AS/NZS 1677.2:1998 (Incorporating Amendment Nos 1 and 2)

Australian/New Zealand Standard™

**Refrigerating systems** 

Part 2: Safety requirements for fixed applications





#### AS/NZS 1677.2:1998

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME/6, Refrigeration. It was approved on behalf of the Council of Standards Australia on 14 November 1997 and on behalf of the Council of Standards New Zealand on 3 November 1997. It was published on 5 January 1998.

The following interests are represented on CommitteeME/6:

Air Conditioning and Refrigeration Wholesalers Association, Australia Air-conditioning and Refrigeration Equipment Manufacturers Association of Australia

Association of Fluorocarbons Consumers and Manufacturers, Australia

Australasian Railway Association

Australian Chamber of Commerce and Industry

Australian Institute of Refrigeration Air Conditioning and Heating

Australian Liquefied Petroleum Gas Association

Australian Retailers Association

Commercial Refrigeration Manufacturers Association of Australia

Institution of Engineers Australia

Institution of Refrigeration Heating and Air Conditioning Engineers, New Zealand

Metal Trades Industry Association of Australia

Ministry of Commerce, New Zealand

Motor Vehicle Repair Industry Council, Australia

Office of Fair Trading and Business Affairs, Victoria

Refrigeration & Air Conditioning Companies Association, New Zealand

Vehicle Air Conditioning Specialists of Australia

WorkCover New South Wales

### Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Australia web site at <a href="https://www.standards.com.au">www.standards.com.au</a> or Standards New Zealand web site at <a href="https://www.standards.co.nz">www.standards.co.nz</a> and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. 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 either Standards Australia International or Standards New Zealand at the address shown on the back cover.

AS/NZS 1677.2:1998 (Incorporating Amendment Nos 1 and 2)

## Australian/New Zealand Standard™

## Refrigerating systems

# Part 2: Safety requirements for fixed applications

Originated in Australia as part of AS CB3—1933.
Final Australian edition AS 1677—1986.
Originated in New Zealand as NZSS 1653:1962.
Final New Zealand editions NZS 5235.1:1991 and NZS 5235.2:1988.
AS 1677—1986, NZS 5235.1:1991 and NZS 5235.2:1998 jointly revised, amalgamated and redesignated in part as AS/NZS 1677.2:1998.
Reissued incorporating Amendment Nos 1 and 2 (December 2000).

### **COPYRIGHT**

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 1685 7

### **PREFACE**

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME/6, Refrigeration. This Standard supersedes (in part) AS 1677—1986, Refrigerating systems and NZS 5235, Code of practice for safety in mechanical refrigeration (Refrigeration code), Part 1:1991, Refrigerating systems with a total refrigeration effect in excess of 30 kW and Part 2:1988, Refrigerating systems with a total refrigeration effect less than 30 kW.

This Standard incorporates Amendment No. 1, (June 1999) and Amendment No. 2, (December 2000). The changes required by the Amendments are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure, or part thereof affected.

The objective of this document is to provide standardized minimum requirements to address the fundamental safety aspects of refrigerating systems for use by designers, installers, manufacturers, operators and regulators of these systems.

This Standard forms Part 2 of a three-part series of Standards to address refrigerating systems. Part 1 of the series covers refrigerant classification and Part 3 addresses safety requirements for mobile applications. This Standard is based on BS 4434:1995, Safety and environmental aspects in the design, construction and installation of refrigerating appliances and systems, ANSI/ASHRAE 15:1992, Safety code for mechanical refrigeration and ISO 5149:1993, Mechanical refrigerating systems used for cooling and heating—Safety requirements.

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

This Standard has undergone a considerable number of changes and revisions. Details of the publishing history can be obtained from Standards Australia or Standards New Zealand Information Centre.

### CONTENTS

		Page
SECTIO	ON 1 SCOPE AND GENERAL	
1.1	SCOPE	5
1.2	PERFORMANCE REQUIREMENTS	5
1.3	REFERENCED DOCUMENTS	
1.4	DEFINITIONS	6
SECTIO	ON 2 SYSTEM SELECTION	
2.1	SYSTEM DESIGNATION	11
2.2	OCCUPANCY CLASSIFICATION	
2.3	REFRIGERANT GROUP AND COOLING SYSTEM	12
2.4	MULTIPLE OCCUPANCIES	
2.5	MAXIMUM CHARGE OF REFRIGERANTS OF GROUPS A1 AND A2	13
2.6	MAXIMUM CHARGE OF REFRIGERANT OF GROUP A3	14
2.7	MAXIMUM CHARGE OF REFRIGERANTS OF GROUP B1 AND B2	
2.8	SECONDARY REFRIGERANTS	17
2.9	CRITICAL TEMPERATURES	17
2.10	COMPATIBILITY	17
2.11	COMBINATION SYSTEMS	17
2.12	ACCUMULATION OF HEAVIER-THAN-AIR REFRIGERANTS	17
SECTIO	ON 3 DESIGN AND CONSTRUCTION	
3.1	MAXIMUM OPERATING PRESSURE (p <sub>s</sub> )	18
3.2	COMPONENT DESIGN PRESSURE	
3.3	UNIT SYSTEMS AND SELF-CONTAINED SYSTEMS	
3.4	PRESSURE VESSELS.	
3.5	HEAT EXCHANGERS	
3.6	PIPING AND FITTINGS	22
3.7	PROTECTION AGAINST EXCESS PRESSURE	
3.8	ARRANGEMENT OF PRESSURE GAUGES	30
3.9	LIQUID LEVEL INDICATORS	30
SECTIO	ON 4 SITE AND INSTALLATION	
4.1	PEDESTRIAN THOROUGHFARES	31
4.2	SAFETY PROVISIONS FOR PERSONNEL IN REFRIGERATED SPACES	31
4.3	LOCATION OF REFRIGERANT PIPING	31
4.4	MACHINERY AND EQUIPMENT IN THE OPEN AIR	32
4.5	PROTECTION OF FANS AND OTHER MOVING MACHINERY	32
4.6	LIGHTING	32
4.7	MACHINERY ROOMS	33
4.8	REFRIGERANT LEAK DETECTORS	35
4.9	ELECTRICAL INSTALLATIONS	36
SECTIO	ON 5 TESTING, INSPECTION, DOCUMENTATION AND MARKING	
5.1	TESTING	38
5.2	INSPECTION	
	DOCUMENTATION	
5 4	MARKING	39



	This is a free preview.	Purchase the e	entire publication	at the link below:
--	-------------------------	----------------	--------------------	--------------------

**Product Page** 

- Dooking for additional Standards? Visit Intertek Inform Infostore
- Dearn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation