

Water Softeners



An automatic ion exchange water softener will remove hardness from the water which in turn saves money. Typical industrial applications include central heating protection, boiler feed water, car wash systems, RO pre – treatment, catering systems, cleaning applications, the retail sector and the electronics industry.



What is hard water?

Rainwater which falls on chalk and limestone dissolves and collects hardness minerals such as calcium and manganese. This water collects in underground aquifers before either naturally coming back to the surface as streams or being pumped via a borehole. The minerals naturally drop out of solution forming scale deposits, especially when the water is heated. In many applications this scale build up becomes unsightly or interferes with the efficiency of applications, and needs to be removed. Just 1.6mm of scale build up will cause a 12% loss in heating efficiency in boiler water. Softened water also reduces the excessive use of detergents and soaps.

Applications

Domestic houses

Industrial/domestic hot water systems

Food industry

Window/car cleaning industry

Boiler feed water

Pure Water pre-treatment (eg reverse osmosis).

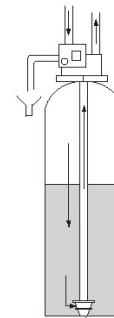
Electronics industry

Chemical industry

How does it work?

An automatic water softener consists of a pressure vessel filled with resin. Located on the top of the pressure vessel is the control valve. The water is passed through the control valve and down through the vessel. As the water passes across the resin bed, the calcium and magnesium attach to the resin so the water leaving the unit is soft.

Periodically, depending on how much water is used, the resin needs to be refreshed. This is done by flushing a small amount of salt (stored in an external brine tank), through the resin vessel. Once this process has been completed the resin is refreshed and ready to begin again.



How to size.

On average 160 litres of water is used per person per day. This normally occurs in two peak periods, one in the morning and one in the evening. A family of four typically uses 700 litres of water per day but may use 300 litres in an hour in the morning. Larger households, farms, stables and irrigations systems all use more water.

When sizing a system the average flow and the peak flow rate need to be taken into account. Try and size a system to run for 3 days without regenerating or a duplex for 12 hours. The vessel size is often given as the diameter and the height (in inches).

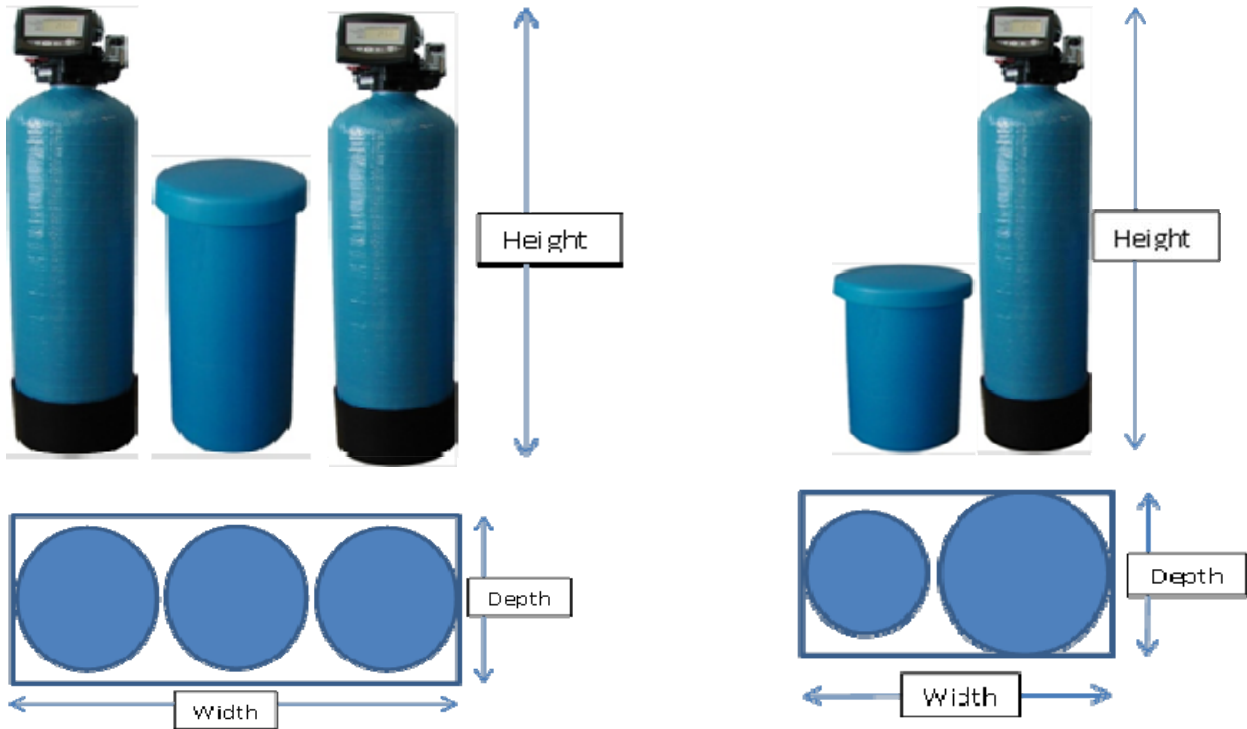
Recommended operating pressure range 20 to 120 psi.

Water temperature range from 2 to 38 degrees Celsius

The average flow rate is normally 40 bed volumes (40 times the litres of resin) although peak flows are higher.

Softener Data

Resin Vol (l)	Service Flow m ³ /h	Treated water m ³ @ 300ppm CaCO ₃	Salt used / regen Kg	Connections In / Out	Simplex			Duplex		
					Max Footprint					
					Width mm	Depth mm	Height mm	Width mm	Depth mm	Height mm
14	0.56	2.3	3	¾" or 1"	525	378	1109			
20	0.8	3.3	3	¾" or 1"	550	378	1104	870	440	1104
25	1	4	3.75	¾" or 1"	577	378	1105	948	440	1105
30	1.2	5	4.5	¾" or 1"	599	378	1105	948	440	1105
40	1.6	6.7	6	¾" or 1"	719	440	1324			
50	2	8.3	7.5	¾" or 1"	719	440	1587	948	440	1587
60	2.4	10	9	¾" or 1"	765	440	1435	1330	680	1435
75	3	12.5	11.25	¾" or 1"	1031	680	1584	1462	760	1584
100	4	16.7	15	1"	1059	680	1870	1638	880	1870
125	5	20	18.75	1"	1059	680	1870	1638	880	1870
150	5.7 or 6	25	22.5	1" or 1½"	1176	760	1875	1712	880	1875
200	5.7 or 7.7	33	30	1" or 1½"	1359	880	1997	1838	880	1997
250	10	41.6	37.5	1½" or 2"	1442	880	1921	2154	1030	1921
350	14	58	52.5	2"	1500	880	2171	2270	1030	2171
500	16 or 20	83	75	2"	1810	1030	2341	2670	1110	2341
700	16 or 26	116	105	2"	1967	1030	2441	2984	1110	2441
1000	40	166	150	3"	2253	1110	2785	3586	1300	2785
1250	56	208	187.5	3"	2600	1429	2800	3900	1300	2800
1800	56	300	270	3"	2739	1429	3040	4178	1429	3040



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Iron and manganese removal systems are also available as are other medias such as pH correction, sand, carbon etc

R – rectangular brine tank with this as the size of the largest side. Vol is in litres, and height and width in mm unless otherwise stated. Sizes and dimensions are for indication purposes only and may change without notice.