ENTRY NO:C34
Date: 23 Feb 2005 10:10:38
Machine Name: Gatchina Isochronous Cyclotron
Institution: Petersburg Nuclear Physics Institute
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Person in Charge of Cyclotron: N.K.Abrossimov
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History
Designed by: 1992
Construction Dates: 1990-1992
First Beam Date:
Characteristic Beams
H-, 80 MeV, 100 mkA
Transmission Efficiency (source to extracted beam)
Typical (%):
Best (%):
Emittance
Emittance Definition:
Vertical (pi mm mrad):
Horizontal (pi mm mrad):
Longitudinal (dE/E[%] x RF[deg.]):
USES
Basic Research (%):
Development (%):
Therapy (%):
Isotope Production (%):
Other Application (%):
Maintenance (%):
Beam Tuning (%):
Total Time (h/year):

TECHNICAL DATA
(a)Magnet
Type:
Kb (MeV):
Kf (MeV):
Average Field (min./max. T): 1.352, 1.465
Number of Sectors: 4
Hill Angular Width (deg.): 42.75-51
Spiral (deg.): 65
Pole Diameter (m): 2.05
Injection Radius (m):
Extraction Radius (m): 0.9
Hill Gap (m): 0.156
Valley Gap (m): 0.386
Trim Coils
Number:
Maximum Current (A-turns):
Harmonic Coils
Number: 16
Maximum Current (A-turns):
Main Coils
Number: 2
Total Ampere Turns: 3.4*10^5
Maximum Current (A): 750
Stored Energy (MJ):
Total Iron Weight (tons): 250
Total Coil Weight (tons):
Power
Main Coils (total KW): 120
Trim Coils (total, maximum, KW):
Refrigerator (cryogenic, KW):

(b)RF
Acceleration
Frequency Range (MHz): 41.2
Harmonic Modes: 2
Number of Dees: 2
Number of Cavities:
Dee Angular Width (deg.): 60
Voltage
At Injection (peak to ground, KV):
At Extraction (peak to ground, KV):
Peak (peak to ground, KV): 60
Line Power (max, KW): 2*40
Phase Stability (deg.):
Voltage Stability (%):

(c)Injection
Ion Source:
Source Bias Voltage (kV):
External Injection: axial
Buncher Type:
Injection Energy (MeV/n): 0.02
Component:
Injection Efficiency (%):
Injector:

(d)Extraction
Elements, Characteristic: stripping
Typical Efficiency (%):
Best Efficiency (%):

(e)Vacuum
Pumps: 2 Cryo-pumps, 2*5000 l/s
Achieved Vacuum (Pa):

REFERENCES Proc. of 13 Intern. Conf. on Cycl. and Their Appll., Vancouver, Canada, 6-10 July 1992, p.58
PNPI XXX, High Energy Physics Division. Main Scientific Activities 1997-2001, Gatchina 2002, p.15-26

EXPERIMENTAL FACILITIES

COMMENTS