

Large prefabricated pumping stations



High quality pumping stations for every application



Customised for your needs

Grundfos offers a range of large, prefabricated pumping stations. The main structure of these pumping stations is made from continuous filament-wound glass-fibre reinforced polystyrene (GRP) that makes for an extremely sturdy and durable construction.

All-in-one units

We are able to prefabricate these pumping stations exactly to your specifications, as dry or wet pits, or a combination of both, as required. The pumping stations are delivered as all-in-one units, complete with pumps, piping, valves, controls, and service facilities, etc.

Everything from one supplier

In short: tell us how you want your pumping station designed and what you want inside it, and we will deliver the complete package to you! Getting everything from one supplier, you can be certain that every part meets the most stringent quality requirements and fits perfectly together.

› Virtually indestructible

Filament wound, glass-reinforced polyester offers twice the strength of traditional laminated GRP. It is fully resistant to rot or tear and other destructive forces, and is guaranteed to keep water where it is supposed to be practically forever.

› Made to order

Our large pumping stations are always made entirely to order. Special materials and surface coatings are available for applications involving aggressive effluents such as acids, oils or alkaline materials.

› Any size and configuration

The pumping stations can be constructed to meet almost any requirement to size and configuration. Maximum standard depth is 12 meters. The pumping stations are offered as a complete package. At the back of this brochure we present the entire range of Grundfos wastewater pumps and other wastewater products.

For further information, please visit
www.grundfos.com/wastewater
www.grundfos.com/pumpingstations

The Grundfos range of customised, large pumping stations lets you choose between different installation variants

Model Integra pumping station



Pumping station with dry installed pumps. Patented system with integrated dry and wet well chambers in one unit. Pre-installed and factory tested before delivery, minimizes on-site installation time and provides high reliability.

Suitable for pumps up to 50 kW, Grundfos SE1, SEV, SEN and S-pump ranges.

| Tank diameter mm | Height | Max. pipework DN |
|------------------|------------|------------------|
| 2200 | 4.5 - 12 m | 150 |
| 3000 | | 200 |

Wet well PS with service cabin



Pumping station with wet well and above-ground insulated service cabin, 2.5 x 2.5 m or 3.3 x 3.3 m. Lifting devices for easy pump handling. Pre-installed and factory tested before delivery, minimizes on-site installation time and provides high reliability.

Suitable for pumps up to 50 kW, Grundfos SE1, SEV, SEN and S-pump ranges. Installation on auto-coupling system.

| Tank diameter mm | Height | Max. pipework DN |
|------------------|------------|------------------|
| 1400 | up to 12 m | 100 |
| 1800 | | 150 |
| 2200 | | 200 |
| 3000 | | 300 |

Model Wet Well PS



Wet-well pumping station with or without built-in service platform and above-ground control panel. Pre-installed and factory tested before delivery, minimizes on-site installation time and provides high reliability.

Suitable for pumps up to 160 kW, vertical wet installation on auto coupling, Grundfos SE1, SEV, SEN and S-pump ranges.

| Tank diameter mm | Height | Max. pipework DN |
|------------------|------------|------------------|
| 1400 | up to 12 m | 100 |
| 1800 | | 150 |
| 2200 | | 200 |
| 3000 | | 300 |

Fully custom-made pumping stations



Fully custom-made solutions designed by Grundfos' own design department according to customer's specifications. Two or more integrated tanks, or separate tanks as required. A variety of special equipment, or special pump layout. Almost everything is possible.

Check our web-site for references on custom-made solutions at www.grundfos.com/pumpingstations.

| Tank diameter mm | Height | Max. pipework DN |
|------------------|------------|------------------|
| 1400 | up to 12 m | 100 |
| 1800 | | 150 |
| 2200 | | 200 |
| 3000 | | 300 |

Model Integra pumping station

Quality in every detail

The Grundfos model Integra pumping stations can be individually configured for maximum installation freedom and flexibility. High-quality materials and components are used throughout.



1

Gas springs designed for easy opening of the hatch. Anti-slip roughing on the cover. Optional thermal insulation. Elevated hatch frame to prevent accidental falls. Lockable hatch.



2

Continuous filament wound, glass-reinforced polyester tank. Computer-controlled manufacturing process ensures high uniform quality and robustness.



