

		E	N	Nb	$\epsilon_x(\epsilon_{Nx})$	$\epsilon_y(\epsilon_{Ny})$	β_x	β_y	σ_x	σ_y	σ'_x	σ'_y	ξ_x	ξ_y	ΔQ	σ_s	I	SR	HG	lum	
		GeV	10^{10}		nm(μm)	nm(μm)	cm	cm	μm	μm	μrad	μrad				cm	A	MW	%	10^{33}	
HA	com	105.4																			
	p	275	11.1	330	16.5(4.8)	6.1(1.8)	566.2	4.2	306	16.0	54	381	.015	.002	.002	8.0	0.46		82	1.17	
	e	10.1	30.5	330	24.5(484)	3.94(78)	381.1	6.5	306	16.0	80	246	.098	.032	.000	1.0	1.26	5.0			
HL	com	105.4																			
	p	275	11.1	330	16.1(4.7)	6.1(1.8)	94.4	4.2	123	16.0	131	381	.014	.005	.002	7.0	0.46		82	2.90	
	e	10.1	30.5	330	24.2(478)	3.47(69)	62.5	7.4	123	16.0	197	217	.092	.083	.000	1.0	1.26	5.0			
FHA	com	104.9																			
	p	275	5.6	1320	9.3(2.7)	0.4(0.1)	283.0	2.1	162	2.9	57	138	.013	.006	.026	4.0	0.93		85	12.65	
	e	10.0	15.2	1320	20.0(391)	0.23(4)	132.1	3.5	163	2.8	123	81	.063	.099	.000	0.8	2.51	9.6			
FHL	com	104.9																			
	p	275	5.6	1320	7.8(2.3)	3.1(0.9)	34.8	2.0	52	7.9	150	394	.014	.005	.003	4.0	0.93		83	14.07	
	e	10.0	15.1	1320	20.0(391)	1.70(33)	13.3	3.7	52	7.9	387	214	.056	.099	.000	0.8	2.50	9.5			

	γ	N_b	freq	Volts	ϵ_{xN}	ϵ_{yN}	σ_z	dp/p	evsec	N_p	τ_{\parallel}	τ_{\perp}	Q_{100m}	β_{crab}^4	f_{crab}	V_{crab}^5	HG	Lum	eff	lum*eff
			MHz	MV	μm	μm	cm	10^{-4}	eV sec	10^{11}	hr.	hr.	nC	m	MHz	MV	%	10^{33}	%	10^{33}
HA	293	330	394	15.20	4.84	1.79	8.0	6.50	0.92	1.1	11.4	12.3	168 ³	1515	336	4.64	82	1.17	62	0.72
HL	293	330	394	19.86	4.72	1.79	7.0	6.50	0.80	1.1	9.8	10.5	166 ³	1553	336	11.23	82	2.90	60	1.73
FHA	293	1320	394	60.81	2.73	0.12	4.0	6.50	0.46	0.6	1.7	0.3	48 ²	2688	336	4.93	85	12.65	6 ⁴	0.73
FHL	293	1320	394	60.81	2.29	0.91	4.0	6.50	0.46	0.6	5.0	2.5	64 ²	3201	336	12.89	83	14.07	40 ⁴	5.57

Note 1: Non magnetic cooling possible with $\approx 1/3$ charge

Note 2: Magnetic cooling possible

Note 3: Only Coherent Electron Cooling possible

Note 4: β_{crab} is maximum value for 10 $\sigma_{crab} = 5$ cm

Note 5: V_{crab} is minimum for maximum β_{crab}