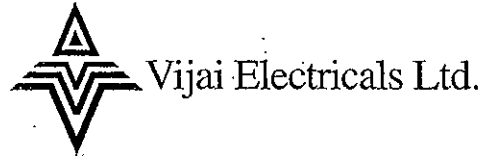


Switchgear Products Division
VEL/SGMKTG/APTRANSCO/4835/11-12
Dt: 30.06.2011



The Chief Engineer/Construction-I,
Transmission Corporation of A.P. Ltd,
Room No. 423, 4th Floor,
'A' Block, Vidyt Soudha,
Hyderabad - 500 082
Ph/Fax: 040-23317637

Corporate Office:
6-3-648 / 1&2, Off Raj Bhavan Road
Somajiguda
Hyderabad 500 082
Andhra Pradesh, India
T +91 40 30617777 / 778 / 854
F +91 40 30617865

Dear Sir,

Sub: Standardization of 33kV, 132kV & 220kV Potential Transformers-Submission of GTP & Drawings-Reg.
Ref: Your Letter No: CPT 250/SE-PM-I/F.CTs & CVTs/D.No.996/2011. Dt:16.06.2011

-oOo-

We acknowledge the receipt of your letter cited under above reference and we herewith furnish 2 sets of GTP's & complete sets of Drawings for 33kV, 132kV & 220kV Potential Transformers as below as per APTRANSCO Specification for standardization of GTP & drawings for these equipments.

Sl.No	Item Description	Drawing No.
a) 220kV Potential Transformer		
1	Guaranteed Technical Particulars	Page 1 of 1
2	GA Drawing	3-356-00-045 Sheet No.1 of 2
3	Rating & Connection Diagram	3-356-00-045 Sheet No.2 of 2
b) 132kV Potential Transformer		
1	Guaranteed Technical Particulars	Page 1 of 1
2	GA Drawing	3-355-00-125 Sheet No.1 of 2
3	Rating & Connection Diagram	3-355-00-125 Sheet No.2 of 2
c) 33kV Potential Transformer		
1	Guaranteed Technical Particulars	Page 1 of 1
2	GA Drawing	3-352-00-136 Sheet No.1 of 2
3	Rating & Connection Diagram	3-352-00-136 Sheet No.2 of 2

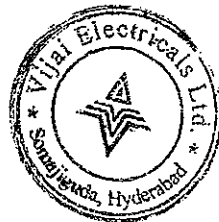
Kindly arrange 1 set of approved GTP & Drawings for our records.

Thanking you and assuring of our best attention at all time, we remain

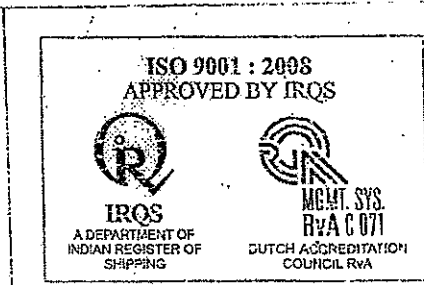
Yours faithfully,
For Vijai Electricals Ltd,

N.V. Eshwaran

N.V. Eshwaran
Dy. Manager SWG-MKTG.



CHIEF ENGINEER (ELECT.)
(Lift Irrigation)
Inward No.
20 JUN 2011
SE/PMM Peshi
SE/LIS
CE/Lift Irrigation



Works:
Rudraram 502 329
Patancheru Manda, Medak Dist. AP
T +91 40 3071 2222 (20 Lines)
F +91 40 3071 2245
hrd@vijai.co.in

