

Kodumajapidamises kasutatavad sundkonvektsiooniga gaasiküttel õhusoojendid ruumide soojendamiseks, soojuse netosisendväärtusega alla 70 kW, ilma põlemisõhku ja/või põlemisjääke teisaldava ventilaatorita

Domestic gas-fired forced convection air heaters for space heating not exceeding a net heat input of 70 kW, without a fan to assist transportation of combustion air and/or combustion products

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 778:2009 sisaldab Euroopa standardi EN 778:2009 ingliskeelset teksti.

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English Version

Domestic gas-fired forced convection air heaters for space heating not exceeding a net heat input of 70 kW, without a fan to assist transportation of combustion air and/or combustion products

Générateurs d'air chaud à convection forcée utilisant les combustibles gazeux pour le chauffage de locaux à usage d'habitation de débit calorifique sur H_i inférieur ou égal à 70 kW, sans ventilateur pour aider l'alimentation en air comburant et/ou l'évacuation des produits de combustion

Gasbefeuerte Warmlufterzeuger mit erzwungener Konvektion zum Beheizen von Räumen für den häuslichen Gebrauch mit einer Nennwärmebelastung nicht über 70 kW, ohne Gebläse zur Beförderung der Verbrennungsluft und/oder der Abgase

This European Standard was approved by CEN on 12 September 2009.

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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 member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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Foreword

This document (EN 778:2009) has been prepared by Technical Committee CEN/TC 180 "Domestic and non-domestic gas fired air heaters and non-domestic gas fired overhead radiant heaters", the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by April 2010, and conflicting national standards shall be withdrawn at the latest by April 2010.

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

This document supersedes EN 778:1998.

This document 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, and Annex ZB, which are integral parts of this document.

This revision modifies EN 778:1998. It has been prepared to incorporate requirements for combustion products evacuation ducts, POCEDs, supplied as an integral part of the system to support the EU Directive 89/106/EEC on construction products under mandate M 105. To this end, it extends the scope of the standard to cover type B₄ appliances.

Furthermore, the opportunity presented by this revision has been taken to update the standard in respect to EN 437:2003.

NOTE For countries requesting special categories (specified in EN 437:2003), the absence of specific information concerning A.3.3 and A.3.4 implies that the general requirements described in the body of the standard (see 4.1.1, 4.2.2, 4.2.3 and 4.2.5) also apply to these special categories.

- EN 525, *Non-domestic direct gas-fired forced convection air heaters for space heating not exceeding a net heat input of 300 kW*
- EN 621, *Non-domestic gas-fired forced convection air heaters for space heating not exceeding a net heat input of 300 kW, without a fan to assist transportation of combustion air and/or combustion products*
- EN 1020, *Non-domestic gas-fired forced convection air heaters for space heating not exceeding a net heat input of 300 kW, incorporating a fan to assist transportation of combustion air and/or combustion products*
- EN 1196, *Domestic and non-domestic gas-fired air heaters — Supplementary requirements for condensing air heaters*
- EN 1319, *Domestic gas-fired forced convection air heaters for space heating, with fan-assisted burners not exceeding a net heat input of 70 kW*
- EN 12669, *Direct gas-fired hot air blowers for use in greenhouses and supplementary non-domestic space heating*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies the requirements and test methods for the safety and efficiency of domestic gas-fired air heaters with (an) atmospheric burner(s) and without a fan to assist the transportation of combustion air and/or flue gases, hereafter referred to as "appliances".

This European Standard applies to Type B₁₁, B_{11AS}, B_{11BS}, B₄₁, B_{41AS}, B_{41BS}, C₁₁, C₂₁, C₃₁ and C₄₁ appliances with an input not exceeding 70 kW (net cv-basis), intended primarily for use in single unit residential dwellings. Provision of the heated air may be by means of ducting.

This European Standard does not apply to:

- a) appliances of the condensing type;
- b) appliances for outdoor installation;
- c) dual purpose air conditioning appliances (heating and cooling);
- d) appliances where the air is heated by an intermediate fluid;
- e) appliances with forced draught burners;
- f) appliances fitted with a manual or automatic means of adjusting the combustion air supply or the combustion products evacuation (including flue dampers);
- g) portable or transportable forced convection appliances;
- h) appliances having multiple heating units with a single draught diverter;
- i) appliances fitted with more than one flue outlet;
- j) C₂₁ and C₄₁ appliances for 3rd family gases;

NOTE For C₄₁ appliances, see all requirements and test methods that are valid for C₂₁ appliances, unless otherwise stated.

