

**motralec**

4 rue Lavoisier . ZA Lavoisier . 95223 HERBLAY CEDEX  
Tel. : 01.39.97.65.10 / Fax. : 01.39.97.68.48  
Demande de prix / e-mail : [service-commercial@motralec.com](mailto:service-commercial@motralec.com)  
[www.motralec.com](http://www.motralec.com)

**SULZER**

## JS and CS Submersible 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.

## 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 Submersible Pumps

Sulzer submersible models JS and CS represent the state of the art in submersible pump design. The CS is a pre configured design offering a broad range of corrosion resistant materials and build options available. The JS uses hydraulic and mechanical components shared with the Sulzer JT family of vertical shaft driven pumps thus maximizing use of well proven components. The JS may also be modified to suit individual applications if required. Connections on the surface comprise a compact main surface riser pipe/plate/elbow assembly and motor power cable. Submersible pumps are particularly suited to deeper or restricted diameter wells and installations at risk of flooding.

### Applications

- Well pumps
- Pipeline boosters
- Agricultural installations
- Mine dewatering applications
- Seawater lift on platforms

### Advantages

- Always primed for immediate use
- Easily modified for services where falling water levels are common
- Flood proof as all parts including the motor are designed to operate in water

- Easy installation and removal of discharge pipe
- Performance and testing as per hydraulic institute standards
- Simple design with less parts for wear and tear
- No seal or packing to maintain
- No shaft adjustment required
- No line shaft in column pipe
- No line shaft bearings
- Longer pipe joint sections lowers installation costs
- NSF/ANSI-61 compliant (CS pumps)





## Design

The JS and CS ranges are available sizes and duty envelopes as detailed below. Bearing lubrication is by the pumped fluid with bearing materials selected accordingly. The pumps may be installed vertically, at an angle or horizontally depending on the needs of individual applications. The temperature limit for both ranges is set by the electric motor rather than the pump.

## Materials

The standard material combinations are chosen to withstand the corrosive effects of standing water or seawater.

### JS

- Shafts – 416SS, 316SS, 17-4
- Impellers – 316 SS, 410SS, aluminium bronze
- Bowls – cast iron, 316SS, aluminium bronze, Ni-resist

### CS

- Shafts – 416SS, 316SS, 17-4
- Impellers – 316 SS, aluminium bronze
- Bowls – cast iron, 316SS, aluminium bronze

## Operating Data

	JS 50 Hz	JS 60 Hz	CS 50 Hz	CS 60 Hz
Pump sizes	125 to 600 mm	5 to 24 inches	125 to 250 mm	5 to 10 inches
Capacity	1,930 m <sup>3</sup> /h	8,500 USGPM	568 m <sup>3</sup> /h	2,500 USGPM
Head	490 m	1,600 ft	460 m	1,500 ft
Pressure (size dependant)	48 bar	700 psi	45 bar	655 psi
Temperature	up to 135° C	up to 275° F	up to 135° C	up to 275° F

# Design Features and Benefits

## Surface Plate

Consists of an unmachined round or square steel plate with a threaded pipe welded through the center carrying the weight of the entire pumping assembly. A discharge elbow with ISO or ANSI 150# flat-faced flanges is also available, depending on site requirements.

## Discharge Case

A high strength discharge case provides water passages from the bowl assembly to drop pipe while minimizing all column friction losses.

## Pumpshaft

The pumpshaft, available in numerous types of material is designed to transmit the pumps design torque requirement. A shaft coupling is also provided connecting the pump and motor shaft and is pre-adjusted before shipment for proper impeller clearance.

## Bowl Bearings

CS pumps are available with Viton rubber or bronze bearings and JS pumps are available in dual bronze/rubber, bronze only or other materials suitable for the application. The bearings provide radial support, they also act to dampen vibration. All sleeve bearings are cooled and lubricated by the product pumped for all types of submersible application.

## Cable Guard

Attached to the submersible pump is a cable guard, (usually provided in 316SS material), preventing damage to the cable as the pump is installed in the well.

## Suction

Submersible pumps are provided with a suction case and strainer attached to the motor adaptor to facilitate the smooth approach of fluid to the suction impeller while restricting entry of foreign objects. Suction case is ductile iron ASTM A536-65-45-12 on standard CI/bronze construction for added strength.

## Column

Available deep settings up to 300 m (1,000 feet) or more, eliminating lineshaft bearing, and bearing retainers with the capability to operate at higher speed reducing pump and well size. Column connections can be flanged or threaded and are designed to reduce friction and support the unit without damage.

