

Engineering Specification

Job Name _____

Contractor _____

Job Location _____

Approval _____

Engineer _____

Contractor's P.O. No. _____

Approval _____

Representative _____

Series PWS20-2-PPSM and PWS20-P-PPSM Commercial Water Softening Systems

Connection Size: 2" to 4"

Flow Rates: Up to 420 gpm (1590 lpm)

Watts Pure Water Series PWS20-2-PPSM and PWS20-P-PPSM water softening systems are pre-engineered, pre-plumbed, and skid mounted for simplified installations. Duplex alternating and 2-4 tank parallel systems are available. Parallel systems include progressive flow demand unit staging to accommodate wide variances in flow rate. All systems come standard with no hard water bypass pistons, powder coated steel skids, and schedule 80 PVC pre-plumbed inlet, outlet and drain headers. These systems are highly efficient conventional cation exchange type water softeners that are suitable for continuous flow applications ranging from 150,000 to 600,000 grains of hardness removal per tank and flow rates up to 420 gpm (1590 lpm). Regeneration is meter demand initiated. All cycles of regeneration are fully automatic.

Watts Pure Water Series PWS20-2-PPSM and PWS20-P-PPSM water softeners are designed for point of use or point of entry applications where the benefits of softened water are required. These systems exchange scale-forming calcium and magnesium ions with non scale-forming sodium ions to create soft water for a variety of applications.

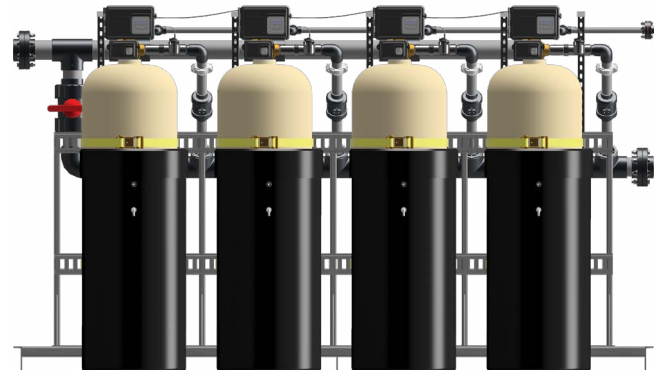
Steam boiler makeup water, water heater pretreatment, reverse osmosis pretreatment, cooling tower makeup water, sterilizer makeup water, as well as domestic water softening for hotel, hospital and institutional facilities are all common applications for the Watts Pure Water Series PWS20-2-PPSM and PWS20-P-PPSM water softeners. Watts Pure Water Series PWS20-P-PPSM, with flow demand unit staging, is ideal for commercial and industrial applications where high flow and high capacities are required to accommodate wide variances in flow rates.

Softened water provides a wide variety of benefits such as preventing lime scale formation in pipes, valves, water heating equipment, heat exchangers, and cooling towers to reducing mineral buildup in areas that see excessive splashing such as food preparation counters and sink areas. Softened water also conserves soaps and cleaning agents by eliminating the formation of soap curd, so your cleaners can work on cleaning – not reacting with the hardness in your water.

WATTS®
pure water



Series PWS20-2-PPSM Duplex Alternating



Series PWS20-P-PPSM Quadplex

NOTICE

The information contained herein is not intended to replace the full product installation and safety information available or the experience of a trained product installer. You are required to thoroughly read all installation instructions and product safety information before beginning the installation of this product. Final system selection and installation must be performed by qualified professionals based on site-specific conditions.

Features

- Pre-plumbed and skid mounted for ease of installation
- Schedule 80 PVC inlet, outlet and drain headers with inlet and outlet isolation valves for each tank and system bypass valve
- Powder coated steel skid with tank and plumbing support structure
- Pre-engineered Duplex Alternating, Duplex, Triplex and Quadplex configurations
- Models for capacities to 600,000 grains per tank
- Durable and user friendly 2" lead free brass control valves for high flow rates
- No hard water bypass pistons standard on all systems
- All systems have stainless steel in-line flow meters
- Fully automatic metered demand control valve
- Sophisticated digital electronic controls that store operating history that can be accessed by the user
- Fully adjustable regeneration cycles
- Dry contact lockout switch for remote interface is standard
- High capacity resin certified to NSF/ANSI/CAN 61 for material safety and to NSF/ANSI/CAN 372 for lead free compliance
- Highly corrosion resistant fiberglass tanks
- Durable polypropylene lower distribution system

