



BPC 0007

**ENQUIRY
TWO PART BID**

**भारत हेवी इलेक्ट्रिकल्स लिमिटेड, पिपलानी, भोपाल - ४६२०२२(भारत)
सामग्री प्रबंधन विभाग
BHARAT HEAVY ELECTRICALS LIMITED, PIPLANI, BHOPAL – 462022(INDIA)
MATERIALS MANAGEMENT DIVISION**

TIN NO. 23573600001 | ECC NO. AAACB4146PXM009 | MPCT NO. HEL/05/01/0001/S15/11/79
PHONE: 91-755-2500100 (7 LINE) | FAX: 91-755-2500023 | WWW.BHEL.BHOPAL.COM

ENQUIRY NO E7543066
ENQUIRY DATE 05/04/25
ENQUIRY DUE DATE 16/04/25

**E
N
Q
U
I
R
Y**

SUPP NAME AND ADDRESS	SUPP CODE	REV CD	REV NO	REV DATE	NO OF CATY2	NO OF CATY3	ENQ NO OF ITEMS	INDENT NO
OFFICE COPY		1	0	NA	0	0	1	121240041
	GUARANTEE CERTIFICATE	Y	SUPPLY CONDITION AS PER SPECIFICATION.					
	TEST CERTIFICATE	Y						
	INSTRUCTION BOOKLET	N	TECHNICAL CONDITION AS PER SPECIFICATION.					
	SAMPLE	N						
GATE PASS	Y	INSPECTION CONDITION CUSTOMER QAP APPLICABLE.						

NOTE: QUOTE PRICE BOTH IN FIGURES & WORDS. IN CASE OF MISMATCH PRICE IN WORDS WILL BE VALID, QUOTATIONS NOT BEARING ENQUIRY NO AND DUE DATE LIABLE TO BE REJECTED.

SL NO	MATERIAL CODE	DESC	UNIT	ITEM QTY	LOT NO	LOT QTY	DEST	DELIVERY DATE
1	BP9029900164	800KV, 2500A, 970KV RMS OIP BUSHING WITH PORCELAIN /POLYMER INSULATOR (SUITABLE FOR INDIAN STANDARDS SEISMIC ZONE I-III) AS PER SPEC. BCE/PS/800/37.	NO	30.000	1	4.000	212	30/10/25
					2	8.000	212	30/11/25
					5	2.000	212	28/02/26
					4	8.000	212	30/01/26
					3	8.000	212	30/12/25

REMARK 1. PLEASE QUOTE ON FIRM RATES BASED AS PER ENCLOSED ANNEXURE T&C (3A & 3B), & PURCHASE SPECIFICATION TO ENQUIRY. 2. DETAILED TERMS & CONDITIONS AS PER BP-200102B. SUPPLIER TO QUOTE IN COMPLIANCE WITH THESE TERMS & CONDITIONS. ANY DEVIATION/ NON COMPLIANCE TO BE CITED IN THE OFFER, ELSE THEY SHALL BE DEEMED ACCEPTABLE. 3. RATES SHOULD BE ON FOR BHEL BHOPAL BASIS FOR INDIAN VENDORS AND CIF JNPT NHAVA SHEVA SEAPORT MUMBAI FOR FOREIGN VENDORS. 4. VALIDITY OF YOUR QUOTATION SHOULD BE AT LEAST 120 DAYS FROM ENQUIRY OPENING DATE. 5. PLEASE SUBMITS OFFER IN TWO PARTS BID. 6. MII & MSE PURCHASE PREFERENCE SHALL BE APPLICABLE FOR THIS TENDER ENQUIRY AS PER GOI /DPIIT PPP-MII LATEST CIRCULARS. 7. PRE QUALIFICATION REQUIREMENT-PQR SHALL BE APPLICABLE AS PER ENCLOSED WITH ENQUIRY. 8. OFFERS ARE INVITED FROM ONLY M/S POWERGRID APPROVED VENDORS. KINDLY SUBMIT M/S POWERGRID APPROVAL AS PER PQR. 9. THE EVALUATION CURRENCY FOR THIS TENDER SHALL BE INR. 10. THE IEM APPOINTED FOR THIS CONTRACT IS AS UNDER 1) SHRI OTEM DAI, IAS (RETD.) 2) SHRI BISHWAMITRA PANDEY, IRAS (RETD.) AND SHRI MUKESH MITTAL, IRS (RETD.) 11. ANY BIDDER FROM A COUNTRY WHICH SHARES A LAND BORDER WITH INDIA WILL BE ELIGIBLE TO BID IN ANY THIS TENDER ONLY IF THE BIDDER IS REGISTERED WITH THE COMPETENT AUTHORITY DPIIT. RESTRICTION TO QUOTE BY BIDDERS FROM COUNTRIES HAVING LAND BORDER WITH INDIA, AS PER PUBLIC PROCUREMENT ORDER ISSUED BY DEPARTMENT OF EXPENDITURE, GOVT. OF INDIA ([HTTPS://DOE.GOV.IN/SITES/DEFAULT/FILES/OM%20DATED%2023.07.2020.PDF](https://doe.gov.in/sites/default/files/om%20dated%2023.07.2020.pdf)) AND ITS AMENDMENTS ISSUED FROM TIME TO TIME SHALL BE APPLICABLE FOR THIS TENDER.

