



BSI Standards Publication

Domestic gas cooking appliances — Safety

Part 1: General requirements

National foreword

This British Standard is the UK implementation of ISO 21364-1:2025. It supersedes PD ISO/TS 21364-1:2021, which is withdrawn.

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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International
Standard

ISO 21364-1

**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 document 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 of 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 www.iso.org/iso/foreword.html.

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

This first edition of ISO 21364-1:2025 cancels and replaces ISO/TS 21364-1:2021.

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Gas burning appliances using fuel gases must withstand the type of gas which is specified. Other International Standards cover the testing and properties of fuel gases, e.g. ISO 6976 and ISO 13443.

Due to the differing properties of fuel gas, depending on its source and 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 is supplemented by the corresponding clauses of ISO 21364-21 and ISO 21364-22.

Domestic gas cooking appliances — Safety —

Part 1: General requirements

1 Scope

This document specifies the safety requirements for domestic gas cooking appliances. This covers appliances that 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 developed by ISO/TC 285.

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

NOTE 1 For requirements regarding electrical safety, refer to the IEC 60335 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 can apply;
- 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, *Codes for the representation of names of countries and their subdivisions — Part 1: Country code*

ISO 21364-22, *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 23551-1:2024, *Safety and control devices for gas burners and gas-burning appliances — Particular requirements — Part 1: Automatic and semi-automatic, shut-off valves*

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

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

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

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

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

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

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

IEC 60335-2-6:2024, *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, *Automatic electrical controls - Part 1: General requirements*

IEC 60730-2-5, *Automatic electrical controls - Part 2-5: Particular requirements for automatic electrical burner control systems*

IEC 60730-2-7, *Automatic electrical controls - Part 2-7: Particular requirements for timers and time switches*

IEC 60730-2-9, *Automatic electrical controls - Part 2-9: Particular requirements for temperature sensing controls*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology 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 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

3.1.4

cooking range

combination of a *hob* (3.1.9) and an *oven* (3.1.12) which can incorporate a *grill* (3.1.5) or a *griddle* (3.1.10)

Note 1 to entry: A cooking range can be freestanding or built-in.

[SOURCE: IEC 60335-2-6:2024, 3.5.104]

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: The appliance 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 60335-2-6:2024, 3.5.102 modified — Note 1 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* (3.1.12) and a gas *hob* (3.1.9) or a *hob* (3.1.9) 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 requirement of a warming drawer is applied to a warming cabinet.

3.1.8

table-top appliance

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

Note 1 to entry: A table-top appliance can be portable.

Note 2 to entry: Portable appliances have a mass less than 18 kg.

3.1.9

hob

appliance that incorporates either one or several covered or open burners, or one or more electric heating element(s), or both

Note 1 to entry: A hob can be built-in, part of a *cooking range* (3.1.4) or table top.

3.1.10

griddle

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

3.1.11

surface cooking appliance

appliance that can be a *hob* (3.1.9), *griddle* (3.1.10), *surface grill* (3.1.5) or a combination of these devices

3.1.12

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: The oven can be freestanding, built-in, table top or part of a *cooking range* (3.1.4).

3.1.13

compartment grill

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

Note 1 to entry: The compartment grill can be built-in or freestanding.

3.2 Definitions relating to the tests

3.2.1

gas family

group of combustible gases with similar burning characteristics linked together by a range of Wobbe indices

Note 1 to entry: Three gas families are known:

- First family: Town gas or manufactured gas.
- Second family: Natural gas.
- Third family: Liquefied petroleum gas (LPG).

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: The Wobbe index is said to be gross (W_g) or net (W_i) according to whether the calorific value used is the gross or net calorific value.

Note 2 to entry: In this document, only the gross Wobbe index (W_g) is used.

Note 3 to entry: The Wobbe index is expressed either in:

- a) megajoules per cubic metre (MJ/m³) of dry gas;
- 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).

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 of incomplete combustion.

