
Klimatske naprave, enote za tekočinsko hlajenje, toplotne črpalke in razvlaževalniki z električnimi kompresorji - Določanje ravni zvočne moči - 2. del: Toplotna črpalka za grelnike vode

Air conditioners, liquid chilling packages, heat pumps and dehumidifiers with electrically driven compressors - Determination of the sound power level - Part 2: Heat pump water heaters

Klimageräte, Flüssigkeitskühlsätze, Wärmepumpen und Entfeuchter mit elektrisch angetriebenen Verdichtern - Bestimmung des Schalleistungspegels - Teil 2: Wassererhitzer mit Wärmepumpen

Climatiseurs, groupes refroidisseurs de liquide, pompes à chaleur avec compresseur entraîné par moteur électrique - Détermination du niveau de puissance acoustique - Partie 2 : Chauffe-eau à pompe à chaleur

Ta slovenski standard je istoveten z: prEN 12102-2

ICS:

17.140.20	Emisija hrupa naprav in opreme	Noise emitted by machines and equipment
27.080	Toplotne črpalke	Heat pumps
91.140.65	Oprema za ogrevanje vode	Water heating equipment

oSIST prEN 12102-2:2016**en,fr,de**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 12102-2

September 2016

ICS 17.140.20; 91.140.65

English Version

**Air conditioners, liquid chilling packages, heat pumps and
dehumidifiers with electrically driven compressors -
Determination of the sound power level - Part 2: Heat
pump water heaters**

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und Entfeuchter mit elektrisch angetriebenen
Verdichtern - Bestimmung des Schalleistungspegels -
Teil 2: Wassererhitzer mit Wärmepumpen

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.

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prEN 12102-2:2016 (E)

European foreword

This document (prEN 12102-2:2016) 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 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(s).

For relationship with EU Directive(s), see informative Annex ZA and Annex ZB, which are integral parts of this document.

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1 Scope

This European Standard specifies methods for testing the sound power level for water heating energy efficiency of air/water, brine/water, water/water and direct exchange/water heat pump water heaters and heat pump combination heaters with electrically driven compressors and connected to or including a domestic hot water storage tank for domestic hot water production.

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

NOTE 1 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.

NOTE 2 For space heating functions, the requirements are given in prEN 12102-1:2015.

This European Standard only applies to water heaters which are supplied in a package of heat pump and storage tank. In the case of water heaters consisting of several parts with refrigerant connections, this European Standard applies only to those designed and supplied as a complete package.

This European Standard does not specify requirements of the quality of the used water.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

prEN 14511-1:2015, *Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers using electrically driven compressors — Part 1: Terms and definitions*

prEN 16147:2015, *Heat pumps with electrically driven compressors - Testing and requirements for marking of domestic hot water units*

EN ISO 3741:2010, *Determination of sound power levels and sound energy levels of noise sources using sound pressure - Precision methods for reverberation test rooms (ISO 3741:2010)*

EN ISO 3743-1, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for small movable sources in reverberant fields - Part 1: Comparison method for a hard-walled test room (ISO 3743-1)*

EN ISO 3744:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering methods for an essentially free field over a reflecting plane (ISO 3744:2010)*

EN ISO 3745:2012, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Precision methods for anechoic rooms and hemi-anechoic rooms (ISO 3745:2012)*

EN ISO 3747, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Engineering/survey methods for use in situ in a reverberant environment (ISO 3747)*

EN ISO 5801, *Industrial fans - Performance testing using standardized airways (ISO 5801)*

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EN ISO 9614-1, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 1: Measurement at discrete points (ISO 9614-1)*

EN ISO 9614-2, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 2: Measurement by scanning (ISO 9614-2)*

EN ISO 9614-3, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 3: Precision method for measurement by scanning (ISO 9614-3)*

3 Terms and definitions**3.1 General**

For the purposes of this document, the terms and definitions given in EN ISO 3741, EN ISO 3743-1, EN ISO 3744, EN ISO 3745, EN ISO 3747, EN ISO 9614 (all parts), EN 14511-1, EN 16147 and the following apply.

3.1.1

L_w
required value, sound power level, defined by:

$$L_w = 10 \lg \left(\frac{w}{w_0} \right) \quad (1)$$

where

w is the sound power ;

w_0 is the reference sound power = 1 pW (10^{-12} W).

Note 1 to entry: Expressed in dB. [ds.iteh.ai/catalog/standards/sist/a6ba0cbe-7947-4b3e-9850-30bb923d8de0/sist-en-12102-2-2019](https://standards.iteh.ai/catalog/standards/sist/a6ba0cbe-7947-4b3e-9850-30bb923d8de0/sist-en-12102-2-2019)

3.1.2

L_{WA}
overall A-weighted sound power level

Note 1 to entry: Expressed in dB(A).

