ULTRA SOFT
WATER SOFTENER SPECIALISTS

Crystal Right Systems

DATA SHEET

Iron and manganese are commonly found in waters. They can cause unsightly staining, and at high levels they can cause health problems. Both can be removed to leave the water crystal clear. Crystal Right Media will also remove the hardness (which causes limescale) at the same time and with no extra treatment.

Crystal Right™

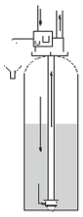
Crystal Right™ is a silica crystal that works by an ion exchange process which removes iron, manganese and hardness (and reduces ammonia). The minimum pH requirement is 6.0, and Crystal Right™ balances the pH in these acidic waters. Crystal Right™ works at its best on clear water, i.e. when the iron/manganese are in a dissolved form. Crystal Right™ will also reduce hardness with no extra treatment. The media bed can be sanitised with chlorine from time to time (some valves such as our Evolve do this automatically). The regeneration process is exactly the same as that used in a water softener and requires regeneration with salt (sodium chloride).

Crystal Right™ has a number of advantages over conventional systems, in that pH correction, iron/manganese removal, ammonia reduction and softening can all be addressed in a single process. It can reduce dissolved iron and manganese even at pH 6 (most other media cannot).

Crystal Right™ CR100 is used where the pH is between 6 and 7.

How Does It Work?

Water flows into the valve at the top, down through the media and then up through the 'riser' tube in the middle of the vessel. As the water travels through the media, the iron and manganese are removed, leaving crystal clear water. There are timer options that can be set to automatically self-clean (backwash) and wash away any of the accumulated iron and manganese. Cleaning can be set for a given time, or after a certain amount of water has been used. With Crystal Right™, salt is also added to regenerate it ready for service. Iron and manganese filters can also be used in conjunction with other filters, such as sand filters if the water has high turbidity, or pH correction filters if the pH of the water is very low.



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 ~650 litres of water per day, but may use 300 litres in an hour in the morning. Larger households, farms, stables and irrigation systems all use more water.

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

The amount of water produced between regenerations depends on the hardness, sodium and iron/manganese levels. The capacity, or water produced between regenerations (Cap m^3), at 100 mg/l apparent hardness is shown as Cap m^3 in the table overleaf.

Apparent hardness = total hardness (mg/l $CaCO_3$) + 2 x sodium (mg/l) + iron & manganese in mg/l
E.g. for a 1252 CR100 system this is 17.4 m^3, or at 200 ppm is 8.7 m^3.

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CR100 Systems Simplex specification

						Max footprint (simplex)		
Volume Litres	**Vessel dia x h (")**	**Service Flow m³/h**	**Treated water m³ @ 100 ppm $CaCO_3$**	**Salt used per regen kg**	**Connections In / Out**	**Width mm**	**Depth mm**	**Height mm**
42	10x54	1.5	13.4	5	¾" or 1"	669	440	1591
56	12x52	1.8	17.4	6.7	1"	715	440	1552
72	13x54	2	21.8	9	1"	741	440	1589
99	14x65	2.5	29.7	12	1"	1059	680	1874
127	16x65	3	38	15	1"	1176	760	1870
170	18x65	4	51	20	1"	1239	760	2001
198	21x60	5.5	59	24	2"	1442	880	1925
311	24x69	7	93	37	2"	1500	880	2175
538	30x72	11	161	65	2"	1752	1030	2345
679	36x72	15	203	82	2"	2124	1084	2445

Cap m³ – is the capacity, i.e. the amount of water produced between regenerations, based upon an apparent hardness of 100 ppm as $CaCO_3$.

Operating Conditions

Recommended operating pressure	43.5 to 120 psi
Water temperature range	2 to 38 °C
Maximum iron + manganese	5 mg/l for 1044, 10 mg/l for 1054/1252 and 15 mg/l for 1354 and over

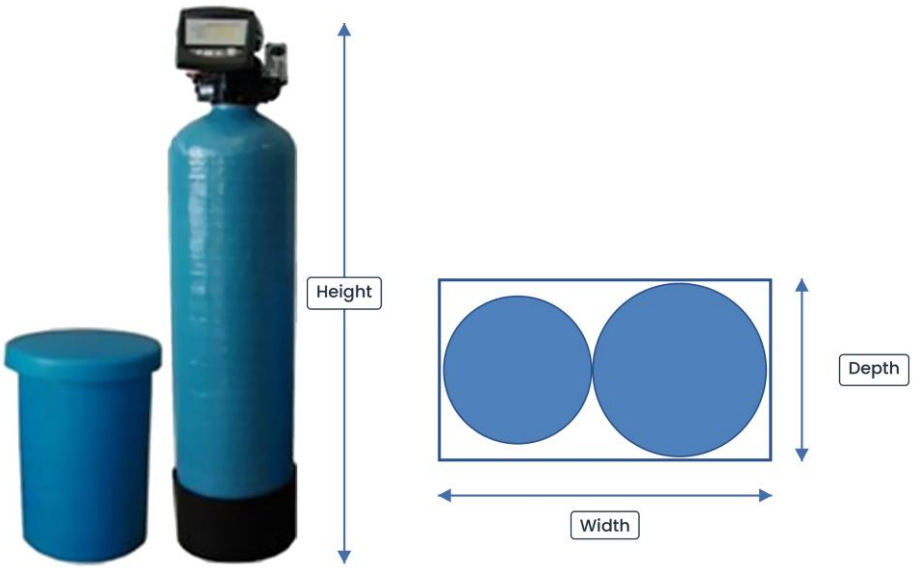
Notes

Where a rectangular brine tank is supplied, the overall width dimension provided is as per the largest side of the brine tank.

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.

Dimensions Simplex system and footprint



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