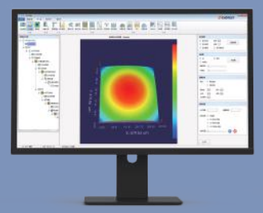
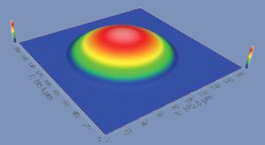
SuperView W1
3D Optical Surface Profilometer

White Light Interferometry

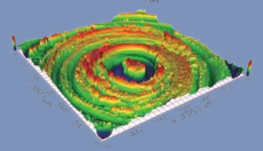
Nano 3D Surface Form and Roughness



Unique re-establishment algorithm can filter noises of surface of test object.



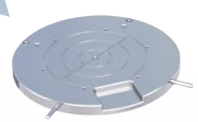
Super smooth lens



Abraded surface

Interference Lens

Different magnification lenses are selectable for various test objects with smooth or coarse surface



Vacuum Object Table

Vacuum Object Table is specially customized for semi-conducting wafers, so influence from feeble air flowing to test object is eliminated in measurement

Air-Bearing Isolation System

Built-in air bearing isolation system can isolate the vibration. Air pressure of the machine can be supplied by air compressor or inflators.

Sonic Vibration Isolation

The shell is separated from the internal motion unit, which effectively isolates the transmission of sound wave vibration.

Easy Level

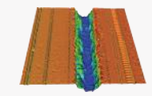
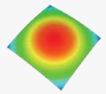
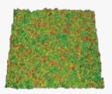
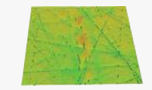
Improve the re-establishment accuracy and adjust stripe width by adjusting tilt of object table

Convenient joystick

Easy to control X/Y/Z movement, speed and light source brightness; Emergency stop button

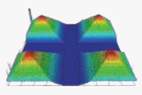
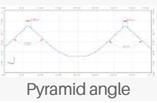
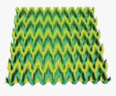
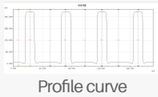
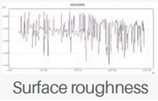
Application

It is used for measurement and analysis of surface roughness and profile of precision components from industries of semi-conductor, 3C Electronics, ultraprecise machining, optical machining, micro-nano materials, micro-electro-mechanical system.

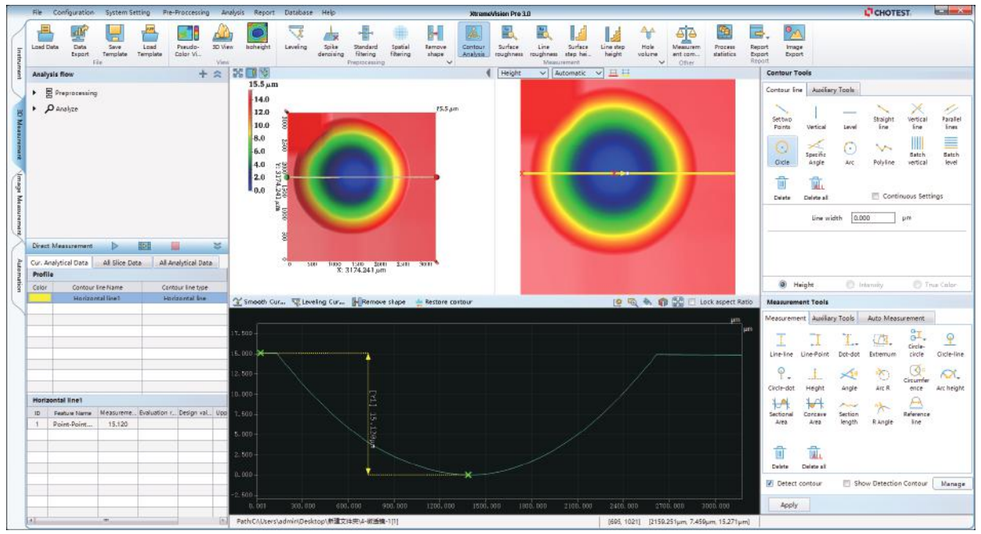
SemiConductor	Cut sheet, coated sheet, wafer IC	Roughness, microcosmic	
3C Electronics	Sapphire screen, glass screen, Ink screen	Roughness, flatness, step height	
Optics	Precision mould, optical lens	Roughness, flatness,profile, radius of curvature	
MicroNano Materials	Film on PET substrate	Film roughness, film thickness	
Tribology	CSM friction/Abraded components	Surface profile , Surface roughness, area, volume	

Application Cases

Measurement and analysis for various products, components and materials`surface form and profile characteristics, such as flatness, roughness, waviness, appearance, surface defect, abrasion, corrosion, gap,hole, stage, curvature, deformation, etc.

