

Creating downstream value through innovative pumping solutions



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

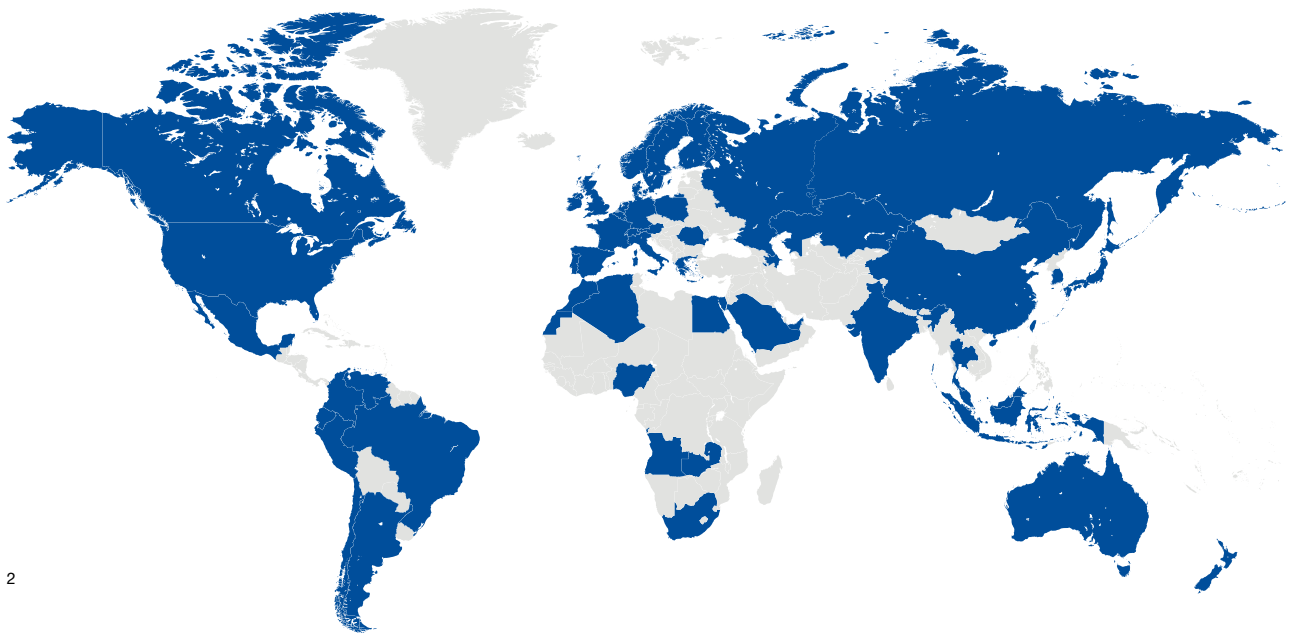
- Everything Sulzer does is guided by the principle of continuous improvement to ensure our products run smoothly and contribute to your competitiveness
- Sulzer pumps withstand harsh conditions with robust and reliable designs to make your daily operation a success

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



You set out the challenge, we have the solution

We continue investing in pump technology to deliver state-of-the-art and cost competitive products for your processes.

Synfuels

- Oil sands and oil shale
- Ultra-heavy crude oil
- Coal gasification or liquefaction

Refining

- Crude oil atmospheric and vacuum distillation
- Hydrotreating - gas oil/heavy distillate/naphtha/light distillate
- Delayed coking (excluding jet pump)
- Isomerization/reforming/FCC/alkylation/sulfur recovery

