



SLOVENSKI STANDARD

SIST EN 15035:2007

01-februar-2007

Kotli za gretje – Posebne zahteve za oljne kotle z zunanjim zajemom zraka do 70 kW

Heating boilers - Special requirements for oil fired room sealed units up to 70 kW

Heizkessel - Besondere Anforderungen an ölbefeuerte Units für den raumluftunabhängigen Betrieb bis einschließlich 70 kW

Chaudières de chauffage central - Exigences spécifiques aux chaudières au fioul étanches de puissance inférieure ou égale à 70 kW

Ta slovenski standard je istoveten z: EN 15035:2006

ICS:

97.100.40 Liquid fuel heaters

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EUROPEAN STANDARD

EN 15035

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2006

ICS 97.100.40

English Version

Heating boilers - Special requirements for oil fired room sealed units up to 70 kW

Chaudières de chauffage - Système de circuit de combustion étanche des chaudières au fioul

Heizkessel - Besondere Anforderungen an ölbefeuerte Units für den raumluftunabhängigen Betrieb bis einschließlich 70 kW

This European Standard was approved by CEN on 4 November 2006.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a 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 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.

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

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Contents

Page

Foreword.....	3
1 Scope	4
2 Normative references	5
3 Terms and definitions	5
4 Boiler classification	6
5 Construction and materials	8
6 Operational requirements	10
7 Test methods.....	14
8 Marking and instructions	21
Annex A (informative) Classification of type C boilers	32
Annex B (informative) Steel grades	34
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 92/42/EEC on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels.....	35
Bibliography	36

[SIST EN 15035:2007](https://standards.iteh.ai/catalog/standards/sist/17ad3fb9-dc8b-4a9e-8e47-8508acc92ed/sist-en-15035-2007)

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Foreword

This document (EN 15035:2006) has been prepared by Technical Committee CEN/TC 57 “Central heating boilers”, the secretariat of which is held by DIN.

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 June 2007, and conflicting national standards shall be withdrawn at the latest by June 2007.

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.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

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EN 15035:2006 (E)

1 Scope

This European Standard applies to type C_{x3} central heating boilers as specified in 4.1, equipped with atomizing oil burners:

- type C₁₃, type C₃₃, and type C₅₃ boilers, including their combustion air supply and combustion products evacuation ducts and their terminals;
- type C₄₃ boilers including their connection ducts but without the chimney which is erected as a shared duct system and which is part of the building;
- type C₆₃ boilers, including the connecting piece as specified in 3.7, if not integrated into the boiler;
- type C₈₃ boilers, including their connection ducts but without the chimney which is part of the building;
- that have a nominal useful heat output below or equal to 70 kW;
- where the temperature of the water does not exceed 100 °C during normal operation;
- where the maximum water-side operating pressure does not exceed 8 bar.

This European Standard is intended to establish specific requirements and test methods for type C atomizing oil burning central heating boilers with respect to construction, safety, fitness for purpose, rational use of energy, classification and marking.

This European Standard covers only standard tests.

<https://standards.iteh.ai/catalog/standards/sist/17ad3fb9-dc8b-4a9e-8e47-5baacc0181e4-15035>

For boilers that produce domestic hot water by a drum or a heat exchanger, integrated or juxtaposed, (by accumulation or instant production), this standard only applies to hot water reheating system components that are not subject to operating conditions applicable to the boiler heating system.

This European Standard covers units consisting of boilers equipped with burners that meet the requirements of EN 267, with the following exceptions:

- maximum NO_x and CO emission values, estimated for boilers according to the classes defined in EN 303-2;
- air factor value, defined by the manufacturer and stated in the boiler's technical specifications;
- marking and/or burner data plate which may provide information for the boiler data plate;
- installation recommendations for installing the burner on the boiler included in the boiler operating instructions.

This European Standard modifies EN 303-1, EN 303-2, EN 304 and specifies supplementary requirements only for room sealed operations.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 267, *Forced draught oil burners — Definitions, requirements, testing, marking*

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

EN 303-2:1998, *Heating boilers — Part 2: Heating boilers with forced draught burners — Special requirements for boilers with atomizing oil burners*

EN 303-4, *Heating boilers — Part 4: Heating boilers with forced draught burners — Special requirements for boilers with forced draught oil burners with outputs up to 70 kW and a maximum operating pressure of 3 bar — Terminology, special requirements, testing and marking*

EN 304:1992, *Heating boilers — Test code for heating boilers for atomizing oil burners*

EN 1443, *Chimneys — General requirements*

EN 1457, *Chimneys — Clay/Ceramic Flue Liners - Requirements and test methods*

EN 1856-1, *Chimneys — Requirements for metal chimneys — Part 1: System chimney products*

EN 1856-2, *Chimneys — Requirements for metal chimneys — Part 2: Metal liners and connecting flue pipes*

EN 13063-1, *Chimneys — System chimneys with clay/ceramic flue liners — Part 1: Requirements and test methods for sootfire resistance*

EN 13063-2, *Chimneys — System chimneys with clay/ceramic flue liners — Part 2: Requirements and test methods under wet conditions*

EN 13216-1, *Chimneys — Test methods for system chimneys — Part 1: General test methods*

EN 14471, *Chimneys — System chimneys with plastic flue liners — Requirements and test methods*

EN 15034, *Heating boilers — Condensing heating boilers for fuel oil*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply.

