

## OCV range of API 610 type VS4 sump pumps



# Main industries and applications

Vertically suspended pumps are used in many applications where mounting of the driver and discharge piping is well above the liquid level, or where floor space is limited. The OCV range of API 610 VS4 pumps can be applied to any sump application with moderate solid content.

Sump pumps are mounted over open pits or tanks, and are typically controlled by a level switch to start and stop automatically. Other applications may pump continuously.

The OCV range of pumps are utilized in refining, oil and gas production, petrochemical, and other heavy duty applications.

Typical applications include:

- Drainage sumps
- Oily water sumps
- Lube oil supply
- Tank transfer
- Molten sulfur

A photograph showing industrial pipes and machinery in an oil and gas facility, with a red color overlay.A photograph of a hydrocarbon processing plant, showing tall distillation columns and complex piping against a blue sky.

## The Sulzer advantage

Sulzer understands the many sophisticated processes used in the oil and gas downstream processing industry. With world-class technology solutions and equipment, we provide state-of-the-art pumping solutions for synfuels, refining, gas processing, petrochemical industry and nitrogenous fertilizers.

### Expertise

With 180 years pedigree, Sulzer puts its engineering, process and application know-how to work in close cooperation with the client to develop new pumping solutions, which improve the partner's processes and businesses.

### Reliability

- Everything Sulzer does is guided by the principle of continuous improvement to ensure our products run smoothly and contribute to your competitiveness
- Sulzer pumps withstand harsh conditions with robust and reliable designs to make your daily operation a success

### Research and innovation

- Technology leadership based on a strong heritage of customer-focused innovation
- Dedicated team of specialists to provide innovative pumping solutions

### Our footprint spans across the globe

All Sulzer manufacturing plants have advanced testing facilities, capable of demonstrating pump performance and proving the ancillary equipment to ensure smooth commissioning and start-up.

# Features and benefits

## API 610 pump casing and impeller

- Casing cover, impeller and wear parts are interchangeable with Sulzer OHH/OHHL API 610 OH2 pumps
- Minimizes spare part inventory

## Key driven impeller

- API 610 mandatory requirement
- Enclosed OHH impeller for normal flow
- Barske type OHHL impeller for low flow

## Suction strainer

- Stainless steel suction strainer to help prevent excessive solids entering impeller

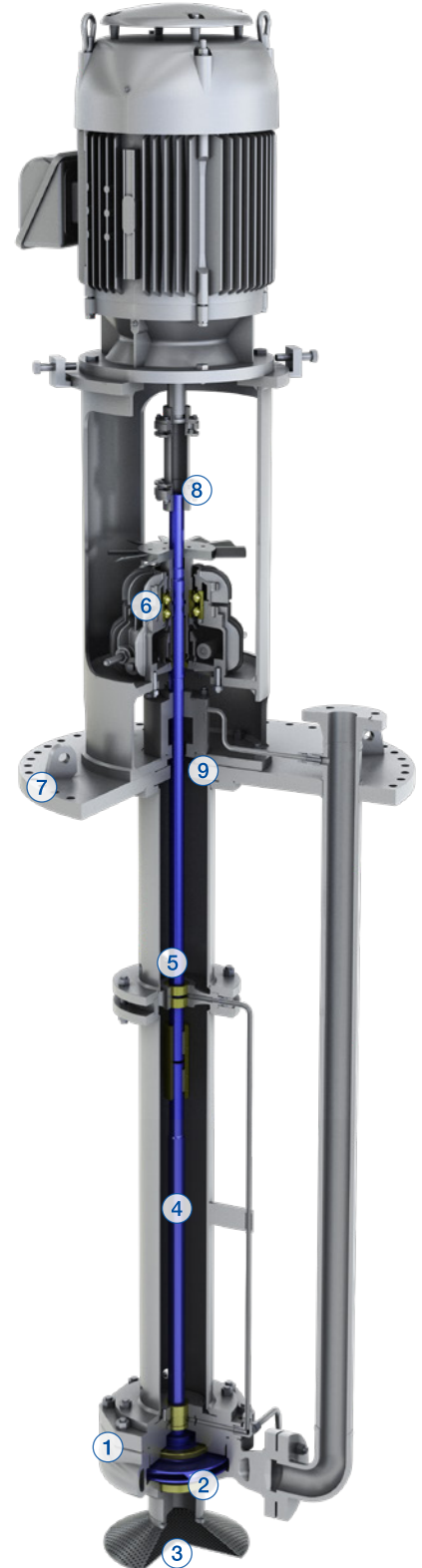
## Conservative shaft and bearing design

