

# HIMACHAL PRADESH POWER CORPORATION LIMITED

(A STATE GOVT. UNDERTAKING, CIN U40101HP2006SGC030591)

Senior Manager (Procurement & Contracts)

Sainj Hydro-Electric Project (100 MW)

Sarabai, Distt. Kullu (HP)-175125

Website: [www.hppcl.gov.in](http://www.hppcl.gov.in) E-mail: [smlarji.e@gmail.com](mailto:smlarji.e@gmail.com)



## "SHORT TERM NOTICE INVITING QUOTATION"

Sealed quotation is hereby invited by the undersigned for the **repair and maintenance including painting of Four Pole and Two Pole Structures inside Berra Dol Solar Power Project** subject to below mentioned terms & conditions. The sealed quotations should reach in the office of undersigned on or before **05/02/2026** at 10:30 AM and the received quotation shall be opened on same day at **02:30 PM** by the constituted tender committee in the presence of bidder or their authorized representatives who may wish to be present at that time.

### A. Price Schedule:

Sr. No.	Description of items	Unit	Qty.	Per Unit Rate without GST (In Rs.)	Total Amount without GST (In Rs.)
1	Cleaning, removing rust/old paint by using emery paper, rubbing, applying red oxide on rusted area and applying two coats of aluminum paint on the entire surface area of poles, channels, angles, nuts, bolts and all other metal surfaces 02 Nos. of 1x 2 pole structures complete.	Sq Mtr.	54.58		
2	Cleaning, removing rust/old paint by using emery paper, rubbing, applying red oxide on rusted area and applying two coats of aluminum paint on the entire surface area of poles, channels, angles, nuts, bolts and all other metal surfaces on 02 Nos. of 1x4 pole structures complete.	Sq Mtr.	162.46		
3	Cleaning carbonized surfaces of all the fixed and moving contacts of Isolators mounted on two pole and four pole structures by using any carbon/rust removing agent, replacing defective springs, fixed contact and moving contacts noticed during maintenance and applying petroleum jelly on fixed and moving contacts for easy operation of isolator.	Job	5		
4	Cleaning carbonized surfaces of all the fixed and moving contacts of earth switch mounted on two pole and four pole structures by using any carbon/rust removing agent, replacing defective springs, fixed contact, moving contacts noticed during maintenance and applying petroleum jelly on fixed and moving contacts for easy operation of isolator.	Job	3		
5	Dismantling defective rusted nut, bolt one by one from 1x 2 pole structure without disturbing the original shape and replacing the nut and bolt with same size of stainless steel nut, bolt and washers including tightening the same to give a compact look to the structure.	Job	2		
6	Dismantling defective rusted nut, bolt one by one from 1x 4 pole structure without disturbing the original shape and replacing the nut and bolt with same size of stainless steel nut, bolt and washers including tightening the same to give a compact look to the structure.	Job	2		
7	Providing and fixing H.T. danger notice plate of 250 mm X 200mm, made of mild steel, at least 2 mm thick, and vitreous enameled white on both sides, and with inscription in single red colour on front side as required.	Nos.	14		
<b>Total Amount in Rupees without GST</b>					

Regd. Office, Himfed Building, Near BCS, New Shimla-09



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## **B. Scope of Work for Repair and Maintenance including painting of Four Pole and Two Pole Structures inside Berra Dol Solar Power Project (5 MW).**

**1. Scope of Work:** It defines different parameters for painting and repair of four pole and two pole structures as per relevant IS or IEC standard/practice etc. Drawings of items considered for maintenance in subject work are enclosed as Appendix-A to this scope of work. However, the tenderer is advised to visit the site and check specifications which are required in subject spars above before quoting the rates.

**1.1 Detail of Painting of Poles:** Contractor shall prepare the surface by cleaning the rusted surface/other defective area with emery paper or applying any chemical agent to remove the rust, after that applying metal putty and rub down to match the surface with existing surface. After preparing the surface, two coats of aluminium paint of reputed brand such as Asian Paint/Berger Paint/ Nerolac Paint etc. shall be applied on entire surfaces of poles, channels, angles, nut, bolts and other visible metal parts of two pole and four pole structures. Paint shall be capable of withstanding sun, rain and other industrial exposure and shall be smooth surface.

**1.2 Detail of Isolator:** All the moving and fixed parts of isolators shall be cleaned properly, gaps in moving shall be maintained properly to avoid any sparking during operation, defective contacts shall be replaced with same size and shape to ensure smooth operation, all the loose contacts shall be properly tightened, any other small defective parts if noticed during maintenance of isolators shall replaced by contractor without any extra financial implication to the HPPCL. After cleaning and repairing of isolators, petroleum jelly shall be applied on both fixed and moving contacts of isolator for smooth operation. **Note: 08 Nos of springs, 06 Nos of fixed contacts and 06 Nos of moving contacts have been considered for replacement during maintenance of Isolators.**

**1.3 Detail of Earth Switch:** All the moving and fixed parts of earth switches shall be cleaned properly, gaps shall be maintained properly to avoid any sparking during operation, defective contacts shall be replaced with same size and shape to ensure smooth operation, all the loose contacts shall be properly tightened, any other small defective parts if noticed during maintenance of isolators shall replaced by contractor without any extra financial implication to the HPPCL. After cleaning and repairing of earth switches, petroleum jelly shall be applied on both fixed and moving contacts of earth switches for smooth operation. **Note: 04 Nos of springs, 04 Nos of fixed contacts and 02 Nos of moving contacts have been considered for replacement during maintenance of Earth Switches.**

**1.4 Detail of Stainless Steel (304) nut, bolts & Washers:** Defective nut, bolts & washers shall be dismantled one by one and same shall be replaced with same size & length of stainless steel nut, bolts & washers and tightened the same properly. During replacement of nut, bolts proper shall be taken to avoid any misalignment in structure fittings which shall affect operation of Isolator, earth switch and other moving parts of the 2 pole and 4 pole structures.

**1.5 Detail of Insulators:** During repair and painting of 2 pole structures and 4 pole structures, if any defective insulators noticed, the same shall be replaced with same size and capacity of insulators without any extra cost and rate of the same shall be deemed to be included in the rate quoted by the contractor. **Note: 03 Nos of disc insulator and 01 No. of pin insulator suitable for 33 KV HT line have been considered for replacement during maintenance of 4 pole structures and 2 pole structures.**

### **1.6 Detail of Danger Notice Plate:**

- Dimensions: 250 mm (Width) x 200 mm (Height).
- Material: Mild Steel (MS) sheet, typically 2 mm thick.
- Finish: Vitreous enamelled or powder-coated to prevent rust and ensure weather resistance.
- Colour Scheme: White background with signal red lettering and symbols.

*Emu*



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• Compliance: Must comply with IS:2551-1982 and Rule No. 35 of the Indian Electricity Rules.

Note: Applicable standards as per relevant IS/Latest edition.

