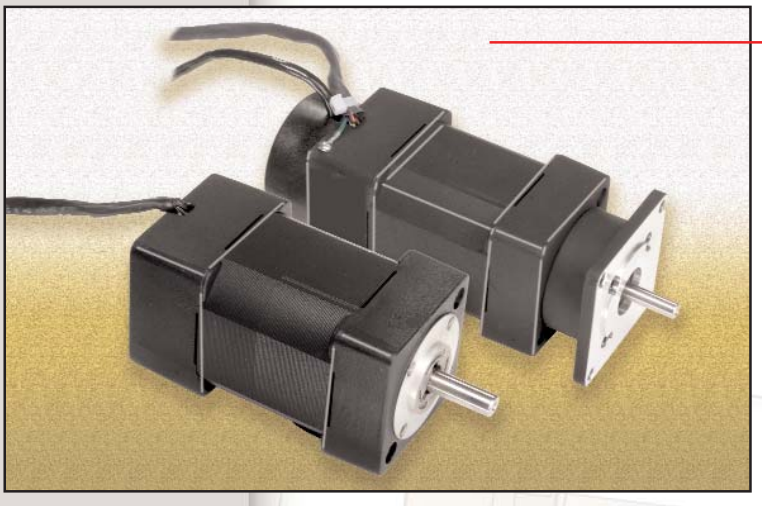


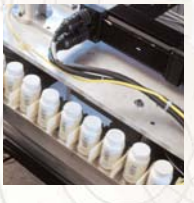
E2200 Series Brushless Motors

Features and Benefits

- *Dynamically balanced armature*
- *High torque-to-weight and intertia ratios*
- *Non-contact sealed ball bearings for improved efficiency and smooth operation*
- *Rare earth neodymium magnets for high acceleration and speed capability*
- *Speeds up to 15000 RPM*

ElectroCraft E2200 Series

The 2200 series offers reliable performance in a small package for your low voltage, lower torque range applications. This series utilizes integrated hall effects to provide consistent speed in either rotation in a small envelope. The 2200 series supports application speeds up to 15,000 RPM while providing long reliable performance.



Typical Applications

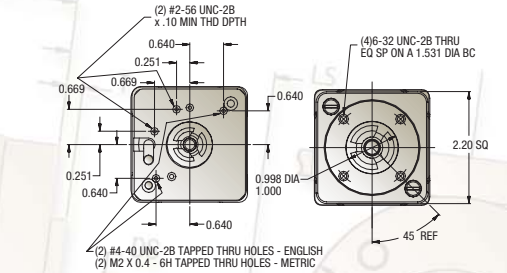
- Centrifuges
- Laboratory Equipment
- Copiers
- Printers
- Pumps

E2200 Series Performance Specifications

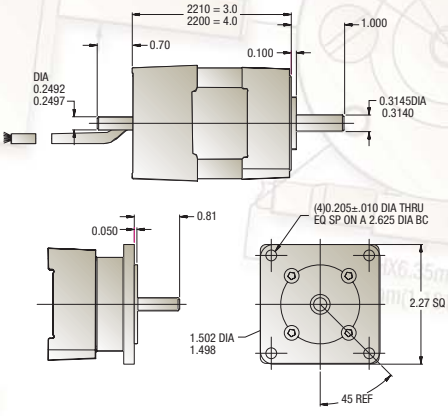
Motor Ratings	2210	2220
Continuous Stall Torque (Ncm)	16.9	33.9
Continuous Stall Torque (oz-in)	24	48
Peak Torque (Ncm)	70.6	141.2
Peak Torque (oz-in)	100	200
Maximum Terminal Voltage (V)	48	48
Maximum Operating Speed (rpm)	15000	15000
Mechanical Data		
Rotor Inertia (kg cm^2)	0.099	0.134
Rotor Inertia (oz-in-sec^2)	0.0014	0.0019
Damping Constant (Ncm/krpm)	0.311	0.466
Damping Constant (oz-in/krpm)	0.44	0.66
Thermal Resistance (C/watt)	2.7	2.3
Maximum Armature Temperature (C)	125	125
Maximum Friction Torque (Ncm)	0.4	0.8
Maximum Friction Torque (oz-in)	0.5	1.1
Maximum Radial Load (25mm from bearing) (Kg)	2.3	2.3
Maximum Radial Load (25mm from bearing) (lbs)	5	5
Weight (Kg)	0.8	0.9
Weight (lbs)	1.75	2

Electrical Data	A	B	A	B
Kt Torque Constant +-10% (Ncm/amp)	4.0	8.4	4.0	8.0
Kt Torque Constant +-10% (oz-in/amp)	5.7	11.9	5.7	11.3
Ke Voltage Constant +-10% (V/Krpm)	4.2	8.8	4.2	8.4
Terminal Resistance (ohms)	1	4.1	0.33	1.3
Maximum Continuous Current (A)	4.2	2.0	8.4	4.2
Maximum Peak Current (A)	19	9	38	19
Armature Inductance (mH)	1.5	6.2	0.5	2.5

