

## Engineering Specification

Job Name \_\_\_\_\_

Contractor \_\_\_\_\_

Job Location \_\_\_\_\_

Approval \_\_\_\_\_

Engineer \_\_\_\_\_

Contractor's P.O. No. \_\_\_\_\_

Approval \_\_\_\_\_

Representative \_\_\_\_\_

# Series HCTA-300-PPSM and HCP-300-PPSM Commercial Water Softening Systems

**Connection Size: 3" to 6"**

**Flow Rates: Up to 1120 gpm (4239 lpm)**

Watts® Series HCTA-300-PPSM and HCP-300-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 300,000 to 1,050,000 grains of hardness removal per tank and flow rates up to 1120 gpm (4239 lpm). Regeneration is meter demand initiated. All cycles of regeneration are fully automatic.

Watts Series HCTA-300-PPSM and HCP-300-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 make up water, water heater pretreatment, reverse osmosis pretreatment, cooling tower make up water, sterilizer make up water, as well as domestic water softening for hotel, hospital and institutional facilities are all common applications for the Watts Series HCTA-300-PPSM and HCP-300-PPSM water softeners. Watts Series HCP-300-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 build up 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.

### 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 Twin Duplex Alternating (TA), Twin Interlocked (TI), Triplex (TR) and Quadplex (QD) configurations
- Models for capacities to 1,050,00 grains per tank
- Flow demand staging available on HCP-300-PPSM TI, TR and QD models



**Series HCTA-300-PPSM Twin Alternating**



**Series HCP-300-PPSM Quadplex**

- Each mineral tank has its own brine tank on HCP-300-PPSM TI, TR and QD models
- Durable and user friendly 3" 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 certified to NSF/ANSI standards
- Sophisticated digital electronic controls that store operating history that can be accessed by the user
- Fully adjustable regeneration cycles
- Dry contact lock out switch for remote interface is standard
- High capacity resin certified to NSF/ANSI standards
- Highly corrosion resistant fiberglass tanks certified to NSF/ANSI standards
- Durable polypropylene lower distribution system

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.



## HCP-300-PPSM Features

- Easily select duplex, triplex or quadplex systems with flow demand staging
- Model for capacities up to 1,050,000 grains per tank
- Pre-engineered systems with up to 4 tanks in parallel for flow rates up to 1120 GPM
- All systems have no hard water bypass pistons
- Each softening vessel comes complete with brine tank and meter
- All systems have stainless steel in-line flow meters

## Standards

Control Valve- Certified to NSF/ANSI Std. 61 and 372

Ion Exchange Resin- Certified to NSF/ANSI Std. 61 and 372

Mineral Tank- Certified to NSF/ANSI Std. 44 or 61

## Specifications

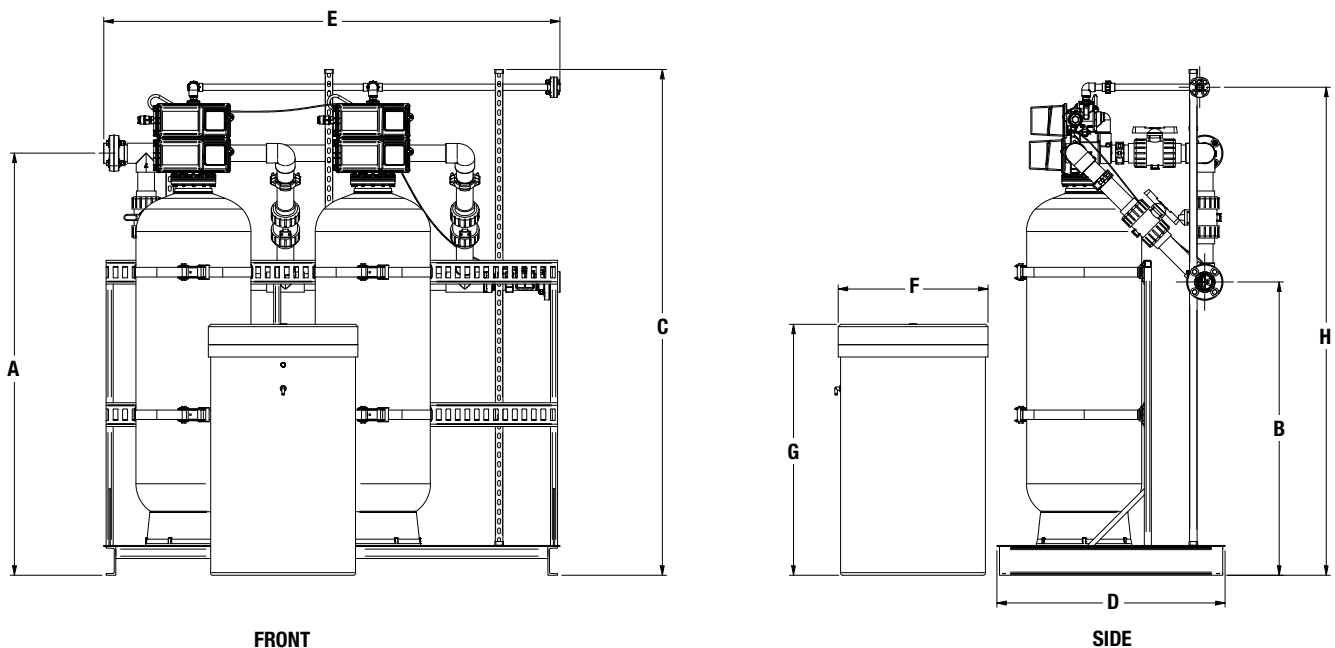
A Watts Series [HCTA-300-PPSM] [HCP-300-PPSM] Model # [ ] water softening system shall be installed on the building's main water line just after it enters the building. The installation point shall be after any backflow prevention or pressure regulating valves. Other installation options are to install a system just before the water heater or other types of equipment needing the protection of softened water. In installations where dedicated cold water make up 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 shut down 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. The feed water pressure must not fall below 25psi or exceed 125psi. Water temperature must not fall below 34°F or exceed 110°F (1°C - 43°C). The system shall provide softened water measuring less than one grain per gallon of hardness as Calcium Carbonate when operated within the manufacturer's operational guidelines.

