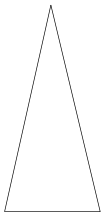
When ordering a Grundfos pumping station, you need to take the following six aspects into consideration:

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.

The tanks are prepared for one of the following pump types, depending on the pumped liquid:

Pump type	Particle size
Unilift KP, Unilift CC	
Unilift AP	
DP	
SL1.50.65	
SL1.50.65 up to 3 kW	
SLV.65.65 up to 3 kW	
SEG	

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 21 for dimensions and for calculation of needed volume.

Depth [mm]	∅400	∅600	∅800	∅1000 One pump	∅1000 Two pumps
1000		X	X		
1500		X	X	X	
2000	X	X	X	X	X
2500		X	X	X	X
3000		X		X	X

4. Level system

If an LC or LCD controller is used, a range of level systems can be selected for pre-installation in the pumping station. The level system is selected according to tank depth and controller type.

The level system includes level sensors, holders for level sensors and a pipe mounted in the pumping station for easy installation and service of the level sensors.

5. Pump controller

Some pumps are available with a float switch connected directly to the pump and thus require no external control.

The following LC and LCD pump controllers are available:

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

LC controllers are for one-pump installations and LCD controllers for two-pump installations. See the specific data booklet or WebCAPS.

6. Accessories

Depending on the installation type, accessories may be required. See section Accessories on page 13 for selection of the correct accessories.

Note: Accessories ordered are not fitted from factory.