## **Responsibilities along with necessary Terms & Conditions for bidder to carry out the above scope of work:**

1. The contractor shall provide & make all necessary Gadgets for his workmen and supervisor engaged at site. Berra Dol SPP (5MW), HPPCL shall not in any way be responsible for accident minor, major or fatal to any of his workmen / supervisor or any damage arising there from during the pendency of the contract. All this shall be sole responsibility of the contractor.
2. Contractor shall bring his own tools and plants to execute the work. Necessary transportation charges upto Berra Dol site is inclusive in the rate quoted by the contractor.
3. Work shall be executed after proper shut down from HPSEBL/HPPCL. Contractor shall intimate EIC in advance so that shut down can be arranged accordingly.
4. While executing the work contract agreement, the contractor shall comply with all the statutory requirements as per Government Rules / Regulations / Acts/ Labour laws etc.
5. The contractor shall provide all Personal Protective Equipment (PPE) like safety belts, safety helmets, ladders, safety shoes & gloves etc. to all his workers and supervisor. Contractor shall ensure and responsible that no person shall work at site without PPE. Also, the contractor should have proper labour insurance policy covering all type risks.
6. The contractor shall be responsible for minimum wages act applicable at the time. The contractor is liable to pay minimum wages to skilled / semi-skilled worker/un-skilled workers engaged by him for this work as per the minimum wages fixed by the Labour and Employment Department, Govt. of Himachal Pradesh under Minimum Wages ACT or any other applicable law and nothing extra on this account shall be paid by HPPCL.
7. Safety means of access shall be provided to all working platforms and other working places by the contractor. Every ladder shall be securely fixed. Adequate precautions shall be taken to prevent danger. The contractor shall ensure all necessary scaffolds, ladders, fencing and lights to protect himself & engaged manpower with him from accidents and shall be bound to bear expenses of defence of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any such suit, action or proceedings to any such person or which may with the consent of the Contractor be paid to compromise any claim by any such person. Berra Dol SPP (5MW) HPPCL shall not in any way be responsible for any accident minor, major or fatal to any of his workman/ supervisor or any damage arising there from during the execution of work. All this shall be sole responsibility of the contractor.
8. Contractor shall ensure the EPF of manpower detailed (if any) at site to execute the work.
9. Supervisor & other manpower deployed by contractor must have experience in similar job and shall have suitable technical/or physical competence to carry out work independently.
10. The contractor working personnel should already be familiarized with the type of systems and their use which are installed at Berra Dol SPP (5MW) before engaging to work.
11. The contractor shall carryout the work mentioned under the scope at Berra Dol SPP (5MW), HPPCL site only without affecting our daily activities.
12. The scope of work shall be rendered as per the shutdown available. However, proper shut down shall be given to contractor to execute the work as per site requirements after getting approvals for the same.
13. It is the contractor responsibility to see that all the Berra Dol SPP (5MW), HPPCL materials entrusted and/or issued to him (If any) are carried safely and expeditiously to the site of the work. If Berra Dol SPP(5MW), HPPCL materials are lost, stolen or damaged while in transit or under custody of the contractor, the cost of the same @ twice of the prevailing market rate will be recovered from Contractor's dues and contractor will have no claim whatsoever on this account.
14. The contractor or its supervisor / staff shall not make any change / addition / alteration or modification to existing system without prior permission of Engineer In-charge (EIC) of work.
15. If any damage to the equipment/spare/items installed either functional or not occur by the contractor or its manpower engaged during execution of scope of work, the same equipment/spare/items installed shall be replace by the contractor. The replacing of materials/spares shall be verified or informed to Berra Dol SPP,



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- HPPCL authorized officials/EIC of work. The defective parts or whole equipment/spare/items should be replaced / repaired by the contractor within 48 hrs of time after happening of any damage and receiving telephonic/email from Engineer In-charge (EIC) of work, HPPCL for the same without any financial implications to Berra Dol SPP(5MW), HPPCL.
16. The firm/vendor shall repair/replace the defective items. The details of material replaced if any shall be shared with to Berra Dol SPP (5MW), HPPCL officials.
  17. The material replaced or taken out of shall be property of Berra Dol SPP (5MW), HPPCL and same shall be handed over to Berra Dol SPP (5MW), HPPCL officials.
  18. Work Completion: The work shall be started after getting Shutdown approval and as per the directions of EIC of work through official communication. Total 3 days' shutdown shall be provided and work has to be completed in that period. Timing of shutdown shall be as per approvals from HPPCL management.
  19. To/ fro local transportation, Boarding, fooding and lodging of contractor / his manpower shall be included in the scope of contractor and quoted rates deemed to be included on the same.
  20. Work shall be executed according to the Tender Conditions of Contract for this Project. Vendor/Contractor/Firm shall carry-out and complete the work in every respect in accordance with the contract and to the satisfaction of the EIC of Work at Berra Dol SPP (5MW), HPPCL.

## C. Terms & Conditions of NIQ:

1. Rates shall be F.O.R Berradol SPP, HPPCL, Distt. Bilaspur (HP) inclusive of all applicable charges such as transportation, insurance, service and all other charges whatsoever and shall be FIRM.
2. The evaluation of quotations shall be done without considering GST. The GST shall be paid extra as per actual applicability at the time of invoicing.
3. The quotations should be strictly as per the above specified price schedule and terms & conditions of HPPCL duly signed / stamped and quotations with any deviation in the same shall be rejected.
4. The copy of GST certificate/PAN card, MSME certificate, (if applicable) should be submitted with the offer/bid/quotation.
5. The bidder must have a valid Class-A Govt. Electrical License. The copy of license should be submitted with the offer/bid/quotation.
6. The Prospective bidder is requested to submit the bid/offer in a sealed cover along with all relevant documents superscribed with short term notice inviting quotation (NIQ) Ref. No. and quotation opening date along with the name and address of the bidder clearly mentioned on the envelope. The envelope should be sent at the address of undersigned.
7. HPPCL shall not be responsible for delay / failure in submission of the quotations.
8. The rates quoted by the bidders shall be valid for 90 days from the date of opening of quotations.
9. In case the scheduled date of opening of quotations happens to be a holiday, the quotations shall be opened on next working day.
10. HPPCL reserve its right to reject any one or all the quotations without assigning any reason thereof.
11. The quantity can be increased or decreased at the time of issuing of supply/job order.
12. In case of any dispute between HPPCL & Contractor, the jurisdiction of court shall be at Bilaspur, (HP).
13. If the contractor fails to complete the work within the stipulated period, liquidated damages shall be applicable @ 0.5 percent of the contract price per week or part thereof subject to a maximum of 5% (five percent) of the contract price.
14. Payment: No advance payment shall be made. Payment shall be made to the contractor/vendor after successful completion of the entire work to the satisfaction of EIC in all respect as mentioned under the scope of work and submission of duly signed/ certified tax invoices and supply of test reports/certificate as mentioned in technical specification for the complete work.



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15. WORKMANSHIP: Good workmanship is an essential prerequisite to be complied for this work. Entire work shall be carried out in the most workmanlike manner by skilled workers under competent supervision.
16. Engineer In-Charge (EIC) of Scope of Work: AE (E) –cum-EIC, Berra Dol Solar Power Project (5MW), HPPCL, Distt-Bilaspur (H.P)
17. While generating the invoice for payment purposes, HPPCL GSTIN No. i.e. 02AABCH8615G1ZX be mentioned appropriately.
18. Shipping/Billing Address:- Assistant Engineer-cum-EIC, Berra Dol Solar Power Project, HPPCL, Naina Devi, Distt-Bilaspur, (HP)
19. Undertaking: The scope and all terms and conditions listed in above paras along with their sub-paras have been read carefully, understood and accepted.

