



Certificate No. : T-0071

ELECTRICAL RESEARCH AND DEVELOPMENT ASSOCIATION

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ERDA Road, Makarpura Industrial Estate, Vadodara-390 010, India.

EPABX : +91 (0265) 2642942, 2642964, 2642377, 3043128 / 29 / 30 / 31 / 33

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E-mail : erda@erda.org, dir@erda.org



TEST REPORT

SHEET : 1 OF 6

NAME & ADDRESS OF CUSTOMER RISHABH INSTRUMENTS PVT LTD F-31, MIDC SATPUR NASHIK-422007.		TEST REPORT NO. : PHV/07/647 DATE : 07.07.2008	
		CUSTOMER REF.NO.: NIL	DATE : 16.04.2008
		DATE OF SAMPLE RECEIPT	DATE OF TESTING
		16.04.2008	16.04.2008 to 02.06.2008
SAMPLE DESCRIPTION CURRENT TRANSFORMER MFD.BY : Rishabh Instruments Pvt ltd RATIO : 400/5 A. BURDEN : 5 VA CLASS : 0.2S I.L. : 0.72/4kV FREQ : 50 Hz Insulation class : E STC : 5 kA / 1sec. TYPE : RISH XMER 74/20 ISF : ≤10		SAMPLE IDENTIFICATION SR.NO. : 006 ERDA IDENTIFICATION NO : PHV 104 TEST SPECIFICATION : IEC-60044-1/2003	
TEST DETAILS As per Sheet No. 2 of 6.		ENCLOSURES : Number of Oscillogram : ONE Number of Photograph : ONE Number of Drawings : TWO Oscillogram No. : 1) 115/01 PHOTOGRAPH NO:PHV-104/165	
TEST RESULTS : As per sheet : 3 to 6.			
REMARKS : 1) The sample CONFORMS to the requirements of the above mentioned IEC in the tests mentioned on sheet 2 of 6. 2) Temperature rise test was not carried out, as per customer's request.			
 PREPARED BY		 CHECKED BY	
		 APPROVED BY	

- Note:
1. This report relates only to the particular sample received in good condition for testing at ERDA.
 2. This report can not be reproduced in part under any circumstances.
 3. Publication of this report requires prior permission in writing from Director, ERDA.
 4. Only tests asked for by the customer have been carried out.

TE 0009270



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TEST REPORT NO. : PHV/07/647

SHEET : 2 OF 6

DATE : 07.07.2008

TEST DETAILS (MENTIONED AS PER SEQUENCE OF TESTING)

Sr No	TESTS (In sequence)	IEC 60044-1/2003
I	Pre Routine Test :	
	a) Verification of Terminal Marking	8.1
	b) Power frequency dry withstand test on secondary winding	8.3
	c) Inter-turn Overvoltage Test	8.4
	d) Determination of Errors	11.5
II	Determination of Errors	11.4
III	Instrument Security factor test	11.6
IV	Short Time Current Test	7.1
V	Post Routine Test :	
	a) Verification of Terminal Marking	8.1
	b) Power frequency dry withstand test on secondary winding	8.3
	c) Inter-turn Overvoltage Test	8.4
	d) Determination of Errors	11.5


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TEST REPORT NO. : PHV/07/647

SHEET : 3 OF 6

DATE : 07.07.2008

TEST RESULTS :

I. Pre Routine Test :

Ia. Verification of Terminal Marking and Polarity.

Primary winding terminals : P1-P2

Secondary winding terminals : S1-S2

Terminal Marking and Polarity found ok.

Ib. Power Frequency Dry Withstand Test on Secondary Winding.

The power frequency voltage of 3 kVrms was applied between the secondary winding terminals connected together and the earth. The test voltage was applied for 60 seconds. There was no disruptive discharge observed. CT withstood the test voltage satisfactorily.

Ic. Inter-turn Over Voltage Test.

With the primary winding open circuited, a voltage at rated frequency was applied to the secondary winding terminals, such as to produce a secondary limiting current of rms value equal to the rated secondary current (i.e.5 A.) for one minute.

The CT withstood the applied voltage satisfactorily for 60 seconds.

Id. Determination of Errors .