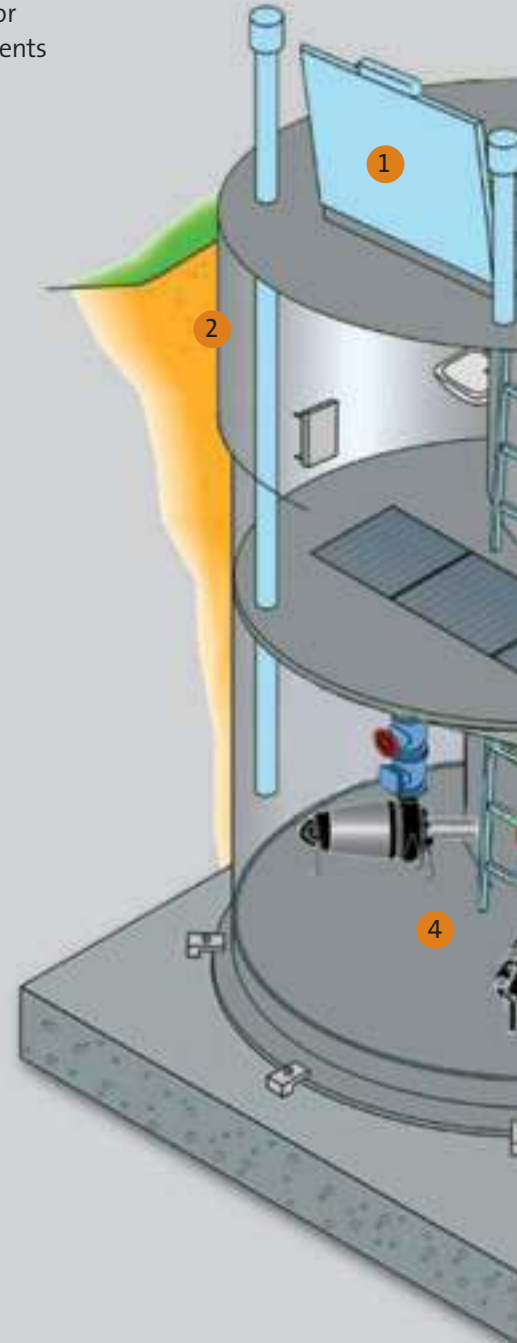
3

All pipework thoroughly pressure tested before delivery.

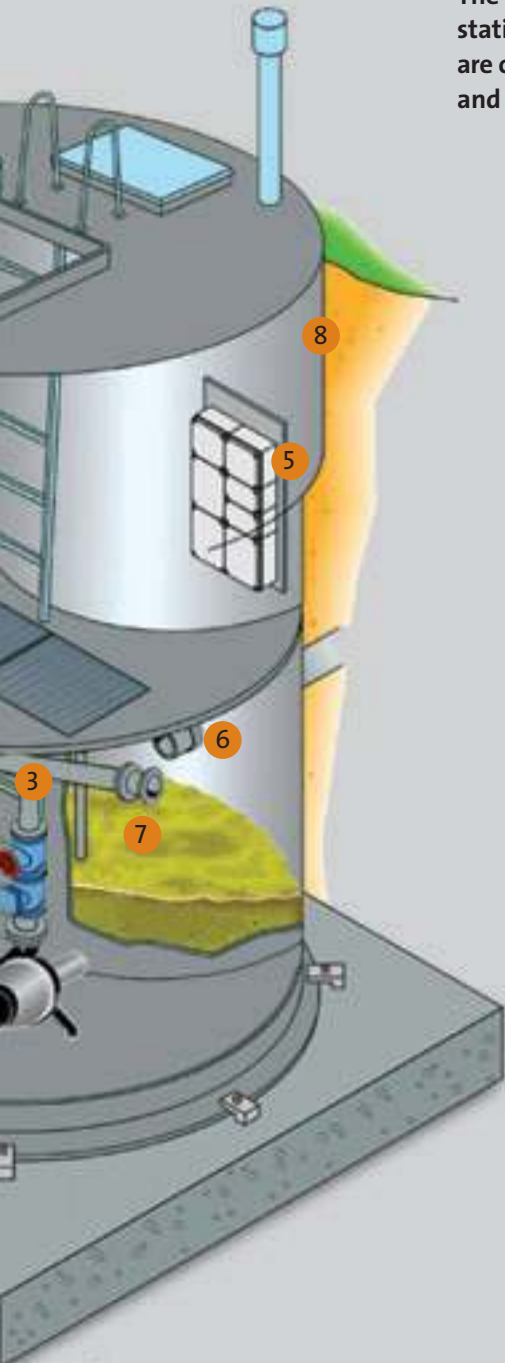


4

Optional heater and drainage pump for pit bottom.



