

CPRI

TEST REPORT



Central Power Research Institute

(A Govt. of India Society)

**P.B.No. 8066, Sadashivanagar Post Office,
Sir C.V. Raman Road,
Bangalore - 560 080 (INDIA)**



CPRI

**SHORT CIRCUIT LABORATORY
CENTRAL POWER RESEARCH INSTITUTE**

(Member of STL)

P.B.NO.8066, SADASHIVANAGAR POST OFFICE
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T-0010

Sheet 1 of 5

TEST REPORT

Test Report Number	SC09617Q	Dated: 4 th November, 2009
Name & Address of the Customer	M/s. Krishnaa Energy Private Limited, DP-69, SIDCO Industrial Estate, Thirumudivakkam, Chennai – 600 044	
Name & Address of the Manufacturer	M/s. Krishnaa Energy Private Limited, DP-69, SIDCO Industrial Estate, Thirumudivakkam, Chennai – 600 044	
Particulars of sample tested	11 kV Current Transformer	
Condition of the sample on receipt	New	
Type	Indoor, Resin cast	
Designation	WPL CT	
Serial number	016/09	
Number of samples tested	One	
Date (s) of test (s)	24 th & 29 th September, 2009	
CPRI sample code no(s).	SC09S1824	
Particulars of tests conducted	Short-time current	
Test in accordance with Standard / specification	Sub-clause 9.6 of IS 2705(Part 1) : 1992 (Reaffirmed 2002)	
Sampling plan	Not applicable	
Customer's requirement	25 kA rms for 3.0 seconds & 62.5 kA peak	
Deviations if any	None	
Name of the witnessing persons		
Customer's representative	Mr. K.S. Suresh Kumar, Manager - Production	
Other than customer's representatives	None	
Test subcontracted with address of the laboratory	None	
Documents constituting this report (in words)		
Number of sheets	Five	
Number of oscillograms	Two	
Number of graphs	Nil	
Number of photos	Two	
Number of test circuit diagrams	One	
Number of drawings	One	

(G. Girija)
Test Engineer



(B. R. Ravishankar)
Joint Director

AUTHORISED SIGNATORIES



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Sheet 2 of 5

Report Number: SC09617Q

Description of sample tested (rating as assigned by the manufacturer)

Tested sample	Current Transformer	
Type	Indoor, Resin cast	
Designation	WPL CT	
Serial number	016/09	
Nominal system voltage	11 kV	
Highest system voltage	12 kV	
Rated insulation level	28 kV rms / 75 kV peak	
Frequency	50 Hz	
No. of cores	I	II
Accuracy class	0.5	5P
Rated output-VA	15	15
Accuracy limit factor	---	10
Rated Transformation Ratio	150/5	150/5
Rated short-time withstand current & peak withstand current	25 kA rms for 3.0 seconds & 62.5 kA peak	
Winding details		
Primary	2 Turns of Electrolite Copper strips of size 20 X 1 – Twelve numbers in parallel (240 sq. mm), covered with Polyester film and Polyester tape.	
Secondary		
Core 1	60 Turns of 18 SWG Super enamelled Copper conductor – Three numbers in parallel.	
Core 2	60 Turns of 14 SWG Super enamelled single Copper conductor.	

Documents attached to this report

Oscillogram number(s)	SC09617Q.S01 & SC09617Q.S02
Photograph number(s)	SC09617Q.PB1 & SC09617Q.PA1
Test circuit diagram number(s)	CRTL/SC/CTR-01
Drawing number (s)	KEPL-11RCT-001 SHT. No. 1 OF 1 REV.0

B. Lingaj
Test Engineer



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Report Number: SC09617Q

Schedule of test

SHORT-TIME CURRENT TEST (Sub-clause 9.6)

Test conditions

Source	Short-circuit generator
Number of phases	Single
Frequency	50 Hz

Test sample

Condition before test	As after the tests detailed at sheet no. 4 of 5
Primary winding	P1-P2 terminals connected to the source
Secondary winding	1S1-1S2 & 2S1-2S2 terminals shorted through copper links of negligible impedance

Test details

Test circuit drawing number	CRTL/SC/CTR-01
Short-circuit applied on	Primary winding
Short-circuit point	Grounded

