



www.apollowave.co.jp
✉ info@apollowave.co.jp

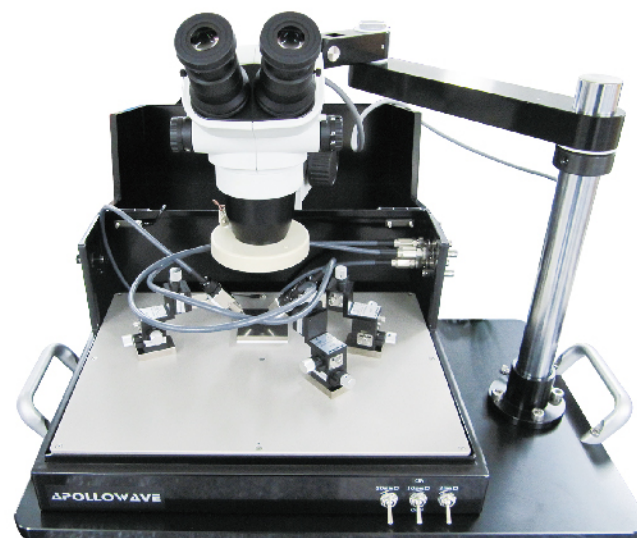


PROBING SOLUTION

Compact Desktop Prober MBP-55

Compact prober optimized for chip level IV/CV measurement

- ◎ This prober supports sample sizes of up to 50 mm □ and is an integrated type even with a shield box.
- ◎ It is capable of measuring low-level current IV and capacitance CV and RF.
- ◎ The compact, light weight prober lets you carry it easily.



A Application

- Low level IV (fA)
- Low level CV (fF)
- RF measurement
- Various resistance measurements such as for sheet resistance
- Temperature characteristic test

O Option

- Hot chuck for room temperatures of up to 200°C
- Triaxial connection to chuck
- Interlock mechanism in conjunction with a measuring instrument

S It is possible to select optical system

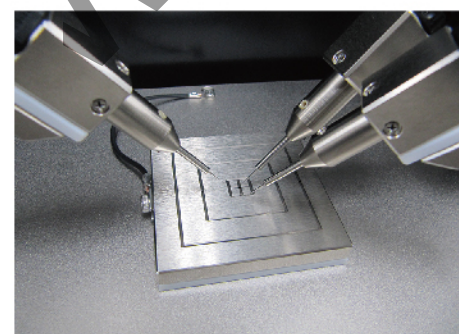
Stereomicroscope (default)

Trinocular microscope

Zoom micro CCD camera

	MBP-55
Wafer chuck size	~50 mm □
Stage travel range(Coarse)	—
Stage travel range(Fine)	—
Stage θ travel	—
Z Stage travel	—
Z Stage fine travel	—
Dimension	W630 × D340 × H380 mm (Including microscope)
Weight	24 kg

* It changes according to specifications.



Examples of measuring instruments to be connected

- Device Analyzers/Parameter analyzers
- Source Measure Units
- Curve Tracers
- Precision LCR meters
- Digital multimeters
- Impedance Analyzers
- Network Analyzers
- In addition, various measuring instruments of each company

*Product specifications and appearance are subject to change without notice.

Manual Probe System α100

4 inch Manual Probe System with for accurate and reliable IV/CV, RF and measurements

- ◎ It is a compact prober which corresponds to the wafer size up to 4 inch.
- ◎ With XY coarse movement and fine adjustment using micrometer that can be quickly positioned by air bearing design, reliable alignment is possible.
- ◎ Z movement of the platen has coarse movement that can be operated with a lever, and fine movement that can be adjusted with micrometer.
- ◎ It is user-friendly design.



A Application

- Low level IV (fA)
- Low level CV (fF)
- RF measurement
- Various resistance measurements such as sheet resistance
- Temperature characteristic test

O Option

- Hot chuck from room temperature to 300°C
- Triaxial connection to chuck
- Storage in a DarkBox
- Probe card (4.5 inch square PCB)