3.2.11

cross lighting

either complete ignition of all ports around a ring of flame ports or successful ignition of all rings of ports from an adjacent ring of ports, or both

3.2.12

heat input

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

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, 3.5.1.8]

3.2.14

gas installation

combination of consumer piping, fittings, components, flues, sub-meters, apparatus or other devices and associated requirements, which are used or intended to be used in the supply and utilisation of gas taken as separate items or as a whole

3.2.15

reference conditions

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

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

Note 1 to entry: The calorific value is expressed:

- either in megajoules per cubic metre (MJ/m³) 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.

[SOURCE: ISO 6976:2016, 3.1, modified — "p₁" is replaced by "101,325 kPa"; "t₁" is replaced by "15 °C", and Note 1 to entry has been replaced.]

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

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

[SOURCE: EN 30-1-1:2021, 3.3.2.1]

3.2.19

test pressure

gas pressure used to verify the operational characteristics of appliances using combustible gases, consisting of *normal pressure* (3.2.20) or *limit pressure* (3.2.21)

[SOURCE: EN 30-1-1:2021, 3.3.2.2, modified — Notes to entry deleted.]

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).

Note 2 to entry: Normal pressure can be designated as p_n .

[SOURCE: EN 30-1-1:2021, 3.3.2.3, modified — Notes to entry deleted.]

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:

- the higher pressure corresponds only to gases of low *Wobbe index* (3.2.2);
- the lower pressure corresponds to gases of high *Wobbe index* (3.2.2)

[SOURCE: EN 437:2021, 3.9, modified — Note 1 to entry has been deleted.]

3.2.23

volumetric flow rate

volume of gas consumed by the burner or burners in unit time, with the gas under *reference conditions* (3.2.15)

Note 1 to entry: The volumetric flow rate is expressed in cubic meter per hour (m³/h) or possibly litre per minute (l/min), litre per second (l/s), cubic decimetre per hour (dm³/h), cubic decimetre per second (dm³/s).

[SOURCE: EN 30-1-1:2021, 3.5.4, modified — "Volume rate" is replaced by "volumetric flow rate".]

3.2.24

mass flow rate

mass of gas consumed by the appliance in unit time during continuous operation

Note 1 to entry: The mass flow rate is expressed in kilogram per hour (kg/h), or eventually gram per hour (g/h).

[SOURCE: EN 30-1-1:2021, 3.5.3]

3.2.25

combustion products

constituents resulting from the combustion of a fuel gas with the oxygen of the air, including the inerts, but excluding excess air

3.3 Definitions relating to components

3.3.1

pressure regulator

device that maintains the outlet pressure constant within given limits, independently of the variations in either the inlet pressure or flow rate, or both

[SOURCE: ISO 23551-2:2018, 3.1.1, modified — NOTE deleted.]

3.3.2

manual gas shut-off valve

manually operated valve for the control of the gas flow from an "off" to an "on" position and vice versa

[SOURCE: ISO 23551-5:2023, 3.1, modified — Note 1 to entry deleted.]

3.3.3

multifunctional control

combination of two or more controls, at least one of which is a mechanical control, whereby the functional parts cannot operate if separated

[SOURCE: ISO 23551-8: 2023, 3.1.1]

3.3.4

mechanical thermostat

thermostat which controls the temperature by adjusting the flow rate accordingly to the temperature of the thermal sensing element without any external energy, such that the temperature remains within defined limits

[SOURCE: ISO 23551-9:2015, 3.1]

3.3.5

flame supervision device

FSD

device designed to stop flammable gas going to the burner of a gas appliance if the flame is extinguished

3.3.6

thermoelectric flame supervision control

thermoelectric flame supervision device

control which, in response to the electromagnetic force produced by the thermocouple, maintains the gas way to the main burner open and which shuts off the gas way after extinction of the supervised flame

[SOURCE: ISO 23551-6:2021, modified — Note 1 to entry has been deleted; "e.m.f." replaced with "electromagnetic force", and "and the pilot burner" has been deleted.]

3.3.7

opening time

time which elapses between the ignition of the supervised flame and the moment when the effect of this flame is sufficient to hold open the shut-off device

[SOURCE: EN 30-1-1:2021, 3.5.12]

3.3.8

extinction delay time

time which elapses between the extinction of the supervised flame and the closure of the gas supply controlled by the *flame supervision device* ([3.3.5](#))

[SOURCE: EN 30-1-1:2021, 3.5.13]

3.3.9

automatic shut-off valve

valve which opens when energized and closes automatically when de-energized

[SOURCE: ISO 23551-1:2024, 3.1.3]

3.3.10

injector

component part that admits the gas into an aerated burner

Note 1 to entry: There are two types of injectors:

- calibrated injector in which the section of the outlet orifice is fixed;
- adjustable injector in which the section of the outlet orifice is variable.

