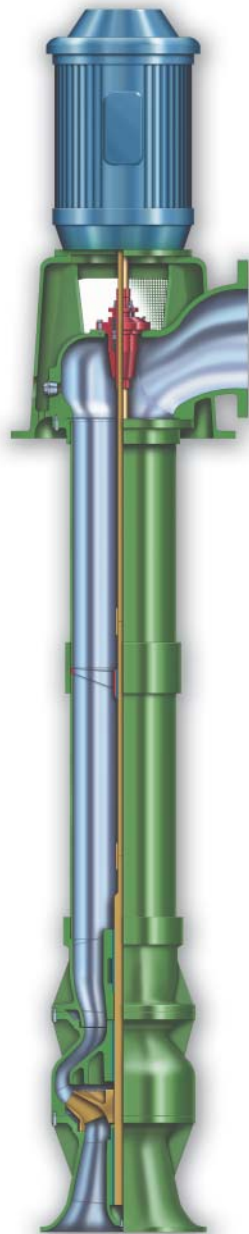


## JT Vertical Turbine Pumps



# Sulzer Pumps

Sulzer Pumps combines more than 135 years of experience in pump development and manufacturing with a deep commitment to fully understand the needs of our customers.

Our detailed process and application knowledge has allowed us to develop innovative pumping

solutions for our focus segments including tailor made systems if required. Our active research & development supports this customer-oriented approach.

Sulzer Pumps has sales and service facilities in all the major markets of the world to provide fast and flexible response and support.

## Extensive Product Range

Sulzer pumps has a long history of providing innovative pumping solutions to business partners in the following industries:

- Oil & Gas
- Hydrocarbon Processing
- Pulp & Paper
- Power Generation
- Water & Wastewater
- Food, Metals & Fertilizers

### Vertical Turbine Pumps

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

### Applications

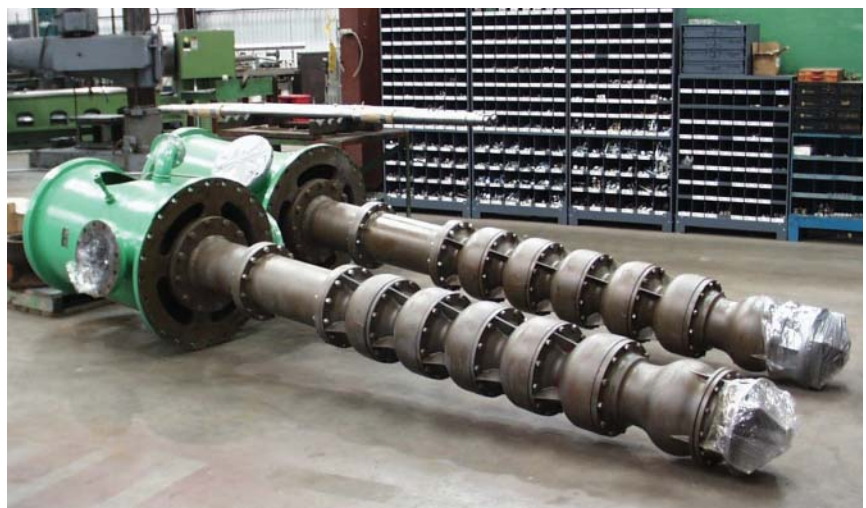
Vertical turbine pumps are typically used wherever a liquid needs to be pumped upward from ground water tables (deep well pumps); manmade underground storage (caverns) or open bodies of liquid such as oceans, rivers, lakes,

cooling ponds, tanks and sumps. Vertical turbine pumps are also used in inline applications such as pipelines, booster and low-NPSH systems.

### Advantages

- Minimum use of floor space.
- The NPSH available can be the lowest level to satisfy the NPSH requirements of the pump.
- No priming required, the pump bowl assembly is submerged in the fluid being pumped.
- The vertical turbine is highly versatile and adaptable in terms of both location and pump-length.

- The variety of materials and construction possibilities to meet special requirements (such as corrosion resistance) is virtually unlimited.
- The vertical turbine pump is adaptable to various design codes.
- Easily modified for changing hydraulic conditions.
- Low operating speeds.
- Sulzer hydraulics deliver high pump efficiencies.





