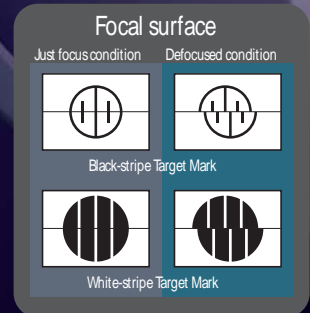


Non-contact Measuring Microscope

**HisometII / XYZ Measurement
Model: DHII**



**Ursamet / XY Measurement
Model: SMG**

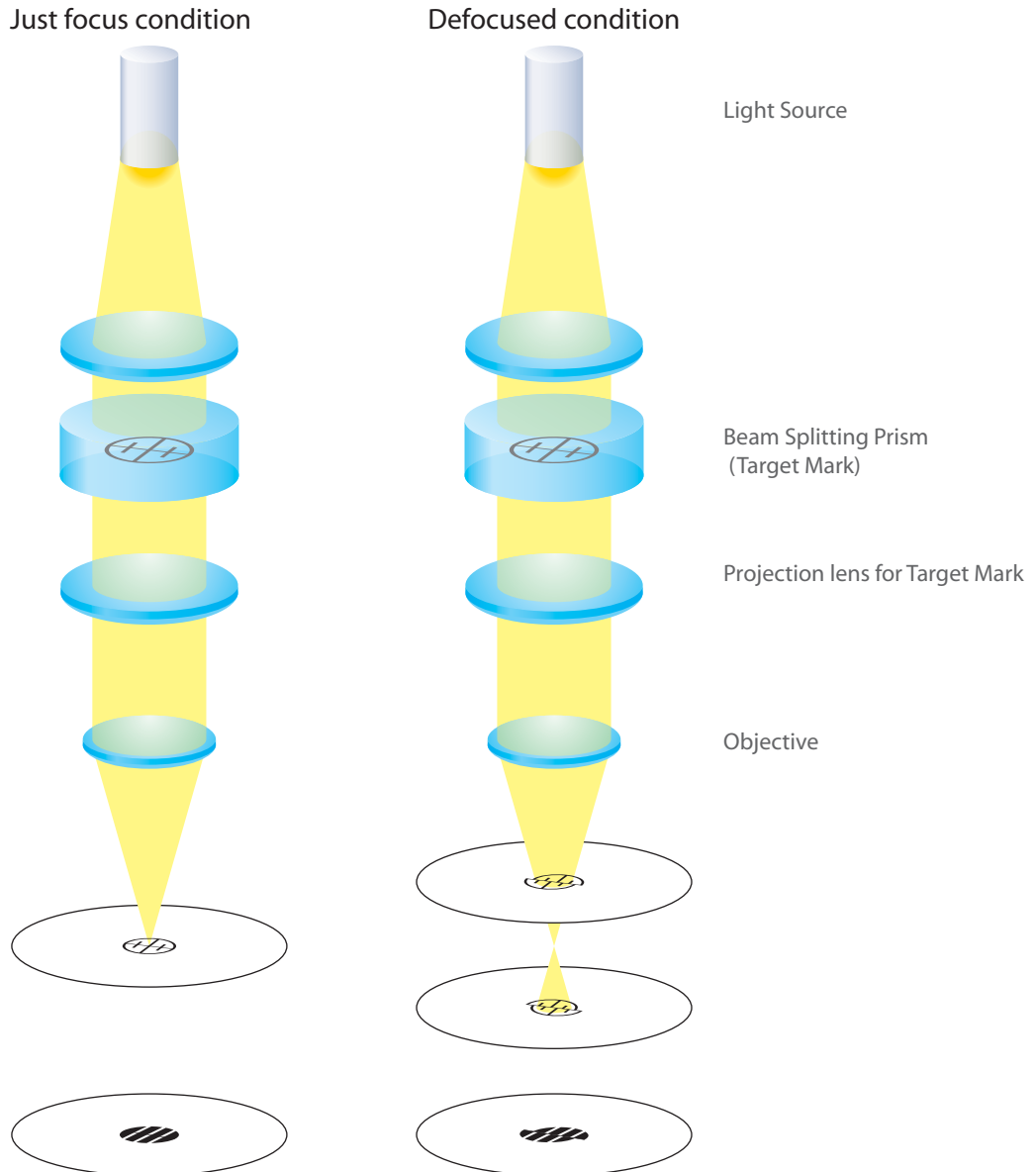


XYZ Measuring Microscope “HisometII”

Model: DHII

Principle of measurement

This microscope system offers a precise focus indicator consisting of an index graticule (Target Mark) and a beam splitting prism built into reflecting illumination optical system of microscope. And it has been designed based on the optical principle that at just focus status, of which the upper and lower halves coincide, can be observed above the focused image of a specimen, and that when defocused even slightly, the index line is split into two lines in the upper and lower halves of the graticule.

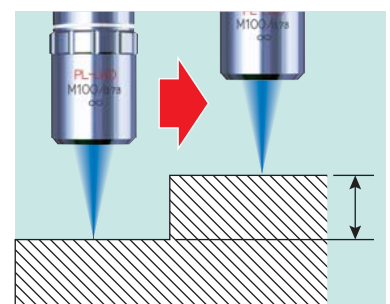


Method of measurement

An exact focal point is secured by confirming that the vertical index lines in the upper and lower halves of the graticule coincide with both of straight lines exactly, rather than by making judgements as to whether image of a specimen surface is blurred or not.

