



WELL WATER

WATER TREATMENT
SOLUTIONS

www.pentairaquaeurope.com



WELL WATER

The groundwater beneath our feet makes up about 20% of the planet's fresh water supply¹, providing drinking water for over a third of the world's population². Private wells are a vital water provider in many countries – especially where surface water is scarce. They deliver a reliable and plentiful supply of water for home, industrial and agricultural use. Even in areas where mains water is plentiful, a private well can offer a guaranteed water supply that, as well as being natural and additive free, can be significantly cheaper than a public mains service.

In this brochure we offer some insight into the well water industry and explore how Pentair products can assure the supply and improve the quality of water from this source.

MAIN TYPES OF WATER WELLS



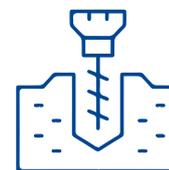
DUG WELLS

Historically most wells were simply dug by hand, lined with stones, with a vessel dropped down to draw up water. They are prone to contamination and running dry during droughts.



DRIVEN WELLS

Still common, these involve a small-bore pipe being driven into the ground with a filter on the end. These only work to a limited depth and, like dug wells, are prone to contamination.



DRILLED WELLS

Today, most wells are drilled using large rotary bits that can go up to hundreds of metres deep. The borehole is lined with a casing and a pump is installed at the water level to drive the water to the surface.

BENEFITS OF A PRIVATE WATER WELL

- Uninterrupted, all-year supply of water
- Constant water pressure
- Reduced business overheads and water supply bills
- Added value to property and business
- A more natural product, free from additives
- Reduced infrastructure and transport costs

TREATMENT PROCESS FOR WELL WATER

After the water is pumped to the ground, additional components such as storage, pressure vessels, filtration, softening and disinfection can be added. The next page illustrates how Pentair products can enhance the water supply and improve the water quality in a typical drilled well.



STORAGE AND PRESSURISATION

Pressure boosting storage ensures consistent supply

Pentair WellMate storage and pressure boosting HDPE tanks are not prone to corrosion, lightweight, low maintenance and are quick and easy to install.



WellMate Pressure Boosting Tanks

[MORE INFO](#)

PREFILTRATION

Prefiltration cartridges remove contaminants and suspended solids

Pentair's specialised family of filtration products include Big Blue Filter Housings and DGD 100% polypropylene cartridges that provide up to three times the dirt holding capacity of other systems.



Big Blue Housing and DGD Cartridges

[MORE INFO](#)

LineGuard UF-100

ULTRAFILTRATION AND DISINFECTION

Ultrafiltration can remove 99.99% of viruses and bacteria.

Pentair LineGuard UF-100 is the next generation of ultrafiltration. It has billions of microscopic pores small enough to retain all micro-organisms including bacteria, viruses and sediment.



[MORE INFO](#)

SOFTENING

Removal of calcium and magnesium ions

The Pentair Fleck 5800 valve transforms a wide range of standard softeners into premium performers. It offers multiple controllers, advanced timer features and improved softening efficiency.



Fleck 5800

[MORE INFO](#)

Encapsulated Green RO (GRO) membrane

REVERSE OSMOSIS FILTRATION

Final filtration removes salt for optimum water quality

The Pentair Green RO membranes remove any further undissolved solids and impurities yet rejects three times less water to the drain than any comparable system.



[MORE INFO](#)

