

Spray suppression devices for heavy vehicles

Purpose

To inform vehicle manufacturers, owners and operators of the requirements for spray suppression devices that must be fitted to B-Double combinations operating in NSW.

Introduction

Spray suppression equipment fitted to heavy vehicles is designed to reduce the amount of spray generated by the wheels when travelling on a wet road surface.

Correctly designed and fitted spray suppression equipment can reduce the level of spray resulting in better vision for the driver of the vehicle, other road users, and in particular for the driver of an overtaking vehicle.

The standards for registration require any single axle, and each axle group on a B-Double to be fitted with spray suppression equipment which complies with British Standard BS AU 200-1984 *Spray Reducing Devices for Heavy Goods Vehicles*.

This publication only highlights the main requirements of spray suppression intended for B-Doubles. The precise and detailed requirements are contained in British Standard BS AU 200-1984 Parts 1a and 2a, which should be referred to for further information.

General requirements

British Standard BS AU 200 specifies location and dimensional requirements for a range of allowable designs and permits a variety of materials to be used. For example, in some cases the dimensions specified in the standard may be met using solid components or by using flexible material such as bristles.

The dimensions specified in this document should be checked with the vehicle stationary and on a level surface. If bristles are used they must also meet the required dimensions with the vehicle stationary and on a level surface even though they may be blown back or otherwise distorted when the vehicle is in motion.

Note: Bristles are not mandatory.

For further enquiries

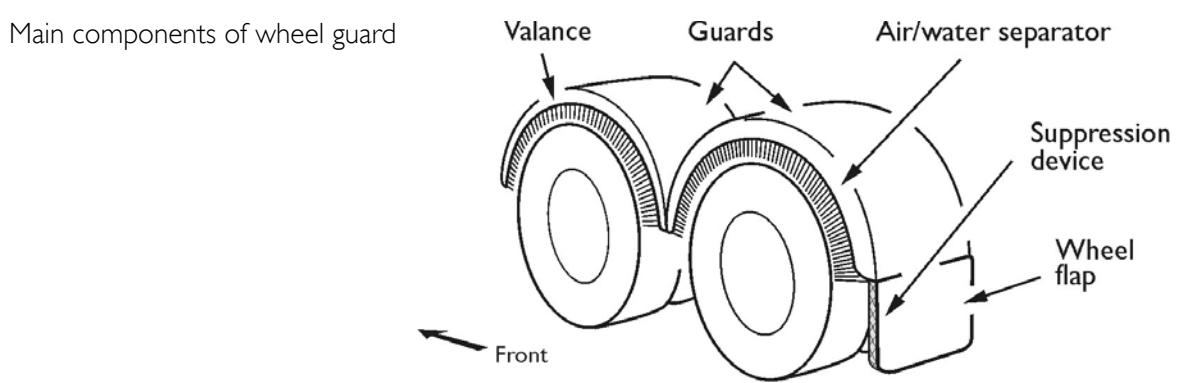
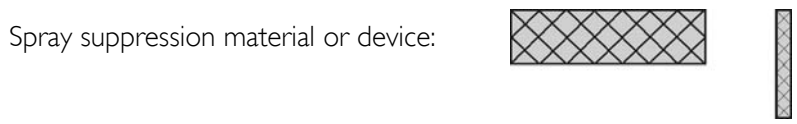
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www.rta.nsw.gov.au

Definitions/diagrams

The following terms used in the British standards are also used in this document:

