Huazheng®

HZMD-2001
Density Tester

Huazheng Electric Manufacturing (Baoding) Co., Ltd

Contents

I. Main Technical Parameters

Range of temperature measurement: room temperature ~100℃

Temperature Control Precision: ≤±0.1℃

Number of experimental cups: two holes

Power: ≤1000W

Supply Voltage: AC220V±20% 50HZ ±10%

Ambient Temperature: 0℃~40℃

Relative humidity: <85%

Contour Dimension: 440x350x550 (mm)

II. Structure of Appliance

III. Structure Of Control Panel

There are 6 whiteboard buttons on the instrument panel; buttons' function for different screens is different. Screen shows the function of the button.

IV. Display

1. Startup screen: switch on the machine, the screen display as shown below:

Press the whiteboard button under “Set” to enter the parameter settings screen;

Press the whiteboard button under “Time” to enter the system clock settings screen;

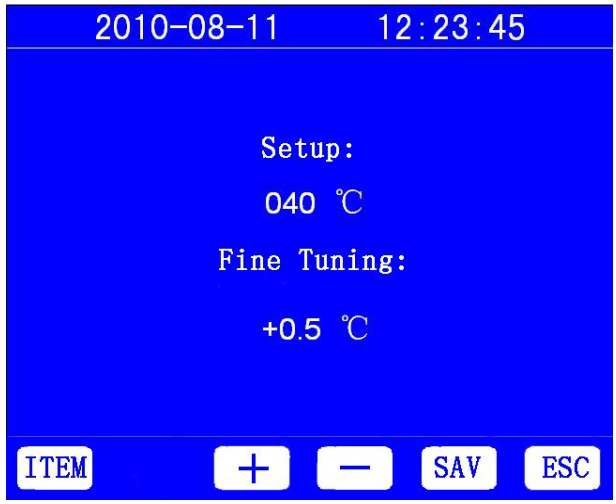
Press the whiteboard button under “Rec” to enter the testing record query screen;

Press the whiteboard button under “Run” to enter the motion viscosity-testing screen;

The bath temperature is set at 20 ℃ when the instrument leavess the factory; and the real-time bath temperature are displayed after the start-up and entering “Test”. If you want to modify the bath temperature, press the “Parameter” button to modify.

2. Parameter Setting：

Press the “Set” button in the “boot screen” to enter the parameter settings screen, as shown below:



Press the “Item” to select the parameters with the cursor, press the key Tab to select the value of a place of selected parameter, press the “Increase”, “Decrease” to modify the value of a place of selected parameter, Press key “Sav” to save the setting, press “Esc” to return to the boot screen.

Wherein: the configurable temperature range is from 0 to 150,

The fine-tuning temperature range is from -3.0 to +3.0

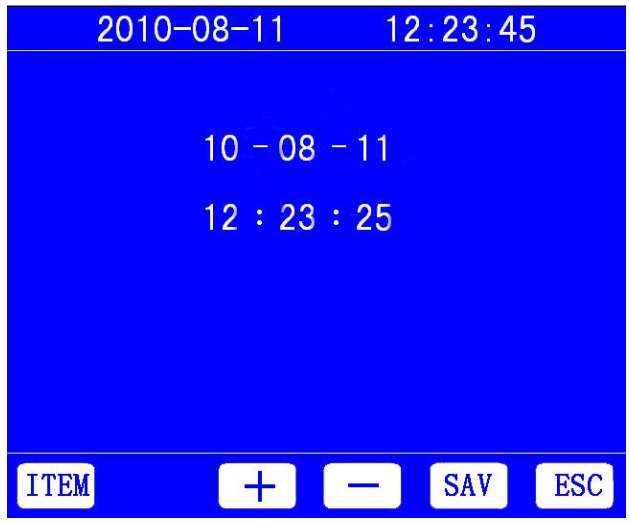
“Set temperature”: the bath temperature during the experiment.

