



Electrical Data	****	222E	222P	219P	219E	
1 Nominal Voltage	V	15	18	24	36	Volt
2 No-Load Speed	n_0	4,075	9,460	10,300	8,260	rpm
3 No-Load Current	I_0	80.0	140.0	120.0	65.0	mA
4 Terminal Resistance	R	4.0	1.3	2.1	7.4	Ω
5 Output Power	P_{2max}	36.8	33.0	33.0	33.0	W
6 Stall Torque	mNm	129 (18.27)	249 (35.27)	258 (36.54)	194 (27.48)	mNm (oz-in)
7 Efficiency	η_{max}	73	81	81	78	%
8 Max continuous speed	$n_{e max}$	12,000	12,000	12,000	12,000	rpm
9 Max continuous torque	$M_{e max}$	47 (5.95)	42 (5.95)	41 (5.81)	41 (5.81)	mNm (oz-in)
10 Max continuous current	$I_{e max}$	1.44	2.50	2.00	1.06	A
11 Back-EMF Constant	k_E	3.60	1.88	2.30	4.30	mV/rpm
12 Torque Constant	k_M	34.40	18.00	22.00	41.10	mNm/A
13 Motor Regulation	R/k^2	3.4	4.0	4.2	4.40	$10^3/Nms$
14 Friction Torque	T_F	2.75 (0.39)	2.5 (0.36)	2.64 (0.38)	2.65 (0.38)	mNm (oz-in)
15 Rotor Inductance	L	0.30	0.08	0.14	0.50	mH
16 Mechanical Time Constant	τ_m	4.4	5.2	5.5	5.7	ms
17 Rotor Inertia	J	13.00	13.00	13.00	13.00	$g.cm^2$
18 Thermal Resistance (rotor/body)	R_{th1} / R_{th2}	5 /11	5 /11	5 /11	5 /11	$^{\circ}C/W$
19 Thermal Time Constant (rotor/stator)	τ_{w1}/τ_{w2}	10/450	10/450	10/450	10/450	$^{\circ}C/W$
20 Operating Temperature Range:	motor		-30°C to 85°C (-22°F to 185°F)			$^{\circ}C (^{\circ}F)$
	rotor		155°C (311°F)			$^{\circ}C (^{\circ}F)$
21 Shaft Load max.:			With ball bearings			
at 3,000 rpm (5mm from bearing)	-radial		25.0 (89.9)			N (oz)
at 3,000 rpm	-axial		1,000 (3,596.9)			N (oz)
22 Shaft play:	-radial		<0.03 (0.0012)			mm (inch)
	-axial		0.15 (0.0059)			mm (inch)
23 Weight	g		145 (5.12)			g (oz)

Execution				
Gearbox	Single Shaft	E9	HEDS	MR2
R32	6	8	-	Contact Us
R40	1	2	4	Contact Us
M22	9	Contact Us	Contact Us	Contact Us

