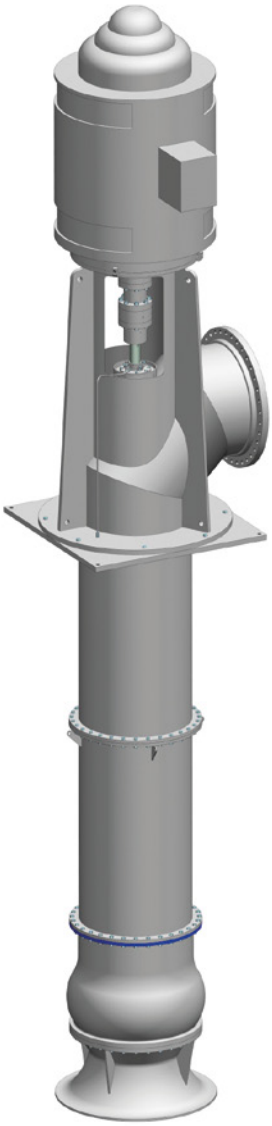
SULZER

Sulzer Pumps

# SJM Vertical Mixed Flow Pumps



The Heart of Your Process

# Sulzer Pumps – Your Partner for Pumping Solutions

Sulzer Pumps is one of the world leaders in state-of-the-art pumping solutions. Combining engineering and application expertise, Sulzer Pumps' solutions add value and strengthen the competitive position of its customers. Thanks to a global network of manufacturing facilities, sales offices, service centers and representatives, we are able to provide fast responses to customer needs.

Through its extensive experience in providing innovative solutions to business partners, Sulzer Pumps is a well-recognized player in the following industries:

- Oil and Gas
- Hydrocarbon Processing
- Pulp and Paper
- Power Generation
- Water
- General Industry
- Chemical Process Industry

### SJM Global Manufacturing Facility


**Houston, USA**

# Exceeding Your Needs With Our SJM Pump

In recent years, concerns about management of the world's water resources have been continuously increasing.
With a better understanding of the water application problems, an ever increasing demand for water production and the advances in technologies, there has been a change in the pumping capability needs. The trend is nowadays towards superior high capacity and medium head units pumping solutions.

In search for more efficient ways to manage water resources, companies have successfully turned to Sulzer Pumps to answer their needs.
Thanks to its experience and know-how, Sulzer Pumps developed the SJM pump, a vertical mixed flow pump, specifically designed for the water and power industries.

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.

From municipal water supply, to drainage, flood control or power plant intake, the SJM fits perfectly the requirements of such applications. SJM pumps are high capacity and low to medium head units which makes them ideal for:

- Raw water supply to process plants or refineries
- Condenser circulation service in nuclear or conventional power plants
- Finished water booster pumps
- Large irrigation projects

**Sprinkler irrigation system**

# SJM Vertical Mixed Flow Pump

The Sulzer SJM pump can handle common types of fluids including water, service water and wastewater. It is engineered to balance high efficiency, low submergence and Net Positive Suction Head Required (NPSH) considerations.
Replaceable hardened liners, available as an option, ensure the SJM pumps a long service life and easier maintenance. The SJM pumps also offer a variety of design options such as weed cutting vanes, riffle and cross drilled shafts (for external lubrication at bearing journal) and hardfacing in order to best match the requirements of the application. Besides, above and below base discharge connections are available to fit already existing pipe designs.

## Advantages

- High pump efficiency thanks to Sulzer optimized hydraulics
- Minimal use of floor space
- Lowest level of NPSH available can satisfy the NPSH required
- No priming required; the pump bowl assembly is submerged in the fluid being pumped
- Adaptable to various design codes
- Easily modified depending on hydraulic conditions
- Less wear due to low operating speed
- Compatible with most standard motors

## Materials

The SJM can be manufactured from a variety of metallurgies to extend the pump's service life and performance. The choice of materials and construction possibilities is virtually unlimited, allowing full customization to meet even the most demanding requirements.

| Material Selection | |
|---|---|
| **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 pumps

