

ENTRY NO: CU-1
Machine Name: CYCLONE30
Date: 5/18/01 10:06:08 AM
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HISTORY

Designed By: Ion Beam Applications (IBA)
Construction Dates: 9 April 1991
First Beam Date: 9 July 1991
CHARACTERISTIC BEAMS

ions	/ energy(MeV/N)/current(pps)/power(w)
H-	15 - 30 10 - 450 95000

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

USES

basic research: % **therapy:** %
development: % **isotope production:** 95%
other: % **maintenance:** 5%
beam tuning: % **Total Time:** 4000h/year

TECHNICAL DATA

a)magnet: **type:** Compact
Kb: MeV/A **Kf:** MeV/A
average field (min/max): 1.7 T
number of magnet sectors: 4
hill angular width: hill angular width
spiral (max): deg
pole parameters
diameter: m
injection radius: m
extraction radius: m
hill gap: m **valley gap:** m
trim coils
-number: x2
-current(max): A-turns
harmonic coils
-number: xNsectorsx2
-current(max): A-turns
main coils
number: x2
total ampere-turns: A-turns
current: A
stored energy: MJ
weight - iron: t **coils:** t
power
main coils (total): 7.2 kW
trim coils (total max): kW
refrigerator (cryogenic): kW
b)RF
acceleration
frequency range: 65.5MHz

harmonic modes: 4
number of dees: 2
number of cavities:
dee angular width: degrees
voltage
at injection: kV(peak to ground, max)
at extraction: kV(peak to ground, max)
peak: 50.0kV(peak to ground, max)
line power(max): 15.0kW
stability
phase: deg
voltage: %
injection
c)ion source: Multi cusp
external injection: External
components:
source bias voltage: 28kV
injection energy: MeV/N
buncher:
injection efficiency: %
d)injector:
e)extraction

efficiency
typical: %
best: %

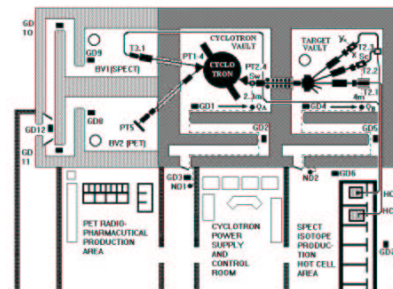
f)vacuum
pumps: Cryogenic
achieved vacuum: Pa

REFERENCES

1. B Mukherjee and D W Arnott: Proc 13th ICCA
2. B Mukherjee: Proc 14th ICCA
3. B Mukherjee: Proc 14th ICCA
4. E M Conard, D W Arnott and S Purcell: Proc 14th ICCA
5. B Mukherjee, R Ronningen and P Rossi: Proc 15th ICCA
6. B Mukherjee: Proc 15th ICCA
7. B Mukherjee: Proc 15th ICCA
8. B Mukherjee: Proc 16th ICCA
9. B Mukherjee, R M Ronningen, P Rossi and P Grivins: Proc 16th ICCA

EXPERIMENTAL FACILITIES

1. Fast and Thermal Neutron irradiation facility using the parasitic neutrons
 2. Neutron dosimetry
 3. Neutron spectrometry
 4. Radiation monitoring and instrumentation
- COMMENTS**



LEGENDS

GD: Wall mounted gamma monitors, ND: Wall mounted neutron monitors
PT: PET radioisotope production targets, T: SPECT radioisotope production targets
HC: Radiochemical production hot cells, BV: New vaults
Qa, Qb: Benchmarks (detector location), Sw, Sc: Benchmarks (source location)
x, y: Hotspots (highest gamma dose rate)