Motorcycles - Fairings

1. Scope

This standard specifies fairings for motorcycles and motor-driven cycles (hereinafter referred to as "motorcycles"), but does not apply to meter visors installed in front of the speedometers or headlight covers with meter visors.

2. Normative references

The following standards, when referred to in this standard, constitutes a part of the specifications of this standard. As required, the most recently updated version of the applicable standard (including addenda) shall be applied.

JIS K6717-1: Plastics -- Poly (methyl methacrylate) (PMMA) moulding and extrusion materials -- Part 1: Designation system and basis for specifications

JIS K6717-2: Plastics -- Poly (methyl methacrylate) (PMMA) moulding and extrusion materials -- Part 2: Preparation of test specimens and determination of properties

JIS K6718-1: Plastics -- Poly (methyl methacrylate) sheets -- Types, dimensions, and characteristics -- Part 1: Cast sheets

JIS K6718-2: Plastics -- Poly (methyl methacrylate) sheets -- Types, dimensions, and characteristics -- Part 2: Melt-calendered extruded sheets

JIS K6719-1: Plastics -- Polycarbonate (PC) moulding and extrusion materials -- Part 1: Designation system and basis for specifications

JIS K6719-2: Plastics -- Polycarbonate (PC) moulding and extrusion materials -- Part 2: Preparation of test specimens and determination of properties

JIS K6735: Plastics -- Polycarbonate sheets -- Types, dimensions, and characteristics

JIS K6745: Plastics -- Unplasticized poly (vinyl chloride) sheets -- Types, dimensions, and characteristics -- Part 1: Sheets of thickness not less than 1 mm

JIS R3212: Test method of safety glazing materials for road vehicles

3. Definitions

Definitions of main terms used in this Standard shall be as follows:

a) Fairing

A structure shaped in the form of a screen or baffle plate attached in the front part of a motorcycle, and its attachment fittings.

b) Windshield portion

A transparent portion (which may be partially coloured) of a fairing located above the top of the headlight.

4. Fairing performance

The performance of a fairing shall be evaluated by the impact resistance of its windshield portion upon undergoing the running test specified in paragraph **6.1** and the bench test specified in paragraph **6.2**.

4.1 Running strength

When the test specified in paragraph **6.1** is performed, the fairing shall not bend, flex, or flutter significantly under wind pressure.

4.2 Windshield impact resistance

Upon undergoing the test specified in paragraph **6.2**, the specimens shall be in conformity with the criteria specified in "a)". If the windshield portion is made of methacrylate (acrylic), the prescription specified in "b)" shall be applied.

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a) At least five out of six specimens shall not break. If four out of six specimens remain unbroken, an additional test may be conducted on another set of six specimens. In this case, all six shall not break.

b) A windshield made of methacrylate, whose thickness is in conformity with that given in **Table 1** in accordance with the piston displacement and the maximum speed of the applicable motorcycle, shall be considered to meet the impact resistance requirements.

Table 1 Thickness of methacrylate

Piston displacement L	Maximum speed km/h	Thickness mm
Below 0.05 or less	50 or less	Over 1.5
	Over 50	Over 3.0
Over 0.05 to 0.125	80 or less	Over 3.0
	Over 80	Over 3.8
Over 0.125	-	Over 3.8

5. Fairing construction

The construction of the fairings shall meet the following requirements.

a) Fairings shall be 1.30 m or less in overall width.

b) Fairings shall be shaped so as not to interfere with the feet of the driver on a motorcycle, and shall be such that the legs of the driver shall be entirely visible from the sides.

c) Fairings shall be constructed so that they can be securely mounted on the handles, frame, etc.

d) Fairings shall be free of detrimental sharp edges and projections.

e) Fairings, in the installed state, shall be constructed so as to ensure the steering angle specifications of the applicable vehicle.

f) The materials of the windshields shall be in conformity with the standards given in **Table 2**, or shall possess the strength, heat resistance, etc. equivalent to or greater than those materials specified therein.

Table 2 Windshield materials

Material	Applicable standard
Poly methyl methacrylate (PMMA) moulding and extrusion materials	JIS K6717-1 JIS K6717-2
Methacrylate casting and extrusion sheets	JIS K6718-1 JIS K6718-2
Polycarbonate (PC) materials for moulding and extrusion	JIS K6719-1 JIS K6719-2
Polycarbonate sheets	JIS K6735
Cured poly vinyl chloride sheet	JIS K6745

g) Windshields shall be free of distortions that could adversely affect the field of vision of the driver.

h) The range of windshield colouring shall be 450 mm or less at the front end height along the longitudinal median plane of the vehicle, and the visible light transmittance of said area shall be 25 % or more. The visible light transmittance of the area above 450mm shall be 70 % or more. The visible light transmittance shall be evaluated in conformity with **JIS R3212**.

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6. Test procedures

6.1 Running test

With a fairing installed on a motorcycle, the test shall be conducted under the following conditions.

a) The running speed shall be as specified in **Table 3**, in accordance with the piston displacement of the applicable motorcycle. If the vehicle is unable to attain the specified running speed, its maximum speed shall be the running test speed.

Table 3 Running speed

Piston displacement L	Running test speed km/h
Below 0.05 or less	60
Over 0.05 to 0.125	120
Over 0.125	150

b) The test road shall be a flat paved road.

c) Wind velocity shall be 5 m/s or less.

d) A running method shall be selected so as to face headwind.

6.2 Impact resistance test

6.2.1 Test preparation

Test preparation shall be made as follows:

a) Specimen

Specimen shall consist of flat sheets measuring 300 mm by 300 mm, of the same material as the windshield. A minimum of six sheets of this material shall be readied for the test.

b) Test equipment

The test equipment shall be as follows:

1) Steel ball

A steel ball with a mass of 227 g±2 g, a diameter of approximately 38 mm, and a smooth surface shall be used.

2) Supporting frame

A steel frame shall be used to support the specimen, as shown in **Figure 1**.

3) Falling ball tester

A falling ball tester that allows a steel ball to fall naturally from the specified height shall be used.

c) Impact load

Allow the steel ball to fall from the height indicated in **Table 4**, in accordance with the piston displacement and the maximum speed of the applicable motorcycle.

Table 4 Steel ball falling height (height as measured from specimen)

Piston Displacement L	Maximum Speed km/h	Steel ball falling height m
Below 0.05 or less	50 or less	0.6
	Over 50	1.6
Over 0.05 to 0.125	80 or less	1.6
	Over 80	2.5
Over 0.125	-	2.5

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