RATIONAL PRECISION INSTRUMENT CO.,LTD

VMS-3020H

COMPANY PROFILE

Starting from Taiwan, Rational Precision Instrument Co., Ltd., was set up in Guangdong, China in 1995, and has become a professional company in precise measuring field. With the R&D force from both Taiwan and mainland China, Rational has been a successful high-tech company by dedicating to innovation and manufacturing for measuring systems. Rational has been highly focused on precise and high resolution measuring equipment and is a leading supplier of varieties of measuring systems or devices such as Digital Measuring Projectors, Video Measuring Systems and Linear Scales in China and Asia. With the state of the art technology, which integrates optics, machinery, electronics and software engineering, Rational has won outstanding reputation in precision measuring field. We have been awarded main titles of good reputation and honored enterprises in Guangdong province, China for many years and are ISO9001-2008 and CE certified.

With the successful experience of operating more than 40 sales and service centers in China, Rational started to explore overseas markets in the early 2000s and became a dominant or main supplier of precision measuring systems in Korea, Taiwan, Malaysia, Thailand and Vietnam etc in 10 years. To meet the inquiries and requirements of customers worldwide, we are working on setting up distributors or service centers in SE Asia, West Asia, Europe and America. Quality is on the top of our priorities, and we definitely take it no compromise, however we always do everything possible to supply cost-effective products to our customers at the same time. And we do hope that we can help our clients worldwide for effective technology upgrade and revenue growth by supplying our precise, cost-effective and efficient equipment, solutions and services in time.

CONTENTS

FEATURES

- Independently developed QMS3D software can meet various measuring requirements.
- Automatic focusing, automatic edge detection, powerful programming and automatic measuring function.
- Sub pixel subdivision technology helps improve edge resolution.
- The machine can be operated by either the joystick or the software programming.
- SPC data processing contributes to fixture measurement in large scale.
- Servo motor control in X, Y, and Z axis leads to quick and high precision positioning and stable operation.
- Independently developed embedded module control system ensures more stable operation by integrating the sophisticated control system within the instrument.
- The five- ring-eight-section surface cold light source is suitable for measuring sophisticated workpiece.
- The laser indicator can quickly locate the position of the workpiece.
- Optional auto zoom lens, laser shifter, MCP probe available for customer's selection

APPLICATION

Widely used in the field of machinery, electronics, instrument and plastic CNC video measuring system is used in two dimension measurement, especially in non-contact measuring, quick batch measuring, and measuring of sophisticated workpiece.

SPECIFICATIONS

Model		VMS-2515H	VMS-3020H	VMS-4030H
Worktable	Metal worktable size(mm)	450*280	500*330	606*466
	Glass worktable size(mm)	306*196	350*250	450*350
	Travel(mm)	220*120	270*170	370*270
X,Y,Z axis resolution		0.5 μm		
Accuracy(μm)		$E_{1XY}=(2.5+L/100)$		
Dimension (L*W*H)mm		760*600*900	760*600*900	970*670*940
Weight(kg)		146	168	266
Z axis travel (mm)		150mm (can be customized made to300mm)		
Video system	Camera: ½" color CCD camera		Zoom lens magnification 0.7X ~ 4.5X	
	Total magnification: 20X ~ 128X			
	Object view: 11.1mm ~ 1.7mm			
Power supply: AC 100-240V 50/60Hz			Power: 50W (computer excluded)	
Spare parts	1X lens cone (standard)		0.5X lens cone (optional)	working distance (mm)
Zoom lens	0.7X ~ 4.5X		0.7X ~ 4.5X	
Additional lens	Magnification	Object view(mm)	Magnification	Object view(mm)	
0.5X (optional)	10X ~ 64X	22 ~ 3.4	5X ~ 32X	44⁰ 6.8	175
1.0X (standard)	20X ~ 128X	11.1 ~ 1.7	10X ~ 64X	22 ~ 3.4	92
2.0X(optional)	40X ~ 256X	5.5 ~ 0.9	20X ~ 128X	11.1 ~ 1.7	36
Brand computer (standard configuration)			Joystick (standard configuration)		

Remark: The parameters are standard configuration, please turn to the customer service team for non-standard configuration
Remark: Object view equals to the length of diagonal line

FEATURES

- Independently developed QMS3D-M software, giga-bit network camera
- By availing the auxiliary light adjusting function of the software, the user knows whether the light is saturated.
- The laser indicator can quickly locate the target workpiece, which is suitable for measuring sophisticated workpiece.
- Auxiliary height measuring can be achieved.
- "T " groove type worktable can set up various fixtures
- The resolution of the linear scale is 0.5um
- Foot switch and software facilitate operation of the machine
- Optional crosshair, DC3000 digital display, MCP probe, smart magnification identifying lens, computer available for customer's selection.

APPLICATION

Widely used in the field of electronics, machinery, instrument and plastic, F series video measuring system is used in two dimension measuring.

