



# Membrane Evaluation System

# Compact and versatile platform for membrane evaluation

Compact, specific and intuitive. The bench-top Membrane Evaluation System (MES) is specifically designed to evaluate and optimise the performance of hollow fibre membranes for liquid-liquid or liquid-solid separation, under different operating conditions.

This system simplifies the process of selecting the most appropriate membrane type, and aids in formulating an effective CIP (clean-in-place) recipe for any process or application, within a short period of time.

## Product Features & Benefits

- Digital measurement sensors for accuracy and precision
- Intuitive LCD touch-screen control panel
- Built-in thermal heater
- Data logging and exporting capability
- Removable feed tank with heating/cooling coil
- Robust stainless steel components

## Operation Features & Benefits

- Easy to install, operate and maintain
- Supports multiple test profiles
- Evaluates Hyflux's proprietary ceramic and polymeric membranes for different applications
- Evaluates non-Hyflux hollow fibre membranes with the optional Hyflux potting kit

- Slide hatch feed access



- Flexible fixture for different test module sizes



- Removable feed tank
- Built-in thermal heater



- Weight transducer
- Removable tray



- LCD touch-screen
- USB port



### System Specifications

Membrane Evaluation System	MES-S-1000	MES-S-5000
Dimensions (L x W x H) (m)	0.786 x 0.411 x 0.5	
Gross Weight (Kg)	54	55
Operating Temperature (°C)	5 - 70	
Max Rated Input Pressure (bar)	4	
pH Range	2 - 13	
Touch Screen (320 x 240 pixels)	B/W LCD	STN Colour LCD
Digital Precision Sensors (Temperature/Flow-meter)	Yes	
Low-ripple Chemical Tolerant Diaphragm Pump	Yes	
Feed Tank Capacity (L)	3	
Built-in Heater and Thermal Control	No	Yes
Heating/Cooling Coil for Feed Tank	No	Yes
Permeate Collection Method	By Time	By Time/Weight
Programmable Test Profile	1	Up to 3
Data Logging	Up to 100KB (at least 12hrs of continuous data storage)	Up to 2GB (data is backed up automatically at regular intervals)
File Export via USB Port	No	Yes
Data Auto-save	No	Yes
Safety Standards	CE/CB/NRTL	
Safety Mechanism	<ol style="list-style-type: none"> <li>Automatic pump shutdown on detecting low feed volume</li> <li>Built-in service limits for max temperature and pressure that the system can operate</li> <li>Overflow drainage design of feed tank keeps system spill-free</li> <li>Built-in safety interlock mechanism for front cover to protect user from accidental injury during operation</li> </ol>	
Power Rating	100-120VAC 50-60Hz / 220-240VAC 50-60Hz	
Factory Warranty (Year)	1	

### Optional Upgrades

Upgrade Kit	Description	MES-S-1000	MES-S-5000
MES-O-002	5L Capacity Tank	Available	
MES-O-003	High-flow Membrane Adaptor Kit	Available	
MES-O-004	Automatic Data Backup and Export Kit	Available	Included in System
MES-O-005	Weight Transducer Kit (with Amplifier)	Available	Included in System
MES-O-006	Thermal Heater Kit (VAC 110V/230V)	Available	Included in System
MES-O-013	Heating/Cooling Coil for 3L Capacity Tank	Available	Included in System
MES-O-014	Heating/Cooling Coil for 5L Capacity Tank	Available	

Complementing the MES is Hyflux's proprietary hollow fibre Membrane Evaluation Kit\* (MEK). This kit allows users to mix and match the different types of membranes Hyflux has to offer.

The Membrane Evaluation Kit comprises:

- **Kristal® membrane test modules**  
Hyflux's organic polymeric ultrafiltration hollow fibre membranes in borosilicate glass tube housings
- **InoCep® membrane test modules**  
Hyflux's inorganic ceramic hollow fibre membranes, of different pore sizes, in borosilicate glass tube housings
- **Test module fitting unions**  
Attachments that connect the membrane test modules to flexible hoses
- **Reference and technical specifications guide**



\* 1 set includes 4 test modules and 3 union fittings.

Membrane Specifications		
Membrane Type	Kristal® 600E	InoCep®
Number of Fibres	8	1
Base Material	Modified PES	Ceramic
O.D./I.D. (mm)	1.35 / 0.7	4 / 3
Pore Size	120K (Dalton) MWCO	20, 40, 100, 200, 500, 800, 1400 nm
Membrane Surface Area (mm <sup>2</sup> )	8,240	1,978
Potting Material	PU	Epoxy
Max Feed Pressure (bar)	2.5	5
Operating TMP Range (bar)	0.2 - 2	1 - 3
Operating Temperature Range (°C)	5 - 40	-5 - 70
Operating Mode	Outside - In	Inside - Out
Operating pH Range	2 - 11	0 - 14

The Hyflux MES can also be used to evaluate other hollow fibre membranes available in the market. The simple-to-use membrane potting kit<sup>†</sup> provides the necessary components and instructions for users to assemble their own test module for use with the system.

The membrane potting kit comprises:

- **Membrane test modules for potting**
  - High-flow test module with 1 outlet
  - Normal-flow test module with 1 outlet
  - Normal-flow test module with 2 outlets
- **Potting technical guide**



† 1 set includes 8 test modules.

# About Hyflux

Hyflux Ltd is one of the world's leading fully-integrated water solutions companies, with operations and projects in Southeast Asia, China, India, the Middle East and North Africa. Hyflux's spirit of innovation and entrepreneurship drives its technological advancements in membranes, commercialisation of applications, project management, and operations and maintenance.

Hyflux is committed to providing cost-effective, reliable and sustainable solutions to its customers worldwide, from seawater desalination, water recycling, wastewater treatment, including membrane bioreactors (MBRs), to potable water treatment. Hyflux's track record includes Singapore's first NEWater plant and seawater desalination plant and China's largest membrane-based seawater desalination plant in Tianjin Dagang. The company is building the world's largest membrane-based seawater desalination plant in Magtaa, Algeria and Singapore's largest MBR facility.

Hyflux was awarded Distinction for "Desalination Company of the Year" by Global Water Intelligence (GWI) in 2010. In the same year, it also bagged GWI's Highly Commended Award for "Desalination Deal of the Year" and "Desalination Plant of the Year" for its landmark desalination projects in Magtaa, Algeria and Tianjin, China respectively. Hyflux was conferred "Water Company of the Year" by GWI in 2006.

Hyflux also clinched Frost and Sullivan "Asia Pacific Water Technology Company of the Year" award in 2010 and "Asia Pacific Technology Innovation of the Year (Desalination Technologies)" award in 2007.

For more information on Hyflux, please visit <http://www.hyflux.com>.

For more information on Hyflux membranes, please visit <http://www.hyfluxmembranes.com>.

## Other Products



### KRISTAL®

The preferred polymeric membrane with unparalleled performance in operational consistency and stability



### PetaFlex®

Submerged MBR membrane with unrivalled flux and packing density for quality water treatment



### InoCep®

Long-lasting superior ceramic hollow fibre membrane for extreme conditions



### FerroCep®

World's toughest stainless steel membrane that provides superior separation performance

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