

Engineering Specification

Job Name _____

Contractor _____

Job Location _____

Approval _____

Engineer _____

Contractor's P.O. No. _____

Approval _____

Representative _____

Series CLS-150 & CLS-200

Locksmith™ Commercial Water Softening Systems

Connection Size: 1 1/2" & 2"

Flow Rates: Up to 119 gpm (541 lpm)

Watts Locksmith™ CLS Series water softening systems are highly efficient cation exchange type water softeners. These pre-engineered systems are suitable for commercial applications ranging from 60,000 to grains of hardness removal and flow rates up to 119 gpm (541 lpm) gallons per minute. Where continuous softened water is required, CLSTA-150 and CLSTA-200 duplex alternating or CLSP-150 and CLSP-200 progressive systems can be specified for uninterrupted service. Regeneration is meter demand initiated. All cycles of regeneration are fully automatic and do not require manual actuation.

The Locksmith™ controller is a Watts exclusive, highly functional control board that operates 1.5" & 2" simplex, duplex, and multi-tank progressive flow softeners, with the ability to operate external devices for highly configurable systems to suit the needs of a wide variety of application requirements.

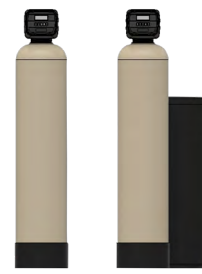
Watts Locksmith™ CLS Series water softeners are designed for point of use or point of entry applications where the benefits of softened water are required. These systems exchange scale forming calcium and magnesium ions with non-scale forming sodium ions to create soft water for a variety of applications.

Steam boilers make up water heater pretreatment, reverse osmosis pretreatment, cooling tower make up water, sterilizer make up water, washing, and process water are all common applications for the Watts CLS Series water softeners. Watts CLS Series are 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 from not introducing scale into 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.



Series CLS-150 & CLS-200



Series CLSTA-150 & CLSTA-200



Series CLSP-150 & CLSP-200

⚠ WARNING

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

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.

Features

- Durable brass bodied control valve for years of service
- 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
- High-capacity resin certified to NSF/ANSI standards
- Highly corrosion resistant fiberglass tanks certified to NSF/ANSI standards
- Durable polypropylene lower distribution system
- Locksmith™ Controller offering Improved functionality of a basic softener

CLS-150 & CLS-200 Features

- Model for capacities up to 600,000 grains per tank
- Each softening vessel comes complete with brine tank and meter
- All systems have stainless steel in-line flow meters
- Pre-engineered systems with up to 4 tanks in parallel for flow rates up to 119 gpm per tank
- Arrange up to 16 tanks in parallel for higher flow and capacity custom configurations
- All systems have no hard water bypass valve
- Modbus Capable

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

Specification

A Watts Locksmith™ Series CLS-150, CLSTA-150, CLSP-150, CLS-200, CLSTA-200, & CLSP-200 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.

Electrical requirements are 120-bolt 60 hertz. A local drain is required to accept drain water from the system. The feed water pressure must not fall below 25 psi or exceed 125 psi. 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.

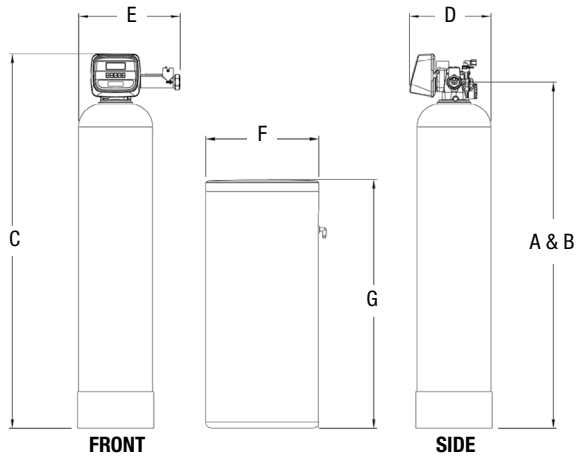
Feed Water Guidelines

pH	6 to 10
Hardness (maximum)	Depends on customers acceptable hardness leakage level.
Water Pressure	25 psi to 125 psi (171 kPa to 8.5 bar)
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 750 mg/l for the softener to produce less than 1 grain per gallon soft water.

