
**Plinski grelniki zraka s prisilno konvekcijo za gretje stanovanjskih in
nestanovanjskih prostorov z nazivno 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

Générateurs d'air chaud à convection forcée utilisant les combustibles gazeux pour le chauffage de locaux à usage domestique et non domestique, de débit calorifique inférieur ou égal à 300 kW, sur pouvoir calorifique inférieur (PCI)

Ta slovenski standard je istoveten z: prEN 17082

ICS:

97.100.20	Plinski grelniki	Gas heaters
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EUROPEAN STANDARD
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EUROPÄISCHE NORM

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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.

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European foreword

This document (prEN 17082:2026) has been prepared by Technical Committee CEN/TC 180 “Decentralized gas heating”, the secretariat of which is held by AFNOR

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 17082:2019.

This document covers the safety and energy efficiency requirements of domestic and non-domestic warm air heaters. Additional technical requirements have been made compared to the superseded document to take account of the following:

- specific requirements on risk analysis due to differences in the Essential Requirements for the Gas Appliance Regulation compared to those of the Gas Appliance Directive;
- additional requirements on appliance efficiency, including the need to calculate the seasonal efficiency related to the requirements of the Eco-Design Regulation.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annexes ZA and ZB, which are integral parts of this document.

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1 Scope

This document 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.

This document also applies to warm air heaters having forced draught burners.

This document applies to Type A₂, A₃ appliances, with an input not exceeding 300 kW (net CV basis), intended for non-domestic use.

This document also applies to Type 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, C₅₂, C₅₃, C₆₂ and C₆₃ appliances with an input not exceeding 300 kW (net CV basis), intended for domestic and non-domestic use.

The heated air can be delivered by means of ducting.

This document applies only to appliances using the gaseous fuels of the second and third families as defined in EN 437. For second family gases, this includes H₂NG blends containing up to 20 % hydrogen by volume, where the appliance is marked with the appropriate extended category (e.g. I2H, I2E, I2E(Y20)). This document does not apply to appliances intended to burn gases containing carbon monoxide or other toxic components.

This document 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) appliances fitted with manual or automatic means of adjusting the combustion products evacuation by means of flue dampers;
- e) appliances having multiple heating units with a single draught diverter;
- f) appliances fitted with more than one flue outlet;
- g) appliances fitted with gas boosters;
- h) C₂₁ and C₄₁ appliances for 3rd family gases.

NOTE 1 Appliance Types (A, B and C) are classified in accordance with EN 1749.

NOTE 2 For C₄₁ appliances, see all requirements and test methods that are valid for C₂₁ appliances, unless otherwise stated.

2 Normative references

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.

EN 88-1:2022+A1:2023, *Safety and control devices for gas burners and gas burning appliances - Part 1: Pressure regulators for inlet pressures up to and including 50 kPa*

EN 125:2022+A1:2024, *Flame supervision devices for gas burning appliances - Thermoelectric flame supervision devices*

EN 126:2025, *Safety and control devices for burners and appliances burning gaseous fuels - Multifunctional controls*

EN 161:2022+A1:2025, *Automatic shut-off valves for gas burners and gas appliances*

EN 257:2022+A1:2023, *Mechanical thermostats for gas-burning appliances*

EN 298:2022, *Automatic burner control systems for burners and appliances burning gaseous or liquid fuels*

EN 437:2021, *Test gases - Test pressures - Appliance categories*

EN 549:2019+A2:2024, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 676:2020, *Forced draught burners for gaseous fuels*¹

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 12067-2:2022, *Safety and control devices for burners and appliances burning gaseous or liquid fuels - Control functions in electronic systems - Part 2: Fuel/air ratio control/supervision of the electronic type*

EN 50090-1:2011, *Home and Building Electronic Systems (HBES) - Part 1: Standardization structure*

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 1182:2020, *Reaction to fire tests for products - Non-combustibility test (ISO 1182:2020)*

EN ISO 3166-1:2020, *Codes for the representation of names of countries and their subdivisions - Part 1: Country code (ISO 3166-1:2020)*

EN ISO 3740:2019, *Acoustics - Determination of sound power levels of noise sources - Guidelines for the use of basic standards (ISO 3740:2019)*

EN ISO 3741:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Precision methods for reverberation test rooms (ISO 3741:2010)*

EN ISO 3743-1:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for small movable sources in reverberant fields - Part 1: Comparison method for a hard-walled test room (ISO 3743-1:2010)*

¹ As impacted by EN 676:2020/AC:2022.

