



THE CULLIGAN® HI-FLO® 55e SOFTENERS



Versatile Commercial Softeners For Medium Capacity Applications

Culligan designed Hi-Flo 55e Automatic Water Softeners for commercial and industrial applications that require from 100,000 to 1,620,000 grains of hardness removal capacity at flow rates up to 500 gallons per minute.

THE ION EXCHANGE SOFTENING PROCESS

Hard water contains dissolved calcium, magnesium, iron and manganese ions. In the service cycle, Hi-Flo 55e softeners remove mineral ions using ion exchange resin contained in a tank. The resin captures the mineral ions as the hard water flows downward through the resin bed. Over time, the resin bed exhausts and requires regeneration.

A timer and a control valve automatically control all operations.

SOFTENING FEATURES

- **Top-Mount Control Valve** keeps plumbing connections simple and adaptable. Convert flow easily from left-to-right or right-to-left, so the number of fittings needed are minimized and pressure loss reduced.
- **Full-Flow Ports** with smooth rounded orifices and wide open cartridges ensure water flows easily to even the top floors or remote points of buildings.
- **All Brass Construction** withstands wide pressure fluctuations and water hammer. Two sizes are available to handle the range of commercial applications.
- **Electronic Controls System** features digital, integral components for initiating regeneration by meter or timeclock.
- **Cullex® Ion Exchange Media** results in high exchange capacity, chemical stability and long life.
- **Three Types of Tanks:**
 - **Rugged Steel** - Phenolic epoxy-lined interior and durable gloss epoxy exterior ensures long life.
 - **ASME Steel** - Built and certified at the Culligan factory, rated at 100 or 125 psi.
- **Dubl-Safe™ Brine System** features positive brine over-fill protection and automatic control to provide the correct amount of brine for regeneration.
- **Seismic Zone-4 bolt-down legs** - The steel softener tank features bolt-down legs designed to comply with earthquake requirements (UBC Importance Factor 1.0).
- **Available options:**
 - Timeclock - Delayed
 - Meter - Soft-Minder® Meter, Immediate or Delayed

SOFTENING APPLICATIONS

Product Applications	Benefits
Apartment buildings, townhouses, and condominiums	Better water for dishwashing, laundries, and personal grooming.
Office buildings	For boiler water pre-treatment, tenant convenience, and general housekeeping.
Restaurants	For dishwashing, cleaning supplies savings, and scale prevention in plumbing and water-using appliances.
Vehicle Wash	For better washing and rinsing, detergent savings, water heating energy savings, and protection of equipment from scale deposits.
Manufacturing	For improving process and make-up waters, rinsing applications, boiler/cooling system water pre-treatment.
Laboratories and Clinics	For better glassware washing, time savings for general housekeeping and cleaning.
Hospitals	For better laundry operation, detergent savings, food service applications, general housekeeping, and boiler/cooling system water pretreatment.

**WE DESIGN IT. WE MANUFACTURE IT.
WE STAND BEHIND IT.**

Culligan® Hi-Flo® 55e water softeners are backed by a limited 1-year warranty against defects in material, workmanship and corrosion. In addition, phenolic epoxy lined tanks carry a limited 5-year warranty against internal corrosion. See the printed warranty for details. Plus, Culligan has a network of more than 800 dealers to help you.

Some localities have corrosive water. A softener cannot correct this condition so its printed warranty disclaims liability for corrosion of plumbing lines, fixtures or water-using equipment. If you suspect corrosion, your independently operated Culligan dealer has equipment to control the problem.

OPERATING LIMITS

Pressure	30-100 psi ¹ 207-690 kPa
Temperature	40-120° F max. ² 4-49° C
Electrical Requirements	120V/60 Hz
Turbidity	5.0 NTU max. ³
Chlorine	1.0 mg/L max. ³
Iron	5 mg/L max. ³

1 Higher pressure ratings available. Consult Culligan.

2 To 180°F (82°C) optional.

3 Refer to media specifications for details.

SPACE REQUIREMENTS

Model	Length	Depth	Height	Duplex Length	
HS-152	in	50	28	72	76
	m	1.27	0.71	1.83	1.93
HV-122	in	50	28	72	76
	m	1.27	0.71	1.83	1.93
HS-242	in	54	28	73	84
	m	1.37	0.71	1.85	2.13
HV-193	in	54	28	73	84
	m	1.37	0.71	1.85	2.13
HS-302	in	66	34	74	102
	m	1.68	0.86	1.88	2.59
HS-452	in	66	34	80	102
	m	1.68	0.86	2.03	2.59
HV-363	in	66	34	80	102
	m	1.68	0.86	2.03	2.59
HS-603	in	78	40	84	120
	m	1.98	1.02	2.13	3.05
HS-813	in	90	46	85	138
	m	2.29	1.17	2.16	3.51

NOTE: Operational, maintenance and replacement requirements are essential for this product to perform as advertised.

