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6E-18 Riser Cable Supporting Band (Rank C)



Established in October 1972
Approved on March 31, 2008 (Rev. 03)
Enforced on April 30, 2008

Distribution Department

Tokyo Electric Power Company, Incorporated

1. Scope of Application

This product is used as a riser cable supporting band for supporting and fixing the cable to a pole when an underground riser cable of a 6600-V CVT cable or a high-voltage overhead cable CVT-SS in urban assembling is connected to a switch or transformer.

2. Related Standards

2.1 Japanese Industrial Standards

- (1) JIS B 1051 (2000) Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1: Bolts, screws and studs
- (2) JIS G 3101 (2004) Rolled steels for general structure
- (3) JIS G 3507-2 (2005) Carbon steels for cold heading - Part 2: Wires
- (4) JIS H 8501 (1999) Methods of thickness test for metallic coatings
- (5) JIS H 8641 (2007) Hot dip galvanized coatings
- (6) JIS H 0401 (2007) Test methods for hot dip galvanized coatings

2.2 TEPCO Standards

- (1) 6A-17 6600-V CVT Cable
- (2) 6D-08 Reinforced Concrete Pole
- (3) 6D-09 Small-Diameter Reinforced Concrete Pole
- (4) 6D-17 Steel Built-Up Column
- (5) 6D-19 Steel Pipe Poles for 14-50 Coupled Pole
- (6) 6D-21 Steel Pipe Poles for Coupled Pole
- (7) 6D-39 D-Shaped Arm

3. Types

Table 1 shows the types, name, and applications.

Table 1

Name	Symbol	Gage diameter	Remarks
Riser cable supporting band	D-23	φ230 mm	Applicable diameter: φ200 to φ240 mm
	D-26	φ260 mm	Applicable diameter: φ230 to φ270 mm

4. Structure and Materials

4.1 General Matter

The product must not have any scratches, rust, burrs, and other flaws inappropriate for practical use.

4.2 Shape and Dimensions

The shape and dimensions of this program are shown in Attached Diagram. The points to which a tolerance is specified are shown in Attached Diagram.

4.3 Requirements for the Primary Structure

- (1) Structure

This product must satisfy the application range of the applicable symbol and must be so structured as to be attachable to a reinforced concrete pole securely.

(2) Materials

a) Steel sheets

The material used must be steel stipulated in JIS and satisfying the functional characteristics of the product.

[Explanation]

According to present expertise, the "steel stipulated in JIS and satisfying the functional characteristics of the product" includes SS330 stipulated in JIS G 3101.

b) Bolts

The material used must be steel stipulated in JIS and satisfying the functional characteristics of the product.

[Explanation]

According to present expertise, the "steel stipulated in JIS and satisfying the functional characteristics of the product" includes SWCH10R stipulated in JIS G 3507-2.

(3) Surface treatment

Apply a zinc hot dip galvanizing stipulated in JIS H 8641 uniformly over the entire surface. Note that this does not apply when steel having an anticorrosion property equal to or higher than zinc hot dip galvanizing is used.

5. Performance

5.1 General Matter

Table 2 shows the performance of this product for the tests in Section 7.

