Overview
The Marlo ‘MMB’ Series Mixed-Bed Deionizer (MBDI) systems are designed for industrial, ultra-pure water applications where only trace amount of dissolved solids are allowed. The cation and anion exchange processes take place in a single vessel where extremely high water purity is achievable (up to 18.3 Meg-Ohm resistivity). On-site chemical regeneration of the resin also occurs within the vessels after an automatic separation step.

Standard designs are available for product flow rates of 5-350 GPM. All systems are completely factory skid mounted, pre-piped, pre-wired, and pre-tested for minimal installation time and cost. Duplex alternating or lead-lag series systems are available when continuous DI water demand and the highest quality water is required.

Standard Features
• Carbon steel resin tanks with vinylester lined interior
• Aquamatic diaphragm style control valves (up to 3”, air-actuated)
• Butterfly style control valves (4”-6”, air-actuated)
• Volume, time, or conductivity initiated regeneration cycle
• Pre-sized chemical eductors (acid & caustic containers by others)
• High capacity, cation and anion exchange resins
• Tank isolation valves & system bypass valve
• Inlet/outlet tank and dilute chemical sampling valves
• Factory Hydro-Tested at 100 psig

Materials of Construction
• Resin Tanks: Carbon steel with Safety Blue exterior paint
• Tank Lining: Vinylester (applied at 40-50 mils DFT)
• Exterior Piping: Sch 80 PVC
• Internal Distributors: Sch 80 PVC / ABS
• Control Valves: Noryl Thermoplastic
• Chemical Eductors: PVC
• Skid: Painted, Carbon Steel

Controls / Instrumentation
• Allen-Bradley MicroLogix PLC system
• Allen-Bradley PanelView operator terminal
• NEMA-4X electrical enclosure
• Signet product water flowmeter
• Signet product water conductivity meter
• Visual-type rotameter for chemical dilution water
• Inlet/Outlet tank pressure gauges

Operating Parameters
• Inlet Pressure: 30-100 psig
• Electrical: 120VAC, 1-Ph, 60 Hz.
• Pneumatic: 80-100 psig (Dry, Oil-Free Air)
• Water Temperature: 35-100°F
• Cation Resin Regenerant: HCL (30%)
• Anion Resin Regenerant: NaOH (50%)

Available Options
• ASME Code stamped resin tanks
• Duplex alternating systems
• Recirculation pump systems (for low-flow periods)
• Rubber lined tank interior surfaces
• Regenerant chemical tank and pump systems
• Alternate PLC systems
• CPVC exterior piping
• 316 Stainless steel resin tanks & exterior piping
• Stainless steel internal distributor piping
• Automatic butterfly or ball control valves
• Alternate ion exchange resins
• Wastewater neutralization systems
• Regeneration with sulfuric acid (H2SO4)
• Forced-draft decarbonator systems (CO2 removal)
'MMB' Series Specifications

Notes

1 System nominal capacity is based on a raw water having no more than 15 grain/gallon (approx. 250 ppm) of total dissolved solids (as CaCO3) and free of color, oil, turbidity, and organic matter. A complete water analysis is required to more accurately predict system capacity and product water quality.

2 Minimum flow rates are established to prevent flow channeling within the resin bed, which can lead to lower capacity and product water quality.

3 At a pressure drop not exceeding 15 psig.

4 Wastewater from the regeneration process may require neutralization prior to final discharge. Size drain flows equal to the maximum flow rating.

5 Acid dosage for the cation resin tank is based on 8 lbs. per cubic foot of 30% hydrochloric acid (HCL). Acid drums or carboys are to be provided by others.

6 Caustic dosage for the anion tank is based on 8 lbs. per cubic foot of 50% sodium hydroxide (NaOH). Caustic drums or carboys are to be provided by others.

7 Dimensions are estimate only. Actual dimensions may vary based on job-site space limits, piping layout, and selected options. Dimensions shown are for a single, cation-anion tank skid and do not include space for chemical regenerant containers. Allow a minimum of 24” above the height dimension for resin loading.

8 Shipping weights are estimate only. Weights include resin and support gravel, which are added to the tanks after installation.

'MMB' Series Dimensions