



# pHasor™ II Membrane Contactor

High transfer efficiency and reliable delivery of bubble-free dissolved gases to enhance semiconductor process technologies



## PFA Hollow Fiber Technology

Mykrolis's patented (Patent Nos. 4,902,456; 4,906,377; 4,990,294; 5,032,274; 6,582,496 and others pending) PFA hollow fiber technology delivers a high concentration of bubble-free dissolved gas in high purity chemicals or water.

The pHasor II Membrane Contactor uses a unique gas permeable membrane with very high water intrusion pressure, which permits gas to rapidly dissolve into a liquid stream, while preventing liquid water from permeating across the membrane.

## Excellent Performance in a Safe, Clean and Compact Design

Safety and compatibility are ensured by the fully bonded PFA construction. The small footprint saves space and allows for a high concentration of ozone gas in high purity DI water with a low pressure drop over the fluid paths.

### Product Features

Large membrane surface area

PFA hollow fiber

All PFA shell construction

Compact, easy to install design

### Product Benefits

The large membrane surface area enables excellent gas transfer efficiency which rapidly produces high concentrations of bubble-free dissolved gas in process liquids.

The PFA hollow fiber membrane provides quick response during system startup and delivers high dissolved gas concentrations with low pressure drop over the fluid paths.

Provides excellent chemical compatibility and ensures chemical cleanliness.

The compact footprint provides easy installation and tool space savings.

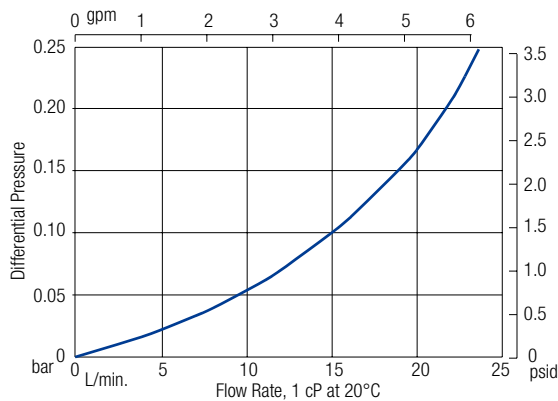
# pHasor II Membrane Contactor Ordering Information

Materials	Membrane: PFA Hollow Fiber
	Shell, End Caps and Fittings: PFA
Fittings	Liquid Fittings: 3/4" Flaretek® compatible fittings
	Gas Fittings: 1/4" Flaretek compatible fittings
Maximum Operating Conditions	Maximum Liquid Inlet Pressure: 0.5 MPa (5 bar, 73 psi) @ 40° C
	Maximum Gas Inlet Pressure: 0.345 MPa (3.45 bar, 50 psig) @ 40° C
	Maximum Operating Temperature: 40° C
	Maximum Transmembrane Pressure: 0.414 MPa (4.14 bar, 60 psig) @ 25° C
Typical Operating Conditions for Ozone	DI Water Inlet Pressure: 0.2 MPa (2 bar, 30 psi)
	Gas Inlet Pressure: 0.152 MPa (1.52 bar, 22 psig)
	Gas Flow Rate: 5 slpm
Applications	Temperature: 20 - 25° C

### Facility Requirements

O <sub>2</sub>	Research grade 99.999%
N <sub>2</sub>	UHP grade 99.999%
Use 3/4" tubing for the liquid inlet and outlet.	
Use 1/4" PFA tubing for the gas inlet and outlet.	

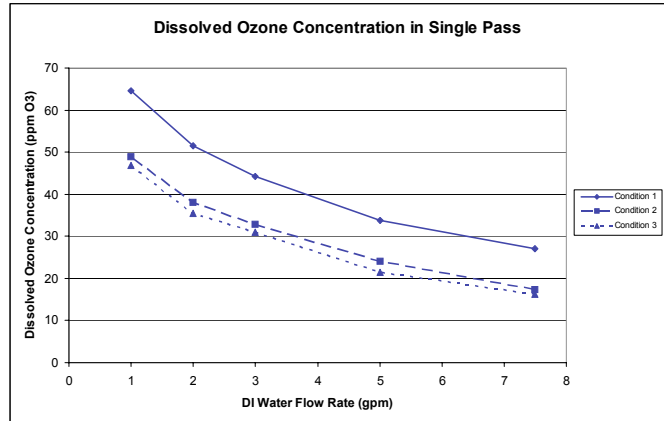
### Average Flow vs. Differential Pressure



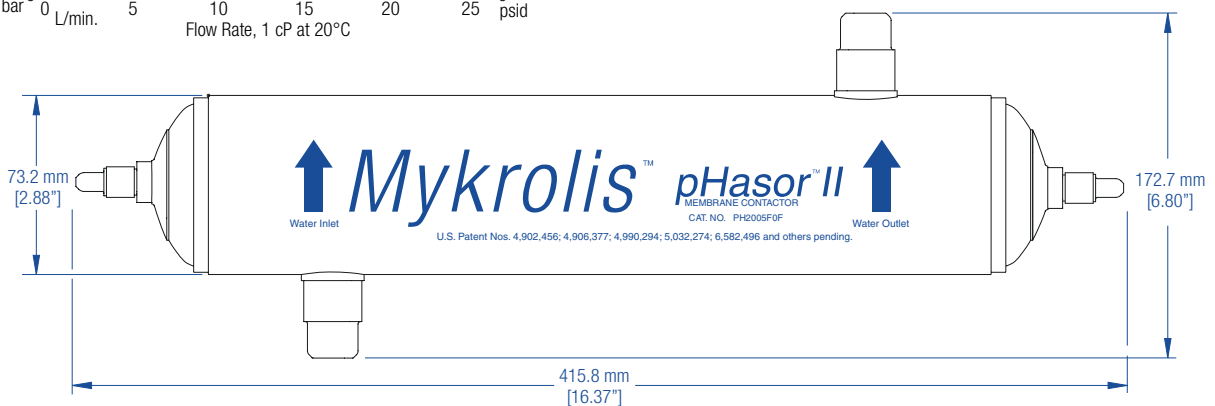
### Ordering Information

Description	Part #
pHasor II Membrane Contactor	PH2005F0F

### Representative Ozone Concentration Performance



Property	Condition 1	Condition 2	Condition 3
Ozone Concentration in Gas	250 g/Nm <sup>3</sup>		200 g/Nm <sup>3</sup>
Gas Flow	5 slpm		3 slpm
Gas Pressure	22 psi (0.15 MPa)	14 psi (0.097 MPa)	22 psi (0.15 MPa)
Water Temperature	20-25° C		



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