

**SULZER**

**Sulzer Pumps**

# **Pumping Solutions for the Water and Wastewater Industry**



**The Heart of Your Process**



# Benefit from Sulzer Pumps' Experience in Water and Wastewater Pumping

**We combine science and practical applications to maximize your returns.**

## Expertise

Sulzer Pumps' success is founded on expertise. Our know-how and competitiveness is based on many years of experience in the manufacturing of pumps.

An effective water supply network is essential to the infrastructure of every country. We apply our engineering and contracting

know-how in major water transport projects the world over. We offer pumping solutions for modern reverse osmosis and multi-effect distillation plants, where seawater is transformed into water fit for human consumption. Sulzer Pumps offers a broad range of pumps for the Water and Wastewater Industry. Sulzer Pumps is your safest choice for every pumping application in your plant.

## Reliability

Reliability of your pumping solution mainly depends on the product design, the right selection, the manufacturing and delivery process, aftermarket service and all associated support. Sulzer water and wastewater pumps are famous for their innovative and sturdy design. We make pre-engineered products for normal applications and specialty products for applications with special requirements.

The latest manufacturing technology together with strict quality control procedures assure high levels of efficiency and performance over a full range of process conditions. Sulzer Pumps tests all its pumps before delivery. Extensive references from many countries confirm our well-proven reliability. To the customer, all these factors together mean optimum pumping performance creating high lifecycle value.

## Research

Research and Development have always received top priority at Sulzer Pumps. Basic research focuses on hydraulics, cavitation, erosion, corrosion and mechanical design (particularly rotor-dynamics), which is then applied to advance product development. Our engineers work closely with our customers all over the world on the practical implementation of innovative ideas. At any point, they can call upon the diverse expertise of the many research specialists working in our laboratories. Successful research and development activities require continuous investment. Beyond immediate job results, this benefits our customers by ensuring that they have a stable business partner at the leading edge of pump technology.

**Investments in R&D are investments in our customers.**



## Innovation

Around the world, reserves of pure drinking water are being depleted. The need for water conservation is growing, and better ways are being found to process industrial wastewater and treat sewage in urban areas. Sulzer Pumps is part of this effort.

Our pumps deliver vast quantities of fresh water over long distances to people in some of the world's most populous regions.

**Because  
technology  
and  
innovation  
change  
everything.**

## Presence

With manufacturing facilities across the globe Sulzer Pumps combines the advantages of being a global company with the ability to be your local partner. We take care of our customer relationships through our focused sales and service people with a high-level knowledge. Their work – and yours – is complemented by our global knowledge, support and good sales documentation. Local tendering and order handling ensures quick response to all your pumping needs. In addition to our dedicated personnel and competencies, we benefit from the ability to transfer manufacturing of either parts or complete pumps between plants. It guarantees the most efficient utilization of our worldwide facilities.



## Product Matrix

Product Technology	Product Type	Water Transport	Water Supply	Irrigation Drainage	Water Treatment	Waste-water	Desalination
Axially Split Pumps	HPDM	•	•				
	SM/SMN	•	•	•	•		•
	ZPP	•	•	•	•		•
	MSD	•					•
Ring Section Pumps	MBN		•				•
	HPH/HPL		•				
Single Stage Pumps	ZE/ZF						•
	AHLSTAR <sup>UP</sup> A Series		•		•		•
	CPT		•		•		•
Vertical Pumps	SJT	•	•	•			•
	SJM	•	•	•			•
	SJP		•	•			
	JTS		•	•	•		
	Submersible		•	•			
	APV/NPV		•	•	•	•	•



# Pumps for Your Most Critical Applications and Demanding Conditions

## HPDM Multistage Axially Split Pumps

HPDM multistage axially split pumps are designed for high volume, high pressure water transport applications. HPDM pumps are individually designed to provide class leading efficiency and are used to supply water for many major cities throughout the world.

