SLOVENSKI STANDARD
SIST EN 625:1997

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Plinski kotli za centralno ogrevanje – Posebne zahteve pri pripravi sanitarne vode v kombiniranih kotlih z imensko močjo do vključno 70 kW

Gas-fired central heating boilers - Specific requirements for the domestic hot water operation of combination boilers of nominal heat input not exceeding 70 kW

Heizkessel für gasförmige Brennstoffe - Spezielle Anforderungen an die trinkwasserseitige Funktion von Kombi-Kesseln mit einer Nennwärmebelastung kleiner als oder gleich 70 kW

Chaudieres de chauffage central utilisant les combustibles gazeux - Exigences spécifiques a la fonction eau chaude sanitaire des chaudieres a deux services dont le débit calorifique nominal est inférieur ou égal a 70 kW

Ta slovenski standard je istoveten z: **EN 625:1995**

ICS:

91.140.10	Sistemi centralnega ogrevanja	Central heating systems
91.140.65	Oprema za ogrevanje vode	Water heating equipment
97.100.20	Plinski grelniki	Gas heaters

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English version

Gas-fired central heating boilers - Specific requirements for the domestic hot water operation of combination boilers of nominal heat input not exceeding 70 kW

Chaudières de chauffage central utilisant les combustibles gazeux - Exigences spécifiques à la fonction eau chaude sanitaire des chaudières à deux services dont le débit calorifique nominal est inférieur ou égal à 70 kW

Heizkessel für gasförmige Brennstoffe - Spezielle Anforderungen an die Trinkwasserseitige Funktion von Kombi-Kesseln mit einer Nennwärmebelastung kleiner als oder gleich 70 kW

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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.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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Foreword

This European Standard was prepared by Technical Committee CEN/TC 109 "central heating boilers using gaseous fuels", of which the secretariat is held by NNI.

Other types of boiler including boilers of higher nominal heat input which are excluded from this European standard are dealt with in separate standards.

This draft European standard has been prepared under a Mandate granted to CEN by the European Commission and the European Free Trade Association, and supports the essential requirements of the EU Directive.

In particular, matters which relate to quality assurance systems, production tests and the certification of auxiliary controls are not dealt with in this standard.

In respect of potential adverse effects on the quality of water intended for human consumption, caused by the product covered by this standard :

1) This standard provides no information as to whether the product may be used without restriction in any of the Member States of the EU or EFTA ;

2) It should be noted that, while awaiting the adoption of verifiable European criteria, existing national regulations concerning the use and/or the characteristics of this product remain in force.

In compliance with the Common Rules of CEN/CENELEC, the following countries are bound to apply this European standard : Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

For relationship with EU Directives, see informative annex ZA, which is an integral part of this standard.

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 March 1996, and conflicting national standards shall be withdrawn at the latest by March 1996.

1 Scope

This standard supplements standards EN 297, prEN 483 and prEN 677, hereafter called "boiler standards". It specifies the supplementary requirements and tests for the construction, safety, rational use of energy, fitness for purpose, classification and marking related to the domestic hot water operation of combination boilers.

The domestic hot water is produced on either the instantaneous or storage principle. The domestic hot water production is integrated or coupled, the whole being marketed as a single unit.

This standard does not apply to two appliances included in the same case which operate independently of each other - a boiler and a water heater - even if they have a common flue.

This standard only covers type testing.