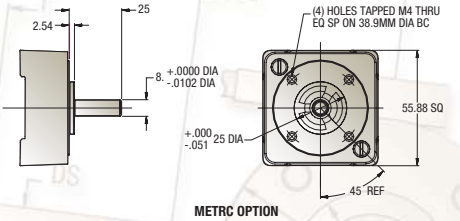
Hall Effect Electrical Data	
Hall type	Three channel
Output type	Open collector transistor
Output sink current	10mA at 0.4 Volt maximum
(On state) Output Voltage	4.9 Volt minimum
(On state) Power supply	5VDC at 20mA DC
Operating temperature	0º to 70ºC
C.W. Rotation	Motor
Phase R	Blue
Phase S	Brown
Phase T	Violet
Hall Board +5V	Red
Hall Board Ground	Black
Hall Board Hall A	Yellow
Hall Board Hall B	White
Hall Board Hall C	Orange



ENGLISH

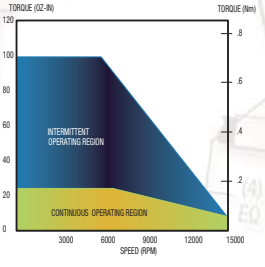


NEMA 23 OPTION

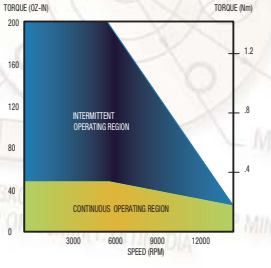


METRC OPTION

E2210

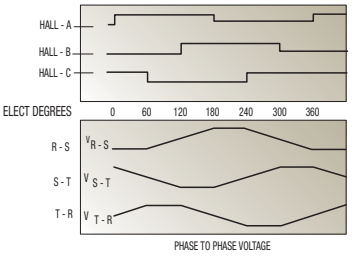


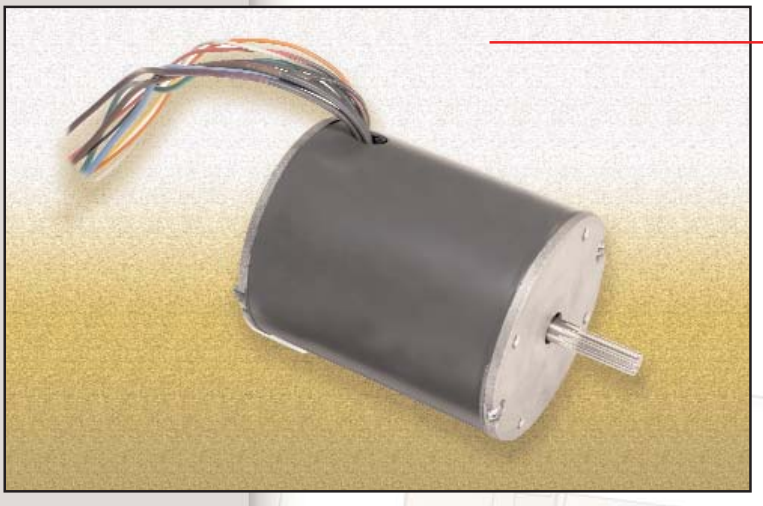
E2220



Commutation Sequence Diagram

For CCW Rotation Viewed from Mounting Face





E2600 Series Brushless Motors

Features and Benefits

- *Skewed magnetization for low torque ripple and smooth low speed performance*
- *M-8 ceramic magnets for high acceleration and speed capability*
- *Non-contact sealed ball bearings for improved efficiency and smooth operation*
- *Speeds up to 7500 RPM*

ElectroCraft E2600 Series

The 2600 series offers reliable performance in a small package for your low voltage, lower torque range applications. This series features an economic design available in both closed and open shell configurations.
The 2600 series supports application speeds up to 7,500 RPM while providing long reliable performance.

Typical Applications

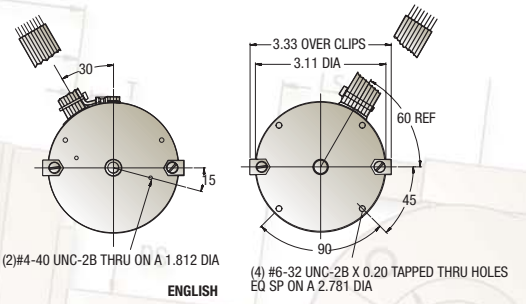
- Material Handling
- Packaging
- Marking Equipment
- Copiers
- Printers
- Pumps

