Sunpoc

video measuuring machine, profile projector, material testing machine

Twardościomierze Brinell'a

SHB-3000X Digital brinell hardness tester

Brief Introductions:

Brinell hardness tester is the largest indentation among all the hardness testing, it is able to reflect the comprehensive features of the material, and the testing is unaffected by the macrostructure and the compositional unevenness of the specimen, hence it is a reliable hardness testing with high precision. The Brinell hardness testing is widely used in such industrial fields as metallurgy, forging, casting, unhardened steel and nonferrous metals industries, as well as in the laboratories, colleges and scientific research institutes.


SHB-3000D


SHB-3000X


SHB-3000M

Technical Specifications:

Model	SHB-3000D	SHB-3000X	SHB-3000M
Testing Force(N)	612.9 980 1226 1839 2452 4900 7355 9800 14700 29400		
Testing Force(g)	62.5 100 125 187.5 250 500 750 1000 1500 3000		
Testing Rang	8-650 HBW		
Resolution of Displayed Hardness Value	Hardness Range(HBW) ≤125 125-225 >225 Max. tolerance% ±3 ±2.5 ±2.0 Repetition% ≤3.5 ≤3.0 ≤2.5		
Magnification of microscope	20X	20X	15X
Min.resolution microscope	0.005mm	0.00125mm	0.00125mm
Max. Height of specimen	225mm		
Max. Distance from indenter center to instrument throat	135mm		
Power Supply	AC220V/50Hz		
Over Size	893x720x470mm		
Gross/Net Weight	160/130kg		
Main Accessories	Anvil: Large, Small and V-shaped each, Hard Alloyed Steel Ball Indenters: ¢2.5mm, ¢5mm and ¢10mm One Microscope: 20X 15X (SHB-3000M), Two Standard Hardness Blocks		
Optional accessories:	SHB-3000X can option CCD, SOFTWARE		

SHB-3000M Digital Brinell hardness tester

Brief Introductions:

Brinell hardness tester is the largest indentation among all the hardness testing, it is able to reflect the comprehensive features of the material, and the testing is unaffected by the macrostructure and the compositional unevenness of the specimen, hence it is a reliable hardness testing with high precision. The Brinell hardness testing is widely used in such industrial fields as metallurgy, forging, casting, unhardened steel and nonferrous metals industries, as well as in the laboratories, colleges and scientific research institutes.


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SHB-3000M

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Optional accessories:	SHB-3000X can option CCD, SOFTWARE		

Cyfrowy Twardościomierz Brinella SHB-3000D/X/M

Krótkie wprowadzenie:

Twardościomierz Brinella jest największym twardościomierzem wgłębnikowym wśród wszystkich twardościomierzy, jest on w stanie odzwierciedlić kompleksowe cechy materiału, a na badanie nie ma wpływu makrostruktura i składowe nierówności próbki, dlatego jest to wiarygodne badanie twardości o dużej precyzji. Badanie twardości Brinella jest szeroko stosowane w takich dziedzinach przemysłu jak metalurgia, kowalstwo, odlewnictwo, wytwórstwo stali nieutwardzonej i metali nieżelaznych, jak również w laboratoriach, na uczelniach i w instytutach naukowo-badawczych.

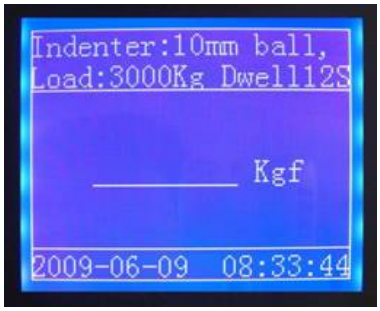

SHB-3000D

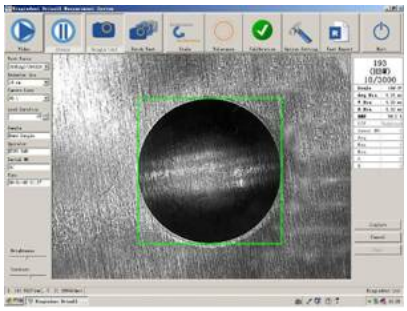

SHB-3000X


SHB-3000M

Technical Specifications:

Model	SHB-3000D	SHB-3000X	SHB-3000M
Siła testowa (N)	612.9 980 1226 1839 2452 4900 7355 9800 14700 29400		
Siła testowa (g)	62.5 100 125 187.5 250 500 750 1000 1500 3000		
Zakres badawczy	8-650 HBW		
Rozdzielczość wyświetlanej wartości twardości	<table><tr><td>Zakres twardości (HBW)</td><td>≤125</td><td>125-225</td><td>＞225</td></tr><tr><td>Maks. tolerancja %</td><td>±3</td><td>±2.5</td><td>±2.0</td></tr><tr><td>Powtarzalność %</td><td>≤3.5</td><td>≤3.0</td><td>≤2.5</td></tr></table>		
Powiększenie mikroskopu	20X	20X	15X
Min. rozdzielczość mikroskopu	0.005mm	0.00125mm	0.00125mm
Maksymalna wysokość próbki	225mm		
Maksymalna Odległość od środka wgłębnika do przewężenia przyrządu	135mm		
Zasilanie	AC220V/50Hz		
Wymiar zwiększony	893x720x470mm		
Waga brutto/netto	160/130kg		
Główne akcesoria	Kowadełko: Duże, małe, V-kształtne Wgłębniki kulkowe ze stali stopowej: ¢ 2.5mm, ¢ 5mm i ¢ 10mm Jeden mikroskop: 20X 15X (SHB-3000M) Dwa wzorce twardości		
Akcesoria opcjonalne:	SHB-3000X ma w opcji matrycę CCD, oprogramowanie		





◆The directions for 0.102F/D2 ratios selecting according to the materials and hardness range can be showing on the screen.

Specification list:

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		
Accuracy of indention measureing:	±0.5% (SHB-3000E with 20X lens, resolution is 0.005mm)		
Accuracy of Brinell Hardness Value:	Hardness Range(HBW)	Error (%)	Repeatability(%)
	≤ 125	± 2.5 (SHB-3000E ±3.0)	≤ 3.0
	125 < HBW ≤ 225	± 2.0 (SHB-3000E ±2.5)	≤ 2.5
	> 225	± 1.5 (SHB-3000E ±2.0)	≤ 2.0
Max measurable height:	(SHB-3000A:200 mm); (SHB-3000S:230 mm); (SHB-3000E:230 mm)		
Max measurable depth:	140 mm		
Dimensions:	530mm×260mm×750mm		
Power supply:	220/110 V, 50/60 Hz, 4A		
Weight:	110kg		
Standard blocks:	125-350HBW10/3000, 125-350HBW10/1000		

Brinell Hardness Tester SHB-3000A/S/E

Applied fields:

The Brinell hardness testing creates the largest indentation comparing all other hardness testing methods. It is able to reflect the comprehensive features of the material, and is unaffected by the microstructure and inhomogeneous of the specimen. So it with high precision and widely used in industry such as metallurgy, forging, casting, unhardened steel and nonferrous metals, as well as in the laboratories, universities , and scientific research institutes. Conforms to: standard ISO6506, standard ASTM E-10

SHB-3000A (Integrated CCD Camera style)	SHB-3000S (Separated CCD Camera style)	SHB-3000E (Equipped with a 20X optical microscope, economic type)
		
Equipped with the special Brinell indention measure system which can measure the Brinell indention accurately, quickly, reliably. It is a new measuring method by using CCD camera to capture the indention image, instead of reading diameter from optical microscope.	Separated CCD Camera make the test more flexible and movable. The special Brinell indention measure system can measure the Brinell indention accurately, quickly, reliably. It is a new measuring method by using CCD camera to capture the indention image, instead of reading diameter from optical microscope.	Equipped with a 20X optical microscope to measure the diameter of Brinell indention. It is an economic scheme for Brinell testing. Brinell Hardness Caculator (BHC) make the hardness value caculation more easier and convenient.

Brief Introductions:

◆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 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.

◆The whole weight of the tester is 50% less than the traditional dead weights type tester.

◆Test load selection by keyboard and LCD screen. No need of handling heavy weights or cleaning the messy oil.

◆Fully automatic test cycles. The hardness Tester features a fully automatic test cycle, load application, holding, unloading, is performed fully automaticly. This greatly improves reproducibility of test results since operator influence is eliminated.

◆Selectable dwell times by screen. The indenter, load, and other test informations are showing clearly on the large LCD screen.

Twardościomierze Rockwell'a

SHRS-450 Serie Twardościomierzy powierzchniowych Rockwella

Krótkie wprowadzenie:

SHR-450M jest wydajnym i niedrogim Twardościomierzem powierzchniowym Rockwella charakteryzującym się dużą dokładnością, niezawodnością i trwałością, jest on stosowany w warsztatach i oddziałach pomiarowych dla określenia twardości Rockwella metali żelaznych i nieżelaznych.
W SHRS-450E zastosowano koncepcję elektrycznego przyłożenia siły testowej, siła obciążenia 15, 30, 45 kg jest wybierana pokrętłem, siła testowa jest przykładana przełącznikiem, a wynik badania: HRA, HRB, HRC jest pokazywany na wskaźniku analogowym.
W SHRS-450D zastosowano koncepcję elektrycznego przyłożenia siły testowej, z wyjątkiem sytuacji podnoszenia kowadełka i wybierania siły testowej, inne operacje są całkowicie zautomatyzowane, a siła testowa, czas zatrzymania, proces przykładania siły i odciążenia, oraz wyniki badania są wyświetlane na ekranie LCD, co pozwala uniknąć błędów spowodowanych przez człowieka i zwiększa dokładność pomiaru, w międzyczasie, wbudowana mini-drukarki pozwala na nagrywanie i drukowanie głównych danych pomiarowych zmniejszając intensywność ludzkiej pracy.


SHRS-450M


SHRS-450E


SHRS-450D

Technical Specifications

Model	SHRS-450M	SHRS-450E	SHRS-450D
Charakterystyka	Ręczny	Napęd elektryczny	Odczyt cyfrowy
Wyświetlacz twardości	Wskaźnik	Wskaźnik	Odczyt cyfrowy
Czas zatrzymania	2~30s	2~30s	2-60s
Zasilanie	-	AC220V±5%/50Hz	AC220V±5%/50Hz
Skale Rockwella	HR15N, HR30N, HR45N HR15T, HR30T, HR45T		
Początkowa siła testowa	29 N(3kg)		
Wszystkie siły testowe	147N(15kg), 294N(30kg), 441N(45kg)		
Maksymalna wysokość próbki	170mm		
Maksymalna szerokość próbki	160mm		
Wymiary maszyny	655X375X960		
Gross/net weight	120/80kg		
Główne akcesoria	Wgłębnik diamentowy, Wgłębnik Kulka Φ 1,588, Duży stół badawczy, Średni stół badawczy, Stół badawczy w kształcie V, Wzorce, Interfejs RS-232, Kabel zasilający, itp.		
Akcesoria opcjonalne:	Wgłębnik Kulka stalowa Φ 3,17 mm, Φ 6,35 mm, Φ 12,7 mm		

SHR-1500 Twardościomierz Rockwella

Krótkie wprowadzenie:

Seria SHR-1500 jest serią wydajnych i niedrogich Twardościomierzy Rockwella charakteryzujących się dużą dokładnością, niezawodnością i trwałością, są one stosowane w warsztatach i oddziałach pomiarowych dla określenia twardości Rockwella metali żelaznych i nieżelaznych.

Cechy urządzenia:

W serii SHR-1500 zastosowano mechaniczny cykl badania bez konieczności stosowania elektryki, siła obciążenia 60, 100, 150 kg jest wybierana pokrętłem, siła testowa jest ręcznie przykładana dźwignią, a wynik badania: HRA, HRB, HRC jest pokazany na wskaźniku.

Dane techniczne:

Model	SHR-1500M	SHR-1500E	SHR-1500D
Charakterystyka	Ręczna	Napęd elektryczny	Odczyt cyfrowy
Wyświetlacz twardości	Wskaźnik	Wskaźnik	Odczyt cyfrowy
Czas zatrzymania	2~30s	2~30s	2~60s
Zasilanie	-	AC220V±5%/50Hz	AC220V±5%/50Hz
Skale Rockwella	HRA, HRB, HRC,		
	HRA, HRB, HRC,HRD, HRE, HRF, HRG, HRH, HRK, (SHR-1500D)		
Początkowa siła testowa	98 N(10kg)		
Wszystkie siły testowe	588N(60kg), 980N(100kg), 1471N(150kg)		
Maksymalna wysokość próbki	170mm		
Maksymalna szerokość próbki	160mm		
Wymiary maszyny	655X375X960		
Waga brutto/netto	120/80kg		
Main accessories	Wgłębnik diamentowy, Wgłębnik Kulka Φ 1,588, Duży stół badawczy, Średni stół badawczy, Stół badawczy w kształcie V, Wzorce, Interfejs RS-232, Kabel zasilający, itp.		
Optional accessories:	Wgłębnik Kulka stalowa Φ 3,17 mm, Φ 6,35 mm, Φ 12,7 mm		

SHR-3000 Digital Rockwell Hardness Tester

◆Horizontal protrudent Indenter Design, suitable also for internal and external testing.

◆Testing on Surfaces difficult to reach. Testing internal surface of rings and tubes with diameters over 33mm. (Min dia.15mm using a goose neck)

◆Can be used directly to measure Rockwell hardness for metal and plastic material.

◆Provided with many features such as high measuring precision, wide measuring range with 15 Rockwell scales.

◆The tester is suitable for testing of carbon steel, alloy steel, cast iron, non ferrous metal, and engineering plastic etc.

◆Automatic load cycle. The loading, dwell, unloading λprocess of the main test force are controlled exactly to meet standard.

◆Measuring results digitally displaying and can be printed, or transmitted to external computer automatically by USB or RS-232 data output port.

◆Test value can be transformed to the value of HB, HV, HLD, HK and value.

◆The tester meeting the following standards such as GB/T230.2, ISO 6508-2, ASTM E18 and BS EN ISO6508-2.

Specification list:

Model	SHR-3000
Preload	10kgf (98.1N)
Total test force	60kgf (588.4N), 100kgf (980.7N), 150kgf λ(1471N)
Scales	HRA，HRB，HRC，HRD，HRE，HRF, HRG，HRH，HRK，HRL，HRM，HRP, HRR，HRS，HRV
Load dwell duration	2s～50s, can be set and stored
Resolution	0.1HR
Display	High definition backlight LCD
Operation	Menu selectable, Membrane keypad
Upper/lower limits	setting & alarming
Data statistics	Avg., Max., Min., S, R available
Curved surface correcting	automatically
Memory	Max 500 items of test results stored automatically
Data output	USB port to external PC, RS-232 to micro λprinter
Testing space	260mm in vertical, 150mm in horizontal
Dimensions	710mm×210mm×830mm
Power supply	AC, 220V/110V, 50～60Hz, 4A
Net weight	90kg

Standard configuration:		Optional Accessories:	
Host machine	1	other Standard hardness block(made in China)	1
Standard hardness block for A scale	1	USA ASTM E18 Standard hardness block（made in USA）	1
Standard hardness block for B scale	1	Φ230mm Flat table	1
Standard hardness block for C scale	1	Φ150mm Flat table	1
ball indenter (Φ1.5875mm)	1	Point type flat table	1
120°cone diamond indenter	1	(Φ 12.7mm) ball press	1
Mounting screws for indenter	1	(Φ 6.35mm) ball press	1
Flat anvil	1	(Φ 3.175mm) ball press	1
“V ”shape anvil	1	Printer	1
Power supply wire	1	USB cable	1
Screwdriver for indenter mounting	1	PC	1
Dust cover	1	software	1

SHR-3100 Digital Rockwell Superficial Hardness Tester

◆Horizontal protrudent Indenter Design, suitable also for internal and external testing.

◆Testing on Surfaces difficult to reach. Testing internal surface of rings and tubes with diameters over 33mm. (Min dia.15mm using a goose neck)

◆Can be used directly to measure Rockwell superficial hardness for metal and plastic material.

◆Provided with many features such as high measuring precision, wide measuring range with 15 Rockwell superficial scales.

◆The tester is suitable for testing of carbon steel, alloy steel, cast iron, non ferrous metal, and engineering plastic etc., especially small and thin parts.

◆Automatic load cycle. The loading, dwell, unloading process of the main test force are controlled exactly to meet standard.

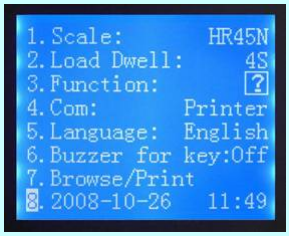
◆Measuring results digitally displaying and can be printed, or transmitted to external computer automatically by USB or RS-232 data output port.

◆Test value can be transformed to the value of HB, HV, HLD, HK and value.

◆The tester meeting the following standards such as GB/T230.2, ISO 6508-2, ASTM E18 and BS EN ISO6508-2.

