FISON

Tablet Hardness Tester

FM-THT-A101

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1. Safety Measures

- Proper operation & maintenance will ensure instrument usage life, kindly follow user manual instructions.
- When the power supply is unstable, use an AV regulator, and pay attention to the power supply, temperature and humidity as mentioned in the manual.
- Always keep instruments clean. Disassembly/moving any part of the tester is prohibited.

Before installing/using this instrument, make sure you have read this manual carefully.

- Transport with care. Any mishandling of this product is prohibited
- Check and protect all safety-related labels.
- Do not use it if the tester or power cord is damaged.
- Turn off the power supply before maintenance or moving.

2. Introduction

Tablet Hardness Tester FM-THT-A101 tests the hardness of 3 to 40 mm dimeter tablets with the hardness checking range of 2 to 199.9 N. The unit has high accuracy press sensor and equipped with LED screen to display test data and other parameters. The tablet is loaded and pressed artificially for the testing, test can be reset and cycled. It also features auto-test, auto-diagnose and auto-alarm system. The unit detect and print hardness of each tablet, maximum value, minimal value, average value and the total number of tablets.

3. Features

- ✓ The tablet is loaded artificially and pressed automatically
- ✓ It has high accuracy press sensor
- ✓ LED screen to display hardness value and other parameters
- ✓ Maximum number in each group is 100 pieces
- ✓ Tests tablet hardness continuously
- ✓ The parameters can be preset at any time
- ✓ Test data is displayed and locked automatically, test can be reset and re-cycled
- ✓ Automation: auto-test, auto-diagnose and auto-alarm
- ✓ Time of testing will be saved by directly measuring the diameter
- ✓ It can detect and print such data as: hardness of each tablet, maximum and minimal value, average value and the total number of tablets

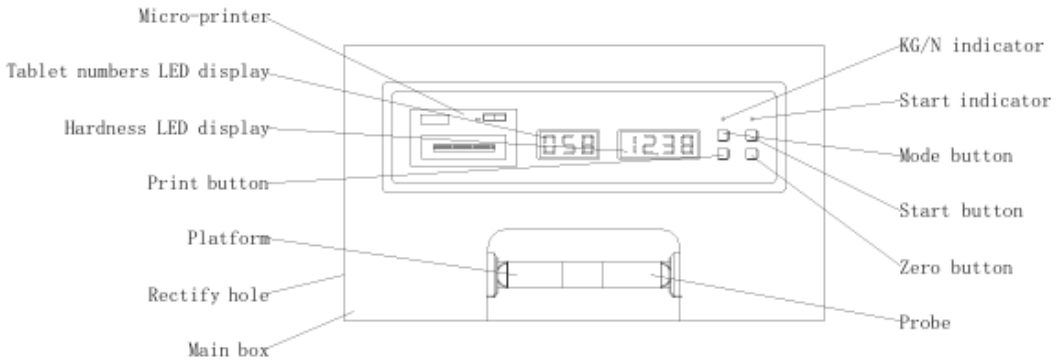
4. Specifications

Model No.	FM-THT-A101
Hardness range	2 to 199.9 N
Hardness accuracy	± 1.5 %
Probe procession range	3 to 40 mm
Max number in each group	100 pc
Test period	20 sec / pc
Safe testing force	0.2 to 50 kg
In-built printer	Yes
Power	60 W
Voltage	AC 220 V, 50 Hz or AC 110 V, 60 Hz
Dimension (W × D × H)	500 x 300 x 160 mm
Packaging dimension (W × D × H)	600 x 400 x 250 mm
Net weight	12 kg
Gross weight	15 kg

5. Applications

Used for detecting breaking hardness of tablet in the pharmaceutical, food, detergent, dairy, animal feed, pesticides and any other industries which requires compressed tablet.

