



A Tsurumi Pump Company

CIVIL/INDUSTRIAL



POLYETHYLENE LIFTING STATIONS  
FOR CIVIL AND INDUSTRIAL  
INSTALLATIONS

# *lift* BOX

## Polyethylene lifting stations for civil and industrial installations

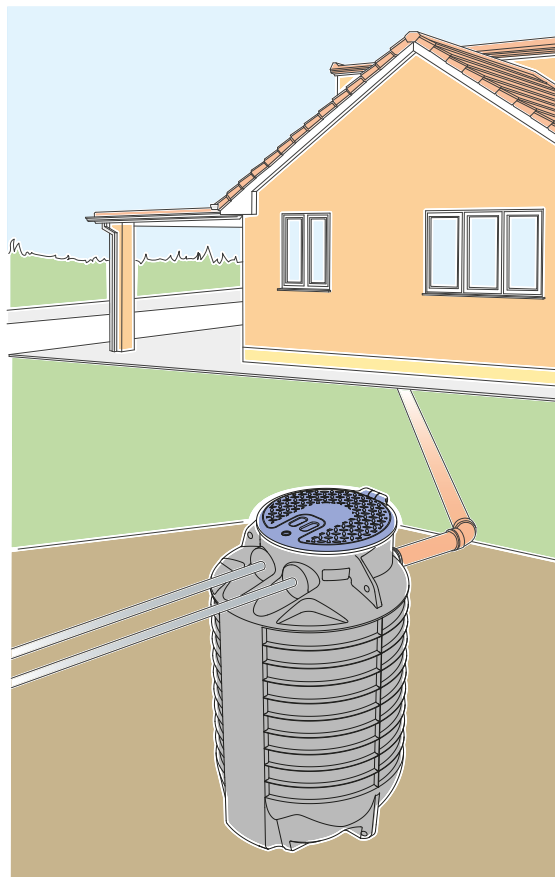
The increasing use of underground spaces, such as toilets, garages and car parks in new urbanisation or building redevelopment projects, often requires the use of systems to collect wastewater and lift it to a higher level.

The **liftBOX** lifting stations are designed to collect rainwater, wastewater or sewage and transfer it to a higher level, which would otherwise be unreachable due to the distance or by gravity, delivering it to the sewage line or the treatment plant.

The lifting stations consist of a polyethylene tank, an internal pumping system controlled by floats or level probes and an electrical panel.

They may be equipped with a pre-assembled valve operating chamber separated from the wastewater collection chamber for convenient and hygienic maintenance.

The **liftBOX** lifting stations, which are designed for underground installation, have a volume of 1000 to 19000 litres and can be connected to systems with pressure pipes of size from DN50 to DN150.



Several parameters must be taken into account when choosing the most suitable solution for your needs. These include:

### FLOW RATE TO BE HANDLED

The amount of inlet effluent with appropriate safety margins must be determined to define the volume of the storage tank and the flow rate of the pumping system and ensure optimal operating conditions (start/stop cycles, running times, etc.).

### TARGET HEAD

The height to be lifted and the distance to be covered, taking into account the appropriate pressure drop, must be considered to identify the characteristic head of the pumping system.

### TYPE OF EFFLUENT TO BE LIFTED

The type of effluent to be moved, its density and the presence of fibres or solids determine the hydraulic pump type and the sizing of the motor.



However, establishing the working point and selecting the correct hydraulic curve is often not enough, and experience can be a decisive factor in achieving the optimum configuration. **Zenit has been operating in the field of submersible pumps and water treatment for many years. The Pre-Sales Office provides customers with the skill and consolidated experience they need to assist technicians and engineers in correctly sizing the system and choosing the most suitable product for their needs.**

## Specifications

- Roto-moulded polyethylene tank
- Constant, thick walls with horizontal reinforcing ribs
- Contoured bottom to prevent stagnation and facilitate positioning of the pump
- Rated volume from 650 to 19000 litres
- Inlet pipe diameter from DN 125 to DN 400
- Outlet diameter from DN 50 to DN 150
- Optional inlet effluent filter basket (models **M** and **L** only)
- Valve chamber separate from tank compartment (models **M** and **L** only)

