The Series of Video Measuring Machine

50 Years' Trustworthy Professional Manufacture Quality

GUIYANG XINTIAN OETECH CO., LTD.
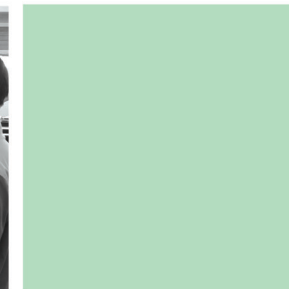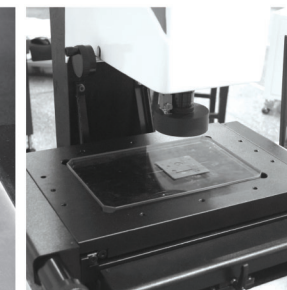
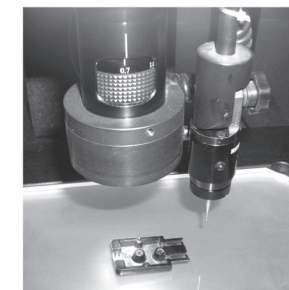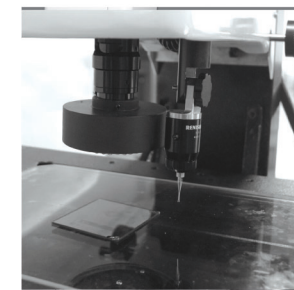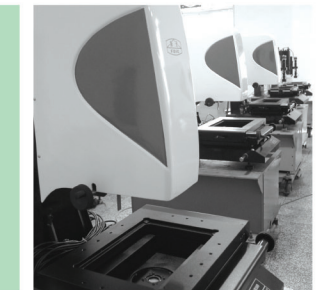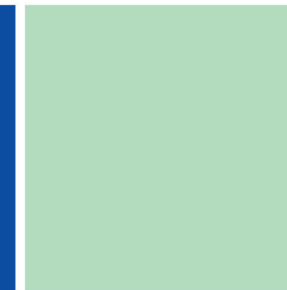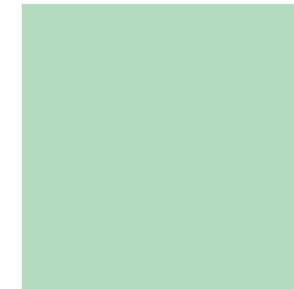**Address:** No.9,Xinguang Road, High–tech Industrialand
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Brief Introduction

Video Measuring Machine is a kind of metrology and measuring instrument, which is based on CCD digital image processing and supported by computer screen measuring technique together with geometrical calculation software to achieve efficient measurement.

According to different structure designs, configurations and software functions, our Video Measuring Machine can be divided into five series, they are:

Manual Type JVB Series ――― Compact structure design and powerful software functions, with geometrical elements and combination measurement, geometric tolerance, coordinate settings, data collection and output , etc.

Semi-automatic Type JVB-E Series ――― Adding the

functions of Z-axis motor-driven , auto focusing and SPC statistics.

Precise Type JVB-F Series ――― Improving measuring accuracy based on JVB series, which can satisfy higher technical measuring requirements.

Touch Probe Type JVB-T Series ――― Equipped with Renishaw touch probe and three-dimensional measurement software and can perform three-dimensional measurement of workpieces.

Full-automatic Type JVB-C Series ――― Adopting CNC control system and realizing full digital control, in which all of measurements can be achieved by rocker and mouse, making the measurement more efficiently.

JVB/JVB-F

Series of Manual Video Measuring Machine

Characteristics

◉ High-accuracy granite base with higher strength and stability; unique workbench design for JVB 150 with small size and attractive appearance.

◉ Precise transmission to eliminate lead screw clearance to ensure comfortable rotation and gapless of hand wheel.

◉ Lens: 0.7X-4.5X continuous magnification and positioned lens.

◉ Height measurement available after installing optional linear scale on Z-axis.

◉ Suitable for measuring mobile accessories, home appliances, machine parts, precision clamps, plastics, hardware, products related to computer, precision stamping parts, etc.

