

Correct as at 25th April 2026. It may be superseded at any time.

Extract taken from: Heavy vehicle specialist certification > Towing connections > Fifth wheels and kingpins

9-4 Fifth wheels and kingpins

Certifier categories: HVET | HMTD

Reasons for rejection

1. A fifth wheel designed to accept a 50mm kingpin has not been mounted in accordance with NZS 5450 or AS/NZS 4968.1 and AS/NZS 4968.2 and AS 2174 or, if fitted as original equipment on an imported powered vehicle, to UN/ECE Reg 55.
2. A fifth wheel designed to accept a 90mm kingpin has not been mounted in accordance with AS 1773, AS 1771 or, if fitted after 29 December 2007, AS/NZS 4968.1 and AS/NZS 4968.2..
3. A vehicle fitted with a fifth wheel designed to accept a 90mm kingpin does not comply with AS/NZS 2174-1994 or, if fitted after 29 December 2007, AS 2174-2006.
4. A 50mm kingpin has not been mounted in accordance with NZS 5451 or AS/NZS 4968.1 and AS/NZS 4968.2 and AS 2174 or, if fitted as original equipment on an imported vehicle, to UN/ECE Reg 55.
5. A 90mm kingpin has not been mounted in accordance with AS/NZS 2175 and AS/NZS 2174.
6. A vehicle fitted with a 90mm kingpin does not comply with AS/NZS 4968.1, AS/NZS 4968.3 and AS 2174 if fitted after 29 December 2007.
7. A skid plate fitted to a vehicle with a 90mm diameter kingpin does not comply with AS/NZS 4698.3
8. A kingpin other than a 50mm or 90mm diameter kingpin has been fitted unless it is a tow ball or socket as part of a dedicated combination and certified to NZS 5446.
9. A skid plate has not been fitted.
10. The towing connection components do not ensure a secure connection between towed and towing vehicles can be maintained under normal operating conditions.
11. A fifth wheel other than one designed to fit a 50mm or 90mm kingpin has been used unless it is a tow ball or socket as part of a dedicated combination and certified to NZS 5446.
12. A kingpin that has been used in service has been fitted without being subjected to and passing an NDT examination by a person qualified to carry out NDT in the process used.
13. If a fifth wheel that has been used in service and is fitted in a new installation, new bolts of the correct size and grade have not been used.
14. A lube plate has been fitted to a skid plate or a fifth wheel so that the coupling distance between the jaws of the fifth wheel and the kingpin no longer comply with NZS 5450.
15. A fifth wheel has not been installed in accordance with the fifth wheel manufacturer's specifications or the appropriate standard.
16. The fifth wheel or its mounting is affected by corrosion or weakening that is apparent by visual inspection so that it is unsafe.

17. The kingpin or its mounting is affected by corrosion or weakening that is apparent by visual inspection so that it is unsafe.
18. The kingpin has been repaired or modified.
19. The fifth wheel has been modified or repaired without the manufacturer's approval excluding bolt on/off components.
20. A vehicle fitted with a fifth wheel designed to accept a 90mm diameter kingpin does not have clearly displayed in a position readily visible from the position the release handle of the fifth wheel is operated the wording '90mm fifth wheel' in letters not less than 60mm high.
21. A vehicle fitted with a 90mm diameter kingpin does not have clearly displayed in a position readily visible at the lower right-hand side of the front end of the vehicle the wording '90mm kingpin' in letters not less than 100mm high.
22. The forward length exceeds 9.2m on a semi-trailer.
23. The maximum front overhang of a semi-trailer measured from the centre of the kingpin exceeds an arc of 2.04m.
24. The fifth wheel is located further rearward than:
 - a) the rearmost axle of the towing vehicle or rearmost axle of the leading trailer, or
 - b) if the towing vehicle is a rigid vehicle and has more than one axle in its rear set, it is more than 300mm rearward of the rear axis of the towing vehicle.
25. The weight on the trailer axle set of a stinger steer at any time exceeds 1.5 times the sum of the axle weights of the towing vehicle.
26. The weight of the front axle set or twin-steer set of the towing vehicle of a stinger steer at any time is less than 20% of the sum of the axle weights of the towing vehicle.
27. The fifth wheel position for a stinger steer is less than 700mm rearward of the rear axis of the towing vehicle.
28. The fifth wheel position for a stinger steer is more than a distance equal to 50% of the towing vehicle wheelbase rearward of the rear axis of the towing vehicle.
29. A converter dolly fitted with an oscillating fifth wheel is not fitted with a rigid drawbar.
30. A converter dolly fitted with a fixed fifth wheel is not fitted with a hinged drawbar.
31. A converter dolly with a hinged drawbar and a fixed fifth wheel does not have a tandem-axle set.
32. A vehicle has been modified in such a way that the braking or braking system may have been affected and it has not been referred to a certifier with the brakes category unless the modification is covered in the vehicle's body builders manual and the manufacturer has supplied written evidence that the vehicle remains within its original brake certification (refer to [Technical bulletin 4](#)).

