



Industry & Facilities Division  
Procurement Services

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<b>INSPECTION REPORT N° : CGAB/NSK/PORC/132CT/IR/001</b>
<input type="checkbox"/> Initial <input type="checkbox"/> Interim <input checked="" type="checkbox"/> Final <input type="checkbox"/> Resident
Inspection requested by: CG Power and Industrial Solutions Ltd., Aurangabad
BV Job Nr : IND.P.4.18.0208

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

<b>A – INSPECTION RESULT</b>		
<input checked="" type="checkbox"/> <b>Satisfactory</b> (Without comments)	<input type="checkbox"/> <b>Satisfactory with comments</b> (Any of trailing Punch or Non Conformity items is still open)	<input type="checkbox"/> <b>Not Satisfactory</b> (NCR raised during the inspection)
<b>Inspection Summary:</b> (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.		
<b>Open Non Conformities:</b>	<input type="checkbox"/> Yes, details in section G	<input checked="" type="checkbox"/> No
<b>Open Punch List Items:</b>	<input type="checkbox"/> Yes, details in section H	<input checked="" type="checkbox"/> No
<b>Release Note Issued:</b>	<input type="checkbox"/> Yes :	<input checked="" type="checkbox"/> No

On behalf of Bureau Veritas <b>BV Inspector:</b> <i>Abhijit M. Shinde</i>	On behalf of Bureau Veritas <b>BV Coordinator :</b> Mohan Gundre
<b>BV Office:</b> BV-NASHIK	<b>Inspection Report Date:</b> 21.02.2020
<b>Distribution:</b> <input checked="" type="checkbox"/> CLIENT <input checked="" type="checkbox"/> BV- PUNE/NASHIK <input type="checkbox"/> OTHER	<b>Attachments Report:</b> <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 ☐ Tick if conducted during the visit  
N.A.





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**E3 – Details of Certificates Review**

☐ 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
-	-	-	-	-	-	-	-

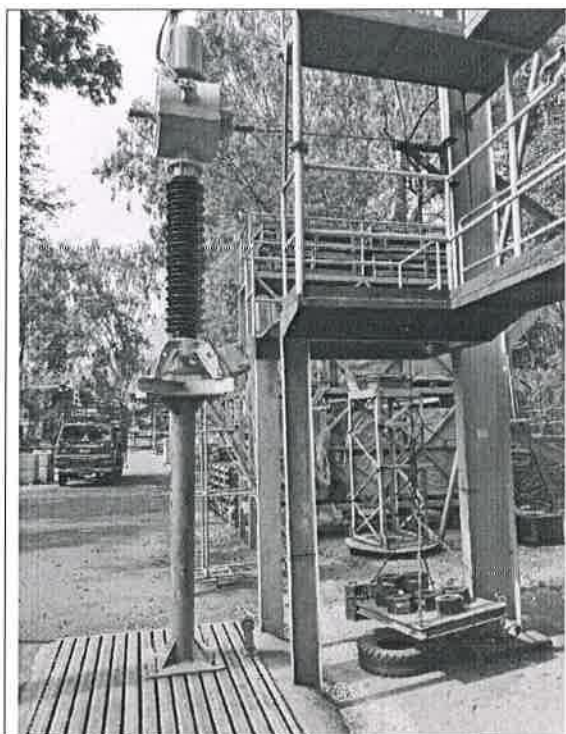
**H – PUNCH LIST**

☐ Refer to attachment section J instead

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

**I - DIGITAL PICTURES**

\* Product photographs taken for reference.



132kV Current Transformer





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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



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**TEST REPORT**

Report no. : TC595719000000695F Dated 21<sup>st</sup> 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 : 21<sup>st</sup> 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*  
Abhishek Patil  
Sr. Executive  
CGPISL Nashik

Witnessed by:

*Abhijit Shinde*  
Abhijit Shinde  
Sr. Surveyor;  
Bureau Veritas, Nashik



Authorized Signatory:

*Amol Parate*  
Amol Parate.  
Deputy Manager  
CGPISL, Nashik

Page 1 of 5

Registered Office:

CG House, 6th Floor, Dr Annie Besant Road, Worli, Mumbai 400 030, India  
T: +91 22 2423 7700 F: +91 22 2423 7733 W: www.cgglobal.com  
Corporate Identity Number : L99999MH1937PLC002641





Certificate No.: TC-5957

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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



Certificate No.: TC-5957

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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.

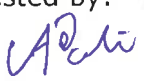
The residual deflection is measured after releasing the load and is found as 1 mm in H1, 1 mm in H2 direction & 2 mm in V direction for P2 terminal.