Technical Parameters:

Category	Manual Video Measuring Machine / High-Accuracy Manual Video Measuring Machine			
Model number	JVB150/JVB150F	JVB250/JVB250F	JVB300/JVB300F	JVB400/JVB400F
Travel(mm):X × Y × Z	150 × 100 × 100	250 × 150 × 200	300 × 200 × 200	400 × 300 × 200
Overall dimension:(mm)	480 × 460 × 620	1200 × 700 × 1540	1200 × 700 × 1540	1500 × 985 × 1630
Weight (kg)	40kg	220kg	240kg	340kg
Load capacity (kg)	10kg	30kg		
Measurement resolution	0.5um			
Measurement accuracy	JVB Series: X, Y accuracy: (3+L/200) um			
	JVB-F Series: X, Y accuracy: (2.5+L/200) um			
Repeatability	2μm			
Operating mode	Manual			
Magnification	Optical magnification: 0.7X-4.5X, image magnification: 28X-180X			
Software	SINPO-M			
CCD	470,000 pixel, colorful CCD			
Power supply	110-220V			
Environment	Temperature: 20 ± 5℃, humidity: 45%-75%			
Light source	Programmed control LED cold light	Programmed control 3-loop and 8-area LED cold light (optional 5-loop and 8-area)		

JVB-T

Series of Manual Touch Probe Video Measuring Machine

Characteristics

- High-accuracy granite base with higher strength and stability.
- Precision straight slide guide rail and balancing weight used for Z-axis, with balanced lifting force.
- Lens: 0.7X–4.5X continuous magnification and positioned lens.
- By contacting measurement, achieving the measurement of space coordinates, convenient to measure overall dimensions, geometric tolerance of various parts.
- Suitable for measuring mobile accessories, home appliances, machine parts, precision clamps, plastics, hardware, products related to computer, precision stamping parts, etc.

RENISHAW measuring head

Technical parameters:

Category	Manual Touch Probe Video Measuring Machine		
Model number	JVB250T	JVB300T	JVB400T
Travel(mm):X × Y × Z	250 × 150 × 200	250 × 150 × 200	400 × 300 × 200
Overall dimension:(mm)	1200 × 700 × 1540	1200 × 700 × 1540	1500 × 985 × 1630
Weight (kg)	220kg	240kg	340kg
Load capacity (kg)	30kg		
Measurement resolution	0.5um		
Measurement accuracy	X, Y accuracy: (3+L/200) um, Z accuracy: (5.0+L/200) um		
Repeatability	2μm		
Operating mode	Manual		
Magnification	Optical magnification: 0.7X–4.5X, image magnification: 28X–180X		
Software	SINPO–T		
CCD	470,000 pixel, colorful CCD		
Power supply	110–220V		
Environment	Temperature: 20 ± 5℃, humidity: 45%–75%		
Light source	Programmed control 3–loop and 8–area LED cold light (optional 5–loop and 8–area)		
Remarks	(with RENISHAW measuring head)		

JVB-E/JVB-EF

Series of Semi-automatic Semi-automatic High-accuracy Video Measuring Machine

Characteristics

- High-accuracy granite base with higher strength and stability.
- Motor installed on Z-axis and adopts rocker control, convenient for users' quick measurement. Realize automatic focusing, image height measurement.
- Semi-automatic measuring software providing various auto image measuring tools to avoid visual error, characterized by SPC statistic analysis and programming study. Data graphics can be output to Auto CAD for further processing.
- Suitable for measuring mobile accessories, home appliances, machine parts, precision clamps, plastics, hardware, products related to computer, precision

Technical Parameters

Category	Semi–automatic image measurer / Semi–automatic high–accuracy imagemeasurer		
Model number	JVB250E/JVB250EF	JVB300E/JVB300EF	JVB400E/JVB400EF
Travel(mm):X × Y × Z	250 × 150 × 200	300 × 200 × 200	400 × 300 × 200
Overall dimension:(mm)	1200 × 700 × 1540	1200 × 700 × 1540	1500 × 985 × 1630
Weight (kg)	220kg	240kg	340kg
Load capacity (kg)	30kg		
Measurement resolution	0.5um		
Measurement accuracy	JVB–E Series: X, Y accuracy: (3+L/200) um; Z accuracy: (5.0+L/200) um		
	JVB–EF Series: X,Yaccuracy: (2.5+L/200) um Z accuracy: (5.0+L/200) um		
Repeatability	2μm		
Operating mode	X, Y manual, Z motor driven		
Magnification	Optical magnification: 0.7X–4.5X, image magnification: 28X–180X		
Software	SINPO–E		
CCD	470,000 pixel, colorful CCD		
Power supply	110–220V		
Environment	Temperature: 20 ± 5℃, humidity: 45%–75%		
Light source	Programmed control 3–loop and 8–area LED cold light (optional 5–loop and 8–area)		

