

**Otsesed gaasiküttel tarbevee soojendid, mis on
varustatud atmosfääriõhul töötavate põletitega**

Gas-fired instantaneous water heaters for sanitary
uses production, fitted with atmospheric burners

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 26:1999 sisaldab Euroopa standardi EN 26:1997 + AC:1998 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 23.11.1999 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 26:1999 consists of the English text of the European standard EN 26:1997 + AC:1998.

This standard is ratified with the order of Estonian Centre for Standardisation dated 23.11.1999 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

The standard is available from Estonian standardisation organisation.

ICS 91.140.65

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute Estonian Standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: +372 605 5050; E-mail: info@evs.ee

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 26:1997+AC

July 1998
Juillet 1998
Juli 1998

Gas-fired instantaneous water heaters for sanitary uses production, fitted
with atmospheric burners (Including Corrigendum 1998)

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

Gasbeheizte Durchlauf-Wasserheizer für
den sanitären Gebrauch mit
atmosphärischen Brennern (einschließlich
Corrigendum 1998)

This corrigendum becomes effective on 2 July 1998 for the official German and English versions of the EN.

Ce corrigendum prendra effet le 2 juillet 1998 pour les versions officielles allemande et anglaise de la EN.

Die Berichtigung tritt am 2. Juli 1998 für die offiziellen Sprachfassungen Deutsch und Englisch.



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

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

Contents

Foreword	4
1 Scope	5
2 Normative references	6
3 Definitions	7
3.1 instantaneous water heater	7
3.3 gas circuit	11
3.4 Adjusting, control and safety devices	12
3.5 stages of operational and safety sequences	14
3.6 burners	15
3.7 combustion circuit	16
3.8 water circuit	17
3.9 soundness of the gas circuit	18
3.10 operation	18
4 Classification of water heaters	23
4.1 Classification of gases	23
4.2 Appliance categories	24
4.3 Mode of supply of the combustion air and evacuation of the combustion products (appliance types)	26
4.4 Water pressure	27
5 Marking and instructions	28
5.1 Appliance marking	28
5.2 Instructions	31
5.3 Presentation	36
6 Constructional requirements	36
6.1 General	36
6.2 Adjusting, control and safety devices	42
6.3 Main burner	49
7 Operational requirements	50
7.1 General	50
7.2 Soundness	59
7.3 Heat inputs	62
7.4 Temperature of the control knobs	65
7.5 Temperature of the adjusting, control and safety devices	66
7.6 Temperature of the appliance case, the wall on which it is installed and adjacent walls	66
7.7 Ignition - Cross-lighting - Flame stability	68
7.8 Adjusting, control and safety devices	73
7.9 Combustion	87
7.10 Soot deposition	90
8.1 Heat input of ignition burners	91
8.2 Efficiency	91
9 Fitness for purpose	92
9.1 Constructional characteristics	92
9.2 Operational characteristics	93
Annex A (informative) National situations (see 4.1)	113
A.1 Marketing of the categories listed in the body of the European Standard in different countries (see 4.2.1)	113

A.2	Appliance supply pressures corresponding to the categories given in A.1 (see 4.2.1)	115
A.4	Test gases and pressures corresponding to the special categories given in A.3 (see 4.2.1, 7.1.2 and 7.1.4)	120
A.5	Additional marking corresponding to the particular categories given in A.3 (see 5.1.2)	122
A.6	Particular conditions	122
A.7	Gas connection conditions in common use in the various countries	122
A.9	Flue pipe diameters in force in the various countries (see 2.1.7.3)	125
Annex B (normative) Test apparatus for type C11 appliances (see 7.7.3.2)		126
Annex C (normative) Test apparatus for type C21 appliances (see 7.7.4.2)		127
Annex D (normative) Description of the sealed room for the tests of type AAS appliances (see 7.8.10.1.2.1)		128
D.1	Configuration of the sealed room	128
D.2	Soundness of the room	128
D.3	Effectiveness of mixing	128
D.4	Equipment of the room	128
Annex E (informative) Soundness of the gas circuit test - Volumetric method (see 7.1.5.4 and 7.2.1.2)		129
E.1	Equipment	129
E.2	Test method	129
Annex F (informative) Principal symbols and abbreviations used		130
Annex G (informative) Guidelines for extension to other categories (see 7.1.3.1)		131
Annex H (informative) Protection against electric shock for high voltage ignition devices (see 6.1.10)		132
H.1	Protection against accessibility to live parts (see 8)	132
Annex J (informative) Examples of marking on the appliance		135
J.1	Data plate	135
J.2	Additional marking (see 5.1.2 and J.1)	135
Annex ZA (informative) Clauses of this European Standard addressing Essential Requirements or other provisions of EU Directives		139

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 48 "Domestic gas-fired water heaters", the secretariat of which is held by AFNOR.

It has been established to deal with the aspects related to :

- safety, rational use of energy ;
- and fitness for purpose.

Whilst awaiting common specifications for methods of sampling and measuring NO_x, which are being prepared, this document does not specify particular provisions applicable to these substances. This matter will be dealt with eventually.

