

**Motor Winding**

**Basic Motor Constants**

	TT-4233			TT-4234			TT-4235			TT-4236			TT-4237			TT-4238			TT-4239		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
Power, P (hp)	2.0	2.3	2.3	2.3	2.4	2.5	3.0	3.2	3.3	3.1	3.2	3.3	3.2	4.2	4.5	3.7	4.2	4.5	3.2	4.0	4.2
Power, P (W)	1500	1600	1600	1700	1800	1900	2200	2400	2500	2300	2400	2500	2400	3100	3400	2800	3100	3400	2400	3000	3100
Max Speed, Nmax (rpm)	2,500	3,200	3,600	1,950	2,400	3,200	1,550	1,950	2,600	1,300	1,600	2,100	1,100	1,400	1,850	975	1,200	1,600	875	1,000	1,400
Cont. Torque Mo (lb-ft)	8.9	8.5	7.8	11.7	11.7	11.1	14.5	14.0	13.4	17.3	17.3	16.2	20.5	20.5	19.5	22.3	22.3	20.5	24.5	24.5	22.3
Cont. Torque Mo (Nm)	12	11.5	10.5	15.8	15.8	14.9	19.6	18.9	18.1	23.4	23.4	21.9	27.7	27.7	26.3	30.1	30.1	27.7	33.1	33.1	30.1
Peak Torque, Mmax (lb-ft)	37	30.7	22.8	50.3	41.8	32.4	61	51	38	75	60.5	46	83.7	71.6	53	95	80	62	112	90	66.5
Peak Torque, Mmax (Nm)	49.9	41.4	30.8	67	56.4	43.7	82.4	68.9	51.3	101.3	81.7	62.1	112.9	96.7	71.6	128.3	108	83.7	151.2	121.5	89.8
Current @ Cont. Torque, Io (A)	23.7	28.3	34.7	23.4	29.3	37.0	23.2	28.0	35.7	23.1	28.8	36.0	23.4	29.3	37.0	22.3	27.9	34.2	21.7	27.2	33.0
Current @ Peak Torque, Ip (A)	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120
Max Terminal Voltage, Vt (V)	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140
Back EMF Const, Ke (V/krpm)	53.2	42.6	31.9	71.0	56.8	42.6	88.9	71.0	53.2	106.5	85.2	63.9	124.2	99.4	74.5	142.0	113.1	85.2	160.0	127.9	95.8
Torque Const., Kt (lb-ft/A)	0.375	0.300	0.225	0.500	0.400	0.300	0.626	0.500	0.375	0.750	0.600	0.450	0.875	0.700	0.525	1.000	0.800	0.600	1.127	0.901	0.675
Torque Const., Kt (Nm/A)	0.509	0.407	0.305	0.68	0.54	0.41	0.849	0.678	0.509	1.017	0.814	0.608	1.187	0.95	0.712	1.36	1.08	0.81	1.528	1.22	0.915
DC Resistance, R (Ω)	0.243	0.154	0.092	0.285	0.181	0.107	0.327	0.208	0.125	0.369	0.234	0.14	0.41	0.26	0.156	0.453	0.287	0.172	0.494	0.314	0.188
Inductance, L (mH)	1.03	0.56	0.37	1.37	0.88	0.49	1.71	1.1	0.62	2.06	1.32	0.74	2.39	1.53	0.86	2.75	1.75	0.98	3.08	1.97	1.11

Weight, M (lbs)	40	46	52	58	64	70	76
Weight, M (kg)	18.2	20.6	23.6	26.3	29.1	31.8	34.5
Inertia, JM (lb.ft.sec <sup>2</sup> )	0.0063	0.0082	0.01	0.012	0.0137	0.016	0.0178
Inertia, JM (kg.m <sup>2</sup> )	0.0085	0.011	0.014	0.016	0.0186	0.0217	0.0241
Static Friction, TF (lb.ft)	0.3	0.35	0.4	0.5	0.55	0.6	0.7
Static Friction, TF (Nm)	0.41	0.47	0.54	0.68	0.75	0.81	0.95
Viscous Damping, F1 (lb.ft/krpm)	0.08	0.1	0.12	0.14	0.17	0.19	0.22
Viscous Damping, F1 (Nm/krpm)	0.11	0.14	0.16	0.19	0.23	0.26	0.3

**Tachogenerator Option**

	TGF2030-147	TGF2030-147	TGF2030-147	TGF2030-147	TGF2030-147	TGF2030-147	TGF2030-147
Tachogenerator Model	TGF2030-147	TGF2030-147	TGF2030-147	TGF2030-147	TGF2030-147	TGF2030-147	TGF2030-147
Voltage, KG (V/krpm)	19v / 57v / 38v / 47v	19v / 57v / 38v / 47v	19v / 57v / 38v / 47v	19v / 57v / 38v / 47v	19v / 57v / 38v / 47v	19v / 57v / 38v / 47v	19v / 57v / 38v / 47v
Ripple (pk-pk/avg)	2%	2%	2%	2%	2%	2%	2%
Inertia, JT (oz-in-sec <sup>2</sup> )	0.009	0.009	0.009	0.009	0.009	0.009	0.009
Inertia, JT (kg.cm <sup>2</sup> )	0.64	0.64	0.64	0.64	0.64	0.64	0.64
Weight, MT (oz)	23	23	23	23	23	23	23
Weight, MT (grams)	640	640	640	640	640	640	640

**Encoder Option**

Encoder Type	Incremental (A quad B with index Z & complements)
Power Supply	5V DC ± 5%, 200mA max
Output	Line Driver, 20mA Max source/sink
Resolution (ppr)	1024 / 2048 / 4096
Frequency Response	200 kHz max

**Brake Option**

Code	B1	B2	B3
Brake Open Voltage	115V a.c	90V d.c.	24V d.c
Power (Watts)	26	26	28
Brake Static Torque (lb.ft)	14.75	14.75	14.75
Brake Static Torque (Nm)	20	20	20
Weight (brake + housing) lbs	29	29	29
Weight (brake + housing) Kg	13	13	13