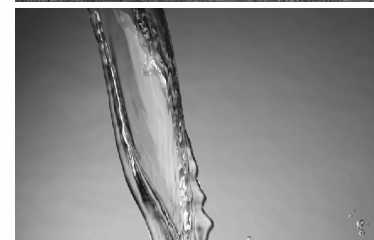
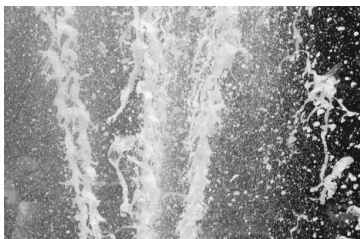
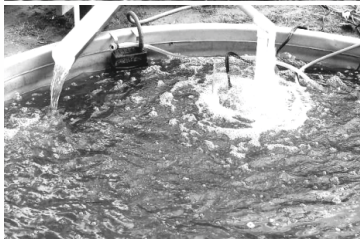




## Shakti FAQ's GREEN FOUNDATION



### GREEN FOUNDATION -

Before approaching for green foundation, firstly we need to understand the term foundation. A foundation is the element or a structure which connects it to the ground, and transfers load from the structure to the ground.

Shakti Engineering green foundation is based on piling technology using a combination of skin friction and point bearing. It enables us to minimise the use of concrete during the assembly of structure. Basically the concept of green foundation has been taken from the roots and stem of tree in which whole weight is transferred to ground with the help of stem and on the other hand roots of the tree provide stability to it.

It is a case of deep foundation as we are using piling technology in which a vertical structural element which is deep drilled into the ground.

### Design principle-

Foundation is installed via steel tubular pins driven into the ground by a commercially available industrial jackhammer and attachment tool. This provides the necessary driving force to install the piles to the required depth. The pins are sharpened pointed at the end so that it penetrates the soil easily and reaches at a proper depth. The spin anchors are considerably more powerful compared to other concrete foundations. Tensile loads up to 4.5 T vertically and up to 4.5 T horizontally, can be accommodated depending on the ground characteristics. In general, it can be used in any type of ground (except rock).

### Compliance-

The system is compliant with Indian standards for the design and construction of pile foundation.

IS 2911 (part 2)-1980: Code of practice for design and construction of pile foundation.

IS 1161-1968: Covers the requirement for hot finished welded, hot finished seamless and electric resistance or induction butt welded plain carbon steel tubes for structural purpose.

### Environmental Impact -

It helps to avoid unnecessary disturbance to vegetation and soil and responds to the natural topography of a site eliminating the use of heavy machinery to install foundations. This saves energy, preserves natural drainage patterns and prevents soil erosion and sediment run offs from waste spoil. As we are using steel rods in our foundation these rods can be reused for the other product.

### Assembly -

32 nominal bore galvanized steel tube is required to be installed in conjunction with the foundation. Pins should be driven to appropriate depth specified or to refusal whichever is lesser. The test for refusal shall be where the pile penetration for each 15 seconds of hammer time is less than 5mm. Hot dipped galvanized steel bolts are required to be used to bolt structures to the Green foundation base. Tek screws are required to be used to provide locking of each driving pin into the Green foundation pile guide. These Tek screws are designed for highly corrosive environment and have a yellow chromate finish. This provides the best resistance to humidity and environmental effects.

