



# AVANTech WTModules™ WSS-Series

## Steel Tank Water Softener

The WSS-Series is designed to remove total hardness (calcium and magnesium) as well as trace metals from water. Salt, in the form of a brine solution, serves as the regenerant because it contains the large number of sodium ions necessary to remove the hardness ions from the resin.

### Vessels

WSS-Series vessels are constructed of high quality carbon steel with flanged and dished heads. The 24" and smaller vessels have two 6" handholes to permit loading of media and inspection of internals without disturbing main piping. The 30" and larger vessels have a bolt and yoke manway in the top head to permit loading of media and inspection of internals without disturbing main piping and a 3" diameter water removal pad flange in the lower side sheet. Vessels include structural legs.

### Distribution

WSS-Series 24" and smaller vessels are provided with an inlet/regenerant and outlet distributor. The 30" and larger vessels are provided with separate inlet, outlet, and regenerant distributors. The distributors are designed to direct flows uniformly over the entire bed with a minimum pressure drop. WSS-Series distributors are constructed of Schedule 80 PVC.

### Media

All softeners have a 36" or 60" total bed depth when the height of the straight side of the tank is 60" or 96", respectively. The cation resin is a high capacity type, designed specifically for water softening. A bed of quartz protects the bottom distributor. The quartz media also provides for a means of collecting and distributing the water for service and backwash, respectively. High quality quartz is provided, containing low levels of extractable materials, preventing contamination of product water.

### Piping

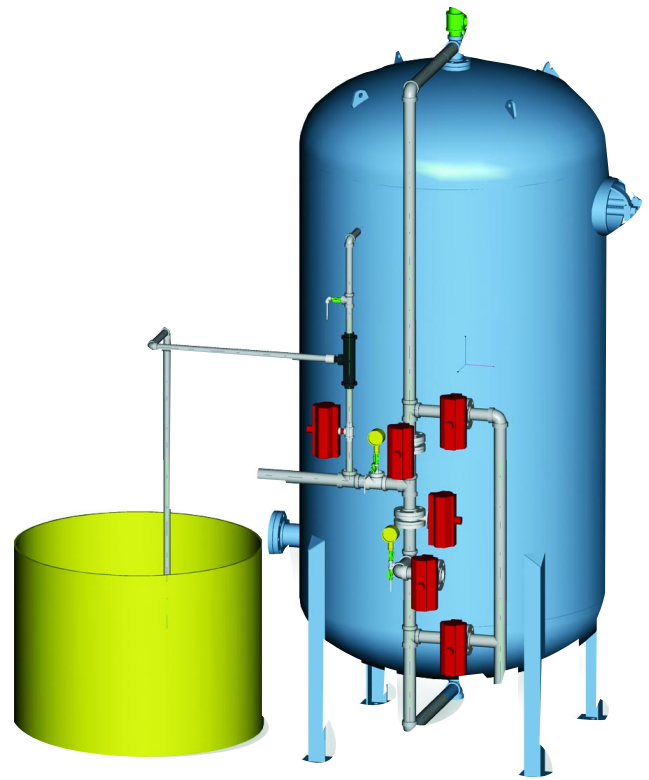
Standard configuration piping is Schedule 80 PVC with socket welded fittings except where the attachment of threaded valves, rotometers and other devices is needed.

### Automatic Valves

Diaphragm valves are provided for 2" piping and smaller; butterfly valves are provided for 3" piping and larger. Backwash and rinse outlet valves are equipped with travel stops to regulate flow rates during backwash and rinse cycles. An air pressure filter/regulator is provided. Clean air at a minimum pressure of 80 psig is required for valve actuation. All tubing is polypro.

### Controls

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



### Regenerant

Brine is transferred from a day tank to each water softener unit and diluted to proper concentration by a hydraulic educator. Additionally, a manual valve is provided for flow control.

### Options

- ASME code tank
- Tank lining
- Larger media connection
- Manway and davit
- 3" x 12" sight glass
- Structural steel skid
- 316SS piping and valves
- PPL piping and valves
- Interconnecting header
- Thermal relief valve
- D/P switch
- Flow indicator / totalizer
- Alternate controllers
- Alternating service
- Recirculation pump
- Media trap
- Backwash sight glass
- Pump regeneration system
- Finish paint
- Manual operation
- 316 stainless steel distribution
- Brine regeneration system