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EN ISO 3743-2:2019, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering methods for small, movable sources in reverberant fields - Part 2: Methods for special reverberation test rooms (ISO 3743-2:2018)*

EN ISO 3744:2026, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2025, including corrected version 2026-01)*

EN IEC 60335-1:2023,² *Household and similar electrical appliances - Safety - Part 1: General requirements (IEC 60335-1:2020)*

EN IEC 60335-2-102:2024,³ *Household and similar electrical appliances - Safety - Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections (IEC 60335-2-102:2017)*

EN 60529:1991,⁴ *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 IEC 60730-1:2024,⁵ *Automatic electrical controls - Part 1: General requirements (IEC 60730-1:2022)*

EN IEC 60730-2-9:2026, *Automatic electrical controls - Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2026)*

EN IEC 61558-2-6:2025, *Safety of transformers, reactors, power supply units and combinations thereof - Part 2-6: Particular requirements and tests for safety isolating transformers and power supply units incorporating safety isolating transformers for general applications (IEC 61558-2-6:2021)*

EN IEC 61558-2-16:2025, *Safety of transformers, reactors, power supply units and combinations thereof - Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units for general applications (IEC 61558-2-16:2021)*

ISO 7005-1:2011, *Pipe flanges - Part 1: Steel flanges for industrial and general service piping systems*

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 symbols

3.1 Terms and definitions

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

² As impacted by EN IEC 60335-1:2023/A11:2023.

³ As impacted by EN IEC 60335-2-102:2024/A11:2024.

⁴ As impacted by EN 60529:1991/corrigendum May 1993, EN 60529:1991/A1:2000; EN 60529:1991/A2:2013; EN 60529:1991/AC:2016-12, and EN 60529:1991/A2:2013/AC:2019-02.

⁵ As impacted by EN IEC 60730-1:2024/A11:2024.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

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 downstream 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

prEN 17082:2026 (E)**3.1.1.10****mechanical joint**

mechanical 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 the gas rate of the burner to be set 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 after the gas rate has been adjusted

Note 1 to entry: By means such as a screw.

3.1.1.15**sealing an adjuster**

arrangement made to make evident any attempt to change an adjustment, or the putting of an adjuster or a control, out of service

3.1.1.16**injector**

component that admits the gas into a burner

3.1.1.17**main burner**

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

3.1.1.18**forced draught burner**

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

3.1.1.19**ignition device**

means 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.

EXAMPLE Flame, electrical ignition device.

3.1.1.20**ignition burner**

burner whose flame is intended to ignite another burner

3.1.1.21**permanent ignition burner**

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

3.1.1.22**intermittent ignition burner**

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

3.1.1.23**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

3.1.1.24**interrupted ignition burner**

ignition burner that operates only during the ignition sequence

3.1.1.25**aeration adjuster**

device enabling the combustion air flow rate 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".

3.1.1.26**combustion circuit**

circuit from the air inlet to the combustion products outlet of the appliance

Note 1 to entry: This will include the combustion chamber and heat exchanger and depending on the type includes the air supply duct, the combustion products evacuation duct, the fitting piece, the connection to the terminal, the inlet terminal, the outlet terminal.

3.1.1.27**air supply duct**

means of transporting combustion air to the burner

3.1.1.28**combustion chamber**

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

prEN 17082:2026 (E)**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 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 POCED 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**terminal guard**

device that protects the terminal from mechanical damage from outside influences

3.1.1.35**flue adaptor box**

device that adapts the appliance for connection to different duct systems

EXAMPLE An adaptor box to change from concentric to separate ducts.