[SOURCE: EN 30-1-1:2021, 3.4.16]

3.3.11

low rate adjuster

device allowing the reduced gas rate to a burner to be set at a pre-determined value according to the supply conditions

Note 1 to entry: The adjustment can be continuous (adjustment screw) or discontinuous (change of calibrated orifices, etc.).

Note 2 to entry: The operation of changing the setting of this device is termed the "adjustment of the reduced gas rate".

[SOURCE: EN 30-1-1:2021, 3.4.2.7, modified — Term changed from "reduced gas rate adjuster" to "low rate adjuster".]

3.3.12

air rate adjuster

device allowing the aeration of a burner to be set at a pre-determined value according to the supply conditions

[SOURCE: EN 30-1-1:2021, 3.4.2.6, modified — Term changed from "primary air adjuster" to "air rate adjuster".]

3.3.13

spacer

component used in a gap to maintain a predetermined gap width

[SOURCE: ISO 6707-1:2020, 3.3.97 — "Small" deleted.]

3.3.14

touch control

control actuated by contact or proximity of a finger, with little or no movement of the contact surface

[SOURCE: IEC 60335-2-6:2024, 3.116]

3.3.15

pan support

support placed above an uncovered hob burner, which supports the pan being heated

3.3.16

covered burner

burner under a removable closed cooking surface; there is no direct flame contact to the pan or food

3.3.17

automatic burner control system

ABCS

system which includes a *programming unit* ([3.3.18](#)), a *flame detector* ([3.3.19](#)), can include an ignition system and which monitors the operation of gas burners

[SOURCE: IEC 60730-2-5:2013, 2.2.101, modified — "Ignition source" replaced by "ignition system", and "fuel" replaced by "gas".]

3.3.18

programming unit

device which controls the burner operation in a declared sequence from start-up to shut-down within declared timings and in response to signals from regulating, limiting and monitoring devices

[SOURCE: IEC 60730-2-5:2013, 2.2.106]

3.3.19

flame detector

device which provides the *programming unit* ([3.3.18](#)) with a signal indicating the presence or absence of flame

[SOURCE: IEC 60730-2-5:2013, 2.2.102]

3.3.20

indirect manually operated burner control

device to isolate the gas supply to a burner and possibly to adjust its thermal function during use, in which case the opening and closing of the gas supply to the burner is achieved indirectly by means of one or more automatic shut off valves

Note 1 to entry: This control can incorporate a means of adjusting the thermal function of the burner. For example:

- by adjusting the gas flow (e.g. high-low thermostat);
- by on-off cycling (e.g. on-off thermostat, *gas energy regulator* ([3.3.21](#))).

[SOURCE: EN 30-1-4:2012, 3.1.1, modified — Term has been shortened and Note 1 to entry added.]

3.3.21

gas energy regulator

indirect manually operated burner control ([3.3.20](#)) that cycles the burner on and off periodically

Note 1 to entry: The thermal function of the burner can be controlled by adjusting the duration of the "on" and/or "off" cycles times.

[SOURCE: EN 30-1-4:2012, 3.2.2.4]

3.3.22

direct flame establishment

type of ignition which is applied directly to the main burner, without the use of a pilot

3.3.23

hob guard

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

3.4 Definitions relating to the function of the automatic burner control system (ABCS)

3.4.1

safety shut-down

de-energization of the main gas flow means as the result of the action of a limiter, a cut-out or the detection of an internal fault of the system

[SOURCE: IEC 60730-2-5:2013, 2.3.32 modified — "Fuel" replaced by "gas", and Note 1 to entry deleted.]

