

## Ultrafiltration System Series UF

### Features:

- Low fouling Hydrophilic Polyvinylidene fluoride (H-PVDF) membrane
- Excellent filtration performance with high flux
- Durable and break resistant fiber structure
- High chemical resistance and temperature tolerance for effective membrane cleaning
- Very fine nominal pore diameter (0.03  $\mu\text{m}$ )
- High removal efficiency of bacteria and viruses
- Dead-end or concentrate bleed flow capabilities
- Outside-In flow configuration that allows for less plugging and higher solids loading,
- higher flow area and easier cleaning
- Can be periodically back washed and air scoured to improve performance and extend operating life by removing the fouling layer
- Simple, vertical, modular design allows low cost, compact systems
- Factory tested to insure the quality
- 1 Year Warranty



Model AF-UFD-40

## Ultrafiltration

Ultrafiltration is a pressure driven membrane separation process that removes suspended or particulate matter (including colloids & silt) from water. Ultrafiltration is more reliable than conventional multimedia filtration that removes approx. 10 micron or larger matter. Ultrafiltration also efficiently removes bacteria and most viruses.

Ultrafiltration systems eliminate the need for clarifiers and multimedia filters. Standard design is based on a UF module with outside-in flow configuration which allows for less plugging, higher solids loading, higher flow area and easy cleaning.

## Module and Membrane

Ultrafiltration module utilizes a double-walled hollow fiber (capillary) PVDF membrane which has a very small nominal pore diameter of 0.03  $\mu\text{m}$  that allows for removal of all particulate matter, bacteria and most viruses and colloids. Despite the small pore diameter, the membrane has a very high porosity resulting in a flux similar to that of micro-filtration (MF) and can effectively replace MF in most cases.

## Applications

- RO pretreatment
- Disinfection of drinks, water, mineral water
- Disinfection and concentration of food and beverage
- Separation and purification of dairy products, bio-pharmaceutical
- Wastewater treatment

## System

System designed with ultrafiltration use an outside-in flow configuration which allows for less plugging, higher solids loading, higher flow area and easy cleaning. The primary flow design is dead-end filtration but the module can be operated using a concentrate bleed. Dead-end filtration uses less energy and has a lower operating pressure than the concentrate bleed, therefore reducing operating costs.

Standard system includes:

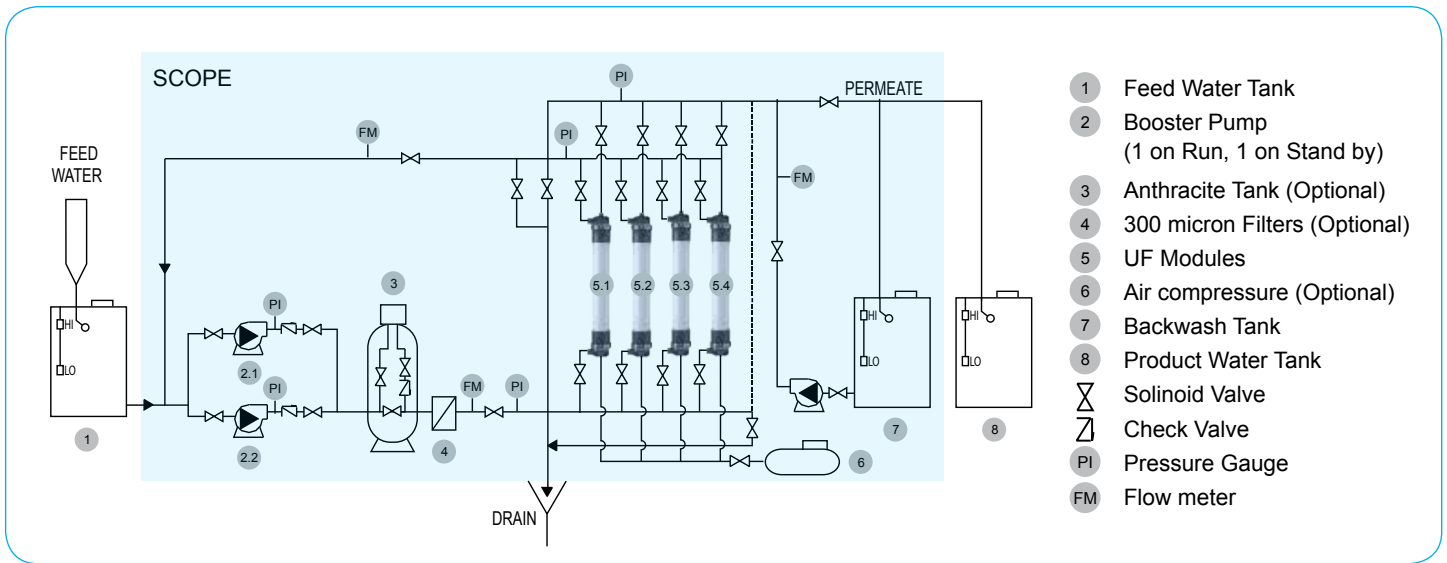
- 316SS Booster pump
- Hollow Fiber Modules
- Automatic valves for feed backwashing
- Solenoid valve for air scour for O/I UF
- Flow transmitters: Filtrate and Backwash
- Pressure gauges with transmitters (4)
- 316SS Backwash pump
- Backwash tank with float switch
- Control panel



