

Technical Bulletin 151

Developed with Worcester Bosch Group

Combustion Box Leakage rates on Worcester Greenstar gas boilers

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This Technical Bulletin has been written with the Worcester Bosch Group to provide industry guidance on the gaps which may be found on the folded corners of the combustion air-box on Greenstar boilers.

Introduction

This Technical Bulletin has been published in conjunction with the Worcester Bosch Group to provide guidance on the visible gaps which may be found on the folded corners of the steel air-box on Greenstar boilers.



Combustion air-box leakage rates

Worcester Greenstar gas boilers are manufactured to exceed the requirements stated in BS EN 15502-2-1: 2012 + A1: 2016⁽¹⁾.

Clause 8.2.2.102.1 of BS EN 15502-2-1 allows a maximum leakage rate of 3m³/h with a test pressure of 0.5mbar.

It is perfectly normal to see small gaps on the folded corners of the steel air-box; there is no requirement for the air-box to be completely air-tight. Every Worcester Greenstar boiler is tested at the end of the production line to ensure it complies with all applicable and appropriate standards and operates

correctly. The test data from all Worcester appliances are fully traceable and auditable.

Boiler in operation

When the appliance is providing heat, the combustion air-box will operate under a negative pressure.

The appliance carries out a pre-purge before ignition and a post-purge after burner shutdown to ensure there is no unburnt gas or products of combustion in the case prior to or immediately after a normal burn cycle.

Due to the fact that the case is under a negative pressure while the appliance is providing heat, unburnt gas or products of combustion should not be able to escape from the combustion air-box while the burner is operating.

Boiler not in operation

The combustion air-box is open to outside air via the flue/chimney/air duct. Should an escape of unburnt gas occur within the combustion air-box, it will be naturally vented to the atmosphere while the appliance is in stand-by.



Combustion air-box

It is possible that while the appliance is not providing heat, if there is an escape of unburnt gas within the combustion air-box, there may be a small escape of diluted gas from the combustion air-box to within the property.

Due to the low leakage rate of the combustion air-box, and allowing for the movement of

adventitious air, this is unlikely to lead to a dangerous build-up of gas within the property.

Unsafe situations

Where the integrity of the sealed casing has been affected by, for instance, corrosion, the current Gas Industry Unsafe Situations Procedure (GIUSP) should



Typical gaps in air-box





be implemented and the appropriate actions and warning notices/labels completed and issued.

Note 1: The GIUSP (TB 001⁽²⁾) can be viewed by logging into your online account at: <https://www.gassaferegister.co.uk/sign-in/>

Note 2: Similar legislative requirements apply in other geographical areas covered by Gas Safe Register. For details of current gas safety legislation,

building legislation and industry standards for the geographical areas covered by Gas Safe Register, see the Legislative, Normative & Informative Document List (LNIDL)⁽³⁾ by logging into your online account at: <https://www.gassaferegister.co.uk/sign-in/>

Note 3: For general information about the process behind the development of Gas Safe Register Technical Bulletins and the expectations for all stakeholders, see TB 1000⁽⁴⁾

by logging into your online account at: <https://www.gassaferegister.co.uk/sign-in/>

Bibliography

- (1) BS EN 15502-2-1: 2012 + A1: 2016 – Incorporating corrigendum February 2015 – Gas-fired central heating boilers Part 2-1: Specific standard for type C appliances and type B2, B3 and B5 appliances of a nominal heat input not exceeding 1000 kW
- (2) Technical Bulletin 001 – The Gas Industry Unsafe Situations Procedure Version 7.1
- (3) LNIDL – Gas Safe Register Legislative, Normative & Informative Document List
- (4) TB 1000 – An introduction to Gas Safe Register Technical Bulletins

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