



Industry & Facilities Division
Procurement Services

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INSPECTION REPORT N° : CGAB/NSK/PORC/132CT/IR/001

Initial Interim Final Resident

Inspection requested by: CG Power and Industrial Solutions Ltd., Aurangabad

BV Job Nr : IND.P.4.18.0208

Project: Type Test on 132kV Current Transformer of CGPISL	IPO Ref (If applicable):
BV Client: CG Power and Industrial Solutions Ltd., Aurangabad	P/o nr: (Client to BV)
Manufacturer : CG Power and Industrial Solutions Ltd., Aurangabad	P/o nr: -- (Client to vendor)
Vendor / Sub-Vendor (If applicable):	P/o nr: -
Inspection Location: CG Power and Industrial Solutions Ltd., Nashik	Previous Inspection (If applicable): -
Inspection performed on: 21.02.2020	Next Inspection (If applicable): N.A.

MATERIAL/SUBJECT OF INSPECTION	ITEM / TAG Nr	QTY As per P/O	QTY Offered for inspection
132kV Live Tank Current Transformer	Sr. no.: 192979	--	01 no.

A – INSPECTION RESULT

<input checked="" type="checkbox"/> Satisfactory (Without comments)	<input type="checkbox"/> Satisfactory with comments (Any of trailing Punch or Non Conformity items is still open)	<input type="checkbox"/> Not Satisfactory (NCR raised during the inspection)
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Inspection Summary: (for details refer to section E)

1. This is a voluntary & internal requirement from M/s CGPISL-Aurangabad
2. The items have been inspected as per the approved reference documents & client's specific requirement / scope of inspection
3. Refer continuation sheets of this report for details of inspection carried out.
4. The witnessed test results are applicable only to the items offered / tested by CGPISL during inspection.

Open Non Conformities:	<input type="checkbox"/> Yes, details in section G	<input checked="" type="checkbox"/> No
Open Punch List Items:	<input type="checkbox"/> Yes, details in section H	<input checked="" type="checkbox"/> No
Release Note Issued:	<input type="checkbox"/> Yes :	<input checked="" type="checkbox"/> No

BV Inspector: Abhijit M. Shinde	BV Coordinator : Mohan Gundre
BV Office: BV-NASHIK	Inspection Report Date: 21.02.2020
Distribution: <input checked="" type="checkbox"/> CLIENT <input checked="" type="checkbox"/> BV- PUNE/NASHIK <input type="checkbox"/> OTHER	Attachments Report: <input checked="" type="checkbox"/> Yes, details in section J <input type="checkbox"/> No





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B - REFERENCE DOCUMENTATION: <input type="checkbox"/> Refer to attachment section J instead					
Title	Reference n°	Rev.	Approval status	Approved by	Date
GA Drawing	413695829 CT2 GA/R0	0	APPROVED	CGPISL	-
Rating plate Drawing	413695829 CT2 RS/R0	0	APPROVED	CGPISL	-
Test report reference	TC595719000000695F	-	APPROVED	CGPISL	21.02.2020

C - ATTENDEES		
Name	Position	Representing
Shrikant Manore	Executive	CGPISL
Amol Parate	Dy. Manager	CGPISL
Abhijit Shinde	Sr. Surveyor	Bureau Veritas

D - MEASURING & TESTING EQUIPMENT USED <input type="checkbox"/> Refer to attachment section J instead				
Equipment Type	Equipment Identity n°	Calibration traceable to NABL/ISO 17025 accredited lab (Yes/No)	Last Calibration Date	Expiry Date
Weights	20kg	Yes	06.02.2020	05.02.2021
Measuring tape	MT-01	Yes	09.07.2019	09.07.2020
Above equipment(s) were checked for suitability and condition : Yes				

E - INSPECTION DETAILS			
Test reference , clause no.	Activity Description	Evidence Attached -Yes	
IEC 61869-1 (2007); IEC 61869-2 (2012)	Type test :- Mechanical test	TC Attached	

E1 – Details of Witness (W) & Hold (H) Inspection Points

➤ **Description of the inspections carried out:**

- ❖ The items have been inspected as per the approved reference documents & client's specific requirement / scope of inspection
- ❖ Verified the calibration status of the instruments used during inspection & found in order. Equipment suitability & condition checked – Found satisfactory at the time of inspection.

