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Gas heated catering equipment - Part 1: General safety requirements

Großküchengeräte für gasförmige Brennstoffe - Teil 1: Allgemeine Sicherheitsanforderungen

Appareils de cuisine professionnelle utilisant les combustibles gazeux - Partie 1 : Exigences générales de sécurité

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97.040.20	Štedilniki, delovni pulti, pečice in podobni aparati	Cooking ranges, working tables, ovens and similar appliances

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Gas heated catering equipment - Part 1: General safety requirements

Appareils de cuisine professionnelle utilisant les combustibles gazeux - Partie 1 : Exigences générales de sécurité

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This European Standard was approved by CEN on 3 October 2021 and includes Amendment approved by CEN on 11 October 2023.

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European foreword

This document (EN 203-1:2021+A1:2023) has been prepared by Technical Committee CEN/TC 106 “Large kitchen appliances using gaseous fuels”, 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of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

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

This document supersedes A1⟩ EN 203-1:2021 ⟨A1.

This document includes Amendment 1, approved by CEN on 2023-10-11.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1⟩ ⟨A1

This document has been prepared under a Standardization Request 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, which is an integral part of this document.

This document constitutes Part 1 of EN 203, *Gas heated catering equipment*. Particular requirements are given in the relevant Part 2: *Specific requirements*.

A1⟩ *deleted paragraphs* ⟨A1

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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

1 Scope

This document specifies the requirements and test methods for the construction and operating characteristics relating to safety and rational use of energy for gas heated commercial catering and bakery appliances intended to be used indoor.

This document applies to all professional cooking and bakery appliances using gas for preparing food and drink.

Only appliances of types A_1, A_2, A_3, B_1 and B_2, as defined in Clause 4, are considered in this document.

Only the net calorific value (Hi) and net Wobbe index (Wi) are used.

The requirements concerning specific types of appliances are given in the relevant Part 2.

Annex C (informative) lists the main types of equipment covered by the scope of this document.

Appliances covered by this document are not intended to use gases containing carbon monoxide or other toxic components.

NOTE For appliances intended to be used in vehicles, in trailers or on-board ships, additional requirements can be necessary.

2 Normative references

The following documents are referred to in the text in such a way that some or all 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 88-1:2011+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 88-2:2007, *Pressure regulators and associated safety devices for gas appliances - Part 2: Pressure regulators for inlet pressures above 500 mbar up to and including 5 bar*

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

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

EN 751-1:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 1: Anaerobic jointing compounds*

EN 751-2:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water - Part 2: Non-hardening jointing compounds*

EN 1106:2010, *Manually operated taps for gas burning appliances*

EN 1672-2:2005+A1:2009, *Food processing machinery – Basic concepts – Part 2: Hygiene requirements*

EN 1717:2000, *Protection against pollution of potable water in water installations and general requirements of devices to prevent pollution by backflow*

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

EN 13611:2019, *Safety and control devices for burners and appliances burning gaseous and/or liquid fuels - General requirements*

EN 16340:2014, *Safety and control devices for burners and appliances burning gaseous or liquid fuels - Combustion product sensing devices*

EN 60335-1:2012[1], *Household and similar electrical appliances - Safety - Part 1: General requirements (IEC 60335-1:2010, modified)*

EN 60335-2-102:2016, *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 60730-1:2016 [2] , *Automatic electrical controls for household and similar use - Part 1: General requirements (IEC 60730-1:2013, modified)*

EN IEC 60730-2-9:2019[3], *Automatic electrical controls - Particular requirements for temperature sensing control (IEC 60730-2-9:2015)*

EN 61770:2009[4], *Electric appliances connected to the water mains - Avoidance of backsiphonage and failure of hose-sets (IEC 61770:2008)*

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)*

[1] As impacted by EN 60335-1:2012/AC:2014, EN 60335-1:2012/A11:2014, EN 60335-1:2012/A13:2017, EN 60335-1:2012/A1:2019, EN 60335-1:2012/A2:2019 and EN 60335-1:2012/A14:2019.

[2] As impacted by EN 60730-1:2016/A1:2019.

[3] As impacted by EN IEC 60730-2-9:2019/A1:2019 and EN IEC 60730-2-9:2019/A2:2020.

[4] As impacted by EN 61770:2009/AC:2011, EN 61770:2009/A11:2018 and EN 61770:2009/A1:2019.

3 Terms and definitions

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

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

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1 Terminology referring to gases and pressures

3.1.1
gas family
group of gaseous fuels with similar burning behaviour linked together by a range of Wobbe indices

[SOURCE: EN 437:2021, 3.18]

3.1.2
gas group
specified range of Wobbe index within that of the family concerned

Note 1 to entry: See EN 437:2021, Table 1.

Note 2 to entry: This range is determined on the general principle that appliances utilizing this gas group would operate safely when burning all gases within this range without adjustment.

Note 3 to entry: Adjustment of the appliance may be permitted in accordance with the special national or local conditions that apply in some countries.

[SOURCE: EN 437:2021, 3.19]

3.1.3
appliance category
means of identifying the gas families and/or gas groups for which a gas appliance is designed to operate safely and to the desired performance level

[SOURCE: EN 437:2021, 3.20]

3.1.4
gas supply pressure
p
difference between the pressure measured at the inlet connection of the appliance, with the appliance in operation, and atmospheric pressure

Note 1 to entry: Gas supply pressure is expressed in millibars (mbar).

