

## COATING THICKNESS GAUGE

### CFN1500B



- ◆ Integrated F and N type probe
- ◆ F type probe is used to measure the thickness of non-magnetic coatings (zinc, copper, enamel, plastic and so on) on magnetic substrates (iron, steel)
- N type probe is used to measure the thickness of non-conductive coatings (varnish, enamel, plastic and so on) on conductive substrates (zinc, copper, aluminum)
- ◆ Large display screen
- ◆ V-type probe to make the cylinder measurement easier
- ◆ With  $\mu\text{m}/\text{mil}$  unit conversion
- ◆ Automatic power on/off
- ◆ With back light

#### SPECIFICATION

Range	0 ~ 1500 $\mu\text{m}$
Accuracy	2 $\mu\text{m}$ (0 ~ 100 $\mu\text{m}$ )
	3%(100 ~ 1500 $\mu\text{m}$ )
Resolution	0.1 $\mu\text{m}$ (0 ~ 99.9 $\mu\text{m}$ )
	1 $\mu\text{m}$ (100 ~ 1500 $\mu\text{m}$ )
Min. measuring area	25×25mm
Min. curvature	convexity: 5mm; concave: 30mm
Min substrate thickness	magnetic material: 0.2mm; non magnetic material: 0.05mm
Memory	30sets
Power supply	AAA batteries
Dimension(L×W×H)	120×52×26mm
Weight	170g

#### INCLUDED ACCESSORIES

Main unit	1pc
Calibration foil	1set
Calibration base	1set
USB cable	1pc
AAA battery	2pcs



## CF1250

- ◆ Measure the thickness of non-magnetic coatings (zinc, copper, enamel, plastic and so on) on magnetic substrates (iron, steel)
- ◆ Integrated ferrous probe
- ◆ V-type probe to make the cylinder measurement easier
- ◆ Single and continuous working mode
- ◆ Low and high limits setting with judgement
- ◆ With average calculation function

### SPECIFICATION

<b>Range</b>	0 ~ 1250μm
<b>Accuracy</b>	2μm(0 ~ 100μm)
	2%(100 ~ 1250μm)
<b>Resolution</b>	0.1μm (0 ~ 999μm)
	1μm (1000 ~ 1250μm)
<b>Memory</b>	500
<b>Power supply</b>	3xAAA batteries
<b>Dimension(L×W×H)</b>	150×50×29mm
<b>Weight</b>	170g

## COATING THICKNESS GAUGE



### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>Calibration foil</b>	1set
<b>Calibration base</b>	1pc
<b>AAA Battery</b>	3pcs

## ST100A

- ◆ Measure the thickness of tank, pipe and big workpiece
- ◆ LCD with backlight

### SPECIFICATION

<b>Measuring range</b>	1.2-225mm(steel)
<b>Graduation</b>	0.01mm(<100mm)
	0.1mm(≥100mm)
<b>Repeatability</b>	0.05mm(<100mm)
	0.1mm(≥100mm)
<b>Accuracy</b>	±0.5%L+0.04mm L is the thickness in mm
<b>Velocity</b>	1000-9999m/s
<b>Min. measured tube</b>	∅20×3mm
<b>Power</b>	rechargeable battery
<b>Dimension</b>	64×116×27mm
<b>Weight</b>	220g

## ULTRASONIC THICKNESS GAUGE



### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>Transducer</b>	1pc
<b>Battery</b>	1 set
<b>Couplant</b>	1 bottle

## ULTRASONIC THICKNESS GAUGE

### ST200



- ◆ Measure the thickness of tank, pipe and big workpiece
- ◆ LCD with backlight



Transducer PT-06 (optional)



Transducer ZT-12 (optional)



Transducer GT-12 (optional)

#### SPECIFICATION

Graduation	0.01mm(<100mm)
	0.1mm(≥100mm)
Repeatability	0.03mm(<100mm)
	0.1mm( ≥ 100mm)
Accuracy	±0.04mm (<10mm)
	±(0.04+L/1000)mm (10~100mm)
	±L/333mm ( ≥100mm)
	L is the thickness in mm
Velocity	1000-9999m/s
Power	3×AAA batteries
Dimension	64×116×27mm
Weight	220g

#### INCLUDED ACCESSORIES

Main unit	1pc
Transducer PT-08	1pc
AAA battery	3pcs
Couplant	1bottle
USB cable	1pc

#### OPTIONAL ACCESSORIES

Transducer	PT-06, ZT-12, GT-12
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#### SPECIFICATION OF TRANSDUCERS

Code	Application	Range	Frequency	Min. pipe dimension diameter×thickness	Working temperature
PT-08	general use	0.8-300mm	5.0MHz	20×1.2mm	<60°C
PT-06	thin workpiece	0.75-40mm	7.5MHz	15×1.2mm	<60°C
ZT-12	casting steel	2-400mm	2.0MHz	30×4mm	<60°C
GT-12	high temperature	3-100mm	5.0MHz	25×3mm	<310°C



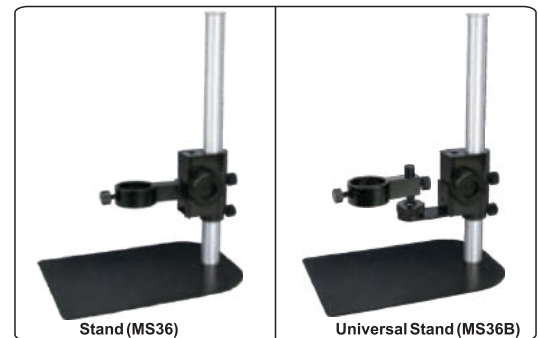
## DM200

## DIGITAL MICROSCOPE

-  Magnification: 10X-200X
-  Pixel: 2M
-  Interface: USB2.0
-  Snap pictures and record videos
-  8 pcs adjustable LED lights
-  With measuring software and calibration rule



Optional Stand









Magnification, View Filed and Focus Relationship

Magnification	Focus	View Filed
50X	21mm	9.5x7.1mm
100X	13mm	4.8x3.6mm
150X	16mm	3.2x2.4mm
200X	19mm	2.4x1.8mm

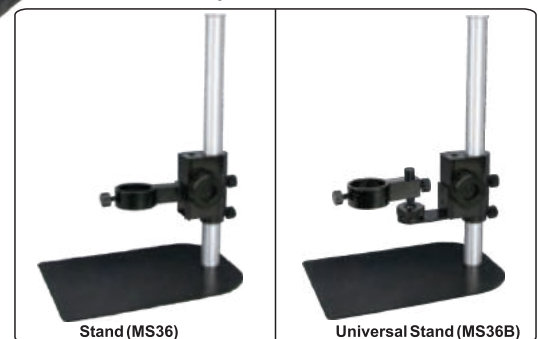
## DM600

## DIGITAL HIGH MAGNIFICATION MICROSCOPE

-  Magnification: 450X-600X
-  Pixel: 2M
-  Interface: USB2.0
-  Snap pictures and record videos
-  8 pcs adjustable LED lights
-  With measuring software and calibration rule



Optional Stand



Magnification, View Filed and Focus Relationship

Magnification	Focus	View Filed
450X	1.4mm	1.05x0.79mm
500X	5.5mm	0.95x0.71mm
550X	8.6mm	0.86x0.64mm
600X	11.5mm	0.79x0.59mm











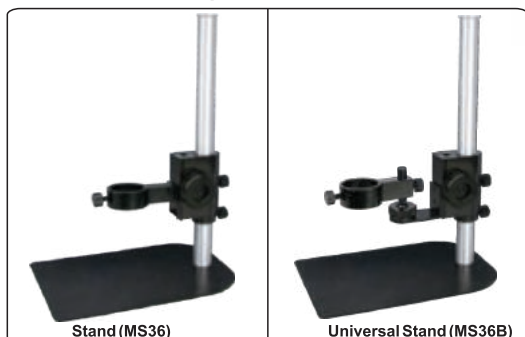
## DIGITAL WIFI MICROSCOPE

### WIFI200



-  Magnification: 10X-200X
-  Pixel: 2M
-  Interface: USB2.0 or WiFi
-  Snap pictures and record videos
-  8 pcs adjustable LED lights
-  With measuring software and calibration rule

#### Optional Stand



It can connected to smart phone , Ipad or computer via WIFI

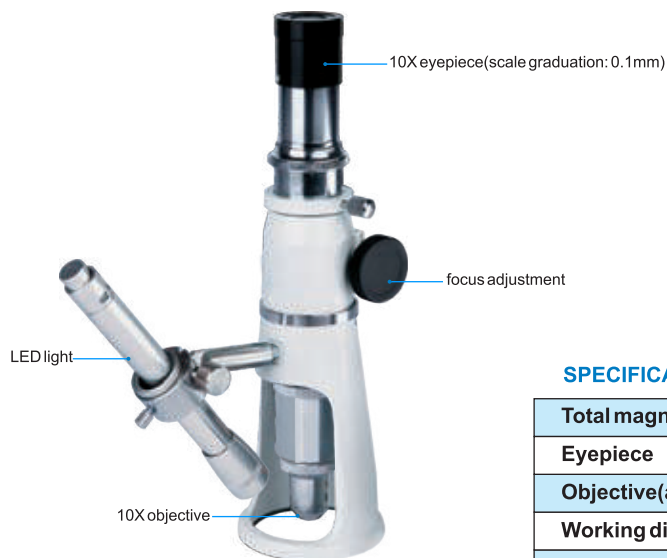


Magnification, View Filed and Focus Relationship

Magnification	Focus	View Filed
50X	21mm	9.5x7.1mm
100X	13mm	4.8x3.6mm
150X	16mm	3.2x2.4mm
200X	19mm	2.4x1.8mm