CURRENT TRANSFORMER : **BURDEN 5 VA, CLASS 0.2S**

% OF RATED BURDEN	% OF I RATED	RATIO ERROR IN %	PHASE ANGLE ERROR IN MIN.
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(A). RATIO: 400/5 A

100	120	0.023	2.36
100	100	0.020	2.60
100	20	-0.011	4.54
100	5	-0.042	5.05
100	1	-0.034	4.10
25	120	0.151	2.60
25	100	0.152	2.65
25	20	0.154	3.76
25	5	0.198	5.72
25	1	0.481	14.86

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TEST REPORT NO. : PHV/07/647

SHEET : 4 OF 6

DATE : 07.07.2008

TEST RESULTS :

TYPE TESTS :

II. Determination of Errors .

CURRENT TRANSFORMER : **BURDEN 5 VA, CLASS 0.2S**

% OF RATED BURDEN	% OF I RATED	RATIO ERROR IN %	PHASE ANGLE ERROR IN MIN.
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(A). RATIO: 400/5 A

100	120	0.022	2.32
100	100	0.021	2.61
100	20	-0.009	4.53
100	5	-0.041	5.07
100	1	-0.035	4.11
25	120	0.152	2.62
25	100	0.150	2.63
25	20	0.152	3.71
25	5	0.199	5.69
25	1	0.480	14.77

III. Instrument Security Factor Test.

RATIO : 400/5 A

SLV Computed : 18.67 V

Excitation Current : 5 A

Measured secondary voltage at excitation current : 12.7 V

Therefore ISF : 6.80


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TEST REPORT NO. : PHV/07/647

SHEET : 5 OF 6

DATE : 07.07.2008

TEST RESULTS :

IV. SHORT TIME CURRENT TEST

The short time current test was performed by connecting Copper cable (passed through window of the CT) to source as per test circuit diagram no.: OLSC/IT/11 and secondary winding short circuited through a copper link of negligible impedance.

Condition of the equipment under test: As after test mentioned in sheet no 3 of 6.

Test No.	Oscillogram No.	Short circuit current (kA)		Duration (sec.)	Remarks	Observation During test
		Peak	Rms			
1.	115/01	12.521	5.128	1.008	Dynamic & Thermal current test	No abnormality

Observation after test: - No visible damage observed.
- CT body was intact.

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TEST REPORT NO. : PHV/07/647

SHEET : 6 OF 6

DATE : 07.07.2008

TEST RESULTS :**V. Post Routine Test :****Va. Verification of Terminal Marking and Polarity.**

Primary winding terminals : P1-P2

Secondary winding terminals : S1-S2.

Terminal Marking and Polarity found ok.

Vb. Power Frequency Dry Withstand Test on Secondary Winding.

The power frequency voltage of 2.7 kV (90% of 3kVrms) was applied between the secondary winding terminals connected together and the earth. The test voltage was applied for 60 seconds. There was no disruptive discharge observed. CT withstood the test voltage satisfactorily.

Vc. Inter-turn Over Voltage Test.

With the primary winding open circuited, a voltage at rated frequency was applied to the secondary winding terminals such as to produce a secondary limiting current of rms value equal to 90% of the rated secondary current (i.e.90% of 5A.) for one minute. The CT withstood the applied voltage satisfactorily for 60 seconds.

Vd. Determination of Errors .

% OF RATED BURDEN	% OF I RATED	RATIO ERROR IN %	PHASE ANGLE ERROR IN MIN.
(A). RATIO: 400/5 A			
100	120	-0.002	2.29
100	100	0.003	2.36
100	20	-0.072	3.92
100	5	-0.210	6.81
100	1	-0.311	18.24
25	120	0.131	2.42
25	100	0.129	2.36
25	20	0.091	3.21
25	5	0.029	6.63
25	1	0.110	28.82

