

DELIVERY RECORD

Client: National Synchrotron Radiation Research Center

Facility: TPS (Taiwan Photon Source)

Location: Hsinchu, Taiwan

1 October 2018

 **MITSUBISHI HEAVY INDUSTRIES MECHATRONICS SYSTEMS, LTD.**

Machinery Systems Sales Department

MHIMS0115014

- 1. OVERVIEW**
- 2. 500MHz SUPERCONDUCTING RF MODULE**
- 3. 500MHz SUPERCONDUCTING RF CAVITY**
- 4. POWER COUPLER**

1. OVERVIEW



Aerial view of the NSRRC

Taiwan Photon Source (TPS, big ring in the front)

Taiwan Light Source (TLS, small ring in the back)

Main Parameters of TPS

Energy	3GeV
Beam Current	500mA at 3GeV
C of the Storage Ring	518.4m
Emittance	1.6nm·rad at 3GeV (Distributed dispersion)
RF Frequency	499.654MHz
Critical Energy	7.13keV (dipole)
Energy Loss/turn	853keV (dipole)

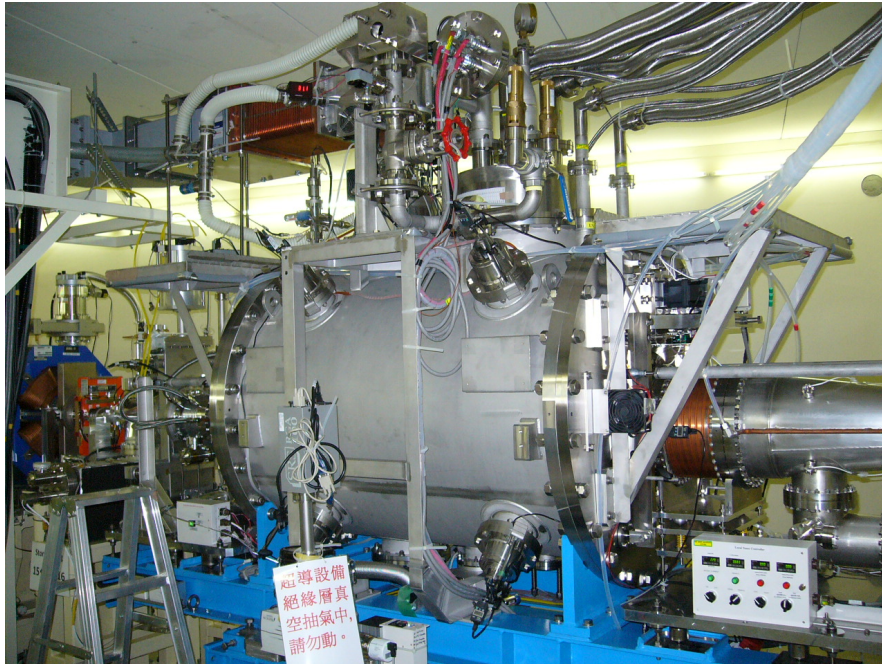
List of Main Supplies

500MHz Superconducting RF Module

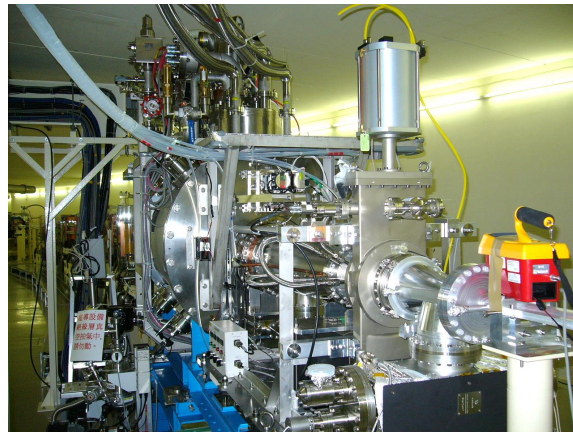
