

# Mitutoyo



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Mitutoyo Quality

## Rebound-type Portable Hardness Tester Hardmatic Pocket Tester HH-V400

Test Equipment



Catalog No.E17015-US

Easy for Anyone, with One Press of a Button

# Instantly Test Hardness Anywhere, Anytime

Simply Set and  
Press the  
Button!

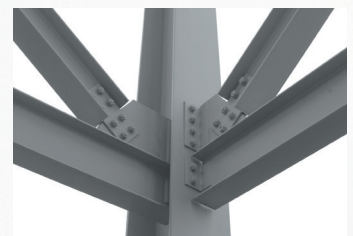
The HH-V400 is a rebound-type hardness tester for metals.

Hardness is determined from the ratio of the impact hammer's rebound velocity to its impact velocity.

**POINT 1**  
**Portable,  
One-click Device**

**POINT 2**  
**Wide Range of  
Test Targets**

**POINT 3**  
**Selectable  
Hardness Scale**



For hardness testing of all metals,  
including large structures.

Note: Photograph is for illustrative purposes only. In an actual test, be sure to firmly hold the coil holder at the bottom of the detector.

Greatly improved functionality and operability, including color LCD display and enhanced statistical calculation functions

# Fully Redesigned Calculation Display

Clearer

Simpler

More User-friendly

**NEW**

### Color LCD

- Backlit
- Eco mode function
- Auto off

### Easy-Operation Keys

Easy-to-understand icons

- ⏻ Power on/off
- ⚙️ Menu screen display
- ✓ Confirm
- ↶ Back (return to previous screen)
- 📄 Data output
- ⬅️➡️ Change items and values



### SPC Connector

- Data output

### USB Connector

- Data output, charging

### Rechargeable Battery

- Continuous operation for 8 hours

## External Output Devices (Optional)

You can enter test data into Excel, Notepad, etc.



IT-020U

For printing out test data.



DP-1VA LOGGER

Test data can be output wirelessly and processed on a PC.



U-WAVE-R  
Data reception unit



U-WAVE-T  
Data transmission unit

## Key Points of the Calculation Display Unit

Can automatically save up to 1800 test results

Can register up to 100 samples

Includes acceptance judgment, offsetting, and statistical calculation functions

Convenient external output function

Easy Operation with Icons



### Easy and convenient test setup with easy-to-understand operation key icons

Includes useful functions such as acceptance judgment, offsetting, and statistical calculation

#### Sample Material Selection

Select the sample material from the material table.  
(Example) A-1: Iron and steel

#### Offset Value

Set the offset value.

2025/06/01 12:34	
Table	A-1
GO/NG	ON
	700
	500
Offset	ON
	-5
Ave.	ON
	N= 5

#### Acceptance Judgment

Set upper and lower limits.

#### Statistical Calculation

Set the number of test repetitions (N) and perform statistical calculations.

#### Test Results

#### Statistical Calculation Results

#### Offset Icon

The offset value is reflected in the test results.

2025/06/01 12:34	
003	HLD
	GO
783.0	
30	GO 783.0
29	GO 783.0
28	GO 782.0
27	-NG 611.0
26	-NG 613.0
25	-NG 613.0

#### Test Scale

(Example) HLD: Leeb hardness

HLD	HV
HRC	HRB
HB	VHS
MPa	HS

You can switch between various test scales.

#### Acceptance Judgment

2025/06/01 12:34	
003	HLD
3/3	GO
783.0	
Ave	726.0
Max	783.0
Min	613.0
R	170.0
SD	97.9

#### Acceptance Judgment

Ave (average value)  
Max (maximum value)  
Min (minimum value)  
R (range [variance])  
SD (standard deviation) are calculated.