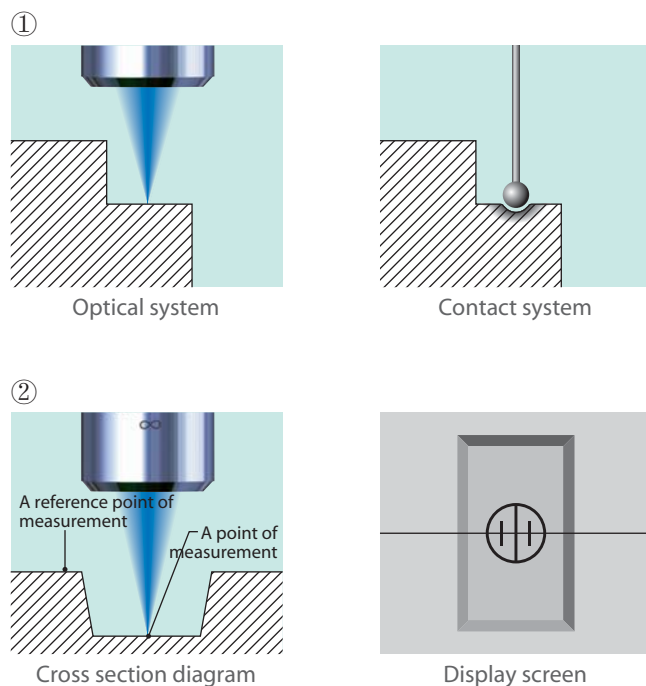
Since this is a unique system that is neither affected by the focal depth of objective lenses nor dependent on the ability of the human eyes to discriminate two points, a focal point can be determined very accurately as compared with other focusing systems.

This focusing system and the digital gauge allow non-contact, high precision measurements of step heights between surfaces.

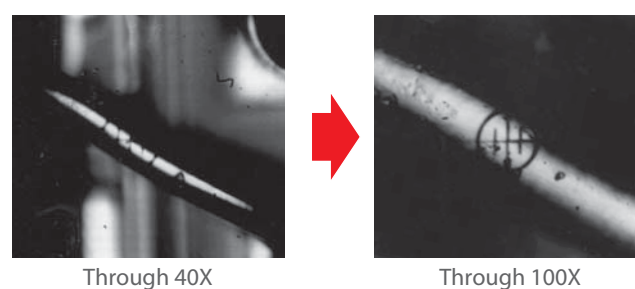


Advantages

- As a focal point is detected under the non-contact optical method, measurements can be taken without being affected by physical damages to a specimen such as distortion, blow or nicks, etc. (Refer to Diagram-①)
- Since the precise focus indicator based on the “split-target” method has been adopted, highly-accurate depth measurements can be taken simply by coinciding the two halves of the graticule.
- As the operation is so simple, this is the most suitable measuring microscope system for various kinds of applications.
- While observing minute surface condition of a point of measurement, the positional relation between a reference point of measurement and a point of measurement can be confirmed, and measurements can be also taken in the same field of view. (Refer to Diagram-②)
- Measurement accuracy can be improved through the use of high magnification objective lenses. (Refer to Diagram-③)
- Either Black-stripe or White-stripe Target Mark can be chosen as per a condition of specimen surface. Since three kinds of Target Mark status (black-stripe, while-stripe and nothing) can be selected by a lever, the photographs can be taken without the Target Mark if necessary.
- Various models can be configured by the combination of different equipment such as viewing head, measuring stage and other optional items, depending on applications of respective users. (Refer to System Diagram)
- In case of observing transparent, mirror or pearskin finish surfaces with a laser system, focus errors are apt to occur due to diffuse reflection. While, Target Mark can be projected onto such surfaces in case of our optical system, step heights of such specimen surfaces can be measured.



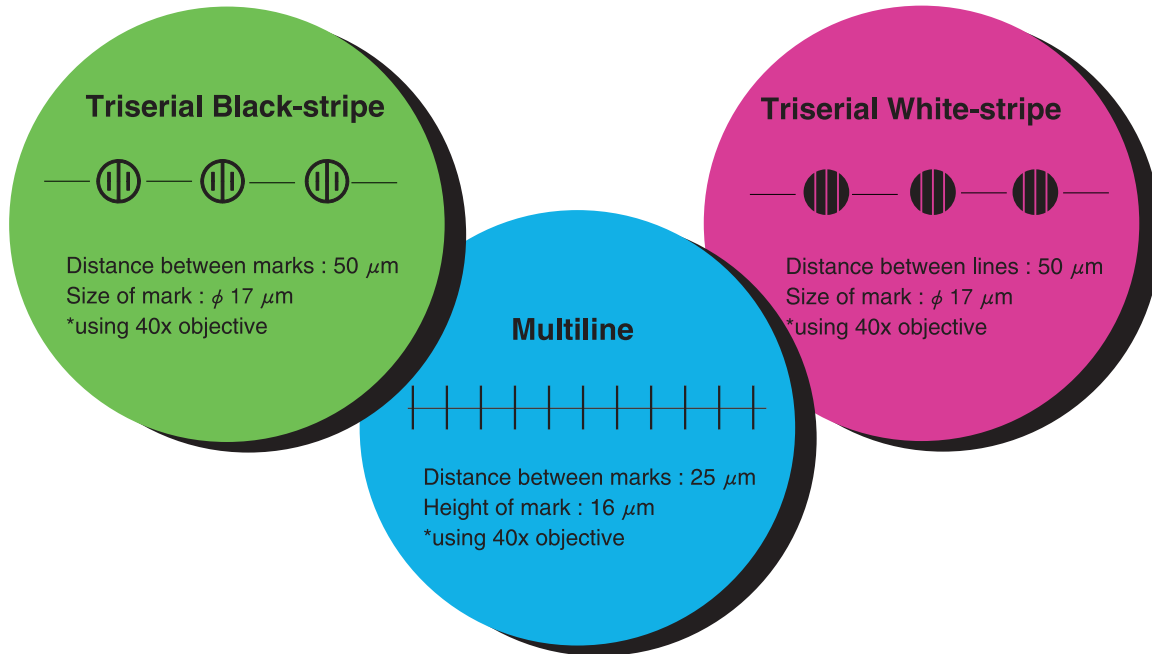
③ Example: measuring height of bonding wire