Recognised Export House

GUARANTEED TECHNICAL PARTICULARS FOR VOLTAGE TRANSFORMERS

33kV VTs of ratio : 33kV/v3/110V/v3

S.No.	DESCRIPTION	REQUIRED
1	Type	Out Door, Single Phase, Oil filled
2	Manufacturer's Type Designation	M36
3	Mounting of Tank	Pole / Structure Mounting
4	Conforming to Standard	IS:3156
5	System rated Voltage/Highest Voltage(kV)	36
6	Rated Primary Voltage (kV)	33
7	Secondary Winding Details	
	a) No.of Secondary Windings	Winding-I
	b) Rated Secondary Voltage (v)	110/v3
	c) Rated Burden	100
	d) Class of Accuracy	0.2
8	Temperature rise at 1.1 times rated voltage with rated burden	Within limits as per IS-3156
9	Rated voltage Factor and Time	1.2 Cont. & 1.5 for 30sec
10	Temperature rise for item-10 above(deg C)	Within limits as per IS-3156
11	Impulse withstand voltage(kV peak)	170
12	One minute power frequency withstand test voltage on primary(kV rms)	70
13	One minute power frequency withstand test voltage on secondary(kV rms)	3
14	Porcelain bushings	Any Reputed Make
15	Total Creepage distance of the bushing	900mm(minimum)
16	Protected Creepage distance of the bushing	--
17	Quantity of insulating oil	20 lts (approx.)
18	Weight of Oil	18 kg (approx.)
19	Total Weight including oil	90kgs (approx)
20	Mounting Details	
21	Live parts to ground clearance	Refer Enclosed Drawing No : 3-352-00-136 / R01
22	Whether VT is sealed construction with Nitrogen at top	Yes
23	Overall Dimensions in mm	
	Height	
	Length	Refer Enclosed Drawing No : 3-352-00-136 / R01
	Breadth	
24	Grade of Oil	Class-A
25	Voltage transformer shall carry 25% above the rated burden continuously without injury in respect of VTs	As per IS 3156

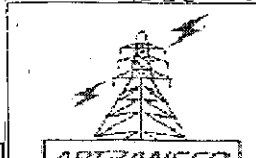
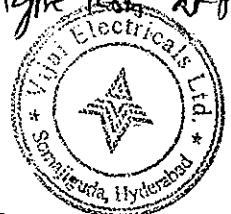
APPROVED FOR TURNKEY PROJECTS

[Signature]
21/10/2011

**CHIEF ENGINEER / CONSTRUCTION - I
APTRANSCO, VIJAYUJI SOJDA, HYD.**

26) The type tests should have been conducted not earlier than 5 years in the standard third party laboratory. The manufacturer shall produce the type tests at the time of acceptance tests.

27) Quality of material held applicable standard - B.S. The manufacturer shall produce the valid BIS certificate at the time of acceptance tests.



Standardised Guaranteed Technical Particulars for 33KV Potential Transformer(Vijai Electricals make)of ratio:33KV/1.732/110V/1.732
STD/GTP-DWG/Approval No. 204-27 Revision No. 0

GUARANTEED TECHNICAL PARTICULARS FOR VOLTAGE TRANSFORMERS

132kV VTs of ratio : 132kV/v3/110V/v3-(110V-110V/v3)

S.No.	DESCRIPTION	REQUIRED
1	Type	Out Door, Single Phase, Oil filled
2	Manufacturer's Type Designation	M145
3	Mounting of Tank	Pole / Structure Mounting
4	Conforming to Standard	IS:3156
5	System rated Voltage/Highest Voltage(kV)	145
6	Rated Primary Voltage (kV)	132
7	Secondary Winding Details	
	a) No.of Secondary Windings	Winding-I Winding-II
	b) Rated Secondary Voltage (v)	110/v3 110-110/v3
	c) Rated Burden	150 50
	d) Class of Accuracy	0.2 3P
8	Temperature rise at 1.1 times rated voltage with rated burden	Within limits as per IS-3156
9	Rated voltage Factor and Time	1.2 Cont. & 1.5 for 30sec
10	Temperature rise for item-10 above(deg C)	Within limits as per IS-3156
11	Impulse withstand voltage(kV peak)	650
12	One minute power frequency withstand test voltage on primary(kV rms)	275
13	One minute power frequency withstand test voltage on secondary(kV rms)	3
14	Porcelain bushings	MODERN / IEC / CJI / BHEL / WSI / ADITYA BIRLA / RAVIKIRAN
15	Total Creepage distance of the bushing	3625mm(minimum)
16	Protected Creepage distance of the bushing	--
17	Quantity of insulating oil	110 lts (approx.)
18	Weight of Oil	100 kg (approx.)
19	Total Weight including oil	600kgs (approx)
20	Mounting Details	Refer Enclosed Drawing No :
21	Live parts to ground clearance	3-355-00-125/ R01
22	Whether VT is sealed construction with Nitrogen at top	Yes
23	Overall Dimensions in mm	
	Height	Refer Enclosed Drawing No : 3-355-00-125/ R01
	Length	
	Breadth	
24	Grade of Oil	Class-A
25	Voltage transformer shall carry 25% above the rated burden continuously without injury in respect of VTs	As per IS 3156

APPROVED FOR TURNKEY PROJECTS

[Signature]

CHIEF ENGINEER / CONSTRUCTION-1
APTRANS-0/VIDYUTH SUDHA/HYD.