➤ **Surveillance with reference to scope of inspection:**

Following tests were witnessed on above mentioned item as per the approved reference drawing & reference standard – Test results found satisfactory.

Type test :-

1. Mechanical test

Refer witnessed test report attached for the details of test & test results.

➤ **Results of Inspection steps**

With respect to the Bureau Veritas scope of work mentioned above the items are found satisfactory. The witnessed test results are applicable only to the items offered / tested by CGPISL during inspection.

➤ **Problems pending / Areas of Concern:** None

E2 – Details of Monitoring and Surveillance Patrols	<input type="checkbox"/> Tick if conducted during the visit
N.A.	





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E3 – Details of Certificates Review	<input type="checkbox"/> Tick if conducted during the visit
NOTE : All the original test reports were handed over back to manufacturer.	

F – HEALTH, SAFETY & ENVIRONMENT COMMENTS

All safety precautions were taken during testing/inspection to avoid accidents.

The safety requirement is assessed by using two minutes of safety booklet for my safety.

G- NON CONFORMITIES

Refer to attachment section J instead

Item	Description	Status	Raised on	Report #	Closed on	Report #	Comments
-	-	-	-	-	-	-	-

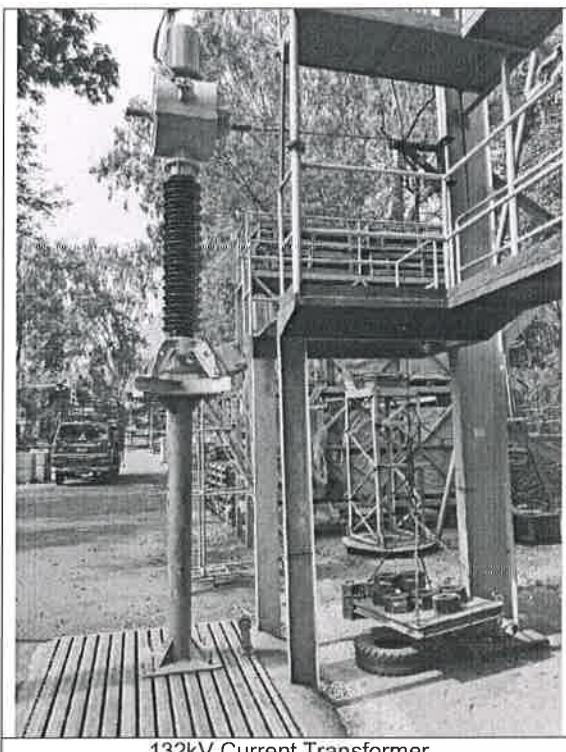
H – PUNCH LIST

Refer to attachment section J instead

Item	Description	Status	Raised on	Report #	Closed on	Report #	Comments
-	-	-	-	-	-	-	-

I - DIGITAL PICTURES

* Product photographs taken for reference.





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J – ATTACHMENTS

Item	Attachment Name	Total Pages	Description
1	Test reports	~5	Test reports

END OF REPORT





Certificate No.: TC-5957

**Electrical Testing Laboratory
S-1 Division,
CG Power and Industrial Solutions Limited**

A-3 MIDC, Ambad, Nashik 422 010, Maharashtra, India
T: 0253-2301235, 2301239 F: +91 253 2381247



TEST REPORT

Report no. : TC595719000000695F Dated 21st February 2020.

