

पावर ग्रिड कारपोरेशन ऑफ इंडिया लिमिटेड

(भारत सरकार का उद्यम)

POWER GRID CORPORATION OF INDIA LIMITED

(A Government of India Enterprise)



पावरग्रिड

केन्द्रीय कार्यालय : "सौदामिनी" प्लॉट सं. 2, सेक्टर-29, गुडगाँव-122 001, हरियाणा
फोन : 2571700 - 719, फैक्स : 2571760, 2571761 तार 'नेटग्रिड'
Corporate Office : "Saudamini" Plot No. 2, Sector-29, Gurgaon-122 001. Haryana
Tel. : 2571700 - 719, Fax : 2571760, 2571761 Gram : 'NATGRID'

संदर्भ संख्या/Ref. Number

संदर्भ/Ref: C/ENGG/SS/ MJTL/ ELECT/ EQP /16

दिनांक/Date: 31.07.2018

सेवा में/To M/S BHEL

Transmission Business Engineering Management,
Tower A, 5 th Floor, Advant Navis IT Business Park
Plot No. 7, Sector 142, Express way Noida

Kind Attn: Shri Rakesh Singh, AGM (Electrical)

विषय/ Sub: LOA No. MJTL/765kV/ERSS-XVIII/SS01/NOA-I/03(I) & (II) dated 29.09.2017

Substation Package -SS01: for establishment of 765/400 kV S/S at Medinipur & Jeerat
(New) Associated with "765 kV Strengthening in Eastern Region (ERSS XVIII)" under
Tariff based competitive Bidding.

Dear Sir,

कृपया उपरोक्त विषय पर अपने पत्र संख्या TBEM/395/MJTL/SS01/032 dated 13.07.2018 का अवकोलन करें। दस्तावेजों पर टिप्पणियाँ/अनुमोदन संलग्नित पेज में दिया गया है।

Please refer to your transmittal no. TBEM/395/MJTL/SS01/032 dated 13.07.2018 We are herein conveying comments/approval/Comment code of each drawing. Please refer the category indicated in remarks/category column of the attached sheet.

अगर हमारे द्वारा वांछित संशोधन के आलावा आप कोई संशोधन करना चाहते हैं तो कृपया उसे पूर्ण तर्कसंगति के साथ हाईलाइट करें एवं दस्तावेज को पुनः अनुमोदन हेतु दुबारा प्रेषित करें।

In case of any modification other than those desired by us are carried out, the same shall be highlighted with full justification thereof and resubmitted for approval.

दस्तावेजों में जो टिप्पणी/अनुमोदन दिया गया है उससे संविदाकार अपनी संविदा जिम्मेदारियों से और समय-समय पर लागू भारतीय स्टेचुररी कानून के अंतर्गत उसकी जिम्मेदारियों जैसे परिमाण (डायमेंशन) की यथार्थताए निर्माण में इस्तेमाल की गई सामग्री वजन मात्राएँ अभिकल्प ब्योरा (design details) असम्बल फिटस निष्पादन ब्योरा और सामग्री पूर्ति से मुक्त नहीं होगा तथा क्रेता का इस संविदा के अधीन कोई भी अधिकार प्रतिबंधित नहीं होगा।

Approval/Comments conveyed herein neither relieve the contractor of his contractual obligations and his responsibilities, weights, quantities, design details assemble fits, performance particulars and conformity of the supplies with the Indian Statutory Laws as may be applicable, nor does it limits the purchaser's right under the contract.

सधन्यवाद / Thanking you.

भवदीय / Yours faithfully

(के. के. सरकार/K. K. Sarkar)

[उप महाप्रबंधक (अभि.-उपकेंद्र)/ DGM (Engg.-s/s)]

Copy To:

- CEO, MJTL ER-II, Kolkata, Kind Attn: Shri B. Ghosh, AGM (POWERGRID)
- DGM (Engg) ER-II, Kolkata, Kind Attn : Sh. Gautam Sarkar/Sh. S.J. Lahiri,

Page 1 of 2



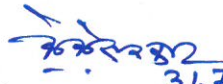
क. सं. Sl.No.	वेंडर ड्राईंग/ दस्तावेज संख्या Vendor Drg./Doc. No.	पुनरीक्षण संख्या Rev. No.	शीर्षक Title	श्रेणी/टिप्पणी Category/ Remarks
A	765/400kV Medinipur & Jeerat (New) S/s			
1.	PMJTL/BHEL/Modern/BPI	0	765Kv Solid Core Post Insulator. (8 KN & 10KN)	CAT-I

अन्य टिप्पणी यदि कोई हो तो/ Additional REMARKS (if any):

श्रेणीयां/Categories:

- फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु जारी। Approved/released for fabrication/construction.
- फेब्रिकेशन/निर्माण/टाइप टेस्टिंग हेतु अनुमोदित/जारी बशर्ते दिए गए टिप्पणियाँ एवं आशोधनों की सम्मिलित किया जाये। कृपया रिवाइज्ड दस्तावेज अनुमोदनार्थ प्रस्तुत करें। Approved/released for fabrication/construction subject to incorporation of comments and modification as noted. Revised drawing required.
- टिप्पणियाँ सम्मिलित करने के उपरांत दस्तावेज को अनुमोदनार्थ प्रस्तुत करें। To be resubmitted for approval after incorporating the comments.
- सूचनार्थ एवं रिकार्ड हेतु। For information and record.
- अनुमोदित नहीं। Not Approved.

नोट/Note: इस पत्र के अनुसार दस्तावेज में दिए गए अनुमोदन द्वारा किसी भी मद के सबवेन्डर अनुमोदन का नहीं किया गया है। यह अनुमोदन गुणवत्ता विस्वास विश्वास विभाग द्वारा प्राप्त करें। The approval of the drawing conveyed vide this letter does not cover the approval of sub-vendor for make of the items. The approval in this respect is to be obtained from Quality Assurance Group.


 31.7.2018
 (के. के. सरकार/K. K. Sarkar)

[उप महाप्रबंधक (अभि.-उपकेंद्र)/ DGM (Engg.-s/s)]

CUSTOMER: POWERGRID MEDINIPUR JEERAT TRANSMISSION LTD.(PMJTL)

CONSULTANT: POWERGRID CORPORATION OF INDIA LTD.

PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JEERAT(NEW) ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERSS-XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE

NOA No: MJTL/765kV/ERSS-XVIII/SS01/NOA-I/03(I) & NOA-II/03(II) dated 29.09.2017

CONTRACTOR: BHARAT HEAVY ELECTRICALS LIMITED

BHEL PO Number & Date: 1st PO 358PO95, dtd-07.07.2018 (Jeerat Project) and 2nd PO 358PO96, dtd-07.07.2018 (Mednipur Project)

SUPPLIER – M/s MODERN INSULATORS

SL No.	Drawing/Doc Title	Doc. no.	REV	Powergrid approval letter Ref
	765kV soild core Post Insulator- 8kN			
1.	GA drg	211-C-1658	0	Powergrid approval letter C/ENGG/WR/DPR-6&7/TBEA/20 DTD. 26.02.14
2.	Intermediate flange-I	MCI/SGI-2-097 I1	0	
3.	Intermediate flange-II	MCI/SGI-2-061 I1	0	
4.	Intermediate flange-III&IV	MCI/SGI-2-090 M1	0	
5.	Top flange	MCI/SGI-093 I1	0	
6.	Bottom Flange	MCI/SGI-2-141 T1	0	
7.	765Kv Corona Shield ring	H-9-0143	1	
8.	Shed detail of top, middle & bottom insulator	211-C-1658/SP	0	
9.	Electrical Type test reports			C/ENGG/WR/AREVA/VIN DHAYACHAL POOLING dtd 03.05.13;
10.	Mechanical type test reports			C/ENGG/WR/AREVA/VIN DHAYACHAL POOLING dtd 03.05.13,
	765kV soild core Post Insulator- 10kN			
11.	GA drg	211-C-1666	0	

