

TEREC +

DUVAL MESSIEN
GROUNDING



Earth Enhancing Compound (IEEE 80:2000 Clause 14.5.d)

- Ionic compound - Salts creates ions for easy conduction
- Dispersion compound - Spreads the salts equally in the earth pit
- Expansion compound - Expands 18 to 20 times and removes entrapped air to create strong connection between rod and soil
- Diffusion compound - Diffuses into soil pores and creates conductive silicate roots enlarging conductive zone of earth pit.
- Hygroscopic compound - Absorbs atmospheric & surrounding moisture and retain it in the soil
- Other Patented compound



DUVAL MESSIEN
HIGH TECH EARTHING SYSTEM



The Earth electrodes reduce the pit resistance as detailed in various international code such as IEEE 80:2000/APIRP 2003. Any amount of costly electrode installations do not give needed resistivity permanently. It is thus essential to understand the technique of altering the soil resistivity by effective TEREC+ artificial treatment. Soil resistivity is reduced by 25-90% of its original value after using TEREC+ depending on the soil condition.



Earth Enhancing Compound

Physical Properties

Presentation	: In granular form.
Granulometry	: 0.85mm to 4mm
Colour / Smell	: Grey / Inodorous
Volumetric Mass	: 500 to 650 Kg/m ³ compressed 450 to 500 Kg/m ³ uncompressed
Solubility in water	: Partially miscible
PH Value	: 6.9 to 7.2 of 1000gm/lit at 20°C

Applications

- Electricity generation, transmission and distribution system where safety parametres are to be fulfilled along with specified earthing values.
- Oil & Gas, Petroleum and Defence Installation where permanantly stringent earthing values are required.
- Large multistory/ high-rise office complexes, multiplexes, shopping malls, etc.
- Modern buildings housing IT offices, BOP's and concentration of sensitive electronic and / or telecom equipment.
- Factories having PLC based controls for critical plant and machinery
- Hospitals, cinema halls, museums, old monuments, schools etc.

What happens with normal Earthing using Salt & Charcoal



The Electrical drain gets clogged in summer allowing electrical energy to remain in the circuit destroying life, live stock and assets.

The TEREC+ Advantage

- Simple to use
- Easily achieves resistance acceptable to any international or local bodies
- Maintenance Free
- Low Step and Touch Potential
- Environmentally Friendly
- Saves your electrical and electronic equipments from ground faults

The Electrical drain does not get clogged allowing immediate exit of the energy keeping all equipments intact.



Typical* Horizontal Setting For Hard Rock Condition

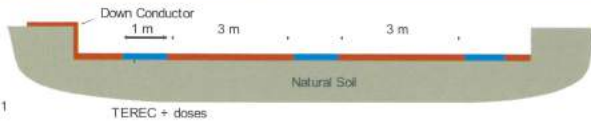


Fig. 1
TEREC + doses

- Build trench of 1m of effective depth
- Lay Earthing conductor at the bottom of the trench
- Mix Terec+ with water in 1:1 ratio as required and make slurry.
- Pour this slurry in 1 meter of every 4 meters as shown
- Back fill the trench with alluvial soil slurry & compress

Typical* Vertical Setting For Tubular Electrodes



Fig. 2

- Make a stable hole without any water entry.
- Mix TEREc+ with water in 1:1 ratio as required & make with slurry.
- Insert the rod pipe in this bore.
- Fill the bore with terec slurry and alluvial soil slurry as per design and compress.

