

Gas-fired central heating boilers — Specific requirements for condensing boilers with a nominal heat input not exceeding 70 kW

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British Standard

ICS 91.140.10

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee GSE/29, Domestic gas-fired central heating boilers, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

The English-language ratified text of EN 677:1998 contained errors which have been corrected in this version of BS EN 677:1998. The corrections are as follows: in **5.6.1**, in the paragraph after the equation, the word “respectively” has been changed to “as well as”; in annex A the first term in the third equation has been changed from η to η_u ; and, to align with the French-language version, the clause entitled “Special categories marketed nationally or locally” in annex B has been renumbered **B.3**, and the first table in annex ZA has been numbered Table ZA.1.

Cross-references

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Summary of pages

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English version

Gas-fired central heating boilers — Specific requirements for condensing boilers with a nominal heat input not exceeding 70 kW

Chaudières de chauffage central utilisant les combustibles gazeux — Exigences spécifiques aux chaudières à condensation dont le débit calorifique nominal est inférieur ou égal à 70 kW

Heizkessel für gasförmige Brennstoffe — Besondere Anforderungen an Brennwertkessel mit einer Nennwärmebelastung kleiner als oder gleich 70 kW

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CEN

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Comité Européen de Normalisation
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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 109, Central heating boilers using gaseous fuels, the secretariat of which is held by NNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1998, and conflicting national standards shall be withdrawn at the latest by December 1998.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard applies to gas-fired central heating boilers, which are declared by the manufacturer to be “condensing boilers”:

- of types B (excluding appliances without a fan) and C;
- using one or more gases corresponding to the three gas families; and
- for which the nominal heat input is less than or equal to 70 kW.

This European Standard only covers type testing.

This European Standard completes or modifies the standards EN 297, prEN 483 and EN 625, hereafter called “boiler standards”. It specifies supplementary requirements for condensing boilers.

2 Normative references

This European standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 297, *Gas-fired central heating boilers — Type B₁₁ and B_{11BS} boilers fitted with atmospheric burners of nominal heat input not exceeding 70 kW*.

EN 437, *Test gases — Test pressures — Appliances categories*.

prEN 483:1998 *Gas-fired central heating boilers fitted — Type C boilers, fitted with atmospheric burners of nominal heat input not exceeding 70 kW*.

EN 625, *Gas-fired central heating boilers — Specific requirements for the domestic hot water operation of combination boilers of nominal heat input not exceeding 70 kW*.

3 Definitions

For the purposes of this European Standard, the definitions of the boiler standards and the following definitions apply:

3.1

condensing boiler

boiler in which, under normal operating conditions and at certain operating water temperatures, the water vapour in the combustion products is partially condensed, in order to make use of the latent heat of this water vapour for heating purposes and which satisfies the efficiency requirements of this European Standard

3.2

condensate

liquid formed from the combustion products during the condensation process

3.3

nominal condensing output

value of the useful output declared by the manufacturer, in kW, corresponding to the operation of the boiler in a 50 °C/30 °C water temperature regime

3.4

maximum allowable working temperature

temperature the material can withstand over a long period of time under working conditions

4 Constructional requirements

4.1 Materials in contact with condensate

All parts of the heat exchanger(s) and other parts of the boiler likely to come into contact with condensate shall be constructed of sufficiently corrosion resistant materials or materials protected by a suitable coating in order to ensure a reasonable life for a boiler that is installed, used and maintained in accordance with the manufacturer's instructions.

4.2 Removal of condensate

Condensate produced during operation of the boiler, including condensate formed in the flue and its connecting pipes, shall be removed by means of a discharge pipe (or pipes).

The internal diameter of the outside connection of the condensate discharge system shall be at least 13 mm.

The disposal system, forming part of the boiler or supplied with the boiler, shall be such that:

- it can be easily inspected and cleaned in accordance with the manufacturer's instructions;
- it cannot transmit combustion products into the room where the boiler is installed; this requirement is satisfied if the disposal system incorporates a water trap;
- a water trap has a seal of at least 25 mm at the maximum pressure in the combustion chamber at the maximum flue length specified by the manufacturer.

Surfaces in contact with condensates (except purpose provided drains, water traps and siphons) shall be designed to prevent condensate retention.

4.3 Control of the combustion products temperature

If the combustion products circuit contains materials that are likely to be affected by heat or is intended to be connected to a flue (including seals) that is likely to be affected by heat from the combustion products, the boiler shall incorporate a device to prevent the combustion products temperature exceeding the maximum allowable working temperature for the material as declared by the manufacturer.