

ENTRY NO: CM-6
Machine Name: HM18
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Institution: Sumitomo Heavy Industries, Ltd.
Address 5-9-11 Kitashinagawa, Shinagawa-ku Tokyo 141, Japa
In Charge of Cyclotron:
Telephone: +81-3-5488-8322
Fax: +81-3-5488-8321
Person Reporting: T.Tachikawa
Web: www.shi.co.jp/quantum/index.html
E-mail: Tsk.Tachikawa@shi.co.jp

HISTORY

Designed By: Sumitomo Heavy Industries, Ltd.
Construction Dates: 1989
First Beam Date: 1990
CHARACTERISTIC BEAMS

ions	/ energy(MeV/N)	/current(pps)	/power(w)
H-	18	70micro-ampere	
D-	10	50micro-ampere	

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): 1.56/1.51 T
number of magnet sectors: 4
 hill angular width: 50hill angular width
 spiral (max): 0 deg
pole parameters
 diameter: 1.04 m
 injection radius: m
 extraction radius: 0.43 m
hill gap: 0.036m **valley gap:** 0.154m
trim coils
 -number: 4x2
 -current(max): A-turns
harmonic coils
 -number: 0xNsectorsx2
 -current(max): A-turns
main coils
 number: 1x2
 total ampere-turns: 97000 A-turns
 current: 180 A
stored energy: MJ
weight - iron: 26t coils: 0.7t
power
 main coils (total): kW
 trim coils (total max): kW
 refrigerator (cryogenic): kW
b)RF
acceleration

frequency range: 45MHz
harmonic modes: 2(H-)/4(D-)
number of dees: 2
number of cavities: 2
dee angular width: 45degrees
voltage
 at injection: 35kV(peak to ground, max)
 at extraction: 35kV(peak to ground, max)
 peak: 35kV(peak to ground, max)
line power(max): 15kW
stability
 phase: deg
 voltage: %
injection
c)ion source: PIG
external injection:
 components:
 source bias voltage: kV
 injection energy: MeV/N
 buncher:
 injection efficiency: %
d)injector:
e)extraction
 Stripping (carbon foil)
efficiency
 typical: 100%
 best: %
f)vacuum
 pumps: 2 sets of diffusion pumps
 achieved vacuum: 4*10-5Pa
REFERENCES

EXPERIMENTAL FACILITIES

COMMENTS