Product range

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	Pipe material	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	DN 40	0.1	45	96235288
PUST06.20.S.A.SS.SEG	600	2000	1	A	SS	SEG40	DN 50	0.28	95	96235289
PUST06.25.S.A.SS.SEG	600	2500	1	A	SS	SEG40	DN 50	0.28	131	96235290
PUST06.20.S.W.SS.SEG	600	2000	1	W	SS	SEG40	DN 50	0.28	95	96235291
PUST06.25.S.W.SS.SEG	600	2500	1	W	SS	SEG40	DN 50	0.28	131	96235292
PUST06.20.S.A.SS.APB	600	2000	1	A	SS	AP35B/AP50B	DN 50	0.28	95	96235293
PUST06.25.S.A.SS.APB	600	2500	1	A	SS	AP35B/AP50B	DN 50	0.28	131	96235294
PUST06.20.S.S.PE.AP50	600	2000	1	S	PE	AP12.50/AP50	DN 50	0.28	58	96235295
PUST06.25.S.S.PE.AP50	600	2500	1	S	PE	AP12.50/AP50	DN 50	0.28	71	96235296
PUST06.20.S.S.PE.AP35	600	2000	1	S	PE	AP12.40/AP35	DN 50	0.28	58	96235297
PUST06.25.S.S.PE.AP35	600	2500	1	S	PE	AP12.40/AP35	DN 50	0.28	71	96235298
PUST06.20.S.S.PE.DPEF	600	2000	1	S	PE	DP10.50/EF30	DN 50	0.28	62	96235299
PUST06.25.S.S.PE.DPEF	600	2500	1	S	PE	DP10.50/EF30	DN 50	0.28	76	96235300
PUST08.15.S.A.SS.SEG	800	1500	1	A	SS	SEG40	DN 50	0.42	103	96235270
PUST08.20.S.A.SS.SEG	800	2000	1	A	SS	SEG40	DN 50	0.42	123	96235271
PUST08.25.S.A.SS.SEG	800	2500	1	A	SS	SEG40	DN 50	0.42	166	96235272
PUST08.15.S.W.SS.SEG	800	1500	1	W	SS	SEG40	DN 50	0.42	103	96235273
PUST08.20.S.W.SS.SEG	800	2000	1	W	SS	SEG40	DN 50	0.42	123	96235274
PUST08.25.S.W.SS.SEG	800	2500	1	W	SS	SEG40	DN 50	0.42	166	96235275
PUST08.15.S.A.SS.APB	800	1500	1	A	SS	AP35B/AP50B	DN 50	0.42	103	96235276
PUST08.20.S.A.SS.APB	800	2000	1	A	SS	AP35B/AP50B	DN 50	0.42	123	96235277
PUST08.25.S.A.SS.APB	800	2500	1	A	SS	AP35B/AP50B	DN 50	0.42	166	96235278
PUST08.15.S.S.PE.AP50	800	1500	1	S	PE	AP12.50/AP50	DN 50	0.42	69	96235279
PUST08.20.S.S.PE.AP50	800	2000	1	S	PE	AP12.50/AP50	DN 50	0.42	86	96235280
PUST08.25.S.S.PE.AP50	800	2500	1	S	PE	AP12.50/AP50	DN 50	0.42	106	96235281
PUST08.15.S.S.PE.AP35	800	1500	1	S	PE	AP12.40/AP35	DN 50	0.42	69	96235282
PUST08.20.S.S.PE.AP35	800	2000	1	S	PE	AP12.40/AP35	DN 50	0.42	86	96235283
PUST08.25.S.S.PE.AP35	800	2500	1	S	PE	AP12.40/AP35	DN 50	0.42	106	96235284
PUST08.15.S.S.PE.DPEF	800	1500	1	S	PE	DP10.50/EF30	DN 50	0.42	73	96235285
PUST08.20.S.S.PE.DPEF	800	2000	1	S	PE	DP10.50/EF30	DN 50	0.42	90	96235286
PUST08.25.S.S.PE.DPEF	800	2500	1	S	PE	DP10.50/EF30	DN 50	0.42	112	96235287
PUST10.15.S.A.SS.SEG	1000	1500	1	A	SS	SEG40	DN 50	0.52	129	96235301
PUST10.20.S.A.SS.SEG	1000	2000	1	A	SS	SEG40	DN 50	0.52	156	96235302
PUST10.25.S.A.SS.SEG	1000	2500	1	A	SS	SEG40	DN 50	0.52	206	96235303
PUST10.30.S.A.SS.SEG	1000	3000	1	A	SS	SEG40	DN50	0.52	256	96738193
PUST10.30.S.W.SS.SEG	1000	3000	1	W	SS	SEG40	DN50	0.52	235	96842395
PUST10.30.S.A.SS_AP50B	1000	3000	1	A	SS	AP50B	DN50	0.52	235	96842397
PUST10.15.S.W.SS.SEG	1000	1500	1	W	SS	SEG40	DN 50	0.52	129	96235304
PUST10.20.S.W.SS.SEG	1000	2000	1	W	SS	SEG40	DN 50	0.52	156	96235305
PUST10.25.S.W.SS.SEG	1000	2500	1	W	SS	SEG40	DN 50	0.52	206	96235306
PUST10.15.S.A.SS.APB	1000	1500	1	A	SS	AP35B/AP50B	DN 50	0.52	129	96235307
PUST10.20.S.A.SS.APB	1000	2000	1	A	SS	AP35B/AP50B	DN 50	0.52	156	96235308
PUST10.25.S.A.SS.APB	1000	2500	1	A	SS	AP35B/AP50B	DN 50	0.52	206	96235309
PUST10.15.S.S.PE.AP50	1000	1500	1	S	PE	AP12.50/AP50	DN 50	0.52	95	96235310

