

ENTRY NO. CM26 Date
 Machine Name CY-28
 Manufacturer The Cyclotron Corporation (a)
 Address 950 Gilman Street, Berkeley, CA 94710 USA
 Tel (510) 524-8844 Telex 910-366-7116
 Fax (510) 527-9336 EMAIL
 In Charge: n/a Reported by: F.A. Ramsey

HISTORY AND STATUS
 DATES: Design 1972-1973 First Machine 1974
 SALES: No. Sold/Operational 5 / 5 Currently Available no
 COST: Accelerator Facility

MAGNET
 POLE PARAMETERS:
 Diameter 96.5 cm R_{extract} 42 cm R_{inject} cm
 HILL PARAMETERS: Gap (min) 5 cm B_{max} 20 T
 (@ AT) Gap (max) cm B_{min} T
 VALLEY PARAMETERS: Gap (min) cm B_{max} T
 (@ AT) Gap (max) 10 cm B_{min} 14 T
 AVERAGE FIELD: < B >_{min} T < B >_{max} T
 NUMBER OF SECTORS: compact/separated 3 /
 sector angle deg. spiral (max) deg.
 FIELD TRIMMING: Trim Coils 4
 Harmonic Coils Two sets: inner/outer @ 13/38 cm
 Other
 CURRENT: Main Coils 500 Amps Stability 0.01%
 Trim Coils Amps Stability
 Stored Energy (cryogenic) MJ
 WEIGHT: Iron 30,164 kg TOTAL Conductor
 ION ENERGY: Bending Limit E/A = q²/A² MeV/u
 Focussing Limit E/A = q/A MeV/u

ACCELERATION SYSTEM
 FUNDAMENTAL ACCELERATION:
 Description: Two 90° dees
 No. of Gaps/turn 4 dE/dn(max) 0.08 MeV/u
 Voltage(max) 0.030 MV Harmonic f_{rf}/f_{ion} 1
 Freq 7.5-25.5 MHz Power in(max) 0.060 MW
 Stability: Phase Voltage

VACUUM SYSTEM
 OPERATING PRESSURE: 10⁻⁵ torr
 PUMPS: No. and type One oil diffusion pump

ION SOURCE(S)

Type	Intensity (mA)	Q (π mm mrad)	ε _n = βγϵ (π mm mrad)	Ion Species
(a) Penning			not available	H ⁺ /D ⁺
(b) "			"	³ He ⁺⁺ / ⁴ He ⁺⁺

INJECTION SYSTEM
 Radial Efficiency 10-12 %

EXTRACTION SYSTEM
 Electrostatic deflector and septum Efficiency 70 %

CHARACTERISTIC BEAMS

Accelerated Ions	E/A (MeV/u)	Current(part. μA)	
		Internal	External
(a) H ⁺ /D ⁺	2-24/4-14	200/300	60/100
(b) ³ He ⁺⁺ / ⁴ He ⁺⁺	6-36/8-28	135/90	5-50/8-40

 EXTRACTED BEAM PROPERTIES:
 For μA of MeV/u ions
 ΔE/E % Δφ °rf
 ε_n = βγϵ x πmm mrad z πmm mrad

REFERENCES/NOTES
 (a) CII Cyclotron Systems, 950 Gilman St., Berkeley, CA
 (b) A.CII-30 was converted to a CS-30

ENTRY NO. CM27 Date
 Machine Name CS-30
 Manufacturer The Cyclotron Corporation (a)
 Address 950 Gilman Street, Berkeley, CA 94710 USA
 Tel (510) 524-8844 Telex 910-366-7116
 Fax (510) 527-9336 EMAIL
 In Charge: n/a Reported by: F.A. Ramsey

HISTORY AND STATUS
 DATES: Design 1969-1970 First Machine FEB. 1973
 SALES: No. Sold/Operational 15 / 16(b) Currently Available YES
 COST: Accelerator Facility

MAGNET
 POLE PARAMETERS:
 Diameter 96.5 cm R_{extract} 42 cm R_{inject} cm
 HILL PARAMETERS: Gap (min) 5.08 cm B_{max} 22.5 T
 (@ AT) Gap (max) cm B_{min} T
 VALLEY PARAMETERS: Gap (min) cm B_{max} T
 (@ AT) Gap (max) 11.68 cm B_{min} 14.4 T
 AVERAGE FIELD: < B >_{min} T < B >_{max} T
 NUMBER OF SECTORS: compact/separated 3 /
 sector angle deg. spiral (max) deg.
 FIELD TRIMMING: Trim Coils none
 Harmonic Coils Two sets: inner/outer @ 13/38 cm
 Other
 CURRENT: Main Coils 500 Amps Stability 0.01%
 Trim Coils Amps Stability
 Stored Energy (cryogenic) MJ
 WEIGHT: Iron 28,803 kg TOTAL Conductor
 ION ENERGY: Bending Limit E/A = q²/A² MeV/u
 Focussing Limit E/A = q/A MeV/u

ACCELERATION SYSTEM
 FUNDAMENTAL ACCELERATION:
 Description: Two 90° dees
 No. of Gaps/turn 4 dE/dn(max) MeV/u
 Voltage(max) 0.028 MV Harmonic f_{rf}/f_{ion}
 Freq 14.2-26.5 MHz Power in(max) 0.060 MW
 Stability: Phase Voltage

VACUUM SYSTEM
 OPERATING PRESSURE: 10⁻⁵ torr
 PUMPS: No. and type One oil diffusion pump

ION SOURCE(S)

Type	Intensity (mA)	Q (π mm mrad)	ε _n = βγϵ (π mm mrad)	Ion Species
(a) Penning			not available	H ⁺ /D ⁺
(b) "			"	³ He ⁺⁺ / ⁴ He ⁺⁺

INJECTION SYSTEM
 Radial Efficiency 10-12 %

EXTRACTION SYSTEM
 Electrostatic deflector and septum Efficiency 70 %

CHARACTERISTIC BEAMS

Accelerated Ions	E/A (MeV/u)	Current(part. μA)	
		Internal	External
(a) H ⁺ /D ⁺	26/15	200/300	60/100
(b) ³ He ⁺⁺ / ⁴ He ⁺⁺	38/30	135/90	60/40

 EXTRACTED BEAM PROPERTIES:
 For μA of MeV/u ions
 ΔE/E % Δφ °rf
 ε_n = βγϵ x πmm mrad z πmm mrad

REFERENCES/NOTES
 (a) CII Cyclotron Systems, 950 Gilman St., Berkeley, CA
 (b) A.CII-30 was converted to a CS-30