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Electric immersion heaters also referred to as megaflow boilers or unvented hot water systems are essentially like giant kettles - using electricity and a metal element they heat the water within a large storage cylinder. So, who exactly are immersion heaters suitable for? Should you install one? And what are the alternatives? In this guide we will
answer some of the most common questions and concerns about immersion heaters, so you can make the right decision on whether they are the best option for your property. Need to know the cost of a new boiler, quick? Find out what replacement you need along with costs (takes 60 seconds). An immersion heater uses a large hot water storage
cylinder and is immersed within the water within the water within the tank, hence the name. This is an electric resistance heater that heats the surrounding water. Immersion heaters are connected to the main power supply and can be switched on and off on-demand, meaning you do not have it switched on and heating the water constantly. Looking to pay for
your new boiler monthly? Refer to our boilers on finance guide for more info. When turned on, electricity passes through the coil, heating the metallic element, which in turn heats the surrounding water. For this reason, they are often compared to the everyday kitchen kettle. Want an exact price on a new boiler? Use our boiler quote calculator (no
personal details needed). Once turned on, the heating process can take anywhere from 1.5 to 3 hours depending on the size of the cylinder and the power of the immersion heater. Ideally, the water needs to be heated to at least 50°C to kill any potential pathogens. In times gone by, immersion heaters were one of the staple methods of providing homes
with a reliable supply of hot water on demand. But, they do have their drawbacks. However, the major issue with them is that you cannot simply heat a small amount of water to use immediately, instead, you must wait for a full tank of water to be heated. This is also extremely inefficient since once turned off, the water will lose
the heat and all the electricity you just used will have been for nothing. Immersion heaters, over time, have largely been replaced by more efficient and convenient combination or combi boilers. These are similar in that they provide properties
with hot water, but also deliver hot water to the radiators, helping to keep homes warm too. Unfortunately, many immersion heater owners try to negate this problem by keeping it constantly switched on, so they have a constant supply of hot water. This results in a huge waste of electricity, which also happens to be one of the most expensive ways to
heat water. It is possible to improve efficiency by installing an insulating jacket, as well as a thermostatic control and timer. Yet still, compared to other methods of heating water such as gas combi boilers, they are expensive to run. Want an exact price on a new boiler? Use our boiler quote calculator (no personal details needed). Heating water with
electricity is far more expensive than gas Need to wait at least a few hours for the water to heat up - inconvenient and expensive Must be heated to at least 50°C to kill any potential pathogens (evil things)Requires thermostatic control, otherwise, it is extremely expensive Check our new boiler costs guide and use our boiler size calculator if you want
to get a better understanding of how our fixed price boiler quote tool works. With all the negative aspects of immersion heaters being inefficient and expensive to operate, you are probably wondering if there are any benefits to having one. Here are some of the major ones: One of the major ones: One of the major ones: One of the major ones of the major ones.
gas supply to function. Since they have their own electricity supply cable, they can be used whenever your electricity supply is available. If your central heating boiler breaks down, in an emergency you can still get a supply of hot water by using your immersion heater. Immersion heaters are a viable hot water supply option for properties that have no
gas supply, such as flats and other properties in remote locations. Curious to know which boiler brand performed worst? Find out in our report of the worst boilers. Many people like the idea of being in total control of their heating and having the ability to switch it on and off when they want. Ideally, a thermostat and control system should be installed
in conjunction with an immersion heater, this will ensure the heater switches off when it reaches the desired temperature and switches back on when it becomes too cool. Learn all about combi boilers in our what is a combi boiler guide. You can easily set your thermostat timer to reap the rewards of certain energy tariffs. For example, customers on
the Economy 7 tariff can set their timer to only switch the heater on during off-peak hours. You can also insulate your immersion heater; in which case your water will stay hot for several hours after it has been turned off. Cosy, cosy. With a thermostat installed, immersion heaters can be efficient by turning off once the desired temperature has been
reached Timer controls allow you turn the immersion heater on and fit it around your routine and energy tariffs Provides backup hot water if your boiler failsInsulated well, hot water can stay warm for hours after operation Easy on/off switch provides full control over energy consumption Immersion heaters use electricity to heat water, which is
considerably more expensive than gas. For example, 1 kW of gas will cost you around 4p, while 1 kW of electricity will cost around 15p. That means a 6 kW immersion heater would cost 90p an hour to operate, substantially more than operating a gas combi boiler. Additionally, you will typically need to wait several hours for the water within the
storage tank to reach the desired temperature, which again means it costs a considerable amount of money over the year. For instance, say you operated your 6 kW immersion heater for just 2 hours a day, this would cost around £1.80 a day or £12.60 a week. Even worse, some homes opt to keep their immersion heaters on full time to attempt to
avoid having to wait, racking up the costs even further. As mentioned previously, thermostatic control and insulation can both help to improve efficiency. Making use of your immersion heater during off-peak hours can also cost you less, for example, those on the Energy 7 Tariff (Nighttime) can expect to pay just 8p per kW, as opposed to 15p during
the day, which is almost half the cost. Is your boiler leaking or losing pressure? Use our quick and easy tool to get your fixed price boiler replacement. The cost of purchasing the immersion heater is dependant on the size and type of immersion heater you choose, but they are still relatively inexpensive, especially when compared to other types of
heaters. Although, it is worth remembering that you will need to purchase the hot water storage cylinder separately and you will need to hire an engineer to carry out the boiler installation. The two major types of immersion cylinders, along with costs and applications are as follows: Copper immersion heatersThese are between £20 - £30, but are not
appropriate for hard water, stainless steel tanks, unvented cylinders, or thermal store units. Source: Canva For its affordability and efficiency, an immersion heater is an outstanding option if we talk about home water heating systems. In the case you are trying to understand your current user settings or upgrade your heating system, it is best to read
