SLOVENSKI STANDARD

SIST EN 303-2:1999/A1:2004

01-januar-2004

Kotli za gretje - 2. del: Kotli z ventilatorskimi gorilniki - Posebne zahteve za kotle z razprševalnimi oljnimi gorilniki - Dopolnilo A1

Heating boilers - Part 2: Heating boilers with forced draught burners - Special requirements for boilers with atomizing oil burners

Heizkessel - Teil 2: Heizkessel mit Gebläsebrenner - Spezielle Anforderungen an Heizkessel mit Ölzerstäubungsbrennern

Chaudieres de chauffage - Partie 2: Chaudieres avec bruleurs a air soufflé - Prescriptions spéciales pour chaudieres avec bruleurs fioul a pulvérisation

Ta slovenski standard je istoveten z: **EN 303-2:1998/A1:2003**

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91.140.10

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EUROPEAN STANDARD

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English version

Heating boilers - Part 2: Heating boilers with forced draught burners - Special requirements for boilers with atomizing oil burners

Chaudières de chauffage - Partie 2: Chaudières avec brûleurs à air soufflé - Prescriptions spéciales pour chaudières avec br^uleurs fioul à pulvérisation

Heizkessel - Teil 2: Heizkessel mit Gebläsebrenner - Spezielle Anforderungen an Heizkessel mit Ölzerstäubungsbrennern

This amendment A1 modifies the European Standard EN 303-2:1998; it was approved by CEN on 3 April 2003.

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.

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

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

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Contents

Foreword

This document (EN 303-2:1998/A1:2003) has been prepared by Technical Committee CEN/TC 57 “Central heating boilers”, the secretariat of which is held by DIN.

This Amendment to the European Standard EN 303-2:1998 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2004, and conflicting national standards shall be withdrawn at the latest by March 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.

This Amendment to the European Standard EN 303-2:1998 specifies the requirements for low-temperature central heating boilers. Its purpose is to complete, amend or shorten EN 303-2:1998. This does not affect the main standard.

WARNING : Other requirements and other EU Directives may be applicable to the products falling within the scope of this European Standard.

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, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

add new subclause:

This European Standard applies to low-temperature boilers in accordance with EN 303-1/A1 and specifies the heating-related requirements necessary for liquid fuels for low-temperature boilers and the required additional duration test for oil-fired low-temperature boilers.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 303-1:1999, *Heating boilers — Part 1: Heating boilers with forced draught burners — Terminology, general requirements, testing and marking.*

3 Heating Requirements

Replace the text in 3.2.2 by the following:

3.2.2 For the useful efficiency in the power range ≤ 400kW the following applies (see Figure 1):

a) Useful efficiency for standard boilers at nominal output P_n :$\geq 84 + 2 \log P_n$;

Useful efficiency for LT boilers at nominal output P_n :$\geq 87{,}5 + 1{,}5 \log P_n$;

b) Useful efficiency for standard boilers at part load $0{,}3 P_n$:$\geq 80 + 3 \log P_n$;

Useful efficiency for LT boilers at part load $0{,}3 P_n$:$\geq 87{,}5 + 1{,}5 \log P_n$.

Replace the text in 3.2.3 by the following:

3.2.3 For the useful efficiency in the power range > 400kW the following applies (see Figure 1):

a) Useful efficiency for standard boilers at nominal output P_n :$\geq 89{,}2$

Useful efficiency for LT boilers at nominal output P_n :$\geq 91{,}4$

b) Useful efficiency for standard boilers at part load $0{,}3 P_n$:$\geq 87{,}8$

Useful efficiency for LT boilers at part load $0{,}3 P_n$:$\geq 91{,}4$

The curves for the useful efficiency courses of the NT boilers are to be included in Figure 1.

Clause 4 with the following text shall be integrated:

4 Additional duration test for Oil-fired Low Temperature (LT) boilers

4.1 Test specimen and test duration

At least two serial-production test specimens with the intended minimum equipment are to be selected from the boiler series to be tested and subjected to fatigue tests according to the following provisions. Before beginning the test, the test specimens shall be subjected to a water pressure test according to EN 303-1, cl. 5.2.2 resp. 5.3.2.