500MHz Superconducting RF Cavity

Power Coupler

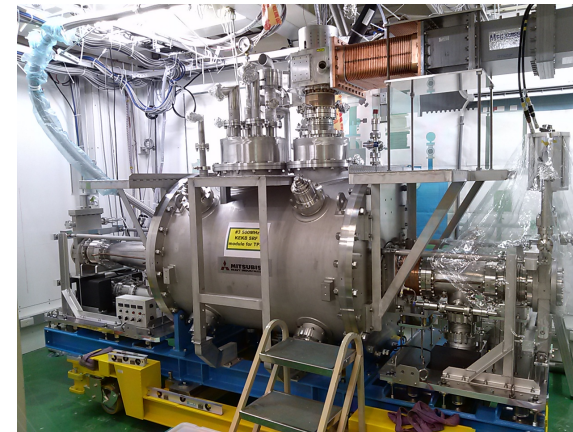
2. 500MHz SUPERCONDUCTING RF MODULE



Installed in TPS
Storage Ring

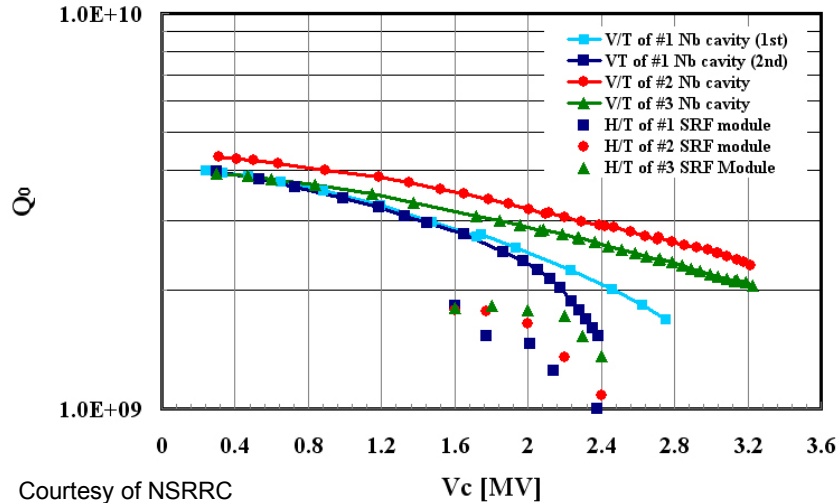


Main Parameters	
Accelerating Field	2.4MV
Q-Value	5.0×10^8
Frequency	500MHz
Cell Number	1
Material	Pure Niobium
Driving temperature	4.5K

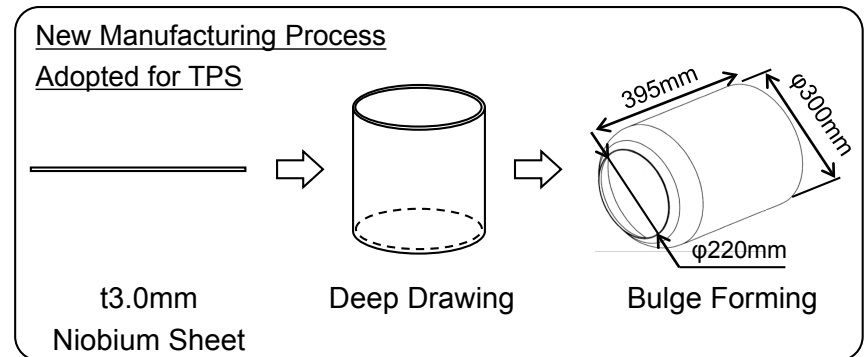
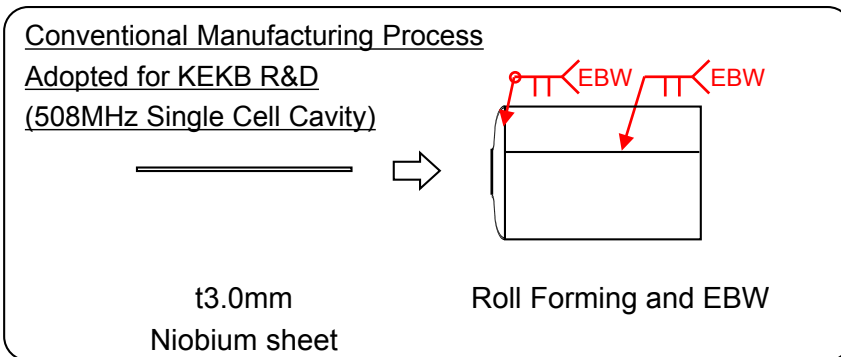
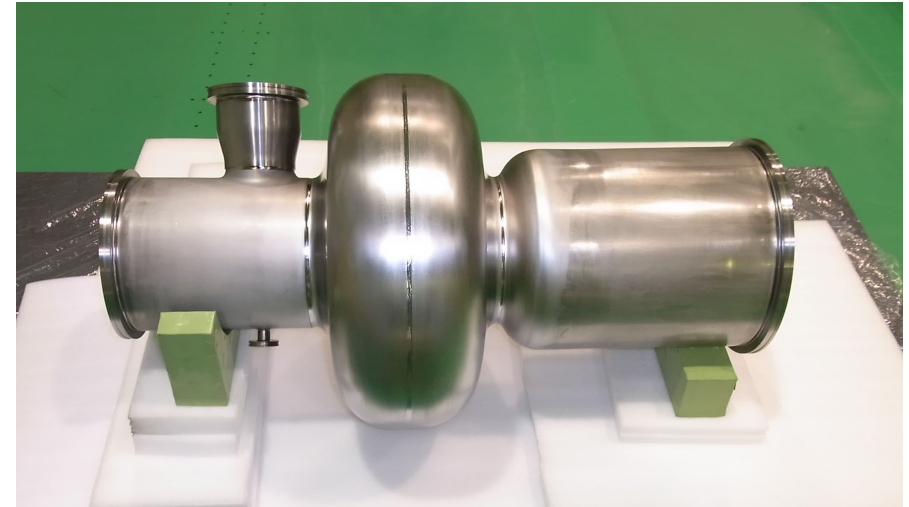


Installed in
Horizontal Test
Stand at NSRRC

3. 500MHz SUPERCONDUCTING RF CAVITY



Results of Vertical Test (V/T) and Horizontal Test (H/T) of the 500MHz Niobium Cavities and SRF Modules



4. POWER COUPLER



Main Parameters

RF power	300kW, CW
External Q-Value	7.0×10^4
Frequency	500MHz
Length	887mm
Diameter	52.1mm
Material (Inner conductor)	Pure copper

Installation of
Power Coupler at NSRRC

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