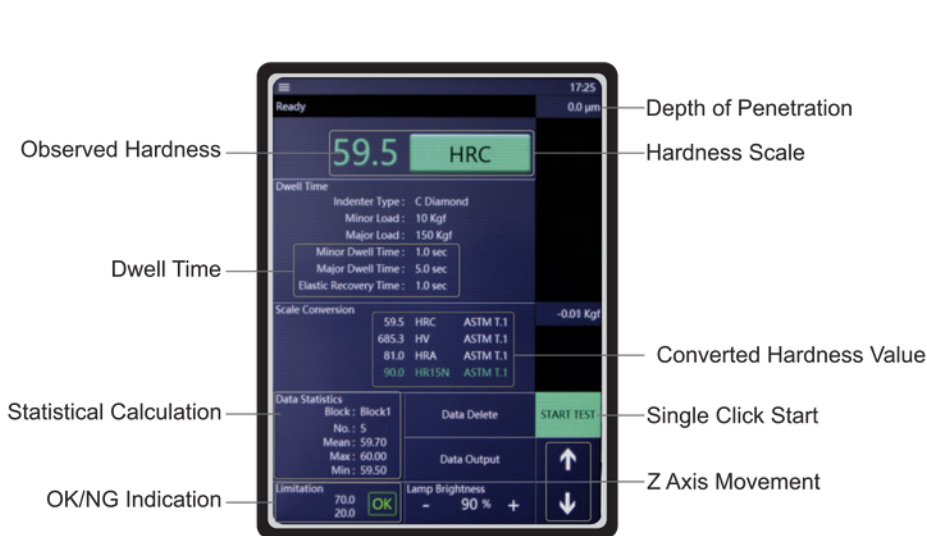


# Rockwell Hardness Tester



## Fully Automatic Touch Screen Load Cell Based Rockwell Hardness Tester



TLRH-Z / TLRSH-Z

### Features

#### Automatic Z Axis

Just press START, entire process will be done automatically. The sample will be auto lifted to approach the indenter, and finish hardness testing automatically.

#### Load Cell, Closed Loop, Force Control

TLRH-Z/TLRSH-Z is a new generation load cell Rockwell Hardness Tester with electronically controlled, closed loop system and advanced force technology to achieve absolute accuracy, reliability and repeatability.

#### Adjustable Illumination System

Built-in adjustable illumination light source is fitted in machine to see the test area clearly.

#### Large Touch Screen Panel

Multi function 8 inch touch screen panel is fitted on machine which display various data output. Such as observed hardness, permanent depth of penetration, max depth of penetration, indenter type, Minor & Major Load, multiple conversion value, Data Statistics, OK&NG.

#### Hardness Conversion

4 conversion scales (hardness value) can be displayed at the same time as per ASTM & ISO standard.

#### Data Output

Equipped with built-in thermal printer to take the print out hardness result. USB port is also available to get the data in pendrive.

Specification	TLRH-Z	TLRSH-Z
Z Axis Movement	Auto	Auto
Display	8 inch Touch Screen	8 inch Touch Screen
Initial Test Force (N)	98.07N (10kgf) for Rockwell	29.42 N (3kgf) for Superficial 98.07N (10kgf) for Rockwell
Main test force (N)	588.4N, 980.7N, 1471N (60kgf) (100kgf) (150kgf)	147.1N, 294.2N, 441.3N, 588.4N, 980.7N, 1471N (15kgf) (30kgf) (45kgf) (60kgf) (100kgf) (150kgf)
Loading Control	Automatic (Loading, Dwell, Unloading)	Automatic (Loading, Dwell, Unloading)
Conversion Scale	HR (Rockwell), HB (Brinell), HV (Vickers)	HR (Rockwell), HB (Brinell), HV (Vickers)
Max Test Height	270mm	270mm
Depth of Throat	165mm	165mm
Dwell Time	1~60s	1~60s
Data Output	Built-in printer & USB port	Built-in printer & USB port

