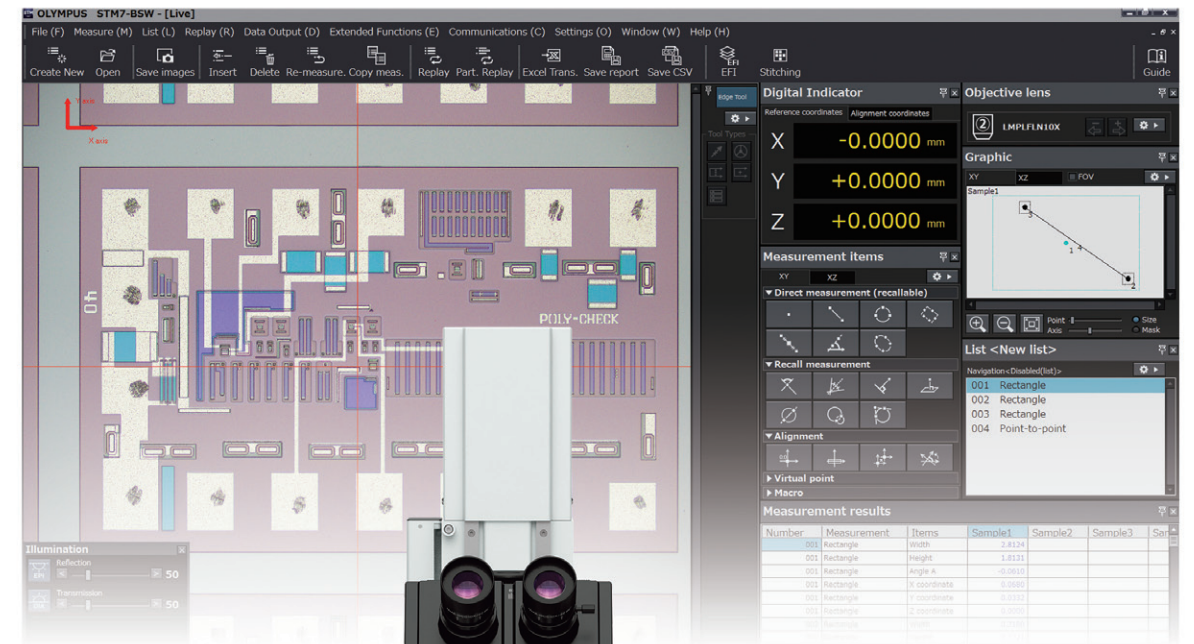


A Microscope that Measures Up to Individual Needs



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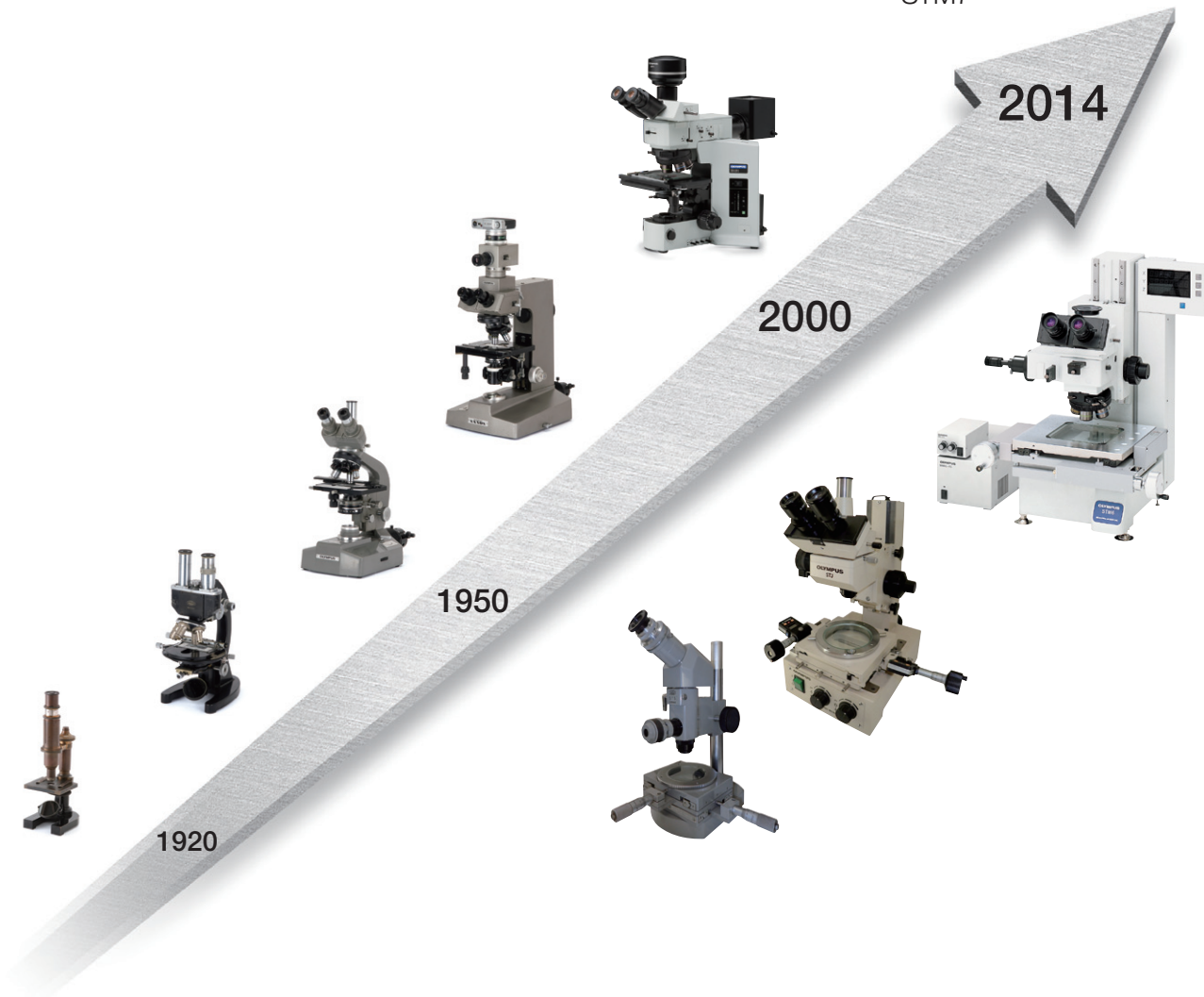
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 491B River Valley Road, #12-01/04 Valley Point Office Tower, Singapore 248373

# The Highly Reliable STM7 Measuring Microscope— Backed by a Century of Olympus Technology

The new STM7 measuring microscope series offers dependable quality from generations of Olympus' technology, and experience gained through more than a century of microscope development with more than 50 years of measuring microscope experience.

- Vivid imaging of extremely minute samples enabled by outstanding optical technology.
- Accurate sample measurement delivered through advanced measuring technology.
- Simpler and more accurate measurements realized with autofocus and focus navigator.
- Reliable and dependable measurements provided by a comprehensive traceability system.

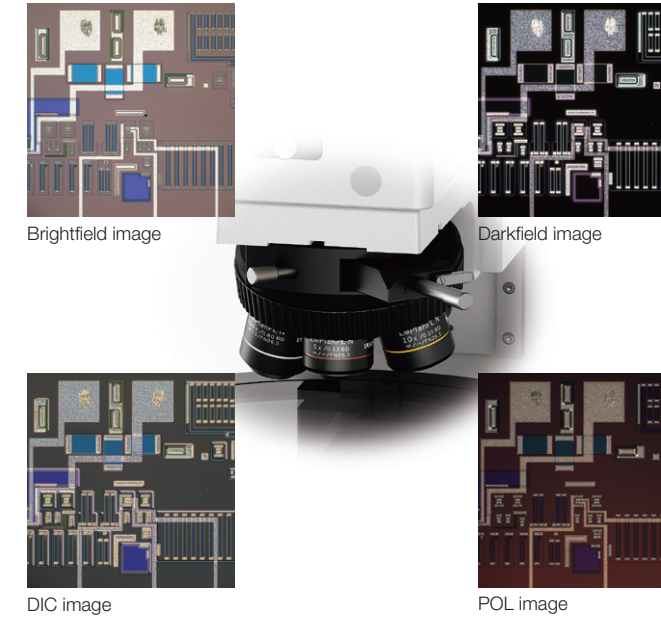
For all these reasons and more, Olympus' measuring microscopes have continued to be chosen over the years.



## Accurate Measurements through the Integration of an Optical Microscope and Advanced Measurement Capability

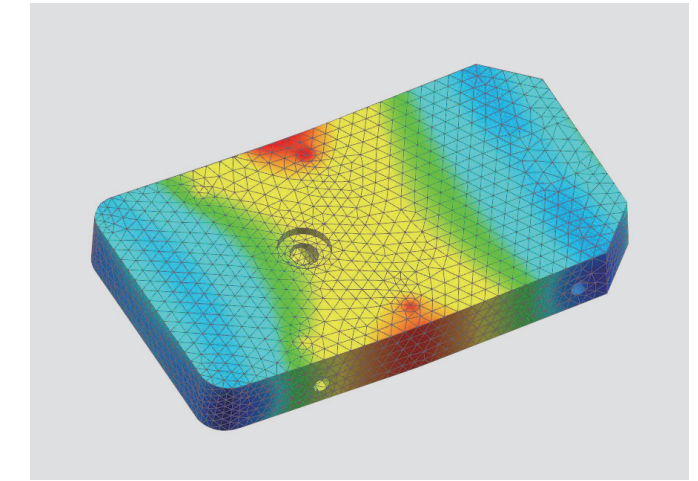
### Observation Performance Refined through Years of Microscope Development

The STM7 series uses the same UIS2 infinity-corrected optical system used in state-of-the-art optical microscopes. As a result, observed images have high resolution and high contrast, with aberration thoroughly eliminated to help ensure highly accurate measurement in minute detail.



