



Laboratory equipment co.,limited

## Light-duty Consolidation Test Apparatus WG-4

# PRODUCT MANUAL



### **C-TECH LABORATORY EQUIPMENT CO., LTD**

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## I. Apparatus application

This apparatus is used for compression test of the soil, to test the relationship between deformation and compression of the soil or the relationship between pore ratio and pressure as well as the relationship between deformation and time so as to calculate the unit settlement, compression index, resilience index, compression modulus and consolidation coefficient of the soil etc.

## II. Main structure

Specimen area including 30cm<sup>2</sup> and 50cm<sup>2</sup>, height is 2cm, incremental loading is from 12.5KPa to 400KPa, so supplement thirteen test weights, the test weights is first level loading (it is 12.5KPa when 30cm<sup>2</sup>), Lever ratio is 1:20 and accompanied by a balance mechanism, it can adjust the lever to keep level when soil specimen going down since compressed, to ensure the accuracy of each level load.

**Apparatus characteristic:** Light duty, suitable to project site, net weight is 11kg and accompanied with apparatus box, and a set of test weight, total is 10.2kg.

### Technical specification

Loading sequence	12.5KPa 25KPa 50KPa 100 KPa 200 KPa 300 KPa 400 KPa
Lever ratio	1:12 1:10
Sample size	30cm <sup>2</sup> ×2cm 50cm <sup>2</sup> ×2cm
Apparatus dimension	550mm×220mm×370mm(length*width*height)
Apparatus weight	20kg (excluding weight)

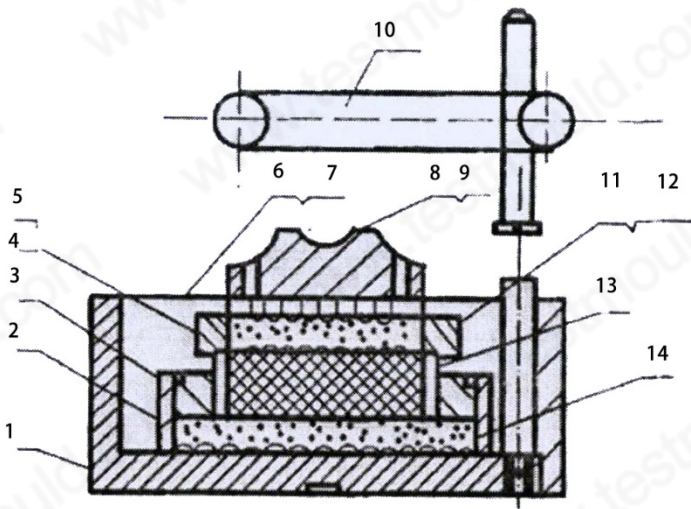


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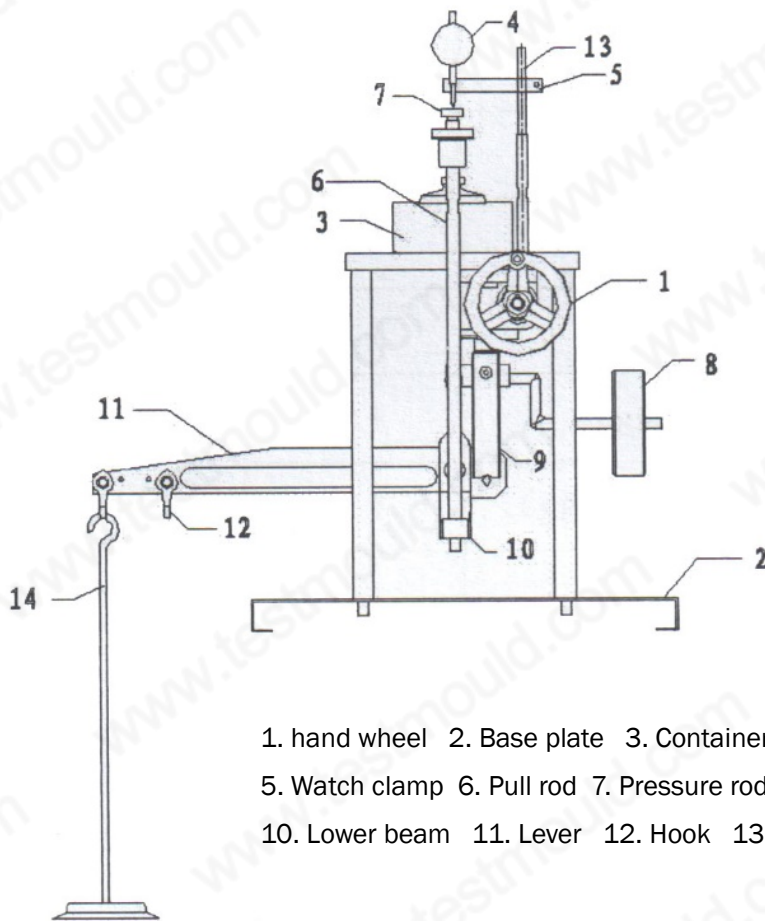
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- |                         |                         |
|-------------------------|-------------------------|
| 1. Container            | 2. Big retaining ring   |
| 3. Small retaining ring | 4. Small cutting ring   |
| 5. Big cutting ring     | 6. Small porous stone   |
| 7. Big porous stone     | 8. Small pressure plate |
| 9. Big pressure plate   | 10. Watch clamp         |
| 11. Small guide ring    | 12. Big guide ring      |
| 13. Soil specimen       | 14. Porous stone        |



