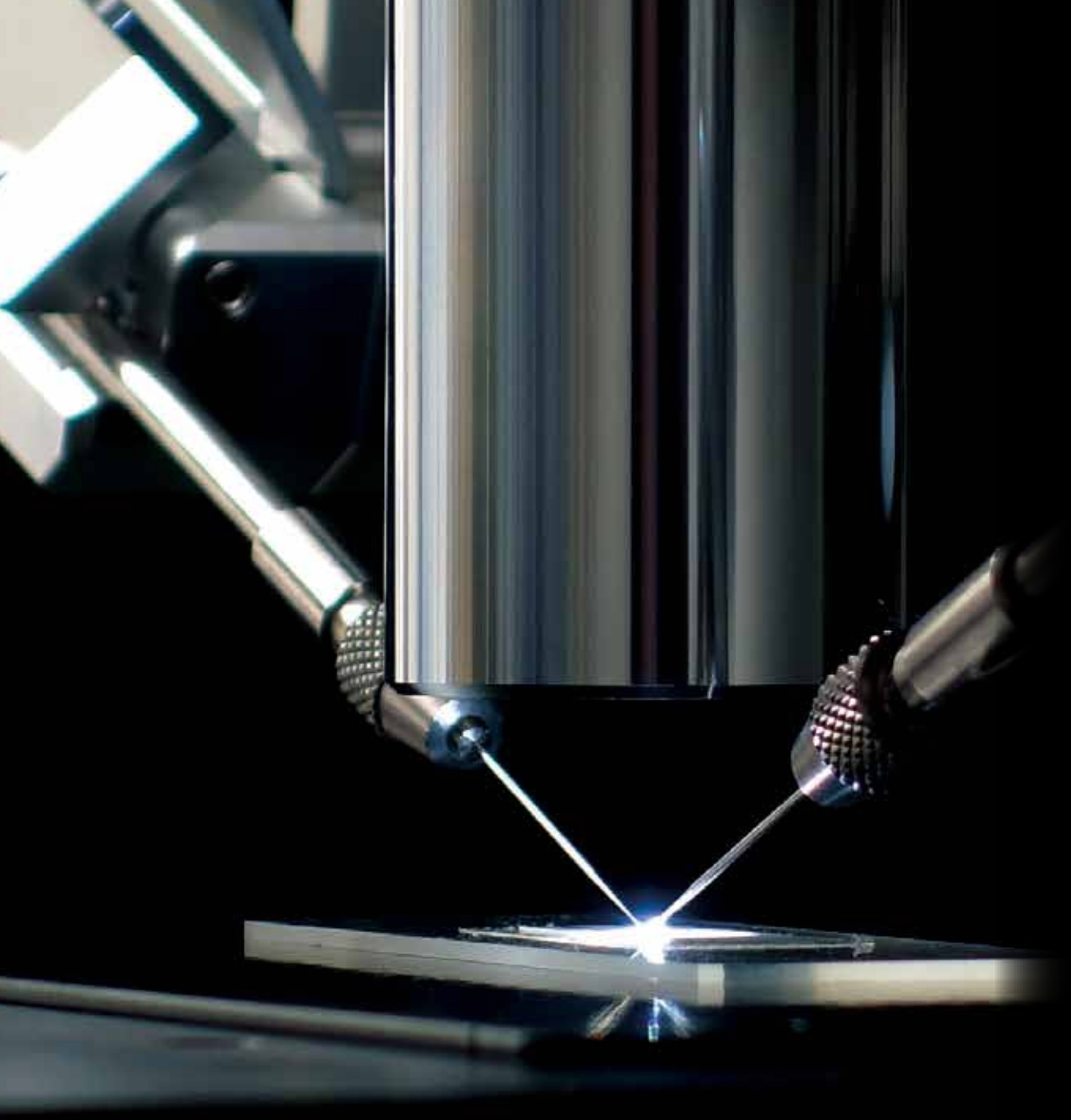
Precise Analysis Requires Precise Sampling

Product Catalog

Catalog No.5



Precise Analysis Requires Precise Sampling

With our microsampling instruments, we aim to aid our clients' research and operations by contributing to increased efficiency and precision.

In addition to providing our customers with adaptable, user-friendly hardware and software, we also provide extensive training support to meet the needs of customers who require additional assistance.

TABLE OF CONTENTS

Microscope-Integrated Manipulator System

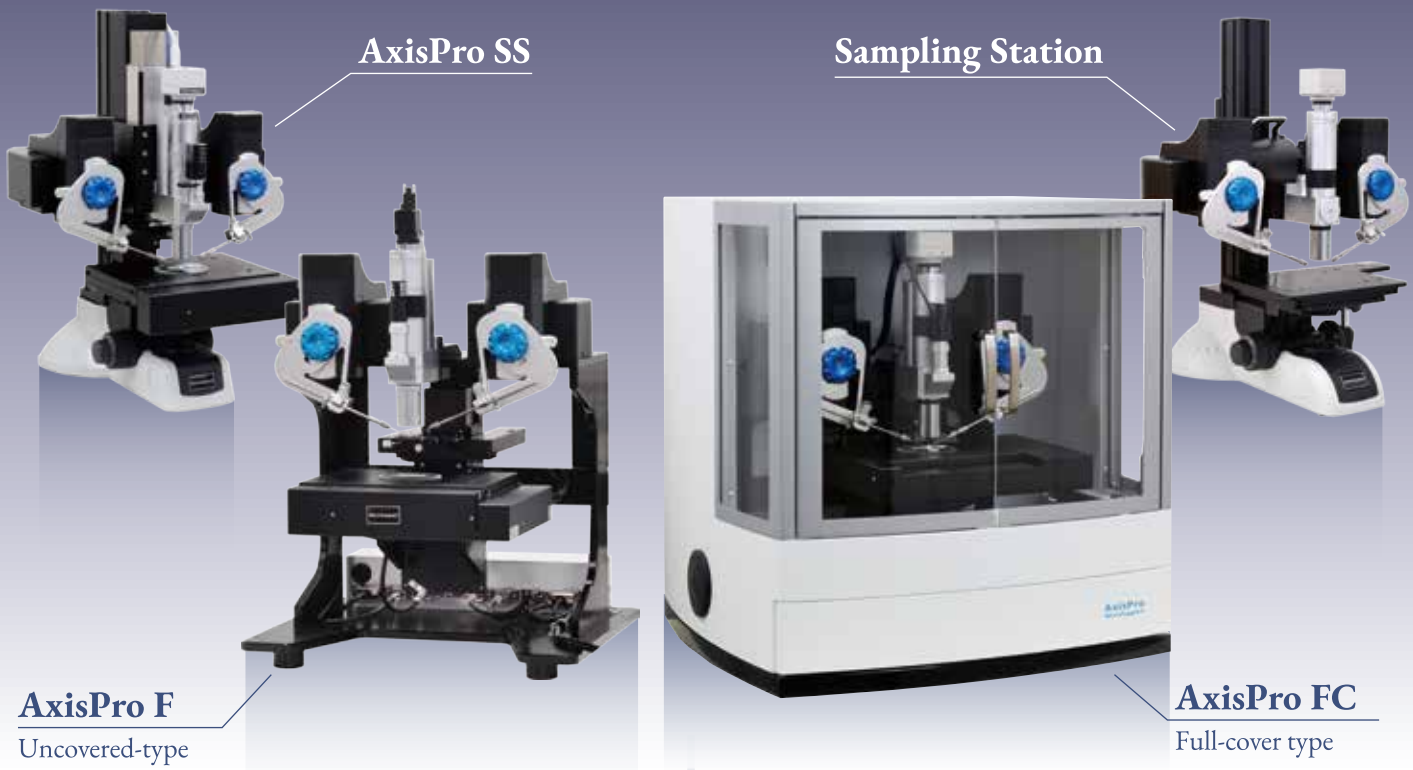
Electric Micromanipulator System

Our micromanipulators are microscope-integrated electric systems that enables precise control over delicate operations such as micro-substances retrieval and precise area processing through thorough motion control. It serves as an ideal solution for applications involving the handling of foreign particles that may infiltrate various manufacturing processes like electronic components, liquid crystal displays, OLED-related materials, semiconductors, pharmaceuticals, functional materials, and chemicals, as well as the analysis of minute crystals.

By seamlessly combining a microscope, a micromanipulator, micro-tools, and a stable environment, our micromanipulators guarantee world-class performance.

■ Product Overview

This system can be built with four different body types to suit your needs.



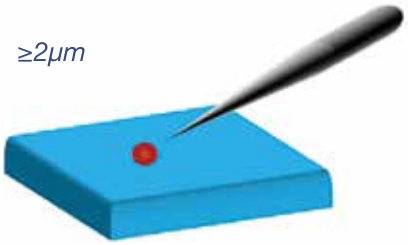
Control System

PC

Controller

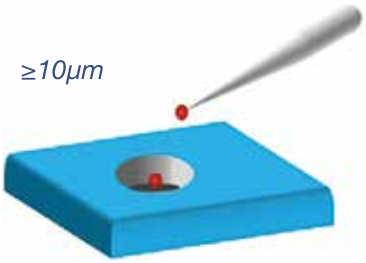
Our Micromanipulators Applications

≥2μm



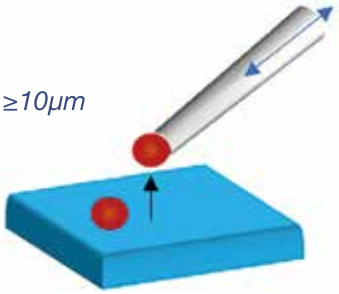
Removal of surface contaminants and fallen particles

≥10μm



Retrieving foreign particles from microscopic holes

≥10μm

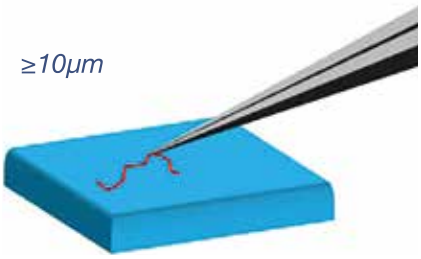


Handling using vacuum tweezers

≥2μm

Collecting pL liquid droplets (liquid isolation)

≥10μm

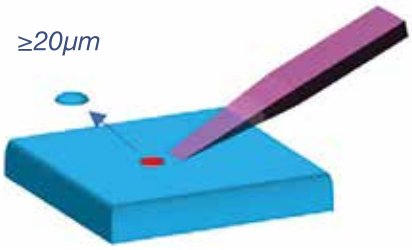


Retrieving contaminants within adhesive substances

≥50μm

Handling of microscopic substances

≥20μm



Micro-protrusions removal (surface removal, head removal)

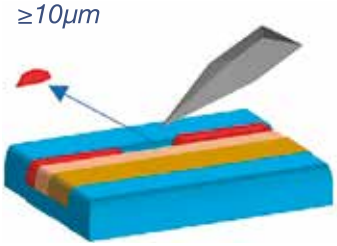
≥30μm

Cutting surfaces of embedded substances (surface removal, head retrieval)

≥30μm

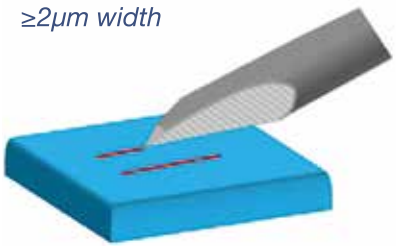
Deep excavation
Cutting of embedded objects (surface removal, head removal)

≥10μm



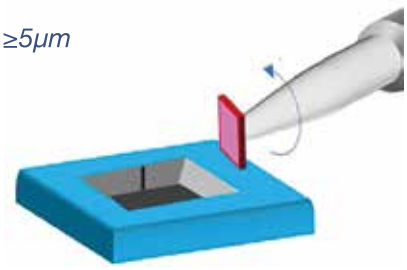
Local removal of layered samples (isolation)

≥2μm width



Cutting and opening
Fine marking

≥5μm



Collecting films processed by FIB (with post-collection orientation control)

AxisPro Series

AxisPro is an advanced sampling equipment that enables precise motion control for collecting μm-size substances and processing samples within a specific area.

Significant Features of the AxisPro

- **All-in-one type Micromanipulating System**
  AxisPro combines an electric zoom microscope, micromanipulator, controller, PC, display, and others.
- **Seamless PC-mouse Navigation**
  PC mouse controls various operations, such as sample focusing and object manipulation.
  Manual contact is unnecessary once the sample is placed in the sample stage.
- **Various Tools**
  Various tools are available based on sampling requirements.