31/10/2011 Refer Enclosed Drawing No :

26) The type tests have been conducted not earlier than 5 years in the standard third party laboratory. The manufacturer shall produce the type tests at the time of acceptance tests.

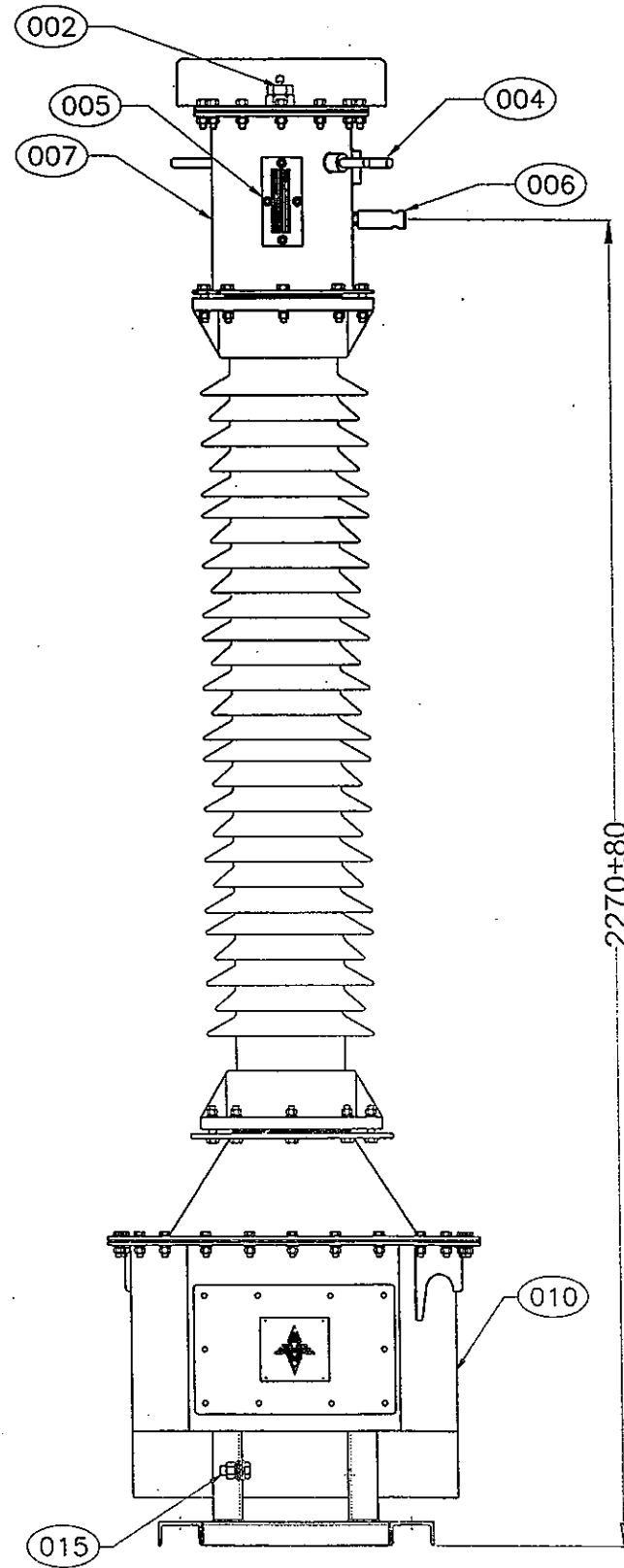
27) Quality of material he ld applicable standard - *IS:3156*
B.I.S. The manufacturer shall produce the valid *29/10/11*
B.I.S. certificate at the time of acceptance tests.