Test results

Oscillogram no.	Current – kA		Duration (seconds)	Observations
	Peak	RMS		
SC09617Q.S01 (Dynamic)	65.10	---	0.084	During test : No abnormality After test : No visible external damage
SC09617Q.S02 (Thermal)	---	24.42*	3.146	During test : No abnormality After test : No visible external damage

* Equivalent to 25.00 kA rms for 3.0 seconds

DIELECTRIC TEST (at 90% of the rated values)

Tested as per : IS 2705 (Part 1) : 1992, Sub-clause 9.3, 9.4 & 9.5
Condition of the sample : As after short-time current test

Type of test	Applied voltage (kV)		Duration (Minute)	Observation
1. High voltage power frequency withstand test on the terminals of the primary windings connected together & earth Secondary winding terminals, frame connected together & earthed. P1-P2	25.2		1.0	Withstood
2. Power frequency voltage applied between the terminals of the secondary winding connected together & earth. The primary winding terminals, frame and other secondary winding terminals are connected together and earthed.	1S1-1S2	2.7	1.0	Withstood
	2S1-2S2	2.7	1.0	Withstood
3. Over-voltage inter-turn insulation test (with secondary windings kept open)	Current passed through Primary (A)	Voltage measured across secondary- (V peak)	Duration (minute)	Withstood Withstood
	1S1-1S2	135	68.66	
2S1-2S2	135	99.0	1.0	

B. Linga
Test Engineer



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Report Number: SC09617Q

ACCURACY TEST [Sub-clause 7.1.1.1 of IS 2705 (Part 2):1992]

Ratio : 150/5
Accuracy class : 0.5
Primary : P1 - P2
Secondary : 1S1-1S2

Burden(VA) & Power factor	Type of error	Condition	Error at percentage primary current			
			120	100	20	5
15 & 0.8 lag	% Current error	Before STC test	-0.149	-0.178	-0.479	-1.002
		After STC test	-0.148	-0.183	-0.443	-0.861
	Phase displacement (min)	Before STC test	2.5	3.3	10.0	21.4
		After STC test	2.6	3.2	7.0	5.5

CURRENT ERROR AND PHASE DISPLACEMENT [Sub-clause 7.1.1 of IS 2705 (Part 3): 1992]

Ratio : 150/5
Accuracy class : 5P
Primary : P1 - P2
Secondary : 2S1-2S2

Burden (VA) & Power factor	Type of error	Error at 100 Percent primary current	
		Before STC test	After STC test
15 & 0.8 lag	% Current error	-0.412	-0.414
	Phase displacement (min)	2.8	2.5

COMPOSITE ERROR TEST

Tested as per : IS 2705 (Part 3): 1992, sub-clause 7.1.2.2

Core	Accuracy class	Secondary winding resistance corrected to 75° C (Ohms)		% Composite error	
		Before STC test	After STC test	Before STC test	After STC test
2S1-2S2	5P	0.096	0.1	0.27	0.24

STC - Short-time current

Physical inspection

No visible damage to CT and insulation next to the conductors.

Remarks: The sample tested complies with sub-clause of standard referred to.

L. Srinivas
Test Engineer



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NOTE

- a) This is not a certificate of rating. A certificate of rating is not issued as only limited tests as requested by the customer were carried out.
- b) The test results relate only to the item(s) tested.
- c) Publication or reproduction of this report in any form other than by complete set of the whole report and in the language written, is not permitted without the written approval of CPRI.
- d) Corrections / erasing invalidate the test report.
- e) Any anomaly / discrepancy in the test report should be brought to our notice within 45 days from the date of issue.

Additional Information:

CPRI issues following types of reports/certificates:

Test Report:

The test report contains the record of the values of test parameters as obtained during testing, the physical condition of the sample during / after the test(s) and copy of oscillogram(s). Test report is issued when partial tests are performed as against the complete test requirement for proving specific ratings.

Sealed Certificate:

The sealed certificate is issued, on request and payment of the prescribed charges thereof only when the sample of particular type and rating has satisfactorily passed all the specified tests in compliance with the condition stipulated in a published National / International standard.

