“NANO” EVM-3020 Semi-Automatic Video Machine

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I. Technical Parameters

1.1 Fuselage

1.1.1 Airframe accuracy correction: 21 accuracy corrections

1.1.2. XYZ measurement stroke: 300 * 200 * 200mm

1.1.3 Overall dimensions L * W * H: 1350 * 800 * 1700mm

1.1.4. Host weight: 280Kg

1.1.5. Maximum bearing capacity of the machine: 30KG

1.1.6 Z-axis control mode: keyboard, mouse, control box

1.1.7. XY axis measurement accuracy: 2.5+L/200 μ m

1.1.8 Repetitive accuracy: 2 μ m

1.1.9 Machine: Grade 00 granite

1.1.10 Z-axis column: Grade 00 granite

1.1.11. Z-axis ball screw: grinding grade

1.1.12. X and Y axis locking device with toothless light rod: fine adjustment and fast movement

1.1.13. Three axis guide rail: grinding level

1.2. Electric control system

1.2.1 Protection: overload and leakage protection, emergency stop switch

1.2.2. Wiring method: integrated bus

1.2.3. Calculation system: refer to the specific configuration at the current stage; 23.8 High Definition Display

1.3 Lens

1.3.1 Lens: Automatic zoom telecentric external lens, objective magnification 0.7-4.5X (electric zoom)

1.3.2. Automatic zoom positioning: 1 μ M circular glass grating

1.3.3 Automatic focusing: curve indication

1.3.4 Optical magnification: 30-130 times

1.3.5 Camera: 1.3 million digital industrial high-definition gigabit network camera

1.4 Light source system

1.4.1 Upper light source: 4-ring 8-zone LED cold light source with independent program control for each section, 256 level brightness adjustable surface light

1.4.2 Lower light source: 256 level brightness adjustable collimated parallel light

1.4.3 Coaxial light: 256 level brightness adjustable triangular refraction coaxial light

1.5. Control transmission system

1.5.1 Motor: closed-loop servo motor

1.5.2 Grating ruler: 0.01 μ M absolute grating ruler

1.5.3 Control board: AR3 network board gigabit transmission, network interface motherboard Z-axis with brake system

1.6 Software System

1.6.1 Manual measurement: points, lines, circles, arcs, ellipses, keyways

1.6.2 Automatic measurement: automatic line, automatic circle, multi segment automatic circle, automatic arc, automatic multi segment ellipse

1.6.3 Automatic recognition measurement: automatic line recognition, automatic circle recognition, automatic arc recognition, point selection circle.

1.6.4 Box selection measurement: Box selection of lines, circles, arcs, ellipses

1.6.5. Automatic fitting construction: points, lines, circles

1.6.6. Annotation function: distance, radius, diameter, coordinate points, text description, and editing.

1.6.7 Coordinate system: multi coordinate switching

1.6.8 Multiplication correction: automatic

1.6.9 File input format: DXF

1.6.10. Report output: Word, Excel, PDF, DXF, IGES

1.6.11 Quality Analysis Report: SPC

1.6.12. Special function: boundary tracking scanning

1.7. Warranty: 12 months

1.8. After sales: After receiving the user's repair request, immediately communicate and guide the solution by phone. If the problem cannot be solved by phone, provide a solution within two hours and arrive at the customer's site within 24 hours to solve the problem. (excluding national statutory rest days)

II、 Environmental conditions

2.1. Room temperature: 20 ± 2 · C

2.1.1 Temperature gradient (time): 1 · C/h

2.1.2 Temperature gradient (time): 2 · C/24 hours

2.1.3. Temperature gradient (spatial): 1 · C/m

2.2. Relative air temperature: 40-70%

2.3. Voltage: 220V ± 10%

2.4. Frequency: 50Hz

2.5. Vibration:<0.001g below 15Hz

2.6. Power consumption: 1000VA

2.7. Grounding resistance: less than 4 ohms

III. Software characteristics

a、Basic function:

●Decare coordinate/polar coordinates shift ●Absolute/opposite/working coordinate shift

●Metric/ British standards shift ● Degree/degree, minute and second shift

●Point/point group ●Two points/multiple points to get line

●Three points/multiple points to get circle and arc ● B-spline line

●Distance between two points ●Average distance between two lines

●Distance between point and line ●Distance between two circle center

●Distance between line and circle ●Included angle and intersection between two lines

b、 Special function

1. The whole computer program controls the light source. The upper light source is a four-phase lamp and the lower light source is a straight light source, which increases the adaptability of the machine. It also has photometric indication function to guide users and reduce uncertainties caused by human beings.