SPECIFICATIONS

Model		VMS-2010F	VMS-3020F	VMS-4030F
Worktable	Metal worktable size(mm)	404*228	500*330	606*466
	Glass worktable size(mm)	260*160	350*250	450*350
	Travel(mm)	200*100	300*200	400*300
X,Y,Z axis resolution		0.5 μm		
Accuracy(μm)		$E_{1XY}=(2.5+L/100)$ μm		
Dimension (L*W*H)mm		540*560*850	760*600*900	970*670*940
Weight(kg)		110	140	240
Z axis travel (mm)		150(can be customized made to 200,300,400)		
Video system	Camera: Giga-bit Network Camera			
	Zoom lens magnification: 0.58X ~ 7.5X		Total magnification: 27.4 ~ 351.3X(24"Displayer)	
	Field view (Diagonal Line):14mm ~ 1.4mm			
Power supply: AC 100-240V 50/60Hz Power: 50W (computer excluded)				
Brand Computer (standard configuration)				

Proposed worktable: loading capacity >350kg ; Dimension : (LxWxH)1000x600x500(mm)
Remark: The parameters are standard configuration, please turn to the customer service for non-standard configuration
* Field view equals to the length of diagonal line

Rational
VIDEO MEASURING SYSTEM

Manual video measuring system (G series)

Flash The Video Measuring System

Rational
VIDEO MEASURING SYSTEM

FEATURES

- Independently developed QMS3D-M software, high resolution imported color camera
- By availing the auxiliary light adjusting function of the software, the user knows whether the light is saturated.
- The laser indicator can quickly locate the target workpiece, which is suitable for measuring sophisticated workpiece.
- Auxiliary height measuring can be achieved.
- "T" groove type worktable can house various fixtures (VMS-1510G excluded)
- The resolution of the linear scale is 0.5um
- Foot switch and software facilitate operation of the machine
- Optional : crosshair, DC3000 digital display, Renishaw MCP probe, coaxial light lens.

APPLICATION

Widely used in the field of electronics, machinery, instrument and plastic, G series video measuring system is used in two dimension measuring.

APPLICATION

Widely applied in the field of hardware,electronic, precision,watch,clock products,etc.

FEATURES

- Compact and light;
- Double telecentric lenses to support flexible and accurate measuring;
- Automatic mapping allows simple and effective measuring;
- Support simultaneous of multiple products of one-type;
- One touch operation;
- Support intelligent measuring.

SPECIFICATIONS

	Model	VMS-1510G	VMS-2010G	VMS-2515G	VMS-3020G	VMS-4030G
Worktable	Metal worktable size(mm)	354*228	404*228	450*280	500*330	606*466
	Glass worktable size(mm)	210*160	260*160	306*196	350*250	450*350
	Travel(mm)	150*100	200*100	250*150	300*200	400*300
X,Y, Z axis resolution		0.5 μm				
Accuracy(μm)		$E_{txy}=(2.5+L/100)$ μm				
Weight (kg)		100	110	120	140	240
Z axis travel (mm)		200 (can be customized to 300)				Can be customized to 400
Video system	Camera : 1/3" color CCD camera		Zoom lens: 0.7X ~ 4.5X			
	Total magnification: 26.6X ~171X		Field view: 8.1mm ~ 1.3mm			
	Power: AC 100-240V 50/60Hz		Power: 50W (computer excluded)			

Spare parts	1.0X lens cone (standard)		0.5X lens cone (optional)		working distance (mm)
Zoom lens	0.7X ~ 4.5X		0.7X ~ 4.5X		
Additional lens	Magnification	Object view(mm)	Magnification	Object view(mm)	
0.5X (optional)	13.3X ~ 85.5X	16.2 ~ 2.6	6.65X ~ 42.7X	32.4 ~ 5.2	175
1.0X (standard)	26.6X ~ 171X	8.1 ~ 1.3	13.3X ~ 85.5X	16.2 ~ 2.6	92
2.0X(optional)	53.2X ~ 342X	4 ~ 0.7	26.6X ~ 171X	8.1 ~ 1.3	36

Proposed worktable: loading capacity >350kg ; Dimension : (LxWxH)1000x600x500(mm)
Remark: The parameters are standard configuration, please turn to the customer service team for non-standard configuration
Remark: Field view equals the length of diagonal line

SPECIFICATIONS

Model	VMS-D100S	
Magnification	0.088X	0.176X
Field view (mm)	Φ100	48*36
Accuracy	12μm	5 μm
Depth of focus	±8	±4
Image sensor	5million-pixel Gige CCD	
Light sourse	Surace and bottom lights	
Axis X travel (mm)	120	
load capacity (kg)	3	
Weight (kg)	25	
Dimension	400*300*770mm	

Metallurgical microscope

Standard profile projector

Rational
METALLURGICAL MICROSCOPEE

Rational
PROFILE PROJECTOR

APPLICATION

With both image visual and nanometer height measure function, metalloscope is a high precision and efficient measuring instrument. With both television image and visual optics sighting system and integrated optics, machinery, electronics , computing and image, metalloscope is widely used in the field of electronic component, precision tooling, plastic, PCB processing, coat thickness, mobile telephone phone glass, etc.

FEATURES

- X, Y, Z axis resolution：0.5um.
- Motorized Z axis resolution: 0.1 μm.
- Automatic height measurement function
- Built-in polarized light optical module.
- High speed / non-contact measurement.
- Coaxial surface light and bottom light measurement
- With optional white light nanometer measuring module, the thickness of the workpiece can be measured by nano scale.