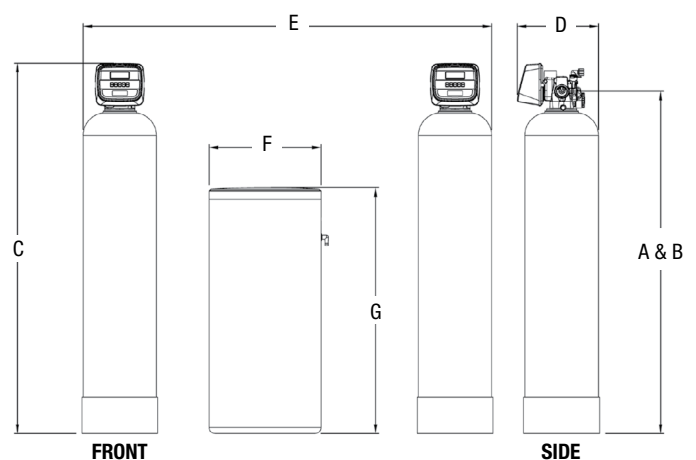
For all other guideline information please contact your Watts representative.

Dimensions

CLS-150, CLSP-150, CLS-200* & CLSP-200*



CLSTA-150 & CLSTA-200



Call customer service if you need assistance with technical details.

Dimensions & Weights

Series CLS-150, CLS-200, CLSP-150* & CLSP-200*

Model No.	Dimensions												Shipping Weight			
	A		B		C		D		E		F		G		lb	kg
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
M4410L	53 1/4	1353	53 1/4	1353	61	1550	12	305	16 3/4	425	18	457	40	1016	210	95
M4414L	68 1/4	1734	68 1/4	1734	73 5/8	1869	14	356	17 3/4	451	18	457	40	1016	240	109
M4418L	68 1/4	1734	68 1/4	1734	73 5/8	1869	16	406	18 3/4	476	18	457	40	1016	320	145
M4422L	68 1/4	1734	68 1/4	1734	73 5/8	1869	18	457	20 3/4	527	24	607	41	1041	380	172
M4426L	65 1/4	1657	65 1/4	1657	70 5/8	1793	21	533	21 1/4	540	24	607	41	1041	585	265
M4430L	75 1/4	1911	75 1/4	1911	80 5/8	2047	24	610	24 1/4	616	30	762	50	1270	710	322
M4543L	68 1/2	1740	68 1/2	1740	74 1/4	1886	15	381	17 3/4	451	18	457	40	1016	265	120
M4547L	68 1/2	1740	68 1/2	1740	74 1/4	1886	16	406	18 1/2	470	18	457	40	1016	350	159
M4548L	68 1/2	1740	68 1/2	1740	74 1/4	1886	18	457	20 1/2	521	24	607	41	1041	400	181
M4552L	65 1/2	1664	65 1/2	1664	73	1854	21	533	21 1/4	540	24	607	41	1041	600	272
M4558L	75 1/2	1918	75 1/2	1918	83	2108	24	610	24 1/4	616	30	762	50	1270	710	322
M4559L	75 1/2	1918	75 1/2	1918	83	2108	30	762	30 1/4	768	39	991	48	1219	1160	526
M4560L	75 1/2	1918	75 1/2	1918	83	2108	36	914	36 1/4	921	39	991	48	1219	1560	707

*Dimensional Data is for a single mineral tank system ONLY. CLSP-150 & CLSP-200 models are composed of multiple CLS-150 & CLS-200 systems which can be arranged according to suit floor space availability. See Space Required in table above for single tank systems and estimate 2 spaces for duplex, 3 spaces for triplex and 4 spaces for quadplex CLSP-150 & CLSP-200 systems.