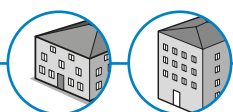
Advantages over conventional lifting stations with concrete tanks

- **Lower weight and lower transport costs**
- **Faster installation**
- **Shorter settling and drying time**
- **No leakage of liquid even in case of minor landslides**



## Applications

Civil dwellings and residential buildings



1000 litres

**liftBOX S**



Commercial activities and industrial plants



2200 - 4050 litres  
5800 - 19000 litres

**liftBOX M**  
**liftBOX L**



### Wastewater collection and relaunch

The **liftBOX** is used to collect and pump domestic and civil wastewater from basement storeys to sewers that would otherwise not be reachable by gravity.

This eliminates the need for costly construction works allowing the piping to be laid at a shallow depth to benefit from lower digging and installation costs.



### Disposal of water from buildings far from the water supply network

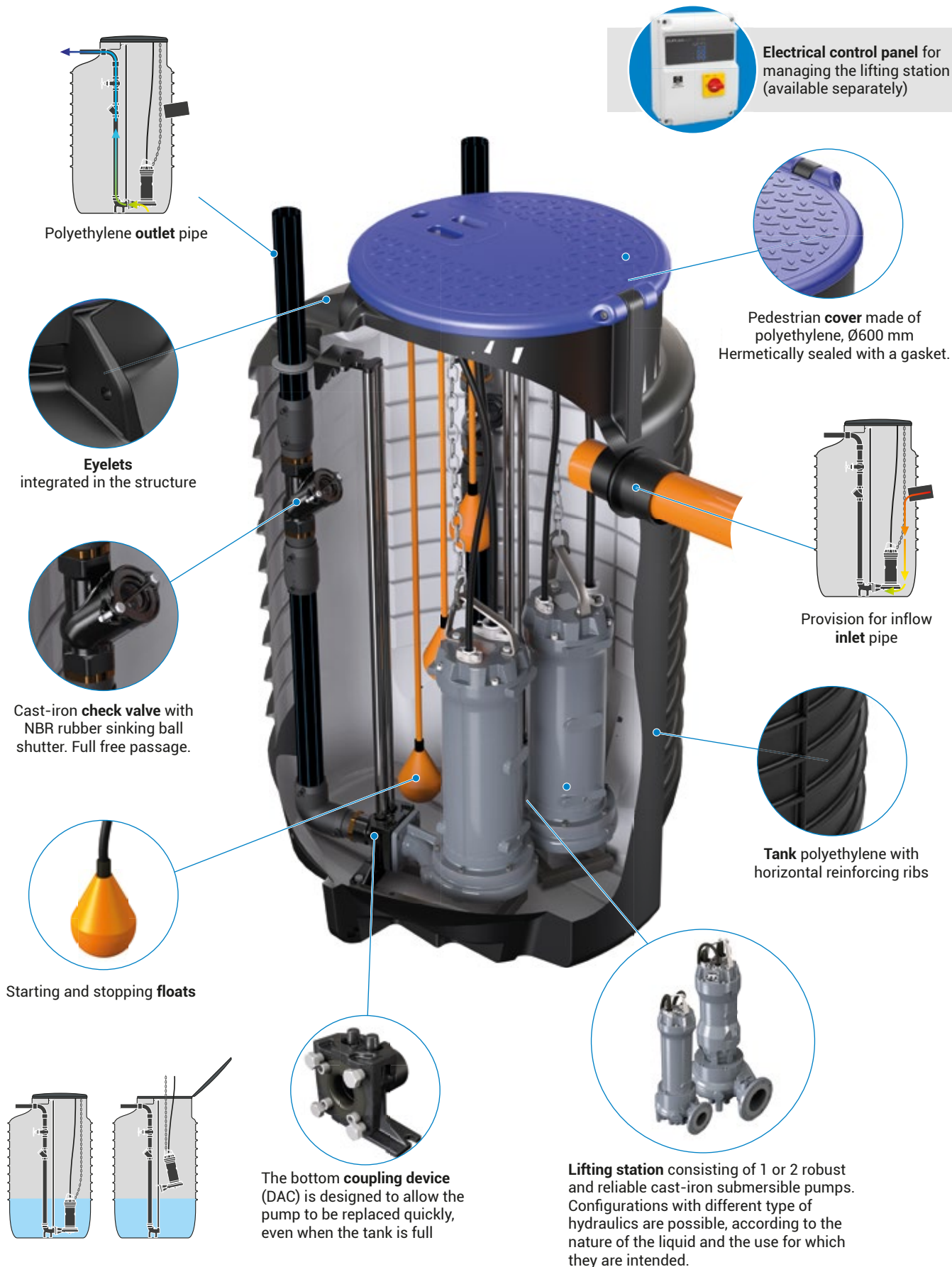
In hilly or foothill areas, the **liftBOX** can be used to convey rainwater and sewage to the sewer system, even if the latter is located at a higher level or a considerable distance.

