

Grundfos Packaged Lift Station



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1. Introduction	3
Applications	3
Main features	3
Value-added benefits	3
Pumped liquids	3
2. Product selection	4
Pump selection	4
Basin selection	4
Controls and communication	4
3. Product range	5
Type key	5
Construction	5
4. Installation	7
Installation of the pump	7
Pipe work with flange connections	7
Pump lift bracket	7
Location of inlet	7
Start-up	7

1. Introduction

Grundfos Packaged Lift Stations (PLS) are pre-fabricated pumping systems with a valve box. Wet well includes hatch access, guide rail, stainless steel (SS) outlet pipe with base elbow, and necessary fittings and valves.

A separate valve box is supplied with pipes, valve fittings (isolation and check valves), and hatch door access. Pumps and controls are supplied separately.

Applications

Grundfos Packaged Lift Stations are used for the collection and pumping of wastewater, such as:

- rainwater
- effluent
- sewage.

Wastewater is led into the wet-well tank and when the liquid in the tank reaches the start level, the pump will start and pump the liquid into the sewer system.

Main features

Grundfos provides a high quality packaged lift station that is assembled upon arrival. To complement our range of modern pumps and pumping equipment, Grundfos has developed a pumping station range that has everything you need from a single supplier.

Value-added benefits

Separate wet well and valve box

Grundfos provides a separate valve box for access to valves and emergency connections, making operation and service easy. A large space in the wet well facilitates pump maintenance and adjustment of floats. This design minimizes corrosion-related issues and other risks with all the components placed in a single wet well basin.

Modular flexibility

The prefabricated packaged lift stations consist of four main components:

- highly efficient and reliable Grundfos pumps
- a collection tank
- all piping and valves
- controllers and level sensors to ensure operational efficiency and safety.

High design quality

The stations consist of high quality 304 stainless steel pipe with outlet connections. The top access hatch allows ease of serviceability to all components.

Pumped liquids

Liquid temperature

The maximum temperature of pumped liquids should not exceed 104 °F (40 °C). For higher temperatures, contact your local Grundfos company.

For certain pump types, 140 °F (60°C) is permissible for short periods.



At 104 °F (40 °C), the tank begins to soften.

Acids and alkalis

The lift station is resistant to strong acids and alkalis as well as solvents. The pumps supplied with the lift station normally stand pH values between 4 and 10.

Viscosity and density

Very thick wastewater must not enter the wet well basin.

The maximum density allowed is 68.67 lb/ft³ (1100 kg/m³).

2. Product selection

When ordering a Grundfos lift station, the following aspects need to be taken into consideration:

- pump
- wet well dimension
- controls and communication.

Pump selection

Pumps can be selected based on the specific application, flow, and head requirements:

- Grundfos Grinder Pump SEG
- Grundfos Solid Handling Pump SL, SLV
- Grundfos Solid Handling Pump SE, SEV.

Basin selection

The fiberglass PLS system is supplied with a wet well basin and valve box basin. All required components: pipes, fittings, valves, auto-coupling base unit, guide rails, and hatch covers are included in the basin.



The wet well basin includes an anti-flotation flange.

Wet well diameter	Wet well depth	Valve box diameter	Valve box depth	Outlet pipe
36"	72"	36"	36"	2"
	96"			
	120"			
	144"			
48"	72"	48"	36"	2"
	96"			
	120"			
60"	96"	48"	48"	3"
	120"			
	144"			
72"	96"	60"	48"	4"
	120"			
	144"			

Controls and communication

Grundfos offers a wide range of pump controllers and cloud-hosted monitoring to monitor liquid levels in the wet well, ensuring correct operation and protection of the pumps.

Daily control, supervision, and commissioning are straightforward with the intuitive user interface.

LC 231 Controller

The LC 231 level controller is a cost-effective and compact design that offers a comprehensive range of features for the control and monitoring of the pumps in water and wastewater applications.

The controller is equipped with configurable input and output terminals, giving full flexibility for all applications, and an intuitive interface for getting started and conducting effective daily control. Interacting with the controller allows you to collect station data and see alarm history using the Grundfos GO app and direct Bluetooth connectivity from your smart device.

