TURNING UP THE HEAT

AN AUSTRALIAN INVENTION IS REDEFINING THE WAY WATER IS HEATED AND THE RESULT COULD LEAD TO A REDUCTION IN LEGIONELLA, TOO. **JEFF PATCHELL** REPORTS.

At a time when Australia is losing more and more manufacturing jobs overseas, it's clear that only those who innovate really stand a chance of surviving.

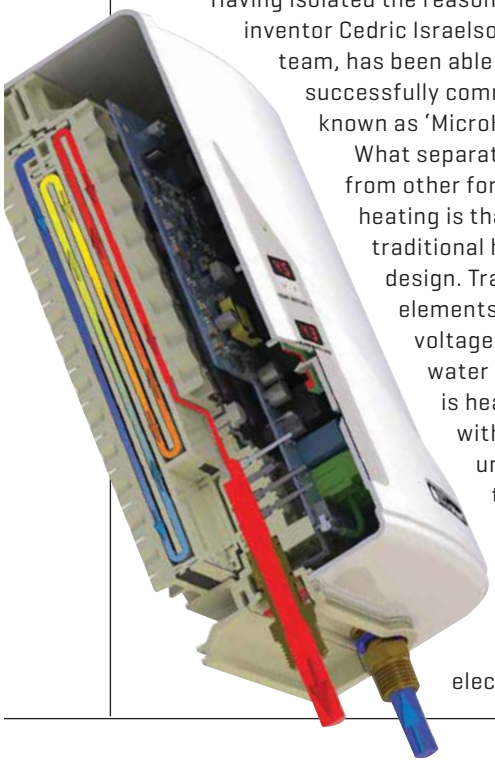
MicroHeat is a name that few plumbers, consultants and merchants will have come across, other than when we featured the company in the *Handy Water Heaters* feature that ran in the Spring 2013 edition of *Plumbing Connection*. In the subsequent years, continuous flow electric heaters – like MicroHeat – have been growing in popularity, particularly given so much multi-residential development is taking place nationally.

But, it's not just in multi-dwelling units where this company is aiming to find traction.

Recently, we had the opportunity to review this innovative technology, which is breaking the fundamental rules of heating water.

MicroHeat is based on a technology that originated back in the 1800s; but, for the longest of times controlling the amount of electrical energy needed when using this method of heating has evaded developers. And to date, it has never been cost effectively commercialised.

Having isolated the reason for this failure, MicroHeat inventor Cedric Israelsohn, together with his team, has been able to develop, protect and successfully commercialise what is now known as 'MicroHeat technology'.



What separates MicroHeat technology from other forms of electric water heating is that it doesn't use a traditional hot wire or bare element design. Traditionally, these wires/elements sit inside a tube, a voltage is applied and then the water passing through the tube is heated by coming in contact with the wire/element, until the temperature of the water reaches the desired, predetermined temperature setting.

MicroHeat offers a radically different solution. The system uses electricity to directly energise the water coming into the unit, by using the water as the 'connecting wire' between electrically-energised inert electrodes.

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Directly energising the water in such a manner causes it to heat up without the need for heating elements. The unit precisely calculates and controls the exact amount of electrical energy that needs to be supplied to heat the water, by emulating the thermal heat equation.

As the electrodes are the same temperature as the water being heated, it doesn't cause them to scale or suffer the same stress corrosion experienced by traditional heat exchangers.

Further, temperature control to within 1°C is delivered via a microprocessor. Combined with a sensor that

activates every hundredth of a second, MicoHeat technology claims to save energy and water as well as prevent overheating.

Since there is no heat generated internally, there is also no need for thermal shielding within the unit, to protect any plastic/metal casing.

The MicroHeat unit sits on a compact footprint (about the size of an A4 piece of paper) and claims >99% energy transfer efficiency, thus offering a calculable energy saving. The unit doesn't heat the water until the tap is turned on, which is why is uses almost zero energy when in standby. Depending on the flow and heat setting required, the unit will almost immediately provide heated water within +/-1.5°C of the setting.

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MicroHeat units have been available in a single-phase format for a while now but the company recently launched a three-phase version that significantly improves its appeal to the plumbing market.

In addition, the MicroHeat team is starting to find new opportunities for the technology that were not so evident early on. The product's patented method of energy control can be used to safely limit water temperature from exceeding 43.5°C (the limit set by the health industry for use in special circumstances where scald prevention is mandatory). This means that in the right circumstances, the need for a thermostatic mixing valve could be eliminated. The control of aspects that relate to the prevention of legionella bacteria growth are also accommodated.

Most recently NSW Health has ticked off on the product, so you can likely expect other states to take an interest in due course.

Keep an eye out for the product at innovative merchants or get onto the MicroHeat website for more detail. It proves that Australian R&D and manufacturing can be innovative.

MicroHeat
www.microheat.com.au