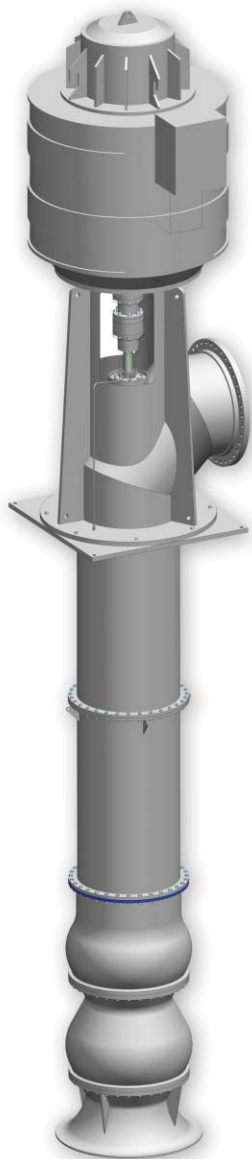


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SULZER

SJM Vertical Mixed Flow Pumps



The **Heart**
of Your
Process

Sulzer Pumps

Sulzer Pumps is a leading global supplier of reliable products and innovative pumping solutions for end users. Our active research and development, detailed process and application knowledge together with a comprehensive understanding of market demands keeps us consistently at the leading edge of technical development. Our global network of modern manufacturing and packaging facilities together with sales offices, service centers and representatives located close to major markets provide fast responses to customer needs.



Vertical Pumps for Your Applications

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 Mixed Flow Pumps

The vertical mixed flow pump was initially developed for agricultural pumping. Continuous improvements, special designs and new materials have made it ideal for municipal water supply, drainage, flood control, power plant intake and industrial uses of all types. There is an ever increasing demand for the efficient management of the world's water resources. A better understanding of water application problems, increased production demands and sophisticated facility and equipment design have created the need for superior high capacity – medium head pumping capabilities.

Advantages

- Minimal 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 mixed flow pump is adaptable to various design codes.
- Easily modified for changing hydraulic conditions.
- Less wear due to low operating speed.
- Sulzer hydraulics deliver high pump efficiencies.
- Standard motors of all makes are easily matched.

Design

The Sulzer SJM is an “engineered to order” vertical mixed flow pump and has a capacity range of up to 50,000 m³/h (220,000 USgpm) with a total maximum single stage head of up to 29 m (95 ft) in sizes ranging from 200 to 1,750 mm (8 to 70 inches) in bowl diameter.

Common types of fluids handled include water, service water and wastewater. Replaceable hardened liners help ensure long life and facilitate maintenance. A variety of design options such as weed cutting vanes, rifle and cross

drilled shafts (for external lubrication at bearing journal) and hard-facing can be incorporated to best match the pump to the application to maximize equipment longevity.

Above and below base discharge connections are available to suit existing pipe design variants. Performance and hydro testing is in accordance with the Hydraulic Institute Standards. The SJM pump is engineered to balance high efficiency, low submergence and NPSH considerations.



Designed for the Most Challenging Requirements

Applications

Vertical mixed flow pumps are typically used wherever a liquid needs to be pumped upward at moderate pressure from open bodies of liquid such as oceans, rivers, lakes, cooling ponds, tanks and sumps.

SJM 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.

Materials

The SJM can be manufactured from a variety of metallurgies to extend pump life and performance. The choice of materials and construction possibilities to meet special requirements (such as corrosion resistance) is virtually unlimited.

A wide range of standard materials is available such as

Cast parts	cast iron, carbon steel, 316SS duplex, super duplex and bronze
Shafts	12% chrome, 316SS, duplex, super duplex and monel
Fabrications	carbon steel, 316L, duplex and super duplex
Bearings	rubber lined bronze, duplex and super duplex



SJM Design Features and Benefits

Headshaft

Precision machined and sized per power input application. Drive couplings connect headshaft with a vertical solid shaft motor.

Shaft Seal

A packed stuffing box is provided for reliable sealing and simple maintenance. Optional mechanical seal available.

Pumpshaft

The shaft is tailor-made to the service needs and sized individually for each installation; sized for max. torque. Stepped shaft with sleeves can be supplied.

Bowl Bearings

Bowls are fitted with dual metal and rubber bearings.

Impeller

Impeller is semi-open design, cast from various materials of choice for versatility, balanced to assure vibration free operations and polished to optimize performance. Impeller is secured to shaft by a key and split thrust ring.

Discharge Head

Above ground discharge head is standard. The integral driver stand allows easy access to removable packing/seal box and coupling. Each standardized discharge head comes with a segmented bend/motor stool and utilizes a stuffing box designed to accommodate various mechanical seals.

