



SLOVENSKI STANDARD
SIST EN 203-1:2022+A1:2024

01-september-2024

Nadomešča:
SIST EN 203-1:2022

Plinske naprave za gostinstvo - 1. del: Splošna varnostna pravila (vključno z dopolnilom A1)

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

Ta slovenski standard je istoveten z: EN 203-1:2021+A1:2023

<https://standards.iteh.ai/catalog/standards/sist/2e8413bf-c08f-4820-b030-a3243be87cd4/sist-en-203-1-2022a1-2024>

ICS:

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

SIST EN 203-1:2022+A1:2024

en,fr,de

EUROPEAN STANDARD

EN 203-1:2021+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2023

ICS 97.040.20

Supersedes EN 203-1:2021

English Version

Gas heated catering equipment - Part 1: General safety requirements

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

Großküchengeräte für gasförmige Brennstoffe - Teil 1: Allgemeine Sicherheitsanforderungen

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

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

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-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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, Türkiye and United Kingdom.

[SIST EN 203-1:2022+A1:2024](https://standards.iteh.ai/catalog/standards/sist/2e8413bf-c08f-4820-b030-a3243be87cd4/sist-en-203-1-2022a1-2024)

<https://standards.iteh.ai/catalog/standards/sist/2e8413bf-c08f-4820-b030-a3243be87cd4/sist-en-203-1-2022a1-2024>



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Contents	Page
European foreword.....	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	9
3.1 Terminology referring to gases and pressures	9
3.2 Terminology referring to appliance design	10
3.2.1 Terminology referring to the gas circuit	10
3.2.2 Terminology referring to the burner	11
3.2.3 Terminology referring to the combustion circuit	12
3.2.4 Terminology referring to the auxiliary equipment	13
3.3 Terminology referring to appliance operation	15
3.3.1 Terminology referring to gas rates	15
3.3.2 Terminology referring to gas combustion	15
4 Classification	17
5 Constructional requirements	18
5.1 General	18
5.1.1 Conversion to different gases	18
5.1.2 Materials and methods of construction	20
5.1.3 Use, cleaning and maintenance	20
5.1.4 Gas connections	20
5.1.5 Soundness	21
5.1.6 Supply of combustion air and evacuation of combustion products	21
5.1.7 Flame visibility	23
5.1.8 Electrical safety	23
5.1.9 Construction requirements for gas cylinder compartment	23
5.1.10 Cleanability of material in contact with food	24
5.2 Particular requirements for components in the gas circuit	24
5.2.1 General	24
5.2.2 Gas rate control and shut-off device	24
5.2.3 Auxiliary equipment	26
5.2.4 Burners	28
5.2.5 Gas rate adjusters	28
5.3 Particular requirements	29
5.3.1 Food spillage	29
5.3.2 Stability and mechanical safety	29
5.3.3 Safety from fire risk	29
5.3.4 Appliances connected to water mains	29
5.3.5 Pressurized parts	29
5.3.6 Appliances with heat-bearing fluid	30
6 Performance requirements	30
6.1 Soundness	30
6.1.1 Soundness of the gas circuit	30
6.1.2 Soundness of combustion product circuit of type B appliances	30

6.2	Obtaining the gas rate	31
6.2.1	Nominal heat input (Q_n)	31
6.2.2	Full gas rate.....	31
6.2.3	Reduced gas rate.....	31
6.2.4	Ignition burner heat input	31
6.3	Safety of operation	32
6.3.1	Burners.....	32
6.3.2	Temperature limits.....	32
6.3.3	Ignition – cross-lighting - flame stability	34
6.3.4	Combustion products discharge safety devices for type B _{11BS} appliances	34
6.3.5	Pre-purge.....	34
6.4	Influence of burners on each other.....	35
6.5	Auxiliary equipment.....	35
6.5.1	Flame supervision device	35
6.5.2	Ignition device	36
6.6	Air proving device	36
6.6.1	General	36
6.6.2	Supervision of the combustion air or combustion products rate	36
6.6.3	Supervision of the combustion air pressure or combustion products pressure.....	37
6.6.4	Gas/air ratio controls.....	37
6.7	Combustion	37
6.7.1	All appliances (in calm air)	37
6.7.2	Special conditions.....	37
6.8	Auxiliary energy.....	38
6.8.1	Electrical energy fluctuation	38
6.8.2	Electrical energy shut off	38
6.8.3	Other types of auxiliary energy	38
6.9	Rational use of energy.....	38
6.10	Operating requirements - Temperature of the LPG cylinder and its compartment ..	38
6.10.1	Temperature of the walls of the compartment.....	38
6.10.2	Temperature of the LPG cylinder	38
7	Test conditions	39
7.1	General	39
7.1.1	Characteristics of the test gases	39
7.1.2	Requirements for making up test gases	39
7.1.3	Test room.....	39
7.1.4	Preparation of the appliance.....	39
7.1.5	Practical method of test.....	40
7.1.6	Test pressures.....	40
7.1.7	Carrying out the tests	41
7.1.8	Accuracy of measuring instruments	41
7.2	Soundness.....	42
7.2.1	Soundness of the gas circuit.....	42
7.2.2	Soundness of the combustion circuit and correct evacuation of the combustion products for type B appliances	42
7.3	Obtaining gas rates	43
7.3.1	General	43
7.3.2	Nominal heat input	43
7.3.3	Full gas rate.....	45
7.3.4	Reduced gas rate.....	45
7.3.5	Ignition device	46
7.4	Operational safety	46

