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Domestic gas cooking appliances - Safety - Part 21: Particular requirements for gas hobs, gas grills and gas griddles

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Part 21:
Particular requirements for gas hobs, gas grills and gas griddles

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

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This document was prepared by Technical Committee ISO/TC 291, *Domestic gas cooking appliances*.

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A list of all parts in the ISO 21364 series can be found on the ISO website.

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Introduction

This International Standard provides general requirements for safety of domestic gas cooking appliances.

This International Standard can also be applied, so far as is reasonable, to appliances not mentioned in this specific standard and to appliances designed on the basis of new principles, in which case additional requirements may be necessary.

Where no specific International Standard for an appliance exists, the appliance can be tested according to this International Standard and further tests which take into account the intended use.

Gas burning appliances using fuel gases need to withstand the type of gas which is specified. Other ISO technical committees, e.g. ISO/TC 193, Natural gas, deal with the testing and properties of fuel gases.

Note that, due to the differing properties of fuel gas depending on its source/region of origin, certain differences in regulations exist at present in different regions; some of these differences are presented in Annex E.

This International Standard covers type testing.

This International Standard series is structured as follows:

ISO 21364 Domestic gas cooking appliances – Safety

— Part 1: General requirements

— Part 21: Particular requirements for gas hobs, gas grills and gas griddles

— Part 22: Particular requirements for ovens and compartment grills

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This Part 21 is to be used in conjunction with ISO/DIS 21364-1:2019.

This Part 21 supplements or modifies the corresponding clauses in ISO/DIS 21364-1:2019, so as to convert that publication into the ISO standard: Specific requirements for gas hobs, gas grills and gas griddles.

When a particular subclause of ISO/DIS 21364-1:2019 is not mentioned in this Part 2, that subclause applies as far as is reasonable. When this standard states “Addition”, “Modification” or “Replacement”, the relevant text in ISO/DIS 21364-1:2019 is to be adapted accordingly.

NOTE 1 The following numbering system is used:

— subclauses, tables and figures that are numbered starting from 101 are additional to those in ISO/DIS 21364-1:2019;

— unless notes are in a new subclause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or subclause;

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Domestic gas cooking appliances — Safety —

Part 21:
Particular requirements for gas hobs, gas grills and gas griddles

1 Scope

This Part of ISO 21364 specifies particular requirements for safety, construction and materials of household gas surface cooking appliances. For general requirements for safety, construction and materials of gas hobs the Standard ISO/DIS 21364-1:2019 applies.

This Part covers the following:

— surface cooking appliances:

  — hobs;

  — surface grills;

  — griddles;

  being built-in, part of a cooking appliance or table top;

— hobs accessories.

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It does not cover surface cooking appliances intended for outdoor use and/or commercial use as well as electrical heated elements as part of the appliance. It does also not cover appliances with automatic burner control systems.

NOTE 1 For requirements of electrical safety refer to the IEC standards.

NOTE 2 Attention is drawn to the fact that

— for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements may be necessary;

— in many countries additional requirements are specified by the national health authorities, the national water supply authorities and similar authorities

This International Standard does not cover requirements for gas installation.

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.

ISO 21364-1:20xx, *Domestic gas cooking appliances – Safety- Part 1: General requirements*

ISO 23551-8:2019, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 8: Multifunctional controls*

IEC 60730-2-9:2018, *Automatic electrical controls for household and similar use — Part 2-9: Particular requirements for temperature sensing controls*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/DIS 21364-1:2019 apply with the following additions.

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 https://www.iso.org/obp

3.3 Definitions relating to components

3.3.101
Hob guard
device that reduces physical access to the cooking surface to avoid hazardous situations

3.3.102
open burner
hob burner with the flame in direct contact with the pan

3.3.103
multi-ring burners
hob burner assembly having two or more rings of burner ports

Note 1 to entry: The term ring includes any distribution of burner ports around the central axis of the burner.

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Note 2 to entry: A detailed description of the different types of burners and their operating modes is given in Table 101.

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3.3.104
multi-ring burner with sectional control
multi-ring burner that is so designed that one or more of its rings of burner ports can be utilised independently

3.3.105
multi-ring burner with simple control
multi-ring burner that is so designed that its rings of burner ports cannot be utilised independently

3.3.106
overheating safety device
temperature sensing device which is intended to keep temperature below one particular value during abnormal operating conditions of the appliance and which has no provision for setting by the end user

[SOURCE: ISO 23551-8:2019, Annex BB]

Note 1 to entry: Note to entry: These devices usually use a thermistor or a bimetal sensing part (element).

4 Components in gas cooking appliances

This clause of ISO/DIS 21364-1:2019 applies with the following additions.

4.2 Manual gas shut-off valves (Taps)

This clause of ISO/DIS 21364-1:2019 applies with the following additions.

4.2.101 Taps for multi-ring burners

The “off” position of a single sectional control with two closing directions for multi-ring hob burners shall be designed to make it impossible for the tap knob to be inadvertently moved from one adjustment

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range to another. However, if each ring of such multi-sectional hob burner is supervised by a flame supervision device, the single sectional control shall stop in its “off” position.

