

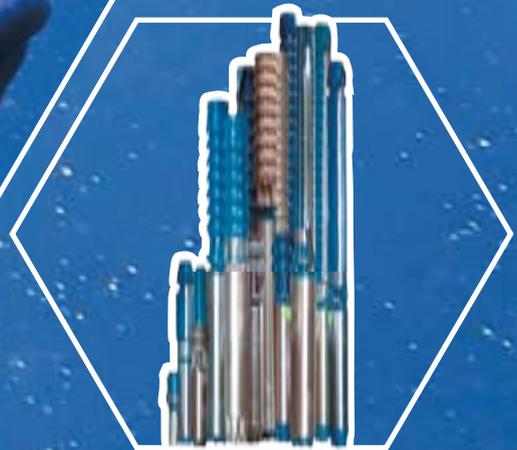


PAPANTONATOS

Pumps service & engineering



We supply
clean water
and remove
waste water



PXFLOW[®]
sewage pumps

FLOWPAP[®]
submersible pumps



The Company



QUALITY WHICH REDUCES PUMPING COSTS

For over 45 years, **PAPANTONATOS S.A.** has focused on the customer's design, manufacturing and service needs in the field of submersible pumps.

Our engineering department has acquired invaluable technical knowledge through our long and close collaboration, as a customer and a supplier, with some of the leading global pump manufacturing companies.

This extensive technical experience has significantly contributed to our success as a pump manufacturer. We are currently offering some of the most robust and efficient pump units in the market that are perfectly adapted to all sorts of difficult operating conditions in clean water and wastewater pumping applications.

We are working according to the **ISO 9001:2000 norms certificate from TUV** since May 2000.

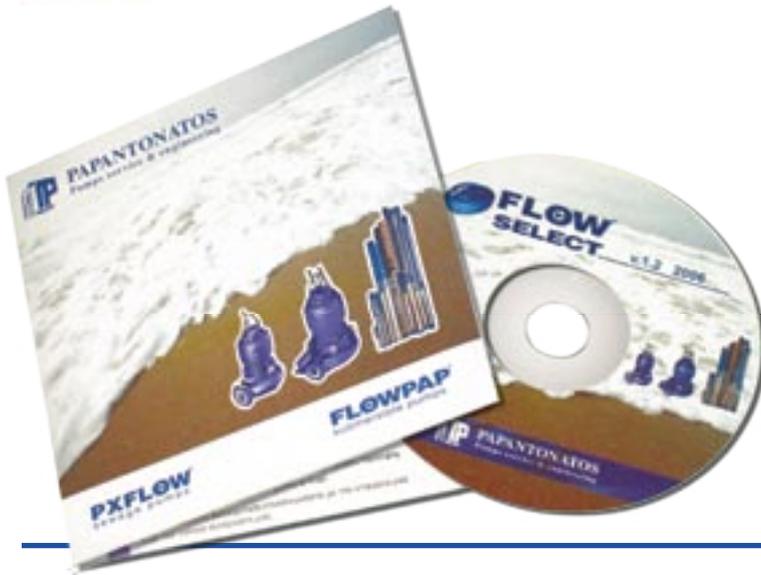
Our well organized company-owned facilities utilize contemporary CNC (Computer Numerical Controlled) lathes and milling equipment for the machining of our motor cast parts and pump components that are produced in our foundry (located 120 km away from Athens).

Our design department utilizes some of the most advanced **3D-CAD** (Computer Aided Design) programs in order to materialize with great accuracy the most efficient pump designs.

We have carefully chosen to equip our pumps with motors and standard parts made by some of the leading motor manufactures in the European Union such as Pleuger, Siemens and Franklin that are in full accordance with the latest manufacturing and environmental standards.

Finally all of our pumps from both family lines, (**PXFLOW** and **FLOWPAP**), are meticulously tested in our modern test stand where crucial technical data is collected and recorded before the pumps are released for dispatch to the customer.





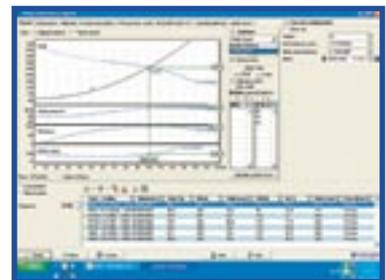
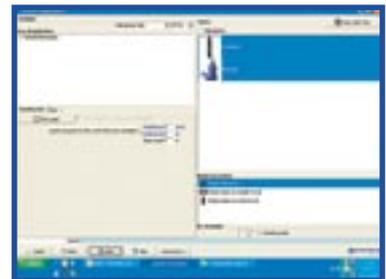
ALL SUBMERSIBLE PUMPS IN ONE PROGRAM SELECTION

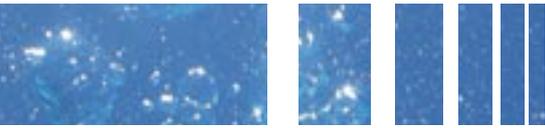
FLOW-select is a special program and an indispensable tool for all pump consulting engineers and users. Both pump family names, (**FLOWPAP** clean water submersible pumps and **PXFLOW** waste water submersible pumps), are included in the program.

