



## Portable Hardness Tester



## Company Profile



Founded in 2010, we Sinowon Innovation Metrology Manufacture Limited is National Authorized Hi-Tech Manufacturer (Certificate No.: GR201544000821), ISO9001:2015 Certified company, Guangdong Province Enterprise of Observing Contract and Valuing Credit, Shenzhen Qianhai Equity Trading Center(SEC Registration Number:666354).

So far as founded in 2010 years, Sinowon always consider customer as the starting point, manage corporation with motto "Satisfaction, Innovation, Norm, Obligation, Worth, Openness, Nimble". Constantly improve the management system, increase technology research and development, strengthen the company's ability to integrate production, dedicated to provide users with high-quality testing equipment and one-stop pre-sale, sale and after-sales service.

SINOWON is mainly produce, develop, integrate and sell measuring data software system, optical inspection instrument such as One Key Instant Vision Measuring System, Fully Auto Video Measuring System, Tool Microscope, Video Measuring Microscope and hardness tester such as Automatically Vickers Hardness Tester, Rockwell Hardness Tester, Brinell Hardness Tester, Micro Hardness Tester, Portable Ultrasonic Hardness Tester, Leeb Hardness Tester, etc and some other accessory products. And all of our products have passed The CE EU certification and widely used in metal, plastics, electronics, semiconductors, home appliances, telecommunications, automotive, aviation, aerospace and other industrial laboratories, production workshops, assembly line for quality control.

From the date of establishment, SINOWON is based on the Metrology industry, focused on customer and be a striver for committing to make measurement more accurate and uncomplicated and supply high cost-performance products and service for customers.

We warmly welcome you to visit our headquarter in Free Experience Center, and looking forward to further essence from you.

Sinowon is Committed to Make Measurement More Accurate and Uncomplicated!



Intermach Metal Processing Machinery Fair



CCMT China CNC Machine Tool Fair



ASEAN International Machine Tool Fair



DMP Tooling and Machining Fair



SIMM Machinery Fair



Control Stuttgart Quality Control Fair

## Ultrasonic hardness tester family tree





## Manual Ultrasonic Hardness Tester

**SU-300H****Perfect Accuracy**

±3% HV

**Microscopic Indentation**

Invisible with naked eye

**Quick Measurement**

Result in 2 seconds

**Large LCD Display**

3.2 " Color Screen

**Friendly Operation**

One Touch Operation

**Wireless Printer**

Printing and data transferring

**+** Introduction

SU-300H manual ultrasonic hardness tester applies module design, which can work with manual probes HP-1K, HP-2K, HP-5K, HP-10K, can be used to test hardness of small forgings, cast material, weld inspection, heat affected zone, Ion-nitrided stamping dies and molds, forms, presses, thin walled parts, bearings, tooth flanks, etc.

SU-300H can test hardness of ferrous metal, non ferrous metal and alloys, it is an ideal instrument, can test hardness of HRA, HRB, HRC, HV, HBW, HS on site, assembly line and lab.

SU-300H can also be upgraded with motorized probes MP-300, MP-500, MP-800, MP-1000, then the function is same with SU-300M.