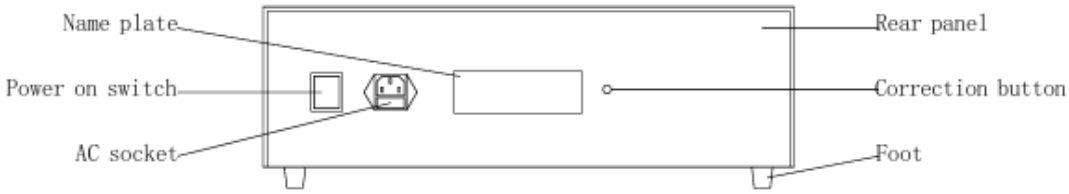
6. Instrument Introduction



The front panel includes:

- Micro-printer
- Table number LED display
- Hardness LED display
- KG/N indicator
- Mode button
- Start indicator
- Start button
- Print button
- Zero button
- Product

Manufacturing



Rear panel includes:

- Power on switch
- AC socket(fuse jack included)
- Correction button
- Name plate

- **Micro-printer**
  The micro printer is used for printing out test results and data processing results.
- **Table number LED display**
  3-digital LED display preset table quantity or actual remained quantity of each group. Unit is the piece.
- **Hardness LED display**
  4-digital LED displays the hardness value of the test, the unit is N.
- **KG/N indicator**
  KG/N lamp indicates hardness unit. The unit is KG as KG/N lamp on. The unit is N as the mode KG/N lamp is off.
- **Mode button**
  The mode control button is used to switch the system work mode. Press the mode button, will select the system on the single/multi-mode.
  Single test mode tests one tablet every time. Multi-group test mode contains 10 types of testing mode: it is 10.20.30… for each group, test the corresponding quantity of tablets and process the data.
- **Start indicator**
  The start lamp indicates the system's work mode. When it's on, indicates the system is in test mode or the system is on stop mode.
- **Start button**
  The start button is used to control the system's multifunction. Press the button first, system starts to test, repeat, When the motor is in the forward state, press the start button again to stop the test. Then the motor returns to the initial state and you can press the print button to print the tested pill data. In multi-chip mode, when the motor is in the return state, press the start button again to delete the most recent piece of test data.
- **Print button**
  The print button is used to control the printer's work status. Press the button, which enables the system to start printing.
- **Zero button**
  The zero button is used to control motor reset and system zero. When you press the Zero button, you can stop the test, etc. The motor returns to the initial position and the hardness display value is 000.0. Then you can press the Print button to print the tested data.
- **Power on switch**
  The power on switch is the main power switch. In the ON position, the tester is in standby status, OFF position, the tester stops working.
  Before connecting to AC power, kindly ensure it's in the OFF position!
- **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; we also attached one 3A fuse and 1 for backup.
  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
- **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.

- **Sensor unit consist**
  The sensor unit consists of the precision pressure sensor. It changes pressure into an electronic signal.
- **Composed**
  Composed of a motor and transmission set, the transmission unit is used to add pressure to a tablet.
- **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 200N.

7. Installation

7.1 Unpacking and Checking

Open the package and take out the manual, tester, and accessories. Check items according to the packing list.