If the basic planning data such as capacity and total head are available, the **Flow-select** can suggest different pump types from both pump family names. If the data is not available Flow-select provides a simple friction loss calculator that can still aid the user to choose the correct pump unit.

Other FLOW select advantages

- User friendly interface translated in 19 languages
- Easy unit conversion.
- 50-60Hz (where applicable)
- Impeller trimming
- Variable curve speed (for applications with inverter)
- Combination curve characteristics with friction loose curve.





Wastewater Submersible Pumps



Design features

All **PXFLOW** pumps are designed and built tough to the highest industrial specifications up to date and are equipped with a number of operation/maintenance friendly features.

*Only the very best features come as a standard in **PXFLOW** pumps.*



Motor Unit

Enclosed inside the high quality cast iron motor housings are the **PXFLOW-Siemens** electric motors of highest energy savings norm, EFF1 or EFF2 equipped from the factory with a class F insulation rated for 155 degrees Celsius as standard, (or optionally with a Class H). Three thermal overload switches, one per phase, are inside the winding, to combat high temperature loads. The oversized stainless steel rotor shaft and the two oversized ball bearings ensure the motor's smooth and vibration free rotation. Consequently the motor's operational life time is significantly extended.



Pump Volutes

The **PXFLOW** volutes are made from quality cast iron and have been designed to have additional thickness on the walls. Extra attention has been given to the inside smoothed volute surfaces so higher hydraulic efficiency and minimum turbulence can be achieved.

The volute is connected with the motor unit through a **fast lock** connection system by means of stainless steel latch bolts for easy and fast removal. The motor unit can be quickly removed from the pump's volute for an easy inspection.



Impellers

PXFLOW impellers are made from hardwearing ductile iron, (DUPLEX stainless steel as an option), and come in three types (single channel, multi channel and vortex) with a non clogging design that meets the pumping liquid needs and duty. The initial impeller design can be easily adjusted, (when trimmed), to meet the customer's performance requirements. **PXFLOW** impellers are dynamically balanced and machined to exacting tolerances to reduce any unwanted vibrations.



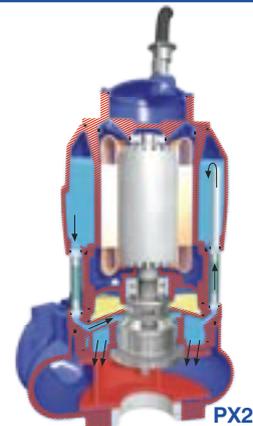
Internal motor cooling system with "ECOFLU cooling jacket" *

All **PXFLOW** standard motor sizes (from 3kw-70kw/50Hz and 4,6Hp-100Hp/60Hz) are equipped with a closed cooling system. An internal impeller that is fitted in between the two mechanical shaft seals circulates the cooling liquid (ecoflu) in a closed loop inside a cooling jacket.

The heat is then transferred to the pumped liquid by means of a cooling flange (heat exchange).

This efficient cooling system has the following great advantages:

- Maintains the optimal temperature range for the motor bearings.
- The cooling system is separated from the pumped liquid to eliminate any risk of clogging and sedimentation.
- The double sound absorbing pump motor casing, enables the unit to be running at an extremely low noise levels.



PX2

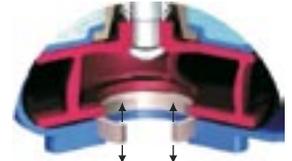
Cartridge sealing system “Fast Seal” *

The shaft system consists of a double set of mechanical seals that are built into a replaceable cartridge. The cartridge sealing system can be easily removed on site without the need of any special tools and thus eliminating the risk of any improper installation. The primary seal (impeller side) is made of abrasive resistant carbide against silicon carbide. The secondary seal (motor side) is made of heat resistant carbon against silicon carbide. Every cartridge sealing system has been pressure tested at the factory regardless if it is installed inside a PXFLOW pump or sold separately as spare parts.



Clearance Reduction system “Reducer” *

The channel impellers are fitted with volute/impeller clearance reduction wear rings. This system easily allows the ring to be repositioned axially in order to reduce the clearance between the channel impeller and the volute. This sealing method advantages over other methods which use radial impeller and volute wear rings that cannot be repositioned and have to be replaced when wear levels are not acceptable.



