

**GAASKÜTTEGA KÜTTEKATLAD. OSA 1: ÜLDNÕUDED JA
KATSED**

**Gas-fired heating boilers - Part 1: General
requirements and tests**

EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

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English Version

Gas-fired heating boilers - Part 1: General requirements and tests

Chaudières de chauffage central utilisant les combustibles gazeux - Partie 1: Exigences générales et essais

Heizkessel für gasförmige Brennstoffe - Teil 1: Allgemeine Anforderungen und Prüfungen

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Foreword

This document (EN 15502-1:2012) has been prepared by Technical Committee CEN/TC 109 “Central heating boilers using gaseous fuels”, the secretariat of which is held by NEN.

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of an identical text or by endorsement, at the latest by January 2013, and conflicting national standards shall be withdrawn at the latest by January 2013.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under mandates M89/6 and M066, given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements as meant in article 3 of EU Directive 2009/142/EC, relating to appliances burning gaseous fuels and the verification methods valid for production and measurements, as meant in article 5.2 of EU Directive 92/42/EEC, relating to the efficiency requirements for new hot water boilers fired with liquid or gaseous fuels, with an output of 4 – 400 kW.

For relationship with EU Directive(s), see informative Annex ZA and ZB, which are integral parts of this document.

Annex V lists which existing standards are intended to be replaced by this standard in combination with the relevant Part 2. The standards listed in Annex V are to be used until the relevant Part 2 cover the types indicated. This European Standard by itself does not replace any European Standard.

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

Introduction

A gas-fired heating boiler is an appliance using gas as fuel designed to heat water with the purpose of providing heat to a building (or portion of a building) from one point to multiple rooms using heat emitters such as radiators and convectors to transmit the heat from the water to the room. The boiler may also be used to provide domestic hot water via an indirect hot water storage tank.

The basic function of gas-fired heating boiler is to generate heat by direct heat transfer in a heat exchanger, from the combustion gasses to the water.

The boiler may include in one design more than one function. It may include for example:

- a sanitary hot water function;
- a function to supply the combustion air from the outside of the building;
- a function to dispose the combustion products to the outside of the building.

The boiler design may be supplied to the market in more than one part. If the boiler is supplied to the market in multiple parts, the boiler is the assembly of various parts according to the installation instructions.

Boilers may be designed to be connected to specific parts of a building. Connection to a chimney and the means of combustion air supply is particularly relevant.

This European Standard was established to deal with aspects related to:

- a) safety;
- b) rational use of energy;
- c) fitness for purpose.

This European Standard is a first part of a series of standards that will describe the special requirements for specific boiler types. This European Standard contains the common requirements that are applicable for the majority of the specific boiler types.

This European Standard is to be used in conjunction with the specific Part 2.

Matters related to quality assurance systems, tests during production, and certificates of conformity of auxiliary devices are not dealt with in this series of European Standards.

1 Scope

This European Standard specifies the common requirements and test methods concerning, in particular the construction, safety, fitness for purpose, and rational use of energy, as well as the classification and marking of gas-fired central heating boilers that are fitted with atmospheric burners, fan assisted atmospheric burners or fully premixed burners, and are hereafter referred to as “boilers”.

This European Standard is to be used in conjunction with the specific Parts 2 (Part 2-1 and following ones).

This European Standard applies to boilers of types B and C, according to CEN/TR 1749:2009:

- a) that use one or more combustible gases of the three gas families at the pressures stated in EN 437;
- b) where the temperature of the heat transfer fluid does not exceed 105 °C during normal operation;
- c) where the maximum operating pressure in the water circuit does not exceed 6 bar;
- d) which can give rise to condensation under certain circumstances;
- e) which are declared in the installation instructions to be either a “condensing” boiler or a “low temperature boiler” or a “standard boiler”. If no declaration is given the boiler is to be considered a “standard boiler”
- f) which are intended to be installed inside a building or in a partially protected place;
- g) which are intended to produce hot water either by the instantaneous or storage principle, the whole being marketed as a single unit.

This European Standard applies to boilers designed for sealed water systems or for open water systems.

This general standard and the specific standards (see Part 2) provide requirements for boilers with known constructions. For boilers with any alternative constructions, which might not fully be covered by this standard or a specific standard, the risk associated with this alternative construction will need to be assessed.

An example of an assessment methodology, based upon risk assessment, is given in Clause 11.

This European Standard is not intended to cover appliances intended for connection to gas grids where the quality of the distributed gas is likely to vary to a large extent over the lifetime of the appliance.