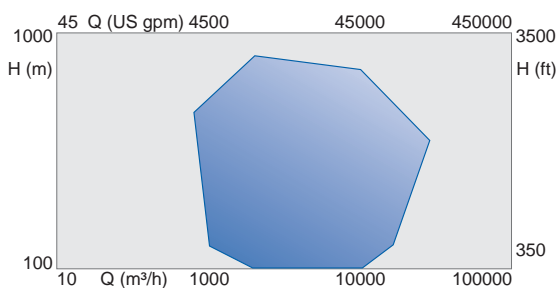


## SM/SMN/ZPP Single Stage Double Entry Pumps

This family of single stage double entry pumps is used across a broad range of industries in liquid transport and transfer applications. Pre-engineered standard versions include the vertical configuration option.

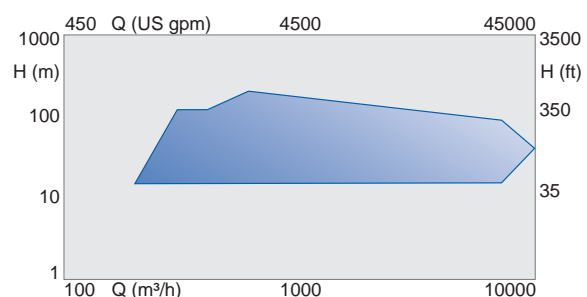


Performance range



Pressure 150 bar / 2200 psi  
Temperature 90° C / 195° F

Performance range



Pressure 30 bar / 435 psi  
Temperature 160° C / 320° F



## MSD Multistage Pumps

MSD multistage pumps are used in reverse osmosis processes and water transport. The broad range of standard hydraulics and mechanical design options ensures optimum fit to customers' duty requirements, using proven pre-engineered solutions.

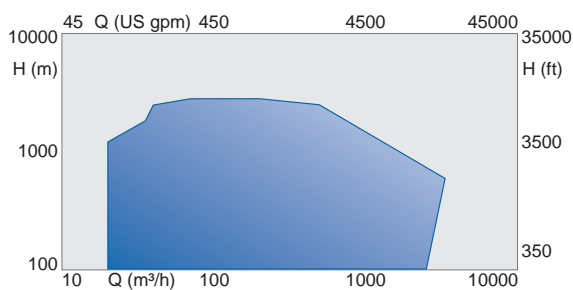


## MBN Ring Section Pumps

The new MBN ring section multistage pump is the ideal choice for medium pressure pumping applications. The pump is offered in a wide range of materials including duplex stainless steel grades.

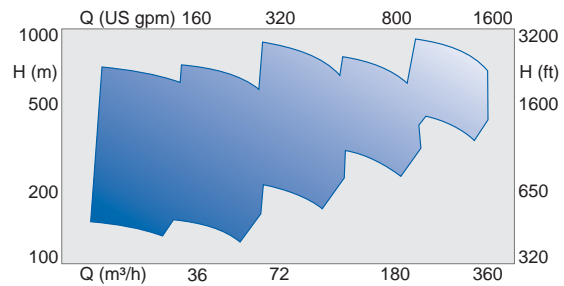


**Performance range**



Pressure 310 bar / 4500 psi  
Temperature 200° C / 400° F

**Performance range**



Pressure 150 bar / 2175 psi  
Temperature 450° C / 840° F



## HPH/HPL Multistage Pumps

These multistage pumps are specifically designed for mine dewatering applications. Their robust construction is designed to combat the highly abrasive environment in which they operate. Extensive use of replaceable wear surfaces ensures the pumps can be rapidly refurbished to as-new condition without extensive replacement of core parts.

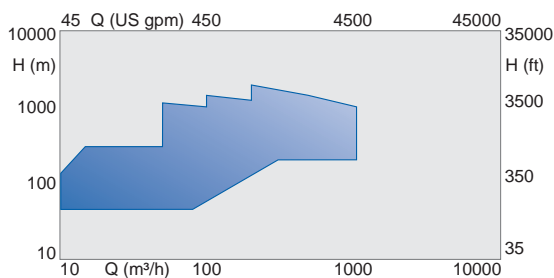


## ZE/ZF Series of Single Stage Pumps

The ZE/ZF end suction industrial process pumps use modular construction to provide maximum interchangeability of spares. Manufactured in two casing pressure ranges with over 50 sizes and six bearing frames, ZE/ZF pumps are ideal for arduous applications in a wide range of industrial processes.

