

ENTRY NO. CM28 Date  
 Machine Name CP-42  
 Manufacturer The Cyclotron Corporation (a)  
 Address 950 Gilman St., Berkeley, CA 94710 USA  
 Tel (510) 524-8844 Telex 910-366-7116  
 Fax (510) 527-9336 EMAIL  
 In Charge: n/a Reported by: F. Ramsey

HISTORY AND STATUS  
 DATES: Design 1978 First Machine 1980  
 SALES: No. Sold/Operational 5 / 4(b) Currently Available no  
 COST: Accelerator Facility

MAGNET  
 POLE PARAMETERS:  
 Diameter 120 cm R<sub>extract</sub> 28-52 cm R<sub>inject</sub> cm  
 HILL PARAMETERS: Gap (min) 5 cm B<sub>max</sub> 24 T  
 (@ AT) Gap (max) cm B<sub>min</sub> T  
 VALLEY PARAMETERS: Gap (min) 11.4 cm B<sub>max</sub> 16 T  
 (@ AT) Gap (max) cm B<sub>min</sub> T  
 AVERAGE FIELD: < B ><sub>min</sub> 14 T < B ><sub>max</sub> 22 T  
 NUMBER OF SECTORS: compact/separated 3 /  
 sector angle deg. spiral (max) 64 deg.  
 FIELD TRIMMING: Trim Coils  
 Harmonic Coils 2 sets: inner and outer  
 Other  
 CURRENT: Main Coils 350 Amps Stability 1 x 10<sup>-5</sup>  
 Trim Coils n/a Amps Stability  
 Stored Energy (cryogenic) MJ  
 WEIGHT: Iron 35 tons Conductor 3 tons  
 ION ENERGY: Bending Limit E/A = q<sup>2</sup>/A<sup>2</sup> 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/q  
 Voltage(max) 0.035 MV Harmonic f<sub>rf</sub>/f<sub>ion</sub>  
 Freq 27 MHz Power in(max) 0.090 MW  
 Stability: Phase Voltage

VACUUM SYSTEM  
 OPERATING PRESSURE: 6 x 10<sup>-6</sup>  
 PUMPS: No. and type Four oil diffusion pumps

ION SOURCE(S)  

Type	Intensity (mA)	Q (π mm mrad)	ε <sub>n</sub> = βγϵ	Ion Species
(a) Penning			not available	H <sup>-</sup>
(b)				

INJECTION SYSTEM  
 Radial Efficiency %

EXTRACTION SYSTEM  
 H<sup>-</sup> stripping foil Efficiency 100 %

CHARACTERISTIC BEAMS  

Accelerated Ions	E/A (MeV/u)	Current(part. μA)	
		Internal	External
(a) H <sup>-</sup>	11-42	200	200 (H <sup>+</sup> )
(b)			

EXTRACTED BEAM PROPERTIES:  
 For μA of MeV/u ions  
 ΔE/E % Δφ °rf  
 ε<sub>n</sub> = βγϵ x πmm mrad z πmm mrad

REFERENCES/NOTES  
 (a) CCI Cyclotron Systems, 950 Gilman St., Berkeley CA 94710  
 (b) Status of machine #5 unknown, presumed functional

ENTRY NO. CM29 Date  
 Machine Name RDS-112  
 Manufacturer CCI PET Systems/Siemens  
 Address 810 Innovation Drive, Knoxville, TN 37932 USA  
 Tel (615) 966-7539 Telex  
 Fax (615) 966-8955 EMAIL  
 In Charge: Dr. T. Douglass Reported by: F.A. Ramsey

HISTORY AND STATUS  
 DATES: Design 1985-1986 First Machine 1987  
 SALES: No. Sold/Operational 21 / 21. Currently Available yes  
 COST: Accelerator Facility

MAGNET  
 POLE PARAMETERS:  
 Diameter 72 cm R<sub>extract</sub> 27 cm R<sub>inject</sub> cm  
 HILL PARAMETERS: Gap (min) 6 cm B<sub>max</sub> 2.5 T  
 (@ AT) Gap (max) cm B<sub>min</sub> T  
 VALLEY PARAMETERS: Gap (min) cm B<sub>max</sub> T  
 (@ AT) Gap (max) cm B<sub>min</sub> T  
 AVERAGE FIELD: < B ><sub>min</sub> 1.8 T < B ><sub>max</sub> T  
 NUMBER OF SECTORS: compact/separated 3 /  
 sector angle deg. spiral (max) deg.  
 FIELD TRIMMING: Trim Coils n/a  
 Harmonic Coils none  
 Other  
 CURRENT: Main Coils 270 Amps Stability 1 x 10<sup>-5</sup>  
 Trim Coils n/a Amps Stability  
 Stored Energy (cryogenic) MJ  
 WEIGHT: Iron 20 tonnes TOTAL Conductor  
 ION ENERGY: Bending Limit E/A = q<sup>2</sup>/A<sup>2</sup> MeV/u  
 Focussing Limit E/A = q/A MeV/u

ACCELERATION SYSTEM  
 FUNDAMENTAL ACCELERATION:  
 Description: 2 dees  
 No. of Gaps/turn 4 dE/dn(max) 0.100 MeV/q  
 Voltage(max) 0.035 MV Harmonic f<sub>rf</sub>/f<sub>ion</sub> 1  
 Freq 27 MHz Power in(max) 0.030 MW  
 Stability: Phase Voltage

VACUUM SYSTEM  
 OPERATING PRESSURE: 3 x 10<sup>-6</sup> torr  
 PUMPS: No. and type Two oil diffusion pumps

ION SOURCE(S)  

Type	Intensity (mA)	Q (π mm mrad)	ε <sub>n</sub> = βγϵ	Ion Species
(a) Penning	0.250		not available	H <sup>-</sup>
(b)				

INJECTION SYSTEM  
 Radial Efficiency %

EXTRACTION SYSTEM  
 Carbon foil Efficiency 100 %

CHARACTERISTIC BEAMS  

Accelerated Ions	E/A (MeV/u)	Current(part. μA)	
		Internal	External
(a) H <sup>-</sup>	11		100 (H <sup>+</sup> )
(b)			

EXTRACTED BEAM PROPERTIES:  
 For μA of MeV/u ions  
 ΔE/E % Δφ °rf  
 ε<sub>n</sub> = βγϵ x 50 πmm mrad z 50 πmm mrad

REFERENCES/NOTES  
 (a)  
 (b)