



		Samples available			
		Units	212-411		
Design and Accessories					
1	Commutation	Precious Metal Brush			
2	No. of Output Shafts	2			
3	Unit Weight	g	9.5		
4	Body Diameter	mm	12		
5	Body Length	mm	24		
6	Rotation Direction	CCW			
7	Bearing Type	Sintered Bronze			
Physical Characteristics					
8	Shaft Diameter	mm	3		
9	Shaft Length	mm	8		
10	Shaft Orientation	Inline			
11	Rear Shaft Diameter	mm	1		
12	Rear Shaft Length	mm	6		
13	Motor Construction	Iron Core			
Operational Characteristics					
14	Typical Max. Mech. Noise	dB(A)	50		
15	Rated Operating Voltage	V	12		
16	Rated Load	mN-m	30		
17	Rated Load Speed	rpm	138		
18	N/L Speed	rpm	220		
19	Max. Start Voltage	V	1.9		
20	Max. N/L Current	mA	48		
21	Max. Operating Voltage	V	12		
22	Max. Rated Load Current	mA	169		
23	Min. Insulation Resistance	MOhm	10		
24	Max. Start Current	mA	286		
25	Typical Rated Load Power Consumption	mW	1,690		
26	Typical N/L Current	mA	40		
27	Typical Peak Efficiency	%	32		
28	Typical Peak Eff. Torque	mN-m	30		
29	Typical Peak Eff. Speed	rpm	173		

30	Typical Peak Eff. Current	mA	139
31	Typical Peak Eff. Power Out	mW	536
32	Typical Start Current	mA	286
33	Typical Max. Output Power	mW	645
34	Typical Stall Torque	mN·m	67

Gear Characteristics

35	Gear Ratio	:1	99
36	Gearhead Type		Spur

Winding Characteristics

37	Typical Terminal Resistance	Ohm	26
38	Typical Terminal Inductance	uH	3,500

Environmental Characteristics

39	Max. Operating Temp.	°C	50
40	Min. Operating Temp.	°C	-10
41	Max. Storage & Transportation Temp.	°C	60
42	Min. Storage & Transportation Temp.	°C	-20

Packaging

43	No. Units per Carton	pcs	500
44	Carton Type		Boxed Trays

Motor Body Characteristics

45	No. of Poles		
46	Shaft Axial Float	mm	
47	Max. Axial Compression	N	
48	Max. Radial Load	mN	

Performance

