

საქართველოს ეროვნული სტანდარტი

აირგე მომუშავე ცენტრალური გამათბობელი ბოილერები. B ტიპის ბოილერები ნომინალური სითბოს საწყისი მონაცემები აჩარბებენ 300კვტ, მაგრამ არ აჩარბებენ 1000კვტ

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

საქართველოს სტანდარტების, ტექნიკური რეგლამენტების
და მეტროლოგიის ეროვნული სააგენტო
თბილისი

საინფორმაციო მონაცემები

1 **შემუშავებულია** საქართველოს სტანდარტების, ტექნიკური რეგლამენტების და მეგროლოგიის ეროვნული სააგენტოს სტანდარტებისა და ტექნიკური რეგლამენტების დეპარტამენტის მიერ

2 **დამტკიცებულია და შემოღებულია სამოქმედოდ** საქართველოს სტანდარტების, ტექნიკური რეგლამენტების და მეგროლოგიის ეროვნული სააგენტოს 2009 წლის 9 ნოემბრის №48 “ს” განკარგულებით

3 მიღებულია გარეკანის მეთოდით სტანდარტიზაციის საერთაშორისო ორგანიზაციის სტანდარტი ISO ენ 13836 : 2006 „აირზე მომუშავე ცენტრალური გამათბობელი ბოილერები. B ტიპის ბოილერები ნომინალური სითბოს საწყისი მონაცემები აჭარბებენ 300 კვტ, მაგრამ არ აჭარბებენ 1000 კვტ”

4 პირველად

5 **რეგისტრირებულია** საქართველოს სტანდარტების, ტექნიკური რეგლამენტების და მეგროლოგიის ეროვნული სააგენტოს რეესტრში: 2009 წლის 9 ნოემბერი №268-1.3-3397

წინამდებარე სტანდარტის სრული ან ნაწილობრივი აღწარმოება, გირაჟირება და გავრცელება საქართველოს სტანდარტების, ტექნიკური რეგლამენტების და მეგროლოგიის ეროვნული სააგენტოს ნებართვის გარეშე არ დაიშვება

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.

ICS 91.140.65

English Version

Gas fired central heating boilers - Type B boilers of nominal heat input exceeding 300 kW, but not exceeding 1 000 kW

Chaudières de chauffage central utilisant les combustibles gazeux - Chaudières de type B dont le débit calorifique nominal est supérieur à 300 kW mais inférieur ou égal à 1 000 kW

Heizkessel für gasförmige Brennstoffe - Heizkessel des Typs B mit einer Nennwärmebelastung größer als 300 kW aber gleich oder kleiner als 1 000 kW

This European Standard was approved by CEN on 20 April 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.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

Page

Foreword	6
1 Scope	7
2 Normative references	8
3 Terms and definitions	9
3.1 Combustible gases	9
3.2 Constituent parts of the boiler	11
3.2.1 Gas supply	11
3.2.2 Combustion circuit	12
3.2.3 Adjusting, control and safety devices	13
3.3 Operation of the boiler	16
3.3.1 Gas rates	16
3.3.2 Outputs	17
3.3.4 Gas combustion	17
3.3.5 Times	18
3.3.10 Locking out	19
4 Classification of boilers	19
4.1 Gases and categories	19
4.2 Classification according to the mode of evacuation of the combustion products	20
4.2.1 General	20
4.2.2 Type B	20
4.3 Classification according to operating conditions ¹⁾	21
4.3.1 Standard boiler	21
4.3.2 Low-temperature boiler	21
4.3.3 Gas condensing boiler ¹⁾	21
4.4 Modular boiler	21
5 Constructional requirements	21
5.1 General	21
5.2 Conversion to different gases	21
5.3 Materials and method of construction	22
5.3.1 General	22
5.3.2 Materials and thicknesses of walls or tubes under water pressure	22
5.3.3 Thermal insulation	32
5.4 Design	33
5.4.1 General	33
5.4.2 Modular boilers	33
5.5 Use and servicing	33
5.6 Connections to the gas and water pipes	34
5.6.1 General	34
5.6.2 Connections to the gas pipe	34
5.6.3 Connections to the central heating circuit	34
5.7 Soundness	34
5.7.1 Soundness of the gas circuit	34
5.7.2 Soundness of the combustion circuit	34
5.8 Supply of combustion air and the evacuation of the combustion products	35
5.8.1 Control dampers in the air or combustion products circuit	35
5.8.2 Fan	35
5.8.3 Air proving	35
5.8.4 Gas/air ratio controls	35
5.8.5 Condensate discharge	36