## Design

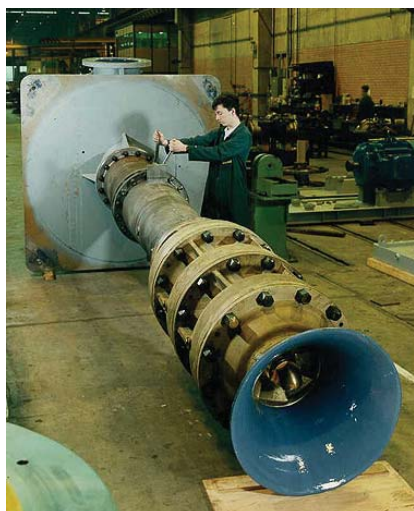
The JT vertical turbine pump design is normally used in high-head applications. Capacities are available up to 48,000 m<sup>3</sup>/h (210,000 USGPM) and 116 m (380 ft) per stage, in bowl diameter sizes ranging from 150 to 2,500 mm (six to 100 inches). Bearing lubrication by oil, product, grease or water flush construction with an unlimited number of seal flush plans are available. Above or below ground

discharge options allow existing pipework to be matched. Deep settings available to 1,600 feet or more for all types of pressure requirements. JT pumps are available in various materials to handle fluids up to 260°C (500°F). Sulzer JT pumps may also be offered as a geothermal or nuclear design with years of extensive experience using quality code standards including ASME, ANSI, NRC and API 610.

## Materials

A wide range of standard materials are available including;

- Cast parts – cast iron, carbon steels, 316SS, duplex, super duplex and bronze
- Shafts – 316SS, 416SS, Monel, K-Monel and Nitronic 50
- Fabrications – carbon steel, duplex and 316SS
- Bearings – carbon, cast iron, epoxy, Nitronic 60, bronze and rubber



# Design Features and Benefits

## Driver

Various types include electric motors (hollow or solid shaft), fixed or variable speed drives, right angle gear drives or steam turbines.

## Headshaft

One or two piece headshaft is provided for a hollow shaft drive and features axial adjustment. A solid shaft motor requires a separate motor stand and flanged coupling for a cast head to allow easy mobility.

## Pumpshaft

Sulzer shafts are fully machined and sized for application thrust and torque. The shaft is optionally provided with a turndown, or a straight one-piece, extending through the stuffing box to eliminate the cost of an intermediate shaft coupling and guide bearing.

## Discharge Case

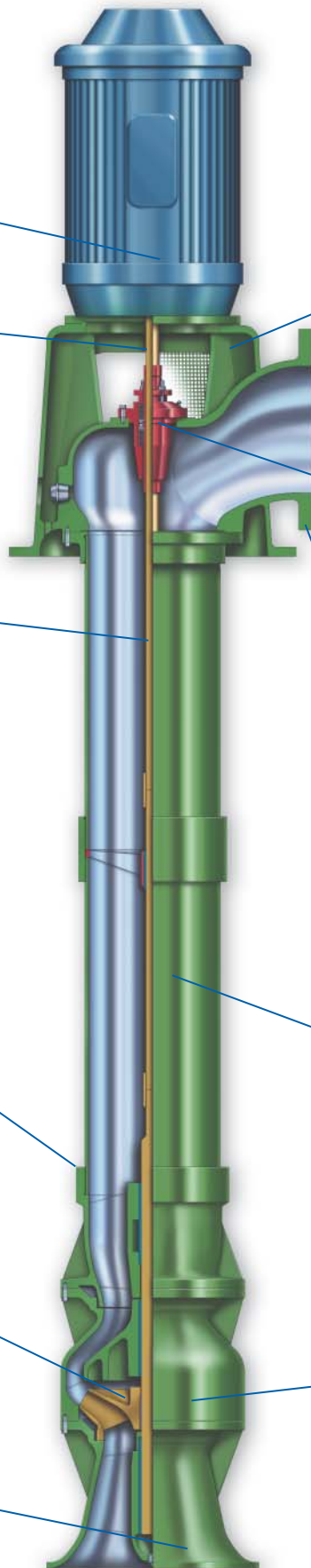
Connects the column pipe to the bowls keeping column and head friction losses to a minimum. Besides its hydraulic function, the case is utilized as an adaptor to suit various column and shaft sizes. Oil lube discharge cases are furnished with bypass facilities that equalize the internal tubing pressure and prevents water from entering the oil tube and bearings.

## Impellers

Impellers, closed or semi-open, are precisely trimmed and balanced to reduce vibration and wear. Impellers are located with either collet or keyed construction. Closed impellers are furnished with shrink-fitted wear rings.

