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TECHNICAL SPECIFICATION FOR
PRIMARY CURRENT TRANSFORMER
FOR 3-PHASE ELECTRIC LOCOMOTIVES

Specification No : CLW/ES/3/0013, Alt. 'B'

Issue Date:-29.11.96

SKETCH ATTACHED :- CLW/ES/3/SK-1/0013 /B

ISSUED BY:-

DY. CHIEF ELECTRICAL ENGINEER/D-II
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WEST BENGAL INDIA

Prepared By (JE/SSE-Design.)	Checked By (AEE/-Design.)	Approved By (Dy. CEE/D-II.)

ALTERATION RECORD SHEET

Sl. No.	Date of Amendment	Page number	Alteration No.	Reason	Initial
1	12.09.2001	5. 6.	A	i) Sheet no changed according to serial. ii) Sheet no 2 & 5 added. iii) Test programme modified. iv) Vibration and environmental tests added in sheet no. 5 v) Old specification is superseded.	s/d
2	20.08.2007	5	B	Output of CT =30 VA are changed as min 30 VA against SME/I&D/HWH's Lr No. HWH/I/07A Dated 09.04.07	s/d

NOTE:- The specification has been digitalized and all the alterations have been incorporated

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Specification for Primary Current Transformer for 3 Phase Electric Locomotives.

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Specification for Primary Current Transformer

1.0 This specification applies to Primary Current Transformer for 3-Phase **3 Phase Electric Locomotive** for 25KV AC 50 Hz system.

2.0. Climatic and environmental condition:

- Maximum atmospheric temperatures: Under Sun: 70° Celsius.
In shade.: 50° Celsius.
- Humidity. : 100%. Saturation during rainy season.
- Reference site conditions:-
 - i) Ambient temperature max. : 47° Celsius min 0° Celsius
 - ii) Humidity. : 60%.
 - iii) Altitude. : 160 m above mean sea level.
 - iv) Rainfall : Very heavy in certain areas. The locomotive will be designed to permit it's running at 10 kilometer per hour in flood water level of 102 millimeter above rail level.
- Atmosphere during hot : Extremely dusty and desert terrain in certain areas
Weather.
- Coastal areas : Locomotive and equipment will be designed to work in coastal areas in humid and salt laden atmosphere.
- Vibration. : The equipment , subsystem and their mounting will be designed to withstand vibrations and shocks encountered in service as specified in corresponding IEC publications unless otherwise prescribed

3.0. Standards : IEC-60185

4.0. Technical data: -

Voltage : 0.9 KV.
 Frequency : 50-Hz
 Transformer Ratio : 500/5.
 Colour : Green
 Quantity : 1 per loco
 Place : Roof
 Class & Output : CL.3 ; min. 30 VA. Insulation Class : E

5.0 Tenderer shall submit the design and construction details of the item along with his tender quotation.

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6. TESTS:

The equipment shall be tested as per IEC – 60185.

A) Type Tests:

- i) Short time current tests.
- ii) Temperature rise test as per IEC: 185, Temperature rise of the secondary winding shall not exceed 75 °K, (Insulation class E)
- iii) Determination of errors.

After transformer have been subjected to dielectric type test, they shall be subjected to all the routine tests.

B) Routine Tests:

- i) Verification of terminal marking.
- ii) Power frequency withstand test on secondary windings.
- iii) Inter-turn overvoltage test.
- iv) Determination of errors.

NOTE:-Any other test will be required will be mutually agreed upon between supplier and purchaser.

C) Additional type tests: -**Vibration and Environmental Tests.**

- a) Dry heat test at 80°Celsius for six hours as per IEC 60571.
- b) Damp heat test for 95% RH at a temperature. 25°C to 55°C as per IEC 60571.
- c) Carrying test 0°C at three hours as per IEC 60571.
- d) Salt spray test at 35°C for four hours as per IEC 60571.
- e) Vibration test. As per IEC 77 for hours in all the 3 Perpendicular access for 40 minutes test each.
- f) Shunting shock as per IEC -60077.

Note :- 1) All type tests should be carried out in one CT.

