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CPD Article

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Workplace Hydration

Easily accessible drinking water is a necessity in the workplace. It is extremely important for your employee's health and wellbeing, as well as their productivity. When an employee is properly hydrated, they are shown to work 14 percent quicker, creating a far more productive workforce. In this CPD article, we aim to share the different drinking water options available to you – considering available space, end user, capacity and environmental factors - to help you make a more informed decision when choosing the right drinking water system for your workplace.

Key Learning outcomes

- Drinking water regulations for businesses
- Drinking water options for commercial sites – the good, the bad and the ugly
- How to make an environmentally conscious choice
- The importance of filtration when it comes to energy efficiency and sustainability
- The accreditations you need to lookout for

1.0 Drinking water

The UK Workplace Health, Safety and Welfare Regulations of 1992 (regulation 22) states that employers must provide an adequate supply of drinking water for all employees that is free from contamination, easily accessible and suitable for purpose.

There are a wide variety of options available to meet these standards that can make a positive impact on your employees' health and wellbeing whilst enhancing a business' sustainability credentials, increasing productivity and reducing costs.

Just how important is it to keep hydrated?

Detrimental effects on cognitive and physical performance are known to be proportional to the degree of dehydration and is highly significant at 2 percent dehydration for all mental functions.

A study conducted by the University of East London found that productivity increases as a person drinks water. Water allows for a person's brain to be better able to focus on tasks, and hydrated subjects perform 14 percent quicker.

What are the current options of drinking water provided in the workplace?
- Kettles and urns
- Water coolers
- Drinking fountains
- Bottled water
- Filtered drinking water systems

The truth behind kettles…

There is plenty of research about domestic kettle use, but very little when it comes to commercial. The Energy Saving Trust found that 85 percent of people boil the kettle at least once a day. 40 percent of households boil the kettle four times or more a day – and most (75 percent) say they boil more water than they need.

They estimate that overfilling costs British households £68 million on energy bills a year. If only one person is having a hot drink, it makes no sense to fill or even half-fill the kettle. All the energy used to heat the water you don't use will be wasted.

Based on this, we can only imagine just how much energy and water is being wasted in workplaces and offices across the UK. Crucially this could mean that companies could be forced onto a higher energy tariff, costing them more for power.

Considering that a kettle can take anywhere between 2.5 to 4.5 minutes to boil, large amounts of time are taken up by staff waiting for kettles to boil which impacts on productivity – a study published in The Telegraph in 2014 found that an average of four days a year are wasted per employee!

Staying hydrated in the workplace is essential for productivity, allowing for a person's brain to be better able to focus on tasks.

2.0 The different water systems available to businesses

An instant boiling water system is a great alternative to kettles, in terms of sustainability, productivity, ongoing costs and maintenance.

There are a variety of instant boiling water systems available that will cater to your business's needs.

Typical single chamber systems

- Single chamber systems condense steam internally, and therefore do not risk damaging décor.
- For condensing to take place this chamber needs to be much cooler than the boiling tank – typically achieved by insulating the condensing chamber to a much lesser extent than the boiling tank.
- Effectively this means that that when steam is condensed heat is lost to the surrounding environment and no attempt is made to re-use this energy in a more effective way.
- In short, single chamber systems are effective in boiling water and condensing steam but in so doing some energy is lost.