### Measurement Reliability Enhanced with a Stage-Mounting Plate Crafted from Stone

To provide further assurance of measurement accuracy, the STM7 series uses a highly durable, vibration-resistant frame with a granite surface plate. As a result of this stability, measurements can be taken at sub-micron-levels while ensuring minimal error.

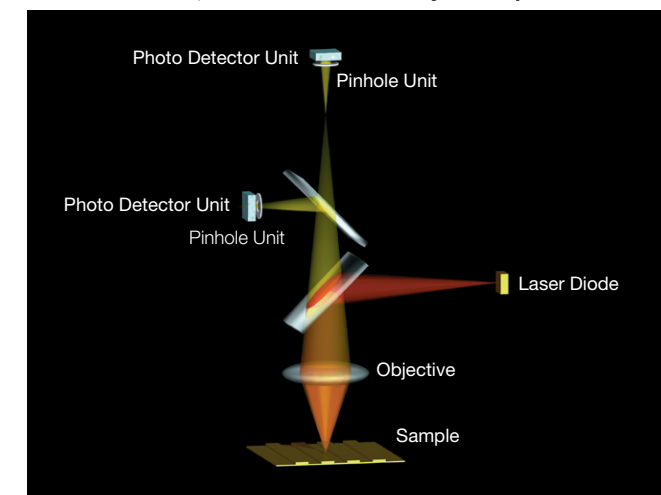


Characteristic graph

### Continuing to Provide User-friendly, High-Precision, 3-axis Measurement as a Pioneer of Height Measurement

As modern manufacturing technology becomes increasingly miniaturized and precise, highly accurate measurements are even more essential—not only along the horizontal XY axes, but also along the Z-axis. Olympus has responded to such needs by being the first to realize an autofocus system for measuring microscopes by means of the reflective active, confocal method.

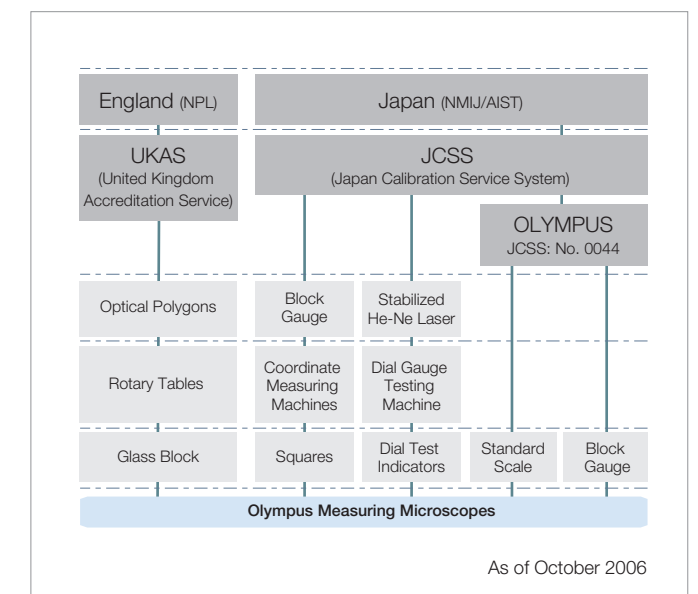
#### Reflective Active, Confocal Autofocus System Optical Path



### Dependable Quality Based On a Strict Traceability System

The accuracy of Olympus' measuring microscopes is controlled by a strict traceability system and Olympus even offers traceable calibration at the time of installation.

#### Measuring Microscopes Traceability System





# The Measuring Microscope Engineered to Fit Your Needs

Whether samples are small or large, simple or complex, or measurements are being taken by a novice or an expert, the Olympus STM7 range features measuring microscopes tailored to fit your needs.



STM7-LFA configuration

## Wide Coverage

Compatible with a range of measurement and observation needs

## Operability

Simpler, more efficient operation

## Height Measurement

Highly accurate measurement of samples with irregular surfaces

## Measurement Support System

Enables simple, highly accurate measurements of complex forms

## STM7 Series

**Stage Selection** (in mm)  
50 x 50, 100 x 100,  
200 x 200, 300 x 300

**Optics**  
Measuring Objectives/  
Metallurgical Objectives

**Frame**  
Manual Focus/  
Motorized Focus

**Focusing Equipment**  
Manual Focus Navigator Unit/  
Autofocus Unit

**Olympus Measurement Software**

## STM7 Lineups

### 3-Axis Measurements with a 0.1- $\mu$ m Readout in Every Model

#### Manual Z-axis Focusing Models



**STM7-SF**  
Equipped with  
50 mm x 50 mm stage or  
100 mm x 100 mm stage



**STM7-MF**  
Equipped with  
200 mm x 200 mm stage



**STM7-LF**  
Equipped with  
300 mm x 300 mm stage

#### Motorized Z-axis Focusing Models



**STM7-SFA**  
Equipped with  
50 mm x 50 mm stage or  
100 mm x 100 mm stage



**STM7-MFA**  
Equipped with  
200 mm x 200 mm stage



**STM7-LFA**  
Equipped with  
300 mm x 300 mm stage



## Offering Stages to Fit the Sample Size at Hand, while the Square Stroke Acts to Resolve Inconvenient Measurement-Related Issues

**Common Problems**

Short measurement stroke precludes the measurement of larger samples.

Sample rotation required to compensate for shorter Y than X-axis coverage during measurement is time inefficient. Until now, large stages have offered a sufficient measurement coverage on the X-axis, but only less coverage on the Y-axis.

Due to the narrow measurement range, it is impossible to line up large numbers of samples on the stage for measurement at once.

**STM7 Solutions**

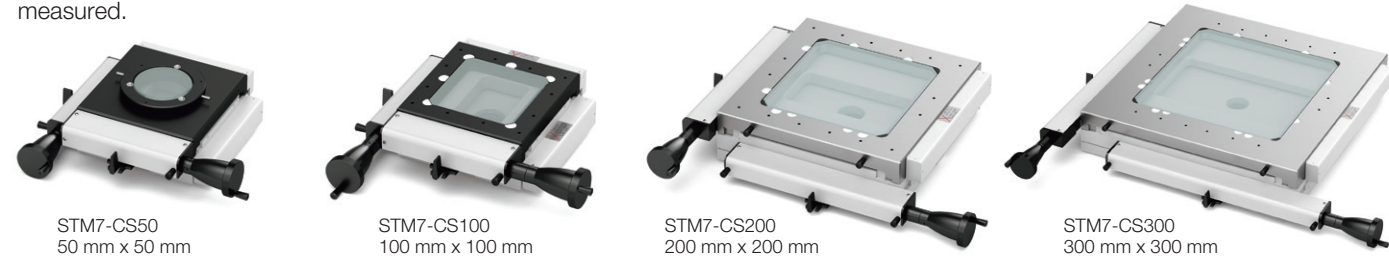
The STM7 features a 300 mm x 300 mm stage capable of measuring large samples, including 300 mm wafers and printed circuit boards.

X and Y-axis measurement areas are long and of equal length, eliminating the need to rotate samples.

Long measurement areas for both the X and Y-axis allow multiple samples to be lined up on the stage for more efficient measurement.

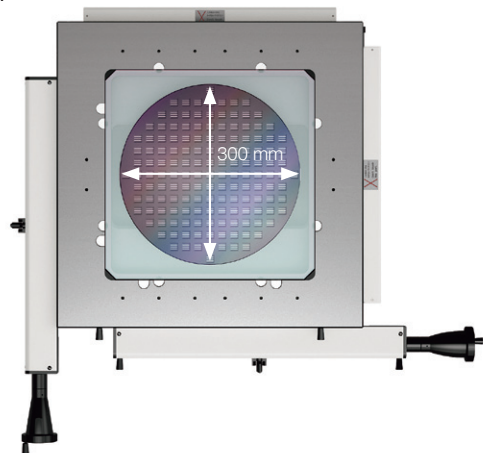
### Maximum Measurement Stroke 300 mm x 300 mm

Four types of stages are available, each with a unique square measurement stroke (choose from 50 mm x 50 mm, 100 mm x 100 mm, 200 mm x 200 mm, and 300 mm x 300 mm). From small to large size samples, there is a stage that fits the sample being measured.



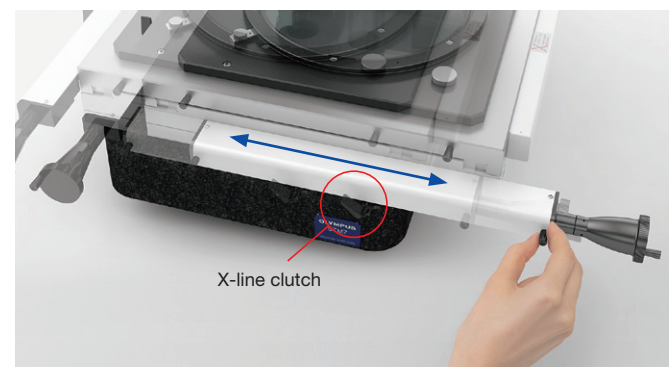
### The Square Stroke Resolves Inconvenience during Measurement Operation

The 300 mm square length stage enables the same measurement stroke to apply to both the X and Y-axes, which means it can be used to measure large samples, such as 300 mm wafers and printed circuit boards without changing their orientation.