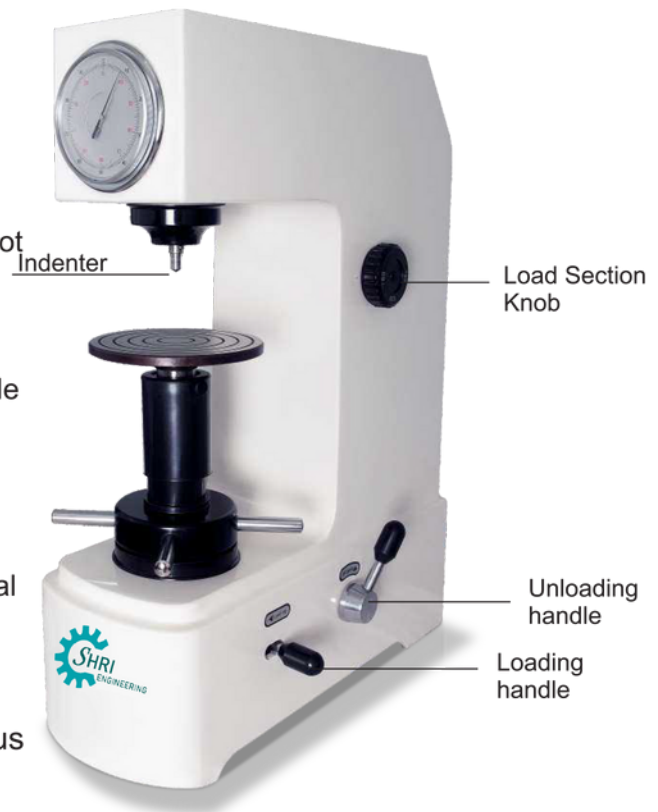
## TRH-150A

### FEATURES

1. Decent design, high testing precision and simple operation.
2. Adopted car painting technology. The paint shade do not fade and machine looks like new over year.
3. The Elevating screw is guided in a hardened & ground bush, not allowing movement of elevating screw more than 0.05mm when raised to full height
4. An antifriction linear movement with almost no clearance is provided for a perfect movement of diamond holder. this enable testing of small dia. pin or ball upto 3mm dia.
5. The machine provided with manual zero setting dialindicator having least count of 0.5 HR and automatic load selection by knob.
6. The machine can be upgraded to digital by replacing with digital dial indicator (optional)

### APPLICATION

it is widely used to measure the Rockwell hardness of ferrous and non-ferrous metals such as quenched steel, tempered and annealed steel, hard alloy steel, aluminium alloy, copper etc. in the labs of research institutions, tool rooms, heat treatments. and mines. This machine confirms to IS : 1586- 2 for Rockwell Hardness Test.



### TECHNICAL SPECIFICATION

MODEL	TRH-150A	
Loads	kgf	60, 100, 150
Initial Load	kgf	10
Least Count		0.5 HR
Max Test Height	mm	170
Depth of Throat	mm	125
Max. depth of elevating screw below base	mm	120
Size of base (approx)	mm	460x200
Machine Height (approx)	mm	620
Weight (approx)	kg	65
Dial Gauge	mm	Φ 100

### STANDARD ACCESSORIES

Φ60mm flat anvil	1 Pc
Φ60mm V-type anvil	1 Pc
Diamond indenter	1 Pc
Φ1.587mm carbide ball indenter	1 Pc
Hardness test block HRB	1 Pc
Hardness test block HRC	1 Pc
Screw Driver	1 Pc
Telescopic sleeves for elevating screw protection	1 Pc
Accessories Box	1 Pc
Instruction Manual	1 Pc
Leveling bubble	1 Pc





