

Australian Standard™

**Commercial road vehicles—
Mechanical connections between
towing vehicles**

**Part 4: Strength test for pin-type
couplings and drawbar eyes for
rigid drawbars**

[Based on and including the full text of ISO/DIS 12357.2:1998]

This Australian Standard was prepared by Committee ME/53, Semitrailer and Heavy Trailer Couplings. It was approved on behalf of the Council of Standards Australia on 14 October 1998 and published on 5 December 1998.

The following interests are represented on Committee ME/53:

ARRB Transport Research
Austroads
Australian Road Transport Suppliers Association
Commercial Vehicle Industry Association of Australia
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Department of Transport and Regional Development (Australia)
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Originated as part of AS 2213—1978.
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PREFACE

This Standard was prepared by the Standards Australia Committee ME/53, Semitrailer and Heavy Trailer Couplings to supersede, in part, AS 2213—1984, *50 mm pin—type couplings and drawbar eyes for trailers*.

The objective of this Standard is to provide the strength requirements for pin-type couplings and drawbar eyes for rigid drawbars for use with centre-axle trailers with a maximum mass greater than 3.5 tonnes.

This Standard is based on and has been reproduced from ISO/DIS 12357.2:1998, *Commercial road vehicles—Drawbar couplings and eyes for rigid drawbars—Strength test*.

This Standard is Part 4 of AS 2213, *Commercial road vehicles—Mechanical connections between towing vehicles*, which deals with the design and manufacture of mechanical coupling and which is published in parts as follows:

Part 1: Selection and marking of pin-type couplings and drawbar eyes

Part 2: 50 mm pin-type couplings and drawbar eyes

Part 3: 40 mm pin-type couplings and drawbar eyes

Part 4: Strength test for pin-type couplings and drawbar eyes for rigid drawbars (this Standard)

Part 5: Strength test for pin-type couplings and drawbar eyes for hinged drawbars

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- (e) In the source text 'centre axle trailer' should read 'pig trailer'.
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- (i) In the source text Table 1, delete 'subclause 2.3' and replace with 'Clause 6 in AS 2213.1'.
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AUSTRALIAN STANDARD

Commercial road vehicles—Mechanical connections between towing vehicles

Part 4:

Strength test for pin-type couplings and drawbar eyes for rigid drawbars

1 Scope

This International Standard lays down test conditions and strength requirements to be met by drawbar couplings and the corresponding drawbar eyes for rigid drawbars, which are provided for use with centre axle trailers with a technical maximum mass C exceeding 3,5 tonnes.

2 Terms and definitions**2.1****centre axle trailer**

towed vehicle equipped with a towing device which cannot move vertically (in relation to the trailer), and in which the axle(s) is(are) positioned close to the centre of gravity of the vehicle (when uniformly loaded) such that only a small static vertical load, not exceeding 10% of the load corresponding to the maximum design total mass of the trailer or load of 10 kN (whichever is the lesser) is transmitted to the drawing vehicle.

2.2**horizontal reference force**

horizontal force the mean value of which is zero, and the amplitude is assumed as horizontal load D_c . This is a comparative value determined by calculation for the longitudinal forces occurring between towing vehicle and trailer. The D_c -value, defined as the theoretical horizontal reference force between towing vehicle and trailer, expressed in Kilonewtons, shall be calculated as follows:

$$D_c = g \frac{TC}{T + C} [kN]$$

where

T is the technical maximum mass of towing vehicle including S to which the drawbar coupling is to be attached, in tonnes;

C is the sum of the axle loads of the centre axle trailer loaded to its technical maximum mass, in tonnes;

g is the acceleration due to gravity:

$$g = 9,81 \text{ m/s}^2$$

2.3**vertical reference force**

vertical force the mean value of which represents the technical maximum of the vertical static load S , and the amplitude V , expressed in kilonewtons, shall be calculated as follows:

$$V = a \frac{x^2}{L^2} C$$