S It is possible to select optical system

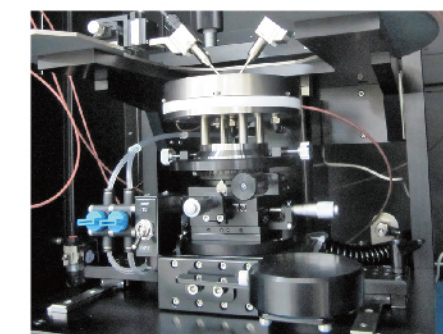
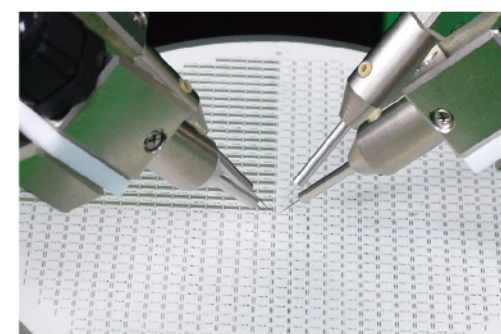
Stereomicroscope (default)

Trinocular microscope

Zoom micro CCD camera

	α100
Support wafer size	Chip level ~ 4 inch wafer
Stage travel range (Coarse)	X: 100 mm Y: 110 mm
Stage travel range (Fine)	X: ±6.5 mm Y: ±6.5 mm
Stage θ travel	±5°
Z Stage travel	0-0.3-5 mm
Z Stage fine travel	5 mm
Dimension	W320 × D355 × H490 mm
Weight	25 kg

* It changes according to specifications.



Examples of measuring instruments to be connected

- Device Analyzers/Parameter analyzers
- Source Measure Units
- Curve Tracers
- Precision LCR meters
- Digital multimeters
- Impedance Analyzers
- Network Analyzers
- In addition, various measuring instruments of each company

*Product specifications and appearance are subject to change without notice.

Manual Probe System α150 α200 α300

α series manual probe system is easy to use and can be used for various measurement applications.

- It is a Manual Probe System which supports wafer sizes of 6 inch, 8 inch and 12 inch respectively.
- Chip fixing is possible.
- With XY coarse movement and fine adjustment using micrometer that can be quickly positioned by air bearing design, reliable alignment is possible.
- Z movement of the platen has coarse movement that can be operated with a lever, and fine movement that can be adjusted with micrometer.
- It is user-friendly design.



A Application

- Low level IV (fA)
- Low level CV (fF)
- Probe solution for high-power devices. 20kV DC/200A
- RF measurement
- Various resistance measurements such as sheet resistance
- Temperature characteristic test
- Reliability test such as TDDB

O Option

- Hot chuck from room temperature to 350°C
- Triaxial connection to chuck
- High-power chuck
- Storage in a DarkBox
- 355-1064nm laser cutters
- Probe card (4.5 inch square PCB)
- Combination with various light sources

S It is possible to select optical system

Stereomicroscope (default)	Trinocular microscope
Zoom micro CCD camera	Mitutoyo Finescope FS70Z series and FZ70L

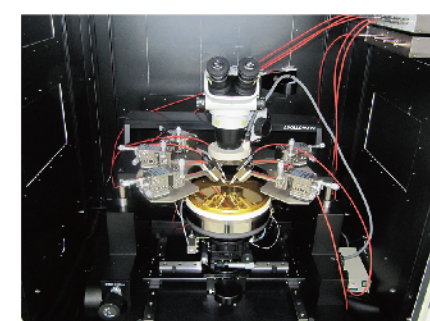
Examples of measuring instruments to be connected

- Device Analyzers/Parameter analyzers
- Power Device Analyzer
- Source Measure Units
- Curve Tracers
- Precision LCR meters
- Digital multimeters
- Impedance Analyzers
- Network Analyzers
- In addition, various measuring instruments of each company

*Product specifications and appearance are subject to change without notice.

	α150	α200	α300
Wafer chuck size	~6 inch	~8 inch	~12 inch
Stage travel range (Coarse)	X: 150 mm Y: 200 mm	X: 200 mm Y: 200 mm	X: 310 mm Y: 345 mm
Stage travel range (Fine)	X: ±12.5 mm Y: ±12.5 mm		
Stage θ travel	±5°	±5°	±4°
Z Stage travel	0-0.3-5 mm		0-0.5-4 mm
Z Stage fine travel	10 mm		
Dimension	W540 × D635 × H602 mm		W895 × D760 × H700 mm
Weight	70 kg	70 kg	165 kg

* It changes according to specifications.



Manual Probe System α200CS α300CS

Temperature characteristic evaluation from -60°C to +350°C

- It is a Manual Probe System which supports wafer sizes of 8 inch and 12 inch respectively.
- It has a compact shield to prevent dew condensation.
- The compact shield provides a low noise environment.
- With XY coarse movement and fine adjustment using micrometer that can be quickly positioned by air bearing design, reliable alignment is possible.
- Z movement of the platen has coarse movement that can be operated with a lever, and fine movement that can be adjusted with micrometer.



