LANGRY™

RH225-B
Digital Concrete Test Hammer
Operating Instructions

PREFACE

Thank you for choosing the product of Langry Technology Pte. Ltd. We are dedicated to providing you with top-notch products and responsive after-sales services. Please read this manual carefully before using the instrument.

1. This manual is developed to accurately and comprehensively describe the relevant contents and data of the instrument. However, it is possible that errors or omissions may occur. Therefore, we will not be responsible for any consequences arising from such errors or omissions.
2. Langry Technology Pte. Ltd. reserves the right to revise this manual from time to time without prior notice.
3. Langry Technology Pte. Ltd. shall not be liable for any possible losses caused by any data error or wrong test conclusion due to this instrument and its faults.
4. By using this instrument, it will be assumed that you have thoroughly read, comprehended and totally agreed to all clauses in this manual.
5. Langry Technology Pte. Ltd. shall not be liable for any agreements that contradict this statement in the sales and service processes in which Langry Technology Pte. Ltd. is not directly involved.

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Chapter 1 Overview

1.1 Overview

RH225-B Digital Concrete Test Hammer (hereinafter referred to as "Digital Concrete Test Hammer") is developed by Langry Technology Pte. Ltd., and totally meets the *Verification Regulation of Rebound Test Hammer* (JJG 817-2011). It is a good tool for nondestructive tests of compressive strength of concrete in numerous construction engineering.

The totally new non-contact electromagnetic sensor of the concrete test hammer provides an effective solution against the poor accuracy of rebound data produced by conventional sensors as they are affected by the slider friction and other factors, and also against frequent maintenance of concrete test hammers. Therefore, such a new sensor helps improve the test accuracy with extended service life.

1.2 Main functions and characteristics

1)Its electromagnetic sensor is non-loaded and non-contact without interference to rebound values, thus improving the accuracy of rebound values with prolonged service life;

2)It is resistant to dust, oil stain, and strong light; its electronic compartment is maintenance-free; its modular design makes the instrument replacement and assembly friendly;

3)Its rechargeable lithium-ion battery is energy-saving and environment-friendly with large capacity, low power consumption and longer endurance time;

4)It can identify the impact direction automatically as required with a six-axle gyroscope

inside, thus improving work efficiency;

5)Its high-power loudspeaker with clear on-site voice can function very well in noisy environments;

6)Its built-in Bluetooth chip can be connected to portable Bluetooth printers. Therefore, the estimated compressive strength of components and original records of the measurement area can be printed on site;

7)The online system software is powered by the data processing platform developed by Langry Technology. It can import rebound values and identify the port automatically, integrating abundant reports formats and data export formats, to deliver the perfect experience to users.

1.3 Main technical indicators

1)Memory: 1,000 components with a maximum of 100 measurement areas each component;

2)Kinetic energy of impact: 2.207 J;

3)Stiffness of the recoiling tension spring: 785±30.0N/m;

4)Stretching length of the recoiling tension spring: 75.0±0.3 mm;

5)Calibration value of the steel anvil: 80±2;

6)Conformity of the indicating value: $< \pm 0.5$;

7)Operating temperature: -4℃-+40℃;

8)Display screen: 2.8 inch;
9)Battery: 3,200 mAh , 3.6V lithium-ion battery.

1.4 Reference standards

Basis for test data processing:
Technical Specification for Inspecting of Concrete Compressive Strength by Rebound Method (JGJ/T 23)
Specification of metrological verification: Verification Regulation of Concrete Rebound Test Hammer (JJG 817)
Testing concrete instructures Part 2:Non-destructive testing Determination of rebound number(EN 12504-2)
Standard Test Method for Rebound Number of Hardened Concrete（ASTM C 805）

1.5 Precautions

1. Please read this manual carefully before using the instrument.
2. Electromagnetic interference: No strong alternating electromagnetic field and no prolonged exposure to sunlight; Necessary protective measures should be taken when used in damp, dusty, and corrosive gas environments;
3. The instrument should be placed in a ventilated, cool, and dry place, and should not be exposed to direct sunlight for a long time.

4. Avoid water ingress; Avoid using in strong magnetic field environments, such as near large electromagnets, transformers, frequency converters, etc.
5. Shock resistance: During use and handling, severe vibrations and impacts should be prevented.
6. Do not wipe this instrument with a damp cloth! Do not use organic solvents to clean instruments and accessories! Please wipe the instrument and accessories with a clean, soft, dust-free cloth.
7. Charging management:
The instrument is powered by rechargeable lithium batteries. When the battery is low, it should be charged in a timely manner to avoid damaging the battery. The red indicator light is always on during charging, and it will turn off when fully charged; Charging should be done using the dedicated charger provided with the instrument, and other types of adapters or chargers should not be used to charge the instrument, otherwise it may cause damage to the battery.
Note:
Do not charge in high temperature environments. The recommended charging temperature range is 10-35 ℃; If the instrument is not used for a long time, the battery will experience slight power loss, resulting in a decrease in power. It is

necessary to recharge it before use. It is normal for the charger to generate heat during the charging process, and the charging environment should be kept well ventilated for easy heat dissipation.