LC 241 Controller

The LC 241 pump controller offers configurable hardware and cost-effective design which can be modified with a wide range of accessories. The control panels are designed for level control, monitoring, and protection of Grundfos pumping systems of one or two pumps starting direct-on-line. Panels are constructed of a Type 4X thermoplastic dead-front enclosure with beacon light and external buzzer, with a push-to-silence button.

The intuitive user interface saves valuable time when getting started, as well as in the daily interaction with the pumps and the controller. Interacting with the controller allows you to collect station data and see alarm history using the Grundfos GO app and direct Bluetooth connectivity from your smart device. The controller integrates seamlessly into the Grundfos range of communication modules, ensuring an easy fit into almost any supervisory system (SCADA).

Grundfos Dedicated Controller (CU 362)

Grundfos Dedicated Controller (CU 362) is an intelligent monitoring and control solution developed specifically for network pumping stations (up to 6-pump control). The CU 362 offers many optimizations and advanced control options, such as flow calculation without a flow meter, pump anti-blocking functions, VFD control, energy optimization features, functions to help in the reduction of fats/oils/grease build-up in stations, anti-seizing functions, etc.

The CU 362 supports communication with monitoring equipment or other external units, such as Communication Interface Modules (CIM), via a number of different Fieldbus protocols to communicate using wired or wireless networks to SCADA and BMS systems. Dedicated Controller (CU362) has the ability to easily expand its capability by adding Input and Output modules (IO351B), motor protection (MP204), pump protection relays (IO113), and variable frequency drives (CUE).

3. Product range

The system is supplied with a wet well and valve box, basin cover with hatch access, outlet pipes with fittings, auto-coupling base unit, guide rails, valves, level switches, and ventilation. Pumps are sold and shipped separately.

Packaged lift station with a valve box

Package Type	Basin diameter (inch)	Basin depth (inch)	Pipe diameter (inch)	Basin hatch frame opening (inch)	Valve box diameter/depth (inch)	Valve box hatch length/width (inch)	Product number
PLS.D36.L72.A20.V	36	72	2"	18 / 27	36 / 36	18 / 27	99973150
PLS.D36.L96.A20.V	36	96	2"	18 / 27	36 / 36	18 / 27	99973152
PLS.D36.L120.A20.V	36	120	2"	18 / 27	36 / 36	18 / 27	99973153
PLS.D36.L144.A20.V	36	144	2"	18 / 27	36 / 36	18 / 27	99973154
PLS.D48.L72.A20.V	48	72	2"	24 / 36	48 / 36	24 / 36	99973156
PLS.D48.L96.A20.V	48	96	2"	24 / 36	48 / 36	24 / 36	99973157
PLS.D48.L120.A20.V	48	120	2"	24 / 36	48 / 36	24 / 36	99973158
PLS.D48.L144.A20.V	48	144	2"	24 / 36	48 / 36	24 / 36	99973159
PLS.D60.L96.A20.V	60	96	3"	30 / 42	48 / 48	24 / 36	99973160
PLS.D60.L120.A20.V	60	120	3"	30 / 42	48 / 48	24 / 36	99973161
PLS.D60.L144.A20.V	60	144	3"	30 / 42	48 / 48	24 / 36	99973162
PLS.D72.L96.A40.V	72	96	4"	30 / 48	60 / 48	30 / 42	99973163
PLS.D72.L120.A40.V	72	120	4"	30 / 48	60 / 48	30 / 42	99973164
PLS.D72.L144.A40.V	72	144	4"	30 / 48	60 / 48	30 / 42	99973165



Contact Grundfos for a packaged lift station with external valves.

Type key

Example: PLS D36 L72 A20 V

Grundfos Packaged Lift Station	Wet well diameter (inch)	Wet well length (inch)	Outlet connection (inch)	Valves
PLS	D36	L72	A20	V

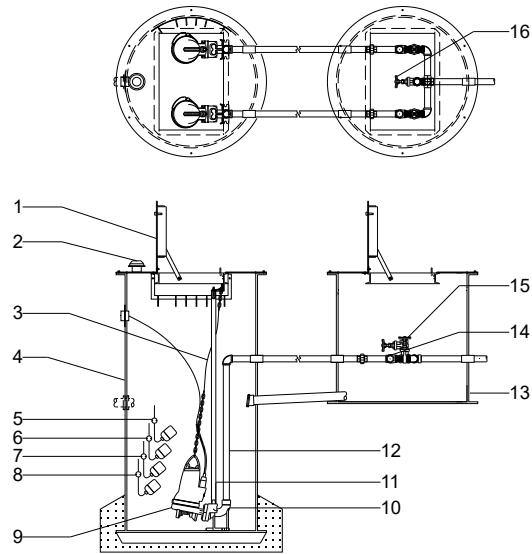
Code	Description
D36	
D48	
D60	wet well diameter (inch)
D72	
L72	
L98	
L120	wet well length (inch)
L144	
A20	
A30	outlet connection (inch)
A40	
V	valve vault
VE	external valves
VI	internal valves

