SLOVENSKI STANDARD
SIST EN 297:1997/A5:1999

01-december-1999

Plinski kotli za centralno ogrevanje - Tipa B11 in B11BS z atmosferskimi gorilniki z imensko močjo do vključno 70 kW - Dopolnilo A5

Gas-fired central heating boilers - Type B11 and B11BS boilers, fitted with atmospheric burners of nominal heat input not exceeding 70 kW

Heizkessel für gasförmige Brennstoffe - Heizkessel der Typen B11 und B11BS mit atmosphärischen Brennern mit einer Nennwärmebelastung kleiner als oder gleich 70 kW

Chaudieres de chauffage central utilisant les combustibles gazeux - Chaudieres des types B11 et B11BS équipées de bruleurs atmosphériques, dont le débit calorifique nominal est inférieur ou égal a 70 kW

Ta slovenski standard je istoveten z: **EN 297:1994/A5:1998**

ICS:

91.140.10	Sistemi centralnega ogrevanja	Central heating systems
97.100.20	Plinski grelniki	Gas heaters

SIST EN 297:1997/A5:1999 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 297:1994/A5

June 1998

ICS 91.140.10

Descriptors: heaters, central heating, boilers, gas appliances, burners, heat balance, equipment specifications, performance evacuation, safety, tests, verification, marking, name plates

English version

Gas-fired central heating boilers - Type B_{11} and B_{11BS} boilers, fitted with atmospheric burners of nominal heat input not exceeding 70 kW

Chaudières de chauffage central utilisant les combustibles gazeux - Chaudières des types B_{11} et B_{11BS} équipées de brûleurs atmosphériques dont le débit calorifique nominal est inférieur ou égal à 70 kW

Heizkessel für gasförmige Brennstoffe - Heizkessel der Typen B_{11} und B_{11BS} mit atmosphärischen Brennern, mit einer Nennwärmebelastung kleiner als oder gleich 70 kW

This amendment A5 modifies the European Standard EN 297:1994; it was approved by CEN on 29 June 1997.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Foreword

This Amendment EN 297:1994/A5:1998 to EN 297:1994 has been prepared by Technical Committee CEN/TC 109 "Central heating boilers using gaseous fuels", the secretariat of which is held by NNI.

This Amendment to the European Standard EN 297:1994 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by December 1998, and conflicting national standards shall be withdrawn at the latest by December 1998.

This Amendment to the European Standard EN 297:1994 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, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1.1 Field of application

Add a 6th indent:

"- and which can give rise to condensation. The criteria for condensation are given in 3.8."

1.2 Normative references

Add:

"EN 677:1998 Gas-fired central heating boilers - Specific requirements for condensing boilers with a nominal heat input not exceeding 70 kW"

1.3 Definitions

Add:

"**1.3.4.17 Condensate**

Liquid formed from the combustion products during the condensation process."

2.1.2.1 General

Add :

"If there is a risk of condensation in the combustion products circuit, materials shall comply with the requirements of 4.1 of EN 677:1998. Other materials may be used when evidence is provided of their suitability for conditions in which condensation can occur (for instance for cast iron see Annex P)."

2.1.7 Supply of combustion air and evacuation of the combustion products

Add:

"A means of condensate discharge shall be provided if the condensate :

- impairs safety or correct operation;
- results in spillage from the appliance;
- causes deterioration of materials.

If the condensate shall be discharged, discharge of the condensate shall comply with the requirements of 4.2 of EN 677:1998 "

Add a new clause 2.5 as follows:

"2.5 Chemical composition of the condensate

The manufacturer shall communicate the possible chemical composition of the condensate (pH, heavy metals, etc.) to the notified body, if the composition is required by the national regulations."

3.8 Non-condensation in the flue [5])

Replace this clause by the following text :

"3.8 Criteria for condensation in the flue

It is determined whether condensation occurs in the flue. Condensation may occur when one of the following criteria, depending on the manufacturer's choice, is met :

a) the flue losses are less than 8 % under the test conditions of 4.8.1;

b) the temperature of the combustion products is less than 80 °C under the test conditions of 4.8.2."

Delete footnote 5

3.9.1 General

Add:

"Corrosion-resistant coatings shall show no signs of damage after the pressure tests described in 4.9."

Add a new clause as follows:

"3.11 Condensation in the boiler

If condensation occurs in the flue, according to one of the criteria of 3.8, additional tests are to be carried out to determine whether condensation also occurs in the boiler.

Under the test conditions of 4.11, it is checked whether formation of condensate occurs in the boiler.

If there is condensation in the boiler, the appropriate requirements of 2.1.2.1, 2.1.7, 2.5 and 5.2.1 shall be met."

4.8 Non-condensation in the flue

Replace the title of this clause by :

"4.8 Criteria for condensation in the flue"

*Delete clause 4.8.1"**Exceeding the dew point temperature"***

Renumber the title of 4.8.2 as follows:

"4.8.1 Determination of flue losses"

Replace the first sentence by the following:

"Under the test conditions of 4.7.1, using an insulated flue, the temperature of the combustion products and the CO_2 concentration are measured at the maximum heat input and at the minimum heat input."

Replace the last sentence by the following :

"It is checked that the requirement of 3.8 a) is satisfied."

*Delete clause 4.8.3"**Maximum useful efficiency"***

Renumber the title of 4.8.4 as follows:

"4.8.2 Minimum temperature of the combustion products"

Replace the last sentence by the following :

"It is checked that at the maximum and the minimum heat input, given either by the range rating device or by the controls, the temperature of the combustion products complies with the requirements of 3.8 b)."

Add a new clause as follows:

" 4.11 Condensation in the boiler

The boiler is installed as specified in 4.1.6. However, the average water temperature in the boiler is set at 50 °C (return 40 °C, flow 60 °C). If the manufacturer specifies in the instructions for the installer that the boiler may be fitted to a heating system designed to operate at a lower temperature, the lowest indicated water temperatures are set.

The boiler is operated at maximum heat input for one hour at this temperature.

Immediately after, it is checked whether condensation has occurred in the boiler.

The test is repeated at the minimum heat input."

5.2.1 Technical instructions for the installer

Add :

" – Where it is determined that condensation occurs in the flue (measured under the conditions of 4.8), the manufacturer shall specify in the technical instructions for the installer the special precautions to be taken for the flue;

– Where it is determined that condensation occurs in the boiler (measured under the conditions of 4.11), the manufacturer shall draw attention to the fact that the boiler shall not be fitted to a heating system designed for continuous operation at a temperature less than 50 °C when the boiler has not been designed to operate at this temperature."

A3 (Amendment 3:1998)

Replace table 14 in:

Table 14 : NO_x classes

NO_x-Classes	Limit NO_x concentration in mg/kWh
1	260
2	200
3	150
4	100
5	70

Add a new Annex Q as follows:

"Annex Q (informative)

Suitability of cast iron when there is a risk of condensation

The boiler is set to the nominal heat input or for range rated boilers to the minimal heat input, using reference gas at a flow/return temperature 80 °C/60 °C. The output is reduced to between 18 % and 22 % of the heat output set. Set the temperature control to the lowest selectable value.

The boiler is switched off every 5 hours for 1 hour, whereby the power take-up is not interrupted until a flow temperature of 20 °C is obtained.

During testing, any condensation which has formed shall not noticeably corrode the walls.

The boiler is assessed visually after 3 months and no significant corrosion or other damage shall be discernible".