The duration of the test is 3 months; during this period, the evaluation of the boiler inlet and return temperature shall be registered by recording instruments. Throughout the duration of the test, the control setting may not be modified, nor the heating surfaces or combustion chamber cleaned.

After expiry of the test period, the test boiler shall be inspected visually and no significant corrosion and other damages shall be detectable.

4.2 Adjustment values for the test (refer to Annex D for examples)

The lower temperature is to be set such that the lowest permissible boiler inlet temperature indicated by the manufacturer shall not be exceeded. For boilers according to EN 303-1, cl. 4.1.6.1, the lower temperature shall be set to max. 25°C.

The firing rate shall be set to the lowest value of the output range permissible according to the manufacturer's indications. The air ratio according to Figure 2 shall be observed.

The power output shall be between 18 and 22 % of the set thermal output, with sufficiently accurate demonstration of burner running and shutdown times.

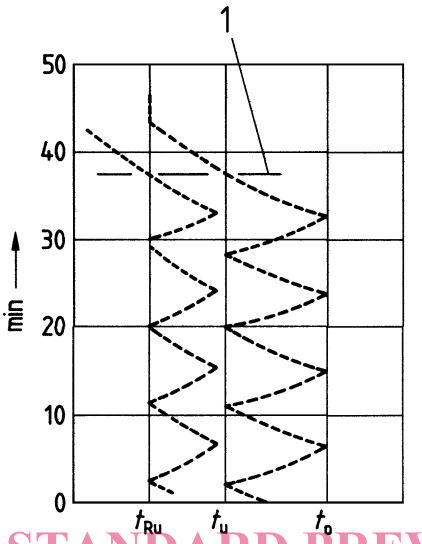
The lower value of the boiler return temperature shall not exceed 20°C.

Firing – except for that according to EN 303-1, cl. 4.1.6.2 b)– is shut down for one hour every five hours during the duration of the test, during which available thermal output until achievement of a boiler inlet temperature of 20°C is uninterrupted.

add new annex D:

Annex D (informative) Example of test evaluation for LT boilers for 3-months duration test

D.1 Example of test evaluation for LT boilers



Key

t_y boiler inlet temperature

t_R boiler return flow temperature

t_{Ru} lower value of boiler return flow temperature

t_o “upper temperature” is the highest temperature of the heat transfer medium occurring at an output of 20 % of the nominal output at or in the immersion sleeve (for recording of t_y)

t_u “lower temperature” is the lowest temperature of the heat transfer medium occurring at an output of 20 % of the nominal output at or in the immersion sleeve (for recording of t_y)

1 Total shutdown

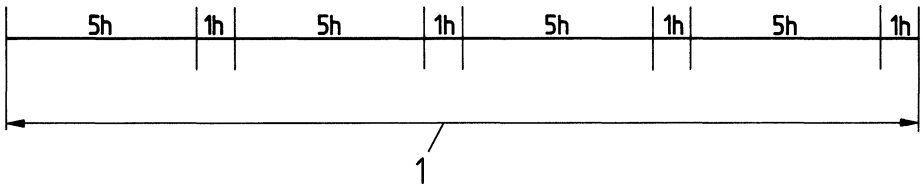
Figure D.1- Typical temperature evolution for LT boilers

Table D.1

clause	t_{Ru}	t_u
4.1.6.1	≤ 20°C	≤ 25°C
4.1.6.2 a)	≤ 20°C	≤ 40°C[a]
4.1.6.2. b)	≤ 20°C	≤ 40°C[b]

[a] Does not need to be maintained at this temperature

[b] Shall be maintained at this temperature



Key

1 Tag = 1 day

Figure D.2-Test duration for LT boilers

CO_2 content at air ratio according to Figure 2.

Boiler output Q_k : set to lower value of output range.

Power output: 20 % of set output.

Cooling water flow to be adjusted:

$$\dot{G}_k = \frac{0{,}2 \times Q_k \times 860}{\frac{t_o + t_u}{2} - t_{coolingwater}}$$