3.1.1.36**POCED**

combustion products evacuation duct intended for use only with a specific appliance or system

Note 1 to entry: The duct may be supplied with the appliance or identified in the installation instructions as the matching component to be used with that appliance or system

3.1.1.37**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

3.1.1.38**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 in the installation instructions, 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 control system

system comprising 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 298:2022]

3.1.2.3

programming unit

unit that executes a program in response to signals from control and safety devices, provides control commands, manages the start-up sequence, supervises burner operation, and initiates controlled or safety shut-down including lock-out, if necessary

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 298:2022, Modified]

3.1.2.4

flame detector device

device that produces an output signal corresponding to the detection of a flame by a flame sensor

Note 1 to entry: A flame detector device can consist of a flame sensor, an amplifier and a relay for signal transmission. These parts, with the possible exception of the actual flame sensor, may be assembled in a single housing for use in conjunction with a programming unit.

[SOURCE: EN 298:2022]

3.1.2.5

flame signal

signal given by the flame detector device when the flame sensor senses a flame

[SOURCE: EN 298:2022, modified]

3.1.2.6

pressure regulator

device which maintains the outlet pressure constant independent of the variations in inlet pressure and/or flow rate within defined limits

prEN 17082:2026 (E)**3.1.2.7****adjustable pressure regulator**

regulator provided with means for changing the outlet pressure setting

3.1.2.8**volume regulator**

device which maintains the gas rate constant within a given tolerance, independent of the upstream pressure

3.1.2.9**flame supervision device**

device that, in response to a signal from the flame detector, keeps the gas supply open and shuts it off in the absence of the supervised flame

3.1.2.10**automatic shut-off valve**

valve designed to open when energized and to close automatically when de energized

3.1.2.11**control thermostat****room temperature control thermostat**

device controlling the operation of the appliance (by on/off, high/low or modulating control) and enabling the room temperature to be kept automatically, within a given tolerance, at a predetermined value

3.1.2.12**overheat cut-off device**

temperature sensing control device, integral to the appliance, intended to monitor the performance of the appliance and to cause safety shutdown followed by a non-volatile lockout if abnormally high air temperatures are detected, and which has no provision for setting by the user

3.1.2.13**temperature limit device**

temperature sensing control device, integral to the appliance, used in conjunction with an overheat cut-off device to cause shut-down of the main burner in the event of an overheat condition (e.g. resulting from reduced air flow)

Note 1 to entry: The temperature limit device can be of the automatic or the manual reset type.

3.1.2.14**fan control****fan delay control**

control that starts and/or stops the air delivery fan when the temperature of the delivered air reaches certain predetermined values

3.1.2.15**temperature sensing element****temperature sensor**

component that detects the temperature of the environment to be supervised or controlled

Note 1 to entry: A Type 2K sensor has the definition given in EN IEC 60730-1:2024.

3.1.2.16**combustion products discharge safety system**

system that automatically shuts off the gas supply to the main burner, and perhaps to the ignition burner, when spillage of combustion products from the draught diverter is detected

3.1.2.17**atmosphere sensing device**

device intended to shut off the gas supply to the burner before vitiation of the atmosphere of the room in which it is installed, by combustion products from the heating appliance, reaches a predetermined threshold value

3.1.2.18**modulating control**

automatic control by which the heat input of the appliance can be varied in a continuous manner between the nominal heat input and a minimum heat input value

3.1.2.19**high/low control**

automatic control which permits an appliance to operate either at the nominal heat input or at a fixed predetermined reduced heat input

3.1.2.20**vent valve**

normally open automatic valve fitted between two automatic shut off valves and intended to vent any small leakages of gas

3.1.2.21**air flow proving device**

device which monitors and proves the existence of an adequate flow of air for combustion and, where appropriate, for dilution

3.1.2.22**closed position indicator switch**

switch fitted to an automatic shut-off valve which indicates when the closure member is in the closed position

3.1.2.23**proof of closure switch**

switch fitted to an automatic shut-off valve with mechanical overtravel which indicates when the closure member is in the closed position

3.1.2.24**valve proving system**

system to check the effective closure of the start gas or main gas safety shut off valves, and which is capable of detecting small gas leakage rates (e.g. by means of a pressure or vacuum proving system)

3.1.3 Operation of the appliance**3.1.3.1****volume flow rate**

volume of gas consumed by the appliance in unit time during continuous operation