DRAWING Y PURCH SPEC Y CATALOUGE N PLAN Y TWO PART BID Y

S.NO	INDENT NO	ITEM NO	CATEGORY	ENQUIRY QTY.
1	121240041	1	259300	30.000

NOTE: BHEL, BHOPAL'S Standard Terms & Conditions BP4255/MM5533 rev02 for imports and BP4255/MM5527 rev03 for indigeneous procurements form a part of this Enquiry. Bidders may obtain from us copies of these terms and conditions if not already available.

SPECIAL REMARKS	<p>NAME : SHRI VED PRAKASH SHUKLA DESG : ENGINEER</p> <p align="center">SIGN & SEAL</p>
------------------------	--



BHEL
Tenders

Government eProcurement System

Tender Details

Date : 05-Apr-2025 11:32 AM



Basic Details

Organisation Chain	Bharat Heavy Electricals Limited HEP - Bhopal Transformer Capacitor Bushings		
Tender Reference Number	E7543066		
Tender ID	2025_BHEL_47002_1	Withdrawal Allowed	Yes
Tender Type	Global Tenders	Form of contract	Supply
Tender Category	Goods	No. of Covers	2
General Technical Evaluation Allowed	No	ItemWise Technical Evaluation Allowed	No
Payment Mode	Not Applicable	Is Multi Currency Allowed For BOQ	Yes
Is Multi Currency Allowed For Fee	No	Allow Two Stage Bidding	No

Cover Details, No. Of Covers - 2

Cover No	Cover	Document Type	Description
1	Fee/PreQual/Technical	.pdf	Techno-Commercial bid
		.pdf	Other tender documents
2	Finance	.xls	Financial bid

Tender Fee Details, [Total Fee in ₹ * - 0.00]

Tender Fee in ₹	0.00		
Fee Payable To	Nil	Fee Payable At	Nil
Tender Fee Exemption Allowed	No		

EMD Fee Details

EMD Amount in ₹	0.00	EMD Exemption Allowed	No
EMD Fee Type	fixed	EMD Percentage	NA
EMD Payable To	Nil	EMD Payable At	Nil

[Click to view modification history](#)

Foreign Currency BOQ Details

S.No	Currency	Conversion rate in ₹
1	US Dollar	NA
2	European Euro	NA
3	Japanese Yen	NA

Work /Item(s)

Title	E7543066				
Work Description	800KV, 2500A, 970KV RMS OIP BUSHING WITH PORCELAIN /POLYMER INSULATOR				
Pre Qualification Details	Please refer Tender documents.				
Independent External Monitor/Remarks	NA				
Show Tender Value in Public Domain	No				
Tender Value in ₹	1,10,00,00,000	Product Category	Electrical Work/ Equipment	Sub category	NA

Contract Type	Tender	Bid Validity(Days)	120	Period Of Work(Days)	300
Location	BHEL BHOPAL	Pincode	462021	Pre Bid Meeting Place	NA
Pre Bid Meeting Address	NA	Pre Bid Meeting Date	NA	Bid Opening Place	BHOPAL
Should Allow NDA Tender	No	Allow Preferential Bidder	No		

