

Domestic cooking appliances burning gas

Part 1-1: Safety — General

ICS 97.040.20

National foreword

This British Standard is the UK implementation of EN 30-1-1:2008+A3:2013, incorporating corrigendum November 2011. It supersedes BS EN 30-1-1:2008+A2:2010 which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by **A1** **A1**.

The start and finish of text introduced or altered by corrigendum is indicated in the text by tags. Text altered by CEN corrigendum November 2011 is indicated in the text by **AC** **AC**.

The UK participation in its preparation was entrusted to Technical Committee GSE/35, Gas cooking appliances (domestic).

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2008

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ISBN 978 0 580 79304 2

Amendments/corrigenda issued since publication

Date	Comments
31 August 2010	Implementation of CEN amendment A1:2010
31 January 2011	Implementation of CEN amendment A2:2010
31 January 2012	Implementation of CEN corrigendum November 2011
30 April 2013	Implementation of CEN amendment A3:2013

English Version

Domestic cooking appliances burning gas - Part 1-1: Safety - General

Appareils de cuisson domestiques utilisant les combustibles
gazeux - Partie 1-1: Sécurité - Généralités

Haushalt-Kochgeräte für gasförmige Brennstoffe - Teil 1-1:
Sicherheit - Allgemeines

This European Standard was approved by CEN on 11 July 2008 and includes Amendment 1 approved by CEN on 29 May 2010, Amendment 2 approved by CEN on 4 October 2010, Corrigendum 1 issued by CEN on 23 November 2011 and Amendment 3 approved by CEN on 31 December 2012.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Foreword

This document (EN 30-1-1:2008+A3:2013) has been prepared by Technical Committee CEN/TC 49 “Gas cooking appliances”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2013, and conflicting national standards shall be withdrawn at the latest by August 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document includes Corrigendum 1 issued by CEN on 23 November 2011, Amendment 1 approved by CEN on 29 May 2010, Amendment 2 approved by CEN on 4 October 2010 and Amendment 3 approved by CEN on 31 December 2012.

This document supersedes A3 EN 30-1-1:2008+A2:2010 A3.

The start and finish of text introduced or altered by amendment is indicated in the text by tags A1 A1, A2 A2 and A3 A3.

The modifications of the related CEN Corrigendum have been implemented at the appropriate places in the text and are indicated by the tags AC AC.

This document has been prepared under a mandate 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.

AC Requirements concerning the emission of NO_x are not mentioned in this European Standard; taking account of the usage of the appliances and their low output, their contribution to environment pollution is negligible. AC

EN 30 *Domestic cooking appliances burning gas* consists of the following parts:

- *Part 1-1: Safety — General;*
- *Part 1-2: Safety — Appliances having forced-convection ovens and/or grills;*
- *Part 1-3: Safety — Appliances having a glass ceramic hotplate;*
- *Part 1-4: Safety — Appliances having one or more burners with an automatic burner control system;*
- *Part 2-1: Rational use of energy — General;*
- *Part 2-2: Rational use of energy — Appliances having forced-convection ovens and/or grills.*

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the construction and performance characteristics as well as the requirements and methods of test for the safety and marking of freestanding and built-in domestic cooking appliances burning the combustible gases given in 4.1 according to the categories specified in 4.2, referred to in the text as "appliances".

This European Standard covers the following types of domestic cooking appliances, as defined in Clause 3, and belonging to the classes defined in 4.3 (see Table 1):

- independent freestanding hotplates;
- independent built-in hotplates;
- independent hotplates and grills;
- table cookers;
- freestanding ovens;
- built-in ovens;
- freestanding or built-in grills;
- griddles;
- freestanding cookers;
- built-in cookers.

Unless specifically excluded hereafter, this European Standard applies to these appliances or their component parts, whether or not the component parts are independent or incorporated into a single appliance, even if the other heating components of the appliance use electrical energy (e.g. combined gas-electric cookers).

This European Standard includes requirements covering the electrical safety of equipment incorporated in the appliance that is associated with the use of gas. It does not include requirements covering the electrical safety of electrically-heated component parts or their associated equipment¹⁾.

This European Standard does not apply to:

- a) outdoor appliances;
- b) appliances connected to a combustion products evacuation duct;
- c) appliances having a pyrolytic gas oven;
- d) appliances having covered burners which are not in conformity with the constructional requirements of 5.2.8.2.2;
- e) appliances incorporating flame supervision devices and having an automatic ignition device for which the duration of the ignition attempt is limited by design;
- f) appliances equipped with a burner that is periodically ignited and extinguished under the control of an automatic on/off device;

1) Refer to the electrical safety rules.

- g) appliances equipped with an oven and/or with a grill having a fan:
 - 1) either for the supply of combustion air or for the evacuation of the products of combustion;
 - 2) or for the circulation of the products of combustion within the compartments;
- h) appliances supplied at pressures greater than those defined in 7.1.2;
- i) appliances having one or more burners that are capable of remote operation (type 1 or type 2), unless the burner(s) concerned are thermostatically controlled oven burners of time-controlled ovens that are designed for a delayed start without the user being present;

A1

- j) appliances incorporating one or more hotplate or grill burners that enable the user to program the cooking cycle, including the start and/or the end of the cycle. **A1**

This European Standard does not cover the requirements relating to third family gas cylinders, their regulators and their connection.

This European Standard only covers type testing.

Table 1 — Three-language table of the names of the different types of domestic cooking appliances

- Tables de cuisson isolées	- Freistehende Kochteile	- Independent hotplates - freestanding
- Tables de cuisson à encastrer	- Eingebaute Kochteile	- Independent hotplates - built-in
- Tables-grilloirs	- Kochteile mit Strahlungsgrilleinrichtung	- Independent hotplates and grill
- Réchauds-fours	- Tischherde	- Table cookers
- Fours isolés	- Freistehende Backöfen	- Ovens - freestanding
- Fours à encastrer	- Einbaubacköfen	- Ovens - built-in
- Grilloirs par rayonnement isolés	- Freistehende Strahlungsgrilleinrichtungen	- Grills - freestanding
- Grilloirs par rayonnement à encastrer	- Eingebaute Strahlungsgrilleinrichtungen	- Grills - built-in
- Grilloirs par contact	- Kontaktgrilleinrichtungen	- Griddles
- Cuisinières isolées	- Freistehende Herde	- Cookers - freestanding
- Cuisinières encastrées	- Eingebaute Herde	- Cookers - built-in

2 Normative references

[A3] The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. **[A3]**

EN 88-1:2007, *Pressure regulators and associated safety devices for gas appliances — Part 1: Pressure regulators for inlet pressures up to and including 500 mbar*

EN 125:1991, *Flame supervision devices for gas-burning appliances — Thermo-electric flame supervision devices*

EN 126:2004, *Multifunctional controls for gas burning appliances*

EN 257:1992, *Mechanical thermostats for gas-burning appliances*

[A1] EN 437:2003+A1:2009 **[A1]**, *Test gases — Test pressures — Appliance categories*

EN 549:1994, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 751-1:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 1: Anaerobic jointing compounds*

EN 751-2:1996, *Sealing materials for metallic threaded joints in contact with 1st, 2nd and 3rd family gases and hot water — Part 2: Non-hardening jointing compounds*

[AC] EN 1106:2010 **[AC]**, *Manually operated taps for gas burning appliances*

EN 10226-1:2004, *Pipe threads where pressure tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads — Dimensions, tolerances and designation*

EN 10226-2:2005, *Pipe threads where pressure tight joints are made on the threads — Part 2: Taper external threads and taper internal threads — Dimensions, tolerances and designation*

EN 60068-2-75:1997, *Environmental testing — Part 2: Tests — Test Eh: Hammer tests (IEC 60068-2-75:1997)*

EN 60335-1:2002, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1:2001, modified)*

EN 60335-2-6:2003, *Household and similar electrical appliances — Safety — Part 2-6: Particular requirements for stationary cooking ranges, hobs, ovens and similar appliances (IEC 60335-2-6:2002, modified)*

EN 60335-2-102:2006, *Household and similar electrical appliances — Safety — Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections (IEC 60335-2-102:2004, modified)*

EN 60584-1:1995, *Thermocouples — Part 1: Reference tables (IEC 60584-1:1995)*

EN 60730-2-1:1997, *Automatic electrical controls for household and similar use — Part 2: Particular requirements for electrical controls for electrical household appliances (IEC 60730-2-1:1989, modified)*

EN ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

EN ISO 3166-1:2006, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes (ISO 3166-1:2006)*

ISO 5732:1978, *Kitchen equipment — Sizes of openings for built-in appliances*

 deleted text 

3 Terms and definitions

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

3.1 General terms and definitions

3.1.1

conversion

operation carried out by a specialist on an appliance at the time of a change of gas

3.1.2

removable

can be removed without the aid of a tool

3.1.3

reference conditions

15 °C, 1 013,25 mbar

3.1.4

mechanically fastened

can only be removed with the aid of a tool

3.1.5

normal maintenance

maintenance carried out by a specialist not including any replacement of parts

3.1.6

soft soldering

soldering for which the lowest temperature of the melting range, after application, is less than 450 °C

3.1.7

direct country of destination

country for which the appliance has been certified and which is specified by the manufacturer as the intended country of destination, such that, at the time of putting the appliance on the market and/or installation, the appliance needs to be capable of operating, without adjustment or modification, with one of the gases distributed in the country concerned, at the appropriate supply pressure

NOTE More than one country can be specified if the appliance, in its current state of adjustment, can be used in each of these countries.

3.1.8

indirect country of destination

country for which the appliance has been certified, but for which, in its present state of adjustment, it is not suitable; subsequent modification or adjustment is essential in order that it can be utilized safely and correctly in this country

3.2 Terms and definitions relating to the appliance

3.2.1

appliance incorporating a cylinder

appliance functioning in particular with third family gases which includes a compartment for the cylinder

3.2.2

freestanding appliance

appliance not normally having direct contact with adjacent furniture or walls

3.2.3

appliance for building-in between two furniture units

appliance which can have its side panels in direct contact with adjacent furniture units

NOTE When installed, the appliance may only be in contact with a single furniture unit.