Cat I

 पावरग्रिड (हस्ताक्षर) Sr. DE (पदनाम) 31.07.18 (तिथि)	श्रेणियाँ
	I. फेबीकेशन / निर्माण / हेतु अनुमोदित / जारी।
	II. फेबीकेशन / निर्माण / हेतु अनुमोदित / जारी। बशर्त की गई टिप्पणियों एवं आशोधनों को सम्मिलित किया जाए। कृपया आशोधित दस्तावेज अनुमोदनार्थ प्रस्तुत करें।
	III. टिप्पणियों सम्मिलित कर पुनः अनुमोदनार्थ प्रस्तुत करें।
	IV. सूचनार्थ एवं रिकार्ड हेतु। V. अनुमोदित नहीं।
पावर ग्रिड कारपोरेशन ऑफ इंडिया लि० अभियांत्रिकी (उपकेन्द्र) गुडगाँव, हरियाणा	

12.	Intermediate flange-I	✓ MCI/SGI-2-208K1	0	Powergrid approval letter C/ENGG/WR/DPR-6&7/TBEA/20 DTD. 26.02.14
13.	Intermediate flange-II	✓ MCI/SGI-2-098 K1	0	
14.	Intermediate flange-III&IV	✓ MCI/SGI-2-140 N1	0	
15.	Top flange	✓ MCI/SGI-2-097 I1	0	
16.	Bottom Flange	✓ MCI/SGI-2-166P1	0	
17.	765kv Corona Shield ring	✓ H-9-0143	1	
18.	Shed detail of top, middle & bottom insulator	✓ 211-C-1666/SP	0	
19.	Type test reports - 10kN Post Insulator			C/ENGG/WR/DPR-6&7/TBEA/26

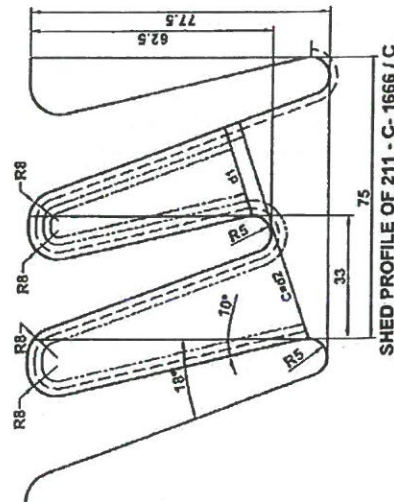
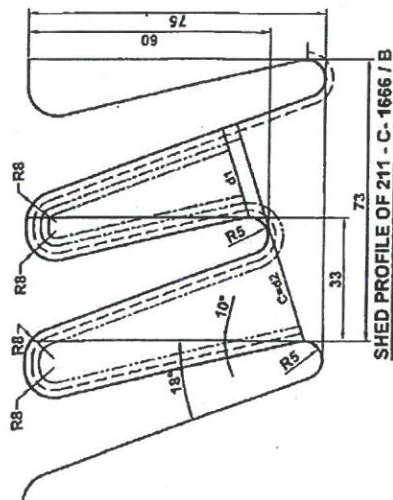
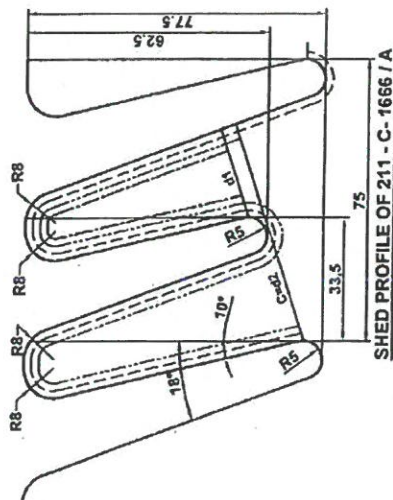
Title - 765 kv Solid Core Post Insulator. (8kN & 10 kN)

Doc. No. PMJTL / RHEL / MODERN / BPI

Rev - 0

 पावरग्रिड (हस्ताक्षर) Sr. DF (पदनाम) 30.07.18 (तिथि)	श्रेणियाँ I. फेब्रीकेशन / निर्माण / हेतु अनुमोदित / जारी। II. फेब्रीकेशन / निर्माण / हेतु अनुमोदित / जारी। बशर्तें दी गई टिप्पणियों एवं आशोधनों को सम्मिलित किया जाए। कृपया आशोधित दस्तावेज अनुमोदनार्थ प्रस्तुत करें। III. टिप्पणियाँ सम्मिलित कर पुनः अनुमोदनार्थ प्रस्तुत करें। IV. सूचनार्थ एवं रिकार्ड हेतु। अनुमोदित नहीं।	Cat I
	पावर ग्रिड कारपोरेशन ऑफ इंडिया लि० अभियांत्रिकी (उपकेन्द्र) गुडगाँव, हरियाणा	

Id1 Shown thus
Id Shown thus
Id Shown thus



S.No.	DESCRIPTION	Actual Values		Values As Per IEC : 80815
1	Min. clearance distance (C)	211-C-1666/A	211-C-1666/B	211-C-1666/C
2	Ratio spacing / Shed over hung (S / P)	61.57	59.67	61.38
3	Ratio Id / d between C.D. & clearance	0.96	0.97	0.96
4	Creepage Factor 11 / s1 = $\frac{20000}{5500}$	4.64	4.61	4.66
5	Profile Factor = $\frac{2P1 + 2P2 + S}{1}$	1.10	1.10	1.10
6	Arching distance S1 (approx.)	5500	5500	5500
7	The difference between two consecutive shed	15	15	15
8	Dm = $\frac{De1 + De2 + 2D}{4}$	240	241	274
9	Inclination of shed	Top 18° Bottom 10°	Top 18° Bottom 10°	Top 18° Bottom 10°

show in GA also.

	211-C-1666/A	211-C-1666/B	211-C-1666/C
Id	286.09	275.11	286.09
d1	321.86	310.26	321.86
d2	25.08	23.65	25.55
Id1	61.57	59.67	61.38
S	121.75	115.92	122.10
	75	73	75

26/2/14
SDE
26/2/14
SDE

POWERGRID MEDINIPUR JERAT TRANSMISSION LTD. (PMJTL)

PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JERAT (NEW) ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERSS-VIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE

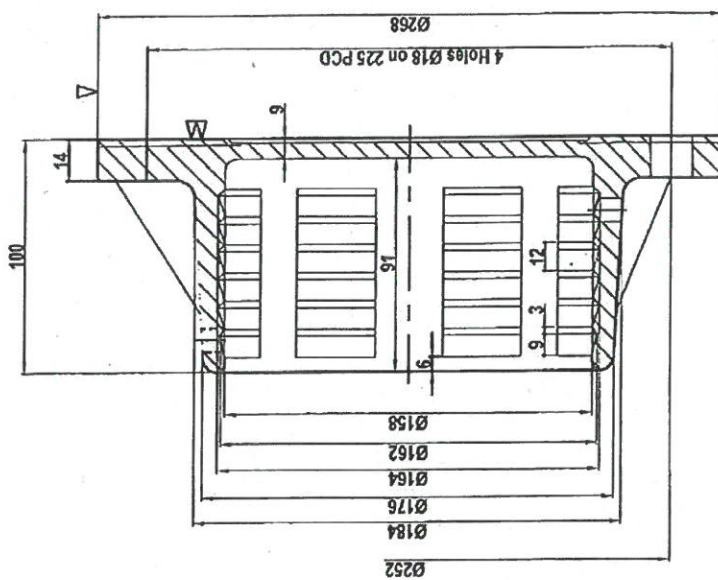
NOA NO.: MITL/765KV/ERSS-VIII/SS01/NOA-1/03(I) & NOA-1/03(II) dated 29.09.2012

