ENTRY NO: C-46
Machine Name: Harper Hospital / Gershenson Radiation Oncology Center Cyclotron
Date: 5/22/01 10:20:52 AM
Institution: Karmanos Cancer Institute
Address 3990 John R Street, Detroit, MI 48201
In Charge of Cyclotron: Mark Yudlev, Emanuel Blosser
Telephone: 313 745 2464
Fax: 313 745 2314
Person Reporting: Mark YUDELEV
Web:
E-mail: yudelevm@karmanos.org

HISTORY
Designed By: Henry Blosser
Construction Dates: 1984 - 1992
First Beam Date: April 1989
CHARACTERISTIC BEAMS

ions	/ **energy**(MeV/N)/**curre**nt(pps)/**powe**r(w)		
deutrons	48.5	15 uA	750

transmision efficiency(source to extract beam)
typical: % - **best:** %
tranverse emmitance
emmitance definition:
vertical: π mm mrad
horizontal: π mm mrad
longitudinal: (Δ) E/E)%xdeg RF

USES
basic research: 10% **therapy:** 80%
development: % **isotope production:** %
other: % **maintenance:** 10%
beam tuning: % **Total Time:** 2750h/year

TECHNICAL DATA
a)magnet: **type:** superconducting
Kb: K100MeV/A **Kf:** MeV/A
average field (min/max): 4.5 T
number of magnet sectors: 3
hill angular width: hill angular width
spiral (max): deg
pole parameters
diameter: 0.3 m
injection radius: m
extraction radius: m
hill gap: 0.038m **valley gap:** 0.406m
trim coils
-number: x2
-current(max): A-turns
harmonic coils
-number: xNsectorsx2
-current(max): A-turns
main coils
number: 1x2
total ampere-turns: 963,641 A-turns
current: 203 A
stored energy: 2.0MJ
weight - iron: 24t coils: 0.76t
power
main coils (total): kW
trim coils (total max): kW
refrigerator (cryogenic): kW
b)RF
acceleration
frequency range: 105 onlyMHz
harmonic modes: 1/3
number of dees: 3
number of cavities: 1
dee angular width: degrees
voltage
at injection: kV(peak to ground, max)
at extraction: kV(peak to ground, max)
peak: kV(peak to ground, max)
line power(max): kW
stability
phase: deg
voltage: %
injection
c)ion source: cold cathode
external injection:
components:
source bias voltage: kV
injection energy: MeV/N
buncher:
injection efficiency: %
d)injector:
e)extraction

efficiency
typical: %
best: %
f)vacuum
pumps: turbo molecular
achieved vacuum: Pa
REFERENCES

EXPERIMENTAL FACILITIES

COMMENTS