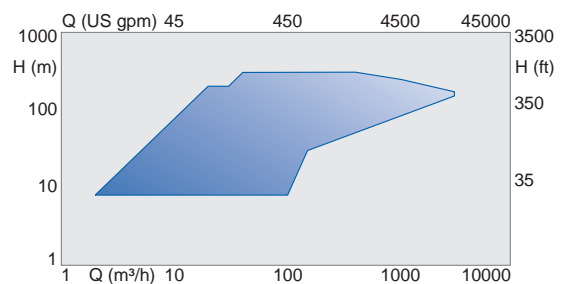


**Performance range**



Pressure 170 bar / 2500 psi  
Temperature 105° C / 220° F

**Performance range**



Pressure 150 bar / 2175 psi  
Temperature 450° C / 840° F



## AHLSTAR<sup>UP</sup> A Series and CPT Process Pumps

AHLSTAR<sup>UP</sup> A pumps are designed for pumping clean, abrasive or corrosive liquids. The Sulzer Dynamic Seal is specially designed for difficult liquids offering reliable operation and low total sealing cost. The CPT pump is designed for continuous operation in process industries.

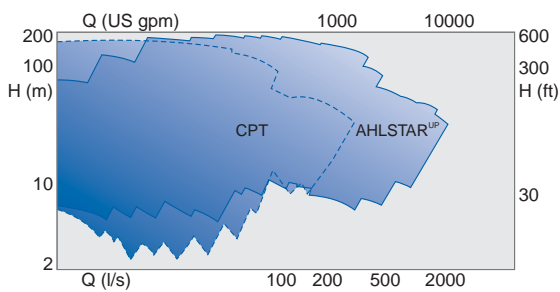


## SJT Vertical Turbine Pumps

The SJT vertical turbine range offers incredible flexibility due to an extensive range of standard features. These include oil, grease, product or flushed bearing lubrication, sealing plans for all liquids, above or below ground discharge and a wide range of materials of construction. In addition, SJT pumps can be supplied to conform with ASME, ANSI, NRC and API standards.

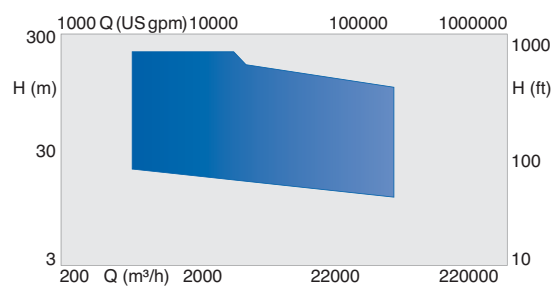


### Performance range



Pressure 16 bar / 230 psi  
Temperature 180° C / 355° F

### Performance range



Pressure 45 bar / 700 psi  
Temperature 135° C / 275° F





## SJM Mixed Flow Pumps



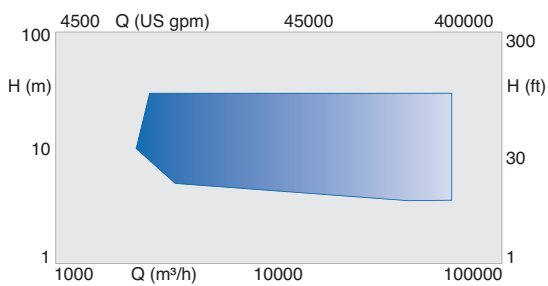
SJM mixed flow pumps are ruggedly designed for years of trouble free operation in a wide variety of applications. The basic components of head, column pipe and bowl assembly are combined and customized to perfectly match individual duty needs. In addition, the standard range of material options ensures the materials of construction can be matched to individual installation needs.

## SJP Axial Flow Pumps



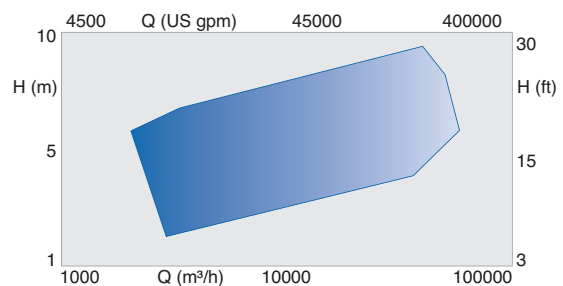
The SJP range of axial flow (propeller) pumps is specifically designed for high flow low head duties. Widely used in irrigation, flood control, drainage and condenser circulation applications, SJP pumps are designed for continuous service for extended periods of time. The pumps are available in a range of metallurgies to match individual application needs.

