

# Axis Pro SS

## Description

- Custom-designed Electric System
- PC mouse-operated microscope-integrated electric micromanipulator system empowers seamless picking up and delivery of microscopic samples.
- Used for various applications, including FT-IR microscopy of foreign substances, collection of FIB-processed TEM thin samples, and precise marking.
- This model can be customized for large stages and equipment integration.

## Features

- Consistently sample  $\geq 5\mu\text{m}$  objects with precision and ease
- Efficient particle removal in cleanroom environments made possible
- Fully covered and Enhanced safety, operability, and precision
- Once the sample is placed, execute the desired operation with a PC mouse
- Standard-equipped: Motorised second stage for seamless sample transfer
- Program-controlled error-free sample transfer
- Built-in storage space for keeping accessories
- Simplified setup with the use of angle-fixed arms



# Axis Pro SS



Designed for custom applications – ability to select only one arm, manual stage, etc.  
Suitable for tall samples as entire upper microscope moves up and down.

## Custom-designed electric system

- ▶ Handles 5 $\mu$ m-size object with precise motion
- ▶ Adjust for various samples
- ▶ Flexibility for custom-designed samplings
- ▶ Just moves PC mouse after attaching sample
- ▶ Precise sample transfer by program control
- ▶ Easy setting with angle fixing arms

## Common specifications



High-performance electric zoom microscope



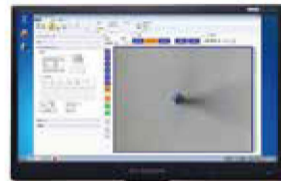
Angle fixing arm



Electric transfer stage



Windows<sup>®</sup> Software



Easy operation by software



PC mouse control

## Axis Pro SS exclusive specifications



Choose one-arm type



Configure a system for specially shaped samples



Adjust for tall sample by up/down motion of stage



Equipped with electric sample stage (option) X100:Y50mm



Total monitor magnification : 200 ~ 2500 × (objective lens 5X) , 60 ~ 800 × (objective lens 1.5X)