1.6 Responsibility

This instrument is a precision testing instrument, and our company does not assume any corresponding responsibility when the user engages in the following behaviors:

1. Violation of the above work environment requirements or storage environment requirements;
2. Abnormal operation;
3. Unauthorized opening of the casing and dismantling of any components;
4. Serious damage to the instrument caused by human or accidental accidents.

Chapter 2 Operating Instructions

2.1 Instrument composition

It is composed of the main unit of the digital concrete test hammer, data cables and maintenance components, etc.

2.1.1 Main unit

Figure 2-1 shows the appearance of the digital concrete test hammer's main unit.

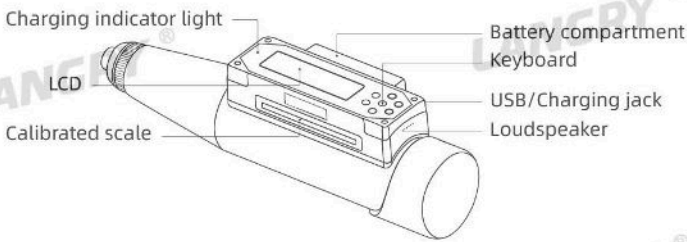


Figure 2-1

2.1.2 External interface

The USB interface can serve as a data transmission interface or charging interface with computers.

2.1.3 Charging instructions

It can be charged with a dedicated power adapter or USB data cable connected to a computer. The indicator light is always on when charging, and becomes off when the battery is fully charged which will take about 3 to 4 hours.

Note: Please charge promptly in the event of the following special circumstances:

1)when it cannot be booted or it is difficult to boot;

2)when the sample data are unstable or it becomes difficult to upload them;

3)when it has not been used for a long time.

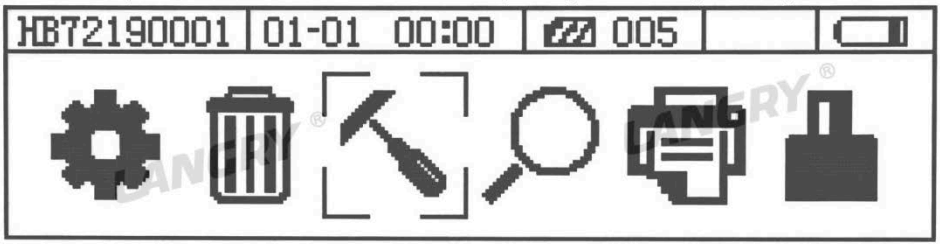
2.1.4 Key instructions

Key symbols	Function description
【⏻】	For startup & shutdown generally.
【OK】	For confirming or deselecting in selected items.
【 C 】	For return or exit generally.
【▲】	For moving cursor up, or state switch of selected items,or data increase.
【▼】	For moving cursor down, or state switch of selected items,or data decrease.
【◀】	For moving cursor left.
【▶】	For moving cursor right.

2.2 Operation

2.2.1 Booting

After pressing the 【 ⏻ 】 key, the display screen becomes on, displaying the welcome interface and the logo of "Langry Technology" and the model of the instrument. It will automatically switch to the main menu after completing the booting of the system .



2.2.2 Menu

The main menu is the top-level main interface, including six modules from left to right: Set, Delete,Sample,View, Print, Calibrate. All functions of the instrument are operated from the interface of the main menu.

2.2.3 Function modules

1)Set. Set instrument performances and calculation rules, as detailed in 2.5 System settings.

2)Delete. Please make sure that data have been saved in the computer before deleting, and

the memory will be cleared after deleting. So, please be cautious.

3)Sample. It is the main function of the instrument. After setting parameters in the interface, the rebound sampling test can be carried out.