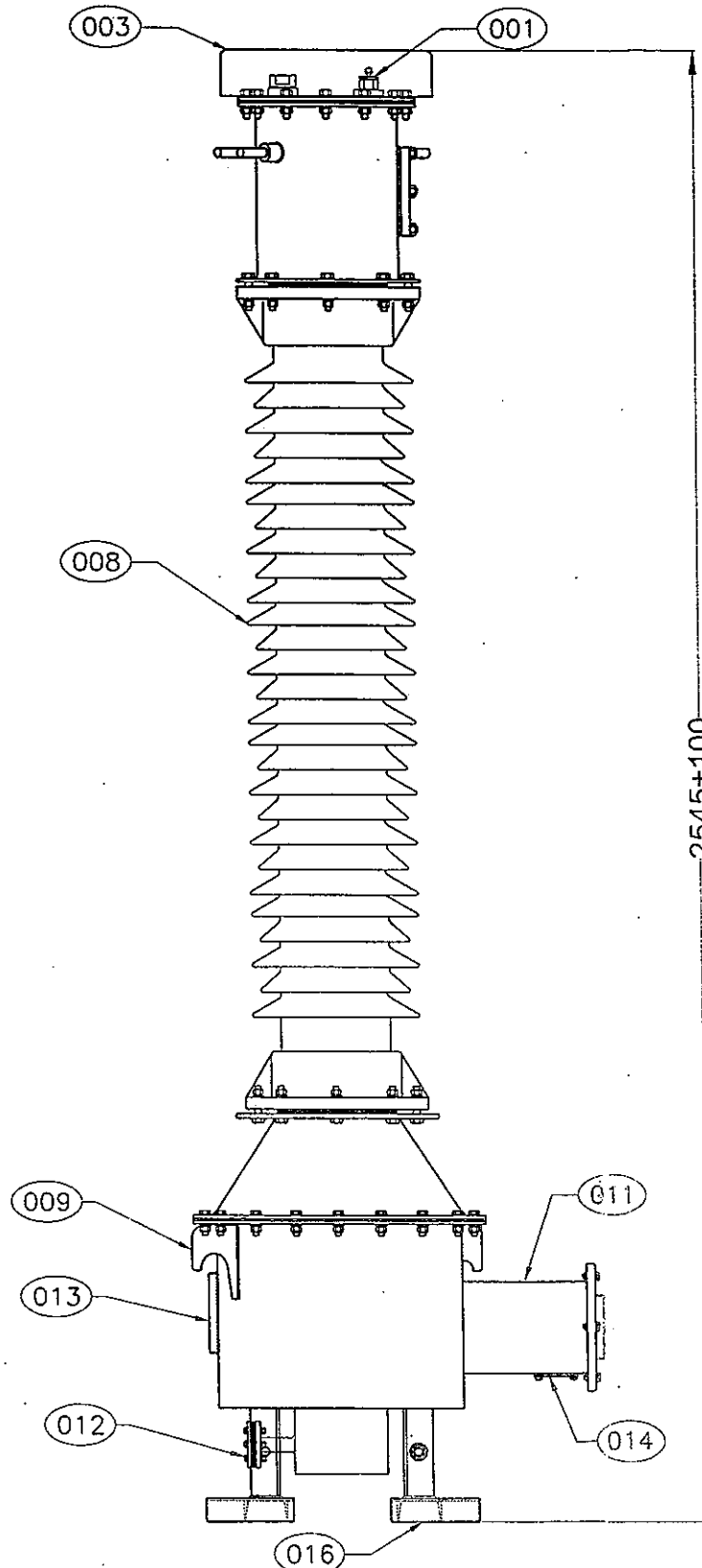
<p align="center">APTRANS CO</p>	Standardised Guaranteed Technical Particulars for 132KV
	Potential Transformer(Vijai Electricals make)of ratio:132KV/1.732/110V/1.732-(110V-110V/1.732)
	STD/GTP-DWG/Approval No. 204-25 Revision No. 0
Prepared & Approved during October - 2011	

ALL DIMENSIONS ARE IN mm & WEIGHTS ARE IN kg UNLESS OTHERWISE SPECIFIED.

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FRONT VIEW



SIDE VIEW

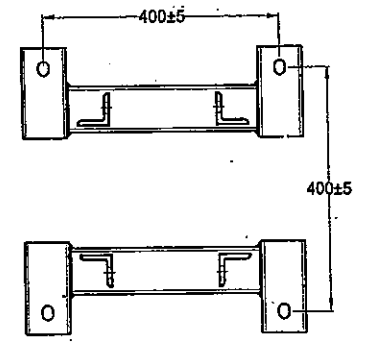
NOTE :

1. All metal parts exposed to atmosphere are Zinc Rich Epoxy Painted.
2. Min. Creepage Distance. :3625mm

APPROVED FOR TURNKEY PROJECTS

[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

APTRANSCO
 Customer ref : APTRANSCO
 Title: G.A Drawing of 145KV VT
 Standardised Drawing ..
 Electricals make).
 STD/GTP-DWG/Approval No. 204-20-
 Prepared & Approved during October - 2011
 Revision No. 0
 Transformer (Vijai)



