SLOVENSKI STANDARD
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Stropna cevna sevala s plinskim gorilnikom, ki niso namenjena za ogrevanje stanovanj - 1. del: Varnost - Dopolnilo A3

Single burner gas-fired overhead radiant tube heaters for non-domestic use - Part 1: Safety

Gasgeräte-Heizstrahler - Dunkelstrahler mit einem Brenner mit Gebläse für gewerbliche und industrielle Anwendung - Teil 1: Sicherheit

Tubes radiants suspendus a monobruleur utilisant les combustibles gazeux a usage non-domestique - Partie 1: Sécurité

Ta slovenski standard je istoveten z: EN 416-1:1999/A3:2002

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97.100.20

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 416-1:1999/A3

April 2002

ICS 97.100.20

English version

Single burner gas-fired overhead radiant tube heaters for non-domestic use - Part 1: Safety

Tubes radiants suspendus à monobrûleur utilisant les combustibles gazeux à usage non-domestique - Partie 1: Sécurité

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This amendment A3 modifies the European Standard EN 416-1:1999; it was approved by CEN on 14 March 2002.

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 Management Centre 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 Management Centre has the same status as the official versions.

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

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Ref. No. EN 416-1:1999/A3:2002 E

Foreword

This document (EN 416-1:1999/A3:2002) has been prepared by Technical Committee CEN/TC 180 "Non-domestic gas-fired overhead radiant heaters", the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by October 2002, and conflicting national standards shall be withdrawn at the latest by October 2002.

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).

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

This Amendment modifies EN 416-1:1999. It has been prepared to incorporate requirements for particular type C appliances and to amend the requirements concerning automatic shut-off valves.

1 Contents list

Delete title of annex B and replace with the following:

'Annex B (normative) Appliance (flue) types'.

2 Clause 1 Scope

Delete the second paragraph and replace it with the following:

'This standard is applicable to type A_2, A_3, B_{12}, B_{13}, B_{22}, B_{23}, C_{12}, C_{13}, C_{32} and C_{33} appliances intended for use in other than domestic dwellings, in which the supply of combustion air and/or the evacuation of the products of combustion is achieved by mechanical means located upstream of the draught diverter, if provided.'

3 Clause 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)'.*

4 Clause 3 Definitions

Insert the following definition after 3.1.12:

'3.1.13
premixed burner
a burner in which the gas and a quantity of air, at least equal to that theoretically necessary for complete combustion, are mixed before the flame port(s)'.

Amend the definition numbers as follows (the definitions are to be retained):

'3.1.14 ignition burner

3.1.15 ignition device

3.1.16 primary aeration adjuster'.

Amend the title of 3.2 as follows:

'3.2 combustion circuit'.

Insert the following definitions after 3.2:

'3.2.1
combustion products circuit
circuit including the combustion chamber, the radiant tube, the combustion products evacuation duct and either the fitting piece or the connection to the terminal, if any

3.2.2
air supply and combustion products evacuation ducts
means for transporting combustion air to the burner and combustion products to the terminal or fitting piece.

NOTE A fitting piece is not utilised by appliances of type C_1 or of type C_3.

It is necessary to distinguish between:
completely surrounded ducts:
the combustion products evacuation duct is surrounded by combustion air throughout its length.
separate ducts:
the combustion products evacuation duct and the combustion air supply duct are neither concentric nor completely surrounded ducts'.

Amend the definition numbers as follows (the definitions are to be retained):

'3.2.3 combustion chamber

3.2.4 flue outlet

3.2.5 draught diverter'.

Insert the following definitions after 3.2.5 draught diverter:

'3.2.6
terminal
device(s) fitted to the outside of the building, which are connected to the air supply and combustion products evacuation ducts for type C_1 and C_3 appliances (one or two devices)

3.2.7
terminal guard
a device that protects the terminal from mechanical damage from outside influences'.

Insert the following definition after 3.3.1:

'3.3.2
air proving device
a device intended to cause safety shutdown in the event of abnormal conditions of air admission or of combustion products evacuation'.

Amend the definition numbers as follows (the definitions are to be retained):

'3.3.3 programming unit

3.3.4 programme

3.3.5 flame detector

3.3.6 flame signal

3.3.7 flame supervision device

3.3.8 flame simulation

3.3.9 pressure governor (existing footnote is to be retained)

3.3.10 adjustable pressure governor

3.3.11 volume governor (existing footnote is to be retained)

3.3.12 range-rating device

3.3.13 automatic shut-off device'.

5 Clause 4 Classification of appliances

4.3 Classification according to the mode of evacuation of the combustion products

Insert the following after 4.3.3:

'4.3.4 Type C: An appliance in which the combustion circuit is sealed with respect to the inhabitable area of the building in which the appliance is installed.

This standard applies to:

Type C_1: a type C appliance that is designed for connection via its ducts to a 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 C_{12}: a type C_1 appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C_{13}: a type C_1 appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

Type C_3: 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 C_{32}: a type C_3 appliance incorporating a fan downstream of the combustion chamber/heat exchanger.