3.4.2

flame detector response time

period of time between the loss of the sensed flame and the signal indicating the absence of flame

[SOURCE: IEC 60730-2-5:2013, 2.3.103]

3.4.3

flame failure lock-out time

period of time between the signal indicating absence of flame and lock-out

[SOURCE: IEC 60730-2-5:2013, 2.3.107]

3.4.4

flame failure re-ignition time

period of time between the signal indicating absence of flame and the signal to energize the ignition device, during which the gas supply is not shut off

[SOURCE: IEC 60730-2-5:2013, 2.3.108 modified — Fuel replaced by gas.]

3.4.5

start-up lock-out time

period of time between the signal to energize the gas supply means and lock-out

[SOURCE: IEC 60730-2-5:2013, 2.3.125 modified — "fuel flow" replaced by "gas supply".]

3.4.6

lock-out

process in which the system goes into one of the following lock-out conditions, following *safety shut-down* ([3.4.1](#))

- non-volatile lock-out :
condition such that a restart can only be accomplished by a manual reset of the system and by no other cause
- volatile lock-out:
condition such that a restart can be accomplished by either a manual reset of the system or by an interruption of the power supply and its subsequent restoration

[SOURCE: IEC 60730-2-5:2013, 2.3.112]

3.4.7

automatic recycle

automatic repetition of the start-up procedure, without manual intervention, following loss of the supervised flame and subsequent gas supply shut off

[SOURCE: IEC 60730-2-5:2013, 2.3.101]

3.4.8

ignition energy restoration

process by which, after disappearance of the flame signal in the running condition or, where appropriate, in the event of failure to ignite, the ignition device is energized again without the gas supply having been totally interrupted

[SOURCE: EN 30-1-4:2012, 3.2.3.5, modified — Note 1 to entry deleted]

3.4.9

flame simulation

condition which occurs when the *flame detector* ([3.3.19](#)) indicates the presence of flame when, in reality, no flame is present

[SOURCE: IEC 60730-2-5:2013, 2.3.110]

3.4.10

re-ignition time

period of time between ignition energy restoration and lock-out

3.5

qualified person

person with relevant education, training, knowledge and experience to enable him or her to perceive the risks and to avoid danger which is related to gas appliances

4 Components in gas cooking appliances

4.1 General

Components in gas cooking appliances shall conform with the applicable ISO or IEC Standards specified in Clause 4. Components not covered by these standards shall be tested in the appliance.

4.2 Manual gas shut-off valves

Manual gas shut-off valves shall conform with ISO 23551-5.

For a manual gas shut-off valve operated by rotation, the closing direction shall be clockwise. This does not apply to a combined manual gas shut-off valve for oven and grill burners.

4.3 Knobs

4.3.1 Design of knobs

The purpose of knobs shall be clearly identifiable in respect to the burner they control. Removable knobs shall be constructed such that installation shall be possible in only the correct orientation.

4.3.2 Marking for knobs

Markings shall be clearly visible, legible and durable. It shall be easy for the user to identify the burner and the setting that the markings refer to.

The closed position shall be marked with figure "0", or a full disc or a circle of at least 3 mm in diameter.

The closed position for all knobs shall be the same.

Symbols for the other positions can be as shown in [Table 1](#).

Table 1 — Marking symbols for knob position

Knob position	Position description	Symbol
full rate position	large flame	
reduced rate position	small flame	
range of rates	triangle	 or 
	scale	1 2 3 4 or 4 3 2 1
position of ignition	stylized star	

Other symbols may be used except letters.

If there is a special position for ignition, it shall be marked e.g. by a stylized star.

4.4 Multifunctional controls

Multifunctional controls shall conform with ISO 23551-8.

4.5 Thermoelectric flame supervision controls

4.5.1 General

Thermoelectric flame supervision controls shall conform with ISO 23551-6. Its sensing element shall supervise a single burner only.

In the case of a failure of any of the components indispensable to their operation, the supply of gas controlled by the device is cut off automatically and its re-establishment shall require manual intervention.

For measuring the opening time and the extinction delay time, the appliance shall be supplied with each of the reference gases that the appliance can use at the corresponding normal pressure.

4.5.2 Opening time

4.5.2.1 Requirement

During the following test the opening time of a hob burner shall be less than 10 s. The opening time of an oven or a grill burner shall be less than 15 s.

4.5.2.2 Test

The appliance shall be in cold conditions. Each burner is lit, and the opening time is measured as the time between the moment the flame appears and the moment when the thermoelectric flame supervision control allows admission of gas to the burner without manual intervention.