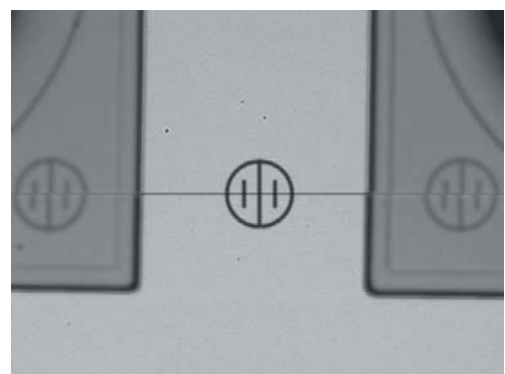
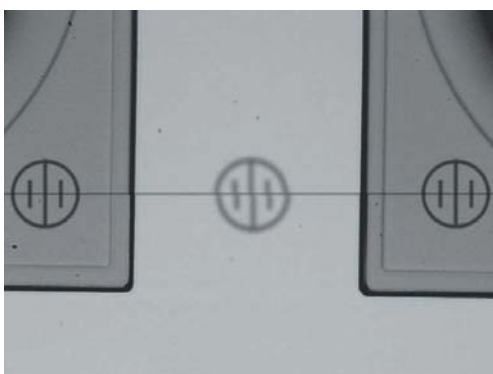
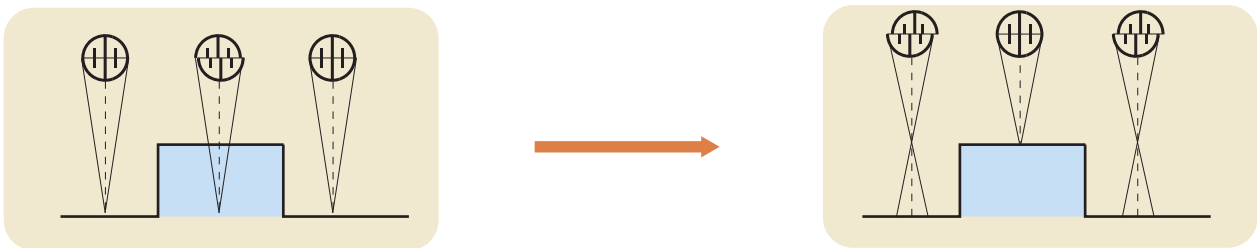
NEW "TARGET MARK" LINEUP

Options for special applicaion

DHII



- *Measurement can be done within the same field of view*
- *No need using XY stage*
- *Reduction of emasurement time*