A Application

- Low level IV (fA)
- Low level CV (fF)
- Probe solution for high-power devices. 20kV DC/200A
- RF measurement
- Various resistance measurements such as sheet resistance
- Temperature characteristic test in high and low temperature environment
- Reliability test such as TDDB

O Option

- Thermal chuck from -60°C to +350°C
- Triaxial connection to chuck
- High-power chuck
- Change to use CCD camera
- Probe card (4.5 inch square PCB)
- Combination with various light sources

S It is possible to select optical system

Stereomicroscope (default)	Trinocular microscope
Zoom micro CCD camera	Mitutoyo Finescope FS70Z series and FZ70L

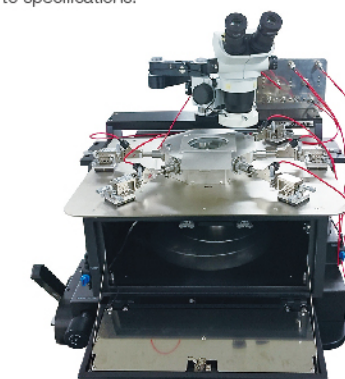
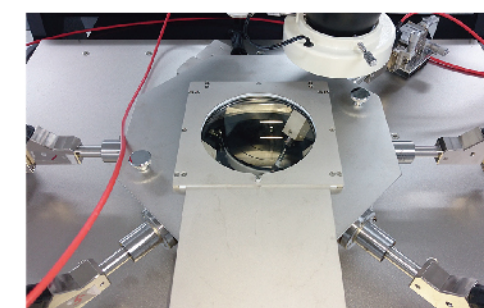
Examples of measuring instruments to be connected

- Device Analyzers/Parameter analyzers
- Power Device Analyzer
- Source Measure Units
- Curve Tracers
- Precision LCR meters
- Digital multimeters
- Impedance Analyzers
- Network Analyzers
- In addition, various measuring instruments of each company

*Product specifications and appearance are subject to change without notice.

	α200CS	α300CS
Wafer chuck size	~8 inch	~12 inch
Stage travel range (Coarse)	X: 200 mm Y: 200 mm	X: 320 mm Y: 320 mm
Stage travel range (Fine)	X: ±12.5 mm Y: ±12.5 mm	
Stage θ travel	±5°	±4°
Z Stage travel	0-0.3-5 mm	
Z Stage fine travel	10 mm	
Dimension	W690×D780×H620 mm	W965×D930×H700 mm
Weight	80 kg	165 kg

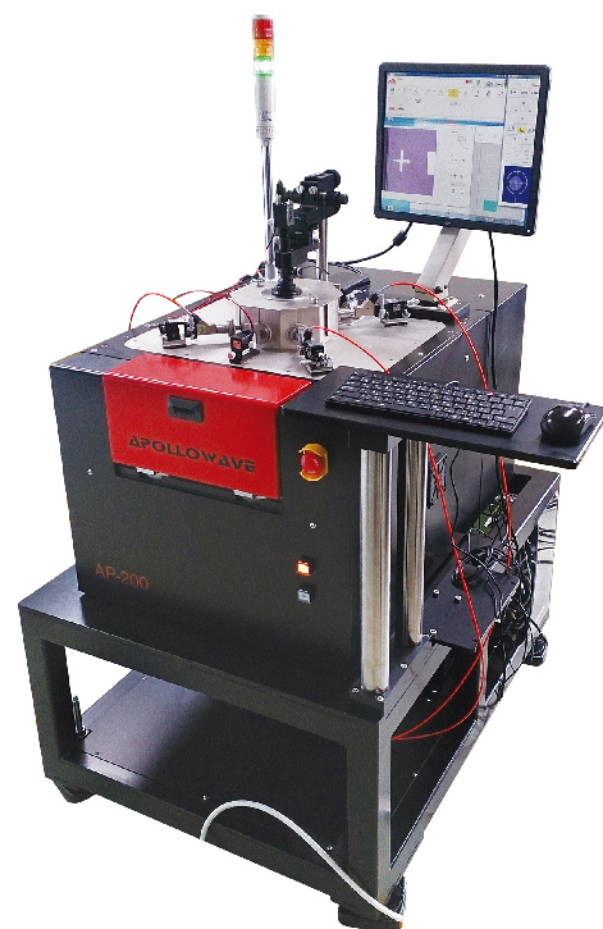
* It changes according to specifications.



