



EARTHING

- To connect the metallic parts of electric machinery & devices to the earth plate/ earth electrode (which is buried in the moisture earth) through a thick conductor wire (which has very low resistance) for safety purpose is known as Earthing or grounding.
- Earthing can be said as the connection of the neutral point of a power supply system to the earth so as to avoid /minimize danger during discharge of electrical energy

Why Earthing?

The primary purpose of earthing is to avoid or minimize the danger of electrocution fire due to earth leakage of current through undesired path and to ensure that the potential of current carrying conductor does not rise with respect to the earth than its designed insulation.

Below are the basic needs of earthing.

- To protect human lives as well as provide safety to electrical devices and appliances from leakage current.
- To keep voltage as constant in healthy phase (If fault occurs on any one phase).
- To Protect Electric system and building form lighting.
- To serve as a return conductor in the electric traction system & communication.
- To avoid the risk of fire in electrical installation systems.

Methods and types of electrical earthing.

Earthing can be done in many ways. The various methods employed in earthing are discussed as follows.

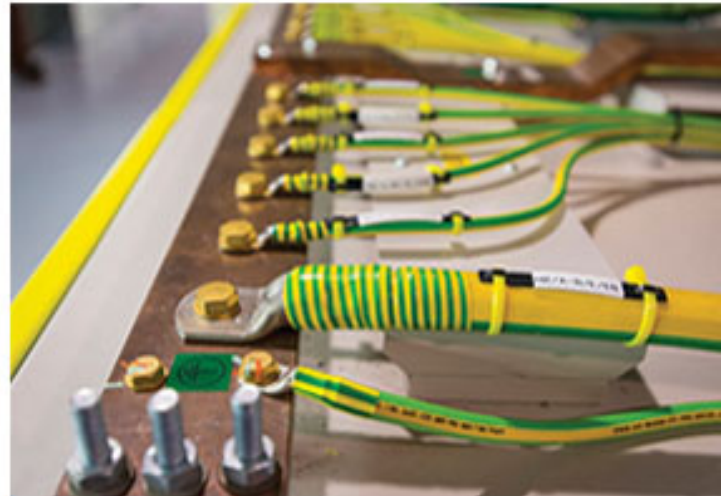


Plate Earthing

In plate earthing system, a plate made up of either a copper with dimensions 60 cmx60cm x 3.18mm or galvanized iron (GI)of dimensions 60cmx60cm x6.35mm (2ft x 2ft x ¼ in) is buried vertical in the earth (earth pit) which should not be less than 3m (10ft) from the ground level.

Rod Earthing

- It is the same method as pipe earthing.
- A copper rod of 12.5 mm diameter or 16mm diameter of the galvanized steel or hollow section 25mm (1inch) of GI pipe of length above 2.5m (8.2 ft) are buried upright in earth manually or with the help of a pneumatic hammer.

Pipe Earthing

- The size of pipe to use depends on the magnitude of current and the type of soil.
- The dimension of pipe is usually 40mm in diameter and 2.75m in length for ordinary soil or greater for dry & rocky soil.
- The moisture of the soil will determine length of the pipe to be buried but usually it should be 4.75m (15.5ft).