# SJM Design Features and Benefits

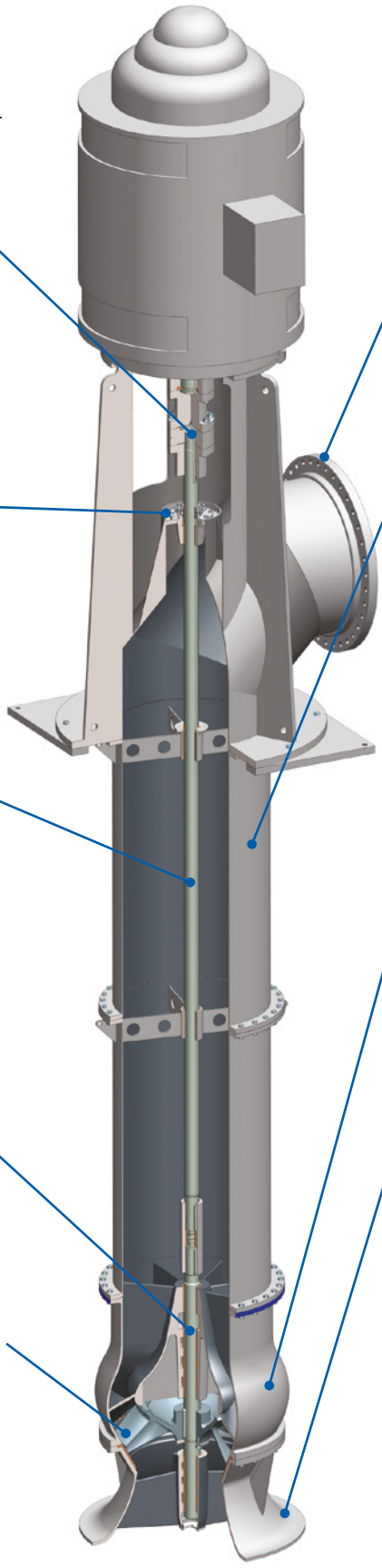
### Headshaft
- Precision machined and sized per power input application.
- Drive couplings connect headshaft with a vertical solid shaft motor.

### 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 or 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.

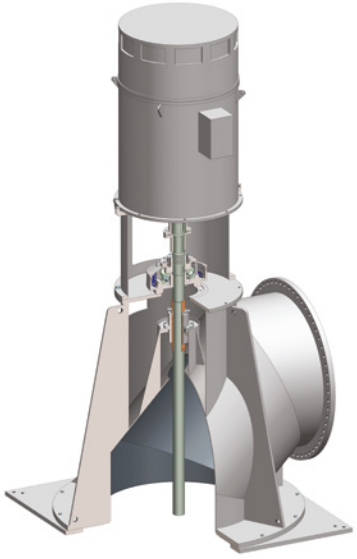
### Turning Vanes
- Turning vanes could be enclosed to the suction bell to optimize the intake arrangement; when doing so, the flow approach to the pump impeller is very predictable: sump width, centerline difference between pumps and submergence requirements can be reduced.

# Options

### Thrust Bearing Assembly

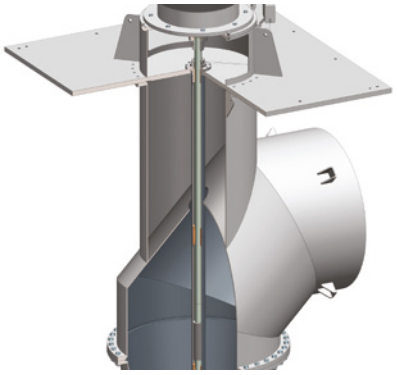
Thrust bearing assemblies are available when required by application. They are built to handle all of the down thrust produced by the pump and as much momentary up thrust that may occur. The flexible coupling with spacer allows servicing the thrust bearing and mechanical seal as needed. A one-piece fabricated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



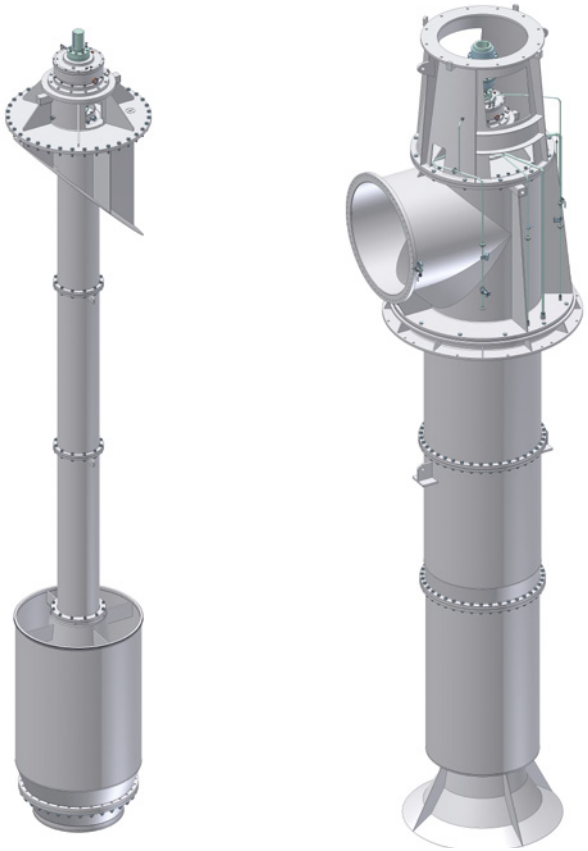
### Discharge Head

Below ground discharge head is available. Each comes with a segmented elbow designed to optimize pump efficiency. The elbows are made of various materials to meet virtually any requirements. 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.