- Bearing spacing follows API 610 to assure that first critical speed of shaft system is well above operating speed
- Carbon bearings are standard, other bearing materials are optional
- Heavy duty, high torque shaft may be single piece, or coupled with stud and keyed shaft coupling for ease of maintenance

## Column bearings and lubrication

- Internal lube standard
- Grease or external bearing flush is optional
- Replaceable bearing spiders

- ① Casing
- ② Impeller
- ③ Strainer
- ④ Shaft
- ⑤ Lineshaft bearing
- ⑥ Thrust bearing
- ⑦ Mounting flange
- ⑧ Motor coupling
- ⑨ Mechanical seal



# Features and benefits

## Thrust bearing

- Unlike most sump pumps, OCV/OCVL features oil lubricated 7300 series bearings with machined brass cages as required by API 610
- Purge mist or grease lube are optional
- Carbon steel thrust bearing housing with AES or Inpro isolators

## Sealing options

- Single or dual API 682 mechanical seal at mounting plate with API 610 seal chamber
- Gas seals available with plan 72/74 support systems

## Mounting plate

- Rectangular epoxy coated carbon steel mounting plate is standard, round mounting plate is optional
- Four point lift allows vertically installation and compensates for pump center of gravity being off center
- Additional rigid coupling option for inspection or replacement of mechanical seal without removal of thrust bearing

## Instrumentation

- A variety of level switches, level transducers and other instrumentation is available to meet specifications

## 10 Drivers and couplings

- NEMA or IEC vertical motors can be supplied
- API 610 non-lubricated couplings are standard, others are optional

## Discharge pipe

- Buttwelded and hydrotested discharge pipe capable of 3X API 610 nozzle loads is standard



OCVL low flow

# OCVSF for molten sulfur

OCVSF pump is designed specifically for transferring clean or light contaminated molten sulfur, meet both the challenging pumping requirements of molten sulfur while maintaining full compliance to API 610 specification and design principles to maintain aligned rotating equipment standards within the plant.

## API 610 pump casing and impeller

- API 610 casing with bypass (spill back) option for minimum continuous flow protection
- Special open impeller with free draining features for handling molten sulfur
- API 610 key driven impeller to avoid loose impeller during reverse flow

## Heating jacket

- Column and discharge pipe fully jacketed to maintain sulfur in molten state
- Buttwelded and hydrotested discharge pipe capable of 3X API 610 nozzle loads

## Column bearings and lubrication

- Iron graphalloy shaft bearings lubricated by filtered product
- Hard coated journal option
- Replaceable bearing spiders

## Conservative shaft and bearing design

- Bearing spacing follows API 610 to assure that first critical speed of shaft system is well above operating speed
- Finned carbon steel bearing housing with fan cooling as standard
- API 610 non-lubricated flexible metal couplings as standard

## Thrust bearing

- OCVSF features oil lubricated 7300 series bearings with machined brass cages as required by API 610
- Fan cooling is standard and additional water cooling is an optional
- Finned carbon steel thrust bearing housing with isolators acc. API 610

## Sealing options

- API 682 mechanical seal at mounting plate with API 610 seal chamber
- Gas seals available with plan 72/74 support systems
- Optional packed gland

## Mounting plate

- Rectangular epoxy coated carbon steel mounting plate is standard, round mounting plate is optional
- Four-point lift allows adjustment for installation vertically



