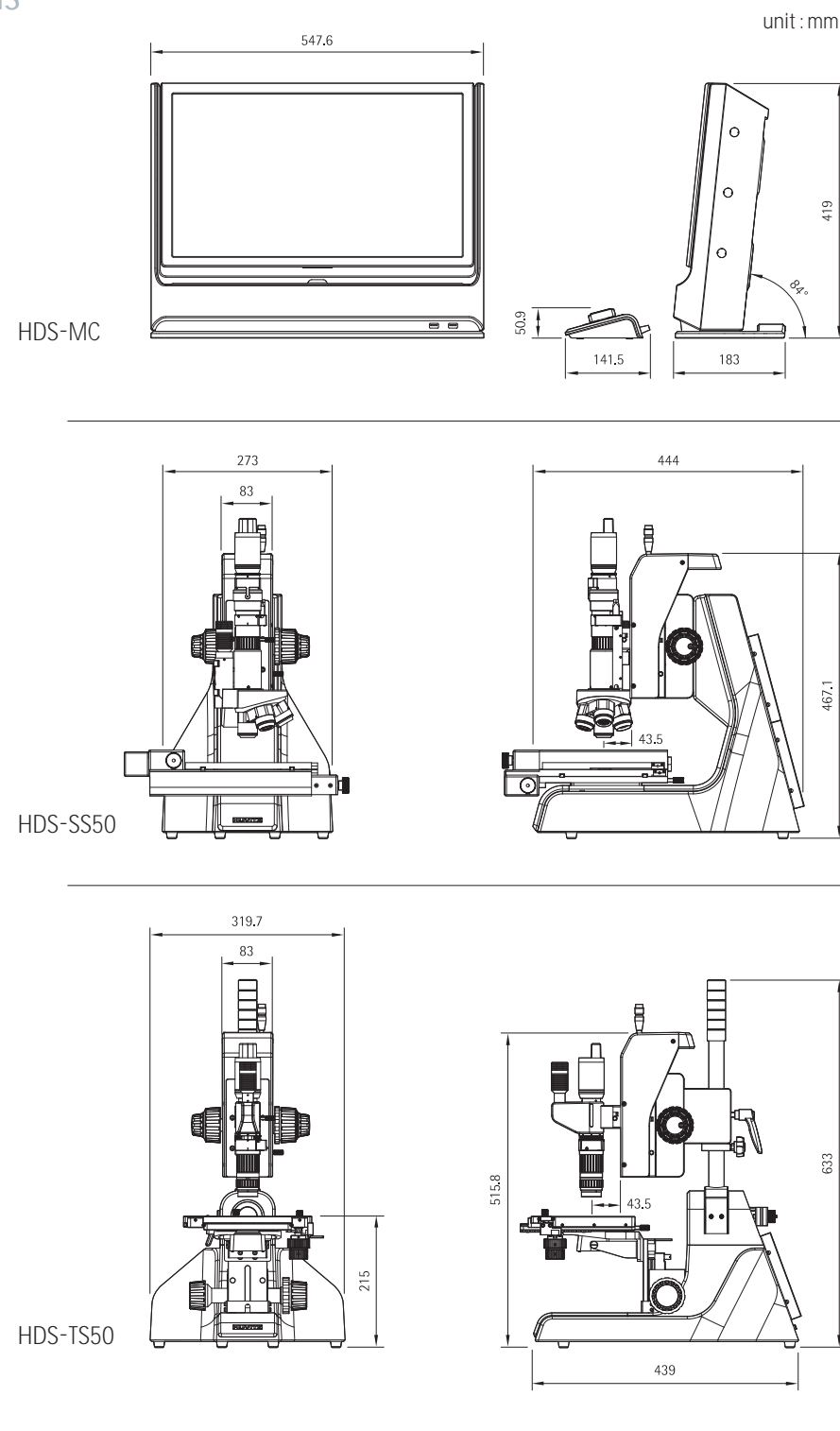


# Huvitz Digital Microscope HDS-5800

## Dimensions



# Huvitz Digital Microscope HDS-5800



*The world's first,  
convert the magnification from  
50x to 5,800x with a zoom lens*

**Huvitz**

Distributed by

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**Huvitz** Re:define. Re\*create

## Smart Optical Solutions for You! Huvitz Digital Microscope HDS-5800

The Huvitz HDS Series offers a wide range of analysis based upon the integration of optical and digital technology. Easy image acquisition and easy analytical processes translates into precise, accurate results.

### The most advanced all in one system

All functions for observation, recording, measurement and reporting have been integrated into a single unit, making it one of the most versatile digital microscopes in the market.

### The world's first, convert the magnification from 50x to 5,800x with a zoom lens

The HDS series also offers the widest magnification range in the market with a zoom lens. There is an extraordinary range from 50x~5,800x. There are two modules with the base module providing the zoom magnification. The high resolution module couples the zoom lens to a revolving turret with four objective lenses. When coupled with the digital enhancement, the magnification range extends up to 5,800x.

### Observation of high resolution depth with 3D

The components of the HDS system are high resolution optics, precise digital image capture, image processing software and high resolution LCD image display.

The image processing includes image management, 2D image capture, 3D image creation and very accurate measurement profiles for height, volume, angles and length. Especially, it's possible to generate and observe full-focused expansion 3D display through one click.



## Huvitz's advanced optical technology aiming for No.1

The powerful objective lenses, precise digital technology coupled with HDR image processing technology produces an optimized inspection system.

The achieved image clarity and resolution exceeds simple visual inspection by eliminating glare, reflection.

The combination of ease of use, high optical clarity, and rapid, accurate image processing provides efficient inspection and reliable data.

Objective Lens (Revolver-type)



### Extensive magnification and easy conversion of powerful lens

With the zoom lens, a wide variety of inspection functions become easy task. However, when the need arises for structural inspection and metallurgical evaluation, the addition of the revolving turret with four high resolution objective lenses extends capability beyond what is currently available in the market.