## PORTABLE MEASURING MICROSCOPE

### PM100



#### SPECIFICATION

Total magnification	100X
Eyepiece	10X
Objective(achromatic)	10X
Working distance	7mm
Focus range	30mm
Viewing field	Ø1.8mm
Graduation	0.01mm
Illumination	LED light
Diameter of base	Ø63mm
Height	210mm
Weight	650g

#### INCLUDED ACCESSORIES

Main unit	1pc
Pen light	1pc
Battery (AAA)	2pcs



## DVM2000

## HD VIDEO MICROSCOPE

- ◆ 12 inch wide screen HD LCD is included
- ◆ Can take picture and record videos
- ◆ With USB interface, for transferring pictures or measuring data
- ◆ High frame rate, without any delay in quick movement



### SPECIFICATION

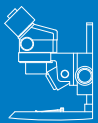
<b>Objective</b>	0.7X ~ 4.5X (zoom, fixed at 0.7X, 1X, 2X, 3X, 4X, 4.5X)	
<b>Total Magnification</b>	9.3X-114.3X	
<b>View Field</b>	1.8mm-12mm(L)	
<b>Working distance</b>	96mm	
	<b>Pixel</b>	2M HDMI
<b>Camera</b>	<b>Pixel size</b>	2.75*2.75 $\mu$ m
	<b>Frame rate</b>	60fps
<b>Illumination</b>	144pcs LEDs adjustable light	
<b>LCD display</b>	12 inch HD LCD display, 1080P	
<b>Base size</b>	260mmx320mm(LxW)	
<b>Weight</b>	5.5kg	

### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>12 inch HD LCD</b>	1pc
<b>Wireless mouse</b>	1pc
<b>HDMI connection cable</b>	1pc
<b>Ø95mm black/white plastic plate</b>	1pc
<b>Calibration rule</b>	1pc
<b>AC/DC adapter</b>	1pc

### OPTIONAL ACCESSORIES

<b>0.5X Objective</b>	<b>DVM2000-05-O</b>
<b>2X Objective</b>	<b>DVM2000-20-O</b>



## VIDEO MICROSCOPE

### DVM1000



- ◆ High resolution color camera
- ◆ With TF card, can save pictures and videos
- ◆ High frame rate, without any delay in quick movement
- ◆ With crosshair on the screen

#### SPECIFICATION

<b>Objective</b>		0.7X ~ 5X (zoom)
<b>Total Magnification( with 22 inch monitor )</b>		25X-180X
<b>View Field</b>		1.8mm-12mm(L)
<b>Working distance</b>		105mm
<b>Camera</b>	<b>Resolution</b>	1920x1080
	<b>Pixel size</b>	2.75*2.75μm
	<b>Frame rate</b>	60fps
<b>Illumination</b>		adjustable light
<b>LCD display</b>		12 inch HD LCD display, 1080P
<b>Base size</b>		260mmx320mm(LxW)
<b>Weight</b>		6kg

#### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>Wireless mouse</b>	1pc
<b>HDMI connection cable</b>	1pc
<b>Ø95mm black/white plastic plate</b>	1pc
<b>8G TF card</b>	1pc
<b>TF card reader</b>	1pc
<b>AC/DC adapter</b>	1pc



## SERIES ZS1045

## ZOOM STEREO MICROSCOPE

◆ Trinocular head is used to connect to camera



ZS1045

### SPECIFICATION

Code	ZS1045	ZS1045T
Optical	binocular	trinocular
Magnification	10X ~ 45X	
Eyepiece	10X (view field: Ø20mm)	
Objective	1X ~ 4.5X (zoom)	
Pupil distance	55 ~ 75mm	
Diopter adjustment	±5 diopter	
Working distance	97mm	
Illumination	selectable incident and transmitted LED light	
Dimension(L×W×H)	310×250×420mm	
Weight	6kg	

### INCLUDED ACCESSORIES

Main unit	1pc
10X eyepiece	1pair
Eyepiece patch	1pair
Ø95mm frosted glass plate	1pc
Ø42mm frosted glass plate	1pc
Ø95mm black/white plastic plate	1pc
Dustproof cover	1pc

### OPTIONAL ACCESSORIES

0.5X Eyepiece	ZS1045-05-O
0.75X Eyepiece	ZS1045-75-O
2X Eyepiece	ZS1045-02-O
10X Eyepiece with scale	ZS1045-10-FE
WF15X Eyepiece	ZS1045-15-E
WF20X Eyepiece	ZS1045-20-E
Camera	1300KPA

## STEREO MICROSCOPE

### SM20/30/40



SM40

#### SPECIFICATION

Code	SM20	SM30	SM40
Total modification	10X/20X	10X/30X	20X/40X
Objective modification	1X/2X	1X/3X	2X/4X
Eyepiece	10X (view field : Ø20mm)		
Pupil distance	55 ~ 75mm		
Diopter adjustment	±5 diopter (only one eyepiece can be adjusted)		
Working distance	57mm		
Max. workpiece height	68mm		
Illumination	selectable incident and transmitted light		
Dimension(L×W×H)	120×200×300mm		
Weight	3kg		

#### INCLUDED ACCESSORIES

Main unit	1pc
10X eyepiece	1pc
Eyepiece patch	1pc
Ø95mm frosted glass plate	1pc
Ø95mm black/white plastic plate	1pc
Dustproof cover	1pc

#### OPTIONAL ACCESSORIES

5X eyepiece (view field: Ø20mm)	SM-05-E
15X eyepiece (view field: Ø15mm)	SM-15-E
20X eyepiece (view field: Ø10mm)	SM-20-E
Camera	1300KPA



## MM1000A

## METALLURGICAL MICROSCOPE

- ◆ For high magnification observation and metallurgical image analysis
- ◆ Infinite optical system, can add accessories like polarizer, analyzer into optical path without image quality influence



(camera is optional)

### SPECIFICATION

<b>Eyepiece(wide field)</b>	10X(view field: Ø18mm)			
<b>Objective(plan achromatic)</b>	10X	20X	50X	100X(dry type)
<b>Numerical aperture</b>	0.25	0.40	0.70	0.85
<b>Working distance</b>	8.8mm	8.6mm	3mm	0.33mm
<b>Stage</b>	double layer			
	size: 242×200mm			
	travel: 30×30mm			
<b>Pupil distance</b>	53-75mm(adjustable)			
<b>Diopter adjustment</b>	±5 diopter(one eyepiece)			
<b>Illumination</b>	6V/30W halogen lamp, brightness is adjustable with polarizer and analyzer, built-in green, yellow, blue filters and frosted glass			
<b>Weight</b>	11kg			

### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>Anti-dust cover</b>	1pc
<b>Filter(blue/green/yellow)</b>	1pc of each

### OPTIONAL ACCESSORIES

<b>10X dividing eyepiece(0.1mm/div.)</b>	MM-EP10D
<b>Camera adapter(1X)</b>	MM-ADAPTER
<b>Digital camera</b>	1300KPA
<b>5X Objective</b>	MM-OB5

<b>40X Objective</b>	MM-OB40
<b>60X Objective</b>	MM-OB60
<b>80X Objective</b>	MM-OB80



## CAMERA

## 1300KPA



- ◆ Easy to connect computer by USB
- ◆ Supplied with measuring software



Connect with microscope



Connect with Vickers hardness tester

### SPECIFICATION

Camera sensor	1/3" CMOS
Pixel	1.3 Mega
Interface	USB
Dimension (L×W×H)	65 × 48 × 43(mm)
Weight	400g

### INCLUDED ACCESSORIES

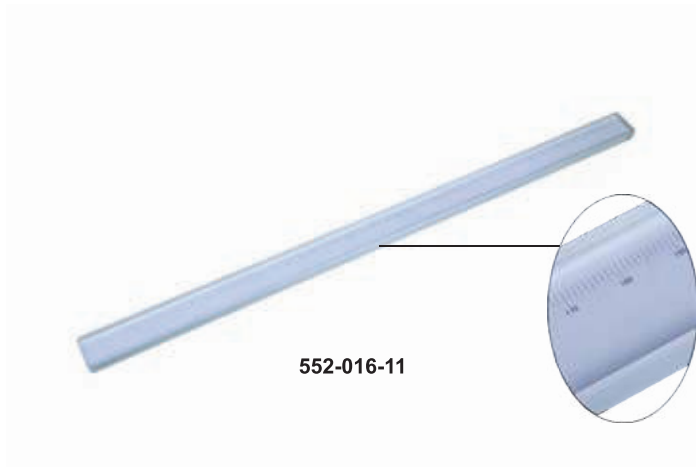
Main unit	1pc
USB cable	1pc
Software	1pc