Semi-automated Probe Systems AP-150 AP-200

Temperature characteristic evaluation from -60°C to $+350^{\circ}\text{C}$
Probe solution for high-power devices. 20kV DC/200A

- It is a semi-automated probe systems which supports wafer sizes of 6 inch and 8 inch respectively.
- It has a compact shield to prevent dew condensation.
- The compact shield provides a low noise environment.
- Probe station equipped with APOLLOWAVE proprietary software realizes high test efficiency.
- By image recognition, automatic wafer alignment and automatic chip alignment are possible.



A Application

- Low level IV (fA)
- Low level CV (fF)
- Probe solution for high-power devices. 20kV DC/200A
- RF measurement
- Various resistance measurements such as sheet resistance
- Temperature characteristic test in high and low temperature environment
- Reliability test such as TDDB

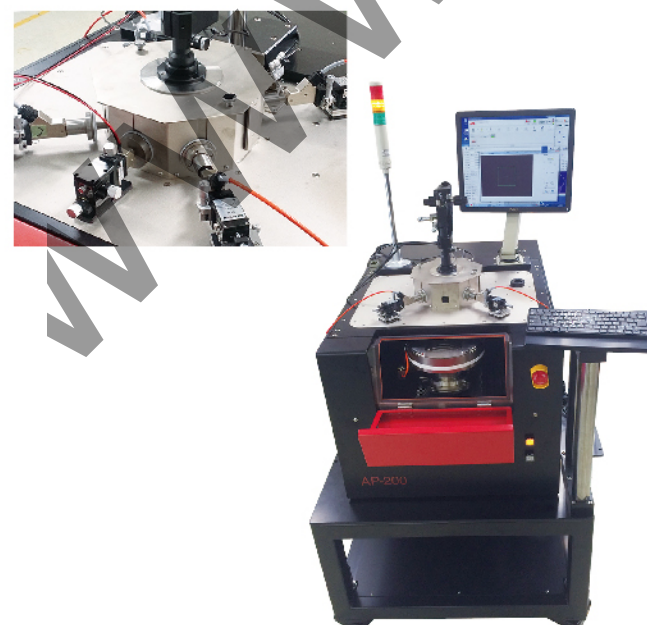
O Option

- Thermal chuck from -60°C to $+350^{\circ}\text{C}$
- Triaxial connection to chuck
- High-power chuck
- Automatic alignment by image recognition.
- Probe card (4.5 inch square PCB)

Examples of measuring instruments to be connected

- Device Analyzers/Parameter analyzers
- Power Device Analyzer
- Source Measure Units
- Curve Tracers
- Precision LCR meters
- Digital multimeters
- Impedance Analyzers
- Network Analyzers
- In addition, various measuring instruments of each company

