

SLOVENSKI STANDARD

SIST EN 14511-1:2013

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Nadomešča:

SIST EN 14511-1:2012

Klimatske naprave, enote za tekočinsko hlajenje in toplotne črpalke z električnimi kompresorji za segrevanje in hlajenje prostora - 1. del: Izrazi, definicije in klasifikacija

Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling - Part 1: Terms, definitions and classification

iTeh STANDARD PREVIEW

Luftkonditionierer, Flüssigkeitskühlsätze und Wärmepumpen mit elektrisch angetriebenen Verdichtern für die Raumbehheizung und -kühlung - Teil 1: Begriffe

SIST EN 14511-1:2013

Climatiseurs, groupes refroidisseurs de liquide et pompes à chaleur avec compresseur entraîné par moteur électrique pour le chauffage et la réfrigération des locaux - Partie 1: Termes, définitions et classification

Ta slovenski standard je istoveten z: EN 14511-1:2013

ICS:

01.040.23	Tekočinski sistemi in sestavni deli za splošno rabo (Slovarji)	Fluid systems and components for general use (Vocabularies)
23.120	Zračniki. Vetrniki. Klimatske naprave	Ventilators. Fans. Air-conditioners
27.080	Toplotne črpalke	Heat pumps
91.140.30	Prezračevalni in klimatski sistemi	Ventilation and air-conditioning

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 14511-1

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English Version

Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling - Part 1: Terms, definitions and classification

Climatiseurs, groupes refroidisseurs de liquide et pompes à chaleur avec compresseur entraîné par moteur électrique pour le chauffage et la réfrigération des locaux - Partie 1: Termes, définitions et classification

Luftkonditionierer, Flüssigkeitskühlsätze und Wärmepumpen mit elektrisch angetriebenen Verdichtern für die Raumbeheizung und -kühlung - Teil 1: Begriffe

This European Standard was approved by CEN on 30 May 2013.

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.



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

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Foreword

This document (EN 14511-1:2013) 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 March 2014 and conflicting national standards shall be withdrawn at the latest by March 2014.

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 14511-1:2011.

The main change with respect to the previous edition is the addition of terms and definitions.

Although this document has been prepared in the frame of the commission regulation (EU) No 206/2012 implementing Directive 2009/125/EC with regard to ecodesign requirements for air conditioners and comfort fans, it is also intended to support the essential requirements of the European Directive 2010/30/CE.

EN 14511 comprises the following parts under the general title *Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling*:

- *Part 1: Terms, definitions and classification,*
- *Part 2: Test conditions,*
- *Part 3: Test methods,*
- *Part 4: Operating requirements, marking and instructions.*

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, 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.

EN 14511-1:2013 (E)**1 Scope**

This European Standard specifies the terms and definitions for the rating and performance of air conditioners, liquid chilling packages and heat pumps using either, air, water or brine as heat transfer media, with electrically driven compressors when used for space heating and/or cooling. This European Standard does not apply to heat pumps for domestic hot water, although certain definitions can be applied to these.

This European Standard applies to:

- factory-made units that can be ducted,
- factory-made liquid chilling packages with integral condensers or for use with remote condensers,
- factory-made units of either fixed capacity or variable capacity by any means, and
- air-to-air air conditioners which can also evaporate the condensate on the condenser side.

Packaged units, single split and multisplit systems are covered by this standard. Single duct and double duct units are covered by the standard.

In the case of units consisting of several parts, this European Standard applies only to those designed and supplied as a complete package, except for liquid chilling packages with remote condenser.

This European Standard is primarily intended for water and brine chilling packages but can be used for other liquid subject to agreement.

The units having their condenser cooled by air and by the evaporation of external additional water should have their performance in the cooling mode determined in accordance to EN 15218. For those which can also operate in the heating mode, EN 14511 applies for the determination of their performance in the heating mode.

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

NOTE 1 Part load testing of units is dealt with in EN 14825.

NOTE 2 All the symbols given in this text are used regardless of the language used.

2 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

2.1
air conditioner
a device capable of cooling or heating, or both, indoor air, using a vapour compression cycle driven by an electric compressor, including air conditioners that provide additional functionalities such as dehumidification, air purification, ventilation or supplemental air heating by means of electric resistance heating, as well as appliances that may use water (either condensate water that is formed on the evaporator side or externally added water) for evaporation on the condenser, provided that the device is also able to function without the use of additional water, using air only

Note 1 to entry: Appliances using additional external water are rated according to EN 15218.

2.2
heat pump
encased assembly or assemblies designed as a unit, using a vapour compression cycle driven by an electric compressor, to provide delivery of heat

Note 1 to entry: It can have means for cooling, circulating, cleaning and dehumidifying the air. The cooling is by means of reversing the refrigerating cycle.

Note 2 to entry: Also known as a reverse cycle air conditioner, when cooling and heating air.

