PENTAIR

SOFT WATER BENEFITS

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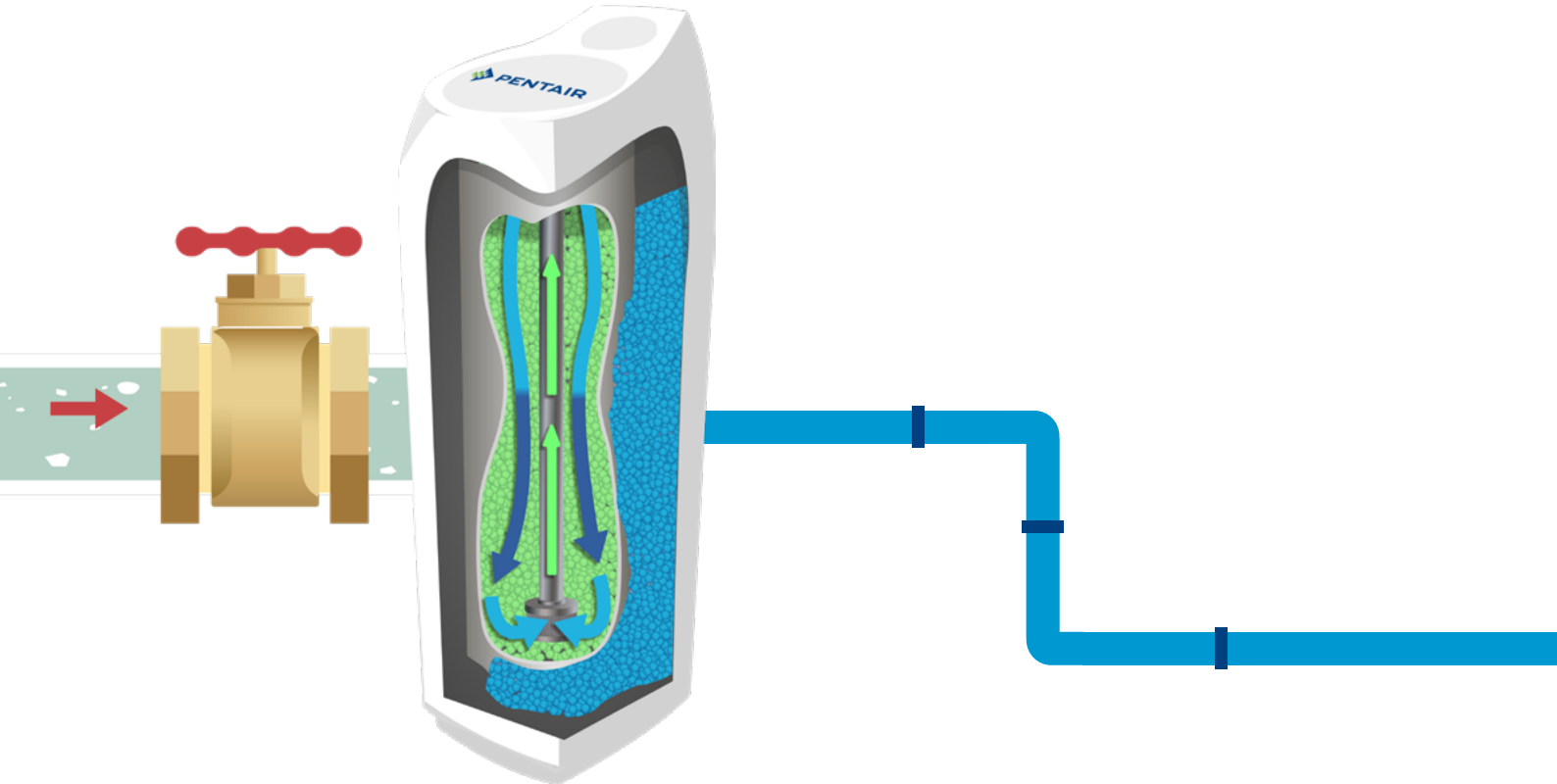
SOFT WATER MAKES PERFECT SENSE

A 'HARD' RAIN NEVER FALLS

Most our planet's precious water falls to earth as pure, soft rain. It fills our aquifers, rivers, streams and reservoirs. However, by the time rainwater reaches our taps it has been on quite a journey, picking up passengers on the way. The rocks through which it flows dissolve and, depending on where you live, your tap water may contain many minerals such as calcium and magnesium.

