Balloon Density Set

LT-S0700 | Test-hole volume determination using a flexible membrane

Flexible rubber membrane • Liquid displacement • Mechanical field use



7 kg

APPROXIMATE SET WEIGHT

Mechanical

OPERATION WITHOUT ELECTRICAL POWER

NF P94-061-2 • In-place density evaluation

Photographs and System Components

Graduated chamber, hand pump, base plate and rubber membrane

The LT-S0700 determines test-hole volume using a flexible membrane and liquid displacement. Use the mass of soil excavated from the hole together with this volume to calculate in-place density.

HAND PUMP

The manual pressure arrangement supports expansion of the membrane into the test hole.

UPPER CONNECTIONS

The pump, valve and pressure gauge are arranged at the top of the chamber.



GRADUATED CHAMBER

Liquid volume readings allow comparison of initial and test measurements.

BASE AND MEMBRANE

The base locates the apparatus over the hole. The flexible membrane follows the cavity shape.



Hand pump, valve and upper connections



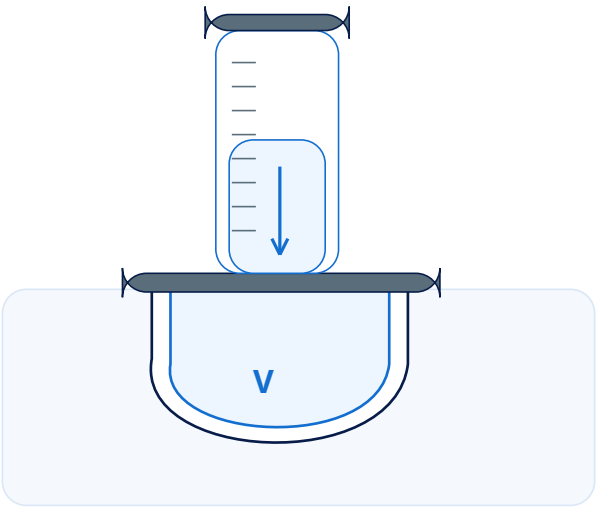
Base plate and rubber membranes

LT-S0700

From Test-Hole Volume to Field Density

Prepare • Collect soil • Determine volume • Calculate density

FLEXIBLE MEMBRANE + TEST HOLE



VOLUME: INITIAL AND FINAL READING DIFFERENCE

MASS: SOIL EXCAVATED FROM THE HOLE

Divide wet soil mass by measured hole volume

Wet density = wet soil mass / test-hole volume

REPRESENTATIVE MEMBRANE METHOD DIAGRAM • NOT TO SCALE

Record the Initial Reading

Prepare the surface. Take the initial volume reading according to the method and retain position.

Excavate the Hole

Excavate a suitable hole. Collect all removed soil and determine its wet mass.

Find Volume and Density

Measure volume using the membrane. Apply the initial correction and calculate density.

Liquid expands the membrane against the internal surface of the test hole. The method-corrected difference between initial and test readings gives the hole volume. Excavated soil mass gives wet density; separately determined water content allows dry density calculation.

Preparing for Volume Measurement

Prepare the test surface and base position. Check membrane integrity, connections and the liquid system. Use the same procedure for initial and test measurements.

Collect all excavated material without loss. Record volume readings together with specimen identification and field location.

Dry Density and Compaction Control

When water content is determined separately, dry density can be calculated. Compare it with the laboratory maximum dry density for the same material to evaluate field compaction.

The hole should retain its shape during measurement. Assess method suitability for soft or deformable soils and check the effect of sharp particles on the membrane.

LT-S0700

Technical Specifications and Test Workflow

LT-S0700 | Portable mechanical field density system

Technical Specification	Value / Description
Product Code	LT-S0700
Product Name	Balloon Density Set
Measuring Principle	Liquid displacement with a flexible membrane
Measured Quantity	Test-hole volume
Density Calculation	Excavated soil mass / test-hole volume
Dry Density	Calculated using separately measured water content
Operation	Mechanical • No electrical power required
External Dimensions	250 × 250 × 700 mm
Approximate Weight	7 kg
Method Reference	NF P94-061-2

Match Mass and Volume Records to the Same Test Point

Record initial and final volume readings, excavated soil mass and water content. Report calculated density together with the field location and test method.

Balloon Density Test Workflow

01
Prepare
Prepare surface, base and initial reading.

02
Collect
Excavate and collect all removed soil.

03
Measure
Determine mass and membrane hole volume.

04
Calculate
Calculate density and report the result.

Product Page | liyatest.com.tr/en/urun/balloon-density-set/