6E-31 STRAPS
(C RANK)

November 1928 Established
March 2008 (Revision 07)

Distribution Department

TEPCO Power Grid, Incorporated

1. Scope

This product is mainly used for anchoring insulators and supporting cross arms.

2. Related standards

2.1 Japanese Industrial Standards

(1) JIS G 3101 (2004) Rolled steels for general structure

(2) JIS H 8641 (2007) Hot dip galvanized coatings

(3) JIS H 0401 (2007) Test methods for hot dip galvanized coatings

3. Types

The products are categorized into the following 4 types:

(1) Torsion strap

(2) Low-voltage torsion strap

(3) Tension strap

(4) Medium strap

4. Structure and materials

4.1 General matters

(1) There shall be no scratch, crack, rust, or any other flaw that is problematic from a practical perspective.

(2) There shall be no practical problem.

4.2 Shape and dimensions

The shape and dimensions of the product shall be in accordance with attached figures 1 through 4.

4.3 Provisions on principal structural part

(1) Structure

The bent part of torsion strap and low-voltage torsion strap shall be reinforced so that no problem occurs when the strap is combined with a cross arm.

(2) Material

For the material, use a steel material specified in JIS that satisfies the functional characteristics of the product.

[Note]

The "steel material specified in JIS that satisfies the functional characteristics of the product" includes SS400 specified in JIS G 3101, based on the conventional knowledge.

(3) Surface treatment

Apply hot dip galvanized coating specified in JIS H 8641 over the entire surface, except when using a steel material having an anticorrosion property equal to or higher than hot dip galvanized coating.

5. Performance

The performance of the product shall be in accordance with Table 1 when the tests described in Chapter 7 are conducted.

Table 1: Performance

Item	Performance	Section describing the test method
Appearance	No practical problems.	7.1
Structure/dimensions	Shall be in accordance with the major dimensions specified in the attached figures.	7.2
Load performance	No abnormality when a load is applied.	7.3
Coating mass	400 g/m^2 or more	7.5

6. Indication method

Before applying galvanized coating, clearly make a punch mark of the item below at the position indicated in the figures.

For low-voltage torsion straps, make a punch mark of letter "L" at the position indicated in the attached figure.

(1) Name or abbreviation of manufacturer

7. Test method

7.1 Appearance inspection

Conduct inspection by visual examination or touch.

7.2 Structural/dimensional inspection

Conduct inspection on the structure by visual examination or using appropriate measuring apparatuses.

7.3 Load bearing test

Conduct tensile test by the test method described in Figures 1 to 4. Apply the standard load specified in column A of Table 2, in the direction indicated by the arrow in the figures. After a lapse of 1 minute, check the state of each part.Then, continue to increase the load up to the breaking load and record the breakdown value and breaking conditions.

When applying a load, first apply up to the value in column B, 75% of the test load, and then increase the load at the rate specified in column C until the standard load is reached. Up to the breakdown value, increase the load at the rate specified in column D.

Do not tighten the bolt connecting the holding material and the strap. The size of the bolt used for connecting the supporting member and the strap shall be M12 for low-voltage torsion straps and M16 for other straps.

Table 2: Load during load bearing test

A	B	C	D
Standard load	75% load	Up to standard load	Up to braking load
N	N	N/sec	N/sec
11800	8830	981	491

