

Australian/New Zealand Standard™

Underground mining—Shaft equipment

**Part 6: Fixed guides, rope guides and
rubbing ropes for conveyances**



AS/NZS 3785.6:2015

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 25 February 2015 and on behalf of the Council of Standards New Zealand on 29 January 2015.
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The following are represented on Committee ME-018:

Australasian Institute of Mining and Metallurgy
Australian Chamber of Commerce and Industry
Australian Industry Group
Construction and Mining Equipment Industry Group
Department of Mines and Petroleum, WA
Department of Natural Resources and Mines, Qld
Department of Trade and Investment, NSW
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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-018, Mining Equipment, to supersede AS 3785.6—1992, *Underground mining—Shaft equipment, Part 6: Guides and rubbing ropes for conveyances*.

This Standard is one of a series on shaft equipment for underground mines. The other Standards in the series are as follows:

AS/(NZS)

3785	Underground mining—Shaft equipment
3785.1	Part 1: Shaft overwind safety catch system
3785.2	Part 2: Shaft winding arresting systems
3785.3	Part 3: Drum winding gripper systems
3785.4	Part 4: Conveyances for vertical shafts
3785.5	Part 5: Headframes
3785.7	Part 7: Sheaves
3785.8	Part 8: Personnel conveyances in other than vertical shafts

The objective of this Standard is to provide designers, manufacturers and users with a clear specification for the design, manufacture and maintenance of conveyance guidance systems for vertical mine shafts.

The objective of this revision is to—

- (a) update references and design criteria;
- (b) foster a move away from static to dynamic design criteria; and
- (c) provide a comprehensive dynamic design method that is heavily reliant on modern computational methods.

This Standard includes material that is adapted from—

- (i) SANS 10208-4, Ed. 2 (2011), *Design of Structures for the Mining Industry, Part 4: Shaft System Structures*; and
- (ii) SANS 10208-3, Ed. 3 (2012), *Design of Structures for the Mining Industry, Part 3: Conveyances*,

which is reproduced with permission from South African Bureau of Standards in its capacity as the source and publisher of those documents.

The principal differences between this and the previous edition are as follows:

- (A) Introduction of dynamic analysis methods for design calculations.
- (B) Graphs clarified to make interpolation easier.
- (C) Wording revised and expanded to provide clearer explanation to users.

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is for information and guidance only.

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FOREWORD

Fixed guides, rope guides and rubbing ropes are installed in vertical shafts to guide conveyances as they travel up and down in the shaft or skyshaft (or both). Their function is to limit the motion of the conveyances to prevent them from colliding with one another or with the shaft walls and other fixtures and equipment installed in the shaft or skyshaft.

Fixed guides are normally much stiffer than rope guides and therefore permit conveyances to operate in the shaft with much smaller clearances than rope guides permit.

Rope guide installations normally require short sections of fixed guides to be installed at locations where the conveyances are loaded and unloaded to control deflections during loading and unloading.

Rubbing ropes are sometimes installed between rope-guided conveyances in order to reduce the risk of collision when two conveyances pass one another.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Underground mining—Shaft equipment

Part 6: Fixed guides, rope guides and rubbing ropes for conveyances

1 SCOPE

This Standard specifies requirements for fixed guides, rope guides and rubbing ropes for conveyances used in vertical mine shafts.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- | | |
|--------|--|
| 1720 | Timber structures |
| 1720.1 | Part 1: Design methods |
| 3569 | Steel wire ropes—Product specification |
| 3637 | Underground mining—Winding suspension equipment |
| 3637.1 | Part 1: General requirements |
| 3818 | Timber—Heavy structural products—Visually graded |
| 3818.5 | Part 5: Mine lift guides |
| 3990 | Mechanical equipment—Steelwork |
| 4100 | Steel structures |

AS/NZS

- | | |
|--------|---|
| 1170 | Structural design actions |
| 1170.1 | Part 1: Permanent, imposed and other actions |
| 4812 | Non-destructive examination and discard criteria for wire ropes in mine winding systems |

BS

- | | |
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| 7608 | Guide to fatigue design and assessment of steel products |
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COMRO

Design Guidelines for the Dynamic Performance of Shaft Steelwork and Conveyances

SANS

- | | |
|---------|--|
| 10208 | Design of Structures for the Mining Industry |
| 10208-3 | Part 3: Conveyances |
| 10208-4 | Part 4: Shaft System Structures |

3 DEFINITIONS

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

3.1 Bunton/dividers

Structural members installed to support fixed guides, and where attached, ladders, piping, cables, brattice panels and other fixtures in the shaft.