

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. GANDRAJAPALLE. THE DESIGNS SHALL NOT BE REPRODUCED WITHOUT WRITTEN CONSENT OF SWITCHGEAR MANUFACTURING COMPANY PVT. LTD. GANDRAJAPALLE.

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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.

REV	DATE	CHANGES MADE	SIG

**LIST OF DRAWINGS/DOCUMENTS FOR 245KV DBR DISCONNECTOR**

S NO.	TITLE	DRAWING NO.	REV	SHEET
1	GA OF 245KV 800A 'DBR' DISCONNECTOR WITH ONE EARTH SWITCH	STD-2450007	0	1 OF 1
2	DETAILS OF MAIN CONTACT (245KV 800A DBR DISCONNECTOR)	STD-2450008	0	1 OF 1
3	EARTH SWITCH CONTACT DETAILS (245KV DBR DISCONNECTOR)	STD-2450009	0	1 OF 1
4	GA OF MOTOR OPERATING MECHANISM FOR DISCONNECTOR	STD-2450010	0	1 OF 1
5	SCHE. DIAG OF DISCONNECTOR CONTROL PANEL AC & DC	STD-2450011	0	1 OF 2
6	TERMINAL BLOCK DETAILS FOR DISCONNECTOR CONTROL PANEL	STD-2450011	0	2 OF 2
7	GA OF MANUAL OPERATING MECHANISM FOR EARTH SWITCH	STD-2450012	0	1 OF 1
8	MECHANICAL INTERLOCK BETWEEN MAIN SWITCH & EARTH SWITCH	STD-2450013	0	1 OF 1
9	NAME PLATE DETAILS (FOR 245KV DBR DISCONNECTOR)	STD-2450014	0	1 OF 1
10	GTP FOR 245KV DBR DISCONNECTOR	STD/GTP/245KV/DBR	0	---

CHIEF ENGINEER/PROJECTS  
APTRANSOCO/VS/VIJAYAWADA

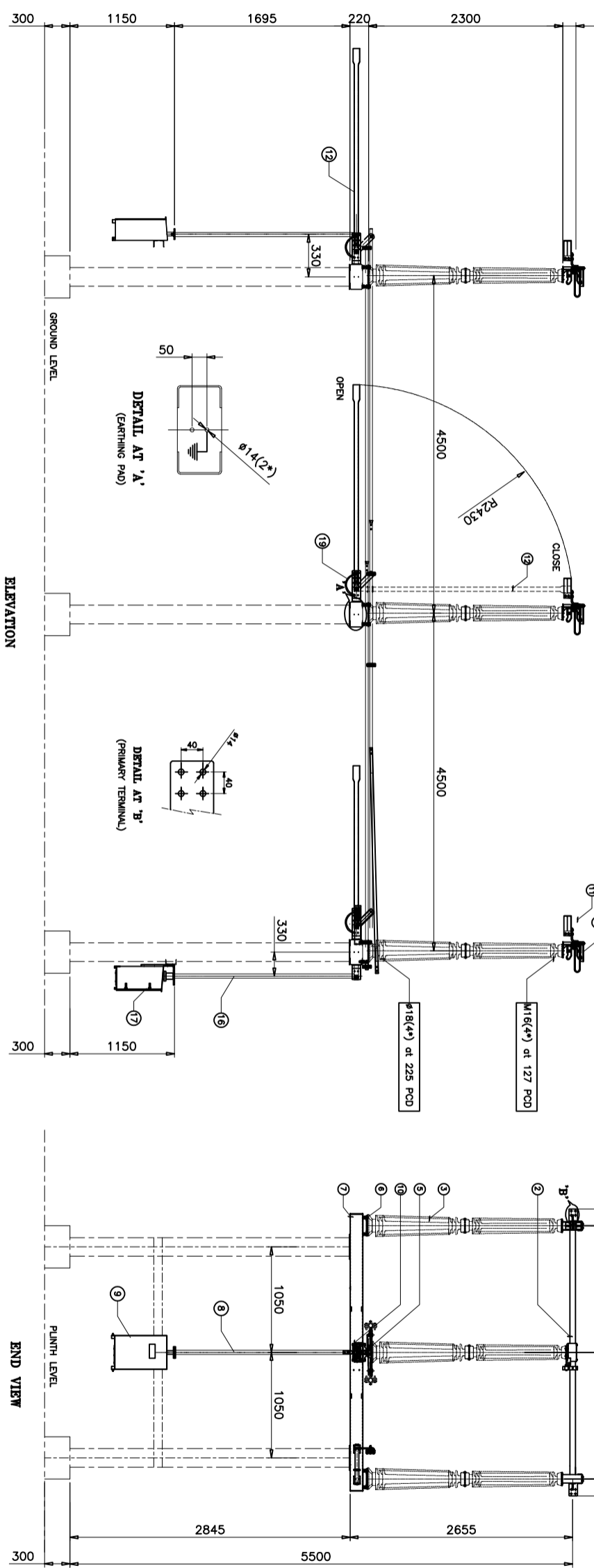
Drawing approval subject to valid vendor registration

7653928/2023/EEMRT-ENE51

DRN	YVG	07.07.23		SWITCHGEAR MANUFACTURING COMPANY GANDRAJAPALLE, CHITTOOR DIST, A.P, INDIA.
CHKD	VK	07.07.23		
APPD	OJA	07.07.23	MASTER LIST FOR 245KV DBR DISCONNECTOR	SHEET 1 OF 1
DEPT	SIGN	DATE		
SC: NTS		Paper size A3	DRG.NO. S T D - 2 4 5 1 0 0 6	REV. 0

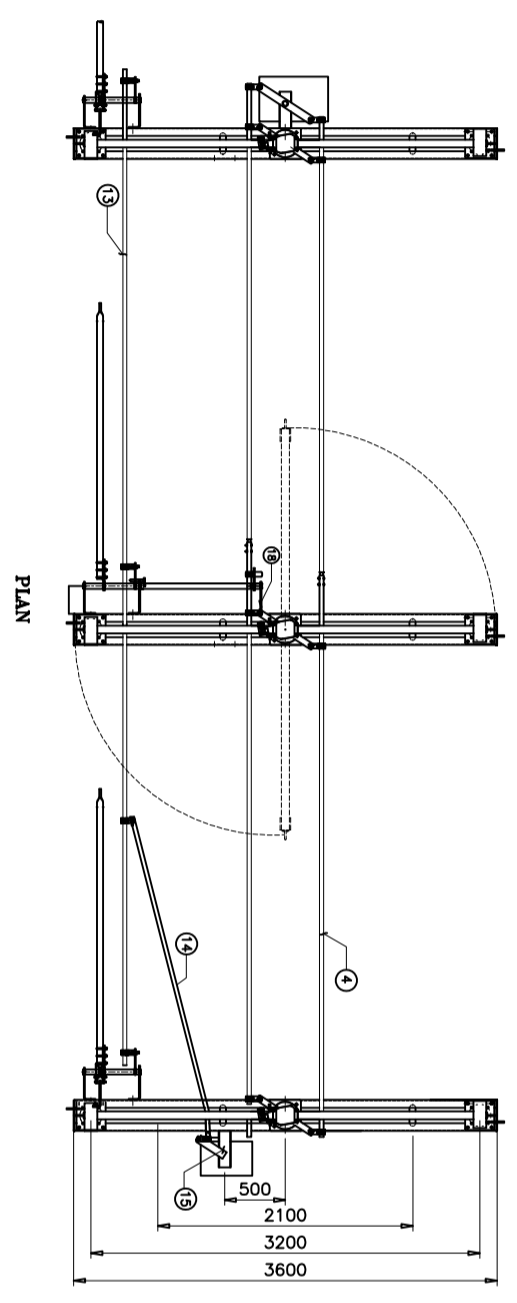
NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.  
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1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LV Breakers in the substation during foundation works to ensure safe live to ground clearance per IE rules.  
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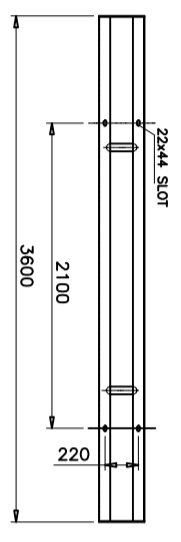


REF. STANDARD	IEC:62271-102
MOTOR VOLTAGE AC	V 415
CONTROL VOLTAGE DC	V 220
GROSS	kg 34
TL STRAIGHT	kg 102
ACROSS	kVp 530
PF TO EARTH	kVp 460
ACROSS	kVp 1200
L TO EARTH	kVp 1050
STC PEAK FOR 3sec	kAp 100
CURRENT	A 800
VOLTAGE	kV 245
DESCRIPTION	UNIT VALUE
<b>TECHNICAL DATA</b>	

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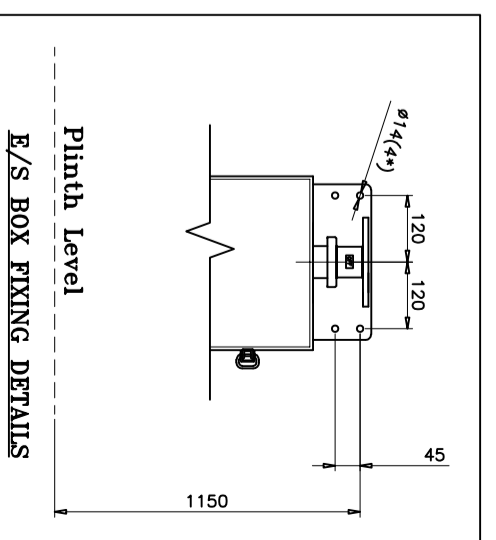


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19	COPPER BRAIDED FLEXIBLE	03
18	MECH INTERLOCK BETWEEN M/S & E/S	01
17	E/S OPERATING MECHANISM (MANUAL-HR)	01
16	E/S OPERATING PIPE (50 NB GI PIPE)	01
15	E/S TOP OPERATING MECHANISM	01
14	E/S AUX TANDEM PIPE (32 NB GI PIPE)	01
13	E/S TANDEM PIPE (32 NB GI PIPE)	01
12	E/S MOVING CONTACT	03
11	E/S FIXED CONTACT	03
10	TOP OPERATING MECHANISM	01
9	OPERATING MECHANISM BOX(MOTOR)	01
8	OPERATING PIPE(50NB GI PIPE)	03
7	BASE CHANNEL(150X75X5MM THK)	03
6	ELEVATOR PLATE (12MM THK) MS HDG	06
5	ROTATING STOOL POST	03
4	TANDEM PIPE (32 NB GI PIPE)	02
3	INSULATOR STACK (CONTRACTOR SCOPE)	09
2	MOVING CONTACT ASSLY	03
1	FIXED CONTACT ASSLY	06
DESCRIPTION		QTY
<b>PART LIST</b>		

CHIEF ENGINEER/PROJECTS  
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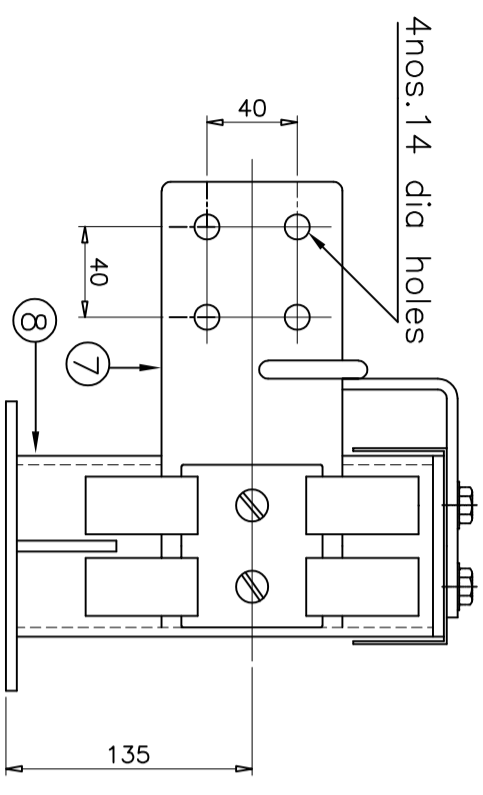