3.2 Definitions of the sound power levels**3.2.1****indoor**

sound power level inside the room (house), where the unit with its water tank stands

3.2.2**outdoor**

sound power level outside the building (radiated by the unit or the duct(s) end)

3.2.3**inlet duct sound power level**

sound power level discharged into the duct at the unit inlet

3.2.4**outlet duct sound power level**

sound power level discharged into the duct at the unit outlet

4 Heat pump water heaters configurations

4.1 Descriptions

The common configurations of the heat-pump water heaters are described in the Figures 1 to 11, and numbered (A – H).

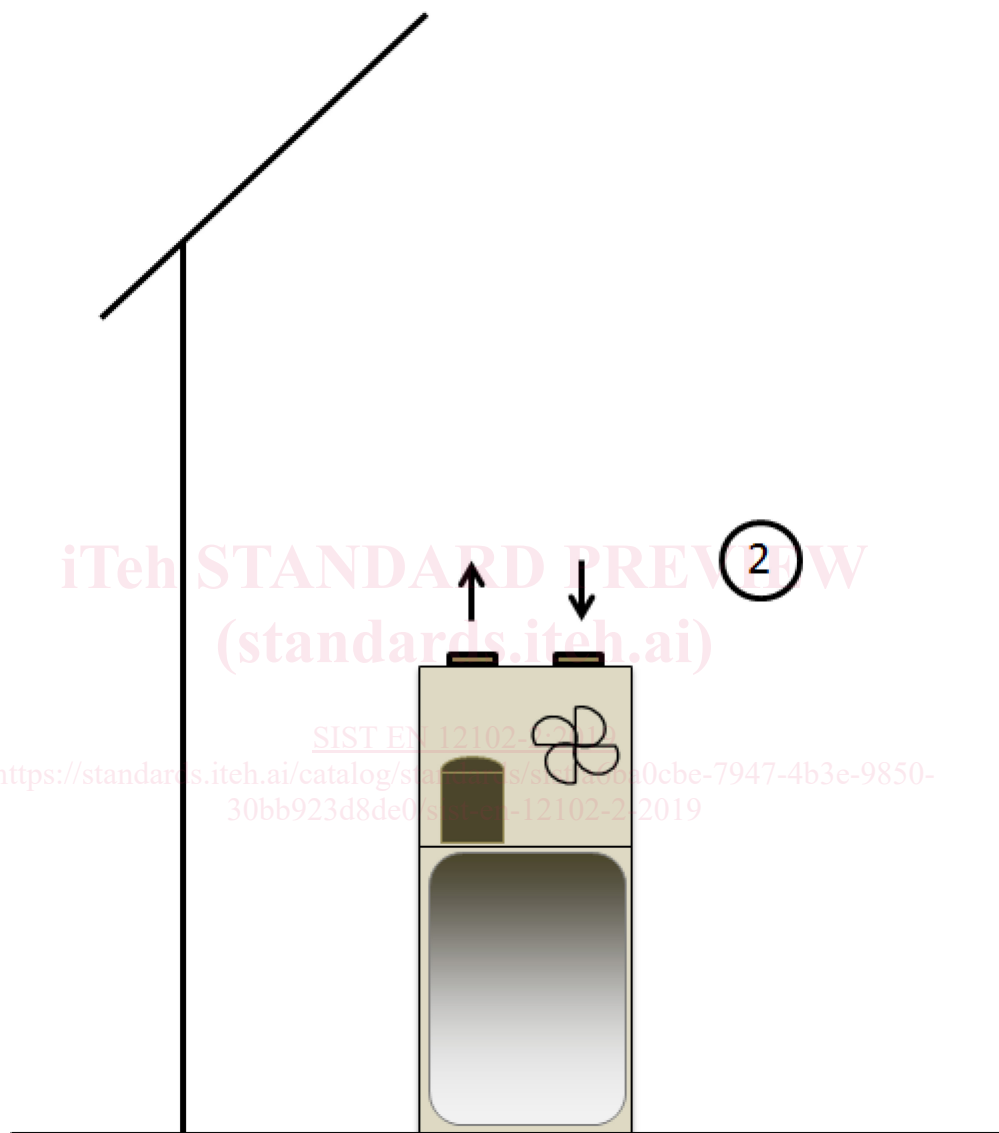
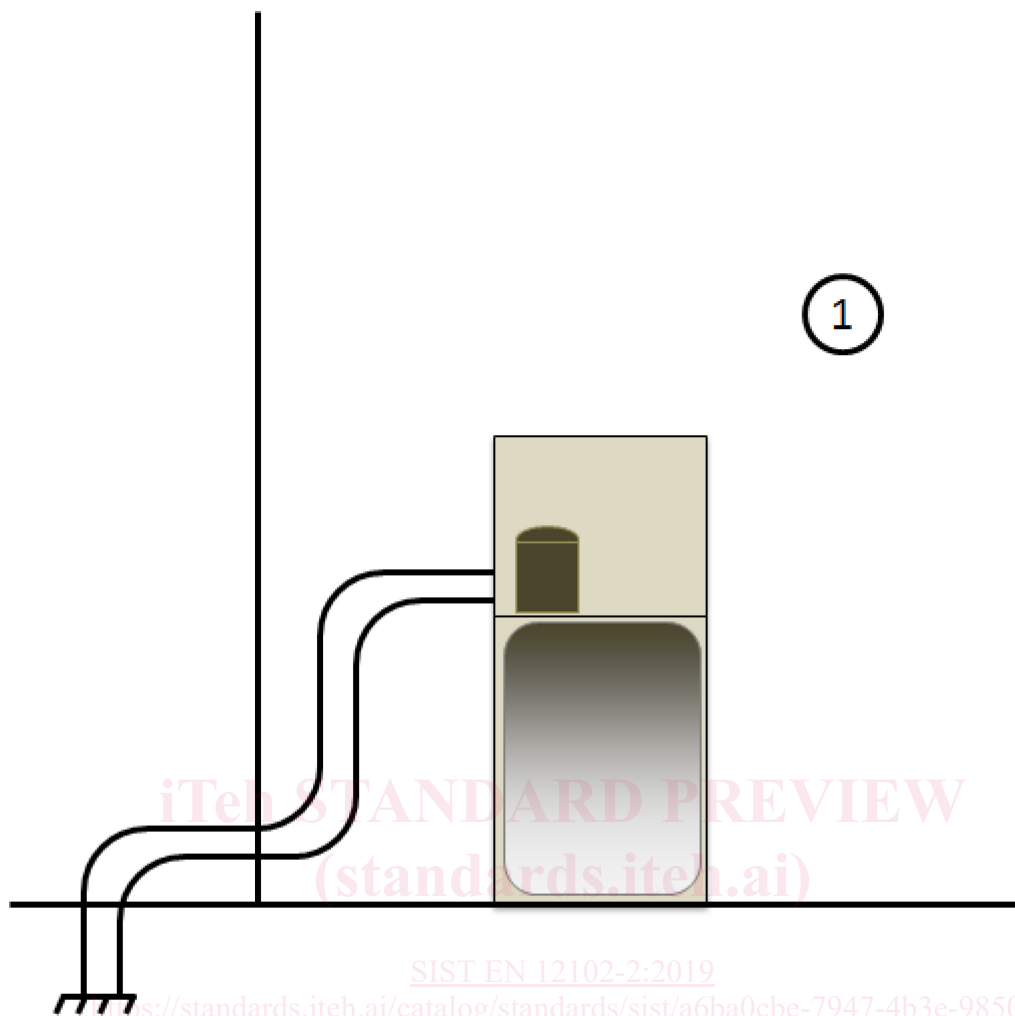


