## Transmagnetics 48v 4" motor (ca. 2008)

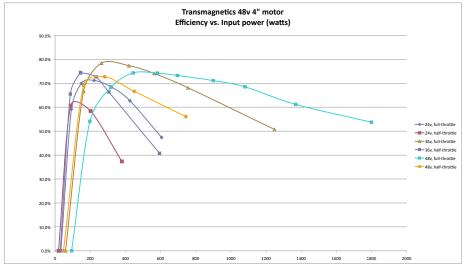
Headline 24V/50A controller

24 Volts			
Full throttle			
Power (Drain Brain)	Power (PowerTap)	Efficiency	
33	0	0.0%	
93	55	59.1%	
150	105	70.0%	
222	158	71.2%	
318	218	68.6%	
426	267	62.7%	
606	287	47.4%	
Half Throttle			
Power (Drain Brain)	Power (PowerTap)	Efficiency	
20	0	0.0%	
89	54	60.7%	
202	118	58.4%	
380	142	37.4%	
36 Volts			
Full throttle			
Power (Drain Brain)	Power (PowerTap)	Efficiency	
60	0	0.0%	
162	108	66.7%	
264	207	78.4%	
420	325	77.4%	
564	418	74.1%	
756	515	68.1%	
1248	633	50.7%	
Half Throttle			
Power (Drain Brain)	Power (PowerTap)	Efficiency	
30	0	0.0%	
30 87	0 57	0.0% 65.5%	
30 87 144	0 57 107	0.0% 65.5% 74.3%	
30 87 144 145	0 57 107 108	0.0% 65.5% 74.3% 74.5%	
30 87 144 145 234	0 57 107 108 170	0.0% 65.5% 74.3% 74.5% 72.6%	
30 87 144 145 234 306	0 57 107 108 170 203	0.0% 65.5% 74.3% 74.5% 72.6% 66.3%	
30 87 144 145 234	0 57 107 108 170	0.0% 65.5% 74.3% 74.5% 72.6%	
30 87 144 145 234 306 594	0 57 107 108 170 203	0.0% 65.5% 74.3% 74.5% 72.6% 66.3%	
30 87 144 145 234 306 594 48 Volts Full throttle	0 57 107 108 170 203 242	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain)	0 57 107 108 170 203 242	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain) 94	0 57 107 108 170 203 242 Power (PowerTap) 0	0.0% 65.5% 74.3% 72.6% 66.3% 40.7% Efficiency 0.0%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain) 94 198	0 57 107 108 170 203 242 Power (PowerTap) 0 107	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% Efficiency 0.0% 54.0%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain) 94 198 318	0 57 107 108 170 203 242 Power (PowerTap) 0 107 217	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% Efficiency 0.0% 54.0% 68.2%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain) 198 318 444	0 57 107 108 170 203 242 Power (PowerTap) 0 107 217 330	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% Efficiency 0.0% 54.0% 68.2% 74.3%	
30 87 144 145 234 306 594 48 Volts Full thottle Power (Drain Brain) 94 198 318 444 552	0 57 107 108 170 203 242 Power (PowerTap) 0 107 217 330 432	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% Efficiency 0.0% 68.2% 74.3% 74.2%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain) 198 318 444 582 696	0 57 107 108 170 203 242 Power (PowerTap) 0 107 217 330 432 510	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% Efficiency 0.0% 54.0% 68.2% 74.3% 74.2%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain) 94 138 348 444 562 696 900	0 57 107 107 108 170 203 242 Power (PowerTap) 0 107 217 330 432 510 640	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% Efficiency 0.0% 54.0% 68.2% 74.3% 74.2% 73.3%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain) 94 198 314 44 45 56 96 90 90 108	0 57 107 107 108 170 203 242 Power (PowerTap) 0 1217 330 432 510 640 7440	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% Efficiency 0.0% 54.0% 74.3% 74.3% 71.1% 68.5%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain) 94 138 348 444 562 696 900	0 57 107 107 108 170 203 242 Power (PowerTap) 0 107 217 330 432 510 640	0.0% 65.5% 74.3% 74.5% 66.3% 40.7% Efficiency 0.0% 68.2% 74.3% 74.2% 73.3% 68.5% 61.2%	
30 87 144 145 234 306 594 48 Volts Full throttle Power (Drain Brain) Power (Drain Brain) 188 318 318 522 696 900 1080 1368 1368	0 57 107 107 108 170 203 242 242 242 1510 640 740 837	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% Efficiency 0.0% 54.0% 74.3% 74.3% 71.1% 68.5%	
300 87 144 145 2234 306 594  48 Volts Full throttle Power (Drain Brain) 94 198 388 444 582 686 91 1000 1368 1800  Half Throttle	0 57 107 107 108 170 2013 242 Power (PowerTap) 0 107 217 330 432 510 640 640 640 687 687 687 687 687 687 687 687 687 687	0.0% 65.5% 74.3% 74.5% 66.3% 40.7% Efficiency 0.0% 54.0% 68.2.% 74.3% 71.1% 68.5% 61.2% 63.7%	
30 87 144 145 234 394 48 Volts Full throttle Power (Drain Brain) 198 198 198 198 198 198 198 198 198 198	0 57 107 107 108 203 203 203 204 205 205 205 205 205 205 205 205 205 205	0.0% 65.5% 74.3% 74.5% 66.3% 40.7% Efficiency 0.0% 68.2% 74.3% 74.2% 73.3% 61.2% 63.7%	
300 87 144 145 224 306 594  48 Volts Full throttle Power (Drain Brain) 94 198 38 444 552 696 900 1008 1108 1108 1108 Half Throttle Power (Drain Brain) 48	0 57 107 107 108 170 203 242 Power (PowerTap) 0 107 217 330 432 510 640 837 967 Power (PowerTap) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0.0% 65.5% 74.3% 74.5% 66.3% 40.7% Efficiency 0.0% 54.0% 68.2% 74.3% 74.3% 71.1% 68.5% 61.2% 53.7%	
300 87 144 145 234 306 594  48 Volts Full throttle Power (Drain Brain) 180 1308 91 180 1308 1408 1408 1408 1408 1408 1408 1408 14	0 57 107 107 108 179 109 109 109 109 109 109 109 109 109 10	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% 54.0% 68.2% 74.3% 74.2% 53.7% 68.5% 61.2% 53.7%	
300 87 144 145 224 306 594 48 Volts Full throttle Power (Drain Brain) 94 198 318 444 552 696 900 1080 1108 1108 1108 Half Throttle Power (Drain Brain) 48 162 282	0 7 107 107 108 170 108 170 108 170 109 109 109 109 109 109 109 109 109 10	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% 68.2% 74.2% 74.3% 61.2% 61.2% 61.2% 61.2% 61.2% 61.2%	
300 87 144 145 234 306 594  48 Volts Full throttle Power (Drain Brain) 180 1308 91 180 1308 1408 1408 1408 1408 1408 1408 1408 14	0 57 107 107 108 179 109 109 109 109 109 109 109 109 109 10	0.0% 65.5% 74.3% 74.5% 72.6% 66.3% 40.7% 54.0% 68.2% 74.3% 74.2% 53.7% 68.5% 65.3% 68.5% 66.5% 68.2%	