3.2.4

appliance for building into a furniture unit

appliance intended to be installed in a kitchen cabinet or unit or in a housing located in a wall or under similar conditions

NOTE For this reason, the appliance may not necessarily have a casing on all sides.

3.2.5

domestic cooking appliance

appliance to be used by private individuals in a domestic dwelling

NOTE This is indicated in the instructions for use and maintenance as well as in the technical instructions.

3.2.6

cooker

cooking appliance comprising:

- a hotplate;
- one or more ovens with or without a thermostat, having possibly a grill;
- possibly a grill

3.2.7

table cooker

cooking appliance intended to rest on a raised support or stand comprising:

- a hotplate;
- an oven;
- possibly a grill

3.2.8

independent hotplate

cooking appliance consisting only of a hotplate

3.2.9

independent hotplate and grill

cooking appliance consisting of hotplate and a grill

3.3 Terms and definitions relating to gases and pressures

3.3.1 Terms and definitions relating to gases

3.3.1.1

test gases

gases intended for the verification of the operational characteristics of appliances using combustible gases; they consist of reference gases and limit gases

NOTE Table 7 gives the characteristics of reference gases and limit gases.

3.3.1.2

reference gases

test gases with which appliances operate under nominal conditions when they are supplied at the corresponding normal pressure

3.3.1.3

limit gases

test gases representative of the extreme variations in characteristics of the gases for which the appliances have been designed

3.3.1.4

relative density

d

ratio of the masses of equal volumes of dry gas and dry air under the same conditions of temperature and pressure: 15 °C or 0 °C and 1 013,25 mbar

3.3.1.5

calorific value

quantity of heat produced by complete combustion at a constant pressure of 1 013,25 mbar, of a unit volume or mass of gas, the constituents of the combustible mixture being taken at reference

A distinction is made between:

- , the gross calorific value H_s : the water produced by combustion is assumed to be condensed;
- , the net calorific value H_i : the water produced by combustion is assumed to be in the vapour state.

NOTE 1 The calorific value is expressed:

- either in megajoules per cubic metre MJ/m^3 of dry gas under the reference conditions;
- or in megajoules per kilogram (MJ/kg) of dry gas.

NOTE 2 In this European Standard only the gross calorific value is used

3.3.1.6

Wobbe index

gross Wobbe index W_s ; net Wobbe index W_i

ratio of the calorific value of a gas per unit volume and the square root of its relative density under the same reference conditions. The Wobbe index is said to be gross or net according to whether the calorific value used is the gross or net calorific value

NOTE The Wobbe indices are expressed:

- either in megajoules per cubic metre MJ/m^3 of dry gas under the reference conditions;
- or in megajoules per kilogram (MJ/kg) of dry gas.

3.3.1.7

theoretical air

volume of air necessary for the stoichiometric combustion of a unit volume of gas

3.3.2 Terms and definitions relating to pressures

3.3.2.1

gas supply pressure

p

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

NOTE The gas supply pressure is expressed in millibar (mbar): $1 \text{ mbar} = 10^2 \text{ Pa}$.

3.3.2.2

test pressures

gas pressures used to verify the operational characteristics of appliances using combustible gases. They consist of normal and limit pressures

NOTE 1 The gas pressures used are expressed in millibars (mbar): $1 \text{ mbar} = 10^2 \text{ Pa}$.

NOTE 2 The test pressures are given in Table 9.

3.3.2.3

normal pressure

p_n

pressure under which the appliances operate in nominal conditions, when they are supplied with the corresponding reference gas

3.3.2.4

limit pressures

maximum pressure: $p_{\max}$; minimum pressure: $p_{\min}$

pressures representative of the extreme variations in the supply conditions

3.3.2.5

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 or group in which:

- the higher pressure corresponds only to gases of low Wobbe index;
- the lower pressure corresponds to gases of high Wobbe index

3.4 Terms and definitions relating to the parts of the appliance

3.4.1 Burners

3.4.1.1

burners

component devices that allow the gas to burn

NOTE 1 They may be one of two types:

- non-aerated burners in which the air for combustion is entrained entirely at the burner outlet;
- aerated burners in which part of the air for combustion termed "primary air", is entrained by the gas flow and is mixed with gas before the burner outlet. The remainder of the air, termed "secondary air" is entrained after the burner outlet.

NOTE 2 These burners consist of:

- a gas injector;
- a body forming the mixing tube;

- a head equipped with ports for the air-gas mixture.

3.4.1.2

ignition burners

small burners, the flame of which is intended to light a principal burner

3.4.1.3

pilot

ignition burner controlled independently from principal burners

3.4.1.4

principal burners

burners intended to assure a thermal function to the appliance

3.4.1.5

covered burners

hotplate burners for which the pans being heated are screened from direct flame contact by the interposition of a surface on which they rest

NOTE Covered burners may be of two types:

- a) non enclosed covered burners;
- b) enclosed covered burners.

3.4.1.5.1

non enclosed covered burner

covered burner for which all products of combustion are evacuated directly to atmosphere, e.g. around the periphery of the plate and which is designed so that partial visibility of the flames is possible in normal operation

NOTE A non-enclosed covered burner can be:

- permanent, i.e. designed to be used only with the plate in position;
- temporary, i.e. designed so that it may also be used as an uncovered burner after removal of the removable plate.

3.4.1.5.2

enclosed covered burner

covered burner having a combustion circuit in which all products of combustion are evacuated to atmosphere indirectly through a purpose-designed outlet

NOTE The burner may be so enclosed that flames may not be visible during normal operation.

3.4.1.6

uncovered burners

hotplate burners for which the pans being heated are in direct contact with the flames

3.4.1.7

injector

component part that admits the gas into an aerated burner

NOTE 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.

3.4.1.8

multi-ring hotplate burners

hotplate burner assembly having two or more rings of burner ports

NOTE 1 The term ring includes any distribution of burner ports around the central axis of the burner.

NOTE 2 Two types of multi-ring hotplate burner are recognised.

3.4.1.8.1

multi-ring hotplate burner with sectional control

multi-ring hotplate burner that is so designed that one or more of its rings of burner ports can be utilised independently

3.4.1.8.2

multi-ring hotplate burner with simple control

multi-ring hotplate burner that is so designed that its rings of burner ports cannot be utilised independently.

3.4.2 Auxiliary equipment, control devices

3.4.2.1

auxiliary equipment

all controls and devices that can affect the safety of operation of the gas appliance or the gas part of a combined gas-electric appliance

EXAMPLES

- taps and cocks;
- gas regulators;
- flame supervision devices;
- thermostats.

3.4.2.2

ignition device

device to ignite one or more burners directly or indirectly, for example by means of a flash tube

NOTE It may be:

- an electrical means (resistance, spark, etc.);
- a thermal means (flame, pilot, etc.).

3.4.2.3

flame supervision device

device which, under the influence of the flame on the detector element, holds open a supply of gas to the burner and pilot if it exists, and which shuts off at least this supply of gas in the event of extinction of the supervised flame

NOTE A distinction can be made between:

- a) one which controls all of the gas supply to the burner and pilot, if it exists;
- b) one which partially controls the supply of gas to the burner and pilot, if it exists (see 5.2.12.1).

3.4.2.4

putting an adjuster or control out of service

adjuster or control (of rate, pressure etc.) is said to be put out of service if it is put out of action and sealed in this position; the appliance then functions as if this device had been removed

3.4.2.5

means of assuring soundness

any static or dynamic device intended to assure soundness, for example: flat face joints, O-ring joints, conical joints, diaphragms, greases, pastes, mastics

3.4.2.6

primary air adjuster

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

NOTE The operation of changing the setting of this device is termed the "adjustment of primary air".

3.4.2.7

gas rate adjuster

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

NOTE 1 The adjustment may be continuous (adjustment screw) or discontinuous (change of calibrated orifices, etc.).

NOTE 2 The operation of changing the setting of this device is termed the "adjustment of the gas rate".

3.4.2.8

locking of an adjuster

immobilization, by the manufacturer or installer, of an adjuster in its adjustment position by some means (screw, etc.)

3.4.2.9

sealing of an adjuster

any arrangement relating to the adjuster whereby any change to the adjustment causes breaking of the sealing device and makes interference with the adjuster apparent; the adjuster is then said to be sealed in the adjusted position.

NOTE A factory-sealed adjuster is regarded as non-existent.

3.4.2.10

calibrated orifice

device with one or more orifices which is placed in the gas circuit to create a pressure loss and thus reduces gas pressure of the burner to a pre-determined value for a supply pressure and for a given rate

3.4.2.11

regulator

device which maintains a sensibly constant downstream pressure when the upstream pressure and the gas rate vary within a range of given values

3.4.2.12

tap

device to isolate the gas supply to a burner and possibly to adjust its gas rate during use

3.4.2.13

thermostat

device to maintain automatically a temperature within given limits

NOTE It generally includes a graduated scale for the selection of the cooking temperature depending on the cooking being undertaken.

3.4.2.14

multifunctional control

control having two or more functions, one of which is a shut-off function, integrated within one housing, whereby the functional parts cannot be operated if separated

3.4.3 Other components

3.4.3.1

control handle

part intended to be manually operated in order to operate an appliance control, such as a tap, cock, thermostat, etc.

3.4.3.2

touchable parts

external parts of the appliance intended to be handled in normal use

3.4.3.3

combustion circuit

assembly consisting of a combustion chamber and a circuit for the evacuation of the combustion products

3.4.3.4

hotplate

part of a cooking appliance comprising one or several covered or uncovered burners, and/or one or more electric cooking plates, and possibly a griddle

3.4.3.5

pan support

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

3.4.3.6

griddle

part of a hotplate consisting of a plate situated above a burner that allows cooking of food by direct contact with its surface when heated to a high temperature

NOTE A griddle may be:

- permanent, i.e. designed so that the burner is only to be used under the above conditions;
- temporary, i.e. designed so that it may also be used as a an uncovered or covered burner after removal or replacement of the removable plate.

3.4.3.7

shut-down lid

lid intended to be shut down over the hotplate

3.4.3.8

oven

closed compartment for cooking roasts, pastries, etc.

3.4.3.9

centre of the oven

geometric centre of the useful volume of the oven

3.4.3.10

useful oven height

height calculated from the bottom to the top of the door aperture, which may be reduced in size owing to projections (base, grill burner or grill frets (see Figure 1))

NOTE 1 When the door is not rectangular, the average height is taken.

