



# SLOVENSKI STANDARD

## SIST EN 12309-5:2015

01-marec-2015

Nadomešča:  
SIST EN 12309-2:2001

---

**Absorpcijske in adsorpcijske plinske naprave za gretje in/ali hlajenje z grelno močjo do vključno 70 kW - 5. del: Zahteve**

Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW - Part 5: Requirements

Gasbefeuerte Sorptions-Geräte für Heizung und/oder Kühlung mit einer Nennwärmebelastung nicht über 70 kW - Teil 5: Anforderungen

Appareils à sorption à chauffage direct au gaz pour chauffage et/ou refroidissement d'un débit calorifique sur PCI inférieur à 70 kW - Partie 5: Exigences

**Ta slovenski standard je istoveten z: EN 12309-5:2014**

---

**ICS:**

27.080	Toplotne črpalke	Heat pumps
91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning

**SIST EN 12309-5:2015** en,fr,de

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 12309-5:2015

<https://standards.iteh.ai/catalog/standards/sist/6d06a4a1-0f83-4704-b096-d706e50d6d4b/sist-en-12309-5-2015>

EUROPEAN STANDARD

EN 12309-5

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2014

ICS 27.080; 91.140.30

Supersedes EN 12309-2:2000

English Version

## Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW - Part 5: Requirements

Appareils à sorption fonctionnant au gaz pour le chauffage et/ou le refroidissement de débit calorifique sur PCI inférieur ou égal à 70 kW - Partie 5: Exigences

Gasbefeuerte Sorptions-Geräte für Heizung und/oder Kühlung mit einer Nennwärmebelastung nicht über 70 kW - Teil 5: Anforderungen

This European Standard was approved by CEN on 18 October 2014.

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.

[SIST EN 12309-5:2015](https://standards.iteh.ai/catalog/standards/sist/6d06a4a1-0f83-4704-b096-d706e50d6d4b/sist-en-12309-5-2015)

<https://standards.iteh.ai/catalog/standards/sist/6d06a4a1-0f83-4704-b096-d706e50d6d4b/sist-en-12309-5-2015>



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.....	3
1 Scope .....	5
1.1 Scope of EN 12309.....	5
1.2 Scope of this Part 5 of EN 12309.....	5
2 Normative references .....	5
3 Terms and definitions .....	6
4 Requirements .....	6
4.1 Cooling capacity rating and energy performance.....	6
4.1.1 Primary functions .....	6
4.1.2 Secondary functions .....	6
4.1.3 Efficiency requirements .....	7
4.2 Heating capacity rating and energy performance.....	7
4.2.1 Primary functions .....	7
4.2.2 Secondary functions .....	7
4.2.3 Efficiency requirements .....	7
5 Marking and instructions .....	8
5.1 Data plate.....	8
5.2 Technical instructions for installation and adjustment.....	8
5.2.1 General.....	8
5.2.2 Cooling mode.....	8
5.2.3 Heating mode .....	9
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2009/142/EC relating to appliances burning gaseous fuels (Gas Appliances Directive) .....	10
Annex ZB (informative) Relationship between this European Standard and the requirements of Commission Regulation (EC) No 813/2013 .....	11
Annex ZC (informative) Relationship between this European Standard and the requirements of Commission Regulation (EC) No 811/2013 .....	12
Bibliography.....	13

## Foreword

This document (EN 12309-5:2014) 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 June 2015, and conflicting national standards shall be withdrawn at the latest by June 2015.

This document supersedes EN 12309-2:2000.

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 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.

This standard 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 appliances;
- Part 8: Environmental aspects.

iTech STANDARD PREVIEW  
(standards.iteh.ai)  
SIST EN 12309-5:2015  
<https://standards.iteh.ai/catalog/standards/sist/6d06a4a1-0f83-4704-b096-d706e50d6d4b/sist-en-12309-5-2015>

EN 12309-1 and EN 12309-2 supersede EN 12309-1:1999, whereas EN 12309-1, 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 Annex ZA of prEN 12309-2:2013 for safety aspects and Annex ZA of EN 12309-5:2014 for rational use of energy aspects).