2 Normative references

This European Standard incoporates 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 the 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 297:1994	Gas-fired central heating boilers - Type B_{11} and B_{11BS} boilers fitted with atmospheric burners of nominal heat input not exceeding 70 kW
EN 297/prA2	Gas-fired central heating boilers - Type B_{11} and B_{11BS} boilers fitted with atmospheric burners of nominal heat input not exceeding 70 kW (Determination of efficiency)
EN 437	Test gases - Test pressures - Appliance categories
prEN 483	Gas-fired central heating boilers with asmospheric burners - Type C boilers of nominal heat input not exceeding 70 kW
prEN 677	Gas-fired central heating boilers - Specific requirements for condensing boilers with nominal heat input not exceeding 70 kW
ISO 7-1	Pipe threads where pressure-tight joints are made on the threads - Part 1 : Designation, dimensions and tolerances
ISO 228-1	Pipe threads where pressure-tight joints are not made on the threads - Part 1 : Designation, dimensions and tolerances
ISO 274	Copper tubes of circular section - Dimensions

3 Definitions

For the purposes of this standard, the following definitions apply :

3.1 combination boiler

Boiler designed both for central heating and for the production of domestic hot water. Depending on its type of domestic hot water production, the combination boiler is classed as follows, in accordance with the manufacturer's declaration :

- instantaneous type

Combination boilers which can continuously supply the specific domestic hot water rate *D* stated by the manufacturer.

- storage type

Combination boilers which can intermittently supply the specific domestic hot water rate *D* stated by the manufacturer.

3.2 "summer" operating mode

Operating mode in which the boiler only provides heating of the domestic water.

3.3 specific rate

The domestic hot water rate declared by the manufacturer, corresponding to a mean temperature rise of 30 K, that the boiler can supply in two successive delivery periods.

Symbol : D

Unit : litre per minute (l/min)

3.4 nominal domestic hot water heat input

The value of the heat input in the domestic hot water mode indicated by the manufacturer.

Symbol : Q_{nw}

Unit : kilowatt (kW)

3.5 maximum water service pressure

The maximum pressure permitted in the domestic water circuit, as declared by the manufacturer.

Symbol : P_{MW}

Unit : bar

3.6 tank

Reservoir of domestic water.

3.7 thermal store

Heat reservoir sited mainly in heating water, as opposed to the domestic hot water storage in the tank.

3.8 temperature relief valve

A valve that opens automatically at a given temperature of maximum 100 °C to discharge the domestic hot water.

3.9 proportional control of the domestic hot water operation

Means of control in which the gas rate is subordinated proportionally to the domestic hot water rate, the proportioning factor may be adjustable.

3.10 thermostatic control of the domestic hot water operation

Means of control in which the gas rate is subordinated to a thermostatic device controlling the domestic hot water temperature, the set point of the device may be adjustable.

3.11 temperature holding thermostat

A device which maintains the water in the tank or the thermal store at a given temperature.

4 Constructional requirements

It is checked that the assembly meets the constructional requirements by visual examination of the boiler and possibly the tank, and also by inspection of the technical file.

4.1 Materials and method of construction of components of the domestic water circuit

Materials shall be appropriate for their use, under intended application and at the maximum water pressure stated by the manufacturer.

The requirements relating to thermal insulation and its use specified in the "boiler standards" only apply to parts of the domestic water circuit likely to come into contact with flames or sited close to the combustion products outlet.

The materials of the parts containing domestic water shall not affect the quality of the domestic water in respect of either health or taste.

The whole of the domestic hot water circuit shall be made up of corrosion resistant materials or shall be protected against corrosion.

4.2 Domestic water connections

Threaded connections shall comply with ISO 228-1 or ISO 7-1.

If copper tubes are used for the connection, the end of the tube shall comply with ISO 274.

In accordance with the manufacturer's instructions, the domestic water circuit shall be able to be drained, without the discharge of water compromising electrical safety.

4.3 Soundness of the domestic water circuit

The domestic hot water circuit and the heating circuit shall be separate. If an actuator or a control has a sliding shaft or a link with the diaphragm separating :

- the gas circuit and the heating water circuit ;
- the heating water circuit and the domestic water circuit ;
- the gas circuit and the domestic water circuit ;

there shall be an air vent between these circuits. The area of this aperture shall be at least 19 mm^2 and it shall be possible to introduce a 3,5 mm pin gauge into it.