## Toggle the test results display between items

Easily display test results and data management

#### Test Number Display

2025/06/01 12:34	
001	HLD
	GO
783.0	
30	783.0
29	783.0
28	782.0
27	611.0
26	613.0
25	613.0

#### Date Display

2025/06/01 12:34	
001	HLD
	GO
783.0	
08/01 12:34	783.0
08/01 11:20	783.0
08/01 10:22	782.0
08/01 10:11	611.0
08/01 09:22	613.0
08/01 08:20	613.0

#### Sample Display

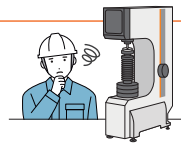
2025/06/01 12:34	
001	HLD
	GO
783.0	
MITU0011	783.0
MITU0011	783.0
MITU0011	782.0
MITU0011	611.0
MITU0011	613.0
MITU0011	613.0

Register up to 100 samples.

## Key Points of the Product

# 1. Portable, One-click Device

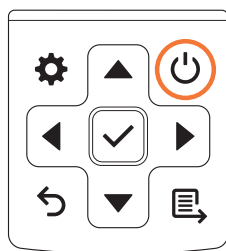
The HH-V400 is cordless with a rechargeable battery for portability and simple on-site testing. The tester can also be used for objects that cannot be placed onto a tabletop testing machine or are not easily accessible.



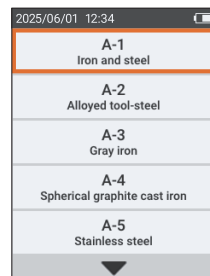
When you want to do on-site measurement...



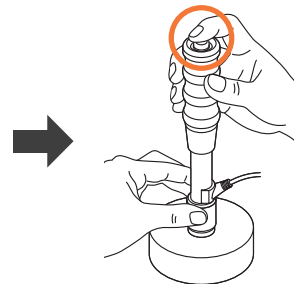
Simply press the detector against the sample surface and press the PUSH button. No adjustment work is required when connecting the detector.



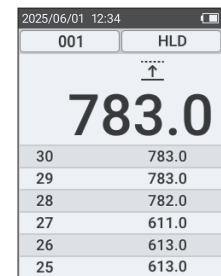
(1) Turn the power on.



(2) Select the material.



(3) Press the PUSH button.



(4) The results are displayed.

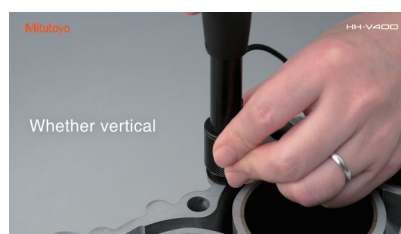
### Material Table Selection

Screen display	Sample material
A-1	Iron and steel
A-2	Alloyed tool-steel
A-3	Gray iron

Screen display	Sample material
A-4	Spherical graphite cast iron
A-5	Stainless steel
A-6	Tool steels for cold-work

Screen display	Sample material
B-1	Brass
B-2	Casting copper-based alloys
B-3	Casting aluminum-based alloys
B-4	Copper-tin-based alloys

The automatic angle-correcting function allows testing in all directions, not just vertically.



Watch a video demonstration of simple omnidirectional measurement.

## Key Points of the Product


# 2. Wide Range of Test Targets

In addition to general-purpose detectors, we offer a wide range of detectors to suit a variety of test subjects.

### Standard Detector

Standard-type general-purpose detector

**Detector D**  
(Standard type)


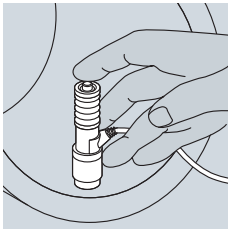


\*Standard accessory for HH-V400

### Optional Detector

Automatic recognition of detectors when changing them

**Detector DC**  
(Compact type)


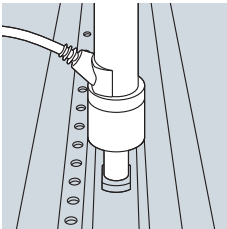



For narrow spaces such as the insides of pipes

### Optional Detectors


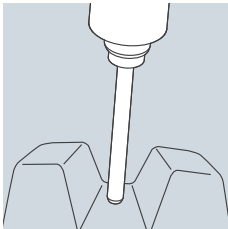
Automatic recognition of detectors when changing them

