

Australian Standard[®]

**Underground mining—Winding
suspension equipment**

Part 6: Shackles and chains



This Australian Standard® was prepared by Committee ME-018, Mining Equipment. It was approved on behalf of the Council of Standards Australia on 3 March 2005. This Standard was published on 31 May 2005.

The following are represented on Committee ME-018:

- Australian Chamber of Commerce and Industry
 - Australian Coal Association
 - Australian Industry Group
 - Department of Industry and Resources, WA
 - Department of Labour New Zealand
 - Department of Mineral Resources, NSW
 - Department of Natural Resources and Mines (Qld)
 - Engineers Australia
 - South Australian Chamber of Mines and Energy
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Part 6: Shackles and chains

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PREFACE

This Standard was prepared by the Standards Australia Committee ME-018, Mining Equipment.

This Standard incorporates Amendment No. 1 (May 2011). The changes required by the Amendment 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 Standard is to specify requirements for the safe provision of shackles and chains for winding suspension equipment used in underground coal mines. These requirements are for reference by manufacturers, users, testers and regulators.

This Standard is one of a series of Standards on underground mine winding suspension equipment, as follows:

AS

3637 Underground mining—Winding suspension equipment

3637.1 Part 1: General requirements

3637.2 Part 2: Detaching hooks

3637.3 Part 3: Rope cappings

3637.4 Part 4: Drawbars and connecting links

3637.5 Part 5: Rope swivels and swivel hooks

3637.6 Part 6: Shackles and chains (this Standard)

Reference was made to the British Coal document, *Procedure for Examining Cage Suspension Gear at Testing Centres*, in the preparation of Appendix A, and to the British Coal document, *Design Guide for Cage Suspension Gear*, in the preparation of Appendices B and C.

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.

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STANDARDS AUSTRALIA

Australian Standard

Underground mining—Winding suspension equipment

Part 6: Shackles and chains

1 SCOPE

This Standard specifies requirements for the design, manufacture and testing of shackles and chains for use in the suspension of conveyances in underground vertical mine shafts.

General requirements are specified in AS 3637.1.

NOTES:

- 1 Guidelines for the design of shackles are given in Appendix A.
- 2 Guidelines for the design of chain links are given in Appendix B.
- 3 Permissible imperfections in components are given in Appendix C.

2 REFERENCED DOCUMENTS

The following document is referred to in this Standard:

AS

- 3637 Underground mining—Winding suspension equipment
- 3637.1 Part 1: General requirements
- 3637.4 Part 4: Drawbars and connecting links

3 DEFINITIONS

For the purposes of this Standard, the definitions below apply.

3.1 Chain

An assembly of interconnecting links (see Figure 2).

3.2 Conveyance

Any car, carriage, cage, skip, kibble or stage in which persons, minerals or materials are wound through a shaft and any counterweight.

3.3 Conveyance chain

An assembly of chains (see Figure 3).

3.4 Rating

The working load limit (see AS 3637.1) of a conveyance chain when arranged in a defined geometrical configuration (see Figure 3 and Clause 6.3).

3.5 Safety chain

Chain(s) that prevents the conveyance from falling if the conveyance chain fails (see Figure 3).

3.6 Shackle

An assembly consisting of a body, a removable pin and a positive locking device (see Figure 1).