NOTE 2 A door is also regarded as rectangular if it has four rounded corners one or more of which is rounded. These dimensions do not take account of local projections: bulbs, screws, oven viewing panel, light, etc.

3.4.3.11

useful oven plan area

useful measured dimensions so as to represent the actual surface area available for cooking (see Figure 1); determined from the product of the distance between the shelf supports (or the width of the door aperture, whichever is smaller) and the distance between the internal surface of the door and:

- either the back wall;
- or the rear vertical plane of the cooking zone as it passes through the furthestmost end of the longest oven accessory held in place by a rear stop device, the calculation being based on whichever is the lower of these two values.

NOTE These dimensions do not take into account local projections: probes, screws, oven viewing panel light, etc.

3.4.3.12

useful oven volume

v

product of the useful oven plan and the useful oven height (see Figure 1)

NOTE The useful oven volume is expressed in cubic decimetre (dm³).

3.4.3.13

shelf supports

supports in the side walls of the oven or grill intended to support oven or grill accessories

3.4.3.14

oven and grill accessories

accessories delivered with the appliance, or mentioned as optional, used for oven and grill cooking

EXAMPLES:

- the grid which is intended to support food to be cooked in the oven or under the grill and to keep the food from contact with cooking juices. It also serves as a shelf for supporting dishes in the oven;
- the grill pan: pan used to collect juices from grill cooking or to hold food cooked in the oven;
- the cake tray: a tray intended to hold small pastries.

3.4.3.15

viewing panel

area of transparent material allowing the inside of a compartment to be seen

3.4.3.16

grill

appliance or part of an appliance that allows cooking by radiant heat from a surface which is raised to a high temperature

3.5 Terms and definitions relating to operation

3.5.1

yellow tipping

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

3.5.2

sooting

phenomenon appearing at the time of incomplete combustion and characterized by a deposit of soot on the surfaces in contact with the flames or the products of combustion

3.5.3

mass flow rate

M

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

NOTE The mass flow rate is expressed in kilogram per hour (kg/h), or eventually gram per hour (g/h).

3.5.4

volume rate

V

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

NOTE The volume rate is expressed in cubic meter per hour (m^3/h) or possibly litre per minute (l/min), litre per second (l/s), cubic decimetre per hour (dm^3/h), cubic decimetre per second (dm^3/s).

3.5.5

heat input

Q

quantity of energy consumed per unit of time corresponding to the volume or mass flow rates, the calorific value to be considered in this standard being the gross calorific value

NOTE The heat input is expressed in kilowatts (kW).

3.5.6

nominal heat input of a burner

Q_n

value of the heat input as declared by the manufacturer

3.5.7

primary aeration rate

ratio between the volume of primary air and the volume of theoretical air

3.5.8

primary air

volume of air entrained at the injector by unit volume of gas

3.5.9

flame lift

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

3.5.10

light back

phenomenon characterized by the return of the flame inside the body of the burner

3.5.11

flame stability

state of the flames at the burner ports when the phenomena of flame lift or light back do not occur

3.5.12

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

3.5.13**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

3.5.14**centre oven temperature**

temperature measured at the centre of the oven using a bare thermocouple

3.5.15**remote operation (type 1)**

operation by means of a control intended to be actuated out of sight of the appliance, such as by telecommunications or bus systems

3.5.16**remote operation (type 2)**

operation by means of a separate hand-held control (e.g. an infrared device) designed for use only when the appliance is directly visible to an operator of the control who is present within the same room as the appliance

4 Classification**4.1 Classification of gases**

Gases are classified in three families, which may be divided into groups according to the value of the Wobbe index. Table 2 gives the families and groups of gases used in this European Standard.

Table 2 — Classification of gases

Families and groups of gases	Gross Wobbe index at 15 °C and 1 013, 25 mbar	
	MJ/m ³	
	minimum	maximum
1st family - Group a	22,4	24,8
2nd family - Group H - Group L - Group E	39,1 45,7 39,1 40,9	54,7 54,7 44,8 54,7
3rd family - Group B/P - Group P - Group B	72,9 72,9 72,9 81,8	87,3 87,3 76,8 87,3

4.2 Categories of appliances

4.2.1 General

Appliances are classified by categories defined according to the gases and pressures for which they are designed.

The definitions of categories are given in 4.2.2, 4.2.3 and 4.2.4.

In each country, only some of the categories defined in 4.2.2, 4.2.3 and 4.2.4 are marketed, on account of local gas distribution conditions (composition of gases and supply pressures).

The situations relating to the marketing of these categories of appliance in each country, and the corresponding supply pressures, are given in Tables A.1 and A.2 (see also in A.4 particular categories marketed locally and nationally corresponding to the specific gases and supply pressures given in Table A.4; A.5 gives certain conditions relating to a specific country).

4.2.2 Category I

4.2.2.1 General

Appliances in category I are designed exclusively for use with gases of a single family or of a single group.

4.2.2.2 Appliances designed for use with gases of the first family only

Category I_{1a}: Appliances using only gases from group a of the first family, at the fixed supply pressure (this category is not used).

4.2.2.3 Appliances designed for use with gases of the second family only

Category I_{2H}: Appliances using only gases from group H of the second family, at the fixed supply pressure.

Category I_{2L}: Appliances using only gases from group L of the second family, at the fixed supply pressure.

Category I_{2E}: Appliances using only gases from group E of the second family, at the fixed supply pressure.

Category I_{2E+}: Appliances using only gases from group E of the second family, and operating without intervention on the appliance with a pressure couple. The device for regulating the gas pressure of the appliance, if any, is not operational within the range of the two normal pressures of the pressure couple.

4.2.2.4 Appliances designed for use with gases of the third family only

Category I_{3B/P}: Appliances capable of using gases of the third family (propane and butane) at the fixed supply pressure.

Category I₃₊: Appliances capable of using gases of the third family (propane and butane) and operating with a pressure couple without intervention on the appliance other than an adjustment of the primary air for conversion from butane to propane and vice versa. No operational device for regulating gas pressure is permitted in the appliance.

Category I_{3P}: Appliances using only gases from group P of the third family (propane) at the fixed supply pressure.

4.2.3 Category II

4.2.3.1 General

Appliances of category II are designed for use with gases of two families.

4.2.3.2 Appliances designed for use with gases of the first and second families

Category II_{1a2H}: Appliances capable of using gases from group a of the first family and gases from group H of the second family. Gases of the first family are used under the same conditions as for category I_{1a}. Gases of the second family are used under the same conditions as for category I_{2H}.

4.2.3.3 Appliances designed for use with gases of the second and third families

Category II_{2H3B/P}: Appliances capable of using gases from group H of the second family and gases of the third family. Gases of the second family are used under the same conditions as for category I_{2H}. Gases of the third family are used under the same conditions as for category I_{3B/P}.

Category II_{2H3+}: Appliances capable of using gases from group H of the second family and gases of the third family. Gases of the second family are used under the same conditions as for category I_{2H}. Gases of the third family are used under the same conditions as for category I₃₊.

Category II_{2H3P}: Appliances capable of using gases from group H of the second family and gases from group P of the third family. Gases of the second family are used under the same conditions as for category I_{2H}. Gases of the third family are used under the same conditions as for category I_{3P}.

Category II_{2L3B/P}: Appliances capable of using gases from group L of the second family and gases of the third family. Gases of the second family are used under the same conditions as for category I_{2L}. Gases of the third family are used under the same conditions as for category I_{3B/P}.

Category II_{2L3P}: Appliances capable of using gases from group L of the second family and gases from group P of the third family. Gases of the second family are used under the same conditions as for category I_{2L}. Gases of the third family are used under the same conditions as for category I_{3P}.

Category II_{2E3B/P}: Appliances capable of using gases from group E of the second family and gases of the third family. Gases of the second family are used under the same conditions as for category I_{2E}. Gases of the third family are used under the same conditions as for category I_{3B/P}.

Category II_{2E+3+}: Appliances capable of using gases from group E of the second family and gases of the third family. Gases of the second family are used under the same conditions as for category I_{2E+}. Gases of the third family are used under the same conditions as for category I₃₊.

4.2.4 Category III

Appliances of category III are designed for use with gases of the three families.

This category is not in general use.

The categories III permitted in certain countries are given in Annex A (see A.4).

4.3 Classes of appliances (see Figure 2)

Appliances belong to one of the classes defined below:

- a) **Class 1:** Freestanding appliances.
- b) **Class 2:** Appliance for building in between two furniture units. These appliances are divided into two subclasses.
 - 1) **Class 2 - subclass 1:** Class 2 appliance made in one complete unit but also capable of being installed so that the side walls are accessible.
 - 2) **Class 2 - subclass 2:** Class 2 appliance consisting of one or more ovens or oven/grills, placed beneath the worktop and, possibly, a hotplate built into the worktop.
- c) **Class 3:** Appliance for building into a kitchen unit or worktop.

5 Constructional requirements

5.1 General

5.1.1 Conversion to different gases

5.1.1.1 General

The only acceptable operations when converting from a gas of one group or family to a gas of another group or family and/or to adapt to different gas distribution pressures are given below for each category.

It is recommended that these operations should be possible without disconnecting the appliance.

Unless otherwise specified, conformity to the requirements of this clause is checked by inspection.

5.1.1.2 Category I

- Category I_{2H}, I_{2L}, I_{2E}, I_{2E+}: No modification to the appliance;
- categories I_{3B/P}: No modification to the appliance;
- category I₃₊: Replacement of injectors or calibrated orifices but only in order to convert from one pressure couple to another (for example 28-30/37 mbar to 50/67 mbar). Adjustment of primary air when converting from one pressure couple to another or from one pressure to another within a pressure couple;
- category I_{3P}: No modification to appliance relative to a change of gas. For changing pressure: replacement of injectors, adjustment of gas rates and adjustment of primary air.

5.1.1.3 Category II

5.1.1.3.1 Categories of appliance designed for use with gases of the first and second families

- Replacement of injectors or calibrated orifices;
- adjustment of gas rate in the first family;
- adjustment of primary air;

- replacement of complete pilots or certain of their components;
- putting the regulator out of service under the conditions of 5.2.7;
- putting the gas rate adjuster out of service for gases of the second family.