### Performance range



Pressure 17 bar / 250 psi  
Temperature 135° C / 275° F

### Performance range



Pressure 17 bar / 250 psi  
Temperature 135° C / 275° F



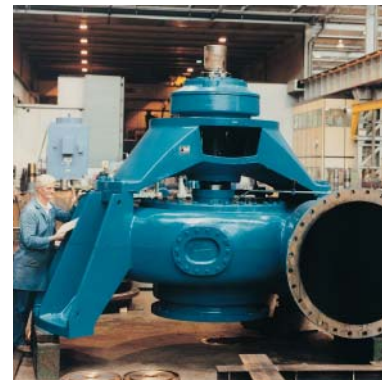
## JTS Standard Turbine Pumps

The JTS range of vertical turbine pumps is specifically designed for higher differential head water applications. It can be used in municipal and industrial plant water supply, drainage, flood control, pipeline and high pressure pumping. It can be easily modified for changing hydraulic conditions.

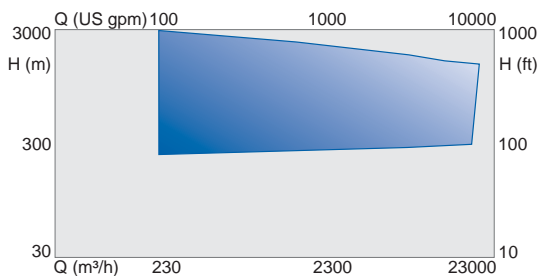


## APV/NPV Vertical Pumps

APV/NPV are vertical volute pumps. NPV is primarily used in water transport and cooling water applications. APV is used for pumping untreated sewage and other effluents.

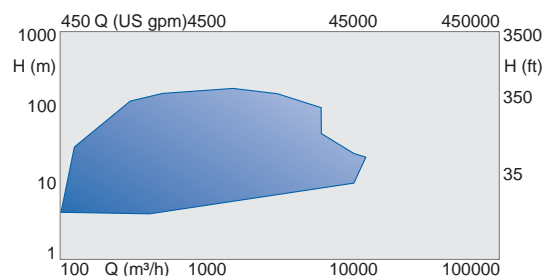


Performance range



Pressure 36 bar / 524 psi  
Temperature 85° C / 185° F

Performance range



Pressure 16 bar / 230 psi  
Temperature 80° C / 175° F



# Major Reference Installations – Water Transport

## Water Supply System Brasilia, Brazil

**Operator**  
CAESB (Companhia de Água e Esgotos de Brasília)

**Ordered by**  
CAESB

**Consultant/Planning**  
Planidro



## Water Supply System Tuy I / III / IV, Caracas, Venezuela

**Operator**  
Hidrocapital

**Ordered by**  
INOS

**Consultant/Planning**  
INOS and sub-consultants



Pump type	Q (m³/h)	H (m)	rpm	P (kW)
2 x HPDM 500-860-2d	3600	270	1200	3008
1 x HPDM 700-1150-2d	7200	270	900	6030

Pump type	Q (m³/h)	H (m)	rpm	P (kW)
4 x BPSn 55	4140	6.5	725	88
12 x HPDM 600-750-2d	10800	420	1800	13725
16 x HPDM 500-860-2d	3680	286	1200	3225
6 x SPA 60-65	5400	25	720	450
7 x HPDM 800-1300-3d	14400	350	720	15404