Typical* Vertical setting for rod electrodes

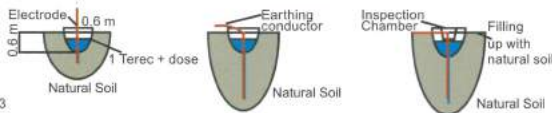
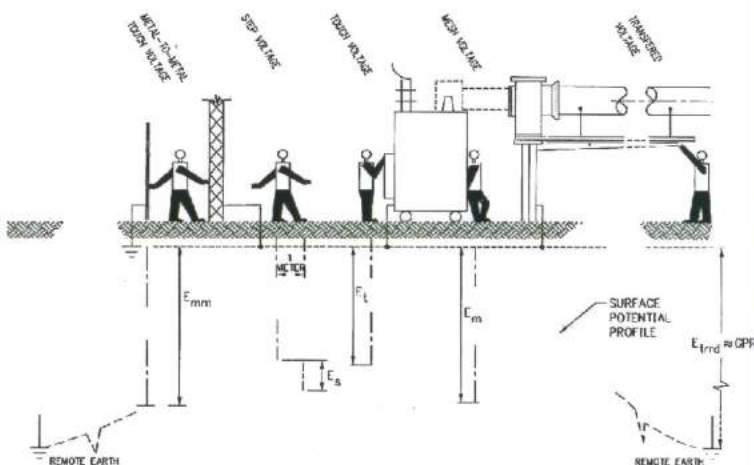


Fig. 3

- Make a pit of 0.6m * 0.6m * 0.6m.
- Mix Terec+ with water in 1:1 ratio as required and make slurry.
- Fill the pit with the slurry.
- Hammer the rod softly in the middle of the pit.
- Add alluvial soil in remaining pit.
- Poor 20 liters of water after 2 hours and compress.



* Note: All the above mentioned applications are typical. Design calculation has to be obtained for achieving optimum result from Terec+ application.