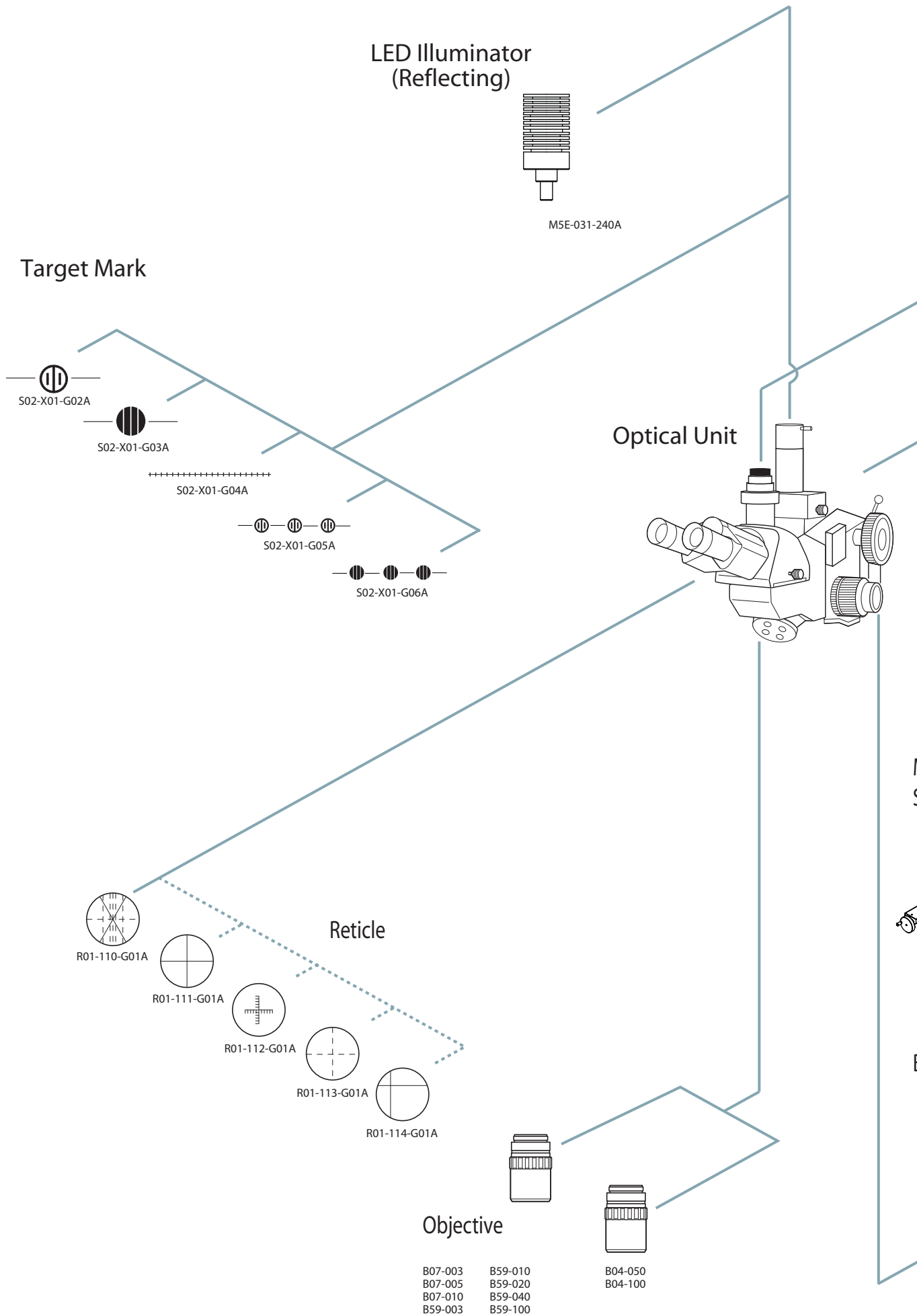
SPECIFICATIONS

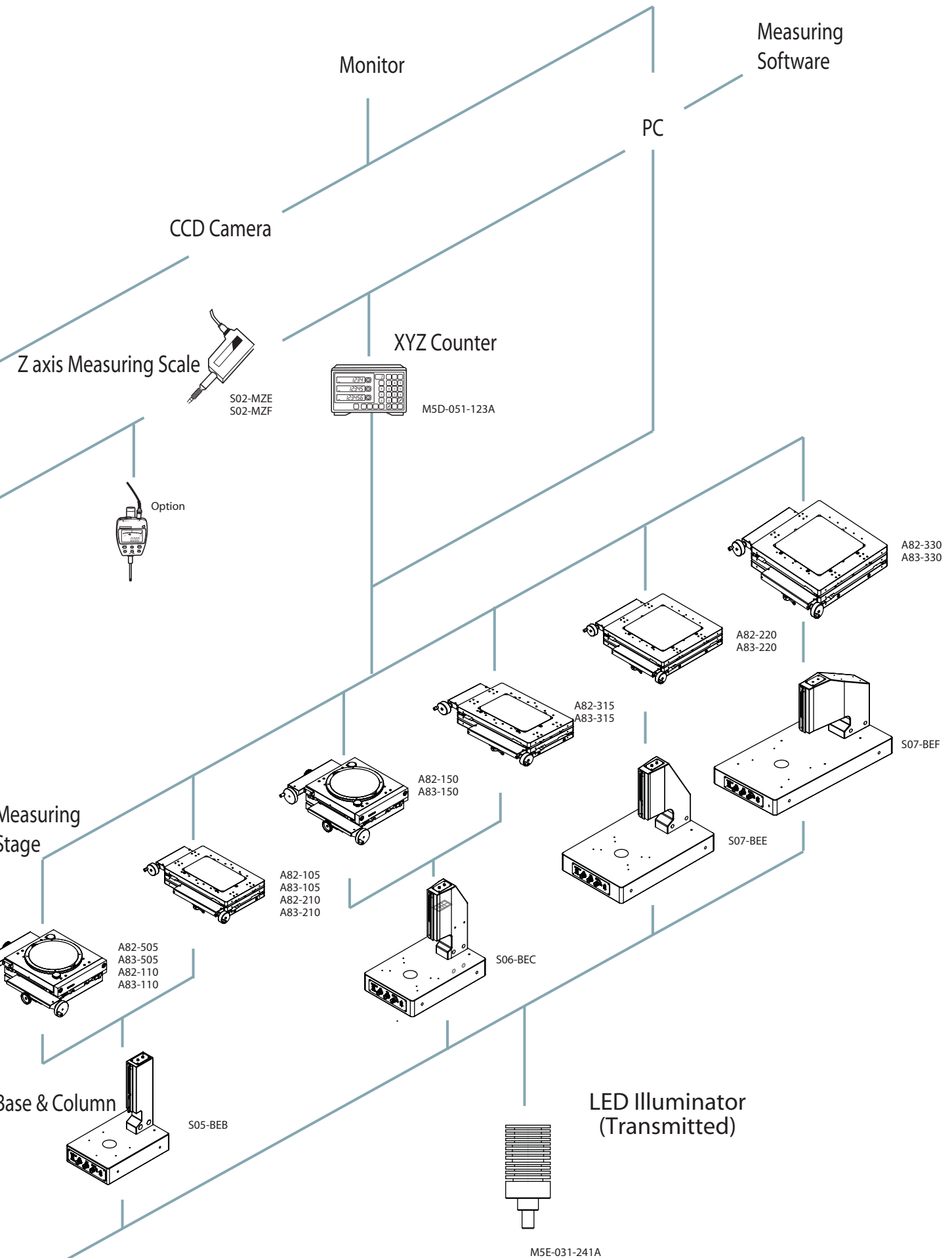
Z-axis	Travel	Coarse Adjustable	140mm							
		Fine Adjustable	25mm							
	Height of specimen	150mm (Max.)								
	Measuring Accuracy	0.1um, 0.5um and 1um (option) reading / 25mm travel $3\sigma = 1\text{um}$ (using 40X objective)								
Illuminator	Reflecting	3W White LED								
	Transmitted									
Viewing Head	Erected Trinocular	Binocular with TV C-mount tube								
Objective		3X, 5X, 10X, 20X, 40X, 50X, 100X								
Eyepiece		Field number : $\varnothing 16$								
Measuring Stage		0505	1005	1010	1515	2010	2020	3015	3030	
	Size of stage glass	$\varnothing 150\text{mm}$	170x120mm	$\varnothing 205\text{mm}$	$\varnothing 260\text{mm}$	280x170mm	290x290mm	370x220mm	370x370mm	
	Travel (X - Y)	50x50mm	100x50mm	100x100mm	150x150mm	200x100mm	200x200mm	300x150mm	300x300mm	
	Accuracy	X : (4+0.02L) um, Y : (4+0.02L) um, L : Travel distance (mm)								
	Rotation angle	360°	—	360°	360°	—	—	—	—	
Stage size		210x210x95mm	270x210x95mm	270x270x95mm	320x320x95mm	430x270x95mm	430x430x95mm	520x320x95mm	520x520x109mm	

