



ELWOOD HIGH PERFORMANCE MOTORS

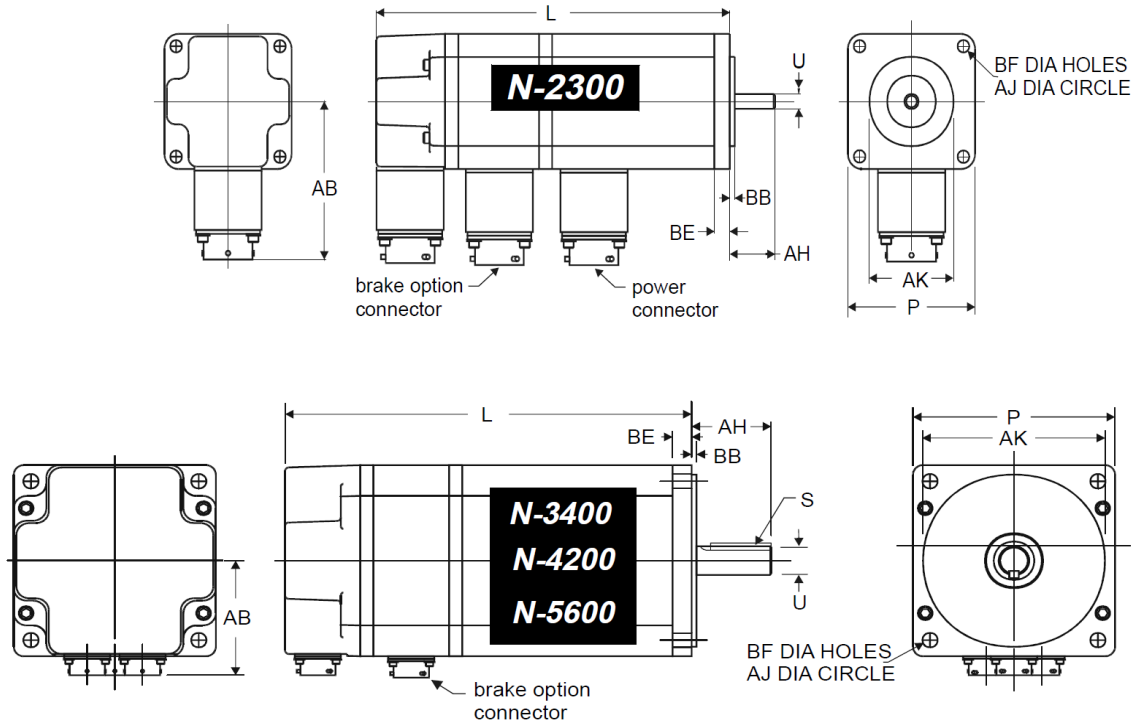
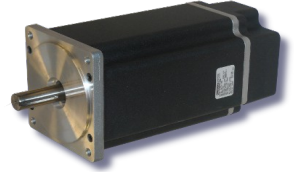
N-SERIES MOTOR DATA