Table 2

Item		Performance	Test method Applicable item				
Appearance		There must be no points inappropriate for practical use.	7.1				
Structure and dimensions		Major dimensions (tolerances) shown in Attached Diagram must be satisfied.	7.2				
Applicable diameter	D-23	The product must be attachable to a cable having a diameter of from $\phi 200$ to $\phi 240$ mm.	7.3				
	D-26	The product must be attachable to a cable having a diameter of from $\phi 230$ to $\phi 270$ mm.					
Bolt tensile strength	M12	33.7 kN or more	7.4				
Product characteristics	Vertical direction	When the specified load is applied, the displacement must be the predetermined value or smaller and there must be no abnormality in any parts.	7.5				
		<table border="1"> <tr> <td>Vertical load</td> <td rowspan="2">Specified load P1 = 2660 N</td> <td rowspan="2">Specified breaking load P2 = 6770 N</td> </tr> <tr> <td>Band</td> </tr> </table>		Vertical load	Specified load P1 = 2660 N	Specified breaking load P2 = 6770 N	Band
		Vertical load		Specified load P1 = 2660 N			Specified breaking load P2 = 6770 N
	Band						
	Reinforced concrete pole fixing band	No slip		No rupture			
	Spacer fixing band	Load point drop 15 mm or less					
Horizontal direction	When the specified load is applied, the displacement must be the predetermined value or smaller and there must be no abnormality in any parts.	Specified breaking load P4 = 3820 N					
	<table border="1"> <tr> <td>Horizontal load</td> <td rowspan="2">Specified load P3 = 1270 N</td> </tr> <tr> <td>Band</td> </tr> </table>		Horizontal load	Specified load P3 = 1270 N	Band		
	Horizontal load		Specified load P3 = 1270 N				
Band							
Reinforced concrete pole fixing band	No rotation	No rupture					
Spacer fixing band	Band displacement 5 mm or less						
Mass of plating deposit		350 g/m ² or greater (except for the screw part of bolts)	7.6				

6. Display Method

The following items must be engraved clearly on the point as shown in Attached Diagram before galvanization.

- (1) Symbol: e.g. D23
- (2) Name of manufacturer or its abbreviation
- (3) Year of manufacture (the last two digits of the Christian Era): e.g. 07

7. Test Methods

7.1 Appearance Inspection

Inspect the product visually or by touching with the hands.

7.2 Structure and Dimensions Inspection

Inspect structure-related matters visually or with an appropriate graduated ruler.

7.3 Application Range Test

Inspect the product attached in an assembling state.

7.4 Bolt Strength Test

The bolts must be tested by using the method stipulated in Section 8.2 "The method of tensile test for bolts, screws, and studs in a product" of JIS B 1051 (Mechanical properties of fasteners made of carbon steel and alloy steel - Part 1 : Bolts, screws and studs).

7.5 Load Test

(1) Vertical load test

Attach this product to a pole in an assembling state as shown in Fig. 1. Gradually apply a vertical load to the specified value $P1 = 2260 \text{ N}$, and then measure the displacement of the load point and check whether or not there is abnormality in any parts. In addition, continuously increase the load to specified breaking load value $P2 = 6770 \text{ N}$, and then check the conditions.

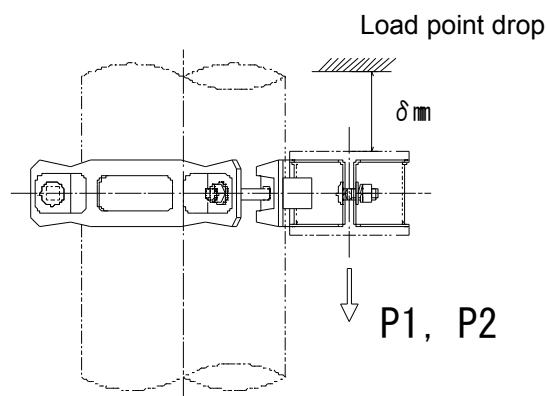


Figure 1

(2) Horizontal load test

Attach this product to a pole in an assembling state as shown in Fig. 2. Gradually apply a horizontal load to the specified value $P3 = 1270 \text{ N}$, and then measure the floating displacement of the band and check whether or not there is abnormality in any parts. In addition, continuously increase the load to specified breaking load value $P4 = 3820 \text{ N}$, and then check the conditions.

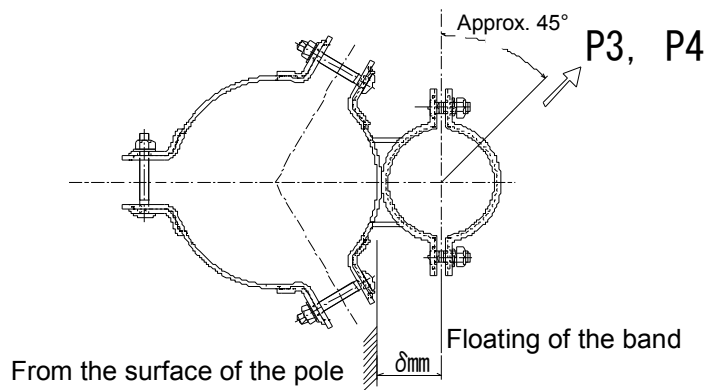


Figure 2

7.6 Hot Dip Galvanizing Test

Measure the mass of deposit by using either of the methods stipulated in Section 5.2 "Indirect method" and Section 5.3 "Magnetic thickness test" of Chapter 5 "Deposit mass test method" of JIS H 0401 (Test methods for hot dip galvanized coatings).

