



**ATS WATER
TECHNOLOGY**



X-LINE

**Hollow Fiber
Ultrafiltration**

Inside/Out (I/O) Filtration Technology

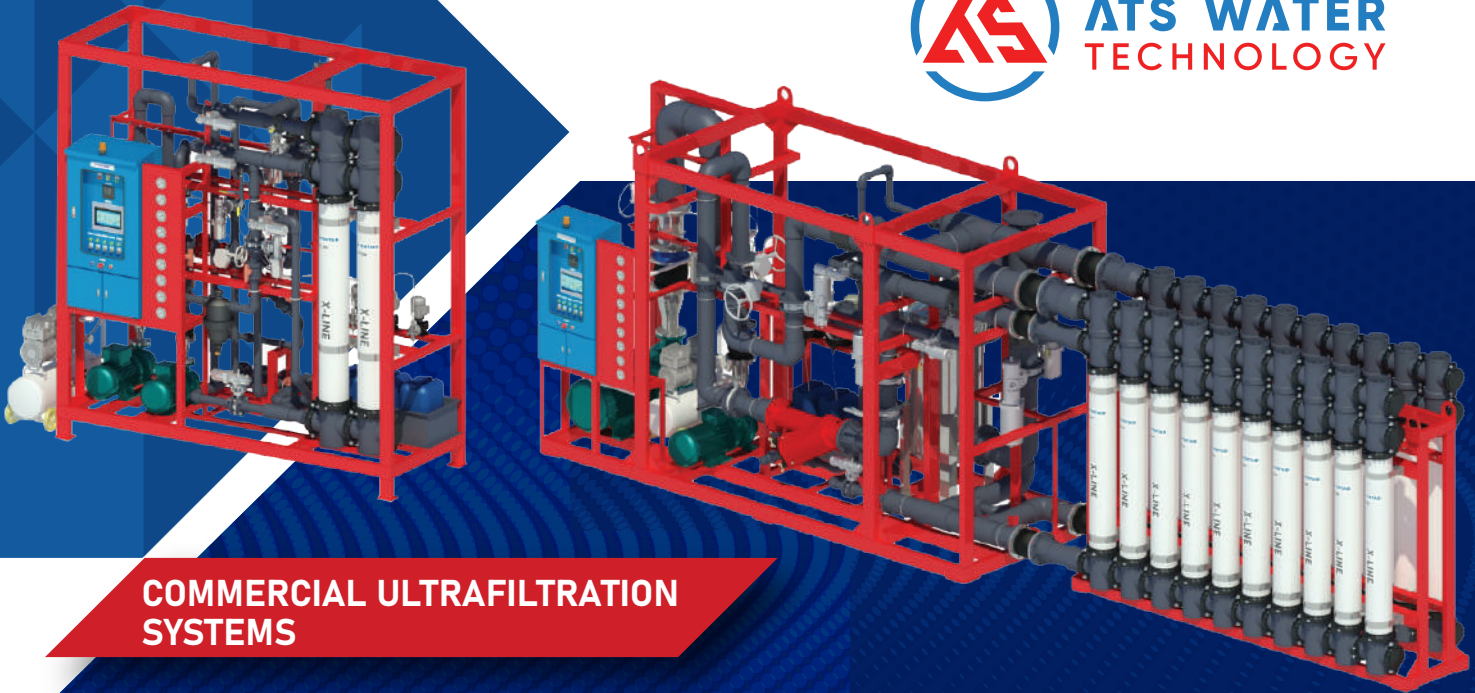


**ULTRAFILTRATION SYSTEM
ADES X-LINE
Series**





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COMMERCIAL ULTRAFILTRATION SYSTEMS

Capacity: 2 - 120 m³/h and above

Using state of art technology and decades of expertise and experience, ATS has built a robust and reliable Pressurized Ultrafiltration (UF) system for the challenging markets. In this system, ATS uses the established UF modules from Pentair X-Flow. The 0.8mm PES hollow fiber membranes in the modules have a tight pore size of 20nm and can produce excellent and superior effluent quality that conventional sand and multimedia filters cannot achieve. The membranes can operate at high fluxes at low energy compared with other membranes and effectively removes bacteria, viruses and other microorganisms from the water.

