Lineshaft & Submersible Turbine Pumps
Turbine Pump Production
You not only get the latest in pump design and technology from Bell & Gossett, you get more than 100 years of pump manufacturing know-how that includes most of the major innovations in pump engineering and materials. All our products reflect the engineering design advances for top efficiency and head generation.

Our engineers are specialists, using computer assisted design and extensive test and research facilities. They develop the specifications that guide our in-house pattern shop technicians in the development of precision turbine pattern equipment. The result is consistent casting accuracy, close tolerances and the quality needed to maintain water passage shape and pump efficiencies.

Bell & Gossett further controls the quality of its products in its own foundries. Here the molding, core work and Vitra-Glass enameling are closely supervised for tight quality standards.

From design to pattern shop to foundry to manufacturing to warehousing – Bell & Gossett is a completely integrated producer. Our network of turbine warehouses brings pumps and same day service to you. We offer full service on new units. Rebowling, rebuilding and repair on turbine pumps and submersible and centrifugal pumps.

We are committed to service. We offer ready availability of complete pumps, repair parts and service. We are continually improving and expanding our turbine products warehouse network with locations in key areas.
Water Lubrication

1 Adjusting Nut
Permits exact impeller adjustment for maximum performance.

2 Discharge Head
Heavy-duty head provides maximum accessibility to service packing box assembly. Two piece head shaft is standard.

3 Prelube Connection

4 Column Adapter
Accepts threaded or flanged column.

5 Adjusting Nipple
Threads directly into column adapter. Headshaft stickup set exactly by threading head on column as required.

6 Discharge Bowl Bearing
Bronze.

7 Discharge Bowl
Close grained cast iron.

8 Pump Shaft
Oversized high strength polished stainless steel.

9 Intermediate Bowls
Close grained cast iron. Waterways glass lined for maximum efficiency.

10 Impellers
Silicon bronze, designed for maximum efficiency. Precision balanced for smooth operation.

11 Intermediate Bowl Bearings
Bronze or rubber for long pump life under any well conditions.

12 Lock Collets
Steel construction secures impeller to pump shaft.

13 Sand Collar
Accurately located at suction bowl bearing to eliminate possible sand buildup.

14 Suction Bowl Bearing
Bronze. Grease packed for long trouble-free life.

15 Tail Pipe or Strainer – Optional
Optional tail pipe cut to desired length for best suction conditions. Strainer provides protection from large solids.
Impellers

Optional Long Lateral
Long lateral adjustment on some models for maximum setting capabilities.

Glass Lined Bowls
Heavy-duty Class 30 cast iron intermediate bowls with standard feature of vitra-glass lined waterways for maximum efficiency and wear protection.

Column Assembly
Lineshaft
High strength steel with chrome spots. Ground and polished for exact bearing fit. Available in carbon steel or stainless steel.

Bearing Retainer
Bronze.

Lineshaft Bearings
Fluted rubber, designed to flush sand and grit rapidly.

Column Pipe and Couplings
Parallel thread, accurately machined for easy installation, accurate alignment.

Lineshaft Short Set Turbine
- Capacities to 9000 GPM (2043 m³/h)
- Heads to 1400 feet (427 m)

Design Flexibility
Bell & Gossett offers a wide variety of design options to suit most any short set turbine applications.

Vertical Hollow Shaft or Solid Shaft Motors

Cast Iron or Fabricated Discharge Head
Designed for mounting electric motor, right angle or combination gear.

Packed Stuffing Box or Mechanical Seal

Threaded or Flanged Column Assemblies
With bronze or cast iron bearing retainers.

Lineshaft
Polished high strength stainless steel. Other alloys available.

Intermediate Bowls
Waterways glass lined for maximum efficiency.

Impellers
Taperlocked or keyed construction. Precision balanced for smooth operation.

Intermediate Bowl Bearings
Bronze, rubber or carbon for long pump life under any conditions.

Suction Bell Bearing
Grease-packed for long trouble-free life.
Oil Lubrication

1 Adjusting Nut
Permits exact impeller adjustment for maximum performance.

2 Large Capacity Manual or Solenoid Oiler
Assures constant oil supply.

3 Discharge Head
Heavy-duty head provides maximum accessibility to service tube tension assembly. Two piece headshaft is standard.

4 Lock Ring
Positively locks adjusting nipple to discharge head.

5 Adjusting Nipple
Threads directly into column adapter. Headshaft stickup set exactly by threading head on column as required.

