

APPENDIX I: TABULATION OF SECTOR-FOCUSED CYCLOTRONS

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Most of the data for this chart was collected during the conference at Sea Island. While it is believed that this represented a fair picture at that time, it will be appreciated that much of the information was very tentative and, therefore, no responsibility can be accepted for its present accuracy. Furthermore, the chart does not necessarily include all machines of this class.

	UCLRL, Berkeley	UCLA, Los Angeles	HPNRDL, Hunter's Point	ORNL, Oak Ridge	Univ. of Florida	Univ. of Michigan	Michigan State Univ.	Univ. of Colorado	Univ. of Illinois	Harwell, England	Delft, Holland	Los Alamos	UC, Davis	Zurich, Switzerland	Birmingham, England	
GENERAL	Source	Kelly, Burleigh	McKenzie	Howe	Jones, Worsham	MEVA & Parsons(1)	Parkinson	Blosser	Lind, Smythe	Allen	Snowden	Heyn	Boyer	Jungerman	Stahelin	Powell
	Status	Design	Construction	Study	Construction	Study	Proposal	Design	Construction	Debugging	Design Study	Running	Running	Construction	Study	Construction
	Completion Date	1961	1959	?	1961	?	1962 (?)	1962 (?)	1961	1959	?	1958	1954	1961	1963	1960
PERFORMANCE	Energy (Mev) & Particle	60 d, Hvy. ions	50 p	80 p	75 p Hvy. ions	400 p	40 d 40 p	40 p	30 p 15 d	14 d 15 p	240 p	12 d	16 d 9 p	12 p	60 d	12 d, Hvy. ions
	Int. Beam Current, ma	1	0.1	1	1	0.1	1	1	1	1	0.05	0.3	2	0.5	0.5	2
	Frequency Ratio	3:1	Fixed	3:1	3:1		$\sqrt{2}:1$	$\sqrt{2}:1$	3:1	2:1	Fixed	Fixed	$\sqrt{3}:1$	2:1	Fixed (?)	2.3:1 Fixed Field
MAGNET	Number of Hills	3	4	4	3	6	4	3	4	4	4 (?)	4	3	4	3 (?)	3
	Minimum Hill Gap, Inches	7 1/2	1	1-1 1/2	7 1/2	4	~7	6 1/4	8.2	6 1/4	6	2 3/4	4.2	1 3/4	~10	3 1/4
	Max. Valley Gap, Inches	11.8	6	?	28	31	~8	23 1/2	11.7	8	?	~5 1/2	5 1/4	2.5	18	4 3/4
	Hill Field, Kilogauss	20	25	22	21	23		18	16	17.6	23	17.5	18	22	19.5	19
	Valley Field, Kilogauss	14	16	~13	7	?	15 Avg.	8	10	14.4	16	10.7	16.4	16	10	13
	Max. Spiral Angle, Deg.	~60	~47	~45	~20	~65	~73	5	~40	~66	~78	0	0	0	Small	0
	Maximum Orbit Radius, Inches	37	21	31	31.5	82	33	26	24	18.5	50	14	19	10	37	18
	Pole Diameter, Inches	88	46	70	76	173	83	64	52	43 1/2	110	33.5	42	22	~95	40
	Steel Weight, Tons	290	40	150	200	800	340	100	85	60	670	35	70	11	300	50
	Coil Material & Wt., Tons	Cu, 10	Cu, 3.5	Cu, ?	A1, 9	Cu, 60	A1, 13	Cu, 11	Cu, 7	Cu, 10	Cu, 70	A1, .6	Cu, (?)	Cu, 1.5	A1 (?)	Cu, 8
	Coil Coolant	Water	Water	Water	Water	Water	Water	Water	Water	Water	Oil	Water	Water	Water	Water	Water
	Magnet Power, KW (2)	500	150	?	2,300	1,100	75	140	104	75	800	30	?	35	300	37
RF SWITCH	Number of Dees	1	2	2	1 (?)	4	2	2	1	1	1	1	2	2	2	1
	Angular Size of Dees, °	180	48	45	180 (?)	36	180	150	180	180	180	180	140	90	90 (?)	180
	Dee Aperture, Inches	2	1	1	1 7/8	4	?	2	1 1/2	1 1/2	2	~1-2	1.9	3/4	2	1 1/4
	Dee-to-Ground Voltage, KV	70	50	100	70	185	100	70	75	50	50-75	21	70	30	150	30
	Dee-to-Ground Clear., Inches	1 1/2	1	?	1 1/2	3	?	1	1.2	1 1/2	1 1/4	~0.7	3/4	1/4	3	3/4
	RF Power, Kilowatts	350	30	?	250	250	100	240	120	75	?	15	?	30	200?	40
	Freq. Chang. Means	Panels	Panels	Panels	Short		Short	Panels	Short	Short	-	-	Short	Capacitor	?	Short
MISCELLANEOUS	Vac. Pumps, No., Size, Kind	2-32", Hg	1-10", Oil	?	7-20", Oil	?	1-16", Oil	1-20", Hg	1-10", Oil	1-8", Oil	3-20", Oil	1-10", Oil	?	1-10", Oil	?, Oil	2-9", Oil
	Shielding, Thick. & Matl.	10' Conc.	2 1/2' Steel	8' Conc.	7' Conc.	?	Conc. & Soil	5' Hvy. Conc.	7 1/2' Conc.	4' Water	6' Conc.	~3' Soil	6 1/2' Conc.	4-6' Conc.	5' Conc.	Conc.
	Deflection System	Electro. ?	*Natural*	?	Electro.	?	Regen.	Regen.	Electro.	Electro.	?	Electro.	DC & RF	Electro.?	?	?
	Remarks & Novel Features	*Anti-saturation Voids*	Dees in Valleys	Dees in Valleys	Dees in Valleys			Vertical Gap, inclined Yoke			Working Model of Central Portion Is Under Constr.	First Operating Isochron. Machine (3)	Not Isochron. Field; 90% Conventl. Focusing			

(1) Information from "Magnet Geometry Study" (High Field Case) by MEVA Corp. (McKenzie, Wright) & Parsons-Ross Co.
 (2) *Magnet Power* in general includes trimming coil power.
 (3) Delft machine is first operating isochronous cyclotron except for Oak Ridge & Berkeley electron models.