through the specifications of this device. What Is an Immersion Heater? An immersion heater is a device that serves as an electric water heater to be mounted inside a hot water. The flow of electricity causes the element to heat up, which will
then be transferred to the water that surrounds it. To tackle the often-posed query, "what is an immersion heater?", an immersion heater?", an immersion heater?", an immersion heater is defined as a big electric kettle set for the hot water tank. It can also serve as the primary source of water heating. But it can also come as a reserve in systems that use gas boilers or solar panels alongside using
it. How Does an Immersion Heater Work? People are keen to know, "How does an immersion heater work?" and the answer to that is really simple. The main components are: Heating Element: Usually made of copper or titanium, it heats up when electricity is passed through it. Thermostat: Controls the temperature so that the water does not
overheat or remain cold. Timer (optional): Allows users to schedule when the heater turns on and off, improving efficiency and reducing heat energy waste. When the immersion heater is switched on, electricity heats the element. This, in turn, heats the water in the tank. The immersion heater thermostat automatically shuts off the electricity when
the desired temperature is reached. This prevents overheating and conserves energy. Key Components of an Immersion Heater 1. Heating Element The heating element is the part that does the actual heating. It is immersed directly in water and conducts heat when electric current flows through it. Over time, the element can degrade, especially in
hard water areas, due to limescale buildup. 2. Immersion Heater Thermostat This component is of utmost importance for safety and efficient use of the heater. It checks how hot the water is and decides if it's time to start heating or stop. The system will cut the electric flow of power when the temperature goes above the set max temperature to
prevent burning and excessive power wastage. Typically, modern immersion heaters maintain a manual control option within the range of 55°C to 65°C. Setting the thermostat above 60°C is recommended for the extermination of bacteria such as legionella, while excessive heat would lead to energy wastage as well as an increased risk of burns. 3.
Immersion Heater Timer Timers are perhaps the most useful additions to immersion heaters; easy to operate, an immersion heater timer allows users to set specific hours that they want the heater to function. For instance, you can programme the heater to only use electricity during off-peak hours to cut costs. Some smart immersion heater timers
connect to Wi-Fi, allowing control through smartphone applications. This makes them more accessible and efficient for consumers, especially those with fluctuating demands for hot water. Advantages of Using an Immersion Heater Source: Canva There are a number of benefits to immersion heaters that appeal to a wide range of households: 1.
Simple Installation and Maintenance Compared to other central heating systems that do not have gas services or as secondary options. 2. Independence from the Main Heating System Unlike an immersion-type
heater, a central heating system is not required for it to function. In instances where the boiler is malfunctioning, you can always depend on the immersion-type heater to provide hot water, making it a great standby. 3. Energy Efficiency with Timers and Thermostats With a well-calibrated immersion heater thermostat and a smart immersion heater
timer, you can significantly reduce energy consumption. You heat water only when you need it and ensure it doesn't get hotter than necessary. Common Applications of Immersion Heaters Certain spheres of equilibrium appropriation of immersion heaters and the equilibrium appropriation of the equilibrium appropriation appropriation appropriation of the equilibrium appropriation appropriation appro
heating backup systems Cabins and remote homes off-the-grid Potential Drawbacks to Consider Despite their advantages, immersion heaters do have some limitations: 1. Running Costs If there is no timer or thermostat installed, an immersion-type heater can cost a lot over time. As electricity is usually more pricey than gas, it's important to keep
track of the usage of electricity to avoid unnecessary costs. 2. Slow Heating Time With the purpose of heating water, immersion-type heaters take a relatively longer time to heat a tank full of water when compared to instant heaters or combi boilers. This can be inconvenient with families that have a very high demand for hot water. 3. Limescale Build-
Up In regions where the water is hard, limescale may form on the heating element and decrease the efficiency and life period of the immersion Heater Efficiently Set the Thermostat Wisely: To balance cleanliness
and efficiency, the thermostat should be kept at the industry standard temperature of 60°C. Use a Timer: Set the heater to allow heating of water that is not needed. Insulate the Cylinder: An immersion-type heater's water tank that is well insulated retains heat for a longer period of
time and decreases the need for constant reheating. Switch Off When Not Needed: If you're going on holiday or won't be using hot water for a while, turn off the heater to save power. Regular Maintenance: Check the thermostat and heating element annually. Replace worn-out parts to maintain performance. How to Choose the Right Immersion
Heater Selecting such a heater requires prudent consideration of the following factors: Rated Power: Commonly offered in 3 KW models. Higher wattage does consume more power, but it heats water much faster. Length of the Elements are more suitable for larger tanks, as they heat a greater volume of water. Thus, they are better
suited for large tanks. Material: For areas with hard water, use Incoloy or titanium because they do not corrode easily. Thermostat: Make sure that the model includes an accurate and dependable immersion heater thermostat. Timer: Check for those with built-in timers or those that can be connected to smart immersion heater timers. Final Thoughts
Immersion heaters are straightforward and dependable devices used to heat water. Whether it's for domestic use in a remote location, as a supplement to a central heating boiler, or when you want to make use of off-peak electricity, these heaters offer considerable flexibility. Provided these devices are used with the right setup and are given proper
you're considering whether one is right for your home, we outline the pros and cons of immersion heaters, and how you can get free hot water cylinder. It's a bit like a kettle, using an electric resistance heater (which looks like a meta
 loop or coil) to heat the surrounding water. It's separate from your central heating boiler or radiators, and connected to its own power supply via a cable. You can switch an immersion heater on and off easily or connect it to a timer to heat at specific times. Find out how to buy the best boiler for your household. Who needs an immersion heater? An
 immersion heater can be your primary water heating, for example if your home has electric heating. Many homes have them as a back-up water heat your water heating system. This means that, if your boiler fails, you still have a way to heat your water heat your water heating system. This means that if your home has electric heating system. This means that if your boiler fails, you still have a way to heat your water heat your water heat your water heat your water.