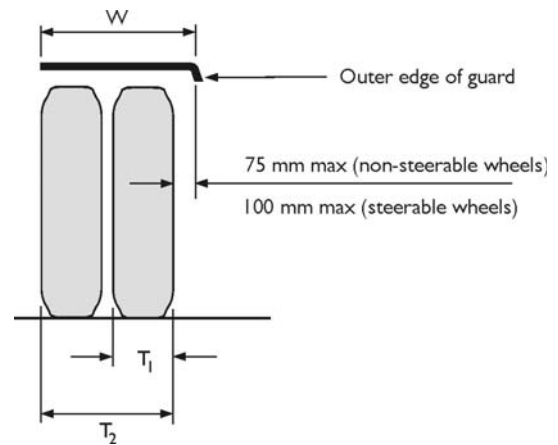
- Valance:** The vertical (or approaching vertical) outer part of the guard assembly.
- Guard:** The horizontal part of the wheel guard assembly that is designed to restrict or prevent water or other objects from being projected away from the tyres.
- Air/water separator:** A device forming part of the valance, which permits air to flow through while reducing the emission of spray. Commonly referred to as 'bristles'.
- Suppression device:** A device or material designed to minimise the creation of fine spray thrown from around the wheels.
- Wheel flap:** That part of the containment device attached to the underside of the vehicle or guard, extending downwards behind the wheel. It is normally flexible and commonly referred to as a mudflap. The full forward facing surface of the wheel flap must be covered with a spray suppression material or device.



Specific requirements

WHEEL GUARDS/GUARD ASSEMBLIES

- There must be no gaps between any component parts of the wheel guard.
- There should not be any gaps in the guard from the front edge of the guard to the end of the flap. In multiple axle groups where only one flap is required there must not be any gaps from the front edge of the front guard to the end of the flap on the rearmost axle of the group.
- Wheel guards shall be positioned to cover the area directly above, and to the front and rear of the tyre(s).
- The overall width of the guard/s 'W' must at least cover the total width of all relevant tyres ie T_1 (single wheel), or T_2 (dual wheels).



VALANCES

There must be no openings or gaps in the valance or between valance and wheel guard.

Note: In some cases the valance may have a groove or attachment for fitting bristles, but provided the specified dimensions for the installed system are met there is no requirement for bristles to be fitted.

WHEEL FLAPS

- Must be fitted behind each tyre in group.
- Must not be more than 300 mm from rear edge of tyre.
- There must be no gaps between the wheel guard and wheel flap.
- The overall width of the flap/s must at least cover the total width of all relevant tyres.

Dimensional requirements

Dimensional requirements for the three types of assembly are outlined in the diagrams on pages 5 – 9.

Key to diagrams:

- A = Angle used to establish front edge of guard: 20° maximum.
- B = Angle used to establish front edge of guard:
 - steerable wheels – 30° maximum;
 - non-steerable wheels – 20° maximum.
- C = Depth of valance. This shall not be less than 45 mm rearward of the vertical centreline of wheel. It may reduce progressively forward of wheel centreline.
- D = Radius of tyre.
- E = Radius of lower edge of outer valance.
- F = Lower edge of wheel flap (not higher than 200 mm, or 300 mm if E is less than, or equal to D).
- G = Distance between tyres.
- * = Maximum height of lower edge of wheel guard and valance.

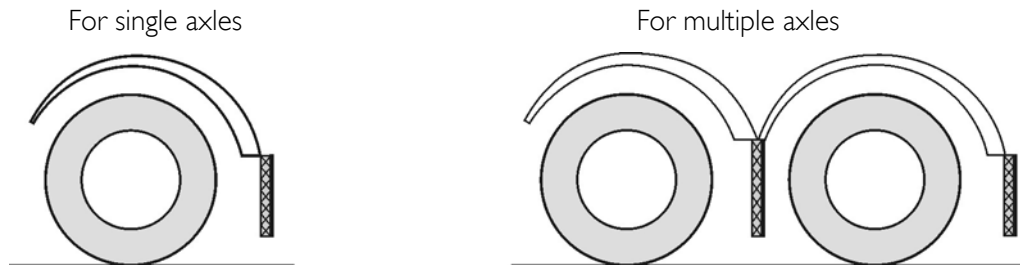
All dimensions are in millimeters.

