

# Μηχανή μέτρησης σκληρότητας Uni-T Leed UT347A

UNI-T · EAN 6935750534724

Machine translation from Polski. In case of doubt the manufacturer's original document prevails.

(  
CHINA  
TECHNOLOGY  
) KA Z O.O.  
COMPANY-  
Steel and castings

AVG. :

MAX. :

MIN. : 508

Type D Quantity: 1/5

Leeb Hardness Tester

User Manual

User Manual for Leeb Hardness Tester UT347A

## INTRODUCTION

Thank you for purchasing the new Leeb hardness tester UT347A. To use this device safely and correctly,

please read this manual carefully, paying special attention to the safety instructions.

After familiarizing yourself with the manual, we recommend storing it in an easily accessible place, preferably near the device, for future reference.

## LIMITED WARRANTY AND LIABILITY

Uni - Trend guarantees that the product is free from material and workmanship defects for a period of one year from the date of purchase. This warranty does not cover damages resulting from accidents, negligence, improper use, modifications, contamination, or improper handling of the device. The distributor is not authorized to provide any other warranties on behalf of Uni - Trend.

For warranty service during the warranty period, please contact the seller directly.

This warranty constitutes the sole form of compensation available. Uni - Trend is not liable for any special, indirect, incidental, or consequential damages arising from any cause or speculation.

Since some regions or countries do not allow limitations on implied warranties or incidental or consequential damages, the above limitation of liability and provisions may not apply to you.

## User Manual for Leeb Hardness Tester UT347A

### TABLE OF CONTENTS

1. Overview
2. Accessories
3. Specifications
4. Product Introduction
5. Operating Principle
6. Preparation and Check
7. Quick Operation
8. Detailed Operation
9. Printer Paper Installation
10. Troubleshooting
11. Maintenance
12. Storage and Transport

### Appendix

#### Table 1

### Appendix

#### Table 2

### Appendix

#### Table 3

### Appendix

#### Table 4

## User Manual for Leeb Hardness Tester UT347A

### 1. Overview

UT347A is a device designed for measuring the hardness of metallic materials, based on the principle

of the Leeb hardness measurement method.

#### Applications:

- Heavy and large working parts;
- Bearings and other components;
- Quality control of heat-treated components;
- Machine guides and vehicle chassis;

- Machines installed permanently or permanently joined parts;
- Cavity molds and other elements with very limited measurement space;
- Analysis of failures in pressure vessels, steam generators, and other equipment;
- Identification of metallic materials.

Scope of application:

- Please refer to Appendix Table 1 and Appendix Table 2.

Features:

It is possible to save measurement details. The hardness tester is equipped with a camera function and can store up to 900 records.

The integrated thermal micro-printer supports real-time printing and batch printing. The print resolution is adjustable.

The hardness tester has a USB interface and a Bluetooth BLE module. This allows the device to connect to computers or mobile phones and update firmware;

2.8" TFT color screen with a resolution of 320×240;

Menu in English or Chinese, optional and easy to use;

Adjustable backlight brightness;

The hardness tester has a function for defining custom materials. Dedicated hardness conversion tables are available for different materials.

The threshold alarm can be turned on and off. When the alarm is on: above the upper threshold:

yellow; below the lower threshold: red; normal state: green.

- Built-in lithium battery, control circuit, and USB Type-C interface for charging;
- Calibration function.

User Manual for Leeb Hardness Tester UT347A

## 2. Accessories

Unpack the box and carefully check for any missing or damaged equipment:

1. Leeb hardness tester –  
1 pc.
2. Type D impact device –  
1 pc.
3. Standard Leeb hardness block –  
1 pc.

4. Nylon brush –

1 pc.

5. USB Type-C cable –

1 pc.

6. User manual –

1 pc.

7. Download guidelines –

1 pc.

8. Printer paper –

2 rolls

3. Specifications



Units:

● Range:

● Indication error and repeatability: (see Table 1 below)

Type Hardness

head standard

Indication Repeatability

No.

indication

impact block error value

Leeb

User Manual for the Leeb Hardness Tester UT347A

● Display:

2.8" color TFT screen with a resolution of 320 × 240

Camera:

Effective resolution 640 × 480, fixed focus

• Flashlight:

White light, 0.5 W LED

Printer paper:

Thermal paper, 57 mm wide

Data memory:

900 groups

Alarm indicator:

Above threshold: yellow

Below threshold: red

Normal:

green

● Automatic shutdown:

The device will automatically turn off after a period of inactivity. The automatic shutdown time

can be adjusted. This function can be disabled.

