BS EN 50465:2015+A1:2019

BSI Standards Publication

Gas appliances — Combined heat and power appliance of nominal heat input inferior or equal to 70 kW

National foreword

This British Standard is the UK implementation of EN 50465:2015+A1:2019. It supersedes BS EN 50465:2015, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CENELEC text carry the number of the CENELEC amendment. For example, text altered by CENELEC amendment A1 is indicated by A1 A1.

The UK participation in its preparation was entrusted to Technical Committee GEL/105, Fuel cell technologies.

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

The UK committee advises that for the calculation of ηs and ηson of cogeneration space heaters the methodology described in the Commission Communication, reference 2014/C 207/02 should be used. This method is robust, scientific, provides a fair comparison across all technologies and is aligned with established methods for assessing and comparing cogeneration performance.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2019

ISBN 978 0 580 98379 5

ICS 27.070; 97.100.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 February 2015.

Amendments/corrigenda issued since publication

Date	Text affected
31 December 2019	Implementation of CENELEC amendment A1:2019

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 50465:2015+A1:2019

November 2019

ICS 27.070; 97.100.20

English Version

Gas appliances - Combined heat and power appliance of nominal heat input inferior or equal to 70 kW

Appareils à gaz - Appareils produisant de la chaleur et de l'électricité combinées dont le débit calorifique nominal est inférieur ou égal à 70 kW

Gasgeräte - Geräte zur Kraft-Wärme-Kopplung mit einer Nennwärmebelastung kleiner oder gleich 70 kW

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN and CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Ref. No. EN 50465:2015 E

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Foreword

This document (EN 50465:2015) has been prepared by CEN/CLC Joint Working Group FCGA, "Fuel cell gas appliances".

The following dates are fixed:

• latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2015-10-29
• latest date by which the national standards conflicting with this document have to be withdrawn	(dow)	2017-10-29

This document supersedes EN 50465:2008.

EN 50465:2015 includes the following significant technical changes with respect to EN 50465:2008:

– inclusion of requirements for „Stirling Engine“ and „Internal Combustion Engine“;

– modification of requirements for fuel cell heating appliances to reflect experience since the first edition;

– partly adaptation to EN 15502-1 and EN 15502-2-1, especially to reflect the new requirements for air proving devices;

– introduction of additional types of combustion air and flue duct systems;

– modification of the total efficiency calculation;

– modifications of NO_X weighting and calculation.

Micro-cogeneration is also known as micro combined heat and power [mCHP]. mCHP is an efficient way to deliver heating, cooling and electricity. It is based on the simultaneous production of electrical and thermal energy, both of which are used. The central and most fundamental principle of mCHP is that in order to maximize the many benefits that arise from it, systems should be based according to the heat demand of the application.

A fuel cell, Stirling engine and internal combustion engine are just some of the significant technologies to be the thermal heart of a mCHP appliance.

mCHP appliances that are already established in the market are used to provide central heating and domestic hot water in residential buildings.

Due to the development of new technology other solutions than those described in this European Standard are possible if these solutions provide at least an equivalent level of safety.

Matters related to quality assurance systems, tests during production, and certificates of conformity of auxiliary devices are not dealt with in this European Standard.

Due to the change in scope to include technologies in addition to fuel cells, the title of this European Standard has been changed from “fuel cell gas heating appliance” into “combined heat and power appliance”.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC [and/or CEN] shall not be held responsible for identifying any or all such patent rights.

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

For the relationship with EU Directive(s) see informative Annex ZZ, which is an integral part of this document.The essential requirements of EC Directive 2009/142/EC relating to "rational use of energy" is defined by the maximum quantity of energy recovered (thermal and electrical energy output) from the gas energy input.

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Foreword to amendment A1

This document (EN 50465:2015/A1:2019) has been prepared by CEN/CLC/JTC 17 “Fuel cell gas appliances”.