Types of wheel guard assemblies

For the purposes of this publication, wheel guard assemblies are categorised into three types as follows:

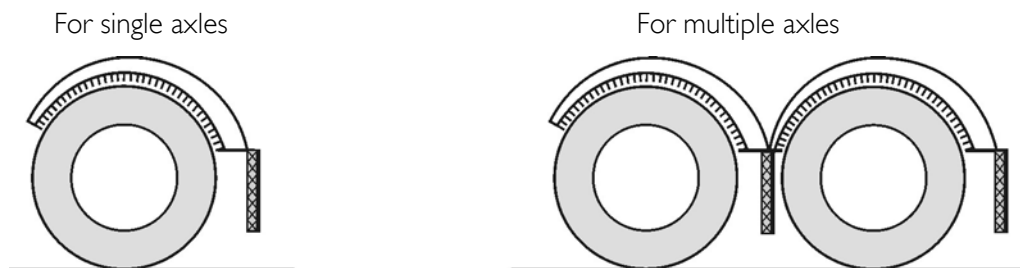
Type 1 wheel guard assembly

Conventional guarding provided by fabricated hood or similar fitted above the tyre/s. No bristles.



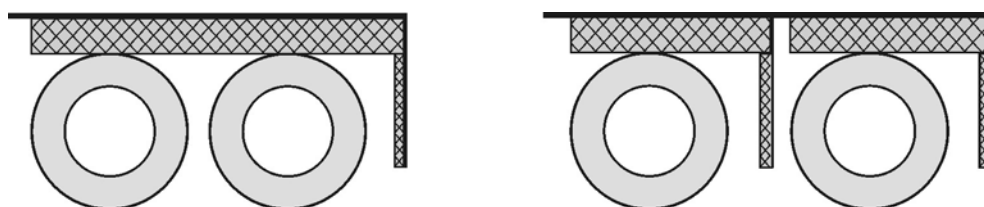
Type 2 wheel guard assembly

Similar to type 1, with bristles or other type of air/water separator fitted on lower edge of valance.



Type 3 wheel guard assembly

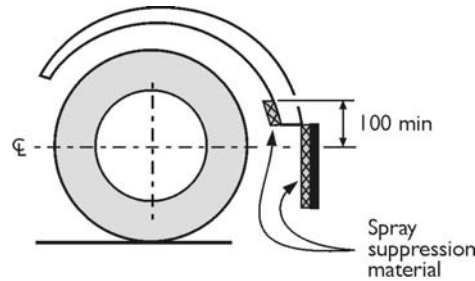
Alternative type - guard provided by bodywork of truck or trailer.



TYPE I WHEEL GUARD ASSEMBLY

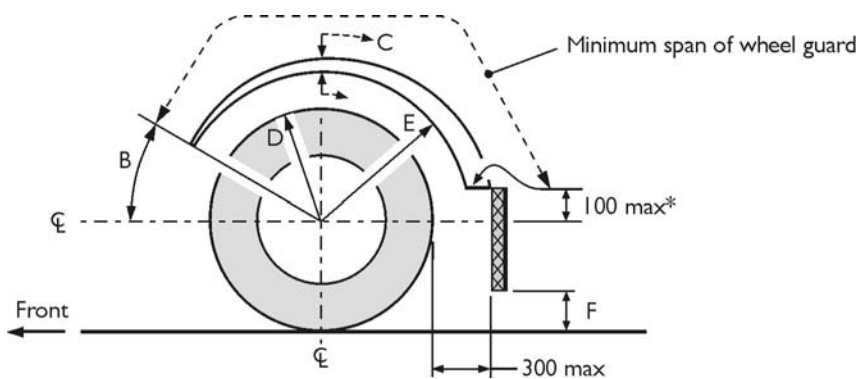
FOR THIS TYPE OF ASSEMBLY:

- Spray suppression material must be fitted to:
 - The whole of the forward facing side of the wheel flap, and
 - The forward facing side of any part of the wheel guard that is located below a line 100 mm above the horizontal centreline of the wheel.

