BS EN 378-2:2016

BSI Standards Publication

Refrigerating systems and heat pumps — Safety and environmental requirements

Part 2: Design, construction, testing, marking and documentation

bsi.

National foreword

This British Standard is the UK implementation of EN 378-2:2016. It supersedes BS EN 378-2:2008+A2:2012 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee RHE/18, Refrigeration safety.

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Published by BSI Standards Limited 2016

ISBN 978 0 580 84661 8

ICS 27.080; 27.200

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 December 2016.

Amendments/corrigenda issued since publication

Date	Text affected

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 378-2

November 2016

ICS 27.080; 27.200

Supersedes EN 378-2:2008+A2:2012

English Version

Refrigerating systems and heat pumps - Safety and environmental requirements - Part 2: Design, construction, testing, marking and documentation

Systèmes frigorifiques et pompes à chaleur - Exigences de sécurité et d'environnement - Partie 2: Conception, construction, essais, marquage et documentation

Kälteanlagen und Wärmepumpen - Sicherheitstechnische und umweltrelevante Anforderungen - Teil 2: Konstruktion, Herstellung, Prüfung, Kennzeichnung und Dokumentation

This European Standard was approved by CEN on 3 September 2016.

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, 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 United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 378-2:2016 E

Contents

Page

European foreword

This document (EN 378-2:2016) has been prepared by Technical Committee CEN/TC 182 "Refrigerating systems, safety and environmental requirements", 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 May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

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 supersedes EN 378-2:2008+A2:2012.

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 Annexes ZA and ZB, which are integral parts of this document.

EN 378 consists of the following parts under the general title "*Refrigerating systems and heat pumps — Safety and environmental requirements*":

— *Part 1: Basic requirements, definitions, classification and selection criteria;*

— *Part 2: Design, construction, installing, testing, marking and documentation;*

— *Part 3: Installation site and personal protection;*

— *Part 4: Operation, maintenance, repair and recovery.*

The main changes in part 2 with respect to the previous edition are listed below:

— *Harmonization as far as possible with* ISO 5149:2014 *and* ISO 817:2014*;*

— *Harmonizing requirements with* DIRECTIVE 2014/68/EU (PED), related to pressure and DIRECTIVE 2006/42/EC (MD).

Following detailed changes are worth noting:

— *In 5.2.1, the application of harmonized standard for components has been clarified, by making the note normative;*

— *The content of the former Table 3 has been integrated in 6.2.6.2, with necessary modifications of the flow chart in Figure 1;*

— *Replacement of 6.2.2.3 with requirements related to pressure rise in case of external fire;*

— *Improvement 6.2.5.2.2, regarding electronic safety switching devices for limiting the pressure;*

— *Rearrangement of the transport and vibration tests formerly 6.2.12 and now 6.2.12 and 6.2.13;*

— *Modification of the explosion hazard requirements in 6.2.14 (formerly 6.2.13);*

— *Addition of Annex H on stress corrosion cracking, Annex I on leak simulation test, Annex J on commissioning procedure, Annex K on ignition sources;*

— *Modification of Annex ZA for harmonization with DIRECTIVE 2014/68/EU (PED);*

— *Deletion of Annex ZB and the update of Annex ZC (now new Annex ZB).*

According to the CEN/CENELEC Internal Regulations, the national standards organizations 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 introduction of EN 378-1 is applicable.

This standard is a type C standard as stated in EN ISO 12100.

The machinery concerned and the extent to which hazards, hazardous situations and hazardous events are covered are indicated in the scope of this standard.

When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

1 Scope

This European Standard specifies the requirements for the safety of persons and property, provides guidance for the protection of the environment and establishes procedures for the operation, maintenance and repair of refrigerating systems and the recovery of refrigerants.

The term “refrigerating system” used in this European Standard includes heat pumps.

This Part 2 of this Standard is applicable to the design, construction and installation of refrigerating systems including piping, components and materials. It includes ancillary equipment not covered in EN 378-1, EN 378-3 or EN 378-4 which is directly associated with these systems. It also specifies requirements for testing, commissioning, marking and documentation. Requirements for secondary heat transfer circuits are excluded except for any protection requirements associated with the refrigerating system. Ancillary equipment includes, for example, fans, fan motors, electrical motors and transmission assemblies for open compressor systems.

This standard applies:

a) to refrigerating systems, stationary or mobile, of all sizes except to vehicle air conditioning systems covered by a specific product standard, e.g. ISO 13043;

b) to secondary cooling or heating systems;

c) to the location of the refrigerating systems;

d) to replaced parts and added components after adoption of this standard if they are not identical in function and in the capacity.

Systems using refrigerants other than those listed in EN 378-1:2016, Annex E are not covered by this standard.

This standard does not apply to goods in storage.

This standard is not applicable to refrigerating systems which were manufactured before the date of its publication as a European Standard except for extensions and modifications to the system which were implemented after publication.

This standard is applicable to new refrigerating systems, extensions or modifications of already existing systems, and for existing stationary systems, being transferred to and operated on another site.

This standard also applies in the case of the conversion of a system to another refrigerant type, in which case conformity to the relevant clauses of parts 1 to 4 of the standard shall be assessed.

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 378-1:2016, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 1: Basic requirements, definitions, classification and selection criteria*

EN 378-3:2016, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 3: Installation site and personal protection*

EN 378-4, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 4: Operation, maintenance, repair and recovery*