**MF Series Specifications**

Side Mount Task Master IV on steel tanks

1. Scope. The softener shall consist of mineral tank(s) and internals containing resin and brine tank(s) complete with brine valve(s). Each mineral tank shall have face piping and a control valve with integral controller. Furnish a Water King Model MF Water Softener.
2. Mineral Tank. The non-code vessel shall be A36 carbon steel or better rated at 100 psi working pressure designed to a factor of safety of 3.0. The inlet and outlet shall be 3000 psi NPT full couplings. The inlet shall be in the side wall and the outlet shall be in the center of the tank bottom shell. Each tank shall have a top center fitting. Tanks 36” Ø and larger shall have lifting lugs. Tanks 20, 24, and 30” Ø inch diameter shall have a 4” x 6” handhole in the side shell and in the top head. Tanks 36” Ø and larger shall have a 4” x 6” handhole in the top dome and an 11” x 16” or larger manway in the side shell. ASME code vessels are optional.
3. Internals. The bottom distributor shall be a multipoint system using 2½” Ø single point molded S distributor heads with 2½” of slotted length and a 1½-inch NPT male threaded connection. The slots shall be .012" - .016" wide to retain mineral and the total slot area shall be equal to or larger than the unit pipe size. A top dome splash distributor with an opening equal to or larger than the unit pipe size shall be installed in the mineral tank. The internal distributor piping shall be SCH 80 PVC.
4. Face Piping. The softener(s) shall ship with face piping mounted on the vessels. Face piping shall be schedule 40 galvanized carbon steel with NPT fittings for 1 ½” and 2” piping. Piping for super flow or service flow bypass shall be schedule 40 grooved galvanized pipe and fittings. (Schedule 80 PVC and Stainless steel face pipe are available options.
5. Media. The resin shall be sodium form polystyrene 8% divinyl benzene cross linked resin with clear spherical beads. Resin beads shall be 16-50 US Standard Mesh with a particle size range of 0.3 to 1.2 mm. The resin shall be clean and packaged in sealed plastic bags weighing 55 lbs or less. Nominal exchange capacity shall be 30,000 grains per cubic foot when regenerated at 15 lbs of salt per cubic foot of resin. The bottom of this mineral tank shall be filled above the distributor with flint gravel sieved between 1/8” and 1/16” (# 20).
6. Brine System. The brine system shall be of the Accumatic™ high grid plate design. The brine tank shall be blow molded or rotationally molded HDPE, including a cover. The system shall include a SCH 80 PVC float operated brine valve to control refill shut-off and refill flow rate. Brine volume is to be repeatedly accurate within 10% and not dependent on salt bed void space for brine volume. Brine draw is to be volumetrically controlled, not timed. The brine valve shall have a low level air check valve.
7. Control Valve. The main control valve(s) shall be the Task Master IV™ with electronic controller to actuate the cycles of backwash, brine, slow rinse, fast rinse, and service for a water softener (or backwash, rinse and service for a filter). The control valve(s) shall be Task Master IV™ 5-Cycle, multi-port control valve(s) with machined passivated CF8M Type 316 Stainless Steel body, Type 316 Stainless Steel piston assembly, and EPDM inserts and seals with electronic controller and drive motor assembly in a NEMA 4/IP65 Style Enclosure. The valve shall operate with a single motor driven piston positioned by optical sensors. Valve inlet and outlet shall be 1 ½” FNPT. Adaptors are available to provide 2” FNPT inlet outlet. Backwash drain shall be ¾” or 1 ½” depending on flow. The brine inlet shall be ½”. The one-piece brine eductor shall be installed in the valve. The valve shall be equipped with threaded ¼” FNPT ports for the installation of sample taps and pressure gauges. (Taps and gauges are optional.) Hard water by-pass shall be available during all regeneration cycles at 70 gpm or at the peak flow rate of the unit, at a pressure drop less than 25 psi, whichever is less. The valve shall be of a single piston design. Maximum rated power shall be 125 watts with available current options of 115 VAC, 230 VAC, 100 VAC, 200 VAC, in 50 or 60 Hertz. Ambient operating temperature range shall be 34°F (1°C) to 150°F (65°C). Fluid temperature range shall be 34°F (1°C) to 180°F (82°C). Operating pressure range shall be 20-125 psi (1.38 - 8.6 bar).
8. Controller. The softening process shall be regulated by an Electronic Regeneration Controller (ERC) with regeneration based on time of day (ERCt), or demand (measured by a totalizing flow meter) (ERCd).
9. Skid Mounting. (Optional – must be specified at time of order.) The softener mineral tanks shall be mounted on an epoxy coated carbon steel skid. The brine tank shall be shipped loose. Interconnecting piping, drains and a three valve bypass shall be installed on the skid. Pipes shall be secured by Unistrut supports. Drain piping shall be schedule 80 PVC.
10. Other items. A standard soft water soap test kit shall be provided. A complete set of instructions, including installation, loading, start-up, adjustments, servicing, and a parts list shall be provided with the equipment.
11. Warranty. Water King, Inc. warrants to the original purchaser (“Purchaser”) that the Industrial and Commercial Water Conditioning Equipment (“Products”) are free from defects in materials and workmanship for twelve (12) months from the date of shipment. Water King will repair or replace with a rebuilt unit, at its sole option and discretion, products proven to be defective within the warranty period. In addition, the fiberglass reinforced pressure vessel(s) shall be warranted for a period of five (5) years by the vessel manufacturer. (Additional terms and conditions apply.)
12. System Operating Conditions. Maximum temperature shall be 120°F. Maximum pressure shall be 100 psi.
13. Pressure gauge and test tap kit. A kit containing two liquid filled, stainless steel pressure gauges with 2 ½” Ø face, two stainless steel ball valve sample taps with hose barb connections and associated stainless steel connection fittings shall be provided for mounting in the 1/4" FNPT predrilled and tapped ports in the inlet and outlet of the Task Master IV™ valve. For systems with a super flow kit, the pressure gauges are mounted on the diaphragm valves.
14. Qualifications. A company that has continuously manufactured water softeners for at least twenty (20) years shall construct this equipment.