## Dimensions - Weights

Series HCTA-300-PPSM Duplex Alternating



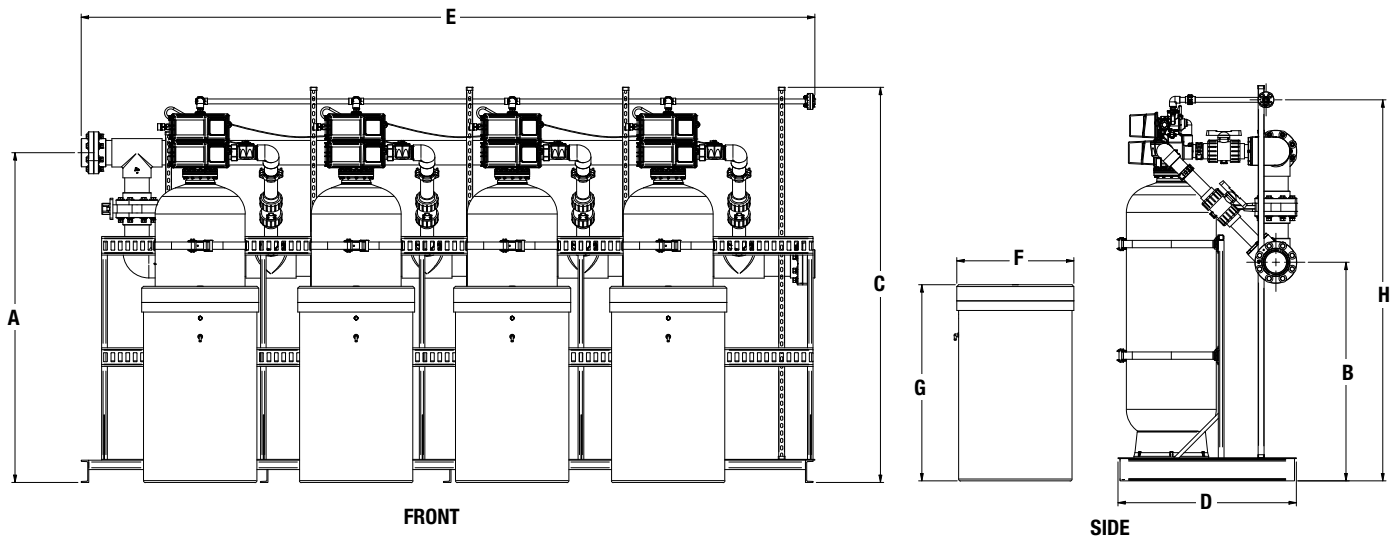
## Feed Water Guidelines

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)
Temperature	34 - 110°F (1 - 43°C)
Free Chlorine (maximum)	1 mg/L
Iron (maximum)	1 mg/L
Oil and H <sub>2</sub> S	None Allowed
Turbidity	Less than 5.0 NTU
Total Dissolved Solids	Must be below 750 mg/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.