Column Assembly

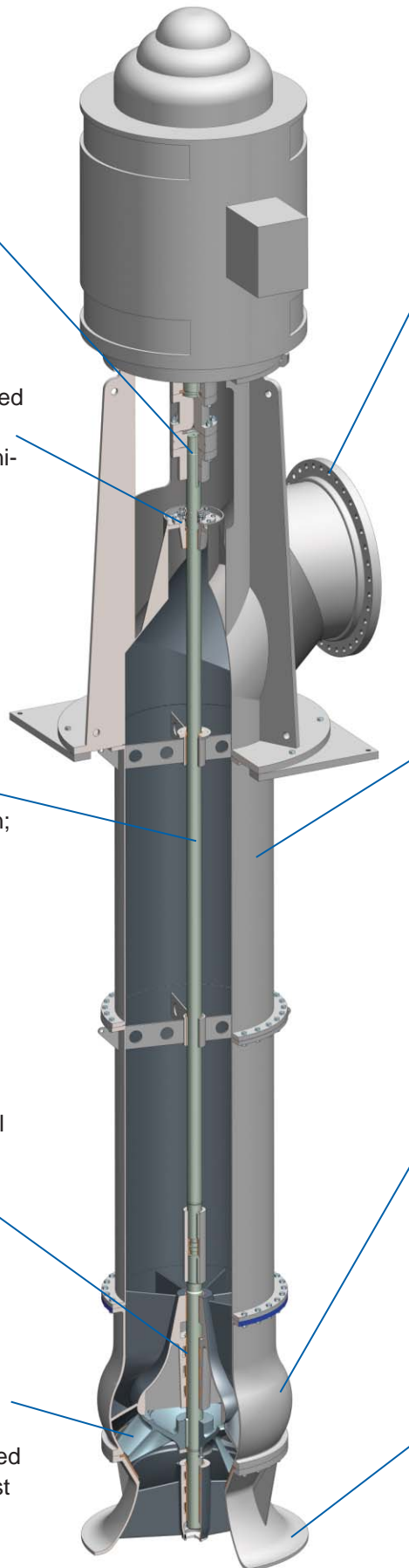
Column pipes are flanged. Line shafts are connected by split ring, key and sleeve couplings. Line shaft bearings are replaceable. Column assemblies have an integral spider for column diameters above 13.5".

Bowls

The SJM bowl design combines the energy conversion and diffusion of the intermediate bowl and discharge case in one single casing. This reduces the required components and allows for a direct connection to the column pipe. Bowls are standard cast iron material and are available with a replaceable bowl liner.

Suction Bell

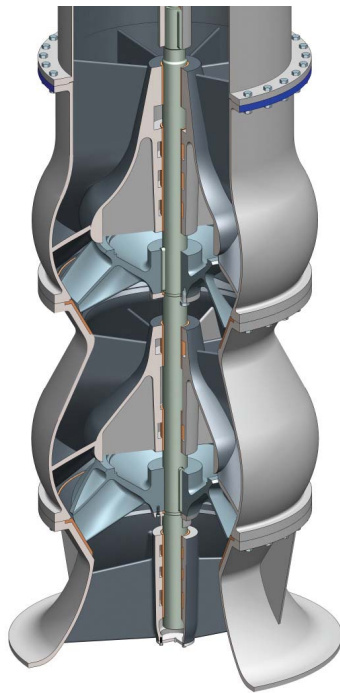
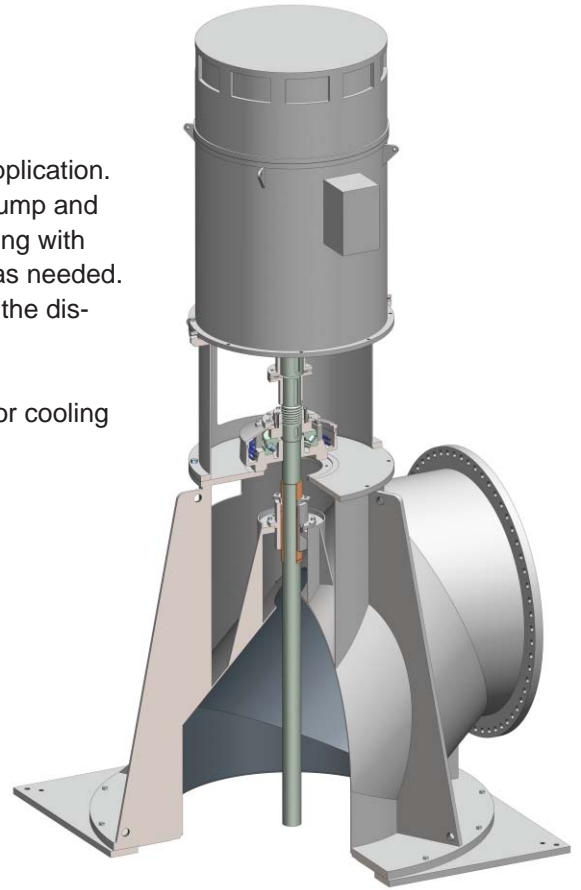
Each suction bell size includes anti vortex ribs and tail bearing bushings. The suction bells are standard cast iron material and are available with a replaceable bowl liner. An optional strainer restricts entry of any foreign object during pump operation.



