

SUBMERSIBLE VERTICAL TURBINE PUMPS

VTP Series



Bell & Gossett

An ITT Industries Company

SUBMERSIBLE

Applications

Bell & Gossett 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.

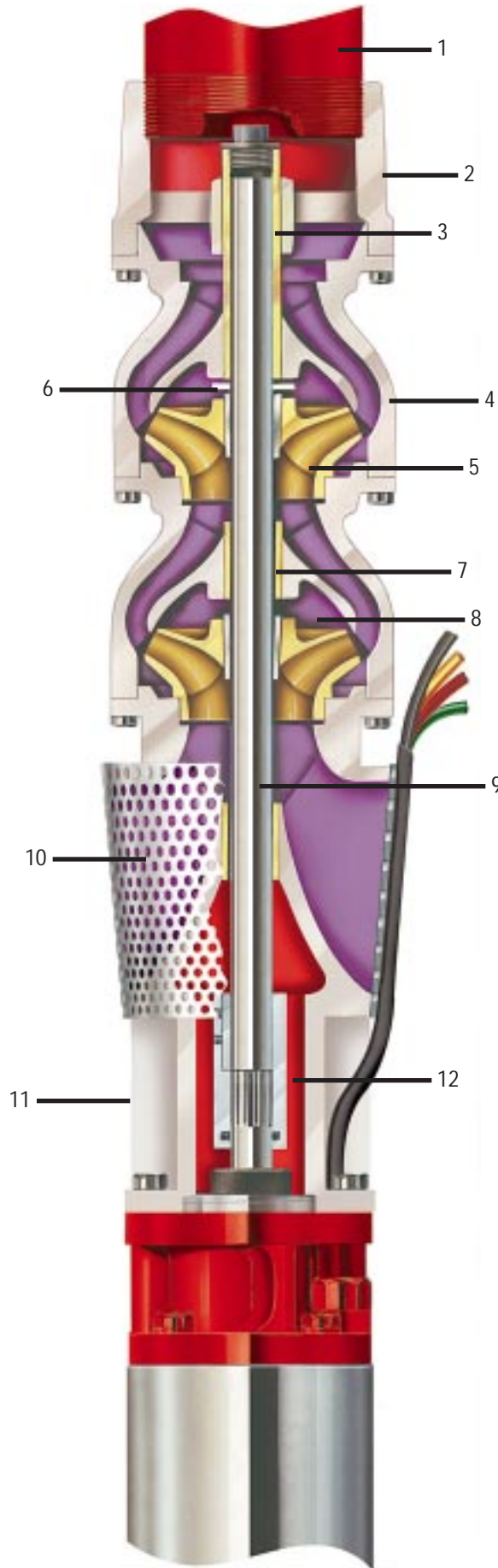
Submersible Options:

Bell & Gossett 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:

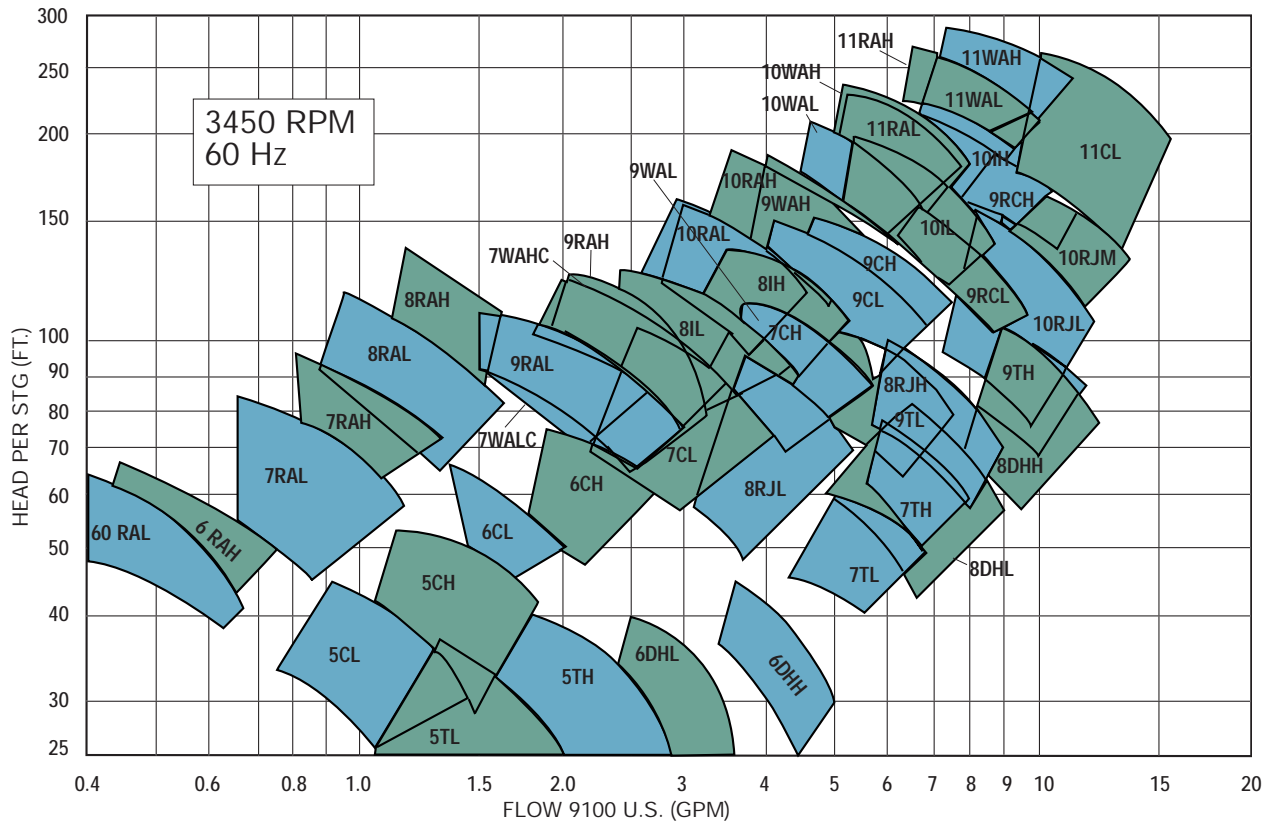
- Electrical Panels
 - V.F.D. Drives
- Pitless Adapters
- Wire
 - 12 to 0000
- Heat Shrinks
- Splice Kits
- Well Heads
 - Submersible Discharge Head



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 Uphryst 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**
100,00 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.

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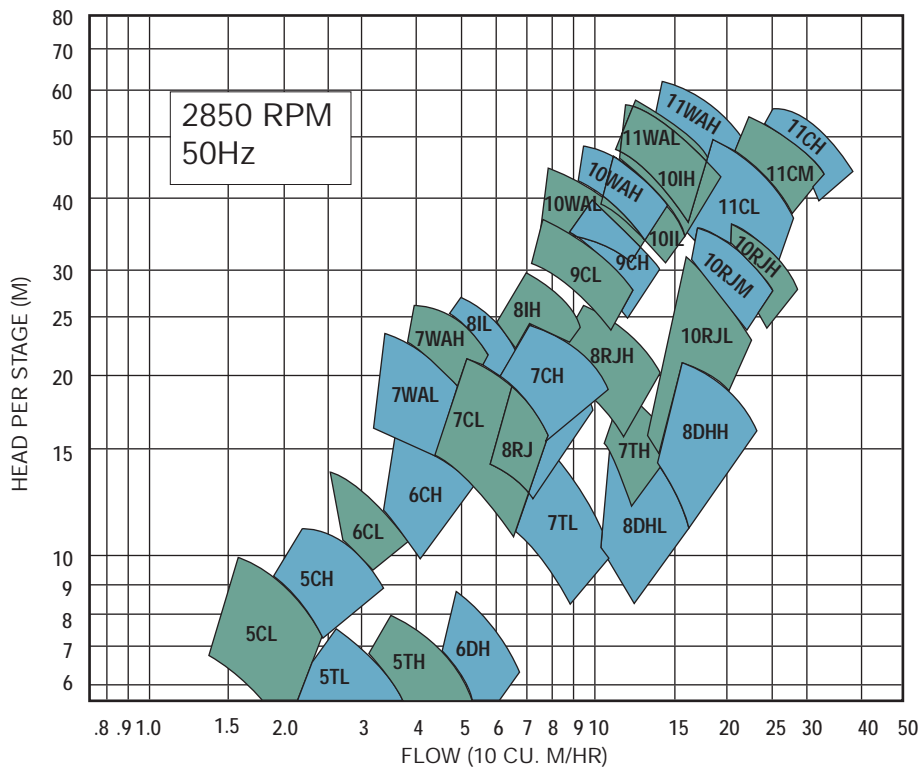
Hydraulic Performance

The system requirements can be met with a choice of pump sizes and selections for the best hydraulic performance. The choice of pump and motor diameters, voltage and speeds for varying hydraulic conditions

provides additional opportunity to match the unit to all the requirements of the system.