Product range

Type	Diameter [mm]	Depth [mm]	Prepared for number of pumps	Installation of pump	Pipe material	Prepared for pump type	Pipe diameter	Sump volume without pump [m^3]	Weight without pump [kg]	Product number
PUST10.20.S.S.PE.AP50	1000	2000	1	S	PE	AP12.50/AP50	DN 50	0.52	119	96235311
PUST10.25.S.S.PE.AP50	1000	2500	1	S	PE	AP12.50/AP50	DN 50	0.52	146	96235312
PUST10.30.S.S.PE.AP50	1000	3000	1	S	PE	AP50	DN 50	0.52	220	96842571
PUST10.15.S.S.PE.AP35	1000	1500	1	S	PE	AP12.40/AP35	DN 50	0.52	95	96235313
PUST10.20.S.S.PE.AP35	1000	2000	1	S	PE	AP12.40/AP35	DN 50	0.52	119	96235314
PUST10.25.S.S.PE.AP35	1000	2500	1	S	PE	AP12.40/AP35	DN 50	0.52	146	96235315
PUST10.30.S.S.PE.AP35	1000	3000	1	S	PE	AP35	DN 50	0.52	215	96842652
PUST10.15.S.S.PE.DPEF	1000	1500	1	S	PE	DP10.50/EF30	DN 50	0.52	99	96235316
PUST10.20.S.S.PE.DPEF	1000	2000	1	S	PE	DP10.50/EF30	DN 50	0.52	123	96235317
PUST10.25.S.S.PE.DPEF	1000	2500	1	S	PE	DP10.50/EF30	DN 50	0.52	151	96235318
PUST10.30.S.S.PE.DPEF	1000	3000	1	S	PE	DP10.50/EF30	DN50	0.52	179	96738700
PUST10.15.S.A.SS.DPSE	1000	1500	1	A	SS	DP10.65/SL/SLV	DN 65	0.52	165	96235319
PUST10.20.S.A.SS.DPSE	1000	2000	1	A	SS	DP10.65/SL/SLV	DN 65	0.52	200	96235320
PUST10.25.S.A.SS.DPSE	1000	2500	1	A	SS	DP10.65/SL/SLV	DN 65	0.52	264	96235321
PUST10.30.S.A.SS.DPSE	1000	3000	1	A	SS	DP10.65/SL/SLV	DN65	0.52	328	96739056
PUST10.20.D.A.SS.SEG	1000	2000	2	A	SS	SEG40	DN 50	0.55	199	96235322
PUST10.25.D.A.SS.SEG	1000	2500	2	A	SS	SEG40	DN 50	0.55	234	96235323
PUST10.30.D.A.SS.SEG	1000	3000	2	A	SS	SEG40	DN 50	0.55	269	96703321
PUST10.30.D.W.SS_SEG	1000	3000	2	W	SS	SEG40	DN 50	0,55	270	96842437
PUST10.20.D.W.SS.SEG	1000	2000	2	W	SS	SEG40	DN 50	0.55	199	96235324
PUST10.25.D.W.SS.SEG	1000	2500	2	W	SS	SEG40	DN 50	0.55	234	96235325
PUST10.20.D.A.SS.APB	1000	2000	2	A	SS	AP35B/AP50B	DN 50	0.55	199	96235326
PUST10.25.D.A.SS.APB	1000	2500	2	A	SS	AP35B/AP50B	DN 50	0.55	234	96235327
PUST10.30.D.A.SS_AP50B	1000	3000	2	A	SS	AP50B	DN 50	0.55	270	96842438
PUST10.20.D.S.PE.AP50	1000	2000	2	S	PE	AP12.50/AP50	DN 50	0.55	135	96235328
PUST10.25.D.S.PE.AP50	1000	2500	2	S	PE	AP12.50/AP50	DN 50	0.55	163	96235329
PUST10.30.D.S.PE.AP50	1000	3000	2	S	PE	AP50	DN 50	0.55	230	96842655
PUST10.20.D.S.PE.AP35	1000	2000	2	S	PE	AP12.40/AP35	DN 50	0.55	135	96235330
PUST10.25.D.S.PE.AP35	1000	2500	2	S	PE	AP12.40/AP35	DN 50	0.55	163	96235331
PUST10.30.D.S.PE.AP35	1000	3000	2	S	PE	AP35	DN 50	0.55	225	96772124
PUST10.20.D.S.PE.DPEF	1000	2000	2	S	PE	DP10.50/EF30	DN 50	0.55	144	96235332
PUST10.25.D.S.PE.DPEF	1000	2500	2	S	PE	DP10.50/EF30	DN 50	0.55	172	96235333
PUST10.30.D.S.PE.DPEF	1000	3000	2	S	PE	DP10.50/EF30	DN 50	0.55	205	96738699
PUST10.20.D.A.SS.DPSE	1000	2000	2	A	SS	DP10.65/SL/SLV	DN 65	0.55	277	96235334
PUST10.25.D.A.SS.DPSE	1000	2500	2	A	SS	DP10.65/SL/SLV	DN 65	0.55	312	96235335
PUST10.30.D.A.SS.DPSE	1000	3000	2	A	SS	DP10.65/SL/SLV	DN 65	0.55	347	96739055

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 small 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.

