

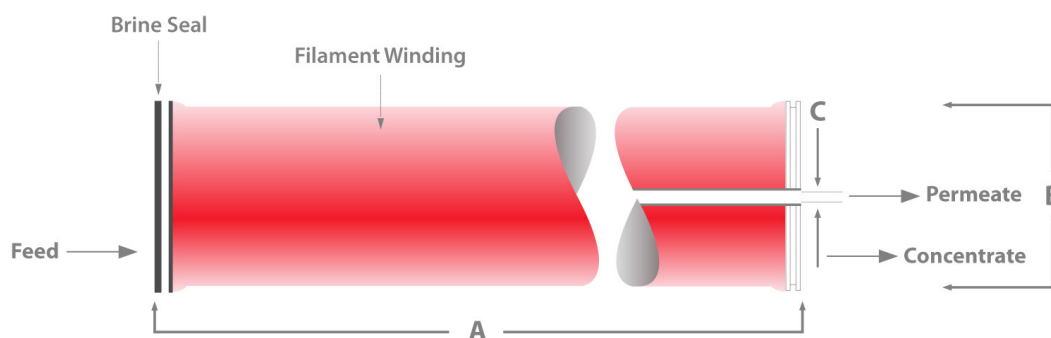
Lewabrane® RO S400 HR elements are spiral-wound, composite polyamide membrane elements designed for the desalination of seawater. The S400 HR membrane is characterized by an extremely durable, highly cross-linked polymeric separating layer suitable for high salinity, high pressure applications. The Lewabrane® RO S400 HR membrane element is recommended for single pass applications where stable salt rejection performance during the expected operating lifetime is an important consideration.

General Information

| | Metric units | US units |
|--------------------------|------------------------|---------------------|
| Feed spacer thickness | 0.8 mm | 31 mil |
| Membrane area | 37.2 m ² | 400 ft ² |
| Salt rejection, av. | 99.8 % | 99.8 % |
| Salt rejection, min | 99.5 % | 99.5 % |
| Boron rejection, typical | 93.0 % | 93.0 % |
| Permeate flow rate, av. | 24.6 m ³ /d | 6500 gpd |
| Permeate flow rate, min. | 19.7 m ³ /d | 5200 gpd |

Element is tested under the following conditions: applied pressure 55.2 bar (800 psi), NaCl concentration 32,000 mg/l (or when tested on a mixed solution of 32,000 mg/l NaCl and 5 mg/l Boron), operating temperature 25 °C (77 °F), pH 8 and recovery rate 8 %.

Element Dimensions



| | A (Length) | B (Diameter) | C (ID) |
|--------------|------------|--------------|------------|
| Metric Units | 1016 mm | 201 mm | 29 mm |
| US Units | 40 inch | 7.9 inch | 1.125 inch |

Application Data

| | Metric units | US units |
|---------------------------------|--------------|----------|
| Operating pressure, max. | 83 bar | 1200 psi |
| Operating temperature, max. | 45°C | 113°F |
| Feed water SDI, max. | 5 | 5 |
| Feed flow, max. | 18.0 m³/h | 80 gpm |
| Concentrate flow, min. | 2.7 m³/h | 12 gpm |
| pH range during operating | 2 - 11 | 2 - 11 |
| pH range during cleaning | 1 - 12 | 1 - 12 |
| Pressure drop per element, max. | 1.0 bar | 15 psi |
| Pressure drop per vessel, max. | 3.5 bar | 50 psi |
| Chlorine concentration, max. | 0.1 ppm | 0.1 ppm |

Additional Information

- Treat RO Elements with care; do not drop the element.
- Each RO Element is wet tested, preserved in a 1% weight sodium bisulfite solution, and vacuum packed in oxygen barrier bags.
- During storage, avoid freezing and direct sunlight. The temperature should be below 35 °C (95 °F).

After Installation

- Keep the RO Elements wet, and use a compatible preservative for storage duration longer than 7 days.
- During the initial start up, discharge the first permeate to drain for 30 min.
- Permeate back pressure should not exceed feed pressure at any time.
- Consider cleaning, if the pressure drop increases by 20% or water permeability decreases by 10%.
- Use only chemicals which are compatible with the membrane.
- For additional information consult the Lewabrane® technical information available at www.lpt.lanxess.com.

This information and our technical advice – whether verbal, in writing or by way of trials – are given in good faith but without warranty, and this also applies where proprietary rights of third parties are involved. Our advice does not release you from the obligation to check its validity and to test our products as to their suitability for the intended processes and uses. The application, use and processing of our products and the products manufactured by you on the basis of our technical advice are beyond our control and, therefore, entirely your own responsibility. Our products are sold in accordance with the current version of our General Conditions of Sale and Delivery.