● Operating voltage:

Built-in lithium battery 3.7 V

Charging time:

Approximately 2-4 hours

Power source for charging:

Operating time:

Approximately 4-8 hours (without printing function)

Environmental requirements:

Operating: 0-40 °C, relative humidity  $\leq 80\%$ ;

Storage: 10-50 °C, relative humidity  $< 75\%$ .

The environment should not have strong vibrations, strong magnetic fields, corrosive environments,

or significant amounts of dust.

:

User Manual for the Leeb Hardness Tester UT347A

#### 4. Product Introduction

##### 4.1 Construction

SET

Leeb Hardness Tester

Description

No. No. Description

Paper output

USB interface and impact device

printer

Indicator light Handle

Display

Flashlight

4 buttons

Camera 8

#### 4.2 Buttons

Short press Long press

Operation

Menu / others In the main Menu / records

Mode In the main interface

interface interface

interface

setting interfaces

Power on / off

Save current data Take photos

Delete

Back

current value

Power on / off

Scroll up

Change probe direction

Up flashlight

Switch hardness unit Left Delete data

SET Enter menu interface Confirm print data

Change material Right Go to data

Export

Scroll down

Print current data Down

printing paper

User Manual for Leeb Hardness Tester UT347A

#### 5. Principle of operation

Under the action of elastic force, a body of a specified mass strikes the surface of the sample at a specified speed, and the hardness value is calculated based on the ratio of the rebound speed to the impact speed of the hammer at a distance of 1 mm from the surface of the sample. The calculation formula is as follows:

Rebound phase

HL -- Leeb hardness

VB -- rebound speed

Time

Speed

VA -- impact speed

The output signal of the impact device is shown in the diagram:

## 6. Preparation and control

The surface of the sample should meet the requirements specified in the attached table

3. The sample must not be heated or frozen; otherwise, the hardness of its surface will change. Please leave it at room temperature for some time before taking the measurement.

- The surface of the sample must be smooth and shiny, free from oil stains. Heavy samples do not need to be supported. Samples with overhangs, thin-walled, and weighing less than 5 kg should be supported to prevent deformation, bending, and displacement caused by the impact force. Medium-sized samples must be placed on a smooth and stable surface. For curved samples: the optimal measurement surface is a flat surface. For samples with a surface curvature radius  $R$  less than 30 mm (impact devices types D, DC, D + 15, C, E, DL) or less than 50 mm (impact device type G), a small supporting ring or a supporting ring of special shape should be used.
- The minimum thickness of the sample should meet the requirements specified in the attached table 3.
- For samples with a surface-hardened layer, the depth of the hardened layer should meet the requirements of the attached table 3.

Coupling: Light samples must be tightly adhered to a stable substrate. Coupling surfaces must be smooth. The amount of coupling agent should not be excessive. The measurement direction must be perpendicular to the coupling surface. When the sample is in the form of a large plate, long rod, or bent element, even with a large mass and thickness, deformations and instability may occur. In such cases, the back of the measurement point should be reinforced or supported. User Manual for Leeb Hardness Tester UT347A

- The magnetism of the sample should be less than 30Gs. Before measuring, the hardness tester should be checked using a standard Leeb hardness block, and the measurement error and repeatability should not exceed the values specified in Table 1. Note: The standard Leeb hardness block is measured five times using a calibrated Leeb hardness tester, and the average of these measurements constitutes its hardness value. If the hardness value obtained by measuring the hardness block with the Leeb hardness tester does not correspond to this value, the hardness tester should first be calibrated.

7.

## Quick Operation

Warning: Turn off the hardness tester before replacing the impact device.

## 7.1 Starting

When the hardness tester is off, insert the impact device into the socket on the right side of the hardness tester.

- Press and hold to turn the device on.

## 7.2 Charging

Press the charging tube down until the impact element is locked. For a DC type impact device, the charging tube can be suctioned to the test surface, and the impact device is inserted into the charging tube until it stops, thus completing the charging.

## 7.3 Positioning

Press the supporting ring of the impact device firmly against the sample surface. The direction of impact should be perpendicular to the test surface, as shown in the illustration below.