These adjustments are only acceptable when converting from a gas of the first family to a gas of the second family or vice versa.

5.1.1.3.2 Categories of appliance designed for use with gases of the second and third families

- Replacement of injectors or calibrated orifices;
- adjustment of primary air;
- putting the regulator out of service, under the conditions of 5.2.7;
- for gases of the third family, putting the reduced gas flow adjusters out of service.

These adjustments or replacements of parts are only acceptable:

- for converting from a gas of one family to a gas of another family;
- for converting from a butane/propane pressure couple to another couple (e.g. 28-30/37 mbar to 50/67 mbar).

To convert from one gas to another within a pressure couple of third family gases, it is only permissible to adjust the primary air.

5.1.1.4 Category III

The adjustments or replacements of parts permitted for converting from one gas of one family to a gas of another family, or for converting from one butane/propane pressure couple to another, are the following:

- replacement of injectors or calibrated orifices;
- adjustment of the gas rate in the first family;
- adjustment of primary air;
- replacement of complete pilots and some of their components;
- putting the regulator out of service under the conditions of 5.2.7;
- for third family gases, putting the reduced gas rate adjuster out of service.

To convert from one gas to another within a pressure couple of a third family gas, it is only permissible to adjust the primary air.

5.1.2 Materials

5.1.2.1 General

The nature and state of the surface of materials intended to come into contact with food shall be such that they cannot contaminate or degrade this food.

The quality and thickness of materials used in the construction of the appliance shall be such that the constructional and performance characteristics are not altered in use. In particular, all parts of the appliance, when it is installed according to the instructions and the appropriate rules, shall withstand the mechanical, chemical and thermal conditions to which they could be submitted during normal use, for example:

- the pilot gas supply circuit shall not be made of copper unless the metal is protected against the action of the gas;
- condensation produced during starting and/or operation of the appliance shall not reduce its safety.

The accessible edges of all parts shall not be sharp.

Parts not made of corrosion resistant material shall have effective protection against corrosion. This requirement does not apply to the cake tray.

Materials containing asbestos shall not be used in the construction of the appliance.

If elastomeric materials are used for seals in gas carrying parts of the appliance other than in gas controls, they shall comply with the relevant requirements of EN 549:1994.

Sealing materials for metallic threaded joints in gas carrying parts shall be in accordance with EN 751-1:1996 (for anaerobic jointing compounds) or EN 751-2:1996 (for non-hardening jointing compounds).

5.1.2.2 Surfaces of glass or glass ceramic

5.1.2.2.1 General

Glass components or glass ceramic parts including their edges or corners shall not have fissures or scratches.

The means used to hold glass components or glass ceramic parts of the appliance shall not allow any unnecessary stress or risk of mechanical damage to the glass or glass ceramic. For example, screws used for assembly shall not come into contact with glass components or glass ceramic parts.

A3

5.1.2.2.2 Additional requirements for glass or glass ceramic

The glass or glass ceramic components shall have the characteristics that ensure durability against damage in normal use.

This requirement is deemed to be met if, after application of the test given in 7.2.1.4.1, for hotplates 7.2.1.4.2 and for oven doors 7.2.1.4.3 the glass or glass ceramic surface is not broken and does not show any crack visible to the naked eye.

When a pan support for an uncovered burner is in contact with the glass or glass ceramic surface of the hotplate, the surface area of the pan support in contact with the glass or glass ceramic surface shall be at least 25 mm². **A3**

5.1.2.2.3 Additional requirements for surfaces of thermally toughened soda-lime glass

A3 Glass components of thermally toughened soda-lime glass (for example hob surface, the shutdown lid, oven doors, control panels) shall fragment into small particles. **A3**

General compliance with this requirement for thermally toughened soda-lime glass is verified by testing according to **A3** Annex G **A3**.

It can be verified by presentation of a declaration of conformity by the glass manufacturer that the thermally toughened soda-lime glass used in the construction of the component is manufactured to comply with the requirement above.

5.1.2.2.4 Additional requirements for other types of glass

If any other types of glass are used, the manufacturer shall provide evidence that:

- a) similar safety tests, suitable to the particular material, have been successfully applied;
- b) the glass material is suitable for its intended purpose.

If such glass is major component (e.g. oven doors, facial or side panels) the glass surface shall not be broken and shall not show any crack visible to the naked eye after application of the tests given in 7.2.1.4.

5.1.3 Ease of cleaning and maintenance

Any part of the appliance requiring cleaning by the user shall be easily accessible without having to move the appliance or use a tool for dismantling. It shall be possible to replace such parts correctly and without undue difficulty in accordance with the information in the instructions for use and maintenance. Any incorrect reassembly (e.g. pan support arms-pots centring clearly out centred with respect to the burner lay out, or pan supports opening diameter clearly larger than the diameter of the burner) shall be obvious, if this could create a potential hazard to the user.

Compliance is checked by inspection.

Sharp borders and edges which could give rise to injury to the user, for example during cleaning, shall be avoided.

Any control placed in the gas circuit shall be arranged so that any adjustment or maintenance by a service engineer is easy and its replacement by a service engineer is possible.

Parts of the appliance which are not intended to be removed by the user, and for which removal would affect safety (for example injectors) shall only be able to be removed with the aid of tools.

5.1.4 Strength

5.1.4.1 General

The construction of an appliance shall be such that, during normal conditions of use, it shall not be possible to detect:

- any displacement of parts;
- any distortion;
- any deterioration;

likely to impair its safety.

The conformity of the appliance to the strength requirement is checked by the absence of visible change in the functional parts following the two tests described in 5.1.4.2 and 5.1.4.3, and by the conformity of the whole appliance to the specifications of the standard.

These two tests, when applied, are carried out under the conditions described in 7.2.1 before undertaking the tests or checks specified by the standard, apart from the soundness test specified in 7.3.1.1 which is carried out on the appliance in its as-delivered condition.

5.1.4.2 Cooker bodies

For cookers of class 1 and class 2, subclass 1, the application of a force to the upper part under the conditions of 7.2.1.2.

5.1.4.3 Hotplate pan supports

For all appliances, the application on the pan supports of the loads indicated in 7.2.1.3 under the specified conditions.

5.1.5 Soundness of the gas circuit assembly

Holes for screws, fixing pins etc. intended for the assembly of components shall not open into the gas ways which lead to the injector.

The soundness of parts and assemblies connected to the gas circuit shall be assured, by means of metal-to-metal joints or joints with seals (e.g. washer, O-rings or gaskets), i.e. excluding the use of any product which ensures soundness in the threads.

However, for parts that do not require to be dismantled during normal maintenance or for a change of gas, the use of thread sealing compounds is permitted.

Soft soldering, as defined in 3.1.6, shall not be used to ensure soundness of the connections of the gas circuit. However, it is permitted for internal connections within the gas circuit when a damage of the connection does not involve soundness of the circuit. Conformity will be checked on the basis of the manufacturer's specifications.

Mechanically fastened components, or the threaded parts of the pipework, which may be dismantled during normal maintenance shall remain sound after 5 disconnections and reassemblies carried out in accordance with the manufacturer's instructions, if necessary after changing a gasket, where this is indicated in the technical instructions.

5.1.6 Connections

5.1.6.1 Appliances of categories I_{3B/P}, I₃₊ and I_{3P}

For appliances of categories I_{3B/P}, I₃₊ and I_{3P}, the gas inlet to the appliance may be one of the following three types (see  Table A.6 .

- a) Without a thread: for a length of at least 30 mm its extremity shall be cylindrical, smooth and clean to allow connection by means of a gas-tight compression fitting.
- b) With an external thread: its extremity shall have a thread for connection with or without sealing in the thread according to EN 10226-1:2004, EN 10226-2:2005 or EN ISO 228-1:2003.

In this case, the nominal diameter shall conform to the nominal sizes 1/2, 3/8 or 1/4 taking into account the requirements of 5.1.6.3.

- c) With an internal thread: its extremity shall have a thread for connection with sealing in the thread according to EN 10226-1:2004 or EN 10226-2:2005.

In this case, the nominal diameter shall conform to the nominal sizes 1/2, 3/8 or 1/4 taking account of the requirements of 5.1.6.3.

b) and c) may be achieved, if necessary, by the use of an adaptor fitted on the appliance or supplied with it as an accessory by the manufacturer. If such an adaptor is supplied with the appliance as an accessory by the manufacturer, it shall, unless its correct fitting is obvious, have a clear marking indicating the type of thread.

The details for the fitting and use of such an adaptor shall appear in the technical instructions (see 8.3.2). The installation practices in force in the various countries are given in Table A.6.

5.1.6.2 Appliances other than categories I_{3B/P}, I₃₊ and I_{3P}

For all categories of appliances except categories I_{3B/P}, I₃₊ and I_{3P}, the extremity of the gas inlet to the appliance shall have a thread conforming to EN 10226-1:2004, EN 10226-2:2005 or EN ISO 228-1:2003 (see Table A.6).

For all types of thread, the useful length of thread shall conform to the values indicated in EN 10226-1:2004 or EN 10226-2:2005.

If the thread is external, the nominal diameter shall conform to the nominal sizes 1/2, 3/8 or 1/4 taking account of the requirements of 5.1.6.3.

If the thread is internal, it shall comply with EN 10226-1:2004 or EN 10226-2:2005 and the nominal diameter shall comply with the nominal sizes 1/2, 3/8 or 1/4 taking account of the requirements of 5.1.6.3.

This may be achieved, if necessary, by the use of an adaptor fitted on the appliance or supplied with it as an accessory by the manufacturer. If such an adaptor is supplied with the appliance as an accessory by the manufacturer, it shall, unless its correct fitting is obvious, have a clear marking indicating the type of thread. The details for the fitting and use of such an adaptor shall appear in the technical instructions (see 8.3.2). The installation practices in force in the various countries are given in Table A.6.

5.1.6.3 Supplementary conditions

All appliances:

- The end of the gas inlet connection shall be positioned to allow the free movement of a flexible hose connection;
- In the case of connections where pressure-tight joints are not made on the threads according to EN ISO 228-1:2003, the extremity of the gas inlet connection shall have a flat annular surface of at least 3 mm wide in the case of a thread of nominal size 1/2, of at least 2,5 mm wide in the case of a thread of nominal size 3/8 and of at least 2,2 mm wide in the case of a thread of nominal size 1/4 in order to allow the interposition of a sealing washer.

