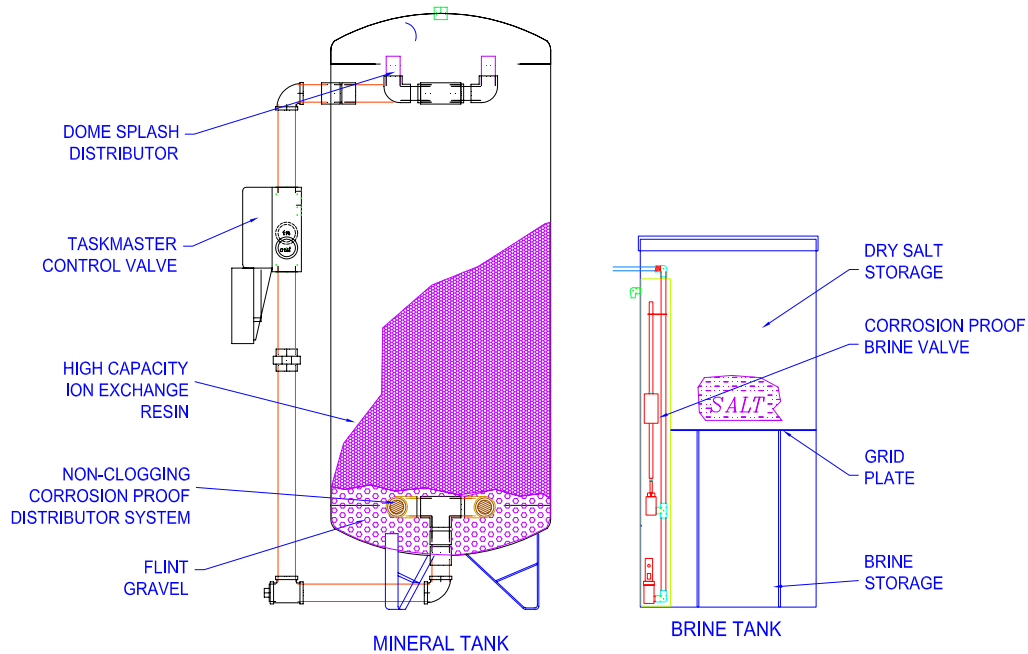


# HF Series Water Softeners



## STANDARD

TASK MASTER™ - 2" OR 2½" VALVE  
 – SIDE MOUNT  
 6-DAY TIMER  
 100 PSI EPOXY LINED AND COATED  
 CARBON STEEL MINERAL TANKS  
 ACCUMATIC™ BRINE SYSTEM.  
 RESIN POLYSTYRENE 8% DVB CL  
 MULTIPLE POINT ABS DISTRIBUTOR  
 110V, 60HZ, 1Ø

## OPTIONS

ASME CODE TANKS  
 7-DAY TIMER  
 DEMAND INITIATION  
 TWIN CONFIGURATION WITH TIMERS  
 TWIN ALTERNATING WITH EDRII AND PW SERIES METER  
 SHUT OFF KIT (SOK) TO PREVENT BYPASS DURING  
 REGENERATION  
 PRESSURE GAUGE AND TEST TAP KIT  
 SKID MOUNTING  
 220V, 50HZ, 1Ø

