

## **Hoonete küttesüsteemid. Katelde ja küttesüsteemide kontrollimine**

Heating systems in buildings - Inspection of boilers and heating systems

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 15378:2007 sisaldab Euroopa standardi EN 15378:2007 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 22.11.2007 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 15378:2007 consists of the English text of the European standard EN 15378:2007.</p> <p>This document is endorsed on 22.11.2007 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b> This European Standard specifies inspection procedures and optional measurement methods for the assessment of energy performance of existing boilers and heating systems. Boiler types covered by this European Standard are:- boilers for heating, domestic hot water or both;- gas, liquid or solid fuel fired boilers.</p>	<p><b>Scope:</b> This European Standard specifies inspection procedures and optional measurement methods for the assessment of energy performance of existing boilers and heating systems. Boiler types covered by this European Standard are:- boilers for heating, domestic hot water or both;- gas, liquid or solid fuel fired boilers.</p>
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English Version

## Heating systems in buildings - Inspection of boilers and heating systems

Systèmes de chauffage dans les bâtiments - Inspection des chaudières et des systèmes de chauffage

Heizungssysteme in Gebäuden - Inspektion von Kesseln und Heizungssystemen

This European Standard was approved by CEN on 28 July 2007.

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 CEN Management Centre or to any CEN member.

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## Foreword

This document (EN 15378:2007) has been prepared by Technical Committee CEN/TC 228 "Heating systems in buildings", the secretariat of which is held by DS.

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 2008, and conflicting national standards shall be withdrawn at the latest by March 2008.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/343), and supports essential requirements of EU Directive 2002/91/EC on the energy performance of buildings (EPBD). It forms part of a series of standards aimed at European harmonisation of the methodology for calculation of the energy performance of buildings. An overview of the whole set of standards is given in prCEN/TR 15615.

The subjects covered by CEN/TC 228 are the following:

- design of heating systems (water based, electrical etc.);
- installation of heating systems;
- commissioning of heating systems;
- instructions for operation, maintenance and use of heating systems;
- methods for calculation of the design heat loss and heat loads;
- methods for calculation of the energy performance of heating systems.

Heating systems also include the effect of attached systems such as hot water production systems.

All these standards are systems standards, i.e. they are based on requirements addressed to the system as a whole and not dealing with requirements to the products within the system.

Where possible, reference is made to other European or International Standards a.o. product standards. However, use of products complying with relevant product standards is no guarantee of compliance with the system requirements.

The requirements are mainly expressed as functional requirements, i.e. requirements dealing with the function of the system and not specifying shape, material, dimensions or the like.

The guidelines describe ways to meet the requirements, but other ways to fulfil the functional requirements might be used if fulfilment can be proved.

Heating systems differ among the member countries due to climate, traditions and national regulations. In some cases requirements are given as classes so national or individual needs may be accommodated.

In cases where the standards contradict with national regulations, the latter should be followed.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, 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.

## Introduction

This European Standard specifies procedures and optional measurement methods to be used for the inspection and assessment of energy performance of boilers and heating systems, in order to provide advice to users on the replacement of boilers, other modifications to the heating system and on alternative solutions as required by article 8 of Council Directive 2002/91/EC.

This European Standard includes, either in the normative text or in the informative annexes:

- inspection procedures;
- measurement procedures;
- calculation equations;
- sample reports;
- advice criteria.

Procedures and methodologies defined in this European Standard are not intended to provide a full energy audit of the heating system. They are intended to:

- support identification of areas of possible improvements;
- define criteria to produce reliable advice on possible improvements of the energy performance of boilers and heating systems through replacement of components or other measures.

Any replacement of appliances or modification of the heating system following advice should be designed according to appropriate methodologies. This may require additional input and investigation for detailed design and final check of economical effectiveness.

Clauses 5 and 6 separately describe basic inspection procedures related to:

- regular inspection of boilers;
- one-off inspection of the entire heating system.

This European Standard introduces inspection classes by which different levels of inspection accuracy and detailed inspection requirements can be determined, because:

- the same inspection procedure and level of details cannot reasonably be required for any kind and/or any size of boilers/heating systems;
- there are currently significant differences among member states with respect to:
  - heating systems typologies;
  - legal and/or standard requirements;
  - maintenance and inspection practices.

Alternative and/or optional partial inspection procedures and measurement methods for boilers and for other sub-systems of the heating system are described in the relevant annexes.

Inclusion of/omission of/alternatives to individual inspection items, as well as border lines between classes, are specified through tables given in national annexes. If no specific national annex is available, default tables and inspection classes are given in Annex A. Tables in the national annexes may refer either to methodologies given in the annexes to this European Standard or to suitable existing national standards.

This European Standard has been drafted to support inspection required by Council Directive 02/91/CE, that is "*Regular inspection of boilers fired by non-renewable gaseous, liquid or solid fuel*" and "*One-off inspection of heating systems with boilers that are more than 15 years old*". This does not exclude the possibility to use this European Standard for other types of generation devices (e.g. warm air heaters, heat pumps, thermal solar, CHP) and for domestic hot water systems, if appropriate additional classes are defined in the national annexes.

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## 1 Scope

This European Standard specifies inspection procedures and optional measurement methods for the assessment of energy performance of existing boilers and heating systems.

Boiler types covered by this European Standard are:

- boilers for heating, domestic hot water or both;
- gas, liquid or solid fuel fired boilers.

Parts of heating systems covered by this European Standard are:

- boilers, including generation control;
- other generation devices;
- domestic hot water production facilities;
- heating distribution network, including associated components and controls;
- heat emitters, including components and controls;
- space heating control system;
- storage and associated components;
- domestic hot water control system.

This standard covers issues related to energy conservation and environmental performance.

## 2 Normative references

Not applicable.

## 3 Terms and definitions, symbols and units

### 3.1 Terms and definitions

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

#### 3.1.1

##### **space heating**

process of heat supply for thermal comfort

#### 3.1.2

##### **domestic hot water heating**

process of heat supply to raise the temperature of the cold water to the intended delivery temperature

#### 3.1.3

##### **gross calorific value**

quantity of heat released by a unit quantity of fuel when it is burned completely with oxygen at a constant pressure equal to 101 320 Pa, and when the products of combustion are returned to ambient temperature