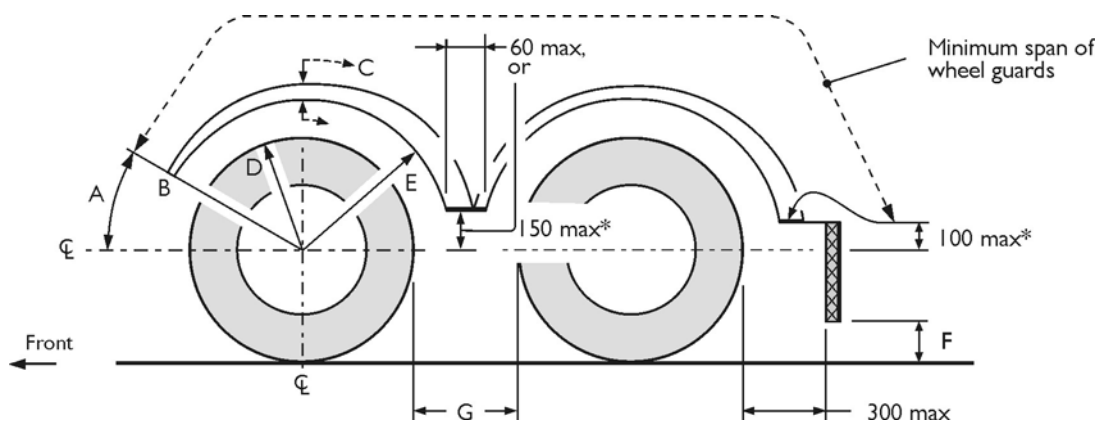


- This arrangement with wheel flap and part of wheel guard fitted with spray suppression material may be used as an alternative to the 'wheel flap only' method shown in the following diagrams A, B, C & D provided it meets all other dimensional requirements.
- E must not exceed 1.5 D for steerable wheels, or 1.25 D for non-steerable wheels.