## 7.4 Measurement

- Press the release button on the impact device. The sample, impact device, and operator should be stable, and the direction of action should follow the axis of the impact device. Each tested part of the sample should typically include 5 measurements. The data spread should not exceed the average value  $\pm 15HL$ . The distance between two indentations or the distance between the center of the indentation and the edge of the sample should comply with the regulations contained in Table 2. For specific materials, if Leeb hardness values are to be accurately converted to other hardness values, comparative tests should be conducted to obtain the appropriate conversion factor. A certified Leeb hardness tester and a corresponding hardness tester should be used for tests on the same sample. For each hardness value, five Leeb hardness measurements should be taken evenly around three or more hardness indentations subject to conversion. The average Leeb hardness values and their corresponding average hardness values should be used as reference values to create a comparative hardness curve. The comparative curve should include at least three sets of comparative data.

Leeb Hardness Tester UT347A User Manual

Distance between centers of indentations

Type of impact device

No less than (mm)

(Table 2)

## 7.5 Reading Measurement Values

The average hardness from several measurement points should be taken as the hardness value of the tested object.



The measurement values will be displayed on the screen. Values measured with different types of impact devices vary, as shown in Table 1.

## 8. Detailed Operation

### 8.1 Power On / Off

Press and hold to turn the device on or off. The device will automatically turn off after a specified period of inactivity.

#### Main Interface

### 8.2

Printer

Date and Time

Battery Status

Material

Steel and Castings

AVG, MAX, MIN

AVG: 809

Measured Value

Hardness Unit

Direction of Impact

Counter

Type of Impact Device

DL - Type

Counter: 5/5

### 8.3 Performing Measurements

Perform the measurement in the main interface; the measured value, AVG, MAX, and MIN will be displayed on the screen. The number of impacts will increase by one, and the buzzer will emit a short beep. If the measured value is out of range, the buzzer will emit a long beep. After reaching the set number of impacts, the buzzer will emit two short beeps.

Leeb Hardness Tester UT347A User Manual

### 8.4 Buttons (in the main interface)

saves the current set of data, which is only valid after reaching the set number of impacts and can only be saved once. After saving, press this button again to print the data or take a photo.

to take a photo. The photo will automatically display the icon indicating the current average measurement.

- In the camera interface, press this button to take a photo.

- Briefly press the directional buttons (Up / Down / Left / Right) to move the icon, and press and hold the directional buttons to move it quickly, as shown below:

removes the last measured value.

A longer press changes the direction of impact, and a longer press turns the flashlight on or off.

- Short press

- Short press ✓ switches hardness units. Note:

1. For different materials, optional hardness units may vary. 2. After changing the material, the hardness unit will automatically change to HL. 3. This operation is invalid for strength measurement. Briefly press the SET button to enter the menu interface. • Briefly press B to select the material. Hardness: steel and castings, alloy steel, stainless steel, forged steel, aluminum casting alloy, copper alloy, copper-zinc alloy, copper-tin alloy, gray cast iron, ductile iron, pure copper. Strength: carbon steel, chromium steel, chromium-vanadium steel, chromium-nickel steel, chromium-molybdenum steel, chromium-nickel-molybdenum steel, chromium-manganese-silicon stainless steel, spring steel. Press the Up/Down button to move the cursor. Press the SET button to confirm. Press → to cancel. Note: After changing the material, the current measured data will be deleted. Important only after reaching the set number of impacts; longer

Short press to print current data —

long press is used to control paper feeding to the printer. User Manual for Leeb Hardness Tester UT347A

## 8.5 Menu

In the main interface, briefly press the SET button to open the menu:

MEAS Settings Records BLE Settings

Calibration SYS Settings Information

Average number of measurements Automatic filter

Language

Threshold alarm

Photo

Date and time

Upper threshold

Measurement mode Backlight

Lower threshold

Sound Print settings

Hardness / Strength

Auto power off Factory reset

Auto saving

## 8.6 MEASUREMENT SETTINGS

### MEASUREMENT SETTINGS

Briefly press

Average number

button

SET Threshold alarm ON

### MEASUREMENT SETTINGS Calibration Records

Upper threshold

Lower threshold

Hardness / Strength Hardness

BLE Settings SYS Settings Information Auto saving ON and hold for 5 s

- Average number of measurements

In the MEASUREMENT SETTINGS interface, press the up/down button

MEASUREMENT SETTINGS to select "Average number," then

press the SET button to set this

Average

Average number of measurements

Threshold ON value. Press the right button,

Upper to move the cursor to the unit digit,

Lower

and then use the up/down buttons

Hardness

to increase or decrease the value. Auto saving ON and hold for 5 s Press the SET button to confirm. Press,

to cancel. User Manual for Leeb Hardness Tester UT347A

### Threshold alarm

The threshold alarm can be turned on or off. When turned on:

Above the upper threshold: yellow

Below the lower threshold: red

Normal: green

Upper threshold

Lower threshold

Press the Left/Right button to move the cursor, and the Up/Down button to change the value.