### OPTIONAL ACCESSORIES

C-mount	1300KPA-CM
Calibration rule (graduation: 0.1mm)	RU01
Ø30mm eyepiece adaptor	AD30
Ø30.5mm eyepiece adaptor	AD305

## GLASS SCALE

## SERIES 552



552-016-11

- ◆ For calibrating the accuracy of vision machine or profile projector
- ◆ Graduation:1mm

Code	Range (mm)	Accuracy (μm)
552-008-11	200	1.5
552-012-11	300	2
552-016-11	400	2
552-024-11	600	2.5



## SERIES PP

## PROFILE PROJECTOR

- ◆ Large screen of the read out
- ◆ Supplied with printer



PP3015

### OPTIONAL ACCESSORIES



lens with half-reflection mirror



rotary table  
(glass diameter 100mm, graduation 2°)



5X magnifier



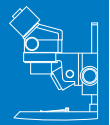
holder with clamp



swivel center support









V-block with clamp



## PROFILE PROJECTOR

## SERIES PP

### SPECIFICATION

Code	PP3015	PP3020
X-Y stage travel	150×50mm	200×100mm
Metal stage size	340×152mm	400×225mm
Glass stage size	195×95mm	245×145mm
Screen diameter	diameter: Ø300mm	
Image	inverted	
Linear scale resolution	1µm	
Accuracy	(4+L/25)µm L is the measuring length in mm	
Z(focus) travel range	80mm	
Max. load capacity	4kg	
Rotation scale	range: 0°~360°, resolution: 1' or 0.01°, accuracy: 6'	
Magnification accuracy	±0.1%	
Illumination	contour illumination: 12V/100W halogen lamp, 2-step(high/low) brightness adjustment	
	surface illumination: 24V/150W halogen lamp	
Readout display	X-Y stage travel, screen rotation	
Output	RS232 and USB	
Readout functions	 measure coordinate of point  measure coordinate of line  measure center coordinate, radius of circle with three points  measure distance between two objects  measure angle with four points or two lines  coordinate transform	
Dimension (L×W×H)	480×780×1150mm	
Weight	135kg	

### INCLUDED ACCESSORIES

Main unit	1pc
10X lens with half-reflection mirror	1pc
Overlay chart clip	4pcs
Level	1pc
Anti-dust cover	1pc

### OPTIONAL ACCESSORIES

20X lens with half-reflection mirror	PP3000-LENS20X
50X lens with half-reflection mirror	PP3000-LENS50X
100X lens with half-reflection mirror	PP3000-LENS100X
Rotary table	PP3000-TABLE
5X magnifier	PP3000-MAGNIFIER
Holder with clamp	PP3000-HOLDER
Swivel center support	PP3000-SUPPORT
V-block with clamp	PP3000-VBLOCK
Calibration scale	Series 552 (refer to page 208)



## VM1010

## VISION MACHINE



### SPECIFICATION

<b>Code</b>	<b>VM1010</b>
<b>Measuring range</b>	100×100mm
<b>Stage moving method</b>	Manual
<b>Linear scale resolution</b>	1μm
<b>Accuracy</b>	$(3+L/200)\mu\text{m}$ L is the measuring length in mm
<b>Repeatability</b>	2μm
<b>Focus</b>	92mm
<b>Lens magnification</b>	0.7X-4.5X
<b>Total magnification</b>	30-220X
<b>Illumination</b>	contour illumination: LED light brightness, can be adjusted by software surface illumination: LED light brightness, can be adjusted by software
<b>Dimension (L×W×H)</b>	400×300×600mm
<b>Weight</b>	30kg

### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>Calibration block</b>	1pc
<b>Software (See page 213)</b>	1pc

### OPTIONAL ACCESSORIES

<b>Computer</b>	<b>VM-PC</b>
<b>Operating table</b>	<b>VM-Table</b>
<b>Calibration scale</b>	<b>Series 552(refer to page 208)</b>

## VISION MACHINE

## SERIES VM



(computer and operating table is optional)

### SPECIFICATION

Code	VM2010	VM3020
Measuring range	200×100mm	300×200mm
Stage moving method	Manual	
Linear scale resolution	1μm	
Accuracy	(3+L/200)μm L is the measuring length in mm	
Repeatability	2μm	
Focus	92mm	
Lens magnification	0.7X-4.5X	
Total magnification	30-220X	
Camera	1/3" 700TVL HD	
Illumination	contour illumination: LED, brightness adjustment surface illumination: LED, brightness adjustment	
Dimension (L×W×H)	580×680×880mm	680×750×1000mm
Weight	160kg	220kg



## SERIES VM

## VISION MACHINE

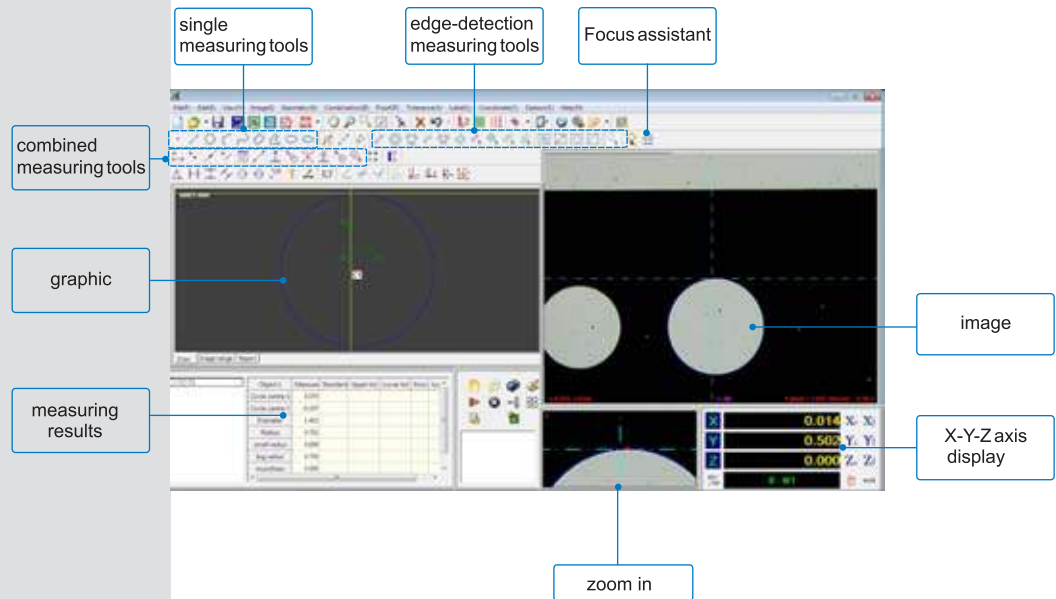
### INCLUDED ACCESSORIES

Main unit	1pc
Calibration block	1pc
Software with USB dongle	1pc
Video card	1pc
Counting card	1pc





### OPTIONAL ACCESSORIES

Computer	VM-PC
Operating table	VM-Table
Calibration scale	Series 552 (refer to page 208)







## SOFTWARE FOR ALL MANUAL VISION MACHINES













### ◆ Single measuring tools:

-  measure coordinate of point
-  measure length of line
-  measure center coordinate, radius, diameter and area of circle
-  measure length and diameter of arc

### ◆ Combined measuring tools:

-  measure distance between two objects like, two points, two lines, a point to a line, a point to a circle and so on.
-  create a intersection point
-  find midpoint of a line
-  create a line
-  create a line, a circle and a arc based on points
-  measure distance between two points

-  measure length of curve
-  measure width, length and area of rectangle
-  measure length and area of polygon
-  measure center coordinate, axis length and area of ellipse

-  measure distance from point to line
-  create tangent lines between point and circle
-  create angular bisector between two lines
-  measure distance from circle to line
-  measure distance between two circles
-  find tangent lines between two circles

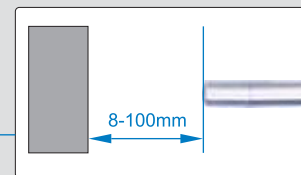


## ENDOSCOPE

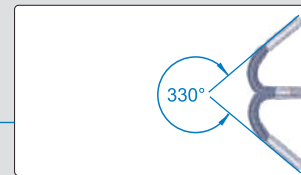
## SERIES ES



- ◆ 2-way directions
- ◆ With adjustable LED light



focus distance: 8-100mm



Max. bend angle: 330°

Code	ES5515	ES5530	ES4015	ES5315
Probe diameter	5.5mm	5.5mm	4.0mm	5.3mm
Cable length	1.5m	3m	1.5mm	1.5mm
Cable type	woven		tungsten	
Dust/waterproof probe	IP65			
Camera	0.45M Pixel			high resolution
Picture resolution	640x480			
Frame rate	30fps			
Illumination	8pcs LEDs		4pcs LEDs	8pcs high brightness LEDs
Video format	AVI or MPEG4			
Memory	8G SD card			
Power supply	rechargeable battery (for 4 hours working)			
Weight	550g	750g	500g	550g

### INCLUDED ACCESSORIES

Main unit	1pc
Cable with probe	1pc
SD card 8G	1pc
AC/DC adapter	1pc
Video output cable	1pc
USB cable	1pc