WELL

PUMP

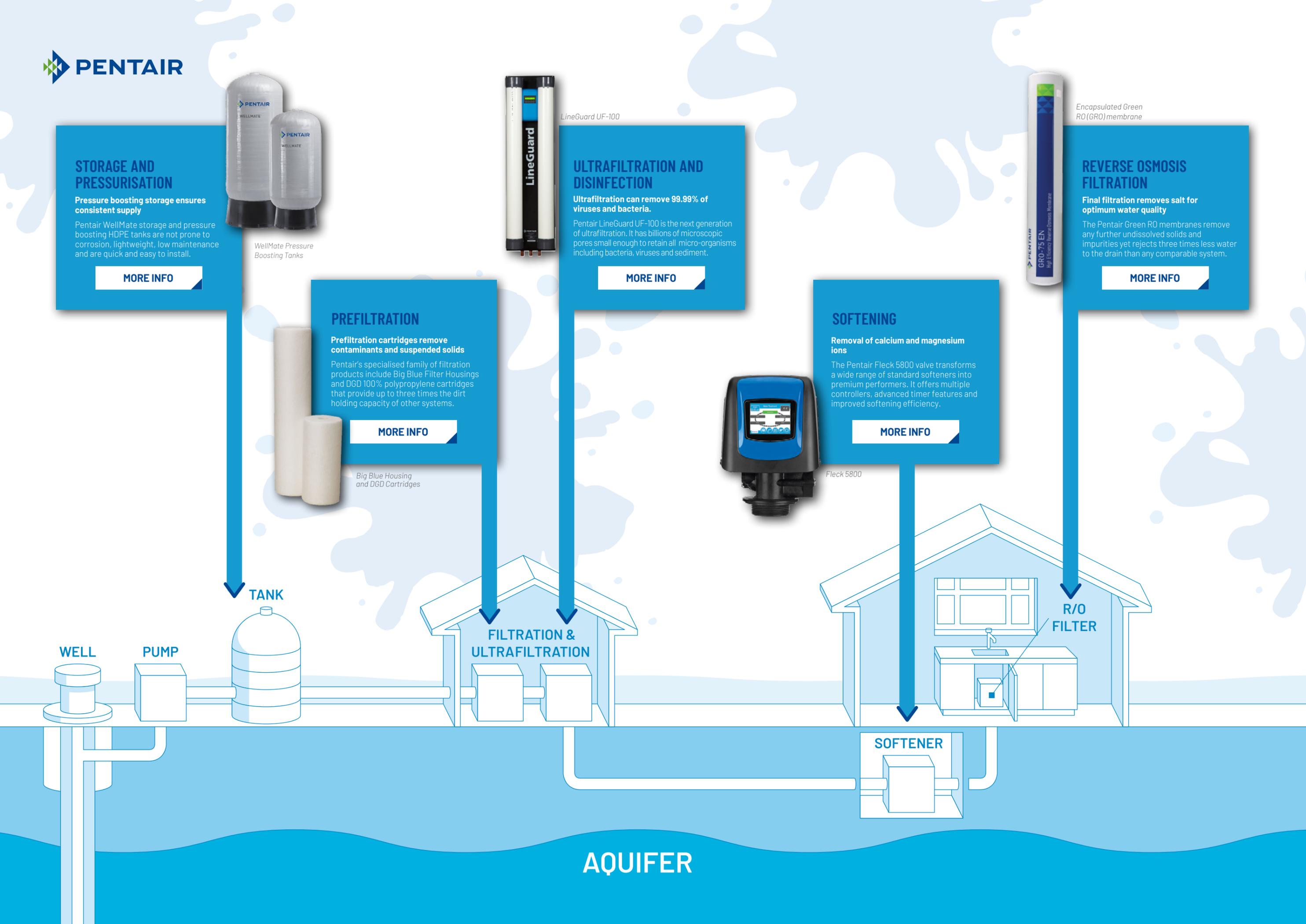
TANK

FILTRATION & ULTRAFILTRATION

SOFTENER

R/O FILTER

AQUIFER



Fact and figures



33%
World population drink
from groundwater ²

Average household
water use ⁴

UK abstraction limit
without a license ³



1,000
liters per day



20,000
liters per day

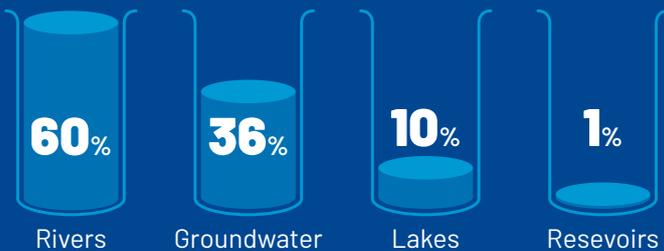


243 000
million m³
annual European
groundwater
abstraction water ⁵

60%
abstracted water
returned to the
environment ⁵

13.5 million
US households served by private wells ⁶

Annual freshwater abstraction by source ⁵



390 meters

Deepest hand-dug well: Woodingdean Water Well, UK

12,000 meters

Deepest drilled borehole: Kola Research Well, USSR



Did you know?

Microorganisms from sewage and animal waste can lead to gastrointestinal diseases, infections and methemoglobinemia.

Heavy metals from corroded plumbing, mining, refining and waste disposal can damage the liver, kidneys and other internal organs.

Organic chemicals from house-hold detergents, pesticides and paints can also damage the liver, kidneys and circulatory, reproductive and nervous systems.

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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Sources

1. Igor Shiklomanov's chapter "World fresh water resources" in Peter H. Gleick (editor), 1993, *Water in Crisis: A Guide to the World's Fresh Water Resources* (Oxford University Press, New York).
2. Eawag (2015) *Geogenic Contamination Handbook – Addressing Arsenic and Fluoride in Drinking Water*. C.A. Johnson, A. Bretzler (Eds.), Swiss Federal Institute of Aquatic Science and Technology (Eawag), Duebendorf, Switzerland. (download: <https://www.eawag.ch/en/research/humanwelfare/drinkingwater/wrq/geogenic-contamination-handbook/>)
3. UK Environment Agency
4. USGS Science agency for the US Department of the Interior https://www.usgs.gov/special-topic/water-science-school/science/water-qa-how-much-water-do-i-use-home-each-day?qt-science_center_objects=0#qt-science_center_objects
5. The European Environment – State and Outlook 2020: European Environment Agency <https://www.eea.europa.eu/publications/soer-2020/#page=108>
6. U.S. Census Bureau, American Housing Survey 2017. <https://www.census.gov/>

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