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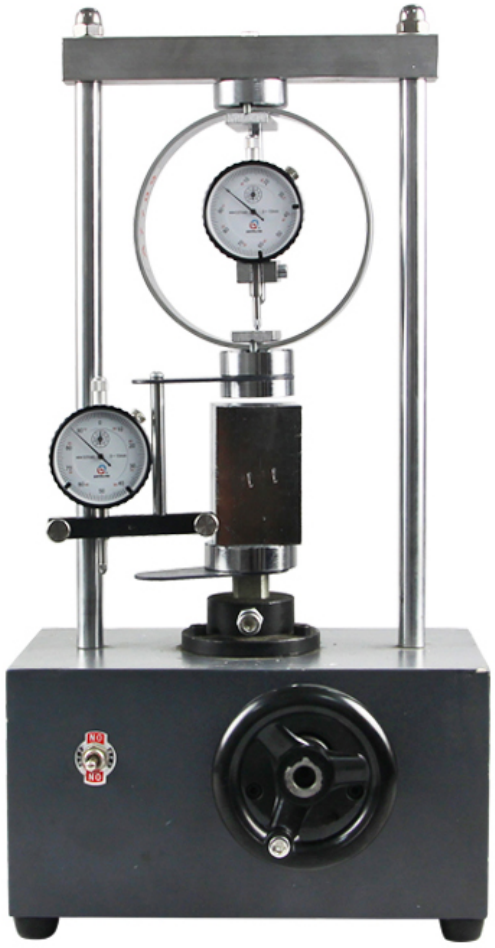
Strain Controlled Unconfined Compression Apparatus YYW-2

PRODUCT MANUAL



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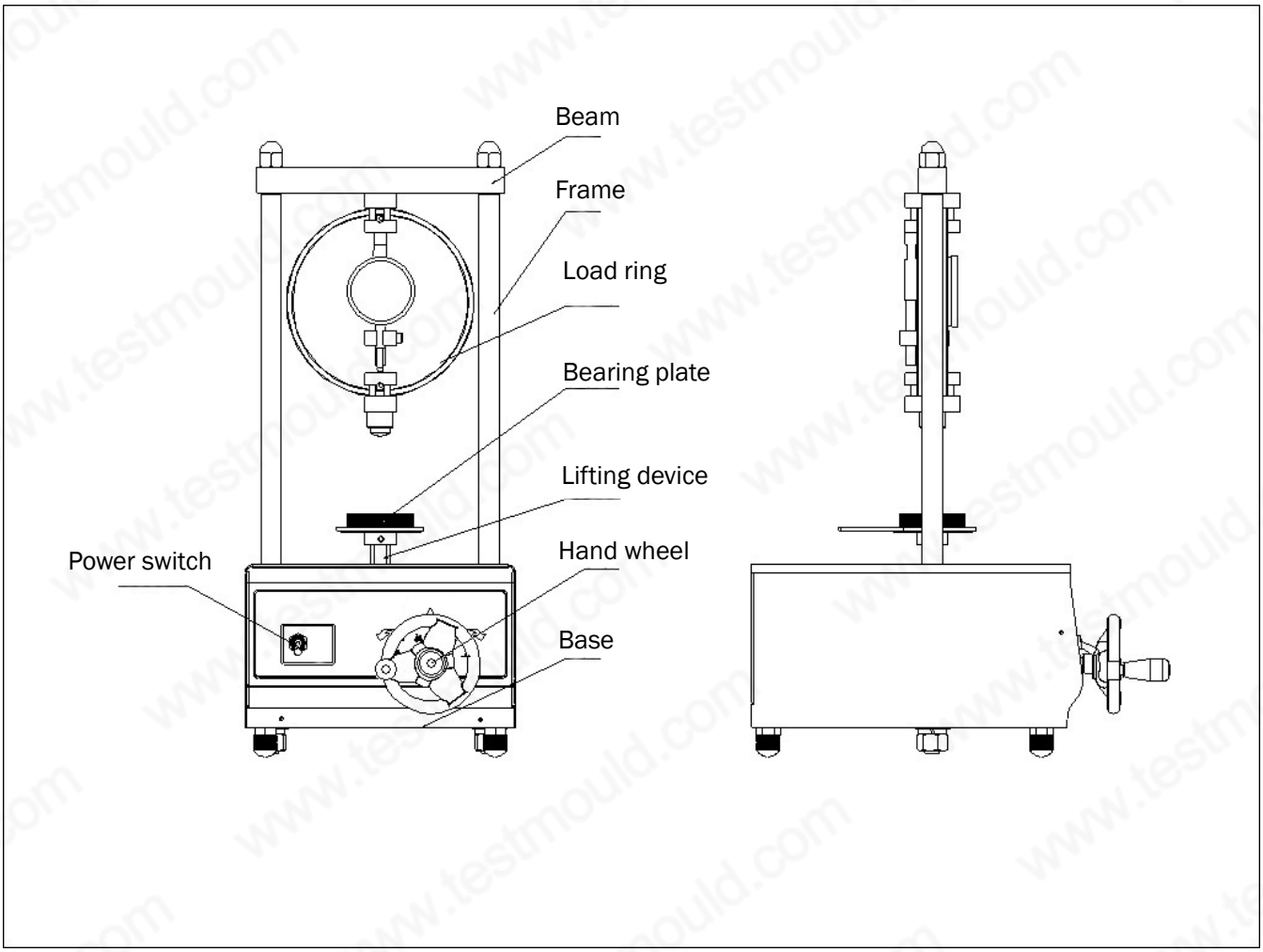
I. Application

It is used to determine the unconfined compressive strength of the soil from the axial pressure under the condition of unrestricted lateral direction to the force when the sample is broken. At the same time, the unconfined compressive strength test is also used to determine the sensitivity of the soil. (Sensitivity is the ratio of the unstrained compressive strength of the undisturbed soil to the remodeled soil that retains natural moisture).