CPRI issues the following type test certificates based generally on STL Guidelines:

- I. Type test certificate of Short Circuit Performance.
- II. Type test certificate of Switching Performance.
- III. Type test certificate of Temperature Rise Performance.
- IV. Type test certificate of Dielectric Performance.
- V. Type test certificate of complete type test

B. Linij
Test Engineer

लघु पथन प्रयोगशाला
Short-Circuit Laboratory
केन्द्रीय विद्युत अनुसंधान संस्थान
Central Power Research Institute
बेंगलूर / Bangalore-560 080

49.983 kA

46.11 msec

B. Linij

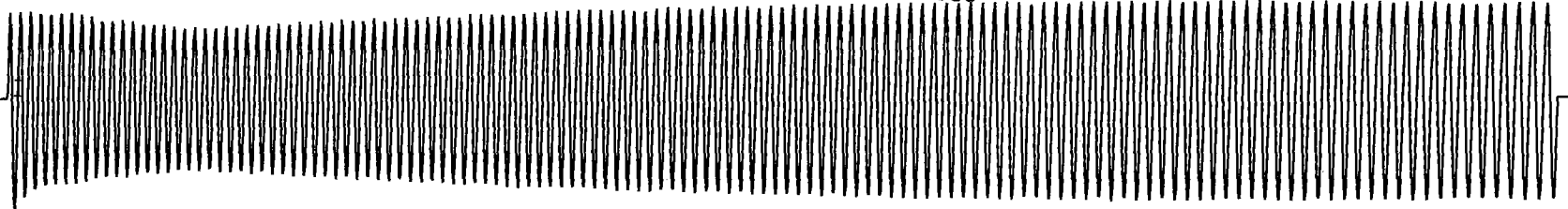
SC09617Q.S01

Dt: 24/09/09

परीक्षण अभियंता
Test Engineer

लघु पथन प्रयोगशाला
Short-Circuit Laboratory
केन्द्रीय विद्युत अनुसंधान संस्थान
Central Power Research Institute
बेंगलूर / Bangalore-560 080

49.802 kA



691.74 msec

SC09617Q.S02

Dt: 24/09/09

B. Singh
परीक्षण अभियंता
Test Engineer

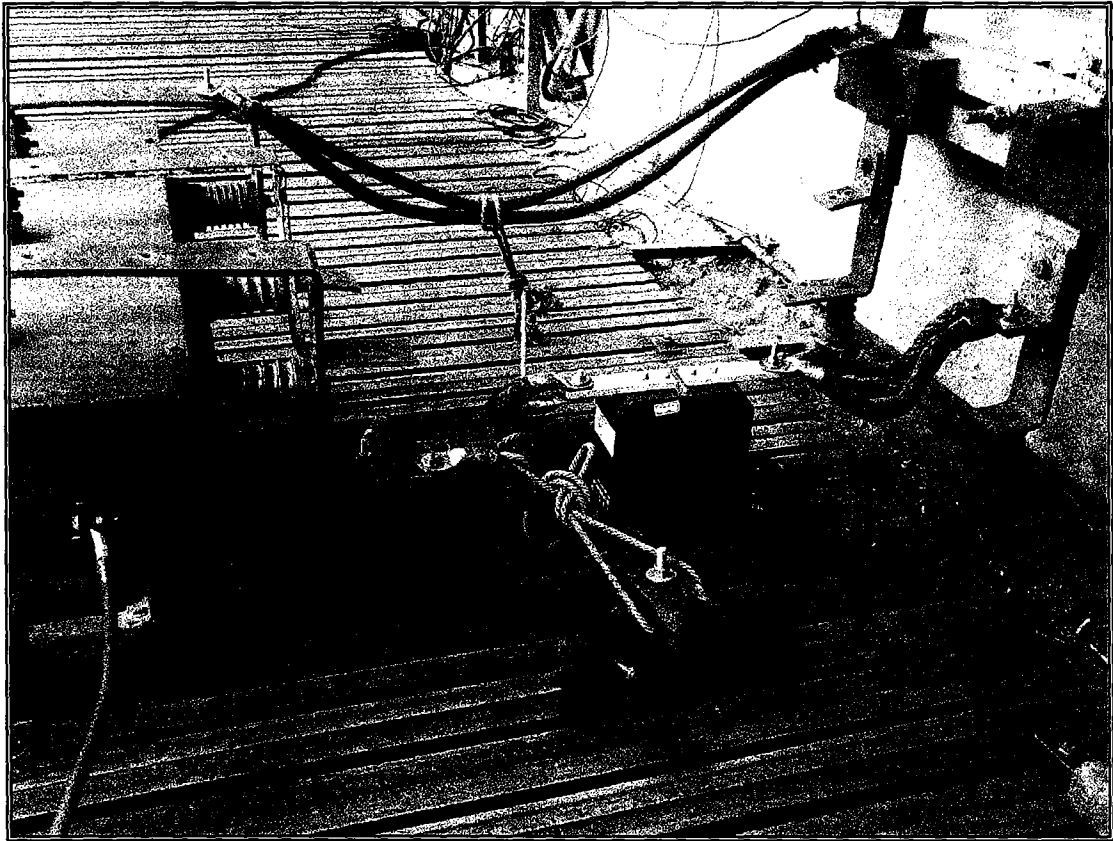


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Mounting arrangement (Before test)