Note that a test specimen used for deposit mass test can be an appropriately pre-manufactured test piece to which plating is applied with the same work method in the same manufacturing process as the product.

8. Test

8.1 General Matter

This product must go through the Type approval test in Section 8.2, the Acceptance test in Section 8.3, and the Manufacturing process inspection in Section 8.4 based on the test method stipulated in Section 7 and comply with the entire provisions from Section 4 to Section 6.

8.2 Type Approval Test

Type approval test must be conducted on a product or a test specimen manufactured under the same conditions with products for the following test items. Note that the test must be conducted on three pieces of the same type as a general rule.

- (1) Appearance inspection
- (2) Structure and dimensions inspection
- (3) Bolt strength test
- (4) Application range test
- (5) Vertical load test
- (6) Horizontal load test
- (7) Hot dip galvanizing test

8.3 Manufacturing Process Inspection

A series of inspections including the materials used, the quality control items in the manufacturing processes, and the quality control method must be conducted to confirm that the manufacturer has a system in which the exactly same products as the one used for the type approval test can be produced in the mass production process.

8.4 Acceptance Test

The acceptance test must be conducted in the presence of the supplier when designated by the buyer based on a method stipulated in the Type approval test in Section 8.2. Its concrete test items and sampling rate must be defined in consultation with the buyer. When no acceptance test will be conducted in the presence of the supplier, the manufacturer must conduct internal tests predefined in consultation with TEPCO and submit the results as a test report to the buyer.

9. Miscellaneous

9.1 General Matters

- (1) Items necessary for satisfying the performance and functions of the product other than those stipulated in this specification document should be determined in consultation with TEPCO.
- (2) When modifications to part of this specification document will yield a substantial benefit to the use or manufacturing, the manufacturer can change this specification document after having obtained approval from TEPCO.
- (3) On-the-spot process inspection and material inspection can be conducted when TEPCO recognizes the necessity to do so.

9.2 Cost for Test Items

The supplier will bear the test specimens.

9.3 Documents to be Submitted

The following documents must be submitted for type approval evaluation.

9.3.1 Manufacturing Specifications

Specify necessary items in a manufacturing specifications and attach a drawing on which the tolerances of the dimensions and the materials are described in detail in order that TEPCO can assess the conformance to this specification document. Technical documents modeled after the manufacturing specifications must be also attached when necessary.

9.3.2 Test Report

Conduct the Type approval test in Section 8.2 and describe the results and test conditions in a test report.

9.3.3 Quality Control Report

Specify the information about the materials used, the quality control items in the manufacturing processes, the quality control method, fault-prevention measures, and the quality control system in a "quality control flowchart" and "management of subcontract suppliers," and the like. Note that an outsourced process control document (a document described according to the format of a quality control flowchart, showing the process control status of the subcontractors) must be submitted when major manufacturing processes are outsourced. The concrete scope of description will be determined in consultation with TEPCO.

9.3.4 Technical Documents

Before type approval assessment is carried out, the submission of technical documents may be requested in order that the performance and quality of the product can be assessed sufficiently and appropriately.