The availability of accessory items, cable and controls enables you to rely on Bell & Gossett for units that provide top service.

Submersibles for 1800 RPM through 16" are also available.



Standard Materials of Construction

No.	Description	Material
1	Discharge Head	C.I. ASTM A48, CL 30B
2	HeadShaft	Water Lube
		Oil Lube
3	Adjusting Nut	Stainless-ASTM A582, Type 416
4	Gib Key	Steel-AISI C1045
5	Tension Nut	Ductile Iron-ASTM A536, Gr. 65-45-12
6	Tension Nut Bushing	Mild Steel-ASTM A108, Gr. 1018
7	Tension Plate	Oil Lube Only
8	Oiler Body	Cast Iron-ASTM A48, CL 30B
9	Stuffing Box	Oil Lube Only
10	Stuffing Box Bushing	Oil Lube Only
11	Stuffing Box Stud	Aluminum SAE 329 or Steel
12	Stuffing Box Stud Nut	Water Lube
13	Stuffing Box Washer	Cast Iron-ASTM A48, CL 30B
14	Stuffing Box Gasket	Water Lube
15	Stuffing Box Split Gland	Water Lube
16	Stuffing Box Slinger	Water Lube
17	Packing	Aluminum Bronze-ASTM B148HT
18	Column Nipple	Rubber
19	Lock Ring	Graphited Acrylic Yarn
20	Reducer - Bushing	Pipe-ASTM A53
21	Companion Flange	Ductile Iron-ASTM A536, Gr. 65-45-12
22	Companion Flange Gasket	Cast Iron-ASTM A48, CL 30B
23	Nameplate	Cast Iron-ASTM A48, CL 30B
24	Sole Plate	Garlock Brand Blue Guard
25	Column Pipe	Stainless-ASTM A240, Type 316
26	Column Coupling	Steel Plate-ASTM A283, Gr. D
27	Tube Nipple	Pipe-ASTM A53
28	Enclosing Tube	Pipe-ASTM A120
		Bronze Construction
29	Oil Tube Coupling	Steel-SCH80, ASTM A120, Gr. B
30	Lineshaft Bearing	Bronze Construction
		Bronze-ASTM B584 C903
31	Lineshaft	W/L-Chrome Spot
		W/L-Stainless
		Oil Lube
32	Lineshaft Chrome Spot	Steel-AISI C1045
33	Lineshaft Coupling	Stainless-ASTM A582, Type 416
		Oil Lube
34	Water Lube Retainer	Steel-AISI C1045
		Water Lube Only
35	Tube Centering Spider	Chrome Facing-Rockwell #76
36	Discharge Bowl	Mild Steel-ASTM A108, Gr. 1018
		Water Lube
37	Discharge Bushing	Stainless
		Oil Lube
38	Throttle Bushing	Insert
		Retainer
39	Intermediate Bowl	Silicon Brass-ASTM B584 C875
40	Top Inter Bowl	Rubber
		Cast Iron-ASTM A48, CL 30B
41	Inter Bowl Bushing	Cast Iron-ASTM A48, CL 30B, Enameled
		Bronze
42	Wear Rings - Optional	Rubber
		Inter Bowl
43	Impeller	Bronze-ASTM B584 C903
		Impeller
44	Taper Lock	Bronze-ASTM B584 C903
45	Suction Bowl	Silicon Brass-ASTM B584 C875
46	Suction Bushing	Mild Steel-ASTM A108, Gr. 1018
47	Sand Collar	Cast Iron-ASTM A48, CL 30B
48	Suction Strainer	Bronze-ASTM B584 C903
49	Plug	Bronze-ASTM B584 C903
50	Screw Bearing	Hot Galvanized-ASTM A123
		Bronze Construction
51	Bowl Shaft	Steel-ASTM A108, Gr. 10180
52	Hex Bolt	Stainless-ASTM A582, Type 416
53	Lock Washer	Steel-SAEJ 429, Gr. 8
		Steel-ASTM A108, Gr. 10180
54	Suction Adapter	Ductile Iron-ASTM A536, Gr. 65-45-12
		Submersible Only
55	Adapter Plate	Cast Iron-ASTM A48, CL 40B
56	Motor Coupling	Ductile Iron-ASTM A536, Gr. 65-45-12
57	Motor Mounting Bolts	Submersible Only
58	Suction Screen	Stainless Steel-ASTM A582, Type 416
59	Cable Guard	Submersible Only
60	Discharge Bearing	Stainless-ASTM A276, Type 316
61	Discharge Bearing Plug	AISI 304 Stainless
62	Upthrust Washer	Submersible Only
		Submersible Only