Culligan
is Water™

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SL-0014
Moore Part No. 46909



Hi-FLO[®] 55e

AUTOMATIC WATER SOFTENERS

SPECIFICATIONS AND OPERATING DATA

Single Unit Models	Exchange Capacity, ¹ gpg @ lb. Salt Dosage		Service Flow Rates				Pipe Size in.	Resin Qty. cu.ft.	Softener Tank Size, in.	Brine Tank Size, in.	Approx. Ship. Wt. lb.
			Peak ²		Continuous						
	Minimum	Maximum	Flow, gpm	Press. Drop psi	Flow, gpm	Press. Drop psi					
HS-152	100,000/30	150,000/75	80	19	60	12	2	5	20 x 48	24 x 48	700
HV-122	80,000/30	120,000/75	100	26	75	16	2	5	20 x 48	24 x 48	700
HS-242	160,000/48	240,000/120	100	24	75	16	2	8	24 x 48	24 x 48	930
HV-193	128,000/48	192,000/120	150	21	110	13	3	8	24 x 48	24 x 48	930
HS-302	200,000/60	300,000/150	110	18	75	10	2	10	30 x 48	30 x 48	1300
HS-452	300,000/90	450,000/225	110	20	75	11	2	15	30 x 54	30 x 48	1580
HV-363	240,000/90	360,000/225	190	24	140	14	3	15	30 x 54	30 x 48	1580
HS-603	400,000/120	600,000/300	230	20	175	14	3	20	36 x 54	36 x 48	2100
HS-813	540,000/162	810,000/405	230	18	175	12	3	27	42 x 54	42 x 48	2900

Duplex Models	Exchange Capacity, ¹ gpg @ lb. Salt Dosage		Service Flow Rates				Pipe Size in.	Resin Qty. cu.ft.	Softener Tank Size, in.	Brine Tank Size, in.	Approx. Ship. Wt. lb.
			Peak ²		Continuous						
	Minimum	Maximum	Flow, gpm	Press. Drop psi	Flow, gpm	Press. Drop psi					
HS-152-D	200,000/60	300,000/150	160	19	120	12	2	10	20 x 48	24 x 48	1350
HV-122-D	160,000/60	240,000/150	200	26	150	16	2	10	20 x 48	24 x 48	1350
HS-242-D	320,000/96	480,000/240	200	24	150	16	2	16	24 x 48	24 x 48	1800
HV-193-D	256,000/96	384,000/240	300	21	220	13	3	16	24 x 48	24 x 48	1800
HS-302-D	400,000/120	600,000/300	220	18	150	10	2	20	30 x 48	30 x 48	2500
HS-452-D	600,000/180	900,000/450	220	20	150	11	2	30	30 x 54	30 x 48	3100
HV-363-D	480,000/180	720,000/450	380	24	280	14	3	30	30 x 54	30 x 48	3100
HS-603-D	800,000/240	1,200,000/600	460	20	350	14	3	40	36 x 54	36 x 48	4120
HS-813-D	1,080,000/324	1,620,000/810	460	18	350	12	3	54	42 x 54	42 x 48	5700

1 Exchange capacities based on treating water containing 10 grains per gallon of hardness (expressed as calcium carbonate), free of color, oil, turbidity and at a continuous flow rate of approximately 50 percent of the peak flow rate. These are nominal capacities and will vary with influent water characteristics, water temperature, and other factors.

2 Operation of a softener at peak flow rate for extended periods of time may result in a slight reduction of softening capacity. This is due to premature hardness breakthrough.

NOTE: Operational, maintenance and replacement requirements are essential for this product to perform as advertised.

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Hi-FLO[®] 55e

AUTOMATIC WATER SOFTENERS

SPECIFICATIONS AND OPERATING DATA - METRIC

Single Unit Models	Exchange Capacity, ¹ gpg @ kg Salt Dosage		Service Flow Rates				Pipe Size mm	Resin Qty. Litres	Softener Tank Size, mm	Brine Tank Size, mm	Approx. Ship. Wt. kg
			Peak ²		Continuous						
	Minimum	Maximum	Flow, m ³ /hr	Press. Drop kPa	Flow, m ³ /hr	Press. Drop kPa					
HS-152	6,480/13.6	9,720/34.0	18.2	130	13.6	83	51	140	510 x 1200	610 x 1200	320
HV-122	5,180/13.6	7,780/34.0	22.7	180	17.0	110	51	140	510 x 1200	610 x 1200	320
HS-242	10,400/21.8	15,600/54.4	22.7	170	17.0	110	51	230	610 x 1200	610 x 1200	420
HV-193	8,290/21.8	12,400/54.4	34.1	140	25.0	90	76	230	610 x 1200	610 x 1200	420
HS-302	13,000/27.2	19,400/68.0	25.0	120	17.0	69	51	280	760 x 1200	760 x 1200	590
HS-452	19,400/40.8	29,200/102	25.0	140	17.0	76	51	420	760 x 1400	760 x 1200	720
HV-363	15,600/40.8	23,300/102	43.1	170	31.8	97	76	570	760 x 1400	760 x 1200	720
HS-603	25,900/54.4	38,900/136	52.2	140	39.7	97	76	570	910 x 1400	910 x 1200	950
HS-813	35,000/735	52,500/184	52.2	120	39.7	83	76	760	1100 x 1400	1100 x 1200	1300

