HFBTE HT-225A

Concrete Rebound Hammer Operation Manual

Model: HT-225A | Brand: HFBTE

1. Product Overview

The HFBTE HT-225A Concrete Rebound Hammer is a non-destructive testing instrument designed to assess the compressive strength of concrete. It operates on the principle of rebound, where the rebound height of an impact hammer is proportional to the surface hardness and, consequently, the strength of the concrete.
This device is widely utilized in civil engineering and construction for evaluating the strength of various concrete members, including slabs, beams, columns, and trusses in normal building structures and bridges. Its simple structure, ease of calibration, maintenance, and portability make it an economical and practical choice for on-site non-destructive testing.

Figure 1: The HFBTE HT-225A Concrete Rebound Hammer.

2. Components and Setup

The HT-225A Concrete Rebound Hammer comes with essential accessories for operation and maintenance. Before first use, ensure all components are present and in good condition.

Figure 2: Included components of the HT-225A kit, including the hammer, operation manual, screwdrivers, and grinding stone.

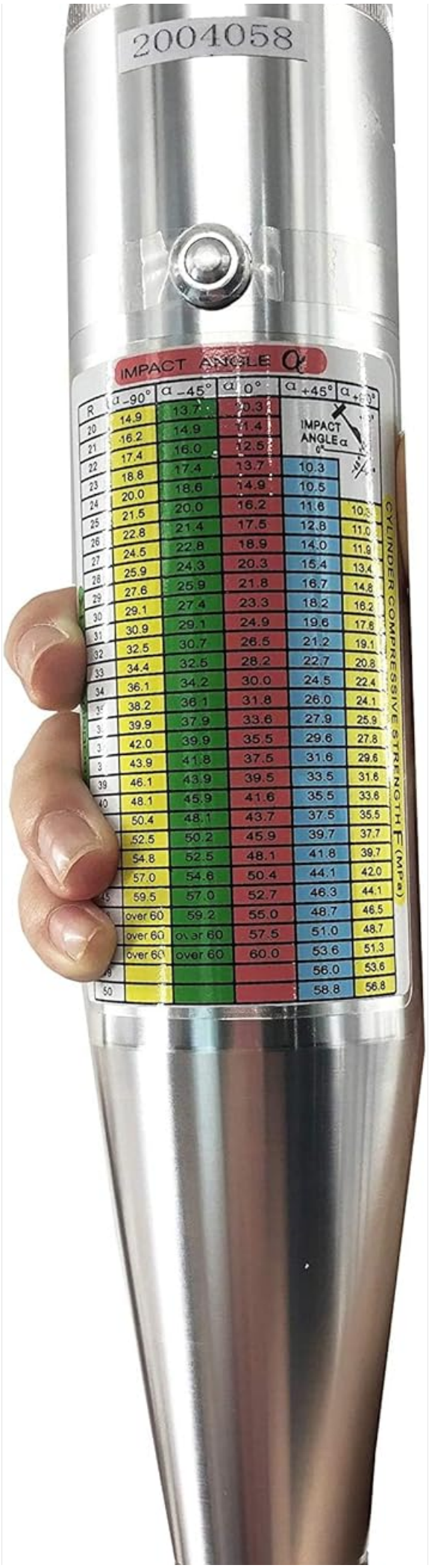
2.1. Unpacking and Initial Inspection

1. Carefully open the carrying case and remove all items.
2. Verify that the Concrete Rebound Hammer (HT-225A), operation manual, two screwdrivers, and grinding stone are present.
3. Inspect the hammer for any visible damage or defects.

2.2. Product Orientation

Familiarize yourself with the main parts of the rebound hammer. The device features a scale for reading rebound values and a mechanism for impact testing.

Figure 3: Proper handling of the Concrete Rebound Hammer for operation.



