

High-efficiency bubble and dissolved gas removal from inks using hollow fiber membrane

EXTRABUTOR™ GAS-LIQUID SEPARATION MEMBRANE CONTACTORS

BUBBLE AND DISSOLVED GAS REMOVAL FROM INKS USING HYDROPHOBIC HOLLOW FIBER MEMBRANE

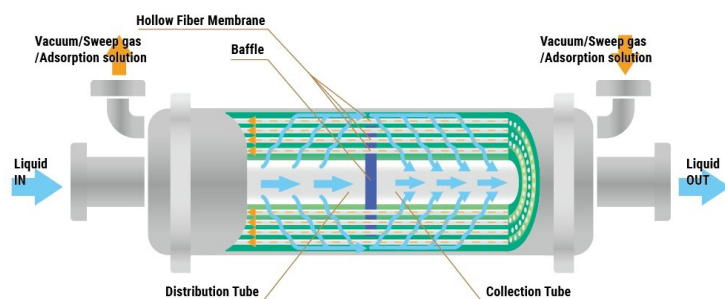
ExtraButor™ gas-liquid separation membrane contactors use hydrophobic hollow fiber membrane technology to remove dissolved gases in inks. In typical operation, liquid (ink) to be degassed flows outside the hollow fiber. At the same time vacuum is pulled through the inside hollow fiber. Micro pores on the surface of the hydrophobic hollow fiber allow gas molecules to pass through, but reject liquid molecules. Under the force caused by vacuum, the gases dissolved in ink outside the hollow fiber moves continuously through the micropores to the inside hollow fiber, and then is taken away by vacuum. In this way, dissolved gases in ink are removed.

FEATURE	BENEFIT
High efficiency hollow fiber construction and design	High removal efficiency of bubbles and dissolved gases from ink.
Low pressure drop, large degassing area	Allows maximum flow rate. Single flow can satisfy multiple print heads.
Simple operation process	Quick start. Very short time for system stability.
Standard connections	Typical industry ink connections



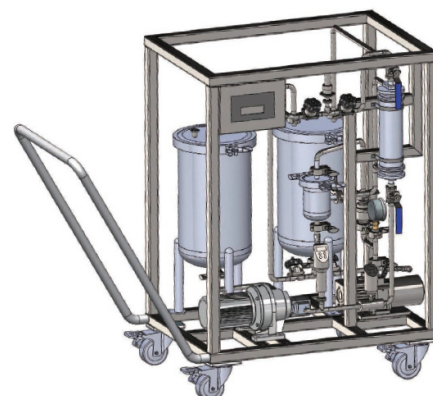
Typical Applications

- Degassing of bulk inks
- Degassing of inks prior to print head



Degassing Systems

Cobetter offers a variety of degassings systems and custom degassing system carts and panels. Contact your Banner representative for details.



DIMENSIONS, FITTINGS, FLOW RATES, DEGASSING EFFICIENCY

<p>Part Number</p>	<p>EX-DMA-L</p>	<p>EX-DMB-L-P</p>	<p>EX-DMB-L-Q</p>
<p>Tube (Vacuum/Gas) Side</p>	<p>Female Luer Lock</p>	<p>Luer Lock</p>	<p>Luer Lock</p>
<p>Shell (Liquid) Side</p>	<p>Female Luer Lock</p>	<p>Inlet: Luer Lock Outlet: 1/8 FNPT to 4 mm ID, 6 mm OD Hose Barb</p>	<p>Inlet: Luer Lock Outlet: 1/8 FNPT to 6 mm ID, 8 mm OD Hose Barb</p>
<p>Flow Rates</p>		<p>Typical Pressure Drop vs. Flow Rate</p>	
<p>Degassing Efficiency</p>		<p>Typical Oxygen Removal vs. Flow Rate</p>	
<p>Flow Rate</p>	<p>50 - 90 ml/min</p>	<p>30 - 150 ml/min</p>	
<p>Max. Working Temp/ Pressure</p>	<p>45°C / 0.2 MPa (29 psi)</p>	<p>45°C / 0.2 MPa (29 psi)</p>	
<p>Shell (Housing) Material</p>	<p>Black Polypropylene - PP</p>	<p>Black Polypropylene - PP</p>	

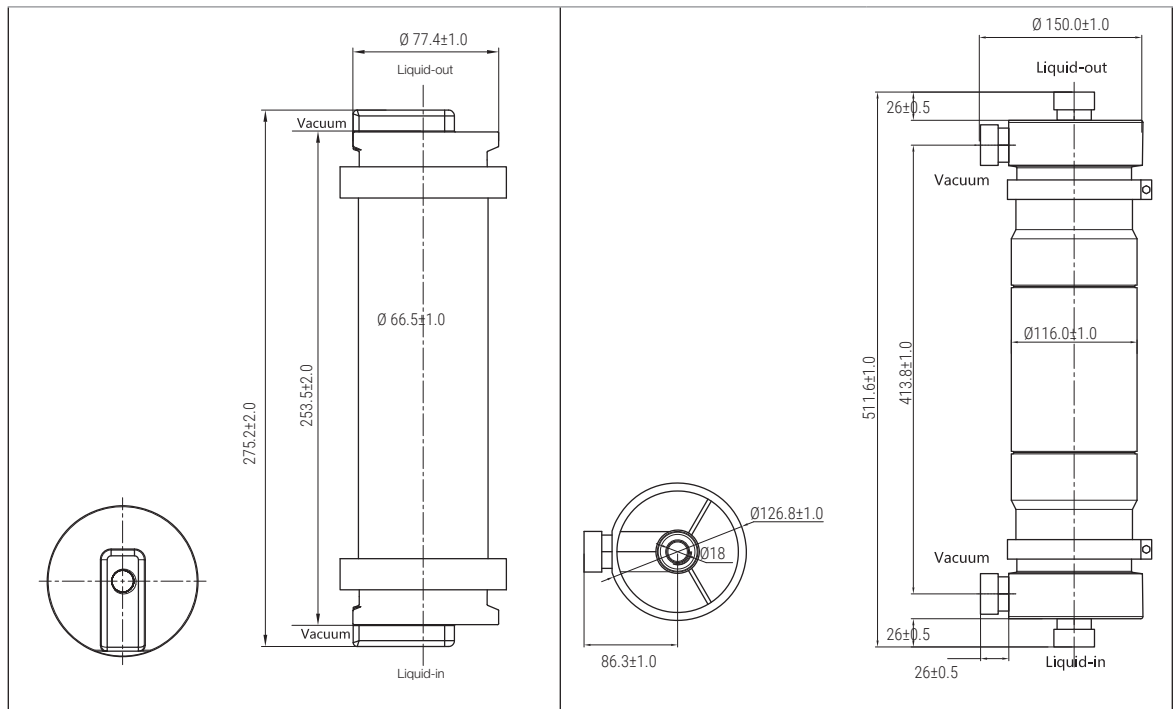
Additional fittings available upon request

