

June 2025 – Final

MEHNA response to BESA HIU Technical Committee

Note on space heating temperature tolerance

Introduction

MEHNA members met to discuss the proposals from BESA regarding the technical query on testing for HIU's.

The following points were raised during the meeting and further refined to provide feedback to the BESA Technical Committee Sub-group.

MEHNA were not able to reach full consensus on this due to the nature of Electronic and Mechanical units differing in points of detail. There were some common points and these head the comments for feedback, the view of mechanical HIU manufacturers follows next and then the view of electronic HIU manufacturers.

Common points

1. Manufacturers are mistrusting the validity of the round Robin testing that was carried out for the mechanical HIU, which had a pass. Is there further evidence that has not been shared.
If not, what is the justification for this proposed change?
Can the BESA TC verify by looking at the results, that the unit did pass?
2. Overall, MEHNA members expressed concern over how this situation has developed. It would appear that it can only be seen as a failure of process by BESA. Mechanical manufacturers claim that concerns about the tolerance issues were flagged to the BESA TC by email.
Does BESA have a record of this?
3. One of the contributory factors in being able to identify issues with the test was the failure to fully define the test rig at an early stage, that would have allowed manufacturers to carry out meaningful tests. They felt that this was also a contributory factor in how the non-keep warm test has failed.
4. There are concerns whether the new proposed tolerances have been reached through rigor or if they have been simply put forward as a proposal without underlying justification.
5. There was concern about the proposed +5 degree tolerance mentioned in the bullet points on page 6 of the BESA report and whether this was simply a typo. There would be no justification for a further widening of the average temperature variation.
Can BESA expand on the thinking behind the 5 degree tolerance figure?

6. MEHNA members would like to know if BESA can actually demonstrate what difference in efficiency to the end-consumer will be as a result of the proposed change?

Should this have really been the underlying technical justification for the tolerance that was originally made in Technical Note from 2019?

In future should the technical justification also state the science behind each criteria?

7. Overall, manufacturers are disappointed that we have reached a situation that has caused a lot of cost to some manufacturers and anxiety to others, through having to make a change at a very late stage. It has dented confidence in the BESA test regime and given rise to concerns that in the future there might be other changes like this.
8. There is strong feeling that MEHNA represents all HIU manufacturers of every type and it is very important that the BESA SG has all the information available to it, before it makes a decision.
9. Since mechanical manufacturers have challenged the validity of the round robin tests for the mechanical unit, it is imperative that the BESA TC sub-group verify if the mechanical unit did gain a pass. If the round robin test validity cannot be verified then a parameter that is practically achievable by other corroborating results other than the round robin would be the only practicable compromise.
10. There is concern at the further proposal to widen to +5°C. A 3°C limit would align with DHW tolerances, and the latest BS 8635.

Viewpoints of mechanical HIU manufacturers

1. Evidence from the mechanical manufacturers is that they have looked at the technical feasibility of reaching the current test conditions and that this test parameter is not practically feasible for the technology.
2. There is a view that efficiency is captured by VwART, not flow temperature.
3. It is not really understood what detriment to the consumer through efficiency loss will be made by the proposed changes. If efficiency is derived from VwART then this should be quantified.
4. All control types have their own benefits and limitations. Controllers are judged on accuracy, repeatability and reliability. The BESA test can only scrutinise one of these 3 crucial parameters. Claims that electronic controls are superior in this specific test condition and therefore should dictate the pass/fail criteria fails to address the holistic requirements of heat networks.

- The BESA test is accommodating of different control types. e.g. keep warm cycling, domestic hot water low flow fluctuations, Dynamic domestic hot water fluctuation within the initial few seconds of tapping. Minor space heating fluctuations, during very low loads, has no meaningful effect on the consumer. If an impact assessment is deemed appropriate, several other criteria will also be relevant to investigate.

