



TOP – the self-cleaning sump

For lower maintenance costs and more reliable pumping



Flygt



ITT Industries
Engineered for life

Cut maintenance costs, boost reliability

Some pump stations can be a major headache. They need routine cleaning. They are a safety hazard for personnel. And perhaps worst of all, they can stop working altogether.

A TOP sump reduces the build up of solids and sludge in two ways.

First, the floor area is much smaller than in standard sumps. This means that all sediment collects directly beneath the pump, where the suction is the strongest.

Second, the patented TOP sump geometry optimises flow over the floor of the pump station. This leads to turbulence, which whips up settled solids so that they get pumped away. Even the discharge connection has been specially designed to maximise flow patterns over the bottom of the sump.

The result is a pump station that is virtually self-cleaning.

A simple idea that really works

Both in the laboratory, and out in the real world, TOP has shown that it makes a real difference.

In a back-to-back test, two sumps were each filled with 400 litres of water and 49 kilos of solids. Water was pumped back and forth from one sump to the other a total of ten times. The result was striking. Almost all the solids, 94 kilos worth, had accumulated in the conventional sump. In the TOP sump, the solids weighed just four kilos.

TOP is a tried and proven technique. Today, there are thousands of TOP sumps in operation around the world. Again and again we hear the same thing: TOP results in less sediment, less maintenance and less downtime.

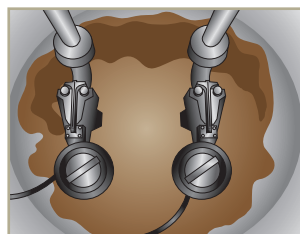
A TOP sump gives you:

- An integrated, self-cleaning design
- Minimal sedimentation and residual water
- Tested and verified performance
- Simple retrofits for existing stations
- Turnkey pump stations for new sites
- Easy installation

Standard pump sump

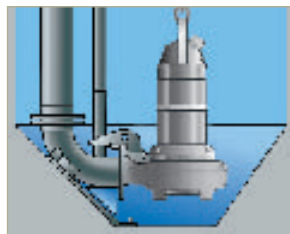


It hasn't changed for over 30 years: a large flat sump floor that encourages the build up of sludge and solids.

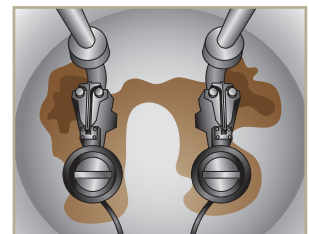


The further away from the pumps, the greater the build up of sediment.

The TOP pump sump



The small floor and optimised geometries ensure high water velocity that whips settled solids into suspension.



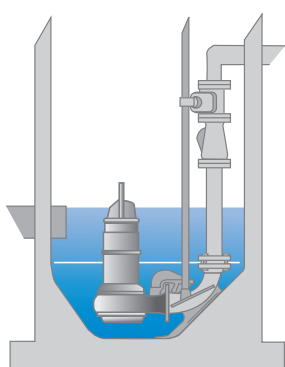
Solids that are left behind will collect close to the pump, where the suction is the strongest. This means they will not have the chance to build up and stagnate.

Three TOP solutions

No matter whether it's a question of a new pump station or a retrofit, there's a TOP solution that suits your needs. There's even a complete turnkey package that's delivered pre-assembled. TOP solutions are easy to install: if retrofitting, the station will be back in action in less than a working day.

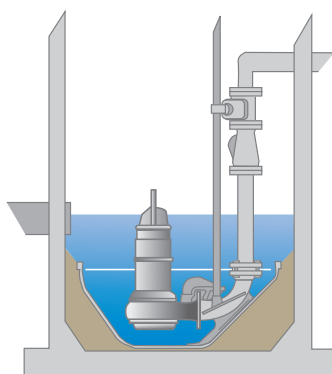
Build TOP sumps in three ways:

- by constructing new concrete pump stations
- by retrofitting existing sumps
- by installing complete turnkey pump stations



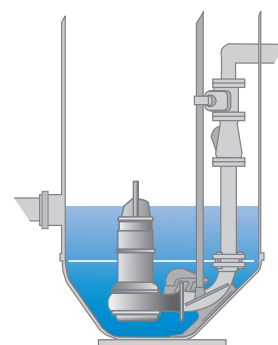
New concrete pump stations

If you're constructing a new pump station, there's a special TOP mould available for casting the floor of the sump.



Retrofit existing sumps

Just install the TOP prefabricated floor and fill with concrete. No additional excavation is required and your station will be back online within hours.



Turnkey pump stations

TOP is also available as a turnkey package in Glassfibre Reinforced Polymer (GRP). The station is delivered pre-assembled with valves, discharge piping, inlet and outlet connections.