The large tank capacity also makes this solution suitable for residential buildings and hotels.

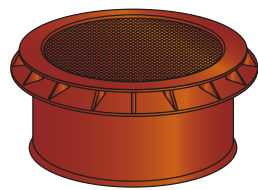


## Constructive details

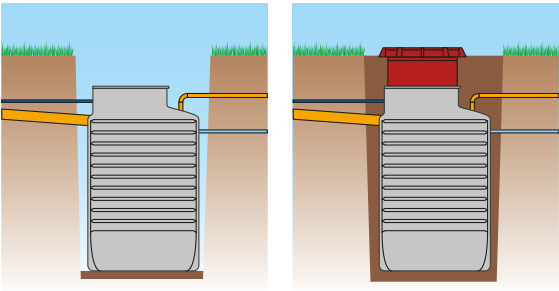
### liftBOX S



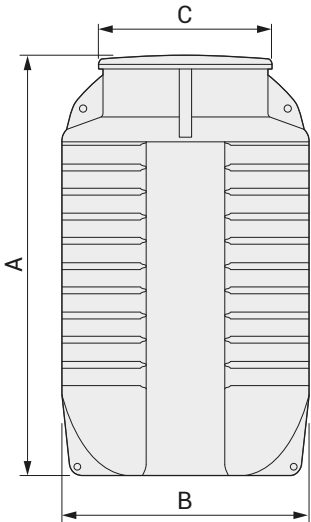
Optional accessories



**Extension**  
Extension for easy connection of the tank to the ground level.  
Pedestrian cover.  
H300 mm - Ø620 mm

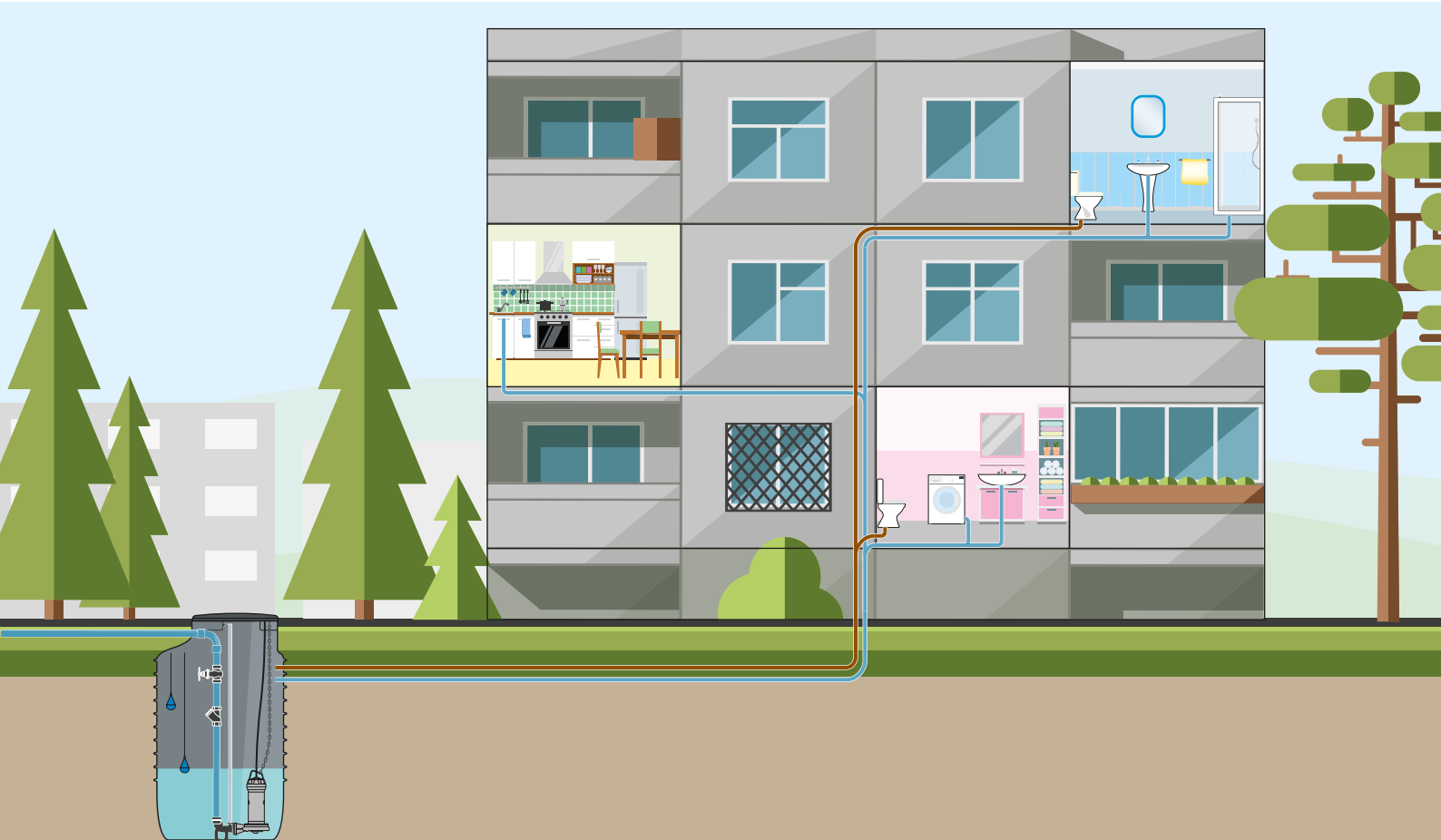


Range and dimensions



Model	RATED volume (litres)	nr of DAC	Outlet DN (mm)	Inlet DN (mm)	Dimensions (mm)		
					A	B	C
liftBOX S	650 ÷ 1450	1	50	125	1200	Ø1000	600
		2	50	160			

Rated dimensions with rounded values



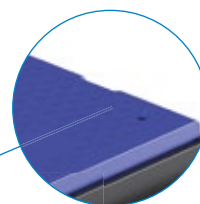
## Constructive details

### liftBOX M / liftBOX L

Electrical control panel for managing the lifting station (available separately)



Pedestrian cover with pressure closure  
Dimensions 770x550 mm each.  
Hermetically sealed with a gasket.