## OPERATING CONDITIONS

25 TO 100 PSI 💧 100°F

## HF Series Sizing Information

Model №	Mineral Tanki	Capacity and Salt		Service Flow (gpm)		Back-wash <sup>4</sup> (gpm)	Minerals		Brine System		
	Dia. X Side Shell (in.)	Capacity (Kilogram s)	Salt Applied (lbs)	Contin-uous <sup>2</sup>	Peak <sup>3</sup>		Resin (ft <sup>3</sup> )	Gravel (lbs)	Dia. X Side Shell (in)	Salt Storage (lbs)	Brine Valve (in)
HF-150-2	20x54	153	66	50	75	10	5	100	24x40	500	3/8
HF-180-2	20x54	196	106	60	90	10	6	100	24x50	580	3/8
HF-240-2	24x54	245	106	86	117	15	8	150	24x50	580	3/8
HF-300-2	30x60	293	106	107	134	25	10	250	24x50	580	3/8
HF-300-2 1/2				117	150						
HF-450-2	30x60	432	145	98	127	25	15	250	30x50	900	1/2
HF-450-2 1/2				112	142						
HF-600-2	36x60	594	244	107	135	35	20	350	39x60	2,040	1/2
HF-600-2 1/2				119	152						
HF-600S-2 1/2				137	180						
HF-750-2	36x72	731	244	104	130	35	25	350	39x60	2,040	1/2
HF-750-2 1/2				116	150						
HF-750S-2 1/2				136	185						
HF-900-2	42x72	837	274	115	147	50	30	500	42x60	2,370	1
HF-900-2 1/2				125	157						
HF-900S-2 1/2				155	217						
HF-900S-3				215	305						
HF-900S-4F				360	499						
HF1200-2 1/2	48x72	1,170	388	120	210	60	40	1,100	50x60	3,360	1 1/4
HF-1200S-3				160	250						
HF-1650-2 1/2	54x72	1,609	559	130	260	80	55	1,300	60x60	4,840	1 1/4
HF-1650S-3				190	300						
HF-2100-2 1/2	60x72	1,890	559	140	270	100	70	1,600	60x60	4,840	1 1/4
HF-2100S-3				200	240						
HF-2100S-4F				300	450						
HF-2550-2 1/2	66x72	2,490	805	140	270	120	85	2,100	72x60	6,970	1 1/4
HF-2550S-3				250	285						
HF-2550S-4F				285	500						
HF-3000S-3	72x72	2,700	805	260	350	140	100	2,600	72x60	6,970	1 1/4
HF-3000S-4F				300	500						

## HF SERIES SPECIFICATIONS

**Mineral Tank (Standard Non Code Vessels).** 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.

**Mineral Tank (Optional Code Vessels).** ASME code stamped tanks shall be available. Tank shall be clearly specified as code or non-code with a specified working pressure. Tanks "built to ASME code but not stamped" shall not be acceptable as ASME code. An ASME U1 form shall be provided with each ASME code tank.

**Coating and lining.** Tanks shall be prepared for internal and external coating with a SPCC 11 near white sand blast. Internal and external coating shall be two 3 - 4 mill coats of white Series 20 Tnemec Epoxy. Paint shall be applied according to manufacturer's recommendations.

**Internals (HF-150, 20"Ø to HF-900, 42" Ø).** The bottom distributor shall be a multipoint system using 2½" Ø single point molded distributor heads with 2½" of slotted length and a 1½ inch NPT female 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.

**Internals (HF 1200, 48"Ø and up).** The bottom distributor shall be either hub and lateral or header lateral design with SCH 80 PVC header or hub piping and SCH 40 PVC slotted laterals. 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. The piping size of the header lateral system shall be greater than or equal to the outlet pipe size. A SCH 80 PVC top dome splash distributor with an opening equal to or larger than the unit pipe size shall be installed in the mineral tank.

**Face Piping.** The piping connecting the tank to the tank adaptor and valve shall be SCH 40 galvanized steel pipe with NPT fittings.

**Super Flow Piping.** For models with a -3S, -4S or -6S designation an automated service flow bypass shall be installed. This configuration shall include two extra diaphragm valves per tank that shall cause the service flow to bypass the Task Master™ multiport valve thereby increasing the service flow through the unit. The automated valve shall be a Water King DM series of the same size as the unit piping. Superflow piping shall employ groove fittings.

**Flanged Piping.** For models with a -4F or -6F designation the inlet and outlet connection shall be 4" or 6" flanges and the pipe shall be groove SCH 40 galvanized steel pipe. Piping shall be roll grooved and hydrotested at the vessel working pressure. Flanged piping systems shall be Super Flow piping configuration.

**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. Underbedding shall be #20 graded washed flint gravel sieved between 1/8" and 1/16".

