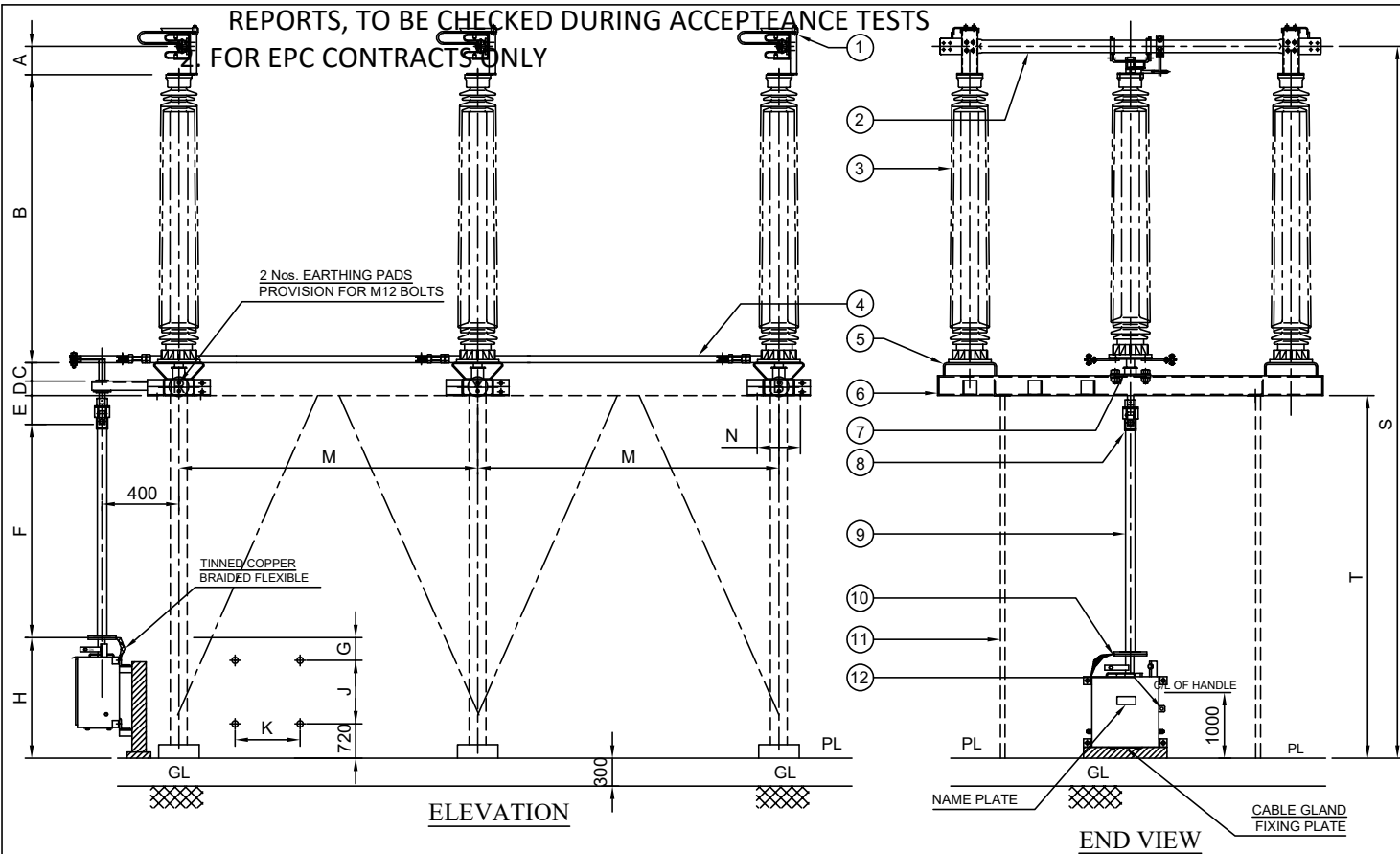




REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS  
FOR EPC CONTRACTS ONLY



PART LIST:

1. FIXED CONTACT ASSEMBLY
2. MOVING CONTACT ASSEMBLY
3. INSULATOR STACK (NOT IN OUR SCOPE OF SUPPLY)
4. TANDEM PIPE (CLASS " B " G.I. PIPE)
5. ELEVATOR CHANNEL (10 mm THK)
6. BASE CHANNEL (125 x 65 x 5 mm THICK CHANNEL)
7. ROTATING SHAFT WITH LEVER ARM & CLAMP (M.S. HDG)
8. UNIVERSAL JOINT ARRANGEMENT
9. DOWN OPERATING PIPE (50 NB, CLASS " B " G.I. PIPE)
10. OPERATING MECHANISM FOR MAIN SWITCH (MANUAL)
11. SUPPORTING STRUCTURE (NOT IN OUR SCOPE OF SUPPLY)
12. PROVISION FOR PADLOCK

Tandem Pipe size of Isolator /E.S/Aux Tandem Pipe  
Shall be Minimum 32 mm NB

REFERENCE DRAWINGS:

- FOR ISOLATOR CONTACT DETAILS (800A) ----- 4. RM AP 02
- FOR OPERATING MECHANISM DETAILS (M.S)----- 4. N AP 03
- FOR NAME PLATED DETAILS----- 4. Z AP 04

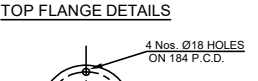
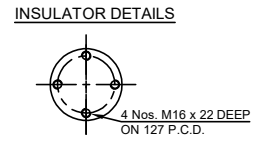
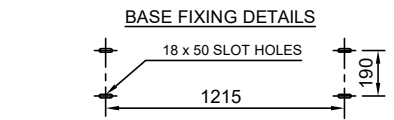
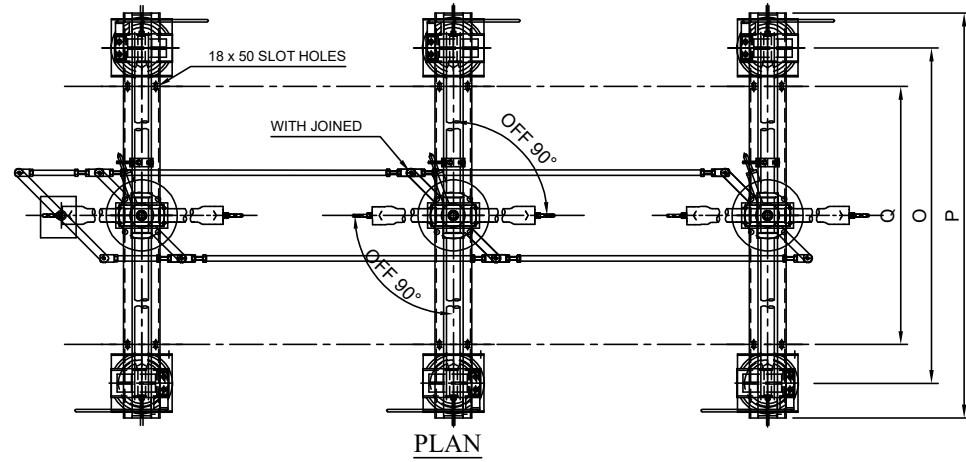
Thickness of Silver plating : 15 Microns Minimum

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED (87 MICRONS)
3. ALL NON-FERROUS CONTACT POINTS ARE SILVER PLATED (MIN)
4. THE INDICATED DIMENSIONS ARE SUBJECT TO THE MANUFACTURING TOLERANCE:  
UP TO 50 mm  $\pm 3\%$ ; 51 TO 100 mm  $\pm 2\%$ ;  
101 TO 300 mm  $\pm 1\%$ ; ABOVE 300 mm  $\pm 0.5\%$ ;
5. SHORT TIME CURRENT RATING 31.5 KA ms. FOR 3 Sec.
6. APPLICABLE STANDARD : IS:9921 PART I TO V ; IEC : 62271 - 102
7. MAIN ROTATING POST HAVING 2 Nos. BALL BEARINGS OF ADEQUATE SIZE
8. SUPPORT STRUCTURE & INSULATORS INCLUDING FIXING HARDWARE NOT IN OUR SCOPE OF SUPPLY

WEIGHT:

NET WEIGHT OF THE ISOLATOR  
EXCLUDING INSULATOR : 550 Kg (Approx.)



