

საქართველოს სტანდარტი

გაზზე მომუშავე აბსორბიული და ადსორბიული ჰაერის კონდიციონირების ან
სითბური ტუმბოს მოწყობილობები სითბოს (ნეტო) ჩატვირთვით არაუმეტეს
70 კვ-ნაწილი 1: უსაფრთხოება

საქართველოს სტანდარტებისა და მეტროლოგიის
ეროვნული სააგენტო
თბილისი

საინფორმაციო მონაცემები

1 დამტკიცებულია და შემოღებულია სამოქმედოდ საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს 2015 წლის 30 ოქტომბრის № 71 და 2015 წლის 09 ივლისის № 46 განკარგულებებით

2 მიღებულია გარეკანის თარგმნის მეთოდით სტანდარტიზაციის ევროპული კომიტეტის სტანდარტი ენ 12309-2:2015 „გაზზე მომუშავე აბსორბიული და ადსორბიული ჰაერის კონდიცირების ან სითბური ტუმბოს მოწყობილობები სითბოს (ნეტო) ჩატვირთვით არაუმეტეს 70 კვ-ნაწილი 1: უსაფრთხოება“

3 პირველად

4 რეგისტრირებულია საქართველოს სტანდარტებისა და მეტროლოგიის ეროვნული სააგენტოს რეესტრში: 2015 წლის 30 ოქტომბერი №268-1.3-8087

აკრძალულია ამ სტანდარტის გადაცემა მესამე პირებისათვის ან/და მისი სხვა ფორმით გავრცელება

English Version

Gas-fired sorption appliances for heating and/or cooling with a
net heat input not exceeding 70 kW - Part 2: Safety

Appareils à sorption fonctionnant au gaz pour le chauffage
et/ou le refroidissement de débit calorifique sur PCI inférieur
à 70 kW - Partie 2 : Sécurité

Gasbefeuerte Sorptions-Geräte für Heizung und/oder
Kühlung mit einer Nennwärmebelastung nicht über 70 kW -
Teil 2: Sicherheit

This European Standard was approved by CEN on 14 February 2015.

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, 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 United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	6
1 Scope	8
1.1 Scope of EN 12309 series	8
1.2 Scope of this Part 2 to EN 12309.....	8
2 Normative references	8
3 Terms and definitions	10
4 Classification.....	10
4.1 Classification of appliances	10
4.1.1 Classification of gases.....	10
4.1.2 Classification according to the mode of air supply and evacuation of the combustion products.....	10
4.1.3 Classification according to the temperatures of the heat transfer media	11
4.1.4 Classification according to denomination	11
5 Construction and design requirements	12
5.1 General.....	12
5.1.1 Conversion to different gases	12
5.1.2 Materials and method of construction	13
5.1.3 Accessibility for maintenance and use	13
5.1.4 Thermal insulation	13
5.1.5 Gas connection	14
5.1.6 Soundness.....	14
5.1.7 Air proving.....	15
5.1.8 Air proving device.....	15
5.1.9 Gas/air ratio controls.....	16
5.1.10 Supply of combustion air and evacuation of combustion products	17
5.1.11 Checking the state of operation	19
5.1.12 Electrical equipment.....	19
5.1.13 Operational safety in the event of fluctuation, interruption and restoration of the auxiliary energy	20
5.1.14 Rotating parts (e.g. motors and fans).....	20
5.1.15 Pressurized parts of the appliance	20
5.2 Requirements for adjusting, control and safety devices	21
5.2.1 General.....	21
5.2.2 Gas rate adjusters and range-rating device.....	21
5.2.3 Aeration adjusters	21
5.2.4 Automatic gas/air ratio controls.....	22
5.2.5 Gas pressure regulators	22
5.2.6 Multifunctional controls	22
5.2.7 Automatic shut-off valves	22
5.2.8 Automatic burner control systems	23
5.2.9 Gas strainers	23
5.3 Ignition devices.....	23
5.3.1 General.....	23
5.3.2 Ignition device for the main burner.....	23
5.3.3 Ignition burners.....	24
5.4 Transportation of combustion air and/or flue gases	24
5.4.1 Combustion air.....	24
5.4.2 Pre-purge and post-purge.....	24
5.5 Flame supervision system.....	24