Critical Dates

Publish Date	05-Apr-2025 12:00 PM	Bid Opening Date	17-Apr-2025 12:00 PM
Document Download / Sale Start Date	05-Apr-2025 12:00 PM	Document Download / Sale End Date	16-Apr-2025 04:00 PM
Clarification Start Date	NA	Clarification End Date	NA
Bid Submission Start Date	05-Apr-2025 12:00 PM	Bid Submission End Date	16-Apr-2025 04:00 PM

Tender Documents

NIT Document	S.No	Document Name	Description	Document Size (in KB)
	1	Tendernotice_1.pdf	NIT	80.80

Work Item Documents	S.No	Document Type	Document Name	Description	Document Size (in KB)
	1	Tender Documents	PQR.pdf	PQR	67.91
	2	Tender Documents	tenderdocs.pdf	BHEL GTC, reconciliation statement, Integrity pact and PEBC	7560.39
	3	Tender Documents	SPEC.pdf	Specifications	334.03
	4	Tender Documents	ANNEXURE3AIndian.pdf	Commercial annexure 3A for Indian vendors	170.17
	5	Tender Documents	ANNEXURE3Bforeign.pdf	Commercial annexure 3B for foreign vendors	177.58
	6	BOQ	BOQ_50194.xls	BOQ	242.50

Bid Openers List



S.No	Bid Opener Login Id	Bid Opener Name	Certificate Name
1.	rk.rai@bhel.in	Rajesh Kumar Rai	Rajesh Kumar Rai
2.	vikramjain@bhel.in	Vikram Jain	VIKRAM JAIN
3.	vkathour@bhel.in	Vijay Kumar Rathour	Vijay Kumar Rathour

GeMARPTS Details

GeMARPTS ID	9DK3BDMBW2E8
Description	800kV Bushings
Report Initiated On	05-Apr-2025
Valid Until	05-May-2025

Tender Properties

Auto Tendering Process allowed	No	Show Technical bid status	Yes
Show Finance bid status	Yes	Stage to disclose Bid Details in Public Domain	Technical Bid Opening
BoQ Comparative Chart model	Normal	BoQ Comparative chart decimal places	2

 BoQ Comparative Chart Rank Type	BHEL	Form Based BoQ	No
 Tenders			
TIA Undertaking			
S.No	Undertaking to Order	Tender complying with Order	Reason for non compliance of Order
1	PPP-MII Order 2017	Agree	
2	MSEs Order 2012	Agree	
Tender Inviting Authority			
Name	ved prakash shukla		
Address	BHEL Bhopal		
Tender Creator Details			
Created By	Rajesh Kumar Rai		
Designation	Engineer		
Created Date	05-Apr-2025 11:10 AM		



BHARAT HEAVY ELECTRICALS LIMITED BHOPAL
PRE-QUALIFICATION REQUIREMENT(PQR)
FOR 800KV OIP/RIP BUSHINGS

Date: 26.03.2024

Sl. No.	Description	Vendor's remarks (Y/N)
1	The vendor should be either manufacturer of OIP/RIP bushings as per BHEL Enquiry OR their authorized representative. Authorized representative to submit authorization letter from the manufacturer as a documentary proof.	
2	Supplier should be approved by POWERGRID for 800KV or higher voltage rating OIP/RIP Bushings as on bid opening date. Supplier to submit POWERGRID approval letter/drg/Type Test reports in support of the same.	

Prepared by: Singiren.E.Kandulna
 Manager (BCE)

Approved by: Kulamani Naik
 SDGM (BCE)



BHARAT HEAVY ELECTRICAL LIMITED, BHOPAL

SPECIFICATION CUM COMPLIANCE CERTIFICATE OF 800 kV OIP CONDENSER BUSHING

NAME & ADDRESS OF THE SUPPLIER :

SCOPE: SUPPLY OF 800 kV, 2500A, CTL - 600mm CONDENSER BUSHINGS COMPLYING WITH THE SPECIFICATIONS AS BELOW :