Press

the SET button to confirm. Press the Cancel button to

interrupt. Note:

1. If the upper threshold is less than the lower or the lower is greater than the upper, pressing

the SET button will not result in any reaction. Reset the value or press the button

to cancel. 2. After changing the hardness unit, the upper and lower thresholds will be automatically reset

to default values. Hardness / Strength

Switching between hardness and strength measurements. Note: Strength measurement is only available when using impact devices of type

D and DC. Auto saving

MEASUREMENT SETTINGS

Auto saving

Average

Threshold ON and hold for 1 s ON. ON and hold for 5 s

Upper p

ON and hold for 10 s

Lower p

OFF

Hardness

Auto saving ON and hold for 1 s

- In the MEAS settings interface, press the Down button to select “Auto save,” then press the SET button to confirm the function. ON and hold for 1 s: After completing the measurement, the hardness tester will automatically save the data and return to the main interface after 1 second; ON and hold for 5 s: After completing the measurement, the hardness tester will automatically save the data and return to the main interface after 5 seconds; ON and hold for 10 s: After completing the measurement, the hardness tester will automatically save the data and return to the main interface after 10 seconds; OFF: Disable the auto save function.

Note: Users can choose whether to take photos or print data before the countdown ends. 8.7

Calibration

The tester and the impact device must be calibrated using a standard Leeb hardness block before the first use of the device or after a long period of non-use. User Manual for Leeb Hardness Tester UT347A

Please calibrate:

Press briefly

the MEASUREMENT Settings Calibration Records

SET

Calibration value: Average value:

BLE Settings SYS Settings Information

After taking 5 measurements, the average value will appear on the screen. Enter the calibration value according to the hardness marked on the standard Leeb hardness block, and then press the SET button briefly to confirm. Press to measure and calibrate again. The calibration range is  $\pm 15$  HL. Note: After replacing the impact device, the tester must be recalibrated before use. The default probe is type D. If users want to calibrate probes of other types, they should refer to the hardness conversion table for different types of probes before entering the calibration value. 8.8 Records

In the menu, press the Up / Down / Left / Right buttons to select "Records," and then press the SET button to enter the settings interface. File No. Date / Time Value

Press briefly

the MEASUREMENT Settings Calibration Records

SET

BLE Settings SYS Settings Information

Press the Up / Down button to move the cursor. Hold the Up / Down button to scroll up / down. Press the Left / Right button to change the page. The page displays 100 data points, up to 9 pages in total.

Dots at the bottom edge of the screen indicate the number of pages:

Press the SET button to display the selected record. File0002 File0002

2021/11/01 16:47

Steel and casting

No Value

Avg.: 323 HL

Max.: 323 HL

Min.: 323 HL

Type D Number 01

Press the Left / Right button to go to detailed information. User Manual for Leeb Hardness

Tester UT347A

opens the "Delete Data" interface.

✓

Long press

File No. Date / Time Value

Delete data

Delete selected data

Delete all data

Delete selected data group

Press the Up/Down button to select an option, and then press the SET button to confirm deletion.

Press to cancel.

Select "Delete selected data group" and press the SET button.

File No. Date / Time Value

Delete data

Please set the number

From 002 to 002

Minimum number: 0002

Maximum number: 0900

Press the Left/Right button to move the cursor. Press the Up/Down button to change the value of the number.

After setting the number in the first window, press the SET button to proceed to setting the number in the next window. Press the SET button to delete data. Press another button to cancel.

Long pressing the SET button will open the "Print Data" interface.

File No. Date / Time Value

printing data

Print selected data

Print all data

Print selected data group

The "print data" operation is similar to "delete data."