Type C_{33}: a type C_3 appliance incorporating a fan upstream of the combustion chamber/heat exchanger.

See B.2 for the types of appliances identified above, in which the combustion air is supplied and/or in which the products of combustion are evacuated either by natural draught or mechanical means.'

6 Clause 5 Constructional requirements

5.1.4 Means of sealing

Insert the following after 5.1.4.2:

'5.1.4.3 Soundness of the combustion circuit (type C appliances)

Parts which have to be removed during routine service and affect the soundness of the appliance and/or its ducts, shall be sealed by mechanical means, excluding pastes, liquids and tapes. The need for replacement of the seal(s), following a cleaning or servicing operation as stated by the manufacturer, is permitted.

However, parts of the assembly that are not intended to be dismantled for maintenance may be joined in such a way, that permanent soundness is assured during continuous service under normal conditions of use.

The ducts, bends, if any, and the terminal or fitting piece shall fit together correctly and shall form a stable assembly. Parts intended to be dismantled for periodic servicing shall be designed and arranged so that soundness is guaranteed after re-assembly.

Any fitting piece shall allow a sound connection to be made to the system intended for the evacuation of combustion products and supply of air.'

5.1.5 Supply of combustion air and evacuation of combustion products

Insert the following after the title:

‘5.1.5.1 General

All appliances shall be designed so that there is an adequate supply of combustion air during ignition and over the whole range of possible heat inputs stated by the manufacturer.

Unless otherwise stated, fan assisted appliances may be fitted with a means of adjustment in the combustion circuit intended to adapt the appliances to the pressure losses in the installed ducts, either by restrictors or by setting the means of adjustment to predetermined positions in accordance with detailed instructions from the manufacturer.

According to the appliance type, the manufacturer shall supply any terminal and/or fitting piece, with the appliance for test.

5.1.5.2 Air supply and combustion products evacuation ducts

The assembly of the various parts during installation shall be such that no work is necessary other than adjusting the length of the air supply and combustion products evacuation ducts (possibly by cutting them). Such adaptation shall not impair the correct operation of the appliance.

It shall be possible to connect the appliance, the air supply and combustion products evacuation ducts and the terminal or fitting piece using ordinary tools if necessary. All necessary accessories and the fitting instructions shall be supplied by the manufacturer.

The terminal outlets from separate ducts for the supply of combustion air and the evacuation of combustion products shall fit inside a square of 50 cm for type C_1 and C_3 appliances.

NOTE In accordance with the national regulations sampling points in the combustion circuit may be required.'

Amend the clause numbers as follows (the content of these clauses is to be retained):

‘5.1.5.3 Air inlets

5.1.5.4 Appliance outlet

5.1.5.5 Type B_{12} and B_{13} appliances

5.1.5.6 Type B_{22} and B_{23} appliances’.

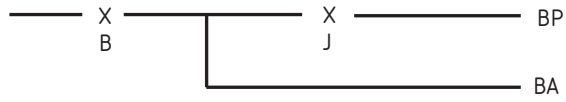
5.2.8 Automatic shut-off valves

Delete the second paragraph and replace it with the following:

'The gas supply to the main burner shall be under the control of two automatic shut-off valves connected in the gas line in series; one being of class A or class B, the other being of class A, class B, class C or class J. If a valve of class J is utilised, a strainer shall be used such that it does not pass a 0,2 mm pin gauge. This strainer shall be fitted upstream of the class J valve. '

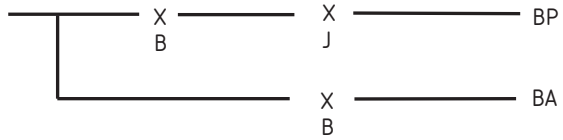
Delete the diagrams after item a) and replace them with the following:

1

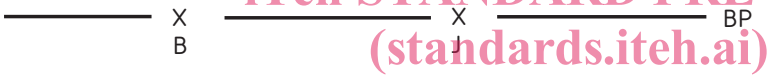


(see 6.4.1.1)

2



Delete the diagram after item b) and replace it with the following:



7 Clause 6 Operational requirements

6.1 Soundness

Insert the following after 6.1.2.2:

'6.1.2.3 Soundness of the combustion circuit (Type C_1 and C_3 appliances)

When tested under the conditions of 7.3.1.2.3, the leakage from the appliance together with its air supply and combustion products evacuation ducts and all their joints, shall not exceed 0,5 m^3 / h per kW of the nominal heat input of the appliance.'

6.4 Ignition; cross-lighting; flame stability

Insert the following after 6.4.2:

'6.4.3 Supplementary tests for type C_1 and C_3 appliances

Under the test conditions of 7.3.4.3, ignition of the ignition burner, ignition of the main burner by the ignition burner or direct ignition of the main burner, complete cross-lighting of the main burner and also stability of the ignition burner when it alone is alight or of the ignition burner and main burner operating simultaneously shall be assured. Slight flame disturbance is permitted but there shall be no flame extinction.'