

## Group – A : Sl. No. - 2) 11 KV 3 Pole HG Fuse

### Technical Specifications

1. **SCOPE:-** This specification covers the manufacture, testing and supply of 11 KV,200 Amps 3 pole, H.G. Fuse Sets.
2. (a) The 11 KV H.G. Fuses shall be suitable for out door operation in horizontal configuration under the climatic conditions specified. It shall be of the following ratings:-

1	Number of Poles	3
2	No.of Insulator per Pole	2 nos. 12 KV post Insulators
3	Nominal system Voltage	11 KV
4	Highest System of Voltage	12 KV
5	Rated frequency	50 Hz
6	System Frequency	Effectively earthed
7	Rated normal current	200 Amps
8	Altitudes of installation	Not exceeding 1000 M.

- (b) The post insulator used in the H.G. Fuse set shall have the following ratings :-

1	Power frequency withstand voltage (dry)	33 KV (RMS)
2	Power frequency withstand voltage (wet)	35 KV (RMS)
3	Impulse withstand voltage (dry)	75 KV (Peak)
4	Power frequency withstand voltage	1.3 times the actual dry flashover voltage of the unit

### 3. **STANDARDS :-**

The H.G. Fuse set shall confirm to the following standards.

IS- 9385-1980 ( for high voltage expulsion fuses and similar fuses).

IS- 2544-1973 ( for porecelain post insulators or its latest amendments if any.).

IS- 2633-1979 ( for Galvanisation of ferrous parts).

4. **INSULATOR MAKE :-** 12 KV post insulator complete with pedestal cap duly cemented to be used in 11 KV H.G. Fuse sets confirming to IS-2544/1973.
5. **TECHNICAL DETAILS :-** The H.G. Fuses shall have adjustable arcing horns made of solid copper rod having 7.62 mm dia. The horns shall be fitted with screwing devices with flynuts for fixing and tightening the fuse wire. It shall have robust terminal connector 5s of size 80 mm x 50 mm x 6 mm made of copper casting ( 95 % minimum copper composition) duly silver plated with two numbers of 12 mm dia brass bolts and double nuts with flat brass washers. The connectors should be capable of connecting crimpable conductor upto 80 Sq. mm size( ACSR/ Alloy) with bimetallic solderless sockets. The H.G Fuse Set shall suitable for horizontal mounting on sub station structures. The minimum clearance between the adjacent phases of the fuse set shall be.

760 mm and the centre to centre (distance between two post insulators of the same phase) shall be 410 mm. All metal (ferrous) parts shall be galvanized and polished. Only 12 KV post insulator ( original cemented and not pin insulators shall be used for the H.G. Fuse Set.

6. **CLIMATIC CONDITIONS :-** The H.G. fuse set shall be suitable for operation under the following climatic conditions.:-

1	Maximum ambient air temperature	45 <sup>0</sup> C
2	Maximum daily average air temperature	35 <sup>0</sup> C
3	Maximum yearly average ambient air temperature	30 <sup>0</sup> C
4	Maximum temperature attainable by a body exposed to the sun.	50 <sup>0</sup> C
5	Minimum ambient air temperature	0 <sup>0</sup> C
6	Maximum relative humidity	100%
7	Average number of thunderstorm days per annum	70 DAYS
8	Average number of rainy days per annum	120
9	Average annual rain fall.	150CM
10	Number of months of tropical monsoon conditions	4
11	Maximum wind pressure	260 Kg/mm
12	Degree of exposure to atmospheric pollution.	Normally polluted atmosphere.

7 **Type Test :-**

Certificate for the following type tests conducted on a prototype set of HG Fuse in a NABL approved test house/CPRI shall have to be submitted along with offer.

- i) Dielectric test (impulse & one minute wet power frequency withstand voltage test.)
- ii) Temperature rise test ( for terminals)
- iii) Mechanical strength test for the post of insulator as per IS-2544/1973
- iv) Test for galvanization of metal (ferrous) parts.

8. **ROUTINE/ACCEPTANCE TESTS :-**

The inspection may be carried out by the Purchaser at any stage of manufacture. The successful bidder shall grant free access to the Purchaser's representative at a reasonable time when the work is in progress. The following routine tests shall have to be conducted on each set and results are to be furnished for consideration of deputing inspecting officer for inspection and conduction testing of the materials at the works of the manufacturer. the supplier shall give fifteen days advance intimation to the Purchaser to enable him to depute his representative for witnessing the tests.

- i) Power frequency voltage dry test
- ii) Dimension Check
- iii) Galvanisation test.

9. **Guaranteed Technical Particulars :**

The bidders are required to furnish the guaranteed technical particulars duly filed in the proforma along with the bid.

10. **Completeness of Equipment :**

Any fittings accessories or apparatus which may not have been specifically mentioned in this specification but which are usually necessary in equipment of similar plant shall be deemed to be included in the specification and shall be supplied by the bidder without extra charge. All plant and equipment shall be complete in all details whether such details are mentioned in the specification or not.

11. **Inspection :**

Routine and acceptance test shall be conducted at the place of manufacturer. The bidders are requested to furnish details of equipments which will be used for testing along with the bid. The bids of these manufacturers who do not have adequate testing facilities for conducting routine and acceptance test are liable for cancellation. The successful bidder has to furnish routine test certificate and guarantee certificate for each consignment of materials to be inspected at the time of offer of materials for inspection.