2. Measured workpiece needn't adjust and align to right position, software provide coordinate translation, revolve and align to right position.

3. Directly mark/move dimension at the image and geometry area

4. Automatically seize point, line, circle/arc at geometry area and end point, center point of straight line, center of circle and quadrant point.

5. Adjust CCD parameter setting, improve self adapt ability; remove trimmings function, to correctly obtain the measuring data.

6. Utilize the image tools quickly seize basic geometry outline boundary points, directly fitting to be line, circle and arc.

7. (.bmp、.jpg)。Measuring area workpieces amplify camera shooting figure type output, change to be(.bmp, .jpg).

8. WORD (.doc) 、EXCEL (.xls)。Measuring data type output, change to be WORD (.doc), EXCEL (.xls).

9. Easy-to-operate self-learning instructional programming software, which can be repeatedly executed

10. SPC function, directly output controlled picture, change to be EXCEL.

11. Direct output of mechanical graphics. dxf format, seamless connection with autocad, pro/e and other software.

12. The program can directly input. DXF file to realize visual measurement comparison between the magnified image of the workpiece and the standard design drawing in the image measurement area.

13. Provide straightness, roundness and angle analyse in the plane, do valid quality inspection

14.Machine precision compensate, improve measuring precision.

15. The software of EVM-3020 full-automatic image measuring instrument has a learning function. The user only needs to measure the workpiece once manually, and the whole measuring process will be recorded for repeated automatic measurement in the future. Users do not need to write any programs, the operation process is absolutely simple and easy.

16. Re-measure function:this function can change the measure method, light, ratio at the already measured elements, then refresh the measured data, and the element data which relate to it will be refreshed(example:two lines build distance, if one line measured again, then distance element data will be refreshed again).

17. Revise edit and check the status of search edge:software can revise edit the search edge scope, luminance of light resource and ratio of any measured elements.also can check the search edge status of early measured one element(include position of search edge, used luminance of light resource,ratio and gathered original point, etc), so that buyer can control the full process of measuring status.

4. Machine characteristic

Machine main body adopt high precision natural granite with stable temperature characteristic and anti ageing deformation capacity, guarantee stability of measuring and precision at long time use.

All Yixin's optical image measuring instruments are equipped with TC series telecentric optical design lenses developed by our company as standard, with high performance and ultra-low distortion to ensure measurement accuracy. Precision multi-stage constant magnification zoom can store the magnification factor of each stage in advance, which can be called up at any time during use without need of correction again. It has the characteristics of high speed, high efficiency, simple operation and powerful functions, and is especially suitable for mass detection requiring high efficiency, high speed and accuracy.

The indication system adopts Yixin's own absolute grating: AS-80 series grating ruler can automatically re-scan the absolute code channel at any time as long as it stops moving for more than 0.1 second, and continuously check the correctness of the sent position data.

The AS-80 series built-in high-speed absolute code scanning device can complete the scanning and decoding calculation of the absolute code track within 2ms(0.002 seconds). Therefore, whenever the machine tool is stationary for more than 0.1 seconds, the AS-80 absolute code scanning device can decode, calculate and check the absolute position again. If any deviation between the current position data and the position data decoded and calculated from the absolute code track is found, it will immediately correct itself.

The AS-80 series grating ruler uses CPE-Bus bidirectional communication interface for output, and the data transmission rate can

reach 20.000 times per second. It is suitable for the use of full closed-loop speed feedback on the speed loop of linear motor system. As a position loop feedback element on general numerical control machine tools, it is an easy task for the AS-80 series grating ruler.

