

## Boiling water within two seconds of switch-on

~ The immediate benefits of the latest water heating technology ~

In the UK, we drink approximately 165 million cups of tea per day, along with 70 million cups of coffee. That's a lot of hot drinks and a lot of hot water. Many of us rely on vending machines to provide us with our daily intake and if you're a serious hot drinks fanatic like myself, you'll know the difference between a coffee that has been made with freshly boiled water and one that contains pre-heated water. However, it's not only vending machine suppliers that could benefit from an instant hot water solution. White goods manufacturers and hot water tap providers can help their customers save water and energy by implementing an instant hot water solution like [RapidHeat technology](#).

Here, Peter Duncan, project coordinator of RapidHeat explains the features, benefits and potential applications for this new method of instant water heating.

### Cost, energy and space savings

No one likes to waste water and we all try to do our bit by turning off the tap whenever we can. It may come as a surprise that the average household in the UK wastes 24 litres of water per day waiting for the shower to become hot enough. That's five per cent of your water bill that you're pouring down the drain.

One advantage of the RapidHeat method is its low thermal mass, which allows full temperature output within two seconds of switch-on. Also, because RapidHeat doesn't use a supply of preheated water, it can't run out. Anyone who lives in a busy household and has to work their shower time around their cohabitants will understand the importance of this feature.

Unfortunately, it's not just at home that money is wasted because of water heat up time. Over a working lifetime, the average Briton spends 188 days and 21 hours waiting for the kettle to boil. For employers, this means that on average, you're paying each member of staff to boil the kettle for around six months.

RapidHeat's IP56 rating states that it is protected from ingress of dust and water allowing it to be used in domestic, automotive, traction and marine environments. Because the RapidHeat method can be implemented in a range of settings, you can benefit from its two-second heat up whether you're working in an office or an industrial factory.

The high power density of RapidHeat also means the heater is smaller and lighter than other technologies on the market, which makes it ideal for applications where space is limited. The RapidHeat solution allows for the removal of hot water reservoirs, making the water heating operation more hygienic and even reducing the risk of infections.

## **New technology creates new applications**

RapidHeat technology was originally developed by [high-power resistor manufacturer, Cressall Resistors](#) for its water-cooled EV2 brake resistor. The method was initially designed for the electric vehicle industry, but as time went by, Cressall started exploring alternative applications, including using it in controlled high-power liquid heating systems.

As a company who manufactures for the transport and power generation and distribution industries, Cressall Resistors is now seeking partners to help implement the technology in new applications, including white goods, vending products and instant hot water taps. The RapidHeat technology can be used to design water heaters that are superior to existing designs in size, weight, cost and the output they produce.

### **High conductivity and high resistivity**

Whilst there are existing applications that offer either high thermal conductivity or high electrical resistivity, RapidHeat is the only solution on the market that can give both. The new ceramic material used in the EV2 has properties that are rarely found together in the same material.

The high thermal conductivity that the EV2 offers can be compared to aluminium and enables high heat transfer at low temperature differences. The high electrical resistivity of the EV2 is similar to that of most ceramics and allows for construction of high voltage heaters that operate up to 7.2kV. This unusual combination of properties has allowed Cressall Resistors to manufacture heaters that are far more

compact than conventional ones, which have to rely on separate materials for their electrical and mechanical insulation.

Because of its properties, possible future applications for RapidHeat technology include being implemented as a tankless heater for intermittent hot water needs or as a supplementary heater for boilers. Both would reduce start-up losses and therefore improve the application's energy rating. RapidHeat could also be used as a water-cooled resistor in heating and ventilation power equipment because of its ability to heat to any temperature. Finally, if RapidHeat was used as part of an instant hot or boiling water tap, it would eliminate the need for an accumulator and therefore provide fresh, hot water.

There are numerous hot water related problems that RapidHeat could help solve from the efficiency of staff tea breaks to the amount of water wasted at home. If you would like to enhance your own products then why not look to RapidHeat for instant hot water solutions?

*To find out more, get in touch with Cressall Resistors on +44 (0)1162733633 or by e-mail on [info@rapidheat.eu](mailto:info@rapidheat.eu).*

**Ends:** 826 words

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**About Cressall Resistors:** The world's foremost power resistor manufacturer, Cressall Resistors, offers an unrivalled combination of experience and expertise as well as the UK's widest range of resistor technologies. Cressall's customers include ABB, Siemens, Areva and Alstom, as well as major utilities such as Northern Powergrid and Western Power Distribution (WPD), EDF and Scottish Power. The company also works with countless smaller specialists such as CP Automation, HMK Automation and Drives and ACE Winches. Indeed, because of the fundamental nature of Cressall's product almost everyone in the electrical industry will have cause to contact the company at some point; making the Leicester based business a bellwether for the health of the sector itself.

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