SC09617Q.PB1

L. Ringe

Test Engineer

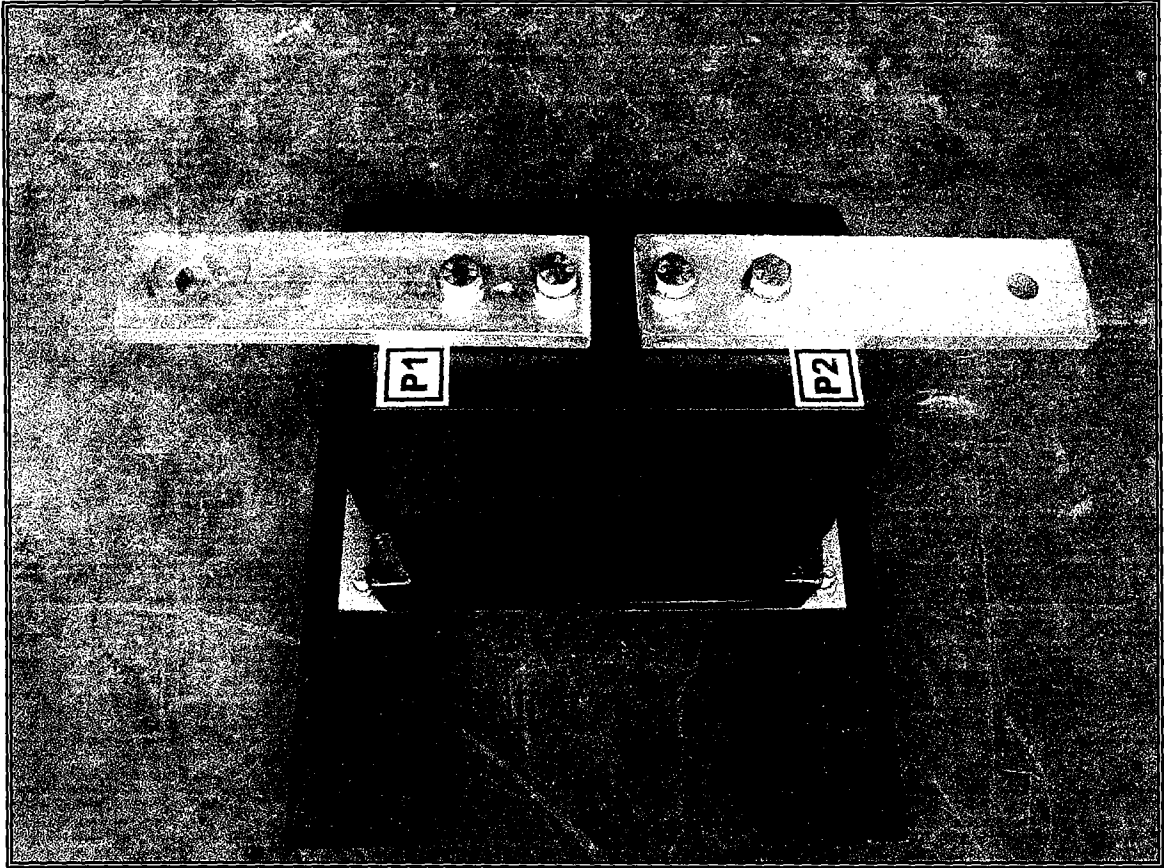


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Condition of the sample (After test)

