



CENTRE OF TESTING SERVICE
INTERNATIONAL

OPERATE ACCORDING TO ISO/IEC 17025

IP TEST REPORT

TEST REPORT NUMBER : CTS061122-01114-O



Report No. :	CTS061122-01114-0
Date :	19/12/2006

Testing location:	Centre of Testing Service Fl. 2 South Huoju Building No. 181. Canghai Rd. Jiangdong High-tech.Park Ningbo China Telephone : + 86-574-87912121 Telefax : + 86-574-87907993
Details of Applicant Name: Address: Contact: Telephone: Fax:	ZHEJIANG TIANQI ELECTRIC CO., LTD. NO. 8 LINGFENG SOUTH RD. ECONOMIC DEVELOPMENT ZONE, ANJI, ZHEJIANG, CHINA WANG GUO XUAN +86-572-5118786 +86-572-5118861
Details of wanted approval holder Name: Address: Contact: Telephone: Fax:	ZHEJIANG TIANQI ELECTRIC CO., LTD. NO. 8 LINGFENG SOUTH RD. ECONOMIC DEVELOPMENT ZONE, ANJI, ZHEJIANG, CHINA WANG GUO XUAN +86-572-5118786 +86-572-5118861
Manufacturer Name: Address: Contact: Telephone: Fax:	ZHEJIANG TIANQI ELECTRIC CO., LTD. NO. 8 LINGFENG SOUTH RD. ECONOMIC DEVELOPMENT ZONE, ANJI, ZHEJIANG, CHINA WANG GUO XUAN +86-572-5118786 +86-572-5118861
Test item Description: Model and /or type reference: Serial No.: Trademark: Rated voltage: Rated power: Class of protection: Degree of protection: Type of power connection: Battery: Fuse: Lamp type: Lamp holder: Mass & dimension:	Industrial Metal Cabinet ST / SFIM / / / IP 66 / / / / 3Kg / (see attached photos)



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Date :	19/12/2006

Tested by:	18-12-2006	<u> </u>	<u>Joe Zhou</u>	
		date	name	signature
Reviewed by:	18-12-2006	<u> </u>	<u>Samon Liu</u>	
		date	name	signature
Approved by	18-12-2006	<u> </u>	<u>Jacky Yang</u>	
		date	name	signature
Date of receipt of test item:	22/11/2006			
Date of test:	22/11/2006—19/12/2006			
Environment Temperature: Air pressure: Relative humidity:	18 ... 25 °C 860 ... 1030 hPa 20 ... 75 %			
Test Specification:	<p align="center">EN 60529: 1991+A1: 2000 Degrees of protection provided by enclosures (IP Code) (IEC 60529:1989 + A1:1999); German version DIN EN 60529:1991 + A1:2000</p>			
Test Result:	The a. m. test item passed			
Others aspects:				
Abbreviations:	ok / P =	passed or apply,		
	fail / F =	failed		
	n.a. / N =	not applicable		



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Date :	19/12/2006

General remarks

“(see remark)” refers to a remark appended to the report.

“(see appended table)” refers to a table appended to the report.

The test results presented in this report relate only to the object tested.

Throughout this report a dot is used as the decimal separator.

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Copy of marking plate

N/A

Summary of testing

Tests were performed on the sample appliance and the results were passed.

The report has 10 pages excluding 1 cover page and 1 photo pages.