FOUNDATION DETAILS
400mm X 400 mm



VAR. NO.	FINISH	ITEM No.	DESCRIPTION	DRAWING No.	V.VAR ITEM No.	MATERIAL CODE	WEIGHT/LIMIT QTY.
01	-	016	FOUNDATION CHANNEL ASSY	-	-	MS	-
02	-	015	EARTHING BOLTS	-	-	MS	-
01	-	014	CABLE GLAND PLATE	-	-	MS	-
01	-	013	RATING PLATE	-	-	AL ANODISED	-
01	-	012	OIL DRAIN PLUG	-	-	MS	-
01	-	011	TERMINAL BOX	-	-	MS	-
01	-	010	BOTTOM TANK	-	-	MS	-
02	-	009	LIFTING LUGS	-	-	MS	-
01	-	008	INSULATOR	-	-	PORCELAIN	-
01	-	007	TOP TANK	-	-	MS	-
01	-	006	PRIMARY TERMINAL	-	-	ALUMINIUM	-
01	-	005	OIL LEVEL GAUGE	-	-	PRISMATIC	-
02	-	004	SLING GUIDE	-	-	MS	-
01	-	003	RAIN SHIELD	-	-	ALUMINIUM	-
01	-	002	N2 FILLING PLUG	-	-	MS	-
01	-	001	FR. RELEASE DEVICE	-	-	BRASS	-

REV	DATE	ALTERED	CHECKED

DISTRIBUTION OF PRINTS
 PPC QA

TYPE OF PRODUCT
 OR
 NAME OF CUSTOMER/PROJECT
APTRANSCO

Vijai Electricals Ltd.
 Switchgear Products Division
 Hyderabad.

DRN	NAME	SIGN	DATE

GRADE OF TOL DIM
 C/M/F/PS/NO/EP/1.00/2

SCALE
 NTS

TITLE:
 GA DRAWING OF 145KV VT

REF TO ASSY DRG.	ITEM No.

DRAWING No. 3-355-00-125

SHEET No. 01 No OF SHEETS 02

ALL DIMENSIONS ARE IN mm & WEIGHTS ARE IN kg
UNLESS OTHERWISE SPECIFIED.

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REPRODUCTION OF THESE IN ANY FORM IS TO BE DONE WITH THE SPECIFIC PERMISSION OF THE COMPANY.

C-REF

1 2 3 4 5 6 7 8

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D

E

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A

B

C

D

E

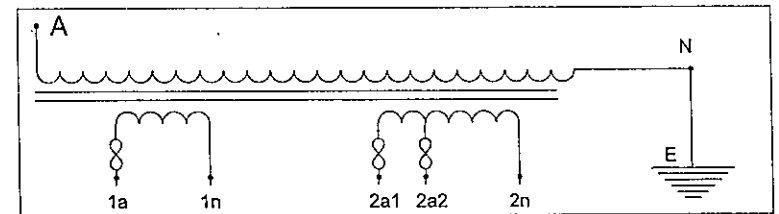
F

4 Holes $\phi 2$

VOLTAGE TRANSFORMER

STANDARD	IS:3156:1992	RATIO	$\frac{132kV}{\sqrt{3}} / \frac{110V}{\sqrt{3}} - \frac{110V-110V}{\sqrt{3}}$
TYPE	M145	BURDEN	150 / 50 VA
N.S.V	132 kV	CLASS	0.2 / 3P
H.S.V	145 kV	INSULATION LEVEL	275/650 kV / KVP
No. OF PHASES	SINGLE	FREQUENCY	50Hz
VOLTAGE FACTOR	1.2 Continuous & 1.5 for 30 Sec.		
YEAR OF MFG.		SL. NO.	

CUSTOMER :
P.O.NO:



Vijai Electricals Ltd., Hyderabad, INDIA.

95
105

120
130

APPROVED FOR TURNKEY PROJECTS

[Signature] 21/10/2011
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.