**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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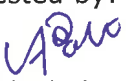


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**Photograph of test set up:**



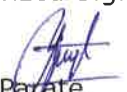
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Sr. Executive  
CGPISL Nashik

Witnessed by:

  
Abhijit Shinde  
Sr. Surveyor,  
Bureau Veritas, Nashik

Authorized Signatory:

  
Amol Parate,  
Deputy Manager  
CGPISL, Nashik

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Certificate No.: TC-5957

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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 Payate.  
Deputy Manager  
CGPISL, Nashik

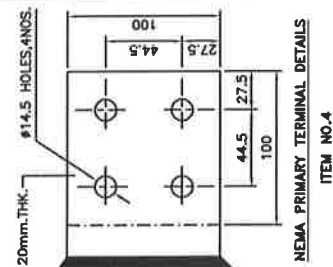
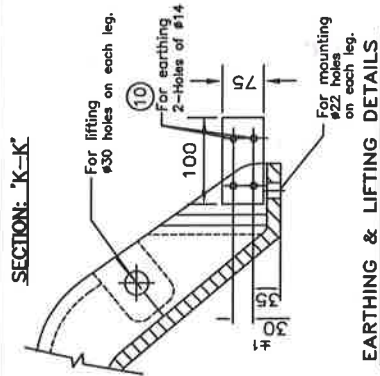
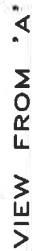
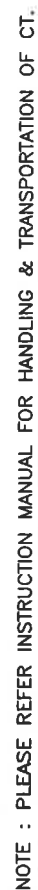
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Registered Office:

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Corporate Identity Number : L99999MH1937PLC002641



NO.	QTY.	DESCRIPTION	MATERIAL
1	1	BELLOW LEVEL INDICATOR	ACRYLIC
2	1	HOUSING	ALUMINIUM
3	1	BASE	ALUMINIUM
4	2	NEMA PRIMARY TERMINAL SIZE-100x100x20mm.Thk.	ALUMINIUM
5	1	PORCELAIN INSULATOR	PORCELAIN-- BROWN COLOUR
6	1	SECONDARY TERMINAL BOX	DWG NO--413695629 CTR 58
7	1	RATING & SCHEMATIC DIAGRAM	DWG NO--413695629 CTR 85
8	1	SAMPLING VALVE	STEEL PLATED
9	1	BELLOW	STAINLESS STEEL
10	1	EARTHING PAD-100x75x12Thk. ø14 Holes 2No's.	TINNED COPPER

## TECHNICAL SPECIFICATIONS

SPECIFICATION	UNIT	RATING
HIGHEST SYSTEM VOLTAGE (Ph-Ph)	Kilo Volts	145
HIGHEST SYSTEM VOLTAGE (Ph-E)	Kilo Volts	145/√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	3825
	mm/kV	25
TOTAL WEIGHT (±10%)	Kilogram	450
OIL VOLUME (±10%)	Litre	120
APPLICABLE STANDARDS	—	IEC 61869-2 (2012)

MAKE OF PORCELAIN INSULATOR	-	CJI PORCELAIN PVT. LTD.
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[illegible]

Drawing referred during inspection

**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	ISOK : 145 / 275 / 650	INSULATION LEVEL	275 KV / 650 kVp	FREQUENCY	50 Hz.	W.O. NO.	41395829	SPECIFICATION	IEC 61869-2 (2012)	YEAR	2019
SHORT TIME CURRENT RATING	50 KA / 3 SEC.	I DYNAMIC	125 kAp	RATED CONTINUOUS THERMAL CURRENT	1440 AMP.	TOTAL & NOMINAL SPECIFIC CREEPAGE DISTANCE	3525 mm / 25mm/kV	SRL.NO.			

P1 O P2

Core No. III

RATIO	300/1	600/1	1200/1	600/1	1200/1	3000/1
PRIMARY TERMINAL	P1-P2	P1-P2	P1-P2	P1-P2	P1-P2	P1-P2
SECONDARY TERMINAL	1S1-1S2 SHORT 1-1S2	1S1-1S3 SHORT 1-1S3	1S1-1S4 SHORT 1-1S4	2S1-2S2	2S1-2S3	3S1-3S2
BURDEN (VA)	10	15	15	30	30	-
CLASS	0.2S	0.2S	0.2S	5P	5P	PX
ISF/ALF	≤ 10	≤ 10	≤ 10	20	20	-
kPV (MIN) V	-	-	-	-	-	600
Iexc(max.) AT Vk / 2	-	-	-	-	-	10 mA
Rd @ 75°C Ω	-	-	-	-	-	≤ 12 Ω

TOTAL WEIGHT = 450 ±10% KG.  
OIL VOLUME = 120 ±10% Litre.

CAUTION : SHORT ALL SEC. TERMINALS WHEN NOT IN USE OR BEFORE DISCONNECTING BURDENS.  
CONNECT CX TERMINAL TO EARTH WHEN CT IS IN OPERATION.

Material Thk. : 0.5 mm.Thk Plate.

CT SR.NO.: 192979



R4				R2								SIGN	NAME	PAVING & SCHEMATIC DRAINING FOR 12 LIT CURRENT TRANSFORMER  TYP-A08 : 15/75/159			
											DRN					KSH	
											CHD					SDS	
											APPD					SDS	
R3				R1													
N0		REVISION	SIGN	DATE	N0		REVISION	SIGN	DATE	SCALE	N.T.S.	DATE : 18.12.2019	ALL DIMENSIONS ARE IN mm				
															CG Power and Industrial Solutions Limited, Aurangabad		
															DRG.NO:-413695829 CT2 RS/R0		

Drawing referred during inspection