Petrochemical

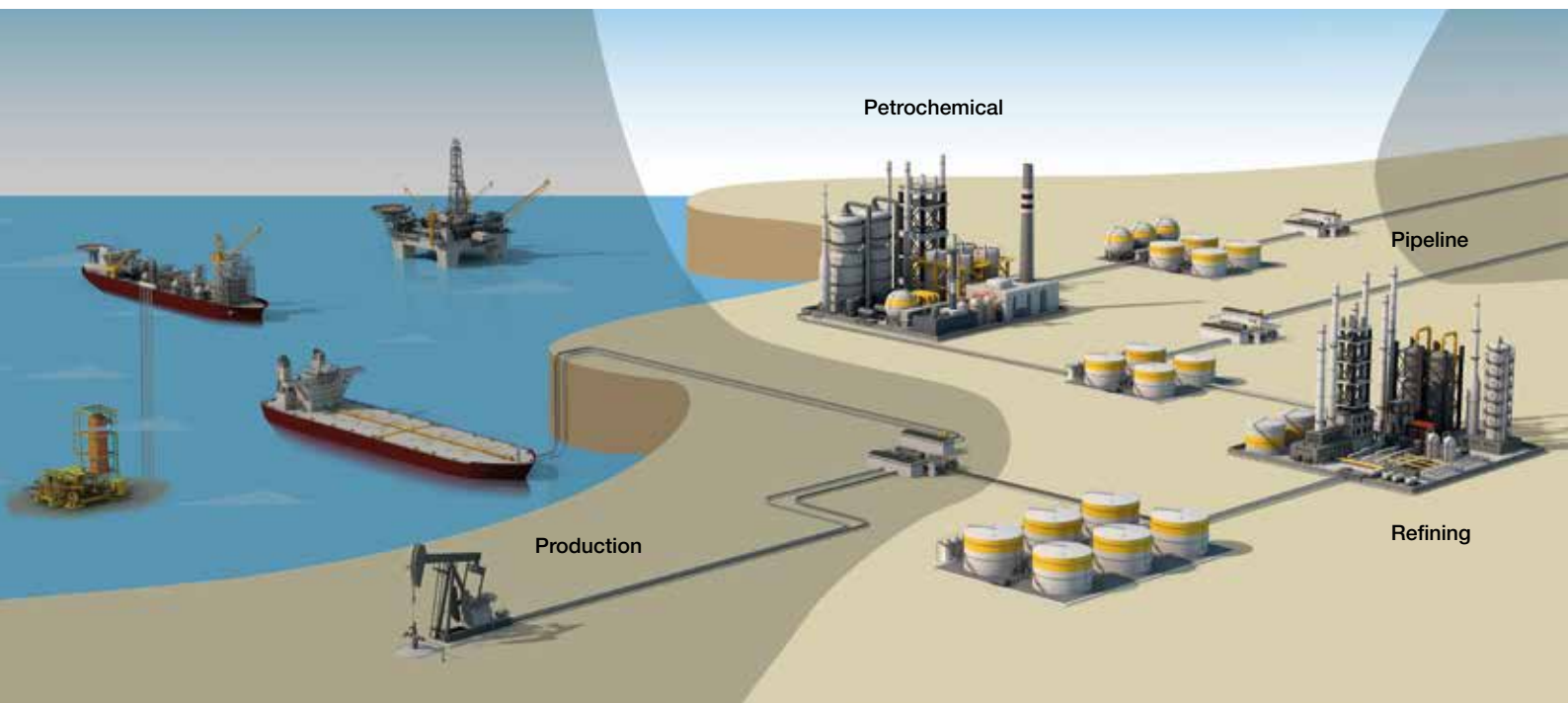
- Olefins - ethylene/propylene
- Aromatics - BTX (Benzene, Toluene, Xylene)

Gas processing

- Liquefied Petroleum Gas (LPG) (propane and/or butane)
- Gas purification (desulfurization)
- Gas-To-Liquids (GTL)
- Gas condensate fractionation

Nitrogenous fertilizers

- High pressure carbamate
- Ammonia charge
- Lean solution
- Hydraulic Power Recovery Turbine (HPRT) for rich solution power recovery



Your ideal service partner

Our global aftermarket presence, expertise and commitment always delivers reliability, responsiveness, rapid turn-around and innovative solutions.

Diagnostic and consulting services



Consulting
Monitoring
Inspection

Take informed decisions
and maintain control

Maintenance and support services



On-site services
Workshop services
Spare parts

Maintain your equipment to
industry best practices

Technical and economic optimization



Technical improvement
Reliability increase
Economic optimization

Get the most
out of your assets



Our comprehensive product portfolio

API 610 classification	Application					
	Refining	Gas processing	Petrochemical	Synfuels	Polyolefins PP/PE	Nitrogenous fertilizers
OH1*	✓	✓	✓	✓	✓	✓
OH2	✓	✓	✓	✓	✓	✓
OH3	✓	✓	✓	✓	✓	✓
BB1	✓	✓	✓	✓	✓	✓
BB2	✓	✓	✓	✓	✓	✓
BB3	✓	✓	✓	✓	✓	✓
BB4**	✓	✓	✓	✓	✓	✓
BB5	✓	✓	✓	✓	✓	✓
VS1	✓	✓	✓	✓	✓	✓
VS3	✓	✓	✓	✓	✓	✓
VS4	✓	✓	✓	✓	✓	✓
VS5	✓	✓	✓	✓	✓	✓
VS6	✓	✓	✓	✓	✓	✓
Other products***	✓	✓	✓	✓	✓	✓

