
**Plinski grelniki zraka s prisilno konvekcijo za gretje stanovanjskih in
nestanovanjskih prostorov z imensko močjo do vključno 300 kW**

Domestic and non-domestic gas-fired forced convection air heaters for space heating not exceeding a net heat input of 300 kW

Häusliche und nicht-häusliche gasbefeuerte Warmlufterzeuger mit erzwungener Konvektion zur Raumbeheizung deren Nennwärmebelastung 300 kW nicht übersteigt

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Will supersede EN 1020:2009, EN 1196:2011, EN 1319:2009, EN 525:2009, EN 621:2009, EN 778:2009

English Version

Domestic and non-domestic gas-fired forced convection air heaters for space heating not exceeding a net heat input of 300 kW

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Warmlufterzeuger mit erzwungener Konvektion zur
Raumbeheizung deren Nennwärmebelastung 300 kW
nicht übersteigt

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 180.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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European foreword

This document (prEN 17082:2017) 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 document will be submitted to the enquiry.

This document will supersede EN 525:2009, EN 621:2009, EN 778:2009, EN 1196:2011, EN 1020:2009 and EN 1319:2009.

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.

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1 Scope

This European Standard specifies the requirements and test methods for the safety and efficiency of gas fired air heaters with or 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 A₂, A₃, B₁₁, B_{11AS}, B_{11BS}, B₁₂, B_{12AS}, B_{12BS}, B₁₃, B_{13AS}, B_{13BS}, B₁₄, B_{14AS}, B_{14BS}, B₂₂, B₂₃, B₄₁, B_{41AS}, B_{41BS}, B₄₂, B_{42AS}, B_{42BS}, B₄₃, B_{43AS}, B_{43BS}, B₄₄, B_{44AS}, B_{44BS}, B₅₂, B₅₃, C₁₁, C₁₂, C₁₃, C₂₁, C₃₁, C₃₂, C₃₃, C₄₁, C₆₂ and C₆₃ appliances with an input not exceeding 300 kW (net CV basis), intended for use in single unit residential dwellings and in other than single unit residential units. Provision of the heated air may be by means of ducting.

This European Standard does not apply to:

- a) dual purpose air conditioning appliances (heating and cooling);
- b) appliances where the air is heated by an intermediate fluid;
- c) portable or transportable forced convection appliances;
- d) domestic appliances for outdoor installation;
- e) appliances fitted with manual or automatic means of adjusting the combustion products evacuation by means of flue dampers;
- f) appliances having multiple heating units with a single draught diverter;
- g) appliances fitted with more than one flue outlet;
- h) appliances fitted with gas boosters;
- i) domestic appliances of type C₂₂, C₂₃, C₄₂, C₄₃, C₅₂ and C₅₃;
- 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.

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 documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 88-1:2011+A1:2016, *Pressure regulators and associated safety devices for gas appliances — Part 1: Pressure regulators for inlet pressures up to and including 500 mbar*

EN 125:2010+A1:2015, *Flame supervision devices for gas burning appliances — Thermo-electric 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 257:2010, *Mechanical thermostats for gas-burning 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*

EN 676:2003+A2:2008, *Automatic forced draught burners for gaseous fuels*

EN 1859:2009+A1:2013, *Chimneys - Metal chimneys - Test methods*

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 12067-2:2004, *Gas/air ratio controls for gas burners and gas burning appliances - Part 2: Electronic types*

EN 60335-1:2012, *Household and similar electrical appliances - Safety - Part 1: General requirements (IEC 60335-1:2010, 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 60529:1991, *Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989)*

EN 60584-1:2013, *Thermocouples - Part 1: EMF specifications and tolerances (IEC 60584-1:2013)*

EN 60584-2:1993, *Thermocouples; part 2: Tolerances (IEC 60584-2:1982 + A1:1989)*

EN 60730-1:2011, *Automatic electrical controls for household and similar use - Part 1: General requirements (IEC 60730-1:2010, modified)*

