FILMTEC Membranes

Solutions from FilmTec – Benefits of *iLEC* Interlocking Endcaps

The Problem – Increased System Cost Due to Leakage and Permeate Pressure Drop

The historical means of connecting spiral wound membrane elements has been the "slip fit" interconnector with a sliding o-ring seal at each end. The current industry standard is an interconnector that fits inside the permeate tube of adjacent elements with a single o-ring at each end. Unfortunately this industry standard has several limitations:

- O-rings are often pinched, rolled or cut during element installation resulting in a leaky connection and increased conductivity in the permeate.
- When an RO system starts up and shuts down, there is some flexing and sliding of the elements within the pressure vessel. This movement wears the o-rings over time resulting in a leaky connection and increased conductivity in the permeate.
- Because the interconnector fits inside the permeate tube, it acts as a flow restrictor increasing permeate backpressure. Additional feed pressure is required to overcome the backpressure, resulting in increased energy usage.
- When probing a pressure vessel during trouble shooting, the internal interconnector also restricts the probe, making it more difficult to move the probe the length of the vessel.
- If the spiral wound elements are not perfectly round (as is the case with many hand-rolled products) the permeate tubes will not align perfectly causing the interconnector to insert at an angle. This does not allow for consistent squeeze on the o-rings and can lead to a leaky connection and increased conductivity in the permeate.

The FilmTec Solution – *iLEC* Interlocking Endcaps

FilmTec's commitment and efforts to lower the overall cost of water purification led to the development of *iLEC*™ interlocking endcaps. By looking beyond the accepted practice and adding this new technology to the FILMTEC™ LE-440*i*, BW30-400/34*i*, BW30-440*i*, SW30HR LE-400*i* and SW30XLE-400*i* products, customers can now enjoy the following benefits:

- **Reduced permeate pressure drop –** The new *iLEC* endcap design imposes less permeate backpressure, translating to even more energy savings.
- **Long-term seal integrity –** The single, non-sliding seal reduces the number of potential leak sites and eliminates o-ring abrasion.
- **Leak-tight start-up performance –** There is no possibility of o-rings being pinched and damaged during installation of elements with *iLEC* endcaps.
- **Lubricant-free operating –** No lubricants are necessary for full sealing performance between elements.
- **Backward compatibility –** Elements remain compatible with slip-fit connection methods and current pressure vessel designs.
- **Immediate installation feedback –** An audible click and matched alignment markings verify a leak-tight seal is achieved upon installation.
- **Durability –** Tests have shown that the *iLEC* interlocking endcap connection withstands bending, sagging and rough handling from repeated installation cycles.
- **Easy loading and unloading –** Element loading and unloading requires no additional time or personnel.

Notice: The use of this product in and of itself does not necessarily guarantee the removal of cysts and pathogens from water. Effective cyst and pathogen reduction is dependent on the complete system design and on the operation and maintenance of the system.

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