

TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD.

GUARANTEED TECHNICAL PARTICULARS FOR 245KV 2000A HDB ISOLATOR WITHOUT EARTH SWITCH

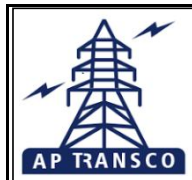
S.No	DESCRIPTION	GUARANTEED VALUE
1	Type / Installation	: "DBR' Double Break Center post rotating type" / Outdoor installation
2	Manufacturer's Name and Country of Manufacture	: PAVANI POWR SYSYEM PVT LTD. INDIA
3	Standards according to which the isolators are manufactured	: IS: 9921 - Part-I to V / IEC:62271-102
4	Miximum design voltage at which the isolator can operate (kV)	: 245
5	Frequency (Hz)	: 50
6	Rated voltage (kV)	: 220
7	Maximum current that can be safely interrupted by the isolator Inductive (A & % PF) Capacitive (A & % PF)	: Inductive- 0.7 Amps at 0.15 p.f. Capacitive- 0.7 Amps at 0.15 p.f.
8	Continuous current rating Nominal (Amps) under site conditions	: 2000
9	Rated short time current	: MAIN SWITCH
	i) For 3 seconds (kA rms)	: 40 / 50KA 3.Sec.
	ii) For 1 second (kA rms)	: Not applicable
	iii) Rated peak short time current (kVp)	: 100 / 125
10	Current density at the minimum cross-section of	: Contact sizes indicated in Annexure - III of specification & as per the property of materials.
	a) Moving blade (Amps/ Sq.mm) Cu. Tube	: 2.0 Amps / Sq.mm for HDE Cu. Tube
	b) Terminal pad : Aluminum Flat	: 1.0 Amp/ Sq.mm for EC grade Alu. Flat
	c) Contacts : Cu.Flat	: 1.6 Amps/Sq.mm for HDE Cu. Flat
	d) Terminal connector : Aluminm Casting	: 1.0 Amps/Sq.mm for Alu. Alloy.
11	Maximum Temp. Rise of current carrying parts when carrying rated current continuously (deg.C)	: Within the specified limits of IS: 9921 - PartII/ IEC-62271-102
12	Insulation Levels	Drawing approval subject to valid vendor registration
	i) Impulse withstand voltage (kV peak) phase to earth across isolating distance:	: 1050/ 1200 kV peak
	ii) Switching surge withstand voltage (kV peak) phase to earth across isolating distance	: Not applicable
	iii) Power frequency withstand voltage (kV rms) Phase to earth isolating distance	: 460/ 530 kV rms
13	Minimum clearance in air	:
	i) Between poles (mm)	: Phase spacing of 4500 mm
	ii) Between live parts and earth (mm)	: 2100 mm (Equal to dry arcing distance of insulators selected)
	iii) Between live parts when switch is open	:
	a) On the same pole (mm)	: 3200
	b) Between adjacent poles (mm)	: 4500

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APTRANSCO/VS/VIJAYAWADA**

Since the supply of terminanal 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 requirement and campability.

S.No		DESCRIPTION	GUARANTEED VALUE
15		Rated mechanical terminal load	:
i)	Load along the terminal connector side (Kg.)	:	102
ii)	Load across the terminal connector side (Kg.)	:	33.7
16		Torque required to operated the switch in Kg.m	: 40 CHIEF ENGINEER/PROJECTS
17		Design and Construction	APTRANSCO/VS/VIJAYAWADA
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 double break
iv)	Contacts	:	
a)	Material and grade	:	Hard drawn electrolytic copper flat, contact area is silver plated (15 Microns)
b)	Cross-sectional area (mm)	:	1280 sq.mm for 2000 Amps
v)	Moving blades	:	
a)	Material and grade	:	Hard drawn electrolytic copper flat, contact area is silver plated (15 Microns)
b)	Cross-sectional area (mm)	:	1055 sq.mm for 2000
vi)	Contact support	:	
a)	Material and size of channel/block	:	4 mm thick, MS HDG
b)	Material and size of plate	:	6 mm thick, MS HDG Plate
vii)	Rain hood - Material grade and size	:	1mm GI Sheet
viii)	Turn and twist mechanism	:	
a)	Material and size of clamps	:	50 x 10 mm thick, MS HDG flat.
b)	Maerial size of springs	:	3.0 mm Stainless steel wire
c)	Whether springs are encased	:	Not encased.
ix)	Nuts and Bolts	:	
a)	Size, material and grade in live parts	:	Less than M12: Stainless steel
b)	Size, material and grade in other parts	:	M12 and above: MS HDG.
x)	Insulator base plate material and size of plate below insulators	:	270 x 270 mm X 12mm MS HDG plate
xi)	Bearings	:	
a)	Material and size of housing	:	MS HDG suitable for 40 ID taper roller/ ball bearing.
b)	No. of bearings, location and size	:	2 Nos . Below centre rotating post insulator.

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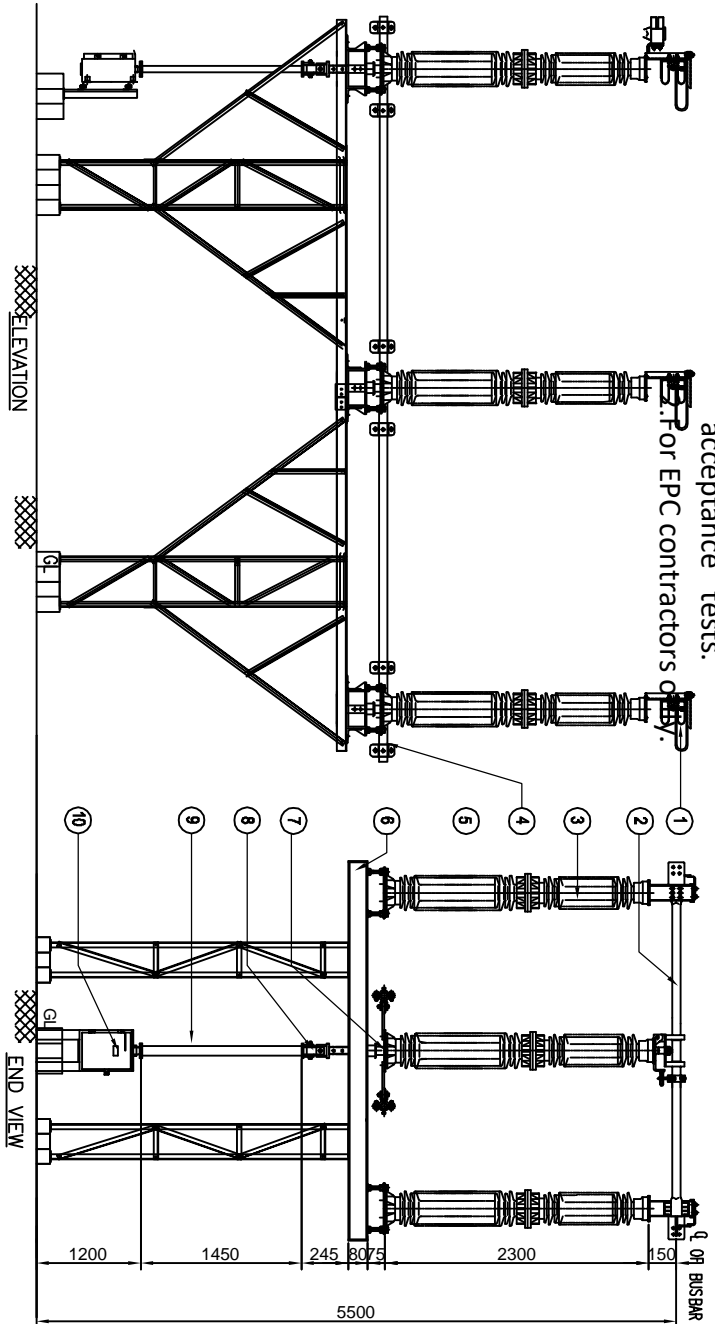


TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD.

GUARANTEED TECHNICAL PARTICULARS FOR 245KV 2000A HDB ISOLATOR WITHOUT EARTH SWITCH

S.No	DESCRIPTION		GUARANTEED VALUE
	xii)	Tandem pipe	:
	a)	Size, class and No. of pipes	: 32mm NB Class B,GI Pipe for Main switch-2Nos
	b)	Size of shackle, screw	: Suitable for 32mm NB GI Pipe
	c)	No. of bearings/bush and its material and size	: Not applicable
	xiii)	Type of interlock	: Electrical interlock between isolator and correspondin breaker
	xiv)	Down pipe size and class	: 50 NB Class B GI pipe
	xv)	Type of universal/swivel joint	:
	a)	Between bearing and down pipe	: Universal joint
	b)	Between down pipe and operating mechanism	: Vernier flange
	xvi)	Operating mechanism	: Motor operated mechanism for main switch
	a)	Control cabinet material and thickness	: 3.mm THK Aluminum Sheet
	b)	Degree of protection	: IP: 55 as per IS: 2147
	c)	Type, size and No. of cable glands	: Double compression type 2Nos. 19 mm (Contractor scope of supply)
	d)	Whether removable gland plate provided	: Yes, provided.
	e)	Make, type, rating and quantity of motors	: HE/CGL/Remi or Eqvt. 3 Phase, 415 V, 0.5 HP
	f)	Auxiliary blocks	: 12 NO + 12 NC Contacts for main switch, 10 Amps, 2 A DC Breaking with 2A - 1 No.
	g)	Terminal blocks	: UBT-4
	i)	Insulated wires	: 1100 V grades, 2.5 Sq.mm PVC For Auxiliary Circuit and 2.5 Sq.mm for Power cricuit.
	j)	HRC Fuse / MCB	: C&S/Siemns/ABB or Eqvt.
	k)	Space Heater	: 1 No. 230 V AC - 80 watts
	l)	Interlocks	: with Rotary switch Kaycee or Eqvt.
	xvii)	Base:	:
	a)	Size of steel section used	: 145x80x5mm Rectangle box profile(M.S.HDG)
	b)	Overall sie	: 145 x 80 x 3560 mm
	c)	Total weight.	: 95Kgs (Approx.) one pole
18	List of drawings furnished.		: Enclosed.
Name of the firm		For Pavani Power Systems Pvt. Ltd.	
Signature of Bidder			
Designation & Seal		(T. SESHAGIRI RAO) Managing Director	
Date		18-05-2023	
CHIEF ENGINEER/PROJECTS APTRANSCO/VS/VIJAYAWADA			

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



PART LIST:

1. FIXED CONTACT ASSEMBLY
2. MOVING CONTACT ASSEMBLY
3. INSULATOR STACK (COSTUMER SCOPE)
4. TANDEM PIPE FOR ISOLATOR (32NB, CLASS "B" G.I PIPE)
5. ELEVATOR PLATE (270X270X12MM THK M.S HDG)
6. BASE CHANNEL (145 X 80 X 5MM THK. M.S HDG)
7. ROTATING STOOL BASE WITH LEVER ARM & CLAMP (M.S HDG)
8. OPERATING PIPE CONNECTING BUSH (M.S HDG)
9. DOWN PIPE FOR ISOLATOR (50NB CLASS" B" G.I PIPE)
10. MOTOR OPERATING MECHANISM FOR ISOLATOR

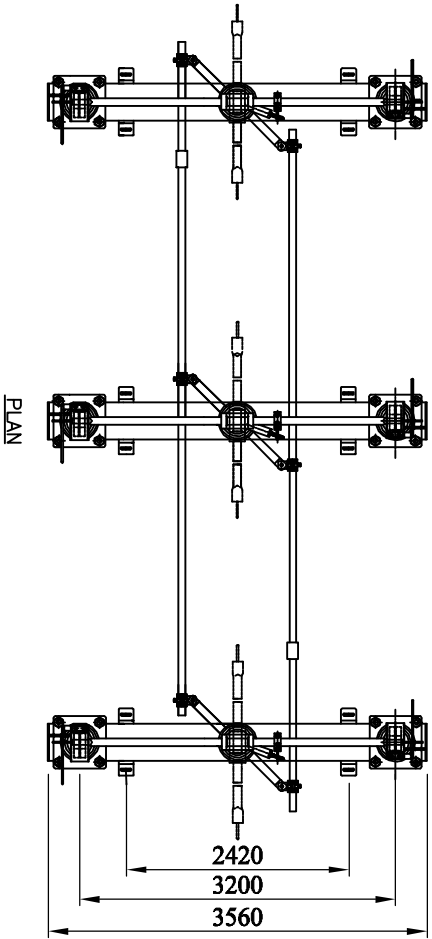
REFERENCE DRAWINGS:

1. FOR ISOLATOR CONTACT ASSEMBLY (2000 AMP'S)
2. FOR MOTOR OPERATING MECHANISM BOX
3. FOR SCHEMATIC DIAGRAM
4. FOR TERMINAL BLOCK DETAILS
5. FOR NAME PLATE DETAILS

NOTE:

1. ALL DIMENSIONS ARE IN MILLIMETERS
2. THE INDICATED DIMENSIONS ARE SUBJECT TO THE MANUFACTURING TOLERANCE:
 UP TO 50mm -----±3%; 51 TO 100mm ----- ±2%
 101 TO 300mm ----- ± 1%; ABOVE 300mm -----±0.5%
 3. SHORT TIME CURRENT RATING 40kA/50kA rms. FOR 3 Sec.
 4. MIN. CREEPAGE DISTANCE 3625 mm(25mm/KV)
 5. APPLICABLE STANDARD : IEC: 62271-102
 6. ALL FERROUS PARTS ARE HOT DIP GALVANIZED (85MICRONS)

Drawing approval subject to valid vendor registration

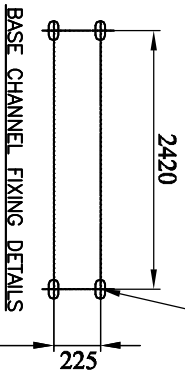


PLAN

18 X 36 SLOT HOLES

INSULATOR FIXING DETAILS

4Nos. Ø16 TAP HOLES ON 127 PCD.



CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

For Pavani Power Systems Pvt. Ltd.

(T. SESHAGIRI RAO)
Managing Director

TRANSMISSION CORPORATION OF
ANDHRA PRADESH LTD

AP TRANSCO

REVISONS	D	C	B	A

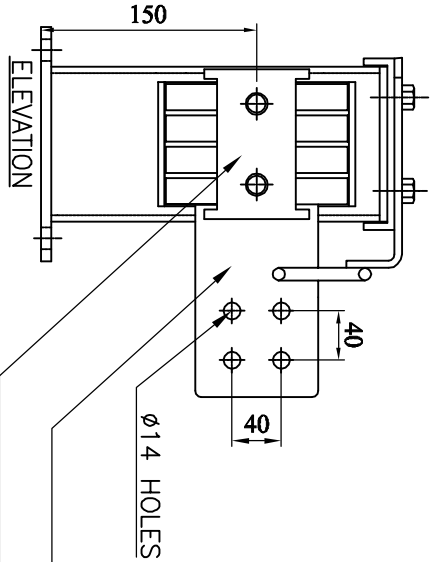
TITLE:
245KV, 2000A, TP, HDB, RT, ISOLATOR WITHOUT E.S.
(WITH MOTOR OPERATING MECHANISM)

PAYANI POWER SYSTEMS PVT.LTD.
Plot No. 06/056/4/6, K.K. OVERSEAS SOCIETY,
KODIPALLI FOST, HYDERABAD - 500100.
MEDICAL MAJKAGER DIST. TELANGANA

