ENTRY NO: CU04
Date: 15 Feb 2005 11:27:09
Machine Name: CV-28 Cyclotron
Institution: Instituto de Pesquisas Energeticas e Nucleares
Address: Travessa "R", 400 - Cidade Universitaria
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Person in Charge of Cyclotron: Wanderley de Lima
Person Reporting Information: Wanderley de Lima
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History
Designed by: The Cyclotron Corporation - TTC
Construction Dates: 1977
First Beam Date: Dec. 1983
Characteristic Beams
ions / energy(MeV/N)/current(pps)/power(w)

p	2-24	3.75 E14	1440
d	4-14	6.24 E14	1400
3He++	6-36	3.12 E14	1800
4He++	8-28	2.50 E14	1120

Transmission Efficiency (source to extracted beam)
Typical (%): 40
Best (%): 60
Emittance
Emittance Definition:
Vertical (pi mm mrad): 9.6
Horizontal (pi mm mrad): 9.6
Longitudinal (dE/E[%] x RF[deg.]):
USES
Basic Research (%): 0
Development (%):
Therapy (%):
Isotope Production (%):
Other Application (%):
Maintenance (%):
Beam Tuning (%):
Total Time (h/year): 0

TECHNICAL DATA
(a)Magnet
Type: Compact
Kb (MeV):
Kf (MeV):
Average Field (min./max. T): 1.74
Number of Sectors: 3
Hill Angular Width (deg.):
Spiral (deg.): 60
Pole Diameter (m): 0.96
Injection Radius (m):
Extraction Radius (m): 0.42
Hill Gap (m): 0.0508
Valley Gap (m): 0.1164
Trim Coils
Number: 4x2
Maximum Current (A-turns):
Harmonic Coils
Number: 3xNsectorsx2
Maximum Current (A-turns):
Main Coils
Number: 2x2
Total Ampere Turns: 2.3E5
Maximum Current (A): 230
Stored Energy (MJ):
Total Iron Weight (tons):
Total Coil Weight (tons):
Power
Main Coils (total KW): 69
Trim Coils (total, maximum, KW): 50
Refrigerator (cryogenic, KW):

(b)RF
Acceleration
Frequency Range (MHz): 6.5-25.5
Harmonic Modes: Firs
Number of Dees: 2
Number of Cavities:
Dee Angular Width (deg.):90
Voltage
At Injection (peak to ground, KV):
At Extraction (peak to ground, KV):
Peak (peak to ground, KV):
Line Power (max, KW):
Phase Stability (deg.):
Voltage Stability (%): 1

(c)Injection
Ion Source: Cold Cathode - Penning or Thermionic
Source Bias Voltage (kV): 2.5
External Injection: Radial
Buncher Type:
Injection Energy (MeV/n):
Component: Cathode
Injection Efficiency (%):
Injector:

(d)Extraction
Elements, Characteristic: Electrostatic Deflector - Magnetic Channel efficiency
Typical Efficiency (%): 40
Best Efficiency (%): 60

(e)Vacuum
Pumps: Diffusion Pump
Achieved Vacuum (Pa): 1.3E-3

REFERENCES The Cyclotron Corporation, Instruction and Services Manual for The Cyclotron Corporation ㄴs - Model CV-28 Cyclotron Ser. 604, US PAT. (TCC INS 26), Nov.12, 1976.

EXPERIMENTAL FACILITIES

COMMENTS