VEEPÕHISED PINNASISESED KÜTTE- JA JAHUTUSSÜSTEEMID. OSA 4: PAIGALDAMINE

Water based surface embedded heating and cooling systems - Part 4: Installation

EESTI STANDARDIMIS- JA AKREDITEERIMISKESKUS
ESTONIAN CENTRE FOR STANDARDISATION AND ACCREDITATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 1264-4:2021 sisaldab Euroopa standardi EN 1264-4:2021 ingliskeelset teksti.	This Estonian standard EVS-EN 1264-4:2021 consists of the English text of the European standard EN 1264-4:2021.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 19.05.2021.	Date of Availability of the European standard is 19.05.2021.
Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 91.140.10

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1264-4

May 2021

ICS 91.140.10

Supersedes EN 1264-4:2009

English Version

Water based surface embedded heating and cooling systems - Part 4: Installation

Systèmes de surfaces chauffantes et rafraîchissantes hydrauliques intégrées - Partie 4: Installation

Raumflächenintegrierte Heiz- und Kühlsysteme mit Wasserdurchströmung - Teil 4: Installation

This European Standard was approved by CEN on 12 April 2021.

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, 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 United Kingdom.

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

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

Ref. No. EN 1264-4:2021 E

Contents

Page

European foreword

This document (EN 1264-4:2021) 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 November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

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 1264-4:2009.

The main changes compared to the previous edition are listed below:

a) Clarification of the Scope;

b) Improved wording, especially the term “prove method”;

c) Addition of a new subclause 4.1, Hydronic balancing;

d) Addition of a paragraph in 4.2.2.1, Supporting base;

e) Modification of 4.2.2.2, Insulating layers;

f) Addition of a new subclause 4.2.2.4, Other layers;

g) Modification of 4.2.2.9, Weight bearing layer;

h) Addition of a new subclause 4.2.2.9.5.4, Tubes damage;

i) Modification of 4.2.3, Leak test;

j) Modification of 4.2.4, Initial heat up of the emission system;

k) Addition of a new subclause 4.2.5, Heating up for readiness for covering;

l) Modification of 4.3.3 Insulation;

m) Addition of a new Annex B, Initial heating up protocol.

EN 1264, *Water based surface embedded heating and cooling systems*, consists of the following parts:

— *Part 1: Definitions and symbols;*

— *Part 2: Floor heating: Methods for the determination of the thermal output using calculations and experimental tests;*

— *Part 3: Dimensioning;*

— *Part 4: Installation;*

— *Part 5: Determination of the thermal output for wall and ceiling heating and for floor, wall and ceiling cooling.*

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.

1 Scope

The EN 1264 series gives guidelines for surface embedded heating and cooling systems installed in buildings, residential and non-residential (e.g. office, public, commercial and industrial buildings) and focuses on systems installed for the purpose of thermal comfort.

The EN 1264 series gives guidelines for water based heating and cooling systems embedded into the enclosure surfaces of the room to be heated or to be cooled. It also specifies the use of other heating media instead of water, as appropriate.

The EN 1264 series specifies standardized product characteristics by calculation and testing the thermal output of heating for technical specifications and certification. For the design, construction and operation of these systems, see EN 1264-3 and EN 1264-4 for the types A, B, C, D, H, I and J. For the types E, F and G, see the EN ISO 11855 series.

The systems specified in The EN 1264 series are adjoined to the structural base of the enclosure surfaces of the building, mounted directly or with fixing supports. The EN 1264 series does not specify ceiling systems mounted in a suspended ceiling with a designed open air gap between the system and the building structure which allows the thermally induced circulation of the air. The thermal output of these systems can be determined according to the EN 14037 series and EN 14240.

EN 1264-4 specifies uniform requirements for the design and the construction of heating and cooling floor, ceiling and wall structures to ensure that the heating/cooling systems are suited to the particular application.

The requirements specified by the EN 1264 series apply only to the components of the heating/cooling systems which are part of the heating/cooling system. EN 1264-4 does not cover other elements which are not part of the heating/cooling system.

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 1057:2006+A1:2010, *Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications*

EN 1254 (all parts), *Copper and copper alloys - Plumbing fittings*

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

EN ISO 15874 (all parts), *Plastics piping systems for hot and cold water installations - Polypropylene (PP)*

EN ISO 15875 (all parts), *Plastics piping systems for hot and cold water installations - Crosslinked polyethylene (PE-X)*

EN ISO 15876 (all parts), *Plastics piping systems for hot and cold water installations - Polybutylene (PB)*

EN ISO 15877 (all parts), *Plastics piping systems for hot and cold water installations - Chlorinated poly(vinyl chloride) (PVC-C)*

EN ISO 21003 (all parts), *Multilayer piping systems for hot and cold water installations inside buildings*

ISO 10508, *Plastics piping systems for hot and cold water installations - Guidance for classification and design*

ISO 11855-6:2018, *Building environment design - Design, dimensioning, installation and control of embedded radiant heating and cooling systems - Part 6: Control*

ISO 22391 (all parts), *Plastics piping systems for hot and cold water installations - Polyethylene of raised temperature resistance (PE-RT)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1264-1 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Requirements

4.1 Hydronic balancing

According to ISO 11855-6:2018, 4.8, water based heating and cooling systems shall have a hydronic balancing. The components shall be adjusted in order to ensure the required flow rates. Under dynamic conditions, e.g. during the heating up period, it shall be ensured that the hydraulic interaction between the different heating circuits is small. The flow rates in the different circuits should not be greater than the design flow rates.

Each circuit shall have a balancing device or balancing system.

The balance of the system shall be done according to the realized project, e.g. “as build”, because the length of circuits realized can differ from the project, therefore once the system has been installed, the flow rates shall be updated and then set on the manifold.

Depending on the situation of the heating and cooling system the distribution system shall be equipped with facilities for degassing and sludge separation.

4.2 Floor heating and cooling systems

4.2.1 General structural preconditions

The installation of a water floor heating and/or cooling system shall follow the prior installation of any electrical, sanitary and other pipe facilities. The structure as specified in 4.2.2.1 with the draught-free closure of all building openings, e.g. windows and outer doors, shall be completed.

4.2.2 Building layers, building components

4.2.2.1 Supporting base

The supporting base shall be prepared in accordance with relevant standards.

Any pipe work or conduits shall be fixed and encased to provide a level base upon which thermal insulation and/or acoustic insulation is added before laying the heating pipes. In this respect, the necessary structural height shall be taken into account.

In the case of service pipes installed within the insulation layer, these pipes shall be protected against temperature change. Any existing National Regulations on this topic should be taken into consideration.

If the external doors and windows are not present before the installation of the system, it is recommended to close all windows holes, even with provisional systems (in order to avoid too high/low temperatures and to limit the effect of the speed of the air). Walls plaster shall be completed.