## Operation specification

- Power supply: 460V/3Ph/60Hz
- Turbidity < 50 max. 300 NTU
- TSS < 50 max. < 100 mg/L
- TOC < 10 max. < 40 mg/L
- COD max. < 60 mg/L
- pH 6-9 (2-11 cleaning)
- Temperature 25°C (max. 40 °C)
- Cl<sub>2</sub> 0.5 ppm (2,000 cleaning)
- Backwash frequency 20-60 minutes

## Flow Diagram



Hollow Fiber Module Specification	Dow SFP-2860	Allfyll AF-UP200
Membrane material	Hydrophilic PVDF	Hydrophilic PVDF
Membrane Area	51 m <sup>2</sup>	47 m <sup>2</sup>
Size	8 x 60 inch	8 x 60 inch
Filtrate flux @ 25 °C	40-120 L/m <sup>2</sup> /hr	35-100 L/m <sup>2</sup> /hr
Flow range	2.0 - 6.1 m <sup>3</sup> /hr	1.8 - 5.6 m <sup>3</sup> /hr
Max operating pressure	2.1 bar	2.1 bar
Max operating air scour flow	12 Nm <sup>3</sup> /hr	12 Nm <sup>3</sup> /hr
Operating pH	2-11	2-12
Max TSS	100 mg/L	100 mg/L
Max NaOCl	2,000 mg/L	2,000 mg/L
Max Turbidity	300 NTU	300 NTU
Flow configuration	Outside-in, dead end	Outside-in, dead end
Expected filtrate turbidity	≤ 0.1 NTU	≤ 0.1 NTU
Expected filtrate SDI	≤ 2.5	≤ 2.5



Model AF-UFD-40

Ordering information						
Dow SFP-2860	Allfyll AF-UP200	Capacity m <sup>3</sup> /hr	Numbers of UF Module	Line size (inch)	Dimension L x D x H (cm)	Approx weight (kg)
AF-UFD-1	AF-UFA-1	0.75-2.5	1	1.5	150 x 75 x 190	450
AF-UFD-4	AF-UFA-4	3-10	4	4	200 x 75 x 190	680
AF-UFD-10	AF-UFA-10	12-25	10	4	280 x 75 x 290	1,350
AF-UFD-14	AF-UFA-14	25-35	14	6	350 x 75 x 290	1,900
AF-UFD-18	AF-UFA-18	35-45	18	6	450 x 75 x 290	2,500
AF-UFD-22	AF-UFA-22	45-55	22	6	550 x 75 x 290	2,850
AF-UFD-26	AF-UFA-26	55-65	26	6	650 x 75 x 290	3,200
AF-UFD-30	AF-UFA-30	65-75	30	6	750 x 75 x 290	3,850
AF-UFD-40	AF-UFA-40	75-100	40	6	1,150 x 75 x 290	5,050

# Options



## Water Softeners

Anthracite : for Sediment Removal  
Manganese Green Sand : For Stain Removal  
Activated Carbon : for Chlorine, Tastes and Odors Removal  
Cation Resin : for Hardness Removal  
Mixed-Bed Resin : for Salt Removal



## Stainless Steel Multi-Cartridge Filters and Housing

Commercial Stainless Steel Multi-Cartridge Filter and Housings provide a high quality solution for high-volume filtering at reduced pricing. Ideal for use in post- filtration and more. Housings will fit standard 30" or 40" filter cartridges. Filters cartridges are nominal micron rating 1-300 micron.



## Chemical Dosing System

Chemical dosing systems offer a wide range of capacities to meet various chemical treatment applications. For Ultrafiltration system, Chemical dosing system is required for CEB (Chemical Enhanced Backwash) operation when feed water is low quality.



## Membrane Cleaning System

Membrane cleaning system is designed for cleaning of various kinds of membrane. For Ultrafiltration system, Membrane cleaning system is required for CIP (Clean in Place) operation to clean the hollow fiber modules when transmembrane pressure (TMP) exceeds 1.0 bar.



## Air Compressor

Heavy duty air compressor with air flow of 5 - 12 Nm<sup>3</sup>/hr is required for air scouring of each Hollow fiber module in backwash operation.

Please request more information

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