http://www.elwood.com/dN_Mtr_Data.pdf

MOTOR MODEL		N-2302-1	N-2304-1	N-3406-2	N-3412-2	N-4214-2	N-4220-2	N-5630-2	N-5637-2	N-5647-2
MECHANICAL DATA(1)										
Rated Torque	Nm	0.2	0.4	0.7	1.5	2.0	2.7	3.4	4.5	5.9
	lb-in	1.5	3.8	6.1	13.0	18.0	24.0	30.0	40.0	52.0
Peak Torque	Nm	0.5	1.3	2.0	4.1	5.1	7.1	10.5	13.6	16.9
	lb-in	4.5	11.4	18.0	36.0	45.0	63.0	93.0	120.0	150.0
Rated Current	A _{OPK}	2.7	3.2	5.0	5.2	6.0	11.0	11.0	11.5	10.5
Rated Power	kW	0.09	0.19	0.28	0.6	0.75	1.1	1.2	1.6	1.4
Rated Voltage	V _{rms}	115	115	230	230	230	230	230	230	230
Rotor Moment of Inertia	kg-m ²	0.000009	0.00002	0.00008	0.00015	0.00024	0.00035	0.00090	0.00113	0.00147
	lb-in-s ²	0.00008	0.00017	0.00069	0.00133	0.00212	0.00310	0.00800	0.01000	0.013
Rotor Moment of Inertia (Brake Motors)	kg-m ²	0.000018	0.000032	0.000085	0.000159	0.00026	0.00037	0.00092	0.00115	0.00148
	lb-in-s ²	0.00016	0.00028	0.00075	0.00141	0.00228	0.00327	0.00814	0.01014	0.013
Motor Weight Net	kg/lb	1.0/2.2	1.5/3.2	2.8/6.2	3.5/7.6	4.7/10.4	6.3/14.0	9.5/21	11.0/24.2	13.0/28.7
Brake Motor Weight Net	kg/lb	1.3/2.9	2.0/4.3	3.4/7.5	4.3/9.5	5.3/11.6	6.9/15.2	10.9/24.0	13.2/29.0	15.9/35.0
Damping	Nm/krpm	0.023	0.034	0.13	0.19	0.20	0.19	0.35	0.32	0.45
	lb-in/krpm	0.20	0.30	1.15	1.68	1.77	1.68	3.10	2.83	3.98
Friction Torque	Nm	0.012	0.014	0.021	0.035	0.043	0.048	0.078	0.10	0.11
	lb-in	0.11	0.12	0.19	0.31	0.38	0.42	0.69	0.89	0.97
Max. Operating Speed	rpm	6000	6000	6000	5500	4500	5000	4000	4000	3000
WINDING DATA (1)										
Poles	#	4	4	4	4	4	4	4	4	4
Sine Wave K _T	Nm/A	0.08	0.18	0.17	0.33	0.40	0.28	0.38	0.50	0.63
Torque Constant(2)	lb-in/A	0.7	1.6	1.5	2.9	3.5	2.5	3.4	4.4	5.6
Square Wave K _T	Nm/A	0.10	0.24	0.18	0.37	0.45	0.30	0.41	0.54	0.70
Torque Constant(3)	lb-in/A	0.9	2.1	1.6	3.3	4.0	2.7	3.6	4.8	6.2
KE Voltage Constant(4)	V/krpm	11	22	21	41	46	34	47	60	77
Winding Resistance (Phase to Phase at 25°C)	Ohms	3.2	4.9	2.2	2.7	2.8	0.8	0.9	1.0	1.2
	±10%									
Winding Inductance (Phase to Phase)	mH	4.1	8.1	6.1	8.6	11.0	2.9	4.3	5.2	7.0
Thermal Resistance	°C/Watt	3.0	2.2	1.6	1.2	1.1	0.8	0.8	0.8	0.7
Dielectric Rating		Power Leads (R,S,T) to Ground: 1800 VACrms 50/60 Hz for 1s								
(1) Specifications are at 25°C unless otherwise noted.						(3) Peak value of per phase square wave Amperes				
(2) Peak value of per phase sine wave Amperes						(4) Volts 0-peak Line-Line / kRPM				
STORAGE AND OPERATING CONDITIONS										
Ambient Temperature	Operating: 0 to 40°C (32 to 104°F) Storage: -30 to 70°C (-25 to 158°F)									
Relative Humidity	5% to 95% non-condensing									