## Water and Power Project, Fujairah, United Arab Emirates

**Operator**  
 Union Water & Electricity,  
 Abu Dhabi, UAE

**Ordered by**  
 Technip-CoFlexip, Düsseldorf, Germany



## Water Transport and Supply System Riyadh-Qassim, Saudi Arabia

**Operator**  
 SWCC (Saline Water Conversion Corp.)  
 Riyadh, Saudi Arabia

**Ordered by**  
 SWCC (Saline Water Conversion Corp.),  
 Riyadh, Saudi Arabia

**Consultant/Planning**  
 AAA-ABALKHAIL, Riyadh, Saudi Arabia

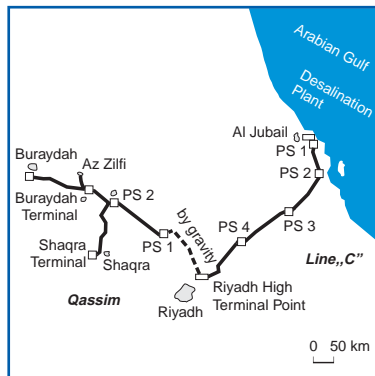


Pump type	Q (m³/h)	H (m)	rpm	P (kW)
4 x HPDM 600-940-s+s	6314	485.5	1492	9400
4 x SMN (H) 602-900	6314	57.5	742	1090

Pump type	Q (m³/h)	H (m)	rpm	P (kW)
10 x SM 401-500	2161	47	1185	317
10 x HPDM 600-570-1d	8646	118	1800	3165
8 x SM 402-850	2527	175	1215	1378
4 x SM 202-500	825	127	1785	348



## Water Transport and Supply System Al Jubail - Riyadh Line "C", Saudi Arabia



### Operator

SWCC (Saline Water Conversion Corp.) Riyadh, Saudi Arabia

### Ordered by

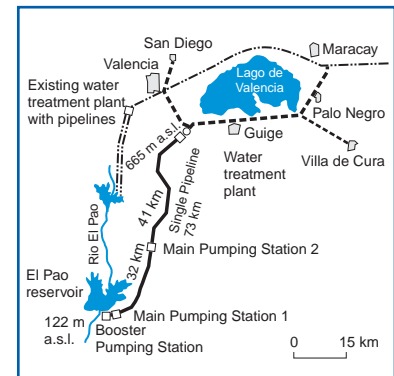
Halla Construction Co. Ltd, Seoul, South Korea

### Consultant/Planning

ACI - Aqua Project Consultant, Siegen, Germany

Pump type	Q (m <sup>3</sup> /h)	H (m)	rpm	P (kW)
4 x SM 600-1000	5280	75	715	1212
4 x HPDM 500-815-s+s	5280	508	1740	8198
4 x HPDM 500-815-s+s	5280	498	1740	8037
6 x HPDM 800-1080-1d	15840	212	1165	10061

## Water Supply System El Pao la Balsa, Venezuela



### Operator

Hidrocentro

### Ordered by

INOS

### Consultant/Planning

INOS and sub-consultants



Pump type	Q (m <sup>3</sup> /h)	H (m)	rpm	P (kW)
6 x HPDM 600-830-3d	8100	350	1200	8500
3 x SMV 802-1030	8640	47	590	1226



## Water Supply System Cutzamala, Mexico-City, Mexico

**Operator**  
CAVM (Comisión de Aguas del Valle de México)

**Ordered by**  
CAVM

**Consultant/Planning**  
CAVM and Ipesa Consultores S.C., México



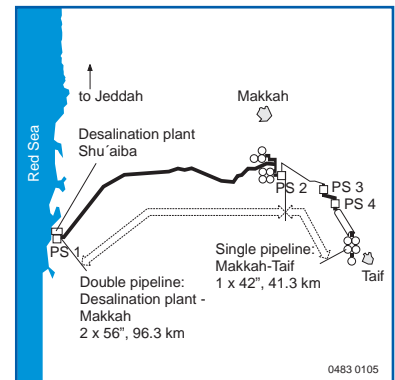
Pump type	Q (m³/h)	H (m)	rpm	P (kW)
11 x HPDM 750-945-1d	14400	160	1200	6930
6 x HPDM 800-865-1d	14400	122	1200	5370
12 x HPDM 700-1010-2d	14400	350	1200	15390
3 x HPDM 500-620-1d	6120	158	1800	2990
3 x HPDM 450-710-1d	5760	213	1800	3780

## Water Supply System for Makkah and Taif, Saudi Arabia

**Operator**  
SWCC (Saline Water Conversion Corp.), Riyadh, Saudi Arabia

**Ordered by**  
Al Rashid/HaK Consortium, Riyadh, Saudi Arabia

**Consultant/Planning**  
ILF, Innsbruck, Austria



Pump type	Q (m³/h)	H (m)	rpm	P (kW)
8 x HPDM 300-600-1d	1782	70	1191	397
8 x HPDM 250-375-2d	1782	485	3580	2732
4 x HPDM 250-425-1d	1332	340	3580	1448
4 x HPDM 250-420-2d	1332	575	3575	2449
4 x HPDM 250-420-2d	1332	645	3575	2748



# Reverse Osmosis

The need for high-quality water significantly increased during the second half of the last century. An important problem is about to be solved at a near-affordable cost. The cost of desalinated water is decreasing.

