

ENTRY NO. C28 Date 8th December, 1995
 Name of Machine Chandigarh Variable Energy Cyclotron
 Institution Physics Department, Panjab University, Chandigarh.
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HISTORY

MILESTONE DATES:

Design 1953 Model Tests
 Construction 1965-70 First Beam 1971
 DESIGN/CONSTRUCTION BY:
 in house other
 COST: Accelerator 250,000 Facility 400,000
 FUNDED BY: UGC, New Delhi-India & P.U., Chandigarh

STATUS

STAFF: Machine

Scientists 4 Engineers 4
 Technicians 5 Students 4
 Research (in house/external)

Scientists / Engineers /
 Technicians / Students /

BUDGET: Machine Funded by
 Research Funded by

TIME DISTRIBUTION:

Basic Research (in house/external) % / %
 Applied Program (in house/external) % / %
 Maintenance % Development %

MAGNET

POLE PARAMETERS:

Diameter 66 cm R_{extract} 28 cm R_{inject} 0 cm

HILL PARAMETERS: Gap (min) 16 cm B_{max} T
 (@ 16 cm B_{min} T
 VALLEY PARAMETERS: Gap (min) cm B_{max} T
 (@ 16 cm B_{min} T

AVERAGE FIELD: $\langle B \rangle_{\text{min}}$ T $\langle B \rangle_{\text{max}}$ T
 NUMBER OF SECTORS: compact/separated /
 sector angle deg. spiral (max) deg.

FIELD TRIMMING: Trim Coils
 Harmonic Coils
 Other

CURRENT: Main Coils Amps Stability
 Trim Coils Amps Stability
 Stored Energy (cryogenic) MJ

WEIGHT: Iron Conductor

ION ENERGY: Bending Limit $E/A = q^2/A^2$ MeV/u
 Focusing Limit $E/A = q/A$ MeV/u

ACCELERATION SYSTEM

FUNDAMENTAL ACCELERATION:

Description:
 No. of Gaps/turn $dE/dn(\text{max})$ MeV/q
 Voltage (max) MV Harmonic f_d/f_{ion}
 Freq MHz Power in(max) MW
 Stability: Phase Voltage

OTHER CAVITIES (Flattopping or otherwise):

Description:
 Region of Influence: R_{min} cm R_{max} cm
 No. of Gaps/turn $dE/dn(\text{max})$ MeV/q
 Voltage (max) MV Harmonic f_d/f_{ion}
 Freq MHz Power in(max) MW
 Stability: Phase Voltage

VACUUM SYSTEM

OPERATING PRESSURE: $2 \cdot 10^{-5}$ mm. of Hg

PUMPS: (No. and type) 4 Diffusion pumps (15.3 cm)

1 Diffusion Pump 23 cm, 2 Kinney Rotary pumps

ION SOURCE(S)

Type	Intensity (mA)	@ $\epsilon_n = \beta\gamma\epsilon$ (π mm mrad)	Ion Species
(a) Hooded Arc			
(b)			
(c)			
(d)			

INJECTION SYSTEM

Pullers attached to Dee Efficiency %

EXTRACTION SYSTEM

Electrostatic Deflector Efficiency %

CHARACTERISTIC BEAMS

Accelerated Ions	E/A (MeV/u)	Current (part μ A)	Internal	External
(a) $^2\text{H}^+$	5.0	50 μ A	20 μ A	20 μ A
(b) $^3\text{H}^+$	2.0	20 μ A	10 μ A	10 μ A
(c) $^4\text{H}^+$	3.0	7 μ A	2 μ A	2 μ A
(d) $^4\text{H}^{++}$	2.0	7 μ A	2 μ A	2 μ A

Secondary Particles	E (MeV)	part/sec
(a)		
(b)		
(c)		

EXTRACTED BEAM PROPERTIES:

For 1 μ A of 4 MeV/u Proton ions
 $\Delta E/E$ 0.7 % $\Delta\phi$ °rf
 $\epsilon_n = \beta\gamma\epsilon$ x π mm mrad z π mm mrad

FACILITIES FOR RESEARCH

SHIELDED AREA: Fixed 230 m² Moveable 400 m²
 Target Stations: 2 No. Served At Same Time: 1

MAGNETIC SPECTROMETERS:

OTHER FACILITIES: HPGe Detectors 3
 8096 Multichannel analyzer
 and associated electronics

REFERENCES/NOTES

- (a) *This Cyclotron was built around 1953-54 at University of Rochester, U.S.A. This has been shifted to modified & reinstalled at Chandigarh in 1971.

PLAN VIEW OF FACILITY, COMMENTS

