



# VERIFICATION OF LVD CONFORMITY

Registration No.  
012078-037/CN

**Applicant :** ZHEJIANG TANHO ELECTRICAL EQUIPMENT CO., LTD.  
NO.82,NORTH YUEDU RD,CHANGHONG INDUSTRIAL ZONE, LIUSHI TOWN,  
YUEQING CITY, ZHEJIANG, CHINA

Is authorized to  
provide the product  
mentioned below with  
the mark as illustrated



**Manufacturer :** ZHEJIANG TANHO ELECTRICAL EQUIPMENT CO., LTD.  
NO.82,NORTH YUEDU RD,CHANGHONG INDUSTRIAL ZONE, LIUSHI TOWN,  
YUEQING CITY, ZHEJIANG, CHINA

**Product Description :** INSULATING SUSPENSION CLAMP  
**Model No. :** ES, TH, SO, PS, PSB, JXGF, XJG, XJ, CS

**Test Standard :** EN 61284:1997

**Test Report Number :** UTS(12)-828-07-LVD

## Conclusion of assessment:

We hereby confirm that the technical construction file and manufacturing, Inspection and testing processes for above mentioned equipment comply with the essential safety requirements of:

**Low Voltage Directive 2006/95/EC**

Note: This certificate is only valid for the equipment and configuration described, in conjunction with the test data detailed above.

Name: Jason. Ma  
Position: General Manager

Signature:

Third Party Authority  
Stamp:

Date: Jul. 30, 2012



Shanghai yousende products inspection technology Co., Ltd.  
Room 812-813, JiaoNeng International Mansion, No. 79, Aona Road, Pudong District, Shanghai China  
Tel: +86 2151099699 Fax: +86 2160456901 E-mail: utsce@apragaz.com.cn  
<http://www.utsce.com>





**EN 61284:1997**

**LVD MEASUREMENT AND TEST REPORT  
FOR**

**Manufacturer:** ZHEJIANG TANHO ELECTRICAL EQUIPMENT CO.,LTD.

**Address:** NO.82,NORTH YUEDU RD,CHANGHONG INDUSTRIAL ZONE, LIUSHI TOWN,  
YUEQING CITY, ZHEJIANG, CHINA

**Product:** INSULATING SUSPENSION CLAMP

**Model/Type:** ES, TH, SO, PS, PSB, JXGF, XJG, XJ, CS

**Test date:** JUL.8~JUN.18, 2012

**Issuance date:** JUN.18, 2012

**Authorized By:**





Test item description	
Product name .....	<b>INSULATING SUSPENSION CLAMP</b>
Standard .....	EN 61284:1997 Overhead lines – Requirements and tests for fitting
Trade Mark .....	SL 天虹电气
Model /Type reference .....	TH
Protection against electric shock.....	/
IP number.....	IP00
Ambient temperature.....	Without T marking
Type of terminals, screw-type.....	/
Rated connecting capacity (mm <sup>2</sup> ).....	/
Type of connector.....	INSULATING SUSPENSION CLAMP
Rated voltage (V a.c. / V d.c.).....	/
Test case verdicts	
Test case does not apply to the test object.....	N(.A.)
Test item does meet the requirement.....	P(ass)
Test item does not meet the requirement.....	F(ail)
General remarks	
<p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>" (See Annex #)" refers to the annex appended to the report.</p> <p>"(see Enclosure)" refers to additional information appended to the report.</p> <p>"(see appended table)" refers to a table appended to the report.</p> <p>Throughout this report a point is used as the decimal separator.</p>	



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Copy of marking plate:

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Photo of the sample:







General product information:

All the tests are conducted on the INSULATING SUSPENSION CLAMP of the selected model of TH, this report also covers the following series of model because of the similar construction: ES, SO, PS, PSB, JXGF, XJG, XJ, CS.



