

M4-200X DC Servomotors

Direct Replacement of SEM MT22 * motors



- Identical motor shaft and mount dimensions (IEC & NEMA options)
- Matched motor windings
- Compatible torque/speed performance
- Matched connection options
- 24V DC brake option
- Matched tachogenerator output
- Encoder options available
- Rare Earth magnets
- Rugged mechanical design

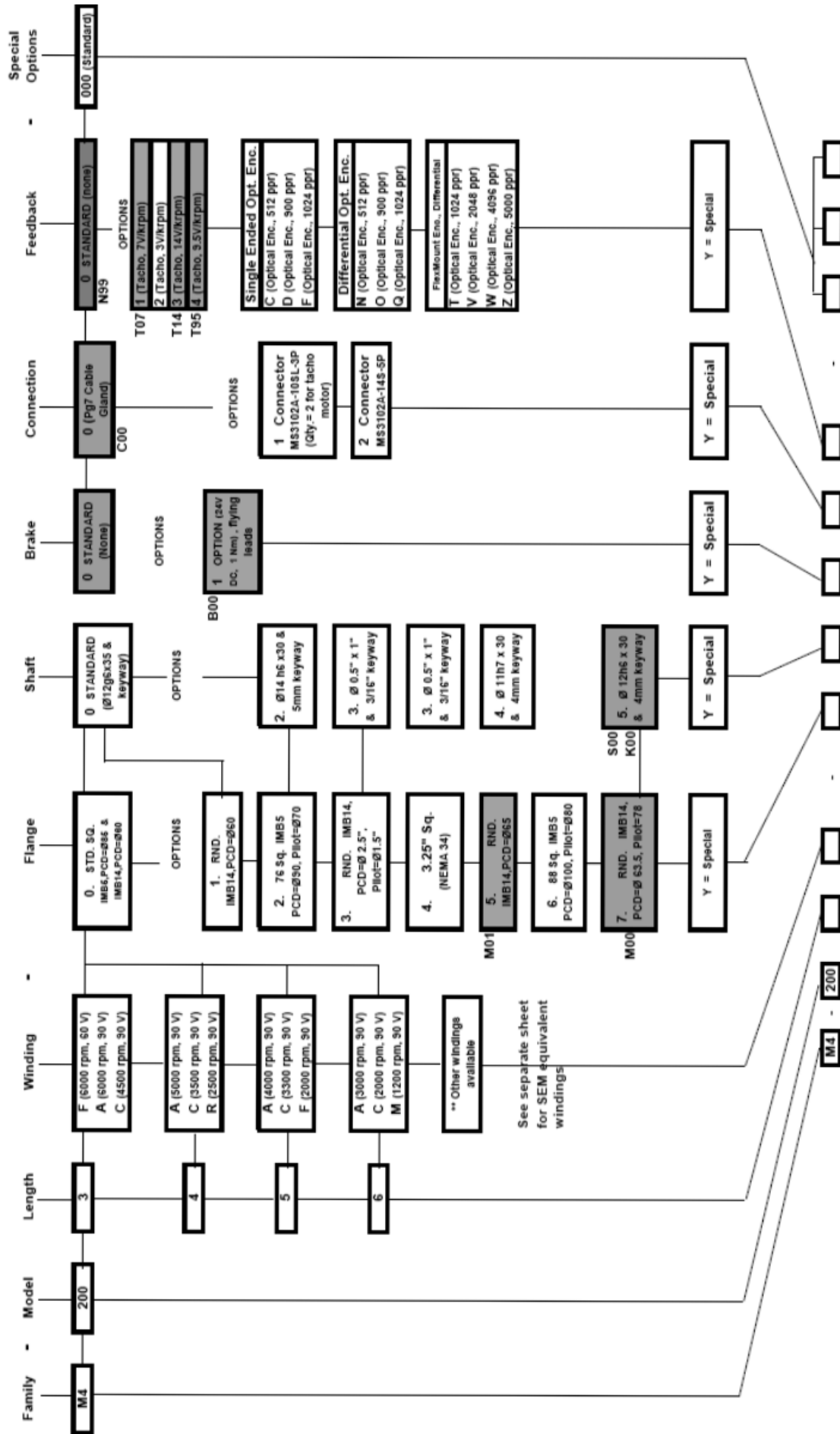
* MT is a tradename of SEM Ltd, UK, brush DC servomotors