Pure, high-quality drinking water is essential for day-to-day living, food production, better industry, agricultural use and a better standard of living. Water can no longer be considered as a natural self-renewable, low-cost resource, easily accessible to all.

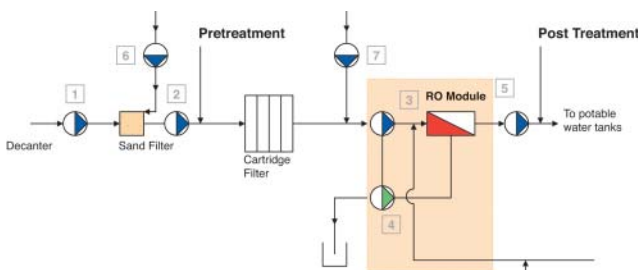
Desalination of sea (or brackish) water has been practiced regularly for over 50 years and is a well-established means of water supply in many countries. It is now feasible,

technically and economically, to produce large quantities of water of excellent quality from desalination. Membrane processes, mainly Reverse Osmosis (RO), are currently the fastest growing techniques in water desalination. Reverse Osmosis uses dynamic pressure to overcome the osmotic pressure of the salt solution. With RO, salty water is subjected to high pressure and forced through a membrane, which results in the retention of the salt ions.

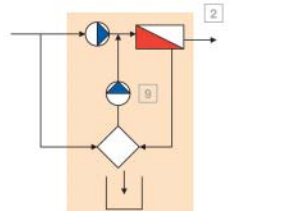
The selection of pumps must consider the specific operational aspects of the plant design; depending on the principle of pressure recovery selected (either via Pelton turbine or isobaric chamber), different pump needs arise. The performance and selection of optimum pumping equipment is paramount to reaching the best possible reliability and lowest operating cost in RO desalination plants. Sulzer Pumps is a full range supplier to RO plants. We offer a range from small end suction single stage pumps to large multistage pumps and innovative products.

## Typical RO Configuration

### With Pelton turbine



### Alternative with isobaric chamber



- 1 Sea water intake / filter feed pump
- 2 CF feed pump / LP booster pump
- 3 RO high pressure feed pump
- 4 Energy recovery turbine (Pelton)
- 5 Product water pump
- 6 Filter backwash pump
- 7 Flushing pump
- 8 Chemical cleaning pump
- 9 HP circulation pump



## Major Reference Installations – Reverse Osmosis

### Seawater Reverse Osmosis Plant, Yanbu, Saudi Arabia

**Operator**  
Royal Commission  
(Saudi Arabia)

**Ordered by**  
CADAGUA (Spain) for SBG (Saudi Arabia)



MSD-D 10x10x14.5/3 with separate pelton energy recovery turbine was supplied to Yanbu SWRO Plant (Saudi Arabia). It is the first three-injector Pelton turbine installed in such an application. Product water pumps (SMN type) were also supplied.

Pump type	Q (m³/h)	H (m)	rpm	P (kW)
6 x MSD-D/3 10x10x14,5	964	733	3560	2334
CHS 3/300-85	593	696	3560	876

### Seawater Reverse Osmosis Plant, Javea, Spain

**Operator**  
PRIDESA (Spain)

**Ordered by**  
PRIDESA (Spain)



MSD 8x10x13/5 high pressure axially split membrane feed pump with separate power recovery Pelton wheel turbine driven by a double shaft motor.

Pump type	Q (m³/h)	H (m)	rpm	P (kW)
5 x MSD 8x10x13/5	625	661	2980	1361
CHS 2/345-80	350	628	2980	558





## Seawater Reverse Osmosis Plant, Antofagasta, Chile

**Operator**  
INIMA (Spain) for  
ESSAN (Chile)

**Ordered by**  
INIMA (Spain)



MSD 8x10x13 high pressure axially split membrane feed pump with separate power recovery Pelton wheel turbine driven by a double shaft motor was supplied. Other pumping services supplied included 14 axially split and end suction pumps.