### Clutch Control Enables Rapid Switching between Coarse and Fine Movements

A clutch system enables rapid switching between coarse and fine movements. Thanks to this switching function, the stage can also be moved rapidly along the X- and Y-axes, and freely across the XY plane.



## Extend the possibilities of Observations With the Unique Adapter that Broadens the Range of Magnifications for Observation and the Range of Working Distances

**Common Problems**

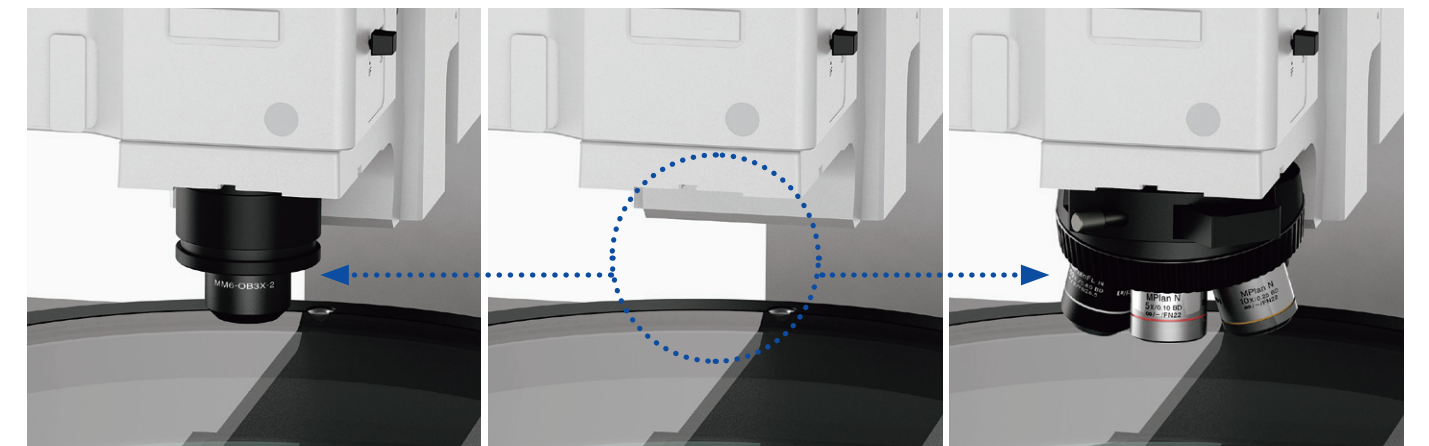
Most conventional measuring microscopes only accept a measuring objective or metallurgical objective, and so are unable to meet the requirements for a wide variety of observations.

**STM7 Solutions**

The STM7 meets the requirements of a wide variety of observations. It responds to your needs at both low and high magnifications, enables the measurement of uneven samples requiring ultra-long working distance objectives, and even offers a variety of observation methods.

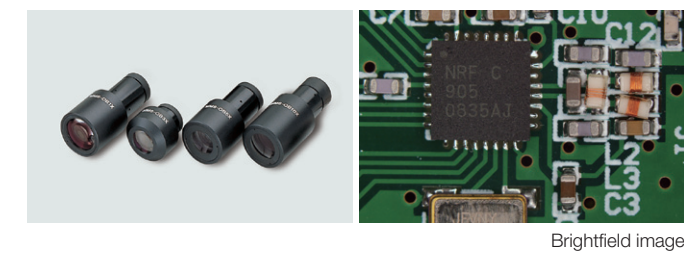
### Use the Same Microscope for Both Low- and High-Magnification Observations

The STM7 accepts both a metallurgical objective and a measuring objective by exchanging a revolving nosepiece with a measuring objective adapter. This means that the STM7 combines both metallurgical optics and measuring optics in one microscope. In this way, the STM7 series satisfies a range of needs, no matter whether measuring a wide area or tiny region, measuring the size of differences between levels, or assisting the user in deciding on the best observation method to choose.



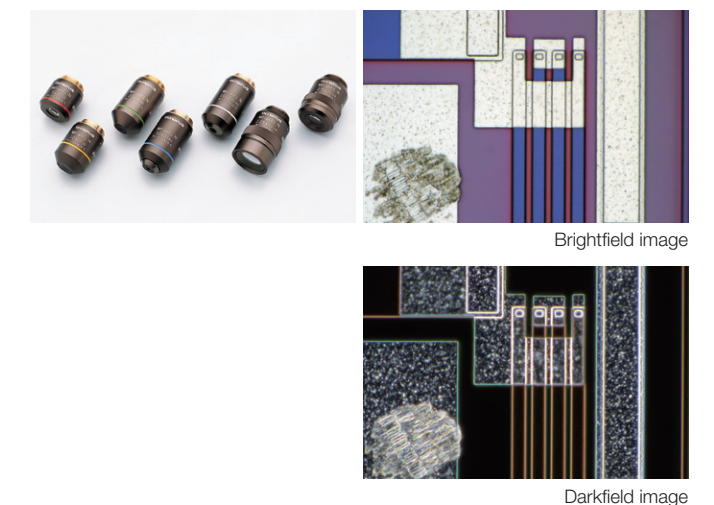
### Measuring Objectives

Because the measuring objectives have an extremely long working distance, they provide confidence when focusing on samples with large peaks and troughs while reducing worries of the objective coming into contact with the sample. Furthermore, their low-magnification capability enables wide areas to be observed in a single view.



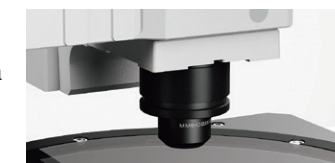
### Metallurgical Objectives

Metallurgical objectives enable high-magnification, high-resolution observation capability comparable to that of optical microscopes. What's more, these objectives can be used not only for brightfield, but also for darkfield and DIC observation.



### STM7-MMOBAD: Measuring Objective Mount Adapter

Use of the STM7 measuring objective mount adapter measuring objective adapter enables a measuring objective to be used even in a metallurgical objective optical system.





## Manual and Motorized Focusing Model Options

### The STM7 Line Includes both Manual and Motorized Focus Options

Focus control is available with either manual or motorized operation. Choose the model that addresses your needs in terms of samples and measurement content, regardless of stage size—with all frames incorporating a linear scale for the Z-axis that enables 3-axis measurement.



#### Manual Z-axis Focus Models

Manual Z-axis focus models offer excellent cost performance—with familiar handle operation for rapid vertical movement that offers convenience for users who needs to measure samples with variety of heights.



#### Motorized Z-axis Focus Models

Operability is improved and handling fatigue is reduced for focus and height measurements when using the motorized focus unit. The coaxial knobs for coarse and fine movement offer a feeling similar to manual operation, while the models can also be equipped with an autofocus unit.

## A Revolutionary Control Unit Refines Measuring Microscope Usability



### Common Problems

Additional functions require additional operational units. Operators can't always locate the corresponding unit quickly, which significantly reduces measurement efficiency.

Numerous operational units and their power supplies around the main unit occupy valuable working space.



### STM7 Solutions

Almost all measuring microscope operations can be efficiently completed on the nearest operational unit.

The system requires only a single operational unit and power supply, regardless of how many functions are added, freeing up workspace.

### Controllers

With the STM7 series, a single controller makes it possible to perform virtually all measuring microscope operations, including use of readout reset, illumination control, focusing, and autofocus. For efficiency and convenience, the unit can be placed wherever you wish and operated easily with one hand.

Output Data



For Manual Z-axis Focusing Models:  
STM7-HS Hand Switch



For Motorized Z-axis Focusing Models:  
STM7-MCZ Focus Controller

### Control Box

The power supply and transmission for each unit are combined in a single control box. This preserves maximal workspace even when a range of optional functions, such as the focus navigator, are added.

Operability: Light Intensity Manager

Automatic Light Intensity Adjustment Greatly Improves the Efficiency of Observation and Measurement



Common Problems

Analog volume adjustment used by conventional measuring microscopes does not enable the quantitative assessment of light intensity, which can lead to variability in measured values as light intensity changes.

With conventional measuring microscopes, light intensity may need to be adjusted every time the objective is switched—making for an inefficient workflow.



STM7 Solutions

Observations and measurements can always be performed under the same conditions thanks to the STM7's quantitative display of light intensity value.

Illumination method and light intensity are automatically adjusted to the preset value when the objective is switched, whenever the light intensity manager is used in combination with a coded revolving nosepiece.

Close Control through a Quantitative Digital Display of Light Intensity Values

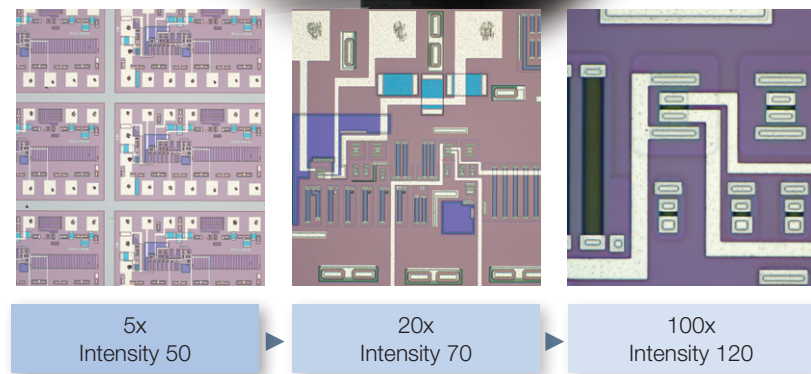
The STM7 series provides a quantitative digital display of light intensity—enabling observations to always be made under consistent illumination conditions.