■ Operations that AxisPro Facilitates

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

■ Major Target Industries

R&D Departments	Chemical Product
Liquid Crystal Display	Automotive
Semiconductor	Food/Beverage
Functional materials	Universities/Institutes
Pharmaceuticals	Polymer/Oil

■ Attachable Tools

Tungsten probes (all items)	Vacuum absorption tool set	MillingPro
Tungsten carbide tools (all items)	Micro-injector	Electrode Holder
Micro-knives (all items)	Micro-scissors	
Ruby knives (all items)	Micro-tweezer tool set	

Note : Other tools are also available
**please inquire*

Product History of AxisPro Series

►*The first machine release*

1st Generation

AxisPro

2006
WindowsXP

AxisPro

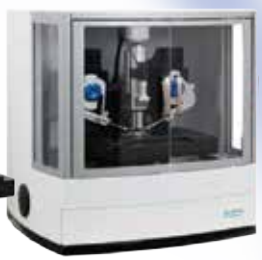
2010
WindowsXP

2nd Generation

►*APSS/APFC release*

3rd Generation

AxisPro SS



AxisPro FC

2013
Windows7

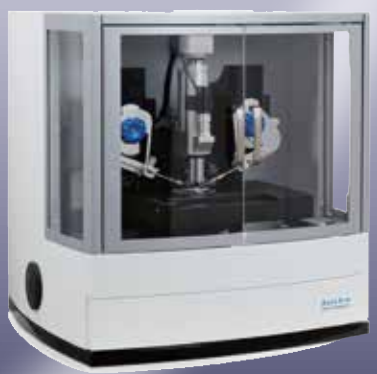
►*APF & Reduced function edition release*

4th Generation

Sampling Station

AxisPro SS

AxisPro FC



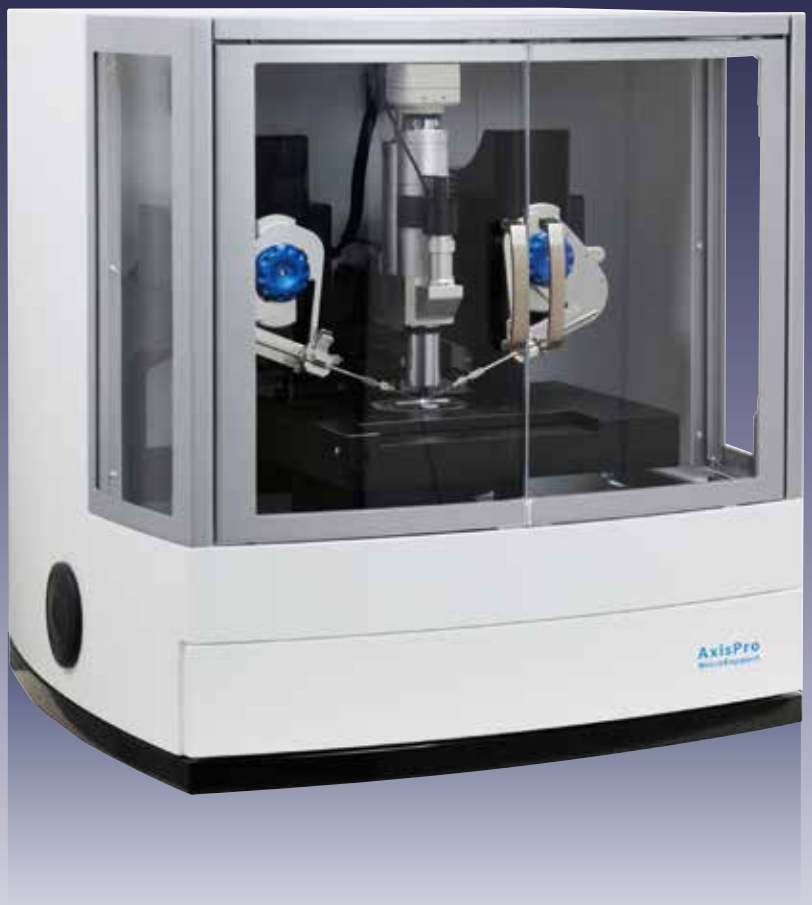
AxisPro F

2023
Windows10

AxisPro F-Euro Model coming soon...

AxisPro FC

Fully-covered All Electric System



A high level of safety and operability is achieved by implementing a full-cover body. Strength and visibility are ensured by highly transparent special materials in the large opening of the front door.

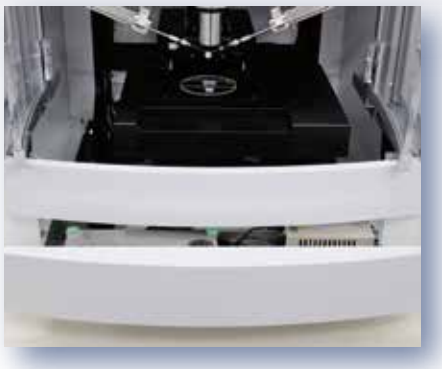
After the sample is placed, work can be conducted with the door closed, minimizing the influence of factors such as human motion or atmospheric changes during operations, resulting in a stable working environment.

The opening is designed to retract internally, considering operations when the door is open.

■ AxisPro FC Exclusive Features

Holds a handle case in storage space

Clear transparent plastic door panels



Convenient drawer for tools

Note : While the AxisPro FC boasts these distinctive attributes, all other facets and functionalities remain consistent with the AxisPro F.

■ Functions

Stable sampling even for 5μm substances.

Improved safety, operability, and precision with full-cover equipment. (only for AxisPro FC)

Once the sample is placed, simply move the PC mouse.

Comes standard with an electric transfer second stage.

Program-controlled transfer of collected samples with no room for error.

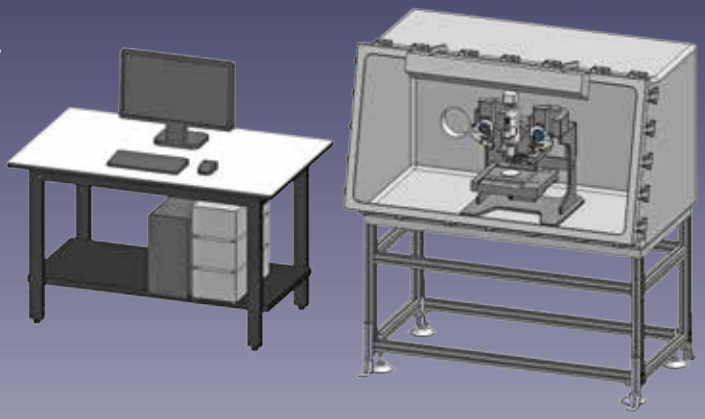
Built-in storage space for safe accessory storage.

Simplified setup with the use of 3-angle fixed arms.

AxisPro F All Electric System Without Cover

Most operations can be remotely done using a PC-mouse, making it possible for this micromanipulator to be installed inside a glovebox.

Note : MicroSupport provides glovebox feedthrough



AxisPro FC without cover.
Suitable for sampling inside a glovebox.

AxisPro SS

Custom-designed Electric System

Adaptable build-up system that allows for easy customizations – for taller workpieces, including height extensions.

Offers flexibility in arm selection (left or right), includes a transfer stage, and supports design changes for a 12-inch stage.

We will propose the optimal configuration to meet your budget and objectives.

Functions

Stable sampling even for 5μm objects.

Capable of building systems to meet various needs.

Once the sample is set up, you only need to move the PC mouse.

Option to select an electric transfer second stage.

Fail-safe program-controlled sample transfers.

Flexible design capable of accommodating various customizations.

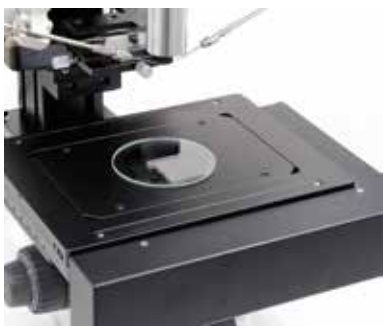
Simplified setup with the use of 3-angle fixed arms.

AxisPro SS Exclusive Features

Single-arm selection

System configuration for special sample forms/shapes

Adjustable stage height for varying sample sizes



Electric Sample Stage (standard) stroke : X100mm, Y50mm

Sampling Station

Built on the AxisPro SS, it maintains core performance while reducing costs.

The microscope's zoom and arm operations adhere to the electric specifications of the APSS.

Mechanical adjustments using a coarse and fine dial.

Recommended for users with limited microscope experience or infrequent usage.

Features and Functions

A system designed for cost-effectiveness

Ensures stable sampling even for substances of ~5μm.

Allows for adjustable system configurations to meet various needs.

The desired operation is achieved through the PC mouse only.

Features a flexible design capable of accommodating various customizations.

Easy/simple setup with the use of 3-angle fixed arms.

Sampling Station Special Specifications

Accommodates samples with height, by Z-axis adjustment of the sample stage unit

Height adjustable electric microscope: 4 positions

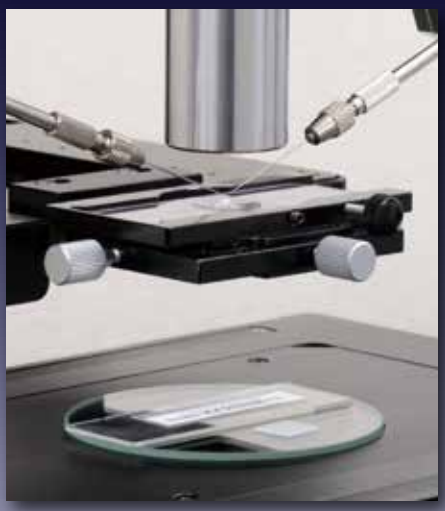
Possible to have one arm only

Possible to select electric sample stage (stroke of 100x50mm)

AxisPro Series Common Specifications

High-Performance Microscope
Motorized Zoom
Motorized Focus

Motorized XYZ Arm
3-Angle Fixed Arm



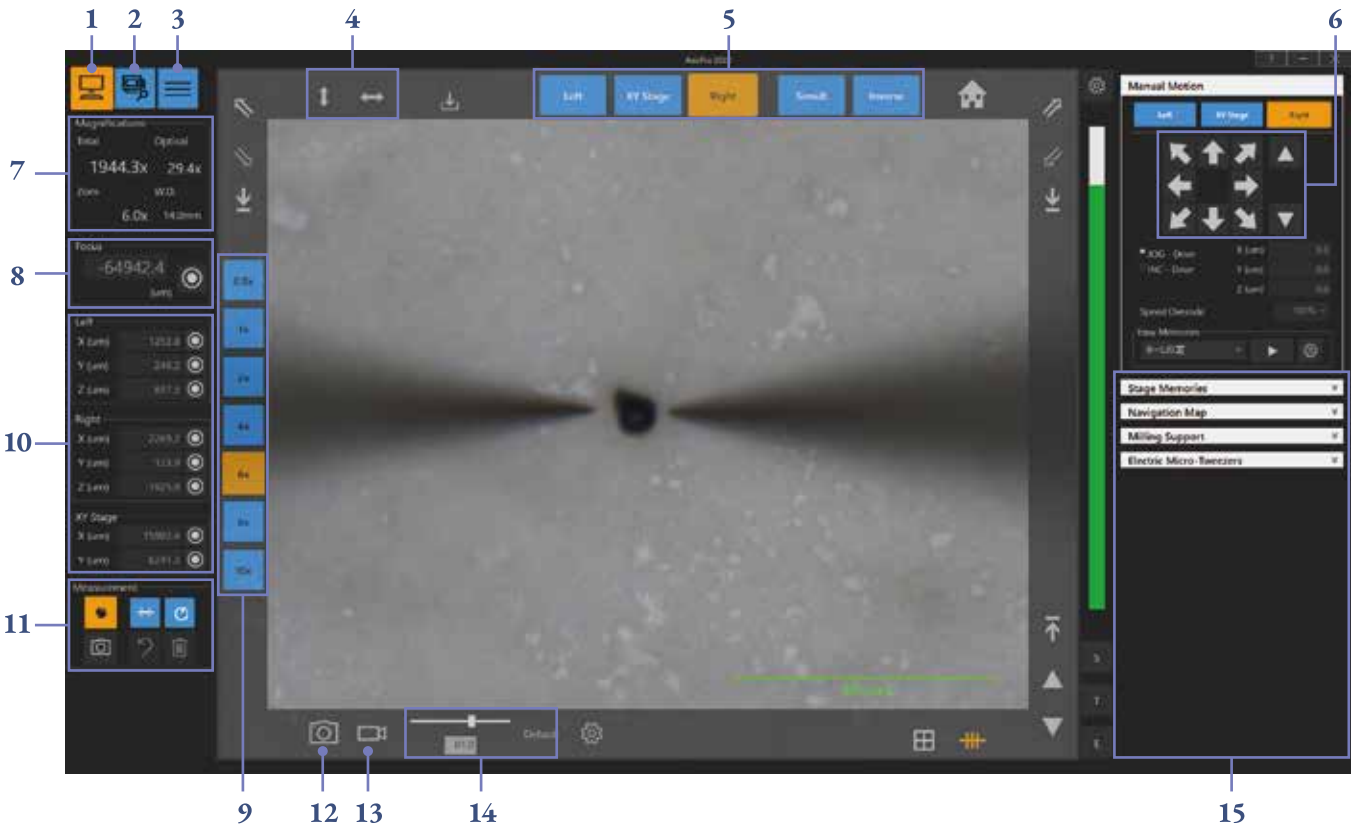
Dedicated Motorized Transfer Stage

Display screen and mouse-controlled operations

Controller

Simplified software operation

AxisPro Software Main Function



1 Main View ····· Displays the primary screen for regular operations.

2 Image Viewer ····· Switch to a window where you can review captured images and perform measurements.

3 Settings ····· Access the screen for configuring parameters.

4 Marking Mode ····· Enables straight-line movements by locking the axis.

5 Motion Unit Selection ····· Switch between the microscope and left/right arms.

6 Motion Control Window ····· Use for linear movement in a specific direction.

7 Magnification Monitor ····· Easily view overall magnification, optical zoom, zoom ratio, and working distance.

8 Depth/Height Monitor ····· Precisely measure height in 0.1μm increments using the focus axis.

9 Microscope Magnification Change ····· Smoothly switch zoom levels with a simple click.

10 Coordinate Monitor ····· Monitor movement in real-time by setting a zero reset at any position.

11 Dimension Measurement ····· Measure lengths between two points and arc diameters among three points.

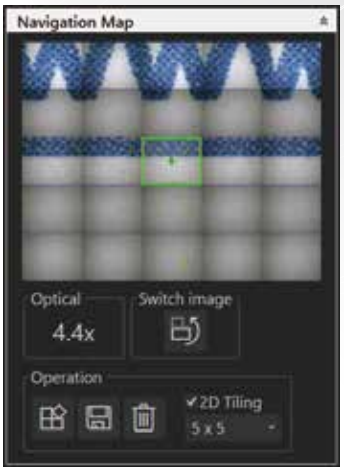
12 Image Capture ····· Save displayed images, including the scale bar.

13 Video Capture ····· Real-time capture in MP4 format.

14 Camera Exposure Adjustment ····· Adjust for optimal visibility by shifting from automatic metering to over/under exposure.