PWS20-P-PPSM

- Easily select duplex, triplex or quadplex systems with flow demand staging
- Pre-engineered systems with up to 4 tanks in parallel for flow rates up to 420 GPM
- Each softening vessel comes complete with brine tank and meter

Specifications

A Watts Pure Water Series PWS20-2-PPSM and PWS20-P-PPSM water softening system shall be installed on the building's main water line just after it enters the building. The installation point shall be after any back-flow prevention or pressure regulating valves. Other installation options are to install a system just before the water heater or other types of equipment needing the protection of softened water. In installations where dedicated cold water makeup to a water heater is the installation point, a backflow preventer and a thermal expansion tank must be installed as well. The system shall be installed with a bypass valve to allow for the shutdown and removal of the unit without interrupting the water supply to the building.

The water softener shall be a down flow regenerated, metered demand, sodium cycle cation exchange type system with all components necessary for proper operation. The system shall be factory pre-plumbed with Schedule 80 PVC plumbing and skid mounted.

Electrical requirements are 120 volt 60 hertz. A local drain is required to accept drain water from the system.

Feed Water Guidelines

pH	6 to 10
Hardness (maximum)	Depends on customer's acceptable hardness leakage level.
Water Pressure	25psi to 125psi (171 kPa to 8.5 bar)
Water Temperature	34 - 110°F (1 - 43°C)
Free Chlorine (maximum)	1mg/L
Iron (maximum)	1mg/L
Oil and H2S	None Allowed
Turbidity	Less than 5.0 NTU
Total Dissolved Solids	Must be below 750mg/l for the softener to produce less than 1 grain per gallon soft water.

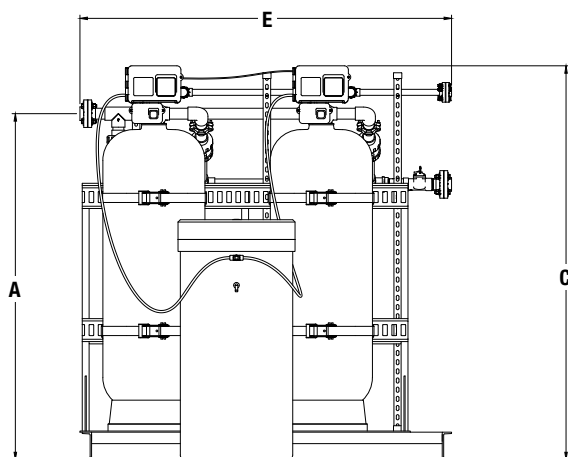
For all other guideline information please contact your Watts representative.

⚠ WARNING

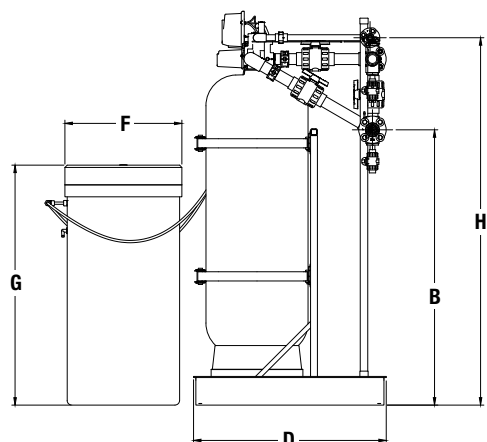
Do not use with water that is microbiologically unsafe or of unknown quality without adequate disinfection before or after the system.