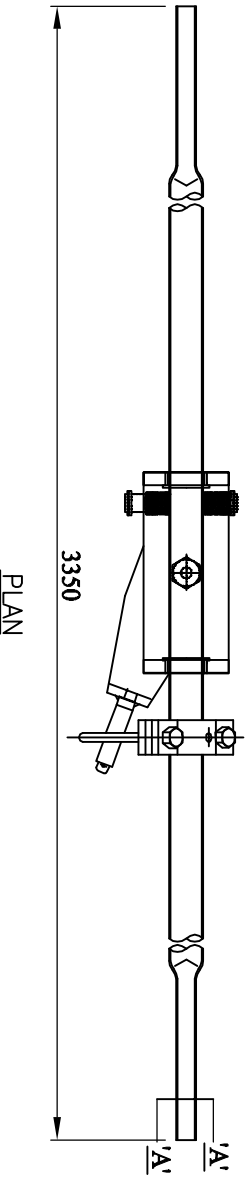
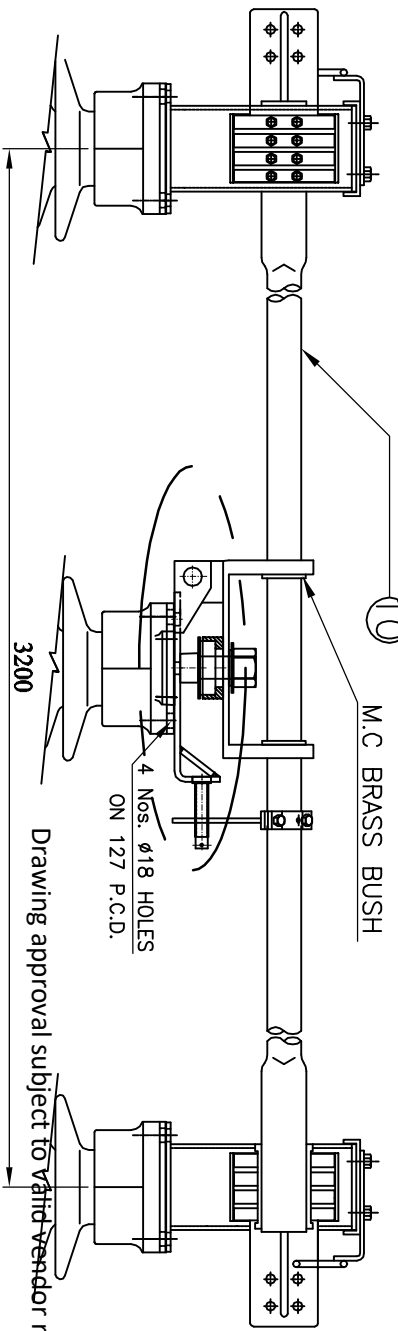
SCALE: 1:1	DATE: 18-05-2023
DRAWN	CHECKED
APPROVED	SHEET: 01 OF 06
DESIGN: PPSPT-APT-GAD-44-01	

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

FIXED CONTACT ASSEMBLY:



MOVING CONTACT ASSEMBLY:



- 1 acceptance tests.
- 2. For EPC contractors only.

CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

BILL OF MATERIAL PER ONE SET

SL NO.	DESCRIPTION	SIZE IN MM	MATERIAL
1.	ARCING HORNS	φ10MM ROD	M.S HDG
2.	RAIN HOOD	1.MM SHEET	M.S HDG
3.	JAW SPRINGS	φ2.mm WIRE	STAINLESS STEEL
4.	BI-METALLIC SHEET	2mm THK	ALU. + CU.
5.	FIXED CONTACT SUPPORT CHANNEL	150x30x4 mm	M.S HDG
6.	JAW SUPPORT BRACKETS	32 X 5 FLAT	M.S HDG
7.	FIXED CONTACT JAWS (4. NOS)	32 X 5 FLAT	HDEC
8.	JUMPER PAD	100 X 20 FLAT	ALUMINIUM
9.	FC SPACER	-----	ALUMINIUM
10.	MOVING CONTACT	50-ODX34-ID	HDEC

- NOTE:
1. ALL DIMENSIONS ARE IN MILLIMETER
 2. ALL FERROUS PARTS ARE HOT DIP GALVANIZED (85 MICRONS)
 3. ALL NON FERROUS CONTACT POINTS ARE SILVER PLATED (15 MICRONS)
 4. MOVING CONTACT ASSEMBLY SHOWN IS FOR TURN & TWIST ASSEMBLY

For Pavani Power Systems Pvt. Ltd.
(T. SESHAGIRI RAO)
Managing Director

TRANSMISSION CORPORATION OF
ANDHRA PRADESH LTD



AP TRANSCO

REVISIONS	DATE	BY	CHKD
D		C	B
			A

TYPE: MAIN SWITCH CONTACT ASSEMBLY (FOR 245kV, 2000A ISOLATOR)

SCALE: 1:1

DATE: 18-05-2023

DRAWN: []

CHECKED: []

APPROVED: []