The standard resolution of AS-80 series grating ruler is 0.01μm, the precision is 3μ m, and the movement speed can reach 120m/min, which meets all the strict specifications required as position feedback elements on high-speed numerical control machine tools.

Inductive limit switches are adopted for all three axes to improve service life, limit accuracy and sensitivity.

The machine is reserved with probe preparation systems for future upgrades: grating digital display, data interface, bracket accessories, etc. It is convenient for users to upgrade at any time without modification and is simple and quick.

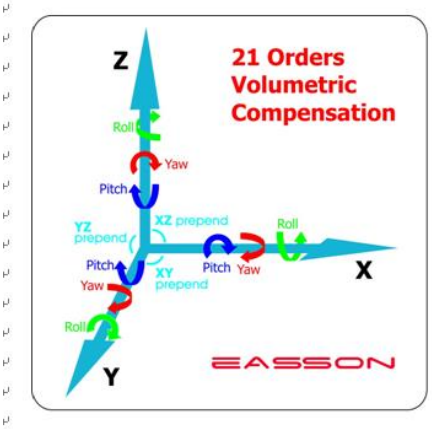
5、Environmental Protection and Energy Saving of Machines

5.1 The company's image measuring instrument adopts a low-voltage AC servo motor system, with a driving power of up to 200W per shaft. When the system is at rest, the power consumption is extremely low! The main control board of this measuring machine uses a dedicated CPU, and the power consumption is as low as 15W!

6、Scientific and reasonable machine design, material selection and manufacturing process level

6.1 As the measurement accuracy is required to be as high as (2.5 L/20O), the measurement data is connected to the computer by the fastest and most reliable LAN interface, and the LAN is connected to USB, which is widely used in general. It has the following obvious technical advantages: (1) the anti-interference performance is more reliable and stable than USB, and can be transmitted for a long distance; (2) LAN speed is faster than USB. The company's dedicated controller has simple hardware structure, few and neat wiring, and is convenient for arrangement and maintenance. The fuselage platform and Z axis are made of high-quality grade 00 granite. The straightness of all guide rails and moving parts are measured by collimators, confirming that they meet the straightness standard of our company.

21 items precision compensation



F1 High precision Fully closed hoop　Automatic zoom　Telecentric lens the characteristic as below:

Adopt the high precision which special develop and develop for F-1 by our company, high resolution capacity hoop type raster rule as fully closed hoop position feedback

High resolution capacity, fully closed hoop position feedback, avoid image multiple repetition error which caused by gear's transmission gap, greatly improve the repetition precision of complete machine measuring.

Hoop type raster resolution capacity 20times higher than the last generation zoom lens.

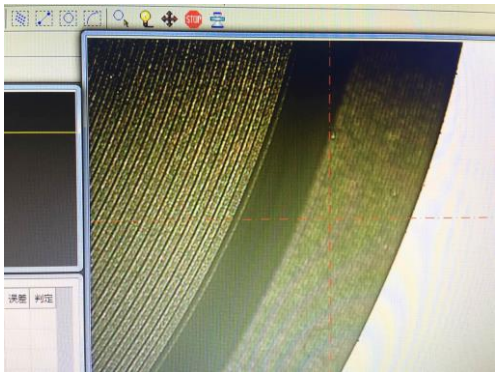
F-100 48 routes complete function light source (with laser assist focusing)

Nano telecentric lens VS non-telecentric lens

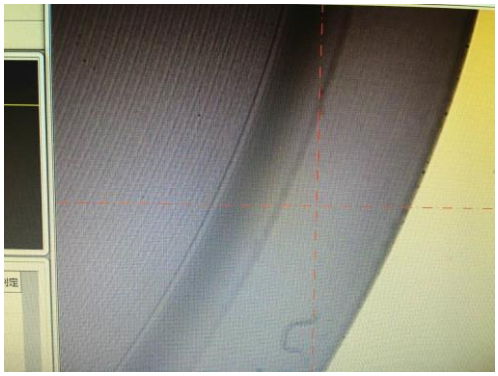
Use the non-telecentric lens imaging will generate perspective false appearance, caused measuring error.

