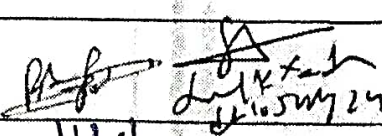
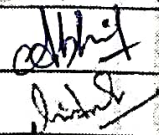
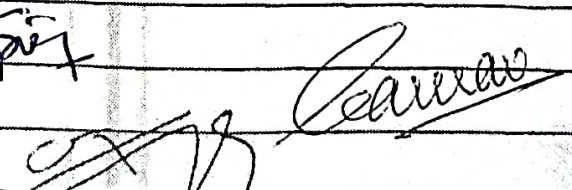


SINGLE PHASE 11 KV INSULATED TYPE DROP OUT FUSE UNIT

**TECHNICAL SPECIFICATION
FOR
SINGLE PHASE 11 KV INSULATED TYPE DROP OUT FUSE UNIT**

SPECIFICATION NO. – BSES-TS-159-DO-R0

	Rev:	R0
	Date	10.07.2024
	No. of Pages	7
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SINGLE PHASE 11 KV INSULATED TYPE DROP OUT FUSE UNIT**1. SCOPE**

The scope of supply includes the supply of 11 kV Pole mounted Single phase drop out type fuse units intended to be used in BSES HVDS Network.

2. STANDARDS & CODES

Materials, equipment and method used in the manufacturing of DO Fuse unit shall conform to the latest edition of following standards:

STANDARD CODE	STANDARD DESCRIPTION
IS 9385	Specification for High Voltage Fuses
IEC 60282	High Voltage Fuses
Latest Edition	Indian Electricity Rules
Latest Edition	Indian Electricity Act
Latest Edition	CBIP Manual

3. SERVICE CONDITIONS

DO Fuse unit to be supplied against this specification shall be suitable for satisfactory operation under the following conditions-

S No.	PARAMETERS	CONDITION
3.1	Average grade atmosphere	Heavily polluted, Dry
3.2	Maximum altitude above sea level	1000M
3.3	Ambient air temperature	Highest 50 Deg C Average 40 Deg C Minimum 0 Deg C
3.4	Maximum Relative Humidity	100%
3.5	Rainfall	750mm concentrated in four months

4. DESIGN FEATURES

S No.	Parameters	Technical Requirements	Vendor Confirmation
4.1	Application	Pole Mounted, Outdoor Type	
4.2	Operating Voltage	11 kV	
4.3	Highest System Voltage	12 kV	

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S No.	Parameters	Technical Requirements	Vendor Confirmation
4.4	Continuous current rating		
4.4.1	DO Fuse Unit	200 A	
4.4.2	Fuse Wire	10 A	
4.5	Insulator		
4.5.1	Make	Vendor to specify	
4.5.2	Type	11 kV Solid Core Post Insulator	
4.5.3	Material	Porcelain	
4.5.4	Creepage distance	31 mm/KV	
4.5.5	Insulator arrangement	2 No's insulators, separate insulator for incoming cable and outgoing cable terminal	
4.6	Terminal Connector Arrangement	<ul style="list-style-type: none"> i. Material – Aluminium alloy ii. Top Terminal - 3 no's Aluminium L shape bus bar of size 40 x 6 mm shall be provided for back to back connection of 6 no's 11 kV cables of size 1Cx150 sq mm. iii. Bottom Terminal - 1 no's Aluminium L shape bus bar of size 40 x 6 mm; suitable to connect 1 no's 1Cx150 sq mm 11 kV cables iv. At any point, cross section area of aluminium current carrying part shall not go below 40 x 6 mm. v. For cable termination in each L bus bars, hole dia of 14 mm shall be provided 	
4.7	Fuse Barrel	Fibre glass coated with ultra violet inhibitor on outer surface	
4.7.1	Fuse Barrel inside diameter	Vendor to specify	
4.7.2	Fuse barrel top & bottom current carrying part	Silver plated copper alloy	
4.8	Environmental protection of top current carrying part	Galvanized top cover	
4.9	Pull ring on Barrel		
4.9.1	Pull ring shall be at zero potential when DO Fuse unit is in energized condition	Required	
4.9.2	Pull ring distance from fuse barrel top current carrying part – 50 mm	Required	
4.10	DO fuse unit insulation		
4.10.1	All Top & Bottom live parts of DO fuse units shall be insulated using Insulating boots	Required	
4.10.2	Insulating boot Material	Glass filled Nylon	