Duplex Models	Exchange Capacity, ¹ gpg @ kg Salt Dosage		Service Flow Rates				Pipe Size mm	Resin Qty. Litres	Softener Tank Size, mm	Brine Tank Size, mm	Approx. Ship. Wt. kg
			Peak ²		Continuous						
	Minimum	Maximum	Flow, m ³ /hr	Press. Drop kPa	Flow, m ³ /hr	Press. Drop kPa					
HS-152-D	13,000/27.2	19,400/68.0	36.3	130	27.3	83	51	280	510 x 1200	610 x 1200	610
HV-122-D	10,400/27.2	15,600/68.0	45.4	180	34.1	110	51	280	510 x 1200	610 x 1200	610
HS-242-D	20,700/43.6	31,100/109	45.4	170	34.1	110	51	450	610 x 1200	610 x 1200	820
HV-193-D	16,600/43.6	24,900/109	68.1	140	50.0	90	76	450	610 x 1200	610 x 1200	820
HS-302-D	25,900/54.4	38,900/136	50.0	120	34.1	69	51	570	760 x 1200	760 x 1200	1100
HS-452-D	38,900/81.7	58,300/204	50.0	140	34.1	76	51	850	760 x 1400	760 x 1200	1400
HV-363-D	31,100/81.7	46,700/204	86.3	170	63.6	97	76	850	760 x 1400	760 x 1200	1400
HS-603-D	51,800/109	77,800/272	104	140	79.5	97	76	1100	910 x 1400	910 x 1200	1900
HS-813-D	70,000/147	105,000/367	104	120	79.5	83	76	1500	1100 x 1400	1100 x 1200	2600

1 Exchange capacities based on treating water containing 171 mg/L of hardness (expressed as calcium carbonate), free of color, oil, turbidity and at a continuous flow rate of approximately 50 percent of the peak flow rate. These are nominal capacities and will vary with influent water characteristics, water temperature, and other factors.

2 Operation of a softener at peak flow rate for extended periods of time may result in a slight reduction of softening capacity. This is due to premature hardness breakthrough.

NOTE: Operational, maintenance and replacement requirements are essential for this product to perform as advertised.

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LIMITED WARRANTY

HI-FLO® 1, HI-FLO 55 CONDITIONERS AND DUPLEX ALTERNATORS

You have just purchased one of the finest water conditioners made. As an expression of our confidence in Culligan products, your water conditioner is warranted to the original end-user, when installed in accordance with Culligan International Company specifications, against defects in material and workmanship from the date of original installation, as follows:

For a period of ONE YEAR	The entire unit
For a period of FIVE YEARS	The conditioner tank if it has an epoxy-phenolic coated interior.
For a period of TWELVE YEARS	The conditioner tank if it contains a plastic inner liner.

If a part described above becomes defective, within the specified period, you should notify your independently operated Culligan dealer and arrange a time during normal business hours for the dealer to inspect the water conditioner on your premises. Any part found defective within the terms of this warranty will be repaired or replaced by the dealer. You pay only freight from our factory and local dealer charges.

Of course, damage caused by accident, fire, flood, freezing, Act of God, misuse, misapplication, neglect, alteration, installation or operation contrary to our printed instructions, or by the use of accessories or components which do not meet Culligan specifications, is not covered by this warranty.

Our product performance specifications are furnished with each water conditioning unit. TO THE EXTENT PERMITTED BY LAW, CULLIGAN DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE; TO THE EXTENT REQUIRED BY LAW, ANY SUCH IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE ONE-YEAR PERIOD SPECIFIED ABOVE FOR THE PARTS DESCRIBED IN THIS LIMITED WARRANTY. As manufacturer, we do not know the characteristics of your water supply or the purpose for which you are purchasing a water conditioner. Please understand that the quality of water supplies may vary seasonally or over a period of time, and that your water usage rate may vary as well. Water characteristics can also change considerably if your water conditioner is moved to a new location. For these reasons, we assume no liability for the determination of the proper equipment necessary to meet your requirements, and we do not authorize others to assume such obligations for us. Further, we assume no liability and extend no warranties, express or implied, for the use of this product on a non-potable water source. OUR OBLIGATIONS UNDER THIS WARRANTY ARE LIMITED TO THE REPAIR OR REPLACEMENT OF THE FAILED PARTS OF THE WATER CONDITIONER, AND WE ASSUME NO LIABILITY WHATSOEVER FOR DIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL, GENERAL, OR OTHER DAMAGES, WHETHER FROM CORROSION OR OTHER CAUSES.