Use telecentric lens revise light source, image not twist, improve measuring precision.

Nano concentric light VS EASSON without concentric light

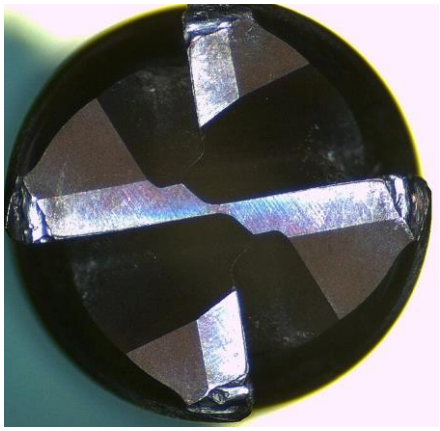


Interface of EASSON concentric light

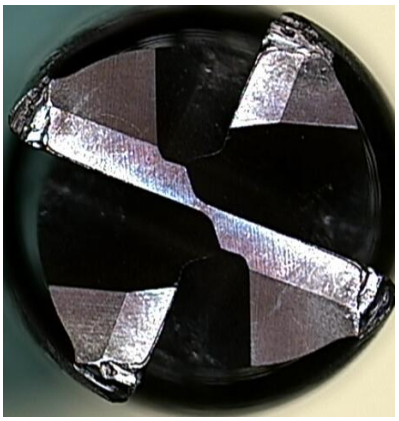


Common light

Nano high definition camera VS common camera in the same industry



Nano image instrument special high definition CCD cutter pictures



Common CCD cutter picture

Nano absolute raster ruler VS common raster rule in the same industry

Nano 0.01um absolute raster rule high definition high resolution

0.5um common raster rule

Installation, check and acceptance standards of image measure instrument

1. Equipment check, acceptance and count, and equipment install, debugging, check and acceptance

1.1 Check and acceptance of equipment

The check and acceptance of equipment divided into two phase, means:first time and finally check and acceptance, execute the check and acceptance according to the technical agreement which agreed by both parties.

1.1.1 The first time check and acceptance:equipment check and acceptance qualified before leave factory,and after transported to buyer's project field, both buyer and seller together open case and do inspection; should detail record short of goods, bad quality, damage and other problems, and immediately unconditionally change or completely add supplement by seller, then check the reason and find out the personal liable. Till no doubt then first time check and acceptance qualified. At the same time, the seller provide the test report and product qualified certificate before leave factory;

1.1.2。Finally check and acceptance: install and debugging equipment and materials finished, reach to check and acceptance standards, both buyer and seller send staff together check and acceptance qualified, confirmed by both buyer and seller, the finally check and acceptance qualified.

2.1 Install, debugging, check and acceptance

The seller free cost to charge for finish equipment install and debugging works at buyer's field. The buyer should prepare well the basic facilities in advance at gas, electric and grounding protection for the install works at buyer's field, and inform seller through fax, communicate in advance at possible problems to confirm installation smoothly. Our company duty for install and debugging measure machine.All packed case only can be opened under the engineer's supervise and acceptance. According to requirements, the user need provide interior assemble and disassemble, transport and on position support. The finally check and acceptance will be executed according to both parties signed content of technical agreement, both parties together confirmed after finish check and acceptance, and representatives of both parties sign install, debugging, check and acceptance report.

Package and transporting scheme of image measure instrument

Package and transporting

1. Adopt better wood case package method, road transporting, guarantee well equipment. The problems of package and transporting duty by seller
2. Seller's people should arrive buyer's field within 1 working day after goods arrived buyer place, then do open case check goods, install and debugging equipment.

Install scheme and plan of image measure instrument, situation of installation, building organization institution and staffs

Install scheme

Please read this “Install notices” first before install instrument

Install notices:

a. Please place this product at venting and dry place, do best keep environment temperature among 20℃-25℃.

b. Please don’t place this product at where much more dust and wet.

c. This product use 220V,50-60HZ AC power supply, this product ask power supply has better grounding.