7.2 Tester settles

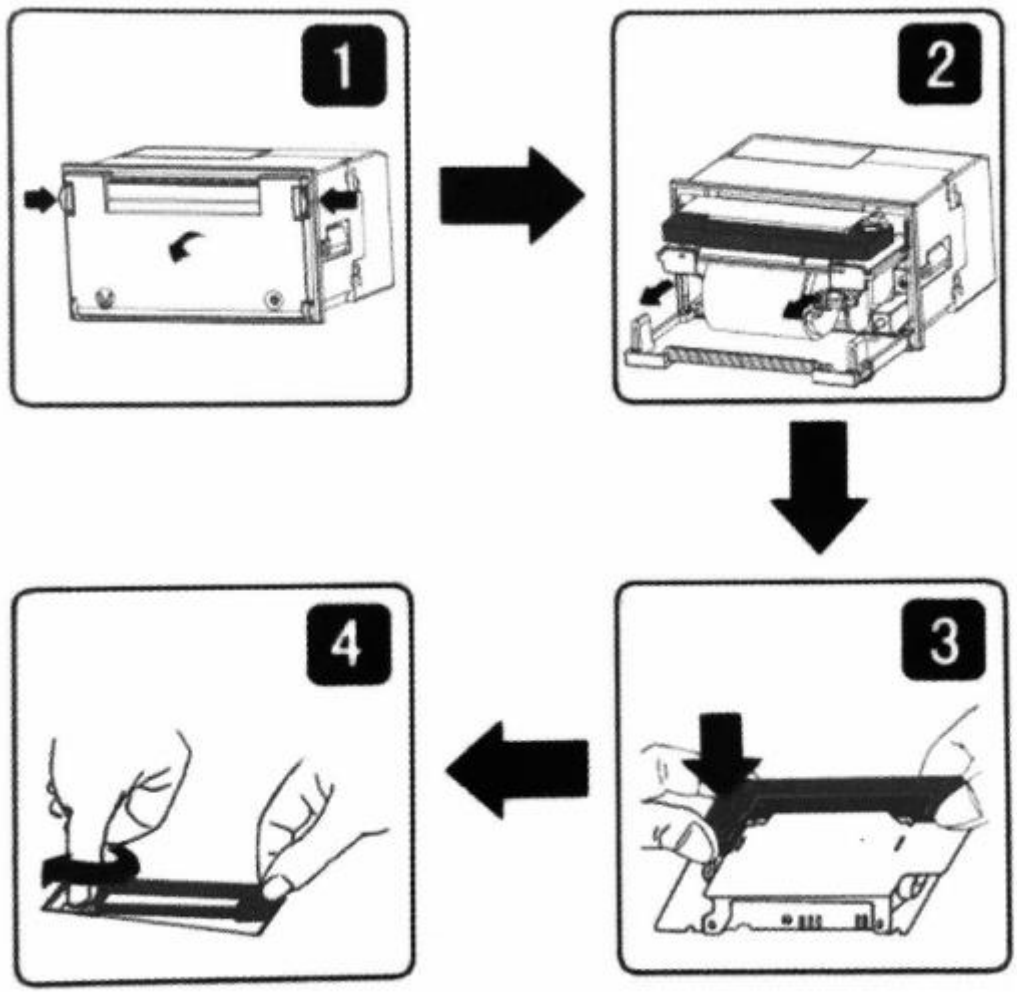
- The tester must be placed on a stable work station/ table and put damping or a rubber pad between the table and the tester.
- Clean the tester periodically to ensure the instrument is in normal operation.

7.3 Connect to the power supply

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

7.4 Install printer ribbon

Ribbon is installed before shipment. After a period of working, the ribbon must be changed to work well. Follow the procedures below:

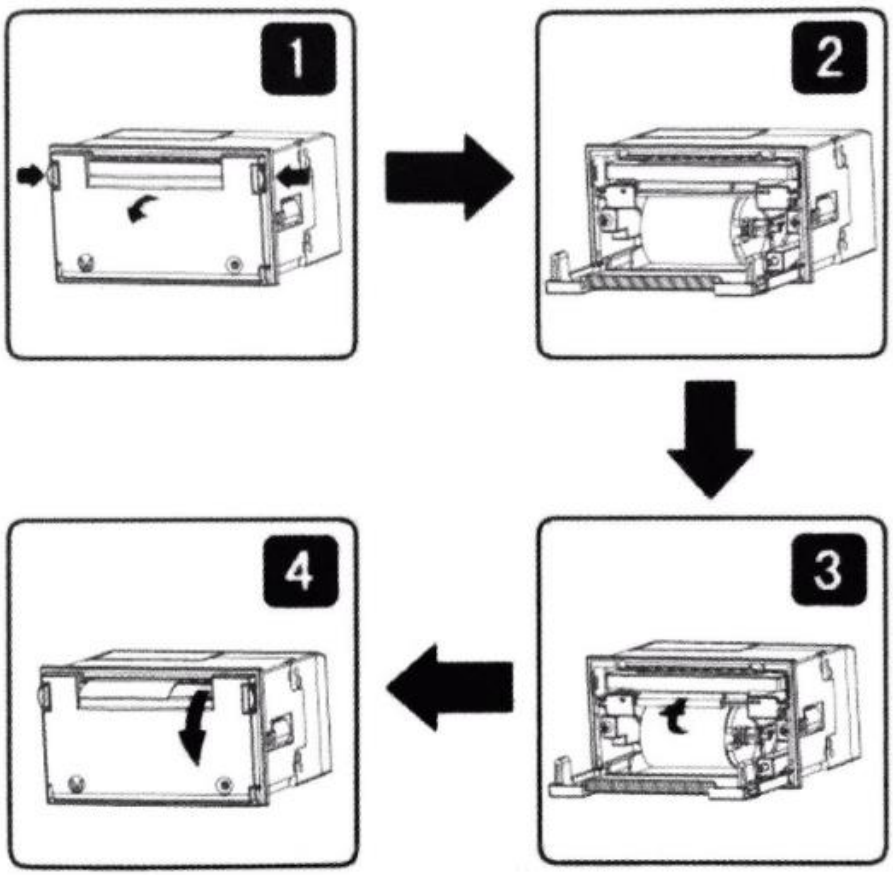


1) Open the paper cover and draw out the printer following the arrow as shown in Fig.2.