### A world-class zoom body in terms of color reproduction

Huvitz is known for its optical quality in the field of optometry. The process of superior optical design and lens coating technology has been demonstrated on the delicate and crucial structures of the eye.

With the HDS system, those same technological capabilities have been extended with a semi-apochromat lens system that provides improved resolution and superior color reproduction.

### The LED designed to optimize the realistic high resolution image

It provides transmitted vertical illumination source so that its lights can be cast brightly with various samples and convenient without waiting time for warming up

### Super-high speed camera acquiring consecutive images up to 20 per a second

The high speed camera generates up to 20 frames consecutively. This rapid acquisition speeds data collection. Combined with rapid image processing, this contributes to the efficient completion of inspection projects.

### 21.5" Full HD LCD monitor with realistic definition like seeing by eyes

The HDS system incorporates a 21.5" HD LCD display monitor. This monitor provides 1920x1080 display (full HD). The wide screen monitor has 250cd/m brightness and high contrast for brilliant images.

### Easy rotating and tilting stand-up to 150 degree

The standard HDS stand provides flexibility for imaging from a wide range of angles to acquire images of the most difficult specimens. The stand can be tilted through 150°, and objects can be easily rotated. It is recognized that not all specimens will fit on the stand. For this reason, the system has anti-vibration/image stabilization features. In addition, for hand-held, close-up imaging, the system has an auto-focus feature.



Zoom Body



LED Illumination



Free Angle



Camera

Hand-Held





## Smart Accessory - Entertaining than expectation

A revolutionary system optimized to the accuracy, stability and reliability assurance. The wide range of accessories suiting the requirement of numerous conditions is available to maximize the efficiency of the observer.

Motorized X,Y Axis Stroke (L)

Motorized Z Axis Stroke (R)



Adapter / Filter



## Optimally designed motorized stage

Auto tiling obtains image sequentially by moving the stage in X/Y directions.

The automatic visual connection comes on display.

Navigation : There are provisions in the software to assist in navigation. Especially with high magnification tasks, this feature is extremely helpful.

By clicking on a position on the image, with the motorized stage functions, the software will automatically position the stage in the correct position.

There is also the capability to couple a larger stage with up to 150mmx150mm X/Y travel for imaging larger areas / specimens.

Large-area measurement : Supported by 100x100mm stage measures size over a large area of the stage

## Various stage options: Increased accuracy, precision and repeatability

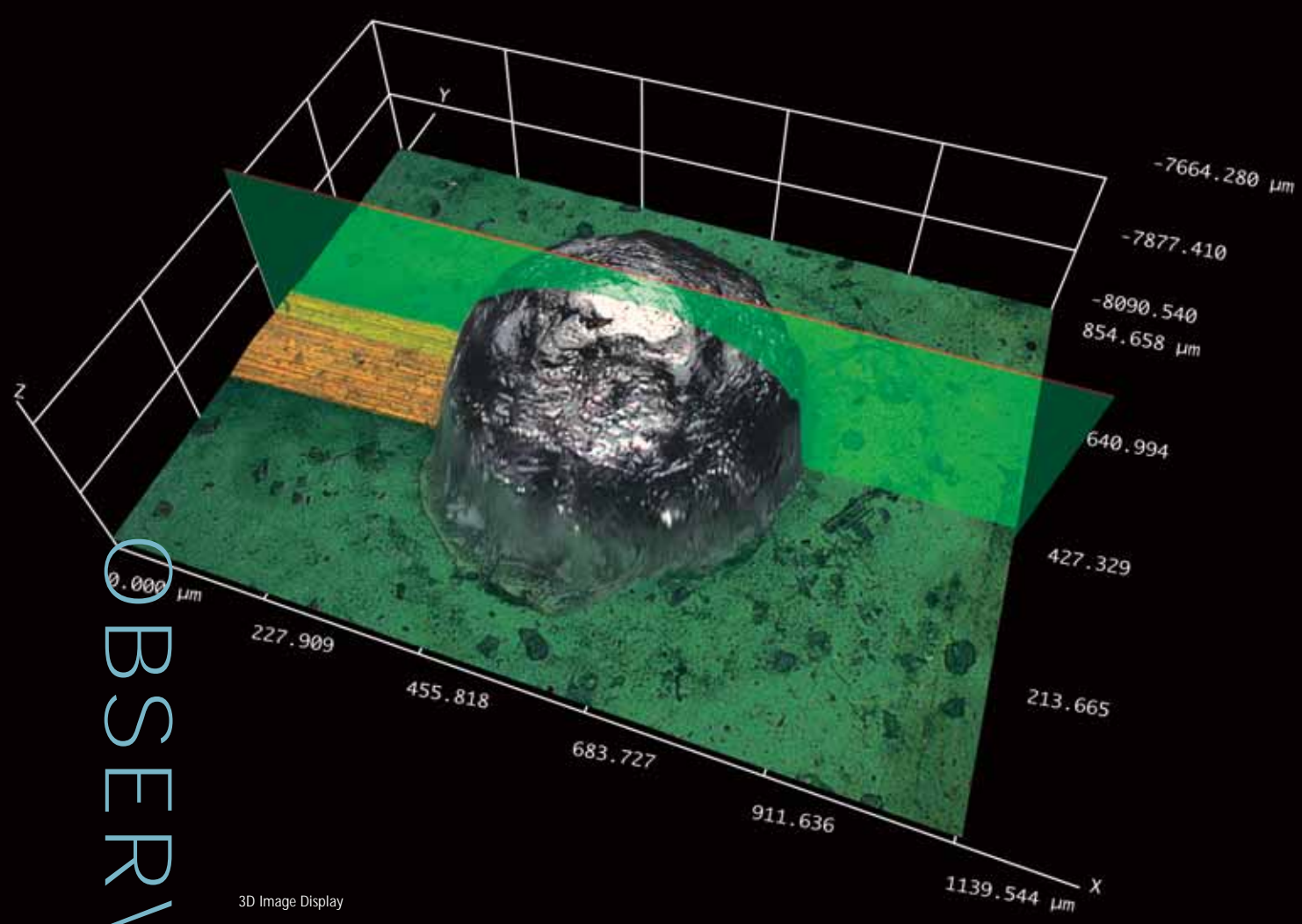
The diverse power stages up to the 6x4 size provide observers with various features designed to meet various needs for sample types.