SPECIFICATIONS

Model		MTM-3020MA	
Worktable	Metal worktable size(mm)	500*330	
	Glass worktable size(mm)	350*250	
	X,Y Travel(mm)	300*200	
Manual Z-axis travel (mm)		120	
Automatic Z-axis travel (mm)		2	
Dimension (mm)		825*660*910	
Weight (kg)		130	
X,Y, Z axis resolution(μm)		0.5	
Motorized motion Z-axis resolution(μm)		0.1	
Accuracy(μm)		$E_{1XY}=(2.5+L/100)$	
Lens magnification deviation		Magnification deviation included distortion 0.08%	
Transmission illumination		Adjustable LED illumination	
Reflective illumination		Adjustable LED illumination	
		Eyepiece system	Image system
Lens magnification		5X,10X,20X,50X	5X,10X,20X,50X ,10X Mirau Lens
Eyepiece magnification		10X double eyepiece	½ CCD camera
Total magnification		50X~500X	142.5X▫ 1425X(19.5"computer,resolution1440*900)

FEATURES

Compact in structure, simple and beautiful in appearance, economical and practical and good reliability, CPJ-3000/3000Z series digital profile projector is widely used in the field of machinery, electronics, tooling, instrument and timepiece, etc. It can be used efficiently in both direct measuring and comparative measuring, such as measuring of stamping parts, wheel gears, screws, and cutters, etc.

SPECIFICATIONS

Model	Inverted image Erect image	CPJ-3010 CPJ-3010Z		CPJ-3015 CPJ-3015Z	
Worktable	Metal worktable size(mm)	306*152		340*152	
	Glass worktable size(mm)	175*100		196*96	
	X axis travel(mm)	100		150	
	Y axis travel(mm)	50		50	
	Z axis travel(mm)	90 (Focusing)		90 (Focusing)	
	Indication error(μm)	$E_{1XY}=2.5+L/75$		$E_{1XY}=3.0+L/50$	
	Resolution(μm)	0.5 μm			
	Dimension LxWxH (mm)	770*550*1100		770*550*1100	
	Weight (kg)	125		130	
Projector screen	Size(mm)	Ø 312 worktable range > Ø300(crosshairs)			
	Rotary range	0 ~ 360°			
	Resolution	1' or 0.01°			
Lens	Magnification*	10X(optional)	20X(optional)	50X(optional)	100X(optional)
	Object view(mm)	Ø30	Ø15	Ø6	Ø3
	Working distance(mm)	77.7	44.3	38.4	25.3
	Max measuring height(mm)	80	80	80	80
	Power supply:100V-240V(AC) 50/60Hz			Total powe:400W	

Proposed worktable: Carrying capacity≥250kg   Dimension (L*W*H)800*550*650(mm)
Select one of them as standard configuration

FEATURES

Equipped with foot switch and multifunctional data processing meter, CPJ-3000A/AZ profile projector possesses stable performance. Convenient data output and sample taking function upgrades measuring efficiency.

FEATURES

Equipped with foot switch and multi-functional data processing meter, CPJ-3000CZ series profile projector possesses stable performance. Convenient data output and sample taking function upgrades measuring efficiency. The instrument is equipped with a rotary table, onto which three lenses can be installed. When different magnifications are needed, it is unnecessary to change new lens but to rotate the turntable, thus the operation of the instrumentis more convenient. By moving up and down the projector tube, the lens can be focused . Vertically fixed worktable enhances stability of the instrument. Long travel, good stability, large measuring range, and high precision are the typical merits of CPJ-3000CZ series profile projector.

SPECIFICATIONS

Model	Inverted image / Erect image	CPJ-3015A / CPJ-3015AZ	CPJ-3020A / CPJ-3020AZ	CPJ-3025A / CPJ-3025AZ	CPJ-3030A / CPJ-3030AZ	CPJ-3040A / CPJ-3040AZ
Worktable	Metal worktable size(mm)	354*228	404*228	450*280	500*330	606*466
	Glass worktable size(mm)	210*160	260*160	306*196	321*221	450*350
	X axis travel(mm)	150	200	250	295	400
	Y axis travel(mm)	100	100	150	195	300
	Z axis travel(mm)	100(Focusing)				
	Indication error(μm)	$E_{1XY}=2.5+L/100$				
	Resolution(μm)	0.5 μm				
	Dimension L*W*H (mm)	780*780*1100	780*780*1100	810*780*1120	900*780*1020	1040*780*1120
	Weight (kg)	160	160	180	250	250
Projector screen	Size(mm)	Ø312 worktable range > Ø300(crosshairs)				
	Rotary range	0 ~ 360°				
	Resolution	1' or 0.01°				
Lens	Magnification*	10X(optional)	20X(optional)	50X(optional)	100X(optional)	
	Object view(mm)	Ø30	Ø15	Ø6	Ø3	
	Working distance(mm)	77.7	44.3	38.4	25.3	
	Max measuring height(mm)	90	90	90	90	
	Power supply:100V-240V(AC) 50/60Hz Total powe:400W					