2 Normative references

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

EN 88-1:2011, *Pressure regulators and associated safety devices for gas appliances — Part 1: Pressure regulators for inlet pressures up to and including 50 kPa*

EN 125:2010, *Flame supervision devices for gas burning appliances — Thermoelectric flame supervision devices*

EN 126:2012, *Multifunctional controls for gas burning appliances*

EN 161:2011, *Automatic shut-off valves for gas burners and gas appliances*

EN 298:2012, *Automatic burner control systems for burners and appliances burning gaseous or liquid fuels*

EN 437:2003+A1:2009, *Test gases — Test pressures — Appliance categories*

EN 1057:2006+A1:2010, *Copper and copper alloys — Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1092-1:2007, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 1: Steel flanges*

EN 1092-2:1997, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 2: Cast iron flanges*

EN 1092-3:2003, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 3: Copper alloy flanges*

EN 1092-4:2002, *Flanges and their joints — Circular flanges for pipes, valves, fittings and accessories, PN designated — Part 4: Aluminium alloy flanges*

CR 1404:1994, *Determination of emissions from appliances burning gaseous fuels during type-testing*

CEN/TR 1749:2009, *European scheme for the classification of gas appliances according to the method of evacuation of the combustion products (types)*

EN 10029:2010, *Hot-rolled steel plates 3 mm thick or above — Tolerances on dimensions and shape*

EN 10226-1:2004, *Pipe threads where pressure tight joints are made on the threads — Part 1: Taper external threads and parallel internal threads — Dimensions, tolerances and designation*

EN 10226-2:2005, *Pipe threads where pressure tight joints are made on the threads — Part 2: Taper external threads and taper internal threads — Dimensions, tolerances and designation*

EN 12067-2:2004, *Gas/air ratio controls for gas burners and gas burning appliances — Part 2: Electronic types*

EN 13203-1:2006, *Gas-fired domestic appliances producing hot water — Appliances not exceeding 70 kW heat input and 300 l water storage capacity — Part 1: Assessment of performance of hot water deliveries*

EN 13611:2007+A2:2011, *Safety and control devices for gas burners and gas burning appliances — General requirements*

EN 14459:2007, *Control functions in electronic systems for gas burners and gas burning appliances — Methods for classification and assessment*

EN 50090 (all parts), *Home and Building Electronic Systems (HBES)*

EN 60335-1:2002, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1:2001, modified)*

EN 60335-2-102:2006, *Household and similar electrical appliances — Safety — Part 2-102: Particular requirements for gas, oil and solid-fuel burning appliances having electrical connections (IEC 60335-2-102:2004, modified)*

EN 60529:1991, *Degrees of protection provided by enclosures (IP code) (IEC 60529:1989)*

EN 60730-2-9:2010, *Automatic electrical controls for household and similar use — Part 2-9: Particular requirements for temperature sensing controls (IEC 60730-2-9:2008, modified)*

EN ISO 228-1:2003, *Pipe threads where pressure-tight joints are not made on the threads — Part 1: Dimensions, tolerances and designation (ISO 228-1:2000)*

prEN ISO 2553:2011, *Welding and allied processes — Symbolic representation on drawings — Welded, brazed and soldered joints (ISO/DIS 2553:2011)*

EN ISO 3166-1:2006, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes (ISO 3166-1:2006)*

EN ISO 4063:2010, *Welding and allied processes — Nomenclature of processes and reference numbers (ISO 4063:2009, Corrected version 2010-03-01)*

ISO 857-1:1998, *Welding and allied processes — Vocabulary — Part 1: Metal welding processes*

ISO 857-2:2005, *Welding and allied processes — Vocabulary — Part 2: Soldering and brazing processes and related terms*

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 437:2003+A1:2009 and the following apply.

3.1.1 Gas supply

3.1.1.1

aeration adjuster

device enabling the primary aeration of a burner to be set to the desired value according to the supply conditions

3.1.1.2

gas circuit

assembly of parts of the boiler that carry or contain the combustible gas between the boiler gas inlet connection and the point at which air is admitted

3.1.1.3

gas inlet connection

part of the boiler intended to be connected to the gas supply

3.1.1.4

gas rate adjuster

component allowing the gas rate of the burner to be brought to a predetermined value according to the supply conditions

Note 1 to entry: The action of operating this device is called “adjustment of the gas rate”.

3.1.1.5

injector

component that admits gas into the burner

3.1.1.6

putting an adjuster or a control device out of service

action intended to put an adjuster or control (rate, pressure, etc.) out of service

3.1.1.7

range-rating device

component on the boiler intended to be used by the installer to adjust the nominal heat input of the boiler within the range of maximum and minimum heat inputs stated by the manufacturer, to suit the actual heat requirements of the installation