CONSUMERS:

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Similarly, some states do not allow the exclusion of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Consult your telephone directory for your local independently-operated Culligan dealer, or write Culligan International Company, for warranty and service information.

CULLIGAN INTERNATIONAL COMPANY
One Culligan Parkway
Northbrook, Illinois 60062

Culligan[®] WRITTEN SPECIFICATION

HI-FLO[®] 55e AUTOMATIC WATER SOFTENER	CUSTOMER:
	PROPOSAL DATE:

The equipment described is being offered by _____, an independently operated franchisee of Culligan international Company

PURPOSE

The purpose of the water softening system will be to reduce the hardness to less than _____ mg/L. The system will be a Culligan, Hi-Flo 55e Softener model _____ designed to handle a flow rate of _____ gallons per minute at a pressure loss not exceeding _____ psi. The system will have a softening capacity of not less than _____ grains of softening capacity per regeneration when a salt dosage of _____ pounds per tank is used.

RESIN TANK

Each softener resin tank will be _____ inches in diameter. The sideshell height will be _____ inches, sufficient to allow adequate freeboard above the resin bed for proper expansion of the resin during backwashing. Each tank will be designed for (check one):

- (Standard) 100 psi, non-code construction
- (Optional) 100 psi, ASME construction
- (Optional) 125 psi, ASME construction

The tank will be supported by steel legs that permit skid mounting and comply with seismic loading requirements for Zone 4.

The tank will be internally lined with a phenolic epoxy to a 8 - 10 mil thickness. The exterior will be sand blasted, painted with a rust-inhibiting primer, and then finished with a gloss epoxy top coat.

The tank will be equipped with an opening in the top head for mineral filling and periodic inspection.

DISTRIBUTOR SYSTEM

The softener tank will have a stainless steel upper distributor which will disperse water laterally to avoid channeling within the resin bed. The lower distributor will be of all-plastic construction in a hub-radial design. It will incorporate fine slot distributors to avoid possible passing of resin to service in the event of plumbing system upset. No slots will face upward to minimize the opportunity of channeling. One layer of gravel will be provided to aid in the even collection of water and make efficient use of the softening capacity of the resin.

SOFTENING MEDIA

HS Models

Each softener tank will be provided with _____ cubic feet of Cullex[®] resin having a minimum exchange capacity of 30,000 grains per cubic foot when regenerated with 15 pounds of salt. The media shall be solid, of the proper particle size (20 by 50 mesh, U.S. standard screen) and will contain no agglomerates, shells, plates or other shapes that might interfere with the normal function of the water softener. The resin will be manufactured to comply with the food additive regulation, 21 CFR 173.25 as set forth by the US FDA.

HV Models

Each softener shall be provided with _____ cubic feet of high quality non-phenolic Cullex Hi-V, resin having a minimum exchange capacity of 24,000 grains when regenerated with 15 lbs. of salt per cubic foot. It shall be solid, of the proper particle size, (16 by 30 mesh, U.S. standard screen) and will contain no agglomerates, shells, plates or other shapes which might interfere with the normal function of the water softener. The resins will be manufactured to comply with the food additive regulation, 21 CFR 173.25 as set forth by the US FDA.

TANK CONFIGURATION (check one)

- Single. All water will flow through one tank.
- Duplex Parallel. Water will flow through two tanks simultaneously, except when one softener is regenerating. The system will be designed to prevent simultaneous regeneration.
- Duplex Alternating. Water will flow through one tank, with another regenerated tank on standby. Before the on-line tank starts to regenerate, the standby tank will be placed on-line.

BRINE SYSTEM

Standard

A combination salt storage and brine tank, measuring _____ inches in diameter by _____ inches tall, with cover, will be provided. The tank will be molded of corrosion-proof, high-density polyethylene.

The brine tank will be equipped with an elevated salt plate for brine collection, and a chamber to house a brine valve assembly. The brine valve will automatically open to admit brine to the resin tank during eduction and close automatically to prevent introduction of air into the resin tank. During refill, the brine valve will regulate the flow of soft water into the brine tank, working with the timed refill feature of the softener control valve; together these components will admit the correct volume of water to the brine tank in accordance with the salt dosage settings on the control valve. The brine valve will include a float-operated safety shut-off valve, as a back-up to the time refill valve on the control, to prevent brine tank overflow.