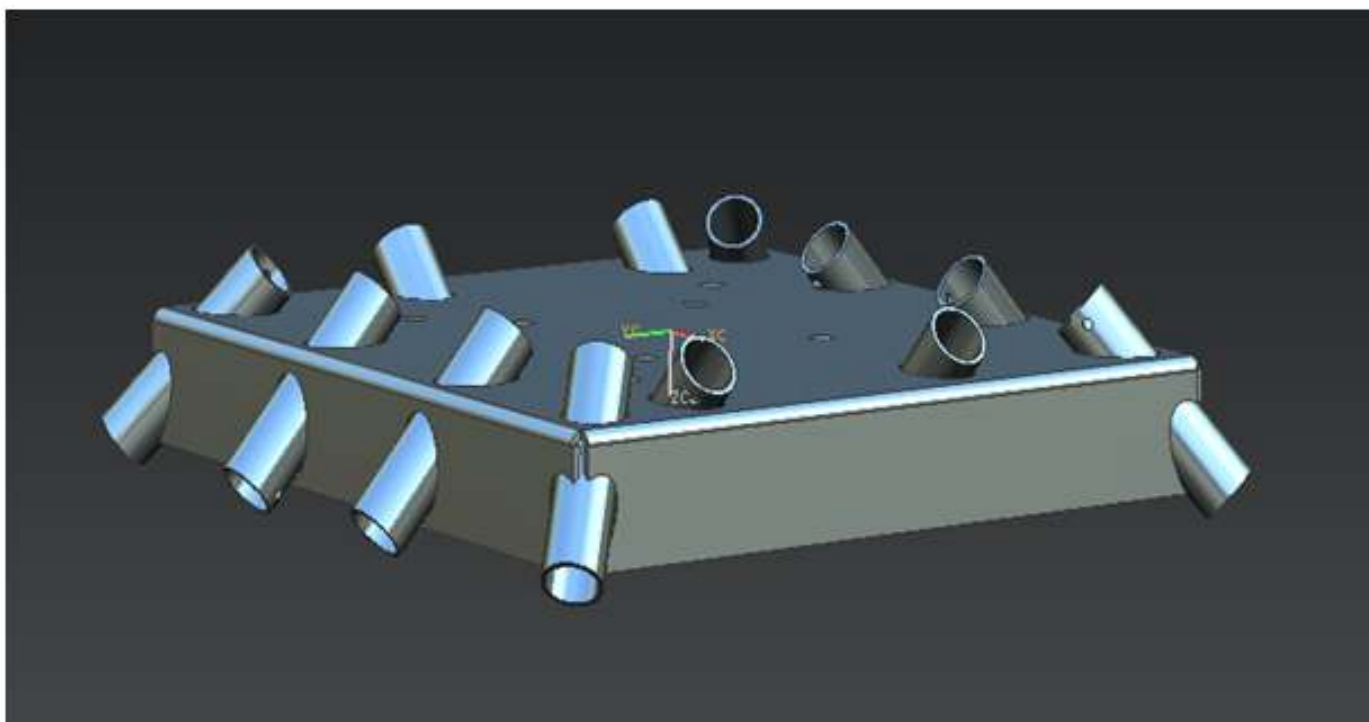


Figure 1 : 3-D Model of Green Foundation Base plate

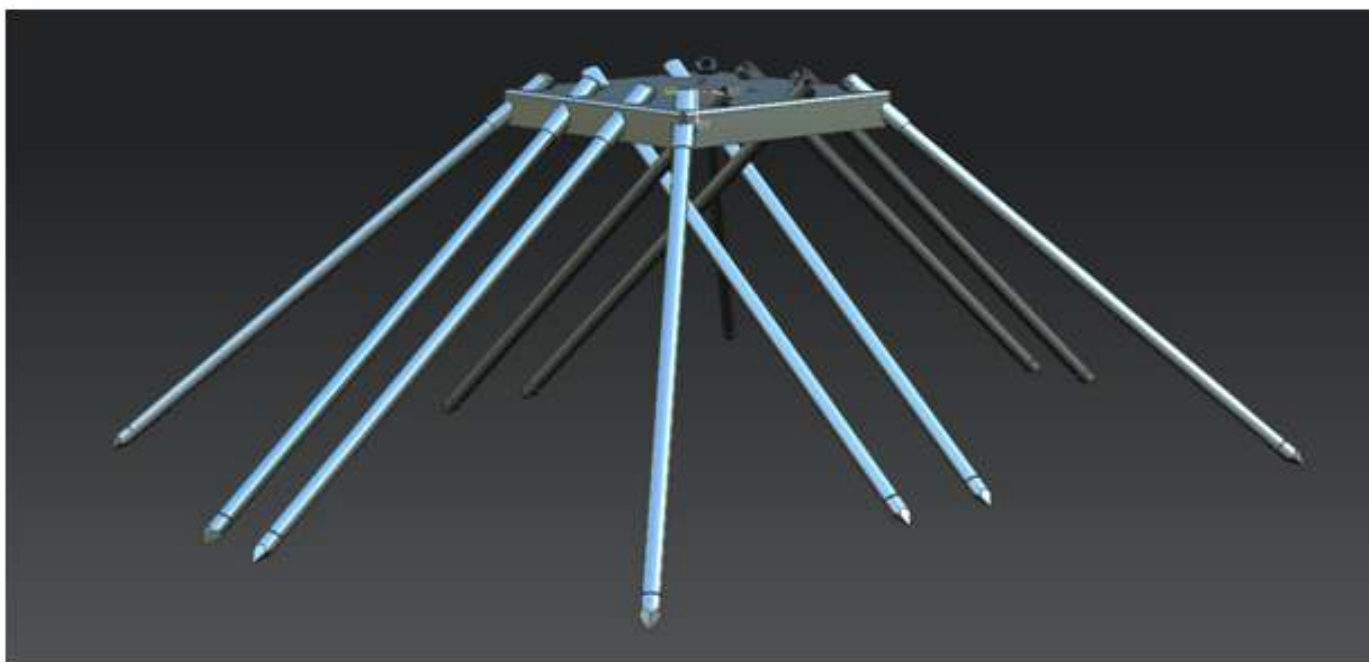


Figure 2: 3-D Model of inserted piles



#### ADVANTAGES OF GREEN FOUNDATION OVER CONCRETE FOUNDATION:

- GREEN FOUNDATION is a low carbon solution in compare to concrete foundation
- Economical and fast assembly.
- The foundation is ready for use within an hour.
- Recyclable/Reusable.
- Installation can also be carried out in cold temperatures.
- Can be installed in all wind categories.
- Minimum soil and site disturbance and no contamination in soil.

This foundation is having following properties -

- Less costly in material as well as labor charges
- Shakti green foundation is engineered to yield loads ranging from 1 to 30 tons depended on which type is used. Ultimate load capacities of each foundation are determined by soil type, wind and terrain category and associated implied loads of a structure. It is important to realize that ultimate loads capacities will vary depended on the above mentioned factors and differ with each application and site specific environment.
- Installation time reduces from 2-3 days to few hours
- Shakti green foundation is a cost effective way to ground posts of any size without the need for digging, excavation or cement. An especially designed steel plate secures pins in place that provide the strength needed to hold any post in place.
