SLOVENSKI STANDARD
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Pretoļ ni plinski grelniki z atmosferskim gorilnikom za pripravo sanitarne tople vode ï Dopolnilo A2

Gas-fired instantaneous water heaters for the production of domestic hot water, fitted with atmospheric burners

Gasbeheizte Durchlauf-Wasserheizer für den sanitären Gebrauch mit atmosphärischen Brennern

Appareils de production instantanée d'eau chaude pour usages sanitaires, équipés de bruleurs atmosphériques, utilisant les combustibles gazeux

Ta slovenski standard je istoveten z: **EN 26:1997/A2:2004**

ICS:

91.140.65	Oprema za ogrevanje vode	Water heating equipment

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 26:1997/A2

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ICS 91.140.65

English version

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This amendment A2 modifies the European Standard EN 26:1997; it was approved by CEN on 8 April 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for inclusion of this amendment into the relevant national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This amendment 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 26:1997/A2:2004) has been prepared by Technical Committee CEN/TC 48 “Domestic gas-fired water heaters”, the secretariat of which is held by AFNOR.

This Amendment to the European Standard EN 26:1997 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 2004, and conflicting national standards shall be withdrawn at the latest by December 2004.

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.

With this amendment, the requirements and test methods for type B instantaneous water heaters with fan assisted combustion are introduced in EN 26. In addition requirements and test procedures for resistance to freezing are introduced.

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

1 Scope

2nd paragraph – 1st dash, add : "B_{12}, B_{12BS}, B_{13}, B_{13BS}, B_{14}, B_{22}, B_{23}, B_{32}, B_{33} , B_{44}, B_{52} and B_{53}"

2nd paragraph – 1st dash, add the following footnote :

"National installation regulations may specify further requirements and may limit the modes of installation permitted in the territory of a CEN member state."

2nd paragraph – 3rd dash, delete : "hereafter referred to as type C water heaters with a fan".

4th paragraph, add the following indent :

— "water heaters of types B_{21}, B_{31}, B_{41}, B_{42}, B_{43} and B_{51};"

Add after the 4th paragraph :

"This standard only covers water heaters where the fan, if any, is an integral part of the appliance."

2 Normative references

Add the following reference :

"CR 1749 : 2001 *European scheme for the classification of gas appliances according to the method of evacuation of the products of combustion (Types).*"

3.7 combustion circuit

Replace the last dash with the following :

— "the combustion products evacuation ducts and either the duct adapter (if any) or the connection to the terminal for type C, B_4 and B_5 water heaters."

3.7.5 terminal

Add after the 3rd indent : " – the combustion products evacuation duct for types B_4 and B_5 water heaters."

4.3 mode of supply of the combustion air and evacuation of the combustion products (appliance type)

4.3.2 Type B

Add after the first paragraph the following text:

"Type B water heaters are classified into several types according to the mode of evacuation of the combustion products.

The types are defined by two subscripts:

a) The first subscript number is based upon the possible installation of the water heater with respect to the mode of air supply and evacuation of the combustion products.

b) The second subscript number is based upon the presence and position of an integral fan in the water heater, as shown below :

A type B water heater intended to operate with a pressurised flue duct shall be identified by an extra subscript “P”. This subscript “P” is only used when installation in accordance with the water heater manufacturer’s instructions on a flue specified by the water heater manufacturer results in the flue operating at a positive pressure[2a)].”

Add at the end of the last paragraph of subclause 4.3.2 a new footnote 2a):

“[2a)] This identification “P” is in accordance with the designation of the classes of tightness in positive pressure, agreed by CEN/TC 166: "Chimneys", depending on the pressure of operation of the duct (e.g. see EN 1443)”.

Add the following new subclauses :

"4.3.2.2 type B_2

A type B water heater without a draught diverter.

4.3.2.3 type B_3

A type B water heater 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 pressurised parts of the water heater containing products of combustion are completely enclosed by parts of the water heater supplying combustion air. Combustion air is drawn into the water heater 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.

4.3.2.4 type B_4

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

4.3.2.5 type B_5

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

4.3.2.6 presence and position of a fan

— A type B water heater that does not incorporate a fan is identified by the second subscript number "1" (e.g. B_{11}).

— A type B water heater that incorporates a fan downstream of the combustion chamber/ heat exchanger and upstream of the draught diverter, is identified by the second subscript number "2" (e.g. B_{12}).

— A type B water heater that incorporates a fan upstream of the combustion chamber/ heat exchanger is identified by the second subscript number "3" (e.g. B_{13}).