15 Function Selection Area ····· Set and execute automated operation programs and more.

Updated Software Features for Better User Experience

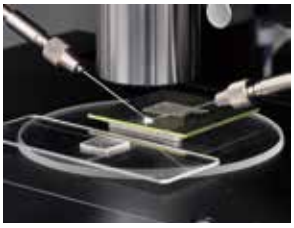


Navigation Map

Used in combination with an electric XY stage.

Equipped with a tiling feature that allows for wide-range image capture.

The tiling window can be displayed on a separate enlarged screen.



Stage Position Memory

Used in conjunction with an electric XY stage.

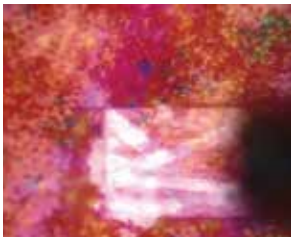
Freely memorize XYZ coordinates at any position on the sample stage.

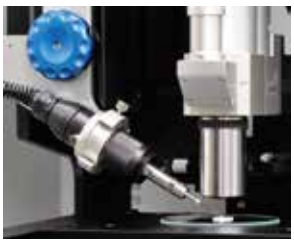
Can repeatedly transfer with the push of a button.

By saving the coordinates, recalling and reproducing the position is enabled.

Inputting comments makes it visually easy to understand.

Safe movement with an automatic evacuation program, even between points of different heights.





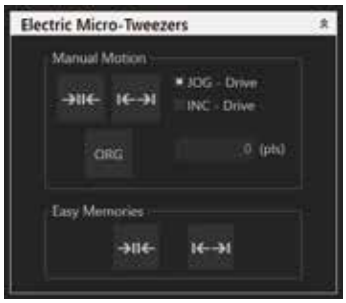
Milling Support

Semi-automatic cutting of samples is possible when used with the MillingPro.

By utilizing the 3D mode, control cutting at any desired depth is enabled.

Precision cutting operations can be freely performed with the 1D mode and directional settings.

The operation speed can be finely adjusted with a slider while monitoring the situation.



Electric Micro-tweezers

Equipped with software to operate electric micro-tweezers.

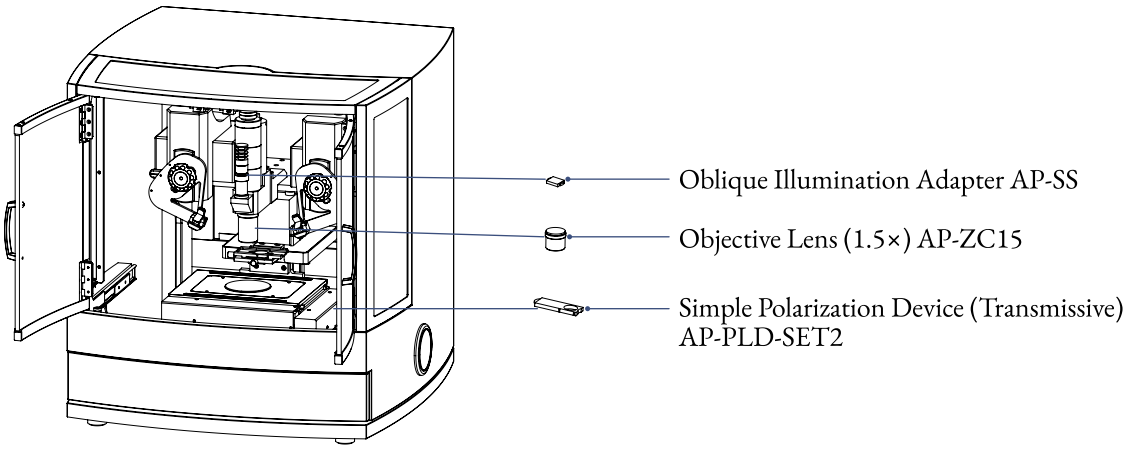
Allows for setting the opening and closing speed.

Repetitive part gripping is simplified by memorizing the corresponding open and closed positions.

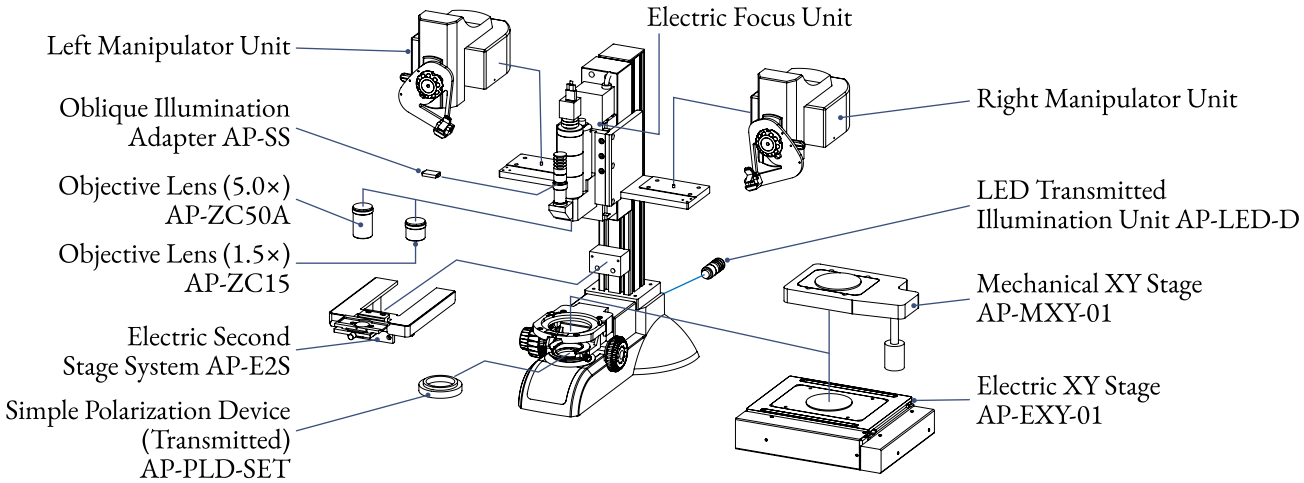
Tweezers can be easily attached and detached.

AxisPro/Sampling Station System Diagram

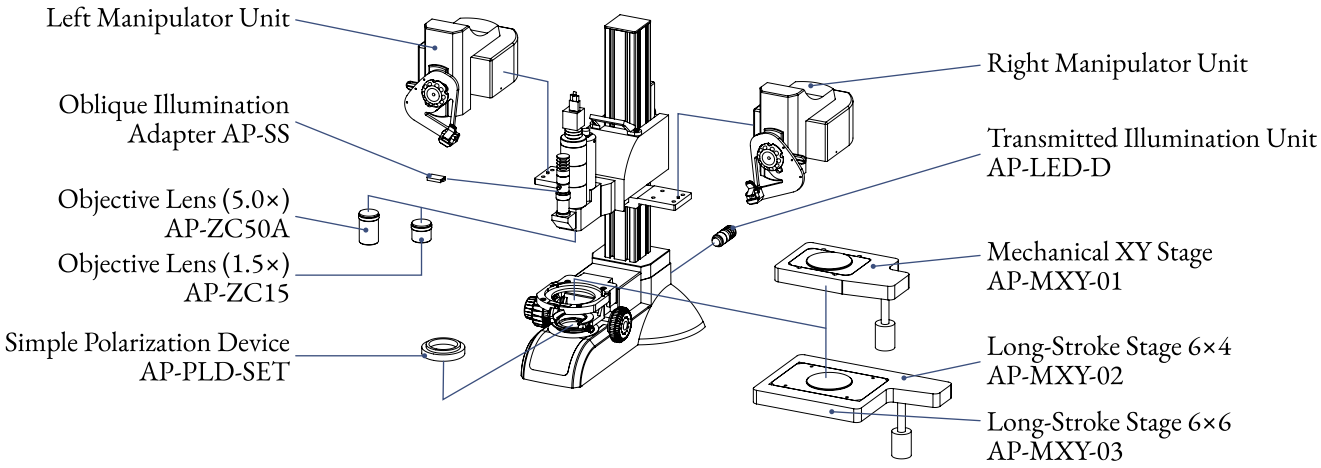
[AxisPro FC] Full Cover All Electric System



[AxisPro SS] Custom-designed Electric System

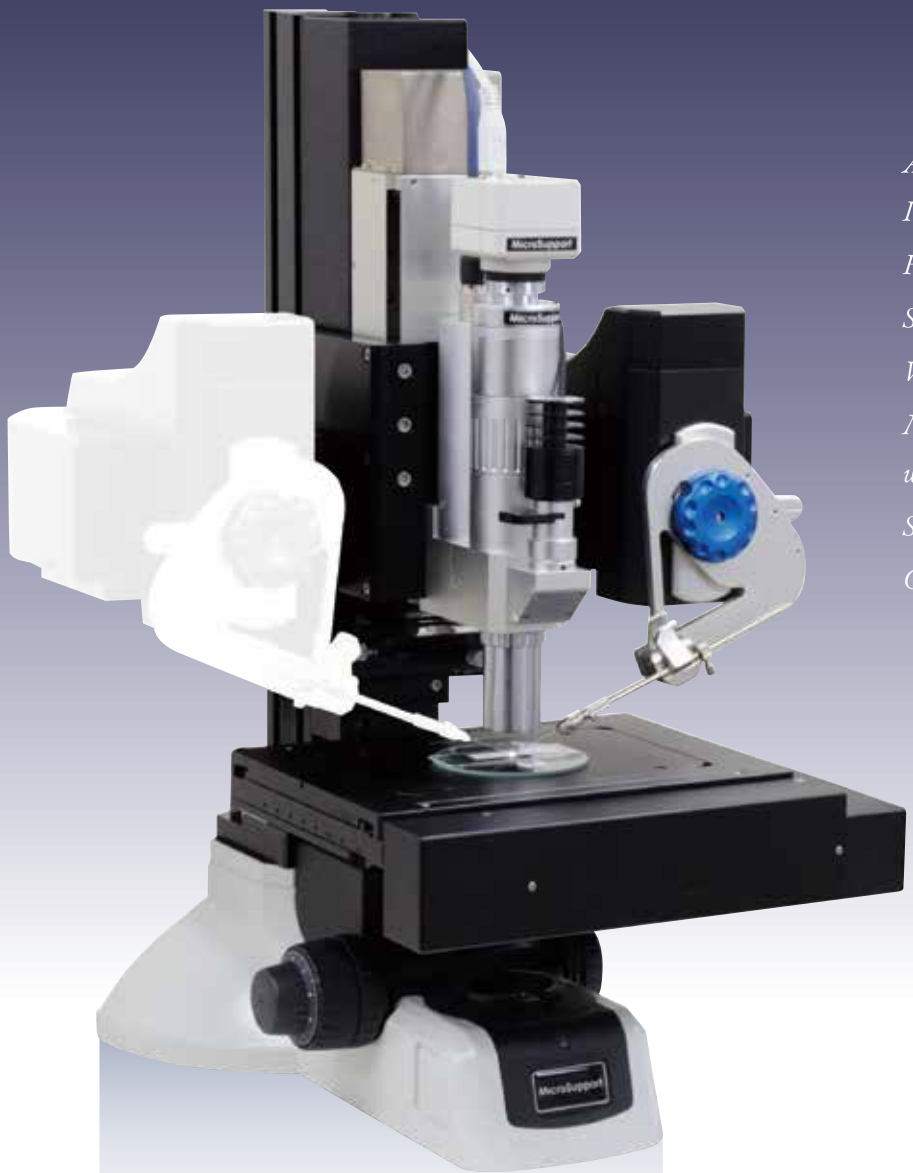


Sampling Station



CollectionPro & CollectionPro AI

Automation and AI-enabled Identification for Sorting, Collection, and Integration of Microscopic Objects



Automated selection of target samples through Image Analysis

Fast scanning at 40mm²/min.

Screening of selected samples

View screening results in list format

Micro-pipette absorption for sample collection with transfer to accumulation area

Suction nozzles in sizes from 20-100um

CSV report export capability

Functions

Lab automation system that performs automatic separation and sorting using a micromanipulator for screening results using image analysis. Furthermore, by training it with reference data, we have established precise identification and separation techniques using AI (machine learning). This contributes to the automation of screening and aggregation tasks that were previously carried out manually.

Note : A detailed leaflet is available

Configuration

■ Electric Microscope Unit

Optical magnification: x 1.4-15 / Working distance: 45.6mm

Motorized zoom / Motorized XY stage (100×50mm)

Motorized focus: 70mm stroke

LED illumination for reflection and transmission, with optional ring light

■ Control

Dedicated Software: CollectionPro/CollectionPro AI

■ Sample Collection Function (CollectionPro)

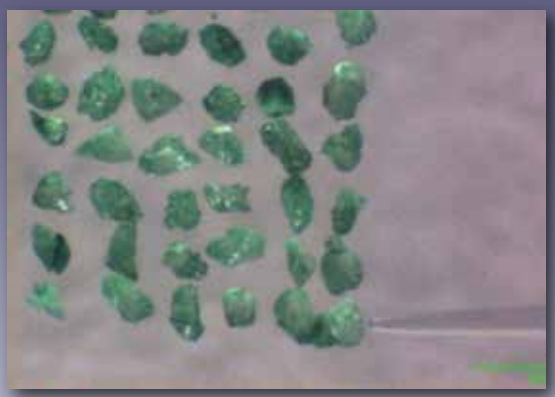
Electric Micromanipulator (Single-Handed)
*Stroke: 20×20×30mm

Suction Tool
*Choice of Micro-Pipette Inner Diameter: 20–100μm

Vacuum Pump with Electromagnetic Valve

Collection Process Overview

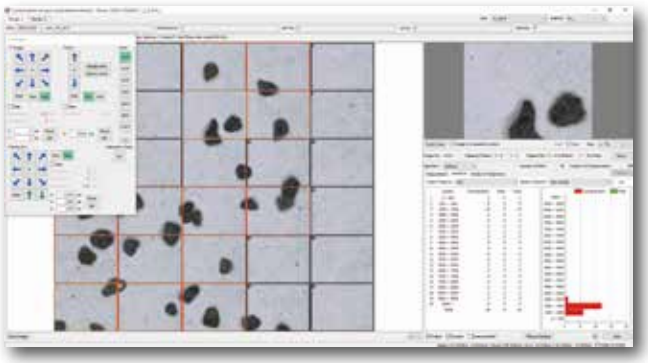
Software Controller



Sorted Particles

Mapping Setting

Sampling



Mapping Analysis

Selection

QuickPro Independent Micromanipulator

Features and Functions

A separate micromanipulator arm that can be added to any microscope, essentially turning it into a micromanipulator.