“Fine-tuning temperature”: when the controlling temperature is stable, if the temperature shown on the screen has an error with the actual temperature, adjust here. Firstly, move the cursor to the fine-tuning data, if the actual temperature is lower than the temperature displayed on the screen, it should be plus fine-tuning, “+” is shown before fine-tuning temperature, while the fine-tuning value increases from zero, but the highest fine-tuning value does not exceed - 3.0 ℃; + 3.0 ℃; if the actual temperature is higher than the temperature displayed on the screen, it should be minus fine-tuning, “-” is shown before fine-tuning temperature, while the fine-tuning value increases from zero, but the highest fine-tuning value does not exceed - 3.0 ℃; when the fine-tuning value reaches the desired value, press the Enter key and the fine-tuning is completed.

3. Clock modification:

Press the “Time” button in the “Boot screen” to enter the clock settings screen, as

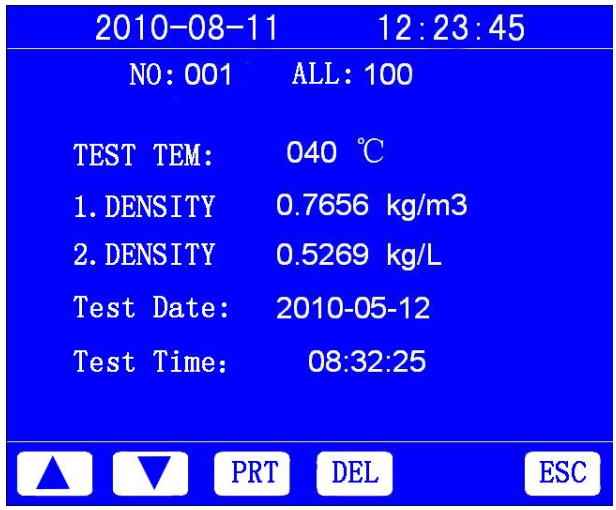
shown below:



Press the “Item” button to select parameters such as year, month, day, hour, minute, second, press the “Increase”, “Decrease” button to modify the selected parameters such as year, month, day, hour, minute, second, press “Sav” to save after modification, press “Esc” key to return to the boot screen.

4. History record:

Press “Rec” in “Boot screen” to enter the history record screen, as shown below:



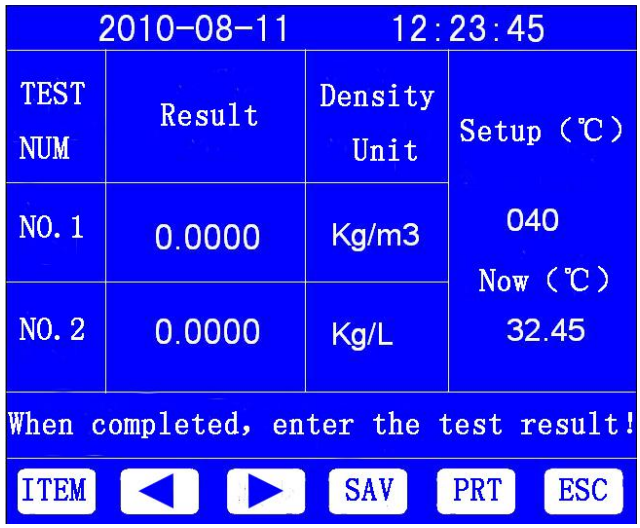
If there is no test record, “No record” shows in the middle of the screen, otherwise the latest one record will be shown. Press “Previous”, “Next” to view

the test record, press “Print” to print the currently record displayed, press “Del” to delete the currently record displayed.

Press “Esc” to return to the start screen.

5. Determination:

Press “Run” in the “Boot screen” to enter the testing screen, as shown below:



The instrument equips with constant temperature bath to measure the density, the tangent point of meniscus upper edge and petroleum densitometer scale is read as the density value of the petroleum densitometer, after reading the density value, press buttons to input the value into the instrument as follows: press “Item” to select each places of testing result, press “Increase” and “Decrease” to modify the value, modify the density unit in the same way, press the “Save” to save the modification.

V. Operation of Appliance

1. Open the packing box and check if the instrument is intact and if spare parts are complete, and then place the instrument in a well ventilated position without direct sunlight and installed accessories.
2. Wash the tub and add pure water or salt water into the bathtub to fifteen centimeters from the cover.
3. Connect the power supply, turn on the power, enter the boot screen, if

temperature need to be adjust, press “Parameter” to enter the parameter setting menu and adjust, press “Enter” after modification. And then switch to the testing screen; keep constant temperature for a certain period of time according to the requirement of standard after the set temperature is reached and the conduct the test. The height of the measuring cylinder should be high enough for petroleum densitometer to float in the sample and the distant from bottom of petroleum densitometer to measuring cylinder should be at least 25 mm. When measuring the density with petroleum densitometer, it is most accurate at the standard temperature of 20°C or close to this temperature.

