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# **Tablet Hardness Tester YD-3**

**User's Manual**

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## Introduction

Thank you for purchasing the product YD-3 Tablet hardness tester designed and manufactured by LORDERAN.

Please read user's manual carefully before using the product. It will help you operate it properly and efficiently.

## Product Registration

Prior to use the product, please fill up the user's registration card and mail to us, in order to get our service in future.

## Technical Service

Pls. contact our marketing department for any service during warranty. Be sure that you have sent back the user's registration card.

If you have any problems, Pls. Try to find answers in user's manual first, or you can call our marketing department.

## Proper Operation

Make sure you have read this manual carefully before installing/operating the instrument. For any concerns pls. Contact us.

- Transport with care. Any incline, convert, and hit are prohibited.
- Check and protect all safety related labels.
- It is prohibited to use any damaged product and power cord.
- Turn off the power before maintenance, or moving.

## Contact Us

### **Shanghai Lorderan Scientific Instrument Co., Ltd**

Office: Room 1508, No. 32, Lane 3128 Middle Chengliu Road, Shanghai

Factory Add: No.16 Zhangye Road, Fengxian District, Shanghai

Tel: 86-21-51268189, 61732073 Fax: 86-21-61732073 (P.C 201822)

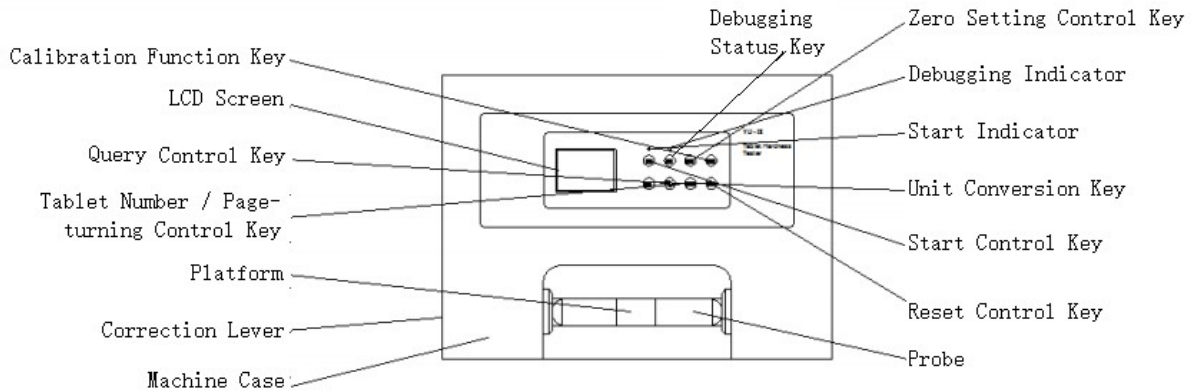
[http: //www.lorderan.com/](http://www.lorderan.com/)

## Introduction

### Brief introduction

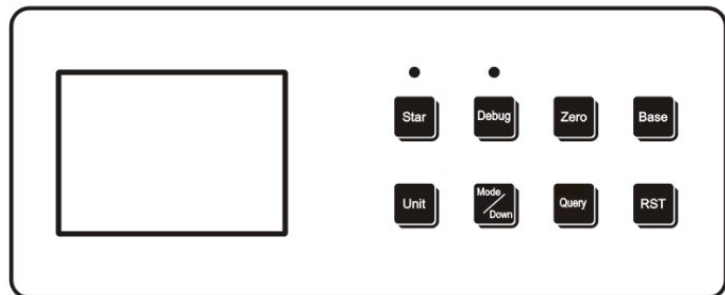
YD-3 Tablet hardness tester consist of main box, control system, sensor, transmission part, probe part, printer etc. and centrally controlled by precision auto-control system consisted by MPU. It has features of high-auto-operation, simplified control, and convenience for operation, high accuracy, high sensitivity, concision style, low noise.

YD-3 Tablet hardness tester consist of bottom, main box, front panel, rear panel etc.



Front panel include:

- LCD Screen
- Unit Conversion Key
- Tablet Number / Page-turning Control Key
- Debugging Status Key
- Debugging Indicator
- Start Indicator
- Start Control Key
- Query Control Key
- Zero Setting Control Key
- Calibration Function Key
- Reset Control Key
- Product Name
- Manufacturer



Rear panel includes:

- Power on switch
- AC socket(fuse jack included)

## Function description

### ● LCD Screen

YD-3 Model Tablet Hardness Tester's display module, high-resolution LCD screen is chosen according to the demands of large amount of information and high intelligence. Therefore, the user may enjoy the intelligent operation as per screen prompts. Also, prompts in Chinese characters and quantitative indicators are given for each operation process.

### ● Debugging Status Key

Debugging Status Key is a function key to start the non-measurement status. Only by entering this status can we achieve the zero setting and benchmark calibration of the instrument.