BHEL Mumbai

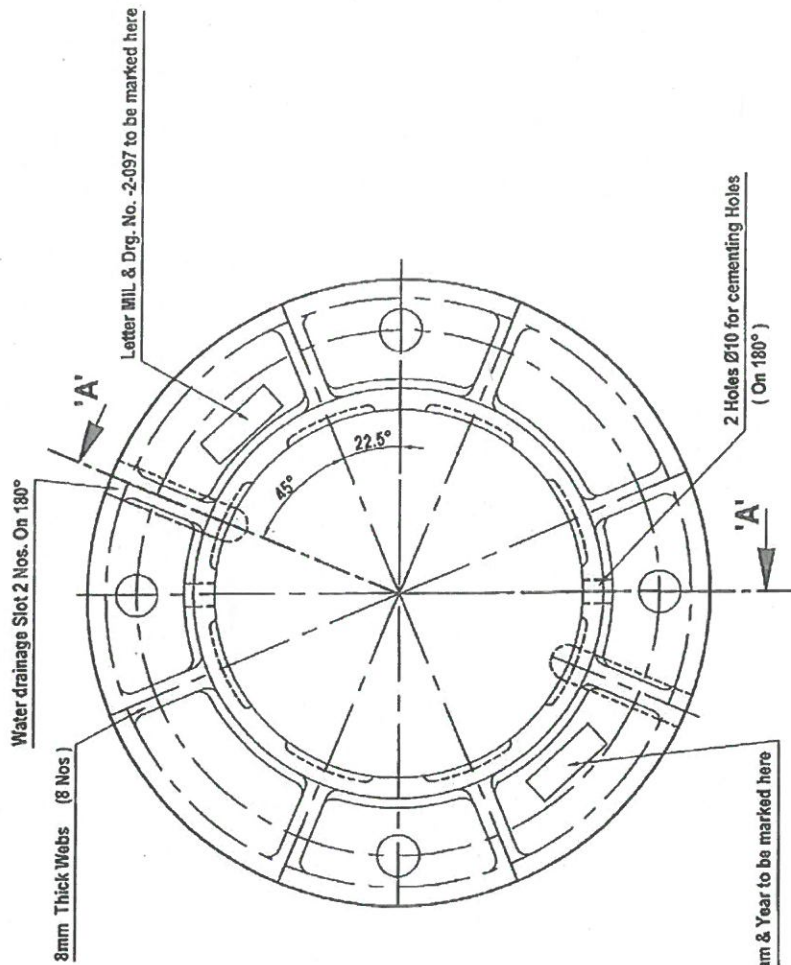
NOTE :- Insulator shed profile conforms to IEC - 80815 for pollution level (Heavy - III)

Cat - IV

Title SHED DETAIL OF TOP, MIDDLE & BOTTOM INSULATOR 211-C-1666		Scale N.T.S.	Matl.
Drawn Kirti Nambiar	Checked [Signature]	Approved [Signature]	Date 25-04-2013
All dimensions are in mm.		Drg. No.	Rev.
MODERN INSULATORS LIMITED ABU ROAD		211-C-1666/SP 0	



SECTION AT - A - A



NOTES :-

1. Matl. conforming to MCI grade BM-340 of IS : 2108 / SGI GR 400/15 of IS: 1865
2. Unspecified tolerance as per IS : 8349 & 8350 class II.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759, 2633 & 6745.
5. Dimensional limits will be applicable after galvanizing.

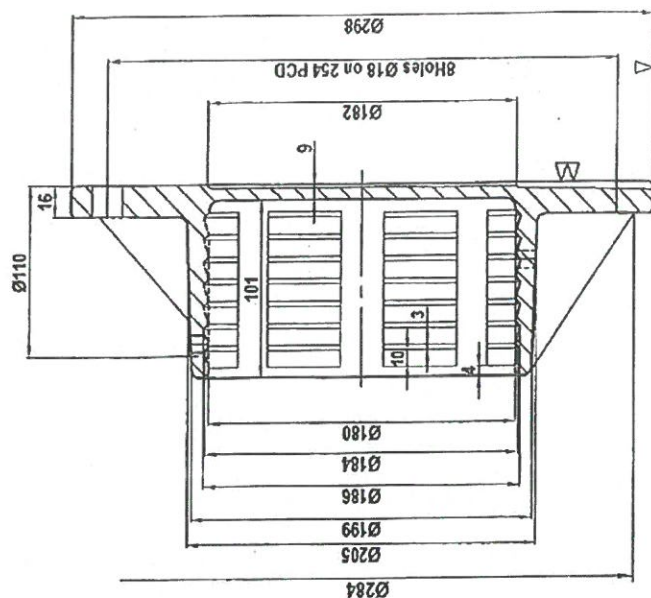
POWERGRID MEDINIPUR JERAT TRANSMISSION LTD. (PMJTL)
PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JERAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERS-
XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE
NOA NO.: MITL/765KV/ERS-XVIII/SS01/NOA-I/0310 & NOA-II/0310 dated 29.09.2017
BHEL Mumbai

DATE : 15.03.2017

Title INTERMEDIATE FLANGE - I		Scale N.T.S.	Matl. See Note No. :- 1
Ref.		Drawn Kirti k Nambiar	Checked K.R.J.C.
All dimensions are in mm.		Approved K.M.R.	Date 11-10-2002
Drg. No. MC/SGI-2-097 11		Rev. 0	

MODERN INSULATORS LIMITED
ABU ROAD

TOP & Please check



Section :- A-B

Cost - 12

- NOTES :-**

1. Dimensional limits will be applicable after galvanizing.
2. Material conforming to malleable castiron grade BM : 340 of IS : 2108 / SGI GR. 400/15 of IS:1865.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759, 2633 & 6745
5. Unspecified tolerance as per IS : 8349 & 8350 class II
6. Mass of zinc coating - 610g/m² min.

Title	Intermediate Flange - II		Scale	Matl.
			NTS	See Note No.-2
			Drawn	Kirti k Nambiar
			Checked	S.K.Dixit
			Approved	K.R.J.C.
Ref				
All dimensions are in mm				
MODERN INSULATORS LIMITED. ABU ROAD	Drawing No.	09-11-2002	Rev.	
	MC/SGI-2-098 K1		0	

[illegible]

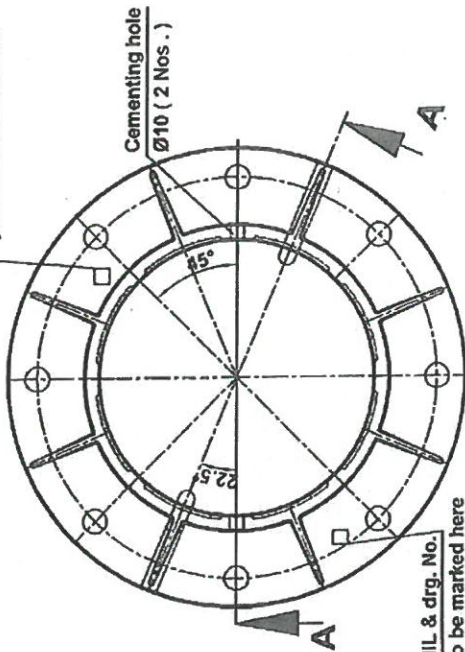
POWERGRID MEDINIPUR JERARAT TRANSMISSION LTD. (PWMTL)
PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV 5/5 AT MEDINIPUR & JERARAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERSS-
XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE

NOA NO.: MWTL/765KV/ERSS-XVIII/SS01/NOA-1/03(1) & NOA-11/03(1), dated 29.09.2017

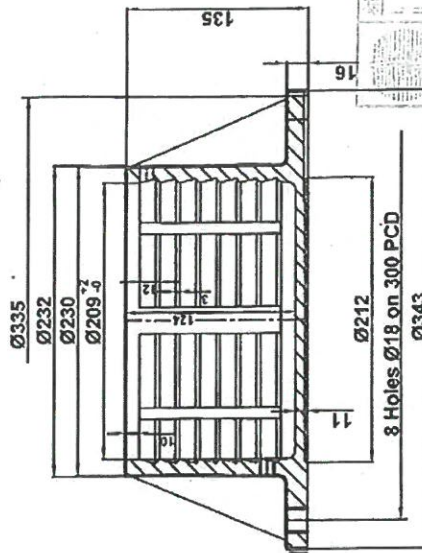
BHEL, Mumbai

BHEL Mumbai

Manufacturer's monogram & year to be marked here



Letter MIL & drg. No. - 2-140 to be marked here



Section at : - A A

POWERGRID MEDINIPUR JERAT TRANSMISSION LTD. (PMTL)
PROJECT: SUBSTATION PACKAGE-S501 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JERAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERS-
XVIII) UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE
NOA NO.: MTL/765KV/ERS-XVIII/5501/NOA-II/0310 dated 29.09.2017
BHEL Mand