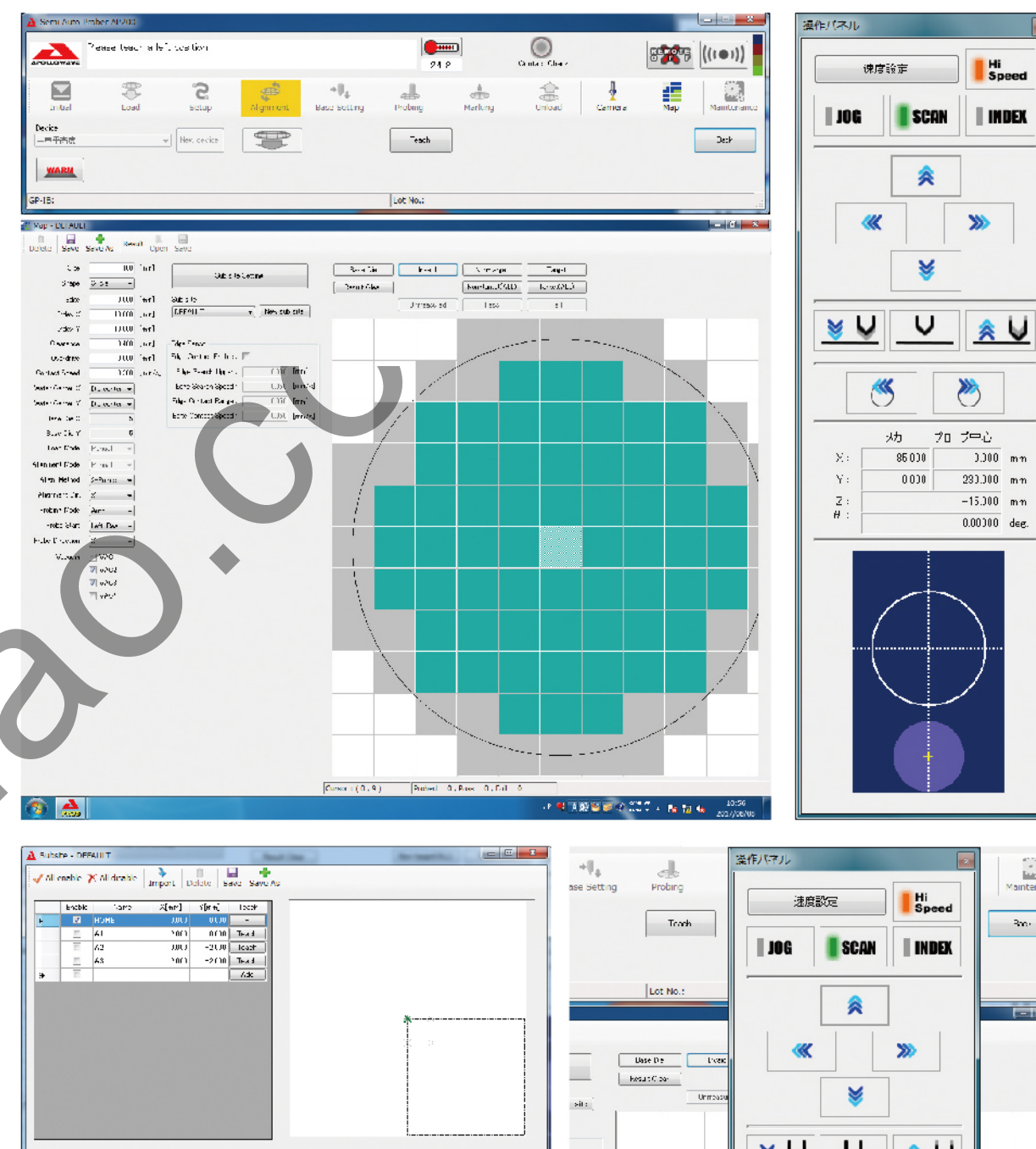
*Product specifications and appearance are subject to change without notice.



	AP-150	AP-200
Wafer chuck size	~ 6 inch	~ 8 inch
Stage XY movement amount	X: 170 mm Y: 360 mm	X: 220 mm Y: 400 mm
Stage XYZ control resolution	0.5 μm	0.1 μm
Stage XYZ Reproducibility	Within $\pm 5 \mu\text{m}$	$\pm 2 \mu\text{m}$
Stage XY Accuracy	$\pm 15 \mu\text{m}$	$\pm 5 \mu\text{m}$
Stage XY moving speed	30 mm/sec	30 mm/sec(Max)
Stage Z axis movement amount	30 mm	30 mm
Stage Z axis movement speed	Z 25 mm/sec(Max)	25 mm/sec(Max)
Stage θ travel	$\pm 5 \text{ deg}$	$\pm 5 \text{ deg}$
Stage θ control resolution	0.001 deg	0.001 deg
Dimension	W640xD1000xH965 mm	W760xD1000xH1020 mm
Weight	350 kg	400 kg

* It changes according to specifications.

Semi-Auto prober software



- The control software has excellent operability, such as arranging icons in the order of process.
- We have wafer alignment function to adjust wafer angle and fine adjustment of XY position.
- After registering the origin position, the image processing automatically detects the feature pattern and registers it as a reflex model.
- It is also possible to automatically register registered individual chips in the registered trays for image recognition (option).
- It is possible to control from the host PC and measuring instrument by GP-IB.