M4-200X Servomotor Replacements
for SEM MT22 servomotors

Original Part Number	Our Equivalent
MT22D2-19	M4-2004V
MT22D2-10	M4-2004S
MT22D2-5	M4-2004B
MT22G2-19	M4-2005A
MT22G2-10	M4-2005M
MT22R2-24	M4-2006A
MT22R2-19	M4-2006T
MT22R2-12	M4-2006P
MT22R2-10	M4-2006N

M4-200X Code Table (Replacements for SEM MT22)

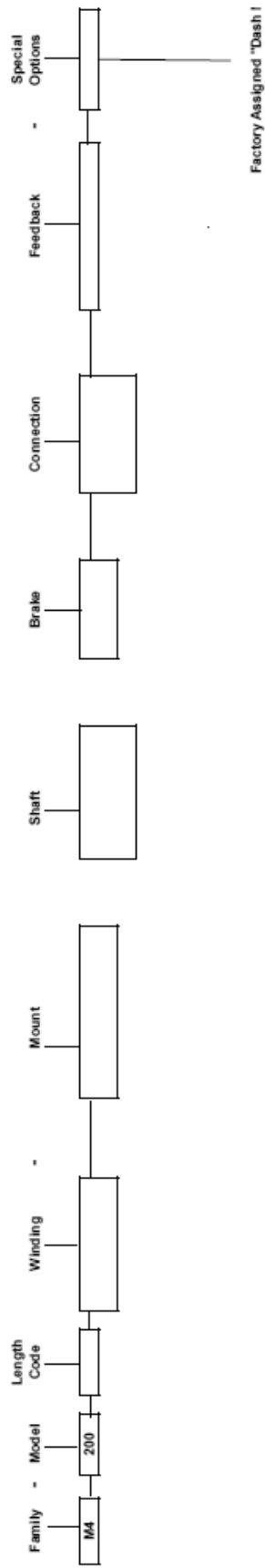


M4 - 200 6 A - 0 0 0 0 1 - 0 0 0
 = SEM Standard for MT22
 = SEM Standard Option for MT22

For encoders, encoder adapters, rear shaft, shaft seals etc please contact factory

Example : M4 - 200 6 A - 0 0 0 0 1 - 0 0 0

M4-200X Code Table (Replacements for SEM MT22)



