

ENTRY NO: C-34
Machine Name: Gatchina isochronous cyclotron
Date: 7/5/01 3:18:29 AM
Institution: PNPI Russian Academy of Sciences
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HISTORY

Designed By: in house
Construction Dates: 1992-1994
First Beam Date:

CHARACTERISTIC BEAMS

ions / **energy**(MeV/N)/**current**(pps)/**power**(w)
H- 80

transmission efficiency(source to extract beam)

typical: % - **best:** %

tranverse emittance

emittance definition:

vertical: π mm mrad

horizontal: π mm mrad

longitudinal: (Δ) E/E)%xdeg RF

USES

basic research: % **therapy:** %
development: % **isotope production:** %
other: % **maintenance:** %
beam tuning: % **Total Time:** h/year

TECHNICAL DATA

a)magnet: **type:** compact

Kb: MeV/A **Kf:** MeV/A

average field (min/max): 1.465/1.352 T

number of magnet sectors: 4

hill angular width: 42.5-50 deg.hill angular width

spiral (max): 65 deg

pole parameters

diameter: 2.05 m

injection radius: m

extraction radius: 0.9 m

hill gap: 0.146m **valley gap:** 0.386m

trim coils

-number: x2

-current(max): A-turns

harmonic coils

-number: 2xNsectorsx2

-current(max): A-turns

main coils

number: 1x2

total ampere-turns: $3.4 \cdot 10^5$ A-turns

current: 800 A

stored energy: MJ

weight - iron: 220t **coils:** 16t

power

main coils (total): 120 kW

trim coils (total max): kW

refrigerator (cryogenic): kW

b)RF

acceleration

frequency range: 41.2MHz

harmonic modes: 2
number of dees: 2
number of cavities:
dee angular width: 60degrees
voltage
at injection: kV(peak to ground, max)
at extraction: kV(peak to ground, max)
peak: 60kV(peak to ground, max)
line power(max): 2*40kW

stability

phase: deg

voltage: %

injection

c)ion source:

external injection: axial

components:

source bias voltage: 20kV

injection energy: 0.02MeV/N

buncher:

injection efficiency: %

d)injector:

e)extraction

stripping system, 45-80 MeV

efficiency

typical: 100%

best: %

f)vacuum

pumps:

achieved vacuum: Pa

REFERENCES

XIII Intern. Cycl. Conf. , Vancouver 1992

EXPERIMENTAL FACILITIES

COMMENTS