AS/NZS 5149.2:2016

Australian/New Zealand Standard™

Refrigerating systems and heat pumps—Safety and environmental requirements

Part 2: Design, construction, testing, marking and documentation (ISO 5149-2:2014, MOD)

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-006, Refrigeration. It was approved on behalf of the Council of Standards Australia on 7 September 2016 and by the New Zealand Standards Approval Board on 28 September 2016.
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The following are represented on Committee ME-006:

Air Conditioning and Refrigeration Equipment Manufacturers Association of Australia
Air Conditioning and Refrigeration Wholesalers Association
Australian Industry Group
Australian Institute of Refrigeration, Air Conditioning and Heating
Australian National Retailers Association
Australian Refrigeration Council
Climate Control Companies Association, New Zealand
Consumer Electronics Suppliers Association
Department of Environment
Department of Natural Resources and Mines, Qld
Environmental Protection Authority, New Zealand
Green Cooling Association
Institute of Refrigeration Heating and Air Conditioning Engineers of New Zealand
Metropolitan Fire and Emergency Services Board, Vic.
Ministry of Business, Innovation and Employment, New Zealand
New Zealand Electrotechnical Committee
Refrigerants Australia
Workplace Health and Safety Queensland
WorkSafe New Zealand
WorkSafe Victoria

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For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of Standards Australia or the New Zealand Standards Executive at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 5149.2:2016.

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-006, to supersede, in part, AS/NZS 1677.2, *Refrigerating systems*, Part 2: *Safety requirements for fixed applications*.

The objective of this series of Standards is to promote the safe design, construction, disposal, installation and operation of refrigerating systems.

This Standard does not address the hazards caused by products of combustion or decomposition of refrigerants. These products may include (but are not limited to) hydrogen fluoride. Exposure to these products can be harmful.

Lubricants and associated hazards are also not covered by this Standard. Lubricants can present significant health and environmental hazards.

AS/NZS 60079.14 is the current Australian/New Zealand Standard on electrical installations design, selection and erection in explosive atmospheres.

The AS/NZS 5149 series consists of the following parts under the general title, *Refrigerating systems and heat pumps—Safety and environmental requirements*:

Part 1: *Definitions, classification and selection criteria (ISO 5149-1:2014, MOD)*
Part 2: *Design, construction, testing, marking and documentation (ISO 5149-2:2014, MOD)* (this Standard)
Part 3: *Installation site (ISO 5149-3:2014, MOD)*
Part 4: *Operation, maintenance, repair and recovery (ISO 5149-4:2014, MOD)*

This Standard is an adoption with national modifications and has been reproduced from ISO 5149-2:2014, *Refrigerating systems and heat pumps—Safety and environmental requirements*, Part 2: *Design, construction, testing, marking and documentation* and has been varied as indicated to take account of Australian and New Zealand conditions. The modifications are specified in the normative Appendix ZZ following the source text.

These modifications to the ISO source text are essential for compliance with this Australian/New Zealand Standard.

Appendix ZA of AS/NZS 5149.1 provides guidance and examples on refrigerant charge limit determination for information only.

This Standard is to be read in conjunction with relevant legislation, regulation and national Refrigeration Industry Codes of Practice.

As this Standard is reproduced from an International Standard, the following applies:

(a) In the source text ‘this part of ISO 5149’ should read ‘this Australian/New Zealand Standard’.

(b) A full point substitutes for a comma when referring to a decimal marker.

References to International Standards should be replaced by references to Australian or Australian/New Zealand Standards, as follows:

Reference to International Standard		*Australian or Australian/New Zealand Standard*	
ISO 817	Refrigerants—Designation and safety classification	AS/NZS ISO 817	Refrigerants—Designation and safety classification

ISO		AS	
4126	Safety devices for protection against excessive pressure		
4126-1	Part 1: Safety valves	1271	Safety valves, other valves, liquid level gauges, and other fittings for boilers and unfired pressure vessels
4126-2	Part 2: Bursting disc safety devices	1358	Bursting discs and bursting disc devices—Application, selection and installation
ISO		AS/NZS	
		4024	Safety of machinery
12100	Safety of machinery—General principles for design—Risk assessment and risk reduction	4024.1201	Part 1201: General principles for design—Risk assessment and risk reduction
IEC		AS/NZS	
60335	Household and similar electrical appliances—Safety	60335	Household and similar electrical appliances—Safety
60335-2-34	Part 2-34: Particular requirements for motor-compressors	60335.2.34	Part 2.34: Particular requirements for motor-compressors
60335-2-40	Part 2-40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers	60335.2.40	Part 2.40: Particular requirements for electrical heat pumps, air-conditioners and dehumidifiers

Only normative references that have an alternative Australian or Australian/New Zealand Standard have been listed.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex or appendix to which they apply. A ‘normative’ annex or appendix is an integral part of a Standard, whereas an ‘informative’ annex or appendix is only for information and guidance.

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Refrigerating systems and heat pumps—Safety and environmental requirements

Part 2:
Design, construction, testing, marking and documentation
(ISO 5149-2:2014, MOD)

1 Scope

This part of ISO 5149 is applicable to the design, construction, and installation of refrigerating systems, including piping, components, materials, and ancillary equipment directly associated with such systems, which are not covered in ISO 5149-1, ISO 5149-3, or ISO 5149-4. It also specifies requirements for testing, commissioning, marking, and documentation. Requirements for secondary heat-transfer circuits are excluded except for any safety devices associated with the refrigerating system.

This part of ISO 5149 is applicable to new refrigerating systems, extensions or modifications of already existing systems, and for used systems, being transferred to and operated on another site.

This part of ISO 5149 applies to:

a) refrigerating systems, stationary or mobile, of all sizes including heat pumps;

b) secondary cooling or heating systems;

c) the location of the refrigerating systems;

d) replaced parts and added components after the adoption of this part of ISO 5149, if they are not identical in function and in capacity.

This part of ISO 5149 does not cover “motor vehicle air conditioners”. It does not apply to goods in storage, with respect to spoilage or contamination, but it also applies in the case of the conversion of a system for another refrigerant.

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.

ISO 817*Refrigerants — Designation system*

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

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

ISO 5149-1, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 1: Definitions, classification and selection criteria*

ISO 5149-4, *Refrigerating systems and heat pumps — Safety and environmental requirements — Part 4: Operation, maintenance, repair and recovery*

ISO 6708, *Pipework components — Definition and selection of DN (nominal size)*

ISO 7010:2011, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

ISO 12100, *Safety of machinery — General principles for design — Risk assessment and risk reduction*