Drawing approval subject to valid vendor registration

DIMENSIONS

A	B	C	D	E	F	G	H	J	K	M	N	O	P	Q	S	T
175	1500	75	125	180	1420	120	1200	360	400	3000	190	2135	2500	1215	4675	2800

**Chief Engineer/Projects**  
**APTRANSCO/VS/Vijayawada.**

REVISIONS			
D	C	B	A

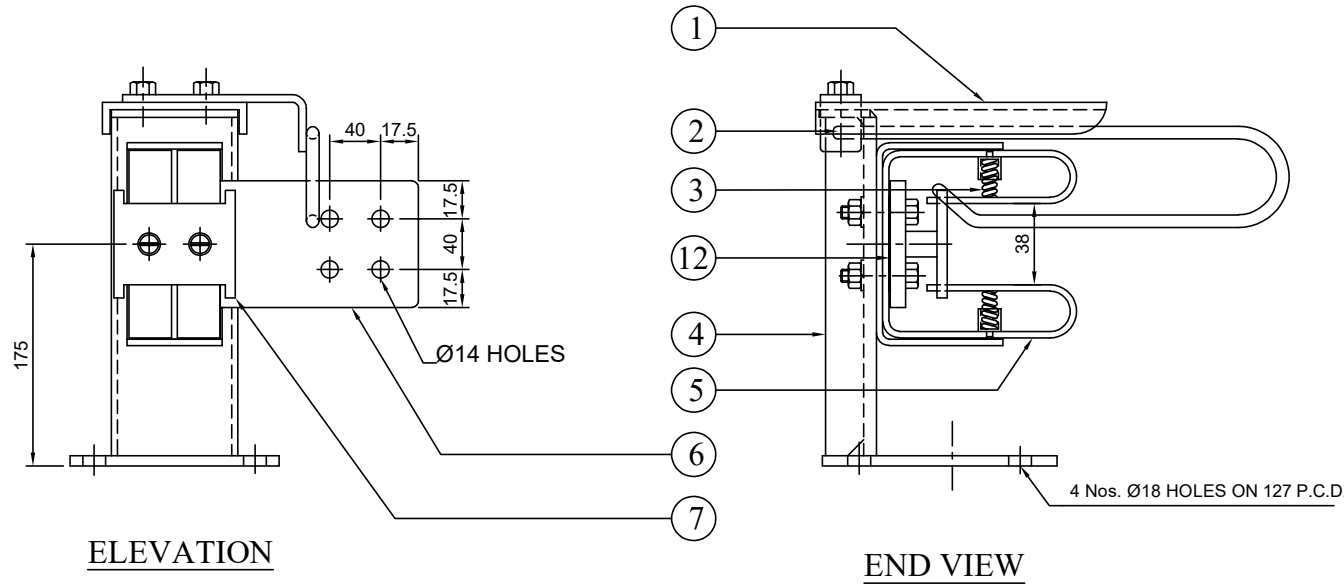
TITLE:  
**G.A. OF 145 kV, 800 AMPS,  
TP, HDB, RT, ISOLATOR WITH OUT E.S.  
(MANUAL OPERATING MECHANISM)**

SCALE:N.T.S	
DATE	21-03-2023
DRAWN	
CHECKED	
APPROVED	

**GR POWER SWITCHGEAR LTD.,  
JEEDIMETLA HYDERABAD-500 055 INDIA**

DRG.NO:	3. FR AP 01	REV	
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FIXED CONTACT ASSEMBLY:

