

Metrix+™

Textile Hardness Tester

HT TEX 2P5

Scale diameter: 51mm
Working face radius: 55mm (when using the curved end of the probe)
Working face flat: 45mmΦ (when using the plane end of the probe)
Operating Temperature: 0~40°C
Humidity: <80%RH
Power Supply: 2x1.5V AAA (UM-4) Battery
Size: 177x65x45mm
Weight: 285g (not including batteries)
Standard Accessories:
Main Unit
Carrying Case
Operation Manual
Optional Accessories:
USB Data Cable with Software
Bluetooth Data Adapter with Software
* Meets requirement of Shore A
** Spring load of outer ring to create constant pressure when outer ring is pulled down to red marking

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1. APPLICATIONS

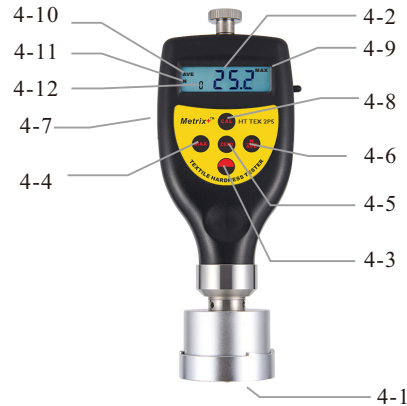
To measure the winding density (hardness) of textile bobbins, beams, spools, cones, dye packages etc.

For measuring the hardness, the spring loaded outer ring of the housing is pressed downwards until the edge of the ring meets the measured object on the housing. This ensures a constant pressure and prevents measuring error.

- * Convertible probe, the curved end of the probe is used for the bobbin with a diameter less than or equal to 400mm, and the flat end of the probe is suitable for the bobbin with a diameter greater than 400mm.
- * With average calculate, peak value deposit function.
- * Use USB data output to connect with PC.
- * Provide Bluetooth data output

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4. FRONT PANEL DESCRIPTIONS



- 4-1 Sensor
- 4-2 Display
- 4-3 Power key
- 4-4 Max hold key
- 4-5 Zero key
- 4-6 N/Average key
- 4-7 Data cable interface

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- choice.
- 2. PRINCIPLE**
The principle used to measure textile hardness is based on measuring the resistance force of the penetration of a ball against the spool under a known spring load. The measuring principle is the same as for the Shore A hardness test.
- 3. SPECIFICATIONS**
Parameters: Tested Result/ Mean Value/ Max. Value
Indenter:
HT TEX 2P5: Ball 2.5mmΦ

Convertible probe: The curved end of the probe is used for the bobbin with a diameter less than or equal to 400mm, and the plane end of the probe is suitable for the bobbin with a diameter greater than 400mm

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- 4-8 CAL key
- 4-9 Indicator of Max. Value
- 4-10 Indicator of Average value
- 4-11 State of average value
- 4-12 Number of measurements in the state of average value

5. MEASURING PROCEDURE

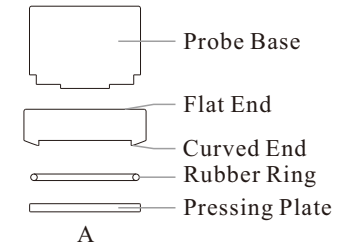
- 5.1 Test specimen**
The specimen may be textile bobbins, beams, spools, cones, dye packages etc. If the bobbin diameter is less than or equal to 400mm, use the curved end of the probe, and if the bobbin with a diameter greater than 400mm, use the flat end of the probe.
- 5.1.1 Probe disassemble and conversion**
Use a screwdriver to loosen the screw at the bottom of the probe, remove the pressing plate, rubber ring and probe conversion ring. To use the curved end of the probe,

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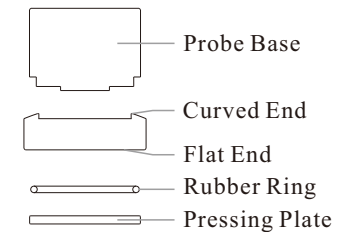
Area of application:
HT TEX 2P5: For closely wound bobbins of synthetic, finished fibers and filaments
Display range: 0~100H (hardness graduation marks)
Testing range: 10~90H (hardness graduation marks)
Accuracy: $\leq \pm 1H$
Resolution: 0.1H
Battery Indicator: Low Battery Indicator
Auto Switch Off: \checkmark
Depth of indentation*: 0~2.5mm
Test pressure**: Approx. 12.5N
Measuring spring force*: 0.55~8.065N

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install the probe in the order shown in Figure A, and screw in and tighten the bottom screw. To use the flat end of the probe, install the probe in the order shown in Figure B, and screw in and tighten the bottom screw.



A



B

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- 5.2 Depress and release the “Power key” to power the tester on.
- 5.3 Depress the “MAX” key till the mark MAX shows on the display.
- 5.4 Hold the durometer vertically with the point of the indenter at least 12 mm from any edge. Apply the presser foot to the specimen as rapidly as possible, without shock, keeping the foot parallel to the surface of the specimen. Apply just sufficient force to obtain firm contact between the presser foot and the specimen. Hold for 1 or 2 seconds, the maximum reading can be obtained automatically.
- 5.5 To take the next measurement, just depress the “Zero key” and repeat 4.4. On the other hand, you can depress the “Max hold key” till the mark MAX disappears from the display. And then repeat the step 4.3 and 4.4.

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Just place the indenter onto a flat glass, apply enough force to make firm contact between the glass and the presser foot. The readings on the display should lie between 99.5 and 101. If not, press “CAL key” to carry out high end calibration.

7. BATTERY REPLACEMENT

- 7.1 When the battery symbol appears on the display, it is time to replace the batteries.
- 7.2 Slide the Battery Cover away from the tester and remove the batteries.
- 7.3 Install batteries paying careful attention to polarity.

- 5.6 If other than a maximum reading is needed, no need to set the mark “MAX” showing on the display. In such case, the reading on the display is an instant value. Just hold the durometer in place without motion and obtain the reading after the required time interval (Normally less than 1 second) .
- 5.7 How to take average value
 - 5.7.1 To take the average value of many times of measurements, just depress and release the “N/AVE key” to make the symbol “N” showing on the display, followed by a digit between 1-9 with the prefix “No.” . Here the digit is the times of measurements used to calculate the average value. Every time depress and release the “N/AVE key”, the digit will increase 1. And the digit will become “1”

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- while depressing the “N/AVE key” at “9” .
- 5.7.2 Adjust the digit to the number needed and depress “MAX key” or “Zero key” to return to the measurement state or wait for several seconds till “0” on the display.
- 5.7.3 Take measurements as per steps from 5.3 to 5.5. Be sure that every test should be 6 mm apart. Every time take a measurement, the reading and the times of measurements show on the display. When the times of measurements is equal to the number set, the unit first displays the reading of the last , and then display the average value of last “N” measurements, followed by 2 beeps, with a symbol “AVE” indicating on the display.
- 5.7.4 To take the next average value, just

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- repeat 5.7.3.
- 5.7.5 To release from average measurement, just depress the “N/AVE” till “N” disappears.
6. CALIBRATION CHECK
 - To check whether the tester is accurate, just Insert the indenter into the hole of the calibrated test Block. Apply enough force to make firm contact between the top surface of the test block and the presser foot. The reading should agree with the value stamped on the test block. If not, just carry out Zero calibration and High end calibration.
 - 6.1 Zero calibration
 - Hold the durometer vertically with the point of the indenter hanging in the air, the reading on the display should be “0”. If not, depress the “Zero key” to make the tester display “0”.
 - 6.2 High end calibration

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