The various details and features presented on these pages apply for all pumping stations variants, including those presented on pages 6 and 7. Some of the features are optional and are presented here for reference only. The features may vary in design and placement according to customer requirements. Further options, see page 14.



5

Watertight inlets for power cable and grounding cable for dry installed pumps.



6

Flanged inlet or inlet sleeve for PE/PVC pipe up to DN 1000.



7

Pipework up to DN 300, stainless steel AISI 304 or optionally AISI 316. Straight outlets with sturdy cast-iron outlet piece.



8

External lifting brackets for easy handling.



Suitable for pumps up to 50 kW, vertical or horizontal dry installation of Grundfos SE1, SEV, SEN and S-pump ranges.



Model wet well PS

The various details and features presented on these pages apply for all pumping stations variants, including those presented on pages 4 and 5. Some of the features are optional and are presented here for reference only. The features may vary in design and placement according to customer requirements. Further options, see page 14.



1 Water hose with spray nozzle for cleaning.

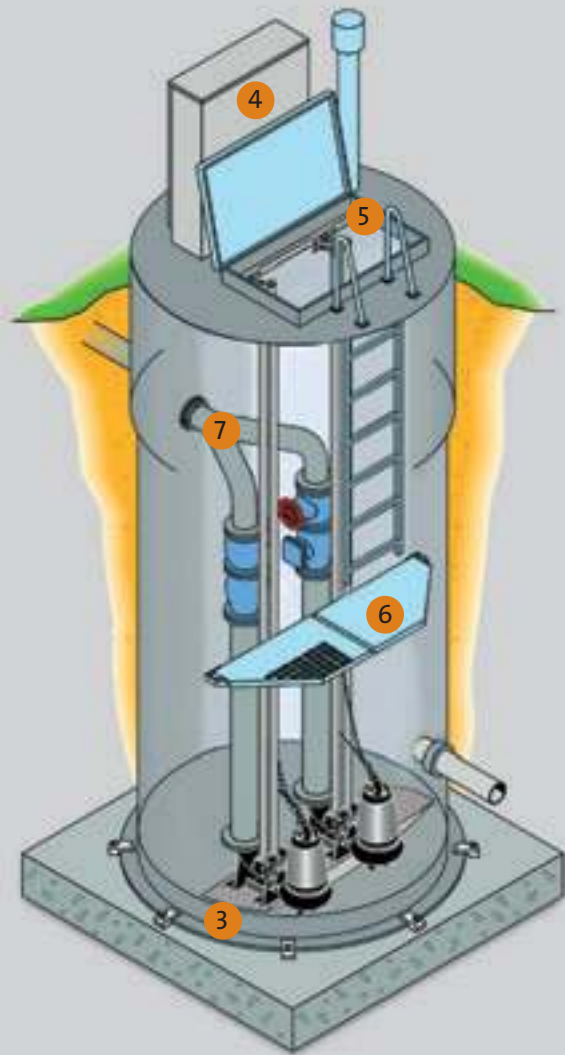


2 The Grundfos pumping stations model PS wet well are available with or without above-ground service cabin, 2.5 x 2.5 m or 3.3 x 3.3 m. The cabin is fully insulated and can be supplied with heating and/or A/C system.



3 Stainless steel installation plate enables upgrading of pipework, pumps and base plate in order to handle increased flow rates. Spherical bottom prevents bottom-shape change due to high ground water level.





4

Control panel may be placed in a cabinet mounted on the pumping station top cover, in a separate cabinet placed on the ground, or inside a service cabin.



5

Hatches with aluminium cover. Optional aluminium safety grid. Stainless steel (AISI 304) ventilation pipes and hand rails.



6

Built-in service platform, custom design and placement.



7

Different pressure pipework available to meet national requirements.