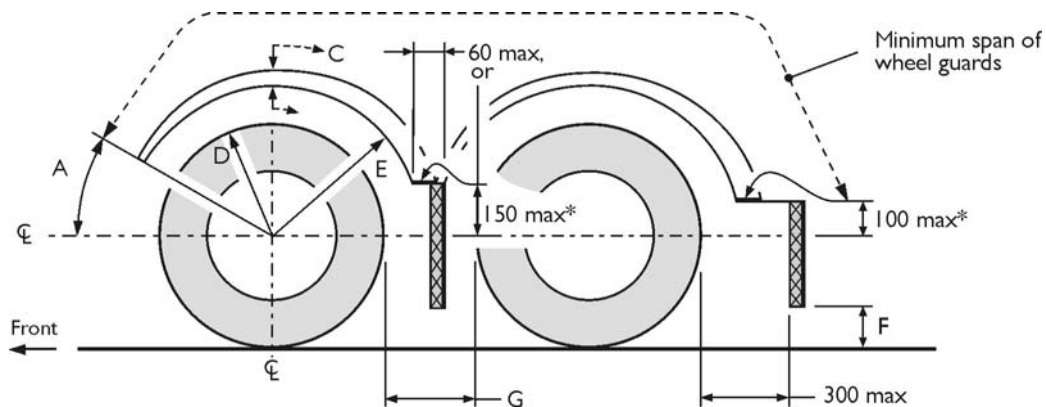
A. TYPE I ASSEMBLY FOR SINGLE AXLES



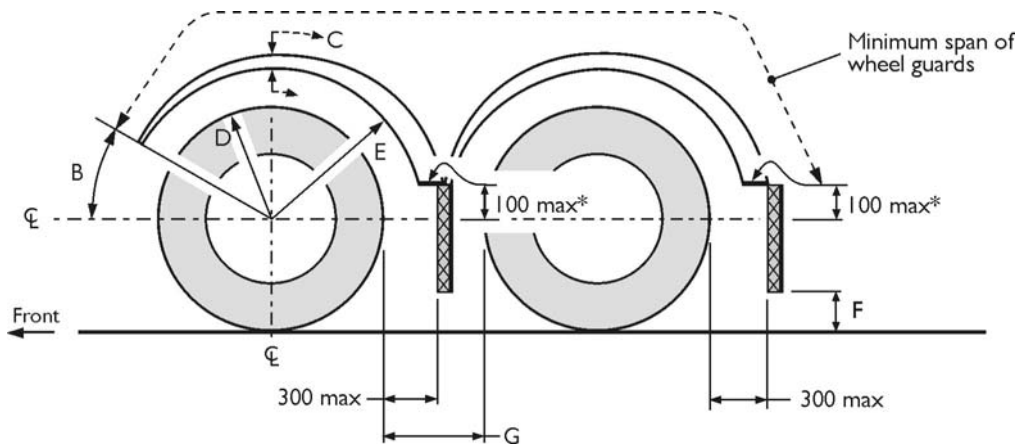
B. TYPE I ASSEMBLY FOR MULTIPLE AXLES, DISTANCE BETWEEN TYRES 'G' UP TO 250 MM



C. TYPE I ASSEMBLY FOR MULTIPLE AXLES, DISTANCE BETWEEN TYRES 'G' MORE THAN 250 MM AND UP TO 300 MM



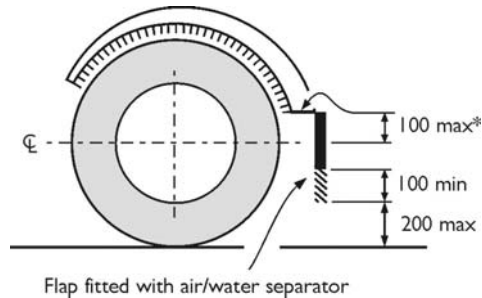
D. TYPE I ASSEMBLY FOR MULTIPLE AXLES, DISTANCE BETWEEN TYRES 'G' MORE THAN 300 MM



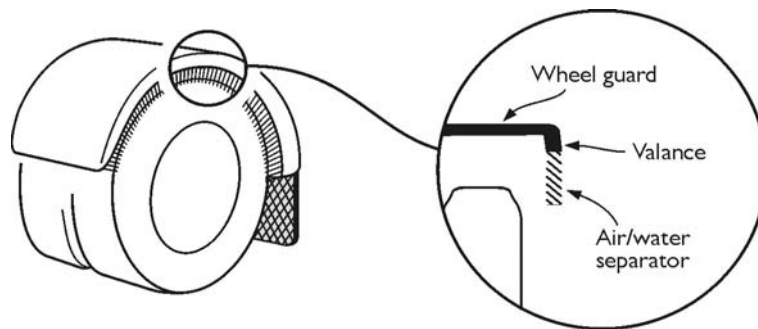
TYPE 2 WHEEL GUARD ASSEMBLY

FOR THIS TYPE OF ASSEMBLY:

- A wheel flap having its lower part consisting of an air/water separator may be used as an alternative to a wheel flap fitted with a spray suppression device provided it meets all of the dimensional requirements shown below and in the following diagrams A, B, C, & D.

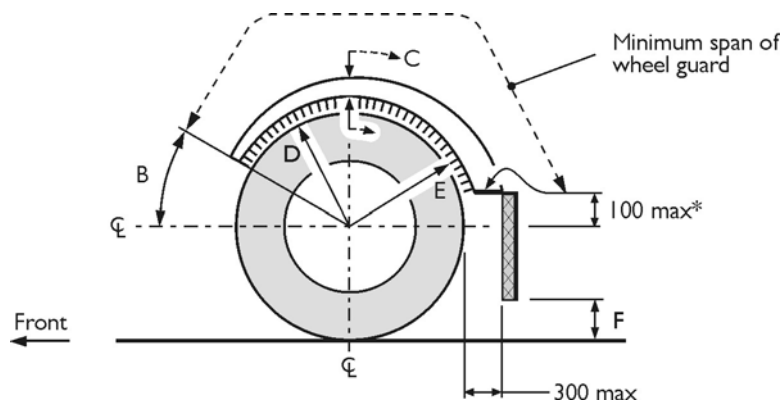


- The wheel guards, with air/water separator fitted to the lower edge of valance, must meet the dimensional requirements described on page 3.

