

## **API 610 Vertical Multistage Pumps**



# Main Applications

Sulzer API 610 Type VS1 and VS6 pumps are specified whenever limited Net Positive Suction Head (NPSH) is available, due to system constraints or liquids operating near their vapor pressure.

Typical applications include:

- LPG (Liquefied Petroleum Gas) boosting
- Tank farm and pipeline boosting
- LNG (Liquefied Natural Gas), cryogenic gas plant, and other cold services
- General refining

## Features and Benefits

### 1 First stage impeller

- Low Net Positive Suction Head Required (NPSHR) allows use of a shorter pump

### 2 Series impellers

- High efficiency; optional thrust balanced impellers for reduced thrust load

### 3 Column bearings

- Mounted in a reversible bearing spider that may be flipped to run a new bearing on a different shaft surface

### 4 Discharge heads

- Cast or fabricated for various nozzle, thrust bearing and seal configurations

### 5 Shaft sealing

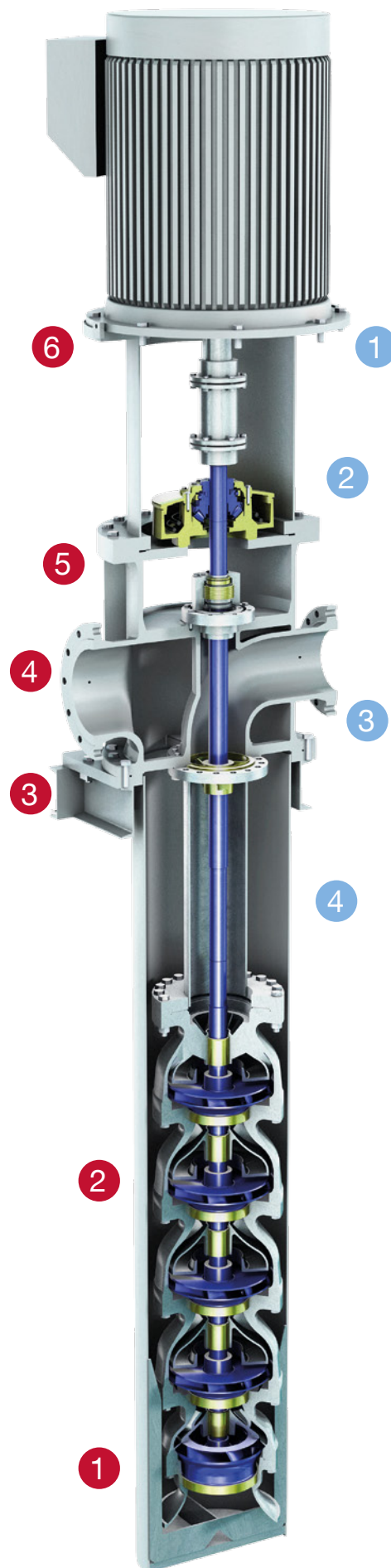
- Accommodates ISO 21049 (API 682) cartridge type mechanical seals

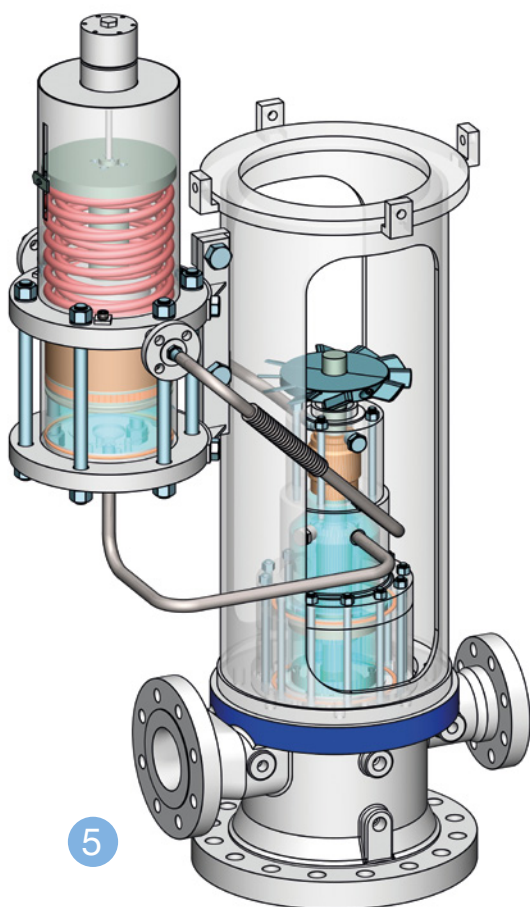
### 6 Rigid adjustable spacer coupling

- Simple mechanical seal maintenance and rotor lift adjustment

### 7 Construction

- VS1 for sump or tank; VS6 with suction can to make its own NPSHa for high vapor pressure fluids