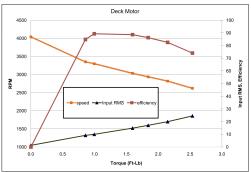






Notes: Efficiency was measured by comparing energy drawn from the battery according to a Cycle Analyst and comparing that to energy sent to the rear wheel of the bicycle as read from a PowerTap hub. Motor power passes through a chain and sprocket (#25 chain; 15t - 90t) to a mid-drive, which is then passed to the rear wheel using normal bicycle chain (15t - 34t). Efficiency of the two-stage chain and sprocket drive is probably around 94%, so actual motor/controller efficiency is about 6% greater.

Transmagn	Transmagnetics, Inc.							
420- 22 x 1.	420- 22 x 1.2mm: with 1041, 48V							
RPM	Tra ft-lb	Input RMS	Voltage	P-in watts	P-out watts	P-out HP	Efficiency	
4040	0.00	1.3	52.3	68.0	0.0	0.00	0.0	
3350	0.86	9.2	52.2	480.2	407.3	0.55	84.8	
3300	0.99	10	52.2	522.0	466.2	0.62	89.3	
3034	1.60	14.9	52.1	776.3	687.8	0.92	88.6	
2938	1.84	17.1	52.1	890.9	768.4	1.03	86.3	
2820	2.15	20	52.1	1042.0	860.0	1.15	82.5	
2620	2.54	24.5	52	1274.0	944.0	1.27	74.1	



Manufacturer's Data