Spec No. : BCE/PS/800/37, Rev03

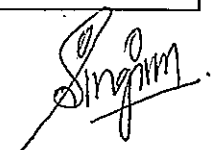
Date : 10-01-2025

S.NO.	DESCRIPTION OF BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	REMARKS
1.0	WORKPIECE MATERIAL		
1.1	Item :		
	Oil Impregnated Paper (OIP)Condenser Bushing with porcelain insulator /composite polymer housing OR Resin Impregnated Paper (RIP)Condenser Bushing with composite polymer housing as per IEC 60137 (2017), <u>suitable for operating in Seismic Zone No I-III in India as per IS 1893 (Part-1).</u>	Vendor to confirm	
2.0	SPECIFICATION :		
2.1.1	The electrical and mechanical characteristics of bushings shall be in accordance with IEC: 60137:2017 /DIN 42530	Vendor to confirm	
2.1.2	Bushings shall be robust and designed for adequate cantilever strength to meet the requirement of seismic condition, substation layout and movement along with the spare transformer with bushing erected and provided with proper support from one foundation to another foundation within the substation area.		
2.2	Valid type test reports as per IEC:60137 (2017) for similar 800 kV OIP bushings , conducted <u>within last 7(seven) years prior to the date of bid opening</u> shall be submitted alongwith the bid.	Vendor to confirm and submit the test reports alongwith the bid	

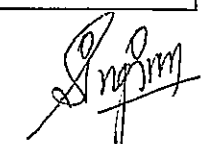
		Spec No. : BCE/PS/800/37, Rev03 Date : 10-01-2025	
S.NO.	DESCRIPTION OF BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	REMARKS
2.2.1	The type tests conducted earlier should have either been conducted in an accredited laboratory (accredited based on ISO/ IEC Guide 25/ 17025 or EN 45001 by the national accreditation body of the country where laboratory is located) or witnessed by client / third party.	Vendor to confirm	
2.2.2	Type Tests reports should include Seismic Test.(in line with Sr. No. 1.1)	Vendor to confirm	
2.2.3	In case valid type test report as mentioned under Sr. Nos. 2.2,2.2.1 & 2.2.2 above is not available, then vendor has to conduct type test in presence of BHEL / Customer representative before delivery of first lot , at no extra cost to BHEL.	Vendor to confirm	
2.3	The porcelain bushings must be shipped in crates to prevent them from breaking. The bushings can be packed in a slanted position on their own support so that the bushing insulation is always covered with oil. Each bushing must be lying on a solid base and protected by adequate filling material to avoid free-movement during transportation. If the manufacturer deems it necessary, the bushings can be strapped with nylon belts to block them in place.	Vendor to confirm	
2.3.1	Hollow column insulator shall be manufactured and tested in accordance with IEC-62155 / IS:5621. The insulators shall also conform to IEC 60815 as applicable.	Vendor to confirm	
2.3.2	Bushings insulators shall be designed to have ample insulation, mechanical strength and rigidity for the conditions under which they will be used.	Vendor to confirm	



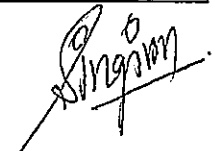
		Spec No. : BCE/PS/800/37, Rev03	
		Date : 10-01-2025	
S.NO.	DESCRIPTION OF BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	REMARKS
2.3.3	All the porcelain shall have adequate physical properties and glazing of the porcelain shall be uniform brown in colour, free from blisters, burrs and similar other defects.	Vendor to confirm	
2.3.4	Insulators shall be manufactured from high quality porcelain. Porcelain used shall be homogeneous, free from laminations, cavities and other flaws or imperfections that might affect the mechanical or dielectric quality and shall be thoroughly vitrified tough and impervious to moisture.	Vendor to confirm	
2.3.5	Bushing porcelain shall be robust and capable of withstanding the internal pressures likely to occur in service.	Vendor to confirm	
2.3.6	The design and location of clamps and the shape and the strength of the porcelain flange securing the bushing to the tank shall be such that there is no risk of fracture.	Vendor to confirm	
2.3.7	All portions of the assembled porcelain enclosures and support insulators other than gaskets, which may in any way be exposed to the atmosphere shall be composed of completely non hygroscopic material such as metal or glazed porcelain.	Vendor to confirm	
2.3.8	All iron parts shall be hot dip galvanised and all joints shall be air tight. Surface of joints shall be trued up porcelain parts by grinding and metal parts by machining. All load bearing surfaces shall be smooth and uniform so as to distribute the loading stresses uniformly. Insulator/bushing design shall be such as to ensure a uniform compressive pressure on the joints.	Vendor to confirm	
2.3.9	Bottom stress shield with bolted fixing arrangement shall be supplied.	Vendor to confirm	