2) Take down the old ribbon cassette. Notice: lift the left end of the ribbon cassette. Then lift the right end, and then take down the ribbon cassette.
3) Installing a new one: put down gently the right end of the ribbon cassette on the gear wheel in the print head. Lift the left a little, don't put it down. If the right edge is not down to the bottom, rotate the knob of the ribbon cassette slightly in a clockwise direction as shown in the image, until the ribbon cassette is down to the bottom, then put down the left.
4) Push the printer back into the original position and close the printer cover.

7.5 Install printer's paper scroll

Paper is installed in the mini printer before shipment, but it's not in a working position. This is to prevent the head/ribbon from damaging during transport.



1) As Fig.1 shows, clamp the movable handles on both sides with your fingers, and open the panel.
2) Put the new paper on the paper roller, and install the roller firmly on the printer.
3) Power the printer on and put out a small amount of paper into the feeder. Then
4) press the LF button, make the print head run and the paper will come out. Turn off the printer.
5) Close the printer cover.

7.6 Offset adjustment

1) Hardness set to zero

Turn on the instrument. After 20 minutes of preheating, press the Zero button while the hardness is displayed as 000.0.

2) Hardness value is rectified

1. Tear the circular grey membrane on the rear board and show the hardness value correction button.
2. Install a weight hook to the rectified hole in the machine on the left side.
3. Erect the tester, left on the table, take support with your hands and make the weight hook outside the table.
4. On the tester, Press the Zero button to make the hardness display 000.0N.
5. Load standard weights 10KG on the hook and it must display 98.0N (±0.2N). Kindly Don't overload.
6. If the display is wrong, press the hardness value correction button, the hardness displayed is 98.0N (±0.2N).
7. Remove the 10 KG weights and the hardness should display 000.0N. If the display is not 000.0N, press the Zero button to make the hardness display 000.0N.
8. Repeat steps ⑤ – ⑦ until the hardness displays 000.0N when unloaded and 98.0N (±0.2N) when loaded.
9. Unload the weight hook and paste the circular grey membrane on the Rectify - regulator.

8. Operations

1) Power on

Turn the power switch to the ON position and the indicator light, initialize the tester for 20 minutes, then it is ready.

2) Mode preset

- The system is in initialize status after turning 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, then the mode can be in turn changed into 1、10、20、30、40、50、60、70、80、90、100 per test group mode.

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 an increase. When the tested tablet is shattered, the displayed value is turned to maximum 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 a multi-group test mode were selected, the instrument begins a secondary test automatically. The probe changes direction automatically and moves right about 10mm. During this process, if you are not satisfied with the results of this piece, you can press the start key to delete it. 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 decreases after each test. The displayed amount is the remainder of this tested group.

4) Print

- After each test, press the PRINT button and the micro printer will print out the test result and statistic result.
- In the process of a multi-group test, the micro-printer will print out the completed test result and statistic result automatically after pressing the PRINT button.

5) Power off

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

6) Demonstration

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

9. Maintenance

- Must clean box and parts periodically. Do not use a steel brush, it results in damage to the tester.
- After each test, clean the probe unit and transmitter unit and make sure it is properly cleaned for the next use.

10. Troubleshooting

Power is not ON

- Check whether the voltage is OK and the fuse is OK. Kindly refer to the rating marked in the nameplate while installation.
- If the tester does not work after checking the above items, kindly don't try to repair it by yourself.
- Our laboratory testing instruments are built to last with low maintenance require high accuracy, are easy to operate and most reliable testers in the industry.

11. Packing list

The Tablet Hardness Tester includes the following items typically:

S.no	Items Name	Quantity
1	Tester	1
2	AC Power cord	1
3	Brush	1
4	Hook	1
5	User's manual	1

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