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**Fuel cell electric motorcycles and mopeds - Code of practice
for test of energy consumption and range**

燃料电池电动摩托车和燃料电池电动轻便摩托车 能量消耗率及续驶里程测试规范

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Foreword

GB/Z 173-2026: Fuel cell electric motorcycles and mopeds - Code of practice for test of energy consumption and range

GB /Z 173-2026.Test Specification for Energy Consumption Rate and Driving Range of Fuel Cell Electric Motorcycles and Fuel Cell Electric Mopeds GB /Z 173-2026 English version.

Fuel cell electric motorcycles and mopeds - Code of practice for test of energy consumption and range ICS

80 National Standardization Guiding Technical Documents of the People's Republic of China Fuel cell electric motorcycles and fuel cells Energy consumption rate of electric mopeds and Driving range test specifications Published on 2026-04-

30 State Administration for Market Regulation The State Administration for Standardization issued a statement.

1.Scope This document provides information on fuel cell electric motorcycles and fuel cell electric mopeds (hereinafter referred to as "vehicles" unless otherwise specified). The guidelines and recommendations for testing driving range and energy consumption rate describe the corresponding verification methods. This document applies to electric motorcycles and fuel cell electric mopeds that use hydrogen fuel cells as a single or primary power source. Motorbike.

4.1 Test Vehicle Conditions

4.1.1 The test vehicle should preferably be equipped with a remaining battery power

indicator and a remaining battery power warning device, and meet the requirements of GB 24155 for the vehicle. Development and design are essential.

4.1.2 Test vehicles should be equipped with a residual hydrogen warning device. When the hydrogen input pressure is lower than the minimum pressure set by the manufacturer, it should be indicated by a... A clear sound or light signal device is used to provide a prompt.

4.1.3 The power batteries configured in the test vehicles should be produced within the last year and the number of charge-discharge cycles should preferably not exceed 50.

4.1.4 The fuel cell system and on-board hydrogen storage system configured in the test vehicle should be within one year of production, and the number of hydrogen charging and discharging cycles should preferably not exceed 50.

4.1.5 Before testing, the test vehicle should be broken in for 300km using the matching fuel cell system and power battery, or as recommended by the manufacturer. The break-in process continues until the vehicle reaches a stable state. The break-in should be performed according to the specifications outlined in the instruction manual; if no specifications are provided, refer to the method described in section 5.3.1. conduct.

4.1.6 Test vehicles should be maintained and serviced in accordance with the user manual and relevant technical documents to ensure they are in normal technical condition.

4.1.7 The test vehicle should be loaded with a load mass of (75 ± 5) kg. If the test is conducted on a chassis dynamometer, it should be performed according to... Test vehicle mass loading as specified in GB 18176 or GB 14622.

4.1.8 Tire pressure should conform to the specifications in the product instruction manual.

4.1.9 Except for necessary equipment and routine operating parts of the vehicle, the lighting, signaling devices and auxiliary devices of the test vehicle should be turned off.

4.2 Test Road Conditions

4.2.1 The test road should preferably be asphalt or concrete, and the surface should be flat, dry, and clean. If it is a ring road, the turning radius should be not small. At 50m.

4.2.2 The test section should be kept level, with a longitudinal slope not exceeding 1%, and the height difference between any two points along the entire length should not exceed 1m. The slope should not exceed 3%.

4.3 Test Environment Conditions The testing environment shall meet the following requirements.

- a) During indoor testing, the temperature should be within $(25 \pm 5)^{\circ}\text{C}$;
- b) During outdoor testing, the temperature should be below $(25 \pm 10)^{\circ}\text{C}$;
- c) During outdoor testing, the average wind speed should not exceed 3 m/s, and the

maximum gust speed should not exceed 5 m/s;

d) Outdoor tests should not be conducted on rainy or foggy days, and the relative humidity should not exceed 95%.

4.4 Test Instrument Conditions The resolution and accuracy of the testing instruments are shown in Table 1.

4.5 Driving conditions Drivers should drive the vehicle in accordance with the relevant requirements of GB/T 5378, and the riding posture should remain as unchanged as possible during the test.

5 Test Methods

5.1 Test Procedure The test simultaneously measures driving range, hydrogen consumption rate per 100 kilometers, and electricity consumption rate per 100 kilometers. Between test procedures, it is advisable to... Avoid using onboard power to move the vehicle or methods such as regenerative braking to replenish the vehicle's energy. The test procedure should be carried out according to the following steps.

- a) After the power battery is fully discharged according to 5.3.1, it shall be charged according to 5.3.2;
- b) Turn off and disconnect the on-board hydrogen storage system, conduct a driving range test according to the operating condition method, and record the pure electric driving range D_{em} ;
- c) The power battery is charged according to 5.3.2, and the energy consumed by the power grid, E_{em} , is measured;
- d) The on-board hydrogen storage system shall be refueled according to A.1.1 or A.2.1 in Appendix A, and the on-board hydrogen storage system shall be connected and turned on, and the operation shall be carried out according to the working condition method. Driving range test, record the total driving range D_{tm} ;
- e) Charge the power battery according to 5.3.2 and measure the energy consumed by the power grid, E_{tm} ;
- f) The on-board hydrogen storage system shall be refueled according to A.1.2 or A.2.2, and the hydrogen consumption (in mm) shall be calculated.
- g) Turn off and disconnect the on-board hydrogen storage system, conduct a driving range test using the constant speed method, and record the pure electric driving range (D_{ev}).
- h) The power battery is charged according to 5.3.2, and the energy consumed by the power grid, E_{ev} , is measured;
- i) Refuel the on-board hydrogen storage system according to A.1.1 or A.2.1, connect and

turn on the on-board hydrogen storage system, and measure the driving range using the constant speed method. Test and record total driving range (Dtv);

j) The power battery is charged according to 5.3.2, and the energy consumed by the power grid, E_{tv}, is measured;

k) The on-board hydrogen storage system is refueled according to A.1.2 or A.2.2, and the hydrogen consumption m_v is calculated;

l) Calculate the hydrogen consumption rate per 100 kilometers and the electricity consumption rate per 100 kilometers for both methods.

5.3 Discharging and charging of power batteries

5.3.1 Before the initial charge, the power battery of the test vehicle should be fully discharged. Discharging can be done using a dynamometer on the road or on the chassis. Above, with the on-board hydrogen storage system turned off and disconnected, drive steadily at a speed of (70±5)% of the maximum design speed until the following situation occurs. Situation 1.

a) The battery reaches its cutoff voltage or the management system cuts off power;

b) The vehicle speed does not reach 65% of the maximum design speed.

5.3.2 The power battery should be fully charged according to the charging procedure provided by the manufacturer. If the manufacturer has not specified a charging procedure, then follow the instructions provided. The test should be conducted in accordance with the provisions of section

5.1 of GB/T 18385-2024. The test should preferably begin within 4 hours after the charging is completed.

5.4 Hydrogen refueling, replenishment, and pressure measurement of on-board hydrogen storage systems

5.4.1 The on-board hydrogen storage system should be hydrogenated before testing in accordance with the provisions of A.1.1 and A.2.1.

5.4.2 The on-board hydrogen storage system should be tested in accordance with the provisions of A.1.2 and A.2.2 before adding hydrogen, and the mass of hydrogen consumed in the test should be calculated.

5.5 Setting of Road Test Loads and Chassis Dynamometer It is advisable to follow the provisions of section

5.4 of GB/T 24157-2017.

5.6 Test speed and time tolerances The requirements of section