

# DELIVERY RECORD

Client: High Energy Accelerator Research Organization (KEK)

Facility: TRISTAN

(Transposable Ring Intersecting Storage Accelerator in Nippon)

Location: Ibaraki, Japan

1 October 2018

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

Machinery Systems Sales Department

MHIMS0115003

- 1. OVERVIEW**
- 2. SUPERCONDUCTING CAVITY**
- 3. APS (ALTERNATING PERIODIC STRUCTURE) CAVITY**

# 1. OVERVIEW

## List of Main Supplies

Superconducting Cavity

APS Cavity

S-band Accelerating Structure

## S-band Accelerating Structure

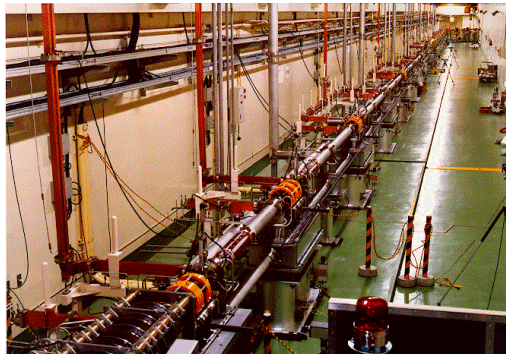
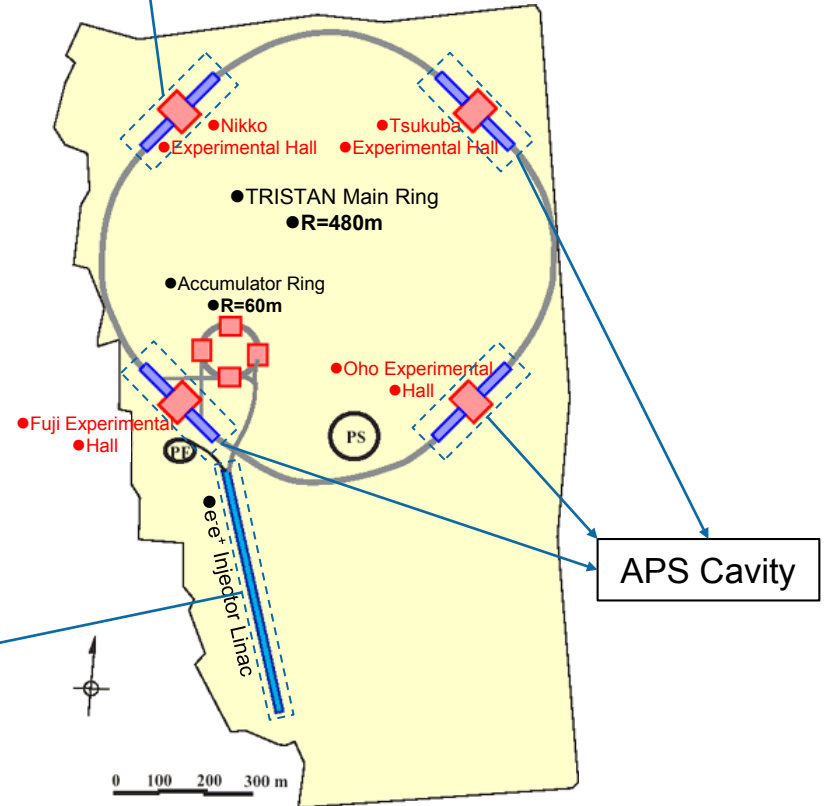