### ● Debugging Indicator

Debugging Indicator is an indicator displaying the system's working status. When the indicator is on, it indicates that the system is in the setting status. In this status, zero setting and calibration work can be performed. Besides, there is no peak lock function in this status. When the indicator is off, it is in the status of normal hardness test.

### ● Tablet Number / Page-turning Control Key

When you press the Model / Down Key, you may cycle the option system and choose the single-tablet mode or the group multiple-tablet test mode.

Single-tablet test mode: 1 tablet is tested every time; group multiple-tablet test mode: there are 10 methods, including 10, 20, 30, 40, 50, 60, 70, 80, 90 and 100; a certain number of tablets will be measured for each group, and data statistics and data processing are carried out for each group of the test data.

In the query status, this key is used as a page-turning key for querying the test data of several trials, and the page-turning function can be recycled.

### ● Start Indicator

Start Indicator  $\odot$  is the indicator displaying the system's working mode. There are start and stop modes. When Start Indicator is on, it indicates that the system is in the test mode. When Start Indicator is off, it indicates that the system is in the stop mode.

### ● Start Control Key

Start Control Key is a function key of testing status for the control system. Press Start key, and you can start the system and start the system; repress Start key, you can stop the test.

### ● Query Control Key

Query/Print Control Key is a function key for the control system to query the previous test data or print data. When pressing Query Control Key after completing the test, you may query the previous experimental data. If you want to print, press Query Control Key again to print the experimental data.

- Unit Conversion Key

Hardness Unit Conversion Key is to achieve the conversion of hardness measurement unit in Newtons (N) and kilograms (KG). This function can be used before and after measurement.

- Reset Control Key

When Reset Control Key resets, it is a function key of testing status for the control system. Press Reset\_key, you may stop the test and return to the original state.

- Zero Setting Key

Zero Setting Key: When the instrument is not tested and the hardness value is not zero, press this key, then the screen resets and displays 0000. This function should be used in the calibration status.

- Calibration Function Key

Calibration Function Key is to calibrate the instrument's benchmark parameters. This function should be used in the calibration status.

- Power on switch

Power on switch is main power switch, in on position, tester is in stand by status, OFF position, tester stop working.

*Before connecting to AC power, please ensure it's in OFF position!*

- AC socket

Ac socket is connected to the power supply with power cord offered in this tester.

Fuse is under the ac socket, attached one 1A fuse and backup one is offered. This is to prevent damage to this tester in suddenness case happened.

*Please make sure ac power supply is connected properly!*

*When change fuse, make sure same spec part is used for tester safety!*

- Control system

Control system is composed of transformer, control board, display board. It controls other part of the instrument in working step.

- Sensor unit consist

Sensor unit consist of precision pressure sensor. It changes pressure into electronic signal.

- Composed

Composed of motor and transmission set, transmission unit is used to add pressure on tablet.

## ● Probe unit consist

Probe unit consist of probe and plate etc. Probe is connected to transmission unit. Plate is connected to sensor unit and used to place tablet. Special attention must be paid on the pressure added on the probe and plate. The pressure must be less than 20KG.

### Specifications

Test range	2-199.9 N
Resolution	0.1 N or 0.01 kg
Hardness accuracy	±0.5% (Max. Range)
Probe procession range	2-40 mm
Diameter of tablet can be tested	2-40 mm
Diameter display resolution	0.1 mm
Test Time	≧20 Seconds/Tablet
Max. Number of Test Tablets in Each Group	100 Tablets
Continuous Operating Time	More Than 24 Hours
Power	220V/ 50Hz, 110V/ 60Hz, 60 W
Dimension	400x240x160 mm
Weight	8 kg

### Environment requirement

Usage temperature	+18°C ~ +28°C
Store temperature	-10°C ~ +50 °C
Humidity	20% ~ 80 % RH

### Installation

#### Checking

Open the package and take out manual, tester, and accessories. Check items according to packing list. If any mismatch/damage happened, please contact marketing department immediately.

#### Tester settle

Tester must be placed on stable work station/ table and put damping pad between table and tester.

Clean tester periodically to assure the instrument in normal operation.

#### Connect to the power supply

Connect the socket & AC power supply source with attached power cord.

### Calibration

#### Zero Setting of Hardness

Firstly, the user shall start the instrument and preheat. If Hardness LCD Screen does not display 0000, the instrument should enter the debug status. When the debugging function light is on, press the zero setting key, so that Hardness LCD Screen displays 0000. Press the Calibration Function Key again to exit the debugging status.

## Hardness Correction

- ① The user shall install Weight Hook on the Correction Lever on the left side of the instrument.
- ② Hold the instrument by hand and set it vertically, so that the left side is placed down on a flat soft table and Weight Hook is exposed outside the table.
- ③ Start up, press the Debugging Status Key, and make the instrument enter the debugging status; press the Zero Setting Key and set the hardness value to be 000.0N (00.00KG).
- ④ Hang 5KG standard weight on Weight Hook, and the hardness value should be 049.0N ( $\pm 0.5N$ ). Be careful to operate it and do not collide it with force.
- ⑤ If the displayed value is incorrect, press Calibration Function Key, and set the hardness value to 049.0N ( $\pm 0.5N$ )
- ⑥ Remove 5KG standard weight, press the Zero Setting Key, and set the hardness value to 000.0N.
- ⑦ Repeat steps ⑤~⑥ until the value reaches 000.0N in unloading and reaches 049.0N in loading.
- ⑧ Place the instrument on the table horizontally, press Debugging Status Key, and exit the debugging status until the hardness correction is completed.