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-05-22
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2022-11-22

It should be noted that the following changes have been incorporated in this Amendment:

a) Adoptions to follow the guidelines for developing harmonized standards (“Vademecum on European standardisation in support of Union legislation and policies *(commission staff working document SWD(2015) 205 final)*” have been implemented, e.g. normative references have been updated to dated references all over the standard by revising Clause 2 with dated references, which apply to all normative references throughout the standard text.

b) Requirements for risk assessment according to the (EU) 2016/426 (GAR) have been introduced to 5.1.

c) Requirements for the calculation of the “Annual energy consumption” have been introduced.

d) Additional requirements for sound power level and additional items for marking, installation and operating instructions have been introduced, which are addressed by the 2009/125/EC (ErP).

e) Additional information for the market surveillance have been introduced (Annex J), which are addressed by the ErP.

f) An informative Annex K has been introduced, which is giving information for definition and test methods for the “Specific Energy Consumption”, it is recommended to be used as a basis for future review of the Energy Labelling Regulation.

g) Annex ZZA concerning (EU) 2016/426 (GAR) and Annexes ZZB and ZZC concerning regulations 811/2013 and 813/2013 under Directive 2010/30/EU have been introduced.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

For the relationship with EU Directive(s) see informative Annexes ZZA, ZZB and ZZC, which are an integral part of this document.

1 Scope

〈A1〉 This document specifies the requirements and test methods for the construction, safety, fitness for purpose, rational use of energy, sound power measurement and together with requirements for the marking and advice on the end of life disposal of a micro combined heat and power appliance; hereafter referred to as “mCHP appliance”. 〈A1〉

This European Standard applies to mCHP appliances of types B_{22}, B_{23}, B_{32}, B_{33}, B_{52}, B_{53}, C_1, C_3, C_{42}, C_{43} C_{52}, C_{53}, C_{62}, C_{63}, C_{82}, C_{83} and C_9 based on the classifications of CEN/TR 1749:

– that use one or more supplied gases of the three gas families at the pressures stated in EN 437,

– where the temperature of the heat transfer fluid of the heating system (heating water circuit) does not exceed 105 ºC during normal operation,

– where the maximum operating pressure in the

  - heating water circuit does not exceed 6 bar,

  - domestic hot water circuit (if installed) does not exceed 10 bar,

– which are either intended to be installed indoors or outdoors in a partially protected place,

– which are intended to produce hot water either by the instantaneous or storage principle,

– which have a maximum heat input (based on net calorific value) not exceeding 70 kW,

– which are designed for sealed or open water systems.

NOTE 1 For applications where the maximum allowable water temperature exceeds 110 ºC or where volume multiplied by maximum allowable pressure exceeds 50 bar litres, further requirements may be necessary to comply with the essential requirements of Directive 97/23/EC (Pressure Equipment Directive (PED)).

NOTE 2 For mCHP appliances with constructions that might not be fully covered by this European Standard or by another specific standard, the risk associated with the alternative construction will be assessed.

NOTE 3 prEN 13203-4 will specify the assessment of energy consumption for domestic hot water production of gas combined heat and power appliances (mCHP).

This European Standard does not contain the requirements necessary for appliance capable of producing electrical energy without using the thermal energy.

This European Standard does not cover all the requirements for mCHP appliances that are intended to be connected to gas grids where the quality of the distributed gas is likely to vary to a large extent over the lifetime of the appliance (see Annex DD).

2 Normative references

〈A1〉 The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE This standard uses only dated references as for undated references in the main body of the standard, the version referred to in this clause applies.

EN 88-1:2011+A1:2016, *Pressure regulators and associated safety devices for gas appliances - Part 1: Pressure regulators for inlet pressures up to and including 50 kPa*

EN 125:2010+A1:2015, *Flame supervision devices for gas burning appliances - Thermoelectric flame supervision devices*

EN 126:2012, *Multifunctional controls for gas burning appliances*

EN 161:2011+A3:2013, *Automatic shut-off valves for gas burners and gas appliances*

EN 298:2012, *Automatic burner control systems for burners and appliances burning gaseous or liquid fuels*

EN 437:2003+A1:2009, *Test gases - Test pressures - Appliance categories*