**NOTES**  
1. ALL DIMENSIONS ARE IN 'mm'  
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED WITH 85 MICRONS  
3. ALL NON-FERROUS CONTACT POINTS ARE SILVER PLATED WITH 15 MICRONS  
4. THE MAIN ROTATING POST HAS TWO NOS OF BEARING  
5. ALL GI PIPES ARE OF 'B' CLASS AS PER IS:1239  
6. MANUFACTURING TOLERANCES  
i) UP TO 50mm--- ±3% ii) 51 to 100mm--- ±2%  
iii) 101 to 300mm--- ±1% iv) ABOVE 300mm--- ±0.5%

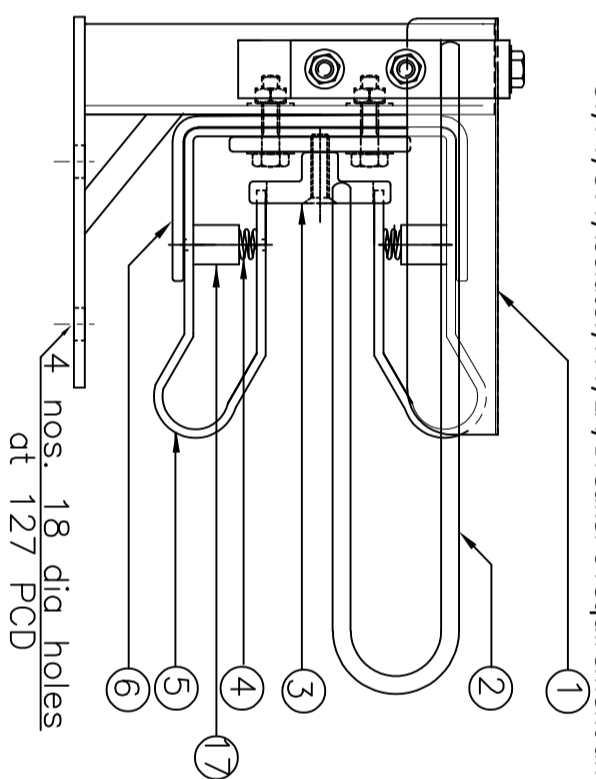
DRN	YVG	07.07.23	<p><b>SWITCHGEAR MANUFACTURING COMPANY</b> GANDRAJAPALLE, CHITTOOR DIST, A.P, INDIA.</p>	TITLE	245KV 800A DBR DISCONNECTOR WITH ONE EARTH SWITCH	
CHKD	VK	07.07.23		APPD	OJA	07.07.23
DEPT	SIGN			DEPT	SIGN	
SC: NTS			SC: NTS			
			DRG.NO.	S T D - 2 4 5 0 0 0 7	SHEET	1 of 1
					REV.	0

7653928/2023/EEMRT-ENE51

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 2. For EPC contractors only **FIXED CONTACT DETAILS**



ELEVATION



END VIEW

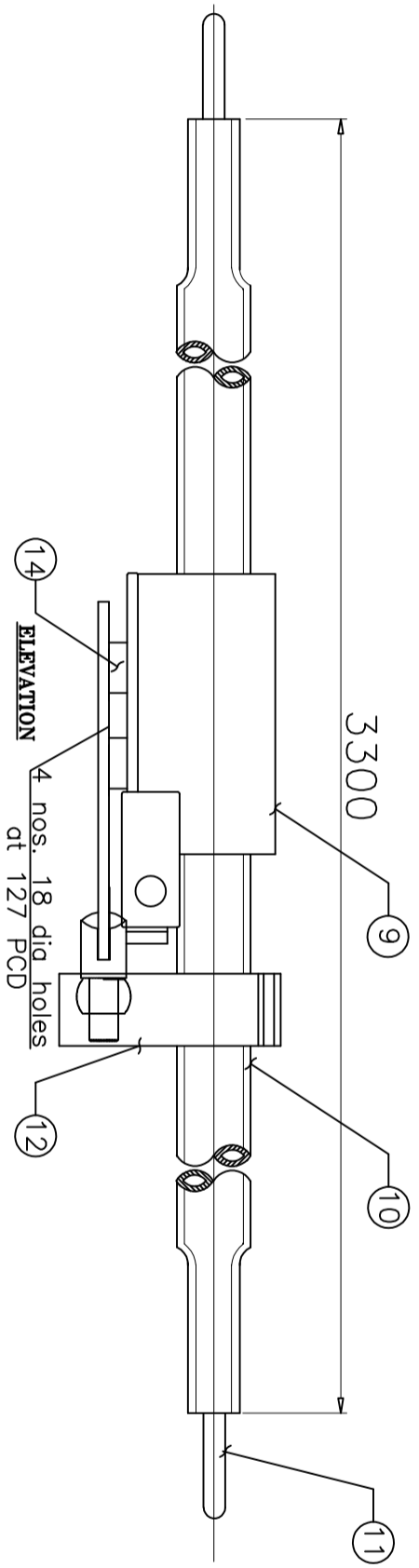
1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the substation during foundation works to ensure safe live to ground clearance per IE rules.  
 2. Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor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

**NOTES**

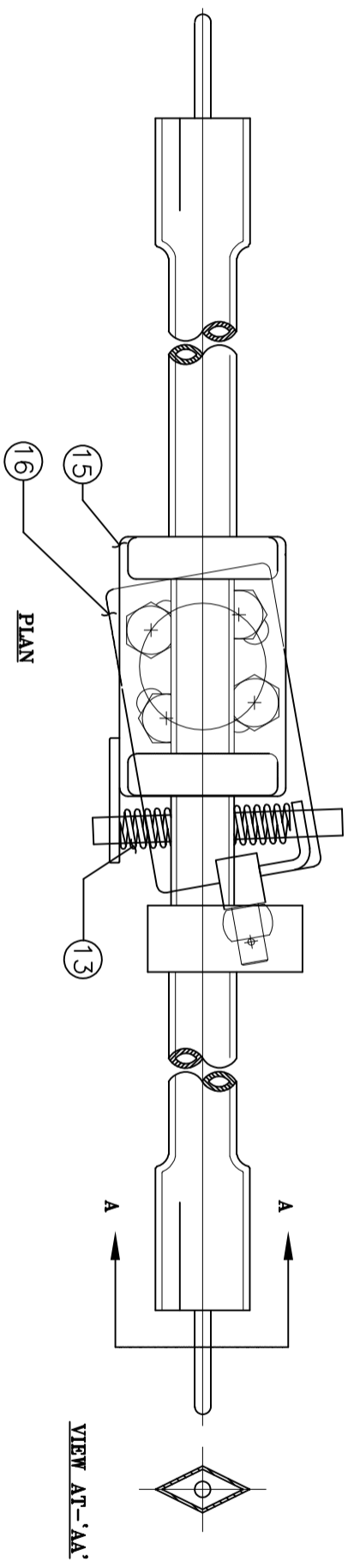
- All dimensions are in 'mm'
- All ferrous parts are hot-dip galvanized with 85 microns
- All non-ferrous contact points are silver plated with 15 microns
- Tolerances
  - (i) Upto 50mm ---- +3%
  - (ii) 51 to 100 mm ---- +2%
  - (iii) 101 to 300mm ---- +1%
  - (iv) Above 300mm ---- +0.5%
- Bolted area are Tin plated up to 10 microns to avoid bi-metallic reaction between Cu & Al

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**DETAILS OF MOVING CONTACT**



ELEVATION



PLAN

VIEW AT-'AA'

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

- PART LIST**
- FC rain hood (AL.)
  - FC Arcing horn (MS HDG)
  - Spacer (AL.)
  - FC spring (SS)
  - FC Jaw (2 Nos. 32x4 HDE Cu.flat)
  - Jaw back strip (MS HDG)
  - Jumper pad (75x12 Al. flat)
  - Supporting channel (MS HDG)
  - MC Rain Hood (AL.)
  - MC arm (38 OD 30 ID Cu. tube)
  - MC Arcing horn (MS HDG)
  - MC Clamp (MS HDG)
  - MC Spring (SS)
  - Spacer Bush (BRASS)
  - MC top plate (MS HDG)
  - MC bottom plate (MS HDG)
  - Bush (plastic)

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Sl.No.	Cross section	Area	Current Rating	Current Density (Amps/sq.mm)	DRN	YVG	DATE	TITLE
1	(FC JAWS) 32X4X4	512mm <sup>2</sup>	800A	1.56	CHKD	VK	07.07.23	SWITCHGEAR MANUFACTURING COMPANY GANDRAJAPALLE, CHITTOOR DIST, A.P, INDIA. MAIN CONTACT DETAILS (FOR 245KV 800A DBR DISCONNECTOR)
2	(MC ARM) 38 OD X 30 ID	427.04mm <sup>2</sup>	800A	1.87	APPD	OJA	07.07.23	
3	JUMPER PAD (75X12)	900mm <sup>2</sup>	800A	0.88	DEPT	SIGN	DATE	

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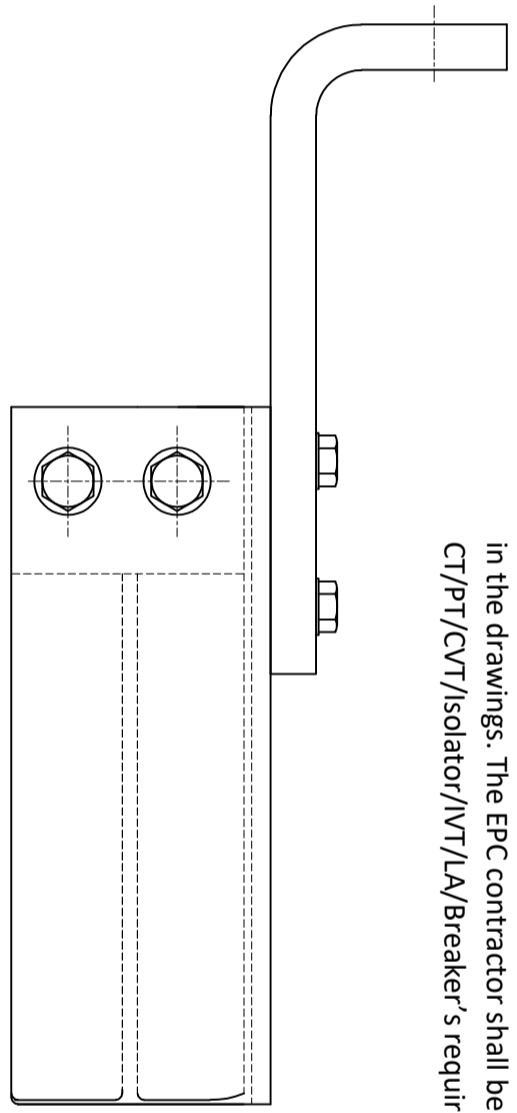
REV	DATE	CHANGES MADE	SIG

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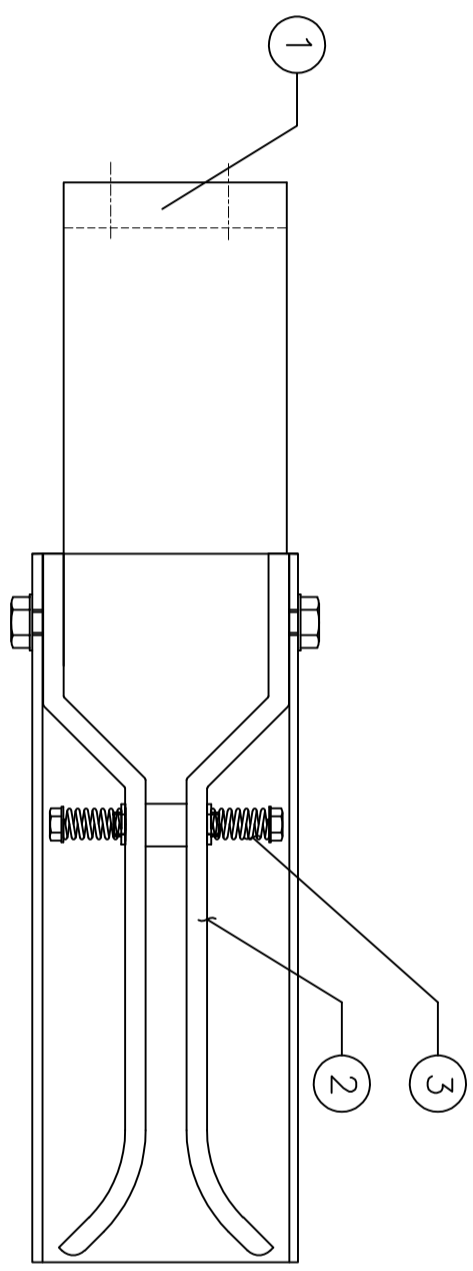
**FIXED CONTACT DETAILS**