**+** Specifications

Product Name	Manual Ultrasonic Hardness Tester				
Model	SU-300H				
Code#	882-141H				
Probe	Standard manual HP-2K; Optional manual Probe:HP-1K,HP-5K, HP-10K; Optional Motorized Probe:MP-300, MP-500, MP-800,MP-1000				
Measuring Range(ASTM)	100-500HBS; 100-1500HV;20-68HRC; 55-100HRB; 60-85HRA; Mpa: 255-2180N/mm				
Measuring Accuracy	Scales	< 250HV	250~500HV	500~800HV	> 800HV
	HV0.1	6	7	8	9
	HV0.3	6	7	8	9
	HV0.8	5	5	6	7
	HV1	5	5	6	7
	HV5	5	5	6	5
Measuring Accuracy	HV10	5	5	5	5
LCD	3.2 "Color Screen				
Hardness Scales	Vickers(HV);Rockwell C(HRC); Rockwell A(HRA); RockwellB(HRB); Brinell(HB)				
Data Display	Loading force,Testing-times, Testing result, Average, Maximum, Minimum,Deviation and Conversion scale.				
Language	Chinese, English, German, Portugese, Turkish				
Data Output	RS232 Hyper Terminal/Bluetooth Printer				
Print	Bluetooth				
Data Storage	To save 1000-groups of measuring data and 20-groups of calibration data				
Word Input	Letters and numerals				
Working Environment	Temperature: -10°C to 50°C ; Humidity :30%-80% R.H.				
Battery Voltage	Rechargeable lithium battery; Voltage :4.2V,3800mAh				
Recharger Voltage	AC220V/50Hz, 110V/60Hz				
Main unit Dimension and Weight	Main unit Dimension :160 x 80 x 30mm (L x W x H); Manual Probe:Φ22×153mm ; Weight(No Probe): 0.5Kg				
Packing Dimension and Weight	Packing Dimension :320 x 430 x 155mm (L x W x H) ; Packing Weight (Standard Delivery) :4.3Kg				



## Motorized Ultrasonic Hardness Tester

# SU-300M

### Perfect Accuracy

±3% HV

### Microscopic Indentation

Non destructive testing

### Quick Measurement

Result in 6 seconds

### Large LCD Display

3.2 " Color Screen

### Friendly Operation

One Touch Operation

### Wireless Printer

Printing and data transferring

## + Introduction

SU-300M electric ultrasonic hardness tester adopt building block System . It match with MP-300K,MP-500K, MP-800K,MP-1000K. To measure sample hardness of the roll, screw, such as wind power have plating, copper plating, carburi-zing, nitriding layer etc.

## + Specifications

Product Name	Motorized Ultrasonic Hardness Tester				
Model	SU-300M				
Code#	882-141M				
Probe	Standard MP-1000K; Optional manual Probe:HP-1K,HP-2K,HP-5K, HP-10K; Optional Motorized Probe:MP-300K, MP-500K, MP-800K				
Measuring Range(ASTM)	100-500HBS; 100-1500HV;20-68HRC; 55-100HRB; 60-85HRA; Mpa: 255-2180N/mm				
Measuring Accuracy	Scales	< 250HV	250~500HV	500~800HV	> 800HV
	HV0.1	6	7	8	9
	HV0.3	6	7	8	9
	HV0.8	5	5	6	7
	HV1	5	5	6	7
	HV5	5	5	6	5
Measuring Accuracy	HV10	5	5	5	5
LCD	3.2 "Color Screen				
Hardness Scales	Vickers(HV);Rockwell C(HRC); Rockwell A(HRA); RockwellB(HRB); Brinell(HB)				
Data Display	Loading force,Testing-times, Testing result, Average, Maximum, Minimum,Deviation and Conversion scale.				
Language	Chinese, English, German, Portugese, Turkish				
Data Output	RS232 Hyper Terminal/Bluetooth Printer				
Print	Bluetooth				
Data Storage	To save 1000-groups of measuring data and 20-groups of calibration data				
Word Input	Letters and numerals				
Working Environment	Temperature: -10°C to 50°C ; Humidity :30%-80% R.H.				
Battery Voltage	Rechargeable lithium battery; Voltage :4.2V,3800mAh				
Recharger Voltage	AC220V/50Hz, 110V/60Hz				
Main unit Dimension and Weight	Main unit Dimension :160 x 80 x 30mm (L x W x H); Manual Probe:Φ22×153mm ; Weight(No Probe): 0.5Kg				
Packing Dimension and Weight	Packing Dimension :320 x 430 x 155mm (L x W x H) ; Packing Weight (Standard Delivery) :4.3Kg				



## Roller Ultrasonic Hardness Tester

# SU-320R

### Perfect Accuracy

±3% HV

### Microscopic Indentation

Non destructive testing

### Quick Measurement

Result in 6 seconds

### Large LCD Display

3.2 " Color Screen

### Friendly Operation

One Touch Operation

### Wireless Printer

Printing and data transferring

## + Introduction

SU-320R is used to determine hardness of chrome which painted on rotogravure cylinders with simple, fast and accurately method. Hardness test in Vickers have the advantage that are supposed to be non-destructive as the lasting surface indentation is microscopically small.