Specification list:

Model	SHR-3100
Preload	3kgf（29.4N）
Total test force	15kgf (147.1N), 30kgf (294.3N), 45kgf (441.3N)
Scales	HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, λHR30W, HR45W,HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y
Load dwell duration	2s～50s, can be set and stored
Resolution	0.1HR
Display	High definition backlight LCD
Operation	Menu selectable, Membrane keypad
Upper/lower limits	setting & alarming
Data statistics	Avg., Max., Min., S, R available
Curved surface correcting	automatically
Memory	Max 500 items of test results stored automatically
Data output	USB port to external PC, RS-232 to micro printer
Testing space	260mm in vertical, 150mm in horizontal
Dimensions	710mm×210mm×830mm
Power supply	AC, 220V/110V, 50～60Hz, 4A
Net weight	70kg



Standard configuration		Optional Accessories:	
Host machine	1	other Standard hardness block(made in Chian)	1
Standard hardness block for 30N scale	1	USA ASTM E18 Standard hardness block（made in USA）	1
Standard hardness block for 30T scale	1	Φ230mm Flat table	1
ball indenter (Φ1.5875mm)	1	Φ150mm Flat table	1
120°cone diamond indenter	1	Point type flat table	1
Mounting screws for indenter	1	(Φ 12.7mm) ball press	1
Flat anvil	1	(Φ 6.35mm) ball press	1
“V ”shape anvil	1	(Φ 3.175mm) ball press	1
Power supply wire	1	Printer	1
Screwdriver for indenter mounting	1	USB cable	1
Dust cover	1	PC	1
		software	

SHR-3200 Digital Rockwell / Superficial Rockwell Hardness Tester (Twin type tester)

◆Twin tester--Regular Rockwell & Rockwell Superficial hardness for metal and plastic material.
◆Horizontal protrudent Indenter Design, suitable also for internal and external testing.
◆Testing on Surfaces difficult to reach. Testing internal surface of rings and tubes with diameters over 33mm. (Min dia.15mm using a goose neck)
◆Can be used directly to measure Rockwell hardness for metal and plastic material.
◆Provided with many features such as high measuring precision, wide measuring range with 30 Rockwell scales.
◆The tester is suitable for testing of carbon steel, alloy steel, cast iron, non ferrous metal, and engineering plastic etc.
◆Automatic load cycle. The loading, dwell, unloading process of the main test force are controlled exactly to meet standard.
◆Measuring results digitally displaying and can be printed, or transmitted to external computer automatically by USB or RS-232 data output port.
◆Test value can be transformed to the value of HB, HV, HLD, HK and value.
◆The tester meeting the following standards such as GB/T230.2, ISO 6508-2, ASTM E18 and BS EN ISO6508-2.

Specification list:

Model	SHR-3200
Preload	3kgf（29.4N）10kgf (98.1N)
Total test force	15kgf (147.1N), 30kgf (294.3N), 45kgf (441.3N),60kgf (588.4N), 100kgf (980.7N), 150kgf (1471N)
Scales	A, B, C, D, E, F, G, H, K, L, M, P, R, S, V, 15N, λ30N, 45N, 15T, 30T, 45T, 15W, 30W, 45W, 15X, 30X, 45X, 15Y, 30Y, 45Y
Load dwell duration	2s～50s, can be set and stored
Resolution	0.1HR
Display	High definition backlight LCD
Operation	Menu selectable, Membrane keypad
Upper/lower limits	setting & alarming
Data statistics	Avg., Max., Min., S, R available
Curved surface correcting	automatically
Memory	Max 400 items of test results stored automatically
Data output	USB port to external PC, RS-232 to micro printer
Testing space	260mm in vertical, 150mm in horizontal
Dimensions	710mm×210mm×830mm
Power supply	AC, 220V/110V, 50～60Hz, 4A
Net weight	95kg

Standard configuration		Optional Accessories	
Host machine	1	other Standard hardness block(made in Chian)	1
Standard hardness block for A scale	1	USA ASTM E18 Standard hardness block（made in USA）	1
Standard hardness block for B scale	1	Φ230mm Flat table	1
Standard hardness block for C scale	1	Φ150mm Flat table	1
Standard hardness block for 30N scale	1	Point type flat table	1
Standard hardness block for 30T scale	1	(Φ 12.7mm) ball press	1
ball indenter (Φ1.5875mm)	1	(Φ 6.35mm) ball press	1
120°cone diamond indenter	1	(Φ 3.175mm) ball press	1
Mounting screws for indenter	1	Printer	1
Flat anvil	1	USB cable	1
“V ”shape anvil	1	PC	1
Power supply wire	1	software	1
Screwdriver for indenter mounting	1		1
Dust cover	1		1

SHRA-450 Automatic Rockwell Superficial Hardness Tester

Instrument Features:

◆SHRA-450 can be used directly to measure Rockwell Superficial hardness for metal and plastic material.

◆Provided with many features such as high measuring precision, wide measuring range with 15 Rockwell scales.

◆Automatic test force switch according the selected scale without manual operation.

◆Automatic load cycle. The loading, dwell, unloading process of the main test force are controlled exactly to meet standard.

◆Measuring results digitally displaying and can be printed, or transmitted to external computer automatically.

◆The tester is suitable for testing of carbon steel, alloy steel, cast iron, non ferrous metal, and engineering plastic etc.,especially small and thin parts.

◆Test value can be transformed to the value of HB, HV, HK and σb value.

◆The tester meets all the following standards such as ISO 6508-2, ASTM E18, BS EN ISO6508-2, GB/T230.2.

Technical Specifications：

Model	SHRA-450	SHRA-450P
Preload	29.4N（3kgf）	
Total test force	147.1N(15kgf), 294.3N(30kgf), 441.3N(45kgf)	
Scales	HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y	
Load cycle	3～8s	
Load dwell duration	2～50s, can be set	
Resolution	0.1HR	
Display	High definition backlight LCD	
Operation	Menu selectable, Membrane keypad	
Upper/lower limits setting & alarming	Upper/lower limits setting & alarming	
Data statistics	Avg., Max., Min., S, R available	
Curved surface correcting automatically	Curved surface correcting automatically	
Memory	Max 500 items of test results stored automatically	
Data output:	RS-232 to micro printer, USB port to	RS-232 to USB port to external PC
Printer	-	Built in micro printer
Testing space	200mm in vertical, 165mm in horizontal	
Dimensions	550mm×200mm×720mm	
Power supply	AC, 220V/110V, 50～60Hz, 4A	
Net weight	90kg	

SHRA-450P Automatic Rockwell Superficial Hardness Tester

Instrument Features:

- SHRA-450 can be used directly to measure Rockwell Superficial hardness for metal and plastic material.
- Provided with many features such as high measuring precision, wide measuring range with 15 Rockwell scales.
- Automatic test force switch according the selected scale without manual operation.
- Automatic load cycle. The loading, dwell, unloading process of the main test force are controlled exactly to meet standard.
- Measuring results digitally displaying and can be printed, or transmitted to external computer automatically.
- The tester is suitable for testing of carbon steel, alloy steel, cast iron, non ferrous metal, and engineering plastic etc.,especially small and thin parts.
- Test value can be transformed to the value of HB, HV, HK and σb value.
- The tester meets all the following standards such as ISO 6508-2, ASTM E18, BS EN ISO6508-2, GB/T230.2.

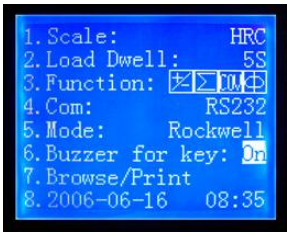
Technical Specifications：

Model	SHRA-450	SHRA-450P
Preload	29.4N（3kgf）	
Total test force	147.1N(15kgf), 294.3N(30kgf), 441.3N(45kgf	
Scales	HR15N, HR30N, HR45N, HR15T, HR30T, HR45T, HR15W, HR30W, HR45W, HR15X, HR30X, HR45X, HR15Y, HR30Y, HR45Y	
Load cycle	3～8s	
Load dwell duration	2～50s, can be set	
Resolution	0.1HR	
Display	High definition backlight LCD	
Operation	Menu selectable, Membrane keypad	
Upper/lower limits setting & alarming	Upper/lower limits setting & alarming	
Data statistics	Avg., Max., Min., S, R available	
Curved surface correcting automatically	Curved surface correcting automatically	
Memory	Max 500 items of test results stored automatically	
Data output:	RS-232 to micro printer, USB port to external PC	RS-232 to USB port to external PC
Printer	-	Built in micro printer
Testing space	200mm in vertical, 165mm in horizontal	
Dimensions	550mm×200mm×720mm	
Power supply	AC, 220V/110V, 50～60Hz, 4A	
Net weight	90kg	

SHRA-1500 Digital Automatic Rockwell Hardness Tester

Instrument Features:

◆SHRA-1500 can be used directly to measure Rockwell hardness for metal and plastic material.
◆Provided with many features such as high measuring precision, wide measuring range with 15 Rockwell scales.
◆Automatic test force switch according the selected scale without manual operation.
◆Automatic load cycle. The loading, dwell, unloading process of the main test force are controlled exactly to meet standard.
◆Measuring results digitally displaying and can be printed, or transmitted to external computer automatically.
◆The tester is suitable for testing of carbon steel, alloy steel, cast iron, non ferrous metal, and engineering plastic etc.
◆Test value can be transformed to the value of HB, HV, HLD, HK and σb value.
◆The tester meets all the following standard such as ISO 6508-2, ASTM E18, BS EN ISO6508-2, GB/T230.2.



Technical Specifications:

Model	SHRA-1500	SHRA-1500P
Preload	98.1N (10kgf)	
Total test force	588.4N (60kgf), 980.7N (100kgf), 1471N (150kgf)	
Scales	HRA，HRB，HRC，HRD，HRE，HRF, HRG，HRH，HRK，HRL，HRM，HRP, HRR，HRS，HRV	
Load cycle	3～8s	
Load dwell duration	2～50s, can be set	
Resolution	0.1HR	
Display	High definition backlight LCD	
Operation	Menu selectable, Membrane keypad	
Data statistics	Avg., Max., Min., S, R available	
Curved surface correcting	automatically	
Memory	Max 500 items of test results stored automatically	
Data output	RS-232 to micro printer, USB port to external PC	RS-232 to USB port to external PC
printer	-	Built in micro printer
Testing space	200mm in vertical, 165mm in horizontal	
Dimensions	550mm×200mm×720mm	
Power supply	AC, 220V/110V, 50～60Hz, 4A	
Net weight	100kg	

SHRA-1500P Digital Automatic Rockwell Hardness Tester

Instrument Features:

- SHRA-1500 can be used directly to measure Rockwell hardness for metal and plastic material.
- Provided with many features such as high measuring precision, wide measuring range with 15 Rockwell scales.
- Automatic test force switch according the selected scale without manual operation.
- Automatic load cycle. The loading, dwell, unloading process of the main test force are controlled exactly to meet standard.
- Measuring results digitally displaying and can be printed, or transmitted to external computer automatically.
- The tester is suitable for testing of carbon steel, alloy steel, cast iron, non ferrous metal, and engineering plastic etc.
- Test value can be transformed to the value of HB, HV, HLD, HK and σb value.
- The tester meets all the following standard such as ISO 6508-2, ASTM E18, BS EN ISO6508-2, GB/T230.2.

Technical Specifications：

Model	SHRA-1500	SHRA-1500P
Preload	98.1N (10kgf)	
Total test force	588.4N (60kgf), 980.7N (100kgf), 1471N (150kgf)	
Scales	HRA, HRB, HRC, HRD, HRE, HRF, HRG, HRH, HRK, HRL, HRM, HRP, HRR, HRS, HRV	
Load cycle	3～8s	
Load dwell duration	2～50s, can be set	
Resolution	0.1HR	
Display	High definition backlight LCD	
Operation	Menu selectable, Membrane keypad	
Data statistics	Avg., Max., Min., S, R available	
Curved surface correcting	automatically	
Memory	Max 500 items of test results stored automatically	
Data output:	RS-232 to micro printer, USB port to external PC	RS-232 to USB port to external PC
printer	-	Built in micro printer
Testing space	200mm in vertical, 165mm in horizontal	
Dimensions	550mm×200mm×720mm	
Power supply	AC, 220V/110V, 50～60Hz, 4A	
Net weight	100kg	

Twardościomierze Vickers'a

SHVS-500 Twardościomierz Vickersa
Seria twardościomierzy Vickersa SHVS

Cechy urządzenia:

Seria SHVS jest doskonałą serią twardościomierzy Vickersa jednoczy w sobie technologię z dziedziny optyki, mechaniki, elektroniki oraz komputer. Jest to maszyna do badania twardości w skali Vickersa, i jest ona powszechnie stosowana w badawczych organizacjach naukowych, fabrykach i oddziałach kontroli twardości materiału.

Zastosowania:

Metale żelazne, metale nieżelazne, cienkie sekcje układów scalonych, powłoki, bimetale; Szkło, ceramika, agat, kamieni szlachetnych, cienkie plastikowe części, itp.;
Badania twardości, takie jak głębokość i wymiary trapezu dla warstw uwęglonych i utwardzonych poprzez hartowanie.

Dane techniczne:

Model	SHVS-500	SHVS-1000	SHVS-3000	SHVS-5000
	SHVS-500P	SHVS-1000P	SHVS-3000P	SHVS-5000P
	SHVS-500Z	SHVS-1000Z	SHVS-3000Z	SHVS-5000Z
Siła testowa	1.961N (0.2kg) 2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg)	2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg)	4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg)	9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg) 490.3N (50kg)
Powiększenie mikroobiektywu	200×/400×	100×/400×	100×/200×	100×/200×
Rozdzielczość	0.0625μm		0.125 μm	
Zakres badawczy	1HV-2967HV			
Przełącznik Obiektyw/Wgłębnik	SHVS SHVS-P przełącznik ręczny obiektywu 10x, 20x i wgłębnika			
	SHVS-Z jest automatyczny (Automatyczna głowica rewolwerowa)			
Drukarka	SHVS-P SHVS-Z z drukarką			
Sterowanie obciążenie	Automatyczne (przyłożenie / zatrzymanie / odciążenie)			
Powiększenie obiektywu	10X , 20x, 40x (dla obserwacji i pomiaru)			
Powiększenie Okularu	10x			
Czas zatrzymania	5～60s			
Maksymalna wysokość próbki	170mm			
Przewężenie przyrządu	130mm			
Zasilanie	AC220V/50Hz; AC110V/60Hz			
Wymiary / Waga brutto/netto	620X450X740mm 65/55Kg			
Główne akcesoria	Wgłębnik Vickersa; Wzorzec twardości Vickersa; Obiektyw; Cyfrowa soczewka okularu 10X; Stolik testowy X-Y; Kowadło V-kształtne; Duży stolik, śruba regulacyjna; Poziomica; Kabel RS232.			
Akcesoria opcjonalne:	adapter CCD, CCD, PC, oprogramowanie twardościomierza ekran LCD 8"			

SHVS-1000 Vickers hardness tester

Instrument Features:

SHVS- series is a excellent Vickers hardness tester integrates with technology of optics, mechanics, electronics and computer. It is the hardness testing machine for Vickers scale, and it is widely used in scientific research organization, factory and quality inspection department for the hardness testing of material.

Applications:

Ferrous metals, non-ferrous metals, IC thin sections, coating, ply-metals;
Glass, ceramics, agate, precious stone, thin plastic sections, etc;
Hardness testing such as that on the depth and the trapezium of the carbonized layers and quenched layers

Dane techniczne:

Model	SHV-500M	SHV-1000M	SHV-3000M	SHV-5000M
Testing Force	1.961N (0.2kg) 2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg)	2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg)	4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg)	9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg) 490.3N (50kg)
Magnifying of micro objective	2000×/400×	100×/400×	100×/200×	100×/200×
Resolution	0.0625μm		0.125 μm	
Testing Range	1HV-2967HV			
Objective/Indenter Switch	SHVS SHVS-P Manual switch of 10x, 20x objective and indenter			
	SHVS-Z is Automatic (Auto-Turret)			
Printer	SHVS-P SHVS-Z with printer			
Loading Control	Automatic (loading / dwell / unloading)			
Magnification of Objective	10x ,20x, 40x (For Observation& Measurement)			
Magnification of Eyepiece	10x			
Dwell Time	5～60s			
Max. Height of Specimen	170mm			
Instrument Throat	130mm			
Power Supply	AC220V/50Hz; AC110V/60Hz			
Dimension/ Gross/Net Weight	620X450X740mm 65/55Kg			
Main accessories	vickers indenter; vickers hardness block; Objective; 10x digtial eyepiece lens; X-Y test stage; V-shape anvil; big stage, adjustable screw; level; RS232 cable.			
Optional accessories:	CCD adapter, CCD, PC, hardness testing software, 8" LCD screen			

SHVS-3000 Vickers hardness tester

Instrument Features:

SHVS- series is a excellent Vickers hardness tester integrates with technology of optics, mechanics, electronics and computer. It is the hardness testing machine for Vickers scale, and it is widely used in scientific research organization, factory and quality inspection department for the hardness testing of material.

Applications:

Ferrous metals, non-ferrous metals, IC thin sections, coating, ply-metals;
Glass, ceramics, agate, precious stone, thin plastic sections, etc;
Hardness testing such as that on the depth and the trapezium of the carbonized layers and quenched layers

Dane techniczne:

Model	SHV-500M	SHV-1000M	SHV-3000M	SHV-5000M
Testing Force	1.961N (0.2kg) 2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg)	2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg)	4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg)	9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg) 490.3N (50kg)
Magnifying of micro objective	2000×/400×	100×/400×	100×/200×	100×/200×
Resolution	0.0625μm		0.125 μm	
Testing Range	1HV-2967HV			
Objective/Indenter Switch	SHVS SHVS-P Manual switch of 10x, 20x objective and indenter			
	SHVS-Z is Automatic (Auto-Turret)			
Printer	SHVS-P SHVS-Z with printer			
Loading Control	Automatic (loading / dwell / unloading)			
Magnification of Objective	10x ,20x, 40x (For Observation& Measurement)			
Magnification of Eyepiece	10x			
Dwell Time	5～60s			
Max. Height of Specimen	170mm			
Instrument Throat	130mm			
Power Supply	AC220V/50Hz; AC110V/60Hz			
Dimension/ Gross/Net Weight	620X450X740mm 65/55Kg			
Main accessories	vickers indenter; vickers hardness block; Objective; 10x digtial eyepiece lens; X-Y test stage; V-shape anvil; big stage, adjustable screw; level; RS232 cable.			
Optional accessories:	CCD adapter, CCD, PC, hardness testing software, 8" LCD screen			

SHVS-5000 Vickers hardness tester

Instrument Features:

SHVS- series is a excellent Vickers hardness tester integrates with technology of optics, mechanics, electronics and computer. It is the hardness testing machine for Vickers scale, and it is widely used in scientific research organization, factory and quality inspection department for the hardness testing of material.

