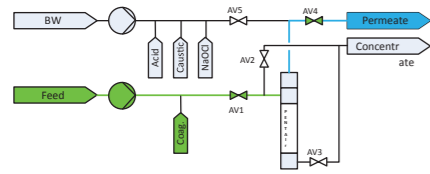


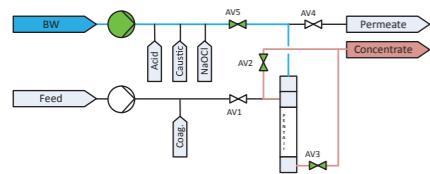
OPERATION PROCESS

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.

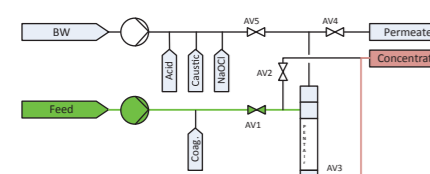
FILTRATION 20-120mins



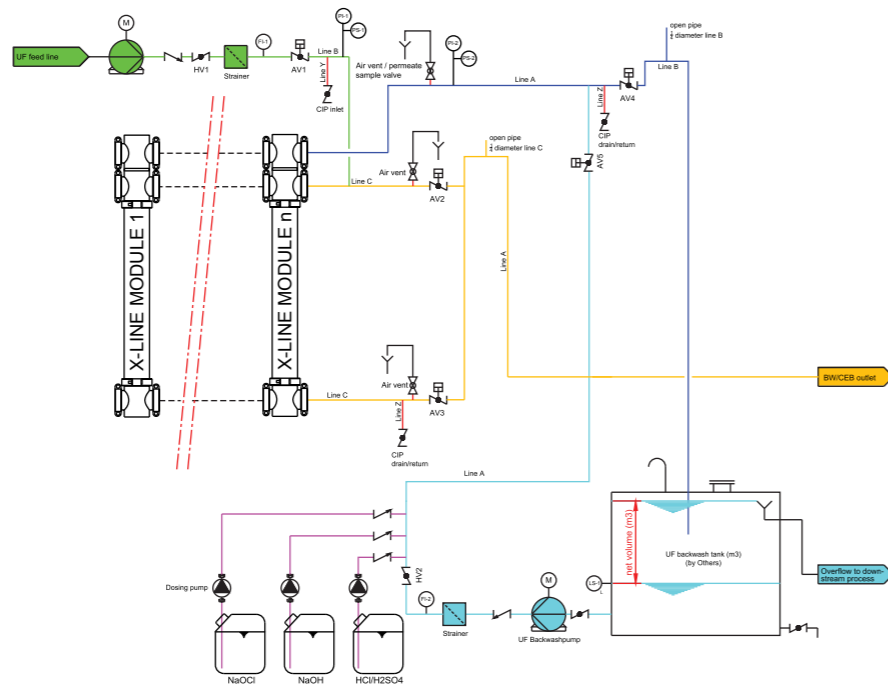
BACKWASH after each filtration cycle



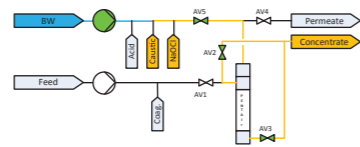
HYDRAULIC CLEAN (HC) Forward flush top-bottom



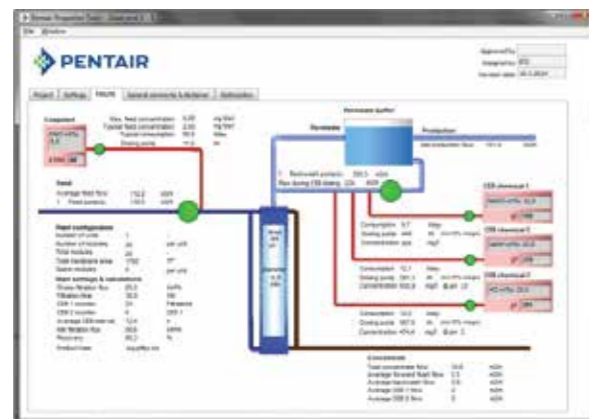
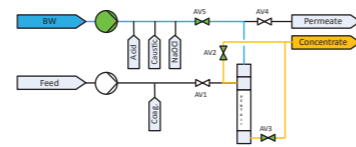
X-line System P&ID



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



RINSING after each CEB



Design Approved by
A.L. Lim
Technical Manager

PENTAIR
X-FLOW



**ATS WATER
TECHNOLOGY**

PENTAIR X-LINE Hollow Fiber Ultrafiltration

Inside/Out (I/O) Filtration Technology



ULTRAFILTRATION SYSTEM ADES X-LINE Series



ATS WATER TECHNOLOGY CO., LTD.
54/18 Bui Quang La, Ward 12, Go Vap Dist., Ho Chi Minh City, 700000 Viet Nam
[T] +84 28 35 888 961/963 [F] +8428 35 888 964 [E] info@ats-water.com
[W] www.ats-water.com



**ATS WATER
TECHNOLOGY**

Only one earth care and share
Please consider environment before printing this brochure!

www.ats-water.com

Copy right of ATS Water Technology Co., Ltd - Rv0.5.21


**COMMERCIAL ULTRAFILTRATION
SYSTEMS**
**COMMERCIAL ULTRAFILTRATION
SYSTEMS**
Capacity: 5 - 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 TEFC, IE2, 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 meters
- » 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: 64m²
- » 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: < 2NTU
- » TSS: < 4mg/L
- » TOC: < 1mg/L
- » COD: < 1mg/L
- » Hardness <150mg/L as CaCO₃
- » Alkalinity <120mg/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

Capacity: 5 - 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.

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 ADES-	Module number XF64	Membrane area (m ²)	Flow rate for city water or similar (m ³ /h)	Required Backwash volume ¹ (m ³)	Overall Dimensions LxWxD ² (m)
UFX-102-00	02	128	5-10	>10	3300x1100x2500
UFX-202-01	04	256	10-20	>15	3300x1300x2500
UFX-203-01	06	384	20-30	>25	3700x1300x2600
UFX-204-01	08	512	30-40	>30	4100x1300x2700
UFX-205-11	10	640	40-50	>40	4700x1400x2800
UFX-206-11	12	768	50-60	>45	5300x1500x2800
UFX-207-11	14	896	60-70	>55	7700x1700x3000
UFX-208-11	16	1,024	70-80	>60	8000x1700x3000
UFX-209-11	18	1,152	80-90	>70	8400x1700x3000
UFX-210-11	20	1,280	90-100	>75	8800x1700x3000
UFX-211-11	22	1,408	100-110	>85	9300x2000x3300
UFX-212-11	24	1,536	110-120	>95	9600x2000x3300

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.

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