Construction

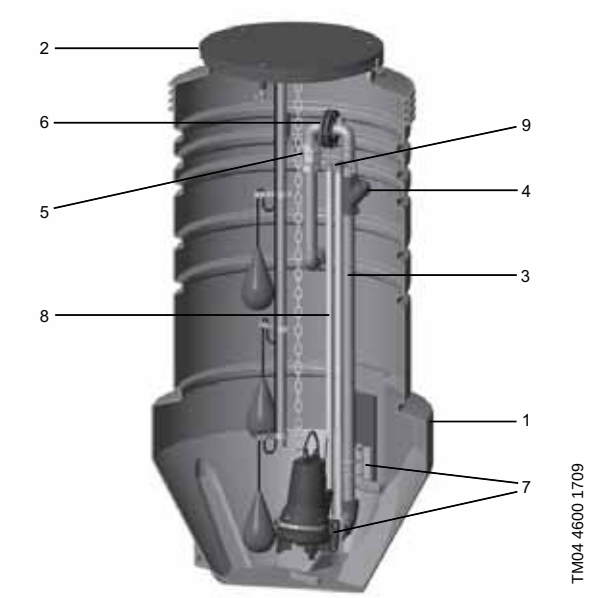


Fig. 3 Grundfos small pumping station

Material specification

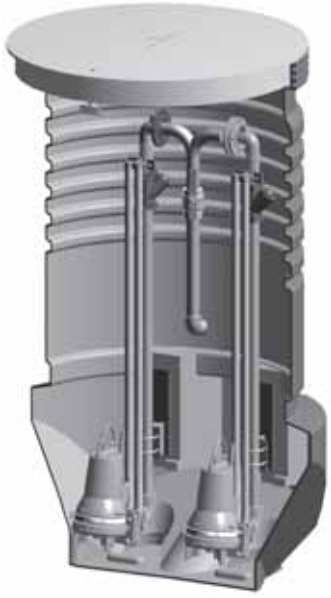
Pos.	Component	Material			
		Free-standing installation	Auto-coupling installation	DIN W.-Nr./ EN standard	AISI/ ASTM
1	Tank	PE HD	PE HD	-	-
2	Cover	PE HD	PE HD	-	-
3	Piping	-	Stainless steel	1.4301	304
		PE	-	-	-
		PP	PP	-	-
4	Non-return valve	NBR rubber and stainless steel	-	1.4301	304
		-	Stainless steel	1.4401	316
5	Ball closing valve	PP	-	-	-
		-	Stainless steel	1.4301	304
6	Pipe coupling	PP quick-coupling	-	-	-
		-	Flange Stainless steel	1.4301	304
7	Auto-coupling on bottom	-	Cast iron	EN-GJL-250/ EN-JL 1040	-
		-	Stainless steel	1.4301	304
	Auto-coupling on wall	-	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	Stainless steel	1.4301	304
	Screws	Stainless steel	Stainless steel	1.4301	304

Construction

Tank versions

TM04 4617 1809

Tank with one pump on auto-coupling



TM04 4597 1709

Tank with two pumps on auto-coupling

TM04 4596 1709

Tank with free-standing pump

TM04 4618 1709

Tank with pump on wall-mounted auto-coupling

Fig. 4 Examples of tank version

Cover

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. 5 Cover

TM02 9498 0805

Fig. 6 Locked cover

Accessories

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

Accessories

Controller

Options
- 1- and 2-pump controllers
- Level control, log option
- Communication: SMS, GRM
- No display.

TM04 3451 4408

TM04 3452 4408

LC or LCD
LC, LCD 107 for air bells
LC, LCD 108 for float switches
LC, LCD 110 for electrodes

Controls

Dedicated Controls

GrA7779p - GrA7777p

Options
- 1- and 2-pump controllers
- Level control, 4-20 mA
- Communication: SMS, GSM, GPRS, GRM
- Panel solution with switchgear
- Logs: Starts, runtime and alarms.

Please contact your local Grundfos company.