NOTES :-

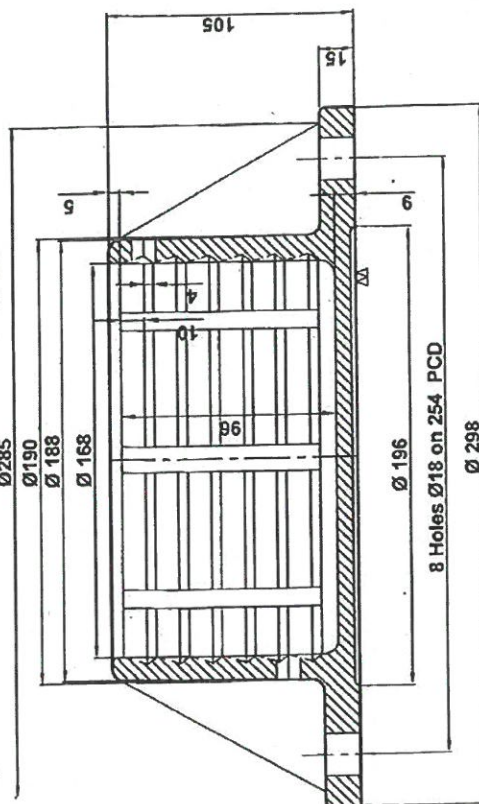
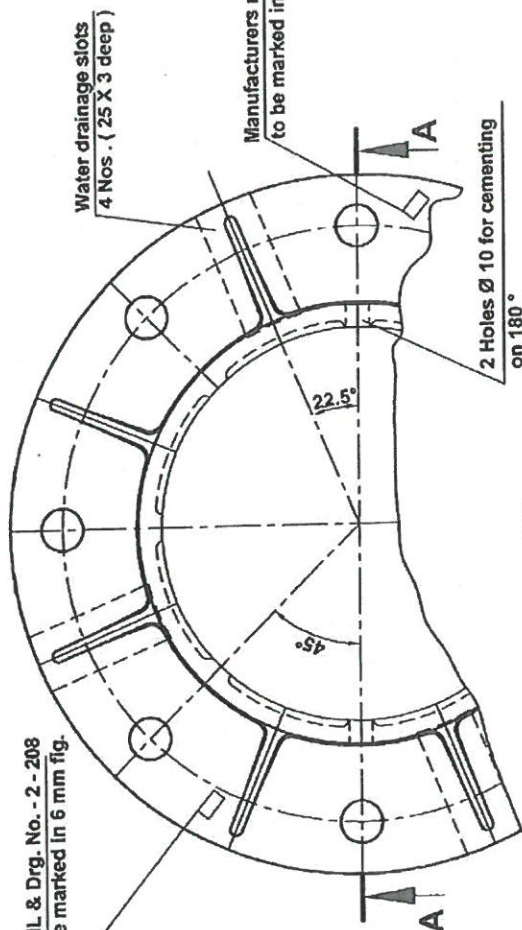
1. Dimensional limits will be applicable after galvanizing.
2. Material conforming to malleable castiron grade BM : 340 of IS : 2108 / SGI GR. 400/15 of IS:1865.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759, 2633 & 6745
5. Unspecified tolerance as per IS : 8349 & 8350 class II
6. Mass of zinc coating - 610gm² min.

Cat - IV

Title INTERMEDIATE FLANGE - III & IV	
Scale N.T.S.	Matl. See Note No. :- 2
Drawn	Kirti Nambiar
Checked	S.K.dixit
Approved	KR JC
Date	18-11-2005
Drg. No.	MCI/SGI-2-140N1
Rev.	0

All dimensions are in mm.
MODERN INSULATORS LIMITED
ABU ROAD

Letter MIL & Drg. No. - 2 - 208
to be marked in 6 mm fig.

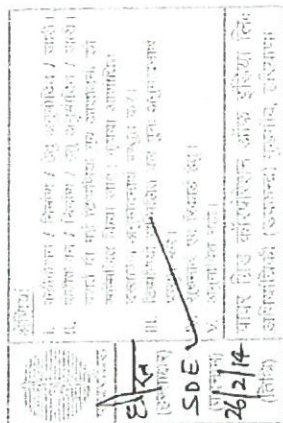


Section at :- A - A

POWERGRID MEDINIPUR JEERAT TRANSMISSION LTD. (PMJTL)
PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JEERAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERSS-
XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE
NOA NO.: MITL/765KV/ERSS-XVIII/SS01/NOA-I/0310 & NOA-II/0310 dated 29.09.2017

BHEL Mumbai

Manufacturers monogram & year
to be marked in 6 mm fig.



NOTES :-

1. Matl. conforming to MCI grade BM-340 of IS : 2108 / SGI GR 400/15 of IS: 1865
2. Unspecified tolerance as per IS : 8349 & 8350 class II.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759, 2633 & 6745.
5. Dimensional limits will be applicable after galvanizing.
6. Mass of zinc coating -610 g/m2 min.

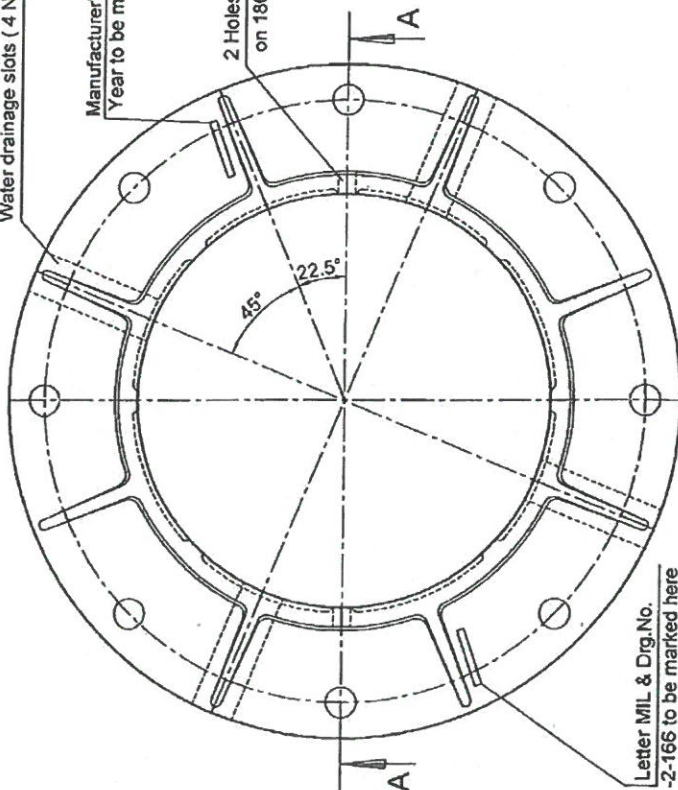
Cat - IV

Title	INTERMEDIATE FLANGE - I		Scale	Matl.	See Note No. :- 1
			N.T.S.		
Ref.			Drawn	Kirti Nambiar	
			Checked	S.K.dixit	
			Approved	KR JC	
All dimensions are in mm.			Date	23 - 06 - 2010	
MODERN INSULATORS LIMITED ABU ROAD			Drg.No.	Rev.	
			MCI/SGI- 2-208K1 0		

