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Standards

Irish Standard  
I.S. EN 13136:2013

# Refrigerating systems and heat pumps - Pressure relief devices and their associated piping - Methods for calculation

## I.S. EN 13136:2013

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English Version

## Refrigerating systems and heat pumps - Pressure relief devices and their associated piping - Methods for calculation

Systèmes frigorifiques et pompes à chaleur - Dispositifs de  
limitation de pression et tuyauteries associées - Méthodes  
de calcul

Kälteanlagen und Wärmepumpen -  
Druckentlastungseinrichtungen und zugehörige Leitungen -  
Berechnungsverfahren

This European Standard was approved by CEN on 24 August 2013.

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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 13136:2013) 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of an identical text or by endorsement, at the latest by April 2014, and conflicting national standards shall be withdrawn at the latest by April 2014.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 supersedes EN 13136:2001.

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 Annex ZA, which is an integral part of this document.

Compared to EN 13136:2001, EN 13136:2013 takes into account the application of CO<sub>2</sub> and the amendment A1, published in 2005.

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 applicable parts of EN ISO 4126-1:2013, EN ISO 4126-2:2003 and EN 12284.

It is suited to the specific requirements, and includes the data, of refrigerating systems. It provides means of satisfying the pressure relief devices requirements of EN 378-2:2008+A2:2012.

## 1 Scope

**1.1** This European Standard describes the calculation of mass flow for sizing pressure relief devices for components of refrigerating systems.

NOTE The term "refrigerating system" used in this European Standard includes heat pumps.

**1.2** This European Standard describes the calculation of discharge capacities for pressure relief valves and other pressure relief devices in refrigerating systems including the necessary data for sizing these when relieving to atmosphere or to components within the system at lower pressure.

**1.3** This European Standard specifies the requirements for selection of pressure relief devices to prevent excessive pressure due to internal and external heat sources, the sources of increasing pressure (e.g. compressor, heaters, etc.) and thermal expansion of trapped liquid.

**1.4** This European Standard describes the calculation of the pressure loss in the upstream and downstream line of pressure relief valves and other pressure relief devices and includes the necessary data.

**1.5** This European Standard refers to other relevant standards in Clause 5.

## 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 378-1:2008+A2:2012, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 1: Basic requirements, definitions, classification and selection criteria*

EN 378-2:2008+A2:2012, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 2: Design, construction, testing, marking and documentation*

EN 764-1:2004, *Pressure equipment — Part 1: Terminology — Pressure, temperature, volume, nominal size*

EN 764-2:2012, *Pressure equipment — Part 2: Quantities, symbols and units*

EN 12284:2003, *Refrigerating systems and heat pumps — Valves — Requirements, testing and marking*

EN ISO 4126-1:2013, *Safety devices for protection against excessive pressure — Part 1: Safety valves (ISO 4126-1:2013)*

EN ISO 4126-2:2003, *Safety devices for protection against excessive pressure — Part 2: Bursting disc safety devices (ISO 4126-2:2003)*

ISO 817, *Refrigerants — Designation system*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 378-1:2008+A2:2012, EN 12284:2003, EN ISO 4126-1:2013, EN ISO 4126-2:2003 and EN 764-1:2004 apply.

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