EN 61284-1997			
Cl.	Requirement + Test	Result - Remark	Verdict

<b>4</b>	<b>Requirements</b>		<b>P</b>
<b>4.1</b>	<b>General requirements</b>		<b>P</b>
4.1.1	Design		P
	The fittings shall be designed so as to		P
	-avoid damaging the conductor		P
	-withstand the mechanical loads relevant to installation, maintenance and service.		P
	-ensure the individual components loose in services.		P
	-have limited corona effects		N
	Fittings for live line maintenance suitably designed for safe and easy handing		N
	Surfaces of compression fittings in contact with the conductor be protected from contaminated.		N
	Brittleness of finished parts avoided by adopting suitable process		N
4.1.2	Materials		P
4.1.2.1	Metallic materials		P
	The material shall meet service life requirements		P
	The materials of compression fittings withstanding the cold working due to compression		P
	-aluminium or aluminium alloy;		P
	-galvanized steel;		N
	-galvanized malleable or ductile iron;		N
	-stainless steel		N
	-copper and copper alloys		N
4.1.2.2	Non-metallic materials.		P
	Shall have good resistance to ageing and capable of withstanding service temperatures without detrimental change of properties.		P



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4.1.3	Dimensions and tolerances		P
	Tolerances applied to dimensions shall ensure that the fittings meet their specified mechanical and electrical requirements		P
4.1.4	Protection against corrosion		P
	Fittings shall be either inherently resistant to atmospheric corrosion or be suitably protected against corrosion.		P
	There shall never be contact between metals for which the difference in electrochemical potential can give rise to galvanic corrosion		P
	All external threads shall be cut or rolled before hot dip galvanizing		P
4.1.5	MARKING		P
	Marking shall ensure the system of traceability for each of the component parts of the fittings:		P
	Castings		P
	-identification of fittings	TH	P
	- manufacturer's name or trademark	SL 天虹电气	P
	-date of manufacture(month and year)		P
	- cast code		P
	Forgings		N
	-identification of fittings		N
	- manufacturer's name or trademark		N
	-date of manufacture(month and year)		N
	- cast code		N
	Links and plates		N
	-identification of fittings		N
	- manufacturer's name or trademark		N
	-date of manufacture(month and year)		N





EN 61284-1997			
Cl.	Requirement + Test	Result - Remark	Verdict
	Assemblies of fittings		P
	-identification of fittings		P
	- manufacturer's name or trademark		P
	-date of manufacture(month and year)		P
	Conductor compression fittings		N
	-identification of fittings		N
	- manufacturer's name or trademark		N
	-date of manufacture(month and year)		N
	Instructions for assembly		P

<b>4.2</b>	<b>Requirements for specific fittings</b>		<b>P</b>
4.2.1	Insulator set fittings and earth wire fittings		P
	For parts made of forged steel, holes conform to tolerances		P
4.2.2	Suspension clamps		P
	The conductor or earth wire installed in the suspension clamps can be used bare or equipped with armour rods		P
	The suspension clamps shall withstanding the vibration and avoid localized pressure or damage to the conductor or earth wire.		P
	Shall have surface to avoid damage by fault currents		P
	The wear resistance of the articulation assembly shall prevent deterioration in service.		P
	Magnetic losses not exceed the laid downvalue.		P
	The body shall permit oscillation		P
4.2.3	Fittings for jointing, terminating and repairing conductor and earth wire		N
	Fitting for the purpose not limited to the following:		N
	-compression type connectors		N
	-cone or wedge type clamps		N
	-bolted type clamps		P
	-factory-formed helical fittings		N





EN 61284-1997			
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	-fittings installed using an explosive charge		N
	The fitting types for tension and non-tension joints shall not reduce the electrical capability of the conductor or earth wire		P
	Fittings used for electrical continuity connections shall meet the requirements of clause 13.		P
	Fittings with auxiliary eyes intended for use during construction or maintenance shall be marked		N
	Fittings provided with an oxide-inhibiting compound intended to reduce metal oxidation		N
	The initial contact area between the fitting and the conductor do not raise stress		P
	Intended to connect conductors avoid bimetallic corrosion		P
	Designed to avoid localized pressures		P
	Intended for the restoration of electrical and mechanical properties of a conductor have clearly instructions		P
4.2.4	Insulator protective fittings		P
	Insulator protective fittings designed to protect insulator sets against damage caused by power arcs.		P