While they're not necessarily harmful, a concentration of these minerals can lead to hard water, and that can spell trouble. When hard water evaporates, those minerals remain as a crusty scale that builds up over time. If you're feeling a 'chalky' sensation in your water or seeing a scale deposit left in your sink you have hard water and it's time to take action. Unless you are lucky enough to have water that is naturally soft, grab a cup of coffee and read on...



Besides its undeniable advantages, a softener is a piece of technology, which specifications might be hard to fully understand. This section therefore explains the most popular technical terms which are related to a softener.

A HAPPIER, HEALTHIER AND MORE AFFORDABLE HOME

Softened water makes great scum-free drinks too. So, while you read on over a coffee, consider that a water softener could be a great investment – not just a 'nice-to-have'. By removing the minerals that make water hard, a Pentair softener will reduce scale build-up while providing the whole family with a steady stream of clear, clean and fresh feeling water, throughout the home.

SOFTENING

Chemically speaking, softening is an **exchange process** between hard ions contained in the water (Ca2+ and Mg2+ cations) and a cationic resin loaded with sodium (Na+) ions. Simply said, it is the process of turning hard water into soft water. Particles of Calcium and Magnesium are exchanged into sodium thanks to the action of the resin contained in the softener.

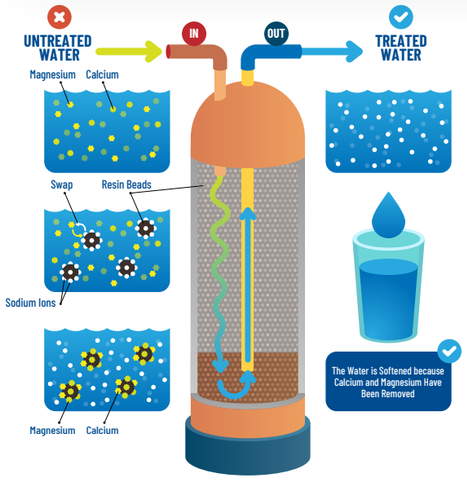
Those ions of Calcium and Magnesium will eventually saturate the resin, which needs to be cleaned. This calls for a new process, called regeneration.

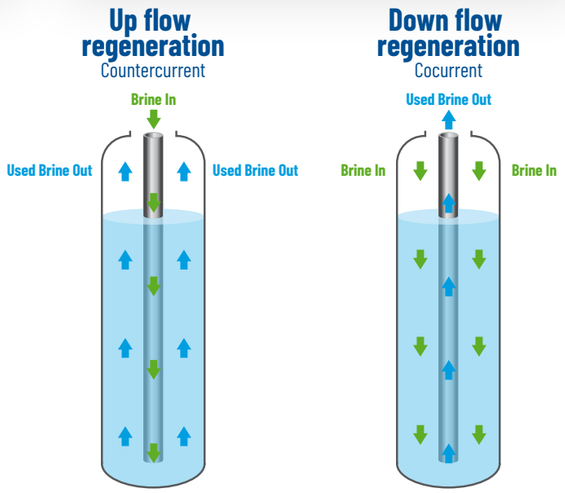
UF/DF
(Up Flow/Down Flow)

This refers to the direction the brine flow injected during the regeneration process.

Up flow means it is injected from the lower part of the resin bed up via the riser tube. Down flow means it is injected from the top of the resin bed down.

This flow depends on the valve hydraulics. Down flow type regeneration is usually the standard as it is the easiest to set in place. On the other hand, up flow requires more care when sizing a softener and configuring the valve, but allows up to 10% regeneration optimization. It also allows to work in variable brining mode and in specifically critically applications reducing and postponing ionic leakages.





REGENERATION

When the resin in the softener has exchanged all sodium ions towards Ca2+ and Mg2+ cations, it is exhausted. It must be regenerated and filled again with sodium ions. This is achieved by injecting **brine**, a solution of water and salt, into the softener.