5.6	Flame ignition and safety time T_{SA}	25
5.7	Main flame establishment.....	26
5.7.1	Establishment by means of an ignition flame	26
5.7.2	Direct establishment of the main flame	26
5.8	Main burner	26
5.9	Facility for remote control	26
5.10	Thermostats and control of air temperature.....	27
5.10.1	General requirements	27
5.10.2	Overheat cut-off device.....	27
5.10.3	Sensors.....	27
5.11	Gas pressure test points	27
5.12	Pressure relief devices	27
5.13	Additional requirements for appliances designed for outdoor installation	28
5.13.1	General	28
5.13.2	Combustion air inlets.....	28
5.13.3	Access panels and doors	28
5.13.4	Dimensions of openings.....	28
5.13.5	Fixing screws.....	28
5.13.6	Frost protection	28
5.14	Materials in contact with condensate.....	28
5.15	Condensate	28
5.15.1	Discharge of condensate.....	28
5.15.2	Control of the combustion products temperature	29
5.15.3	Chemical composition of the condensate	29
5.15.4	Additional requirements for indoor installations	29
5.16	Electrical safety	29
6	Operational requirements.....	30
6.1	Soundness	30
6.1.1	Soundness of the gas circuit	30
6.1.2	Soundness of the combustion circuit and correct evacuation of combustion products	30
6.2	Heat inputs	31
6.2.1	Nominal heat input	31
6.2.2	Ignition heat input	31
6.2.3	Effectiveness of gas rate adjusters	31
6.2.4	Effectiveness of the gas pressure regulator	31
6.2.5	Effectiveness of the range-rating device	31
6.3	Limiting temperatures.....	32
6.3.1	Temperature of parts of the appliance which have to be touched during normal use	32
6.3.2	Temperatures of the outer case of the appliance	32
6.3.3	Temperature of the floor, walls and worktop/ceiling	32
6.3.4	Component temperatures.....	32
6.3.5	Motor temperatures (motor windings)	32
6.4	Ignition, cross lighting, flame stability.....	32
6.4.1	Ignition and cross-lighting	32
6.4.2	Flame stability.....	33
6.5	Combustion.....	34
6.5.1	General	34
6.5.2	Limit conditions.....	34
6.5.3	Special conditions	34
6.5.4	Sooting	34
6.5.5	Supplementary requirement for condensing appliances.....	34
6.5.6	Supplementary requirements for B_{12} and B_{13} appliances	34
6.6	Safety of operation in various temperature environments	34
6.6.1	Temperature operating range	34
6.6.2	Safety in the event of operation outside the temperature operating range	35
6.7	Overheat cut off device.....	35

6.8	Maximum working pressure of pressurized vessels	35
6.9	Pressure relief devices.....	35
6.9.1	Pressure activated pressure relief devices.....	35
6.9.2	Temperature activated pressure relief devices	36
6.10	Effectiveness of the pre-purge	36
6.11	Weather resistance	36
6.12	Formation of condensate	36
6.13	NO _x	37
6.14	Combustion products temperature.....	37
7	Test methods.....	37
7.1	General.....	37
7.1.1	Characteristics of test gases: reference and limit gases	37
7.1.2	Conditions for preparation of the test gases	37
7.1.3	Practical application of test gases.....	38
7.1.4	Test pressures	39
7.1.5	Test procedures - Tests requiring the use of limit gases.....	39
7.1.6	General test conditions	39
7.1.7	Modulating and high/low operation	42
7.1.8	Tolerances of measurements	42
7.2	Construction and design	43
7.2.1	Manually operated devices (see 5.2.8.2)	43
7.2.2	Extinction safety time (see 5.5)	43
7.2.3	Safety time (see 5.6)	43
7.3	Safety of operation	43
7.3.1	Soundness.....	43
7.3.2	Heat inputs	46
7.3.3	Limiting temperatures	48
7.3.4	Ignition, Cross-lighting, Flame stability	49
7.3.5	Combustion	56
7.3.6	Safety of operation in various temperature environments.....	59
7.3.7	Overheat cut-off device.....	61
7.3.8	Maximum working pressure of pressurized vessels	62
7.3.9	Pressure relief devices.....	64
7.3.10	Effectiveness of the pre-purge for all appliances	66
7.3.11	Weather resistance	67
7.3.12	NO _x Measurement	67
7.3.13	Combustion product temperature.....	72
7.3.14	Supervision of the combustion air rate or the combustion products rate	72
7.3.15	Leakage of control tubes	73
7.3.16	Adjustment of the gas/air ratio.....	73
7.3.17	Flame ignition and safety time T_{SA}	73
7.3.18	Discharge of condensate	73
8	Marking and instructions	73
8.1	Appliance marking.....	73
8.1.1	Data plate.....	73
8.1.2	Supplementary markings.....	74
8.1.3	Packaging	75
8.1.4	Warnings on the appliance and the packaging	75
8.1.5	Other information.....	76
8.2	Instructions	76
8.2.1	Technical instructions.....	76
8.2.2	User's instructions	78
8.2.3	Conversion instructions	78
8.3	Presentation	79
8.4	Supplementary marking and instructions in the case of appliances to be installed outdoor or in partially protected places.....	79