— A type B water heater that incorporates a fan downstream of both the combustion chamber/ heat exchanger and the draught diverter is identified by the second subscript number "4" (e.g. B_{14}).”

5.1 Appliance marking

5.1.4 Warnings on the appliance and the packaging

5.1.4.3 For type B_{11} appliances

Replace the title by: **“For type B_{11} B_{12} and B_{13} appliances”.**

5.1.4.4 For type A_{AS} and type B_{11BS} appliances

Replace the title by: **"For type A_{AS}, B_{11BS} B_{12BS} and B_{13BS} appliances".**

5.2 Instructions

5.2.1 Technical instructions

Change in 5.2.1.4 and 5.2.2.3 "B_{11BS}" *to* "B_{11BS}, B_{12BS}, B_{13BS}".

Add the following subclause:

f) for type B_2 appliances

— the diameter(s) of the flues which can be used, in accordance with Table A.9, possibly with an adapter;

— for flue calculations, information on the mass rate of combustion products in g/s and the average temperature measured under the conditions of 8.2.2.

g) for types B_4 and B_5 appliances

— information about the type of installation for which the water heater is approved;

— give the instruction that the water heater has to be installed with the necessary accessories (e.g. ducts, terminal, fitting piece) supplied with the water heater or give the specification of the necessary accessories that shall be fitted;

— give the instruction for the installation of parts intended to be fitted to the water heater;

— indicate the maximum number of bends to be used and the maximum length and, if necessary, the minimum length of the air supply and combustion products evacuation ducts;

— give the particular characteristics of the terminal guard, where provision for this is made, and information on its installation relative to the terminal.

6.1.7 Supply of combustion air and evacuation of the combustion products

6.1.7.3 Type B appliances

Replace the existing text by the following :

"6.1.7.3.1 General

The outlet connection shall be female. Except for types B_4 and B_5 water heaters, the flue outlet shall be designed such that, if necessary by means of an adapter supplied with the water heater, it allows connection to a flue pipe whose diameter complies with the standards or practices in force in the country where the water heater is to be installed (see Table A.9). The connection shall not impair the evacuation of the combustion products.

It shall be possible to insert the flue to a depth of at least 15 mm. When inserted as far as possible, the evacuation of the combustion products shall not be impaired.

The minimum and maximum flue diameters for which the water heater is designed shall be stated in the installation instructions.

For a separate combustion products evacuation duct which is supplied with a type B_4 or B_5 water heater, the requirements given in 6.1.7.4, in accordance with EN 1443 apply as well as the applicable requirements of EN 1856-1, prEN 1856-2 and EN 1859.

The water heater shall not be fitted with manual or automatic devices for the adjustment of the supply of combustion air and/or the evacuation of the combustion products, except for water heaters without draught diverter and for water heaters with gas/air ratio controls.

6.1.7.3.2 Water heaters with a draught diverter (water heaters of types B_{11}, B_{11BS}, B_{12}, B_{12BS}, B_{13}, B_{13BS}, B_{14}, and B_{44})

The draught diverter shall be part of the water heater. Downstream of this draught diverter the water heater shall incorporate a female flue outlet that allows the connection to a flue duct.

The operation of the water heater shall be tested with the appropriate flue sizes specified by the manufacturer.

6.1.7.3.3 Water heaters without a draught diverter (water heaters of type B_{22}, B_{23}, B_{32}, B_{33}, B_{52}, and B_{53})

The combustion circuit of these water heaters may be fitted with an adjusting device to adjust the water heater to pressure losses of the installation. This adjustment can be effected either by means of restrictors or by adjustment, which requires the use of tools, to a predetermined position given in the installation instructions."

6.2.10 Combustion products discharge safety device

Replace the title of the subclause by: "**Combustion products discharge safety device for type B_{11BS}, B_{12BS} and B_{13BS} appliances**"

Replace the second paragraph by:

"For type B_{11}, B_{12} and B_{13} water heaters, this can be achieved with a combustion products discharge safety device (In this case type B_{11}, B_{12}, and B_{13} water heaters are designated respectively as type B_{11BS}, B_{12BS}, and B_{13BS} water heaters)."

Replace in the third paragraph the words:

"in this case, they are designated as type B_{11}"

by

"in this case, they are designated as type B_{11}, B_{12} or B_{13}"

7.1.5.2 Installation requirements

Replace in the third paragraph "A type B_{11} or B_{11BS} appliance" by "A type B appliance (except for types B_4 and B_5)"

Add the following paragraphs:

"Type B_4 and B_5 water heaters are tested with their ducts and terminals. The terminal guard is not fitted.

