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AS 2175—1990

Australian Standard®

Articulated vehicles—Kingpins

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STANDARDS AUSTRALIA

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Australian Road Transport Federation

Austroads

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Institute of Metals and Materials Australasia

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Society of Automotive Engineers—Australasia

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PREFACE

This Standard was prepared by the Standards Australia Committee on Semitrailer and Heavy Trailer Couplings, to supersede AS 2175—1978, *Kingpins for semitrailers and lowloaders,* Part 1: *50 mm kingpin for semitrailers and lowloaders,* and Part 2: *90 mm kingpin for semitrailers and lowloaders.*

The method of rating and selecting kingpins in this Standard is based on the 'D-value' method used in the United Nations ECE Regulation 55*, and in ISO and DIN Standards.

In this Standard, the D-value has been specified in kilonewtons to avoid confusion with the towed-load capacity of the coupling. This unit is also being used more widely in Europe.

In the application of the D-value method, a series of equations is used to determine the rated strength required. In this Standard, these equations have been obtained from original experimental research conducted by the Australian Road Research Board. These equations differ from those used in the ECE Regulation 55 and the ISO and DIN Standards in order to reflect Australian conditions. Whereas the equation for semitrailers, i.e. for articulated vehicles with one trailer is the same as in ECE, ISO, and DIN documents, additional equations have been developed for multiple trailer combinations in accordance with Australian practice.

Because the geometry of the kingpin is closely defined, its design strength can also be determined by material specification. Therefore, an optional rating procedure by material specifications has been incorporated in the Standard. It was felt by the committee that existing designs of kingpins in Australia which have not been D-value rated but which have shown satisfactory performance should continue to be acceptable if stringent material requirements are complied with. These material specifications are based on existing practice and experience in Australia and will ensure adequate strength and performance of these kingpins for normal applications. However, kingpins used in B-double and road-train applications should be D-value rated to ensure sufficient strength. Appendix B to this Standard gives guidelines on the selection of D-rated kingpins for various applications.

This Standard correlates with the dimensional requirements in International Standards for 50 mm kingpins (ISO 337†) with one minor deviation, and for 90 mm kingpins (ISO 4086‡) without deviation. Whereas ISO 337† specifies M14 bolts for 50 mm flange bolt-in kingpins, a bolt size of M16 has been chosen, as M14 is a non-preferred size and not readily available in Australia in the particular grade.

Guidelines for the attachment of kingpin to skid plate are given in Appendix D, and include a method for evaluating the strength of attachment based upon a test method specified in SAE J133§ but using a statically applied load.

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* ECE R55 United Nations agreement concerning the adoption of uniform conditions of approval and reciprocal recognition of approval for motor vehicles equipment and parts, done at Geneva, 20 March 1958; Addendum 54, Regulation 55.

† ISO 337 Road Vehicles—50 semi-trailer fifth wheel coupling pin—Basic and mounting/interchangeability dimensions.

‡ ISO 4086 Road Vehicles—90 semi-trailer fifth wheel coupling pin—Basic and mounting/interchangeability dimensions.

§ SAE J133 Fifth wheel kingpin performance—commercial trailers and semitrailers. (SAE recommended practice.)

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