C-Tech
Laboratory equipment co..limited

CBR TEST MACHINE CTM-01

PRODUCT MANUAL

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I. Application

This machine is suitable for test of soils and mix materials (the grain size of the soil is less than 40mm) compacted with CBR mold so as to confirm the bearing loading ability of pavement, roadbed subcrust as well as material layer of the roadbed to be designed. It consists of a twin column frame, proving ring, penetration bar, loading plate, micrometer, measuring device for swell increment etc. And easy to operate.

II. Main Technical Parameters

Capacity	30KN
Load speed	1.0mm/min
Penetration bar	dia.50mm x 100mm
Platen	dia. 170mm
Platen travel	50mm
Mold	dia. 152mm x 170mm
Dimension	310x310x930mm
Power	220V, 50Hz
Weight	80kg

III. Usage

(1). Turn on the power, the instrument starts to run. Check whether the working status of the instrument and the movement of the handle are normal, if all normal, please ready to start the test.

(2). Prepare the specimen according to the bearing ratio test method.

(3). Measuring the water swelling amount

① . Place the swell plate equipped with adjusting rod on the moisture-cured specimen, and add sufficient load plate on the swell plate, to make the pressure on the specimen surface is equal to the pressure on the road surface of the material layer.

②. Place the mold and swell plate in water tank (do not inject water first) and tighten the mold with drawing cylinder, install the dial indicator, read the initial reading.

③. During soaking, the water level in water tank should be 25mm above the specimen top surface, and usually the specimen should be soaked 96 hours.

④. When the soaking time is enough, read the dial indicator reading, calculate the swelling amount.

$$\triangle V = \frac{\text{Specimen height change after soaking}}{\text{Original specimen height}} \times 100\%$$

⑤. Remove the specimen from the water tank, pour the water on the surface of the specimen, let stand for 15 minutes to drain, and then remove the additional load and porous plate, floor and filter paper, and weighing M, to calculate the temperature and humidity changes.

(4). Penetrating test

①. The finished specimen of the water saturation test is put on the testing machine lifting plate, the penetration rod and the force ring are aligned, and a predetermined number of loading plates are placed around the penetration rod.

②. First hand load 45N on the penetration rod, and then adjust the dial indicator on the load ring used to measure deformation to zero.

③. Load pressure hand wheel, record the penetration amount when the measuring force dial indicator on some readings (20, 40.....), and pay attention to that when the penetration amount is 2.5mm, there is more than 8 readings, total penetration amount should be over 7mm.

④. Calculation, draw pressure-penetration amount curve, calculate the bearing ratio when the penetration amount is 2.5, 50mm.

$$\text{Bearing ratio } C = \frac{\text{Unit pressure}}{7 \text{ or } 10.5} \times 100\%$$

IV. Maintenance

(1). After each test, the machine should be wiped clean immediately.

(2). After one year usage, the gearbox should be replaced with new lubricating oil, and then regular maintenance.

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