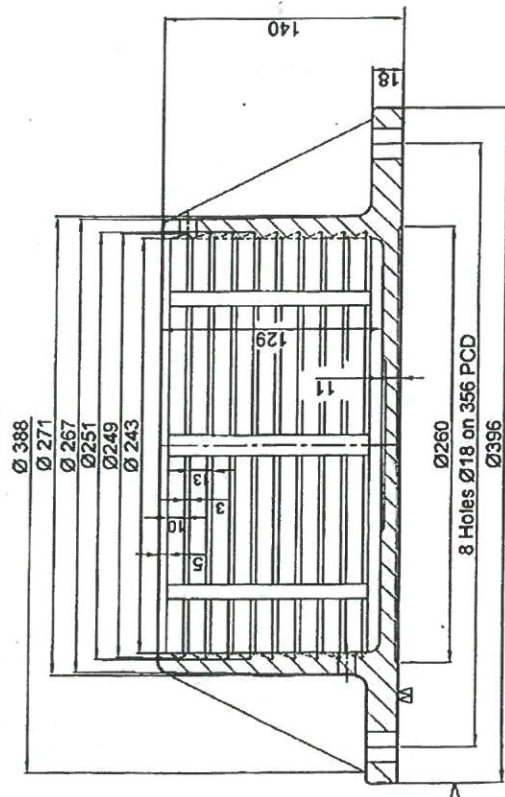
Water drainage slots (4 Nos.)

Manufacturer's monogram &
Year to be marked here

2 Holes Ø10 for Cementing
on 180°



Letter MIL & Drg.No.
-2-166 to be marked here



Section at A - A



Cat - IV

BOTTOM FLANGE

Ref.

Scale N.T.S.	Matl. See Note No. :- 1
Drawn	Prashant Gaur
Checked	S. K. Dixit
Approved	K. R. J. C.
Date	08 - 06 - 2007
Drg.No.	MCI/SGI-2-166P1
Rev.	0

All dimensions are in mm.

MODERN INSULATORS LIMITED
ABU ROAD

POWERGRID MEDINIPUR JEERAT TRANSMISSION LTD. (PMJTL)

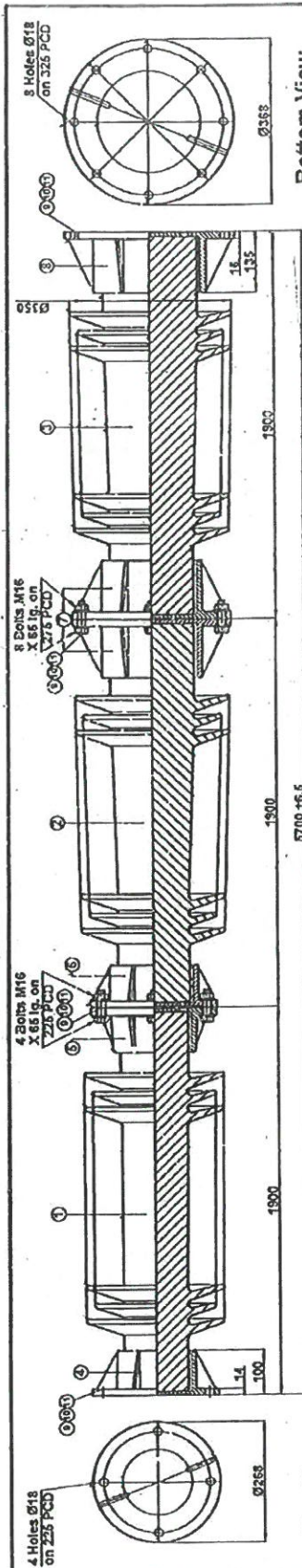
PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JEERAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERSS-
XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE

NOA NO.: MJTL/765KV/ERSS-XVIII/SS01/NOA-1/03(I) & NOA-11/03(II) dated 29.09.2017

BHEL Mumbai

NOTES:-

1. Matl. conforming to MCI grade BM-340 of IS : 2108 / SGI GR 400/15 of IS: 1865
2. Unspecified tolerance as per IS : 8349 & 8350 class II.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759, 2633 & 6745 .
5. Dimensional limits will be applicable after galvanizing .
6. Mass of zinc coating -610 g/m2 min.



Top View

Bottom View

TECHNICAL PARTICULARS
MECHANICAL VALUES

Bending strength (Upright)	8
Compression strength	360
Tensile strength	180
Torsional strength	6

ELECTRICAL VALUES

Nominal system voltage	765
Highest system voltage	860
Dry power frequency withstand voltage	850
Wet power frequency withstand voltage	830
Dry power frequency flashover voltage	860
Wet power frequency flashover voltage	840
Impulse withstand voltage(1.2/50micro sec.)	2550
Impulse flashover voltage(1.2/50micro sec.) ±1%	2650
Min. nominal creepage distance	20000
Corona extension voltage	510
Max. radio interference voltage (μv) for any frequency between 0.5 MHz to 2 MHz at voltage 510 KV (rms) between phase to ground	1000
Switching surge withstand voltage	1550
Shed profile as per IEC : 60815(Alternate Long & short shed)	
Pollution level (III) heavy polluted	
Net weight (approx)	645

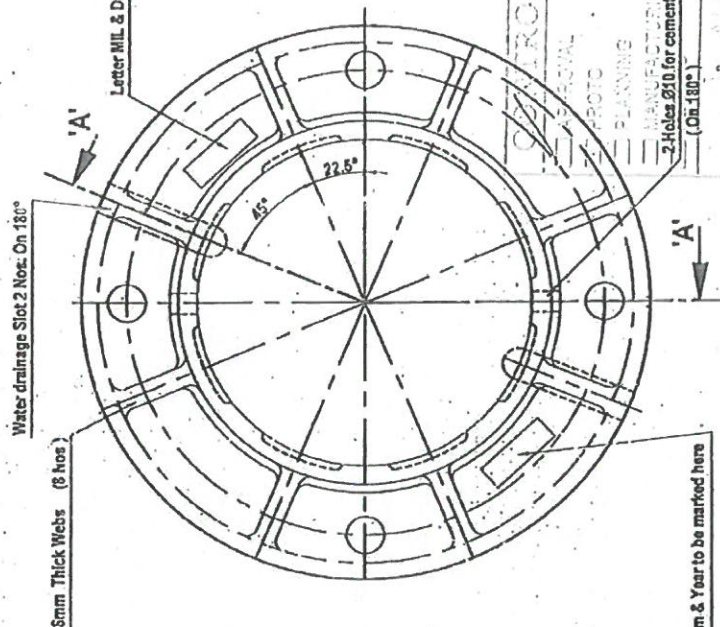
NOTE :-
Standard applicable as per IS : 2544 , 5350 &
IEC : 60168 , 60273 , IEC :60815

POWERGRID MEDINIPUR JEERAT TRANSMISSION LTD. (PMJTL)
PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JEERAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERSS-
XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE
NOA NO.: MITL/765KV/ERSS-XVIII/SS01/NOA-II/0310 dated 29.09.2017
BHEL Mumbai

S.No.	DESCRIPTION	MATERIAL	REMARKS
11	Hex. bolt with nut	Mild steel. As per IS:6633	Hot dip galvanized
10	Plain washer	Mild steel. As per IS:2016	Hot dip galvanized
9	Spring Washer	Spring steel As per IS:3063	Electro galvanized
4,5,6,7, & 8	Flanges	MCI / SGI	Hot dip galvanized
1,2, & 3	Insulator body	Porcelain	Brown Glazed

Title	Scale	Mat
765 kV SOLIDCORE POST INSULATOR (CS - 2550)	N.T.S.	See table
Ref.	Drawn	S.Bandyopadhyay
	Checked	S.K.Dixit
	Approved	K.R.J.C.
All dimensions are in mm.	Date	01-01-2013
	Drig.No.	211-C-1658
	Rev.	0