Accessories

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
2	Hole saw 	TM04 4601 1709		Centre drill	91712026
			40	Hole saw, 51 mm	95571532
			50	Hole saw, 60 mm	96571533
			63	Hole saw, 75 mm	96571534
			75	Hole saw, 86 mm	96571535
			90	Hole saw, 102 mm	97571536
			110	Hole saw, 127 mm	91713756
			160	Hole saw, 177 mm	91713755
3	Insulation jacket 	TM04 4602 1709		For frost protection, the insulation jacket is fitted directly over pipes and valves.	96571529
4	Ventilation kit 	TTM04 4603 1709		Ventilation kit (50 mm)	96571531
5	Air bell 	TM04 4604 1709		Please refer to the brochure on LC, LCD level controllers. For further information, contact your local Grundfos company.	

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.

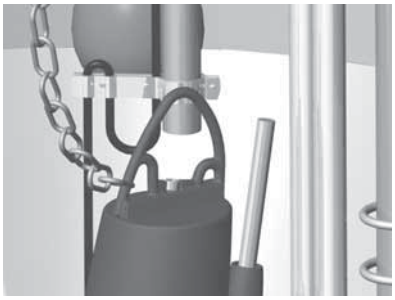
Note: The pump must be lowered carefully into the tank in order to avoid damage to pump and tank.

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

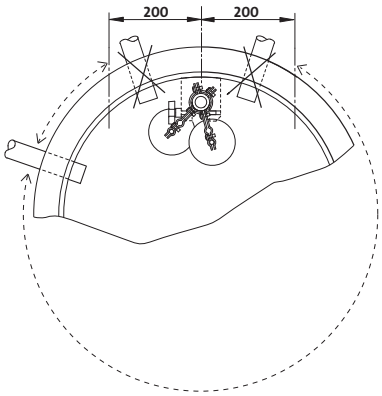
Fig. 6 Chain fitted to pump

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. 7, as it will disturb the function of the float switches.



TM02 8961 1204

Fig. 7 Location of inlet

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.

CE-marking

Pumping stations are not encompassed by any directive and can thus not be CE-marked. There is therefore no declaration of conformity for the complete pumping station. The main components of the pumping station, i.e. the pump and controller, are, however, 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.

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.

$$Z_{max} = \frac{Q \times 3.6}{4 \times V_h} \quad (Z_{max} = \text{maximum starts per hour})$$

By isolating V_h we get:

$$V_h = \frac{Q \times 3.6}{4 \times Z_{max}} \quad \text{(Necessary minimum accumulated volume between start and stop)}$$

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.