## Bowls

Submersible bowls are provided in high strength cast iron (or other material), vitreous enamelled to provide smooth water passage and enhancing efficiency as the diffusion vanes convert water to velocity pressure. Bowl wear rings are optional to increase bowl life and are available in aluminium bronze or stainless steel.

## Impellers

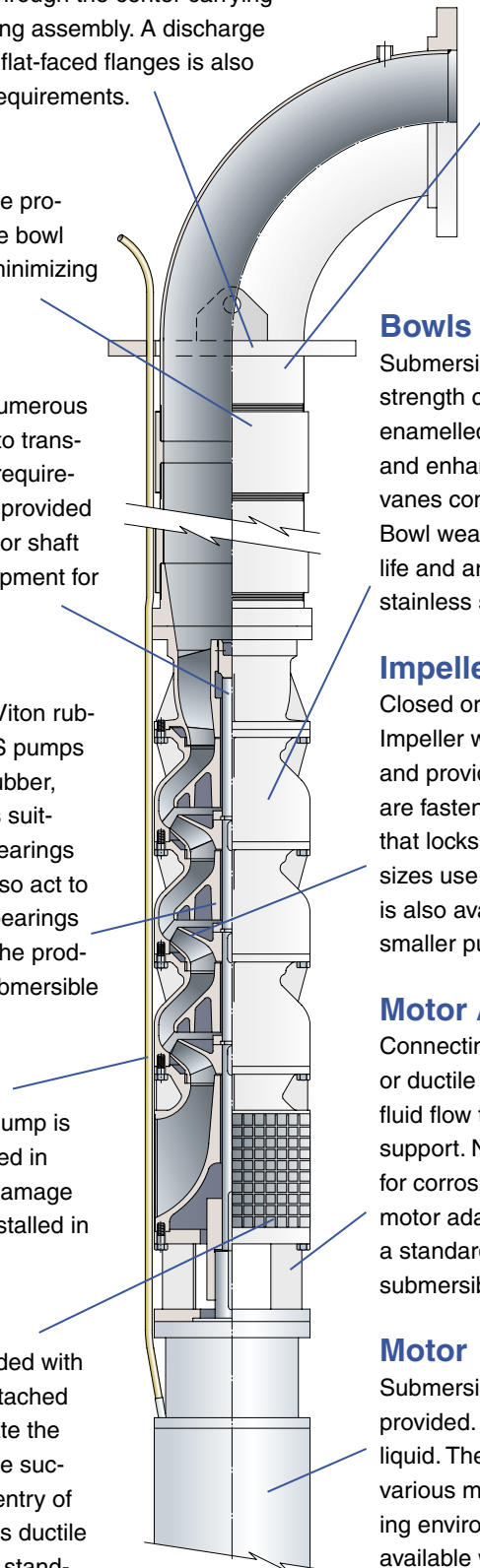
Closed or semi open impellers are available. Impeller wear rings are fitted, resisting wear and providing longer impeller life. Impellers are fastened with a split, tapered bushing that locks the impeller firmly in place. Larger sizes use keyed construction and this feature is also available as an alternative extra on smaller pumps.

## Motor Adapter

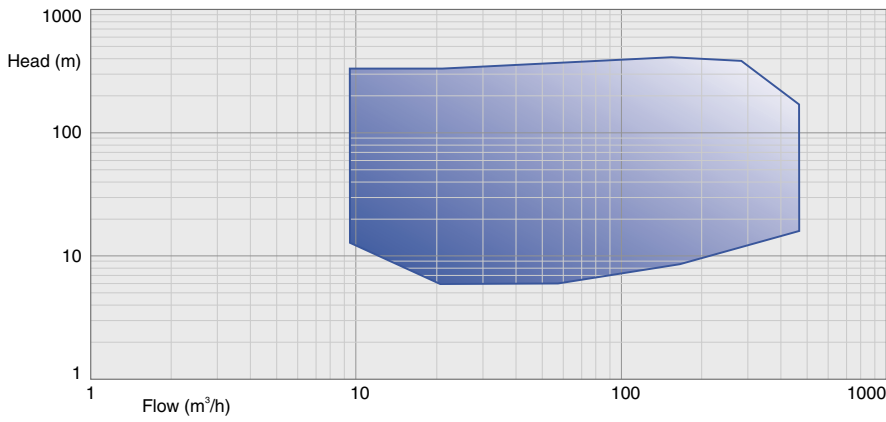
Connecting the pump to the motor is a cast or ductile iron motor adapter directing the fluid flow to the bowl assembly with minimum support. Numerous materials are available for corrosive applications. Sulzer submersible motor adapters are designed specifically for a standard fit with several types and sizes of submersible motors.