4.5.3 Extinction delay time

4.5.3.1 Requirement

During the following test, the extinction delay time for hob burners shall be less than 90 s. The extinction delay time for an oven or grill burner shall be less than 60 s.

4.5.3.2 Test

The burner is operated at full rate for 20 min and hob burners are equipped with a pan according [5.7](#) and filled with water up to (50 ± 2) mm from the bottom. The extinction delay time is measured between the

moment when the flame goes off (e.g. by cutting and immediately restoring the gas supply) and the moment when gas flow to the burner stops due to the action of the thermoelectric flame supervision control.

4.6 Thermostats

Mechanical thermostats for domestic gas cooking appliances shall conform with ISO 23551-9.

Electrical thermostats shall conform with IEC 60730-2-9 and IEC 60335-2-6:2024, 24.101.

4.7 Pressure regulators

4.7.1 General

Pressure regulators shall conform with ISO 23551-2.

A pressure regulator is prohibited for appliances operating with a pressure couple.

4.7.2 Regulation capacity

4.7.2.1 Requirement

Under the test conditions below, the gas rate shall be within $\pm 7,5$ % of the rate obtained at the normal pressure.

4.7.2.2 Tests

4.7.2.2.1 General

Two tests shall be performed using reference gas at ambient temperature.

The gas rate is adjusted as described for Test 1 and Test 2, and then, the pressure is varied between minimum pressure and maximum pressure of the corresponding reference gas (corresponding table of [Annex A](#)).

4.7.2.2.2 Test 1

For an appliance with several burners, the gas rate corresponds to two thirds of the sum of the nominal heat inputs of all the burners, which can function simultaneously. For an appliance with only one burner, the gas rate corresponds to the nominal heat input.

4.7.2.2.3 Test 2

The appliance gas rate is adjusted to 0,08 m³/h for first family gases and to 0,05 m³/h for second family gases, and to 0,02 m³/h for third family gases.

4.8 Automatic shut-off valves

Automatically operated valves shall conform with ISO 23551-1.

If automatic shut-off valves are used to assure the safety shut-down in combination with an ABCS, the requirements specified in [4.8](#) apply.

All gas supplies to each burner shall have an automatic shut-off valve system in accordance with one of the following:

- a) two automatic shut-off valves connected to the gas line in series, one of class C and one of class J;
- b) an automatic shut-off valve of class C connected to the gas line in series with a manual gas shut-off valve.

The automatic shut-off valves of class C can be common to all burners of the appliance if failure does not create a hazard.

NOTE The class C valves can be replaced by valves of class B or A. The class J valves can be replaced by valves of class C, B or A.

A strainer shall be fitted at the inlet of any system incorporating automatic shut-off valve(s) to prevent the ingress of foreign matter.

For class C, B or A valve, the maximum diagonal strainer hole dimension shall not be greater than 1,5 mm and a 1 mm pin gauge shall not pass the mesh. The strainer can be integral with the upstream automatic shut-off valve.

If a class J valve is utilized, a strainer shall be used such that it does not pass a 0,2 mm pin gauge.

In systems comprising multiple automatic shut-off valves of classes A, B C or J, only one strainer is necessary to be fitted, provided it gives adequate protection to all valves.

Where a pressure regulator is fitted upstream of the automatic shut-off valve system, the strainer shall be fitted upstream of the pressure regulator.

The operating cycles for automatic shut-off valves are given in Table 4 of ISO 23551-1:2024.

4.9 Injectors and adjusters

4.9.1 General

Air rate adjusters and injectors shall be of metallic material and have a melting point above 500 °C. Additionally they shall be corrosion resistant or have a corrosion resistant finish.

4.9.2 Injectors

It shall only be possible to mount and dismantle an injector with the use of a tool.

Injectors, that are likely to be soiled as a result of cooking, shall be accessible for cleaning. They shall be indelibly marked for identification if, once the appliance is installed, it is possible to dismantle and exchange the injectors.

4.9.3 Air rate adjusters

Air rate adjuster shall be set in the factory and, if necessary, shall only be adjusted by a qualified person.