PXGRIND grinder pumps

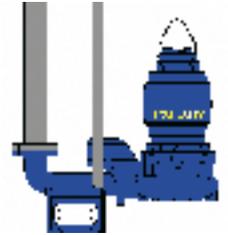
The PXGRIND pumps are equipped with a grinder system, grinding destructible solids into small pieces and fibrous matters such as paper, textiles, plastics, etc before passing the pump so that they can be led away through pipes of a relatively small diameter.



Types of installation

Wet type installation

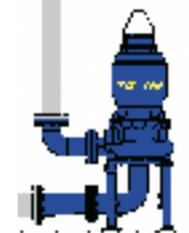
The self guiding coupling system allows for the quick and efficient pump unit inspection. The elbow shaped stationary **Discharge Connection Bracket (DCB)** is securely fastened at the bottom of the sump. The pump's discharge outlet is perfectly aligned with the DCB's opening and the connection is maintained sealed by the pump's own weight.



Dry type installation

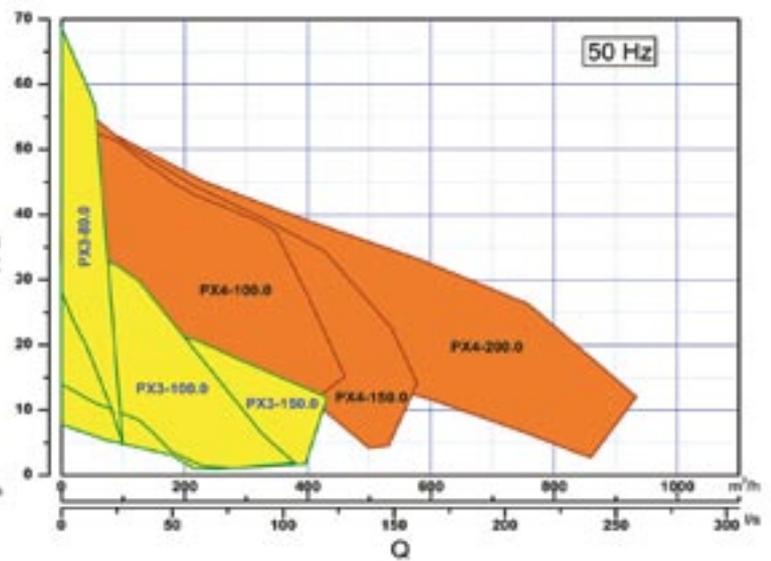
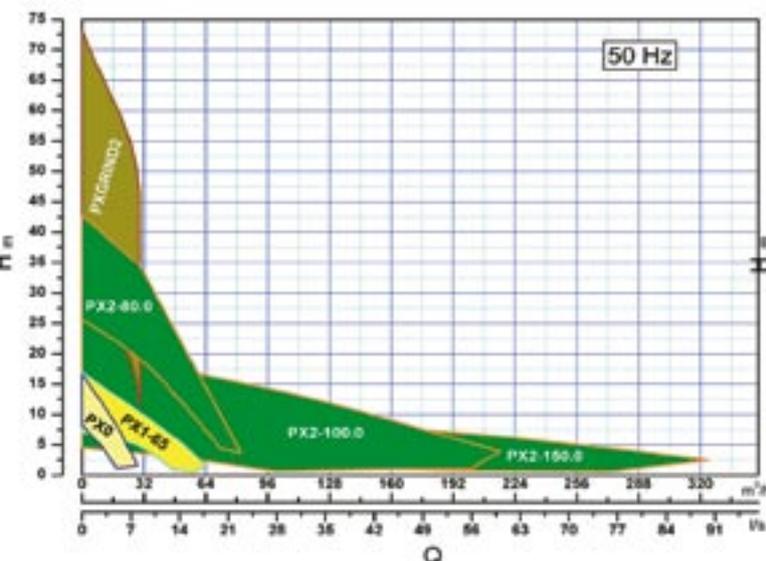
In this case a PXFLOW pump, equipped with the **ECOFLU** (internal motor cooling system), is installed in a separate pump chamber. All piping is bolted directly to the pump volute (suction and discharge end). The fast lock connection system permits the fast motor unit and impeller removal from the pump's volute for an easy and friendly inspection.

These pumps can replace old existing pumps with dry motors and can still remain operational even if there still water inside the pump chamber.

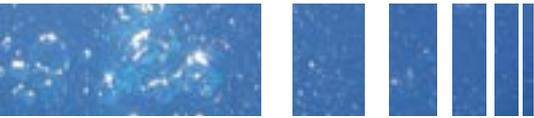


Transportable installation

This type of submersible pump is equipped with a suction stand that comes with or without a strainer. This portable pump unit can be an excellent solution for dewatering construction sites especially when equipped with the **ECOFLU** cooling system.



