Product Index

2 UCI/Dynamic Hardness Tester

Non-Destructive!

Features:

- Non-Destructive hand held hardness tester
- Combines UCI and Leeb hardness testing in one state of the art device
- Test steel with min thickness of .08" and unlimited max thickness
- Blazing fast test results
- Rockwell, Brinell Vickers conversions shown on display
- Large Memory w/USB Output
- Choice of manual UCI probes; 1kg, 2kg, 5kg & 10kg
- Optional Motorized Probes: .30kg, .80kg, & 1kgf
- Available Impact Devices(Leeb) D, DC, D+15, G & DL

PHT-6000 Series

"Ultrasonic Contact Impedance" is based on a 136 degree diamond at the end of a vibrating rod being depressed into the test surface at a fixed load. The difference in Ultrasonic vibration frequency is then calculated into a hardness value. The UCI test procedure is slower than the Dynamic Impact style, however the "UCI" method of hardness testing is portable, easy and accurate. It also has its own advantages when utilized for certain testing applications. UCI testers are not restricted to large mass items like dynamic type testers. These units can test metals as thin as 1mm and at a hardness value as low as 20HRC (75HB). They also excel at performing hardness tests on larger, harder metals as well. Another reason for the rise in popularity is due to the fact that the UCI method is categorized as "Non-Destructive". That translates into less scrap parts/ lower mfg costs due to necessary inspections.

"Dynamic Impact" is based on the Leeb principle of hardness,developed by Dietmar Leeb in the 1970's. A spring loaded impact body is thrust to the test surface, effecting rebound. The speed of both the initial thrust and the rebound is measured in a non-contact mode. This is calculated as a Leeb hardness value and then automatically converted to Rockwell C, B, Brinell, Vickers and Shore Values. It has effectually brought easy, fast and accurate results to portable hardness testing.

UCI/Dynamic Hardness Tester

UCI

SCALES-UCI	MEASUREMENT RANGE	TOLERANCE
ROCKWELL C	20-70 HRC	+/- 1.5 HRC
ROCKWELL B	41-99 HR	+/- 1.5 HRB
ROCKWELL A	61-85 HRB	+/- 1.5 HRA
BRINELL	76-618 HB	+/- 3% HB
VICKERS	80-1599 HV	+/- 3% HV

Can also test in the following scales:
HRN15 - HRN30 - HRN45 - HRT15 - HRT30 - HRT45
HRF – HK - HD.

LEEB

SCALES-UCI	MEASUREMENT RANGE	TOLERANCE
ROCKWELL C	25-67 HRC	+/- 1.5 HRC
ROCKWELL B	59-99 HRB	+/- 1.5 HRB
BRINELL	85-651 HB	+/- 10 HB
VICKERS	83-976 HV	+/- 12 HV
SHORE	26-99HSt	+/- 10HL
Leeb	170-960HLD	+/- 6HL

UCI hardness tester w/manual probe

MODEL NO.	DESCRIPTION	MODEL NO. DESCRIPTION APPLICATION NOTES
PTHT-6001	UCI Hardness Tester w/1kgf Probe	For use on polished surfaces. Below Ra 125μin
PHT-6002	UCI Hardness Tester w/2kgf Probe	For use on smooth surfaces. Below Ra 200μin
PHT-6005	UCI Hardness Tester w/5kgf Probe	For use on machined surfaces. Below Ra 400μin
PHT-6010	UCI Hardness Tester w/10kgf Probe	For use on rough surfaces. Below Ra 600μin

UCI hardness tester w/motorized probe

MODEL NO.	DESCRIPTION	MODEL NO. DESCRIPTION APPLICATION NOTES
PHT-6030	UCI Hardness Tester w/.30kgf Probe	Best for checking coating layer hardness; Finished thin parts
PHT-6080	UCI Hardness Tester w/.80kgf Probe	Best for smooth bearing type surfaces
PHT-6100	UCI Hardness Tester w/1kgf Probe	Best for machined surfaces

Specifications:

- **Hardness Range:** HRC:20-70, HRB: 55-100, HB: 100-739, HV: 100-2970
- **Scale Selection:** Rockwell C (HRC); Rockwell B (HRB); Rockwell A (HRA); Brinell (HB); Vickers (HV); Leeb (HLD) and many more
- **Tolerance:** +/- 3.0% deviation of average from the reference value of the test block with a minimum of 5 tests
- **Display Type:** LCD Color Screen w/Backlight, adjustable brightness
- **Language Selection:** English, German, Chinese, Spanish, etc.
- **Data Logger:** Letters, Numerals
- **Data Memory:** 2000 groups of measured data ; 20 groups of calibration data
- **Statistical Software:** Supplied-can be saved in Word or Excel
- **Data Output:** USB – cable supplied
- **Power Supply:** Rechargeable Lithium Battery: Voltage-4.2V, 4800mAh
- **Auto Power Off:** 5 minutes
- **Recharging Time:** Approx. 8 hours
- **Battery Usage:** Approx. 6 hours (no backlight)
- **Net Weight(base unit):** 2lbs (w/probe)
- **Gross Weight** 12 lbs
- **Unit Dimensions** 7.0 x 3.1 x 1.1" (160x80x30mm)
- **Gross Dimensions** 13.7 x 17.7 x 5.9" (350x450x150mm)

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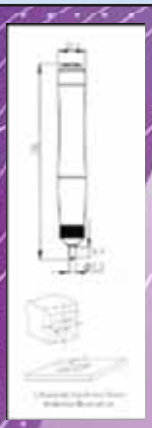
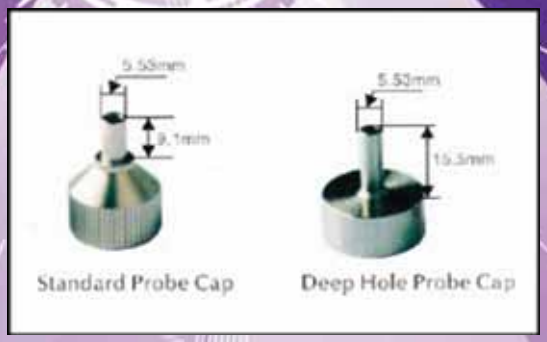
Manual UCI Probe Specifications:

PROBE TYPE/MODEL	PHT-6001	PHT-6002	PHT-6005	PHT-6010
LOADING FORCE	1kgf (10N)	2kg (20N)	5kg (50N)	10kg (98N)
PROBE DIAMETER	22mm	22mm	22mm	22mm
LENGTH	154mm	154mm	154mm	154mm
OSCILLATING ROD DIAMETER	2.4mm	2.4mm	3mm	3mm
SURFACE ROUGHNESS REQUIREMENTS μm=Metric pin= Inch	Ra<3.2μm (Ra<125 μin)	Ra<5 μm (Ra<197 μin)	Ra<10 μm (Ra<393 μin)	Ra<15 μm (Ra<590 μin)
MIN WEIGHT OF TEST SAMPLE	0.3kg (.66lbs)	0.3kg (.66lbs)	0.3kg (.66lbs)	0.3kg (.66lbs)
MINIMUM THICKNESS OF SAMPLE	2mm (.08″)	2mm (.08″)	2mm (.08″)	2mm (.08″)





Motorized UCI Probe Specifications:

PROBE TYPE/MODEL	PHT-6030	PHT-6080	PHT-6100
LOADING FORCE	.30kg (3N)	.80kg (8N)	1kgf (10N)
PROBE DIAMETER	46mm	46mm	46mm
LENGTH	198mm	198mm	198mm
OSCILLATING ROD DIAMETER	3.7mm	3.7mm	3.7mm
SURFACE ROUGHNESS REQUIREMENTS μm=Metric pin= Inch	Ra<3.2μm (Ra<125 μin)	Ra<5 μm (Ra<197 μin)	Ra<8 μm (Ra<314 μin)
MIN WEIGHT OF TEST SAMPLE	0.3kg (.66lbs)	0.3kg (.66lbs)	0.3kg (.66lbs)
MINIMUM THICKNESS OF SAMPLE	2mm (.08″)	2mm (.08″)	2mm (.08″)

INDENTION DEPTH (μm)

HARDNESS	.30KG MOTORIZED	.80KG MOTORIZED	1 KG MOTORIZED	1 KG MANUAL	2 KG MANUAL	5 KG MANUAL	10 KG MANUAL
800HV	4	5	7	7	10	15	22
600HV	4	5	8	8	11	18	25
500HV	5	6	9	9	12	19	27
300HV	6	8	11	11	16	25	35
100HV	10	13	19	19	27	43	61

UCI/Dynamic Hardness Tester

IMPACT DEVICES	D/DC/DL	D+15	C	G
IMPACT ENERGY	11Nmm	11Nmm	3Nmm	90Nmm
MASS OF THE IMPACT BODY	5.5g	7.8g	3.0g	20g
	DL: 7.3g			
TEST TIP				
* *Hardness*	1600HV	1600HV	1600HV	1600HV
* *Diameter*	3mm	3mm	3mm	5mm
* *Material*		Tungsten	Tung	
		carbide	carbide	
IMPACT DEVICE				
* *Diameter*	20mm	20mm	20mm	30mm
* *Length*	147/86mm	162mm	141mm	254mm
* *Weight*	75/50g	80g	75g	250g
MAX. HARDNESS OF SAMPLE	940HV	940HV	1000HV	650HB
PREPARATION OF SURFACE				
* *Roughness class ISO*	N7	N7	N5	N9
* *Max. roughness depth Rt*	10 mm	10 mm	2.5 mm	30 mm
* *Average roughness Ra*	2 mm	2 mm	0. 4 mm	7 mm
MIN. WEIGHT OF SAMPLE				
* *Of compact shape*	5kg	5kg	1.5kg	15kg
* *On solid support*	2kg	2kg	0.5kg	5kg
* *Coupled on plate*	0.1kg	0.1kg	0.02kg	0.5kg
MIN. THICKNESS OF SAMPLE				
Suggested min. Thickness Range	12mm	10mm	10mm	12mm
* *Min. thickness of layers*	0.8mm	0.8mm	0. 2mm	–
INDENTATION OF TEST TIP				
With 300 HV				
* *Diameter*	0.54mm	0.54mm	0.38mm	1.03mm
* *Depth*	24 m m	24 m m	12 m m	53 m m
With 600 HV				
* *Diameter*	0. 45mm	0. 45mm	0.32mm	0.90mm
* *Depth*	17 m m	17 m m	8 m m	41 mmC
With 800 HV				
* Diameter	0.35mm	0.35mm	0.30mm	–
* Depth	10mm	10mm	m7mm	–

SPECIAL APPLICATION IMPACT DEVICES

Impact Device D Part No. PHT1800-100

Universal standard device:
Use for the majority of hardness testing assignments

Impact Device DL Part No. PHT1800-115

Needle front section .109" diameter x 1.96" length
Measurements in extremely confined spaces

Impact Device G Part No. PHT1800-125

Enlarged test tip: For use on solid heavy components such as; rough castings and forgings. Brinell only.

Impact Device DC Part No. PHT1800-120

Extremely short impact device
Used for very confined spaces such as holes, cylinders, internal measurements

Impact Device D+15 Part No. PHT1800-110

Slim front section with coil set back.
Hardness measurements in grooves, recessed surface.

Impact Device C

A reduced energy impact device for measuring the hardness of Case Hardened Steel only. Applies a small superficial indentation.
Weight: 2.6oz[g]
Part No. PHT1800-130

Probe Support Stand
MET-1000

Small Cylinder Support Ring (8-22mm diameter)
Part No. PHT6000-521

Large Cylinder Support Ring (16-80mm diameter)
Part No. PHT6000-531

Deep Hole Probe Cap (5.53mm diameter/15.5 deep)
Part No. PHT6000-541

UCI/Dynamic Hardness Tester

Optional Test Blocks for 6000 Series

NIST Certified Test Block Kit

Part No. 900330-9410

Includes: 1pc HRC 20's
1pc HRC 40's
1pc HRC 60's

Aluminum/Brass Rockwell Blocks

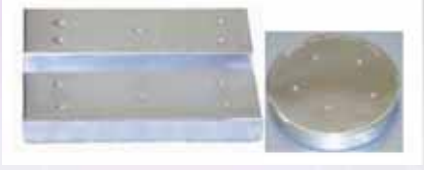
PART NO.	DESCRIPTION	SHAPE	RANGE	COMMENTS
900330-9414AH	Rockwell B	Square	80's	Made in USA Aluminum
900330-9414AL	Rockwell B	Square	50's	Made in USA Aluminum
900330-9418H	Rockwell E	Square	90's	Made in USA Aluminum
900330-9418L	Rockwell E	Square	60's	Made in USA Aluminum
900330-9414BH	Rockwell B	Square	80's	Made in USA Brass
900330-9414BL	Rockwell B	Square	50's	Made in USA Brass

Leeb Test Blocks

PART NO.	DESCRIPTION	SHAPE	RANGE	COMMENTS
PHT1300-01	Leeb "D" Test Block	Round	750-800(HRC 50's)	Phase II std.
PHT130001-CERT	Leeb "D" Test Block	Round	750-800(HRC 50's)	NIST Certified
PHT1300-02	Leeb "D" Test Block	Round	590-670(HRC40's)	Phase II std.
PHT130002-CERT	Leeb "D" Test Block	Round	590-670(HRC40's)	NIST Certified
PHT130003-CERT	Leeb "D" Test Block	Round	490-570(HRC20's)	Phase II std.
900330-9414BL	Leeb "D" Test Block	Round	490-570(HRC20's)	NIST Certified
PHT1100G-01	Leeb "G" Test Block	Round	480-670	For use with "G" impact devices
PHT1100G-01C	Leeb "G" Test Block ASTM Certified to Brinell	Round	480-670 (HB200's)	For use with "G" impact devices

Brinell Test Blocks

PART NO.	DESCRIPTION	SHAPE	RANGE	COMMENTS
900355-1000/150	3000kg	Round	150-250	Phase II std. (Steel)
900355-1000/250	3000kg	Round	250-500	Phase II std. (Steel)
900355-3010	3000kg	Rectangle	Low	Aluminum (USA)
900355-3020	3000kg	Rectangle	High	Aluminum (USA)
900355-3030	3000kg	Rectangle	100-200HB	Steel (USA)
900355-3040	3000kg	Rectangle	250-350HB	Steel (USA)
900355-3050	3000kg	Rectangle	500+HB	Steel (USA)



Ultrasonic Hardness Tester

New! Mini-MET's

Standard Accessories:

- Base Instrument
- Calibrated Test Blocks
- Custom Carry Case
- Battery Charger
- Operation Manual

Specifications:

- Easy To Read Menu Operation
- Large LCD Display w/ Back Light
- USB Interface
- Automatic Mean Value
- Data Archive Capacity

Specifications:

Tolerance: +/- 3%
Minimum Thickness of sample: .040"
Materials: steel & cast steel, alloy tool steel, stainless steel, aluminum, brass, bronze, wrought copper alloy.
Battery type: NiMH Re-Chargeable
Operating temperature: 5-104 degrees F
Weight: 650g

Meets ASTM1038-10 specifications

NIST TRACEABLE 5 YEAR WARRANTY

Non-Destructive Hardness Testing!

MODEL	SCALES	PRESSURE FORCE	MEASUREMENT RANGE
MET-HRC15	Rockwell C	50N (5kgf)	20-70 HRC
MET-HRC50	Rockwell C	50N (5kgf)	20-70 HRC
MET-HB50	Brinell	50N (5kgf)	75-650 HB
MET-HB15	Vickers	10N (1.5kgf)	75-1000 HV

MET-MINI

Designed to test specific material in a chosen scale, the new PHASE II miniature ultrasonic hardness testers are capable of measuring surface hardness of metals with flat, thin, round or large surfaces. Accurate measurements of steels and aluminum are easily attained with these compact instruments. "

8 Portable Hardness Tester

Meets ASTM A956 specifications

Optional Accessories		
12 Piece Ring Set for Tough Radii PHT1500-300	Double-Sided Test Block PHT1300-05	NIST Certified Test Block PHT130001-CERT
		

CHECK PAGE 15 FOR OPTIONAL IMPACT DEVICE PROBES

PHT-1800

PHT-1800C
w/NIST Certified Test Block

PHT-1840 – W/DL IMPACT DEVICE

PHT-1850 – W/G IMPACT DEVICE

State of the art, digital tester is designed to test the hardness of large hard metal parts. Loaded with useful functions only found on high priced models the PHT-1800 is clearly setting a new industry standard by being the most accurate, economically priced hardness tester on the market today. Fast test speeds coupled with memory and output, this unit is a hands down winner whether you are out in the field or in the QC shop. The PHT-1800 can perform tests that easily convert to the most popular hardness scales, including Rockwell, Brinell, Vickers, Shore, etc. Meets ASTM A956 specifications

Operation:
- Load the impact body
- Place the impact body on your test piece
- Push the button to begin testing and obtain reading

Standard Accessories:
- Base instrument
- Impact device D
- Calibrated test block
- Custom carry case
- Cleaning brush
- Operation manual

Optional accessories:
- Impact devices; DC, D+15, DL, G, C
- Special support rings
- Mini Printer

Functions:
- Easy to use keypad operation
- Auto identification of Impact Device
- Large LCD display with back light
- USB Ouput
- Automatic conversions to: Brinell, Rockwell B & C, Vicker and Shore
- Automatic mean value as well as Min & Max values
- Battery Indicator
- Memory capacity (100 groups)

Specifications:
- Accuracy: +/- 0.5% HL
- Measuring range: 200-960 HL
- Materials: steel & cast steel, alloy tool steel, stainless steel, grey cast iron,
- Spheroidal iron, cast aluminum, brass, bronze, wrought copper alloy.
- Battery type: AA alkaline (4)
- Operating temperature: 5-104 degrees F
- Dimensions: 150 x 74 x 32mm
- Shipping Weight: 10 lbs.

Portable Hardness Tester With Color Screen

New

Optional Accessories

12 Piece Ring Set for Tough Radii	Double-Sided Test Block	NIST Certified Test Block
PHT1500-300	PHT1300-05	PHT130001-CERT
		

Operation:
- Load the impact body
- Place the impact body on your test piece
- Push the button to begin testing and obtain reading

Standard Accessories:
- Base instrument
- Impact device D
- Calibrated test block
- Custom carry case
- Cleaning brush
- Operation manual

Optional accessories:
- Impact devices; DC, D+15, DL, G, C
- Special support rings

Functions:
- Easy to use keypad operation
- Auto identification of Impact Device
- Large LCD display with back light
- USB Ouput
- Automatic conversions to: Brinell, Rockwell B & C, Vicker and Shore
- Automatic mean value as well as Min & Max values
- Battery Indicator
- Memory capacity (100 groups)

Specifications:
- Accuracy: +/- 0.5% HL
- Measuring range: 200-960 HL
- Materials: steel & cast steel, alloy tool steel, stainless steel, grey cast iron,
- Spheroidal iron, cast aluminum, brass, bronze, wrought copper alloy.
- Battery type: AA alkaline (4)
- Operating temperature: 5-104 degrees F
- Dimensions: 150 x 74 x 32mm
- Shipping Weight: 10 lbs.

Meets ASTM A956 specifications

CHECK PAGE 16 FOR OPTIONAL IMPACT DEVICE PROBES

PHT-1900

State of the art, digital portable hardness tester is designed to test the hardness of large hard metal parts. Clean crisp display shows the incredible functions that can only be found on this new portable hardness tester such as auto-probe detection, auto direction detector, single and multi-point calibration make the new 1900 the most versatile portable hardness tester in the industry.

