

Australian/New Zealand Standard™

**Heavy road vehicles—Mechanical  
coupling between articulated vehicle  
combinations**

**Part 3: Kingpins and associated  
equipment**

### **AS/NZS 4968.3:2003**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee ME-053, Heavy Road Vehicles. It was approved on behalf of the Council of Standards Australia on 21 May 2003 and on behalf of the Council of Standards New Zealand on 24 June 2003. It was published on 11 July 2003.

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The following are represented on Committee ME-053:

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Australian Road Transport Suppliers Association  
Australian Trucking Association  
AUSTROADS  
Commercial Vehicle Industry Association of Australia  
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New Zealand Truck and Trailer Manufacturers Federation  
Road Transport Forum, New Zealand  
Society of Automotive Engineers, Australasia  
Truck Industry Council  
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Additional interests participating in the preparation of this Standard:

Fifth wheel manufacturers and suppliers  
Kingpin manufacturers and suppliers  
Vehicle suppliers & trailer manufacturers

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# Australian/New Zealand Standard™

## **Heavy road vehicles—Mechanical coupling between articulated vehicle combinations**

### **Part 3: Kingpins and associated equipment**

Originated as part of AS D14—1968, AS D15—1968, AS 1771—1975, AS 1772—1975, AS 1773—1975, AS 2175 Supplement 1—2002 and AS 4235—1994.  
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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee ME-053, Heavy Road Vehicles, to supersede (in part) AS 1771—1996, *Installation of fifth wheel assemblies*, AS 1773—1996, *Articulated vehicles—Fifth wheel assemblies*, AS 2175—1995, *Articulated vehicles—Kingpins*, AS 2175 Suppl—2002, *Articulated vehicles—Kingpins*, AS 4235—1994, *Articulated vehicles—Design criteria for fifth wheel skid plates*.

The objectives of this Standard are to provide performance requirements and recommendations for the installation of kingpins and associated equipment, to assist in the development of standard practice in this field, to provide the transport industry with a standardized kingpin to ensure full interchangeability when coupling vehicle combinations, and provide a procedure for rating and selecting a kingpin for safe usage for specific vehicle combinations.

This Standard is Part 3 of AS/NZS 4968, *Heavy road vehicles—Mechanical coupling between articulated vehicle combinations*, which is published in three parts as follows:

Part 1: Design criteria and selection requirements for fifth wheel, kingpin and associated equipment

Part 2: Testing and installation of fifth wheel and associated equipment

Part 3: Kingpins and associated equipment (this Standard)

The Standard correlates with the dimensional requirements in International Standards for 50 mm kingpins (ISO 337:1981, *Road vehicles—50 semi-trailer fifth wheel coupling pin—Basic and mounting/interchangeability dimensions*), 90 mm kingpins (ISO 4086:2001, *Road vehicles—90 semi-trailer fifth wheel kingpins—Interchangeability*), and the rating and selecting of kingpins is based on the ‘D-value’ method used in the United Nations ECE Regulation 55.

In this Standard, 75 mm kingpins have been included due to widespread use in certain parts of Australia and recent developments in standardizing their dimensions. These kingpins are not contained in ISO or ECE Standards.

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/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard****Heavy road vehicles—Mechanical coupling between articulated vehicle combinations****Part 3: Kingpins and associated equipment****1 SCOPE**

This Standard specifies requirements for 50 mm, 75 mm and 90 mm kingpins for semi-trailers used in articulated vehicles, B-doubles, and road trains, in normal use on both sealed and unsealed roads.

The requirements cover mechanical properties, dimensional standards for interchangeability and dynamic testing (refer to Appendix A).

The determination of dynamic strength using finite element analysis is given in Appendix B.

## NOTES:

- 1 Recommendations and requirements for fifth wheel assemblies on prime movers are given in AS/NZS 4968.2.
- 2 Guidelines for the attachment of kingpin to skid plate are given in Appendix C.
- 3 The method of calculation of D-values is given in AS/NZS 4968.1.

**2 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard:

## AS

- |        |   |
|--------|---|
| 1110   | ISO metric hexagon bolts and screws—Product grades A and B  |
| 1110.1 | Part 1: Bolts   |
| 1391   | Methods for tensile testing of metals   |
| 1815   | Metallic materials—Rockwell hardness test (series)  |
| 2174   | Articulated vehicles—Mechanical coupling between prime movers and semi-trailers—Interchangeability requirements |
| 2174.1 | Part 1: Non-dedicated vehicle combinations  |

## AS/NZS

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|--------|--|
| 1594   | Hot-rolled steel flat products   |
| 4968   | Heavy road vehicles—Mechanical coupling between articulated vehicle combinations                     |
| 4968.1 | Part 1: Design criteria and selection requirements for fifth wheel, kingpin and associated equipment |
| 4968.2 | Part 2: Testing and installation of fifth wheel and associated equipment                             |

## ISO

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|------|--|
| 4287 | Geometrical Product Specifications (GPS)—Surface texture: Profile method—Terms, definitions and surface texture parameters |
|------|--|

## SAE

- |       |   |
|-------|---|
| J 700 | Upper coupler kingpin—Commercial trailers and semi-trailers |
|-------|---|