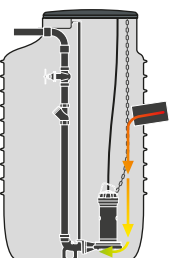
Manhole covers

2

Fall protection grating

1

Eyelets integrated in the structure

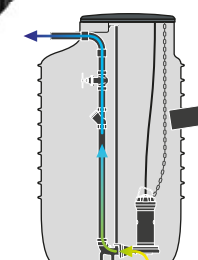


Provision for inflow inlet pipe

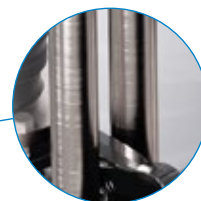
Inlet effluent filter basket

3

Polyethylene outlet pipe



Stainless steel guide pipes



The bottom coupling device (DAC) is designed to allow the pump to be replaced quickly, even when the tank is full



Frame steel for fixing to reinforced concrete slab

Tank made of thick polyethylene with horizontal reinforcing ribs



Lifting station consisting of 1 or 2 robust and reliable cast-iron submersible pumps. Configurations with different type of hydraulics are possible, according to the nature of the liquid and the use for which they are intended.  
(model L only available in 2-pump version)





#### Separate valve operating chamber

Each lifting station can be equipped with a valve chamber with an independent, snap-closing cover.