## + Specifications

Product Name	Roller Ultrasonic Hardness Tester				
Model	SU-320R				
Code#	882-141R				
Probe	Standard 3N Motorized Probe				
Measuring Range(ASTM)	100-1500HV; 20-68HRC				
Measuring Accuracy	Scales	< 250HV	250~500HV	500~800HV	> 800HV
	HV0.3	±3%	±3%	±3%	±3%
LCD	3.2 "Color Screen				
Hardness Scales	Vickers(HV);Rockwell C(HRC); Rockwell A(HRA); RockwellB(HRB); Brinell(HB)				
Data Display	Loading force,Testing-times, Testing result, Average, Maximum, Minimum,Deviation and Conversion scale.				
Language	Chinese, English, German, Portugese, Turkish				
Data Output	RS232 Hyper Terminal/Bluetooth Printer				
Print	Bluetooth				
Data Storage	To save 1000-groups of measuring data and 20-groups of calibration data				
Word Input	Letters and numerals				
Working Environment	Temperature: -10°C to 50°C ; Humidity :30%-80% R.H.				
Battery Voltage	Rechargeable lithium battery; Voltage :4.2V,3800mAh				
Recharger Voltage	AC220V/50Hz, 110V/60Hz				
Main unit Dimension and Weight	Main unit Dimension :160 x 80 x 30mm (L x W x H); Manual Probe:Φ22×153mm ; Weight(No Probe): 0.5Kg				
Packing Dimension and Weight	Packing Dimension :320 x 430 x 155mm (L x W x H) ; Packing Weight (Standard Delivery) :4.3Kg				

## + Application





## Extended /Short Manual Probe Ultrasonic Hardness Tester

# SU-330C/SU-340T

### Perfect Accuracy

±5% HV

### Microscopic Indentation

Non destructive testing

### Quick Measurement

Result in 2 seconds

### Large LCD Display

3.2 " Color Screen

### Friendly Operation

One Touch Operation

### Wireless Printer

Printing and data transferring

## + Introduction

SU-330C with extended probe used to test hardness of gear and deep hole specimen, under extreme space limitation or on the floor of grooves.

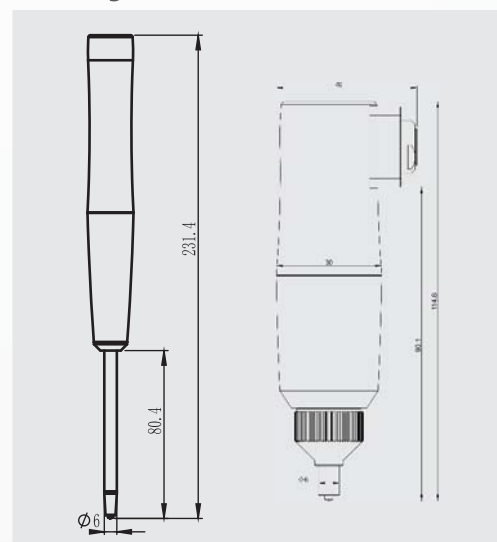
SU-340T equips with short probe, it can non-destructively measure hardness of internal wall of tube, also called Tube Hardness Tester, Inner Wall Hardness Tester.

## + Specifications

Product Name	Extended Manual Probe Ultrasonic Hardness Tester			Short Manual Probe Ultrasonic Hardness Tester	
Model	SU-330C			SU-340T	
Code#	882-141C			882-141T	
Probe	Standard 10N:HP-1C; Optional 20N:HP-2C			Standard 10N:HP-1T; Optional 20N:HP-2T	
Measuring Range(ASTM)	20-68HRC; 55-100HRB; 60-85HRA; 100-500HBS; 100-1500HV; Mpa:255-2180N/mm				
Measuring Accuracy	Scales	< 250HV	250~500HV	500~800HV	> 800HV
	HV0.1	6	7	8	9
	HV0.3	6	7	8	9
	HV0.8	5	5	6	7
	HV1	5	5	6	7
	HV5	5	5	6	5
	HV10	5	5	5	5
LCD	3.2 "Color Screen				
Hardness Scales	Vickers(HV);Rockwell C(HRC); Rockwell A(HRA); RockwellB(HRB); Brinell(HB)				
Data Display	Loading force,Testing-times, Testing result, Average, Maximum, Minimum,Deviation and Conversion scale.				
Language	Chinese, English, German, Portugese, Turkish				
Data Output	RS232 Hyper Terminal/Bluetooth Printer				
Print	Bluetooth				
Data Storage	To save 1000-groups of measuring data and 20-groups of calibration data				
Word Input	Letters and numerals				
Working Environment	Temperature: -10°C to 50°C ; Humidity :30%-80% R.H.				
Battery Voltage	Rechargeable lithium battery; Voltage :4.2V,3800mAh				
Recharger Voltage	AC220V/50Hz, 110V/60Hz				
Main unit Dimension and Weight	Main unit Dimension :160 x 80 x 30mm (L x W x H); Manual Probe:Φ22×153mm ; Weight(No Probe): 0.5Kg				
Packing Dimension and Weight	Packing Dimension :320 x 430 x 155mm (L x W x H) ; Packing Weight (Standard Delivery) :4.3Kg				



## Drawings of Probe



## Application



## Portable Universal Dynasonic Hardness Tester

# SU-400

**One Instrument  
with Two Applications**

**Integrate Dynamic  
and Static Methods**

### + Introduction

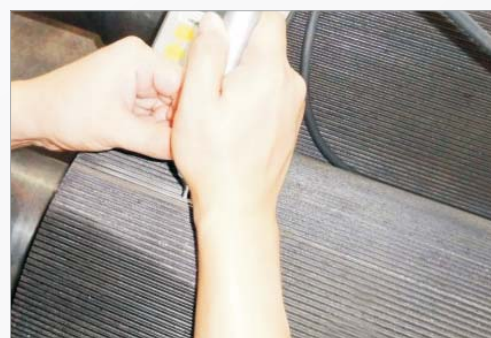
- SU-400 is a combined portable hardness tester which integrated the ultrasonic hardness testing method and dynamic Leeb hardness testing. It supports not only the UCI measurement of ultrasonic including manual probe 1kg, 2kg, 5 kg, 10kg and motorized probe 0.3kg, 1kg but also the seven dynamic impact devices of Leeb measurement that is D, DC, DL, D+15, C, E, G to do rebound measurement.
- SU-400 is an instrument with two applications. It can test thin, bright and clean specimen with the ultrasonic method and rough big specimens with Leeb rebound method.
- It solves the dilemma that Leeb method can not test electroplated coatings and hard coatings and ultrasonic method can not test coarse-grained materials.



### + Specifications

Product Name	Portable Manual Universal Dynasonic Hardness Tester	Portable Motorized Universal Dynasonic Hardness Tester
Model	SU-400H	SU-400M
Code#	882-151H	882-151M
Ultrasonic Probe	Optional manual Probe : HP-1K,HP-2K,HP-5K, HP-10K; Optional Motorized Probe : MP-300, MP-500, MP-800,MP-1000	
Impact Devices	Standard delivery:D(optional DC,DL,D+15,C, G)	
Hardness Scales	HL、HV、HB、HRC、HRB、HRA、HS, etc.	
Measuring Range	50~1500HV; 20~68HRC; 76~600HB; 41~105HRB; 170~960HLD	
Measuring Accuracy	HV:±3%HV; HRC:±1.5HRC; HB:±3%; HB;HL: ±8HL	
Resolution	0.1HR, 1HV, 1HB, 1HLD, 0.1HS	
Data Storage	1000 group test results and 20 group calibration data	
Result Display	Measurement value, Max, Min, Ave, single mode, batch mode, etc.	
Data Transfer	Bluetooth	
Continuous Working Period	10h(turn off the back light)	
Operating Environment	Temperature: -10°C to 50°C; Humidity :30%-80%	
Operating Voltage	4.2V	
Dimension	160x80x31mm	
Weight	≤500g(probe not included)	

### Application





## Ultrasonic Hardness Tester Manual Probe

### HP Series

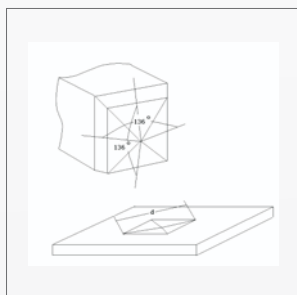
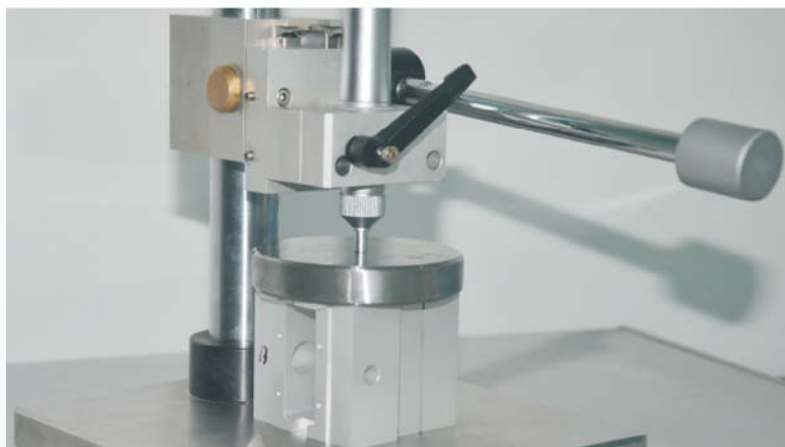
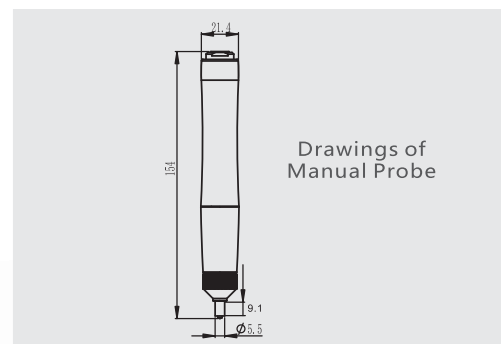
#### + Features

- Introduced latest ultrasonic sensor technology.
- Obtain accurate hardness value without auxiliary devices.
- Support 360° quick measuring.
- Excellent human engineering design easy to hold.
- Suitable dimension and weight of probe is convenient to control.
- Quick and accurate measuring for edge and fixed position of specimen.
- Micro indentation, Non- Destructive for specimen.

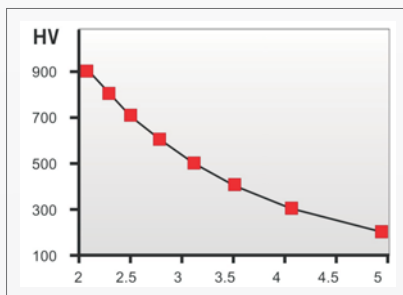


#### + Specifications

Probe Type	HP-1K	HP-2K	HP-5K	HP-10K
Code#	882-311	882-321	882-331	882-341
Loading Force	10N	20N	50N	98N
Diameter	22mm	22mm	22mm	22mm
Length	154mm	154mm	154mm	154mm
Oscillating Rod Diameter	2.4mm	2.4mm	3mm	3mm
Roughness of measuring surface	Ra<2.5um	Ra<5um	Ra<10um	Ra<15um
Min weight of test material	0.3kg	0.3kg	0.3kg	0.3kg
Min thickness of test material	2mm	2mm	2mm	2mm



