



SLOVENSKI STANDARD

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Plinske naprave za gostinstvo - 2-4. del: Posebne zahteve - Cvrtniki

Gas heated catering equipment - Part 2-4: Specific requirements - Fryers

Großküchengeräte für gasförmige Brennstoffe - Teil 2-4: Spezielle Anforderungen - Friteusen

Appareils de cuisson professionnelle utilisant les combustibles gazeux - Partie 2-4: Exigences particulières - Friteuses

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ICS:

97.040.20	Štedilniki, delovni pulti, pečice in podobni aparati	Cooking ranges, working tables, ovens and similar appliances
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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 203-2-4

May 2020

ICS

Will supersede EN 203-2-4:2005

English Version

Gas heated catering equipment - Part 2-4: Specific requirements - Fryers

Appareils de cuisson professionnelle utilisant les combustibles gazeux - Partie 2-4: Exigences particulières - Friteuses

Großküchengeräte für gasförmige Brennstoffe - Teil 2-1: Spezielle Anforderungen; Friteusen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 106.

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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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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European Foreword

This document (prEN 203-2-4:2020) has been prepared by Technical Committee CEN/TC 106 “Large kitchen appliances using gaseous fuels”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 203-2-4:2005.

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.

The technical changes in comparison to the previous edition are:

- Alignment with part 1,
- updating of pump drainage system (5.1.2.102),
- clarification of the requirement for the safety from fire risk (5.3.3),
- clarification of the requirement on pressurized fryers (5.3.5.101),
- updating of the performance requirement on overheat limit device (6.3.2.1.102),
- addition of the test on risk of fire of oil in pump drainage system (7.8.101),
- updating of the test for rational use of energy (7.10)

This document is used in conjunction with EN 203-1 “Gas Heated Catering Equipment – Part 1: General safety rules”. This document specifies particular requirements for open and wok burners.

Subclauses and Figures which are additional to those in EN 203-1 are numbered 101.

prEN 203-2-4:2020 (E)**1 Scope**

The scope of prEN 203-1:2019 applies, with the following addition and modification of the 3rd paragraph.

This document applies to catering gas heated fryers.

2 Normative references

There are no normative references in this document.

prEN 203-1:2019, *Gas heated catering equipment - Part 1: General safety requirements*

EN 60335-1:2012,¹ *Household and similar electrical appliances - Safety - Part 1: General requirements*

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*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in prEN 203-1:2019 and the following apply.

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

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

3.3.101**fryer**

single or multi-pan appliance for frying foodstuff in oil or fat at a high temperature in which the foodstuff is submerged

3.3.102**pressure fryer**

fryer where the cooking operation is carried out under pressure

3.3.103**maximum oil level**

mark to indicate the maximum oil level for safe operation

3.3.104**minimum oil level**

mark to indicate the minimum oil level for safe operation

3.3.105**draining device**

device for draining the oil or fat. It may be a valve or tap, or an access to a filtering pump system for emptying and/or refilling

¹ Impacted by EN 60335-1:2012/AC:2014/A11:2014/A13:2017/A1:2019/A2:2019/A14:2019

3.3.106**drainage container**

container to receive the contents of the pan during the drainage operation. It can be fitted with filters to clean the oil or fat

4 Classification

Clause 4 of prEN 203-1:2019 applies.

5 Constructional requirements

Clause 5 of prEN 203-1:2019 applies with the following additions.

5.1 Conversion to different gases**5.1.2 Materials and methods of construction**

Shall be according to prEN 203-1:2019, 5.1.2 with the following addition:

The appliance shall be so designed that it is impossible for bubbling oil or fat to reach or penetrate the burner(s) and/or insulation.

5.1.2.101 Drainage device

It shall be located in a place which enables the oil or fat to be drained completely.

The open and closed positions of the device shall be readily recognizable, and it shall not be possible to open the device accidentally.

After drainage it shall be possible to easily remove any cooking crumbs from the pan.

5.1.2.102 Pump drainage system

When a pump drainage system is integrated into the fryer, it shall not be possible to operate the pump accidentally. The switching device shall be recessed, operated by double action, key switch, etc.

5.2 Particular requirements for components in the gas circuit

Shall be according to prEN 203-1:2019, 5.2.

5.3 Particular requirements

Shall be according to prEN 203-1:2019, 5.3. with the following additions

5.3.3 Safety from fire risk

Shall be according to prEN 203-1:2019, 5.3.3. with the following addition:

The fryer shall be marked indelibly with the maximum and minimum levels of cold fat or oil consistent with complete safety of operation.

Appliances shall have adequate surge allowance above the maximum indicated oil level such that the total surge volume of the pan, including any container designed to collect surging oil, shall have a ratio in litres to the load of chips recommended by the instructions in kilograms of not less than 4. Compliance is checked by measurement.

Appliances supplied with containers intended to drain and/or to collect fat or oil shall be so designed and placed that spillage and overflow cannot reach areas where there is a risk of catching fire.

Appliances equipped with pump drainage system shall be so designed that when the pump is blocked the temperature of the oil circuit at a distance of 5 mm from the hottest point of the pump shall not

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exceed 230 °C in the test conditions of 7.8.101. This requirement is deemed to be satisfied if the class of the pump is lower than class H as defined in EN 60335-1:2012².

5.3.101. Parts put in motion by an electrical energy source

For electric motorised parts compliance is checked by applying the relevant parts of EN 60335-2-102:2016.

5.3.102 Covers

Hinged covers shall be constructed in such a way so as to ensure that uncontrolled closure does not cause injury to the operator.

5.3.5 Pressurized parts

Shall be according to prEN 203-1:2019, 5.3.5 with the following additions.