Proposed worktable: Carrying capacity≥250kg   Dimension (L*W*H)800*550*650(mm)
Select one of them as standard configuration

SPECIFICATIONS

Model		CPJ-3015CZ	CPJ-3020CZ	CPJ-3025CZ
Worktable	Metal worktable size(mm)	354*228	404*228	450*280
	Glass worktable size(mm)	210*160	260*160	306*196
	X axis travel(mm)	150	200	250
	Y axis travel(mm)	100	100	150
	Indication error(μm)	2.5+L/100(L is the length of the measured. Unit: mm)		
	Resolution(μm)	0.5 μm		
	Dimension (L*W*H) (mm)	780*810*1120	780*810*1120	780*810*1120
	Weight (kg)	170	175	180
Projector screen	Size(mm)	Ø 312 worktable range > Ø300(crosshairs)		
	Rotary range	0 ~ 360°		
	Resolution	1' or 0.01°		
Lens	Magnification*	10X(optional)	20X(optional)	50X(optional)	100X(optional)
	Object view(mm)	Ø30	Ø15	Ø6	Ø3
	Working distance(mm)	77.7	44.3	38.4	25.3
	Max measuring height(mm)	90	90	90	90
	Power supply:100V-240V(AC) 50/60Hz Total power:400W			

Proposed worktable: Carrying capacity≥250kg   Dimension (L*W*H)800*550*650(mm)
Select one of them as standard configuration

Rational
PROFILE PROJECTOR

Motorized profile projector

Horizontal profile projector

Rational
PROFILE PROJECTOR

FEATURES

Stepping motor driving ,electric focusing and counting linear scale are adopted in Z axis of CPJ-3000DZ series profile projector. There fore, stepping featured workpiece can be measured, greatly improving measuring efficiency. In addition, CPJ-3000DZ series profile projector has a complete range of lens magnification, and can be installed with 5X objective lens. When the field view is 60mm, various lenses can be selected according to the different workpieces.

FEATURES

With reliable mechanical structure and high precision magnification, horizontal profile projector can accurately project the image of the profile, section, surface features of the target workpiece onto the projector screen. Horizontal profile projector is most suitable for measuring and observing the contour of cutters, wheel gears, screws, and springs.
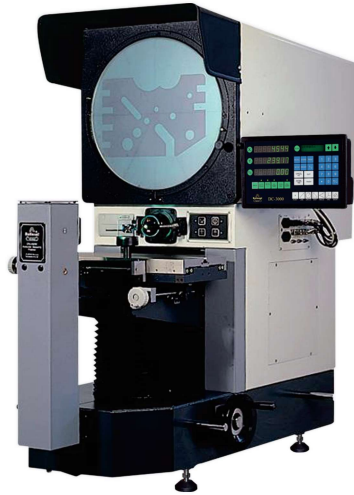
SPECIFICATIONS

Model		CPJ-3015DZ			CPJ-3020DZ	
Worktable	Metal worktable size(mm)	354*228			404*228	
	Glass worktable size(mm)	210*160			260*160	
	X,Y axis travel(mm)	150*100			200*100	
	Z axis travel(mm)	100			100	
	Z-axis motion speed (mm/s)	5, 1, 0.01 (3 modes available)				
	Indication error(μm)	X, Y-axis: (2.5+L/100). Z-axis: 3.5+L/25 (L is the length of the measured object. Unit: mm)				
	Resolution(μm)	0.5 μm				
	Dimension L*W*H (mm)	670*570*1250				
	Weight (kg)	150				
Projector screen	Size(mm)	Ø 312 worktable range > Ø300(crosshairs)				
	Rotary range	0 ~ 360°				
	Resolution	1' or 0.01°				
Lens	Magnification*	5X(optional)	10X(optional)	20X(optional)	50X(optional)	100X(optional)
	Object view(mm)	Ø60	Ø30	Ø15	Ø6	Ø3
	Working distance(mm)	53	77.7	44.3	38.4	25.3
	Max measuring height(mm)	90	90	90	90	90
Power supply:100V-240V(AC) 50/60Hz Total power:450W						

Select one of them as standard configuration

SPECIFICATIONS

Model		CPJ-3020W			
Worktable	Worktable size(mm)	400*150			
	X axis travel(mm)	200			
	Z axis travel(mm	100			
	Y axis travel(mm)	75 (Focusing)			
	Swing range	±15 °			
	X and Z axis resolution	0.5 μm			
	Indication error(μm)	(3.5+L/50) (L is the length measured, unit: mm)			
	Dimension L*W*H (mm)	1090*830*1010			
	Weigh (kg)	160			
Projector screen	Size(mm)	Ø300			
	Rotary range	0 ~ 360°			
	Resolution	1' or 0.01 °			
Lens	Magnification	10X(optional)	20X(optional)	50X(optional)	100X(optional)
	Object view(mm)	Ø30	Ø15	Ø6	Ø3
	Working distance(mm)	77.7	44.3	38.4	25.3
Data processing system		DC3000 multiple functional digital display, English version, multiple points sampling, rotary coordinate, point, line, circle, distance, angle measuring			
Illumination		Transmission: 24V/150W halogen lamp; Reflection: 21V/150W halogen lamp (double optical fiber illumination)			
Power supply: AC 100-240V 50/60Hz Total power: 400W					
Optional components:Printer, edge detector, Measuring software M2D-CPJ, etc.					