SC09617Q.PA1

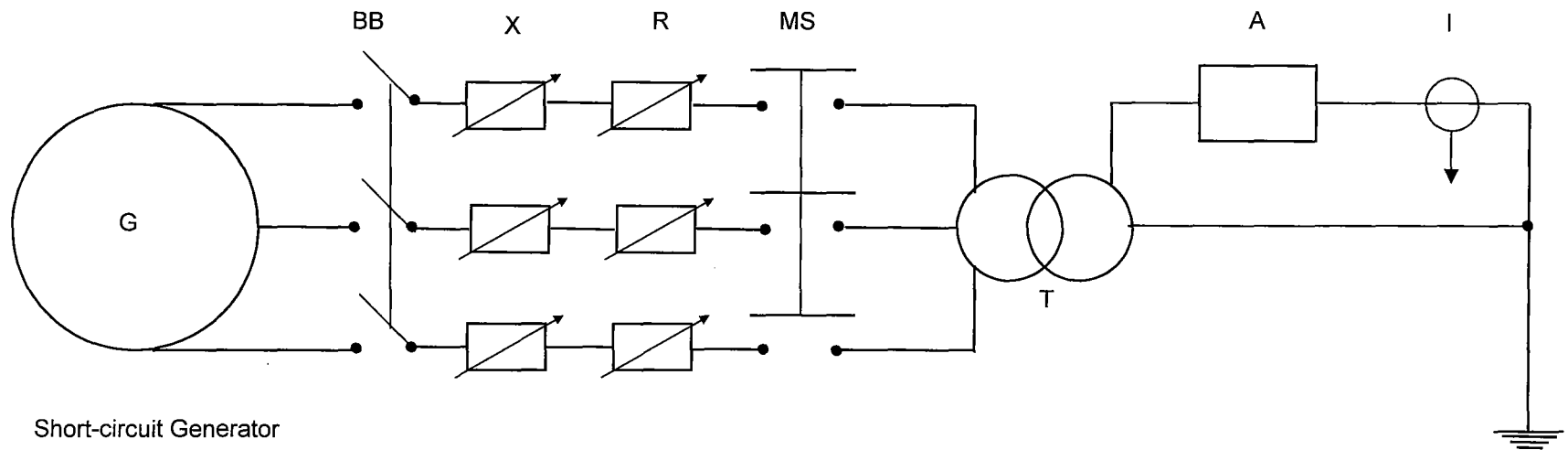
B. Ling
Test Engineer



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Schematic of main & measurement circuits - Single phase test

Circuit Number: CRTL/SC/CTR-01



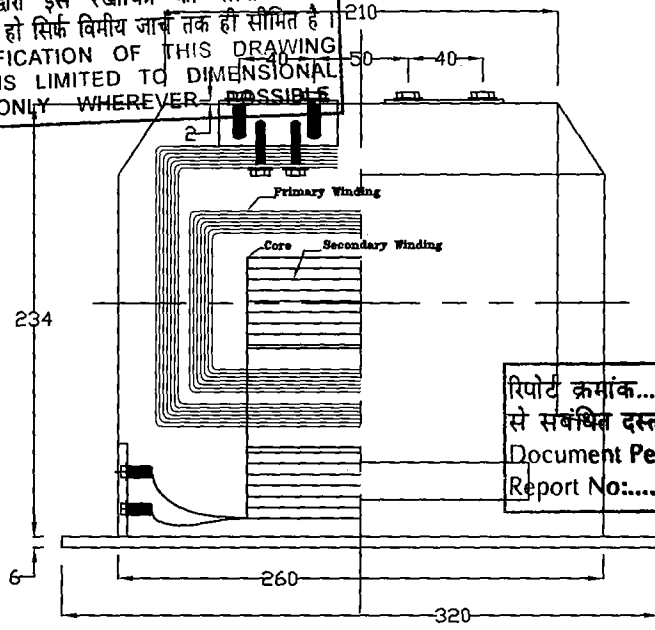
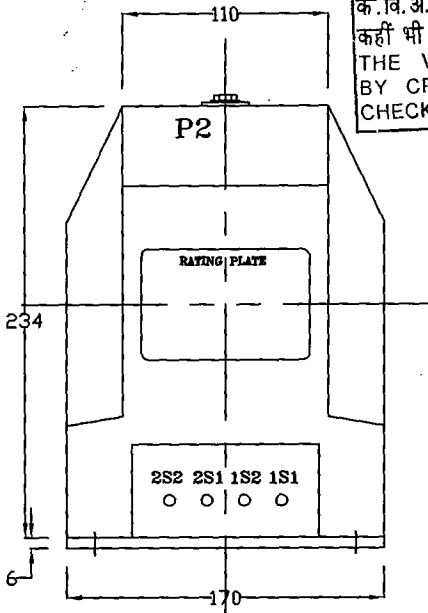
- G Short-circuit Generator
- BB Back up Circuit Breaker
- X Reactance
- R Resistors
- MS Make Switch
- T Step Down Transformer
- A Sample under test
- I Current Sensor

R. King
Test Engineer

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 THE VERIFICATION OF THIS DRAWING BY CPRI IS LIMITED TO DIMENSIONAL CHECKS ONLY WHEREVER POSSIBLE.



