



# GUIDANCE NOTE

## What is an approved calculation for ADR 62?

This guidance note details the calculation requirements for Australian Design Rule (ADR) 62 – Mechanical Connections Between Vehicles, and explains how they may be used to support a Road Vehicle Standards (RVS) application.

ADR 62 provides an option to use ‘approved’ calculations to demonstrate that certain specific requirements of the ADR have been met, including trailer drawbar strength and fatigue resistance under section 14.2 of [ADR 62/02](#).

A calculation that meets the requirements below can be used for parts of ADR 62 where approved calculations are **explicitly** allowed as an option to demonstrate compliance. Such calculations may then be used in support of an application for a Model Report, vehicle type approval or component type approval where ADR 62 allows, including for a low ATM trailer (trailer with an aggregate trailer mass of 4.5 tonnes or less).

Calculations that are already approved as part of an application granted under the *Motor Vehicle Standards Act 1989* or under the *Road Vehicle Standards Act 2018* remain approved calculations but the supporting information outlined below is expected to be made available to the department on request. When submitting applications that rely on already-approved calculations, the applicant should note the approval number where the calculations were approved.

## Calculation requirements

### Physical testing

Calculations must be supported by physical validation testing. This can either be testing:

- demonstrating that the calculation methodology provides accurate results, or
- testing to the ADR, that is testing of the component in a worst-case scenario (conducted by an approved RVS testing facility) demonstrating ADR compliance and supporting the calculation methodology.

## Demonstrating the methodology provides accurate results

You should use industry best practice for validating the accuracy of the calculation methodology. The following is an example of the validation of a calculation, simulation or modelling without a full ADR test.

**Example:** First, install strain gauges at relevant key positions on the component and measure the flex under substantial or full load. Then determine whether the model is reasonably representative by comparing the theoretical and measured flex.

## Supporting information

You must provide supporting information for a calculation, including, but not limited to, the following:

- methodology that is of sound engineering practice and has:
  - a scope and all relevant limitations
  - characteristics of materials such as specifications and grade, attachment methods (for example, if welded, type of welding and applicable welding standard), torque values for fasteners, galvanising or other finishes etc.
  - regard to installation or usage
- technical drawings of the component/assembly.

## Finite element analysis

An approved calculation may use finite element analysis (FEA) where it meets the calculation requirements above.

FEA is the use of calculations, models and simulations to predict and understand how a component or assembly might behave under given conditions, such as the test requirements specified in ADR 62.

FEA is a calculation, not a test.

## Using calculations as evidence of compliance

Calculations, meeting the requirements listed above, may be used as evidence of compliance for vehicles or components that are within the scope and limitations of the calculation.

When using a calculation to support an application or approval (for example, to demonstrate drawbar strength), you may be asked to provide information that demonstrates the calculation meet the requirements and that the worst-case will not exceed the scope and limitations of the calculation.

Where the ROVER application requires you to identify compliance information, you should select 'any matter or thing specified in the national road vehicle standard' and either:

- upload a copy of each document showing evidence of meeting the applicable calculation requirement, or
- if the calculation methodology has already been used to obtain a Model Report approval, vehicle type approval or component type approval, add a note in the comment box. For example, 'Calculation demonstrated in CTA-XXXXXX'.

**Note:** Applications for low ATM trailers are declaration based and do not require you to provide compliance information. However, during the assessment process, and for a period up to 7 years after the approval expires, you may be asked to provide evidence to support the declaration made in the application.

# Calculations that will not be considered

Approved calculations cannot be used if the relevant part of the ADR does not explicitly allow them.

## Safety chain attachment points

Requirements for safety chain attachment points are in ADR 62/02 clause 13.4 for towbars, and clause 14.4 for trailer drawbars. In both cases, the ADR does not allow approved calculations to demonstrate compliance. Therefore, testing by an approved RVS testing facility is required.

The safety chain attachment point strength may be tested at the same time as a full towbar/drawbar test or when joined to a section of metal representative of the component. The representative metal must be of identical cross-section to the towbar/drawbar, including:

- material grade, thickness and size
- number and type of any mechanical fasteners
- weld type, size, length and number
- galvanising or other finishes, etc

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Updated November 2023 – More detail added on the department's expectations for physical testing and information on using previously approved calculations.

### More information

For further information on national road vehicle standards, please visit the [department's website](#) or submit an [online enquiry](#).