Digital display shows quantitative light intensity

Light Intensity Manager Eliminates the Need for Manual Adjustment

Light intensity manager can be used with the coded revolving nosepiece configuration. The coded revolving nosepiece automatically detects the switching of objectives. This allows the illumination method and light intensity to be registered for each objective, and adjusted automatically during measurements when the objective is switched. Now there is no need to manually adjust light intensity, which used to be required with every switch between magnifications.



Operability: Digital Read Out

A Detachable Digital Read Out for Preferred Location Enables Swift, Convenient Checking of Measurement Results and Equipment Status



Common Problems

The need to check the operation status of equipment, such as illumination, or measured values on individual units makes overall operation cumbersome.

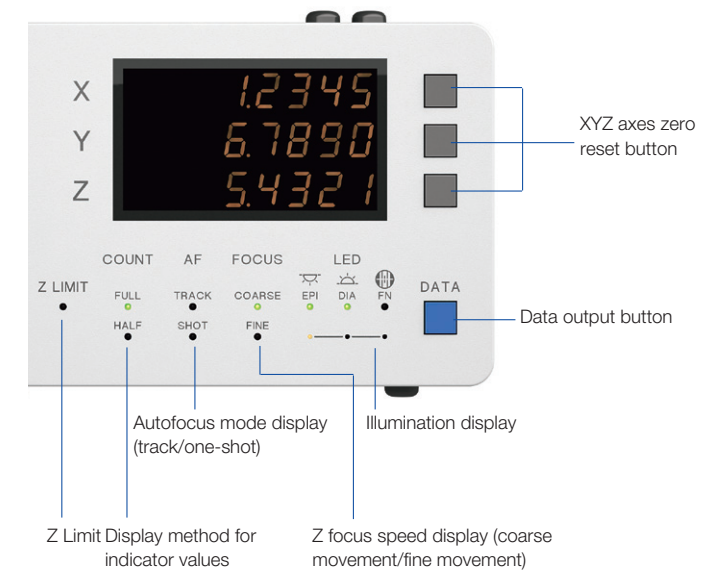


STM7 Solutions

The STM7 series displays microscope status, such as illumination, together with measured values on an indicator display area, for easy checking at a glance.

Digital Indicator Enables the Current Operation Status to be Verified Visually

The indicator displays the device status and settings. The minimum X, Y, and Z-axis values can be switched between 0.1 μm and 1 μm, and the display units can be switched between mm, μm, inches and mil.



XYZ axes zero reset button

Data output button

Autofocus mode display (track/one-shot)

Illumination display

Z Limit Display method for indicator values

Z focus speed display (coarse movement/fine movement)

Detachable Digital Readout Allows for Individual Preference and Placement

Whether attached to the frame or a desk, the placement of the detachable digital readout is up to the individual user. While standing to take measurements, it can be placed on the side of the frame at almost the same height as the site of observation for an exceptional and easy view. When operating from a sitting position, such as observation or measurements on a monitor via a digital camera or when using the motorized Z-axis focusing model, simply place the digital readout and hand controller on the desk.



Digital readout attached to the frame



Digital readout placed on a desk



Height Measurement: Focus Navigation System  
Achieve Faster, Simpler, More Accurate Height Measurement



When doing visual measurement, variations can arise in the height measurements between different operators. Furthermore, this measurement method is time-consuming and inefficient.

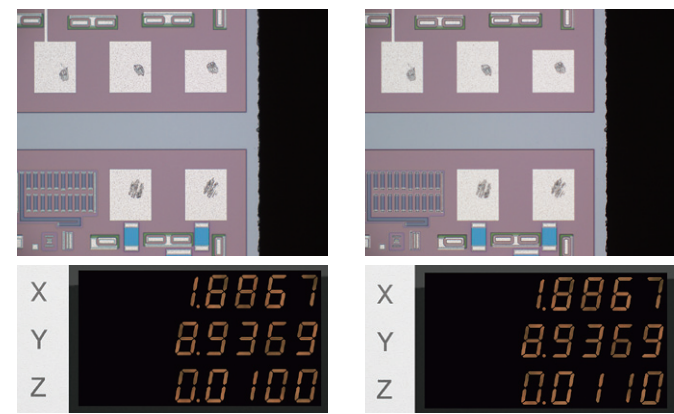


The STM7 focus navigation system reduces the operator subjectivity in height measurements. It also shortens the time required to perform height measurement to achieve greater efficiency.

**Simple and Highly-Precise Focusing System with Superior Repeatability**

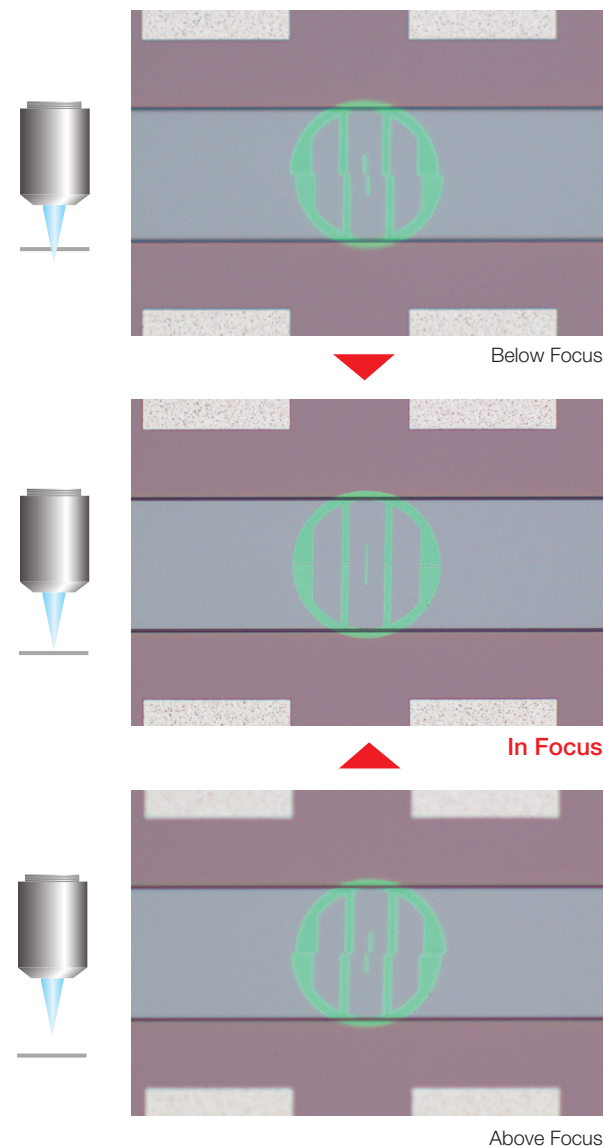
The Olympus' focus navigator delivers highly reproducible height measurement by projecting a pattern within the field of view and identifying vertical deviations. Slight errors can occur in height measurements taken with normal visual observation, even when focus appears to be sharp. The focus navigator, however, enables measurements to be made simply by matching up the marks—thereby reducing operator subjectivity in measurement results.

■ Visual Height Measurement



Operator subjectivity at the position at which measurements are taken can introduce differences in measurement results.

■ Focus Navigator



Height measurement: Autofocus Unit\*  
Autofocus Advantage for Fast and Highly Accurate Height Measurement



During visual measurement, the results of height measurement can vary between different operators.



With use of the autofocus unit, the measured value remains highly accurate regardless of the operator.

Manual height measurement requires the operator to repeatedly move the stage and adjust the focus with the handle, making measurement time-consuming and inefficient.

In TRACK mode, the image is automatically and continually kept in focus, enabling efficient height measurement in minimal time. The same mode renders manual focusing unnecessary for XY measurements, resulting in even more efficient operation.

Focusing on minute objects, such as bonding wires, is difficult.

When a 100x objective is used, the laser spot diameter can be as small as 1 μm, permitting autofocus to be used locally, even on extremely minute objects.

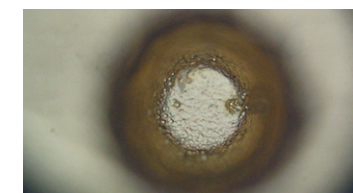
**Quick and Accurate Focusing and Measurement Free from Operator Subjectivity**

Olympus has developed a dedicated autofocus unit for the STM7 series that delivers excellent reproducibility and rapid focus. As a result, highly accurate height measurements can be made within a short amount of time, irrespective of the level of operator experience.



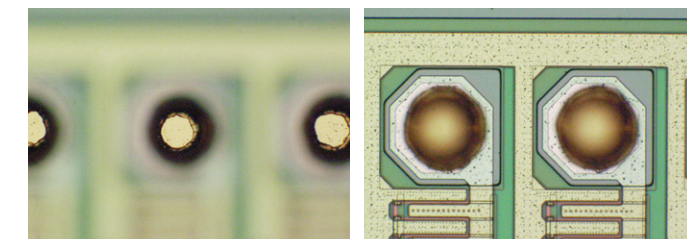
**One-shot Mode**

Instantaneously takes autofocus from a roughly focused state to sharp focus located at the center of the field of view.



**TRACK Mode**

The featured TRACK Mode provides autofocus that tracks the peaks and troughs of the sample, even if the stage is moved, keeping the image continually in focus. This advancement greatly improves the efficiency of Z-axis measurements by enabling observations to be made without taking your hands off the X and Y handles.



**Dedicated Autofocus Unit: Outstanding Reproducibility and Focusing Speed**

The STM7 dedicated autofocus unit allows highly accurate height measurements to be made with minimal time, regardless of the level of operator experience. Use of the reflective active, confocal method provides a stable focal point independent of surface roughness or a slanting sample surface, while the small laser diameter enables the use of autofocus, even on minute objects, such as bonding wires.