around 73.5p to run one for an hour at current electricity prices. Over a year it could cost around £2,660.85 to heat enough water for a two to three-bedroom house with a shower or bath, plus £222 in typical daily electricity standing charges. *That's based on heating a 180-litre tank from 10°C to 60°C twice a day, taking around three hours each
time. How long you'll need to use your immersion heater each day - and therefore how much it costs - depends on: the size of your water tankhow much hot water you usewhen you want hot water warmer for longer and mean you
won't need to increase the temperature as much each time.*Electricity price used is 27.03p/kWh (based on the average unit rate for a variable tariff under the Energy Price Cap until 30 June 2025) plus an average standing charge of 53.80p per day. Costs don't include keeping the tank at the same temperature between cycles and assume 100%
efficiency. How to use your immersion heater on constantly will give you a steady supply of hot water but this is expensive and inefficient. Follow these tips to ensure you have hot water stays warm for longer. Check if
you have a thermostatic control, which will automatically turn the heater off when it reaches the desired temperature. Set the thermostat at a lower temperature (but ensure that water is heater on and off so hot water is ready when you need it. If
you have a time-of-use tariff, e.g. Economy 7, set your immersion heaters are separate from your boiler, so if your tank is well insulated. Homes with time-of-use tariff, e.g. Economy 7, set your immersion heaters are separate from your boiler, so if your boiler breaks down you can still have hot water for several hours if your tank is well insulated. Homes with time-of-use tariff, e.g. Economy 7, set your immersion heaters are separate from your boiler, so if your boiler, so if your boiler, so if your boiler, so if your boiler breaks down you can still have hot water. You'll have hot water for several hours if your boiler, so if your boiler breaks down you can still have hot water for several hours if your tank is well insulated. Homes with time-of-use tariff, e.g. Economy 7, set your immersion heaters are separate from your boiler, so if your boiler, so if your boiler breaks down you can still have hot water for several hours if your boiler breaks down you can still have hot water for several hours if your boiler breaks down you can still have hot water for several hours if your boiler breaks down you can still have hot water for several hours if your boiler breaks down you can still have hot water for several hours if your boiler breaks down you can still have hot water for several hours if your boiler breaks down you can still have hot water for several hours if your boiler breaks down you can still have hot water for several hours if your boiler breaks down you can still have hot water for several hours are several hours and you can still have hot water for several hours are several hours and you can still have hot water for several hours are several hours and you can still have hot water for several hours are several hours and you can still have hot water for several hours are several hours and you can still have hours are several hours are several hours and you can still have hours and you can still have hours and you can still have hours are several hours and you can still have hours and you can still h
use tariffs can time their water heating for when electricity rates are cheaper. They're usually easy to switch on and off by flicking a switch. Some immersion heater on all the
time is inefficient and pricey, especially if it doesn't have a thermostatic control. How to buy an immersion heater is broken or faulty, contact a plumber or heating engineer to take a look. If the element needs to be replaced, they will purchase and install a new one for you and get it set up with your hot water system. You can
find a trader near you who's been through our rigorous vetting programme by using Which? Trusted Traders. Immersion heater alternativesRenewable energyIf you have a mainly south-facing roof, solar panels can be another good option for heating your water. Find out more about solar water heating. Alternatively, if you have an immersion heater
and solar panels or a wind turbine generating electricity, you can divert any excess to your immersion heater. You'll need to buy a device that does this, such as the Immersun Power Diverter or Solar iBoost+, which cost around £350 to £500 (plus the cost of installation), but you'll be able to heat your water for free. Some types of heat pump can also
be used for hot water as well as central heating. Read our guide to how heat pumps work for more details. BoilerIt's generally cheaper to heat water using gas rather than electricity, so if you have a gas boiler brands to make sure you buy a
reliable brand that won't leave you in the cold. Immersion heaters are a common part of properties, but what are they? Here, we explore immersion heaters in more detail, looking at how they work, their pros and cons, and how they match up against gas
boilers. But first, let's take a look at how immersion heaters work... How do immersion heaters work? Immersion heaters work? Immersion heaters work? Immersion heaters work...
electricity via a switch, so you can switch them on and off as needed. They can also be fitted to timers so you can control when they come on and off automatically. Which homes use immersion heaters? Immersion heaters are used in a wide range of homes, from small flats to those with multiple bathrooms. In smaller properties that don't have a gas
supply, immersion heaters can be used to heat water stored in a hot water cylinder via the mains electric. In larger homes and properties with a greater demand for hot water, an immersion heater will ensure you have a backup supply of warm water if your boiler breaks down. Because they use electricity to heat water, immersion heaters are also
used in homes connected to heating systems like heat pumps. If your home relies on a non-traditional heaters energy efficient? Immersion heaters run solely on electricity, so they do not use gas. This means that no exhaust fumes are
created during the heating process, making immersion heaters extremely energy-efficient compared to standard boilers. You can also fit timers and thermostatic controls to your immersion heater gets.