10 New RUGGED Aluminum Body Hardness Tester.

NIST TRACEABLE 5 YEAR WARRANTY

The PHT-2100 can perform tests that easily convert to the most popular hardness scales, including Rockwell, Brinell, Vickers, Shore, etc.

CHECK PAGE 16 FOR OPTIONAL IMPACT DEVICE PROBES

Meets ASTM A956 specifications

PHT-2100

Our new rugged "extruded aluminum" frame portable hardness tester is suited for rough environments such as mining facilities, pipeline, bridge and tower inspections, etc and is packed with features typically found on high end models only. This new leeb hardness tester is designed to test the hardness of large hard metal parts. Loaded with useful functions only found on high priced models the PHT-2100 is clearly setting a new industry standard by being the most accurate, economically priced hardness tester on the market today. Fast test speeds coupled with memory and output, this unit is a hand's down winner whether you are out in the field or in the QC shop.

Designed to test large hard parts: Example: Tool steel should be close to 1" thick of solid material

Operation:
- Load the impact device
- Place the impact device on your test piece
- Push the button to begin testing and obtain reading

Standard Accessories:
- Base instrument
- Impact device D
- Calibrated test block
- Custom carry case
- Cleaning brush
- Operation manual

Optional accessories:
- Impact devices; DC, D+15, DL, G, C
- Special support rings convex/concave surfaces

Functions:
- Easy to use keypad operation
- Auto identification of Impact Device
- Large LCD display with back light
- USB Ouput
- Automatic conversions to: Brinell, Rockwell B & C, Vicker and Shore
- Automatic mean value as well as Min & Max values
- Battery Indicator
- Memory capacity (100 groups)

Specifications:
- Accuracy: +/- 0.5% (referred to L=800,
- Repeatability accuracy: +/- 4L units) L=Leeb
- Measuring range: 200-960 HL
- Materials: steel & cast steel, alloy tool steel, stainless steel, grey cast iron,spheroidal iron, cast aluminum, brass, bronze, wrought copper alloy
- Battery type: AA alkaline (2)
- Operating temperature: 5-104 degrees F
- Dimensions: 150 x 74 x 32mm
- Weight: 245 grams

Economy Hardness Tester

NIST TRACEABLE 5 YEAR WARRANTY

Meets ASTM A956 specifications

Operation:
- Load the impact body
- Place the impact body on your test piece
- Push the button to begin testing and obtain reading

Standard Accessories:
- Base instrument
- Impact device D ("DL" PHT-1740) ("G" PHT-1750)
- Calibrated test block
- Custom carry case
- Cleaning brush
- Operation manual
- USB cable

Functions:
- Easy to use push button operation
- Large LCD display with back light
- Automatic conversions to: Brinell,Rockwell, Vicker and Shore
- Automatic mean value
- Data storage capacity

Specifications:
- Accuracy: +/- 0.5% HL
- Measuring range: 200-960 HL
- Materials: steel & cast steel, alloy tool steel, stainless steel, grey cast iron, spheroidal iron, cast aluminum, brass, bronze, wrought copper alloy.
- Battery type: AAA alkaline (2)
- Operating temperature: 5-104 degrees F
- Dimensions: 108 x 62 x 25mm
- Shipping Weight: 11 lbs.

Optional Accessories

12 Piece Ring Set for Tough Radii	Double-Sided Test Block	NIST Certified Test Block
PHT1500-300	PHT1300-05	PHT130001-CERT
		

CHECK PAGE 16 FOR OPTIONAL IMPACT DEVICE PROBES

PHT-1700

Loaded with features, this economically price hardness tester is capable of measuring the surface hardness of a broad variety of metals on flat and round surfaces. This instrument comes complete with the universal D impact device, calibrated test block and rugged carry case.

PHT-1740

Same base instrument as the PHT-1700 but comes supplied with the "DL" impact device for testing of gear teeth, grooves and other confined applications. See page 15.

PHT-1750

Same base instrument as the PHT-1700 but comes supplied with the "G" impact device for testing of large castings and rough porous parts. See page 15.

12 Portable Hardness Tester w/ Printer

NIST TRACEABLE 5 YEAR WARRANTY

The PHT-3500 can perform tests that easily convert to the most popular hardness scales, including Rockwell, Brinell, Vickers, Shore, etc.

Meets ASTM A956 specifications

Optional Accessories		
12 Piece Ring Set for Tough Radii PHT1500-300	Double-Sided Test Block PHT1300-05	NIST Certified Test Block PHT130001-CERT
		

Operation:
- Load the impact body
- Place the impact body on your test piece
- Push the button to begin testing and obtain reading

Standard Accessories:
- Base instrument
- Impact device D
- Calibrated test block
- Custom carry case
- Cleaning brush
- Operation manual

Optional accessories:
- Impact devices; DC, D+15, DL, G, C
- Special support rings

Functions:
- Easy to use keypad operation
- Auto identification of Impact Device
- Large LCD display with back light
- USB Ouput
- Automatic conversions to: Brinell, Rockwell B & C, Vicker and Shore
- Automatic mean value as well as Min & Max values
- Upper/Lower Limit Setting w/Alarm
- Battery Indicator
- Memory capacity (500 groups)

Specifications:
- Accuracy: +/- 0.5% HL
- Measuring range: 200-960 HL
- Minimum Thickness:< 0.5" (Steel)
- Materials: steel & cast steel, alloy tool steel, stainless steel, grey cast iron,
- spheroidal iron, cast aluminum, brass, bronze, wrought copper alloy.
- Battery type: 6V NiMh Rechargeable
- Battery charger: 9V/500mA
- Continuous working period of about 150 hours (With backlight off, no printing)
- Printing paper: width is (57.5±0.5)mm, diameter is 30mm
- Communication interface: USB1.1
- Operating temperature: 5-104 degrees F
- Dimensions: 212 x 80 x 32mm
- Shipping Weight: 12 lbs.

CHECK PAGE 15 FOR OPTIONAL IMPACT DEVICE PROBES

PHT-3500

State of the art, digital tester is designed to test the hardness of large hard metal parts. Loaded with useful functions and a built in mini-printer the PHT-3500 is clearly the industry leader for fast accurate hardness testing with advanced thermal printing capabilities. Meets ASTM A956 Specifications

Mini-Integrated Hardness Tester

Technical Specifications:

• Dimensions:	6.10" x 2.36" x 1.49" (155 X 60 X 38mm)
• Impact Device:	D/DL
• Impact Energy:	8 Ft-Lbs (11nm)
• Test Tip:	Tungsten Carbide
• Measuring Accuracy:	+- 0.8% (Corresponding To +- 1 Hrc At Hrc=58)
• Max. Hardness Of Sample:	980hv
• Shipping Weight:	11 lbs.
• Impact Direction:	Any Angle
• Operating Temperature:	32 To 122 Degrees F (0 To 50 Degrees C.)
• Min. Weight Of Sample:	11 lbs / 5kg
• Min. Radius Of Curved Surface:	1.2in (30mm) (With Support Rings:11mm)
• Power Supply:	3.6V Lithium Rechargeable Battery

Optional Accessories

12 Piece Ring Set for Tough Radii	Double-Sided Test Block	NIST Certified Test Block
PHT1500-300	PHT1300-05	PHT130001-CERT
		

PHT-3300
PHT-3340 W/ DL IMPACT DEVICE

The PHASE II hardness tester, Model No. PHT-3300 is an advanced integrated hardness tester distinguished by its very compact size, high accuracy, wide measuring range and simplicity of operation. It is suitable for testing the hardness of all metals and widely applied in many areas of industry.

The PHT-3300 as with all Leeb hardness testers, is designed to test very large hard parts. Steel should be close to 1" thick of solid material. Softer metals need even more mass.

The PHT-3300 hardness tester combines the universal impact device D and a data processor in a single unit. It automatically computes all Vickers, Brinell, Rockwell and Shore hardness values. USB output enables this new model to print any of it's memory from up to 500 groups. The impact direction can be set so that the accurate values can be achieved at any angle, even upside down! Statistical mean value is automatically provided.

The measuring method of the PHT-3300 is defined as "the quotient of the impact body's rebound velocity over its impact velocity". Optional accessories include various support rings to meet the requirements of specialized convex or concave applications. MEETS ASTM A956-12 SPECIFICATIONS.

Gear Teeth Hardness Tester

For Testing in Tight Spaces

Meets ASTM A956 specifications

Standard Accessories:

- Base Instrument
- Impact device DL
- Calibrated Test Block
- USB Output Cable &Software
- Carry Case
- Operation Manual

Optional Accessories

12 Piece Ring Set for Tough Radii	Double-Sided Test Block	NIST Certified Test Block
PHT1500-300	PHT1300-05	PHT130001-CERT
		

PHT-1740

This dedicated unit is designed to test gear teeth and other difficult to access applications. The 1740 is an economically priced hardness tester that is loaded with the same features found on the base 1700 version. The 1740 hardness tester is capable of measuring the surface hardness of a broad variety of metals on flat and round surfaces. This instrument comes complete with a dedicated DL impact device, calibrated test block and rugged carry case.

PHT-1840

This dedicated unit is designed to test gear teeth and other difficult to access applications. The 1840 is loaded with the same features found on the base 1800 version which includes memory, USB output and software for downloading to your PC. The 1840 hardness tester is capable of measuring the surface hardness of a broad variety of metals on flat and round surfaces. This instrument comes complete with a dedicated DL impact device, calibrated test block and rugged carry case.

PHT-3340

THis integrated unit is designed to test gear teeth and other difficult to access applications. The 3340 hardness tester is capable of measuring the surface hardness of a broad variety of metals on flat and round surfaces. This instrument comes complete with a dedicated DL impact device, calibrated test block and rugged carry case.

Portable Hardness Testers

For Testing Porous Castings and Very Rough Surfaces

NIST TRACEABLE 5 YEAR WARRANTY

Meets ASTM A956 specifications

PHT-1850

PHT-1750

Standard Accessories:

- Base instrument
- Impact device G
- Calibrated test block
- Custom carry case
- Cleaning brush
- Operation manual

IMPACT DEVICE	**G**
IMPACT ENERGY	**90 Nmm**
MASS OF THE IMPACT BODY	**20g**
TEST TIP	
* Hardness	1600HV
* Diameter	5mm
* Material	Tungsten Carbide
IMPACT DEVICE	
Diameter	30mm
Length	254mm
Weight	250g
MAX HARDNESS OF SAMPLE	650HB
PREPARATION OF SURFACE	
* Max. roughness depth Rt	30 µm
* Average roughness Ra	6.3 µm
PREPARATION OF SURFACE	
* Of compact shape depth Rt	15kg
* On solid support	5kg
* Coupled on plate	0.5kg
INDENTATION OF TEST TIP WITH 300 HV	
* Diameter	1.03mm
* Depth	53 µm
WITH 600 HV	
* Diameter	0. 90mm
* Depth	41 µm

Specifications:

- **Accuracy:** +/- 0.5% HL
- **Measuring range:** 200-960 HL
- **Materials:** steel & cast steel, alloy tool steel, stainless steel, grey cast iron, spheroidal iron, cast aluminum, brass, bronze, wrought copper alloy.
- **Battery type:** AA alkaline (4)
- **Operating temperature:** 5-104 degrees F
- **Dimensions:** 150 x 74 x 32mm
- **Shipping Weight:** 20 lbs.

Operation:

- Load the impact body
- Place the impact body on your test piece
- Push the button to begin testing and obtain reading

Functions:

- Easy to use keypad operation
- Auto identification of Impact Device
- Large LCD display with back light
- Automatic mean value as well as Min & Max values
- Battery Indicator
- Memory capacity (100 groups)

PHT-1750/1850

Hardness Testing for Rough Surfaces

Incorporates the "G" impact device mated to the popular PHT-1700 & 1800 portable hardness testers. This combination allows the user to test large rough surface parts and readout in the Brinell hardness scale.

Impact Devices for Portable Hardness Testers

IMPACT DEVICES	D/DC/DL	D+15	C	G
IMPACT ENERGY	11Nmm	11Nmm	3Nmm	90Nmm
MASS OF THE IMPACT BODY	5.5g	7.8g	3.0g	20g
	DL: 7.3g			
TEST TIP				
* *Hardness*	1600HV	1600HV	1600HV	1600HV
* *Diameter*	3mm	3mm	3mm	5mm
* *Material*		Tungsten	Tung	
		carbide	carbide	
IMPACT DEVICE				
* *Diameter*	20mm	20mm	20mm	30mm
* *Length*	147/86mm	162mm	141mm	254mm
* *Weight*	75/50g	80g	75g	250g
MAX. HARDNESS OF SAMPLE	940HV	940HV	1000HV	650HB
PREPARATION OF SURFACE				
* *Max. roughness depth Rt*	10 mm	10 mm	2.5 mm	30 mm
* *Average roughness Ra*	2 mm	2 mm	0. 4 mm	7 mm
INDENTATION OF TEST TIP				
With 300 HV				
* *Diameter*	0.54mm	0.54mm	0.38mm	1.03mm
* *Depth*	24 m m	24 m m	12 m m	53 m m
With 600 HV				
* *Diameter*	0. 45mm	0. 45mm	0.32mm	0.90mm
* *Depth*	17 m m	17 m m	8 m m	41 mmC
With 800 HV				
* Diameter	0.35mm	0.35mm	0.30mm	–
* Depth	10mm	10mm	m7mm	–

"DC" Impact Device

Very short impact device for those confined areas, i.e. inside bores for internal measurements. Conforms to the D measuring range.
Weight: 1.8oz
Fits PHT-2500 only.
Part No. PHT1800-120

"D" Impact Device

Universal standard unit. Will handle the majority of hardness testing applications.
Weight: 2.6oz
Part No. PHT1800-100

"D+15" Impact Device

Very narrow contact area with a set back measurement coil. This device is used to measure hardness in grooves and recessed surfaces.
Weight: 2.8oz
Part No. PHT1800-110

"G" Impact Device

This device has an enlarged test tip, and an increased impact energy range (approx. 9 times the D, 72 ft-lb.). Can be used on lower quality finishes for measuring hardness in the Brinell range only (max. 650 HB). Designed to be used with heavy components such as heavy castings and forgings.
Weight: 8.8oz
Part No. PHT1800-125

"DL" Impact Device

This model features a needle front section with a diameter of 4mm and a length of 50mm. It is suitable for testing in extremely confined spaces, the base of grooves and on special components such as as gear wheels. For use on steel and cast steel only!
Weight: 3.0oz
Part No. PHT1800-115

"C" Impact Device

A reduced energy impact device for measuring the hardness of Case Hardened Steel only. Applies a small superficial indentation.
Weight: 2.6oz²
Part No. PHT1800-130

Leeb Test Blocks and 12 pc. Ring Set

PHT1300-01 HIGH RANGE HLD Test Block
(STD with all "D" type Impact Devices)

PHT1300-02 - MIDDLE RANGE HLD Test Block

PHT1300-03 - LOW RANGE HLD Test Block

PHT1100G-01 HLG Test Block
(for use with "G" Impact Device)

PHT1300-05C Double Sided HLD Test Block

PHT 1300-01-Cert NIST Certified HIGH RANGE HRC

PHT1300-02-Cert NIST Certified MIDDLE RANGE HRC

PHT1300-03-Cert NIST Certified LOW RANGE HRC

12pc Universal Support Ring Set PHT1500-300

This kit comes complete with 6-concave rings, 5 convex rings and 1- small stand for difficult to test round or curved parts.

Digital Rockwell Hardness Indicator

Features:

- Resolution: 0.1 HR
- Replace manual indicator directly
- Data memory is up to 999 readings
- Ready to measure immediately without calibration
- Scales convert automatically
- Auto power off

3 DIFFERENT MODELS AVAILABLE

Accuracy	±0.5HR
Resolution	0.1HR
Display	128 x 64 Graphic LCD with backlight
Memory	999 readings
Scales 900330-DI/ 900331-DI 900345-DI	HRC, HRA, HRB, HRD, HRE, HRF, HRG, HRK, HRH, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T
Convert Scales	HB, HV
Power	Ni-H Rechargeable battery pack
Charger	Input: 100~240/50~60Hz; output 5V 1A/DC
Operating Environment	Temperature: -10°C~+50°C; Humidity: 20%~85%
Storage Environment	Temperature: -30°C~+70°C; Humidity: 5%~95%
Dimensions	114 x 37 mm
Weight	420g
Accessories	Charger
Standard	ASTM E18, ISO 6508

900330-9500 Digital Indicator for 900-330 & HR150

900331-9500 Digital Indicator for 900-331/Starrett 3814 & SPI 15-817-0

900345-9500 Digital Indicator for 900-345

Rockwell Scale Hardness Tester

NIST TRACEABLE 5 YEAR WARRANTY

NIST TRACEABLE

Included Accessories:

- C-scale Diamond Indentor
- 1/16" Ball Indentor
- 3- HRC Test Blocks
- 1- HRB Test Block
- 1-HRA Test Block
- Flat Anvil 2.5" (63mm)
- Std. Vee Anvil
- H/D Accessory Case
- Dust Cover

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Minor Load	10Kgf
Major Load	60Kgf, 100Kgf, 150Kgf
Test Force Application	Dead Weight
Test Force Control	Hydraulic Dashpot System
Results Display	Analog Dial Gage
Vertical Capacity	6.7 in.
Throat Depth	6.6 in.
Height	30.0 in.
Width	8.50 in.
Depth	20.0 in.
Shipping Weight	242 lbs.

900-331

This hardness tester comprises the very best in "state of the art" design coupled with dynamic precision only found at Phase II. The 900-331 Rockwell scale hardness tester is easy to operate yet engineered to obtain highly sensitive and accurate readings. A perfect, rugged performer suited for almost any environment including heat treat facilities, tool rooms, workshops, laboratories and inspection labs. Lifetime technical support is included on all Phase II Hardness Testers. So test away with confidence and a level of accuracy you will only find at Phase II.

20 Rockwell Scale Hardness Tester with Digital Indicator

NIST TRACEABLE 5 YEAR WARRANTY

Included Accessories:

- C-scale Diamond Indentor
- 1/16" Ball Indentor
- 3- HRC Test Blocks
- 1- HRB Test Block
- 1-HRA Test Block
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Flat Anvil 5.87"
- Std. Vee Anvil
- H/D Accessory Case
- Dust Cover

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Minor Load	10Kgf
Major Load	60Kgf, 100Kgf, 150Kgf
Test Force Application	Dead Weight
Test Force Control	Hydraulic Dashpot System
Results Display	Analog Dial Gage
Vertical Capacity	6.7 in.
Throat Depth	6.6 in.
Height	30.0 in.
Width	8.50 in.
Depth	20.0 in.
Shipping Weight	242 lbs.

900-331D

This hardness tester with digital indicator comprises the very best in "state of the art" design coupled with dynamic precision only found at Phase II. The 900-331D Rockwell scale hardness tester is easy to operate yet engineered to obtain highly sensitive and accurate readings. A perfect, rugged performer suited for almost any environment including heat treat facilities, tool rooms, workshops, laboratories and inspection labs. Lifetime technical support is included on all Phase II Hardness Testers. So test away with confidence and a level of accuracy you will only find at Phase II.

Tall Frame Rockwell Scale Hardness Tester

NIST TRACEABLE 5 YEAR WARRANTY

Minor Load	10Kgf
Major Load	60Kgf, 100Kgf, 150Kgf
Test Force Application	Dead Weight
Test Force Control	Hydraulic Dashpot System
Results Display	Analog Dial Gage
Vertical Capacity	15¾" in.
Throat Depth	5.5 in.
Height	33.0 in.
Width	18.0 in.
Depth	70.0 in.
Shipping Weight	200 lbs.