Construction

Grundfos also supplies packaged lift stations without a valve box. External or internal valves with a valve box are available in the following sizes:

Wet well diameter	Wet well depth	Valves External	Valves Internal
	72"		
36"	96"		
	120"	X	X
	144"		
	72"		
48"	96"		
	120"	X	X
	144"		
	96"		
60"	120"	X	
	144"		
	96"		
72"	120"	X	
	144"		

Sectional drawing



TM077827

Packaged lift station with a valve box

Components

Pos.	Component	Material	Description
1	Hatch access	Aluminum	Frame with locking hasp 18" x 27", 24" x 36", 30" x 42", 30" x 48"
2	Vent	2" non-corrosive ABS	Mushroom vent or a vented control panel pedestal that mounts to the cover
3	Lifting chain	Stainless steel	
4	Basin wet well with anti-flotation flange	Fiberglass	Diameter: 36", 48", 60", 72" Depth: 72", 96", 120", 144"
5	Float		High-level alarm
6	Float		Lag pump on
7	Float		Lead pump on
8	Float		Pump off
9 ¹	Pump		SEG, Grundfos grinder pump SL, SLV, Grundfos solids pump
10	Auto-coupling base unit	Cast iron	1.5", 2", 3"/2.5", 3", 4"/3", 4"
11	Guide rail	304 Stainless steel, Schedule 10	Diameter: 1", 1.5", 2
12	Outlet pipe with fittings	304 Stainless steel, Schedule 40	Diameter: 2", 3", 4"
13	Valve box with hatch access and anti-flotation flange	Fiberglass	Diameter: 36", 48", 60", 72" Depth: 36"/48"
14	Check valve	Brass	2", 3", or 4"
15	Isolating valve	Brass	2", 3", or 4"
16	Emergency outlet	304 Stainless steel, Schedule 40	Pipe with brass-threaded valve connection and isolation valve

¹ Sold and shipped separately

4. Installation

Installation of the pump

To avoid damaging the basin during transportation the pumps arrive separately. The Grundfos auto-coupling system equipped with guide rails ensures easy and safe installation onsite. For installation and start-up, see the installation and operating instructions of the pump.

! The pump must be carefully lowered into the tank in order to avoid damage to the pump or the tank.

Pipe work with flange connections

If a tank is to be installed at temperatures below 32 °F (0 °C), it is advisable to loosen all bolts of the flange and re-tighten them when the tank has been installed to prevent stress in the pipes.

Pump lift bracket

Pumps on an auto-coupling must have the chain fit in the foremost lifting eye of the lifting bracket.

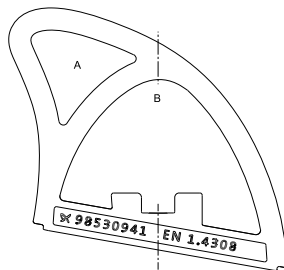


Make sure to keep body parts away from a lifting pump.



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

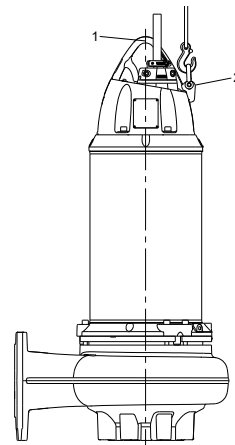
For SEG, use lifting point A.



Lifting points, SEG

TM060066

For SE, SEV, SL, SLV use point 2.



TM075107

Lifting bracket positions, SE, SEV, SL, SLV

Location of inlet

When locating the tank inlet, take the following aspects into consideration:

- The inlet must be located higher than the highest start level of the pump in order to prevent backflow.
- The tank inlet must not be located within an area that will disturb the function of the float switches.

Start-up

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



The controller must not be installed in the tank.

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