* Designed according to ISO/ANSI/ASME standards

** Auxiliary services, boiler feed, steam generation, etc

*** Designs not cover by API classification, AH elbow reactor pump, ebullator

Product overview

OH1

CPT/CPE end suction single stage centrifugal pumps ANSI B73.1

Features and benefits

- The highest available efficiency on the ANSI process pump market providing clear savings in energy consumption
- Exceeding the pump energy index (PEI) values set by the U.S. Department of Energy (DOE) regulations taking effect in 2020
- Maximized reliability thanks to shaft sealing conditions and heavy-duty bearing unit
- High standardization, easy installation and robust construction equate to reduced maintenance and operating costs

Applications

- Clean and slightly contaminated liquids
- Viscous liquids
- Fibrous slurries

Key characteristics

Capacities	1'650 m ³ /h / 7'000 USgpm
Heads	up to 275 m / 900 ft.
Pressures	up to 27.5 bar / 400 psi
Temperatures	up to 260°C / 500°F



AHLSTAR end suction single stage centrifugal pumps ISO 2858/5199

Features and benefits

- Exceed standard requirements of ISO 2858/5199 standard
- Suitable for the most demanding industrial applications
- Unique, patented and superior design features minimize life-cycle costs
- Quick and easy installation, safe operation, easy maintenance and service

Applications

- Fibrous slurries
- Large solids containing liquids
- Gas containing liquids

Key characteristics

Capacities	up to 11'000 m ³ /h / 48'400 USgpm
Heads	up to 160 m / 525 ft.
Pressures	up to 25 bar / 360 psi
Temperatures	up to 210°C / 410°F



EMTECH end suction single stage centrifugal pumps ISO 2858/5199

Features and benefits

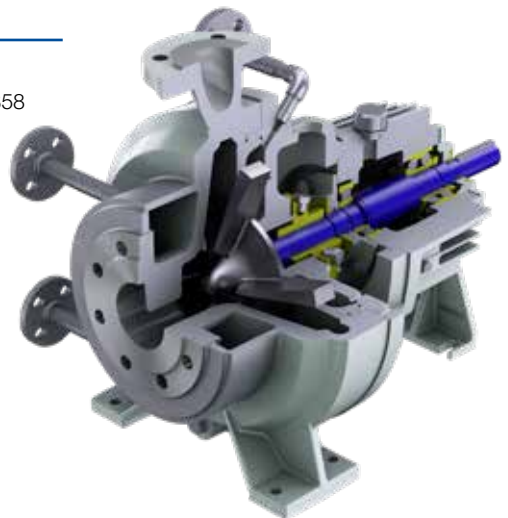
- Designed to meet the EN ISO 5199 standard, these pumps also comply with EN 22858 (ISO 2858) standard
- High efficiency
- Low energy consumption, high standardization, easy installation and unique design reduce maintenance and operating costs
- Jacketing

Applications

- Fibrous slurries
- Sticky liquids
- Corrosive services

Key characteristics

Capacities	up to 350 m ³ /h / 1'540 USgpm
Heads	up to 160 m / 525 ft.
Pressures	up to 20 bar / 290 psi
Temperatures	up to 180°C / 356°F



