FLYGT

POMPDIRECT

Propeller pumps

for efficient pumping of large volumes

Flygt

ITT Industries

Engineered for life

Pumps for large volumes and low heads

Flygt submersible propeller pumps operate directly in the liquid being pumped, with electrical controls and switch gear being the only items placed above water. They are smaller than non-submersible counterparts as the motor and hydraulics are integrated into one compact unit, resulting in smaller pumping stations that are less complex to build. Operating submerged they take up less space, and noise and cooling problems are virtually eliminated.

This series of pumps has an extensive performance range and can be used in a variety of applications such as:

- Storm water
- Raw water
- Flood control

Most of these pumps can be equipped with the self-cleaning N-technique to prevent clogging in applications such as:

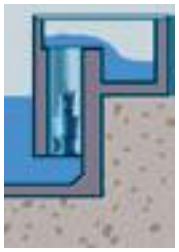
- Return sludge
- Waste water in treatment plants

Low installation and construction costs

The submersible concept means that station superstructure can be omitted or made smaller and simpler in design.

To reduce the cost of installation, ITT Flygt has standardized many of the main elements of pumping stations so that they can be combined to match specific site conditions. Pumps in stations of this kind can be installed and removed in minutes. No fastening bolts are required.

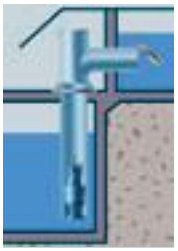
The examples illustrated here show the flexibility of the system, and provide some guidelines for optimizing the design of your own station.



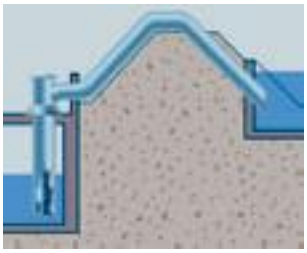
For pumping to e.g. a channel where the water level is nearly constant. The pump is placed in a concrete column. A shut-off valve is not needed.

The basic design is the same as in previous illustration, but the pump is placed in a steel column that rests on a support frame.

A closed system with either a free discharge, as shown, or with a flap valve.