You can also fit your hot water cylinder that's heated by an immersion heater with a 'jacket' that insulates the appliance and improves heat retention. If you're thinking of swapping your current combi boilers produce hot water or
demand, so there's no need to waste electricity storing hot water from a combi boiler is fresh, there's no risk of bacteria building up The price of gas is cheaper than electricity How much does an immersion heater cost to run? According to research from Which?, most immersion heaters use 3kW of electricity per
hour. This means that, based on the January 2024 energy price cap (£0.29 per hour), an immersion heater costs £0.87 for every hour of use. Take an example case of a 3kW, 180-litre immersion heater that runs through a full heating cycle twice daily, once in the morning and once in the evening, so that your household can shower and do the washing
up. An immersion heater of this capacity typically takes around 3 hours to come up to temperature, so it would need to be running for a total of 6 hours each day, using your immersion heater in this way means you may not be able
to access water as and when you need it, which can be impractical. The actual price you can expect to pay when using your immersion heater will vary depending on: The size of the tank The amount of water you use The temperature the water is heated to How well insulated your hot water tank is When it's programmed to turn on (off-peak
electricity tariffs may mean running your immersion heater at night is cheaper) Whether you have temperature sensors installed to automatically turn the heater off once it reaches a set temperature (leaving it running at all times will, of course, be more expensive) If your immersion heater is connected to a home solar panel system, you can heat
water without relying on energy from the National Grid, which will make it more cost-effective. Of course, the process of installing solar panels has costs of its own, so you'll need to factor in more than just the cost savings per unit of energy to work out whether such a hybrid heating system is right for you. † This price is an estimate based on the
current energy price cap and does not include daily standing charges or additional fees from your energy supplier. How to maximise the efficiency of your immersion heater To ensure you have hot water when you need it without overspending on energy bills, you should: Insulate the hot water tank to improve its heat retention - You can do this using
foam tubing around any pipes and an immersion heater blanket around the cylinder itself Use a thermostatic control - These will automatically turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the intended temperature is reached Use an immersion heater timer - Turn the heat off once the immersion heater timer - Turn the heat off once the immersion heater timer - Turn the heat off once the immersion heater timer - Turn the heat off once the immersion heater timer - Turn the heat off once the immersion heater - Turn the heat off once the immersion heater - Turn the heat off once the immersion heater - Turn the heater - Turn the heater - Turn the heat off once the immersion heater - Turn the heater - Tu
heater to turn on during off-peak hours Reduce the temperature - Your immersion heater might be providing water that's hotter than you actually need, meaning energy is being wasted. Provided it's still reaching a temperature of at least 50°C to kill off any bacteria, try reducing the shut-off threshold of your heater by 1 or 2 degrees. What are the
pros and cons of immersion heaters? Whether you're thinking of investing in an immersion heater or just researching alternatives to traditional central heating systems, it's useful to know the pros and cons of these appliances. Pros of immersion heaters are standalone heat sources, so if your central heating boiler breaks down
you'll still have access to hot water If your hot water cylinder is insulated, the water will keep warm while the heater to come on when rates are cheaper You can use a timer to set the heater with renewable energy sources, like solar panels Easy to use, typically
immersion heaters only feature an on-and-off switch and straightforward thermostat controls Cons of immersion heater must heat water to a minimum temperature of 50°C to kill any bacteria present in the water Unless your heater has a
thermostatic control and timer, it may be expensive to run Immersion heaters can't supply radiators They do not provide hot water on demand like a combi boiler Immersion heaters cannot heat small amounts of water, making the process of accessing hot water time-consuming Even with insulation, the water in the heater can quickly cool down
Immersion heaters vs gas boilers: which should you choose? While immersion heaters can be helpful, particularly as a substitute if your central heating boilers. As they work separately from boilers, an immersion heater will not be able to heat radiators independently, which is why people use them
as part of a combined central heating system. For more information on the different types of boilers, check out our guide: Which type of boiler is right for your home? Expert insights from A&C Heating and Plumbing Ltd - London | Call 0779 559 5757 What Is an Immersion Heater? An immersion heater is an electric heating element installed inside a
hot water cylinder. It heats water directly, much like a kettle, and provides hot water independently of your central heating system. Immersion heaters are commonly found in properties without gas boilers, or as a backup water heating system. Immersion heaters are connected
to your home's electric circuit. When powered on, electricity flows through the element inside the hot water tank, warming the surrounding water. Most units come with: A thermostat to control the water tank, warming the surrounding water tank, warming the surrounding water.
up, and once it reaches the set temperature, the thermostat shuts the element off automatically. You can still use an immersion heater even if your boiler is broken — that's why many homeowners treat it as a reliable backup system. Benefits of an Immersion Heater Works independently of gas or boiler system. Ideal for homes with solar thermal
systems Simple electric setup Emergency backup if your boiler fails Can be connected to off-peak electricity for savings Common Immersion Heater Problems Limescale buildup on the heating element Faulty thermostats causing overheating Blown fuses or tripped switches Noisy operation due to sediment We offer fast and affordable immersion
heater repairs Immersion Heaters vs. Other Heating Systems Feature Immersion Heater Gas Boiler Combi Boiler Energy Source Electricity Gas Gas + Water Water Storage Requires cylinder Optional No cylinder Backup Full heating Instant hot water Discover more about solar thermal integration How
to Use an Immersion Heater Efficiently Only turn it on when needed (use a timer!) Keep the cylinder insulated Set the thermostat to ~55-60°C Schedule periodic servicing & Repair Across North & West London At A&C Heating and Plumbing Ltd, we specialise in immersion heater installation, repair, and
upgrades across: Ealing Islington Harrow Willesden Camden Call us on 0779 559 5757 or request a free quote online Frequently Asked Questions Can I use my immersion heater? It can be if left on
continuously. Use a timer and off-peak electricity to keep costs low. How long does it take to heat the water? On average, 1-2 hours depending on the cylinder size and water temperature. Need Help With Your Immersion Heater? Whether it's not working, heating slowly or tripping your fuse board — we're here to help. Call 0779 559 5757 Or book
