**ELECTRIC SHOWER HEADS WITH STOP FUNCTION – SAFETY SUMMARY**

The BMA has over sixty full members who manufacture bathroom products and over twenty-five additional affiliate members, ranging from SMEs to large multinational corporations. Manufacturing around the globe, BMA members all have a UK entity. They directly employ over 10,000 workers in the UK and support hundreds of thousands more jobs in the installation and retail sectors.

The collective sales of our membership have a retail value of £4 billion, covering an estimated 80% of the market by value. Bathroom manufacturers make a significant contribution to ‘UK plc’. The statement here is derived by the Technical Director Andy Mclean as a representative to speak on behalf of members of our Trade Association, the Bathroom Manufacturers Association. The Technical Statement is a confirmation of consultation from our members manufacturing instantaneous water heating showers and research of documentation used to approve products to ensure products are suitable for the intended use.

**Standards Reviewed for reference.**

EN1112 Sanitary tapware - Shower outlets for sanitary tapware for water supply systems of type 1 and type 2 - General technical specification

EN 50193-2-2     Electric instantaneous water heaters. Performance Requirements Single point electric instantaneous showers. Efficiency.

EN 60335-1        Household and similar electrical appliances. Safety - General requirements

EN 60335-2-35 - Particular requirements for instantaneous water heaters

Most instantaneous electric showers are third-party assessed to comply with the Low Voltage Directive, in accordance with the following harmonised standards for the heating appliance only.

EN 60335-1

EN 60335 -2- 35

Reputable manufacturers’ handsets comply with Regulation 4 of the Water Supply (Water Fitting) Regulations 1999.

Instantaneous Electric Showers are a safe, reliable and energy-efficient way to shower and have been used for many years in the UK. Indeed, the majority of showers bought and in use today are electric showers. This type of appliance has many safety features, including thermal cut outs (TCO’s), which are fitted during production (and approved to EN 60730\*) and will prevent overtemperature in both normal and abnormal use, including through temperature/pressure fluctuations in domestic water supply.

These TCO’s are typically two-stage devices: i.e. 48/75°C. 48°C being the (recycling) user protection setting and 75°C (single shot) being the appliance protection setting in the event of abnormal operation, which, if activated, will shut the appliance down, resulting in a service call to determine the cause of activation, before having to be replaced.

The abnormal operation test is met with clause 19 of EN 60335-1.

Instantaneous electric showers are “open outlet” water heaters, which means that water flow must be switched off at the inlet supply, never at the outlet.

When an aftermarket shower handset with a “start stop” function which is fitted to an instantaneous electric shower, the following phenomenon will occur:

The shower is turned on at the user control, water pressure will operate the microswitch carriage, in turn energising multiple heating elements, resulting in a stabilised outlet temperature for the user.

With the manufacturer's supplied handsets, consumers can switch between spray patterns safely, without jeopardising back pressure or flow rate, but importantly, not being able to stop the flow at any point. Thus, there is no risk of scalding. It should also be noted that the standard EN 60335-2-35 in section 7.12 states clearly “Fit only shower heads recommended by the manufacturer and never fit any additional device to restrict the water outlet flow.”

With the unregulated supply of aftermarket and unapproved shower handsets, e.g. those using a start/stop function, the consumer can stop the water flow at the outlet. If the stop button is pressed, it will cause the Instantaneous electric shower to remain pressurised causing the heater elements to stay energised and continuing to heat the water. The shower safety device (TCO) will activate as it has detected abnormal operation (i.e. the outlet has become blocked).

Despite the TCO operating, there is latent heat in the heating elements, which causes the water within the appliance to overheat, potentially reaching temperatures as high as 80°C. If the shower is resumed (by pressing the start button on the handset, for example), potentially scalding water is discharged under pressure. This could, in turn, lead to severe burn/scald injuries.

While there is no specific prevention of this combination of products in the standards, EN 60335-2-35 does state that only recommended shower heads from the manufacturer should be used. The BMA based on the abnormal operation would state that instantaneous electric showers which meet appropriate standards and are safe, but the addition of this type of unregulated shower head with a stop/start feature is **not suitable** to this type of instantaneous electric showers.

While these start/stop shower heads present no direct safety issues for mixer-valve showers, which pre-blend hot and cold water from separate water systems, they can potentially cause a safety hazard when used with instantaneous electric showers.

\*Multi-Part Document – BSEN 60730 Part 2-9 Automatic electric controls for household and similar use. Temperature Sensing Controls.