

Low fouling and high tolerance RO

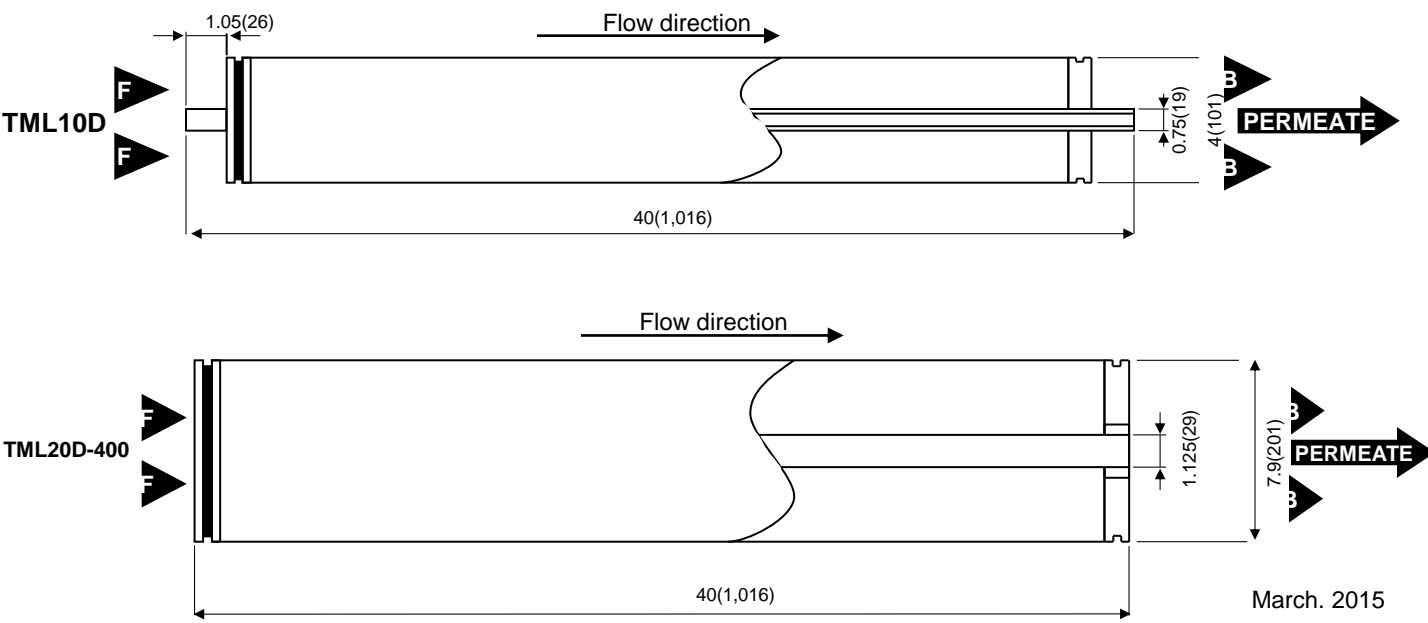
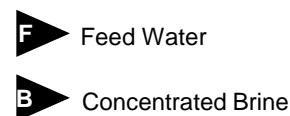
TML (D)

Type	Diameter Inch	Membrane Area ft ² (m ²)	Salt Rejection %	Product Flow Rate gpd(m ³ / d)	Feed Spacer Thickness mil
TML10D	4"	73(7)	99.8	1,900(7.2)	34
TML20D-400	8"	400(37)	99.8	10,500(39.7)	34

1. Membrane Type		Cross Linked Fully Aromatic Polyamide Composite
2. Test Conditions	Feed Water Pressure Feed Water Temperature Feed Water Concentration Recovery Rate Feed Water pH	225 psi(1.55MPa) 77° F(25°C) 2,000 mg/l NaCl 15% 7
3. Minimum Salt Rejection		99.65%
4. Minimum Product Flow Rate		1,500gpd(5.8m ³ /d)(TML10D) 8,400gpd(31.8m ³ /d)(TML20D-400)

Dimensions

All dimensions shown in Inches (millimeter).



Operating Limits

Maximum Operating Pressure	600 psi (4.1 MPa)
Maximum Feed Water Temperature	113° F (45°C)
Maximum Feed Water SDI15	5
Feed Water Chlorine Concentration	^{*See below 3 of Operating Information} < 0.1ppm
Feed Water pH Range, Continuous Operation	2-11
Feed Water pH Range, Chemical Cleaning	1-13
Maximum Pressure Drop per Element	15psi (0.10 MPa)
Maximum Pressure Drop per Vessel	50psi (0.34 MPa)

Operating Information

1. For the recommended design range, please consult the latest Toray technical bulletin, design guide lines, computer design program, and/ or call an application specialist. If the operating limits given in this Product Information Bulletin are not strictly followed, the Limited Warranty will be null and void.
 2. All elements are wet tested, treated with a 1% by weight percent sodium bisulfite storage solution, and then vacuum packed in oxygen barrier bags, or treated with tested feed water solution, and then vacuum packed in oxygen barrier bags with deoxidant inside. To prevent biological growth during short term storage, shipment, or system shutdown, it is recommended that Toray elements be immersed in a protective solution containing 500 - 1,000 ppm of sodium bisulfite (food grade) dissolved in permeate.
 3. The presence of free chlorine and other oxidizing agents under certain conditions, such as heavy metals which acts as oxidation catalyst in the feed water will cause unexpected oxidation of the membrane. Since oxidation damage is not covered under warranty, it is strongly recommended to remove these oxidizing agents contained in feed water before operating RO system. Please refer to Toray RO Element Three-Year Prorated Limited Warranty.
 4. Permeate from the first hour of operation shall be discarded.
 5. The customer is fully responsible for the effects of chemicals that are incompatible with the elements. Their use will void the element Limited Warranty.
 6. Recommended Process/ Operation pressure is < 2.0 MPa
 - a) Ultra low pressure elements will perform best with low salinity brackish water
 - b) Above pressure range should be maintained also at low temperature
- For more details, and in special cases, please consult the projection design guideline or contact your membrane supplier.

Notice

1. Toray accepts no responsibility for results obtained by the application of this information or the safety or suitability of Toray's products, either alone or in combination with other products. Users are advised to make their own tests to determine the safety and suitability of each product combination for their own purposes.
2. All data may change without prior notice, due to technical modifications or production changes.

Asia and Oceania: **Toray Industries, Inc.**

1-1, Nihonbashi
muromachi 2-chome
Chuo-ku, Tokyo 103-8666,
Japan

Tel : +81 3 3245 4540
Fax: +81 3 3245 4913
<http://www.toraywater.com>

Americas: **Toray Membrane USA, Inc.**

13435 Danielson St,
Poway, CA 92064, USA

Tel: +1 858 218 2390
Fax: +1 858 486 3063

Europe: **Toray Membrane Europe AG**

Grabenackerstrasse 8
CH-4142 Münchenstein 1,
Switzerland

Tel: +41 61 415 87 10
Fax: +41 61 415 87 20

CHINA: **Toray BlueStar Membrane Co., Ltd.**

No.5 Anxiang Street, Area B,
Beijing Tianzhu Airport
Economic Development Zone,
Beijing ,101318 P.R.C.

Tel: +86 10 80490552
Fax: +86 10 80485217

Middle East & North Africa: **Toray Membrane Middle East LLC.**

PO Box 20279, Al Khobar 31952,
Kingdom of Saudi Arabia

Phone: +966-13-568-0091
Fax: +966-13-568-0093