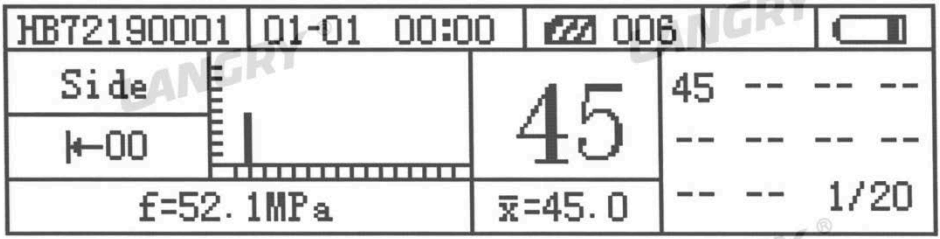
4)View. View the estimated strength value of components that have been sampled, and the strength value and original rebound value of the measurement area, etc.

5)Print. The built-in Bluetooth module can be connected to portable Bluetooth printers, and therefore, the component strength and the original rebound value of the measurement area can be printed out.

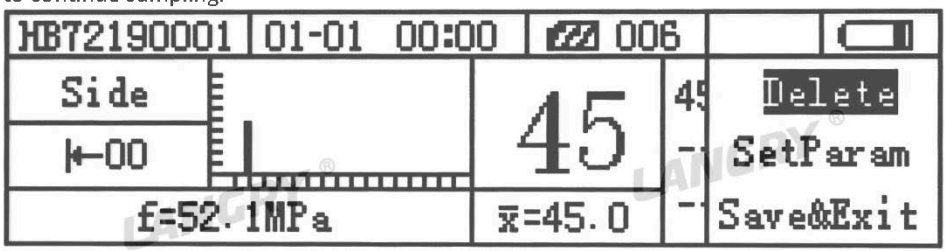
6)Calibrate. The recoiling tension bar rotates by 90 degrees for each 3 impact of the steel anvil, with a total of 4 groups of 12 impact, and the average rebound value of each group should be 80±2.

2.3 Rebound sampling

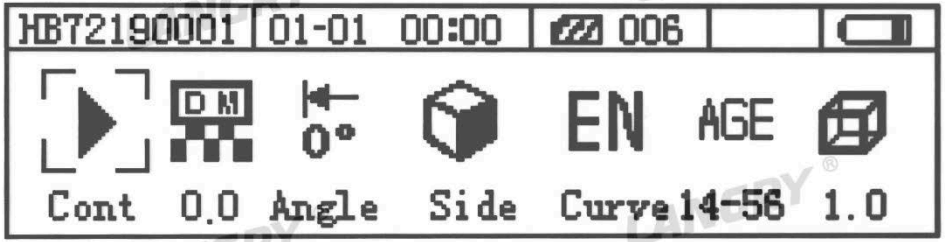
In the main menu interface, select the sampling icon，press the 【OK】 key to enter the sampling interface.



In the sampling interface, select 【C】 key to pop-up Menu as show in the figure， the first item is to delete the last rebound value; the second item is to set parameters; the third item is to exit sampling，At this time, press the 【C】 key to return to the sampling interface to continue sampling.



Press the【▲▼】 key to select the second item，press the【OK】 key to enter the sampling parameter setting interface.



The sampling parameter setting menu includes: continue sampling, carbonization value, Impact Angle, detection surface.

Curve Settings can be selected as JGJ23-2011, ASTM C 805, EN 12504-2, and custom curves. If set as a custom curve, the maximum number of sampling points can be set to 400 during sampling.

There are two options for age: 7 days and 14-56 days.

There are three correction factors of test block size according to different sizes:1.0, 0.95 and 0.8.After the calculation, the strength value is corrected.

Press the 【C】 key on the sampling parameter setting interface to return to the sampling interface.

After the completion of sampling, the system prompts and automatically jumps to the sampling completion interface. The component data is saved.

Press the【C】 key to switch to the sampling selection interface. Select continue sampling or modify parameter sampling by【▲▼】key. At this time, press the key to return to the main menu interface.

2.4 System Setup Interface Select the Settings icon in the main menu interface, press the OK key to enter the system setting interface. There are 4 options. They are backlight delay, unit,system time,voice switch.

Backlight delay can be adjusted by【▲▼】 key, and the range is 20s-80s.

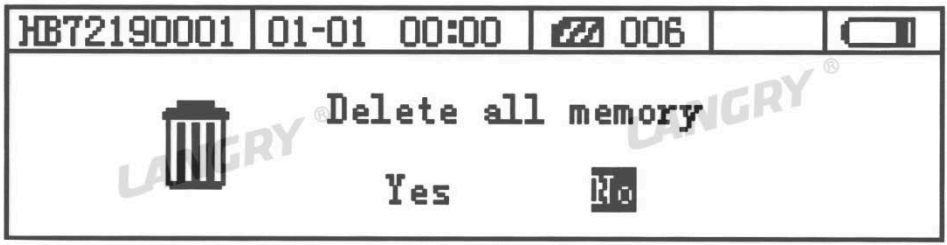
Compressive strength units: MPa, psi and kgf / cm^2.