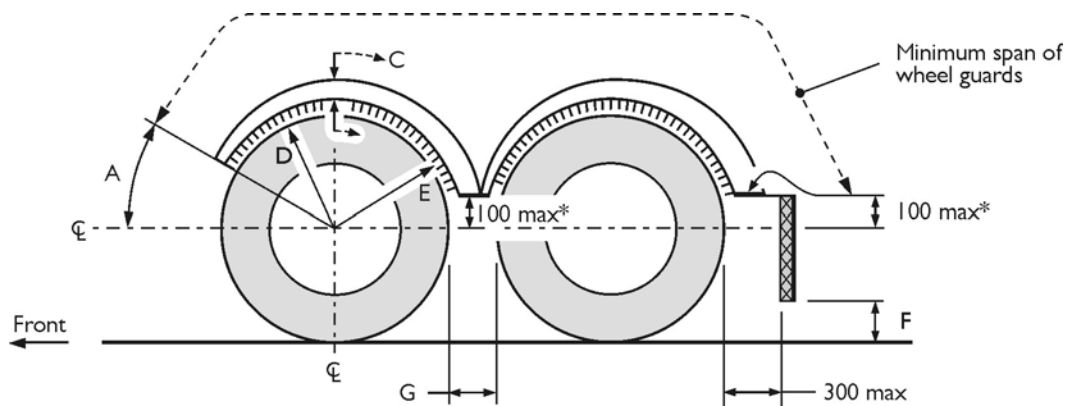


- E must not exceed $1.05 \times D$ for steerable wheels, or D for non-steerable wheels.