User Manual for Leeb Hardness Tester UT347A

Note:

1. Press to stop printing after the current group is finished.

2. In case of paper shortage or printer overheating, printing will be automatically interrupted, and a message will appear on the display (press the SET button to finish). The icon (out of paper) or (overheating) will blink. Please replace the paper or wait for the printer to cool down until the above icon stops blinking. If the "print data" dialog box is not closed, printing can be resumed from the point of interruption.

3. Regular thermal paper has a short storage period. If it is necessary to print data intended For long-term storage, it is necessary to choose thermal paper with increased durability. 4. Do not store printer paper in places with high temperatures or direct sunlight. In case of opening the packaging, store the paper in a shaded place. A long press allows you to access selected data. File No. Date / Time Value

Tip

Please enter the number:

Minimum number: 0002

Maximum number: 0900

Press the Left/Right button to move the cursor. Press the Up/Down button to change the number. Press the SET button to go to the data of the selected number. Press +: to cancel.

## 8.9 Bluetooth Settings

2020/01/08 2020/01/08 12:07 12:07 2020/01/08 2020/01/08 12:04 12:04

❖ ❖ fQfQ Short Short press press

{ff {ff

MEAS MEAS Settings Settings Calibration Calibration Records Records the the SET SET button button

og og SOSO

® ®

BLE BLE settings settings SYS SYS Settings Settings About About BLE BLE settings settings SYS SYS Settings Settings About About

Press the Up/Down button to select ON/OFF, and then press the SET button to confirm. Press +:> to cancel. 8.1 About Bluetooth Application Specification

1. To establish a Bluetooth connection, you need to install the Smart Report - Hardness Tester application. 2. iOS devices will find the app in the App Store, Android devices in the Play Store, or please log on to [www.uni-trend.com](http://www.uni-trend.com) to download. User Manual for Leeb Hardness Tester UT347A

## 8.10 System Settings 2020/01/08

12:08

System Settings

Language English

Short press Date and time

MEASUREMENT Settings Calibration Records SET button

Measurement Mode Statistics

Sound Only alert

Auto power off Off

Automatic filter ON 95 %

BLE Settings SYS Settings Information

●Language

Available languages are English and Chinese. ●

Date and time

System settings Press the Left/Right button to move the cursor. Press the Up/Down button to apply the value. Hold the Up/Down button to quickly change the selected value. Press the SET button to confirm. Auto power off Off

Press to cancel. Automatic filter ON 95 %

●

Measurement Mode

Press the Up/Down button to select Statistics / Multifunction Mode / Linear Mode / Histogram Mode. Steel and castings Steel and castings AVG:

AVG.: 809

62.6 HRC

Type D Count: 5/5 Type D Count: 5/5

Statistics Multifunction Mode

User Manual for Leeb Hardness Tester UT347A

Steel and castings Count: 5/5 Steel and castings Count: 5/5

AVG: 799 HL AVG: 846 HL

Type D Type D

Linear Mode Histogram Mode

Sound

Press the Up/Down button to select: Key and alarm / Only alarm / Only key / Off. ● Auto power off

Press the Up/Down button to select: 1 minute / 5 minutes / 10 minutes / 30 minutes / Off.

Automatic filter



## System Settings

Automatic filter

Language

Date Enable probability 90 %

Enable probability 95 %

Measurement Mode

Enable probability 99 %

Sound only

OFF

enabled

Automatic filter ON

95 %

When the automatic filter function is activated, after performing a set number of measurements, the hardness tester will automatically filter out large errors according to Grubbs' criterion. If the data is filtered out, additional measurements must be taken to reach the set number. There are three probability levels to choose from: 90%, 95%, and 99%. The lower the probability level, the easier it is to trigger the automatic filter. Note: when the number of measurements is set below 3, the automatic filter function is disabled by default.

User Manual for the Leeb UT347A Hardness Tester

### ● Photo

Turn the camera function on or off. Backlight

The brightness of the backlight can be adjusted. System settings

Measurements Mode

Backlight

Sound only

on

Photo ON. Backlight

Use the Left/Right button to adjust, then press the SET button to confirm. Press pr

Press to cancel.

Warning: Excessive brightness negatively affects battery life. ● Print resolution

The print resolution can be adjusted according to the type of thermal paper used. System settings

Sound Print resolution only

enabled

Photo ON Backlight

Print resolution

Press the Left/Right button to adjust, then press the SET button to confirm. Press to cancel.