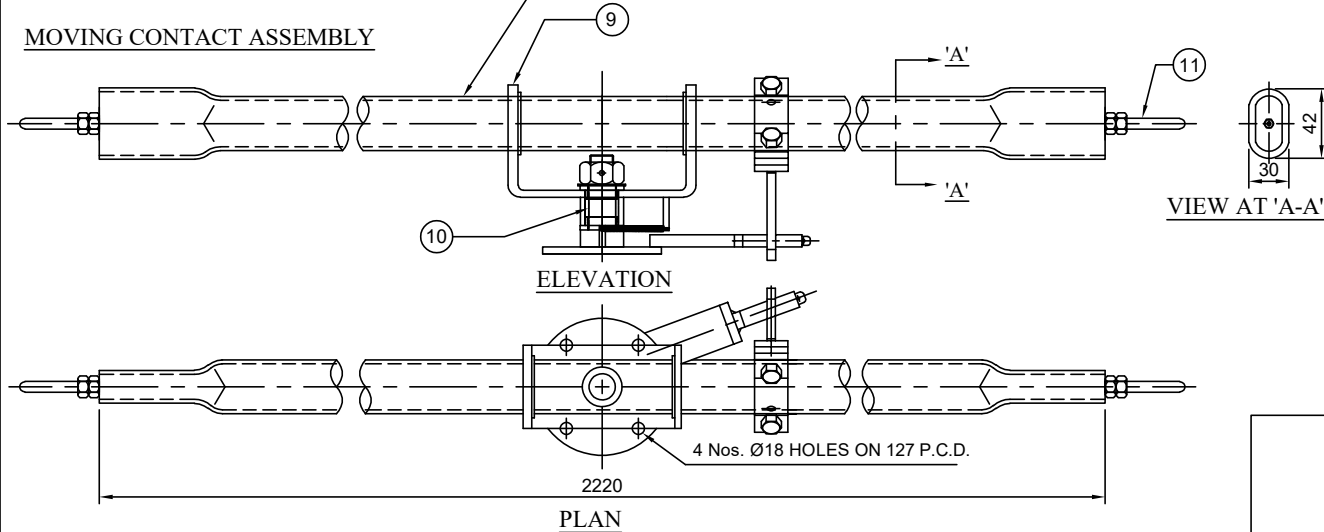


ELEVATION

END VIEW

Drawing approval subject to valid vendor registration

MOVING CONTACT ASSEMBLY



ELEVATION

PLAN

NOTE: 1. DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS  
2. FOR EPC CONTRACTS ONLY

PART LIST:

1. HOOD (18 SWG M.S. HDG)
2. ARCING HORNS (Ø10 ROD M.S. HDG)
3. SPRINGS (Ø2 mm STAINLESS STEEL.)
4. SUPPORTING CHANNEL (100 x 40 mm M.S. HDG)
5. JAWS (32 x 4 HDEC STRIP 2 Nos. SILVER PLATED)
6. JUMPER PLATE (75 x 12 ALU. FLAT)
7. SPACER (ALUMINUM)
8. MOVING CONTACT ARM (38 OD x 30 ID CU. TUBE )
9. MC SUPPORT WITH NYLON BUSH
10. CENTER MECHANISM (M.S. HDG, TURN & TWIST MECHANISM)
11. ARCING HORN FOR MOVING CONTACT(Ø10 ROD M.S. HDG)
12. BI-METALLIC SHEET (2 mm THICK Alu. + Cu.)

189	BOQ
06	Nos
06	Nos
24	Nos
06	Nos
12	Nos
06	Nos
06	Nos
03	Nos
06	Nos
03	Nos
06	Nos
06	Nos

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED
3. ALL NON-FERROUS CONTACT POINTS ARE SILVER PLATED  
MICRONS REMAINING CONTACT AREA TIN PLATED.
4. THE MOVING CONTACT ASSEMBLY SHOWN FOR TURN & TWIST ASSEMBLY

