



Rapide Strata™

**Short Cycle Regeneration
Ion Exchange Deionization**

WATER TECHNOLOGIES

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

Pure water is one of the major components used in many different industrial applications. For those customers, it is vital to use the correct water grade or quality to match the required procedures.

As time is money, they look for effective solutions that can be delivered, installed, and commissioned quickly, enabling them to reduce their costs.

With ever increasing economic pressure, industrial customers expect reliable, proven standardized solutions and high level local services that will avoid costly downtime and maintenance while minimizing their plant's environmental footprint.

Veolia Water Technologies, an expert in water treatment solutions, has developed and is continuously optimizing Rapide Strata, its range of ion exchange deionizers with short cycle regeneration.

Applications

The Rapide Strata range is particularly suitable for

- ◆ Pharmaceutical & Healthcare
- ◆ Beverage
- ◆ General industry
- ◆ Surface finishing & utilities
- ◆ Boiler make up water
- ◆ Dilution
- ◆ Cooling
- ◆ Ingredient water



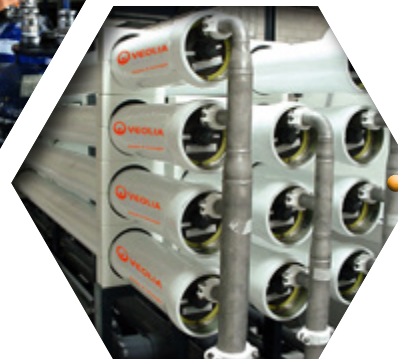
Rapide Strata™

The high performance range of short cycle regeneration ion exchange deionizers

Rapide Strata is a fully standardized cost-effective solution developed for pure water production, with minimal requirements for civil engineering and extremely short delivery and start-up times. Skid mounted and pre-commissioned, the Rapide Strata units remove all the dissolved salts from water in a single process, combining Veolia Water Technologies' Short Cycle Deionization technology and an innovative pulse regeneration sequence.

The Rapide Strata's unique and proven design saves up to 40 % on operation and effluent costs compared to conventional ion exchange products and improves chemical efficiency by up to 50%.

To meet the customers' needs, the Rapide Strata range has been extended and now includes seven standard models with capacities of 4 to 60 m³/hr.



