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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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Wire clamps for live working

带电作业用卡线器

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5 Technical Requirements

5.1 General Requirements The cable clamp should be marked with its operating temperature range, and the minimum operating temperature should not be higher than 0°C and the maximum operating temperature should not be lower than 40°C.

5.2 External Dimensions

5.2.1 The surface of the wire clamp should be smooth, free from obvious rust, visible cracks, burrs, sharp edges, metal inclusions, or visible deformation.

5.2.2 The main body of the wire clamp should be anodized. Wire clamps for insulated wires should preferably be black, and wire clamps for bare wires should preferably be silver. Pin shaft parts. It should be treated with galvanizing or bluing.

5.2.3 The inside of the clamp plate of the bare wire clamp should have anti-slip texture. The anti-slip texture should preferably have a depth of no more than 0.5mm, a width of no more than 1.0mm, and a spacing of... The anti-slip texture should be no larger than 15.0mm in diameter and have a grid pattern. The inner part of the insulated wire clamp should have a fish-scale pattern anti-slip tooth, with rounded grooves and... The width and depth of the straight groove should be 1.5mm to 2.0mm, and the tooth spacing should be 4.0mm to 5.0mm.

5.2.4 The dimensions and weight of each type of cable clamp shall conform to the specifications in Table 1 and Table 2.

5.3 Mechanical Properties

5.3.1 Bare wire clamps shall possess clamping performance and mechanical strength. Tested according to the method described in 6.2, they shall meet the following requirements.

- a) After the rated load test, the bare conductor clamp does not slip relative to the clamped conductor. After unloading, there is no residue on the surface of the clamped conductor. There are obvious indentations, the diameter of the clamped wire is not less than 97% of that before clamping, and the wire clamp is undamaged.
- b) After the dynamic load test, the relative slippage between the bare conductor clamp and the clamped conductor shall not exceed 5 mm. After unloading, the clamped conductor... The surface is free of scratches and bird's nest-like deformation, the diameter of the clamped wire is not less than 97% of that before clamping, and the wire clamp is undamaged.
- c) After a static load test, the bare conductor clamp should not slip more than 5 mm relative to the clamped conductor. After unloading, the clamp should not... destroy.
- d) The damage load of the bare conductor clamp shall not be less than three times the rated load.

5.3.2 Insulated wire clamps shall possess clamping performance and mechanical strength. Tested according to the method described in 6.2, they shall meet the following requirements.

- a) After the rated load test, the insulated wire clamp does not slip relative to the clamped wire. After unloading, the surface of the clamped wire remains clear. There are no obvious indentations, the diameter of the metal core of the clamped wire is not less than 97% of that before clamping, and the wire clamp is undamaged.
- b) After the dynamic load test, the relative slippage between the insulated conductor clamp and the clamped conductor shall not exceed 5 mm. After unloading, the clamped conductor... There is no visible damage to the wire surface, the diameter of the metal core of the clamped wire is not less than 97% of that before clamping, and the wire clamp is undamaged.
- c) The breaking load of the insulated wire clamp shall not be less than twice the rated load.

6.1 Visual inspection and measurement

6.1.1 Visually inspect the cable clamp.

6.1.2 Measure the depth, width, and spacing of the anti-slip grooves (teeth) inside the clamp plate of the wire clamp.

6.1.3 Measure the clamping length, clamping arc diameter, maximum opening size, and mass of the wire clamp.

6.2 Mechanical property test

6.2.1 The mechanical performance test of the cable clamp includes a minimum operating temperature mechanical performance test and a maximum operating temperature mechanical performance test, and is conducted according to the following steps. Proceeding in a sudden manner.

- a) Place the wire clamp and test lead in an environment at the minimum operating temperature specified by the wire clamp for 1 hour.
- b) Remove the wire clamp and test lead for a minimum operating temperature mechanical performance test. If the test environment conditions meet the requirements for the wire clamp... The minimum operating temperature specified by the device is then used to complete all minimum operating temperature tests within the environment specified by the cable clamp. Mechanical performance test items; if the test environment conditions cannot reach the minimum operating temperature specified by the wire clamp, after removing the wire clamp and testing... The minimum operating temperature mechanical performance test items for the test conductors were completed within 15 minutes. Then, the wire clamp and the test conductors were... Place the wire clamp in an environment at its nominal minimum operating temperature for 1 hour, then remove the wire clamp and test lead again, and test for 15 minutes. Continue with the remaining minimum operating temperature mechanical performance tests, repeating the above process until all minimum operating temperature mechanical properties are tested. The mechanical performance test project has been completed.
- c) Place the wire clamp and test lead in an environment at the highest operating temperature specified by the wire clamp for 1 hour.
- d) Remove the wire clamp and test lead for a mechanical performance test at the highest operating temperature. If the test environment conditions can meet the requirements for the wire clamp... The maximum operating temperature specified by the device is then determined by conducting all tests at the maximum operating temperature within an environment specified by the cable clamp. Mechanical performance test items; if the test environment conditions cannot reach the maximum operating temperature of the wire clamp, after removing the wire clamp and testing... The test conductor was subjected to partial mechanical performance tests at its maximum operating temperature within 15 minutes. Then the wire clamp and the test conductor were... Place the wire clamp in an environment with the highest rated operating temperature for 1 hour, then remove the wire clamp and test lead again, and test for 15 minutes. Continue with the remaining mechanical performance tests at the maximum operating temperature, repeating the above process until all maximum operating temperature tests are completed. The mechanical performance

test project has been completed.

6.2.2 The test setup for the wire clamp's mechanical performance is shown in Figure

4. One end of the wire is connected to the fixing device, and the other end is securely clamped using the wire clamp. The wire exposed at the rear end of the wire clamp should not be less than 200mm. The pull ring of the wire clamp is connected to the tensile testing machine via a connecting device.

6.2.3 Appropriate test conductors should be selected for the mechanical performance test of wire clamps. When conducting type tests on wire clamps applicable to multiple conductor specifications, The test conductors should include at least the conductors with the largest and smallest applicable cross-sectional areas. For the destructive load test, high-strength conductors with similar diameters can be selected. Degree-of-conductor wires or special devices.

6.2.4 Bare conductor clamps shall undergo rated load test, dynamic load test, static load test, and destructive load test. The tensile force used in the tests... The testing machine has an accuracy class of not less than I and a loading speed not exceeding 1 kN/s. Among these.

---Both the rated load test and static load test were performed with a load of 10 minutes. The dynamic load test was performed 3 times. The load values are shown in Table

3. Deviations are not specified. More than $\pm 1\%$;

---The destructive load test involves applying a load three times the rated load, then gradually and evenly increasing the load until any part of the cable clamp fails. Record the load value loaded when the system is corrupted.

6.2.5 Insulated wire clamps shall undergo rated load testing, dynamic load testing, and destructive load testing. The tensile testing machine used for the tests shall be precise. The degree of hardness shall not be lower than Level I, and the test loading speed shall not exceed 1 kN/s. Among these.

---The rated load test is performed for 10 minutes, and the dynamic load test is performed 3 times. The load values are shown in Table 4, and the deviation shall not exceed $\pm 1\%$.

7 Inspection Rules

7.1 Type Testing When a new product is trial-produced or when the materials and processes are changed, the product should undergo type testing. The type test items are shown in Tables 5 and

6. The number of test specimens required for type testing shall not be less than 3, and each test shall be performed on each test specimen. Okay, if more than one sample fails the test, the test is considered failed. If only one sample fails, three more samples can be taken. The