Ultrasonic Hardness Tester Indenter Illustration



UCI Method: Hardness Value versus Frequency Shift

$$\Delta f = f(E_{eff}, A); HV = F/A$$

$\Delta f$  = Frequency Shift

A = Indentation area

$E_{eff}$  = Effective elastic modulus

HV = Vickers hardness value

F = Force applied in the hardness

$$HV = \frac{F}{A}$$

$$A = \frac{F}{HV}$$

$$\Delta f = f(E_{eff}, A)$$

$$A = f(E_{eff}, \Delta f)$$

$$E_{eff} = \frac{\Delta f_1}{\Delta f_2}$$

Ultrasonic Hardness Tester Calculation Formula

## Portable Universal Dynasonic Hardness Tester

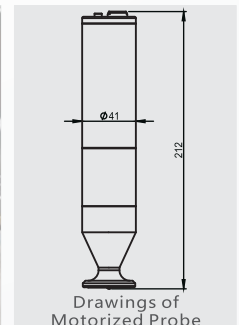
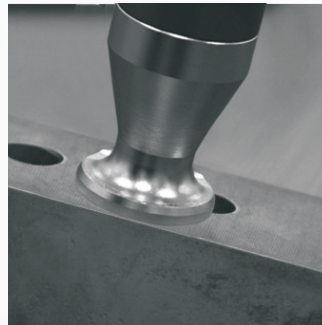
### MP Series

#### + Features

- Introduced latest ultrasonic sensor technology.
- Obtain accurate hardness value without auxiliary devices.
- Excellent human engineering design easy to hold.
- Quick and accurate measuring for edge and fixed position of specimen.
- Micro indentation, non-destructive for specimen.
- Motorized control, one key fast measuring.
- Eliminate hand shake error by manual probe, higher accuracy and repeatability.
- More suitable for thin pieces, coating layer hardness.

#### + Specifications

Probe Type	MP-300	MP-500	MP-800	MP-1000
Code#	882-221	882-231	882-241	882-251
Loading Force	3N	5N	8N	10N
Diameter	46mm	46mm	46mm	46mm
Length	197.5mm	197.5mm	197.5mm	197.5mm
Oscillating Rod Diameter	3.7mm	3.7mm	3.7mm	3.7mm
Min weight of test material	0.3kg	0.3kg	0.3kg	0.3kg
Min thickness of test material	2mm	2mm	2mm	2mm



#### + Guidelines for selection and use of UCI instruments

Load	Model	Features	Typical Applications
98N	Standard length (manual)	Relatively large indentation; requires minimal surface preparation	Small forgings, cast material, weld inspection, HAZ
50 N	Standard length (manual)	For general use	Induction hardened or carburized machine parts, for example, camshafts, turbine weld inspection, HAZ
	Extended length (manual)	30 mm extended length	Measurement in grooves, on gear tooth flanks and roots
	Short probe (manual)	Reduced length (90 mm); electronics in separate housing	Turbine blades, inside wall of pipes with $\varnothing > 90$ mm
10N	Standard length (manual)	Load is easy to apply and provides control to test on sharp radii	Ion-nitrided stamping dies and molds, forms, presses, thin walled parts
	Extended length (manual)	30 mm extended length	Bearings, tooth flanks
	Short probe (manual)	Reduced length (90 mm); electronics in separate housing	Turbine blades, inside wall of pipes with $\varnothing > 90$ mm
10 N	Motor probe style	Load is applied by servomotor	Finished precision parts, gears, bearing raceways
8 N	Motor probe style	Load is applied by servomotor	Finished precision parts, gears, bearing raceways
3 N	Motor probe style	Load is applied by servomotor; rather small indentations	Thin layers, for example, copper or chromium on steel cylinders; Copper rotogravure cylinders; Coatings, case hardened parts

## Accessories



Hardness Block



Small Cylinder  
Support Ring  
(#882-521)

Big Cylinder  
Support Ring  
(#882-531)

Plan Support Ring  
(#882-511)

### + Block Specification

Hardness Range	Code#	Uniformity	Roughness	Dimension
(28~63)HRC	882-611	±1.5HRC	Ra=0.02um	Ø90x16mm
(300~800)HV1	882-621	±3%HV	Ra=0.02um	Ø90x16mm
(300~800)HV5	882-631	±3%HV	Ra=0.02um	Ø90x16mm
(300~800)HV10	882-641	±3%HV	Ra=0.02um	Ø90x16mm
(180~500)HB	882-681	±2%HB	Ra=0.02um	Ø90x16mm