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N-SERIES DIMENSIONAL DATA**

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Motor Model	AB mm/in	AH mm/in	AJ mm/in	AK mm/in	BB mm/in	BE mm/in	BF mm/in	L mm/in	L Brake mm/in	P mm/in	S mm/in	U mm/in	XD mm/in
N-2302	70/2.75	21/0.81	67/2.63	38/1.5	2/0.09	7/0.28	5/0.21	118/4.63	161/6.32	58/2.27	NA	6/0.25	NA
N-2304	70/2.75	21/0.81	67/2.63	38/1.5	2/0.09	7/0.28	5/0.21	156/6.13	199/7.82	58/2.27	NA	6/0.25	NA
N-3406	63/2.48	30/1.19	98/3.88	73/2.88	3/0.12	8/0.32	6/0.22	144/5.67	193/7.59	89/3.50	3.2x3.2/0.125x0.125	13/0.5	19/0.75
N-3412	63/2.48	30/1.19	98/3.88	73/2.88	3/0.12	8/0.32	6/0.22	169/6.67	218/8.59	89/3.50	3.2x3.2/0.125x0.125	13/0.5	19/0.75
N-4214	62/2.45	35/1.38	126/4.95	56/2.19	3/0.12	10/0.40	7/0.28	174/6.85	219/8.63	102/4.00	4.8x4.8/0.1875x0.1875	16/0.63	24/0.94
N-4220	62/2.45	35/1.38	126/4.95	56/2.19	3/0.12	10/0.40	7/0.28	199/7.85	245/9.63	102/4.00	4.8x4.8/0.1875x0.1875	16/0.63	24/0.94
N-5630	75/2.96	50/1.97	149/5.88	114/4.50	3/0.12	12/0.47	0.375" UNC	199/7.85	256/10.06	127/5.00	4.8x4.8/0.1875x0.1875	19/0.75	38/1.50
N-5637	75/2.96	50/1.97	149/5.88	114/4.50	3/0.12	12/0.47		224/8.83	281/11.06	127/5.00	4.8x4.8/0.1875x0.1875	19/0.75	38/1.50
N-5647	75/2.96	50/1.97	149/5.88	114/4.50	3/0.12	12/0.47		250/9.83	306/12.06	127/5.00	4.8x4.8/0.1875x0.1875	19/0.75	38/1.50



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N-SERIES DIMENSIONAL DATA

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NEMA 23-Series Encoder		ITT Cannon Connectors		NEMA 34, 42 & 56-Series Encoder		
Pin	Signal	Power Connector P/Ns		Pin	Signal	
A	A+	N-2300	KPSE02E14-5P-A71	A	A+	
B	A-	N-3400			B	A-
C	B+	N-4200			C	B+
D	B-	N-5600			D	B-
E	I+	Connectors require 1/4 turn to seal		E	I+	
F	I-			F	I-	
G	GROUND			G	GROUND	
		Encoder Connector P/Ns		H	ABS	
H	Open	N-2300	KPSE02E14-19P-A71	J	5 VDC	
J	5 VDC	N-3400			K	5 VDC
K	5 VDC	N-4200			L	COMMON
L	COMMON	N-5600			M	COMMON
M	COMMON	Connectors require 1/4 turn to seal.		N	Open	
N	Open			P	Open	
		Brake Connector P/Ns		R	THERMOSTAT+	
R	THERMOSTAT+	N-2300	KPSE02E12-3P-A71	S	THERMOSTAT-	
S	THERMOSTAT-	N-3400			T	HALL A
T	HALL A	N-4200			U	HALL B
U	HALL B	N-5600			V	HALL C
V	HALL C	Connectors require 1/4 turn to seal.				

NEMA 23-Series Power Connector		Brake Option Connector		NEMA 34, 42 & 56-Series Power Connector	
Pin	Signal	Pin	Signal	Pin	Signal
A	PHASE R	A	BR+	A	PHASE R
B	PHASE S	B	BR-	B	PHASE S
C	PHASE T	C	OPEN	C	PHASE T
D	GROUND			D	GROUND
E	Open			E	Open

CABLES FOR N-SERIES MOTORS

CONTINUOUS FLEX RATED*

*Elwood's continuous flex rated cables replace both flexing and non-flexing cables for N-Series motors.

		Power Cables	Feedback Cables	Brake Cables
Rockwell Model	Ultra100/200	9101-1467	9101-1468	N/A
	Kinetix/ Ultra3000	2090-UXNPAN-16S		
		2090-XXNPAN-16S		
Elwood Model		141-NPXXX-01	141-NFXXX-01	141-NBXXX-01

"XXX" indicates length in feet



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Motor Part Number Identification

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N - 42 14 - 2 H 00 AA