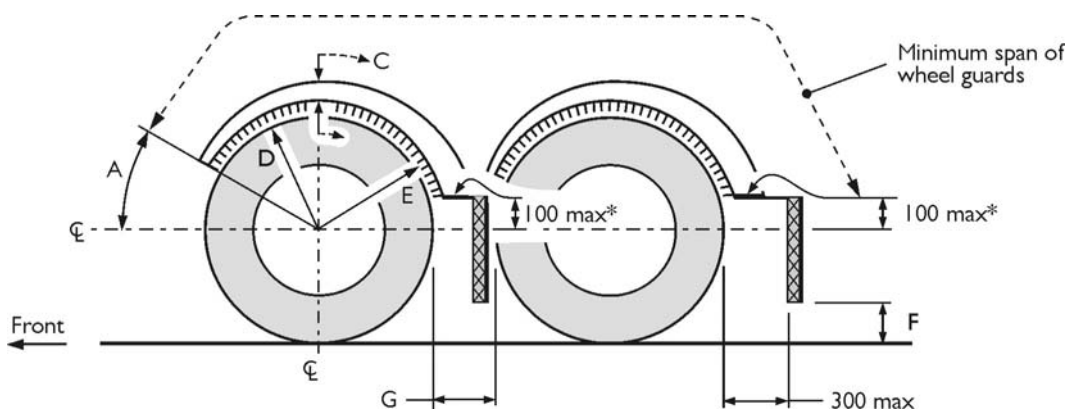
A: TYPE 2 ASSEMBLY FOR SINGLE AXLES



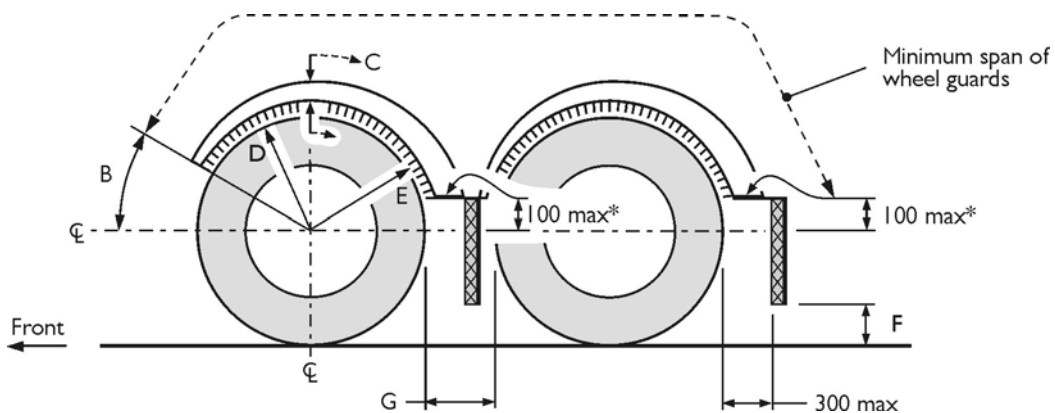
B. TYPE 2 ASSEMBLY FOR MULTIPLE AXLES, DISTANCE BETWEEN TYRES 'G' UP TO 250 MM



C. TYPE 2 ASSEMBLY FOR MULTIPLE AXLES, DISTANCE BETWEEN TYRES 'G' MORE THAN 250 MM AND UP TO 300 MM



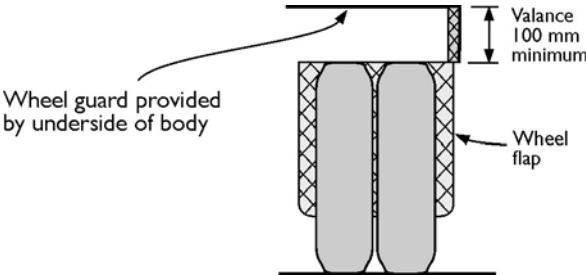
D. TYPE 2 ASSEMBLY FOR MULTIPLE AXLES, DISTANCE BETWEEN TYRES 'G' MORE THAN 300 MM



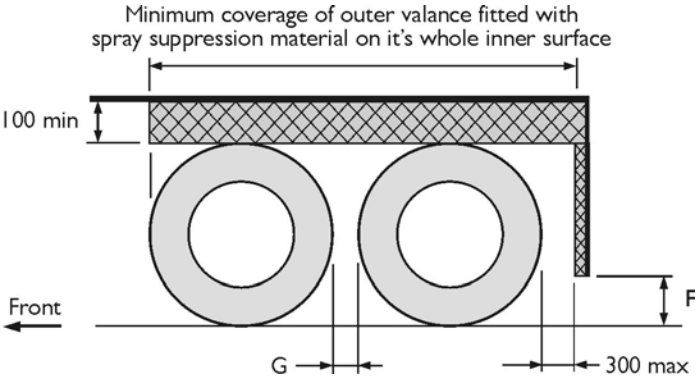
TYPE 3 WHEEL GUARD ASSEMBLY

This type of assembly:

- Applies only to axles with non-steerable wheels.
- Must have an outer valance that extends down from the underside of the body to at least meet the horizontal plane of the uppermost surface of the tyre, or have a minimum depth of 100 mm, whichever is the greater. The whole of the inner surface of the valance, and the whole of the forward facing surface of the wheel flap must be fitted with spray suppression material.



A: TYPE 3 ASSEMBLY FOR MULTIPLE AXLES, DISTANCE BETWEEN TYRES 'G' LESS THAN 250 MM



B. TYPE 3 ASSEMBLY FOR MULTIPLE AXLES, DISTANCE BETWEEN TYRES 'G' 250 MM OR MORE

