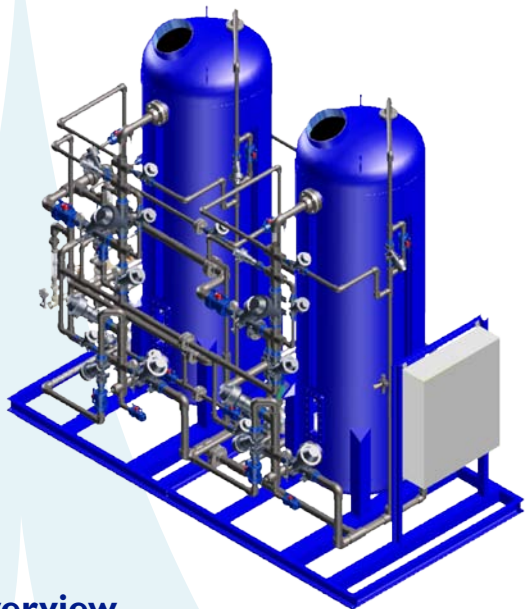


## 'MMB' Series Deionization Systems



### 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 vinyl ester 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: Vinyl ester (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%)

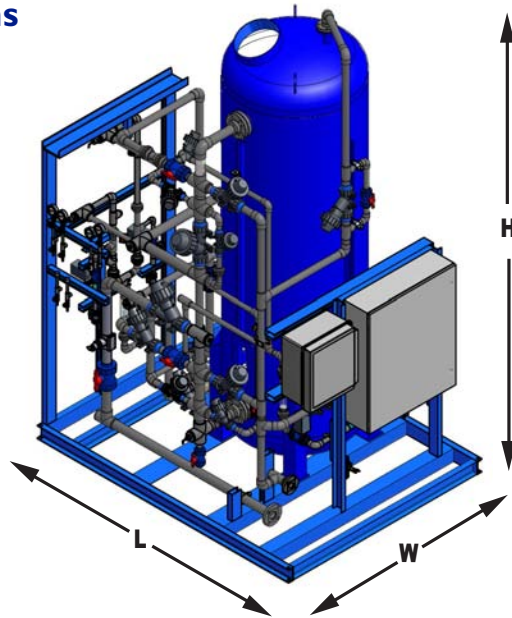
### Available Options

- 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

MODEL NUMBER	CAPACITY (Kilograins) ①	FLOW RATES		TANK SIZE	RESIN VOLUME CATION	RESIN VOLUME ANION	PIPE SIZE	WASTE VOLUME	ACID PER REGENERATION	CAUSTIC PER REGENERATION	OVERALL DIMENSIONS (LxWxH, INCHES) ⑦	SHIPPING WEIGHT (LBS.) ⑧	OPERATING WEIGHT (LBS.)
		SERVICE											
	GRAINS	MINIMUM ②	MAXIMUM ③	INCHES	CU. FT.	CU. FT.	INCHES	GALLONS ④	GALLONS ⑤	GALLONS ⑥			
MMB-2096	52,000	5	25	20x96	3	5	1	640	8.5	6.5	55x52x112	1,700	2,800
MMB-2496	78,000	8	40	24x96	4.5	7.5	1½	960	12.5	9.5	59x56x112	2,200	3,500
MMB-3096	124,000	12	60	30x96	7.5	11.5	1½	1,520	20.5	14.5	65x62x123	3,100	5,300
MMB-3696	176,000	18	85	36x96	10	17	2	2,160	28	21.5	71x68x126	3,800	6,400
MMB-4296	240,000	25	115	42x96	14	23	2	2,960	39	29	78x72x129	4,700	7,900
MMB-4896	312,000	32	150	48x96	17	31	3	3,840	47	39	84x78x134	5,600	9,800
MMB-5496	397,000	40	200	54x96	22	39	3	4,880	61	49	90x84x137	6,300	11,200
MMB-6096	494,000	50	250	60x96	27	49	3	6,080	75	62	96x90x140	7,500	13,500
MMB-7296	715,000	70	350	72x96	40	70	4	8,800	110	88	108x102x148	12,500	22,000

## 'MMB' Series Dimensions



### 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 CaCO<sub>3</sub>) 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 included 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.