ENTRY NO: CM11
Date: 14 Feb 2005 22:11:16
Machine Name: 930
Institution: Sumitomo Heavy Industries, Ltd.
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Web Address: www.shi.co.jp/quantum/index.htm1
Person in Charge of Cyclotron:
Person Reporting Information: T.Tachikawa
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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 extracted beam)
Typical (%):
Best (%):
Emittance
Emittance Definition:
Vertical (pi mm mrad):
Horizontal (pi mm mrad):
Longitudinal (dE/E[%] x RF[deg.]):
USES
Basic Research (%):
Development (%):
Therapy (%):
Isotope Production (%):
Other Application (%):
Maintenance (%):
Beam Tuning (%):
Total Time (h/year):

TECHNICAL DATA
(a)Magnet
Type:
Kb (MeV): 110
Kf (MeV): 95
Average Field (min./max. T): 1.64
Number of Sectors: 4
Hill Angular Width (deg.):
Spiral (deg.):
Pole Diameter (m): 2.16
Injection Radius (m):
Extraction Radius (m): 0.923
Hill Gap (m): 0.166
Valley Gap (m): 0.405
Trim Coils
Number: 12x2
Maximum Current (A-turns):
Harmonic Coils
Number: 2xNsectorsx2
Maximum Current (A-turns):
Main Coils
Number: 1x2
Total Ampere Turns: 408000
Maximum Current (A): 900
Stored Energy (MJ):
Total Iron Weight (tons): 220
Total Coil Weight (tons): 9
Power
Main Coils (total KW):
Trim Coils (total, maximum, KW):
Refrigerator (cryogenic, KW):

(b)RF
Acceleration
Frequency Range (MHz): 11-22
Harmonic Modes: 1,2,3
Number of Dees: 2
Number of Cavities: 2
Dee Angular Width (deg.):90
Voltage
At Injection (peak to ground, KV): 60
At Extraction (peak to ground, KV): 60
Peak (peak to ground, KV): 60
Line Power (max, KW): 2*70
Phase Stability (deg.):
Voltage Stability (%):

(c)Injection
Ion Source: ECR, Multicusp
Source Bias Voltage (kV): 20
External Injection: axial
Buncher Type: Krystron
Injection Energy (MeV/n):
Component:
Injection Efficiency (%): 20
Injector: Spiral inflector

(d)Extraction
Elements, Characteristic: Electrostatic deflector Magnetic channel Gradient corrector(passive)
Typical Efficiency (%): 60-70
Best Efficiency (%):

(e)Vacuum
Pumps: 4 sets of cryopumps + 1 turbomolecular pump
Achieved Vacuum (Pa): 5*10-5

REFERENCES

EXPERIMENTAL FACILITIES

COMMENTS