## HR150B

## MANUAL ROCKWELL HARDNESS TESTER

◆ Manual loading control



Small flat anvil



Large flat anvil



V-type anvil



### SPECIFICATION

Load force	10kgf (98N)
Total load force	60kgf (588N), 100kgf (980N), 150kgf (1471N)
Stage elevation	manual
Loading control	manual
Graduation	1HR
Max. test height	255mm
Max. throat	160mm
Dimension	487×265×726mm
Weight	73kg

### INCLUDED ACCESSORIES

Main unit	1pc
Ø1.5875mm ball carbide indenter	1pc
Diamond indenter	1pc
Flat anvil	2pcs
V-type anvil	1pc
Rockwell test block	3pcs
Dustproof cover	1pc



## DIGITAL ROCKWELL HARDNESS TESTER

### HR150A



- ◆ Manual loading control
- ◆ The hardness scale can be converted to HV and HB
- ◆ With USB interface, for transferring data



Small flat anvil



Large flat anvil



V-type anvil



PR100 printer (optional)

#### SPECIFICATION

Load force	10kgf (98N)
Total load force	60kgf (588N), 100kgf (980N), 150kgf (1471N)
Stage elevation	manual
Loading control	manual
Resolution	0.1HR
Max. test height	170mm
Max. throat	150mm
Dimension	466×250×618mm
Weight	65kg

#### INCLUDED ACCESSORIES

Main unit	1pc
Ø1.5875mm ball carbide indenter	1pc
Diamond indenter	1pc
Flat anvil	2pcs
V-type anvil	1pc
Rockwell test block	3pcs
Dustproof cover	1pc

#### OPTIONAL ACCESSORIES

Wireless printer	PR100
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## HR150C

## DIGITAL ROCKWELL HARDNESS TESTER

- ◆ Motorized loading control
- ◆ The hardness scale can be converted to HV and HB
- ◆ With USB interface, for transferring data



Small flat anvil



Large flat anvil



V-type anvil



PR100 printer (optional)



### SPECIFICATION

Load force	10kgf (98N)
Total load force	60kgf (588N), 100kgf (980N), 150kgf (1471N)
Stage elevation	manual
Loading control	auto
Loading time	1-99s
Resolution	0.1HR
Max. test height	255mm
Max. throat	160mm
Dimension	487×265×726mm
Weight	73kg

### INCLUDED ACCESSORIES

Main unit	1pc
Ø1.5875mm ball carbide indenter	1pc
Diamond indenter	1pc
Flat anvil	2pcs
V-type anvil	1pc
Rockwell test block	3pcs
Dustproof cover	1pc

### OPTIONAL ACCESSORIES

Wireless printer	PR100
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## MICRO-VICKERS HARDNESS TESTER

## HVS1000M



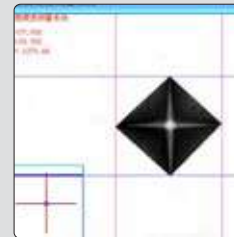
- ◆ For measuring the hardness of the thin, small workpiece or coating
- ◆ Automatic turret
- ◆ The hardness scale can be changed to Rockwell scales



Camera interface (optional)



Camera (optional)



Measuring software (optional)

### SPECIFICATION

Test load	0.01, 0.025, 0.05, 0.1, 0.2, 0.3, 0.5, 1kgf
Unit	HV0.01, HV0.025, HV0.05, HV0.1, HV0.2, HV0.3, HV0.5, HV1
Stage elevation	manual
Loading control	automatic (loading/dwell/unloading)
Loading time	5~60s (step: 5s)
Objective	10X (observation), 40X (measurement)
Eyepiece	15X
Total magnification	150X (observation), 600X (measurement)
Max. test height	80mm
Max. throat	95mm
X-Y stage	size: 100×100mm
	travel range: 25×25mm
	graduation: 0.01mm
Dimension	405×290×480mm
Weight	25kg

### INCLUDED ACCESSORIES

Main unit	1pc
10X, 40X objective	1pc each
Indenter	1pc
Test block	2pcs
Slice holder	1pc
Vice	1pc
Cylinder holder	1pc
Level	1pc
Dustproof cover	1pc

### OPTIONAL ACCESSORIES

Camera	1300KPA
Camera interface	HVS-AD
Measuring software	HVS-SW



## HVS10M/50M

## VICKERS HARDNESS TESTER

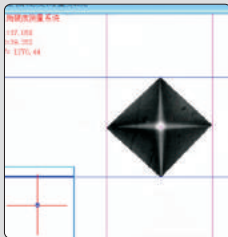
- ◆ For measuring the hardness of the thin, small workpiece or coating
- ◆ Automatic turret
- ◆ The hardness scale can be changed to Rockwell, Vickers, Brinell scales



Camera interface (optional)



Camera (optional)



Measuring software (optional)



HVS10M

### SPECIFICATION

Code	HVS10M	HVS50M
Test load	0.3, 0.5, 1, 2, 2.5, 3, 5, 10kgf	0.5, 1, 2, 2.5, 3, 5, 10, 20, 30, 50kgf
Stage elevation	manual	
Loading control	automatic (loading/dwell/unloading)	
Loading time	adjustable	
Objective	10X (observation), 40X (measurement)	10X (observation), 20X (measurement)
Eyepiece	10X	
Total magnification	100X (observation), 400X (measurement)	100X (observation), 200X (measurement)
Max. test height	170mm	185mm
Max. throat	130mm	
X-Y stage	size: 100×100mm	not included
	travel range: 25×25mm	
	graduation: 0.01mm	
Dimension	530×280×630mm	
Weight	35kg	

### INCLUDED ACCESSORIES

Main unit	1pc
10X, 20X objective	1pc each
Indenter	1pc
Test block	2pcs
X-Y stage (for HVS10M)	1pc
V-avail (for HVS50M)	1pc
Flat avail (for HVS50M)	1pc
Dustproof cover	1pc

### OPTIONAL ACCESSORIES

Camera	1300KPA
Camera interface	HVS-AD1
Measuring software	HVS-SW





## DIGITAL BRINELL HARDNESS TESTER

### HB3000



- ◆ Electronic close-loop load control system
- ◆ Can converted to HV, HK, HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRK, HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HS



Small flat anvil



Large flat anvil



V-type anvil

#### SPECIFICATION

Measuring Range	8-650HBW
Loading force	62.5, 100, 125, 187.5, 250, 500, 750, 1000, 1500, 3000kgf
Measuring result	read from LCD
Stage elevation	manual
Load control	automatic
Load dwell time	5-60 seconds
Max. test height	225mm
Max. throat	135mm
Dimension	545×235×79mm
Weight	130kg

#### INCLUDED ACCESSORIES

Main unit	1pc
20X measuring microscope	1pc
Ø10mm carbide ball indenter	1pc
Ø5mm carbide ball indenter	1pc
Ø2.5mm carbide ball indenter	1pc
Hardness test block 150-250HBW10/3000	1pc

Hardness test block 150-250HBW5/700	1pc
Small flat anvil	1pc
Large flat anvil	1pc
V-type anvil	1pc
Anti-dust cover	1pc



## RBV150C

## ROCKWELL/BRINELL/VICKERS HARDNESS TESTER

- ◆ For Rockwell, Brinell and Vickers testing
- ◆ Rockwell testing value gets from screen, and the Brinell and Vickers hardness gets from table in the operation manual



Small flat anvil



Large flat anvil



V-type anvil



Medium flat anvil



### SPECIFICATION

Preload force for Rockwell	98N
Total force for Rockwell	588, 980, 1471 N
Rockwell resolution	0.1HR
Load force for Brinell	306, 613, 1839N
Load force for Vickers	294N
Stage elevation	manual
Loading control	motorized
Max. test height for Rockwell	175mm
Max. test height for Brinell	100mm
Max. test height for Vickers	115mm
Max. throat	165mm
Dimension	520×240×700mm
Weight	105kg

### INCLUDED ACCESSORIES

Main unit	1pc
Ø1.5875mm ball carbide indenter	1pc
Diamond indenter for Rockwell	1pc
Ø5mm ball indenter for Brinell	1pc
Ø2.5mm ball indenter for Brinell	1pc
Indenter for Vickers	1pc
Small flat anvil for Rockwell	1pc
Large flat anvil for Rockwell	1pc

V-type anvil	1pc
Medium flat anvil for Brinell and Vickers	1pc
HRC hardness test block	2pcs
HRB hardness test block	1pc
Brinell hardness test block	1pc
Vickers hardness test block	1pc
Dustproof cover	1pc



## PORTABLE HARDNESS TESTER

## HL 100



- ◆ Large LCD display with backlight
- ◆ Based on HL scale, converted to other hardness scales (HV, HB, HRC, HRB, HS) and tensile strength MPa
- ◆ With wireless printer
- ◆ Can set impact direction
- ◆ With average value calculation function
- ◆ Automatic power off
- ◆ Conforms to the standard ASTM A956-02



Wireless printer (included)



Support ring (12pcs/set, optional)

