

# Crusader Commercial Series CS15 & CS2

## Series Overview

**CS15 and CS2 electronic water softeners bring advanced technology and enhanced performance to commercial water treatment. These systems remove hardness and minerals from water. The CS15 and CS2 Series feature a state-of-the-art 1.5" and 2" control valve, high-performance mineral tank, and brine tank with ProGuard Feeder to handle the most demanding needs. They are equipped with a solid-state microprocessor control and LCD display to simplify system operation and setup.**

## Features & Benefits

- Complete diagnostic information and valve history data stored in non-volatile memory
- Treated water brine refill - "Dry Brining"
- Two independent relay driver outputs
- ProGuard feeder
- 12-volt DC battery operation available
- Fully programmable regeneration cycle sequence (maximum of nine steps)
- Stores system configuration and operation data in non-volatile memory - will not be lost during a power outage.
- Time-of-day battery backup with up to 8 hours of RTC
- Screen displays "low battery" when battery needs to be replaced
- Variable reserve automatically adjusts to changing water usage patterns
- Double regeneration option available
- Multiple regenerations (option) available in a day
- Service technician "short-cycle" regeneration
- 1.5" or 2.0" female NPT inlet/outlet top-mount control valves
- Optional 2.0" NPT control valve with Quick Connect base available for top and side-mount tank connections
- Lead-free brass valve bodies (1.5" & 2.0") utilize an NSF/FDA approved black epoxy electro-deposited coating for exceptional corrosion resistance in acidic or high-TDS waters.
- 1.5" NPT meter providing  $\pm 5\%$  accuracy across 0.5 to 75 gpm flow rate (Stainless Steel Meter Body)
- 2.0" NPT meter providing  $\pm 5\%$  accuracy across 1.5 to 150 gpm flow rate (Stainless Steel Meter Body)
- Composite mineral tanks using bottom Vortech™ (14" - 16" Diameter) or hub & lateral distributors
- Easy-access front panel settings with backlit LCD dot-matrix display
- Color-specific display illumination: Solid blue - in service; Solid green - in regeneration; Flashing yellow - maintenance; Flashing red - error
- Realtime flow indicator
- Scrolling text display for enhanced User-interface information
- Contractor name and phone number display fields



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MODEL NUMBER	SERVICE FLOW RATES				BACK-WASH GPM	GRAINS EXCHANGE CAPACITY PER REGENERATION				MINERAL TANK DIA. x HT. (INCHES)	OVERALL HEIGHT (INCHES)	RESIN VOL. CU. FT.	BRINE TANK DIA. x HT. (INCHES)	SALT STORAGE LBS
	CONTINUOUS		INTERMITTENT (PEAK)			MAX. GRAINS		MIN. GRAINS						
	GPM	PSI DROP	GPM	PSI DROP		@ 15 LBS SALT PER CU. FT.	SALT USED LBS	@ 8 LBS SALT PER CU. FT.	SALT USED LBS					

CS15-90	35	15	46	25	4.2	90,000	45	72,000	24	14 X 65	78	3	24 X 40	800
CS15-120	40	15	51	25	6.5	120,000	60	96,000	32	16 X 65	78	4	24 X 50	800
CS15-150	52	15	67	25	10	150,000	75	120,000	40	21 X 62	75	5	24 X 50	800
CS15-180	51	15	65	25	10	180,000	90	144,000	48	21 X 62	75	6	24 X 50	800
CS15-210	50	15	64	25	10	210,000	105	168,000	56	21 X 62	75	7	24 X 50	800
CS15-240	55	15	71	25	15	240,000	120	192,000	64	24 x 72	84	8	30 x 50	1250
CS15-270	54	15	69	25	15	270,000	135	216,000	72	24 x 72	84	9	30 x 50	1250
CS15-300	53	15	68	25	15	300,000	150	240,000	80	24 x 72	84	10	30 x 50	1250

CS2-120	47	15	60	25	6.5	120,000	60	96,000	32	16 x 65	78	4	24 x 50	800
CS2-150	72	15	94	25	10.0	150,000	75	120,000	40	18 X 65	78	5	24 X 50	800
CS2-180	70	15	91	25	10.0	180,000	90	144,000	48	21 X 62	75	6	24 X 50	800
CS2-210	66	15	85	25	10.0	210,000	105	168,000	56	21 X 62	75	7	24 X 50	800
CS2-240	76	15	98	25	15.0	240,000	120	192,000	64	24 X 72	84	8	30 X 50	1250
CS2-270	74	15	96	25	15.0	270,000	135	216,000	72	24 X 72	84	9	30 X 50	1250
CS2-300	73	15	94	25	15.0	300,000	150	240,000	80	24 x 72	84	10	30 x 50	1250
CS2-450	84	15	109	25	25.0	450,000	225	360,000	120	30 x 72	92	15	39 x 48	2150
CS2-600	93	15	119	25	35.0	600,000	300	480,000	160	36 x 72	93	20	39 x 48	2150
CS2-750	98	15	127	25	48.0	750,000	375	600,000	200	42 x 72	93	25	42 x 60	3100
CS2-900	96	15	120	25	48.0	900,000	450	720,000	240	42 x 72	93	30	50 x 60	4500
CS2-1200	98	15	127	25	63.0	1,200,000	600	960,000	320	48 x 72	93	40	50 x 60	4500

## System Design Options

- Choose method to initiate regeneration: meter immediate, meter delayed, meter delayed + immediate, days override (1-28), auxiliary input (differential pressure switch)
- Single: One softener with meter, one brine tank. See choices for regeneration initiation
- Twin Parallel: Two identical softeners, each with its own meter, only one brine tank. Meter delayed regeneration used with offset regeneration times. Both softeners are online for double the service flow rate and exchange capacity of a single softener
- Twin Alternating: Two identical softeners, only one meter and brine tank, and one motorized alternating valve. Meter immediate regeneration used. One softener online, one softener on standby
- Parallel Progressive: Minimum two, up to as many as six, identical softeners, each with its own meter and brine tank, and each with its own "no hard water bypass" valve. *A system controller is required to interlock these multiple systems.* Only one softener, known as the primary unit, is online until the service flow rate increases past a pre-set GPM, for second softener to come online. If the service flow rate increases beyond a second pre-set GPM, the third softener will come online (tri-plex), and so on (four-plex, five-plex, up to a six-plex system). As the service flow rate decreases, softeners will go back on standby accordingly. When the primary unit goes into regeneration, the next softener in the sequence becomes the primary unit
- "No hard water" bypass valve
- "Separate source regeneration" using motorized alternating valve
- ASME stamped mineral tanks are available.