Included Accessories:

- C-scale Diamond Indentor
- 1/16" Carbide Ball Indentor
- 3- HRC Test Blocks
- 1- HRB Test Block
- 1-HRA Test Block
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Std. "V" Anvil
- Accessory Case

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Features:

- 15¾" Test height for extremely large parts
- Direct analog dial reading
- Advanced design, easy to operate
- Engineered to obtain highly sensitive and accurate readings

900-332

The 900-332 Rockwell hardness tester is perfectly designed for that large part application. It is easy to operate and engineered to take highly sensitive and accurate readings. Perfect for the shop floor, labs, heat treat facilities and tool rooms.

22 Superficial Rockwell Scale Hardness Tester

Specifications:

Minor Load	3 Kgf
Major Load	15 Kgf, 30 Kgf, 45 Kgf
Test Force Applicaiton	Dead Weight

Included Accessories:

- N-scale Diamond Indentor
- 1/16" Steel Ball Indentor
- 3- HRN Test Blocks
- 3-HRT Test Blocks
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Spot Anvil .38" (10mm)
- Std. Vee Anvil
- Accessory Case
- Dust Cover

Test Force Control	Hydraulic Dash Pot
Results Display	Analog Dial
Vertical Capacity	6.7 in.
Throat Depth	6.6 in.
Height	28 in.
Width	8.9 in.
Depth	19.6 in.
Shipping Weight	190 lbs

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

900-345

Just like our Phase II analog rockwell hardness tester, the 900-345 superficial rockwell hardness tester comprises the very best in "state of the art" design, coupled with dynamic precision only found at Phase II. Used for testing thin and soft metals in the superficial rockwell hardness scales, the 900-345 is easy to operate yet engineered to obtain highly sensitive and accurate readings. The 900-345 will offer unmatched repeatability in all superficial rockwell scales. A perfect, rugged performer suited for almost any environment including heat treat facilities, tool rooms, workshops, laboratories and inspection labs. So test away with confidence and a level of accuracy you will only find at Phase II.

Superficial Rockwell Hardness Tester with Digital Indicator

NIST TRACEABLE 5 YEAR WARRANTY

Included Accessories:

- N-scale Diamond Indentor
- 1/16" Steel Ball Indentor
- 3- HRN Test Blocks
- 3-HRT Test Blocks
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Spot Anvil .38" (10mm)
- Std. Vee Anvil
- Accessory Case
- Dust Cover

Test Force Control	Hydraulic Dash Pot
Results Display	Digital Dial
Vertical Capacity	6.7 in.
Throat Depth	6.6 in.
Height	28 in.
Width	8.9 in.
Depth	19.6 in.
Shipping Weight	190 lbs

Specifications:

Minor Load	3 Kgf
Major Load	15 Kgf, 30 Kgf, 45 Kgf
Test Force Applicaiton	Dead Weight

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

900-345D

Just like our Phase II analog rockwell hardness tester, the the Phase II superficial rockwell hardness tester with digital indicator comprises the very best in "state of the art" design, coupled with dynamic precision only found at Phase II. Used for testing thin and soft metals in the superficial rockwell hardness scales, this tester is easy to operate yet engineered to obtain highly sensitive and accurate readings. The 900-345D will offer unmatched repeatability in all superficial rockwell scales. A perfect, rugged performer suited for almost any environment including heat treat facilities, tool rooms, workshops, laboratories and inspection labs. So test away with confidence and a level of accuracy you will only find at Phase II.

24 Rockwell & Superficial Rockwell Scale Hardness Tester

NIST TRACEABLE 5 YEAR WARRANTY

Included Accessories:

- Diamond Conical Indentor
- 1/16" Ball Indentor
- 2- HRC Test Blocks
- 1- HRB Test Block
- 1- HR15N Test Block
- 1- HR30N Test Block
- 1- HR45T Test Block
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Std. Vee Anvil
- Accessory Case
- Dust Cover

Minor Load	**3Kgf 10Kgf**
Major Load	**15Kgf 60 Kgf** **30 Kgf 100 Kgf** **45 Kgf 150 Kgf**
Test Force Application	**Dead Weight**
Test Force Control	**Manual**
Results Display	**Dual Scale Dial**
Vertical Capacity	**6.0 in.**
Throat Depth	**5.5 in.**
Height	**26 in.**
Width	**18.2 in.**
Depth	**9.4 in.**
Weight	**165 lbs.**

Features:

- Direct analog dial reading
- Advanced design, easy to operate
- Engineered to obtain highly sensitive and accurate readings
- Conforms to ASTM E-18 – Perfect for laboratories, workshops, tool rooms, inspection labs, etc.

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Test Rockwell and Superficial Rockwell Hardness in 1 Unit!

900-375

Our latest Phase II analog Rockwell Hardness Tester, the 900-375, tests both Rockwell hardness and Superficial Rockwell hardness in one unit, with state of the art design and dynamic precision only found at Phase II. The Phase II Twin Rockwell/Superficial Rockwell hardness tester is ruggedly engineered to obtain highly sensitive and accurate readings. Conforming to ASTM E-18 Rockwell hardness standards, this hardness tester will offer unmatched repeatability in all Rockwell hardness scales. A perfect performer suited for any environment including heat treatment facilities, tool rooms, workshops, laboratories and inspection labs. Lifetime technical support is included with all Phase II Hardness Testers. So test away with confidence and a level of accuracy you will only find at Phase II.

Digital Superficial Rockwell Hardness Tester

Minor Load	3Kgf
Major Load	15Kgf 30 Kgf 45 Kgf
Test Force Application	Dead Weight
Test Force Control	Motorized
Results Display	Hi Def LCD Digital
Resoltuion	0.1HR
Vertical Capacity	6.87"
Throat Depth	6.5"
Height	27.55"
Width	8.46"
Depth	20.60"

NIST TRACEABLE 5 YEAR WARRANTY

Included Accessories:
- N-scale Diamond Indentor
- 1/16" Steel Ball Indentor
- 3-HRN Test Blocks
- 3-HRT Test Blocks
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Std. Vee Anvil
- Accessory Case
- Dust Cover

Features:
- Fully automated load/unload procedures affords highly sensitive and accurate readings
- Micro computer controlled with USB output to builtÐin mini printer
- Offers programmable scale conversions
- Capable of testing in all of the Superficial Rockwell® scales
- Automatic conversions to HRC, HRB, HB, HV, HLD and
- Easily obtain Average, Min/Max
- Menu selectable system
- Upper/Lower Limit Settings

Options:
- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

900-347

This NEW! digital Superficial Rockwell hardness tester with fully automated load/unload procedures affords highly sensitive and accurate readings. Micro computer controlled with USB output to built-in mini printer, the 900-347 digital Rockwell hardness tester offers programmable scale conversions, dwell times and test counter. Capable of testing in the Superficial Rockwell® scales.

Automatic conversions to: HRC, HRB, HB, HV, HLD and ob.

Digital Motorized Superficial Rockwell Hardness Tester

Included Accessories:
- N-scale Diamond Indentor
- 1/16" Steel Ball Indentor
- 3- HRN Test Blocks
- 3-HRT Test Blocks
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Std. Vee Anvil
- Accessory Case
- Dust Cover

Options:
- NIST/ASTM certified test blocks, penetrators and kits are avaitable. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Features:
- Fully automated load/unload procedures affords highly sensitive and accurate readings
- Micro computer controlled with USB output to built-in mini printer or PC.
- Offers programmable scale conversions, dwell times, statistical capabilities and test counter
- Capable of testing in all of the Superficial Rockwell® scales
- Automatic conversions to HRC, HRB, HB, HV, HLD and Ob
- Easily obtain Average, Min/Max, S, R
- Menu selectable system
- Upper/Lower Limit Settings
- Memory of 500 test results
- Curved Surface Auto correction

Minor Load	**3Kgf**
Major Load	**15Kgf 30 Kgf 45 Kgf**
Test Force Application	**Dead Weight**
Test Force Control	**Motorized**
Results Display	**Hi Def LCD Digital**
Vertical Capacity	**7.87"**
Throat Depth	**6.50"**
Height	**28.34"**
Width	**7.87"**
Depth	**21.60"**
Weight	**220 lbs**

900-348

Fully automated load/unload procedures affords highly sensitive and accurate readings. Micro computer controlled with USB output to built-in mini printer or PC. Offers programmable scale conversions , dwell times, statistical capabilities and test counter.

Tall Frame Digital Superficial Rockwell Hardness Tester

Minor Load	3Kgf
Major Load	15Kgf 30 Kgf 45 Kgf
Test Force Application	Dead Weight
Test Force Control	Motorized
Results Display	Hi Def LCD Digital
Vertical Capacity	16.5″
Throat Depth	6.50″
Height	28.34″
Width	7.87″
Depth	21.60″
Weight	330 lbs

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Features:

- Fully automated load/unload procedures affords highly sensitive and accurate readings
- Micro computer controlled with USB output to built-in mini printer or PC.
- Offers programmable scale conversions, dwell times, statistical capabilities and test counter
- Capable of testing in all of the Superficial Rockwell® scales
- Automatic conversions to HRC, HRB, HB, HV, HLD and Ob
- Easily obtain Average, Min/Max, S, R
- Menu selectable system
- Upper/Lower Limit Settings
- Memory of 500 test results
- Curved Surface Auto correction

Included Accessories:

- N-scale Diamond Indentor
- 1/16″ Steel Ball Indentor
- 3- HRN Test Blocks
- 3-HRT Test Blocks
- Test Table 5.87″ (150mm)
- Flat Anvil 2.5″ (63mm)
- Std. Vee Anvil
- Accessory Case
- Dust Cover

FOR TESTING VERY LARGE PARTS

900-349 *Special Order Only*

Fully automated load/unload procedures affords highly sensitive and accurate readings. Micro computer controlled with USB output to built-in mini printer. Offers programmable scale conversions , dwell times, statistical capabilities and test counter.

Digital Motorized Hardness Tester

NIST TRACEABLE 5 YEAR WARRANTY

Included Accessories:
- C-scale Diamond Indenter
- 1/16" Ball Indenter
- 3-HRC test Blocks
- 2-HRB Test Blocks
- 1-HRA Test Block
- Built-in Mini Printer
- Flat Anvil 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- V-Anvil
- Accessory Case

Conversion Selection			
Hard		Soft	
HV	HRD	HRF	45T
HRC	15N	HRG	HBW
HK	30N	HRE	HV
HBW	45N	HRK	HK
HRA	HS	15T	HS
HRB		30T	HRB

Minor Load	10 Kgf
Major Load	60 kgf, 100 kgf, 150 kgf
Test Force Application	Dead Weight
Test Force Control	Motorized
Results Display	Hi Def LCD Digital Readout
Resolution	0.1HR
Vertical Capacity	6.87"
Throat Depth	6.50"
Height	27.55"
Width	8.46"
Depth	20.60"
Weight	175 lbs

Features:
- Fully automated load/unload procedure affords highly sensitive and accurate readings
- Micro computer controlled with output to built-in mini printer
- Offers programmable scale conversions, dwell times, statistical capabilities and test counter
- Capable of testing in most of the popular regular Rockwell® scales
- Automatic selectable conversions
- Menu selectable system
- Upper/Lower Limit Settings

Hardness Scale Selections:
HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV

Options:
- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

900-364

This NEW! digital Rockwell hardness tester with fully automated load/unload procedures affords highly sensitive and accurate readings. Micro computer controlled with USB output to built-in mini printer, the 900-364 digital Rockwell hardness tester offers programmable scale conversions, dwell times and test counter. Capable of testing in all of the regular Rockwell® scales.

Automatic conversions to: HRN, HRT, HB, HV, HLD and Tensile Strength.

Digital Rockwell Hardness Tester

NIST TRACEABLE 5 YEAR WARRANTY

Included Accessories:

- C-scale Diamond Indenter
- 1/16" Ball Indenter
- 3- HRC test Blocks
- 2- HRB Test BlockS
- 1PC HRA Test Block
- Built-in Mini Printer
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Std. Vee Anvil
- Accessory Case
- Dust Cover

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Features:

- Easily obtain Average, Min/Max, S, R
- Menu selectable system
- Upper/Lower Limit Settings
- Memory of 500 test results
- Curved Surface Auto Correction

Minor Load	10 Kgf
Major Load	60 kgf, 100 kgf, 150 kgf
Test Force Application	Dead Weight
Test Force Control	Motorized
Results Display	Hi Def LCD Digital Readout
Resolution	0.1HR
Memory/Output	500 Tests/USB
Vertical Capacity	7.87"
Throat Depth	6.50"
Height	28.34"
Width	7.87"
Depth	21.60"
Weight	220 lbs

Comes Complete with everything needed to test in the following Rockwell Scales; A, B, C, D, F, G. Rockwell Scales E, H, K, L, M, P, R, S, V can be achieved with optional indentors!

900-365

Fully automated load/unload procedures affords highly sensitive and accurate readings. Micro computer controlled with USB output to built-in mini printer. Offers programmable scale conversions, dwell times, statistical capabilities and test counter. Capable of testing in all of the regular Rockwell® scales. Automatic conversions to HB, HV, HLD, HRN, and HRT values.

Digital Motorized Touch Screen Hardness Tester

Options:
- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Features:

Innovative Touch Screen for all functions!
- Fully automated load/unload procedure affords highly sensitive and accurate readings
- Micro computer controlled with output to built-in mini printer.
- Offers programmable scale conversions, dwell times, statistical capabilities and test counter
- Capable of testing in all of the regular Rockwell Scales
- Automatic selectable conversions
- Upper/Lower Limit Settings

Included Accessories:
- C-scale Diamond Indenter
- 1/16" Ball Indenter
- 3- HRC test Blocks
- 2- HRB Test Blocks
- 1- HRA Test Block
- Built-in Mini Printer
- Flat Anvil 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- V-Anvil
- Accessory Case

Minor Load	10 Kgf
Major Load	60 kgf, 100 kgf, 150 kgf
Test Force Application	Dead Weight
Test Force Control	Motorized
Results Display	Hi Def LCD Digital Readout
Resolution	0.1HR
Memory/Output	500 Tests/USB
Vertical Capacity	6.87"
Throat Depth	6.50"
Height	27.55"
Width	8.46"
Depth	20.60"
Weight	175 lbs

Conversion Selection			
Hard		Soft	
HV	HRD	HRF	45T
HRC	15N	HRG	HBW
HK	30N	HRE	HV
HBW	45N	HRK	HK
HRA	HS	15T	HS
HRB		30T	HRB

Hardness Scale Selections:

HRA • HRB • HRC • HRD • HRE • HRF • HRG • HRH • HRK • HRL • HRM • HRP • HRR • HRS • HRV

900-363

This new body style and innovative Touch Screen control digital Rockwell hardness tester has fully automated load/unload procedures affords highly sensitive and accurate readings. Micro computer controlled with output to built-in mini printer. The 900-363 digital Rockwell hardness tester offers programmable scale conversions, dwell times, statistical capabilities and test counter. Capable of testing in all of the regular Rockwell® scales.

Tall Frame Digital Motorized Rockwell Hardness Tester

Features:
- Easily obtain Average, Min/Max, S, R
- Menu selectable system
- Upper/Lower Limit Settings
- Memory of 500 test results
- Curved Surface Auto Correction

Included Accessories:
- C-scale Diamond Indenter
- 1/16" Ball Indenter
- 3- HRC test Blocks
- 2- HRB Test BlockS
- 1PC HRA Test Block
- Built-in Mini Printer
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Std. Vee Anvil
- Accessory Case
- Dust Cover

NIST TRACEABLE 5 YEAR WARRANTY

Minor Load	10 Kgf
Major Load	60 kgf, 100 kgf, 150 kgf
Test Force Application	Dead Weight
Test Force Control	Motorized
Results Display	Hi Def LCD Digital Readout
Resolution	0.1HR
Memory/Output	500 Tests/USB
Vertical Capacity	16.5"
Throat Depth	6.50"
Height	28.34"
Width	7.87"
Depth	21.60"
Weight	330 lbs

Options:
- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Comes Complete with everything needed to test in the following Rockwell Scales; A, B, C, D, F, G. Rockwell Scales E, H, K, L, M, P, R, S, V can be achieved with optional indentors!

900-366

This digital Rockwell hardness tester with fully automated load/unload procedures affords highly sensitive and accurate readings. Micro computer controlled with USB output to built-in mini printer. The 900-366 digital Rockwell hardness tester offers programmable scale conversions, dwell times, statistical capabilities and test counter. Capable of testing in all of the regular Rockwell® scales.

32 Digital Rockwell/Superficial Hardness Tester

Features:

- The protruding indenter design is ideal for testing inside diameters and recesses, often impossible with more traditional hardness testers. Inside diameters as small as 1-1/2-inches can be tested with the standard indenter. Operators can test close to vertical surfaces, to within 1/4-inch with the standard indenter. Testing is fast, accurate and there are fewer broken diamonds due to an outstanding viewing area.
- Wide measurement range: 30 rockwell hardness scales in total, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y and HR45Y.
- Auxiliary functions: The 900-385 rockwell hardness tester is capable of upper and lower limit settings; data statistics, the computing for average value, standard deviation, maximum and minimum; scale conversion (the testing results can be converted into the values of HB, HV, HLD, HK and Đb (strength); curved surface correction will automatically correct the measuring results for cylindrical surface and spherical surface.

Minor Load = 300 lbs)	**3Kgf 10Kgf**
Major Load	**15Kgf 60 Kgf** **30 Kgf 100 Kgf** **45 Kgf 150 Kgf**
Test Force Application	**Dead Weight**
Test Force Control	**Motorized**
Results Display	**Hi-Def. Digital Readout**
Display Resolution	**0.1HR**
Vertical Capacity	**10.2 in.**
Throat Depth	**5.9 in.**
Power Supply	single phase 110/220. 50-60hz. **Note:** needs manual plug adjustment for 220v.
Weight	**265lbs Net** (Shipping weight)
Dimensions	**720mm x 240mm x 825mm**

Included Accessories:

- Diamond Conical Indentor
- 1/16" Carbide Ball Indentor
- 1- HRC Test Blocks
- 1- HRB Test Block
- 1- HRA Test Block
- 1- HR30N Test Block
- 1- HR30T Test Block
- Test Table 5.87" (150mm)
- Flat Anvil 2.5" (63mm)
- Std. V- Anvil

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 36-38.

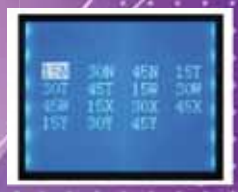
PLEASE CONTACT US FOR DETAILS.

900-385

The Phase II state of the art multi-functional 900-385 twin hardness tester can be used directly to measure Rockwell and superficial Rockwell hardness and change those values of Rockwell hardness into HB, HV, HLD, and HK values.

Loaded with features, the 900-385 rockwell hardness tester is capable of upper and lower limit settings; data statistics, the computing for average value, standard deviation, maximum and minimum; scale conversion (the testing results can be converted into the values of HB, HV, HLD, HK and Đb (strength) and curved surface correction. A perfect performer suited for any environment including heat treat facilities, tool rooms, workshops, laboratories and inspection labs.

Tall Frame TWIN Rockwell Hardness Tester



Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 46-48.

PLEASE CONTACT US FOR DETAILS.

Features: **16.9" Vertical Capacity**

- The protruding indenter design is ideal for testing inside diameters and recesses, often impossible with more traditional hardness testers. Inside diameters as small as 1-1/2-inches can be tested with the standard indenter. Operators can test close to vertical surfaces, to within 1/4-inch with the standard indenter. Testing is fast, accurate and there are fewer broken diamonds due to an outstanding viewing area.
- Wide measurement range: 30 rockwell hardness scales in total, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y and HR45Y.
- Auxiliary functions: The 900-386 rockwell hardness tester is capable of upper and lower limit settings; data statistics, the computing for average value, standard deviation, maximum and minimum; scale conversion (the testing results can be converted into the values of HB, HV, HLD, HK and b (strength); curved surface correction will automatically correct the measuring results for cylindrical surface and spherical surface.