NOTE :-

1. MATERIAL: ALUMINIUM ANODISED.
2. DETAILS: BY ETCHING PROCESS, WHITE LETTERS - BLACK BACKGROUND.

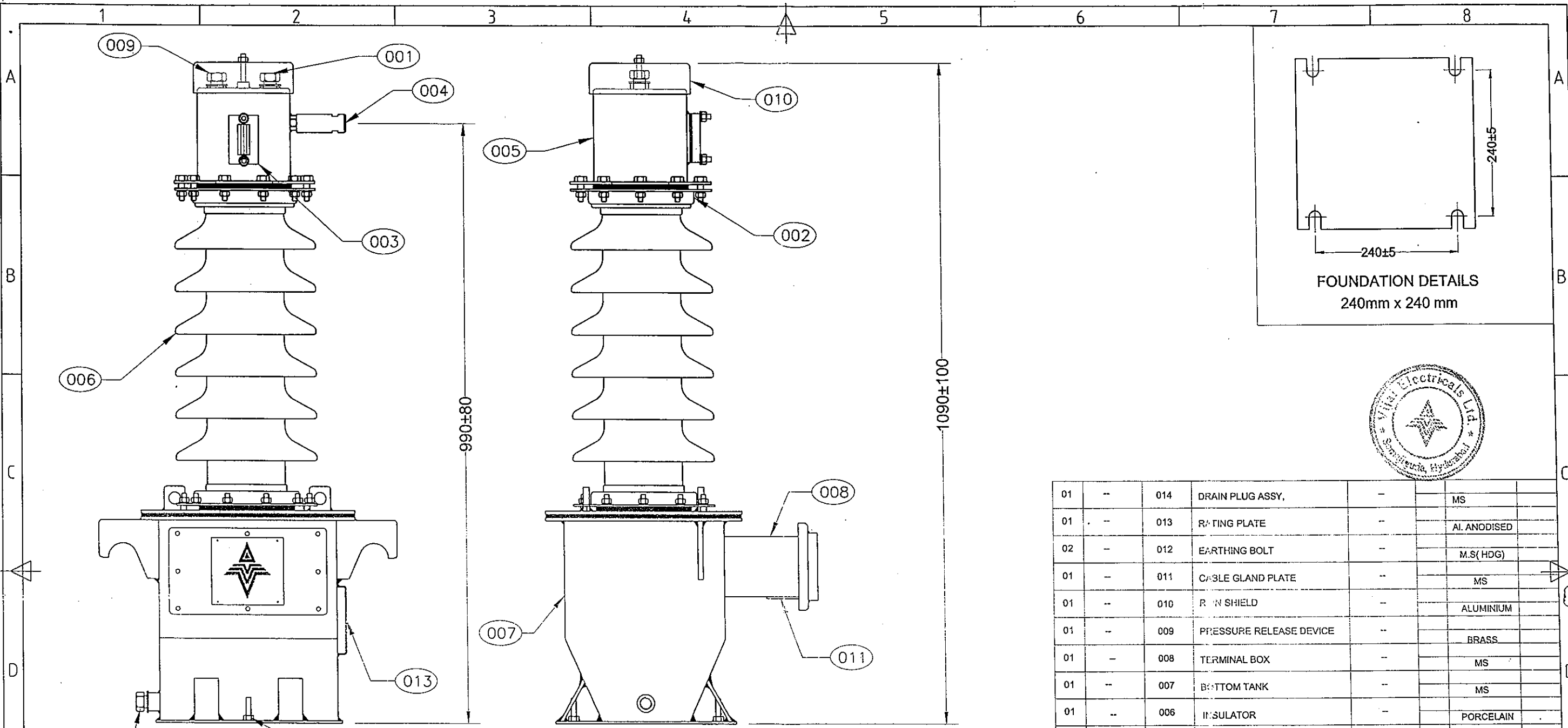
	Standardised Drawing for 132 KV Potential Transformer(Vijai Electricals make).
	STD/GTP-DWG/Approval No. <u>204-26-sheet2</u> Revision No. <u>0</u>
	Prepared & Approved during October - 2011
Customer ref : APTRANSCO	
Title: Rating and connection diagram plate for 145KV VT	

