

HT 10

Portable Rebound (Leeb) Hardness Tester

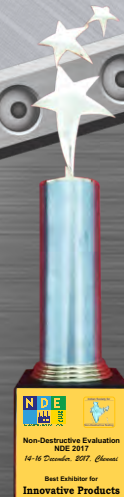
Hardness at ease
any where any time...!

High accuracy, reliable,
rugged & easy to use.

Variety of impact devices
for hardness measurement of
almost all complex (thin, thick,
hollow, groove, etc.) applications
on wide range of materials with
wide scale measurement.



Launched Globally
Engineered & Manufactured
from world's best technology



The HT-10

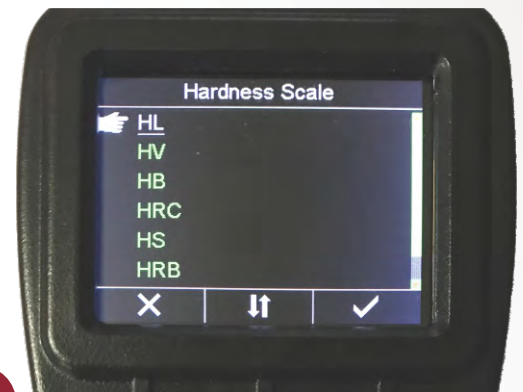
The HT-10 is the latest in portable Leeb hardness testing machines. The equipment is designed with high precision of engineering to give the best reliable, accurate and repeatable results. It overcomes the limitations of typical laboratory bench type large testing machines.

Colour TFT-LCD bright display with adjustable brightness gives a new dimension to clear visual display.

Why is it different from others?

Years of field experience on various application has been incorporated with latest technology to make it extremely easy to operate.

- Easy single point finger tip operation.
- All calibration and operations are menu driven.
- Arrow keys for easy navigation and to change parameters.



Measurement Scale

Almost all general required scales with extremely high accuracy. HL, HRB, HRC, HB, HV, HS scales.

Range of Impact Devices for Various Applications

A wide range of impact devices are available for various complex applications (refer to table 2 and table 3). Hollow cylindrical, grooves, thick/thin parts, hardened layer can easily be tested with extreme accuracy (Refer to Impact Devices Selection Guide table 1).

The equipment automatically detects the impact device when connected.



Supporting rings are available with different sizes to fit in for cylindrical/spherical surfaces beyond the below limit.

Impact device types	Radius
Impact device type G	$R_{\min} = 50 \text{ mm}$
Impact device types D/DC, C and E	$R_{\min} = 30 \text{ mm}$



Material Range

Hardness can be taken on wide range of materials. Direct key helps to select material scale (Group) in single menu.

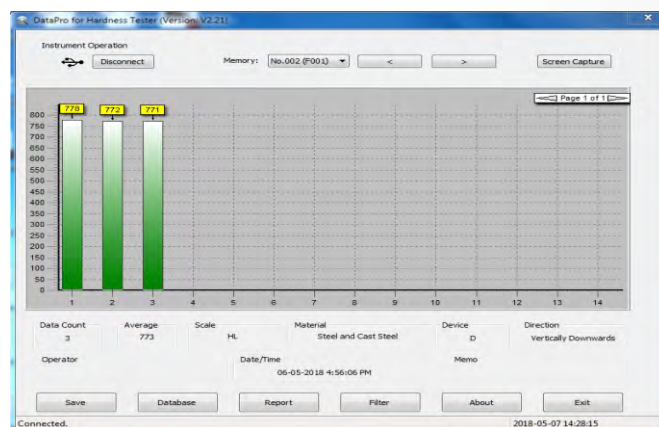
- Steel and Cast Steel
- Cold Work Tool Steel
- Stainless Steel
- Grey Cast Iron
- Nodular Cast Iron
- Cast Aluminium Alloys
- Brass (Copper-Zinc Alloys)
- Bronze (Copper-Aluminium/Tin Alloys)
- Wrought Copper Alloys



Easy Data Processing

The HT-10 has built in data logger with capacity to store measurements. The data can be transferred via USB 2.0 communication port to PC and a quick report with ease can be generated within no time through [Datapro Software](#). Complete data of hardness values, average values, material, impact directions, date & time of measurement are all captured and stored through which a statistics analysis can be performed.

