



# Q-SEP®

## OUTSIDE - IN HOLLOW FIBER ULTRAFILTRATION MEMBRANES

Q-SEP® outside-in hollow fiber ultrafiltration modules contain PVDF membranes manufactured with QUA's innovative modified thermally-induced phase separation (TIPS) method. The membrane has high mechanical strength, high chemical and chlorine tolerance, and the ability to handle high feed turbidity for a wide range of applications.

Q-SEP® outside-in UF membranes are made of modified hydrophilic polyvinylidene fluoride (PVDF) material that offers high fiber strength and chemical resistance, resulting in higher membrane productivity. These hollow fiber membranes operate under a low transmembrane pressure in an outside-in low configuration for superior performance. Applications of Q-SEP® UF include pretreatment to RO systems (brackish and seawater applications), purification of surface and well water for potable applications, filtration of industrial water, and wastewater recycle and reuse.

Q-SEP® modules deliver superior performance characteristics and product water quality that surpass the quality from conventional UF modules. This Q-SEP module provides a key advantage – the ability to operate with a one-pump system with no separate backwash pump or tank needed. This allows for lower equipment costs, lower risk of fiber leakage, and easier operation than other UF systems.

Contact QUA for assistance in the selection of Q-SEP® membranes specifically designed for your application.

The information provided in this data sheet are the general characteristics of a Q-SEP® module. QUA believes that this information is updated and accurate, however, the content of this datasheet might be subject to changes with further developments of the product line. Make sure that the Q-SEP® modules are operated according to the latest version of the QUA Operation and Maintenance/Technical Manual guidelines.



## TECHNICAL INFORMATION

Operational Instructions	
<b>Filtrate Flux Range</b>	40 to 120 LMH (24 to 71 gfd)
<b>Feed Pressure (Max.)</b>	4.8 bar (70 psig)
<b>Recommended Operating Pressure</b>	up to 3.0 bar (43 psig)
<b>Trans-Membrane Pressure</b>	0.3 to 2.0 bar (5 to 30 psig)
<b>pH Range</b>	2 - 10
<b>Operating pH Range</b>	5 - 9
<b>Operating Temperature Range</b>	2 - 45° C (35.6 - 113° F)
<b>Feed Turbidity</b>	Up to 100 NTU
<b>Typical Product Turbidity</b>	<0.1 NTU
<b>Filtration Cycle Duration</b>	20 - 60 minutes
<b>Operating Air Scour Flow</b>	8 to 10 Nm <sup>3</sup> /hr (4.7 to 5.9 scfm)
<b>Maximum Air low</b>	12 Nm <sup>3</sup> /hr (7.1 scfm)
<b>Air Inlet Pressure (Max.)</b>	2 bar (30 psig)

\*Can handle up to 300 NTU on an intermittent basis

## MAINTENANCE / CHEMICAL CLEANING

Operational Instructions	
<b>Estimated Frequency</b>	Once every 1-2 days, depending on feed water specs & TMP rise
<b>Duration</b>	20 to 30 minutes
<b>CEB Chemicals</b>	NaOCl (200 ppm as Cl <sub>2</sub> ) with 9.0 - 9.5 pH HCl / H <sub>2</sub> SO <sub>4</sub> (0.2% solution) with pH = 2 Citric acid (2% solution) with pH = 2
<b>Cleaning Flow range</b>	30 to 40 LMH (18 to 24 gfd)
<b>Air Scouring Flow</b>	2 - 4 Nm <sup>3</sup> /hr (1.2 to 2.4 scfm)
<b>Chemical Feeding Port</b>	Product

## TECHNICAL INFORMATION

Parameter	Description/Information
<b>Operating Configuration</b>	Self-encapsulated hollow fiber ultrafiltration membrane module (outside-in)
<b>Operating Mode</b>	Dead-end or Crossflow
<b>Module Mounting</b>	Vertical
<b>Membrane Material</b>	Hydrophilic PVDF
<b>Membrane Pore Size</b>	0.04 μ
<b>Housing Material</b>	UPVC
<b>End Cap Material</b>	GRP
<b>Nozzle Size</b>	2" Victaulic

## MODULE SPECIFICATIONS

Parameters	Unit	Q-SEP 6012	Q-SEP 8012
<b>Membrane Area</b>	m <sup>2</sup> (ft <sup>2</sup> )	60 (645)	80 (861)
<b>Flow Rate, Minimum</b>	m <sup>3</sup> /hr (gpm)	2.5 (10.6)	3.2 (14.1)
<b>Flow Rate, Maximum</b>	m <sup>3</sup> /hr (gpm)	7.2 (31.7)	9.6 (42.2)
<b>Fiber Outside Diameter (OD)</b>	mm (in)	1.25 (0.05)	1.25 (0.05)
<b>Fiber Inside Diameter (ID)</b>	mm (in)	0.75 (0.03)	0.75 (0.03)
Module Dimensions			
<b>Diameter (A)</b>	mm (in)	225 (8.85)	225 (8.85)
<b>Length - With End Cap (B)</b>	mm (in)	1780 (70.1)	2230 (87.8)
<b>Length - Port to Port (C)</b>	mm (in)	1666 (65.59)	2116 (83.3)
<b>Distance - Width (D)</b>	mm (in)	345 (13.58)	345 (13.58)
<b>Distance-Feed To Center (E)</b>	mm (in)	140 (5.51)	140 (5.51)
<b>Module Weight</b>	kg (lbs)	45 (99.2)	50 (110.2)

## MODULE PORT DESCRIPTION

Ports Tag No.	Ports Description	Size & Type
<b>N1</b>	Reject	2" Victaulic
<b>N2</b>	Product	2" Victaulic
<b>N3</b>	Feed	2" Victaulic
<b>N4</b>	Air Inlet	1/2" Female NPT Threaded

