

Vedelgaasiseadmete tehniline kirjeldus. Vedelgaaside ruumisoojendamise seadmed hermeetilises ruumis paigaldamiseks sõidukitesse ja laevadesse

Specifications for dedicated LPG appliances - Room sealed LPG space heating equipment for installation in vehicles and boats

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 624:2011 sisaldab Euroopa standardi EN 624:2011 ingliskeelset teksti.</p> <p>Standard on kinnitatud Eesti Standardikeskuse 31.03.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.</p> <p>Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 02.03.2011.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 624:2011 consists of the English text of the European standard EN 624:2011.</p> <p>This standard is ratified with the order of Estonian Centre for Standardisation dated 31.03.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.</p> <p>Date of Availability of the European standard text 02.03.2011.</p> <p>The standard is available from Estonian standardisation organisation.</p>
--	---

ICS 43.040.60, 47.020.90, 97.100.20

lpg, space heating equipment in vehicles and boats

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: 605 5050; E-mail: info@evs.ee

English Version

Specification for dedicated LPG appliances - Room sealed LPG space heating equipment for installation in vehicles and boats

Spécification pour les appareils fonctionnant exclusivement aux GPL - Appareils de chauffage à circuit étanche fonctionnant aux GPL à installer dans les véhicules et bateaux

Festlegungen für flüssiggasbetriebene Geräte - Raumluftunabhängige Flüssiggas-Raumheizgeräte zum Einbau in Fahrzeugen und Booten

This European Standard was approved by CEN on 8 January 2011.

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-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, 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.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	5
1 Scope	6
2 Normative references	6
3 Terms, definitions and symbols.....	7
3.1 Terms and definitions	7
3.2 Symbols	13
4 Requirements	14
4.1 Classification of gases	14
4.2 Classification of heaters	14
5 Safety, constructional and performance characteristics	15
5.1 Conversion to different gases	15
5.2 Materials	15
5.3 Accessibility of components	15
5.4 Strength of assembly	16
5.5 Tightness	16
5.5.1 Tightness of the gas carrying parts.....	16
5.5.2 Tightness of combustion circuit	16
5.6 Gas inlet connection	16
5.7 Heater stability and fixing	16
5.8 Taps and controls	17
5.8.1 General.....	17
5.8.2 Automatic shut-off valves	17
5.9 Control handles.....	18
5.10 Injectors	18
5.11 Ignition devices.....	18
5.12 Safety devices	18
5.12.1 General.....	18
5.12.2 Thermoelectric flame supervision devices	19
5.12.3 Automatic burner control system	19
5.13 Ducts for the products of combustion and cowls.....	21
5.13.1 Combustion air supply inlet, flue outlet and wind protection device (cowl).....	21
5.13.2 Evacuation ducts for the products of combustion	21
5.14 Verification of the heat input	21
5.15 Temperature of various parts of the heater	21
5.16 Temperature of the floor, walls or adjacent surfaces	22
5.17 Temperature of taps and components	22
5.18 Temperature of the products of combustion	22
5.19 Ignition	22
5.19.1 General.....	22
5.19.2 Ignition performance	23
5.20 Crosslighting.....	23
5.20.1 General.....	23
5.20.2 Cold condition.....	23
5.20.3 Hot condition.....	23
5.20.4 Crosslighting at low temperature.....	23
5.20.5 Conditions of ignition burner flame shortening	23
5.21 Flame stability	24
5.21.1 Flame lift	24
5.21.2 Light-back.....	24
5.21.3 Sooting.....	24
5.22 Combustion in still air	24

5.23	Resistance to wind	24
5.23.1	General	24
5.23.2	Flame stability.....	24
5.23.3	Ignition and crosslighting.....	24
5.23.4	Combustion.....	24
5.24	Efficiency.....	24
5.25	Ignition and combustion in motion	24
5.26	Prolonged performance test.....	25
5.27	Electromagnetic compatibility	25
6	Test methods	25
6.1	General	25
6.1.1	Reference and limit gases	25
6.1.2	Test pressures	26
6.1.3	Special national conditions	26
6.1.4	Test installation	26
6.2	Materials	26
6.3	Accessibility of components.....	26
6.4	Strength of assembly	26
6.5	Tightness.....	27
6.5.1	Tightness of the gas carrying parts	27
6.5.2	Tightness of combustion circuit.....	28
6.6	Connections.....	29
6.7	Heater stability and fixing.....	29
6.8	Taps and controls.....	29
6.8.1	General	29
6.8.2	Automatic shut-off valves.....	29
6.9	Control handles	29
6.10	Injectors.....	29
6.11	Ignition devices	29
6.12	Safety devices.....	29
6.12.1	General	29
6.12.2	Thermoelectric flame supervision devices.....	30
6.12.3	Automatic burner control systems.....	30
6.13	Ducts for the products of combustion and cowls	32
6.13.1	Combustion air supply inlets, products of combustion outlets and wind protection devices.....	32
6.13.2	Ducts for the products of combustion	32
6.14	Verification of the nominal heat input.....	32
6.15	Temperatures of various parts of the heater	33
6.15.1	Test conditions	33
6.15.2	Test method	33
6.15.3	Measurement of temperature	34
6.16	Temperatures of the support, walls and adjacent surfaces.....	34
6.16.1	Test conditions	34
6.16.2	Test methods	34
6.16.3	Measurement of temperature	34
6.17	Temperature of taps and components	34
6.17.1	Test conditions	34
6.17.2	Test methods	34
6.17.3	Measurement of temperature	34
6.18	Temperatures of the products of combustion.....	35
6.19	Ignition.....	35
6.19.1	General	35
6.19.2	Ignition performance.....	35
6.19.3	Maximum energy delayed ignition test	35
6.20	Crosslighting	35
6.20.1	General	35
6.20.2	Cold condition	36
6.20.3	Hot condition	36
6.20.4	Crosslighting at low temperature	36