Note: Excessive resolution may shorten the lifespan of the print head and cause the printer to overheat. Factory reset

System settings

Auto power off Off

Tip

Photo ON Do you want to restore factory settings? Backlight

No Yes

Print c

Restoring factory settings

Press the SET button, and a dialog box will appear asking "Restore factory settings?". Press the right button to select "Yes", then press the SET button to confirm. Note: All saved data will be deleted after restoring factory settings. User Manual for Leeb Hardness Tester

UT347A

## 8.11 Information

Information

Memory:

RÓ

Press briefly

Used 6.8M / 475.6M

MEASUREMENT Settings Calibration Records SET button

Version: 20220419

Unique ID: 2000490018504E4D47353420

BLE Settings SYS Settings Information

On this screen, the user can view information about memory, version, and unique ID.

Memory: remaining percentage, used memory, and total memory; Version changes with firmware updates; The unique ID of each tester is different. 9. Loading paper into the printer  
First, open the cover. If the paper roll falls out, it must be reinstalled. Be careful not to damage the rubber part. Insert the thermal paper into the printer, pull it out, and press it against the guillotine. The length of the paper should extend beyond the guillotine. Note: Standard thermal paper can only be printed on one side. If the paper is loaded

the wrong way, printing will be impossible. Close the cover – the printing paper is correctly

installed. Paper guillotine

Thermal paper

Paper roll

Cover

User Manual for Leeb Hardness Tester UT347A

## 10. Troubleshooting

Phenomenon Cause Solution

Tester does not turn on or turns off automatically after a short time due to low battery level.

Charge the hardness tester

during. Please return to the factory for battery replacement.

Battery life has significantly

Battery failure

shortened.

Tester cannot perform measurements. Impact device Replace the impact device

Cable damage Impact device cable

## 11. Maintenance

After performing 1000 to 2000 measurements, the impact device should be cleaned with a nylon brush. First, unscrew the retaining ring, then remove the casing of the impact device.

Screw the nylon brush counterclockwise into the bottom of the guide tube, then remove it.

Repeat the above steps five times, then reinstall the casing of the impact device and the retaining ring. After use, release the casing of the impact device. Do not use lubricants in the impact device. When measuring the hardness of a standard Leeb hardness block, if all errors are greater than 2HRC, replace the casing of the impact device. For other irregularities with the hardness tester, do not disassemble it. If the hardness tester is not used for an extended period, it should be fully charged every 3 months.

12. Storage and transport  
It is recommended to store the hardness tester away from vibrations, strong magnetic fields, corrosive environments, moisture, and dust, at room temperature. Transport is allowed on tertiary roads in the original packaging.

User Manual for Leeb Hardness Tester UT347A

1  
a table

Attached

impact device

Hardness

Material

unit

17.9-68.5 19.3-67.9 20.0-69.5 22.4-70.7 20.6-68.2

59.6-99.6 47.7-99.9 37.0-99.9

Steel and

59.1-85.8 61.7-88.0

cast steel

forged steel

22.6-70.2

alloy steel

46.5 ~ 101.7

stainless steel

steel

gray cast iron

cast iron

spheroidal cast iron

cast iron

cast

aluminum alloy 23.8-84.6

brass

13.5-95.3

Bronze

Pure copper

User Manual for Leeb Hardness Tester UT347A

Attached

table

2

No.

Material Leeb Hardness HLD (MPa) Yield Strength (MPa)

Soft steel

carbon steel

chrome steel

CrV steel

chromium-nickel steel

chromium-molybdenum steel

CrNiMo steel

CrMnSi steel

stainless steel

S steel

User Manual for Leeb Hardness Tester UT347A

Attached

table

3

Type of impact device

Impact energy 2.7 mJ

Mass of impact body 5.5 / 5.5 / 7.2 g 7.8 g 3.0 g

Hardness of impact body head

Diameter of impact body head

Material of striker tip Tungsten carbide

Tungsten carbide Tungsten carbide

Tungsten carbide

Diameter of impact device

Length of impact device

Weight of impact device

Maximum hardness of sample

Average roughness

1.6  $\mu\text{m}$  1.6  $\mu\text{m}$  0.4  $\mu\text{m}$  6.3  $\mu\text{m}$

surface roughness Ra

Minimum sample mass > 1.5 kg

Requires strong support 0.5-1.5 kg

Requires strong connection 0.05 ~ 2 kg 0.05 ~ 2 kg 0.02-0.5 kg 0.05-5 kg

Minimum sample thickness

Minimum depth

$\geq \geq$

0.8 mm 0.8 mm  $\geq 0.2$  mm  $\geq 1.2$  mm

hardened layer

Indentation size

Indentation

0.54 mm 0.54 mm 0.38 mm 1.03 mm

Diameter of hardness area

Depth

of indentation

Diameter

0.54 mm 0.54 mm 0.32 mm 0.90 mm

Hardness of indentation

Depth

of indentation

Indentation

0.35 mm 0.35 mm 0.35 mm

Hardness diameter

Indentation

depth

Type - DC: hole Type - G :