**Contractor's Sign & Seal**

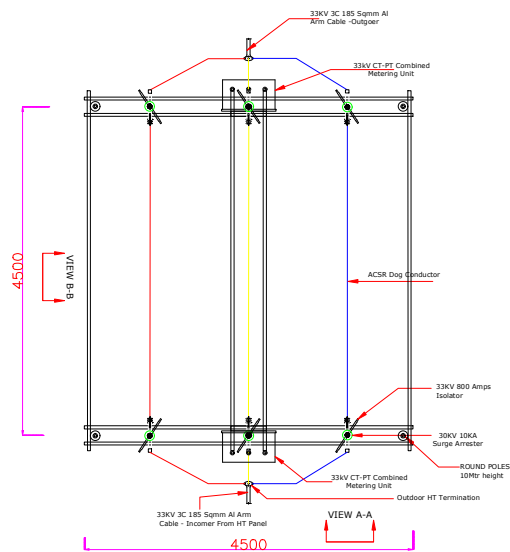
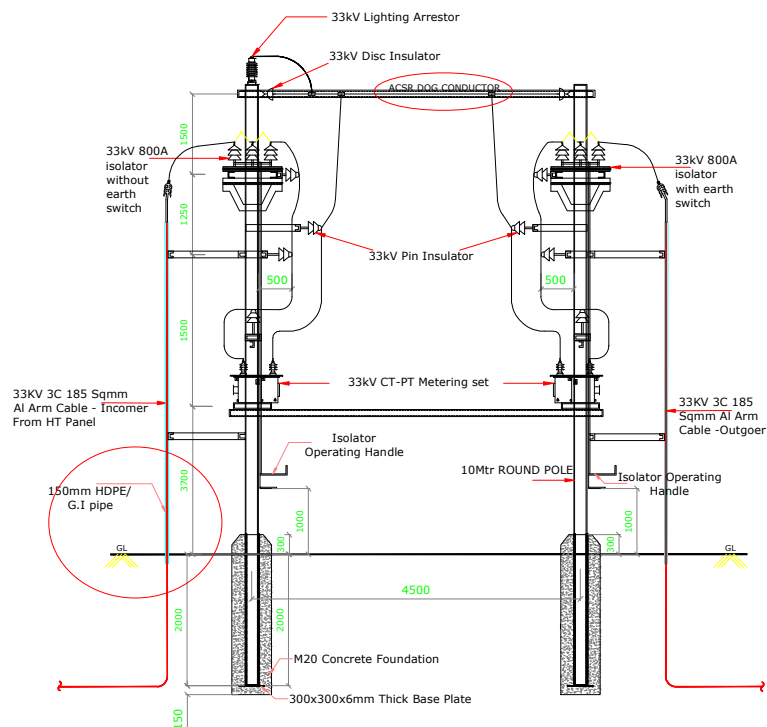
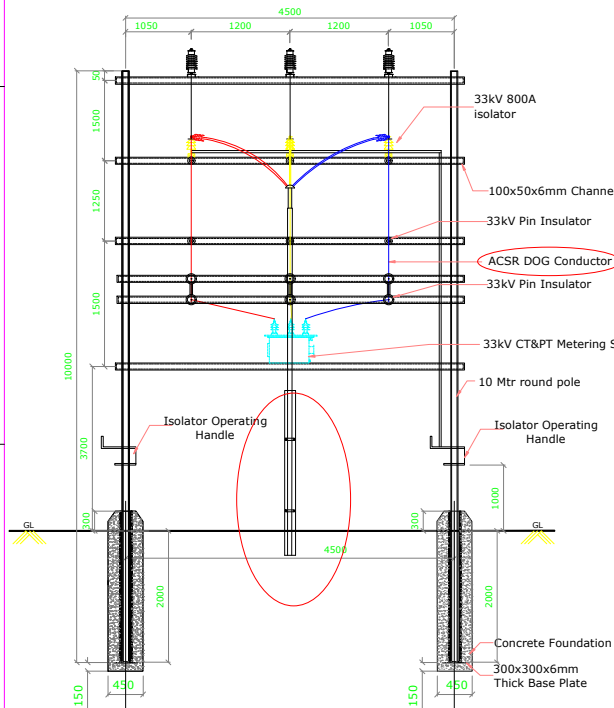
  
**Sr. Manager (P&C),  
Room No.: #301, Top Floor  
Sainj HEP, office complex,  
HPPCL, Sarabai (Bhuntar),  
Distt-Kullu, (HP)-175125.**

**No.: HPPCL/SHEP/P&C/NIQ/case file/2025-26/1571-75**

**Dated: 29/01/2025**

**Copy of above is forwarded to:**

1. The General Manager, HPPCL, Himfed Building, New Shimla-171009 for kind information please.
2. The Dy. General Manager (Elect.)-cum-HoP, Sainj HEP, HPPCL, Sarabai (Bhuntar), Distt-Kullu, (HP) for kind information please.
3. The Deputy Manager (F&A), Berradol SPP, HPPCL, Distt.-Bilaspur, (HP) for kind information please.
4. Assistant Engineer (E)-cum-EIC, Berradol, SPP, HPPCL, Distt. Bilaspur, (HP) for kind information please.
5. Notice board of control room Berradol SPP/Sainj.



PLAN VIEW

33KV two pole structure

**Comments:-**

1. The danger plate has not been shown.
2. The mechanism to support the HDPE/GI Pipe carrying the cable for incoming & outgoing side is required to be shown/explained clearly.
3. Height of pole above ground as per GTP is 8.2 m (8200mm) however the same has not been followed in the drawing.
4. The gap between phases of isolator as per GTP is 1500 mm .
5. Separate earthing is required for LA's.
6. Wolf conductor is to be used as per GTP instead of Dog conductor.
7. Provision of Barbed wire is not shown.
8. Provision of Fencing is not shown.