2) The tenderer fix nameplate on the equipment containing :

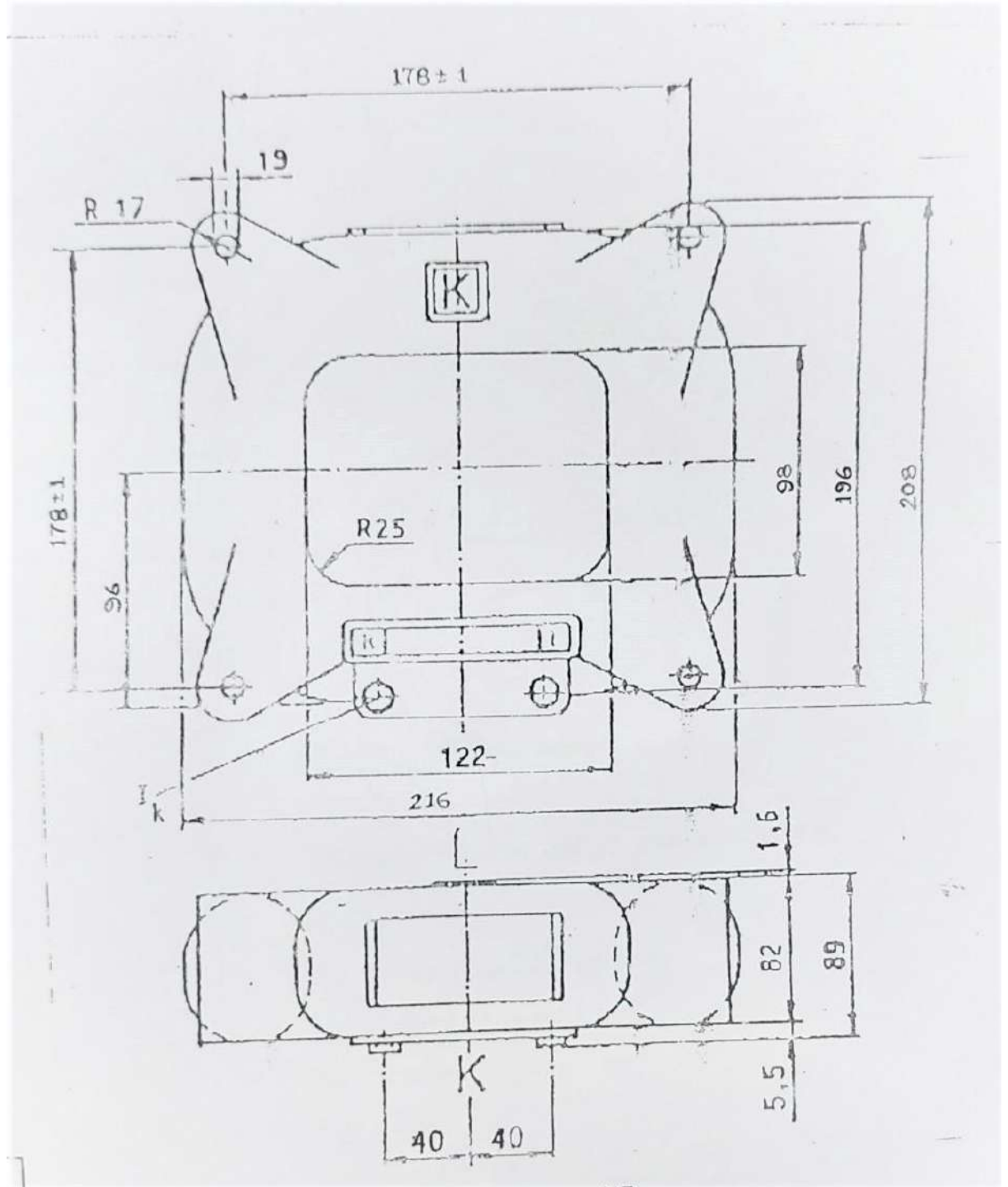
- i) Range of electrical ratings.
- ii) Month, year of manufacture.
- iii) Serial number.

3. Hardware's are to be used should be of any of the following.

- a) Unbrako. (Precision fastener.)
- b) Lakshmi precision. (LPS)
- c) Sudaram Fasteners. (TVS).
- d) All spring washers of Forbes. Gokak Ltd. Moka., Mumbai only.

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7. DIMENSION AND WEIGHT:

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Approximate weight:- 6.6 Kg.
All dimensions are in mm.

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8. Documents to be supplied by tenderer:

The tenderer shall interalia furnish the following in three copies, along with the quotation:

- i. Clause wise comments on the specification and test programme.
- ii. Detailed drawings.
- iii. Past experience with supporting papers (If any.)
- iv. Past test reports, (if any.)

9. Technical documents to be supplied by the supplier:-

The following documents shall be supplied by their supplier. As part of the contract:

- i. Type test report .
- ii. Routine test report along with each set.
- iii. Maintenance manual.
- iv. Detailed drawings.

10. Quality assurance:

Quality assurance should be as per ISO 9000.

11. Reference:

OEM M/s ABB for WAG- 9. Class electric locomotives.

Type : G-IEBL 1

Supplier : Pfiffner Messwandler AG
CH – 5042, Hirschthal
Switzerland.

Schematic position: 6.1.

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