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.
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**ELEVATION**

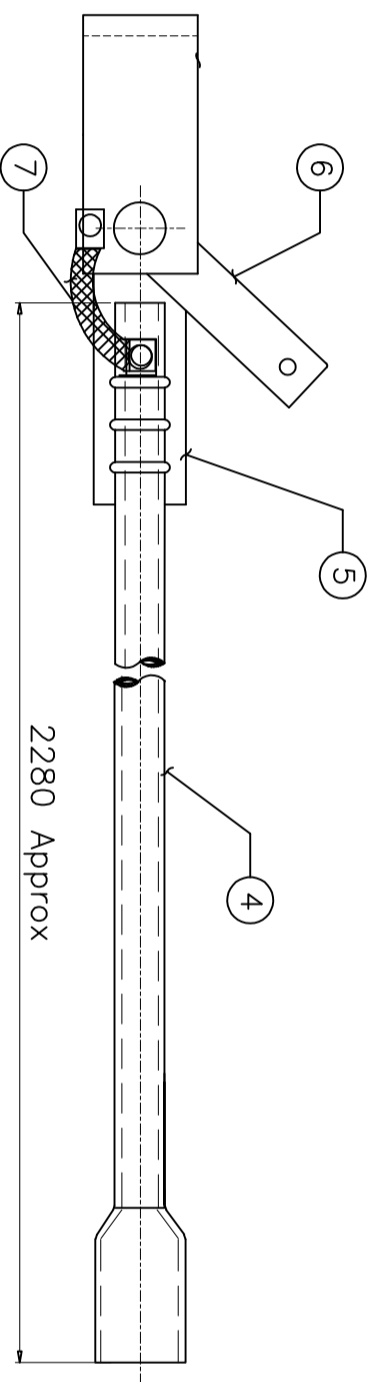
CHIEF ENGINEER/PROJECTS  
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**PLAN**

**MOVING CONTACT DETAILS**

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7	Copper braided flexible	Ø10mm Cu. rope, 5 Nos
6	MC Lever	MS HDG
5	MC Fixing plate	MS HDG
4	MC ARM	38 OD 30 ID Cu. Tube
3	FC Spring	SS
2	FC JAW	2 no's 50X5 Cu.flat
1	FC SUPPORTING STRIP	75X12 AL.
	DESCRIPTION	
	PART LIST	MATL

DRN	YVG	07.07.23
CHKD	VK	07.07.23
APPD	OJA	07.07.23
DEPT	SIGN	DATE
SC: NTS		Paper size A3

		<b>SWITCHGEAR MANUFACTURING COMPANY</b> GANDRAJAPALLE, CHITTOOR DIST, A.P, INDIA.
<b>EARTH SWITCH CONTACT DETAILS</b> (FOR 245KV DBR DISCONNECTOR)		DRG.NO. S T D - 2 4 5 0 0 0 9
SHEET	REV.	
1 of 1	0	

- NOTES**
1. ALL DIMENSIONS ARE IN 'MM'
  2. ALL HDE COPPER CONTACT POINTS ARE SILVER PLATED WITH 15 MICRONS
  3. MANUFACTURING TOLERANCES
    - i) UPTO 50mm-- ±3% ii) 51 to 100mm-- ±2%
    - iii) 101 to 300mm-- ±1% iv) ABOVE 300mm-- ±0.5%
  4. BOLTED AREA ARE TIN PLATED UP TO 10 MICRONS TO AVOID BI-METALIC REACTION BETWEEN CU & AL

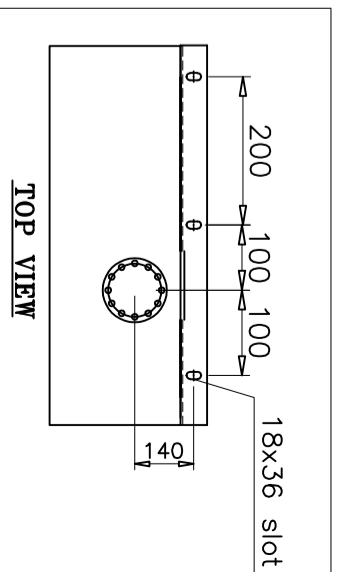
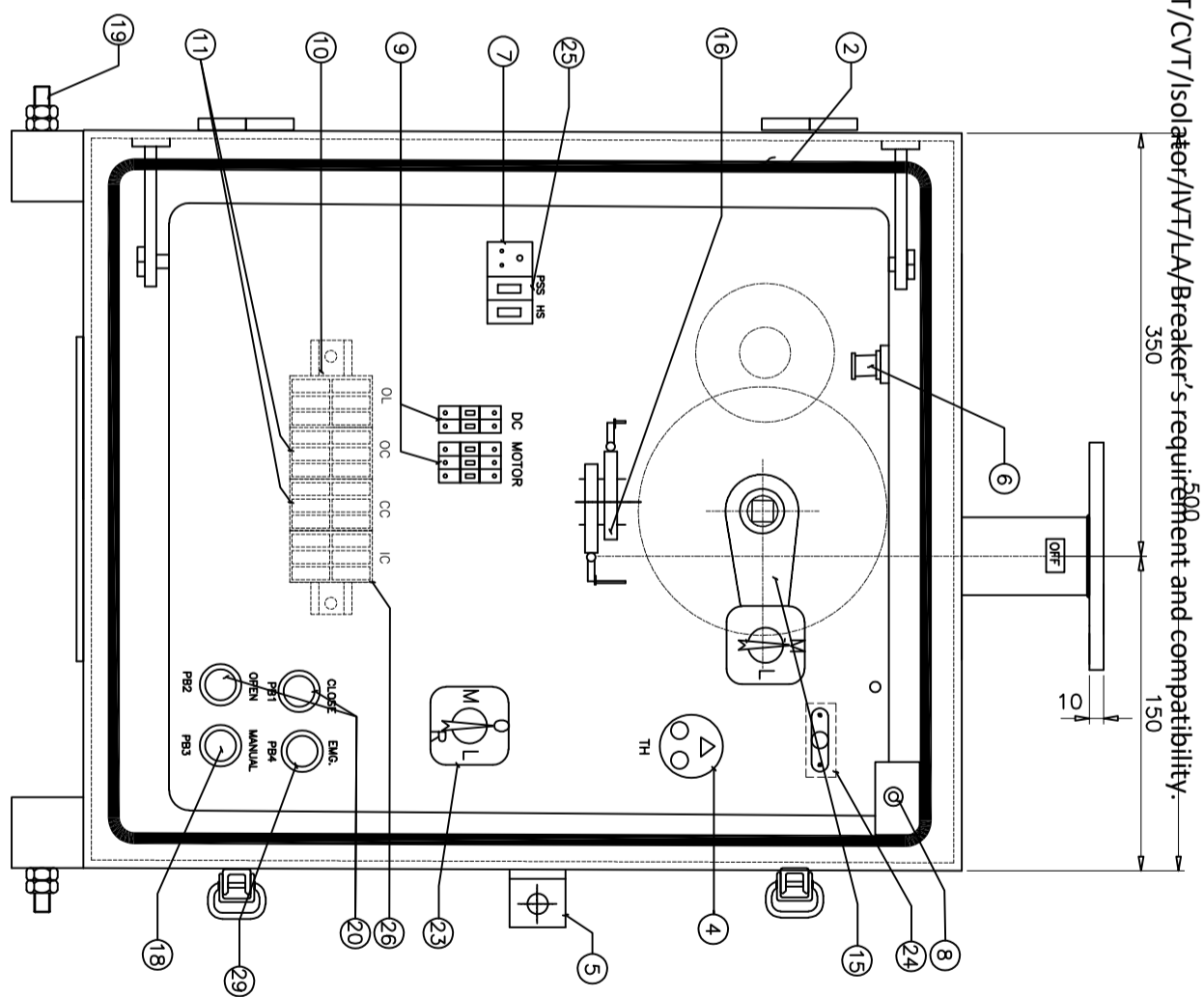
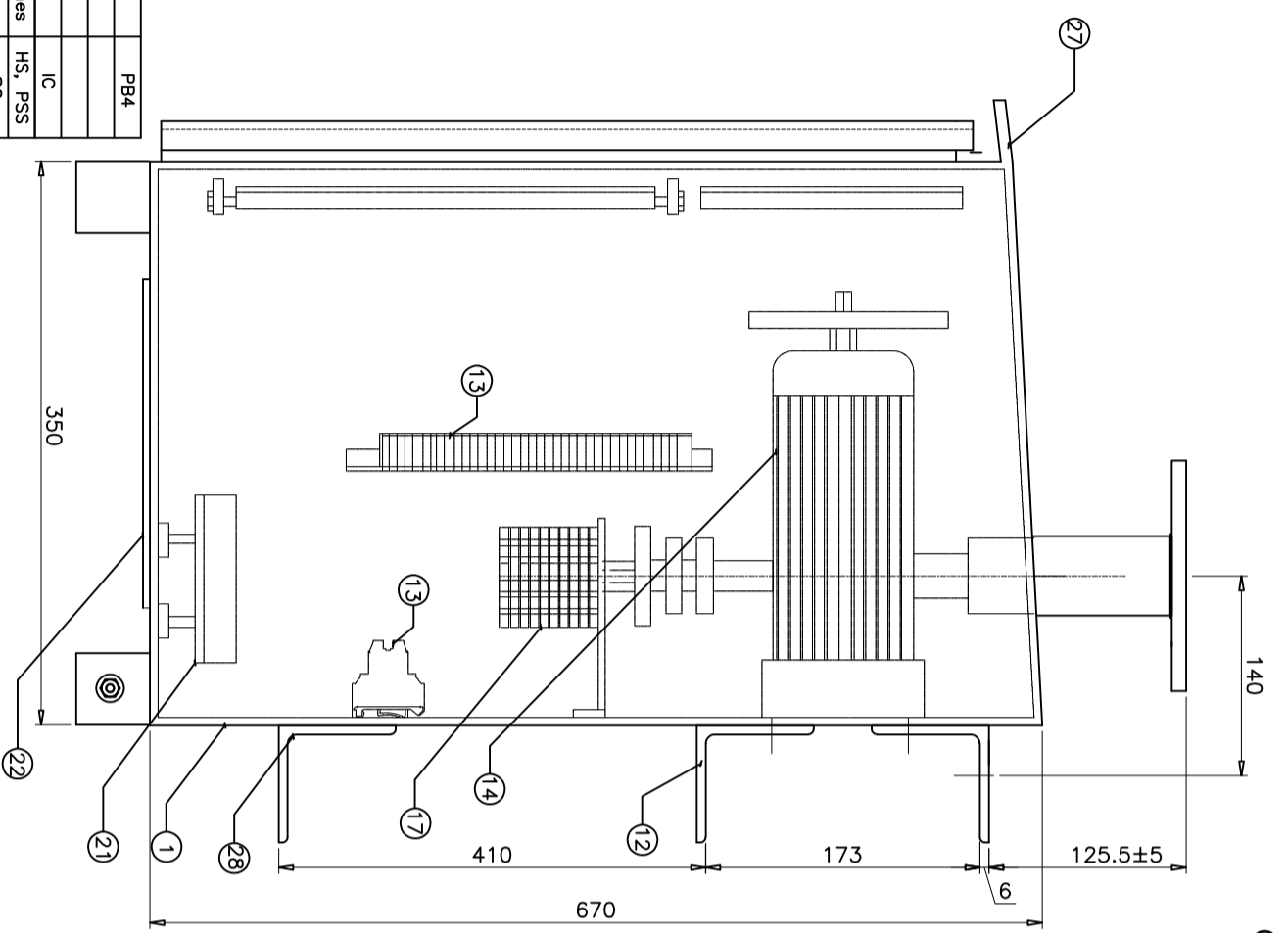
REV	DATE	CHANGES MADE	SIG