Series CLSTA-150 & CLSTA-200

Model No.	Dimensions												Shipping Weight			
	A		B		C		D		E		F		G		lb	kg
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm		
M4410LTA	53 1/4	1353	53 1/4	1353	61	1550	12	305	52	1320	18	457	40	1016	420	190
M4414LTA	68 1/4	1734	68 1/4	1734	73 5/8	1869	14	356	60	1524	18	457	40	1016	480	218
M4418LTA	68 1/4	1734	68 1/4	1734	73 5/8	1869	16	406	60	1524	18	457	40	1016	640	290
M4422LTA	68 1/4	1734	68 1/4	1734	73 5/8	1869	18	457	70	1778	24	607	41	1041	760	345
M4426LTA	65 1/4	1657	65 1/4	1657	70 5/8	1793	21	533	75	1905	24	607	41	1041	1170	531
M4430LTA	75 1/4	1911	75 1/4	1911	80 5/8	2047	24	610	87	2210	30	762	50	1270	1420	644
M4543LTA	68 1/2	1740	68 1/2	1740	74 1/4	1886	15	381	52	1320	18	457	40	1016	530	240
M4547LTA	68 1/2	1740	68 1/2	1740	74 1/4	1886	16	406	60	1524	18	457	40	1016	70	318
M4548LTA	68 1/2	1740	68 1/2	1740	74 1/4	1886	18	457	60	1524	24	607	41	1041	800	362
M4552LTA	65 1/2	1664	65 1/2	1664	73	1854	21	533	70	1778	24	607	41	1041	1200	544
M4558LTA	75 1/2	1918	75 1/2	1918	83	2108	24	610	75	1905	30	762	50	1270	1420	644
M4559LTA	75 1/2	1918	75 1/2	1918	83	2108	30	762	87	2210	39	991	48	1219	2320	1052
M4560LTA	75 1/2	1918	75 1/2	1918	83	2108	36	914	93	2362	39	991	48	1219	2840	1414

Specifications

Model No.	Mineral Tank			Brine Tank		Softening Capacity		LBS. Salt Per Regeneration		Flow Rate & Pressure		
	Tank Size	Resin Ft3	Gravel	Tank Size	Salt Fill	Max	Min	Max	Min	Serv GPM	Drop PSI	BKW GPM
M4410L	12" x 52"	3	30 lbs.	18" x 40"	400	60 K	40 K	30	12	25/40	15/25	4
M4414L	14" x 65"	3	60 lbs.	18" x 40"	400	90 K	60 K	45	18	35/55	15/25	5
M4418L	16" x 65"	4	80 lbs.	18" x 40"	400	120 K	80 K	60	24	57/65	15/25	7
M4422L	18" x 65"	5	100 lbs.	24" x 41"	600	150 K	100 K	75	30	60/77	15/25	11
M4426L	21" x 62"	7	100 lbs.	24" x 41"	800	210 K	140 K	105	42	74/97	15/25	13
M4430L	24" x 72"	10	200 lbs.	30" x 50"	1400	300 K	200 K	150	60	80/100	15/25	15
M4543L	14" x 65"	3	60 lbs.	18" x 40"	400	90 K	60 K	45	18	39/55	15/25	5
M4547L	16" x 65"	4	80 lbs.	18" x 40"	400	120 K	80 K	60	24	47/60	15/25	7
M4548L	18" x 65"	5	100 lbs.	24" x 41"	600	150 K	100 K	75	30	53/69	15/25	10
M4552L	21" x 62"	7	100 lbs.	24" x 50"	600	210 K	140 K	105	42	66/85	15/25	13
M4558L	24" x 72"	10	200 lbs.	30" x 50"	1400	300 K	200 K	150	60	73/94	15/25	15
M4559L	30" x 72"	15	400 lbs.	39" x 48"	2200	450 K	300 K	225	90	84/109	15/25	25
M4560L	36" x 72"	20	500 lbs.	39" x 48"	2200	600 K	400 K	300	120	93/119	15/25	35

NOTICE

Service gpm is for a single mineral tank and duplex alternating systems ONLY. For CLSP-150 & CLSP-200 Series Progressive systems, multiply the service gpm by (x2) for Duplex, (x3) for Triplex and (x4) for Quadplex systems. The maximum peak service flow rate capability of any progressive series system will be reduced by the service flow rate of one tank during regeneration.

NOTICE

Flow rates listed above are based on pressure drop only. Selecting a system based on pressure drop alone does not guarantee that the system will provide adequately softened water. System selection should be based on resin quantity, capacity required, feed water analysis, and application requirements.

