



# TurboClean® High Temp NPO30 Series

MANN+HUMMEL Water & Fluid Solutions offers TurboClean® High Temperature elements for all of our membranes capable of continuous operation at temperature up to 80°C. These elements feature a patented sanitary hard-shell design that delivers better system performance due to about 60% less bypass flow than other sanitary elements. 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
- Longer Operating Life
- Better Performance
- Most Effective Cleaning
- Easiest Installation

## MEMBRANE CHARACTERISTICS

<b>Membrane</b>	NADIR® NPO30
<b>Nominal M.W.C.O. (Da)</b>	500 - 600
<b>Na<sub>2</sub>SO<sub>4</sub> Salt Rejection (%)<sup>a</sup></b>	77 - 95

## DESIGN INFORMATION

<b>Model</b>	<b>Membrane Area m<sup>2</sup> (ft<sup>2</sup>)</b>	<b>Feed Spacer Thickness (mil)<sup>b</sup></b>
<b>TurboClean® High Temp NPO30-4040</b>	6.0 (65)	47

<sup>a</sup> Test conditions: 5,000 ppm Na<sub>2</sub>SO<sub>4</sub>, 40 bar (580 psi), 20°C (68°F). Membrane specifications may change without notice as design revisions occur.

<sup>b</sup> This model has a TurboClean sanitary outer wrap and parallel feed spacers.

## OPERATING PARAMETERS

<b>Maximum Operating Temperature</b>	80°C (176°F)
<b>Maximum Operating Pressure</b>	40.0 bar (580 psi) at 60°C (140°F) 34.5 bar (500 psi) at 70°C (158°F) 30.0 bar (435 psi) at 80°C (176°F)
<b>Cleaning pH Range<sup>1</sup></b>	1.0 - 12.0
<b>Chlorine Tolerance</b>	200 ppm for sanitization at pH ≥ 10.5
<b>Maximum Pressure Drop at 30°C</b>	1.4 bar (20 psi) per element; 6 bar (80 psi) per housing
<b>Maximum Pressure Drop at 70°C</b>	0.3 bar (5 psi) per element; 1.4 bar (20 psi) per housing

<sup>1</sup> Refer to temperature and pH limits in our Membrane Cleaning Guides.

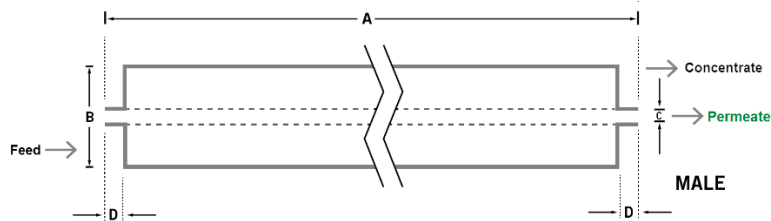
PHYSICAL DIMENSIONS

Model	Element Weight kg (lb) <sup>c</sup>	Dim. A mm (inches)	Dim. B mm (inches)	Dim. C <sup>d</sup> mm (inches)	Permeate Tube <sup>e</sup>
TurboClean® High Temp NP030-4040	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 Dimension "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 us 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