

Ion Exchange units

Prosep Filter Systems offer a wide range of ionic exchange media

Water contains salts which are dissolved naturally in water. These salts are dispersed as ions which may be positively (cation) or negatively charged (anion). Generally these salts are not very soluble.

It is these ionic impurities in water which allow water to conduct electricity. The measure of a fluids ability to conduct electricity is called its conductivity. The higher the conductivity reading the higher the impurity level.

Ionic exchange occurs when one or more ions are exchanged or displaced by another.

Ion exchange units have a wide range of application both small scale and large scale. Whilst they are most commonly used for reducing hardness in water they may also be used for the reduction of Nitrates, Lead, Aluminium, Iron and Manganese. They are particularly useful because they are effective over a wider pH range than oxidising media.



How does it work?

When used for the reduction of Iron and Manganese, Ionic exchange units are fitted with automatic backwash valves. The complete unit is made up from a composite vessel filled with a suitable ion exchange media, the automated backwash valves is fitted to the top of this vessel. A brine tank is provided which contains the salt tablets used to create the brine solution which is used to regenerate the ion exchange media.

The water is passed through the control valve and down through the vessel. As the water passes across the resin bed, the ions of iron and manganese become attached to the media displacing ions of sodium. The water leaving the unit contains reduced levels of Iron and manganese and a slightly higher Sodium level. Periodically, depending on how much water is used, the resin needs to be refreshed. This is done by flushing a small amount of brine solution drawn from the brine tank through the composite vessel containing the resin. The higher concentration of Sodium then displaces Iron and Manganese into the waste water. The unit then goes into a rinse cycle to displace the brine solution to waste. Once this process has been completed the resin is refreshed and ready to begin again.

Vessel	10.44	10.54	12.52	13.54	14.65	16.65
Forward flow cu.m/h	1.6	2.0	2.5	3.0	5.0	6.0
Capacity cu.m/h @300ppm CaCO3	6.7	8.3	10	12.5	20	25

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