COMPOSITION

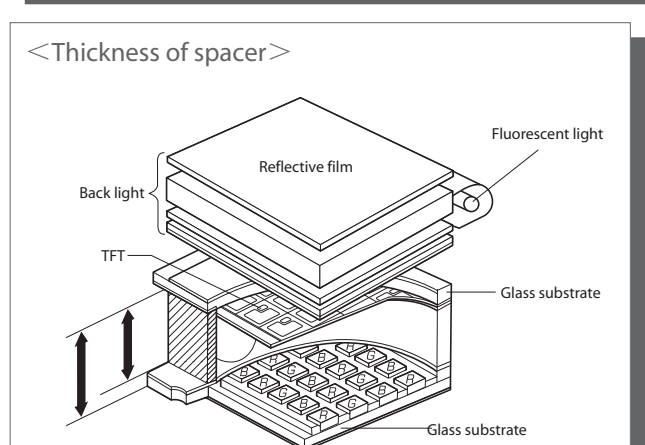
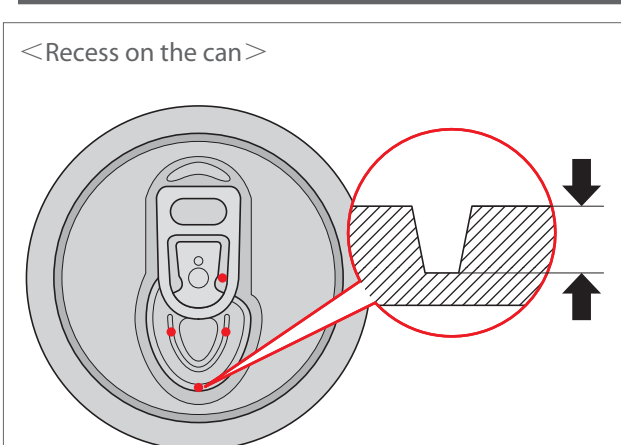
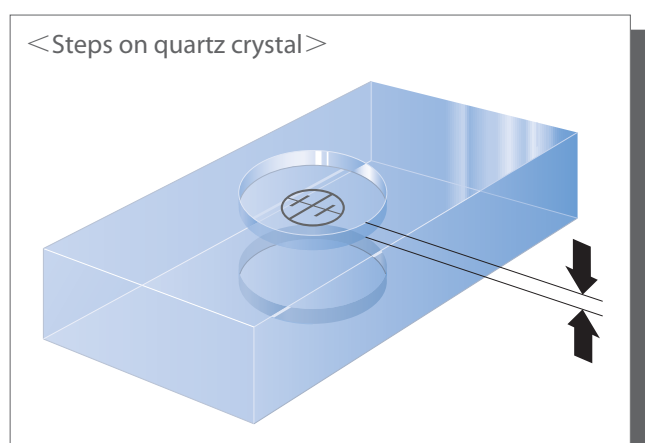
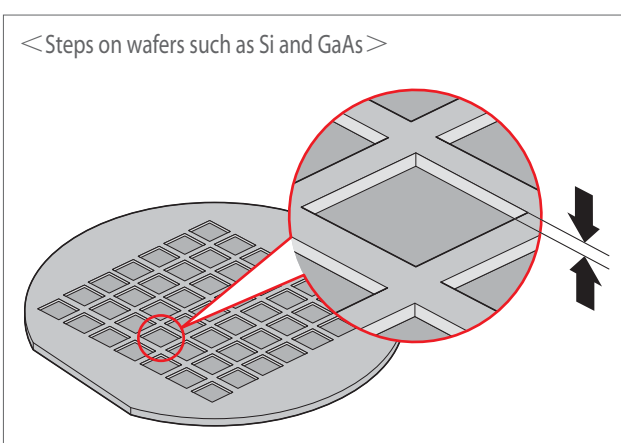
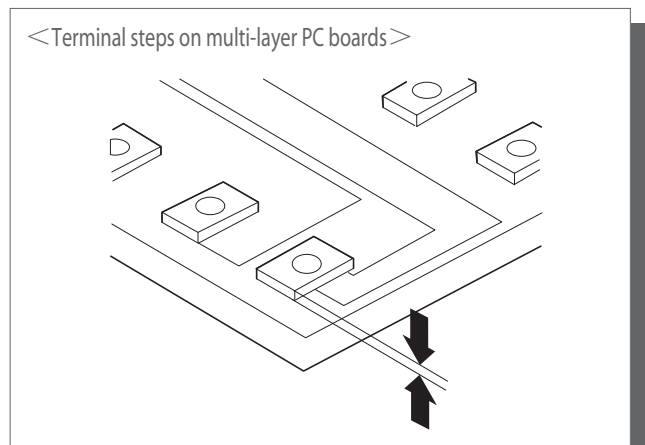
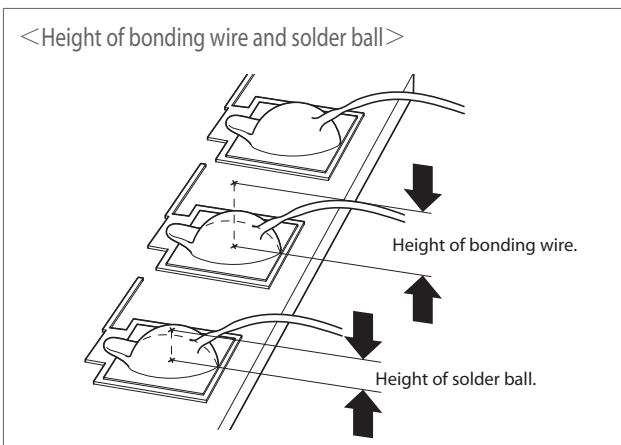
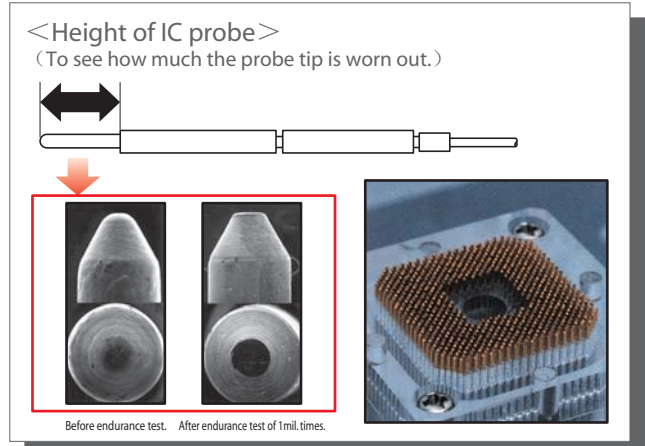
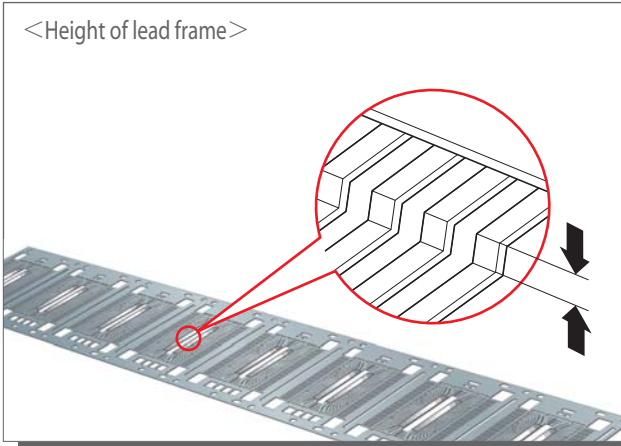
Name	Code	Description	DHII							
			0505	1005	1010	1515	2010	2020	3015	3030
Base & Column	S05-BEB	For stage 0505, 1005, 1010, 2010 with reflecting & transmitted LED controller	●	●	●	—	●	—	—	—
	S06-BEC	For stage 1515, 3015 with reflecting & transmitted LED controller	—	—	—	●	—	—	●	—
	S07-BEE	For stage 2020 with reflecting & transmitted LED controller	—	—	—	—	—	●	—	—
	S07-BEF	For stage 3030 with reflecting & transmitted LED controller	—	—	—	—	—	—	—	●
Optical Unit	S05-300	Bracket with target mark Viewing head with C-mount Nosepiece for 4 objectives Pair of eyepieces, field number $\varnothing 16$	●	●	●	●	●	●	●	●
Target Mark (Choose 2 marks)	S02-X01-G02A	Black-stripe	●	●	●	●	●	●	●	●
	S02-X01-G03A	White-stripe	●	●	●	●	●	●	●	●
	S02-X01-G04A	Multiline								
	S02-X01-G05A	Triserial black-stripe								
	S02-X01-G06A	Triserial white-stripe								
Reticle	R01-110-G01A	With $\varnothing 16$ frame								
	R01-111-G01A	With $\varnothing 16$ frame								
	R01-112-G01A	With $\varnothing 16$ frame & 10mm dividing equally into 100								
	R01-113-G01A	With $\varnothing 16$ frame								
	R01-114-G01A	With $\varnothing 16$ frame	●	●	●	●	●	●	●	●
Objective	B07-003	PLM3X / N.A. 0.075 W.D. 8.5mm								
	B07-005	PLM5X / N.A. 0.1 W.D. 19.8mm	●	●	●	●	●	●	●	●
	B07-010	PLM10X / N.A. 0.2 W.D. 12.0mm	●	●	●	●	●	●	●	●
	B59-003	PLL3X / N.A.0.075 W.D. 29.5mm								
	B59-010	PLLWDM10X / N.A. 0.2 W.D. 24.3mm								
	B59-020	PLLWDM20X / N.A. 0.4 W.D. 11.2mm	●	●	●	●	●	●	●	●
	B59-040	PLLWDM40X / N.A. 0.5 W.D. 10.0mm	●	●	●	●	●	●	●	●
	B59-100	PLLWDM100X / N.A. 0.73 W.D. 5.0mm								
	B04-050	SPLM50X / N.A. 0.75 W.D. 1.5mm								
	B04-100	SPLM100X / N.A. 0.9 W.D. 1.0mm								
Z axis scale	S02-MZE (0.5um)	Digital linear scale, 25mm travel	●	●	●	●	●	●	●	●
	S02-MZF (0.1um)	indicator with adapter								
Stage	A82-505 (0.25um)	50x50mm travel with digital linear scale, rotary table and stage glass	●	—	—	—	—	—	—	—
	A83-505 (0.1um)	100x50mm travel with digital linear scale and stage glass	—	●	—	—	—	—	—	—
	A82-105 (0.25um)	100x100mm travel with digital linear scale, rotary table and stage glass	—	—	●	—	—	—	—	—
	A83-105 (0.1um)	150x150mm travel with digital linear scale, rotary table and stage glass	—	—	—	●	—	—	—	—
	A82-110 (0.25um)	200x100mm travel with digital linear scale and stage glass	—	—	—	—	●	—	—	—
	A83-110 (0.1um)	200x200mm travel with digital linear scale and stage glass	—	—	—	—	—	●	—	—
	A82-150 (0.25um)	300x150mm travel with digital linear scale and stage glass	—	—	—	—	—	—	●	—
	A83-150 (0.1um)	300x300mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	●
	A82-210 (0.25um)									
	A83-210 (0.1um)									
	A82-220 (0.25um)									
	A83-220 (0.1um)									
	A82-315 (0.25um)									
	A83-315 (0.1um)									
	A82-330 (0.25um)									
A83-330 (0.1um)										
XYZ counter	M5D-051-123A	Digital XYZ counter with RS232C output	●	●	●	●	●	●	●	●
Reflecting LED Light	M5E-031-240A	3W White LED spot light	●	●	●	●	●	●	●	●
Transmitted LED Light	M5E-031-241A	3W White LED spot light								