### SPECIFICATION

Resolution	1HLD, 1HV, 1HB, 0.1HRC, 0.1HRB, 1HS, 1MPa
Accuracy	±6HLD/0.6HRC(HLD=800)
Min. workpiece weight	5kg (directly)
	2kg (on solid support)
	0.1kg (coupled on large plate)
Min. workpiece thickness	5mm
Min. workpiece diameter	22mm
Max. workpiece surface roughness	1.6μm (Ra)
Power	3xAAA batteries
Dimension	150 × 80 × 24mm

### INCLUDED ACCESSORIES

Main unit	1pc
Wireless printer	1pc
Test block	1pc
Small support ring	1pc
Brush	1pc
Charger for printer	1pc

### OPTIONAL ACCESSORIES

Support ring (12pcs/set)	HL-SP
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## HL200

## PORTABLE HARDNESS TESTER

- ◆ Touch screen, with backlight
- ◆ Based on HL scale, converted to other hardness scales (HV, HB, HRC, HRB, HS) and tensile strength Mpa
- ◆ With wireless printer
- ◆ Can set impact direction
- ◆ Memory : 500
- ◆ Low and high limits with judgement
- ◆ Automatic power off
- ◆ Conforms to the standard ASTM A956-02



Wireless printer (included)



Support ring (12pcs/set, optional)



DC(optional)

C(optional)

D(included)

D+15(optional)

DL(optional)

G(optional)

### SPECIFICATION

<b>Resolution</b>	1HLD, 1HV, 1HB, 0.1HRC, 0.1HRB, 1HS, 1MPa
<b>Accuracy</b>	±6HLD/0.6HRC(HLD=800)
<b>Min. workpiece weight</b>	5kg (directly)
	2kg (on solid support)
	0.1kg (coupled on large plate)
<b>Min. workpiece thickness</b>	5mm
<b>Min. workpiece diameter</b>	22mm
<b>Max. workpiece surface roughness</b>	1.6µm(Ra)
<b>Power</b>	Rechargeable battery
<b>Dimension</b>	135×83×24mm

### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>Wireless printer</b>	1pc
<b>Test block</b>	1pc
<b>Small support ring and brush</b>	1pc each
<b>USB cable and software</b>	1pc
<b>Charger</b>	2pcs

### OPTIONAL ACCESSORIES

<b>Impact device DC</b>	HL200-DC
<b>Impact device C</b>	HL200-C
<b>Impact device D+15</b>	HL200-D15
<b>Impact device DL</b>	HL200-DL
<b>Impact device G</b>	HL200-G
<b>Support ring (12pcs/set)</b>	HL-SP



## PORTABLE HARDNESS TESTER

### HL400/HL400B



HL400

- ◆ Economic type
- ◆ Based on HL scale, converted to other hardness scales (HV, HB, HRC, HRB, HS) and tensile strength MPa
- ◆ Impact direction can be set
- ◆ With average value calculation function
- ◆ Automatic power off
- ◆ Conforms to the standard ASTM A956-02

#### SPECIFICATION

Code	HL400	HL400B
Printer	Without	With
Resolution	1HLD, 1HV, 1HB, 0.1HRC, 0.1HRB, 1HS, 1MPa	
Accuracy	±8HLD/0.8HRC (HLD=800)	
Min. workpiece weight	5kg (directly)	
	2kg (on solid support)	
	0.1kg (coupled on large plate)	
Min. workpiece thickness	5mm	
Min. workpiece diameter	22mm	
Max. workpiece surface roughness	1.6μm(Ra)	
Power	3xAAA batteries	
Dimension	150×67×29mm	

#### INCLUDED ACCESSORIES

Main unit	1pc	Brush	1pc
Test block	1pc	USB cable	1pc
Small support ring	1pc	Batteries	3pcs

## BARCOL HARDNESS TESTER

### HB937-1



- ◆ To measure the hardness of thick workpieces made of pure aluminum, aluminum alloy, fiber reinforced plastic, hard plastic, etc.
- ◆ Comforms to ASTM B648-2000

#### SPECIFICATION

Hardness range	0 ~ 100HBa (equal to 25 ~ 150HBW)
Graduation	1HBa
Accuracy	±2HBa (42 ~ 52HBa) ±1HBa (84 ~ 88HBa)
Min. workpiece thickness	0.8mm
Dimension	142×65×90mm
Weight	500g

#### INCLUDED ACCESSORIES

Main unit	1pc
Spare indenter	2pcs
Hardness test block	2pcs
Wrench	1pc



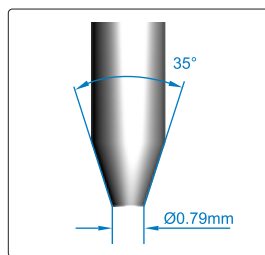
## SERIES HSM

## SHORE HARDNESS TESTER

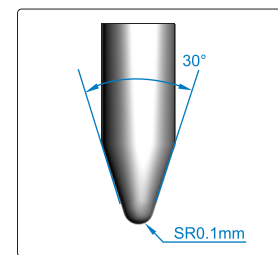
- ◆ Conforms to ISO868, ISO7619, ASTM D2240
- ◆ With peak value indicator



HSM1A



HSM1A indenter



HSM5D indenter

### SPECIFICATION

Code	HSM1A	HSM5D
Scale	Shore A	Shore D
For material	soft plastic, rubber, leather, etc.	hard plastic, hard rubber, etc.
Measuring range	20~90HA	20~90HD
Graduation	1HA	1HD
Accuracy	±1HA	±1HD
Indenter protrusion	2.5mm	
Weight	500g	

### OPTIONAL ACCESSORIES

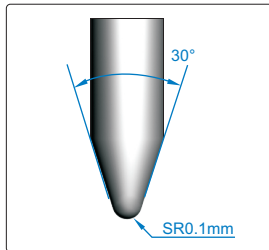
Stand for HSM1A	HSM-1A-ST
Stand for HSM5D	HSM-5D-ST



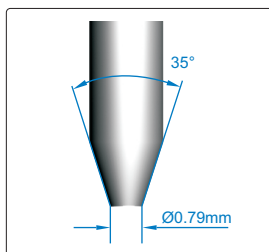


## DIGITAL SHORE HARDNESS TESTER

## SERIES HS



HS5D indenter



HS1A indenter



HS1A

- ◆ Conforms to ISO868, ISO7619, ASTM D 2240
- ◆ Testing time is adjustable
- ◆ With average calculation function



Standard block (included)

### SPECIFICATION

Code	HS1A	HS5D
Scale	Shore A	Shore D
For material	soft plastic, rubber, leather, etc.	hard plastic, hard rubber, etc.
Measuring range	20~90HA	20~90HD
Resolution	0.1HA	1HD
Accuracy	±1HA	±1HD
Indenter protrusion	2.5mm	
Power	rechargeable battery	
Weight	180g	

### INCLUDED ACCESSORIES

Main unit	1pc
Standard block	1pc
Charger	1pc

### OPTIONAL ACCESSORIES

Printer	PR100
Stand for HS1A	HS-1A-STD
Stand for HS5D	HS-5D-STD



## SERIES HW

## WEBSTER HARDNESS TESTER

- ◆ To measure the hardness of soft metal such as aluminum alloy, copper, brass, soft steel
- ◆ Conforms to the standard ASTM B647



HW-L20

### SPECIFICATION

Code	HW-L20	HW-L20A	HW-L20B	HW-B75	HW-C75	HW-B92
Application	aluminum alloy			hard aluminum alloy and brass	soft brass and copper	soft steel and cold-rolled steel
Measuring hardness range	58-131HV			63-105HRF	18-100HRE	50-92HRB
Thickness range to be measured of flat workpiece	0.4 ~ 6mm	0.4 ~ 13mm	0.4 ~ 8mm	0.4 ~ 6mm	0.4 ~ 6mm	0.4 ~ 6mm
Min. Internal diameter of tube workpiece	Ø10mm	Ø10mm	Ø6mm	Ø10mm	Ø10mm	Ø10mm
Hardness range	0 ~ 20HW					
Min. reading	1HW					
Accuracy	±0.5HW (at 5 ~ 17HW)					
Dimension	205×30×85mm					
Weight	500g					

### INCLUDED ACCESSORIES

Main unit	1pc
Spare indenter	1pc

Hardness test block	1pc
Wrench	1pc

## SERIES BLK

## STANDARD HARDNESS BLOCK



Rockwell/Vickers/Brinell



Shore



Leeb

### SPECIFICATION

Code	Type	Hardness
BLK-HRC1	Rockwell C	60-70HRC
BLK-HRC2		20-30HRC
BLK-HRB1	Rockwell B	85-95HRB
BLK-HRB2		60-70HRB
BLK-HV1	Vickers	700-800HV5
BLK-HV2		700-800HV10
BLK-HV3		400-600HV5
BLK-HV4		400-600HV10
BLK-HB1	Brinell	150-250HBW 10/3000
BLK-HB2		150-250HBW 5/750
BLK-HLD	Leeb	750-830HLD
BLK-HSA	Shore A	7pcs/set: 30-39HA, 40-49HA, 50-59HA, 60-69HA, 70-79HA, 80-89HA, 90-99HA