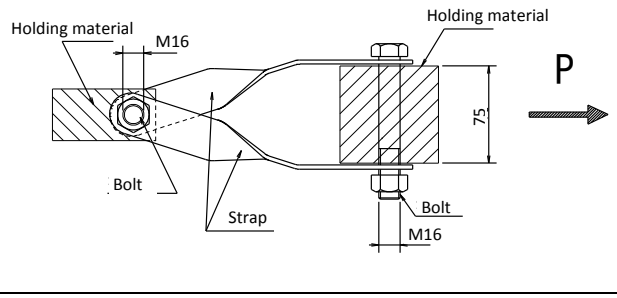


Figure 1: Torsion strap

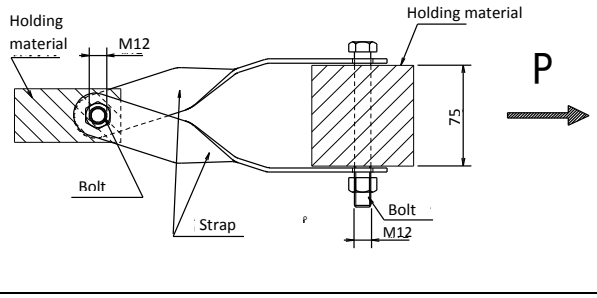


Figure 2: Low-voltage torsion strap

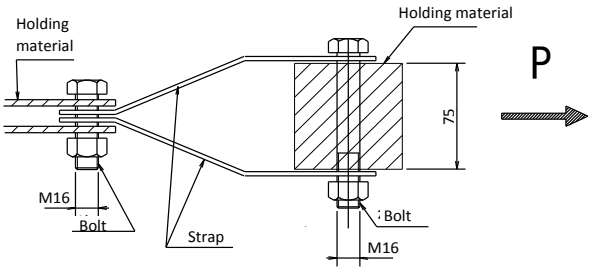


Figure 3: Tension strap

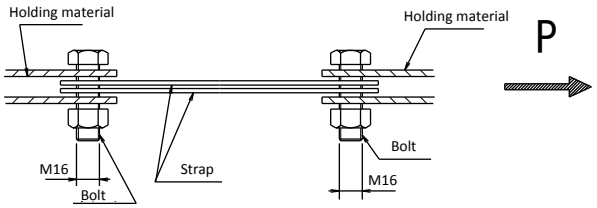


Figure 4: Medium strap

7.4 Hot dip galvanized coating test

Measure the coating mass according to 5.2 "Indirect method" or 5.3 "Electromagnetic thickness test" specified in 5. "Method for coating mass test" of JIS H 0401 (Test Methods For Hot Dip Galvanized Coatings).

For the specimen of the coating mass test, appropriate test pieces may be created in advance. The test pieces shall be coated in the same procedure of the same manufacturing process as the product.

8. Test

8.1 General matters

The product shall undergo 8.2 "Type test," 8.3 "Acceptance inspection" and 8.4 "Manufacturing process inspection" according to the test methods described in Chapter 7, and satisfy all the requirements described in Chapters 4 to 6.

8.2 Type test

The type test shall be conducted for products or test pieces created under the same conditions as the product, to measure the test items below. In principle, the type test shall be conducted for 3 specimens of the same type.

(1) Appearance inspection

(2) Structural/dimensional inspection

(3) Load bearing test

(4) Hot dip galvanized coating test

8.3 Acceptance inspection

The acceptance inspection shall be conducted, when requested by TEPCO, according to the procedure specified in 8.2 "Type test" in the presence of TEPCO. Specific test items and the sampling rate shall be determined by consultation with TEPCO. When the witnessed acceptance inspection is not conducted, the manufacturer shall conduct an in-house test determined by consultation with TEPCO in advance and submit the test result report to TEPCO.

8.4 Manufacturing process inspection

To check that the system is established to produce during mass production completely the same items as the samples, conduct inspections on the materials used, quality control items of each manufacturing process, and quality control method.

9. Other

9.1 General matters

(1) Matters required to satisfy the performance and functions of the product, other than those specified in this specification document, shall be determined by consultation with TEPCO.

(2) When a substantial advantage for use or manufacturing is available by changing a part of this specification document, it may be changed after approval by TEPCO.

(3) TEPCO shall be entitled to conduct a witnessed process inspection and material inspection when TEPCO find it necessary.

9.2 Cost of test piece

The test pieces shall be borne by the supplier.

9.3 Documents to be submitted

For the type test, submit the documents below.

9.3.1 Manufacturing specification document

Specifically list in the manufacturing specification document the information required for TEPCO to check the compliance with this specification document and attach the drawings with details of dimensional tolerances, and materials. Also attach technical documents related to the manufacturing specification document as necessary.

9.3.2 Test result report

Conduct 8.2 "Type test," and record the results and test conditions.

9.3.3 Quality management report

Specifically record the materials used, quality management items at each manufacturing process, quality management method, non-conformance corrective actions, quality management system, and other related matters in the "quality management process chart" and "subcontractor supplier management." When outsourcing the major manufacturing process, submit outsourcing process management documents (in which the process management conditions at the subcontractor are recorded in the same form as in the quality management process chart). The specific range of recording shall be determined by consultation with TEPCO.

