



# TurboClean® Food & Dairy

## NPO30 XT Series

TurboClean® XT elements feature a membrane cast on a polypropylene support material capable of being cleaned at high temperature and high pH conditions. To optimize system performance, these elements feature TurboClean technology, 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
- Longer Operating Life
- Better Performance
- Most Effective Cleaning
- Easiest Installation

### MEMBRANE CHARACTERISTICS

<b>Membrane</b>	NPO30 XT
<b>Membrane Type</b>	Polyethersulfone (PES)
<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>	80 – 95

### DESIGN INFORMATION

Model	Membrane Area - m <sup>2</sup> (ft <sup>2</sup> )	Feed Spacer Thickness - (mil) <sup>a</sup>
<b>TurboClean® NF 8038-NPO30XT-46</b>	23.7 (255)	46

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

### OPERATING PARAMETERS

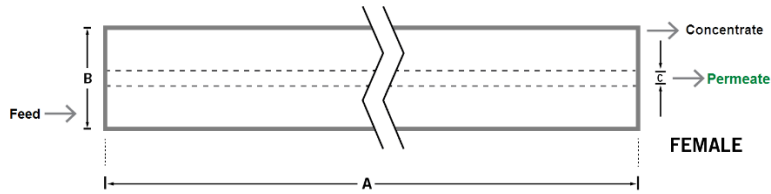
<b>Maximum Operating Pressure</b>	41 bar (600 psi)
<b>Maximum Operating Temperature</b>	60°C (140°F)
<b>Maximum Cleaning Temperature</b>	75°C (167°F)
<b>Maximum Sanitization Temperature</b>	85°C (185°F) at 1.7 bar max pressure, pH 6.0 – 8.0
<b>Cleaning pH Range<sup>1</sup></b>	1.0 – 13.0
<b>Cleaning Chlorine Tolerance</b>	200 ppm for sanitization at pH ≥ 10.5
<b>Maximum Pressure Drop</b>	1.4 bar (20 psi) per element; 6 bar (80 psi) per housing

<sup>1</sup> Refer to temperature and pH limits in Membrane Cleaning Guide - Food & Dairy: XT Elements (TSG-C-007).

**PHYSICAL DIMENSIONS**

Model	Element Weight kg (lb) <sup>b</sup>	Dim. A mm (inches)	Dim. B mm (inches)	Dim. C <sup>c</sup> mm (inches)	Permeate Tube
TurboClean® NF 8038-NP030XT-46	16 (36)	965 (38.0)	201 (7.9)	28.6 (1.125)	Female

b Shipping weight is dependent on packaging material and quantity shipped.  
 c Dimension "C" is the Inner Diameter.



**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 Membrane Cleaning Guide – Food & Dairy: XT Elements (TSG-C-007).
- 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).
- Regulatory:** This model conforms to USDA 3A sanitary standard 45-03, uses FDA (CFR Title 21) compliant materials, complies with EU regulation (EC) No. 1935/2004 and No. 10/2011, and has Halal and Kosher certifications.

**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.

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