MODERN INSULATORS LIMITED
ABU ROAD



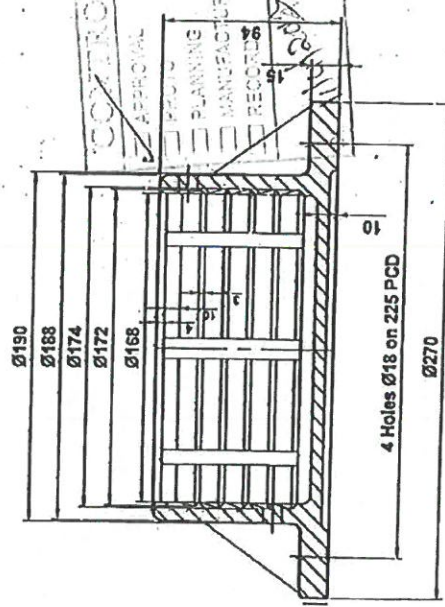
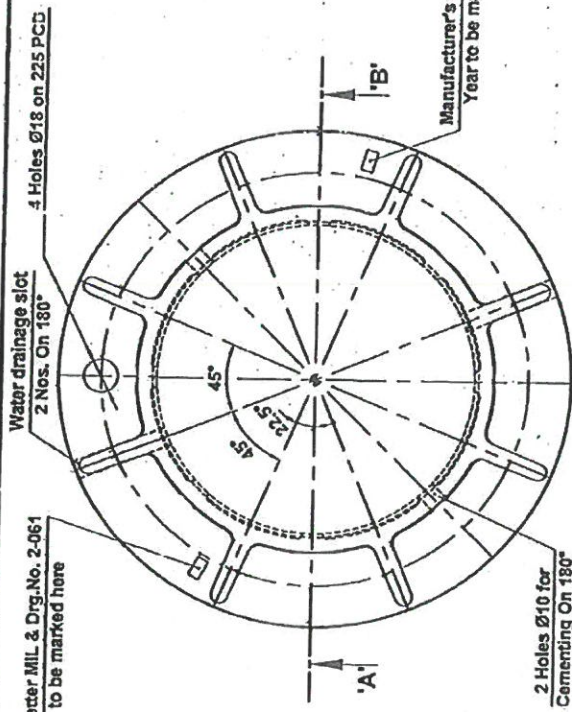
Manufacturers Monogram & Year to be marked here

1. Matl. conforming to MCI grade BM-340 of IS : 2108 / SGI GR 400/15 of IS: 1865

2. Unspecified tolerance as per IS : 8349 & 8350 class II.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759 ,2633 & 6745.
5. Dimensional limits will be applicable after galvanizing.
6. Mass of zinc coating -610 g/m² min.

Title		Scale	Matl.
INTERMEDIATE FLANGE - I		N.T.S.	See Note No. :- 1
Ref.		Drawn	Kirti k. Nambiar
		Checked	K.R.J.C.
		Approved	K.M.R.
All dimensions are in mm.		Date	11-10-2002
MODERN INSULATORS LIMITED		Dwg. No.	Rev.
ABU ROAD		MC/SGI-2-097 I	0

POWERGRID MEDINIPUR JERAT TRANSMISSION LTD. (PMJTL)
PROJECT: SUBSTATION PACKAGE-S001 FOR ESTABLISHMENT OF 765/400KV ±5 AT MEDINIPUR & JERAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERS-
XVIIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE
NOA NO.: MIT/L/765KV/ERS-XVII/5501/NOA-I/0301 & NOA-II/0301I dated 29.09.2017



NOTES :-

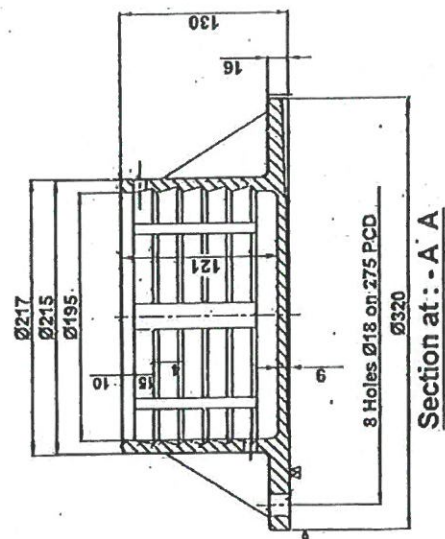
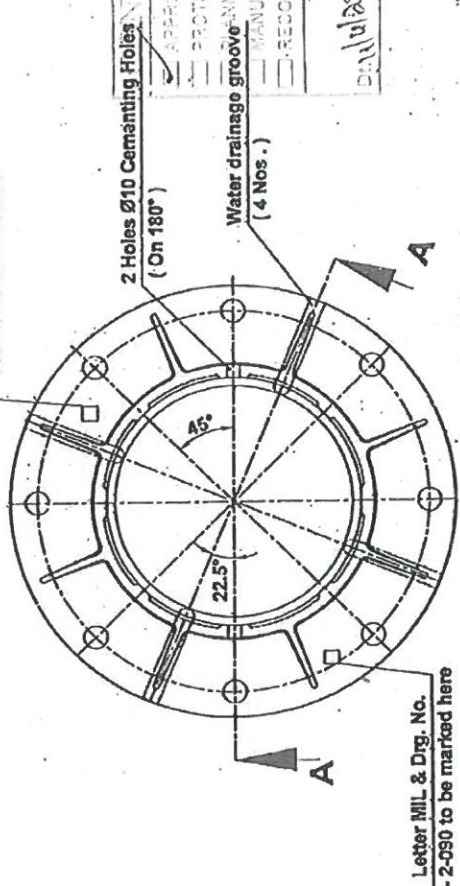
1. Dimensions limits will be applicable after galvanizing.
2. Material conforming to malleable-castiron grade BM : 340 of IS : 2108 / SGI GR. 400/15 of IS:1865.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759 , 2533 & 6745
5. Unspecified tolerance as per IS : 8349 & 3350 class II
6. Mass of Zinc coating - 610g/m² min.

POWERGRID MEDINIPUR JERBAT TRANSMISSION LTD. (PMJTL)
 PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JERBAT (NEW)
 ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERS-
 XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE
 NOA NO. MIL/765KV/ERS-XVIII/SS01/NOA-1/0310 & NOA-II/0310 dated 29.09.2007
 BHEL Mumbai

Title		Scale	Matl.
INTERMEDIATE FLANGE - II		N.T.S.	See Note No :- 2
Ref.		Drawn	Prashant Gaur
		Checked	S. K. Dixit
		Approved	K. R. J. C.
All dimensions are in mm.		Date	09 - 03 - 2000
MODERN INSULATORS LIMITED		Dwg. No.	Rev.
ABU ROAD		MCI/SGI-2-061H	0

Handwritten signature and date: 26/4/13

POWERGRID MEDINIPUR JEERAT TRANSMISSION LTD. (PMJTL)
 PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JEERAT (NEW)
 ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERSS-
 XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE
 NOA NO.: MITL/765KV/ERSS-XVIII/SS01/NOA-I/03(I) & NOA-II/03(II) dated 29.09.2017
 BHEL Mumbai



NOTES :-

1. Matl. conforming to MCI grade BM-340 of IS : 2108 / SGI GR 400/15 of IS: 1865
2. Unspecified tolerance as per IS : 8349 & 8350 class II.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759, 2633 & 6745.
5. Dimensional limits will be applicable after galvanizing.
6. Mass of zinc coating -610 g/m² min.