4.3 Knobs

This clause of ISO/DIS 21364-1:2019 applies with the following additions.

4.3.1 Design of knobs

This clause of ISO/DIS 21364-1:2019 applies with the following additions.

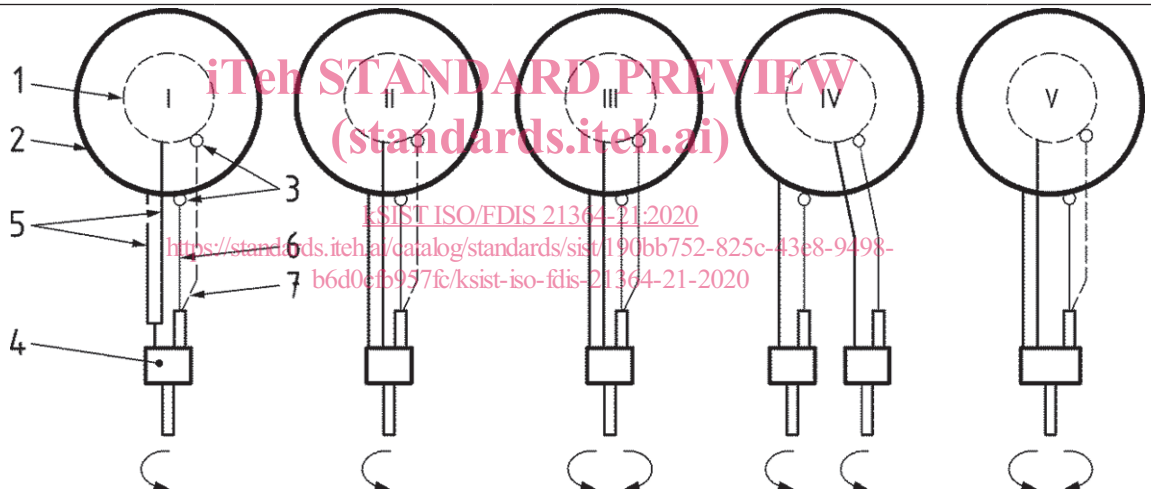
4.3.1.101 Multi-ring burner knobs

If the control knob operates by turning, the closing direction shall only be clockwise. This does not apply to multi-ring hob burners with a single sectional control and two closing directions.

4.101 Multi-ring burners

Table 101 shows examples of multi-ring burners and their operating modes.

Table 101 — Examples of types of multi-ring burners and their operating modes



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Key

1 Inner Burner-ring	5 Gas supply
2 Outer Burner-ring	6 Connection to FSD
3 Flame supervision sensor	7 Alternative connection to FSD
4 Burner control (tap)	

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Table 101 *(continued)*

FSD at inner **or** outer burner ring	FSD at inner **or** outer burner ring	FSD at inner **and** outer burner ring	FSD at inner **and** outer burner ring	FSD at inner **or** outer burner ring
Type I Simple control	**Type II** Sectional control	**Type III** Sectional control with two turning directions	**Type IV** Two single burners	**Type V** Sectional control with two turning directions
Multi-ring burner that is so designed that its rings of burner ports cannot be utilized independently, with one outlet for common supply of all burner rings with one turning direction.	Multi-ring burner that is so designed that one or more of its rings of burner ports can be utilized independently, with two or more outlets for separate supply of the burner rings with one turning direction.	Multi-ring burner that is so designed that one or more of its rings of burner ports can be utilized independently, with two or more outlets for separate supply of the burner rings with two turning directions. The two rings cannot be operated together.	Multi-ring burner that is so designed that it has two or more taps each with one outlet for separate supply of the burner rings and same turning direction.	Multi-ring burner that is so designed that it has two turning directions. One direction is for utilizing one burner ring. The other direction is to utilize both burner rings.

4.102 Overheating safety devices

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4.102.1 Requirement

An overheating safety device, if any, shall comply with the requirements in Annex BB of ISO 23551-8:2019.

Electrical safety requirements for the overheating safety device shall be according to IEC 60730-2-9:2018 Ed 4.1.

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An overheating safety device for a gas hob shall be as follows:

a) safety device shall be operated when the oil temperature is below 300 °C;

b) when the thermal sensing part is damaged, the gas passage to the burner shall be closed and shall not be reopened automatically;

c) for circuit failure or short-circuit, the gas passage to the burner shall be closed and shall not be reopened automatically.

d) The detection section of cooking oil overheating safety device shall be firmly secured not to be easily off-positioned.

e) The cooking oil overheating safety device shall have a structure in which it cannot be easily altered.

f) After applying a load according to 12.101 to a cooking appliance, the temperature sensing part shall normally operate.

4.102.2 Test

Select test pan according to Table 1, ISO 21364-1:20xx. Pour in the unused sunflower oil to a depth of 10 mm.

A thermocouple is placed in the centre of the oil volume.

Use reference gas at normal pressure.

Operate the burner at nominal heat input. Measure the highest temperature of oil as the control device is functioning.

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