## Motor

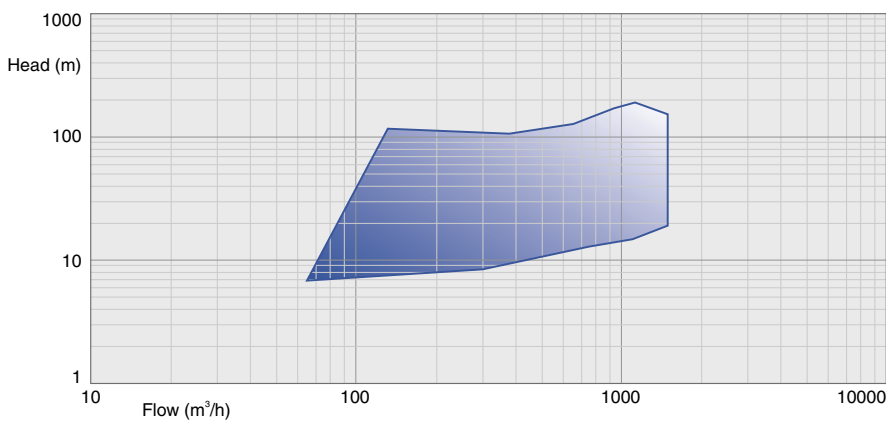
Submersible wet stator motors are commonly provided. The motor is cooled by the pumped liquid. The motor outer casing is offered in various materials, depending on the operating environment. Motor shrouds are also available when increased motor cooling is required.



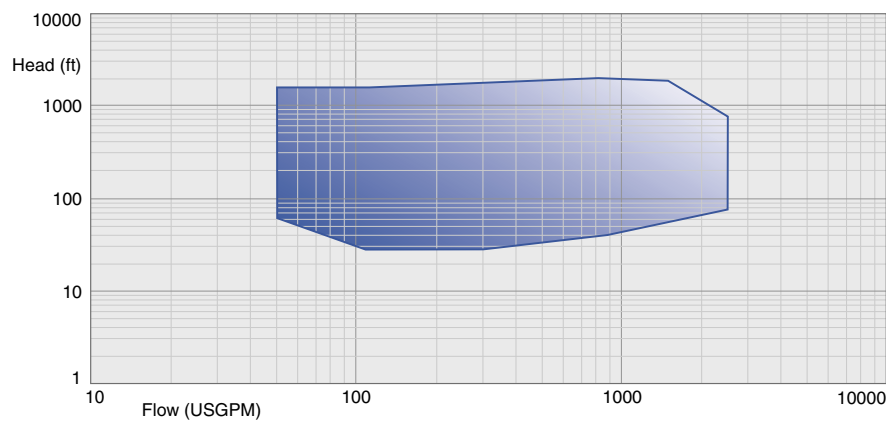
# Performance Range



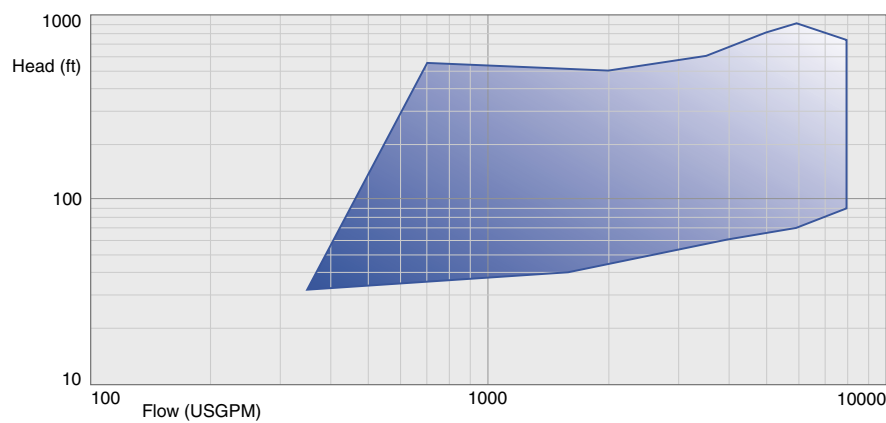
**JS/CS 50 Hz  
2 pole**



**JS/CS 50 Hz  
4 pole**



**JS/CS 60 Hz  
2 pole**



**JS/CS 60 Hz  
4 pole**

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