3.1

required draught

difference in pressure between the static pressure of the air in the area where the boiler is installed and the static pressure of combustion products leaving the boiler (combustion products measuring hole), required to ensure good working order

3.2

room-sealed boiler

boiler in which the combustion circuit is sealed off from the area where the boiler is installed

EN 15035:2006 (E)**3.3****combustion circuit**

circuit including the air supply duct, burner, combustion chamber, heat exchanger, combustion products evacuation duct and either the connection piece or terminal connection (where applicable)

3.4**air supply and combustion products evacuation ducts**

means for transporting combustion air to the burner and combustion products to the terminal or connection piece.

It is necessary to distinguish between:

- completely surrounded ducts: combustion products evacuation duct is surrounded by combustion air throughout its length;
- separate ducts: combustion products evacuation duct and the combustion air supply duct are neither concentric nor completely surrounded ducts

3.5**terminal**

device fitted to the outside of a building, to which are connected:

- air supply and combustion products evacuation ducts for type C₁₃ and type C₃₃ boilers (one device);
- air supply duct and the combustion products evacuation duct for type C₅₃ boilers (two devices);
- air supply duct for type C₈₃ boilers (no device)

3.6**terminal guard**

device that protects the terminal from mechanical damage from outside influences

3.7**connection piece**

device which allows the fitting of a sealed boiler to any system for combustion air supply and combustion products boiler classification

4 Boiler classification**4.1 General**

A type C boiler is a boiler in which the combustion circuit is sealed from the area of the building where the boiler is installed.

The air supply and combustion products evacuation ducts and the terminal or the fitting piece which is used to connect the boiler to a chimney or duct system may or may not be part of the unit as stated in 4.2. They admit fresh air from outside the building to the burner as well as discharge the combustion products to the outside.

Boilers are classified into several types according to the combustion products mode of evacuation and supply of combustion air (see examples attached in Annex A).

The types are defined by two subscripts:¹⁾

- first subscript number is based on the possible boiler installation with respect to the mode of air supply and evacuation of the combustion products (see 4.2);
- second subscript number is based upon the presence and position of an integral fan in the boiler (see 4.2.8).

4.2 Type of boiler installation

4.2.1 General

Types of installation given below are in line with CR 1749.

4.2.2 Type C₁

A type C boiler connected via its ducts to a horizontally installed terminal at the wall or on the roof. The orifices of the ducts are either concentric or close enough to come under similar wind conditions.

4.2.3 Type C₃

A type C boiler which is connected via its ducts to a vertically installed terminal. The orifices of the ducts are either concentric or close enough to come under similar wind conditions.

4.2.4 Type C₄

A type C boiler which is fitted via its ducts possibly by means of a fitting piece to a shared duct system consisting of a duct for the supply of the combustion air and a duct for the discharge of the combustion products. The orifices of this shared duct system are either concentric or close enough to come under similar wind conditions.

4.2.5 Type C₅

A type C boiler which is connected via its separate ducts to two terminals that may terminate in zones of different pressure.

4.2.6 Type C₆

A type C boiler connected to a separately approved and marketed system for the supply of combustion air and discharge of the combustion products.

4.2.7 Type C₈

A type C boiler which is connected via its ducts by means of a fitting piece to an air supply terminal and fitted to an individual or shared chimney.

4.2.8 Presence and position of a fan

- Type C boiler that does not incorporate a fan is identified by the second subscript number “1” (e.g. C₁₁).

¹⁾ Boilers in which the combustion circuit is under positive pressure and surrounded by the combustion air circuit may require identification by an additional subscript in accordance with national regulations, if they are intended to be installed in non-ventilated areas.

EN 15035:2006 (E)

- Type C boiler that does incorporate a fan downstream of the combustion chamber/ heat exchanger is identified by the second subscript number “2” (e.g. C₁₂).
- Type C boiler that does incorporate a fan upstream of the combustion chamber/ heat exchanger is identified by the second subscript number “3” (e.g. C₁₃).

For heating boilers equipped with atomising oil burners only C_{x3} appliances exist.

5 Construction and materials**5.1 General**

Boilers covered by this European Standard shall meet the requirements of 5.2 to 5.6, in addition to the materials and construction requirements in EN 303-1 or EN 303-4 or for condensing boilers in prEN 15034.

5.2 Combustion products evacuation and air supply ducts

The quality of materials and the shape and size of the components (ducts, seals) shall ensure that when appropriately assembled, in the conditions specified by the manufacturer with respect to maintenance, and taking into account the relevant thermal, chemical and mechanical constraints, the ducts are reliable and function satisfactorily for an acceptable length of time.

CE marked products in accordance with appropriate harmonised European specifications are presumed to perform as stated, although this does not replace the manufacturer responsibility to ensure that the liner, connecting flue pipe and fitting product (products according EN 13063-1 and EN 13063-2, EN 1856-1 and EN 1856-2 and EN 14471) as a whole are correctly designed and that component products have the necessary performance values.