OH2

PRE/PRELF end suction single stage process pumps ISO 13709 / API 610 type OH2

Features and benefits

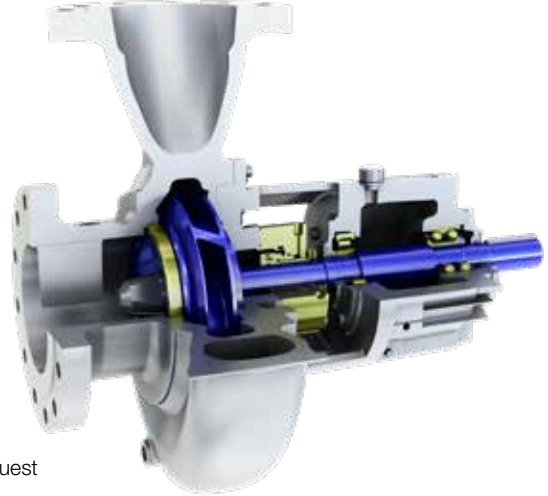
- Heavy duty shaft with short overhang dimensions for robust design
- Innovative hydraulic design with options to suit process fluid
- Finned bearing housing and fan cooling for long bearing life
- ISO 21049 (API 682) cartridge type mechanical seals for reduced emissions
- Inducer option for low NPSH applications

Applications

- Refining
- Gas processing
- Slurries
- Petrochemicals
- Nitrogenous fertilizer

Key characteristics

Capacities	up to 4'500 m ³ /h / 19'800 USgpm
Heads	up to 320 m / 1'050 ft.
Pressures	up to 51 bar / 740 psi, special high pressure 250 bar upon request
Temperatures	up to 400°C / 750°F



OHH/OHHL overhung single stage pumps ISO 13709 / API 610 type OH2

Features and benefits

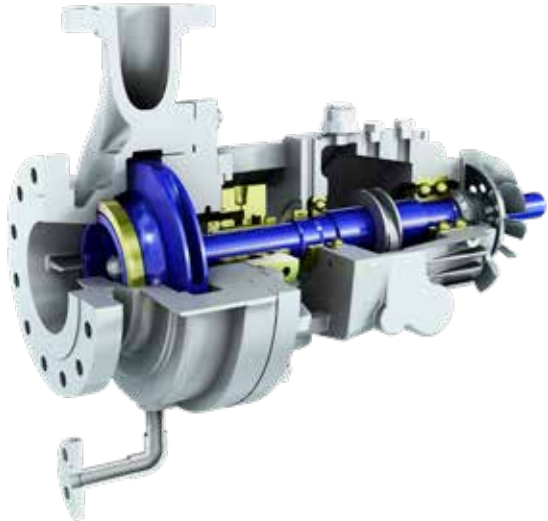
- Finned bearing housing and fan cooling for long bearing life
- Broadest range map in the industry for ISO 13709 (API 610) type OH2 pumps
- Reinforced baseplate option for nozzle loads exceeding ISO 13709 / API 610
- ISO 21049 (API 682) cartridge type mechanical seals for reduced emissions
- Coke crusher option

Applications

- Synfuels
- Refining
- Gas processing
- Heavy vacuum gas oil seawater booster for critical services

Key characteristics

Capacities	up to 2'250 m ³ /h / 10'000 USgpm
Heads	up to 400 m / 1'500 ft.
Pressures	up to 75 bar / 1'100 psi
Temperatures	up to 425°C / 800°F



ZE/ZF end suction single stage process pumps ISO 13709 / API 610 type OH2

Features and benefits

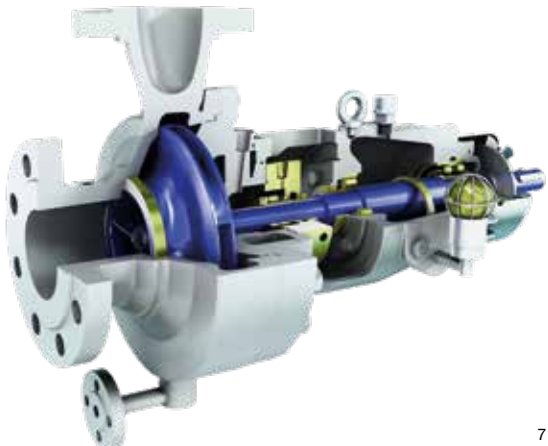
- Designed for the delivery of most fluids found in refinery processes including pumping liquid gases at low temperatures
- Handling light and heavy fuels up to gas oil containing solids and distillation residues at the highest temperatures

Applications

- Arduous applications
- Engineered for high and low temperature applications

Key characteristics

Capacities	up to 1'450 m ³ /h / 6'800 USgpm
Heads	up to 450 m / 1'500 ft.
Pressures	up to 51 bar / 740 psi
Temperatures	up to 340°C / 650°F