\*STM7-AF autofocus unit is a Class 1 laser product.



## More Accurate, Faster, and Simpler Measurement of Objects with Complex Shapes

The ability to clearly and easily see the output display component of measuring microscopes is essential. That is why the new Olympus measuring software has been created, helping to deliver complex measurements with greater accuracy. The software also enables the use of digital cameras.

### STM7-BSW Sample GUI

The screenshot shows the Olympus STM7-BSW software interface. Key components are labeled as follows:

- Live Image Display:** Shows a circular object on a textured surface.
- Edge Tool Bar:** Located at the top of the image display.
- Graphic:** Shows measured points, lines, circles, etc. (indicated by a callout).
- Digital Indicator:** Displays coordinates: X: +12.6091 mm, Y: +5.3433 mm, Z: +0.0000 mm.
- Objective lens:** Shows 'MPLN5X'.
- Measurement Items:** Lists various measurement types like Line (angle), Circle, Rectangle, etc.
- Measurement Results:** A table showing results for different samples.
- List:** Shows measurement procedure (indicated by a callout).
- Measurement Menu:** Located at the bottom left.
- Measurement Results:** Located at the bottom center.
- List:** Located at the bottom right.

### Capture Clear, Pin-Sharp Images for Highly Accurate Measurement with a Complete Lineup of Cameras

#### High performance model with high speed live display

##### DP27

Image resolution	1920 × 960 2448 × 1920
Frame rate	30 fps (1920 × 960) 15 fps (2448 × 1920)
PC interface	USB3.0



##### DP22

Image resolution	960 × 720 1920 × 1440
Frame rate	25 fps
PC interface	USB3.0



#### Introductory model with high price-performance ratio

##### STM7-CU

Image resolution	1024 × 768 2048 × 1536
Frame rate	11.2 fps (max.)
PC interface	USB2.0



STM7 with Measurement Support System

## Place the Sample and Start to Measure—No Parallel Alignment Required

### Direct Measurement

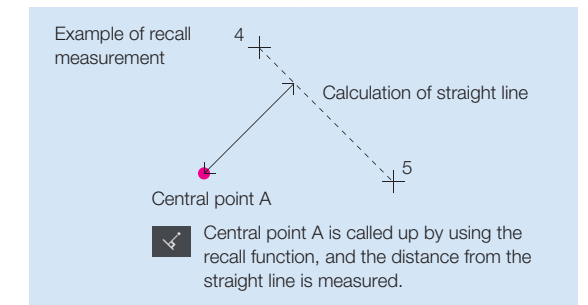
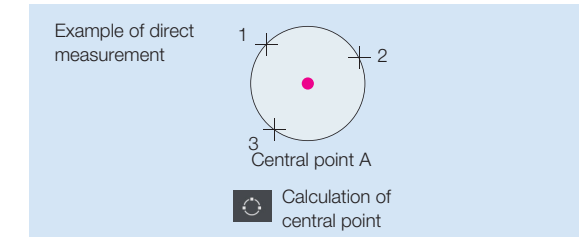
Measurements are made by receiving coordinates input via STM7.

Direct measurement	Recall measurement
Point	
Line (angle)	
Circle	
Rectangle	
Midpoint	
Distance between point and point	
Height between point and point	
Plane	
Ellipse	

### Recall Measurement

Once measured and calculated, coordinates can be used again for subsequent measurements. This eliminates the need to carry out the same work twice, enabling a smoother and more efficient workflow.

Recall measurement
Intersection between line and line
Center line
Distance between point and line
Height between point and plane
Intersection between line and circle
Intersection between circle and circle
Contact point between point and circle



### Virtual Point Measurement

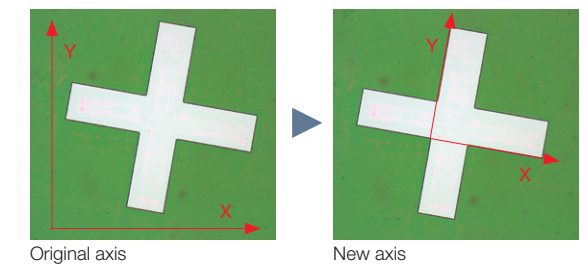
Intersections, central points, lengths, and a range of other measurements can be made by drawing straight lines and circles, which can then be set to remain as reference points on acquired sample images.

Virtual point
Virtual point
Move point
Rotate point
Point of symmetry in the X axis
Point of symmetry in the Y axis
Point of symmetry in the origin

### Alignment Measurement

Both the origin and the X-axis are set with respect to the sample, allowing the sample to be measured even when it's not aligned with the stage.

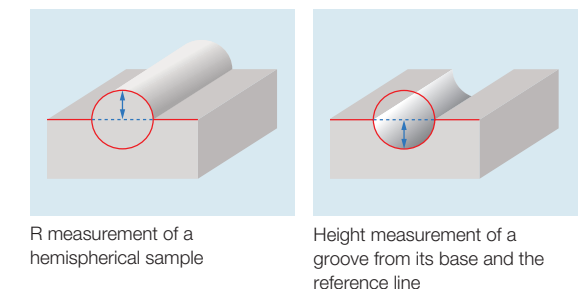
Alignment
Origin
X axis
Move origin
Tilt



### XZ Plane Measurement

Conventional measuring microscopes measure the XY plane directly from above. However in response to user demands, Olympus has incorporated an XZ plane measurement function in the STM7-BSW to enable the measurement of cross-sections as seen from the side. Now measurements that used to be difficult are much easier—such as radius measurements for vertical sections of hemispherical objects, or measurement of the depths of grooves with curved bases compared to a reference line.

XY measurement
Line (angle)
Circle
Distance between point and point
Intersection between line and line
Center line
Distance between point and line
Distance between line and circle (upper)
Distance between line and circle (lower)





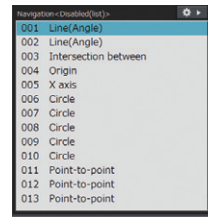
## Record the Repeated Measurement Procedure

### Macro Registration

Frequently used alignment and other measurement procedures can be combined and assigned to a single macro button—eliminating the need to start from scratch each time the microscope is set up.

### Replay Measurement

Measurements can be easily repeated based on a recorded workflow by simply inputting the movement of the stage and the coordinates in response to a software prompt. This function can be used to repeatedly carry out the same measurement on the same sample, or different versions of the same sample. Furthermore, if a set value and tolerance are set in the recorded workflow, the software can automatically identify when a measurement has failed.

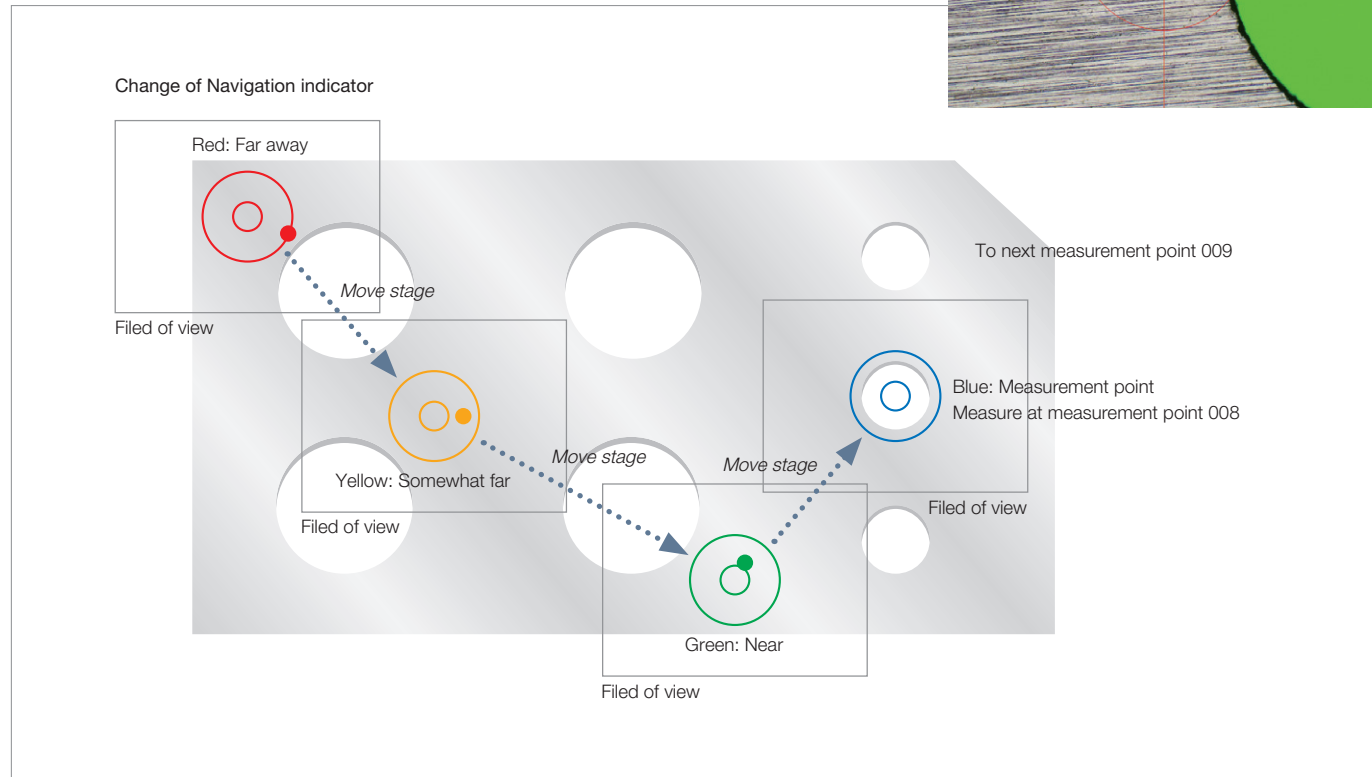
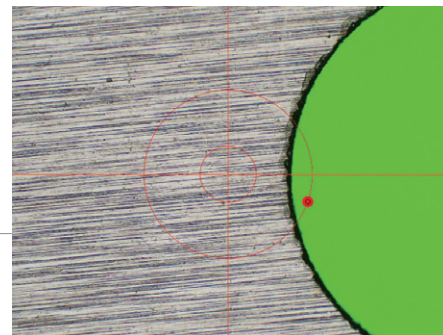
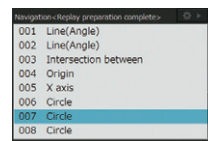