The flue gas carrying parts shall be designated as P1 and W2 (V2); for appliances using kerosene, P1 and W1 are also suitable.

5.3 Condensate discharge**5.3.1 General**

For non-condensing appliances where condensation is continuously formed during normal operation, the condensate shall drain to the boiler and 5.3.2 to 5.4.2.3 shall apply.

5.3.2 Removal of condensate

Condensation produced during boiler operation, including condensation formed in the flue and its connecting pipes, shall be removed by a discharge pipe (or pipes).

The internal diameter of the outside connection of the condensate discharge system shall be at least 13 mm.

The disposal system, forming part of the boiler or supplied with the boiler, shall be such that:

- it can be easily inspected and cleaned in accordance with the manufacturer's instructions;
- it cannot transmit combustion products into the room where the boiler is installed; this requirement is satisfied if the disposal system incorporates a water trap;
- water trap has a seal of at least 25 mm at maximum pressure in the combustion chamber at the maximum flue length specified by the manufacturer.

Surfaces in contact with condensation (except purpose provided drains, water traps and siphons) shall be designed to prevent condensate retention.

5.4 Soundness

5.4.1 Soundness of the combustion circuit

Parts which have to be removed during routine service and affect the soundness of the boiler and/or its ducts, shall be sealed mechanically, excluding pastes, liquids and tapes. Replacing the seals, following a cleaning or servicing operation as stated by the manufacturer, is permitted.

The service instructions shall clearly show how to replace parts which may affect the soundness of the combustion circuit.

If parts of the casing that forms part of the combustion circuit is removed by the user, then clear instructions and appropriate warnings in the user instruction manual shall be provided.

A warning label on the inside of such a panel may be used.

After correct reassembly of the parts in accordance with these instructions, maximum leakage rates contained in this European Standard shall not be exceeded.

When the boiler case forms part of the combustion circuit and it can be removed without the use of tools:

- either the appliance shall not operate, or
- there shall be no leakage higher than the values given in Table 1 when the case is correctly replaced as described in the manufacturers manual.

The ducts, bends, if any, and the terminal or adapter shall fit together correctly and shall form a stable assembly. Parts intended to be dismantled for periodic servicing shall be designed and arranged so that soundness is unaffected after re-assembly.

Any adapter shall allow a sound connection to be made to the system intended for the evacuation of combustion products and supply of air.

5.4.2 Supply of combustion air and evacuation of the combustion products

5.4.2.1 General

All boilers shall be designed so that there is an adequate supply of combustion air during ignition and over the whole range of possible heat inputs stated by the manufacturer.

5.4.2.2 Air supply and combustion products evacuation ducts

Assembly of the various parts during installation shall be such that no work is necessary other than adjusting the length of the air supply and combustion products evacuation ducts. Adjusting the length of the ducts shall not involve cutting, unless specifically recommended by the manufacturer. In this case, cutting shall be carried out under the specific conditions recommended by the manufacturer to ensure soundness.

In all cases, such adaptations shall not impair the correct operation of the boiler.

It shall be possible, if necessary, to connect the boiler, air supply and combustion products evacuation ducts and the terminal or fitting piece using ordinary tools. All necessary accessories and the fitting instructions shall be supplied by the manufacturer.

EN 15035:2006 (E)**5.4.2.3 Boiler outlet socket**

If the combustion products evacuation ducts are not supplied as part of the unit and dedicated to that unit, then the connecting piece of the combustion products duct shall always be constructed as a socket (female connector), so that the flow of condensate works only in the direction of the appliance.

The manufacturer shall define the requirements for the connecting piece for combustion air duct combustion products duct by:

- naming a certain product type for the connecting piece, or
- giving measurements and acceptable tolerances for the connecting piece.

5.4.2.4 Terminal

Any horizontal terminal shall be designed so that any condensation is correctly discharged.

The manufacturer shall indicate the slope of the terminal in the installation instructions to ensure the correct evacuation of condensates.

5.4.2.5 Terminal guard

The dimensions of the terminal guard, when installed in accordance with the manufacturer's instructions, shall be such that the distance between any part of the guard and the terminal, except the wall plate, exceeds 50 mm. The terminal guard shall have no sharp edges that are likely to cause injury. It shall be submitted to a test laboratory for boiler tests.

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5.5 Checking the state of operation

It shall be possible, perhaps after opening a door, to check at any time that the boiler is operating, either by visual observation of the flame or by some other indirect means (e.g. an indicator light).

5.6 Maximum component temperatures

The maximum temperature of the components shall not exceed the maximum ambient temperature stated by the component manufacturer under all normal operating conditions of the unit and at the maximum specified air inlet temperature.

6 Operational requirements**6.1 Soundness of the combustion circuit**

Boilers and, if relevant according to the classification, the ducts for combustion products evacuation and/or combustion air supply belonging to the system, shall be sound in accordance with the requirements of Table 1.

Soundness is verified before and after all the tests detailed in this European Standard. Ducts according to EN 1457, EN 1856-1 and EN 14471 shall be designated P1; ducts for air supply shall be designated N2.