* not for PX0, PX1-65



Clean water submersible pumps

FLOWPAP[®] submersible pumps

For over four decades the **FLOWPAP-PAPANTONATOS** submersible pumps have been synonymous with top quality products. Our submersible pump units are manufactured to be operating in several different applications and do not require frequent maintenance.



- Booster applications



Motor Unit

The **PLEUGER** rewindable motors with power capabilities up to 5000kw, speeds from 200 to 3500rpm and the flexibility to operate in a variety of voltages up to 6000V have always been our first choice for our clean water submersible pumps.

Equally reliable motor units that can provide up to 185kw are manufactured by **FRANKLIN** (rewindable and encapsulated). With a sturdy construction and robust design, these motor units have a proven record of excellent performance and durability. Both aforementioned brands of submersible motors are water filled, water-lubricated and operate at the minimum noise and vibration levels. They are the ideal choice for providing high performances at small diameters. The dimensions of the motor connections are standardized according NEMA (where applicable).

All motors are equipped with stainless steel stator housings, shafts, screws and bolts. The rest of the cast parts are made from different materials, such as cast iron, cast stainless steel and nickel aluminum bronze* depending on the corrosion qualities and intensity of the surrounding liquid that is being pumped.

**only for PLEUGER*



Pump unit

FLOWPAP pump units are designed on the principal of a modular structure. The shaft is made from stainless steel. The impeller is keyed on the shaft with a stainless steel key or it is locked by a series of stainless steel collets. The shaft with key ways used exchangeable stainless steel sleeves for shaft protection. The radial bearings are maintenance-free, water lubricated by the pumped liquid.

Depending on the corrosion levels and temperature range of the surrounding water that is being pumped, we offer a variety of different materials.



Pump Body

Different materials (Grey cast Iron, ductile Iron, bronze and DUPLEX Stainless steel) can be used for the manufacturing of the pump body cast parts depending on the corrosion aggressiveness of the pumped liquid. All pumps are equipped with stainless steel non-return valves hubs (up to 9" pump types).



Impeller

We have designated a completely different material range for our impellers so the longest possible life time of this crucial part can be ensured.

Bronze has been our standard material choice in most applications but we also provide below a list of some different materials that can be utilized.

- Noryl (glass-fiber reinforced plastic) for most types up to 8" pump types).
- Cast stainless steel DUPLEX, 316 or 304
- Other material on request

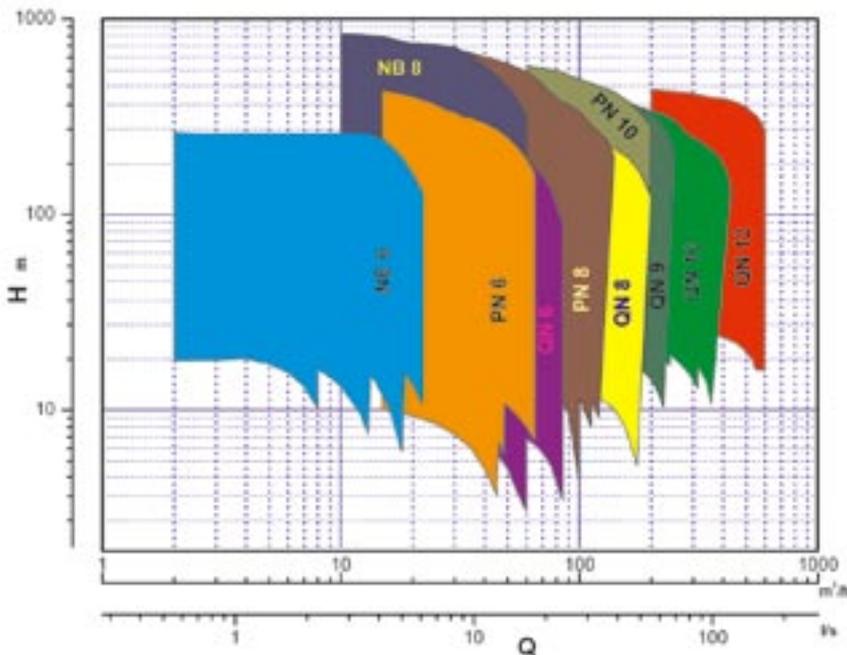


MS* Wear Rings

Most of our pumps use exchangeable bronze wear rings that are securely fitted inside the bowl(s). The **PN65, 67** all the **NB8** and **PN8** types use a double wear ring. In this case the impeller is fitted with a stainless steel wear ring and the bowl is fitted with a wear resistant ring that keeps the clearances in permissible levels during long operating times. The rings also significantly reduce the possibility of premature impeller and bowl wearing (*Clearance side*).



* MS - Mobile Stationary



• for bigger pumps please contact with us



PAPANTONATOS

Pumps service & engineering



PXFLOW
sewage pumps

FLOWPAP
submersible pumps

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