8.4.1	General information	79
8.4.2	Warning on the appliance and the packaging	79
8.4.3	Technical instructions	79
9	Figures	80
Annex A (informative)	Alternative method for the determination of the nominal heat input or the maximum and minimum heat input for appliances using a pneumatic gas/air ratio control system	91
Annex B (informative)	Calculation of conversions of NO _x	93
Annex C (informative)	Example of calculation of weighting factors NO _x	94
Annex D (informative)	Ratio of calorific value Gross to Net and Net to Gross for Gas Families 1, 2 and 3	96
Annex ZA (informative)	Relationship between this European Standard and the Essential Requirements of EU Directive 2009/142/EC relating to appliances burning gaseous fuels (codified version)	97
Annex ZB (informative)	Relationship between this European Standard and the requirements of Commission Regulation (EC) No 813/2013	100
Annex ZC (informative)	Relationship between this European Standard and the requirements of Commission Regulation (EC) N° 811/2013	101
Bibliography		102

Foreword

This document (EN 12309-2:2015) has been prepared by Technical Committee CEN/TC 299 “Gas-fired sorption appliances, indirect fired sorption appliances, gas-fired endothermic engine heat pumps and domestic gas-fired washing and drying appliances”, the secretariat of which is held by UNI.

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 November 2015, and conflicting national standards shall be withdrawn at the latest by November 2015.

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 12309-1:1999.

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, Annex ZB and Annex ZC, which are integral parts of this document.

EN 12309 comprises the following parts under the general title, *Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW*:

- Part 1: Terms and definitions;
- Part 2: Safety;
- Part 3: Test conditions;
- Part 4: Test methods;
- Part 5: Requirements;
- Part 6: Calculation of seasonal performances;
- Part 7: Specific provisions for hybrid heating appliances;
- Part 8: Environmental aspects.

EN 12309-1 and EN 12309-2 supersede EN 12309-1:1999, whereas EN 12309-1 and EN 12309-3, EN 12309-4, EN 12309-5, EN 12309-6 and EN 12309-7 supersede EN 12309-2:2000. EN 12309-1, EN 12309-2, EN 12309-3, EN 12309-4, EN 12309-5, EN 12309-6 and EN 12309-7 have been prepared to address the essential requirements of the European Directive 2009/142/EC relating to appliances burning gaseous fuels (see EN 12309-2:2015, Annex ZA, for safety aspects and EN 12309-5:2014, Annex ZA, for rational use of energy aspects).

These documents are linked to the following European Directives:

- Energy Related Products Directive (2009/125/EC) in terms of tests conditions, tests methods and seasonal performances calculation methods under Mandate M/495 (see EN 12309-5:2014, Annex ZB);

For the relationship with EU Directive(s), see EN 12309-2:2015, Annex ZA, and EN 12309-5:2014, Annex ZA, Annex ZB and Annex ZC. These documents will be reviewed whenever new mandates could apply.

EN 12309-8, Environmental aspects, deals with the incorporation of the Resolution BT 27/2008 regarding CEN approach on addressing environmental issues in product and service standards.

This document deals particularly with the operational safety of the appliance.

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.