

Pumping solutions for desalination





What are the pumping needs for your desalination project or plant?

We support you in all aspects from plant design to maintenance service of your installed pumps.

Experience, proven technology and continuous innovation

As a global leader in pump design and manufacture, Sulzer is recognized for delivering excellent product quality and performance reliability for the most critical applications in desalination. Based on our experience and proven technology we help you operate your plants more efficiently. We share our expertise and create enduring, efficient and economical solutions. Today we have installed nearly 5'000 pumps in desalination plants that produce 11 million m³ of fresh water every day.

Safe access to clean drinking water is a basic human need. Where desalination is the source of choice for drinking water, this calls for optimized production costs, and the design of the desalination plant focuses on the optimization of the specific consumption of the plant. Here, Sulzer supports you with a range of dedicated products specifically designed for desalination, focusing on highest efficiency and optimized equipment design, thus providing lowest OPEX and lowest CAPEX solutions to you as our customer.

Sulzer is recognized as one of the market leaders and a full-line supplier of pumps for sea or brackish water desalination plants using Reverse Osmosis (RO) or Multi Effect Distillation (MED) technology.

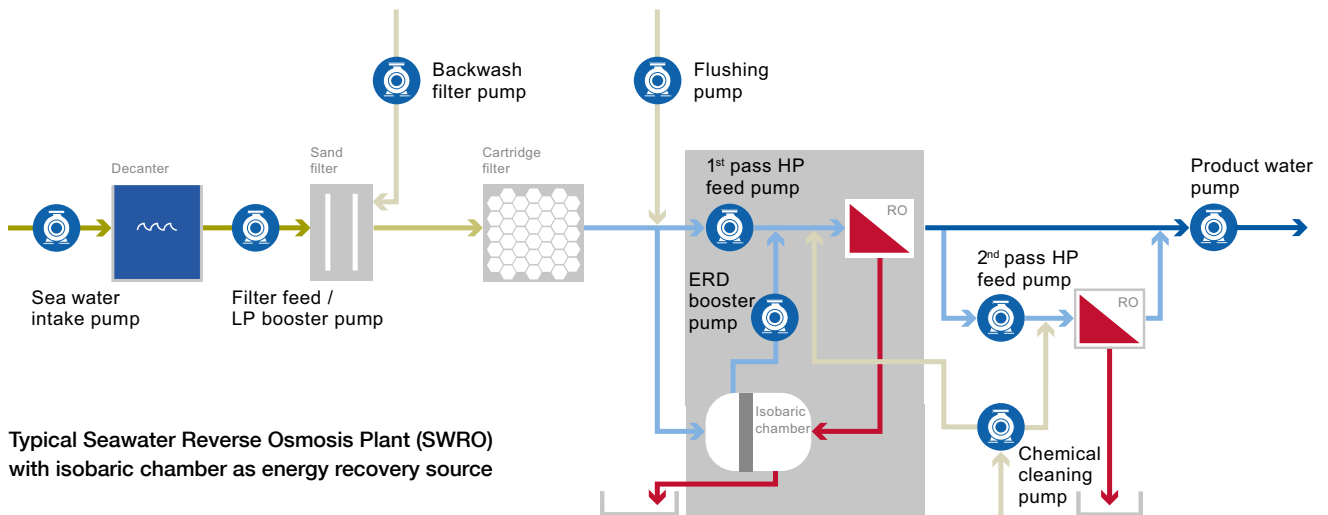
With a strong image as a solution provider, Sulzer is perceived as a pump innovation leader in desalination. We helped to develop and implement the Pump Pressure Center concept for large SWRO plants and successfully supplied end suction pumps for large MED desalination plants as an industry-first.

The materials needed in desalination call for Sulzer's high-class manufacturing expertise, and once your desalination plant is operational, Sulzer offers structured maintenance solutions and tailored service contracts that keep your rotating equipment up to the proper standard.

Our long-standing relationships with the customers in desalination worldwide underline our spirit to be a reliable partner of the desalination industry.



From salt to tap with the pumps at heart



5'000
Sulzer pumps
help to produce
11 million
cubic meters of freshwater
each day around
the world

Our comprehensive product portfolio

Sulzer offers a wide range of pumps for seawater reverse osmosis plants as well as multi-effect-distillation plants. The table below offers an overview of the product offering and shows in what part of the desalination process the pumps can be used.