Available glass plate for transmitted observation and wafer holder plate can also be applied.

## Various adapters and filters - minimizes errors

Provide great accuracy of the measurement with various choices of adapters and filter types



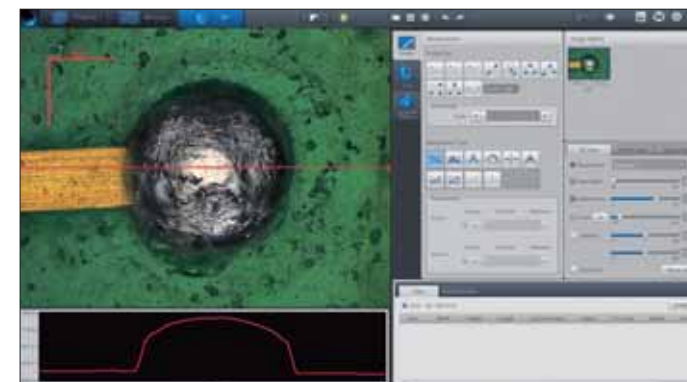


OBSERVATION/3D

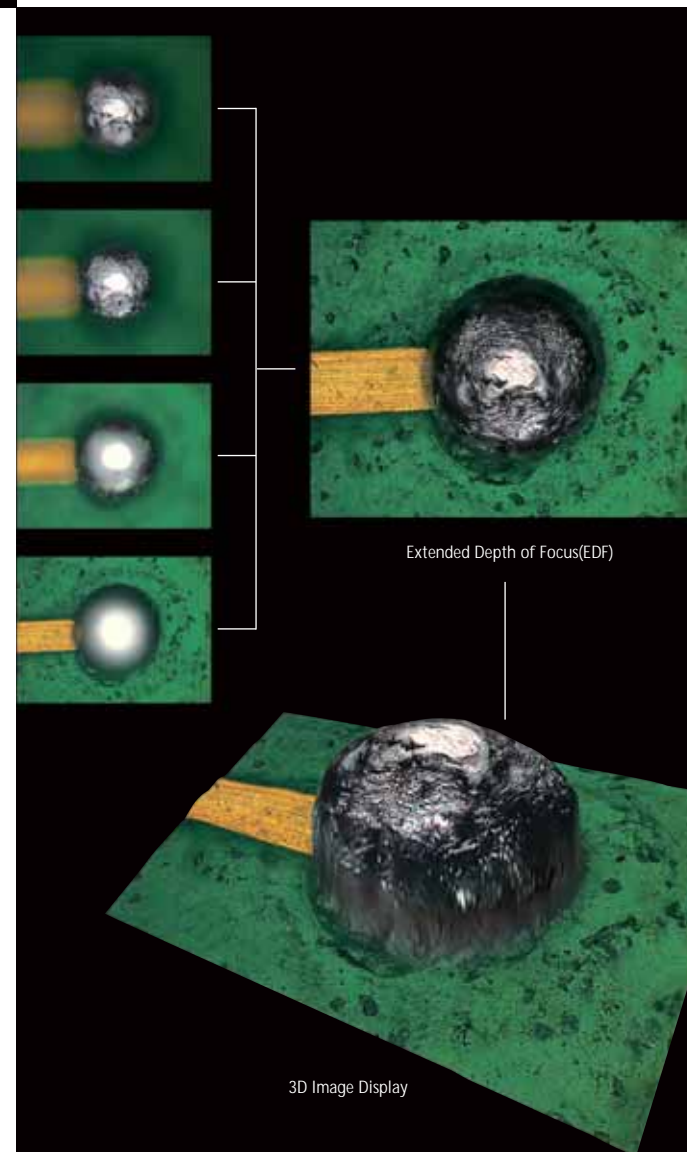
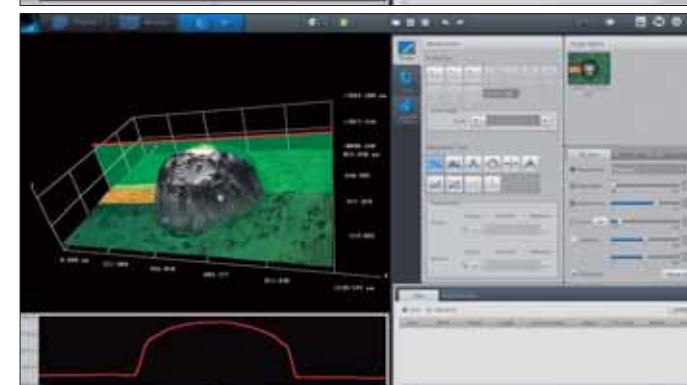
## Observation of fully-focused depth of field even at high magnification

Create fully-focused, high depth of field images, even at high magnification. The optical technology and precise z-axis control provides image acquisition from different focal depths. These images are then converted into composite, 3D images for multi-layered in-focus images. The process works by capturing a series of images in a z-axis stack. These images from different depths of focus are then selected to be processed into an in-focus image. The software processing does the rest. The controls are easy and intuitive.

2D Measurement



3D Measurement



## EDF(Extended Depth of Focus) function – Accurate construction of 3D image

All the images, which have different depth of focus can be composed with EDF function by using Z axis module. It's possible for deeper depth sample to be fully-focused and composed quickly with high magnification

## The 3D image display features at a glance on the highest and the lowest points

After multiple images have been acquired and converted to a 3D image, the image can then be displayed in a 360° panoramic view. Various heights can be visually displayed in different colors.

