

SJD Vertical Multistage Can Pumps ISO 13709 (API 610) for Process Applications



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.



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

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

Extensive Product Range

Vertically suspended pumps are used in many applications where mounting of the driver and discharge piping is well above the liquid level. They are mounted in suction cans or suction tanks, where available NPSH is too low for the amount of fluid to be pumped. NPSH requirements of the pump are met by simply adjusting the length of the pump and can. Advantages are minimal floor space usage and ideal operating conditions provided within the normal operating envelope.

Applications

Sulzer SJD process pumps are specified wherever limited NPSH is available, either due to system constraints or liquids operating near their vapor pressure. Typical applications include liquefied petroleum gas booster, cryogenics as well as general refining and other medium to high pressure applications. The design of the pump has evolved from many years of experience and includes technology which is now exclusive to Sulzer.



Design

The SJD product range is typically used in power generation, oil and gas, hydrocarbon processing and general industrial applications with a broad range of performances. Type SJD process pumps are often built to the requirements of ISO 13709 (API 610). A variety of suction stage performances is available including those meeting Nss ≤11,000. On larger sizes, where extra can depth may be an issue, a double suction first stage is offered.

Series stages offer a variety of hydraulics and can be matched with the first stage for optimum selection and curve shape. SJD process pump stages are typically

known for their high head per stage which results in fewer stages and a shorter pump. For applications where high axial thrust is generated, thrust balanced impellers are offered to reduce thrust load. Bowls and column sections are flanged. Column bushings are carbon and bearing spacing meets ISO 13709 (API 610) requirements.

The suction can is fabricated to meet the application requirements and includes an antiswirl brake. Discharge head typically includes both suction and discharge flanges and is cast or fabricated to meet order requirements. ISO 13709 (API 610) nozzle loads are standard.



Engineered for Application Flexibility

When the motor thrust bearing is not preferred or is insufficient, a separate oil lubricated thrust bearing may be furnished. Air, water or pumpage cooling of the thrust bearing is available. Where through bolting of the discharge head to suction can joint is required, a separate mounting plate can be provided as an option.

The pressure boundary components of SJD process pumps can be designed to 25 % of ultimate tensile strength with another 3mm (0.12 inches) corrosion allowance added for compliance with ISO 13709. Cast discharge heads are designed for 300# R.F. flange rating. Suction can flange rating is typically designed for suction pressures up to 15 bar (225 psi). Higher MAWP and flange ratings are available.

Materials

Component	S-5	S-6	S-8
Discharge head	CS	CS	CS
Suction can	CS	CS	CS
Bowls	CS	12% Chr	316L SS
Impellers	CS	12% Chr	316L SS
Bowl shaft	416 SS	416 SS	316 SS *
Column	CS	CS	316L SS
Wear parts	12% Chr	12% Chr	316SS-HF
Bushings	Carbon	Carbon	Carbon
Gaskets	Oring	Oring	Oring

* Nitronic 50 or Duplex may be substituted depending upon application
Other material combinations available, including materials for sour services under NACE MR 0175 or MR 0103

Component	A-8	D-1	D-2
Discharge head	316LSS	Duplex	Super Duplex
Suction can	316LSS	Duplex	Super Duplex
Bowls	316LSS	Duplex	Super Duplex
Impellers	316LSS	Duplex	Super Duplex
Bowl shaft	316 SS *	Duplex or Monel	S D or Monel
Column	316LSS	Duplex	Super Duplex
Wear parts	316SS-HF	Duplex-HF	Super Duplex-HF
Bushings	Carbon	Carbon	Carbon
Gaskets	Oring	Oring	Oring

SJD Design Features and Benefits

Driver

Drivers to meet a variety of customer and industry specifications.

Jack Bolts

Driver jack bolts are standard.

Spacer Coupling

Rigid adjustable spacer couplings for simple mechanical seal maintenance and rotor lift adjustment.

Shaft

One piece shaft required by ISO 13709 up to about 3.5 m (18 feet). 416 SS is standard with a variety of optional materials.