Optional

The water softener will be provided with a pressurized brining system. Pressurized brine from the customer's source will be controlled by a pilot-operated diaphragm valve. A brass body ball valve will be provided for proper control of the brining rate to the softener tank. A self-adjusting flow control will be included on the rinse water line to assure proper brine dilution. Brine dosage will be regulated by adjustment of a salt dosage dial in the timeclock case.

AUTOMATIC CONTROLS

The automatic control will be of top-mount design and all-brass construction. It will utilize a bolt-down flange connection to permit proper positioning between the valve and conditioner tank openings. It will have provision for either left-hand or right-hand raw water plumbing to simplify installation while maintaining a forward-facing timer for easy servicing. Service connections of the control will be _____ inch pipe size. The control will be a Culligan® fully automatic multi-port control valve operated by a rotary pilot that hydraulically or pneumatically activates cartridge style diaphragm valves to accomplish regeneration. The multi-port valve will incorporate self-adjusting flow regulators to control the rate of flow and prevent resin loss during backwash, brine-rinse, fast rinse, and brine tank refill positions, regardless of pressure fluctuations between 30 and 100 psi. The control will open and close slowly to prevent noise and hydraulic shock. It will have provision for bypass of hard water during the regeneration cycle or eliminate of the bypass, depending upon the requirements. The electrical control mechanism will be enclosed in a gasketed, moisture-resistant case. The enclosure will conform to NEMA 12 enclosure standards.

The unit will have provisions for individual adjustment of backwash and rinse cycle, and provisions for manually regenerating the water softener by means of inlet hydraulic pressure even without the use of electric power. Regeneration will be controlled by a seven-day calendar clock that permits regeneration at any time of the day or night, any or every day of the week.

INITIATION OF REGENERATION (check one)

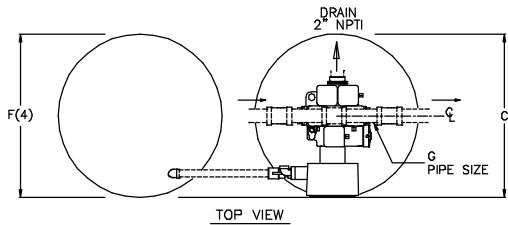
- Timeclock. Regeneration will be initiated by a seven-day calendar clock that permits regeneration at any time of the day or night, any or every day of the week.
- Aqua-Sensor® Sensing Device (steel tanks only). A sensor probe will be inserted into the resin bed and an amplifier circuit board will be installed in the control. The probe will sense the need for regeneration based on differential water hardness reading and signal the circuit board to initiate regeneration (immediately) (at a preset time after sensing). The system will compensate for variations in water hardness and temperature and will require no field adjustments when operated within the normal temperature range of the softener.
- Soft-Minder® Meter Control System. One meter (single or duplex alternating) or two meters (duplex parallel) will be provided with a solid state control to initiate regeneration on a metered volume basis.

INSTRUCTIONS

Complete instructions covering installation and operation of the water softener will be provided in booklet form.

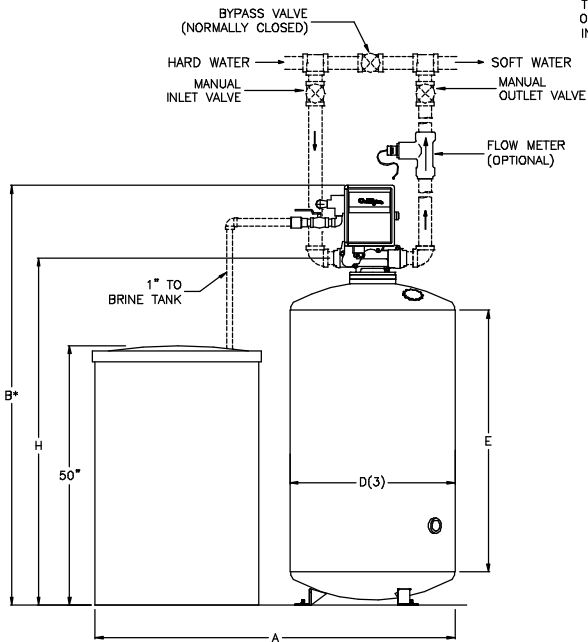
PRODUCT INTEGRITY

All major components such as tanks, distributors, controls and brine system will all be designed, and assembled by a single source for optimum compatibility. The Culligan® System referred to above carries a written limited warranty on workmanship and materials. Refer to the warranty itself for all information on warranty rights relating to this system. Independently operated Culligan dealerships throughout the country have replacement parts and factory authorized service available. Currently there is a dealership within _____ miles of the jobsite so that the equipment can be maintained and properly serviced as needed.