Table 9-4-1. Dimension requirements for vehicles and vehicle combinations (abridged)

Dimension	Distance (metres except where indicated otherwise)
Overall length (excluding collapsible mirrors):	
Towing vehicle, full trailer, simple trailer, pole trailer (excluding load)	11.5
Any other combination of vehicles	20.0
Forward distance (excluding collapsible mirrors):	
Rigid vehicle	8.5 if fitted with tow coupling, 9.5 otherwise
Full Trailer, simple trailer, pole trailer with drawbar at full extension, articulated bus (both front and rear sections), semi-trailer	8.5
Rear overhang:	
Heavy rigid vehicle	4.0 or 70% of wheelbase (whichever is less) for a vehicle whose rearmost axle is a non-steering axle
4.25 or 70% of wheelbase (whichever is less) for a vehicle whose rearmost axle is a steering axle	
Articulated bus, heavy semi-trailer, heavy simple trailer, heavy pole trailer with one axle set	4.0 or 50% of forward distance (whichever is less)
Heavy full trailer, heavy pole trailer with two axle sets	4.0 or 50% of wheelbase (whichever is less)
All other vehicles	4.0
Rear trailing unit distance:	
A-Train, B-Train, towing vehicle and two trailers	14.5

Articulated point of attachment (excluding articulated buses)	No further rearward than the rearmost axle of the towing vehicle or rearmost axle of the leading trailer, and if the towing vehicle is a rigid vehicle and has more than one axle in its rear set, not more than 300 mm rearward of the rear axis of the towing vehicle
Tow coupling position (for towing heavy trailer):	
Full trailer	40% of wheelbase of towing vehicle

Summary of Legislation

Applicable references

- AS/NZS 4968.1: 2003, Design Criteria and Selection Requirements for Fifth Wheel, Kingpin and Associated Equipment
- AS/NZS 4968.2: 2003, Testing and Installation of Fifth Wheel and Associated Equipment
- AS/NZS 4968.3: 2003, Kingpins and Associated Equipment
- AS 1773–1996: Articulated Vehicles – Fifth Wheel Assemblies
- AS 1771–1996: Installation of Fifth Wheel and Turntable Assemblies
- AS/NZS 2980:2018: Qualification of welders for fusion welding of steels – Additional requirements for Australia and New Zealand
- AS/NZS ISO9606.1: 2017 Qualification testing of welders – Fusion Welding
- Welding in the transport industry (NZTA publication) - [Technical bulletin 10](#)
- NZS 5450: 1989: Specification for Coupling Devices for Articulated Vehicles – Fifth Wheel Assemblies
- NZS 5451: 1989: Specification for Coupling Devices for Articulated Vehicles – Fifth Wheel Kingpins
- AS/NZS 1554: Structural Steel Welding
- AS 3990: 1993: Mechanical Equipment – Steelwork
- AS 1110: 1984: ISO Metric Hexagon Precision Bolts and Screws
- AS 2174: 1994: Articulated Vehicles – Mechanical Coupling between Prime Movers and Semi-Trailers – Interchangeability Requirements
- AS 2174-2006: Articulated Vehicles – Mechanical coupling between Prime movers and semitrailers – interchangeability requirements
- UN/ECE Regulation 55: Uniform Provisions Concerning the Approval of Mechanical Coupling Components of Combinations of Vehicles E/ECE/342/Rev.1/Add.54/Rev.1/E/ECE/TRANS/505
- AS 2175-1995: Articulated Vehicles – Kingpins
- AS 4235-1994: Articulated Vehicles – Design Criteria for Fifth Wheel Skid Plates.

Applicable legislation

- [Land Transport Rule: Vehicle Standards Compliance 2002](#)
- [Land Transport Rule: Vehicle Dimensions and Mass 2016](#)
- [Land Transport Rule: Heavy Vehicles 2004](#)

1. Except as otherwise provided in this section and for vehicles operating under legislation prior to this rule, a vehicle must comply with the applicable requirements in Table 9-4-1, and with other applicable requirements in this section.

2. A heavy motor vehicle may not tow more than one trailer, except if that vehicle is:

- a) an A-train, or
- b) a B-train, or
- c) a rigid vehicle towing a converter dolly coupled to a semi-trailer, or
- d) a rigid vehicle towing two trailers whose total gross mass is less than 20,000kg, provided the rearmost trailer is a light trailer, or
- e) a vehicle operating as an overweight or overdimension vehicle.

Land Transport Rule: Heavy Vehicles (section 4)

Vehicle and component requirements

3. Towing connection components fitted to a vehicle must ensure that a secure connection can be maintained between the towing and towed vehicles under all conditions of loading and operation for which the vehicle was constructed.

