

European scheme for the classification of gas appliances according to the method of evacuation of the combustion products (types)

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National foreword

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

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European scheme for the classification of gas appliances
according to the method of evacuation of the combustion
products (types)

Modèle européen pour la classification des appareils
utilisant les combustibles gazeux selon le mode
d'évacuation des produits de combustion (types)

Europäischer Leitfaden für die Klassifizierung von
Gasgeräten nach der Art der Abgasabführung (Arten)

This Technical Report was approved by CEN on 6 August 2009. It has been drawn up by the Technical Committee CEN/SS H99.

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Foreword

This document (CEN/TR 1749:2009) has been prepared by Technical Committee CEN/TC SFG_U “Sector Forum Gas Utilisation”, the secretariat of which is held by AFNOR.

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 supersedes CEN/TR 1749:2005.

This technical report has been prepared under the aegis of the Sector Forum Gas Utilisation committee to provide guidance to CEN Technical Committees who are preparing European Standards for appliances burning combustible gases.

It gives details of a general scheme for the classification of such appliances according to the method of evacuating the products of combustion. It must be stressed that this scheme only concerns gas appliances that are intended to be installed within buildings. It does not apply to outdoor appliances. Nevertheless, it is recognised that this appliance classification scheme could be utilised in other circumstances. For example, in the case of :

- a) Appliances capable of utilising heating oil or kerosene, and
- b) Gas appliances intended for installation in a partially protected location external to a building.

This form of appliance classification is widely used in the preparation of European Standards for gas appliances to identify the requirements and methods of test that are applicable to the various methods of evacuating the products of combustion. Appliances classified in this way are generally described as “types” and this description has been retained for the purposes of this general scheme.

The main purpose of the scheme is to promote harmonization in the classification of appliance types. This should ensure that there is a clear understanding of the various appliance types and will avoid confusion arising from Technical Committees describing them in different ways. CEN Technical committees are therefore requested to use this scheme in all circumstances in which it is appropriate. They should not deviate from it unless there are sound technical reasons for so doing.

In the preparation of this scheme it was noted that there were methods of evacuating products of combustion that were particular to a specific Technical Committee or to a particular gas appliance. These particular methods have not been included in the present scheme because, as indicated above, the main purpose of the scheme is to promote harmonization across Technical Committees.

However, it is intended that this scheme should be reviewed from time to time in order to consider its extension to other, possibly new, methods of evacuating products of combustion. At that time, such specific methods of evacuating products of combustion may be included at the request of the Technical Committees concerned.

Explanatory notes

The following notes are given in explanation of the classification scheme.

NOTE 1 The general scheme classifies appliances as type A, B or C according to the basic principle for the evacuation of the products of combustion. These definitions are written intentionally in very broad terms in order to cover any possible variations in the basic appliance types.

A series of subscript numbers is used in addition to these letters to identify specific variations within these basic principles.

The last subscript number of each specific variation indicates the absence or presence of an integral fan for the supply of combustion air and/or for the evacuation of the products of combustion. Where such a fan is present, the numbers 2, 3 or 4 are given. These three numbers are used solely to identify the location of this fan.

NOTE 2 Diagrams have been given in annex A, showing examples of the various appliance types. However, it should be noted that diagrams for type C₆ appliances have not been included. This is because such appliances are marketed without duct systems. When installed such an appliance will have a configuration similar to one of the arrangements shown for other type C appliances.

Appliance Technical Committees have the responsibility for inclusion of requirements and methods of test in their standards to ensure that type C₆ appliances are suitable for their intended method(s) of installation.

In order to ensure that type C₆ appliances are only installed in accordance with their intended methods of installation, it is recommended that they be marked as described in NOTE 1 above firstly to identify their particular type C₆ classification and then, in brackets, to identify their intended method(s) of installation.

For example :

A type C₆₂ appliance that is intended to be installed similar to a type C₄₂ appliance would be identified as:

A type C₆₂ (C₄₂) appliance

A type C₆₃ appliance that is intended to be installed similar to a type C₁₃ or type C₃₃ appliance would be identified as:

A type C₆₃ (C₁₃, C₃₃) appliance.

NOTE 3 The supplementary classification scheme for type A and type B appliances has been included to clarify the identification of such appliances when fitted with different safety devices. The subscript letters "AS" (atmosphere safety) refer to an atmosphere sensing device and the subscript letters "BS" (blocked safety) refer to a clearance monitoring device, which reacts to blockage or restriction of the flue system.

In order to provide information about appliance types that are recognized in certain CEN member states, annex B has been included in which special national appliance classifications may be identified. At present, this annex identifies appliance types that are particular to Germany.

NOTE 4 Annex C identifies appliance types that are designed for connection to separate chimney products which may be part of the construction of the building.

1 General scheme

The general scheme for type A, type B and type C appliances is given in 1.1, 1.2 and 1.3 respectively. Diagrams are also given in Annex A to assist in the identification of the various appliance types.

1.1 Type A

An appliance not intended for connection to a flue or to a device for evacuating the products of combustion to the outside of the room in which the appliance is installed.