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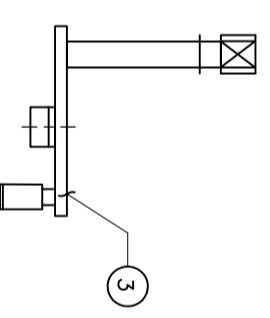
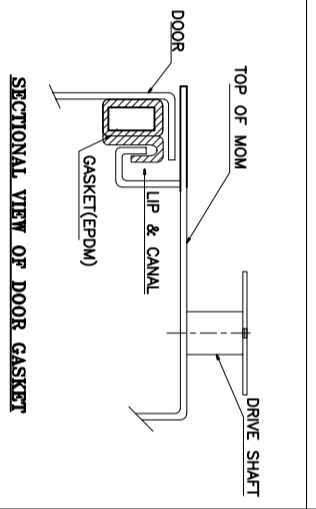
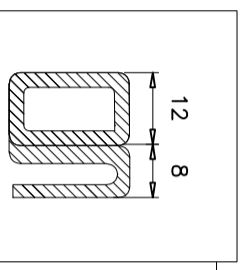
REV	DATE	CHANGES MADE	SIG

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29	Emergency push button	PB4
28	Fixing cleat (Al.)	
27	Rain canopy	
26	Interlocking Contactor	IC
25	Heater & Power Socket Switches	HS, PSS
24	Solenoid Interlock	SC
23	Selector Switch (L/R/M)	S2
22	Gland plate (Without glands)	
21	Heater	CH
20	Close and open push buttons	PB1 & PB2
19	Earthing bolt (2nos of M12 size)	
18	Push buttons for manual	PB3
17	Aux.switch	
16	Limit switch	LS
15	Knob for manual operation	
14	Motor with reduction gear unit	
13	Terminal block(GTS4UN)	
12	Fixing Angle (MS HDG)	
11	Open & Close contactors	OC/CC
10	Overload relay (OL) cum SPP	OLR
9	MGBs	
8	Light switch (Door Operated)	
7	Power socket	PS
6	Lamp holder (WITHOUT LAMP)	CL
5	Provision for padlock	
4	Thermostat	TH
3	Handle for manual operation	
2	Rubber gasket (EPDM)	
1	Enclosure (3mm Th Aluminium)	
PT No.	DESCRIPTION	LEGEND

Drawing approval subject to valid vendor registration



HANDLE FOR MANUAL OPERATION  
(Kept on back of the door)

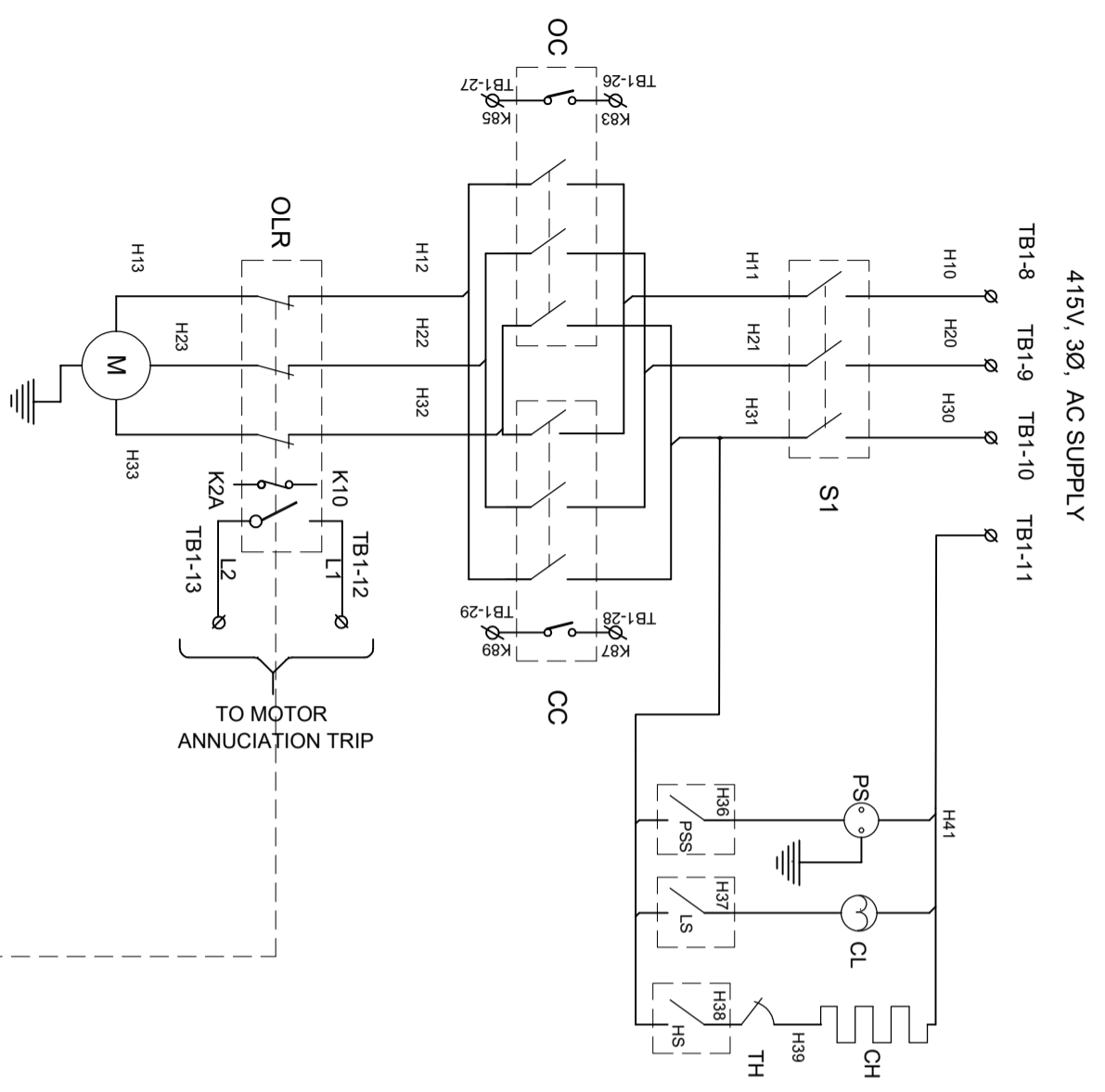
- NOTES**
- 01 All dimensions are in 'mm'
  - 02 For manual operation follow the instructions as given in schematic diagram
  - 03 Degree of protection for cabinet IP:55 as per IS:13947
  - 04 Cubicle shall be made out of 3 mm thick Aluminium Sheet and pointed to point shade 631 of IS:5
  - 05 Net weight of the box-70Kgs (Approx)
  - 06 Internal wiring will be done with 2.5 sq.mm cu stranded conductor & 20% Spare Terminals shall be provided.
  - 07 Tolerance as per GA drawing

DRN	YVG	07.07.23		<b>SWITCHGEAR MANUFACTURING COMPANY</b> GANDRAJAPALLE, CHITTOOR DIST, A.P, INDIA.
CHKD	VK	07.07.23		
APPD	OJA	07.07.23	GENERAL ARRANGEMENT OF <b>MOTOR OPERATING MECHANISM FOR DISCONNECTOR</b>	
DEPT	SIGN	DATE	DRG.NO.	S T D - 2 4 5 0 0 1 0
SC: NTS	SC: NTS	Paper size A3	SHEET	1 of 1
			REV.	0

CHIEF ENGINEER/PROJECTS  
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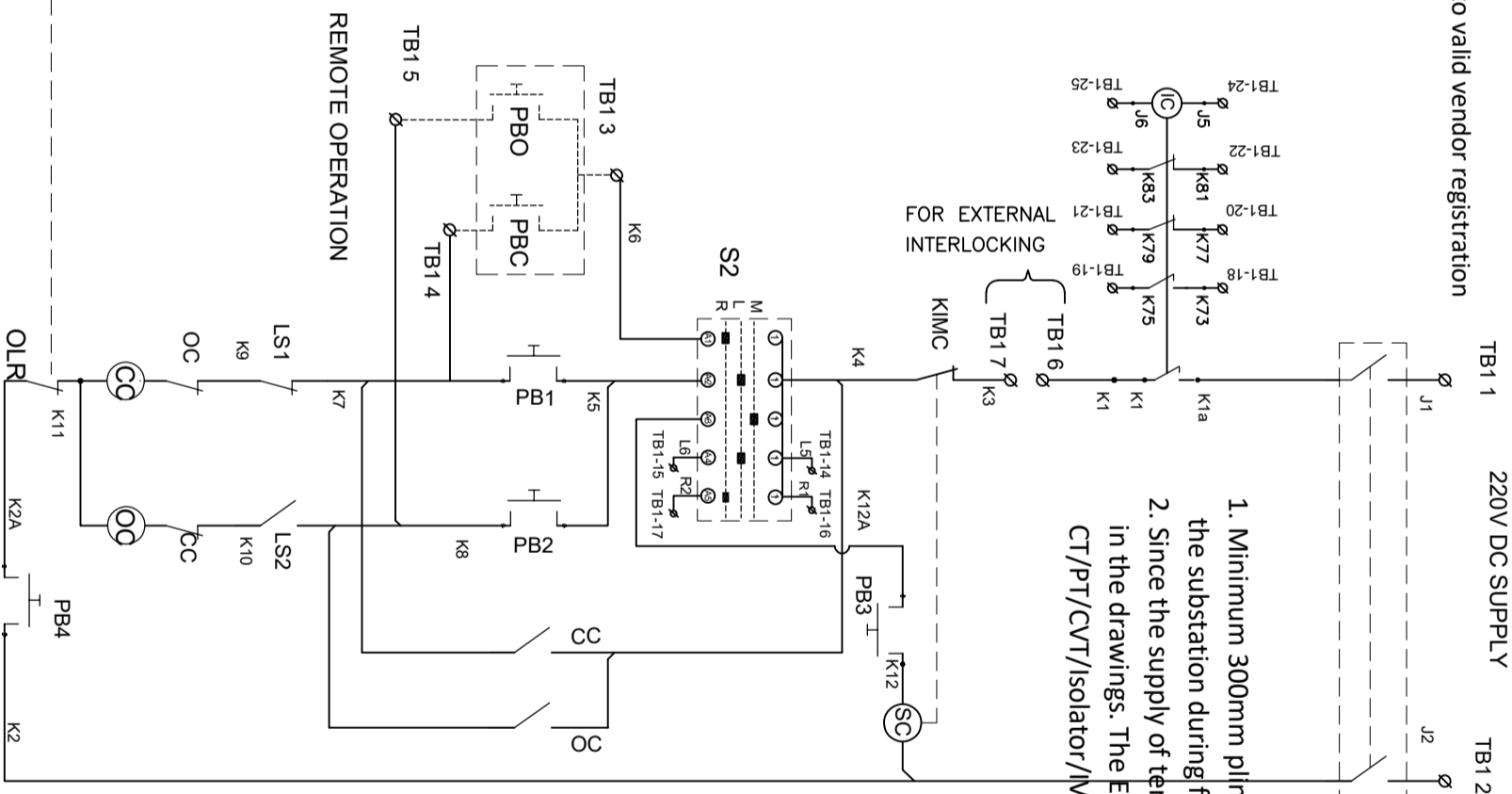
**AC CIRCUIT**