**Series HCP-300-PPSM Duplex, Triplex and Quadplex Progressive**



**Series HCTA-300-PPSM Duplex Alternating**

MODEL NO.	DIMENSIONS										SHIPPING WEIGHT							
	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		
M4110TA-PPSM	89	2261	59	1499	107	2718	48	1219	96	2438	30	762	50	1270	3300	1500	1700	773
M4112TA-PPSM	98	2489	68	1727	116	2946	48	1219	108	2743	39	991	48	1219	4230	1923	2100	955
M4114TA-PPSM	101	2565	71	1803	119	3023	51	1295	108	2743	39	991	60	1524	5250	2386	2200	1000
M4116TA-PPSM	110	2794	80	2032	128	3251	60	1524	120	3048	42	1067	60	1524	7880	3582	3450	1568
M4118TA-PPSM	110	2794	80	2032	128	3251	63	1600	120	3048	50	1270	60	1524	9930	4514	4250	1932

**Series HCP-300-PPSM Duplex Progressive**

MODEL NO.	DIMENSIONS										SHIPPING WEIGHT							
	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		
M4110TI-PPSM	89	2261	59	1499	107	2718	48	1219	108	2743	30	762	50	1270	3420	1555	1700	773
M4112TI-PPSM	98	2489	68	1727	116	2946	48	1219	108	2743	39	991	48	1219	4480	2036	2100	955
M4114TI-PPSM	101	2565	71	1803	119	3023	51	1295	108	2743	39	991	60	1524	5310	2414	2320	1055
M4116TI-PPSM	110	2794	80	2032	128	3251	60	1524	120	3048	42	1067	60	1524	8230	3741	3520	1600
M4118TI-PPSM	110	2794	80	2032	128	3251	63	1600	132	3353	50	1270	60	1524	10330	4695	4350	1977

**Series HCP-300-PPSM Triplex Progressive**

MODEL NO.	DIMENSIONS										SHIPPING WEIGHT							
	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		
M4110TR-PPSM	89	2261	59	1499	107	2718	48	1219	144	3658	30	762	50	1270	5030	2286	2450	1114
M4112TR-PPSM	98	2489	68	1727	116	2946	48	1219	156	3962	39	991	48	1219	6620	3009	3050	1386
M4114TR-PPSM	101	2565	71	1803	119	3023	51	1295	156	3962	39	991	60	1524	7860	3573	3380	1536
M4116TR-PPSM	110	2794	80	2032	128	3251	60	1524	180	4572	42	1067	60	1524	12230	5559	4780	2173
M4118TR-PPSM	110	2794	80	2032	128	3251	63	1600	180	4572	50	1270	60	1524	15380	6991	5980	2718

**Series HCP-300-PPSM Quadplex Progressive**

MODEL NO.	DIMENSIONS										SHIPPING WEIGHT							
	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		
M4110QD-PPSM	89	2261	59	1499	107	2718	48	1219	198	5029	30	762	50	1270	6770	3077	3100	1409
M4112QD-PPSM	98	2489	68	1727	116	2946	48	1219	202	5131	39	991	48	1219	8890	4041	3850	1750
M4114QD-PPSM	101	2565	71	1803	119	3023	51	1295	204	5182	39	991	60	1524	10550	4795	4290	1950
M4116QD-PPSM	110	2794	80	2032	128	3251	60	1524	240	6096	42	1067	60	1524	16230	7377	6090	2768
M4118QD-PPSM	110	2794	80	2032	128	3251	63	1600	240	6096	50	1270	60	1524	20430	9286	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 Ft <sup>3</sup> PER TANK	NO.- SIZE	SALT FILL (LBS)	SERVICE (GPM)	DROP (PSI)	BKW (GPM)
M4110TA-PPSM	300,000	3-1	2-1	24" x 72"	10	1-30" x 50"	1200	120-170	15-25	15
M4110TI-PPSM	300,000	4-1	2-2	24" x 72"	10	2-30" x 50"	2400	240-340	15-25	15
M4110TR-PPSM	300,000	4-1	3-3	24" x 72"	10	3-30" x 50"	3600	360-510	15-25	15
M4110QD-PPSM	300,000	6-1	4-4	24" x 72"	10	4-30" x 50"	4800	480-680	15-25	15
M4112TA-PPSM	450,000	3-1 1/2	2-1	30" x 72"	15	1-39" x 48"	2200	158-212	15-25	25
M4112TI-PPSM	450,000	4-1 1/2	2-2	30" x 72"	15	2-39" x 48"	4400	316-424	15-25	25
M4112TR-PPSM	450,000	6-1 1/2	3-3	30" x 72"	15	3-39" x 48"	6600	474-636	15-25	25
M4112QD-PPSM	450,000	6-1 1/2	4-4	30" x 72"	15	4-39" x 48"	8800	632-848	15-25	25
M4114TA-PPSM	600,000	3-1 1/2	2-1	36" x 72"	20	1-39" x 60"	2700	185-250	15-25	35
M4114TI-PPSM	600,000	4-1 1/2	2-2	36" x 72"	20	2-39" x 60"	5400	370-500	15-25	35
M4114TR-PPSM	600,000	6-1 1/2	3-3	36" x 72"	20	3-39" x 60"	8100	555-750	15-25	35
M4114QD-PPSM	600,000	6-1 1/2	4-4	36" x 72"	20	4-39" x 60"	10800	740-1000	15-25	35
M4116TA-PPSM	900,000	3-2	2-1	42" x 72"	30	1-42" x 60"	3100	200-268	15-25	50
M4116TI-PPSM	900,000	4-2	2-2	42" x 72"	30	2-42" x 60"	6200	400-536	15-25	50
M4116TR-PPSM	900,000	6-2	3-3	42" x 72"	30	3-42" x 60"	9300	600-804	15-25	50
M4116QD-PPSM	900,000	6-2	4-4	42" x 72"	30	4-42" x 60"	12400	800-1072	15-25	50
M4118TA-PPSM	1,050,000	3-2	2-1	48" x 72"	35	1-50" x 60"	4500	213-280	15-25	60
M4118TI-PPSM	1,050,000	6-2	2-2	48" x 72"	35	2-50" x 60"	9000	426-560	15-25	60
M4118TR-PPSM	1,050,000	6-2	3-3	48" x 72"	35	3-50" x 60"	13500	639-840	15-25	60
M4118QD-PPSM	1,050,000	6-2	4-4	48" x 72"	35	4-50" x 60"	18000	852-1120	15-25	60