Dimensions - Weights

Series PWS20-2-PPSM

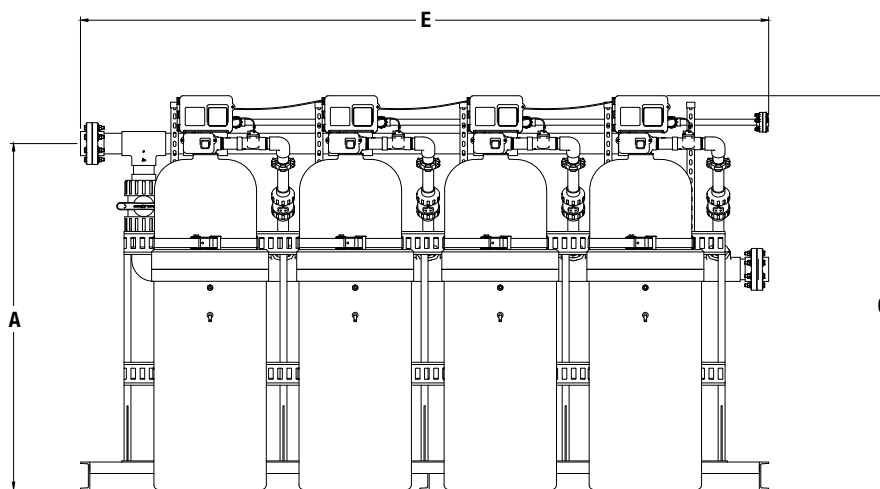


FRONT

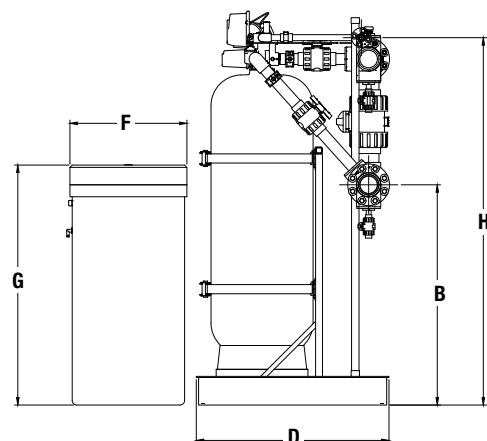


SIDE

Series PWS20-P-PPSM



FRONT



SIDE

Call customer service (800-659-8400) if you need assistance with technical details.

Series PWS20-2-PPSM Duplex Alternating

MODEL NO.		DIMENSIONS														WEIGHTS		
	A		B		C		D		E		F		G		H		lbs.	kgs.
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
PWS20131F21-PPSM	72½	1842	57	1448	87	2210	42	1067	82	2083	24	610	41	1041	77	1956	1664	755
PWS20131G21-PPSM	75½	1918	60	1524	90	2286	42	1068	82	2083	24	610	50	1270	80	2032	2060	934
PWS20131H21-PPSM	78½	1994	63	1600	95	2413	42	1067	82	2083	30	762	50	1270	83	2108	2147	974
PWS20131I21-PPSM	84½	2146	69	1753	100	2540	48	1219	102	2591	39	991	48	1219	89	2261	3375	1531
PWS20131J21-PPSM	90	2286	75	1905	100	2540	48	1219	102	2591	39	991	60	1524	95	2413	4180	1896

Series PWS20-P-PPSM Duplex Progressive

MODEL NO.		DIMENSIONS														WEIGHTS		
	A		B		C		D		E		F		G		H		lbs.	kgs.
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
PWS20131F22-PPSM	72½	1842	57	1448	87	2210	42	1067	82	2083	24	610	41	1041	77	1956	1700	773
PWS20131G22-PPSM	75½	1918	60	1524	90	2286	42	1068	82	2083	24	610	50	1270	80	2032	2100	955
PWS20131H22-PPSM	78½	1994	63	1600	95	2413	42	1067	82	2083	30	762	50	1270	83	2108	2320	1055
PWS20131I22-PPSM	84½	2146	69	1753	100	2540	48	1219	102	2591	39	991	48	1219	89	2261	3520	1600
PWS20131J22-PPSM	90	2286	75	1905	100	2540	48	1219	102	2591	39	991	60	1524	95	2413	4350	1977