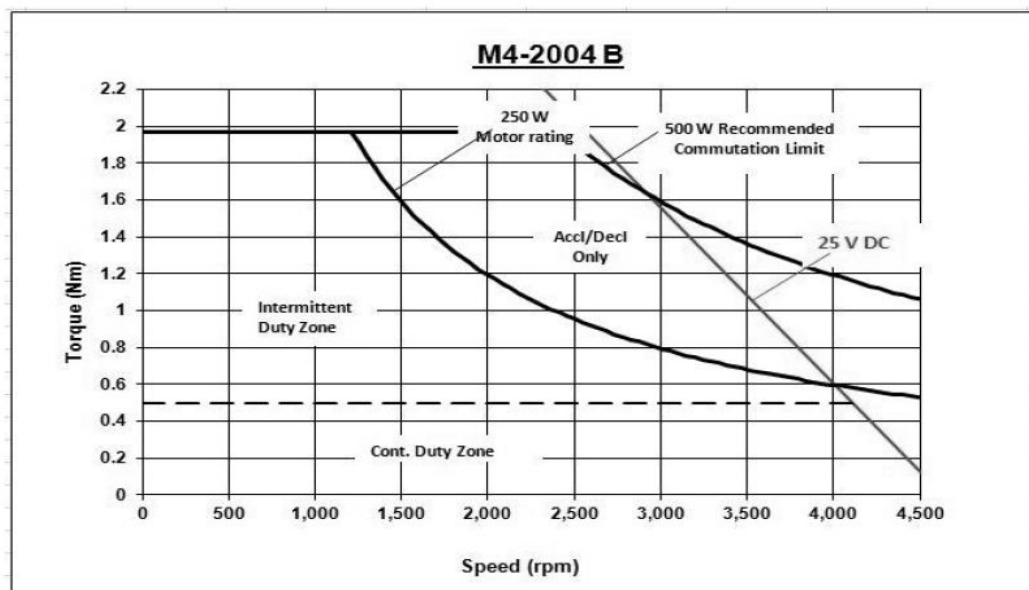
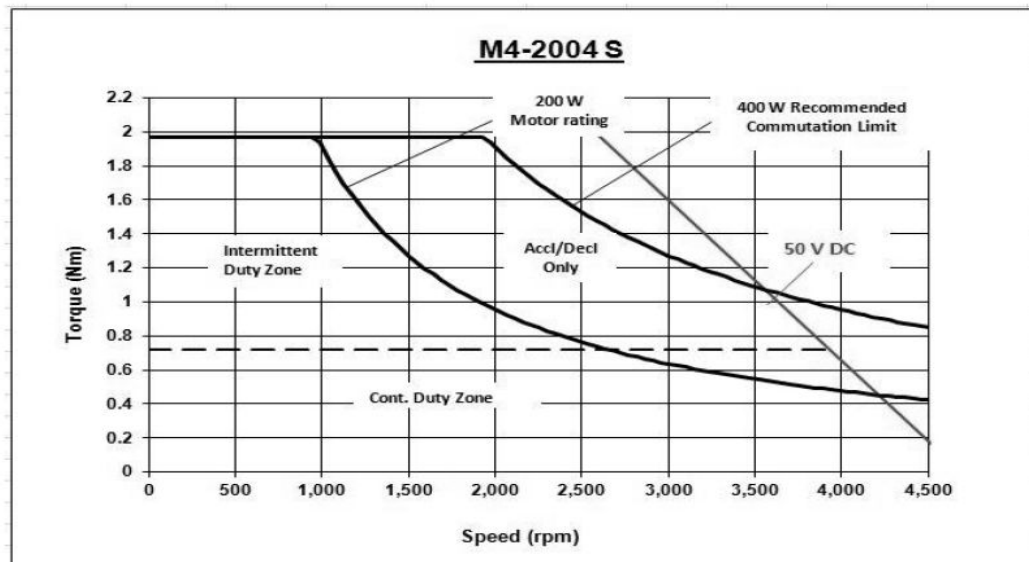
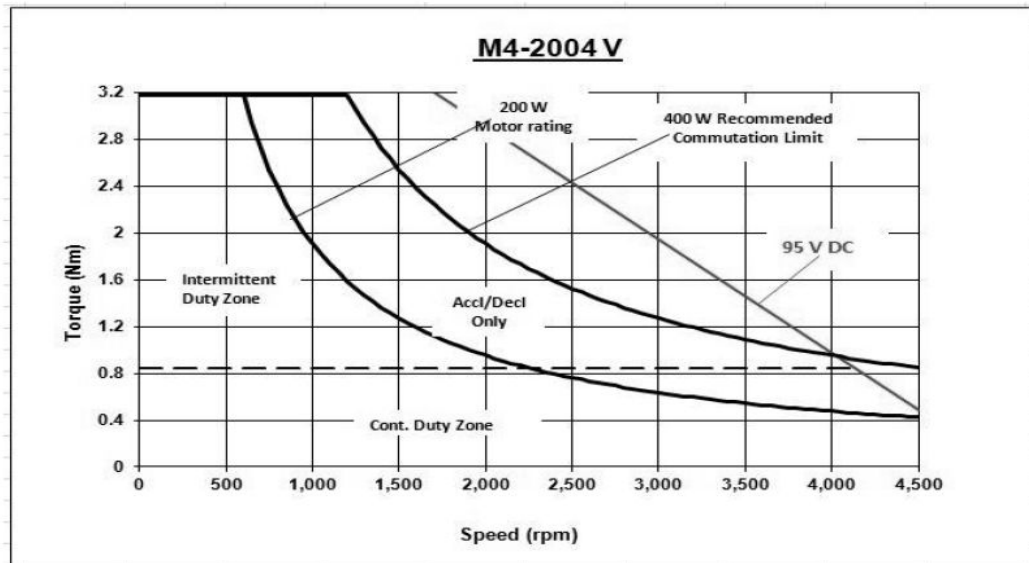
Dash No. List (as of 1/2/13)

- 000 Standard motor as specified by order code, no thermostat, no rear shaft ext (plain endcover
- 167 Standard motor with Ø6mm non-drive end shaft & encoder adapter plate
- 168 Standard motor with Ø0.25 inch non-drive end shaft & encoder adapter plate

