

Technical Note			TN-014
Test: DHW response time.			Test no.: 5a 5b
Assumption: DHW response time temperature assessment.			Assumption no: 32
Rev: 1	Date: 20 Aug 20	Author: Martin Crane	Checked: Gareth Jones

1. Introduction

The DHW response time Test determines the period of time that a HIU, that has been in keep warm mode, takes to deliver DHW. The DHW response time test is effectively a test of the HIU operation in keep warm mode and check that the HIU in standby can still deliver DHW to customers in a reasonable time.

This assumption considers the DHW temperature that needs to be achieved to such that it is considered that the DHW is acceptable. The Test times the period taken from the point the DHW draw off starts to the point at which this temperature is reached.

2. Considerations 1

This temperature cannot be the DHW setpoint as the setpoint of 50C may never be reached as the set point is set with a tolerance of +/- 0.5C and the Test rig temperature measurement is only accurate to +/- 0.1 C.

3. Consideration 2

The DHW response time assessment temperature should reflect the time taken for useful DHW to be delivered to the customer. The key issue with respect to hot water delivery time is what constitutes “hot” from a user perspective. As per HSE guidance water becomes painful and can cause burns at above 44°C. As such, any temperature that is 45°C or greater can be considered “hot” from a functional perspective.

1. Consideration 3

Delay in arriving at the precise setpoint temperature causes little customer detriment. There will always be a delay in the DHW reaching the DHW at the tap due to the need to warm the pipes.

4. Consideration 4

All control systems will reduce the rate of increase of DHW temperature as the increasing temperature approaches the setpoint, if this were not done the overshoot of the setpoint will be larger. So it can take quite a long period for some HIUs to actually reach setpoint. Others reach the setpoint quicker and then

overshoot. A balance between rapid achievement of setpoint but without too much overshoot should lead to the best performance for both customer and heat network. The heat network interests are best served by any measures that allow lower standby temperatures, which determined in part by the DHW response time.

5. Conclusions

45C is an appropriate temperature for the DHW response time assessment

6. Recommendation

Leave temperature of 45C as it currently is.

7. References

HSE HSG274, Part 2