Liquid Limit Test Apparatus - Casagrande

LT-S0035 / 0036 / 0037 / 0038 | Manual and motorized models

Brass specimen cup • Blow counter • ASTM and BS grooving tools



4 models

ASTM / BS MODEL OPTIONS

2 drive types

MANUAL AND MOTORIZED

ASTM D4318 • BS 1377-2 • AASHTO T89

Photographs and Components

Manual model, brass cup, operating mechanism and motorized option

The Casagrande apparatus assesses closure of a standard groove in fine-grained soil under repeated blows. The blow count required for closure is evaluated with specimen moisture content to determine liquid limit.

BRASS SPECIMEN CUP

Prepared soil is placed in the cup and a standard groove is formed using the selected tool.

OPERATING MECHANISM

The cam and shaft arrangement lifts and drops the specimen cup in a controlled manner.



BLOW COUNTER

Allows the number of drops / blows applied during testing to be monitored.

MANUAL CRANK

On the manual model, the operator turns the crank to produce the testing motion.



Brass cup and grooving tool on the manual model



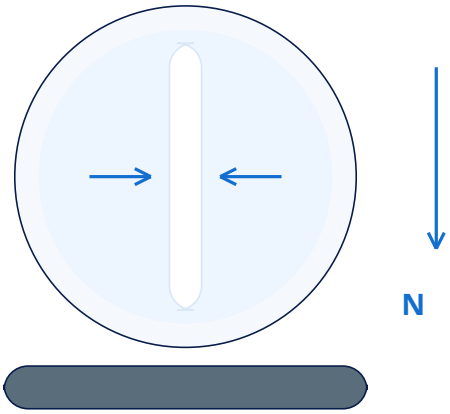
Motorized Casagrande model and blow counter

LT-S0035 / 0036 / 0037 / 0038

Groove Closure, Blow Count and Moisture

Prepare specimen • Form groove • Apply blows • Determine moisture

SPECIMEN GROOVE + REPEATED BLOWS + CLOSURE



OBSERVATION: STANDARD GROOVE CLOSURE

RECORD: BLOW COUNT AND MOISTURE CONTENT

SPECIMEN: SOIL PREPARED IN THE BRASS CUP

Determine liquid limit according to the method

REPRESENTATIVE CASAGRANDE TEST DIAGRAM • NOT TO SCALE

Load Specimen and Form Groove

Place prepared soil in the cup and level it. Form the groove with the method-appropriate tool.

Apply and Count Blows

Lift and drop the cup regularly. Observe closure and record the required blow count.

Determine Moisture Content

Collect the relevant specimen portion. Evaluate moisture content and blows using the method.

A standard groove is formed in soil prepared in the brass cup. Repeated blows move the specimen towards groove closure. Record the blow count at the method-defined closure condition. Evaluate this together with moisture-content measurements to obtain liquid limit.

Manual and Motorized Models

LT-S0035 is the manual BS model and LT-S0036 the manual ASTM model. Motorized alternatives are LT-S0037 BS and LT-S0038 ASTM. Motorized operation provides approximately 120 drops/min.

Select the model and grooving tool together for the applicable procedure. Check cup motion and settings and maintain consistent preparation and observation conditions.

Moisture Content and Soil Classification

Blow count alone does not provide liquid limit. Determine specimen moisture content and apply the selected method’s evaluation procedure. Measurements at different moisture contents allow closure behaviour to be compared.

Liquid limit is used with plastic limit for plasticity index and soil classification. Record specimen identification, model type, grooving tool and measurements together.

Model Options and Accessories

Manual / motorized Casagrande models and grooving tools

Model / Technical Feature	Value / Description
LT-S0035	Manual liquid limit apparatus • BS
LT-S0036	Manual liquid limit apparatus • ASTM
LT-S0037	Motorized liquid limit apparatus • BS
LT-S0038	Motorized liquid limit apparatus • ASTM
Motorized Operation	Approximately 120 drops/min
LT-S0036 Dimensions / Weight	240 × 230 × 150 mm • 2 kg
LT-S0038 Dimensions / Weight	200 × 290 × 170 mm • 4.2 kg

Accessory Code	Description
LT-S0035/1	Plastic grooving tool • BS
LT-S0036/1	Metal grooving tool and gauge block • ASTM
LT-S0036/2	Plastic grooving tool • ASTM
LT-S0036/3	Spare brass specimen cup

Verify Model, Tool and Test Records Together

Check that the model and grooving tool suit the selected procedure. Keep closure condition, blow count and specimen moisture content in the same test record.

Casagrande Liquid Limit Test Workflow

01
Prepare
Place and level soil in the brass cup.

02
Form Groove
Use the method-appropriate grooving tool.

03
Count / Observe
Count blows and observe the closure condition.

04
Evaluate
Determine moisture content and liquid limit.

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