Note- Drawing is not in the scale

DEPT. SC&PV  
STATUS CONTRACT  
DISTRIBUTION



BHARAT HEAVY ELECTRICALS LIMITED.  
ELECTRONICS DIVISION, BANGALORE

REV.	DATE	DRWN	CHD	APPD	REV.	DATE	DRWN	CHD	APPD	REV.	DATE	DRWN	CHD	APPD
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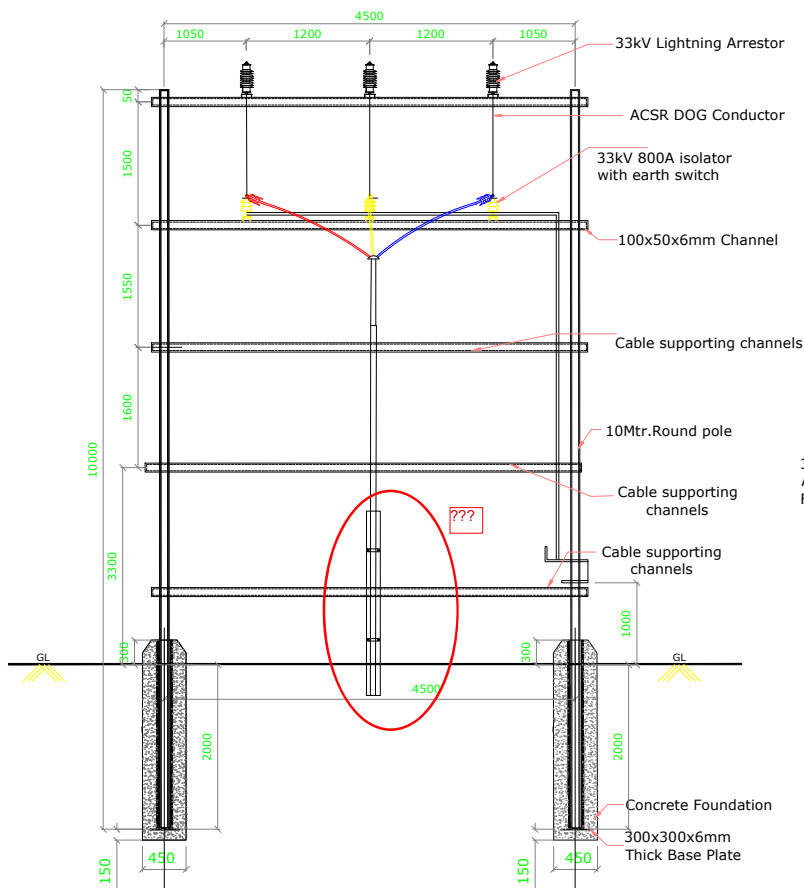
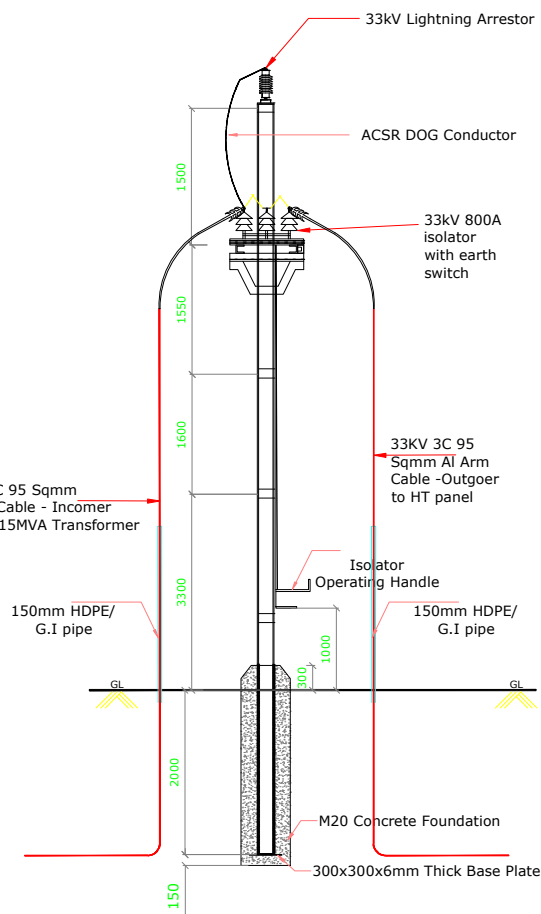
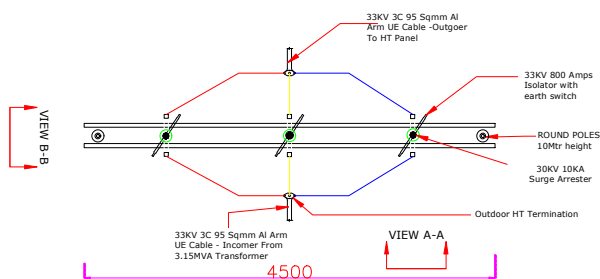
TITLE

2 Pole and 4 Pole Structure for 33KV

DRAWING NO. BHEL-HPPCL-ELEC-36

SHEET 1 OF 1

REV. 00

VIEW-'A-A' FP STR.  
ELEVATION VIEWVIEW-'B-B' FP STR.  
ELEVATION VIEW

PLAN VIEW

33KV two pole structure

Note- Drawing is not in the scale

## Comments:-

1. The danger plate has not been shown.
2. The mechanism to support the HDPE/GI Pipe carrying the cable for incoming & outgoing side is required to be shown/explained clearly.
3. Height of pole above ground as per GTP is 8.2m (8200mm) however the same has not been followed in the drawing.
4. The gap between phases of isolator as per GTP is 1500 mm .
5. Cross bracing set has not been shown for 2-pole structure.
6. Separate earthing is required for LA's.
7. 33kV DO fuse assembly has not been shown.
8. Wolf conductor is to be used as per GTP instead of dog conductor.
9. Provision of Barbed wire is not shown.
10. Provision of Fencing is not shown.

PROJECT : 5MW SOLAR POWER PROJECT  
 CUSTOMER : HPPCL - BERRA DOL.H.P.



BHARAT HEAVY ELECTRICALS LIMITED.  
 ELECTRONICS DIVISION, BANGALORE

DEPT. SC&PV  
 STATUS CONTRACT  
 DISTRIBUTION

REV.	DATE	DRWN	CHD	APPD	REV.	DATE	DRWN	CHD	APPD	REV.	DATE	DRWN	CHD	APPD
00	21.08.18													

TITLE

2 Pole and 4 Pole Structure for 33KV

DRAWING NO. BHEL-HPPCL-ELEC-36

SHEET 1 OF 1

REV. 00





# RASHTRIYA ELECTRICAL & ENGG. CORPN.

33KV 10KA PORCELAIN LIGHTNING ARRESTER		
Technical Data Sheet		
Sr. No.	Particulars	Value/Remark
1	Name of Manufacturer	RASHTRIYA ELECTRICAL & ENGG. CORPN.
2	Address:	
(a)	Registered Office:	21/5, Barabarpur, Shahdara, Delhi.
(b)	Factory: Plot No.	C-3, Sector A-3, Tronica City, Loni, Distt- Ghaziabad (U.P.)
3	Type	Gapless Metal Oxide
4	Applicable Standard IS:	3070 (Pt-III)
5	Frequency (HZ)	50
6	Rated Voltage (kV rms)	30
7	Maximum continuous operating voltage (kV rms)	24
8	Non Duration Discharge class	Station Class
9	Nominal Discharge Current (kA)	10
10	Lightening Impulse residual voltage at 8/20 $\mu$ s wave shape (kvp)	
(a)	@ 2.5 kap (kV)	75
(b)	@ 5.0 kap (kV)	80
(c)	@ 10.0 kap (kV)	85
11	Steep Current Impulse residual voltage (1/2 $\mu$ s wave shape) @ 5 kap (kvp)	93
12	High Current Impulse withstand at 4/10 $\mu$ s, (kA)	100
13	Lightening Impulse withstand voltage of Arrestor Housing (kvp) dry.	170
14	Min creepage distance of Arrestor Housing (mm)	950
15	Partial Discharge at 1.05 times MCOV, (pC)	<50
16	Temporary Over voltage Capability (kV rms)	
(a)	(a) 0.1 sec.	36
(b)	(b) 1.0 sec.	33
(c)	(c) 10.0 sec.	31.5
17	Energy Handling Capability (kJ/kV of rating)	1
18	Reference Current (mA)	1
19	Reference Voltage (kVP)	24 kV Min.

