ENTRY NO: CU-29
Machine Name: Clinical Cyclotron
Date: 5/24/01 2:01:12 PM
Institution: University of Washington Medical Center
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HISTORY
Designed By: Scanditronix AB, Uppsala, Sweden
Construction Dates: 1981/82
First Beam Date: Factory: June 1982, Facility: June 1983
CHARACTERISTIC BEAMS

ions	/ **energy**(MeV/N)/**curre**nt(pps)/**powe**r(w)	
p	28 to 50.5	80 uA
d	15 to 24	50 uA
3He++	21 to 35	2 uA
4He++	28 to 48	50 uA

transmision efficiency(source to extract beam)
typical: % - **best:** %
tranverse emmitance
emmitance definition: 50 %
vertical: protons: 14π mm mrad
horizontal: protons: 12π mm mrad
longitudinal: (Δ) E/E)%xdeg RF

USES
basic research: 1% **therapy:** 75%
development: 5% **isotope production:** 7%
other: 5% **maintenance:** 2%
beam tuning: 5% **Total Time:** 1800h/year

TECHNICAL DATA
a)magnet: **type:** compact
Kb: 51MeV/A **Kf:** MeV/A
average field (min/max): 1.75 T
number of magnet sectors: 3
hill angular width: hill angular width
spiral (max): 55 deg
pole parameters
diameter: 1.55 m
injection radius: m
extraction radius: 0.57 m
hill gap: 0.115m **valley gap:** 0.205m
trim coils
-number: 10x2
-current(max): A-turns
harmonic coils
-number: 4xNsectorsx2
-current(max): A-turns
main coils
number: 1x2
total ampere-turns: 288000 A-turns
current: 900 A
stored energy: MJ
weight - iron: 90t coils: t
power
main coils (total): 120 kW
trim coils (total max): 3.0 kW
refrigerator (cryogenic): kW
b)RF
acceleration
frequency range: 19.5 to 26.0MHz
harmonic modes: 1,2
number of dees: 2
number of cavities:
dee angular width: 90degrees
voltage
at injection: kV(peak to ground, max)
at extraction: kV(peak to ground, max)
peak: 40kV(peak to ground, max)
line power(max): 60kW
stability
phase: 0.1 deg
voltage: 0.1%
injection
c)ion source: Dual chimney, cold cathode PIG
external injection:
components:
source bias voltage: kV
injection energy: MeV/N
buncher:
injection efficiency: %
d)injector:
e)extraction
Electrostatic Deflector, 46 kV max. Electromagnetic Channel, 1200 A max. Two passive focusing channels
efficiency
typical: 85 (proton%
best: 90%
f)vacuum
pumps: Two oil diffusion pumps, 2 x 4300 l/sec
achieved vacuum: 3. 10E-04Pa
REFERENCES
R. Risler et al. these proceedings
EXPERIMENTAL FACILITIES

COMMENTS