Labnics

TABLET HARDNESS TESTER

NTHT-100

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1. Safety Measures

- 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 or power cord.
- Turn off the power before maintenance or moving.

2. Introduction

Tablet Hardness Tester NTHT-100 offers a standard test range of 2 to 200 N for precise and accurate measurements. It provides both manual single-tablet and automatic continuous testing modes for versatility. Our unit includes an automatic cycle test function that conducts multiple tests consecutively for improved efficiency. It is equipped with an LCD that provides high-resolution visuals for clear data presentation.

3. Features

- Automatic linear error correction
- Self-diagnosing fault detection
- High-precision pressure sensor
- Automatic lock and reset options
- Unit Conversion function

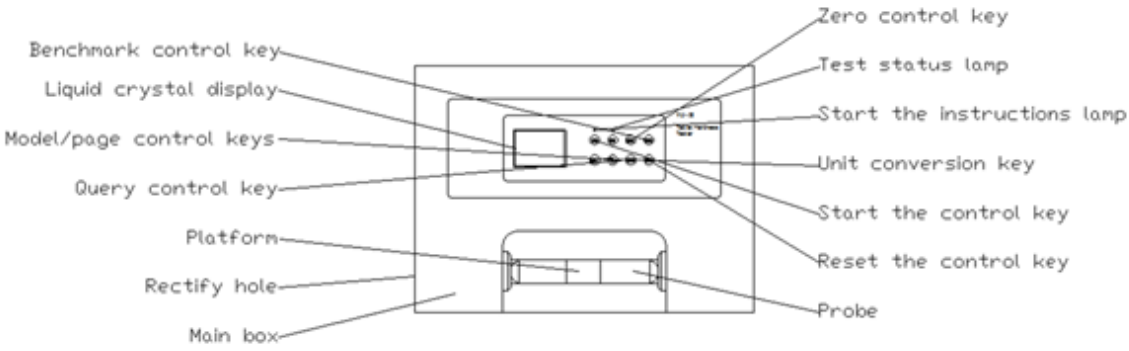
4. Specifications

Model	NTHT-100
Test Range	2 to 200 N/500N (0.2 to 20 kg) Customize: 2 to 500 N (0.2 to 50 kg)
Resolution	0.1N (0.01kg)
Accuracy	± 0.5%
Probe Procession Range	2 to 40 mm
Power Consumption	40 W
Power Supply	AC110/220V±10%, 50/60Hz
Dimensions (W × D × H)	400 × 240 × 140 mm
Packaging Dimensions (W × D × H)	500 × 350 × 250 mm
Weight	10 kg

5. Applications

Tablet Hardness Tester is used to measure the mechanical strength of tablets. It is employed in pharmaceutical laboratories, quality control departments, and manufacturing facilities.

6. Instrument Introduction



Front Panel Includes:

1. Liquid crystal display
2. Benchmark Control key
3. Model/page control keys
4. Query control key
5. Platform
6. Rectify hole
7. Main box
8. Zero control key
9. Test status lamp
10. Start the instructions lamp
11. Unit conversion key
12. Start the control key
13. Reset the Control Key
14. Probe

Rear panel includes:

1. Power on switch
2. AC socket (fuse jack included)

6.1 Function Description

1. **Liquid crystal display**
   Tablet hardness tester NHTH-100 display module design, starting from the need for a large amount of information and high intelligence matching the high-resolution LCD screen, the user can according to the screen prompt enjoy intelligent operation, each process characters suggest, and quantitative indicators are given.
2. **Test control key**
   The "Test Status" button initiates the measurement condition for the function keys, allowing the instrument to enter a state where it can perform zeroing and calibration against a benchmark.
3. **Test Status Lamp**
   Test indicator light to show the system working status indicator light. The set-up of the calibration indicator said systems, can be in this state under zero, and calibration work has no peak locking function in this state. When the calibration indicator lights out, it goes into the normal test state hardness value.