5.9	Checking the state of operation	36
5.10	Drainage.....	36
5.11	Electrical equipment.....	37
5.12	Operational safety in the event of failure of the auxiliary energy.....	37
5.13	Adjusting, control and safety devices	37
5.13.1	General.....	37
5.13.2	Adjusters and range rating devices	37
5.13.3	Gas circuit.....	38
5.13.4	Gas pressure regulator.....	39
5.13.5	Ignition devices	40
5.13.6	Flame supervision systems	40
5.13.7	Thermostats and water temperature limiting devices.....	41
5.13.8	Device for monitoring the evacuation of combustion products	42
5.14	Burners	42
5.15	Pressure test points.....	42
5.16	Chemical composition of the condensate for low-temperature boilers.....	43
6	Operational requirements	43
6.1	General.....	43
6.2	Soundness	43
6.2.1	Soundness of the gas circuit.....	43
6.2.2	Soundness of the combustion circuit and correct evacuation of the combustion products	43
6.2.3	Soundness of the water circuit.....	43
6.3	Nominal, maximum and minimum heat inputs, and nominal output.....	43
6.3.1	Nominal heat input or maximum and minimum heat inputs	43
6.3.2	Adjustment of the heat input by the downstream pressure	44
6.3.3	Minimum ignition rate.....	44
6.3.4	Nominal output.....	44
6.3.5	Gas pressure regulator.....	44
6.4	Safety of operation.....	44
6.4.1	Limiting temperatures	44
6.4.2	Ignition — Cross-lighting — Flame stability	45
6.4.3	Pre-purge	46
6.5	Adjusting, control and safety devices	47
6.5.1	General.....	47
6.5.2	Ignition devices	47
6.5.3	Flame supervision devices	48
6.5.4	Ignition burner and ignition rates.....	50
6.5.5	Air proving	50
6.5.6	Gas pressure switches	51
6.5.7	Control thermostat and safety temperature limiter	52
6.5.8	Device for monitoring the evacuation of combustion products	52
6.5.9	Condensate discharge blockage.....	53
6.6	Combustion	53
6.6.1	Carbon monoxide.....	53
6.6.2	Other pollutants	53
6.7	Useful efficiencies.....	54
6.7.1	Useful efficiency at the nominal heat input.....	54
6.7.2	Useful efficiency at part load	54
6.8	Criteria for condensation in the flue	55
6.9	Resistance of materials to pressure	55
6.9.1	General.....	55
6.9.2	Boilers of sheet steel or non-ferrous metals	55
6.9.3	Boilers of cast iron and cast materials	55
6.10	Hydraulic resistance	56
6.11	Combustion air and flue dampers	56
6.12	Condensation in a standard boiler.....	56

