



MICRODYN RO &
NF Spiral Elements
Standard Offering

MICRODYN RO Brackish Water (BW) Elements



EFFECTIVENESS

Reverse Osmosis (RO) membranes remove a large majority of contaminants from water, including even the smallest monovalent ions like silica and chloride, as well as micro-contaminants like pesticides and fertilizers. RO is capable of rejecting over 99% of dissolved salts (ions), particles, organics, and more from the feed water.

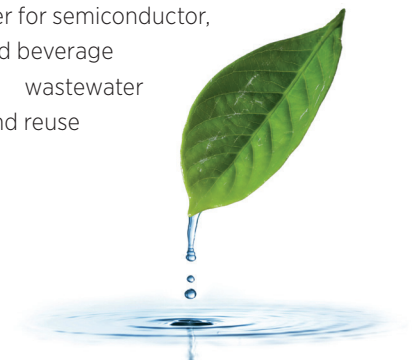
DROP-IN REPLACEMENT

MICRODYN RO elements are available in standard 4" and 8" spiral-wound designs with a high rejection BW RO membrane or a low energy (LE) RO membrane to meet all your new equipment and direct replacement needs. MICRODYN RO elements make it easy to replace competitive RO elements without adapting existing hardware. These are the perfect solution for standard systems with no need for customization.

APPLICATIONS

Microdyn RO and NF spiral wound module offer solutions for brackish and seawater desalination, water reuse and purification. Example applications for our RO and NF spiral wound membranes are:

- Desalination of brackish and seawater for municipal drinking water
- Treatment of ground and surface water, and wastewater
- Production of boiler feed water in power plants
- Production of ultrapure water for semiconductor, pharmaceutical and food and beverage
- Municipal and industrial wastewater treatment for reclamation and reuse



MICRODYN RO

High Rejection & Low Energy BW Elements

MICRODYN RO BW MATERIAL DATA*

| | 4040-BW | 8040-BW-400 |
|---|-------------|---------------|
| Stabilized Salt Rejection (%) | 99.5 | 99.5 |
| Permeate Flow - m³/d (GPD) | 9.3 (2,450) | 41.6 (11,000) |
| Membrane Area - m² (ft²) | 7.9 (85) | 37.2 (400) |

MICRODYN RO FR MATERIAL DATA*

| | 4040-FR | 8040-FR-400/34 |
|---|-------------|----------------|
| Stabilized Salt Rejection (%) | 99.5 | 99.5 |
| Permeate Flow - m³/d (GPD) | 7.6 (2,000) | 39.7 (10,500) |
| Membrane Area - m² (ft²) | 7.0 (75) | 37.2 (400) |

MICRODYN RO LE MATERIAL DATA*

| | 4040-LE | 8040-LE-400 |
|---|-------------|---------------|
| Stabilized Salt Rejection (%) | 99.3 | 99.3 |
| Permeate Flow - m³/d (GPD) | 8.3 (2,200) | 40.0 (10,550) |
| Membrane Area - m² (ft²) | 7.9 (85) | 37.2 (400) |

MICRODYN RO XLE MATERIAL DATA*

| | 4040-XLE | 8040-XLE-440 |
|---|-------------|---------------|
| Stabilized Salt Rejection (%) | 99.2 | 99.2 |
| Permeate Flow - m³/d (GPD) | 9.8 (2,600) | 50.0 (13,200) |
| Membrane Area - m² (ft²) | 7.9 (85) | 40.9 (440) |

HIGH REJECTION

High rejection MICRODYN RO elements are made with a tighter membrane, leading to higher salt rejection than the low energy alternative. Obtaining increased salt rejection requires a higher feed pressure, and these elements offer 99.5% rejection.*

These MICRODYN RO elements are available in standard 4" and 8" spiral-wound designs with a high rejection BW RO membrane. In addition, MICRODYN RO includes a line of seawater membranes to handle all your desalination needs. It is simple to update your RO system with MICRODYN RO elements.

FOULING RESISTANT

Another option with MICRODYN RO elements is a fouling resistant (FR) designation. These elements are a great choice when membrane fouling is a concern. They offer 99.5% rejection, still a high rejection membrane, and are an excellent competitive product for industrial water streams and other fouling streams.

LOW ENERGY

Pressurizing the feed water at an RO plant takes substantial energy. When very high purity water is not required, using low energy elements can provide significant energy savings at the plant. Low energy MICRODYN RO elements require lower feed pressure to operate while still offering considerable salt rejection expected in an RO element.

EXTRA LOW ENERGY

As the name implies, the extra low energy (XLE) MICRODYN RO elements are capable of operating at even lower energy levels. These elements are the lowest pressure MICRODYN RO elements.

* Visit mann-hummel.com for Technical Data Sheets and a list of all available models.

MICRODYN NF

Nanofiltration Elements

OVERVIEW

Similar to RO, MICRODYN NF membranes are built for water purification. They are designed to remove organic substances like micropollutants and multivalent ions.

NF requires lower operating pressures than RO and has a slightly more open structure allowing predominantly monovalent ions to pass through the membrane, while largely rejecting divalent and multivalent ions. NF membranes partially demineralize water, removing between 10% and 90% of dissolved salts.

MICRODYN NF7 MATERIAL DATA*

| | 4040-NF7 | 8040-NF7-400 |
|---|-------------|---------------|
| Stabilized MgSO₄ Rejection (%) | > 97 | > 97 |
| Stabilized NaCl Rejection (%) | 45-55 | 45-55 |
| Permeate Flow - m³/d (GPD) | 9.5 (2,500) | 47.3 (12,500) |
| Membrane Area - m² (ft²) | 7.9 (85) | 37.2 (400) |

* Visit mann-hummel.com for Technical Data Sheets and a list of all available models.

APPLICATIONS

Applications for MICRODYN NF include water softening and removal of pesticides, color, and nitrates. They have been proven to be a successful and cost-effective technology to remove harmful heavy metals, disinfectant byproducts, organics, hardness, TDS, nitrates, and color to meet safe drinking water quality requirements.

MICRODYN NF9 MATERIAL DATA*

| | 4040-NF9 | 8040-NF9-400 |
|---|-------------|--------------|
| Stabilized MgSO₄ Rejection (%) | > 97 | > 97 |
| Stabilized NaCl Rejection (%) | 89-95 | 89-95 |
| Permeate Flow - m³/d (GPD) | 7.6 (2,000) | 40.0 (9,500) |
| Membrane Area - m² (ft²) | 7.9 (85) | 37.2 (400) |

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