

NOTE:- THIS COMPLETE SET OF DRAWINGS ARE REPRESENTATIVE OF THE LATEST TYPE TEST REPORT AND PROPRIETARY DESIGN, RESEARCH & DEVELOPMENT OF SWITCHGEAR MANUFACTURING COMPANY PVT. LTD. GANDRAJUPALLE. THE DESIGNS SHALL NOT BE REPRODUCED WITHOUT WRITTEN CONSENT OF SWITCHGEAR MANUFACTURING COMPANY PVT. LTD. GANDRAJUPALLE.

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2. For EPC contractors only.

1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the substation during foundation works to ensure safe live to ground clearance per IE rules.
2. Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor shall be instructed to supply the same line with CT/PT/CVT/Isolator/IVT/LA/Breaker's requirement and compatibility.

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REV	DATE	CHANGES MADE	SIG

## LIST OF DRAWINGS/DOCUMENTS FOR 33KV DBR DISCONNECTOR

S NO.	TITLE	DRAWING NO.	REV	SHEET
1	GA OF 33kV 2000A 'DBR' DISCONNECTOR WITHOUT EARTH SWITCH	STD-3300021	0	1 OF 1
2	DETAILS OF MAIN CONTACT (33KV 2000A DBR DISCONNECTOR)	STD-3300022	0	1 OF 1
3	GA OF MANUAL OPERATING MECHANISM FOR DISCONNECTOR	STD-3300023	0	1 OF 1
4	NAME PLATE DETAILS (FOR 33KV DBR DISCONNECTOR)	STD-3300024	0	1 OF 1