Minor Load	**3Kgf 10Kgf**
Major Load	**15Kgf 60 Kgf** **30 Kgf 100 Kgf** **45 Kgf 150 Kgf**
Test Force Application	**Dead Weight**
Test Force Control	**Motorized**
Display	**Hi-Def. Digital Readout**
Display Resolution	**0.1HR**
Vertical Capacity	**16.9 in.**
Throat Depth	**7.8 in.**
Power Supply	single phase, AC, 110V/220V (selectable)
Weight	**285lbs Net** (Shipping weight= 350 lbs.)
Dimensions	**730mm x 400mm x1000mm**

900-386

The NEW! Phase II Tall Frame 900-386 twin hardness tester can be used directly to measure Rockwell and superficial Rockwell hardness and change those values of Rockwell hardness into HB, HV, HLD, HK and Đb values.

Loaded with features, the 900-386 rockwell hardness tester is capable of upper and lower limit settings; data statistics, the computing for average value, standard deviation, maximum and minimum; scale conversion (the testing results can be converted into the values of HB, HV, HLD, HK and Đb (strength) and curved surface correction. A perfect performer suited for any environment including heat treat facilities, tool rooms, workshops, laboratories and inspection labs.

Digital Brinell Hardness Tester with Closed Loop, Load Cell Technology

Optional Accessory:
PHT-5000 Optical Brinell Scanner
See Page 36

Features:

- Load Cell driven system provides precise control of test force application
- Direct reading
- Engineered to obtain highly sensitive and accurate readings
- Perfect for laboratories, workshops, tool rooms, inspection labs, etc.
- Measuring Range: 8-650HBW

Included Accessories:

- Calibration block 125-350HBW10/3000
- Calibration block 125-350HBW10/1000
- 10mm Tungsten Carbide Ball indenter
- 5mm Tungsten Carbide Ball indenter
- 2.5mm Tungsten Carbide Ball indenter
- Mounting screws for indenter
- Flat anvil
- "V "shape anvil
- 20X microscope
- Dust cover

Hardness Range(HBW)	Error (%)	Repeatability(%)
≤ 125	± 3.0	≤ 3.0
125 < HBW ≤ 225	± 2.5	≤ 2.5
> 225	± 2.0	≤ 2.0

Specifications:

Loads:	F3000kgf (29400N), 1500Kgf (14700N), 1000Kgf (9800N), 750Kgf(7355N),500Kgf (4900N), 250Kgf (2452N), 187.5Kgf (1839N), 125Kgf (1226N),100Kgf (980N), 62.5Kgf(612.9N)
Load dwell duration:	2s-99s, can be set and stored
Tungsten Carbide Ball indenter:	10mm, 5mm, 2.5mm
Measuring range:	8HBW-650HBW
Magnification of the microscope:	20X
Resolution capability of the microscope:	0.005mm
Max measurable height:	230 mm
Max measurable depth:	140 mm
Dimensions:	530mm x 260mm x 750mm
Power supply:	220/110 V, 50/60 Hz, 4A
Weight:	224lbs.

Options:

- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 47-48.

PLEASE CONTACT US FOR DETAILS.

900-355

Innovative closed-loop technology. The tester incorporates the latest load cell technology. The test load is applied via a closed-loop control unit with a load cell, a DC motor and an electronic measurement and control unit. The result is highly accurate Brinell hardness measurements at all test loads up to 0.5%. The common load overshoot or undershoot as known from traditional dead weight, or open-loop, systems is eliminated. The absence of mechanical weights not only eliminates friction problems but also makes the equipment less sensitive to misalignments caused by vibrations.

Tall Frame Digital Brinell Hardness Tester with Closed Loop, Load Cell Technology

Optional Accessory:
PHT-5000 Optical Brinell Scanner
See Page 36

NIST TRACEABLE 5 YEAR WARRANTY

Options:
- NIST/ASTM certified test blocks, penetrators and kits are available. Please refer to pages 47-48.

PLEASE CONTACT US FOR DETAILS.

Included Accessories:
- Calibration block 125-350HBW10/3000
- Calibration block 125-350HBW10/1000
- 10mm Tungsten Carbide Ball indenter
- 5mm Tungsten Carbide Ball indenter
- 2.5mm Tungsten Carbide Ball indenter
- Mounting screws for indenter
- Flat anvil
- "V "shape anvil
- 20X microscope
- Dust cover

Features:

15.7" Vertical Capacity

- Test load selection by keypad and shown on the LCD screen
- Fully automatic test cycles. The Brinell hardness Tester features a fully automatic test cycle, load application, dwell, unloading, is performed fully automatically. This greatly improves reproducibility of test results since operator influence is eliminated.
- Selectable dwell times by screen. The indenter, load, and other test information are shown clearly on the large LCD screen.
- The directions for 0.102F/D2 ratios selecting according to the materials and hardness range can be shown on the screen.
- Equipped with a 20X optical microscope to measure the diameter of Brinell indention.
- Brinell Hardness Calculator(BHC) makes the hardness value calculation easy and convenient.

Technical Specifications:

Loads: 3000kgf (29400N), 1500Kgf (14700N), 1000Kgf (9800N), 750Kgf(7355N),500Kgf (4900N), 250Kgf (2452N), 187.5Kgf (1839N), 125Kgf (1226N),100Kgf (980N), 62.5Kgf(612.9N)
Load dwell duration: 2s~99s, can be set and stored
Tungsten Carbide Ball Indenter: 10mm, 5mm, 2.5mm
Measuring Range: 3.18HBW~658HBW
Magnification of the Microscope: 20X
Resolution capability of the Microscope: 0.005mm
Accuracy of Brinell Hardness Value:

Hardness Range(HBW)	Error (%)	Repeatability(%)
≤ 125	± 3.0	≤ 3.0
125 < HBW ≤ 225	± 2.5	≤ 2.5
> 225	± 2.0	≤ 2 0

Max measurable height: 430 mm (w/large anvil) **450mm** (w/small anvil)
Max measurable depth: 200mm
Dimensions: 600mm×300mm×1000mm
Power supply: 220/110 V, 50/60 Hz, 4A (Convertible)
Weight: 205kg (gross) 165kg(net)

900-356

Innovative closed-loop technology. The tester incorporates the latest load cell technology. The test load is applied via a closedÐloop control unit with a load cell, a DC motor and an electronic measurement and control unit. The result is highly accurate Brinell hardness measurements at all test loads up to 0.5%. The common load overshoot or undershoot as known from traditional dead weight, or open-loop, systems is eliminated. The absence of mechanical weights not only eliminates friction problems but also makes the equipment less sensitive to misalignments caused by vibrations.

Touch Screen! Digital Brinell Hardness Tester

Technical Data:

1. Test Force Parameters

- **Test force is selectable:**

612.9N(62.5kg)	4903N(500kg)
980.7N(100kg)	7355N(750kg)
1226N(125kg)	9807N(1000kg)
1839N(187.5kg)	14710N(1500kg)
2452N(250kg)	29420N(3000kg)

- **Test force control:** Closed-loop system
- **Test force applied:** Automatic (loading/dwell/unloading)
- **Loading time:** 2~8 seconds
- **Dwell time:** 1~99 seconds (selectable)

2. Indenter specifications(Included)

2.5 mm ball indenter
5 mm ball indenter
10 mm ball indenter

3. Hardness test range: 8-650 HBW

4.Conversions: Rockwell, Vickers, etc. Selectable

5. Turrett Control: Automatic

6. CCD magnification: 20X

7. Appearance parameters:

- Overall dimensions (H×D×W): (1100×600×405) mm
- Maximum height of specimen allowed: 350 mm
- Distance between the point of the indenter and the exterior panel: 150 mm
- Weight: 280 kg
- Power and voltage: AC 220V/110V±5%, 50~60Hz

Features:

- Load Cell driven system provides precise control of test force application
- Direct Touch Screen Controls
- Engineered to obtain highly sensitive and accurate readings
- Perfect for laboratories,workshops, tool rooms, inspection labs, etc.
- Measuring Range: 8Ð650HBW

Repetition and tolerance of displayed value for the hardness tester:

Standard hardness test block	Allowable Tolerance of displayed value%	Repeatability of displayed value%
≤125	±3	3
125<HBW≤225	±2.5	2.5
>225	±2	2

900-357 *Special Order Only*

Innovative closed-loop technology. The tester incorporates the latest load cell technology. The test load is applied via a closed-loop control unit with a load cell, a DC motor and an electronic measurement and control unit. The result is highly accurate Brinell hardness measurements at all test loads up to 0.5%. The common load overshoot or undershoot as known from traditional dead weight, or openloop, systems is eliminated. The absence of mechanical weights not only eliminates friction problems but also makes the equipment less sensitive to misalignments caused by vibrations.

The 900-357 combines a touch screen computer and hardness tester in one complete Brinell hardness testing package. All the required parameters can be selected on the panel computer. It's clear display and touch screen make it easy to use and eliminates user error. The clear video screen using it's CCD interface will directly display the dynamic indentation image, lock the image and automatically measure the Brinell hardness. The operator can choose the selectable conversion values among the hardness scales, save the results of each measurement and generate the image report. The load of test forces is accomplished using state of the art load cell system combined with precision mechanical drive. It realizes the automation of hardness test from automatic turret to automatic measurement. It displays dynamic test force changes on the screen and makes the operation process clear.

Optical Brinell Reader

Laptop Not Included

- Increase Accuracy!
- Eliminate user measurement errors!
- Fast and easy measurements!

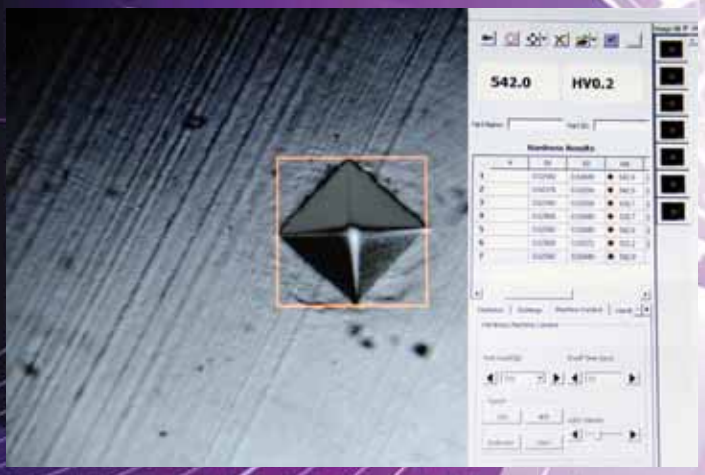
Features:

- Automatic scanning system for brinell impressions
- Friendly User Interface: Automatic measurement with a key stroke or a click of a buttonÐTest results can be manually generated or corrected with a single mouse drag move
- High reliability: Advanced image processing and analysis technologies in automatic measurement. Field proven under severe sample surface conditions;
- Single camera with four magnifications: 1.3M pixel CMOS USB camera with two camera tubes with each tube height having two magnifications. Full measurement range is covered with four magnifications for better measurement accuracy. Specifically, tube 1 magnification #1 is suitable for indentation diameters 3-6mm, magnification #2 for 0.8-1.6mm, while tube 2 magnification #3 for 2-4mm, and magnification #4 for 1-2mm.

PHT-5000

Includes the basic functions of an imaging system such as image capture, camera calibration, image processing, geometric measurement, document labeling, and album management; automatically or manually measures the indentation diameter and calculates the hardness HB value; HB2 (DIN 1605 standard) automatic measurement: Automatically or manually measures the indentation diameters on the calibration sample and the test sample, and automatically interpolates the HB value for the test sample; Converts HB to other hardness scales–Validates the test results with sample dimensions; automatically updates the statistical values such as average, min and max, standard deviation,Cp and Cpk; **Auto-alarm:** Automatically marks the out of spec measurements; Test report: Automatically generates customizable WORD or EXCEL report.

38 Micro Vickers Hardness Tester with Video Cam, Adapter & Software



Specifications:	
Testing Range:	1HV-2967HV
Test Force:	0.098N(10g), .246N(25g), .49N(50g), 0.98N(100g) 1.96N(200g), 4.90N(500g), 9.80N(1000g)
Max Height of the Specimen:	70mm
Max Distance from the Indenter Center to the Instrument Panel:	95mm
Lens/indenters with:	With Hand Turret
Carriage Control:	Automatic (loading/holding-up of the load/ unloading)
Amplification of the microscope:	100x, 400x
Dwell Time of the Test Force:	(5-60)S
Min.Graduation Value of the Testing Drum Wheel:	0.25μm
Dimension of the XY Table:	100x100mm
Movement Field of the XY Table:	25x25mm
Light source/Power Supply:	110/220V,60/50Hz/Cold Light Source
Weight/Gross Weight:	92lbs/77lbs
Package Dimensions:	425x245x490mm

900-390A–Includes Video Cam, Adapter and Manual Measurement Software

900-390B–Includes Video Cam, Adapter and Auto-Measurement Software

This Micro Vickers hardness tester is a precise testing system suitable for hardness analysis of metallic specimens in metallography laboratories or production environments. Software for 900-390A can be upgraded to 900-390B. Contact Phase II for further information

Micro Vickers Hardness Tester with Auto Turret with Video Cam, Adapter & Software

Packages A, B & C can be upgraded at any time.
Packages C&D only function with Phase II brand or similar machines.

Contact Phase II for further information.

Technical Features:	
Testing Range:	1HV-2967HV
Test Force:	0.098N(10g), .246N(25g), .49N(50g), 0.98N(100g) 1.96N(200g), 4.90N(500g), 9.80N(1000g)
Max Height of the Specimen:	70mm
Max Distance from the Indenter Center to the Instrument Panel:	95mm
Lens/indenters with:	With Hand Turret
Carriage Control:	Automatic (loading/holding-up of the load/unloading)
Amplification of the microscope:	100x, 400x
Dwell Time of the Test Force:	(5-60)S
Min.Graduation Value of the Testing Drum Wheel:	0.25μm
Dimension of the XY Table:	100x100mm
Movement Field of the XY Table:	25x25mm
Light source/Power Supply:	110/220V,60/50Hz/Cold Light Source
Weight/Gross Weight:	92lbs/77lbs
Package Dimensions:	425x245x490mm

This Micro Vickers hardness tester is a precise testing system suitable for hardness analysis of metallic specimens in metallography laboratories or production environments.

Model No. 900-391A

Includes Video cam, adapter and manual measurement software

Model No. 900-391B

Includes Video cam, adapter and Auto-Measurement software

Model No. 900-391C

Includes Video cam, adapter and Turret control w/manual measurement software

Model No. 900-391D

Includes Video cam, adapter and Turret control w/ Auto-Measurement software

Model No. 900-391E

Includes Video cam, adapter, Automatic X & Y axis control, and auto Turret control w/ Auto-Measurement software

Model No. 900-391F

Includes Video cam, adapter, Automatic X, Y & Z axis control, and auto Turret control w/ Auto-Measurement software

Micro Vickers Hardness Tester

Dual Penetrators!
Knoop & Vickers

3 Measuring Objectives!
10x, 20x,40x

- The Max. Height of the specimen: 90 mm
- The Max. Depth of the specimen: 12t0 mm (From the center)
- Power supply: AC110/220V, 60/50Hz
- Overall dimension (L x W x H): 495×305×550mm
- Weight: 33kg net

Specifications:

1. **Test Forces:** (gf) and (mN)
   10, 25, 50,100, 200, 300, 500, 1000(1K) gf
   98, 245, 490, 980, 1960, 2940, 4900, 9800 **Nm**
2. **Test Scales:**
   Vickers Scales: HV0.01, HV0.025, HV0.05, HV0.1, HV0.2, HV0.3, HV0.5, HV1
   Knoop Scales: HK0.01, HK0.025, HK0.05, HK0.1, HK0.2, HK0.3, HK0.5, HK1
3. **Test mode:** HV / HK
4. **Language:** English / Chinese
5. **Test force application:** Automatic lifting system
6. X-Y Testing Table
   a) Dimension: 100×100mm
   b) Travel: 25×25 mm
   c) Revolving power: 0.002mm
7. **Selection of hardness scale conversions**
8. **Dwell time of the test force:** 0~90s (5 sec increments)
9. **Turrett:** Toggle between indenters and objectives: Automatic recognition and manual
10. **Brightness**: adjustable

Features:

- 3 Measuring Objectives! 10x – 20x – 40x
- Dual Indentors! Vickers and Knoop
- Includes Auto-Turrett, Video Cam, and Measurement software
- Instant hardness scale conversions via supplied measurement software
- Measurement software allows you to save the measuring data, pictures of indent, generate the hardness-depth curve and save as WORD or EXCEL document.

Three measuring objectives to choose from:

Eyepiece	Objective	Total Amplification	Min. Test Unit
10*	10*	100*	.25 µm
	20*	200*	0.03 µm
	40*	400*	0.015 µm

900-392A Vickers Hardness Tester

Includes Video cam, adapter and manual measurement software

900-392B Vickers Hardness Tester

Includes Video cam, adapter and Auto-Measurement software

900-392C Vickers Hardness Tester

Includes Video cam, adapter and Turret control w/manual measurement software

900-392D Vickers Hardness Tester

Includes Video cam, adapter and Turret control w/ Auto-Measurement software

900-392E Vickers Hardness Tester

Includes Video cam, adapter, Automatic X & Y axis control, and auto Turret control w/ Auto-Measurement software

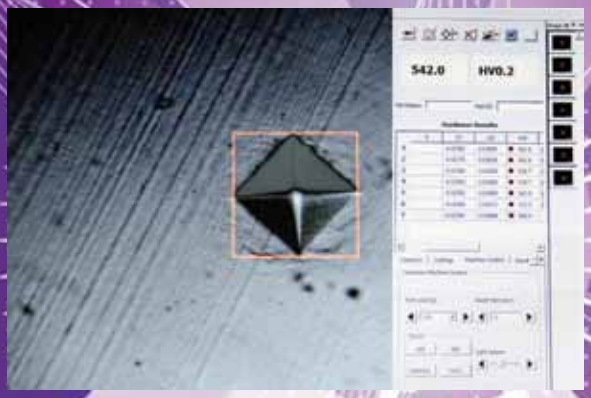
900-392F Vickers Hardness Tester

Includes Video cam, adapter, Automatic X, Y & Z axis control, and auto Turret control w/ Auto-Measurement software

Digital Macro Vickers Hardness Tester w/ built-in Printer

Main Accessories:

- Large test table
- "V" Shape test table
- 10X Digital Micro Lens
- Level
- Adjustable Screw
- Vicker Hardness Block
- RS232 Interface



Specifications:	
Test Forces:	9.807, 19.61, 24.52, 29.42, 49.03, 98.07, 196.1, 249.2, 490.3 N 1, 2, 2.5, 3, 5, 10, 20, 30, 50kgf
Carriage Control:	(Load/Dwell/Unload)
Amplification of the Microscope:	100x 200x
Dwell Time of the Test Force:	(0-60)s
Min. Graduation Value of the Testing Drum Wheel:	0.125μm
Testing Field:	1HV–2967HV
Output:	Built-in Mini Printer RS-232
Max. height of the specimen:	170 mm
Max. width of the specimen:	130 mm
Objective:	10x 20 x 40x selectable
Light source:	Cold light source
Power Supply:	110V/220V,60/50Hz
Dimension:	535X225X580mm
Weight:	60 kg

Model No. 900-398A–Includes Video Cam, Adapter and Manual Measurement Software

Model No . 900-398B–Includes Video Cam, Adapter and Auto-Measurement Software

Our advanced line of Macro Vickers hardness testers are state-of-the-art, precise testing systems suitable for hardness analysis of metallic specimens in metallography laboratories or production environments.