The arm motions of QuickPro simulate as AxisPro, ensuring fine, precise, and gentle microsampling.

The touch panel interface manages arm movement and enables activity programming. You can save up to 3 positions, which is incredibly useful for repetitive tasks.

This system offers the flexibility to choose between the right arm, left arm, or both, and it can be expanded in the future to accommodate budget and usage requirements.

Configuration	Model Number
Right Arm Set	QP-3RH
Left Arm Set	QP-3LH
Both Arms Set	QP-3RLH
Both Arms + Electric XY Stage Set	QP-3RLH-EXY

User selectable combinations of QuickPro depending on sampling situations

Optical Stereo Microscope Left-Right Set

Zoom Microscope Left-Hand Set

Wing Attachment for Metal Microscope

Left-Right Set for Probing

4-Arm Set for Probing

PC control is possible instead of touchscreen interface

Note : QuickPro installation with the inverted microscope is also possible depending on the type of inverted microscope used.

Customizations and Product Combinations

At MicroSupport, we have continuously enhanced our micromanipulators since our establishment in 2006. Drawing from our extensive experience in product refinement and customer relationships, we offer a variety of customized models and product combination models designed to meet our customers' unique needs.

Please consult with our sales team to explore options for configuring a system that matches your requirements. Some limitations may apply when the customized models are subject to additional local approvals.

AxisPro for Glovebox *[Customized]*

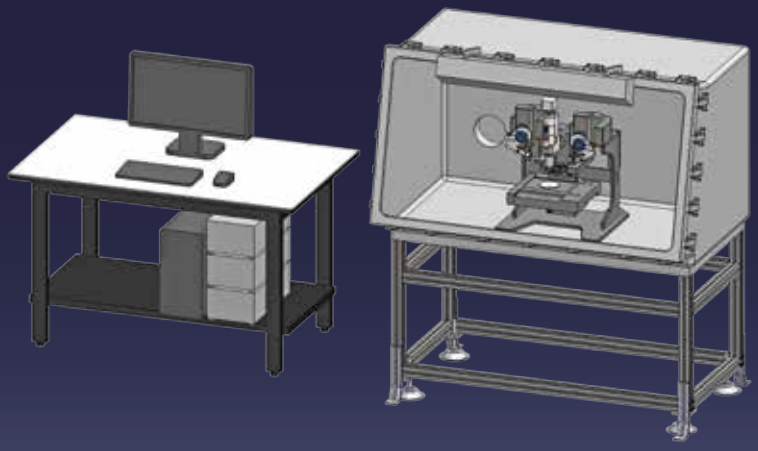
Optimized for installation inside gloveboxes

A mouse can remotely control most manipulator functions, allowing it to be installed in a glove box.

Eliminate contamination concerns.

Navigation functions enable direct transfer to the designated point with a mouse click while confirming the locations of all substances.

Hermetic connectors may be arranged. Please contact us for more information.



■ Setup Inclusion

AxisPro
Electric XY stage
Feedthrough

AxisPro for Large Stage *[Customized]*

Floor-standing model suitable for large-diameter workpieces

Adopted a floor-standing base with a built-in vibration isolation unit.

The 20-cm electric XY stage can be used stably at full stroke.

Designed to fit your workpiece.

■ Setup Inclusion

AxisPro basic unit

Floor-standing large base with built-in vibration isolation

20-cm electric stage

Large Stage

Vibration Isolation System

AxisPro for Tall Work Specification *[Customized]*

Tabletop specification designed to accommodate tall samples

A custom example designed for large workpieces.
Ideal when the target foreign substance is in μm-scale but resides in/on a large workpiece that cannot be disassembled.
Various combinations are possible, including mechanisms for adjusting the workpiece's height and long-stroke stages.
We can propose a custom configuration tailored to your target work.

■ Package Contents

AxisPro basic unit
Height-adjustable custom base
20-cm electric stage

Normal Position

Highest Position

AxisPro for Probing Station *[Customized]*

Achieves precise positioning with a 0.1μm step in a high-magnification environment of x6000

Mouse control effortlessly enables contact with areas as small as 1μm.
X, Y, and Z movement and zoom function of the microscope can easily find targets.
Standard with two probe arms but can be customized with three or more arms.

■ Setup Inclusion

AxisPro basic unit
Microscope XY movement stage
Probe electrode holder
Dedicated software
Active vibration isolation table

QuickPro for Probing *[Product Combination]*

Standalone probing for high-precision electric positioning

A standalone electric manipulator with an enhanced ability than a mechanical positioner.

Equipped with the same control system as the QuickPro, enabling smooth operation with PC- mouse control.

Capable of precise positioning in increments of 0.1μm.

Supports control of up to four terminals simultaneously.

*Refer to P.34 for available electrode holders.

■ Package Contents

QuickPro with a touchscreen for operation
Electrode holders

Installation example
for 4-terminal measurements

AxisPro for Semi-automated Milling *[Product Combination]*

Adding milling capability to AxisPro owners

AxisPro software's automatic function efficiently manages milling area and depth control.

With the depth measurement function, you can accurately identify the position of substances embedded within diverse materials.

The majority of operations can be freely controlled by the mouse while navigating on a computer display.

Mouse control effortlessly enables interaction with areas as small as 1μm.

■ Setup Inclusion

AxisPro
Electric XY stage
MIL-1

AxisPro for FIB Foil lift-out *[Product Combination]*

Easy ex-situ foil transfer to TEM meshes/grids after FIB process

AxisPro enables easy collection and transfer of targeted foils to meshes or grids.

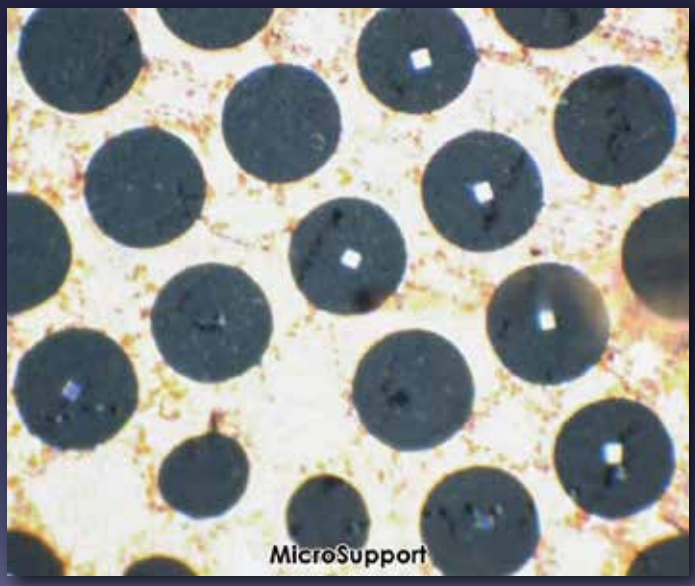
Visual confirmation are possible at each stage, even for foils around 10μm in size.

HPR facilitates angle adjustment before foil placement.

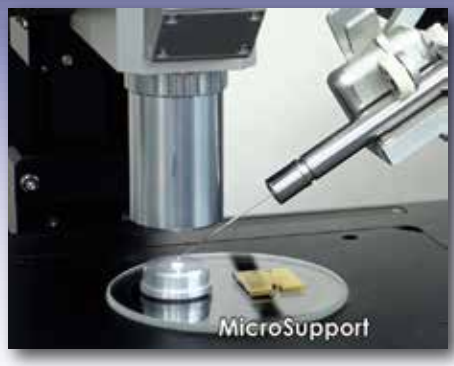
Electric HPR allows for rotation control directly through the AxisPro software.

Compact electric rotation stage integrated into the main stage simplifies sample collection and positioning.

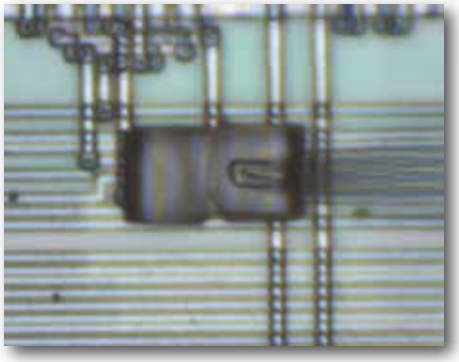
Rotation degree of the electric rotation stage is controlled via the AxisPro software.

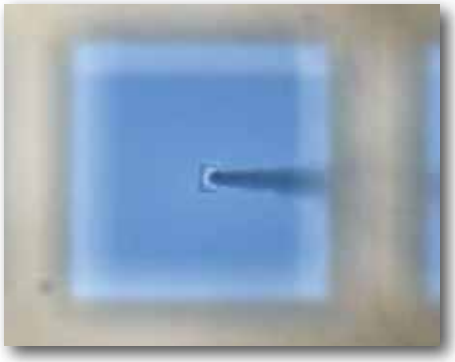


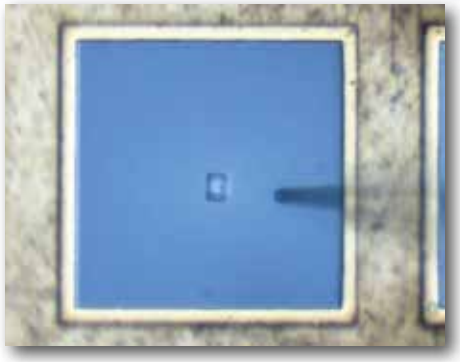
Foil transfer



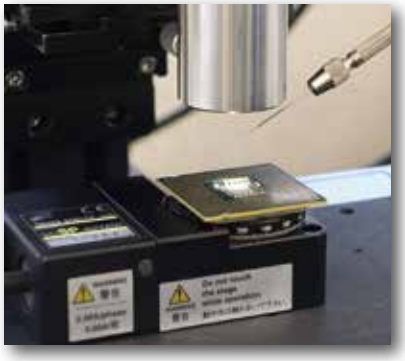
Angle adjustment

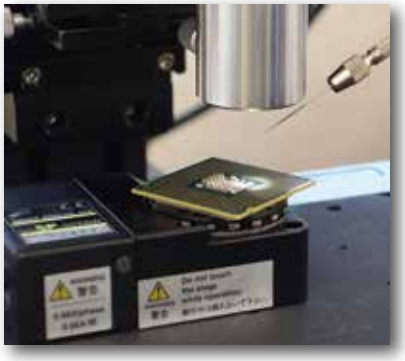






Compact electric rotation stage on the main stage





Setup Inclusion

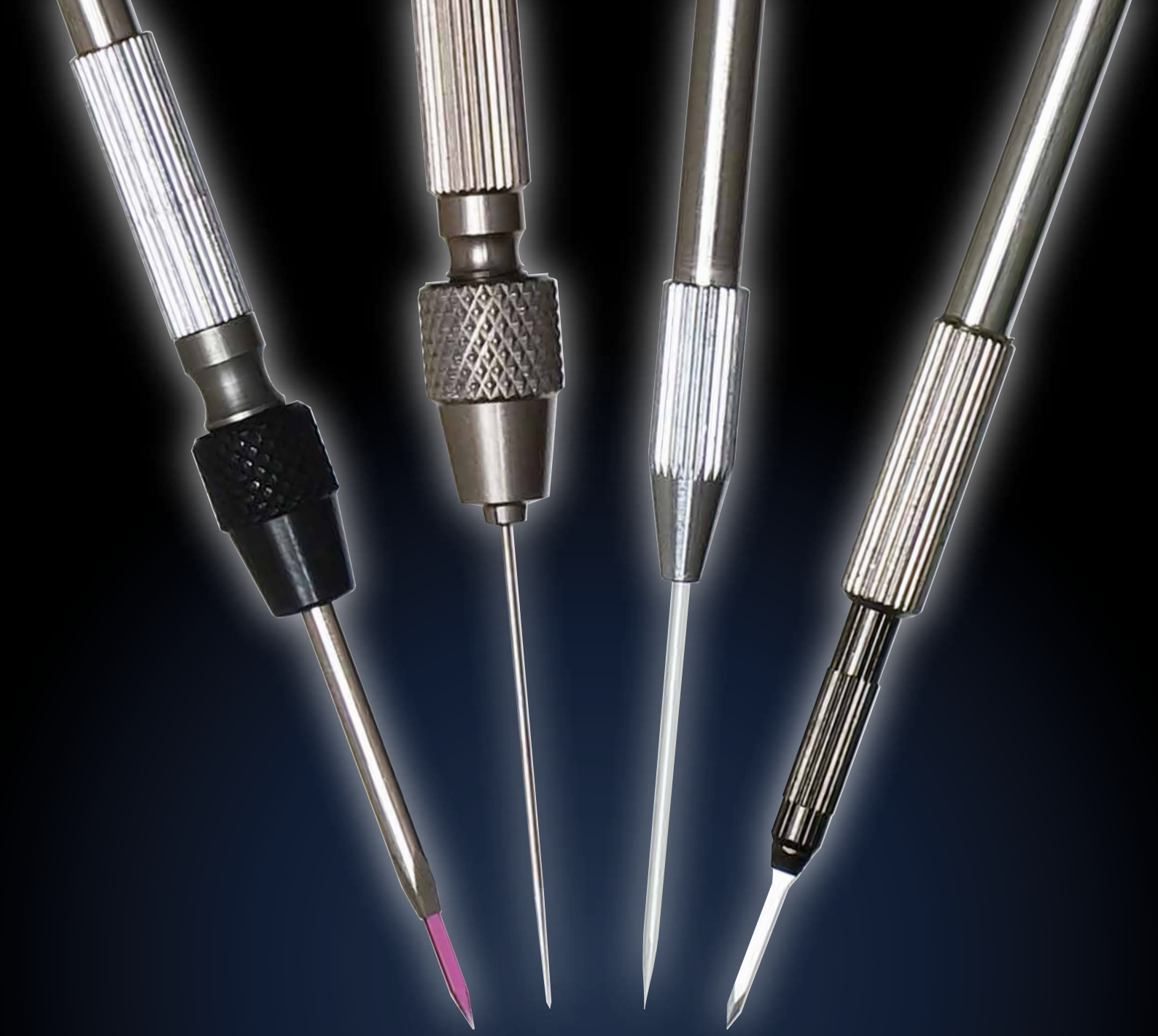
AxisPro series

HPR series: High Precision Rotator

MST series: Glass Sampling Probes

Electric Rotation Stage

MICRO-TOOLS & ACCESSORIES



Micro-tools

Optimized for Precise Work Under Microscope Observation

In recent years, the downsizing of precision products has led to a severe issue of defects caused by extremely fine foreign particles that can be introduced during manufacturing. Identifying and analyzing these minute foreign particles can help pinpoint their sources and pathways of contamination.

