A look at the innovative designs that minimise water wastage while improving safety and user comfort

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TAPPING INTO TECH

From ease of fitting and maintenance to aesthetics and price, there are many factors that installers must consider when specifying taps. Increasingly, though, sustainability will become a key factor in determining the decisions engineers make when installing water systems.

A November 2025 report from the NHBC Foundation – the Water Compendium – revealed that the UK is facing a projected shortfall in potable water of five billion litres per day by 2050. According to Stuart Blairs, technical manager at Intatec, water-saving taps and showers have an important role to play in addressing that shortfall, as taps and showers are among the largest contributors to indoor water use in both domestic and commercial buildings.

Waterwise, which campaigns for the more efficient use of water, has also highlighted taps as a key area for savings, noting that automatic or sensor-operated taps can reduce water use significantly compared with manual operation, simply by controlling run-time and eliminating taps being left on.

"An unrestricted tap typically uses 10 to 15 litres per minute, whereas Inta's water-saving taps operate at around four litres per minute," explains Blairs. "This reduction in flow is not noticeable to the user and does not compromise performance or effectiveness. These products are particularly suitable for commercial environments where usage levels are often much higher, but the same efficiencies are increasingly valued in the home."

Richard Braid, managing director of Cistermiser, agrees: "At a national level, with the UK facing increasing pressure on water resources and growing focus on efficiency in the built environment, technologies that reduce consumption automatically and consistently will be an important part of the solution."

> **"An unrestricted tap typically uses 10 to 15 litres per minute"**

Infrared and non-concussive taps

Infrared taps can reduce the spread of germs and bacteria, making them ideal for shared or public bathrooms. With no handles to grip or twist, they are also an ideal solution for people with limited mobility or dexterity.

"Installation is straightforward for experienced installers," explains Braid. "The key considerations are the power choice and access for any control components. Depending on the model, options typically include mains power and/or battery power, which gives specifiers flexibility where running a spur isn't ideal, or where you want battery back-up resilience."

An infrared tap only runs when hands are detected, avoiding common issues of taps being left running, dribbling or overused. Inta produced and distributed 20,000 free copies of its *Thermostatic Protection Guide*, which explains how the risks associated with hot water systems can be managed

In some commercial washroom scenarios, Waterwise estimates that sensor taps can reduce water use by 50 to 70%, depending on flow rate, usage patterns and user behaviour. "This aligns closely with what we see in practice," says Braid. "In busy environments such as schools, offices and leisure facilities, infrared taps ensure water is only delivered when it is genuinely needed, helping building operators cut waste without relying on user behaviour. When combined with low-flow outlets – such as 3.5 or 5 litres per minute – the savings can be even more meaningful."

Non-concussive and time-flow taps automatically shut off after a set period to prevent water being left running, making them particularly effective in reducing water waste in high-traffic environments, while also helping manage misuse. Many also incorporate automatic flushing programmes that activate during periods of low use, preventing water stagnation and reducing legionella risk – a critical safety feature for healthcare facilities and buildings with complex water systems.

Safety and accessibility

Despite regulations requiring thermostatic mixing valves (TMVs) in all new builds since 2010, approximately 20 people still die from bath scalding each year in the UK, with around 2,500 total scalding cases annually. The victims are overwhelmingly society's most vulnerable – 75% of deaths are pensioners, while children under five are admitted to hospital daily with scalding injuries.

"With roughly 3.5 million new homes having been built with mandatory TMV protection since 2010, yet scalding rates remaining unchanged, it is clear these incidents are occurring almost exclusively in older properties," explains Blairs. "This demonstrates both that TMVs work – protected homes are not contributing to injury statistics – and that the vast majority of UK homes (over 21 million properties built before 2010) remain at risk.

"Water at 60°C can cause third-degree burns in just six seconds," he adds. "For young children with thinner skin, or older people who may struggle to react quickly, a simple bath can become life-threatening. Anti-scald products such as TMVs blend hot and cold water to a safe temperature, providing an invisible safety net that works every time someone turns on a tap."

Thermostatic bath and shower mixers with built-in anti-scald protection remove the need for a separate TMV, simplifying installation while ensuring safe, stable outlet temperatures. This is increasingly important as older bathrooms reach the end of their natural life and are refurbished, with homeowners and specifiers placing greater emphasis on safety, compliance and long-term usability.

Lever-operated and foot-operated taps are ideal for users with reduced mobility, limited dexterity or in hygiene-critical environments.