Automatic measurement software

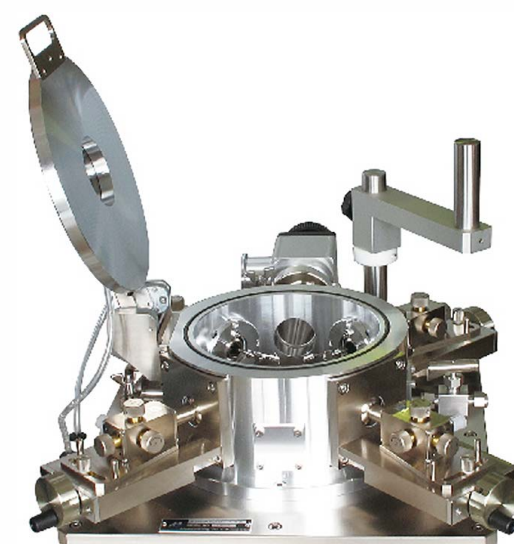
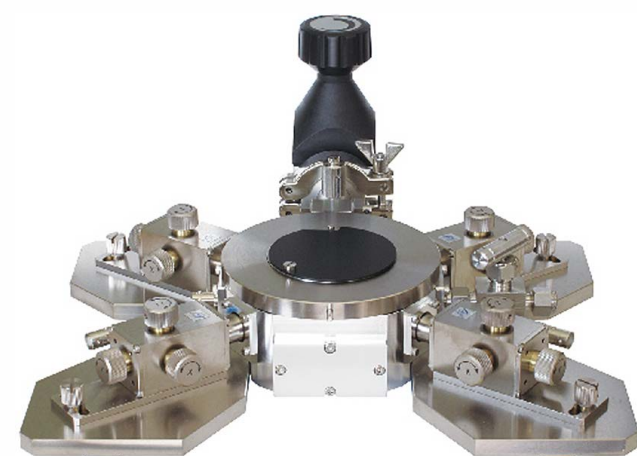
	AP-150
Techtronics/Keithley instrument	Keithley Automatic Characterization evaluation Sweet(ACS) 4200A-SCS type parametric analyzer
Keisight Technology	EasyEXPERT
Iwatsu	Semiconductor Curve tracer (CS series)



Vacuum probe station MJ-8 MJ-10

Evaluation of temperature characteristics at extremely low to very high temperatures, vacuum environment, Gas environment measurement

- ◎ It is very small type, it is easy to measure on the desk.
- ◎ Even if vacuum, the actuator can be moved with the external operating type positioner (probe).
- ◎ Good effect of light and electrical shield.
- ◎ The MJ-8 is a thin type that allows for hall effect measurement.



	MJ-8	MJ-10
Standard Stage Size	20×20 mm	φ60 mm
Degree of vacuum in the instrument (when using the turbo pump)	10 ⁻³ Pa	10 ⁻³ Pa
Chamber size Dimension	φ116×30 mm(H)	φ216×138 mm(H)
Distance of probe moving distance	X: 5 mm Y: 5 mm Z: 3 mm	X: 8 mm Y: 5 mm Z: 8 mm
Probe operating range	X: about 18 mm Y: about 15 mm	X: about 40 mm Y: about 20 mm
Overall dimensions (standard type)	W280×D244 mm	W450×D138 mm
Weight (standard type)	4.5 kg	16 kg

* It changes according to specifications.

A Application

- Low level IV
- Low level CV (fF)
- High power application
- Temperature characteristics test in high and low temperature environment
- Measurement in Gas environment

O Option

- Cold heating stage at -180°C to +600°C
- XY movement specification of the stage
- Up to six positioners
- Light transmission type Stage specification

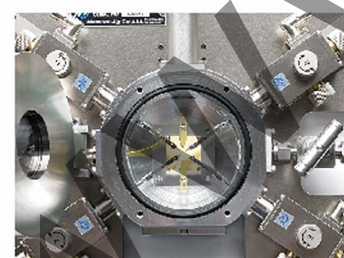
S It is possible to select optical system

Stereomicroscope (default)	Trinocular microscope
Zoom micro CCD camera	

Examples of measuring instruments to be connected

- Device Analyzers/Parameter analyzers
- Source Measure Units
- Precision LCR meters
- Digital multimeters
- In addition, various measuring instruments of each company

*Product specifications and appearance are subject to change without notice.



Hot chuck Thermo chuck

Chuckstage that can control temperature of heating and cooling

- ◎ 50 mm □, 4 inches to 12 inches in size.
- ◎ The product is lined up in the temperature range of -55°C to +350°C.
- ◎ We propose a combination of heaters, chillers, and pellets according to the specifications.
- ◎ The measurement from microcurrent and high voltage, large current measurement is carried out measurement.
- ◎ Low noise due to use of DC power supply.