## Suction

Available configurations including bell or suction case (for deepwell requirements), cone or basket strainers restrict large solids from entering the pump. Integral cast tail bearing.



## Discharge Head

The discharge head consists of a surface or underground sectional elbow. Heads are available in high strength cast iron, fabricated steel or other materials that are compatible with the pumped fluid. Heads may be coated internally to further resist product corrosion. In addition efficiency improvement and NSF coatings for potable water are available.

## Shaft Seal

Options are provided for reliable sealing and simple maintenance including gland packing and various mechanical seal arrangements.

## Flanged Connections

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

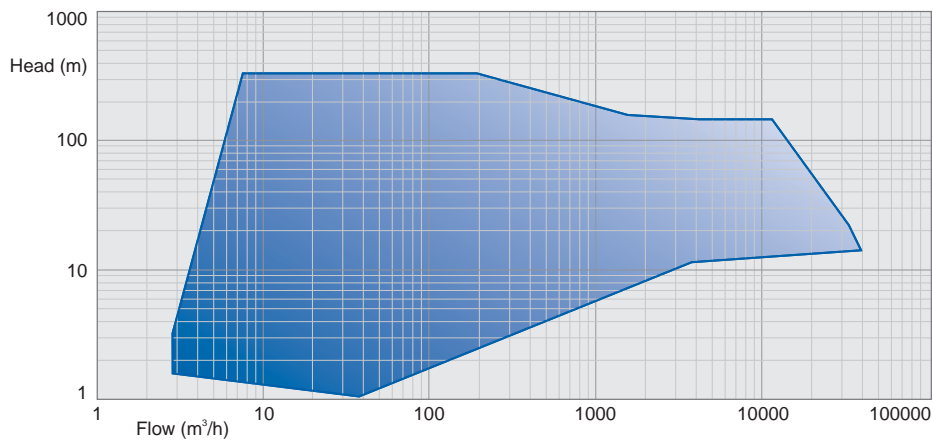
## Column Assembly

Consists of flanged or threaded connections. Product lubricated columns have a Sulzer "unique" reversible bearing retainer doubling shaft life by changing wear surfaces. Oil lubricated columns contain a lineshaft enclosing tube, lineshaft bearing, lineshaft and lineshaft coupling.

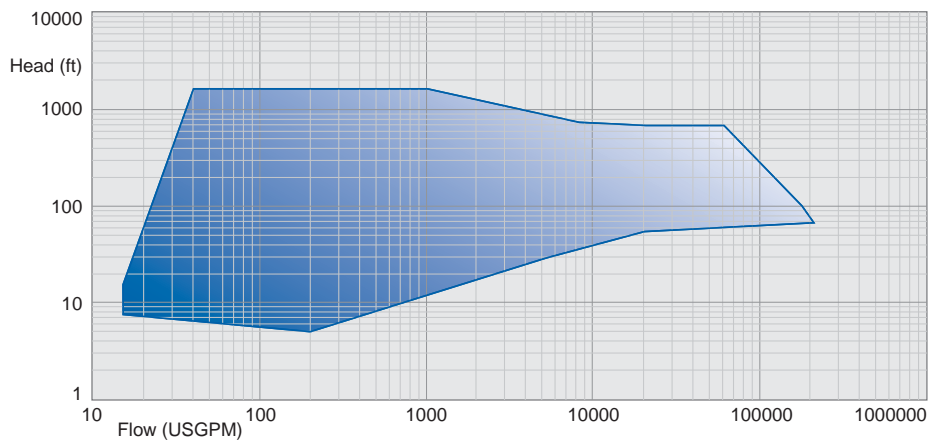
## Bowls

Bowls are cast and vitriform enamelled or plastic coated as standard to achieve peak efficiency and reduce friction. Dual bronze and rubber bearings provide alignment and dampen vibration. Bowls are available in a wide range of materials.

# Performance Range



**JT 50 Hz**



**JT 60 Hz**

# Operating Data

|                           | JT 50 Hz         | JT 60 Hz            |
|---------------------------|------------------|---------------------|
| Pump sizes                | 150 to 2,500 mm  | 6 to 100 inches     |
| Capacity                  | 3 to 47,670 m³/h | 15 to 210,000 USGPM |
| Head                      | 488 m            | 1,600 ft            |
| Pressure (size dependant) | 50 bar           | 720 psi             |
| Temperature               | -160 to 260 °C   | -250 to 500 °F      |



Check our worldwide offices at  
[www.sulzerpumps.com](http://www.sulzerpumps.com)