



**Johnston  
Pump  
Company**

[www.johnston-pump.com](http://www.johnston-pump.com)



The Johnston Turbine Pump, Model JT pump design is best for high head applications. Capacities available to 210,000 GPM and 380 feet per stage, in sizes six through sixty-four inches in bowl diameter. Oil, product, grease or water flush construction with an unlimited number of seal flush plans are available for all types of pumping requirements. Above base or below base discharge is accessible to suit existing pipe constructions. Deep settings available to 1,600 feet or more for all types of pressure requirements. *Model JT is available in various machinable and metallurgical alloys to handle fluids up to 1,000° F.* Vertical turbine pumps are also mounted in barrels, with or without the suction inlet, and are designed to match the pumping element. Vertical turbine pumps from the source, sumps or vented tanks. Our vertical turbine is offered as a geothermal and nuclear design with years of extensive experience using quality code standards including ASME, ANSI, NRC and API.

# The Vertical Type JT Turbine Pump

***The Vertical Pump Specialists***

## **APPLICATIONS:**

The vertical turbine pump was initially developed in the late 1800's for agricultural pumping. Since then, improvements, special designs and materials have made it ideal for municipal and plant water supplying, drainage, flood control, pipeline pumping, power plant service, petrochemical applications, high pressure pumping and other industrial uses of all types.

Wherever a liquid needs to be pumped upward from ground water tables (deep well pumps); manmade underground storage (caverns); and open bodies of liquid such as oceans, rivers, lakes, cooling ponds, tanks and sumps. Vertical turbine pumps are also used in inline systems, pipelines, booster and low NPSH systems.

Listed are a few reasons why you should choose a vertical pump:

- 1) Vertical pumps require minimum floor space.
- 2) The NPSH available can be the lowest level to satisfy the NPSH requirements of the pump.
- 3) No priming required, the pump bowl assembly is submerged in the fluid being pumped.
- 4) The vertical turbine is highly versatile and adaptable in terms of both location and pump length.
- 5) The variety of materials and construction possibilities to meet special requirements (such as corrosion resistance) is virtually unlimited.
- 6) Pressure requirements are easily met by staging.
- 7) The vertical turbine pump is adaptable to various codes.
- 8) Easily modified for changing hydraulic conditions.
- 9) Low operating speeds.
- 10) No messy, complex hydraulic systems.
- 11) Worldwide service availability
- 12) Johnston vertical turbine design records high pump efficiencies.
- 13) Standard motors of all makes are easily matched and supported on all Johnston discharge heads

Johnston designs a vast range of vertical turbine models designed to suit capacity, head conditions and horsepower applications not offered by any other vertical turbine manufacturer.

## **Other Johnston Turbine Models Include:**

- **Model JBS** – Barge stripper/Designed for cargo stripping.
- **Model JD** – Dynaline/Designed for heavy duty industrial service.
- **Model JF** – Fire Pump/U.L. & F.M. Approved.
- **Model JL** – Liqui-Seal/Designed for corrosive and abrasive applications with no surface leakage.
- **Large Turbines** – Capacities to 160,000 GPM.
- **Model JS** – Submersible/Designed for well and jockey service.

## **OTHER FEATURES**

*Column Pipe of Standard Weights and Sizes • Numerous Types of Coatings for Corrosive and Abrasive Systems • Built for Trouble Free Operation and Requires a Minimum of Maintenance and Service • Non-Overloading Power Characteristics • Suction Barrels for High System and/or Differential Pressure Installations • Performance, Hydro and NPSH Testing per Hydraulic Institute Standards • Shaft Sleeves • Sub Bases • Sole Plates • Motor Stands*



*\*See our individual brochures for other Johnston Models listed.*

# Johnston Pump Vertical Type JT Turbine

## DRIVER:

Various types include electric motors (hollow or solid shaft), fixed variable speed drives, right angle gear drives or steam turbine driven. Johnston provided drives are designed to meet rigid construction requirements while providing continuous satisfactory operation.

## HEADSHAFT:

A one piece headshaft is provided for a hollow shaft drive equipped with an adjusting nut for axial adjustment. A solid shaft motor requires a separate motor stand and flanged coupling for a cast head to allow easy mobility for removal or repair of a seal while providing easy impeller adjustment.

## SEAL:

Various arrangements are provided for a positive seal and simple maintenance:

- 1) Packing box for general service (Product Lube).
- 2) Shaft tube water for general service (Oil Lube).
- 3) Shaft tube water flush for (Abrasive Service).
- 4) Grease lubrication for (Abrasive Service).
- 5) Optional internal and external mechanical seals.

## PUMPSHAFT:

Johnston pumpshafts are turned, ground, polished and sized for probable thrust and torque. In addition to a large material selection, the pumpshaft is optionally provided with a turn down, or a straight one piece, extending through the stuffing box to eliminate the cost of an intermediate shaft coupling and guide bearing.

