TECHNICAL SPECIFICATION

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Domestic gas cooking appliances — Safety —

Part 1: General requirements

Appareils de cuisson domestiques utilisant les combustibles gazeux — Sécurité —

Partie 1: Exigences générales

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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*.

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Introduction

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

This document 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 document 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 Annexes A and E.

This document covers type testing.

This document series ISO 21364 "Domestic gas cooking appliances – Safety" is structured as follows:

- Part 1: General requirements
- Part 21: Particular requirements for hobs, surface grills and griddles
- Part 22: Particular requirements for ovens and compartment grills

This document can be supplemented by the corresponding clauses of ISO/TS 21364-21:2021 and ISO/TS 21364-22:2021.

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Domestic gas cooking appliances — Safety —

Part 1: General requirements

1 Scope

This document specifies the safety requirements for domestic gas cooking appliances. These appliances are freestanding, built-in or table-top and are intended to be used indoors. This document applies to the gas sections of the appliances and their component parts (e.g. combined gas-electric cooking appliances). This document does not apply to:

a) electrical heated elements as part of the appliance;

b) outdoor appliances;

c) appliances supplied at pressures greater than the maximum pressure of the test gases;

d) cook stoves, covered by the standards being developed in ISO/TC 285

In general, it does not take into account children playing with the appliance.

NOTE 1 For requirements of electrical safety refer to the IEC 60335 standard series.

NOTE 2 Attention is drawn to the fact that

– for appliances intended to be used in vehicles or on board of ships or aircrafts, additional requirements could be necessary;

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

This document does not cover requirements relating to gas cylinders, their pressure regulators and their connections.

This document 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 3166-1:2020, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes*

ISO 21364-22:2021, *Domestic gas cooking appliances – Safety- Part 22: Particular requirements for ovens and compartment grills*

ISO 23550:2018, *Safety and control devices for gas and/or oil burners and appliances — General requirements*

ISO 23551-1:2012, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 1: Automatic and semi-automatic valves*

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ISO 23551-2:2018, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 2: Pressure regulators*

ISO 23551-5:2014, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 5: Manual gas valves*

ISO 23551-6:2014, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 6: Thermoelectric flame supervision controls*

ISO 23551-8:2016+Amd 1:2019, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 8: Multifunctional controls*

ISO 23551-9:2015, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 9: Mechanical gas thermostats*

IEC 60068-2-75:2014, *Environmental testing Part 2: Test Eh: Hammer test*

IEC 60335-1:2020, *Household and similar electrical appliances — Safety — Part 1: General requirements*

IEC 60335-2-6:2014, *Household and similar electrical appliances — Safety — Part 2-6: Particular requirements for stationary cooking ranges, hobs, ovens and similar appliances*

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 60730-1:2013+AMD1:2015+AMD2:2020, *Automatic electrical controls - Part 1: General requirements*

IEC 60730-2-7:2015, *Automatic electrical controls for household and similar use — Part 2-7: Particular requirements for timers and time switches*

IEC 60730-2-9:2015+AMD1:2018+AMD2:2020, *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

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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 http://www.electropedia.org/

3.1 Definitions relating to appliances

3.1.1
domestic gas cooking appliance
appliance burning gas for food preparation incorporating one or more cooking function(s) and to be used by private individuals in a domestic environment

3.1.2
freestanding appliance
appliance intended to be placed on the floor, having an enclosure and not intended to have direct contact with adjacent furniture and not intended to be built-in

3.1.3
built-in appliance
appliance intended to be installed in a cabinet or unit or in a housing located in a wall

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3.1.4
cooking range
combination of a *hob* (3.1.10) and an *oven* (3.1.13) which may incorporate a *grill* (3.1.5) or a *griddle* (3.1.11)

Note 1 to entry: Can be freestanding or built-in.

[SOURCE: IEC 60335-2-6:2014, 3.104]

3.1.5
grill
appliance or a part of an appliance constructed so that the food is supported on a grid or spit and is cooked by radiant heat

Note 1 to entry: Can be built-in, freestanding, placed in a compartment or a cooking surface. The *grill* (3.1.5) is sometimes also named as radiant.

[SOURCE: IEC 60335-2-6:2014, 3.102 modified – Note to entry has been replaced.]

3.1.6
combined gas-electric cooking appliance
appliance where the cooking function is powered by gas and electrical energy.

Note 1 to entry: Examples are a *cooking range* (3.1.4) with an electrical *oven* (3.1.13) and a gas *hob* (3.1.10) or a *hob* (3.1.10) with gas burners and electrical heating elements.

3.1.7
warming drawer
appliance or part of the appliance that fulfils an independent warming function

Note 1 to entry: The same requirements of a warming drawer are applied to a warming cabinet.

3.1.8
portable appliance
appliance that is intended to be placed on a table or working surface and having a mass less than 18 kg

3.1.9
table-top appliance
appliance that is intended to be placed on a table or working surface

Note 1 to entry: It can be portable

3.1.10
hob
appliance that incorporates one or several covered or open burners, and/or one or more electric heating element(s)Note to entry: Can be built-in, part of a *cooking range* (3.1.4) or table top.

