

ENTRY NO: C-2
Machine Name: CYCLONE44
Date: 6/5/01 12:00:48 PM
Institution: Universite catholique de Louvain
Address 2, Chemin du cyclotron B1348 Louvain-la-Neuve - BE
In Charge of Cyclotron: G. Ryckewaert
Telephone: +32 10 47 29 98
Fax: +32 10 45 21 83
Person Reporting: G. Ryckewaert
Web: www.cyc.ucl.ac.be
E-mail: guido.ryckewaert@cyc.ucl.ac.be

HISTORY

Designed By: UCL
Construction Dates: 1995 - 98
First Beam Date: june 1998

CHARACTERISTIC BEAMS

ions / energy(MeV/N)/current(pps)/power(w)
radioactive ions 0.2 - 0.8

transmission efficiency(source to extract beam)

typical: 5% - best: 7%

tranverse emittance

emittance definition:

vertical: π mm mrad

horizontal: π mm mrad

longitudinal: $(\Delta) E/E$ %xdeg RF

USES

basic research: 40%	therapy: %
development: 30%	isotope production: %
other: %	maintenance: 10%
beam tuning: 20%	Total Time: h/year

TECHNICAL DATA

a)magnet: type: compact
Kb: 44MeV/A Kf: 2.0MeV/A
average field (min/max): 1.56 - 0.8 T
number of magnet sectors: 4
hill angular width: 33 - 56hill angular width
spiral (max): deg
pole parameters
diameter: 1.56 m
injection radius: m
extraction radius: 0.633 m
hill gap: .12m valley gap: .24m
trim coils
-number: 12x2
-current(max): 20 A-turns
harmonic coils
-number: 2xNsectorsx2
-current(max): 10 A-turns
main coils
number: 1x2
total ampere-turns: 210 000 A-turns
current: 500 A
stored energy: MJ
weight - iron: 56t coils: 2t
power
main coils (total): 52 kW
trim coils (total max): 1 kW
refrigerator (cryogenic): kW
b)RF
acceleration

frequency range: 13.3 - 18.5MHz
harmonic modes: 6, 8
number of dees: 2
number of cavities: 2
dee angular width: 22degrees
voltage
at injection: kV(peak to ground, max)
at extraction: kV(peak to ground, max)
peak: 20kV(peak to ground, max)
line power(max): 2kW
stability
phase: 0.1 deg
voltage: 0.01%
injection
c)ion source: ECR
external injection: Axial
components:
source bias voltage: 7 - 20kV
injection energy: varMeV/N
buncher:
injection efficiency: 20%
d)injector:
e)extraction
electrostatic deflector passive magnetic focusing channel
efficiency
typical: 50%
best: 65%
f)vacuum
pumps: cryopumps
achieved vacuum: Pa
REFERENCES
M. Loiselet et.al. in Cyclotrons and their Applications 98,
Caen, 14-19 June 1998 pp.305 - 310
EXPERIMENTAL FACILITIES
ARES (Astrophysics REcoil Separator)
COMMENTS