Product types		Water intake	Filter feed/ LP booster	HP feed	ERD booster	Auxiliary services	Product transfer	MED applications
Axially split pumps	MSD-RO			✓			✓	
	MSD			✓			✓	
	HPDM			✓			✓	
	HSB			✓				
	SMD	✓	✓				✓	✓
Ring section pumps	MBN-RO			✓				
	MBN			✓				
	VMS					✓		
Vertical pumps	SJM	✓	✓					
	SJT	✓	✓					
	SJT / SJM CWP	✓	✓					
End suction pumps	ZE		✓				✓	✓
	ZF				✓			
	A	✓	✓			✓	✓	✓
	CPT	✓	✓			✓	✓	✓
	SNS					✓		
Progressing cavity pumps	PC transfer pump					✓		
	PC transfer perform pump					✓		

Product overview

Axially split pumps

MSD-RO axially split multistage pump

Features and benefits

- Hydraulic configuration with two single suction impellers offers a compact design, with extremely low Net Positive Suction Head (NPSH) values and top of its class efficiency
- Special opposed, dynamically balanced impeller design for ideal axial thrust balance, increasing the overall pump efficiency by avoiding the use of balancing line
- Reduced wear parts clearances by using PEEK or honeycomb to increase pump efficiency

Key characteristics

Capacities	up to 1'600 m ³ /h / 7'000 USgpm
Heads	up to 730 m / 2'395 ft.
Pressures	up to 90 bar / 1'305 psi
Temperatures	up to 60°C / 140°F



MSD and 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
- 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/charge piping

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



HPDM axially split volute casing pump

Features and benefits

- Optimum technical solution due to tailor-made design for each application
- A wide range of proven hydraulics allows high efficiency and suction performance
- Sturdy design with generous safety margins for long life of reliable service with minimum maintenance
- Proven experience backed by extensive list of references
- Technical support from early phases of the project design, allowing sound and cost-effective solutions for each application

Key characteristics

Capacities	1'000 to 20'000 m ³ /h / 4'400 to 88'000 USgpm
Heads	up to 700 m / 2,300 ft.
Pressures	up to 175 bar / 2'500 psi
Temperatures	up to 70°C / 160°F



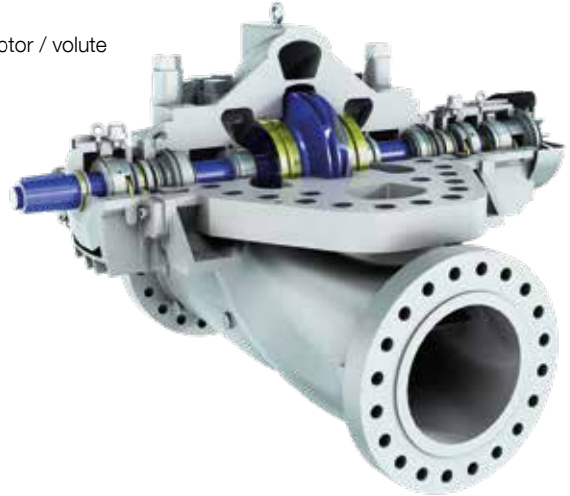
HSB horizontal axially split single stage between bearing pump ISO 13709 / API 610 type BB1

Features and benefits

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



SMD axially split casing double suction pump

Features and benefits

- Optimum hydraulic fit with high efficiency maintained over a wider flow range
- Exceptionally low Net Positive Suction Head Required (NPSHR) value not only at the best efficiency point but also on overload
- Maintenance-friendly features; excellent interchangeability of parts
- Horizontal and vertical constructions

Key characteristics

Capacities	up to 16'000 m ³ /h / 70'000 USgpm
Heads	up to 260 m / 850 ft.
Pressures	up to 34 bar / 490 psi
Temperatures	up to 140°C / 280°F



Ring section pumps

MBN-RO multistage ring section pump

Features and benefits

- Top of its class efficiency to ensure lowest specific power consumption per produced cubic meter of water in desalination applications
- Different hydraulics can be fitted in the same pump frame, allowing flexibility, modularity and future retrofitting
- All parts typically subject to maintenance both Drive End (DE) and Non-Drive End (NDE) bearings, balancing disc, mechanical seal are accessible and can be replaced on site, without removal of suction and discharge piping

Key characteristics

Capacities	up to 1'100 m ³ /h / 4'800 USgpm
Heads	up to 900 m / 2'950 ft.
Pressures	up to 100 bar / 1'450 psi
Temperatures	up to 90°C / 194°F



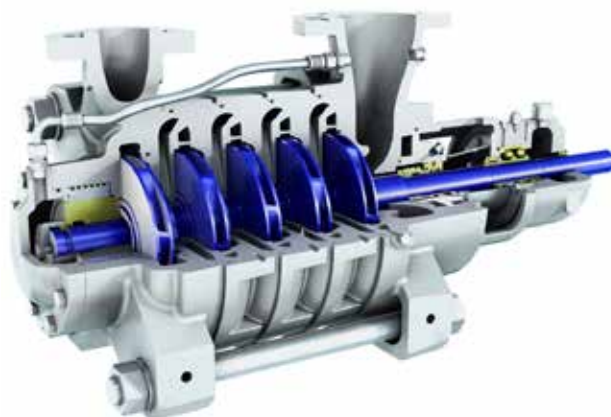
MBN medium pressure stage casing pump

Features and benefits

- Simple construction to minimize dimensions and reduce investment and maintenance costs
- High quality investment cast impellers and diffusers for better efficiency
- Fast and easy impeller mounting
- Bearing unit can be serviced without disassembling the pumps
- Wide range of materials including duplex stainless steel grades

Key characteristics

Capacities	up to 700 m ³ /h / 3'080 USgpm
Heads	up to 900 m / 2'950 ft.
Pressures	up to 100 bar / 1'450 psi
Temperatures	up to 180°C / 355°F



VMS vertical multistage pump

Features and benefits

- Unique hydraulic design gives an efficiency of up to 80%
- Low NPSHr for vibration-free operation and extended life span
- Durable solution with high quality materials
- Suitable for drinking water with ACS, WRAS and NSF certification

Key characteristics

Capacities	up to 162 m ³ /h / 850 USgpm
Heads	up to 400 m / 1'350 ft.
Pressures	up to 40 bar / 580 psi
Temperatures	-20°C to 140°C / F°??



