

<b>STN</b>	<b>Klimatizačné jednotky, jednotky na chladenie kvapalín, tepelné čerpadlá, procesné chladiče a odvlhčovače s elektricky poháňanými kompresormi</b> <b>Určenie hladiny akustického výkonu</b> <b>Časť 1: Klimatizačné jednotky, jednotky na chladenie kvapalín, tepelné čerpadlá na ohrievanie a chladenie priestoru, odvlhčovače a procesné chladiče</b>	<b>STN</b> <b>EN 12102-1</b>  12 3080
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Air conditioners, liquid chilling packages, heat pumps, process chillers and dehumidifiers with electrically driven compressors - Determination of the sound power level - Part 1: Air conditioners, liquid chilling packages, heat pumps for space heating and cooling, dehumidifiers and process chillers

Táto norma obsahuje anglickú verziu európskej normy.  
This standard includes the English version of the European Standard.

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**Air conditioners, liquid chilling packages, heat pumps,  
process chillers and dehumidifiers with electrically driven  
compressors - Determination of the sound power level -  
Part 1: Air conditioners, liquid chilling packages, heat  
pumps for space heating and cooling, dehumidifiers and  
process chillers**

Climatiseurs, groupes refroidisseurs de liquide, pompes à chaleur, refroidisseurs industriels et déshumidificateurs avec compresseur entraîné par moteur électrique - Détermination du niveau de puissance acoustique - Partie 1 : Climatiseurs, groupes refroidisseurs de liquide, pompes à chaleur pour le chauffage et le refroidissement, déshumidificateurs et refroidisseurs industriels

Luftkonditionierer, Flüssigkeitskühlsätze, Wärmepumpen, Prozesskühler und Entfeuchter mit elektrisch angetriebenen Verdichtern - Bestimmung des Schalleistungspegels - Teil 1: Luftkonditionierer, Flüssigkeitskühlsätze, Wärmepumpen zur Raumbeheizung und kühlung, Entfeuchter und Prozesskühler

This European Standard was approved by CEN on 22 May 2022.

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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## EN 12102-1:2022 (E)

### European foreword

This document (EN 12102-1:2022) has been prepared by Technical Committee CEN/TC 113 “Heat pumps and air conditioning units”, the secretariat of which is held by UNE.

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 January 2023, and conflicting national standards shall be withdrawn at the latest by January 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 12102-1:2017.

The main changes with respect to the previous edition are listed below:

- update of Annex A regarding specific measurement for staged or variable capacity units;
- addition of Annex C describing the sound power level of indoor units of water-to-air and air-to-air heat pumps and air conditioners;
- addition of Annex ZE relating to Commission Regulation (EU) No 2016/2281 aimed to be covered.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annexes ZA, ZB, ZC, ZD and ZE which are integral parts of this document.

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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

## **Introduction**

This document offers ways to determine the sound power level of air conditioners, liquid chilling packages, heat pumps, and dehumidifiers with electrically driven compressors. Some of them are specifically adapted to provide results with low uncertainties, by using laboratory class acoustic methods and highly controlled operating conditions. Those measurements are suitable for certification, labelling and marking purposes.

In some cases, the target and/or the environment of the measurements do not allow such precision-class methods. This document also offers ways to assess sound power levels with acceptable accuracy even though acoustic methods and/or operating conditions are not laboratory-type, e.g. *in situ* or quality control measurements.

## EN 12102-1:2022 (E)

### 1 Scope

This document establishes requirements for determining, in accordance with a standardized procedure, the sound power level emitted into the surrounding air by air conditioners, heat pumps, liquid chilling packages with electrically driven compressors when used for space heating and/or cooling, and/or for process, as described in the prEN 14511 series, and dehumidifiers, as described in EN 810.

This document also covers the measurement of the sound power level of evaporatively cooled condenser air conditioners, as specified in EN 15218. However, the measurement will be done without external water feeding and these units will thus be considered as the other air conditioners covered by the prEN 14511 series.

It is emphasized that this measurement standard only refers to airborne noise.

### 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 810:1997, *Dehumidifiers with electrically driven compressors - Rating tests, marking, operational requirements and technical data sheet*

prEN 14511-1:2021, *Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electrically driven compressors - Part 1: Terms and definitions*

prEN 14511-3:2021, *Air conditioners, liquid chilling packages and heat pumps for space heating and cooling and process chillers, with electrically driven compressors - Part 3: Test methods*

prEN 14825:2020, *Air conditioners, liquid chilling packages and heat pumps, with electrically driven compressors, for space heating and cooling - Testing and rating at part load conditions and calculation of seasonal performance*

EN 15218:2013, *Air conditioners and liquid chilling packages with evaporatively cooled condenser and with electrically driven compressors for space cooling - Terms, definitions, test conditions, test methods and requirements*

prEN 16583:2020, *Heat exchangers - Hydronic room fan coils units - Determination of the sound power level*

EN ISO 3740:2019, *Acoustics - Determination of sound power levels of noise sources - Guidelines for the use of basic standards (ISO 3740:2019)*

EN ISO 3741:2010, *Acoustics - 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 3743-1:2010, *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 3743-1:2010)*

EN ISO 3743-2:2019, *Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering methods for small, movable sources in reverberant fields - Part 2: Methods for special reverberation test rooms (ISO 3743-2:2018)*



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,<sup>1</sup> *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 3746:2010, *Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Survey method using an enveloping measurement surface over a reflecting plane (ISO 3746:2010)*

EN ISO 3747:2010, *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 3747:2010)*

EN ISO 5136:2009, *Acoustics - Determination of sound power radiated into a duct by fans and other air-moving devices - In-duct method (ISO 5136:2003)*

EN ISO 9614-1:2009, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 1: Measurement at discrete points (ISO 9614-1:1993)*

EN ISO 9614-2:1996, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 2: Measurement by scanning (ISO 9614-2:1996)*

EN ISO 9614-3:2009, *Acoustics - Determination of sound power levels of noise sources using sound intensity - Part 3: Precision method for measurement by scanning (ISO 9614-3:2002)*

**koniec náhľadu – text ďalej pokračuje v platenej verzii STN**

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<sup>1</sup> Document impacted by A1:2017.