## Ordering Information for Skid Mounted Pre-Plumbed Duplex Alternating HCTA-300-PPSM Softeners

MODEL NO.	ORDERING CODES	DESCRIPTION	SPACE REQUIRED	SHIPPING WEIGHT
			D X W X H	LBS
M4110TA-PPSM	68105474	10 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	86" x 96" x 107"	3300
M4112TA-PPSM	68105487	15 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	95" x 108" x 116"	4230
M4114TA-PPSM	68105499	20 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	98" x 108" x 119"	5250
M4116TA-PPSM	68105510	30 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	110" x 120" x 128"	7880
M4118TA-PPSM	68105524	35 Cubic Foot Duplex Alternating Skid Mounted Softener with Flow Meter	121" x 132" x 128"	9930

## Ordering Information for Skid Mounted Pre-Plumbed Duplex Progressive HCP-300-PPSM Softeners

MODEL NO.	ORDERING CODES	DESCRIPTION	SPACE REQUIRED	SHIPPING WEIGHT
			D X W X H	LBS
M4110TI-PPSM	68105476	10 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	86" x 108" x 107"	3420
M4112TI-PPSM	68105489	15 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	95" x 108" x 116"	4480
M4114TI-PPSM	68105501	20 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	98" x 108" x 119"	5310
M4116TI-PPSM	68105512	30 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	110" x 120" x 128"	8230
M4118TI-PPSM	68105526	35 Cubic Foot Duplex Progressive Skid Mounted Softener with Flow Meters	121" x 132" x 128"	10330

## Ordering Information for Skid Mounted Pre-Plumbed Triplex Progressive HCP-300-PPSM Softeners

MODEL NO.	ORDERING CODES	DESCRIPTION	SPACE REQUIRED	SHIPPING WEIGHT
			D X W X H	LBS
M4110TR-PPSM	68105478	10 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	86" x 144" x 107"	5030
M4112TR-PPSM	68105491	15 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	95" x 156" x 116"	6620
M4114TR-PPSM	68105503	20 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	98" x 156" x 119"	7860
M4116TR-PPSM	68105514	30 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	110" x 180" x 128"	12230
M4118TR-PPSM	68105528	35 Cubic Foot Triplex Progressive Skid Mounted Softener with Flow Meters	121" x 180" x 128"	15380

## Ordering Information for Skid Mounted Pre-Plumbed Quadplex Progressive HCP-300-PPSM Softeners

MODEL NO.	ORDERING CODES	DESCRIPTION	SPACE REQUIRED	SHIPPING WEIGHT
			D X W X H	LBS
M4110QD-PPSM	68105472	10 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	86" x 198" x 107"	6770
M4112QD-PPSM	68105485	15 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	95" x 202" x 116"	8890
M4114QD-PPSM	68105497	20 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	98" x 204" x 119"	10550
M4116QD-PPSM	68105508	30 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	110" x 240" x 128"	16230
M4118QD-PPSM	68105522	35 Cubic Foot Quadplex Progressive Skid Mounted Softener with Flow Meters	121" x 240" x 128"	20430

**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 HCP-300-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 25psi drops are for intermittent peak flow rates and are not to be used as continuous flows.

### 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.



USA: T: (800) 659-8400 • F: (800) 659-8402 • Watts.com  
 Canada: T: (888) 208-8927 • F: (905) 481-2316 • Watts.ca  
 Latin America: T: (52) 55-4122-0138 • Watts.com