Heat pumps with electrically driven compressors - Testing and requirements for marking of domestic hot water units

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NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 16147:2011 sisaldab Euroopa standardi EN 16147:2011 ingliskeelset teksti.	This Estonian standard EVS-EN 16147:2011 consists of the English text of the European standard EN 16147:2011.
Standard on kinnitatud Eesti Standardikeskuse 28.02.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 28.02.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 26.01.2011.	Date of Availability of the European standard text 26.01.2011.
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ICS 27.080, 27.200

EUROPEAN STANDARD

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EUROPÄISCHE NORM

EN 16147

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ICS 27.080; 27.200

Supersedes EN 255-3:1997

English Version

Heat pumps with electrically driven compressors - Testing and requirements for marking of domestic hot water units

Pompes à chaleur avec compresseur entrainé par moteur électrique - Essais et exigences pour le marquage des appareils pour eau chaude sanitaire

Wärmepumpen mit elektrisch angetriebenen Verdichtern - Prüfungen und Anforderungen an die Kennzeichnung von Geräten zum Erwärmen von Brauchwarmwasser

This European Standard was approved by CEN on 3 December 2010.

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Foreword

This document (EN 16147:2011) has been prepared by Technical Committee CEN/TC 113 “Heat pumps and air conditioning units”, the secretariat of which is held by AENOR.

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of an identical text or by endorsement, at the latest by July 2011, and conflicting national standards shall be withdrawn at the latest by July 2011.

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 255-3:1997.

This European Standard has been prepared under a mandate M/324 given to CEN by the European Commission and the European Free Trade Association.

This document has been prepared by the working group CEN/TC 113/WG 10 "Heat pumps and air conditioners".

This standard was submitted to enquiry under the reference prEN 255-3 which has been changed before Formal Vote to FprEN 16147.

This European Standard references the document TREN D1 D(2002) M/324 for information on “Water-Heaters, Hot Water Storage Appliances and Water Heating Systems”.

Testing procedures for simultaneous operation for domestic hot water production and space heating are not treated in this standard. In this standard the basis of the measurements are the daily EU-Reference-Tapping-Cycles defined in the mandate M/324. Presently there is no standard fixed for daily cycles for the space heating mode.

The following technical and general modifications have been introduced during the revision:

- The new COP_{DHW} is smaller than the former COP_t of EN 255-3, since heat losses of the hot water storage tank are not considered in the calculation of the COP_{DHW}, whereas the former standard EN 255-3 accounted these losses.

- In EN 16147, five different daily tapping profiles (S, M, L, XL, and XXL) for different storage tank sizes can be selected in order to determine the coefficient of performance.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This European Standard specifies methods for testing and reporting of the rating and it specifies requirements for marking of air/water, brine/water, water/water and direct exchange/water heat pumps with electrically driven compressors connected to or including a domestic hot water storage tank. When these units are used for space heating, then EN 14511 (all parts) applies.

In case of air-to-water heat pumps, this European Standard comprises only factory-made units which can be ducted on the airside.

This European Standard comprises only the testing procedure for the domestic hot water production of the heat pump system.

NOTE Testing procedures for simultaneous operation for domestic hot water production and space heating are not treated in this standard. Simultaneous means that domestic hot water production and space heating generation occur at the same time and may interact.

In the case of units consisting of several parts, the standard applies only to those designed and supplied as a complete package.

This European Standard does not include any requirement about the quality of water.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including amendments) applies.

EN 14511-1:2007, *Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling — Part 1: Terms and definitions*

EN 14511-2, *Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling — Part 2: Test conditions*

EN 14511-3, *Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling — Part 3: Test methods*

EN 14511-4, *Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling — Part 4: Requirements*

EN 60204-1, *Safety of machinery — Electrical equipment of machines — Part 1: General requirements (IEC 60204-1:2005, modified)*

EN 60335-2-40, *Household and similar electrical appliances — Safety — Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers (IEC 60335-2-40:2002, modified)*

EN 61000-3-11, *Electromagnetic compatibility (EMC) — Part 3-11: Limits — Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems — Equipment with rated current ≤ 75 A and subject to conditional connection (IEC 61000-3-11:2000)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 14511-1:2007 and the following apply.

3.1
heat pump for heating domestic water
heat pump as defined in EN 14511-1 connected to or including a domestic hot water storage tank