9.4 Package and Packing

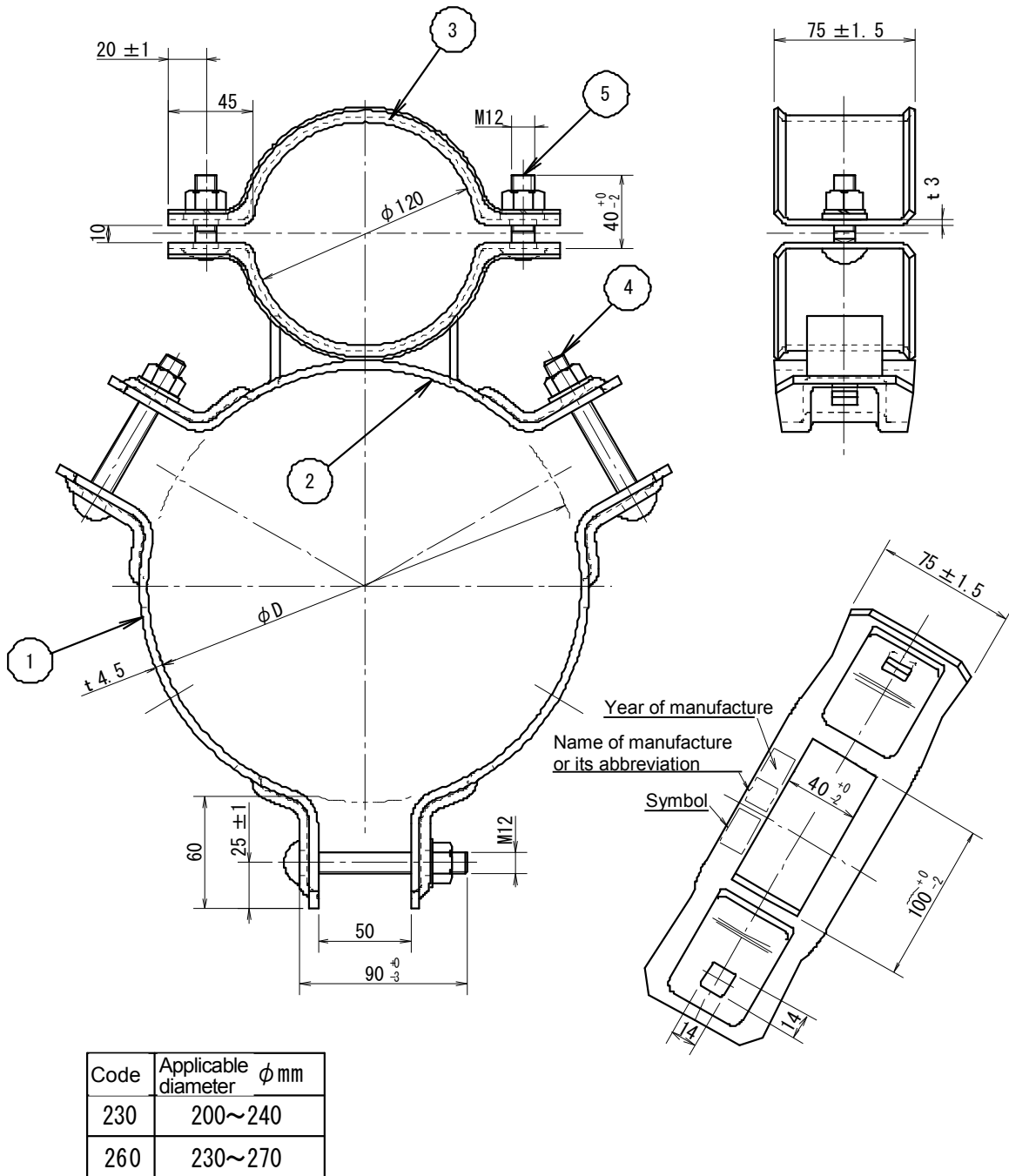
Use an appropriate method suitable for transportation and carrying, which can ensure that the products will not be easily broken, with the following items displayed on the package. The concrete packing method must be described in the packing specifications after consultation with TEPCO.

- (1) Specifications No.
- (2) Item name
- (3) Quantity
- (4) Year and month of manufacture (Christian Era)
- (5) Name of manufacturer or its abbreviation

From here down blank.

(Unit: mm)

Code	Name	Quantity
1	Band (Large)	2
2	Band (Large) – (Small)	1
3	Band (Small)	1
4	M12 cup head square neck bolt (with W)	3
5	M12 cup head square neck bolt (with SW, W)	2



Attached Diagram: Riser cable supporting band