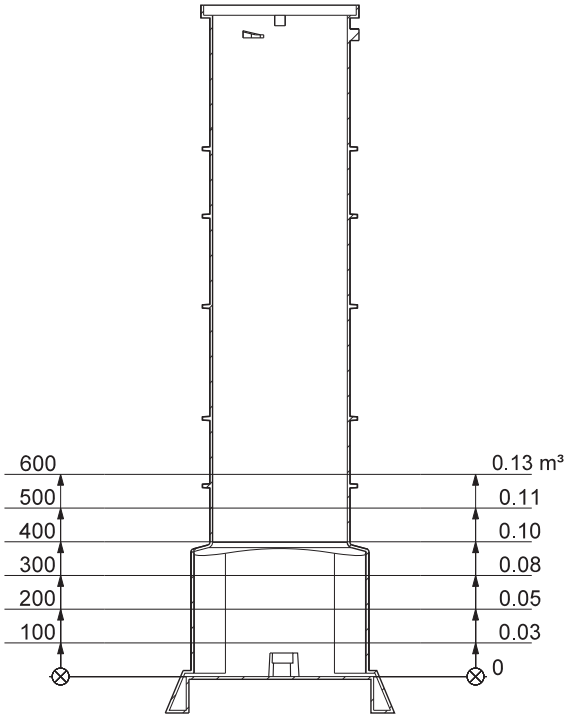


Fig. 8 Effective volume in relation to level, PUST400

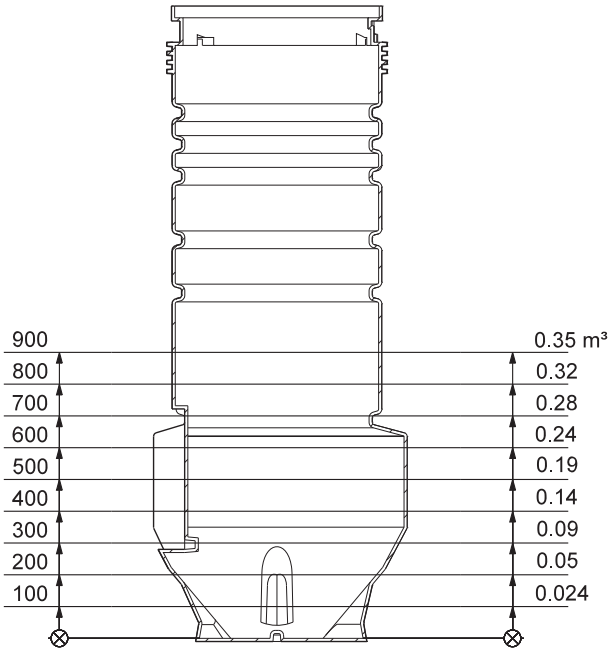


Fig. 9 Effective volume in relation to level, PUST600

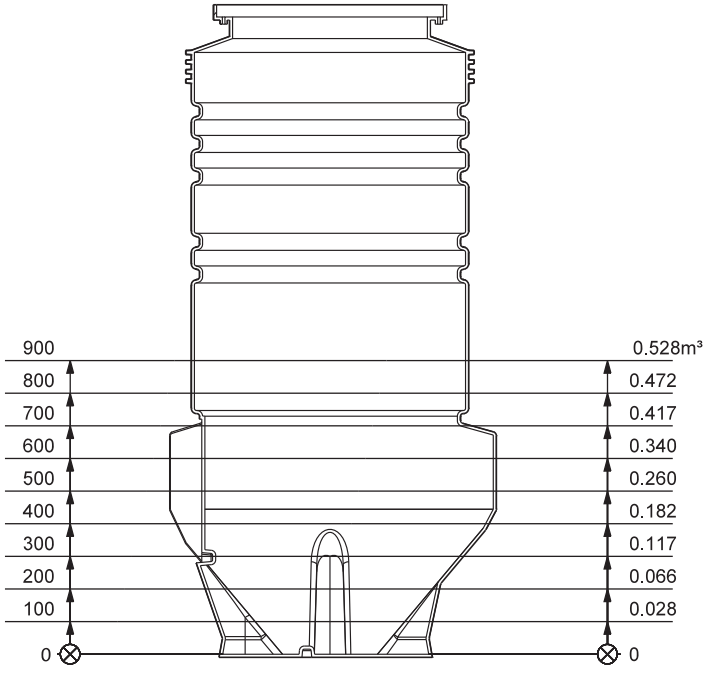


Fig. 10 Effective volume in relation to level, PUST800

Dimensions

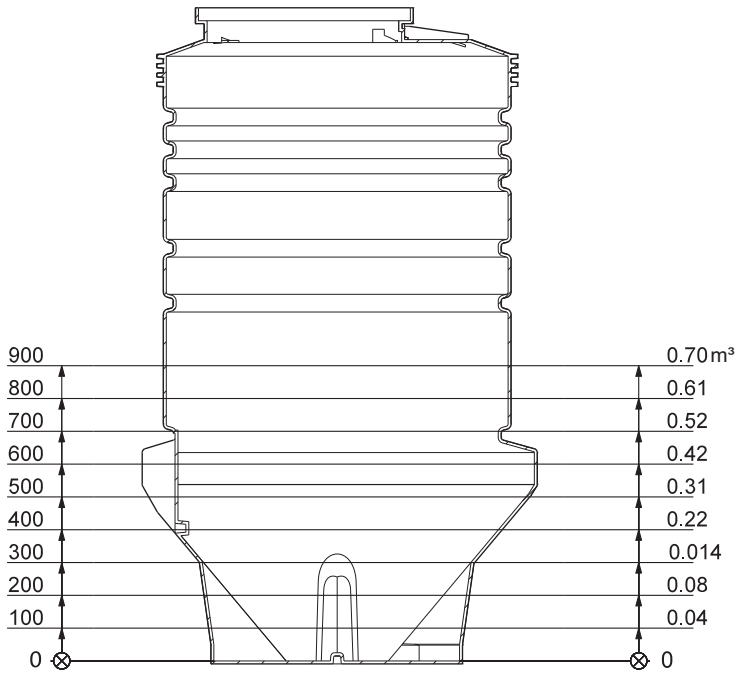


Fig. 11 Effective volume in relation to level, PUST1000 (one pump)