OH3

OHV/OHVL overhung vertical inline pumps ISO 13709 / API 610 type OH3

Features and benefits

- Finned bearing housing and fan cooling for long bearing life
- Broad range map for hydraulic coverage
- Heavy-duty pump and driver stand for reduced vibration
- ISO 21049 (API 682) cartridge type mechanical seals for reduced emissions
- OHH/OHHL shaft and bearings for reduced deflection and long seal life

Applications

- Seawater booster
- Light hydrocarbon boosting
- Low-pressure unit charge
- Pump around services
- Tank farm boosting

Key characteristics

Capacities	up to 1'450 m ³ /h / 6'800 USgpm
Heads	up to 450 m / 1'500 ft.
Pressures	up to 51 bar / 740 psi
Temperatures	-160 to +340°C / -256 to +650°F



BB1

HSA axially split single stage pump ISO 13709 / API 610 type BB1

Features and benefits

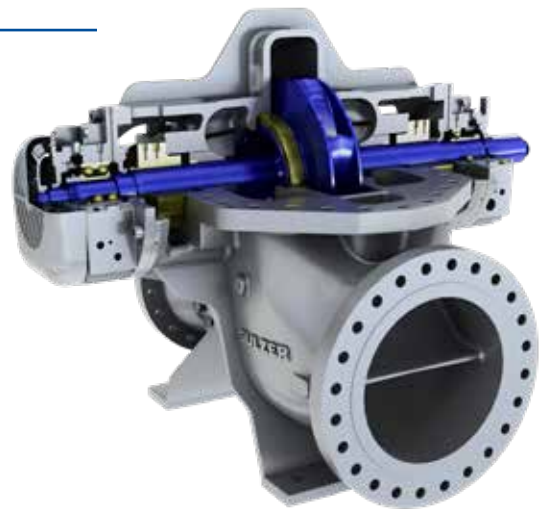
- Between bearing design for reliability at high flow rates
- Double suction impeller for low NPSH3
- Seal chambers and cartridge type mechanical seals to ISO 21049 (API 682)
- First critical speed is well above operating speed range for smooth operation
- Shared bearing design and components with HSB pump

Applications

- Cooling water
- Tank farm
- Booster applications
- Export/loading pumps

Key characteristics

Capacities	up to 15'000 m ³ /h / 66'000 USgpm
Heads	up to 260 m / 850 ft.
Pressures	up to 34 bar / 490 psi
Temperatures	up to 150°C / 300°F



HSB axially split single stage between bearing pump ISO 13709 / API 610 type BB1

Features and benefits

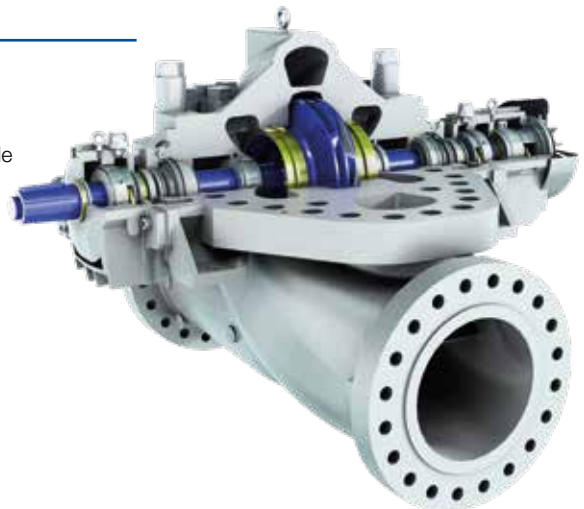
- Robust casing design
- Staggered vane, double suction impeller on larger sizes for reduced vibration
- Custom hydraulics to meet both current and future requirements with a simple rotor / volute changes
- Ball-ball, sleeve-ball and sleeve-pivot shoe bearings available
- High-speed designs available for remote gas turbine-driven applications

Applications

- Crude oil pipelines
- Heavy duty aux services
- High energy applications

Key characteristics

Capacities	up to 10'000 m ³ /h / 45'000 USgpm
Heads	up to 550 m / 1'800 ft.
Pressures	up to 150 bar / 2'200 psi
Temperatures	up to 205°C / 400°F