## Full-focused real time connection by pressing the button

Perform the calibration pressing the button for each lens and magnification by X-Y-Z motorized control

## Sophisticated 3D measurement

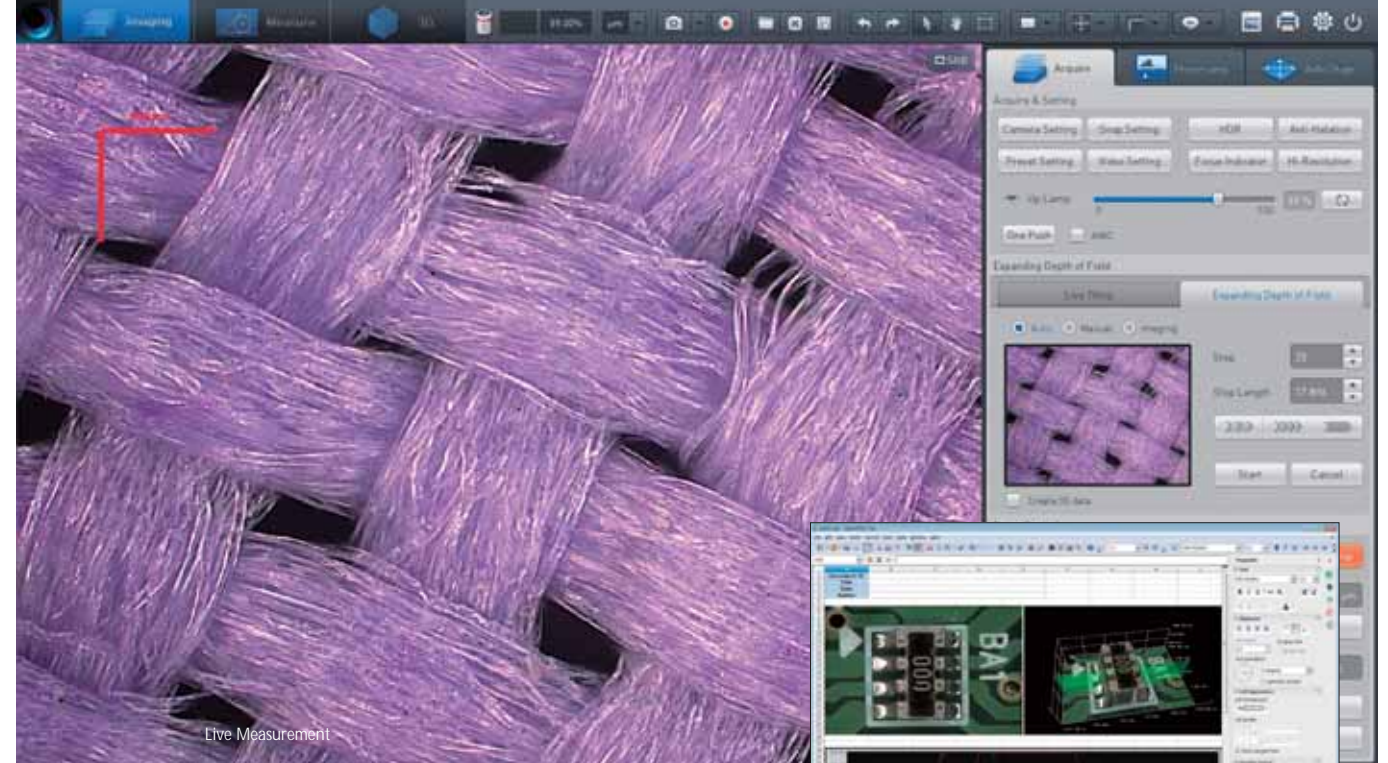
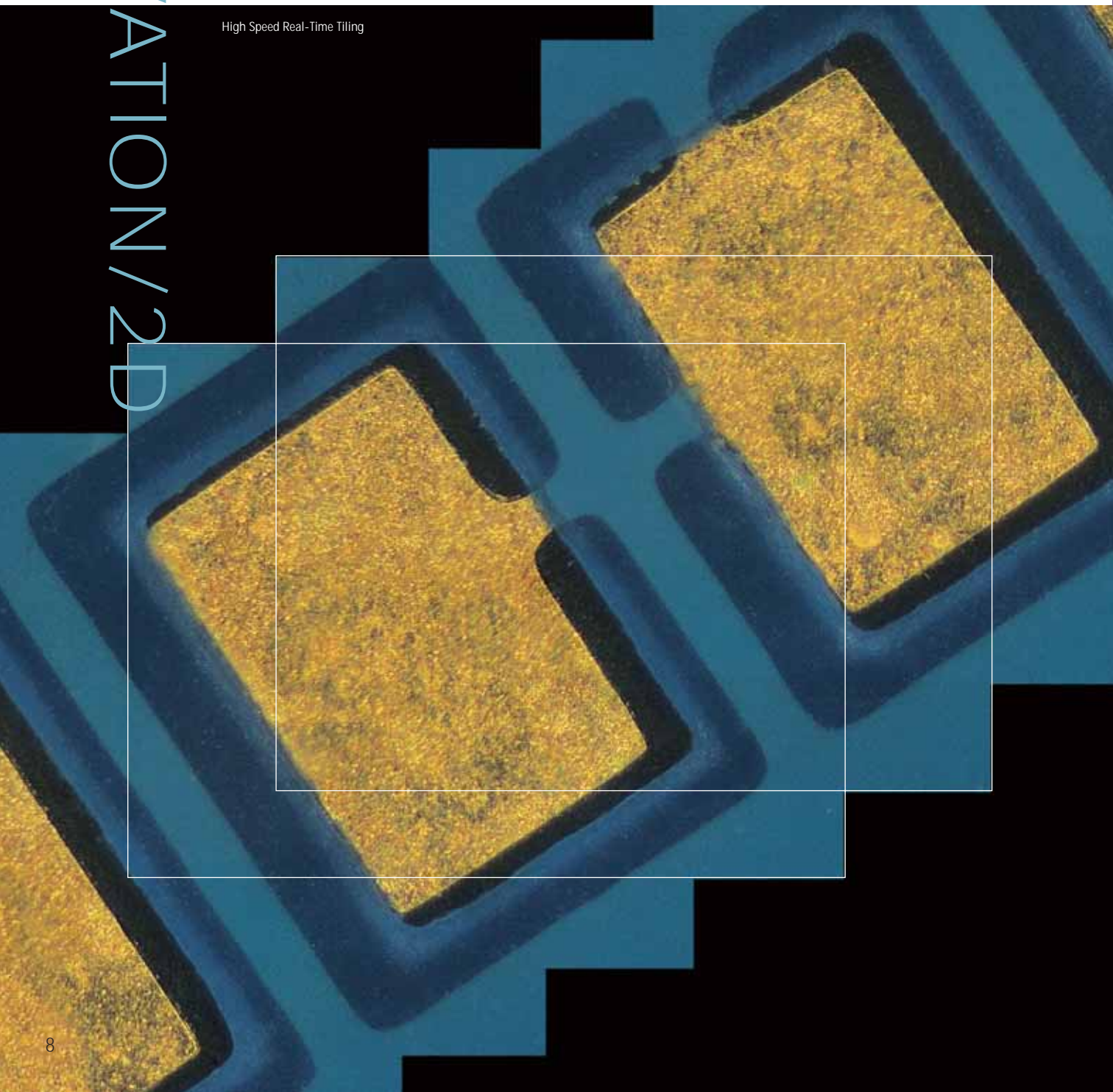
The system can easily acquire professional profile data. In addition, various measurement tools such as horizontal and vertical line measurement, or two, three or more point circle measurement processes are provided to aid collection, verification and accuracy of measurements.

