

Motor Winding

Basic Motor Constants

Power, P (W)
 Max Speed, Nmax (rpm)
 Peak Torque, Mmax (Nm)
 Current @ Peak Torque, Ip (A)
 Max Terminal Voltage, VT (V)
 Back EMF Const, Ke (V/krpm)
 Torque Const., KT (Nm/A)
 DC Resistance, R (Ω)
 Inductance, L (mH)

	M4-2003			M4-2004			M4-2005			M4-2006		
	F	A	C	A	C	R	A	C	F	A	C	M
Power, P (W)	/	100	90	200	180	150	300	250	220	300	220	200
Max Speed, Nmax (rpm)	6,000	6,000	4,500	5,000	3,500	2,500	4,000	3,300	2,000	3,000	2,000	1,200
Peak Torque, Mmax (Nm)	1.3	2.1	2.3	2.6	3.5	4.2	3.2	4	5	4.3	6	8
Current @ Peak Torque, Ip (A)	18	18	15.3	18	18	18	18	18	18	18	18	18
Max Terminal Voltage, VT (V)	60	90	90	90	90	90	90	90	90	90	90	90
Back EMF Const, Ke (V/krpm)	8.0	12.5	16.0	15.6	21.3	26.0	19.5	23.8	31.2	26.0	35.8	50.0
Torque Const., KT (Nm/A)	0.075	0.118	0.151	0.148	0.201	0.246	0.184	0.225	0.295	0.246	0.339	0.473
DC Resistance, R (Ω)	1.1	2.9	4.4	1.5	2.8	4	1.1	1.8	3.4	1.3	2.7	5.3
Inductance, L (mH)	0.95	2.4	3.8	1.6	2.9	4.3	1.3	2.1	3.5	1.6	3	6

Weight, M (kg)
 Inertia, JM (kgm²)
 Static Friction, TF (Nm)
 Viscous Damping, F1 (Nm/krpm)

Weight, M (kg)	1.8			2.3			2.9			3.4		
Inertia, JM (kgm ²)	1.00x10 ⁻⁴			1.60x10 ⁻⁴			2.20x10 ⁻⁴			2.80x10 ⁻⁴		
Static Friction, TF (Nm)	0.03			0.04			0.045			0.05		
Viscous Damping, F1 (Nm/krpm)	0.005			0.01			0.015			0.02		

Motor with Tachogenerator

Cont. Torque Mo (Nm)
 Current @ Cont. Torque, Io (A)

Cont. Torque Mo (Nm)	0.43	0.45	0.45	0.9	0.9	0.9	1.2	1.15	1.15	1.6	1.6	1.6
Current @ Cont. Torque, Io (A)	6.0	3.9	3.1	6.3	4.6	3.8	6.7	5.2	4	6.7	4.8	3.5

Motor without Tachogenerator

Cont. Torque Mo (Nm)
 Current @ Cont. Torque, Io (A)

Cont. Torque Mo (Nm)	0.38	0.4	0.4	0.85	0.85	0.85	1.15	1.1	1.1	1.5	1.5	1.5
Current @ Cont. Torque, Io (A)	5.3	3.5	2.75	6	4.4	3.6	6.5	5	3.9	6.3	4.6	3.3

Tachogenerator Option

Tachogenerator Model
 Voltage, KG (V/krpm)
 Ripple (pk-pk/avg)
 Inertia, Jt (kgm²)
 Weight, MT (kg)

Tachogenerator Model	TGF 1568			TGF 1568			TGF 1568			TGF 1568		
Voltage, KG (V/krpm)	3.0 / 4.0 / 7.0 / 14.0			3.0 / 4.0 / 7.0 / 14.0			3.0 / 4.0 / 7.0 / 14.0			3.0 / 4.0 / 7.0 / 14.0		
Ripple (pk-pk/avg)	3%			3%			3%			3%		
Inertia, Jt (kgm ²)	0.14x10 ⁻⁴			0.14x10 ⁻⁴			0.14x10 ⁻⁴			0.14x10 ⁻⁴		
Weight, MT (kg)	0.6			0.6			0.6			0.6		

Encoder Option:

Flexmount Encoder

Encoder Type
 Power Supply
 Output
 Resolution (ppr)
 Frequency Response

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

Single Ended Modular Encoder

Encoder Type
 Power Supply
 Output
 Resolution (ppr)
 Frequency Response

Encoder Type	Incremental (A quad B with index Z)											
Power Supply	5 V DC, 85 mA max											
Output	TTL Squarewave Outputs											
Resolution (ppr)	512 / 900/ 1024			512 / 900/ 1024			512 / 900/ 1024			512 / 900/ 1024		
Frequency Response	100 kHz Max.											

Differential Modular Encoder

Encoder Type
 Power Supply
 Output
 Resolution (ppr)
 Frequency Response

Encoder Type	Incremental (A quad B with index Z & complements)											
Power Supply	5 V DC, 85 mA max											
Output	Internal Line Driver 26C31 (can sink/source 20mA at TTL levels)											
Resolution (ppr)	512 / 900/ 1024			512 / 900/ 1024			512 / 900/ 1024			512 / 900/ 1024		
Frequency Response	100 kHz Max.											

Brake Option

Brake Open Voltage (Volts D.C.)
 Power (Watts)
 Brake Static Torque (Nm)
 Weight (brake + housing) Kg

Brake Open Voltage (Volts D.C.)	24											
Power (Watts)	10											
Brake Static Torque (Nm)	2.0											
Weight (brake + housing) Kg	0.8											