Applications:

Ferrous metals, non-ferrous metals, IC thin sections, coating, ply-metals;
Glass, ceramics, agate, precious stone, thin plastic sections, etc;
Hardness testing such as that on the depth and the trapezium of the carbonized layers and quenched layers

Dane techniczne:

Model	SHV-500M	SHV-1000M	SHV-3000M	SHV-5000M
Testing Force	1.961N (0.2kg) 2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg)	2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg)	4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg)	9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg) 490.3N (50kg)
Magnifying of micro objective	2000×/400×	100×/400×	100×/200×	100×/200×
Resolution	0.0625μm		0.125 μm	
Testing Range	1HV-2967HV			
Objective/Indenter Switch	SHVS SHVS-P Manual switch of 10x, 20x objective and indenter			
	SHVS-Z is Automatic (Auto-Turret)			
Printer	SHVS-P SHVS-Z with printer			
Loading Control	Automatic (loading / dwell / unloading)			
Magnification of Objective	10x ,20x, 40x (For Observation& Measurement)			
Magnification of Eyepiece	10x			
Dwell Time	5～60s			
Max. Height of Specimen	170mm			
Instrument Throat	130mm			
Power Supply	AC220V/50Hz; AC110V/60Hz			
Dimension/ Gross/Net Weight	620X450X740mm 65/55Kg			
Main accessories	vickers indenter; vickers hardness block; Objective; 10x digtial eyepiece lens; X-Y test stage; V-shape anvil; big stage, adjustable screw; level; RS232 cable.			
Optional accessories:	CCD adapter, CCD, PC, hardness testing software, 8" LCD screen			

SHV-500M Twardościomierz Vickersa - Duży ekran LED
Seria twardościomierzy Vickersa SHV （Duży ekran LED）

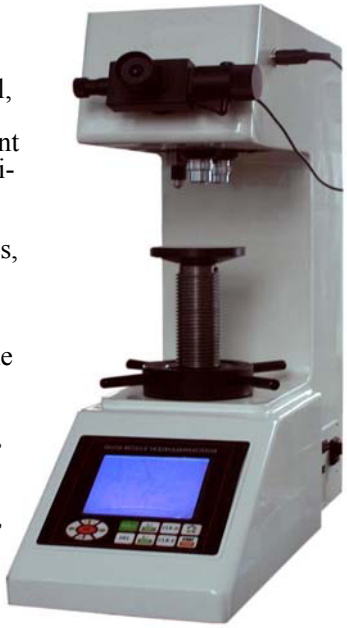
Cechy urządzenia:

1. Cyfrowy twardościomierz Vickersa jest wysoko-technologicznym produktem nowego typu łączącym w sobie technologię optyczną, mechaniczną i elektroniczną; posiada nowy i przyjemny wygląd, duży wyświetlacz LCD, bezpośredni podgląd, funkcje operacyjne i niezawodność, dlatego jest idealnym narzędziem do badania twardości Vickersa. Jest on wyposażony w funkcję automatycznego przełączania pomiędzy wgłębnikiem i obiektywem.
2. W twardościomierzu zastosowano takie techniki jak precyzyjna konstrukcja mechaniczna, a w zakresie optyki większe wzmocnienie obiektywu oraz cyfrowy mikrookular, itp.
3. Ze powodu zastosowania zamkniętych obwodów w systemie sterowania obciążeniem, wzrosła dokładność wyznaczania siły testowej, a także uległa polepszeniu powtarzalność oraz stabilność wyświetlania wartości. Zastosowanie tego systemu w twardościomierzu Vickersa jest pomysłem autorskim.
4. Za pomocą przycisków dotykowych na panelu sterowniczym, można: zaprogramować czas zatrzymania siły testowej, regulować intensywność źródła światła, wybrać metodę pomiaru twardości - Vickersa lub Knoopa, wymieniać skale twardości i przechowywać pliki, itp. Wszystkie dane z badań, takie jak długość wgłębienia, wartość twardości, liczba pomiarów, rok, miesiąc, dzień i godzina, są wyświetlane na ekranie LCD. Można sprawdzać wyniki i obrabiać dane, a także wydrukować na drukarce. Za pomocą interfejsu RS232, przyrząd może zostać podłączony do komputera.
5. Zgodnie ze szczególnymi wymogami klienta, przyrząd może zostać wyposażony w matrycę CCD w celu umożliwienia pomiaru wideo i auto-pomiaru obrazowego. Przyrząd jest odpowiedni do badania mikro- i cienkich elementów, części z powierzchnią przejrzystą i pokrytą, nadaje się również do badania wartości twardości Vickersa dla materiałów kruchych, takich jak agat, szkło, i w związku z tym jest on idealnym przyrządem do pomiaru twardości dla instytutów naukowo-badawczych, wyższych uczelni, jednostek produkcji przemysłowej i instytutów metrologicznych mających do czynienia z nauką i pomiarami.

Dane techniczne:

Model	SHV-500M	SHV-1000M	SHV-3000M	SHV-5000M
Siła testowa	1.961N (0.2kg) 2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg)	2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg)	4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg)	9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg) 490.3N (50kg)
Siła testowa	2000×/400×	100×/400×	100×/200×	100×/200×
Rozdzielczość	0.0625μm		0.125 μm	
Zakres badawczy	1HV-2967HV			
Model pomiaru	HV/HK			
Zmiana skali	HB, HRC, HRA, HRB, HRN, HRT			
Przełącznik Obiektyw/Wgłębnik	Automatyczna głowica rewolwerowa			
Drukarka	Wbudowana mini-drukarka			
Sterowanie obciążeniem	Automatyczne			
Powiększenie Okularu	10x			
Czas zatrzymania	5～60s			
Maksymalna wysokość próbki	170mm			
Przewężenie przyrządu	130mm			
Zasilanie	AC220V/50Hz; AC110V/60Hz			
Wymiary / Waga brutto/netto	530×225×630 65/50Kg			
Główne akcesoria	Wgłębnik Vickersa; Wzorzec twardości Vickersa; Obiektyw; Cyfrowa soczewka okularu 10x; Stolik testowy X-Y; Kowadło V-kształtne; Duży stolik, śruba regulacyjna; Poziomica; Kabel RS232.			
Akcesoria opcjonalne:	Adapter CCD, matryca CCD, PC, oprogramowanie twardościomierza ekran LCD 8"			

SHV-500M Vickers Hardness Tester -Big LED Screen_Copy



Instrument Features:

1. The Digital Vickers Hardness Tester is a new type high-tech product combining the optical, mechanic and electronic techniques; with a large LCD screen display, a novel and pleasing appearance, direct-viewing, operational functions and reliability, hence it is an ideal instrument for the testing of Vickers hardness. It has an auto-shifting device between indenter and objectives.

2. The hardness tester is adopted such techniques as a precise design in the field of mechanics, a higher amplification objectives and digital micro eyepiece in optics field, etc.

3. Due to adopt the closed-circuits in loading control system, it makes the accuracy of test force higher, the repeatability and stability of displaying values better. It is the initiate of home to adopt this system on Vickers hardness tester.

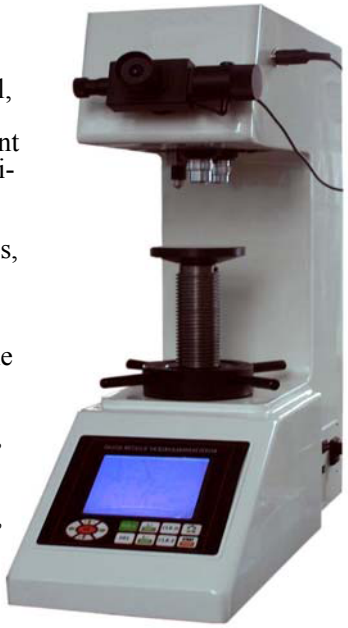
4. By means of touch keys on the operating board, the dwell time for test force can be preset, the luminosity of light source can be regulated, Vickers or Knoop measuring method can be selected, hardness scales can be exchanged and files can be stored, etc. All the testing data such as the indentation length, the hardness value, the number of the measurements, and year, month, day, and time are all shown on the LCD screen. It can test result and handle data, and output by printer as well. By means of RS232 interface, the instrument would be connected with computer.

5. According to the particular requirements of the client, the instrument can be equipped with CCD device to enable the video measuring and auto image measuring. The instrument is suitable for testing the micro and thin pieces, the parts with the permeated and coated surface, it is also fit for testing Vickers hardness value for the crisp materials such as the agate, glass and it is, therefore, an ideal hardness measuring instrument for the scientific research institutes, the universities, the industrial production units and the metrological institutes using with for studying and measuring.

Technical Specifications:

Model	SHV-500M	SHV-1000M	SHV-3000M	SHV-5000M
Testing Force	1.961N (0.2kg) 2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg)	2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg)	4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg)	9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg) 490.3N (50kg)
Magnifying of micro objective	2000×/400×	100×/400×	100×/200×	100×/200×
Resolution	0.0625μm		0.125 μm	
Testing Range	1HV-2967HV			
Measuring model	HV/HK			
Scale exchange	HB, HRC, HRA, HRB, HRN, HRT			
Objective/Indenter Switch	Auto-Turret			
Printer	Built in printer			
Loading Control	Auto			
Magnification of Eyepiece	10x			
Dwell Time	5～60s			
Max. Height of Specimen	170mm			
Instrument Throat	130mm			
Power Supply	AC220V/50Hz; AC110V/60Hz			
Dimension/ Gross/Net Weight	530×225×630 65/50Kg			
Main accessories	vickers indenter; vickers hardness block; Objective; 10x digtial eyepiece lens; X-Y test stage; V-shape anvil; big stage, adjustable screw; level; RS232 cable			
Optional accessories:	CCD adapter, CCD, PC, hardness testing software, 8” LCD screen			

SHV-3000M Vickers Hardness Tester -Big LED Screen



Instrument Features:

1. The Digital Vickers Hardness Tester is a new type high-tech product combining the optical, mechanic and electronic techniques; with a large LCD screen display, a novel and pleasing appearance, direct-viewing, operational functions and reliability, hence it is an ideal instrument for the testing of Vickers hardness. It has an auto-shifting device between indenter and objectives.

2. The hardness tester is adopted such techniques as a precise design in the field of mechanics, a higher amplification objectives and digital micro eyepiece in optics field, etc.

3. Due to adopt the closed-circuits in loading control system, it makes the accuracy of test force higher, the repeatability and stability of displaying values better. It is the initiate of home to adopt this system on Vickers hardness tester.

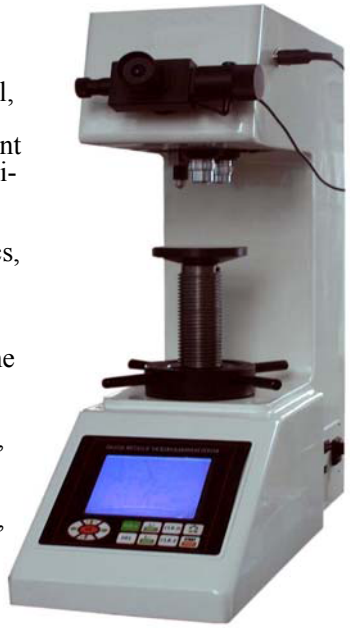
4. By means of touch keys on the operating board, the dwell time for test force can be preset, the luminosity of light source can be regulated, Vickers or Knoop measuring method can be selected, hardness scales can be exchanged and files can be stored, etc. All the testing data such as the indentation length, the hardness value, the number of the measurements, and year, month, day, and time are all shown on the LCD screen. It can test result and handle data, and output by printer as well. By means of RS232 interface, the instrument would be connected with computer.

5. According to the particular requirements of the client, the instrument can be equipped with CCD device to enable the video measuring and auto image measuring. The instrument is suitable for testing the micro and thin pieces, the parts with the permeated and coated surface, it is also fit for testing Vickers hardness value for the crisp materials such as the agate, glass and it is, therefore, an ideal hardness measuring instrument for the scientific research institutes, the universities, the industrial production units and the metrological institutes using with for studying and measuring.

Technical Specifications:

Model	SHV-500M	SHV-1000M	SHV-3000M	SHV-5000M
Testing Force	1.961N (0.2kg) 2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg)	2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg)	4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg)	9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg) 490.3N (50kg)
Magnifying of micro objective	2000×/400×	100×/400×	100×/200×	100×/200×
Resolution	0.0625μm		0.125 μm	
Testing Range	1HV-2967HV			
Measuring model	HV/HK			
Scale exchange	HB, HRC, HRA, HRB, HRN, HRT			
Objective/Indenter Switch	Auto-Turret			
Printer	Built in printer			
Loading Control	Auto			
Magnification of Eyepiece	10x			
Dwell Time	5～60s			
Max. Height of Specimen	170mm			
Instrument Throat	130mm			
Power Supply	AC220V/50Hz; AC110V/60Hz			
Dimension/ Gross/Net Weight	530×225×630 65/50Kg			
Main accessories	vickers indenter; vickers hardness block; Objective; 10x digtial eyepiece lens; X-Y test stage; V-shape anvil; big stage, adjustable screw; level; RS232 cable			
Optional accessories:	CCD adapter, CCD, PC, hardness testing software, 8” LCD screen			

SHV-5000M Vickers Hardness Tester -Big LED Screen



Instrument Features:

1. The Digital Vickers Hardness Tester is a new type high-tech product combining the optical, mechanic and electronic techniques; with a large LCD screen display, a novel and pleasing appearance, direct-viewing, operational functions and reliability, hence it is an ideal instrument for the testing of Vickers hardness. It has an auto-shifting device between indenter and objecti-ves.

2. The hardness tester is adopted such techniques as a precise design in the field of mechanics, a higher amplification objectives and digital micro eyepiece in optics field, etc.

3. Due to adopt the closed-circuits in loading control system, it makes the accuracy of test force higher, the repeatability and stability of displaying values better. It is the initiate of home to adopt this system on Vickers hardness tester.

4. By means of touch keys on the operating board, the dwell time for test force can be preset, the luminosity of light source can be regulated, Vickers or Knoop measuring method can be selected, hardness scales can be exchanged and files can be stored, etc. All the testing data such as the indentation length, the hardness value, the number of the measurements, and year, month, day, and time are all shown on the LCD screen. It can test result and handle data, and output by printer as well. By means of RS232 interface, the instrument would be connected with computer.

5. According to the particular requirements of the client, the instrument can be equipped with CCD device to enable the video measuring and auto image measuring. The instrument is suitable for testing the micro and thin pieces, the parts with the permeated and coated surface, it is also fit for testing Vickers hardness value for the crisp materials such as the agate, glass and it is, therefore, an ideal hardness measuring instrument for the scientific research institutes, the universities, the industrial production units and the metrological institutes using with for studying and measuring.

Technical Specifications:

Model	SHV-500M	SHV-1000M	SHV-3000M	SHV-5000M
Testing Force	1.961N (0.2kg) 2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg)	2.942N (0.3kg) 4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg)	4.903N (0.5kg) 9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg)	9.807N (1kg) 19.61N (2kg) 24.52N (2.5kg) 29.42N (3kg) 49.03N (5kg) 98.07N (10kg) 196.1N (20kg) 294.2N (30kg) 490.3N (50kg)
Magnifying of micro objective	2000×/400×	100×/400×	100×/200×	100×/200×
Resolution	0.0625μm		0.125 μm	
Testing Range	1HV-2967HV			
Measuring model	HV/HK			
Scale exchange	HB, HRC, HRA, HRB, HRN, HRT			
Objective/Indenter Switch	Auto-Turret			
Printer	Built in printer			
Loading Control	Auto			
Magnification of Eyepiece	10x			
Dwell Time	5～60s			
Max. Height of Specimen	170mm			
Instrument Throat	130mm			
Power Supply	AC220V/50Hz; AC110V/60Hz			
Dimension/ Gross/Net Weight	530×225×630 65/50Kg			
Main accessories	vickers indenter; vickers hardness block; Objective; 10x digtial eyepiece lens; X-Y test stage; V-shape anvil; big stage, adjustable screw; level; RS232 cable			
Optional accessories:	CCD adapter, CCD, PC, hardness testing software, 8” LCD screen			

SMVT-50Z Intelligent Digital Vickers Hardness Tester

Brief introduction:

This instrument is a new generation of Vickers hardness tester. It adopts the integrated design of hardness tester and computer; all the testing parameters can be selected on the panel computer. With touching screen, it operates quickly and conveniently and displays clearly and intuitively. With CCD image acquisition system, it can show dynamic indentation image, lock the image and automatically get the Vickers hardness value. With high measuring accuracy and stable
performance, it avoids human errors and achieves domestic advanced level.

Main features:

- Integrated design of hardness tester and computer. With Windows 7 operating system, it has all functions of computer and built-in printer. It can also be connected to the monitor, printer and other output devices.
- With three measuring objectives, automatic recognition and shifting between the objective and the indenter.
- The lifting screw adopts the worm and gear structure for smooth transmission.
- Test force application: automatic loading, dwelling and unloading.
- With the function of hardness scale conversion.
- It can automatically save the measuring data, generate the hardness-depth curve and save as WORD document.
- With built-in CCD image automatic measuring system, the indentation displays clearly and intuitively and the hardness value can be automatically got.
- It can be equipped with X-Y automatic test table (optional) to realize the automation of Vickers hardness testing.