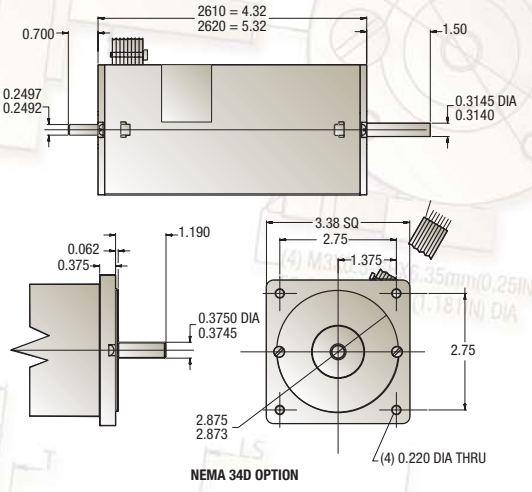
E2600 Series Performance Specifications

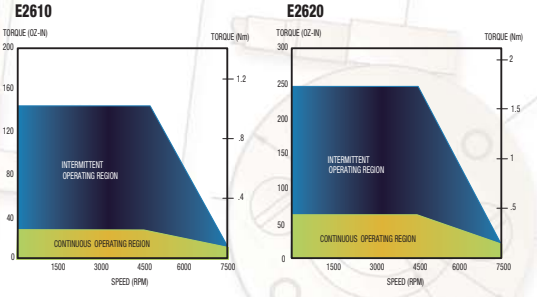
Motor Ratings	2610	2620
Continuous Stall Torque (Ncm)	19.8	39.5
Continuous Stall Torque (oz-in)	28	56
Peak Torque (Ncm)	102.4	173.0
Peak Torque (oz-in)	145	245
Maximum Terminal Voltage (V)	160	160
Maximum Operating Speed (rpm)	7500	7500
Mechancial Data		
Rotor Inertia (kg cm^2)	0.636	1.200
Rotor Inertia (oz-in-sec^2)	0.0090	0.0170
Damping Constant (Ncm/krpm)	1.483	1.695
Damping Constant (oz-in/krpm)	2.10	2.40
Thermal Resistance (C/watt)	2.5	2.4
Maximum Armature Temperature (C)	155	155
Maximum Friction Torque (Ncm)	1.4	1.8
Maximum Friction Torque (oz-in)	2	2.5
Maximum Radial Load (25mm from bearing) (Kg)	6.8	6.8
Maximum Radial Load (25mm from bearing) (lbs)	15	15
Weight (Kg)	1.4	2.3
Weight (lbs)	3.1	5

Electrical Data	A	B	A	B
Kt Torque Constant +-10% (Ncm/amp)	11.4	22.9	11.4	22.9
Kt Torque Constant +-10% (oz-in/amp)	16.2	32.4	16.2	32.4
Ke Voltage Constant +-10% (V/Krpm)	12.0	24.0	12.0	24.0
Terminal Resistance (ohms)	2.1	8.4	0.71	2.6
Maximum Continuous Current (A)	1.8	0.9	3.5	1.7
Maximum Peak Current (A)	9	4.5	15.1	7.6
Armature Inductance (mH)	4.2	16.8	1.8	7.3

Hall Effect Electrical Data	
Hall type	Three channel
Output type	Open collector transistor
Output sink current	10mA at 0.4 Volt maximum
(On state) Output Voltage	4.9 Volt minimum
(On state) Power supply	5VDC at 20mA DC
Operating temperature	0º to 70ºC
C.W. Rotation	Motor
Phase R	Blue
Phase S	Brown
Phase T	Violet
Hall Board +5V	Red
Hall Board Ground	Black
Hall Board Hall A	Yellow
Hall Board Hall B	White
Hall Board Hall C	Orange

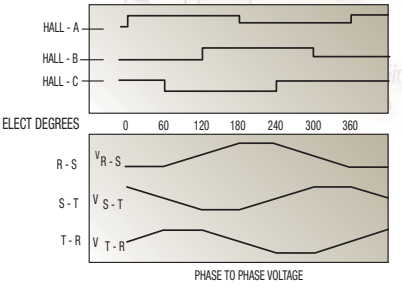


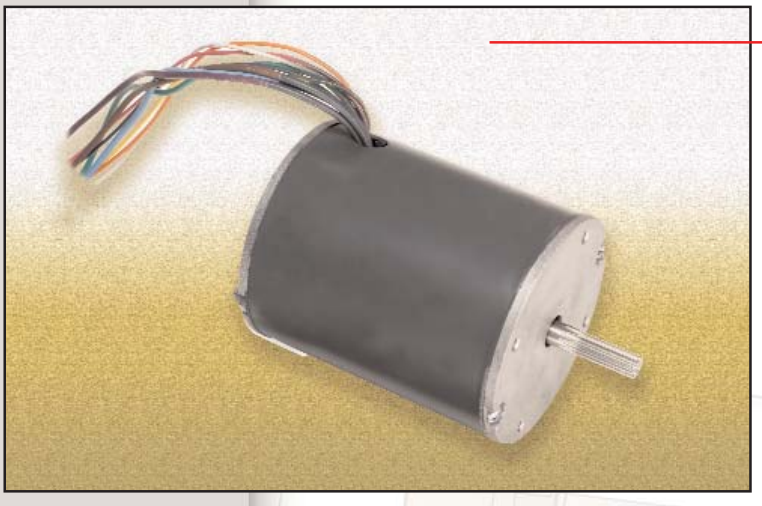




Commutation Sequence Diagram

For CCW Rotation Viewed from Mounting Face





E2900 Series Brushless Motors

Features and Benefits

- *Skewed magnetization for low torque ripple and smooth low speed performance*
- *M-8 ceramic magnet*
- *Non-contact sealed ball bearings for improved efficiency and smooth operation*
- *M-8 ceramic magnets for high acceleration and speed capability*
- *Speeds up to 7500 RPM*

ElectroCraft E2900 Series

The 2900 series offers high output in a highly efficient package for mid to low voltage, mid-level to high torque applications. This series features an economic design available in both closed and open shell configurations.
The 2900 series supports application speeds up to 7,500 RPM while providing long reliable performance.