NOTICE

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 flow rates expressed above are per tank. Flow rates listed at 25 psi drops are for intermittent peak flow rates and are not to be used as continuous flows.

Ordering Information for 1-1/2" & 2" Simplex (CLS-150 & CLS-200) Softeners

Model No.	Ordering Codes	Description	Space Required D X W X H	Shipping Weight LBS
M4410L	68110950	2 Cubic Foot 1-1/2" Simplex Softener with Flow Meter	24" x 44" x 75"	210
M4414L	68110952	3 Cubic Foot 1-1/2" Simplex Softener with Flow Meter	24" x 44" x 75"	240
M4418L	68110954	4 Cubic Foot 1-1/2" Simplex Softener with Flow Meter	24" x 44" x 75"	320
M4422L	68110956	5 Cubic Foot 1-1/2" Simplex Softener with Flow Meter	24" x 50" x 87"	380
M4426L	68110961	7 Cubic Foot 1-1/2" Simplex Softener with Flow Meter	24" x 52" x 84"	585
M4430L	68110966	10 Cubic Foot 1-1/2" Simplex Softener with Flow Meter	30" x 69" x 96"	710
M4543L	68110971	3 Cubic Foot 2" Simplex Softener with Flow Meter	24" x 44" x 87"	265
M4547L	68110973	4 Cubic Foot 2" Simplex Softener with Flow Meter	24" x 44" x 87"	350
M4548L	68110975	5 Cubic Foot 2" Simplex Softener with Flow Meter	24" x 48" x 89"	400
M4552L	68110980	7 Cubic Foot 2" Simplex Softener with Flow Meter	24" x 52" x 89"	600
M4558L	68110985	10 Cubic Foot 2" Simplex Softener with Flow Meter	30" x 69" x 96"	710
M4559L	68110991	15 Cubic Foot 2" Simplex Softener with Flow Meter	39" x 75" x 106"	1160
M4560L	68110996	20 Cubic Foot 2" Simplex Softener with Flow Meter	39" x 81" x 107"	1560

Ordering Information for 1-1/2" & 2" Duplex Alternating (CLSTA-150 & CLSTA-200) Softeners

Model No.	Ordering Codes	Description	Space Required D X W X H	Shipping Weight LBS
M4410LTA	68110951	2 Cubic Foot 1-1/2" Duplex Alternating Softener with Flow Meter	24" x 64" x 75"	420
M4414LTA	68110953	3 Cubic Foot 1-1/2" Duplex Alternating Softener with Flow Meter	24" x 64" x 75"	480
M4418LTA	68110955	4 Cubic Foot 1-1/2" Duplex Alternating Softener with Flow Meter	24" x 64" x 75"	640
M4422LTA	68110957	5 Cubic Foot 1-1/2" Duplex Alternating Softener with Flow Meter	24" x 68" x 89"	760
M4426LTA	68110962	7 Cubic Foot 1-1/2" Duplex Alternating Softener with Flow Meter	24" x 72" x 84"	1170
M4430LTA	68110967	10 Cubic Foot 1-1/2" Duplex Alternating Softener with Flow Meter	30" x 89" x 96"	1420
M4543LTA	68110972	3 Cubic Foot 2" Duplex Alternating Softener with Flow Meter	24" x 64" x 87"	530
M4547LTA	68110974	4 Cubic Foot 2" Duplex Alternating Softener with Flow Meter	24" x 64" x 87"	700
M4548LTA	68110976	5 Cubic Foot 2" Duplex Alternating Softener with Flow Meter	24" x 68" x 89"	800
M4552LTA	68110981	7 Cubic Foot 2" Duplex Alternating Softener with Flow Meter	24" x 72" x 89"	1200
M4558LTA	68110986	10 Cubic Foot 2" Duplex Alternating Softener with Flow Meter	30" x 89" x 96"	1420
M4559LTA	68110992	15 Cubic Foot 2" Duplex Alternating Softener with Flow Meter	39" x 95" x 106"	1320
M4560LTA	68110997	20 Cubic Foot 2" Duplex Alternating Softener with Flow Meter	39" x 101" x 107"	2840