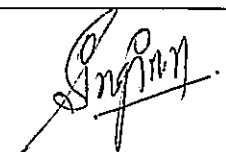
		Spec No. : BCE/PS/800/37, Rev03	
		Date : 10-01-2025	
S.NO.	DESCRIPTION OF BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	REMARKS
2.3.10	Bottom stress shield insulated with 5mm pressboard shall be supplied. It shall be duly packed in moisture proof condition and supplied alongwith bushing.	Vendor to confirm	
2.4	The bidder may also offer composite silicon rubber insulator, conforming to IEC- 61462.	Vendor to confirm	
2.4.1	The hollow silicone composite insulators shall comply with the requirements of the IEC publications IEC 61462 and the relevant parts of IEC 62217.	Vendor to confirm	
2.4.2	The design of the composite insulators shall be tested and verified according to IEC 61462 (Type & Routine test).	Vendor to confirm	
2.4.3	Polymer / composite insulator shall be seamless sheath of a silicone rubber compound.	Vendor to confirm	
2.4.4	The housing & weather sheds should have silicon content of minimum 30% by weight.	Vendor to confirm	
2.4.5	It should protect the bushing against environmental influences, external pollution and humidity.	Vendor to confirm	
2.4.6	It shall be extruded or directly moulded on the core.	Vendor to confirm	
2.4.7	The interface between the housing and the core must be uniform and without voids.	Vendor to confirm	



		Spec No. : BCE/PS/800/37, Rev03	
		Date : 10-01-2025	
S.NO.	DESCRIPTION OF BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	REMARKS
2.4.8	The strength of the bond shall be greater than the tearing strength of the polymer.	Vendor to confirm	
2.4.9	The manufacturer shall follow non-destructive technique (N.D.T.) to check the quality of jointing of the housing interface with the core.	Vendor to confirm	
2.4.10	The weather sheds of the insulators shall be of alternate shed profile as per IS/ IEC 60815-3 The weather sheds shall be vulcanized to the sheath (extrusion process) or moulded as part of the sheath (injection moulding process) and free from imperfections.	Vendor to confirm	
2.4.11	The vulcanization for extrusion process shall be at high temperature and for injection moulding shall be at high temperature & high pressure.	Vendor to confirm	
2.4.12	Any seams / burrs protruding axially along the insulator, resulting from the injection moulding process shall be removed completely without causing any damage to the housing.	Vendor to confirm	
2.4.13	The track resistance of housing and shed material shall be class 1A4.5 according to IEC 60587.	Vendor to confirm	
2.4.14	The strength of the weather shed to sheath interface shall be greater than the tearing strength of the polymer.	Vendor to confirm	
2.4.15	The composite insulator shall be capable of high pressure washing.	Vendor to confirm	



		Spec No. : BCE/PS/800/37, Rev03 Date : 10-01-2025	
S.NO.	DESCRIPTION OF BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	REMARKS
2.5	When operating at normal rated voltage there shall be no electric discharge between the conductors and bushing which would cause corrosion or injury to conductors, insulators or supports by the formation of substances produced by chemical action.	Vendor to confirm	
2.6	No radio interference shall be caused by the bushings when operating at the normal rated voltage. All surfaces of the metal parts shall be perfectly smooth with the projecting points or irregularities which may cause corona.	Vendor to confirm	
2.7	End fittings shall be free from cracks, seams, shrinks, air holes and rough edges.	Vendor to confirm	
2.8	End fittings should be effectively, sealed to prevent moisture ingress, effectiveness of sealing system must be supported by test documents.	Vendor to confirm	
2.9	All load bearing surfaces shall be smooth and uniform so as to distribute the loading stresses uniformly.	Vendor to confirm	
2.10	Clamps and fittings shall be of hot dip galvanised/stainless steel.	Vendor to confirm	
2.11	Each bushing should be supplied with bushing handling and lifting tools.	Vendor to confirm. List to submitted with offer.	
2.12	Bushings of identical current and voltage ratings must be interchangeable.	Vendor to confirm	
2.13	Oil End dimensions to match as per drg. no. <u>BCE-4-1491</u> attached at <u>Annexure-I.</u>	Vendor to confirm	