Air rate adjusters shall be locked. They shall not be unlocked without the aid of a tool.

NOTE Locked in the adjustment position means fixed or immobilized.

4.9.4 Low rate adjusters

Low rate adjusters shall be set and locked in the factory.

Low rate adjusters shall only be adjusted by a qualified person according to the instructions for conversion to various gases.

It shall only be possible to move the adjuster with the use of a tool. Adjusting screws shall be placed so that they cannot fall into the gas passage.

NOTE Locked in the adjustment position means fixed or immobilized.

4.10 Ignition systems

A touchable spark ignition system shall conform with IEC 60335-2-102:2017, 8.101.

It shall withstand 25 000 cycles of operation.

All the components of the ignition device shall be designed to avoid damage or accidental displacement in normal use. The relative position of the ignition device and the burner shall be sufficiently well defined to ensure satisfactory operation of the assembly.

For appliances without ABCSs, in the event of failure of the ignition system for the burner(s) of the appliance, it shall be possible to light the burner(s) concerned with a match after removing, if necessary, a movable part (griddle, bottom of the oven, etc.). This requirement shall not apply to oven burners that are designed specifically to prevent the ignition by manual means. In this case, the manufacturer's instructions for use and maintenance shall state that the ignition by manual means is prohibited.

The electrical safety shall be checked according to IEC 60335-2-102:2017.

4.11 Thermal cut-outs

Thermal cut-outs of the capillary type shall conform with the requirements for type 2 K controls in IEC 60730-2-9.

4.12 Components for appliances with automatic burner control system (ABCS)

4.12.1 General

ABCSs shall conform to IEC 60730-2-5. ABCSs shall have safety times as specified in [Table 2](#).

Table 2 — Operation time and limits for safety times

Operation time	Hobs	Ovens
for test with heat sensitive FSD	20 min	15 min
Safety time:	Hobs	Ovens
start-up lock-out time	< 60 s	< 60 s
sum of flame detector response time and flame failure lock-out time	< 10 s	< 3 s
sum of flame detector response time and flame failure re-ignition time	< 10 s	< 3 s
sum of flame detector response time, flame failure re-ignition time, and reignition time	< 60 s	< 60 s

NOTE 1 For better understanding of the test procedure see [Figure 1](#), [Figure 2](#) and [Figure 3](#).

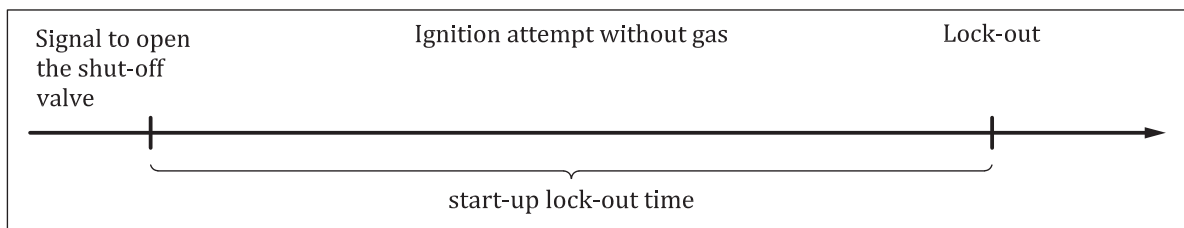


Figure 1 — Direct flame establishment

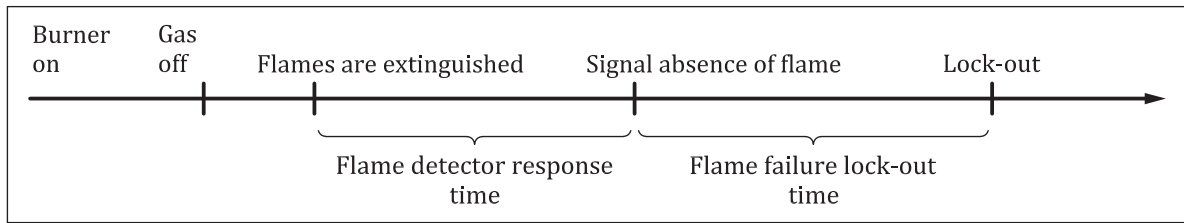


Figure 2 — Flame failure without ignition energy restoration

NOTE 2 The term “gas off” means the intentional “shut off” of the gas supply.