This European Standard supersedes EN 26:1977, EN 26:1977/A.:1984 and EN 26:1977/A4:1984 and includes Corrigendum 1998.

The different significant technical terms are as follows :

"Normative" annexes are an integral part of the standard. "Informative" annexes are only given for information. In this standard, annexes B, C, D, J, K are normative and annexes A, E, F, G, H, ZA are informative.

This European Standard 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 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard defines the specifications and test methods concerning the construction, safety, rational use of energy and fitness for purpose, and also the classification and marking of gas-fired instantaneous water heaters for the production of domestic hot water, hereafter called "water heaters".

This European Standard applies to water heaters :

- of types A₁₅, B₁₁, B_{11BS}, C₁₁ and C₂₁ ;
- fitted with atmospheric burners ;
- using one or more combustible gases corresponding to the three gas families in accordance with table 3 and at the pressures stated in tables 6 and 7 of 7.1.4 ;
- of nominal heat input not exceeding 45 kW ;
- with an ignition burner or with direct ignition of the main burner.

In this European Standard, the heat inputs are expressed in relation to the net calorific value (H_i).

This European Standard does not contain all the requirements necessary for :

- boiling water appliances ;
- appliances fitted with a fan ;
- appliances intended to be connected to a mechanical means of evacuating the combustion products ;
- appliances which fulfil a dual role of space heating and heating water for the production of domestic hot water ;
- appliances making use of the heat of condensation of the water contained in the combustion products ;

This European Standard :

- does not apply to appliances not intended to be connected to a flue when they are not fitted with an atmosphere sensing device ;
- takes account of the information given in Technical report CR 1472 with respect to marking ;
- only covers type testing.

Matters which relate to quality assurance systems, production tests and the certification of auxiliary controls are not dealt with in this European Standard.

If the manufacturer indicates that the appliance has been tested in accordance with EN 26, the appliance must conform completely with the requirements of this European Standard.

Type B appliances shall be fitted with a combustion products discharge safety device to comply with essential requirement 3.4.3 of the EC Directive. In this European Standard, the appliance is identified as type B_{11BS}.

Appliances intended to be installed outdoors or in a room separate from inhabited rooms and provided with appropriate ventilation are not required to have this combustion products discharge safety device but, in this case, appropriate warnings on the packaging, and in the instructions shall clearly define the limited authorised use for this type of appliance. In this European Standard, the appliance is identified as type B₁₁.

The main symbols used in this European Standard are summarised in annex F.

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 88:1991	Pressure governors for gas appliances for inlet pressures up to 200 mbar
EN 125:1991	Specification for flame supervision devices for gas burning appliances - Thermoelectric types
EN 126:1993	Multifunctional controls for gas burning appliances
EN 161:1991	Automatic shut-off valves for gas burners and gas appliances
EN 549:1995	Rubber materials for seals and diaphragms for gas appliances and gas equipment
EN 298:1993	Automatic gas burner systems for gas burners and gas burning appliances with or without fans
EN 437:1993	Test gases, test pressures, appliance categories
CR 1472:1994	General guidance for the marking of gas appliances
prEN 50165:1995	Electrical equipment of non-electric heating appliances for household and similar purposes. Safety requirements
EN 60335-1:1991	Safety of household and similar electrical appliances - General requirements
EN 60529:1991	Degrees of protection provided by enclosures (IP code)

- EN 60730-2-9:1994 Automatic electrical controls for household and similar use. Part 2 : Particular requirements for heat sensing controls
- EN 60742:1989 Isolating transformers and safety isolating transformers - Requirements
- ISO 7-1:1982 Pipe threads where pressure-tight joints are made on the threads - Part 1 : Designation, dimensions and tolerances
- ISO 228-1:1982 Pipe threads where pressure-tight joints are not made on the threads - Part 1 : Designation, dimensions and tolerances
- ISO 262:1973 ISO general purpose metric screw threads - Selected sizes for screws, bolts and nuts
- ISO 274:1975 Copper tubes of circular section - Dimensions
- ISO 301:1981 Zinc alloy ingots intended for casting
- ISO 1817:1985 Rubber, vulcanised - Determination of the effects of liquids
- EN 23166:1988 Codes for the representation of names of countries
- ISO/DIS 6976:1992 Natural gas - Calculation of the calorific value, volumetric mass and density
- ISO 7005:1992 Metallic flanges
- IEC 335-2-14:1994 Safety of household and similar electrical appliances - Part 2 : Particular requirements for electric kitchen machines
- IEC 479-1:1984 Effects of current passing through the human body - Part 1 : General aspects. Chapter 1 : Electrical impedance of the human body. Chapter 2 : Effects of alternating current in the range 15 Hz to 100 Hz. Chapter 3 : Effects of direct current.
- IEC 479-2:1987 Effects of current passing through the human body - Part 2 : Special aspects. Chapter 4 : Effects of alternating current with frequencies above 100 Hz. Chapter 5 : Effects of special waveforms of current. Chapter 6 : Effects of unidirectional single impulse currents of short duration.

3 Definitions

For the purpose of this European Standard, the following definitions apply :

3.1 instantaneous water heater

Appliance where the heating of water is directly dependent on the draw off.