

Australian Standard<sup>®</sup>

**Amusement rides and devices**

**Part 4.3: Specific requirements—Roller  
coasters**



This Australian Standard® was prepared by Committee ME-051, Amusement Rides and Devices. It was approved on behalf of the Council of Standards Australia on 11 December 2006.

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The following are represented on Committee ME-051:

- Australian Amusement Association
  - Australian Amusement Leisure and Recreation Association
  - Australian Chamber of Commerce and Industry
  - Australian Industry Group
  - Australian Ski Areas Association
  - Consumers Federation of Australia
  - Department for Administrative and Information Services, S.A.
  - Department of Industrial Relations, Qld
  - Department of Labour, New Zealand
  - Engineers Australia
  - Ministry of Economic Development, New Zealand
  - Safety Institute of Australia
  - Showmen's Guild of Australasia
  - Victorian Showmen's Guild
  - Victorian WorkCover Authority
  - WorkCover New South Wales
  - Worksafe Western Australia
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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

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## **Amusement rides and devices**

### **Part 4.3: Specific requirements—Roller coasters**

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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee, ME-051, Amusement Rides and Devices, to complement the general requirements for amusement rides and devices given in AS 3533.1, AS 3533.2 and AS 3533.3.

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee ME-051. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to provide designers, manufacturers, proprietors and operating staff with requirements and guidance specific to the design, construction, operation and maintenance of roller coasters that will protect the health and safety of both operating staff and patrons.

The Standard is part of a series designed to cover aspects of safety for amusement rides and devices. Parts 1 and 2 deal with the general aspects of safety common to all kinds of amusement rides and devices and are intended to be used in conjunction with the specific requirements for the particular type of ride. While some ride-specific requirements have been included in Parts 1 and 2, these are now being progressively moved into individual Standards in a new AS 3533.4 series. Parts in the AS 3533.4 series relate to particular rides or devices and give requirements and guidance tailored to the particular kinds of hazards relevant for that ride or device.

It should be noted that compliance with this Standard alone does not necessarily ensure that all legal obligations are being fulfilled.

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

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## FOREWORD

At present various persons have been assigned a duty of care in the general occupational health and safety legislation in Australia. While the legislation is slightly different in each State, in general these duties can be interpreted as indicated in this Foreword and may provide an understanding of the basis for the requirements in this Standard.

Under legislation, employers (including the operator of a roller coaster) have a duty to ensure the safety of their employees and other people at the workplace. The operator of a roller coaster has a duty to ensure that participants and others present are not exposed to risks arising from the activities at the workplace. This duty includes conducting a risk assessment of the ride and its operation to consider foreseeable risks to employees, participants and others, and to implement measures to eliminate or control such risks.

Designers, manufacturers and suppliers of the roller coaster also have duties to ensure the plant and equipment is safe and without risk when used properly. Additionally they need to provide information that is necessary to enable the plant to be used properly.

## STANDARDS AUSTRALIA

### Australian Standard Amusement rides and devices

#### Part 4.3: Specific requirements—Roller coasters

### 1 SCOPE

This Standard sets out requirements and guidance for the design, construction, operation and maintenance of roller coasters.

NOTE: This Standard refers to roller coasters whose main characteristic is that the motion of the vehicle is produced mainly by an exchange between potential and kinetic energy, and where an initial store of potential energy is provided by an elevating, launch or self-driven system. Coasters falling into this category may employ trains of interconnected vehicles, an individual vehicle or a number of individual vehicles, and may incorporate features in their track design which cause inversions (loops) and high accelerations. They may travel in both forward and reverse directions.

### 2 APPLICATION

This Standard should be used in conjunction with AS 3533.1, AS 3533.2 and AS 3533.3, which provide requirements and recommendations on matters common to all amusement rides and devices. Specific requirements in this Standard take precedence over corresponding requirements in AS 3533.1, AS 3533.2 and AS 3533.3. If the requirements of any part of this Standard conflict with any National, State or Territory regulations, the appropriate statutory regulations shall apply.

### 3 REFERENCED DOCUMENTS

The following Standards are referred to in this Standard:

#### AS

- 1720 Timber structures
- 1720.1 Part 1: Design methods
- 3533 Amusement rides and devices
- 3533.1 Part 1: Design and construction
- 3533.2 Part 2: Operation and maintenance
- 3533.3 Part 3: In-service inspection
- 3978 Non-destructive testing—Visual inspection of metal products and components
- 4024 Safeguarding of machinery
- 4024.1 Part 1: General principles (series)
- 60204 Safety of machinery—Electrical equipment of machines
- 60204.1 Part 1: General requirements (IEC 60204-1, Ed.5 (FDIS) MOD)
- 61508 Functional safety of electrical/electronic/programmable electronic safety-related systems
- 61508.1 Part 1: General requirements

#### AS/NZS

- 1554 Structural steel welding
- 1554.1 Part 1: Welding of steel structures