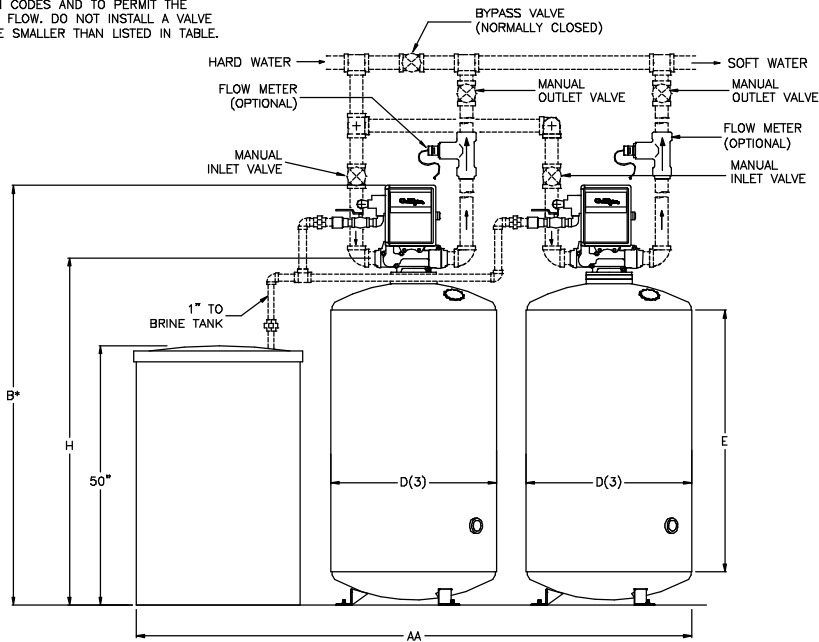


NOTES:

- (1) ITEMS SHOWN IN BROKEN LINES TO BE FURNISHED BY OTHERS.
 - (2) AN ELECTRICAL OUTLET SHOULD BE PROVIDED WITHIN 5 FEET OF THE EQUIPMENT.
 - (3) INSIDE DIAMETER—ALLOW A MINIMUM OF 1-INCH (25mm) FOR OUTSIDE CLEARANCE.
 - (4) INSIDE DIAMETER—ALLOW A MINIMUM OF 4-INCHES (100mm) FOR OUTSIDE CLEARANCE DUE TO TANK COVER
 - (5) ALL DIMENSIONS ARE ± 1 INCH (25mm) AND SUBJECT TO CHANGE WITHOUT NOTICE.
 - (6) THE USE OF DISSIMILAR METALS IN A PIPING SYSTEM IS NOT RECOMMENDED. WHERE DISSIMILAR METALS MUST BE CONNECTED IN A WATER SYSTEM, THE USE OF NON-CONDUCTIVE (DIELECTRIC) FITTINGS WILL REDUCE GALVANIC CORROSION.
- * OVERALL HEIGHT BASED ON STANDARD NON-CODE CONSTRUCTION. SPECIALLY CONSTRUCTED TANKS DESIGNED FOR HIGHER WORKING PRESSURES AND A.S.M.E. CODE CONSTRUCTED TANKS ARE SLIGHTLY TALLER. CONSULT FACTORY IF HEIGHT IS CRITICAL. ALLOW 24-INCHES (0.6m) ABOVE SOFTENER FOR FILLING.
- * DO NOT MAKE A DIRECT CONNECTION TO THE DRAIN. PROVIDE AN AIR GAP OF AT LEAST FOUR TIMES THE DIAMETER OF THE DRAIN PIPE TO CONFORM TO SANITATION CODES AND TO PERMIT THE OBSERVATION OF THE DRAIN FLOW. DO NOT INSTALL A VALVE IN DRAIN LINE OR USE PIPE SMALLER THAN LISTED IN TABLE.