Number	Measurement	Items	Sample1	Sample2	Sample3	St
006	Circle	D diameter	2.0297	2.0511	2.0388	
007	Circle	D diameter	2.1352	2.0568	2.0522	
008	Circle	D diameter	2.0840	2.0407	2.0521	
009	Circle	D diameter	2.0699	1.9923	2.0660	
010	Circle	D diameter	4.0413	4.0433	4.0469	
011	Point-to-point	Distance	3.9562	3.9577	3.9419	
012	Point-to-point	Distance	6.6186	6.3118	6.2884	
013	Point-to-point	Distance	4.0149	4.0639	4.0138	

Fail/results sample

### Measurement Point Navigation for Replay Measurement

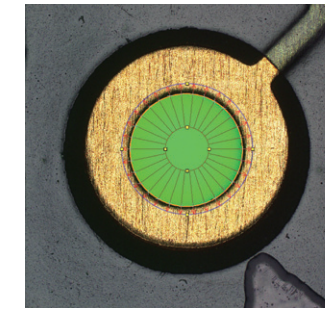
This function displays the direction and distance to the next measurement point, thereby eliminating any confusion on the part of the operator. The function additionally eliminates the need to check the next measurement point on the diagram each time, speeding the operator's workflow through a series of repeated measurements.



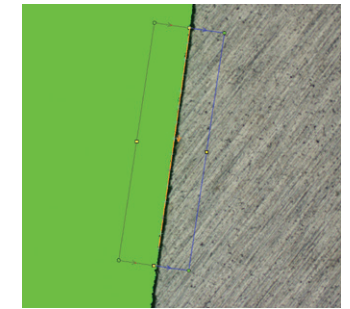
## Convenient Functions Eliminate Subjectivity in Measurement

### Automatic Edge Detection

This function detects the edges of the sample and automatically acquires and measures its coordinates. As a result, operators no longer need to designate the coordinates and subjectivity is minimized. Automatic Edge Detection also features a timer function that enables coordinates to be acquired in a specified time and supports the use of a foot switch that enables the operator to focus on measurement operations without taking his or her hands off the stage handles.



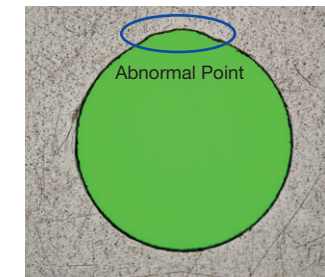
Automatic edge detection inside the circle



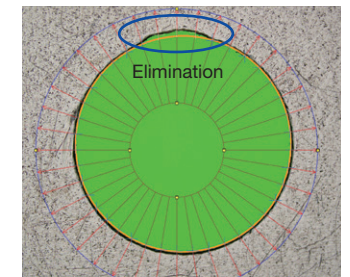
Multiple points automatic edge detection

### Abnormal Point Elimination

Metal burrs and other abnormal points can be excluded automatically during edge detection. This enables a consistent calculation of measured values, irrespective of the state of the sample. Points excluded as abnormal can also be displayed on the screen in different colors.



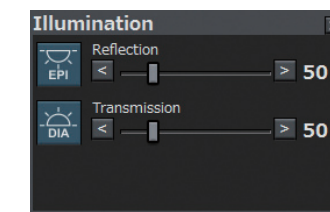
Sample with abnormal point



Abnormal point elimination

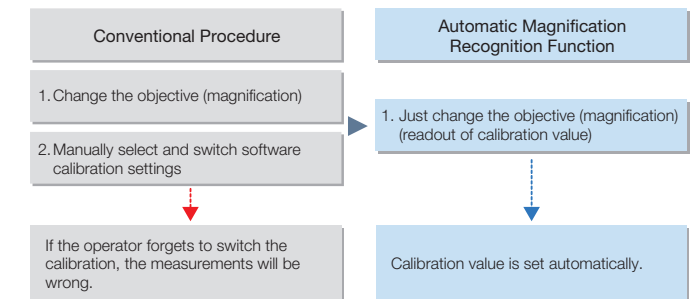
### Illumination Control

The light intensity of the microscope can be maintained by accurate software control. Light intensity settings can also be saved when recording a workflow for replay measurement, enabling measurements to be made under the same conditions during replay measurements or automatic edge detection.



### Automatic Magnification Recognition (optional, with coded revolving nosepiece configuration only)

Through use of the coded revolving nosepiece, previously set calibration values are automatically recalled when changing the objective. In this way, the user can always be confident that the proper scale is on display.



**One-Click Report Generation**

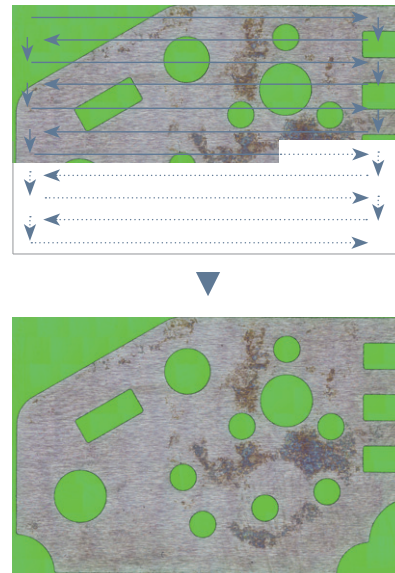
Measurement results can be output in Excel format with a single click, eliminating mistakes made during transcription. Images can also be pasted in along with the measurement results, enabling more efficient report generation.

Item	Model	Serial No.	Lot No.	Exp. Date	Unit	Status
1	MM6-EMO	1000000001	1000000001	2010/01/01	mm	OK
2	MM6-EMO	1000000002	1000000002	2010/01/01	mm	OK
3	MM6-EMO	1000000003	1000000003	2010/01/01	mm	OK
4	MM6-EMO	1000000004	1000000004	2010/01/01	mm	OK
5	MM6-EMO	1000000005	1000000005	2010/01/01	mm	OK
6	MM6-EMO	1000000006	1000000006	2010/01/01	mm	OK
7	MM6-EMO	1000000007	1000000007	2010/01/01	mm	OK
8	MM6-EMO	1000000008	1000000008	2010/01/01	mm	OK
9	MM6-EMO	1000000009	1000000009	2010/01/01	mm	OK
10	MM6-EMO	1000000010	1000000010	2010/01/01	mm	OK

Report sample

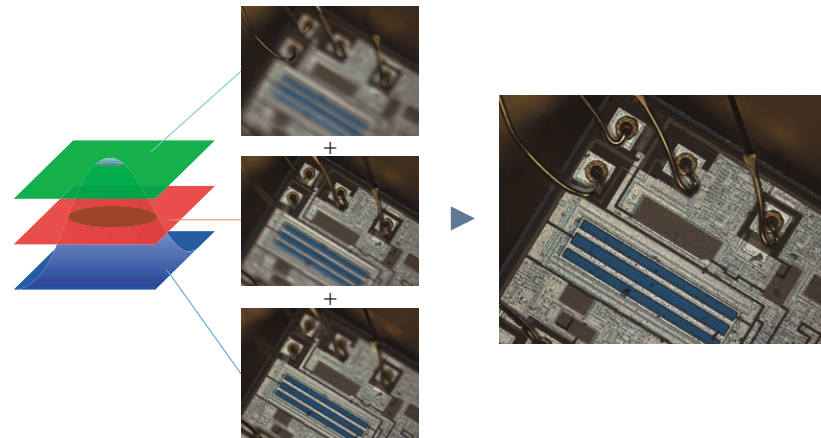
**Multiple Image Alignment (MIA) optional**

Tile multiple images to capture a single high-magnification, wide-area image. Because the images are tiled on the basis of coordinate data, the system is capable of producing highly reliable images.



**Extend Focus Image (EFI) optional**

The EFI function is effective for obtaining images that are well-focused throughout on samples with an uneven, complex surface shape. Generate a single image with focal points aligned in all positions. Simply process multiple images with different focal point positions while moving the Z-axis, or use the motorized model for automated image composition.



Accessories



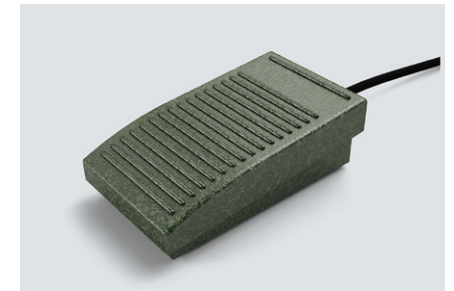
**Coded Revolving Nosepiece**

Combining a coded revolving nosepiece with a digital camera lets you display the objective magnification on-screen during observation and allows you to record that magnification. This convenient feature allows information on your sample and the objective's magnification to be recorded at the same time when recording a sample.