•Other 3D measurement tools  
A wide variety of other measurement tools are available. These include volume measurement, area, capacity, cross-section, right angles, variable angles, and length / distance.



## High speed image acquisition and processing

The days of waiting for extended periods for image analysis functions to be completed are over. The HDS system integrates optical functions, digital image and image processing and analysis into a highly efficient system. Even as the initial images are displayed, the image processing is commencing to provide high volume output. Huvitz's combination of technologies maximizes convenience and efficiency of measurement and results reporting.



Reduced error, increased stability High speed real-time tiling

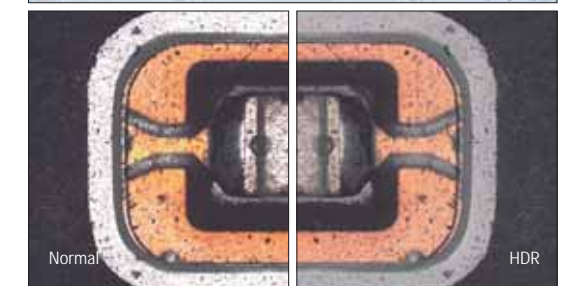
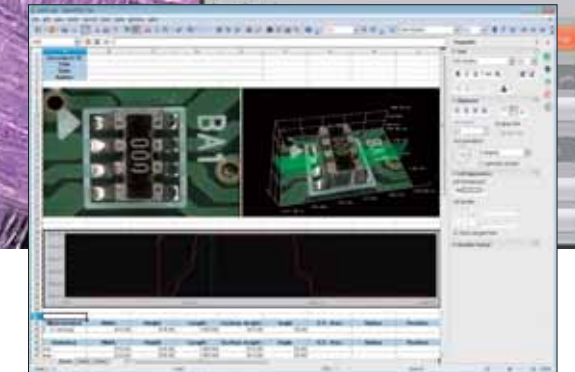
High speed tiling is a useful function to obtain composition images of larger samples. It is composed of captured images along the X/Y axis combined into a single image. These combined images are processed as the lens moves along the X/Y axis. The speed of composition is twice as rapid as other brands and the quality of the tiled sections is excellent and natural. In addition, the use of navigation reference points reduces artifacts and image failure. The high speed tiling process can include up to 400 megapixels in a single composite image. This provides the capability to display a significant portion of the specimen in a single image.

## HDR(High Dynamic Range)

The camera captures multiple color images at different brightness level by varying the shutter speed. The image processing then produces an image with high level gradation of data. The range of obtainable brightness widens, resulting in the accurate representation of targets without glare and reflection.

### AMS(Automatic Magnification Sensor)

The HDS system automatically recognizes the lens setting and the magnification in use at any specific point in time. Calibration is not required every time that magnification is changed. In addition, the magnification setting, required for 3D observation, is not required to be input manually because it is provided automatically.



### Real-time measurement during observation

The system allows users to complete all measurements directly on the screen in real time on a live image. The process requires only a couple of clicks with the mouse. The process is significantly easier and faster than previous methods.

## 2D measurement

It offers a variety of measurement tools such as line, circle, arc, angle, polyline, polygon, vertical, width, parallel, count suitable for measurement result

## Multi view measurement

Multi-view image's partial display is fixed by previous saved calibration data so that the accuracy of measurement will be increased