immersion heater repair online This year, the papers are predicting a bleak winter in what has been termed the "big freeze." Waking up on a freezing morning and preparing for work or school would be virtually impossible without the prospect of a hot shower. How do immersion heaters work? A gas heated water tank is fitted with a burner
underneath that helps it to heat water. Conversely, an immersion heater heats water directly inside it. Here, there is a heating element immersed in the water in contact with it. Compare it to your regular kitchen kettle if you will, just on a larger and slightly more
advanced scale. There is a thermostat fitted in the tank when the influx of cold water at a preset temperature. Basically, you get heated water out from the top of the tank with enough pressure to move it out of the cylinder. Hot
water will naturally rise to the top when heated, In this case, by the immersion element. The immersion heater wiring will often include an isolating switch where it is connected to the mains electrical supply. While a natural gas heater may be less expensive, an immersion heater does not require as much ventilation. However, it will save cost if a
timer is attached to the tank. This ensures that water can be heated up and kept warm in the insulated tank for use when needed. Who needs an immersion heater may also be present in some
homes as a backup. However, it is not uncommon to find several flats without gas supply relying primarily on the immersion heater as the only source of hot water. Pros The thermostatic control on an immersion heater as required. Unlike a
central heating system, immersion heaters are not connected to a boiler, so even if you have a faulty boiler you can still have a hot shower. A well-insulated immersion heater to heat water at convenient off-peak hours when energy charges are
lesser. Immersion heaters are extremely easy to operate and use. They commonly only require you to turn off and on a switch, and regulate the thermostat. Cons Immersion heater will cost an average household 50p hourly since on
average, it will consume around three kilowatts of energy per hour. Immersion heaters take a while to heat water. This process will cost an average household not less than £360 annually. Despite the unpopular advice of some heating engineers, leaving your immersion heater always on can be quite expensive, unless you have a functional thermostat
The immersion heater would have to heat the water to at least 50°C to effectively kill off any bacteria present in the water. Skill Training Group offers comprehensive and detailed training on how to fix, maintain and install immersion heaters as a part of one of our plumbing courses. Find out more by calling FREE now on 0808 164 2780 or filling in
the form on the right. Find out how you could train as a domestic gas engineer by downloading a free copy of our information pack. Download information pack Whether you rely on a BUS-funded heat pump, a gas combi boiler, or a simple electric element, the goal is the same: reliable hot water at the lowest running cost. This updated guide explains
how immersion heaters work, today's 2025 electricity prices, sizing maths, the pros and cons of modern boilers and heat pumps, and safety tips such as legionella-safe setpoints. Stay updated with the latest newsAnd receive £50 off your next boiler! What are immersion heaters and what do they do? If you've never seen an immersion heater before,
you're probably going to be asking yourself, 'what is an immersion heater and what's its purpose?'In simple terms, immersion heater are devices that provide hot water for your home, powered by electricity. However, an immersion heater are devices that provide hot water for your home, powered by electricity. However, an immersion heater are devices that provide hot water for your home, powered by electricity.
water. Hot water immersion heaters can also be used as your main source of hot water or as a back-up for your traditional gas boilers or oil boilers in their property often choose to install an electric immersion heater as a safety blanket, so that they
always have a supply of hot water. You will also find that immersion heater tanks are the primary source of hot water in newly built homes that are not supplied by the main gas network or homes that are off the grid as a result of their remote locations. Immersion heaters are located within a large hot water cylinder, also known as an electric
resistance heater that heats the surrounding water. They are connected to the main power supply and can be switched on and heating the water constantly. How do immersion heaters work? When turned on, electricity passes through the metallic element, heating the surrounding
water. This is where they get their nickname 'the giant kettle'. The immersion heater sits inside a hot water cylinder and is powered by a strong electric current which works to heat the water until it reaches optimum temperature. It is important to note that to kill any potential pathogen (any nasty bacteria inside the tank) the immersion heater needs optimum temperature. It is important to note that to kill any potential pathogen (any nasty bacteria inside the tank) the immersion heater needs optimum temperature. It is important to note that to kill any potential pathogen (any nasty bacteria inside the tank) the immersion heater needs optimum temperature. It is important to note that to kill any potential pathogen (any nasty bacteria inside the tank) the immersion heater needs optimum temperature. It is important to note that to kill any potential pathogen (any nasty bacteria inside the tank) the immersion heater needs optimum temperature. It is important to note that the water optimizes the tank is important to note that the water optimizes the tank is important to note that the water needs optimizes the tank is important to note that the water optimizes the tank is important to note that the water optimizes the tank is important to note the t
to heat the water to at least 50 °C so that the water eaches below a certain level, however, for the times that you're not at home, or during peak electricity hours where the water does not have to be kept warm, you can turn this
feature off to save you some extra coin. The heating process can take anywhere from 1.5 to 3 hours, depending on the size of the cylinder being heated and the power of the immersion heater. The storage cylinder is filled with cold water which enters through the bottom of the tank. The cold water then rises to the top as it is heated. As more cold water
enters the bottom of the tank and the pressure in the tank builds up, the required pressure is reached for the hot water to leave the immersion water heater and find its way to your baths, showers, and sinks. In addition to using electricity from the mains supply to activate the immersion heater, it is also possible to connect them to solar panels and
other renewable energy sources, which can help to reduce the energy costs. When and how to use immersion heater on at all times. However, this can be quite costly and inefficient as it uses a lot of electricity to keep the