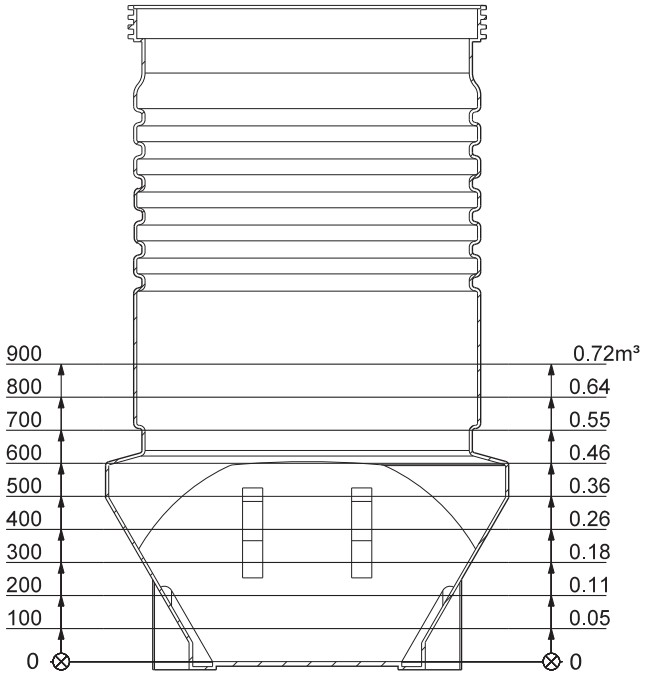


Fig. 12 Effective volume in relation to level, PUST1000 (two pumps)

Dimensions

Dimensions

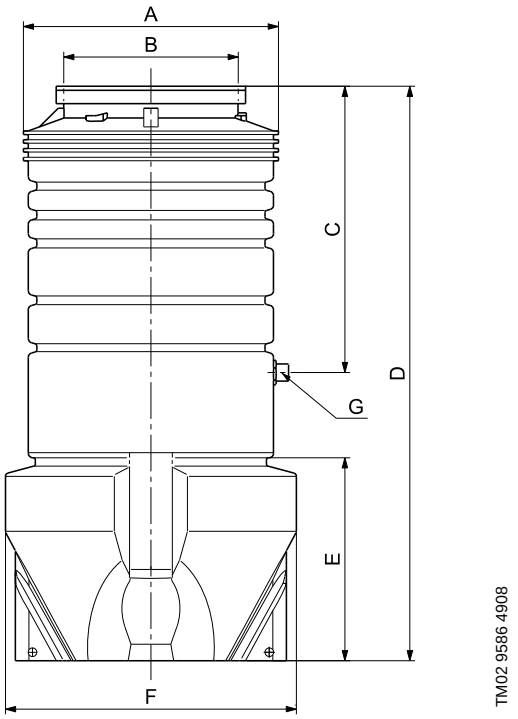


Fig. 13 Dimensional sketch

Pos.	∅400	∅600	∅800	∅1000S	∅1000D
A	400	694	894	1094	1094
B	400	590	590	590	980
C	1000	1000	1000*	1000*	1000*
D	2000	1000/1500*/2000/2500/3000	1000/1500*/2000/2500	1500*/2000/2500/3000	2000/2500/3000
E	390	690	690	690	690
F	528	820	1020	1220	1220
G	DN 40	DN 50	DN 50	DN 50	DN 50**

Tolerances for PE material are ± 3 %.

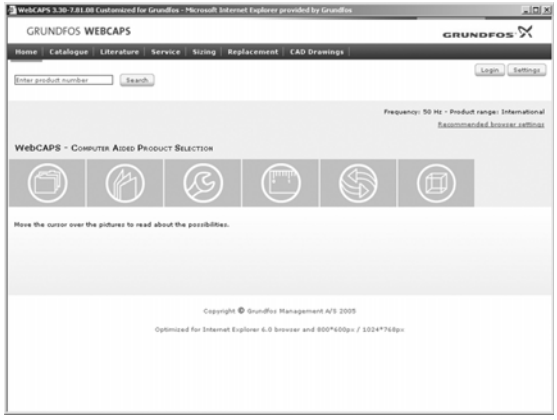
* For 1500 mm tanks, dimension E can vary from 750 mm to 1000 mm.