Drawing approval subject to valid vendor registration

**DC CIRCUIT**

220V DC SUPPLY



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LEGEND	DESCRIPTION	MAKE	QTY
PB4	Emergency push button	Siemens/Schneider/C&S/ABB/Teknic	1
IC	Interlocking Contactor	Siemens/Schneider/C&S/ABB	1
KIMC	Key interlock switch	Recorn/Koycee/Switon	1
M	Motor 3Ø 415V AC (0.5HP)	Remi/Eicen/Lhp/Hindustan/CGL	1
S2	L/R/M selector switch	Recorn/Koycee/Switon	1
S1	MCB for 3Ø AC Supply (6A)	Siemens/Schneider/C&S/ABB	1
PS	Power socket switch (5A)	Anchor/Maru/Reputed	1
PSS	Power socket (5A)	Anchor/Maru/Reputed	1
PB2	Interlock push button (for manual)	Siemens/Schneider/C&S/ABB/Teknic	1
PB1	Close and open push buttons	Siemens/Schneider/C&S/ABB/Teknic	2
OL	Over load relay cum SPR(1-1.6A)	Siemens/Schneider/C&S/ABB	1
TH	Thermostat (30°-65°)	Girish ego/Reputed	1
LS	Limit switch close	Jabbalaji/BCH/Elmex/Mani/Teknic	1
LS	Limit switch open	Jabbalaji/BCH/Elmex/Mani/Teknic	1
LS	Lamp switch (2A)	Anchor/Maru/Suroj	1
SC	Solenoid interlocking coil (220V)	OMN	1
HS	Heater switch (5A)	Anchor/Maru/Reputed	1
CS	MCB for Control supply (2A)	Siemens/Schneider/C&S/ABB	1
CH	Cubicle heater (80W, 240V AC)	Grish ego/Reputed	1
CL	Cubicle lamp (without bulb) 5A	Anchor/Maru/Reputed	1
OC	Close and open contactors	Siemens/Schneider/C&S/ABB	2

CHIEF ENGINEER/PROJECTS  
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**OPERATING INSTRUCTIONS**

- 1 Operation is possible only when the breaker is in 'OPEN' condition and after interlocking condition of system are satisfied
  - 2 For manual operation of isolator please follow the instructions given below:
    - i) Press the manual push button(PB3) & Rotate the knob(15) provided on panel board, due to which the blocking flip will rotate to gain access for manual operation
    - ii) Insert the operating handle through hole to the gear box shaft
    - iii) Rotate the handle clockwise/anti-clockwise for open/close the Disconnector
    - iv) When manual operation is not needed, restore the knob to its original position
- NOTES**
- 1) Scheme shown when Disconnector in open position & De-Energised
  - 2) In case of unavailability alternate reputed make shall be used

DRN	YVG	07.07.23	<p>SWITCHGEAR MANUFACTURING COMPANY GANDRAJAPALLE, CHITTOOR DIST, A.P, INDIA.</p>
CHKD	VK	07.07.23	
APPD	OJA	07.07.23	
DEPT	SIGN	DATE	<p>SCHEMATIC DIAGRAM OF FOR DISCONNECTOR CONTROL PANEL-AC &amp; DC</p>
SC: NTS		Paper size A3	
DRG.NO. S T D - 2 4 5 0 0 1 1			SHEET 1 of 2
			REV. 0

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FROM NO CONTACTS OF AUX. SWITCH SPARES FROM NC CONTACTS OF AUX. SWITCH SPARES

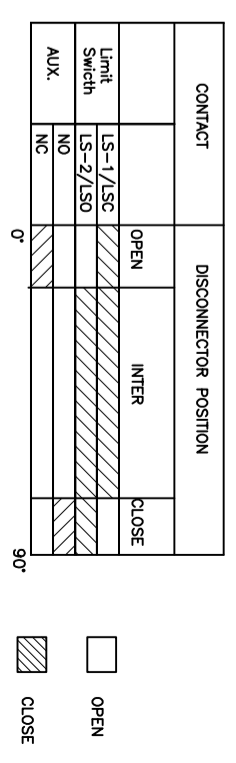
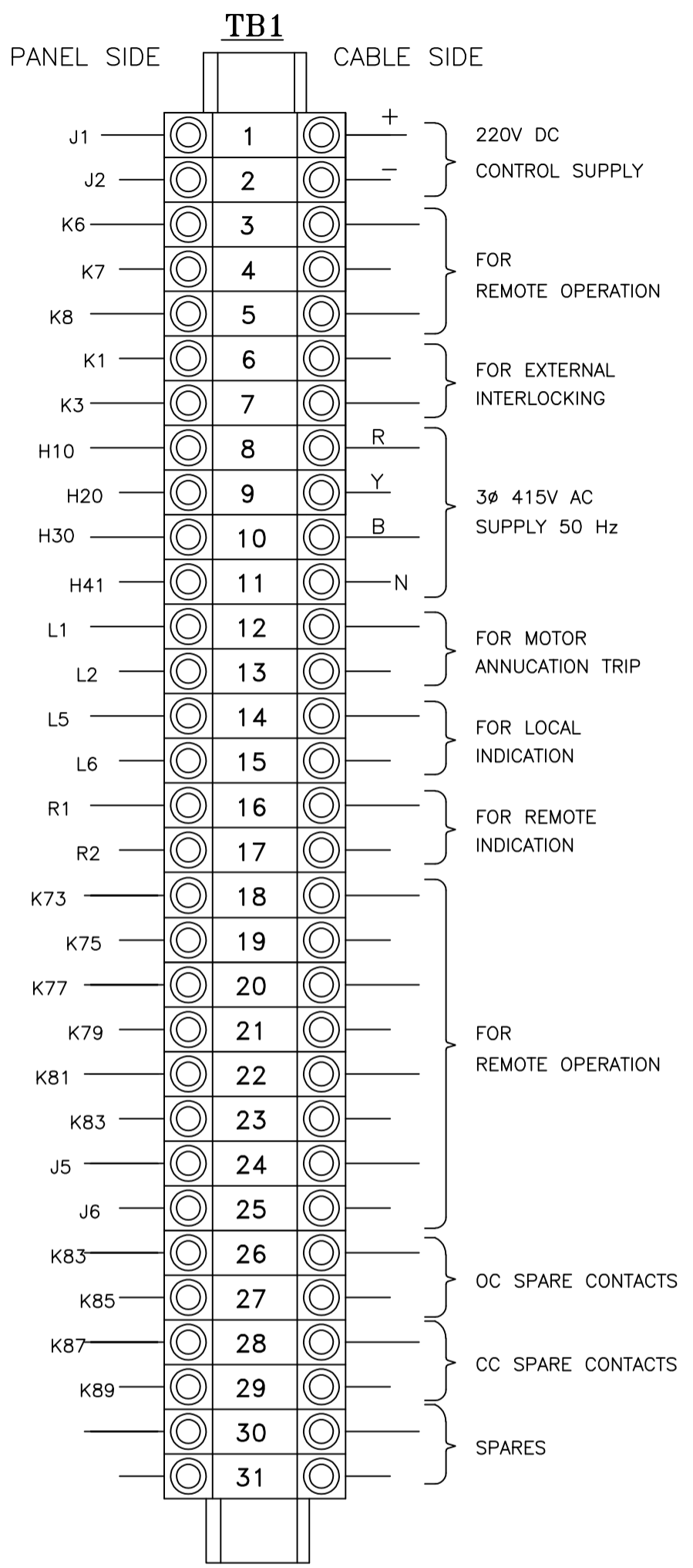
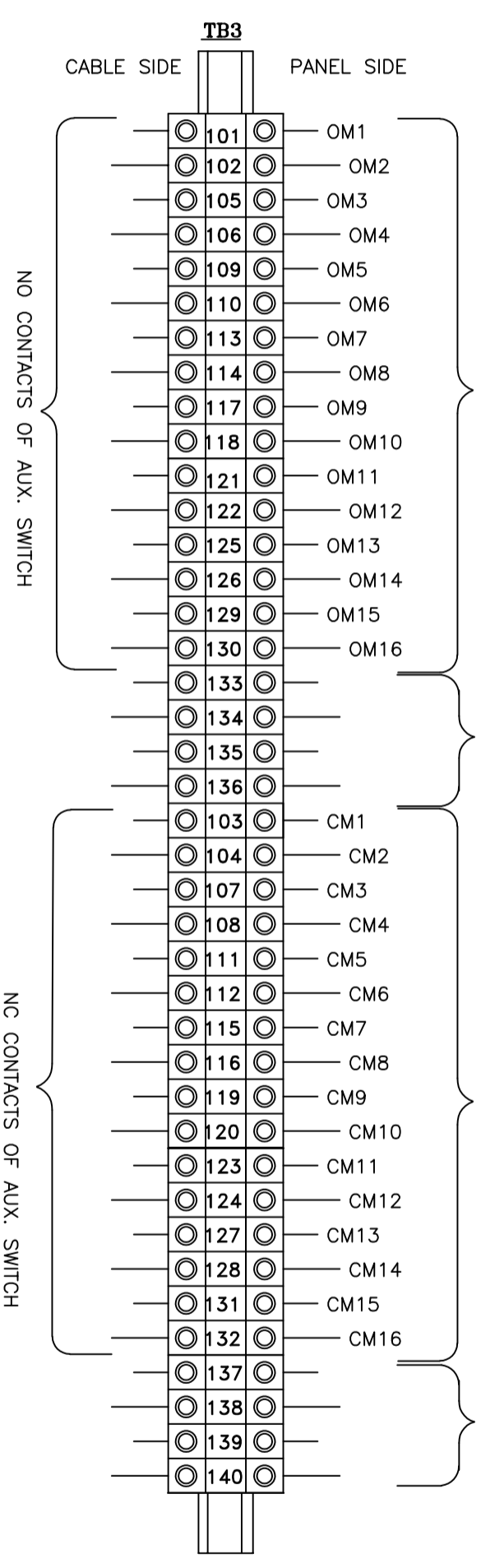
REV	DATE	CHANGES MADE	SIG