Manufacturer : CG Power and Industrial Solutions Limited
S6 Division,
D-1/2 & D2, MIDC, Waluj,
Aurangabad – 431 136
India.

Customer : Tenaga Nasional Behrad, Malaysia.

Concerning : Mechanical test

Date of Test : 21st February 2020.

Place : CG Power and Industrial Solutions Limited
S1 Division
A3, MIDC, Ambad,
Nashik – 422 010
India.

Object : 132 kV Live Tank Current Transformer

Type : IOSK: 145/275/650

Job Serial No : 192979

Condition of test object : Ok

REQUIREMENTS

The requirements as specified by IEC 61869-1 (2007); IEC 61869-2 (2012)

TEST PROGRAMME

1) Mechanical test (As per clause no. 7.4.5 of IEC 61869-1 (2007), IEC 61869-2 (2012))

Tested by:

Abhishek Patil
Sr. Executive
CGPISL Nashik

Witnessed by:

Abhijit Shinde
Sr. Surveyor;
Bureau Veritas, Nashik

Authorized Signatory:

Amol Parate.
Deputy Manager
CGPISL, Nashik





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SUMMARY AND CONCLUSION

The current transformer meets the requirements specified by IEC 61869-1 (2007), IEC 61869-2 (2012).

The results obtained relate only to the material tested.

MATERIAL DATA

Current Transformer

Manufacturer	CG Power and Industrial Solutions Limited, Aurangabad.
Type	IOSK: 145/275/650
Serial number	192979
Number of cores	3
Rated Voltage	132 kV
Rated Frequency	50 Hz
Rated Primary current	1200 A
Rated Thermal Current	1440 A

For detailed description of the current transformer references is made to the CGPISL drawings.

GA Drawing No : - 413695829 CT2 GA/R0

Rating and schematic drawing No : - 413695829 CT2 RS/R0

Make of Insulator : - M/s CJI Porcelain Pvt. Ltd., Khurja (U.P.) India.

Drawings are displayed in Appendix A.

PERSONS ATTENDING THE TEST

The test was witnessed by:

Mr. Abhijit Shinde : Bureau Veritas (I) Pvt Ltd.

THE TEST WAS CARRIED OUT BY

Mr. Abhishek Patil : CGPISL, Nashik.

PURPOSE OF THE TESTS

Purpose of the test was to verify whether the current transformer complies with the specified requirements of by IEC 61869-1 (2007); IEC 61869-2 (2012)

Tested by:

Abhishek Patil
Sr. Executive
CGPISL Nashik

Witnessed by:

Abhijit Shinde
Sr. Surveyor,
Bureau Veritas, Nashik

Authorized Signatory:

Amol Parate.
Deputy Manager
CGPISL, Nashik

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TEST

1) MECHANICAL TEST:

PROCEDURE:

The completely assembled oil filled 132 kV CT was firmly mounted by fixing the base of CT to the rigidly fixed base frame. By using a test setup comprising of test fixture, wire rope & pulley arrangement the static load of 2000 N (i.e. 204 kgf) was applied at the center of the primary terminal in below given directions.

1. Horizontal direction (H1) : Along the Primary Terminal axis
2. Horizontal direction (H2) : Perpendicular to the Primary Terminal axis
3. Vertical direction (V) : Perpendicular to the Primary Terminal axis

The load was separately applied to both primary terminals P1 & P2 and was maintained for duration of 60 seconds.

The deflection of primary terminals was measured and residual deflection was recorded for each direction of load for both primary terminals P1 & P2.

TEST RESULT:

The 132 kV CT terminal withstood the load application of 2000 N (i.e. 204 kgf) for 60 seconds in each direction (H1, H2, V) on P1 & P2 terminals. After release of the load, the product was visually inspected and it was confirmed that there is no damage (i.e. no deformation, rupture or leakage).

The residual deflection is measured after releasing the load and is found as 0 mm in H1, 1 mm in H2 direction & 1 mm in V direction for P1 terminal.

