# QC

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# Sliding Window Glazing Assembly for Road Vehicles

汽车滑动窗玻璃组件

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# Sliding Window Glazing Assembly for Road Vehicles

## 1 Scope

This Document specifies the terms and definitions, classification, requirements, test methods, inspection rules, packaging, marking, transportation and storage of sliding glass assembly for road vehicles.

This Document is applicable to sliding window glazing assembly for road vehicles with openings in fixed glass.

## 2 Normative References

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) is applicable to this document.

GB/T 3785.1-2010 Electroacoustics - Sound Level Meters - Part 1: Specifications

GB 9656 Safety Glasses for Road Vehicles

GB/T 10125 Corrosion Tests in Artificial Atmospheres - Salt Spray Tests

GB 11552 The Interior Fittings of Passenger Car

GB 11566 External Projections for Passenger Car

GB/T 17340 Road Vehicles - Safety Glasses - Dimensions, Shapes and Appearances

GB/T 28957.1-2012 Road Vehicles - Test Dust for Filter Evaluation - Part 1: Silicon Dioxide Test Dust

QC/T 15 General Test Method for Automobile Plastic Products

QC/T 484 Automobile Paint Coating

QC/T 625 Metallic Coatings and Conversion Coatings for Automobiles

QC/T 639 Rubber Weatherstrips for Automobile

After the test, the swaying amount of the movable glass shall be no greater than 1.5mm.

**5.7 Push-pull force**

**5.7.1** Manual sliding window glazing assembly

When the movable glass slides normally, the push-pull force shall be 20N~55N; and the maximum push-pull force required to start sliding shall be no greater than 55N; the movable glass shall not move when the component is loaded with an acceleration of 1.5g±0.1g.

**5.7.2** Electric sliding window glazing assembly

When the component is loaded with an acceleration of 1.5g±0.1g, the movable glass should not move.

**5.8 Sports durability**

After the test, the sliding window glazing assembly shall move smoothly, and there shall be no sliding frustration, sudden braking, swaying, or other forms of over-tightening, over-loosening, abnormal noise, etc.; the parts shall have no obvious deformation and wear, and comply with the provisions of 5.16.

**5.9 Vibration durability**

During the test, the sliding window glazing assembly shall be free from percussion, buzzing and other abnormal noises. After the test, there shall be no damage, displacement, or falling off at all parts.

**5.10 Sliding performance of movable glass**

During the test, the movable glass shall slide smoothly; and there shall be no frustration, sudden braking, swaying, or other forms of over-tightening, over-looseness, abnormal noise, etc.

**5.11 Noise**

When the movable glass starts, the noise shall be no greater than 64 dB (A); and the normal operating noise shall be no greater than 60 dB (A).

**5.12 Low temperature resistance**

After the test, the product shall be free of flaws, cracks, ashing, or discoloration, and comply with the provisions of 5.2 and 5.4.

**5.13 High temperature resistance**

After the test, the product shall be free of flaws, cracks, ashing, or discoloration, and comply with the provisions of 5.2 and 5.4.

**5.14 High and low temperature-resistant cycle**

After the test, the product shall be free of flaws, cracks, ashing, and discoloration, and comply with the provisions of 5.2, 5.4 and 5.16.

**5.15 Corrosion resistance**

After the test, there shall be no matrix corrosion on the surface of the metal parts.

**5.16 Rain-proof**

There shall be no water leakage, water seepage or overflow at the junction between fixed glass and movable glass.

# 6 Test Methods

**6.1 Test conditions**

Except for special provisions, the test shall be carried out under the following conditions:

a) Ambient temperature: 20°C±5°C

b) Atmospheric pressure: $8.60\times10^{4}$Pa~$1.06\times10^{5}$Pa;

c) Relative humidity: 40%~80%.

**6.2 Appearance quality**

Take the product as the specimen; and place the specimen on the test bench at an ambient illuminance above 1000Lx. The inspector is 600mm~800mm away from the testing surface of the specimen; if the angle of sight to the testing surface is greater than 45°, observe the inner and outer surfaces, and confirm whether there shall be defects within 10s.

**6.3 Shape and size**

Take the product as the specimen; the specimen shall be placed for at least 72h under the test conditions specified in 6.1 before the test; and then tested according to the customer's requirements.

**6.4 Binding power**

**6.7.3.1.1** Fix the specimen on the tooling according to the loading method; and the handle of movable glass is in the opened state.

**6.7.3.1.2** Pull the movable glass uniformly in the horizontal direction at a speed of 20mm/s±1mm/s; use a push-pull force gauge to measure the pulling force value during start-up and normal sliding process, and record it.

**6.7.3.1.3** Use a horizontal impact machine to horizontally load 1.5g±0.1g acceleration on the sliding window glazing assembly, and observe whether the movable glass moves.

**6.7.3.2** Electric sliding window glazing assembly

**6.7.3.2.1** Fix the specimen on the tooling according to the loading method, and the movable glass is in the opened state.

**6.7.3.2.2** Use a horizontal impact machine to horizontally load 1.5g±0.1g acceleration on the sliding window glazing assembly, and observe whether the movable glass moves.

**6.8 Sports durability**

**6.8.1** Specimen

Take the product as the specimen, the quantity is 3 pieces. The specimen shall be placed for at least 72h under the test conditions specified in 6.1 before the test.

**6.8.2** Test device

Programmable environmental test chamber. Accuracy requirements: temperature deviation ±2°C, relative humidity deviation ±4%, temperature uniformity no more than 2°C, relative humidity uniformity no more than 4%.