Pumping stations model PS are suitable for pumps up to 160 kW, Grundfos SE1, SEV, SEN and S-pump ranges. Installation on auto-coupling system.

Type key and technical data

Type key

| | | | | | | | | | |
|---|--|----|------|----|----|-----|----|------|-----|
| Example: | PUST | 18 | .045 | .D | .A | .SS | .I | .GRP | .SE |
| Diameter | | | | | | | | | |
| 14 | = Ø 1400 mm | | | | | | | | |
| 18 | = Ø 1800 mm | | | | | | | | |
| 22 | = Ø 2200 mm | | | | | | | | |
| 30 | = Ø 3000 mm | | | | | | | | |
| Length | | | | | | | | | |
| 020 | = 2000 mm | | | | | | | | |
| 021 | = 2100 mm | | | | | | | | |
| 120 | = 12000 mm | | | | | | | | |
| Single, Double or Triple pumps S, D or T | | | | | | | | | |
| Installation type | | | | | | | | | |
| A | = Auto coupling | | | | | | | | |
| S | = Free standing | | | | | | | | |
| H | = Horizontal, dry | | | | | | | | |
| V | = Vertical, dry | | | | | | | | |
| Pipe material | | | | | | | | | |
| PE | = Polyethylene | | | | | | | | |
| SS | = Stainless steel | | | | | | | | |
| Application type | | | | | | | | | |
| I | = Integra | | | | | | | | |
| W | = Wet well | | | | | | | | |
| C | = Wet well with service cabin | | | | | | | | |
| V | = Other Variants | | | | | | | | |
| Pumpstation material | | | | | | | | | |
| GRP | = Glass Reinforced Plastic | | | | | | | | |
| PE | = Poly Ethylene | | | | | | | | |
| Prepared for pump type | | | | | | | | | |
| DPEF | = DP(0.6-1.5 kW), EF | | | | | | | | |
| DPSE | = DP(2.6kW), SE1.50/SEV65 (0.9-1.5 kW) | | | | | | | | |
| SEG | = SEG range | | | | | | | | |
| SE | = SE1 and SEV from 1.1-11 kW | | | | | | | | |
| GE1 | = GE range 34-50 | | | | | | | | |
| GE12 | = GE range 54-66 | | | | | | | | |
| GE65 | = GE range 70-78 | | | | | | | | |

Material specifications

The following specifications are standard.

The pumping stations can be fully customised according to customer's specifications.

| Description | Dry well Pumping station | Wet well Pumping station | Wet well with service cabin |
|--------------------------------|---|---|--|
| Tank cylinder and bottom part | Filament wound glass-fibre reinforced plastic (GRP), with polyester resin | Filament wound glass-fibre reinforced plastic (GRP), with polyester resin | Filament wound glass-fibre reinforced plastic (GRP), with polyester resin |
| Tank top part | Glass-fibre reinforced plastic (GRP), with polyester resin, UV-resist surface treatment with anti-slippery protection | Glass-fibre reinforced plastic (GRP), with polyester resin, UV-resist surface treatment with anti-slippery protection | Filament wound glass-fibre reinforced plastic (GRP), with polyester resin, UV-resist Gelcoat surface treatment |
| Access cover (manhole) | Aluminium (AlMn F14) | Aluminium (AlMn F14) | Aluminium (AlMn F14) |
| Hand rails | Stainless steel AISI 304 | Stainless steel AISI 304 | - |
| Ventilation pipes | Stainless steel AISI 304 | Stainless steel AISI 304 | PVC |
| Pipework PN 10 pressure class | Stainless steel AISI 304* | Stainless steel AISI 304* | Stainless steel AISI 304* |
| Flanges | Galvanised steel | Galvanised steel | Galvanised steel |
| Non-return valve | GGG40, Epoxy painted, NBR Ball | GGG40, Epoxy painted, NBR Ball | GGG40, Epoxy painted, NBR Ball |
| Gate valve | GGG50, Epoxy painted, wedge NBR covered | GGG50, Epoxy painted, wedge NBR covered | GGG50, Epoxy painted, wedge NBR covered |
| Guide rails | - | Hot dip galvanised steel | Hot dip galvanised steel |
| Ladders | Aluminium | Aluminium | Aluminium |
| Guide rails holder | - | SE range: GG20/S-range: AISI 304 | SE range: GG20/S-range: AISI 304 |
| Auto-coupling or Pump stand | Fe37B + Hot dip galvanised | SE range: GG20/S-range: GG25 | SE range: GG20/S-range: GG25 |
| Service platform | Glass-fibre reinforced plastic (GRP) | Aluminium | Aluminium |
| Bolts and nuts | Hot dip galvanised**/AISI316 | AISI316 | Hot dip galvanised**/AISI316 |
| Anchoring fixtures ***): clamp | GG20 | GG20 | GG20 |
| Bolt | Hot dip galvanised | Hot dip galvanised | Hot dip galvanised |
| Nut + Washer | Hot dip galvanised | Hot dip galvanised | Hot dip galvanised |