Our sampling tools are specially designed for handling μm-sized objects and are particularly optimized for use with micromanipulators. We offer a variety of micro-tools to accommodate different sampling methods depending on the morphology and condition of the target substance.

Tungsten Probe *[metal probe]*

Structure/s

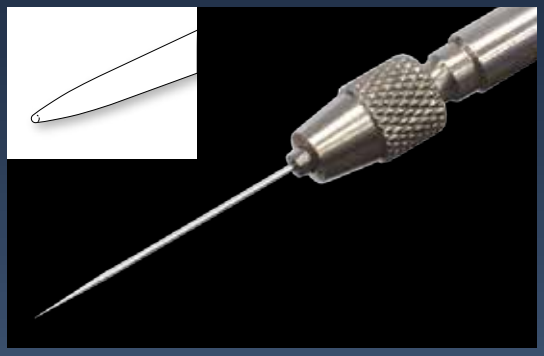
Needle-shaped

Application/s

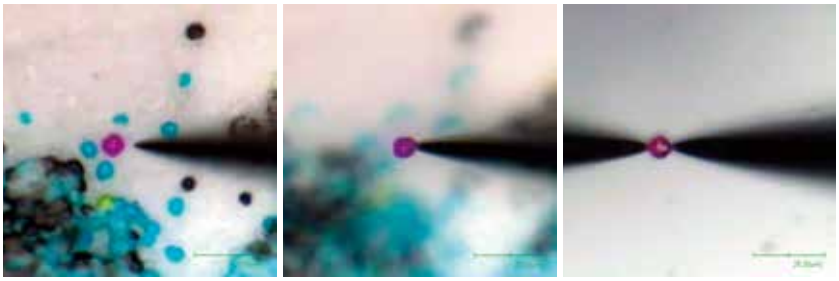
Picking up, transferring, poking, rubbing, shaving, peeling, cutting

Tool selection notes

Select smaller or half-size tips than the sample



Pickup and delivery of 5µm particles



Line Up

Model Number	Quantity	Tip Size
TP-0002	10	0.2µm
TP-0005	25	0.5µm
TP-001		1µm
TP-005		5µm
TP-010		10µm
TP-030		30µm

Tungsten Carbide *[hard metal tools]*

Structure/s

Flathead screwdriver-shaped
Knife-edge-shaped
Probe-shaped
Fork-shaped

Application/s

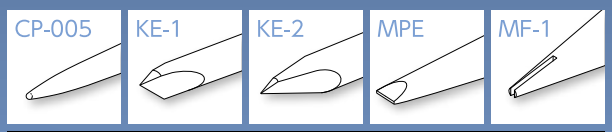
Transferring, poking, rubbing, shaving, peeling, cutting, crushing/compressing, transferring

Tool selection notes

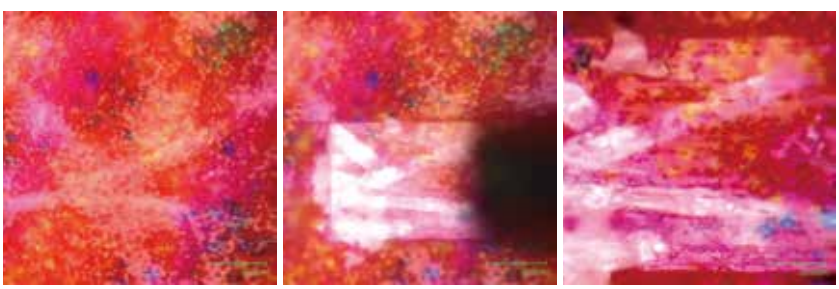
Most suitable for excision of exposed substances in hard materials

Probes are recommended for hard resin, crystal, soft material, surface, etc

The KE series is recommended for excision from soft material



Plane cutting of 10µm cellulose fiber



Line Up

Model Number	Quantity	Tip Size
CP-005	5	Probe 5µm
MPE-1	3	Peeler 50µm
MPE-2	3	Peeler 100µm
MPE-4	3	Peeler 200µm
KE-1	3	Knife edge
KE-2	3	Knife edge S
MF-1	2	Fork 30µm

Flex Probe *[resin tool]*

Structure/s

Needle-shaped

Application/s

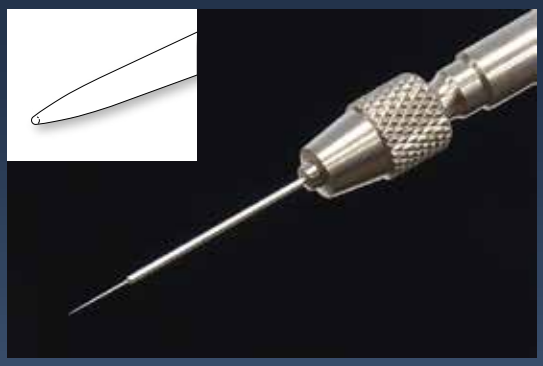
Removing and collecting foreign substances from small holes and slits

Tool selection notes

Made of PBT

Effective when avoiding damaging the substrate

Extracting a foreign substance through



Line Up		
Model Number	Quantity	Tip Size
FP-1	5	5μm

Sampling Probe *[glass tools]*

Structure/s

Needle-shaped tools

Probes made of glass

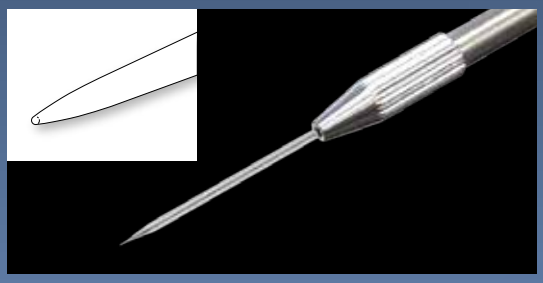
Application/s

FIB thin foil lift-out

Tool selection notes

Effective when using a very delicate sample

FIB thin foil lift-out



Line Up		
Model Number	Quantity	Tip Size
MST-002	10	2μm
MST-005		5μm
MST-007		7μm

Micro-press Tool *[glass tool]*

Structure/s

ellipse(shaved surface)

Application/s

Apply silver paste or adhesives at specific points

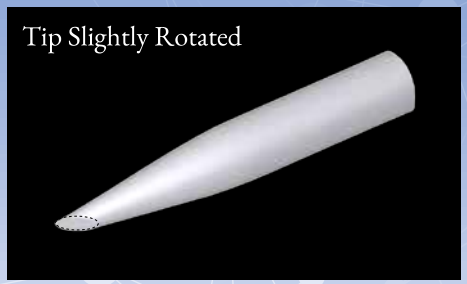
Pressing to make a thinner sample or increase the area

Tool selection notes

Effective to place high-viscosity liquid, e.g., high-viscosity silver paste, and adhesives that are not fast-drying

Pressing substances

Epoxy resin adhesive application



Micro-pipette *[glass tool]*

Structure/s

Capillary-shaped tool

Application/s

Solid absorption with the vacuum absorption tool set
Liquid extraction and release with Micro-injector

Tool selection notes

For solid samples, ensure the particle size is larger than the tool's inner diameter

Solid absorption and liquid extraction

Line Up

Model Number	Quantity	Tip Size
MP-001	10	1μm
MP-005		5μm
MP-010		10μm
MP-020		20μm
MP-050		50μm

Micro-knife *[SUS]*

Structure/s

Double-bevel Single-edged blade or Spear-point blade

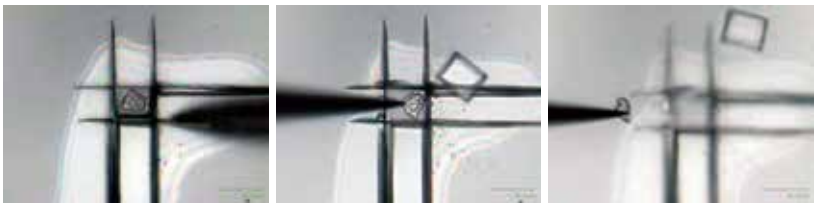
Application/s

Cutting, disconnecting, rubbing, engraving, picking up, peeling and trimming

Tool selection notes

Choose a double-bevel single-edged blade for vertical use
Select a double-edged blade for engraving materials like resin

Extraction of a 20μm foreign substance



Line Up

Model Number	Quantity	Tip Size
MK-S15	5	Double-bevel Single-edged 15°
MK-S30		Double-bevel Single-edged 30°
MK-D		Spear-point blade

Micro-knife *[ruby tools]*

Structure/s

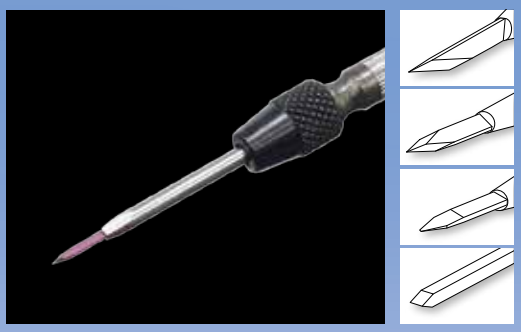
Designed knife edges
Flathead screwdriver-shaped

Application/s

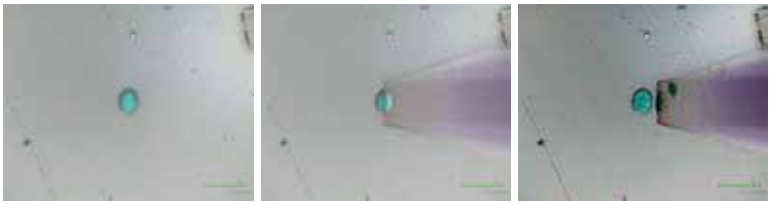
Cutting, disconnecting, rubbing, engraving, picking up and peeling

Tool selection notes

Double-bevel Single-edged blade recommended for vertical cutting
Spear-point blade preferred for engraving materials like resin
Ruby knife's transparency gives clear visibility of sample conditions under it



Extraction of 30μm foreign substance protrusion



Line Up

Model Number	Quantity	Tip Size
RK-S30	1	Double-bevel Single-edged 30°
RK-50SC		Flat blade 50μm
RK-D		Spear-point blade 40°
RK-C		Flat blade 500μm

Milling Tools *[hard metal tools]*

Structure/s

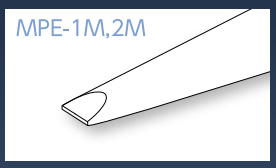
Flathead screwdriver-shaped
Needle-shaped
Knife edges

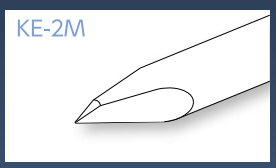
Application/s

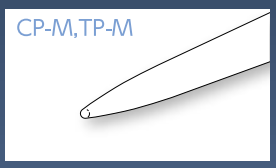
Remove foreign substances embedded in resin material
Conduct wide-ranging plane cutting at a fixed depth
Mark glass, wafer, or a metal sample

Tool selection notes

Contact us for tools suited for vibration-free milling; various micro-tools available



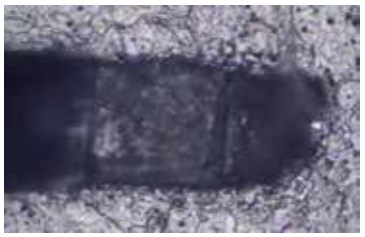




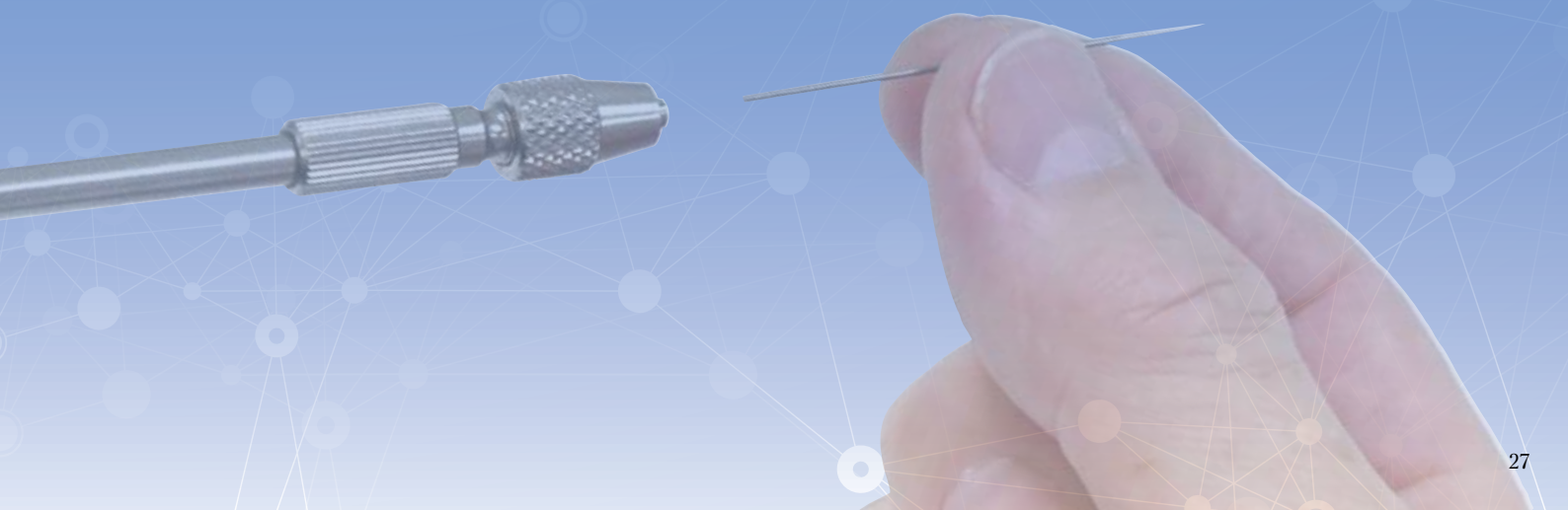

Al processed with knife edge tool


PMMA processed with flat chisel


Cu processed with flat chisel


Rubber processed with flat chisel

Please scan this QR code download link
for the detailed information on our Micro-tools.

