



Pall Corporation



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Employee Owned

Pall Aria™ PRO Water Treatment Systems

The Pall Aria™ PRO system is a unique water treatment system that integrates membrane filtration and reverse osmosis. This combination allows the processing of a wide range of difficult industrial and municipal waste waters. The membrane filtration offers optimal protection of the reverse osmosis membranes by removing suspended solids (<0.1 NTU), while the reverse osmosis system accommodates varying concentrations of dissolved solids.

The system efficiently produces demineralized water from differing water sources, for example:

- Surface Water (for Incoming Water/BFW)
- Biologically Treated Effluent
- Cooling Tower Blow Down
- Discharge Water (e.g. from mining)

The modular design allows the system to be tailored to specific applications. Depending on the feed water quality and permeate goals, it is possible to adapt the recovery rate, the operating flux, and the optimal operating pressures for the reverse osmosis system. If the demands increase, the system can be easily adapted, thus providing great flexibility with respect to up- or downsizing.

Benefits

- Highly crystalline PVDF membranes used in the pretreatment stage can tolerate 7.2 mio

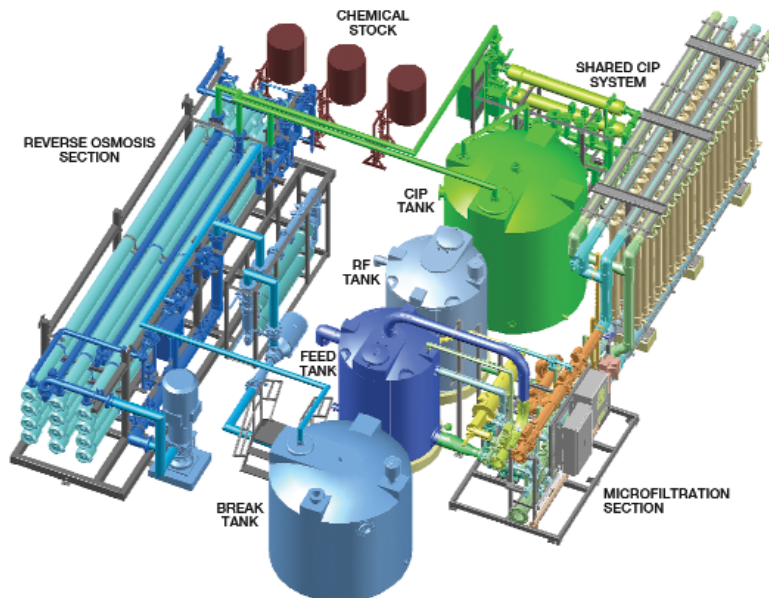
ppm hours of exposure to free chlorine and show excellent compatibility and durability for reliable long-term operation

- Constant permeate flow during backwash of the microfiltration system, enabling continuous production
- Stable RO permeate production, regardless of incoming water turbidity (peaks <6 hours up to 500 NTU) without the need for coagulants
- System can operate even at high turbidities (at adapted operation flux), allowing production of permeate even under upset conditions
- Standard feed conductivity allowance up to 5000 $\mu\text{S}/\text{cm}$
- An optional 3rd stage of RO membranes can be integrated, maximizing permeate production

One joint, high-level automation system monitors the operation of the entire integrated unit that also includes a shared CIP station. The operator can access all the operating data easily from a single screen and/or remotely, as required. The cleaning of the sections can take place at the same time, thus reducing downtime of the system.

The system allows automatic control of:

- Throughput and recovery
- Independent cleaning of each RO stage
- Off-specification in feeding-to and permeating from the RO to control discharge qualities while ensuring reliable performance



Pall Aria PRO Water Treatment System

Pall Aria™ PRO Design Parameters

The Pall Aria PRO series offers a choice of six different system flow capacities ranging from 100 to 600 gpm of RO permeate.