Typical Applications

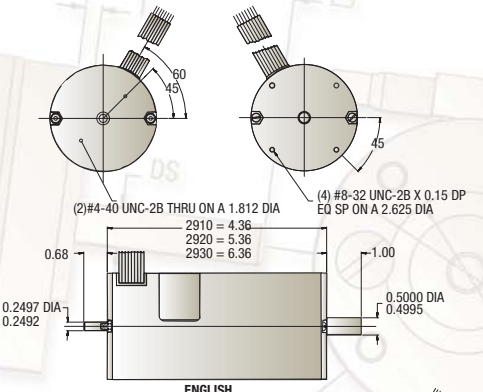
- Pumps
- Fans
- Conveyors
- Light Industrial

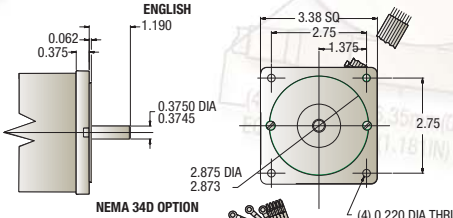
E2900 Series Performance Specifications

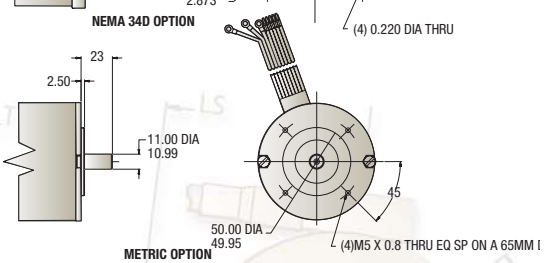
Motor Ratings	2910	2920	2930
Continuous Stall Torque (Ncm)	35.3	60.0	102.4
Continuous Stall Torque (oz-in)	50	85	145
Peak Torque (Ncm)	137.7	229.5	406.1
Peak Torque (oz-in)	195	325	575
Maximum Terminal Voltage (V)	160	160	160
Maximum Operating Speed (rpm)	7500	7500	7500
Mechancial Data			
Rotor Inertia (kg cm^2)	0.636	1.200	1.765
Rotor Inertia (oz-in-sec^2)	0.0090	0.0170	0.0250
Damping Constant (Ncm/krpm)	1.624	1.836	2.048
Damping Constant (oz-in/krpm)	2.30	2.60	2.90
Thermal Resistance (C/watt)	2.6	2.2	1.9
Maximum Armature Temperature (C)	155	155	155
Maximum Friction Torque (Ncm)	1.4	2.1	2.8
Maximum Friction Torque (oz-in)	2	3	4
Maximum Radial Load (25mm from bearing) (Kg)	6.8	6.8	6.8
Maximum Radial Load (25mm from bearing) (lbs)	15	15	15
Weight (Kg)	1.5	2.6	3.6
Weight (lbs)	3.3	5.8	7.9

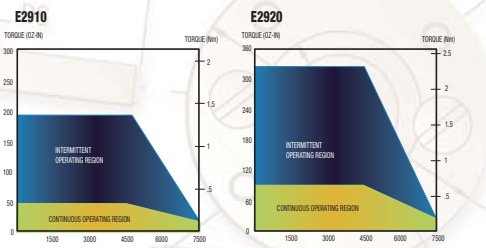
Electrical Data	A	B	A	B	A	B
Kt Torque Constant +-10% (Ncm/amp)	11.4	22.9	11.4	22.9	11.4	22.9
Kt Torque Constant +-10% (oz-in/amp)	16.2	32.4	16.2	32.4	16.2	32.4
Ke Voltage Constant +-10% (V/Krpm)	12.0	24.0	12.0	24.0	12.0	24.0
Terminal Resistance (ohms)	1.36	5.28	0.49	1.86	0.30	1.03
Maximum Continuous Current (A)	3.1	1.5	5.2	2.6	9.0	4.5
Maximum Peak Current (A)	12	6	20	10	35	17.7
Armature Inductance (mH)	3.9	16.4	1.8	7.3	1.2	4.5

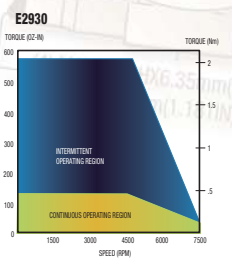
Hall Effect Electrical Data	
Hall type	Three channel
Output type	Open collector transistor
Output sink current	10mA at 0.4 Volt maximum
(On state) Output Voltage	4.9 Volt minimum
(On state) Power supply	5VDC at 20mA DC
Operating temperature	0º to 70ºC
C.W. Rotation	Motor
Phase R	Blue
Phase S	Brown
Phase T	Violet
Hall Board +5V	Red
Hall Board Ground	Black
Hall Board Hall A	Yellow
Hall Board Hall B	White
Hall Board Hall C	Orange





