

μ-FABTM

LASER PATTERNING SYSTEM

CIS / CIGS

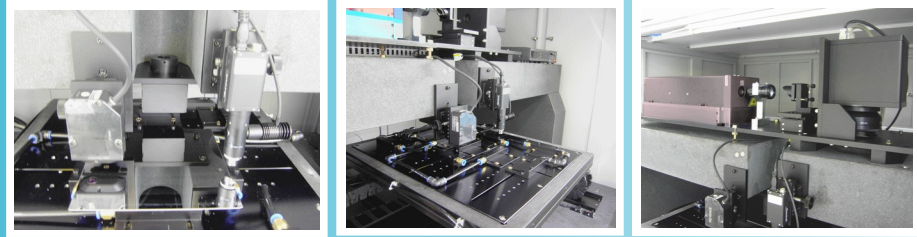


μ-FAB™ LASER PATTERNING SYSTEM

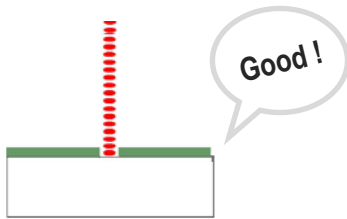


본 시스템은 CIS/CIGS 및 실리콘 박막을 이용한 박막형 태양셀의 패턴 형성을 위한 장비로서, 극초단 펄스 레이저를 이용하여 각 층 (layer) 에 패턴을 형성합니다.

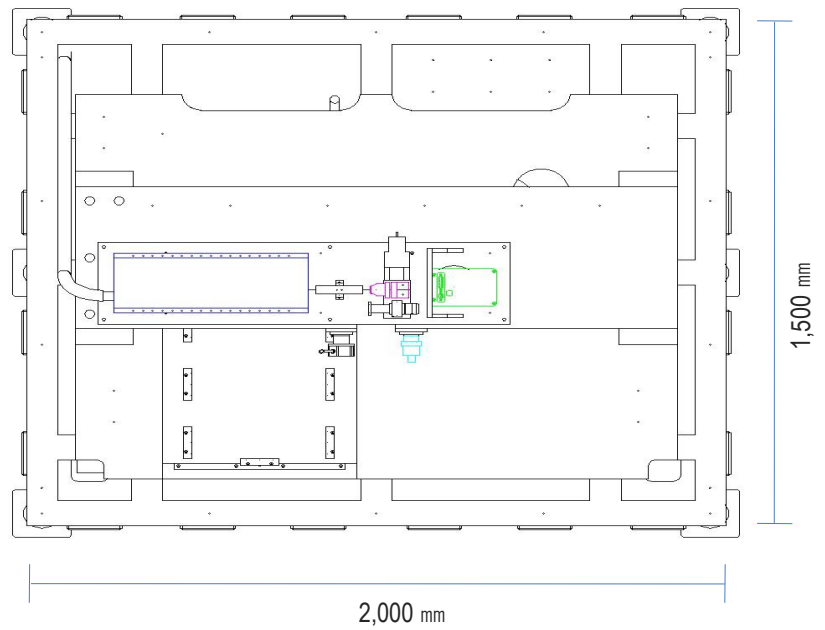
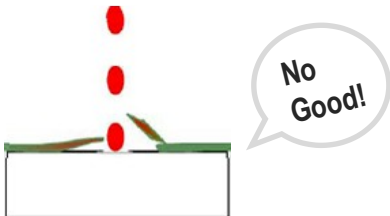
가공대상은 200 mm x 200 mm 의 사이즈부터 5 세대 이상의 사이즈까지 폭넓게 이용가능한 장비입니다.