** DN 65 when prepared for pump DP (2.6 kW), SL1 and SLV.

Weight, see section *Product range*.

Further product documentation

WebCAPS



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

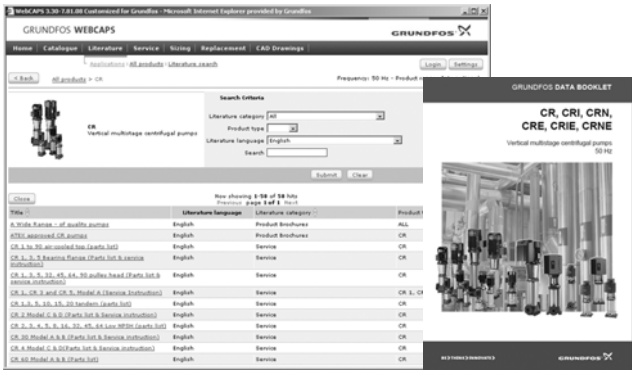
WebCAPS contains detailed information on more than 185,000 Grundfos products in more than 20 languages.

In WebCAPS, all information is divided into 6 sections:

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

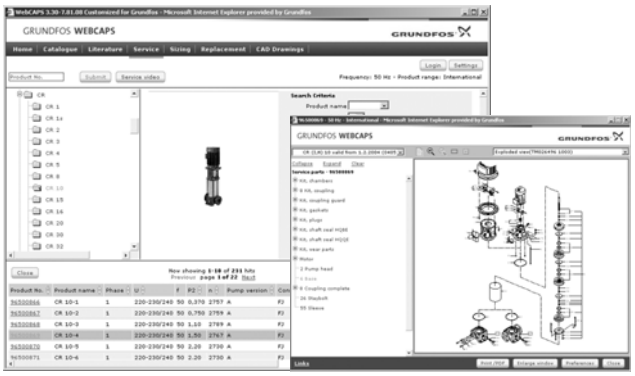
Catalogue

This section is based on fields of application and pump types, and contains
- 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

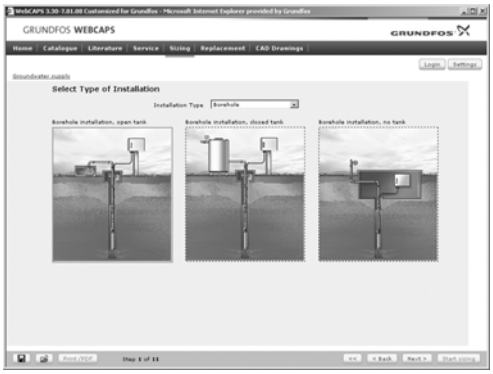
In this section you can access all the latest documents of a given pump, such as
- data booklets
- installation and operating instructions
- service documentation, such as Service kit catalogue and Service kit instructions
- quick guides
- product brochures.



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, this section contains service videos showing you how to replace service parts.

Further product documentation



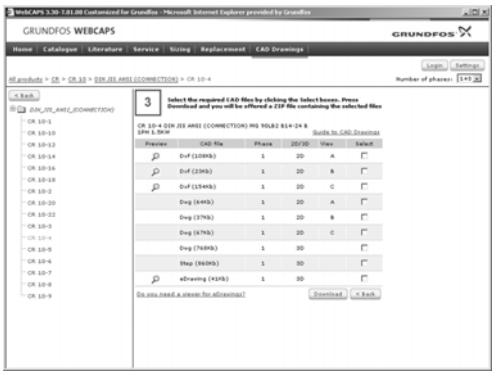
Sizing

This section is based on different fields of application and installation examples, and gives easy step-by-step instructions in how to
- 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. 14 WinCAPS CD-ROM

WinCAPS is a **Win**dows-based **C**omputer **A**ided **P**roduct **S**election program containing detailed information on more than 185,000 Grundfos products in more than 20 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 CD-ROM and updated once a year.

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Subject to alterations.

GRUNDFOS A/S . DK-8850 Bjerringbro . Denmark
Telephone: +45 87 50 14 00

www.grundfos.com

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