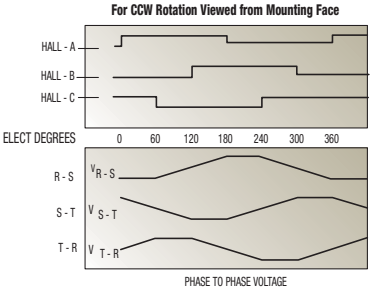


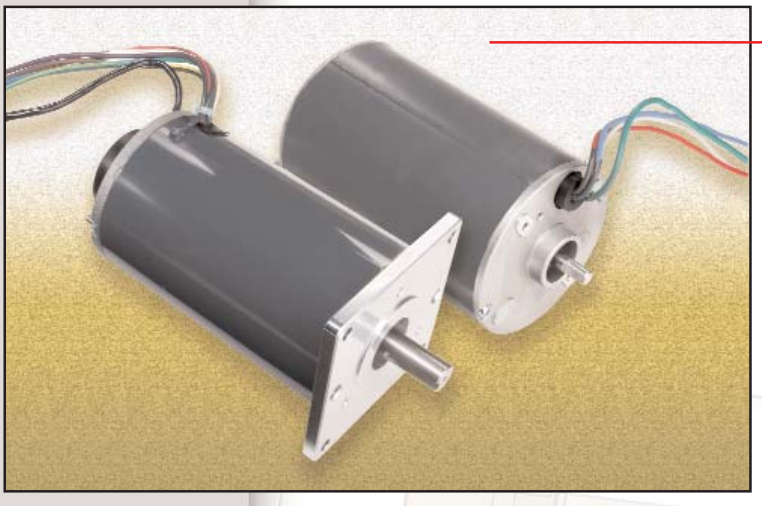




Commutation Sequence Diagram

For CCW Rotation Viewed from Mounting Face





E3300 Series Brushless Motors

Features and Benefits

- *Skewed magnetization for low torque ripple and smooth low speed performance*
- *M-8 ceramic magnets for high acceleration and speed capability*
- *Non-contact sealed ball bearings for improved efficiency and smooth operation*
- *Speeds up to 7500 RPM*

ElectroCraft E3300 Series

The 3300 series offers high output in a highly efficient package for mid to low voltage, mid-level to high torque applications. This series features an economic design available in both closed and open shell configurations.
The 3300 series supports application speeds up to 7,500 RPM while providing long reliable performance.

Typical Applications

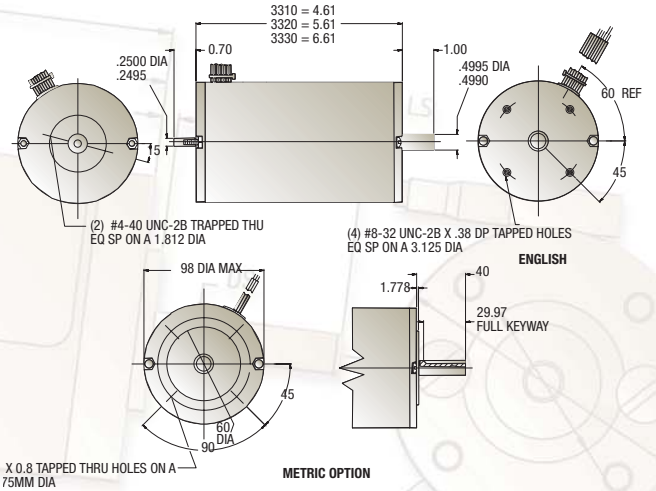
- Material Handling
- Pumps
- Fans
- Medical
- Light Industrial

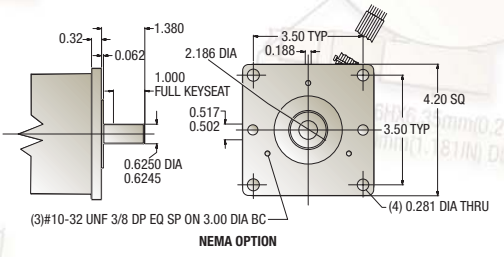
E3300 Series Performance Specifications

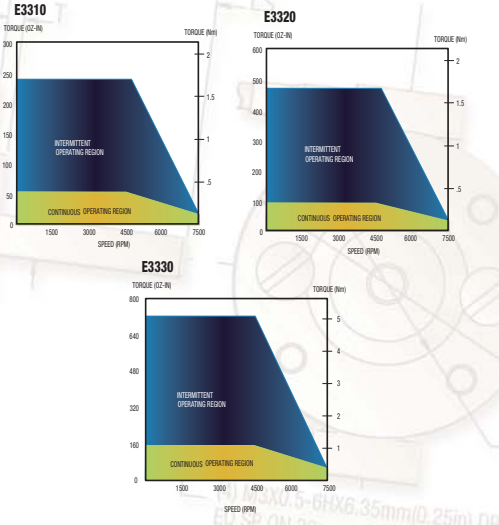
Motor Ratings	3310	3320	3330
Continuous Stall Torque (Ncm)	37.4	74.2	113.0
Continuous Stall Torque (oz-in)	53	105	160
Peak Torque (Ncm)	173.0	335.5	512.0
Peak Torque (oz-in)	245	475	725
Maximum Terminal Voltage (V)	160	160	160
Maximum Operating Speed (rpm)	7500	7500	7500
Mechancial Data			
Rotor Inertia (kg cm^2)	1.200	2.189	3.178
Rotor Inertia (oz-in-sec^2)	0.017	0.031	0.045
Damping Constant (Ncm/krpm)	1.907	2.118	2.330
Damping Constant (oz-in/krpm)	2.70	3.00	3.30
Thermal Resistance (C/watt)	2.1	1.7	1.5
Maximum Armature Temperature (C)	155	155	155
Maximum Friction Torque (Ncm)	2.1	2.5	2.8
Maximum Friction Torque (oz-in)	3	3.5	4
Maximum Radial Load (25mm from bearing) (Kg)	9.1	9.1	9.1
Maximum Radial Load (25mm from bearing) (lbs)	20	20	20
Weight (Kg)	2.2	3.4	4.5
Weight (lbs)	4.9	7.4	9.9