EN 60730-2-9:2010, *Automatic electrical controls for household and similar use - Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2008, modified)*

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

EN 61558-2-6:2009, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V - Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers (IEC 61558-2-6:2009)*

EN ISO 1182:2010, *Reaction to fire tests for products - Non-combustibility test (ISO 1182:2010)*

EN ISO 3166-1:2014, *Codes for the representation of names of countries and their subdivisions - Part 1: Country codes (ISO 3166-1:2013)*

EN ISO 5167-1:2003, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 1: General principles and requirements (ISO 5167-1:2003)*

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EN ISO 5167-2:2003, *Measurement of fluid flow by means of pressure differential devices inserted in circular cross-section conduits running full - Part 2: Orifice plates (ISO 5167-2:2003)*

ISO 3966:2008, *Measurement of fluid flow in closed conduits – Velocity area method using Pitot static tubes*

ISO 7-1, *Pipe threads where pressure-tight joints are made on the threads — Part 1: Dimensions, tolerances and designation*

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

ISO 7005-1:2011, *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*

3 Terms, definitions and symbol

3.1 Terms and definitions

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

3.1.1 Appliance and its constituent components

3.1.1.1

air heater

appliance designed for the heating by means of warm air and possibly ventilation of a building

3.1.1.2

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

3.1.1.3

direct fired forced convection air heater

forced convection air heater in which the products of combustion mix with the heated air being supplied to the space

3.1.1.4

high temperature direct fired forced convection air heater

direct fired forced convection air heater designed to operate with an air temperature rise through the appliance greater than 60 K

3.1.1.5

low temperature direct fired forced convection air heater

direct fired forced convection air heater designed to operate with a maximum air temperature rise through the appliance of 60 K or less

3.1.1.6

appliance with facility for downstream re circulation of air

appliance in which a proportion of the heated air can be returned to the appliance at a point down stream of the burner and re distributed

3.1.1.7**appliance with facility for upstream re circulation of air**

appliance in which a proportion of the heated air can be returned to the appliance at a point upstream of the burner and re distributed

3.1.1.8**profile plates**

fixed or adjustable plates fitted for the purpose of setting the air flow velocity across the burner

3.1.1.9**gas inlet connection**

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

3.1.1.10**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)

EXAMPLES: Metal to metal joints; conical joints; toroidal sealing rings ("O" rings); flat joints.

3.1.1.11**gas circuit**

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

3.1.1.12**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

3.1.1.13**gas rate adjuster**

component allowing an authorized person to set the gas rate of the burner to a predetermined value according to the supply conditions

Note 1 to entry: Adjustment may be progressive (screw adjuster) or in discrete steps (by changing restrictors).

Note 2 to entry: The adjusting screw of an adjustable regulator is regarded as a gas rate adjuster.

Note 3 to entry: The action of adjusting this device is called "adjusting the gas rate".

Note 4 to entry: A factory sealed gas rate adjuster is considered to be non-existent

3.1.1.14**setting an adjuster**

immobilizing of an adjuster (by some means such as a screw) after the gas rate has been adjusted by the manufacturer or installer

3.1.1.15**sealing an adjuster**

setting of an adjuster using a material such that any attempt to change the adjustment breaks the sealing material and makes the interference with the adjuster apparent

Note 1 to entry: The adjuster is then said to be “sealed” in its adjustment position.

Note 2 to entry: A factory sealed adjuster is considered to be non-existent.

Note 3 to entry: A regulator is considered to be non-existent if it has been factory sealed in a position such that it is not operational in the range of supply pressures corresponding to the appliance category.

3.1.1.16**putting an adjuster or a control out of service**

putting an adjuster or a control (e.g. of temperature, pressure) out of action and sealing it in this position

Note 1 to entry: The appliance then functions as if the adjuster or control had been removed.

