HEATWEB



CASE STUDY · HEAT NETWORKS & COMMERCIAL

Designing the perfect HIU

The DATA: the best BESA test results recorded

AT A GLANCE

PRODUCT
The DATA and DATA Plus twin-plate HIUs

PARTNERSHIP
Heatweb design and specification; manufactured by HSF, Netherlands

HOT WATER
Up to 65 kW (DATA Plus 75 kW)

HEATING
Up to 25 kW, indirect, 50 to 80 °C

STANDING HEAT LOSS
Under 50 W

HEATWEB TODAY
Servicing, spares and support for units in the field

A twin-plate heat interface unit designed and specified by Heatweb and built by HSF in the Netherlands. It recorded a VWART of 15.8 °C under the BESA UK HIU test standard, and its keep-warm strategies changed the way HIUs are designed.

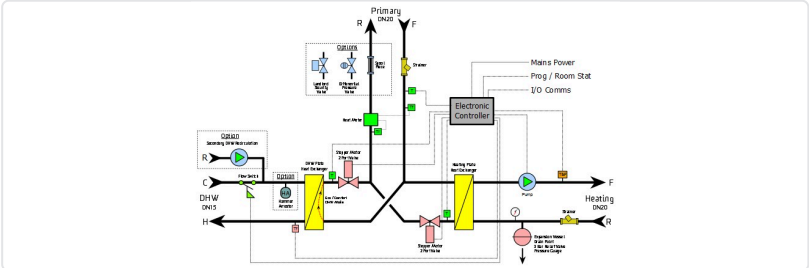
The challenge

An HIU has two jobs: hot water and heating for the home, and returning water to the network as cold as possible, because return temperature sets the efficiency of the whole network.

Most HIUs of the time were mechanical, with a bypass in every unit keeping it hot around the clock, so whole networks returned water at 35 to 45 °C.

What we did

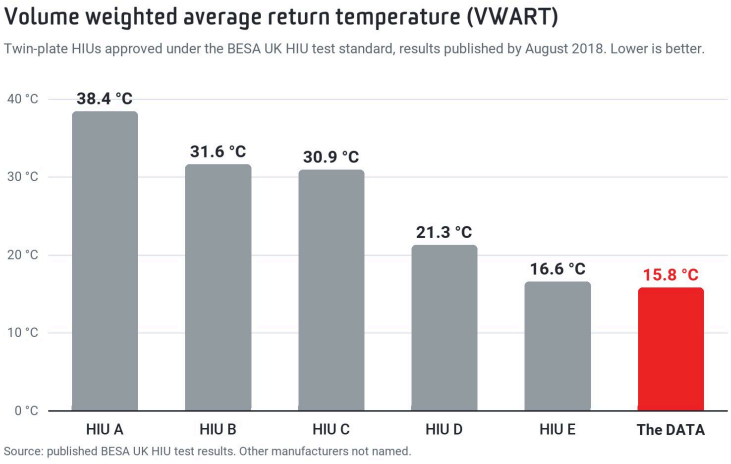
- Electronic control with one stepper-motor valve per heat exchanger, doing in software what mechanical units needed a device for each.
- Plate heat exchangers matched to the small heating loads of modern homes, heating that tracks the network temperature, and settings locked in at the factory.
- Sensors on every circuit, so each unit measures itself and can report every second: hence the name.



Primary, hot water and heating circuits, each controlled by one stepper-motor valve.

What we found

- Keep-warm by control rather than a constant bypass: pulsed primary water, a keep-warm setpoint separate from the hot water temperature, an economy mode that lets units go cold, and a boost flush that draws heat in fast when a tap opens.
- With thermal bypasses at the ends of risers, keep-warm can be turned off in the homes altogether. These strategies are now common practice in HIU design.
- The DATA's one-second data from all 147 homes at Harrington Place, Woking, supported the UK's most efficient heat network at handover.



VWART of approved twin-plate HIUs under the BESA UK HIU test standard. Other manufacturers not named.

15.8 °C
VWART under the BESA standard, the best recorded

23.2 °C
best twin-plate result in the first UK tests in 2016

< 50 W
standing heat loss

The outcome

- The best VWART recorded under the BESA UK HIU test standard, holding the top position for three years.
- Built on more than forty years of heat exchange design and twenty-eight UK patent applications, from heat exchangers in 1983 to networked HIUs in 2014.
- We now bring the same skills to manufacturers: product design, control strategy, test preparation and field monitoring.

About Heatweb. Heatweb Solutions is a UK provider of engineering support for heat networks and commercial HVAC: monitoring, fault diagnostics, technical compliance, optimisation, commissioning and maintenance.

Talk to an engineer

The full case study: www.heatweb.co.uk/blog/case-study/designing-the-perfect-hiu/

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