Moreover, when the extremity of the gas inlet connection has a thread of nominal size 1/2, it shall be possible to insert a gauge of 12,3 mm diameter to a depth of at least 4 mm.

Appliances of class 1:

- The connection of the gas inlet to the gas supply shall be possible from both the left and the right of the appliance.
- The appliance may have one or two points of connection. If there is only one gas inlet connection point, it shall be such that connection to the gas supply can be made from either side during normal installation of the appliance. In order to satisfy this requirement, the use of supplementary means provided by the manufacturer is allowed. If, for this purpose, a part of the pipework is movable, it shall be sufficiently rigid, if necessary by use of a means of support.
- The end of the gas inlet connection may be fitted with a push-on connection (see Table A.6). This connector may be installed on the appliance.

Appliances of classes 2 and 3:

- They shall be designed so that the connection to the gas supply may easily be carried out in accordance with the instructions of the manufacturer.

- The appliance shall not be dismantled for connection unless the manufacturer recommends the use of a flexible hose.
- The end of the gas inlet connection may be fitted with a push-on connector when the appliances are supplied with liquefied petroleum gas, as indicated in Table A.6.

5.1.7 Movable appliances

If the appliance has devices such as castors allowing it to be moved, a means shall be provided to stop inadvertent movement of the appliance in normal use.

With the mobility device in use (unless this is evident to the user), the appliance shall not tilt under the test conditions described in 7.2.2.3.

5.1.8 Fixing or stability of appliances

The appliance shall be so designed that it can be provided with a fixing or stabilisation device when the installation rules in force in the country where it is to be installed require fixing or stabilisation of appliances.

Appliances of class 2, subclass 2, and class 3 shall be capable of being positioned correctly and secured after installation.

5.1.9 Additional components

For appliances of class 2 and class 3, any additional components necessary for the evacuation of products of combustion and for ventilation specified by the manufacturer shall be supplied with the appliance, with the exception of those that are commercially available and for which the characteristics and installation are specified in the technical instructions.

5.1.10 Safety of operation in the event of fluctuation, interruption and restoration of the auxiliary energy

When the appliance is supplied by a mains electrical supply, its design shall be such that no risk can appear in the event of loss of the electrical energy and its subsequent restoration.

NOTE Requirements relating to the continued operation and safety of the appliance in the event of normal and abnormal fluctuation of electrical energy are specified in 6.2.2 and 6.3.2.

5.1.11 Electrical safety of appliances and immunity to electromagnetic phenomena

Appliances with electrical components other than electrical heating elements associated with the use of gas shall comply with the relevant clauses of EN 60335-2-102:2006 and with those clauses of EN 60335-2-6:2003 given in the following list:

Clause	Content	Remark
7.12	User instructions	1 st paragraph, if relevant
13.2	Leakage current warm	Clause relevant
13.3	High voltage test	Clause relevant
15.2	Spillage test	Clause relevant
16.2	Leakage current cold	Clause relevant
16.3	Electrical strength	Clause relevant
21.102	Hob surface temperature shock test	Clause relevant
22.113	Hobs	If relevant
25.3	Supply connection and external flexible cords	Clause relevant
29.2	Clearances, creepage distances	Clause relevant ^a

^a 1 - The macro-environment in a domestic kitchen is pollution degree 2.

2 - The micro-environment inside the appliance with respect to positioning of the insulation may be 2 or 3 depending on the design and pollution produced by operation of the appliance itself. This does not exclude the possibility to accept pollution degree 1 where this applies.

NOTE The electrical safety of cooking functions performed by electrically heated components is not covered by this European Standard; appropriate requirements are given in EN 60335-2-6:2003.

If the appliance incorporates automatic controls these components shall comply with the relevant clauses of EN 60730-2-1:1997.

5.2 Special requirements

5.2.1 Taps

Each burner shall be controlled by a tap or a device assuring the opening and closing of its supply and where required allowing the variation of its rate between two extreme values by operation of the control handle.

Where a manually operated tap is covered by the scope of  EN 1106:2010 , the requirements of  EN 1106:2010  shall be applied and the number of operations of the taps shall be:

- for oven and/or grill burners: 5 000;
- for hotplate burners: 40 000.

Taps shall be placed in such a way that their strength, operation, manipulation and accessibility undergo no damage from actions to which they are subjected in normal use, and that they are protected against spillage of food.

All parts of the taps shall be clean (e.g. free from swarf).

Taps shall be mounted in such a way that no accidental movement relative to the gas supply connection is possible. Taps shall be replaceable.

For a given appliance, all the taps controlling the same type of burners shall be of the same type, e.g. with the reduced rate either at the end of the tap travel or between the closed and full on positions.

If the oven and grill burners have a combined control tap, the "off" position shall be designed to make it impossible for the tap handle to be inadvertently moved from one adjustment range to another, for example requiring an axial displacement. If the burners are fitted with flame supervision devices, a combined tap

requires only a device to arrest it in its "off" position, for example an arrest A_1 , in compliance with AC 7.101.5 AC of AC EN 1106:2010 AC . A_1

A_1 If a multi-ring hotplate burner has a single sectional control with two closing directions, the "off" position shall be designed to make it impossible for the tap handle to be inadvertently moved from one adjustment range to another, for example requiring an axial displacement. However, if each ring of such a multi-sectional hotplate burner is supervised by a flame supervision device, the single sectional control requires only a device to arrest it in its "off" position, for example an arrest, in compliance with AC 7.101.5 AC of AC EN 1106:2010 AC . A_1

If the oven and grill burners are situated in the same compartment and they are controlled by different control taps, an interlock device shall prevent gas being supplied to the two burners simultaneously.

5.2.2 Control handles

5.2.2.1 Design

The purpose of handles shall be clearly identifiable with respect to the burners they control. There shall not be any risk of confusion with the control for other energy.

If the control handle operates by turning, the closing direction A_1 shall only be clockwise A_1 . This does not apply to combined oven and grill tap handles A_1 and to multi-ring hotplate burners with a single sectional control and two closing directions. A_1

Control handles shall be so arranged relative to one another, and with respect to control handles for any other energy, that the movement of one handle does not cause inadvertent movement of an adjacent handle.

Control handles shall be so designed that they can neither be fitted in the wrong position nor move by themselves.

Control handles shall not be interchangeable if this leads to a risk of confusion between the energy controlled, the closing direction, the operating positions and the "off" position.

5.2.2.2 Marking

For each burner the closed, open and, if it exists, the reduced rate positions shall be marked in a visible, legible, identifiable and durable fashion.

The marking, symbols and index shall be identifiable to the user during operation of the appliance when the tap is in the appropriate position.

The position of handles is determined by alignment of symbols with an index: the index may be fixed and the symbols carried on the handle (or on a device controlled by it) or vice versa. However, alternative means of determining the position of handles may be used if they are equally effective, e.g. the appearance of symbols in a window on condition that:

- in any position, a symbol or a significant part of the symbol, is visible in the window; the visible part of the symbol shall enable the reduced rate direction to be identified;
- the closing direction is clearly apparent, whatever the position of the handle, if this is different from the reduced rate direction.

If control handles do not operate by rotation, the same symbols shall be used in a manner which prevents any ambiguity.

For needle type taps, the closing direction shall be indicated by an arrow whose point is directed towards the full disc or circle indicating the closed position. Marking of the reduced rate position is not required.

If the axes of the handles are horizontal (or nearly horizontal), the closed position shall be situated in the vertical plane containing the axes of the handles, and above them.

If the axes of the handles are vertical (or nearly vertical), and in a plane parallel or perpendicular to the front of the appliance, the closed positions may be selected from the four positions defined by the two vertical planes containing the axis of the handle which are parallel and perpendicular to the front of the appliance.

The closed position shall be the same for all the taps.

In all cases, including needle type taps, the identification of the closed position of the tap shall not give rise to any confusion with the identification of the open position, or with other markings.

The closed position shall be marked with a full disc or a circle of at least 3 mm in diameter:

● or ○.

For the other positions, the following symbols may be used:

- full on position: large flame 

- reduced rate position: small flame

- range of rates: - triangle or

or

- scale 1 2 3 4 or 4 3 2 1

Other symbols, with the exception of letters, may be used, on condition that they give equivalent information clearly.

Additional markings are allowed on condition that they create no confusion for the user of the appliance.

Any special position of the tap which is intended for ignition and/or any special button which has to be operated for ignition shall be marked with a stylised star.

When the oven burner is supplied by a tap and a thermostat:

- if there are two control handles, the full-on and closed positions of the tap shall be marked as indicated above; any reduced rate position shall also be marked;
- if there is only a single control handle, the closed position of the tap shall be marked as indicated above.

If there is a risk of confusion between the control handle of the oven burner and that of the grill burner, the control handle of the oven burner shall be marked by a rectangle carrying a clearly identifiable symbol in its lower part and that of the grill burner by a rectangle carrying a clearly identifiable symbol in its upper part. When the burner of the oven and grill are controlled by the same handle, these markings are used for each of the corresponding ranges.

5.2.3 Injectors and adjusters

Injectors

It shall be possible to dismantle injectors. However, for appliances intended to operate exclusively with an injector mounted in the factory (appliances of categories I_{2H}, I_{2L}, I_{2E}, I_{2E+}, I_{3B/P}, I₃₊, I_{3P}), the interposition of a sealing material in the thread is permissible if the installation instructions mention that it is mandatory to use this product in the case of disassembly.

Every injector shall have an indelible means of allowing it to be identified with the aid of the instructions, so preventing any confusion.

When a gas rate adjuster is an adjustable injector for use with butane and propane, the gas rates, main and reduced, shall be controlled by means of a calibrated orifice, annulling the adjustment possibility intended for other gases.

Gas rate adjusters

Gas rate adjusters shall meet the following requirements:

- they shall have been adjusted in the factory, in compliance with the gas family, gas group and pressure for which the appliance is labelled;
- if this position is to be altered when the gas is changed, instructions for conversion to various gases, provided in 8.3.4, shall describe the operations to be carried out and shall clearly specify the adjustment position to be attained;
- the main gas rate adjusters shall either be locked in a predetermined adjustment position²⁾ and sealed, or immobilised in this position and sealed by a means such as a sealed stop;
- the reduced rate adjusters shall be locked in the adjustment position.