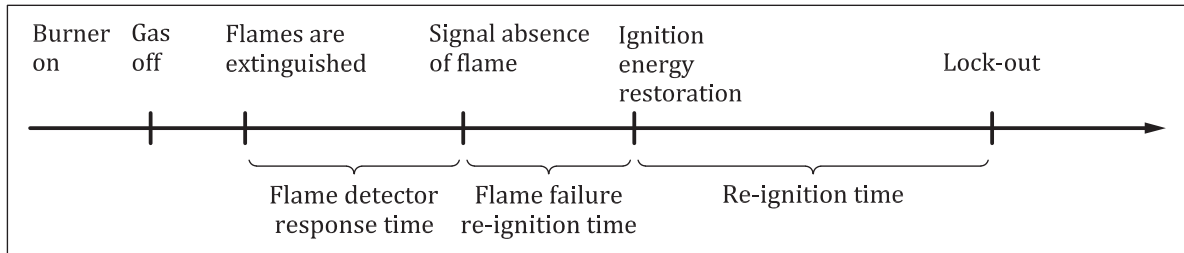


Figure 3 — Flame failure with ignition energy restoration

Safety devices which require a non-volatile lockout to occur shall give rise to simultaneous signal to close the two valves.

In case of flame failure on one burner, only the gas supply to this burner shall be shut-off.

The functioning of safety devices shall not be overruled by any controlling device

In response to a control device, if the delay between the signals to close the two valves is not greater than 5 s, the signals are considered to be simultaneous.

4.12.2 Flame detection system

4.12.2.1 General

Each burner controlled by an ABCS shall be equipped with a flame detector.

When the burner is started from the shut-down condition, the flame detector system shall prevent any ignition attempt or the opening of any automatic shut-off valve if a flame or flame simulation is present.

4.12.2.2 Requirement

The addition of the flame detector response time and the flame failure lock-out time (or flame failure re-ignition time) for each flame detector shall not exceed the times specified in [Table 2](#) and shall be verified by the test specified in [4.12.2.3](#).

4.12.2.3 Test

Each burner having an ABCS is adjusted to its nominal heat input and tested separately.

With the burner control system in the running condition, isolate the gas supply to the burner. Measure the time interval between when the burner flames are extinguished and the signal to lock-out or to start recycle or re-ignition is given.

If the burner has a flame supervision device (FSD) that is heat sensitive, this test is carried out after the operation time specified in [Table 2](#), with the following settings:

- a hob or surface grill burner being adjusted at a position corresponding to half nominal heat input;
- a thermostat or burner control of an oven or compartment grill burner being adjusted to the position or setting giving the highest temperature at maximum test pressure.

When, following isolation of the gas supply, the burner flames have been extinguished, the gas supply to the burner is restored.

4.12.3 Direct flame establishment

4.12.3.1 Requirement

The burner shall be capable of being ignited directly at its nominal heat input or at any specific ignition position.

The start-up lock-out time shall not exceed the times specified in [Table 2](#).

The start-up lock-out time shall be verified for each burner having an ABCS under the following test.

4.12.3.2 Test

Shut-off the gas supply to the burner concerned. Attempt to light the burner in accordance with the instructions for use and measure the time interval between the signal to open and the signal to close (lock-out) the automatic shut-off valve(s) in the event of failure to ignite.

When the ignition device operates with sparks, it shall be energized at or before the signal to open the main gas valve(s) but no later than the moment when gas arrives at the burner. In the case of a hot surface igniter, the ignition device shall be so energized that the ignition source is capable of igniting incoming gas before the main gas valves are opened (see [Figure 1](#)).

4.12.4 Safety in the event of a failure to ignite

4.12.4.1 For hob and surface grill burners

If the flame has not been detected by the end of the start-up lock-out time, the control system shall cause either of the following:

- non-volatile lock-out;
- volatile lock-out;
- automatic recycle;
- ignition energy restoration to occur.

Where ignition energy restoration is used, the re-ignition attempt(s) shall finish by the end of the start-up lock-out time (see [Table 2](#)).

If this re-ignition attempt is not successful, volatile or non-volatile lock-out shall result.