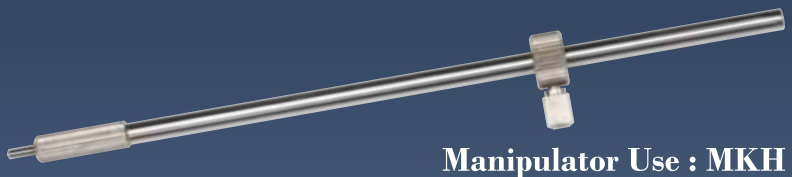


Micro Tool Handle Selection Chart

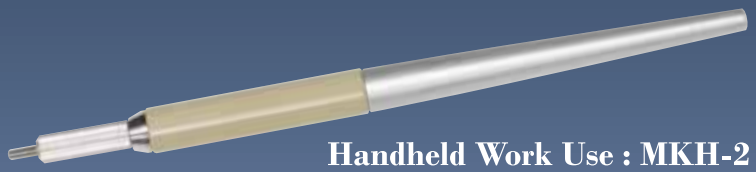
Manipulator Use : TPH-10

Handheld Work Use : TPH-3

Type	Model
Tungsten Probe	TP-0002
	TP-0005
	TP-001
	TP-005
	TP-010
	TP-030
Tungsten Carbide	MPE-1
	MPE-2
	MPE-4
	CP-005
	KE-1
	KE-2
	MF-1
Resin	FP-1

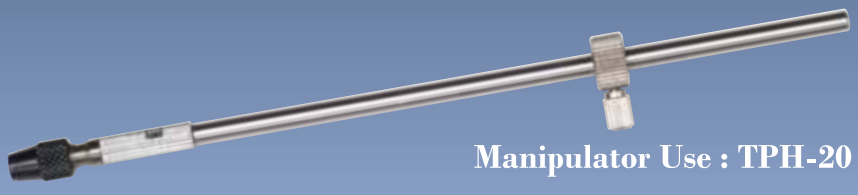


Manipulator Use : MKH



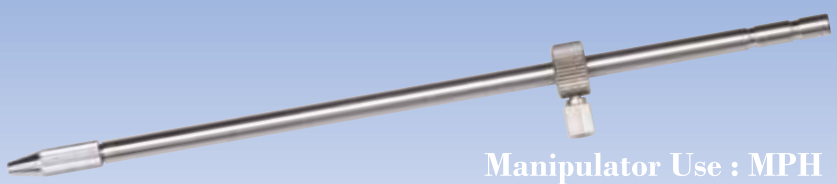
Handheld Work Use : MKH-2

Type	Model
Micro-knife *[SUS]*	MK-S15
	MK-S30
	MK-D



Manipulator Use : TPH-20

Type	Model
Micro-knife *[ruby tools]*	RK-S30
	RK-D
	RK-50SC
	RK-C

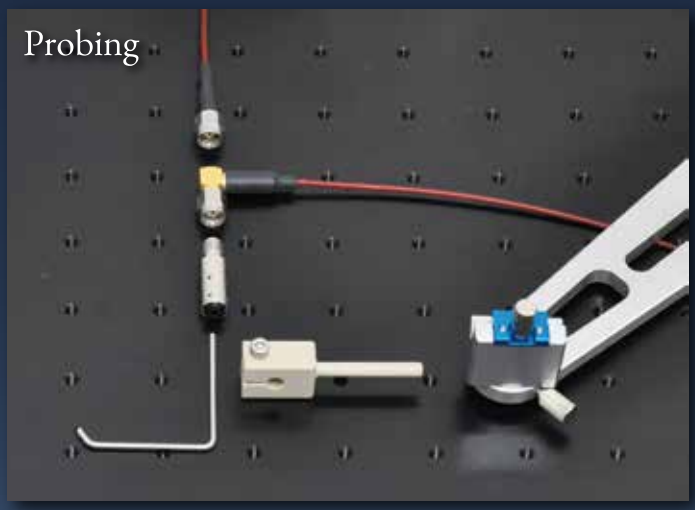


Manipulator Use : MPH

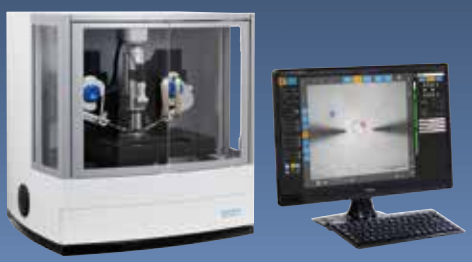
Type	Model
Micro-pipette	MP-001
	MP-005
	MP-010
	MP-020
Sampling Probe	MST-002
	MST-005
	MST-007
Micro-press Tool	MPT

Accessories

Designed to work in combination with sampling equipment, these are manipulator-specific accessories developed to handle samples that are difficult to manipulate with micro-tools alone. They enable precision work under a microscope, which was previously challenging, including tasks like ultrasonic cutting, vacuum-based suction, gripping with tweezers, handling liquids with micro-syringes, cutting with micro-scissors, and post-sampling posture control. They offer various approaches, including electric and mechanical methods.



Compatible Devices



AxisPro

Sampling Station

QuickPro

MillingPro *[MIL-1]*

Ultrasonic Precision Cutting Control

A cutting attachment developed to simplify complex tasks like excavating foreign substances embedded in resin.

When attached to our AxisPro, cutting objects embedded at depths ranging of 2μm - 300μm while monitoring the process visually is achieved.

Precision control over the cutting area and depth is achieved when appropriate dedicated tools provided are selected.

Fine marking on hard materials e.g. glass, wafers, and metals is also possible with our MillingPro.

Applications

Excavation of foreign objects embedded in resin materials (FTIR Microscope, thinning)

Planar cutting of embedded foreign objects (FTIR Microscope ATR head preparation)

Extensive planar cutting at a constant depth (≥50μm)

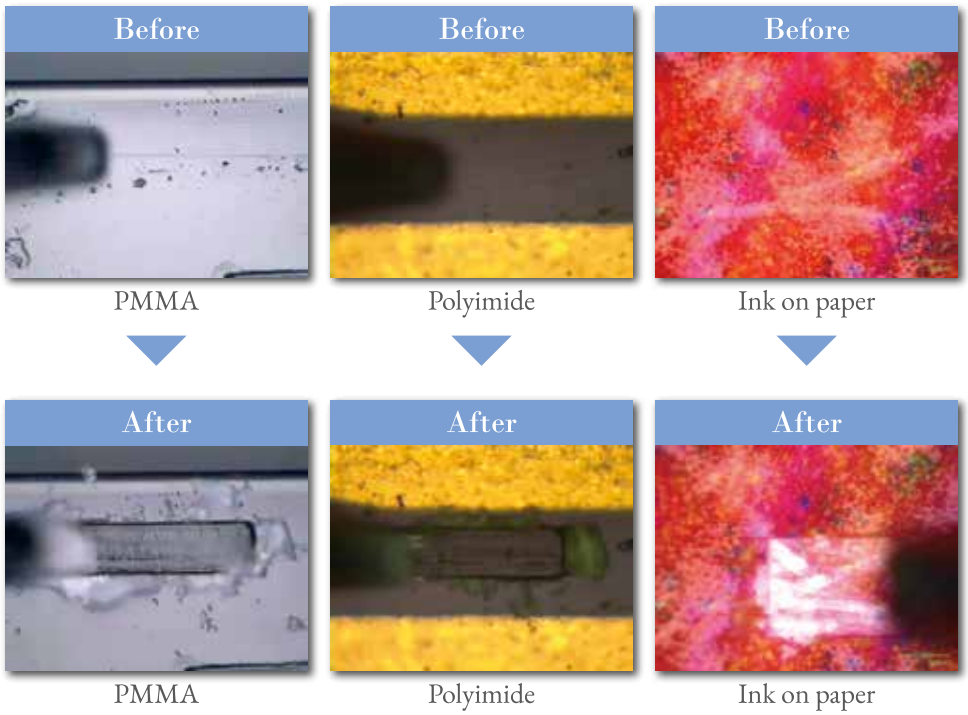
Marking on glass, wafers, and metal samples (for SEM observation and FIB processing)

Pre-processing for FTIR Microscopy degradation analysis in the depth direction from the surface

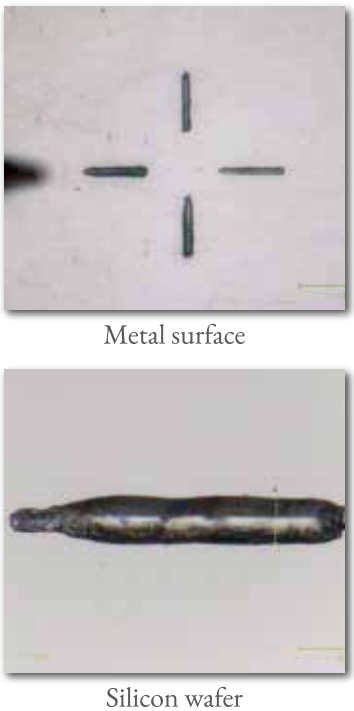
Pinpoint cutting of IC packages and LCD sealing materials

Contact with internal defects (X-ray microscope, chipping for IC chips)

Cutting



Marking



Note : Please contact us for more details of our MillingPro

Vacuum Absorption Tool Set *[VP-SET2]*

Absorption and Transport of Minerals and Microparticles

A vacuum tweezer system with both absorption and release functions.

Retrieve and absorb samples of ≥5μm when connected to a micro-pipette (glass tool).

Micro-pipettes are available in various sizes, allowing you to choose the one that suits your sample.

This set reliably transfers challenging inorganic particles, like mineral and metal fragments particles, to specified locations.

Vacuum Absorption Tool Set *[VP-SET4]*

Ideal for AxisPro Control

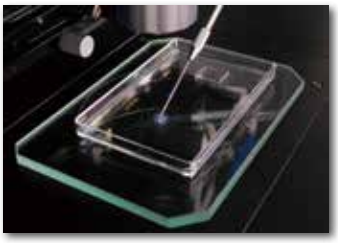
A vacuum tweezer system that can be controlled via AxisPro software, allowing for ON/OFF control.

By changing the joint, this accessory can blow away debris during operations.

Efficiency in Operations like picking up FIB thin films/foils is improved when this accessory is used.

Various micro-pipette sizes allow a wide selection, appropriate for the target material.

Applications [VP-SET2][VP-SET4]




Micro-injector *[MI-B]*

Collection and Release of Micro-fluids

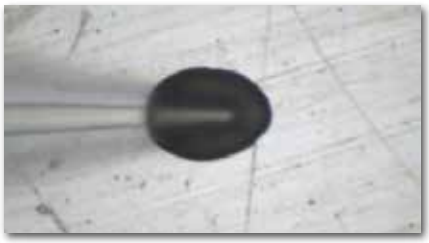
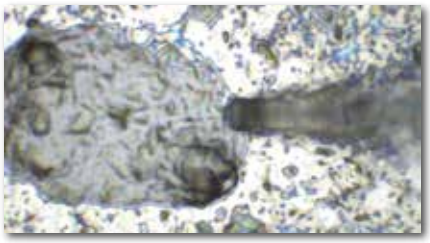
Capable of aspirating and dispensing liquid at the pL level.

Highly effective for sampling pL liquid volumes from sample surfaces or tiny cavities.

Micro-injectors can also deliver liquid to a target location by filling the micro-pipettes.

Applications include solvent delivery for dissolving materials or collecting liquid from samples.

Applications – Micro-liquid collection and release

Micro-scissors *[MSC-2]*

Pinpoint Cutting of Micro-fibers

Smoothly control scissors opening/closing remotely.

Effective for cutting soft, fibrous micro-substances.

The scissor component is easily detachable for cleaning.

Cut can be made at various angles by simply rotating the unit manually.

Configuration	Model Number
Micro-scissors	MSC-2
Precision Scissors	SC-F

■ **Cutting of cashmere single fibers (16μm)**

Micro-tweezers *[MTW-1]*

Remote Gripping and Retrieval Operations

Smooth and linear control of tweezers' opening and closing via wire-based remote operation.

No hand tremors or device-induced vibrations, ensuring secure gripping of the target.

When attached to our micromanipulator, it allows for the retrieval and transfer of particles of ≧20μm and fibers/wires with a diameter of a few micrometers, all while being monitored on a screen.

Electric Micro-tweezers *[MTW-1E]*

Controlled Electrically via AxisPro

Electric tweezers with open/close control via AxisPro software.

Recalling the open and close positions is enabled, ensuring consistent gripping force for repetitive tasks.

Compatible with the same tweezers as MTW-1.