Instructions for conversion to various gases shall also specify that any sealing shall be restored after the gas conversion operations.

It shall only be possible to move the adjusters with the use of a tool.

With the exception of independent hotplates, table cookers and movable cookers, the gas rate adjusters of all the burners shall be accessible to the installer without having to move the appliance when it is installed under the conditions specified in 7.1.3.3.

Adjusting screws shall be placed so that they cannot fall into the gas ways. They shall be fitted with a cap or some other sealing device.

Gas rate adjusters are permitted for pilots.

Air rate adjusters

Air rate adjusters shall meet the following requirements:

- they shall have been adjusted in the factory, in compliance with the gas family, gas group and pressure for which the appliance is labelled;

2) The meaning of "predetermined adjustment position" is the position of the adjuster which may be obtained unambiguously and independently of the gas composition used (for example, stop device, dimensions, mark, pressure, number of screw turns).

- if this position is to be altered when the gas is changed, instructions for conversion to various gases provided in 8.3.4 shall describe the operations to be carried out and shall clearly specify the adjustment position to be attained;
- the air rate adjusters for the main burners shall be locked in a predetermined adjustment position³⁾ and sealed;
- the air rate adjusters for the ignition burners shall be locked in the adjustment position.

Instructions for conversion to various gases shall also specify that any sealing shall be restored after the gas conversion operations.

It shall only be possible to move the adjusters with the use of a tool.

With the exception of independent hotplates, table cookers and movable cookers, the air rate adjusters of all the burners shall be accessible to the installer without having to move the appliance when it is installed under the conditions specified in 7.1.3.3.

Presence of adjusters

A continuous-action adjuster, adjusted, locked and sealed by the manufacturer or his agent and which according to the technical instructions, shall not be adjusted at the moment of installation is considered to be non-existent.

The presence of gas rate adjusters is optional for appliances of category II_{1a2H}. For these appliances, where they are supplied with a second family gas, annulment of the function of the continuous nominal flow rate adjusters is obligatory, annulment of the function of continuous reduced flow rate adjusters is optional.

Appliances of categories I_{2H}, I_{2L}, I_{2E}, I_{2E+}, I_{3B/P}, I₃₊, I_{3P}, II_{2H3B/P}, II_{2H3+}, II_{2H3P}, II_{2E3B/P}, II_{2E+3+} shall not be fitted with continuous gas rate adjusters. However, it is permissible to adjust reduced rates for appliances of categories II_{2H3B/P}, II_{2H3+}, II_{2H3P} and II_{2E3B/P}, II_{2E3+}, II_{2E+3+} when using second family gases; the same applies to category I_{2E+} when it is marketed in one country jointly with category II_{2E+3+}.

The presence of primary air adjusters is optional for all categories apart from categories I_{2H}, I_{2L}, I_{2E}, I_{2E+} and I_{3P} for which they are prohibited.

Special requirements regarding the presence of adjusters for appliances of category III are given in Annex A (see A.4).

5.2.4 Oven thermostats

Where the thermostat is covered by the scope of EN 257:1992, the requirements of EN 257:1992 shall be applied.

When the oven burner is supplied by a tap and a thermostat:

- if there is only a single control handle, the closed position as well as the maximum and minimum positions shall be marked; the symbol for the closed position shall be as indicated in 5.2.2.2;
- if there are two control handles, the one for the tap shall satisfy the requirements of 5.2.2 and the marking of the thermostat handle shall include at least an indication of the maximum and minimum positions.

3) The meaning of "predetermined adjustment position" is the position of the adjuster which may be obtained unambiguously and independently of the gas composition used (for example, stop device, dimensions, mark, pressure, number of screw turns).

5.2.5 Ignition systems

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

When the ignition devices include a permanent pilot, the gas rate of this pilot shall not exceed 0,06 kW for each burner controlled.

If necessary, it shall be possible to adjust the pilot gas rate in the event of a gas change, either by adjuster or by change of injector.

A means shall be provided to cut off the gas supply to any pilot.

In the event of failure of the ignition system for the burner(s) of the appliance, it shall be possible in the following circumstances to light the burner(s) concerned with a match after removing, if necessary, a movable part (griddle, bottom of the oven etc.):

- a) uncovered hotplate burners;
- b) temporary and permanent covered burners and griddles (see 5.2.8.2.2);
- c) ovens and grill burners that can only be ignited after manual intervention.

This requirement shall not apply to oven burners that are designed specifically to prevent the ignition by means of a match.

In this case, the manufacturer's instructions for use and maintenance shall state that the ignition by means of a match is prohibited.

The ignition system shall meet the requirements of 6.2.1 and 6.3.1.

5.2.6 Flame supervision devices

Where the flame supervision device is covered by the scope of EN 125:1991, the requirements of EN 125:1991 shall be applied.

Where flame supervision devices are fitted, in order to comply with the requirements of 5.2.12, they shall be so designed that, 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 that its re-establishment requires manual intervention. It shall be so mounted as to ensure satisfactory performance. The sensing element of a flame supervision device shall control a single burner only.

The appliance shall not incorporate any device that allows the flame supervision device to be permanently over-ridden. However, during the ignition operation, a momentary admission of gas in the absence of a flame is permitted under the conditions of 6.1.3, if this requires a continuous manual action.

5.2.7 Regulators

Where the regulator is covered by the scope of EN 88-1:2007, the requirements of EN 88-1:2007 shall be applied.

Except for appliances of categories having the index $_{2E+}$, the presence of a regulator is prohibited, or its function shall be annulled, when appliances are equipped and adjusted to operate without modification or adjustment of the gas rate within a pressure couple. Appliances of categories having the index $_{2E+}$ may have an appliance regulator if this is not operational within the range of the two normal pressures of this pressure couple.

In other cases, the regulating function is optional.

Where a regulator is used, the appliance shall have a pressure test point downstream of the regulator. The pressure test point shall have an external diameter of $\left(9_{-0,5}^0\right)$ mm and a useful length of at least 10 mm to allow connection of a rubber tube. At least one part of the orifice of the pressure test point shall have a diameter not exceeding 1 mm.

The design and accessibility of the regulator shall be such that it can be easily adjusted and immobilized for use with another gas, but provision shall be made to hinder any unauthorized access to the adjuster. Where a regulator is locked in the open position and sealed, it is considered to be non-existent.

5.2.8 Hotplates

5.2.8.1 General requirements

There shall be an adequate number of points of support for vessels to rest level in a stable fashion on the supports of each of the uncovered burners.

Except where rim-based or convex-based vessels are required, one of the pans defined in C.1 is used for verification purposes. This pan shall have the largest diameter which is equal to, or less than, that of the smallest pan specified in the instructions for use and maintenance. It is verified that when the pan is displaced off-centre by 15 mm, it remains stable.

The instructions for use shall state the minimum diameter of the pan that can be placed on each of the burners. At least one of these pans shall have a diameter of 120 mm or less except for single burner appliances having a nominal heat input greater than 3 kW.

In the case where the instructions for use and maintenance do not prohibit the use of rim based or convex-based vessels on the hotplate, the following verification is carried out.

The following rings are placed on the pan support over each burner:

- external diameter: 140 mm, 160 mm, 180 mm and 200 mm;
- height: 25 mm;
- thickness: 3 mm;

then moved off-centre by up to 25 % of their diameter. In all these positions, they shall be supported sufficiently at a level equivalent to that of a flat based vessel of the same diameter.

If the pan supports are designed to be removed, in two or more separate parts, for example for cleaning, the removal of one or more of these parts shall not make the remaining parts unstable.

In normal use, the hotplate pan supports shall not suffer distortion likely to impair the performance of the appliance.

Possible spillages from pans placed on the burners shall not affect the operation of the burners and shall be accessible for cleaning. If the appliance is constructed in such a way that spillages are collected in spillage containers, the minimum capacity of each container shall be 0,3 l.

It shall not be possible for shut-down lids, pan supports and spillage containers to fall accidentally from their fully raised position. This requirement shall be verified under the conditions of 7.2.2.5.

If the appliance is fitted with a glass shut-down lid, it shall meet the requirements in a) or b) below at the discretion of the manufacturer:

- a)  The glass shut-down lid shall have the following warning notice, in which the letters shall have a height of at least 4 mm when measured on the capital letter, stating: "CAUTION: glass lids may shatter when heated. Turn off all the burners before shutting the lid." or the symbol as represented in Annex F.  This warning notice or symbol shall be incorporated (e.g. screen printed) in the glass and shall be positioned so that it is legible when the lid is on open position. The warning notice or the meaning of the symbol shall also be stated in the instructions for use and maintenance (see 8.3.3).
- b) The appliance shall have a gas shut-off device which interrupts the gas supplied to the hotplate burners when the lid is closed. This device shall be designed and installed so that the following requirements are met under the test conditions described in 7.2.4:
1. no reduction in the gas rate of the burners shall be observed if the lid is moved through an angle of 5° relative to the fully-open position; this requirement is not applicable if the lid is held in the fully-open position by a mechanical device and
 2. the gas supply shall be interrupted if the lid is moved 45° from its fully-opened position.

Glass shut-down lids shall be fitted with a device slowing down their rate of descent.

For appliances having a glass shut-down lid, means shall be provided to prevent a 200 mm test pan conforming to Table C.1 resting flat on the pan supports from coming into contact with the glass part shut-down lid when in its fully raised position.

5.2.8.2 Hotplate burners

5.2.8.2.1 General

Burner bodies shall be mounted such that they cannot be displaced accidentally from their correct positions.

Parts of a burner likely to be soiled as a result of cooking shall be removable and easy to clean.

However, if these parts have an external shape that makes cleaning easy without affecting the subsequent performance of the burner, they may be fixed. Burner ports shall be designed so that spillage of food does not cause internal fouling.

All removable burner parts, particularly the caps, shall not be interchangeable if they are not identical. Any incorrect reassembly shall be obvious.

The flash tubes and parts with which they are intended to function, particularly those parts of the burner concerned with the ignition, shall be placed in well defined positions.

