

Gaasiseadmed. Gaasküttel kütuseelemendid. Gaasküttel kütuseelement nimisoojuskoormusega 70 kW või vähem

Gas appliances - Fuel cell gas heating appliance - Fuel cell gas heating appliance of nominal heat input inferior or equal to 70 kW

EESTI STANDARDI EESSÕNA

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**Gas appliances -
Fuel cell gas heating appliances -
Fuel cell gas heating appliance of nominal heat input
inferior or equal to 70 kW**

Appareils fonctionnant au gaz -
Appareils à gaz produisant de la chaleur
au moyen d'une pile à combustible -
Appareil de chauffage produisant
de la chaleur au moyen d'une pile
à combustible dont le débit calorifique
nominal est inférieur ou égal à 70 kW

Gasgeräte -
Brennstoffzellen-Gasheizgeräte -
Brennstoffzellen-Gasheizgerät
mit einer Nennwärmebelastung
kleiner oder gleich 70 kW

This European Standard was approved by CENELEC on 2008-05-01.

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Foreword

This European Standard was prepared by the CEN/CLC/JWG FCGA, "Fuel cell gas appliances".

The text of the draft was submitted to the formal vote and was approved by CENELEC as EN 50465 on 2008-05-01.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2009-05-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2011-05-01

This European Standard has been prepared under Mandate M/349 given to CEN and CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directive 90/396/EEC (see Annex ZZ, which is an integral part of this document).

The essential requirement of EC Directive 90/396/EEC 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.

This European Standard deals with a very early state of new technology. The requirements of this European Standard are not intended to constrain innovations. When considering materials, designs or constructions not specifically dealt with in this European Standard the alternatives shall be evaluated as to their ability to yield levels of safety and performance equivalent to those prescribed by this European Standard. This can be done by a risk assessment. Furthermore not all requirements could be described in detail up to now. This is valid both for the requirements and the test procedures. This will be done in later revisions of this European Standard. Guidance to fuel cell stacks and their performance may be found in EN 62282-2.

Due to the development of new technology other solutions than those described in this 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.

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1 Scope

This European Standard applies to the construction, the safety, the functional requirements and the test methods, as well as the classification and the marking of a fuel cell gas heating appliance, which will be operated predominantly heat followed, meeting the following boundary conditions:

- maximum heat load (gas input): 70 kW
- maximum electrical output: 11 kW.

NOTE Due to the fact, that there are national deviations on the maximum electrical output in Europe, this maximum electrical output is independent referring the number of connected phases to the public low voltage grid.

- fuel: combustion gas in accordance with EN 437
- maximum heating water temperature: 95 °C (under normal operational conditions)
- process pressures in the fuel cell gas appliance:
 - heating water: max. 6 bar
 - domestic hot water (if installed): max. 10 bar
- device construction: According to the expositions in accordance with CEN/TR 1749, EN 483 or EN 297 (B₂₂, B₂₃, B₃₂, B₃₃, C₁₂, C₁₃, C₃₂, C₃₃, C₄₂, C₄₃, C₅₂, C₅₃, C₆₂, C₆₃, C₈₂, C₈₃)¹⁾.

This European Standard applies to type testing only.

This European Standard does not contain the requirements necessary for appliances for producing electrical energy without thermal energy.

2 Normative references

The following referenced documents are indispensable for the application 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.

EN 88	Pressure governors for gas appliances for inlet pressures up to 200 mbars
EN 125	Flame failure devices
EN 126	Multifunctional controls for gas burning appliances
EN 161	Automatic shut-off valves for gas burners and gas appliances
EN 297	Heating boilers operated with gaseous fuels – Type B ₁₁ + B _{11BS} boilers of nominal heat input not exceeding 70 kW
EN 298	Automatic gas burner control systems for gas burners and gas burning appliances with or without fans

¹⁾ The classification used in this European Standard is based on upon the classification of CEN/TR 1749.