	Product name	Model number	Remarks
Hot chuck	50 mm □ Hot Chuck	HC2	50 □ RT to 200°C
	4 inch hot chuck	HC4	4 inch RT to 350°C
	6 inch hot chuck	HC6	6 inch RT to 350°C
	8 inch hot chuck	HC8	8 inch RT to 350°C
	12 inch hot chuck	HC12	12 inch RT to 350°C
Thermo chuck	4 inch peltier type thermo chuck	TCP4	4 inch -40°C to 125°C
	8 inch peltier type thermo chuck	TCP8	8 inch -20°C to 100°C
	6 inch chiller type thermo chuck	TCC6	6 inch -60°C to 350°C
	8 inch chiller type thermo chuck	TCC8	8 inch -60°C to 350°C
	12 inch chiller type thermo chuck	TCC12	12 inch -60°C to 350°C

O Option

- Price setting based on temperature range
- Triaxial connection to chuck
- High-power chuck
- Structures for various instrument connections
- Air-cooled, water-cooled type prepare

*Product specifications and appearance are subject to change without notice.

Accessories

Proposal of various measuring environments with abundant options.

We also accept design change items to suit other companies' probers.

Positioner (manipulator)

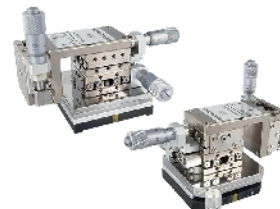
To make probing stably

M20 micro positioner



Low cost · High performance
Fixed method: Magnet rubber type (*)
Stroke amount: X, Y, Z ± 5 mm each
Straightness: 30 μ m
Travel amount: 0.5 mm/rotation
Micrometer: None
* Can be changed to ON/OFF with OP

M30 Micromanipulator



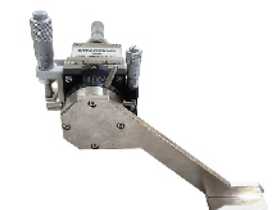
High precision spec for compact body
Fixed method: Magnet with ON/OFF
Stroke amount: X, Y, Z ± 3.2 mm each
Straightness: 3 μ m
Travel distance: 0.5 mm/rotation
Micrometer reading: 10 μ m

M40 Micromanipulator



Realize a large amount of movement with high accuracy
Fixed method: Magnet with ON/OFF
Stroke amount: X, Y, Z ± 6.5 mm each
Straightness: 3 μ m
Travel distance: 0.5 mm/rotation
Micrometer reading: 10 μ m

M60 Micromanipulator for high frequency probe



Realize reliable contact of high frequency probe
Fixing method: magnet type or screw fixing
Stroke amount: X, Y, Z ± 6.5 mm each
 θ adjustment amount: $\pm 5^\circ$
Straightness: 3 μ m
Travel distance: 0.5 mm/rotation
Micrometer reading: 10 μ m
Each company RF probe can be installed

Various probes

Stable and reliable measurement results

Triaxial probe arm



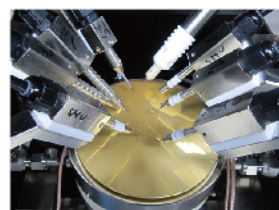
Best selling probe for fA level measurement
Connector: Triaxial
Cable: Triaxial
Cable length: Any
* Mount the probe tip on the tip and use it.

Coaxial probe arm



Probe that can be used for a wide range of measurements with BNC output
Connector: BNC (OP can change to SMA)
Cable: coaxial
Cable length: Any
* Mount the probe tip on the tip and use it.

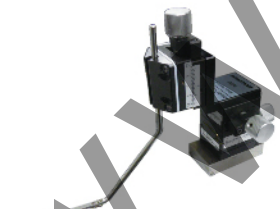
High voltage/high current probe arm



Various probes that achieve specifications of 20 kV or more, 200 A or more
■ Corresponding measuring instrument (HV) KEYSIGHT/B1505A Keithley/2657A IWATSU/CS series etc.
Connector: HV Triaxial, SHV, banana etc.
■ Corresponding measuring instrument (HC) KEYSIGHT/B1505A Keithley/2651A IWATSU/CS series etc.
Connector: HC coax, banana etc.
* Mount the probe tip on the tip and use it.

L arm

To connect with the curve tracer.
Soft contact with leaf spring



* Mount the probe tip on the tip and use it.