# Sulzer OCV product family



## Materials

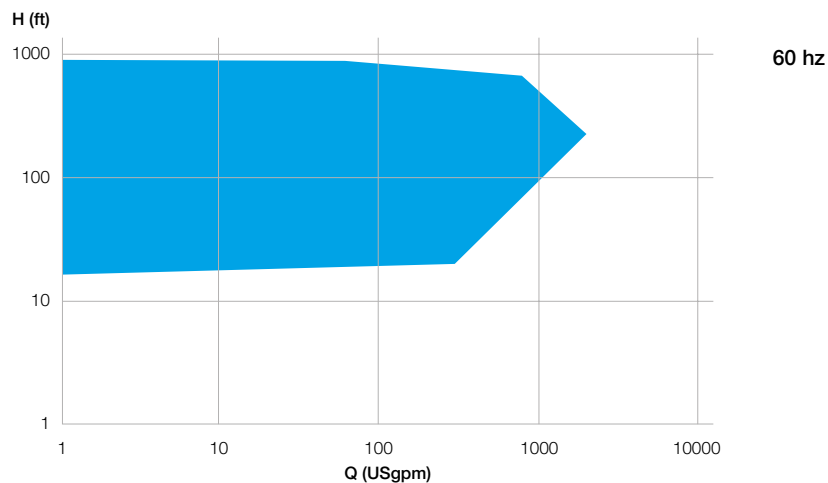
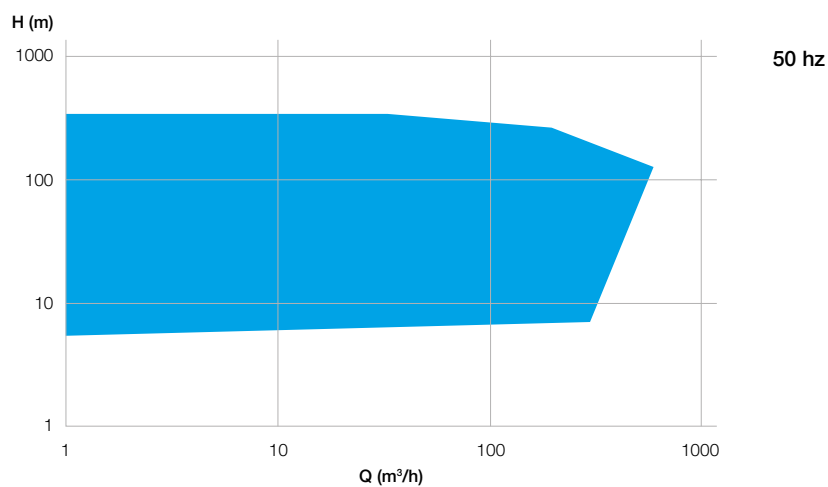
Material code	Material
S-6	Carbon steel casing, 12% chrome impeller, lineshaft and wear parts. CS column and discharge pipe, epoxy coated CS mounting plate and driver stand, carbon lineshaft bearings.
S-8	Carbon steel casing, 316L SS impeller, shaft and HF 316SS wear parts. CS column and discharge pipe, epoxy coated CS mounting plate and driver stand, carbon lineshaft bearings.
A-8	316L SS casing, impeller, shaft, column and discharge pipe. HF 316 SS wear parts. Epoxy coated CS driver stand and mounting plate, carbon lineshaft bearings.
D-1	Duplex SS casing, impeller, lineshaft, column and discharge pipe. Duplex SS vs HF duplex SS wear parts. Epoxy coated CS driver stand and mounting plate, carbon lineshaft bearings.
D-2	Super duplex SS casing, impeller, lineshaft, column and discharge pipe. HF super duplex SS vs super duplex SS wearparts. Epoxy coated CS driver stand and mounting plate, carbon lineshaft bearings.

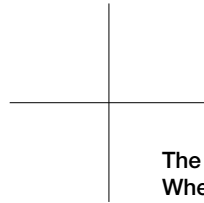
Additional materials (e.g. alloy 825) on request

# Operating data

	50 Hz	60 Hz
Pump sizes	50 to 200 mm	2 to 8 in.
Capacities	up to 500 m <sup>3</sup> /h	up to 2'200 USgpm
Heads	up to 270 m	up to 880 ft.
Pressures	up to 40 bar	up to 580 psi
Temperatures	-46 to 204°C	-50 to 400°F

# Performance range





**The Sulzer Flow Equipment division keeps your processes flowing. Wherever fluids are treated, pumped, or mixed, we deliver highly innovative and reliable solutions for the most demanding applications.**

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The Flow Equipment division specializes in pumping solutions specifically engineered for the processes of our customers. We provide pumps, agitators, compressors, grinders, screens and filters developed through intensive research and development in fluid dynamics and advanced materials. We are a market leader in pumping solutions for water, oil and gas, power, chemicals and most industrial segments.

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