



# PASCHIM GUJARAT VIJ COMPANY LIMITED

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## TECHNICAL SPECIFICATIONS FOR 100/5A & 200/5A RING TYPE TAPE WOUND CURRENT TRANSFORMER

1.	SCOPE	This specification covers design, manufacture and testing of 100/5A & 200/5A ratio Current Transformers of Ring type.
2.	APPLICABLE STANDADRD	IS 2705:1992 with latest version available of the standard.
3.	CURRENT RATIO	a. 100/5Amp. b. 200/5Amp.
4.	BURDEN	5 VA
5.	ACCURACY CLASS	Class 0.5s
6.	SYSTEM VOL TAGE	440 V AC, 50 Hz.
	Highest SYSTEM VOL TAGE	660 V AC, 50 Hz.
7.	INSTRUMENT SECURITY FACTOR.	Less than 5.
8.	RATED CONTINUOUS THERMAL Current	1.2 Times
9.	a.RATED SHORT TIME THERMAL CURRENT b. RATED DYNAMIC PEAK CURRENT	3 KA r.m.s. for 1 Second. 2.5 Times the rated Short Time Thermal Current.
10.	HIGH VOLTAGE POWER FREQUENCY TEST	3 kV for 1 Minute.
11.	TEMPERATURE RISE TEST	70 Deg C Maximum.
12.	INSULATION CLASS	Class E
13.	NUMBER OF TURNS	Primary – Single Secondary – For 100/5A Ratio 20 T For 200/5A Ratio 40 T

### (B) CONSTRUCTION

CORE MATERIAL	Low loss, CRGO M4 or better grade. (Core Losses should not exceed 0.8 Watts / Kg. At 1.5 Tesla).
COPPER WIRW METERIAL	Enameled wire as per IS 4800 Part IX.
TEST CERTIFICATE	To be Submitted.
CROSS SECTION AREA	Minimum 1.6 mm <sup>2</sup> .
CURRENT DENSITY AT RATED CURRENT	Minimum 1.5 Amp/ mm <sup>2</sup> .
OUTER INSULATION	Suitable for class E or better insulation class, Electrical Insulation grade tape.

INNER DIAMETER OF CT	a. For ratio 100/5A – 30 mm Minimum. b. For ratio 200/5A – 30 mm Minimum.
POLARITY & TERMINAL MARKING	Clear marking as P1, P2, S1 & S2 with PVC Sticker.
SECONDARY TERMINALS	Winding wires to be bought out with 45 cm $\pm$ 2 cm lead length. S1 lead to be provided with Red, Yellow & Blue coloured PVC sleeves in one set of three CTs. S2 should be with black colored sleeve in all CTs. Secondary leads to be terminated by tinned copper crimping pins.
DIMENSION TOLERANCE	Party has to submit drawing for CT along with tender offer. Overall dimension tolerance to be within +10 %.(No negative Tolerance)
NAME PLATE	Metal plate ( Aluminium/ Brass) with following details. Embosses or printed on it:- <ol style="list-style-type: none"> <li>1. Ratio, burden, system voltage, &amp; frequency</li> <li>2. Accuracy Class</li> <li>3. Applicable Standard</li> <li>4. B.I.L. &amp; insulation class</li> <li>5. Batch No. &amp; Sr. No. of CT</li> <li>6. Manufactures Name &amp; manufacturing year</li> <li>7. Words "PROPERTY OF M.G.V.C.L"</li> <li>8. A/T Number</li> <li>9. Guarantee Period</li> </ol> Name plate should be fixed on CT in such a way that it cannot be removed/replaced.
DRAWING APPROVAL	Party must get final drawing approval from P.G.V.C.L before commencement of supply. No separate period for Drawing approval will be given. Sample submitted with bid will be sent for test at ERDA/Any NABL Laboratory and shall be considered for lot supply. No further change in dimension or drawing shall be allowed in lot supply.

**(C) TESTS****A. SUBMISSION OF TEST CERTIFICATES:-**

The Bidder has to submit the test certificates of following tests as per IS 2705 : 1992 & latest amendments if any from any NABL Laboratory with duly certified drawings bearing all details of winding size, turns & dimensions with tolerance along with the bid. All the Tests must be carried out on same sample unit. Test report must not be older than 7 years from date of tender.[This is Mandatory]

1. Verification of Terminal marking & Polarity  
[Clause no. 9.2 of IS 2705 (Part 1) : 1992]
2. Determination of errors according to the requirements of the appropriate accuracy class  
[Clause no. 3.3 of IS 2705 (Part 2) : 1992]
3. Measurement of Instrument Security Factor  
[Clause no. 7.1.2 of IS 2705 (Part 2) : 1992]
4. Power Frequency dry withstand test on Primary Winding  
[Clause no. 9.3 of IS 2705 (Part 1) : 1992]
5. Power Frequency dry withstand test on Secondary Winding  
[Clause no. 9.4 of IS 2705 (Part 1) : 1992]

Signature of bidder :	Company's Round Seal:	
Date:	Place:	

6. Over Voltage Inter turn test  
[Clause no. 9.5 of IS 2705 (Part 1) : 1992]
7. Short time Current test  
[Clause no. 9.6 of IS 2705 (Part 1) : 1992]
8. Temperature Rise test  
[Clause no. 9.7 of IS 2705 (Part 1) : 1992]

Over & above additional tests due to amendment in IS, if any should also be carried out.