Technical parameters:

1. Test force: 0.3, 0.5, 1, 2, 2.5, 3, 5, 10, 20, 30, 50 kg
2. Test force application method: Automatic loading, dwelling and unloading
3. Shifting method between indenter and objectives: Automatic shifting
4. Dwell time of the test force: 0~60s
5. Digital camera pixel: 1.3 million
6. Optical system:

Eyepiece	Objective	Total Amplification	Min.Test Unit
10×	10×	100×	0.25 μm
	20×	200×	0.125 μm
	40×	400×	0.0625 μm

7. Specimen:
- The Max. Height: 180 mm
- The Max. Depth: 130 mm (From the center)

8. Overall dimension (L×W×H): 560×335×635 mm

Twardościomierze Uniwersalne

SBRV-100E Wielofunkcyjny Twardościomierz z Napędem Elektrycznym

Opis:

Urządzenie służy do pomiaru twardości metali żelaznych, nieżelaznych, twardych stopów, warstw nawęglonych i warstw chemicznie obrabianych.Uniwersalna wersja urządzenia umożliwia pomiar w skali Rockwella (150-60-100 kgf), skali Brinella (31.25-62.5-187.5 kgf) oraz skali Vickersa (10-30-60-100 kgf).Mikroskop sprzężony z urządzeniem umożliwia szybkie i wiarygodne pomiary wgłębień w metodzie Brinella oraz Vickersa zarówno w wersji analogowej jak i cyfrowej. Wersja cyfrowa pozwala na określenie wartości twardości w szybki i łatwy sposób.

Specifications:

Type	Rockwell	Brinell	Vickers
Początkowa siła testowa (N)	98	98	98
Siły testowe (kgf)	60, 100, 150kgf	31.25, 62.5, 187.5kgf	10, 30, 60, 100kgf
Badanie twardości (N)	588, 980, 1471	306, 613, 1839	294,980
Powiększenie mikroskopu	37.5X, 75X	37.5X, 75X	37.5X, 75X
Maksymalna wysokość próbki	200mm	200mm	200mm
Zasilanie	AC220V 50/60Hz		
Masa netto (kg)	90		
Wymiary (mm)	546X300X767		

SBRV-100D Cyfrowy Wielofunkcyjny Twardościomierz (z ekranem LED)

Opis produktu:

Cyfrowy mikrotwardościomierz Brinella, Rockwella i Vickersa jest urządzeniem badawczym, które łączy w sobie technologię optyki, mechaniki. Cechuje go nowy wygląd, kompletne funkcje, łatwość obsługi, wyświetlacz cyfrowy i stabilne działanie. Urządzenie może spełniać wymogi badań wg metody Brinella, Rockwella oraz Vickersa. Przy prawie 7 stopniowej sile testowej, można spotkać wiele rodzajów potrzeb badania twardości.
Automatyczna zmiana przyłożenia obciążenia, zatrzymania i odciążenia. Obsługa jest bardzo wygodna i szybka. Główne funkcje - następująco:
1 Dostępne dla badania metodą Brinella, Rockwella oraz Vickersa
2 Zmiana pomiędzy każdą skalą twardości.
3 Ustawienie czasu zatrzymania siły pomiarowej
4 Wymienny rok, miesiąc i dzień
5 Transmisja szeregowa RS232, oferuje rozszerzone funkcje dla użytkowników. Urządzenie oferuje zapis danych. Użytkownicy mogą przeglądać strony badań oraz drukować wyniki.

Specyfikacja:

Type	Rockwell	Brinell	Vickers
Początkowa siła testowa (N)	98	98	98
Siły testowe (kgf)	60, 100, 150kgf	30,31.25,62.5,100,187.5	30, 100
Badanie twardości (N)	588, 980, 1471	294.2,306.5,612.9,980.7,1839	294.2, 980.7
Nacisk głowicy	Diamentowy wgłębnik Rockwella, Φ1.5875mm wgłębnik kulisty	Φ2,5mm, Φ5mm wgłębnik kulisty	Diamentowy Wgłębnik Vickersa
Skala	HRA, HRB, HRC, HRD	HBW1/30， HBW2.5/31.25, HBW2.5/62.5, HBW5/62.5, HBW10/100, HBW2.5/187.5	HV30, HV100
Dokładność	±2.0%(98N) ±1.0%	±1.0%	±1.0%
Powiększenie mikroskopu	37.5X, 75X	37.5X, 75X	75X
Maksymalna wysokość próbki	170mm	140mm	140mm
Czas zatrzymania obciążenia	0～60s można ustawić		
zakres wysokości	165mm		
Wymiary	（L×W×H） 551×260×800mm		
Waga	80KGS		
Zasilanie	AC220V±5%， 50～60Hz		

Twardościomierze Mikro Vickers

Digital Micro Vicker Hardness Tester (SMV-1000MZ/2000MZ)

Product Description:

Micro Vickers Hardness Tester made with a unique and precision design in the field of mechanics ,optics and light source,and firstly adopted cold light source is able to produce a clearer indentation and hence a more precise measurement. By means of a 20 xlens and a 40 xlens the tester has a wider measurement field and a broader usage range. Equipped with a large LCD screen.The operation is more directly and clearly. It 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 LCD screen .Besides, it has such functions as registering the date, and measuring results , treating the data , outputting the information with the printer, exchanging the scales among the 17 scales, saving date and linking RS232 interface, The instrument is,therefore,quite advanced and representative of the products of the same kind in the country.

The present tester,equipped with a pick up camera,can take the photos of the indentation and metallographic composition of the materials.

Usage Range:

Ferrous metals, non-ferrous metals, IC thin sections, coatings, ply-metals;
Glass, ceramics, agate, precious stones;
Hardness testing such as that on the depth and the trapezium of the carbonized layers and quench hardened layers.

SMV-2000M and SMV-2000MZ can get force 19.8N 2000gf.

Specifications:

Model	SMV-1000M/2000M	SMV-1000MZ/2000MZ
Testing Force	0.098N, 0.246N, 0.49N, 0.98N, 1.96N, 2.94N, 4.90N, 9.80N	
	10gf, 25gf, 50gf, 100gf, 200gf, 300gf, 500gf, 1000gf	
Magnification of Microscope	100X 400X	
Testing Range	1HV～2967HV	
Loading Control	Automatic(loading, dwell, unloading)	
Turret	manual	Automatic (Auto-Turret)
Objective/Indenters Switch	manual	Automatic (Auto-Turret)
Hardness Indication	LCD display	
Dwell Time	5～60s	
Printer	Built-in Mini-printer	
Dimension of the XY stage	100 × 100 mm	
Travel of the XY stage	25 × 25mm	
Max of Height of Specimen	70mm	
Instrument Throat	95mm	
Accuracy	Standard conforms to EN-ISO 6507	
Power Supply	AC220V/50Hz; 110V/60Hz	
Instrument Dimension	530x450x750mm 35 KGS	
Standard Delivery	Vickers Indenter; Standard Blocks; Objectives 10X, 40X; 10X Digital Eyepiece; Level; XY table, Thin Specimen Testing Table, Fork-shaped anvil, fine wire test table , Build-in Mini Printer; Power Cable, Assistant Tools, RS232 cable.	
Optional accessories:	CCD adapter, CCD, PC, Micro hardness testing software Auto-turret(SMV-1000M need) , Knoop indenter 8” LCD screen	

Mikrotwardościomierz SMV-400

Opis produktu:

Mikrotwardościomierz SMV-400 wyposażony jest w automatyczną głowicę rewolwerową w celu zabezpieczenia przed niewłaściwą obsługą, w duży ekran LCD służący do wyświetlania metody pomiaru, siły pomiarowej, długości wgłębienia, wartości twardości, czasu zatrzymania siły pomiarowej. Twardościomierz może być wyposażony w przyrząd LCD, złożony z matrycy pomiarowej CCD oraz wyświetlacza LCD); Nadaje się on szczególnie do przeprowadzania badań twardości mikro- i cienkich próbek, materiału delikatnego. Twardościomierz posiada szeroki zakres pomiarowy i wysoką dokładność pomiaru dzięki obiektywom 10x 40x. Opcjonalnie wgłębnik Knoopa może zostać użyty do pomiaru wartości twardości Knoopa; Wydruk wyników pomiaru przez wbudowaną drukarkę.

Dane techniczne:

Model	SMV-400
Siła pomiarowa	0.098N, 0.246N, 0.49N, 0.98N, 1.96N, 2.94N, 4.90N, 9.80N
	10gf, 25gf, 50gf, 100gf, 200gf, 300gf, 500gf, 1000gf
Skala Vickersa	HV0.01, HV0.025, HV0.05, HV0.1, HV0.2, HV0.3, HV0.5, HV1
Przełącznik Obiektyw/Wgłębnik	Automatyczna głowica rewolwerowa
Powiększenie mikroskopu	100X 400X
Zakres pomiarowy	1HV～2967HV
Sterowanie obciążeniem	Automatyczne (przyłożenie, zatrzymanie, odciążenie)
Tryb pomiaru	HV/HK
Wskazanie Twardości	Duży wyświetlacz LCD
Czas zatrzymania	5～99s
Oświetlenie	Halogenowe źródła światła (LED jest opcjonalny)
Drukarka	Wbudowana minidrukarka
Maksymalna wysokość próbki	90mm
Maksymalna głębokość próbki	120mm
Dokładność	Standard odpowiadający normie EN-ISO 6507
Stolik	Wymiar:100*100mm; Zakres 25*25mm; Rozdzielczość: 0,01 mm
Zasilanie	AC220V/50Hz; 110V/60Hz
Wymiary przyrządu	490×320×550 mm
Wymiary przyrządu	50/35Kg
Zakres dostawy	Wgłębnik Vickersa; Wzorzec; Obiektywy 10X, 20X, 40X; Okular cyfrowy 10X; Poziomica; Stolik XY, Stolik badawczy od cienkich próbek, Kowadło w kształcie widelca, Stolik badawczy do cienkich drutów, Wbudowana minidrukarka; Kabel zasilający, Narzędzia pomocnicze, kabel RS232.
Akcesoria opcjonalne:	adapter CCD, matryca CCD, PC, oprogramowanie mikrotwardościomierza ekran LCD 8"

SMV-401 Mikrotwardościomierz Vickersa i Knoopa

• Mikrotwardościomierz Vickersa i Knoopa SMV-401 to nowy typ twardościomierza, w którym zastosowano precyzyjny mechanizm i fotoelektryczne oprogramowanie komputerowe. Przyrząd ten może być używany do badania twardości Vickersa lub Knoopa. Twardość oblicza się z wartości zmierzonej przekątnej, którą wprowadza się do zintegrowanego komputera.

• Mikrotwardościomierz Vickersa i Knoopa jest wykorzystywany do badania materiałów metalowych takich jak na niewielkie części, cienkie płytki, folie metalowe, kable elektryczne dobrej jakości, cienkie warstwy utwardzane, warstwy galwaniczne, jak również materiałów niemetalowych, do badania których nie można stosować dużych sił, takich jak szkło, biżuteria i ceramika. Szczególnie ważne jest to, że twardościomierz może być używany do pomiaru wewnętrznej twardości materiałów utwardzanych indukcyjnie lub nawęglanych zgodnie ze strukturą metaliczną.

• Badanie twardości jest podzielone na dwie części: pierwsza część, przy użyciu znanej siły wprowadza się diamentowy wgłębnik w powierzchnię diamentowej materiału; druga część, to klient mierzy długość przekątnej wgłębienia i wprowadza dane do komputera głównego, który obliczy wartość twardości Vickersa lub Knoopa.

Dane techniczne:

Model	SMV-401
Siła pomiarowa	0.098N, 0.246N, 0.49N, 0.98N, 1.96N, 2.94N, 4.90N, 9.80N
	10gf, 25gf, 50gf, 100gf, 200gf, 300gf, 500gf, 1000gf
Skala Vickersa	HV0.01, HV0.025, HV0.05, HV0.1, HV0.2, HV0.3, HV0.5, HV1
Skala Knoopa	HK0.01, HK0.025, HK0.05, HK0.1, HK0.2, HK0.3, HK0.5, HK1
Przełącznik Obiektyw/Wgłębnik	Automatyczna głowica rewolwerowa
Powiększenie mikroskopu	100X 400X
Zakres pomiarowy	1HV～2967HV
Sterowanie obciążeniem	Automatyczne (przyłożenie, zatrzymanie, odciążenie)
Tryb pomiaru	HV/HK
Wskazanie Twardości	Duży wyświetlacz LCD
Czas zatrzymania	5～99s
Oświetlenie	Halogenowe źródła światła (LED jest opcjonalny)
Drukarka	Wbudowana minidrukarka
Maksymalna wysokość próbki	90mm
Maksymalna głębokość próbki	120mm
Dokładność	Standard odpowiadający normie EN-ISO 6507
Stolik	Wymiar:100*100mm; Zakres 25*25mm; Rozdzielczość: 0,01 mm
Zasilanie	AC220V/50Hz; 110V/60Hz
Wymiary przyrządu	490×320×550 mm
Waga brutto/netto	50/35Kg
Zakres dostawy	Wgłębnik Vickersa; Wzorzec; Obiektywy 10X, 20X, 40X; Okular cyfrowy 10X; Poziomica; Stolik XY, Stolik badawczy od cienkich próbek, Kowadło w kształcie widelca, Stolik badawczy do cienkich drutów, Wbudowana minidrukarka; Kabel zasilający, Narzędzia pomocnicze, kabel RS232.
Akcesoria opcjonalne:	adapter CCD, matryca CCD, PC, oprogramowanie mikrotwardościomierza ekran LCD 8"

Cyfrowy Mikrotwardościomierz Vickersa SMV-1000MZ/2000MZ

Opis produktu:

Mikrotwardościomierz Vickersa wykonany i zaprojektowany z niebywałą precyzją w dziedzinie mechaniki, optyki i źródła światła, przede wszystkim zastosowane zimna źródło światła ma możliwość przedstawienia wyraźniejszego wcięcia, a w związku z tym bardziej precyzyjnego pomiaru. Dzięki soczewkom 20X i 40X twardościomierz posiada szerszy zakres pomiarowy i szerszy zakres wykorzystania. Wyposażony w duży wyświetlacz LCD. Obsługa jest bardziej bezpośrednia i wyraźna. Pokazuje on metody pomiarowe, siły testowe, długość wgłębienia, wartość twardości, czas zatrzymania siły testowej jak również numer pomiaru na ekranie LCD. Ponadto, posiada on takie funkcje jak rejestrowanie daty i wyników pomiaru, obróbka danych, wysyłanie informacji z drukarki, wymiana skal wśród 17 skal, zapis danych i łączenie z interfejsem RS232, instrument jest zatem całkiem zaawansowany i reprezentatywny dla produktów tego samego typu. Prezentowany twardościomierz, wyposażony w podnoszony aparat, może fotografować wgłębienie oraz skład metalograficzny materiałów. Prezentowany twardościomierz, wyposażony w podnoszony aparat, może fotografować wgłębienie oraz skład metalograficzny materiałów.

Zakres zastosowania:

Metale żelazne, metale nieżelazne, cienkie sekcje układów scalonych, powłoki, bimetale;
Szkło, ceramika, agat, kamienie szlachetne;
Badania twardości, takie głębokość i wymiary trapezu dla warstw uwęglonych i utwardzonych poprzez hartowanie.

SMV-2000M i SMV-2000MZ może osiągnąć siłę 19.8N 2000gf.

Specifications:

Model	SMV-1000M/2000M	SMV-1000MZ/2000MZ
Siła testowa	0.098N, 0.246N, 0.49N, 0.98N, 1.96N, 2.94N, 4.90N, 9.80N 10gf, 25gf, 50gf, 100gf, 200gf, 300gf, 500gf, 1000gf	
Powiększenie mikroskopu	100X 400X	
Zakres badawczy	1HV～2967HV	
Sterowanie obciążeniem	Automatyczne (przyłożenie, zatrzymanie, odciążenie)	
Turret	ręczny	Automatyczny (Auto-głowica rewolwerowa)
Przełącznik Obiektyw/Wgłębnik	ręczny	Automatyczny (Auto-głowica rewolwerowa)
Wskazanie Twardości	wyświetlacz LCD	
Czas zatrzymania	5～60s	
Drukarka	Wbudowana minidrukarka	
Wymiary stolika XY	100 × 100 mm	
Przesuw stolika XY	25 × 25mm	
Maksymalna wysokość próbki	70mm	
Przewężenie przyrządu	95mm	
Dokładność	Standardy odpowiadające normie EN-ISO 6507	
Zasilanie	AC220V/50Hz; 110V/60Hz	
Wymiary przyrządu	530x450x750mm 35 KGS	
Zakres dostawy	Wgłębnik Vickersa; Wzorzec twardości; Obiektywy 10X, 40X; Okular cyfrowy 10X; Poziomica; Stolik XY, Stolik badawczy od cienkich próbek, Kowadło w kształcie widelca, Stolik badawczy do cienkich drutów, Wbudowana minidrukarka; Kabel zasilający, Narzędzia pomocnicze, kabel RS232.	
Akcesoria opcjonalne:	adapter CCD, CCD, PC, oprogramowanie mikrotwardościomierza Automatyczna głowica rewolwerowa (dla SMV-1000 niezbędna), wgłębnik Knoopa, ekran LCD 8"	

SMV-1000 Mikrotwardościomierz z ekranem LCD

Cyfrowy Twardościomierz/Mikrotwardościomierz Vickersa można dopasować do serii Video LCD

System pomiarowy
Jest to nowy typ twardościomierza, który jest wyposażony w przyrząd do pomiaru wideo w formacie PS umieszczony na głównym korpusie cyfrowego Twardościomierza/Mikro-twardościomierza Vickersa. Pomiar wideo w formacie PS
Przyrząd składa się z urządzenia pomiarowego CCD, 8-calowego kolorowego ekranu LCD i innych odpowiednich elementów. Stosując przyrząd do pomiaru wideo w formacie PS, wgłębienie pierwotnie ukazane w obiektywie twardościomierza jest wyświetlane teraz bezpośrednio na wyświetlaczu LCD. Procedura robocza jest bardziej naoczna, a pomiar jest bardziej dokładny. Unika się w ten sposób zmęczenia wzroku i błędów ludzkich oraz podnosi wydajność pracy. Wiele osób w tym samym czasie może obserwować proces obróbki.Tak więc twardościomierz jest mile widziany przez wielu operatorów.