# DIGITAL ROCKWELL HARDNESS TESTER

## TRH-150D

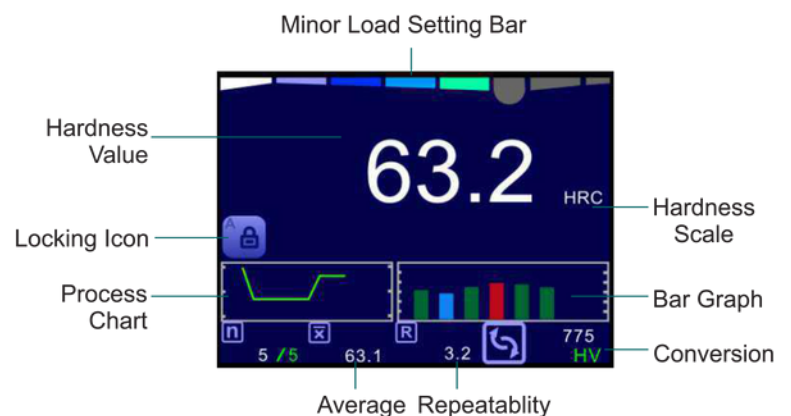
### FEATURES

- ✓ Economical Digital Rockwell Hardness Tester
- ✓ No need of external power, digital indicator is powered by built in rechargeable battery
- ✓ Minor load setting by LCD bar graph
- ✓ Tolerance measurement with alarm indication.
- ✓ Easy to read, large Size 320 x 240 TFT LCD display
- ✓ Measurement value can be sent to PC through USB cable (optional).
- ✓ Memory of 500 measurement values for browsing and output.
- ✓ Set measurement times (2-9) to have average value and difference to max. and min. value.
- ✓ Hardness conversion facility available as per ISO-18265 and ASTM-E140 in different scales such as Brinell, Vickers, Knoop, Leeb, Rockwell & Rockwell Superficial.
- ✓ Automatic power off.



### APPLICATION

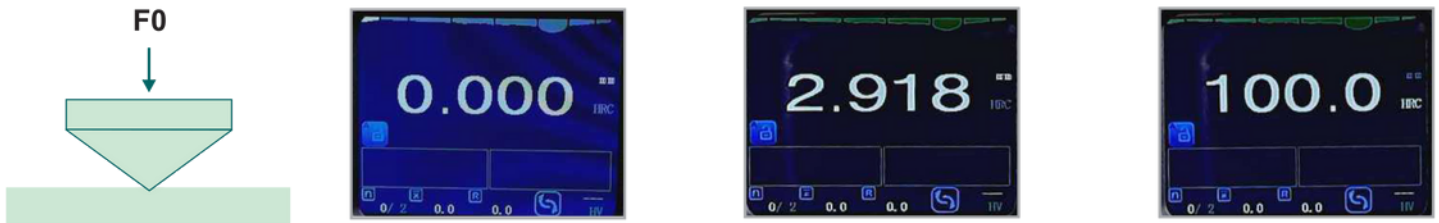
it is widely used to measure the Rockwell hardness of ferrous and non-ferrous metals such as quenched steel, tempered and annealed steel, hard alloy steel, aluminium alloy, copper etc. in the labs of research institutions, colleges, factories and mines.





## TEST PROCEDURE

(1) Lift the test piece, until the indicator reading is between 2.80 and 3.20 (Zeroing zone)



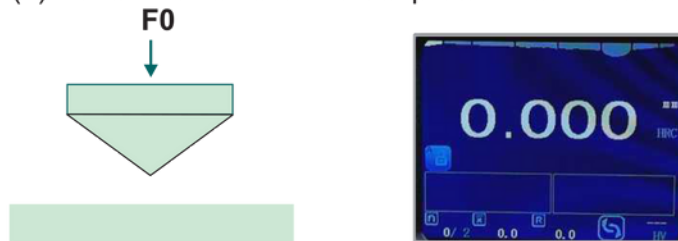
(2) Loading the main test force



(3) unloading the main test force



(4) Lower and remove the test piece. The indicator turns to 0.000



### TECHNICAL SPECIFICATION

Preliminary test force	98.07 N (10kgf)
Total Test force	588.4 N, 980.7 N, 1471 N (60, 100, 150 kgf)
Scales Display	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV
Minor load setting	By bar graph indicator (Manual setting)
Load Control	Automatic (Loading, Dwell, Unloading)
Dwell Time	0-60sec
Least Count	0.1 HR
Data Output	Mini USB Port
Memory	500 Readings
Max. test height	180mm
Depth of throat	135 mm (from the centre to of indenter)
Power Supply	Built in rechargeable battery (Charger AC 240 volts; DC 5V, 1A)
Dimension (H x W x L)	630x238x466mm
Net Weight (Approx.)	65 kg

### STANDARD ASSOSORIES

Φ60mm flat anvil	1 No
Φ60mm V-type anvil	1 No
Diamond indenter	1 No
Φ1.587mm carbide ball indenter	1 No
Hardness test block HRB	1 No
Hardness test block HRC	1 No
Screw Driver	1 No
Accessories Box	1 No
Cover for elevating screw	1 No
Instruction Manual	1 No
<b>Optional Accessories</b>	
USB Cable and Software	1 No
Wireless Printer	1 No

## TRH-150DM

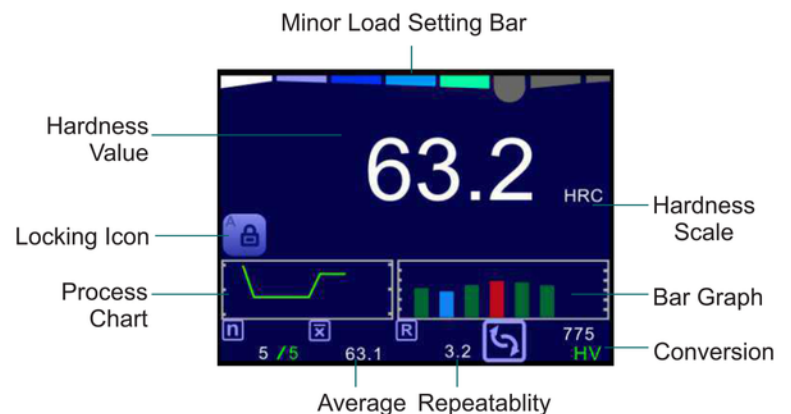
### Features

- Motorized Digital Rockwell Hardness Tester
- Touch Screen panel for Dwell time selection and test cycle start.
- Automatic testing (Loading, Dwell, Unloading) after applying the preliminary test force by hand.
- Minor load setting by LCD bar graph
- Tolerance measurement with alarm indication.
- Easy to read, large Size 320 x 240 TFT LCD display
- Measurement value can be sent to PC through USB cable (optional).
- Memory of 500 measurement values for browsing and output.
- Set measurement times (2-9) to have average value and difference to max. and min. value.
- Hardness conversion facility available as per ISO-18265 and ASTM-E140 in different scales such as Brinell, Vickers, Knoop, Leeb, Rockwell & Rockwell Superficial.
- Automatic power off.



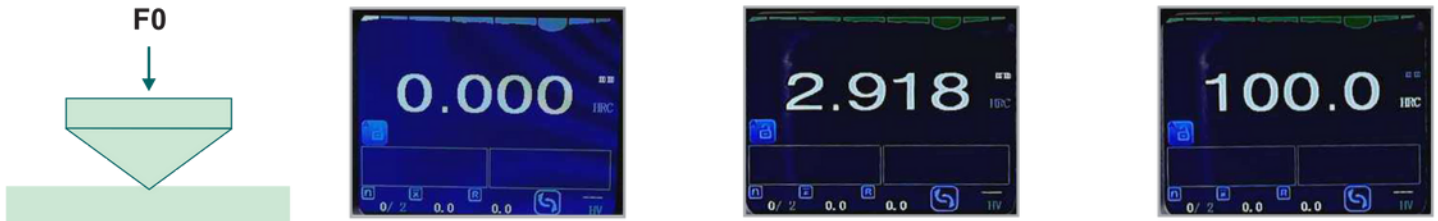
### APPLICATION

it is widely used to measure the Rockwell hardness of ferrous and non-ferrous metals such as quenched steel, tempered and annealed steel, hard alloy steel, aluminium alloy, copper etc. in the labs of research institutions, colleges, factories and mines.