Type A₁. An appliance without a fan.

Type A₂. An appliance with a fan downstream of the combustion chamber/heat exchanger.

Type A₃. An appliance with a fan upstream of the combustion chamber/heat exchanger.

1.2 Type B

An appliance intended to be connected to a flue that evacuates the products of combustion to the outside of the room containing the appliance. The combustion air is drawn directly from the room.

Type B₁. A type B appliance incorporating a draught diverter.

Type B₁₁. A natural draught type B₁ appliance.

Type B₁₂. A type B₁ appliance designed for a natural draught flue incorporating a fan downstream of the combustion chamber/heat exchanger and upstream of the draught diverter.

Type B₁₃. A type B₁ appliance designed for a natural draught flue incorporating a fan upstream of the combustion chamber/heat exchanger.

Type B₁₄. A type B₁ appliance having an integral fan downstream of both the combustion chamber/heat exchanger and the draught diverter.

Type B₂. A type B appliance without a draught diverter.

Type B₂₁¹⁾ A natural draught type B₂ appliance.

Type B₂₂. A type B₂ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type B₂₃. A type B₂ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type B₃. A type B appliance without a draught diverter, which is designed for connection to a common duct system. This common duct system consists of a single natural draught flue. All pressurized parts of the appliance containing products of combustion are completely enclosed by parts of the appliance supplying combustion air. Combustion air is drawn into the appliance from the room by means of a concentric duct, which encloses the flue. The air enters through defined orifices situated in the surface of the duct.

Type B₃₁. A natural draught type B₃ appliance.

1) A type B₂₁ appliance will not generally be included in the scope of European Standards for gas appliances. However, it may apply in special circumstances e.g. gas-fired incinerators.

Appliances of this type are not foreseen.

Type B₃₂. A type B₃ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type B₃₃. A type B₃ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type B₄. A type B appliance, incorporating a draught diverter, that is designed for connection via its flue duct to its flue terminal.

Type B₄₁²⁾ A natural draught type B₄ appliance.

Type B₄₂. A type B₄ appliance designed for a natural draught flue incorporating a fan downstream of the combustion chamber/heat exchanger and upstream of the draught diverter.

Type B₄₃. A type B₄ appliance designed for a natural draught flue incorporating a fan upstream of the combustion chamber/heat exchanger.

Type B₄₄. A type B₄ appliance having an integral fan downstream of both the combustion chamber/heat exchanger and the draught diverter.

Type B₅. A type B appliance, without a draught diverter, that is designed for connection via its flue duct to its flue terminal.

Type B₅₁³⁾ A natural draught type B₅ appliance.

Type B₅₂. A type B₅ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type B₅₃. A type B₅ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

1.3 Type C

An appliance in which the combustion circuit (air supply, combustion chamber, heat exchanger and evacuation of the products of combustion) is sealed with respect to the room in which the appliance is installed.

Type C₁. A type C appliance that is designed for connection via its ducts to its horizontal terminal, which at the same time admits fresh air to the burner and discharges the products of combustion to the outside through orifices that are either concentric or close enough to come under similar wind conditions.

Type C₁₁. A natural draught type C₁ appliance.

Type C₁₂. A type C₁ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C₁₃. A type C₁ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type C₂. A type C appliance connected via its two ducts to a common duct system⁴⁾ serving more than one appliance. This system consists of a single duct, which supplies the combustion air and evacuates the products of combustion.

Type C₂₁. A natural draught type C₂ appliance.

2) Type B₄₁ appliances installed in mobile homes (caravan holiday homes) are commonly described as “closed flue” appliances; this terminology being used in EN 1949, which covers the installation of such appliances.

3) A type B₅₁ appliance will not generally be included in the scope of European Standards for gas appliances. However, it may apply in special circumstances e.g. gas-fired incinerators.

4) This common duct system is part of the construction of the building and not supplied with the appliance.

Type C₂₂. A type C₂ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C₂₃. A type C₂ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type C₃. A type C appliance that is designed for connection via its ducts to a vertical terminal, which at the same time admits fresh air to the burner and discharges the products of combustion to the outside through orifices that are either concentric or close enough to come under similar wind conditions.

Type C₃₁. A natural draught type C₃ appliance.

Type C₃₂. A type C₃ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C₃₃. A type C₃ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type C₄. A type C appliance connected via its two ducts to a common duct system⁵⁾ designed for more than one appliance. This common duct system consists of two ducts connected to a terminal, which at the same time admits fresh air to the burner and discharges the products of combustion to the outside through orifices that are either concentric or close enough to come under similar wind conditions.

Type C₄₁. A natural draught type C₄ appliance.

Type C₄₂. A type C₄ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C₄₃. A type C₄ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type C₅. A type C appliance connected via its separate ducts to separate terminals for the supply of combustion air and the evacuation of the products of combustion. These ducts may terminate in zones of different pressure.

Type C₅₁. A natural draught type C₅ appliance.