CHIEF ENGINEER/PROJECTS  
APTTRANSCO/VS/VIJAYAWADA

**AUX. SWITCH TERMINAL DETAILS (8NO+8NC)**  
**TERMINAL BLOCK DETAILS**

Drawing approval subject to valid vendor registration

**CONTACT DEVELOPMENT DIAGRAM**

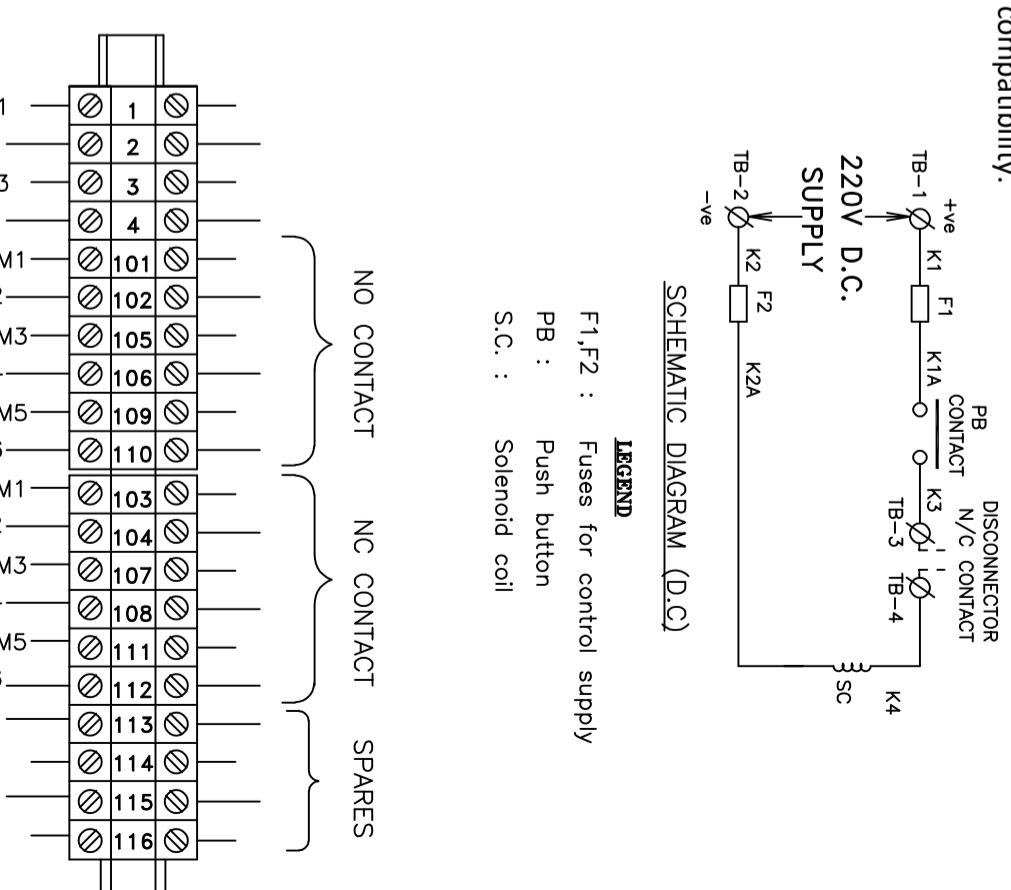
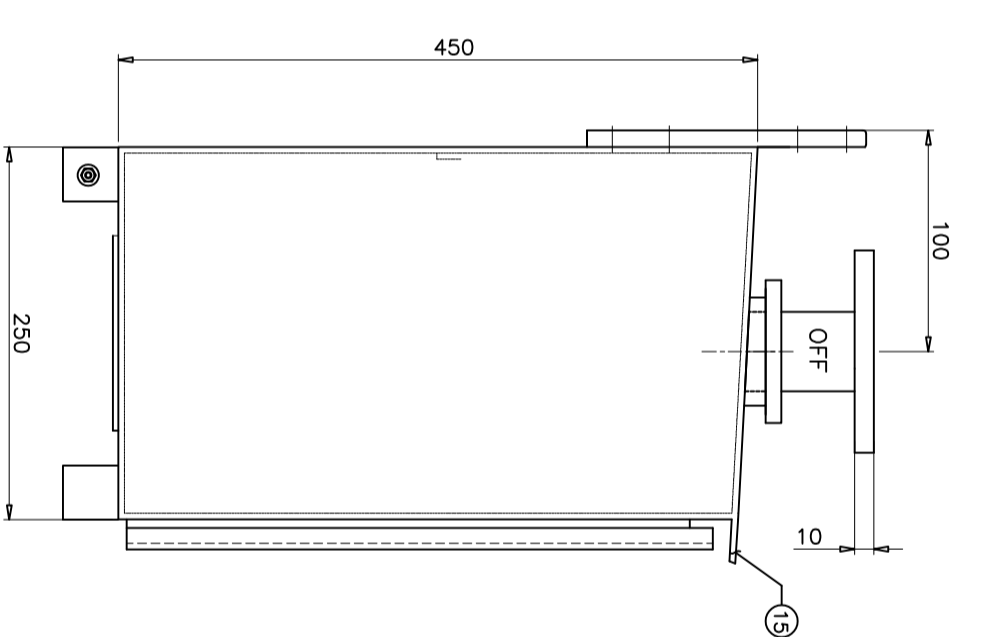
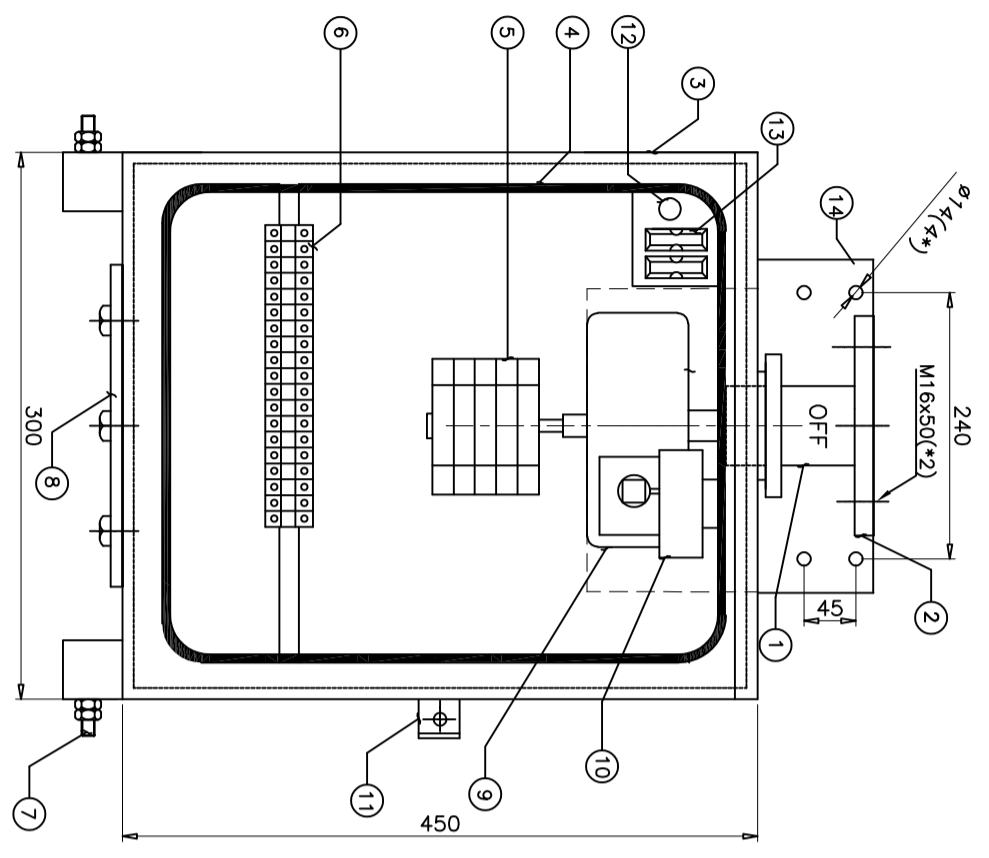


**TERMINAL BLOCK FOR DC & AC**

DRN	YVG	07.07.23	<p>SWITCHGEAR MANUFACTURING COMPANY GANDRAJAPALLE, CHITTOOR DIST, A.P, INDIA.</p>
CHKD	VK	07.07.23	
APPD	OJA	07.07.23	
DEPT	SIGN	DATE	TITLE
SC: NTS		Paper size A3	TERMINAL BLOCK DETAILS (FOR DISCONNECTOR CONTROL PANEL)
DRG.NO. S T D - 2 4 5 0 0 1 1			SHEET 2 of 2
			REV. 0

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.  
2. For EPC contractors only.

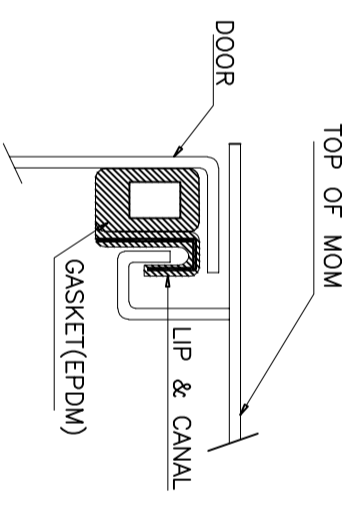
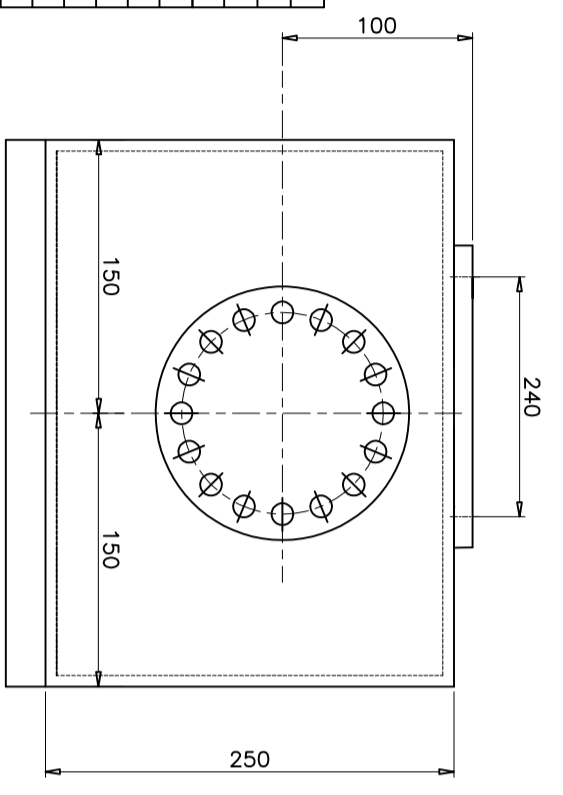
1. Minimum 300mm plinth shall be maintained for CT/PT/CVT/Isolators/IV/LA/Breakers in the substation during foundation works to ensure safe live to ground clearance per IE rules.  
2. Since the supply of terminal connectors is not in the scope of manufacturer as mentioned in the drawings. The EPC contractor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



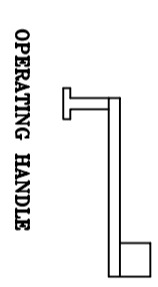
CHIEF ENGINEER/PROJECTS  
 APTRANSCO/VIS/VIJAYAWADA

Drawing approval subject to valid vendor registration

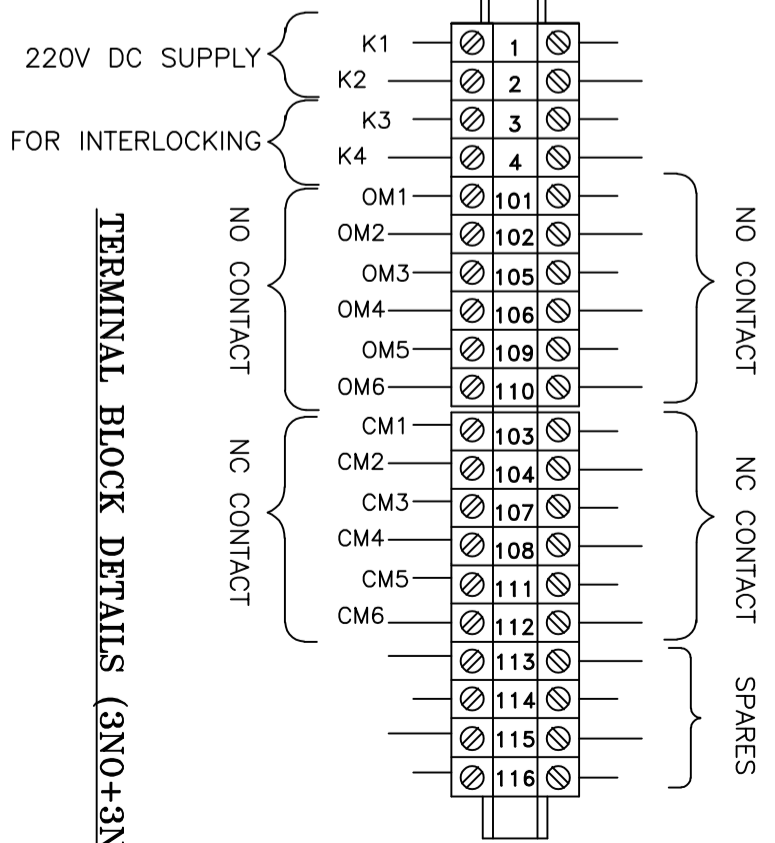
15	RAIN CANOPY
14	FIXING BRACKET (MS HDG)
13	FUSES FOR CONTROL SUPPLY
12	PUSH BUTTON
11	PROVISON FOR PADLOCK
10	Solenoid Coil
9	REDUCTION GEAR
8	CABLE GLAND FIXING PLATE (W/O GLANDS)
7	EARTH TERMINAL(2 nos. M10 size)
6	TERMINAL BLOCK (CTS 4UN)
5	AUXILIARY SWITCH
4	GASKET (EPDM RUBBER)
3	CUBICLE (3MM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



SECTIONAL VIEW OF DOOR GASKET



OPERATING HANDLE



TERMINAL BLOCK DETAILS (3NO+3NC)