5.2.8.2.2 Covered burners and griddles

Covered burners and griddles may be permanent or temporary.

When a covered burner or griddle is temporary, the plate shall be removable and shall be supplied with the appliance.

Correct replacement of the removable plate or griddle on the burner for which it is intended shall be easy and obvious. The removable plate or griddle shall be stable when in its correct position.

Non enclosed covered burners and griddles shall be designed so that all products of combustion are evacuated directly to the atmosphere, e.g. around their periphery. In addition, partial visibility of the flames shall be possible in normal operation.

Griddles shall be designed such that any grease produced in cooking cannot spill onto the burner or onto parts not intended for this purpose.

5.2.8.2.3 Multi-ring hotplate burners

When a multi-ring hotplate burner with sectional control has separate gas taps to supply and control each of its rings of burner ports independently, it shall be so designed and arranged that each ring of burner ports is supervised by a separate flame supervision device.

If a multi-ring hotplate burner with sectional control is supplied from a single gas tap and it is equipped with a single flame supervision device that only supervises the flame(s) of one of its rings of burner ports, the gas tap shall be so designed and arranged that when using it to open the gas supply to an unsupervised ring of burner ports from the supervised ring of burner ports, it is not possible for the gas tap to be left in a position in which cross-ignition from one to the other is not assured.

5.2.8.3 Removable devices for small pans

Specially removable supports allowing the use of very small pans are allowed on all of the burners.

- They shall be stable and rest in a predetermined position on the pan supports above the burner(s) intended by the manufacturer and specified in his instructions.
- They shall be supplied with the appliance.

A 60 mm diameter pan, even when moved off-centre by 15 mm, shall rest in a stable fashion on the special support.

5.2.8.4 Devices for convex-based vessels

Fixed or removable supports intended to support convex-based vessels are allowed.

The vessels recommended in the instructions for use and maintenance shall be supplied by the manufacturer to the laboratory. They shall rest in a stable fashion on the special supports.

If the devices are removable, they shall be supplied with the appliance:

- either they shall rest in a stable fashion and in a predetermined position on the pan supports, above the burner(s) intended by the manufacturer and indicated in the instructions for use and maintenance, and in this case they are not tested;
- or they shall replace the original support in which case they shall be subjected to the tests required by this European Standard under the conditions specified in the instructions for use and maintenance.

5.2.9 Ovens and grills

5.2.9.1 Compartments

5.2.9.1.1 Door strength

Under the conditions of 7.2.2.2, the inside surface of oven doors with horizontal hinges and ovens equipped with a grill, when completely open, shall be horizontal (within $\pm 5^\circ$) and remain in this position.

Moreover, under the conditions of 7.2.2.2, a load as indicated in Table 3 being placed on oven doors with horizontal or vertical hinges, the front (upper) edge of the door shall not sag by more than 15 mm.

Table 3 — Strength of the door

Mass in kilograms

Appliance	Mass
a single oven	10
double ovens	
- the larger	10
- the smaller	$(3 + 0,1v)^a$
^a v: useful volume of the oven, in dm ³ cube.	

5.2.9.1.2 Appliance tilting

Under the conditions of 7.2.2.3, oven doors with horizontal hinges are loaded with 22,5 kg and oven doors with vertical hinges with 15 kg.

Under these conditions, the appliances shall not tilt.

If, for appliances of class 1 on the floor and class 2, subclass 1, the appliance is provided with a fixing or $\overline{A_1}$ stabilizing device $\overline{A_1}$, the requirement shall be satisfied using this device. This requirement does not apply either to the doors of separate grills situated above the oven or hotplate, nor to wall-mounted grills.

However, in the case of table cookers and freestanding ovens of class 1 and class 2, subclass 1, designed to be placed on a work surface, compliance with the requirement will be verified with the appliance fixed according to the manufacturer's instructions.

For appliances of class 2, subclass 2, and class 3, the fixing or stabilizing is carried out in accordance with the manufacturer's instructions.

When the appliance has an LPG cylinder compartment and in accordance with the instructions for use and maintenance it can only function with the cylinder in place, the requirement is checked with an empty cylinder in the compartment. Alternatively, the requirement is checked with the compartment empty.

After the test, the appliance shall continue to satisfy the requirements of this European Standard.

5.2.9.1.3 Strength and stability of oven and grill accessories

a) When they are loaded as indicated in Table 4 and under the conditions of 7.2.2.4:

- 1) the supports or runners of ovens, ovens equipped with grills and separate grills shall be designed so that the oven accessories intended to slide on these supports or runners still have adequate guidance and do not incline more than 10° when they are pulled out halfway;
 - 2) the oven and grill accessories intended to slide on these supports or runners shall slide correctly when cold and hot;
- b) if necessary, the extreme rear position which the oven and grill accessories and the cooking utensils can occupy shall be made evident, for example with lips or stops, in order not to impair the combustion or cause overheating;
- c) when the grill pan has a handle it shall be so designed that when it is held to carry the grill pan or to pour fluid contents, it shall not bend or become loose under the conditions of 7.2.2.4.

Table 4 — Strength and stability of accessories

Mass in kilograms

Accessories	Mass
- Ovens, Ovens incorporating grills:	
Grill grid	$(2 + 0,12v)^a$
Grill pan	$(2 + 0,12v)^a$
Cake tray	3 ^{b c}
- Grills:	
Grill grid	3
Grill pan	3
^a v : useful volume of the oven, in dm ³ . ^b The instructions shall specify that the load placed on the cake tray shall not be more than 3 kg. ^c If the cake tray is required to be supported by an oven shelf, these requirements do not apply to it.	

5.2.9.1.4 Appliances capable of using third family gases

For appliances capable of using third family gases, the space situated under the oven or grill burners shall be designed so that in the case of release of un-burnt gas, this gas can escape out of the appliance without risk of accumulation.

5.2.9.1.5 High temperature ovens

If in normal use an oven is capable of achieving a temperature at the centre of the oven in excess of 350 °C, the appliance shall incorporate a means which prevents access to the interior of the oven as long as the oven exceeds 350 °C.

This requirement shall be verified under the following conditions:

- for an appliance with an oven without a special thermostat adjustment position for cleaning, those of 7.3.1.5.2.3 test no. 5;
- for an appliance with an oven with a special thermostat adjustment position for cleaning, whichever of the following is more severe:
 - 7.3.1.5.2.3 test no. 4, or
 - 7.3.1.5.2.3 test no. 5.

5.2.9.2 Oven and grill burners

If there is no ignition device, it shall be possible to light the oven and grill burners by hand, each at a single point, in an easy and safe manner, with the compartment door open. If the compartment has two burners with two taps, there may be two lighting points.

Flash tubes and the parts associated with them, particularly the parts of the burner concerned with ignition, shall be placed in well defined positions.

The user shall be able to see the burner flames totally or partially either with the door open or shut, depending on the design of the appliance.

Burner components including the radiating elements of the grill burners shall be mounted in such a way that they cannot be displaced accidentally from their correct position.

5.2.9.3 Combustion products outlets

The final outlet for the oven and/or grill products of combustion shall be designed so that accidental obstruction by pans placed on the hotplate is either not possible or does not give rise to a CO content in the products of combustion of more than 0,10 % by volume, 15 min after ignition under the test conditions of 7.3.3.2.5.

5.2.10 Cylinder compartment

The opening of this compartment shall be of a size which will permit the easy introduction and removal of the cylinder.

The dimensions of the opening and of the inside of the compartment shall be at least large enough to accommodate the largest cylinder (with regulator fitted) specified by the manufacturer in accordance with 8.3.3.

In addition, the compartment shall be so designed that:

- effective ventilation is provided by openings at its base and upper part; the total area of the openings in the upper part being at least 1/100 of the floor area of the compartment and that of the openings at the base being at least 1/50 of the floor area of the compartment;
- the cylinder support has sufficient mechanical strength to resist permanent deformation under the load of a full cylinder; an arrangement with the cylinder resting directly on the ground is not allowed;
- the cylinder fitted with its regulator can easily be inserted in, or removed from, the compartment;
- the cylinder tap is readily accessible and remains easy to manipulate when the cylinder is in place;
- overflow of liquid from pans on the hotplate does not fall onto the cylinder or its accessories;
- where the appliance may be connected by a flexible tube, the latter shall not be in contact with sharp edges. The length of flexible tube necessary for correct connection of the cylinder shall be indicated in the manufacturer's instructions. It shall not be less than 400 mm. The cylinder connection point shall be easily accessible.

In addition, no internal communication shall exist between the cylinder compartment and the different parts of the appliance where burners are located.

The ventilation openings of the compartment shall not be able to be obstructed when the appliance is placed in position.

5.2.11 Appliances with a cooling fan

When an appliance incorporates a cooling fan, this fan shall operate automatically.

The moving parts of the fan shall be positioned or protected such that in normal use appropriate protection is provided for persons against accidents, in accordance with the requirements of EN 60335-2-6:2003.

5.2.12 Accumulation of un-burnt gas

5.2.12.1 Accumulation of un-burnt gas in indoor spaces

[A3] The appliance shall incorporate means that automatically shuts off the gas supply to the burner(s) to prevent a dangerous accumulation of un-ignited gas in the space where the appliance is installed as a result of inadvertent release of un-ignited gas from one or more of its burners. **[A3]**

Where compliance with this requirement is met by provision of flame supervision devices, these devices shall comply with the requirements of 5.2.6 and 5.2.12.2.2.

Where an alternative(s) to flame supervision devices is used, compliance with the requirement is deemed to be met where it is assessed that the alternative provides an equivalent level of safety to that provided by flame supervision devices that comply with the requirements of 5.2.6 and 5.2.12.2.2.

NOTE A re-ignition device without proof of ignition is not considered acceptable.

5.2.12.2 Accumulation of un-burnt gas within the appliance

5.2.12.2.1 General

Any appliance shall be so constructed that gas release during ignition and re-ignition and after flame extinction is sufficiently limited in order to avoid a dangerous accumulation of un-burnt gas within the appliance.

This requirement is deemed to be satisfied if the requirements of 5.2.12.2.2 to 5.2.12.2.4 are met.