The residual deflection is measured after releasing the load and is found as 1 mm in H1, 1 mm in H2 direction & 2 mm in V direction for P2 terminal.

RESULT:

The current transformer withstood the Mechanical test as specified by clause 7.4.5 IEC 61869-1 (2007), IEC 61869-2 (2012)

Note: These test results relate only to object tested.

Tested by:

Abhishek Patil
Sr. Executive
CGPISL Nashik

Witnessed by:

Abhijit Shinde
Sr. Surveyor,
Bureau Veritas, Nashik



Authorized Signatory:

Amol Parate.
Deputy Manager
CGPISL, Nashik

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Photograph of test set up:



Tested by:

Abhishek Patil
Sr. Executive
CGPISL Nashik

Witnessed by:

Abhijit Shinde
Sr. Surveyor,
Bureau Veritas, Nashik



Authorized Signatory:

Amol Parate,
Deputy Manager
CGPISL, Nashik

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Appendix A
Manufacturer's Drawings

Pages 2

Tested by:

Abhishek Patil
Sr. Executive
CGPISL Nashik

Witnessed by:



Abhijit Shinde
Sr. Surveyor,
Bureau Veritas, Nashik

Authorized Signatory:

Amol Patate.
Deputy Manager
CGPISL, Nashik

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NO.	QTY.	DESCRIPTION	MATERIAL
1	1	BELLOW LEVEL INDICATOR	ACRYLIC
2	1	HOUSING	ALUMINUM
3	1	BASE	ALUMINUM
4	2	NEMA PRIMARY TERMINAL SIZE-100x100x20mm.Thk.	ALUMINUM
5	1	PORCELAIN INSULATOR	PORCEAIN-BROWN COLOUR
6	1	SECONDARY TERMINAL BOX	DRY-BOX-#13456529 CT2 50
7	1	RATING & SCHEMATIC DIAGRAM	DRY-BOX-#13456529 CT2 50
8	1	SAMPLING VALVE	STEEL PLATED
9	1	BELLOW	STAINLESS STEEL
10	1	EARTHING PAD-100x75x12thk.	TINNED COPPER

TECHNICAL SPECIFICATIONS
132 KV CURRENT TRANSFORMER

SPECIFICATION	UNIT	Rating
HIGHEST SYSTEM VOLTAGE (Ph-Ph)	Kilo Volts	145
HIGHEST SYSTEM VOLTAGE (Ph-E)	Kilo Volts	145 $\sqrt{3}$
POWER FREQUENCY WITHSTAND VOLTAGE FOR 1 MIN. (DRY & WET)	Kilo Volts	275
LIGHTNING IMPULSE WITHSTAND VOLTAGE	Kilo Volts(Peak)	650
FREQUENCY	Hz	50
TOTAL & NOMINAL SPECIFIC CREEPAGE DISTANCE	mm	3625
OL. VOLUME ($\pm 10\%$)	mm/kV	25
APPLICABLE STANDARDS	Kilogram	450
	Litre	120
	—	EC 61869-2 (2012)

WAKE OF BOBCEYAN INSECT LARVAE

For mounting
holes
on each leg.

EARTHING & LIFTING DETAILS

NOTE : PLEASE REFER INSTRUCTION MANUAL FOR HANDLING & TRANSPORTATION OF CT.

