



SLOVENSKI STANDARD
oSIST prEN 14511-1:2009
01-november-2009

?

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

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

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 et définitions

Ta slovenski standard je istoveten z: prEN 14511-1

ICS:

- 01.040.23 Fluid systems and components for general use (Vocabularies)
- 23.120 Ventilators. Fans. Air-conditioners
- 27.080 Heat pumps
- 91.140.30 Ventilation and air-conditioning

oSIST prEN 14511-1:2009 en,fr

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 14511-1

September 2009

ICS 01.040.91; 91.140.30

Will supersede EN 14511-1:2007

English Version

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

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 et définitions

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

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 113.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, 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 United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents		Page
1	Scope	4
2	Terms and definitions	4
3	Classification.....	10
	Index.....	11
	Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EC Directive 2002/31/EC	12
	Bibliography.....	13

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 14511-1:2012](https://standards.iteh.ai/catalog/standards/sist/843fc83f-8ddb-4b1a-bb56-41101f3a1ae9/sist-en-14511-1-2012)
<https://standards.iteh.ai/catalog/standards/sist/843fc83f-8ddb-4b1a-bb56-41101f3a1ae9/sist-en-14511-1-2012>

Foreword

This document (prEN 14511-1:2009) has been prepared by Technical Committee CEN/TC 113, "Heat pumps and air conditioning units", the secretariat of which is held by AENOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14511-1:2007.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 2002/31/EC.

For relationship with EU Directive 2002/31/EC, see informative Annex ZA, which is an integral part of this document.

The revised standard takes into account double duct units and multisplit systems.

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 and definitions,
- Part 2: Test conditions,
- Part 3: Test methods,
- Part 4: Requirements.

ITV STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 14511-1:2012](https://standards.iteh.ai/catalog/standards/sist/843fc83f-8ddb-4b1a-bb56-41101f3a1ae9/sist-en-14511-1-2012)

<https://standards.iteh.ai/catalog/standards/sist/843fc83f-8ddb-4b1a-bb56-41101f3a1ae9/sist-en-14511-1-2012>

prEN 14511-1:2009 (E)**1 Scope**

This part of EN 14511 specifies the terms and definitions for the rating and performance of air and water cooled air conditioners, liquid chilling packages, air-to-air, water-to-air, air-to-water and water-to-water heat pumps with electrically driven compressors when used for space heating and/or cooling. This European Standard does not specifically apply to heat pumps for sanitary 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 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 document applies only to those designed and supplied as a complete package, except for liquid chilling packages with remote condenser.

This document 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 are not covered by this standard, but by EN 15218 related to evaporatively-cooled condenser units.

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 CEN/TS 14825.1-2012

NOTE 2 All the symbols given in this text should be 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**
encased assembly or assemblies designed as a unit to provide delivery of conditioned air to an enclosed space (room for instance) or zone

NOTE 1 It includes an electrically operated refrigeration system for cooling and possibly dehumidifying the air.

NOTE 2 It can have means for heating, circulating, cleaning and humidifying the air. If the unit provides heating by reversing the refrigerating cycle then it is a heat pump.

**2.2
heat pump**
encased assembly or assemblies designed as a unit to provide delivery of heat

NOTE 1 It includes an electrically operated refrigeration system for heating.

NOTE 2 It can have means for cooling, circulating, cleaning and dehumidifying the air. The cooling is by means of reversing the refrigerating cycle.

2.3

comfort air conditioner or heat pump

air conditioner or heat pump to satisfy the 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 for spot cooling in which the condenser intake air is introduced from the space containing the unit and discharged outside this space

2.9

single-duct heat pump

heat pump for spot cooling and heating in which the condenser / evaporator in cooling / heating mode uses air introduced from the space containing the unit and discharged outside this space

2.10

double-duct air conditioner

air conditioner placed in the conditioned space near a wall, in which the condenser intake air is introduced from the outdoor environment by a small duct and the condenser discharge air is rejected to the outdoor environment by a second small duct

2.11

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 It may have means for heating which can be reversing the refrigerating cycle, like a heat pump.

2.12

heat recovery liquid chilling package

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

2.13

heat recovery

recovery of heat rejected by the unit(s) 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(s) whose primary control remains in the heating mode (e.g. variable refrigerant flow)

prEN 14511-1:2009 (E)**2.14****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 or to remove heat from these

NOTE 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.

2.15**outdoor heat exchanger**

heat exchanger which is designed to remove heat from the outdoor ambient environment, or any other available heat source, or to transfer heat to it

NOTE 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 heat pump operating in the heating mode, this is the evaporator.

2.16**heat recovery heat exchanger**

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

2.17**heat transfer medium**

any 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.

2.18**outside air**

air from the outdoor environment entering the outdoor heat exchanger

2.19**exhaust air**

air from the air conditioned space entering the outdoor heat exchanger

2.20**recycled air**

air from the air conditioned space entering the indoor heat exchanger

2.21**outdoor air**

air from the outdoor environment entering the indoor heat exchanger

2.22**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

2.23**total cooling capacity**

P_C

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

2.24**latent cooling capacity**

P_L

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

2.25**sensible cooling capacity** P_s

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

2.26**heating capacity** P_H

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

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

2.27**heat rejection capacity**

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

NOTE This applies only to heat recovery liquid chilling packages.

2.28**heat recovery capacity**

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

NOTE This applies only to heat recovery liquid chilling packages.

2.29**total power input** P_T

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

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

2.31**energy efficiency ratio** EER

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

2.32**sensible heat ratio** SHR

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

2.33**coefficient of performance** COP

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

prEN 14511-1:2009 (E)

2.34**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 characteristics published by the manufacturer

2.35**rating conditions**

standardised conditions provided for the determination of data which are characteristic for the unit, especially:

- heating capacity, power input, *COP* in heating mode ;
- cooling capacity, power input, *EER*, *SHR* in cooling mode

2.36**defrost mode**

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

2.37**defrost period**

time for which the unit is in the defrost mode

2.38**operating cycle with defrost**

cycle consisting of a heating period and a defrost period, from defrost termination to defrost termination

2.39**temperature of saturated vapour at the discharge of the compressor**

temperature of saturated vapour/bubble point of the refrigerant corresponding to the discharge pressure of the compressor, measured at the compressor/piping connection

2.40**temperature of the liquid refrigerant**

temperature of the refrigerant measured at the inlet of the expansion device

2.41**glide**

difference between dew point temperature and bubble point temperature at a given pressure

2.42**brine**

heat transfer medium that has a freezing point depressed relative to water

2.43**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)

2.44**standard rating condition**

mandatory condition that is used for marking and for comparison or certification purposes

2.45**application rating condition**

rating condition which is mandatory if it falls within the operating range of the unit

NOTE Results based on application rating conditions are published by the manufacturer or supplier.