



# SUBMERSIBLE TURBINE PUMPS

VSP Series



***Christensen Pumps***

A division of Layne Christensen Company

# SUBMERSIBLE

## Applications

Christensen Pumps combines the hydraulic engineering of turbine pumps matched to the hi-tech design of electric submersible motors. (Two types available)

## Hermetically Sealed Type

A Hermetically Sealed Type motor utilizes windings of standard construction and insulation thickness. The *windings* are encased and Hermetically Sealed within the external *shell casing* on the outside and an *internal tube or liner inside the bore*. The Hermetically Sealed enclosure eliminates the possibility of water leakage into the winding. The liquid medium circulates between the rotor and stator liner providing lubrication and cooling to the bearings.

## Wet Winding Type

A Wet Winding Type motor is one in which the motor windings are in direct contact with a *liquid medium*. The medium is clean, clear water. A pressure balancing system prevents exchange of the motor liquid medium and well water due to thermal expansion and contraction when the motor is operating. The liquid medium fills the inside of the motor and surrounds both the stator windings and the rotor. A completely waterproof insulation is used on the magnet wire used for the stator windings. The liquid medium inside the motor air gap and coils acts as a heat transfer device by circulating through the windings and transferring heat to the external casing. Dissipation of this heat occurs as the well water flows at a *required velocity* over the external case. As is the case in all submersible type motors, the internal liquid medium is also used for bearing lubrication.

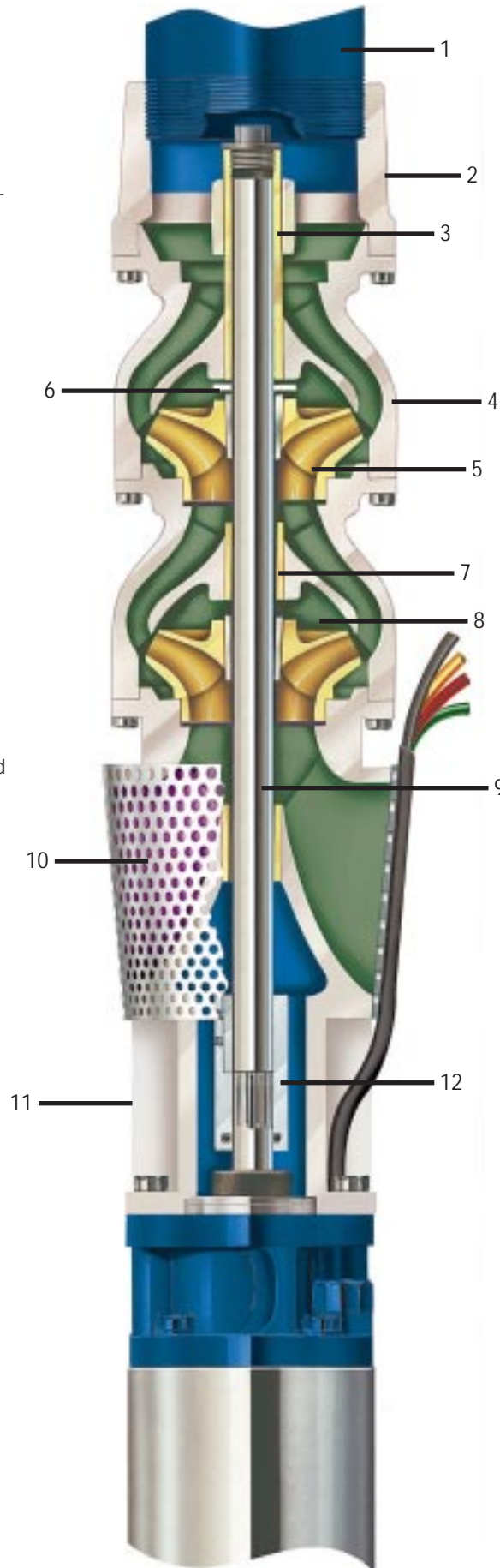
## Submersible Options:

CHRISTENSEN can provide several options in pump and motor combinations to meet the exacting conditions of your applications:

- High horsepower, limited well diameters
- Motor sensing devices
- Water level indicators
- Special materials
- Special voltage motors

## Submersible Accessories:

- Electrical Panels
  - V.F.D. Drives
- Pitless Adapters
- Wire
  - 12 to 0000
- Heat Shrinks
- Splice Kits
- Well Heads
  - Submersible Discharge Head



## Features

- 1 Discharge Pipe**  
Properly sized for optimum water velocities to insure peak hydraulic performance.
- 2 Discharge Bowl**  
Several discharge sizes available for NPT or flanged pipe.
- 3 Discharge Bearing**  
Extra long top protected bronze bearing insures positive shaft alignment and stabilization for extended life.
- 4 Intermediate Bowl**  
Close grained Class 30 cast iron. Water passage glassed for maximum efficiency and abrasion resistance.
- 5 Impellers**  
Designed for maximum efficiency with wide range hydraulic coverage. Precision balanced for smooth operation.
- 6 Uphrust Collar**  
Designed for extra margin of safety against possible momentary upthrust occurring at startup.
- 7 Intermediate Bowl Bearings**  
Reliable long life bronze or rubber bearing.
- 8 Lock Collets**  
Accurately machined to insure positive locking of pump impeller to shaft.
- 9 Pump Shaft**  
100,000 PSI high tensile stainless steel provides strength and excellent corrosion resistance. Ground and polished for smooth bearing surface.
- 10 Suction Inlet**  
Contoured for smooth flow entrance. Protected by an oversized stainless steel strainer to prevent entrance of damaging solids.
- 11 Suction Adapter**  
Ductile iron provides for increased strength and positive motor alignment. Open area permits easy access to pump/motor coupling.
- 12 Pump/Motor Coupling**  
Large stainless steel coupling accurately machined for perfect alignment, balance, and power transmission.



# The LAYNE CHRISTENSEN Network



## The Layne Christensen Company

Corporate Headquarters • 1900 Shawnee Mission Parkway • Mission Woods, KS 66205  
For more information, call or write your nearest Christensen Pumps sales office or representative

### OFFICE LOCATIONS

#### Layne Christensen Company

Fairbanks, AK	907/455-0242
Beverly, NJ	609/877-2700
Barstow, CA	760/254-3351
Bridgewater, NJ	732/469-8720
Butler, PA	724/283-2262
Chandler, AZ	409/895-9404
Dracut, MA	978/937-2242
Fontana, CA	909/390-2833
Grayson, KY	606/474-6285
Holbrook, NY	631/218-0749
Irvine, CA	949/955-1122
La Habra, CA	562/691-0903
Las Vegas, NV	702/221-9717
Rayne, LA	337/334-3126
Salt Lake City, UT	801/972-3333
Schoharie, NY	518/295-8288
Tacoma, WA	253/536-1161
Woodland, CA	530/662-2825
Quakertown, PA	215/538-6177

#### Christensen Pumps

Memphis, TN	901/276-6605
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#### International Directional Services

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#### Layne GeoConstruction

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Bloomington, GA	912/748-9244
Lakeland, FL	863/666-2433

#### Layne Arkansas

Stuttgart, AR	870/673-1591
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#### Layne-Central

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Memphis, TN	901/274-2324
Pensacola, FL	850/432-5101
West Monroe, LA	318/396-0678

#### Layne GeoSciences, Inc.

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#### Layne-Northwest

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Kansas City, KS	913/321-5000
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#### Reynolds, Inc.

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Indianapolis, IN	317/353-0199
Louisville, KY	502/585-1241
Middletown, OH	513/424-7287
Orleans, IN	812/865-3232



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