TOP	Station diameter	No. of pumps	50	65	80	100	150	Discharge size (mm) Capacity (l/s)
			4-10	6-15	6-30	10-40	30-95	
50	800 mm	1	•					
65	1000 mm	2	•	•				
80	1200 mm	2		•	•			
100 S	1400 mm	2		•	•	•		
100 L	1600 mm	2		•	•	•		
150 S	1600 mm	2			•	•	•	
150 L	1800 mm	2			•	•	•	

More ways to keep sumps cleaner

Over the years, we have built up a range of different ways to keep pumps stations clean. Some pump stations need all the help you can give them. Here is all the help you will need.

Reduce the risk of clogging

The design of the TOP sump prevents solids from building up, but what happens when long fibrous materials threaten to block the impeller?

Flygt's revolutionary N-Pump reduces the risk of clogging while maintaining high pumping efficiency – and that translates into low energy consumption. This is how it works. A unique semi-open impeller in combination with a relief groove in the volute create a self-cleaning flow path through the pump. In addition, the impeller vanes feature an extreme swept-back design. This prevents build-up on the leading edge of the impeller to give high operating efficiency, even when the pump is run for long stretches.

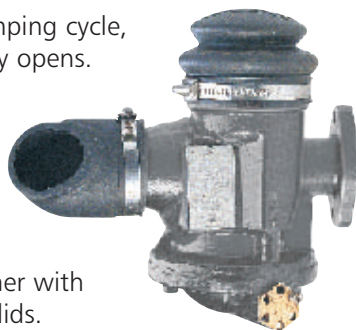


Reduce manual cleaning

The unique and patented Flush Valve transforms a Flygt pump into a powerful mixer.

At the start of each pumping cycle, Flush Valve automatically opens. For about 20 seconds, a powerful jet stream flushes all solids and fats into suspension. As the valve closes, the pump begins pumping away the liquid – together with the newly suspended solids.

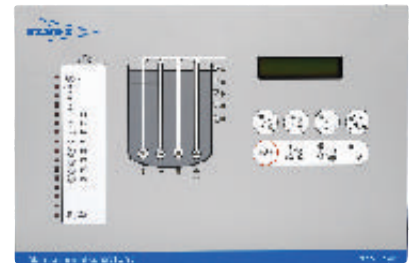
Since flushing is part of each pumping cycle, the sump floor is automatically “hosed” every time the pump starts. And because Flush Valve harnesses the power of the pump, the jet stream is strong and effective.



Reduce service visits

At Flygt we supply a wide range of monitoring and control systems. These range from basic units with simple start and stop functionality, to sophisticated monitoring and control systems.

Our top level FMC controller has been developed, from scratch, with one goal in mind: to control pumps. It offers a wide range of functions, is easy to use and is compatible with different SCADA systems.



Fats and greases can be a problem in many sumps. APF is a supplementary controller that runs pumps down to the lowest possible water level. At this point, fat that's floating on the water surface is drawn into the pump. Also, at such a low water level a small amount of air enters the volute. This creates high turbulence, stirring up any remaining solids and fats.

Reduce installation time

For larger pump models – with discharge diameters of over 65 mm – the TOP kit includes the MULTI/JOINT® discharge connection. MULTI/JOINT offers a number of advantages:

- it covers a variety of outer pipe diameters, from 65-150 mm
- piping is simply inserted into the discharge connection: no welding or drilling is needed. The MULTI/JOINT connection allows an angular deviation of $\pm 7^\circ$
- it handles a variety of piping materials: stainless steel, cast iron, carbon steel, fibreglass, PVC and PE (which requires an insert)



Lifetime commitment

At Flygt, we don't sell pumps: we sell cost-effective fluid handling. Before you even buy a pump, we are there to help you dimension your pump system. And after you've made your purchase, we are there to optimise efficiency, minimise downtime and maximise service lifetime.



A strong beginning

Flygt has built a substantial library of software programs that deliver accurate and fast answers to all kinds of fluid handling problems. Though most of the programs are not available for general release, they are there for your benefit. For more information, contact your Flygt representative.

Our software covers a wide range of topics – from accurate pump selection, to calculating efficiencies in piping systems. With SECAD, for example, a project engineer can design and specify an entire pump station in a matter of minutes, instead of days.



A happy ending

With our world-wide network of authorized service centres, you always get the support you need: whether it's a question of planned maintenance or express delivery of a part.

Because no two pump stations or systems are alike, you can choose a support and maintenance package that matches your needs.

At one end, we simply supply a pump to your specifications. At the other, we provide full-service assistance: from system planning and design, through construction, installation and commissioning, to operation and maintenance.

Wherever you are located, there's a member of Flygt's service network near you. Our representatives are all authorised and trained to give the best possible service. They can also provide you with genuine Flygt spare parts, which are always available for 15 years after the product line is discontinued.

Like we said, we don't sell pumps: we sell solutions that minimise life cycle costs. It's a matter of commitment.

As one of the world's leading suppliers of fluid handling solutions, Flygt can supply everything you need to design, build and operate pump systems in a safe and cost-effective way.

Our products are used in water supply, wastewater treatment, sewage systems, mines, construction, process industries and numerous other applications.

Flygt has 40 sales companies and is represented in over 130 countries around the world.



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