Installation Method

Once installed properly, the ASHLOK Earthing Electrode will give a very good earth resistivity value compared to the conventional earthing. This earthing system does not require any maintenance in normal soil conditions except few buckets of watering during hot summer season. If it is installed properly as per our specification then it will show better result than conventional earthing system for many years. However, it is important to note that characteristics of the soil play a major role in determining the earth resistance value and the factors that determines the characteristics / resistivity of the soil is given below.

PROPER INSTALLATION METHOD: The installation method is pasted on each & every earth electrode supplied by us. However, the ASHLOK Safe Earthing Electrode can be installed by any one of the following methods depending on the soil condition.

Normal Soil:
Make a bore of 8" to 10" in diameter manually up to the electrode length (2 Mtr or 3 Mtr). Put a little quantity of Back Fill Compound (a layer of min. 3 to 4 inch) in side the pit and drop the electrode exactly in the center of the pit. Now mix the soil that has been dug out with the B.F.C. like sand & cement. Now pour the above mixture in small quantity in to the pit followed by water and remove the trapped air inside the pit by poking a rod in to the mixture repeatedly. Repeat the above exercise till the pit is completely filled up. Pour sufficient water so that mixture is in paste /mud form.
Allow the pit to absorb the water and becomes compact. Test the earth pit and connect to the electrical circuit.
Avoid excess watering.
Do not hammer the earth electrode.

Sandy Soil:
Please make a big pit of 8' x 8' and 12' deep; fill the entire pit with black cotton soil or normal soil, pour enough water so that pit is full with water, leave it for three days so that soil soaks up the water. You will notice that soil level has gone down and again top up the pit with soil & sprinkle the water. Now after two or three days this pit is ready for earthing purpose and our earthing can be installed there by above described normal method, that will definitely give you a very good earth resistivity value. However, if the pit is filled with BFC mix soil then that will show better earth resistance value. These types of installations may need watering after certain intervals that depends on the characteristics of the soil described in the "Factors determining the soil resistivity". It is to be noted that more than one earth electrode may be required to be installed and connected in parallel to bring down the earth resistance value with in safe limits.

It is advised to lay the galvanized wire mesh at the bottom and side wall of the earth pits before filling it with the soil to arrest the erosion of the soil in to the sand.

Semi-Rocky Soil:
If enough soil is there then earthing can be done by normal method otherwise that can be done by making a big pit as in case of sandy soil. Ours is a corrosion resistant, long life and almost maintenance free earthing system in normal soil conditions & if installed properly it will give better earth resistivity value than conventional earthing system. It is a Fit & Forget earthing system. However, these types of installations may needs regular

watering after certain intervals that depends on the characteristics of the soil described in the "Factors determining the soil resistivity". It is to be noted that more than one earth electrode may be required to be installed and connected in parallel to bring down the earth resistance value within safe limits.

For any further clarification, please contact us through mail on –

info@ashlok.in

The earth resistance value (Ohmic Value) of an earth pit depends on the soil conditions / resistivity.

FACTORS DETERMINING SOIL RESISTIVITY

1. ***Physical Composition*:** Different soil composition gives different average resistivity. Based on the type of soil, the resistivity of clay soil may lie in the range 4 – 150 ohm-mtr whereas for rocky or gravel soils, the same may be well above 1000 ohm-mtr.

2. *Effect of Moisture on Soil Resistivity*: Moisture has a great influence on resistivity value of soil. The resistivity of a soil would be determined by the quantity of water held by the soil and the resistivity of the water itself. In other words conduction of electricity in soil is through water, which means that phenomenon is electrolytic. It is to be noted that resistance drops quickly to a more or less a steady minimum value at about 15% moisture and thereafter, increase in the wetness of the soil has little effect.

3. *Effect of Dissolved Salts in Water*: Since the resistivity of the soil depends on resistivity of water, which in turn depends on amount and nature of salts dissolved in it. It is to be noted that quite a small quantity of dissolved salt can reduce the resistivity considerably. A small quantity of salt 10 to 20% by weight of moisture drops the resistivity by 80% as the concentration is increased; the moisture tends to a steady low value.

4. *Effect of Temperature on Soil Resistivity:* Soil resistivity increases sharply with decrease in temperature below 0°C. At -15°C the earth resistance was found to be over ten times at 0°C. This signifies the need of burying the electrodes sufficiently deep below the frost level especially in regions where low temperature below 0°C is experienced.

5. *Effect of Grain Size and its Distribution*: Grain size, its distribution and closeness of packing are also contributory factors, since they control the manner in which the moisture is held in the soil.

6. *Effect of Seasonal Variation on Soil Resistivity*: We have observed that presence of moisture in the soil is the most important element in determining its conductivity. Conditions, which increase or decrease the distribution of the

moisture content in the soil result correspondingly in an increase or decrease of the conductivity. It is thus anticipated that resistivity of the earth will undergo variation with seasonal changes. Field experiments have indicated seasonal variation of resistance up to 60%.

7. *Effect of Current Magnitude*: Soil resistivity in the vicinity of ground electrode may be affected by current flowing from the electrode into the surrounding soil. The thermal characteristics and the moisture content of the soil will determine if a current of a given magnitude and duration will cause significant drying and thus increase the effect of soil resistivity.

For any further clarification, please contact us through mail on –

info@ashlok.in