VERSA® PUMP

SCREW CENTRIFUGAL SUBMERSIBLE PUMP



SNC SERIES

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THE SCREW CENTRIFUGAL IMPELLER

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

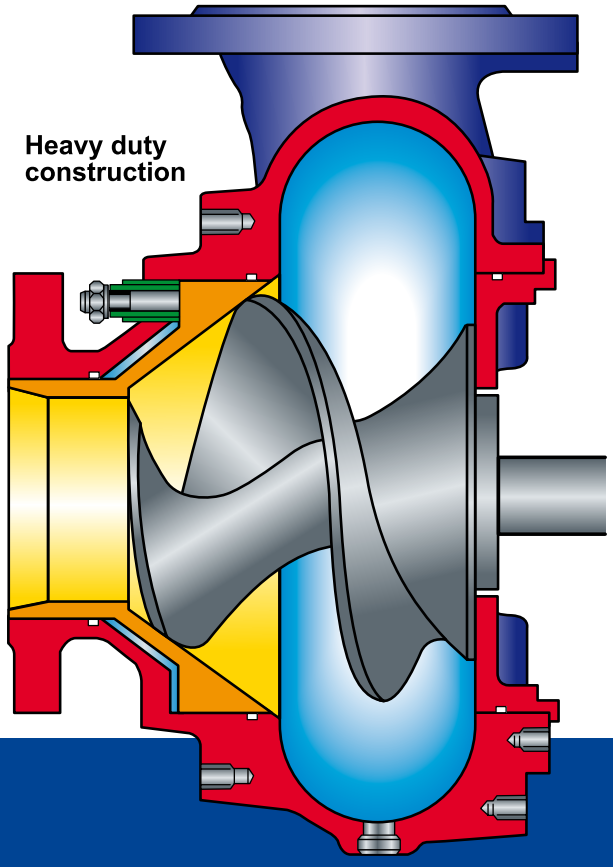
- Solids Handling
- Pumping Viscous Sludges
- Handling Delicate or Low Shear Products

Many applications too arduous for other types of centrifugal pumps can usually be handled by the versa 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:

- Industrial effluents
- Raw unscreened sewage
- Viscous sludges
- Return activated sludges
- Drainage/Stormwater
- Process Waste



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.

