

**ENTRY NO:** CM-7  
**Machine Name:** 930  
**Date:** 5/31/01 2:02:06 AM  
**Institution:** Sumitomo Heavy Industries, Ltd.  
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## HISTORY

**Designed By:** Sumitomo Heavy Industries, Ltd.

**Construction Dates:**

**First Beam Date:**

## CHARACTERISTIC BEAMS

ions	/ energy(MeV/N)	/current(pps)	/power(w)
p	90	10micro-ampere	
d	50	20micro-ampere	
40Ar8+	195	3micro-ampere	

**transmission efficiency(source to extract beam)**

**typical:** % - **best:** %

**tranverse emmitance**

**emmitance definition:**

**vertical:**  $\pi$  mm mrad

**horizontal:**  $\pi$  mm mrad

**longitudinal:**  $(\Delta) E/E) \% \times \text{deg RF}$

## USES

**basic research:** %

**therapy:** %

**development:** %

**isotope production:** %

**other:** %

**maintenance:** %

**beam tuning:** %

**Total Time:** h/year

## TECHNICAL DATA

**a)magnet:** type:

**Kb:** 110MeV/A **Kf:** 95MeV/A

**average field (min/max):** 1.64 T

**number of magnet sectors:** 4

**hill angular width:** hill angular width

**spiral (max):** deg

**pole parameters**

**diameter:** 2.16 m

**injection radius:** m

**extraction radius:** 0.923 m

**hill gap:** 0.166m **valley gap:** 0.405m

**trim coils**

-number: 12x2

-current(max): A-turns

**harmonic coils**

-number: 2xNsectorsx2

-current(max): A-turns

**main coils**

**number:** 1x2

**total ampere-turns:** 408000 A-turns

**current:** 900 A

**stored energy:** MJ

**weight - iron:** 220t **coils:** 9t

**power**

**main coils (total):** kW

**trim coils (total max):** kW

**refrigerator (cryogenic):** kW

**b)RF**

**acceleration**

**frequency range:** 11-22MHz

**harmonic modes:** 1,2,3

**number of dees:** 2

**number of cavities:** 2

**dee angular width:** 90degrees

**voltage**

at injection: 60kV(peak to ground, max)

at extraction: 60kV(peak to ground, max)

peak: 60kV(peak to ground, max)

**line power(max):** 2\*70kW

**stability**

**phase:** deg

**voltage:** %

**injection**

**c)ion source:** ECR, Multicusp

**external injection:** axial

**components:**

**source bias voltage:** 20kV

**injection energy:** MeV/N

**buncher:** Krystron

**injection efficiency:** 20%

**d)injector:** Spiral inflector

**e)extraction**

Electrostatic deflector Magnetic channel Gradient corrector(passive)

**efficiency**

**typical:** 60-70%

**best:** %

**f)vacuum**

**pumps:** 4 sets of cryopumps + 1 turbomolecular pump

**achieved vacuum:**  $5 \times 10^{-5}$  Pa

## REFERENCES

## EXPERIMENTAL FACILITIES

## COMMENTS