This allows access to the valves without opening the main tank.

For each pressure line, the valve chamber comprises a cast-iron knife gate valve complete with handwheel control and a check valve with cast-iron body and full free passage NBR rubber sinking ball.

On model L versions, there is an additional knife gate valve for emptying the main manifold in case of maintenance work on the flow line.

### Optional accessories

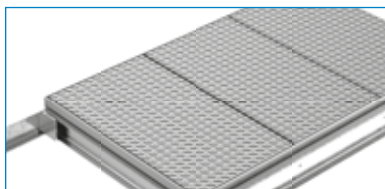
①



#### Fall protection grid

Fall protection system with metal grating, available in galvanised steel or stainless steel.

②



#### Manhole covers

Rugged manhole covers with anti-odour seal and key lock. Galvanised steel support frame for anchoring to reinforced concrete slab class B125, C25 and D400.

③



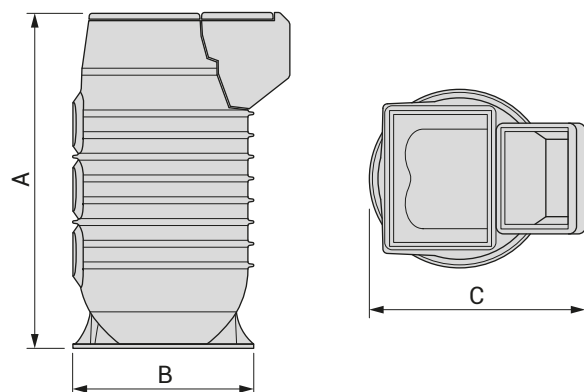
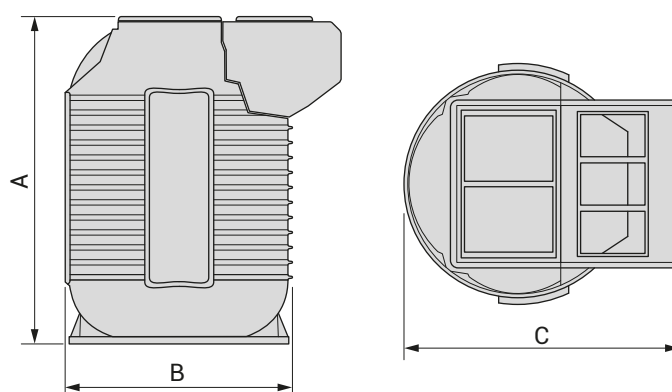
#### Inlet effluent filter basket

Stainless steel basket for coarse screening of inlet effluent.

This avoids the potential overloading of bulky material inside the tank that could cause clogging of the pipes, blockage of the pumps or interfere with the operation of the floats. The stainless steel guides allow the quick and easy retrieval of the basket from the surface for emptying and cleaning.



## Range and dimensions

**liftBOX M**

**liftBOX L**


Model	RATED volume (litres)	nr DAC	Outlet DN (mm)	Inlet DN (mm)	Dimensions (mm)		
					A	B	C
<b>liftBOX M 2200</b>	2200	1	50	125 160 200	2300	1250	1500
		2	50				
		1	80				
<b>liftBOX M 4050</b>	4050	2	50	250	4100	1250	1500
		2	80				

Other **liftBOX M** models with intermediate capacities are available on request

Model	RATED volume (litres)	nr DAC	Outlet DN (mm)	Inlet DN (mm)	Dimensions (mm)		
					A	B	C
<b>liftBOX L 5800</b>	5800	2	50	250 315 400	2070	2280	2780
			80				
			100				
<b>liftBOX L 8000</b>	8000	2	50		2670	2280	2780
			80				
			100				
<b>liftBOX L 10200</b>	10200	2	50		3270	2280	2780
			80				
			100				
			150				
<b>liftBOX L 14600</b>	14600	2	50		4470	2280	2780
			80				
			100				
			150				
<b>liftBOX L 16800</b>	16800	2	50		5070	2280	2780
			80				
			100				
			150				
<b>liftBOX L 19000</b>	19000	2	50		5670	2280	2780
			80				
			100				
			150				

