



NSAI
Standards

Irish Standard
I.S. EN 12828:2012+A1:2014

Heating systems in buildings - Design for water-based heating systems

I.S. EN 12828:2012+A1:2014

Incorporating amendments/corrigenda/National Annexes issued since publication:

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This document is based on:

EN 12828:2012+A1:2014

Published:

2014-04-02

This document was published under the authority of the NSAI and comes into effect on:

2014-04-12

ICS number:

91.140.10

NOTE: If blank see CEN/CENELEC cover page

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Údarás um Chaighdeáin Náisiúnta na hÉireann

EUROPEAN STANDARD

EN 12828:2012+A1

NORME EUROPÉENNE

EUROPÄISCHE NORM

April 2014

ICS 91.140.10

Supersedes EN 12828:2012

English Version

Heating systems in buildings - Design for water-based heating systems

Systèmes de chauffage dans les bâtiments - Conception
des systèmes de chauffage à eau

Heizungsanlagen in Gebäuden - Planung von
Warmwasser-Heizungsanlagen

This European Standard was approved by CEN on 6 October 2012 and includes Amendment 1 approved by CEN on 12 January 2014.

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.

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EN 12828:2012+A1:2014 (E)

Foreword

This document (EN 12828:2012+A1:2014) has been prepared by Technical Committee $\boxed{A1}$ CEN/TC 228 "Heating systems and water based cooling systems in buildings" $\langle A1 \rangle$, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by October 2014, and conflicting national standards shall be withdrawn at the latest by October 2014.

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

This document includes Amendment 1 approved by CEN on 12 January 2014.

This document supersedes $\boxed{A1}$ EN 12828:2012 $\langle A1 \rangle$.

The start and finish of text introduced or altered by amendment is indicated in the text by tags $\boxed{A1}$ $\langle A1 \rangle$.

The main changes $\boxed{A1}$ between EN 12828:2003 and EN 12828:2012 were $\langle A1 \rangle$:

- restrictions concerning additional safety requirements for systems larger than 1 MW were removed;
- an informative annex for safety valves was added;
- definitions were corrected and added;
- the guidance for dimensioning of diaphragm expansion vessels (sealed systems) in Annex D was revised, and a figure describing the different pressure level was added;
- a specification for the water used has been added in 4.3.2.1;
- the requirements concerning safety arrangements (4.6) were revised and clarified;
- 4.7.4 concerning pressure maintaining control device was revised.

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

The subjects covered by CEN/TC 228 are the following:

- design of heating systems (water based, electrical, etc.);
- installation of heating systems;
- commissioning of heating systems;
- instructions for operation, maintenance and use of heating systems;
- methods for calculation of the design heat loss and heat load;
- methods for calculation of the energy performance of heating systems.

Heating systems also include the effect of attached systems such as hot water production systems.

All these standards are system standards, i.e. they are based on requirements addressed to the system as a whole and not dealing with requirements to the products within the system.

Where possible, reference is made to other CEN or ISO standards, e.g. product standards. However, use of products complying with relevant product standards is no guarantee of compliance with the system requirements.

The requirements are mainly expressed as functional requirements, i.e. requirements dealing with the function of the system and not specifying shape, material, dimensions or the like.

The guidelines describe ways to meet the requirements, but other ways to fulfil the functional requirements may be used if fulfilment can be proved.

Heating systems differ among the member countries due to climate, traditions and national regulations. In some cases, requirements are given as classes so national or individual needs may be accommodated.

In cases where the standards contradict with national regulations, the latter should be followed.

EN 12828:2012+A1:2014 (E)

1 Scope

This European Standard specifies design criteria for water based heating systems in buildings with a maximum operating temperature of up to 105 °C. In case of heating systems with maximum operating temperatures over 105 °C other safety aspects than those described in 4.6 may apply. The other clauses of this European Standard are still valid for those systems.

This European Standard does not amend product standards or product installation requirements. This standard covers the design of:

- heat supply systems;
- heat distribution systems;
- heat emission systems;
- control systems.

This European Standard takes into account heating requirements of attached systems (e.g. domestic hot water, process heat, air conditioning, ventilation) in the design of a heat supply, but does not cover the design of these systems.

This European Standard does not cover requirements for installation or commissioning or instructions for operation, maintenance and use of water based heating systems.

This European Standard does not cover the design of fuel and energy supply systems.

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.

EN 215, *Thermostatic radiator valves — Requirements and test methods*

EN 442-1, *Radiators and convectors — Part 1: Technical specifications and requirements*

EN 442-2, *Radiators and convectors — Part 2: Test methods and rating*

EN 442-3, *Radiators and convectors — Part 3: Evaluation of conformity*

EN 806-2, *Specifications for installations inside buildings conveying water for human consumption — Part 2: Design*

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

EN 1264-2, *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*

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

EN 1264-4, *Water based surface embedded heating and cooling systems — Part 4: Installation*

EN 1264-5, *Water based surface embedded heating and cooling systems — Part 5: Heating and cooling surfaces embedded in floors, ceilings and walls — Determination of the thermal output*

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