Service cabin, pls. see separate material specification separate in ISM programme

*) Optional materials available eg. AISI 316

***) only dry room installations

****) complete kit available also in AISI 316

Selection of pumping stations

The Grundfos range of large prefabricated pumping stations is designed for handling large volumes of drain water, surface water, municipal and industrial wastewater. The correct dimensioning of a pumping

station and the effective sump volume depends on the capacity of the pump and the maximum starts and stops. The table below is an overview of some of the standard solutions offered by Grundfos. Customised versions are available for special requirements.

Prefabricated pumping stations, samples of most common

| Type | Product no. | Diameter mm | Length mm | Prepared for number of pumps | Connection type | Pipe material | Pipe diameter | Wet well surface area m ² | Weight (kg) without pumps and service cabin |
|---------------------------------------|-------------|-------------|-----------|------------------------------|-----------------|---------------|---------------|--------------------------------------|---|
| Integra pumping station | | | | | | | | | |
| PUST22.45.DV.SS.I.GRP.SE | 96609679 | 2200 | 4500 | 2 | Vertical, Dry | SS | DN 80 | 0.9 | 1850 |
| PUST22.45.DV.SS.I.GRP.SE | 96609701 | 2200 | 4500 | 2 | Vertical, Dry | SS | DN 100 | 0.9 | 1925 |
| PUST22.50.DV.SS.I.GRP.SE | 96609706 | 2200 | 5000 | 2 | Vertical, Dry | SS | DN 100 | 0.9 | 2055 |
| PUST22.55.DV.SS.I.GRP.GE12 | 96609708 | 2200 | 5500 | 2 | Vertical, Dry | SS | DN 150 | 0.9 | 2145 |
| PUST22.45.D.H.SS.I.GRP.SE | 96609709 | 2200 | 4500 | 2 | Horizontal, Dry | SS | DN 80 | 0.9 | 1850 |
| PUST22.45.D.H.SS.I.GRP.SE | 96609711 | 2200 | 4500 | 2 | Horizontal, Dry | SS | DN 100 | 0.9 | 1925 |
| PUST22.50.D.H.SS.I.GRP.SE | 96609714 | 2200 | 5000 | 2 | Horizontal, Dry | SS | DN 100 | 0.9 | 2055 |
| PUST22.55.D.H.SS.I.GRP.GE12 | 96609720 | 2200 | 5500 | 2 | Horizontal, Dry | SS | DN 150 | 0.9 | 2145 |
| Wet well pumping station | | | | | | | | | |
| PUST14.35.D.A.SS.W.GRP.SE | 96609638 | 1400 | 3500 | 2 | Autocoupling | SS | DN 80 | 1.54 | 500 |
| PUST14.40.D.A.SS.W.GRP.SE | 96609644 | 1400 | 4000 | 2 | Autocoupling | SS | DN 80 | 1.54 | 550 |
| PUST14.45.D.A.SS.W.GRP.SE | 96609645 | 1400 | 4500 | 2 | Autocoupling | SS | DN 80 | 1.54 | 600 |
| PUST14.35.D.A.SS.W.GRP.SE | 96609647 | 1400 | 3500 | 2 | Autocoupling | SS | DN 100 | 1.54 | 560 |
| PUST14.40.D.A.SS.W.GRP.SE | 96609652 | 1400 | 4000 | 2 | Autocoupling | SS | DN 100 | 1.54 | 610 |
| PUST14.45.D.A.SS.W.GRP.SE | 96609654 | 1400 | 4500 | 2 | Autocoupling | SS | DN 100 | 1.54 | 660 |
| PUST18.45.D.A.SS.W.GRP.SE | 96609656 | 1800 | 4500 | 2 | Autocoupling | SS | DN 100 | 2.54 | 810 |
| PUST18.50.D.A.SS.W.GRP.SE | 96609661 | 1800 | 5000 | 2 | Autocoupling | SS | DN 100 | 2.54 | 860 |
| PUST22.50.D.A.SS.W.GRP.GE12 | 96609662 | 2200 | 5000 | 2 | Autocoupling | SS | DN 150 | 3.79 | 1860 |
| PUST22.50.D.A.SS.W.GRP.GE12 | 96609663 | 2200 | 5000 | 2 | Autocoupling | SS | DN 200 | 3.79 | 2010 |
| PUST30.60.D.A.SS.W.GRP.GE12 | 96609677 | 3000 | 6000 | 2 | Autocoupling | SS | DN 200 | 7.06 | 2545 |
| PUST30.60.D.A.SS.W.GRP.GE12 | 96609678 | 3000 | 6000 | 2 | Autocoupling | SS | DN 250 | 7.06 | 2950 |
| Wet well PS with service cabin | | | | | | | | | |
| PUST14.35.D.A.SS.C.GRP.SE | 96609723 | 1400 | 3500 | 2 | Autocoupling | SS | DN 80 | 1.54 | 910 |
| PUST14.40.D.A.SS.C.GRP.SE | 96609724 | 1400 | 4000 | 2 | Autocoupling | SS | DN 100 | 1.54 | 960 |
| PUST18.40.D.A.SS.C.GRP.SE | 96609725 | 1800 | 4000 | 2 | Autocoupling | SS | DN 100 | 2.54 | 1110 |
| PUST18.45.D.A.SS.C.GRP.GE12 | 96609726 | 1800 | 4500 | 2 | Autocoupling | SS | DN 150 | 2.54 | 1160 |
| PUST22.45.D.A.SS.C.GRP.GE12 | 96609727 | 2200 | 4500 | 2 | Autocoupling | SS | DN 150 | 3.79 | 2160 |
| PUST22.50.D.A.SS.C.GRP.GE12 | 96609728 | 2200 | 5000 | 2 | Autocoupling | SS | DN 150 | 3.79 | 2310 |



