

HP-PS magnet parameters

HPPS design team

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QUADRUPOLES

HP-PS foresees two top energy options: 50 GeV and 75 GeV.

Two different injection techniques are considered, named here “foil” and “laser”.

Therefore 4 quadrupole lists are presented for the 4 combinations of the above.

Foil 50GeV

*Includes 4mm pipe width

Family	Number	Length[m]	Radius[mm]*	Bpt [T]
1	66	2	55	0.97
2	24	2	67	0.83
3	30	2	75	0.73
FS2	6	1.81	97	0.33
DS1	6	4	110	0.79
FS1	6	2.06	90	0.79

Laser 50GeV

Family	Number	Length[m]	Radius[mm]*	Bpt [T]
1	66	2	55	0.97
2	24	2	66	0.70
3	30	2	75	0.73
FS2	6	1.81	99	1.04
DS1	6	4	124	1.22
FS1	6	2.06	99	1.13

Foil 75GeV

*Includes 4mm pipe width

Family	Number	Length[m]	Radius[mm]*	Bpt [T]
1	66	2	48	1.26
2	24	2	59	1.09
3	30	2	63	0.92
FS2	6	1.81	75	0.38
DS1	6	4	84	0.91
FS1	6	2.06	70	0.92

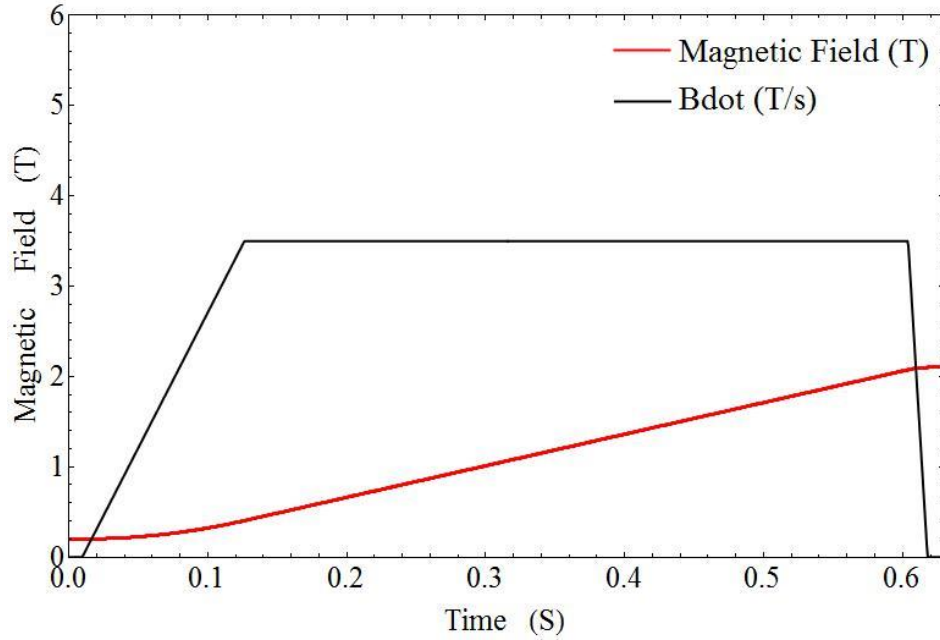
Laser 75GeV

Family	Number	Length[m]	Radius[mm]*	Bpt [T]
1	66	2	48	1.26
2	24	2	59	0.93
3	30	2	63	0.92
FS2	6	1.81	80	-1.27
DS1	6	4	100	1.47
FS1	6	2.06	80	-1.37

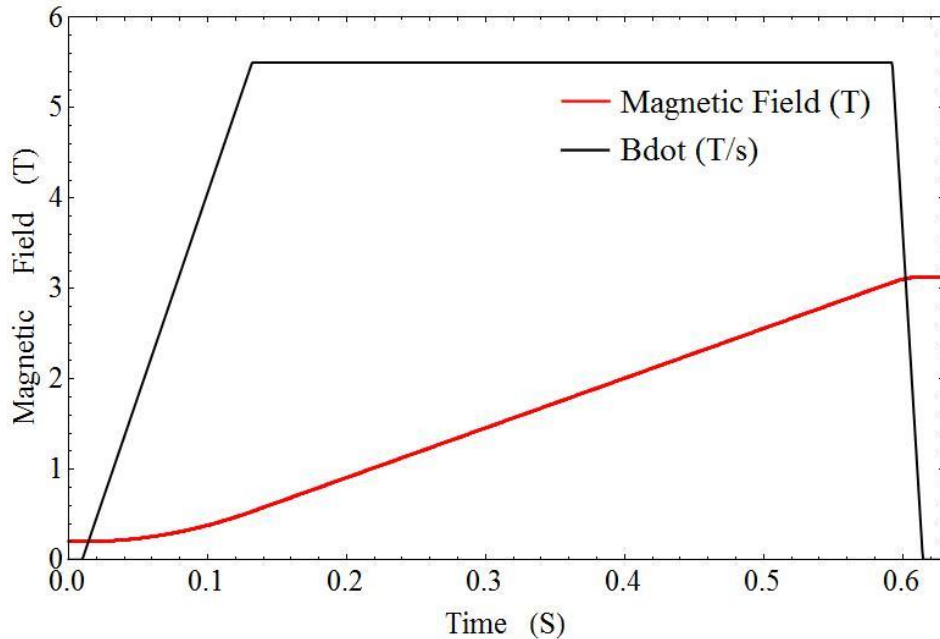
DIPOLES

	50 GeV	75 GeV
Injection [T]	0.19	0.19
Extraction [T]	2.11	3.13
Max Bdot [T/s]	3.5	5.5
Vert. Half Gap [mm]*	53	46
Length [m]	3.765	3.765

Magnetic field composed of : parabolic-linear-parabolic growth.



Magnetic field (red) and corresponding Bdot (black) for 50GeV top energy



Magnetic field (red) and corresponding Bdot (black) for 75GeV top energy