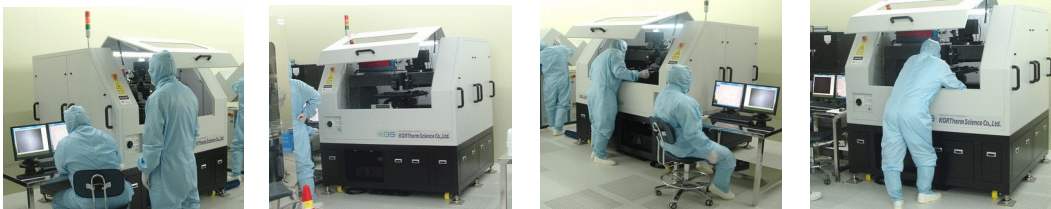
PICOSECOND LASER



SHORT PULSE LASERS



시스템 레이아웃



WORKSTATION

Granite base for vibration isolation
 Fume extraction system
 Clean room class: machine class
 1000
 Enclosure isolated from machine core
 Interlock work area door

PICOSECOND LASER

Pico-second laser
 Mode locked pulsed fiber laser
 Wavelength : 1064/532/355nm
 Average power : < 20W
 Laser mode : Single mode

OPTICAL SYSTEM

Fixed Focusing Head

Beam collimation mirror
 Turning mirror
 Spot size : approx. 10μm

Galvo scanner head type

Scanning area: 100 mm x 100 mm or more
 f-theta lens
 Beam spot size : < 50 μm

MOTION SYSTEM

Travel range : 200 mm x 200 mm or more
 Motion speed : 1000 mm /s or more
 Resolution : 0.5μm
 Accuracy : ±4μm over full travel
 Repeatability : ±2μm over full travel
 Z-axis travel range : 20 mm
 Z-axis resolution : 1μm

VISION SYSTEM

CCD resolution : > 1Mpixel
 FOV (Field of view) : 600μm x 400μm
 Frame rate : 30 fm
 Data output : IEEE 1394
 Focusing lens
 Light : White type LED spot

DISPLACEMENT SENSOR

Wavelength : 670nm
 Spot size : 2μm
 Resolution : 0.01μm
 Measurement Function :
 - 2D/3D Profiler
 - Surface roughness(Ra, Rt, Rz)

SUBSTRATE MOUNT

Vacuum chuck for glass and wafer
 Glass size : 200 mm x 200 mm or more
 Wafer : 4 inch or more

SYSTEM CONTROLLER

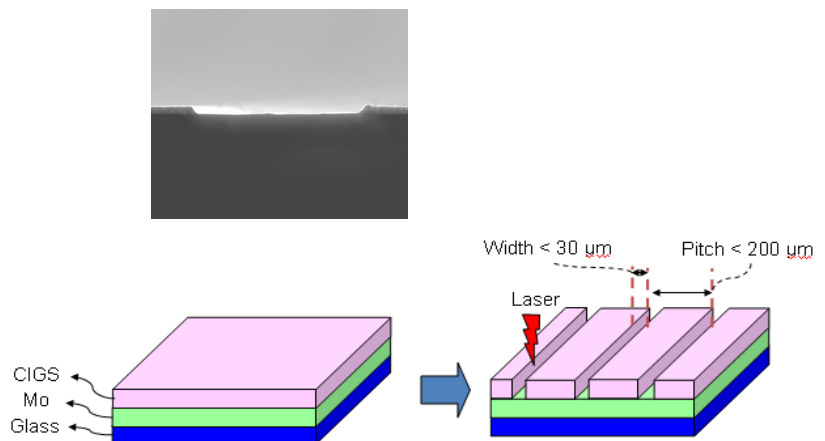
Industrial PC & Dual flat panel monitors
 Windows XP based user interface
 Position synchronized laser firing
 Integrated operation of laser and stages

S/W and etc.

