

Entry: **C62**
Machine Name: IM RADIAL RIDGE
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HISTORY

Design by: built in Cambridge in the 30's
Construction time: brought to Birmingham in 1957
First beam: 1963

CHARACTERISTIC BEAMS

ions / energy (MeV/n) / current (pps) / power (W) :
- He4 / 25 MeV / 300 μ A
- He3 / 33 MeV / 300 μ A
- d+ / 12.5 MeV / 800 μ A
- p+ / 6.5 MeV / 600 μ A
transmission efficiency (total)
- typical: 60% - best: 80%
transverse emittance (rms)
- vertical: π mmmrad
- horizontal: π mmmrad
longitudinal emittance (rms) $\Delta E/E$.deg RF

USES

basic research: % therapy: %
development: % isotope production: 90%
other applications: 10% maintenance: %
beam tuning: %
total time: 500 h/year

TECHNICAL DATA

a) magnet
type:
Kb: MeV/A Kf: MeV/A
average field (min-max): 1.6 T
number of magnet sectors: 3
- angle: deg
- spiral (max): deg
pole parameters
- diameter: m
- injection radius: m
- extraction radius: m
hill gap: 0.07 m valley gap: 0.145 m
field trimming
- trim coils
- number: 8
- current (max): 18 A
- harmonic coils
- number: 2
- current (max): 9 x 3 A
- others
- number:
- current (max): A
main coils:
- number:
- Ampere-turns: A.T.
- current: A
stored energy: MJ
weight: - iron: 50 t - coils: 8 t
power
- main coils (total): 40 kW
- trim coils (total max): kW
- refrigerator (cryogenic): kW

b) RF

- acceleration
- frequency range: 12-16 MHz
- harmonic modes:
- number of dees: 1
- angular aperture: deg
- voltage: - average (min-max): 27 kV
- variation with radius:
- power in (max): 45 kW
- stability: - phase: deg - voltage: %

- other cavities
- purpose: MHz
- frequency range: m
- region of influence: m
- voltage (max): kV
- power in (max): kW
- stability: - phase: deg - voltage: %

c) injection

- internal source: hot cathode
- external (radial/axial): none
- elements:
- source voltage: kV
- injection energy: MeV/n
- buncher:
- injection efficiency: %
d) ion sources/injector

e) extraction

- elements, characteristics:
- mag/electrostatic regenerator
- electrostatic deflector
- efficiency
- typical: 60% - best: 80%

f) vacuum

- pumps: 1 x 40 cm oil diffusion
1 x 22 cm oil diffusion
- achieved vacuum: 6.10^{-6} Pa

REFERENCES

EXPERIMENTAL FACILITIES

PLAN VIEW OF FACILITY

COMMENTS