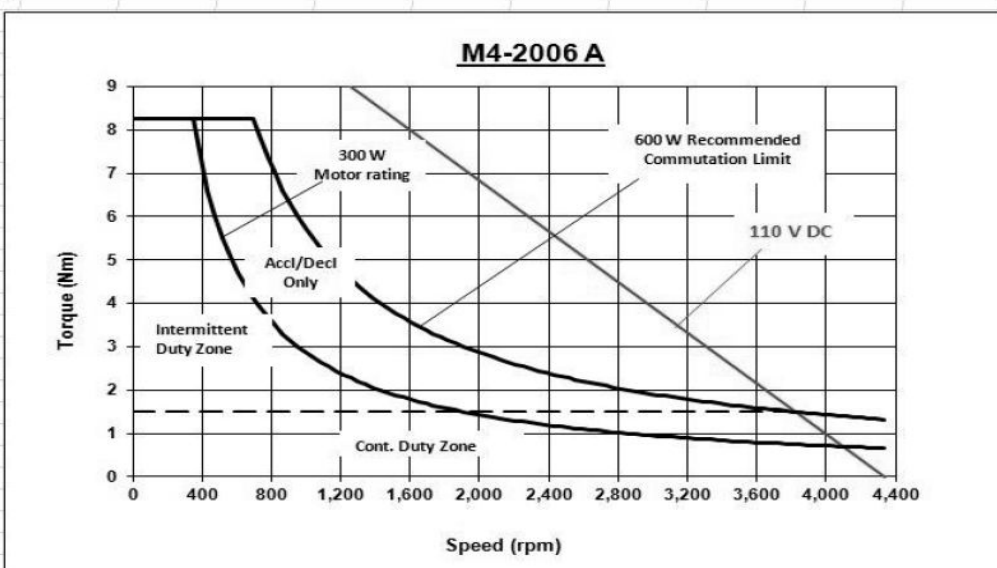
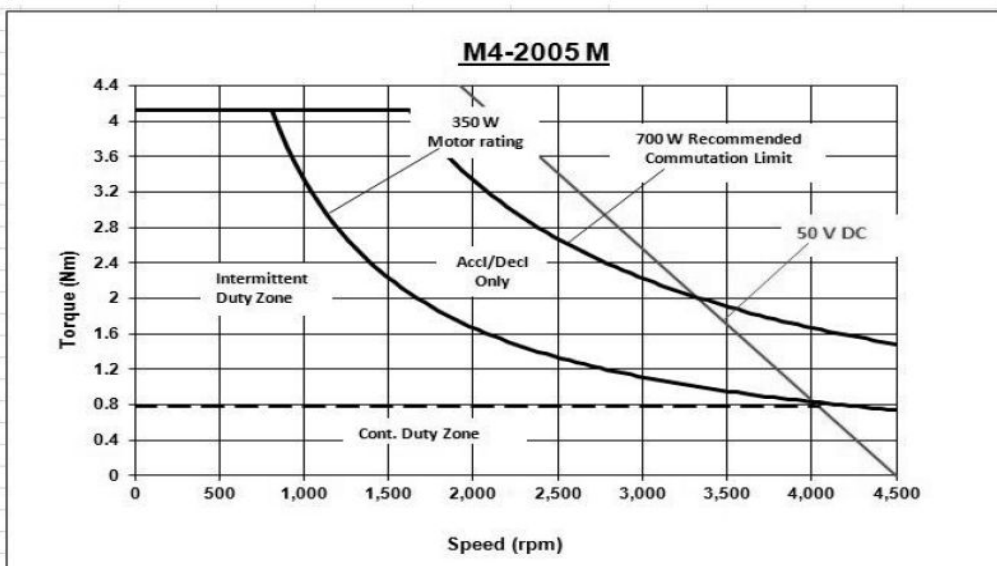
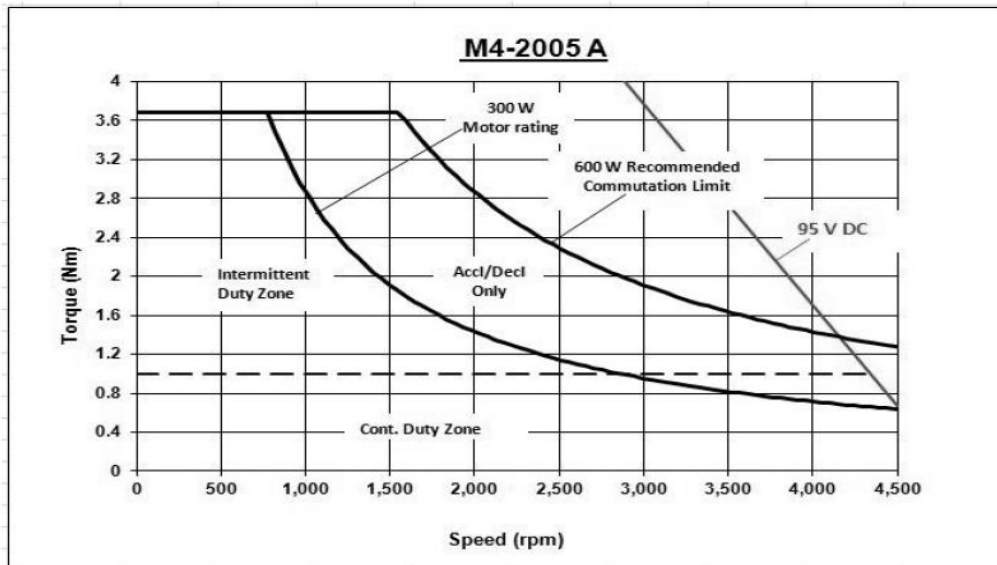
Accessories (must be specified and ordered separately)