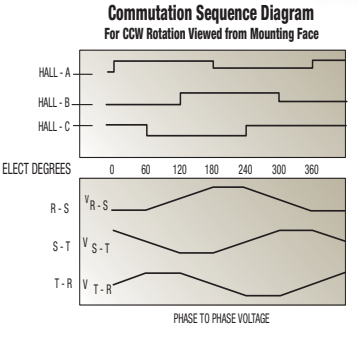
Electrical Data	A	B	A	B	A	B
Kt Torque Constant +-10% (Ncm/amp)	11.4	22.9	11.4	22.9	10.7	20.8
Kt Torque Constant +-10% (oz-in/amp)	16.2	32.4	16.2	32.4	15.1	29.4
Ke Voltage Constant +-10% (V/Krpm)	12.0	24.0	12.0	24.0	11.2	21.7
Terminal Resistance (ohms)	0.94	3.63	0.33	1.18	0.18	0.63
Maximum Continuous Current (A)	3.3	1.6	6.5	3.2	10.6	5.4
Maximum Peak Current (A)	15.1	7.6	29.3	14.7	49.0	24.0
Armature Inductance (mH)	3.2	13.3	1.4	5.5	0.6	2.8

Hall Effect Electrical Data	
Hall type	Three channel
Output type	Open collector transistor
Output sink current	10mA at 0.4 Volt maximum
(On state) Output Voltage	4.9 Volt minimum
(On state) Power supply	5VDC at 20mA DC
Operating temperature	0º to 70ºC
C.W. Rotation	Motor
Phase R	Blue
Phase S	Brown
Phase T	Violet
Hall Board +5V	Red
Hall Board Ground	Black
Hall Board Hall A	Yellow
Hall Board Hall B	White
Hall Board Hall C	Orange









ElectroCraft E Series Model Designations

E22 05A – ETH2

Series
E-Brushless Servo Motors

Frame Designator
22- 2.2 Frame (2.20" square)
26- 26 Frame (3.11" Diameter)
29- 29 Frame (3.42" Diameter)
33- 330 Frame (3.86 Diameter)

Length Designator
05-30 based on available
motor lengths (see catalog)

Winding Designator
A- see catalog for specific values
B- see catalog for specific values
Z- Custom

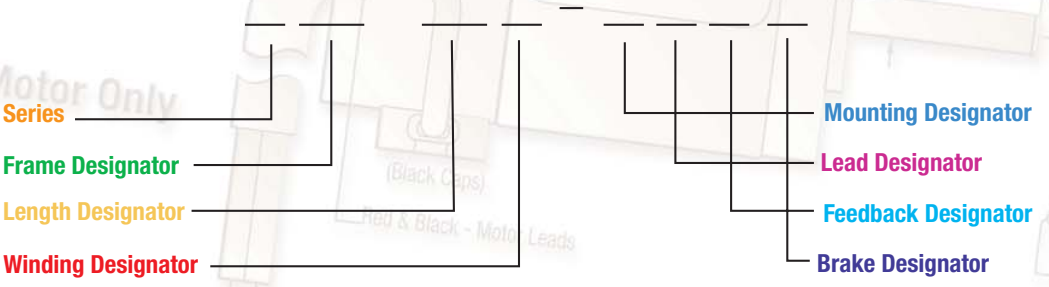
Mounting Designator
E-English
M-Metric
N-NEMA
Z-custom-consult factory

Lead Designator
F- Flying leads -
see catalog if applicable
J- Junction Box - 33 Frame only
Z- Custom

Feedback Designator
1,2,Z- 1=1000ppr, 2=2000ppr,
Z=custom line counut
H- Hall effect only

Brake Designator
(omit if not applicable)
1,2,3,Z- 1=12VDC, 2=24VDC
3=90VDC, Z=Custom