DIMENSIONS, FITTINGS, FLOW RATES, DEGASSING EFFICIENCY

<p>Part Number</p>	<p>EX-DMB-8NC</p>	<p>EX-DMBP-8RC</p>
<p>Tube (Vacuum/Gas) Side</p>	<p>1/8" FNPT</p>	<p>1/8 Rc [Tapered Thread (BSPT), Female]</p>
<p>Shell (Liquid) Side</p>	<p>Inlet/Outlet: 1/8" FNPT</p>	<p>Inlet/Outlet : 1/8 Rc [Tapered Thread (BSPT), Female]</p>
<p>Flow Rates</p>		
<p>Degassing Efficiency</p>		
<p>Flow Rate</p>	<p>30 - 150 ml/min</p>	<p>50 - 400 ml/min</p>
<p>Max. Working Temp/ Pressure</p>	<p>45°C / 0.2 MPa (29 psi)</p>	<p>45°C / 0.2 MPa (29 psi)</p>
<p>Shell (Housing) Material</p>	<p>Black Polypropylene - PP</p>	<p>Black Polypropylene - PP</p>

Additional fittings available upon request

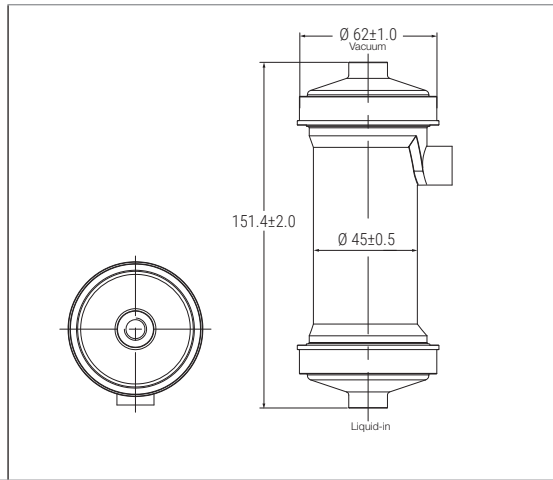
DIMENSIONS, FITTINGS, FLOW RATES, DEGASSING EFFICIENCY



TYPE:	EX-DMD-4NC	EX-DMF-3NC	EX-DMF-1GC
Tube (Vacuum/Gas) Side	1/4" FNPT	3/4" FNPT	1" GF
Shell (Liquid) Side	1/4" FNPT	Inlet/Outlet: 3/4" FNPT	Inlet/Outlet: 1" GF
Flow Rates	<p>Typical Pressure Drop vs. Flow Rate</p> <p>DIW Flow Rate (m³/hr) Temperature = 25°C</p>	<p>Typical Pressure Drop vs. Flow Rate</p> <p>DIW Flow Rate (m³/hr) Temperature = 25°C</p>	
Degassing Efficiency	<p>Typical Oxygen Removal vs. Flow Rate</p> <p>DIW Flow Rate (m³/hr) Temperature = 25°C Vacuum = 50 Torr</p>	<p>Typical Oxygen Removal vs. Flow Rate</p> <p>DIW Flow Rate (m³/hr) Temperature = 25°C Vacuum = 50 Torr</p>	
Flow Rate	0.1 - 0.7 m ³ /hr (0.44 - 3 gpm)	0.2 - 3.4 m ³ /hr (0.88 - 15 gpm)	
Max. Working Temp/ Pressure	50°C / 0.2 MPa (29 psi)	50°C / 0.2 MPa (29 psi)	
Shell (Housing) Material	White Polypropylene - PP	White Polypropylene - PP	

Additional fittings available upon request

DIMENSIONS, FITTINGS, FLOW RATES, DEGASSING EFFICIENCY



TYPE:	EX-DMC-4NC
Tube (Vacuum/Gas) Side	1/4" FNPT
Shell (Liquid) Side	1/4" FNPT
Flow Rates	<p style="text-align: center;">Typical Pressure Drop vs. Flow Rate</p> <p style="text-align: center;">DIW Flow Rate (ml/min) Temperature = 25°C</p>
Degassing Efficiency	<p style="text-align: center;">Typical Oxygen Removal vs. Flow Rate</p> <p style="text-align: center;">DIW Flow Rate (ml/min) Temperature = 25°C</p>
Flow Rate	0.003 - 0.06 m ³ /hr (0.01 - 0.3 gpm)
Max. Working Temp/ Pressure	45°C / 0.2 MPa (29 psi)
Shell (Housing) Material	White Polypropylene - PP

Additional fittings available upon request



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