

Australian/New Zealand Standard™

**Diesel engine systems for underground  
coal mines**

**Part 2: Explosion protected**



### **AS/NZS 3584.2:2008**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-018, Mining Equipment. It was approved on behalf of the Council of Standards Australia on 19 January 2007 and on behalf of the Council of Standards New Zealand on 2 February 2007.  
This Standard was published on 23 January 2008.

---

The following are represented on Committee ME-018:

Australasian Institute of Mining and Metallurgy  
Australian Chamber of Commerce and Industry  
Australian Coal Association  
Bureau of Steel Manufacturers of Australia  
Chamber of Minerals and Energy of Western Australia  
Department of Infrastructure, Energy and Resources (Tasmania)  
Department of Labour, New Zealand  
Department of Mineral Resources, N.S.W.  
Department of Minerals and Energy, W.A.  
Department of Mines and Energy (Qld)  
Department of Natural Resources and Environment, Vic.  
Institution of Mining Engineers, Australia  
Minerals Council of Australia  
South Australian Chamber of Mines and Energy

---

### **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 Standards may also be withdrawn.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 Web Shop at [www.standards.com.au](http://www.standards.com.au) or Standards New Zealand web site at [www.standards.co.nz](http://www.standards.co.nz) 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 or Standards New Zealand at the address shown on the back cover.

---

AS/NZS 3584.2:2008

Australian/New Zealand Standard™

## **Diesel engine systems for underground coal mines**

### **Part 2: Explosion protected**

Originated as AS 3584—1988.  
Second edition 1991.  
Jointly revised and redesignated as AS/NZS 3584.2:2003.  
Second edition 2008.

#### **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, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 8516 6

## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-018, Mining Equipment, to supersede AS/NZS 3584.2:2003.

The objective of this Standard is to promote the safety of explosion-protected diesel engine systems that are used underground in coal mines.

This Standard is one of the following series of Standards:

### AS/NZS

- 3584 Diesel engine systems for underground coal mines
- 3584.1 Part 1: Fire protected—Heavy duty
- 3584.2 Part 2: Explosion protected (this Standard)
- 3584.3 Part 3: Maintenance

This edition allows for the implementation of new technology in diesel engine systems, including the use of dry exhaust systems, limiting the emission of diesel aerosol particulates and generally reducing the emission of pollutants. New measures have been included to provide a greater assurance of safety by preventing the propagation of an internal explosion. Its emphasis is to facilitate the implementation of new technology resulting in the increased operational safety of diesel engine systems.

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.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

## CONTENTS

	<i>Page</i>
<b>SECTION 1 SCOPE AND GENERAL</b>	
1.1 SCOPE .....	5
1.2 APPLICATION .....	5
1.3 REFERENCED DOCUMENTS .....	6
1.4 DEFINITIONS .....	7
<b>SECTION 2 DESIGN AND CONSTRUCTION</b>	
2.1 ENGINE TYPES .....	10
2.2 CONDITION MONITORING .....	10
2.3 SURFACE TEMPERATURE .....	10
2.4 MATERIALS .....	10
2.5 FLEXIBLE METALLIC PIPES .....	10
2.6 JOINTS .....	11
2.7 TRANSMISSION BELTS .....	13
2.8 ENGINE BREATHER .....	13
2.9 STARTING AIDS .....	14
2.10 FUEL SYSTEMS .....	14
2.11 AIR INLET SYSTEMS .....	14
2.12 AIR COMPRESSORS .....	14
2.13 COOLING SYSTEMS .....	15
2.14 ENGINE SHUTDOWN SYSTEMS .....	15
2.15 EXHAUST SYSTEMS .....	17
2.16 ELECTRICAL SYSTEMS .....	25
<b>SECTION 3 MARKING</b>	
3.1 COMPLIANCE PLATE .....	26
3.2 ENGINE SPECIFICATION PLATE .....	27
3.3 WARNING LABELS .....	28
<b>SECTION 4 TESTING</b>	
4.1 TYPE TESTING .....	30
4.2 MODIFIED COMPONENTS .....	30
4.3 INSTALLED TESTS BY THE DIESEL ENGINE SYSTEM MANUFACTURER ...	31
4.4 ROUTINE COMMISSIONING TESTS BY THE MANUFACTURER .....	31
4.5 USE OF LOW EMISSION FUEL .....	32
4.6 MANAGEMENT SYSTEM .....	32
<b>SECTION 5 DOCUMENTATION</b>	
5.1 DOCUMENTATION TO BE SUPPLIED .....	33
5.2 GENERAL ARRANGEMENT DRAWINGS .....	34
<b>APPENDICES</b>	
A MEANS FOR DEMONSTRATING COMPLIANCE WITH THIS STANDARD .....	37
B DETERMINING LOAD-SPEED CHARACTERISTICS .....	38
C DETERMINING CONSTITUENTS OF EXHAUST GAS .....	42
D DETERMINING GASEOUS EMISSION LEVELS .....	49
E DETERMINING DURATION, TEMPERATURE AND FLUID USAGE .....	57
F TESTING ENGINE PROTECTION SYSTEMS .....	61
G TESTING SPARK ARRESTER COMPONENTS .....	67

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

[Product Page](#)

- 
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
  - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-