**Detector D + 15**  
(15 mm longer than standard)

For gaps, grooves, and parts with shallow steps

**Detector DL**  
(For deep grooves)

For narrow surfaces such as grooves between gear teeth

# 3. Selectable Hardness Scale

Conversion to various hardness scales based on Leeb hardness values

## ■ Detector Conversion Ranges

	Detector D	Detector DC					
Material	HV/Vickers	HB/Brinell	HRC/Rockwell C	HRB/Rockwell B	HS (ASTM)/Shore	VHS (JIS)/Shore	MPa/Tensile strength
Iron and steel	80 to 940	80 to 647	20.0 to 68.0	38.4 to 99.5	30.1 to 99.5	13.2 to 98.0	390 to 1999
Alloyed tool-steel	80 to 898	—	20.4 to 67.1	—	—	—	—
Gray iron	—	93 to 334	—	—	—	—	—
Spherical graphite cast iron	—	131 to 387	—	—	—	—	—
Stainless steel	85 to 802	85 to 655	19.6 to 62.4	46.5 to 101.7	—	—	—
Brass	43 to 196	40 to 173	—	13.5 to 95.3	—	—	499 to 701
Casting copper-based alloys	—	45 to 315	—	—	—	—	—
Casting aluminum-based alloys	—	20 to 159	—	—	—	—	—
Copper-tin-based alloys	—	60 to 290	—	—	—	—	—

	Detector D + 15						
Material	HV/Vickers	HB/Brinell	HRC/Rockwell C	HRB/Rockwell B	HS (ASTM)/Shore	VHS (JIS)/Shore	MPa/Tensile strength
Iron and steel	80 to 937	80 to 638	19.3 to 67.9	—	33.3 to 99.3	35.3 to 97.8	394 to 1991
Tool steels for cold-work	80 to 935	—	19.8 to 68.2	—	—	—	—

	Detector DL						
Material	HV/Vickers	HB/Brinell	HRC/Rockwell C	HRB/Rockwell B	HS (ASTM)/Shore	VHS (JIS)/Shore	MPa/Tensile strength
Iron and steel	80 to 950	81 to 638	20.6 to 68.2	37.0 to 99.9	30.6 to 96.8	32.3 to 98.6	390 to 1976

## Specifications

<b>Order No.</b>	<b>810-306</b>		
<b>Model No.</b>	<b>HH-V400</b>		
<b>Testing hardness and range</b>	Leeb hardness: 100.0 to 999.9 HLD		
<b>Testing direction</b>	Omnidirectional (with automatic angle-correcting function)		
<b>Hardness scale conversion function*</b> (Conversion range varies depending on material)	Vickers hardness: 43 to 950 HV		
	Brinell hardness: 20 to 655 HB		
	Rockwell hardness (C-scale): 19.3 to 68.2 HRC		
	Rockwell hardness (B-scale): 13.5 to 101.7 HRB		
	Shore hardness: 30.1 to 99.5 HS (ASTM) 13.2 to 98.6 HS (JIS)		
<b>Sample conditions</b>	Tensile strength: 390 to 1999 MPa		
	Minimum thickness: 5 mm		
	Minimum mass: 5 kg		
<b>Functions</b>	Testing position: At least 5 mm from the edge of the sample and at least 3 mm between test points		
	Surface roughness: Ra 2.0 or less		
<b>Detector</b>	<b>Type</b>	Detector D (standard type), impact hammer, with carbide ball at the tip	
	<b>Dimensions</b>	ø28 x 175 mm (excluding cable)	
	<b>Mass</b>	Approx. 150 g	
<b>Display unit</b>	<b>Screen</b>	2.83" (240 x 320 pixels), RGB color LCD	
	<b>Dimensions</b>	174 x 68 x 32 mm	
	<b>Mass</b>	Approx. 250 g	
<b>Power supply</b>	AC adapter, built-in battery (Ni-MH) (Up to 8 hours of operation after 100 minutes of charging)		

\*HH-V400 guarantees the indicated values based on Leeb hardness. Converted values are for reference only.

