

Sirion™ Mega HF

High Flux and Low Energy
Reverse Osmosis

WATER TECHNOLOGIES

Looking for the best packaged range for high purified water production?

In a number of industry sectors, the production of pure water relies on reverse osmosis. This process is also key for recycling. For the customers involved in such projects, it is vital to use the correct water quality to match the required procedures and appliances.

As time is money, they look for effective solutions delivered, installed, and commissioned quickly, enabling them to reduce their infrastructure and civil engineering costs.

In a context of economic pressure, they expect reliable, proven standardized solutions and high level local services that will avoid them costly downtime and maintenance while minimizing as much as possible their plant's environmental footprint.

Veolia Water Technologies, as an expert in water treatment solutions, has developed and is continuously optimizing Sirion Mega, its range of packaged reverse osmosis systems utilizing high rejection, high flux, and low energy membranes and VFD (Variable Frequency Drive) pumps.

Applications

The Sirion Mega range produces high purity water, purified water and utility water particularly suitable for:

- Boiler feed
- Industrial process water
- Cooling water
- Healthcare
- Biotechnologies
- Electronics
- Hospitals
- Chemical industry
- Primary metals
- Reuse / recycling



Sirion™ Mega

The high performance skid mounted range of reverse osmosis units

The Sirion Mega systems are fully standardized solutions developed for pure water production and water re-use applications, and for all water applications and budgets.

Skid mounted and pre-commissioned, they offer a cost-effective units with minimal requirements for civil engineering and extremely short delivery and start-up times.

They remove 98% of dissolved organics and over 99% of large dissolved organics, colloids, and particles from brackish water. Sirion Mega's unique and proven design helps reduce water consumption and can save up to 50 % on electrical power compared to conventional units.

To meet the customers' needs, the Sirion Mega range has been extended and now includes 10 standard models with capacities of 5 to 139 m³/hr (22 gpm to 612 gpm) BWRO (Brackish Water Reverse Osmosis) and a feedwater salinity from 1,000 to 5,000 ppm.



Advantages

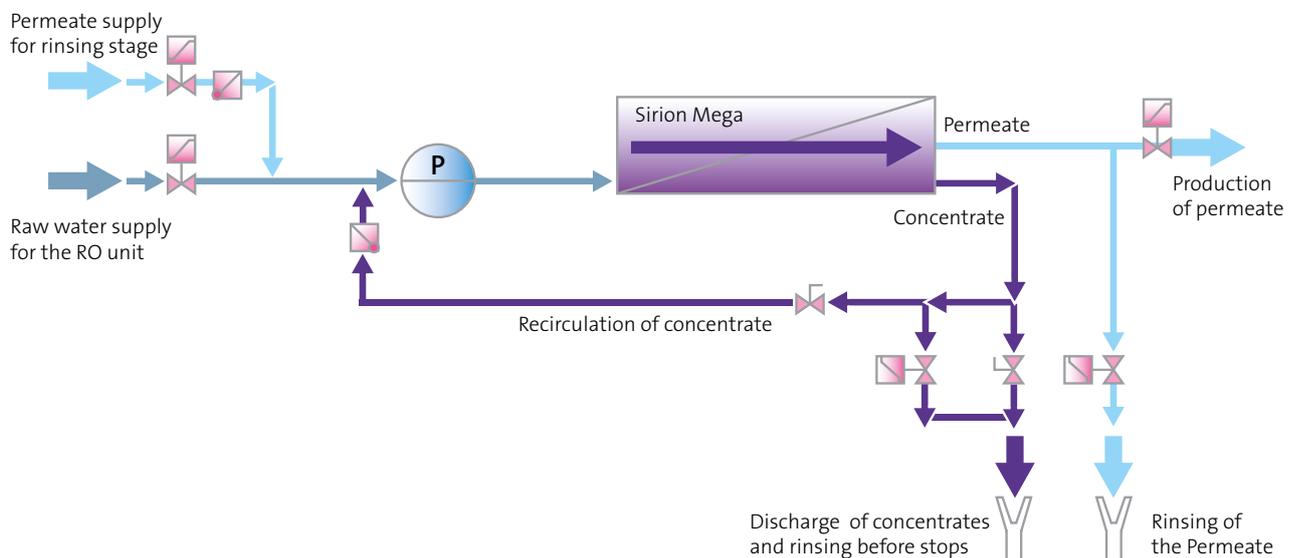
- ◆ **Fully standardized units**
Short lead times, quick installation and commissioning
- ◆ **Flow Rates from 5 to 139 m³/hr**
- ◆ **Smaller footprint**
- ◆ **Energy Efficiency**
- ◆ **Lower operating costs**
- ◆ **Optimum RO and pumps performances**
- ◆ **Higher operational simplicity and security:**
New HMI and fully automatic controls features
- ◆ **High Water Quality**

A full Sirion Mega range to suit your needs

Operating principle

Reverse osmosis consists of a high pressure to the salty water and forcing it through a membrane. Under this process, only the water molecules pass through the membrane, thereby producing freshwater. Reverse osmosis is a process that uses membranes to remove over 95% of

dissolved salts, such as sodium chloride, from water. It is used either alone or in combination with processes such as ion exchange in a variety of applications where the total dissolved solids (TDS) concentration in water has to be reduced.