3.1.1.17**injector**

component that admits the gas into a burner

3.1.1.18**main burner**

burner that is intended to assure the thermal function of the appliance

3.1.1.19**forced draught burner**

burner in which the combustion air is introduced by means of a fan

3.1.1.20**ignition device**

any means (e.g. flame, electrical ignition device or other device) used to ignite the gas at the ignition burner or at the main burner

Note 1 to entry: This device can operate intermittently or permanently.

3.1.1.21**ignition burner**

burner whose flame is intended to ignite another burner

3.1.1.22**permanent ignition burner**

ignition burner that operates continuously throughout the whole period that the appliance is in use

3.1.1.23**intermittent ignition burner**

ignition burner that is ignited before and extinguished at the same time as the main burner

3.1.1.24**alternating ignition burner**

ignition burner that is extinguished as soon as ignition of the main burner is effected, and that re-ignites at the main burner flame just before the latter goes out

3.1.1.25**interrupted ignition burner**

ignition burner that operates only during the ignition sequence

3.1.1.26**aeration adjuster**

device enabling the air to be set at the desired value according to the supply conditions

Note 1 to entry: The action of adjusting this device is called "adjusting the aeration".

3.1.1.27**combustion products circuit**

combustion circuit comprises the air supply circuit, the combustion chamber, the heat exchanger and the combustion products evacuation circuit so far as this is part of the appliance

3.1.1.28**combustion chamber**

enclosure inside which combustion of the air-gas mixture takes place

3.1.1.29**flue outlet**

part of a Type B appliance that connects with a flue to evacuate the products of combustion

3.1.1.30**draught diverter**

device placed in the combustion products circuit to reduce the influence of flue-pull and that of down-draught on the burner performance and combustion

3.1.1.31**flue damper**

manual or automatic device placed in the combustion products circuit intended to restrict or fully close off the passageways for the evacuation of products of combustion when the appliance is not in use

3.1.1.32**flue terminal**

device fitted at the end of the duct system which enables the discharge of flue gases and may, at the same time, allow entry of combustion air

3.1.1.33**C₆ flue terminal**

terminal which is specially approved for Type C₆ appliances

3.1.1.34**flue adaptor box**

means of adapting the appliance for connection to different duct systems (e.g. from concentric to separate ducts)

3.1.1.35**POCED**

combustion products evacuation duct that is intended to be used only with a specific appliance/system, this duct being either supplied with the appliance/system or specified in the manufacturers instructions

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3.1.1.36

fully premixed burner

pre-aerated burner system in which gas is mixed in a pre-determined and adjustable ratio with all of the air necessary for combustion

3.1.1.37

gas/air ratio control

device that automatically adapts the combustion air rate to the gas rate and vice versa

3.1.2 Adjustment, control and safety devices

3.1.2.1

range rating device

component on the appliance intended to be used by the installer to adjust the heat input of the appliance, within a range of heat inputs stated by the manufacturer, to suit the actual heat requirements of the installation

Note 1 to entry: This adjustment may be progressive (e.g. by use of a screw adjuster) or in discrete steps (e.g. by changing restrictors).

3.1.2.2

automatic burner system

burner system in which, when starting from the completely shut-down condition, the start-gas flame is detected and proved and the main gas valve(s) is (are) actuated without manual intervention

3.1.2.3

automatic burner control system

system comprising at least a programming unit and all the elements of a flame detector device

Note 1 to entry: The various functions of an automatic burner control system may be in one or more housings.

[SOURCE: EN 298:2012]

3.1.2.4

non-automatic burner control system

burner system with an ignition burner which is ignited manually

3.1.2.5

programming unit

device which reacts to signals from control and safety devices, gives control commands, controls the start-up sequence, supervises the burner operation and causes controlled shut-down, and if necessary safety shut-down and lock-out

Note 1 to entry: The programming unit follows a predetermined sequence of actions and always operates in conjunction with a flame detector device.

[SOURCE: EN 298:2012]