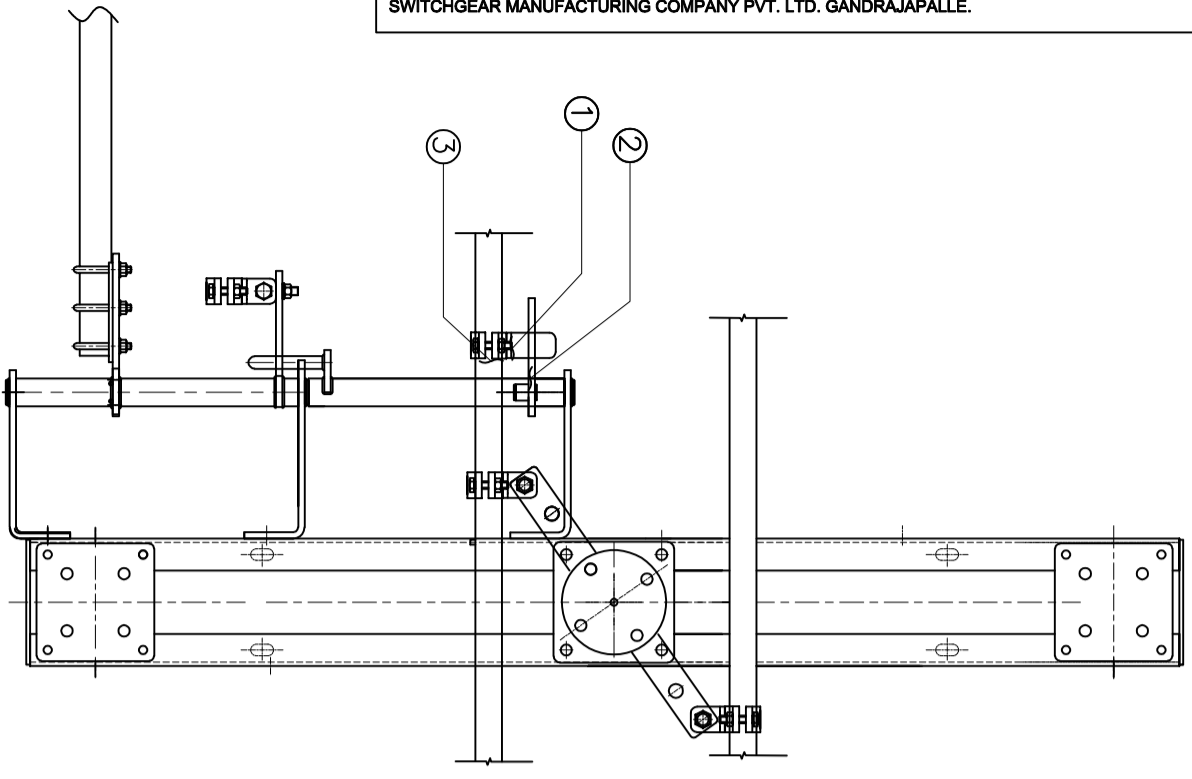
- NOTES**
- All dimensions are in 'mm'
  - Cubicle will be painted to the shade no. 631 IS:5
  - Always keep the drive in upright position
  - Degree of protection :IP55
  - Net weight of the box-28 Kgs(approx)
  - Tolerances as per GA drawing
  - Internal wiring will be done with 2.5 sq.mm cu. stranded conductor & 20% spare terminals will be provided

DRN	YVG	07.07.23		TITLE	SWITCHGEAR MANUFACTURING COMPANY
CHKD	VK	07.07.23			
APPD	OJA	07.07.23			
DEPT	SIGN	DATE	GENERAL ARRANGEMENT OF	MANUAL OPERATING MECHANISM FOR EARTH SWITCH	
SC: NTS	A3	Paper size	DRG.NO. S T D - 2 4 5 0 0 1 2	SHEET	REV.
				1 of 1	0

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.

2. For EPC contractors only CASE - I

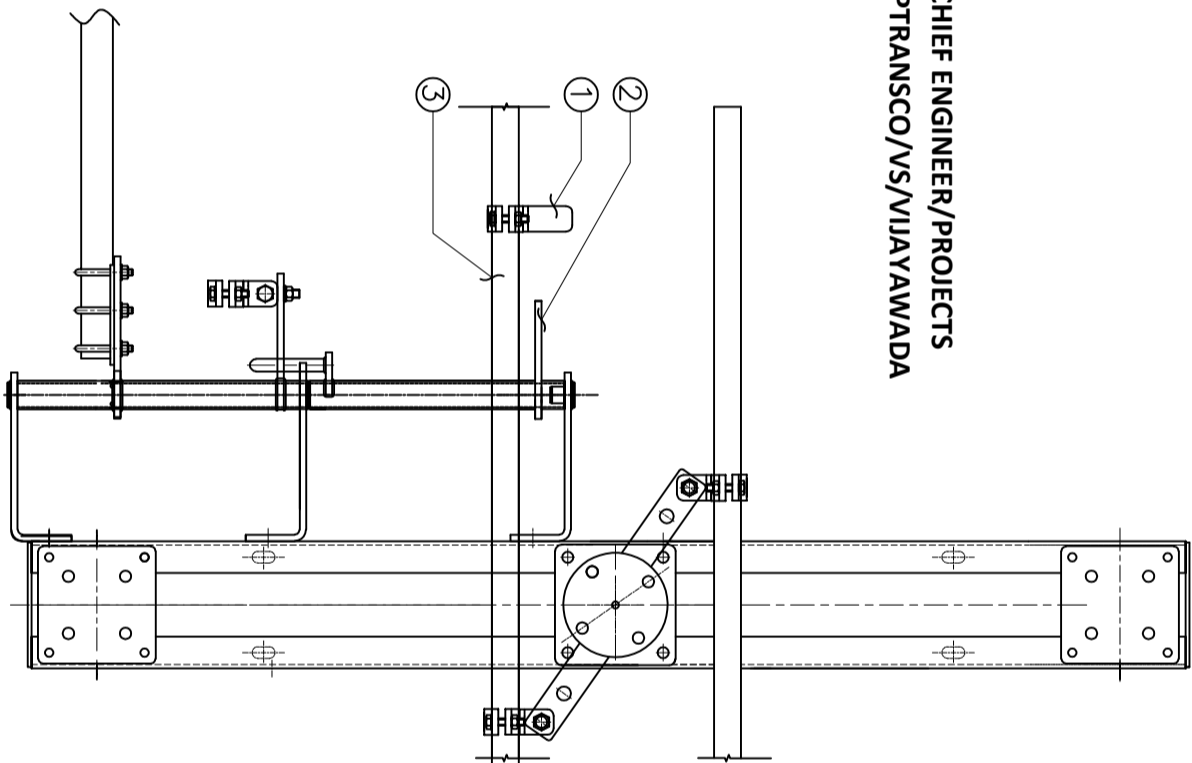
ISOLATOR IN CLOSED CONDITION & EARTH SWITCH IN OPEN CONDITION



CASE - II

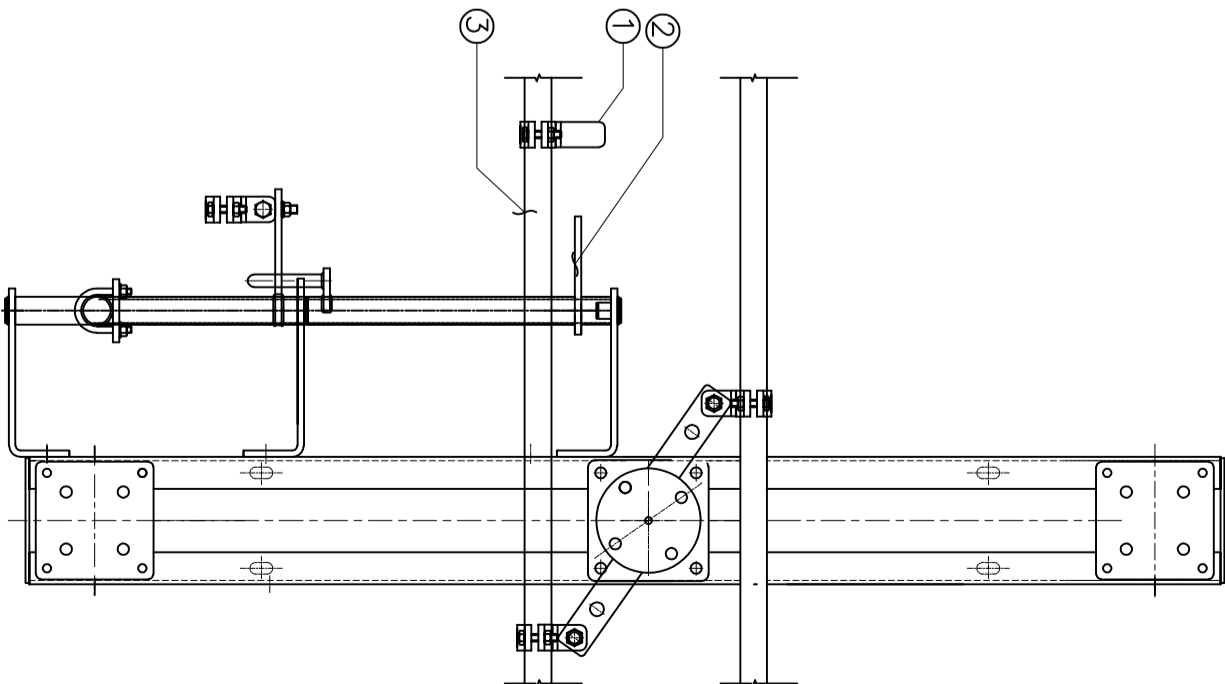
ISOLATOR IN OPEN CONDITION & EARTH SWITCH IN OPEN CONDITION

CHIEF ENGINEER/PROJECTS  
APTRANSCO/VS/VIJAYAWADA



CASE - III

ISOLATOR IN OPEN CONDITION & EARTH SWITCH IN CLOSED CONDITION



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. GANDRAJAPALLE. THE DESIGNS SHALL NOT BE REPRODUCED WITHOUT WRITTEN CONSENT OF SWITCHGEAR MANUFACTURING COMPANY PVT. LTD. GANDRAJAPALLE.

Drawing approval subject to valid vendor registration

3. TANDEM PIPE (40 NB GI PIPE)	DRN	YVG	07.07.23		SWITCHGEAR MANUFACTURING COMPANY GANDRAJAPALLE, CHITTOOR DIST, A.P, INDIA.	
2. INTERLOCKING LEVER	CHKD	VK	07.07.23			
1. INTERLOCKING CLAMP	APPD	OJA	07.07.23			
S.NO	DESCRIPTION	DEPT	DATE	DRG.NO.	S T D - 2 4 5 0 0 1 3	
PART LIST			SC: NTS	Paper size A3	SHEET 1 of 1	
					REV.	0

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.

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.

REV	DATE	CHANGES MADE	SIG

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

120



**SWITCHGEAR MANUFACTURING COMPANY**  
 GANDRAJUPALLE, CHITTOOR DIST, AP, INDIA

CUSTOMER **TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED**

SL.No.	TYPE	DBR
(*)		
VOLTAGE (kV)	CURRENT (Amps)	800
245		
STC (kA-sec-kAp)	IMPULSE (kVp)	1050
40-3-100		
DC VOLTAGE (V)	PF VOLTAGE (kV)	460
220		
OPERATING DEVICE	FREQUENCY (Hz)	50
MOTOR		
YEAR		(*)

FOR DISCONNECTOR

80



**SWITCHGEAR MANUFACTURING COMPANY**  
 GANDRAJUPALLE, CHITTOOR DIST, AP, INDIA

CUSTOMER **TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED**

SL.No.	TYPE	VB
(*)		
VOLTAGE (kV)	DC VOLTAGE (V)	220
245		
STC (kA-sec-kAp)	FREQUENCY (Hz)	50
40-3-100		
OPERATING DEVICE	YEAR	(*)
MANUAL		

FOR EARTH SWITCH

80

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

**NOTE:**

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

Drawing approval subject to valid vendor registration

DRN	YVG	07.07.23		TITLE
CHKD	VK	07.07.23		
APPD	OJA	07.07.23	SWITCHGEAR MANUFACTURING COMPANY	
DEPT	SIGN	DATE	GANDRAJUPALLE, CHITTOOR DIST, A.P, INDIA.	
SC: NTS		Paper size A3	NAME PLATE DETAILS	
			FOR 245KV DBR DISCONNECTOR	
			DRG.NO. S T D - 2 4 5 0 0 1 4	

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.