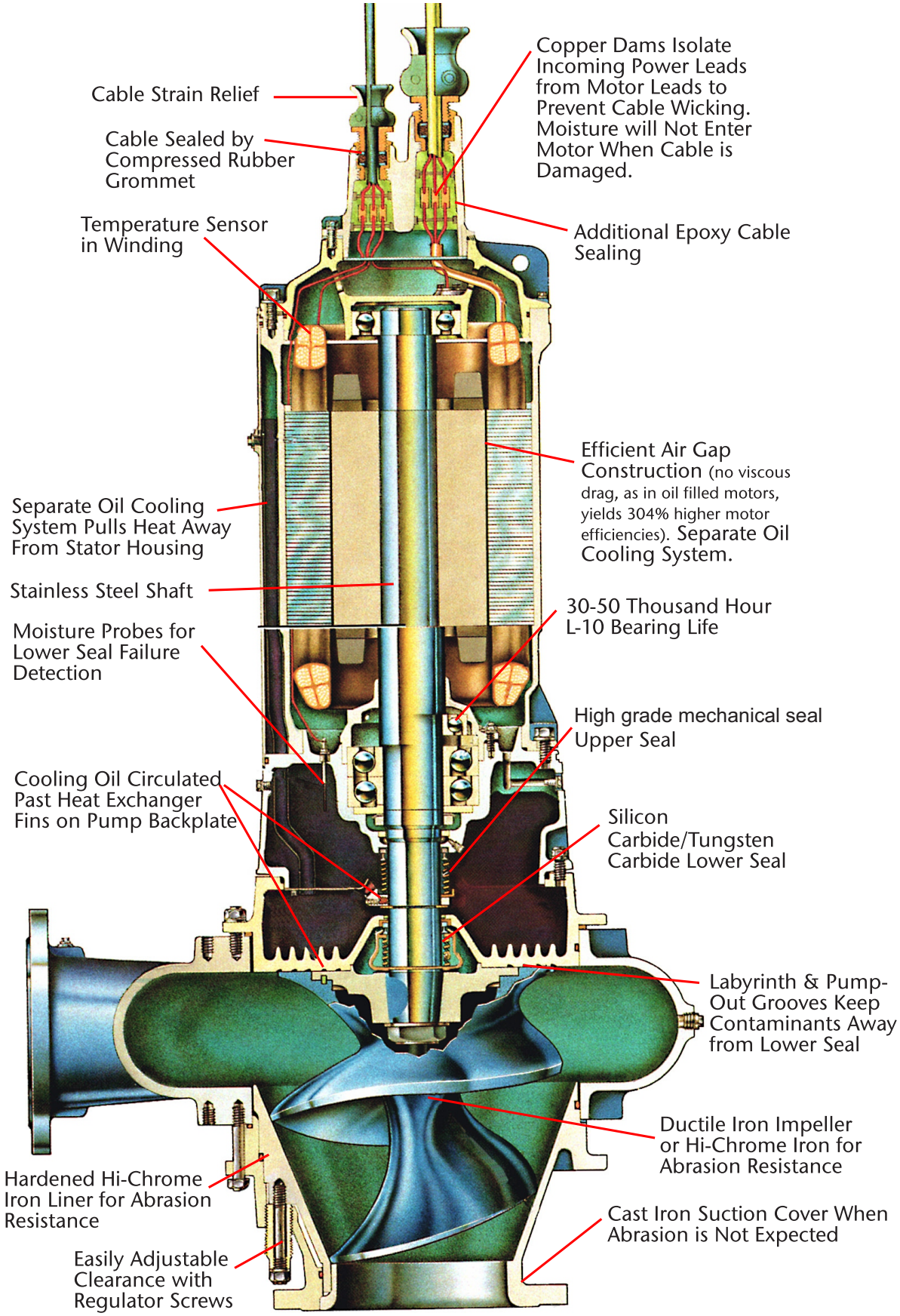
MATERIALS

Code	Pump casing	Impeller	Liner/ suction cover	Motor casing cover
1	CI	NI	CI	CI
2	CI	NI	HH	CI
3	CI	CM	HH	CI
4	CI	HH	HH	CI
5	SS	SS	SS	SS or CI
6	DS	DS	DS	DS or CI

CI = Cast Iron
NI = Nodular Iron
HH = Hardened
CM = Cr. Mo Steel
SS = 316 St. Steel
DS = Duplex St. Steel

The above combinations are standard build, but components can be interchanged and other materials are available to suit specific applications.

Immersible/Submersible Motor Design



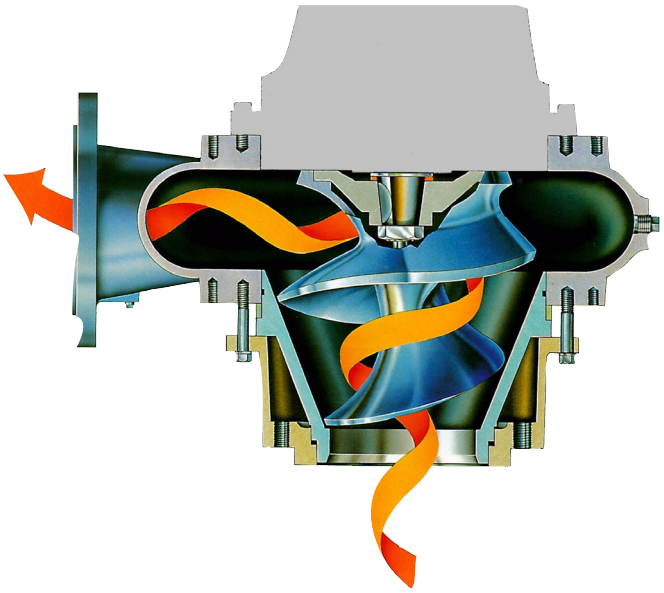
Clog-Free Pumping with the Unique Screw-Centrifugal Impeller

The screw centrifugal impeller with open channel design combines the clog-free features of a vortex pump, the gentle action of a screw pump, and the high efficiency of a centrifugal pump.

The **Screw section** of the versa centrifugal pump performs like an Archimedes spiral. In thick sludges, slurries, and suspended solids, it burrows like a corkscrew to start the material pumping and keep it pumping.

The **Centrifugal section** produces a steep head-capacity curve for non-overloading performance. Combined, the screw/centrifugal action provides high hydraulic efficiencies and clog-free pumping. The large, continuously open channel from suction to discharge offers these advantages:

- Pump will handle large solids with clog-free action.
- Hydraulic efficiencies over 80%.
- Gentle action - prevents damage to delicate solids and biological flocs.
- Low NPSH requirements help keep thick sludges and large solids moving as available suction head decreases. This, in conjunction with immersible motors that can operate dry, also allows lower wet well pump down which reduces construction costs.
- Positive suction flow enables pump to handle thick sludges.



Non-Overloading

The screw-centrifugal impeller produces head/capacity curves that are very steep, for example, the head drops very quickly in relation to increased flow. This type of curve gives designers and users the flexibility simply not found with other designs. The benefits are:

- The pump capacity stays relatively stable throughout the normal operating range of the wet well.
- The pump can handle a wide variation in sludge consistency without the need of a speed change.
- Pressure reserves can dislodge temporary discharge line blockage.

