

<b>STN</b>	<b>Endotermické tepelné čerpadlá spaľujúce plyn</b> <b>Časť 3: Skúšobné podmienky</b>	<b>STN</b> <b>EN 16905-3</b>  06 1515
------------	--	--

Gas-fired endothermic engine-driven heat pumps - Part 3: Test conditions

Táto norma obsahuje anglickú verziu európskej normy.

This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 04/25

Obsahuje: EN 16905-3:2024

Oznámením tejto normy sa ruší

STN EN 16905-3 (06 1515) z júla 2017

**140367**

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2025

Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii v znení neskorších predpisov.

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 16905-3**

December 2024

ICS 27.080

Supersedes EN 16905-3:2017

English Version

**Gas-fired endothermic engine-driven heat pumps - Part 3:  
Test conditions**

Pompes à chaleur à moteur endothermique alimenté  
au gaz - Partie 3 : Conditions d'essai

Gasbefeuerte endothermische Motor-Wärmepumpen -  
Teil 3: Prüfbedingungen

This European Standard was approved by CEN on 18 November 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**

**EN 16905-3:2024 (E)**

<b>Contents</b>	<b>Page</b>
<b>European foreword .....</b>	<b>3</b>
<b>Introduction .....</b>	<b>4</b>
<b>1 Scope.....</b>	<b>5</b>
<b>1.1 Scope of EN 16905 series .....</b>	<b>5</b>
<b>1.2 Scope of EN 16905-3 .....</b>	<b>5</b>
<b>2 Normative references.....</b>	<b>6</b>
<b>3 Terms and definitions .....</b>	<b>6</b>
<b>4 Test conditions .....</b>	<b>6</b>
<b>4.1 Environmental conditions and electrical power supply requirements.....</b>	<b>6</b>
<b>4.2 Rating conditions in cooling and in heating.....</b>	<b>7</b>
<b>4.3 Rating conditions for engine heat recovery.....</b>	<b>16</b>
<b>Bibliography .....</b>	<b>17</b>

## European foreword

This document (EN 16905-3:2024) 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 June 2025, and conflicting national standards shall be withdrawn at the latest by June 2025.

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 16905-3:2017.

EN 16905-3:2024 includes the following significant technical changes with respect to EN 16905-3:2017:

- Tables 6; 8; 9; 10; 12; 13; 14: addition of test performed with fixed flow rate and variable flow rate;
- Tables 8; 9; 10; 12; 13; 14: modification of the term indicating temperature applications in heating;
- Table 6: addition of a new test conditions in case of brine = 10°C and brine = –5°C.

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.

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.

**EN 16905-3:2024 (E)****Introduction**

The GEHP appliances having their condenser cooled by air and by the evaporation of external additional water are not covered by this document.

Single split and multi-split systems are covered by this document.

The GEHP appliances can have one or more primary or secondary functions.

This document specifies the requirements, test methods and test conditions concerning, in particular, the construction, safety, fitness for purpose, and rational use of energy, for the rating and performance calculation of air conditioners and heat pumps using either air, water or brine as heat transfer media, with gas-fired endothermic engine driven compressors when used for space heating, cooling and refrigeration, hereafter referred to as “GEHP appliance”.

EN 16905 series comprises the following parts under the general title, Gas-fired endothermic engine driven heat pumps:

- Part 1: Terms and definitions;
- Part 2: Safety;
- Part 3: Tests conditions;
- Part 4: Tests methods;
- Part 5: Calculation of seasonal performances in heating and cooling mode.

This document has been prepared to address the test conditions.

EN 16905-1:2023, EN 16905-2:—<sup>1</sup>, EN 16905-4:—<sup>2</sup> 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/535; (see EN 16905-4:—<sup>2</sup>, Annex ZA and EN 16905-2:—<sup>1</sup> Annexes ZB and ZC).

These documents will be reviewed whenever new mandates could apply.

---

<sup>1</sup> To be published. Stage at the time of publication: FprEN 16905-2:2023.

<sup>2</sup> To be published. Stage at the time of publication: FprEN 16905-4:2023.

## 1 Scope

### 1.1 Scope of EN 16905 series

This series specifies the requirements, test methods and test conditions for the rating and performance calculation of gas-fired endothermic engine driven heat pumps for heating and/or cooling mode including the engine heat recovery, to be used outdoor.

This series is used in conjunction with:

- a) the terms and definitions, EN 16905-1:2023;
- b) the safety, EN 16905-2:—<sup>1</sup>;
- c) the requirements, test conditions and test methods, EN 16905-4:—<sup>2</sup>;
- d) the calculation of seasonal performances in heating and cooling mode, EN 16905-5:2022;
- e) the heat pump standards, EN 14511-2:2022, EN 14511-3:2022 and EN 14825:2022.

This series only applies to appliances with a maximum heat input (based on net calorific value) not exceeding 70 kW at standard rating conditions.

This series only applies to appliances under categories I<sub>2H</sub>, I<sub>2E</sub>, I<sub>2Er</sub>, I<sub>2R</sub>, I<sub>2E(S)B</sub>, I<sub>2L</sub>, I<sub>2LL</sub>, I<sub>2ELL</sub>, I<sub>2E(R)B</sub>, I<sub>2ESi</sub>, I<sub>2E(R)</sub>, I<sub>3P</sub>, I<sub>3B</sub>, I<sub>3B/P</sub>, II<sub>2H3+</sub>, II<sub>2Er3+</sub>, II<sub>2H3B/P</sub>, II<sub>2L3B/P</sub>, II<sub>2E3B/P</sub>, II<sub>2ELL3B/P</sub>, II<sub>2L3P</sub>, II<sub>2H3P</sub>, II<sub>2E3P</sub> and II<sub>2Er3P</sub> according to EN 437:2021.

This series only applies to appliances having:

- a) gas-fired endothermic engines under the control of fully automatic control systems;
- b) closed-system refrigerant circuits in which the refrigerant does not come into direct contact with the fluid to be cooled or heated;
- c) where the temperature of the heat transfer fluid of the heating system (heating water circuit) does not exceed 105 °C during normal operation;
- d) where the maximum operating pressure in the
  - 1) heating water circuit (if installed) does not exceed 6 bar;
  - 2) domestic hot water circuit (if installed) does not exceed 10 bar.

This series applies to appliances only when used for space heating or space cooling or for refrigeration, with or without heat recovery.

This series is applicable to appliances that are intended to be type tested. Requirements for appliances that are not type tested would need to be subject to further consideration.

### 1.2 Scope of EN 16905-3

This part of the EN 16905 series specifies the test conditions for the rating of energy parameters of gas-fired endothermic engine driven heat pumps for heating and/or cooling mode including the engine heat recovery.

**EN 16905-3:2024 (E)****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 16905-1, *Gas-fired endothermic engine driven heat pumps — Part 1: Terms and definitions*

EN 16905-4:—,<sup>3</sup> *Gas-fired endothermic engine driven heat pumps — Part 4: Test methods*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**

---

<sup>3</sup> To be published. Stage at the time of publication: FprEN 16905-4:2023.