TECHNICAL DETAILS

Epoxy Resin Cast, Post Type, Current Transformer,
 Indoor Panel Mounting, Class B

Primary Current : 150 A
 Secondary Current : 5-5A
 Insulation level : 12/28/75 KVp
 Frequency : 50 Hz
 1 Thermal (Short time Rating): 25 kA / 3 sec

1 Dynamic : 2.5 Times
 REF - Standard : IS2705 Part I & II

रिपोर्ट क्रमांक.....
 से संबंधित दस्तावेज
 Document Pertaining to
 Report No.....*SC.0961.7R*.....

RATING PLATE

CURRENT TRANSFORMER

RATIO : 150 / 5-5A BURDEN :
 SYSTEM VOLTAGE : 11 KV CORE I : 15 VA/CL 0.5
 ILV : 12/28/75 CORE II : 15 VA/CL 5p10
 STR : 25 KA/ 3 SEC FREQ. : 50 Hz
 SL.NO. : 016/09 IS2705/1992/IEC 60044-1

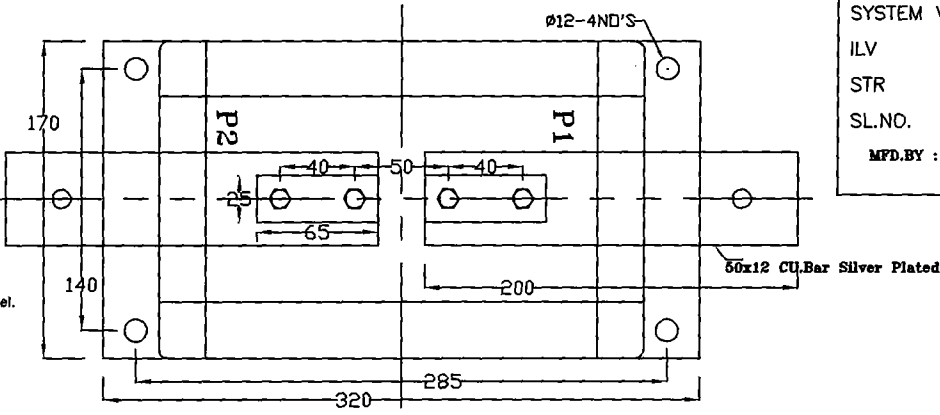
MFD. BY : KRISHNAA ENERGY PVT LTD., CHENNAI - 44

B. Ling
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 ल.प. प्रयोगशाला / S. C. LAB
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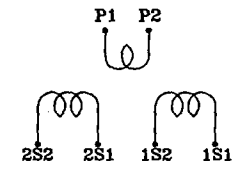
WINDING DETAIL'S:

Primary Winding :-
 2 - Turns 20x1 (240Sq.mm) Electrolyte Copper strip 12 in parallel.
 Covered with Polyester Film & Polyester Tape

Secondary Windings:-
 Metering :- 60 Turns, 18 swg 3 in Parallel Super Enameled Copper Conductor.
 Protection :- 60 Turns, 14 swg single Parallel Super Enameled Copper Conductor.



CONNECTION DIAGRAM



TYPE: INDOOR RESIN CAST		QTY: -		ALL DIMENSION ARE IN mm		TITLE: 11 KV WOUND PRIMARY CURRENT TRANSFORMER		SCALE : NTS	
0		BJM	K.S.S.KK.S.S.K		21/9/08	MFG BY: KRISHNAA ENERGY PRIVATE LIMITED., DP:69, SIDCO Industrial Estate, Thirumudivakkam, Chennai-44 www.krishnaenergy.net			
REV. DATE	DESCRIPTION	DRAWN	CHD.	APPD.	SIGN	DATE.	SHT.No.		DRAWING No.
CUSTOMER : -							1 OF 1		KEPL-11RCT-001