Report No. :	CTS061122-01114-0
Date :	19/12/2006

Test equipment utilised

ID-No.	Test-Equipment Type		Manufacturer
001	Power Supply	JJW-20KVA	YIFINE
002	Power Supply	JSW-20KVA	YIFINE
003	Frequency Conversion Power Supply	AC60-31200	BOS
004	Digital Multimeter	VICTOR 89A	VICTOR
005	Digital Oscilloscope	DS5102C	RIGOL
006	Constant Temperature Blast Air Dry Chamber	SC101-2B	CIXIHONGXIANG
007	Audio Generator	CA101	CALTEK
008	Thermometer/Humidity Meter	TH-31	MENGTE
009	Socket-Outlet Torque Balance	LJ-1	ZLT
010	Force Indicator 20N	N-20	SUIHUAGAOKE
011	Ball Pressure Test Apparatus	QY-1	ZLT
012	Glow Wire Tester	ZRS-2	KINTE
013	Needle-flame Tester	SH5403	SUNHO
014	Creepage Leading Trace Testing Machine	LDQ-1	KINTE
015	Barrel Roll Drop Testing Machine	GTD-1	CHICTEST
016	Power Cord Twist Testing Machine	QZ-2	CHICTEST
017	Insulation Resistance Tester	LK2679A	LANKE
018	Grounding Resistance Tester	CS2678	CHANGSHENG
019	Leakage Current Tester	CS2675W	CHANGSHENG
020	Withstand Voltage Tester	CS2672C	CHANGSHENG
021	Isolation Transformer	DG-5K	HOSSONI
022	DC Regulated Power Supply	QJ6010S	QIUJING
023	Adjustable Transformer	TDGC-5	HUHUA
024	Adjustable Transformer	TDGC-7	HUHUA
025	Adjustable Transformer	TDGC-10	HUHUA
026	Adjustable Transformer	TSGC-15	HUHUA
027	Winding temperature up testing machine	RDC-II VIGOR	
028	DC Electronic Load	EL2111	VIGOR
029	15-Channel Digital Thermometer	DWC2515	VIGOR
030	Hysteresis Dynamometer System	DJC-1	VIGOR
031	Hand-held pointer Force Gauge	SN-300	SUNDOO
032	Electronic Balance	BL-600	BALANCE
033	Electronic Balance	BWS-501-150	BALANCE
034	Digital Calipers	CT200-106	HUALUN
035	Torque Screwdriver	GNQ-6	TL
036	Torque Screwdriver	GNQ-1.2	TL
037	Sound Level Meter		AZ8925
038	Testing Pin	Test probe 13	CHICTEST
039	Flexible Finger Probe	Test Probe B	CHICTEST
040	Testing wire	Test Probe D	CHICTEST
041	Testing rod	Test Probe C	CHICTEST
042	Spring Operated Impact Hammer		CHICTEST
-continued-			
043	Metallic Ball	Test Probe 1	CHICTEST

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Report No. :	CTS061122-01114-0
Date :	19/12/2006

044	Testing Nail Probe		CHICTEST
045	Testing Hook		CHICTEST
046	Pressure Testing Finger		CHICTEST
047	Testing Sphere	Test Probe A	CHICTEST
048	Testing Probe		CHICTEST
049	Dust Proof Test Chamber	JYSD-500	JINYING
050	Rock Pipe Shower Testing Apparatus	JYBL-C	JINYING
051	Drips Testing Apparatus	JYDL-C	JINYING
052	High and Low Temperature Humidity Test Chamber	JYGDWS/P-100	JINYING
-over-			

Report No. :	CTS061122-01114-0
Date :	19/12/2006

EN 60529: 1991+A1: 2000

CL	Requirement – Test	Result	Verdict
12	Proof of the protection against the access to hazardous parts		—
12.3.1	Low Voltage appliances (up to 1000V AC / 1500V DC)		N
	the probe shall not come in contact with life parts.		N
	Compliance was proved by a continuity test with the probe		—
	A (sphere diameter 50mm for IP 1X)		N
	B (test finger diameter 12mm for IP 2X)		N
	C (stick diameter 2,5 mm for IP 3X)		N
	D (wire diameter 1,0 mm for IP 4X)		N

12.3.2	High Voltage appliances (over 1000V AC / 1500V DC)		N
	the probe shall not come near to life parts that clearances are reduced.		N
	Compliance was tested with the following probe in conjunction with the high- voltage test		—
	A (sphere diameter 50mm for IP 1X)		N
	B (test finger diameter 12mm for IP 2X)		N
	C (stick diameter 2,5 mm for IP 3X)		N
	D (wire diameter 1,0 mm for IP 4X)		N

12.3.3	Low Voltage appliances with hazardous mechanical parts		N
	the probe shall not come in contact with these mechanical parts		N
	Compliance is tested with the continuity test with the probe		—
	A (sphere diameter 50mm for IP 1X)		N
	B (test finger diameter 12mm for IP 2X)		N
	C (stick diameter 2,5 mm for IP 3X)		N
	D (wire diameter 1,0 mm for IP 4X)		N

13	Proof of the protection against the penetration of solid intruders		—
13.2	All appliances		—
	the probe shall not penetrate in the appliance when the probe is applied with the force:		N

Report No. :	CTS061122-01114-0
Date :	19/12/2006

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CL	Requirement – Test	Result	Verdict
	A (sphere diameter 50mm with 50N for IP 1X)		N
	A (sphere diameter 12,5mm with 30N for IP 2X)		N
	C (stick diameter 2,5 mm with 3N for IP 3X)		N
	D (wire diameter 1,0 mm with 1Nfor IP 4X)		N