## ROUGHNESS TESTER

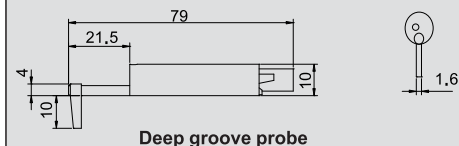
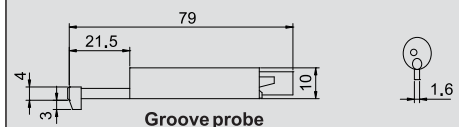
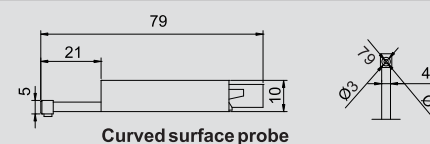
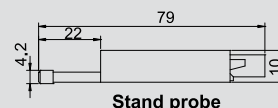
### SR200



measuring software

- ◆ 13 roughness parameters
- ◆ With probe position indicator
- ◆ Connected with printer via bluetooth
- ◆ Roughness values, profile, and curve can be shown on the display
- ◆ Memory of maximum 100 results
- ◆ With a mini SD card slot, can save the result into SD card
- ◆ Automatic power off

unit: mm



### SPECIFICATION

<b>Parameters</b>		Ra, Rz, Ry, Rq, Rp, Rm, Rt R3z, Rmax, Sk, S, Sm, tp
<b>Range</b>		160μm
<b>Accuracy</b>		±10%
<b>Resolution (Ra)</b>		0.001μm
<b>Probe</b>	type	inductive
	stylus radius/angle	5μm/90°
	stylus material	diamond
<b>Measuring force</b>		0.4mN
<b>Measuring unit</b>		μm/μin
<b>Cut off</b>		0.25/0.8/2.5mm
<b>Number of cut-offs</b>		1 to 5
<b>Traverse speed</b>		0.5mm/s, 1mm/s
<b>Memory</b>		100 measurement results
<b>Output</b>		USB
<b>Power</b>		built-in rechargeable battery
<b>Dimension(L×W×H)</b>		140×52×48mm
<b>Weight</b>		440g

### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>Standard probe</b>	1pc
<b>Calibration block</b>	1pc
<b>Calibration support</b>	1pc
<b>Adjustable stand</b>	1pc
<b>Probe cover</b>	1pc
<b>USB cable and software</b>	1pc
<b>AC/DC adapter</b>	1pc

### OPTIONAL ACCESSORIES

<b>Extension rod</b>	SR200-ER
<b>Curved surface probe</b>	SR200-02
<b>Groove probe</b>	SR200-03
<b>Deep groove probe</b>	SR200-04
<b>Test stand</b>	SR200-STD
<b>Printer</b>	SR200-PR



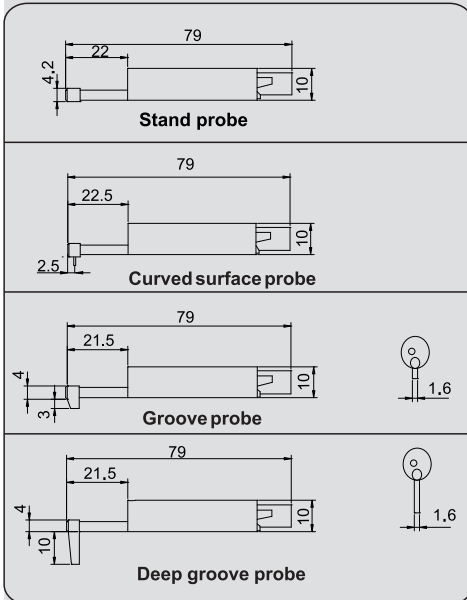
## SR300

## ROUGHNESS TESTER

- ◆ Pocket size
- ◆ With a tablet, can set the parameter quickly
- ◆ Connected with tablet via bluetooth
- ◆ Roughness values, profile, and curve can be shown on the display



unit: mm



Measuring software

### SPECIFICATION

<b>Parameters</b>	Ra, Rz, Ry, Rq, Rp, Rm, Rt R3z, Rmax, Sk, S, Sm, tp	
<b>Range(Ra)</b>	0.025-12.5μm	
<b>Accuracy</b>	±10%	
<b>Resolution (Ra)</b>	0.001μm	
<b>Probe</b>	<b>type</b>	inductive
	<b>stylus radius/angle</b>	5μm/90°
	<b>stylus material</b>	diamond
<b>Measuring force</b>	0.4mN	
<b>Measuring unit</b>	μm/μin	
<b>Cut off</b>	0.25/0.8/2.5mm	
<b>Number of cut-offs</b>	1 to 5	
<b>Traverse speed</b>	0.5mm/s, 1mm/s	
<b>Output file format</b>	Word, Excel	
<b>Power</b>	built-in rechargeable battery	
<b>Dimension(L×W×H)</b>	130×40×44mm	
<b>Weight</b>	340g	

### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>Standard probe</b>	1pc
<b>Tablet</b>	1pc
<b>Calibration block</b>	1pc
<b>Calibration support</b>	1pc
<b>USB cable</b>	1pc
<b>AC/DC adapter</b>	1pc

### OPTIONAL ACCESSORIES

<b>Extension rod</b>	SR200-ER
<b>Curved surface probe</b>	SR200-02
<b>Groove probe</b>	SR200-03
<b>Deep groove probe</b>	SR200-04
<b>Test stand</b>	SR200-STD
<b>Printer</b>	SR200-PR



## SURFACE ROUGHNESS SPECIMEN

### RC30



- ◆ For checking, identifying and specifying the roughness by symbol
- ◆ Accuracy: -17% ~ +12%

Machining Method	Quantity	Roughness (Ra)
Flatlapping	2	0.1, 0.05μm
External grinding	4	0.2, 0.4, 0.8, 1.6μm
Plain grinding	6	0.05, 0.1, 0.2, 0.4, 0.8, 1.6μm
Horizontal milling	6	0.4, 0.8, 1.6, 3.2, 6.3, 12.5μm
Vertical milling	6	0.4, 0.8, 1.6, 3.2, 6.3, 12.5μm
Turning	6	0.4, 0.8, 1.6, 3.2, 6.3, 12.5μm

## TEMPERATURE METER

### HTC-1



#### SPECIFICATION

Temperature range	-20°C-60°C
Temperature accuracy	1%
Temperature resolution	0.1 °C
Humidity range	10%RH-99%RH
Humidity accuracy	5%
Humidity resolution	1%
Power supply	AAA battery
Weight	50g
Dimension	98×106×20 mm

#### INCLUDED ACCESSORIES

Main unit	1pc
Battery	1pc



## IT700

## INFRARED THERMOMETER

- ◆ For quick measuring remote temperature
- ◆ Easy to operate



### SPECIFICATION

Measuring temperature range	-50°C-700°C
Accuracy	1.5% or 1.5 °C
Repeatability	0.5 °C or 1%
Distance spot ratio	12:1
Response time	500ms
Resolution	0.1 °C
Power supply	9V battery
Emissivity	0.1-1.00 adjustable
Weight	196g
Dimension	186×119×50 mm

### INCLUDED ACCESSORIES

Main unit	1pc
Battery	1pc

## WMM700

## WOOD MOISTURE METER

- ◆ For quick measuring wood moisture
- ◆ Easy to operate



Extension probe (Optional)



### SPECIFICATION

Moisture	Measuring range	2-40%/50%/60%/70%(for different wood)
	Accuracy	±1%+0.5
	Resolution	0.5 %
Temperature	Measuring range	-10 °C-60 °C
	Accuracy	±1%
	Resolution	0.1 °C
Humidity	Measuring range	20%RH-95%RH
	Accuracy	±5% RH
	Resolution	0.1% RH
Power supply		2xAAA battery
Weight		107g
Dimension		136×55×60mm

### INCLUDED ACCESSORIES

Main unit	1pc
Battery	1pc

### OPTIONAL ACCESSORIES

Extension probe	WMM700-EP
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## LASER DISTANCE METER

### TM100



- ◆ IP54 protection
- ◆ With a level in the body
- ◆ With distance, area, volume and height measurement function
- ◆ With Max, Min measuring function
- ◆ With backlight
- ◆ Power off automatically

#### SPECIFICATION

Measuring range	0.1m-100m
Accuracy (at the perfect reflection surface)	1.5mm
Resolution	1mm
Unit	m/inch/ft
Light spot	Φ8mm@40m
Memory	20
Power supply	2x1.5V AAA batteries
Laser	635nm<1mW
Weight	110g
Dimension	120×54×30 mm

#### INCLUDED ACCESSORIES

Main unit	1pc
Battery	1pc

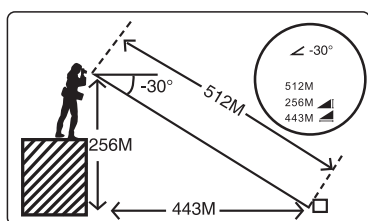
## LASER DISTANCE METER

### TM1200

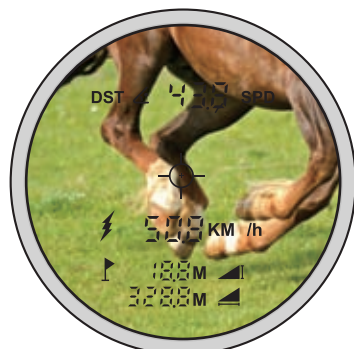


- ◆ IP54 protection
- ◆ Can measure distance, angle and speed
- ◆ Power off automatically

