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**JIS E 4034** : 1994

(JARI)

**Railway rolling stock parts—  
Test methods of resistibility for  
moisture and rainfall**

**JIS E 4034**:1994 was revised under date of September 7, 2011.  
The revised items are included in Amendment 1.

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ICS 45.060.01

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## Foreword

This translation has been made based on the original Japanese Industrial Standard established by the Minister of Transportation through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

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In the event of any doubts arising as to the contents,  
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## Railway rolling stock parts— Test methods of resistibility for moisture and rainfall

**1 Scope** This Japanese Industrial Standard specifies the methods for testing the resistibility of rolling stock parts (hereafter referred to as “parts”) for moisture and rainfall. However, this Standard is not applicable to the following items.

- (1) Electrical devices and components
- (2) Components requiring weather resistance and corrosion resistance
- (3) Components subject to hydraulic test, air tightness test or leak test, irrespective of rainfall conditions from the exterior.

**NOTES** 1 Normative references of this Standard are as follows.

JIS B 7308 *Recording rain gauges*

JIS B 7309 *Tipping bucket rain gauges*

JIS E 4001 *Railway rolling stock—Vocabulary*

JIS Z 8703 *Standard atmospheric conditions for testing*

- 2 The numerical values included in “{ }” are standard values accompanied by conventional units.

From April 1, 1995, the numerical values accompanied by conventional units shall be replaced as specified in Annex.

**2 Terms and definitions** For the purpose of this Standard, the terms and definitions given in **JIS E 4001** apply.

**3 Classification and symbols of tests** Classification and symbols of tests shall be in accordance with Table 1, according to the purposes of tests.

**Table 1 Classification and symbols of tests**

| Classification of test    |         | Symbol | Purpose of test                                                                                | Applicable subclause |
|---------------------------|---------|--------|------------------------------------------------------------------------------------------------|----------------------|
| Humidity resistance tests | Class 1 | M1     | Test for checking the performance of a part against humidity                                   | <b>5.2</b>           |
|                           | Class 2 | M2     | Test for checking the performance of a part against high temperature and high humidity         | <b>5.3</b>           |
|                           | Class 3 | M3     | Test for checking the performance of a part against low temperature and high humidity          | <b>5.4</b>           |
| Water resistance tests    | Class 1 | R1     | Test for checking the performance of a part which can come into contact with drops of water    | <b>5.5</b>           |
|                           | Class 2 | R2     | Test for checking the performance of a part indirectly exposed to rain, wind or water splashes | <b>5.5</b>           |
|                           | Class 3 | R3     | Test for checking the performance of a part directly exposed to rain, wind or water splashes   | <b>5.5</b>           |
|                           | Class 4 | R4     | Test for checking the performance of a part exposed to the intense rainfall                    | <b>5.6</b>           |

## 4 Test conditions

**4.1 Installation of parts** When tested, parts shall be installed by the method and posture similar to the actual services.

**4.2 Treatment of ventilation intake** Equipment such as a ventilation intake and drain outlet, if any, may be closed at the time of testing. However, the ventilation intake and drain outlet shall be used if water flooding from the ventilation intake is likely to occur thus harm the sound performance of the part.

**4.3 Conditions of test site** Unless otherwise specified, the normal temperature (5 °C to 35 °C) and normal humidity (45 % to 85 %) shall be applied to the test site in accordance with **JIS Z 8703**.

**4.4 Water temperature** Normal temperature shall be applied to water temperature for the test.

**4.5 Confirmation of water exposure rate (precipitation)** As shown in Attached Figure 1, water exposure rate (precipitation) shall be obtained as follows: secure the sprinkling outlet at 1 300 mm high above the top of precipitation gauge with its sprinkling surface down, sprinkle water for 5 min, measure the quantity of precipitation at five points shown in the plane figure of water-exposed surface, and average those five values. Precipitation gauge shall be of inside diameter 100 mm or more, and of performance in accordance with **JIS B 7308** or **JIS B 7309** or at least equivalent thereto.

**4.6 Test water** Water used for the test shall not contain dust, particles and chemical substances (e.g. acid and chlorine ion) which can cause corrosion of metallic materials.