Standard Features

- » Feed & Backwash pump with IE3, IP55 motor
- » UF modules (Inside out PES/PVP) UF casing PVC
- » 200 micron Manual strainer for Feed and Backwash line
- » Schedule 80 PVC piping
- » PLC & HMI 9" control panel
- » SS400 powder coated IP54 enclosure
- » Pressure Transducers
- » Liquid filled pressure gauges (panel mount)
- » Automatic control with pneumatic butterfly valves
- » Manual valves & accessories
- » Flow indicators
- » Chemical enhanced backwash (CEB) dosing system (excludes CEB tank)
- » Air compressor for valve control
- » SS400 with 3 layers epoxy coated steel skid frame
- » Connection with JIS-10K Flange
- » 380-415V/3Ph/50Hz power supply

Available Options

- » Membrane cleaning skid (CIP)
- » pH adjustment
- » Online turbidity monitor
- » Feed & backwash pump VFD
- » Filtrate (backwash) tank (PE, SUS304, FRP)
- » Materials for Sea water filtration
- » DIN/ANSI Flange Connection

Operation

- » Operating pressure: 0.2-2bar
- » Max. operating pressure: 3bar
- » Control: automatic Hydraulic Clean (HC) and Chemical Enhanced Backwash (CEB)

ATS supplies a full line of standard customizable UF systems, that includes X-line, Aquaflex skid design with circulation flow, air flushing or coagulant/chemical dosing for different application & types of water.

UF Membrane Characteristics

- » Membrane surface area: 75m²
- » Hydrophilic membrane composed of a blend of polyvinylpyrrolidone and polyethersulfone
- » A nominal pore size of 20nm
- » Structure asymmetric/microporous
- » High performance with an excellent anti-fouling behavior
- » Typical permeate quality SDI<3, turbidity<0.1 NTU
- » Membrane filtration provides 99.9999% (LOG6) reduction of bacteria (*Pseudomonas diminuta*) and 99.99% (LOG 4) reduction of virus (*MS2 colifages*) by mechanical means. EPA Est. No. 090374-NLD-001

Feed Water Quality

- » Turbidity: < 5NTU
- » TSS: < 10mg/L
- » TOC: < 2mg/L
- » COD: < 1mg/L
- » Hardness <150mg/L as CaCO₃
- » Alkalinity <300mg/L as CaCO₃
- » pH 6-9 (2-12 for cleaning)
- » Temperature 25°C (max. 40°C)
- » Oil & grease < 0.1ppm
- » Cl₂: 200-500 ppm for cleaning
- » Backwash frequency 20-120 minutes

**The system designed for
city water applications or similar.
Contact us for other water quality**



ADES X-LINE Series



COMMERCIAL ULTRAFILTRATION SYSTEMS

Capacity: 2 - 120 m³/h and above

UF systems can be an excellent alternative replacement for clarifier and multimedia filter. Standard design is based on a UF module with inside-out flow & X-line configuration which allows for compact footprint, low fouling, higher filtration capacity and easy cleaning.

Applications

- » RO pretreatment
- » Drinking water treatment
- » Special design for city water or Building service water

Available design for other applications with higher solid load up to 100NTU, 250mg/L TSS
Possible to apply coagulant dosing, circulation and air flushing.
Contact us for these applications:

- » Process separation
- » Wastewater reuse
- » River/surface water

Model	Module number XF75	Membrane area (m ²)	Flow rate for city water or similar (m ³ /h)	Required Backwash volume ¹ (m ³)	Overall Dimensions LxWxH ² (mm)
ADES-UFX-101-00	01	075	02-06	>06	3400x1300x2500
ADES-UFX-102-00	02	150	06-12	>12	3600x1300x2500
ADES-UFX-103-00	03	225	12-18	>18	3800x1500x2500
ADES-UFX-202-00	04	300	18-24	>24	3600x1500x2500
ADES-UFX-203-00	06	450	24-36	>36	4200x1500x2600
ADES-UFX-204-00	08	600	36-48	>48	4800x1600x2800
ADES-UFX-205-00	10	750	48-60	>60	5600x1600x2800
ADES-UFX-206-00	12	900	60-72	>72	7800x2000x3000
ADES-UFX-207-00	14	1050	72-84	>84	8300x2000x3000
ADES-UFX-208-00	16	1200	84-96	>96	8600x2000x3000
ADES-UFX-209-00	18	1350	96-108	>108	9500x2300x3300
ADES-UFX-210-00	20	1500	108-120	>120	9800x2300x3300

The ADES X-line series can be offered with max. 72 modules/skid.