## Standard Accessories

Order No.	Product Name	Quantity	Notes
11AAE901	Display unit	1	
—	Detector	1	Detector D (standard type)
—	Impact hammer	1	Uses a carbide ball at the tip
12BAS450	AC adapter	1	Input voltage: AC 100 V to 240 V $\pm$ 10 % (50 Hz/60 Hz) Output rating: DC 5.0 V 2.0 A Number of pins: 6
12BAS451	USB 2.0 cable	1	Type A-C
11BAB687	Handle	2	Ball-replacement tool
11AAA857	Small support ring	1	ø14 mm
05CAA952	Phillips screwdriver	1	For detector replacement
11PAA429	Storage box	1	
99MBG538B	Quick start guide	1	Japanese/English
99MBG537A	Instruction manual	1	English
—	Certificate of inspection	1	
—	Warranty	1	

\*Delivered in storage box.

## Options

Order No.	Product Name	Specifications
11AAE902	Detector D	ø28 × 174.5 mm (tip diameter ø22 mm)
11AAE903	Detector DC	ø18 × 86 mm (tip diameter ø22 mm)
11AAE904	Detector D +15	ø28 × 189.5 mm (tip width 12 mm)
11AAE905	Detector DL	ø28 × 229 mm (tip diameter ø4 mm)
11AAD240	Hardness test block	Approx. 800 HLD
19BAA248	Support ring	For convex cylindrical surfaces (R10 to 20 mm): for Detectors D and DC
19BAA249	Support ring	For concave cylindrical surfaces (R14 to 20 mm): for Detectors D and DC
19BAA250	Support ring	For convex spherical surfaces (R10 to 27.5 mm): for Detectors D and DC
19BAA251	Support ring	For concave spherical surfaces (R13.5 to 20 mm): for Detectors D and DC
19BAA457	Carbide ball	For Detectors D, DC, and D +15
19BAA458	Replacement ball shaft	For Detector DL

## External Output Devices

Order No.	Product Name	Specifications
264-506*	Digimatic Mini-Processor DP-1VA LOGGER	Test data printing
09EAA082	Recording paper	For DP-1VA LOGGER (10 rolls)
264-020	USB Input Tool IT-020U	Test data input unit
06AGL011	Connection cable (1 m)	
06AGL021	Connection cable (2 m)	
02AZD730G	U-WAVE-T	Data transmission unit, IP67 type
02AZD880G	U-WAVE-T	Data transmission unit, buzzer type
02AZD810D	U-WAVE-R	Data reception unit
02AZG011	Connection cable for dedicated use with U-WAVE-T (160 mm)	