Surface form  Magnetic diamond head		 Pyramid angle
Profile sizes  Diffractive component		 Profile curve
Surface roughness  Engine blade of aircraft		 Surface roughness

XtremeVision 3D Software



The second-generation self-developed microscopic 3D measurement software integrates four modular functions: Image scanning, 3D analysis, Image measurement, and Automated measurement,It can perfectly adapt to all microscopic 3D machine models of CHOTEST W series & VT series & WT series, and can independently identify the type of model. Especially, the software can automatically switch scanning modes between white light interferometry and confocal microscopy on 2-in-1 Hybrid 3D Optical Profilometer.
Xtremevision Pro has transplanted the successful experience of CHOTEST in the field of image flash measurement, which can automatically match and measure XY plane dimensions such as point-line distance, angle, radius, etc.

Lens Specification

Zoom ratio of lens			2.5x	5x	10x	20x	50x	100x
Numerical hole diameter			0.075	0.13	0.3	0.4	0.55	0.7
Optical resolution @550nm(μm)			3.7	2.1	0.92	0.69	0.5	0.4
Depth of focus(μm)			48.6	16.2	3.04	1.71	0.9	0.56
Working distance(mm)			10.3	9.3	7.4	4.7	3.4	2.0
F.O.V. H×V (mm)	Video system 1024x1024	0.5x	3.84x3.84	1.92x1.92	0.96x0.96	0.48x0.48	0.192x0.192	0.096x0.096
		0.75x	2.56x2.56	1.28x1.28	0.64x0.64	0.32x0.32	0.128x0.128	0.064x0.064
		1x	1.92x1.92	0.96x0.96	0.48x0.48	0.24x0.24	0.096x0.096	0.048x0.048

Parameters

Model No		SuperView W1	SuperView W1-Pro	SuperView W1-Ultra	SuperView W1-Lite
Light Source		White LED			
Video System		1024×1024			
Objective Lens		Standard: 10X(Optional: 2.5X, 5X, 20X, 50X, 100X)			
Optical Zoom		Standard: 0.5X Optional: 0.375X, 0.75X,1X			Standard: 0.5X Optional: 0.375X, 0.75X
Standard Field of View		0.98×0.98 mm		1.1×1.1 mm	0.98×0.98 mm
Lens Turret		Manual 3 holes turret(Optional: Motorized 5 holes turret)			Motorized 5 holes turret
XY Object Table	Size	320×200mm	300×300mm	320×200mm	220×220mm
	Travel Range	140×100mm	200×200mm	140×100mm	100×100mm
	Load Capacity	10kg			
	Control Method	Motorized			
Tilt(manual)		±4°			±3°
Z Axis	Travel Range	100mm			50mm
	Control method	Motorized			
Z Stroke Scanning Range		10mm			
Surface Form Repeatability*1		0.1nm			
Roughness RMS Repeatability*2		0.005nm			0.01nm
Step Height Measurement*3		Accuracy: 0.3%; Repeatability: 0.08%(1σ)			Accuracy: 0.7% Repeatability: 0.1%(1σ)
Scanning Speed@0.1nm Resolution		1.85μm/s	1.85μm/s	16μm/s	1.65μm/s
Weight		140 kg	170 kg	140 kg	50 kg
Size(L*W*H)mm		700×600×900	750×650×950	700×600×900	500×400×700
Operating Environment	Temperature	0°C~30°C, fluctuation <2°C/60min			
	Humidity	5%~95% RH, no condensation			
	Vibration	VC-C or better			
	Software Noise Evaluation*4	3σ≤4nm			
	Compressed Air	0.6Mpa oil-free, water-free, 6mm diameter of hose			
	Power Supply	AC100~240V, 50/60Hz, 200W			
	Other	No strong magnetic field, No corrosive gas			