[SOURCE: IEC 60335-2-6:2014, 3.103]

3.1.11
griddle
appliance or part of an appliance constructed so that the food is only cooked by contact heat on closed surface

3.1.12
surface cooking appliance
appliance that can be a *hob* (3.1.10), *griddle* (3.1.11), surface *grill* (3.1.5) or a combination of these devices

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3.1.13
oven
appliance or part of an appliance having a closed compartment constructed so that the food is cooked by the heat transmitted by natural convection or by forced convection

Note 1 to entry: Can be freestanding, built-in, table top or part of a *cooking range* (3.1.4)

3.1.14
compartment grill
appliance or part of an appliance having a radiant heating element placed in a cavity

Note 1 to entry: Can be built-in or freestanding.

3.2 Definitions relating to gas

3.2.1
gas family
group of combustible gases with similar burning characteristics linked together by range of Wobbe indices

Note 1 to entry: Three gas families are known:

- First family: Town/Manufactured gas
- Second family: Natural gas
- Third family: Liquefied Petroleum Gas (LPG)

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3.2.2
Wobbe index
ratio of the calorific value of a gas per unit volume and the square root of its *relative density* (3.2.17) under the same *reference conditions* (3.2.15)

Note 1 to entry: In this document only the gross Wobbe index (W_S) is used

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Note 2 to entry: The Wobbe index is expressed either in

a) megajoules per cubic metre (MJ/m^3) of dry gas, or

b) megajoules per kilogram (MJ/kg) of dry gas.

3.2.3
test gas
gas intended for the verification of the operational characteristics of appliances using combustible gas; it can be *reference gas* (3.2.4) or *limit gas* (3.2.5)

3.2.4
reference gas
test gas (3.2.3) representative of the *gas family* (3.2.1) with which appliances operate under nominal conditions

3.2.5
limit gas
test gas (3.2.3) representative of the extreme variations in characteristics of the *gas family* (3.2.1) for which the appliances have been designed; such as:

— for *incomplete combustion* (3.2.10),

— for *flame lift* (3.2.6),

— for *light back* (3.2.7),

— for *sooting* (3.2.8) or *yellow tipping* (3.2.9).

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3.2.6
flame lift
phenomenon characterized by the partial or total movement of the base of the flame away from the burner port

3.2.7
light back
phenomenon characterized by the return of the flame inside the body of the burner or on the *injector* (3.3.10)

3.2.8
sooting
phenomenon appearing at the time of *incomplete combustion* (3.2.10) and characterized by a deposit of soot on the surfaces in contact with the flames or the *combustion products* (3.2.25)

3.2.9
yellow tipping
phenomenon characterized by the appearance of yellow colouring at the top of the blue cone of an aerated flame

3.2.10
incomplete combustion
combustion process which entails only partial burning of gas

Note 1 to entry: Carbon monoxide is typically produced as a by-product

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3.2.11
cross lighting
complete ignition of all ports around a ring of flame ports and/or successful ignition of all rings of ports from an adjacent ring of ports

3.2.12
heat input
quantity of energy used in unit time corresponding to the *volumetric* or *mass flow rates* (3.2.23, 3.2.24), the calorific value used being the *Gross calorific value* (3.2.16)

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Note 1 to entry: The heat input is expressed in kilowatts (kW)

3.2.13
nominal heat input
value of the *heat input* (3.2.12) as declared by the manufacturer

[SOURCE: ISO 22967:2010]

3.2.14
gas installation
a combination of the following used or intended to be used in the supplying and utilisation of gas taken as separate items or as a whole: Consumer piping, fittings, components, flues, sub-meters, apparatus or other devices and associated requirements

3.2.15
reference conditions
dry gas under conditions of temperature and pressure: 15 °C and 101,325 kPa

[SOURCE: ISO 6976:2016]

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3.2.16
Gross calorific value
amount of heat that would be released by the complete combustion with oxygen of a specified quantity of gas, in such a way that the pressure, 101,325 kPa, at which the reaction takes place remains constant, and all the *combustion products* (3.2.25) are returned to the same specified temperature, 15 °C, as that of the reactants, all of these products being in the gaseous state except for water, which is condensed to the liquid state at 15 °C

[SOURCE: ISO 6976:2016, 3.1, modified – p1 replaced by 101,325 kPa; t1 replaced by 15°C, Note to entry has been replaced]

Note 1 to entry: The calorific value is expressed:

– either in megajoules per cubic metre (MJ/m^3) of dry gas;

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

Note 2 to entry: In this document only the Gross calorific value is used

3.2.17
relative density
ratio of the masses of equal volumes of dry gas and dry air under the same conditions of temperature and pressure

[SOURCE: ISO 22967:2010, 3.2.3]

3.2.18
gas supply pressure
difference between the static pressure measured at the inlet connection of the appliance in operation and the atmospheric pressure

[SOURCE: EN 30-1-1:2008+A3:2013]

Note 1 to entry: The gas pressures used are expressed in kilopascals (kPa).

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3.2.19
test pressure
gas pressure used to verify the operational characteristics of appliances using combustible gases, consisting of normal or *limit pressure* (3.2.21)

[SOURCE: EN 30-1-1:2008+A3:2013]

3.2.20
normal pressure
pressure under which the appliances operate in nominal conditions, when they are supplied with the corresponding *reference gas* (3.2.4)

Note 1 to entry: The gas pressures used are expressed in kilopascals (kPa)

3.2.21
limit pressure
pressure representative of the extreme variations in the supply conditions

maximum pressure: p_{max};

minimum pressure: p_{min}

3.2.22
pressure couple
combination of two distinct gas distribution pressures applied by reason of the significant difference existing between the Wobbe indices within a single family in which:

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