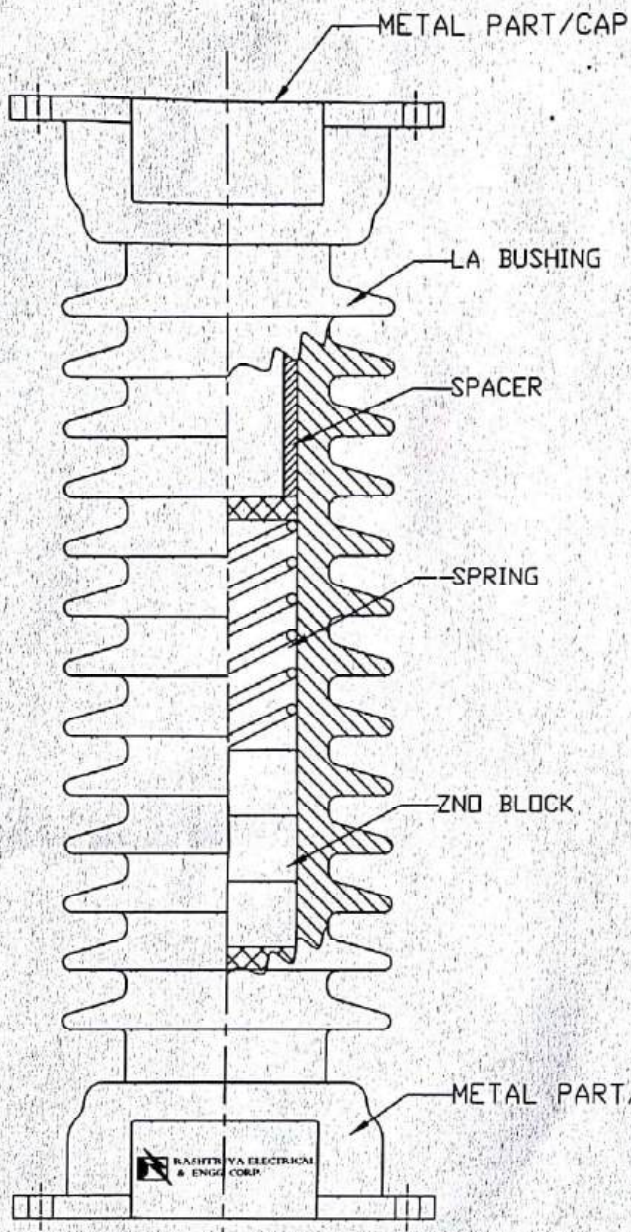
M/s Prem Enterprises



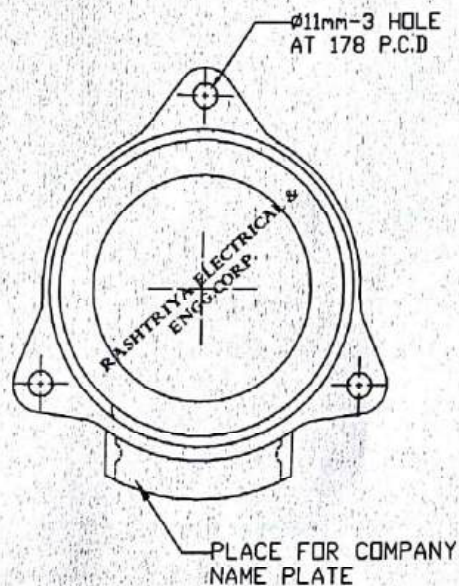
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SECTIONAL ELEVATION



HOLE MOUNTING DETAIL

**SPECIFICATION:-**

1. MINIMUM CREEPAGE DISTANCE FOR LA BUSHING = 950mm
2. ALL DIMENSION ARE IN mm, OTHERWISE SPECIFIED.

M/s Prem Enterprises

Prop.



ALL DIMENSION ARE IN mm. OTHERWISE SPECIFIED. IF IN DOUBT ASK, DO NOT SCALE.		INSPECTION		C		E		G		H	
CUSTOMER		REV.		REVISION DETAIL		DATE		REMARK			
THIS DRAWING IS THE SOLE PROPERTY OF RASHTRIYA ELECTRICAL & ENGG. CORP. UNAUTHORIZED USE OF THIS OR MAKING PRODUCT AS PER OUR ORL WITHOUT OUR PERMISSION OR ANY OTHER MISUSE IS NOT PERMITTED.											
MATERIAL: PORCELAIN		DESIGN BY: DR. S. CH. S. S.		TITLE:		30 KV 10 KA LA (STATION CLASS) TYPE-II					
WEIGHT:		RUCHA/KA		N/A		R/S		DRAWING NO.			
QUANTITY: 1		15.11.10		DATE		SCALE		RECCD/30/10/LA/SC-II/01			
G A DRG.										SHEET 1 OF 1	





# RASHTRIYA ELECTRICAL & ENGG. CORPN.

33KV 630A PORCELAIN ISOLATOR WITH EARTH SWITCH		
Technical Data Sheet		
Sl. No.	Particulars	Rashtriya offer
1	Name of manufacturer	Rashtriya Electrical & Engg. Corpn
2	Standard to which the equipment conform	IS : 9921
3	Frequency (Hz)	50 Hz
4	Rated voltage (KV rms)	33 KV
5	Max. design voltage at which the Isolator can operate ( KV rms)	36 KV
6	Continuous current rating ( Amp. Rms)	630 Amp
7	Rated short time current	
	i) For 3 sec. ( KA rms )	25 KA
	ii) Rated peak short time current ( KA peak )	63 KA
8	Current density at the min. cross section of ( Amp./ sq. mm )	
	i) Moving blades	For flat 2 Amp./mm <sup>2</sup> and For pipe 2.5 Amp./mm <sup>2</sup>
	ii) Terminal pad	For flat 2 Amp./mm <sup>2</sup> and For pipe 2.5 Amp./mm <sup>2</sup>
	iii) Contacts	For flat 2 Amp./mm <sup>2</sup> and For pipe 2.5 Amp./mm <sup>2</sup>
	iv) Terminal connector	For flat 2 Amp./mm <sup>2</sup> and For pipe 2.5 Amp./mm <sup>2</sup>
9	De-rating factor for specified site conditions	Unity
10	Insulation Levels	
	i) Dry impulse withstand voltage (KV Peak )	
	a) phase to earth	170 KV
	b) Isolating distance	195 KV
	ii) Wet power freq. Withstand voltage (KV Peak )	
	a) Phase to earth	70 KV
	b) Isolating distance	80 KV
11	Min. clearance in air (mm)	
	i) Cater to center distance between poles	Min. 750 mm
	ii) Between live parts & earth	Min. 508 mm
	iii) Between poles on one phase	Min. 508 mm
12	Design & Construction	
	i) No. of insulator per pole	6 Nos. 22 KV Porcelain Post Insulator
	ii) No. of break per phase	
	a) Main switch	Double
	b) Earth Switch	Single
	iii) Type of opening/ closing mechanism	Manual
	iv) Fixed contacts	
	a) Material & grade	Hard drawn Electrolytic copper flat
	b) Thickness of silver plating on contact surface	10 microns
	c) Effective cross sectional area (sq. mm )	
	i) Main switch	Suitable for 630 Amps.
	ii) Earth switch	Suitable for 630 Amps.
	d) No. of operation the isolator can make without deterioration of contacts	
	i) Main switch	1000 Nos.
	ii) Earth switch	1000 Nos.
	v) Moving blades	
	a) Material & grade	Hard drawn Electrolytic copper tubes
	b) Thickness of silver plating	15 microns
	b) Effective cross sectional area (sq. mm )	
	i) Main switch	Suitable for 630 Amps.
	ii) Earth switch	Suitable for 630 Amps.
	vi) Contacts supports	
	a) Material & size of Channel	As per Drawing

M/s Prem Enterprises

Prop.