### + Support Ring Specifications

Support Ring Name	Plan Support Ring	Small Cylinder Support Ring	Big Cylinder Support Ring
Code#	882-511	882-521	882-531
Application	Plan Test Piece	Diameter 8-22mm Test Piece	Diameter 16-80mm Test Piece



Standard Probe Cap(#882-711)



Deep Hole Probe Cap(#882-721)



10KG/5KG Probe Counterweight



Carrier and Stand

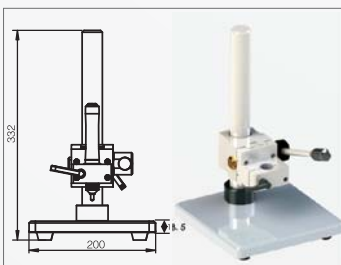


Plan Support Ring(#882-511)

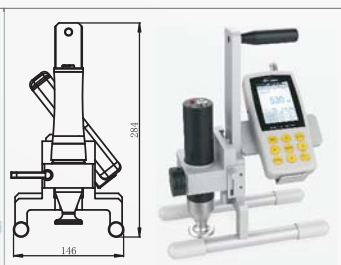
### + Testing Stand

MU-100 testing stand is applicable with ultrasonic hardness tester for the accurate measurement, MU-200/MU-300/MU-400 in the laboratory, it must be used when Manual Probe calibrated.

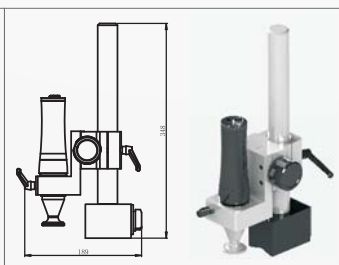
Testing Stand	MU-100	MU-200	MU-300	MU-400
Code#	882-301	882-201	882-101	882-401
Material	Stainless Steel	Magnesium aluminum alloy	Aluminum	Stainless Steel
Weight	8.8Kg	1.6Kg	4.5Kg	9.5Kg
Dimension(LxWxH)	200 x 200 x 332mm	205 x 142 x 284mm	200 x 120 x 348mm	200 x 200 x 332mm
Packing Dimension	320 x 320 x 440mm	405 x 340 x 580mm	398 x 310 x 540mm	398 x 398 x 530mm
Application	Manual Probe Test Stand	Motorized Probe Test Stand for Roller Materials	Motorized Probe Magnet Test Stand	Motorized Probe Test Stand



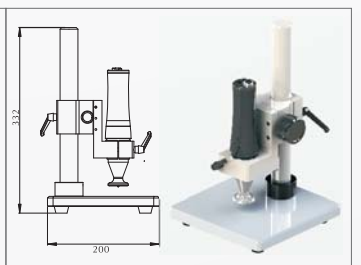
MU-100(#882-301)



MU-200(#882-201)



MU-300(#882-101)



MU-400(#882-401)



## Worm UCI Hardness Tester

**SVR-110H**

One Instrument  
with Two Applications

Integrate Dynamic  
and Static Methods

### + Introduction

SVR-110H specialized to test worm, screws, threaded rod, bolts, etc with the hardness scales of HRC and HV.

### + Features

- High Accuracy  
HV:  $\pm 3\%$  HV · HR:  $\pm 1.5$ HR, Conform internal standard ASTM A1038.
- Microscopic Indentation  
Need 500X metallurgical microscope to observe indentation
- Quick Measurement  
In 2 seconds to get hardness value, working efficiency is 60 times higher than normal bench hardness testers.

### + Application



### + Specifications

Product Name	Worm UCI Hardness Tester
Model	SVR-110H
Code#	882-110
Probe	Manual 10N
Hardness Range	HV 80-1599; HRC 20-70
Accuracy	HR: $\pm 1.5$ HR
Support Scales	HV/HRC
Language	English, Chinese
Data Output	Rs232
Data Saving	20 groups calibration data, 1000 groups measurements
Working Conditions	Temp: $-10^{\circ}\text{C} \sim 50^{\circ}\text{C}$ ; Humidity: 30%~80%
Power Supply	Rechargeable lithium battery, battery 4.2V, 4800mAh
Rechargeable Voltage	AC220V/50Hz, 110V/60Hz





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