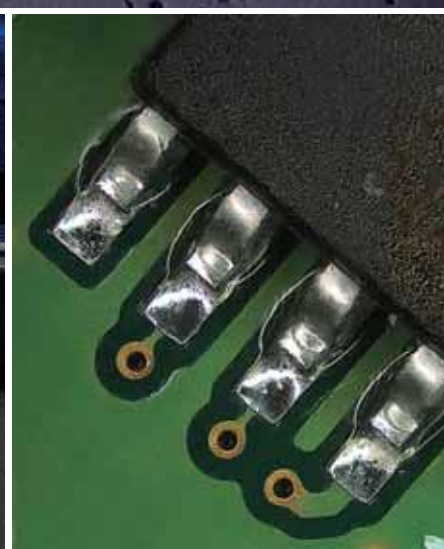
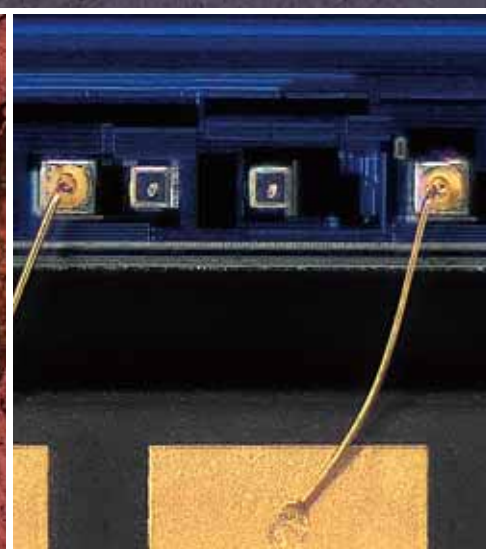
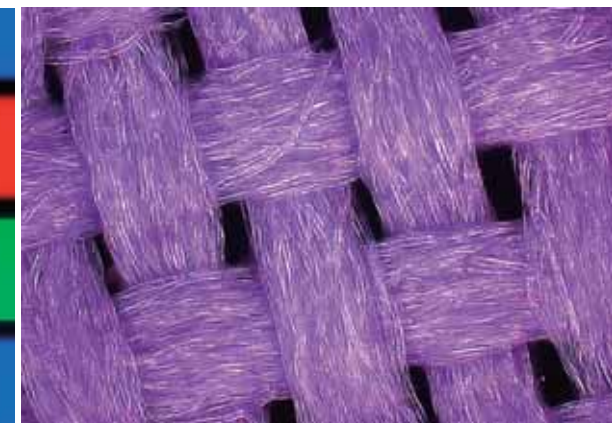
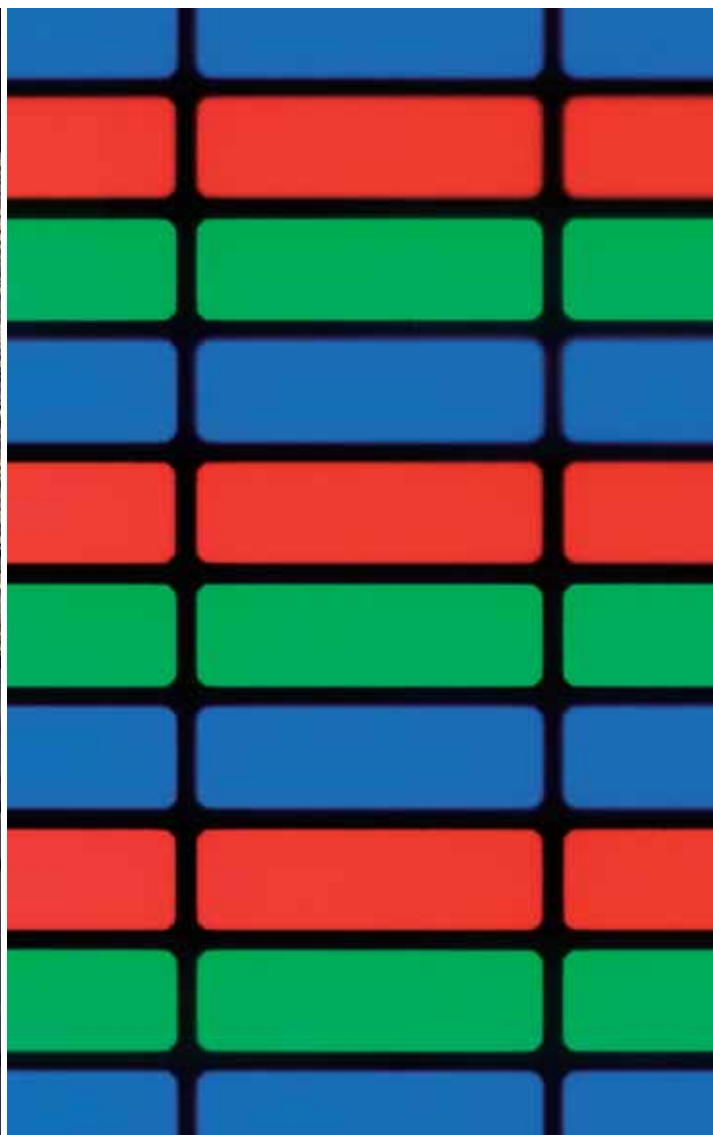
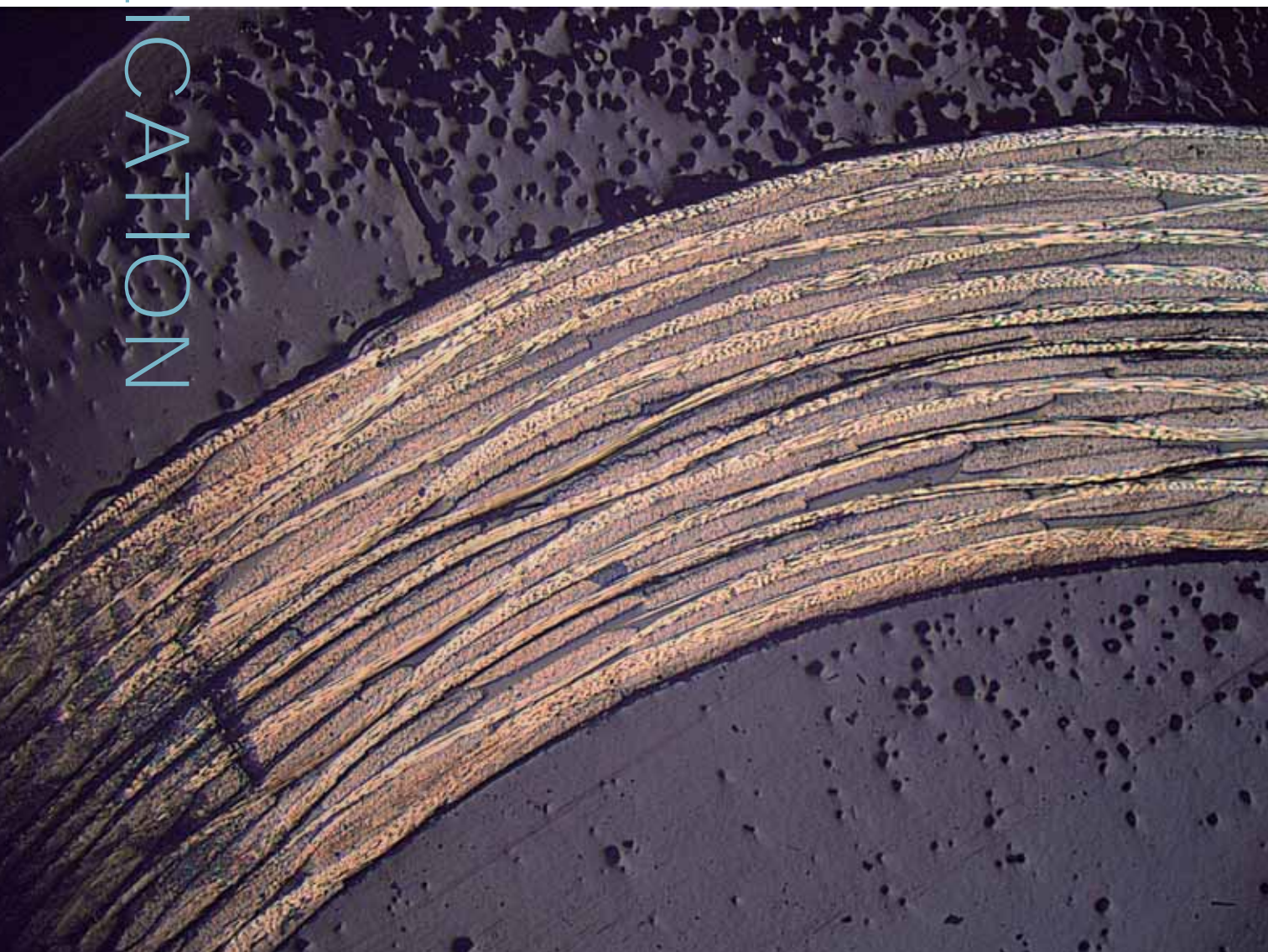
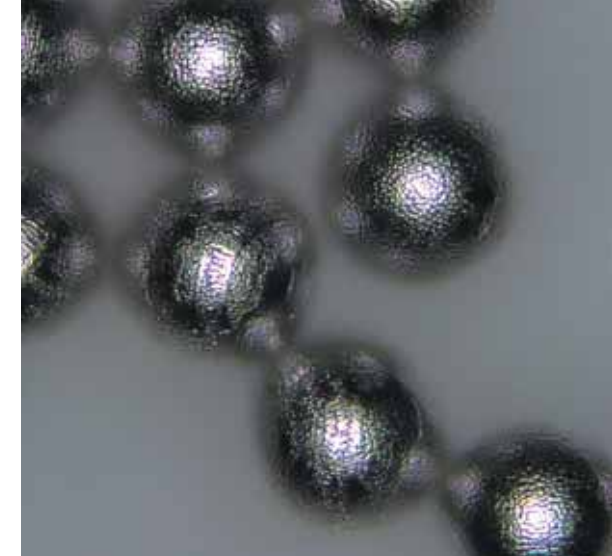
## One click report creation