Opis produktu:
Mikrotwardościomierz Vickersa SMV-1000 jest precyzyjnym twardościomierzem łączą-cym technologię optyki, mechaniki oraz komputer. Ma on zastosowanie do pomiaru wartości twardości metali żelaznych, metale nieżelaznych, cienkich sekcji układów scalonych, powłok, bimetali; Szkła,ceramiki, agatu, kamieni szlachetnych, i mogą one być również testowane pod względem głębokości i wielkości trapezu dla warstw uwęglonych i warstw utwardzonych poprzez hartowanie.

Technical Specifications:

Model	SMV-1000+LCD
Wyświetlacz LCD wielkości	8”
Siły testowe	(0.098, 0.246, 0.49, 0.98, 1.96, 2.94, 4.90, 9.80) N (10, 25, 50, 100, 200, 300, 500, 1000) gf
Głowica rewolwerowa	Ręczna
Przełącznik przyłożenia sił testowych	Automatyczny (przyłożenie/zatrzymanie/odciążenie)
Powiększenie mikroskopu	100×, 400 ×
Czas zatrzymania siły testowej	(5-60)s
Min. rozdzielczość tarczy bębna	0.0625um
Zakres badawczy	1HV—2967HV
Wymiary podium XY	100 × 100 mm
Przesuw podium XY	25 × 25mm
Maks. wysokość próbki	70 mm
Przewężenie przyrządu	95mm
Zasilanie	110V/220V,60/50Hz
Wymiary oraz waga netto	520 × 445 × 595 mm & 35Kg
Dostawa standardowa	Podium XY; Cienkie kowadełko dla próbki; Kowadełko w kształcie widelca; Kowadełko z cienkiego drutu. Poziomica. Śruba regulacyjna. **Okular 10** ×. Obiektyw 10x i 40x. Mikro-wzorzec twardości Vickersa (wysokiej i średniej). Kabel RS232
Akcesoria opcjonalne:	Wgłębnik Knoopa; Mini-drukarka. Oprogramowanie Mikrotwardościomierza. Automatyczna głowica rewolwerowa

Cyfrowy Mikrotwardościomierz Vickersa SMV-1000X z ekranem dotykowym

Opis produktu:

Cyfrowy Mikrotwardościomierz Vickersa SMV-1000X wykonany i zaprojektowany z niebywałą precyzją w dziedzinie mechaniki, optyki i źródła światła, posiada możliwość wytworzenia wyraźniejszego wgłębienia, a w związku z tym bardziej precyzyjnego pomiaru. Dzięki soczewkom 20x i 40x twardościomierz posiada szerszy zakres pomiarowy i szerszy zakres wykorzystania. Za pomocą automatycznego urządzenia do obracania (automatyczne włączanie głowicy rewolwerowej) operowanie urządzeniem staje się łatwiejsze. Za pomocą kabla interfejsu, można je podłączyć do aparatu cyfrowego i wideo-kamery CCD. Jest to pierwszy twardościomierz, w którym zastosowano dotykowy ekran LCD czyniąc obsługę bardziej przyjazną. Twardościomierz posiada takie funkcje, jak bezpośredni odczyt wyników pomiarów, łatwa zmiana skali twardości, zastrzeżenie danych, drukowanie , wymiana skal wśród 17 skal, zapisywanie daty i połączenie z interfejsem RS232.

Dane techniczne:

Zakres pomiarowy	1HV-2967HV
Siły testowe	0.098 0.246 0.49 0.98 1.96 2.94 4.90 9.8 （N） 10 25 50 100 200 300 500 1000 （g）
Maks. wysokość próbki	70mm
Przewężenie przyrządu	95mm
Przełącznik soczewka/nacisk	Automatyczny
Przełącznik przyłożenia sił testowych	Automatyczne (przyłożenie / zatrzymanie / odciążenie)
Czas zatrzymania siły testowej	5~60（S）
Powiększenie mikroskopu	200× 400×
Minimalna rozdzielczość	0.0625μm
Wyjście	interfejs RS232/wbudowana drukarka
Wymiary stolika XY	100x100mm
Przesuw stolika XY	25x25mm
Zasilanie/Oświetlenie	AC220V/50Hz halogenowe źródło światła/LED
Zakres dostawy	Wgłębnik Vickersa; Wzorzec twardości; Obiektywy 10X, 40X; Okular cyfrowy 10X; Poziomica; Stolik XY, Stolik badawczy od cienkich próbek, Kowadło w kształcie widelca, Stolik badawczy do cienkich drutów, Wbudowana minidrukarka; Kabel zasilający, Narzędzia pomocnicze, kabel RS232.
Akcesoria opcjonalne:	adapter CCD, matryca CCD, PC, oprogramowanie mikrotwardościomierza Automatyczna głowica rewolwerowa (dla SMV-1000M niezbędna), wgłębnik Knoopa, ekran LCD 8"

Mikrotwardościomierz Vickersa (SMV-1000SZ)

Opis produktu:

Cyfrowy Mikrotwardościomierz Vickersa SMV-1000SZ adaptuje duży ekran LED, aby: wyświetlić typ struktury menu do wyboru skal twardości HV lub HK, zmieniać wartości pomiędzy skalami twardości, przechowywać wyniki testów i automatycznie przetwarzać dane, jak również jako wyjście do drukarki. Za pomocą interfejsu RS-232, przyrząd może być połączony z komputerem. Maszyna posiada mini-drukarkę, która może wydrukować wynik badania.

Zakres zastosowania:

Powłoki poddane obróbce termicznej, powłoki uwęglone, powłoki utwardzane, powłoki powierzchniowe, stale, metale nieżelazne, mikroelementy oraz elementy o cienkich kształtach.

Technical Specifications:

Model	SMV-1000S	SMV-1000SZ
Siły testowe	10g (0.098N）、25g (0.245N)、50g (0.49N)、100g (0.98N)、200g (1.96N)、300g (2.94N)、500g (4.9N)、1000g (9.8N)	
Minimalna jednostka pomiaru	0.031μm	
Powiększenie mikroskopu	100X（do obserwacji） 400X（do pomiaru）	
Wyjście danych	Wewnątrz drukarki i interfejs RS-232	
Kontrola obciążenia	Automatyczna (obciążenie, zatrzymanie, odciążenie)	
Głowica rewolwerowa	Głowica rewolwerowa	Głowica rewolwerowa
Min. rozdzielczość tarczy bębna	0.0625um	
Zakres badawczy	1HV—2967HV	
Wymiary podium X-Y	100×100mm	
Przesuw podium XY	25×25mm	
Maks. wysokość próbki	70 mm	
Przewężenie przyrządu	95mm	
Zasilanie	110V/220V,60/50Hz	
Wymiary oraz waga netto	520 × 445 × 595 mm & 35Kg	
Akcesoria standardowe	Wgłębnik Vickersa, okular 10x, obiektyw 10x i 40x, wzorce twardości, XY tabeli, stolik do badania cienkich próbek, kowadełko w kształcie widełek, stolik do badania cienkiego drutu, dźwignia, kabel zasilający, narzędzia pomocnicze, kabel drukarki RS232	
Akcesoria opcjonalne:	adapter CCD, CCD, PC, oprogramowanie mikrotwardościomierza, automatyczna głowica rewolwerowa, wgłębnik Knoopa, ekran LCD 8"	

Mikrotwardościomierz SMV-1000/1000Z

Opis produktu:

Mikrotwardościomierz Vickersa SMV-1000 jest precyzyjnym twardościomierzem łączącym w sobie technologię optyki, mechaniki oraz komputer. Jest on stosowany do pomiarów wartość twardości metali żelaznych, nieżelaznych, cienkich sekcji układów scalonych, powłok, bimetali, szkła, ceramiki, agatu, kamieni szlachetnych, i mogą one być również badane pod względem głębokości i wielkości trapezu dla warstw uwęglonych i utwardzonych poprzez hartowanie.

Dane techniczne:

Model	SMV-1000	SMV-1000Z
Siły testowe	(0.098, 0.246, 0.49, 0.98, 1.96, 2.94, 4.90, 9.80) N (10, 25, 50, 100, 200, 300, 500, 1000) gf	
Głowica rewolwerowa	Ręczna	Automatyczna
Przełącznik przyłożenia sił testowych	Automatyczna (loading / dwell / unloading)	
Powiększenie mikroskopu	100×, 400 ×	
Czas zatrzymania siły testowej	(5-60)s	
Min. rozdzielczość tarczy bębna	0.0625um	
Testing range	1HV—2967HV	
Wymiary podium XY	100 × 100 mm	
Przesuw podium XY	25 × 25mm	
Maks. wysokość próbki	70 mm	
Przewężenie przyrządu	95mm	
Zasilanie	110V/220V,60/50Hz	
Wymiary oraz waga netto	520 × 445 × 595 mm & 35Kg	
Dostawa standardowa	Podium XY; Cienkie kowadełko dla próbki; Kowadełko w kształcie widelca; Kowadełko z cienkiego drutu. Poziomica. Śruba regulacyjna. 10 ×Okular. 10x i 40x obiektyw. Mikrowzorzec twardości Vickersa (wysokiej i średniej). Kabel RS232	
Akcesoria opcjonalne:	Wgłębnik Knoopa; Mini-drukarka, Adapter CCD, CCD, PC, Oprogramowanie Mikrotwardościomierza. Automatyczna głowica rewolwerowa (dla SMV-1000 konieczna), Ekran LCD 8"	

Mikrotwardościomierz SMV-1000/1000Z

Opis produktu:

Mikrotwardościomierz Vickersa SMV-1000 jest precyzyjnym twardościomierzem łączącym w sobie technologię optyki, mechaniki oraz komputer. Jest on stosowany do pomiarów wartość twardości metali żelaznych, nieżelaznych, cienkich sekcji układów scalonych, powłok, bimetali, szkła, ceramiki, agatu, kamieni szlachetnych, i mogą one być również badane pod względem głębokości i wielkości trapezu dla warstw uwęglonych i utwardzonych poprzez hartowanie.

Dane techniczne:

Model	SMV-1000	SMV-1000Z
Siły testowe	(0.098, 0.246, 0.49, 0.98, 1.96, 2.94, 4.90, 9.80) N (10, 25, 50, 100, 200, 300, 500, 1000) gf	
Głowica rewolwerowa	Ręczna	Automatyczna
Przełącznik przyłożenia sił testowych	Automatyczna (loading / dwell / unloading)	
Powiększenie mikroskopu	100×, 400 ×	
Czas zatrzymania siły testowej	(5-60)s	
Min. rozdzielczość tarczy bębna	0.0625um	
Testing range	1HV—2967HV	
Wymiary podium XY	100 × 100 mm	
Przesuw podium XY	25 × 25mm	
Maks. wysokość próbki	70 mm	
Przewężenie przyrządu	95mm	
Zasilanie	110V/220V,60/50Hz	
Wymiary oraz waga netto	520 × 445 × 595 mm & 35Kg	
Dostawa standardowa	Podium XY; Cienkie kowadełko dla próbki; Kowadełko w kształcie widelca; Kowadełko z cienkiego drutu. Poziomica. Śruba regulacyjna. 10 ×Okular. 10x i 40x obiektyw. Mikrowzorzec twardości Vickersa (wysokiej i średniej). Kabel RS232	
Akcesoria opcjonalne:	Wgłębnik Knoopa; Mini-drukarka, Adapter CCD, CCD, PC, Oprogramowanie Mikrotwardościomierza. Automatyczna głowica rewolwerowa (dla SMV-1000 konieczna), Ekran LCD 8"	

Horizontal Projector

SP-1200 Φ1200 Horizontal Profile Projector

Features:

SP-1200 has three type:
SP-1200A Automatic projectors
SP-1200B Digital Measuring Projector
SP-1200C Data Processing Projector
High-precision objective turntable is convenient for converting magnification and accurate in location.

Worktable has a larger travel range and strong load capacity, suitable for measuring the large-sized parts;
The deflection of worktable can be ±15°, convenient for measuring helical parts;
Advanced raster sensor digital display technology and data processing system can achieve high efficiency with little error;

SP-1200A is equipped with Renishaw metal raster and CNC automatic controller, achieving full-auto control measurement and data processing;
SP-1200B is equipped with digital readout to make data processing, convenient for digital display
SP-1200C is equipped with computer, PCI card, two-coordinate measurement software and hand controller, achieving the power operated measurement.

Technical parameters:

Model	SP-1200
Projection screen:	Φ1200mm
Rotation range:	360°
Objective Magnification Power	10X 20X 50X 100X
Object Visual Field	Φ120mm φ60mm φ24mm φ12mm
Object Working Distance	300mm 195mm 120mm 50mm
Range of X-coordinate (mm)	300mm
Range of Y-coordinate (mm)	200mm
Resolution:	0.001 (mm)
Load capacity of the worktable (kg)	100kg
Worktable area (mm)	880x230mm
Stroke of Z-coordinate (Focusing):	60 (mm)
Accuracy of the instrument:	(4+L/50)μm,
Transmission lighting:	24V 150W Halogen tungsten lamp
Reflecting lighting:	16V 150W Halogen tungsten lamp
Overall sizes of the instrument (mm):	3500×2320×2250
weight:	4000 kg

SP-800 Φ800 Horizontal Profile Projector

Features:

SP-800 has three type:
SP-800A digital measuring projector
SP-800B data processing projector
SP-800E full-auto projector
The in-line type is adopted for the objective, cone fitted, compressed by spring, accurate in central location.
It is equipped with circular worktable which can be turned around in all directions, convenient for measuring gear parts
The deflection of worktable can be ±15°, convenient for measuring shaft-like helical parts;
Advanced raster measurement technology and data processing system of full and complete function can achieve high efficiency with small error;
Worktable of large travel range is adopted, having strong load capacity.
SP-800A adopts advanced raster sensor technology to measure data and digital display and the motor controlling the movement of worktable
SP-800B is equipped with computer and two-coordinate measurement software, achieving convenient and fast measurement and the motor controlling the movement of worktable.
SP-800E, the full-auto projector, providing the motor for full-auto control of the movement, has rich functions of its software, including automatic edge- tracing system.
Horizontal light-path is adopted, convenient for the measurement of the measured parts processed online.

Technical parameters:

Model	SP-800
Projection screen:	Φ800 mm
Rotation range:	360°
Objective Magnification Power	10X 20X 50X 100X
Object Visual Field	Φ80mm φ40mm φ16mm φ8mm
Object Working Distance	206 mm 123mm 85mm 78mm
Range of X-coordinate (mm)	300mm
Range of Y-coordinate (mm)	200mm
Resolution:	0.001 (mm)
Load capacity of the worktable (kg)	50kg
Stroke of Z-coordinate (Focusing):	80 (mm)
Accuracy of the instrument:	(4+L/50)μm,
Worktable area (mm)	630x200mm
Transmission lighting:	24V 150W Halogen tungsten lamp
Reflecting lighting:	16V 150W Halogen tungsten lamp
Overall sizes of the instrument (mm):	2130×1800×1950
weight:	19100 kg

SP-26 Φ400 Horizontal Profile Projector

Features:

The horizontal light-path is adopted, convenient for the detection of various axis parts; the rotation of worktable is possible. With structures strong in commonality, this instrument is light in weight and beautiful in appearance; Imported V-type straight-line slide-way is adopted for the hoisting driving of the worktable, light and comfortable in driving; The fiber transmission is adopted for the reflecting illuminating, which is small in dimensions, high in its brightness and convenient for uses; The two high-and-low adjustable illumination intensities for transmission illuminating can be adaptable for measuring requirements of different work-pieces;

Technical parameters:

Model	SP-26
Projection screen:	Φ400 mm
Rotation range:	360°
Objective Magnification Power	10X 20X 50X 100X
Object Visual Field	Φ40mm φ20mm φ8mm φ4mm
Object Working Distance	88 mm 81 mm 54 mm 45mm
Range of X-coordinate (mm)	250mm
Range of Y-coordinate (mm)	150mm
Resolution:	0.001 (mm)
Load capacity of the worktable (kg)	15kg
Stroke of Z-coordinate (Focusing):	0~80 (mm)
Accuracy of the instrument:	(3+L/75)μm,
Worktable area (mm)	450x150mm
Transmission lighting:	24V 150W Halogen tungsten lamp
Reflecting lighting:	24V 150W Halogen tungsten lamp
Overall sizes of the instrument (mm):	687×443×942
weight:	150 kg

SP-25 Φ 350 Horizontal Profile Projector

Features:

The horizontal light-path is adopted, convenient for the detection of various axis parts; the rotation of worktable is possible. With structures strong in commonality, this instrument is light in weight and beautiful in appearance; Imported V-type straight-line slide-way is adopted for the hoisting driving of the worktable, light and comfortable in driving; The fiber transmission is adopted for the reflecting illuminating, which is small in dimensions, high in its brightness and convenient for uses; The two high-and-low adjustable illumination intensities for transmission illuminating can be adaptable for measuring requirements of different work-pieces;

Technical parameters:

Model	SP-25
Projection screen:	Φ 350 mm
Rotation range:	360°
Objective Magnification Power	10X 20X 50X 100X
Object Visual Field	φ35mm φ17.5mm φ7mm φ3.5mm
Object Working Distance	88 mm 81 mm 54 mm 45mm
Range of X-coordinate (mm)	200mm
Range of Y-coordinate (mm)	150mm
Resolution:	0.001 (mm)
Load capacity of the worktable (kg)	15kg
Stroke of Z-coordinate (Focusing):	0~80 (mm)
Accuracy of the instrument:	(3+L/75)μm,
Worktable area (mm)	400x150mm
Transmission lighting:	24V 150W Halogen tungsten lamp
Reflecting lighting:	24V 150W Halogen tungsten lamp
Overall sizes of the instrument (mm):	687×443×942
weight:	150 kg

Horizontal profile projector SPH-4025

Features:

The product structures are strong in commonality, this instrument is beautiful in its outward appearances and convenient for operations;
Imported V-type straight-line slide-way is adopted for the hoisting driving of the worktable, light and comfortable in driving;
The two high-and-low adjustable light intensities for transmission and indirect lightings can be adaptable for measuring requirements of different workpieces;
In high quality in its optical system, the objectives are clear in imaging and accurate in multiplying factors;
The fiber transmission is adopted for the indirect lighting, which is small in dimensions, high in its brightness and convenient for uses;
Casting aluminum is selected for the processing of worktables, light in weight;
This instrument is of super-precision, with stable and reliable performances.

