

What is the 3Mi Solution?

The 3Mi solution, by Siemens Water Technologies, is an innovative, membrane treatment approach to achieving consistent and cost-effective boiler feed water. The 3Mi solution consists of three main components – Memcor® ultrafiltration system, Vantage® reverse osmosis system and Ionpure® continuous electrodeionization system. In combination, these systems provide a superior solution to produce ultrapure water for your power generation application.

Why should I use the 3Mi solution?

Because the 3Mi solution is superior to other types of treatment. Historically, boiler feedwater treatment systems have been based on chemically regenerated ion exchange resins. Today, the combination of ultrafiltration, reverse osmosis and continuous electrodeionization systems produces consistent, high quality water and eliminates regeneration chemicals.

The 3Mi solution:

- Offers consistent, high quality water to optimize boiler performance
- Offers a robust design, allowing stable yet flexible performance
- Environmentally friendly due to minimal chemical usage and waste generation
- Can replace several processes in a small footprint which saves valuable plant space

All of which mean lower installation, startup and operating costs for you.

People You Can Trust

Our network of water and wastewater treatment experts can find the right solution for you. Contact us today at



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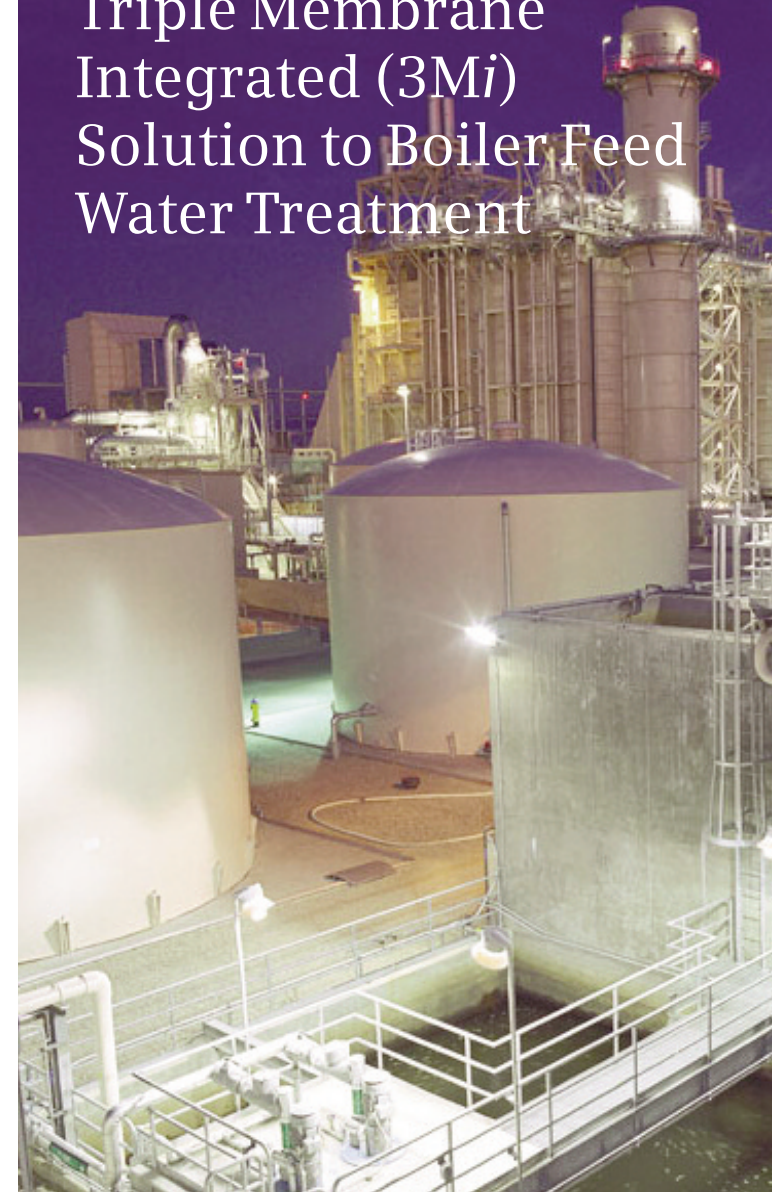
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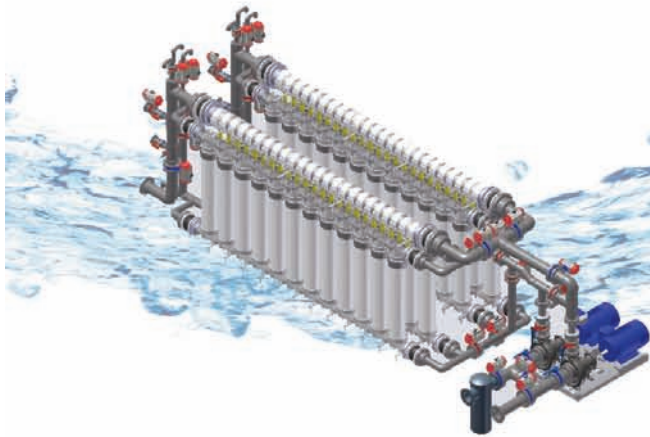
Triple Membrane Integrated (3Mi) Solution to Boiler Feed Water Treatment