2.3

comfort air conditioner or heat pump

air conditioner or heat pump to satisfy the comfort requirements of the occupants of the air conditioned room

2.4

close control air conditioner

air conditioner to satisfy the requirements of the process carried out in the air conditioned room

2.5

control cabinet air conditioner

air conditioner to satisfy the requirements of the control cabinet

2.6

packaged unit

factory assembly of components of refrigeration system fixed on a common mounting to form a discrete unit

2.7

single split unit

factory assembly of components of refrigeration system fixed on two mountings to form a discrete matched functional unit

2.8

single-duct air conditioner

air conditioner in which, during cooling or heating, the condenser (or evaporator) intake air is introduced from the space containing the unit and discharged outside this space

2.9

double-duct air conditioner

air conditioner in which, during cooling or heating, the condenser (or evaporator) intake air is introduced from the outdoor environment to the unit by a duct and rejected to the outdoor environment by a second duct, and which is placed wholly inside the space to be conditioned, near a wall

2.10

liquid chilling package

factory-made unit designed to cool liquid, using an evaporator, a refrigerant compressor, an integral or remote condenser and appropriate controls

Note 1 to entry: It may have means for heating which can be reversing the refrigerating cycle, such as a heat pump.

2.11

heat recovery liquid chilling package

factory-made liquid chilling package designed for the purpose of chilling liquid and recovering of heat

2.12

heat recovery

recovery of heat rejected by the unit whose primary control is in the cooling mode by means of either an additional heat exchanger (e.g. a liquid chiller with an additional condenser) or by transferring the heat through the refrigerating system for use to unit whose primary control remains in the heating mode (e.g. variable refrigerant flow)

EN 14511-1:2013 (E)**2.13****indoor heat exchanger**

heat exchanger which is designed to transfer heat between the refrigerant and the indoor heat transfer medium

Note 1 to entry: In the case of an air conditioner or heat pump operating in the cooling mode, this is the evaporator. In the case of an air conditioner or heat pump operating in the heating mode, this is the condenser.

2.14**outdoor heat exchanger**

heat exchanger which is designed to transfer heat between any available heat source and the refrigerant

Note 1 to entry: In the case of an air conditioner or heat pump operating in the cooling mode, this is the condenser. In the case of an air conditioner or heat pump operating in the heating mode, this is the evaporator.

2.15**heat recovery heat exchanger**

heat exchanger assembly which is designed to transfer heat to the heat recovery medium

2.16**heat transfer medium**

medium (water, air...) used for the transfer of the heat without change of state

EXAMPLES Cooled liquid circulating in the evaporator; cooling medium circulating in the condenser; heat recovery medium circulating in the heat recovery heat exchanger.

2.17**exhaust air**

air from the air conditioned space entering the outdoor heat exchanger

2.18**recycled air**

air from the air conditioned space entering the indoor heat exchanger

2.19**outdoor air**

air from the outdoor environment

2.20**water loop**

closed circuit of water maintained within a temperature range on which the units in cooling mode reject heat and the units in heating mode take heat

2.21**total cooling capacity**

$$P_C$$

heat given off from the heat transfer medium to the unit per unit of time, expressed in Watt

2.22**latent cooling capacity**

$$P_L$$

capacity of the unit for removing latent heat from the evaporator intake air, expressed in Watt

2.23**sensible cooling capacity**

$$P_S$$

capacity of the unit for removing sensible heat from the evaporator intake air, expressed in Watt

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2.24 heating capacity

P_H

heat given off by the unit to the heat transfer medium per unit of time, expressed in Watt

Note 1 to entry: If heat is removed from the indoor heat exchanger for defrosting, it is taken into account.

2.25 heat rejection capacity

heat removed by the heat transfer medium of the condenser per unit of time, expressed in Watt

Note 1 to entry: This applies only to heat recovery liquid chilling packages.

2.26 heat recovery capacity

heat removed by the heat transfer medium of the heat recovery heat exchanger, per unit of time, expressed in Watt

Note 1 to entry: This applies only to heat recovery liquid chilling packages.

2.27 total power input

P_T

power input of all components of the unit, expressed in Watt

2.28 effective power input

P_E

average electrical power input of the unit within the defined interval of time, expressed in Watt, obtained from:

- power input for operation of the compressor and any power input for defrosting;
- power input for all control and safety devices of the unit;
- proportional power input of the conveying devices (e.g. fans, pumps) for ensuring the transport of the heat transfer media inside the unit

2.29 energy efficiency ratio

EER

ratio of the total cooling capacity to the effective power input of the unit, expressed in Watt/Watt

2.30 rated energy efficiency ratio

EER_{rated}

declared capacity for cooling [kW] divided by the rated power input for cooling [kW] of a unit when providing cooling at standard rating conditions

2.31 sensible heat ratio

SHR

ratio of the sensible cooling capacity to the total cooling capacity, expressed in Watt/Watt

2.32 coefficient of performance

COP

ratio of the heating capacity to the effective power input of the unit, expressed in Watt/Watt