Title	Scale	Matl.	Sec Note No. :- 1
INTERMEDIATE FLANGE - III & IV	N.T.S.		
Ref.	Drawn	Checked	Prashant Gaur
		Approved	S. K. Dixit
		Date	KR JC
All dimensions are in mm.			12-02-2002
MODERN INSULATORS LIMITED			Rev.
ABU ROAD			MCI/SGI-2-090M1
			0

Section at :- A-A

Letter MIL & Drg. No.
 -2-090 to be marked here

Manufacturer's monogram &
 Year to be marked here

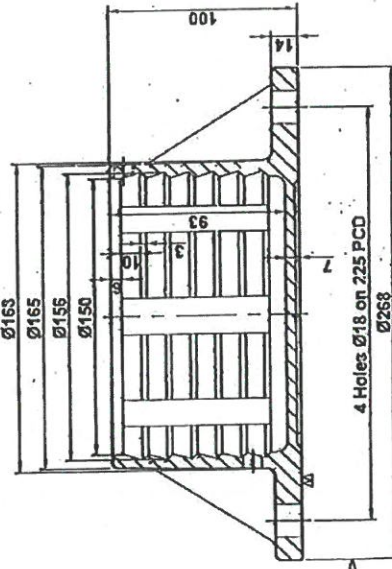
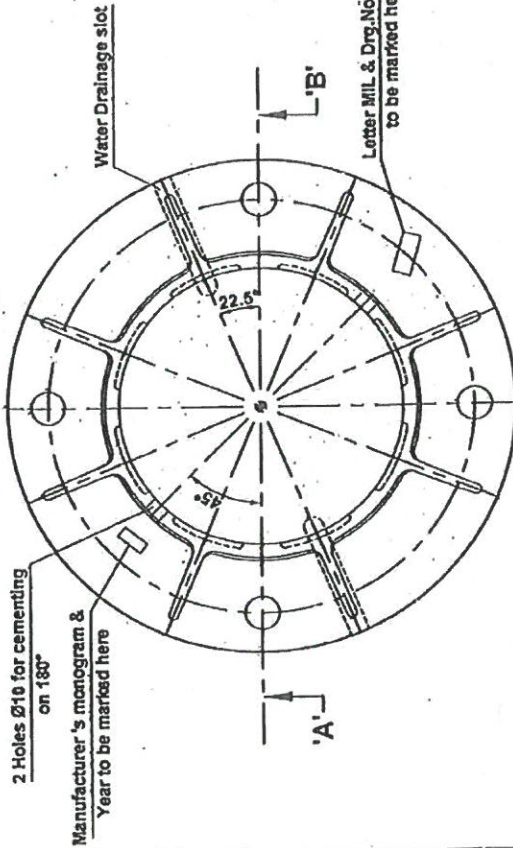
POWERGRID MEDINIPUR JEERAT TRANSMISSION LTD. (PMJTL)

PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JEERAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERSS-
XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE

NOA NO.: MJTL/765KV/ERSS-XVIII/SS01/NOA-I/03(I) & NOA-II/03(II) dated 29.09.2017

BHEL Mumbai

Powergrid



SECTION AT :- A-A

NOTES :-

1. Dimensional limits will be applicable after galvanizing.
2. Material conforming to malleable cast iron grade BM : 340 of IS : 2108 / SGI GR. 400/15 of IS:1885.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759, 2653 & 6745
5. Unspecified tolerance as per IS : 8349 & 8350 class II
6. Mass of zinc coating - 610g/m² min.

Title	Scale	Matl.	See Note No. 2
	N.T.S.		
Ref.	Drawn	Kirji K. Namblar	
	Checked	S. K. Dixit	
	Approved	K. R. J. C.	
All dimensions are in mm.			Date
			21.07.2002
			Rev.
MODERN INSULATORS LIMITED			
ABU ROAD			
MC/SGI-2-093 I			0

POWERGRID MEDINIPUR JEEARAT TRANSMISSION LTD. (PMITL)

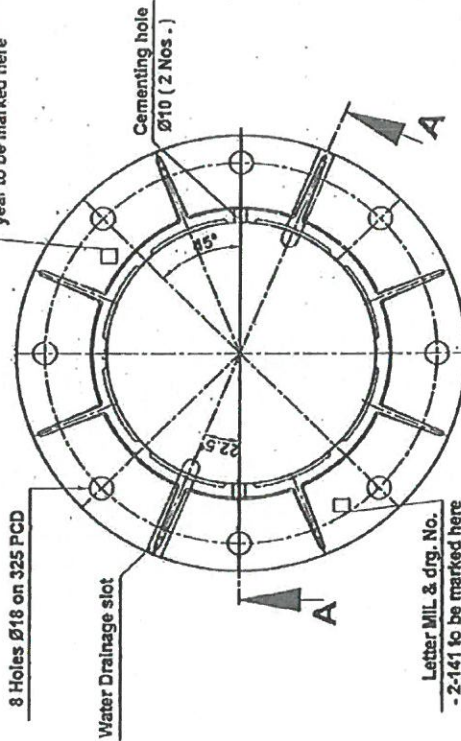
PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JEEARAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERSS-
XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TBCB) ROUTE

NOA NO.: MITL/765KV/ERSS-XVIII/SS01/NOA-I/03(I) & NOA-II/03(II) dated 29.09.2017

BHEL Mumbai

Powergrid

Manufacturer's monogram &
year to be marked here



Letter MIL & drg. No.
- 2-141 to be marked here

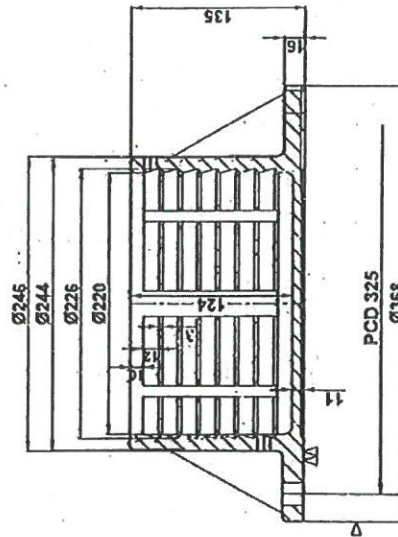
NOTES :-

1. Dimensional limits will be applicable after galvanizing.
2. Material conforming to malleable cast iron grade BM : 340 of IS : 2108 / SGI GR. 400/15 of IS:1865.
3. All sharp corners to be rounded off.
4. Hot dip galvanizing as per IS : 4759 , 2633 & 6745
5. Unspecified tolerance as per IS : 8349 & 8350 class II
6. Mass of zinc coating - 610g/m² min.

26/4/23
DDE ✓

Hot-IV

Title		Scale	Matl.
BOTTOM FLANGE		N.T.S.	See Note No. :- 2
Ref.	Drawn	Kirti Nambiar	
	Checked	S. K. Dixit	
	Approved	K. R. J. C.	
All dimensions are in mm.		Date	18-11-2005
MODERN INSULATORS LIMITED		Dwg. No.	MCI/SGI-2-141 T1
ABU ROAD		Rev.	0



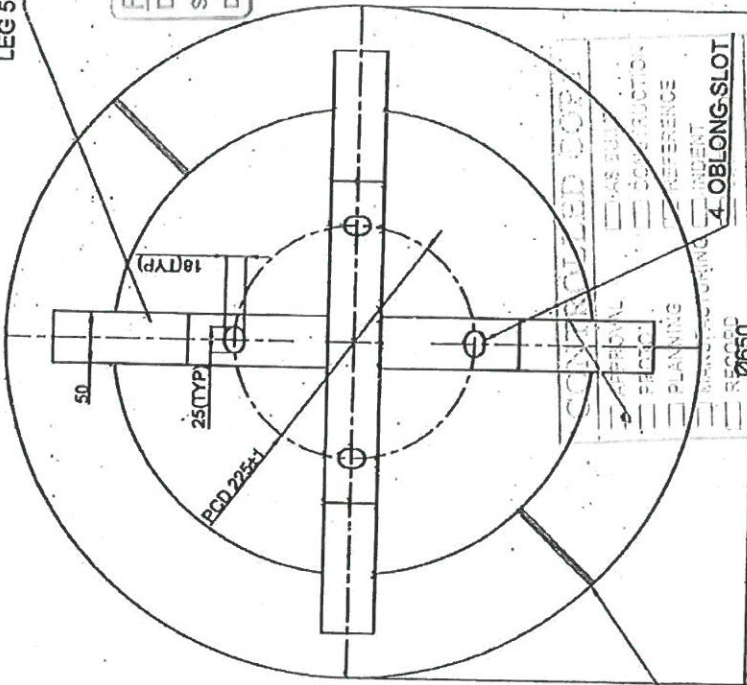
Section at :- A A

201-14

LEG 50 mm WIDE X 15 mm THICK

RELEASED FOR MANUFACTURING
DEPT.: EPC
SIGN: *[Signature]*
DATE: 15/03

T-BEAT
Always Reliable



NOTE :- 1. Tolerances on pipe diameters = $\pm 5\%$
2. Surface mirror finish
3. Tensile load - 150kg (min.)