VAR. QTY.	FINISH	ITEM No.	DESCRIPTION	DRAWING No.	V.VAR ITEM No.	MATERIAL CODE MATERIAL SPECN	WEIGHT/UNIT QTY.												
DISTRIBUTION OF PRINTS																			
PPC		QA		TYPE OF PRODUCT															
OR				APTRANSCO															
NAME OF CUSTOMER/PROJECT																			
Vijai Electricals Ltd. Switchgear Products Division Hyderabad.				<table border="1"> <tr> <th>NAME</th> <th>SIGN</th> <th>DATE</th> </tr> <tr> <td>DRN LAKSHMI</td> <td><i>[Signature]</i></td> <td>29/06/14</td> </tr> <tr> <td>CHD HAVEEN</td> <td><i>[Signature]</i></td> <td>29/06/14</td> </tr> <tr> <td>APD HGY</td> <td></td> <td></td> </tr> </table>				NAME	SIGN	DATE	DRN LAKSHMI	<i>[Signature]</i>	29/06/14	CHD HAVEEN	<i>[Signature]</i>	29/06/14	APD HGY		
NAME	SIGN	DATE																	
DRN LAKSHMI	<i>[Signature]</i>	29/06/14																	
CHD HAVEEN	<i>[Signature]</i>	29/06/14																	
APD HGY																			
GRADE OF TOL.DIM C/M/F PS NO: CP 1 0010				SCALE: NTS		REF TO ASSY ORG.													
TITLE: RATING & CONNECTION DIAGRAM PLATE FOR 145KV VTs.				DRAWING No. 3-355-00-125		ITEM No. REV 01													
SHEET No. 02		No. OF SHEETS. 02																	

ALL DIMENSIONS ARE IN mm & WEIGHTS ARE IN kg UNLESS OTHERWISE SPECIFIED.

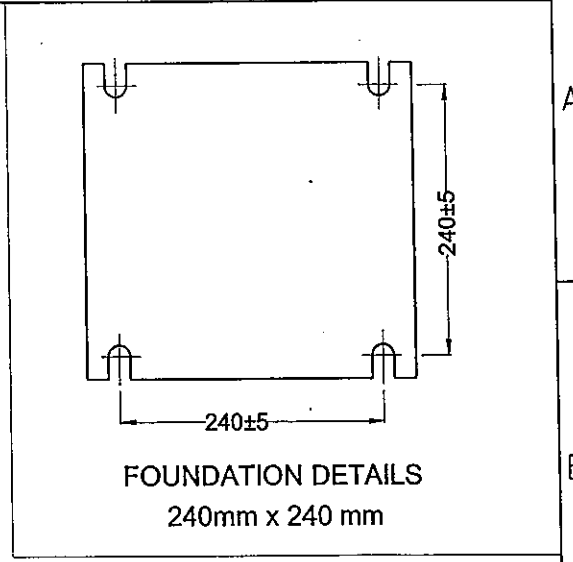
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C.REF:



FRONT VIEW

SIDE VIEW



VAR. No.	FINISH	ITEM No.	DESCRIPTION	DRAWING No.	V.VAR	MATERIAL CODE	WEIGHT/UNIT
QTY.					ITEM No.	MATERIAL SPECN	QTY.
01		014	DRAIN PLUG ASSY,			MS	
01		013	RATING PLATE			AL ANODISED	
02		012	EARTHING BOLT			M.S(HDG)	
01		011	CABLE GLAND PLATE			MS	
01		010	RAIN SHIELD			ALUMINIUM	
01		009	PRESSURE RELEASE DEVICE			BRASS	
01		008	TERMINAL BOX			MS	
01		007	BOTTOM TANK			MS	
01		006	INSULATOR			PORCELAIN	
01		005	TOP TANK			MS	
01		004	PRIMARY TERMINAL			ALUMINIUM	
01		003	OIL LEVEL INDICATOR			PRISMATIC	
01		002	BUSHING FIXING CLAMP			ALUMINIUM	
01		001	OIL FILLING PLUG			MS	

BILL OF MATERIAL

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[Signature] 21/10/2011
 CHIEF ENGINEER / CONSTRUCTION-1
 APTRANSCO/VIDYUTH SOUDHA/HYD

NOTE :
 1.All metal parts exposed to atmosphere are Zinc Rich Epoxy Painted.
 2.Min.Creepage Distance. :900mm

DISTRIBUTION OF PRINTS		
REV	DATE	ALTERED/ CHECKED:

TYPE OF PRODUCT OR NAME OF CUSTOMER/PROJECT		APTRANSCO	
Vijai Electricals Ltd. Switchgear Products Division Hyderabad.		NAME	SIGN
DRN	LAKSHMI	DATE	21/10/11
CHD	NAVEEN	DATE	29/10/11
APD	HGY		
GRADE OF TOLDIM C/M/F PS NO. CP 10010	SCALE: NTS	REF TO ASSY DRG.	ITEM No.
TITLE: GA DRAWING OF 36KV VT.		DRAWING No	3-352-00-136
		SHEET No.	01
		No. OF SHEETS	02

Standardised Drawing for 33 KV Potential Transformer(Vijai Electricals make).
 STD/GTP-DWG/Approval No. 204-28-sheet1 Revision No. 0
 Prepared & Approved during **October - 2011**

Customer ref : APTRANSCO
 Title:G.A Drawing of 36KV VT

ALL DIMENSIONS ARE IN mm & WEIGHTS ARE IN kg UNLESS OTHERWISE SPECIFIED.