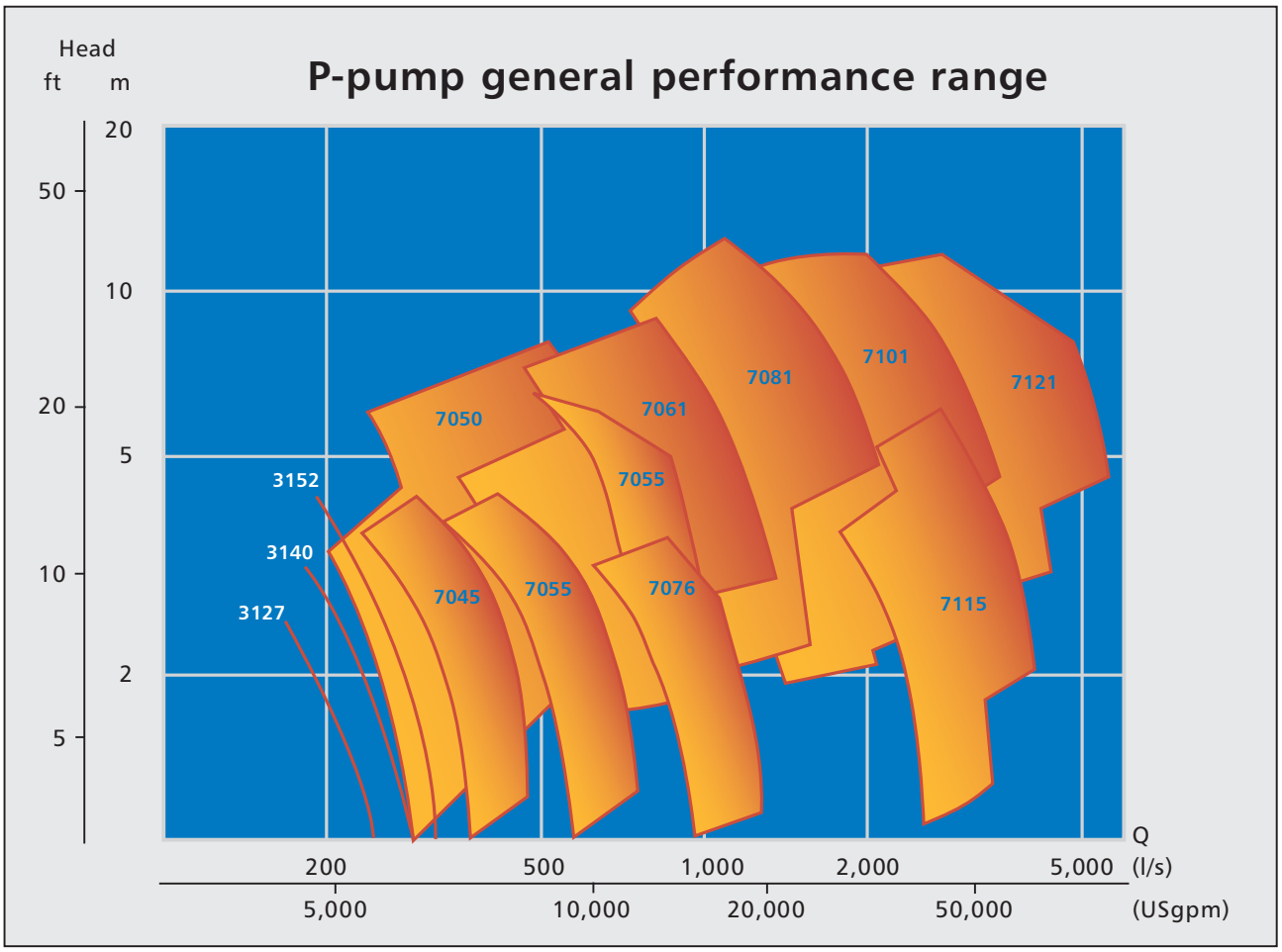


When the water level on the outlet side varies considerably, a flap valve is installed.



This construction allows the pump to work in combination with a siphon or discharge line.

Pump performance range up to 5 500 l/s



Choosing the optimum pump is further simplified through the use of Flyps, Flygt's dedicated pump selection software.

Through a combination of drive and hydraulic units, P-pumps cover a wide range of heads and flows.

Model	Rating (kW at 50 Hz)	Column diameter (mm)
3127	7.5	500
3140/3152	11/15.5	600
7045	11-22	700
7050	27-55	700
7055	13-55	800
7061	46-160	800
7076	37-55	1000
7081	55-200	1000
7101	40-300	1200
7115	90-225	1400
7121	125-460	1400

Quality and reliability in every detail

Motor
Squirrel cage, high performance induction motor, specially designed and manufactured by ITT Flygt for submersible use. Stator windings are trickle impregnated in resin to class H insulation and rated at 180° C (355° F) allowing for up to 30 starts per hour.

Shaft
A short overhang of the shaft virtually eliminates shaft deflection. This results in significantly increased seal and bearing life, low vibration and quiet operation.

Seals
Two sets of mechanical shaft seals that work independently for double security. Designed, patented and manufactured by ITT Flygt.

Oil housing
In addition to lubricating the seals, the oil-filled compartment diffuses heat from the motor and the bearings. The housing also provides additional security against penetration by liquids.

Monitoring
Thermal sensors embedded in the stator windings help prevent overheating. Leakage sensors in the stator and oil housings, together with external monitoring equipment, are available as options.

Cable entry
The cable entrance is designed to incorporate both a seal and a strain relief function.

International standard approvals
All pumps are tested and approved in accordance with national and international standards (IEC 34-1 CSA). They are also available in explosion-proof versions – Factory Mutual and European Norm (FM and EN) approvals.

Corrosion protection
For applications in corrosive liquids, most models can be fitted with zinc anodes, stainless steel shaft and propeller. An epoxy coating for external parts is also available.