- k) appliances that are designed for continuous condensation within the flue system under normal operating conditions;
- l) appliances having Products Of Combustion Evacuation Ducts (POCED), that are non-metallic.

This European Standard is applicable to appliances which are intended to be type tested. It also includes requirements concerning the evaluation of conformity, including factory production control, but these requirements only apply to POCEDs and their associated terminals.

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 88-1:2007, *Pressure regulators and associated safety devices for gas appliances — Part 1: Pressure regulators for inlet pressures up to and including 500 mbar*

EN 125:1991, *Flame supervision devices for gas burning appliances — Thermo-electric flame supervision devices*

EN 126:2004, *Multifunctional controls for gas burning appliances*

EN 161:2007, *Automatic shut-off valves for gas burners and gas appliances*

EN 257:1992, *Mechanical thermostats for gas-burning appliances*

EN 298:2003, *Automatic gas burner control systems for gas burners and gas burning appliances with or without fans*

EN 437:2003, *Test gases — Test pressures — Appliance categories*

EN 1859:2000, *Chimneys — Metal Chimneys — Test methods*

EN 10226-1:2004, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads — Dimensions, tolerances and designation*

EN 10226-2:2005, *Pipe threads where pressure-tight joints are made on the threads — Part 2: Taper external threads and taper internal threads — Dimensions, tolerances and designation*

EN 60335-1:2002, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1:2001, modified)*

EN 60335-2-102:2006, *Household and similar electrical appliances — Safety — Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections (IEC 60335-2-102:2004, modified)*

EN 60529:1992, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 60730-1:2000, *Automatic electrical controls for household and similar use — Part 1: General requirements (IEC 60730-1:1999, modified)*

EN 60730-2-1:1997, *Automatic electrical controls for household and similar use — Part 2-1: Particular requirements for electrical controls for electrical household appliances (IEC 60730-2-1:1989, modified)*

EN 60730-2-9:2002, *Automatic electrical controls for household and similar use — Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2000, modified)*

EN 61058-1:2002, *Switches for appliances — Part 1: General requirements (IEC 61058-1:2000 + A1:2001, modified)*

EN ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

EN ISO 3166-1:2006, *Codes for the representation of names of countries and their subdivisions Part 1: Country codes (ISO 3166-1:2006)*

EN ISO 6976:2005, *Natural gas — Calculation of the calorific value, density, relative density and Wobbe index from composition (ISO 6976:1995 including Corrigendum 1:1997, Corrigendum 2:1997 and Corrigendum 3:1999)*

ISO 1182:2002, *Reaction to fire tests for building products — Non-combustibility test*

ISO 7005-1:1992, *Metallic flanges — Part 1: Steel flanges*

ISO 7005-2:1988, *Metallic flanges — Part 2: Cast iron flanges*

ISO 7005-3:1988, *Metallic flanges — Part 3: Copper alloy and composite flanges*

CR 1404, *Determination of emissions from appliances burning gaseous fuels during type-testing*

3 Terms and definitions

3.1 Appliance and its constituent parts

3.1.1

domestic air heater

appliance designed for the heating by means of warm air and possibly ventilation of a single unit residential dwelling

3.1.2

forced convection air heater

appliance designed to provide space heating from a central source by distributing heated air, by means of an air moving device, either through ducting or directly into the heated space

3.1.3

gas inlet connection

part of the appliance intended to be connected to the gas supply

3.1.4

mechanical joint

mechanical means of obtaining soundness

means of ensuring the soundness of an assembly of several (generally metallic) parts without the use of liquids (e.g. pastes and tapes)

EXAMPLE metal to metal joints; conical joints; toroidal sealing rings ("O" rings); flat joints

3.1.5

gas circuit

part of the appliance that conveys or contains the gas between the appliance gas inlet connection and the burner(s)

3.1.6

restrictor

device with an orifice, which is placed in the gas circuit so as to create a pressure drop and thus reduce the gas pressure at the burner to a predetermined value for a given supply pressure and rate