SPH-4025, φ400mm horizontal projector is a photoelectric measuring system of high precision and efficiency. It is widely used in the trade of mechanism, mould, tool, electricity and light industry. It is a require in the checking depart-ment and workshop. The type optical comparator can inspect all kinds of surface and outline of the complicated work-pieces, such as template, cam, tread, gear, perform willing cutter and so on

Technical parameters:

Model		SPH-4025				
Working table	Stage size(mm)	450*200				
	X-axis travel(mm)	250				
	Y-axis travel(mm)	150				
	Z-axis travel(mm)	100(for focus)				
	Turning range	±15°				
	Resolution	(X-axis, Y-axis) 0.5μm				
	Accuracy	(3+L/25)um				
Projector screen	Screen size (mm)	φ 400				
	Screen rotary range	0°~360°				
	Rotary angle resolution	1′ or 0.01°				
Lens	Magnification	5X	10X	20X	50X	100X
	Object view(mm)	φ80	φ40	φ20	φ8	φ4
	Working distance(mm)	93.7	103.9	95.1	65.7	35
Data processing system	multi-function data processing system, appearing in English, Portuguese and Chinese, can be used to gather the data and measure the point, line, circle, angle and distance					
Illumination	Transmission: 24V/150W,cooling by fans.					
	Reflection:21V/150W,illuminated by two fibers ,cooling by fans.					
Power	110V/220V(AC) 50/60Hz total power=400W					
Dimension	L*W*H(mm) 1215*646*1210					
Weight	Unit：(kg) 240					
Option	Mini-printer, Edge detector, M2D software and so on, please refer to Accessories for profile projector for more details.					

horizontal profile projector SPH-3020

Features:

The product structures are strong in commonality, this instrument is beautiful in its outward appearances and convenient for operations;
Imported V-type straight-line slide-way is adopted for the hoisting driving of the worktable, light and comfortable in driving;
The two high-and-low adjustable light intensities for transmission and indirect lightings can be adaptable for measuring requirements of different workpieces;
In high quality in its optical system, the objectives are clear in imaging and accurate in multiplying factors;
The fiber transmission is adopted for the indirect lighting, which is small in dimensions, high in its brightness and convenient for uses;
Casting aluminum is selected for the processing of worktables, light in weight;
This instrument is of super-precision, with stable and reliable performances.

SPH-3020 φ300mm horizontal projector is a photoelectric measuring system of high precision and efficiency. It is widely used in the trade of mechanism, mould, tool, electricity and light industry. It is a require in the checking depart-ment and workshop. The type optical comparator can inspect all kinds of surface and outline of the complicated work-pieces, such as template, cam, tread, gear, perform willing cutter and so on

Technical parameters:

Model		SPH-3020			
Working table	Stage size(mm)	400*150			
	X-axis travel(mm)	200			
	Y-axis travel(mm)	100			
	Z-axis travel(mm)	75(for focus)			
	Turning range	±15°			
	Resolution	(X-axis, Y-axis) 0.5μm			
	Accuracy	(3+L/25)um			
Projector screen	Screen size (mm)	φ 300			
	Screen rotary range	0°~360°			
	Rotary angle resolution	1′ or 0.01°			
Lens	Magnification	10X	20X	50X	100X
	Object view(mm)	φ30	φ15	φ6	φ3
	Working distance(mm)	77.7	44.3	38.4	25.3
Data processing system	multi-function metrology DRO counter, appearing in English, Portuguese and Chinese, can be used to gather the data and measure the point, line, circle, angle and distance				
Illumination	The illumination of transmission and reflection: 24V/150W-halogen lamp				
	The illumination of reflection the data and measure the point, line, circle, angle and distance				
Power	110V/220V(AC) 50/60Hz total power=400W				
Dimension	L*W*H(mm) 1090*830*1010				
Weight	Unit:(kg) 160				
Option	Mini-printer, Edge detector, M2D measuremetn software and so on, please refer to Accessories for profile projector for more details				

Vertical Projector

SP-250 Φ300 Digital Profile Projector

Application:

This digital type high-precision projector is a highly efficient measuring instrument integrating light, machine and electricity. It can be widely used for industries such as mold manufacturing, metal work pressing, electronics, instrument, horologe, as well in universities, research institutes and metering examination departments.

Features:

This instrument is a precession measuring device integrating optics, mechanics, electricity and computation into an organic whole; which is widely used in the measuring rooms and workshops of related factories and plants in the sectors of machinery manufacture, instrumentation, clocks and watches and electronics industries. This instrument can easily and speedily check the profiles and surface shapes of various measured parts; e.g., various parts, cutting tools and tools of sample plates, punching pieces, cams, gears, molding milling cutters, tapping tools, etc.

Technical parameters:

Model	SP-250
Projection screen: effective diameter (mm):	φ315mm, working scope＞φ300 (internally marked with asterisk-shaped line)
Projection screen's rotation angle:	0～360°
Resolution of rotation angle:	0.01° or 1′
Accuracy of the rotary angle:	6′
Object lens's magnification:	10×（standard）20×（optional）50×（optional）
View-field of object (mm):	φ30 φ15 φ6
Working distance for object (mm):	75 69 26
Travel—X, Y axis:	250×150mm
Z axis travel:	75mm
Resolution of X Y:	0.001mm/0.0005(digital display)
Accuracy:	(3+L/100)μm
Stage support	4kg
Profile light source	24V/150W tungsten halogen lamp
surface light source	24V/150W tungsten halogen lamp
Over dimensions:	830×820×1750mm
Weight:	180kg
Power supply:	110V/220V (switch) ; 50/60HZ(switch)
Optional accessories:	attached RS232 interface, optional 2D measuring software, ensuring convenient operation.

SP-3015B Φ300 profile projector

Application:

This digital type high-precision projector is a highly efficient measuring instrument integrating light, machine and electricity. It can be widely used for industries such as mold manufacturing, metal work pressing, electronics, instrument, horologe, as well in universities, research institutes and metering examination departments.

Features:

This instrument is a precession measuring device integrating optics, mechanics, electricity and computation into an organic whole; which is widely used in the measuring rooms and workshops of related factories and plants in the sectors of machinery manufacture, instrumentation, clocks and watches and electronics industries. This instrument can easily and speedily check the profiles and surface shapes of various measured parts; e.g., various parts, cutting tools and tools of sample plates, punching pieces, cams, gears, molding milling cutters, tapping tools, etc.

Technical parameters:

Model	SP-200
Projection screen: effective diameter (mm):	φ315mm, working scope＞φ300 (internally marked with asterisk-shaped line)
Projection screen's rotation angle:	0～360°
Resolution of rotation angle:	0.01° or 1′
Accuracy of the rotary angle:	6′
Object lens's magnification:	10×（standard）20×（optional）50×（optional）
View-field of object (mm):	φ30 φ15 φ6
Working distance for object (mm):	75 69 26
Travel—X, Y axis:	200×100mm
Z axis travel:	75mm
Resolution of X Y:	0.001mm/0.0005(digital display)
Accuracy:	(3+L/100)μm
Stage support	4kg
Profile light source	24V/150W tungsten halogen lamp
surface light source	24V/150W tungsten halogen lamp
Over dimensions:	830×820×1750mm
Weight:	180kg
Power supply:	110V/220V (switch) ; 50/60HZ(switch)
Optional accessories:	attached RS232 interface, optional 2D measuring software, ensuring convenient operation.

SP-3025 Φ300 Profile Projectors

This series of profile projectors are famous for its excellent quality of the optical system. It is processed of clear image and accurate magnification. The error of the contour measuring is less than 0.08% under the illumination of transmission. This instrument provides the mini-printer (option) and foot-switch, which are convenient to output and gather the data. You can adjust the focus by ascending and descending the projection box. The measuring and profile projector is with big travel and stationary performance because the working table does not ascend or descend. The instrument can also measure the big range with high precision.

Features:

Model	Reverse image	SP-3025			
Working table	The metal table's size	450*280			
	The glass table's size	306*196			
	X-axis travel(mm)	250			
	Y-axis travel(mm)	150			
	Z-axis travel(mm)	100(for focus)			
	Measuring accuracy(μm)	3+L/75			
	Resolution(X-axis,Y-axis)	0.5μm			
Projector screen	Screen size (mm)	?312 used range>?300 (with the meter line)			
	Screen rotary range	0°~360°			
	Resolution(X-axis,Y-axis)	1′ or 0.01°			
Lens	Magnification	10X(option)	20X(option)	50X(option)	100X(option
	Object view(mm)	?30	?15	?6	?3
	Working distance(mm)	77.7	44.3	38.4	25.3
	Max.workpiece height	90mm	90mm	90mm	90mm
DRO	DC-3000 multi-function DRO				
llumination	The illumination of transmission and reflection: 24V/150W-halogen lamp.				
Power	110V/220V(AC), 50/60Hz, Total power=400W				
Dimension weight	L*W*H(mm)	780*780*1100			
	Unit:(kg)	180			
Optional	Mini-printer(option), Edge detector (option), software (option)				

SP-3020B Profile Projector

Application:

This digital type high-precision projector is a highly efficient measuring instrument integrating light, machine and electricity. It can be widely used for industries such as mold manufacturing, metal work pressing, electronics, instrument, horologe, as well in universities, research institutes and metering examination departments.

Features:

This instrument is a precession measuring device integrating optics, mechanics, electricity and computation into an organic whole; which is widely used in the measuring rooms and workshops of related factories and plants in the sectors of machinery manufacture, instrumentation, clocks and watches and electronics industries. This instrument can easily and speedily check the profiles and surface shapes of various measured parts; e.g., various parts, cutting tools and tools of sample plates, punching pieces, cams, gears, molding milling cutters, tapping tools, etc.

Features:

Model	SP-3020B
Projection screen: effective diameter (mm):	φ300mm, working scope＞φ300 (internally marked with asterisk-shaped line)
Projection screen's rotation angle:	0～360°
Resolution of rotation angle:	0.01° or 1′
Accuracy of the rotary angle:	6′
Object lens's magnification:	10×（standard）20×（optional）50×（optional）100×（optional）
View-field of object (mm):	φ30 φ15 φ6 φ3
Working distance for object (mm):	75 69 44 26
Metal stage size:	400×225mm
Glass stage size:	210×112mm
Travel—X, Y axis:	200×100mm
Z axis travel:	80mm
Resolution of X Y:	0.001mm(digital display)
Accuracy:	(3+L/75)μm
Stage support	3kg
Data processor:	DS-401 or DS600
Ascent and descent mechanism:	45 ° oblique tooth gear
Profile light source	12V/100W tungsten halogen lamp
surface light source	24V/150W tungsten halogen lamp
Over dimensions:	380×806×1065mm
Weight:	180kg
Power supply:	110V/220V (switch) ; 50/60HZ(switch)
Optional accessories:	attached RS232 interface, optional 2D measuring software, ensuring convenient operation.

SP-14 Φ300 Digital Measuring Projector

Features:

- SP-14 Erect image type and Reverse image type
- Long object working distance, large-sized surface and large range of measurement (three different worktables for selection)
- The up-and-down hoisting structure adopted for the projecting box can provide with a large focusing travel Z-direction;
- Transmission illuminating, clear in imaging, and intensities for transmission illuminating can be adaptable in corresponding to different magnifications, for different visual requirements
- The tower dial with three lens simultaneously would be very convenient for the replacement of magnification and for accurate locating;
- The worktable has strong rigidity and load capacity, ensuring the precision under any large-load.
- The transmission illuminating and vertical reflecting illuminating can be adaptable for different measuring requirements.

Features:

Model	SP-14
Projection screen:	Φ300 mm
Rotation range:	360°
Objective Magnification Power	10X 20X 50X 100X
Object Visual Field	Φ30mm φ15mm φ6mm φ3mm
Object Working Distance	74 mm 69 mm 63 mm 63 mm
Resolution:	0.001 (mm)
Stroke of Z-coordinate (Focusing):	0~100 (mm)
Accuracy of the instrument:	(3+L/75)μm,
Transmission lighting:	24V 150W Halogen tungsten lamp
Reflecting lighting:	24V 150W Halogen tungsten lamp
Overall sizes of the instrument (mm):	410×650×1100
weight:	90 kg

Type	Small	Medium	Large
Range of X-coordinate (mm)	0~150	0~200	0~250
Range of Y-coordinate (mm)	0~100	0~150	0~150
Load capacity of the worktable (kg)	10	15	20
Worktable area (mm)	350x240	400x280	450x286

SP-20 Φ300 Digital Measuring Projector

Features:

- The metal structure of the projecting box is light in weight.
- The up-and-down hoisting structure adopted for the projecting box can provide with a large focusing travel in Z-direction;
- Long object working distance, large-sized surface and large range of measurement (three different worktables for selection)
- The worktable has strong rigidity and load capacity
- The transmission illuminating and vertical reflecting illuminating can be adaptable for different measuring requirements.

Features:

Model	SP-20
Projection screen:	Φ300 mm
Rotation range:	360°
Objective Magnification Power	10X 20X 50X 100X
Object Visual Field	Φ30mm φ15mm φ6mm φ3mm
Object Working Distance	74 mm 69 mm 63 mm 41 mm
Resolution:	0.001 (mm)
Stroke of Z-coordinate (Focusing):	0~100 (mm)
Accuracy of the instrument:	(3+L/75)μm,
Transmission lighting:	24V 150W Halogen tungsten lamp
Reflecting lighting:	24V 150W Halogen tungsten lamp
Overall sizes of the instrument (mm):	410×650×1100
weight:	80 kg

Type	Small	Medium	Large
Range of X-coordinate (mm)	0~150	0~200	0~250
Range of Y-coordinate (mm)	0~100	0~150	0~150
Load capacity of the worktable (kg)	10	15	20
Worktable area (mm)	350x240	400x280	450x286

SP-21 Φ350 Digital Measuring Projector

Features:

Especially suitable for the measurement and detection of projection image drawings and profile observation, etc.; The in-line type is adopted for the objective replacement, sides fitted, with much convenience in replacement; The bottom-placement of projection screen makes it possible for the operator to sit, more convenient for drawing and observing the magnified image. Worktable has a large moving range.

Technical parameters:

Model	SP-21
Projection screen:	Φ 350 mm
Rotation range:	360°
Objective Magnification Power	5X 10X 20X 50X
Object Visual Field	Φ75mm φ35mm φ17.5mm φ7mm
Object Working Distance	163 mm 89 mm 57 mm 58mm
Range of X-coordinate (mm)	200mm
Range of Y-coordinate (mm)	100mm
Resolution:	0.001 (mm)
Load capacity of the worktable (kg)	5kg
Worktable area (mm)	380x230mm
Stroke of Z-coordinate (Focusing):	0~100 (mm)
Accuracy of the instrument:	(3+L/75)μm,
Transmission lighting:	24V 150W Halogen tungsten lamp
Reflecting lighting:	24V 150W Halogen tungsten lamp
Overall sizes of the instrument (mm):	854×480×1401
weight:	138 kg

SP-24 Φ300 Horizontal Profile Projector

Features:

With beautiful appearance and high precision, this instrument can compete with similar instruments abroad. Casting aluminum is selected for the processing of worktables, light in weight;
With high-quality optical system, the objectives have clear image and accurate magnification. The fiber transmission is adopted for the reflecting illuminating, which is small in dimensions, high in brightness and convenient for uses; The two high-and-low adjustable illumination intensities for transmission illuminating can be adaptable for measuring requirements of different work-pieces;

Features:

Model	SP-24
Projection screen:	Φ300 mm
Rotation range:	360°
Objective Magnification Power	10X 20X 50X 100X
Object Visual Field	Φ30mm φ15mm φ6mm φ3mm
Object Working Distance	75 mm 70 mm 27 mm 26mm
Range of X-coordinate (mm)	200mm
Range of Y-coordinate (mm)	80mm
Resolution:	0.001 (mm)
Load capacity of the worktable (kg)	5kg
Worktable area (mm)	326x150mm
Stroke of Z-coordinate (Focusing):	0~100 (mm)
Accuracy of the instrument:	(3+L/75)μm,
Transmission lighting:	24V 150W Halogen tungsten lamp
Reflecting lighting:	24V 150W Halogen tungsten lamp
Overall sizes of the instrument (mm):	726×420×980
weight:	105 kg

SP-500 Φ500 PROFILE PROJECTOR

Application:

This digital type high-precision projector is a highly efficient measuring instrument integrating light, machine and electricity. It can be widely used for industries such as mold manufacturing, metal work pressing, electronics, instrument, horologe, as well in universities, research institutes and metering examination departments.