Special Tweezers (Compatible with MTW-1/MTW-1E)	
Configuration	**Model Number**
Precision Tweezers 15×15μm	TW-1515
Precision Tweezers 25×25μm	TW-2525
Precision Tweezers 50×50μm	TW-5050

■ **Applications : Handling and retrieval of microscopic objects [MTW-1][MTW-1E]**

High-Precision Rotator *[HPR-2]*

Ideal for lifting FIB-processed Thin foils

A versatile tool rotation mechanism for lifting FIB-processed thin foils, suitable for left/ right-handed use.

Combining it with the 3D manipulation of the manipulator allows for precise positioning when placing specimens onto meshes/grids.

In addition to glass probes designed for lifting, it also accommodates metal probes, making it perfect for various applications like adjusting cutting angles for foreign object sampling.

■ Compatible Tools

Tungsten Probes, Hard Metal Tools, Sampling Probes

High-Precision Rotator Electric *[HPR-2E]*

Electric Rotational Control System for GloveBox Work

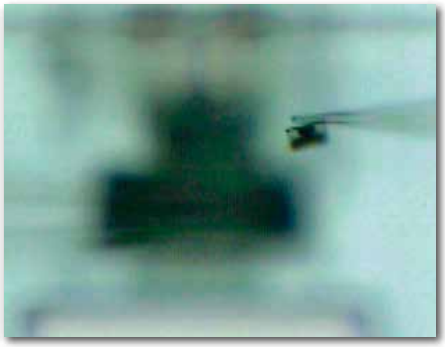
Electrically controlled rotational functionality via the AxisPro software, making it ideal for environments like gloveboxes where manual operation is challenging.

When combined with electric stages and other accessories, it can create an ideal lifting system.

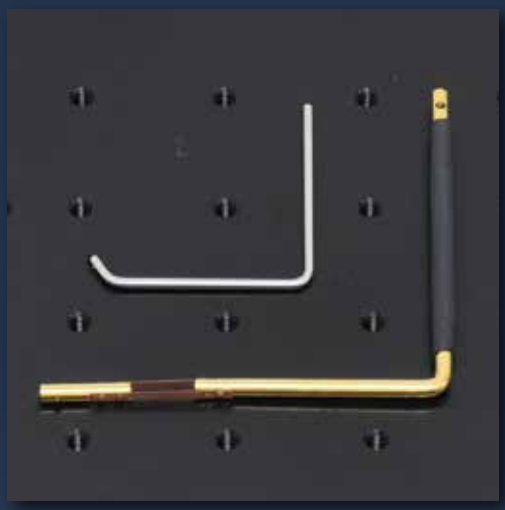
■ Compatible Tools

Tungsten Probes, Hard Metal Tools, Sampling Probes

■ Applications : Moving FIB-processed thin foils to TEM grids



Electrode Holders



Electrode Holders for Micro-probing Work

This tool facilitates contact with microscopic electrode pads, enabling probing in tight spaces.

Precise positioning is achievable when used with our AxisPro or QuickPro series.

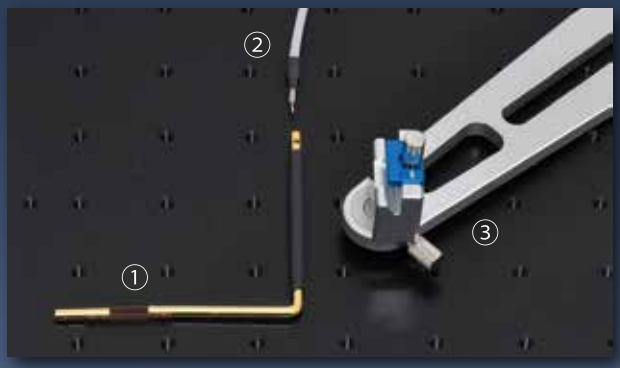
The holder for wider area points (L-Type) is suitable for work under optical microscopes, featuring a spring-loaded tip for secure and gentle contact.

The holder for narrower area points (ESS-Type) is designed for high-magnification observations, ensuring a 30° probe access angle.

Various cable options for connecting to measurement devices are available.

Compatible with our Tungsten Probe series.

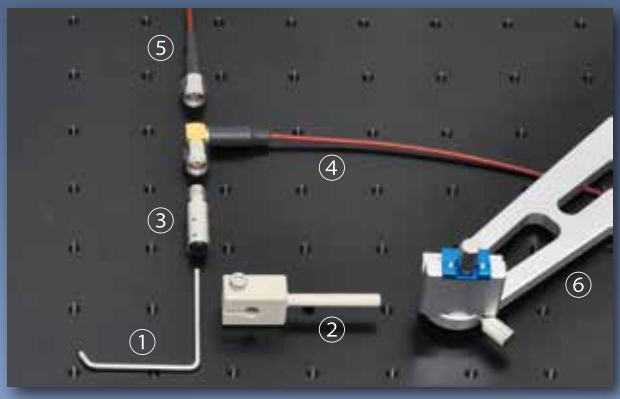
AP-DH-L



Probing of narrower area electrode pads		
	Configuration	Model Number
①	Electrode Holder (Type L) 45°hold ※ Compatible Needle Diameter ≦0.7mm	AP-DH-L
②	Electrode Cable (1m)	DH-BNC-1
③	Universal Arm	AP-UARM-R

Items ① to ③ are also available for individual purchase.

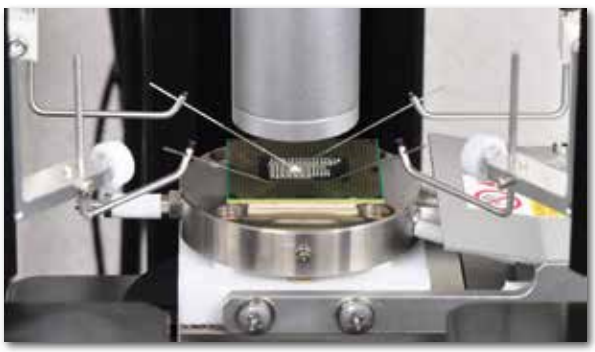
PA-ESS-30



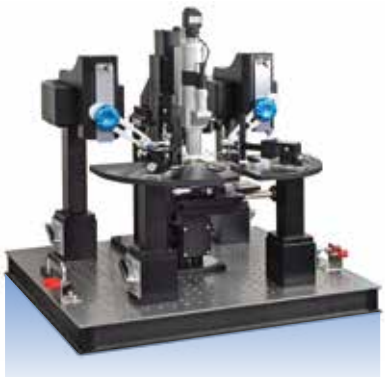
Probing of wider area electrode pads		
	Configuration	Model Number
①	Electrode Holder (ESS Type) 30°hold ※ Compatible Needle Diameter ≦1mm	PA-ESS-30
②	Resin Holder (ESS Type)	H-ESS
③	SMA Socket (A-OH Type)	SMAS-AOH
④	Coaxial Cable SR (1m) - L-type	SMA-BNC-1
⑤	Coaxial Cable SS (1m) - Straight	SMA-BNC-2
⑥	Universal Arm	AP-UARM-R

Items ① to ⑥ are also available for individual purchase.

Installation examples



4 Micro-terminal Probe + AxisPro



Manual Probe

Micro-spotwelder *[MW-2]*

Welding Power Supply with Stable Output in the Micro-current Range

Continuous display of resistance value ensures reliable sample setup.

Resistance and current value display allows confirmation of connection status after welding.

Output voltage and pulse generation time can be easily set with button operation.

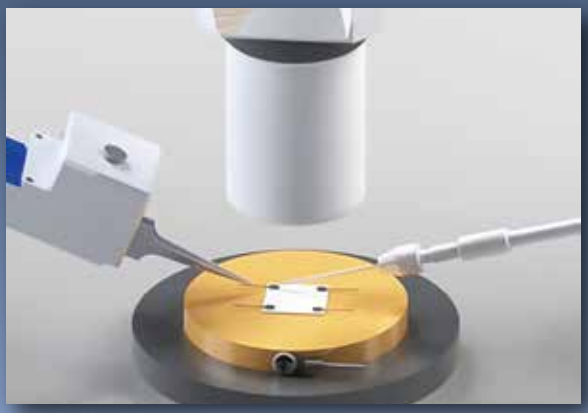
Achieve clean welding with minimal spatter and debris.

Shorter current supply time minimizes heat influence on the sample.

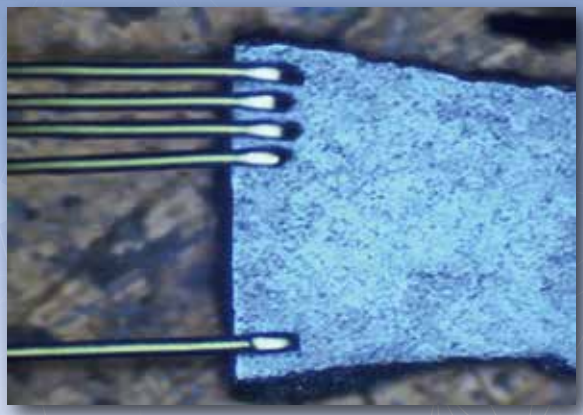
Combined use with a micromanipulator enables highly accurate positioning.

■ **Achieves maximum performance when combined with AxisPro!**

Tasks ranging from positioning samples and wires to adjusting contact pressure, and even delicate welding operations can be easily and quickly performed by attaching it to our AxisPro micromanipulator.



Microscopic work performed with AxisPro.

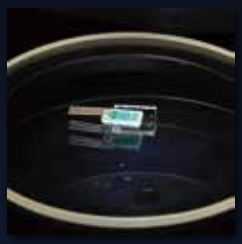


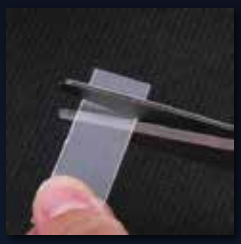
Welding gold wire to a chip.

Other Functional tools

Holding and Fixing Tools

For holding and fixing small samples including tablets and more





Sphere Vise *[SV-1]*

A spherical vise that allows you to freely change the vise angle.
The base is made of rubber, enabling stable fixation at any angle.
The vise handle is detachable, making it very compact when in use.

Tablet holding adapter is included

Specifications

Vise opening width: max 17mm
Gripping depth: 8mm
Weight: 95g

Pocket Vise *[PV-1]*

It has a cubic structure, making it easy to fix horizontally or vertically.
It is an ideal structure that can be attached to a larger vise for use.
The vise handle is detachable, making it very compact when in use.

Tablet holding adapter is included

Specifications

Vise opening width: max 17mm
Gripping depth: 8mm
Weight: 100 g

Specimen Weight

Easily secure sheet-like samples with weights

■ Standard Model

■ Usage and Applications

Fixing films, thin non-woven fabrics, and thin textile products
Suitable where the fixation area is small
To avoid the analyzed area to come into contact with the stage
After fixing the above, perform tasks such as taking photographs or sampling foreign substances

Specifications

Diameter : 49mm × Inner diameter : 20mm
Thickness : 3mm · Weight : 30g

■ Example of use with AxisPro(fixing thin non-woven fabric)

■ Standard x 10 times the weight

■ Usage and Applications

Fixing metal mesh fabric, thick non-woven fabrics, and thick textile products
Fixing films that are too rigid
Stabilization of samples without using adhesives
After fixing the above, perform tasks such as taking photographs or sampling foreign objects

Specifications

Diameter : 110mm × Inner diameter : 30mm
Thickness : 5mm · Weight : 300g

■ Example of use with AxisPro(fixing thick non-woven fabric)

Grip Sheets Ensure sample security with ideal adhesion

■ **standard *[HG50-58]* / hard *[HG70-58]***

Thin adhesive sheets that are extremely useful for fixing samples on microscope stages and similar applications.

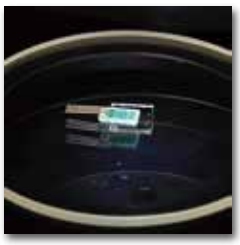
Particularly effective for securing glasses, wafers, substrates, films, and metal-mirror specimens.

The Grip Sheets are non-adhesive, so they won't leave residue on your samples and can be easily removed.

Two types of Grip Sheets with different levels of adhesion are available, allowing you to choose the one that suits your sample.

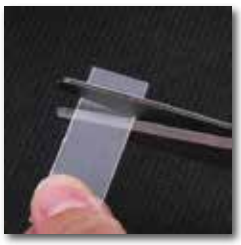
The transparency of the grip sheets allows non-obstruction of light in transmission illumination setups, making them suitable for inspecting foreign objects within the resin.

Able to be used for tasks, e.g., cleaning the micro-tools tips, transferring small objects with the same pattern to the receptacle.



■ Transmitted Light-Compatible

Allows cutting while observing foreign objects embedded in samples under transmitted light



■ Customizable

Able to be cut to a custom size with scissors, minimizing waste

■ Cleaning

Able to transfer and remove dirt adhered to the tool's tip

■ Protective Film

Remove the film just before use to prevent contamination

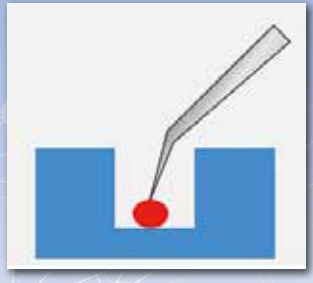
Probe Bender *[PB-1]* Easy bending of tungsten probes

The Probe Bender PB-1 is a tool designed for bending tungsten probes when accessing is necessary in deep target areas that can't be reached with the standard arm angles.

Set our tungsten probes (TP series) in place, close the cover, and safely and accurately bend them to your desired angle.

Able to adjust the bending angle by changing the block, allowing for flexible configuration.

When used in conjunction with AxisPro, the bent probe enables sampling from previously inaccessible areas.



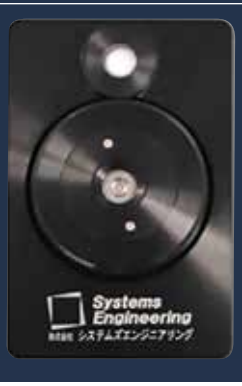
Diamond Express II

Utilizes high-hardness diamonds

Easy to clean and can be used repeatedly over a number of times

Note : Manufactured by ST Japan Inc.