**6.8.3** Test dust

The test dust shall be the dust with the code name GB/T 28957-BF1 in GB/T 28957.1-2012 or the dust with similar parameters.

**6.8.4** Test procedures

**6.8.4.1** Fix the specimen on the tooling according to the loading method, the movable glass is in the closed state.

**6.8.4.2** Place the tooling containing the specimen in the high and low temperature test chamber

**6.8.4.3** Use the drive tooling to drive the manual sliding window glazing assembly;

**6.10.3.1.3** Observe and record the sliding condition of the movable glass.

**6.10.3.2** Electric sliding window glazing assembly

**6.10.3.2.1** Fix the sample on the tooling according to the loading method; and the movable glass is in the fully opened state.

**6.10.3.2.2** Slide the movable glass at the rated speed.

**6.10.3.2.3** Observe and record the sliding condition of the movable glass.

**6.11 Noise**

**6.11.1** Specimen

Take the product as the specimen, the quantity is 3 pieces. The specimen shall be placed for at least 72h under the test conditions specified in 6.1 before the test.

**6.11.2** Test site and instrument

The test site is a noise test room with a background noise of less than 40dB (A); and the used instrument is a sound level meter (conforms to the requirements of a Level-1 sound level meter specified in GB/T3785.1-2010).

**6.11.3** Test procedures

**6.11.3.1** Manual sliding window glazing assembly

**6.11.3.1.1** The sliding window glazing assembly is isolated and fixed on the bench with rubber pads; and placed them in the noise test room together.

**6.11.3.1.2** Place the sound level meter above the lower guide rail for 200mm ± 50mm; and test at a distance of 100mm±10mm from the inner surface of the glass.

**6.11.3.1.3** The movable glass is slid from fully opened to fully closed position and then from fully closed to fully opened position at a speed of 20mm/s by hand for 1 test cycle. Record the noise values at the start of each cycle and during normal sliding.

**6.11.3.1.4** Each specimen is tested for 3 cycles in total; and take the highest value of noise during start and normal sliding in the 3 cycles as the noise during start and normal operation of the movable glass of the specimen.

**6.11.3.2** Electric sliding window glazing assembly

**6.11.3.2.1** Separate the sliding window glass assembly and fix it on the bench with a rubber pad; and place them in the noise test room together.

**6.11.3.2.2** Place the sound level meter at 300mm±50mm above the motor gear for

testing.

**6.11.3.2.3** It is a test cycle that slide the movable glass from fully opened to fully closed position at rated speed, and then from fully closed to fully opened position. Respectively record the noise values at the start of each cycle and during normal sliding.

**6.11.3.2.4** There are 3 cycles of test for each specimen; and take the highest value of noise during start and normal sliding in the 3 cycles as the noise during start and normal operation of the movable glass of the specimen.

**6.12 Low temperature resistance**

**6.12.1** Specimen

Take the product as the specimen, the quantity is 3 pieces. The specimen shall be placed for at least 72h under the test conditions specified in 6.1 before the test.

**6.12.2** Test device

Environmental test chamber, temperature deviation ±2°C, temperature uniformity no more than 2°C.

**6.12.3** Test procedure

**6.12.3.1** Place the specimen in a test chamber at a temperature of -40°C ± 2°C for 48h, and then take it out and place it for 2h under the test conditions specified in 6.1.

**6.12.3.2** Visually inspect the appearance of the specimen as specified in 6.2, and record the appearance state.

**6.12.3.3** Carry out the binding test on the specimen according to the provisions of 6.4.3.

**6.13 High temperature resistance**

**6.13.1** Specimen

Take the product as the specimen, the quantity is 3 pieces. The specimen shall be placed for at least 72h under the test conditions specified in 6.1 before the test.

**6.13.2** Test device

Environmental test chamber, the temperature deviation is ±2°C, and the temperature uniformity is no more than 2°C.

**6.13.3** Test procedures

The inner diameter of each water jet is about 1mm.

**6.16.3** Test procedures

**6.16.3.1** Place and fix the specimen on the rain test frame according to the loading method, with the outer surface of the specimen facing the rain sprinkler. The movable glass is in closed state.

**6.16.3.2** Adjust the rain sprinkle to aim at the two corners on the upper end of the movable glass, and the distance between the nozzle and the glass is about 500mm.

**6.16.3.3** Open the rainwater source valve; and adjust the valve so that the water pressure gauge value is 0.3MPa±0.05MPa.

**6.16.3.4** After spraying for 5min, observe whether there is any water leakage, water seepage, overflow, etc. at the joint between the fixed glass and the movable glass.

**6.16.3.5** Adjust the rain sprinkler to aim at the two corners on the lower end of the movable glass. After spraying for 15min, observe whether there is any leakage, water seepage, overflow, etc. at the joint between the fixed glass and the movable glass.

# 7 Inspection Rules

### 7.1 Inspection classification

Inspection is divided into exit-factory inspection and type inspection.

### 7.2 Exit-factory inspection

**7.2.1** Inspection items

Appearance quality, and shape and size.

**7.2.2** Batching

The products of the same specification produced continuously with the same material and the same process are regarded as one batch.

**7.2.3** Sampling

The exit-factory inspection items of the products shall be randomly sampled according to Table 4; or the sampling plan shall be negotiated by the supplier and the purchaser.

When the product batch is larger than 1200 pieces, sampling is done in batches for every 1200 pieces.

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