SYSTEM DIAGRAM





APPLICATIONS



XY Measuring Microscope “Ursamet”

Model: SMG

SPECIFICATIONS

Z-axis	Travel	Coarse Adjustable	140mm						
		Fine Adjustable	25mm						
		Height of specimen	150mm (Max.)						
Illuminator	Reflecting	3W White LED							
	Transmitted								
Viewing Head	Erected Trinocular	Binocular with TV C-mount tube							
Objective	3X, 5X, 10X, 20X, 40X, 50X, 100X								
Eyepiece	Field number : Ø24 / Ø18								
Measuring Stage		0505	1005	1010	1515	2010	2020	3015	3030
	Size of stage glass	Ø150mm	170x120mm	Ø205mm	Ø260mm	280x170mm	290x290mm	370x220mm	370x370mm
	Travel (X - Y)	50x50mm	100x50mm	100x100mm	150x150mm	200x100mm	200x200mm	300x150mm	300x300mm
	Accuracy	X : (4+0.02L) um, Y : (4+0.02L) um, L : Travel distance (mm)							
	Rotation angle	360°	—	360°	360°	—	—	—	—
Stage size	210x210x95mm	270x210x95mm	270x270x95mm	320x320x95mm	430x270x95mm	430x430x95mm	520x320x95mm	520x520x109mm	