		Spec No. : BCE/PS/800/37, Rev03 Date : 10-01-2025	
S.NO.	DESCRIPTION OF BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	REMARKS
2.14	Supplier to submit their Quality Plan for review by BHEL.	Vendor to confirm	
2.15	Corona Shield shall be provided at 800KV Bushing terminal (Air End) to minimise corona.	Vendor to confirm	
2.16	Bushing shall be specially packed to avoid any damage during transit and suitable for long storage, with non-returnable packing wooden boxes with hinged type cover. Without any gap between wooden planks. Packing Box opening cover with nails/screws type packing arrangement shall not be acceptable.	Vendor to Confirm	
2.17	Detail method for storage of bushing including accessories shall be brought out in the instruction manual.	Vendor to Confirm	
2.18	Tan delta measurement at variable frequency (in the range of 20 Hz to 350 Hz in the multiple of 17Hz with applied voltage 2KV-5KV) shall be carried out on each bushing at bushing manufacturing works as routine test before dispatch and the result shall be compared at site during commissioning to verify the healthiness of the bushing. No temperature correction factor shall be applicable for tan delta.	Vendor to Confirm	
2.19	Tan delta value of OIP condenser bushing shall be 0.004 (max) measured at ambient temperature. The measured tan delta value at site of in service bushing should not exceed by by 0.001 w.r.t factory results during warranty period.	Vendor to Confirm	



			Spec No. : BCE/PS/800/37, Rev03 Date : 10-01-2025	
S.NO.	DESCRIPTION OF BHEL REQUIREMENT		SPECIFIED / TO BE CONFIRMED BY	REMARKS
2.20	If within the warrantee period the bushing Tan delta goes beyond 0.004 or increase is more than 0.001 in case of in service bushing at site, the supplier shall arrange to replace the defective bushing by new one free of cost.		Vendor to Confirm	
3.0	Technical Parameters			
3.1	Rated Voltage	800 kV	Vendor to Confirm	
3.2	Rated Current (Min.)	2500 A	Vendor to Confirm	
3.3	Lightning impulse withstand voltage	2100 kVp	Vendor to Confirm	
3.4	Switching impulse withstand voltage	1550 kVp	Vendor to Confirm	
3.5	One minute power frequency withstand voltage	970 kVrms	Vendor to Confirm	
3.6	Minimum total creepage distances	24800 mm (31 mm/kV)	Vendor to Confirm	
3.7	Tan delta of bushings	≤ 0.004	Vendor to Confirm	
3.8	Max partial discharge level at Um	< 10 pC	Vendor to Confirm	
3.9	Test tap voltage withstand level	2 kVrms	Vendor to Confirm	
3.10	Corona Extinction Voltage	508 kV rms	Vendor to Confirm	
3.11	Oil end length excluding bottom terminal & shield (mm)	1955mm	Vendor to Confirm	
3.12	Air End Terminal dia. & Length (mm)	Dia = 60mm, Length = 125mm	Vendor to Confirm	
3.13	Bottom porcelain max. dia. (mm)	528 mm	Vendor to Confirm	
3.14	Flange, PCD	12 holes, dia. 32 mm equally spaced on PCD 711 mm. Diameter 780mm	Vendor to Confirm	



		Spec No. : BCE/PS/800/37, Rev03	
		Date : 10-01-2025	
S.NO.	DESCRIPTION OF BHEL REQUIREMENT	SPECIFIED / TO BE CONFIRMED BY	REMARKS
3.15	CT space min.	600 mm	Vendor to Confirm
3.16	Type of Lead	Solid Stem.Bottom connected	Vendor to Confirm
3.17	No of holes,depth of bolt & hole diameter for oil end terminal	6 nos, depth = 20mm, hole dia = 12mm	Vendor to Confirm
3.18	Oil End Shield diameter(max)	420mm	Vendor to Confirm
4.0	DOCUMENTATION : Following documents in English language should be submitted along with the bid for our evaluation.	Vendor to Confirm	
4.1	OGA Drawing	Vendor to submit	
4.2	Type test reports	Vendor to submit	
4.3	Instruction manual	Vendor to submit	
4.4	Quality Plan	Vendor to submit	
5.0	ROUTINE TEST INSPECTION:	Vendor to confirm	
5.1	Routine tests to be conducted on all bushings as per IEC 60137:2017. The routine tests may be witnessed by BHEL/customer/TPIA at supplier's works.	Vendor to confirm	