# **33KV 630A PORCELAIN ISOLATOR WITH EARTH SWITCH**

## **Technical Data Sheet**

Sl. No.	Particulars	Rashtriya offer
	a) Material & size of Plate	As per Drawing
vii) Rain hood & material size		MS Flat
viii) Nuts, bolts		
a) Size, material & grade in live parts		As per Required M.S. Electroplated
b) Size, material & grade in others parts		As per Required M.S. Electroplated
ix) Base plated below rotating insulator		
a) Material		M.S. hot dip Galv.
b) Size		100 X 50 mm
c) Thickness		Min. 3 mm
x) Bearing		
a) Material of housing		Cast iron, Hot dip galv.
b) Material of bearing		Steel
c) No. of bearing, location & size		3 Nos. at bottom
d) ID of Bearing		As per Drawing
e) Distance Between 2 Bearing		As per Drawing
xi) Tendon pipe		
a) Size		25 mm NB, G.I.
b) Length		3200 mm
c) Class		B Class
d) Numbers		1 No.
e) Size of bolt & Shackle		As per Required
xii) Type of interlocks		Mechanical interlock
xiii) Down pipe		
a) Size		32 mm NB
b) Length		5 Mtr.
c) Class		B class
xiv) Type of universal/ swivel joint		
a) Between bearing & down pipe		Mechanical coupling
b) Between down pipe & operating mechanism		Mechanical coupling
xv) Operating mechanism		Manual
xvi) Insulators		
a) Type		Porcelain Post Insulator
b) No. of units per insulator		2 for 22KV
c) Height of each insulator		Min 508 mm
d) No. of holes, size & pitch circle diameter (mm)		Four holes, 76 mm PCD
e) Rated voltage		33 KV
f) Dry power freq. withstand voltage ( KV rms)		70 KV
g) Wet power freq. withstand voltage ( KV rms)		70 KV
h) Impulse withstand voltage ( KV peak)		170 KV
i) Visual discharge voltage level ( KV rms)		27 KV
j) Creepage distance (mm)		Min 860 mm
xvii) Base channel		
a) Material		M.S. hot dip galvanized
b) Size		100x50mm
xviii) Support Structure		Not in scope of supply
xix) Terminal connector		
a) Clamp body		
i) Material		Aluminium Alloy
ii) Area of min. cross section		Suitable for 630 Amps.
b) Material of Nuts & bolts size		M.S Electroplated
b) type of washer used		Plain washer Electroplated

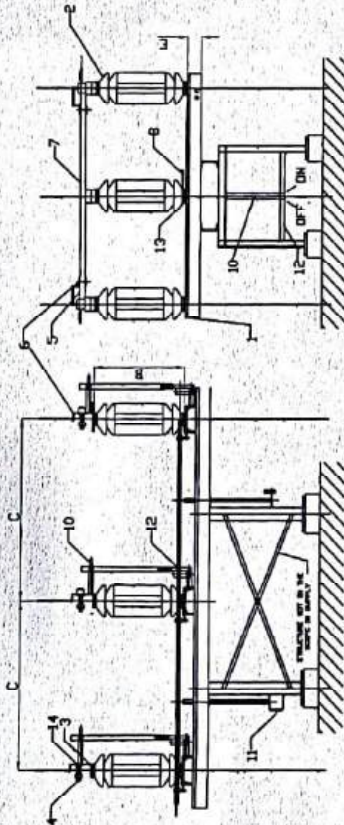
M/s Prem Enterprises

Prop.

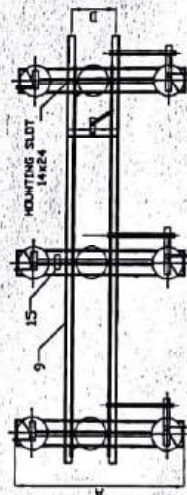




LEGENDS:-  
 1. MS HDG---MILD STEEL HOT DIP GALVANIZED.  
 2. G.I.-----GALVANISED IRON  
 3. EC-----ELECTRIC GRADE COPPER  
 4. AL-----ALUMINIUM.



ELEVATION



PLAN

CURRENT RATING 250 AMP.	TYPE	DIMENSION TABLE				
		A	B	C	D	E
33 KV DOUBLE BREAK		1440	500	1500	500	50

NOTES:-  
 1. TOLERANCE  $\pm 5\%$   
 2. ALL DIMENSION ARE IN mm, OTHERWISE SPECIFIED.  
 3. ALL FERROUS PARTS HOT DIP GALVANIZED.

16	FIXED CONTACT FOR EARTH SWITCH	EC-STRIP	3
15	NAME/RATING PLATE	AL	1
14	FIXED CONTACT MOUNTING BRACKET	MS-HDG	6
13	BEARING HOUSING WITH BEARING	MS-HDG	3
12	ISOLATOR OPERATING LEVER	MS-HDG	1
11	OPERATING MECHANISM (MANUAL)	M.S.	1
10	DOWN PIPE FOR ISOLATOR	GL-PIPE	1
9	TENSION PIPE FOR ISOLATOR	GL-PIPE	1
8	LEVER ARM WITH CLAMP	MS-HDG	3
7	MOVING CONTACT BLADE	E.C.	3
6	ARcing HORNS 6mm	GLRD	6
5	TERMINAL PAD	EC-FLAT	6
4	MOVING CONTACT	EC-FLAT	3
3	FIXED CONTACT	EC-STRIP	6
2	33KV ISOLATOR (RASHTRIYA MAKE)	PORCELAIN 9/18	
1	BASE CHANNEL 100x50	MS-HDG	3
SL NO.	DESCRIPTION		
	BILL OF MATERIAL		

M/s Prem Engg.

Prop.



REVISION		DATE	BY
1	2	3	4
CUSTOMER		DESIGN BY	
INSPECTION		CHECKED	
PURCHASER		RECEIVED	
G.A. DRAWING		SCALE	
TOTAL SHEETS		DATE	

RASHTRIYA ELECTRICAL & ENGG. CORP.  
 Tronica City GUP  
 TITLE:- 33KV DOUBLE BREAK  
 ISOLATOR WITH EARTH SWITCH  
 SUITABLE FOR VOLE CONDUCTOR  
 DESIGN BY: DR. R. S. RAO  
 CHECKED: RECD/33/ISO/01