**SWITCHGEAR MANUFACTURING COMPANY PVT. LTD**

CUSTOMER : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

**GUARANTEED TECHNICAL PARTICULARS FOR 245KV DOUBLE BREAK DISCONNECTOR**

Sl. No	Description	Unit	Particulars
1.	Manufacturer's Name & Address of manufacture		Switchgear Manufacturing Company Pvt. Ltd, Gandajupalle, ChittoorDist
2.	Type Designation		Horizontal Double Break, DBR
3.	Applicable Standard		IS: 9921 (Part I to V) / IEC: 62271-102
4.	Rated voltage	CHIEF ENGINEER/PROJECTS (KV)	245
5.	Rated Frequency	APTRANSCO/VS/VIJAYAWADA(Hz)	50
6.	Outdoor / Indoor		Outdoor
7.	Whether all three poles are ganged together mechanically / electrically		Mechanically ganged
8.	Rated normal current		
	a) Under normal condition as per IS/IEC	(Amps)	800Amps
	b) Under site conditions	(Amps)	800
9.	Rated short time withstand current for 3 sec. for Isolator & Earth switch	(kA rms)	40
10.	Rated peak withstand short circuit current for Isolator & Earth switch	kAp	100
11.	Rated short circuit making current	KA	For No-load operated Isolator making current is not applicable. But shall carry peak short circuit current of 100kAp
12.	Rated Magnetizing current / Capacitive current make/break capacity at 0.15% p.f.	(Amp)	0.7 Amps at 0.15 Pf (Assigned value)
13.	Temperature rise over ambient temperature 50°C at site corresponding to	(°C)	
	a) Maximum continuous current	(°C)	Within 55 °C
	b) Short time current	(°C)	
14.	Rated Insulation level		
	a) 1.2/50 microsecond lightning impulse withstand voltage (+ve or -ve polarity)	KV(peak)	± 1050
	i) To earth	KV(peak)	
	ii) Across the open Isolator	KV(peak)	± 1200
	- One terminal lightning Impulse		
	b) 250 / 2500 microsecond switching impulse withstand voltage		Not Applicable
	i) To earth	KV(peak)	Not Applicable
	ii) Across the open Isolator		
	- One terminal lightning Impulse	KV(peak)	Not Applicable
	- Opposite terminal power frequency	KV(peak)	Not Applicable
	c) One minute power frequency withstand voltage		
	i) To earth	KV (rms)	460
	ii) Across the terminals of open Isolator	KV (rms)	530
15.	Corona extinction voltage	KV (rms)	156
16.	Radio Interference voltage at 0.5 MHz and 2 MHz at 156 kV (rms)	(micro-volt)	1000 mV at 156 kV (rms)
17.	Rated mechanical terminal loads		
	a) Longitudinal (or straight)	N	800
	b) Transverse (or cross)	N	270

Drawing approval subject to valid vendor registration

NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.

**SWITCHGEAR MANUFACTURING COMPANY PVT. LTD**

CUSTOMER		TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED	
18.	Total operating time		
	a) Opening time of Isolator	(Sec.)	12 sec. or less
	b) Closing time of Isolator	(Sec.)	12 sec. or less
19.	Main contacts (Fixed and Moving) of Isolator & Earth switch		
	a) Type		<b>Main switch:</b> High Pressure, Reverse Loop, Pressure relieving Type with Turn & Twist Design <b>Earth switch:</b> Slide-in-contact
	b) Material		Hard Drawn Electrolytic copper (HDEC)
	c) Whether contacts silver plated		Yes (Contact surface)
	d) Thickness of silver coating	microns	15 microns
	e) Contact area	mm <sup>2</sup>	Line Contact
	f) Contact pressure	(Kg/ mm <sup>2</sup> )	4kg/cm <sup>2</sup> per Finger
	g) Current density(at minimum cross section of switch blade)		
	(i) Moving blade (Cu)	A/mm <sup>2</sup>	1.87
	(ii) Terminal pad (Al)	A/mm <sup>2</sup>	0.88
	(iii) Contacts (Cu)	A/mm <sup>2</sup>	1.56
	(iv) Terminal connectors (Al)(Contractor scope)	A/mm <sup>2</sup>	1.0
	h) No. of operations which the Isolator can make without deterioration of contacts	Nos.	1000 (min)
20.	<b>AUXILIARY CONTACTS</b>		
	a) <b>MAIN ISOLATOR</b>		
	(i) Total number of 'NO' (for Purchaser's use)	Nos.	8
	(ii) Total number of 'NC' (for Purchaser's use)	Nos.	8
	(iii) Rated voltage	(Volts)	220V DC
	(iv) Rated continuous current	(Amps)	10A
	(v) Rated breaking current	(Amps)	2A DC
	b) <b>EARTH SWITCH</b>		
	(i) Total number of 'NO' (for Purchaser's use)	Nos.	3
	(ii) Total number of 'NC' (for Purchaser's use)	Nos.	3
	(iii) Rated voltage	(Volts)	220V DC
	(iv) Rated continuous current	(Amps)	10A
	(v) Rated breaking current	(Amps)	2A DC
	c) Whether arcing contacts provided, and if so, and material used		Yes, M.S. Rod Hot-dip Galvanized
21.	Minimum clearance in air:		
	a) Phase to Phase clearance	mm	4500 (Center to Center)
	b) Phase to Ground clearance	mm	2300(Equal to the height of insulator selected)
	c) Between phases when isolator is open:	mm	3200(Center to Center)
22.	Bearings		
	a) Types of bearings		Deep Groove ball bearing
	b) Locations of bearings		Below the rotating post insulator
	c) Type of lubricant for bearings		Heavy Duty Grease

Drawing approval subject to valid vendor registration

CHIEF ENGINEER/PROJECTS  
APTRANSCO/VS/VIJAYAWADA

acceptance tests.  
2.For EPC contractors only.

**SWITCHEAR MANUFACTURING COMPANY PVT. LTD**

**CUSTOMER : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED**

23.	Terminal Clamp & Connectors		
	a) Manufacturer's Name		Not in scope of Switchgear Manufacturing Company
	b) Applicable standard		
	c) Material		
	i. Clamp body		
	ii. Bolts & nuts		
	iii. Spring washers		
	d) Rated current	Amp	
	e) Rated terminal load	Kg.	
	f) Weight of clamp complete with hard ware	Kg.	
	g) Radio interference voltage	(micro-volts)	
	h) Corona extinction voltage	kV	
	i) Maximum allowable span for Aluminium Tube with outer diameter of 114.2 mm and inside diameter of 97.18 mm on equipment terminal and with rated fault current and 7 m & 4.5 m phase to phase spacing		
24.	Operating Mechanism		
	a) Name & address of manufacturer		Switchgear Manufacturing Company Pvt. Ltd, Gandrajupalle, Chittoor Dist
	b) Type of operating mechanism		<b>Main switch:</b> Motor with Manual Handle for Emergency operation <b>Earth switch:</b> Manual Yes
	c) Whether separate operating mechanism provided for operation of Isolator pole and earthing switch.		
	d) Electrical operation.		
	i) Motor type (AC / DC)		3 Phase, 415 V, 50 Hz, Squirrel Cage AC Induction motor
	<b>CHIEF ENGINEER/PROJECTS</b>		
	<b>APTRANSCO/NS/VIJAYAWADA</b>		
	ii) Applicable standard		IS : 325 & IS : 996
	iii) Rated - voltage and current, HP		415 Volt, 1.12 Amps, 0.5 H.P
	iv) Type of enclosure and method of cooling		Totally enclosed, self ventilating
	v) Power required for closing and opening operation	Watts	373
	vi) Running time for motor for closing and opening operation	(sec.)	Less than 12 secs
	vii) Control supply for motor (volt), power, consumption	Volt, Amp	220 Volt DC 35 Watts
	e) Type of manual operating mechanism for Isolator pole and earth switch.		<b>Main switch:</b> Reduction gear for smoothly controlled movement during the entire operation cycle. <b>Earth switch:</b> Manual with Reduction Gear
	f) Force required to operate		30 Kg-m.
	g) Whether padlocking are in included as per the specification		Provision is made
	h) Type of manual device		Torsional
	i) Weight of operating mechanism (Approx.)	kg	Motor Operating Mechanism Box - - 70kg Manual Operating mechanism Box – 28kg (Approx)
25.	Type of interlocking between isolator and earthing switch		

Drawing approval subject to valid vendor registration

**SWITCHGEAR MANUFACTURING COMPANY PVT. LTD**

<b>CUSTOMER</b>		<b>: TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED</b>	
a)	Resistance of operating and Interlock coils	k $\Omega$	2
b)	Details of following interlocks provided as per specification		
j)	Mechanical interlock between Isolator and earth switch		Yes
ii)	Electrical interlock for Isolator and earth switch		Yes
iii)	Electrical interlocking in association with circuit breaker		Yes
iv)	Electrical interlock to bring back all three poles to open position in case any pole fails to close within specified time.		No
v)	Provisions to cut-off supply to the motor during manual operation <b>NOTE: 1. Drawings for the coupling the motor.</b>		Yes
vi)	Electrical scheme to provide remote start for pole discrepancy	2. For EPC contractors only.	No
vii)	Arrangement provided to prevent electrical or manual operation unless interlock is satisfied.		Yes
26.	Control Cabinet / Marshalling box/MOM Panel		
a)	Name & address of Manufacturer		Switchgear Manufacturing Company Pvt. Ltd, Gandrajupalle, Chittoor-Dist
b)	Applicable Standard		IS: 5039 / IS: 8623, IEC: 60439
c)	Sheet thickness (mm) Top/Bottom/Side//Back/Door Leaf	mm	Aluminium, 3mm thick
d)	Degree of protection provided		IP - 55
e)	Colour of finish paint		
j)	Outside		Light Admiral Grey in accordance with shade No. 631 of IS: 5
ii)	Inside		
f)	Control wiring		
(i)	Current & Voltage rating	A, V	10 A & 1100 V
(ii)	Size and Material of conductor		2.5 sq.mm Stranded copper wires
g)	Terminal blocks		
(i)	Name & address of Manufacturer		Elmex or connectwell
(ii)	Current & Voltage rating	A, V	10 A & 1100 V
h)	Space heater rating at 240 volts	(Watts)	80 watts
i)	Provision of lock with keys	Yes/No	Yes
j)	Dimensioned drawing (External & Internal)	Yes/No	Yes
k)	Control cabinet / marshaling Box internal lighting lamp and door switch for controlling.		Provision for Bulb Holder and control by Door Switch shall be provided. Suitable Bulb shall be provided by Contractor
l)	Weight	kg	70 Kgs (Approx.)
m)	Plinth Mounted / Structure mounted.		Structure Mounted

Drawing approval subject to valid vendor registration

**CHIEF ENGINEER/PROJECTS**  
**APTRANSCO/NS/VIJAYAWADA**

acceptance tests.

2.For EPC contractors only.

**SWITCHGEAR MANUFACTURING COMPANY PVT. LTD**

CUSTOMER : TRANSMISSION CORPORATION OF ANDHRA PRADESH LIMITED

27.	A. Tandem Pipe		
	a) Size		32NB
	b) Class		Class 'B'
	c) Material		G.I. Pipe
	d) Applicable Standard		IS: 1239 (Part D), 1990 & IS: 4736, 1986
	e) Weight of Zinc	(gm/sq.m)	360
	B. Down Pipe		
	a) Size (Internal / External dia)	(mm)	50NB
	b) Class		Class 'B'
	c) Material		G.I. Pipe
	d) Applicable Standard		IS: 1239 (Part D), 1990 & IS: 4736, 1986
	e) Weight of Zinc	(gm/sq.m)	360
28.	Size and Weight		
	a) Weight of each pole (without Insulators)	K gs. (Approx.)	
	b) Space requirement i.e. length		
	c) Dimensions		
	(i) 3 Phase Isolator		
	(ii) Isolator -cum- Earthing Switch (mm x mm x mm)	mm	
	d) Size of largest part		
29.	INSULATORS		Not in scope of Switchgear Manufacturing Company

For Switchgear Manufacturing Company Pvt. Ltd



Authorized Signatory

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

Drawing approval subject to valid vendor registration