Note:
*1 Use EPSI mode to measure Sa 0.2nm silicon wafer in the laboratory environment; Single stripe, 80μm filter for full field of view.
*2 Measure Sa 0.2nm silicon wafer in a laboratory environment according to the ISO 25178.
*3 Measure standard 5μm steps height block in a laboratory environment according to the ISO 1060-1:2009.
*4 When the software noise evaluation is 4nm≤3σ≤10nm, the Roughness RMS repeatability is revised down to 0.015nm, the Step height measurement accuracy is revised down to 0.7%, and the step height measurement repeatability is revised down to 0.12%; When the software noise evaluation is 3σ>10nm, the environment does not meet the requirement for usage of the equipment, and need to change the site.

SuperView W3
3D Optical Surface Profilometer

Large-scale microscopic 3D form and roughness

- Large table
- Applicable for 12" wafer
- One-key automatic measurement

Dedicated Functions for Semiconductor Field

- Measure profile trenches after laser grooving in the dicing process.
- Measure film step-height of wafer ranging from 1nm~1mm.
- Measure roughness of silicon cut sheet after grinding process, and can measure dozens of small areas to obtain the average value by one click.
- Support 6", 8" and 12" wafer measurement, and easy switch between 3 sizes of vacuum chucks by one click automatically.

Parameters

Model No		SuperView W3	SuperView W3-Ultra
Light Source		White LED	
Video System		1024×1024	
Objective Lens		Standard: 10X(Optional: 2.5X, 5X, 20X, 50X, 100X)	
Optical Zoom		Standard: 0.5X Optional: 0.375X, 0.75X,1X	
Standard Field of View		0.98×0.98 mm	1.1×1.1 mm
Lens Turret		Motorized 5 holes turret	
XY Object Table	Size	450×450mm	
	Travel Range	300×300mm	
	Load Capacity	10kg	
	Control Method	Motorized	
Tilt		±5° Motorized	
Z Axis	Travel Range	100mm	
	Control method	Motorized	
Z Stroke Scanning Range		10mm	
Surface Form Repeatability*1		0.1nm	
Roughness RMS Repeatability*2		0.005nm	
Step Height Measurement*3		Accuracy: 0.3%; Repeatability: 0.08%(1σ)	
Scanning Speed@0.1nm Resolution		1.85μm/s	16μm/s
Weight		750 kg	
Size(L*W*H)mm		1000×800×1550	
Operating Environment	Temperature	0°C~30°C, fluctuation <2°C/60min	
	Humidity	5%~95% RH, no condensation	
	Vibration	VC-C or better	
	Software Noise Evaluation*4	3σ≤4nm	
	Compressed Air	0.6Mpa oil-free, water-free, 6mm diameter of hose	
	Power Supply	AC100~240V, 50/60Hz, 300W	
	Other	No strong magnetic field, No corrosive gas	

Note:
*1 Use EPSI mode to measure Sa 0.2nm silicon wafer in the laboratory environment; Single stripe, 80μm filter for full field of view.
*2 Measure Sa 0.2nm silicon wafer in a laboratory environment according to the ISO 25178.
*3 Measure standard 5μm steps height block in a laboratory environment according to the ISO 1060-1:2009.
*4 When the software noise evaluation is 4nm≤3σ≤10nm, the Roughness RMS repeatability is revised down to 0.015nm, the Step height measurement accuracy is revised down to 0.7%, and the step height measurement repeatability is revised down to 0.12%; When the software noise evaluation is 3σ>10nm, the environment does not meet the requirement for usage of the equipment, and need to change the site.

SuperView WT Series
Hybrid 3D Optical Profilometer

Description

The Hybrid 3D optical profilometer Superview WT series is used for sub nanometer measurement of surfaces of various precision components and materials. It integrates the performance characteristics of two high-precision 3D measuring instruments, white light interferometer and confocal microscope, and can perform non-contact scanning of the samples surface then re-establish 3D surface image. When measuring the ultra smooth and transparent surfaces, white light interferometry mode can be used to obtain high-precision and distortion-free images, and analyze parameters such as roughness. When measuring coarse surfaces with sharp angle features, confocal microscopy mode can reconstruct large angle 3D topography images, and 2D & 3D parameters reflecting surface quality are obtained by data processing and analysis of surface 3D images through software.

