

PALL Water Processing

Pall Aria AP-Series Water Treatment Systems

Pall AriaSM AP-Series Water Treatment Systems are specifically designed to meet the drinking water treatment requirements of small communities. Aria systems use uniquely designed Pall Microza* membrane modules in a hollow fiber configuration to remove the following contaminants from surface and ground water sources:

- Turbidity
- Bacteria
- Cysts and Oocysts
- Iron and Manganese
- Arsenic

Each 0.1µm hollow fiber module provides high active surface area (538ft² - 50m²). The hollow fiber modules in the Aria system are highly permeable resulting in high water production rates.

Pall's dedication to simplified process design and control logic has produced a family of systems that are characterized by:

- Full System NSF 61 Certification
- Long Service Life Hollow Fiber Membranes
- Operator Friendly Control Interface
- Simple Clean-In-Place Operation
- High Recovery
- Low Cost of Operation
- Easily Installed Modular Skids
- Compact System Footprint
- ISO 9000 Certified Manufacturing
- Optional Auxiliary Equipment



View of Hollow Fiber Membrane Module Cut-away.

Pall AriaSM AP-Series Water Treatment Systems



Pall Aria Water Treatment System with control panel and modules.

Aria AP-Series System Performance

Pall Microza membrane systems have been approved for potable water supply. The Aria hollow fiber membrane system was the first to receive a "full system" certification in accordance with ANSI / NSF 61 Specifications.

Extensive testing has been done across the USA including:

- University of New Hampshire
- Stoney Creek, VA
- Croton Reservoir, NY
- Westover, PA
- Highland Reservoir, PA
- Caney, KS
- Meeteetse Reservoir, WY
- Kernville, CA
- Oregon Parks Department
- Basalt, UT
- North Slope Borough WTP, AK
- Crested Butte, CO
- Youngs River, OR
- Hobart, NY

Site testing confirmed Pall Aria Water Treatment Systems meet or exceed EPA standards for safe drinking water, such as the requirement of the Surface Water Treatment Rule (as amended December 16, 1998).

* Microza is a trademark of Asahi Kasei Corporation.

Table 1: Pall Membrane Microbial and Particulate Removal

Contaminants	Typical Removal*
<i>Giardia</i>	> 6 log
<i>Cryptosporidium</i>	> 6 log
MS2 coliphage or bacteriophage	0.5 - 3 log
Turbidity	< 0.1 NTU

*Based on third party testing

Aria AP-Series System Specifications

Aria AP-Series System Components

Standard system components consist of 1 to 60 membrane modules, a feed tank, one feed pump, one reverse filtration pump, manual on/off and automatic valving, filtrate flow meter, pressure and temperature sensors, and PLC control.

Aria AP-Series System Operation

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

Aria AP-Series System Specifications

Module Housing: PVC, ABS or other
 Gasket: EPDM
 Potting Material: Silicone and Epoxy or Urethane
 Panel: NEMA 4
 Tanks: Polyethylene
 Piping: Lower Manifold and Air: Stainless Steel (other piping: PVC)
 Hollow Fiber Membrane: PVDF
 Pumps: Horizontal Stainless Steel Centrifugal

System Service

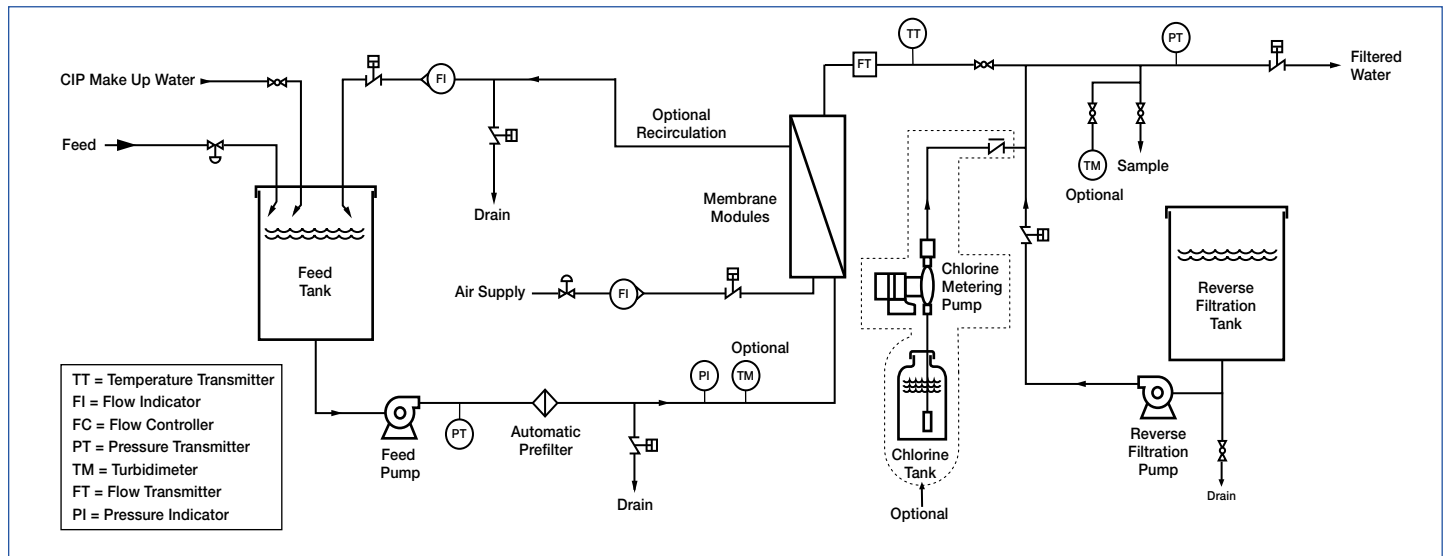
Remote monitoring of system performance available as an online service. On-site service and maintenance contract also available.

Table 2: Standard Filtration Skid Specifications

Model Number	Maximum Number of Modules	Maximum Flow Rate (gpm [m ³ /hr])	Footprint (LxWxH)(Feet) Installed
AP-1	2	3-25 [1-7]	6 x 2.8 x 9.7
AP-2	8	10-50 [2.3-12]	8 x 4.1 x 9.9
AP-3	10	25-175 [6-40]	10 x 6.9 x 10.3
AP-3x	20	25-175 [6-40]	(1) 22.9 x 5.7 x 10.8
AP-4	36	50-350 [15-80]	(1) 24 x 6.8 x 10.8
AP-6	60	200-700 [45-150]	(1) 27 x 17 x 10.8

(1) Module Rack is off the skid. Other configurations allow variation in footprint.

Process Flow Diagram for the Pall Aria AP-Series Water Treatment System



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