

# 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.

Hard water can be softened by passing the water through an ion exchange resin where the calcium and magnesium are absorbed. Periodically the hardness needs to be flushed away and the resin regenerated with salt.

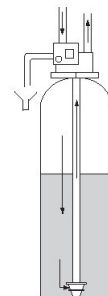
## Applications

- Boiler feed water
- Industrial/domestic hot water systems
- Pure Water pre-treatment (eg reverse osmosis).
- Food industry
- Electronics industry
- Window/car cleaning 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 attached 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. The tables below indicate the size of system needed. When sizing a system the average flow and the peak flow rate need to be taken into account.

Vessel size Cxxyy - C = composite material, xx is the diameter and yy is the height (inches)

Recommended operating pressure range 20 to 120 psi.

Water temperature range from 2 to 38 degrees Celsius

The maximum flow rate is normally 40 bed volumes (40 times the litres of resin)

Valve Type	255	268	278	Magnum
Inlet & outlet connections	3/4"	1"	1"	1.5"
Drain connection	1/2" hose connector	3/4" hose connector	3/4" hose connector	1.5"

## Simplex Unit – Time-clock

Kit Number	20.0461	20.0462	20.0463	20.0464	20.0465	20.0466	20.0467	20.0469	20.0470	20.0471	20.0473	20.0255	20.0257	20.0259	20.0261
Vessel size	<b>C735</b>	<b>C835</b>	<b>C935</b>	<b>C1035</b>	<b>C1044</b>	<b>C1054</b>	<b>C1248</b>	<b>C1354</b>	<b>C1465</b>	<b>C1665</b>	<b>C1865</b>	<b>C2160</b>	<b>C2469</b>	<b>C3072</b>	<b>C3672</b>
Valve Type & timer	255 742	255 742	255 742	255 742	255 742	255 742	255 742	268 742	268 742	278 742	278 742	Mag 942	Mag 942	Mag 942	Mag 942
Service flow rate m3/hr	0.56	0.72	0.9	1.1	1.4	1.7	2.0	3.0	4.0	5.0	5.7	9	12	15	15.0
Capacity @ 300 ppm CaCO3 m3	2.3	3.0	3.7	4.7	5.8	7.0	8.3	12.5	16.7	20.8	29.1	37.5	50	83	116
Salt usage in Kgs	1.7	2.2	2.6	3.4	4.2	5	6	9	12	15	21	27	36	60	84

## Simplex – Metered

Kit Number	20.0481	20.0482	20.0483	20.0484	20.0485	20.0486	20.0487	20.0489	20.0490	20.0492	20.0493	20.0256	20.0258	20.0260	20.0262
Vessel size	<b>C735</b>	<b>C835</b>	<b>C935</b>	<b>C1035</b>	<b>C1044</b>	<b>C1054</b>	<b>C1248</b>	<b>C1354</b>	<b>C1465</b>	<b>C1665</b>	<b>C1865</b>	<b>C2160</b>	<b>C2469</b>	<b>C3072</b>	<b>C3672</b>
Valve Type & timer	255 742	255 742	255 742	255 742	255 742	255 742	255 742	268 742	268 742	278 742	278 742	Mag 942	Mag 942	Mag 942	Mag 942
Service flow rate m3/hr	0.56	0.72	0.9	1.1	1.4	1.7	2.0	3.0	4.0	5.0	5.7	9	12	15	15.0
Capacity @ 300 ppm CaCO3 m3	2.3	3.0	3.7	4.7	5.8	7.0	8.3	12.5	16.7	20.8	29.1	37.5	50	83	116
Salt usage in Kgs	1.7	2.2	2.6	3.4	4.2	5	6	9	12	15	21	27	36	60	84

## Duplex Unit – Metered

Kit Number	20.0271	20.0272	20.0273	20.0274	20.0275	20.0276	20.0281	20.0282	20.0283	20.0284	20.0293	20.0294	20.0295	20.0296
Vessel size	<b>C835</b>	<b>C935</b>	<b>C1035</b>	<b>C1044</b>	<b>C1054</b>	<b>C1248</b>	<b>C1354</b>	<b>C1465</b>	<b>C1665</b>	<b>C1865</b>	<b>C2160</b>	<b>C2469</b>	<b>C3072</b>	<b>C3672</b>
Valve Type & timer	255 Ready	255 Ready	255 Ready	255 Ready	255 Ready	255 Ready	268 Perf	268 Perf	278 Perf	278 Perf	Mag Dup	Mag Dup	Mag Dup	Mag Dup
Service flow rate m3/hr	0.72	0.9	1.1	1.4	1.7	2.0	3.0	4.0	5.0	5.7	9	12	15	15
Capacity @ 300 ppm CaCO3 m3	3.0	3.7	4.7	5.8	7.0	8.3	12.5	16.7	20.8	29.1	37.5	50	83	116
Salt usage in Kgs	1.7	2.6	3.4	4.2	5	6	9	12	15	21	27	36	60	84

Crystal Right, Birm, Manganese dioxide, and Greensand kits are also available as are other medias such as pH correction, sand, carbon etc.

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**Map and Directions to Prosep Filters Limited**



Leave M62 at Junction 24.

At roundabout adjacent to Cedar Court Hotel take 2nd exit onto dual carriageway (A629), signposted Halifax.

Take 1st exit slip road.

At roundabout at end of sliproad, take 3rd exit off.

This is the entrance to Lowfields Business Park.

Proceed straight over 1st roundabout.

At next roundabout take 2nd exit onto River Bank Way - Prosep Filters can be found on the left after the S-bend.

[Link to Google Maps](#)