Standard wet well pipe configuration with combined discharge pressure pipe.



Customised pipe configuration with two separate discharge pressure pipes.

Control options

Grundfos Modular Controls

The Grundfos Modular Controls system is the first fully integrated multi-purpose pump control system. Designed primarily for use in pumping stations, it is a user-friendly solution, which combines superior technology with an extremely flexible modular approach.



Interaction and control

The modular design ensures a high level of interaction and control. If the needs change, upgrading is simple. The relevant software is quick and easy to install.

The Grundfos Modular Controls are setting a completely new standard for pumping station efficiency. In combination with Grundfos pumps, the Modular Controls allow for substantial savings in installation, maintenance and service costs as well as in the day-to-day operation of the pumps.

Total control – any time, anywhere

The Modular Control system enables a total overview of every detail in the pumping system. The control can be operated and monitored at the pumping station by means of an extremely user-friendly control panel display or on-line via a PC. Wireless control can be established via a mobile telephone and a PC.

If required, the Modular Controls can be incorporated into SCADA system.



The Modular Controls system is based on a number of individual modules and programs, which can be put together in a large number of variants adapted for the size and complexity of the actual pumping station.





Key performance indicators provided by the Modular Controls include:

- Actual water level and flow measurement
 - Pumped-volume and pump efficiency
 - Overflow time measurement and volume estimation
 - Number of starts and operating hours
 - Running time
 - Power consumption and mains supply monitoring
 - Temperature measurement
 - Moisture detection
 - Water-in-oil measurement
 - Overload/underload and overvoltage/undervoltage
 - Phase sequence and phase missing
 - Current unbalance
 - Trend curves for analogue values
 - Alarms, including unique “snapshot” function
- ...and much more.

LC/LCD controls

The Grundfos LC/LCD range of controls is suitable for the Grundfos SEG, S1, SV, SEN, SEV and SE1 pump series.