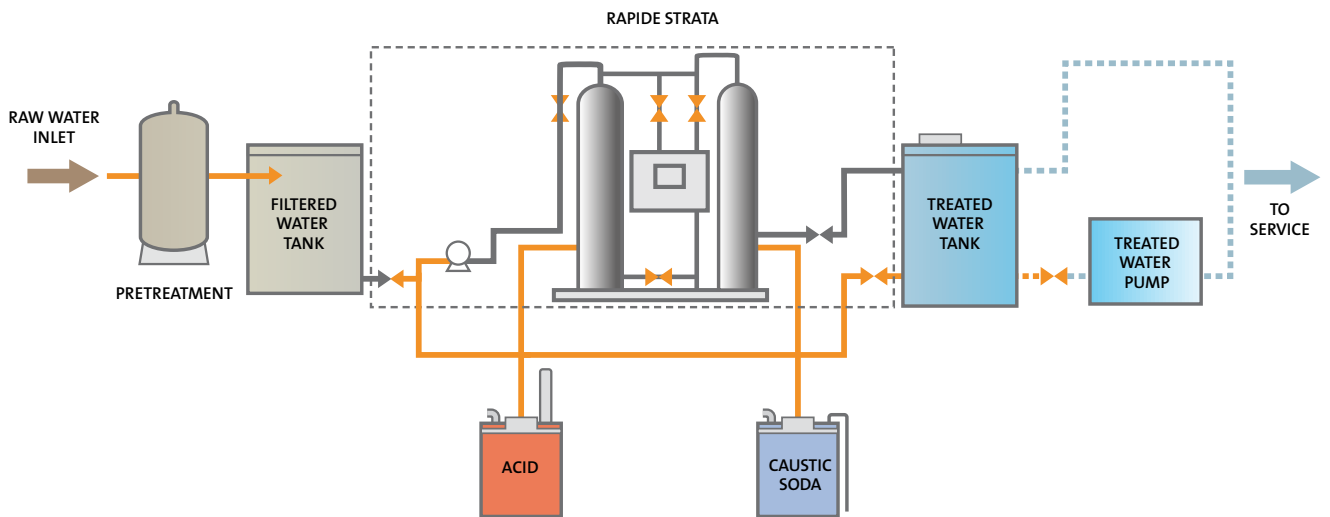
Advantages

- ◆ **Fully standardized, short lead times, quick installation and commissioning**
- ◆ **Maximized efficiency**
Short Cycle Regeneration
- ◆ **Smaller footprint**
1/3 size of the conventional deionisers
- ◆ **Lower operating costs**
- ◆ **Higher water quality produced**
- ◆ **Higher operational flexibility**
- ◆ **Automatic isolating valves on diluted chemical feed lines**
- ◆ **Pressure gauges in addition to pressure transmitters**
- ◆ **Multipurpose water pump non return valve**
- ◆ **Feed water manual isolating valve**
- ◆ **Resin trap strainer on deionized water outlet**

A full Rapide Strata range to suit your needs

The Rapide Strata is a high performance skid mounted resin bed water deionizer. The system consists of two (Rapide Strata) or three (Rapide Strata+) glass reinforced plastic pressure vessels. Those vessels hold the ion exchange resins, together with a process pump, pipework,

valves, flowmeters and controls to enable the plant to produce high quality deionized water and automatically regenerate the resins when required. The components are all mounted on a compact steel framework, coated for corrosion resistance.



Services

Local aftermarket service and support teams offer preventative and corrective maintenance programs to ensure the long-term, efficient operation of installed plants.



Pilot tests



Support teams



Lab and bench-scale tests



Maintenance programs

Key figures and Performances

A proven solution: more than 1,000 Rapide Strata sold worldwide

Equipment Performance

Model		Rapide Strata							Rapide Strata+						
		4	10	18	23	32	45	60	4+	10+	18+	23+	32+	45+	60+
Maximum Gross Flow*	m ³ /hr	4	10	18	23	32	45	60	4	10	18	23	32	45	60
Minimum Flow	m ³ /hr	2.5	6.5	14	12	16	20	30	2.5	6.5	14	12	16	20	30
Regeneration Time**	minutes	35-55	35-55	35-55	35-55	35-55	35-55	35-55	35 - 80	35 - 80	35 - 80	35-80	35-80	35-80	35-80
Maximum Waste Flow to Drain during Regeneration	m ³ /hr	3.8	9.5	17	22	30.5	43	57	9.8	9.5	17	22	30.5	43	57
Wastewater Volume per Regeneration***	m ³	0.8	1.7	3.2	4.5	7	9.5	12.6	0.8	1.7	3.2	4.5	7	9.5	12.6
Bulked wastewater	pH	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9	6 - 9
Chemical Usage per Regeneration****															
HCl (32%)	liters	6	15	27	41	57	78	100	6	15	27	41	57	78	100
NaOH (32%)	liters	5.6	13.9	24	38.2	54	64.3	78.2	5.6	13.9	24	38.2	54	64.3	78.2
Output per Regeneration (100 mg/l Total Anion load as CaCO ₃ Inc CO ₂ & SiO ₂)	m ³	20.8	52	90	143	201	240	292	16.8	42	72	115	162	194	236
Pump motor power	kW	1.5	3	5.5	7.5	7.5	11	15	1.5	3	5.5	7.5	7.5	11	15

* The maximum available flow-rate depends on the TDS of the feed water and the number of regenerations per day.

** Standard regeneration for Rapide Strata+ takes 35 minutes for treated water with a conductivity of < 1µS/cm.

For a treated water with a conductivity of < 0,1µS/cm and SiO₂ <20 ppb, regeneration time is 80 minutes.

***Wastewater volume depends on treated water quality.

**** Chemical consumption is calculated for treated water with a conductivity < 2µS/cm.

Equipment Dimensions

Model		4/4+	10/10+	18/18+	23	32	45	60	23+	32+	45+	60+
Height	mm	2075	2130	2230	3035	3035	3185	3185	3035	3035	3185	3185
Length	mm	1500	2000	2080	3000	3000	3600	3600	3500	3500	4500	4500
Width	mm	900	1100	1300	1900	1900	2100	2100	1900	1900	2100	2100
Recommended Headroom	mm	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Approx. Service Weight	kg	650/700	1550/1620	1950/2050	3000	3800	6050	7240	3220	4030	6250	7450
Feed Inlet (uPVC Socket Union/Flange DN)*	-	DN40	DN50	DN80	DN80	DN100	DN100	DN125	DN80	DN100	DN100	DN125
Service Outlet (uPVC Socket Union/Flange DN)*	-	DN32	DN40	DN50	DN65	DN80	DN100	DN100	DN65	DN80	DN100	DN100
Regeneration Water Inlet (uPVC Socket Union/Flange DN)*	-	DN40	DN50	DN80	DN80	DN100	DN100	DN125	DN80	DN100	DN100	DN125
Drain (uPVC Socket Union/Flange DN)*	-	DN25	DN32	DN40	DN80	DN80	DN100	DN100	DN80	DN80	DN100	DN100

* Socket unions: for Rapide Strata models 4/4+ to 18/18+. Flanges: for Rapid Strata models 23/23+ to 60/60+.