5	Quality assurance		N
6	Classification of tests: type tests/sample tests/routine tests.	type tests	P
6.1	Type tests.....		P
6.2	Sample tests .....		N
6.3	Routine tests .....		N
7	Visual examination		P
8	Dimensional and material verification		P
9	Hot dip galvanizing		P
10	Non-destructive testing		P



EN 61284-1997			
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<b>11.</b>	<b>MECHANICAL TESTS</b>		<b>P</b>
11.1	Three fittings shall pass the test.		N
	Terminals		N
11.2	Test piece and attachments for mechanical damage and failure load test, conductors used in the mechanical tests		N
11.3	Insulator set fittings and earth wire fittings		N
11.3.1	Mechanical damage and failure load test		N
11.3.2	Mechanical damage and failure load test of the attachment point used during erection		N
11.4	Suspension clamps		P
11.4.1	Vertical damage load and failure load test		P
11.4.2	Slip test on standard clamps with a specified minimum and maximum slip load		P
11.4.3	Slip test on standard clamps with only specified minimum slip load		P
11.4.4	Slip test on controlled slippage clamps		P
11.4.5	Clamp bolt tightening test		P
	The bolts being tightened with installation torque		P
	A factor of 1.1 of the torque value		P
	Twice the value of the torque		P
11.5	Tension clamps, dead-end tension joints and mid-span tension joints		N
11.5.1	Tensile test		N
	The fitting be installed on the conductor or wire		N
11.5.2	Mechanical damage and failure load test		N
11.5.3	Mechanical damage and failure load test of attachment point used during erection		N
11.5.4	Clamp blot tightening test		N
11.6	Partial tension fittings		N
11.6.1	Partial tension fittings other T connectors		N
11.6.2	T connectors		N
	The load be raised until 50% of the RTS of the conductor and be kept constant for 60s.		N





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Cl.	Requirement + Test	Result - Remark	Verdict
<b>12.</b>	<b>MAGNETIC LOSSES TEST</b>		<b>P</b>
12.1	The test is aimed at ascertaining the magnetic losses of suspension clamps and U-bolt type tension clamps for overhead line conductors		P
12.2	Test procedure		P
	A power frequency current passed through a suitable length of conductor and the power losses be measured both with and without the fittings assembled on the conduct	No apparent loss	P

<b>13.</b>	<b>HEAT CYCLE TESTS</b>		<b>N</b>
13.1	Heat cycle tests aims at ascertaining the long-term electrical performance of current –carrying joints		N
13.2	Joints		N
13.2.1	Tension joints and non-tension joints		N
13.2.2	Service temperature		N
13.2.3	Classification for test purposes		N
	Class A		N
	Class B		N
13.3	Test specimens		N
13.4	Test arrangements		N
13.5	Heat cycle test procedure		N
13.5.1	General		N
13.5.2	Joints of class A		N
13.5.3	Joints of class B		N

<b>14.</b>	<b>CORONA AND RADIO INTERFERENCE VOLTAGE(RIV) TESTS</b>		<b>N</b>
14.1	Purpose		N
14.2	Description of test methods		N
14.3	General		N
14.4	Test circuit and instruments		N
14.5	Corona and RIV test procedures		N
14.6	Acceptance criteria		N
14.7	Test report		N
14.8	Voltage method		N

## **EC Declaration of conformity**

Council Directive 2006/95/EC on Low Voltage Directive

We, **ZHEJIANG TANHO ELECTRICAL EQUIPMENT CO.,LTD.**  
**NO.82,NORTH YUEDU RD,CHANGHONG INDUSTRIAL ZONE, LIUSHI TOWN,**  
**YUEQING CITY, ZHEJIANG, CHINA**

Certify that the product described is in conformity with the Directive  
2006/95/EC as amended

Product Name: **INSULATING SUSPENSION CLAMP**  
Product Model: **ES, TH, SO, PS, PSB, JXGF, XJG, XJ, CS**

The product has been assessed by the application of the following standards:

**EN 61284:1997**

Overhead lines – Requirements and tests for fitting

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Issue place and date

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Company stamp and Signature  
of authorized personnel