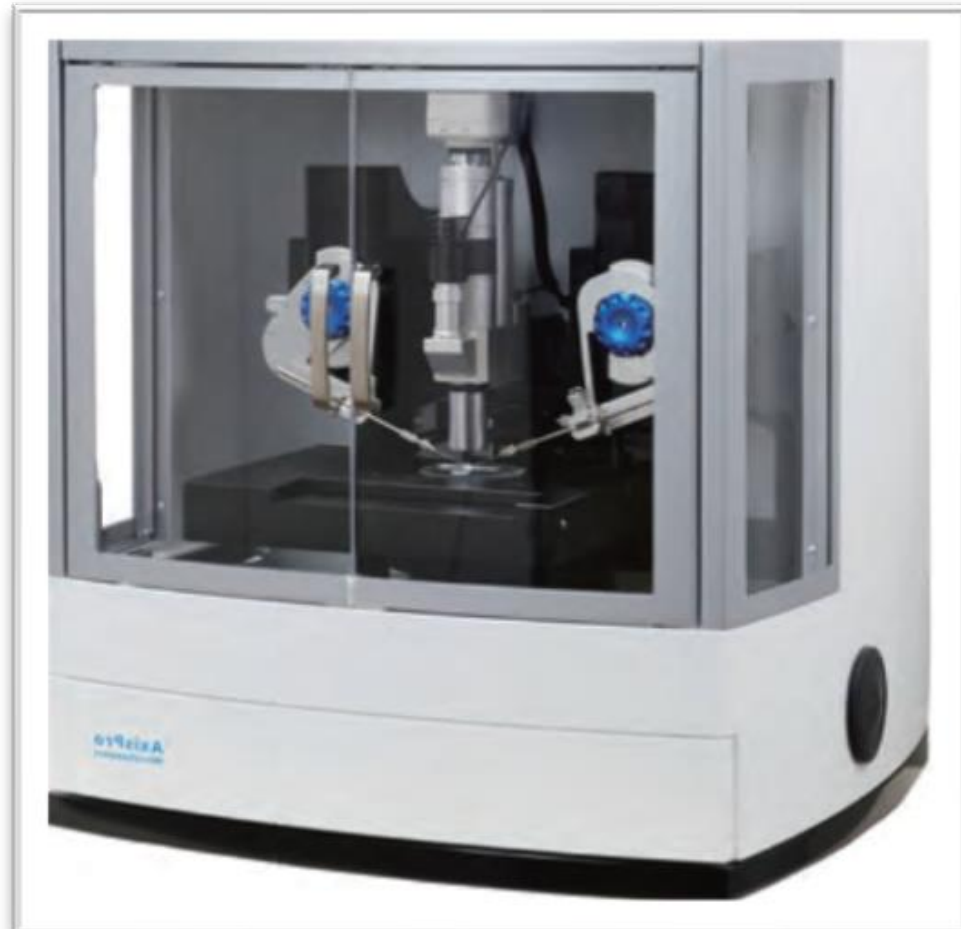


# Axis Pro FC



## Description

- Fully-covered All-in-one Micro-sampling Equipment
- 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.

## 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 FC



Full cover body improves performance and safety.

Equipped with clear front doors and a drawer for holding tools.

We designed Axis Pro FC an electric system which can control all operations with computer control.

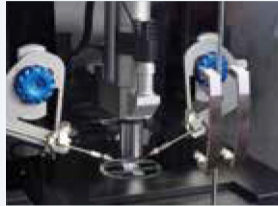
## Full cover all electric system

- ▶ Handles 5 $\mu$ m-size object with precise motion
- ▶ Full cover improves performance and safety
- ▶ Just move PC mouse after attaching sample
- ▶ Equipped with electric transfer stage
- ▶ Precise sample transfer by program control
- ▶ Equipped with a drawer for holding tools
- ▶ Easy setting with angle fixing arms