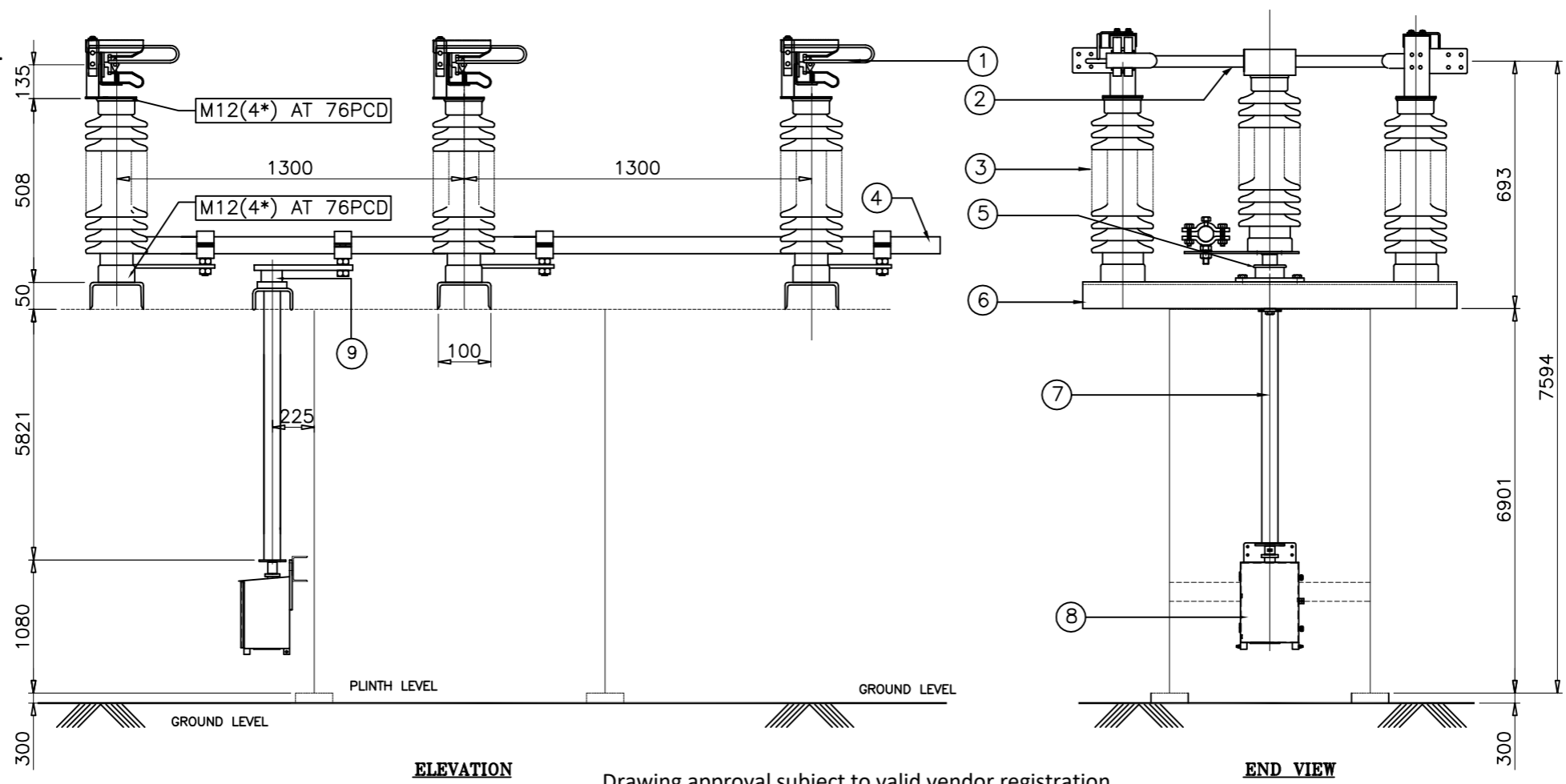
FOR BUS SECTIONALIZER

**CHIEF ENGINEER/PROJECTS**  
**APTRANSCO/VS/VIJAYAWADA**

DRN	YVG	04.06.22		<b>SWITCHGEAR MANUFACTURING COMPANY</b>		
CHKD	VK	04.06.22		GANDRAJUPALLE, CHITTOOR DIST, A.P, INDIA.		
APPD	OJA	04.06.22	TITLE			
DEPT	SIGN	DATE	MASTER LIST			
			<b>FOR 33KV DBR DISCONNECTOR</b>			
	SC: NTS	Paper size A3	DRG.NO. S T D - 3 3 0 0 0 2 0		SHEET 1 OF 1	REV. 0

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**ELEVATION**

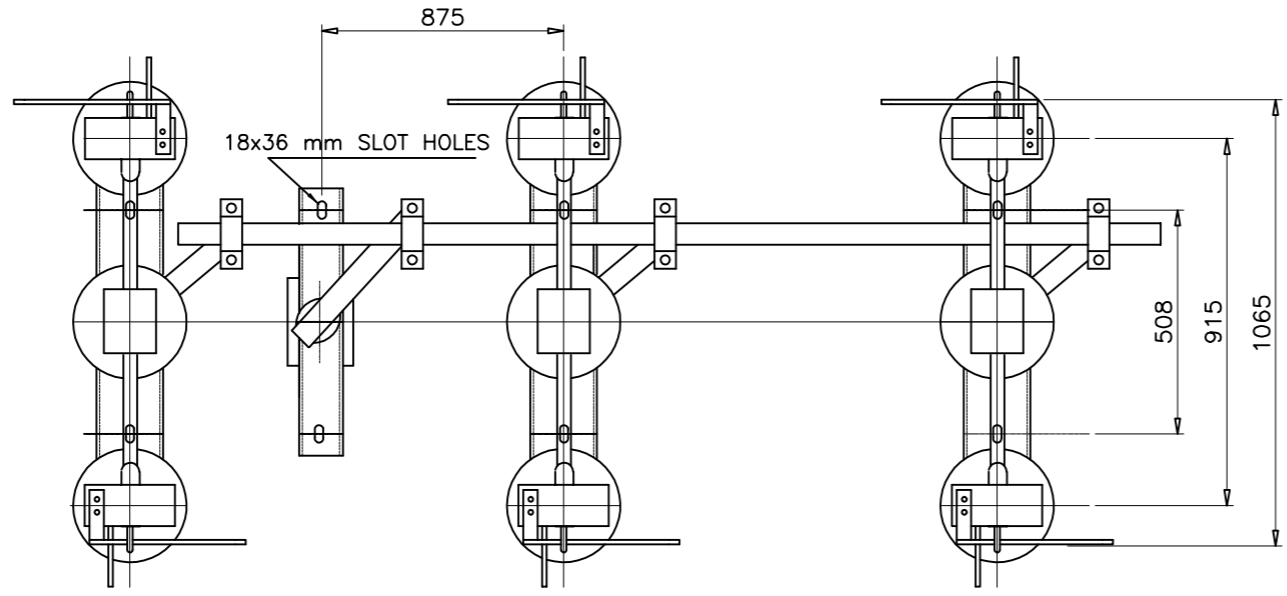
**END VIEW**

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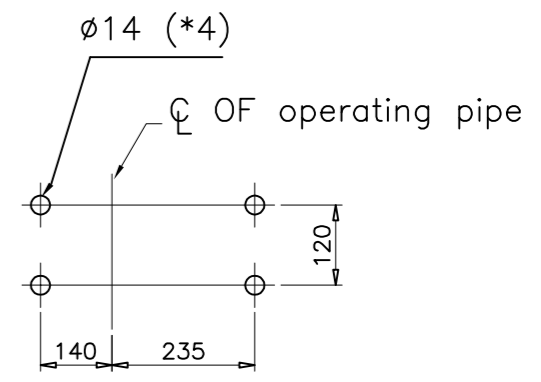
REV	DATE	CHANGES MADE	SIG

REF. STANDARD	IEC:62271-102 / IS:9921	
WEIGHT (APPROX.)	KGS	410
CONTROL VOLTAGE DC	V	220
CROSS	kg	-
TL STRAIGHT	kg	-
ACROSS	kVp	80
PF TO EARTH	kVp	70
ACROSS	kVp	195
LI TO EARTH	kVp	170
STC PEAK	kAp	62.5
FOR 1 Sec	kA	25
CURRENT	A	2000
VOLTAGE	kV	33
DESCRIPTION	UNIT	VALUE
<b>TECHNICAL DATA</b>		