Photo courtesy of KEK

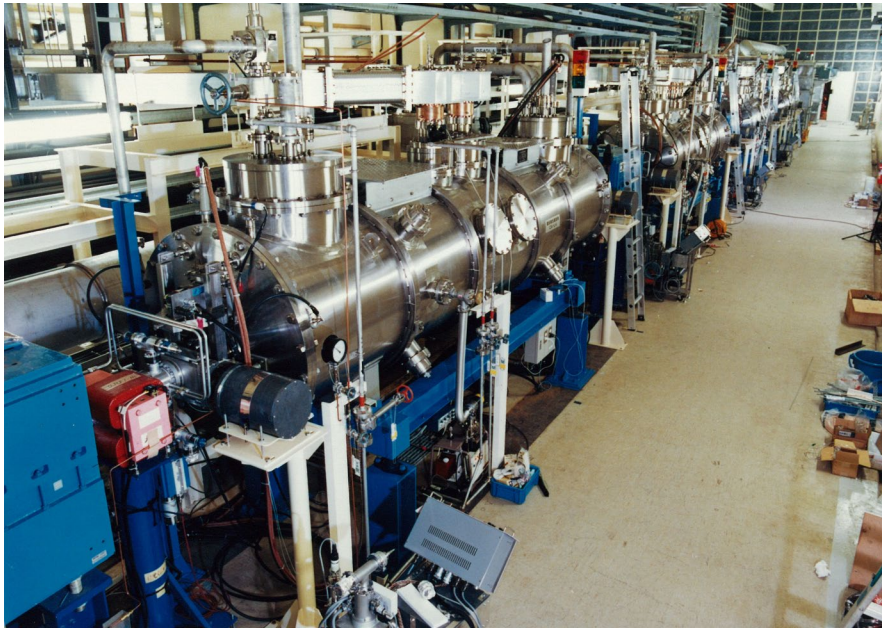
## Superconducting Cavity



**Schematic View of TRISTAN**  
(1986 – 1993)

Courtesy of KEK

# 2. SUPERCONDUCTING CAVITY



## Main Parameters

Structure	Standing Wave
Accelerating Field	5MV/m (Design Value)
Q-value	$2.3 \times 10^9$
Frequency	508.6MHz
Number of Cavity per Module	2 x 5-cell per Module
Mode	Standing Wave $\pi$ -mode
Material	Pure Niobium
Fabrication Method	Electron Beam Welding
Number of Delivery	18 Modules (Incl. 2 Spares)



# 3. APS CAVITY

## Main Parameters

Total Length	2.7m
Resonant Frequency	508.6MHz
RF Input Power	150kW Continuous
Accelerating Voltage	3MV Continuous
Shunt Impedance	22.5MΩ/m
Accelerating Field	1.1MV/m
Baking Temperature	150°C
Number of Cavity per Unit	2 x 9-cell per Unit
Material	High Purity Steel
Inside Surface Finish	Copper Plated 0.2mm Thick (Pyrophosphoric-acid Bath Method)
Number of Delivery	104 Cavities

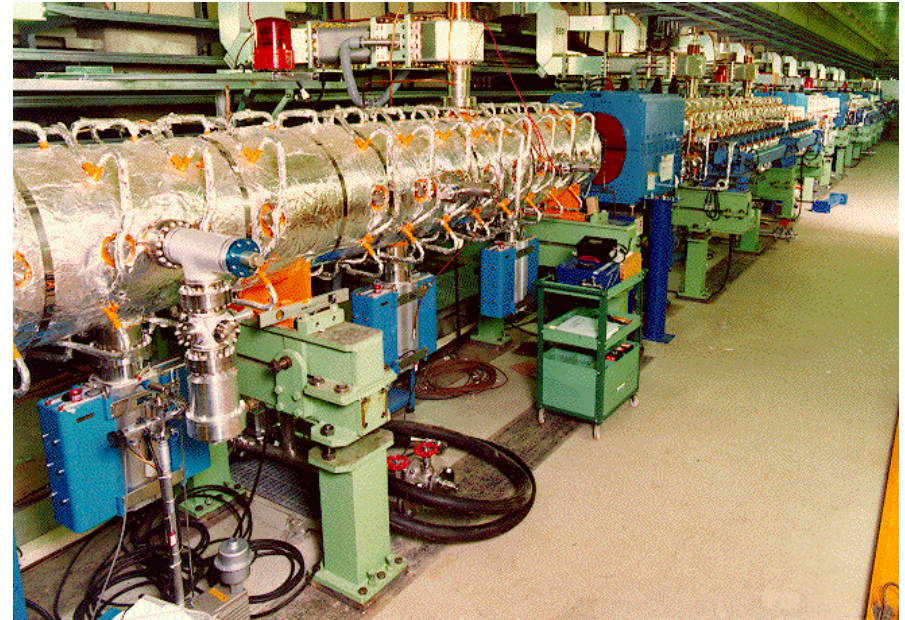
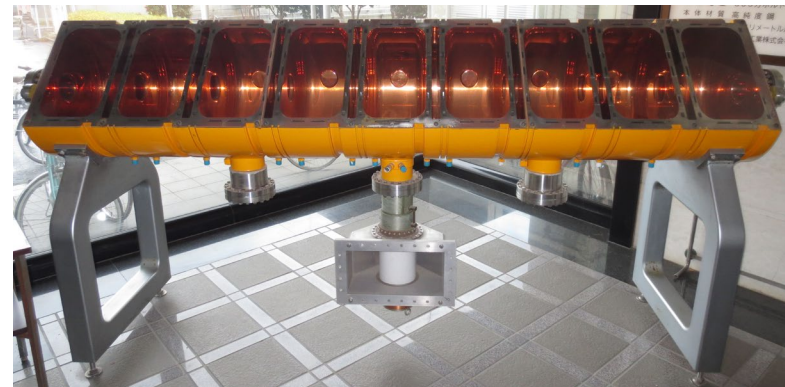


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