Thrust Bearing Assembly

The thrust bearing assemblies are available when required by application. They are built to handle all of the down thrust produced by the pump and as much momentary up thrust that may occur. The flexible coupling with spacer allows servicing the thrust bearing and mechanical seal as needed. A one-piece fabricated motor stand housing is bolted down over the discharge to protect the bearing and support the motor.

Optional features include sandstorm protection, special means for cooling and a constant level oil lubricator.



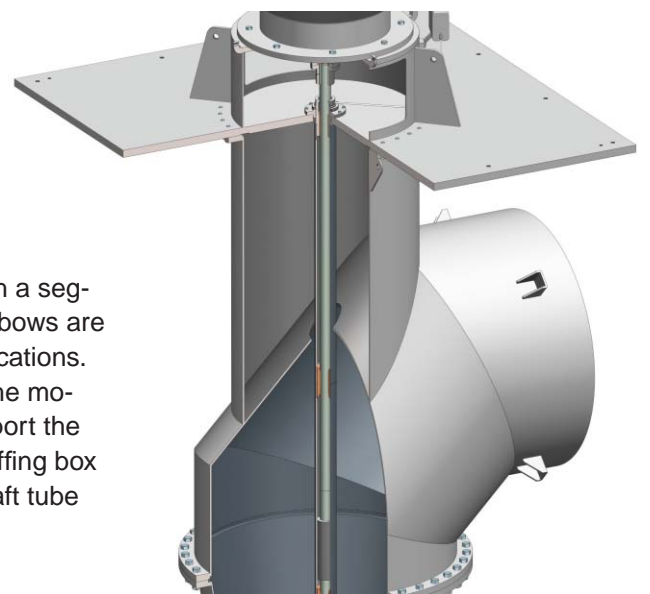
Two Stage Construction

A two stage design of the SJM is available for increased head requirements.