9.3.4 Technical documents

For type inspection, a submission of technical documents may be requested to fully and properly identify the function and quality of the product.

9.4 Packing

Use a proper method appropriate for shipping and transportation to prevent easy breakage. Also indicate the information below. Specific packing methods shall be determined by consolation with TEPCO and clearly indicated in the packing specification document.

(1) Product name

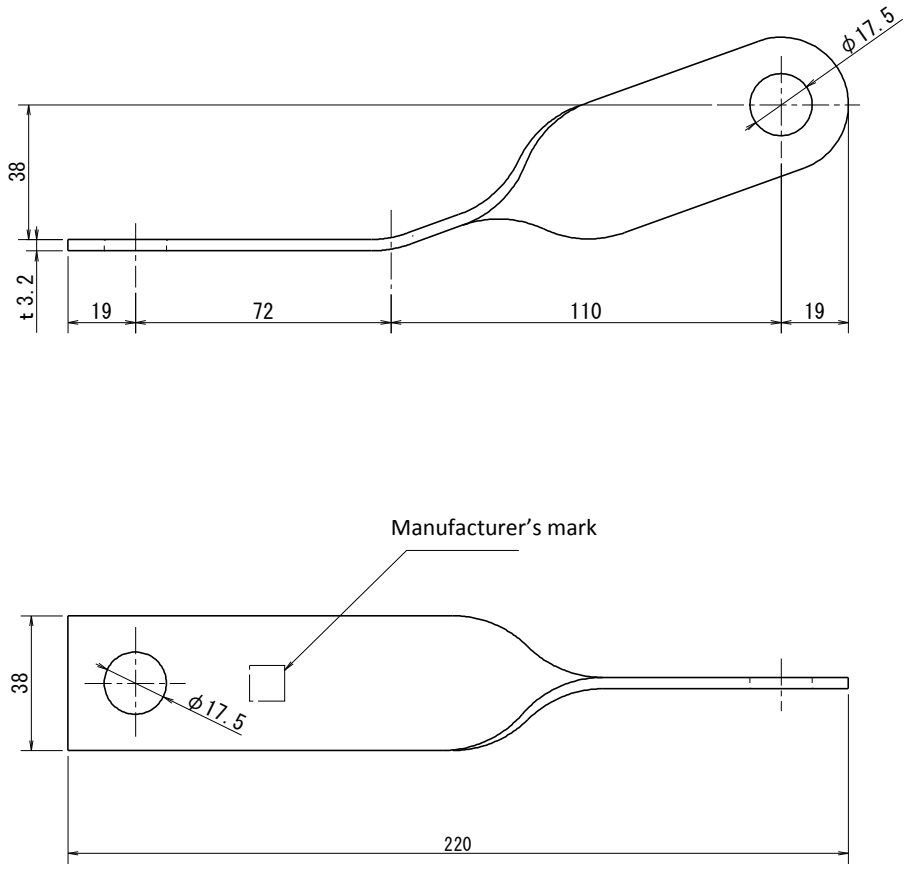