ITEM NO.4

GENERAL ARRANGEMENT DRAWINGS										DRG. NO.: -41365829 CT2 GA/RO	
FOR 12 M CEMENT TRAILER										DRG. NO.: -41365829 CT2 GA/RO	
TYPE - ISKT-145/275/650										CG Power and Industrial Solutions Limited, Autonogroup	
NO	REVISION	SIGN DATE	NO	REVISION	SIGN DATE	NO	REVISION	SIGN DATE	SCALE	N.T.S.	DATE: 13-01-2020
									SDS	SDS	ALL DIMENSIONS ARE IN mm
									SDS	SDS	
									DRN	DRN	
									CHD	CHD	
									APPD	APPD	
R6				R4			R2				
R5				R3			R1				

Drawing referred during inspection Arifit Shinde
(BVIL)

LC3-SHELR

132 KV CURRENT TRANSFORMER

RATING & SCHEMATIC DIAGRAM

MFG. BY :- CG Power and Industrial Solutions Limited, Aurangabad
MADE IN INDIA

CUSTOMER : CG Power and Industrial Solutions Limited, Aurangabad

TYPE [IOSK : 145 / 275 650] INSULATION 275 KV / 650 KV/p

SHORT TIME LEVEL 50 KA / 3 SEC.

CURRENT RATING 125 kA_d

DYNAMIC 125 kA_d

RATED CONTINUOUS 1440 AMP.

THERMAL CURRENT

1440 AMP.

CREEPAGE DISTANCE

3625 mm / 25mm/kV

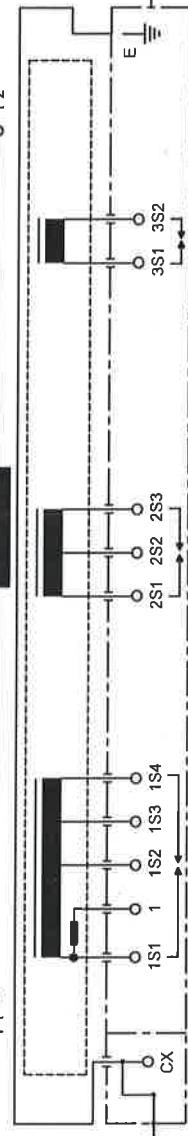
W.O. NO. 413695829

SPECIFICATION IEC 61869-2 (2012)

YEAR 2019

SR.NO. [REDACTED]

P1 O P2



CORE NO. I II III

1 600/1 1200/1 600/1 1200/1 3000/1

2 P1-P2 P1-P2 P1-P2 P1-P2 P1-P2

3 1S1-1S2 1S1-1S3 1S1-1S4 2S1-2S2 2S1-2S3 3S1-3S2

4 SHORT 1-1S2 SHORT 1-1S3 SHORT 1-1S4 30 30

5 BURDEN (VA) 15 15 15 5P 5P

6 CLASS 0.2S 0.2S 0.2S 5P 5P

7 ISF/ALF < 10 < 10 < 10 20 20

8 kPV (MIN) V - - - -

9 iexc(max) AT V_R / 2 - - - -

10 R_{ct} @ 75°C Ω - - - -

11 TOTAL WEIGHT = 450 ±10% KG. CLASS OF INSULATION : A'

12 OIL VOLUME = 120 ±10% Litre. INSULATING OIL AS PER IEC 60296 : 2003

13 CAUTION : SHORT ALL SEC. TERMINALS WHEN NOT IN USE OR BEFORE DISCONNECTING BURDENS.

14 CONNECT CX TERMINAL TO EARTH WHEN CT IS IN OPERATION.

15 R_{ct} < 12 Ω.

φ4.5 Holes, 4Nos.

Material : Stainless Steel.

Material Thk. : 0.5 mm.Thk Plate.

IF IN DOUBT ASK

CT SR.NO. : 192979



NO	REVISION	SIGN	DATE	REVISION	SIGN	DATE	SCALE	N.T.S.	DATE	18.12.2019	ALL DIMENSIONS ARE IN mm	DRG.NO:-413695829	C12 RS/RO
R4				R2					DRN	KSH	RATING & SCHEMATIC DRAWING	CG Power and Industrial Solutions Limited, Aurangabad	
R3		R1							CHD	SDS	FOR 132 KV CURRENT TRANSFORMER	TYPE-TEST : 45/25/50	

Drawing referred during inspection *Shinde (BVL)* *Shinde (BVL)*