CAPTURE SYSTEM

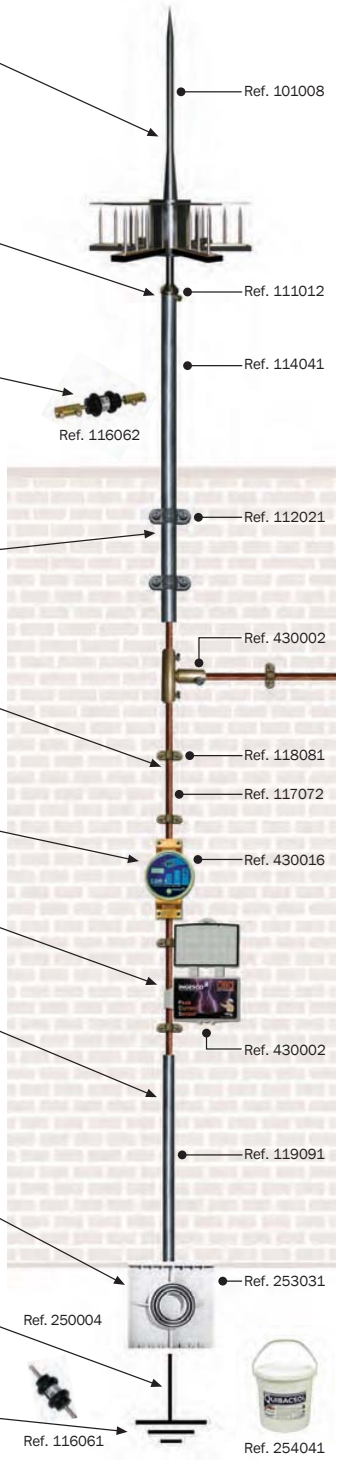
- Fix the central axis of the air terminal to the head-mast adaptor piece.
- Pass the down conductor cable through the interior of the mast and connect it to the base of the head-mast adaptor piece, fixing it by means of two allen screws.
- Connect the head-mast adaptor piece within the mast, fix it with its screw.
- Connect all metallic structures that are within the safe distance by means of spark gaps.

DOWN CONDUCTOR

- Anchor the mast to the structure by means of suitable support and if necessary, fix the mast to the cover using anchor braces.
- Fix the down conductor by means of fastener clips, tightening them well and, as a reference, use three fasteners per meter.
- Install the **CDR-1** lightning counter on the lower part of the conductor, two or three meters above the ground.
- Install the **PCS** card to the ground conducting cable.
- Protect the lower part of the down conductor by way of a minimum 2 meter protection tube.

GROUNDING SYSTEM

- Install the test joint inside the registry case in order to disconnect the grounding system and measure its resistance.
- Select the appropriate grounding system according to the type of terrain.
- Use an spark gap to connect the ESE grounding system with the general grounding system of the building.



INSTALLATION REQUIREMENTS:

- The tip of the lightning rods must be located, at a minimum, two meters above the zone it protects (including antennas, cooling towers, ceilings and deposits).
- Install two or more down conductors for each installation of lightning rods.
- The receiving antennas (TV, radio, telephone) must be connected by means of spark gaps to the down conductors of the lightning rod installations.
- The coaxial cables of the antennas must be protected with a device against surges.
- The metallic elements that rise above the roof should be connected to the closest down conductor.
- The trajectory of the down conductor must be as straight as possible and follow the shortest possible path, avoiding any abrupt layers or overhangings.
- In the layerings, the curvature of the radius are not to be inferior to 20 cm.
- The conducting cable must be placed outside of the building (whenever possible), avoiding the proximity of electrical or gas conductors.
- It is recommended the grounding have a registry case available in order to perform periodic inspections.
- The registry case (or, in its absence the conducting cable) must be provided with a system disconnecting switch that permits the disconnection of the grounding in order to measure its resistance.
- The resistance of the grounding taken must be the lowest possible (less than 10 ohms). The value is measured on the ground insulted from all other elements of conductive nature.
- It is advisable to connect the grounding of the lightning rods with the general grounding system of the building it is designed to protect.
- It is recommended to add Quibacsol mineral composite to enhance ground conductivity.

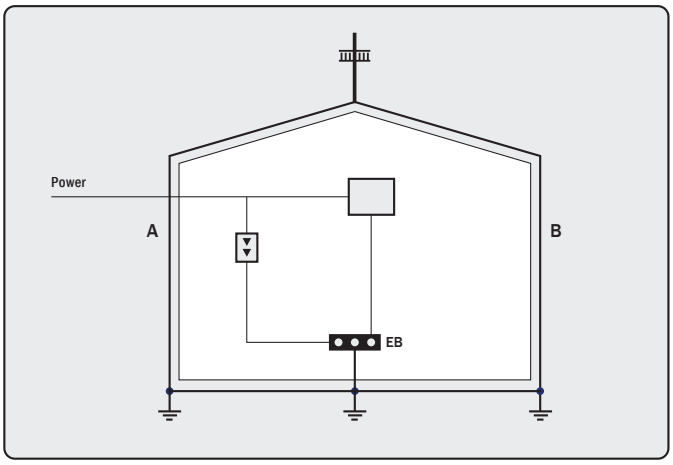
DOWN CONDUCTORS

The down conductors are designed to lead the lightning current from the capture devices to the ground.

Each lightning rod must be connected to at least two down conductors (A and B).

On buildings higher than 60m, four downconductors will be needed. These downconductors will be placed, wherever is possible, in the four corners of the building.

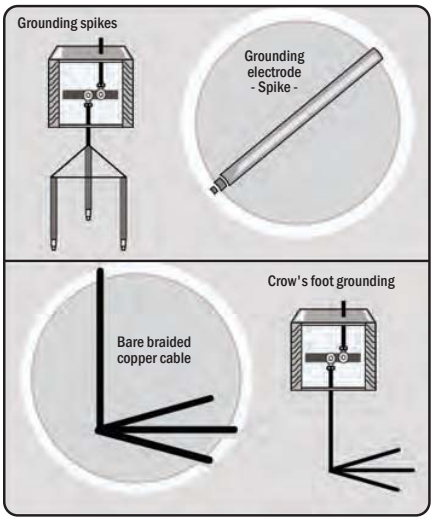
The two down conductors are to be located on two different facades, whenever this is possible.



GROUNDING INSTALLATION

GROUNDING SPIKES:

- Introduce the spikes vertically in the terrain, arranged in line or in a triangle, spaced by a distance equal to the buried length as a minimum. The spikes are to be connected by way of sufficient sectioned cables which have identical or compatible characteristics as that which is used in the lightning down conductor.
- Bury the cable in a ditch at a minimum depth of 50 cm.
  Another possible configuration consists of burying the conducting cable of the same nature and section as that of the down conductor (excepting aluminium), having a crow's foot shape which must be buried at least 50 cm in depth.
- Install an inspection system in order to allow future maintenance.



GROUNDING PLATE:

- Especially recommended for rocky terrain which does not permit excavation of great depth.
- Create a 1 m^3 minimum hole in the earth.
- Connect the plate to the down conductor.
- Install the copper plate vertically in relation to the ground and fold the stamped sides, alternating to the left and to the right in order to enhance conductivity.
- Fill in the hole, adding layers of Quibacsol composite to improve contact between the ground and the plate.
- Compact the land.
- Install an inspection system in order to allow future maintenance.