Rapide Strata

Features & Benefits

New fully automatic HMI and controller

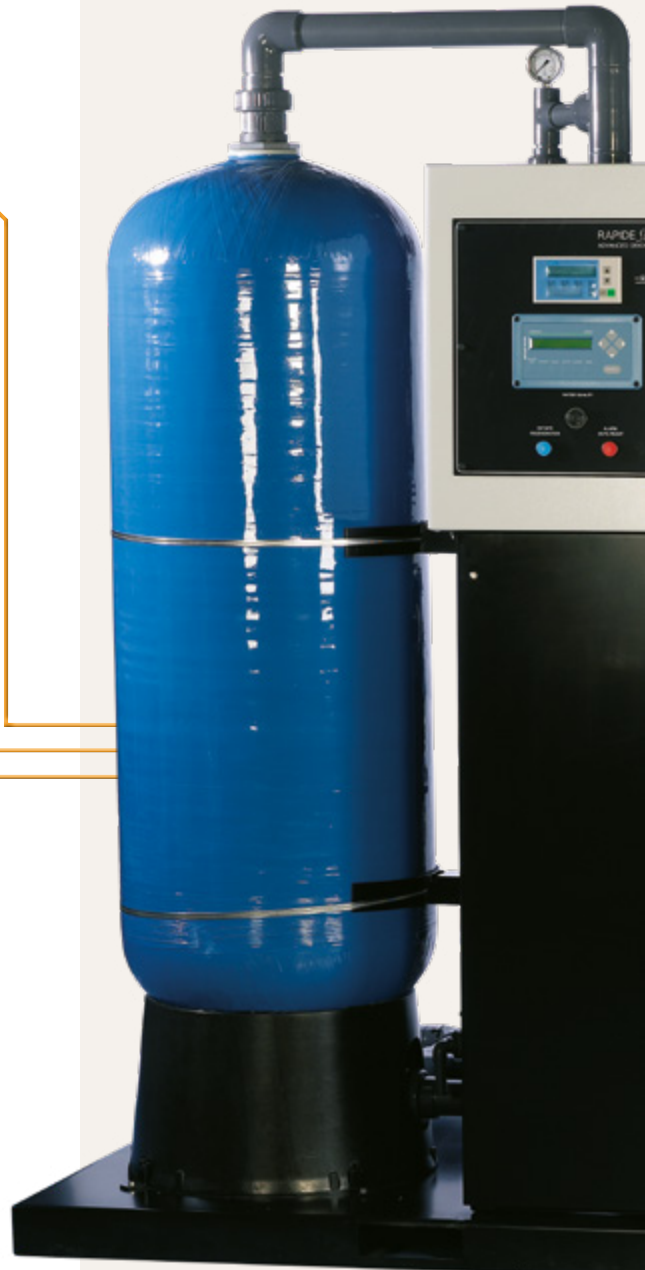
- ◆ Built in Ethernet Port/ Hubgrade Hubgrade Ready (remote monitoring)

Hubgrade
Powered by VEOLIA
- ◆ Touch Screen HMI
- ◆ Standard PLC control system
- ◆ Simplified monitoring and operation
- ◆ Better support provided
- ◆ Optimised regeneration efficiency

Technology driven process development

Lower operating costs

- ◆ Duplex operation mode: increased capacity
- ◆ Better chemical efficiencies
- ◆ Variable frequency drive on the pump on models 23 to 60



Hubgrade Powered by VEOLIA 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.



Short cycle ion exchange

- Maximum process time
- Reduced treated water storage requirements
- Minimal waste handling
- Short regeneration times

Counter flow regeneration

- Highly efficient use of chemicals
- High treated water quality

Skid mounted, Pre-commissioned

- Easy Installation
- Minimal start-up time
- Small footprint, saving on plant space

