Wet & Dry Well Submersible Pumps

*Ideal for Solids Handling, Viscous Pumping & Delicate Handling*
Submersible / Immersible

SUBMERSIBLE

- Separate cable cap permits a new cable to be fitted without disturbing motor cover or bearing
- Upper bearing temperature probe (optional)
- High efficiency dry motor with class ‘F’ insulation with built in thermal sensors
- Re-greasing of bearings (certain models only)
- Extensive monitoring
- Tandem mechanical seals

IMMERSIBLE

- High security cable entry assembly
- Oil jacket with forced circulation for efficient cooling of immersible motor
- Heavy duty shaft and bearings
- Oil circulation impeller locked onto shaft
- Finned back cover acts as heat exchanger
- Heavy-duty hydraulic end incorporating the Hidrostal screw centrifugal impeller

Also available with end-suction pump for above ground pumping (see separate brochure)
Design Features

Motor Cable Entry

1. Cable mechanically clamped to eliminate strain on sealing elements
2. Outside of cable is sealed by a compressed grommet
3. Each cable conductor is isolated from the motor by copper dams which prevent moisture leaking through the interior of the cable in the event of cable damage
4. Poured epoxy totally encapsulates each individual conductor and copper dam preventing moisture from entering the motor via the outside or inside of the cable

Motors are shipped with free end of cable fitted with a waterproof sleeve

Cooling

All immersible motors are efficiently cooled by oil, contained within a jacket, circulated around the motor by an impeller locked to the motor shaft. The oil transfers the heat to the pumped liquid, though a finned back cover between the pump and the motor. The Hidrostal cooling method has advantages over other systems which circulate the pumped liquid through internal cooling channels which often become coated with sludge and slime, reducing the heat transfer and effectively de-rating the motor.

Tandem Mechanical Seals

Both seals run in an oil bath which lubricates the pump side seal faces in the event of dry running. The pump side seal has faces of tungsten carbide running against silicon carbide, effective for abrasive applications. For heavy-duty applications, the pumpside seal springs are totally enclosed in a rubber boot or metal body depending on application. Motor side seals are of the open spring type with carbon/ceramic faces

Re-greasing of Bearings

The lower bearing carries the axial thrust, the weight of the rotating unit and the substantial radial loads. To fulfil its L10 design life, periodic re-greasing is necessary on certain models. This is easily done by removing a watertight cover which exposes a greasing nipple. The upper bearing carries a lighter load and does not require re-greasing between major overhauls.

Inverters & Soft Starts

All Hidrostal motors can operate with inverters and soft start provided quality electrical elements of approved specification are used.

Explosion Proof Motors

All 50hz motors are approved by ATEX for explosion proof application to 112G EEExd11BT4 bzw and 112GEZyd(llb)11BT4.

Two Speed Motors

Dual wound, two speed, submersible and immersible motors are available to suit individual applications.

Monitoring Motor Temperature

Klixon type temperature sensors are built into the motor winding. Thermistors are available as an option.

1. Moisture Probe

Monitors the condition of the pump side seal by detecting water ingress in the cooling/seal chamber oil. An alarm is triggered when a significant amount of water has entered, indicating that the pump side seal should be replaced.

2. Float Switch

Detects any water or oil passing through the motor side seal which could cause failure of the lower bearing. This feature is standard on larger motors and an option on smaller versions.

3. Bearing Temperatures

Most Hidrostal motors have an option of monitoring bearing temperature, on large motors thrust bearing temperature sensors are provided as standard.
Unique & Dependable

Pump Construction

The standard materials of construction are grey cast iron with a nodular iron impeller. The pump shaft is stainless steel. Alternative materials are available for increased wear and corrosion resistance.

Materials

<table>
<thead>
<tr>
<th>Code</th>
<th>Pump Casing</th>
<th>Impeller</th>
<th>Linear/suction cover</th>
<th>Motor casing cover</th>
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The combinations are standard built, but components can be interchanged and other materials are available to suit specific applications.

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The Screw Centrifugal Impeller - *The heart of all Hidrostal pumps.*

Extremely versatile in its application, the impeller provides efficient handling of a range of liquids, often highly abrasive or corrosive in nature. It is ideal for:

**Solids Handling**

**Pumping Viscous Sludges**

**Handling Delicate or Low Shear Products**

Unique to all Hidrostal pumps is the ability to handle the above in combination.

Many applications too arduous for other types of centrifugal pumps can usually be handled by the Hidrostal screw centrifugal impeller. The impeller comprises a single spiral vane, with large open passages, which makes a long slow turn from the axial inlet to the radial outlet. The design provides optimum hydraulic performance giving:

- High efficiencies
- Steep and stable hydraulic curve
- Non-overloading power curve
- Low NPSH
- Non-clog pumping

**Typical Applications**

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<thead>
<tr>
<th></th>
<th>Industrial Effluents</th>
<th>Raw Unscreened Sewage</th>
<th>Viscous Sludges</th>
<th>Return Activated Sludges</th>
<th>Drainage/Stormwater</th>
<th>Process Waste</th>
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<tbody>
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Performance

Two Stage Pumping

First Stage:
Submersible/immersible/end suction

Second Stage:
Immersible/end suction, horizontally or vertically mounted

*(Consult Hidrostal for specific proposals)*