GEMGATE Limited
White Bay House
P25 NY86
Whitegate
Co. Cork
IRELAND

Tel.: (00353) – (0)21 – 4 66 11 22
Fax: (00353) – (0)21 – 4 66 11 12
e-mail: info@gemgate.ie
https://gemgate.ie

GUIDE – Wastewater & Sewage Pumps

What is a wastewater or sewage pump?

Wastewater- and Sewage Pumps are generally submersible pumps which operate within a sump chamber, collection tank or pumping station.

The areas of application range from drainage installations, greywater collection tanks and effluent chambers containing pre-treated wastewater to industrial wastewater tanks and agricultural installations.

Depending on the pumped medium submersible wastewater pumps are available with solids passages of 10mm, 20mm, 35mm and 50mm.
The wastewater pump and materials used for same should be suitable for the medium which is to be pumped.

What is greywater?

Greywater is wastewater from bathroom sinks, bathtubs, showers and washing-machines. Wastewater from a kitchen-sink or dishwasher does not constitute greywater.

Sewage – Raw Sewage | What is the difference ?

In addition to normal wastewater (sewage) raw sewage also contains faeces (human waste) from toilets (cubicals & urinals).

Raw Sewage Pumping Station

Several countries within the European Union define stringent conditions on the type of pump installed within a raw sewage pumping chamber.
A raw sewage pump (usually in cast-iron) is equipped with specific seals to withstand the aggressive nature of raw sewage. Furthermore, a raw sewage pump is either equipped with a macerator-impeller or with a solids passage of at least 80mm.

Mostly, raw sewage pumps are available in 3-phase and operated via a pump control panel. Some countries also request the pump and accessories to be explosion-proof (Ex).

Can I use a wastewater-/sewage pump in my pumping station?

Strictly speaking from a manufacturer's perspective, the presence of raw sewage within the pumping medium is beyond the scope of applications served by a standard wastewater or sewage pump.
A raw sewage pump would normally be required.

Nevertheless, standard wastewater or sewage pumps are frequently installed in domestic pumping chambers which also contain raw sewage. The reasons range from regulation loop-holes and budgetary restrictions to limitations on the power supply available.

A wastewater or sewage pump which is operated in a pumping chamber containing raw sewage should have a solids passage of at least 50mm.

Non-dissolving alien objects (e.g. sanitary wipes) should not be disposed via the toilet but be placed into the normal household waste-bin. The introduction of alien-objects to the pumping chamber can impede pump functionality.

Food rests should also not be discharged towards the pumping chamber. This can impact pump functionality and may also attract rodents.

Maintenance

Maintenance or repair-work should be conducted by qualified personnel only. Due to the potential dangers (e.g. foul gases) involved, it is advisable to perform any works at a pumping chamber in the company of another responsible adult.

An annual service by a qualified service-technician is recommended to ensure the wastewater pump is operating properly. Possibly extract the pump from the chamber and briefly operate the pump with clear water.

What to do if the wastewater pump fails on a reoccurring basis?

Re-occurring pump failures can have numerous causes.
As it is neither practical nor feasible to merely renew the pump without identifying the actual cause of the pump failure, the below check-list may be of assistance to determine unfavourable site conditions prompting pre-mature wear- & tear of the submersible wastewater pump.

A. Suitable composition of the pumped medium

B. Pump Switching-Cycles

Frequent switching of the pump should be avoided ; max. 15x cycles/hour

The number of switching-cycles of the pump is determined by the influx volume to the pumping chamber.
The size of the chamber cannot be altered easily. Small chamber dimensions will inevitably cause a higher number of pump switching-cycles.

Continuous excessively high pump switching-cycles can lead to over-heating of the pump-capacitor (single-phase versions).

C. Electrical supply

The electric supply cable should have a sufficiently sized cable-core in relation to overall cable-length & electric consumption of the pump. The electric consumption of the pump and other electrical appliances on the same power supply cable (from main distribution) have to be considered.

An insufficiently-sized cable can lead to damage of the pump-capacitor (single-phase versions) and pump motor.

On receipt of site conditions a recommendation of the cable core-size is available.

D. Pumping distance to percolation area & pipe size

The pumping distance and pipe size installed should allow the pump to operate on it's performance curve.

At installations with greater pumping distance it may be necessary to select a stronger pump.

Calculations on the effective pumping height (pumping head + pressure-loss) and recommended pump size to be used are available on request !

E. Pump Control Panel

Operating a wastewater pump via a pump control panel allows the integration of safety-features such as motor-protection, which can indicate unfavourable installation conditions before pump damage materialises.