water hot. What is the most effective way of using an immersion heater? Well, there are a few ways of doing this to ensure that those energy bills don't start creeping up. You could set your immersion heater? Well, there are a few ways of doing this to ensure that those energy bills don't start creeping up. You could set your immersion heater? Well, there are a few ways of doing this to ensure that those energy bills don't start creeping up. You could set your immersion heater? Well, there are a few ways of doing this to ensure that those energy bills don't start creeping up. You could set your immersion heater? Well, there are a few ways of doing this to ensure that those energy bills don't start creeping up. You could set your immersion heater? Well, there are a few ways of doing this to ensure that those energy bills don't start creeping up. You could set your immersion heater? Well, there are a few ways of doing this to ensure that the properties of the properties o
important to remember that it needs to reach a minimum temperature of 50 °C to remove any bacteria. Setting the thermostat will mean that the immersion heater will stop working once it reaches the right temperature and only power up when it drops below a certain level of heat. Another way of doing this is by using an immersion heater timer to
only allow your immersion heater to turn on during off-peak hours. The only issue with this is that you will need to pre-plan when you're going to need hot water for your home, otherwise, you may have to wait a while for the tank to heat up before being able to take a shower, have a bath or even do the washing up. This leads us on to the next section of
the blog, the pros and cons of using immersion heater on. With immersion heater for perhaps, let's say, one load of washing up. You will need to wait for a full tank of water to be heated
Not only is this inefficient because once the immersion heater is off, the water will lose its heat and you would have wasted electricity for nothing, but you could also be waiting up to three hours to use the hot water. For this reason, combi boilers are often the preferred choice of boilers as they are much more efficient and convenient for homes that
have a demand for instant hot water and central heating. If you're interested in learning more about combi boilers, we have an immersion heater thermostat installed, you will have less control over the temperature your
immersion heater needs to reach. To avoid the issue of wasting electricity, many immersion heater owners leave them switched on. However, this is one of the most expensive ways of heating water. Heat-pump grants now undercut immersion-only running costs. Because BUS reduces a heat pump's up-front price and modern units deliver 2.5-4 kWh of
heat per 1 kWh of electricity, the effective cost of heat can fall to roughly 10-15 p/kWh. That's about half the 24.9-27.0 p/kWh you pay when an immersion element does 100 % of the work, meaning an immersion-only setup looks increasingly expensive unless you have very low night-rate electricity or excess solar to dump. Pros They've got your back
 Immersion heaters do not require a gas supply to function, which means that if for any reason your central heating boiler fails, you can rely on your immersion heater back to help supply? No drama. Immersion heaters are a great hot
water supply for homes that are off-grid and have no gas supply, for example, flats or homes in remote locations. Free hot water with solar panels - and 2025 grants. Solar PV (or solar-thermal) can slash the running cost of an immersion heater because any excess generation can be diverted to the cylinder instead of being exported to the grid. A
simple PV-diverter gives you almost-free hot water while you still earn Smart Export Guarantee payments on your export surplus. The old Domestic Renewable Heat Incentive (RHI) closed to new applicants on 31 March 2022. Its successor, the Boiler Upgrade Scheme (BUS), now offers up-front grants of up to £7,500 for air- or ground-source heat
considerably cheaper to run than an immersion-only set-up. Easy to manage your energy usage. You have full control of your immersion heater, meaning that you can turn it on and off when you please so that you can limit the amount of energy being used. If you have an immersion heater thermostat installed, it will automatically turn itself off when
the water reaches the desired temperature. Once the water cools below a certain temperature, it will then turn itself back on and get back to work. You can also install an immersion heater timer, which you can set to automatically turn on at certain times of the day which could save you money, for example, if your energy tariff is cheaper throughout
the night, this would be the most cost-effective time for it to be on. How much do immersion heaters cost? The cost will depend on the size and the type of immersion heater you choose, although they are relatively inexpensive especially in comparison to other types of heaters. However, it is important to note that you will need to purchase and
accommodate extra room in your home for an additional hot water storage cylinder. In addition to this, you will need to hire a Gas Safe Engineer to carry out the installation. Two types of immersion heaters are more commonly used. These are the:Copper immersion heaters are more commonly used. These are the:Copper immersion heaters are more commonly used.
 immersion neater is not appropriate for nard water, stainless steef tanks, unvented cylinders, or thermal store units. How much does it cost to run an immersion neater in 2025? It is difficult to say exactly now much it is
going to cost to run an immersion heater, as they use electricity to heat water, which is considerably more expensive than gas. On top of this, you're adding the cost of heating the whole hot water cylinder and often not using all the water, resulting in wasted energy and wasted money. Under Ofgem's latest energy-price cap (1 April - 30 June 2025)
the average electricity unit rate for customers paying by Direct Debit is 24.86 \, \text{p} - 27.03 \, \text{p} per kWh. A 3 kW immersion element therefore costs: 74 - 81 p per hour on a standard single-rate tariff (3 kW × 24.86-27.03 p). \approx 45 \, \text{p} per kWh. Keeping that same 3 kW
element on for two hours daily would add roughly £566 a year (standard tariff) or £327 a year (Economy 7 night - average14.9245 p£327*Assumes the cylinder is heated for two hours every day for a
year. Money-saving tip: Use a timer so the immersion runs only during Economy 7 hours, or connect it to a solar-PV diverter for virtually free hot water. Rates vary slightly by region; check your own supplier's unit prices. How do I work out what size immersion heater I need? Now, I bet you didn't know that there was more than one option for size
when it comes to an immersion heater, well there is and it's important to know that buying an incorrect size heater will not serve its purpose and your water may not ever reach the desired temperature. Don't panic, it's not too hard to figure
out what size you need. Start by finding out how many litres of water the cylinder stores and your required to heat your water in 1 hour using the following equation: Volume of tank x 4 x temperature increase / 3412 = Power (kW) required For
example: If you have a 100-litre storage cylinder and want to increase the temperature of the water from 10 °C to 60 °C, the calculation would be 100 x 4 x 50 / 3412 = 5.8 kW immersion heater. Alternatives to an immersion heater we know that's a lot to take in,
so we've decided to scale it back a bit. If you've got to this stage in the blog and figure that an immersion heater may not be the right choice for you, then we've come up with an alternative. Combi boilers are ideal for homes with a high demand for hot water, and they only heat the water that you use, meaning less energy is wasted. Gas is also much