Type - D + 15 : Type - C :

or cylinder; Large

slot Small parts and

Type - DL: slender and castings

or surface

Application range of impact

devices or hole; with rough

slot hardened

surface

surface layers

Type - D: routine and forgings

measurement

User Manual for Leeb Hardness Tester UT347A

Attached table 4

No. Sketch of incorrect support ring Notes

Measurement of external cylinder

Measurement of external cylinder

R14.5 - R30

Measurement of external cylinder

Measurement of internal cylinder

Measurement of internal cylinder

HZ12.5-17

R12.5 - R17

Measurement of internal cylinder

HZ16.5-30

R16.5 - R30

Measurement of external spherical  
surface Sr10 - SR15

Measurement of external spherical  
surface K14.5-30

SR14.5 - SR30

Measure internal spherical surface  
SR11 ~ SR13

Measure internal spherical surface  
HK12.5-17

SR12.5 SR17

Measure internal spherical surface  
HK16.5-30

SR16.5 - SR30

Measure external cylinder,  
adjustable radius

This document is a translation of the original user manual created by the manufacturer. Detailed information about the distributor/manufacturer warranty conditions is available on the website <https://serwis.innpro.pl/gwarancja>

The product must be regularly maintained (cleaned) by the user or through specialized service points at the user's cost and responsibility. In the absence of information about necessary periodic or service maintenance actions in the user manual, the user should regularly, at least once a week, assess the deviation of the physical condition of the product from that of a physically new product. If any deviation is detected or noted, urgent maintenance (cleaning) or service actions must be taken. Failure to properly maintain (clean) and respond upon detection of a deviation may lead to permanent damage to the product. The warranty does not cover damages resulting from neglect. Warnings and safety information

All information regarding operation and use can be found in the user manual or on the product label. Before starting to use the products, familiarize yourself with its content and follow the instructions contained therein. Also, before use, review the following information:

User safety

Use measuring tools according to their intended purpose. Do not use measuring tools for tasks for which they were not designed to avoid damage or incorrect measurement results. Always ensure that the tool is in good technical condition before use. Damaged tools, such as cracked housings or damaged displays, may lead to incorrect measurements or risk of accidents.

Regularly calibrate measuring tools to ensure their accuracy and reliability of measurements. Incorrectly calibrated devices can lead to erroneous results. Precautions Use appropriate eye protection, especially when working with measuring tools that may emit radiation. Keep measuring tools away from children and untrained individuals to prevent accidental damage or misuse. Avoid using measuring tools in extreme temperature, humidity conditions, or in an atmosphere with high dust concentration, which may affect their accuracy and functionality. When working with measuring tools, exercise caution to avoid damaging delicate measuring components (e.g., sensors, probes). Safe usage Always ensure that the measuring tool is properly set up and secured to avoid measurement errors or damage. Use measuring tools only in designated areas that provide adequate stability and minimize the risk of accidents, such as slippery or uneven surfaces. Never take measurements on live components or in conditions that may pose a safety hazard. Usage guidelines in appropriate conditions Store measuring tools in a dry, cool place, away from moisture and direct sunlight, which may damage the devices or affect their accuracy. When using measuring tools, ensure they are well seated and not exposed to shocks or impacts that may lead to their damage. Avoid using measuring tools in areas with extreme conditions, such as heavy vibrations, hot surfaces, dust, or moisture, unless the tool is designed for such conditions by the manufacturer. Maintenance instructions Regularly check the condition of measuring tools, especially measuring components (e.g., sensors, probes, displays) and batteries. Follow the cleaning instructions provided by the manufacturer. Use appropriate cleaning materials (e.g., soft cloths) to avoid damaging delicate components. Regularly calibrate measuring tools according to the manufacturer's recommendations to maintain measurement accuracy. Safe disposal Worn or damaged measuring tools should be disposed of in accordance with applicable environmental protection and electronic recycling regulations. Do not throw measuring tools in regular waste containers, as they may contain environmentally harmful components. Contact local authorities or recycling companies for information on proper disposal of worn measuring tools. Declaration of conformity Products have been designed in accordance with the safety requirements specified in Regulation (EU) 2023/988 on general product safety, ensuring their compliance with applicable safety and