Thickness of Silver plating : 15 Microns Minimum

**Chief Engineer/Projects**  
**APTRANSCO/VS/Vijayawada.**

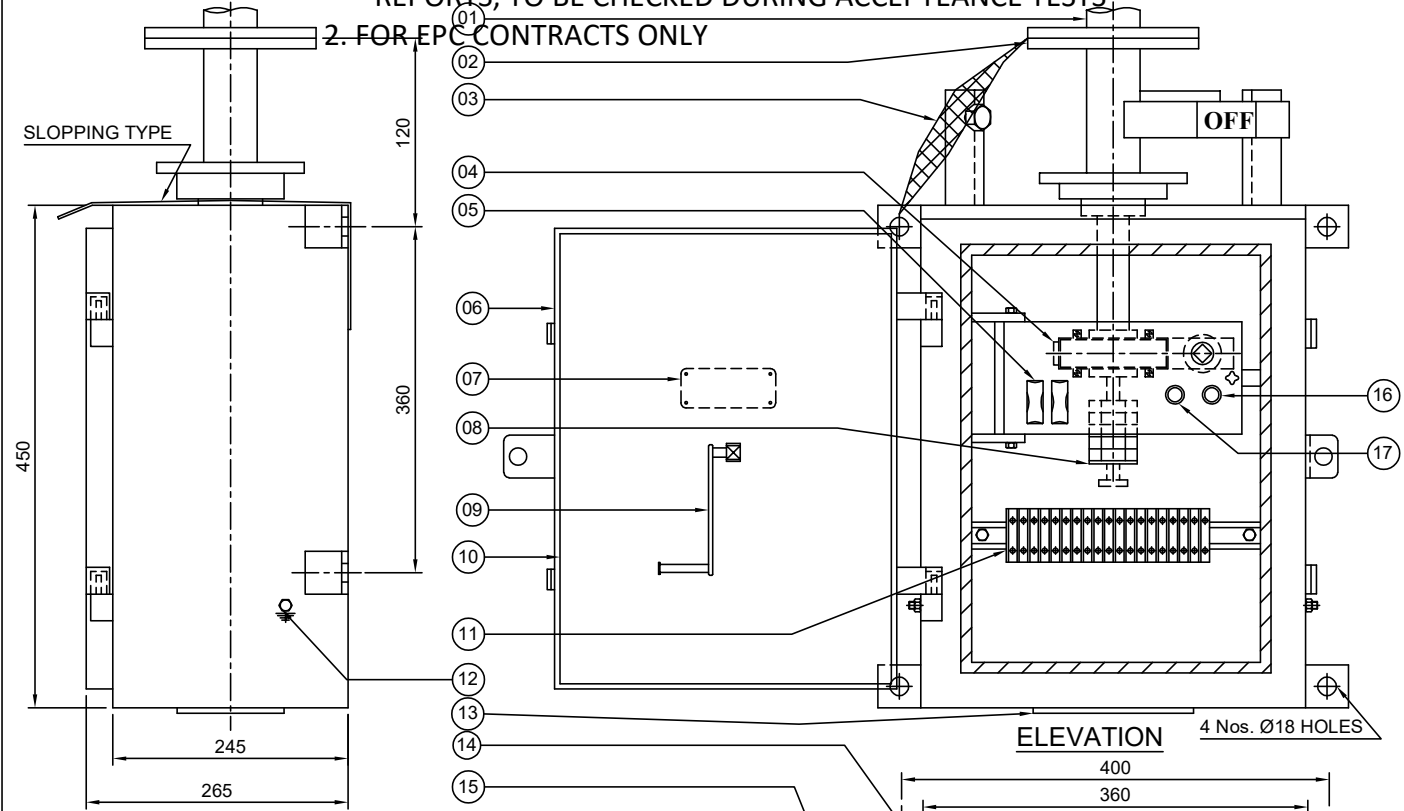
REVISIONS			
D	C	B	A

TITLE:	SCALE:N.T.S.
<b>MAIN SWITCH CONTACT ASSEMBLY</b>	
(FOR 145 kV 800 Amps)	DATE: 21/03-2023
<b>GR POWER SWITCHGEAR LTD.,</b> JEEDIMETLA HYDERABAD-500 055 INDIA	DRAWN:
	CHECKED:
	APPROVED:
DRG.NO:	REV
4. FRM AP 02	

REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS

2. FOR EPC CONTRACTS ONLY

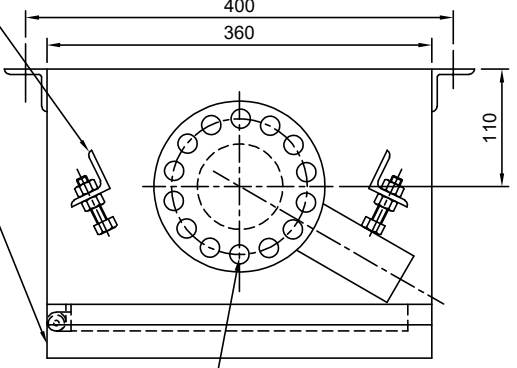
SLOPPING TYPE



END VIEW

ELEVATION

4 Nos. Ø18 HOLES

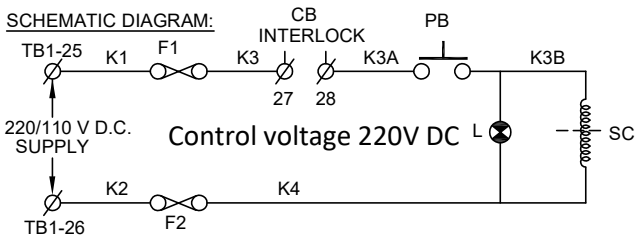


PLAN

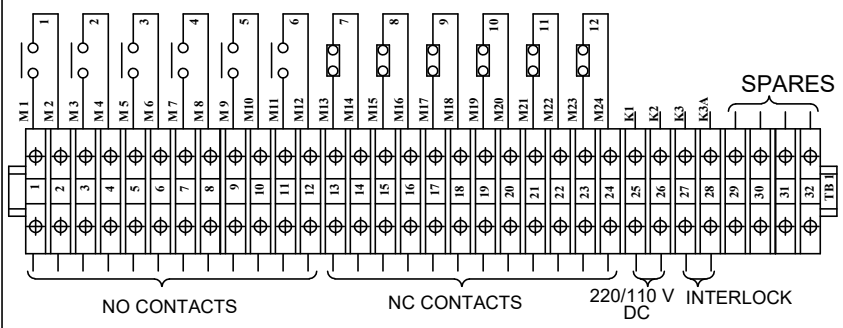
14 Nos. Ø18 HOLES ON 127 PCD

Control voltage 220V DC

SCHMATIC DIAGRAM:



AUX. SWITCH CONTACT DETAILS FOR ISOLATOR (6 NO + 6 NC)



PART LIST

01. DOWN OPERATING PIPE
02. OUTPUT FLANGE (08 MM THICK M.S. PLATE)
03. COPPER FLEXIBLE (25 x 3 mm TINNED Cu. FLEXIBLE)
04. REDUCTION GEAR BOX (MATERIAL : EN8 / FORGED STEEL)
05. FUSES (2 A)
06. CUBICLE WITH DOOR (3 mm THICK, ALU. SHEET)
07. NAME PLATE
08. AUXILIARY SWITCH (6 NO + 6 NC)
09. OPERATING HANDLE
10. GASKET (EPDM)
11. TERMINAL BLOCKS (UBT - 4 OF ELEM X / VIN MECH OR ITS EQVT.)
12. PROVISION FOR EARTHING TERMINALS
13. DETACHABLE CABLE GLAND FIXING PLATE (WITHOUT GLANDS)
14. ON - OFF STOPPERS (M.S. ANGLE PAINTED)
15. RAIN SHADE
16. INDICATION LAMP
17. PUSH BUTTON (4 A)

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETER
2. CUBICLE WILL BE NATURAL FINISH FOR INSIDE AND OUTSIDE
3. DEGREE OF PROTECTION IP:55 AS PER IS:2147
4. WEIGHT OF THE BOX :28 Kg (Approx.)
5. WIRING WILL BE DONE WITH 1100 V GRADE 2.5 Sq. mm Cu. STANDED P.V.C. INSULATED CONDUCTOR
6. 20% SPARE TERMINALS PROVIDED
7. REDUCTION GEAR RATIO 20 : 1 MAKE GRPS MATERIAL OF GEAR EN8 / STEEL
8. LUBRICATION OF GARES : NON HARDENED GEARS FILLED GEAR BOX

LEGEND:

- F1,F2 ----- FUSES (2 Amp Rating)
- PB ----- PUSH BUTTON
- L ----- INDICATION LAMP
- SC ----- SOLENOID COIL

**Chief Engineer/Projects**  
**APTRANSCO/VS/Vijayawada.**

REVISIONS			
D	C	B	A

TITLE:	<b>OPERATING MECHANISM FOR MAIN SWITCH (FOR 132 KV)</b>
DRG.NO:	<b>4. FN AP 03</b>
DATE:	21-03-2023
DRAWN:	<i>[Signature]</i>
CHECKED:	<i>[Signature]</i>
APPROVED:	<i>[Signature]</i>
DRG.NO:	<b>4. FN AP 03</b>
REV:	

SCALE:N.T.S.	
DATE:	21-03-2023
DRAWN:	<i>[Signature]</i>
CHECKED:	<i>[Signature]</i>
APPROVED:	<i>[Signature]</i>
DRG.NO:	<b>4. FN AP 03</b>
REV:	




**GR POWER SWITCHGEAR LTD.,**  
**JEEDIMETLA HYDERABAD-500 055 INDIA**

NAME PLATE DETAILS FOR ISOLATOR

NOTE: 1. DRAWING APPROVAL SUBJECT TO VALID TYPE TEST REPORTS, TO BE CHECKED DURING ACCEPTANCE TESTS  
2. FOR EPC CONTRACTS ONLY