4.12.4.2 For oven and compartment grill burner

If the flame has not been detected by the end of the start-up lock-out time, non-volatile lock-out of the burner or system shall occur. In addition, in the instructions for use and maintenance concerning the lighting of the burner shall include a specific instruction to warn the user that if the burner does not light, to wait at least one minute before making a new attempt to light the burner.

4.12.5 Safety in the event of a flame failure

4.12.5.1 For hob and surface grill burners

Flame failure in the running condition shall result in either of the following:

- non-volatile lock-out;
- volatile lock-out;
- automatic recycle;
- ignition energy restoration to occur.

Where ignition energy restoration is used, the re-ignition attempt(s) shall finish by the end of the start-up lock-out time (see [Table 2](#)).

If this re-ignition attempt is not successful, volatile or non-volatile lock-out shall result.

The signal to lock-out or to start recycle or re-ignition shall happen later 10 s after the flame has been extinguished.

4.12.5.2 For oven and compartment grill burner

Flame failure in the running condition shall result in non-volatile lock-out of the burner or system.

4.13 Indirect manually operated burner control

4.13.1 General

Indirect manually operated burner controls shall only be used in combination with an ABCS.

The purpose of indirect manually operated burner controls shall be clearly identifiable with respect to the burners they control.

For a given appliance, all controls controlling the same type of burners shall be of the same type.

4.13.2 Controls having a single closing direction

The control shall have two stops, one in “off” position, and the other at the other end of the travel.

The reduced rate, if it exists, may be obtained either:

- a) at the end of the travel remote from the “off” position; or
- b) in an intermediate position between the closed and fully opened positions.

4.13.3 Controls having two closing directions

The “off” position shall be provided with means:

- a) that arrest the control in this position when it is turned off from either closing direction; and
- b) that avoid inadvertent movement of the control from the “off” position e.g. by use of suitable detents.

The operation of the burner(s) shall be able to be verified at any time by the user, either by means of visual observation of the flames, or by other indirect means.

When an indirect means of signalling is used (e.g. indicator light), the signalling of the existence of a flame shall not be able to be confused with the signalling of any fault, except for a fault in the functioning of the flame detector itself, which shall manifest itself by an indication of loss of flame.

5 General conditions of test

5.1 Reference conditions

All determined values of this document shall be in accordance with the following reference conditions:

- dry gas;
- temperature of 15 °C;
- pressure of 101,325 kPa.

Only the Gross calorific value (H_g) shall be used.

5.2 Reference and test gases

5.2.1 Characteristics of the test gases

The burners shall be tested with the test gases indicated in [Annex A](#), in the corresponding table for the countries of destination.

5.2.2 Conditions for producing test gases

The composition of the gases used for the tests shall be as near as possible to those given in [Annex A](#), in the corresponding table for the countries of destination. The production of these gases shall be in accordance with the following rules:

- the Wobbe index of the gas used shall be within ± 2 % of the value indicated in the table for the corresponding test gas (this tolerance includes the error of the measuring equipment);
- the constituents of the test gases shall have the minimum degree of purity according to [Annex B, Table B1](#).

5.3 Test pressures

The test pressures, i.e. the static pressure to be applied at the gas inlet connection of the appliance in operation, are given in [Annex A](#), in the corresponding table for the countries of destination.

5.4 Temperature conditions

The ambient temperature for the tests shall be (20 ± 5) °C. All tests shall be carried out in a substantially draught-free room in which the ambient temperature is maintained during the complete test.

The ambient temperature is measured with an appropriate instrument under the following conditions:

- at a height of (900 ± 50) mm from the floor;
- at a distance of between 1 m and 1,5 m from the appliance;
- using an instrument which is accurate to within $\pm 0,5$ °C.

The instrument shall not be affected by radiation from the appliance.

For the purposes of this document, the burner is considered to be cold, when it meets the specification for ambient temperature. A burner is considered to be hot after 10 minutes of operation at full rate (hot conditions).

5.5 Adjustment of the burner

For all the tests, the appliance shall be fitted with the appropriate injector(s) for the family of gases to which the test gas belongs. The adjusters, if any, shall be adjusted according to the instructions for the installer.