Vertical pumps

SJM vertical mixed flow pump

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 are and thrust bearing as needed

Key characteristics

Capacities	up to 58'000 m ³ /h / 250'000 USgpm
Heads	up to 25 m / 82 ft. per stage
Pressures	up to 18 bar / 260 psi
Temperatures	up to 50°C / 122°F



SJT vertical turbine pump

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 available
- Can be built to ISO 13709 / API 610 requirements

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



SJT/SJM CWP vertical cooling water pump

Features and benefits

- Modern fabricated suction bell and bowl casing incorporating swirl break for stable pump performance curve
- Semi-open or closed cast impeller design for best fitting and optimum efficiency
- Segmented elbow to reduce the internal losses
- Optional full pull-out construction to reduce lifting crane capacity and ease maintenance

Key characteristics

Capacities	up to 90'000 m ³ /h / 396'000 USgpm
Heads	up to 60 m / 200 ft.
Pressures	up to 12.6 bar / 183 psi
Temperatures	up to 50°C / 122°F



End suction pumps

ZE and ZF end suction pumps ISO 13709 / API 610 type OH2

Features and benefits

- Designed for hot and cold process applications
- Modular construction to provide maximum interchangeability

Key characteristics

Capacities	up to 2'600 m ³ /h / 11'440 USgpm
Heads	up to 300 m / 1'000 ft.
Pressures	up to 100 bar / 1'450 psi
Temperatures	up to 425°C / 800°F



AHLSTAR A end suction single stage centrifugal process pump

Features and benefits

- Designed to meet the EN ISO 5199 reliability standard as well as EN 22858 (ISO 2858) standard
- Modular interchangeability of parts and components enables low spare parts inventory
- Low total cost shaft seal concept, with dynamic seal, mechanical seals and packing
- Designed for fast and easy installation, maintenance and service

Key characteristics

Capacities	up to 11'000 m ³ /h / 48'400 USgpm
Heads	up to 160 m / 525 ft.
Pressures	up to 16 / 25 bar, 230 / 360 psi, depending on material and size
Temperatures	up to 180°C / 355°F



CPT end suction single stage centrifugal pump ANSI B73.1

Features and benefits

- Exceeds standard requirements of ANSI/ASME B73.1 standards
- 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

Key characteristics

Capacities	up to 1'600 m ³ /h / 7'000 USgpm
Heads	up to 220 m / 720 ft.
Pressures	up to 26 bar / 375 psi
Temperatures	up to 260°C / 500°F



SNS end-suction single-stage process pump

Features and benefits

- Designed to meet the design requirements of EN 5199 international standard
- Exceeding EU's (European Union) requirements for energy-related products (ErP)
- Highest efficiency across the whole pump range, exceeding the benchmark efficiency index MEI 0.7 (minimum efficiency index)
- New, state-of-the-art hydraulics ensure optimum capacity with low net positive suction head required (NPSHr)
- Low energy consumption, high standardization, easy installation and unique construction also equate to lower maintenance and operating costs

Key characteristics

Capacities	up to 1'400 m ³ /h / 6'000 USgpm
Heads	up to 160 m / 525 ft.
Pressures	up to 16 bar / 230 psi
Temperatures	up to 120°C / 250°F



Progressing cavity pumps

PC transfer pump

Features and benefits

- Designed to deliver constant capacity with viscous fluids and shear thinning non-Newtonian fluids
- Selected drives and gearboxes with many low speed options are available to reduce pump wear
- Compact for space saving, can be installed vertically or horizontally and run in either direction
- Competitively-priced process pump with integral direct drive and gearbox, baseplate optional

Key characteristics

Capacities	up to 440 m ³ /h / 1'900 USgpm
Pressures	up to 24 bar / 350 psi
Temperatures	-10 to 100°C / 14 to 212°F



PC transfer perform pump

Features and benefits

- Saves time with maintain in place (MIP) features, easy to de-rag and no need to disconnect the pipework
- Designed for use in sludge plants, where high reliability is essential and downtime is kept to a minimum
- An extension of the PC transfer pump with material variants for a wide range of process applications
- Robust drives and gearboxes with low running speeds form an integral part of the unit design

Key characteristics

Capacities	up to 225 m ³ /h / 990 USgpm
Pressures	up to 12 bar / 170 psi
Temperatures	-10 to 100°C / 14 to 212°F





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