

# Magnetic Launcher - Calculation spreadsheet

Calculate the initial velocity

Range Estimation

Magnetic Launcher with 30.5 turns						
	Range (ft)	Y - initial (in)	Y - final (in)	Range (m)	$\Delta Y$ (m)	Velocity - initial
	19	17	5	5.7912	-0.3048	23.23167846
	19	17	4.5	5.7912	-0.3175	22.76230324
	19	17	4.25	5.7912	-0.3239	22.53803862
Average	19	17	4.5833	5.7912	-0.3154	22.84400677
Standard Deviation	0	0	0.3819	0	0.0097	0.353964202

Magnetic Launcher with 30.5 turns

Magnetic Launcher with 40.5 turns

Magnetic Launcher with 50.5 turns

Magnetic Launcher with 40.5 turns						
	Range (ft)	Y - initial (in)	Y - final (in)	Range (m)	$\Delta Y$ (m)	Velocity - initial
	16	17	11	4.8768	-0.1524	27.66699348
	16	17	13.25	4.8768	-0.0953	34.99628616
	16	17	12	4.8768	-0.127	30.30767285
Average	16	17	12.083	4.8768	-0.1249	30.99031749
Standard Deviation	0	0	1.1273	0	0.0286	3.712025806

Magnetic Launcher with 50.5 turns						
	Range (ft)	Y - initial (in)	Y - final (in)	Range (m)	$\Delta Y$ (m)	Velocity - initial
	16	17	8	4.8768	-0.2286	22.59000558
	16	17	10.5	4.8768	-0.1651	26.58158752
	16	17	10.25	4.8768	-0.1715	26.0846916
Average	16	17	9.5833	4.8768	-0.1884	25.08542823
Standard Deviation	0	0	1.3769	0	0.035	2.175333782

## Magnetic Launcher Expected Initial Velocities