health standards for users. Safety measures Before charging, check that the device contacts are clean. Never leave the device unattended while in use and charging. Ensure that you can quickly disconnect the device from the power source in an emergency. Never expose the device to high temperatures. Charge the device in a dry and well-ventilated area away from flammable materials, maintaining a minimum space of 1m from other objects. Never cover the device while charging. Never use a power supply, charging station, cables, etc., without the manufacturer's recommendation and certification. Take care of your property; the device is equipped with cells that are difficult to extinguish, so have a fire blanket on hand. LI-ION battery The device is equipped with a LI ION (lithium-ion) battery, which, due to its physical and chemical structure, ages over time and with use. The manufacturer specifies the maximum operating time of the device under laboratory conditions, where optimal operating conditions for the device exist, and the battery itself is new and fully charged. Actual operating time may differ from the declared in the offer and this is not a defect of the device but a product feature. To maintain maximum battery life, it is not recommended to discharge it below 3.18V or 15% of total capacity. Lower values, such as 2.5V for the cell, permanently damage it and are not covered by warranty. If the battery or the entire device is not used for more than one month, the battery should be charged to 50% and its charge level should be checked periodically every two months. Store the battery and device in a dry place, away from sunlight and negative temperatures.

#### LI-PO Battery

The device is equipped with a LI PO (lithium-polymer) battery, which, due to its physical and chemical structure, ages over time and with use. The manufacturer specifies the maximum operating time of the device under laboratory conditions, where optimal working conditions for the device exist, and the battery itself is new and fully charged. Actual operating time may differ from that declared in the offer and this is not a defect of the device but a product feature. To maintain maximum battery life, it is not recommended to discharge it below 3.5V or 5% of the total capacity. Lower values, such as 3.2V for the cell, permanently damage it and this is not covered by the warranty. If the battery or the entire device is not used for more than one month, the battery should be charged to 50% and its charge level should be checked periodically every two months. Store the battery and device in a dry place, away from sunlight and negative temperatures.

#### SIMPLIFIED EU DECLARATION OF CONFORMITY

UNI-TREND TECHNOLOGY EU GMBH hereby declares that the type of radio device Hardness Tester Uni-T Leed UT347A is in compliance with Directive 2014/53/EU. The full text of the EU

declaration of conformity is available at the following website: <https://files.innpro.pl/uni-t>

Manufacturer's address: Affinger Strasse 12 86167 Augsburg, Germany

Radio frequency: 2.4Ghz (2400Mhz - 2483.5Mhz)

Maximum radio frequency power: <20dBm

#### Environmental Protection

Used electronic equipment marked in accordance with the European Union directive must not be placed together with other municipal waste. It is subject to selective collection and recycling at designated points. By ensuring its proper disposal, you prevent potential negative consequences for the natural environment and human health. The system for collecting used equipment complies with locally applicable environmental protection regulations regarding waste disposal. Detailed information on this topic can be obtained from the municipal office, waste management facility, or the store where the product was purchased. The product meets the requirements of the so-called New Approach directives of the European Union (EU) concerning issues related to user safety, health protection, and environmental protection, specifying hazards that should be detected and eliminated.

#### Importer:

INNPRO Robert Błędowski sp. z o.o. Rudzka 65c

44-200 Rybnik, Poland

tel. +48 533 234 303

[hurt@innpro.pl](mailto:hurt@innpro.pl)

[www.innpro.pl](http://www.innpro.pl)

#### Representative in the EU:

UNI-TREND TECHNOLOGY EU GMBH

Affinger Strasse 12

86167 Augsburg, Germany

[info@amz-lab.de](mailto:info@amz-lab.de)

#### Product Battery Specifications

##### Feature Value

Battery category General-purpose portable battery

Battery type Portable button batteries: Lithium

Contains Cadmium/Lead (>0.002% Cd, No

>0.004% Pb)

Net weight (kg) 0.003

Capacity (mAh) 5.5