



SkyHydrant (SMF-1) Water Treatment Unit



The SkyHydrant™ (SMF-1) water purification unit is intended for affordable community water supply or disaster relief applications for production of potable water. It operates under as little as one 300 mm of gravity head and without the need for an electrical power supply. The units can be a single stand alone installation or manifolded together for higher capacity (as shown above) The SkyHydrant™ process combines microfiltration for primary disinfection and particulate removal with chlorine disinfection to produce a safe supply of water from the majority of non-saline surface and ground waters*. The system membrane sub-module is robust, cleanable and long lasting. All operating and membrane cleaning functions are simple and manual.

* The suitability of raw water source must be qualified via a sanitary survey and/or raw water analysis as appropriate.

The compact flexible design of the SkyHydrant™ unit allows it to be operated in a range of configurations. It is economical; compact, easy to transport and quick to deploy in the field. It is lightweight (15kgs) and easily redeployed from one site to another

Details of the unit design, including ancillary equipment requirements supplied by the end user, are detailed in the following pages.

SkyHydrant- is a registered trademark of SkyJuice Foundation.

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Operating Description

The SkyHydrant™ Unit comprises a single MEMCOR® membrane sub-module in a low-pressure housing. The unit is suitable for operation under low positive or negative head pressure. Raw water flows along the length of the hollow fibres before being forced through the walls of the fibre to produce a filtrate virtually free of suspended solids. The SkyHydrant™ system alone removes virtually all solids and bacteria and significantly reduces virus levels. Filtrate flowrate is controlled manually.

The secret to the successful operation of the SMF system is the effectiveness of the proprietary membrane cleaning process. A quick and simple membrane wash sequence is carried out manually by the operator. The wash cycle duration is approximately 90 seconds and generally occurs every 1-2 hours but can occur up to once every 12 hours depending on raw water turbidity and flowrate. Wash-waters can be disposed of by drain to waste or 20L bucket.

A simple membrane chemical cleaning sequence (CIP - Clean In Place) is periodically required to remove residual fouling that is not removed by the wash sequence and to limit bio-growth. Frequency of cleaning is application specific but varies generally from daily to weekly.

Unit Specifications

Model Number	<i>SKYHYDRANT (SMF-1)</i>
Number of sub-modules	1
Membrane Material	PVdF
Membrane Pore Size (µm)	0.1
Maximum Recommended Feed Particle size (µm)*	500
Maximum Recommended Feed Turbidity (NTU)†	500
Filtered Water Turbidity (NTU)	<0.1
Log Reduction Value for Particles 2-5 µm (LRV)	>4
Filtration Operating Mode	Pressure and/or Suction
Minimum Recommended Differential Pressure (m)	0.5
Maximum Recommended Differential Pressure (m)	4.0
Nominal capacity (Lph)	400min (Max 1000)
Cleaning chemical per CIP 10% Hypochlorite (mL)	40

* Unscreened or coarse screened raw waters may increase membrane wear-and-tear and reduce operating life.

† Capacity and washing/cleaning frequency will vary with feed turbidity.

Citric Acid Powder (g)		300
Approx Weight (kg)	Dry	13
	Operating	30
	Crated (Transport)	15
Overall Dimensions (mm)	Height	1,700
	Width	300
	Length	300
Recommended Clearance (mm)	Front	1,000
	Back	1,000
	LHS, RHS	1,000
Crate Dimensions (mm)	Height	1,800
	Width	400
	Length	400
Recommended location	Installed undercover with protection from direct sunlight and rainfall.	

Membrane Operating Limits

Operating Temperature Range	°C /°F	>0 - 40 / >32 - 104
Maximum temperature	°C /°F	45 / 113
Operating pH Range		2 - 10
Maximum pH		10.5
Normal exposure to chlorine/chloramine during cleaning	ppm	200