**MM6-EMO/ Erect Image Monocular Tube**

Monocular tube for erect images. Can be used in combination with MM6-OCC10x (eyepiece with cross hairs).



**STM7-FS/ Foot Switch**

Enables hands-free transmission of data, allowing operators to complete measurement without taking hands off the X and Y handles.



**SZ-LW61/ White LED Illumination Unit**

This light-weight, space-saving design model provides a long operating life and low power consumption. The cost-effective LED illumination unit is also free from the flickering and brightness fluctuation.



**SZX2-ILR66+SZX-RHS/ LED Ring Illuminator+Manual Control Unit**

SZX-RHS manual control unit enables independent illumination of four-segments of the SZX2-ILR66 reflected LED ring illuminator, which provides clear images with high color temperature. The optimal illumination can be selected from 13 patterns.

**Rotatable Stage**

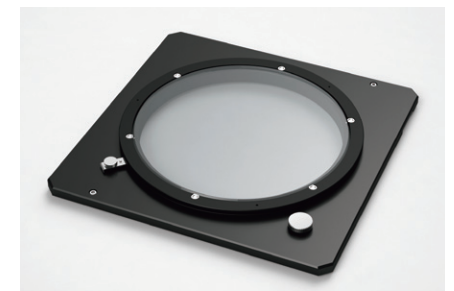
Enables easy parallel alignment of sample.



STM7-RS100 for STM7-CS100 100 mm x 100 mm stage



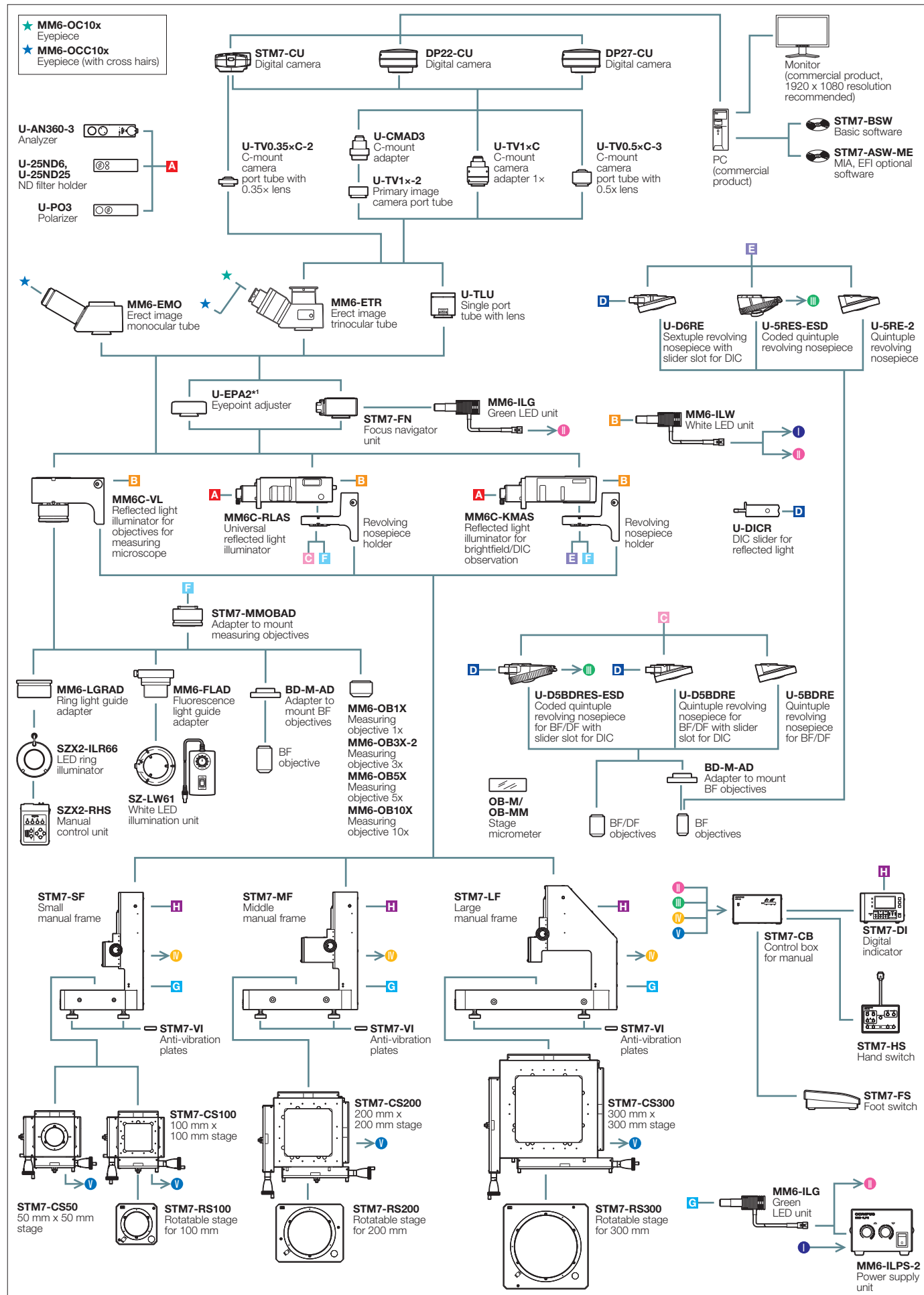
STM7-RS200 for STM7-CS200 200 mm x 200 mm stage



STM7-RS300 for STM7-CS300 300 mm x 300 mm stage

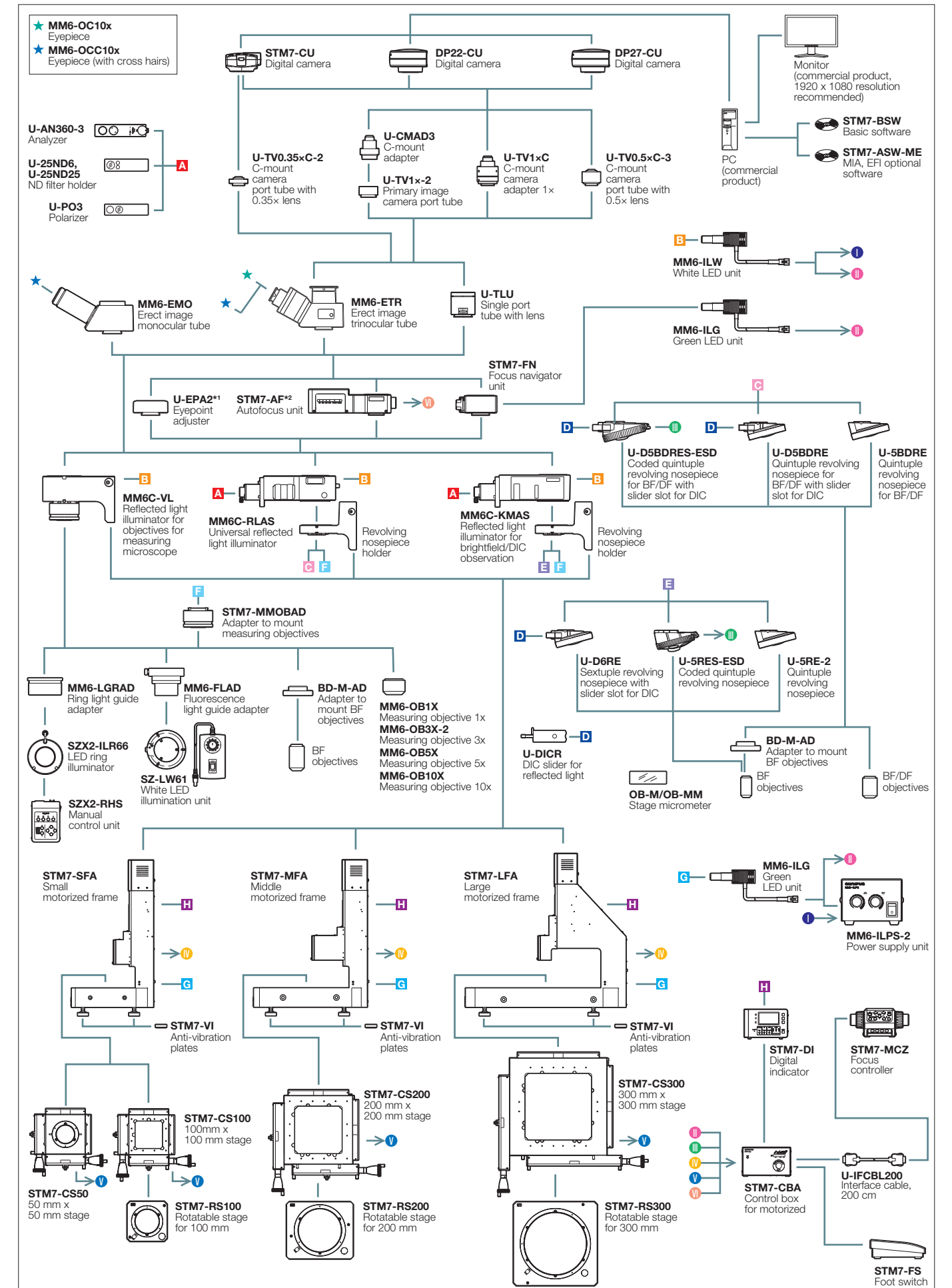


# STM7-F System Diagram



\*1 STM7-LF frame combination only. Max. two mountable.