JVB-ET

Series of Semi−automatic Touch Probe Video Measuring Machine

RENISHAW measuring head

Characteristics

- High−accuracy granite base with higher strength and stability.
- Motor installed on Z−axis and adopts rocker control, convenient for users' quick measurement.
- Semi−automatic measuring software providing various auto image measuring tools to avoid visual error, characterized by SPC statistic analysis and programming study. Data graphics can be output to Auto CAD for further processing.
- Corrections are not required for particular fixed magnification by using positioned lens and combining with the software.
- Suitable for measuring mobile accessories, home appliances, machine parts, precision clamps, plastics, hardware, products related to computer, precision stamping parts, etc.

Technical parameters:

Category	Semi−automatic Touch Probe Video Measuring Machine		
Model number	JVB250ET	JVB300ET	JVB400ET
Travel(mm):X × Y × Z	250 × 150 × 200	300 × 200 × 200	400 × 300 × 200
Overall dimension:(mm)	1200 × 700 × 1540	1200 × 700 × 1540	1500 × 985 × 1630
Weight (kg)	220kg	240kg	340kg
Load capacity (kg)	30kg		
Measurement resolution	0.5um		
Measurement accuracy	X, Y accuracy: (3+L/200) um, Z accuracy: (5.0+L/200) um		
Repeatability	2μm		
Operating mode	X, Y manual, Z motor driven		
Magnification	Optical magnification: 0.7X−4.5X, image magnification: 28X−180X		
Software	SINPO−ET		
CCD	470,000 pixel, colorful CCD		
Power supply	110−220V		
Environment	Temperature: 20 ± 5℃, humidity: 45%−75%		
Light source	Programmed control 3−loop and 8−area LED cold light (optional 5−loop and 8−area)		
Remarks	(with RENISHAW measuring head)		

JVB-C/JVB-CF

Series of Full−automatic Video Measuring Machine

JVB300C

Characteristics

- High−accuracy granite base with higher strength and stability.
- Guide rail directly fixed on the platform of double zero level of granite, ensuring its running accuracy.
- Integrated circuit design with simple software operation, as well as powerful performance, stable and reliable functions.
- Suitable for measuring mobile accessories, home appliances, machine parts, precision clamps, plastics, hardware, products related to computer, precision stamping parts, etc.

Technical Parameters

Category	Full−automatic Video Measuring Machine		
Model number	JVB250C/JVB250CF	JVB300C/JVB300CF	JVB400C/JVB300CF
Travel(mm):X × Y × Z	250 × 150 × 200	300 × 200 × 200	400 × 300 × 200
Overall dimension:(mm)	860 × 802 × 1738	860 × 802 × 1738	960 × 902 × 1768
Weight (kg)	220kg	340kg	420kg
Load capacity (kg)	30kg		
Measurement resolution	0.5um		
Measurement accuracy	JVB−E Series: X, Y accuracy: (3+L/200) um; Z accuracy: (5.0+L/200) um		
	JVB−CF Series: X,Yaccuracy: (2.5+L/200) um Z accuracy: (5.0+L/200) um		
Measuring speed (mm/s)	X−axis: 150 Y−axis: 150 Z−axis: 80		
Repeatability	2μm		
Mode of motor control	Integrated intelligent control (mouse, joystick)		
Lens	Independently developed auto zoom lens (optional USA NAVITAR lens)		
Mode of driving	Screw rod		
Magnification	Optical magnification: 0.7X−4.5X, image magnification: 28X−180X		
Software	SINPO−C		
CCD	HD colorful special CCD (optional SONY HD CCD)		
Power supply	110−220V		
Environment	Temperature: 20 ± 5℃, humidity: 45%−75%		
Light source	PCL 360 intelligent programmed lighting control system: 3−loop and 8−area surface light + bottom parallel light		

JVB-CT

Series of Full-automatic Touch Probe Video Measuring Machine

Characteristics

◉ High-accuracy granite base with higher strength and stability.