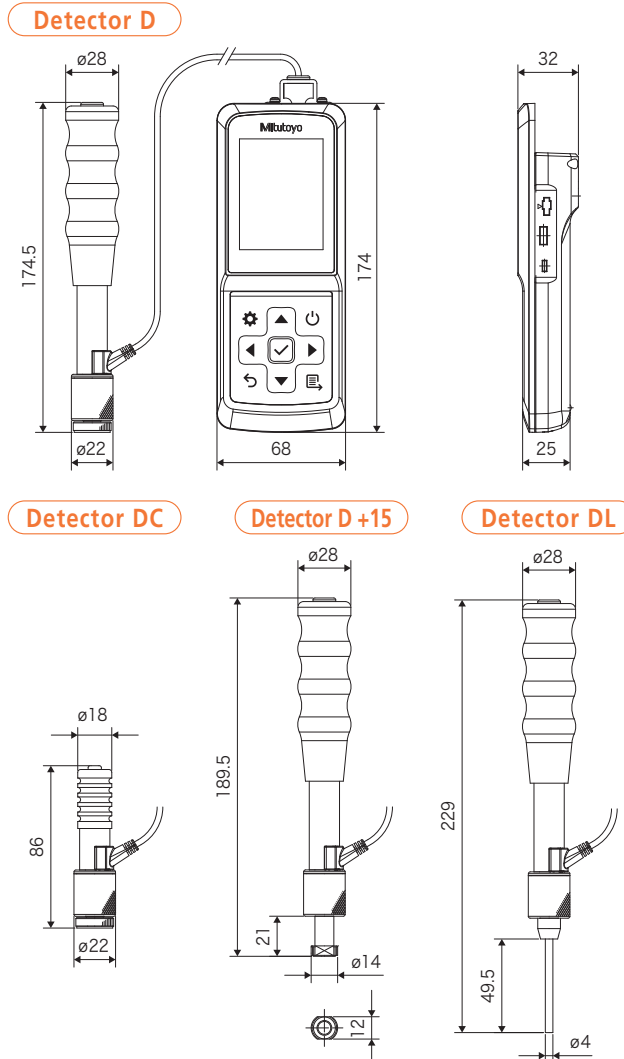
\* To denote your AC line voltage, add the following suffixes. A for North America, D for Europe, E for the UK, K for Korea, DC for China, and no suffix is required for Japan.

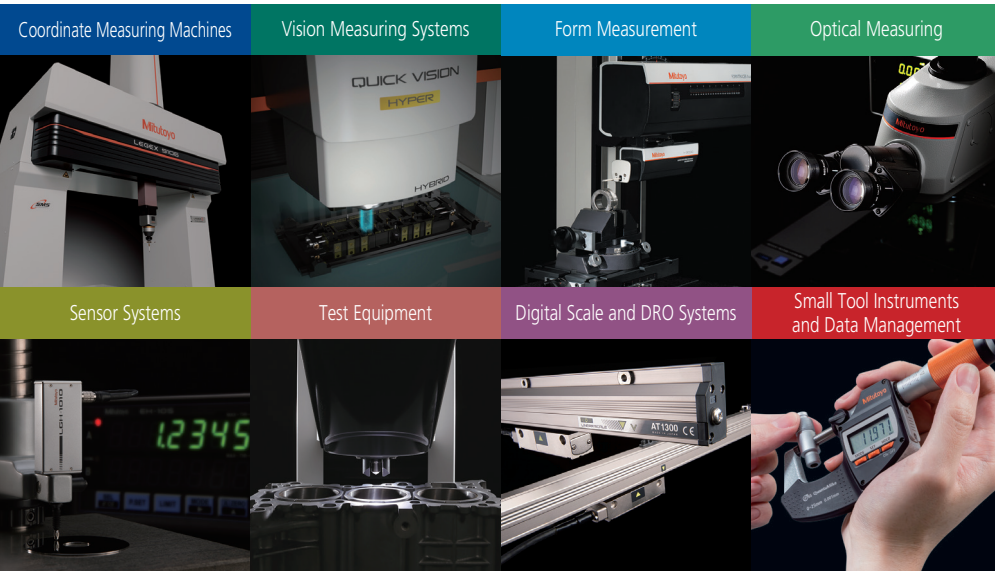
## Calibration Blocks

Order No.	Description
64HAA467	520 HLD range leeb hardness standard
64HAA468	630 HLD range leeb hardness standard
64HAA469	730 HLD range leeb hardness standard
64HAA470	800 HLD range leeb hardness standard

## External Dimensions

Unit: mm





**Whatever your challenges are, Mitutoyo supports you from start to finish.**

Mitutoyo is not only a manufacturer of top quality measuring products but one that also offers qualified support for the lifetime of the equipment, backed up by comprehensive services that ensure your staff can make the very best use of the investment.

Apart from the basics of calibration and repair, Mitutoyo offers product and metrology training, as well as IT support for the sophisticated software used in modern measuring technology. We can also design, build, test and deliver measuring solutions and even, if deemed cost-effective, take your critical measurement challenges in-house on a sub-contract basis.

# Mitutoyo

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