The Phase II macro-vickers hardness testers are versatile and user-friendly systems.

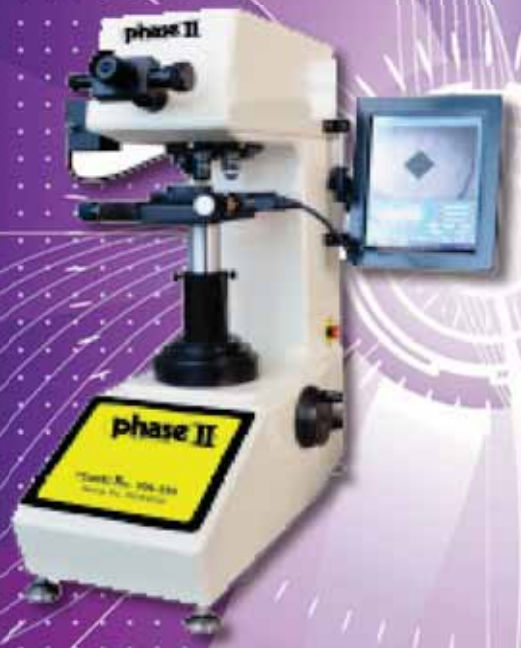
Designed for the accurate hardness testing of small precision parts, thin materials, case hardened layers and all sorts of steel components. The Phase II 900-398 is our macro-vickers hardness tester, covering the load range from 1kg to 50kg, with digital technology. Conforming to ASTM E-384/92 vickers hardness testers standards, the 900-398 digital vickers hardness tester will offer unmatched repeatability. A perfect rugged performer suited for any environment, the Phase II vickers hardness testers are offered with a 5 year warranty and free lifetime technical support.

The 900-398 Vickers Hardness Tester is engineered to produce a clear indentation and a more precise measurement. By means of a load cell, closed circuit system for control, the CPU controls testing force to load/dwell/unload, allowing for the highest degree of accuracy. The large LCD shows the measuring methods, the testing force, the indentation length, hardness value, the dwell time of the testing force as well as the number of the measurement on its screen.

All information such as diagonal lines length of indentation, hardness values, data statistics and hardness conversions can be displayed on the LCD.

The tester can be adapted with a ccd camera for operation and data control via pc.

Touch Screen! Macro Vickers Hardness Tester



- The Max. Height of the specimen: 185 mm
- The Max. Depth of the specimen: 130 mm (From the center)
- Power supply: AC110/220V, 60/50Hz
- Overall dimension (L x W x H): 560 x 335 x 675 mm
- Weight: 65kg

Features:

- With three measuring objectives, automatic recognition and shifting between the objective and the indenter, automatically get the Vickers or Knoop hardness value.
- Instant hardness scale conversions.
- With several USB and RS232 interfaces, the hardness measurement can be printed out by USB interface (equipped with an external printer).
- It can automatically save the measuring data, generate the hardness-depth curve and save as WORD or EXCEL document.
- With X-Y automatic test table, automatic focusing and automatic measuring, it realizes the fully automation of Vickers hardness testing.

Technical Parameters:

1. Test Force
   9.807, 19.61, 24.52, 29.42, 49.03, 98.07, 196.1, 294.2, 490.3N, (1, 2, 2.5, 3, 5, 10, 20, 30, 50kgf)
2. **Test mode:** HV / HK
3. **Language:** English / Chinese
4. **Test force application:** Automatic lifting system
5. X-Y Testing Table
   a) Automatic focusing
   b) Dimension: 100 x 100mm
   c) Travel: 50 x 50 mm
   d) Revolving power: 0.002mm
6. Selection of hardness scale conversions
7. Dwell time of the test force: 0~60s (5 seconds as a unit)
8. Shifting method between indenter and objectives: Automatic recognition and manual
9. Brightness of the light source: adjustable
10. Digital camera pixel: 1.3 million
11. Optical system:

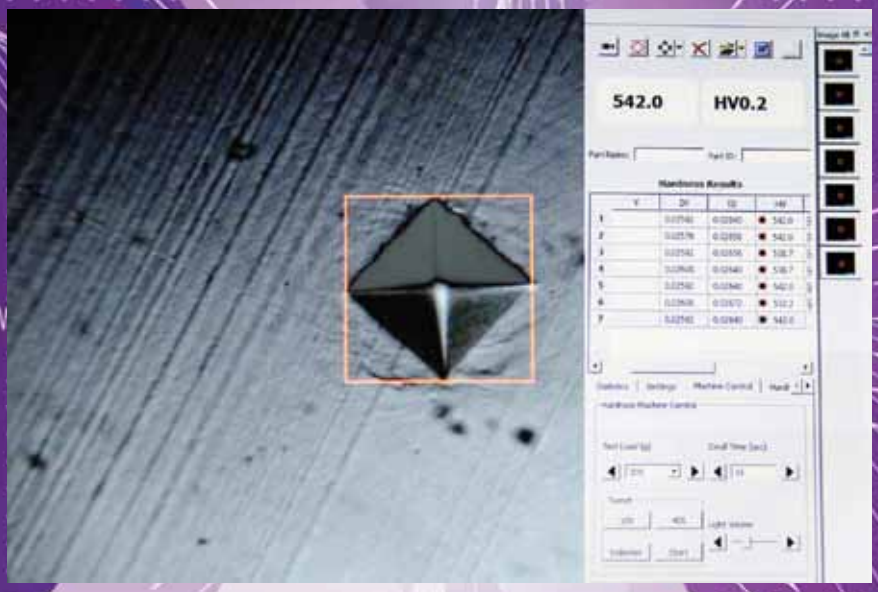
Three measuring objectives to choose from:

Eyepiece	Objective	Total Amplification	Min. Test Unit
10*	10*	100*	.25 µm
	20*	200*	.125 µm
	40*	400*	0.0625 µm

900-399 *Special Order Only*

All the testing parameters can be selected on the side panel computer. Using touch screen, it operates quickly and conveniently and displays clearly and intuitively. With CCD image acquisition system, it shows the image clearly and gets the hardness value just by touching the screen.

Measurement Software Packages for Vickers Hardness Testers



Packages A, B & C can be upgraded at any time.
Packages C&D only function with Phase II brand or similar machines.

Contact Phase II for further information.

Model No. 900391-ASOFT: Includes video cam, adapter and manual measure software

Model No. 900391-BSOFT: Includes Video cam, Adapter and Auto-measure software

Model No. 900391-CSOFT: Includes Video cam, Adapter and Turret Control w/ manual measure software

Model No. 900391-DSOFT: Includes Video cam, Adapter and Turret Control w/ Auto-measure software

Model No. 900391-ESOFT: Includes Video cam, adapter, Automatic X & Y axis control, and auto Turret control w/ Auto-Measurement software

Model No. 900391-FSOFT: Includes Video cam, adapter, Automatic X, Y & Z axis control, and auto Turret control w/ Auto-Measurement software

The new Phase II measurement software packages include a high quality video cam and adaptor coupled with our extensive yet simple to use software. This combination can turn any manually operated micro vickers hardness tester into a world class measurement system that includes memory and USB output to a Word or Excel formatted file.

Vickers Accessories 2016

Thin Specimen Fixture
Part No. 900390-010
- Range: 0.1 – 6mm
- Diameter(Bottom): 76mm
- Height: 43mm

Vertical Holding Fixture
Part No. 900390-020
- Range: 0.6 – 4mm
- Diameter(Bottom): 60mm
- Height: 50mm

Clamping Fixture
Part No. 900390-030
- Max Opening: 45mm
- L-80 x W-76 x H-13.5mm

X-Y Stage w/Micrometers
Part No. 900390-050
- Graduation: 25mm x 25mm
- Table Size: 100 x 100 x 36mm

Diamond Indenters
Part No. 900390-0100 Micro Vickers
Part No. 900390-0150 Knoop
Made in USA-Certified
Part No. 900390-0100C Micro Vickers
Part No. 900390-0150C Knoop

Digital Micrometer Heads for X-Y
Part No. 900390-052

Motorized X-Y Stage w/Controller and Measurement Software
Includes Video cam, Adapter and Turret Control w/ Auto- measure software
Part No. 900391-ESOFT

Hardness Tester Stand/Cabinet

900331-STAND

The Phase II hardness tester floor stand is a sturdy, heavy metal cabinet for securing your Rockwell, Brinell or Vickers hardness tester. The floor stand is supplied with adjustable feet, a locking door, one drawer for storage of smaller parts and a large storage area for special fixtures. It is pre- drilled for an elevating screw.

The cabinets are approximately 18″ wide by 23″ deep by 27″ high.

The Phase II stand will fit all Phase II brand hardness testers as well as many other name brand machines

SHIPPING WEIGHT: 103LBS

Rockwell Hardness Tester Blocks

3pc NIST certified test block kit
Part No. 900330-9410

3pc set includes HRC blocks w/NIST certification for each block in custom carry case

NIST Master Calibration Kit-C scale
Part No. 900330-9410M

Kit includes same HRC test blocks as above as well as a certified diamond indentor in custom carry case

NIST Master Calibration Kit-C/N scale
Part No. 900330-9410Z

Kit includes same test blocks as above as well as a certified Combo C&N scale diamond indentor in custom carry case

Features:

- Phase II offers a vast array of different hardness test blocks for Rockwell, Brinell and Vickers scales, as well as Portable hardness testers
- Phase II hardness test blocks are made of high grade materials to assure unmatched accuracy and repeatability throughout the entire block.
- Phase II Hardness test block surfaces are precision ground and lapped to an average finish of less than 2uin.
- Hardness Test blocks always engineered to obtain highly sensitive and accurate readings.
- All Made in the USA hardness test blocks conform to current ASTM specifications
- Traceability to NIST is offered on HRC steel blocks only.
- Prestigious Accredited laboratory A2LA and NVLAP in the USA used.

STEEL

Part No.	Description	Shape	Range	Comments
900330-9413	Rockwell A	Round	80-88	Phase II std.
900330-9414H	Rockwell B	Square	85-100	Made in USA
900330-9414L	Rockwell B	Square	60-80	Made in USA
900330-9414C	Rockwell B	Round	85-100	Phase II std.
900330-9414D	Rockwell B	Round	60-80	Phase II std.
900330-9415C	Rockwell C	Round	20-30's	Phase II std.
900330-9415D	Rockwell C	Round	20-30's	Phase II NIST certified
900330–9415E	Rockwell C	Square	20-30's	Made in USA/NIST cert.
900330-9416C	Rockwell C	Round	40's-50's	Phase II std.
900330-9416D	Rockwell C	Round	40's-50's	Phase II NIST certified
900330-9416E	Rockwell C	Square	40's-50's	Made in USA/NIST cert.
900330-9417C	Rockwell C	Round	60-70	Phase II std.
900330-9417D	Rockwell C	Round	60-70	Phase II NIST certified
900330-9417E	Rockwell C	Square	60-70	Made in USA/NIST cert.
900340-9001	Superficial HR15N	Round	70-91	Phase II std.
900340-9002	Superficial HR30N	Round	42-80	Phase II std.
900340-9003	Superficial HR45N	Round	20-70	Phase II std.
900340-9004	Superficial HR45T	Round	55-72	Phase II std.
900340-9005	Superficial HR30T	Round	43-82	Phase II std.
900340-9006	Superficial HR15T	Round	73-93	Phase II std.
900345-1015N-L	Superficial HR15N	Square	Low range	Made in USA
900345-1015N-M	Superficial HR15N	Square	Mid range	Made in USA
900345-1015N-H	Superficial HR15N	Square	High range	Made in USA
900345-1015T-L	Superficial HR15T	Square	Low range	Made in USA
900345-1015T-M	Superficial HR15T	Square	Mid range	Made in USA
900345-1015T-H	Superficial HR15T	Square	High range	Made in USA
900345-1030N-L	Superficial HR30N	Square	Low range	Made in USA
900345-1030N-M	Superficial HR30N	Square	Mid range	Made in USA
900345-1030N-H	Superficial HR30N	Square	High range	Made in USA
900345-1030T-L	Superficial HR30T	Square	Low range	Made in USA
900345-1030T-M	Superficial HR30T	Square	Mid range	Made in USA
900345-1030T-H	Superficial HR30T	Square	High range	Made in USA
900345-1045N-L	Superficial HR45N	Square	Low range	Made in USA
900345-1045N-M	Superficial HR45N	Square	Mid range	Made in USA
900345-1045N-H	Superficial HR45N	Square	High range	Made in USA
900345-1045T-L	Superficial HR45T	Square	Low range	Made in USA
900345-1045T-M	Superficial HR45T	Square	Mid range	Made in USA
900345-1045T-H	Superficial HR45T	Square	High range	Made in USA

Rockwell , Brinell, Vickers and LEEB Test Blocks

All of our Made in USA Brinell Test Blocks come certified to applicable standards. We adhere to a strict procedure for the calibration of these blocks, and the accuracy of the tester is maintained using a proving ring and load cell both traceable to N.I.S.T. The readings themselves are done using a stage micrometer also calibrated and traceable to N.I.S.T.

ROCKWELL B – ALUMINUM

Part No.	Description	Shape	Range	Comments
900330-9414AH	Rockwell B	Square	80's	Made in USA
900330-9414AL	Rockwell B	Square	50's	Made in USA
900330-9418H	Rockwell E	Square	90's	Made in USA
900330-9418L	Rockwell E	Square	60's	Made in USA

BRINELL

Part No.	Description	Shape	Range	Comments
900355-3000/150	3000kg Steel	Round	150-250	Phase II std.
900355-3000/250	3000kg Steel	Round	250-500	Phase II std.
900355-3030	3000kg Steel	Rectangle	100-200	Made in USA
900355-3040	3000kg Steel	Rectangle	250-350	Made in USA
900355-3050	3000kg/steel	Rectangle	350-500	Made in USA
900355-3060	3000kg/steel	Rectangle	500-600	Made in USA
900355-3010	3000kg	Rectangle	Low	Aluminum (USA)
900355-3020	3000kg	Rectangle	High	Aluminum (USA)

ROCKWELL B – BRASS

Part No.	Description	Shape	Range	Comments
900330-9414BH	Rockwell B	Square	80's	Made in USA
900330-9414BL	Rockwell B	Square	50's	Made in USA

VICKERS HARDNESS TEST BLOCKS

Part No.	Description	Range	Comments
900390-V010	Vickers (1 gram to 1,000 gram)	All	Made in USA
900390-V020	Heavy Load Vickers (1 Kg to 50 Kg)	All	Made in USA
900390-K010	Knoop (1 gram to 1,000 gram)	All	Made in USA

LEEB TEST BLOCKS

Part No.	Description	Range	Comments
PHT1300-01	Test Block for Leeb "D" (high HRC scale)	750-800	Phase II std.
PHT130001-CERT	NIST Certified Test Block for Leeb "D" (high scale HRC)	750-800	Phase II std.
PHT1300-02	Test Block for Leeb "D" (Mid Scale HRC)	590-670	Phase II std.
PHT130002-CERT	NIST Certified Leeb "D" Block (Mid Scale HRC)	590-670	Phase II std.
PHT1300-03	Test Block for Leeb "D" (low scale HRC)	490-570	NIST Certified
PHT130003-CERT	NIST certified Leeb "D" Block (Low scale HRC)	490-570	For use with "G" impact devices
PHT1100G-01	Leeb Test Block for "G" impact device	590-670	
PHT1100G-CERT	ASTM Certified G Block for Brinell Scale	590-670	
PHT1300-05	Double Sided Leeb "D" Test Block	750-800	

Hardness Tester Penetrators & Anvils

NIST Vickers and Knoop Diamonds Available on Request

PENETRATORS: *DIAMOND*

Part No.	Description	Comments
900330-9440	Rockwell C scale	Phase II std.
900330-9440B	Rockwell C scale	Grade B (USA) Certified
900330-9440C	Combination C&N scale	Made in USA Certified
900385-9440	Rockwell C Scale	Phase II std.
900390-0100	Micro Vickers HV-6	Phase II std.
900390-0100C	Micro Vickers HV-6	Made in USA Certified
900390-0150	Knoop Indentor HV-4	Phase II Std
900390-0150C	Knoop Indentor HV-4	Made in USA Certified
900390-0150	Knoop Indentor HK-4	Phase II std.

NIST Vickers and Knoop Diamonds Available on Request

PENETRATORS: *W/CARBIDE BALL*

Part No.	Description	Comments
900330-9441	1/16" Carbide Ball	Phase II std.
900330-9441C	1/16" Carbide Ball	Certified (USA)
900330-18	1/8" Carbide Ball	Phase II std.
900330-18C	1/8" Carbide Ball	Certified (USA)
900330-14	1/4" Carbide Ball	Phase II std.
900330-14C	1/4" Carbide Ball	Certified (USA)
900330-12	1/2" Carbide Ball	Phase II std.
900330-12C	1/2" Carbide Ball	Certified (USA)
900355-010	Brinell 10mm Carbide Ball	Phase II std.
900355-010C	Brinell 10mm Carbide Ball	Certified (USA)
900355-050	Brinell 5mm Carbide Ball	Phase II std.
900355-050C	Brinell 5mm Carbide Ball	Certified (USA)
900355-025	Brinell 2.5mm Carbide Ball	Phase II std.
900355-025C	Brinell 2.5mm Carbide Ball	Certified (USA)

ANVILS: 20MM SHANK

Part No.	Description
900375-9405	2" Dia. Anvil (flat)
900375-9411	Large Dia. Anvil (Flat)
900375-9412	V-Anvil
900375-9406	½" Spot Anvil

ANVILS: 19MM SHANK

Part No.	Description
900331-9405	2" Dia. Anvil (flat)
900331-9411	Large Dia. Anvil (Flat)
900331-9407	V-Anvil
900331-9406	1/2" Dia. Spot Anvil
900365-625	Spot V & Spot Anvil
900365-630	Diamond Spot Anvil
900365-700	Gosse Neck for Inner Surface Testing

Digital Shore Durometers

Shore A scale is for testing the following materials:

Rubber: Soft vulcanized (ie. tire), natural nitrile.

Elastic materials (rubber & rubber like): GR-S, GR-1, neoprene, thiokol.

Other: Wax, felt, leather etc. (materials that normally yield under fingernail pressure, such as the heel on your shoe).

Shore D scale is for testing the following materials:

Rubber: Hard

Plastics: Harder grades such as rigid thermoplastics, plexiglass, thermopolystyrene, vinyl sheet, cellulode acetate, thermosetting laminates (ie. formica)

Other: Paper filled calendar rolls, calendar bowls, etc. (materials that would not normally indent under fingernail pressure, such as a pocket comb or bowling ball).

Specifications:

- Measuring range: 0-100HSA (0-100 HSD)
- Resolution: 0 .5H
- Digital read out
- Auto Hold feature
- Uses 1-SR44 Button Cell Battery
- Custom rugged carry case

Model No. PHT-960 Shore A Scale

Model No. PHT-980 Shore D Scale

Designed to test the hardness of Rubbers and Plastics

These sleek hand held hardness testers are crafted and engineered to perform at the highest level of accuracy. An ergonomic, lightweight design assists in taking precise and consistent hardness measurements.