Water Technologies

SIEMENS

Triple Membrane Integrated (3Mi) Solution for Boiler Feed Water



Memcor® Ultrafiltration System

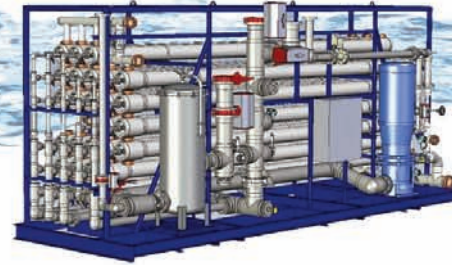
The first step in the 3Mi approach is ultrafiltration, which protects and extends the life of downstream equipment, accounts for seasonal changes and variations in source water, and its compact design saves space.

Features and benefits of our ultrafiltration systems include:

- A physical and verifiable barrier to remove suspended solids
- Consistent quality independent of feed water conditions
- Smaller footprint by replacing multiple steps of conventional filtration methods into one filtration step
- Fewer chemicals with less waste, resulting in lower operating costs

System configurations:

- Inside-to-outside filtration (Memcor® IN membranes) or Outside-to-inside filtration (Memcor® CP or CS membranes) allows selection of the right membrane for your application
- Modular “building block” configurations allow up to 6 MGD capacity on one skid



Vantage® Reverse Osmosis System

The second step in the 3Mi solution is the Vantage reverse osmosis (RO) system, which produces high-quality product water with some unique product features incorporated into our standard design.

Features and benefits of our Vantage systems include:

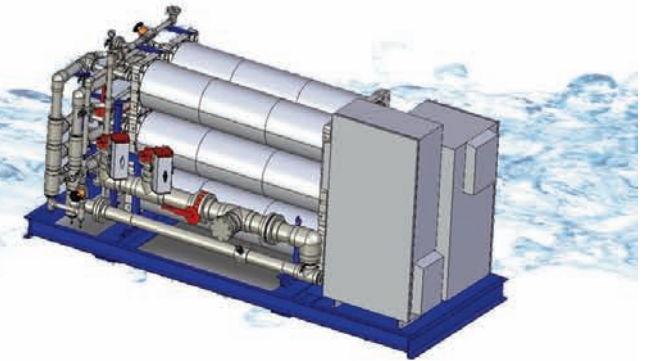
- Easy-to-use, feature-packed, pre-engineered and factory assembled RO skid designs
- Full suite of instrumentation monitors system performance including flow rates, pressure, pH/ORP, feed and permeate conductivity
- Intuitive touch screen controls can easily be integrated into overall plant supervisory systems for remote monitoring
- Variable Frequency Drive (VFD) controlled feed pump saves energy
- Variety of membrane choices including low energy membranes for certain applications

System configurations:

- Design permeate flows available from 25 gpm to 694 gpm (1 MGD)

Package choices include:

- Plus - Siemens PLC with color touch-screen
- Deluxe - Plus controls and VFD with upgraded instrumentation package and RO normalization calculations
- Select – all “stainless steel” Deluxe package



Ionpure® Continuous Electrodeionization System

The final step in the 3Mi process is Ionpure continuous electrodeionization (CEDI) system, which uses a chemical-free deionization process that is a superior alternative to mixed bed ion exchange (MBDI) systems.

Features and benefits of our CEDI system include:

- Use of electricity to remove ionizable species from liquids rather than chemicals
- CEDI reject does not require waste treatment and can be recycled upstream to the RO feed for reuse
- CEDI delivers constant and consistent performance, unlike MBDI which is batch-operated with a potential for breakthrough
- Safer than other systems because there is no need to store bulk acid or caustic
- Require far less floor space when compared to MBDI systems
- Lower operating costs over the life of the system

System configurations:

- Modular systems designed from 50 gpm to greater than 1000 gpm
- Exclusive compact and stackable designs allows greater than 50 percent savings on floor space