BB2

BBS/CD between bearings single stage pumps ISO 13709 / API 610 type BB2

Features and benefits

- Centerline support for reduced thermally induced misalignment
- Double suction impeller for low Net Positive Suction Head Required (NPSH₃)
- Casing designed for two times API 610 nozzle loads for freedom from piping distortions
- Optional inline side/side or side suction/top discharge configuration
- Engineered CD design for special applications

Applications

- Medium pressure pipeline
- Refinery pump around
- Refinery bottoms
- Petrochem quench water

Key characteristics

Capacities	up to 7'000 m ³ /h / 30'000 USgpm
Heads	up to 450 m / 1'500 ft.
Pressures	up to 50 bar / 740 psi
Temperatures	up to 425°C / 800°F



BBT/BBT-D radially split two stage pumps ISO 13709 / API 610 type BB2

Features and benefits

- Two stage configuration for higher heads
- Option of single or double suction first stage impeller to suit (NPSH_a)
- First critical speed is well above operating speed range for smooth operation
- Casing designed for 2x API 610 nozzle loads for freedom from piping distortions
- Special low flow high head hydraulics

Applications

- Refinery vacuum bottoms
- Refinery coker heater charge
- Offshore WIP boosting

Key characteristics

Capacities	up to 2'300 m ³ /h / 10'000 USgpm
Heads	up to 760 m / 2'500 ft.
Pressures	up to 100 bar / 1'450 psi
Temperatures	up to 425°C / 800°F



BB3

MSD/MSD2 axially split multistage pumps ISO 13709/API 610 type BB3

Features and benefits

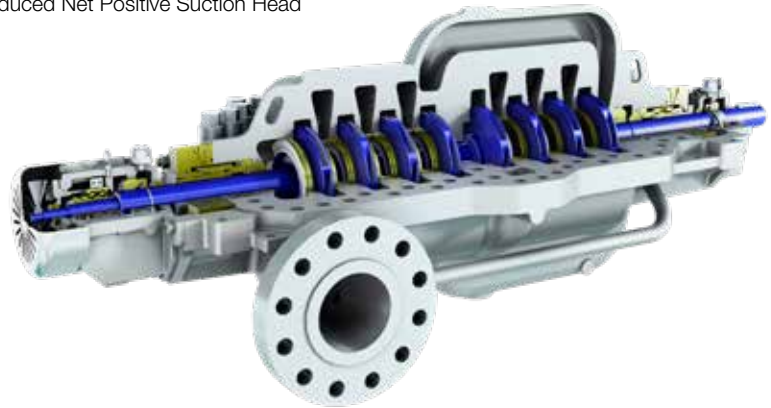
- Broadest hydraulic coverage of any BB3 type multistage pump in the market; unique high pressure (300 bar) designs
- Axially split casing means rotor balance is not disturbed when rotor is installed
- Opposed impellers balance axial thrust, saving lube system costs on most applications
- Double suction, first-stage available on most sizes for reduced Net Positive Suction Head (NPSH)
- High speed option for gas turbine drive

Applications

- Refined product pipeline
- LPG pipeline
- Supercritical ethylene pipeline
- CO₂ pipeline and injection
- Boiler feed
- Refinery charge

Key characteristics

Capacities	up to 3'200 m ³ /h / 14'000 USgpm
Heads	up to 2'900 m / 9'500 ft.
Pressures	up to 300 bar / 4'400 psi
Temperatures	up to 205°C / 400°F



BB5

GSG diffuser style barrel pump ISO 13709 / API 610 type BB5

Features and benefits

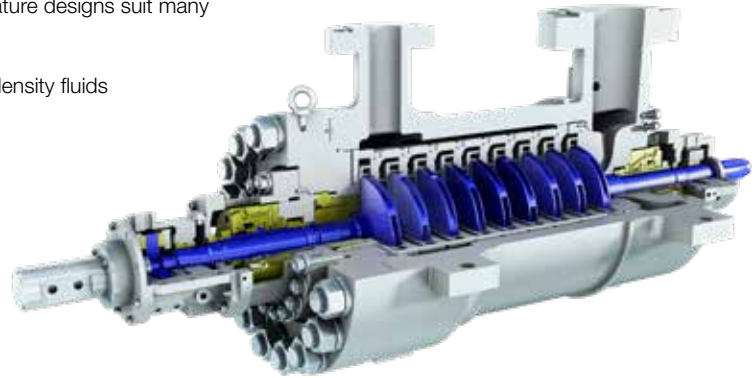
- Low-pressure, high-pressure, twistlock, and high-temperature designs suit many applications
- Direct drive options to 6 MW
- Back-to-back rotor stack allows up to 16 stages on low-density fluids
- Multiple sizes cover a broad hydraulic range

