

TurboClean® 4040-NP030-HS-31-M

Heat-Sanitizable

Nanofiltration Elements



NADIR® NP030 polyethersulfone (PES) membrane exhibits nanofiltration properties and a molecular weight cut-off in the range of 500 – 600 Da after a high-pressure stabilization, offering unique separation properties for process applications. TurboClean elements feature a patented sanitary hard-shell design that delivers better system performance due to about 60% less bypass flow than other sanitary elements. Lower bypass flow results in energy savings and/or higher flux rates as more of the feed flows across the membrane surface instead of around the outside of the element. Higher cross-flow velocity also results in the most effective membrane cleaning. TurboClean elements are stronger than net-wrapped sanitary elements and are able to withstand higher pressure drops. And with the tightest OD tolerance and optimal circularity, TurboClean elements are the easiest elements to load and unload.

- Strongest Sanitary Element
- Most Effective Cleaning and Sanitizing
- Lower Effective Recovery
- Energy Savings
- Less Scaling
- Ease of Installation

MEMBRANE CHARACTERISTICS

Membrane	NP030
Membrane Type	Polyethersulfone (PES)
Nominal M.W.C.O. (Da)	500 – 600
Na₂SO₄ Salt Rejection (%)^a	80 – 95

DESIGN INFORMATION

Model	Membrane Area m ² (ft ²)	Feed Spacer Thickness (mil) ^b
TurboClean® 4040-NP030-HS-31-M	7.0 (75)	31

a Test conditions: 5,000 ppm Na₂SO₄, 40 bar (580 psi), 20°C (68°F). Membrane specifications may change without notice as design revisions occur.

b This model has a TurboClean sanitary outer wrap and diamond shaped feed spacers. This model includes anti-telescoping devices (ATDs) attached to the ends of the element and one interconnector.

OPERATING PARAMETERS

Maximum Operating Pressure	41 bar (600 psi)
Maximum Sanitization Pressure	1.7 bar (25 psi)
Maximum Operating Temperature	50°C (122°F)
Maximum Sanitization Temperature¹	85°C (185°F) at 25 psi maximum pressure
Cleaning pH Range²	1.0 – 12.0
Chlorine Tolerance	200 ppm for sanitization at pH ≥ 10.5 and temperature ≤ 50°C
Maximum Pressure Drop	1.4 bar (20 psi) per element; 6 bar (80 psi) per housing
Maximum SDI₁₅	5.0
Maximum Turbidity	1 NTU

¹ Heat-setting procedure must be performed prior to initial use of elements. Refer to Element Start-Up Guide - Heat-Sanitizable Elements (TSG-O-004).

² Refer to temperature and pH limits in Membrane Cleaning Guide - Water Application Elements (TSG-C-001).

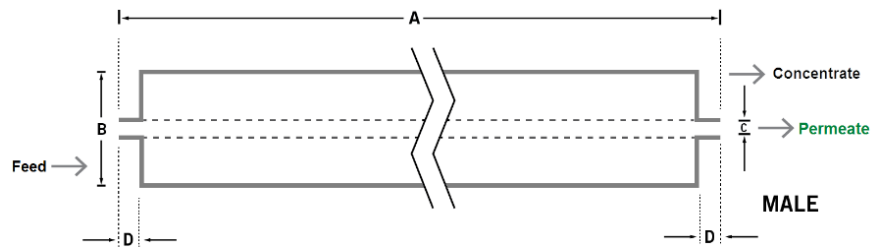
PHYSICAL DIMENSIONS

Model	Element Weight kg (lb) ^c	Dim. A mm (inches)	Dim. B mm (inches)	Dim. C ^d mm (inches)	Permeate Tube ^e
TurboClean® 4040-NP030-HS-31-M	4 (9)	1,016 (40.0)	99 (3.9)	19.1 (0.75)	Male

^c Shipping weight is dependent on packaging material and quantity shipped.

^d Diameters for Dimension "C" are as follows. For Female elements, "C" is the Inner Diameter. For Male elements, "C" is the Outer Diameter.

^e Male elements have a protruding permeate tube, indicated as "D" in the diagram. Dimension "D" is 25.4 mm (1.0 in).



IMPORTANT INFORMATION

Start-up: MANN+HUMMEL Water & Fluid Solutions recommends flushing elements for 30 minutes at low pressure and discarding permeate during the flush prior to operation. For a more detailed start-up procedure, please see Element Start-Up Guide – System Start-Up (TSG-O-005).

Cleaning: TurboClean® membrane elements must be cleaned periodically to ensure proper operation and to prevent membrane damage. Please see our Membrane Cleaning Guides.

Storage: TurboClean membrane elements must be stored appropriately to ensure proper operation and to prevent membrane damage. Please see Element Storage Guides (TSG-O-009 & TSG-O-010).

CUSTOMIZABLE SPECIALTY ELEMENTS

MANN+HUMMEL Water & Fluid Solutions offers a full range of membranes and element designs for challenging water and process applications. Technologies include low-fouling RO, submerged UF, continuous high temperature, ultra-high pressure, unique sanitary designs and more. Contact MANN+HUMMEL Water & Fluid Solutions to customize a product that satisfies your specific requirements.

Contact

Europe
 Germany: +49 611 962 6001
 Italy: +39 0721 1796201
 info.wfs@mann-hummel.com

Americas
 USA: +1 805 964 8003
 sales.mnus@microdyn-nadir.com

Asia
 Singapore: +65 6457 7533
 China: +86 10 8413 9860
 waterchina@mann-hummel.com



