



Dimensions in mm

**16N28 \*\*\*\* .201**

Electrical Data	****	111P	207P	210E	208E	209E	207E	106	205E		
1 Nominal Voltage	V	3	4.8	7.5	9	9	12	16	18	Volt	
2 No-Load Speed	$n_0$	9,460	7,980	9,690	8,810	9,690	10,800	10,180	9,640	rpm	
3 No-Load Current	$I_0$	28.0	11.9	13.3	8.4	8.4	7.7	6.3	4.9	mA	
4 Terminal Resistance	R	2.4	10.0	14.6	28.0	20.6	40.5	68.5	109.0	W	
5 Output Power	$P_{2max}$	2.3	2.1	2.9	2.4	3.0	2.4	2.7	2.3	W	
6 Stall Torque	mNm	3.7 (0.53)	2.7 (0.39)	3.7 (0.53)	3.1 (0.44)	3.8 (0.54)	3.1 (0.44)	3.4 (0.49)	2.9 (0.42)	mNm (oz-in)	
7 Efficiency	$\eta_{max}$	72	71	70	70	74	70	70	69	%	
8 Max Continuous Speed	$n_{e,max}$	10,000	10,000	10,000	10,000	10,000	10,000	10,000	10,000	rpm	
9 Max Continuous Torque	$M_{e,max}$	2.9 (0.39)	2.7 (0.39)	2.9 (0.42)	2.7 (0.39)	2.9 (0.42)	2.4 (0.34)	2.7 (0.39)	2.5 (0.36)	mNm (oz-in)	
10 Max Continuous Current	$I_{e,max}$	1.01	0.49	0.41	0.29	0.34	0.24	0.19	0.15	A	
11 Back-EMF Constant	$K_E$	0.31	0.59	0.75	0.99	0.91	1.08	1.53	1.81	mV/rpm	
12 Torque Constant	$K_M$	2.96	5.60	7.20	9.50	8.70	10.30	14.60	17.30	mNm/A	
13 Motor Regulation	$R/k^2$	270.0	320.0	280.0	310.00	270.00	380.00	320.00	360.00	$10^3/Nms$	
14 Friction Torque	$T_F$	0.08 (0.02)	0.07 (0.01)	0.1 (0.02)	0.08 (0.02)	0.07 (0.01)	0.08 (0.02)	0.09 (0.02)	0.08 (0.02)	mNm (oz-in)	
15 Rotor Inductance	L	0.08	0.28	0.50	0.80	0.70	0.90	2.00	3.10	mH	
16 Mechanical Time Constant	$t_m$	19.4	16.3	21.6	19.5	14.9	19.4	17.0	19.8	ms	
17 Rotor Inertia	J	0.72	0.51	0.77	0.63	0.55	0.51	0.53	0.55	g.cm <sup>2</sup>	
<b>General Data</b>											
18 Thermal Resistance (rotor/body)	$R_{th1} / R_{th2}$					7/35					°C/W
19 Thermal Time Constant (rotor/stator)	$t_{w1}/t_{w2}$					6/380					S
20 Operating Temperature Range:	motor					-30°C to 85°C (-22°F to 185°F)				°C (°F)	
	rotor					100°C (212°F)				°C (°F)	
21 Shaft Load Max.:											With sleeve bearings
(5mm from bearing)	-radial					1.5 (5.4)				N (oz)	
	-axial					100 (359.6)				N (oz)	
22 Shaft Play:	-radial					<0.03 (0.0012)				mm (inch)	
	-axial					0.15 (0.0059)				mm (inch)	
23 Weight	g					24 (0.85)				g (oz)	

Execution Table			
Gearbox	Single Shaft	F16	MR2
B16	235	235	278
BA16	235	235	278
R16	201	201	Upon Request

