

Australian Standard<sup>®</sup>

---

**Automatic fire detection and alarm  
systems**

**Part 13: Duct sampling units**

---

This Australian Standard was prepared by Committee FP/2, Fire Detection, Warning, Control and Intercom Systems. It was approved on behalf of the Council of Standards Australia on 30 January 1998 and published on 5 April 1998.

---

The following interests are represented on Committee FP/2:

Audio Engineering Society  
Australian Building Codes Board  
Australian Chamber of Commerce and Industry  
Australian Electrical and Electronic Manufacturers Association  
Australasian Fire Authorities Council  
Commonwealth Fire Board  
Deafness Forum of Australia  
Department of Defence  
Fire Protection Association Australia  
Insurance Council of Australia  
National Electrical Contractors Association of Australia  
New Zealand Fire Equipment Association  
New Zealand Fire Protection Association  
New Zealand Fire Protection Industry Contractors Association  
Property Council of Australia  
Scientific Services Laboratory AGAL—Department of Administrative Services  
Telstra Corporation

---

**Review of Australian Standards.** To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications; this information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

---

*This Standard was issued in draft form for comment as DR 97004.*

Australian Standard<sup>®</sup>

---

**Automatic fire detection and alarm  
systems**

**Part 13: Duct sampling units**

---

First published as AS 1603.13—1998.

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee FP/2, Fire Detection, Warning, Control and Intercom Systems, to provide performance requirements for duct sampling units for use in fire detection systems complying with the requirements of AS 1670.1, *Automatic fire detection and alarm systems—System design, installation and Commissioning, Part 1: Fire*, or in smoke management systems as required by AS 1668.1, *The use of mechanical ventilation and air-conditioning in buildings, Part 1: Fire and smoke control* and is the result of a consensus among representatives on the Joint Committee to produce it as an Australian Standard.

The term ‘normative’ has been used in this Standard to define the application of the appendix to which it applies. A ‘normative’ appendix is an integral part of a Standard.

The objective of this Standard is to provide designers and the manufacturers of duct sampling units with requirements for the design, construction and performance of duct probe assemblies and their associated, or integral smoke detectors.

## © Copyright – STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

## CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE . . . . .	4
1.2 APPLICATION . . . . .	4
1.3 CLASSIFICATION . . . . .	4
1.4 REFERENCED DOCUMENTS . . . . .	4
1.5 DEFINITIONS . . . . .	5
1.6 INTERPRETATION OF SPECIFIED LIMITING VALUES . . . . .	5
1.7 NEW DESIGNS AND INNOVATIONS . . . . .	5
SECTION 2 GENERAL REQUIREMENTS	
2.1 GENERAL . . . . .	6
2.2 SENSITIVITY . . . . .	6
2.3 AIR LEAKAGE . . . . .	6
SECTION 3 DESIGN AND CONSTRUCTION	
3.1 GENERAL . . . . .	7
3.2 MATERIALS AND COMPONENTS . . . . .	7
3.3 RADIOACTIVE MATERIALS . . . . .	7
3.4 ELECTRICAL REQUIREMENTS . . . . .	8
3.5 CONNECTING FACILITIES . . . . .	8
3.6 INDICATING FACILITIES . . . . .	8
3.7 ENCLOSURES . . . . .	8
3.8 MOUNTING FACILITIES . . . . .	8
3.9 DIFFERENTIAL PRESSURE MEASURING FACILITIES . . . . .	8
SECTION 4 PRODUCT MARKING AND INFORMATION	
4.1 MARKING . . . . .	9
4.2 POINT-OF-SALE INFORMATION . . . . .	9
SECTION 5 ASSESSMENT OF COMPLIANCE	
5.1 CRITERIA OF ASSESSMENT AND TEST SCHEDULE . . . . .	10
5.2 FUNCTIONAL ASSESSMENT . . . . .	10
5.3 ENDURANCE ASSESSMENT . . . . .	12
5.4 REPORTING . . . . .	13
APPENDICES	
A FIRE TESTS . . . . .	14
B AIR LEAKAGE TESTS . . . . .	17

## STANDARDS AUSTRALIA

## Australian Standard

## Automatic fire detection and alarm systems

## Part 13: Duct sampling units

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE** This Standard specifies requirements for the design, construction and performance of duct sampling units (DSU), as used in automatic fire detection and alarm systems.

**1.2 APPLICATION** This Standard applies to DSUs intended for installation in accordance with AS 1670.1 and AS 1668.1, connected to control and indicating equipment (CIE) complying with AS 4428.1.

**1.3 CLASSIFICATION** Duct sampling units shall be classified in accordance with their nominal sensitivity and minimum duct air velocity.

**1.4 REFERENCED DOCUMENTS** The following documents are referred to in this Standard:

## AS

- 1668 The use of mechanical ventilation and air-conditioning in buildings
- 1668.1 Part 1: Fire and smoke control
- 1670 Fire detection, warning, control and intercom systems—System design, installation and commissioning
- 1670.1 Part 1: Fire
- 1939 Degrees of protection provided by enclosures for electrical equipment (IP Code)
- 2362 Automatic fire detection and alarm systems—Methods of test for actuating devices
  - 2362.4 Method 4: Voltage stability test
  - 2362.5 Method 5: Insulation resistance test
  - 2362.6 Method 6: Static discharge test
  - 2362.7 Method 7: Electromagnetic interference test
  - 2362.8 Method 8: Impulse voltage withstand test
  - 2362.9 Method 9: High frequency disturbance test
  - 2362.10 Method 10: Low temperature test
  - 2362.11 Method 11: Damp heat test
  - 2362.12 Method 12: Dry heat test
  - 2362.13 Method 13: Corrosion test
  - 2362.15 Method 15: Vibration test
  - 2362.16 Method 16: Impact test
  - 2362.17 Method 17: Sensitivity test
  - 2362.19 Method 19: Dust test
  - 2362.25 Method 25: Indicator visibility test