Once this is done, the system will automatically rinse itself twice before reverting back to normal operation. The complete regeneration process also includes a backwash phase to clean up the resin.

These different cycles are automatically managed by the valve of the softener, **the heart of the system.**

DLFC
(Drain Line Flow Control)

Controls and restricts the flow rate at the softener drain during regeneration phases, mostly during backwash cycle and fast rinse. DLFC is critical to control the resin bed expansion during backwash.

VARIABLE BRINING

Also called proportional brining. At the time a regeneration should occur, the actual saturation level of the resin is sensed to adapt the regeneration proportionally to the real exhaustion rate of the resin. The goal is to optimize the production of brine to the exact need, avoiding unnecessary long regeneration cycles. **Great for water and salt savings.**

SBV
(Safety Brine Valve)

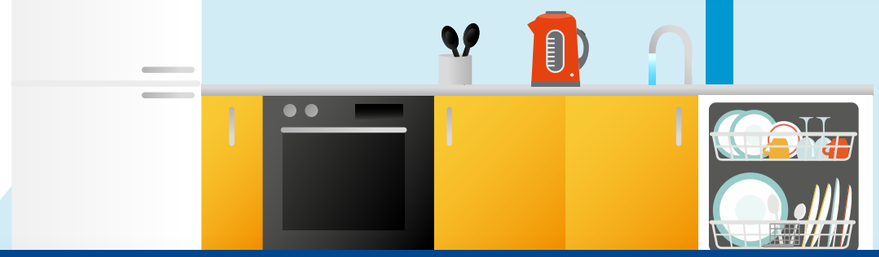
A safety float valve installed in the brine tank, shutting off the brine and the refill line **to prevent over filling the brine tank.**

CHLORINATION DISINFECTION

Chlorinated compound produced by electrolysis of brine, which is then injected into the resin bed at the same time the brine is drawn into the softener. This will **destroy or inhibit the growth of micro-organisms** in the softener.

BLFC
(Brine Line Flow Controller)

Also called refill controller, this device controls and restricts the flow rate during the **brine refill** cycle.



MORE CONCRETELY: MAINTENANCE OF A WATER SOFTENER

Like a boiler, a softener should be serviced by a professional regularly, at least once a year.

The technician will control data entered in the softener electronics, clean up the brine tank, the resin, injector, DLFC and BLFC, go through hydraulic cycles. This annual check ensures proper functioning of the device and maintains the quality of the drinking water supplied by the softener.

The replacement of the pre-filtration cartridges and / or the possible supply of salt must be carried out according to the type of softener and the frequencies recommended by the manufacturer of the device.

WHY SOFTEN YOUR WATER?

Softening make sense.
Soft water feels better, cleans better, is kinder to you and your home, potentially saves you money and it makes a great cup of coffee too.

SOFT TO THE TOUCH

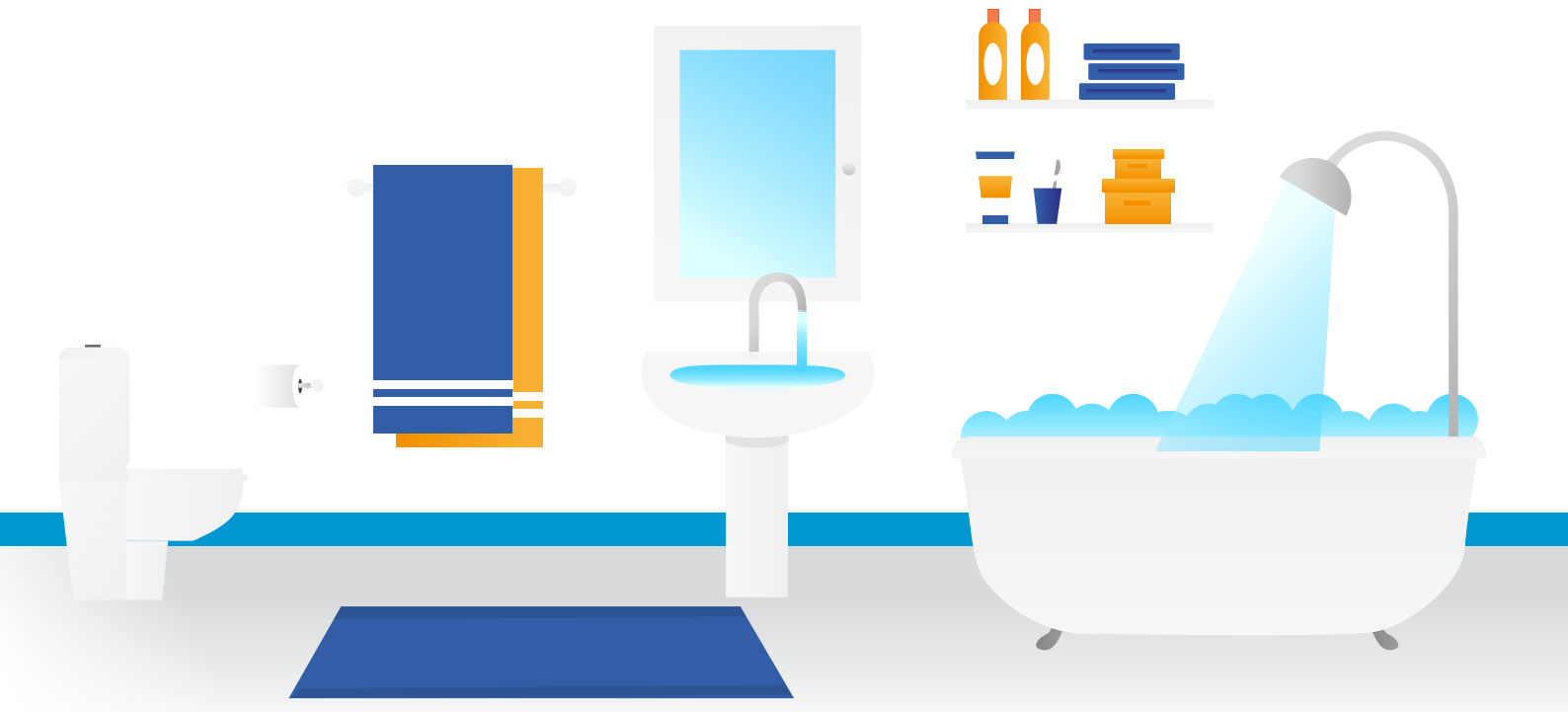
Softened water literally feels smooth and luxurious. With water impurities removed, the toiletries we use for washing create a better lather and rinse away more easily, leaving skin feeling smooth and hair feeling silky. And we use less of them too, so it is better for our bodies. Less soap means less skin irritation, smoother shaving and better bath time bubbles.

The same is true for the detergents used in laundry and cleaning. Towels and clothes washed in softened water are less rough and keep a zing in their spring. And while it won't get you out of cleaning altogether, soft water dramatically reduces the harsh chemicals needed to sparkle your home and stops the scrubbing of stubborn limescale.

KIND TO YOUR HOME AND YOUR WALLET

Your home hates hard water. Dishwashers, washing machines, showers, boilers and heating all take a hit. Calcium deposits can build up reducing the flow in the pipes causing low water pressure, slow drainage and potentially a total block. Household appliances, especially those with heating elements, become noisy, inefficient and costly to run.

Even worse, the deposits left by hard water can ultimately mean an expensive replacement. Softened water can save you these long-term costs without breaking the bank. Installing a water softener will preserve the life-span of your water-appliances, paying you back for years.



About us

At Pentair, we believe the health of our world depends on reliable access to clean water. We deliver a comprehensive range of smart, sustainable water solutions to homes, business and industry around the world. Our industry leading and proven portfolio of solutions enables people, business and industry to access clean, safe water, reduce water consumption, and recover and reuse it. We help ensure water is clean when returned to the environment. Whether it's for fitness and fun, healthier homes, better flood control, safer sky rises, more sustainable ways to farm, or safe drinking water for those who need it most, we won't stop until the world's water is managed the best way possible.

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