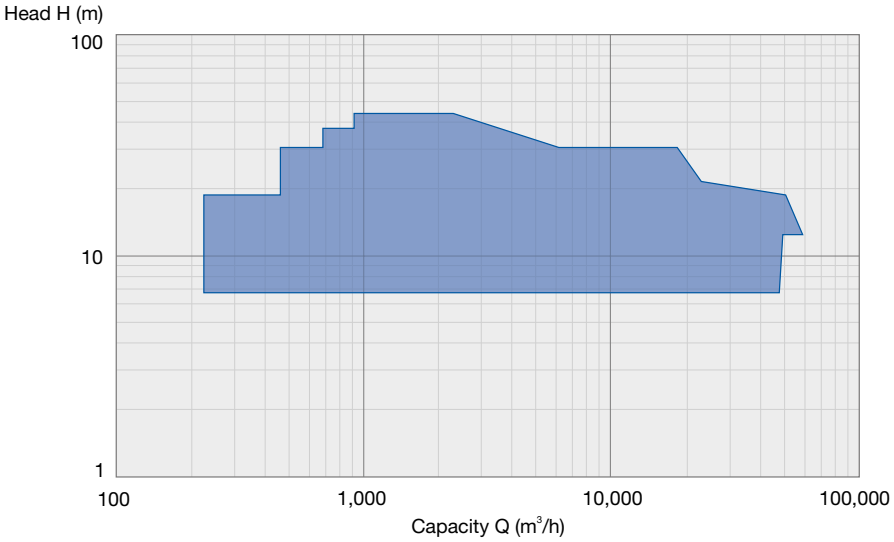


### Fabricated Suction Bell & Bowl and Full Pull-out

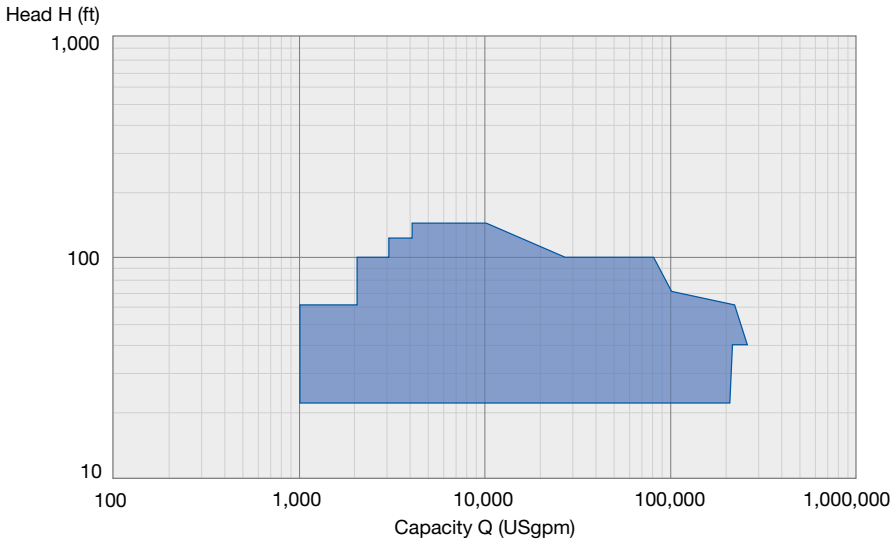
Fabricated Suction Bell & Bowl and Full Pull-out construction to facilitate the pump dismantling are available for bowl diameters ≥ 50”.



# SJM Performance Ranges




50 Hz




60 Hz

# Operating Data

| | 50 Hz | 60 Hz |
|---|---|---|
| **Pump sizes** | 200 to 2,390 mm | 8 to 94 inches |
| **Capacities** | 180 to 58,000 m³/h | 800 to 250,000 USgpm |
| **Heads per stage** | up to 30 m | up to 100 feet |
| **Pressures** | up to 18 bar | up to 260 psi |
| **Temperatures** | up to 50 °C | up to 122 °F |

# Maintaining and Improving Pump Performance

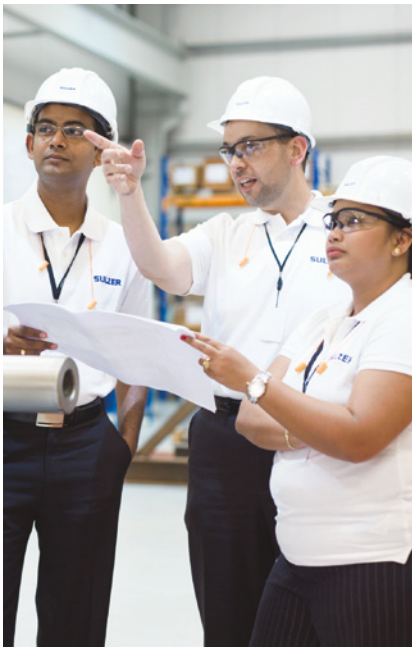
### Sulzer Pumps – Customer Support Services