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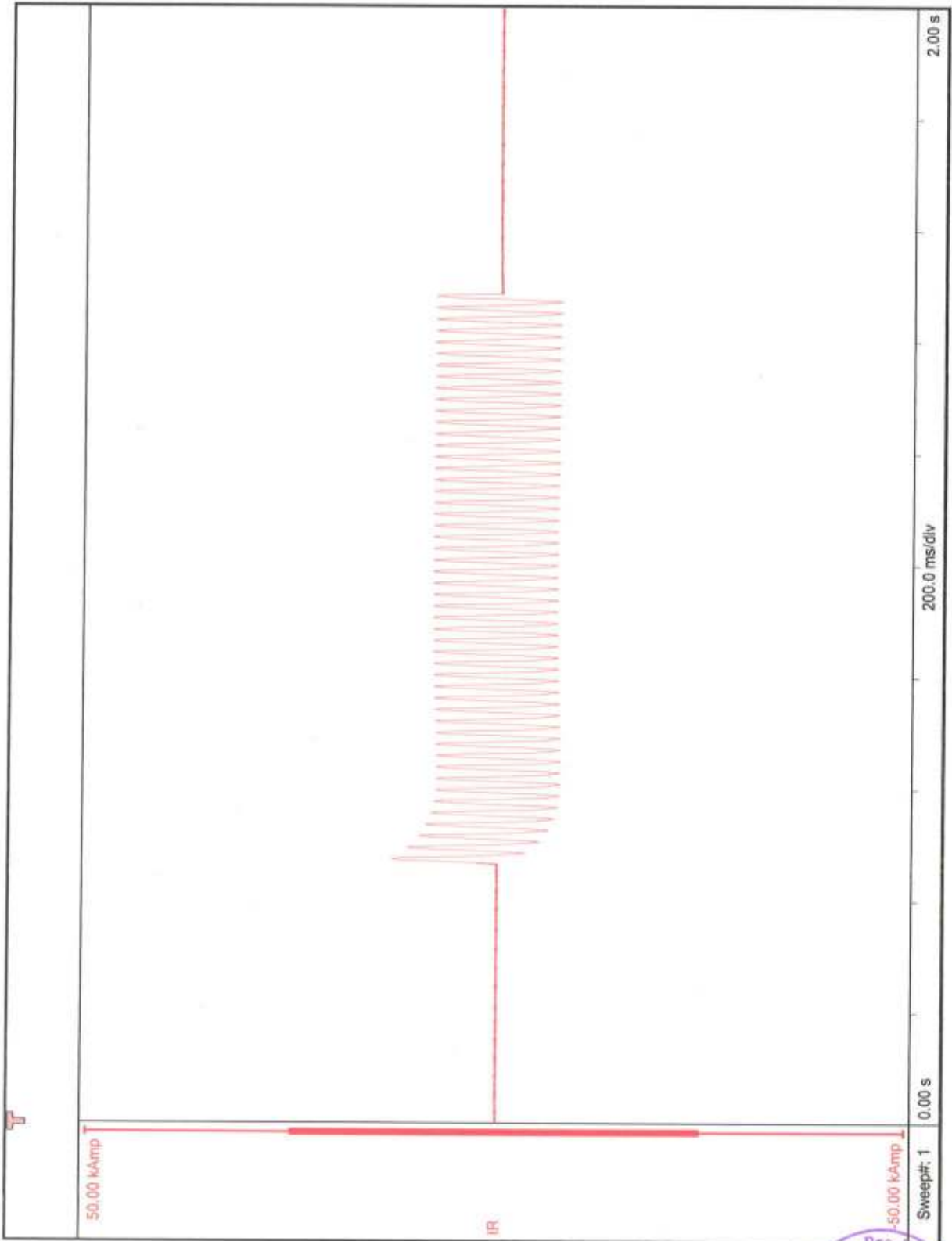
TE0040262





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 tdc@erda.org, ene@erda.org



OSCILLOGRAM NO.:115/01

Nº 1762207





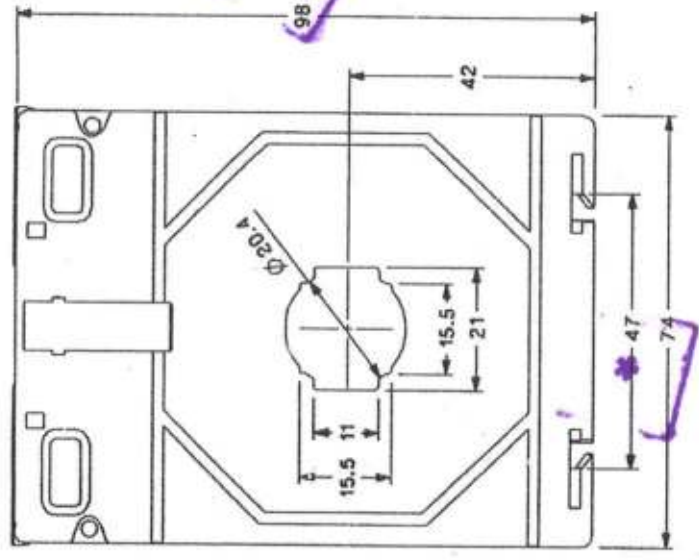
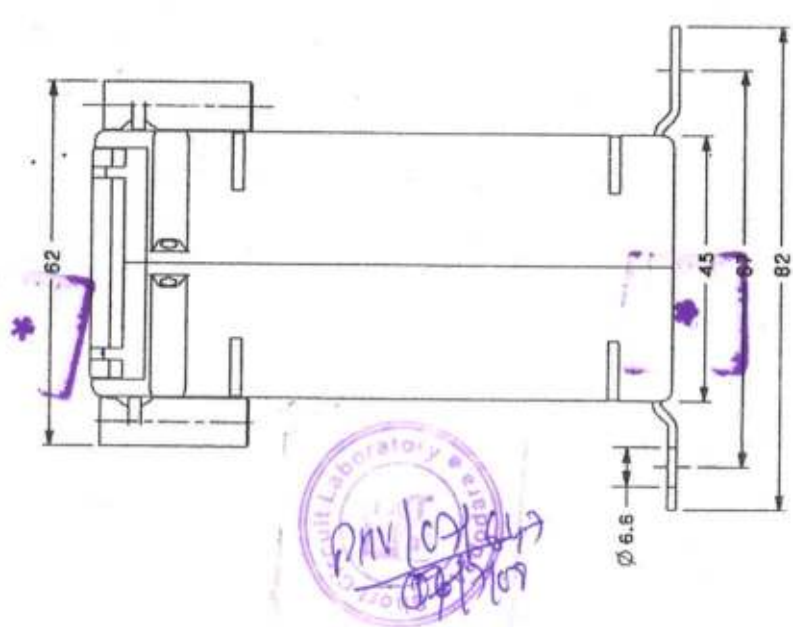
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tdc@erda.org, ene@erda.org