# STM7-FA System Diagram



\*1 STM7-LFA frame combination only. Max. two mountable. \*2 STM7-AF autofocus unit is a Class 1 laser product.

## Specifications

### STM7 SPECIFICATIONS

		Small manual frame STM7-SF	Small motorized frame STM7-SFA	Middle manual frame STM7-MF	Middle motorized frame STM7-MFA	Large manual frame STM7-LF	Large motorized frame STM7-LFA
Microscope body	Vertical movement range	175 mm				145 mm	
	Maximum measurable height	120 mm (with measurement objective), 175 mm (with metallurgical objective)				90 mm (with measurement objective), 145 mm*1 (with metallurgical objective)	
	Z-axis measurement resolution	0.1 μm					
Focus	Z-axis drive method	Manual coaxial fine/coarse focusing knobs	Motorized •FOCUS button: Coarse movement speed 8 mm/s (max.) •Fine/coarse focusing knob: Fine focusing speed can be selected from 4 values (800 μm, 400 μm, 100 μm, 50 μm)	Manual coaxial fine/coarse focusing knobs	Motorized •FOCUS button: Coarse movement speed 8 mm/s (max.) •Fine/coarse focusing knob: Fine focusing speed can be selected from 4 values (800 μm, 400 μm, 100 μm, 50 μm)	Manual coaxial fine/coarse focusing knobs	Motorized •FOCUS button: Coarse movement speed 8 mm/s (max.) •Fine/coarse focusing knob: Fine focusing speed can be selected from 4 values (800 μm, 400 μm, 100 μm, 50 μm)
	illumination	LED illumination	White: for reflected light illumination, green: for transmitted light illumination				
Observation tube		Erect image monocular tube, erect image trinocular tube (100:0/0:100)					
Objective	For measuring microscope	MM6-OB series					
	For metallurgical microscope	MPLFLN series, LMPLFLN series, MPLFLN-BD series, LMPLFLN-BD series					
Eyepiece		MM6-OCC10X (with cross hairs, FN 22), MM6-OC10X (FN 22)					
Stage	Measuring range	STM7-CS50: X-axis 50 mm, Y-axis 50 mm STM7-CS100: X-axis 100 mm, Y-axis 100 mm		STM7-CS200: X-axis 200 mm, Y-axis 200 mm		STM7-CS300: X-axis 300 mm, Y-axis 300 mm	
	Measurement accuracy (L: measuring length)	STM7-CS50: (3+L/50) μm STM7-CS100: (3+2L/100) μm		(3+4L/200) μm		(3+6L/300) μm	
	Accuracy assurance weight	STM7-CS50: 5 kg STM7-CS100: 6 kg		10 kg		15 kg	
Counter display	Number of axes	Three					
	Unit	mm/μm/inch/mil					
Minimum resolution		0.1 μm					
Dimensions (W x D x H) (mm)		466 x 583 x 651	466 x 583 x 811	606 x 762 x 651	606 x 762 x 811	804 x 1024 x 686	804 x 1024 x 844
Weight		84 kg (Approx.)	92 kg (Approx.)	152 kg (Approx.)	159 kg (Approx.)	277 kg (Approx.)	284 kg (Approx.)
Power consumption		100-120/220-240V ~ 50/60Hz 0.3A/0.2A		100-120/220-240V ~ 50/60Hz 0.3A/0.2A		100-120/220-240V ~ 50/60Hz 0.3A/0.2A	

\*1 When using the large frame STM7-LF/STM7-LFA, a specimen whose height is 100 mm or less can be placed at the position backward from the light axis by 180 mm or more.

### OBJECTIVES WORKING DISTANCE

Objective	Magnifications	1x	3x	5x	10x	20x	50x	100x
		Measuring objectives	MM6-OB series	59.6	76.8	65.4	50.5	—
Metallurgical objectives	MPLFLN series	Brightfield	—	—	20.0	11.0	3.1	1.0
	LMPLFLN series	Long working distance	—	—	22.5	21.0	12.0	10.6
	MPLFLN-BD series	Brightfield/darkfield	—	—	12.0	6.5	3.0	1.0
	LMPLFLN-BD series	Brightfield/darkfield, long working distance	—	—	15.0	10.0	12.0	10.6

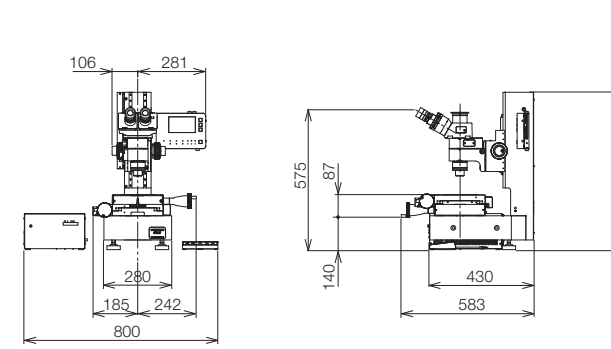
### STM7-BSW SYSTEM REQUIREMENTS

Item	System Configurations
CPU	Intel Core i3 Processors 3 GHz or more
Memory	4 GB or more
HD available space	100 GB or more hard disk space for installation SSD hard disk is recommended for high speed image acquisition
Graphic card	Graphic card available for resolution 1980x1080 and 32bit color
Drive	DVD Drive
PC input device	2-button mouse (3-button mouse with a wheel is recommended.) Keyboard
Operating system	Microsoft Windows 7 Professional (32bit / 64bit) SP1 Microsoft .NET Framework 3.5
Web browser	Internet Explorer 8.0

• Microsoft Office 2007/2010/2013 are also supported.

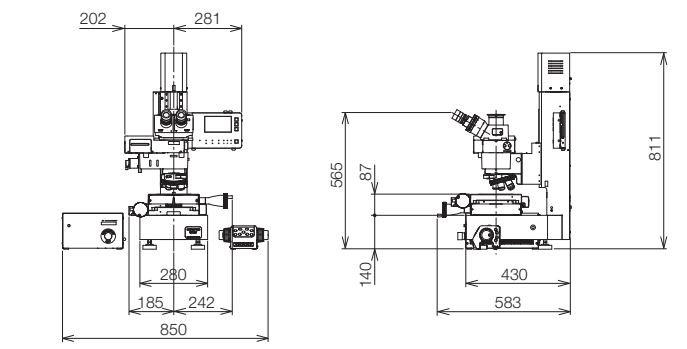
## Dimensions

### STM7-SF



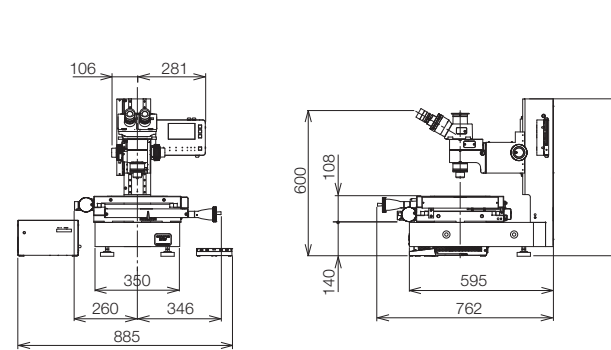
Unit: mm

### STM7-SFA



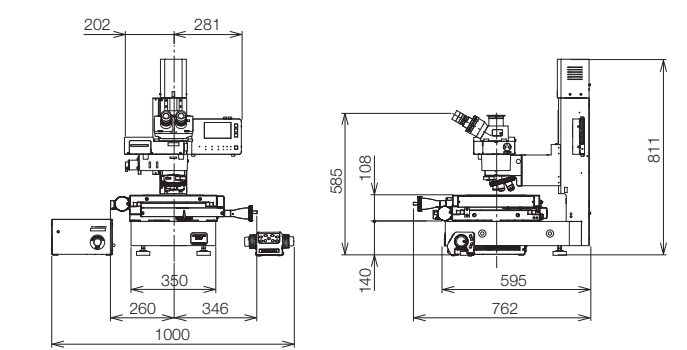
Unit: mm

### STM7-MF



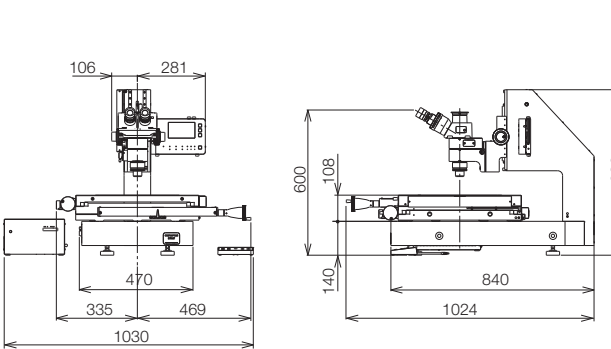
Unit: mm

### STM7-MFA



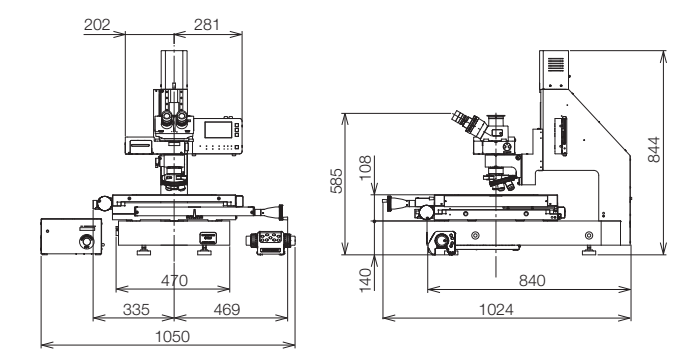
Unit: mm

### STM7-LF



Unit: mm

### STM7-LFA



Unit: mm