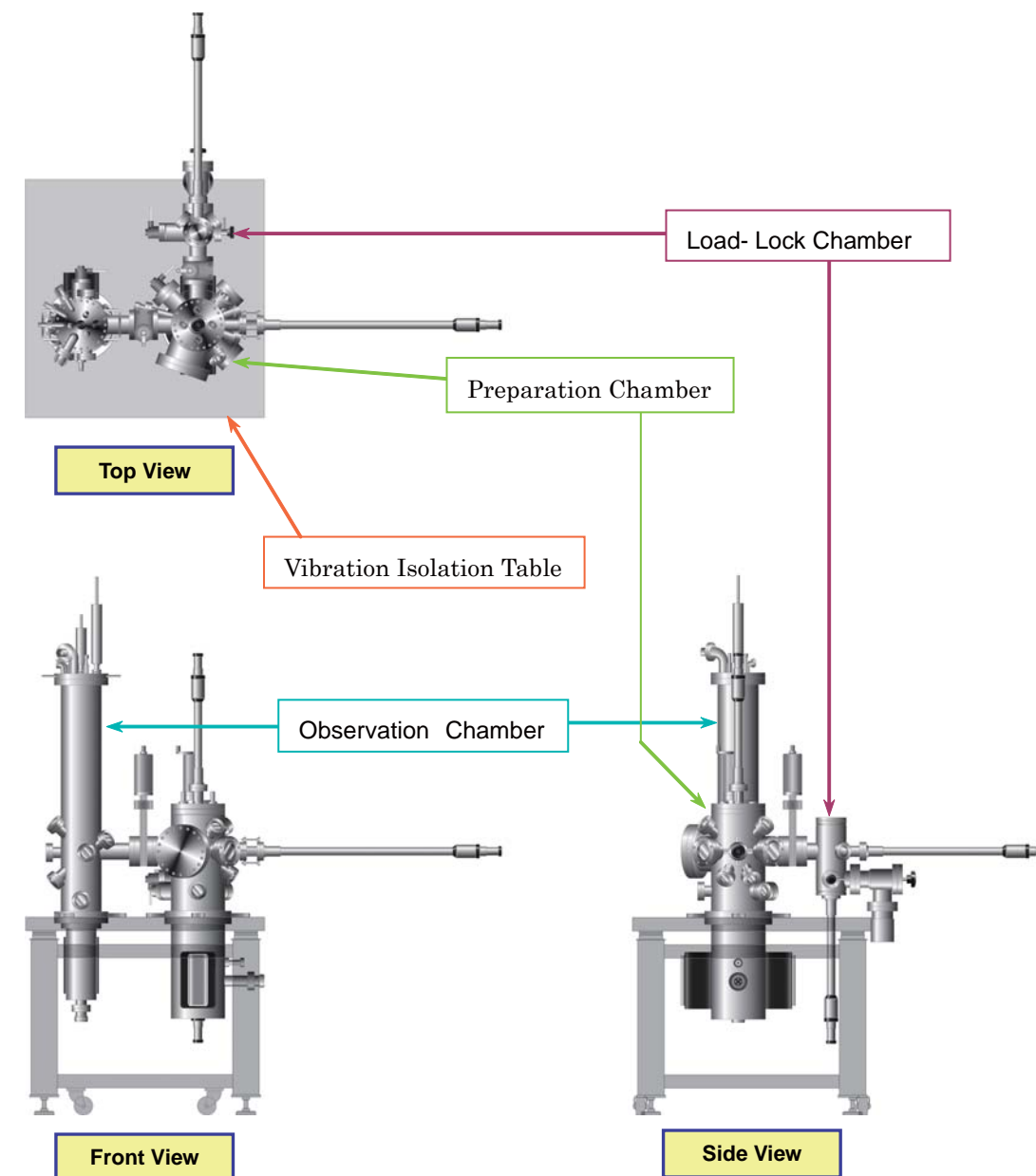


Ultrahigh Vacuum and Ultra Low Temperature Scanning Probe Microscope System  
**USM-1200 Series**



USM-1200 series makes it possible to observe the sample surface in UHV at ultra-low temperature by STM and/or AFM.

STM system: USM-1200S

AFM system: USM-1200A

STM/AFM system: USM-1200SA

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Instrumental components subject to change without prior notice for improvement in performance.