Digital Shore Durometers

	PHT-950 Shore "A"	PHT-975 Shore "D"
Measurement Range	0-100HSA	0-100 HSD
Resolution	0.1H	0.1H
Digital Readout	Yes	Yes
Statistics	Yes Mean, Min, Max, No. of Measurements and Deviation	Yes Mean, Min, Max, No. of Measurements and Deviation
Power Supply	4 x AAA	4 x AAA
Low Battery Indicator	Yes	Yes

These testers are crafted and engineered to perform at the highest level of accuracy. An ergonomic and attractive design combined with lightweight assists in taking precise hardness measurements.

Test Blocks Not Included. See selection below:

PHT-950	Digital Shore A Durometer
PHT-975	Digital Shore D Durometer
PHT950-25	7pc Test Block Kit A (USA)
PHT950-20	7pc Test Block Kit A (import)
PHT975-25	3pc Test Block Kit D (USA)
PHT975-20	3pc Test Block Kit D (import)

Accessories for Shore Durometers

Shore A & D Scale Test Block Kits

PHT950-25 7pc Shore A Test Block Kit (USA)
PHT950-20 7pc Shore A Test Block Kit (Import)

- Consists of 7 color coded test blocks that range from Ha 30's to Ha 90's.
- Designed for periodic verification of calibration accuracy.
- For use with all Shore A durometers
- Test kit is serialized for easy traceability
- Durometer results should be within +/-2 Durometer Points of stated test block value.

PHT975-25 3pc Shore D Test Block Kit (USA)
PHT975-20 3pc Shore D Test Block Kit (Import)

- Consists of 7 color coded test blocks that range from Ha 30's to Ha 90's.
- Designed for periodic verification of calibration accuracy.
- For use with all Shore A durometers
- Test kit is serialized for easy traceability
- Durometer results should be within +/-2 Durometer Points of stated test block value.

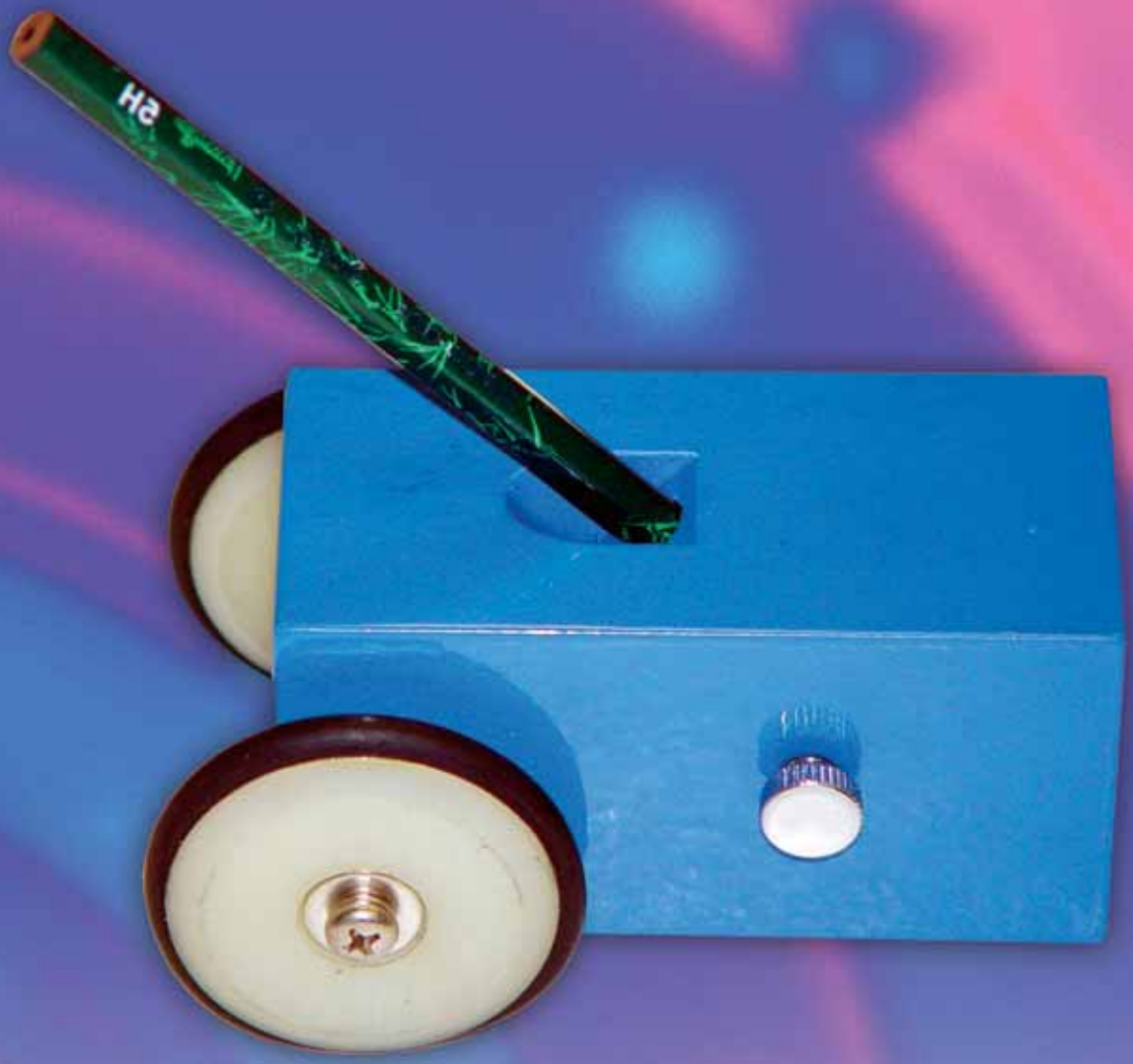
Shore A & D Scale Test Stands

These Phase II test stands are used to improve the accuracy and reproducibility of both analog and digital durometer hardness tester readings by ensuring that the presser foot is exactly parallel to the specimen table.

PHT-961
Shore A Test Stand

PHT-981
Shore D Test Stand

Coating Hardness Tester



A set of 14 calibrated wood drawing pencils is included from 6B to 6H.

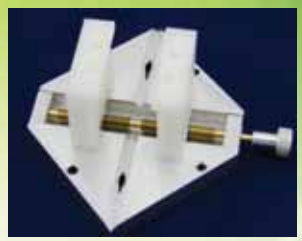
PHT-995

The Phase II Coating Hardness Tester is engineered to determine the resistance of coatings to scratch effects on the surface. Utilizing the Wolff/Wilborn principle, this coating hardness tester conforms to ASTM D 3363-05.

Pencils of various known hardness are dragged over the coating surface at a fixed angle and fixed pressure. Beginning with the hardest lead, graduating softer, movements of .250" (6.5mm) will determine where the surface area is/is not being gouged or scratched.

Pencils can be changed easily via a knurled thumb screw on the side of the instrument.

Surface Roughness Tester



The SRG-2000 determines surface roughness parameters Ra,Rz, Rms(Rq) and Rt within a wide measuring range. The piezo-electric pick-up stylus with diamond tip assures a very reliable measurement within tolerances that conform to ASME B46.1. Surface Roughness parameter Ra is computed to conform to ISO and Rz is computed to conform to DIN.

Surface Roughness parameter	Ra (ISO), Rz (DIN), Rms(Rq), Rt
Measuring range	Ra: 0.05-10.0µm / Rz: 0.1-50mm Rq: 0.05 ~ 10.0µm / Rt: 0.1 ~ 50µm
Resolution	0.01µm (1.6minch)
Cut-off lengths	0.0009in., 0.03in., 0.09in
Filter	RC analogue
Tracing length	0.23in (6mm)
Tracing speed	0.04in/second (1.0mm/second)
Accuracy	+/- 12% of actual Value
Pick-up stylus	Piezo-electric
Tracer tip	Diamond, radius 5µm
Operating temperature	32-104 degrees F (0-40 degrees C)
Power	3.6v / 2xNiMh batteries
Charger	9V DC
Contact force on probe	<1.8ozf (<50gf)
Static measuring force of sensor stylus	<0.06ozf (<1.6gf)
Dimensions	4.9 x 2.8 x 1.0in (125 x 73 x 26mm)
Weight	0.4lbs (200g)

The PHASE II SRG-2000 surface roughness tester comes complete with a compact durable carrying case, roughness standard, charger and instruction manual.

SRG-2000 Surface Roughness Tester

SRG2000-VISE

The PHASE II SRG-2000 surface roughness tester is a pocket-sized economically priced instrument for measuring surface roughness texture conforming to traceable standards. It can be used on the shop floor in any position, horizontal, vertical or anywhere in between.

The large LCD display shows either surface roughness parameter Ra, Rz, Rms(Rq) and Rt at the touch of a button, combined with the selected cutoff length. External calibration of the surface roughness values is possible by means of a special CAL button, which makes adjustment of this instrument very easy. A beep signal informs the user about each individual measurement status when ready.

The easy to use SRG-2000 surface roughness tester operates on various surfaces, not only flat but also outer cylinder, outer cone, grooves, and recesses greater than 80x 30mm. The areas of application are wide spread. It is suitable for inspection departments, quality control, on the shop floor during machining, during assembly in the field.

Surface Roughness Gauge

New!

NIST TRACEABLE 5 YEAR WARRANTY

Technical Specifications:

- Measures flat, Inside and Outside Diameters
- **Measures grooves and recessions:** wider than 0.16in (4mm)
- **Roughness parameters:** Ra, Rz, Rq, Rt, Rs, Rsm, Rmax, Rpc, Rmr
- **Roughness standards:** ISO/DIN/JIS/ANSI
- **Display resolutions:** 0.01µm/+/-20 µm | 0.02µm/+/-40 µm | 0.04µm/+/-80 µm
- **Measuring accuracy:** ≤±10%
- **Repeatability:** Less than or equal to 6%
- **Measuring range:** Ra, Rq: 0.01-40µm
  Rz,Rt, Rm: 0.02-160µm
- **Maximum drive range:** 0.7in(17.5mm)
- **Cut-off length:** 0.009/0.03/0.09inch (0.25/0.8/2.5mm)
- **Tracing speeds:** speed 1mm/s (sampling length 2.5mm)
  speed 0.5mm/s (sampling length 0.8mm)
  speed 0.135mm/s (sampling length 0.25mm)
- **Sensor:** Inductance type
- **Sensor-stylus:** Diamond, radius 5µm
- **Pick up Force:** <4mN
- **Filter:** RC, PC-RC,GAUSSIAN,D-P
- **Data output:** USB
- **Operating temperature:** 41ºF-104ºF (5º-40ºC)
- **Weight:** 0.97lb(440g)
- **Dimensions:** (119 x 47 x 65mm)
- **Power:** Li-Ion rechargeable battery
- Auto shut-off

Optional Accessories:

1) Precision Support Stand
2) Deep Groove Stylus
3) Small Hole Stylus
4) Curved Surface Stylus
5) Stylus Extension
6) Data Output Software

SRG-4600 comes supplied with:

- Calibrated Reference Standard w/support plate
- Leveling plate
- Stylus protector
- A/C Adapter
- Rugged Carry case

Features:

- 9 Different roughness parameters
- Inside/Outside Diameters
- Stylus position indicator
- USB output to PC
- Large Memory

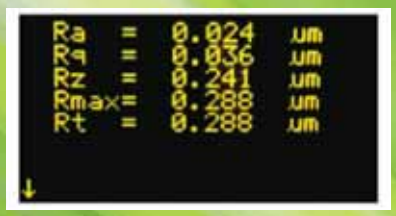
SRG-4600

The newest addition to our state-of-the-art surface roughness testers profilometer, the SRG-4500 will instill the highest level of confidence in your production, shop floor or QC lab. Extended memory and output coupled with multiple useful functions the SRG-4600 surface roughness tester profilometer is clearly the new leader in ultra accurate surface profile testing.

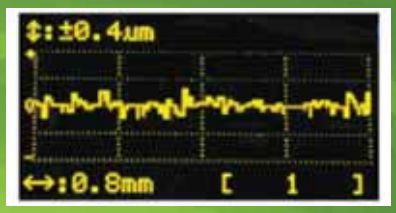
SRG-4600 Surface Roughness Gauge Accessories

Main Screen

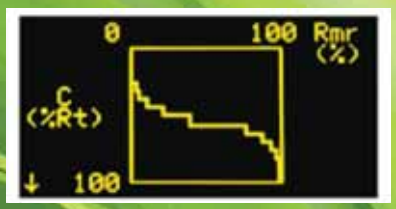
Stylus Position



Parameters



Roughness Profile



Ratio Curve

SRG4000-050
Precision Support Stand
Can be used with either 4000, 4500, 4600 series roughness gauges.

SRG4600-200
Deep Groove Stylus
For use on deep grooves with min. width of 3mm and max depth of 10mm. *Must be used with support stand.*

SRG4600-100
Standard 5µm Stylus
For use on flat and slightly curved surfaces.

SRG4600-500
2" Stylus Extension
Adds extra 2" reach for deeper applications.

SRG4600-300
Small Hole Stylus
For use in small holes under 2mm diameter and max depth of 9mm.

SRG4600-400
Curved Surface Stylus
For use on curved surface with a minimum curvature radius of 3mm. *Must be used with support stand.*

SRG4600-550
5" Stylus Extension
Adds extra 2" reach for deeper applications.

Portable Surface Roughness Gauge

NIST TRACEABLE 5 YEAR WARRANTY

Roughness parameter	Ra, Rz, Rq(RMS), Rt
Assessed Profiles	Primary profile(p), Roughness profile(R) tp curve (Mr)
Conformance Standards	ISO/DIN/JIS/ANSI
Measuring System	Metric µm, Imperial µinch
Display Resolution	+/-20 µm = 0.001 µm +/-40 µm = 0.002 µm +/-80 µm = 0.004 µm
Display Range	Ra, Rq: 0.005 µm up to 16 µm Rz, Rt: 0.02 µm up to 160 µm
Pick Up Measuring Range	+/- 80 µm
Sensor Specifications	5 µm Diamond Tip Stylus
Sensor Angle	90°
Contact Force	4mN (0.4gf)
Display features	SStylus position sensor Battery level indicator Direct display of parameters Direct printing Auto-off with auto store
Cut-off lengths	0.25mm/0.8mm/2.5mm
Tracing length Lt	1.3mm – 17.5mm
Digital Filter	RC, PC-RC, GUASSIAN, D-P
Traverse Length	Selectable 1,3 or 5
Power	Li-Ion battery
Working temperature	5-40 degrees C.
Dimensions	139mm x 56mm x 48mm
Weight	1 lb.

Optional Accessories:

SRG4000-050	Precision Support Stand
SRG4000-110	Stylus Extension
SRG4000-130	2µm Diamond Stylus
SRG4000-140	Stylus for Grooves
SRG4000-150	Stylus for Curved Surfaces

Features:

- 4 Different roughness parameters
- Inside/Outside Diameters
- Stylus Level Indicator

SRG-4000 Surface Roughness Tester

SRG4000-050 Optional Precision Test Stand

Surface Profile Gauge

For Sandblasted Surface Checks Only!

Display	4-digit LCD
Measuring Range	0-800µm (0-30mils)
Accuracy	+/-5% or 5 µm (Whichever is greater)
Resolution	1 µm (0.1mils)
Readout	Inch or Metric
Measurement Speed	>30 readings/minute
Operating Temp	0-50ºC <80%RH
Dimensions	162 x 65 x 28mm
Weight	9.8oz
Power supply	4-AAA Batteries

SPG-1000

The SPG-1000 digital surface profile gauge will allow the peak to valley height of blast cleaned surfaces to be accurately measured .

The gauge is initially set to zero with the glass zero plate and the foot is then placed on the blasted profile. The foot sits on top of the peaks and the sharp stylus travels to the bottom of the valley, allowing the gauge to display the peak to valley height. A number of measurements can be made and the average taken

Supplied in Carrying Case, operation manual, calibration certificate and batteries

Ultrasonic Thickness Gauge with Scan Feature

THE MOST POPULAR MODEL!

Display type	4-digit LCD w/Back Light
Minimum display unit	0.001″/0.01mm (selectable)
Measuring Range	0.040–12.0″ in steel w/standard probe
Accuracy	+/- (0.5% thickness + .001″)
Sound velocity range	3280-32805 ft/s (1000-9999m/s)
Upper/Lower Limit Preset Alarm	Yes
Operating temperature	32-122 degrees F
Frequency	5MHz
Update range	4Hz
Memory	20 Groups (100 files/group)
Output	USB
Mini-Printer	Optional
Power supply	3v AA alkaline batteries (2pc)
Battery life	Approx. 100 hours (w/backlight off)
Power consumption	Working current is less than 3V
Dimensions	5.90″ x 2.91″ x 1.30″ (150 x 74 x 33mm)
Weight	8.6oz (245g)

REFER TO PAGE 63 FOR ULTRASONIC ACCESSORIES

UTG-2800

State of the art, digital tester is packed with features typically found on high end models only. This multi-functional unit offers everything from basic measurement, Scanning Capabilities, Adjustable Sound Velocity, extended memory and USB output capabilities. This dynamic sonic gauge is designed to measure the thickness of metallic and non-metallic materials such as steel, aluminum, titanium, plastics, ceramics, glass and any other good ultrasonic wave conductor as long as it has parallel top and bottom surfaces.

The UTG-2800 will accurately display readings in either inch or millimeter after a simple calibration to a known thickness or sound velocity.

Ultrasonic Thickness Gauge w/ Thru Coat and Ext. Measuring Range

NIST TRACEABLE 5 YEAR WARRANTY

Measures Thru Paint!

Display type	4.5 -digit LCD w/Back Light
Minimum display unit	0.001″/0.01mm (selectable)
Measuring Range	Pulse-Echo: 0.025″-23.0″ in steel Echo-Echo: 0.118″ – 2.35″
Accuracy	+/- (0.5% thickness + .001″)
Sound velocity range	3280-32805 ft/s (1000-9999m/s)
Upper/Lower Limit Preset Alarm	Yes
Scanning Feature	Yes, 16 measurements/second
Operating temperature	32-122 degrees F
Frequency	5MHz
Update range	4Hz
Memory	20 Groups (100 files/group)
Output	USB
Power supply	AA alkaline batteries (2pc)
Battery life	Approx. 100 hours (w/backlight off)
Power consumption	Working current is less than 3V
Dimensions	5.90″ x 2.91″ x 1.30″ (150 x 74 x 33mm)
Weight	8.6oz (245g)

Comes complete with Certificate of Calibration, Operation Manual and Custom Carry Case.

UTG-2900

Our new State of the art, digital tester is packed with features typically found on high end models only. This multi-functional unit offers everything from basic measurement, Thru Coating capabilities, Scanning Capabilities, Adjustable Sound Velocity, extended memory and USB output capabilities. This dynamic sonic gauge is designed to measure the thickness of metallic and non-metallic materials such as steel, aluminum, titanium, plastics, ceramics, glass and any other good ultrasonic wave conductor as long as it has parallel top and bottom surfaces.

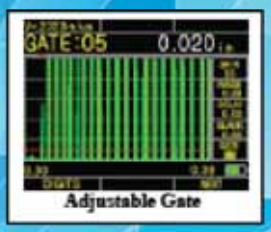
The UTG-2900 will accurately display readings in either inch or millimeter after a simple calibration to a known thickness or sound velocity.

Ultrasonic Thickness Gauge w/A & B Scan and Thru Coating Capability

NEW! Hi-Resolution, Ultra Thin Material

UTG-4000/4200

Utilizing color waveform A-scan and time based B-scan for absolute correctness, this state of the art ultrasonic thickness gauge is packed with useful features allowing users to be confident of the displayed values on the most critical of applications. These multi-functional ultrasonic thickness gauges offer everything from basic measurement, Scan mode with Min/Max viewing, GO/NO GO display, Adjustable Sound Velocity and Thru-Coating Capabilities. This dynamic ultrasonic thickness gauge is designed to measure the thickness of metallic and non-metallic materials in critical situations that ordinary thickness gauges couldn't do.