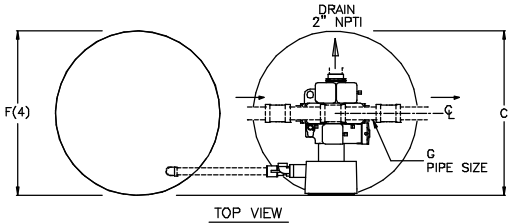
SIMPLEX INSTALLATION



PARALLEL DUPLEX INSTALLATION

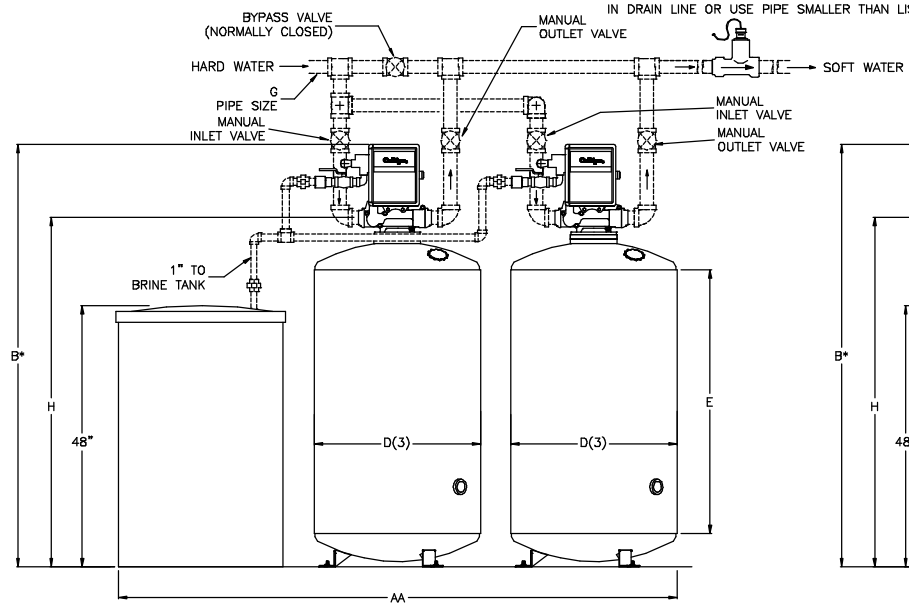
MODEL	DIMENSIONS (INCHES)										DRAIN FLOW	SIMPLEX OPER. WT.	
	A	AA	AAA	B*	C	D(3)	E	F(4)	G	H			MIN. DRAIN PIPE SIZE
HS-152	50	76	101	78	28	20	48	24	2	60	1 1/2"	10gpm	2,200 lb.
HV-122	50	76	101	78	28	20	48	24	2	60	1 1/2"	10gpm	2,200 lb.
HS-242	54	84	113	79	28	24	48	24	2	61	1 1/2"	15gpm	2,600 lb.
HV-193	54	84	113	79	28	24	48	24	3	61	1 1/2"	15gpm	2,600 lb.
HS-302	66	102	138	80	34	30	48	30	2	62	1 1/2"	25gpm	3,600 lb.
HS-452	66	102	138	86	34	30	54	30	2	68	1 1/2"	25gpm	4,200 lb.
HV-363	66	102	138	86	34	30	54	30	3	68	1 1/2"	25gpm	4,200 lb.
HS-603	78	120	161	90	40	36	54	36	3	72	1 1/2"	35gpm	6,100 lb.
HS-B13	90	138	185	91	46	42	54	42	3	73	1 1/2"	45gpm	8,400 lb.

Culligan® NORTHBROOK, ILLINOIS			
SCALE	00.00	DETAILED BY	KMR
REF. NO.	DATE	CHECKED BY	DATE
LET	CHANGE	BY	APP DATE
PRINT & BILL OF MATERIALS ARE NOT TO BE USED WITHOUT THE WRITTEN CONSENT OF CULLIGAN USA		NAME HI-FLOW ^{55e} HS-152 TO HS-813 HI-VELOCITY HV-122 TO 363 AUTOMATIC SOFTENERS	
DO NOT SCALE FROM DRAWING		PART NO. S55_1 SHEET 1 OF 2	