13.4	Dust test for first numerals 5 and 6		—
	Dust test condition for enclosures category 1: With sup-atmosphere, or Category 2: with normal atmosphere at dust chamber	Category 1 condition: Tc=30°C, depression>2kPa, t=2.5 hour	—
13.5.2	the amount of intruded dust does not impair safety (for IP 5X)		N
13.6.2	no dust did intrude (for IP 6X)	No dust did intrude, see attached photos	P

14	proof against the effects of water		—
14.2.1	Proof with the drop machine (IP X1)		N
	test for 10 min with a water - volume -stream of 1mm/min on a rotating table (1 round/min distance between appliance and the axis of the table is 100mm)		—
	the ingress of water shall not impair safety		N
	the water shall not cause tracking currents		N
	the water shall not reach life parts which are not build for use in wet conditions		N
	the water shall not reach the end of wires		N
	if the case is provided with drainage holes water shall not stay in the case and flow without impairing safety		N

14.2.2	Proof with the drop machine (IP X2)		N
	test for 10 min with a water - volume -stream of 3mm/min on a rotating table (1 round/min distance between appliance and the axis of the table is 100mm)		—
	test for 2,5 min at 4 fixed positions with 15° slope		—
	the ingress of water shall not impair safety		N

Report No. :	CTS061122-01114-0
Date :	19/12/2006

EN 60529: 1991+A1: 2000

CL	Requirement – Test	Result	Verdict
	the water shall not cause tracking currents		N
	the water shall not reach life parts which are not build for use in wet conditions		N
	the water shall not reach the end of wires		N
	if the case is provided with drainage holes water shall not stay in the case and flow without impairing safety		N

14.2.3	Proof with the sprinkling machine (IP X3)		N
	test of 10min from - 60 to 60 degree jet angle at 0,07 l /min per hole with a distance of 200mm a shower at 10 l /min		—
	the ingress of water shall not impair safety		N
	the water shall not cause tracking currents		N
	the water shall not reach life parts which are not build for use in wet conditions		N
	the water shall not reach the end of wires		N
	if the case is provided with drainage holes water shall not stay in the case and flow without impairing safety		N

14.2.4	Proof with the sprinkling machine (IP X4)		N
	test of 10min from - 180 to 180 degree jet angle at 0,07 l /min per hole with a distance of 200mm a shower at 12,5l /min		—
	the ingress of water shall not impair safety		N
	the water shall not cause tracking currents		N
	the water shall not reach life parts which are not build for use in wet conditions		N
	the water shall not accumulated near the cable end or enter		N
	if the case is provided with drainage holes water shall not stay in the case and flow without impairing safety		N

14.2.5	Proof with a jet nozzle (IPX5)		N
	test with a nozzle with a diameter of 6,3mm at 12,5l/min in a distance of 2,5m for 1 min per surface		—
	the ingress of water shall not impair safety		N
	the water shall not cause tracking currents		N

Report No. :	CTS061122-01114-0
Date :	19/12/2006

EN 60529: 1991+A1: 2000

CL	Requirement – Test	Result	Verdict
	the water shall not reach life parts which are not build for use in wet conditions		N
	the water shall not reach the end of wires		N
	if the case is provided with drainage holes water shall not stay in the case and flow without impairing safety		N
14.2.6	Proof with a jet nozzle (IPX6)		—
	test with a nozzle with a diameter of 12,5 mm at 100 l/min in a distance of 2,5m for 1 min per surface		—
	the ingress of water shall not impair safety	No water into the industrial metal cabinet, see attached photos	P
	the water shall not cause tracking currents		P
	the water shall not reach life parts which are not build for use in wet conditions		P
	the water shall not reach the end of wires		P
	if the case is provided with drainage holes water shall not stay in the case and flow without impairing safety		N
14.2.7	Temporary immersing (IPX7)		N
	test with cases with a height up to 850mm in a test deep of 1000mm for 30min		—
	test with cases with a height over 850mm at 150mm water over the top for 30min		—
	the ingress of water shall not impair safety		N
	the water shall not cause tracking currents		N
	the water shall not reach life parts which are not build for use in wet conditions		N
	the water shall not reach the end of wires		N
	if the case is provided with drainage holes water shall not stay in the case and flow without impairing safety		N
15	Tests for protection against access hazardous parts indicated by the additional letter		N



Report No.:	CTS061122-01114-0
Date	19/12/2006

Attachments

- Photo document
- BOM
- CDF (critical data form)
- Copies of certificates of certified components
- Instruction manual
- Circuit diagram
- Explosion block
- Other if necessary



Figure 1 (front view)



Figure 2 (inner view)