Reduction Of Soil Resistivity Using A Vertical Electrode

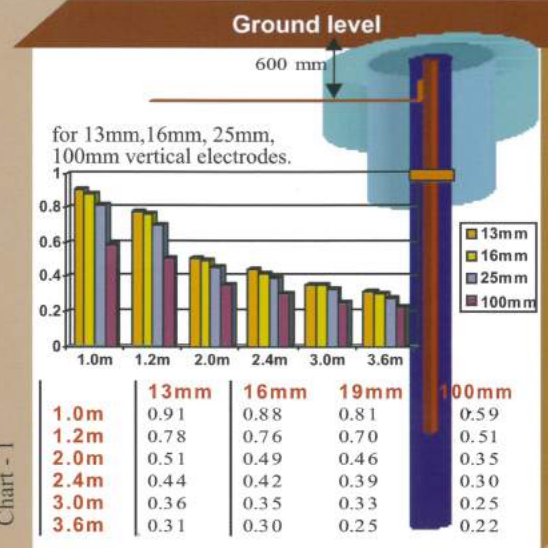


Chart - 1

Reduction Of Soil Resistivity Using A Plate Electrode

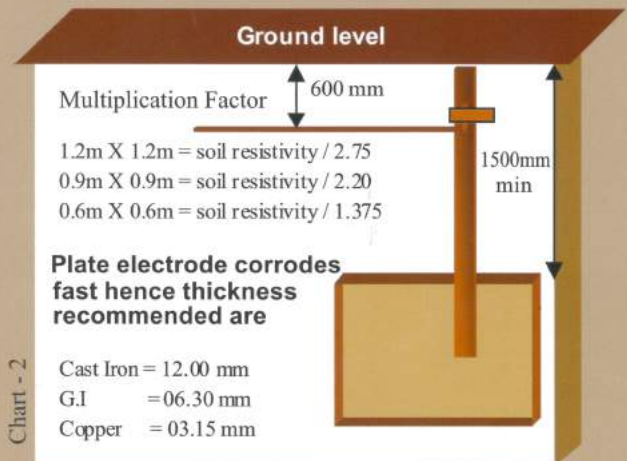


Chart - 2

Reduction Of Soil Resistivity Using A Strip Electrode

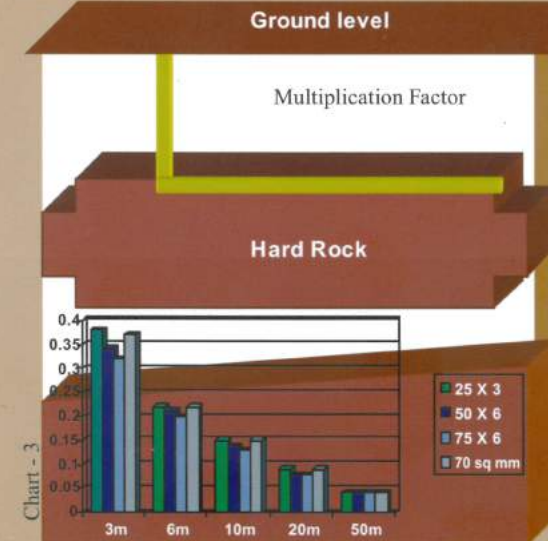
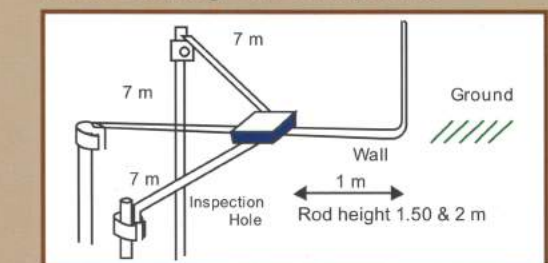
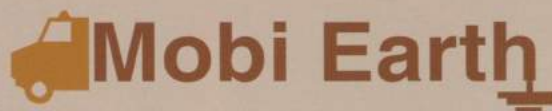


Chart - 3

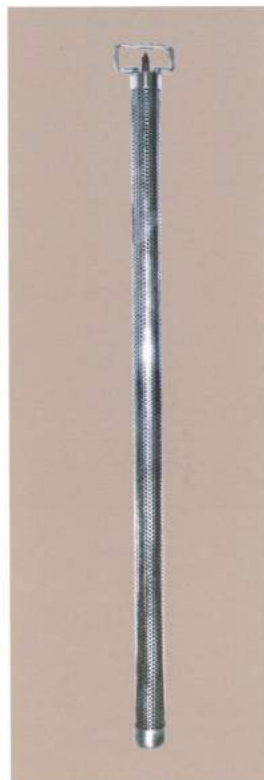
3-Point Earthing - Star Configuration





Mobi Earth is a respite to all mobile Electrical, Electronic & Communication equipments. It is a need for mobile equipments used in Defense, Space programs, Intelligence agencies. Mobi Earth provides quick & efficient earthing. Proper earthing ensures reference voltage (GND) for its functional needs. It is also the only safe path to conduct VHF, Harmonics, Surges, Spikes, Unbalances , Short Circuit current & other faults into the ground mass.

Technical Parameters	
Resistance in vertical setting	32.45 % of soil resistivity
Resistance in horizontal setting	21.05 % of soil resistivity
Un balance withstand capability	6.28 A
Short term duty for 1 sec.	596.60 A
Material	
Body	SS 304L 250 : Molecularly Bonded Copper Over Steel
Central Conduction	
Infill Compound	
Presentation	In granular form
Granulometry	0.85 mm to 4 mm
Colour/Smell	Grey/ Indorous
Volumetric Mass	500 to 650 Kg/m ³ compressed 450 to 500 Kg/m ³ uncompressed
Solubility in Water	Partially miscible
PH Value	6.9 to 7.2 of 1000 gm/lit at 20°C
Number of operations	75 Times or 2 Years whichever is earlier



Installation

In Vertical setting follow the following steps:

1. Bore a 100 mm dia hole in the ground.
2. Place Mobi Earth inside the Bore such that the handle is above the ground.
3. Fill the bore with loose earth slurry.
4. After operations is over pull the Mobi Earth out of the ground.
5. Clean it mildly & repack for further usage.

In Horizontal setting follow the following steps:

1. Make a trench 300 mm wide & 600 mm depth 1200 mm long.
2. Place the Mobi Earth inside the trench.
3. Fill the bore with loose earth slurry.
4. After operations is over pull the Mobi Earth out of the ground.
5. Clean it mildly & repack for further usage.

In case the operational parameters are exceeding the limiting parameters of Mobi Earth multiple systems can be connected in parallel in either horizontal or vertical setting. In both case, the parallel Mobi Earths should be separated by a distance of 1 meter



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