6.20.5	Conditions of ignition burner flame shortening	36
6.21	Flame stability	36
6.21.1	Flame lift	36
6.21.2	Light-back	36
6.21.3	Sooting	37
6.22	Combustion in still air	37
6.23	Resistance to wind	38
6.23.1	Wind generator and test installation	38
6.23.2	Test conditions	41
6.24	Efficiency	43
6.25	Ignition and combustion in motion	44
6.26	Prolonged performance test	45
7	Marking and instruction literature	45
7.1	Appliance	45
7.1.1	Data plate	45
7.1.2	Appliance warning labels	46
7.2	Packaging	46
7.3	Instructions for use and user maintenance	47
7.4	Instructions for installation	47
7.5	Servicing instructions	48
Annex A	(normative) Supply situation in various countries	49
Annex B	(normative) Appliances using water as a heat transfer medium	52
B.1	General	52
B.2	Requirements	52
	Mechanical strength	52
B.2.1	52	52
B.2.2	Electrical safety	52
B.2.3	Mechanical safety elements	52
B.2.4	Materials	53
B.2.5	Bleed valve	53
B.3	Test methods	53
B.3.1	Mechanical strength	53
B.3.2	Electrical safety	53
B.3.3	Mechanical safety elements	54
B.3.4	Materials	54
B.3.5	Circulation pump	54
B.3.6	Compensator reservoir	54
B.3.7	Bleed valve	54
Annex ZA	(informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2009/142/EC "Gas appliances"	55
Bibliography	58

Foreword

This document (EN 624:2011) has been prepared by Technical Committee CEN/TC 181 "Dedicated LPG appliances", the secretariat of which is held by AFNOR.

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 2011, and conflicting national standards shall be withdrawn at the latest by September 2011.

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 supersedes EN 624:2000.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

NOTE 1 Attention is drawn in particular to EN 1949, *Specification for the installation of LPG systems for habitation purposes in leisure accommodation vehicles and in other road vehicles*, in regard to the harmonization of operating pressures to be used in vehicles.

NOTE 2 Test methods and means of assessment for Clause 5 are given in Clause 6.

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, Croatia, 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 the United Kingdom.

1 Scope

This European standard specifies the characteristics of safety, construction, performance and efficiency, the test methods and marking, of room sealed space heating equipment of type C (see CEN/TR 1749) with combustion air intake and outlet for the products of combustion in the wall, roof or floor, combined or not. These are referred to in the body of the text as "heaters", burning LPG, for vehicles and boats.

This European standard only covers room sealed heaters also including those which have a combustion air fan, an integral hot air fan or both, only for vehicles and boats which are used for residential, recreational and commercial purposes.

This European standard applies to heaters which are installed either outside or inside the habitable volume, but which have a combustion circuit sealed from the vehicle's interior, and nominal heat input which does not exceed 10 kW (H_s) operated at supply pressure of 30 mbar, 28 mbar, 37 mbar and 50 mbar, using, where appropriate, 12 V or 24 V DC electrical supply.

Room sealed LPG space heating appliances for vehicles and boats are using very often warm air as a heat transfer medium. Annex B specifies additional requirements for appliances using water as a heat transfer medium.

For private cars and vehicles or boats used for the transport of dangerous goods or for commercial personnel transport additional requirements may be necessary.

This European standard does not cover requirements for storage water heaters (boilers) (see EN 15033). For appliances producing additional sanitary hot water (combi-boilers), see relevant clauses of EN 15033.

NOTE If a LPG operated heater is installed in a motorized vehicle being subject to European road traffic legislation, the directives of the Council for the approximation of the laws, regulations and administrative provisions of the member states relating to the heating of the interior of motor vehicles should be applied.

These heaters are also suitable for caravan holiday homes.

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 161:2001, *Automatic shut-off valves for gas burners and gas appliances*

EN 298:2003, *Automatic gas burner control systems for gas burners and gas burning appliances with or without fans*

EN 437, *Test gases — Test pressures — Appliance categories*

EN 549, *Rubber materials for seals and diaphragms for gas appliances and gas equipment*

EN 1057, *Copper and copper alloys — Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 10226-1, *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, *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 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1:2001, modified)*

EN 60335-2-21, *Household and similar electrical appliances — Safety — Part 2-21: Particular requirements for storage water heaters (IEC 60335-2-21:2002, 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 60730-1, *Automatic electrical controls for household and similar use — Part 1: General requirements (IEC 60730-1:1999, modified)*

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

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

3 Terms, definitions and symbols

3.1 Terms and definitions

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

3.1.1

caravan

trailer leisure accommodation vehicle that meets the requirements for the construction and use of road vehicles

[EN 13878:2003]

3.1.2

motor caravan

self-propelled leisure accommodation vehicle that meets requirements for construction and use of road vehicles

NOTE 1 It contains at least:

- seats and table,
- sleeping accommodation which can be converted from the seats,
- cooking facilities and
- storage facilities.

NOTE 2 Definition adapted from EN 13878:2003.

3.1.3

boat

craft up to 24 m in length