(2) Quantity

(3) Month and year of production

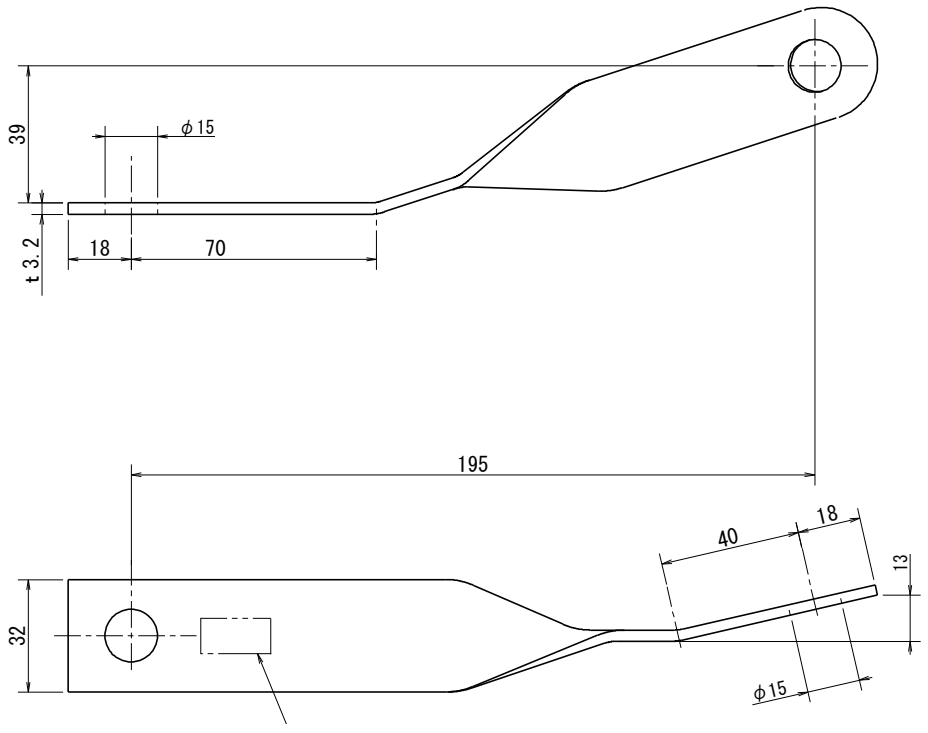
(4) Manufacturer

(Remainder of page intentionally left blank)

(Unit: mm)



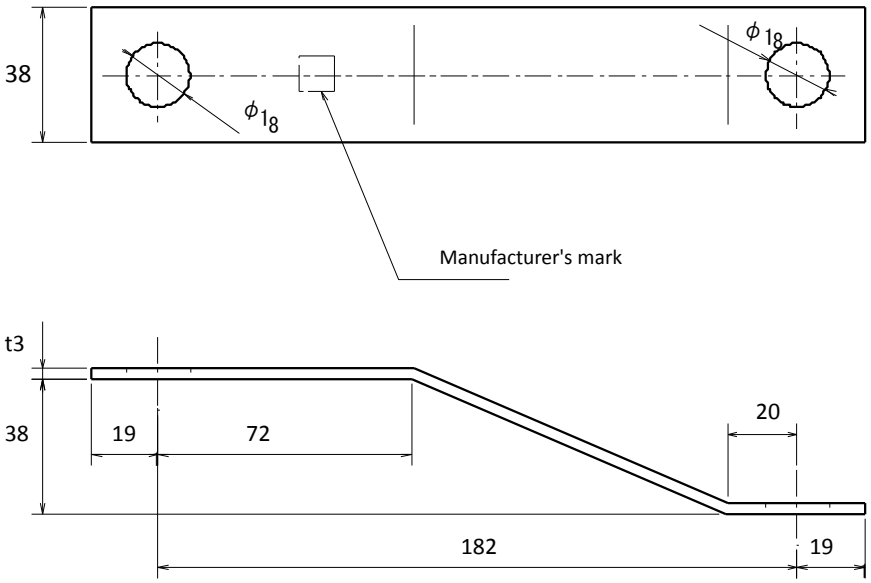
Attached figure 1: Torsion strap



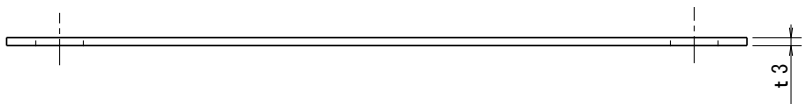
Manufacturer's mark and mark of letter "L"

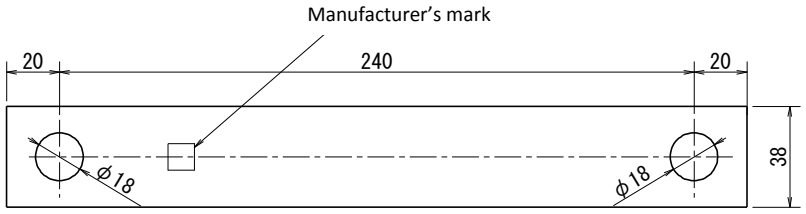
Attached figure 2: Low-voltage torsion strap

(Unit: mm)



Attached figure 3: Tension strap





Attached figure 4: Medium strap