## Optional Features and Benefits

### 1 Driver stand

- Discharge head and driver stand checked for natural frequency coincidence

### 2 Thrust bearing

- Bearings are designed to meet ISO 13709 (API 610) requirements to avoid overheating
- Optional fan, water or pumpage cooled thrust bearing with CS bearing housing and high or extra high thrust bearings

### 3 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

### 4 Suction can

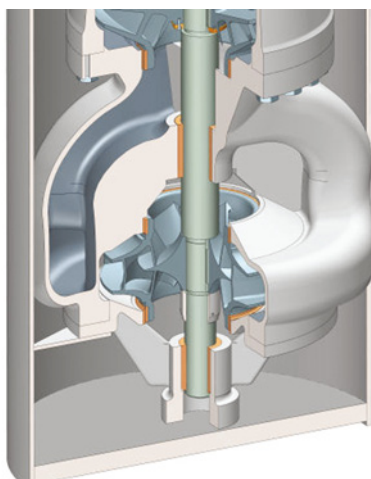
- Specially designed suction cans are available with dished, semi-spherical can bottom, external can drains, below ground suction and many more options

### 5 J-Unit for cryogenic services

- Isolation chamber separates cold LNG from seals thus allowing the use of standard API 682 dual seals operating near ambient temperature
- Seal oil is held at slightly higher pressure than suction pressure by special Plan 53C. For more information, see separate J-Unit brochure.

### 6 Double suction impeller for low Net Positive Suction Head (NPSH)

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



# API 610 Vertical Multistage Pumps



Oil & gas



Hydrocarbon  
processing  
industry



Power  
generation



Pulp and  
paper



General  
industry



Chemical  
processing  
industry



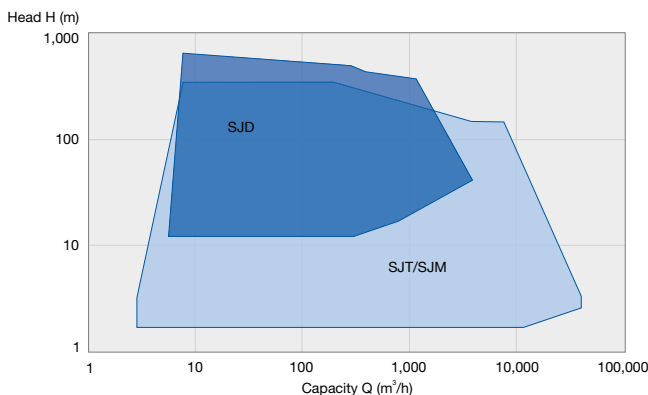
Water

## Operating data

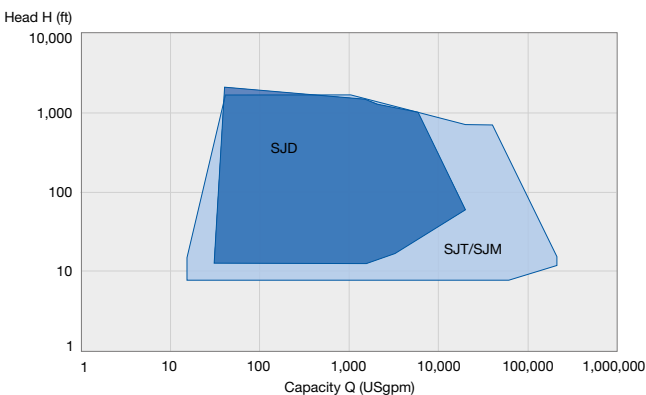
50 Hz	Pump sizes	60 Hz
up to 760 mm		up to 30 inches
10 to 30,000 m <sup>3</sup> /h	Capacities	40 to 130,000 USgpm
up to 700 m	Heads	up to 2,500 feet
up to 100 bar	Pressures	up to 1,450 psi
-170 to +205°C	Temperatures	-280 to +400°F
up to 3,600 rpm	Speeds	up to 3,600 rpm

## Performance ranges

50 Hz



60 Hz



## Materials

Material classes	Material
ISO 13709 (API 610)	S-5, S-6, S-8, A-8, D-1, D-2

## We Do What We Say

### Customer partnership

- We are **reliable partners**
- We provide a **high level of service**
- We **make our customers more competitive**



### Committed people

- We drive **accountability**
- We are **open and transparent**
- We are **team players**



### Operational excellence

- We **focus on results**
- We take **initiative** and work within **established processes**
- We **act safely**



## A Global Specialist at Your Doorstep

Sulzer serves clients worldwide through a network of over 150 production and service sites and has a strong footprint in emerging markets.



● Sulzer headquarters,  
Winterthur, Switzerland