Tractors and agricultural trailers

4. A towing connection of a tractor, other than a three-point linkage, must, on or after 1 October 2005 have clearly displayed on or adjacent to the coupling:

- a) the maximum mass of any vehicle that may be towed behind the tractor by means of this towing connection, and
- b) the maximum vertical force permitted on the towing connection.

5. A towing connection, other than a two-point or three-point linkage, that is fitted to an agricultural trailer to enable it to be towed must, on or after 1 October 2005, have displayed on or adjacent to the towing connection:

- a) the gross vehicle mass of the trailer, and the mass of any vehicles that may be towed by the trailer, and
- b) the maximum vertical force at the coupling when the trailer is loaded to its gross vehicle mass.

6. The masses and forces in requirements 4 and 5 above must be:

- a) established by:
 - i. the manufacturer of the vehicle, or
 - ii. the manufacturer of the towing connection, or
 - iii. a chartered mechanical engineer, or
 - iv. a vehicle inspector or inspecting organisation appointed to carry out specialist inspection and certification activities.
- b) displayed in kilograms, rounded to the nearest 100kg.

Fifth wheel assemblies

7. A vehicle that is constructed to tow a semi-trailer must:

- a) be fitted with:
 - i. a 50mm diameter fifth wheel, or
 - ii. a 90mm diameter fifth wheel, and

b) comply with requirements 8 to 11 below as applicable.

8. A 50-mm-diameter fifth wheel that is fitted to a vehicle must comply with NZS 5450: 1989, Coupling Devices for Articulated Vehicles – Fifth Wheel Assemblies.

9. A 90-mm-diameter fifth wheel that is fitted to a vehicle must comply with:

a) AS 1773-1996: Articulated Vehicles – Fifth Wheel Assemblies, and

b) AS 1771-1996: Installation of Fifth Wheel and Turntable Assemblies, and

c) AS 2174-1994: Articulated Vehicles – Mechanical Coupling between Prime Movers and Semi-Trailers – Interchangeability Requirements.

10. A vehicle that is fitted with a 90-mm-diameter fifth wheel must have, clearly displayed in a position readily visible from the position from which the release handle of the fifth wheel is operated, '90-mm fifth wheel' in letters and figures not less than 100-mm high.

11. A rigid fifth wheel fitted to a vehicle must be installed and maintained in accordance with the fifth-wheel manufacturer's instructions.

Skid plates and kingpins (section 4.8)

12. A semi-trailer must:

a) be fitted with:

i. a 50mm diameter kingpin, or

ii. a 90mm diameter kingpin, and

b) be fitted with a skid plate, and

c) comply with requirements 13 to 16 below as applicable.

13. A 50-mm-diameter kingpin and associated skid plate fitted to a vehicle must comply with NZS 5451: 1989: Coupling Devices for Articulated Vehicles – Fifth Wheel Kingpins.

14. A 90-mm-diameter kingpin fitted to a vehicle must comply with:

a) AS 2175-1995: Articulated Vehicles – Kingpins, and

b) AS 2174-1994: Articulated Vehicles – Mechanical Coupling between Prime Movers and Semi-Trailers – Interchangeability Requirements.

15. A skid plate fitted to a vehicle in connection with a 90-mm-diameter kingpin must comply with AS 4235-1994: Articulated Vehicles – Design Criteria for Fifth Wheel Skid Plates.

16. A vehicle that is fitted with a 90mm diameter kingpin must have clearly displayed in a position readily visible at the lower right-hand side of the front end of the vehicle '90-mm kingpin' in letters and figures not less than 100mm high.

17. A kingpin fitted to a vehicle must not have any cracks that can be detected

a) during a non-destructive test, or

b) by means of visual inspection.

18. Results from a test in requirement 18 must be uniquely identifiable with the kingpin tested and must be retained by the vehicle's operator for the period that the kingpin is in service.

19. A test in requirement 18 must be carried out by a person qualified to carry out non-destructive testing.

Gazette notice

20. The weight on the trailer axle set of a stinger steer must not at any time exceed 1.5 times the sum of the axle weights of the towing vehicle.

21. The weight of the front axle set or twin-steer set of the towing vehicle of a stinger steer must at all times be at least 20% of the sum of the axle weights of the towing vehicle.

22. Fifth wheel position for stinger steer must be at least 700mm rearward of the rear axis of the towing vehicle and not more than a distance equal to 50% of the towing vehicle wheelbase.

Heavy Vehicle Rule definitions

23. A converter dolly must have either:

- a) a rigid drawbar associated with an oscillating fifth wheel and a single-axle or a tandem-axle set, or
- b) a tandem-axle set with a hinged drawbar with a fixed fifth wheel.

Page amended **6 March 2019** (see [amendment details](#))