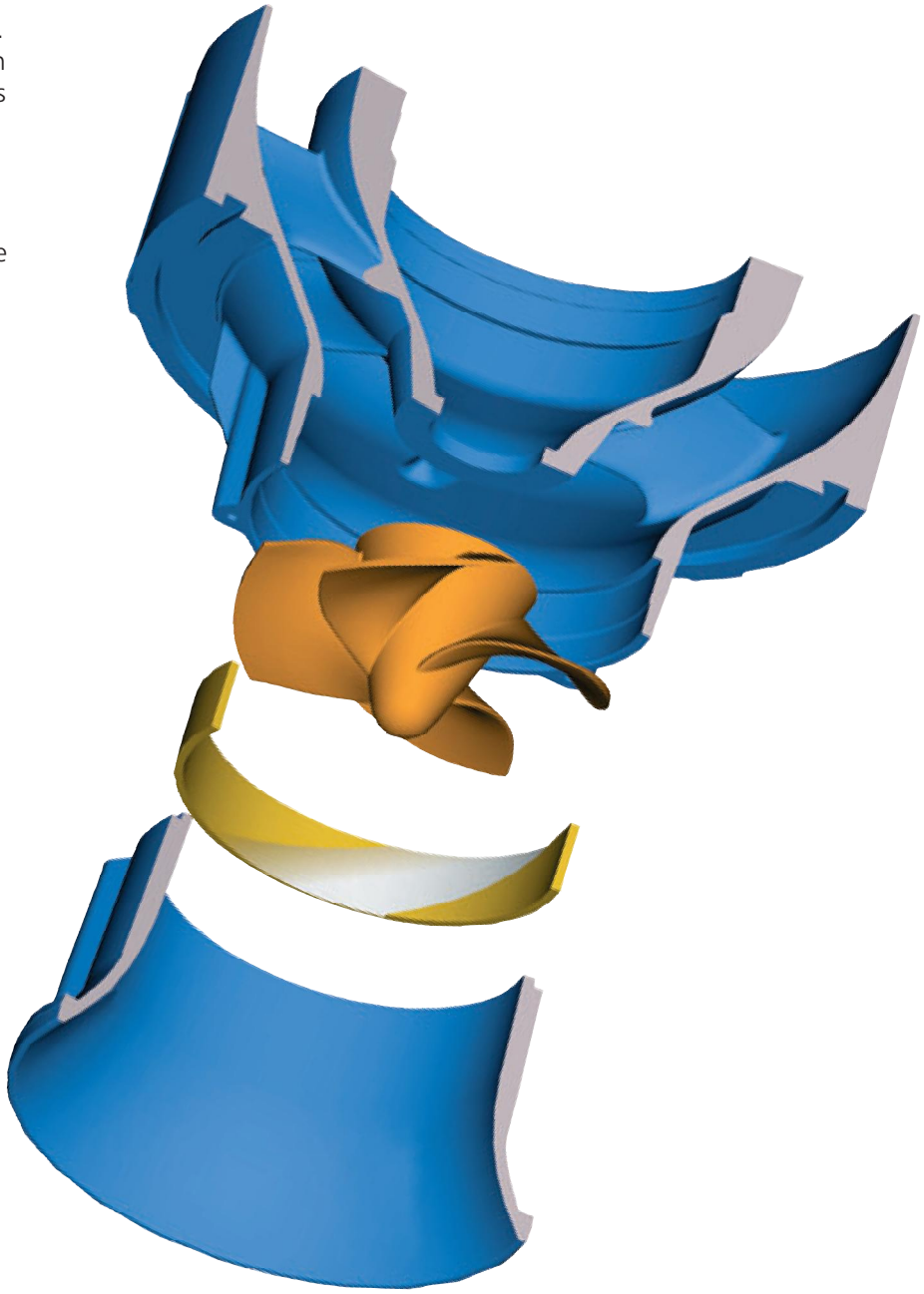
Propeller and pump housing
Several types of propellers and pump housings are available. The propellers are machined to match the selected duty point.

Most of the pumps can also be fitted with the patented N-technique to prevent clogging of the propeller and guide vanes in the pump housing.

Flygt´s advanced hydraulic design cuts the risk of clogging

The well-approved N-technique has been adapted to these propeller pumps. A back-swept blade design, coupled with a ring with relief groove to release debris from the blades, prevents clogging of the propeller without sacrificing hydraulic performance.

The guide vanes at the pump discharge have been designed to force debris to the outer edge of the vanes where it is flushed away with deliberately created turbulent flow.



Hydraulic design using the patented N-technique. This applies to the following pumps: 3127, 3140/3152, 7061, 7081, 7101 and 7121.

Quality engineered for longer life

Motor design
Rather than using standard, off-the-shelf motors, ITT Flygt has always manufactured its own units. Each one is specifically designed and produced for safe, reliable operation in submersible applications. Designing our own motors also allows us to build-in wide margins of safety for a long and trouble-free service life.

All motors are squirrel cage induction units. Stator windings are trickle impregnated in resin (Class H insulation) and rated at 180° C (355° F), allowing for up to 15 starts per hour. However, since the maximum temperature rise does not exceed 80° C (176° F), this prolongs the operational life of the motor winding. In addition, thermal contacts are rated to 140° C (284° F) to prevent unnecessary tripping.

The new trickle impregnation with resin gives excellent insulation with less risk of air pockets. Rotor losses have been considerably reduced and heat generation is concentrated around the stator, which is easier to cool than the rotor. This also means less heat in the bearings.

The stator is heat-shrink fitted in the housing for superior heat transfer, and locked against rotation for perfect alignment with the rotor assembly. As a further measure of protection against leakage, there are no external locking bolts.

World-wide service network

No two pumping stations and systems will be alike, so the level of maintenance and support that you require from your service partner will differ according to your situation. With ITT Flygt, you can choose the type of support package that precisely meets your needs.

From simply supplying pumps to your specifications, to full service assistance with system planning, design, construction, implementation, operation or maintenance: ITT Flygt's total service concept means that you get the service you need, on your terms.

We guarantee availability of spare parts for 15 years, 20 years on the bigger pumps, after we stop production of a pump model. This is just one of the ways in which ITT Flygt meets its long-term commitment to customers.