- The network return temperature determines the efficiency of exchange and the cost of heat. The VWARD is already a pass/fail criteria which describes the efficiency of exchange. Therefore, any concerns the customer impact are already addressed in the WARD results.

- There is no published BESA test documentation by any mechanical supplier that supports the feasibility of a 0.5 degree tolerance. This is separate to the more pertinent point of if this criteria provides any benefit to the consumer.

- A distinction can be made by specifiers as to if the best practice 0.5deg fluctuation is preferential. Work to be within this tolerance is suitably recognised because of this.

- The uncertainty in the test criteria is delaying testing of more HIU's.

Will there be an extension on the deadline or a clarification note to accommodate/explain delays in testing caused by the uncertainty of the test criteria?

5. Delaying implementation of any change until September/October is damaging to manufacturers who are desperate to be compliant – and have been subject to a process that has not flagged an issue during the round robin. Changes should be made with immediate effect to correct this but it must be a data driven approach with robust vetting

Viewpoints of Electronic manufacturers

1. There is concern around how a change to flow rates rather than kW power would affect the test.
Can BESA define this and elaborate on the testing that has been done to verify justification?
2. The vast majority of the HIU manufacturers that passed the 2023 test, initially failed it, went away and redeveloped their unit (at considerable cost) to pass.
3. The BESA TC must justify why they have made this fresh proposal even though they acknowledge that a mechanical HIU had passed the Round Robin test.
4. The proposals to acknowledge those HIU's that have met the 0.5°C tolerance are welcome. However, it will still leave a market situation where those units already tested will have used more expensive components and will therefore be at a disadvantage in the market for some time until changes are made at the next product iterations.
5. The main focus for HIU manufacturers is the customer. It is important that consumers connected to heat networks in the UK are served by the most efficient products we can develop and supply within the market constraints we are bound by. Many HIU manufacturers have invested heavily in the resources required to deliver a HIU capable of controlling flow temperature precisely in line with the current BESA standards; making a change to that standard therefore not only undermines their investment but also, in our view, the credibility of the test itself.

6. Any amendment to the BESA Test Standard should raise the bar, driving further innovation and measurable performance gains rather than lowering it. If robust, peer-reviewed empirical data can demonstrate that widening the space-heating flow-temperature tolerance delivers a net reduction in network return temperatures, pumping energy, or overall operational costs, then of course MEHNA could support that evidence-based change. At present, however, no such data has been shared with industry.
7. The current process appears to allow a small sub-group to recommend changes without a formal, transparent consultation stage. In a market that relies so heavily on BESA certification for specification and funding decisions, even the perception of unilateral change risks eroding stakeholder confidence.
We therefore respectfully request that A full impact assessment (laboratory and real-world modelling) of the proposed $-0.5 / +2^{\circ}\text{C}$ tolerance is circulated to all Technical Committee members and interested manufacturers.
8. One manufacturer agreed that the proposals BESA have put forward regarding the test regime provided a balanced approach. To allow for a larger temperature tolerance ($t_{22} - 0.5/+2^{\circ}\text{C}$) during testing of the space heating capacities of 0.5kW and 1kW, maintaining the requirement to achieve $t_{22} \pm 0.5^{\circ}\text{C}$ for 4kW testing, requiring achievement of $t_{22} \pm 0.5^{\circ}\text{C}$ overall on all tests in order to achieve “best practice”, and lowering the VVART from 37°C to 36°C to achieve “best practice” in these tests. Their opinion was that it provided opportunity for specifiers and installers to make a positive distinction between electronic units with more accurate controls capability or the more basic mechanical units, while providing mechanical units with a clear means to pass the testing.
9. A definite update to the test regime rather than a revision to introduce this would also be welcome.
10. The original purpose of the test regime was to drive the industry forward, any re-iteration / review should be perceived within the industry as a step forward and this proposal certainly isn't the case. This would disadvantage those who tested and passed the more stringent 2023 regime. Which is a position that some MEHNA members are unwilling to support.