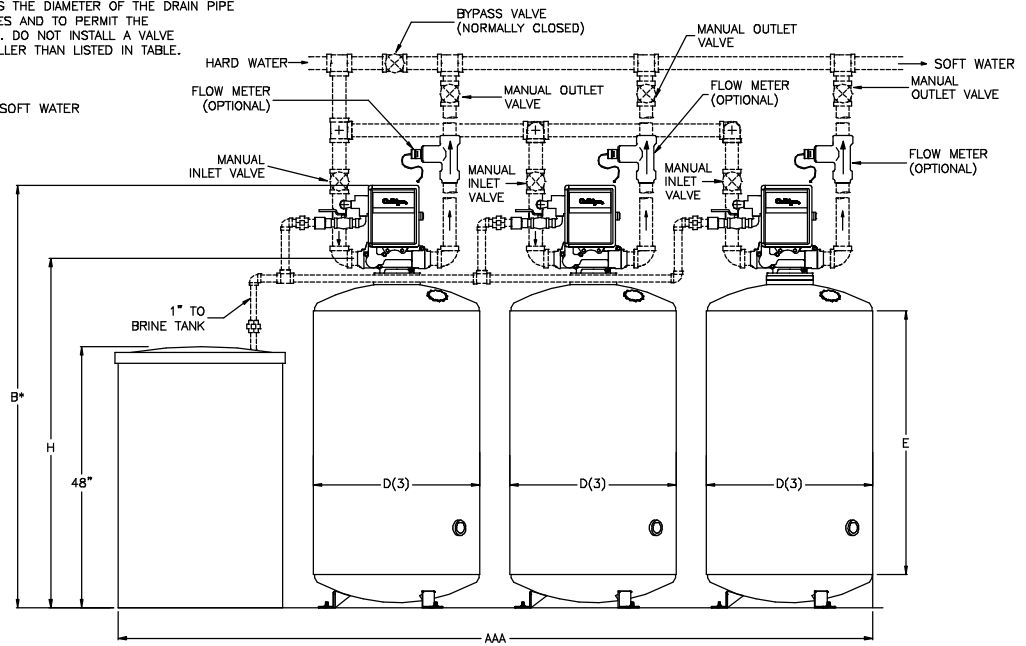


- NOTES:
- (1) ITEMS SHOWN IN BROKEN LINES TO BE FURNISHED BY OTHERS.
 - (2) AN ELECTRICAL OUTLET SHOULD BE PROVIDED WITHIN 5 FEET OF THE EQUIPMENT.
 - (3) INSIDE DIAMETER—ALLOW A MINIMUM OF 1—INCH (25mm) FOR OUTSIDE CLEARANCE.
 - (4) INSIDE DIAMETER—ALLOW A MINIMUM OF 4—INCHES (100mm) FOR OUTSIDE CLEARANCE DUE TO TANK COVER
 - (5) ALL DIMENSIONS ARE ± 1 INCH (25mm) AND SUBJECT TO CHANGE WITHOUT NOTICE.
 - (6) THE USE OF DISSIMILAR METALS IN A PIPING SYSTEM IS NOT RECOMMENDED. WHERE DISSIMILAR METALS MUST BE CONNECTED IN A WATER SYSTEM, THE USE OF NON—CONDUCTIVE (DIELECTRIC) FITTINGS WILL REDUCE GALVANIC CORROSION.
- * OVERALL HEIGHT BASED ON STANDARD NON—CODE CONSTRUCTION. SPECIALLY CONSTRUCTED TANKS DESIGNED FOR HIGHER WORKING PRESSURES AND A.S.M.E. CODE CONSTRUCTED TANKS ARE SLIGHTLY TALLER. CONSULT FACTORY IF HEIGHT IS CRITICAL. ALLOW 24—INCHES (0.6m) ABOVE SOFTENER FOR FILLING.
- * DO NOT MAKE A DIRECT CONNECTION TO THE DRAIN. PROVIDE AN AIR GAP OF AT LEAST FOUR TIMES THE DIAMETER OF THE DRAIN PIPE TO CONFORM TO SANITATION CODES AND TO PERMIT THE OBSERVATION OF THE DRAIN FLOW. DO NOT INSTALL A VALVE IN DRAIN LINE OR USE PIPE SMALLER THAN LISTED IN TABLE.

MODEL	DIMENSIONS (INCHES)										DRAIN FLOW	SIMPLEX OPER. WT.	
	A	AA	AAA	B*	C	D(3)	E	F(4)	G	H			
HS-152	50	76	101	78	28	20	48	24	2	60	1 1/2"	10gpm	2,200 lb.
HV-122	50	76	101	78	28	20	48	24	2	60	1 1/2"	10gpm	2,200 lb.
HS-242	54	84	113	79	28	24	48	24	2	61	1 1/2"	15gpm	2,600 lb.
HV-193	54	84	113	79	28	24	48	24	3	61	1 1/2"	15gpm	2,600 lb.
HS-302	66	102	138	80	34	30	48	30	2	62	1 1/2"	25gpm	3,600 lb.
HS-452	66	102	138	86	34	30	54	30	2	68	1 1/2"	25gpm	4,200 lb.
HV-363	66	102	138	86	34	30	54	30	3	68	1 1/2"	25gpm	4,200 lb.
HS-603	78	120	161	90	40	36	54	36	3	72	1 1/2"	35gpm	6,100 lb.
HS-813	90	138	185	91	46	42	54	42	3	73	1 1/2"	45gpm	8,400 lb.



ALTERNATING DUPLEX INSTALLATION



PARALLEL AND ALTERNATING TRIPLEX INSTALLATION

 NORTHBROOK, ILLINOIS				SCALE	00.00	DETAILED BY	KMR	CHECKED BY		APPROVED	
				REF. NO.		DATE	2/24/99	DATE		DATE	
LET	CHANGE	BY	APP	DATE	NAME HI-FL055e HS-152 TO HS-813 HI-VELOCITY HV-122 TO 363 AUTOMATIC SOFTENERS			PART NO. S55_2 SHEET 2 OF 2			

PRINT & BILL OF MATERIALS ARE NOT TO BE USED WITHOUT THE WRITTEN CONSENT OF CULLIGAN USA
DO NOT SCALE FROM DRAWING