# MUNI RO LE Series

## Membrane Elements for Municipal Drinking Water Plants

Engineered to treat municipal potable water at lower pressures, the MUNI RO LE series enables drinking water processes to achieve reduced operating costs. Low-pressure operations also reduce membrane compaction, which increases the efficiency of the RO system. The MUNI RO LE series includes a selection of three elements featuring two different outer covers in consideration of energy conservation and salt rejection performance.

### Full-Fit* or Fiberglass

Applications vary and one design cannot best serve all requirements. The MUNI RO LE series offers the unique solution-oriented option of a 365 sq. ft. Full-Fit* membrane element or standard FRP construction. While FRP construction offers comparably higher rejection performance, the creative Full-Fit design forms a close fit within the pressure vessel walls, thus eliminating dead spaces prone to bacterial growth and adhesion, and allowing for quick and complete cleaning. In addition to this sanitizing feature, pressure drop across the elements using Full-Fit design is significantly less than standard FRP construction (Figure 1), which may lead to substantial energy savings.

The MUNI RO LE membrane elements are tested and certified by NSF international against NSF/ANSI Standard 61 for material requirements only.

The MUNI RO LE membrane is a low energy element following a 100% Wet Test Quality Assurance.

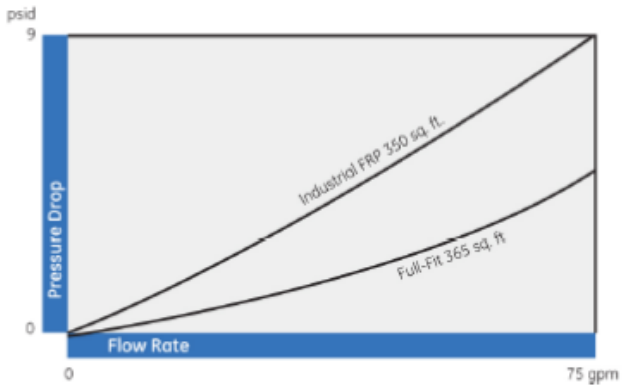



**Figure 1: High Flow Rate at Low Pressure Drop**

**Table 1: Element Specification**

| | |
|---|---|
| Membrane | Thin-Film Membrane (TFM*) |

| Model | Average permeate flow gpd (m3/day) [1,2] | Average NaCl rejection [1,2] | Minimum NaCl rejection [1,2] |
|---|---|---|---|
| MUNI-RO-365-LE-WT | 9,600 (34.8) | 99.0 % | 98.0% |
| MUNI-RO-365-LE-FF-WT | 9,600 (36.3) | 98.5 % | 98.0% |
| MUNI-RO-400-LE-WT | 10,500 (39.7) | 99.0 % | 98.0% |
| MUNI-RO-400-LE-FF-WT | 10,500 (41.6) | 98.5 % | 98.0% |

[1] Average salt rejection after 24 hours operation. Individual flow rate may vary +25%/-15%.
[2] Testing conditions: 500ppm NaCl solution at 115psi (792.9kPa) operating pressure, 77°F (25°C), pH 7.5 and 15% recovery.

| Model | Active area $ft^2$ ($m^2$) | Outer wrap | Part number |
|---|---|---|---|
| MUNI-RO-365-LE-WT | 365 (33.9) | Fiberglass | 1266771 |
| MUNI-RO-365-LE-FF-WT | 365 (33.9) | Full-Fit | 1266803 |
| MUNI-RO-400-LE-WT | 400 (37.2) | Fiberglass | 1260802 |
| MUNI-RO-400-LE-FF-WT | 400 (37.2) | Full-Fit | 3044144 |

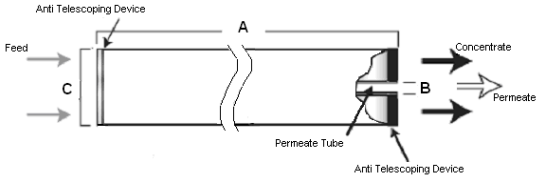



**Figure 1: Element Dimensions Diagram – Female**

## Table 2: Dimensions and Weight

| Model[1] | Dimensions, inches (cm) | | | Boxed |
|---|---|---|---|---|
| | A | B[2] | C[3] | Weight lbs (kg) |
| MUNI-RO-350-LE-WT | 40.0 (101.6) | 1.125 (2.86) | 7.9 (20.1) | 35 (16) |
| MUNI-RO-365-LE-FF-WT | 40.0 (101.6) | 1.125 (2.86) | 7.9 (20.1) | 35 (16) |
| MUNI-RO-400-LE-WT | 40.0 (101.6) | 1.125 (2.86) | 7.9 (20.1) | 35 (16) |
| MUNI-RO-400-LE-FF-WT | 40.0 (101.6) | 1.125 (2.86) | 7.9 (20.1) | 35 (16) |

[1]These elements are bagged wet before shipping.
[2]Internal diameter.
[3]The element diameter (dimension C) is designed for optimum performance in GE pressure vessels. Others pressure vessel dimension and tolerance may result in excessive bypass and loss of capacity.

## Table 3: Operating and CIP parameters

| | |
|---|---|
| Typical Operating Pressure | 110psi (758kPa) |
| Typical Operating Flux | 10-20GFD (15-35LMH) |
| Maximum Operating Pressure | 400psi (2,758kPa) |
| Maximum Temperature | Continuous operation: 112°F (50°C)<br>Clean-In-Place (CIP): 112°F (50°C) |
| Minimum Crossflow | 30gpm (6.8m3/h) |
| pH Range | Continuous operation: 4.0-11.0,<br>Clean-In-Place (CIP): 2.0-11.5 |
| Maximum Pressure Drop | Over an element: 12psi (83kPa)<br>Per housing: 50psi (345kPa) |
| Chlorine Tolerance | 1,000+ ppm-hours,<br>dechlorination recommended, |
| Feedwater | NTU < 1<br>SDI < 5 |
| Recommended single element recovery | < 15 % |