The LC/LCD controls are designed specially for Grundfos pump systems, ensuring a perfect match between the technologies used. The range comprises a total of six models. The LC/LCD 107 controllers are operated by level bells, the LC/LCD 108 controllers are operated by float switches, and the LC/LCD 110 controllers are operated by electrodes. LC models are designed for single pumps, while the LCD models are designed for two pumps:

LC/LCD controls are ideal for applications with up to 11 kW direct-on-line start motors. The LC and LCD 108 can also be supplied with an integrated star-delta starter for applications with larger motors, up to 30 kW.



For further information on Modular Controls system or the LC/LCD controls, contact your local Grundfos company.

Tailor-made pumping stations

Never a standard product

Large-scale pumping stations are never a standard product. Invariably, they need to be adapted to specific requirements – regardless of whether you are constructing a whole new system or renovating an existing pumping station. This is why Grundfos supplies a complete package of pumping station equipment. Everything is of the highest quality, and our set-up is geared to make station design as simple for you as possible.



Systematic flexibility

What we call the “standard” range of large pumping stations actually isn’t standard at all. Rather, it should be regarded as a number of well-tested options that you can choose from. For maximum efficiency, dedicated selection software helps optimising the design process.

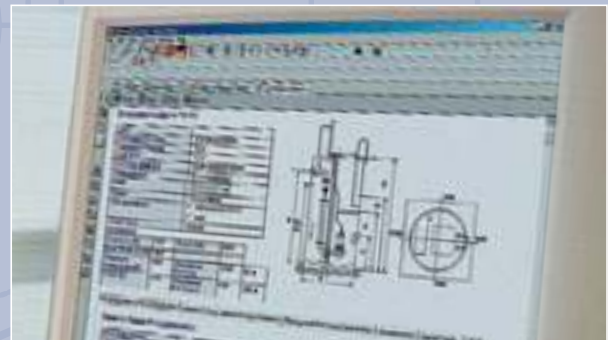
Intelligent software modelling

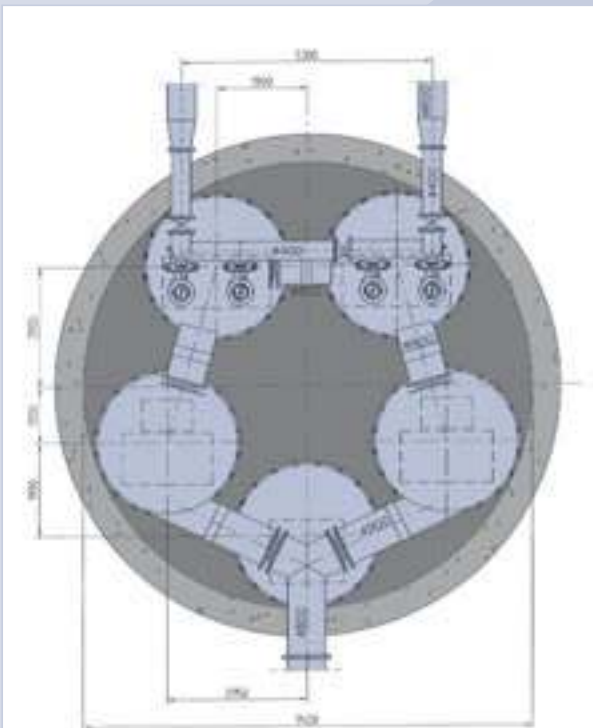
We use Intelligent Software Modelling to handle the many options. The software helps us design the perfect pumping station for you by following a step-by-step procedure.

During this process, the station design is determined (including diameter, depth, and more), options are selected, and controls added – while ensuring that the end result fits together perfectly. This way you get a pumping station design that suits your requirements.

Special solutions

The Intelligent Software Modelling tool enables us to combine our pumping stations elements in whatever way suits the actual circumstances. For instance by linking up several pumping stations, or fitting them inside existing installations, and many more special solutions.





Our customised solutions are ideal for refurbishments as well as for all-new installations. For example, this drawing shows five pumping stations – three sumps and two pits for submerged-installed pumps – connected in parallel inside a large existing concrete well.

Note how the solution is fitted with two outlet connections; an added security feature that is compulsory in several countries.

Refurbishment

As a result of our flexible manufacturing approach, we are also able to undertake refurbishment jobs on existing pumping stations, often without needing to dismantle these and usually also regardless of what sort of materials these are constructed from.

