

ENTRY NO:CM07

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Machine Name: Cyclone 30

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History

Designed by:

Construction Dates: 1986

First Beam Date: 1986

Characteristic Beams

15- 30 MeV proton 400- 750- 1200 microA

Transmission Efficiency (source to extracted beam)

Typical (%): 30

Best (%): 35

Emittance

Emittance Definition:

Vertical (pi mm mrad): 10

Horizontal (pi mm mrad): 5

Longitudinal (dE/E[%] x RF[deg.]): 1

USES

Basic Research (%): 5

Development (%):

Therapy (%):

Isotope Production (%): 95

Other Application (%):

Maintenance (%):

Beam Tuning (%):

Total Time (h/year):

TECHNICAL DATA

(a)Magnet

Type: compact

Kb (MeV): 30

Kf (MeV/A): 30

Average Field (min./max. T): 1(0.12/ 1.7)

Number of Sectors: 4

Hill Angular Width (deg.): 54-58

Spiral (deg.): 0

Pole Diameter (m): 1.6

Injection Radius (m): 0.03

Extraction Radius (m): 0.5 - 0.75

Hill Gap (m): 0.03

Valley Gap (m): 0.1

Trim Coils

Number: 0

Maximum Current (A-turns): N/A

Harmonic Coils

Number: 0

Maximum Current (A-turns): N/A

Main Coils

Number: 2

Total Ampere Turns: 60 000

Maximum Current (A): 110

Stored Energy (MJ):

Total Iron Weight (tons): 45

Total Coil Weight (tons): 4

Power

Main Coils (total KW): 7.2

Trim Coils (total, maximum, KW): N/A

Refrigerator (cryogenic, KW): N/A

(b)RF

Acceleration

Frequency Range (MHz): 66

Harmonic Modes: 4

Number of Dees: 2

Number of Cavities: 4

Dee Angular Width (deg.): 30

Voltage

At Injection (peak to ground, KV): 50

At Extraction (peak to ground, KV): 50

Peak (peak to ground, KV): 50

Line Power (max, KW): 40

Phase Stability (deg.): 0.1

Voltage Stability (%): 0.1

(c)Injection

Ion Source: multicusp

Source Bias Voltage (kV): 30

External Injection: axial

Buncher Type: wire

Injection Energy (MeV/n): 0.03

Component:

Injection Efficiency (%): 35

Injector: inflector

d)Extraction

Elements, Characteristic: carbon stripper

Typical Efficiency (%): 100

Best Efficiency (%):

(e)Vacuum

Pumps: cryo pump 4000l/s (N2)

Achieved Vacuum (Pa): 1 E-5

REFERENCES ACC92, Y Jongen et al., St-Petersburg 1992

EPAC 1990, Y Jongen et al., Nice 1990

EXPERIMENTAL FACILITIES

COMMENTS 21 units in operation