- |                |                       |                 |                                  |
|----------------|-----------------------|-----------------|----------------------------------|
| 1. hand wheel  | 2. Base plate         | 3. Container    | 4. Dial indicator(self-provided) |
| 5. Watch clamp | 6. Pull rod           | 7. Pressure rod | 8. Counterweight                 |
| 9. Lifting rod | 10. Lower beam        | 11. Lever       | 12. Hook                         |
| 13. Watch rod  | 14. Test weight plate |                 |                                  |



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### III. Operation and maintenance

Adjust the regulating screw on base plate, to make the circular level bubble at middle, put the base plate at a horizontal place, the lever placed at the middle of crane to avoid rubbing.

Prepare soil samples according to the test requirements. Put the retaining ring on the porous stone in the container, and then put the porous stone on top. Place the pressure transfer plate in the center of the pressure frame, and then install the dial indicator.

Rotate the handwheel clockwise to raise the lifting rod to the apex. Turn the handwheel clockwise to raise the lifting rod to the apex, and then turn it counterclockwise for 1-2 circles. Then align the pressure head with the pressure plate and adjust the screw at the upper end of the beam so that the container part can be freely taken and placed when the frame is upward. User can add 1KPa preloading load firstly according to the geotechnical operation procedures (30cm<sup>2</sup> sample use a small weight of 25.5g). Adjust the scale to make the pointer reading is 0, then add load gradually according to the procedure (Remove the preload weight before loading).

After loading, observe the sinking of the lever or turn the handwheel counterclockwise as needed, adjust the lifting lever to maintain the balance of the lever (The height can be adjusted appropriately before loading the next stage to reduce the lever tilt angle). At this time, it is generally not necessary to turn the handwheel in a clockwise direction, to prevent gaps from vibrating the soil sample.


The apparatus should be cleaned up after each usage, the surface should be smeared with grease to avoid corrosion.


#### NOTE:


1. The weight plate has been used as the primary load, so please do not hang it up when the instrument is adjusted.
2. Use the 1:12 hook to load the 30cm<sup>2</sup> soil sample.
3. Use the 1:10 hook to load the 50cm<sup>2</sup> soil sample.



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30cm<sup>2</sup> soil specimen pressing process


Loading sequence	Test weight (KG)			Bearing pressure of soil specimen KPa
	Mass	Qty.	Total mass	
1	Weight plate	1	0.319	12.5
2	0.319	1	0.638	25
3	0.637	1	1.275	50
4	1.275	1	2.55	100
5	2.55	1	5.1	200
6	2.55	2	7.65	300
7	2.55	1	10.2	400


50cm<sup>2</sup> soil specimen pressing process

Loading sequence	Test weight (KG)			Bearing pressure of soil specimen KPa
	Mass	Qty.	Total mass	
1	Weight plate	1	0.319	
2	0.319	1	0.638	12.5
3	0.637	1	1.275	25
4	1.275	1	2.55	50
5	1.275	2	5.10	100
6	2.55	2	10.2	200
7	2.55	2	15.3	300
8	2.55	2	20.4	400

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### Packing List

Number	Name	Quantity	Remarks
1	Pre-load test weight(25.5g)	1piece	
2	Pre-load test weight(51g)	1piece	
3	Test weight(2.55kg)	6piece	
4	Test weight(1.275kg)	3piece	
5	Test weight(0.637kg)	1piece	
6	Test weight(0.319kg)	1piece	
7	Weight plate(0.319kg)	1piece	
8	30cm <sup>2</sup> soil specimen	1piece	
9	Container parts(including below parts)	1set	
	Big and small pressure plates	Each 1 piece	
	Big and small guide rings	Each 1 piece	
	Big and small cutting rings	Each 1 piece	
	Big and small retaining rings	Each 1 piece	
	Porous stones (φ83, φ79.8, φ61.8)	Each 1 piece	
	Watch rod and clamp	1 piece	
15	Instruction manual	1 piece	
16	Qualification	1 piece	



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