SLOVENSKI STANDARD
SIST EN 30-2-1:1999

01-december-1999

Plinski kuhalni aparati za gospodinjstvo – 2-1. del: Smotrna raba energije - Splošno

Domestic cooking appliances burning gas - Part 2-1: Rational use of energy - General

Haushalt-Kochgeräte für gasförmige Brennstoffe - Teil 2-1: Rationelle Energienutzung - Allgemeines

Appareils de cuisson domestiques utilisant les combustibles gazeux - Partie 2-1: Utilisation rationnelle de l'énergie - Généralités

Ta slovenski standard je istoveten z: **EN 30-2-1:1998**

ICS:

97.040.20	Štedilniki, delovni pulti, pečice in podobni aparati	Cooking ranges, working tables, ovens and similar appliances

SIST EN 30-2-1:1999 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 30-2-1

March 1998

ICS 97.040.20

Descriptors: gas appliances, cooking appliances, household appliances, ovens, cookers, grills, performance evaluation, efficiency, calorific value, energy consumption, tests, specifications

English version

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This European Standard 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.

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

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Contents

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 49 “Gas cooking appliances”, the Secretariat of which was held by AFNOR and is now held by UNI, according to the reallocation decided by Resolution BT 50/1996.

This European Standard supersedes EN 30:1979, EN 30:1979/A2:1980 and EN 30:1979/A3 MOD.2:1995.

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of an identical text or by endorsement, at the latest by September 1998 and conflicting national standards shall be withdrawn at the latest by September 1998.

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.

This Part 2-1 "Rational use of energy" of EN 30 complements Part 1-1 "Safety".

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 Scope

This Standard sets out the requirements and the test method for the rational use of energy of gas burning domestic cooking appliances, in accordance with clause 1 of EN 30-1-1:1998.

This standard covers type testing only.

NOTE : The calorific values specified in this standard are based on the upper calorific value (H_s) as defined in EN 30-1-1:1998.

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 30-1-1	1998	Domestic cooking appliances burning gas - Part 1-1 : Safety.

3 Definitions

For the purposes of this European Standard, the definitions given in clause 3 of EN 30-1-1:1998 and the following definitions are applicable :

3.1 Maintenance consumption of the oven

The quantity of heat to be released per unit of time by the gas combustion, in order to maintain the oven temperature constant.

Notion : C_e
Unit : kilowatt (kW)

4 Performance characteristics

4.1 Efficiencies

The requirements given in 4.1.1 and 4.1.2 are only applicable to hot plate burners, the nominal heat input of which is not less than 1,16 kW and not more than 4,2 kW.

4.1.1 Uncovered burners

The efficiency determined under the test conditions specified in 5.2.1 shall be at least 52 %.

4.1.2 Covered burners

The efficiency determined under the test conditions specified in 5.2.2 shall be at least :

1) 25 % (from cold) ;
2) 35 % (from hot).

4.2 Maintenance consumption of the oven

Under the test conditions specified in 5.3, the maintenance consumption of the oven shall not exceed the value obtained using the formula :

$$C_e = 0{,}93 + 0{,}035\ v$$

where :

v is the useful oven volume, expressed in cubic decimetres, defined in 3.4.3.12 of EN 30-1-1:1998.

5 Tests methods

5.1 General

5.1.1 Burner supply

According to the appliance category each burner is individually supplied either with one of the reference gases indicated in 7.1.1.1 of EN 30-1-1:1998 or the actual gas distributed complying with the requirements in 7.1.1.2 of EN 30-1-1:1998.

The burner in adjusted, within ± 2 %, in accordance with 7.1.3.1.3 of EN 30-1-1:1998 to its nominal heat input or to the calorific value set in accordance with the indications of table 1.

The corresponding position of the adjusting device or the corresponding value of the burner pressure is noted. The burner is then cooled prior to proceeding to the following test in accordance with 5.2.1 or 5.2.2.