Pump type	Q (m³/h)	H (m)	rpm	P (kW)
5 x MSD/5 8x10x13	561	660	2980	1226
RO-350-80-2	290	609.5	2980	442

## Seawater Reverse Osmosis Plant, Ashkelon, Israel

**Operator**  
VID (Israel/France)

**Ordered by**  
OTID (Israel/France)



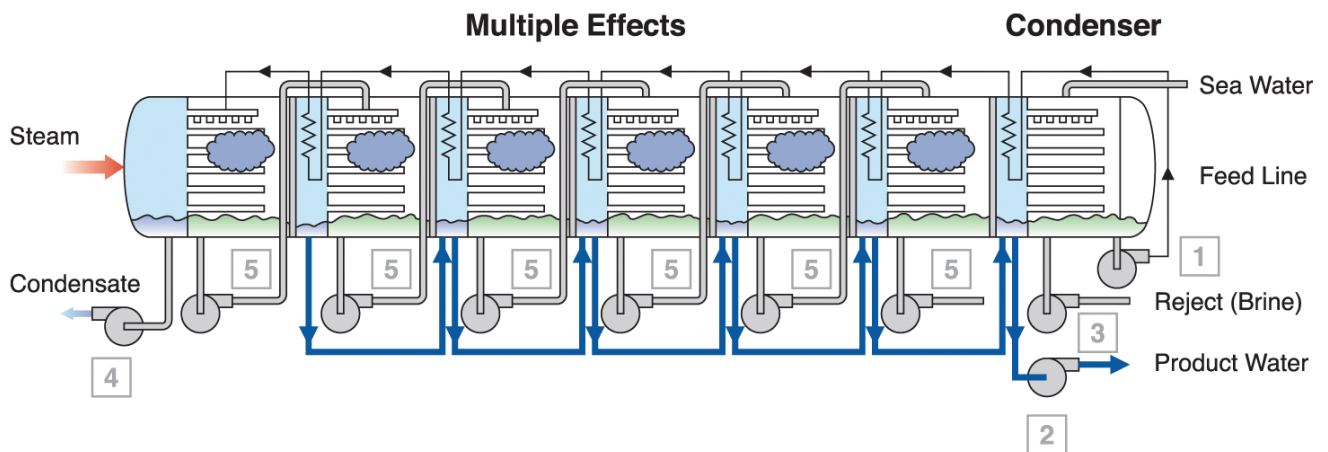
MSD-D 14x14x19A/2 axially split, high pressure, membrane feed pump installed in the biggest RO plant ever built (330,000 m³/day). The pump is driven by a 5.3 MW motor. Other pumping services were also supplied by Sulzer Pumps: a total of 47 pumps in different applications.

Pump type	Q (m³/h)	H (m)	rpm	P (kW)
8 x MSD-D 14x14x19	2428	621	2990	4784



# Multi-Effect-Distillation Plant

## Typical MED Configuration



- 1 Seawater Pump**  
Feeds with condensate from condenser to the first effect
- 2 Product Water Pump**  
Transfers distillate water from last effect to storage, post treatment and distribution
- 3 Brine Pump**  
Removes brine from condenser and multiple effects
- 4 Condensate Pump**  
Removes condensate from steam that is recovered in first effect
- 5 Intermediate Feed Pump**  
Boosts the distillate water from previous to next effect

## Major Reference Marafiq MED Plant, Saudi Arabia

**Operator**  
Marafiq

**Ordered by**  
SIDEM

Pump type	Q (m <sup>3</sup> /h)	H (m)	rpm	P (kW)
27 x A 60-500	4043	28	1190	500
27 x A 53-250	1243	65	1185	300
27 x A 63-500	2821	21	710	225



# Sulzer Pumps Customer Support Services Performance Through People

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.

Check our worldwide offices at  
**[www.sulzerpumps.com](http://www.sulzerpumps.com)**  
or e-mail us at  
**[water.pumps@sulzer.com](mailto:water.pumps@sulzer.com)**



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