◉ Equipped with continuous zoom objectives developed independently, which can change the magnification of image quickly, suitable for the measurement of different workpieces.

◉ Achieve automatic measurement of space coordinates by contacting measurement method, convenient to measure 3D contour dimensions, geometric tolerance of various parts.

◉ Suitable for measuring mobile accessories, home appliances, machine parts, precision clamps, plastics, hardware, products related to computer, precision stamping parts, etc.

Technical parameters:

Category	Full-automatic Touch Probe Video Measuring Machine		
Model number	JVB250CT	JVB300CT	JVB400CT
Travel(mm):X × Y × Z	250 × 150 × 200	300 × 200 × 200	400 × 300 × 200
Overall dimension:(mm)	860 × 802 × 1738	860 × 802 × 1738	960 × 902 × 1768
Weight (kg)	220kg	240kg	420kg
Load capacity (kg)	30kg		
Measurement resolution	0.5um		
Measurement accuracy	X, Y accuracy: (3+L/200) um, Z accuracy: (5.0+L/200) um		
Measuring speed (mm/s)	X-axis: 150 Y-axis: 150 Z-axis: 80		
Repeatability	2μm		
Mode of motor control	Integrated intelligent control (mouse, joystick)		
Lens	Independently developed auto zoom lens (optional USA NAVITAR lens)		
Mode of driving	Screw rod		
Magnification	Optical magnification: 0.7X-4.5X, image magnification: 28X-180X		
Software	SINPO-CT		
CCD	HD colorful special CCD (optional SONY HD CCD)		
Power supply	110-220V		
Environment	Temperature: 20 ± 5℃, humidity: 45%-75%		
Light source	PCL 360 intelligent programmed lighting control system: 3-loop and 8-area surface light + bottom parallel light		
Remarks	(with RENISHAW measuring head)		

RENISHAW measuring head

JVB300C

Introduction of SINPO Measuring Software

◉ Basic geometrical measurement: including measurements of point (one or more), line, circle, arc, ellipse, rectangle and curve;

◉ Abundant measuring functions: including automatic search of optimized boundary point, automatic line measurement, automatic circle measurement, automatic arc measurement; automatic line identification, automatic circle identification, automatic arc identification; box-selecting point, line, circle (one or more), arc and ellipse; manual mouse acquisition;

◉ Combination measurement: combining point, line and circle to achieve the geometrical calculations of distance, included angle and intersection point among point, line and circle;

◉ Shape-position error measurement: including parallelism, verticality, gradient, position, concentricity and symmetry;

◉ Coordinate system setting: coordinate parallel shift, coordinate rotation, Origin of coordinate conversion, or resetting coordinate system, against the original one;

◉ Size marking: marking length, angle, radius and diameter in the drawing window, convenient to operation, just as operating CAD software;

◉ Output of measurement results: graphics and measurement results can be output by WORD, EXCEL, DXF or in statement report;

◉ Automatic focusing: by adjusting Z-axis, focusing indication curve will generated and the software can choose the best focusing distance, so that manual focusing error will be avoided effectively;

◉ Image amplification function: Video window can be locally amplified by the small window at the lower right corner, which help to aiming workpiece more accurately;

Learning function: For mass inspection, the measurement process can be automatically carried out after programming measurement path one time and set measurement times (only for CNC type).

SINPO Measuring Software Functions

Software interface

Routine measurement

Macro measurement function

It means to assign some instructions of measurement and configuration on a button. Clicking on the button will execute macro measuring function, which can automatically carry out configuration, reduce user's mouse clicks, and improve work efficiency.

16 sets of macro measuring functions are provided by the software and user himself/herself can compile the icons of macro measuring function buttons. The interface of macro measuring function is shown below.
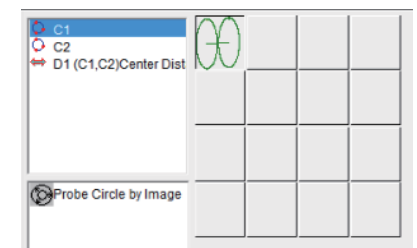
Automatic identification measurement (automatic identification of line, circle and arc)

Click [icon], then entangle the edge with mouse circle, thus it is automatic to search the side to obtain line, circle or arc. For example, the circle is automatically framed as below.