# RASHTRIYA ELECTRICAL & ENGG. CORPN.

## 33KV 630A PORCELAIN ISOLATOR WITHOUT EARTH SWITCH

### Technical Data Sheet

Sl. No.	Particulars	Rashtriya offer
1	Name of manufacturer	Rashtriya Electrical & Engg. Corpn
2	Standard to which the equipment conform	IS : 9921
3	Frequency (Hz)	50 Hz
4	Rated voltage (KV rms)	33 KV
5	Max. design voltage at which the Isolator can operate ( KV rms)	36 KV
6	Continuous current rating ( Amp. Rms)	630 Amp
7	Rated short time current	
	i) For 3 sec. ( KA rms )	25 KA
	ii) Rated peak short time current ( KA peak )	63 KA
8	Current density at the min. cross section of ( Amp./sq. mm )	
	i) Moving blades	For flat 2 Amp./mm <sup>2</sup> and For pipe 2.5 Amp./mm <sup>2</sup>
	ii) Terminal pad	For flat 2 Amp./mm <sup>2</sup> and For pipe 2.5 Amp./mm <sup>2</sup>
	iii) Contacts	For flat 2 Amp./mm <sup>2</sup> and For pipe 2.5 Amp./mm <sup>2</sup>
	iv) Terminal connector	For flat 2 Amp./mm <sup>2</sup> and For pipe 2.5 Amp./mm <sup>2</sup>
9	De-rating factor for specified site conditions	Unity
10	Insulation Levels	
	i) Dry impulse withstand voltage (KV Peak )	
	a) phase to earth	170 KV
	b) Isolating distance	195 KV
	ii) Wet power freq. Withstand voltage (KV Peak )	
	a) Phase to earth	70 KV
	b) Isolating distance	80 KV
11	Min. clearance in air (mm)	
	i) Cater to center distance between poles	Min. 750 mm
	ii) Between live parts & earth	Min. 508 mm
	iii) Between poles on one phase	Min. 508 mm
12	Design & Construction	
	i) No. of insulator per pole	6 Nos. 22 KV post Insulator
	ii) No. of break per phase	
	a) Main switch	Double
	b) Earth Switch	N/A
	iii) Type of opening/ closing mechanism	Manual
	iv) Fixed contacts	
	a) Material & grade	Hard drawn Electrolytic copper flat
	b) Thickness of silver plating on contact surface	10 microns
	c) Effective cross sectional area (sq. mm )	
	i) Main switch	Suitable for 630 Amps.
	ii) Earth switch	N/A
	d) No. of operation the isolator can make without deterioration of contacts	
	i) Main switch	1000 Nos.
	ii) Earth switch	N/A
	v) Moving blades	
	a) Material & grade	Hard drawn Electrolytic copper tubes
	b) Thickness of silver plating	15 microns
	b) Effective cross sectional area (sq. mm )	
	i) Main switch	Suitable for 630 Amps.
	ii) Earth switch	N/A
	vi) Contacts supports	
	a) Material & size of Channel	As per Drawing
	a) Material & size of Plate	As per Drawing

M/s Prem Enter:

*[Signature]*

Prop.





### 33KV 630A PORCELAIN ISOLATOR WITHOUT EARTH SWITCH

#### Technical Data Sheet

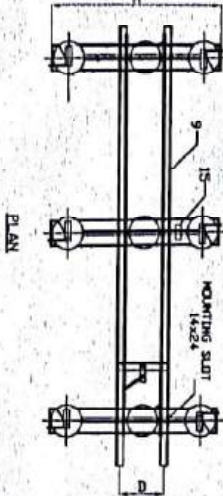
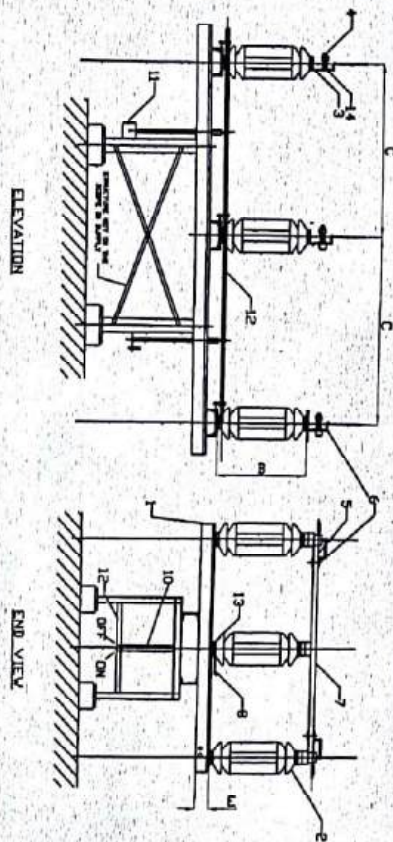
Sl. No.	Particulars	
vii)	Rain hood & material size	Rashtriya offer
viii)	Nuts, bolts	MS Flat
a)	Size, material & grade in live parts	As per Required M.S. Electroplated
b)	Size, material & grade in others parts	As per Required M.S. Electroplated
ix)	Base plated below rotating insulator	
a)	Material	
b)	Size	M.S. hot dip Galv.
c)	Thickness	100 X 50 mm
x)	Bearing	Min. 3 mm
a)	Material of housing	
b)	Material of bearing	Cast iron, Hot dip galv.
c)	No. of bearing, location & size	Steel
d)	ID of Bearing	3 Nos. at bottom
e)	Distance Between 2 Bearing	As per Drawing
xi)	Tendon pipe	As per Drawing
a)	Size	
b)	Length	25 mm NB, G.I.
c)	Class	3200 mm
d)	Numbers	B Class
e)	Size of bolt & Shackle	1 No.
xii)	Type of interlocks	As per Required
xiii)	Down pipe	Mechanical interlock
a)	Size	
b)	Length	32 mm NB
c)	Class	5 Mtr.
xiv)	Type of universal/ swivel joint	B class
a)	Between bearing & down pipe	
b)	Between down pipe & operating mechanism	Mechanical coupling
xv)	Operating mechanism	Mechanical coupling
xvi)	Insulators	Manual
a)	Type	
b)	No. of units per insulator	Porcelain Post Insulator
c)	Height of each insulator	2 for 22KV
d)	No. of holes, size & pitch circle diameter (mm)	Min 508 mm
e)	Rated voltage	Four holes, 76 mm PCD
f)	Dry power freq. withstand voltage ( KV rms)	33 KV
g)	Wet power freq. withstand voltage ( KV rms)	70 KV
h)	Impulse withstand voltage ( KV peak)	70 KV
i)	Visual discharge voltage level ( KV rms)	170 KV
j)	Creepage distance (mm)	27 KV
xvii)	Base channel	Min 860 mm
a)	Material	
b)	Size	M.S. hot dip galvanized
xviii)	Support Structure	100x50mm
xix)	Terminal connector	Not in scope of supply
a)	Clamp body	
i)	Material	
ii)	Area of min. cross section	Aluminium Alloy
b)	Material of Nuts & bolts size	Suitable for 630 Amps.
b)	type of washer used	M.S Electroplated
		Plain washer Electroplated

M/s Prem Enterprises





LEGEND:-  
 1. MS HDG---MILD STEEL HOT DIP GALVANIZED.  
 2. G.I.---GALVANIZED IRON  
 3. EC---ELECTRIC GRADE COPPER  
 4. AL---ALUMINIUM



DIMENSION TABLE					
CLAMP MATE	TYPE	A	B	C	D
25 KV DOUBLE BREAK	1544	508	1508	508	50

NOTES:-  
 1. TOLERANCE  $\pm 5\%$   
 2. ALL DIMENSION ARE IN MM, OTHERWISE SPECIFIED.  
 3. ALL FERROUS PARTS HOT DIP GALVANIZED

S.NO.	DESCRIPTION	QTY.
1	BASE CHANNEL 100x50	1
2	3KV INSULATOR RASHTRIYA MAKE	1
3	3KV INSULATOR RASHTRIYA MAKE	1
4	3KV INSULATOR RASHTRIYA MAKE	1
5	3KV INSULATOR RASHTRIYA MAKE	1
6	3KV INSULATOR RASHTRIYA MAKE	1
7	3KV INSULATOR RASHTRIYA MAKE	1
8	3KV INSULATOR RASHTRIYA MAKE	1
9	3KV INSULATOR RASHTRIYA MAKE	1
10	3KV INSULATOR RASHTRIYA MAKE	1
11	3KV INSULATOR RASHTRIYA MAKE	1
12	3KV INSULATOR RASHTRIYA MAKE	1
13	3KV INSULATOR RASHTRIYA MAKE	1
14	3KV INSULATOR RASHTRIYA MAKE	1
15	3KV INSULATOR RASHTRIYA MAKE	1

M/S Prem Enterprise  
 Prop.