E Series Model Designations

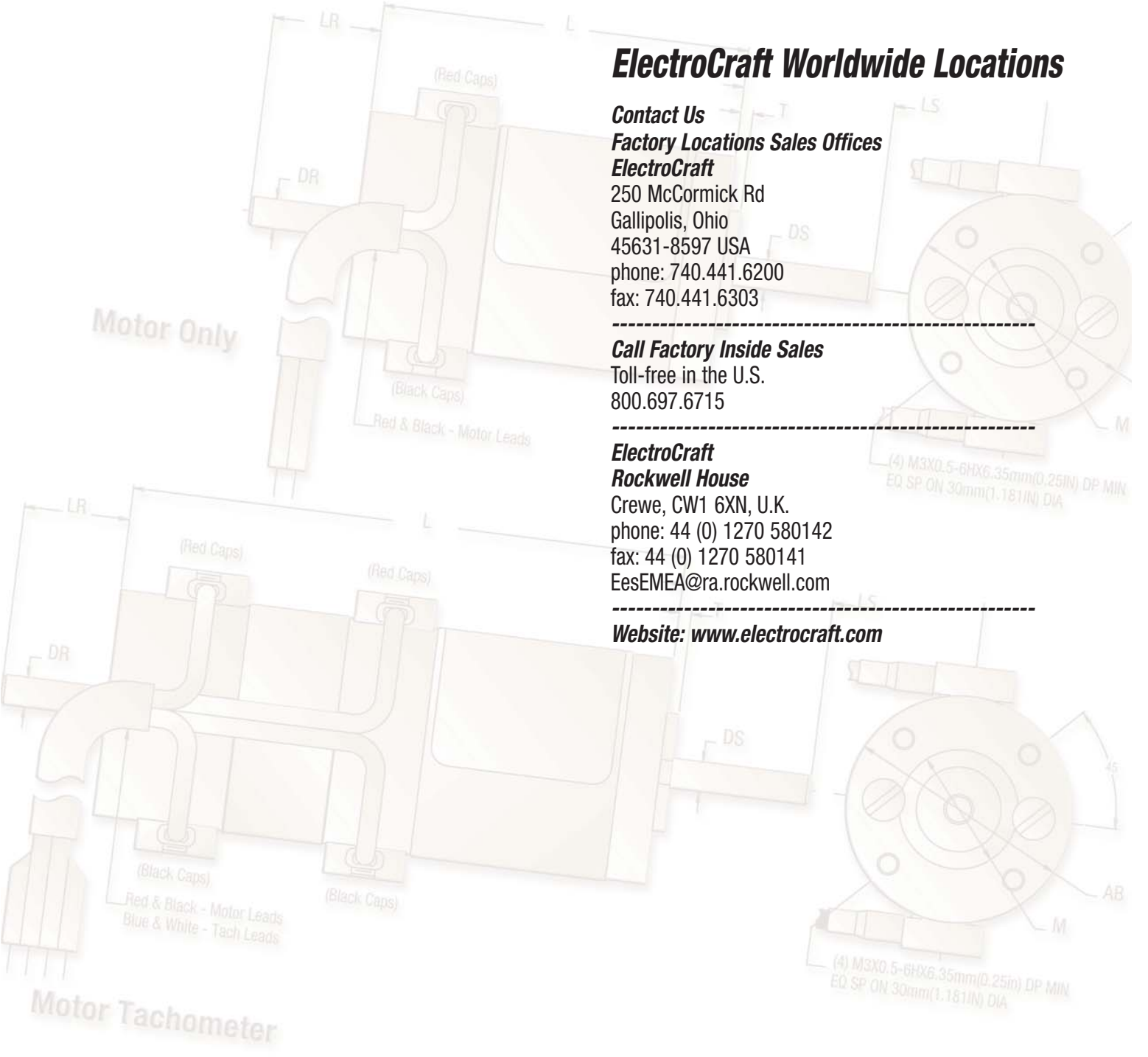


Please explain any custom (Z) designators:

Please indicate any special features not covered in the model number:

ElectroCraft specializes in assisting you with an engineered solutions to meet your application needs. We also specialize in sourcing and assembling value added components to your assembly. Please contact your area sales representative (see world wide locations section) for assistance with your application needs.

Need a product fast?! ElectroCraft carries a limited supply of off-the-shelf model variations available for shipment within 48 hours. Please contact your area sales representative or our inside sales staff for a complete listing of stocked model numbers and pricing sheet.



ElectroCraft Worldwide Locations

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Factory Locations Sales Offices
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45631-8597 USA
phone: 740.441.6200
fax: 740.441.6303

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Toll-free in the U.S.
800.697.6715

ElectroCraft
Rockwell House
Crewe, CW1 6XN, U.K.
phone: 44 (0) 1270 580142
fax: 44 (0) 1270 580141
EesEMEA@ra.rockwell.com

