# Concrete Proctor Penetrometer

LT-C0025 | Mechanical force measurement with a calibrated spring

Six interchangeable needles • Testing on sieved mortar • ASTM C403/C403M



## 1-100 daN

**FORCE MEASURING RANGE**

## 6 needles

**INTERCHANGEABLE AREA OPTIONS**

Approx. 2 kg • Laboratory and field use • Initial and final setting times

# Photographs and Components

Mechanical penetrometer body and interchangeable penetration needles

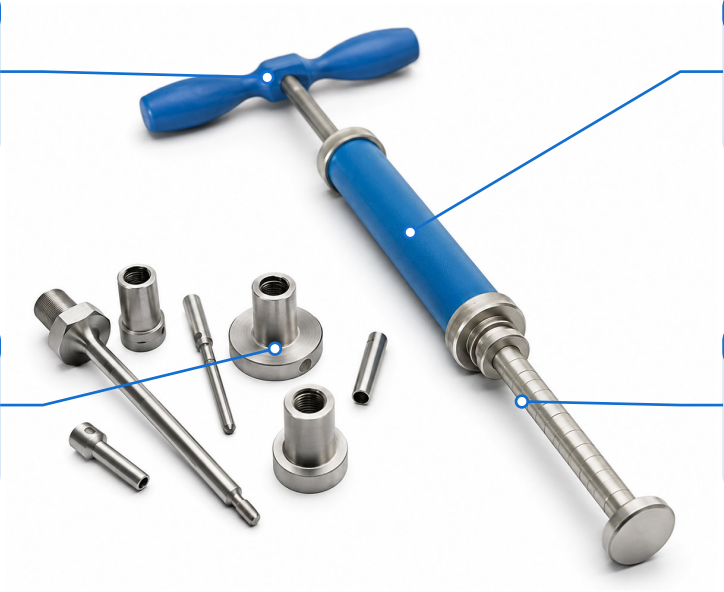
The LT-C0025 measures the force required for penetration into mortar sieved from concrete. A calibrated internal spring and interchangeable needles allow mixture stiffening to be monitored at regular intervals. Evaluate force together with needle area.

**T HANDLE**

The operator applies force manually while keeping the needle perpendicular to the specimen surface.

**SPRING MEASURING BODY**

A calibrated internal spring measures applied force over a range of 1-100 daN.



**NEEDLE SET**

Six areas of 16, 32, 65, 160, 325 and 650 $mm^2$ suit different penetration resistance levels.

**NEEDLE CONNECTION**

Fit the selected penetration needle to the measuring body and clean it before every reading.



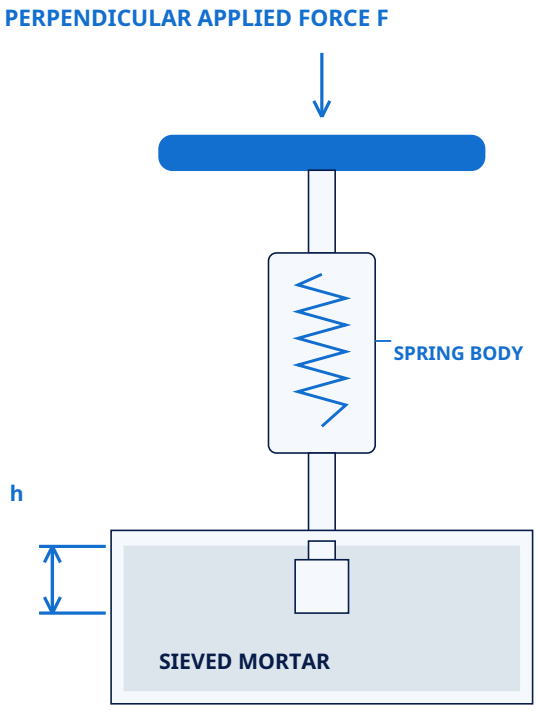
**Spring measuring body and penetration connection**



**Interchangeable needles with different bearing areas**

# Operating Principle and Resistance

Manual force • Calibrated spring • Selected needle • Sieved mortar




$$R = 10 \times F / A$$

PENETRATION TEST • SCHEMATIC

### Prepare the Mortar

Sieve coarse aggregate from the concrete mixture. Place the mortar fraction in a suitable test container.

### Select and Press the Needle

Fit a needle for the resistance level. Penetrate vertically at a clean, previously untested location.

### Record Time and Force

Record elapsed time, force and needle area. Evaluate resistance measurements against time.

The operator applies force through the handle; the internal spring provides the force reading. The selected needle penetrates the sieved mortar. Calculate penetration resistance by dividing applied force by needle area; evaluate setting times from resistance-time records.

## From Force to Penetration Resistance

$R = 10 \times F / A$

F: measured force (daN)
A: needle bearing area ($mm^2$)
R: penetration resistance (MPa)

1 daN = 10 N; 1 $N/mm^2$ = 1 MPa. Use the correct area for every reading when changing needles.

## Monitor Setting Time

ASTM C403/C403M covers setting time determination by penetration resistance on mortar sieved from the concrete mixture.

Use a larger needle in the early stage and change to a smaller area as the mortar stiffens. Evaluate initial and final setting times using the resistance criteria of the method.

# Specifications and Needle Selection

LT-C0025 penetrometer • LT-C0025/1 six-piece needle set

| Product Code | Product / Component | kg |
|---|---|---|
| **LT-C0025** | Concrete Proctor Penetrometer | 2 |
| **LT-C0025/1** | Penetration needle set / 6 different areas | - |

| Technical Feature | Value / Function |
|---|---|
| **Force Measuring Range** | 1-100 daN |
| **Force Measuring System** | Calibrated internal spring; mechanical force reading |
| **Number of Needles** | 6 interchangeable penetration needles |
| **Needle Bearing Areas** | 16 / 32 / 65 / 160 / 325 / 650 $mm^2$ |
| **Test Specimen** | Mortar sieved from the concrete mixture |
| **Evaluation** | Penetration resistance and elapsed time |
| **Operation** | Manual loading; laboratory and field use |
| **Relevant Test Method** | ASTM C403/C403M |

### Correct Needle and Measurement Record

Record needle area with every force reading. Use a clean needle and a fresh penetration location for each measurement; keep elapsed time and specimen conditions in the same test record.

## Test Preparation and Use Workflow

**01**
**Separate the Mortar**
Sieve coarse aggregate; place mortar in a container.

**02**
**Select the Needle**
Fit an area suited to the resistance level.

**03**
**Measure and Record**
Press vertically; record time, force and area.

**04**
**Evaluate Setting**
Use resistance-time data to determine setting time.

**Product Page | liyatest.com.tr/en/urun/concrete-penetrometer/**