

Water Softener



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Overview

A water softener is made up of a valve head, resin vessel and brine cabinet. The valve head diverts water through a resin vessel. As the water passes through the vessel, the hardness (calcium and magnesium) is trapped. The water produced is described as “soft water” as it contains less than 20ppm of CaCO_3 .



After a period of use, the resin becomes saturated with unwanted hardness salts. When this happens, brine from the brine cabinet is used to automatically wash, rinse and flush the hardness salts to drain.

Water softeners eliminate limescale from water either on the incoming main or on the cold feed to an appliance such as a dishwasher or plate heat exchanger.

Maintenance

Water softeners use sodium (salt) during the backwashing programme. This means that the brine cabinet will need to be topped up with salt periodically.

The valve head contains a number of moving parts including valves that used constantly. As with other valves, it is good practice to carry out periodic maintenance checks which include the cleaning and replacement of key components where necessary.

Installation Guidelines

The distance between the unit and a drain should be as short as possible. Since salt must be added periodically to the softener, the location should be easily accessible.

It is advisable to configure the distribution system in a way that ensures one drinking tap remains untreated by the water softener.

Salt usage

Salt is used to regenerate the water softener resin bed. This means the brine cabinet will need topping up from time to time. As a general rule in a residential situation, the softener will use approximately 25kg of salt every 6 to 8 weeks depending on water hardness and the amount of water used.

A water softener will only perform effectively if there is salt in the brine cabinet during the regeneration process. It is therefore recommended that the salt level does not fall lower than 6 inches from the base of the brine cabinet.

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Sodium and health: British Water Guidelines

The relationship between sodium intake and increased risks of heart and blood pressure problems remains subject to debate within the medical profession. Research continues with some recent publications suggesting that reduced-salt diets may not contribute significantly to reducing coronary disease. However, the government, via the Food Standards Agency, promotes the need for a general reduction in salt intake with our food.

Sodium is contained in much of our everyday diet, especially snacks and processed foods, and it is quantified on many product labels.

Water softening introduces a low level of sodium into the water and softened water will satisfy the Water Quality Regulations in all but the few areas of very hard water with greater than 435 mg/l of hardness (calcium carbonate). The average amount of sodium in softened water is only a fifth of that in semi-skimmed milk and processed foods can contain up to 20 times more sodium than softened water.

Some people prefer to use and drink softened water; its use to prepare drinks and food can improve flavour and appearance.

There are two specific situations, however, where the use and drinking of softened water is inadvisable:

- In the reconstitution of infant formula powders, as softened water could affect its fine nutritional balance; and
- For anyone on a medically prescribed low sodium diet.

It is for these reasons and to allow for personal choice that, when installing a water softener, a mains water tap should be fitted, as described in the Water Fittings Regulations and consequently recommended in the British Water Code of Practice for Installation of Water Softeners. This tap also enables the water company to sample the unsoftened mains supply as part of their routine testing.

Eczema and skin problems

Over the years, many eczema sufferers have reported that the use of softened water has substantially reduced inflammation. Softened water is also known to have a calming, soothing effect on other skin problems, including psoriasis, but such benefits have not been formally established, although recent research by a leading UK dermatologist identified a strong link between hard water and childhood eczema.

Minimum hardness

The incidence of cardiovascular disease is slightly higher in populations with a NATURALLY soft water supply than where the water is moderately hard. Artificially softened water is chemically different from naturally soft water and there is no evidence that it has a similar effect.