Motor		M4-2004				M4-2005				M4-2006			
Winding		V	S	B	A	M	A	T	P	N			
replaces :-		(MT22D2-19)	(MT22D2-10)	(MT22D2-5)	(MT22G2-19)	(MT22G2-10)	(MT22R2-24)	(MT22R2-19)	(MT22R2-12)	(MT22R2-10)			
Power, P (W)	(Brush cont. Limit)	200	200	250	300	350	300	400	400	400	500		
Max Speed, Nmax (rpm)		5,000	4,800	4,800	4,800	4,500	4,400	4,800	4,800	4,800	5,000		
Cont. Torque Mo (Nm)		0.85	0.72	0.5	1	0.78	1.5	1.2	1.2	1.2	1.0		
Current @ Cont. Torque, Io (A)		5.1	8	11	5.7	8	6.5	7	10.5	10.5	11		
Peak Torque, Mmax (Nm)		3.1	1.9	1.9	3.6	4.0	8.2	7.2	4.6	4.6	3.7		
Current @ Peak Torque, Ip (A)		18	20	40	20	40	35	40	40	40	40		
Max Terminal Voltage, VT (V)		95	50	25	95	50	110	95	60	60	75		
Back EMF Const, Ke (V/krpm)		18.7	10.4	5.2	19.5	10.9	25.2	18.9	12.4	12.4	10		
Torque Const., Kt (Nm/A)		0.177	0.098	0.049	0.184	0.103	0.238	0.179	0.117	0.117	0.095		
DC Resistance, R (Ω)		2.2	0.7	0.17	1.1	0.42	1.3	0.81	0.35	0.35	0.24		
Inductance, L (mH)		2.4	0.72	0.18	1.35	0.47	1.6	0.95	0.45	0.45	0.31		
Weight, M (kg)		2.3			2.9		3.4						
Inertia, Jm (kgm ²)		1.6x10 ⁻⁴			2.2x10 ⁻⁴		2.8x10 ⁻⁴						
Static Friction, TF (Nm)		0.04			0.045		0.05						
Viscous Damping, F1 (Nm/krpm)		0.01			0.015		0.02						
Tachogenerator Option													
Tachogenerator Model		TGF 1568				TGF 1568				TGF 1568			
Voltage, KG (V/krpm)		7.0 / 9.5 / 14.0				7.0 / 9.5 / 14.0				7.0 / 9.5 / 14.0			
Ripple (pk-pk/avg)		3%				3%				3%			
Inertia, JT (kgm ²)		0.14x10 ⁻⁴				0.14x10 ⁻⁴				0.14x10 ⁻⁴			
Weight, MT (kg)		0.6				0.6				0.6			
Encoder Option- Flexmount Encoder with internal bearing													
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				1024 / 2048 / 4096				1024 / 2048 / 4096			
Frequency Response		200 kHz max											
Encoder Option- Single Ended Modular Encoder													
Encoder Type		Incremental (A quad B with index Z)											
Power Supply		5V, 85mA max											
Output		TTL Squarewave Outputs											
Resolution (ppr)		512 / 900/ 1024				512 / 900/ 1024				512 / 900/ 1024			
Frequency Response		100 kHz max											
Encoder Option- Differential Modular Encoder													
Encoder Type		Incremental (A quad B with index Z & complements)											
Power Supply		5V, 85mA max											
Output		Internal Line Driver											
Resolution (ppr)		512 / 900/ 1024				512 / 900/ 1024				512 / 900/ 1024			
Frequency Response		100 kHz max											
Brake Option													
Brake Open Voltage (Volts D.C.)		24											
Power (Watts)		10											
Brake Static Torque (Nm)		2.0											
Weight (brake + housing) Kg		0.8											

Performance Curves



Performance Curves



Performance Curves