This may mean substantial savings on construction costs and logistics while eliminating undesirable and costly disruptions to the pumping station's surroundings.



Options and accessories

A large number of options and customised solutions are available for the Grundfos pumping stations, as are a variety of accessories. The following is only a brief overview of some of the options. See also pages 4-5 and 6-7. For further information, please contact your local Grundfos sales company.



Inlet sleeves for different tank diameters (incl. bolts etc.).



Different level sensors.



Different watertight outlets.



Expanding pressure cones (incl. bolts and gaskets).



Mixers and installation accessories. (Please see *Mixers & Flowmakers* brochure for further information).



Flexible joint, rubber bellows with flanges ("ZKB").



Built-in service ladder.



Optional integrated insulation (PE foam).



Screen baskets (light and heavy models) with guide rails.

Accessories

Ventilation fan, heating, drainage pumps for pumping stations with dry-installed pumps, frequency converters, flow meters, lifting devices, etc.

The Grundfos wastewater range

S range 5 – 29 kW

Brochure covers the Grundfos range of submersible channel-impeller pumps from 5 kW up to 21 kW and Super-Vortex pumps up to 29 kW. All designed for handling unscreened raw sewage. Available in 50 Hz and 60 Hz versions.



S range 15 – 155 kW

Brochure covers the Grundfos range of sewage pumps from 15 kW up to 155 kW for handling of raw sewage in heavy-duty applications. Available in 50 Hz and 60 Hz versions.



S/S/A ranges Up to 520 kW

Brochure covers the Grundfos range of super-heavy-duty channel pumps, axial flow pumps, and propeller pumps from 7.5 kW up to 520 kW.



S pump range 72

Brochure covers the Grundfos range of heavy-duty submersible pumps from 90 to 225 kW for pumping of large quantities of wastewater and unscreened raw sewage.



S range pumps 1.65 – 5.0 kW

The brochure covers the Grundfos range of heavy-duty submersible SuperVortex and channel-impeller pumps from 1.65 to 5.0 kW. All suitable for unscreened sewage.



SEN range 1.0 – 21 kW

Brochure covers the Grundfos range of heavy-duty stainless steel pumps (SEN) for aggressive and corrosive environments.



LC/LCD Ranges – level controllers

Brochure covers the Grundfos range of controls for the wastewater pumping systems.

Multilift M, MD, MDV, and MD1 ranges

Brochure covers Grundfos lifting stations for individual as well as multi-user applications.



Prefabricated pumping stations

Brochure covers the Grundfos range of prefabricated pumping stations for collecting and removing drainwater, surface water, domestic and industrial wastewater and sewage.



DP, EF, SE1 and SEV ranges 0.6 – 2.6 kW

Brochure covers the Grundfos range of submersible channel-impeller and Super-Vortex-impeller pumps from 0.6 to 2.6 kW. Designed for handling drainage, effluent and sewage from private dwellings.

SEG range 0.9 – 4.0 kW

Brochure covers the Grundfos range of sewage grinder pumps (SEG) for pumping of wastewater with toilet discharge.



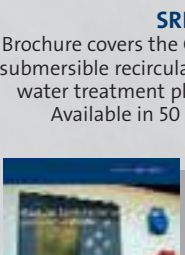
SE1 and SEV ranges 1.1 – 11 kW

This brochure describes the innovative SEV/SE1 pump lines. Fitted with Super-Vortex or single-channel impellers, these pumps can meet approximately 80% of all wastewater pumping needs.



AMD, AMG, and AFG ranges

Brochure covers the new range of mixers and flowmakers for optimal control of liquids and solids throughout the wastewater treatment process.



SRP range 3.0 – 24 kW

Brochure covers the Grundfos range of SRP submersible recirculation pumps for wastewater treatment plants and flood control. Available in 50 Hz and 60 Hz versions.



Modular Controls for wastewater pumping stations

Brochure covers the first fully integrated multi-purpose pump control system.



Business with an attitude

Knowledge The sharing of knowledge, experience and expertise across our global network will always lead our business forward.

Innovation Combining the best technology with fresh ways of thinking, we will continue to develop even better pumps, systems, services and standards.

Solution With a complete product range, capable of providing every conceivable water solution, we are the most complete player on the market.