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## WSS-Series

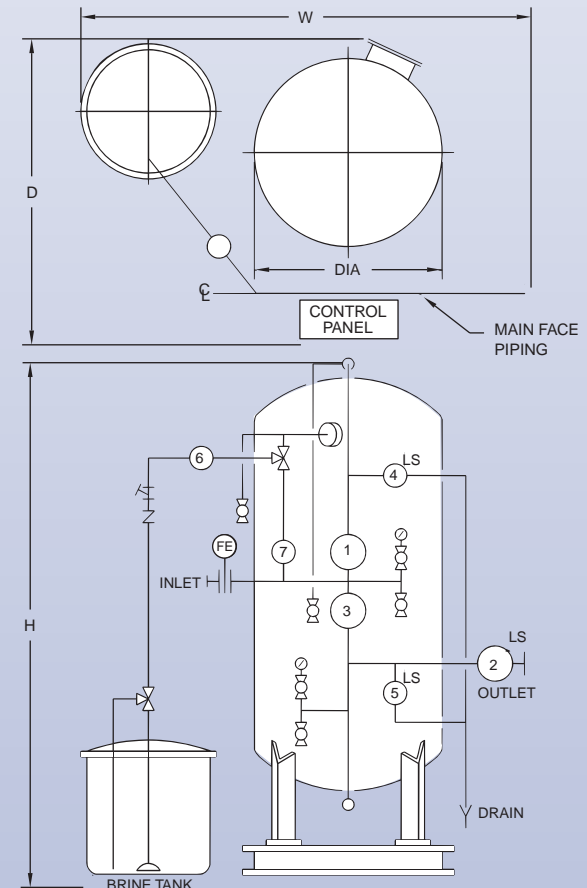
### Steel Tank Water Softener

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	Tank Size (in)	Design Peak (gpm)	Resin Volume (cf)	Capacity (15#/cf) (Kgr)	Day Tank (in)	Pipe Size (in)	Overall Height H (in)	Width W (in)	Depth D (in)	Shipping Weight (lb)	Operating Weight (lb)
WSS-2060	20 x 60	20	7	210	24 x 48	1 1/2	97	78	36	1,200	1,500
WSS-2096	20 x 96	35	11	330	24 x 48	1 1/2	133	78	36	1,700	2,000
WSS-2460	24 x 60	30	9	270	24 x 48	2	98	78	40	1,625	3,050
WSS-2496	24 x 96	50	16	480	24 x 48	2	134	78	40	2,425	3,800
WSS-3060	30 x 60	50	14	420	38 x 48	2	100	84	45	2,150	3,100
WSS-3096	30 x 96	75	24	720	38 x 48	2	136	84	45	3,150	4,300
WSS-3660	36 x 60	70	21	630	48 x 48	2 1/2	102	96	51	3,200	4,600
WSS-3696	36 x 96	100	36	1,080	48 x 48	2 1/2	138	96	51	5,000	6,400
WSS-4260	42 x 60	100	28	840	48 x 60	3	104	120	57	4,300	6,000
WSS-4296	42 x 96	150	48	1,440	48 x 60	3	140	120	57	6,700	8,400
WSS-4860	48 x 60	125	37	1,110	60 x 48	3	106	120	69	5,600	7,900
WSS-4896	48 x 96	190	62	1,860	60 x 48	3	142	120	69	8,700	11,600
WSS-5460	54 x 60	160	47	1,410	60 x 60	4	107	126	75	7,200	10,200
WSS-5496	54 x 96	240	80	2,400	60 x 60	4	143	126	75	11,200	14,200
WSS-6060	60 x 60	200	58	1,740	60 x 60	4	109	136	81	8,700	12,500
WSS-6096	60 x 96	300	96	2,880	60 x 60	4	145	136	81	13,500	17,300
WSS-7260	72 x 60	280	84	2,520	1" meter	4	112	84	93	12,500	17,800
WSS-7296	72 x 96	420	140	4,200	1" meter	6	148	84	93	19,500	24,800
WSS-8460	84 x 60	385	114	3,420	1" meter	6	126	96	114	16,200	23,800
WSS-8496	84 x 96	580	190	5,700	1" meter	6	166	96	114	25,700	33,300
WSS-9660	96 x 60	500	149	4,470	1 1/2" meter	6	132	108	120	20,900	30,500
WSS-9696	96 x 96	760	248	7,440	1 1/2" meter	6	168	108	120	33,300	41,900
WSS-10860	108 x 60	640	188	5,640	1 1/2" meter	6	135	120	135	29,500	41,400
WSS-10896	108 x 96	960	314	9,420	1 1/2" meter	8	171	120	135	45,500	57,400
WSS-12060	120 x 60	800	232	6,969	2" meter	8	142	132	150	35,500	50,500
WSS-12096	120 x 96	1,180	387	11,610	2" meter	8	178	132	150	41,450	69,500
WSS-13260	132 x 60	950	281	8,430	2 1/2" meter	8	160	148	160	42,200	60,500
WSS-13296	132 x 96	1,400	468	14,040	2 1/2" meter	8	196	148	160	53,250	83,500
WSS-14460	144 x 60	1,200	336	10,080	3" meter	8	171	156	170	50,500	71,600
WSS-14496	144 x 96	1,700	560	16,800	3" meter	10	207	156	170	67,750	99,600

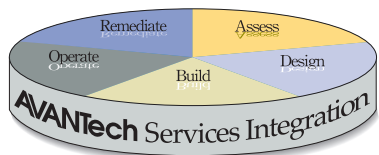
Throughput volume per regeneration = ( ) kgr.x 17,120/ (( ) ppm Ca + ( ) ppm Mg) as CaCO<sub>3</sub>

## WSS-Series Water Softener Typical layout (shown with piping)



### Typical valve sequence

Service	1 & 2
Backwash	3 & 4
Chemical Injection	5, 6 & 7
Rinse	1 & 5



**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.*