Suction Can / Column Pipe

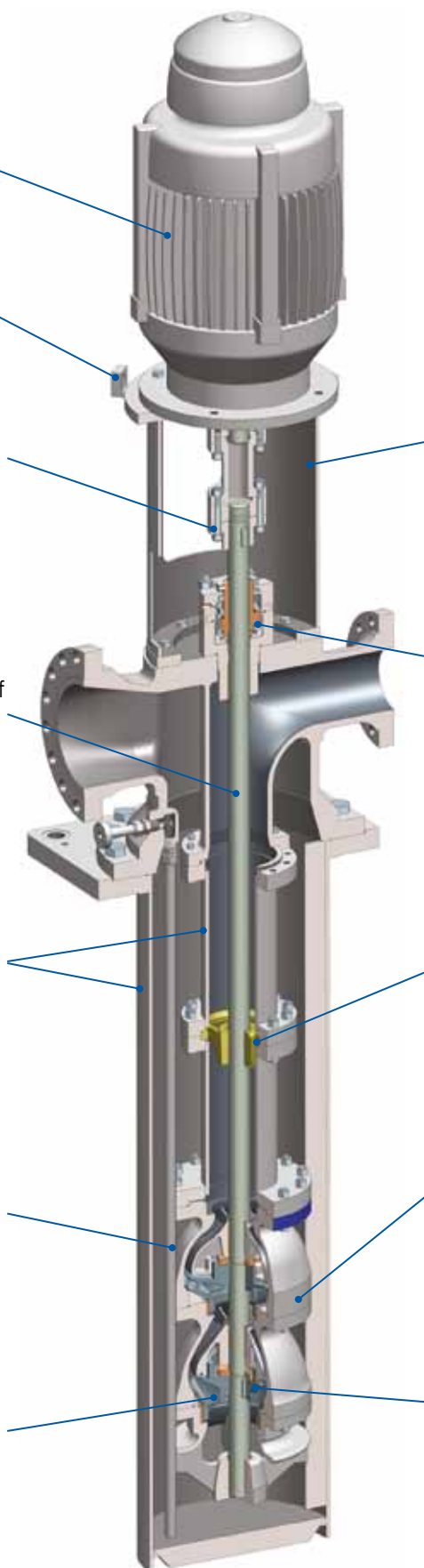
O-ring sealed suction can fabricated with full penetration welds and swirl brake for uniform suction flow to first stage. Optional o-ring sealed column and bowl joints. Column joints are flanged.

Can Drain

Can drain is attached to pumping unit and has only one penetration at the discharge head. Reduces chance of external drain damage.

First Stage Impeller

Mounted between bearings on all but smaller sizes where shaft is a large percentage of impeller eye area and impeller is less than 150 mm (6 inches) diameter. Nss is 11,000 or less. High Nss is optional.



Discharge Head

Cast discharge head with separate motor stand for rigidity. Other configurations are provided using fabricated discharge heads.

Shaft Sealing

Seal chambers meet ISO 13709 (API 610) dimension requirements to accommodate ISO 21049 (API 682) cartridge type mechanical seals.

Column Bearings

On 14" column and smaller, column bearings are mounted in a reversible bearing spider that may be flipped to run the bearing on a different shaft surface. Integral bearing spiders are optional and are standard on > 14" column.

Bowl Assembly

Flanged bowls are standard. Wear rings on the impeller are standard with bowl rings optional.

Impellers

Impellers are held and driven by split ring and key design. Thrust balanced impellers are optional for reduced thrust bearing load.

SJD Optional Design Features and Benefits

Driver Stand

Discharge head and driver stand checked for natural frequency coincidence. Installed vibration levels meet or exceed ISO 13709 requirements.