7	Test methods	56
7.1	General	56
7.1.1	Characteristics of the reference and limit gases	56
7.1.2	General test conditions	62
7.2	Soundness	66
7.2.1	Soundness of the gas circuit	66
7.2.2	Soundness of the combustion circuit and correct evacuation of the combustion products	66
7.2.3	Soundness of the water circuit	66
7.3	Nominal, maximum and minimum heat inputs and nominal output	67
7.3.1	The nominal heat input or the maximum and minimum heat inputs	67
7.3.2	Adjustment of the heat input by the downstream pressure	68
7.3.3	Minimum ignition rate	68
7.3.4	Nominal output	68
7.3.5	Gas regulator	68
7.4	Safety of operation	69
7.4.1	Limiting temperatures	69
7.4.2	Ignition — Cross-lighting — Flame stability	69
7.4.3	Pre-purge	71
7.5	Adjusting, control and safety devices	72
7.5.1	General	72
7.5.2	Ignition devices	72
7.5.3	Flame supervision device	73
7.5.4	Ignition burner and ignition rates	75
7.5.5	Air proving	75
7.5.6	Gas pressure switches	77
7.5.7	Control thermostat and safety temperature limiter	77
7.5.8	Device for monitoring the evacuation of combustion products	79
7.5.9	Condensate discharge blockage	79
7.6	Combustion	80
7.6.1	Carbon monoxide	80
7.6.2	Other pollutants	83
7.7	Useful efficiencies	86
7.7.1	Useful efficiency at the nominal heat input	86
7.7.2	Useful efficiency at part load	87
7.8	Criteria for condensation in the flue	92
7.8.1	Determination of flue losses	92
7.8.2	Minimum temperature of the combustion products	93
7.9	Resistance of materials to pressure	93
7.9.1	General	93
7.9.2	Boilers of sheet steel or non-ferrous metals	93
7.9.3	Boilers of cast iron and cast materials	93
7.10	Hydraulic resistance	94
7.11	Combustion air and flue dampers	94
7.12	Condensation in a standard boiler	94
8	Marking and instructions	95
8.1	Marking of the boiler	95
8.1.1	General	95
8.1.2	Data plate	95
8.1.3	Supplementary marking	96
8.1.4	Packaging	97
8.1.5	Warnings on the boiler and on the packaging	98
8.1.6	Other information	98
8.2	Instructions	98
8.2.1	Technical instructions for the installer	98
8.2.2	Use and maintenance instructions for the user	99
8.2.3	Conversion instructions	100
8.3	Presentation	100
Annex A	(informative) National situations	112

საინფორმაციო ნაწილი. სრული ტექსტის სახანავედ შეიძინეთ სტანდარტი.

Annex B (informative) Special national conditions	118
Annex C (informative) A-deviations	119
Annex D (informative) Practical method of calibrating the test rig to enable the heat loss D_p to be determined	120
Annex E (informative) Main symbols and abbreviations used within this European Standard	121
Annex F (informative) Compilations of test conditions used within this European Standard	122
Annex G (informative) Valving	125
Annex H (informative) Determination of the heat losses from the test rig of the indirect method and the contributions of the circulating pump of the test rig	128
Annex I (informative) Means of determining the ignition time at full rate	129
Annex J (informative) Example of calculation of the weighting factors for a boiler with several rates	130
Annex K (informative) Calculation of conversions of NO_x	132
Annex L (informative) Use of test gases	133
Annex ZA (informative) Clauses of this European Standard addressing essential requirements or provisions of EU Directives	134
Bibliography	138

Foreword

This European Standard (EN 13836:2006) 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 February 2007, and conflicting national standards shall be withdrawn at the latest by February 2007.

It was established to deal with aspects related to:

- safety;
- rational use of energy;
- fitness for purpose.

Other types of boilers are dealt with in separate standards.

This European Standard 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 Directives 90/396/EEC “Approximation of the laws of Member States concerning gas appliances” and 92/42/EEC “Efficiency requirements for new hot water boilers fired with liquid or gaseous fuels” see informative Annex ZA, which is an integral part of this European Standard.

This standard covers only type testing.

Boilers within the scope of this European Standard are typically installed in a room separated from living rooms and provided with appropriate ventilation directly to the outside. They need not be fitted with a combustion products discharge safety device but appropriate warnings on the packaging and in the instructions should clearly indicate the limit on the use of this type of boiler.

It is impractical to use the full range of test gases to EN 437 for type testing since their availability, for inputs over 300 kW, may present problems for test houses and manufacturers. Informative Annex L gives guidance on the use of gases for tests in order to ensure conformity with EU Directive 90/396/EEC “Approximation of the laws of Member States concerning gas appliances.”

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.

საინფორმაციო ნაწილი. სრული ტექსტის სანახავად შეიძინეთ სტანდარტი.