These documents are linked to the 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 12309-3:2014, Annex ZA; EN 12309-4:2014, Annex ZA; EN 12309-6:2014, Annex ZA and EN 12309-7:2014, Annex ZA and prEN 12309-2:2013, Annex ZB and EN 12309-5:2014, Annex ZB).

These documents will be reviewed whenever new mandates could apply.

**EN 12309-5:2014 (E)**

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.

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, 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.

## **iTeh STANDARD PREVIEW (standards.iteh.ai)**

SIST EN 12309-5:2015

<https://standards.iteh.ai/catalog/standards/sist/6d06a4a1-0f83-4704-b096-d706e50d6d4b/sist-en-12309-5-2015>

## 1 Scope

### 1.1 Scope of EN 12309

Appliances covered by this standard include one or a combination of the following:

- gas-fired sorption chiller;
- gas-fired sorption chiller/heater;
- gas-fired sorption heat pump.

This European Standard applies to appliances designed to be used for space heating or cooling or refrigeration with or without heat recovery.

This European Standard applies to appliances having flue gas systems of type B and type C (according to CEN/TR 1749) and to appliances designed for outdoor installations. EN 12309 does not apply to air conditioners, it only applies to appliances having:

- integral burners under the control of fully automatic burner control systems,
- closed system refrigerant circuits in which the refrigerant does not come into direct contact with the water or air to be cooled or heated,
- mechanical means to assist transportation of the combustion air and/or the flue gas.

The above appliances can have one or more primary or secondary functions (i.e. heat recovery - see definitions in EN 12309-1:2014).

In the case of packaged units (consisting of several parts), this European Standard applies only to those designed and supplied as a complete package.

The appliances having their condenser cooled by air and by the evaporation of external additional water are not covered by EN 12309.

Installations used for heating and/or cooling of industrial processes are not within the scope of EN 12309.

All the symbols given in this text should be used regardless of the language used.

### 1.2 Scope of this Part 5 of EN 12309

This part of EN 12309 specifies the requirements for gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW.

This part of EN 12309 deals particularly with the requirements relating to the declaration of capacity and energy efficiency performance.

## 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 12309-1:2014, *Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW — Part 1: Terms and definitions*

**EN 12309-5:2014 (E)**

prEN 12309-2:2013<sup>1</sup> *Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW — Part 2: Safety*

EN 12309-3:2014, *Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW — Part 3: Test conditions*

EN 12309-4:2014, *Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW — Part 4: Test methods*

EN 12309-6:2014, *Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW — Part 6: Calculation of seasonal performances*

EN 12309-7:2014, *Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW — Part 7: Specific provisions for hybrid appliances*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 12309-1:2014 apply.

When *GUE* (Gas Utilization Efficiency) or *SPER* (Seasonal Primary Energy Ratio) values are stated according to Clause 4 (Requirements) and to Clause 5 (Marking and instructions), these values need to be expressed in percentage terms.

**4 Requirements****4.1 Cooling capacity rating and energy performance****4.1.1 Primary functions**

The rated cooling capacity corresponding to Standard Rating conditions given in EN 12309-3:2014, Table 3, together with the gas utilization efficiency under the same conditions shall be specified in the instructions of the appliance. When measured under the appropriate test conditions given in EN 12309-3:2014, and in accordance with the methods of test described in EN 12309-4:2014, it shall be verified that the rated cooling capacity and the gas utilization efficiency are not less than those stated in the instructions.

If the rated cooling capacities or gas utilization efficiency corresponding to application rating conditions given in EN 12309-3:2014, Table 3 are specified in the instructions of the appliance, these shall also be verified. When measured under the appropriate test conditions given in EN 12309-3:2014, and in accordance with the methods of test described in EN 12309-4:2014, it shall be verified that the corresponding rated cooling capacity and, if applicable, the gas utilization efficiency are not less than those stated in the instructions.