Rated dimensions with rounded values



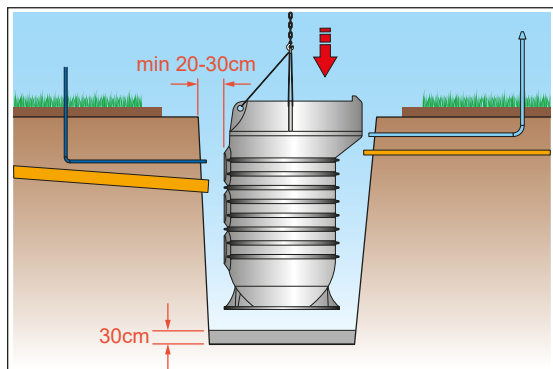
## Installation

The **liftBOX** lifting stations are designed for underground installation.

Installation and assembly are not critical but must be carried out professionally to ensure perfect operation and long-lasting use of the system.

Zenit technicians can provide advice and assistance during all phases of the process, from pre-sales to final testing.

**Refer to the manual supplied with the product for laying and installation. Contact Zenit or experienced technicians, if necessary. The Works Management is responsible for execution.**

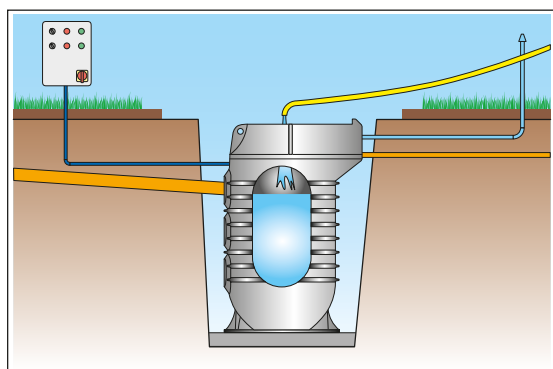


### Site preparation and positioning

The installation site must be identified, away from the water table and slopes prone to landslides, before starting the dig. The dig must be large enough to leave a gap of 25-30 cm between the tank and the walls of the trench or formwork.

Then build a reinforced concrete slab at least 30 cm thick at the bottom of the trench.

Once the concrete has set, place the tank on the slab, taking care to place it correctly according to the position of the pipes.

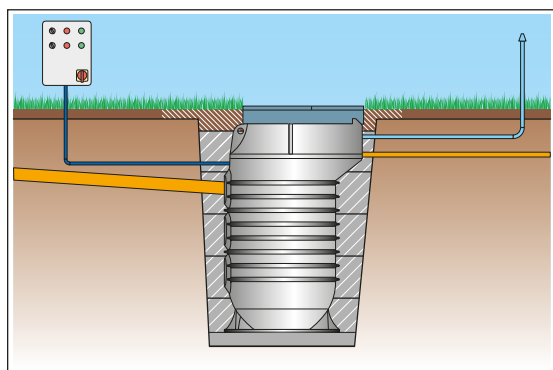


### Electrical-hydraulic connection and filling

Connect the inlet, outlet and vent connections to the respective systems. Insert the cable duct into the provision on the tank.

If the base is fitted with a steel frame, fasten it to the concrete slab using chemical or expansion anchors.

Fill the tank with clean water to check for leaks and provide the necessary stability during the anchoring phase that follows.

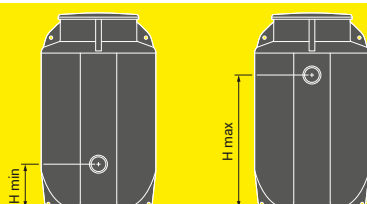


### Anchoring and covering

After checking the correct operation, gradually fill the space between the ground and the tank with layers of cement, making sure that no air pockets are trapped inside the casting.

