

ENTRY NO: C-6
Machine Name: U-120M
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HISTORY

Designed By: JINR Dubna, Russia
Construction Dates:
First Beam Date: August 1977

CHARACTERISTIC BEAMS

ions	/ energy(MeV/N)	/current(pps)	/power(w)
p+	10 - 37	6×10^{14}	3000
H-	10 - 37	1.6×10^{14}	400
D+	10	4×10^{14}	2000
3He++	18	1.3×10^{14}	1080
4He++	10	1.3×10^{14}	800

transmission efficiency(source to extract beam)

typical: 52(H-)% - **best:** %

tranverse emittance

emittance definition:

vertical: 2.5π mm mrad

horizontal: 11π mm mrad

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

USES

basic research: 11% **therapy:** %
development: 6% **isotope production:** 67%
other: 8% **maintenance:** 8%
beam tuning: % **Total Time:** 3100h/year

TECHNICAL DATA

a)magnet: type: compact
Kb: 40MeV/A **Kf:** MeV/A
average field (min/max): 1.85/1 T
number of magnet sectors: 4
hill angular width: hill angular width
spiral (max): 70 deg
pole parameters
diameter: 1.2 m
injection radius: 0.018 m
extraction radius: 0.5 m
hill gap: 0.082m **valley gap:** 0.012m
trim coils
 -number: 18x2
 -current(max): 500 A-turns
harmonic coils
 -number: 2xNsectorsx2
 -current(max): 200 A-turns
main coils
number: 1x2
total ampere-turns: 4×10^5 A-turns
current: 600 A
stored energy: MJ
weight - iron: 110t **coils:** 11.6t
power
main coils (total): 180 kW
trim coils (total max): 150 kW
refrigerator (cryogenic): kW
b)RF
acceleration
frequency range: 10 - 27MHz

harmonic modes: 1
number of dees: 1
number of cavities:
dee angular width: 180degrees
voltage
 at injection: kV(peak to ground, max)
 at extraction: kV(peak to ground, max)
 peak: 50kV(peak to ground, max)
line power(max): 150kW
stability
phase: deg
voltage: 1%
injection
c)ion source: PIG (int.), CUSP (ext.)
external injection: axial
components: solenoids
source bias voltage: 10 - 25kV
injection energy: MeV/N
buncher: first harmonic
injection efficiency: 6%
d)injector:
e)extraction
 3 section electrostatic deflection system
efficiency
typical: 30%
best: 40%
f)vacuum
pumps: diffusion , turbomolecular pumps
achieved vacuum: 1×10^{-4} Pa
REFERENCES

EXPERIMENTAL FACILITIES

Achromatic magneto-optical system, Fast neutron generator
 $(10 \sim 8n/cm^2/s)$
COMMENTS