Legal requirements

The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 and The Water Supply (Water Fittings) (Scotland) Byelaws 2014 apply if any premises has a mains water supply, and aim to prevent the contamination and waste of water once it has entered a customer's plumbing system. For more information, visit: **legislation.gov.uk/uksi/1999/1148/schedule/2/crossheading/baths-sinks-showers-and-taps/made**

For more on the building regulations for England addressing hot water safety and efficiency of water in buildings, visit: **gov.uk/government/publications/sanitation-hot-water-safety-and-water-efficiency-approved-document-g**

Commercial to domestic

While infrared and non-concussive taps are currently used mainly in commercial settings, Blairs anticipates increased demand for domestic applications.

"As households become more familiar with smart technology and real-time consumption data, taps with automatic shut-off, usage monitoring and touch-free operation are expected to become more attractive for residential use," he explains.

"In addition, heightened awareness around hygiene, sustainability and

CIPHE says...

Water supply and conservation is one of the pillars of the CIPHE's Manifesto 2025-27. This covers two key priorities: water shortages, labelling schemes and pollution; and fuel and water poverty.

"The CIPHE regularly engages with government and the water industry on the subject of water conservation," says Kevin Wellman, CEO of the CIPHE. "We also support the introduction of a single water efficiency label on products, including those in the home, such as taps and toilets. On an individual level, members can help protect our water supplies by providing their customers with expert, professional advice on water-saving products, helping customers to choose the most efficient products available, and installing and maintaining them to a high standard to avoid leaks and increase efficiency."

Non-concussive and time-flow taps automatically shut off after a set period to prevent water being left running

efficiency, coupled with ongoing improvements in design, affordability and user experience, will help accelerate adoption of these technologies within the domestic market.

"It is also important to recognise that wasting hot water means wasting the energy used to heat it. Reducing flow rates and unnecessary usage therefore delivers both water and energy savings, supporting lower household bills and reduced environmental impact."

Future trends

Looking to the future, Braid identifies several trends in the sector, largely driven by the need to balance water efficiency, hygiene and long-term performance.

"One of the biggest shifts is towards lower-flow performance without compromising user experience," he says. "Manufacturers are refining aeration and flow control so taps can operate at very low flow rates while still delivering a consistent, comfortable wash, even where pressures vary."

He also highlights a greater focus on built-in hygiene and stagnation management. "Features such as timed hygiene flushes are becoming increasingly common as building owners take a more proactive approach to water safety, particularly in buildings with irregular occupancy or seasonal use. This reflects wider awareness around water quality and the risks associated with low-use outlets."

Finally, there is a clear emphasis on designing products to make them easier to maintain and improve their whole-life performance.

"That means taps that are easier to service," adds Braid, "with accessible components and robust construction, capable of standing up to high-traffic environments while reducing disruption, downtime and long-term maintenance costs."

Blairs believes the Unified Water Label Association (UWLA) is playing an important role in improving water efficiency by providing a product grading scheme that allows manufacturers to clearly display water usage, enabling informed and transparent choices when selecting products.

From a technical perspective, he also anticipates that several innovations will become increasingly mainstream. "Cold-start taps, which default to cold water when the lever is lifted, help prevent unnecessary hot water demand and reduce energy waste.

"Looking ahead, we expect growing demand for smart-controlled taps and showers. These systems allow users to monitor real-time water and energy usage, programme preferred flow rates and temperatures, and control taps, showers and bath fillers remotely via smart devices.

"There is also increasing interest in heat recovery systems, typically installed beneath shower trays or baths, which recover heat from wastewater to pre-warm incoming cold water. This technology can significantly reduce energy demand for hot water, and we actively use this type of system within our own test laboratory to avoid continuously discharging heated water to waste.

"Overall, the sector is moving beyond simple flow restriction towards intelligent, data-driven solutions that combine safety, efficiency, compliance and user comfort."

Water-saving campaigns

Organised by Waterwise, **Water Saving Week** on 4-10 May is a national awareness campaign that this year will highlight how saving water protects nature by preserving the health of local ecosystems.

In October 2026, Waterwise will again be promoting **Water Night**, during which it invites everyone to switch off all non-essential taps and join a nationwide moment of reflection. Find out more at **waterwise.org.uk**

This year, the water services regulator Ofwat is launching a national **Water Efficiency Campaign** (WEC), with a budget of up to £75 million over the next five years, designed to encourage people and businesses to change their behaviour and improve water efficiency across England and Wales. Visit **ofwat.gov.uk/regulated-companies/water-efficiency-fund/#wec** for more.

FIND OUT MORE

For more information on water-saving solutions, visit www.cistermiser.co.uk or www.intatec.co.uk. For more on the UWLA, visit uwla.eu