Surface Soil Sampler

LT-S0085 / LT-S0086 / LT-S0087 | Near-surface soil sampling

Cylindrical cutter • Sliding hammer • Mechanical field operation



73 / 100 / 150 mm

CUTTER DIAMETER OPTIONS

m / V

SPECIMEN MASS / CUTTER VOLUME

Known-volume sampling of natural soil and compacted fill

Photographs and Apparatus Components

Handle, guide, sliding hammer and cylindrical cutters

The Surface Soil Sampler collects cylindrical specimens of known volume from near-surface soil. A sliding hammer and driving head advance the cutter vertically. Specimen mass and cutter volume are used to calculate in-situ density.

HANDLE AND GUIDE

The upper handle supports positioning, while the vertical guide directs hammer movement.

SLIDING HAMMER

Free-falling mechanical blows are transmitted to the cutter through the driving head.



CYLINDRICAL CUTTERS

Different cutter diameters allow soil specimens of known volume to be collected.

DRIVING HEAD

Connects the guide and cutter arrangement and transfers blows along the cutter axis.



Sliding hammer, driving head and cutter connection



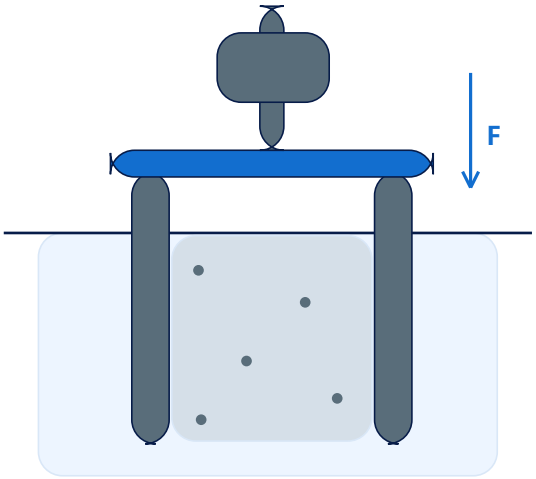
Cylindrical specimen cutters in different diameters

LT-S0085 / LT-S0086 / LT-S0087

Sampling and Density Calculation

Prepare surface • Drive cutter • Trim specimen • Weigh and calculate

SAMPLING WITH A KNOWN-VOLUME CUTTER



WET DENSITY = NET WET SPECIMEN MASS / V

V = CALIBRATED INTERNAL CUTTER VOLUME

Subtract empty cutter mass to obtain net soil mass

Determine water content separately for dry density

REPRESENTATIVE CUTTER AND SPECIMEN SECTION • NOT TO SCALE

Position the Cutter

Level the surface. Place a clean cutter of known volume vertically on the soil.

Collect the Specimen

Drive the cutter with hammer blows. Avoid specimen loss during retrieval.

Trim and Weigh

Trim both faces flush with the cutter ends. Weigh the specimen and cutter together.

Density is calculated from the internal cutter volume and the mass of soil it contains. Specimen loss, voids or volume changes can affect the result. Check that the cutter is fully filled and both specimen faces are trimmed flush.

From Field Specimen to Wet Density

First determine the empty cutter mass and calibrated internal volume. Trim the recovered soil flush with both cutter ends and weigh the cutter with its specimen.

Subtract the empty cutter mass from the total mass to obtain net wet soil mass. Divide by the cutter volume to calculate wet density, using consistent mass and volume units.

Dry Density and Specimen Suitability

Determine water content separately from a representative specimen. Calculate dry density by dividing wet density by (1 + w), where w is dry-mass-based water content expressed as a decimal.

Use soil that can be retained in the cutter. Prevent coarse particles, specimen loss or driving disturbance from affecting cutter filling and the resulting density.

Technical Specifications and Model Options

LT-S0085 / LT-S0086 / LT-S0087 | Mechanical surface soil sampling

Parameter	Description / Specification
LT-S0085 Cutter Diameter	Ø73 mm
Approximate LT-S0085 Weight	10 kg
LT-S0086 Cutter Diameter	Ø100 mm
Approximate LT-S0086 Weight	13.5 kg
LT-S0087 Cutter Diameter	Ø150 mm
Approximate LT-S0087 Weight	16 kg
Sampling Arrangement	Sliding hammer, driving head and cutter
Steel Components	Galvanised coating
Operation	Manual mechanical • No electrical supply
Density Calculation Basis	Net specimen mass / known cutter volume

Match Cutter Volume and Empty Mass to the Specimen Record

Record cutter ID, volume, empty mass and mass with soil. Use representative water content from the same specimen for dry density calculation.

Surface Soil Sampling Workflow

01
Prepare
Prepare the surface and suitable cutter.

02
Drive
Drive the cutter vertically into the soil.

03
Trim
Retrieve and trim the specimen faces.

04
Calculate
Use mass and known volume to find density.

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