Thrust Bearing

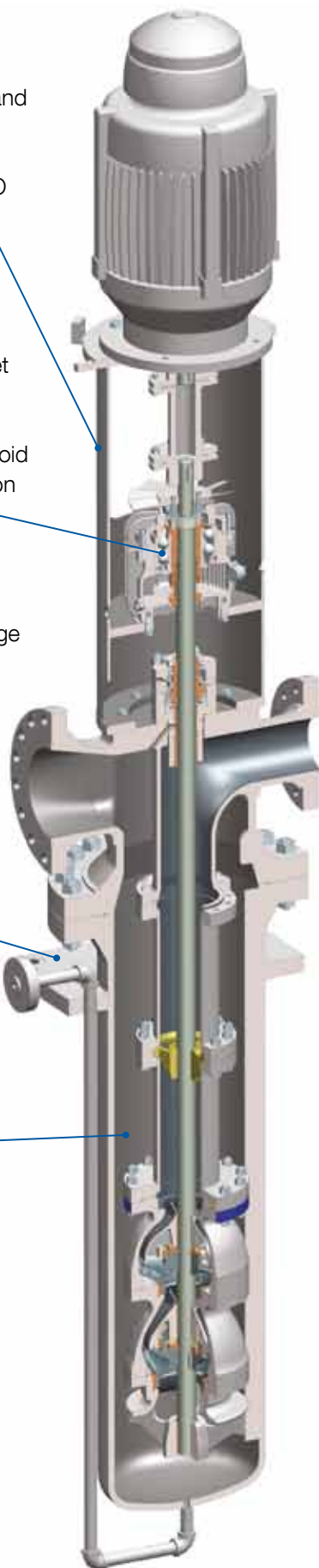
Bearings are designed to meet ISO 13709 requirements to avoid overheating. Oil level is kept below the bearings to avoid churning and foaming common in other designs. Temperature rise during performance test is measured and meets ISO 13709. Optional fan, water or pumpage cooled thrust bearing with CS bearing housing and high or extra high thrust bearings.

Mounting Plate

Optional separate mounting plate to allow for through bolting on main flange when required by specification or higher loading for spiral wound gasket compression.

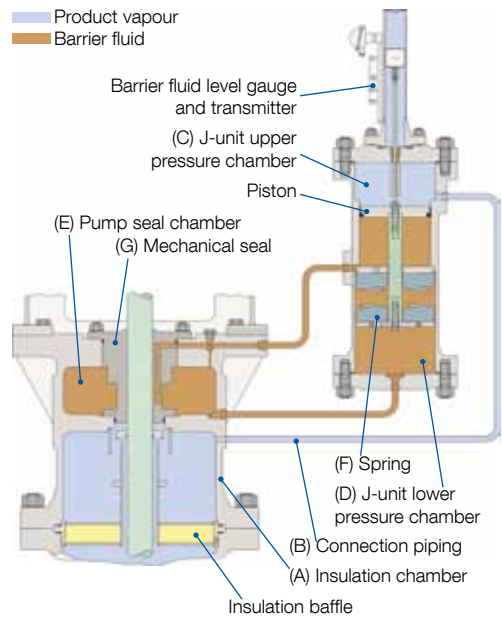
Suction Can

Specially designed suction cans are available with dished, semi-spherical can bottom, external can drains, below ground suction and many more options.



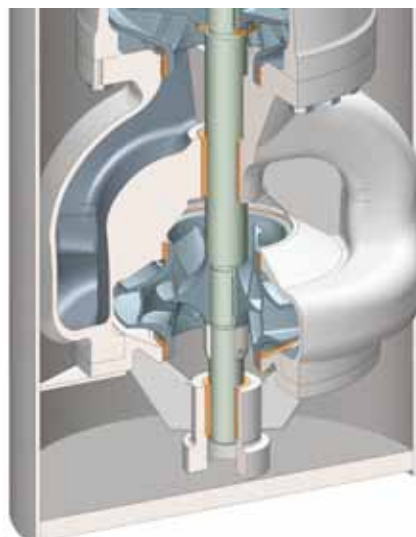
J-Unit for Cryogenic Services

A proven and reliable design to seal the pump shaft on cryogenic applications.