**PS:** After the calibration, if the display is “--- N”, press Debugging Status Key AGAIN, and press Zero Setting Key, then press Debugging Status Key.

## Operation

### Power on

Turn the power switch to ON position, the indicator light, initialize the tester for 10 minutes, then it's readiness.

### Mode preset

The system is in initialize status after turn on the instrument. The default mode is single test mode, that is only test one tablet each time.

If you want to change the default mode, press the MODE button and the mode changes into multi-group test mode, that is test 10 tablets in every testing time. Press the MODE button repetitively, the mode can be in turn changed into 1, 10, 20, 30, 40, 50, 60, 70, 80, 90, 100 per test group mode.

### Test

First, place the tablet between the probe and the test plate. Press the START button and the probe move left automatically. The tester begin to test the diameter of the tablet and add pressure onto the tablet while the displayed value come to increased. When the tested tablet is shattered, the displayed value is turned to maximums and locked by the system. The beep sound means the



first test is completed and at this time the displayed value is the hardness of the tested tablet.

If multi-group test mode is selected, the instrument begin secondary test automatically. The probe changes direction automatically and move right about 10mm. Then the probe changes direction and move left to begin the secondary test. In this process, clean the shattered tablet with the attached brush and place the second tablet on the test plate.

In multi-group test mode, the displayed amount of the tested tablet decreased after each test. The displayed amount is the remainder of this tested group.

## Power off

Turn power switch to OFF position, the indicator is off, tester stop working.

## Demonstration

- ① Power on and preheat the tester.
- ② Zero adjustment.
- ③ Preset the mode.
- ④ Place the tablet on the test plate, begin testing and read the hardness.
- ⑤ Clean the shattered tablet.  
Please repeat step ④ when in multi-group test mode.
- ⑥ Print out test result after multi-group test.
- ⑦ Same with above portion repeat 2-4 steps.  
Clear test, please press reset button.
- ⑧ Turn off the tester after test completed.

## Maintenance

Must clean box and parts periodically, do not use steel brush, it result in damage to the tester. After each test, pls. Clean up probe unit and transmitter unit and make sure it is clean enough to avoid damage to the tester.

## Troubleshooting

- Can not power on  
Check whether the voltage is OK and fuse is OK. Please refer to the rating marked in nameplate while installation.

If the tester does not work after checking above items, please don't repair it by yourself, contact our market department please.

- Printer paper and ribbon cartridge for Hardness Tester YD-2 & YD-3

Please check the video below for how to change the printer paper,  
<https://www.facebook.com/lorderanINC/videos/142208953295458>

57 × 30mm



**Thermal Printer Paper**



**Printer Ribbon**

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Packing list

The YD-3 Tablet hardness tester include following items typically:

- Tester.....1
- Power cord.....1
- brush .....1
- box .....1
- hook.....1
- User's manual .....1
- Product quality guarantee .....1
- User registration card.....1

## Product quality guarantee

- This quality guarantee covers the scope of YD-3 Tablet hardness tester.
- Start from purchasing date; Warranty period is one year.
- This quality guarantee is effective from receiving registration card filled by users.
- During warranty, we offer free charge service for troubleshooting in normal cases, but for any cases caused by flood, fire, earthquake, or other calamity, is excepted.
- During warranty, in one of the following cases, we will charge for material/service:
  - No product quality guarantee, mismatch with this guaranty or wrong record/remark.
  - Damages caused by unusual working environment.
  - Damages caused by disassembly, install, extend, move or modify without our permission.
  - Damages caused by repairing without our permission.
- Keep this guarantee in proper place and any other issue is provided.
- The guarantee is only applicable in Chinese mainland.

## Using Instruction

- Proper operation & maintenance will prolong the working time of the instrument. Please follow the manual's instruction carefully.
- When the power supply is unstable, pls. Use AV regulator. Pay special attentions to the information related to power supply, temperature, humidity in the manual.
- Always keep the instrument cleaning. Disassembly/move any parts of the tester is prohibited.
- In case of trouble present, pls. Stop using, call us or dealer for help.

## Registration card

User Name \_\_\_\_\_  
User Address \_\_\_\_\_  
Post Code \_\_\_\_\_ Email \_\_\_\_\_  
Tel. \_\_\_\_\_ Fax \_\_\_\_\_  
Product Name \_\_\_\_\_  
Product Model \_\_\_\_\_ Product No. \_\_\_\_\_

Seal of the User