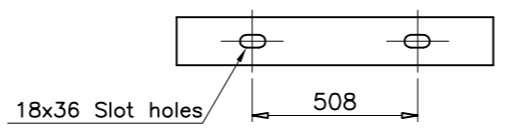
**PLAN**



**FIXING DETAIL OF M/S BOM BOX**

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 APTRANSCO/VISVIJAYAWADA

PART LIST	QTY.
1 FIXED CONTACT ASSEMBLY	6
2 MOVING CONTACT ASSEMBLY	3
3 INSULATOR STACK	9
4 TANDEM PIPE (25 NB GI PIPE)	1
5 ROTATING STOOL POST	3
6 BASE CHANNEL (100X50X5MM THK)	3
7 OPERATING PIPE (40 NB GI PIPE)	1
8 OPERATING MECHANISM BOX (MANUAL)	1
9 TOP OPERATING MECHANISM	1



**BASE CHANNEL MOUNTING DETAILS**

**FOR BUS SECTIONALIZER**

- NOTES**
- All Dimensions are in mm
  - All Ferrous Parts are in Hot Dip Galvanized with 85 Microns.
  - All non Ferrous Contact Points are Silver Plated with 15 Microns.
  - The main Rotating Post has Two Nos of Bearings
  - All GI Pipes are 'B' Class as per IS:1239
  - Manufacturing Tolerance
    - i) Up to 50mm-- ±3% ii) 51 to 100mm-- ±2%
    - iii) 101 to 300mm-- ±1% iv) Above 300mm-- ±0.5%
  - Weight of Metallics - 220kgs (Approx.)

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CHKD	VK	04.06.22	
APPD	OJA	04.06.22	TITLE
DEPT	SIGN	DATE	GENERAL ARRANGEMENT OF
SC: NTS	Paper size	A3	<b>33KV 1600A DBR DISCONNECTOR WITHOUT EARTH SWITCH</b>
DRG.NO. S T D - 3 3 0 0 0 2 1			SHEET 1 OF 1
REV. 0			

