ENTRY NO: C28
Date: 28 Feb 2005 13:08:46
Machine Name: C-30
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History
Designed by: Accel. Phys. and Technology DEp. of Institute
Construction Dates: 1983 - 1989
First Beam Date: 1989, 1991 at full energy
Characteristic Beams
ions/energy(MeV/N)/current(microA)
H^->proton 28 MeV 1 microA average;
p internal 30MeV 150 microA in pulse
Transmission Efficiency (source to extracted beam)
Typical (%): 20 for H
Best (%):
Emittance
Emittance Definition:
Vertical (pi mm mrad):
Horizontal (pi mm mrad):
Longitudinal (dE/E[%] x RF[deg.]):
USES
Basic Research (%): 30
Development (%): 25
Therapy (%):
Isotope Production (%): 20
Other Application (%): 15
Maintenance (%): 10
Beam Tuning (%):
Total Time (h/year): 1000

TECHNICAL DATA
(a)Magnet
Type: compact
Kb (MeV): 30
Kf (MeV): 50
Average Field (min./max. T): 1.8 fixed
Number of Sectors: 4
Hill Angular Width (deg.): 45
Spiral (deg.): 0
Pole Diameter (m): 1.05
Injection Radius (m):
Extraction Radius (m): 0.45
Hill Gap (m): 0.02 min
Valley Gap (m): 0.1
Trim Coils
Number: nonex2
Maximum Current (A-turns):
Harmonic Coils
Number: nonexNsectorsx2
Maximum Current (A-turns):
Main Coils
Number: 2x2
Total Ampere Turns: 164000
Maximum Current (A): 350
Stored Energy (MJ):
Total Iron Weight (tons): 38
Total Coil Weight (tons): 1.4
Power
Main Coils (total KW): 65
Trim Coils (total, maximum, KW):
Refrigerator (cryogenic, KW):

(b)RF
Acceleration
Frequency Range (MHz): 52.78 fixed
Harmonic Modes: 2
Number of Dees: 2
Number of Cavities: 2
Dee Angular Width (deg.):45
Voltage
At Injection (peak to ground, KV): 50
At Extraction (peak to ground, KV): 5% lower
Peak (peak to ground, KV):
Line Power (max, KW): 25 in pulse
Phase Stability (deg.):
Voltage Stability (%):

(c)Injection
Ion Source: PIG internal
Source Bias Voltage (kV):
External Injection: planned axial 18 keV
Buncher Type: place foreseen
Injection Energy (MeV/n): 0.018
Component: Multicusp, 90deg bend,magn.,
quad. quadruplet,,solenoid, correct., spiral inflect.
Injection Efficiency (%):
Injector:

(d)Extraction
Elements, Characteristic: stripping on Al foils efficiency
Typical Efficiency (%): 80
Best Efficiency (%):

(e)Vacuum
Pumps: 2x 2000 l/s oil diff.
Achieved Vacuum (Pa): 0.0001

REFERENCES IEEE Trans.Nucl.Sci.,vol.NS-32,5/1985/ 11th Cyclotron Conf., Tokyo, 76-79 /1986/ 15th Cyclotron Conf., Caen, 435-438/ 1998/

EXPERIMENTAL FACILITIES
1m scattering chamber, Equipment for targets irradiation(isotope production)

COMMENTS