Technical Parameters

Adding W-Ultra high-speed scanning module can increase scanning speed by several times.

Model		SuperView WT3000	SuperView WT3200
Light Source		White Light LED	
Video System		1024x1024	
Interference Objective Lens		10X(2.5X, 5X, 20X, 100X optional)	
Confocal Objective Lenses		10X, 50X(5X, 20X, 100X optional)	
Standard Field of View		1.2x1.2mm (10X)	
Lens Turret		Motorized 5-hole turret	
XY Object Table	Size	200x200mm	300x300mm
	Travel Range	100x100mm	200x200mm
	Load Capacity	10kg	
	Control Mode	Motorized	
Tilt		±3°	
Z-axis	Travel Range	100mm	
	Control Mode	Motorized	
Z stroke scanning Range		10mm	
Surface Topography Repeatability STR*1		0.1nm (White light interferometry)	
Roughness RMS Repeatability*2		0.005nm (White light interferometry)	
Step Height Measurement*3		Accuracy: 0.5%; Repeatability: 0.1% (1σ) (White light interferometry)	
Weight		50kg	
Size (L x W x H)		440x330x700mm	600x700x850mm
Operating Environment	Temperature	0 ° C~30 ° C, fluctuation <2 ° C/hour	
	Humidity	5% -95% RH, no condensation	
	Vibration	VC-C or better	
	Software Noise Evalution*4	3σ≤4nm	
	Compressed Air	0.6Mpa oil-free and water-free, 6mm diameter of hose	
	Power Supply	AC100-240V, 50/60Hz, 4A, Power 300W	
	Others	No strong magnetic field, no corrosive gas	

Note:
*1 Use EPSl mode to measure Sa 0.2nm silicon wafer in the laboratory environment; Single stripe, 80μm filter for full field of view
*2 Measure Sa 0.2nm silicon wafer in a laboratory environment according to the ISO 25178
*3 Measure standard 5μm steps height block in a laboratory environment according to the ISO 10610-1:2009
*4 When the software noise evaluation is 4nm≤3σ≤10nm, the Roughness RMS repeatability is revised down to 0.015nm, the Step height measurement accuracy is revised down to 0.7%, and the step height measurement repeatability is revised down to 0.12%;

SuperView WX100
White Light Interferometry Probe

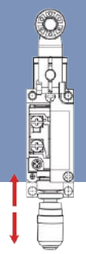
In-line roughness and 3D profile inspection

Double anti-collision protection

Software ZSTOP and hardware electronic sensors.Besides it could accept external anti-collision electronic signals.

Four DOF motorized tilt

Provides an electric tilt adjustment design with four degrees of freedom in pitch and yaw, which greatly reduces the manufacturing difficulty of the customer's measuring stage.



Z travel range 30mm

Capable to measure samples with different height. Users need not to prepare a moving Z axis

SDK

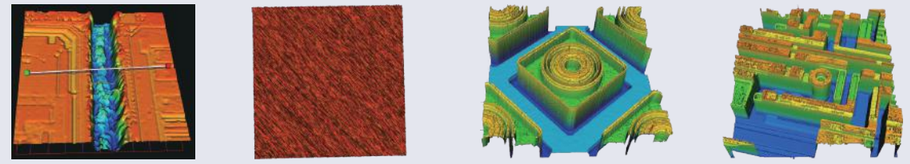
Provide the software package for customers to carry out secondary development, so that customers can develop the software program to control the probe for automatic measurement and analysis.

Functions

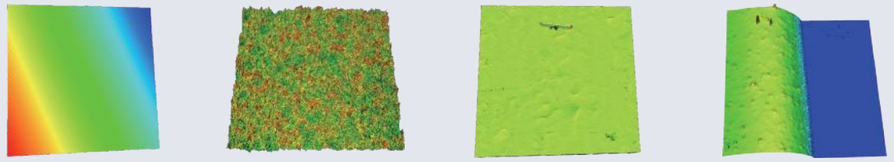
- Measurement function: it can realize high precision Z scanning of sample surface and obtain 3D image.
- Analysis function: It can obtain 2D and 3D data such as surface roughness, micro-nano-level contour size, etc.
- Programming function: Support pre-configured data processing and analysis tool steps, one-click to complete the whole process from measurement to analysis.
- Batch analysis: Data processing and analysis templates can be customized according to the customer demands, and one-click batch analysis can be realized for the same type of parameter data.