All of the data and analysis in the HDS system can rapidly be integrated into a report generator. The creation of reports using standard templates or customized templates (previously developed) can speed the complete of reports on various analytical functions. These reports can automatically include captured date, time, lens, magnification, and the various measurement data.



## Personalized correspondence

Advanced, flexible and detailed analysis in excellent durability, diverse and reliable accessory attachments realizes widely use in various fields by Huvitz's digitalized-optical technology.



## A variety of applications

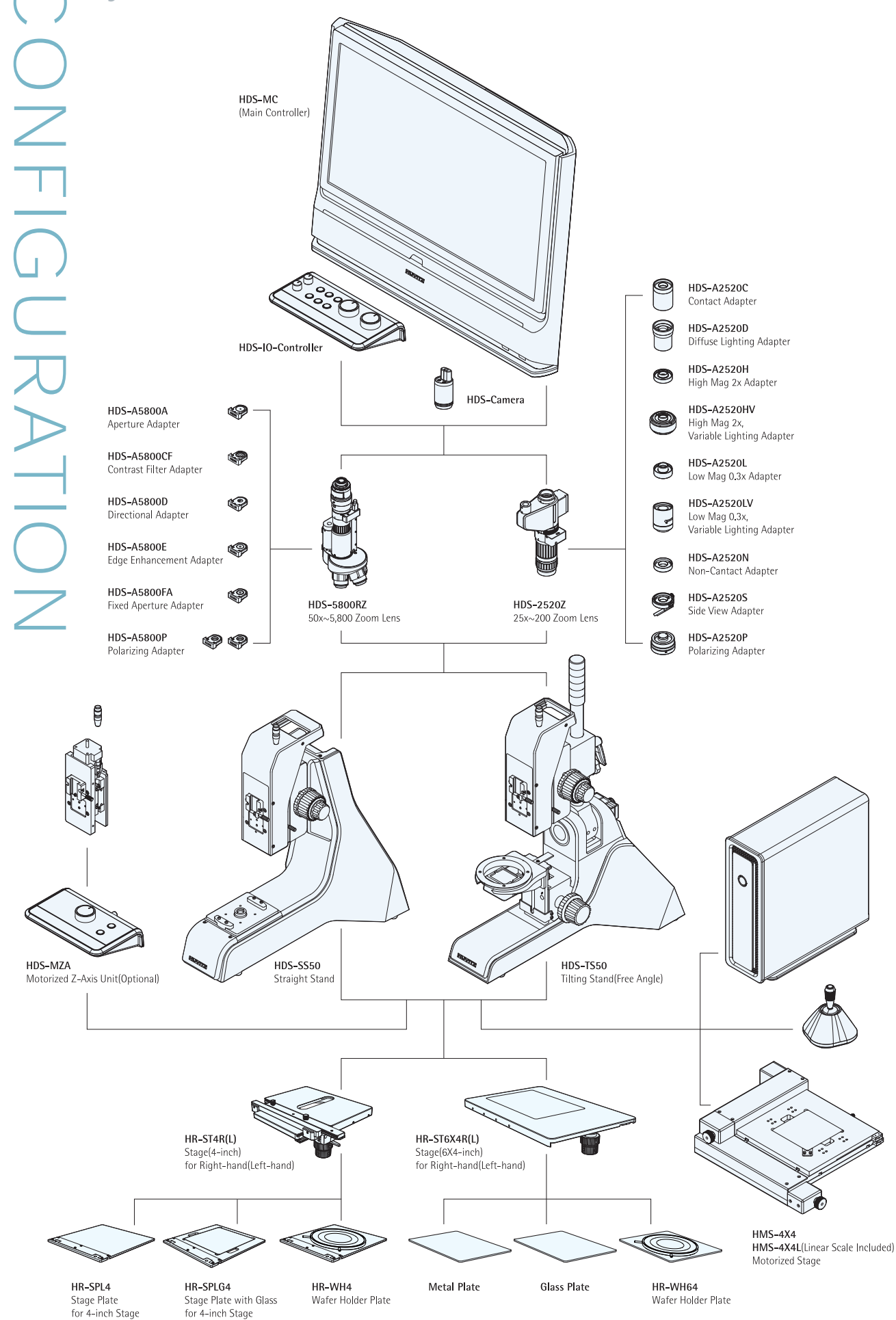
Low power to high-power zoom lens in a single test or observation allows wide range of use in semiconductor, car-metal, chemical, materials, electro-transfer and medical industry.