4.4 Adjusting, control and safety devices for the domestic hot water circuit

If necessary, the domestic hot water circuit shall be protected with control and safety devices to comply with the requirements, "Thermostats and water temperature limiting devices - General" of clause 2 of EN 297 and clause 5 of prEN 483.

The tank shall be fitted with a device for controlling the water temperature. This device shall allow a temperature to be attained which is sufficient to prevent the build up of bacteria (see 5.2.3.3).

Where circumstances require and the appliance is equipped with a temperature relief valve, any device controlling the temperature of the domestic hot water shall act before this valve.

5 Operational requirements

5.1 General

If the nominal heat input in domestic hot water mode exceeds the nominal heat input in the central heating mode, the safety requirements of the "boiler standards" given below are checked at the nominal heat input in the domestic hot water mode and at the maximum water temperature :

- Soundness of the combustion circuit ;
- Limiting temperatures ;
- Ignition - Cross lighting - Flame stability ;
- Flame supervision device ;
- Combustion products discharge safety device (for type B_{11BS} boilers) ;
- Carbon monoxide.

5.2 Safety of the domestic hot water circuit

5.2.1 Instantaneous and storage types

5.2.1.1 Soundness of parts containing domestic water

Under the test conditions of 6.2.1.1, the parts containing domestic water shall withstand the test pressure without permanent distortion or soundness defects, with respect to the outside or the heating circuit.

5.2.1.2 Overheating of the domestic hot water by the heating circuit

Under the test conditions of 6.2.1.2, the domestic hot water temperature shall not exceed 95 °C.

5.2.1.3 Failure of the domestic hot water temperature control device

Under the test conditions of 6.2.1.3 :

- for boilers in which the domestic water circuit is not in direct contact with the combustion products, with normal control out of operation and according to the option chosen, at least the requirement relating to the limit thermostat (3.5.7.3.2.1 test n° 1 of EN 297 or 6.5.7.3.2.1 test n° 1 of prEN 483) or the safety temperature limiter (3.5.7.3.2.2 of EN 297 or 6.5.7.3.2.2 of prEN 483) shall be met.

- for boilers in which the domestic water circuit comes into total or partial contact with the combustion products, the domestic water temperature limiting device shall at least cause safety shutdown before the tap water reaches a temperature of 100 °C.

5.2.2 Instantaneous type

5.2.2.1 Maximum domestic hot water temperature

Under the test conditions of 6.2.2.1, the domestic hot water temperature shall not exceed 95 °C.

5.2.2.2 Overheating of the domestic hot water

Under the test conditions of 6.2.2.2, the domestic hot water temperature shall not exceed 95 °C.

5.2.3 Storage type

5.2.3.1 Maximum temperature of the domestic hot water

Under the test conditions of 6.2.3.1, the domestic hot water temperature shall not exceed 95 °C.

5.2.3.2 Overheating of the domestic hot water

Under the test conditions of 6.2.3.2, for boilers in which part of the tank is in contact with products of combustion, the domestic hot water temperature shall not exceed 95 °C.

5.2.3.3 Temperature of the domestic hot water

Under the test conditions of 6.2.3.3, it shall be possible to adjust to or obtain a domestic hot water temperature of at least 60 °C in the tank.

5.3 Rational use of energy

5.3.1 Useful efficiency

The considered useful efficiency is that measured in the central heating mode.

5.3.2 Losses

The losses of the boiler and the tank (where applicable) measured under the test conditions of 6.3.2, shall be less than the value given by the following formula :

$$q_s = 0{,}014\,V^{2/3} + 0{,}02\,Q_{nw}$$

where :

q_s are the losses of the boiler and the tank in kilowatts (kW) ;

V is the water capacity of the tank (including the water in any integral heat exchanger) and/or the thermal store (if applicable) in litres (l) ;

Q_{nw} is the nominal domestic hot water heat input of the boiler, in kilowatts (kW).