RISH XMER 74-20: BUSBAR WINDOW DETAILS

Date: _____
 Product: _____
 Verified by: *[Signature]*
 Verification of this drawing by ERDA is limited to relevant dimensional checks only. Verified dimensions are marked with txt



No. of strands : 6 Nos.
 Diameter of each strand : 0.6 mm

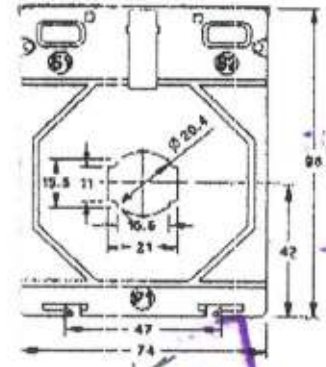
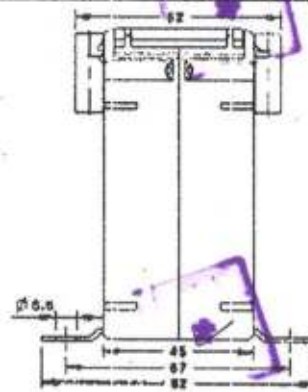
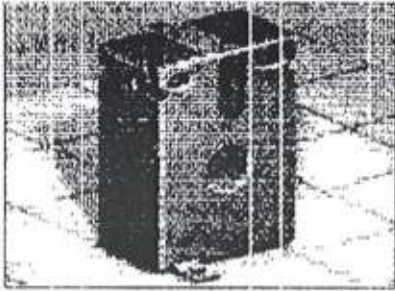
DRAWN BY : NAME : SKW		CHECKED BY : NAME : SGD		DATE :	
RAW MATERIALS :					
SURFACE :					
Scale : NTS					
Product Group :					
Item Code :					
Dwg. No. :					
Rev. No.	E.O. No./ PRL. O. NO.	DATE	Rev. No.	E.O. No./ PRL. O. NO.	DATE
Title : RISH XMER 74-20: BUSBAR WINDOW DETAILS					
RISHABH					
File location :-					

Test Report No. PLV/09/142
 Date _____
 Product _____
 Verified by [Signature]
 Verification of this drawing by ERDA is
 for relevant dimensional checks only.

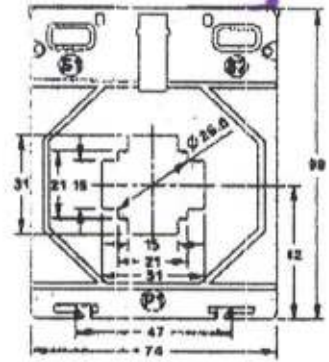
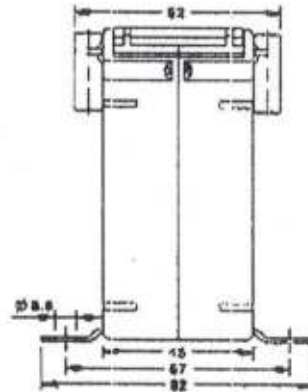
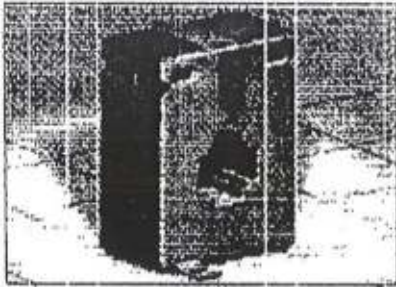