# Micro Sampling Machines

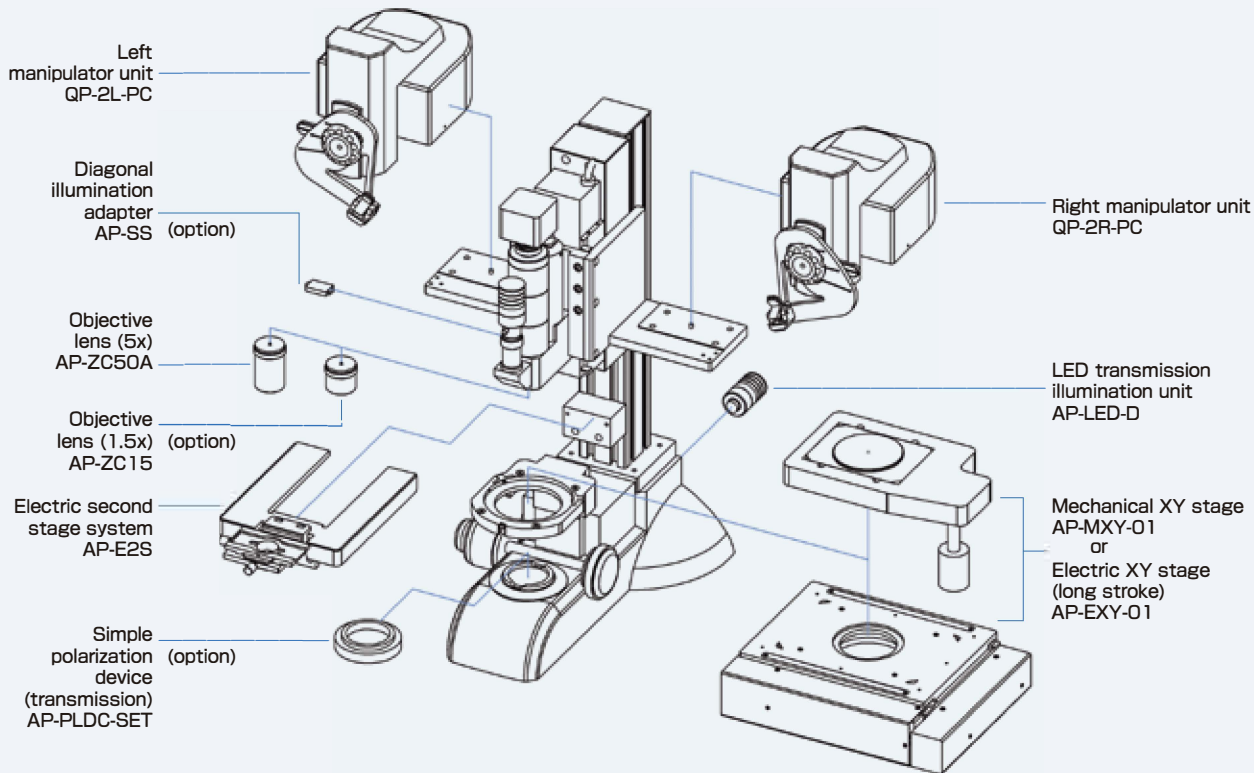
## Specifications

### Axis Pro

Axis Pro Electric motion control (Mouse operation)

		Axis Pro F/FC	Axis Pro SS
P r o d u c t S e t u p E x a m p l e	Setup example (Table is not included)		
	Body	Opening and shutting full cover (FC model)	Without cover
M a i n b o d y	Focus (electric) range	70mm (up and down stage)	70mm (up and down main body)
	Arm (electric) range	X:20mm Y:20mm Z:30mm (left, right)	
	Microscope (electric zoom)	Mainbody zoom 0.9~10x	
	Objective lens	5x working distance:14mm, 1.5x (option) working distance:46mm 3x (option) working distance:35mm	
	CCD color camera	USB digital (movie•picture XGA output)	
	Total magnification	200~2500x	
	Sample transfer function	Equipped with electric transfer disk	
	Sample stage	Electric (standard)	Mechanical (electric,option)
	Illumination function	WhiteLED (reflection, transmission)	
	P C	PC specification	CPU:Pentium DUALCore G850 2.90GH/3 MB 2 C/ 2 T storage:2GB HD :500GB S-ATA DVD super multidrive
OS		Windows7 Pro Embedded 32bit English	
Display		21.5inch liquid crystal display (full HD)	
Control software		Axis Pro Ver.3 (Windows7 dedicated)	
Operation procedures		Click and drag by PC mouse	
O p e r a t i o n	Power source	AC100V~240V 50/60HZsinglephase, electricity consumption 700W	
	Equipment space	Width 1500mm×length 700mm	Width 1400mm×length 700mm

## <Axis Pro SS> Custom-designed electric system



# Sampling Equipment

Sampling Equipment

## Axis Pro AP



The Axis Pro is sampling equipment that enables the collection of  $\mu\text{m}$ -size objects and processing of samples in a target area with precise motion control. The Axis Pro offers an accurate solution for micro-sampling.

### Special features of the Axis Pro

- ▶ **All-in-one type manipulating system**  
Axis Pro is combined with electric zoom microscope, manipulator, controller, PC, display and others.
- ▶ **Easy operations by PC-mouse**  
All operations such as focusing sample and manipulating objects are controlled by PC-mouse. No need to touch the sample after placement on the sample stage.
- ▶ **Various tools**  
Various tools available based on sampling need.

#### Typical Application Areas

- Electronic component
- Liquid crystal
- Semiconductor
- Medicine
- Food
- Functional material
- Chemical product
- University
- Research organization
- Other industries

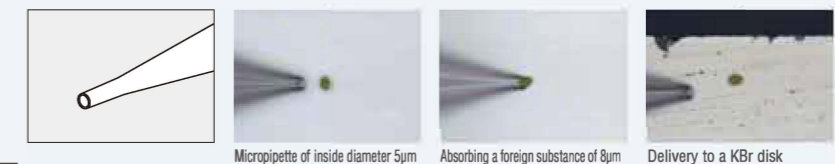
#### Axis Pro helps support a variety of processes

- Separation of foreign substances
- Extraction of sample from certain materials using optional milling accessory
- FIB lift-out (collection and delivery after extracting)
- Pinpoint marking
- Cutting samples
- Micro-liquid handling

#### Attachable Tools

- Tungsten probe (All items)
- Vacuum absorption tool set
- Microtweezer tool set
- Tungsten carbide tool (All items)
- Microinjector
- Milling Pro
- Micro knife (All items)
- Micro scissors
- Electrode holder
- Ruby knife (All items)
- Other tools also available

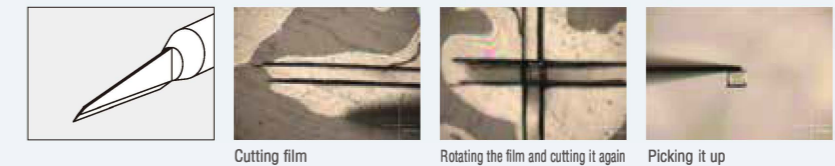
#### Absorption and delivery of micro substances



#### Cutting and collection of an embedded foreign substance



#### Film trimming



- Sampling Equipment
- Axis Pro
- Quick Pro
- Sampling Station
- System Diagram of Sampling Station
- Micro Sampling Equipment Comparison Table
- Micro Sampling Equipment Specification Table
- Sampling Tools
- Micro Tools / Metal Probes
- Micro Tools / Knife Tools
- Micro Tools / Glass Tools
- Micro Tools / Specialty Tools
- Micro Tools Specification Table
- Function Tools
- Holding Tools
- Observation and Recording Tools
- Microscopes and Peripherals
- Setup depending on application

# Sampling Equipment

## Axis Pro F



Axis Pro FC without cover  
Suitable for sampling inside glove box.

### All electric system without cover

- ▶ Handles 5 $\mu$ m-size object with precise motion
- ▶ Precise sample transfer by program control
- ▶ Just move PC mouse after attaching sample
- ▶ Easy setting with angle fixing arms
- ▶ Equipped with electric transfer stage



Most operations of manipulator can be remotely controlled by mouse, making it possible to install it within a glove box.

※Micro Support provides glove box feedthrough.

## Axis Pro

### Axis Pro Applications

- Pick up substance on a surface

2 $\mu$ m~



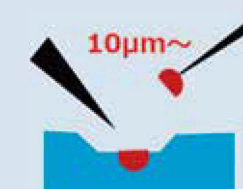
- Surface exposed
- Foreign substance removal

10 $\mu$ m~



- Dig buried substance
- Detach and transfer

10 $\mu$ m~



- Pick up substance in a tiny hole

5 $\mu$ m~



- Pick up and release pico-liter volumes of liquid

5 $\mu$ m~



- Collect few  $\mu$ m-size substances

1 $\mu$ m~



- Pick up material from one layer of a multilayer structure

5 $\mu$ m~



- Cut to depth direction (degradation)

5 $\mu$ m~



- Pick up substance in adhesive substrate

20 $\mu$ m~



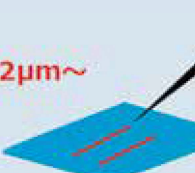
- FIB lift-out
- Orientation control and transfer

10 $\mu$ m~



- Mark on hard material

2 $\mu$ m~



- Electrical probing
- Probe spot size 1 $\mu$ m
- Distance between probes 5 $\mu$ m or grater
- Handles 5 $\mu$ m-size wiring

