

ENTRY NO: CU10
Date: 15 Feb 2005 10:03:16
Machine Name: Scanditronix MC40
Institution: European Commission -Institute for Health and Consumer Protection T. P. 500
Address: Ispra (VA) 21020 Italy
Telephone: ++390332789895
Fax: ++390332789385
Web Address:
Person in Charge of Cyclotron: Uwe Holzwarth
Person Reporting Information: Uwe Holzwarth
E-mail Address: uwe.holzwarth@jrc.it

History

Designed by: Scanditronix

Construction Dates:

First Beam Date: 1982

Characteristic Beams

ions / energy(MeV/N)/current(pps)/power(w)			
protons	39 MeV	60 uA	max
deuterons	20 MeV	60 uA	max
alphas	39 MeV	30 uA	max

Transmission Efficiency (source to extracted beam)

Typical (%): 65

Best (%): 85

Emittance

Emittance Definition:

Vertical (pi mm mrad):

Horizontal (pi mm mrad):

Longitudinal (dE/E[%] x RF[deg.]):

USES

Basic Research (%): 5

Development (%): 35

Therapy (%): 0

Isotope Production (%): 35

Other Application (%):

Maintenance (%): 15

Beam Tuning (%): 10

Total Time (h/year): 2100

TECHNICAL DATA

(a)Magnet

Type:

Kb (MeV):

Kf (MeV):

Average Field (min./max. T): 1.79

Number of Sectors: 3

Hill Angular Width (deg.):

Spiral (deg.):

Pole Diameter (m): 1.35

Injection Radius (m): 0

Extraction Radius (m): 0.51

Hill Gap (m): 0.1

Valley Gap (m): 0.18

Trim Coils

Number: 8x2

Maximum Current (A-turns):

Harmonic Coils

Number: 4xNsectorsx2

Maximum Current (A-turns):

Main Coils

Number: 1x2

Total Ampere Turns:

Maximum Current (A): 890

Stored Energy (MJ):

Total Iron Weight (tons): 60

Total Coil Weight (tons): 2.276

Power

Main Coils (total KW): 150

Trim Coils (total, maximum, KW): 13

Refrigerator (cryogenic, KW):

(b)RF

Acceleration

Frequency Range (MHz): 12.5 -28

Harmonic Modes: 1,2

Number of Dees: 2

Number of Cavities:2

Dee Angular Width (deg.): 90

Voltage 8.5 – 35.5 kV

At Injection (peak to ground, KV):

At Extraction (peak to ground, KV):

Peak (peak to ground, KV):

Line Power (max, KW): 25

Phase Stability (deg.):

Voltage Stability (%): 0.1

(c)Injection

Ion Source: cold cathode plasma ion source

Source Bias Voltage (kV):

External Injection:

Buncher Type:

Injection Energy (MeV/n):

Component:

Injection Efficiency (%):

Injector:

(d)Extraction

Elements, Characteristic:

Typical Efficiency (%):

Best Efficiency (%):

(e)Vacuum

Pumps: 2 x Leynold TURBOVAC 3500

Achieved Vacuum (Pa): 2e10-6 mbar

REFERENCES

EXPERIMENTAL FACILITIES

COMMENTS