Quick observation without additional work on samples - Looking directly through display at the spot discussion with multi co-operation.

In addition, cost-effective in the advanced features with detailed analysis of the entire acquisition phase. Supporting the inexperienced by flexible usage in college, government institute or research center



System Overview



Specifications

Model		Specifications	
25x~200x Zoom Lens (HDS-2520Z)	Optical Magnification	0.44x~3.56x	
	Total Magnification	25x~200x	
	Field of View	20.27mm~2.53mm	
	Working Distance	36mm (HDS-A2520N)	
	AMS	Yes	
	Iris	Yes	
50x~5,800x Zoom Lens (HDS-5800RZ)	Optical Magnification	0.711x~103.111x	
	Total Magnification	50x~5,800x	
	Field of View	12.375mm~0.085mm	
	Working Distance	10mm (Only 100x OBJ. 3mm)	
	AMS	Yes	
	Iris	Yes	
Main Controller (HDS-MC)	Camera	Imaging Receiving Element	1/1.8 inch (8.50mm x 6.80mm)CCD, Sony ICX274AL
		Frame Rate	20fps
		Resolution	1600 (H) x 1200 (V)
	LCD Monitor	Display Size	21.5" [21.46 inches (545.22mm) Diagonal]
		Panel Size	495.6 (H) x 292.2 (V) x 10.2 (D)mm (Typ.)
		Pixel Pitch	0.2475mm x 0.2475mm
		Number of Pixels	1920 x 1080 (FHD)
		Brightness	250cd/m <sup>2</sup> (Center 1 Point, Typ.)
	Hard Disk Drive Unit	Disk Size	2.5"
		Spindle Speed	7200RPM
		Storage Capacity	1TByte
	Output	Video Output	HDMI (1080P), VGA
		Scanning Frequency	60Hz (LCD Monitor), 60Hz (External Monitor)
	Input	Mouse	Supports USB and PS/2 Mouse
		Keyboard	Supports USB and PS/2 Keyboard
	Interface	LAN	RJ-45 x 2, 10/100/1000 Mbps, LAN1: Intel 82579LM, LAN2: Intel 82583V
		USB 2.0 Series A	6 Types (2 Front ports, and 4 Rear ports)
		RS-232	D-sub 9pin x 2 (COM1, COM2)
	Power Supply	Rated Voltage	AC 100~240V, ~5A 50/60Hz
		Power Consumption	90W
	Environmental Resistance	Ambient Temperature	10°C to 40°C (No Condensation)
		Relative Humidity	Below 85% (No Condensation)
Straight Stand (HDS-SS50)	Dimension (mm) / Weight	Controller (Main Unit)	547.6 (W) x 419 (H) x 183 (D) / Approx. 11.5kg
		Camera Unit	Ø37 (di) X 48.2 (H) / Approx. 0.05kg
		Console	235.5 (W) x 50.9 (H) x 141.5 (D) / Approx. 0.5kg
		Upper Z-Axis Stroke (Manual)	50mm
		Upper Z-Axis Resolution	1μm
		Lower Z-Axis Stroke (Manual)	50mm
Tilting Stand (Free Angle Stand) (HDS-TS50)	Dimension (mm) / Weight	Ambient Temperature	10°C to 40°C (No Condensation)
		Relative Humidity	Below 85% (No Condensation)
		Upper Z-Axis Stroke (Manual)	50mm
		Upper Z-Axis Resolution	1μm
		Lower Z-Axis Stroke (Manual)	50mm
		Free Angle	-60° ~ +90°
Motorized Z-Axis Unit (HDS-MZA)	Dimension (mm) / Weight	Ambient Temperature	10°C to 40°C (No Condensation)
		Relative Humidity	Below 85% (No Condensation)
		Stroke	30mm
		Resolution	0.1μm
		Repeatability	1μm
		Module: 60 (W) x 158 (H) x 42 (D) / 1.6kg	
Light Source	LED	Console: 191.5 (W) x 50.9 (H) x 146.4 (D) / 0.5kg	
		5V 1A High Lumen LED	
		Unlimited (under 30°C) / 168h at 85°C	
		Color Temperature	5650K