Select one of them as standard configuration

Rational
PROFILE PROJECTOR

Long stroke horizontal profile projector

Floor-type profile projector

Rational
PROFILE PROJECTOR

FEATURES

With reliable mechanical structure and high precision magnification, horizontal profile projector can project accurately the image of the profile, section, surface features of the target workpiece onto the projector screen. Horizontal profile projector is most suitable for measuring and observing the contour of cutters, wheel gears, screws, and springs.

FEATURES

Clear imaging and accurate magnification are the salient characteristics of floor-type profile projector CPJ-6020V. With a 600mm diameter projector screen and maximum Φ120 mm object view, CPJ-6020V can meet the contour measuring and coordinate measuring of large workpiece. The edge detector can automatically select target points, saving human errors.

SPECIFICATIONS

Model	CPJ-4025W				
Worktable	Worktable size(mm)	450*200			
	X axis travel(mm)	250			
	Z axis travel(mm	150			
	Y axis travel(mm)	100 (Focusing)			
	Swing range	±15 °			
	X and Z axis resolution	0.5 μm			
	Indication error(μm)	(3.5+L/50) (L is the length measured, unit: mm)			
	Dimension L*W*H (mm)	1215*646*1210			
	Weigh (kg)	240			
Projector screen	Size(mm)	∅400			
	Rotary range	0 ~ 360°			
	Resolution	1' or 0.01°			
Lens	Magnification	5X(optional)	10X(optional)	20X(optional)	50X(optional)	100X(optional)
	Object view(mm)	∅80	∅40	∅20	∅8	∅4
	Working distance(mm)	93.7	103.9	95.1	65.7	35.0
Data processing system	DC3000 multiple functional digital display, English version, multiple points sampling, rotary coordinate, point, line, circle, distance, angle measuring				
Illumination	Transmission: 24V/150W halogen lamp; Reflection: 21V/150W halogen lamp (double optical fiber illumination)				
Power supply: AC 100-240V 50/60Hz		Total power: 400W			
Optional components:Printer, edge detector, Measuring software M2D-CPJ, etc.					

Proposed worktable: Carrying capacity≥350kg   Dimension (L*W*H)1100*550*500(mm)
Select one of them as standard configuration

SPECIFICATIONS

Model	CPJ-6020V				
Worktable	Metal worktable size(mm)	404*265			
	Glass worktable size(mm)	270*170			
	X axis travel(mm)	200			
	Y axis travel(mm)	100			
	Z axis travel(mm)	50 (Focusing)			
	Indication error(μm)	2.5+L/75			
	Resolution(μm)	0.5 μm			
	Dimension LxWxH (mm)	1200*1140*1940			
	Weight (kg)	360			
Projector screen	Size(mm)	∅615 worktable range > ∅600(crosshairs)			
	Rotary range	0 ~ 360°			
	Resolution	1' or 0.01°			
Lens	Magnification*	5X(optional)	10X(optional)	20X(optional)	50X(optional)	100X(optional)
	Object view(mm)	∅120	∅60	∅30	∅12	∅6
	Working distance(mm)	242.8	143.2	85.5	92	48.5
	Max measuring height(mm)	50	50	50	50	48
Power supply:100V-240V(AC) 50/60Hz			Total power: 650W		

Remark: Rate varies from the different lenses you select.

Rational
HEIGHT MEASURING INSTRUMENT

CNC height measuring instrument

Tool microscope

Rational
TOOL MICROSCOPE

APPLICATION

Height Measuring Instrument is an upright, single axis and digital geometrical measuring device based on precision machinery, modern sensor technology and electronics technology. It's widely used in precision machinery, hardware, plastics, etc.

The instrument is mainly applied to measure the distance between two planes, the depth of a hole, the width of a groove, the diameters of hole and axis, the distance of centers, max. and min. Values, etc. In addition, it can be used to measure perpendicularity when e-probe is installed.

FEATURES

- Air floatations in pedestal, which makes it convenient to measure.

- Granite air floatation mechanical structure - high accuracy, and small deformation by temperature difference.

- Auto measuring - high efficiency, and high stability and reliability.

- Verticality measuring is available for option.

SPECIFICATIONS

Model	DHT-600C	DHT-450C
Effective measuring range(mm)	600	450
Max. measuring range(mm)	920 (change probe's direction)	770 (change probe's direction)
Resolution(μm)	0.5	
Accuracy(μm)	2+L/500	
Repeatability accuracy	plane: 1μm, curve: 2μm	
Recommend fed measuring speed(mm/s)	15	
Max. motorized speed(mm/s)	25	
Max. manual speed(mm/s)	400	
Power supply	12V adapter	
Air Supply	Air pressure≥0.4MPa	
	Air flow≥30L/min	
Operating temperature	10℃ ~ 40℃	
Total height(mm)	1050	900
Net Weight(kg)	40	36
Perpendicularity (μm)	8 (after e-probe is compensated)	6 (after e-probe is compensated)