**B. ROUTINE TESTS:-**

The party has to submit following routine test certificates along with inspection call in the form of CD/DVD.

1. Verification of Terminal marking & Polarity
2. Ratio Error and Phase angle test as per table 1C of IS 2705 (Part 2) :1992
3. Power Frequency dry withstand test on Primary Winding  
[Clause no. 9.3 of IS 2705 (Part 1) : 1992]
4. Power Frequency dry withstand test on Secondary Winding  
[Clause no. 9.4 of IS 2705 (Part 1) : 1992]
5. Over Voltage Inter turn test  
[Clause no. 9.5 of IS 2705 (Part 1) : 1992]

**C. ACCEPTANCE TESTS/ TEST DURING INSPECTION:-**

Party has to offer lot for inspection to PGVCL, 5% random samples shall be selected from the lot and following acceptance tests as per IS 2705 : 1992 & latest amendment shall be carried out during on selected samples.

1. Verification of Terminal marking & Polarity
2. Ratio Error and Phase angle test as per table 1C of IS 2705 (Part 2) : 1992
3. Power Frequency dry withstand test on Primary Winding  
[Clause no. 9.3 of IS 2705 (Part 1) : 1992]
4. Power Frequency dry withstand test on Secondary Winding  
[Clause no. 9.4 of IS 2705 (Part 1) : 1992]
5. Over Voltage Inter turn test  
[Clause no. 9.5 of IS 2705 (Part 1) : 1992]
6. Verification of ISF

Over & above additional tests due to amendment in IS, if any should also be carried out.

Note : From each lot of CTs offered, one set of CT shall be selected, sealed & signed & handed over to supplier for onward deposit to ERDA/any NABL Laboratory for carried out following tests. The testing charges shall be borne by the supplier (bidder).

1. Verification of Terminal marking & Polarity
2. Ratio Error and Phase angle test as per table 1C of IS 2705 (Part 2) : 1992
3. Power Frequency dry withstand test on Primary Winding  
[Clause no. 9.3 of IS 2705 (Part 1) : 1992]
4. Power Frequency dry withstand test on Secondary Winding  
[Clause no. 9.4 of IS 2705 (Part 1) : 1992]
5. Over Voltage Inter turn test  
[Clause no. 9.5 of IS 2705 (Part 1) : 1992]
6. Verification of ISF

Signature of bidder :		Company's Round Seal:
Date:	Place:	

**(D) TESTING FACILITIES****A. The firm should have following Testing Facilities**

- Automatic test set up (Class 0.1 or higher accuracy) for ratio Error & Phase Angle Error Measurement with facility of Printer interface.
- Standard CT of class 0.2 or higher accuracy.
- The secondary burden used for test purposes shall have a power factor of 0.8 lagging except that when the burden is less than 5 VA, a power factor of 1 may be used.
- High Voltage Tester.
- Test Facility for over Voltage Inter Turn testing.

All the test equipments and standard CT must be calibrated at the third party government approved /any NABL Laboratory. At the stage of tender offer and along with call,copy of the Calibrations certificates must be submitted.

**B. List of Plant & Machinery and Test Equipments with relevant details like make, capacity, accuracy, model must be submitted along with tender offer.****(E) QUALITY ASSURANCE PLAN**

Party must submit Quality Assurance Plan for the checks carried out at various stage from Raw material to finish goods. Documents for the checks out may be verified by inspector at the time of inspection.

**(F) GUARANTEE**

The party should guarantee for free replacement / rectification for the CT under the guarantee period of 12 months from the date of installation or 18 months from the date of supply.

**(G) PACKING**

A set of 3 CTs shall be packet in a box / carton marking serial number on each box. Serial no. of CT of oneset should be as xxxxxx-R for R phase, xxxxxx-Y for Y phase & xxxxxx-B for B phase as per colored sleeve.

**(H) TENDER SAMPLE**

The bidder has to submit Two sets of CT of each rating (total 6 nos.) along with offer at **The Deputy Engineer, RSO, PGVCL, Rajkot**. The offer without submission of tender sample shall be out rightly rejected. The tender sample shall be tested for acceptance tests as per IS 2705: 1992 & latest amendments if any at ERDA/ any NABL Laboratory. If required the sample shall be further tested for type tests as per IS 2705: 1992 & P.G.V.C.L specifications. In case of failure of sample in any of the test carried out at ERDA/ any NABL Laboratory, the offer of bidder shall be considered as disqualified.

Signature of bidder :		Company's Round Seal:
Date:	Place:	