Coaxial probe

Coaxial structure for measurements of several hundred MHz



Connector: SMA

Probe tip

Tungsten (W)

- Hard
- Spring property available
- For Al pad
- Tip diameter lineup 1 μ m, 2 μ m, 5 μ m, 10 μ m, 30 μ m

Beryllium copper (BeCu)

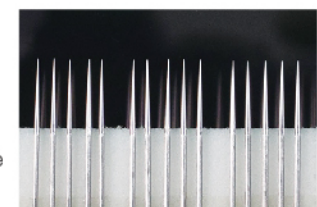
- Soft
- Contact resistance value is low
- Ideal for gold pads

Palladium (Pd)

- Soft
- Contact resistance value is low
- For high current
- It also fits gold pads

Iridium (Ir)

- Hard
- Contact resistance value is low
- For high current
- High permissible current value
- Stability of surface condition



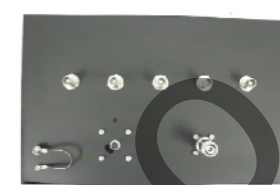
Measurement environment other

Shield box



- Low noise, in a dark environment.
Interlock interlocking possible with door.
- Internal black finish
→ dark environment of 0.01 Lux or less
 - With batch power ON/OFF switch on the outside
 - Through hole such as cable, fiber
 - Other custom specifications are also available
 - Please also consult with the shield box alone

Connector panel



It is a panel that relays inside the measuring instrument and the shield box.

- Triaxial
- BNC
- SMA
- HV Triaxial
- SHV
- banana

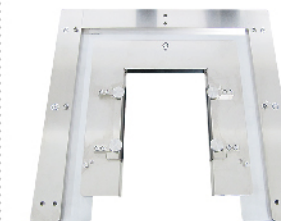
Proposal according to other measurement system

Anti-vibration table



- Eliminate vibration affecting probing.
- Lineup of desk integrated type and desktop type
 - Proposal according to prober model

Probe Card Adapter

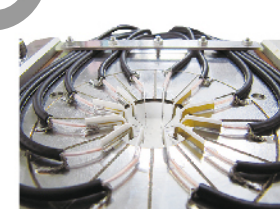


It is an adapter for attaching various probe cards to the prober.

<Corresponding shape>
4.5 inch rectangular substrate
For bulk contact for TDD/EM
Please consult about others

Probe card

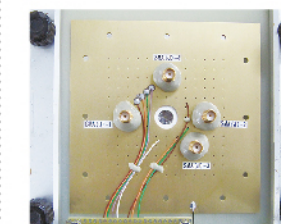
Probe card for measuring small current



Measurement at high temperature, small current measurement possible

- Low temperature -60°C to 350°C
- Minimum current measurement at fA level
- 4.5 inch rectangular substrate compatible
- 4070/4080 tester compatible

Probe card for high frequency measurement

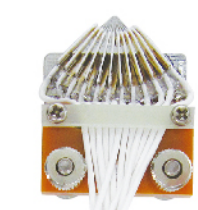


Use coaxial probe to achieve superior high frequency characteristics

- Excellent high frequency characteristics
- Reduced test cost
- Quick delivery

<Usage example>
· SAW filter · RF switch · LNA
· Bluetooth, IC for wireless LAN

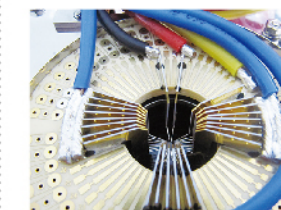
DC multi-contact probe



It can be installed in the positioner with the same shape as the high frequency probe

- LCR chip parts can be mounted in the vicinity of the device for countermeasures against oscillation supports random pin pitch
- Possible up to 20 pins
- Can be made with tungsten, BeCu, Pd, Ir needle

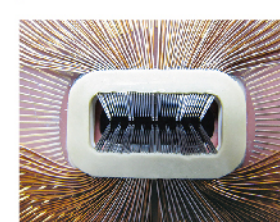
Probe Card for High Power Measurement



Supports voltage application of 10 kV or more and large current measurement of 200 A or more

- Correspondence of 10 kV, 200 A or more
- Structure to prevent discharge at high voltage
- High current support using iridium needle
- Connection to each measuring instrument
- Supports from development line to mass production line

Cantilever probe card for mass production



Cantilever type with excellent cost performance

- It corresponds to about 300 pin
- Multi correspondence correspondence
- Low cost and lower test cost
- Quick delivery

Estimate quotation with the following information.

1. Substrate information (dimensions, shape)
2. PAD placement (number of PINs)
3. Wiring information
4. Operating temperature rang