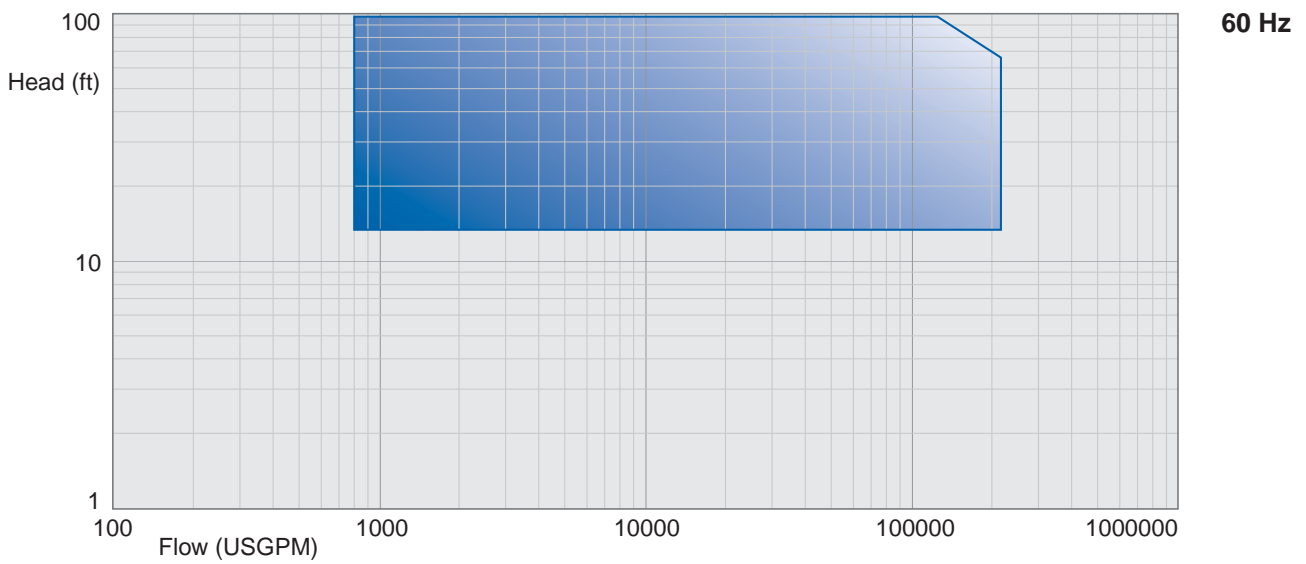
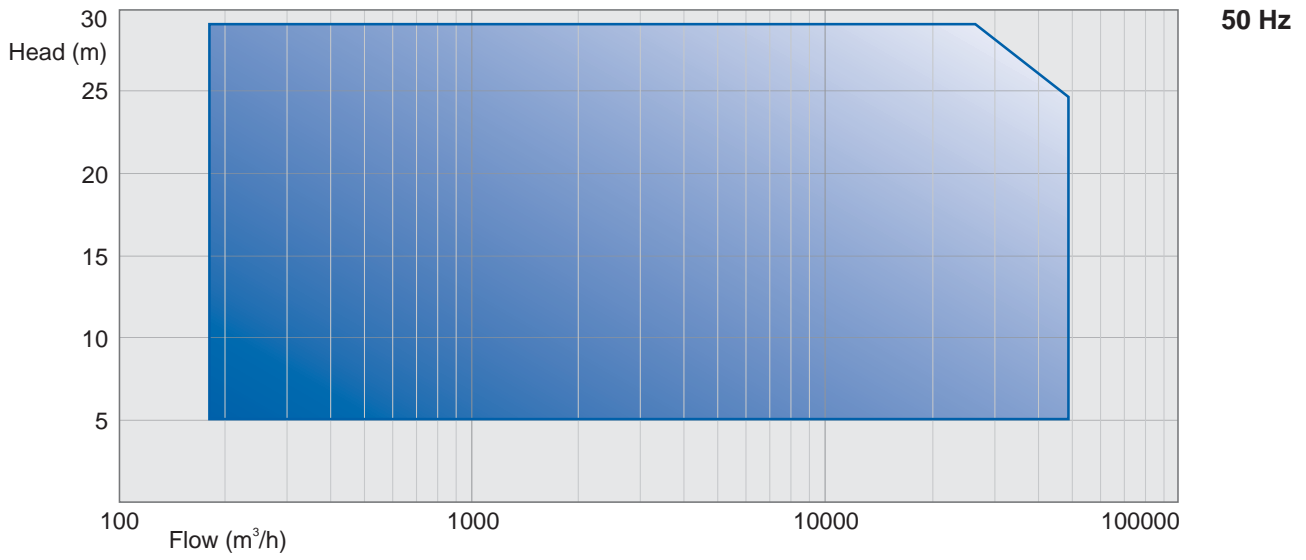
This two stage construction is applicable for the models LS, MS and PS.

Discharge Head

Below ground discharge head is available. Each comes with a segmented elbow designed to optimize pump efficiency. The elbows are fabricated in various materials to meet many required applications. The discharge nozzle can be either plain-end or flanged. The motor stand is mounted above ground and is designed to support the weight and provide the maximum clearance for multiple stuffing box options. The stuffing box options include gland packing, shaft tube and mechanical seal.



SJM Performance Ranges



Operating Data

	50 Hz	60 Hz
Pump sizes	200 to 1,750 mm	8 to 70 inches
Capacities	180 to 50,000 m³/h	800 to 220,000 USgpm
Heads	up to 29 m	up to 95 feet
Pressures	up to 17 bar	up to 250 psi
Temperatures	up to 135° C	up to 275° F

Sulzer Pumps Customer Support Services

If pumps and rotating equipment are critical to your operations, you seek specific qualities when selecting external service support:

- A service partner you can trust
- Reliability
- Responsiveness
- Rapid turn around
- Innovative solutions

Our service professionals deliver these qualities and more to customers from all industry sectors around the globe. With services ranging from spare parts to trouble shooting, we can maintain your rotating equipment and improve your processes.

Service Partner

Our goal is to be your business partner who delivers customized service solutions that improve your operations. Our measure of success is the loyalty of our customers year after year, decade after decade.

Reliability

Reliability depends on the longevity of replacement parts and the quality of repair of damaged or worn equipment. You can count on our expertise to deliver and on our commitment to do the job right first time every time.

Our teams are known in the industry for their extreme dedication. You can rely on us to stand by you if unexpected problems occur.

Responsiveness

You have specific needs, expectations and priorities – we are responsive to them and define with you the best possible solutions for your business. You need us urgently? We are present 24/7, 365 days per year.

Rapid Turn-around

You expect to receive quotations quickly and have your equipment repaired rapidly to minimize disruption and costs. We aim to exceed your expectations through our continuous investment in more effective shopfloor and administrative processes.

Innovative Solutions

Sulzer Pumps is renowned in the industry for its innovative technology and application know-how. We are able to make the best evaluation of your installation and optimize its performance. We can achieve increased throughput, lift efficiency and improve reliability in most pumps by replacing existing hydraulics with state-of-the-art Sulzer Pumps designs.



Performance Through People

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