Element construction

This software has a powerful function of element construction, which offers 10 construction methods (translation, rotation, extraction, combination, parallel, verticality, mirror image, symmetry, intersection and tangency) to construct geometrical element. Element construction makes user's difficult measurement easier, thus improve the work efficiency.

Data showing with wide variety of results

Following legend shows the dialog box of message settings of circle element.
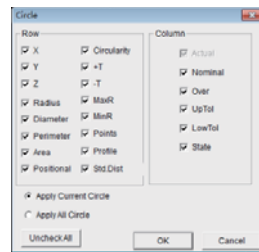

Setup of multi workpiece coordinate system

Multi workpiece coordinate system can be set up in accordance with drawings, to realize the change among all coordinate systems, to realize the inter-conversion between rectangular coordinate system and polar coordinate system, as well as to realize the storage and call of all workpiece coordinate systems. The following legend is the figure after setting up two coordinate systems.
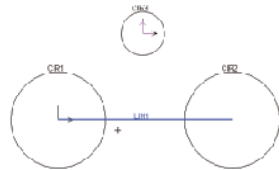
Convenient and efficient setup of user program

By means of parallel shift and rotation, user program can be set up. The following figure shows two users programs after parallel shift and rotation.

By means of these two methods, programming efficiency of workpiece will be improved greatly. Especially for some workpieces with regularly arranged elements to be measured, this programming is very convenient and efficient.
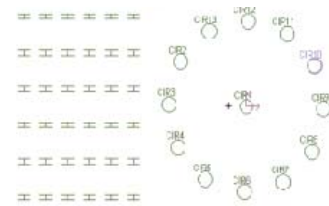
Function of marking

It is able to mark angle, distance (along X- or Y- direction), circle/arc radius, diameter and arc length on the element graphs in drawing area and image area directly , give a clear appearance to user

Measured element and marking can be synchronously displayed on image window and drawing window; the drawn graphics can be hidden on image window. In addition the graph element on image window and 2D graph window can be deleted or selected. The following figure shows the distance of the two circles along X- and Y- direction, as well as the circle diameter.

Data introduced automatically in SPC

After setting up workpiece data in our professional SPC software, as long as completing one workpiece, the data will be automatically introduced into SPC database. It is not required to be converted by TXT document or third-party software. The whole process can complete automatically, do not ask man made intervention.

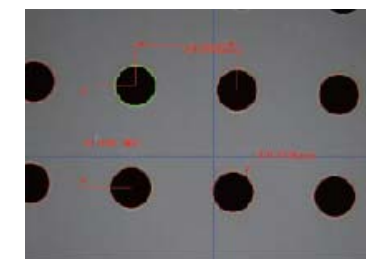### Function of auto focusing and image height measurement

The software characterized by image focusing and height measurement with high precision. In the case when optical magnification exceeds 2.0X, the focusing repeatability can reach 0.003 mm (at the surface of standard gauge block).

Multi motion control modes

The software offers nine modes of motion control, convenient for user to move worktable.

Auxiliary light control

Light control indicator will show the best of light intensity to avoid the measuring error caused by lighting and in the mean time improve measurement accuracy and measurement efficiency.

3D contacting measurement (optional)

The software supports to install a simple probe on Video Measuring Machine to realize 3D measurement.

Functions supported by 3D measurement are as follows:

1.Elements to be measured: point, circle, plane, cylinder, cone, ball, distance, height.

2.Elements to be constructed: plane, angle, distance.

3.Form-position tolerance: verticality, parallelism, gradient, coaxiality.

4.Measuring projection circle through spatial rotation plane.

Laser measurement (optional)

The software has a powerful function of laser measurement. For those problems, which are difficult to be solved by image and probe measuring, such as high-speed planarity measuring, fine concave-convex point and V-angle measuring, as well as high precision scanning of curved surface, laser measurement has dominant position.

Laser measurement can be integrated into CNC image measurement software. At present, laser can be used to measure point, height and planarity; scan straight line, circle and curved surface. The data obtained by laser measurement can be stored in DXF or IGES format.