# GAASITOITEL ABSORPTSIOONSEADMED KÜTTEKS JA/VÕI JAHUTUSEKS KUNI 70 KW KASULIKU SOOJUSKOORMUSEGA. OSA 3: NÕUDED, KATSETINGIMUSED JA -MEETODID

# Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW - Part 3: Requirements, test conditions and test methods

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

| | |
|---|---|
| See Eesti standard EVS-EN 12309-3:2024 sisaldab Euroopa standardi EN 12309-3:2024 ingliskeelset teksti. | This Estonian standard EVS-EN 12309-3:2024 consists of the English text of the European standard EN 12309-3:2024. |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. |
| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 15.05.2024. | Date of Availability of the European standard is 15.05.2024. |
| Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest. | The standard is available from the Estonian Centre for Standardisation and Accreditation. |



Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 27.080, 91.140.30

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 12309-3

May 2024

ICS 27.080; 91.140.30

Supersedes EN 12309-3:2014, EN 12309-4:2014, EN 12309-5:2014

English Version

# Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW - Part 3: Requirements, test conditions and test methods

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 3 : Exigences, conditions d'essai et méthodes d'essai

Gasbefeuerte Sorptions-Geräte für Heizung und/oder Kühlung mit einer Nennwärmebelastung nicht über 70 kW - Teil 3: Anforderungen und Prüfbedingungen

This European Standard was approved by CEN on 8 April 2024.

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, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**



Ref. No. EN 12309-3:2024 E

# Contents

Page

## European foreword

This document (EN 12309-3:2024) 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 2024, and conflicting national standards shall be withdrawn at the latest by November 2024.

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

This document supersedes EN 12309-3:2014, EN 12309-4:2014 and EN 12309-5:2014.

In comparison with the previous edition, the following technical modifications have been made:

— the content of previous standards EN 12309-3:2014, EN 12309-4:2014 and EN 12309-5:2014 has been merged;

— nomenclature has been updated to be aligned with Commission Regulation (EU) No 813/2013 of 2 August 2013, Commission Delegated Regulation (EU) No 811/2013 of 18 February 2013, Commission Regulation (EU) No 2016/2281 of 30 November 2016;

— test conditions have been rationalized;

— $c_{pump}$ definition and application has been better detailed;

— test methods have been simplified;

— permissible deviations have been revised;

— informative Annex F (Measurement control criteria for water(brine) to water(brine) appliances) has been deleted.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, ZB or ZC, which is an integral part of this document.

This standard comprises parts under the general title, Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW. A list of all parts in a series can be found on the CEN website.

These documents will be reviewed whenever new mandates could apply.

Any feedback and questions on this document should be directed to the users’ national standards body.

A complete listing of these bodies can be found on the CEN website. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

# 1 Scope

## 1.1 Scope of EN 12309 series

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

— gas-fired sorption chiller;

— gas-fired sorption chiller/heater;

— gas-fired sorption heat pump;

— hybrids based on gas sorption appliances.

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

This document applies to appliances having flue gas systems of Type B and Type C (according to EN 1749:2020) and to appliances designed for outdoor installations, including Type A.

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 12309-1:2023).

In the case of packaged units (consisting of several parts), this document 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 are to be used regardless of the language used.

## 1.2 Scope of this Part 3 of EN 12309

This part of EN 12309 specifies the requirements, test methods and conditions 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 test protocols and tools to calculate the capacity, the gas utilization efficiency and the electrical power input of the appliance. This data can be used in particular to calculate the seasonal efficiency of the appliance.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 437:2021, *Test gases — Test pressures — Appliance categories*

EN 1749:2020, *Classification of gas appliances according to the method of supplying combustion air and of evacuation of the combustion products (types)*

EN 12102-1:2022, *Air conditioners, liquid chilling packages, heat pumps, process chillers and dehumidifiers with electrically driven compressors — Determination of the sound power level — Part 1: Air conditioners, liquid chilling packages, heat pumps for space heating and cooling, dehumidifiers and process chillers*

EN 12309-1:2023, *Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW — Part 1: Terms and definitions*

EN 12309-2:2015, *Gas-fired sorption appliances for heating and/or cooling with a net heat input not exceeding 70 kW — Part 2: Safety*

FprEN 12309-6:2023,[1] *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 12309-1:2023 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp/

— IEC Electropedia: available at https://www.electropedia.org/

## 4 Classification

### 4.1 Classification of gases

Gases are classified into three families, divided into groups according to the value of the Wobbe index. Families and groups of gas used in this document are in accordance with those of the EN 437:2021.

### 4.2 Classification of appliances

#### 4.2.1 Classification according to the mode of air supply and evacuation of the combustion products

The types of appliances as defined in EN 1749:2020 apply.

[1] Currently in preparation.