APPLICATION

Integrated optics, machinery, electronics and software, video tool microscope is a high precision efficient microscopic measuring instrument widely used in the field of electronic components, precision mold, precision cutter, spring, plastic, rubber, oil valve, camera parts, auto parts and PCB, etc. It is mainly used in two dimension measuring and, auxiliary three dimension measuring as well. With the eyepiece gauge, video tool microscope can also be used in comparative measuring, measuring the pitch, outer dimension, thread angle of the screw and the dimension of the cutter, or magnifying the profile of the workpiece to measure its outside appearance, angle and length. When functioned as an observational tool microscope,it can be used for non-contact inspection for the surface roughness by meams of relative measurement. Video tool microscope is one of the indispensable measuring instruments in metrology labs, laboratories and workshops.
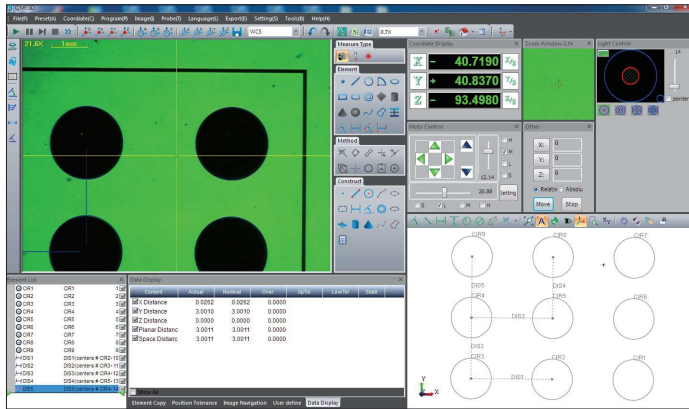
FEATURES

VTM series video tool microscopes have multiple data processing functions, such as data measuring, microscopic magnification, display, input and output, etc. Special QMS3D-M software can adopt Windows graphic interface for automatic edge detecting. Programming is unnecessary, what the user will do is only to click the mouse to start instant measuring.

SPECIFICATIONS

Model		VTM-1510 VTM-1510G VTM-1510F	VTM-2010 VTM-2010G VTM-2010F	VTM-2515 VTM-2515G VTM-2515F	VTM-3020 VTM-3020G VTM-3020F	VTM-4030 VTM-4030G VTM-4030F
Worktable	Metal worktable size(mm)	354*228	404*228	450*280	500*330	606*466
	Glass worktable size(mm)	210*160	260*160	306*196	350*250	450*350
	X,Y Travel(mm)	150*100	200*100	250*150	300*200	400*300
X,Y,Z axis resolution(μm)		0.5				
Accuracy(μm)		E_{1XY}=(2.5+L/100)				
Dimension (mm)		540*667*850		800*675*920		950*750*1050
Weight (kg)		100	110	135	140	220
Z axis travel (mm)		150	150	200	200	230

Other specifications	Eyepiece system	Image system	
		G series image system	F series image system
Lens magnification	1X,3X(standard),5X,10X	1/3"CCD camera QMS3D-M software	½"CCD camera QMS3D-M software
Eyepiece magnification	10X(the monocular and binocular are the same)(optional)		
Total magnification	10X~100X	38X~380X	28.5X~285X
Lens magnification error	Magnification deviation included distortion 0.08%		
Transmissive illumination	10W LED lamp		
Reflective illumination	12V LED ring lamp and reflective illumination with laser pointer		

Rational
2/3-DIMENSIONAL MEASURING SOFTWARE

QMS3D,QMS3D-M

QMS3D,QMS3D-M

Rational
2/3-DIMENSIONAL MEASURING SOFTWARE

APPLICATION

QMS3D series software is a multiple sensor measuring application software independently developed by our own company. The software can be used in visual analysis and measuring of the coordinate in two dimension measurement. When a probe is adopted, the software can be use in threedimension measurement. When a laser shifter is equipped, the software can be used to measure planeness and height as well. Widely used in the field of precision manufacturing, mobile telephone phone components, tooling , electronics, communication, machinery, hardware, plastic, instrument, timepiece, PCB, LCD ,etc. the software can be used to measure various materials such as metal, plastic, rubber, glass , PCB and ceramic, etc.

SOFTWARE FEATURES(QMS3D-M)

- Image and probe measuring function
- Auxiliary focusing, multiple measuring and structure functions
- Scanning function available.
- White light interferoscope can measurthe thickness of the coating
- Image navigation.

SOFTWARE FEATURES(QMS3D)

- Image, probe and laser shifter measuring function
- Various kinds of report formats
- Fixture measuring, scanning, image navigation, multiple measuring and structure methods.
- Powerful and flexible machine control functions including: motion of the instrument controlled by the mouse; autozoom lens; autofocusing; illumination control; multiple methods to control the motion of X,Y and Z axis.
- Various convenient pixel calibration methods
- Laser shifter can measure planeness, height and parallelism of the workpiece
- Compatible with various kinds of motion controllers.
- Automatic / semi-automatic measure mode.
- Able to measure the maximum thickness, minimum thickness, average thickness and other thicknesses of cable's insulationg layer and covering layer.
- Safety height setup.

