

الهيئة السعودية للمواصفات والمقاييس والجودة

Saudi Standards, Metrology and Quality Org. (SASO)



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Road vehicles – Windshield wiping and washing systems

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This document is a draft Saudi Standard circulated for comments. It is, therefore, subject to alteration and modification and may not be referred to as a Saudi Standard until approved by SASO.

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Road vehicles – Windshield wiping and washing systems

1- Scope and field and application

This standard specifies the technical requirements for windshield wiping and washing systems. This standard applies to passenger cars, multipurpose passenger vehicles, trucks, and buses.

2- Terms and definitions

For the purposes of this standard, the following terms and definitions are applied:

2.1 Passenger car

A motor vehicle with motive power, designed for carrying 10 persons or less including the driver and their luggage, except a low-speed vehicle, multipurpose passenger vehicle, or trailer.

2.2 Multipurpose passenger vehicle

A motor vehicle with motive power, designed to carry 10 persons or less or goods equivalent by weight which is constructed either on a truck chassis or with special features for occasional off-road operation. Except a low-speed vehicle or trailer

2.3 Truck

A motor vehicle with motive power, designed primarily for the transportation of property, special purpose equipment, or towing a trailer except a trailer.

2.4 Bus

A motor vehicle with motive power, designed for carrying more than 10 persons, except a trailer.

2.5 Windscreen wiping System

Device for wiping the outer glazed surface of the Windscreen, together with the necessary accessories and controls.

2.6 Windscreen washing System

Device for storing washer Solution and applying it to the windscreen outer glazed surface, together with the necessary controls.

2.7 Wiped area

Area of the outer glazed surface that is cleared by the wiper blade(s) when operating on a wet Windscreen. The parking travel, if it exists, is disregarded.

2.8 Wet windscreen

Windscreen which is uniformly wetted over its whole area at a simulated rainfall rate of at least 1 mm/min, calculated normal to the glazed surface.

2.9 wiper cycle

Movement of a wiper blade which is required to cover its wiping travel and to return to its starting Point. The parking travel, if it exists, is disregarded.

2.10 Daylight opening

The maximum unobstructed opening through the glazing surface.

2.11 Glazing surface reference line

The line resulting from the intersection of the glazing surface and a horizontal plane 635 millimeters above the seating reference point as shown in in Standard⁽¹⁾.

2.12 Plan view reference line

a) For vehicles with bench-type seats, a line parallel to the vehicle longitudinal centerline outboard of the steering wheel centerline 0.15 times the difference between one-half of the shoulder room dimension and the steering wheel centerline-to-car-centerline dimension as shown in Standard⁽¹⁾; or

b) For vehicles with individual-type seats, either:

i) A line parallel to the vehicle longitudinal centerline which passes through the center of the driver's designated seating position; or

ii) A line parallel to the vehicle longitudinal centerline located so that the geometric center of the 95 percent eye range contour is positioned on the longitudinal centerline of the driver's designated seating position.

3- Technical requirements

3.1 Windshield wiping system

Each vehicle shall be provided with a power-driven windshield wiping system that meets the following requirements:

3.1.1 Frequency

3.1.1.1 Each windshield wiping system shall have at least two frequencies or speeds.

3.1.1.2 One frequency or speed shall be at least 45 cycles per minute regardless of engine load and engine speed.

3.1.1.3 The lower frequency or speed shall be at least 20 cycles per minute regardless of engine speed and engine load.

3.1.1.4 The highest and one lower frequency or speed shall differ by at least 15 cycles per minute.

3.1.2 Wiped area

3.1.2.1 Each windshield wiping system for passenger cars, light trucks, and multipurpose passenger vehicles with GVW of 4500 kg or less shall wipe the percentage of areas A, B, and C of the windshield that

1) is specified in column 2 of the tables (1) to (4) as applicable.; and

2) is within the area bounded by a perimeter line on the glazing surface 25 millimeters from the edge of the daylight opening.

3.1.2.2 Areas A, B, and C shall be established as shown in figures (1) and (2) of Standard⁽¹⁾; using the angles specified in Columns 3 through 6 of Tables (1) to (4), as applicable.

3.1.2.3 Each windshield wiping system for multipurpose passenger vehicles, trucks, and buses with GVW of 4500 kg or greater shall meet the performance requirements in accordance with the test procedures specified in Standard⁽²⁾.

⁽¹⁾ Follow the standard SAE J903 until the adoption of the Saudi standard.

⁽²⁾ Follow the standard SAE J198 until the adoption of the Saudi standard.

3.2 Windshield washing system

3.2.1 Each vehicle shall be provided with a windshield washing system.

3.2.2 Each windshield washing system for passenger cars, light trucks, and multipurpose passenger vehicles with GVW of 4500 kg or less shall meet the performance requirements in accordance with the test procedures specified in Standard⁽³⁾, with the areas established in accordance with item 3.1.2.2.

3.2.3 Each windshield washing system for multipurpose passenger vehicles, trucks, and buses with GVW of 4500 kg or greater shall meet the performance requirements in accordance with the test procedures specified in Standard⁽⁴⁾.

Note:

(1) For passenger car windshield washing system shall follow the areas specified A, B, and C in Tables 1 to 4.

(2) For multipurpose passenger vehicles, trucks, and buses windshield washing system shall follow the pattern designed by the manufacturer for the windshield wiping system on the exterior surface of the windshield glazing.

Area	Minimum percent to be wiped	Angles in degrees			
		Left	Right	Up	Down
A	80	16	49	7	5
B	94	13	46	4	3
C	99	7	15	3	1

Table (1) - Passenger cars of less than 1520 Millimeters in overall width

Area	Minimum percent to be wiped	Angles in degrees			
		Left	Right	Up	Down
A	80	17	51	8	5
B	94	13	49	4	3
C	99	7	15	3	1

Table (2) - Passenger cars of 1520 or more but less than 1630 Millimeters in overall width

Area	Minimum percent to be wiped	Angles in degrees			
		Left	Right	Up	Down
A	80	17	53	9	5
B	94	14	51	5	3
C	99	8	15	4	1

Table (3) - Passenger cars of 1630 or more but less than 1730 Millimeters in overall width

Area	Minimum percent to be wiped	Angles in degrees			
		Left	Right	Up	Down
A	80	18	56	10	5
B	94	14	53	5	3
C	99	10	15	5	1

Table (4) - Passenger cars of 1730 or more Millimeters in overall width

⁽³⁾ Follow the standard SAE J942 until the adoption of the Saudi standard.

⁽⁴⁾ Follow the standard SAE J1944 until the adoption of the Saudi standard.

Bibliography

- The main reference:

[1] 49 Subtitle B-Chapter V-Part 571-Subpart B Section 104
(FMVSS 571.104) “Windshield wiping and washing systems”.

- Other References:

[1] ISO 9619:1992 “Passenger cars -- Windscreen wiping systems -- Test method”.

[2] ISO 3469:1989 “Passenger cars -- Windscreen washing systems -- Test methods”.