## TEST PROCEDURE

(1) Lift the test piece, until the indicator reading is between 2.80 and 3.20 (Zeroing zone)



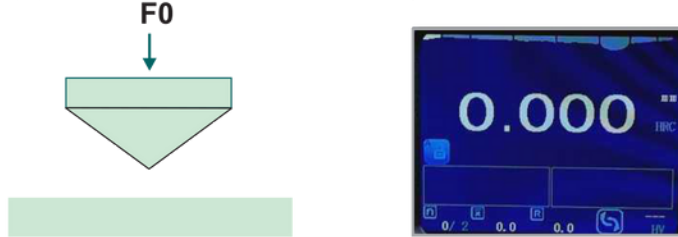
(2) Loading the main test force



(3) unloading the main test force



(4) Lower and remove the test piece. The indicator turns to 0.000



### TECHNICAL SPECIFICATION

Preliminary test force	98.07 N (10kgf)
Total Test force	588.4, 980.7, 1471 N (60, 100, 150 kgf)
Scales Display	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV
Minor load setting	By bar graph indicator (Manual setting)
Load Control	Manual
Least Count	0.1 HR
Data Output	Mini USB Port
Memory	500 Readings
Max. test height	170mm
Depth of throat	135 mm (from the centre to of indenter)
Power Supply	Built in rechargeable battery (Charger AC 240 volts; DC 5V, 1A)
Dimension (H x W x L)	630x238x466mm
Net Weight (Approx.)	65 kg

### STANDARD ASSOSORIES

Φ60mm flat anvil	1 Pc
Φ60mm V-type anvil	1 Pc
Diamond indenter	1 Pc
Φ1.587mm carbide ball indenter	1 Pc
Hardness test block HRB	1 Pc
Hardness test block HRC	1 Pc
Screw Driver	1 Pc
Digital Indicator charger	1 Pc
Accessories Box	1 Pc
Cover for elevating screw	1 Pc
Instruction Manual	1 Pc
<b>Optional Accessories</b>	
USB Cable and Software	1 Pc





## PRODUCT INTRODUCTION

TRH-LM Digital Rockwell hardness tester is based on the principle of ROCKWELL. It is used to measure the hardness of carbon steel, alloy steel, cast iron, non-ferrous metal and engineering plastics. It has the characteristics of high accuracy, wide measuring range, automatic loading and unloading of main test force, digital display of measurement results, data printing and external computer communication. Digital Rockwell hardness tester has novel appearance, intuitive digital display and computer control. It has stable performance. It is a high-tech product which integrates mechanical and electrical technology. It can be used for hardness testing of Rockwell scale.

## Functional characteristics

- LCD Digital Display Hardness Value of 15 Rockwell Scales
- Conversion to various hardness gauges, such as Vickers and Brinell
- Menu LCD display, full-featured, such as GO/NO
- Built-in thermal printer prints out test data
- High precision, good reliability and durability
- Strong structure, good rigidity
- External test force selection knob, easy to operate
- External illumination light source, can clearly see the test point
- The test space is large and the larger sample can be placed.
- The standard is fully equipped to meet the test requirements of all scales.
- Selection of Dwell Time for Hardness Testing
- Reduction function
- RS232 Data Output Interface (software optional)