5.2.12.2.2 Requirements concerning flame supervision devices

The flame supervision device shall be of one of the following types:

5.2.12.2.2.1 Either a device which controls all of the gas supply to the burner and the pilot, if it exists, **[AC]** but which requires continuous manual intervention for a short period (see 6.1.3) in order to open the gas supply during ignition. **[AC]**

5.2.12.2.2.2 **[AC]** Or a device which partially controls the gas supply to the burner and the pilot, if it exists, but does not require continuous manual intervention for the purpose of ignition. The heat input that is not controlled by this device shall not exceed 0,6 kW. **[AC]**

5.2.12.2.3 Safety of ignition

5.2.12.2.3.1 **[AC]** Where the burner is fitted with a flame supervision device of the type described in 5.2.12.2.2.1, the manufacturer's instructions for ignition of that burner shall include a statement with the substance of the following wording: "The device shall not be operated for more than 15 s. If after 15 s the burner has not lit, stop operating the device and open the compartment door and/or wait at least 1 min before attempting a further ignition of the burner." **[AC]**

This requirement does not apply in the following circumstances:

- if the burner, situated in an oven or grill, can only be ignited with the compartment door open;
- if the ignition heat input is, by design and construction, lower than or equal to 0,06 kW.

5.2.12.2.3.2 Where the burner is fitted with a flame supervision device of the type described in 5.2.12.2.2.2, it **[AC]** shall be verified under the conditions given in 7.2.3, that ignition of any accumulation of un-burnt gas, if this is possible, does not affect safety. **[AC]**

5.2.12.2.4 Safety of re-ignition and after flame extinction

Where the burner is not fitted with an automatic re-ignition device, the instructions for use and maintenance shall include the following in the ignition instructions for the burner:

[AC] "In the event of the burner flames being accidentally extinguished, turn off the burner control and do not attempt to re-ignite the burner for at least 1 min." **[AC]**

5.2.13 Food hygiene in time controlled ovens

For time controlled ovens with delayed ignition for which the pilot stays alight during the waiting period, the temperature rise at equilibrium shall not exceed the ambient temperature by more than 4 K under the conditions of 7.2.5.

5.3 Additional requirements for appliances having one or more burners that are capable of remote operation

5.3.1 Application

The appliance shall not incorporate an oven that is capable of remote control unless the oven burner is thermostatically controlled and the oven is a time-controlled oven designed for delayed start.

If an oven is capable of remote operation, the appliance shall comply the requirements given in 5.3.2 and, depending on whether the remote operation is type 1 or type 2 (see 3.5.15 and 3.5.16), the requirements given in 5.3.3 or 5.3.4.

5.3.2 General

The appliance shall be so designed and arranged that remote operation of the burner or burners may only be achieved after the user has set the appliance for remote operation. When the burner or burners are set for remote operation this condition shall be indicated visually.

Each burner that is capable of remote operation shall be provided with a direct acting manually operated control that enables the burner to be used safely in accordance with the manufacturer's instructions when remote operation is not in use. The appliance shall be so designed and arranged that it is always possible for the user to utilise these manual operated controls to override remote operation of the burner or burners.

Direct-acting manually operated controls shall comply with 5.2.1 and 5.2.2.

When the appliance, and any hand-held control supplied for type 2 remote operation, are tested in accordance with all the tests described in 19.11.4 of EN 60335-2-102:2006, it shall be verified that:

- the burner or burners are not put into operation when in the stand-by mode and that any gas valves supplying these burners remain closed;
- the burner or burners are not put into operation when the burner control system is in non-volatile lock-out and that any gas valves supplying these burners remain closed;
- the burner or burners, when in remote operation, continue to operate safely or the burner(s) are shut off by the burner control system.

5.3.3 Remote operation (type 1)

The appliance signal receiver/control system shall be provided with a unique recognition code or address and, possibly, a password that has to be signalled to the appliance by the user in order to initiate remote operation.

Where a password is utilised this may be changed by the user but only after the existing password has been entered and recognised by the appliance control system.

The appliance signal receiver/control system shall be so designed that the duration of any remote operation cycle is required to be set before the burner or burners can be operated, unless the burner or burners shut off automatically at the end of a cycle or continuous operation of the burner or burners is not hazardous.

The appliance signal receiver/control system shall be designed so as to enable the user, when signalling the appliance remotely:

- to shut off any burner which can be operated remotely and
- to cancel any remote operating programme.

5.3.4 Remote operation (type 2)

The appliance shall be supplied with the separate hand-operated control for remote operation of the burner or burners.

The separate hand-operated control shall be designed and/or programmed by the manufacturer so as to minimise the risk of its signals operating another appliance.

The appliance signal receiver shall be designed and/or programmed by the manufacturer so as to minimise the risk of the appliance being operated by the hand-held controls for other appliances.

The separate hand-held control shall be so designed that operation of the appliance by means of this control is only possible when the appliance is directly visible to an operator of the control who is present in the same room as the appliance.

The separate hand-held control shall be so designed that:

- at least two distinct manual actions are required to start the operation of any burner (e.g. activation of two different buttons) and
- the burner or burners can be shut off quickly by means of a single action if necessary.

6 Performance requirements

6.1 General

6.1.1 Soundness

Under the test conditions in 7.3.1.1, any leak detected during each of the tests shall not exceed 0,10 dm³/h.

6.1.2 Obtaining the input rates

6.1.2.1 Obtaining the nominal heat input

Under the test conditions in 7.3.1.2.1, each of the burners, supplied separately, shall be capable of giving the nominal heat input stated by the manufacturer.

This requirement is deemed to be satisfied if:

- for burners not equipped with gas rate adjusters and
- for burners equipped with gas rate adjusters, but only to check the manufacturer's adjustment instructions in accordance with 7.3.1.2.1.2 test n° 3;

the variation between the heat input obtained with each of the gases indicated in 7.3.1.2.1.2 and the nominal heat input Q_n is within the limits indicated below:

- if the nominal heat input Q_n of the burner does not exceed 2,25 kW, the tolerance shall be $\pm 8 \%$;
- if the nominal heat input Q_n of the burner exceeds 2,25 kW and does not exceed 3,6 kW, the tolerance shall be $\pm 0,177 \text{ kW}$;
- if the nominal heat input Q_n of the burner exceeds 3,6 kW, the tolerance shall be $\pm 5 \%$;
- the tolerance is extended to $\pm 10 \%$ for burners fitted with injectors with a diameter more than 0,3 mm but not exceeding 0,5 mm.
- the tolerance is extended to $\pm 20 \%$ for burners fitted with injectors with a diameter not exceeding 0,3 mm.

If an appliance can function with several gas families, the nominal heat input of the burner is not required to be identical for all the gas families, however:

- the variation of the nominal heat input between the two gas families shall not exceed 10 %;
- if the variation of the nominal heat input between two gas families is less than 3 %, the data plate shall only give the lower value of the nominal heat input, but the documents supplied to the laboratory shall specify the values for each of the gas families;
- if the variation in the nominal heat input of the various gas families is between 3 % and 10 %, the data plate and the instructions shall include the respective values.

For appliances with gas rate adjusters, the heat input shall be at least equal to the nominal heat input when measured under the conditions stated in 7.3.1.2.1.2, test no. 1 and at most equal to the nominal heat input when measured under the conditions stated in 7.3.1.2.1.2 test no. 2.

6.1.2.2 Obtaining the reduced heat input

Under the test conditions in 7.3.1.2.2, the reduced heat input, if any, declared by the manufacturer in the technical instructions for each of the burners shall not be exceeded.

The reduced rates shall either be fixed (by calibrated orifice) or adjustable according to the appliance category and the gas group used as given in 5.1.1 and 5.2.3.

6.1.3 Flame supervision devices

Under the test conditions described in 7.3.1.3, the opening time shall be equal to or less than 10 s for hotplate burners and equal to or less than 15 s for oven and grill burners where there is continuous manual intervention by the user; if there is no continuous manual intervention, the opening time may be increased to 60 s.

The extinction delay time shall be less than 60 s where the burner is situated in a compartment and less than 90 s in the case of an open burner or a covered burner or under a griddle as defined in 5.2.8.2.2.

If a burner is protected by a flame supervision device having a pilot, then, under the test conditions in 7.3.1.3.2, the ignition or re-ignition shall remain satisfactory or the supply of gas controlled by the device shall be shut off in the event of blockage of the port which supplies the ignition flame or of any other part of the ignition device leading to shortening or distortion of the flame.

6.1.4 Safety of operation

6.1.4.1 Resistance to overheating

After the tests in 7.3.1.4.1, the burners shall show no deterioration likely to jeopardize performance.

6.1.4.2 Escape of un-burnt gas

6.1.4.2.1 Soundness of burner parts

When a burner, having a body made up of several parts, operates under the test conditions in 7.3.1.4.2.1, there shall be no leakage of any flammable quantity of air/gas mixture at the joints of the assembly.

6.1.4.2.2 Spillage of un-burnt gas

When a burner operates under the test conditions in 7.3.1.4.2.2, there shall be no hazardous accumulation of un-burnt gas within the body of the appliance.

6.1.4.3 Safety of operation at reduced pressure

Appliance supplied with gases of the 2nd family of groups H and E shall operate safely at a reduced pressure of 70 % of the normal test pressure, i.e. 14 mbar.

This requirement is complied with if, under the test conditions in 7.3.1.4.3, the flame of the burner concerned is not extinguished, or if the gas supply under the control of the flame supervision device is shut-off.

6.1.5 Heating

6.1.5.1 Heating of the various parts of the appliance

6.1.5.1.1 Front and sides

6.1.5.1.1.1 General

Under the test conditions in 7.3.1.5.2.3, test no.1a, the temperature of those parts of the front and sides of the appliance which can be touched accidentally shall not exceed the ambient temperature by more than:

- metal and painted metal	60 K;
- enamelled metal	65 K;
- glass and ceramics	80 K;
- plastic	100 K.

The temperature rise limit of 100 K also applies to plastic materials having a metal finish of thickness less than 0,1 mm.

NOTE When the thickness of the plastic coating does not exceed 0,3 mm, the temperature rise limits of the supporting material apply.

These requirements shall not apply to those parts of the front or sides:

- which are not accessible to a test probe 75 mm in diameter having a hemispherical end, or
- which, on appliances having a hotplate, are less than 25 mm below the level of the hotplate, excluding the pan supports, or which are above the hotplate, or