

ENTRY NO: C-19
Machine Name: K-800
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HISTORY

Designed By: F. Resmini and his team
Construction Dates: Started in 1981
First Beam Date: 1994

CHARACTERISTIC BEAMS

ions	/ energy(MeV/N)	/current(pps)	/power(w)
H	62	2.5 10**10	<1
Ni	45	5 10**9	3
Sn	35	4 10**9	3
Au	20	10**9	1<
Li	62	10**10	1<

transmission efficiency(source to extract beam)

typical: 10% - **best:** 20%

transverse emittance

emittance definition:

vertical: 1π mm mrad

horizontal: 2π mm mrad

longitudinal: $4.5(\Delta) E/E$ %xdeg RF

USES

basic research: 40%

therapy: ---%

development: 10%

isotope production: ---%

other: 15%

maintenance: 20%

beam tuning: 15%

Total Time: 4500h/year

TECHNICAL DATA

a)magnet: type: compact
Kb: 800MeV/A **Kf:** 200MeV/A
average field (min/max): 2.2 - 4.8 T
number of magnet sectors: 3
hill angular width: hill angular width
spiral (max): 69 deg
pole parameters
diameter: 1.8 m
injection radius: 0.02 m
extraction radius: 0.87 m
hill gap: 0.086m **valley gap:** 0.916m
trim coils
 -number: 20x2
 -current(max): 400 A-turns
harmonic coils
 -number: 3xNsectorsx2
 -current(max): 400 A-turns
main coils
number: 2x2
total ampere-turns: $6.55 \cdot 10^6$ A-1
current: 1950 A
stored energy: 45MJ
weight - iron: 176t **coils:** 9.6t
power
main coils (total): --- kW
trim coils (total max): 100 kW
refrigerator (cryogenic): 0.180 kW
b)RF
acceleration

frequency range: 15 - 48MHz
harmonic modes: 2
number of dees: 3
number of cavities: 3
dee angular width: 58degrees
voltage
 at injection: 100kV(peak to ground, max)
 at extraction: 120kV(peak to ground, max)
 peak: 120kV(peak to ground, max)
line power(max): 50kW
stability
phase: 0.5 deg
voltage: .01%
injection
c)ion source: 2 ECR
external injection: axial
components: supercond. ECR
source bias voltage: 25kV
injection energy: 0.025MeV/N
buncher: single drift
injection efficiency: 36%
d)injector:
e)extraction
 2 Electrostatic deflectors, Voltage maximum 55 kV, gap 5 mm
 7 magnetic channel
efficiency
typical: 30%
best: 60%

f)vacuum

pumps: 3 splitted cryo panels, 3 turbo molecular
achieved vacuum: $2 \cdot 10^{-4}$ Pa

REFERENCES

L. Calabretta et Al., 14th Int. Conf. on Cycl. and their Appl.,1996 Cape Town, pp 12-19

EXPERIMENTAL FACILITIES

4 PI array detector of BaF MEDEA+ Superconducting solenoid
 4 PI array detector of Si, DE-E, time of flight, CHIMERA Large multi purpose scattering chamber

COMMENTS