Drawing approval subject to valid vendor registration

	MANUFACTURED & SUPPLIED BY	
	<b>GR POWER SWITCHGEAR LTD.,</b> JEEDIMETLA, HYDERABAD - 500 055	
CUSTOMER :	M/s. TRANSMISSION CORPORATION OF AP LIMITED	
PROJECT :	-----	
CONTRACTOR :	-----	
P.O. NO :	-----	Dt. : -----
TYPE :	HDB	SL. NO : AS APPLICABLE YEAR OF Mfg. : -----
RATING :	Un 145 KV ; In : 800 A ;	WEIGHT IN KG : -----
IMPLUSE(UI) :	650 KV Peak ;	SWITCHING(Us) : NA KV Peak ;
P.F :	275 KV rms ;	STC(lth) : 31.5 KA rms ; DURATION : 3 Sec ;
OPERATING MECHANISM :	MANUAL (RG)	
CONTROL VOLTAGE :	220/110 V DC	CREEPAGE : -----

Control voltage 220V DC

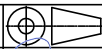
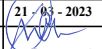

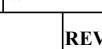

Project, contractor, PO, date ,year of MFG shall be stamped during inspection

**Chief Engineer/Projects**  
**APTRANSCO/Vs/Vijayawada.**

- Minimum 300mm plinth shall be maintained for CT/PT/CVT/ Isolators/IVT in the substation during foundation works to ensure Safe live to ground clearance as per IE rules.
- 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 in line with CT/PT/CVT/Isolator /IVTs requirement and compatibility.


**NOTES :**

- ENGRAVED LETTER SIZE : 3 mm
- LETTER ETCHED WHITE ON BLACK BACKGROUND
- MATERIAL : ALUMINIUM
- THICKNESS : 1 mm

REVISIONS				TITLE: <b>NAME PLATE DETAILS FOR 132 KV ISOLATOR</b>	SCALE:N.T.S	
D	C	B	A		DATE	
					DRAWN	
					CHECKED	
					APPROVED	
				 <b>GR POWER SWITCHGEAR LTD.,</b> JEEDIMETLA HYDERABAD-500 055 INDIA	DRG.NO:	REV
					<b>4. FZ AP 04</b>	

**SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS FOR 145 KV, 800A WITHOUT EARTH SWITCH**

S.No	DESCRIPTION	145 KV
1	Type/Installation	"DB" Double Break - OUTDOOR
2	Manufacturer's Name and country of manufacture	GR POWER SWITCHGEAR LTD.,
3	Standards according to which the isolators are manufactured.	IS 9921Part I to V.& IEC 62271-102
4	Maximum design voltage at which the isolator can operate (kV).	145 KV
5	Frequency (Hz)	50 Hz
6	Rated voltage (kV)	145KV
7	Maximum current that can be safely interrupted by the Isolator inductive (A & % PF) Capacitive (A & % PF)	0.7 Amps at 0.15 p.f.
8	Continuous current rating normal (Amps) under site conditions (Amps).	800 Amps
9	Rated short time current	<u>MAIN SWITCH</u>
	i) For 3 Seconds (kA rms)	31.5 KA rms
	ii) For 1 Second (kA rms)	Not Applicable
	iii) Rated peak short time current (KV P)	78.75 KA rms
10	Current density at the minimum cross section of	
	a) Moving blade (Amps/Sq.mm)	2.0 Amps/Sq.mm for HDE Cu. Tube
	b) Terminal pad	1.0 Amp/Sq.mm for EC grade Alu. Flat.
	c) Contacts	1.6 Amps/Sq.mm for HDE Cu. Flat.
11	Maximum temperature rise of current carrying parts when carrying rated current continuously (Deg.C).	Within the specified limits of IS/IEC 62271-102.
12	Insulation levels	
	i) Impulse withstand voltage (kV Peak) Phase to Earth Isolating Distance.	650/750 KV Peak
	ii) Switching surge withstand voltage (kV Peak) Phase to Earth isolating distance.	Not applicable