## DISCHARGE CASE:

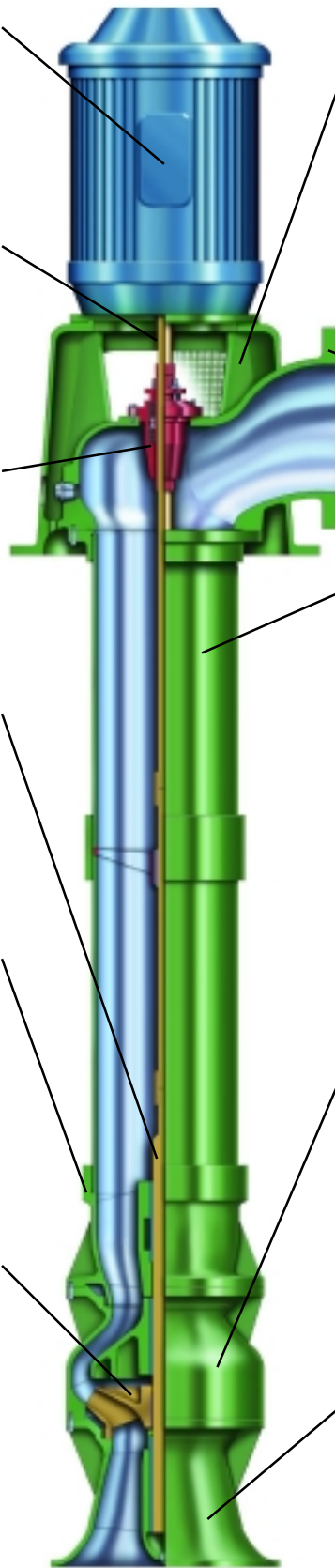
Connects the column pipe to the bowls keeping column and head friction losses to minimal. Besides its hydraulic function, the case is utilized as an adapter suiting various column and shaft sizes. Oil lube discharge cases are furnished with bypass ports that equalize the internal tubing pressure and prevents water from entering the oil lube and bearings. Multiple bypass ports assure maximum efficiency and effectiveness.

## IMPELLERS:

Impellers, closed or semi-open, are precisely trimmed and balanced to reduce vibration and wear. Impellers, single or multi-staged, are affixed through collet or keyed construction creating adequate positive locking. Closed type impellers are furnished with shrink fitted seal rings providing restorable sealing surface, reduced wear and minimum liquid recirculation.

## \*SPARE PARTS:

All spare parts are available in kit form to simplify ordering, speed delivery, and minimize downtime and expense.



## DISCHARGE HEAD:

Characteristically called the "Industrial Head", consists of a surface or underground, T-Head or sectional elbow available for easy access, simple installation and deep well utilization. Heads are accessible in high strength cast iron, fabricated steel or other numerous materials that are compatible with the fluid pumpage. Johnston provided discharge heads are commonly coated internally for product corrosion coatings, efficiency improvement and NSF coatings for potable water are electively available.

## AMERICAN STANDARD FLANGED CONNECTIONS:

ASA 125# and 250# for cast heads, ANSI 150# and 300# for fabricated heads, either raised or flat faced are furnished, depending upon pressure requirement. Plain end and Victaulic® couplings are accessible allowing flexibility with the piping system.

## COLUMN ASSEMBLY:

Consists of flanged or threaded column connections to maintain alignment and metal-to-metal seal. Product lubricated column provides a Johnston "unique" reversible bearing retainer adequately doubling shaft life by changing wear surfaces. Various types of shaft materials are supplied for unlimited application requirements. Oil lubricated column, most commonly used for deep well turbines, provides a lineshaft enclosing tube, lineshaft bearing, lineshaft and lineshaft coupling. The enclosing tube shields shaft and bearings from foreign materials and delivers lubricating oil to all lineshaft bearings as rubber spiders, press fitted over the shaft enclosing tube, stabilize and support the column pipe tube.

## BOWLS:

As dictated by specific requirements, impeller modifications suiting the intermediate bowl includes the addition of back balance rings, thrust rings and hydraulic balance openings. Bowls are cast, vitriform enameled or plasite coated as standard to achieve peak efficiency and reduce friction. Dual bronze and rubber bearings are standard, providing alignment and dampening vibration. Provided in various materials suiting the fluid pumpage, bowl bearings and wear rings (optional) increase bowl and pump life.

## SUCTION:

Available configurations including bell or suction case (for deep well requirements), cone or basket strainer, restrict large solids from entering the pump. Effective Johnston strainers are designed three to four times the pump suction bell area to reduce the intake velocity to one-fourth, thus lowering sand and debris carrying capacity of the water.

## OTHER JOHNSTON PRODUCT LINES

- BOOSTER PUMPS ■ PROPANE CAVERN PUMPS ■ CARGO STRIPPER PUMPS ■ MILL SCALE PIT PUMPS ■
- SEA WATER LIFT PUMPS ■ FUEL TRANSFER PUMPS ■ TRANSFER INJECTION PUMPS ■ DEEP WELL PUMPS ■
- IRRIGATION PUMPS ■ DRY DOCK PUMPS ■ FIRE PUMPS ■ LUBE AND SEAL OIL PUMPS ■
- BRINE TRANSFER GEOTHERMAL PUMPS ■ SUBMERSIBLE PUMPS ■ MOLTEN SULPHUR PUMPS ■