Services

Local aftermarket service and support teams offer preventive and corrective maintenance programs to ensure the long-term, efficient operation of installed plants. Veolia Water Technologies has selected the best membranes available on the market.



Technical audits



Lab and bench-scale tests



Pilot tests



Service contracts

Key figures and Performances

System Performance

Model		110 x 2	110 x 3	110 x 4	210 x 4	211 x 4	211 x 5	320 x 5	420 x 6	420 x 7	840 x 6	840 x 7	1260 x 6	1260 x 7	
Nominal Flows at 12°C*															
Permeate	m ³ /h	5*	7.5*	10*	15*	20*	25*	30*	32-40	37-47	64-80	75-93	96-119	112-132	
Feed	m ³ /h	6.3	9.4	12.5	18.8	25	31.3	37.5	40-53	46-56	78-106	91-112	117-160	137-168	
Recovery	%	80	80	80	80	80	80	80	70-82	70-82	70-82	70-82	70-82	70-82	
Feed Water Temperature	°C	12	12	12	12	12	12	12	8 to 25	8 to 25	8 to 25	8 to 25	8 to 25	8 to 25	
Inlet salinity TDS (NaCl)	ppm	Max 1000** ppm							Max 1000** ppm						
Typical Salt Rejection	%	96-98	96-98	96-98	96-98	96-98	96-98	96-98	96-98	96-98	96-98	96-98	96-98	96-98	
Pump Motor Size	kW	7.5	11	11	15	18.5	22	30	22-37	30-45	37-75	55-75	110-75	132-75	

*Flow rates are dependent on feed water quality, those quoted are typical values based on 1000 ppm TDS & SDI <3.

**Up to 5000 ppm TDS upon request.

System Dimensions

Model		110 x 2	110 x 3	110 x 4	210 x 4	211 x 4	211 x 5	320 x 5	420 x 6	420 x 7	840 x 6	840 x 7	1260 x 6	1260 x 7
Height	mm	1750	1850	1850	1850	2150	2255	2280	2400	2400	2650	2650	3080	3080
Depth	mm	900	900	900	900	900	900	900	1000	1000	1400	1400	1800	1800
Width	mm	4100	4100	4900	4900	4900	5900	5900	7820	7920	7820	7920	7820	7920
Weight (dry)	kg	980	1100	1150	1200	1350	1700	1700	2100	2100	4650	4650	6600	6600
Operating Weight	kg	1850	2050	1850	2150	2550	1850	1850	4000	4000	7950	7950	11400	11400

Pipe connections

Model		110 x 2	110 x 3	110 x 4	210 x 4	211 x 4	211 x 5	320 x 5	420 x 6	420 x 7	840 x 6	840 x 7	1260 x 6	1260 x 7
Feed		DN 40	DN 40	DN 50	DN 50	DN 65	DN 65	DN 80	DN 100	DN 100	DN 150	DN 150	DN 150	DN 150
Permeate		DN 40	DN 40	DN 40	DN 50	DN 50	DN 65	DN 65	DN 80	DN 80	DN 150	DN 150	DN 150	DN 150
Concentrate		DN 40	DN 50	DN 50	DN 50	DN 80	DN 80	DN 80	DN 80					

Hydrex

Hydrex® Chemicals
Hydrex® 4000 water
treatment chemicals
from Veolia Water
Technologies are
recommended for
optimised operation

Options

- ◆ Feed ORP measurement
- ◆ Feed pH measurement
- ◆ Feed Conductivity measurement
- ◆ Concentrate Recirculation
- ◆ External CIP skid
- ◆ Hubgrade cloud based integration and reporting
- ◆ Set of Automatic valves for:
 - Treated water automatically diverted at start-up; ensures water quality
 - RO flush with raw water
 - Ro Flush with permeate (need CIP tank and pump)
 - Semi-Automatic CIP

Sirion Mega

Features & Benefits

New fully automatic HMI and controller

- ◆ Built-in Ethernet Port, **Hubgrade** Powered by 
 Hubgrade Ready (remote monitoring)
- ◆ 9" Touch Screen HMI for local control
- ◆ Standard PLC control system
- ◆ Simplified monitoring and operation