RISH XMER 74 SERIES

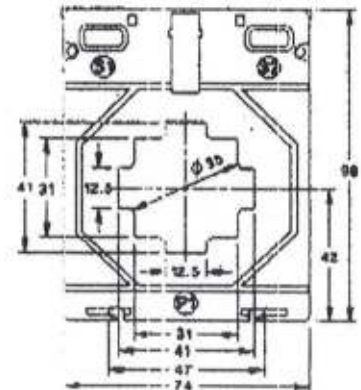
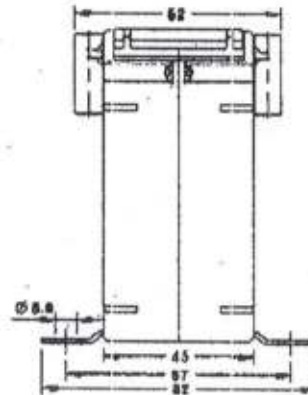
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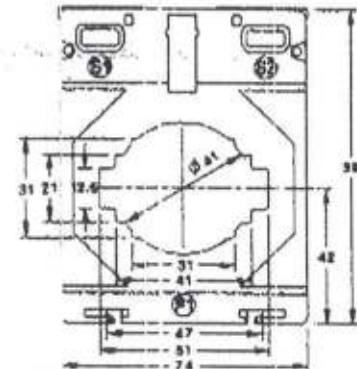
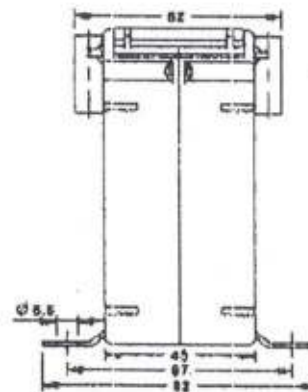
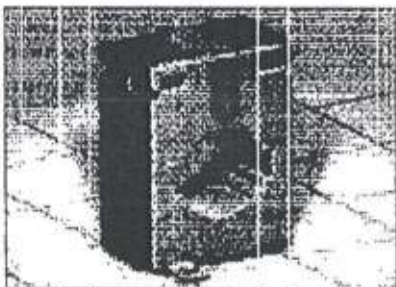
RISH XMER 74-30



RISH XMER 74-40



RISH XMER 74-50



A.I.L DIMENSIONS ARE IN MM

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C-6,NICE AREA MIDC,SATPUR,NASHIK-7
DEPT:-L.T.C.T.**

DATA SHEET OF TYPE TEST CT

SR NO.	CT TYPE	CT RATIO	VAJCLASS	H.S.V	STC	QTY.	CT SR.NO	Area in mm	Total Area	
1	TW-2	100/5	5/1.0	0.72/4/-Kv	5 KA FOR 1.0 SEC	1	1	0.4	1.6	
2	TW-6	3000/5	15/0.2s	0.72/4/-Kv	40 KA FOR 1.0 SEC	1	2	0.81	1.62	
3	74/20	400/5	5/0.2s	0.72/4/-Kv	5 KA FOR 1.0 SEC	1	3	0.29	1.74	
4	140/100h	4000/5	15/0.2s	0.72/4/-Kv	40 KA FOR 1.0 SEC	1	4	0.81	1.62	
SR NO.	CT TYPE	CT RATIO	VAJCLASS	SEC. C.u.	NO.OF CONDUCTORS	NO.OF TURNS	WIRE DIAMETER	Total Wire Diameter	Total Area	
1	TW-2	100/5	5/1.0	22 SWG	4	20	0.70	2.80	0.4	
2	TW-6	3000/5	15/0.2s	19 SWG	2	600	1.02	2.04	0.81	
3	74/20	400/5	5/0.2s	23 SWG	6	80	0.61	3.60	0.29	
4	140/100h	4000/5	15/0.2s	19 SWG	2	800	1.02	2.04	0.81	
PLANNING BY							APPROVED BY			
I.T.GHYAR							S.G.DANAVALA			
DATE							23/6/2008			



Test Report No. PLV/10/501
 Date _____
 Product _____
 Verified by S.S. Patil
 Verification of this drawing by ERDA is
 limited to relevant dimensional checks only.
 Verified dimensions are marked with $\sqrt{\quad}$