Amendt 1: 1993·05·17

AS 3785.5—1991

DR 95456

1998 ED.

Australian Standard®

Underground mining—Shaft equipment

Part 5: Headframes

STANDARDS AUSTRALIA

This Australian Standard was prepared by Committee ME/18, Mining Equipment. It was approved on behalf of the Council of Standards Australia on 15 February 1991 and published on 15 April 1991.

The following interests are represented on Committee ME/18:

Australasian Institute of Mining and Metallurgy

Australian Coal Association

Australian Mining Industry Council

Broken Hill Mining Managers Association

Bureau of Steel Manufacturers of Australia

Chamber of Mines of Western Australia

Confederation of Australian Industry

Department of Industry and Economic Planning, Vic.

Department of Minerals and Energy, N.S.W.

Department of Mines, W.A.

Department of Resource Industries, Qld

Department of Resources and Energy, Tas.

Institution of Engineers, Australia

Institution of Mining Electrical and Mining Mechanical Engineers

New South Wales Coal Association

Queensland Chamber of Mines

Queensland Coal Association

Queensland Coal Board

South Australian Chamber of Mines

University of New South Wales

Additional interests participating in preparation of this Standard:

Mining companies

Mining consultants

Mining equipment manufacturers and suppliers

This Standard was issued in draft form for comment as DR 90031.

STANDARDS AUSTRALIA

Amendment No. 1
to
AS 3785.5—1991
Underground mining—Shaft equipment
Part 5: Headframes

REVISED TEXT

The 1991 edition of AS 3785.5 is amended as follows; the amendments should be inserted in the appropriate place.

SUMMARY: This Amendment applies to Clause 3.3.

Published on 17 May 1993.

AMDT No. 1 MAY 1993

Page 12 Clause 3.3(a)

Add 'other than stability' after 'emergency load combinations':

AMDT No. 1 MAY 1993

Page 12 Clause 3.3(d)(ii)

1 Item (B), *delete* 'if crane loads are included'.

2 *Delete* item (C).

AMDT No. 1 MAY 1993

Page 13 Clause 3.3(e)

Delete existing Clause and *substitute:*

'For stability calculations, the design loadings shown in Table 2.1 shall be separated into those tending to cause instability and those tending to resist instability. The partial load factors applied to the resisting loads shall be taken to be 1.0 for USD and LSD and 0.7 for WSD. The partial load factors shown in Table 3.1 shall be applied to the design loads tending to cause instability. The headframe and skyshaft shall be designed such that the ratio of the design resistance effect to design action effect is not less than: 1.25 for USD and LSD or 1.75 for WSD.'

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PREFACE

This Standard was prepared by the Standards Australia Committee on Mining Equipment.

It is one of a series of Standards on mine shaft equipment. The other Standards in the series are as follows:

(a) *Underground mining—Shaft equipment,* Part 1: *Drum winding overwind safety catch systems*

(b) *Underground mining—Shaft equipment,* Part 2: *Friction winding arresting systems*

(c) *Underground mining—Shaft equipment,* Part 3: *Drum winding gripper systems*

(d) *Underground mining—Shaft equipment,* Part 4: *Conveyances for vertical shafts*

(e) *Underground mining—Shaft equipment,* Part 6: *Guides and rubbing ropes for conveyances*

(f) *Underground mining—Shaft equipment,* Part 7: *Sheaves*

In the preparation of this Standard, reference was made to the following Standards:

South African Standard SABS 0208—1986: *Code of practice for the design of structures for the mining industry,* Part 1: *Headgear*

German Standard DIN 4118—1981: *Head frames and winding towers for mines—Design loads, calculation principles and design principles*

British Standard BS 5950: *Structural use of steelwork in building,* Part 1: *Code of practice for design in simple and continuous construction: Hot rolled sections*

CONTENTS

STANDARDS AUSTRALIA

Australian Standard
Underground mining—Shaft equipment

Part 5: Headframes

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies design requirements for headframes and skyshafts, for use on mine winding installations.

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

AS
1170 SAA Loading Code
1170.1 Part 1: Dead and live loads and load combinations
1170.2 Part 2: Wind loads

1250 SAA Steel Structures Code

1418 SAA Crane Code
1418.1 Part 1: General requirements

1657 SAA Code for Fixed Platforms, Walkways, Stairways, and Ladders

1664 SAA Aluminium Structures Code

1720 SAA Timber Structures Code
1720.1 Part 1: Design methods

2121 SAA Earthquake Code

2670 Evaluation of human exposure to whole body vibration

3600 Concrete structures

3785 Underground mining—Shaft equipment
3785.6 Part 6: Guides and rubbing ropes

4100 Steel structures
4100 Supplement 1: Steel structures—Commentary

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

1.3.1 Approved—approved by the Statutory Authority.

1.3.2 Arresting distance—the distance between the point of entry and the point of impact.

1.3.3 Arrestor anchor—the anchor which fixes the arrestor to the headframe or skyshaft.

1.3.4 Balance rope—one or more wire ropes connecting the undersides of a pair of conveyances.

1.3.5 Collar level—the top of the shaft.

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

1.3.7 Conveyance rope attachments—an assembly of components used to connect the ends of the winding rope or balance rope to the conveyance.

1.3.8 Conveyance design load—the weight of a fully-loaded conveyance including the weight of attachments and the appropriate portion of the balance ropes but excluding the weight of the winding rope.

1.3.9 Dead load—the weight of all permanent construction together with all permanently installed equipment and services on the structure.

NOTE: For tower headframes, the winder(s) and associated equipment are deemed to be dead loads.

1.3.10 Drum winder—a winder having a driven drum of circular cross-section which acts as a rope coiler and anchors one end of the rope. Such drums may be cylindrical, conical, or cylindro-conical.

1.3.11 Earthquake load—the forces on the headframe or skyshaft resulting from seismic action.

1.3.12 Fleet angle—the angle formed between the line of the rope and the normal at its point of incidence on the drum or sheave, measured in the plane of the rope. This definition applies to ground-mounted drum winders only.