COMMON FEATURES

- Various basic geometric elements in image and probe measuring available, for instance, point, line ,circle, arc, ellipse, rectangle, slot, and plane, etc.
- Probe measuring management system available, namely, probe system set up, creating new probe, probe calibration, saving and transfering, etc.
- Create and manage two coordinate and three coordinate system
- Weak edge detecting and top point detecting function
- Custom made software can be made according to specific requirements
- Support 32 bit Windows 7 operating system and 19/22 inch monitor
- Arithmetic computing function
- Multiple geometric elements measuring methods and fast scanning of workpiece contour.
- Able to measure the distance between a point and a cloud line, and the maximum and minimum distance between two closed cloud lines.
- Able to measure the form tolerance of geometric elements, and the position tolerance between elements (For instance, true position of the maximum entity , true position of the minimum entity, circular runout, coaxility, parallelism, verticality, angularity, and symmetry.
- Systemtic error compensation (compensation of linearity, section, verticality and plane and, deformity compensation and center offset compensation of lens).
- Marco function available
- Measured elements can be output in dxf, iges, drl , bmp, and jpg format.
- Measured result can be output in Excel, Word, and Txt form.
- Some of the functions can be closed or opened in the software, making simple operational interface and easy learning of the software.
- The distance between two points, distance between a point and a line, and distance between two lines can be directly annotated in the image area.
- Three dimension elements can be constructed.
- The maximum and minimum position of the circle, ring,and closed cloud line can be displayed.
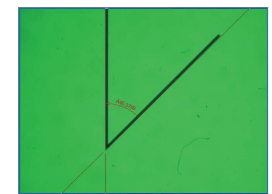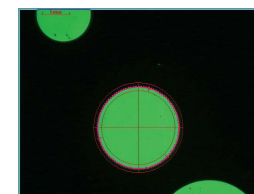- Automatic matching of patterns.

DETAILS
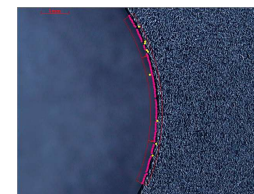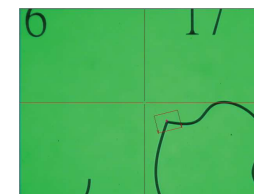

Weak edge detecting
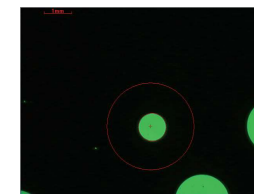
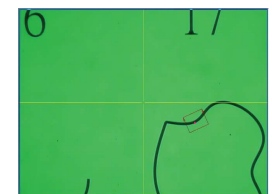Contour edge detection

Observe angle in image area

Intelligent edge detection

Edge point

Edge point

FEATURES

- Applied to Quick Type Video Measuring System.
- One-button intelligent measurement.
- Multiple workpieces of the same shape and size can be measured in the visual field of the image area, improving work efficiency.
- Support online measurement.
- Easy-to-use software and intuitive operational interface.
- Drawing or pattern of single or multiple workpieces of the same shape and size can be matched.
- Separated recording interface and execute interface makes easy operation. Only execute interface isneeded during operation process. With only a click of the button, exchange between the two interfaces can be achieved.
- Various geometrical elements can be measured, such as point, line, circle, arc, ellipse, slot, ring, curve, etc.
- Multiple elements can be constructed.
- Support various coordinates.
- SPC, shape and position tolerance, annotation function.
- Lens distortion compensation function available.
- Exchange among various languages
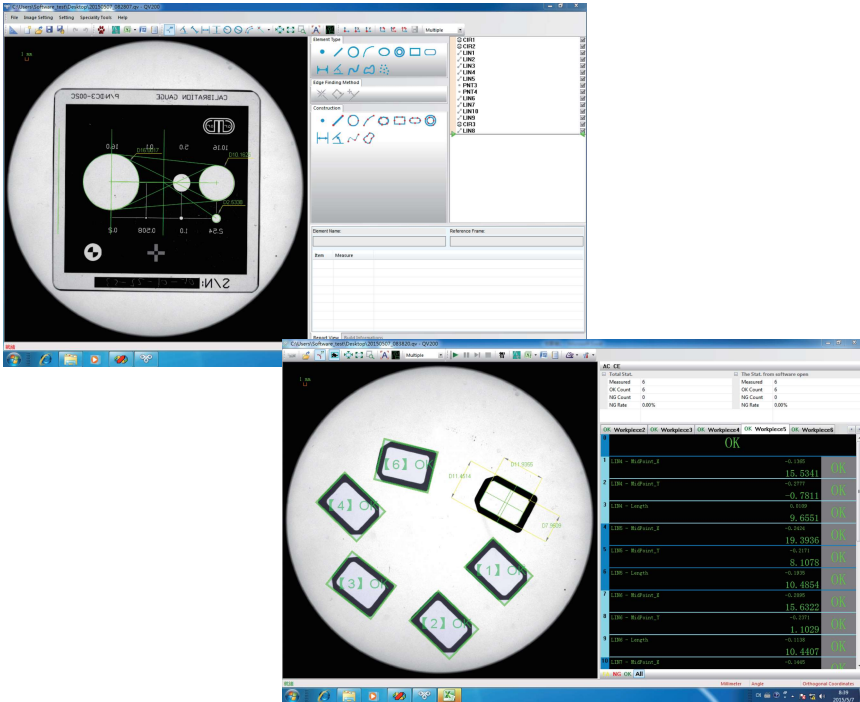
DC200 MULTI-FUNCTIONAL DIGITAL READOUT

DC200, which can analyze and process two dimensional data, is suitable for digital linear scale measuring system and video measuring system. It is widely used in video measuring system, tool microscope, CCD video measuring system and other two dimension measuring instruments.