5.3.5.101 Pressurized fryers

Pressurized appliances shall be fitted, in addition of pressure regulator(s), with relief valves of which the calibrated pressure and relief cannot be modified.

The relief valve(s) shall be located in such a way to not be a risk in case of opening. The lockout mechanism(s) of the cover shall be designed to prevent any unintended under pressure opening.

For appliances that operate with a pressure higher than the atmospheric, it shall not be possible to open the cover as long as the pressure has reached a value near the atmospheric pressure. Any depressurizing shall be safe and under control.

Pressurized appliances shall incorporate a vacuum release device to prevent a partial vacuum forming unless they are designed for vacuum operation.

In all cases pressurized appliances shall satisfy the pressure tests of 7.8.2 of prEN 203-1:2019.

A pressurized appliance shall be fitted with a pressure gauge or indicator device.

6 Performance requirements**6.1 Soundness**

Shall be according to prEN 203-1:2019, 6.1.

6.2 Obtaining the gas rate

Shall be according to prEN 203-1:2019, 6.2.

6.3 Safety of operation

Shall be according to prEN 203-1:2019, 6.3 with the following additions:

6.3.2.1 Protection against risk of fire

Shall be according to prEN 203-1:2019, 6.3.2.1 with the following additions:

6.3.2.1.101 Temperature regulation

A regulating thermostat shall be fitted to each pan and under the conditions of 7.4.2.101, it is verified that the temperature shall not exceed 200 °C.

² Impacted by EN 60335-1:2012/AC:2014/A11:2014/A13:2017/A1:2019/A2:2019/A14:2019

6.3.2.1.102. Overheat limit device

An overheat limit device shall be fitted to each pan and under the conditions of 7.4.2.102, it is verified that the temperature shall not exceed 230 °C when the regulating thermostat is put out of action. However, a temperature of 245 °C is allowed for the first cycle of operation of the overheat limit device.

6.3.2.2 Protection against risks of burns

Shall be according to prEN 203-1:2019, 6.3.2.2. with the following addition:

The whole of the pan (bottom, sides and hob) are considered as working surfaces as well as the drain tap.

6.3.2.2.101 Front of fryers accessible to the users

When the non-working side of a fryer is designed to form part of a serving counter which may be touched by users, under the conditions described in 7.4.2 of prEN 203-1:2019 the requirements of 6.3.2.2.1 of prEN 203-1:2019 shall be met.

6.4 Influence of burners on each other

Shall be according to prEN 203-1:2019, 6.4.

6.5 Auxiliary equipment

Shall be according to prEN 203-1:2019, 6.5.

6.6 Air proving device

Shall be according to prEN 203-1:2019, 6.6.

6.7 Combustion

Shall be according to prEN 203-1:2019, 6.7.

6.8 Auxiliary energy

Shall be according to prEN 203-1:2019, 6.8.

6.9 Rational use of energy

The rational use of energy measurement is carried out according to 7.10

When tested in accordance with 7.10, the efficiency of the fryer shall be not less than 50 %.

6.10 Operating requirements - Temperature of the LPG cylinder and its compartment

Shall be according to prEN 203-1:2019, 6.10.

7 Test conditions

7.1 General

Shall be according to prEN 203-1:2019, 7.1

7.2 Soundness

Shall be according to prEN 203-1:2019, 7.2.

7.3 Obtaining gas rates

Shall be according to prEN 203-1:2019, 7.3

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prEN 203-2-4:2020 (E)**7.4 Operational safety**

Shall be according to prEN 203-1:2019, 7.4 with the following additions.

7.4.2.5 Abnormal operation

Shall be according to prEN 203-1:2019, 7.4.2.5. with the following additions:

7.4.2.101 Checking of the temperature regulation

The pan is filled to its minimum indicated level with oil at (20 ± 5) °C.

The temperature is measured at the geometric centre of the oil, 25 mm below the surface.

The test is started from cold. The appliance is operating at its nominal heat input with a reference gas corresponding to its category at normal pressure. The thermostat is set to its highest setting.

After the thermostat has cut out three times in succession, it is checked that the requirement of 6.3.2.1.101 is met.

7.4.2.102 Checking of the overheat limit device

After the test described in 7.4.2.101 the regulation thermostat is put out of action.

The maximum temperature is measured after the overheat limit device has operated, and it is checked that the requirement of 6.3.2.1.102 is met.

7.5 Auxiliary equipment

Shall be according to prEN 203-1:2019, 7.5.

7.6 Combustion

Shall be according to prEN 203-1:2019, 7.6 with the following additions:

7.6.2 Tests carried out under normal conditions

Shall be according to prEN 203-1:2019, 7.6.2 with the following addition:

7.6.2.101 Burners with sequential controls

In the case of burners with sequential controls, a first test is carried out with the burner functioning in a continuous manner if this position is possible.

When the burner functions in cycles (on/off or full input/reduced input) the CO and CO₂ concentration samples shall be recorded every five seconds and the CO/CO₂ ratio (dry free air) calculated during at least five complete cycles of the gas rate control to the burner. For each cycle the CO/CO₂ (dry free air) arithmetic mean is calculated. None of these five CO/CO₂ values shall exceed limits specified in 6.7.1 respectively with the test gas used (reference and limit).

The sequential function control is adjusted in a manner to obtain minimum setting of the control range, and then 40 % and 80 % of the adjusting range.

7.7 Air-proving device

Shall be according to prEN 203-1:2019, 7.7.

7.8 Special tests

Shall be according to prEN 203-1:2019, 7.8 with the following additions:

7.8.101 Risk of fire of oil in pump drainage system

The pump is put into service with the appliance empty. Then, the pump is blocked and the test is carried out until the steady-state condition is reached. The temperature is measured.