## Axis Pro FC exclusive specifications



Hold a handle case in storage space



Great view by clear panels



Equipped with convenient drawer



Equipped with electric sample stage (standard) X50:Y50mm

## Common specifications



High-performance electric zoom microscope



Angle fixing arm



Electric transfer stage



Windows® Software



Easy operation by software



PC mouse control

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

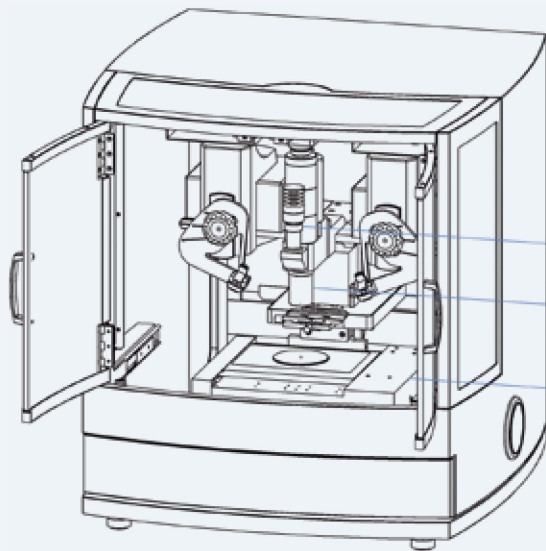
# Specifications

## Axis Pro

Axis Pro Electric motion control (Mouse operation)

Product structure	Setup example (Table is not included)	Axis Pro F/FC	Axis Pro SS
Mainbody	Body	Opening and shutting full cover (FC model)	Without cover
	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)		
PC	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	
Others	Power source	AC100V~240V 50/60HZsinglephase, electricity consumption 700W	
	Equipment space	Width 1500mm×length 700mm	Width 1400mm×length 700mm

## <Axis Pro FC> Full cover all electric system



Diagonal illumination  
adapter  
AP-SS (option)

Objective lens (1.5x)  
AP-ZC15 (option)

Electric XY stage  
(long stroke)  
AP-EXY-01

Simple polarization device  
(transmission)  
AP-PLD-SET2 (option)

# Axis Pro F

# Axis Pro



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
- ▶ Just move PC mouse after attaching sample
- ▶ Equipped with electric transfer stage
- ▶ Precise sample transfer by program control
- ▶ Easy setting with angle fixing arms

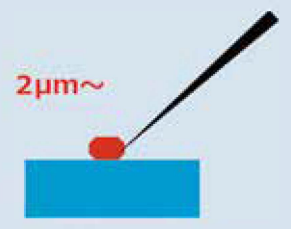


Most operations of manipulator can be remotely controlled by mouse, making it possible to install it within a glove box.

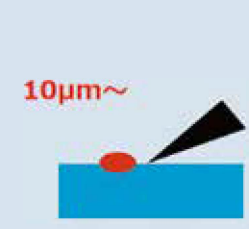
※Micro Support provides glove box feedthrough.

## Axis Pro Applications

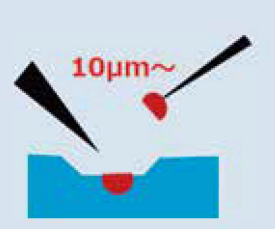
- Pick up substance on a surface



- Surface exposed
- Foreign substance removal



- Dig buried substance
- Detach and transfer



- Pick up substance in a tiny hole



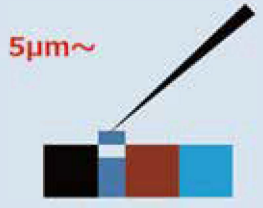
- Pick up and release pico-liter volumes of liquid



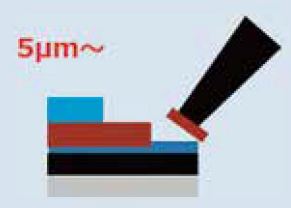
- Collect few  $\mu$ m-size substances



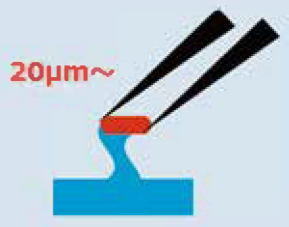
- Pick up material from one layer of a multilayer structure