Microfiltration Section

- Maximum Inlet Pressure to MF Module: 45 psi (3 bar)
- Maximum Operating Temperature: 104 °F (40 °C)

Reverse Osmosis Section

- Maximum Design Pressure: 600 psi (40 bar)
- Maximum Operating Temperature: 104 °F (40 °C)

Utility Requirements

460 VAC/3P/60Hz; Clean Dry Compressed Air; Permeate Flush Water

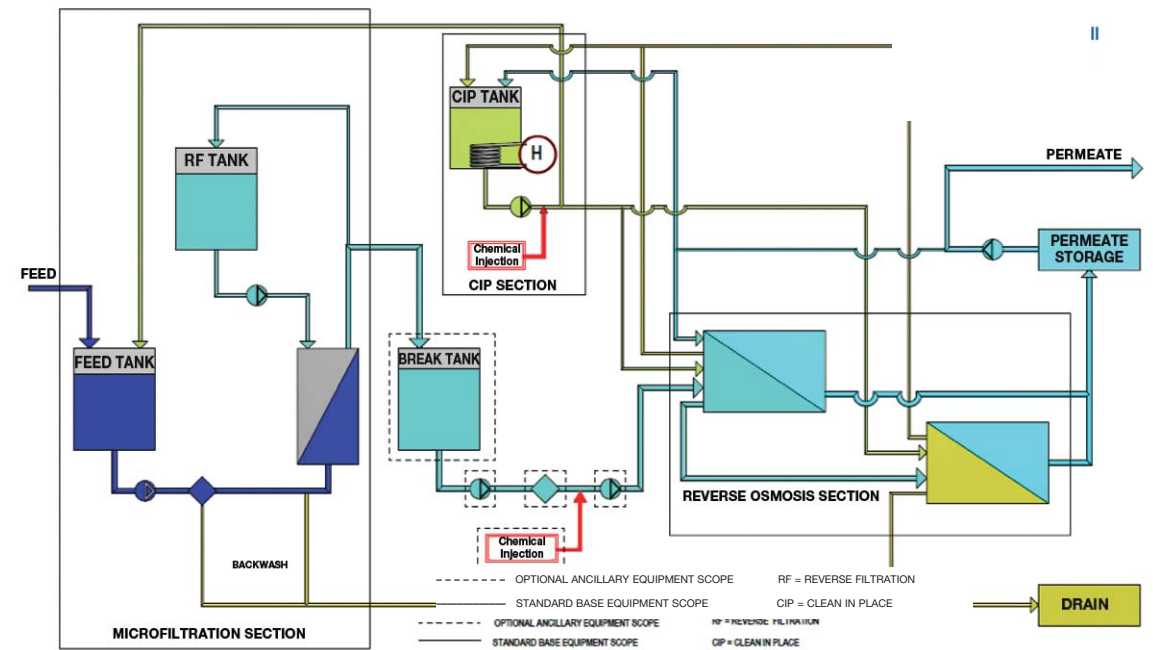
Table 1: Typical Pall Aria PRO System Flow Capacities

Model	Inlet Flow Range (gpm)	Permeate Flow (gpm)	RO Section Array*	MF (LxWxH) (ft)	RO Section (LxWxH) (ft)
80100	105-130	80-100	2:1:1	15.8 x 6.3 x 10.3	26.5 x 8.4 x 5.3
80200	200-260	140-200	4:2:1	17.8 x 6.8 x 10.9	26.5 x 8.4 x 7.5
80300	310-380	220-300	6:3:2	17.8 x 6.8 x 10.9	26.5 x 10.7 x 6.4
80400	400-510	280-400	8:4:2	19.8 x 7.3 x 10.9	26.5 x 10.7 x 7.5
80500	480-640	340-500	10:5:2	20.8 x 7.3 x 10.9	26.5 x 10.7 x 8.6
80600	600-760	420-600	12:6:3	22.8 x 7.3 x 10.9	26.5 x 10.7 x 9.7

(Actual permeate flow rate and recovery dependent of incoming water quality)

* 3rd RO stage is optional ** footprint excluding gangway

Process Flow Diagram for the Pall Aria PRO Series Water Treatment System



Process Systems

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