This series realize high performance, multi-functional, and easy-to use UHV LT SPM in good balance.

This series is adaptable to your research requirements such as irradiation of light or radiation, deposition of atom, gas, or molecules, and measurement of luminescence, etc.

Other analytical tools are also combined to the system for extending applications.

## USM-1200

Type of SPM	USM-1200S	USM-1200SA	USM-1200A
<b>◆ Observation Chamber</b>			
Chamber	Stainless Steel 152mmφ (electro polished)		
Base Pressure	≤ 1.3×10 <sup>-8</sup> Pa		
SPM Specification	STM	STM	AFM*1
Vibration Isolation	Coil spring with eddy current dampening		
Scan Range at RT/10K*2	>2□m/0.6□m*4	>4□m/1.2□m	>4□m/1.2□m
Z Range*2	>250nm at RT*4	>300nm at RT	>300nm at RT
Resolution Z*3	<0.02nm	<0.02nm	<0.1nm*5
Resolution X,Y*3	<0.1nm	<0.1nm	<1nm*5
Coarse Positioning(X)	± 2mm	N/A	N/A
<b>◆ Cooling Specification</b>			
Tank Volume	3lit.		
Thermal shielding	double shielding		
Thermal shutter	double shutters		
Cooling temperature	<10K		
Consumption of liquid He	0.5lit./hour		
Spare Ports	ICF70×2		
<b>◆ Load-Lock Chamber</b>			
Chamber	Stainless Steel 114mmφ (electro polished)		
Base Pressure	≤ 1.3×10 <sup>-5</sup> Pa		
Storage(Sample Holders)	3Holders		
Storage (Probe Tips)	3Tips		
Spare Ports	ICF70×2		
<b>◆ Preparation Chamber</b>			
Chamber	Stainless Steel 203mmφ (electro polished)		
Base Pressure	≤ 1.3×10 <sup>-8</sup> Pa		
Storage(Sample Holders)	2Holders		
Storage (Probe Tips)	4Tips		
Sample Heating	Ohmic heating is available on the storage		
Spare Ports	ICF70×4, ICF114×1, ICF203×1		

\*1 Piezo resistive type

\*2 Scan voltage :±150V(max.) by Unisurface α

\*3 The value in case of use Unisurface α or SPM1000 (RHK Make)

\*4 The value in case of use the special machine for STM

\*5 The value is assumed to be the one depending on the cantilever.

Acknowledge each specification the value to be might different according to installation features and the environment, etc.

Type of SPM	USM-1200S	USM-1200SA	USM-1200A
<b>◆ Vacuum System</b>			
Gate valve ICF114	between Observation Chamber and Preparation Chamber		
	between Preparation Chamber and Load-Lock Chamber		
Angle valve ICF114	between Load-Lock Chamber and Turbo Molecular pump		
for Observation Chamber			
Pressure gauge	Nude ion gauge		
Vacuum pump	400lit./sec Ion-Sublimation combination pump		
for Preparation Chamber			
Pressure gauge	Nude ion gauge		
Vacuum pump	1600lit./sec Ion-Sublimation combination pump		
for Load-Lock Chamber			
Pressure gauge	Nude ion gauge		
Vacuum pump	70lit./sec Turbo Molecular pump with Rotary pump		
<b>◆ Vibration Isolation Table</b>			
	Gimbal piston type air damper vibration isolation table		
<b>◆ Standard Accessories</b>			
Sample Holder	5Holders		
Probe Holder	5Holders		
Probe Tip	10 Pt; Ir tips	10 Pt; Ir tips and 5 Cantilevers	5 Cantilevers
Tools Set for STM	1set		
Tape Heater for STM	1set		
System bake out			
CCD camera	1set (Focus kit and CCD camera)		
Light source	1set (Fiber Light source and ICF70 flange coupler)		
Thermometer	1set		
Liquid He transfer tube	1set		
Instruction manual set	1set		
Power	100VAC 50/60Hz (Other Voltage is option )		

### SPM Controller and Data Acquisition System

option (UNISOKU SPM Controller or RHK SPM1000 Controller can operate this system)

This specification is base on 3 Chamber composition .

In case of 2 Chamber composition, it's specification is excepted blue background parts