4. When measuring the density for petroleum metering, the measured temperature should be as close as possible to the actual temperature of the petroleum stored in the tank and the temperature should be within ± 3°C of the actual temperature when conduct the testing. If the measured viscosity of some of the viscous samples is not sufficient in this temperature range, the sample temperature should be raised continuously to a minimum temperature with sufficient fluidity. At this temperature, the petroleum densitometer should be free to float in the sample.
5. Place the uniform sample into a clean density-measuring cylinder carefully along the cylinder wall to prevent from splashing and creating bubbles. When the sample is filled with bubbles on the surface, it can be removed with a clean filter paper. During the transfer process, the evaporation loss of the low boiling component in the volatile sample should be minimized to a minimum. When using a metal density-measuring cylinder to determine the dark sample, make sure that the sample level is within 5 mm of the upper edge of the measuring cylinder to ensure accurate reading of the petroleum densitometer reading. When using a thermostatic bath, the liquid level should be higher than the level of the sample in the density-measuring cylinder.
6. Place the density-measuring cylinder with the sample in a place where there is no airflow. Make sure that the sample temperature does not change significantly

during the time required to complete the measurement. During this period, the ambient temperature should not change more than 2 °C. Otherwise, use constant temperature bath to avoid excessive temperature changes. Place petroleum densitometer in the sample gently, and press the petroleum densitometer into the sample for about two scales and release it after the petroleum densitometer is stationary. The rod of the petroleum densitometer above the sample level should be kept as little as possible by the sample, since the excess sample on the rod will affect the result of petroleum densitometer reading. For low viscosity sample, turn it gently when release the petroleum densitometer to help it stays still and floats freely at the place it leaves the measuring cylinder wall, there should be sufficient time for the petroleum densitometer to keep static; For high viscosity samples, let all the bubbles rise to the surface, remove the bubbles, and wait for a long enough time to keep the petroleum densitometer stays still and reaches equilibrium.

7. When the petroleum densitometer is stationary and leaves the density measuring cylinder wall to float freely, the tangency point of upper surface of the meniscus of the sample and the scale of petroleum densitometer is the value of petroleum densitometer. When reading the scale, the line of sight with the upper edge of sample's meniscus should be at same level. When observing the dark sample, the eye should be slightly higher than the liquid level; the tangency point of upper surface of the meniscus of the sample and the scale of petroleum densitometer is the value of petroleum densitometer.

VI. Installation of Printing Paper

1. Install the paper roll and the feed paper, turn off the front cover of the printer, pinch the elastic card on both sides of the head pulling plate which fixed the head, pull the head puller out about 2 mm, turn on the printer power, printer enters into the standby state after the printer paper running for three lines, and then the indicator light on. Press the button once, the indicator light off, and then hold down the button for more than 1 second, the printer began to running; or

press button for more than 1 second, the printer starts to feed paper. After the front edge of the paper is cut into triangles, the paper is retracted into the printer feed, and the printer will roll up the paper. When the paper is stretched out from the paper outlet at the top of the printer, press the button to stop the paper and enter the standby state and indicator light on. Pinch the ends of the elastic paper shaft slightly and install the roll on the elastic paper shaft to the paper holder.

2. Detection: turn off the printer power, hold down the SEL key and turn on the printer power, the printer begins self-check and prints self-check list.

3. Replace the color ribbon: After using a period of color ribbon, the printed handwriting will be shallow; ribbon cartridge needs to be replaced. Turn off the front cover of the printer, pinch the elastic card on both sides of the pulling plate of the head, pull the head pulling plate out till the ribbon box entirely exposed, replace the color ribbon.

VII. Precautions

- Glass cylinder must be filled with water before charging.
- The board is liquid crystal display, which cannot be knocked with hard objects; otherwise the display will be damaged permanently.
- Placed it on a flat, solid machine platform, and avoid direct sunlight on the instrument as far as possible.
- The power supply must be well grounded.