SHEET: 02 OF 06

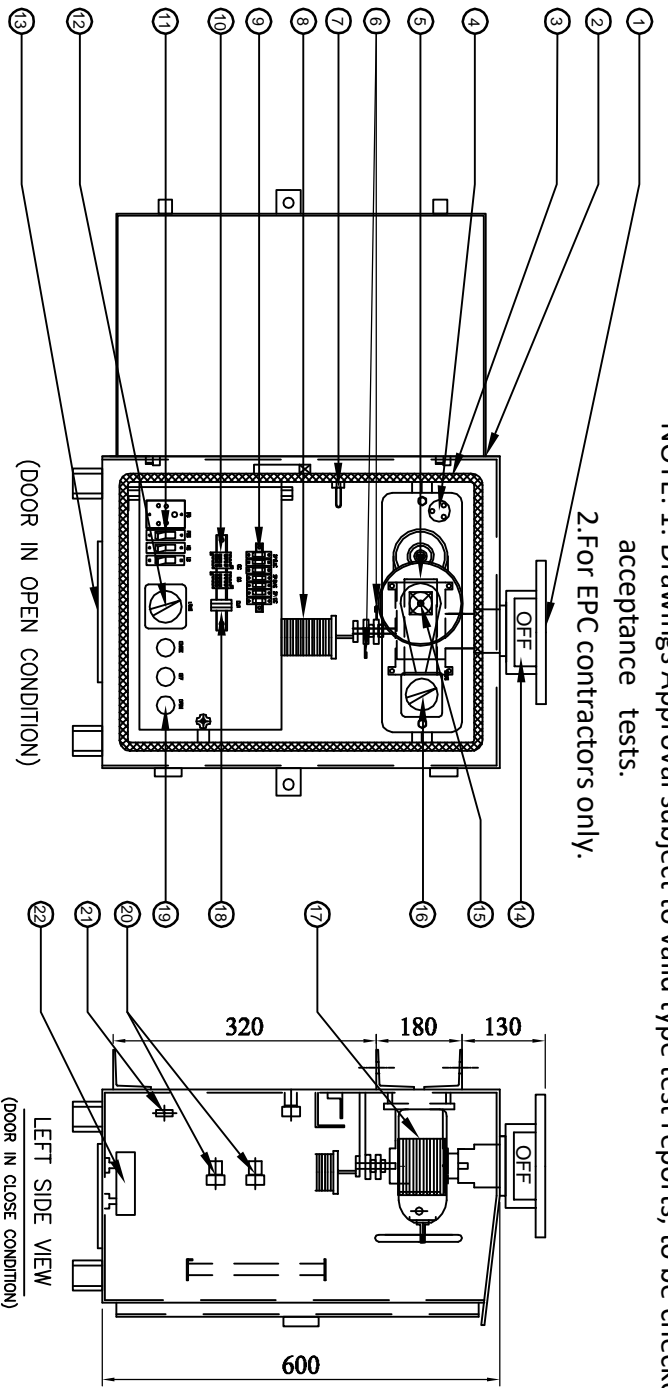
DRG. NO: PPSPT-APT-MSCA-A4-02

PAYANI POWER SYSTEMS PVT.LTD.
Plot No. 06/055/4/6, K.K. OVERSEAS SOCIETY,
DDA, DULAPALLY, QUTHUBULLAPUR MANDAL,
KODURUVA FOST, HYDERABAD - 500100.
KORUPAL WALKER DIST. TELANGANA

76222201/2023/EEMRT-ENE51

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 CPT/CVT/Isolator/IVT /LA /Breaker requirement and compability.

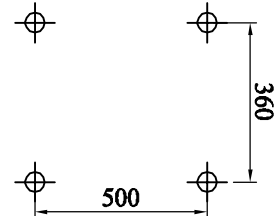
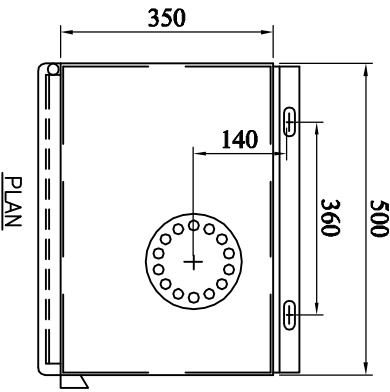
NOTE: 1. Drawings Approval subject to valid type test reports, to be checked during acceptance tests.
2. For EPC contractors only.