Hardness Test Report					
Report NO.:	TCIS001		Report Time:	5/7/2018 14:29	
Operator:	Satya		Test Time:	5/6/2018 16:56	
Material:	Steel and Cast Steel		Scale:	HL	
Impact Device:	D		Direction:	Vertically Downwards	
Data count:	3		Average:	773	
	[1]:778	[2]:772	[3]:771		

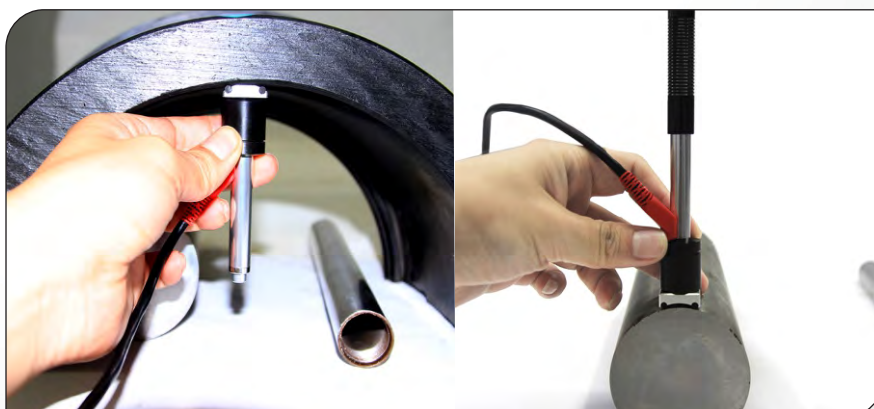


Operation & Maintenance

The HT-10 is extremely easy to operate. The required keys are direct to operate. The equipment is made of ABS plastic sealed to give a high protection level, thus being very rugged. Only two AA batteries can run for more than 100 hrs.

Application

- Weld/Base Metal
- Pressure Vessels
- Bearings/Machineries
- Castings/Blanks
- Pipes/Tubes (Inner and Outer Wall)
- Gears



Impact Devices Selection Guide (Table 1)

Indenter Type	Application Description
D	Standard indenter for general purpose testing
DC	Indenter for testing hole or hollow cylindrical surface
DL	Indenter for testing slender narrow groove or hole
D+15	Indenter for testing groove or concave surfaces
G	Indenter for testing large, thick, heavy, rough surfaces
C	Indenter for testing small, light, thin surfaces or parts



Impact Device Types Based on Material Categorization with Measurement Range

(Table 2)

Material	Scale	Impact device					
		D/DC	D+15	C	G	E	DL
Steel and cast steel	HRC	20 ~ 68.5	19.3 ~ 67.9	20.0 ~ 69.5		22.4 ~ 70.7	20.6 ~ 68.2
	HRB	38.4 ~ 99.8			47.7 ~ 99.9		37.0 ~ 99.9
	HB	81 ~ 654	80 ~ 638	80 ~ 683	90 ~ 646	83 ~ 663	81 ~ 646
	HV	81 ~ 955	80 ~ 937	80 ~ 996		84 ~ 1042	80 ~ 950
	HS	32.2 ~ 99.5	33.3 ~ 99.3	31.8 ~ 102.1		35.8 ~ 102.6	30.6 ~ 96.8
Cold work tool steel	HRC	20.4 ~ 67.1	19.8 ~ 68.2	20.7 ~ 68.2		22.6 ~ 70.2	
	HV	80 ~ 898	80 ~ 935	100 ~ 941		82 ~ 1009	
Stainless steel	HRB	46.5 ~ 101.7					
	HB	85 ~ 655					
	HV	85 ~ 802					
Grey cast iron	HRC						
	HB	93 ~ 334			92 ~ 326		
	HV						
Nodular cast iron	HRC						
	HB	131 ~ 387			127 ~ 364		
	HV						
Cast aluminum alloys	HB	19 ~ 164		23 ~ 210	32 ~ 168		
	HRB	23.8 ~ 84.6		22.7 ~ 85.0	23.8 ~ 85.5		
BRASS(copper-zinc alloys)	HB	40 ~ 173					
	HRB	13.5 ~ 95.3					
BRONZE(copper-aluminum/tin alloys)	HB	60 ~ 290					
Wrought copper alloys	HB	45 ~ 315					