If necessary, the top of the trench can be covered with a layer of soil up to the walking surface.

The tank is provided with standard pedestrian covers. Optional manhole covers can be installed at the top openings, for which a specific metal frame is available to be fixed to the concrete slab.



**The inlet pipe dimension must be specified in the order to be correctly prepared by the manufacturer.**

## Grey series

SERIES  
**Grey**

### Versatile and compact submersible electric pumps

Used for drainage groundwater and first rainwater, lifting fouled biological liquids and sewage in civil and industrial plants, wastewater treatment plants and process water also containing fibres or filamentous bodies, livestock farms.

### Specifications

- Cast-iron structure
- Insulation class H (180°C)
- IP 68 protection rating
- AISI 431 drive shaft
- Two SiC mechanical seals in the oil chamber
- Outlet DN32 - DN250

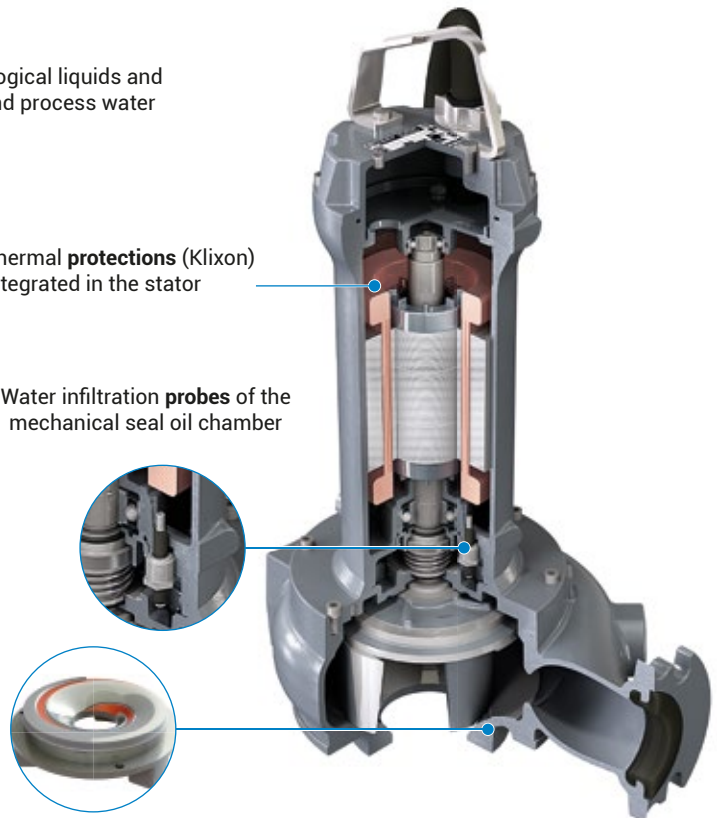
### Models

- DGG** vortex impeller with full free passage
- DRG** channel impeller and wide free passage
- GRG** with shredding system
- APG** with high head

The special design of the hydraulic part ensures the ejection of solids and prevents the **clogging** of the impeller (*DRG and GRG models*).

Thermal **protections** (Klixon)  
integrated in the stator

Water infiltration **probes** of the  
mechanical seal oil chamber



## ZUG Series

**UNIQA**

### Submersible electric pumps with a motor in Premium IE3 efficiency class

Designed for use in sewage treatment plants, lifting stations in civil, industrial and municipal installations. These devices are suitable for handling sludge, faecal material and clean water, wastewater and water fouled with solid or fibrous bodies.

### Specifications

- Cast-iron casing
- Insulation class H (180°C)
- IP 68 protection rating
- AISI 431 drive shaft
- Two SiC mechanical seals in the oil chamber
- Outlet DN50 - DN500

### Models

- ZUG V** vortex impeller with full free passage
- ZUG CP** with cutting system
- ZUG OC** channel impeller and wide free passage
- ZUG HP** with high head
- ZUG GR** with shredding system

