

Product category briefing: heating water air removal

In a conventional wet heating system, heat from combustion is transferred within one or more boilers to the system water, with a small proportion (typically under 20%) being lost as heat in the hot exhaust gases.

The system water circulates through the building, delivering heat to the space and returning at lower temperature to be reheated. The amount of heat released into the space over a given period must balance the amount lost to the environment and is therefore governed by prevailing temperatures and ventilation rates. The amount of fuel required is governed in turn by the building's demand for useful heat, plus the heat lost in exhaust gas (which is minimised by proper routine maintenance).

Air dissolved in the system water can cause corrosion and the formation of sludge which impedes heat transfer within both the boiler and heat emitters. If dissolved air comes out of solution air pockets may also form which reduce the effective heat transfer area in the heat emitters. The heating controls will compensate for reduced heat-emitter capacity, so this has little if any impact on fuel economy, but reduced heat transfer within the boilers will increase the exhaust heat losses.

To counteract these problems most heating systems are therefore already fitted with automatic air removal devices. However, there are unscrupulous vendors who ignore these in order to promote a variety of more elaborate and expensive air-removal products. Their claims are often backed by plausible-sounding scientific arguments, patents (signifying nothing), testimonials (not credible), certifications (usually irrelevant) and test results (often unfeasibly favourable). Crucially, however, they are peddling a solution to a problem that usually does not exist and which could in any case be resolved with commonplace and more economical solutions.

These people are exploiting the fact that most potential customers do not have enough scientific knowledge to expose the falsehoods in their claims. They themselves often have no scientific or technical training and believe their own promotional material. Sometimes they are the innocent victims of unscrupulous franchisors. Either way they are motivated by profit with no respect for the truth, and their products are worthless at best.

V O Vesma MA(Oxon) CEng MEI
Pound House
Market Square
Newent
Glos GL18 1PS

01531 821350
Vilnis@Vesma.com

18 December 2018
Revised 22 July 2021
File ref R107