Features:

This instrument is a precession measuring device integrating optics, mechanics, electricity and computation into an organic whole; which is widely used in the measuring rooms and workshops of related factories and plants in the sectors of machinery manufacture, instrumentation, clocks and watches and electronics industries. This instrument can easily and speedily check the profiles and surface shapes of various measured parts; e.g., various parts, cutting tools and tools of sample plates, punching pieces, cams, gears, molding milling cutters, tapping tools, etc.

Features:

Model	SP-500	SP-600
Projection screen	Φ500mm	Φ600mm
Projection screen's rotation angle:	0～360°	
Resolution of rotation angle:	0.01° or 1′	
Accuracy of the rotary angle:	6′	
Object lens's magnification:	10×（standard） 20×（optional） 50×（optional） 100×（optional）	
View-field of object (mm):	Φ50 φ25 φ10 φ5	
Working distance for object (mm):	77 87 76 49	
Metal stage size:	500×260mm	600×360mm
Glass stage size:	250×153mm	250×153mm
Travel—X, Y axis:	200×100mm	300×200mm
Z axis travel:	80mm	80mm
Resolution of X Y:	0.001mm(digital display)	0.001mm(digital display)
Accuracy:	(4+L/25) μm	(4+L/25) μm
Stage support	10kg	5kg
Data processor:	DS600	DS600
Profile light source	12V/150W tungsten halogen lamp	
surface light source	12V/150W tungsten halogen lamp	
Over dimensions:	1420×1300×1940	
Power supply:	110V/220V (switch) ; 50/60HZ(switch)	
Optional accessories:	optional 2D measuring software, ensuring convenient operation.	

SP-600 Φ600 PROFILE PROJECTOR

Application:

This digital type high-precision projector is a highly efficient measuring instrument integrating light, machine and electricity. It can be widely used for industries such as mold manufacturing, metal work pressing, electronics, instrument, horologe, as well in universities, research institutes and metering examination departments.

Features:

This instrument is a precession measuring device integrating optics, mechanics, electricity and computation into an organic whole; which is widely used in the measuring rooms and workshops of related factories and plants in the sectors of machinery manufacture, instrumentation, clocks and watches and electronics industries. This instrument can easily and speedily check the profiles and surface shapes of various measured parts; e.g., various parts, cutting tools and tools of sample plates, punching pieces, cams, gears, molding milling cutters, tapping tools, etc.

Features:

Model	SP-500	SP-600
Projection screen	Φ500mm	Φ600mm
Projection screen's rotation angle:	0～360°	
Resolution of rotation angle:	0.01° or 1′	
Accuracy of the rotary angle:	6′	
Object lens's magnification:	10× (standard) 20× (optional) 50× (optional) 100× (optional)	
View-field of object (mm):	Φ50 φ25 φ10 φ5	
Working distance for object (mm):	77 87 76 49	
Metal stage size:	500×260mm	600×360mm
Glass stage size:	250×153mm	250×153mm
Travel—X, Y axis:	200×100mm	300×200mm
Z axis travel:	80mm	80mm
Resolution of X Y:	0.001mm(digital display)	0.001mm(digital display)
Accuracy:	(4+L/25) μm	(4+L/25) μm
Stage support	10kg	5kg
Data processor:	DS600	DS600
Profile light source	12V/150W tungsten halogen lamp	
surface light source	12V/150W tungsten halogen lamp	
Over dimensions:	1420×1300×1940	
Power supply:	110V/220V (switch) ; 50/60HZ(switch)	
Optional accessories:	optional 2D measuring software, ensuring convenient operation.	

SP-3015B Φ300 profile projector


SP-3015B

Application:

This digital type high-precision projector is a highly efficient measuring instrument integrating light, machine and electricity. It can be widely used for industries such as mold manufacturing, metal work pressing, electronics, instrument, horologe, as well in universities, research institutes and metering examination departments.

Features:

This instrument is a precession measuring device integrating optics, mechanics, electricity and computation into an organic whole; which is widely used in the measuring rooms and workshops of related factories and plants in the sectors of machinery manufacture, instrumentation, clocks and watches and electronics industries. This instrument can easily and speedily check the profiles and surface shapes of various measured parts; e.g., various parts, cutting tools and tools of sample plates, punching pieces, cams, gears, molding milling cutters, tapping tools, etc.

Features:

Projection screen: effective diameter (mm):	φ300mm, working scope＞φ300 (internally marked with asterisk-shaped line)
Projection screen's rotation angle:	0～360°
Resolution of rotation angle:	0.01° or 1′
Accuracy of the rotary angle:	6′
Object lens's magnification:	10×（standard）20×（optional）50×（optional）100×（optional）
View-field of object (mm):	φ30 φ15 φ6 φ3
Working distance for object (mm):	75 69 26 26
Metal stage size:	340×152mm
Glass stage size:	190×75mm
Travel—X, Y axis:	150×50mm
Z axis travel:	80mm
Resolution of X Y:	0.001mm(digital display)
Accuracy:	(4+L/25)μm
Stage support	4kg
Data processor:	DS-401 or DS600
Ascent and descent mechanism:	45 ° oblique tooth gear
Profile light source	12V/100W tungsten halogen lamp
surface light source	24V/150W tungsten halogen lamp
Over dimensions:	480×780×1150mm
Weight:	135kg
Power supply:	110V/220V (switch) ; 50/60HZ(switch)
Optional accessories:	attached RS232 interface, optional 2D measuring software, ensuring convenient operation.

SP12B3 Φ 250 digital profile projector

Features:

The product has beautiful outline and external readout. Its operation is simple and it suit for online inspection.
Aspheric surface spotlighting and uniform view field. It has clear image and accurate magnification.
The worktable adopts cast iron, which has light weight and high precision. It can do coarse movement so as to improve working efficiency.
The up or down is V line guide rail with comfort transmission.
The axial-flow fan adopts double direction heat dispersion so as to provide strong cooling ability.

Technical parameters:

Screen diameter (mm): Φ250
Rotating range: 0°~360°
Display equivalent of the rotating angle: 1′
Accuracy of rotating angle: 8′

Objective

Magnification power	10×	20×
Object Visual Field	φ25 mm	φ12.5mm
Object Working Distance	75 mm	69 mm

Errors of magnification ≤ 0.08%
worktable area (220×150) mm
Range of X-coordinate 0~100 mm resolution 0. 001 mm
Range of Y- coordinate 0~50 mm resolution 0. 001 mm
Range of coordinate 0~50 mm (focusing)
Accuracy of the instrument: (4+L/25) um
of which, L=length of the workpiece measured(unit: mm)
Transmission Lighting:12V 100W halogen Tungsten lamp

Load capacity of the worktable: 1kg
Overall sizes (mm): L/650 W/400 H/760
Rated voltage for the instrument: 220V±22V, Frequency/50HZ±1HZ,
Temperature: 20°C±5°C

Młoty udarnościowe

JBDW-300D Computer Control Low Temperature Automatic Impact Tester

The impact tester is used for testing the impact resistance of the metal material at a low temperature and dynamic load state so as to determine the property of the material at the low temperature and dynamic load state. The impact tester is a testing instrument indispensable to the material test and the research and development of new materials by units of metallurgical machinery manufacturing and scientific research testing.

The tester is automatically controlled by a microcomputer and electrically and mechanically controls the pendulum raising, pendulum hanging, feeding, positioning and impacting. The tester, which is equipped with a special sample feeding device for automatic feeding, automatically positions the end face of the test sample, ensures that the time from discharge to impact of the test sample is not more than 2 seconds, and meets the requirement of a metal low-temperature Charpy impact test method. After the test sample is punched and cut, the tester can utilize residual energy for automatic pendulum rising and preparation for next test and has high working efficiency. The microcomputer can calculate and display the impact absorption power and impact toughness of a material, a raising angle of a pendulum hammer and the mean value of the test, and can print the data of the current test and the mean value of the test. The temperature index can fully meet various temperature controlling requirements stipulated by national standard GB229-2007.

JBDW-300D Microcomputer Control Low Temperature Automatic Impact Tester: adopting a compressor for refrigeration.
JBDW-300Y Microcomputer Control Low Temperature Automatic

Specification:

Model	JBDW-300D
	JBDS-300D
Impact Energy	150/300J
Included Angle of Impact Blade	30°
Pre-raising Angle of the Pendulum Hammer	150°
Distance between the Center of the Pendulum Shaft and the Impact Point	750mm
Impact Speed	5.2m/s
Span of the Test Sample Support	40+0.2mm
Round Angle of Tong Mouth	R1-1.5mm
Round Angle of Impact Blade	R2mm, R8mm
Specification of Test Sample	10mm×10mm×55mm
Capacity of Test Sample Box	6 pieces
Refrigeration Mode	Liquefy nitrogen
Low Temperature Range	0~-190°C
Temperature Control Precision	Fluctuation ±2°C Grads: 3 degree
Over Size	1600x850x1530mm
weight	880kg
Impact test POWER	AC 380V 50Hz

JBDW-300Y Computer Control Low Temperature Automatic Impact Tester

The impact tester is used for testing the impact resistance of the metal material at a low temperature and dynamic load state so as to determine the property of the material at the low temperature and dynamic load state. The impact tester is a testing instrument indispensable to the material test and the research and development of new materials by units of metallurgical machinery manufacturing and scientific research testing.

The tester is automatically controlled by a microcomputer and electrically and mechanically controls the pendulum raising, pendulum hanging, feeding, positioning and impacting. The tester, which is equipped with a special sample feeding device for automatic feeding, automatically positions the end face of the test sample, ensures that the time from discharge to impact of the test sample is not more than 2 seconds, and meets the requirement of a metal low-temperature Charpy impact test method. After the test sample is punched and cut, the tester can utilize residual energy for automatic pendulum rising and preparation for next test and has high working efficiency. The microcomputer can calculate and display the impact absorption power and impact toughness of a material, a raising angle of a pendulum hammer and the mean value of the test, and can print the data of the current test and the mean value of the test. The temperature index can fully meet various temperature controlling requirements stipulated by national standard GB229-2007.

JBDW-300Y Microcomputer Control Low Temperature Automatic Impact Tester: adopting a compressor for refrigeration.

JBDW-300Y

Specification:

Model	JBDW-300Y	JBDW-300YI
	JBDS-300Y	JBDS-300Y I
Impact Energy	150/300J	
Included Angle of Impact Blade	30°	
Pre-raising Angle of the Pendulum Hammer	150°	
Distance between the Center of the Pendulum Shaft and the Impact Point	750mm	
Impact Speed	5.2m/s	
Span of the Test Sample Support	40mm	
Round Angle of Tong Mouth	R1-1.5mm	
Round Angle of Impact Blade	R2mm, R8mm	
Specification of Test Sample	10mm×10mm×55mm	
Capacity of Test Sample Box	20 pieces	
Refrigeration Mode	Compressor	
Low Temperature Range	0~-60°C	0~-80°C
Temperature Control Precision	Fluctuation ±0.5°C Grads: 1 degree	
Over Size	1600x850x1530mm	
weight	880kg	
Impact test POWER	AC 380V 50Hz	

JBW-CD series low temperature impact tester

The impact tester is used for testing the impact resistance of the metal material at a low temperature and dynamic load state so as to determine the property of the material at the low temperature and dynamic load state. The impact tester is a testing instrument indispensable to the material test and the research and development of new materials by units of metallurgical machinery manufacturing and scientific research testing.

The tester is automatically controlled by a microcomputer and electrically and mechanically controls the pendulum raising, pendulum hanging, feeding, positioning and impacting. The tester, which is equipped with a special sample feeding device for automatic feeding, automatically positions the end face of the test sample, ensures that the time from discharge to impact of the test sample is not more than 2 seconds, and meets the requirement of a metal low-temperature Charpy impact test method. After the test sample is punched and cut, the tester can utilize residual energy for automatic pendulum rising and preparation for next test and has high working efficiency. The microcomputer can calculate and display the impact absorption power and impact toughness of a material, a raising angle of a pendulum hammer and the mean value of the test, and can print the data of the current test and the mean value of the test. The temperature index can fully meet various temperature controlling requirements stipulated by national standard GB229-2007.

JBW-CD intelligent type Super Low Temperature Automatic Impact Tester

JBW-CY intelligent type Low Temperature Automatic Impact Tester: adopting a compressor for refrigeration.

Specification:

Model	JBW-300CD	JBW-450CD
	JBS-300CY	JBS-450CY
Impact Energy	300J	450J
Scale Range	0-300J	0-450J
Resolution	2 J	3 J
Distance between the Center of the Pendulum Shaft and the Impact Point	750mm	
Impact Speed	5.2m/s	
Refrigeration Mode	Liquefy nitrogen	
Low Temperature Range	0~-190°C	
Temperature Control Precision	Fluctuation ±1°C Grads: 1 degree°	
Included Angle of Impact Blade	30°	
Pre-raising Angle of the Pendulum Hammer	150°	
Span of the Test Sample Support	40mm+0.2mm	
Round Angle of Tong Mouth	R1.25mm	
Round Angle of Impact Blade	R2mm, R8mm	
Specification of Test Sample	10mm×10mm×55mm	
Capacity of Test Sample Box	6 pieces	
Impact test POWER	AC 380V 50Hz	

JBW-CY series low temperature impact tester

The impact tester is used for testing the impact resistance of the metal material at a low temperature and dynamic load state so as to determine the property of the material at the low temperature and dynamic load state. The impact tester is a testing instrument indispensable to the material test and the research and development of new materials by units of metallurgical machinery manufacturing and scientific research testing.

The tester is automatically controlled by a microcomputer and electrically and mechanically controls the pendulum raising, pendulum hanging, feeding, positioning and impacting. The tester, which is equipped with a special sample feeding device for automatic feeding, automatically positions the end face of the test sample, ensures that the time from discharge to impact of the test sample is not more than 2 seconds, and meets the requirement of a metal low-temperature Charpy impact test method. After the test sample is punched and cut, the tester can utilize residual energy for automatic pendulum rising and preparation for next test and has high working efficiency. The microcomputer can calculate and display the impact absorption power and impact toughness of a material, a raising angle of a pendulum hammer and the mean value of the test, and can print the data of the current test and the mean value of the test. The temperature index can fully meet various temperature controlling requirements stipulated by national standard GB229-2007.

JBW-300CY

Specification:

Model	JBW-300C	YJBW-450C	YJBW-750CY
	JBS-300C	YJBS-450C	YJBS-750CY
Impact Energy	300J	450J	750J
Scale Range	0-300J	0-450J	0-750J
Resolution	2 J	3 J	5J
Distance between the Center of the Pendulum Shaft and the Impact Point	750mm		
Impact Speed	5.2m/s		
Refrigeration Mode	Compressor		
Low Temperature Range	0~-60°C		
Temperature Control Precision	Fluctuation ±0.5°C Grads: 1 degree°		
Included Angle of Impact Blade	30°		
Pre-raising Angle of the Pendulum Hammer	150°		
Span of the Test Sample Support	40mm+0.2mm		
Round Angle of Tong Mouth	R1.25mm		
Round Angle of Impact Blade	R2mm, R8mm		
Specification of Test Sample	10 (7.5, 5) mm×10mm×55mm		
Capacity of Test Sample Box	20 pieces		
Impact test POWER	AC 380V 50Hz		

JBW-300C series Automatic impact testing machine (computer control)

JBW-300C series is PC Microcomputer control, electric pendulum rising, impact; the results are measured, calculated by microcomputers and displayed digitally and can be printed out; having high operation efficiency and high testing accuracy; the energy which is remained after the specimen is impacted broken can automatically rise the pendulum for the next testing; better used in laboratories which make consecutive impact tests or the metallurgy and machine manufacturing sectors which are involved with a large amount of impact tests. the material impact absorbed energy, impact elasticity, pendulum rising angle and average value of tests can be calculated and digitally displayed. The test data and average value of tests of the time can be printed out.

via simply by supported beam,the pendulum shaft of hanging pendulum position ,two ends using axletree support,pendulum hang the middyway position of the pendulum shaft, support column front and back symmetry,It has many characteristics such as good stability,great rigidity,simply structure,it doesn't quiver when hanging pendulum to do impacting test

JBS-300C

Specification:

Model	JBW-300C	JBW-450C	JBW-600C	JBW-750C
	JBS-300C	JBS-450C	JBS-600C	JBS-750C
Impact Energy	300J	450J	600J	750J
Scale Range	0-300J	0-450J	0-600J	0-750J
Resolution	2 J	3 J	4J	5J
Distance between the Center of the Pendulum Shaft and the Impact Point	750mm	750mm	750mm	750mm
Impact Speed	5.2m/s	5.2m/s	5.2m/s	5.2m/s
Included Angle of Impact Blade	30°			
Pre-raising Angle of the Pendulum Hammer	150°			
Span of Test Sample Support	40 +0.2mm			
Radius of Circular Arc in the End Part of the Test Sample Support	R1.25mm			
Radius of Circular Arc of Impact Blade	R2-2.5, R8			
Angle of Impact Cutter	150°			
Specification of Test Sample	10(7.5, 5, 2.5)×10×55 mm			
Precision of Force Transducer	≤±1%FS			
Resolution of Angular Displacement Transducer	0.1°			
Take part	Manual by people			
Impact test POWER	AC 380V 50Hz			

JBW-300HD series intelligent type Super low temperature impact tester

The impact tester is used for testing the impact resistance of the metal material at a low temperature and dynamic load state so as to determine the property of the material at the low temperature and dynamic load state. The impact tester is a testing instrument indispensable to the material test and the research and development of new materials by units of metallurgical machinery manufacturing and scientific research testing.