II. Structure



The instrument consists of base, lifting device, bearing plate, load ring, dial indicator, etc.

1. Base: The base of the instrument, which forms a frame with parts such as columns and beam.

2. Lifting device: the loading device during the test.

3. Bearing plate: the upper bearing plate is placed on the lower bearing plate.

4. Load ring: 7.5KN, used to measure the pressure on the specimen, that is, the compressive strength.

III. Technical Parameter

Max. load	7.5kN
Lifting speed(manual)	10 cycles per minute
Lifting speed(motor)	2.4mm/min
Diameter of lead screw plate	φ52mm
Lead screw travel	50mm
Sample size	φ50X50 φ50X100
Weight	20kg
Dimensions	220x340x500(mm)

IV. Test methods

1. Place the undisturbed soil on the table in the direction of natural layers, cut it into a soil column larger than the diameter of the sample with a soil cutter or hacksaw, and put it between the upper and lower plates of the soil cutting plate. Then use the soil cutter or hacksaw to cut carefully from top to bottom along the side plate, and at the same time rotate the plate until the requirements are met. Take out the sample, flatten both ends according to the required height, and the end face should be flat and perpendicular to the side. If the surface of the sample is hollow due to alkali or other impurities, it is allowed to fill it with soil.

2. The diameter and height of the specimen should be the same as the diameter and height of the reshaping cylinder, which is 40 mm in diameter and 100 cm in height.

3. Use a caliper to measure the height of the cut specimen and the diameter of the upper, middle and lower parts, and calculate the average diameter DP by the following formula:

$$DP=(D1+2D2+D3)/4$$

In the formula:DP ~ the average diameter of the specimen, cm.

D1., D2, D3 ~ the diameter of the upper, middle and lower parts of the specimen, cm.

4. Apply a thin layer of Vaseline to both ends of the specimen. To prevent evaporation of moisture, apply a layer of Vaseline to the side of the specimen.

5. Put the specimen on the bearing plate of the instrument, and turn the handwheel to make it just contact with the upper pressure plate. Adjust the load ring reading to zero.

6. Turn the handwheel (about 0.06-0.12mm/min) with a strain of 1-3% to complete the test within 8-20 minutes.

7. Before the strain reaches 3%, read the dial indicator readings every 0.5% strain. After the strain reaches 3%, read the dial indicator readings every 1% strain.

8. When the reading reaches the peak value or stabilizes, continue to increase the strain value by 3~5% to stop the test. If the reading has no stable value, the test can be stopped when the axial strain reaches 20%.

9. After the test, quickly reverse the handwheel to remove the sample and describe the damage.

V. Operation

1. Place the undisturbed soil on the table according to the natural level, and cut it into a soil column slightly larger than the diameter and height of the sample with a soil cutter or wire saw. Put it into the upper and lower plates of the soil cutting plate, and use a wire saw or a soil cutter to carefully cut to the required diameter and the specified height from top to bottom along the side plates. Both ends should be flattened and perpendicular to the sides. The top and bottom are evenly distributed, and then immediately weigh the sample, Take the cut soil to measure its moisture content.

2. Apply a thin layer of Vaseline to both ends and sides of the sample, place it in the center of the bearing plate, and turn the handwheel to make the sample just touch the upper pressure plate. Adjust the dial gauge to zero. Then, make the motor lifting the bearing plate by a speed of 2.4mm per minute until the soil sample is damaged. At this time, the dial gauge can be read to calculate the axial stress.

3. If the pointer of the dial indicator in the load ring continues to advance while the test is in progress, the soil is a plastic flow failure. The test shall be carried out until the total strain of the sample is more than 20%, and the stress at 20% strain is the unconfined compressive strength.

4. After the test, pull out the handwheel and turn it clockwise to quickly lower the bearing plate to the position before the test. Remove the sample.

VI. Maintenance and Matters Need Attention

1. After use, the instrument should be wiped clean and coated with a thin layer of grease to prevent rust.

2. The load ring is attached with Stress -Strain curve table, and it should be checked regularly (one year).

3. Dial indicator for measuring displacement: 0-10mm/0.01mm

4. Specifications: load ring gauge: 10mm, 0.01mm, axial displacement gauge.

VII. Packing List

No.	Item	Qty.
1	The strain controlled unconfined compression apparatus	1 pc
2	Load ring	1 pc
3	Dial indicator(0-10mm)	1 set
4	Dial indicator stand	1 set
4	Manual	1 pc
5	Certificate of Quality	1 pc

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