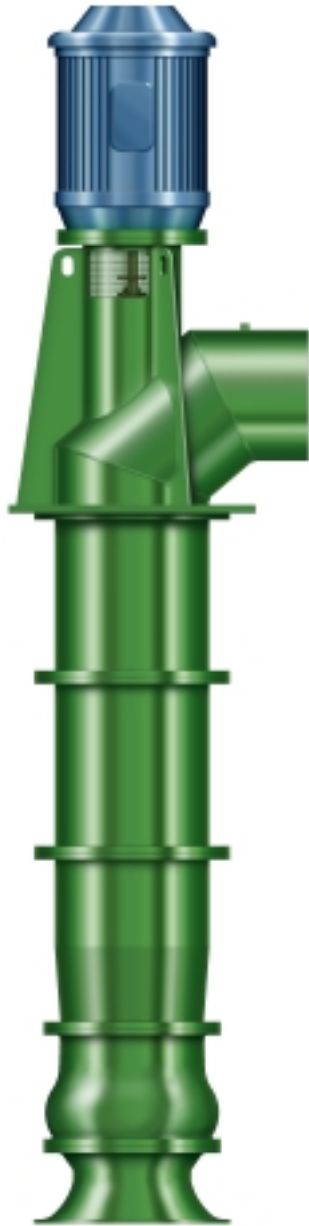




**Johnston  
Pump  
Company**

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



The Johnston Mixed Flow Pump, Model JM has a capacity range to 135,000 GPM with a total maximum head up to 75 feet (single stage) in sizes eight to fifty-four inches in bowl diameter. Johnston Industrial Vertical Mixed Flow pumps are high capacity, low to medium head units widely used for raw water supply to process plants or refineries, condenser circulating service in nuclear or conventional power plants, finished water booster pumps and large irrigation projects including numerous other applications. Common types of fluids handled are water, service water, and waste water. The Model JM can be manufactured from a variety of metallurgies to extend pump life and performance. Above and below base discharge connections are available to suit all existing pipe designs. Performance and hydro testing are in accordance with the Hydraulic Institute Standards and can be witnessed or non-witnessed, depending on customer preference. The JM pump is engineered excellent to balance high efficiency, low submergence and NPSH considerations.

# The Vertical Type JM Mixed Flow

***The Vertical Pump Specialists***

## **APPLICATIONS:**

Johnston Pump has been a producer of vertical mixed flow pumps since 1909. Today's vast capacity liquid handling problems are much more complex than those of 10 years ago. A better understanding of water pollution and application problems, increased production demands and sophisticated facility and equipment design have created the need for increase and superior high capacity - medium head pumping capabilities.

Our Model JM pump is ruggedly designed for long years of trouble free, continuous usage. The basic components of head, column pipe and bowl assembly are combined and customized to meet a large range of application conditions.

The mixed flow vertical pump mounting allows for installation with minimal floor space, flooded suction, and minimal foundation work, in addition to being a quiet, smooth running, long lived pump.

Johnston Pump is one of the few manufacturers of mixed flow pumps and we offer the best value for your pumping condition. We have expanded every effort to design and build mixed flow pumps that run smoother, solve today's and tomorrow's liquid handling problems economically, and yet stay in line with competition. The mixed flow pump described in this article has no shortcuts and no sacrificing of quality, it just maintains its position of leadership.

## **OTHER FEATURES**

- *Shaft Sleeves • Spacer-type Couplings • Thrust Lugs • Thrust Stud Couplings • Discharge Couplings • Coatings • Renewable Liners • Oversized Soleplates • Suction Umbrellas • Air & Vacuum Valves • Lower Initial Maintenance and Operating Costs • Easily Modified for Changing Hydraulic Conditions •*
- *Lower Operating Speed • Worldwide Service Available •*
- *No Messy, Complex Hydraulic System •*



*\*Specify "Mixed Flow" for your next installation.*

# Johnston Pump Vertical Type JM Mixed Flow

## DRIVER:

The mixed flow pump is driven by electric motors (hollow and soli shaft), fixed and variable speed drives, right angle gear drives or steam turbine driven. Johnston provided drives are designed to carry the weight of all rotating parts and thrust loads meeting rigid construction requirements while providing satisfactory operation. A steady bushing is required for hollow shaft motors to allow bearing support.

## SEAL:

Various seal constructions are available for required applications:

- 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/external balanced and non-balanced mechanical seals.

## PUMPSHAFT:

The shaft is made of high tensile, pumpshaft quality material in 416SS and is sized to operate without objectionable distortion or vibration in both the forward and reverse direction of rotation. Horsepower rating, straightness and machining tolerances conform with ANSI Spec. B58.1 and AWWA Specification E101 Standards.

## IMPELLERS:

Heavy duty cast aluminum bronze (other materials available) semi-open impellers are balanced to assure vibration free operation and hand-finished for maximum performance. The mixed flow impeller, secured to the shaft by a collet or a simple key, split thrust ring and retainer, assures positive drive and adequate locking. The mixed flow impeller employs a chamber/impeller/vane designed to impact both an axial and radial motion, therefore, providing greater head pressure than the axial (open) impeller. This design increases impeller life when used in stringy/material fluid applications.