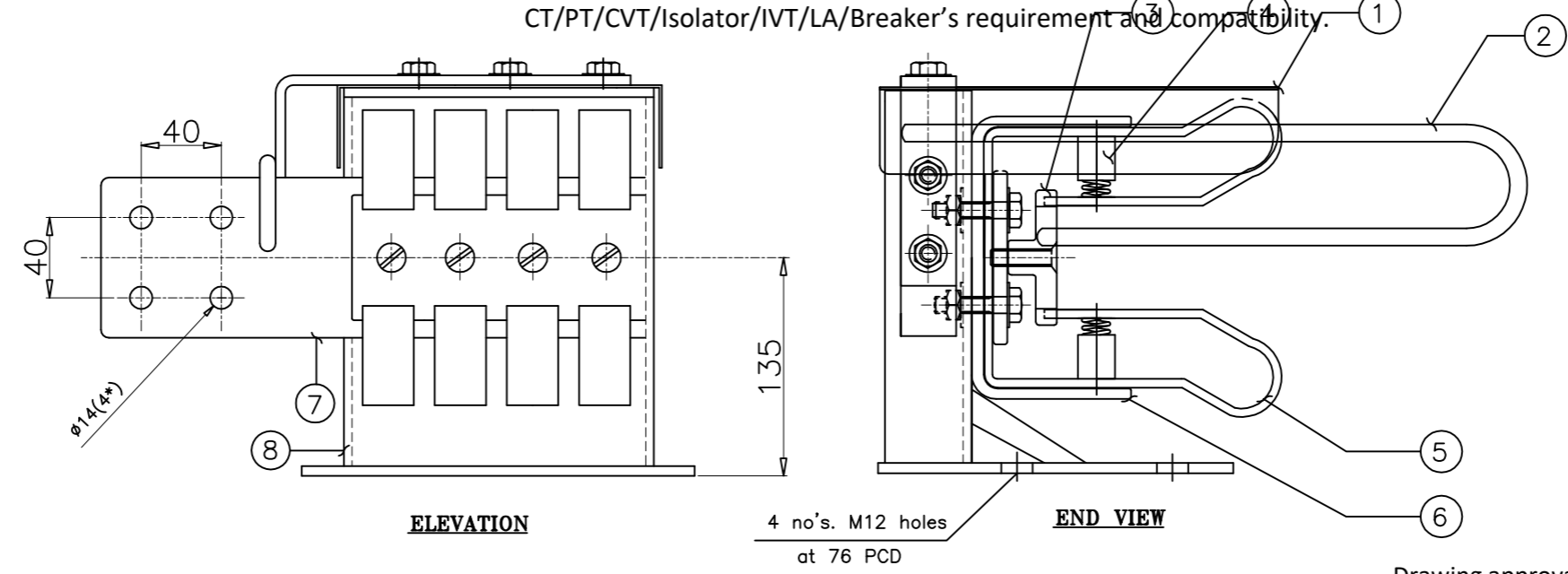
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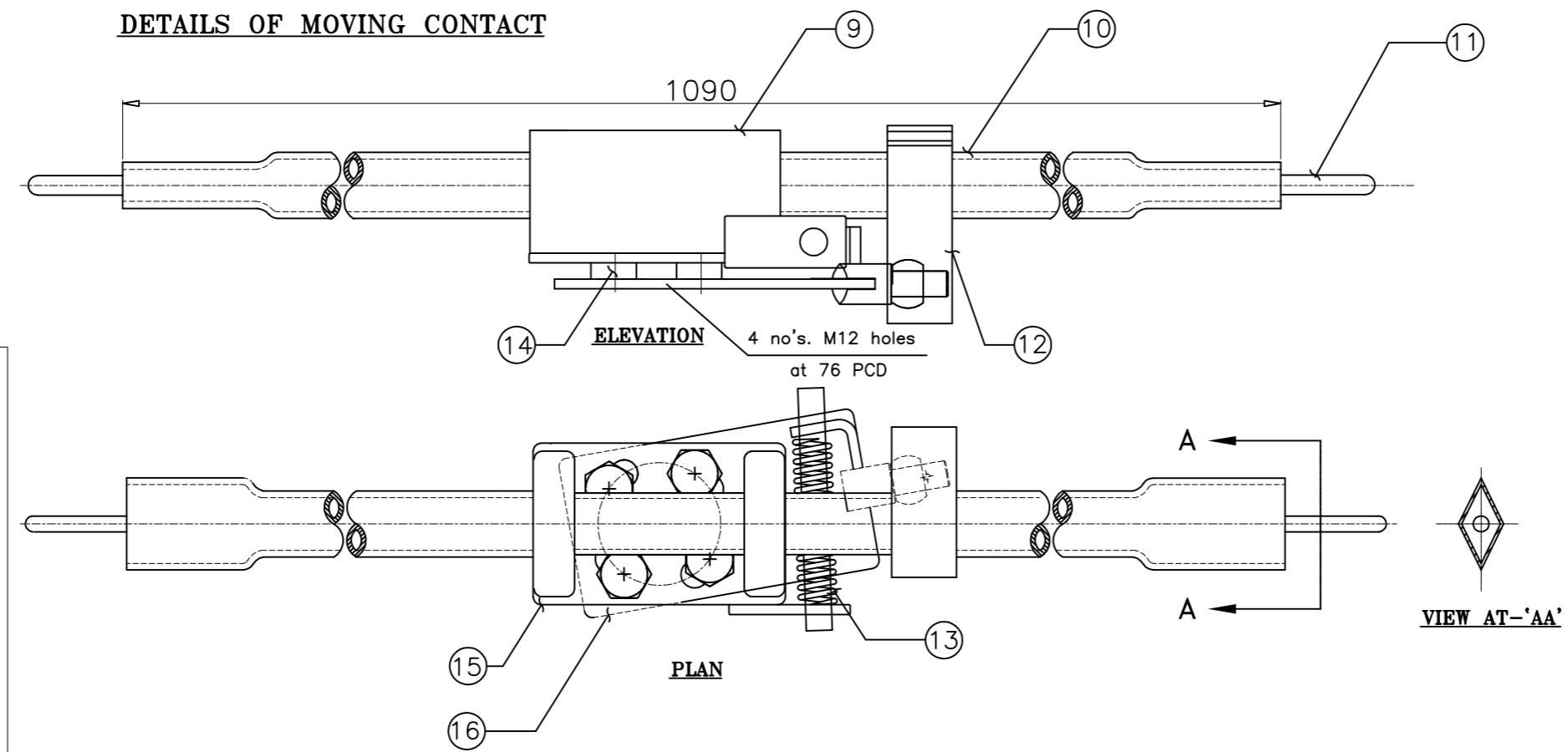
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**DETAILS OF FIXED CONTACT**



**DETAILS OF MOVING CONTACT**



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**PART LIST**

01	FC RAIN HOOD (AL.)
02	FC ARCING HORN (MS HDG)
03	SPACER (Al.)
04	FC SPRING (SS)
05	FC JAW (32x5 copper flat, 4 Nos)
06	JAW BACK STRIP (MS HDG)
07	JUMPER PAD (100x20 Al. Flat)
08	SUPPORTING CHANNEL (MS HDG)
09	MC RAIN HOOD (AL.)
10	MC ARM (50 OD 34 ID copper tube)
11	MC ARCING HORN (MS HDG)
12	MC CLAMP (MS HDG)
13	MC SPRING (SS)
14	SPACER BUSH (Brass)
15	MC TOP PLATE (MS HDG)
16	MC BOTTOM PLATE (MS HDG)

**NOTES**

- All dimensions are in 'mm'
- All ferrous parts are hot-dip galvanized
- All non-ferrous contact points are silver plated upto 15 microns
- Tolerances  
(i) Upto 50mm --- ±3% (ii) 51 to 100 mm --- ±2%  
(iii) 101 to 300mm --- ±1% (iv) Above 300mm --- ±0.5%
- Bolted area are Tin plated up to 10 microns to avoid bi-metallic reaction between Cu & Al