Twin chamber systems

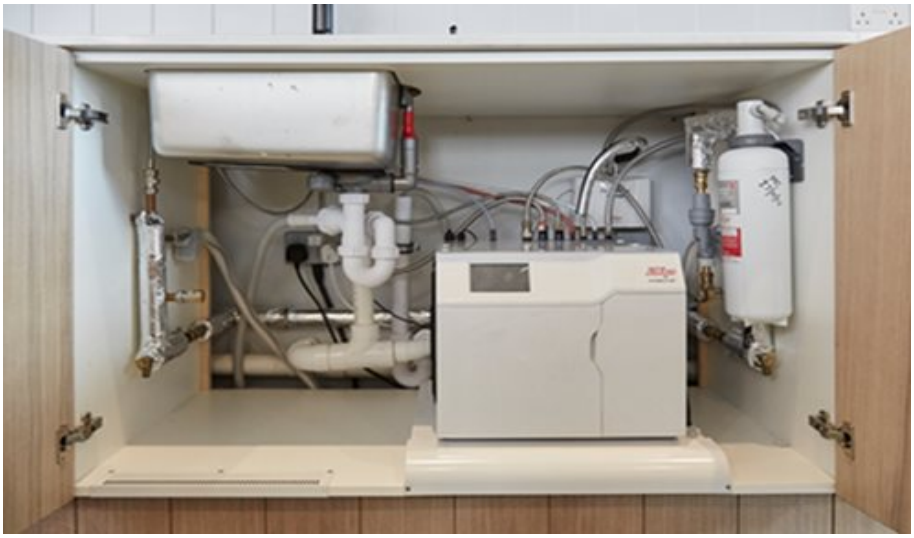
- A twin chamber system – as its name suggests – comprises of a boiling chamber linked to a much smaller header tank. Every face of the boiling chamber can be similarly well insulated as there is no need to leave one condensing chamber section at a much lower temperature.
- Steam produced during the boiling process is funnelled into the header tank where it condenses on contact with the incoming cold water. In so doing this pre-heats the incoming water so that when it passes into the boiling chamber less energy is needed to bring this to the boil.
- No steam escapes, so there is no risk of decor damage.

Vented under counter systems

- The best under counter systems with a counter tap are over 95 percent efficient in turning electricity into hot water, in comparison to induction hobs at 90 percent, kettles at 82 percent, standard ceramic hobs at 74 percent and gas hobs at 55 percent.
- Vented systems are inlet controlled allowing them to be fail safe should there be an internal leak.

Unvented under counter systems

- Both energy and water are lost at the tap – 2 percent of the water drawn off evaporates away as steam.
- Additional energy is consumed to store water at a high temperature and pressure.



A twin chamber system is the most effective choice for a drinking water system as it saves energy and reduces water wastage.

3.0 The importance of filtration

UK water companies place high priority on assuring the quality of water provided to their customers.

To achieve the strict standards set out by the World Health Organisation, certain chemicals, such as chlorine, are combined with our water to eliminate any dangerous chemical compounds that may have been added to our agricultural land and leached into our water courses.

Water can be transported through pipes that are not in the best condition, therefore contaminating water at the point of delivery. This includes lead pipes, commonly found in houses built before 1970. Lead can be harmful – especially to pregnant women and young children – if excessive levels are allowed to build up in the body.

The only way to make sure water is pure tasting is to use a water filter that removes sediment, volatile organic compounds, lead and parasitic protozoan micro-organisms such as cryptosporidium and giardia, all of which can still be present in tap water.

Hard water

In many areas of the UK and Ireland there is a significant problem caused by hard water and the presence of limescale.

Hard water can alter the taste and enjoyment of drinks, as well as causing scale build-up in kettle and taps. The build-up damages performance, efficiency and lifespan of products, and can only be reduced through a good water filtration system.

Solutions

To avoid the build-up of scale and improve the taste and odour of water, it is essential to look towards fitting a good filtration system.

Look for trusted third-party accreditations, assuring you that you're receiving the safest and highest quality drinking water system available on the market today. These include:

- WRAS – The Water Regulations Advisory Scheme (WRAS) demonstrates that an item complies with the high standards set out by UK water regulations in 1999.
- RoHS compliance – shows a product has been manufactured to comply with the European Restriction of Hazardous Substances Directive 2002/95/EC.
- BREEAM certification – the Building Research Establishment Environmental Assessment Method (BREEAM) first published by the Building Research Establishment (BRE) in 1990, is the world's longest established method of assessing, rating, and certifying the sustainability of buildings.
- Environmental Product Declaration (EPD) – an ISO standardised tool to communicate the sustainability of a product or system. This will be voluntarily developed, quality-assured and comparable information regarding the environmental performance of products.
- Living Buildings Challenge – a green building certification programme with sustainable design framework. These buildings give more than they take.