cheaper means of heating water than electricity, making a combi boiler much more cost-effective. Combi boilers are supplied with cold water directly from the mains. They have the central heating and water heater built into one unit meaning you don't have to wait for the tank to heat up and it saves you space in your home. In addition to this, combi
boilers use fresh water, meaning there are no risks of nasty bacteria. Like what you read? We have an article on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the perfect combi boilers on the market that might help you find the market that might help you fin
compatibility with solar panels to help you save money on your energy bills, ideal for homes with no gas supply. However, ultimately, they are expensive to run and you could get the same, if not better results with a combi or system boiler. On average across the UK, over half the money spent on energy bills goes towards heating and hot water. With
this in mind, it's important to know all of your options when it comes to choosing your hot water system. Need a new boiler - Get a fixed price in 20 seconds online now here If you are considering whether or not an immersion heater would be right for you instead of a new replacement boiler, and are interested to learn more about what an immersion
heater is and how it works, then read on. Get an online fixed price in 20 seconds: What kind of fuel does your boilers are alot of questions about
immersion heaters and whether or not they are worth the cost. If you are using it to help an old boiler, why not see how much a new boiler costs instead as it may be cheaper in the long run? In this article, we are going to cover all of these questions, from what an immersion heater actually is and how it works, to how to keep the costs down. We'll also
look at the main differences between boilers and immersion heater so finance where you can spread the cost of a boiler. What is an immersion heater and how does it work? An immersion heater is a system that provides hot
water to your home and is powered by electricity. It uses a heating element that is immersed in a hot water cylinder that is filled with water, once it reaches the desired temperature set on a thermostat, it automatically clicks off and will remain hot for the following few hours. Let's dive further into exactly how an immersion heater works as well as
the best practices to keep the costs down should you wish to use one, if you are considering an immersion heater doe the price rise in gas, depending on how old your boiler to 20%. These energy-efficient A-rated boilers can save you up to £800 every year if you change from a
G-rated boiler. Not only will this save you money, the fact that these gas boilers can run on up to 20% hydrogen fuel and natural gas means that they will be able to survive the gas boiler ban in 2025 which you can read about here. How immersion heater works similarly to that of a kettle. Within the hot water cylinder,
which is the main body that stores the water, is an electric resistance heater element. This element is "immersed" in the water, which is where it gets its name from. Some systems have immersion heater built-in. Immersion heater in hot water cylinders The hot water cylinder is filled with water, however, it can take a
while for it to heat up. Approximately, it takes about one to two hours to heat an average immersion heater from cold water, however, this varies if the water has already been heated. Depending on the size of your hot water cylinder, you may have multiple electric elements that heat the water. They do so by passing a powerful electric current
through a coil-like element that heats up, which in turn then heats the water in contact with it. Do immersion heaters automatically turn off? Immersion heaters tend to use a thermostat to monitor the temperature, then it can automatically switch off which helps to reduce costs. This also means that
you don't need to remember to switch it off and you are not paying for hot water when you don't need it. Are immersion heaters plugged into the mains electricity? In addition to this, immersion heaters are connected to the property's main power supply, which means that they can be switched on and off on-demand. This can be ideal for those with
second homes when they don't need hot water all of the time. New boilers such as combi boilers only produce hot water when needed too, so if you have an older boiler this may be a cheaper option. Typically, an immersion heater will be used as a backup system for
boilers. If the boiler breaks down then having an immersion heater will still enable you to access hot water. Get an online fixed price in 20 seconds: What kind of fuel does your boiler use? Is an immersion heater expensive to run? Unlike gas boilers, immersion heater will still enable you to access hot water. Electricity is certainly more expensive than gas,
oil, and solar. According to the energy saving trust, the standard rate for electricity is 16.36 pence per kWh for oil. This is almost four times the price and the reason why air source heat pumps use more electricity in winter makes them a less viable option than gas boilers. If you
have an old boiler and are thinking about using an immersion heater, then you should also consider that a new gas boiler that is A-rated and over 90% energy-efficient can save you up to £800 on your energy bills every year. How long does it take for immersion heaters to heat water? In addition to this, it does take a few hours to heat the full
tank of water, and it is important to heat the water to a minimum of 50 degrees celsius to ensure that the bacteria in the water have been killed off. Also, any of the water to a minimum of 50 degrees celsius to ensure that the bacteria in the water have been killed off. Also, any of the water to a minimum of 50 degrees celsius to ensure that the bacteria in the water have been killed off. Also, any of the water that you don't use whilst it is hot is wasted and will need to be heated up again for when you do want it. Nevertheless, whilst this may be the case, you can optimise how you use an
immersion heater to keep costs down with a thermostat or forward planning. Invest in a well-insulated hot water cylinder is what stores the hot water tanks or conventional boiler hot water tanks. Once the water has heated up to the required
temperature, then a well-insulated hot water cylinder will remain hot for hours, even when it is turned off. This is a great way to keep costs low, as you do not need to leave it on all day to reheat the unused water. Immersion heaters with a thermostat Immersion heaters can be set using a thermostat. The beauty of this is that it will automatically
switch off when it reaches the desired temperature. This saves you both money and hassle and enables you to get on with your day without worrying about your immersion heater being left on. Another benefit of using a thermostat is that you can set it to specific times. This allows you to make the most of off-peak prices. According to the energy
saving trust, across England, Scotland, and Wales the average off-peak rate for electricity is 9.76 pence kWh compared to 20.03 pence kWh compared to 20.03 pence kWh on-peak. So it can certainly make a difference to your water remains hot for when you need it most. Connect
