



# FILMTEC Membranes

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## Initial Start-Up

### Pre-Start-Up Checklist

- Corrosion resistant materials of construction are used for all equipment including piping and wetted parts of pumps
- All piping and equipment is compatible with designed pressure
- All piping and equipment is compatible with designed pH range (including cleaning)
- All piping and equipment is protected against galvanic corrosion
- Media filters are backwashed and rinsed
- New/clean cartridge filter is installed directly upstream of the high pressure pump
- Feed line, including RO feed manifold, is purged and flushed, before pressure vessels are connected
- Chemical addition points are properly located
- Check valves are properly installed in chemical addition lines
- Provisions exist for proper mixing of chemicals in the feed stream
- Provisions exist for preventing the RO system from operating when the dosage pumps are shut down
- Provisions exist for preventing the dosage pumps from operating when the RO system is shut down
- If chlorine is used, provisions exist to ensure complete chlorine removal prior to the membranes
- Planned instrumentation allows proper operation and monitoring of the pretreatment and RO system
- Planned instrumentation is installed
- Instrumentation is calibrated
- Pressure relief protection is installed and correctly set
- Provisions exist for preventing the product pressure from exceeding the feed/brine pressure more than 0.3 bar (5 PSI) at any time
- Interlocks, time delay relays and alarms are properly set
- Provisions exist for sampling permeate from individual modules
- Provisions exist for sampling feed, permeate and reject streams from each stage and the total plant permeate stream
- Pressure vessels are properly piped both for operation and cleaning mode
- Pressure vessels are secured to the rack or frame
- Precautions are taken as given in pressure vessel manufacturers information on Assembly and Loading of Pressure Vessels
- Membranes are protected from temperature extremes (freezing, direct sunlight, heater exhaust, etc.)
- Pumps are ready for operation (lubricated, proper rotation)
- Fittings are tight
- Permeate line is open
- Permeate flow is directed to drain
- Reject flow control valve is in open position
- Feed flow valve is throttled and/or pump bypass valve is partly open to limit feed flow to less than 50 % of operating feed flow

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## FILMTEC Membranes

For more information about FILMTEC membranes,  
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The technical information contained here is extracted from the **FILMTEC Membranes - Technical Manual**. References to other sections of the manual have been replaced with short references to additional but separate information available from our web site. The information in these extracts has been updated and supercedes that contained in the full manual.

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