TRISEP® XN45
High Flow NF Elements

TRISEP® XN45 is a piperazine-based nanofiltration membrane with the versatility to be used in process streams as well as low pressure water purification. XN45 elements have high rejection of divalent ions while allowing the great majority of monovalent ions to pass through the membrane. With a molecular weight cut-off in the range of 300-500 Daltons, XN45 is ideal for the demineralization of organic solutes. XN45 membrane is available in a wide variety of element designs for food, dairy and process applications.

MEMBRANE CHARACTERISTICS

Membrane	XN45
Membrane Type	Polypiperzine
Stabilized $MgSO_4$ Rejection (%)[a]	96.0
$MgSO_4$ Rejection Bounds (%)	94.0 – 98.0

a Typical NaCl rejection: 20%

DESIGN INFORMATION

Model	Part Number	Permeate Flow m^3/day (GPD)[b]	Membrane Area m^2 (ft^2)	Feed Spacer Thickness (mil)[c]
TRISEP® PLT 2540-XN45-31	167010441	2.1 (550)	2.4 (26)	31
TRISEP® PLT 4040-XN45-31	169050441	7.0 (2,000)	7.9 (85)	31
TRISEP® PLT 4040-XN45-46	168080441	6.1 (1,600)	6.0 (65)	46
TRISEP® 4040-XN45-TSA	162010442	7.0 (2,000)	8.2 (88)	31
TRISEP® 8040-XN45-TSA	168011841	34.0 (9,000)	33.9 (365)	34
TRISEP® 8040-XN45-TSFA	168014841	34.0 (9,000)	33.9 (365)	34
TRISEP® 8040-XN45-TTFA	167016840	27.3 (7,200)	25.5 (275)	46
TRISEP® 8040-XN45-TXA	168001841	27.3 (7,200)	25.5 (275)	47
TRISEP® 8040-XN45-TXFA	168034841	27.3 (7,200)	25.5 (275)	47
TRISEP® 8040-XN45-UWA	168026840	37.0 (10,000)	37.2 (400)	28
TRISEP® 8040-XN45-UWFA	168015841	37.0 (10,000)	37.2 (400)	31

b Test conditions: 2,000 ppm $MgSO_4$, 7.6 bar (110 psi), 25°C (77°F), 15% recovery, pH 8.0, 30 minutes operation. Flow rates will be no more than 15% below the values shown. Product specifications may change without notice as design revisions occur.

c All models on this sheet have fiberglass outer wrap. All 47 mil feed spacers are parallel; all other models have diamond shaped feed spacers. All models on this sheet include anti-telescoping devices (ATDs) attached to the ends of the element and one brine seal. All 4040 and 8040 models on this sheet include one interconnector.

OPERATING PARAMETERS

Maximum Operating Pressure	41 bar (600 psi)
Maximum Operating Temperature	45°C (113°F)
Cleaning pH Range[1]	1.0 – 12.0
Chlorine Tolerance[2]	< 0.1 ppm
Maximum Pressure Drop	1 bar (15 psi) per element; 4 bar (60 psi) per housing
Maximum SDI_{15}	5.0
Maximum Turbidity	1 NTU

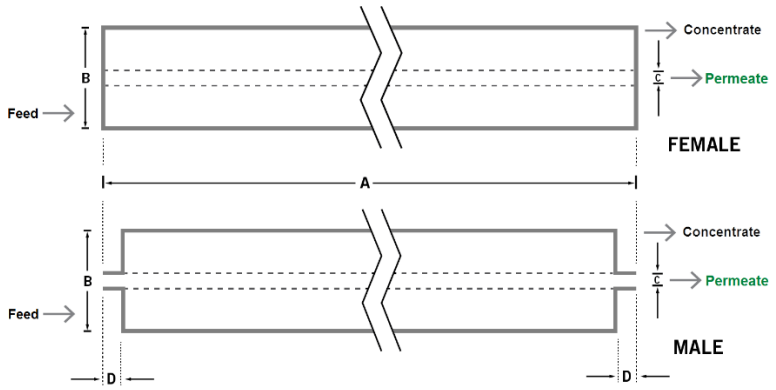
1 Refer to temperature and pH limits in Membrane Cleaning Guide - Water Application Elements (TSG-C-001).

2 Pretreatment is recommended for the removal of free chlorine and other oxidizing agents to prevent damage to membranes. Oxidizing agents, such as free chlorine, in contact with polyamide membranes may result in shortened operating life or membrane failure. Such oxidation damage is excluded from warranty. Refer to Membrane Operating Guide - Recommendations for Water Purification (TSG-O-012).

PHYSICAL DIMENSIONS

Model	Element Weight kg (lb)[d]	Dim. A mm (inches)	Dim. B mm (inches)	Dim. C[e] mm (inches)	Permeate Tube[f]
TRISEP® PLT 2540-XN45-31	3 (7)	1,016 (40.0)	64 (2.5)	19.1 (0.75)	Male
TRISEP® PLT 4040-XN45-31	4 (9)	1,016 (40.0)	99 (3.9)	19.1 (0.75)	Male
TRISEP® PLT 4040-XN45-46	4 (9)	1,016 (40.0)	99 (3.9)	19.1 (0.75)	Male
TRISEP® 4040-XN45-TSA	4 (9)	1,016 (40.0)	99 (3.9)	19.1 (0.75)	Female
TRISEP® 8040-XN45-TSA	16 (36)	1,016 (40.0)	201 (7.9)	38.1 (1.50)	Female
TRISEP® 8040-XN45-TSFA	16 (36)	1,016 (40.0)	201 (7.9)	28.6 (1.125)	Female
TRISEP® 8040-XN45-TTFA	16 (36)	1,016 (40.0)	201 (7.9)	28.6 (1.125)	Female
TRISEP® 8040-XN45-TXA	16 (36)	1,016 (40.0)	201 (7.9)	38.1 (1.50)	Female
TRISEP® 8040-XN45-TXFA	16 (36)	1,016 (40.0)	201 (7.9)	28.6 (1.125)	Female
TRISEP® 8040-XN45-UWA	16 (36)	1,016 (40.0)	201 (7.9)	38.1 (1.50)	Female
TRISEP® 8040-XN45-UWFA	16 (36)	1,016 (40.0)	201 (7.9)	28.6 (1.125)	Female

d Shipping weight is dependent on packaging material and quantity shipped.
e Diameters for Dimension "C" are as follows. For Female elements, "C" is the Inner Diameter. For Male elements, "C" is the Outer Diameter.
f 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: TRISEP® membrane elements must be cleaned periodically to ensure proper operation and to prevent membrane damage. Please see Membrane Cleaning Guide – Water Application Elements (TSG-C-001).

Storage: TRISEP 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.

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