Applications

- Refinery hydrotreater and hydrocracker charge
- Ethylene shipping
- Boiler feed
- Refinery HPRT power recovery

Key characteristics

Capacities	up to 900 m ³ /h / 4'600 USgpm
Heads	up to 2'600 m / 10'000 ft.
Pressures	up to 300 bar / 4'500 psi
Temperatures	up to 425°C / 800°F



CP radially split multistage barrel pump ISO 13709 / API 610 type BB5

Features and benefits

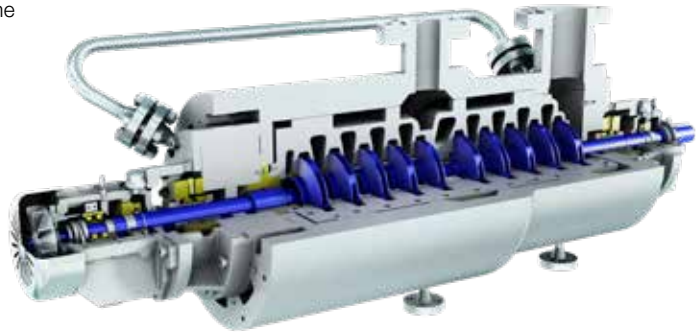
- Opposed impellers balance axial thrust, with no lube system needed on smaller pumps
- Axially split inner case means rotor balance is not disturbed when installed in the pump
- Dual volute inner case balances radial loads for longer service life
- Twistlock barrel closure reduces maintenance time on lower temperature services
- Cartridge design on larger pumps can speed up pump repair time
- Volute inner case for lower erosion wear on abrasive services

Applications

- Refinery hydrotreater and hydrocracker charge
- Ethylene shipping
- Boiler feed
- Water injection

Key characteristics

Capacities	up to 1'000 m ³ /h / 4'400 USgpm
Heads	up to 7'000 m / 23'000 ft.
Pressures	up to 425 bar / 6'250 psi
Temperatures	up to 425°C / 800°F



Axial flow

AH high pressure axial flow pump

Features and benefits

- High pressure design, casing designed to ASME section VIII division 1
- Double or triple mechanical seal for 5 year service life target
- Pump design and construction according to API 610 / ISO 13709 principles
- Hand polished internals for superior surface finish
- Suspended pump or spring mounted baseplate for thermal expansion

Applications

- Polymer slurries
- Polyethylene and polypropylene circulation

Key characteristics

Capacities	up to 18'000 m ³ /h / 80'000 USgpm
Heads	up to 45 m / 150 ft.
Pressures	up to 100 bar / 1'500 psi
Temperatures	up to 200°C / 400°F



VS1

SJT vertical turbine pump type VS1

Features and benefits

- Optimized hydraulics for high efficiency
- Packed stuffing box for reliable sealing and simple maintenance, mechanical seal is optional
- Carbon or rubber-lined product-lubricated bearing in bowls and columns for long maintenance-free periods, other bearing materials are also available
- Spacer coupling allows servicing of the seal and thrust bearing as required
- Full pull-out design available for semi-open impellers and bowl diameter sizes > 50" to ease dismantling and maintenance

Applications

- Cooling water circulation
- Water supply
- Booster service
- Offshore firewater and service water

Key characteristics

Capacities	up to 62'000 m ³ /h / 270'000 USgpm
Heads	up to 110 m / 350 ft. per stage
Pressures	up to 64 bar / 930 psi
Temperatures	up to 50°C / 122°F



VEY vertical turbine pump type VS1

Features and benefits

- Engineered design for special applications
- R design with steam heated design for molten sulphur application
- Optional jacketed casing and suction pipe
- Pump length to 16 m (52 ft)
- Designed for long service life with minimal maintenance costs

Applications

- Clean molten sulphur
- High temperature service
- Booster pumps

Key characteristics

Capacities	up to 4'000 m ³ /h / 17'600 USgpm
Heads	up to 380 m / 1'250 ft.
Pressures	up to 100 bar / 1'450 psi
Temperatures	up to 600°C / 1'100°F