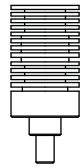
COMPOSITION

Name	Code	Description	SMG									
			0505	1005	1010	1515	2010	2020	3015	3030		
Base & Column	S05-BEB	For stage 0505, 1005, 1010, 2010 with reflecting & transmitted LED controller	●	●	●	—	●	—	—	—	—	
	S06-BEC	For stage 1515, 3015 with reflecting & transmitted LED controller	—	—	—	●	—	—	●	—		
	S07-BEE	For stage 2020 with reflecting & transmitted LED controller	—	—	—	—	—	●	—	—		
	S07-BEF	For stage 3030 with reflecting & transmitted LED controller	—	—	—	—	—	—	—	●		
Optical Unit	S21-300 (Ø24)	Bracket Viewing head with C-mount	●	●	●	●	●	●	●	●		
	S22-300 (Ø18)	Nosepiece for 4 objectives Pair of eyepieces, field number Ø24 / Ø18										
Reticle	R01-210-G01A	With Ø24 frame										
	R01-110-G01A	With Ø18 frame										
	R01-211-G01A	With Ø24 frame	●	●	●	●	●	●	●	●		
	R01-111-G01A	With Ø18 frame										
	R01-212-G01A	With Ø24 frame & 10mm dividing equally into 100										
	R01-112-G01A	With Ø18 frame & 10mm dividing equally into 100										
	R01-213-G01A	With Ø24 frame										
Objective	B07-003	PLM3X / N.A. 0.075 W.D. 8.5mm										
	B07-005	PLM5X / N.A. 0.1 W.D. 19.8mm	●	●	●	●	●	●	●	●		
	B07-010	PLM10X / N.A. 0.2 W.D. 12.0mm										
	B59-003	PLL3X / N.A. 0.075 W.D. 29.5mm										
	B59-010	PLLWDM10X / N.A. 0.2 W.D. 24.3mm										
	B59-020	PLLWDM20X / N.A. 0.4 W.D. 11.2mm										
	B59-040	PLLWDM40X / N.A. 0.5 W.D. 10.0mm										
	B59-100	PLLWDM100X / N.A. 0.73 W.D. 5.0mm										
	B04-050	SPLM50X / N.A. 0.75 W.D. 1.5mm										
	B04-100	SPLM100X / N.A. 0.9 W.D. 1.0mm										
Stage	A82-505 (0.25um)	50x50mm travel with digital linear scale, rotary table and stage glass	●	—	—	—	—	—	—	—		
	A83-505 (0.1um)	100x50mm travel with digital linear scale and stage glass	—	●	—	—	—	—	—	—		
	A82-105 (0.25um)	100x100mm travel with digital linear scale, rotary table and stage glass	—	—	●	—	—	—	—	—		
	A83-105 (0.1um)	150x150mm travel with digital linear scale, rotary table and stage glass	—	—	—	●	—	—	—	—		
	A82-110 (0.25um)	200x100mm travel with digital linear scale and stage glass	—	—	—	—	●	—	—	—		
	A83-110 (0.1um)	200x200mm travel with digital linear scale and stage glass	—	—	—	—	—	●	—	—		
	A82-150 (0.25um)	300x150mm travel with digital linear scale and stage glass	—	—	—	—	—	—	●	—		
	A83-150 (0.1um)	300x300mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	●		
	A82-210 (0.25um)	50x50mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	—		
	A83-210 (0.1um)	100x50mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	—		
	A82-220 (0.25um)	100x100mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	—		
	A83-220 (0.1um)	150x150mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	—		
	A82-315 (0.25um)	200x100mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	—		
	A83-315 (0.1um)	200x200mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	—		
A82-330 (0.25um)	300x150mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	—			
A83-330 (0.1um)	300x300mm travel with digital linear scale and stage glass	—	—	—	—	—	—	—	—			
XYZ counter	M5D-051-122A	Digital XYZ counter with RS232C output	●	●	●	●	●	●	●	●		
Reflecting LED Light	M5E-031-240A	3W White LED spot light	●	●	●	●	●	●	●	●		
Transmitted LED Light	M5E-031-241A	3W White LED spot light	●	●	●	●	●	●	●	●		

SYSTEM DIAGRAM

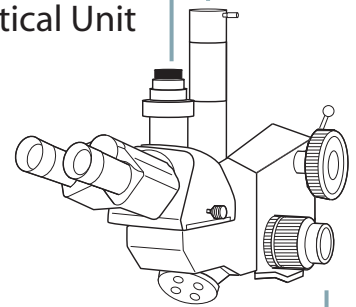
SMG

LED Illuminator
(Reflecting)