Impact Device and Indentation Details

Table 3:

Impact device	DC(D)/DL	D+15	C	G	E	
Impacting energy	11mJ	11mJ	2.7mJ	90mJ	11mJ	
Mass of impact body	5.5g/7.2g	7.8g	3.0g	20.0g	5.5g	
Tip hardness:	1600HV	1600HV	1600HV	1600HV	5000HV	
Dia. tip:	3mm	3mm	3mm	5mm	3mm	
Material of tip:	Tungsten carbide	Tungsten carbide	Tungsten carbide	Tungsten carbide	Synthetic diamond	
Impact device diameter:	20mm	20mm	20mm	30mm	20mm	
Impact device length:	86(147)/ 75mm 50g	162mm	141mm	254mm	155mm	
Impact device weight:		80g	75g	250g	80g	
Max. hardness of sample	940HV	940HV	1000HV	650HB	1200HV	
Mean roughness value of sample surface Ra:	1.6µm	1.6µm	0.4µm	6.3µm	1.6µm	
Min. weight of sample:						
Measure directly	>5kg	>5kg	>1.5kg	>15kg	>5kg	
Need support firmly	2 ~ 5kg	2 ~ 5kg	0.5 ~ 1.5kg	5 ~ 15kg	2 ~ 5kg	
Need coupling tightly	0.05 ~ 2kg	0.05 ~ 2kg	0.02 ~ 0.5kg	0.5 ~ 5kg	0.05 ~ 2kg	
Min. thickness of sample Coupling tightly	5mm	5mm	1mm	10mm	5mm	
Min. layer thickness for surface hardening	≥0.8mm	≥0.8mm	≥0.2mm	≥1.2mm	≥0.8mm	
Size of tip indentation						
Hardness	Indentation diameter	0.54mm	0.54mm	0.38mm	1.03mm	0.54mm
300HV	Depth of indentation	24µm	24µm	12µm	53µm	24µm
Hardness	Indentation diameter	0.54mm	0.54mm	0.32mm	0.90mm	0.54mm
600HV	Depth of indentation	17µm	17µm	8µm	41µm	17µm
Hardness	Indentation diameter	0.35mm	0.35mm	0.30mm	--	0.35mm
800HV	Depth of indentation	10µm	10µm	7µm	--	10µm
Suitability		DC: Test hole or hollow cylindrical; DL: Test slender narrow groove or hole	Test groove or reentrant surface	Test small, light, thin parts and surface of hardened layer	Test large, thick, heavy and rough surface steel	Test super high hardness material

Standard Packaging



Technical Specification

Measuring Range	(170~960) HLD
Impact Direction	All Direction / Auto Detection
Material	Steel and Cast Steel, Cold work tool steel, Stainless steel, Grey cast iron, Nodular cast iron, Cast aluminium
Hardness Scale	HL, HB, HRB, HRC, HRA, HV, HS
Impact Energy	11mJ (Impact Device D)
Impact Ball Hardness	1600HV
Impact ball Diameter	3mm (Impact Device D)
Impact Ball Material	Tungsten carbide (Impact Device D)
Display	Colour LCD-TFT
Storage	500 measurement series.(Relative to average times 32 ~ 1)
Calibration	Basic (single point) calibration and multi-point calibration function
Data Printing	By connecting the PC to print
Power Voltage	3V, two AA size, alkaline batteries
Power Supply	Two ordinary AA batteries
Power Consumption	Low-power design
Standby Period	About 100 hours(with default brightness)
Communication Port	USB1.1
Shell Material	ABS plastic seal design
Dimensions	150mm×76mm×38mm
Weight	300 gms without Battery
PC software	Datapro Software

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