## Technical Specification :

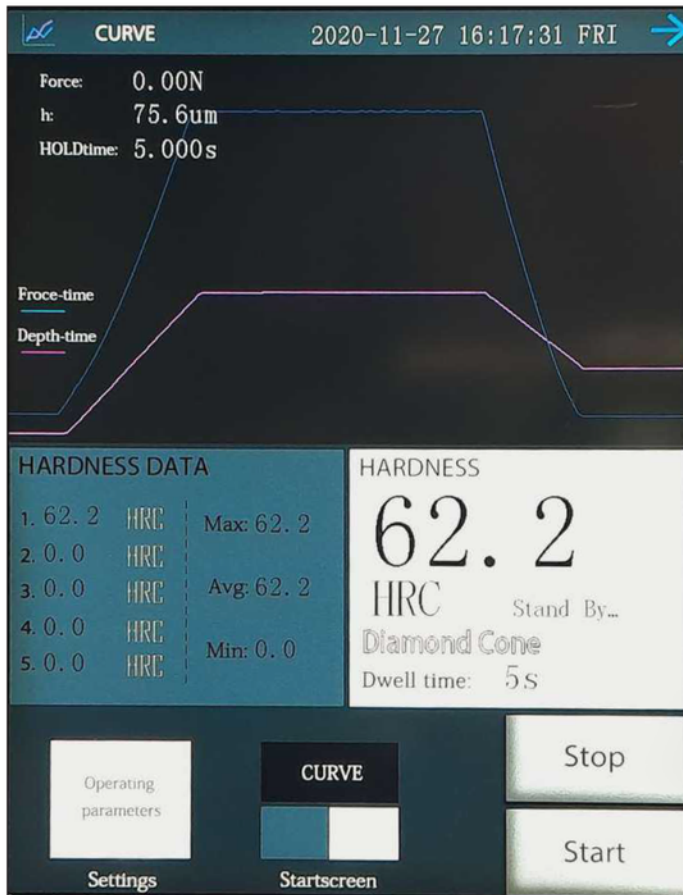
Model	TRH-LM
Initial test force	1 0kgf (98.07N)
Total test force	60, 100, 150 kgf (588, 980,1471N)
Resolution	0.1HR
Rockwell scale	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH,HRK, HRL, HRM, HRP, HRR, HRS, HRV
Scale conversion	HV,HB, HR
Standard	ISO6508, ASTM E18
Language	English
Hardness Indication	LCD display
Dwell time	1-60s
Date output	Built-in printer, RS-232 Interface
Loading method	Motorized automatic load
Maximum Test height	170 mm
Depth of throat	165 mm,
Power Supply	AC220V+5%,50 Hz
Machine size	550*220*700 mm
Net weight	70kg (Approx.)

## Standard Accessories

Name	Quantity
Diamond indenter	1
Hardness block HRC	1
Hardness block HRB	1
Operating Manual	1
Accessories Box	1
1/16" TC ball indenter	1
Flat Table (50 mm dia.)	1
V Table (40 mm dia)	1
Power cord	1
Telescopic Cover	1

**TLRH-Curve - Rockwell Hardness Tester**

**TLRSH-Curve - Rockwell Cum Superficial Hardness Tester**



1. Load cell based Rockwell Hardness Tester.
2. Touch Screen operation.
3. Load /Scale selection through touch panel
4. Automatic high-speed response closed-loop sensor loading system.
5. Real time display of Force – Time, Depth-Time curve.
6. Testing cycle starts just after touching the specimen with Indentor (no need to apply initial test load).
7. Pass/ Fail Tolerance judgement.
8. Hardness Scale Conversion HR, HB, HV.
9. Built, in thermal printer.
10. External illumination light to focus on test surface.
11. Permanent depth of penetration display on screen.



**TLRH-Curve/TLRSH-Curve** adopted the international advanced closed-loop sensor control technology, to achieve full automatic control and hardness testing process. The load system uses high-precision force value sensor and central controller to form a closed-loop loop to achieve full microsecond level tracking and control of the booster process.

The measurement system uses high-precision displacement sensor with a hardness value resolution of 0.1 HR for accurate hardness results.