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S No.	Parameters	Technical Requirements	Vendor Confirmation
4.10.3	Insulating boot thickness	3 mm (minimum)	
4.10.4	Insulating boot rated voltage	11 kV	
4.10.5	Breakdown voltage of insulating boot	Vendor to specify	
4.10.6	Bird spikes on top surface of insulating boot	Required	
4.11	Marking	Every Unit of DO Fuse unit shall be permanently marked with following: a) Manufacturer's Name b) Serial Number c) PO Number & Date d) Month & Year of Manufacturing e) Rated voltage and current	

5. QUALITY ASSURANCE PLAN, INSPECTION AND TESTING

SNo.	Parameters	Technical Requirements
5.1	Quality Assurance Plan	QAP Shall be submitted by vendor for approval. Inspection and testing of the material shall be carried out accordingly.
5.2	Type test	a) DO Fuse unit must be of type tested as per relevant IS/IEC. Type test conducted either from CPRI/ERDA/ NABL accredited third party laboratory will be treated as valid. b) Type test reports shall be submitted for the type, size & rating of DO fuse unit offered along with bid.
5.3	Acceptance Tests	a) The sampling & acceptance tests shall be conducted, as per IS 9385 and approved QA plan for each lot of DO Fuse unit during the inspection of lot at manufacturer's works. b) In event of order, one sample of complete DO fuse unit per purchase order shall be sealed to conduct 'one-minute power - frequency withstand voltage test (Wet & Dry condition) at Test Voltage of 28 kVrms'. Test shall be conducted at NABL accredited third party test laboratory without price implication to BSES.
5.4	Inspection	a) The buyer reserves the right to inspect fuse units at the seller's works at any time prior dispatch, to verify compliance with the specifications. b) In-process and final inspection call intimation shall be given in 15 days advance to purchaser.
5.5	Test certificates	Test certificates shall be submitted along with the dispatch documents.

6. DEVIATIONS

6.1	Deviation	Deviations from this specification shall be stated in writing with the tender by reference to the specification clause/GTP/Drawing and a description of the
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	alternative offer. In absence of such a statement, it will be assumed that the bidder complies fully with this specification.
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7. DOCUMENT SUBMISSION MATRIX

Document/Drawing submission shall be as per the matrix given below:

- a. All documents/drawings shall be provided in soft copy only.
- b. Language of the documents shall be English only.
- c. Incomplete submission shall be liable for rejection.
- d. Document check sheet compliance shall be the first sheet for each submission stage i.e. Technical bid, Drawing Approval, Pre Dispatch, Pre closure.
- e. No submission is acceptable without check list compliance.
- f. Order of documents shall be strictly as per the check list.
- g. Any drawing not included in the below table but necessary for detailed engineering shall be deemed to be included in bidder's scope.

S No.	Description	Technical bid	Drawing Approval	Pre Dispatch	Pre Closure
7.1	Tender No.	Required			
7.2	Communication Details				
7.2.1	Name of the Bidder	Required			
7.2.2	Name of Authorized contact person	Required			
7.2.3	Contact No. of Authorized contact person	Required			
7.2.4	E-mail id of Authorized contact person	Required			
7.3	Document Submission Format				
7.3.1	Index of documents with page numbers for each document	Required			
7.3.2	Separator with document description shall be provided before each document	Required			
7.4	Qualifying Requirement Compliance				
7.4.1	Summary of compliance of qualifying criteria in tabular form along with summary of documentary proof provided	Required			
7.4.2	Detailed Documents supporting compliance of qualifying criteria	Required			

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S No.	Description	Technical bid	Drawing Approval	Pre Dispatch	Pre Closure
7.5	Drawings/ Documents as per Technical Specification				
7.5.1	Signed copy of technical specification	Required			
7.5.2	Type Test reports of offered model/ type/ rating	Required	Required		
7.5.3	Deviation Sheet	Required	Required		
7.5.4	Detailed Drawings	Required	Required		
7.5.5	Other documents mentioned in technical specification	Required	Required		
7.5.6	Design Calculation		Required		
7.5.7	Manufacturer's quality assurance plan		Required		
7.5.8	GTP		Required		
7.5.9	Inspection Reports			Required	
7.5.10	As manufacturing Drawings			Required	
7.5.11	Operation and Maintenance Manual			Required	
7.5.12	As built Drawings				Required
7.6	Soft Copy of complete documentation as mentioned above	Required	Required	Required	Required
7.7	Sample of Insulated Do Fuse Unit- 1 no's	Required	Required		