Distance, angle measurement



Speed measurement



#### SPECIFICATION

Measuring range	3m-1200m
Magnification	8X
View field	7°
Distance measuring accuracy	±1m
Speed measuring accuracy	±5km/h
Power supply	Rechargeable battery (for 30000 times)
Laser	635nm<1mW
Weight	197g
Dimension	104×77×41 mm





## LT900

## LASER TACHOMETER

- ◆ With back light
- ◆ Real-time/ Max/Min/average measurement
- ◆ Can review the last measuring value

### SPECIFICATION

<b>Measuring range</b>		2.5-99999rpm
<b>Resolution</b>	< 1000rpm	0.1rpm
	≥ 1000rpm	1rpm
<b>Accuracy</b>	< 1000rpm	(± 1%+5d)rpm
	≥ 1000rpm	(1%+5d)rpm
<b>Measuring distance(d)</b>		50-500mm
<b>Power supply</b>		2x1.5VAAA battery
<b>Weight</b>		106g
<b>Dimension</b>		56×30×127 mm



## AM30

## DIGITAL ANEMOMETER

- ◆ With temperature display
- ◆ With back light
- ◆ Real-time/ Max/Average measurement
- ◆ Unit: m/s, km/h, ft/min, Knots, mph

### SPECIFICATION

<b>Measuring range</b>	0.3-30m/s
<b>Accuracy</b>	± 5%
<b>Resolution</b>	0.1m/s
<b>Power supply</b>	9V battery
<b>Weight</b>	154g
<b>Dimension</b>	155×56×35 mm



## SLM130

## DIGITAL SOUND LEVEL METER

- ◆ Fast(2 time/sec)/slow(1 time/sec) display
- ◆ With back light
- ◆ Real-time and Max/Min measurement
- ◆ High limits setting with judgement and alarm

### SPECIFICATION

<b>Measuring sound range</b>	30-130db
<b>Accuracy</b>	1.5db
<b>Resolution</b>	0.1db
<b>Power supply</b>	9V battery
<b>Weight</b>	64g
<b>Dimension</b>	143×56×35 mm





## 20°/60°/85° GLOSS METER

### GM268



- ◆ To test the gloss of painting, printing ink, surfaces of future metal, granite, ceramic, plastic, paper, etc.
- ◆ Conforms to ISO 2813, ASTM D 2457, ASTM D 523
- ◆ Large display screen

#### SPECIFICATION

<b>Incidence angle</b>	20°	60°	85°
<b>Measuring range</b>	0~2000GU	0~1000GU	0~160GU
<b>Resolution</b>	0.1GU (range<119.9GU)		
<b>Accuracy</b>	±1.5GU (range<100GU)		
	±1.5% (range>100GU)		
<b>Repeatability</b>	±0.1GU (range<10GU)		
	±0.2GU (range: 10~100GU)		
	±0.2% (range>100GU)		
<b>Measuring speed</b>	1s		
<b>Measuring area</b>	10×10mm	15×9mm	36×5mm
<b>Power supply</b>	Rechargeable battery		
<b>Dimension</b>	160×75×90mm		
<b>Weight</b>	350g		

#### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>Calibration block</b>	1pc
<b>USB cable and software</b>	1pc

## COLOR METER

### CM200



- ◆ Convenient and fast locating
- ◆ Portable structure design which is more conducive to keeping the instrument stable

#### SPECIFICATION

<b>Illuminating/Viewing Geometry</b>	8/d
<b>Measuring Aperture</b>	Φ8mm
<b>Light Source</b>	D65
<b>Light Source Device</b>	LED blue light excitation
<b>Memory</b>	100pcs standards
<b>Repeatability</b>	<0.08ΔE*ab
<b>Power supply</b>	rechargeable lithium-ion battery
<b>Lamp Life</b>	3 years, more than 1 million measurements
<b>Charging Time</b>	2 hours (first time 8 hours--100% electricity)
<b>Weight</b>	500g
<b>Dimension</b>	205×70×100 mm

#### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>White calibration block</b>	1pc
<b>Charger</b>	1pc
<b>USB cable and software</b>	1pc



## CM3010

## SPECTROPHOTO METER

- ◆ Concave grating spectrophotometric
- ◆ 3.5-inch TFT color LCD
- ◆ D/8 geometrical optics, conforms with CIE No. 15, ISO7724/1, ASTM E1164, DIN5033
- ◆ Use long life and low power consumption combined LED light source
- ◆ Switchable 8mm/4mm aperture, support both SCI and SCE at the same time
- ◆ Large storage capacity, over 20,000 measurement data
- ◆ USB port and Bluetooth 4.0
- ◆ With software



### SPECIFICATION

<b>Optical geometry</b>	reflect: di:8°, de:8°(diffused illumination, 8-degree viewing angle)	
<b>Integrating sphere size</b>	Ø48mm	
<b>Light source</b>	combined LED light	
<b>Spectrophotometric mode</b>	concave grating	
<b>Sensor</b>	256 image element double array CMOS image sensor	
<b>Wavelength range</b>	400~700nm	
<b>Wavelength interval</b>	10nm	
<b>Semiband width</b>	10nm	
<b>Measured reflectance range</b>	0~200%	
<b>Measuring aperture</b>	dual aperture: MAV: Ø8mm; SAV: Ø4mm	
<b>Specular component</b>	SCI&SCE	
<b>Color space</b>	CIE LAB, XYZ, Yxy, LCh, CIE LUV, HunterLAB	
<b>Color difference formula</b>	$\Delta E^*ab$ , $\Delta E^*uv$ , $\Delta E^*94$ , $\Delta E^*cmc(2:1)$ , $\Delta E^*cmc(1:1)$ , $\Delta E^*00v$ , $\Delta E$ (Hunter)	
<b>Other colorimetric index</b>	WI(ASTM E313, CIE/ISO, AATCC, Hunter), YI(ASTM D1925, ASTM 313), Metamerism index MI, Staining fastness, Color fastness, Color strength, Opacity	
<b>Observer angle</b>	2°/10°	
<b>Illuminant</b>	A, C, D50, D55, D65, D75, F1, F2, F3, F4, F5, F6, F7, F8, F9, F10, F11, F12, CWF, U30, Tl83, Tl84, U35	
<b>Displayed data</b>	spectrogram/values, samples chromaticity values, color difference values/graph, PASS/FAIL result, color offset	
<b>Measuring time</b>	2.6s	
<b>Repeatability</b>	<b>Spectral reflectance</b>	MAV/SCI, within 0.1% of standard deviation(400~700nm: 0.2%)
	<b>Colorimetric values</b>	MAV/SCI: $\Delta E^* \leq 0.04$
<b>Inter-instrument error</b>	MAV/SCI: $\Delta E^* \leq 0.2$	
<b>Measurement mode</b>	single measurement, average measurement	
<b>Data port</b>	USB, Bluetooth 4.0	
<b>Data storage</b>	standard 1000 pcs, sample 20000 pcs	
<b>Illuminant life span</b>	5 years, more than 3 million times measurements	
<b>Battery</b>	Li-ion battery, 5000 measurements within 8 hours	
<b>Dimension</b>	184×77×105mm	
<b>Weight</b>	600g	

### INCLUDED ACCESSORIES

<b>Main unit</b>	1pc
<b>White and black calibration cavity</b>	1pc
<b>USB cable and software</b>	1pc
<b>AC/DC adapter</b>	1pc

### OPTIONAL ACCESSORIES

<b>Printer</b>	CM3010-PT
<b>Powder test box</b>	CM3010-PB



## DIGITAL FORCE GAUGE

## SERIES DF



DF200

- ◆ For pull and push measurement
- ◆ Adjusting the display direction automatically
- ◆ With overload protection
- ◆ Peak and real-time working mode
- ◆ Unit: mN, N, gf, kgf, ozf, lbf
- ◆ Memory: 1000
- ◆ Power off automatically
- ◆ Low and high limits setting with judgement
- ◆ With software, can show the force graph



Stand(Code: FS1000, Optional)

### SPECIFICATION

Code	DF10	DF20	DF50	DF100	DF200	DF500	DF1000
Range	10N	20N	50N	100N	200N	500N	1000N
Resolution	0.001N	0.005N	0.005N	0.005N	0.005N	0.01N	0.1N
Accuracy	±0.2% x FS (full scale)						
Power	rechargeable battery						
Dimension	153x73x34mm						
Weight	700g						

### INCLUDED ACCESSORIES

Main unit	1pc
Charger	1pc
Software	1pc
Push/pull clamps	6pcs

### OPTIONAL ACCESSORIES

Wireless printer	PR100
Stand	FS1000



## SERIES DFXXE

## DIGITAL FORCE GAUGE

- ◆ For pull and push measurement
- ◆ Adjusting the display direction automatically
- ◆ With overload protection
- ◆ Peak and real-time mode
- ◆ Unit: N, gf, kgf, ozf, lbf
- ◆ Memory: 500
- ◆ Power off automatically



Stand(Code: FS1000, Optional)