**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 volumetrically controlled, not timed.

**Control Valve.** The main control valve(s) shall be the Task Master™ controlled by a time clock to actuate the cycles of backwash, brine, slow rinse, fast rinse, and service. The control valve(s) shall be 100 psi, multi-port control valve(s) with machined brass body, stainless steel piston assembly, Noryl® inserts, Buna-N seals, service and regeneration lights, drive motor assembly, and NEMA 3 enclosure (120VAC/60Hz/3Amps). The valve shall operate with a single motor driven, cam positioned piston. Maximum operating pressure of the valve shall be 80 psi. The valve shall be of a single piston design and not use multiple plungers or diaphragm valves. Each control valve shall be equipped with "Service" and "Regeneration" indicator lights. 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 mounted to the piping using a tank adaptor and shall be removable without disturbing the installed piping.

## CAT240.4

**Operating Conditions.** Maximum temperature shall be 100°F. Pressure shall be 25 to 100 psi.

**Internal Ejectors (HF-150 to 750).** For the HF 150 to 750 series softeners brine shall be drawn into the softener with two-piece polyethylene throat and nozzle assembly mounted in a machined opening in the valve body. The internal ejector shall provide both brine flow and brine dilution.

**External Ejectors (HF-900, 42"Ø and up).** Brine shall be drawn directly into inlet of the mineral tank using an EE series external ejector. This venturi type device shall be SCH 80 PVC with 1" or 1 ½" FNPT connections. The venturi shall be chemically bonded to the housing. The venturi shall be precision machined. Maximum temperature shall be 140°F. The external injector shall provide both brine flow and brine dilution.

**Simplex.** Simplex systems shall have regeneration initiated by one (1) 6-day time clock or timer controller (standard) designed to allow up to daily regenerations at a set time of day and also control the duration of each of the cycles of regeneration. (Note: Seven-day timer is optional.) Regeneration shall also be manually initiated by advancing the timer knob per operating instructions.

**Twin.** Twin systems shall consist of two mineral tanks with attached control valves and one brine tank with a brine director. Regeneration initiation shall be by 6 or 7-day timers on each unit. Simultaneous regeneration of twin units shall be prevented by an interconnecting wire between the valves. No external relays or other devices shall be required. (This feature is called "Regeneration Lockout".) Twin units shall bypass during regeneration unless optional shut off kits are specified.

**Twin Alternating.** Twin alternating systems shall consist of two mineral tanks with attached control valves with ARC timers, one brine tank with brine director, one EDRII controller or ED520, one PW series flow meter and two shut off kits. Regeneration initiation and meter display shall be provided by the EDRII - Electronic Demand Regeneration Controller or ED520. Twin alternating units operate so that once a predetermined amount of water has passed through the PW series flow meter the EDRII initiates regeneration of the exhausted unit placing its twin in service. The timer shall be an Automatic Regeneration Controller (ARC) Timer, which, controls only the softening cycles. The brine director shall be a SCH 80 PVC shuttle type valve operating so that only one of the twin units shall draw brine at a time. A single brine valve shall service both softeners. The shut off kit shall consist of a diaphragm valve, solenoid, and wiring to prevent hard water bypass during regeneration. For HF systems the shut off kit diaphragm valve shall be the same as the outlet piping size. Twin alternating systems provide a continuous flow of softened water with no bypassing of un-softened water during regeneration.

**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.

**Qualifications.** A company that has continuously manufactured water softeners for at least 10 years shall construct the equipment.

**Pressure gauge and test tap kit.** A kit containing two liquid filled, stainless steel pressure gauges with 2 ½" Ø face, two brass ball valve sample taps with hose barb connections and associated brass 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 II valve.

### NOTES ON APPLICATION TABLE:

1. Capacities are based on 20 gpg hardness at intermittent flow rates and are 95% of laboratory results.
2. Continuous flow rates are based on 10 gpm per cubic foot of mineral or a 15 psi pressure drop, whichever is less.
3. Peak flow rates are based on 15 gpm per cubic foot of mineral or a 25 psi pressure drop, whichever is less.
4. Drains must be able to dispose of water at the listed rate for up to 20 minutes.
5. Dimensions listed are actual unit height. Add at least one foot for loading mineral tanks.
6. A twin unit includes two mineral tanks and one brine tank.