Operating Principle	UTG-4000 Ultrasonic Pulse/Echo and Echo to Echo method with dual element probe UTG-4200 Ultrasonic Pulse/Echo and Echo to Echo method with Time Delay probe
Display type	2.4" Color OLED Screen
Resolution	UTG-4000 0.001", .01" /0.01mm (Inch/Metric selectable) UTG-4200 0.0001" / 0.001mm (Selectable)
Measuring Range	UTG-4000 0.02-20.0" Dependant upon probe & material UTG-4200 See Below: Interface-Echo Mode: .060" - 1.05" Echo-Echo Mode: .009" - .531" Multiple Echo Verify Mode: .009" to .354" Auto Mode: .009" to 1.05"
Repeatability	+/-.001" (+/-0.05mm)
Sound velocity range	0.0197-0.3937in/us (500-9999m/s)
Measuring Error	0.001"(up to 0.984") 0.007"(up to 3.03" 0.019"(4" and above)
Display Modes	**UTG-4000** Digital Thickness Readout A-scan or B-scan Min/Max Capture Diff-Value / Reduction **UTG-4200** Interface Echo(I-E): for measuring thick material Echo-Echo (E-E): for thin material and measure through coating Multiple Echo Verify Mode (ME-E): All thickness values have been checked from 3-9 echos for highest accuracy Auto Mode: Automatic selection according to different material being tested. Digital Thickness Readout A-scan or B-scan
V-Path Correction	Automatic
Update Rate	Selectable: 4Hz, 8Hz, 16Hz
Refresh rate	4/second
Alarm Settings	Min/Max Alarm Dynamic waveform color change on alarm
Operating temperature	14-122ºF (-10ºC - +50ºC)
Auto Shut-Off	After 5 minutes
Power supply	3v AA alkaline batteries (2pc)
Operating Time	Approx. 36 hours
Dimensions	6.02" x 2.99" x 1.45" (153 x 76 x 37mm)
Weight	9.9oz (280g)

Part Number	UTG4000-400	UTG2800-750	UTG2600-400	UTG2000-440	UTG2000-450	UTG4200-400
Probe Style	Standard	Small Tube	Extreme small tube	Rough surface/Porous metal	Hi-Temp	Time Delay Probe
Frequency	5MHz	7.5 MHz	10 MHz	2 MHz	5 MHz	n/a
Contact Dia.	8mm	6mm	4mm	17mm	15mm	7.75mm
Measure range	.031-3.93"	.031-1.18"	.019-.787"	.157-20"	.157-3.14"	.009" to 1.05*
Temperature	14-158ºF	14-158ºF	14-158ºF	14-158ºF	0-572ºF	14-158ºF
Image						

The New RUGGED Aluminum Body Ultrasonic Thickness Gauge

NIST TRACEABLE 5 YEAR WARRANTY

NIST CERTIFIED

Rugged Aluminum Extrusion Body!

Display type	4.5 -digit LCD w/Back Light
Minimum display unit	0.001″/0.01mm (selectable)
Measuring Range	Pulse-Echo: 0.030″-12.0″ in steel
Accuracy	+/- (0.5% thickness + .001″)
Sound velocity range	3280-32805 ft/s (1000-9999m/s)
Scanning Feature	Yes, 16 measurements/second
Operating temperature	32-122 degrees F
Frequency	5MHz
Update range	4Hz
Memory	20 Groups (100 files/group)
Output	USB
Power supply	AA alkaline batteries (2pc)
Battery life	Approx. 100 hours (w/backlight off)
Power consumption	Working current is less than 3V
Dimensions	5.90″ x 2.91″ x 1.30″ (150 x 74 x 33mm)
Weight	8.6oz (245g)

UTG-2850

Our new Rugged extruded aluminum frame ultrasonic thickness gauge is suited for rough environments such as mining facilities, pipeline, bridge and tower inspections, etc and is packed with features typically found on high end models only. This multi-functional unit offers everything from basic measurement, Scanning Capabilities, Adjustable Sound Velocity, extended memory and USB output capabilities. This dynamic sonic gauge is designed to measure the thickness of metallic and non-metallic materials such as steel, aluminum, titanium, plastics, ceramics, glass and any other good ultrasonic wave conductor as long as it has parallel top and bottom surfaces.

The UTG-2850 will accurately display readings in either inch or millimeter after a simple calibration to a known thickness or sound velocity.

Ultra Precise Ultrasonic Thickness Gauge

NIST TRACEABLE 5 YEAR WARRANTY

NIST CERTIFIED

Display type	4-digit LCD w/ Backlight
Display Resolution	Inch: 0.01″, 0.001″ or 0.0001″ (selectable) Metric: 0.1mm, 0.01mm or 0.001mm(selectable)
Measuring Range	Standard Mode: 0.010″ – 0.787″ (steel)
Accuracy	+/-0.0002″ (0.005mm) if thickness < 3mm +/-0.002″ (0.05mm) if thickness < 20mm
Sound velocity range	3280-32805 ft/s (1000-9999m/s) Adjustable
Upper/Lower Limit Preset Alarm	Yes
Operating temperature	32-122 degrees F
Refresh Frequency	4Hz up to 25Hz
Memory	500 Test Values
Output	N/A
Power supply	AA alkaline batteries (2pc)
Battery Life	Approx. 200 hours (w/backlight off)
Power consumption	Working current is less than 3V
Dimensions	5.86″ x 2.87″ x 1.25″ (149 x 73 x 32mm)
Weight	5.6oz (160g)

UTG-2650 comes complete with Certificate of Calibration, Couplant Gel, Operation Manual and Custom Carry Case.

UTG-2650

State of the art ultrasonic technology allows you to obtain ultra precise thickness measurements and store them to memory. This digital tester is capable of reading wall thickness down to 0.010″ with a super high adjustable resolution of up to 0.0001″. This dynamic sonic gauge is designed to measure the thickness of metallic and non-metallic materials such as steel, aluminum, titanium, plastics, ceramics, glass and any other good ultrasonic wave conductor as long as it has parallel top and bottom surfaces. The UTG-2650 will accurately display readings in either inch or millimeter after a simple calibration to a known thickness or sound velocity.

Ultrasonic Thickness Gauge Economy

NIST TRACEABLE 5 YEAR WARRANTY

NIST CERTIFIED

Comes complete with Certificate of Calibration, Couplant Gel, AA Batteries, Operation Manual and Custom Carry Case.

Display type	3-digit LCD
Resolution	0.001″/0.01mm
Measuring Range	0.04″ to 8.0″
Sound velocity range	3280-32805 ft/s (1000-9999m/s)
Operating temperature	32-122 degrees F
Frequency	5MHz
Update range	4Hz
Memory	N/A
Output	N/A
Printing	N/A
Power supply	4-AAA batteries
Battery life	Approx. 250 hours/set
Power consumption	Working current is less than 3V
Dimensions	4.9″ x 2.6″ x 0.9″ (161 x 69 x 32mm)
Weight	0.7lbs (300g)

UTG-1500

This handheld unit has precise touch and read capabilities yet is economically priced. The UTG-1500 is designed to measure the thickness of metallic and non-metallic materials such as aluminum, titanium, plastics, ceramics, glass and any other good ultrasonic wave conductor as long as it has parallel top and bottom surfaces. The UTG-1500 will accurately display readings in either inch or millimeter after a simple calibration to a known thickness or sound velocity.

Stock No.	Description	Compatibility	Comments
UTG2000-020	2" Inside Diameter Probe 5Mhz - 12mm dia. 90º angle	All Phase II Thickness Gauges	For testing inside cylinders w/2" diameter
UTG2000-030	3" Inside Diameter Probe 5Mhz - 12mm dia. 90º angle	All Phase II Thickness Gauges	For testing inside cylinders w/3" diameter
UTG2000-400	12mmø - 90º angle - 10Mhz	All Phase II Thickness Gauges	General Purpose
UTG2000-420	6mmø - 90º angle - 5Mhz	All Phase II Thickness Gauges	For testing small areas
UTG2000-440	14mm ø - 90º angle - 2.0Mhz	All Phase II Thickness Gauges except UTG1500	For testing Rough Surfaces (min thickness of .07")
UTG2000-450	12mm ø - Straight - 5Mhz	All Phase II Thickness Gauges	For testing Hi Temperature (572F, 300C)
UTG2000-475	6mmø - 90º angle - 7.5Mhz Rigid extended probe	All Phase II Thickness Gauges Except UTG-1500 & 2000	For testing in deep inside bores
UTG2600-400	4mmø - 90º angle - 10Mhz	All Phase II Thickness Gauges	For testing extremely small areas
UTG2600-410	8mm ø - 90º angle - 5Mhz	All Phase II Thickness Gauges	General Purpose
UTG2600-420	12mm ø - 90º angle - 2.25Mhz	All Phase II Thickness Gauges Except UTG-1500	For testing porous materials/rough surface
UTG2800-400*	10mm ø - Straight - 5Mhz	All Phase II Thickness Gauges	General Purpose
UTG2800-420	14mm ø - 90º angle - 2.50Mhz	All Phase II Thickness Gauges Except UTG-1500	For testing porous materials/ rough surface
UTG2800-750	6mm ø - 90º angle - 7.50Mhz	All Phase II Thickness Gauges Except UTG-1500	For testing porous materials & Plastics

High temperature Ports

Extreme Small Surface

Internal

UTG1000-850 Couplant Gel 5-Liter

UTG1000-808 Couplant Gel 8oz

- Water based and water soluble
- Slow drying with good transducer lubrication
- Extended ambient temperature range
- Stable couplant that holds on a vertical and overhead surfaces and fills depressions in rough surfaces
- MSDS available by request

UTG-0500 5-Step Calibration Block

1018 Steel
.100" thru .500"

Coating Thickness Gauges

Main Technical Data:

- **Measuring range:** 0-1000µm or 0-40mils
- **Resolution:** 0.1µm/0.01mils(0-99µm) or 1m m (over 100µm)
- **Guaranteed tolerance:** After one-point calibration: =/- 1-3%n or 2 µm (whichever is greater)
- **Display:** 4 digits (digit height = 10mm/0.4")
- **Min. measuring area:** 0.2" x 0.2" (5mm x 5mm)
- **Min. radius of curvature:** Convex: 0.12" (3mm) **Concave:** 1.2" (30mm)
- **Min. substrate thickness:** Ferrous: 20 mils (0.5mm) **Non-ferrous:** 2 mils (50 mm)
- **Calibration:** Zero Calibration/Foil calibration
  * *Max. Surface temperature of test object: 302 degrees F (contact time max is 2 seconds)*
- **Power source:** 4-AAA batteries
- **Dimensions:** 161 x 69 x 32mm
- **Weight:** 9oz. (260g)

PTG-3500/PTG-3525

The PHASE II PTG-3500 series of gages can perform two different methods of calculating thickness measurement by utilizing the characteristics of both eddy current and magnetic induction. Testing performance is both non-destructive and extremely accurate. With these state of the art thickness gages, you can easily detect the thickness of non-magnetic coating on a magnetic substrate (ferrous) or an insulating coating on a non-magnetic conductive substrate (non-ferrous) utilizing either an integrated probe or our version that comes with an external probe.The PHASE II PTG-3500 can be used in many areas of industry including manufacturing, general engineering, commercial inspection, etc.

The PTG-3525 utilizes two external probes for ferrous and non-ferous substrates. Utilizes two external probes for ferrous and non-ferous substrates. Comes with 2 substrate samples(steel,aluminum), 4 calibrated thickness samples, carry case, batteries and operation manual.

Coating Thickness Gauge

PTG-3700/3725

The PHASE II PTG-3700 series of gauges can perform two different methods of calculating thickness measurement by utilizing the characteristics of both eddy current and magnetic induction.

Testing performance is both non-destructive and extremely accurate.

With these state of the art thickness gages, you can easily detect the thickness of non-magnetic coating on a magnetic substrate (ferrous) or an insulating coating on a non-magnetic conductive substrate (non-ferrous) utilizing either an integrated probe or our version that comes with an external probe.

The PHASE II PTG-3700/3725 can be used in many areas of industry including automotive paint measurement, manufacturing, general engineering, commercial inspection, etc.

The PTG-3700 utilizes an integrated probe that can automatically detect a Ferrous or Non-Ferrous substrate and comes with 2 substrate samples (steel,aluminum), 4 calibrated thickness samples, carry case, batteries and operation manual.

The PTG-3725 utilizes two external probes for ferrous and non-ferous substrates. Comes with 2 substrate samples(steel,aluminum), 4 calibrated thickness samples, carry case, batteries and operation manual.

Coating Thickness Gauge

Main Technical Data:

- **Measuring range:** 0-1,250 µm max. or 0-50 mils
- **Resolution:** 1µm/0.1mils(0-99µm)
- **Accuracy:** +/- 3% + 2 µm (+/-3%+0.1 mil)
- **Display:** 3 digit color LCD
- **Single or Continuous Measurement:** Selectable
- **Min. measuring area:** 0.2" x 0.2" (5mm x 5mm)
- **Min. radius of curvature:** Convex: 0.12" (3mm)
  Concave: 1.2" (30mm)
- **Min. substrate thickness:** Ferrous: 20 mils (0.5mm)
  Non-ferrous: 2 mils (50 µm)
- **Max. Surface temperature of test object:** 302 degrees F (contact time max is 2 seconds)
- **Power Source:** 2-AAA batteries
- **Dimensions:** 100 x 52 x 29mm
- **Weight:** 2.4oz. (w/o Batteries)

PTG-4000

The PHASE II PTG-4000 can perform two different methods of calculating thickness measurement by utilizing the characteristics of both eddy current and magnetic induction. Testing performance is both non-destructive and extremely accurate. With this state of the art thickness gage, you can easily detect the thickness of nonmagnetic coating on a magnetic substrate (ferrous) or an insulating coating on a non-magnetic conductive substrate (non-ferrous) utilizing our auto-detect, integrated probe Can be used in many areas of industry including automotive auctions, manufacturing, general engineering, commercial inspection, etc.
Utilizes an integrated probe that can automatically detect a Ferrous or Non-Ferrous substrate and comes with 2 substrate samples(steel,aluminum), 4 calibrated thickness samples, carry case, batteries and operation manual.

Coating Thickness Gauge

Main Technical Data:

- **Measuring range:** 0-1000µm or 0-40mils
- **Resolution:** 0.1µm/0.01mils(0-99µm) or 1m m (over 100µm)
- **Guaranteed tolerance:** After one-point calibration: =/- 1-3%n or 2 µm (whichever is greater)
- **Display:** 4 digits (digit height = 10mm/0.4″)
- **Min. measuring area:** 0.2″ x 0.2″ (5mm x 5mm)
- **Min. radius of curvature:** Convex: 0.12″ (3mm) **Concave:** 1.2″ (30mm)
- **Min. substrate thickness:** Ferrous: 20 mils (0.5mm) **Non-ferrous:** 2 mils (50 mm)
- **Calibration:** Zero Calibration/Foil calibration
  * *Max. Surface temperature of test object: 302 degrees F (contact time max is 2 seconds)*
- **Power source:** 4-AAA batteries
- **Dimensions:** 161 x 69 x 32mm
- **Weight:** 9oz. (260g)

Coating thickness measurement with Flip Display!

PTG-4200

The PHASE II PTG-4200 can perform two different methods of calculating thickness measurement by utilizing the characteristics of both eddy current and magnetic induction.

Testing performance is both non-destructive and extremely accurate.

With this state of the art thickness gages, you can easily detect the thickness of nonmagnetic coating on a magnetic substrate (ferrous) or an insulating coating on a nonÐmagnetic conductive substrate (nonÐferrous) utilizing our autoÐdetect, integrated probe.

The PTG-4200 coating thickness gauge can be used in many areas of industry including automotive auctions, manufacturing, general engineering, commercial inspection, etc.

Analog Force Gauges

Model No.	Capacity	Resolution
AFG-0100	2 lb/0.90kg	0.01
AFG-0200	4.5 lb / 2.0kg	0.02
AFG-0300	10 lb/4.53kg	0.05
AFG-0400	22.5 lb / 10kg	0.1
AFG-0500	50 lb/22.67kg	0.25
AFG-0600	100 lb/45.36kg	0.5

Features:

- Heavy-Duty Construction
- Direct Dial Readings in lbs/kg
- Extreme Accuracy to +/- 1%
- Designed for tension/compression measurements
- Versatile range of gages are supplied in complete test kit form containing full set of accessories and carry case.
- Can be hand-held or mounted to optional test stand

AFG-0100 2lb Analog Force Gauge

AFG-0200 4.5lb Analog Force Gauge

AFG-0300 10lb Analog Force Gauge

AFG-0400 22.5lb Analog Force Gauge

AFG-0500 50lb Analog Force Gauge

AFG-0600 100lb Analog Force Gauge

Test Stand for Force Gauges

Features:

- Universal design enables user the ability to test multiple physical properties such as insertion, withdrawal, tension, compression and fracture type tests.

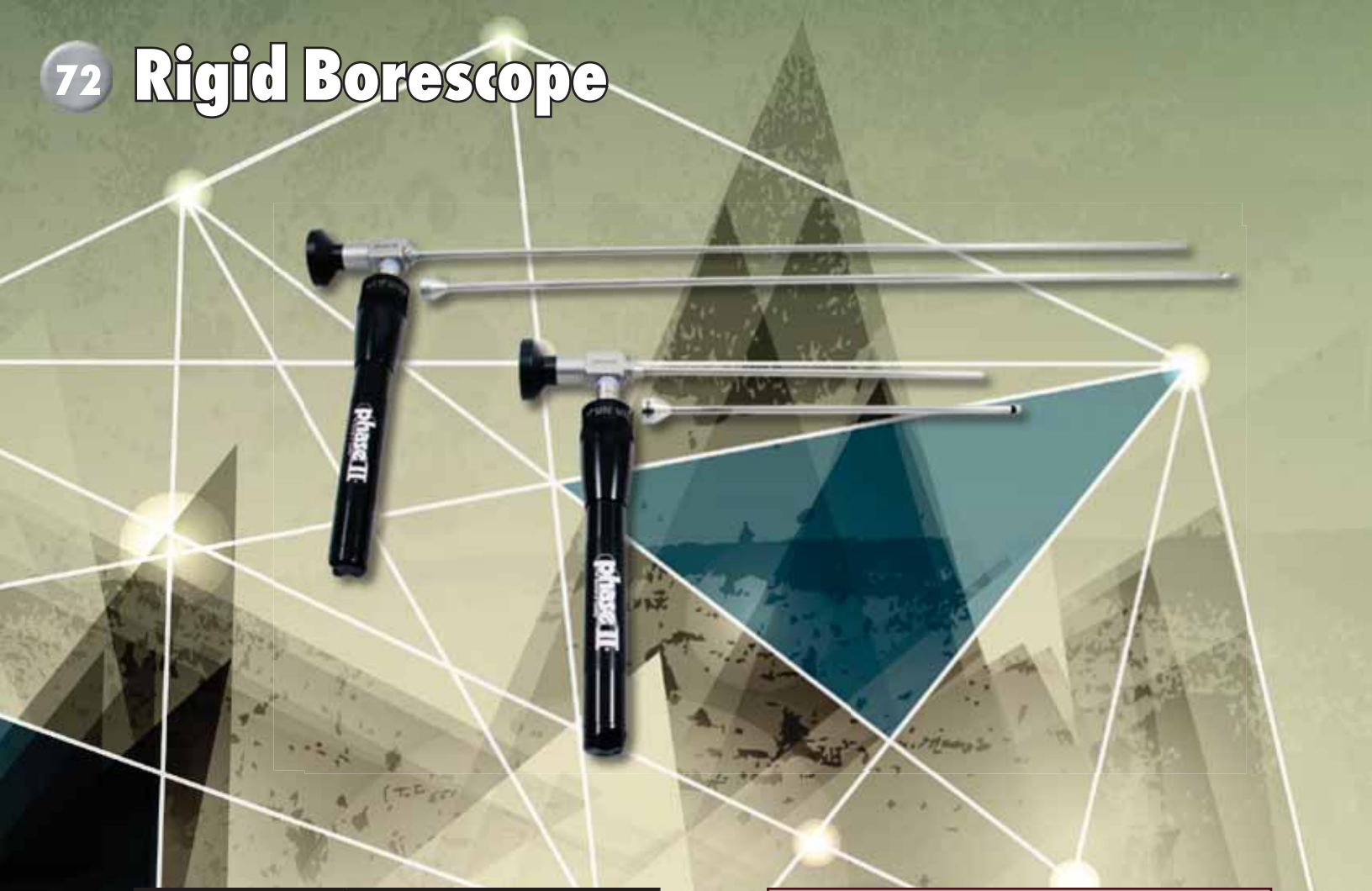
Dimensions:

Length: 9.25″ (235mm)
Width: 5.98″ (152mm)
Height: 15.75″ (400mm)
Weight: 22 lbs

AFG-1000

Universal design enables user the ability to test multiple pysical properties such as insertion, withdrawal, tension, compression and fracture type tests

Rigid Borescope



Dimensions	RGB-1000	RGB-1700
Working Length	7″	17″
Overall Length	9″	19″
Diameter of tube	.160″ (4mm)	.160″ (4mm)
Field of View	65° Wide Angle	65° Wide
Magnification	2x	2x

Features:

- Portable, rugged design enables user to view critical components in high resolution through access holes as small as .160″ (4mm).
- RGB-1000 & 1700 Utilize a Super bright LED Light source operated by 2 AA Batteries
- Built-in light source affords user extreme versatility anywhere in the shop.