Select the time icon, press the 【OK】key to enter the system time adjustment interface. When adjusting the time, press the【◀▶】 key to select the part to be adjusted.Press the

【▲▼】 key to adjust the value. After adjustment, press the 【C】key to return to the system setting interface.

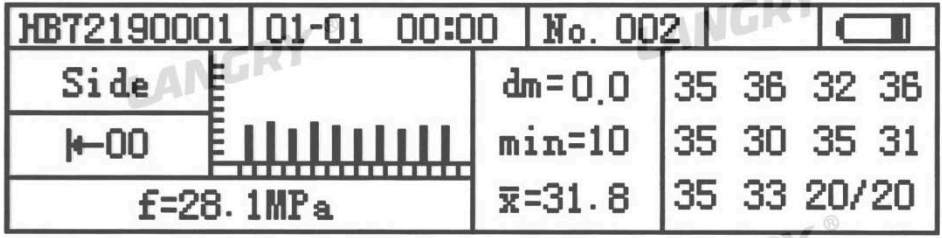
Need to slow down the Recoiling speed when the voice is turned on.

2.5 Deleting data after the delete icon is selected in the main menu interface,Press the【OK】key to enter the deletion confirmation interface.



Once this command is executed, all component data in memory will be deleted and cannot be recovered.For the sake of insurance, The instrument will be confirmed by a confirmation screen, so be careful!

2.6 Viewing Interface after the view icon is selected in the main menu interface,press the 【OK】key to enter the viewing interface.



The viewing interface is the same as the sampling completion interface. The third item in the status bar of the interface is the number of current components.

Press the【▲▼】key to increase or decrease the number of current components, in order to view all component data.

Press the【OK】key in the viewing interface to select the carbonization depth value.

Press the【▲▼】key to change the carbonization depth value.

Press the【C】key in the viewing interface to return to the main menu interface.

2.7 Bluetooth printing

Please turn on the Bluetooth printer before printing. If there are multiple Bluetooth printers, only one can be turned on. The concrete test hammer will automatically identify and bind the printer. After successful binding, a Bluetooth icon will appear in the status bar. Select the print icon from the main menu and enter, and the component selection screen will be displayed. After selecting the component to be printed, press the【OK】key to start printing.

Chapter 3 Online System Software

LANGRY digital concrete test hammer is specially designed for online management software, operated under the Windows operating system. The system software has the functions of receiving sampling data sent by the concrete test hammer and verifying, storing, printing reports, exporting data, and online management of instruments. This software is simple to understand and easy to operate. With specific parameters of national specification curves and local curves preset in it, users can use this program for data processing without having to carry out tedious curve input operations.

3.1 Software installation

For the first use, please visit www.langryndt.com, find the corresponding model in the "Rebound hammers" category in the product center, enter the product details page and click the downloads in the "About the product" to download and install the online system software, before using the software.

3.2 Data transmission

Automatic import. When automatic import is used to transfer data to the computer, please connect the instrument's USB data cable in advance and turn on the concrete test hammer; Start the online system software, select the rebound hammer menu, and click "Import Data". Then, the software pops up the data reading interface.After reading, select the data to be transmitted and press the "Import" key to complete the data import.

3.3 Data processing

The online system software can process data of all components and the rebound data.

3.3.1 Component data test

After selecting one of the component data, right-click or select the data processing menu to print or delete the selected component or measurement area.

3.3.2 Data deletion

Select the data to be deleted, and right-click or select the data processing menu to delete the data.

The deleted component data can be viewed or restored in the deleted component, but the deleted batch data, comparison correction data and test report cannot be viewed or restored.

3.4 Print and preview

Select the data or report to be previewed and printed, right-click and select the data processing menu or the file menu for print and preview, or print on the print and preview interface.

3.5 Data storage

Select the file menu and click "Save" or "Save as" to save the current data file, with the filename extension being ".Xhty".

Alternatively, the document of the current data in Word or Excel format can also be generated in the print and preview interface.

3.6 Version upgrade

3.6.1 Version upgrade of the concrete test hammer

After connecting the concrete test hammer, select the concrete test hammer menu and click "Upgrade Concrete Test Hammer" to download the new concrete test hammer version.

3.6.2 Software version upgrade

Select the help menu and click "Check for New Version" to check or upgrade the version of the online system software.

Chapter 4 Data

Form of Delivery	
Concrete testhammer	RH225-B
Article number	10010006
Total weight	3.15KG
Carrying case,W x H x D	340 x 110 x240mm
Grindstone	1 pce.

V1.2

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