Figure 1 — Ambient air (A1)



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Figure 2 — Ground source (A2)

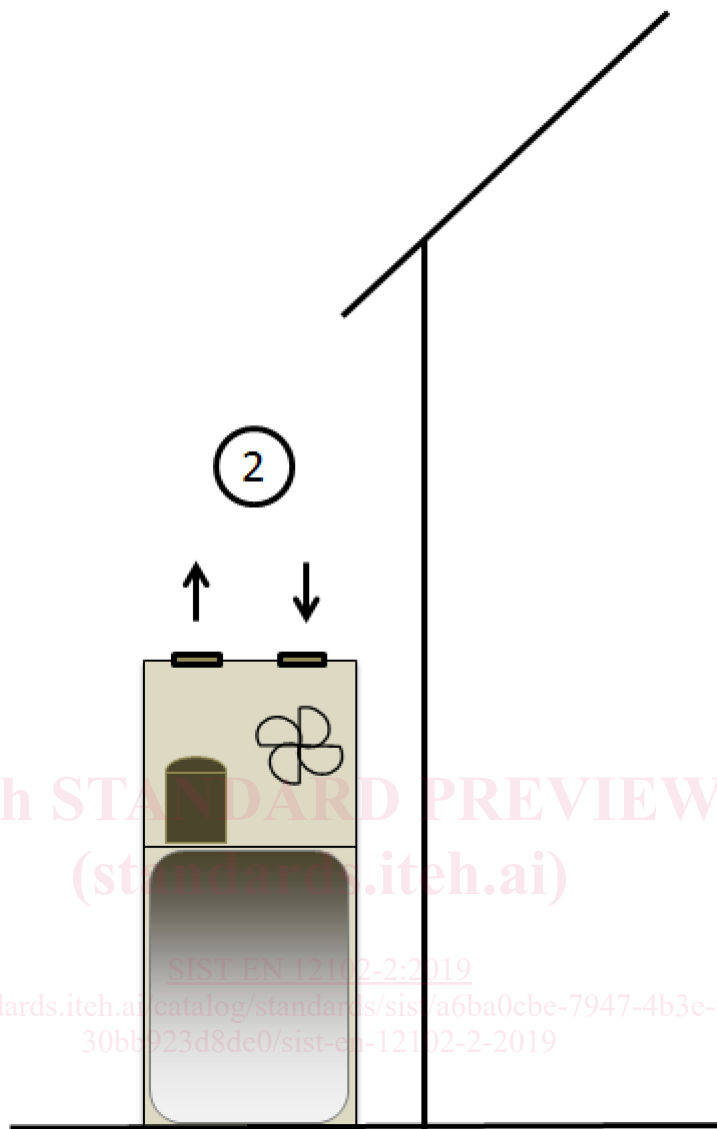


Figure 3 — Ambient air (A3)

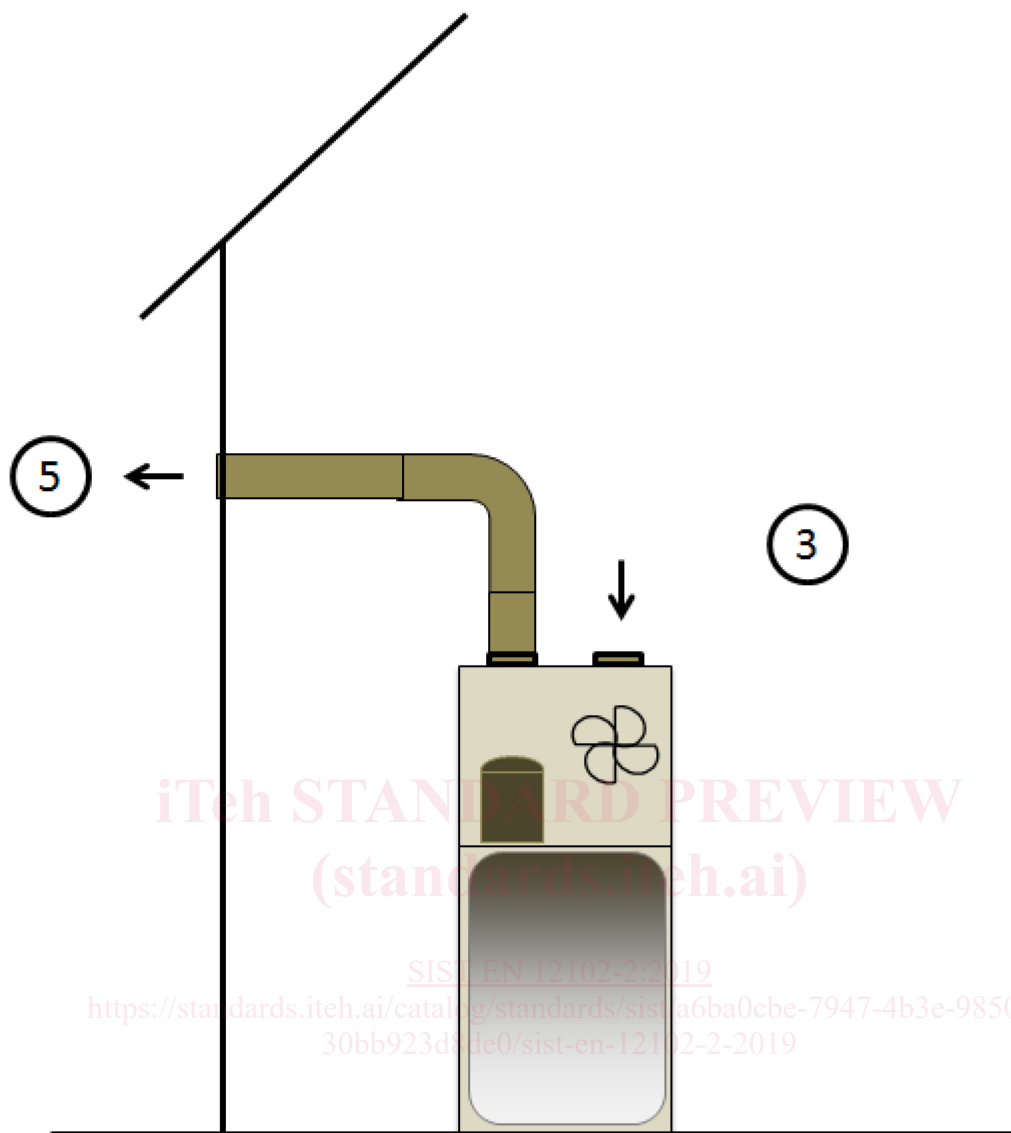


Figure 4 — Ambient air - ducted outlet (B)