6 Tube Adapter Bushing
Bronze.

7 Double Bowl Seal — Optional
Provides positive sealing of developed head.

8 Pump Shaft
Oversized high strength polished stainless steel.

9 Discharge Bowl
Close grained cast iron. Relief ports insure positive bearing lubrication.

10 Discharge Bowl Bearing
Bronze. Close tolerance fit for minimum leakage.

11 Impellers
Silicon bronze. Designed for maximum efficiency. Precision balanced for smooth operation.

12 Intermediate Bowls
Close grained cast iron. Waterways glass lined for maximum efficiency.

13 Intermediate Bowl Bearings
Bronze or rubber for long pump life under any well conditions.

14 Lock Collets
Steel construction secures impeller to pump shaft.

15 Sand Collar
Accurately located at suction bowl bearing to eliminate possible sand buildup.

16 Suction Bowl Bearing
Bronze. Grease packed for long trouble-free life.

17 Tail Pipe or Strainer – Optional
Tail pipe cut to desired length for best suction conditions. Strainer provides protection from large solids.
Impellers
- Semi-Open Impeller
- Closed Impeller

Glass Lined Bowls
Heavy-duty Class 30 cast iron intermediate bowls with standard feature of lined waterways for maximum efficiency and wear protection.

Optional Long Lateral
Long lateral adjustment for maximum setting capabilities. Available in some sizes.

Column Assembly
- Lineshaft
  High strength steel. Ground and polished for exact bearing fit.
- Enclosing Tube
  Extra heavy steel tubing for positive bearing alignment.
- Enclosed Lineshaft Bearings
  Bronze Construction – High strength bearing bronze, spiral grooved for positive lubrication. Wood-lined Construction – Clear heart Grade A redwood liner, oil-impregnated for maximum lubrication and bearing life.
- Column Pipe and Couplings
  Parallel thread, accurately machined for easy installation, accurate alignment.
- Tube Centering Spider
  Stabilizes enclosing tube for smoother operation.
Type “F”  
Head

Type “U”  
Discharge Located Underground

Type “T”  
Suction Inlet Located in the Head

Type “L”  
(Can) Suction Inlet Located in the Can
Submersible

Applications
Bell & Gossett combines the hydraulic engineering of turbine pumps matched to the hi-tech design of electric submersible motors.

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 Upthrust 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 impeller to pump 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.

Submersible pumps and motors provide an extensive list of options versus other deep well pumping equipment systems. Advanced engineering designs and experience now assure units for long term pumping service. Water well applications provide the perfect opportunity to evaluate features and benefits of submersible equipment.
**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 water proof 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 temperature wells
- High horsepower, limited well diameters
- Motor sensing devices
- Water level indicators
- Special materials
- Special voltage motors

Consult Bell & Gossett Turbine Customer Service Dept. for details.

**Submersible Accessories:**

- Valves
  - Check Valves
  - Flow Control
  - Gate Valves
  - Ball Valves
- Electrical Panels
  - Furnas Panels
  - V.F.D. Drivers
- Pitless Adapters
- Wire
  - 12 to 0000
- Heat Shrimks
- Splice Kits
- Tanks
- Well Heads
  - Submersible Discharge Head
- Torque Arrestors
- Gauges
- Motor Shrouds
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 specs for varying well 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 20” are also available.
### Parts List Standard Materials of Construction

<table>
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<tr>
<th>No.</th>
<th>Description</th>
<th>Gouds No.</th>
<th>Material</th>
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Lineshaft

TYPICAL COOLING TOWER APPLICATION

Services

- Municipal
- Wastewater Plants
- Commercial/Industrial
- Agricultural Irrigation
- Dewatering
- Golf Courses/Turf Irrigation
- Mining
- Cooling Tower
- Water Parks
- Snowmaking
1) The tissue in plants that brings water upward from the roots;
2) a leading global water technology company.

We’re 12,700 people unified in a common purpose: creating innovative solutions to meet our world’s water needs. Developing new technologies that will improve the way water is used, conserved, and re-used in the future is central to our work. We move, treat, analyze, and return water to the environment, and we help people use water efficiently, in their homes, buildings, factories and farms. In more than 150 countries, we have strong, long-standing relationships with customers who know us for our powerful combination of leading product brands and applications expertise, backed by a legacy of innovation.

For more information on how Xylem can help you, go to www.xyleminc.com