- Cut to depth direction (degradation)



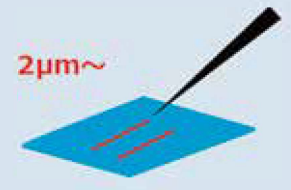
- Pick up substance in adhesive substrate



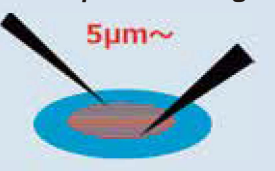
- FIB lift-out
- Orientation control and transfer



- Mark on hard material



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

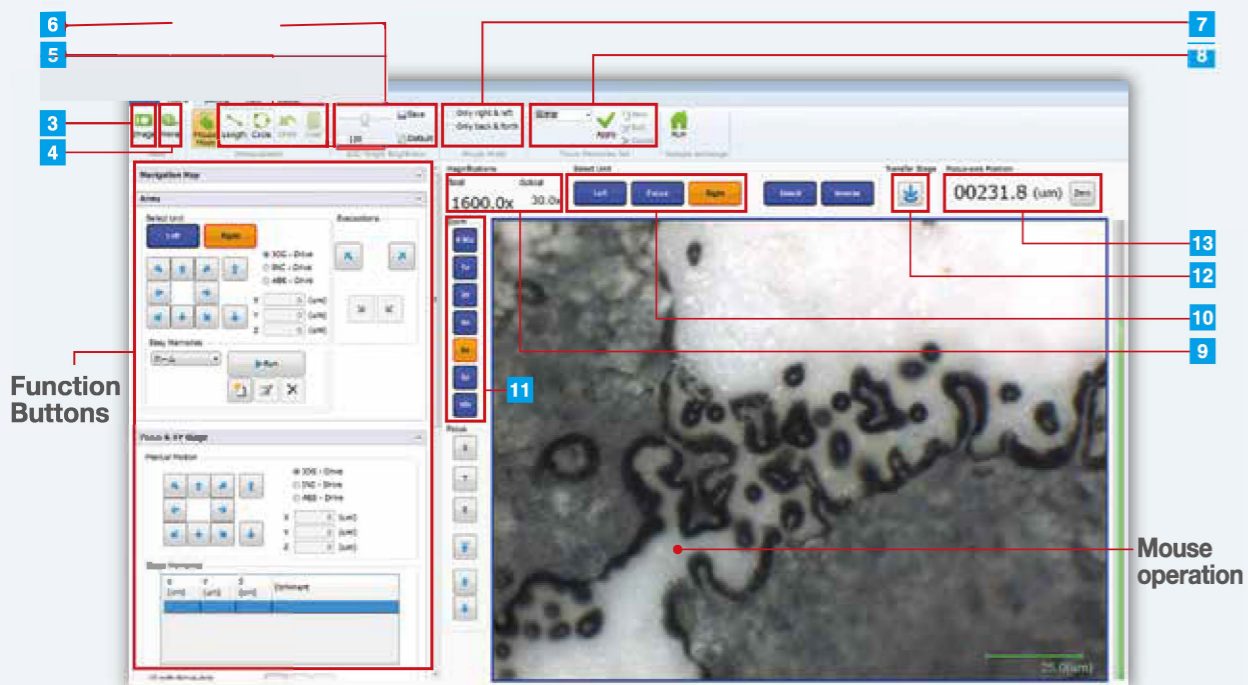


## Software main function

### [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]



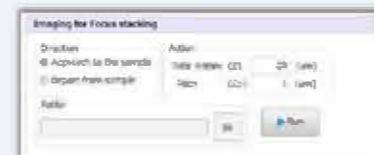
- Memorize stage positions in three dimensions
- Record and load positions
- Transfer between positions repeatedly
- Safety operation by automatic evacuation program

### [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