FEATURES

- 32 bit ARM kernd CPU brings high speed processing and stable performance
- 640*480 TFT true color LCD human-machine interface ensures intuitive graphs
- Independently developed 24 bit IC achieve 4m/s counting speed in the station of 0.001mm resolution
- Power supply anti-interference and signal anti-interference up to at least 2200V
- Screen saving functions prolongs LCD lifespan
- 14 kinds of font colors and two operational interfaces available
- Real-time clock system.

WE6800 SERIES

Widely used in machining and precision measuring instrument of WE6800 series multifunctional readout can be applied to various machine tools. When combined with the linear scale, WE6800 series readout can accurately display the value of shifting and achieve autocontrol.
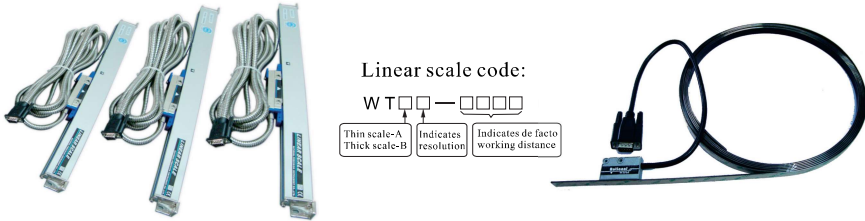
FEATURES

- Independently developed 24 bit IC offers 0.001mm resolution and 4m/s counting speed
- Independent exclusive power supply. Power supply anti-interference and signal anti-interference is up to at least 2200V
- Durable high quality and sensitive voice prompt touch panel.
- Battery free. The readout can recall the parameters of last coordinates before shut.
- Linear scale and encoder can be connected, meeting processing and measuring requirement of various machine tools.
- Additional calculator function facilitates convenient processing
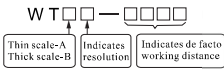- Wide range of input voltage (AC 90V～240V).

LINEAR SCALES

Rational's linear scale, which is used in numerical control machine, can be applied to almost all manufacturing sectors. It is the best choice for lathe machines adopted closed-loop control system and the feed shaft installed in instruments such as milling machine, processing center, boring machine, lathe machine and grinding machine. Good dynamic property, reliable motion speed, huge accelerated speed along the measuring direction are the characteristics of our linear scale, which not only meet the requirement of the dynamic property of regular axis, but also the high dynamic property of direct driving instruments.

FEATURES

- Motion speed: over 60 meters per minute
- Long distance transmission: above 100 meters without any intermediate media
- Five bearings in the sliding section ensures excellent repetitive positioning
- Multiple layer of insulated mesh and soft metal protective outer shell applied to the signal cable results in reliable waterproof property and good anti interference
- Anodized aluminum alloy scale body and chrome plated scale ends brings anti- corrosive attribute
- Made of special plastic, the dustproof slice is resistant to scratches, corrosion and friction.
- Individual components makes easy installation, maintenance. Good waterproof and dustproof property contributes to long lifespan
- Glass precision metrological grating is used as the measuring primary standard in the sensor

Linear scale code:

W T □□ — □□□□

| Thin scale-A Thick scale-B | Indicates resolution | Indicates de facto working distance |

MAGNETIC LINEAR SCALES

Magnetic linear scale is an open, durable, non-contact and high resolution magnetic measuring system composed of clustered magnetic head and magnetic grating. The maximum distance between the magnetic head and magnetic tape is 2mm. Special magnetic material is applied to the magnetic scale, which is magnetized at regular intervals and firmly secured in steel tape. Pre-prepared special adhesive in the magnetic scale makes easy installation. Steel protective strip can protect well the magnetic scale. Thanks toits outstanding features such as moisture proof, resistance to liquid, oil proof, shock proof and dust proof, and insensitivity to iron fillings, magnetic scale is mainly used in planer type milling machine, boring machine, large side milling machine and other processing equipments.

FEATURES

- With the maximum length up to 30m, seamless magnetic scale is especially suitable for large heavy-duty machine whose processing distance is above 3m.
- The length of the magnetic linear sacle can be arbitrary according to specific requirement;
- Installation and operation is easy and convenient.
- Oil proof, waterproof, dustproof, shock proof and resistance to high and low temperature($-10°$ C$- 70°$ C) properties enable magnetic linear scale to work in harsh environment.
- With a 0.005mm resolution and maximum motion speed of 16m/second, the magnetic linear scale can meet high speed and precision processing requirement.
- Friction free and non-contact conduction between the readout and sensor lengthens lifespan of the whole measuring system.
- It is unnecessary to process the middle casing, saving processing time and lowering cost.