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Domestic gas cooking appliances — Safety —

Part 22:
Particular requirements for ovens and compartment grills

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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.

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

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

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

This Part 22 is to be used in conjunction with ISO/DIS 21364-1:2019.

This Part 22 supplements or modifies the corresponding clauses in ISO/DIS 21364-1:2019, so as to convert that publication into the ISO standard: Particular requirements for ovens and compartment grills.

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 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;

Domestic gas cooking appliances — Safety —

Part 22:
Particular requirements for ovens and compartment grills

1 Scope

This Part of ISO 21364 specifies particular requirements for safety, construction and materials of domestic gas ovens and compartment grills. For general requirements for safety, construction and materials of gas ovens and compartment grills the Standard ISO/DIS 21364-1:2019 applies.

This Part covers the following gas cooking appliances:

— ovens with natural or forced convection;

— pyrolytic ovens and pyrolytic compartment grills;

— compartment grills

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

— oven accessories

It does not cover gas ovens and compartment grills 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 3864-1:2011, *Graphical symbols — Safety colours and safety signs — Part 1: Design principles for safety signs and safety markings*

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

ISO 21364-21:20xx, *Domestic gas cooking appliances – Safety – Part 21: Particular requirements for gas hobs, gas grills and gas griddles*

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

IEC 60417, *Graphical symbols for use on equipment*

IEC 60584-1:2013, *Thermocouples - Part 1: EMF specifications and tolerances*

IEC 61032:1997, *Protection of persons and equipment by enclosures – Probes for verification*

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

3.1 Definitions relating to appliances

3.1.101
pyrolytic self-cleaning oven
oven in which cooking deposits are removed by heating the oven to a temperature exceeding 350 °C

[SOURCE: IEC 60335-2-6:2014, 3.105]

3.1.102
cooking surface
horizontal surface of the hob section

3.1.103
forced convection mode
heating mode for appliances equipped with a fan intended to assist the transmission of heat by creating a forced circulation of air or products of combustion; this fan is not intended to supply combustion air

3.3 Definitions relating to components

3.3.101
evacuation duct
device for transporting combustion products out of the appliance

4 Components in gas cooking appliances

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

4.101 Cooling fan

A motor of a cooling fan shall comply with the requirements of IEC 60335-2-102:2017.

If the appliance has a cooling fan, the fan shall operate automatically.

4.102 Forced convection fan

The motor of a forced convection fan shall comply with the requirements of IEC 60335-2-102:2017.

5 General conditions of test

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

5.101 Ovens or compartment grills operated in the forced convection mode

Ovens and compartment grills that can be operated in the forced convection mode are tested in the same way as ovens or grills operated with natural convection, but operated in the forced convection mode.

5.102 Portable ovens and compartment grills

Portable ovens and compartment grills are tested according to all the applicable clauses for ovens and compartment grills with the exception of 7.3.102.2, 12.101, 12.102, 12.103 and 12.104.

6 Heat input

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

6.2 Obtaining the nominal heat input

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

6.2.101 Test of oven and compartment grill with a thermostat

The burner of an appliance with thermostat is tested under the following conditions:

— the burner is ignited and operated with the thermostat at full rate at normal pressure and with the door closed or open to avoid cycling of the thermostat;

— measuring begins from ignition. For analogue meters, measuring terminates when the highest number of complete revolutions have been made before the end of the fifth minute. The test shall be finished before the thermostat starts cycling.

Then the heat input is calculated under reference conditions according to ISO/DIS 21364-1:2019, 6.3.

6.2.102 Test of oven and compartment grill without a thermostat

The burner of an appliance without thermostat is tested under the following conditions:

— with the appliance at ambient temperature, the burner is ignited and operated at full rate at normal pressure for 10 min;

— measurement starts at the end of the tenth minute and finishes at the latest at the end of the thirteenth minute, with a minimum measurement time of one minute. For analogue meters, the measurement shall be taken over at least one complete revolution of the analogue meter.

Then the heat input is calculated under reference conditions according to ISO/DIS 21364-1:2019, 6.3.

6.4 Obtaining the reduced heat input

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

6.4.101 Test of oven and compartment grill burner

The reduced heat input shall be measured after the nominal heat input at the same conditions with the oven door closed and the gas control is changed to reduced rate. For appliances with thermostatic regulation, the measurement shall be done after 30 minutes, with a minimum measurement time of one minute. If using analogue meters, measurements shall be taken over at least one complete revolution of the analogue meter.

7 Heating

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

7.3 Heating tests

7.3.1 Basic test under normal operation

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

7.3.1.101 Ovens or compartment grills operated in the forced convection mode

Ovens and compartment grills that can be operated in the forced convection mode are tested in the same way as ovens or grills with natural convection (see ISO/DIS 21364-1:2019, 7.3.1.4 and 7.3.1.6), but with an average temperature of 210 °C instead of 230 °C at the centre of the compartment.

7.3.101 Simultaneous operation of oven burner and compartment gas grill burner

7.3.101.1 Requirement 1

The temperatures shall meet the values indicated in ISO/DIS 21364-1:2019, 7.3.2, Table 4.

7.3.101.2 Test 1

Oven burner and gas grill burner that can be operated simultaneously are supplied with reference gas according to the corresponding table in ISO/DIS 21364-1:2019, Annex A at normal pressure. Hob burners, if any, are not operated.

The oven burner is operated up to an average temperature of 230 °C in the centre of the oven. This temperature is maintained, if this temperature cannot be obtained the control is set to full rate. The grill burner is operated at full rate.

After 1 h of operation or after the burner was shut off by an overheating safety device, if any, the temperatures are measured.

7.3.101.3 Requirement 2

The temperatures shall meet the values indicated in 7.3.102.2, Table 101.

7.3.101.4 Test 2

After Test 1 the oven burner is operated at an average temperature of 200 °C in the centre of the oven. This temperature is maintained. The grill burner is operated at full rate.

After 1 h of operation the temperatures are measured (see 7.3.102.1).

7.3.102 Temperatures of accidentally touchable surfaces

7.3.102.1 General

During the following tests, if the front and side surfaces are flat, temperature rises are measured using the probe of Figure 101 or any other measuring device giving the same results. For non-flat surfaces fine wire thermocouples are used.

The probe is applied with a force of (4 ± 1) N to the surface in such a way that the best possible contact between the probe and the surface is ensured. The temperature is read after stabilization of the measuring device.