SOIL PERMEABILITY

BE 14

Permeability refers to a soil's ability to allow water to flow through its interconnected voids. This property is critical in engineering because it influences how quickly saturated, compressible soil layers settle and how much water an aquifer can supply. Permeability is considered in various applications, such as pumping groundwater, spacing well points for dewatering excavation sites, designing reservoirs and dams, and selecting soils for different parts of embankments in dams and reservoirs.

The coefficient of permeability can be estimated using factors like the effective diameter of soil particles, porosity, specific surface area, or data from consolidation tests. However, since permeability depends on many variables, direct measurement in a laboratory using a device called a Permeameter is considered more reliable. Permeameters test small soil samples, require less time, and provide accurate results.

There are two main types of Permeameters: Constant Head Permeameters and Falling Head Permeameters. Constant Head Permeameters are used for coarse-grained, cohesion less soils, while Falling Head Permeameters are suitable for fine-grained soils (either remolded or undisturbed) with a coefficient of permeability less than 10^{-2} cm/sec.

STANDARD FOLLOWING

IS 2720 (Part 17), IS 11209

DESCRIPTION

BE 14-01	Constant Head	used for coarse-grained, cohesion less soils
BE 14-02	Falling Head	suitable for fine-grained soils (either remolded or undisturbed) with a coefficient of permeability less than 10^{-2} cm/sec.
BE 14-03	Stand	with three glass tubes of 6 mm, 10 mm and 20 mm dia approx.
BE 14-04	Metallic Mould	100 mm dia x 127.3 mm height, 1,000 ml volume
BE 14-05	Extension Collar	100 mm dia x 60 mm height
BE 14-06	Drainage Base Plate	with a recess for Porous Stone and an Outlet Valve
BE 14-07	Metallic Clamping Ring	Used for Mould Fixed
BE 14-08	Drainage Cap	with recess for a Porous Stone and fitted with Inlet Valve and Air Release Valve
BE 14-09	Dummy Plate	to serve as False Bottom during compaction
BE 14-10	Porous Stone	for Drainage Base Plate
BE 14-11	Porous Stone	for Drainage Cap
BE 14-12	Rubber Connection Tube	3 m long, with Pinch Cock
BE 14-13	Overhead Tank	made of steel, approx. 37.5 cm dia and1 m high. It is provided with an inlet port at the top, six outlets at the bottom with cocks, air inlet and water filling tube at the top. An arrangement is provided to indicate the water level
BE 14-14	Rammer	2.6 kg X 310 mm controlled fall
BE 14-15	Rammer	4.9 kg X 450 mm controlled fall
BE 14-16	Rubber Pipe	For Connecting to Constant or Falling head

MOULD ASSEMBALY

BE 14-01-02