G.A.DRAWING			
REVISION	DATE	BY	CHK.
CUSTOMER	DATE	BY	CHK.
INSPECTION	DATE	BY	CHK.
PURCHASER	DATE	BY	CHK.
TITLE:- 6.33KV 630MM <sup>2</sup> DOUBLE BREAK ISOLATOR WITH EARTH SWITCH SUITABLE FOR VOLT CONDUCTOR DESIGN BY: DESIGNER: CHECKED: RECD/33/ISD/00			
TOTAL	DATE	SCALE	

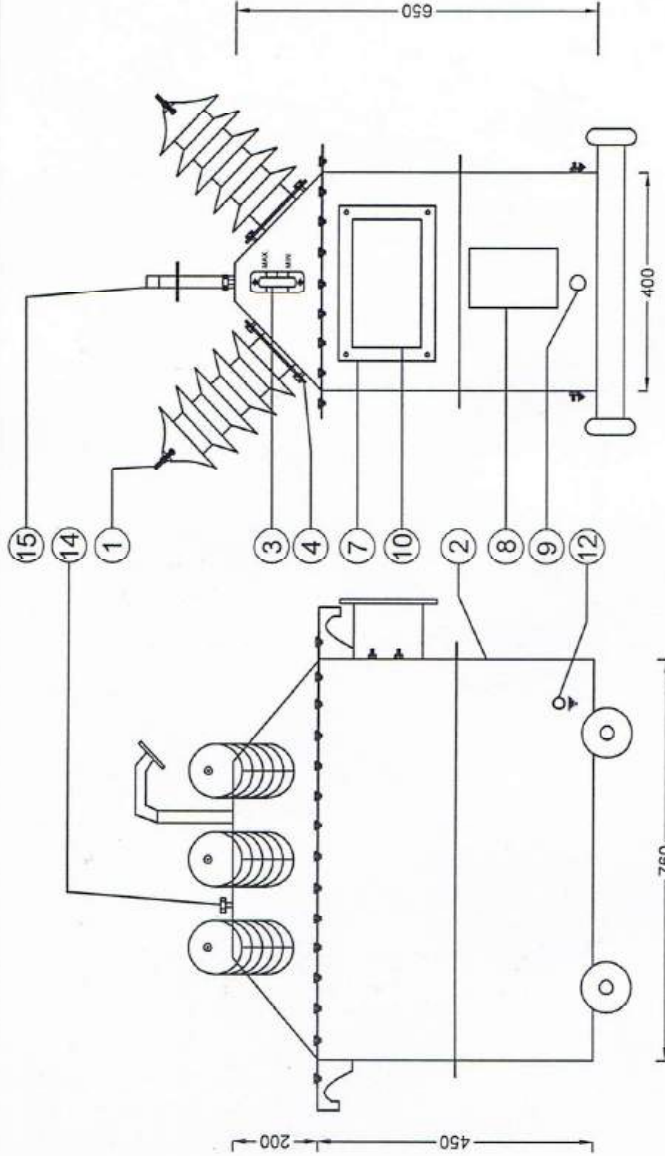


CT RATIO :- 100/1-1A  
 CT BURDEN :- 10 VA  
 ACC. CL. :- 0.2S  
 PT RATIO :- 33 KV/110V/110V.  
 PT BURDEN :- 30 VA/PH.  
 ACC. CL. :- 0.2  
 VOLTAGE FACTOR :- 1.2 CONTI &  
 1.5 Times for 30 Sec.  
 QUANTITY OF OIL 110 Ltrs (Approx.)  
 TOTAL WEIGHT 330 Kgs (Approx.)

S.NO.	DISCRIPTION	QTY	MATERIAL
1	PRIMARY TERMINAL.	6	BRASS,CU.
2	TANK	1	M.S.
3	OIL LEVEL INDICATOR	1	M.S.
4	BUSHING CLAMP.	6	C.I., ALU.
5	BUSHING	6	PORCELEIN
6	LIFTING LUGS	2	M.S.
7	SECONDARY TERMINALS COVER.	1	M.S.
8	NAME PLATE.	1	ALUMINIUM
9	OIL DRAIN PLUG.	1	M.S.
10	SECONDARY TERMINAL BOX WITH SEALING ARRANGEMENT	1	M.S.
11	MOUNTING HOLE.	4	M.S.
12	EARTHING TERMINALS.	2	M.S.
13	PRESSURE RELEASE VALVE.	1	M.S. & AL.
14	OIL FILLING CAP.	1	M.S.
15	EXPLOSIVE VENT.	1	M.S.

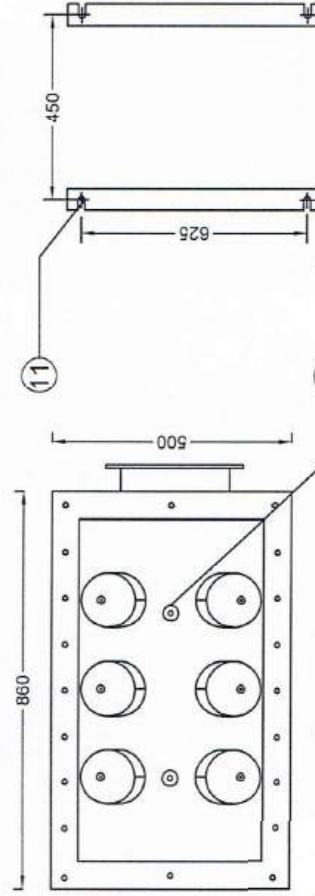
NOTES:-

1. TOLERANCE IN WEIGHT =  $\pm 10\%$
2. ALL DIMENTIONSRAE IN mm.
3. TOLERANCE OVERALL DIMENSIONS=  $\pm 10\%$
4. TOLERANCE ON MOUNTING DIMENSIONS=  $\pm 2\%$
5. SHEET THICKNESS :- 3mm.



FRONT VIEW

SIDE VIEW



TOP VIEW

MOUNTING DETAIL

## ELECTRICFIELD COMPANY

75-81 INDUSTRIAL AREA,  
 PHASE-II GANGYAL,  
 JAMMU-180010

TEL. : 0191-2480272

E MAIL: info@electricfield.in

DATE 12/05/2018

DRG. NO. EFC/33KVCT/PT/271/18

REV. NO. 0

DRN. BY ADITYA SAMBYAL

DGN. BY VIRENDER KUMAR

APD. BY A.P.SACHDEV

CLIENT:- M/s HIMACHAL PRADESH POWER CORPORATION THROUGH SUN TECHNOLOGIES.

PROJECT:- HPPCL 6.34MW Solar Power Plant.

PURCHASE ORDER NO. :- 136 DT.:- 10-05-2018.

TITLE:-

DRAWING OF 33KV OUTDOOR, OIL COOLED POLE MOUNTED CT/PT COMBINE UNIT.

ELECTRICFIELD



POWER TO SPEED