Sl.No.	Cross section	Area	Current Rating	Current Density (amps/sq.mm)
1	(FC JAWS) 32X5X8	1280mm <sup>2</sup>	2000A	1.56
2	(MC ARM) 50 OD X 34 ID	1056.38MM <sup>2</sup>	2000A	1.89
2	JUMPER PAD (100X20)	2000mm <sup>2</sup>	2000A	1

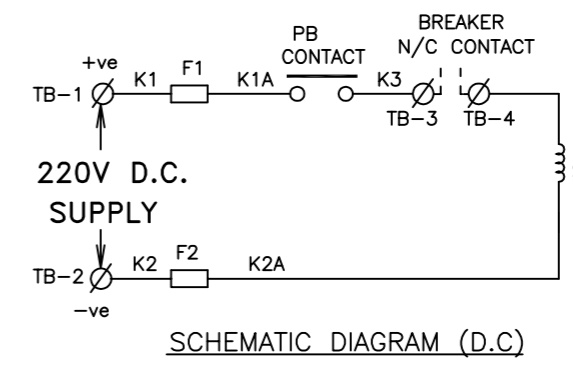
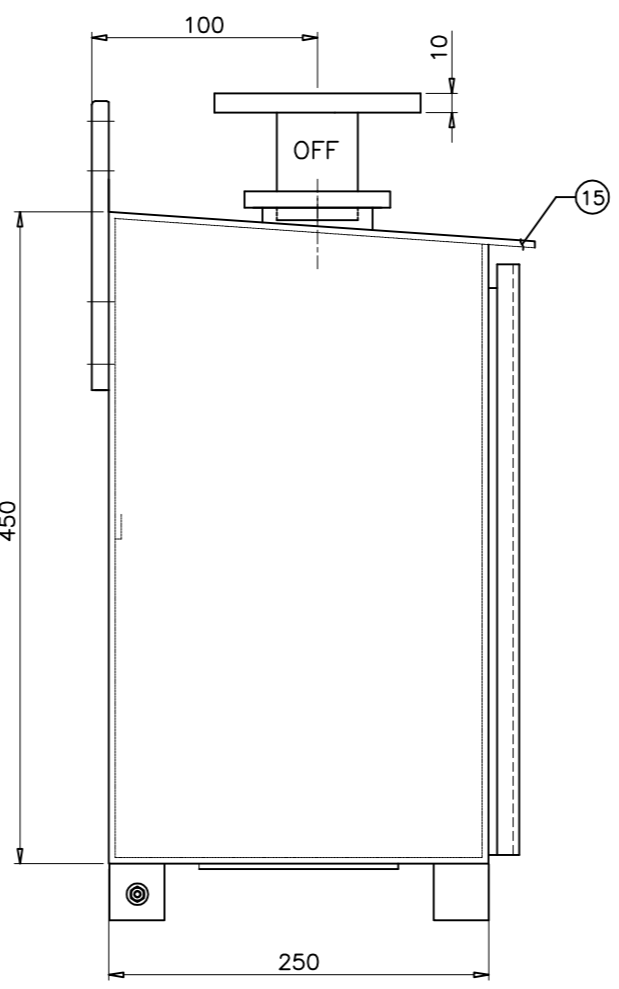
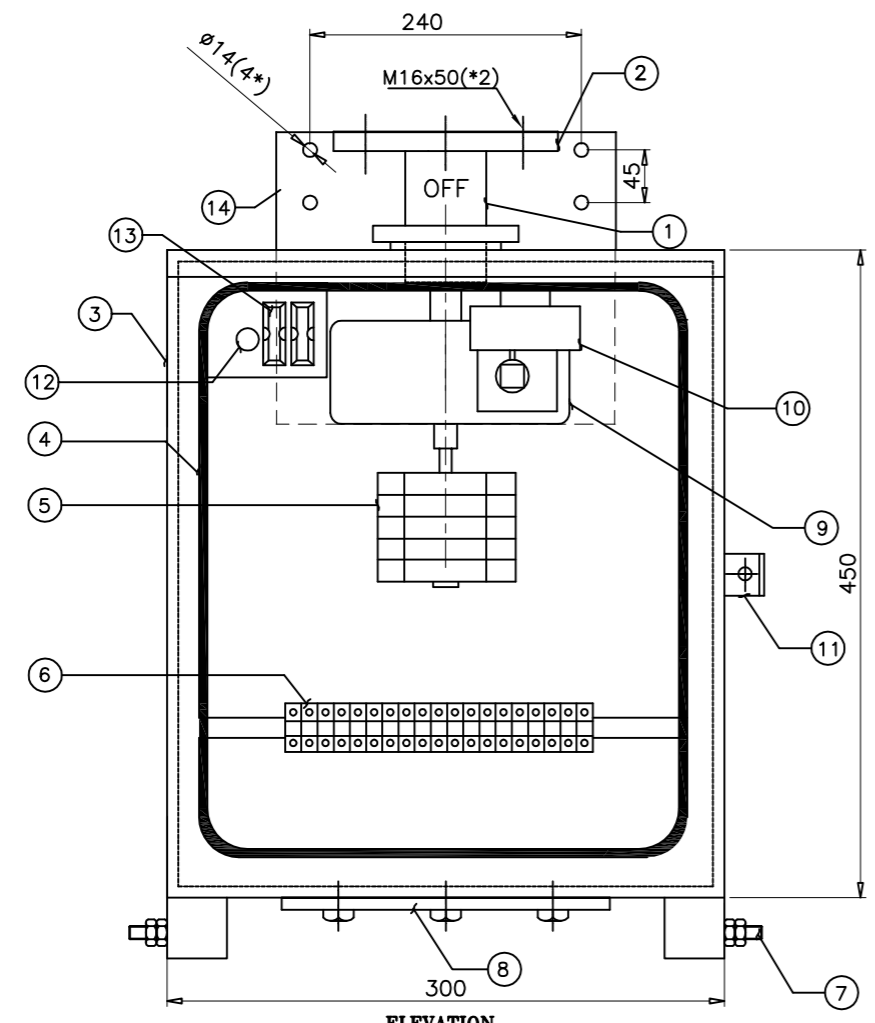
DRN	YVG	04.06.22	<b>SWITCHGEAR MANUFACTURING COMPANY</b> GANDRAJUPALLE, CHITTOOR DIST, A.P, INDIA.
CHKD	VK	04.06.22	
APPD	OJA	04.06.22	
DEPT	SIGN	DATE	<b>TITLE</b>
SC: NTS	Paper size	A3	<b>MAIN CONTACT DETAILS</b> (FOR 33KV 2000A DBR DISCONNECTOR)
DRG.NO. S T D - 3 3 0 0 0 2 2			SHEET 1 OF 1
REV. 0			

