STANDARD PENETRATION TEST APPARATUS(SPT)

MAKE: VERTEX | MODEL NO.: VSLIC-S102 | MAKE IN INDIA

Ref. Standard IS:3231, IS:1740, IS: 2131, 9640, ASTM D-1586

Product Overview

Standard penetration Test is a powerful tool for measuring the penetration resistance of the ground and for relating it to the degree of compactness of cohesionless soil and consistency of cohesive soil. The result can be used for design of foundation. SPT is widely used for measuring the undisturbed strength of the soil and for assessing its resistance to liquefaction due to ground vibration caused by earthquakes or other dynamic forces.

The standard penetration resistance is measured as the number of blows 'N' required to drive a split spoon sampler to a depth of 300 mm using a 63.5kg weight falling freely through a height of 750 mm.

Significance & Use:

The **Standard Penetration test apparatus (SPT)** is a common in-situ testing method used to determine the geotechnical engineering properties of subsurface soils. It is a simple and inexpensive test to estimate the relative density of soils and approximate shear strength parameters.

This test method is used extensively in a great variety of geotechnical exploration projects. The test method provides a disturbed soil sample for moisture content determination and laboratory identification.

Working Principle:

Standard Penetration Test, SPT, involves driving a standard thick-walled sample tube into the ground at the bottom of a borehole by blows from a slide hammer with standard weight and falling distance.

The sample tube is driven 150 mm into the ground and then the number of blows needed for the tube to penetrate each 150 mm (6 in) up to a depth of 450 mm (18 in) is recorded. The sum of the number of blows required for the second and third 6 inch of penetration is reported as SPT blow-count value, commonly termed “standard penetration resistance” or the “N-value”.

The N-value provides an indication of the relative density of the subsurface soil, and it is used in empirical geotechnical correlation to estimate the approximate shear strength properties of the soils.

Technical Specifications

Complete set up consists of the following individual parts & accessories.

Detailed description of each part is given below:

1. Split spoon sampler (Head, Split barrel & shoe) : 1 No
2. Drive Monkey weight 63.5 kg : 1 No
3. Sampling drill A-rod 1.5 meter long : 3 No
4. Guide Pipe Assembly : 1 No
5. Tripod 5 meter long with pulley assembly : 1 No
6. Rope for hammer : 10 Meter

Split Spoon Sampler:

Consists of 3 main parts; head, split-barrel and shoe. The sampler is having 35mm Inner Diameter (I.D.) and 50mm Outer Diameter (O.D.). It is 650 mm long. The sampler is made from a sleek tube - split lengthwise and held together by a head fitted with a ball check valve. A hardened steel shoe of inside cutting edge of 35mm dia is also the part of assembly. One adaptor to connect ‘A’ type drill rods is Iso supplied with brass liner.

Drive-weight assembly:

Consisting of a 63.5 kg weight (hammer), a driving head (anvil) and a guide permitting free fall of 0.76 meter (76 cm) and an overlift capability of at least 100 mm. The lifting will be manual by manila rope and pulley.

Sampling rod (A-Type drilling rod):

Steel A-rod is used to connect the sampler to the drive weight assembly. Drilling rod of 1.5 meter long will be supplied. Other sizes available at extra cost.

Guide Pipe Assembly:

Guide pipe assembly which is fitted with a driving head on one side having standard “A” drill rod thread & a cap on the second side. Drive weight falls freely through a height of 0.76 meter (76 cm)

Motorized hammering version of SPT is also available