S.No	DESCRIPTION	145 KV
	iii) Power Frequency withstand voltage (kV rms) Phase to Earth isolating distance.	: 275/315 KV rms
13	Minimum clearance in air	
	i) Between poles (mm)	: 2700 mm for a phase spacing of 3000 mm
	ii) Between live parts and earth (mm)	: 1300 mm
	iii) Between live parts when switch is open.	: Drawing approval subject to valid vendor registration
	a) On the same pole (mm)	: 1735 mm
	b) Between adjacent poles (mm)	: 2090 mm
14	Rated mechanical terminal load	
	i) Load along the terminal connector side (Kg).	: 51 Kgs
	ii) Load across the terminal connector side (Kg).	: 17.3 Kgs
15	Torque required to operate the switch in Kg.m.	: 40 Kg m
16	Contact Zone	
	i) Horizontal deflection (mm)	: } Not applicable
	ii) Vertical deflection (mm)	
	iii) Total amplitude of longitudinal movement w.r.t conductor supporting fixed contact	
17	Design and construction	
	i) No. of insulators per pole	: Three
	ii) No. of breaks per pole	: Two
	iii) Type of closing / opening mechanism (Horizontal / vertical break straight etc.).	: Horizontal break for Isolator
	iv. Contacts	Thickness of Silver plating : 15 Microns Minimum
	a) Material and grade	: Hard Drawn Electrolytic Copper flat, silver plated  micron thickness.
	b) Cross-sectional area (Sq.mm)	: 512 Sq.mm for 800A

**Chief Engineer/Projects**  
**APTRANSCO/VS/Vijayawada.**

S.No	DESCRIPTION	145 KV
v	Moving blades	Thickness of Silver plating : 15 Microns Minimum
	a) Material and grade	: Hard Drawn Electrolytic Copper tube, silver plated 20 micron thickness.
	b) Cross-sectional area (Sq.mm)	: 427 Sq.mm for 800A
vi)	Contact support	Drawing approval subject to valid vendor registration
	a) Material and size of channel / block.	: 8 mm Thick MS HDG
vii)	Rain hood-material grade and size	: MS HDG
viii)	Turn and twist mechanism	
	a) Material and size of clamps	: 40 x 10 MS HDG Flat
	b) Material size of springs	: 10 swg SS wire
	c) Whether springs are encased	: Not encased
ix)	Nuts and bolts	
	a) Size, material and grade in live parts.	: Lessthan M8 are of stainless steel
	b) Size, material and grade in other parts.	: M8 and above are of MS HDG.
x)	Insulator base plate material and size of plate below insulators.	: 10 mm thick M.S. Hot dip galvanised plate
xi)	Bearings	
	a) Material and size of housing	: MS HDG suitable for 40 ID Ball Bearing
	b) No. of bearings, location & size	: 2 Nos. below centre rotating post insulator
xii)	Tandem pipe	Tandem Pipe size of Isolator /E.S/Aux Tandem Pipe Shall be Minimum 32 mm NB
	a) Size, length class and No. of pipes	: As per GA drawings
	b) Size of shackle screw	: Suitable for 16 NB
	c) No. of bearings / bush and its material and size.	: 6 Nos. bush bearings, brass, 16 mm ID Size.
xiii)	Type of interlock	: Not Applicable

**Chief Engineer/Projects**  
**APTRANSCO/VS/Vijayawada.**

S.No	DESCRIPTION		145 KV
	xiv) Down pipe size, length and class	:	50 mm NB Class B GI Pipe.
	xv) Type of universal/swivel joint		
	a) Between bearing & down pipe	:	Universal joint
	b) Between down pipe and operating mechanism.	:	Vernier Flange
	xvi) Operating mechanism		Manual operated mechanism for M.S
	a) Control cabinet		
	Material and thickness	:	3 MM Thick ALU Sheet
	Degree of protection	:	IP : 55 as per IS 2147
	Type size and no. of cable glands.	:	Compression type, 2 Nos. 19 mm. (Contractor scope of supply)
	Whether removable gland plate provided.	:	Yes, removable gland plate provided.
	b) Make type, rating and Qty. of Motors	:	Not Applicable
	Auxiliary blocks	:	6 NO / 6 NC contacts for Manual operated Main Switch
	Terminal blocks	:	Mani 10 A, 2 A DC breaking with 2A - 1 No.
	Insulated Wires	:	UBT-4
	HRC Fuse	:	1100 V grades, 2.5 Sq.mm PVC
	Space Heater	:	Applicable for RG Box
	Interlocks	:	Not applicable
	xvii) Base		1 Set PSI / 20 Watts magnetic - 1 No.
	a) Size of steel sections used	:	125 X 65 mm
	b) Overall size	:	2500 x 125 x 65 mm x 5 mm
	c) Total weight	:	28 Kgs approx

for GR POWER SWITCHGEAR LTD.,

Drawing approval subject to valid vendor registration



AUTHORIZED SIGNATORY

**Chief Engineer/Projects**  
**APTRANSCO/VS/Vijayawada.**