4. **Model/page Control keys.**
   The number of keys can be used to select between a single-chip test mode or a group test mode.
   In single-chip test mode, one tablet is measured at a time.
   In group test mode, measurements are performed in sets of 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100 tablets—providing 10 different options. For each group, the corresponding number of tablets is measured, and the numerical data is processed and analysed for that specific group.
   In query mode, the keys can be used to navigate through previous test results, with the ability to review multiple experiments and utilize the recycling page function for efficient data retrieval.
5. **Start the instructions lamp**
   Start the indicator lamp ◎, indicator light to show the system work mode. Total of start, stop two kinds of patterns. Start the indicator, the system described in test mode; Start the lamp out, and the said system is in stop mode.
6. **Start the control key**
   Start for the status of the control system test function keys. Press the start key, which can start the system to test work; Then press the start key, which can stop the testing work.
7. **Query Control Key**
   Query control keys for control system query to the data of test data or printing function keys. After completion of the test according to the query key, can query to the previous experimental data.
8. **Unit conversion key**
   Hardness value, unit conversion key units of the hardness value measurement Newton (N), and conversion of kilograms (KG). This function can be used before and after measurement.
9. **Zero Control Key**
   The "Zero" function key is used to reset the instrument when no test has been performed. If a non-zero hardness value is displayed before testing, pressing this button will reset the display to "0000". This function should only be used when the instrument is in calibration mode.
10. **Benchmark control key**
    The "Benchmark" function key is used to calibrate the instrument's parameters against a reference standard. This function should only be used when the instrument is in calibration mode.
11. **Power on switch**
    The power on switch is the main power switch, in the on position, the tester is in stand-by status, OFF position, the tester stops working.
    Before connecting to AC power, kindly ensure it's in the off position
12. **AC Socket**
    AC socket is connected to the power supply with the power cord offered in this tester.
    The fuse is under the AC socket, attached is one 1A fuse and a backup one is offered. This is to prevent damage to this tester in sudden cases that happened
    Kindly make sure the AC power supply is connected properly !
    When changing the fuse, make sure the same spec part is used for tester safety.

13. **Control system**
    The control system is composed of a transformer, control board, and display board. It controls the other part of the instrument in the working step.
14. **Sensor unit consist**
    The sensor unit consists of the precision pressure sensor. It changes pressure into an electronic signal.
    Composed of a motor and transmission set, the transmission unit is used to add pressure to the tablet.
15. **Probe unit consist**
    The probe unit consists of a probe plate etc. The probe is connected to the transmission unit. The plate is connected to the sensor unit and used to place the tablet. Special attention must be paid to the pressure added to the probe and plate. The pressure must be less than 20 kg.

7. Installation

7.1 Environment requirement

Usage temperature	＋18℃~＋28℃
Store temperature	－10℃~＋50℃
Humidity	20%~80%

7.2 Power Supply

Range of input power supply:220V±10%VAC 50Hz
Max input power:40W

7.3 Checking

Open the package and take out the manual, tester, and accessories. Check items according to the packing list.
Clean the tester periodically to ensure the instrument is in normal operation.

7.4 Connect to Power Supply

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

7.5 Offset adjustment

7.5.1 Hardness zeroed

Turn on the instrument. After 20 minutes preheat and adjust the zero-regulator while the hardness is displayed as 00.00. Rotate the regulator clockwise, the displayed value is increased, otherwise, the value is decreased.

7.5.2 Hardness Value is rectified

1) Tear the circular grey membrane on the rear board and show the hardness value rectify-regulator.
2) Install a weight hook to the rectified hole in the machine's left side.
3) Set up the tester that was left on the table, supporting it with your hands, and ensure the weight hook is positioned outside the table.
4) Power on the tester and adjust the zero-regulator on the rear panel to make the hardness displayed at 000.0N.
5) Load standard weights 5KG on the hook and it must display49N (±0.5N). Kindly Don't overload.
6) If the display is wrong, adjust the rectify- regulator to make the hardness displayed 049.0N (±0.5N).
7) Remove the 5KG weights and adjust the zero-regulator to make the hardness displayed at 000.0N.
8) Repeat steps⑥—⑦until the hardness displayed 000.0N when unload and 049.0N.
9) unload the weight hook and paste the circular grey membrane on the rectify-regulator.

8. Operations

8.1 Power on

Turn the power switch to the ON position, the indicator light, initialize the tester for 10 minutes, and then its readiness.

8.2 Mode Preset

- The system is in initial status after turning on the instrument. The default mode is a single test mode, that only tests 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 at every testing time. Press the MODE button repetitively, and the mode can be changed into 1、10、20,30,40,50,60,70,80,90,100 per test group mode.

8.3 Test

- First, place the tablet between the probe and the test plate. Press the **START** button and the probe moves left automatically. The tester begins to test the diameter of the tablet and adds pressure onto the tablet while the displayed value comes to increases. 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 currently the displayed value is the hardness of the tested tablet.
- If the multi-group test mode is selected, the instrument begins the secondary test automatically. The probe changes direction automatically and moves right about 10mm. Then the probe changes direction and moves 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.

8.4 Power Off

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

8.5 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. Kindly repeat step ④ when in multi-group test mode.
6) Print out test results after the multi-group test.
7) Same with the above portion repeat 2-4 steps. Clear test, kindly press the reset button.
8) Turn off the tester after the test is completed.

9. Maintenance

- Periodic cleaning of the box and components is required.
- Do not use a steel brush, as it may damage the tester.
- After each test, kindly clean the probe unit and transmitter unit thoroughly to ensure they remain in good condition and to avoid any potential damage to the tester."

10. Troubleshooting

Issue	Solution
Cannot power on	• Check if the voltage is within the specified range. • Inspect the fuse to ensure it's intact and functional.
If still does not work	If the tester does not power on after checking the above items, do not attempt repairs yourself.

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