3.1.5
relative density
d
ratio of the masses of equal volumes of dry gas and dry air under the same conditions of temperature and pressure: 15 °C or 0 °C and 1 013,25 mbar

3.1.6
calorific value
quantity of heat produced by the complete combustion, of a unit volume or mass of dry gas, the constituents of the combustible mixture being taken at reference conditions of 15 °C, 1 013,25 mbar and the products of combustion being brought back to the same conditions

Note 1 to entry: A distinction is made between:

— the gross calorific value H_s: the water produced by combustion is assumed to be condensed;

— the net calorific value H_i: the water produced by combustion is assumed to be in the vapour state.

Note 2 to entry: The calorific value is expressed:

— either in megajoules per cubic metre (MJ/m^3) of dry gas under the reference conditions of 15 °C, 1 013,25 mbar;

— or in megajoules per kilogram (MJ/kg) of dry gas.

3.1.7
Wobbe index
gross Wobbe index *W*s: net Wobbe index *W*i ratio of the calorific value of a dry gas per unit volume and the square root of its relative density under the reference conditions of 15 °C, 1 013,25 mbar

Note 1 to entry: The Wobbe index is said to be gross or net according to whether the calorific value used is the gross or net calorific value.

Note 2 to entry: The Wobbe indices are expressed:

— either in megajoules per cubic metre (MJ/m^3) of dry gas under the reference conditions of 15 °C, 1 013,25 mbar;

— or in megajoules per kilogram (MJ/kg) of dry gas.

3.2 Terminology referring to appliance design

3.2.1 Terminology referring to the gas circuit

3.2.1.1
gas circuit
part of an appliance, between the gas inlet connection and the burner(s), which conveys or contains the gas

3.2.1.2
inlet connection
part of the appliance which is intended to be connected to the gas supply

3.2.1.3
mechanical joint (or mechanical means of obtaining soundness)
assembly of several parts, generally metallic, which achieves soundness by use of mechanical means such as metal-to-metal joints, toroidal sealing rings (O rings) or flat joints

3.2.1.4
restrictor
device with one or more orifices that is placed in the path of the gas flow between the appliance inlet connection and the burner to create a pressure drop, and thus reduces the gas pressure at the burner to a predetermined value for a given supply pressure and rate

3.2.1.5
gas rate adjuster
component which allows the gas input to each burner to be set at a predetermined value according to supply conditions by continuous (screw adjuster) or discontinuous (changing restrictors) action

Note 1 to entry: The operation of setting this device is known as “setting the gas rate”.

3.2.1.6
pressure regulator
device which maintains a constant downstream pressure within a fixed range, independent of the upstream pressure and/or the gas rate

Note 1 to entry: Only appliances with pressure regulator are considered regulated appliances.

3.2.1.7
gas rate control
tap or equivalent component which allows the gas supply to one or more burners to be opened or closed, and possibly, the burner or burners to be adjusted to a gas input lower than the nominal heat input

3.2.1.8
touch control
indirect manual burner control resulting from finger contact or light touch, with or without movement on the contact surface

3.2.1.9
indirect control
control that commands a shut-off or gas regulating device via some auxiliary energy (e.g. electric, pneumatic, etc.)

3.2.1.10
primary air
air entrained in the burner by gas flow and which is mixed upstream of the burner

3.2.1.11
primary aeration adjuster
device which allows the primary air rate to be set at a desired value, according to the supply conditions

Note 1 to entry: The operation of changing the setting of the device is called “adjusting the primary aeration”.

3.2.1.12
injector
component which admits gas into a burner

3.2.1.13
heat bearing fluid
intermediary fluid that indirectly conveys the heat from a burner to the food or cooking container

3.2.2 Terminology referring to the burner

3.2.2.1
main burner
burner which performs the heating function of the appliance and is often called simply “burner”

3.2.2.2
auxiliary burner
burner which allows, by means of an ignition burner or pilot, ignition of a main burner

3.2.2.3
ignition burner or pilot
burner intended to ignite the main burner or at first an auxiliary burner

Note 1 to entry: If a burner operates independently of the main burners, it is called “pilot”.

3.2.2.4
alternating ignition burner
ignition burner which goes off as soon as the main burner is ignited and is ignited from the main burner just before the main burner is extinguished

3.2.2.5
permanent ignition burner
ignition burner which remains ignited even when the main burner is in use

3.2.3 Terminology referring to the combustion circuit

3.2.3.1
combustion circuit
circuit including the air supply duct, if it exists, the combustion chamber, the heat exchanger and the combustion products evacuation duct, if it exists

3.2.3.2
combustion products circuit
circuit including the combustion chamber, the heat exchanger and the combustion products evacuation duct if it exists

3.2.3.3
combustion chamber
enclosure in which the air/gas mixture burns

3.2.3.4
flue outlet
part of an appliance intended to be connected to a combustion products evacuation duct

3.2.3.5
draught diverter
device placed in the combustion products circuit of type B_1 appliances, which is intended to reduce the influence of the flue pull and down draught on the burner performance and combustion

3.2.3.6
combustion products outlet or flueway extension
part of an appliance not connected to a flue, through which products of combustion are discharged into a room

3.2.3.7
combustion products discharge safety device
device that at least shuts off the main burner when there is an unacceptable spillage of combustion products at the draught diverter of type B_{11BS} appliances