For other flow rates and applications, please contact us for detailed design and suitable offer.

¹ The required backwash volume is the minimum volume requirement of the usable water volume in the UF water tank for HC, CEB & supply to using point.

² The dimensions of the system may vary and subject to change without prior notice.

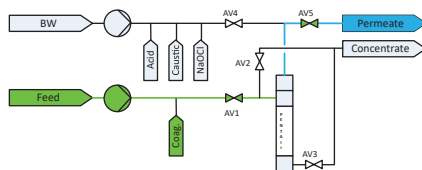


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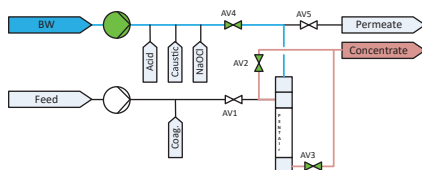
OPERATION PROCESS

The system uses two main pumps. The feed pump provides the membranes with feed water during Filtration and the backwash pump is used for cleaning the membranes during Hydraulic Clean (HC) and Chemically Enhanced Backwash (CEB) programs. UF permeate is used for these cleaning operations. The system is also equipped with dosing pumps for cleaning chemicals and coagulant. In the following sections, the operations of the UF system are described. Coagulant dosing is used for specific applications only.

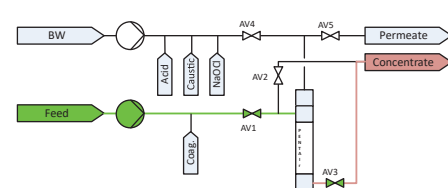
FILTRATION 20-120mins



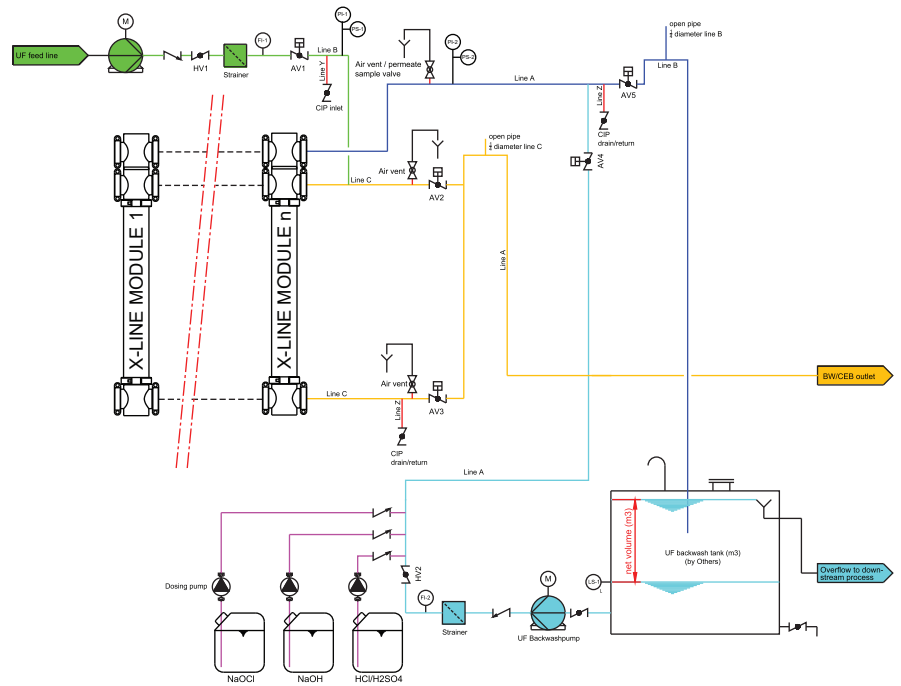
BACKWASH after each filtration cycle



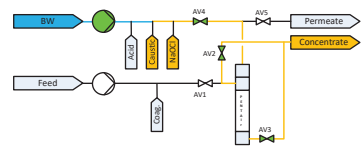
HYDRAULIC CLEAN (HC) Forward flush top-bottom



X-line System P&ID

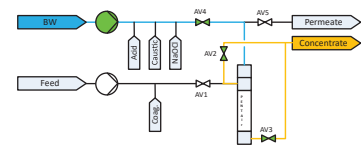


CEB 1A - NaOH + NaOCl CEB 1B - HCl/H₂SO₄



RINSING after each CEB

Reached HC counter number



Design Approved by
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