

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).

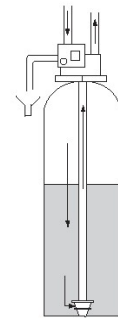
Electronics industry

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).

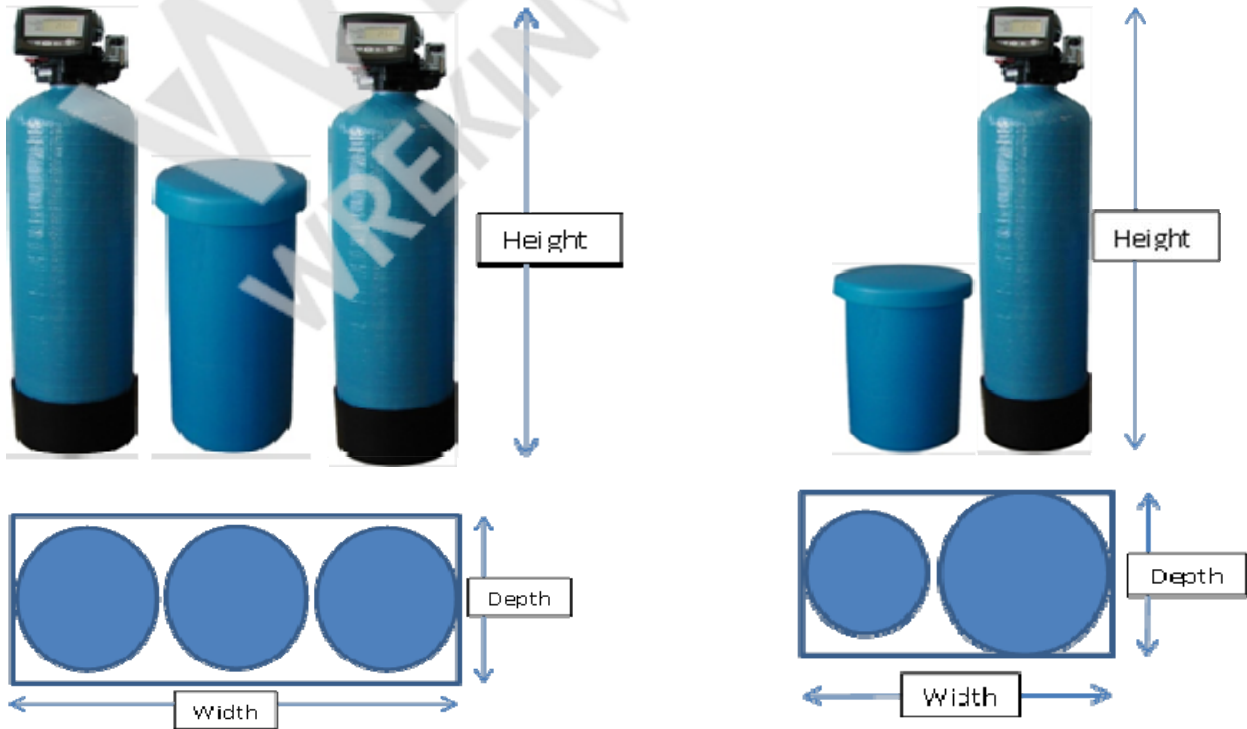
Recommended operating pressure range 20 to 120 psi.

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 m3/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 |



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.