Drawing approval subject to valid vendor registration

PART LIST:-


1. 14-HOLES FLANGE
2. CUBICAL WITH DOOR (3mm Alu. SHEET)
3. RUBBER GASKET (EPDM)
4. THORMOSTAT (30°C TO 85°C)
5. REDACTION GEAR BOX
6. LIMIT SWITCHES (OPEN & CLOSE)
7. CUBICLE LAMP HOLDER
8. AUXILIARY SWITCH - 12NO+12NC
9. 3-POLE MCB-FOR MOTOR SUPPLY
2-POLE MCB-FOR SINGLE PHASE SUPPLY
10. CONNECTORS FOR OPEN & CLOSE
11. POWER SOCKET/LIGHT & HEATER SWITCHES
12. LOCAL/REMOTE/MANUAL SELECTOR SWITCH
13. DETACHABLE TYPE CABLE GLANDS PLATE
14. ON/OFF INDICATOR
15. MANUAL OPERATING ARRANGEMENT
16. INTER LOCK ROTARY SWITCH
17. MOTOR (0.5HP 415V AC, 50 Hz)
18. OLR-OVER LODE RELAY
19. PUSH BUTTONS
20. TERMINAL BLOCK
21. EARTHING TERMINAL-2 Nos.
22. HEATER



ALL DIMENSIONS ARE IN MILLIMETERS
CUBICLE WILL BE POWDER COATED WITH LIGHT GRAY SHADE NO:631 OF IS : 5
DEGREE OF PROTECTION IP: 55 AS PER IS : 13947
20% SPARE TERMINALS WILL BE PROVIDED AND SHALL BE UNIFORMLY DISRIBUTED
TO ALL TERMINAL BLOCKS EQUALLY
WIRING WILL BE DONE WITH 1100V.GRADE 2.5 Sq.MM CU STRANDED P.V.C.
INSULATED CONDUCTOR
WEIGHT OF THE BOX : 95Kg (APPROX.)
PPSP L MAKE REDUCTION GEAR RATIO:20:1 MATERIALS EN8/STEEL

CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

REVISIONS	
D	C
B	A



**TRANSMISSION CORPORATION OF
ANDHRA PRADESH LTD**

For Pavani Power Systems Pvt. Ltd.

(T. SESHAGIRI RAO)
Managing Director

PAYANI POWER SYSTEMS PVT.LTD.	
Plot No. 06/065/4/6, K.K. OPENERS SOCIETY, D.A. DULAPALLY, QUTHUBULLAPUR MANDAL, KOMURU FORT, HYDERABAD - 500100. KORUPU MALKAJGIR DIST. TELANGANA	
MOTOR OPERATING MECHANISM BOX	
(FOR 245KV ISOLATOR)	
SCALE: 1:1	➡
DATE	➡
18-05-2023	
DRAWN	
CHECKED	
APPROVED	
SHEET	03 OF 06
DRG. NO.	PPSP-L-APT-MOM-44-03

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

Drawing approval subject to valid vendor registration



MANUFACTURED & SUPPLIED BY
PAVANI POWER SYSTEMS PVT.LTD.
 PLOT No.05/055/A/6, K.K.OWNERS SOCIETY, DULAPALLY INDUSTRIAL AREA,
 KOMMIPALLY POST, HYDERABAD-500100, MEDCHAL MALKAJGIRI DIST. T.S.

ISOLATOR RATING NAME PLATE

CLIENT:	TRANSMISSION CORPORATION OF A.P. LTD		
CUSTOMER:			
PO.No./DATE:			
YEAR OF MFG.	SL.No.		
TYPE	DBR	FREQUENCY (Hz)	50
VOLTAGE (kV)	245	I.W. VOLTAGE	1050kVp
STC kA/SEC.	50/3	P.F.W. VOLTAGE(DRY)	460kVrms
CURRENT (A)	2000	OPERATING DRIVE	MOTOR
		CONTROL VOLTAGE	220 V DC

CHIEF ENGINEER/PROJECTS
APTRANSCO/VS/VIJAYAWADA

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Live part to ground clearance shall be maintained during erection as per IE rules.

For Pavani Power Systems Pvt. Ltd.
(T. SESHAGIRI RAO)
 Managing Director

 TRANSMISSION CORPORATION OF ANDHRA PRADESH LTD		SCALE: 1:1	
		DATE	18-05-2023
NAME PLATE DETAILS (FOR 245kV, ISOLATOR)		DRAWN	
PAVANI POWER SYSTEMS PVT.LTD. Plot No. 05/055/A/6, K.K.OWNERS SOCIETY, DDA, DULAPALLY, QUTHBULAPUR MANDAL, KOMMIPALLY POST, HYDERABAD - 500100. MEDCHAL MALKAJGIR DIST. TELANGANA		CHECKED	
REVISIONS D C B A		APPROVED	
		SHEET	06 OF 06
		DRG.No:	PPSP-APT-NPD-44-06