

ENTRY NO. C17 Date October 1995
 Name of Machine Medicyc
 Institution Cyclotron Laboratory, Centre Antoine Lacassagne
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 In Charge: P. Mandrillon Reported by: P. Mandrillon

HISTORY
MILESTONE DATES:
 Design 1983/84 Model Tests
 Construction 1984/89 First Beam Extracted Dec. '90
DESIGN/CONSTRUCTION BY:
 in house X other
COST: Accelerator 56 Mil. FF Facility 120 Mil. FF
FUNDED BY: Centre Antoine Lacassagne

STATUS
STAFF: Machine
 Scientists 1 Engineers 2
 Technicians 12 Students
 Research (in house/external)
 Scientists 1 / Engineers /
 Technicians 2 / Students /
BUDGET: Machine Funded by
 Research Funded by
TIME DISTRIBUTION:
 Basic Research (in house/external) 10 % / %
 Applied Program (in house/external) 80 % / %
 Maintenance % Development 10 %

MAGNET
POLE PARAMETERS:
 Diameter 160 cm R_{extract} 68.8 cm R_{inject} 2.5 cm
HILL PARAMETERS: Gap (min) 13 cm B_{max} 2.15 T
 (@ AT) Gap (max) cm B_{min} T
VALLEY PARAMETERS: Gap (min) 27 cm B_{max} 1.7 T
 (@ AT) Gap (max) cm B_{min} T
AVERAGE FIELD: $\langle B \rangle_{\text{min}}$ T $\langle B \rangle_{\text{max}}$ T
NUMBER OF SECTORS: compact/separated 4 /
 sector angle 42.5 deg spiral (max) 60 deg
FIELD TRIMMING: Trim Coils 10 circular
 Harmonic Coils 4
 Other
CURRENT: Main Coils 1200 Amps Stability 10^{-5}
 Trim Coils 100 Amps Stability 10^{-4}
 Stored Energy (cryogenic) MJ
WEIGHT: Iron 130 tons Conductor copper
ION ENERGY: Bending Limit $E/A = 70 \text{ q}^2/A^2 \text{ MeV/u}$
 Focusing Limit $E/A = \text{q/A MeV/u}$

ACCELERATION SYSTEM
FUNDAMENTAL ACCELERATION:
 Description: 2 dees with 75 degree aperture
 No. of Gaps/turn 4 $dE/dn(\text{max})$ 0.120 MeV/q
 Voltage (max) 0.055 MV Harmonic f_H/f_{ion} 1
 Freq 25 MHz Power in(max) 0.050 MW
 Stability: Phase $\leq 0.5 \text{ deg}$ Voltage 10^{-3}
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_H/f_{ion}
 Freq MHz Power in(max) MW
 Stability: Phase Voltage

VACUUM SYSTEM
OPERATING PRESSURE: 10^{-7} Torr
PUMPS: (No. and type) 2 Turbo and 2 cryogenics

ION SOURCE(S)

Type	Intensity (mA)	@ $\epsilon_n = \beta\gamma\epsilon$ ($\pi \text{ mm mrad}$)	Ion Species
(a) Multi cusp	1	0.15	H^+
(b)			
(c)			
(d)			

INJECTION SYSTEM
 Axial with spiral injector Efficiency %

EXTRACTION SYSTEM
 By stripping Efficiency 100 %

CHARACTERISTIC BEAMS

Accelerated Ions	E/A (MeV/u)	Current (part μA)	
		Internal	External
(a) Protons	65	25	25
(b)			
(c)			
(d)			

Secondary Particles	E (MeV)	part/sec
(a) Neutrons	20 average	
(b)		
(c)		

EXTRACTED BEAM PROPERTIES:
 For μA of MeV/u ions
 $\Delta E/E$ % $\Delta\phi$ °rf
 $\epsilon_n = \beta\gamma\epsilon$ x $\pi \text{ mm mrad}$ z $\pi \text{ mm mrad}$

FACILITIES FOR RESEARCH
SHIELDED AREA: Fixed: m^2 Moveable m^2
 Target Stations: No. Served At Same Time:
MAGNETIC SPECTROMETERS:
OTHER FACILITIES:

REFERENCES/NOTES
 (a) Proc. 12th Int. Conf. Cycl. and Appl.
 (b)

PLAN VIEW OF FACILITY, COMMENTS