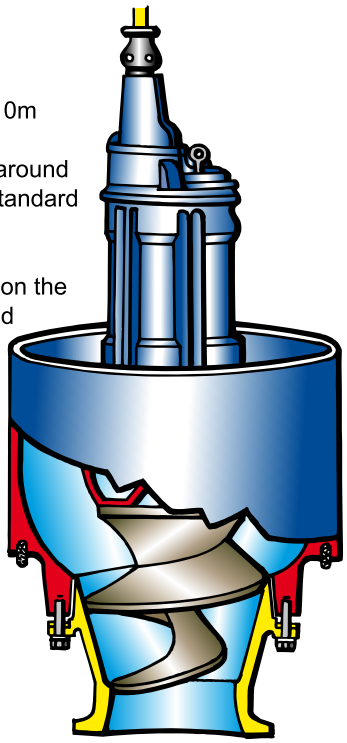


SUBMERSIBLES

AXIAL FLOW TUBE MOUNTED

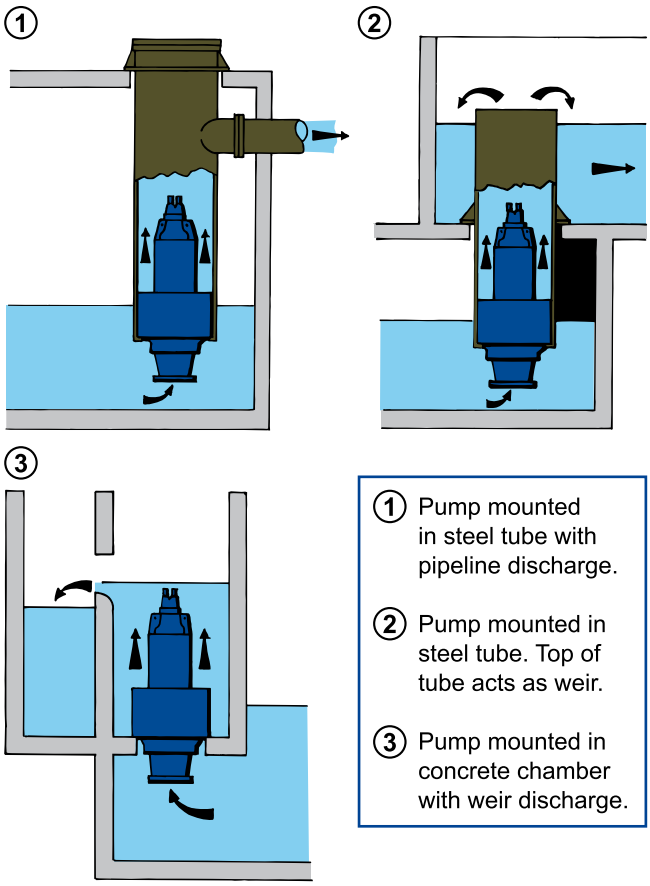
Tube type pumps are designed for low head applications up to 10m and flows from 30 to 1,100l/s. The axial pump range is based around screw centrifugal impeller and standard range of submersible motors.

The difference is that the volute on the low pressure versions is replaced with a casing having an axial discharge enabling the pumps to be installed in a tube or concrete chamber.



TYPICAL APPLICATIONS

- Screened Sewage
- Stormwater
- Returned activated sludge
- Effluents
- Drainage water
- Oily water



1. Pump mounted in steel tube with pipeline discharge.
2. Pump mounted in steel tube. Top of tube acts as weir.
3. Pump mounted in concrete chamber with weir discharge.

The above mountings are the most common but many other arrangements are possible.

Pumps are heavy-duty construction designed to operate at depths of 30 metres, greater depths are possible with special designs.



GUIDE RAIL MOUNTED

For permanent installation and ease of maintenance, a guide rail mounting arrangement is available. Twin guide rails ensure the pump is guided to the discharge elbow and correctly locates in position to give a leak free connection.



FREE-STANDING OR PORTABLE UNITS

For applications where a permanent guide rail system is inappropriate, or a temporary arrangement is required, all versa submersible (and immersible) pumps can be used as free-standing or portable units.



AIR OR HYDRAULICALLY DRIVEN OPTIONS

For applications where the use of electric submersible pumps is restricted by a lack of an electrical supply or a Zone '0' environment.versa can provide air or hydraulically driven portable or permanently installed units.

IMMERSIBLES

ADVANTAGES OF DRY PIT INSTALLATION



- Quiet running
- Cool exterior
- No leakage of product
- Compact, simple installation
- No exposed rotating shafts or couplings
- Pump easily opened for inspection
- Vertical or horizontal installation
- Clean odour-free waste water pump stations

ADVANTAGES OF WET PIT INSTALLATION

- Immersible pumps can be installed in the same manner as submersible pumps
- Liquid level can be drawn down to pump casing without risk of overheating the motor.
- Shallower sumps compared with conventional submersible pump installations.
- Full motor rating maintained when pumping sludge



versa immersible pumps are a versatile, innovative development of the established submersible range. Capable of continuous operation in a dry installation, the immersibles may be operated, with equal efficiency, when fully or partially submerged.



The pumps are particularly suited for dry pit applications where the combination of the Screw Centrifugal Impeller and immersible motor can be considered the state-of-the art technology. Leakage of the pumped product is eliminated by tandem seals running in an oil bath, avoiding a situation commonly experienced with soft-packed glands.

versa immersible waste water / sewage pump stations have frequently been mistaken for clean water stations, due to the lack of odour and the cleanliness of the buildings.

Immersible pumps are particularly suitable for installation where quiet running, clean surroundings, reliable and long trouble-free operation is required.



The pumps may be installed vertically or horizontally.