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C.REF.

1 2 3 4 5 6 7 8

A A

B B

C C

D D

E E

F F

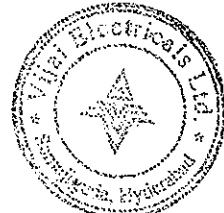
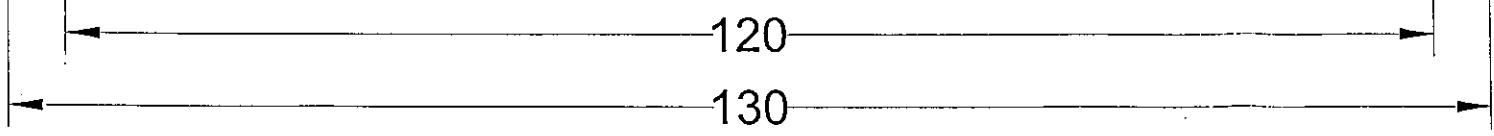
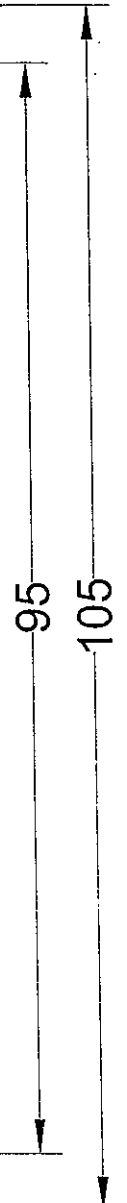
VOLTAGE TRANSFORMER

STANDARD	IS:3156:1992	RATIO	$\frac{33kV}{\sqrt{3}} / \frac{110V}{\sqrt{3}}$
TYPE	M36	BURDEN	100 VA
N.S.V	33 kV	CLASS	0.2
H.S.V	36 kV	INSULATION LEVEL	70 / 170 kV / kVP
No. OF PHASES	SINGLE	FREQUENCY	50Hz
VOLTAGE FACTOR	1.2 Continuous & 1.5 for 30sec		
YEAR OF MFG.		SL. NO.	

CUSTOMER:
P.O.NO:

Vijai Electricals Ltd., Hyderabad, INDIA.

4 Holes Ø2



APPROVED FOR TURNKEY PROJECTS

[Signature]
CHIEF ENGINEER / CONSTRUCTION-1
APTRANSCO/VIDYUTH SOUDHA/HYD.

NOTE :-

1. MATERIAL: ALUMINIUM ANODISED.
2. DETAILS: BY ETCHING PROCESS, WHITE LETTERS - BLACK BACKGROUND.

Standardised Drawing for 33 KV Potential Transformer(Vijai Electricals make).
STD/GTP-DWG/Approval No. 204-28-sheet2 Revision No. 0
Prepared & Approved during **October - 2011**

Customer ref : APTRANSCO
Title:G.A Drawing of 36KV VT

DISTRIBUTION OF PRINTS	
PPC	QA
REV	DATE:
	ALTERED:
	CHECKED:

VAR. 00	FINISH	ITEM No.	DESCRIPTION	DRAWING No.	V.VAR	MATERIAL CODE	WEIGHT/UNIT
QTY.				ITEM No.		MATERIAL SPECN	QTY.
TYPE OF PRODUCT				APTRANSCO			
OR				APTRANSCO			
NAME OF CUSTOMER/PROJECT				APTRANSCO			
Vijai Electricals Ltd. Switchgear Products Division Hyderabad.				DRN	NAME	SIGN	DATE
				CHD	LAKSHMI	<i>[Signature]</i>	29/06/11
				APD	NAVEEN	<i>[Signature]</i>	29/06/11
GRADE OF TOL DIM				REF TO ASSY DRG.			
C/M/F PS NO: CP 1 0010				ITEM No. --			
SCALE: NTS				DRAWING No. 3-352-00-136			
TITLE: RATING & CONNECTION DIAGRAM PLATE FOR 36KV VTs.				REV 01			
SHEET No 02				No OF SHEETS 02			