Except where otherwise stated, water heaters of types B_4 and B_5 are connected to the shortest ducts with the smallest pressure loss stated by the manufacturer in his installation instructions. If necessary, an external telescopic duct may be sealed in accordance with the manufacturer's instructions."

7.2.1 Soundness of the gas circuit

7.2.1.1 Requirement

At the third indent of the second paragraph, replace : "test n°3" *by* : "test n°3 and test n°4"

7.2.1.2 Test

Add the following text:

“Test n°4

The pressure upstream of the water heater is 50 mbar for water heaters that do not use third family gases, and 150 mbar for water heaters that do use third family gases.

The flame supervision device is held open by an appropriate means. If necessary, the gas supply circuit of the pilot is blocked off.

The water heater is connected to a water supply at the maximum pressure declared by the manufacturer.

All the closure devices of the gas circuit are held open except for the device(s) directly controlled by the water rate.

The ambient temperature of air around the water flow sensing device is lowered at approximately 1 °C/min down to a temperature of -10 °C during a time sufficient to obtain the freezing of the device.

In the case where after thaw the water heater has not suffered any visible damage, test n°1, n°2 and n°3 of 7.2.1.2, and test n°1 of 7.7.1.2 are carried out.”

Add the following subclause:

”7.2.2.4 Type B appliances other than B_{11}, B_{11BS} and B_3

7.2.2.4.1 Requirement

The soundness is ensured if, under the test conditions of 7.2.2.4.2, combustion products only escape from the flue outlet.

The ducts of type B_5 water heaters shall also meet the requirements of 7.2.2.6.

7.2.2.4.2 Test

The maximum pressure at which the water heater can operate is determined by progressively blocking the combustion products evacuation duct or air inlet, until the air proving device acts.

The air proving device is then put out of operation, to allow the operation of the burner at the maximum cut-off pressure of the air proving device.

The water heater is connected to its shortest length of flue duct incorporating a restriction to reach the maximum operating pressure determined above.

Possible leaks are looked for with a dew point plate, whose temperature is maintained at a value slightly above the dew point of the ambient air. The plate is brought close to all the places where a leak is suspected.

In doubtful cases, however, leaks are looked for with a sampling probe connected to a rapid-response CO_2-analyser enabling concentrations of the order of 0,20 % to be detected.

In this case, precautions shall be taken to ensure that sampling does not interfere with the normal evacuation of the combustion products.

It is checked that the requirement of 7.2.2.4.1 is satisfied.

7.2.2.5 Type B_3 water heaters

7.2.2.5.1 Requirement

Soundness is ensured if under the test conditions of 7.2.2.5.2 by choice of the manufacturer:

— the leakage rate of the combustion products circuit does not exceed 3,0 m^3/h;

— the leakage rate of the combustion circuit (with all the duct and joints) does not exceed 5,0 m^3/h.

7.2.2.5.2 Test

Connect the outlet of the flue duct to a pressure source. Block the orifices in the surface of the concentric duct through which air is supplied.

The test pressure is to be at least 0,5 mbar.

It is verified that the requirement taken from 7.2.2.5.1 is met.

7.2.2.6 Combustion products evacuation ducts of type B_4 and B_5 water heaters

7.2.2.6.1 Requirement

The soundness of a combustion products evacuation duct supplied by the manufacturer, not completely surrounded by combustion air, with respect to areas other than where the water heater is installed, is ensured if under the test conditions of 7.2.2.6.2 the leakage rate per square metre surface of the duct does not exceed 0,006 dm^3/s.

7.2.2.6.2 Test

The test checks all the joints declared by the manufacturer, between:

— the water heater and its ducts;

— interconnecting ducts;

— the ducts and any bends; and

— the ducts and any fitting piece or terminal.

In the case that leakage can occur along the length of the ducts, the tests are also carried out with the maximum length of ducts.

In accordance with the technical instructions, the wall connections, the joint with the terminal or the joint with the fitting piece with another system of combustion products evacuation may be made sound.

The flue duct and its joint to the water heater are connected to a pressure source on one side and blocked on the other side with a pressure corresponding to the maximum pressure measured in 7.2.2.4.2.

It is checked that the requirement of 7.2.2.6.1 is met."

7.7.2 Supplementary tests for appliances of types A_{AS} and B_{11} and B_{11BS}

Replace the title by: **" Supplementary tests for appliances of types A_{AS} and B_1 except for B_{14}".**