## PRODUCT CHARACTERISTICS

1. Meet the standards ASTM E18, ISO 6508- 2 , IS 1586 (Part-2)
2. The frame structure is strong and rigid.
3. Automatic closed-loop sensor loading.
4. High speed step control, test speed is extremely fast.
5. The high precision loading system effectively avoids the overloading of the measuring force, and at the same time greatly improves the loading speed.
6. The curve of test process is displayed, which can display the material characteristics intuitively, which is convenient for observation and learning.
7. All Dwell time during the test cycle can adjusted.
8. Automatic loading and unloading, keeping time adjustable.
9. Correction of test values of cylindrical and spherical specimen.
10. The force selection and hardness scale selection are coupled.



TECHNICAL PARAMETER	TLRH - Curve	TLRSH Curve
Initial test force (N)*	98.07N (10kgf) for Rockwell	29.42 N (3kgf) for Superficial 98.07N (10kg) for Rockwell
Main test force (N)	588.4N (60kgf), 980.7N (100kgf), 1471N (150kgf)	147.1N (15kgf), 294.2N (30kgf), 441.3N (45kgf)
Hardness Scales	Rockwell HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV	Rockwell HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL,HRM, HRP, HRR, HRS, HRV Rockwell Superficial HR15N, HR30N, HR45N, HR15T, HR30T HR45T
LCD touch screen display	Hardness value, Hardness scale, Force time curve, Depth time curve, Total test force, Permanent Indentation depth, Holding time, Upper and lower limit setting value, Last five hardness values, Minimum, maximum and their average, Date, Time, Day	
Load and Unload Mode	Ultra high response speed closed-loop loading control Technology (Loading, Dwell, Unloading)	
Conversion Scale	HR (Rockwell), HB (Brinell), HV (Vickers)	
Dwell time	0~99s	
Data output	Built-in printer, RS232 interface	
Accuracy	ASTM E18, ISO 6508 - 2, IS 1586 (Part 2)	
Allow sample height/Throat	170mm/165mm	
Dimension (mm)	490X165X740 (length x width x height) approx.	
Weight	70 kg approx.	
Power	220V AC, 50Hz	

\* Unit of test forces used is newton (N) as per IS/ASTM standard.

STANDARD ACCESSORIES	TLRH-Curve	TLRSH-Curve
Diamond Indenter	1 No	1 No
1.5875mm (1/16") ball indenter	1 No	1 No
Flat Testing Table (Ø 60 mm)	1 No	1 No
V shaped testing table (Ø 40 mm)	1 No	1 No
Hardness Test Block HRC	1 No	1 No
Hardness Test Block HRBW	1 No	1 No
Hardness Test Block HR30N	—	1 No
Printer Paper	1 No	1 No
Dust Proof Cover	1 No	1 No
Spare fuse 0.5A	2 Nos	1 No
Manual Book	1 No	1 No

\*TRUEMET reserves the rights to changes the above specification due to constant improvements in design.

Image	Name	Model No	Price
	<p><b>Rockwell Hardness Tester</b></p>	<p><b>TRH-150A</b></p>	
	<p><b>Rockwell Hardness Tester</b></p>	<p><b>TRH-150D</b></p>	
	<p><b>Rockwell Hardness Tester</b></p>	<p><b>TRH-150DM</b></p>	
	<p><b>Rockwell Hardness Tester</b></p>	<p><b>TRH-LM</b></p>	
	<p><b>LOAD CELL BASED TOUCH SCREEN DIGITAL ROCKWELL HARDNESS TESTER</b></p>	<p><b>TLRH-Curve</b></p>	
	<p><b>LOAD CELL BASED TOUCH SCREEN DIGITAL ROCKWELL HARDNESS TESTER</b></p>	<p><b>TLRSH-Curve</b></p>	





## Other Products

Rockwell Hardness Testers  
Brinell Hardness Testers  
Vickers Hardness Testers  
Impact Testing Machines  
Metallurgical Microscopes  
Streozoom Microscopes  
Metallurgical Equipments

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*Dealer:*