Ordering Information for 1-1/2" & 2" Duplex Progressive (CLSP-150 & CLSP-200) Softeners

Model No.	Ordering Codes	Description	Space Required D X W X H	Shipping Weight LBS
M4422LTI	68110958	5 Cubic Foot 1-1/2" Progressive Duplex Softener with Flow Meter	38" x 59" x 87"	760
M4426LTI	68110963	7 Cubic Foot 1-1/2" Progressive Duplex Softener with Flow Meter	39" x 61" x 84"	1170
M4430LTI	68110968	10 Cubic Foot 1-1/2" Progressive Duplex Softener with Flow Meter	46" x 78" x 96"	1420
M4548LTI	68110977	5 Cubic Foot 2" Progressive Duplex Softener with Flow Meter	46" x 59" x 89"	800
M4552LTI	68110982	7 Cubic Foot 2" Progressive Duplex Softener with Flow Meter	49" x 62" x 89"	1200
M4558LTI	68110987	10 Cubic Foot 2" Progressive Duplex Softener with Flow Meter	59" x 69" x 96"	1420
M4559LTI	68110993	15 Cubic Foot 2" Progressive Duplex Softener with Flow Meter	74" x 85" x 106"	2320
M4560LTI	68110998	20 Cubic Foot 2" Progressive Duplex Softener with Flow Meter	80" x 94" x 107"	3120

Ordering Information for 1-1/2" & 2" Triplex Progressive (CLSP-150 & CLSP-200) Softeners

Model No.	Ordering Codes	Description	Space Required D X W X H	Shipping Weight LBS
M4422LTR	68110959	5 Cubic Foot 1-1/2" Progressive Triplex Softener with Flow Meter	38" x 82" x 87"	1140
M4426LTR	68110964	7 Cubic Foot 1-1/2" Progressive Triplex Softener with Flow Meter	39" x 85" x 84"	1755
M4430LTR	68110969	10 Cubic Foot 1-1/2" Progressive Triplex Softener with Flow Meter	46" x 102" x 96"	2130
M4548LTR	68110978	5 Cubic Foot 2" Progressive Triplex Softener with Flow Meter	46" x 88" x 89"	1200
M4552LTR	68110983	7 Cubic Foot 2" Progressive Triplex Softener with Flow Meter	49" x 92" x 89"	1800
M4558LTR	68110988	10 Cubic Foot 2" Progressive Triplex Softener with Flow Meter	59" x 97" x 96"	2130
M4559LTR	68110994	15 Cubic Foot 2" Progressive Triplex Softener with Flow Meter	74" x 109" x 106"	3480
M4560LTR	68110999	20 Cubic Foot 2" Progressive Triplex Softener with Flow Meter	80" x 127" x 107"	4680

Ordering Information for 1-1/2" & 2" Quadplex Progressive (CLSP-150 & CLSP-200) Softeners

Model No.	Ordering Codes	Description	Space Required D X W X H	Shipping Weight LBS
M4422LQD	68110960	5 Cubic Foot 1-1/2" Progressive Quaplex Softener with Flow Meter	38" x 109" x 87"	1520
M4426LQD	68110965	7 Cubic Foot 1-1/2" Progressive Quaplex Softener with Flow Meter	39" x 113" x 84"	2340
M4430LQD	68110970	10 Cubic Foot 1-1/2" Progressive Quaplex Softener with Flow Meter	46" x 115" x 96"	2840
M4548LQD	68110979	5 Cubic Foot 2" Progressive Quaplex Softener with Flow Meter	46" x 117" x 89"	1600
M4552LQD	68110984	7 Cubic Foot 2" Progressive Quaplex Softener with Flow Meter	49" x 123" x 89"	2400
M4558LQD	68110990	10 Cubic Foot 2" Progressive Quaplex Softener with Flow Meter	59" x 129" x 96"	2840
M4559LQD	68110995	15 Cubic Foot 2" Progressive Quaplex Softener with Flow Meter	74" x 145" x 106"	4640
M4560LQD	68111000	20 Cubic Foot 2" Progressive Quaplex Softener with Flow Meter	80" x 169" x 107"	6240



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