



# TRISEP® TS40

## High Rejection Process NF Elements

TRISEP® TS40 membrane elements deliver value by purifying and separating solutes. TS40 has high rejection of divalent and polyvalent ions while allowing the majority of monovalent ions to pass through the membrane. With a molecular weight cut-off in the range of 200-300 Daltons, TS40 is a piperazine-based membrane that is often used to demineralize and concentrate organic solutes. TS40 membrane is available in a wide variety of element designs for food, dairy and process applications.

### MEMBRANE CHARACTERISTICS

<b>Membrane</b>	TS40
<b>Membrane Type</b>	Polypiperazine
<b>Stabilized MgSO<sub>4</sub> Rejection (%)<sup>a</sup></b>	99.0
<b>Minimum MgSO<sub>4</sub> Rejection (%)</b>	98.5

<sup>a</sup> Typical NaCl rejection: 40%

### DESIGN INFORMATION

Model	Part Number	Permeate Flow m <sup>3</sup> /day (GPD) <sup>b</sup>	Membrane Area m <sup>2</sup> (ft <sup>2</sup> )	Feed Spacer Thickness (mil) <sup>c</sup>
TRISEP® PLT 2540-TS40-31	163040241	1.9 (500)	2.4 (26)	31
TRISEP® PLT 4040-TS40-31	162020442	6.1 (1,600)	7.9 (85)	31
TRISEP® 8040-TS40-TSA	163000844	27.6 (7,300)	33.9 (365)	34
TRISEP® 8040-TS40-TSFA	168021841	27.6 (7,300)	33.9 (365)	34
TRISEP® 8040-TS40-TTFA	167017840	20.8 (5,500)	25.5 (275)	46
TRISEP® 8040-TS40-TXFA	168035841	20.8 (5,500)	25.5 (275)	47
TRISEP® 8040-TS40-UWFA	169024941	30.3 (8,000)	37.2 (400)	31

<sup>b</sup> Test conditions: 2,000 ppm MgSO<sub>4</sub>, 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.

<sup>c</sup> 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

<b>Maximum Operating Pressure</b>	41 bar (600 psi)
<b>Maximum Operating Temperature</b>	45°C (113°F)
<b>Cleaning pH Range<sup>1</sup></b>	1.0 – 12.0
<b>Chlorine Tolerance<sup>2</sup></b>	< 0.1 ppm
<b>Maximum Pressure Drop</b>	1 bar (15 psi) per element; 4 bar (60 psi) per housing
<b>Maximum SDI<sub>15</sub></b>	5.0
<b>Maximum Turbidity</b>	1 NTU

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

<sup>2</sup> 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).

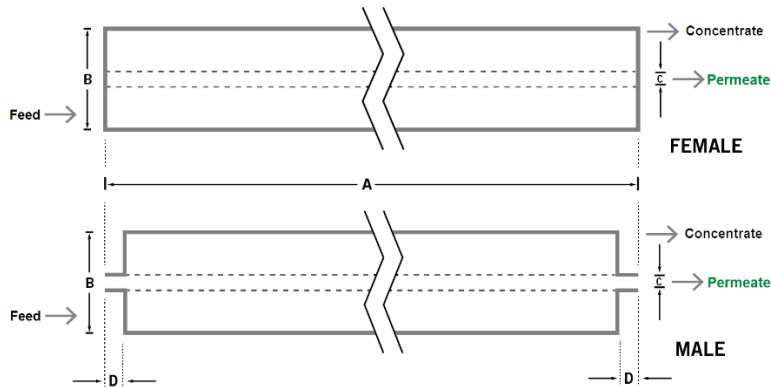
PHYSICAL DIMENSIONS

Model	Element Weight kg (lb) <sup>d</sup>	Dim. A mm (inches)	Dim. B mm (inches)	Dim. C <sup>e</sup> mm (inches)	Permeate Tube <sup>f</sup>
TRISEP® PLT 2540-TS40-31	3 (7)	1,016 (40.0)	64 (2.5)	19.1 (0.75)	Male
TRISEP® PLT 4040-TS40-31	4 (9)	1,016 (40.0)	99 (3.9)	19.1 (0.75)	Male
TRISEP® 8040-TS40-TSA	16 (36)	1,016 (40.0)	201 (7.9)	38.1 (1.50)	Female
TRISEP® 8040-TS40-TSFA	16 (36)	1,016 (40.0)	201 (7.9)	28.6 (1.125)	Female
TRISEP® 8040-TS40-TTFA	16 (36)	1,016 (40.0)	201 (7.9)	28.6 (1.125)	Female
TRISEP® 8040-TS40-TXFA	16 (36)	1,016 (40.0)	201 (7.9)	28.6 (1.125)	Female
TRISEP® 8040-TS40-UWFA	16 (36)	1,016 (40.0)	201 (7.9)	28.6 (1.125)	Female

<sup>d</sup> Shipping weight is dependent on packaging material and quantity shipped.

<sup>e</sup> Diameters for Dimension "C" are as follows. For Female elements, "C" is the Inner Diameter. For Male elements, "C" is the Outer Diameter.

<sup>f</sup> 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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