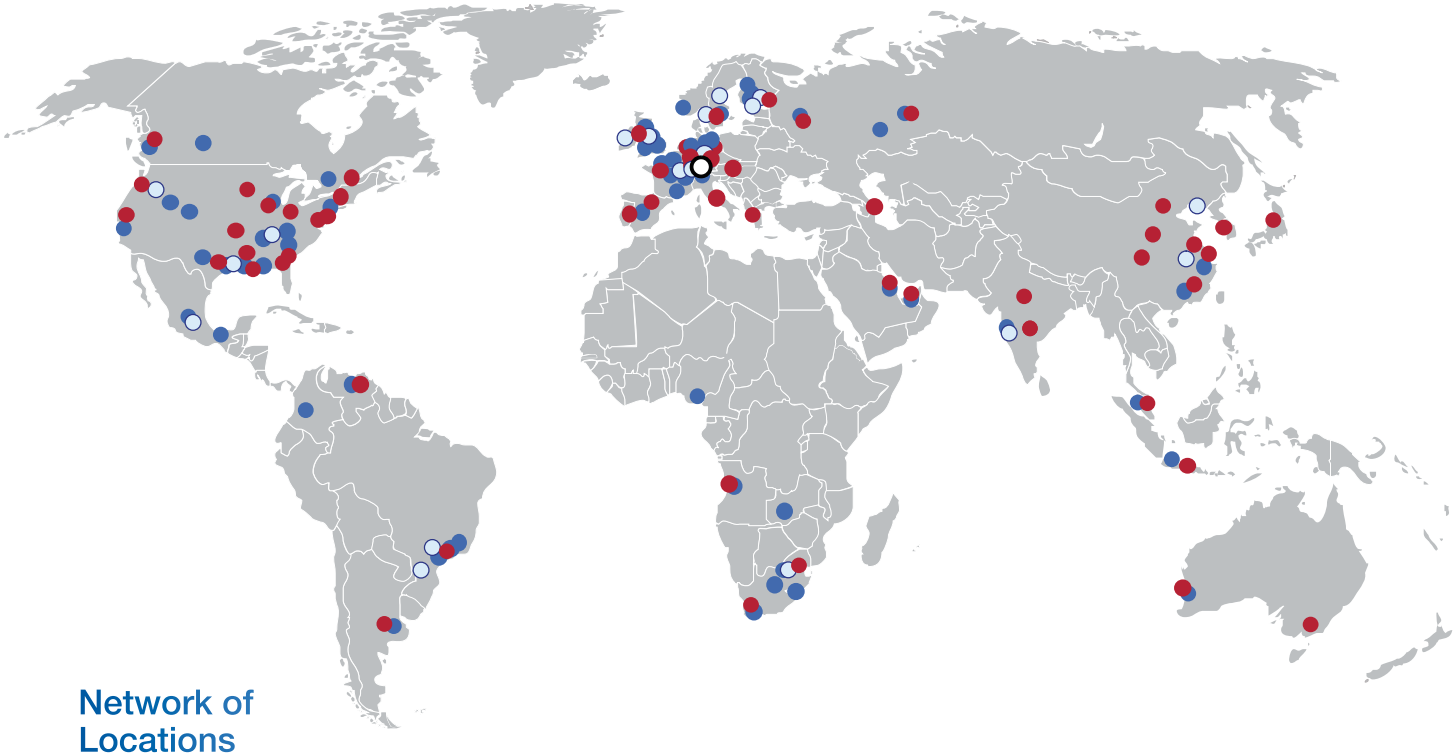
The continuous availability and high operating performance of pumps is the key target for our customer support service organization. Through our highly experienced personnel and application knowledge, we provide a full range of innovative service solutions to our customers to keep their pumps running including:

- Spare Parts
- Field Services
- Repair Services
- Retrofits
- Maintenance Agreements
- Operation Agreements

### Flexibility

With services ranging in scope from supplying a spare part to operating the pump under contract, we are uniquely placed to make your process run smoother. A dedicated team of our services specialists based at either our manufacturing facilities or one of over 60 service centers located around the world is dedicated to maintain the performance of our customers' pumps and associated equipment. This service is not just limited to Sulzer products, all the pumps our customers operate can benefit from the support of Sulzer Pumps.





## Network of Locations

- Divisional Headquarters
- Manufacturing Facility
- Customer Support Service Center (CSS)
- Sales Office

**www.sulzerpumps.com**
**power.pumps@sulzer.com**

E10016 en (1) 5.2012 (1,000), 