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Automatic tool metallographic measuring instrument V400

Release date : 2020-11-12

Automatic tool metallographic measuring instrument V400 adopts gantry column structure. Observe and measure the TFT panel, and support the use of inflatable separation products and countertops during use. Electric focusing

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Fully automatic tool metallographic configuration specification

V400



Equipment introduction

设备结构形式

1. Equipment structure

The gantry column structure is adopted, as shown in the figure (reference) :

1.Equipment application:

1. Test items and technical requirements

1.1 Observe and measure the TFT panel.

1.2 Supports aerated separation products and countertops when in use.

1.3 support partition backlight control.

1.3 Motorized focus: Promise electronic speed regulation, providing precise focus and fast focus.

2. Configuration requirements

1) The image captured by this device is clearly identifiable;

2) This device can switch between different magnifications (optical magnification 25X, 50X, 100X, 200X, 500X, 1000X);

- 3) This device uses Nikon microscopic optical path, and the reflective illumination source is high-indicator LED illumination;
- 4) The accuracy of this device measurement system is reliable;
- 5) The measurement result of this device can be set to output as a specified document;
- 6) With sufficient maintenance and repair space.
- 7) Operator action record and storage function, which is convenient for management personnel to analyze the cause of the fault.

2. Main technical parameters of the equipment

Type A	
Movement stroke (mm)	X:400mm Y:300mm
Focusing stroke (mm)	(Z axis) 150mm
Measurement and aiming system	2/3"sony sensor, digital color camera, 2560*1920
Off-site accuracy	3+ (L/1000) um
In-field accuracy	±1um
Face backlight	3 rows and 4 columns can be partitioned control
Reflective lighting system	High-definition LED reflective lighting
Transmission lighting system	High-definition LED transmission lighting
Working height	850mm
Dimensions (mm) (length × width × height)	800*500*1650
Instrument weight (kg)	About 600KG
Glass table bearing	50kg
Instrument power	220V±10% (AC) 50HZ

3. Detection equipment configuration table

NO.	Product name		Specifications / brand	unit	Quantity
1	CCD		HD digital CCD	individual	1
2		Three heads	LV-TI3 Trinocular Eyepiece Tube CH (with Erect Image)	Set of	1
		tyepiece	Eyepiece CFI 10x / CN	Set of	1
			Eyepiece CFI 10x CM Eyepiece with Crosshairs / CN	Set of	1
		Nose wheel	Nikon L-NU5A Motorized Universal Quintuple Nosepiece	Set of	1
		Polarizer	Nikon YM-P0 Polarizer for LV-U EPI	individual	1
		Polarizer	Nikon L-AN Analyzer for LV-U EPI	Set of	1
		DIC prism	Nikon L-DIHC DIC Slider	Set of	1
	optical s ystem	Objective lens	5×、10×、20× CR、50x CR、100x CR	Set of	1
			Objective lens model parameters: 2.5X:Nikon CFI L Plan EPI 2.5X, (NA/WD : 0.075/8.80mm) 5X:Nikon CFI LU Plan FLUOR BD 5X (NA/WD : 0.15/18.0mm) 10X:Nikon CFI LU Plan FLUOR BD 10X (NA/WD :0.30/15.0mm) 20X:Nikon CFI LU Plan FLUOR BD 20X (NA/WD : 0.45/4.5mm) 50X CR:Nikon CFI L Plan EPI 50x CR (NA/WD : 0.70/3.9-3.0mm) 100X CR:Nikon CFI L Plan EPI 100x CR (NA/WD : 0.85/1.2-0.85mm)		
	3	Nose wheel	Nosepiece controller: Nikon LV-NCNT		
4	Scale	Imported RENISHAW metal grating ruler with resolution 0.0001mm	Set of	3	
5	XYZ axis drive	THK high precision linear guide and THK grinding grade ball screw	Set of	3	
6	Drive	Panasonic servo motor	Set of	1	
7	Machine body	Marble	Set of	1	
8	Photoelectric limit	Japan Omron	individual	6	
9	Operating software	Custom made	Set of	1	
10	Software dongle	USB dongle (built into the computer case)	individual	1	

11	Industrial computer	CPU:	Intel i7	individual	1
		Memory:	Kingston 8GB	article	1
		Hard disk capacity:	Western Digital 2TB(including auto backup disk)	individual	2
		Monitor:	LENOVO 21.5" LCD (FHD,Without Defect)	individual	2
		Keyboard:	LENOVO	individual	1
		Software:	Windows 7/L42:L44Anti Virus/Office2016(Excel, Word, PPT)Windows 7/Anti Virus/Office2016(Excel, Word, PPT)	Set of	1
12	Software instruction manual	Electronic file / paper file		part	1

3.Main part introduction

1.Motion controller

1.1 Integrated joystick joystick control.

1.2 Provide software limit protection, mechanical limit protection and photoelectric limit triple protection Features.

1.3 Adopting integrated high integration. The service is extremely convenient. If there is a quality problem, directly replace a new controller, all solve the control problem, reduce the inspection time of many after-sales services, and greatly reduce the customer maintenance cost.