DF1000E

### SPECIFICATION

Code	DF10E	DF50E	DF100E	DF500E	DF1000E
Range	10N	50N	100N	500N	1000N
Resolution	0.01N	0.01N	0.1N	0.1N	1N
Accuracy	±0.3% x FS (full scale)				
Power	rechargeable battery				
Dimension	150x72x33mm				
Weight	450g				
<b>INCLUDED ACCESSORIES</b>					
Main unit	1pc				
Charger	1pc				
Software	1pc				
Push/pull clamps	6pcs				
<b>OPTIONAL ACCESSORIES</b>					
Wireless printer	PR100				
Stand	FS1000				



## FORCE GAUGE

## SERIES NK



NK-500

- ◆ Push and pull test
- ◆ Peak(max.) or tracking work mode



flat push tip



V type push tip



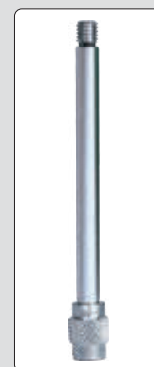
knife-edge push tip



point push tip



pull clamp



extension rod

### SPECIFICATION

Code	NK-20	NK-30	NK-50	NK-100	NK-200	NK-300	NK-500
Range(N)	20	30	50	100	200	300	500
Range(Kg)	2	3	5	10	20	30	50
Resolution(N)	0.1	0.2	0.25	0.5	1	2	2.5
Accuracy	±2% full scale						

### INCLUDED ACCESSORIES

Main unit	1pc
Push tip	4pcs (flat, V type, knife-edge, point)
Pull clamp	1pc
Extension rod	1pc

### OPTIONAL ACCESSORIES

Stand	FS1000
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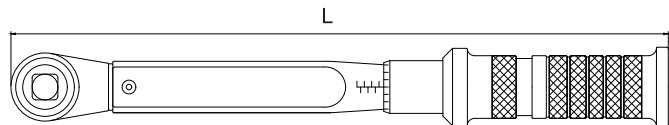
## SERIES TWM

## TORQUE WRENCH

- ◆ Easy to set the torque value
- ◆ Accuracy:  $\pm 4\%$
- ◆ According to ISO6789, ASMEB107. 14



TWM25



### SPECIFICATION

Code	TWM25	TWM50	TWM100	TWM200	TWM340
Range	5~25N.m	10~50N.m	20~100N.m	40~200N.m	70~340N.m
Size of square drive	3/8"	3/8"	3/8"	1/2"	1/2"
Lenght(L)	275mm	275mm	380mm	505mm	695mm
Weight	420g	420g	580g	1.3kg	1.9kg

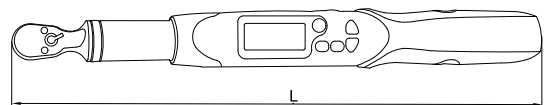
## SERIES TW

## DIGITAL TORQUE WRENCH

- ◆ Clockwise or anti-clockwise operation
- ◆ Unti: N.m, in.lb, ft.lb, kg.cm
- ◆ Peak or real-time working mode
- ◆ Automactic power off
- ◆ With calibration certificate



TW30



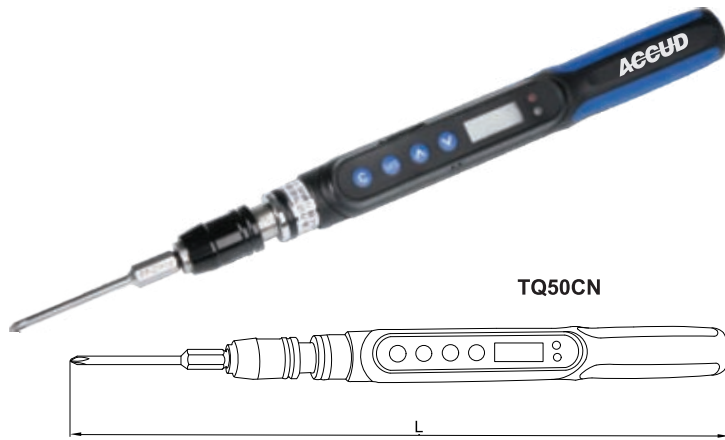
### SPECIFICATION

Code	TW12	TW20	TW30	TW135	TW200
Range	2.4~12N.m	4~20N.m	6~30N.m	27~135N.m	40~200N.m
Resolution	0.01N.m	0.01N.m	0.1N.m	0.1N.m	1N.m
Clockwise operation accuracy	$\pm 3\%$	$\pm 3\%$	$\pm 2\%$	$\pm 2\%$	$\pm 2\%$
Anti-clockwise operation accuracy	$\pm 4\%$	$\pm 4\%$	$\pm 3\%$	$\pm 3\%$	$\pm 3\%$
Size of square drive	1/4"	1/4"	1/4"	3/8"	1/2"
Lenght(L)	260mm	260mm	390mm	415mm	530mm
Weight	430g	430g	830g	950g	1400g
Power	1xAAA battery			2xAAA batteries	



## DIGITAL TORQUE SCREWDRIVER

## SERIES TQ



TQ50CN

- ◆ Clockwise or anti-clockwise operation
- ◆ Peak and track working mode
- ◆ With audible and visible alarm when the value is closed to setting target
- ◆ Supplied with calibration certificate

### SPECIFICATION

Code	TQ50CN	TQ200CN	TQ400CN
Range	10 ~ 50cN.m	40 ~ 200cN.m	80 ~ 400cN.m
Clockwise operation accuracy	±3%	±2.5%	±2.5%
Anti-clockwise operation accuracy	±4%	±3.5%	±3.5%
Resolution	0.1cN.m	0.1cN.m	0.1cN.m
Size of shank	1/4"	1/4"	1/4"
Length (L)	258mm	268mm	268mm
Weight	200g	200g	200g
Power	1xAAA battery		

## TORQUE SCREWDRIVER

## SERIES TQM



TQM300

- ◆ Clockwise operation
- ◆ When achieving the setting target, there is "chatter"

### SPECIFICATION

Code	TQM60	TQM120	TQM300	TQM600
Range	0.12 ~ 0.6N.m	0.24 ~ 1.2N.m	0.6 ~ 3N.m	1.2 ~ 6N.m
Clockwise operation accuracy	±6%	±6%	±6%	±6%
Graduation	0.01N.m	0.02N.m	0.05N.m	0.1N.m
Size of shank	1/4"	1/4"	1/4"	1/4"
Length (L)	161mm	161mm	186mm	186mm
Weight	300g	300g	400g	400g





## SERIES TTS

## DIGITAL TORQUE METER

- ◆ Adjustable open size for fixing
- ◆ Peak, preset and real-time working mode
- ◆ Unit: N.m, N.cm, kgf.cm, lbf.cm, lbf.in
- ◆ Memory: 1000
- ◆ Power off automatically
- ◆ With software, can show the torque graph

### SPECIFICATION

Code	TTS1	TTS5
Range	1N.m	5N.m
Accuracy	±0.3% FS( full scale)	
Resolution	0.001N.m	
Memory	1500	
Output	USB and RS232	
Power	rechargeable battery	
Weight	0.7kg	

### INCLUDED ACCESSORIES

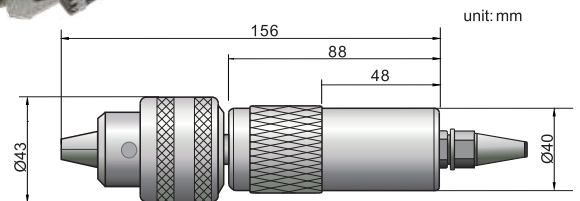
Main unit	1pc
Charger	1pc
Software with cable	1pc
Wrench	1pc

### OPTIONAL ACCESSORIES

Wireless printer	PR100
Test stand	TTS-STD



TTS5



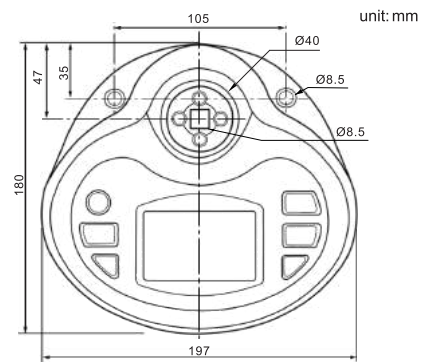
## SERIES TTB

## DIGITAL TORQUE METER

- ◆ For torque wrench and torque screwdriver calibration
- ◆ Peak, preset and real-time working mode
- ◆ Unit: N.m, N.cm, kgf.cm, lbf.cm, lbf.in
- ◆ Memory: 1500
- ◆ Power off automatically
- ◆ With software, can show the torque graph



TTB10



### SPECIFICATION

Code	TTB5	TTB10	TTB50	TTB100
Range	5N.m	10N.m	50N.m	100N.m
Accuracy	±0.3% FS( full scale)			
Resolution	0.001N.m	0.01N.m	0.01N.m	0.1N.m
Size of square drive	1/2"			
Output	USB and RS232			
Power	rechargeable battery			
Weight	1.5kg			

### INCLUDED ACCESSORIES

Main unit	1pc
Charger	1pc
Software with cable	1pc
Convertor	1pc

### OPTIONAL ACCESSORIES

Wireless printer	PR100
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