POWERGRID MEDINIPUR JERAT TRANSMISSION LTD. (PWTJ)
PROJECT: SUBSTATION PACKAGE-5001 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JERAT (NEW)
ASSOCIATION WITH TRANSMISSION SYSTEM PROJECT 765KV STRENGTHENING IN EASTERN REGION (ERS-
XVII) UNDER TARIFF BASED COMPETITIVE BIDDING (TFCB) ROUTE
BOL.NO.: MTL/765K/ERS-XVII/5501/NOA/0301 & NOA/0301 dated 23.09.2012
BUL. Wawa
Eswarad

Rev.	Date	12-12-2005
1	Appd.- S.K.dixit	

Plate removed, Legs 4 was 2
Slot size 25x18 were 40x18

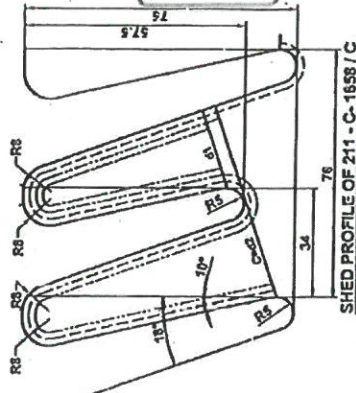
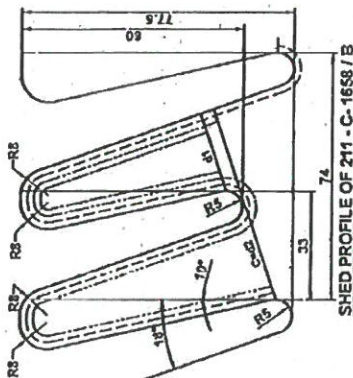
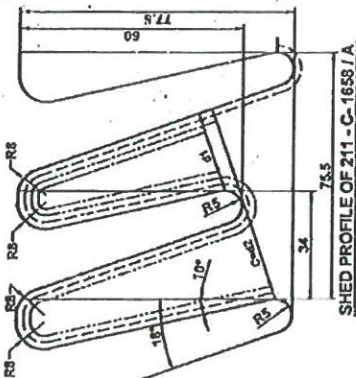
Title	765 KV CORONA SHIELD RING	Scale	N.T.S.	Matl	Al Alloy 63401 (E91E) WP (RANGE-2)
Ref.		Drawn	Kirti K Nambiar	Checked	s.K.dixit
		Approved	KR JC	Date	02-09-2006
		Brg.No.	H - 9 - 0143	Rev.	1

All dimensions are in mm.

MODERN INSULATORS LIMITED
ABU ROAD

DOE ✓
26/4/13

Id1 Shown thus
Id Shown thus
Id Shown thus



S.No.	DESCRIPTION	Actual Values	Values As Per IEC :60815
1	Min. clearance distance (C)	211-C-1658/A 62.05	211-C-1658/C 62.53
2	Ratio spacing / Shed over hung (S/P)	0.97	1.01
3	Ratio Id / d between C.D. & clearance	4.53	4.35
4	Creepage Factor $l_1 / s_1 = \frac{20000}{5500}$	3.63	4.40
5	Profile Factor = $\frac{2P_1 + 2P_2 + S}{l}$	1.10	1.10
6	Arching distance S_1 (approx.)	5500.	—
7	The difference between two consecutive shed	17.5	18
8	$Dm = \frac{Det + Det + 2D}{4}$	206.25	257.25
9	Inclination of shed	Top 18° Bottom 10°	Top 18° Bottom 10°

	211-C-1658/A	211-C-1658/B	211-C-1658/C
Id	281.64	280.60	272.39
l	317.56	316.06	308.47
d1	24.78	24.31	24.78
d2	62.05	60.43	62.53
Id1	116.74	116.40	111.95
s	75.5	74	76

CONTROLLED COPY
APPROVAL
CONSTRUCTION

POWERGRID MEDINIPUR JERAT TRANSMISSION LTD. (PMITL)
PROJECT: SUBSTATION PACKAGE-SS01 FOR ESTABLISHMENT OF 765/400KV S/S AT MEDINIPUR & JERAT (NEW)
ASSOCIATED WITH TRANSMISSION SYSTEM PROJECT "765KV STRENGTHENING IN EASTERN REGION (ERS-
XVIII)" UNDER TARIFF BASED COMPETITIVE BIDDING (TRCB) ROUTE
NOA NO.: MITL/765KV/ERS-XVIII/SS01/NOA-1/0301 & NOA-1/0310 dated 29.09.2017
BHUL Numbat

POWERGRID

NOTE :- Insulator shed profile conforms to IEC :60815 for pollution level (Heavy - III)

Title SHED DETAIL OF TOP, MIDDLE & BOTTOM INSULATOR 211-C-1658		Scale N.T.S.	Matl.
Drawn Kird Nambiar		Checked S.K.d/it	Approved KR JC
Date 29-03-2013		Drg. No. 211-C-1658/SP 0	
All dimensions are in mm.			
MODERN INSULATORS LIMITED ABU ROAD			

RELEASED FOR MANUFACTURING
DEPT.: EPC
SIGN:
DATE : 15.10.23



Bharat Heavy Electricals Limited
TBG

Ref : MDR:20:TB:00080

Complaint Details

Project	PGCIL MEDINIPUR JEEART
SET/CCN	TBG (CPC- TB1170001)
Manufacturing Unit	TBG (TB)
Unit Workorder	
Product	SUB STATION PRODUCT
Area of work	OTHER
Type of dispatch	BOI

Package Details :

1) 765KV INSULATOR

Pkg no. : ABC Split no. : NA LR no. : 12345 LR Date : 01-Jan-2021

SN o	Drawing no./ PGMA DU	Item code	Description	UOM	Dispatc h Qty	Receive d Qty	Short Qty	Excess Qty	Damag e Qty	Site suggestion code	Required at site by
1	ABC	ABC	765kV ISOLATOR 10KN TOP PART A	NOS	100	100	0	0	1	OTHERS(W RITE IN REMARKS TEXTBOX))	12/01/2021
2	ABC	ABC	765kV ISOLATOR 10KN MIDDLE PART B	NOS	100	100	0	0	1	OTHERS(W RITE IN REMARKS TEXTBOX))	12/01/2021
3	ABC	ABC	765kV BPI 8KN MIDDLE PART B	NOS	100	100	0	0	1	OTHERS(W RITE IN REMARKS TEXTBOX))	12/01/2021
4	ABC	ABC	765kV BPI 8KN BOTTOM PART C	NOS	100	100	0	0	1	OTHERS(W RITE IN REMARKS TEXTBOX))	12/01/2021

Cost Debitable	NO	Estimated amount by site	INR 0
Activity Status	STOPPED		
Will milestone get affected	NO		
Severity Rating	0.7 (Rejection - Replacement of item with new item)		
Problem Description	FOUR INSULATORS have been damaged by ETC contractor (PRV constructions pvt ltd) while shifting materials from store to Jeerat line location for erection.		
Remarks	Actual cost of insulators shall be recovered from RA bill of ETC contractor.		
Site recommendation	Requirement of new insulators to complete the work in 765kV Jeerat line area		

Initiated by
Deep Shekhar Dewangan, Sr Engineer (6235077)
on 12/01/2021 16:52
dsdewangan@bhel.in
8392886688

Approved by