5 $\mu$ m~



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# Sampling Equipment

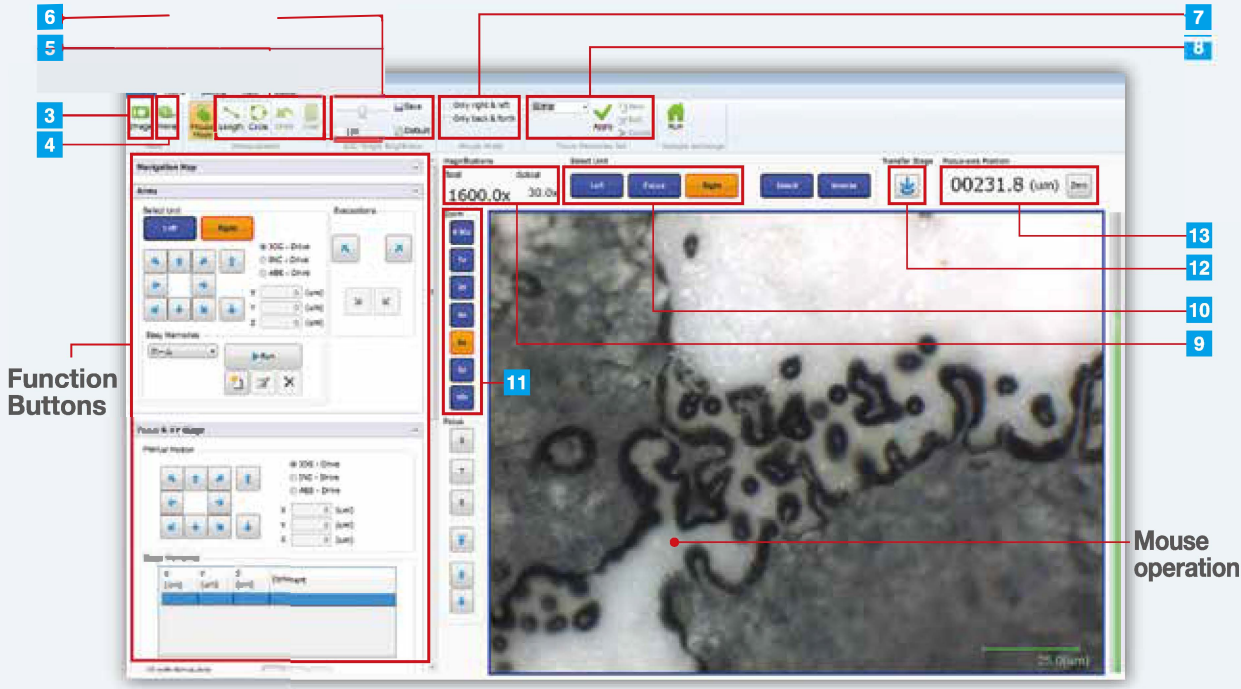
## Axis Pro

### Software main function

**[Setting tab]**



**[Home tab]**



Function Buttons

Mouse operation

- 1 Origin return** ..... Calibration control
- 2 Coordinate monitor** ..... Display the position of arms and stage
- 3 Image recording** ..... Record image as Jpeg or Bitmap
- 4 Movie capture** ..... Real time capture with AVI
- 5 Measurement** ..... Measure distance between two points or diameter of circle
- 6 Camera exposure correction** ..... Adjust light level on camera
- 7 Motion control** ..... Restrict arm motion to X or Y
- 8 Position memory** ..... Memorize sample position, transfer position and evacuation position
- 9 Magnification monitor** ..... Display optical magnification and total magnification
- 10 Motion unit selection** ..... Choose microscope or left-arm or right-arm for mouse control
- 11 Change of microscope magnification** ..... Switch optical magnification by button
- 12 Transfer stage** ..... Move transfer stage in or out with button
- 13 Height measurement monitor** ..... Measure height by microscope focusing

### New capabilities in Ver.3

**[Navigation map]**



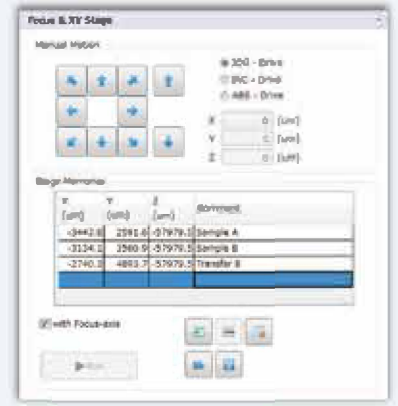
- Tiling function provides wide area image
- Tiling automatically by motorized stage
- Record a picture of large image
- Move to a designated position by mouse-click

**[Arm position memory function]**



- Memorize each position depending on each tool
- Record and load positions
- Arm temporary evacuation function

**[Stage position memory function]**



- Memorize stage positions in three dimensions
- Record and load positions
- Transfer between positions repeatedly
- Safety operation by automatic evacuation program

**[Automatic movement function]**



- Scrape on wide area and depth direction semi-automatically with Milling Pro
- Unit choice : choose left-arm or right-arm
- Direction : move to center from edge with Milling Pro
- Direction : move to edge from center with knife
- Movement : Input number of times to repeat motion
- Speed : change speed depending on situation

**[Image for focus stacking function]**



- Can easily produce a focused image by using image synthesis software like WinROOF2013 Lite
- Can obtain depth information by depth measurement function