

ANNEXURE-A

TECHNICAL SPECIFICATIONS OF LIGHTNING ARRESTER

1. Electrical Specifications:-

- a) System Voltage: 415V, 3-phase, 50 Hz AC
- b) Nominal Discharge Current (8/20 μ s wave): 10 kA minimum per phase
- c) Maximum Continuous Operating Voltage (MCOV): 420V AC phase-to-neutral
- d) Lightning Impulse Current Withstand (10 kA – 10/350 μ s): As per IEC 62305 class II design
- e) Voltage Protection Level (U_p): ≤ 1.8 kV phase-to-ground
- f) Short-Circuit Withstand: Adequate to sustain system fault current without damage

2. Mechanical & Material Specifications:-

- a) Material: High-purity copper body, corrosion-resistant, with optional copper-bonded or chromium-plated spikes
- b) Construction: Multi-spike crown for rooftop or mast installation to intercept lightning directly
- c) Spikes: 5 robust spikes, diameter 13 mm, length 1,050 mm
- d) Base Plate: Sturdy mounting plate (100x100 mm) for secure attachment
- e) Finish: Polished copper or weather-resistant coating to prevent oxidation
- f) Installation Orientation: Vertical, with spike tips above structure to ensure effective

3. Environmental & Climatic Conditions:-

- a) Operating Temperature: $\approx 20^\circ\text{C}$ to $+60^\circ\text{C}$
- b) Humidity: Up to 95% non-condensing
- c) Wind and Rain Resistance: Suitable for outdoor rooftop or mast installation
- d) UV Resistance: Non-degrading under direct sunlight

4. Standards and Compliance:-

IEC Standards: IEC 62305 for surge protection and lightning risk.


Indian Standards: IS 2309 (Code of practice for lightning protection).

5. Installation Considerations:-

Grounding: Connect to a low-impedance earth system ($<10\ \Omega$) using copper conductor.

Separation Distance: Maintain safe distance from sensitive electrical installations to avoid side flash.

Phase Mounting: For 415V, 3-phase systems, arrester can be installed on each phase or at the line-to-earth points for effective three-phase protection.


(SSE/52/NWS)