

Water based surface embedded heating and cooling systems - Part 2: Floor heating: Prove methods for the determination of the thermal output using calculation and test methods

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1264-2:2008+A1:2012 sisaldab Euroopa standardi EN 1264-2:2008+A1:2012 ingliskeelset teksti.	This Estonian standard EVS-EN 1264-2:2008+A1:2012 consists of the English text of the European standard EN 1264-2:2008+A1:2012.
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English Version

**Water based surface embedded heating and cooling systems -
Part 2: Floor heating: Prove methods for the determination of the
thermal output using calculation and test methods**

Systèmes de surfaces chauffantes et rafraîchissantes
hydrauliques intégrées - Partie 2 : Chauffage par le sol:
Méthodes de démonstration pour la détermination de
l'émission thermique utilisant des méthodes par le calcul et
à l'aide de méthodes d'essai

Raumflächenintegrierte Heiz- und Kühlsysteme mit
Wasserdurchströmung - Teil 2: Fußbodenheizung:
Prüfverfahren für die Bestimmung der Wärmeleistung unter
Benutzung von Berechnungsmethoden und
experimentellen Methoden

This European Standard was approved by CEN on 13 September 2008 and includes Amendment 1 approved by CEN on 1 October 2012.

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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.

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Foreword

This document (EN 1264-2:2008+A1:2012) has been prepared by Technical Committee CEN/TC 130 "Space heating appliances without integral heat sources", the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by May 2013, and conflicting national standards shall be withdrawn at the latest by May 2013.

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This document includes Amendment 1 approved by CEN on 1 October 2012.

This document ^{A1} supersedes EN 1264-2:2008 ^{A1}.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ^{A1} ^{A1}.

This European Standard, *Water based surface embedded heating and cooling systems*, consists of the following parts:

- *Part 1: Definitions and symbols;*
- *Part 2: Floor heating: Prove methods for the determination of the thermal output using calculation and test methods;*
- *Part 3: Dimensioning;*
- *Part 4: Installation;*
- *Part 5: Heating and cooling surfaces embedded in floors, ceilings and walls — Determination of the thermal output.*

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.

Introduction

This European Standard is based on the realisation that in the field of commercial trade, the thermal output of heating and cooling systems represents the basis of rating. In order to be able to evaluate and compare different heating and/or cooling systems, it is, therefore, necessary to refer to values determined using one single, unambiguously defined method. The basis for doing so are the prove methods for the determination of the thermal output of floor heating systems specified in Part 2 of this European Standard. In analogy to the European Standard EN 442-2 (Radiators and convectors — Part 2: Test methods and rating), these prove methods provide characteristic partial load curves under defined boundary conditions as well as the characteristic output of the system represented by the standard thermal output together with the associated standard temperature difference between the heating medium and the room temperature.

1 Scope

This European Standard specifies the boundary conditions and the prove methods for the determination of the thermal output of hot water floor heating systems as a function of the temperature difference between the heating medium and the room temperature.

This standard shall be applied to commercial trade and practical engineering if proved and certifiable values of the thermal output shall be used.

This European Standard applies to heating and cooling systems embedded into the enclosure surfaces of the room to be heated or to be cooled. This Part of this European Standard applies to hot water floor heating systems. Applying of Part 5 of this European Standard requires the prior use of this Part of this European Standard. Part 5 of this European Standard deals with the conversion of the thermal output of floor heating systems determined in Part 2 into the thermal output of heating surfaces embedded in walls and ceilings as well as into the thermal output of cooling surfaces embedded in floors, walls and ceilings.

The thermal output is proved by a calculation method (Clause 6) and by a test method (Clause 9). The calculation method is applicable to systems corresponding to the definitions in EN 1264-1 (type A, type B, type C, type D). For systems not corresponding to these definitions, the test method shall be used. The calculation method and the test method are consistent with each other and provide correlating and adequate prove results.

The prove results, expressed depending on further parameters, are the standard specific thermal output and the associated standard temperature difference between the heating medium and the room temperature as well as fields of characteristic curves showing the relationship between the specific thermal output and the temperature difference between the heating medium and the room.

2 Normative references

[A1] 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.

EN 1264-1:2011, *Water based surface embedded heating and cooling systems — Part 1: Definitions and symbols*

EN 1264-3:2009, *Water based surface embedded heating and cooling systems — Part 3: Dimensioning* **[A1]**

3 Definitions and symbols

For the purposes of this document, the terms and definitions given in **[A1]** EN 1264-1:2011 **[A1]** apply.

4 Thermal boundary conditions

A floor heating surface with a given average surface temperature exchanges the same thermal output in any room with the same indoor room temperature (standard indoor room temperature t_{r1}). It is, therefore, possible to give a basic characteristic curve of the relationship between specific thermal output and average surface temperature that is independent of the heating system and applicable to all floor heating surfaces (including those having peripheral areas with greater heat emissions) (see Figure A.1).

In contrast, every floor heating system has its own maximum permissible specific thermal output, the limit specific thermal output, q_G . This output is calculated for an ambient (standard) indoor room temperature