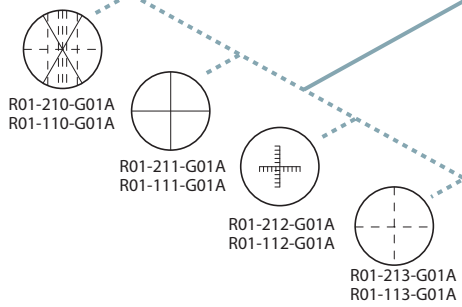


M5E-031-240A

Optical Unit



Reticle

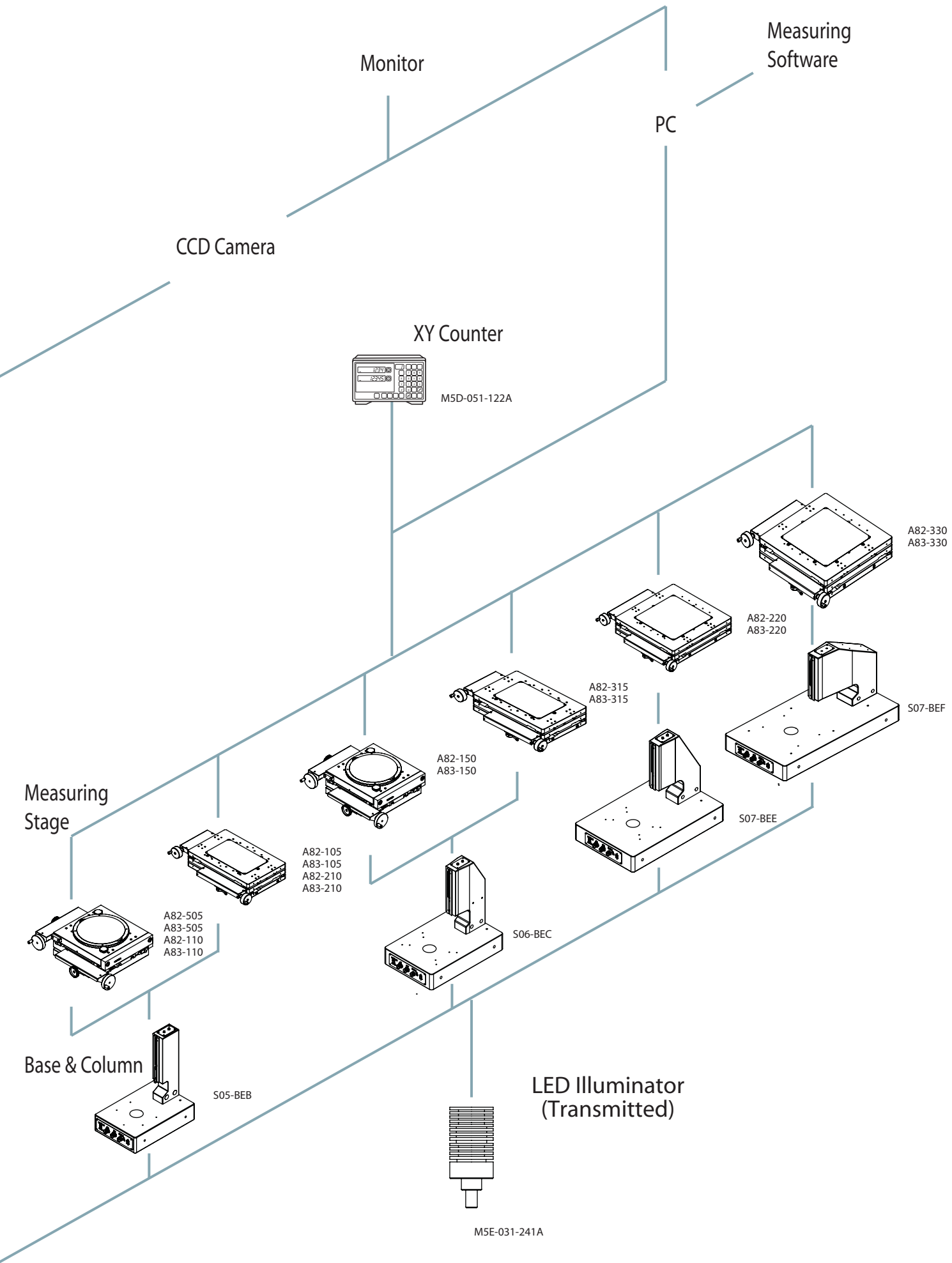


Objective

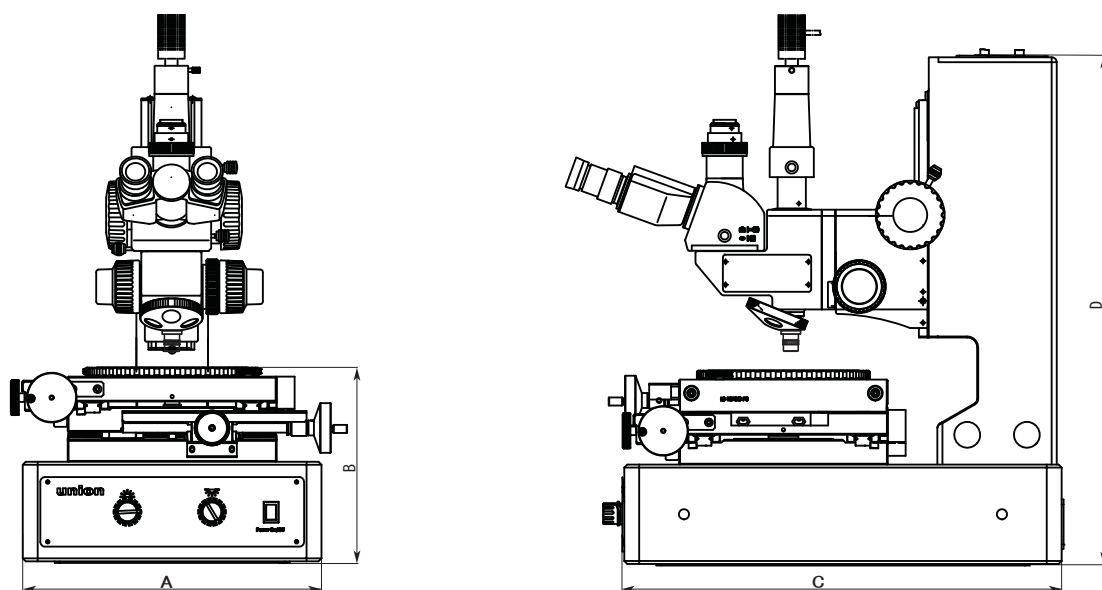


B07-003 B59-010
B07-005 B59-020
B07-010 B59-040
B59-003 B59-100

B04-050
B04-100

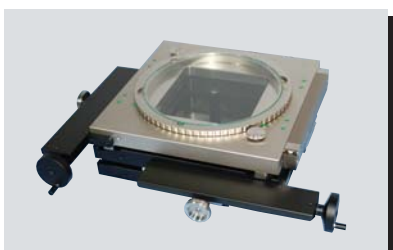


External Dimensions

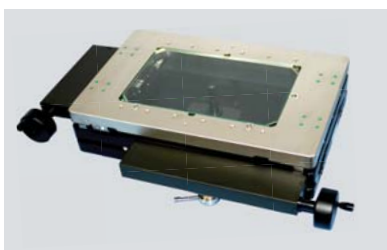


DHII & SMG		0505	1005	1010	1515	2010	2020	3015	3030
A	mm	300	300	300	350	300	430	350	430
B		195	195	195	195	195	195	195	209
C		440	440	440	530	440	670	530	820
D		515	515	515	530	515	530	530	520
Weight(approx.)	kgs.	58	61	63	91	69	137	101	169

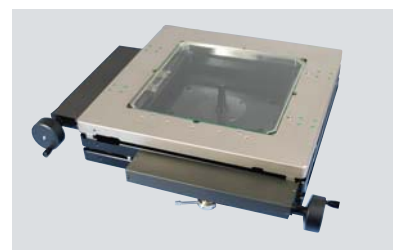
Stages



505、110、150



105、210、315



220、330

● All specifications are subject to change without prior notice.

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