Prepared By:

Singiren.E.Kandulna
Manager (BCE)


Checked By:

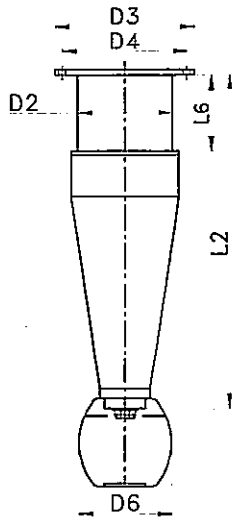
Kulamani Naik
SDGM (BCE)

FIRST ANGLE PROJECTION

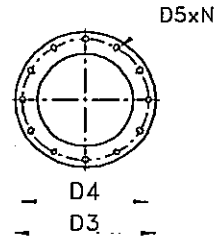
(ALL DIMENSION ARE IN mm)

THE INFORMATION ON THIS DOCUMENT IS THE PROPERTY OF BHARAT HEAVY ELECTRICALS LIMITED. IT MUST NOT BE USED DIRECTLY OR INDIRECTLY IN ANY WAY DETRIMENTAL TO THE INTEREST OF THE COMPANY.

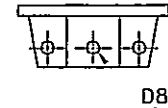
OIL END DETAILS



MOUNTING FLANGE DETAILS



BOTTOM CONNECTION DETAILS



DESCRIPTION	420kV	800kV
BIL kVp	1425 1550(for GT)	2100
Creepage Distance (mm) (min.)	13020	24800
Current Rating (A)	2500	2500
Type of lead	Solid Stem(SS)	Solid Stem(SS)

DIMENSION DETAILS:-

SYMBOL	DESCRIPTION	420kV	800kV
L2±5	Length between bottom seat of flange & bottom of the oil end shield/stress relieving electrode /oil end terminal whichever is the longest.	1335	1955
L6(min)	Length for accommodating bushing current transformer (BCT)	600	600
D2(max)	Maximum diameter of oil immersed end	350	528
D3±2	Outside diameter of fixing flange	480	780
D4±1(PCD)	Pitch circle diameter of fixing holes of flange	430	711
D5xN	Diameter of fixing hole & Number of fixing holes	20x8	32x12
D6(max)	Maximum diameter of oil end shield/stress relieving electrode	350	420
D8	Diameter of hole for oil end terminal	∅12	∅12
No. of holes and depth of bolt for Oil End Terminal		6,20	6,20
Diameter of Air End Terminal		∅60	∅60
Length of Air End Terminal		125	125

NOTES:- 1. ALL DIMENSION ARE IN M.M.
2. NO POSITIVE TOL. WHERE MAX. DIMENSION SPECIFIED AND NO NEG. TOL. WHERE MIN. DIMENSION IS SPECIFIED.



BHARAT HEAVY ELECTRICALS LTD.
BHOPAL

	NAME	SING.	DATE	NO.OF VAR.
DRN.	PRADEEP	Sd/-	10.08.22	
CKD.	BRM/SEK	Sd/-	10.08.22	-
APPD.	M.KURRE	Sd/-	10.08.22	

INVENTORY NO.	DEPT.	CODE OF TOL. DIM.	SCALE	WEIGHT (KG)	REF. TO ASSY. DRG.	ITEM NO.	NO.OF ITEMS
	BCE	C/M/F					
	421		NTS	-	---	-	-
TITLE					DRAWING NO.	REV.	
STD. DIMN. FOR 420kV-2500A & 800kV-2500A OIP CONDENSER BUSHINGS (LOWER PORTION)					BCE-4-1491	00	
SHEET NO.			01		NO. OF SHEETS 01		