- Can be installed in all wind categories
- Can be installed in all soil types. It works best and is typically where the system offers the best cost savings. For rocky sites, pre-drilling of your driving pin holes will be required to the specified depth.
- It avoids unnecessary disturbance to vegetation and soil and responds to the natural topography of a site eliminating the use of heavy machinery to install foundations.
- At the end of a structure's design life can be removed from the ground and recycled back into its raw form to produce other steel products.

#### LIFE:

The Green foundation system complies with the design life of 25 years.

It is important to realize that the systems ultimate life expectancy is determined by many factors such as the type of soil and the surrounding environmental effects. Soils that have low PH levels and low moisture levels will perform best over soils that have high PH levels and high moisture levels.



Dec./2018-19/L1/000 VC - 2176 SAP No. 2900001487

India : Toll Free No. 1800 103 5555

Other Countries : +91-7292 410500

## SHAKTI PUMPS (INDIA) LTD.

Sector - 3, Pithampur - 454774, Dist. - Dhar, (M.P.) - INDIA  
Fax: +91-7292 410645, E-mail: [info@shaktipumps.com](mailto:info@shaktipumps.com), [sales@shaktipumps.com](mailto:sales@shaktipumps.com),  
Visit us at : [www.shaktipumps.com](http://www.shaktipumps.com)