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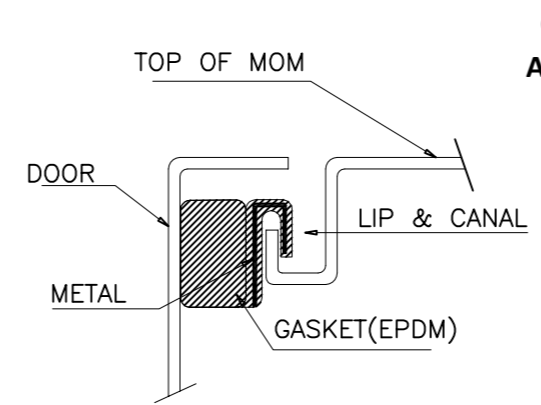
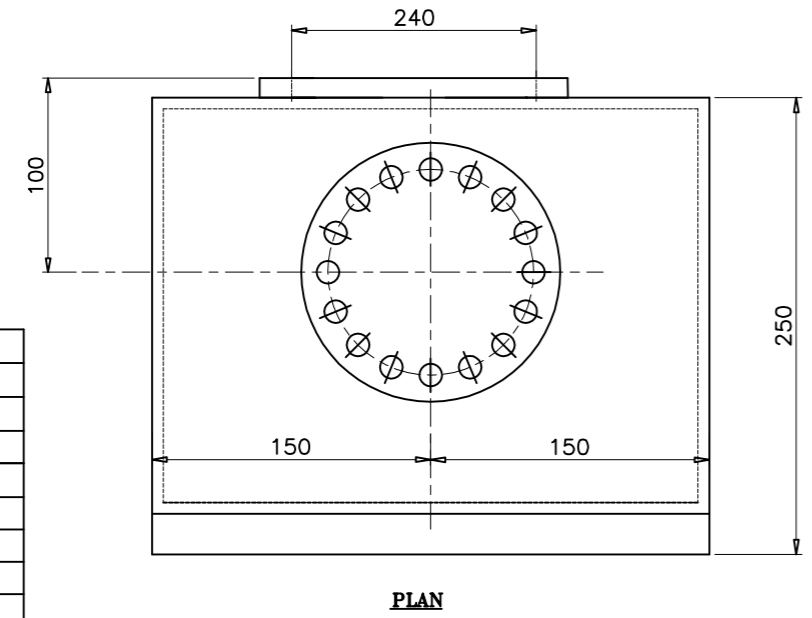
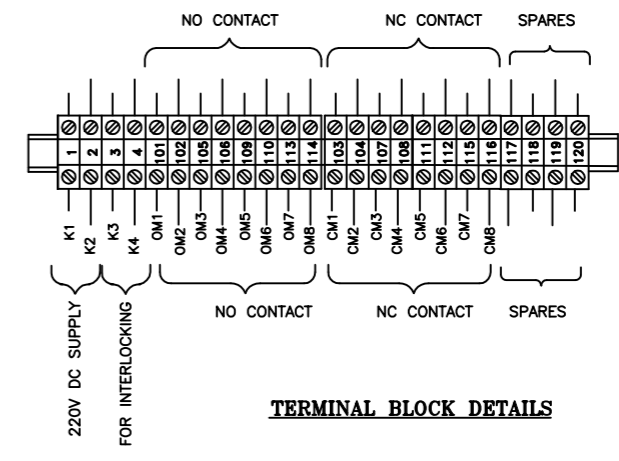
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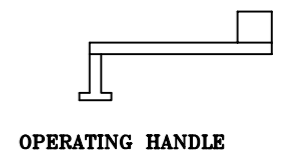