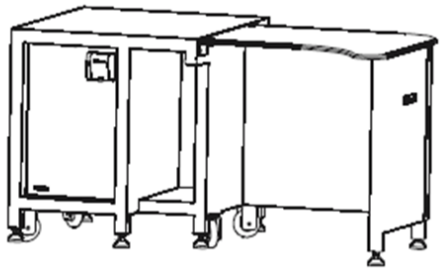
d. Please place this product at where far away strong electric field or strong electromagnetic disturb source, example AC electric cabinet, large scale machine, electric magnet and electric spark machine, etc.

e. To guarantee measure precision, please don’t place this product at the place where far away shake source, example punching machine and vibrate machine, etc.

f. Please don’t self disassemble or adjust the product parts.

g. Please don’t use the fittings which not produced or provided by our company.

1. Install computer platform

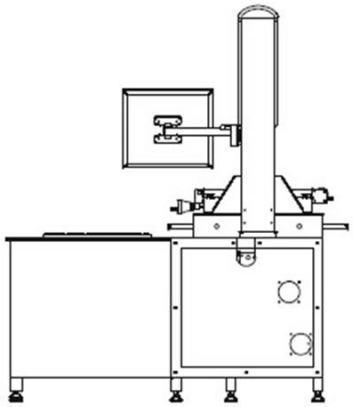


a. Overturn the computer platform (Bottom upward） , install joint feet well.

b. Align the computer platform which been installed joint feet well to the right direction.

c. Left/right revolve screws, make each foot of computer platform fully touched the ground, to guarantee evenly loaded.

2. Install electric control cabinet



a. Place the control cabinet on the hide ranks which behind the computer platform.

b. Corresponding well insert the power supply wire and signal wire respectively.

3. Install computer

a. Wiring well each part of computer.

b. Insert the video wire which draw out from 2D machine body in AV1 port of computer video joggle

Our company has excellent team formed with senior CNC engineer and customer manager, an

Training program and after-sales service

Build a foundation with quality, take talents as the driving force, seek development with innovation, build reputation with service, and win customers with honesty. Ningbo Easson Optoelectronic Technology Co., Ltd. is committed to the innovation of key technologies of measuring instruments, sincerely cooperates with customers, learns from each other, and forms a cohesive excellent team to serve customers well.

1. After the instrument arrives at the user's location, the user shall prepare the electricity and other conditions required for the normal operation of the instrument, and the professional engineer shall open a new box for the instrument to check the instrument.

2. After the engineer passes the inspection of the instrument site, he shall carry out installation, debugging and precision compensation, and test the precision again after installation.

3. The training equipment is consistent with the model and function of the instrument purchased by the user. Be responsible for providing comprehensive training to users on the basic principles, use, operation and maintenance of products.

4. Training operation standards, operation "should know".

5. Training contents: on/off operation, operation preparation, instrument calibration, measurement steps, matters needing attention, and common problem handling flow.

6. Instrument maintenance training: name of maintenance components, explanation of maintenance contents, maintenance cycle, maintenance methods and standards, and requirements for responsible positions of maintenance personnel.

7. Each instrument is accompanied by instructions, certificates of approval of goods, packing lists and other technical data;

8. Detailed inspection records have been made during the installation and commissioning of the equipment, and the commissioning inspection results conform to relevant national standards. And fill in the acceptance report and report it to the user manufacturer.

9. The warranty period shall not exceed 13 months from the date of arrival of the goods, and shall be responsible for the lifelong maintenance of the equipment. During the warranty period, maintenance fees will be waived and spare parts that are not artificially damaged will be replaced free of charge.

10. Immediately after receiving the repair report from the user, telephone communication and guidance will be given to solve the problem. If the telephone cannot solve the problem, a solution will be given within two hours and the problem will be solved at the customer's site within 24 hours. (except for national statutory rest days)