ENTRY NO:C26
Date: 1 Apr 2005 17:00:00
Machine Name: KIRAMS-13
Institution: Korea Institute of Radiological & Medical Sciences (KIRAMS)
Address: 215-4, Gongneung-Dong, Nowon-Gu, Seoul, Korea
Telephone: +82-2-970-1331
Fax: +82-2-970-1332
Web Address: http://lad.re.kr or http://cal.re.kr
Person in Charge of Cyclotron: Jong Seo Chai
Person Reporting Information: Dong Hyun An
E-mail Address: jschai@kcch.re.kr, ectroan@kcch.re.kr

History
Designed by: KIRAMS
Construction Dates: 2001. 12.
First Beam Date: 2002. 2.
Characteristic Beams
H-/13MeV/50uA/650w
D-/6MeV
Transmission Efficiency (source to extracted beam)
Typical (%): 10
Best (%):
Emittance
Emittance Definition: RMS
Vertical (pi mm mrad): 6
Horizontal (pi mm mrad): 29
Longitudinal (dE/E[%] x RF[deg.]): 4(%)x55(deg)
USES
Basic Research (%): 0
Development (%): 15
Therapy (%): 0
Isotope Production (%): 70
Other Application (%): 5
Maintenance (%): 10
Beam Tuning (%): 0
Total Time (h/year): 500

TECHNICAL DATA
(a)Magnet
Type: compact
Kb (MeV): 13
Kf (MeV): 13
Average Field (min./max. T): 1.27-1.29
Number of Sectors: 4
Hill Angular Width (deg.): 30-40
Spiral (deg.):
Pole Diameter (m): 0.96
Injection Radius (m): x
Extraction Radius (m): 0.406
Hill Gap (m): 0.04
Valley Gap (m): 0.12
Trim Coils
Number:
Maximum Current (A-turns):
Harmonic Coils
Number:
Maximum Current (A-turns):
Main Coils
Number: 1x2
Total Ampere Turns: 45600/coil
Maximum Current (A): 150
Stored Energy (MJ): 0.05
Total Iron Weight (tons): 18
Total Coil Weight (tons): 1
Power
Main Coils (total KW): 12
Trim Coils (total, maximum, KW):
Refrigerator (cryogenic, KW):

(b)RF
Acceleration
Frequency Range (MHz): 77.3
Harmonic Modes: 4
Number of Dees: 2
Number of Cavities: 2
Dee Angular Width (deg.): 39
Voltage
At Injection (peak to ground, KV): 45
At Extraction (peak to ground, KV):
Peak (peak to ground, KV):
Line Power (max, KW): 30
Phase Stability (deg.): 1
Voltage Stability (%): 0.1

(c)Injection
Ion Source: Internal col cathode P.I.G.
Source Bias Voltage (kV):
External Injection: radial
Buncher Type:
Injection Energy (MeV/n):
Component:
Injection Efficiency (%):
Injector:

(d)Extraction
Elements, Characteristic: Carbon stripper foil
Typical Efficiency (%): 99
Best Efficiency (%): 100

(e)Vacuum
Pumps: 2 x 1650 l/s oil diffusion pumps
Achieved Vacuum (Pa): 1.7e-5

REFERENCES J.S.Chai et al., 17th Cyclo. Conf. (2004)
Y. Kim et al., 17th Cyclo. Conf. (2004)
D. H. An et al., 17th Cyclo. Conf. (2004)
I. S. Jung et al., 17th Cyclo. Conf. (2004)

EXPERIMENTAL FACILITIES

COMMENTS