Diamond Compression Cell +

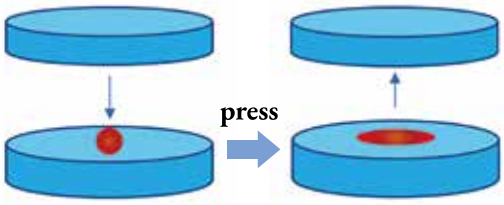


The sample is sealed by an O-ring for airtightness

Suitable for analyzing anaerobic materials

Note : Manufactured by Systems Engineering Co., Ltd.

■ Essential Equipment for Transmission Measurements using FTIR Microscopy



Note:Sample Press Tool DCC/ Sample Pressing Concept

Diamond Cell for Uniform Thinning of Thick Samples.

Thinning the sample allows obtaining unsaturated spectra during FTIR microscopy measurements.

Placing the target substance precisely at the center of the diamond cell is easily achievable when used with AxisPro.

Using AxisPro, transferring the thinned sample to transmission window plate for FTIR microscopy is possible.

Diamond Cell Holder

■ **Application** : For Diamond Express II

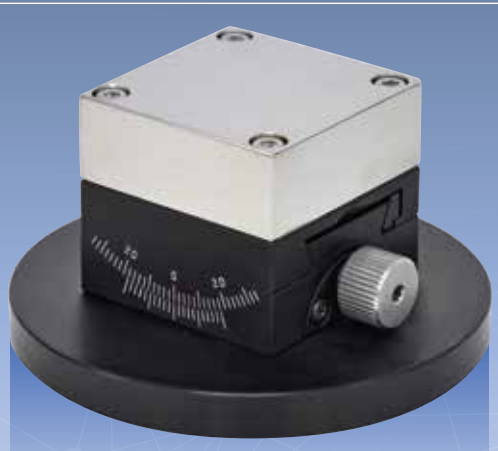
■ **Model** : DCH-35

■ **Application** : For Diamond Compression Cell +

■ **Model** : DC

Use one of the removed cells and place it in the holder, then set it up on the micromanipulator's stage for operation.
The holder is sized to match a standard microscope glass slide.

Tilt Unit *[TIL-1]* For tilted cutting of samples



The Tilt Unit TIL-1 is an incredibly useful tool for measuring and analyzing the thickness of each layer in laminated samples and similar applications.

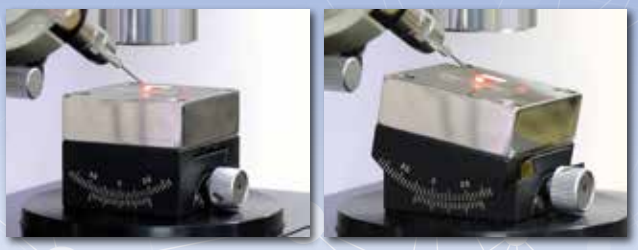
Able to perform precise cutting at any desired angle by securing films with Grip Sheets and using a milling pro in combination.

This unit is designed with a rotation center on the stage surface.

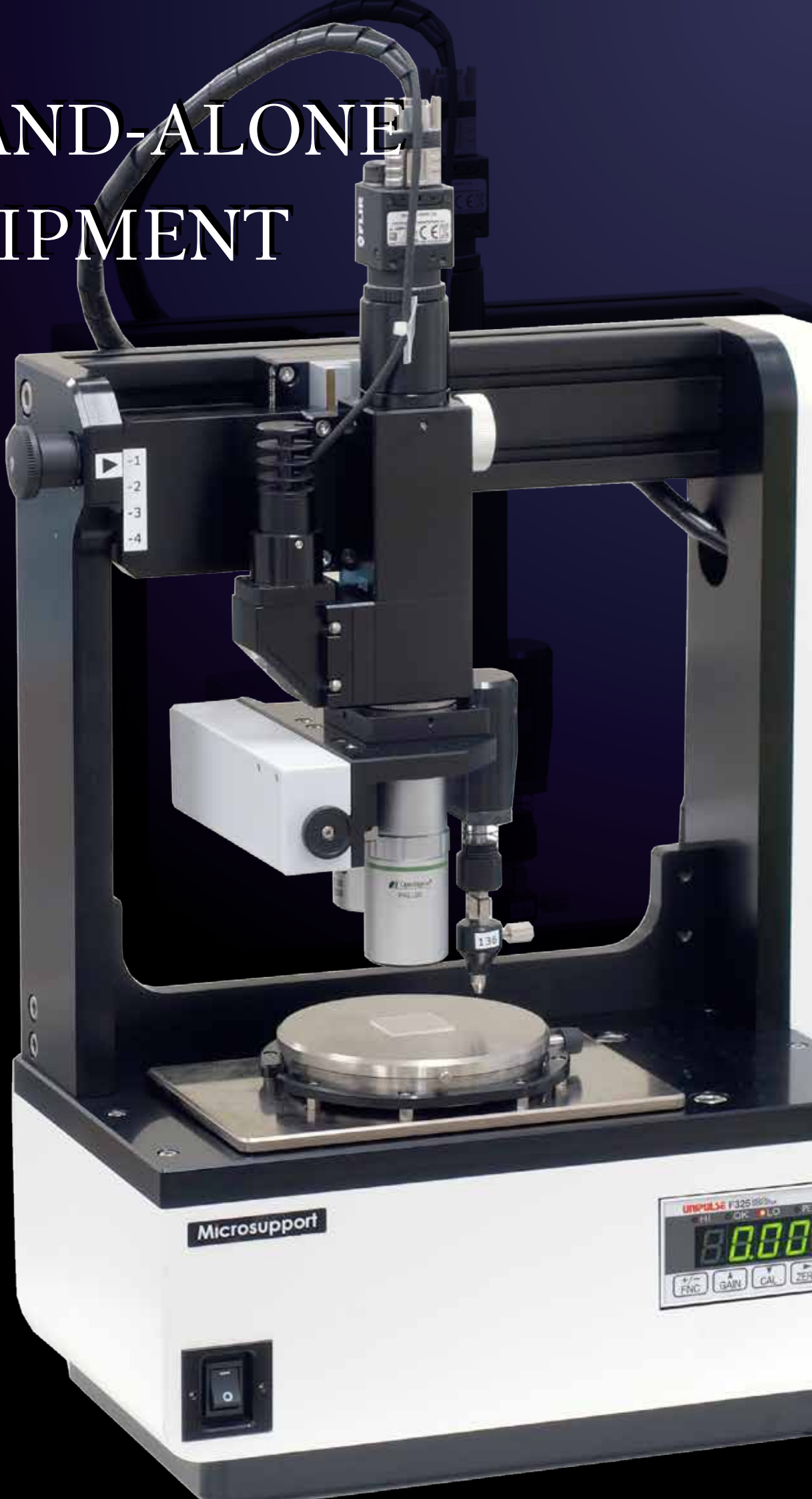
Its base portion is the same size as AxisPro's stage glass, allowing adjustments and rotation after setting the desired tilt angle.

Specifications

Angle Adjustment: ±20° in 0.2° increments
Stage Surface Size:40mm x 40mm with a mirror finish
Base Plate: φ80mm



STAND-ALONE EQUIPMENT



Pinpoint Marker D-MARK

Simple operation for fine-area marking

Compact tabletop-type marking system with an installation area of A4 size, designed for microscopic area samples analysis.

Instantly switch and automatically mark the microscopic area observed through the objective lens with a diamond indenter.

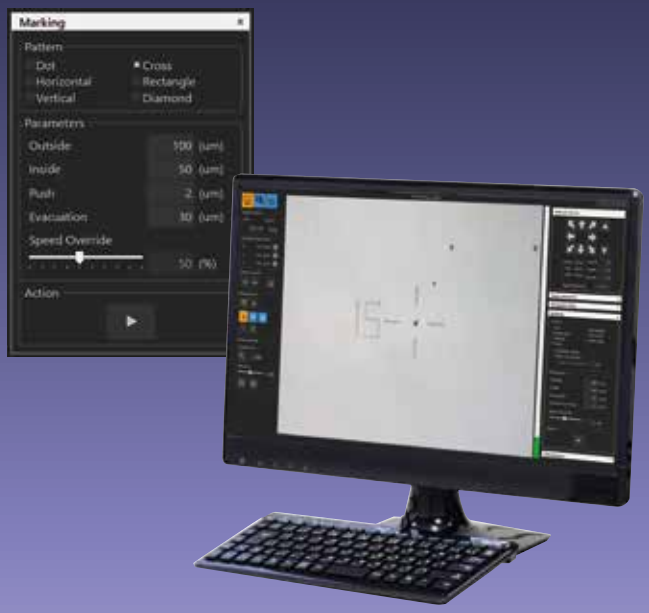
Utilize the survey function to capture wide images and display them as maps continuously.

Choose from various marking shapes such as dots, lines, crosses, squares, etc.

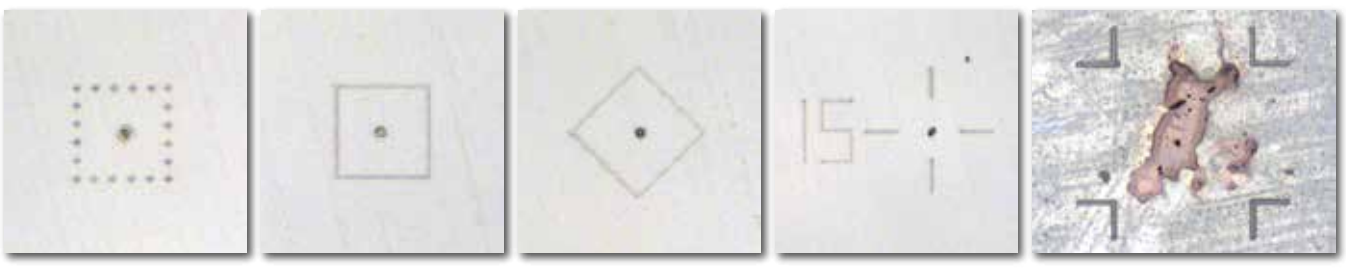
Mark size can be freely adjusted through parameter settings.

Image capture and scale display are possible.

Compared to laser markers, it minimizes sample damage and reduces dust scattering.



Standard Marking Patterns



Milling Scope *[MS-1]*

Localized observation processing by electric control

Compact tabletop observation and processing system with an A4-sized footprint.

Equipped with an electric zoom microscope for flexible area observation magnification adjustments.

The survey function (mapping) captures and displays connected maps by continuously taking images over a wide area.

Sequential processing can be carried out by pre-registering the coordinates of points to be cut or drilled.

During machining, use the microscope to observe from an angle while accessing and using the cutting tool from directly above.

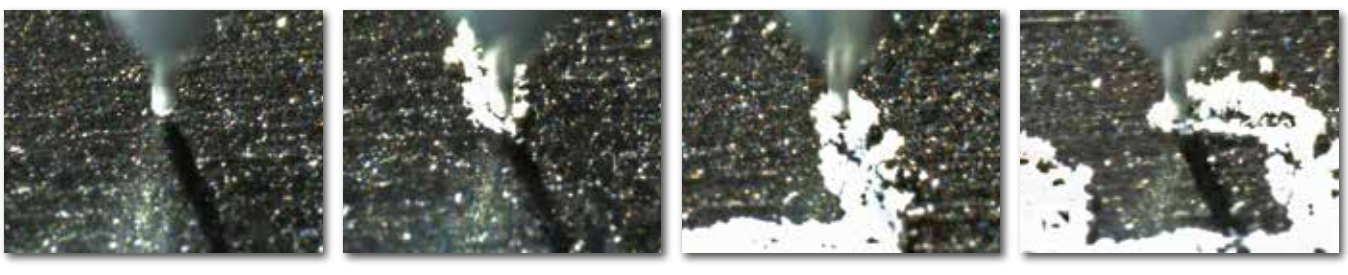
During Observation

During Processing

Applications

Milling and collecting samples from minute areas, near surface and internal regions of samples
Suitable for various materials, including metals, resins, minerals, bones, teeth, etc
Ideal for experimental micro-drilling and creating microscopic via holes for wiring purposes

Milling Patterns



Company Background : Leadership to inspire your confidence

Founded in May 2006 and headquartered in Shizuoka Prefecture, Japan, MicroSupport is a leader in microscopic sample preparation. With an unwavering commitment to precision and excellence guides our team of dedicated experts has built the company`s reputation as an innovator in the microscopic field, servicing a wide range of industries, national laboratories, and universities.

Our focus on delivering excellence has been our driving force since inception, supporting the precise analytical needs of our valued clients.

Our Mission: Bringing your quality and precision

MicroSupport`s mission for you is : ***"To reach the highest quality analysis by achieving the ultimate in sampling."***

We provide innovative solutions for critical applications designed to exceed your expectations wherever possible.

Our comprehensive range of instruments, hardware, and software solutions allow you to sample and manipulate micro-substances confidently and efficiently for excellent results with a right-first-time approach.

Our Roots: Experts who understand your challenges

Established by a team of experts providing instruments and services for professional scientists, we understand your need for quality, reliability and precision. Our company name originates from the commitment we have to serving enterprises engaged in all forms of microscopy, providing quality precision instruments and the kind of reliable support and expertise you would expect from a leader in its field: **MicroSupport.**

Our Approach: Solutions for your most intricate projects

By equipping you with the tools, you need to navigate the world of microscopic substances, we empower you to find answers to your most intricate challenges. In essence, we are not just a company – we are YOUR partners in precision committed to your success.

MicroSupport

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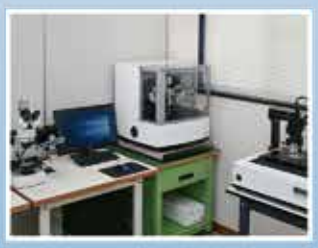

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