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4.0 The environmental impact of using plastics

People are aware of many dangerous compounds that lurk in tap water and want an instant solution to their everyday hydration needs. That's why there has been a huge rise in the popularity bottled water – a healthy, great tasting, free from contaminants solution that is readily available. People now drink more bottled water in the UK than they do milk!
Bottled water is expensive – often priced at £1 a litre, so a family of four could spend £2920 a year. It needs to be purchased, stored, managed and chilled.

However, this should be the least of our worries…

The environmental impact

Worldwide, 26 billion plastic bottles are made each year, equalling 30 million tonnes of plastic. This may increase to half a trillion bottles by 2021, far outweighing recycling efforts and jeopardising oceans, coastlines and other environments.

The manufacturing process creates a large carbon footprint – plastic bottles are typically made from crude oil and take three times the amount of water to make than what ends up in the bottle itself.

During production, pollutants such as nickel, benzene and ethylene oxide are released, harming the environment.

Bottles may be recyclable, but most end up in landfill sites or oceans rather than recycling centres. Fewer than half the bottles bought in 2016 were collected for recycling and just 7 percent of those were turned into new bottles, with campaigners predicting an environmental crisis that will be as serious as climate change.

Between 5m and 13m tonnes of plastic leaks into the world's oceans each year to be ingested by sea birds, fish and other organisms, and by 2050 the ocean will contain more plastic by weight than fish, according to research by the Ellen MacArthur Foundation. There are even microplastics in the human food chain, found in both tap and bottled water.

So what can we do?

Many workplace kitchens now feature drinking water available through an instant boiling and chilled filtered water tap.

This is a market that has seen huge growth and innovation over the past decade due to its convenience and taste – without the waste!

These specialist taps contain all the benefits of tap water plus state-of-the-art filtration to remove bad taste and odour, heavy metals, other contaminants and limescale.
Instant, great tasting water means more people will be inclined to reuse bottles at work, rather than purchase unsustainable bottled water, helping the environment.

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5.0 Choosing the right system for you

It's important to consider different types of filters to ensure you select the perfect one for you.

Types of filter include:

• Incorporation into the mains water feed to a building, giving the benefit to all draw off points. This can however be expensive and potentially deliver filtered water to areas where unfiltered water would suffice.
• The alternative is to filter on a selective basis using individual filters plumbed into the water supply immediately before each appliance requiring filtration.
The most advanced sub-micron filtration technology now provides 25 times better filtration than a standard water filter jug – staff will taste the difference.
A good manufacturer will also change the filter on a regular basis to remove the hassle for the business.

Things to consider:

Space

- Need space on the counter? Choose an under-counter or on-wall system. Remember to check the dimensions and vent requirements of the unit in relation to the cupboard space available.
- Space on the counter? All options can be considered, but it's worth bearing in mind functional requirements and design.

Capacity

It's important to understand the likely peak demand at any one time as well as the maximum hourly demand during a typical working day. You will also need to allow for an additional demand as the arrival of a professional boiling water system is likely to improve the quality and choice of available beverages and, as a result, demand for boiling water may well increase.

- How many users are there?
- How often will the system be used?
- Look at the demand patterns – are there defined breaks at pre-determined times where there could be a high demand for a short period of time?

End user

- Does it need to be damage resistant, feature a safety lock, etc?
- Does it need to meet DDA requirements, adapted for users with limited mobility or impaired vision?

Environment

- Look for a model that reduces power consumption after a period of inactivity. Some boast a sensor that will automatically put the unit to sleep when the lights go out at night. It wakes up again as light levels increase in the morning.
- Choose a model that is 100% water efficient – not one drop is wasted if the system uses air cooled rather than water cooled technology to produce chilled water.
- Think about responsible manufacturing – any waste products should be recycled.

Choose the right filtration system for your workplace, thinking about the space available, capacity, end user and environment.