2. Microscope body

2.1 High reliability frame: In order to further ensure the measurement accuracy, the stage base adopts a highly durable and vibration-proof frame. Thanks to the high stability of the granite, the measurement can reach sub-micron levels while ensuring maximum error reduction

2.2 Microscope Stage: A good microscope requires not only accuracy and robustness, but also the long-term maintenance of this quality. We use natural marble that has been subjected to long-term stress relief and uses a linear guide as a guiding mechanism to ensure optimum linearity of the microscope stage.

2.3 Microscope Z-axis mechanism: This microscope adopts electric focusing function. The use of electric focusing can greatly improve the operability and reduce the operation fatigue during

focusing. The control box can be placed anywhere on the desktop, making it easy to switch between coarse and fine adjustments, as well as an autofocus unit.

3. Lighting system

Surface light: 12V-15W high index LED light box

Lower light source: LED long life cold light source

5. Industrial computer hardware configuration and description

The computer system adopts IPC industrial control, and the specific configuration is as follows:

CPU : Intel Core i7 or above

Memory: 8G DDR3

Hard disk: Hard disk is greater than or equal to 2T

NIC: 10/100/1000Mbit Giga LAN two or more

I/O interface: 4 USB 3.0 (2 on the panel, 2 on the backplane)

2 PCI slots, 1 PCI-E slot

2 COM ports

2 PS/2 jacks

MONITOR : 21"

MONITOR : 21" or more LCD monitor

Operating System: Chinese Simplified Windows 7 PRO Professional Edition

Antivirus software such as Anti Virus.

Microsoft OFFICE tool software

6. Software function description

Introduction to software features:

(1) Complete range of measurement elements:

Can directly measure 12 kinds of elements (point, line, circle, arc, ellipse, rectangle, trough, ring, distance, angle, open cloud line, closed cloud line). It can measure the perimeter, area and center of gravity of closed clouds, and uses the cubic interpolation algorithm to be the most accurate method for measuring clouds. The more sampling points, the more precise.

Super edge-finding algorithm to ensure accurate edge finding. Subpixel search, precision up to pixel

1/10. There is an automatic deburring function, which can be accurately found for dark and unclear borders.

(2) Automatic discrimination measurement (automatic identification line, circle, arc)

Just place the mouse on the edge of the workpiece and you can automatically find the line, circle or arc.

The measurement results of various elements show that the amount of information is large and can meet the needs of various customers. And you can set which content is displayed, which content is not displayed, or you can enter a single element. The line sets its display information separately. It is also possible to set similar elements.

(4) When running the user program, the data can be automatically aligned into Excel.

(5) Auxiliary dimming

The dimming indicator will indicate when the user has the best light intensity and avoid the light. The measurement error has improved the measurement accuracy and measurement efficiency.

(6) Labeling function:

The angle, the distance, the X-direction distance, the Y-direction distance, the circle (arc) radius, the circle (arc) diameter, and the arc length can be directly marked on the element graphics of the drawing area and the image area.

(7) System error correction:

The software comes with a system error correction function. At present, linear, segment compensation, verticality error compensation, torsion pendulum error compensation (especially for large strokes, moving carriage type machines), Z-axis straightness error compensation, and lens center offset error compensation are available.

(8) The tolerance

Complete dimensional tolerance calculation capability. The default tolerance band can be set to meet the national standard shape tolerance calculation ability, and can calculate the shape tolerance, true straightness, circle, and arc roundness. Position tolerance calculations include position, parallelism, perpendicularity, inclination and concentricity, and symmetry. The out-of-tolerance can automatically alarm and be alerted in red.

(9) DXF file import programming

The DXF image file is imported, the nominal value is automatically generated, and the measurement program of the workpiece is automatically generated. After the measurement is completed, the comparison between the measured value and the nominal value can be performed.

(11) Measuring multiple identical workpieces at a time (array measurement) provides multiple identical workpieces placed on the workpiece table, and all workpieces can be measured in one measurement, which is the array measurement. The software provides a rectangular array and a circular array function. A rectangular array is where the workpieces are placed regularly in the horizontal and vertical directions. A circular array is a workpiece that rotates around a point and is in a ring shape. And automatically export measurement data to the report and SPC software.

4. Machine power environment

1. Machines apply to environmental conditions

Working environment temperature: $(20 \pm 3) ^\circ\text{C}$ humidity 60% ~ 90%

Cleanliness: 100~100K

Noise: below 75db

Vibration: The machine room should not be built in areas with strong vibration sources and high noise, such as: punching machines, presses, forging equipment, pile drivers, etc.

Magnetic field, electric field: Do not build near strong electric field and strong magnetic field, such as power supply equipment, transformer, EDM machine, variable frequency electric furnace, arc welding and seam welding machine; and dust area, corrosive gas source. For hazardous gas plants, it must be placed in the upper hand of the hazardous gas plant.

2. System power

Power supply (single phase): $(220 \pm 5) \text{ V} / 50\text{-}60\text{HZ} / 4\text{A}$ Total power: 800W

The factory must provide at least a third type of grounding device for the equipment.

Recommended

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Automatic tool metallographic measuring instrument V400

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Automatic tool metallographic measuring instrument V800

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Automatic tool metallographic measuring instrument V1800

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Automatic tool metallographic measuring instrument V2000

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