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ANNEX IV

Requirements for type-approval of vehicles with regard to their spray suppression systems

SPECIFIC REQUIREMENTS

6. Requirements concerning energy-absorption spray suppression systems for axles fitted with steered or self-steering or non-steered wheels.

6.1. **Mudguards**

6.1.1. The mudguards must cover the zone immediately above, ahead and behind the tyre or tyres in the following manner:

(a) in the case of a single or multiple axle, the forward edge (C) must extend forwards to reach a line O-Z where Θ (theta) is no more than 45° above the horizontal.

The rearmost edge (Figure 2 of Annex VI) must extend downwards in such a way as not to be more than 100 mm above a horizontal line passing through the centre of the wheel;

(b) in the case of multiple axles the angle Θ relates only to the foremost axle and the requirement relating to the height of the rearmost edge applies only to the rearmost axle;

(c) the mudguard must possess a total width 'q' (Figure 1a of Annex VI) at least adequate to cover the width of the tyre 'b' or the entire width of two tyres 't' in the case of twin wheels, account being taken of the extremes for the tyre/wheel unit specified by the manufacturer. Dimensions 'b' and 't' shall be measured at hub height, excluding any markings, ribs, protective bands, etc., on the tyre walls.

6.1.2. The front side of the rear part of the mudguard must be fitted with a spray-reduction device complying with the specifications set out in Part 2 of Annex III. This material must cover the inside of the mudguard up to a height determined by a straight line running from the centre of the wheel and forming an angle of at least 30° with the horizontal (Figure 3 of Annex VI).

6.1.3. If the mudguards are made up of several components, when fitted, they must not incorporate any aperture enabling spray to exit while the vehicle is in motion. This requirement is deemed to be met if, when the vehicle is either laden or unladen, any radial jet running outwards from the wheel centre over the entire width of the tyre running surface and within the range covered by the mudguard always strikes against a part of the spray suppression system.

6.2. **Outer valances**

6.2.1. In the case of single axles, the lower edge of the outer valance may not be situated beyond the following distances and radii, as measured from the centre of the wheel, except at the lowest extremities that may be rounded (Figure 2 of Annex VI).

Air suspension:

(a)	Axles fitted with steered wheels or self-steering wheels: From the front edge (towards the front of the vehicle) (tip C)	$R_v \leq 1,5 R$
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	To the rear edge (towards the rear of the vehicle) (tip A)	
(b)	Axles fitted with non-steered wheels: From the front edge (tip C) To the rear edge (tip A)	$R_v \leq 1,25 R$

Mechanical suspension

- (a) general case} $R_v \leq 1,8 R$
- (b) non-steered wheels for vehicles with a technically permissible laden mass more than 7,5 t} $R_v \leq 1,5 R$

where R is the radius of the tyre fitted to the vehicle, and R_v the distance, expressed as a radius, at which the lower edge of the outer valance is situated.

- 6.2.2. In the case of multiple axles the requirements laid down in point 6.2.1 do not apply between the vertical transversal planes passing through the centre of the first and the last axles where the outer valance may be straight in order to ensure the continuity of the spray suppression system. (Figure 4 of Annex VI).
- 6.2.3. The distance between the uppermost and the lowermost points of the spray suppression system (mudguard and outer valance) measured in any cross section perpendicular to the mudguard (see Figures 1b and 2 in Annex VI) must extend to not less than 45 mm at all points behind a vertical line passing through the centre of the wheel or the first wheel in the case of multiple axles. This dimension may be gradually reduced in front of this line.
- 6.2.4. No openings enabling spray to emerge when the vehicle is moving are allowed in the outer valances or between the outer valances and the other parts of the mudguards.
- 6.2.5. The requirements of points 6.2.3 and 6.2.4 may not be respected locally when the valance is composed by different elements with relative movement.
- 6.2.6. Tractors for semi-trailers with a low chassis, namely those which may have a height of coupling face (defined in point 6.20 of standard ISO 612 of 1978) equal to or less than 1 100 mm, may be designed in such a way as to be exempted from the requirements of points 6.1.1(a), 6.1.3 and 6.2.4. In this regard, mudguards and valances may not cover the area immediately above the tyres of the rear axles, when these tractors are coupled to a semi-trailer, in order to avoid the spray-suppression system being destroyed. However, the mudguards and valances of these vehicles must conform to the requirements of the above points, in sectors more than 60° from the vertical line passing through the centre of the wheel, in front and behind these tyres.

Those vehicles must therefore be designed in such a way as to meet the requirements set out in the first paragraph when they are operated without a semi-trailer.

In order to be able to meet those requirements, mudguards and valances may, for example, comprise a removable part.

6.3. **Rain flaps**

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- 6.3.1. The width of the flap must fulfil the requirement for ‘q’ in point 6.1.1(c), except for any part of the flap that is contained within the mudguards. In such cases this part of the flap must be at least equal in width to the tread of the tyre.

The width of the part of the rain flaps positioned beneath the mudguard must satisfy the condition laid down in this paragraph with a tolerance of ± 10 mm at each side.

- 6.3.2. The orientation of the flap must be basically vertical.
- 6.3.3. The maximum height of the bottom edge must not exceed 200 mm (Figure 3 of Annex VI).

This distance is increased to 300 mm in the case of the last axle where the radial distance of the lower edge of the outer valancing, R_v , does not exceed the dimensions of the radius of the tyres fitted to the wheels on that axle.

The maximum height of the bottom edge of the rain flap in relation to the ground, may be raised to 300 mm if the manufacturer deems it technically appropriate with regard to the suspension characteristics.

- 6.3.4. The rain flap must not be more than 300 mm from the rearmost edge of the tyre, measured horizontally.
- 6.3.5. In the case of multiple axles where distance d between the tyres on adjacent axles is less than 250 mm, only the rear set of wheels must be fitted with rain flaps. There must be a rain flap behind each wheel when distance d between the tyres on adjacent axles is at least 250 mm (Figure 4 of Annex VI).
- 6.3.6. Rain flaps must not be deflected by more than 100 mm towards the rear under a force of 3 N per 100 mm of flap width, applied to a point located 50 mm above the lower edge of the flaps.
- 6.3.7. The whole of the front face of the part of the rain flap having the minimum dimensions required must be fitted with a spray-suppression device that meets the specifications set out in Part 2 of Annex III.
- 6.3.8. No openings enabling spray to emerge are allowed between the lower rear edge of the mudguard and the rain flaps.
- 6.3.9. Where the spray-suppression device meets the specifications relating to rain flaps (point 6.3), no additional rain flap is required.

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Changes and effects yet to be applied to the whole legislation item and associated provisions

- Signature words omitted by [S.I. 2022/1273 reg. 63\(8\)](#)
- Annex 2 Pt. 2 s. 1 point 000.7 words substituted by [S.I. 2022/1273 reg. 63\(10\)\(c\)\(ii\)](#)
- Art. 2(11) words substituted by [S.I. 2022/1273 reg. 63\(3\)\(a\)](#)
- Art. 2(12) words substituted by [S.I. 2022/1273 reg. 63\(3\)\(b\)](#)
- Art. 2(13) words substituted by [S.I. 2022/1273 reg. 63\(3\)\(c\)](#)
- Art. 2(15) words substituted by [S.I. 2022/1273 reg. 63\(3\)\(d\)](#)
- Art. 2(16) words substituted by [S.I. 2022/1273 reg. 63\(3\)\(e\)](#)