If a rated cooling capacity or gas utilization efficiency for the primary function which relates to conditions other than those given in EN 12309-3:2014 is specified in the instructions of the appliance, the claim(s) shall be verified under the conditions specified in the instructions of the appliance.

**4.1.2 Secondary functions**

If a rated heating capacity is specified in the instructions of the appliance, the corresponding gas utilization efficiency and the conditions (water temperature and flow rate) under which the claims are made shall also be stated. It shall be verified under these conditions and under EN 12309-4:2014 appropriate test procedure that these claims are not less than those stated in the instructions.

If the secondary function is heat recovery, the rated heat recovery capacity specified shall correspond to the appropriate test conditions given in EN 12309-3:2014, Table 4. When measured under the appropriate test

<sup>1)</sup> This part of EN 12309 is currently being revised.



conditions given in EN 12309-3:2014 and in accordance with the methods of test described in EN 12309-4:2014, it shall be verified that the rated heat recovery capacity is not less than that stated in the instructions.

#### 4.1.3 Efficiency requirements

When measured under the appropriate test conditions given in EN 12309-3:2014 and in accordance with the methods of test described in EN 12309-4:2014, it shall be verified that the gas utilization efficiency shall be:

- $GUE_{NCV} > 0.55$  when measured at Standard Rating Condition, where standard rating condition foresee water output temperature equal or greater than 7 °C;
- $GUE_{NCV} > 0.45$  when measured at standard rating condition, where standard rating condition foresee water output temperature lower than 7 °C.

## 4.2 Heating capacity rating and energy performance

### 4.2.1 Primary functions

The rated heating capacity corresponding to test conditions given in EN 12309-3:2014, Table 5 or Table 6, or given in EN 12309-7:2014 for hybrid appliances, together with the gas utilization efficiency under the same conditions shall be specified in the instructions of the appliance. When measured under the appropriate test conditions given in EN 12309-3:2014 or given in EN 12309-7:2014 for hybrid appliances, and in accordance with the method of test described in EN 12309-4:2014, it shall be verified that the rated heating capacity and the gas utilization efficiency are not less than those stated in the instructions.

The *SPER* as calculated as per EN 12309-6:2014 (or as per EN 12309-7:2014 for hybrid appliances) shall be specified in the instructions of the appliance. When measured under the appropriate test conditions given in EN 12309-6:2014 (or given in EN 12309-7:2014 for hybrid appliances) it shall be verified that the *SPER* is not less than that stated in the instructions. When *SPER* is calculated on the basis of a water source temperature different from 10 °C or ground (brine) temperature different from 0 °C, *SPER* shall be stated jointly with source (water or brine) temperature used for *SPER* calculation.

If the rated heating capacities or gas utilization efficiency corresponding to application rating conditions given in EN 12309-3:2014, Table 5 or Table 6 are specified in the instructions of the appliance, these shall also be verified. When measured under the appropriate test conditions given in EN 12309-3:2014, and in accordance with the methods of test in EN 12309-4:2014, it shall be verified that the corresponding rated heating capacity and, if applicable, the gas utilization efficiency are not less than those stated in the instructions.

If a rated heating capacity or *GUE* for the primary function which relates to conditions other than those given in this European Standard is specified in the instructions of the appliance, the claim(s) shall be verified under the conditions specified in the instructions of the appliance.

### 4.2.2 Secondary functions

If a rated cooling capacity is specified in the instructions of the appliance, the corresponding *GUE* and the conditions (water/brine temperature and flow rate) under which the claims are made shall also be stated. It shall be verified under these conditions and the appropriate test procedure as defined in EN 12309-4:2014 that these claims are not less than those stated in the instructions.

### 4.2.3 Efficiency requirements

When measured under the appropriate test conditions given in EN 12309-3:2014 and in accordance with the methods of test described in EN 12309-4:2014 or described in EN 12309-7:2014 for hybrid appliances, it shall be verified that the gas utilization efficiency for all appliances, except hybrid appliances, shall be:

- $GUE_{hNCV} > 1.15$  (A7W35) for air sourced appliances