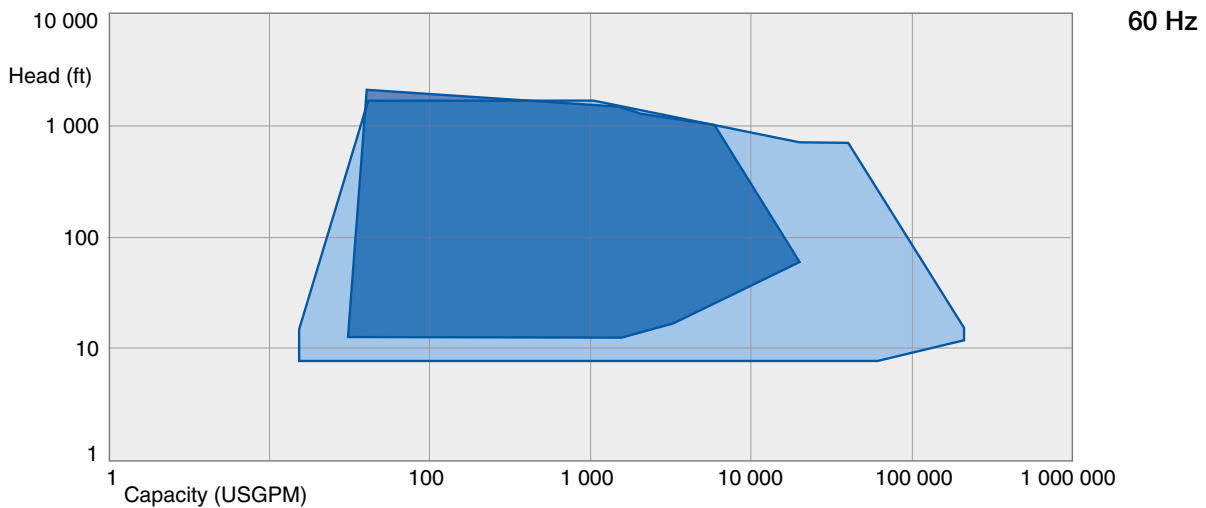
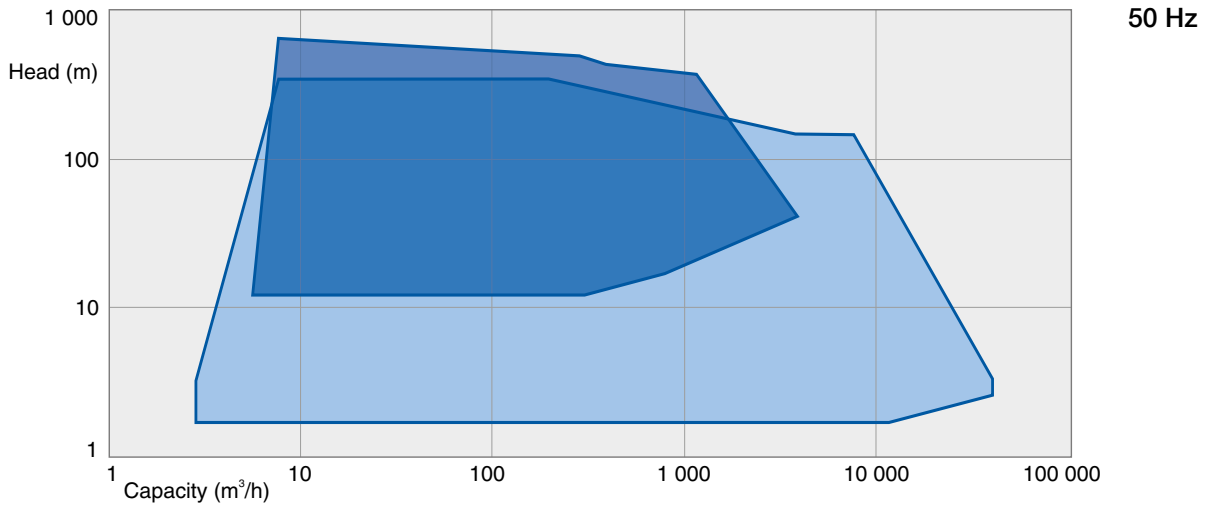


Double Suction Impeller for Low NPSH

Provides nominal 30 % reduction in NPSH required with $N_{ss} \leq 11,000$. Impeller mounted between bearings.



SJD Performance Ranges



SJD ISO 13709 (API 610) product range
 Vertical can product range

Operating Data

	50 Hz	60 Hz
Capacity	10 to 3,800 m ³ /h	10 to 20,000 USgpm
Head	up to 700 m	up to 3,000 feet
Pressure	up to 75 bar	up to 1,100 psi
Max operating pressure	up to 150 bar	up to 2,150 psi
Temperature	-75° C to 205° C	-100° F to 400° 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.



Network of Locations

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

Check our worldwide offices at
www.sulzerpumps.com