



## Guidance on Conformity with Safety and Product Standards

There are two types of standard which apply to the safety of products and installations.

1. Product standards define the essential safety requirements for a particular class of product. They are also sometimes called “vertical standards”. Conformity with the requirements of the standard is deemed to demonstrate conformity with relevant European directives on safety such as the Machinery Directive and the Pressure Equipment Directive for that specific product class.
2. “Horizontal” standards which apply fundamental principles across a wide range of product types. If the standard is “harmonised” with the relevant European Directives then conformity with the directives can be presumed by demonstrating that the requirements of the standard have been satisfied.

### EN378 Refrigeration Safety Standard

In general refrigeration equipment is required to satisfy the European Standard on safety and environmental requirements for refrigeration systems and heat pumps; EN 378. This is a **horizontal** standard, covering a wide range of product types. Part 1 of the standard provides general guidance and definitions and Parts 2 to 4 cover the requirements for design & construction, site requirements and operation & maintenance respectively.

### EN60335 Electrical Appliances Safety Standard

In addition certain smaller products may also be covered by the European Standard on safety of household and similar electrical appliances; EN 60335. This **vertical** standard covers a very wide range of appliances. Part 1 of the standard provides general guidance and definitions and Part 2 is subdivided into more than 120 separate product-specific sections. Where possible the requirements of EN378 and EN60335 are consistent, but if a product is stated to comply with EN60335 the requirements of that standard take precedence over the generic requirements of EN378.

The sub-sections of part 2 of EN60335 relevant to refrigeration and heat pump equipment are:

- 2-24: Particular requirements for refrigerating appliances, ice-cream appliances and ice makers
- 2-40: Particular requirements for electrical heat pumps, air conditioners and dehumidifiers
- 2-89: Particular requirements for commercial refrigerating appliances with an incorporated or remote refrigerant condensing unit or compressor

### Demonstrating compliance with the standards

The manufacturer of an appliance must decide whether to prove conformity with the relevant European Directives by following a vertical standard like the relevant part of EN60335, or by following the horizontal standard EN378, or indeed by documenting their compliance with each of

the Essential Safety Requirements (ESRs) in the relevant safety directives - which might require the supervision of a Notified Body (NoBo) inspector.

However it should be noted that EN378 and EN60335 are only harmonised with the Pressure Equipment Directive (97/23/EC) and the Machinery Directive (98/37/EC), not the ATEX Directives (94/9/EC and 99/92/EC). It should also be noted that these European Directives are formulated by the European Commission and transposed into national law by act of Parliament. Compliance with directives in all cases is a legal requirement. The standards described in this guidance are simply ways of achieving compliance with the regulations and directives, but they are not the only ways.

## **Compliance with the ATEX Directive**

The key legal requirement of the ATEX Directive which covers safety of workers potentially at risk from explosive atmospheres, and is relevant to systems containing A2, A3 or Ammonia Refrigerants which are flammable, is that if a hazardous substance is used then a risk assessment must be completed and documented. All other actions (if any are required) will follow from that risk assessment.

Guidance on the calculation of the maximum charge permitted for A2 and A3 refrigerants can be found in Figures 2a and 2b of the Institute of Refrigeration's Safety Code of Practice for Refrigerating Systems Utilising A2 and A3 Refrigerants.

Guidance on carrying out risk assessments in refrigeration related activities is available from the British Refrigeration Association.

## **References and sources of further information**

- EN378:2008 Refrigerating systems and heat pumps — Safety and environmental requirements and EN60335 Domestic Household and similar Electrical Appliances Safety Standard can be purchased from the BSI Bookshop on +44 (0)20 8996 7858, or on line at [www.bsi-global.com](http://www.bsi-global.com)
- IOR Safety Codes of Practice for Refrigerating Systems (A1-HFC, A2 and A3-Flammable, Ammonia and Carbon Dioxide) [www.ior.org.uk](http://www.ior.org.uk)
- Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) IOR Guidance Note 19 (2009) [www.ior.org.uk](http://www.ior.org.uk)
- BRA Guide for Risk Assessments and Method Statements (RAMS) [www.feta.co.uk](http://www.feta.co.uk)

Issued by the Institute of Refrigeration Technical Committee.  
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