**LEGEND**  
 F1,F2 : Fuses for control supply  
 PB : Push button  
 S.C. : Solenoid coil



**SECTIONAL VIEW OF DOOR GASKET**

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**OPERATING HANDLE**

**NOTES**  
 1. All dimensions are in 'mm'  
 2. Cubicle will be painted to the shade no. 631 IS:5  
 3. Always keep the drive in upright position  
 4. Degree of protection :IP55  
 5. Net weight of the box-35 Kgs(approx)  
 6. Tolerances as per GA drawing  
 7. Internal wiring will be done with 2.5 sq.mm cu. stranded conductor & 20% spare terminals will be provided

15	RAIN CANOPY
14	FIXING BRACKET (MS HDG)
13	FUSES FOR CONTROL SUPPLY(5A)
12	PUSH BUTTON
11	PROVISION FOR PADLOCK
10	Solenoid Coil
9	REDUCTION GEAR
8	CABLE GLAND FIXING PLATE (W/O GLANDS)
7	EARTH TERMINAL(2 nos. M10 size)
6	TERMINAL BLOCK (CTS4UN)
5	AUXILIARY SWITCH
4	GASKET (EPDM RUBBER)
3	CUBICLE (3MM AL SHEET)
2	FLANGE (14 HOLES-10MM THK-MS HDG)
1	OPERATING SHAFT
PT.	DESCRIPTION
<b>PART LIST</b>	

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DRN	YVG	04.06.22	<b>SWITCHGEAR MANUFACTURING COMPANY</b> GANDRAJUPALLE, CHITTOOR DIST, A.P, INDIA.
CHKD	VK	04.06.22	
APPD	OJA	04.06.22	
DEPT	SIGN	DATE	TITLE
			GENERAL ARRANGEMENT OF
			<b>MANUAL OPERATING MECHANISM FOR DISCONNECTOR</b>
SC: NTS	Paper size	A3	DRG.NO. S T D - 1 4 5 0 0 0 9
			SHEET 1 OF 1
			REV. 0

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## SWITCHGEAR MANUFACTURING COMPANY

GANDRAJUPALLE, CHITTOR DIST, A.P., INDIA.

CUSTOMER TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

SL.No.	(*)	TYPE	DBR
VOLTAGE (kV)	33	CURRENT (Amps)	2000
STC (kA-sec-kAp)	25-1-62.5	IMPULSE (kVp)	170
DC VOLTAGE (V)	220	PF VOLTAGE (kV)	70
DRIVE	MANUAL	FREQUENCY (Hz)	50
YEAR	(*)		

FOR DISCONNECTOR

(\*\*) TO BE MARKED AT THE TIME OF MANUFACTURING

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**APTRANSCO/VS/VIJAYAWADA**

Drawing approval subject to valid vendor registration

**NOTE:**

1. ALL DIMENSIONS ARE IN MM
2. MATERIAL : ALUMINIUM ALLOY
3. TOLERANCE AS PER GA DRAWING
4. LETTER ITCHED ON BLACK BACKGROUND

DRN	YVG	04.06.22	<b>SWITCHGEAR MANUFACTURING COMPANY</b> GANDRAJUPALLE, CHITTOOR DIST, A.P, INDIA.
CHKD	VK	04.06.22	
APPD	OJA	04.06.22	<b>TITLE</b> <b>NAME PLATE DETAILS</b> (FOR 33kV DBR DISCONNECTOR)
DEPT	SIGN	DATE	
	SC: NTS	Paper size A3	DRG.NO. S T D - 3 3 0 0 0 2 4
			SHEET 1 of 1
			REV. 0

acceptance tests.

2. For EPC contractors only.

**SWITCHGEAR MANUFACTURING COMPANY PRIVATE LIMITED**

CLIENT	:	TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED
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**GUARANTEED TECHNICAL PARTICULARS FOR 33kV DBR DISCONNECTOR**