VS3

SJM/SJP vertical turbine pumps ISO 13709 / API 610 type VS3

Features and benefits

- Optimized hydraulics for high efficiency
- Packed stuffing box for reliable sealing and simple maintenance; mechanical seal is optional
- Rubber lined product lubricated bearing in bowls and columns for long maintenance-free periods; other bearing materials are also possible
- Spacer coupling allows servicing the seal area and thrust bearing as needed

Applications

- Cooling water
- Nuclear safety services
- Auxiliary services
- Water intake and irrigation

Key characteristics

Capacities	up to 58'000 m ³ /h / 250'000 USgpm
Heads	up to 30 m / 100 ft. per stage
Pressures	up to 18 bar / 260 psi
Temperatures	up to 50°C / 122°F



VS4

OCV/OCVL vertically suspended sump pumps ISO 13709 / API 610 type VS4

Features and benefits

- Exceeds the requirements of ISO 13709 / API 610 standard
- Optional API 682 cartridge type mechanical including gas seal options
- Oil lubricated 7300 series thrust bearing
- Keyed impeller and API 610 Fig. 37 bearing spacing
- Buttwelded and hydrotested discharge pipe and elbow
- 3 mm (0.12 in) corrosion allowance
- 3 x API 610 nozzle loads

Applications

- All sump applications with moderate solid content
- Oily water transfer
- Lube oil

Key characteristics

Capacities	up to 750 m ³ /h / 2'200 USgpm
Heads	up to 280 m / 880 ft.
Pressures	up to 40 bar / 580 psi
Temperatures	up to 205°C / 400°F



VLC vertically suspended sump pump ISO 13709 / API 610 type VS4

Features and benefits

- Engineered design for special applications
- Steam heated design for molten sulphur application
- Pump length to 16 m (52 ft)
- Open, semi-open, recessed and closed impeller options

Applications

- Hazardous or abrasive applications
- Slurries or large size solids

Key characteristics

Capacities	up to 3'300 m ³ /h / 14'500 USgpm
Heads	up to 100 m / 328 ft.
Pressures	up to 25 bar / 375 psi
Temperatures	up to 120°C / 250°F



VS5

VSF vertically cantilever sump pump ISO 13709 / API 610 type VS5

Features and benefits

- Specifically designed for molten sulfur applications
- High-quality materials, high reliable and efficient design ensure longer mean time between maintenance and minimized cost of ownership

Applications

- Contaminated effluents
- Corrosive, encrusting liquids and slurries

Key characteristics

Capacities	up to 300 m ³ /h / 1'300 USgpm
Heads	up to 160 m / 500 ft.
Pressures	up to 20 bar / 290 psi
Temperatures	up to 180°C / 356°F



VS6

SJD vertically suspended process pump ISO 13709 / API 610 type VS6

Features and benefits

- Reduced number of stages results in shorter, more reliable pumps
- Double suction on larger sizes can reduce pump length
- High efficiency with reduced power consumption
- Modular construction to fit project nozzle location requirements
- High head per stage means process conditions can be reached with slower speeds
- Can be built as VS1 construction

Applications

- Shipping of Liquefied Petroleum Gas (LPG)
- Crude oil pipeline booster
- Debutanizer/depropanizer services in cryogenic gas plants

Key characteristics

Capacities	up to 3'800 m ³ /h / 20'000 USgpm
Heads	up to 900 m / 3'000 ft.
Pressures	up to 75 bar / 1'100 psi
Temperatures	up to 205°C / 400°F



Ebullator

SVE vertically ebullator pump ISO 13709 / API 610 / ISO 15783 / API 685

Features and benefits

- API 685 complaint canned motor drive with isolated stator chamber to prevent contact with process stream, no requirement for expensive dielectric oil
- No mechanical seal reducing risk leakage and maintenance
- Double hard coating on pump casing internal surface for maximum service life
- Reduced OPEX compared to competitor designs
- Proven hydraulic and mechanical construction

Applications

- Axens H-Oil[®] process
- Vacuum residue upgrading
- Heavy oil upgrading synfuels

Key characteristics

Capacities	up to 3'500 m ³ /h / 15'400 USgpm
Heads	up to 50 m / 160 ft.
Pressures	up to 272 bar / 3'945 psi
Temperatures	up to 430°C / 806



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