SLOVENSKI STANDARD
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Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors - Heating mode - Part 1: Terms, definitions and designations

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Luftkonditionierer, Flüssigkeitskühlsätze und Wärmepumpen mit elektrisch angetriebenen Verdichtern - Heizen - Teil 1: Benennungen, Definitionen und Bezeichnungen

Climatiseurs, groupes refroidisseurs de liquide et pompes a chaleur avec compresseur entraîné par moteur électrique - Mode chauffage - Partie 1: Termes, définitions et désignations

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01.040.27	Prenos energije in toplote (Slovarji)	Energy and heat transfer engineering (Vocabularies)
23.120	Zračniki. Vetrniki. Klimatske naprave	Ventilators. Fans. Air-conditioners
27.080	Toplotne črpalke	Heat pumps
91.140.65	Oprema za ogrevanje vode	Water heating equipment

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EUROPEAN STANDARD

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EN 255-1

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English version

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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.

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CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Contents

Foreword

This European Standard has been prepared by Technical Committee by CEN/TC 113 "Heat pumps and air conditioners", the secretariat of which is held by AENOR.

This European Standard supersedes EN 255-1:1988.

This standard consists of the following parts:

EN 255-1: Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors - Heating mode - Part 1: Terms, definitions and designations

EN 255-2: Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors - Heating mode - Part 2: Testing and requirements for marking for space heating units

EN 255-3: Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors - Heating mode - Part 3: Testing and requirements for marking for sanitary hot water units

EN 255-4: Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors - Heating mode - Part 4: Requirements for space heating and sanitary hot water units

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 August 1997, and conflicting national standards shall be withdrawn at the latest by August 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This Part of EN 255 specifies the terms and definitions for the rating and performance of air and water cooled air conditioners, liquid chilling packages, air/air, water/air, air/water and water/water heat pumps with electrically driven compressors as well as the properties of the units when used in heating mode. When these units are used for space cooling, then EN 814-1 applies; when these units are used for liquid cooling and heat recovery, then prEN 12055 applies. This standard does not specifically apply to heat pumps for sanitary hot water, although certain definitions can be applied to these.

This standard applies to factory-made units which can be ducted.

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

Units having two or more indoor sections connected to a single outdoor unit (multiple split system air conditioners or heat pumps) are excluded from this standard.

This standard does not apply to continuously variable capacity control units.

Installations used in industrial processes are not within the scope of this standard.

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

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 814-1 Air conditioners and heat pumps with electrically driven compressors - Cooling mode - Part 1: Terms, definitions and designations

prEN 12055 Liquid chilling packages and heat pumps with electrically driven compressors - Cooling mode - Definitions, testing and requirements

3 Definitions

3.1 heat pump: Unit which takes up heat at a certain temperature and releases heat at a higher temperature.

NOTE: When operated to provide heat (e.g. for space heating or water heating), the heat pump is said to operate in the heating mode, when operated to remove heat (e.g. for space cooling), it is said to operate in the cooling mode.

3.2 heat recovery: The use of the available heat from a unit whose primary control remains in the cooling mode, by means of an additional heat exchanger.

3.3 indoor heat exchanger: Heat exchanger which is designed to transfer heat to the indoor part of the building or to the indoor hot water supplies (e.g. sanitary water) or to remove heat from these.

NOTE: In the case of an air conditioner operating in the cooling mode, this can be the evaporator, see EN 814-1.

3.4 outdoor heat exchanger: Heat exchanger which is designed to remove heat from the outdoor ambient environmment, or any other available heat source, or to transfer heat to it.

NOTE: In the case of an air conditioner operating in the cooling mode, this can be the condenser, see EN 814-1.

3.5 heating energy (Q_H): Usable heat given off in the heating mode from the unit to the heat transfer medium (see 3.14) within a defined interval of time.

NOTE: If heat is removed from the indoor heat exchanger for defrosting, it is taken into account as appropriate.

3.6 heating capacity (P_H): Heating energy divided by the defined interval of time.

3.7 effective power input (P_E): Average electrical power input of the unit within the defined interval of time obtained from:

- the power input for operation of the compressor and any power input for defrosting;

- the power input for all control and safety devices of the unit and;

- the proportional power input of the conveying devices (e.g. fans, pumps) for ensuring the transport of the heat transfer media (see 3.14) inside the unit.

3.8 total power input (P_T): Power input of all components of the unit as delivered.

3.9 coefficient of performance (*COP*): Ratio of the heating capacity to the effective power input of the unit.

3.10 operating range: Range indicated by the manufacturer and limited by the upper and lower limits of use (e.g. temperatures, air humidity, voltage) within which the unit is deemed to be fit for use and has the published properties.

3.11 defrost state: State of the unit in the heating mode where the operation is modified or reversed to defrost the outdoor heat exchanger.

3.12 defrost time (t_D): Time for which the unit is in the defrost state.

3.13 operating cycle with defrost: Compressor running time between two defrosting processes plus defrost time.

3.14 heat transfer medium: Liquid or gas (usually water or air) by means of which heat is transferred to or from the unit.

3.15 rated conditions: Standardized conditions provided for the determination of data which are characteristic for the unit, especially heating capacity, power input, *COP*.

3.16 sound power level (L_W): Ten times the logarithm to the base 10 of the ratio of the given sound power to the reference sound power expressed in decibels. The reference sound power is 1 pW (10^{-12} W).

4 Designations and denomination

4.1 Designation of temperatures of heat transfer media

The designation relating to the temperatures of heat transfer media is formed in such a way that the heat transfer media are indicated together with their temperatures (in degrees Celsius), the values indicated in the first place referring to the outdoor heat exchanger and the values indicated in the second place to the indoor heat exchanger.

All air temperatures are inlet temperatures.

Water temperatures for the indoor heat exchanger are outlet temperatures. Water and brine temperatures for the outdoor heat exchanger are inlet temperatures.

A short designation is formed in such a way that a characteristic letter is used for the heat transfer medium: A for air, W for water and B for brine.

For example B0/W50 means an inlet temperature of brine for the outdoor heat exchanger of 0°C and an outlet temperature of water for the indoor heat exchanger of 50°C.

4.2 Denomination of units

The units are denominated in such a way that the heat transfer medium for the outdoor heat exchanger is indicated first, followed by the heat transfer medium for the indoor heat exchanger (see table 1).

Table 1: Most common types of heat pumps

Heat transfer medium		Denomination
outdoor heat exchanger	indoor heat exchanger	
Air	Air	Air/air heat pump or air conditioner
Water	Air	Water/air heat pump or air conditioner
Brine	Air	Brine/air heat pump
Air	Water	Air/water heat pump
Water	Water	Water/water heat pump
Brine	Water	Brine/water heat pump