

# UHV LT SPM System

This system is newly designed Low Temperature SPM with Super Conducting Magnet.

## USM-1500

The system covers wide variety of applications of surface science researches in physics, chemistry, and biology.



## Features

- ◆ Compact design realizes easy operation and reasonable price.
- ◆ Variable temperature operation down to 2.5K is possible.
- ◆ Stable operation is possible in high magnetic field up to 8T.
- ◆ AFM function is applied for non conductive materials.
- ◆ Simultaneous measurement of STM/AFM is possible using conductive AFM probe.
- ◆ Introduction of optical fiber or high frequency coax cable to SPM head are possible.

# Specification of the Ultra Low Temperature SPM

# USM -1500

## System line up

**USM-1500S** Load lock, Preparation, and STM insert chamber.

**USM-1500SA** including AFM function

### Options

Extra chamber for organic material deposition is available

Spatter gun, K-cell deposition source, E beam heating power supply and other useful attachment are available

## Specifications

### Load lock chamber

114 mm diameter

$10^{-5}$  Pa in 20 min pumping time

ICF 70 gate valve

ICF 114 quick accesses door can be exchange to conflat flange

ICF 114 pumping port using L valve

70 L/sec TMP and 110 L/min rotary pump

ICF 70 leak valve and ion gauge port

ICF 70 magnetic transfer rod

### Preparation chamber

152 mm diameter

$10^{-8}$  Pa base pressure

Ports for accessories ICF 152, ICF114, 12 x ICF 70

Transfer rod for manipulating sample and probe stage

4 sample and 4 probe can be hold on the stage

Sample current and EB heating is possible on the stage

ICF 70 gate valve is installed on the Insert chamber

150 L/sec ion pump with TSP is installed

### LT STM chamber

#### Cryostat

40 L LHe cryostat with super insulation

Low LHe consumption 0.35 L/hour

LHe level mater and temperature controller are included

#### Insert

Variable temperature design from 2.5 K to RT

Super conducting magnet 8 T can be installed as a option

#### STM (AFM function is possible)

Coarse adjust of sample stage is installed, displacement

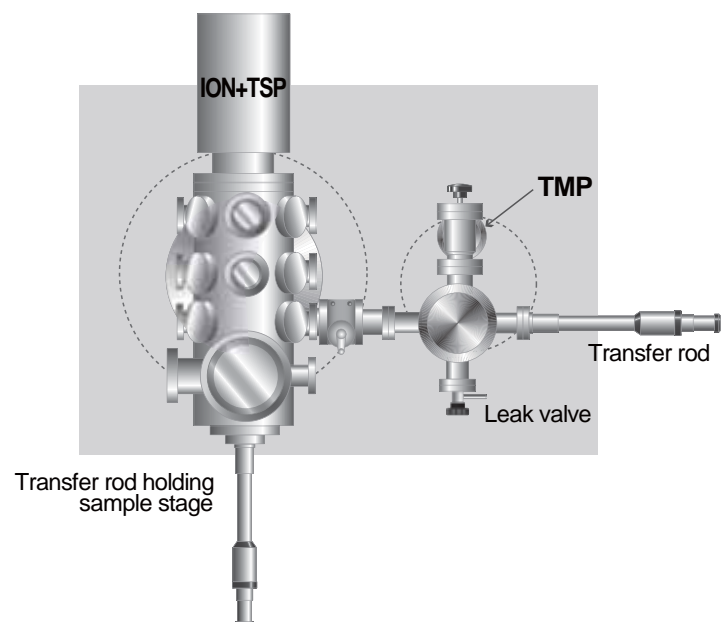
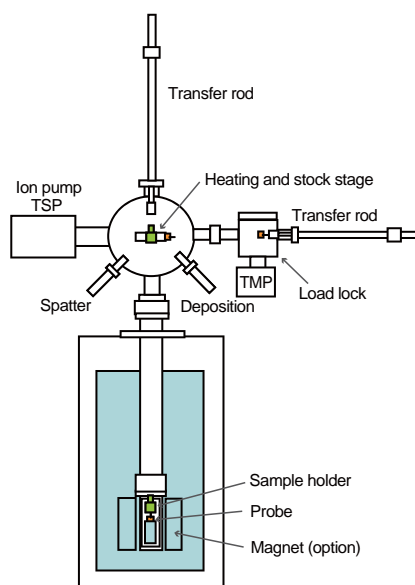
of 0.5 mm in XY directions

Coarse displacement of 3 mm in Z direction

Scanning range: 4 micrometer in XY direction at RT

Servo range: 0.7 micrometer in Z direction

Scanning and servo range are decreased 1/3 at 4K



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