Water infiltration **probes**

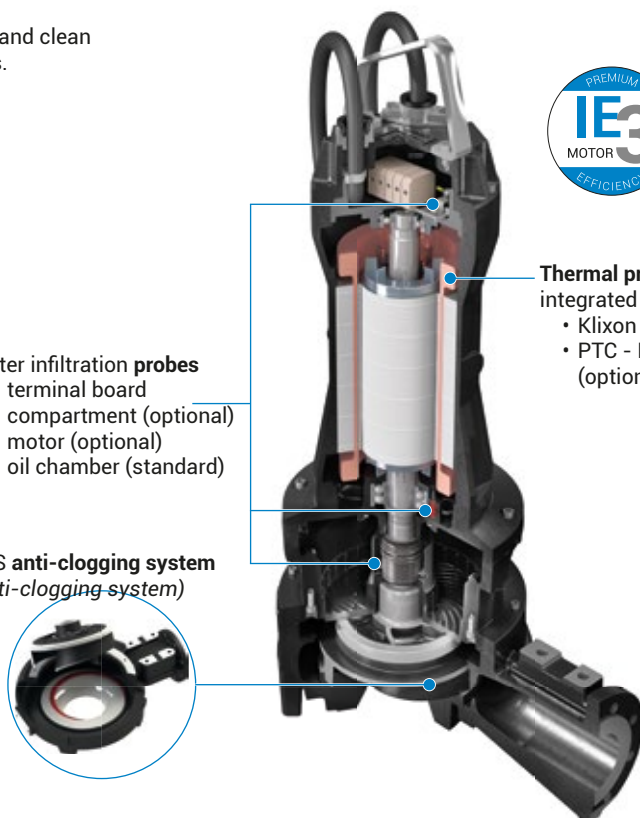
- terminal board compartment (optional)
- motor (optional)
- oil chamber (standard)

**ACS anti-clogging system**  
(*anti-clogging system*)



Thermal **protections**  
integrated in the stator

- Klixon (standard)
- PTC - PT100 (optional)



## Electronic and electromechanical panels

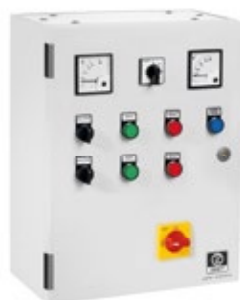
The electric control panel, available separately, are the "brains" of the lifting station. It allows the automatic start-up of the pumps using float switches and the management of any alternation cycles. The installation of the acoustic and/or visual alarm module enables the signalling of any anomalies or malfunctions, such as the risk of overflowing, impeller blockage or water entering the mechanical seal chamber.



### Standard electronic boards

Electronic control panels suitable for managing 1 or 2 single-phase electric pumps with a power rating of 0.37 kW to 2.2 kW or 1 or 2 three-phase electric pumps with a power rating from 0.55 kW to 15 kW.

Designed for use with float switches or level probes, they can be used to set pump alternation and minimum and maximum level alarm outputs.



### Standard electromechanical panels

Electromechanical control panels suitable for managing 1 or 2 single-phase or three-phase electric pumps with direct or star-delta starting. Manufactured with the best components on the market to ensure high reliability and a safe supply of spare parts.

The extensive range of accessories makes them versatile, with a wide range of customisation options to suit the specific needs of the installation.



### Full-service electronic boards

A modern instrument that, in addition to the standard electronic panels, provides a multilingual menu from which you can select the most suitable one for your needs from a variety of operating logics.

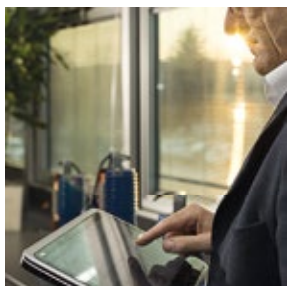
A specific app (optional) can be used to have the complete management of the systems always at hand, receiving any type of signal and/or modifying the operating logic remotely on a smartphone or tablet.



### Full-service electromechanical panels

For professional use, special electromechanical panels which include:

- gradual start-up and shut-down of the machines using the integrated soft-start function
- motor operation at variable speed using an integrated frequency converter (inverter) for adjusting the working point and optimising the energy performance of the system according to actual needs.



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For further information, visit [www.zenit.com](http://www.zenit.com)