EN 203-1:2021+A1:2023 (E)

7.4.1	Burners	46
7.4.2	Limit temperatures	46
7.4.3	Ignition - cross - lighting - flame stability	47
7.5	Auxiliary equipment	52
7.5.1	Flame supervision device.....	52
7.6	Combustion	53
7.6.1	General.....	53
7.6.2	Tests carried out under normal conditions.....	54
7.6.3	Specific test for type B appliances.....	56
7.6.4	Test with sooting limit gas.....	56
7.7	Air-proving device	56
7.7.1	General.....	56
7.7.2	Supervision of the combustion air or the combustion products rate	57
7.7.3	Supervision of the combustion air or the combustion products pressure.....	57
7.8	Special tests.....	58
7.8.1	Stability and mechanical safety	58
7.8.2	Pressurized parts	58
7.8.3	Appliances with heat-bearing fluid	58
7.9	Test method - Overheating of the LPG cylinder and its compartment.....	58
7.10	Rational use of energy	59
8	Marking and instructions.....	59
8.1	General requirements for marking and instructions	59
8.2	Marking on the appliance.....	59
8.2.1	Data plates, labels and packaging	59
8.2.2	Additional marking on the appliance and packaging	60
8.3	Instructions for installation and adjustment.....	60
8.3.1	Requirements for installation and adjustment.....	60
8.3.2	Additional requirements for installation and adjustment.....	62
8.4	Instructions for use and maintenance.....	62
8.4.1	Requirements for instructions for use and maintenance	62
8.4.2	Additional requirements for instructions for use and maintenance	63
Annex A (informative)	National situations	70
A.1	Connection requirements in force in various countries (see 5.1.4)	70
A.2	Requirements for flue connection in force in various countries (see 5.1.6.5).....	71
A.3	Categories, test gases and test pressures	72
Annex B (normative)	Use of symbols on appliances and packaging.....	73
B.1	General.....	73
B.2	Electric power supply	73
B.3	Type of gas	73
B.4	Gas supply pressure	73
B.5	Country of destination.....	74
B.6	Category.....	74
B.7	Other optional information	74
B.8	Nominal heat input of burner	74
B.9	Nominal heat input of set of burners on appliance.....	74

Annex C (informative) Trilingual list of appliances in the scope of EN 203-1 and corresponding Part 2	75
Annex D (informative) Configuration of the gas circuit.....	77
D.1 Minimum requirements for appliances with or without fan, but with permanent or alternating ignition burner and appliances with fan and pre-purge.....	77
D.2 Minimum requirements for appliances with fan, without permanent or alternating ignition burner and without pre-purge.....	78
Annex E (normative) Material in contact with food	79
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Regulation (EU) 2016/426 aimed to be covered	82
Bibliography	85

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[SIST EN 203-1:2022+A1:2024](https://standards.iteh.ai/catalog/standards/sist/2e8413bf-c08f-4820-b030-a3243be87cd4/sist-en-203-1-2022a1-2024)

<https://standards.iteh.ai/catalog/standards/sist/2e8413bf-c08f-4820-b030-a3243be87cd4/sist-en-203-1-2022a1-2024>

EN 203-1:2021+A1:2023 (E)**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 A₁, A₂, A₃, B₁ and B₂, as defined in Clause 4, are considered in this document.

Only the net calorific value (H_i) and net Wobbe index (W_i) 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 203-1:2021+A1:2023 (E)

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 60335-1:2012¹, *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 60730-1:2016², *Automatic electrical controls for household and similar use - Part 1: General requirements (IEC 60730-1:2013, modified)*

EN IEC 60730-2-9:2019³, *Automatic electrical controls - Particular requirements for temperature sensing control (IEC 60730-2-9:2015)*

EN 61770:2009⁴, *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

EN 203-1:2021+A1:2023 (E)**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/m³) 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/m³) 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”

EN 203-1:2021+A1:2023 (E)**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 B₁ 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