Application

Semiconductor, polished silicon wafer, thin silicon wafer, wafer IC



3C electronics, sapphire glass roughness, metal shell mold defects, glass screen height difference

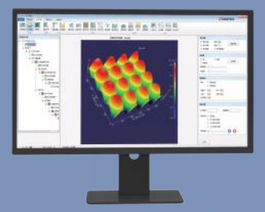


Parameters

Model No.		SuperView WX100
Light Source		White LED
Video System		1024×1024
Objective Lens		10X(2.5X, 5X, 20X, 50X, 100X optional)
F.O.V.		0.98×0.98mm(10X)
Lens Turret		Single hole / 3 holes manual
Size		230×200×380mm
Tilt		±2° Motorized
Z Travel Range		30mm
Z Scanning Range		10mm(Depend on Lens)
Z Resolution		0.1nm
Roughness RMS Repeatability*1		0.01nm
Step Height Measurement	Accuracy*2	0.5%
	Repeatability*2	0.1% 1σ

Note:
*1 Measure Sa 0.2nm silicon wafer in a laboratory environment according to the ISO 25178.
*2 Measure standard 5μm steps height block in a laboratory environment according to the ISO 10610-1:2009.

VT6000 Series Confocal Microscope



VT6100

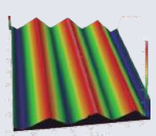
VT6200

VT6300

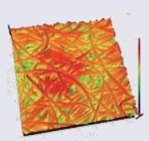
Description

Confocal Microscope VT6000 is dedicated for micro-nano level measurement of various precision components and material surfaces. It can measure the surface of various objects from smooth to rough, low reflectivity to high reflectivity, and the roughness, flatness, micro-geometric profile, curvature, etc.Total more than 300 kinds of 2D and 3D parameters as per four major domestic and foreign standards ISO/ASME/EUR/GBT are provided as evaluation standards.

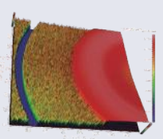
Surface with sharp slope



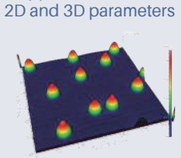
Surface with any reflectivity



One-key analysis for batch



Support 300 kinds of 2D and 3D parameters



Features

1. High precision and high repeatability

1) Based on the rotating confocal optical system, combined with high stability structural design and excellent 3D reconstruction algorithm, the measurement system is jointly composed to ensure thehigh measurement accuracy of the instrument.

2) The unique shock isolation design can reduce the vibration noise of the bottom surface, the instrument is stable and reliable in most environments, and has good measurement repeatability.

2. All-in-one operation of measurement analysis software

1) The measurement and analysis are operated on the same interface without switching, and the measurement data is automatically counted, realizing the function of rapid batch measurement.

2) The visualization window is convenient for users to observe the scanning process in real time.

3) Combined with the automatic measurement function of the custom analysis template, the multi-region measurement and analysis can be automatically completed.

4) Five functional modules of geometric analysis, roughness analysis, structural analysis, frequency analysis and functional analysis.

5) One-key analysis, multi-file analysis, free combination analysis items are saved as analysis templates, one-key analysis of batch samples, and data analysis and statistical chart functions are provided.

6) More than 300 kinds of 2D and 3D parameters can be measured according to ISO/ASME/EUR/GBT.

3. Precision joystick

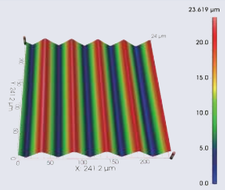
The joystick integrated with the displacement adjustment functions in the three directions of X, Y, and Z can quickly complete the pre-measurement works such as stage translation and 2-way focusing etc.

4. Double anti-collision protection measures

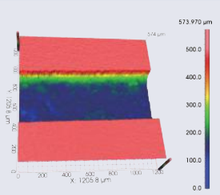
In addition to the software ZSTOP setting the lower limit of the Z-direction displacement for anti-collision protection, a mechanical and electronic sensor is designed on the Z-axis. When the lens touches the surface of the sample, the instrument automatically enters an emergency stop state to protect the instrument to the greatest extent and reduce the risk of human operation.

