The MBS Series is designed to remove cations and anions (minerals) from water. The term “mixed bed demineralizer” describes a unit with a thoroughly mixed blend of both cation and anion resins contained in one tank, thus providing the effect of thousands of small two bed units. The MBS Series can produce water with an effluent quality of 1.0 to 18.3 megohms-cm and a silica level of 0.10 ppm to 0.01 ppm as CaCO₃.

Vessels
MBS Series vessels are constructed of high quality carbon steel and have a bolt and yoke manway in the top head. This permits the loading of media and inspection of internals without disturbing the main piping. A 3” diameter media removal pad flange is provided in the lower side sheet. Vessels include structural legs.

Distribution
MBS Series 24” and smaller vessels are provided with an inlet/regenerant, interface, and outlet distributor. The 30” and larger vessels are provided with separate inlet, outlet, regenerant, and interface distributors. The distributors are designed to direct flows uniformly over the entire bed with a minimum pressure drop. MBS Series distributors are constructed of Schedule 80 PVC, except for the interface which is constructed of 316SS. A structural steel base plate supports the resin.

Media
The cation/anion resin is high quality, designed specifically for the MBS Series demineralizer.

Lining
Each tank is lined with 3/16” industrial grade rubber and spark tested for integrity.

Piping
Standard configuration piping is Schedule 80 PVC with socket welded fittings except where the attachment of threaded valves, rotometers, and other devices is needed.

Valves
Diaphragm valves are provided for 3” piping and smaller; butterfly valves are provided for 4” piping and larger. Backwash and rinse outlet valves are equipped with limit stops to regulate flow rates during backwash and rinse cycles. An air pressure filter/regulator system is provided. Clean air at a minimum pressure of 80 psig is required. All automatic valves are solenoid operated. Individual manual rate set valves are provided on acid and caustic draw lines. Manual vent valves are provided for each vessel. Sample valves for service inlet, service outlet, and dilute chemical sample are provided on each vessel.

Controls
A PLC controller is provided, fully wired and programmed. All regenerant times are programmed into the unit. All automatic valves are solenoid operated and include manual overrides.

Regenerant
The demineralizer is designed to draw concentrated chemicals directly from client supplied shipping containers (carboy or drum). The concentrated chemical lines are provided with a PVC wand attached to a flexible hose. Regenerant acids/caustics are introduced to each vessel at the proper flow and concentration by means of an eductor constructed of non-corrodible material. The flow of concentrated chemical is regulated by means of a manually adjustable valve on each concentrated chemical line.
WTModules™ are AVANTech’s line of pre-engineered water treatment systems designed to provide excellent results at low cost in a variety of water treatment applications. With a long list of options, but without the need for custom engineering, WTModules™ is the cost effective solution for many process requirements.

### Model Specifications

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Throughput volume per regeneration = (      ) kgr./(      ) gpg of the ionic load from the total anions as CaCO₃.

* Based on 20 lbs/cf of 30% HCl and 8 lbs/cf of 100% NaOH.

### Options
- ASME code tank
- Alternate tank lining
- Larger media connection
- Manway and davit
- Structural steel skid
- 316SS piping and valves
- PPL piping and valves
- Interconnecting header
- Thermal relief valve
- Media trap
- Alternate service
- Flow indicator/totalizer
- Silica anticipatory probe
- Automatic shut-off
- Automatic rinse control
- Finish paint
- Backwash sight glass
- Recirculation pump
- Pressure regulating valve
- Manual operation
- 316SS distribution
- Separate backwash inlet
- ARS, CRS, & WNS Series
- Pressure regulating valve
- Manual operation
- 316SS distribution
- Separate backwash inlet
- ARS, CRS, & WNS Series

### Typical Valve Sequence

- **Fast Rinse** ................. 1, 3, 10, 13
- **Blowdown #1** ................. 1, 3, 11
- **Blowdown #2** ................. 1, 3, 11
- **Backwash** .................... 3, 4, 13
- **Air/Water Mix** .............. 3, 4, 12, 14, 13
- **Air Mix** ...................... 3, 4, 12, 14
- **Air Drain** ................... 1, 3, 15
- **Caustic/Acid Injection** ...... 6, 7, 8, 9, 10, 13
- **Fill** ......................... 1, 3, 14
- **Final Rinse** .................. 1, 5, 15

Design/Build/Operate AVANTech’s approach to systems integration makes us uniquely qualified to provide turnkey service. Our broad range of services enables us to lend our expertise to an entire project—from planning through commissioning and beyond, including operational and remedial assistance needs. Call us today for assistance with your project.