

Australian Standard™

**Underground mining—Shaft equipment**

**Part 1: Drum winding overwind safety  
catch system**

This Australian Standard was prepared by Committee ME-018, Mining Equipment. It was approved on behalf of the Council of Standards Australia on 21 April 2005. This Standard was published on 8 June 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 N.S.W.  
Department of Natural Resources and Mines (Qld)  
Engineers 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 Standards may also be withdrawn.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 Standards can be found by visiting the Standards Web Shop at [www.standards.com.au](http://www.standards.com.au) and looking up the relevant Standard in the on-line catalogue.

Alternatively, the printed catalogue provides information current at 1 January each year, and the monthly magazine, *The Global Standard*, has a full listing of revisions and amendments published each month.

Australian Standards<sup>®</sup> and other products and services developed by Standards Australia are published and distributed under contract by SAI Global, which operates the Standards Web Shop.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at [mail@standards.org.au](mailto:mail@standards.org.au), or write to the Chief Executive, Standards Australia, GPO Box 5420, Sydney, NSW 2001.

---

*This Standard was issued in draft form for comment as DR 04556.*

Australian Standard™

**Underground mining—Shaft equipment**

**Part 1: Drum winding overwind safety  
catch system**

Originally as AS 3785.1—1990.  
Second edition 2005.

**COPYRIGHT**

© Standards Australia

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.

Published by Standards Australia GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 6759 1

## PREFACE

This Standard was prepared by the Standards Australia Committee ME-018, Mining Equipment, to supersede AS 3785.1—1990.

This Standard is part of a series on mine shaft equipment, as follows:

AS

- 3785      Underground mining—Shaft equipment
- 3785.1    Part 1: Drum winding overwind safety catch systems
- 3785.2    Part 2: Friction winding arresting systems
- 3785.3    Part 3: Drum winding gripper systems
- 3785.4    Part 4: Conveyances for vertical shafts
- 3785.5    Part 5: Headframes
- 3785.6    Part 6: Guides and rubbing ropes for conveyances
- 3786.7    Part 7: Sheaves

The objective of this Standard is to provide a specification for drum winding overwind safety catch systems installed in shafts in underground mines, which ensures adequate safety in operation. This Standard is for reference by designers, manufacturers, mine operators and regulators.

## CONTENTS

	<i>Page</i>
FOREWORD.....	4
1 SCOPE.....	5
2 DEFINITIONS.....	5
3 MATERIALS.....	6
4 DESIGN.....	7
5 TESTING.....	9
6 TEST CERTIFICATES.....	11
APPENDICES	
A INFORMATION TO BE PROVIDED BY THE PURCHASER.....	13
B INFORMATION TO BE PROVIDED BY THE SUPPLIER.....	14

## FOREWORD

Overwind safety catch systems should be incorporated in drum winding installations to provide a safeguard against malfunction of the detaching hook catch mechanism or failure of the suspension gear in the event of an overwind.

During an overwind that causes the detaching hook to be drawn into the catchplate or detaching bell and the rope to be detached, the conveyance will continue upward until its kinetic energy is dissipated either by potentially destructive impact or by harmless conversion to gravitational potential energy. The possibility of damage to the conveyance, the conveyance suspension gear, and the conveyance contents should be avoided by designing the conveyance suspension equipment with sufficient length and freedom of movement to ensure that the conveyance can rise unimpeded until the kinetic energy is harmlessly dissipated.

Overwind safety catch systems are not intended to handle a crash.

This free upward movement will result in slack suspension equipment, which can be severely stressed and possibly broken if the conveyance is allowed to fall back through an excessive distance. The overwind safety catch system should act to limit the distance that a conveyance can fall back following such an overwind.

## STANDARDS AUSTRALIA

### Australian Standard Underground mining—Shaft equipment

#### Part 1: Drum winding overwind safety catch system

## 1 SCOPE

This Standard specifies requirements for overwind safety catch systems in vertical shaft drum winding installations. It makes provision for an overwind with a detach velocity up to the maximum detach velocity.

### NOTES:

- 1 Guidelines on information that should be provided by the purchaser are given in Appendix A.
- 2 Guidelines on information that should be provided by the supplier are given in Appendix B.

## 2 DEFINITIONS

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

### 2.1 Approved and approval

Approved by or approval of the statutory authority.

### 2.2 Catchplate/Detaching bell

An apparatus in a headframe which operates a detaching hook in the event of an overwind and from which the detached conveyance is suspended.

### 2.3 Conveyance

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

### 2.4 Detach velocity

The velocity of the ascending conveyance at the point of detach.

### 2.5 Detaching hook

A device located between the end of a winding rope and a conveyance so that in the event of an overwind an ascending drum-wound conveyance is detached from the rope and held in the headframe.

### 2.6 Fall-back distance

The maximum distance that an overwound conveyance that has passed the point of engagement can descend before being halted by the overwind safety catch system (see Figure 2).

### 2.7 Headframe

The structure, including its footings, that supports the rope loads in a winding installation.

### 2.8 Operating distance

The distance from the point of detach to the point of impact.

### 2.9 Overwind

Unintentional travel of an ascending conveyance beyond its normal operating limits.