your immersion heater to a renewable energy source like solar panels. Of course, this has a pretty substantial cost upfront, however, there are government initiatives that incentivise this cost. In January 2020,
the government introduced the Smart Export Guarantee (SEG), which pays households for any excess electricity that their solar panels have generated and then distributes this across the national energy grid. In addition to this, there was also the domestic Renewable Heat Incentive (RHI) which helped homeowners to access financial support to help
cover upfront costs associated with renewable heating systems, however, this scheme ended on 31 March 2022. Get an online fixed price in 20 seconds: What kind of fuel does your boiler use? Is it better to leave the immersion heater on? The answer to this guestion depends on your hot water needs. If you need a steady supply of hot water
throughout the day, then you can leave your immersion heater on. However, this is a costly and inefficient way to use your immersion heater and it might be worth considering a new combi boiler as a better alternative. There is no need to leave your immersion heater on all day. By using an automatic thermostat you can set the times that you want
hot water. As we identified above, this can be a great way to optimise your costs and leverage off-peak rates. In addition to this, a well-insulated immersion heater can remain hot for a few hours. So even when it is off, you will still be able to take a hot shower and wash the dishes. However, this will work better for some than others. For some people
having set times for showering fits perfectly into their routine, but this isn't the case for everyone. What is the difference between a boiler and immersion heater? Despite partly doing the same job, there are differences between the types of boilers and immersion heaters. Depending on your home, what you have access to, and your needs, you can
identify the best way to generate hot water for your household. Boilers Unlike an immersion heater, a boiler can provide both hot water and central heating for the house. They usually run on either gas or oil and have pipes entering the boiler from underneath. There are typically three pipes, one feeding through the gas, one that enables cold water to
enter the boiler to be heated up, and another to allow the hot water to be pumped around the house. Generally, gas and oil boilers work in the same way, with the only significant difference being that gas is supplied by a national network of pipes, whereas oil is supplied by a tank that is kept on the property. Boilers are generally a lot more common
than immersion heaters, and there are several different types of boilers. Here we have briefly outlined the main different types: Regular (or conventional/traditional/heat-only) - The original boiler type. A regular or conventional boiler type. A regular or conventional boiler types of boilers.
water.System - Similar to a regular boiler, system boiler is connected up to the mains, whereas a regular boiler requires a cistern, often stored in the attic.Combi (or combination) - Providing both hot water and
central heating throughout your home, a combi boiler has no need for a cylinder and is much more compact, and therefore easier to store in smaller homes. However, since both the heating and hot water come from the same system, if it breaks down then you are left without either. If your boiler is not working, check out some of the best combi
boilers here. Immersion heater Unlike a boiler, an immersion heater only supplies hot water to a home. Immersion heaters only run on electricity, however, this could be supplied through renewable energy sources such as solar panels. As we identified above, immersion heater unlike a boiler, an immersion heater that is immersed in the
water, similar to that of a kettle but on a larger scale. It's not uncommon for some households to have both a boiler and an immersion heater. This means that if your boiler was to ever break down, you would still have a supply of hot running water. Immersion heaters are always separate from boilers, which can be quite beneficial for those with old
boiler systems such as back boilers that might be unreliable. It is also not uncommon for flats and second homes to use immersion heaters if this is more appropriate for their needs. Get an online fixed price in 20 seconds: What kind of fuel does your boiler use? Are immersion heaters are run on electricity and not
gas or oil. With this being the case, it is not uncommon for new flats and even second homes to use immersion heater. For example, if your home is a little more remote and you don't have access to the main gas network, then an immersion heater.
is a great option. Similarly, some new flats don't have a gas supply and some households don't have room to store their own oil, in which case they rely on an immersion heater for their hot water. Can immersion heater sexplode? Whilst it is rare for an immersion heater to explode, it is still possible. Immersion heaters are equipped with various safety
mechanisms to prevent this from happening, however, malfunctions are still possible. If it does explode then it can certainly cause damage, so as with anything, preventative measures are always worth taking. If you check and your boiler is leaking we suggest that you get a suitably qualified plumber to fix the issue. There are some signs to be mindful
of that could suggest that the temperature and pressure have risen too high. Fortunately, all immersion heaters and water heaters, in general, do have warning signs that can act as signals to call your emergency plumber. Temperature and pressure
within the tank. It works by opening when the internal temperature or pressure is too high, this then relief valve remains open, this could be a
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sign that there is a consistent problem with the temperature or pressure. Similarly, if the valve is leaking it could be a sign that your immersion heater cannot handle the internal pressure. A build-up of minerals, sediment, and rust can all contribute to this. Sounds - popping, knocking, or clicking Monitor your immersion heating system for peculiar

sounds. If it is not maintained then there is potential for sediment build-up. The knocking sound occurs when water is trapped between the sediment and the heating element. However, if your tank is maintained and flushed out, you should be able to avoid this build-up of sediment. Brown water Similarly to the peculiar sounds, if the hot water runs brown or discoloured it could imply that there is a build-up of sediment to that there is rust in the immersion heater rank. If the tank has serious erosion and rust it might mean that the immersion heater needs to be replaced, it is worthwhile reaching out to your pulmber to or on the side of caution. It is recommended to conduct your own generally, a pulmber can be a supplied of the log. However, the first point of call would usually be your plumber. Depending on the problem and your location, the costs will completely vary, However, it is always worth using a fully qualified and trained can be a supplied and trained can be a supplied and trained can be a supplied of the log. However, as with a long the reaching of the log. However, as with a water susceptible to wear and tear. Naturally, the more you use your immersion heaters are not lead for second homes. Nevertheless, most households will use their immersion heater in this side of the perfect opportunity to have a prefect opportunity to