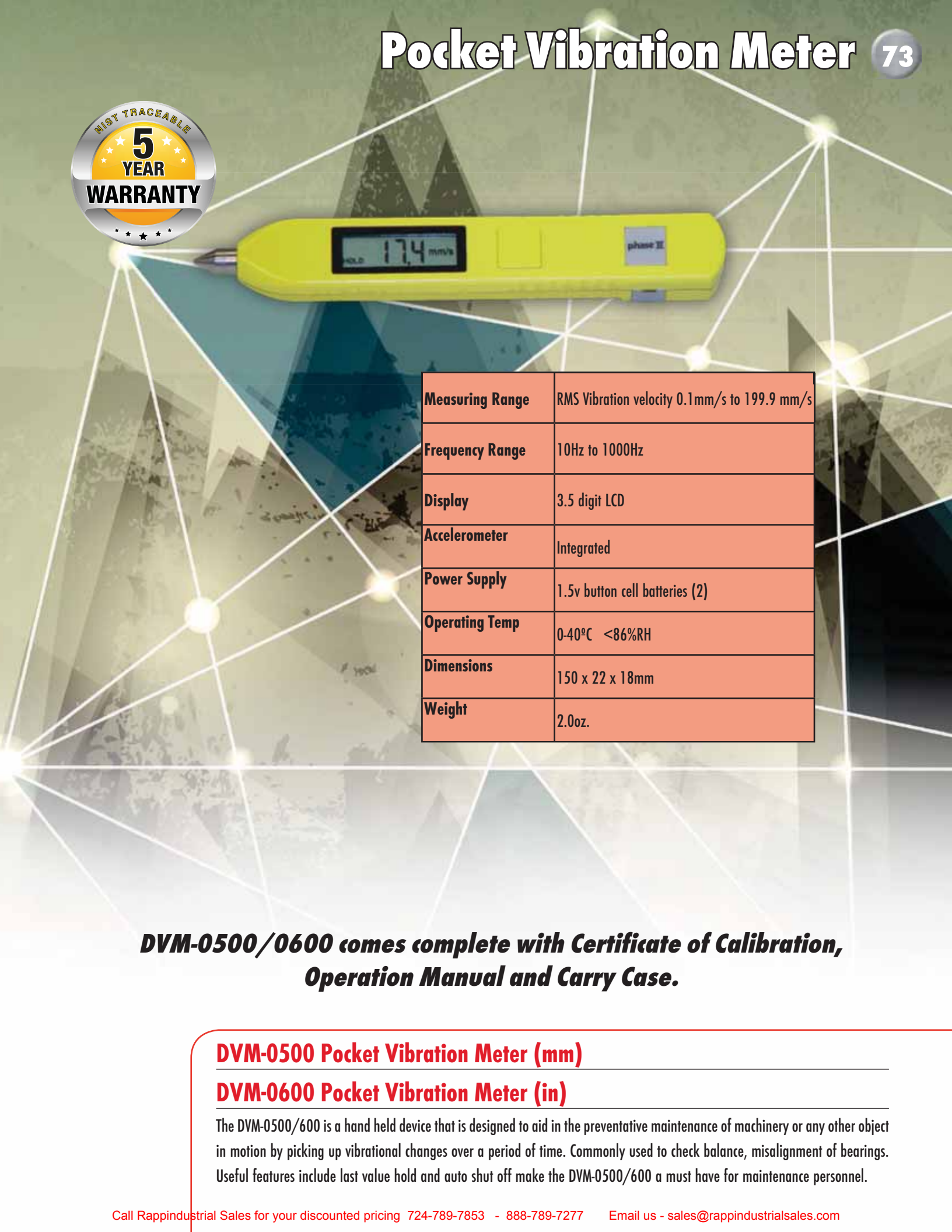
RGB-1000 7″ Rigid Borescope Kit

RGB-1000-090 90° Adapter for RGB-1000

RGB1700 17″ Rigid Borescope Ki

RGB1700-090 90° Adapter for RGB-1700

Pocket Vibration Meter



Measuring Range	RMS Vibration velocity 0.1mm/s to 199.9 mm/s
Frequency Range	10Hz to 1000Hz
Display	3.5 digit LCD
Accelerometer	Integrated
Power Supply	1.5v button cell batteries (2)
Operating Temp	0-40ºC <86%RH
Dimensions	150 x 22 x 18mm
Weight	2.0oz.

DVM-0500/0600 comes complete with Certificate of Calibration, Operation Manual and Carry Case.

DVM-0500 Pocket Vibration Meter (mm)

DVM-0600 Pocket Vibration Meter (in)

The DVM-0500/600 is a hand held device that is designed to aid in the preventative maintenance of machinery or any other object in motion by picking up vibrational changes over a period of time. Commonly used to check balance, misalignment of bearings. Useful features include last value hold and auto shut off make the DVM-0500/600 a must have for maintenance personnel.

Digital Vibration Tester

Acceleration	Peak Value: 0.1-400m/s² or 0.3-1312ft/m/s	Frequency Range: 10Hz-1KHz Frequency Range: 10Hz-10KHz
Velocity(RMS)	RMS: 0.1-400 (mm/s) or 0.004 -16.0 inch/s	Frequency Range: 10Hz-1KHz
Displacement	peak to peak: 0.001-4.0mm or 0.04-160mil 10Hz-1KHz	Frequency Range: 10Hz-500Hz
RPM Frequency	5-100,000 r/min	
Frequency	0.1 – 10KHz	
Accuracy	<5%	
Operating Temp	0-45°C	
Power	4-AAA Batteries	
Dimensions	161 x 69 x 32mm	
Weight	10.5 oz.	

Features:

- Quick accurate analysis for checking balance and alignment of a rotating object.
- Large LCD display
- Statistics: Mean, Max, MIN, No. of Measurements and Std deviation
- Inch/Metric Conversion with the push of a button
- Max Hold Function
- Regulated Output(AC output 2.0v peak full scale

DVM Includes:

- 1-Powerful Magnet
- 1-Accelerometer
- 1-Stinger Probe (cone)
- 1-Stinger Probe (Ball)
- Operation Manual
- Carry Case

Multi-functional meter is capable of measuring Velocity, Acceleration, Displacement and RPM Frequency.

DVM-1000 Digital Vibration Tester

3-D Vibration Meter

NIST TRACEABLE 5 YEAR WARRANTY

Multi-functional meter is capable of measuring Velocity, Acceleration and Displacement utilizing its 3-Axis Piezoelectric accelerometer

Features:

- Quick accurate analysis for checking balance and alignment of a rotating object.
- 3-Axis Accelerometer (X, Y, Z or XYZ)
- Large LCD display w/backlight
- Inch/Metric Conversion with the push of a button
- Max Hold Function
- Regulated Output(AC output 2.0v peak full scale
- Rugged All Metal Body Construction

Acceleration	Peak Value: 0.1 – 400 m/s or 0.3-1312 ft/s² ; 0.0-40g	Frequency Range: 10Hz-10KHz
Velocity(RMS)	RMS: 0.1-400 (mm/s) or 0.004 -16.0 inch/s	Frequency Range: 10Hz-1KHz
Displacement	peak to peak: 0.001-4.0mm or 0.04-160mil 10Hz-1KHz	Frequency Range: 10Hz-500Hz
Accuracy	+/-5%N+0.2	
Operating Temp	32-120°F / <95%RH	
Power	2-AA Batteries	
Dimensions	130 x 70 x 30mm	
Weight	305g	

DVM Includes:

- 1-Powerful Magnet
- 1-3-Axis Accelerometer
- 1-Stinger Probe (point)
- 1-Stinger Probe (Ball)
- Operation Manual
- Carry Case

DVM-2000 Digital Vibration Tester

Vibration Calibrator

Operating Frequency	159.2Hz +/-0.5%
Acceleration Output	10M/s² (RMS) +/-3%
Velocity Output	10µm (RMS) +/-4%
Displacement Output	10µm (RMS) +/-4%
Transverse Output	<5%
Distortion	<3%
Max Load	150g
Operating Temp	15°F - 105°F
Ramp up Time	<3 Seconds
Internal Battery	1-9V 6F22
Size	56mm x 200mm
Weight	2lbs

Features:

- Operates at 159.2 Hz
- 10mm/s RMS velocity output
- Drives vibration sensors up to 150g

DVM-1600

Applications:

The DVM-1600 vibration calibrator is an integrated shaker type system that is designed to test accelerometers, vibration monitoring equipment and recording systems. The DVM-1600 provides a known and controlled RMS vibration for verification of accelerometers weighing up to 150g.

XRF Series Analyzers

		XRF-1800	XRF-1860
Excitation Source (Mini X-ray tube)	Tube Voltage	6-50KV Adjustable	6-50KV Adjustable
	Tube Current	0-200μA Adjustable	0-200μA Adjustable
	Max Output Power	4w	4w
	Anode Target	Ag(std) Au, Rh, W (optional)	Ag(std) Au, Rh, W (optional)
Detector	Detector	Si-PIN Si semiconductor Detector	SDD Detector System
	Detection Area	6mm2	6mm2
	Resolution	<145eV	<125eV
	Cooling System	T-shaped radiator	
	Test Time	2s	
	Processor	Cortex-A8 1.0GHz CPU with 1G RAM; for signal processing 4096 channel MCA	
	Display	Industrial resistive 4.3 inch Fixed Angle Touch Screen	
	Operation System	Proprietary Android 4.2 Operating System	
	Built-In Calibration Film	External Calibration Film or expansion dock	
Analytical Element Quantity		26	26
Analytical Element List		Al, Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Se, Zr,Nb, Mo, Rh, Pd, Ag, Cd, Sn, Sb, Hf, Ta, Re, Pb, and Bi	Mg, Al, P, S, Si, Ti, V, Cr, Mn, Fe, Co, Ni, Cu,Zn, Se, Zr, Nb, Mo, Rh, Pd, Ag, Cd, Sn, Sb, Hf, Ta, Re, Pb and Bi
Data	Storage		32 GB (stores up to 300,000 spectral data and spectrum)
	Transmission		USB, BlueTooth,WIFI
	Data Output Type		Excel/PDF Customizable for company logo, address, test results and more
GPS		Bulit-in GPS	
Calibration		No need for customer to make calibration since the tester has been calibrated in factory; But the tester still has the function to build targeted calibration curve for specific sample to get more accurate result	
Appearance	Dimension		254×79×280mm(L×W×H)
	Weight		1.6Kg(with battery)
Temperature Range		Temperature Range: -10°c +50°c	
Power Supply	Power Source		1Charged via 110/220V AC adaptor or directly to the tester
	Battery		2 Lithium-ion batteries / 8 hours continuous per battery. Intelligent battery management, real-time monitoring of battery capacity
Standard Accessories		1) Software operating platform - specialized operation system and testing software; 2) USB cable (PC); 3) User's Manual 4) 5V 2000mA AC adaptor; 5) Portable case with waterproof, dustproof, anti-vibration; 6) Wrist Strap; 7) Main body AC adaptor; 8) Standard 316 sample;	

Industries Served:

- -Alloy QA/QC
- -Petrochemical & Power
- -Precious Metals
- -Scrap, Recycling, Metal, Glass, & Plastics
- -Geochemistry & Mining
- -Oil & Concentrate Analyses
- -Environmental & IH
- -Consumer Products Safety
- -Archaemetry, Academics, R&D
- -Pharmaceutical & Nutraceutical
- -Government & Security
- -General Manufacturing and More....

Features:

- Non-Destructive Operation
- One Touch Rapid Analysis
- Built-in GPS
- Industrial Resistive Touch Screen
- Intelligent Battery Management
- Ideal for use in Plant or out in the Field Testing

Model No. XRF-1800	Can analyze Ti, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, Nb, Mo, Rh, Pd, Ag, Cd, Sn, Sb, Hf, Ta, Re, Pb, and Bi totaling 26 elements
Model No. XRF-1860	Can analyze Mg, Al, Si, P, S, Ti, V, Ct, Mn, Fe, Co, Ni, Cu, Zn, Se, Zr, Nb, Mo, Rh, Pd, Ag, Cd, Sn, Sb, Hf, Ta, Re, Pb, and Bi totaling 30 elements

XRF 1800/1860

The XRF-series hand held analyzer is a powerful tool in material identification and will quickly and accurately display metal element content and identify material without switching modes.

The XRF-1800/1860 will provide qualitative and quantitative material characterization for detection, identification, analysis, quality control, process control, regulatory compliance, and screening, for metals and alloys, mining and geology, scrap and recycling, environmental and consumer safety, education and research, and general manufacturing

Applications include, Metal alloy identification for quality control, PMI and scrap sorting, geochemistry for mining exploration and grade control, Hazardous elements screening for environmental, consumer goods and RoHS testing, and precious metals analysis.

Dual alloy libraries containing 380 kinds of alloys including special alloys for electric power, petrochemical and other industries will simplify the conversion of alloys from one country to another. Each library can be defined by the user and when combined can store up to 600 alloy brands and test more than 1000 kinds of alloy materials.

XRF Series Analyzers

PERFORMANCE FEATURES:

1. Small, light and easy to carry.
2. High-speed processing chip, advanced algorithm and high-responsive software, resulting in fast analysis.
3. High-performance X-ray Tube, Ultra-high Resolution Detector combined with Digital Multi-channel Processing Technology, yielding super-high detection resolution.
4. Indicator lights flash on both sides for safety purposes during measurement, i.e., the built-in double beam technology will automatically sense whether there is a sample at the measurement window.
5. Industrial resistive touch screen, superior to capacitor screen in back-light and clearer against sunlight in the field.
6. Utilizes anti-slip, abrasion resistance and streamlined design, which is light and easy to carry. It also integrates the new high speed digital multi-channel technology, the new library grade base identification system and the super-FP algorithm. These features allow it to measure elements faster, with higher accuracy and greater repeatability.
7. Intelligent battery management exerts a real-time monitoring of the residual capacity of battery.
8. Automatic switch to standby mode when not in use for a short period of time and instant recovery after the machine is picked up, which saves power and extends working time; moreover, unit has a gravity sensing system which shuts down instrument automatically when it accidentally falls down, another safety consideration; Will also give out alarm when ambient temperature or humidity exceeds the scope of application.
9. Adjusts air pressure factor automatically based on altitude it has detected. This function increases excitation effect of light elements by 40% and that of rare earth elements by 30%.
10. Users can customize the reports by adding their company logos, addresses, test results, spectrum and others (such as product description, origin of products and batch number).
11. Built with double beam technology which can automatically sense when there is a sample at the measurement window. This is also a safety and protection feature. The brightness of the display is automatically regulated according to environment brightness.
12. Can be configured and maintained in a remote way via Internet.
13. Can build a three dimensional element content distribution graph allowing for a fast estimate of mineral reserves or the extent of geological disaster with the built-in GPS for latitude and longitude reading combined with a 3rd party GIS analysis software.
14. New algorithm optimizes the spectral resolution, so lower detection limits can be achieved, which are comparable with even large-scale lab instruments.
15. Ultra-short optical™ path design can significantly improve light element excitation effects, without the fall/fill condition.
16. Has a built-in environmental sensing system covering conditions such as temperature, dust humidity and others.

One-touch operation

Test lasts only a few seconds and identification of alloy grades takes only 1 - 2 seconds.

Nondestructive testing (NDT)

Test does not damage or have any adverse effect on the use of samples.

Application fields

- Nondestructive, rapid and accurate analysis of alloy elements and alloy grade identification on the site
- Metal identification /scrap metal sorting
- QA/QC management in metal production, processing, casting, etc
- Identification of positive materials, oil refining and petrochemical industry
- Thermal power plant, hydroelectric power station, nuclear power plant
- Accurate element analysis of raw material and PMI identification so as to meet production needs and ensure security of equipment and materials used in the process.

Alloy family

- Iron-based alloy series (stainless steel, chromium/molybdenum alloy steel, low alloy steel, tool steel, seamless steel)
- Nickel-based alloy series (nickel alloy, nickel/cobalt alloy)
- Cobalt-based alloy series
- Titanium-based alloy series
- Copper-based alloy Series (bronze, brass, copper and nickel alloy, etc.)
- High temperature alloys (molybdenum tungsten alloy)
- Aluminum-based alloy

Technical parameters and specifications

- (GPS) Positioning system
- Machine can build a three dimensional element content distribution graph allowing for a fast estimate of mineral reserves or the extent of geological disaster with the built-in GPS for latitude and longitude reading combined with a 3rd party GIS analysis software.
- Light path system Ultrashort ™ light path design, built-in air pressure sensor, which can adjust the air pressure factor automatically according to altitude, and the excitation effect of light elements increased by 40% and rare earth element by 30%.
- Safety Built-in double beam technology can automatically sense whether there is a sample at the measurement window. This is also a safety and protection feature. And it automatically adjusts display brightness according to the environment brightness.
- Gravity sensor will shut down the machine automatically when the machine accidentally falls down.
- Temperature and humidity monitor will sound an alarm when the temperature or humidity goes beyond the scope of application.
- Built-in environmental sensing system The system can sense real-time environment changes and automatically adjust parameters, such as adjusting pressure model parameters to respond to high altitude.

Battery: Intelligent battery management through MSBUS bus, real-time monitoring of the residual capacity of battery and backup battery. The battery complies with air transport regulations of dangerous goods and is compatible with requirements of FCC, CE and UN certifications.

Certification: CE, RoHS, FCC In the certification

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21 Industrial Ave. Upper Saddle River, NJ 07458
Phone: 201-962-7373 • Fax 201-962-8353
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