Auto-Alignment S/W
 Image recognition S/W
 Auto-Focus S/W
 High resolution microscope unit
 B/W CCD camera
 Control software

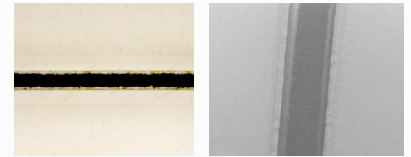
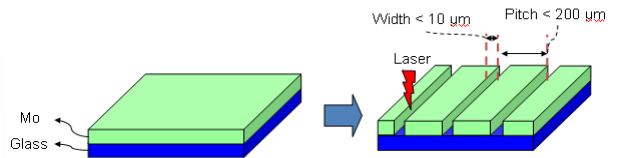
CIS/CIGS patterning on Mo layer

Mo thickness : 0.4μm
 CIS/CIGS thickness : 3μm
 Substrate : glass (50 mm x 50 mm)
 가공속도 : 2m/s
 Patterning width : 10μm
 Patterning depth : 2.9 ~ 3μm
 Mo 층의 데미지 허용하지 않음
 Isolation 특성 : > 30MΩ



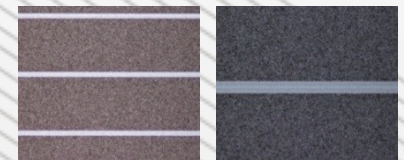
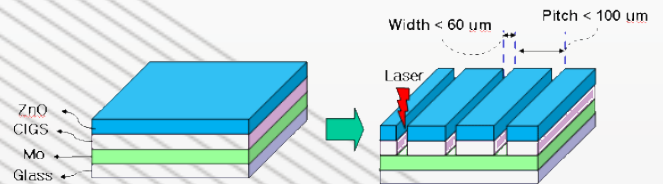
Mo Patterning on Glass

Molybdenum Layer thickness: 1 μm
 Substrate : glass (50 mm x 50 mm)
 가공속도 : 1 m/s
 Patterning width : 10μm
 글래스 층의 데미지 허용하지 않음
 Solation 특성 : > 30MΩ



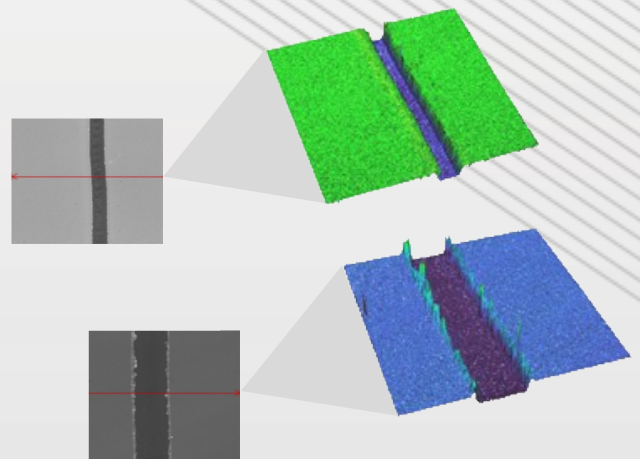
ITO Patterning on CIGS Layer (GLASS + Mo + CIGS + ITO or ZnO)

Layer thickness
 · molybdenum : 0.4μm
 · CIS/CIGS : 0.5μm
 · ITO or ZnO : 0.5μm
 Substrate : glass (50 mm x 50 mm)
 Process speed : 2m/s
 Patterning width : 10μm
 Patterning depth : 3.5μm
 CIS/CIGS 층의 데미지 허용하지 않음



ITO patterning on glass (Si based solar panel)

Layer thickness
 · ITO : 1μm
 · Glass : 0.7 mm
 Substrate : glass (200 mm x 200 mm)
 Process speed : 1m/s
 Patterning width : 20μm
 Patterning depth : 1μm
 Glass 층의 데미지 허용하지 않음



(주) 코썸사이언스는 1064/532/355nm 등 다양한 레이저를 보유하고 있습니다.
 문의주시면 다양한 응용분야에 맞는 샘플테스트를 실비로 이용 가능합니다.

We have wide range of selection for laser with 1064/532/355 wavelength
 and we can provide the complete sample test work corresponding to required applications.