Website: www.electrocraft.com

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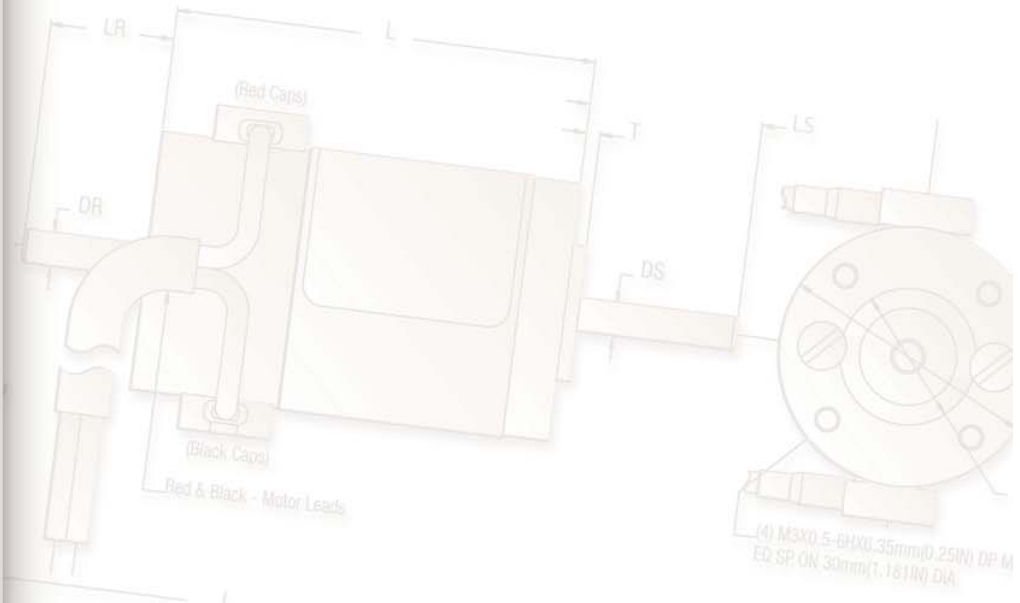
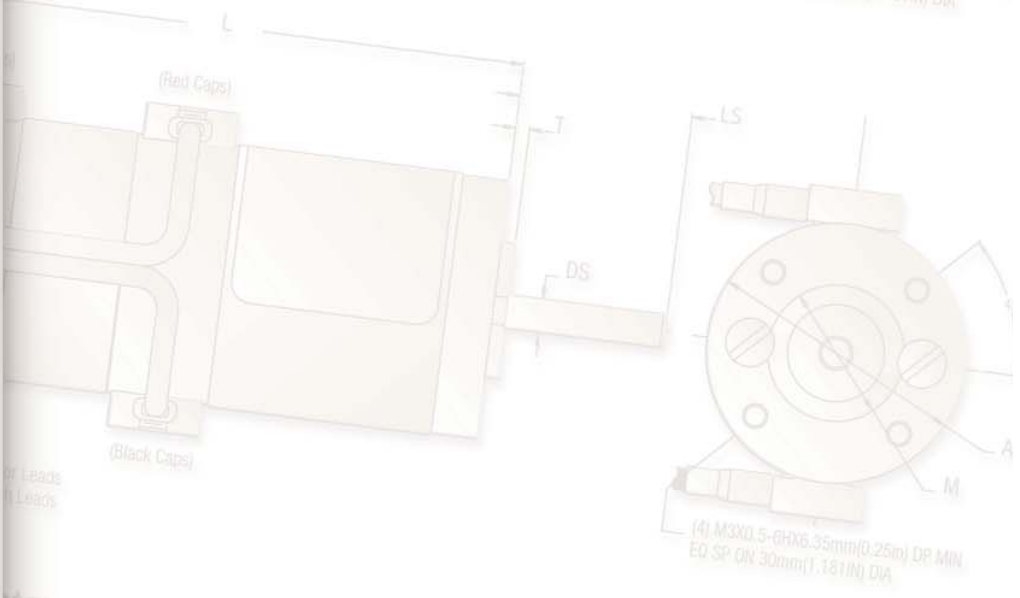

LR
L
(Red Caps)
T
LS
DR
DS
(Black Caps)
Red & Black - Motor Leads
(4) M3X0.5-6HX6.35mm(0.25in) DP M
ED SP ON 30mm(1.181IN) DIA


L
(Red Caps)
T
LS
DS
(Black Caps)
M
(4) M3X0.5-6HX6.35mm(0.25in) DP MIN
ED SP ON 30mm(1.181IN) DIA

LR
L
(Red Caps)
T
LS
DR
DS
Motor Only
(Black Caps)
Red & Black - Motor Leads
M
(4) M3X0.5-6HX6.35mm(0.25IN) DP MIN
EQ SP ON 30mm(1.181IN) DIA
LR
L
(Red Caps)
(Red Caps)
T
LS
DR
DS
45
(Black Caps)
Red & Black - Motor Leads
Blue & White - Tach Leads
(Black Caps)
AB
M
(4) M3X0.5-6HX6.35mm(0.25in) DP MIN
EQ SP ON 30mm(1.181IN) DIA
Motor Tachometer

ElectroCraft Engineered Solutions is dedicated to supplying customized solutions for OEM power transmission requirements. By combining the innovative thinking of skilled personnel with quality manufacturing processes and specialized equipment, we are able to offer premium AC, DC servo, and brushless DC motors, which have become world recognized for their quiet operation, high efficiency and robust designs. We offer complete packages to OEMs to allow the ease of purchasing all their power transmission solutions from a single source. ElectroCraft Engineered Solutions is dedicated to supplying the OEM with optimized automation solutions. Quiet operation, high efficiency, and robust designs have earned us a reputation for leadership in the industry. We offer a complete package of motor, gearhead, transaxle, and brake in a variety of design options and gear ratios. For additional information on this product or any other ElectroCraft products, please contact your nearest ElectroCraft sales office.

ElectroCraft
engineered solutions

A **Rockwell Automation** Business

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Publication EC-001 – April, 2005

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