Series PWS20-P-PPSM Triplex Progressive

MODEL NO.	DIMENSIONS														WEIGHTS			
	A		B		C		D		E		F		G		H		lbs.	kgs.
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
PWS20131F33-PPSM	72½	1842	57	1448	87	2210	42	1067	114	2896	24	610	41	1041	77	1956	2450	1114
PWS20131G33-PPSM	75½	1918	60	1524	90	2286	42	1068	114	2896	24	610	50	1270	80	2032	3050	1386
PWS20131H33-PPSM	78½	1994	63	1600.2	95	2413	42	1067	114	2896	30	762	50	1270	83	2108	3380	1536
PWS20131I33-PPSM	84½	2146	69	1752.6	100	2540	48	1219	114	2896	39	991	48	1219	89	2261	4780	2173
PWS20131J33-PPSM	90	2286	75	1905	100	2540	48	1219	114	2896	39	991	60	1524	95	2413	5980	2718

Series PWS20-P-PPSM Quadplex Progressive

MODEL NO.	DIMENSIONS														WEIGHTS			
	A		B		C		D		E		F		G		H		lbs.	kgs.
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
PWS20131F44-PPSM	72½	1842	57	1448	87	2210	42	1067	150	3810	24	610	41	1041	77	1956	3100	1409
PWS20131G44-PPSM	75½	1918	60	1524	90	2286	42	1068	150	3810	24	610	50	1270	80	2032	3850	1750
PWS20131H44-PPSM	78½	1994	63	1600	95	2413	42	1067	150	3810	30	762	50	1270	83	2108	4290	1950
PWS20131I44-PPSM	84½	2146	69	1753	100	2540	48	1219	150	3810	39	991	48	1219	89	2261	6090	2768
PWS20131J44-PPSM	90	2286	75	1905	100	2540	48	1219	150	3810	39	991	60	1524	95	2413	7690	3496

Specifications

MODEL NO.	GRAIN CAPACITY PER TANK (MAX)	MAIN HEADERS - DRAIN PIPE SIZE (IN.)	NO. OF TANKS - METERS	MINERAL TANK		BRINE TANK		FLOW RATE & PRESSURE		
				TANK SIZE	RESIN F ³ PER TANK	NO. - SIZE	SALT FILL (LBS)	SERVICE (GPM)	DROP (PSI)	BKW (GPM)
PWS20131F21-PPSM	150,000	2-1	2-1	18" x 65"	5	1- 24" x 41"	600	57-65	15-25	10
PWS20131F22-PPSM	150,000	3-1	2-2	18" x 65"	5	2- 24" x 41"	1200	114-130	15-25	10
PWS20131F33-PPSM	150,000	3-1	3-3	18" x 65"	5	3- 24" x 41"	1800	171-195	15-25	10
PWS20131F44-PPSM	150,000	4-1	4-4	18" x 65"	5	4- 24" x 41"	2400	228-260	15-25	10
PWS20131G21-PPSM	210,000	2-1	2-1	21" x 62"	7	1- 24" x 50"	800	60-77	15-25	12
PWS20131G22-PPSM	210,000	3-1	2-2	21" x 62"	7	2- 24" x 50"	1600	120-154	15-25	12
PWS20131G33-PPSM	210,000	3-1	3-3	21" x 62"	7	3- 24" x 50"	2400	180-231	15-25	12
PWS20131G44-PPSM	210,000	4-1	4-4	21" x 62"	7	4- 24" x 50"	3200	240-308	15-25	12
PWS20131H21-PPSM	300,000	2-1	2-1	24" x 72"	10	1- 30" x 50"	1200	74-97	15-25	15
PWS20131H22-PPSM	300,000	3-1	2-2	24" x 72"	10	2- 30" x 50"	2400	148-194	15-25	15
PWS20131H33-PPSM	300,000	4-1	3-3	24" x 72"	10	3- 30" x 50"	3600	222-291	15-25	15
PWS20131H44-PPSM	300,000	4-1	4-4	24" x 72"	10	4- 30" x 50"	4800	296-388	15-25	15
PWS20131I21-PPSM	450,000	2-1	2-1	30" x 72"	15	1- 39" x 48"	2200	80-100	15-25	25
PWS20131I22-PPSM	450,000	3-1	2-2	30" x 72"	15	2- 39" x 48"	4400	160-200	15-25	25
PWS20131I33-PPSM	450,000	4-1	3-3	30" x 72"	15	3- 39" x 48"	6600	240-300	15-25	25
PWS20131I44-PPSM	450,000	4-1	4-4	30" x 72"	15	4- 39" x 48"	8800	320-400	15-25	25
PWS20131J21-PPSM	600,000	2-1½	2-1	36" x 72"	20	1- 39" x 60"	2200	84-105	15-25	35
PWS20131J22-PPSM	600,000	3-1½	2-2	36" x 72"	20	2- 39" x 60"	4400	168-210	15-25	35
PWS20131J33-PPSM	600,000	4-1½	3-3	36" x 72"	20	3- 39" x 60"	6600	252-315	15-25	35
PWS20131J44-PPSM	600,000	4-1½	4-4	36" x 72"	20	4- 39" x 60"	8800	336-420	15-25	35