5.1.2 Test conditions

Tests are carried out under the installation conditions specified in 7.1.3.2 of EN 30-1-1:1998.

5.1.3 Test pans

Aluminium test pans having a matt base, polished walls, no handles and complying with the characteristics of clause C.1 or 7.1.4.1 for fish burners of EN 30-1-1:1998 are used.

The pans are equipped with their lids.

5.2 Efficiencies

5.2.1 Uncovered burners

Depending on the nominal heat input of the burner being tested, the diameter of the pan to be used and the volume of water which it shall contain are given in table 1 below.

For the fish burners the water mass is indicated in table 1 as a function of the nominal heat input of the burner.

Table 1 : Pan diameter and mass of water depending on the heat input of the burner

Nominal Heat input of the burner kW	**Internal diameter of the test pan** mm	**Mass of water m_{e1} to be used** kg
including 1,16 and 1,64	220	3,7
including 1,65 and 1,98	240 [1)]	4,8
including 1,99 and 2,36	260 [1)]	6,1
including 2,37 and 4,2	260 [1)] with an adjustment of the heat input of the burner to 2,36 kW ± 2 % using the method given in 7.3.1.2.1.1 a) of EN 30-1-1:1998	6,1

[1)] If the indicated diameter (260 mm or 240 mm) is greater than this maximum diameter given in the instructions for use, the test will be carried out using a pan with the next lower diameter (240 mm or 220 mm), containing the corresponding quantity of water (4,8 kg or 3,7 kg). In that case the burner heat input will be adjusted to 1,98 kW or 1,64 kW respectively, to ± 2 %, using the method described in 7.3.1.2.1.1 a) of EN 30-1-1:1998.

The initial temperature of the water t_1 shall be (20 ± 1) °C, and the temperature at the time of extinction of the burner shall be (90 ± 1) °C.

The maximum temperature t_2 observed after extinction of the burner (final temperature expressed in degrees Celsius) is measured.

The temperature sensor is placed in the centre of the volume of water and the temperature is measured using a sensor, the measurement uncertainty of which is less than 0,1 °C.

The burner is pre-heated under the following conditions :

- the burner is operated for ten minutes at its nominal heat input or at the input adjusted according to table 1, in the adjustment position defined and noted in 5.1.1 ;

- whatever the nominal heat input the burner is covered with the 220 mm diameter pan containing 3,7 kg at water.

Once preheating is completed the 220 mm diameter pan is withdraw and immediately afterwards is replaced by the pan used for the efficiency test. The measurement of the gas consumption then begins and stops after the extinction of the burner, the pan staying in place.

The efficiency is calculated using the formula :

$$\eta = 4{,}186 \times 10^{-3}\, m_e \frac{t_2 - t_1}{V_c (\text{or } M_c) H_s} \bullet 100$$

where:

η is the efficiency in percent ;

m_e is the equivalent mass of the pan filled in accordance with the indications given in table 1.

The mass m_e is made up as follows :

$$m_e = m_{e1} + 0{,}213\, m_{e2}$$

where :

m_{e1} is the mass of the water used in the pan ;

m_{e2} is the mass of the aluminium corresponding to the pan and its lid (the mass m_{e2} to be taken into account will be the mass measured).

All masses are expressed in kilograms.

V_c is the volume of dry gas consumed, in cubic metres, determined from the measured volume, by the following formula :

$$V_c = V_{mes} \bullet \frac{p_a + p - p_w}{1013{,}25} \bullet \frac{288{,}15}{273{,}15 + t_g}$$

Where :

V_{mes} is the measured gas volume, in cubic metres ;

p_a is the atmospheric pressure, in millibars ;

p is the gas supply pressure at the point where the heart input is measured, in millibars ;

p_w is the partial vapour pressure, in millibars ;

t_g is the gas temperature at the point where the heat input is measured, in degrees Celsius ;

M_c is the mass of dry gas consumed, in kilograms ;

H_s is the gross calorific value of the gas, as defined in 3.3.1.5 of EN 30-1-1:1998.