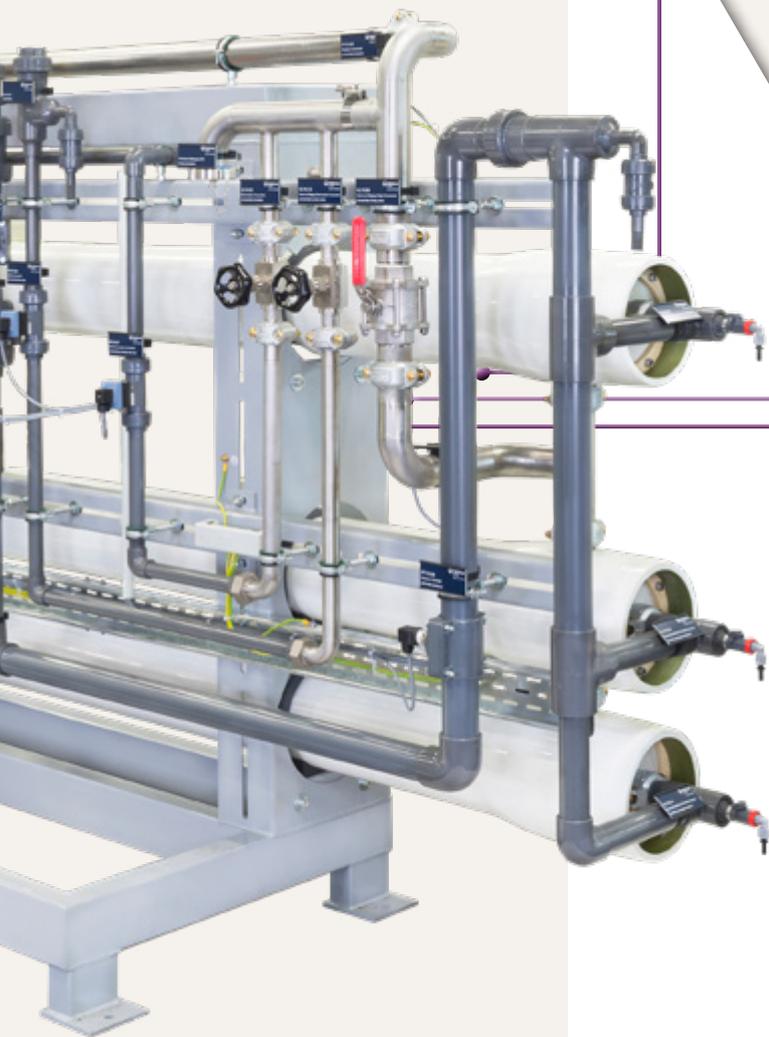
Lower operating costs

- ◆ Low energy membrane = lower operating pressures
- ◆ Brackish water elements to optimize desalination rates
- ◆ VFD pumps to save up to 50% of the electrical power



Hubgrade Powered by MEETING CUSTOMER CHALLENGES IN THE WATER INDUSTRY

Hubgrade, the digital service designed by Veolia, is the combination of digital tools and the expertise of Veolia employees at the service of operational and environmental efficiency. Its specificity: capitalizing on human competency and digital power to process data in order to provide our customers with a continuous supply of optimized solutions adapted to their priorities. At Veolia Water Technologies, Hubgrade enables our customers to consider and implement operational solutions in line with day-to-day concerns encountered by the operators and managers. With Hubgrade, Veolia Water Technologies addresses the water optimization needs of municipalities and industries to respond to customer's challenges on the whole water cycle.



Optimized Performance

- ◆ RO design with a high flux to minimize fouling
- ◆ Integrated 5µm prefiltration: membrane protection
- ◆ RO Cleaning In Place: optimized performance
- ◆ Dry run monitoring: pumps protection
- ◆ Treated water diverted at set-up: ensured water quality for downstream equipment protection

Skid mounted, Pre-commissioned

- ◆ Standardized systems;
- ◆ Short lead times,
- ◆ Quick installation
- ◆ Minimal start-up time
- ◆ Small footprint, saving on plant space

Flexible configuration

- ◆ Modular Skids: configuration of the membrane columns to be chosen according to nominal flow rate
- ◆ Several membranes types available according to the water quality requested
- ◆ Can be supplied with a brine recovery RO to achieve a higher system recovery

Resourcing the world

Your local contact



Veolia Water Technologies

To find your local contacts visit

<http://veoliawatertechnologies.com/en/about-us/multi-local-presence>