Filtration Solutions, Inc.

Technology Innovation and System Solutions

HP Series – Oil/Water Separation UF Elements

The HP Series membrane filters are made of polyacrylonitrile (PAN) polymer in hollow fiber form for WRS systems. This membrane is characterized by a pore size of 0.05 microns with an approximate molecular weight cut-off of 100K Dalton. To avoid fouling by "free" oils, the HP series elements have been engineered to be hydrophilic (water attracting) as compared to conventional membranes that are oleophilic (oil attracting). These membranes are used for oil/water separation and suspended solids removal. They are also used as pretreatment of process water before reverse osmosis or nano-filtration.

Membrane maintenance is extremely easy. Periodic cleaning with a nonionic detergent is all that is necessary to maintain optimal performance. Chemicals may be used for cleaning. Acid solutions are used to remove inorganic scale, while bleach or caustic solutions are used to remove organic materials. The maximum cleaning solution strength is not to exceed the recommended limit shown in the Table.

Filter Element Dimensions and Weight

System Model No.	Process Rate GPH	(LPH)	Filter Part No.	Dimensions (Dia x Lg) in	(cm)	Dry Weight Lbs	(Kg)	Membrane Area Ft^2	(m^2)
WRS-4	4	15	HP-3510	3.5 x 9	9 x 23	1.5	0.7	5.7	0.53
WRS-12	12	45	HP-3516	3.5 x 16.5	9 x 42	2.5	1.1	15	1.39
WRS-24	24	90	HP-3530	3.5 x 30	9 x 76	4.5	2.1	29	2.69
WRS-35	35	130	HP-4030	4.25 x 31.5	11 x 80	7	3.2	42	3.90
WRS-45	45	170	HP-4040	4.25 x 41	11 x 104	9	4.1	55	5.11

Operating and Cleaning Parameters

Typical Operating Flux	10 - 30 GFD (17 - 51 LMH)
Max Operating Pressure	60 psi (410 kPa)
Max Temperature	122°F (50°C) - Continuous Operation 122°F (50°C) - Clean-In-Place (CIP)
pH Range	3 - 9 for Continuous Operation 2 - 10 for Clean-In-Place (CIP)
Trans-membrane Pressure	29 psi (200 kPa) - Max 3 - 22 psi (20 - 150 kPa) - Normal
Chlorine Tolerance	200,000 ppm-hours

Maximum Cleaning Solution Strength

Solutions	Maximum Strength	
Bleach (NaOCl)	150 ppm	<122°F (<50°C)
Caustic (NaOH)	pH 10	<122°F (<50°C)
Citric Acid	0.5%	<122°F (<50°C)

Note: Material compatibility shall be tested for applications with a content of highly concentrated solutions.

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