Sl. No.	Description	Particulars
1.	Type / Installation	Horizontal Double Break, Outdoor
2.	Manufacturer's name and place of Manufacture	<b>Switchgear Manufacturing Company Pvt. Ltd.</b> Gandrajupalle, Chittoor Dist, A.P, India.
3.	Standards according to which the isolators are manufactured	IS: 9921 (Part I to V) / IEC: 62271-102
4.	Maximum design voltage at which the isolator can operate (kV)	36
5.	Frequency (Hz)	50
6.	Rated Voltage (kV)	33
7.	Maximum current that can be safely Interrupted By the isolator	Inductive – 0.7 A at – 0.15 p. f. (Assigned value) Capacitive – 0.7 A at – 0.15 p. f. (Assigned value)
8.	Continuous current rating Nominal (Amps) under site conditions (Amps)	2000 Amps As required
9.	Rated short time current	
	i) for 1 second (kA rms)	25
	ii) Rated peak short time current (kAp)	62.5
10.	Current density at the minimum cross Section of	
	a) Moving blade (Amps/sq. mm) : Copper tube	2.0
	b) Terminal pad (Amps/sq. mm) : Aluminum	1.0
	c) Contacts (Amps/sq. mm) : Copper Flat	1.6
	d) Terminal connector (Amps/sq. mm): Aluminum Alloy	1.0
11.	Maximum Temp. rise of current carrying parts when carrying rated current continuously (deg.C)	Within the Limits as per Table 4 of IS : 9921 (Part-II) of 1982 / Table 3 of IEC 62271-1
12.	Derating factor for specified site conditions	Unity
13.	Insulation levels	
	i) Impulse withstand voltage (kV peak)	
	a) Phase to Earth	170
	b) Isolating Distance	195
	ii) Switching surge withstand voltage (kV peak)	
	a) Phase to Earth	Not Applicable
	b) Isolating Distance	Not Applicable
	iii) Power Frequency withstand voltage (kV rms)	
	a) Phase to Earth	70
	b) Isolating Distance	80
14.	Minimum clearance in air	
	i) Between poles (mm)	Phase spacing being 1300 mm
	ii) Between live parts and earth (mm)	Equal to the height of Insulators selected
	iii) Between live parts when switch is open	
	a) One the same pole (mm)	For center-to-center distance of 915 mm
	b) Between adjacent poles (mm)	1300 mm
15.	Rated mechanical terminal load	
	i) Load along the terminal connector side (Kg.)	Values not specified in Table 7 of IS: 9921 (Part II) of 1982
	ii) Load across the terminal connector side (Kg.)	
16.	Torque required to operate the switch in Kg-m	36
17.	Contact zone	Not Applicable
18.	Design and construction	
	i) No. of insulators per pole	3
	ii) No. of breaks per pole	2
	iii) Type of closing/opening mechanism (Horizontal/vertical) break straight etc.	Horizontal
	iv) Contacts	
	a) Material and grade	Hard drawn Electrolytic copper, Contact surface is silver plated
	b) Cross-sectional area (Sq. mm)	1280 for 2000 Amps
	v) Moving blades	
	a) Material and grade	Hard drawn Electrolytic copper, Ends are silver plated
	b) Cross-sectional area(mm)	1056.38 for 2000 Amps
	vi) Contact support	
	a) Material and size of channel / block	M.S. Channel, 6mm HDG.

**CHIEF ENGINEER/PROJECTS**  
**APTRANSCO/VS/VIJAYAWADA**

acceptance tests.

2.For EPC contractors only.

**SWITCHGEAR MANUFACTURING COMPANY PRIVATE LIMITED**

CLIENT	:	TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED
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	b)	Material and size of plate	M.S. plate, 6 mm HDG.
vii)		Rain hood-material grade and size	Aluminum sheet, 1mm THK
viii)		Turn and twist mechanism	
	a)	Material and size of clamps	M.S. flat (HDG) 40 x 8
	b)	Material size of springs	Stainless steel, 10G
	c)	Whether springs are encased	Yes, with Grease
ix)		Nuts and Bolts	
	a)	Size, Material and grade in live parts	Less than 5/8" dia. Stainless steel
	b)	Size, Material and grade in other parts	3/8" dia & above hot dip galvanised
x)		Insulator base plate Material and size of Plate below insulators	100X50X5MM THK M.S. Channel (HDG)
xi)		Bearings	
	a)	Material and size of housing	Gravity die cast Aluminium/MS Fabricated (HDG)
	b)	No. of bearings, location and Size	2 Nos. – below the rotating post Insulator with 32 mm shaft dia.
xii)		Tandem pipe	
	a)	Size, class and No. of pipes	1 No. – 25 NB class B. G.I. pipes. of length as per GA.
	b)	Size of shackle, screw	16 mm dia
	c)	No. of bearings / bush and its material and size	Brass Bush – 2 Nos. suitable for 16 mm dia Stud.
xiii)		Type of interlock	Electrical between Main Switch & Corresponding circuit breaker
xiv)		Down pipe size and class	40 NB Class B G.I. pipe
xv)		Type of universal/swivel joint	
	a)	Between bearings and down pipe	Flange type
	b)	Between down pipe and operating mechanism	Vernier type flange
xvi)		Operating Mechanism	3mm Aluminium
xvii)		Base	
	a)	Size of steel sections used	100 mm x 50 mm
	b)	Overall size	100 mm x 50 mm x 1065 mm
	c)	Total weight	10 Kg (one pole) approx.

For Switchgear Manufacturing Co. Pvt. Ltd.



Authorized Signatory

Drawing approval subject to valid vendor registration

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