Type C₅₂. A type C₅ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C₅₃. A type C₅ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type C₆. A type C appliance which is intended to be connected to a separately approved and marketed system for the supply of combustion air and discharge of the combustion products. (see note 2 given in the foreword).

Type C₆₁. A natural draught type C₆ appliance.

Type C₆₂. A type C₆ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C₆₃. A type C₆ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type C₇. A type C appliance in which the combustion air supply and the combustion products evacuation is provided by its two vertical ducts. The combustion air is taken from a loft and the products of combustion are discharged above the roof. A draught diverter is incorporated in the combustion products evacuation duct at a location above the combustion air inlet orifice(s)⁶⁾

Type C₇₁. A natural draught type C₇ appliance.

Type C₇₂. A type C₇ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

5) This common duct system is part of the construction of the building and not supplied with the appliance.

6) This appliance type is now obsolete and unlikely to be called up in future European standards for gas appliances.

Type C₇₃. A type C₇ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type C₈. A type C appliance connected via one of its ducts to a single or common duct system⁷⁾. This duct system consists of a single natural draught duct (i.e. not incorporating a fan) that evacuates the products of combustion. The appliance is connected via a second of its ducts to a terminal, which supplies air to the appliance from outside the building.

Type C₈₁. A natural draught type C₈⁸⁾ appliance.

Type C₈₂. A type C₈ appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C₈₃. A type C₈ appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type C₉. A type C appliance similar to a type C₃ appliance in that it is designed for use with a vertical terminal, which at the same time admits fresh air to the burner and discharges the products of combustion to the outside through orifices that are either concentric or close enough to come under similar wind conditions.

However, the only difference for this appliance type is that the air inlet duct, or part of it, is an existing vertical duct within the building e.g. a converted chimney.

Type C₉₁. A natural draught type C₉ appliance

Type C₉₂. A type C₉ appliance incorporating a fan downstream of the combustion chamber/heat exchanger

Type C₉₃. A type C₉ appliance incorporating a fan upstream of the combustion chamber/heat exchanger

2 Supplementary classification scheme for type A and type B appliances fitted with particular safety devices

Type A_{AS}. A type A appliance fitted with an atmosphere sensing device,

e.g. type A_{1AS}

Type B_{AS}. A type B appliance fitted with an atmosphere sensing device,

e.g. type B_{11AS}.

Type B_{BS}. A type B appliance fitted with a clearance monitoring device,

e.g. type B_{11BS}.

3 Supplementary classification scheme for type B appliances for use in limited installation conditions

3.1 Type B appliance utilising a third subscript “D”⁹⁾

Indicating that the appliance is designed for connection to a flexible non-metallic duct that evacuates humid air and products of combustion to the outside of the room containing the appliance.

7) This single or common duct system is part of the construction of the building and is not supplied with the appliance.

8) A type C₈₁ appliance will not generally be included within the scope of European Standards for gas appliances.

9) At present, these types are only applicable to gas-fired tumble dryers.

Type B_{22D}. A type B₂₂ appliance that is designed for connection to a flexible non-metallic duct that evacuates humid air and products of combustion to the outside of the room containing the appliance.

Type B_{23D}. A type B₂₃ appliance that is designed for connection to a flexible non-metallic duct that evacuates humid air and products of combustion to the outside of the room containing the appliance.

3.2 Type B appliances utilising a third subscript “P”¹⁰⁾

Indicating that the appliance is intended to be connected to a flue system that is designed to operate at a positive pressure. This subscript “P” is only used when installation of the appliance in accordance with the appliance manufacturer’s instructions on a flue specified by the appliance manufacturer results in the flue operating at a positive pressure. The following types exist.

3.2.1 Type B appliances without draught diverters

Type B_{22P}. A type B₂₂ appliance intended to be connected to a flue system that is designed to operate at a positive pressure.

Type B_{23P}. A type B₂₃ appliance intended to be connected to a flue system that is designed to operate at a positive pressure.

Type B_{52P}. A type B₅₂ appliance intended to be connected to a flue system that is designed to operate at a positive pressure.

Type B_{53P}. A type B₅₃ appliance intended to be connected to a flue system that is designed to operate at a positive pressure.

3.2.2 Type B appliances with draught diverters

Type B_{14P}. A type B₁₄ appliance intended to be connected to a flue system that is designed to operate at a positive pressure.

Type B_{44P}. A type B₄₄ appliance intended to be connected to a flue system that is designed to operate at a positive pressure.

4 Supplementary classification scheme for type C appliances for use in limited installation conditions

4.1 Type C₁ appliances utilising a third subscript “R”

Indicating that the appliance is also capable of being installed via its ducts to a horizontal terminal on a roof. The following types exist.

Type C_{1R}. A type C₁ appliance which is capable of roof termination as well as wall termination.

Type C_{11R}. A natural draught type C_{1R} appliance.

Type C_{12R}. A type C_{1R} appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C_{13R}. A type C_{1R} appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

10) This identification “P” is in accordance with the designation of the classes of tightness, agreed by CEN/TC 166: Chimneys, depending on the pressure of operation of the duct (e.g. see EN 1443)