R	α −90°	α −45°	α 0°	α +45°	α +90°
20	14.9	13.7	20.3		
21	16.2	14.9	21.4		
22	17.4	16.0	12.5		
23	18.8	17.4	13.7	10.3	
24	20.0	18.6	14.9	10.5	
25	21.5	20.0	16.2	11.6	10.3
26	22.8	21.4	17.5	12.8	11.0
27	24.5	22.8	18.9	14.0	11.9
28	25.9	24.3	20.3	15.4	13.4
29	27.6	25.9	21.8	16.7	14.8
30	29.1	27.4	23.3	18.2	16.2
31	30.9	29.1	24.9	19.6	17.8
32	32.5	30.7	26.5	21.2	19.1
33	34.4	32.5	28.2	22.7	20.8
34	36.1	34.2	30.0	24.5	22.4
35	38.2	36.1	31.8	26.0	24.1
36	39.9	37.9	33.6	27.9	25.9
37	42.0	39.9	35.5	29.6	27.8
38	43.9	41.8	37.5	31.6	29.6
39	46.1	43.9	39.5	33.5	31.6
40	48.1	45.9	41.6	35.5	33.6
41	50.4	48.1	43.7	37.5	35.5
42	52.5	50.2	45.9	39.7	37.7
43	54.8	52.5	48.1	41.8	39.7
44	57.0	54.6	50.4	44.1	42.0
45	59.5	57.0	52.7	46.3	44.1
46	over 60	59.2	55.0	48.7	46.5
47	over 60	over 60	57.5	51.0	48.7
48	over 60	over 60	60.0	53.6	51.3
49				56.0	53.6
50				58.8	56.8

Figure 4: Detailed view of the rebound hammer's scale and the conversion chart for strength calculation.

2.3. Video Guide: Unboxing and Overview

Your browser does not support the video tag.

Video 1: An unboxing and overview of the HFBTE HT-225A Concrete Rebound Hammer, demonstrating its components and initial handling.

3. Operating Instructions

The HT-225A is designed for straightforward operation to determine concrete strength.

3.1. Surface Preparation

Before testing, ensure the concrete surface is smooth, clean, and dry. Remove any loose particles, plaster, or paint. If the surface is rough, use the included grinding stone to smooth the test area.

Figure 5: The grinding stone, used to prepare the concrete surface for accurate testing.

3.2. Performing a Test

1. Hold the rebound hammer firmly with both hands, perpendicular to the concrete surface at the desired test point.
2. Apply steady pressure to the hammer against the surface. The internal mechanism will trigger, and the impact hammer will strike the concrete.
3. Observe and record the rebound number indicated on the scale.
4. Repeat the test at several points within the same test area (typically 9-12 impacts per area) to obtain an average rebound value. Avoid testing near edges or cracks.

3.3. Interpreting Results

Use the conversion chart provided on the hammer or in the operation manual to convert the average rebound number into concrete compressive strength (N/mm² or MPa). Factors such as the angle of impact and concrete age may require adjustments as per relevant standards (e.g., ASTM C 805, EN 12504-2).

4. Maintenance

Regular maintenance ensures the longevity and accuracy of your HT-225A Concrete Rebound Hammer.

4.1. Cleaning

After each use, wipe down the hammer with a clean, dry cloth. Ensure no concrete dust or debris remains on the impact rod or inside the mechanism. The included screwdrivers can be used for minor disassembly for cleaning if necessary, as shown in Video 1.

4.2. Storage

Store the hammer and all accessories in the provided carrying case in a dry, cool place, away from direct sunlight and extreme temperatures.

Figure 6: The HT-225A and its accessories neatly stored in the durable carrying case.

4.3. Calibration Check

Periodically check the calibration of the hammer using a standard test anvil. The mean-value of steel-anvil rating should be 80+/-2. If the readings deviate significantly, the hammer may require professional calibration or adjustment.

5. Troubleshooting

- **Inconsistent Readings:** Ensure the concrete surface is properly prepared (smooth and clean). Verify the hammer is held perpendicular to the surface. Check for any internal debris or wear that might affect the mechanism.
- **Hammer Not Rebounding:** Check if the impact mechanism is stuck. Ensure the spring is not damaged or dislodged. Refer to the manual for internal component diagrams if necessary.
- **Pointer System Issues:** If the pointer system is not moving freely or has excessive friction, it may require cleaning or adjustment. The maximum breakout friction of the pointer system should be 0.49-0.78N (50-80g).

6. Specifications

Specification	Value
Model	HT-225A
Nominal Kinetic Energy	2.207J (0.225kgf.m)
Flip Tension Spring Rigidity	7.84N (0.80kgf)/cm
Punch Advance for Impact Hammer	75mm
Impact Surface Hardness Value (Impact Hammer & Rod)	HRC59-63
Maximum Breakout Friction of Pointer System	0.49-0.78N (50-80g)
Mean-value of Steel-Anvil Rating	80+/-2
Standards	ISO/DIS 8045, EN 12504-2, ENV 206, DIN 1048 part 2, ASTM C 805, ASTM D 5873, NFP 18-417, B 15-225, JGJ/T 23-2001, JJG 817-1993
Dimension	60x280mm
Net Weight	1kg

7. Warranty and Support

For warranty information and technical support, please refer to the contact details provided in the original product packaging or contact HFBTE customer service directly. Keep your purchase receipt for warranty claims.