The tester is automatically controlled by a microcomputer and electrically and mechanically controls the pendulum raising, pendulum hanging, feeding, positioning and impacting. The tester, which is equipped with a special sample feeding device for automatic feeding, automatically positions the end face of the test sample, ensures that the time from discharge to impact of the test sample is not more than 2 seconds, and meets the requirement of a metal low-temperature Charpy impact test method. After the test sample is punched and cut, the tester can utilize residual energy for automatic pendulum rising and preparation for next test and has high working efficiency. The microcomputer can calculate and display the impact absorption power and impact toughness of a material, a raising angle of a pendulum hammer and the mean value of the test, and can print the data of the current test and the mean value of the test. The temperature index can fully meet various temperature controlling requirements stipulated by national standard GB229-2007.

JBW-300HD intelligent type Super Low Temperature Automatic Impact Tester: adopting a compressor for refrigeration.

Technical parameters:

Model	JBW-300HY	JBW-450HY	JBW-750HY
Impact Energy	300 J	450 J	750 J
Scale Range	0-300 J	0-450 J	0-750 J
Resolution	2 J	3 J	5J
Distance between the Center of the Pendulum Shaft and the Impact Point	750mm	750mm	750mm
Impact Speed	5.2m/s	5.2m/s	5.2m/s
Refrigeration Mode	Liquefy nitrogen		
Low Temperature Range	0~ -190ºC		
Temperature Control Precision	Fluctuation ±0.5ºC Grads: 1 degree		
Included Angle of Impact Cutter	30°+±1°		
Pre-raising Angle of the Pendulum Hammer	150°		
Thickness of Impact Cutter	16mm		
Span of the Test Sample Support	40mm+0.2mm		
Round Angle of Tong Mouth	R1.25mm		
Round Angle of Impact Blade	R2.25mm, R8mm		
Specification of Test Sample	10mm×10mm×55mm		
Precision of Force Transducer	≤±1%FS		
Capacity of Test Sample Box	6 pieces		
Impact test POWER	AC 380V 50Hz		

JBW-HY series intelligent type low temperature impact tester

The impact tester is used for testing the impact resistance of the metal material at a low temperature and dynamic load state so as to determine the property of the material at the low temperature and dynamic load state. The impact tester is a testing instrument indispensable to the material test and the research and development of new materials by units of metallurgical machinery manufacturing and scientific research testing.

The tester is automatically controlled by a microcomputer and electrically and mechanically controls the pendulum raising, pendulum hanging, feeding, positioning and impacting. The tester, which is equipped with a special sample feeding device for automatic feeding, automatically positions the end face of the test sample, ensures that the time from discharge to impact of the test sample is not more than 2 seconds, and meets the requirement of a metal low-temperature Charpy impact test method. After the test sample is punched and cut, the tester can utilize residual energy for automatic pendulum rising and preparation for next test and has high working efficiency. The microcomputer can calculate and display the impact absorption power and impact toughness of a material, a raising angle of a pendulum hammer and the mean value of the test, and can print the data of the current test and the mean value of the test. The temperature index can fully meet various temperature controlling requirements stipulated by national standard GB229-2007.

JBW-HY intelligent type Low Temperature Automatic Impact Tester: adopting a compressor for refrigeration.

Technical parameters:

Model	JBW-300HY	JBW-450HY	JBW-750HY
Impact Energy	300 J	450 J	750 J
Scale Range	0-300 J	0-450 J	0-750 J
Resolution	2 J	3 J	5J
Distance between the Center of the Pendulum Shaft and the Impact Point	750mm	750mm	750mm
Impact Speed	5.2m/s	5.2m/s	5.2m/s
Refrigeration Mode	Compressor		
Low Temperature Range	0~-60ºC	0~-80ºC	0~-100ºC
Temperature Control Precision	Fluctuation ±0.5ºC Grads: 1 degree		
Included Angle of Impact Cutter	30°+±1°		
Pre-raising Angle of the Pendulum Hammer	150°		
Thickness of Impact Cutter	16mm		
Span of the Test Sample Support	40mm+0.2mm		
Round Angle of Tong Mouth	R1.25mm		
Round Angle of Impact Blade	R2.25mm, R8mm		
Specification of Test Sample	10mm×10mm×55mm		
Precision of Force Transducer	≤±1%FS		
Capacity of Test Sample Box	20 pieces		
Impact test POWER	AC 380V 50Hz		

JBW-300H series intelligent type impact tester

Technical Characteristics:

1. A pedestal of a mainframe stand and an upright post are integrally designed, and are cast and machined integrally, which ensure good rigidity and improve the stability of the test.
2. A pendulum shaft adopts a freely supported beam mode for bearing; and the radial load of the bearing is reasonably distributed, which greatly reduces the energy loss brought by bearing friction.
3. The tester adopts a double-stage standard reducing motor for lifting the hammer; and a pendulum hanging device adopts hydraulic buffer and has smooth pendulum hanging.
4. The pendulum hammer is designed to be a circular pendulum body, which ensures the accuracy of the striking center and the precision of pendulum hammer torque.
5. An impact cutter is fixedly mounted by a bolt, and simple and convenient to replace.
6. The tester is equipped with a safety protection pin and a fully-closed protective cover.
7. The tester is controlled by a microcomputer and completes the whole process of pendulum taking, impacting, automatic pendulum raising and re-impacting for several tests according to instructions.
8. The tester is provided with a force transducer and an angle displacement transducer and has the functions of high-speed sampling, storage and calculation.
9. The microcomputer can obtain a force-time curve, a displacement-time curve, an energy-time curve, a force-displacement curve, an energy-displacement curve and other curves.
10. The tester can provide a plurality of characteristic values of impact speed, impact time, impact energy, absorbed energy, displacement, crack formation energy, crack expansion energy, yield strength, yield time, yield displacement, yield energy, maximal force, time in maximal force, displacement in maximal force, energy in maximal force, unstable crack expansion initial force, unstable crack expansion terminal force, unstable crack expansion terminal displacement, unstable crack expansion initial energy and unstable crack expansion terminal energy.

Technical parameters:

Model	JBW-150H	JBW-300H	JBW-450H	JBW-600H	JBW-750H
Impact Energy	150J	300J	450J	600J	750J
Scale Range	0-150J	0-300J	0-450J	0-600J	0-750J
Resolution	1J	2J	3J	4J	5J
Distance between Axis of Pendulum Shaft and Striking Center	750mm				
Maximal Impact Speed	5.2m/s				
Span of Test Sample Support	40 +0.2mm				
Radius of Circular Arc in the End Part of the Test Sample Support	R1+0.5mm				
Radius of Circular Arc of Impact Blade	R2.25, R8				
Included Angle of Impact Cutter	30°+±1°				
Pre-raising Angle of the Pendulum Hammer	150°				
Thickness of Impact Cutter	16 mm				
Specification of Test Sample	10×10×55 mm				
Precision of Force Transducer	≤±1%FS				
Resolution of Angular Displacement Transducer	0.1°				
Impact test POWER	AC 380V 50Hz				

JBIC-25D Impact Tester（Izod & Charpy)

Profile:

JBIC (Izod & Charpy) Series are innovative multi-test instrument for the determination of polymers and composite materials resilience according to both Charpy and Izod methods. Is used to test or determine the anti-impact capacity of non-metal materials, such as hard plastic, enhanced nylon, ceramic, toughened glass, pottery, cast stone, dielectric etc. and other metallic and non-metallic materials. Being adopted by scientific research institutes, colleges, universities and many non-metallic materials manufactures and laboratories. Also, it has advantages of simple in structure, easy to operate and high accuracy.
This machine is developed according to the standard of Standards ENISO179, ENISO180, ISO9854, DIN53453, ASTMD256
It also can be connected to the PC.

Profile:

1) Energy: **Charpy** 1J, 2J, 4J, 5J, 7.5J, 15J, 25J | **Izod** 1J, 2.75J, 5.5J, 11J, 22J
2) Impact Speed: **Charpy** 2.9m/s 3.8m/s | **Izod** 3.5m/s
3) Support: **Charpy** 40mm 60mm 70mm 95mm | **Izod** 22mm
4) Size (L×W×H): 500mm×350mm×780mm
5) Weight: 130kg
6) Power Supply: AC220±10V 50HZ
7) Working Condition: 20±5℃, RH□80%

Technical parameters:

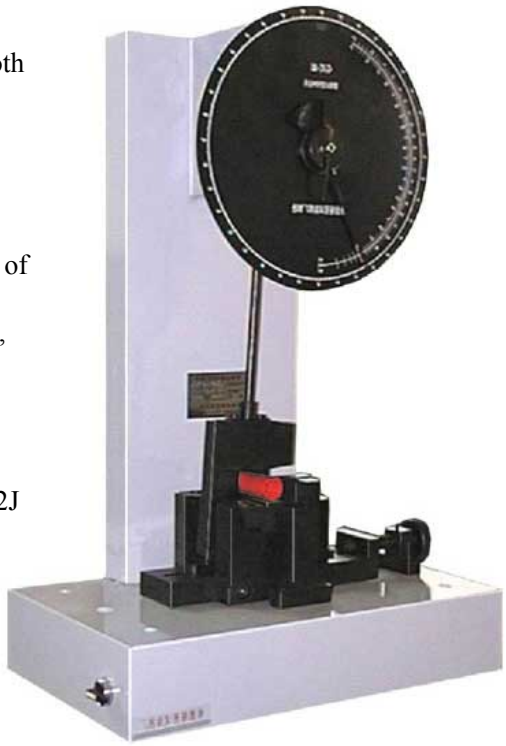
Model	Energy	Speed	Display	Control
JBIC -5	Charpy: 1J/ 2J /4J /5J	Charpy: 2.9m/s	Dial Display	Manual
	Izod: 1J/ 2.75J	Izod: 3.5m/s		
JBIC -5D	Charpy: 1J /2J /4J/ 5J	Charpy: 2.9m/s	digital DRO (LCD)	Auto
	Izod: 1J /2.75J	Izod: 3.5m/s		
JBIC -25	Charpy: 7.5J/ 15J/ 25J	Charpy: 3.8m/s	Dial Display	Manual
	Izod: 5.5J/ 11J/ 22J	Izod: 3.5m/s		
JBIC -25D	Charpy: 7.5J/ 15J /25J	Charpy: 3.8m/s	digital DRO (LCD)	Auto
	Izod: 5.5J /11J/ 22J	Izod: 3.5m/s		

JBIC-5D and JBIC25D can option software and PC.

JBIC-25 Impact Tester（Izod & Charpy)

Profile:

JBIC (Izod & Charpy) Series are innovative multi-test instrument for the determination of polymers and composite materials resilience according to both Charpy and Izod methods.
Is used to test or determine the anti-impact capacity of non-metal materials, such as hard plastic, enhanced nylon, ceramic, toughened glass, pottery, cast stone, dielectric etc. and other metallic and non-metallic materials. Being adopted by scientific research institutes, colleges, universities and many non-metallic materials manufactures and laboratories. Also, it has advantages of simple in structure, easy to operate and high accuracy.
This machine is developed according to the standard of Standards ENISO179, ENISO180,ISO9854, DIN53453, ASTMD256
It also can be connected to the PC.



Profile:

1) Energy: **Charpy** 1J, 2J, 4J, 5J, 7.5J, 15J, 25J | **Izod** 1J, 2.75J, 5.5J, 11J, 22J
2) Impact Speed: **Charpy** 2.9m/s 3.8m/s | **Izod** 3.5m/s
3) Support: **Charpy** 40mm 60mm 70mm 95mm | **Izod** 22mm
4) Size (L×W×H): 500mm×350mm×780mm
5) Weight: 130kg
6) Power Supply: AC220±10V 50HZ
7) Working Condition: 20±5℃, RH□80%

Technical parameters:

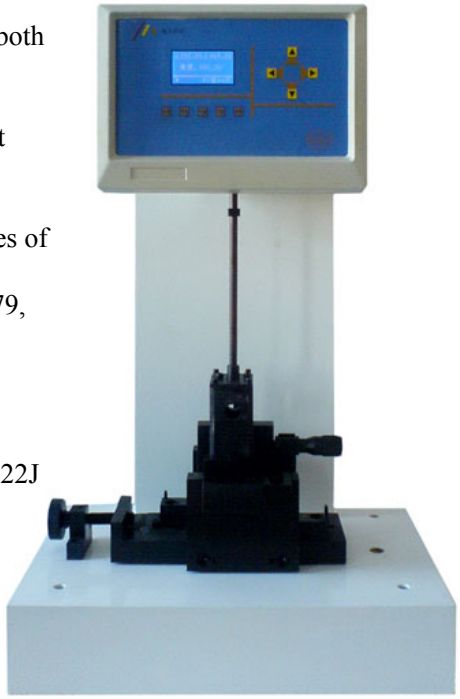
Model	Energy	Speed	Display	Control
JBIC -5	Charpy: 1J/ 2J /4J /5J	Charpy: 2.9m/s	Dial Display	Manual
	Izod: 1J/ 2.75J	Izod: 3.5m/s		
JBIC -5D	Charpy: 1J /2J /4J/ 5J	Charpy: 2.9m/s	digital DRO (LCD)	Auto
	Izod: 1J /2.75J	Izod: 3.5m/s		
JBIC -25	Charpy: 7.5J/ 15J/ 25J	Charpy: 3.8m/s	Dial Display	Manual
	Izod: 5.5J/ 11J/ 22J	Izod: 3.5m/s		
JBIC -25D	Charpy: 7.5J/ 15J /25J	Charpy: 3.8m/s	digital DRO (LCD)	Auto
	Izod: 5.5J /11J/ 22J	Izod: 3.5m/s		

JBIC-5D and JBIC25D can option software and PC.

JBIC-5D Impact Tester（Izod & Charpy)

Profile:

JBIC (Izod & Charpy) Series are innovative multi-test instrument for the determination of polymers and composite materials resilience according to both Charpy and Izod methods.
Is used to test or determine the anti-impact capacity of non-metal materials, such as hard plastic, enhanced nylon, ceramic, toughened glass, pottery, cast stone, dielectric etc. and other metallic and non-metallic materials. Being adopted by scientific research institutes, colleges, universities and many non-metallic materials manufactures and laboratories. Also, it has advantages of simple in structure, easy to operate and high accuracy.
This machine is developed according to the standard of Standards ENISO179, ENISO180,ISO9854, DIN53453, ASTMD256
It also can be connected to the PC.



Profile:

1) Energy: **Charpy** 1J, 2J, 4J, 5J, 7.5J, 15J, 25J | **Izod** 1J, 2.75J, 5.5J, 11J, 22J
2) Impact Speed: **Charpy** 2.9m/s 3.8m/s | **Izod** 3.5m/s
3) Support: **Charpy** 40mm 60mm 70mm 95mm | **Izod** 22mm
4) Size (L×W×H): 500mm×350mm×780mm
5) Weight: 130kg
6) Power Supply: AC220±10V 50HZ
7) Working Condition: 20±5℃, RH□80%

Technical parameters:

Model	Energy	Speed	Display	Control
JBIC -5	Charpy: 1J/ 2J /4J /5J	Charpy: 2.9m/s	Dial Display	Manual
	Izod: 1J/ 2.75J	Izod: 3.5m/s		
JBIC -5D	Charpy: 1J /2J /4J/ 5J	Charpy: 2.9m/s	digital DRO (LCD)	Auto
	Izod: 1J /2.75J	Izod: 3.5m/s		
JBIC -25	Charpy: 7.5J/ 15J/ 25J	Charpy: 3.8m/s	Dial Display	Manual
	Izod: 5.5J/ 11J/ 22J	Izod: 3.5m/s		
JBIC -25D	Charpy: 7.5J/ 15J /25J	Charpy: 3.8m/s	digital DRO (LCD)	Auto
	Izod: 5.5J /11J/ 22J	Izod: 3.5m/s		

JBIC-5D and JBIC25D can option software and PC.

JBIC-5 Impact Tester（Izod & Charpy）

Profile:

JBIC (Izod & Charpy) Series are innovative multi-test instrument for the determination of polymers and composite materials resilience according to both Charpy and Izod methods.
Is used to test or determine the anti-impact capacity of non-metal materials, such as hard plastic, enhanced nylon, ceramic, toughened glass, pottery, cast stone, dielectric etc. and other metallic and non-metallic materials. Being adopted by scientific research institutes, colleges, universities and many non-metallic materials manufactures and laboratories. Also, it has advantages of simple in structure, easy to operate and high accuracy.
This machine is developed according to the standard of Standards ENISO179, ENISO180, ISO9854, DIN53453, ASTMD256
It also can be connected to the PC.

Profile:

1) Energy: **Charpy** 1J, 2J, 4J, 5J, 7.5J, 15J, 25J | **Izod** 1J, 2.75J, 5.5J, 11J, 22J
2) Impact Speed: **Charpy** 2.9m/s 3.8m/s | **Izod** 3.5m/s
3) Support: **Charpy** 40mm 60mm 70mm 95mm | **Izod** 22mm
4) Size (L×W×H): 500mm×350mm×780mm
5) Weight: 130kg
6) Power Supply: AC220±10V 50HZ
7) Working Condition: 20±5℃, RH□80%

Technical parameters:

Model	Energy	Speed	Display	Control
JBIC -5	Charpy: 1J/ 2J /4J /5J	Charpy: 2.9m/s	Dial Display	Manual
	Izod: 1J/ 2.75J	Izod: 3.5m/s		
JBIC -5D	Charpy: 1J /2J /4J/ 5J	Charpy: 2.9m/s	digital DRO (LCD)	Auto
	Izod: 1J /2.75J	Izod: 3.5m/s		
JBIC -25	Charpy: 7.5J/ 15J/ 25J	Charpy: 3.8m/s	Dial Display	Manual
	Izod: 5.5J/ 11J/ 22J	Izod: 3.5m/s		
JBIC -25D	Charpy: 7.5J/ 15J /25J	Charpy: 3.8m/s	digital DRO (LCD)	Auto
	Izod: 5.5J/ 11J/ 22J	Izod: 3.5m/s		

JBIC-5D and JBIC25D can option software and PC.