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EN 437:1993 + A1:1997	Test gases, test pressures and categories of appliance, for gas appliances
EN 483:1999 + A2:2001	Gas-fired central heating boilers – Type C boilers of nominal heat input not exceeding 70 kW
EN 549	Rubber materials for seals and diaphragms for gas appliances and gas equipment
EN 677:1998	Gas fired central heating boilers Specific requirements for condensing boilers with a nominal heat input not exceeding 70 kW
EN 1057	Copper and copper alloys – Seamless, round copper tubes for water and gas in sanitary and heating applications
EN 1443	Chimneys – General requirements
CEN/TR 1749	European scheme for the classification of gas appliances according to the method of evacuation of the products of combustion (types)
EN 1856-1	Chimneys – Requirements for metal chimneys – Part 1: System chimney products
EN 1856-2	Chimneys – Requirements for metal chimneys – Part 2: Metal liners and connecting flue pipes
EN 1859	Chimneys – Metal chimneys – Test methods
EN 10029	Hot rolled steel plates 3 mm thick or above; tolerances on dimensions, shape and mass
EN 12067-1	Gas/air ratio controls for gas burners and gas burning appliances – Part 1: Pneumatic types
EN 12067-2	Gas/air ratio controls for gas burners and gas burning appliances – Part 2: Electronic types
EN 13611	Safety and control devices for gas burners and gas-burning appliances – General requirements
EN 14459	Methods of risk analysis for the use of electronics in systems and control functions for gas burners and gas burning appliances
EN 50438	Requirements for the connection of micro-generators in parallel with public low-voltage distribution networks
EN 60335-1	Household and similar electric appliances – Safety – Part 1: General requirements (IEC 60335-1, modified)
EN 60335-2-102	Household and similar electrical appliances – Safety – Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections (IEC 60335-2-102, modified)
EN 60529	Degrees of protection provided by enclosures (IEC 60529)
EN 60730-2-9	Automatic electrical controls for household and similar use – Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9, modified)
EN 61000-3-2	Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current ≤ 16 A per phase) (IEC 61000-3-2)

EN 61000-3-3	Electromagnetic compatibility (EMC) – Part 3-3: Limits – Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection (IEC 61000-3-3)
EN 61000-6-1	Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity for residential, commercial and light-industrial environments (IEC 61000-6-1)
EN 61000-6-2	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity for industrial environments (IEC 61000-6-2)
EN 61000-6-3	Electromagnetic compatibility (EMC) – Part 6-3: Generic standards – Emission standard for residential, commercial and light-industrial environments (IEC 61000-6-3)
EN 61000-6-4	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments (IEC 61000-6-4)
IEC/TS 62282-1	Fuel cell technologies – Part 1: Terminology
EN 62282-2:2004	Fuel cell technologies – Part 2: Fuel cell modules (IEC 62282-2:2004)
EN ISO 3166-1	Codes for the representation of names of countries and their subdivisions – Part 1: Country codes (ISO 3166-1)
EN ISO 4063	Welding and allied processes – Nomenclature of processes and reference numbers (ISO 4063)
CR 1404	Determination of emissions from appliances burning gaseous fuels during type-testing
ISO 7-1	Pipe threads where pressure-tight joints are made on the threads – Part 1: Designation, dimensions and tolerances
ISO 228-1	Pipe threads where pressure-tight joints are not made on the threads – Part 1: Designation, dimensions and tolerances
ISO 262	ISO general purpose metric screw threads – Selected sizes for screws, bolts and nuts
ISO 301	Zinc alloy ingots intended for casting
ISO 857	Welding, brazing and soldering processes – Vocabulary
ISO 2553	Welded brazed and soldered joints – Symbolic representation on drawings
ISO 7005-1	Metallic flanges – Part 1: Steel flanges

3 Definitions

For the purposes of this document, the following terms and definitions apply.

3.1

reference conditions

these correspond to 15 °C and 1 013,25 mbar, unless otherwise specified

[3.9 of EN 437:1993, modified]

NOTE 1 mbar = 10² Pa.