Ordering Information for Skid Mounted Pre-Plumbed Duplex Alternating PWS20-2-PPSM Softeners

MODEL NO.	ORDERING CODES	DESCRIPTION	SPACE REQUIRED D X W X H	SHIPPING WEIGHT LBS
PWS20131F21-PPSM	1000001944	5 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	74" x 82" x 90"	1664
PWS20131G21-PPSM	1000001948	7 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	74" x 82" x 90"	2060
PWS20131H21-PPSM	1000001952	10 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	80" x 82" x 95"	2147
PWS20131I21-PPSM	1000001956	15 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	95" x 102" x 100"	3375
PWS20131J21-PPSM	1000001960	20 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	95" x 102" x 100"	4180

Ordering Information for Skid Mounted Pre-Plumbed Duplex Progressive PWS20-P-PPSM Softeners

MODEL NO.	ORDERING CODES	DESCRIPTION	SPACE REQUIRED D X W X H	SHIPPING WEIGHT LBS
PWS20131F22-PPSM	1000001945	5 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	74" x 82" x 90"	1700
PWS20131G22-PPSM	1000001949	7 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	74" x 82" x 90"	2100
PWS20131H22-PPSM	1000001953	10 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	80" x 82" x 95"	2320
PWS20131I22-PPSM	1000001957	15 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	95" x 102" x 100"	3520
PWS20131J22-PPSM	1000001961	20 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	95" x 102" x 100"	4350

Ordering Information for Skid Mounted Pre-Plumbed Triplex Progressive PWS20-P-PPSM Softeners

MODEL NO.	ORDERING CODES	DESCRIPTION	SPACE REQUIRED D X W X H	SHIPPING WEIGHT LBS
PWS20131F33-PPSM	1000001946	5 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	74" x 114" x 90"	2450
PWS20131G33-PPSM	1000001950	7 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	74" x 114" x 90"	3050
PWS20131H33-PPSM	1000001954	10 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	80" x 114" x 95"	3380
PWS20131I33-PPSM	1000001958	15 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	95" x 133" x 100"	4780
PWS20131J33-PPSM	1000001962	20 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	95" x 133" x 100"	5980

Ordering Information for Skid Mounted Pre-Plumbed Quadplex Progressive PWS20-P-PPSM Softeners

MODEL NO.	ORDERING CODES	DESCRIPTION	SPACE REQUIRED D X W X H	SHIPPING WEIGHT LBS
PWS20131F44-PPSM	1000001947	5 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	74" x 150" x 90"	3100
PWS20131G44-PPSM	1000001951	7 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	74" x 150" x 90"	3850
PWS20131H44-PPSM	1000001955	10 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	80" x 150" x 95"	4290
PWS20131I44-PPSM	1000001959	15 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	95" x 180" x 100"	6090
PWS20131J44-PPSM	1000001963	20 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	95" x 180" x 100"	7690

Notes: Capacities are based on resin manufacturer's data and are dependent upon influent water TDS, temperature, bed depth, and flow rates. Feed water must be free of oil and color. Pipe size, tank size, and space requirements are in inches. Capacities and resin quantities expressed above are per mineral tank. For Series PWS20-P-PPSM systems, service flow rates are stated with all mineral tanks in service. During regeneration, the overall system service flow rate will be reduced by a factor of one mineral tank and must be sized accordingly. Flow rates listed at 25 psi drops are for intermittent peak flow rates and are not to be used as continuous flows.



USA: T: (800) 659-8400 • N. Andover, MA 01845 • Watts.com/PureWater
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Latin America: T: (52) 55-4122-0138 • Watts.com/PureWater