Application

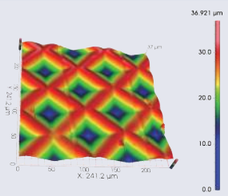
V-shaped groove



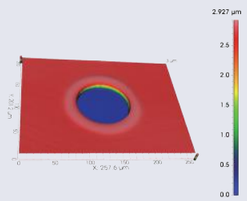
Trench



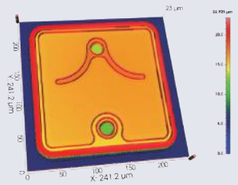
Pyramid shape



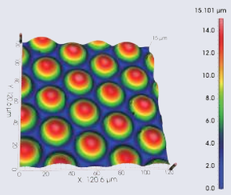
Laser hole



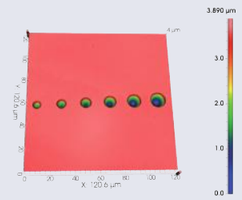
Patterned Wafer



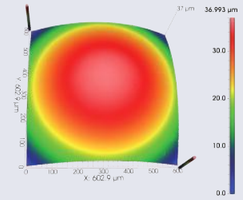
Microlens matrix



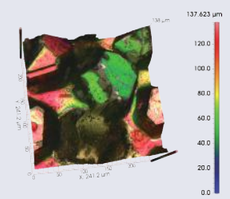
Taper hole



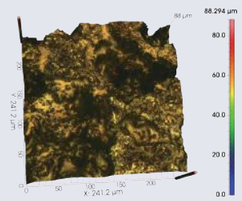
Optical lens



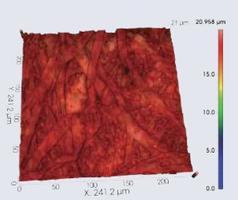
Diamond drill



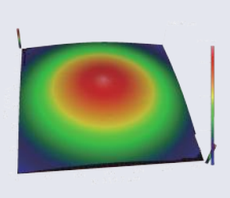
Conductive ceramics



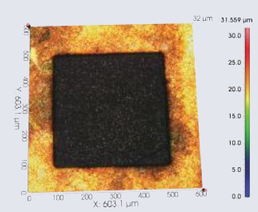
Paper fiber



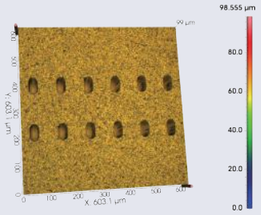
Ultra-precision metal tip



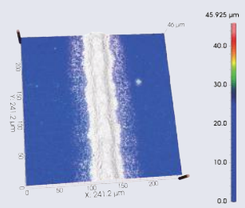
PCB



Gold plated micro-holes



Grid line of solar plate



Parameters

Model No.		VT6100	VT6200	VT6300
Size		520×380×600mm	720×580×1500mm	1000×900×1500mm
Weight		50kg	400kg	500kg
Principle		Spinning disk confocal optical system		
Objective Lens		10X, 50X(Optional: 5X, 20X, 50X, 100X APO)		
Field of View		120×120 μm~2.4×2.4 mm		
Step Height Measurement	Repeatability(1σ)	≤12nm		
	Accuracy*1	≤ ± (0.15+L/100) μm		
	Display Resolution	0.1nm		
Width Measurement	Repeatability(1σ)	40nm		
	Accuracy*2	± 2%		
	Display Resolution	1nm		
XY Object Table	Size	200x200mm	230x230mm	450x450mm
	Travel Range	100x100mm	200x200mm	300x300mm
	Load Capacity	10kg		
	Control Method	Motorized		
Z-Axis	Travel Range	100 mm		
	Control Method	Motorized		
Lens Turret		Motorized 5 holes turret		
Light Source		White LED		
Operating Environment	Power Supply	AC100~240V, 50/60Hz, Power 120W		
	Working Temp.	15°C~30°C, fluctuation < 2°C/60min		
	Humidity	5%~95%RH, no condensation		
	Vibration	VC-C or better		
	Other	No strong magnetic field,no corrosive gas		

Note:
*1 Measure standard 5μm steps height block by 50X Objective lens in a laboratory environment.
*2 Measure standard engraved line block by 50X Objective lens in a laboratory environment.