## HEADSHAFT:

The headshaft can be supplied with an adjusting nut or an adjustable flanged coupling for impeller adjustment to maximize sustained efficiency. Headshaft material is available in 416SS, 316SS, 17-4SS, Nitronic 50 and K-Monel, depending on fluid pumpage.

## DISCHARGE ELBOW:

Elbows are available in both the above base (as illustrated) or below base type. Both styles are three section, full diameter elbows, specially designed to obtain the smoothest transition of liquid from the vertical to the horizontal plane with minimum possible losses. Johnston elbows are designed with fabricated steel plate using full penetration welds. The discharge opening can be either plain end or flanged, depending upon requirements. Victaulic® grooves and couplings are also available to allow flexibility in the piping system. Johnston discharge elbows are designed for maximum strength and utility, pleasing appearance and long life.

## COLUMN ASSEMBLY:

Consists of flanged or threaded column connections to maintain alignment and metal-to-metal seal. The pump column pipe supports the bowl assembly and provides a means of conducting the pumped liquid up to the surface and out through the head. Product lubricated column provides a steel or bronze (depending on column size) fabricated bearing retainer to support column and shaft alignment. Lineshaft bearings are lubricated with the pumped product and are available in a variety of materials to suit the pumping application. Oil lubricated column provides a lineshaft enclosing tube, lineshaft bearing, lineshaft and lineshaft coupling. The enclosing tube shields shaft and bearings from pumped fluid 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:

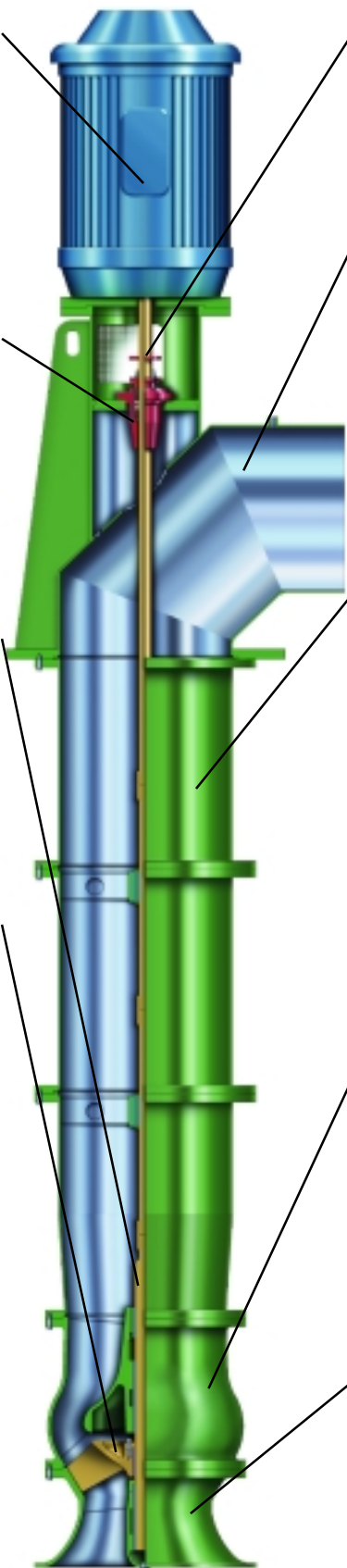
The mixed flow bowl, generally one stage, is flanged and bolt constructed for ease of assembly. Johnston discharge bowl combines the energy conversion and diffusion functions of the intermediate bowl and discharge case all in one casting (as shown). Bowl bearings are of a single type and are available in several materials to extend bowl and shaft life. A replaceable, cylindrical bowl line mounted in the discharge bowl is also available to increase bowl life.

## SUCTION BELL:

Fluids enter through a flared suction bell that is reinforced by heavy vanes, lending support to the bell while guiding the liquid flow parallel to the drive shaft. As fluid travels upstream, maximum efficiency, minimal shock and entry losses are achieved. Effective Johnston strainers restrict entry of a foreign object during pump operation.

## \*SPARE PARTS:

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



## OTHER JOHNSTON PRODUCT LINES

■ BOOSTER PUMPS ■ FUEL TRANSFER PUMPS ■ FIRE PUMPS ■ PROPANE CAVERN PUMPS ■

■ TRANSFER INJECTION PUMPS ■ LUBE AND SEAL OIL PUMPS ■ CARGO STRIPPER PUMPS ■ DEEP WELL PUMPS ■

■ BRINE TRANSFER GEOTHERMAL PUMPS ■ MILL SCALE PIT PUMPS ■ IRRIGATION PUMPS ■

■ SUBMERSIBLE PUMPS ■ SEA WATER LIFT PUMPS ■ DRY DOCK PUMPS ■ MOLTEN SULPHUR PUMPS ■