HORN GAP

1. INTRODUCTION :

This Chapter describes the hardware requirement, Technical Particulars and testing requirements for (i) **33 KV HG Fuse**.

1.1. 33 KV HG Fuse

1.1.1. MATERIALS

The various components shall conform to the following specifications.

1. M.S. Channel, Flat and Round (Steel) to conform to I.S. 2062 amended up to date (structural steel standard quality having tensile strength of 42-54 Kg./mm sq.)
2. Bolt and Nuts: These shall conform to the following IS Specifications:

   IS: 1367- 1980

   IS: 4218- 1976

   IS: 1363- 1984
3. Galvanizing shall be as per IS-2629.
4. Insulators: Insulators used for the Horn Gap Fuse Unit shall conform to relevant IS Standards 731 in all respects with regard to mechanical and electrical requirements.

1.1.2. ELECTRICAL & MECHANICAL REQUIREMENT

1. The electrical characteristics of the insulators shall be as follows :

System Voltage	Power frequency withstand voltage in KV	Impulse withstand voltage in KV	Creepage distance in mm
33 KV	75	170	580

2. Mechanical loads for pin Insulators -540 Kg as min. failing load.

1.1.3. GENERAL REQUIREMENTS

The Horn gap fuse sets are required for protection on 33 kV system. Current rating of HG Fuse shall be 630 A. They will be mounted outdoors on suitable structures. These sets will be exposed to atmospheric conditions and therefore, shall be robust in construction.

Pin type of insulators shall be used in construction of the fuse units as per POWERGRID approved drawing.

1.1.4. WORKMANSHIP

The casting shall be of good finish and free from flaws, blow holes and other defects. The edges of the fittings shall be smoothly rounded.

The M.S. flat, round etc. before any work is done on them, shall be carefully leveled, straightened and bent or forged to the shape given in the drawing by methods which will not injure the materials. No rough edges shall be permitted anywhere throughout the work.

Similar parts shall be uniform and inter changeable with each other.

The welding work shall be carried out properly and the same shall not deteriorate under adverse climatic conditions.

Holes in channel shall be drilled or machine punched. All burrs left by drilling or punch shall be completely removed. The Bolts and Nuts shall be well forged and free from inequalities, flaws and other defects. The heads shall be solid and in every respect well formed and shall not fail when the bolts are tested to fracture at their full section for Tensile Stress.

The washers shall be clearly cut off or punched and entirely free from cracks after punching.

1.1.5. GALVANISING

All ferrous parts (bolts, nuts, washers, M.S. flats, clamps and M.S. round holding clamps etc. for the insulator & horn gap fuses) shall be hot dip galvanized. The galvanizing shall conform to IS : 2629 in all respect and uniformity Zn coating shall be as per IS:2633. After galvanizing, the surfaces shall be free from all sharp edges and metal.

The threading on nut and bolt shall be cut before galvanizing

1.1.6. Tests

1. The manufacturer/ tenderer shall clearly indicate what testing facilities they have got for testing the H.G. Fuses.

2. The bidder shall carryout following routine tests on H.G. Fuses.

i) Dielectric Tests

ii) Temperature Rise Tests shall be done at rated current.

These tests shall be carried out as per procedures given in IS : 9385/80 (Part 2) or latest version thereof.

iii) The supplier/tenderer will clearly and specifically indicate the name of manufacturer of the pin insulator. Test certificate showing the results of the routine and type tests carried out as per IS : 731/1971 will have to be submitted along with the offer. The pin insulators will be inspected at the original manufacturer's factory.

1.1.7. Earthing

The non alive part, mainly the galvanised MS channel shall be provided with two earthing terminals with required bolts and washers for connecting to station earthing system.