



Graver Technologies

Filtration | Separation | Purification

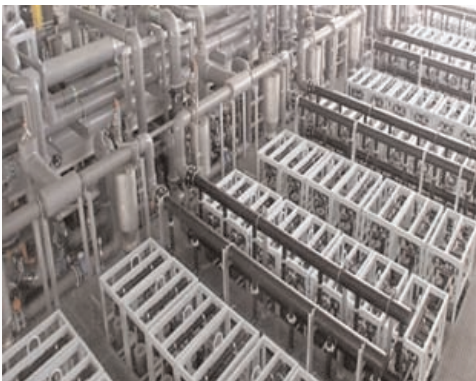
Hyflux KRISTAL™ K600 Polyethersulfone Hollow Fiber Membranes



The KRISTAL K600 hollow fiber ultrafiltration (UF) membranes are constructed of specially formulated hydrophilic polyethersulfone materials to provide outstanding flux rates with consistent and reliable filtration. The KRISTAL K600 membrane is manufactured using a proprietary process to produce a unique asymmetrical pore structure to provide enhanced filtration and withstand backwashing for prolonged service life. Each module is integrity tested at the factory to ensure filtration performance at system start-up.

High Flux Rate and Consistent, Reliable Filtration

With KRISTAL K600, you'll benefit from a robust membrane that delivers better permeate quality, higher permeate flux and throughput, and greater system recovery. The low pressure membrane operates with minimal attention, yet meets the strictest permeate quality requirements. Its simple, compact module design offers more membrane area per unit volume in a smaller footprint to lower your capital and installation costs.



Seletar NEWater plant in Singapore – 24,000 m³/day wastewater treatment of secondary effluent

Global Experience

KRISTAL K600 membranes are ideal for a wide range of applications including municipal water and wastewater, RO pretreatment and industrial wastewater. With numerous successful installations worldwide, you can count on KRISTAL K600 membranes to provide cost-effective solutions for your ultrafiltration needs.

Applications

RO Pretreatment Filtration

- Seawater desalination pretreatment
- RO and NF pretreatment for UPW streams

Industrial Wastewater

- Recycle industrial process wastewater
- Zero discharge of process waste streams

Municipal Water & Wastewater

- Removal of turbidity, bacteria, viruses and cysts
- Reduction of iron, manganese, organics and color
- Reclamation of wastewater

Water Purification

- Mobile water purification systems



Jurong Industrial Water – 2,000 m³/day reuse for high grade industrial and DI water

KRISTAL K600 Polyethersulfone Hollow Fiber Membranes

FEATURES	BENEFITS
Polyethersulfone Ultrafiltration Membrane	Provides high flux, high permeate quality, excellent chemical compatibility and reliability
Circular Hollow Fiber Geometry	Greater filtration surface area improves flux rate and reduces membrane cleaning time
High Membrane Packing Density	Increases membrane area per unit volume for smaller footprint to reduce capital and installation costs
Low Operating Pressures	Reduces life cycle costs
Effective Backwashing and Air-Scour Cleaning	Maintains optimal operating performance and provides effective system recovery

Module Specifications

PRODUCT SPECIFICATIONS	
Membrane Chemistry	Proprietary Polyethersulfone
Flow Path	Outside to Inside
Nominal MWCO	60,000 Dalton
Membrane Surface Area	753 ft ² (70 m ²)
Fiber Dimensions, OD/ ID/ Wall Thickness	0.045" (1.15mm) / 0.024" (0.6mm) / 0.011" (0.27mm)
Module Nominal Dimensions, Diameter x Length	8.5" (216mm) x 84" (2130mm)
Housing Construction	PVC
Feed and Permeate / Reject Connections	1.5" NPT Female / 1.0" NPT Female
Shipping Weight	121 lbs (55 kg)

PERFORMANCE	
Initial Clean Water Flow Rate	39.5 gpm (9 m ³ /h) ±10% @14.5 psi (1 bar), 77°F (25°C)
Typical Process Feed Flow Rate	26 – 35 gpm (6 – 8 m ³ /h)
Typical Permeate Flow Rate	18 – 31 gpm (4 – 7 m ³ /h)
Typical E. Coli Reduction	5 – 6 log
Typical Filtrate Turbidity	≤ 0.1 NTU
Typical Filtrate SDI	< 3
Typical TOC Reduction	15 – 20%

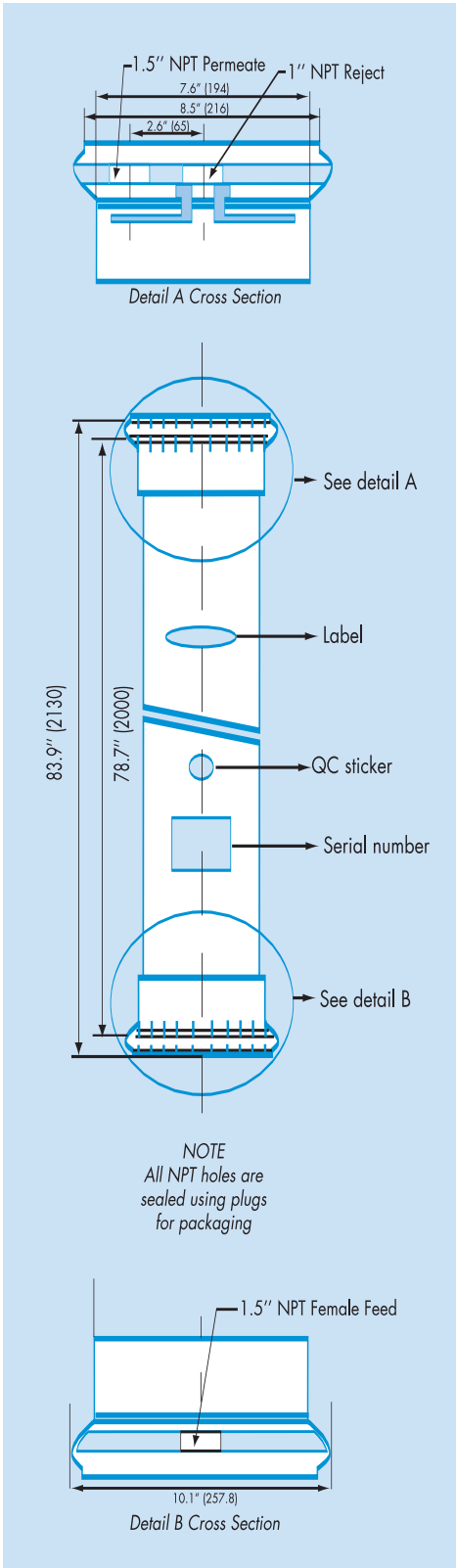
OPERATING PARAMETERS	
Maximum Operating Temperature	104°F (40°C)
pH Range – Operating	2 – 11
pH Range – Cleaning	2 – 12
Maximum Feed Pressure	37 psig (2.5 bar)
Transmembrane Pressure (TMP)	3 – 29 psi (0.2 – 2 bar)

KRISTAL membranes are manufactured under an ISO 9001:2000 certified Quality Management System.

For more information

Graver Technologies Customer Service: **1-800-249-1990**
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KRISTAL™ is a trademark of Hyflux LTD.
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