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Earth bolt performance and test methods

接地螺栓性能要求及试验方法

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Table of Contents

Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions	4
4 Performance requirements for earth bolts	5
5 Preparation for electrical performance test.....	5
6 Test methods for electrical properties	6

Earth bolt performance and test methods

1 Scope

1.1 This standard specifies the grounding performance requirements and related test methods for earth bolts.

1.2 This standard is applicable to the earth bolts, which have a thread specification M6 and M8, a mechanical performance grade 8.8, a product grade A.

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 standard.

GB/T 10125 Corrosion tests in artificial atmospheres - Salt spray tests

3 Terms and definitions

The following terms and definitions apply to this document.

3.1

Earth

Refers to the connection of a circuit, equipment, subsystem to the reference ground, to provide an equipotential point or plane. The reference ground of the automotive electronic system is the frame or the cabin; the negative wire of the battery is directly placed on the frame or cabin.

3.2

Earth bolt

Connecting bolts, between the grounding points of circuits, equipment, subsystems and the reference ground.

6.2 Common connection

6.2.1 Tightening by torque wrench

Each bolt shall be tightened, according to the minimum torque in Table 2. The voltage drop shall be measured, according to 6.1. Then it is tightened, according to the maximum torque in Table 2. The voltage drop shall be measured, according to 6.1. The number of test earth bolts is 10.

6.2.2 Tightening by impact wrench

If an impact wrench is used, tighten it according to the torque setting of the production process. Measure the voltage drop according to 6.1. The number of test bolts is 10.

6.3 Repeated disassembly & assembly

Take one tightening-disassembly & assembly of the earth bolt as 1 cycle. Repeat 10 cycles. When tightening, use the impact wrench only in the 1st cycle; use the torque wrench after the 2nd cycle. Then carry out the voltage drop test, according to 6.1. The number of test bolts is 10.

6.4 Salt spray

Hang the specimen with the earth bolt installed (see Figure 1) in the salt spray test chamber. According to the neutral salt spray test in GB/T 10125, spray for 23 hours. Then place it outside the salt spray test chamber, for 1 hour, during which it shall not direct contact the specimen. After repeating 4 cycles, carry out the voltage drop test according to 6.1. The number of test bolts is 10.

6.5 Vibration

Install the specimen on the vibration testing machine, in the three installation postures as shown in Figure 4. Carry out the test, according to the conditions in Table 5. The vibration directions are three directions perpendicular to each other in the up and down, left and right, front and rear directions, as relative to the installation state. Then carry out the voltage drop test according to 6.1. The number of test bolts is 10.

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