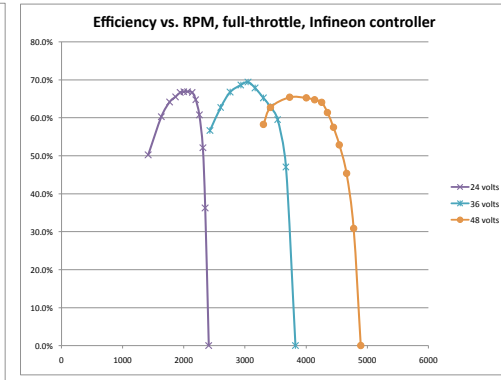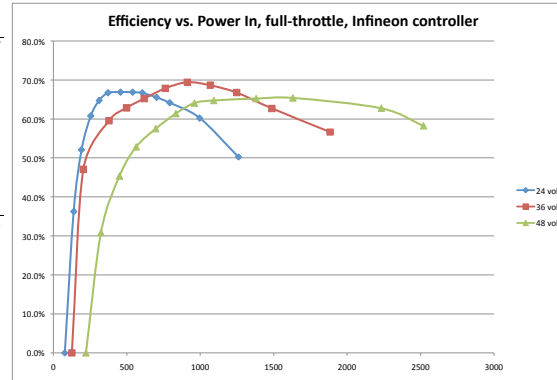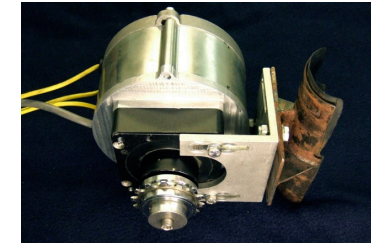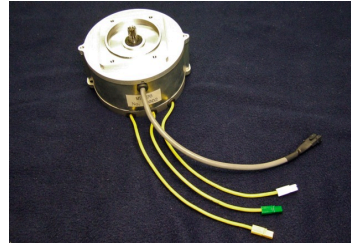# Mars Electric ME026

Serial #0002
Stock Hall sensors
Infineon controller (Current limit: 55A)
Full-throttle

24-volt supply

Power (into controller)	Power (load at wheel)	Efficiency	Voltage	Current	Wheel Speed	Motor RPM	Kv'
78	0	0.0%	26.7	2.9	12.4	2408	90
138	50	36.2%	26.3	5.2	12.1	2350	
192	100	52.1%	26.1	7.4	11.9	2311	
255	155	60.8%	25.8	9.9	11.6	2253	
312	202	64.7%	25.6	12.2	11.3	2194	
372	248	66.7%	25.5	14.6	11.0	2136	
456	305	66.9%	25.3	18.0	10.6	2058	
540	361	66.9%	25.1	21.5	10.3	2000	
606	404	66.7%	24.9	24.3	10.0	1942	
702	460	65.5%	24.7	28.4	9.6	1864	
792	508	64.1%	24.4	32.5	9.1	1767	
996	600	60.2%	24.0	41.5	8.4	1631	
1260	633	50.2%	23.3	54.1	7.3	1418	

36-volt supply

Power (into controller)	Power (load at wheel)	Efficiency	Voltage	Current	Wheel Speed	Motor RPM	Kv'
126	0	0.0%	39.6	3.2	19.7	3826	97
204	96	47.1%	39.3	5.2	18.9	3670	
378	225	59.5%	38.9	9.7	18.2	3534	
498	313	62.9%	38.6	12.9	17.6	3418	
618	403	65.2%	38.2	16.2	17.0	3301	
762	517	67.8%	37.7	20.2	16.3	3165	
912	633	69.4%	37.4	24.4	15.7	3049	
1068	733	68.6%	36.9	28.9	15.1	2932	
1248	833	66.7%	36.5	34.2	14.2	2758	
1488	933	62.7%	35.9	41.4	13.4	2602	
1884	1067	56.6%	35.0	53.8	12.5	2427	

48-volt supply

Power (into controller)	Power (load at wheel)	Efficiency	Voltage	Current	Wheel Speed	Motor RPM	Kv'
222	0	0.0%	53.9	4.1	25.2	4894	91
324	100	30.9%	53.0	6.1	24.6	4777	
450	204	45.3%	52.4	8.6	24.0	4661	
564	298	52.8%	51.8	10.9	23.4	4544	
696	400	57.5%	51.4	13.5	22.9	4447	
834	512	61.4%	51.1	16.3	22.4	4350	
960	615	64.1%	50.7	18.9	21.9	4253	
1092	707	64.7%	50.3	21.7	21.3	4136	
1380	900	65.2%	49.6	27.8	20.6	4000	
1632	1067	65.4%	48.8	33.4	19.2	3729	
2232	1400	62.7%	47.8	46.7	17.6	3418	
2520	1467	58.2%	47.3	53.3	17.0	3301	

Efficiency vs. Power In, full-throttle, Infineon controller

Efficiency vs. RPM, full-throttle, Infineon controller

Notes: Efficiency was measured by comparing energy drawn from the battery according to a Cycle Analyst and comparing that to energy sent to the rear wheel of the bicycle as read from a PowerTap hub.

Motor power passes through a Headline 9.33:1 planetary gearbox with straight-cut teeth, chain and sprocket (bicycle chain; 14t -> 14t) to a mid-drive, which is then passed to the rear wheel using normal bicycle chain (22t - 34t).