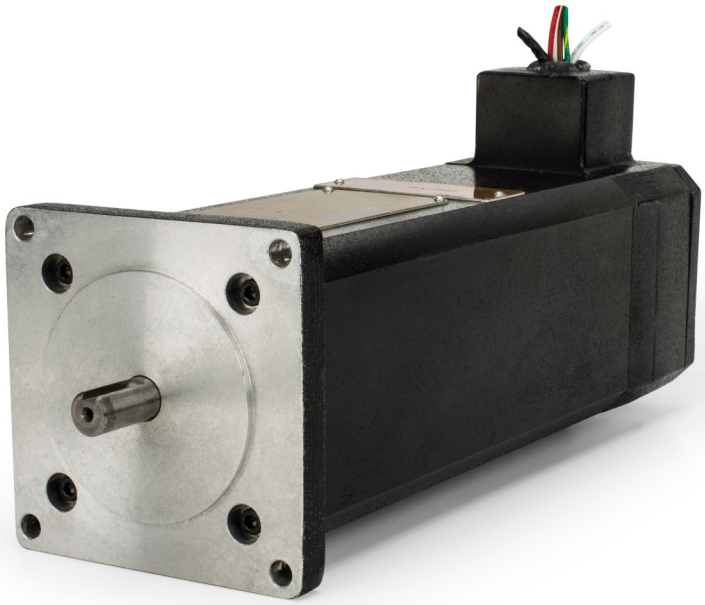
Goldline EB/EBH Servo Motors

Installation Manual



Edition: C, May 2023

Part Number: 974769

or

Important, Read All Instructions Before Installing This Motor.
Save These Instructions For Future Reference.

KOLLMORGEN

Record of Document Revisions

Revision	Date	Remarks
A	08/2021	Initial release, first edition
B	01/2023	Added EBH models
C	05/2023	Updated compliance information

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1 Table of Contents

2 Introduction

This manual is a general document and is applicable for Goldline EB and EBH-Series servomotors (standard version).

Kollmorgen's brushless motors utilize high-energy Samarium Cobalt or Neodymium Iron Boron magnet technology. These brushless motors consist of permanent magnet rotors and 3-phase Y-stator windings. Brushless motors do not have commutators or associated brushes. These motors run as synchronous motors, meaning the rotor speed is the same as the speed (frequency) of the rotating stator's magnetic field. A brushless resolver is used as the feedback device and is mounted internally as part of the overall motor construction.

Benefits resulting from the typical amplifier and brushless motor construction are:

- Lower rotor inertia permits higher acceleration rates.
- The motor is thermally more efficient since all heat is generated in the stator windings located in the outside shell.
- Higher speed operation and high peak horsepower are achieved. There is no commutation limit.
- Smaller physical motor size for a given horsepower rating.
- Higher reliability and less motor maintenance. There is no commutator or brushes.
- Smooth output torque.

The Catalog Data (CD) and Performance Curve (PC) presented in this document are applicable only to corresponding individual motor. They contain such information as maximum operating speed, peak current limits, and values that make the amplifier and motor combinations compatible. Do NOT operate the motor outside the parameters shown on the respective performance curves.

Further information can be found on:

- Kollmorgen website: https://www.kollmorgen.com/
- Kollmorgen Developer Network: https://kdn.kollmorgen.com

2.1 Symbols Used

Symbol	Indication
 **DANGER**	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 **WARNING**	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 **CAUTION**	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates situations which, if not avoided, could result in property damage.
NOTE	This symbol indicates important notes.
	Warning of a danger (general). The type of danger is specified by the text next to the symbol.
	Warning of danger from electricity and its effects.
	Warning of danger from hot surface.
	Warning of suspended loads.

3 Safety

This section helps you to recognize and avoid dangers to people and objects.

3.1 Important Notes

This Section helps you to recognize and avoid dangers to people and objects.

3.1.1 Special Staff Required

Only properly qualified personnel are permitted to perform such tasks as transport, assembly, setup, and maintenance. Qualified specialist staff are persons who are familiar with the transport, installation, assembly, commissioning, and operation of motors and who bring their relevant minimum qualifications to bear on their duties:

- Transport: only by personnel with knowledge of handling electrostatically sensitive components.
- Mechanical Installation: only by mechanically qualified personnel.
- Electrical Installation: only by electrically qualified personnel.
- Setup: only by qualified personnel with extensive knowledge of electrical engineering and drive technology

The qualified personnel must know and observe IEC 60364 / IEC 60664 and national accident prevention regulations.

3.1.2 Read The Documentation

Read the available documentation before installation and commissioning. Improper handling of the motor can cause harm to people or damage to property. The operator must therefore ensure that all persons entrusted to work on the motor have read and understood the manual and that the safety notices in this manual are observed.

3.1.3 Pay Attention To Technical Data

Adhere to the technical data and the specifications on connection conditions (rating plate and documentation). If permissible voltage values or current values are exceeded, the motors can be damaged, for example by overheating.

3.1.4 Perform Risk Assessment

The manufacturer of the machine must generate a risk assessment for the machine, and take appropriate measures to ensure that unforeseen movements cannot cause injury or damage to any person or property. Additional requirements on specialist staff may also result from the risk assessment.

3.1.5 Transport Safely

Lift and move motors with more than 20 kg weight only with lifting tools. Lifting unassisted could result in back injury.

3.1.6 Secure The Key

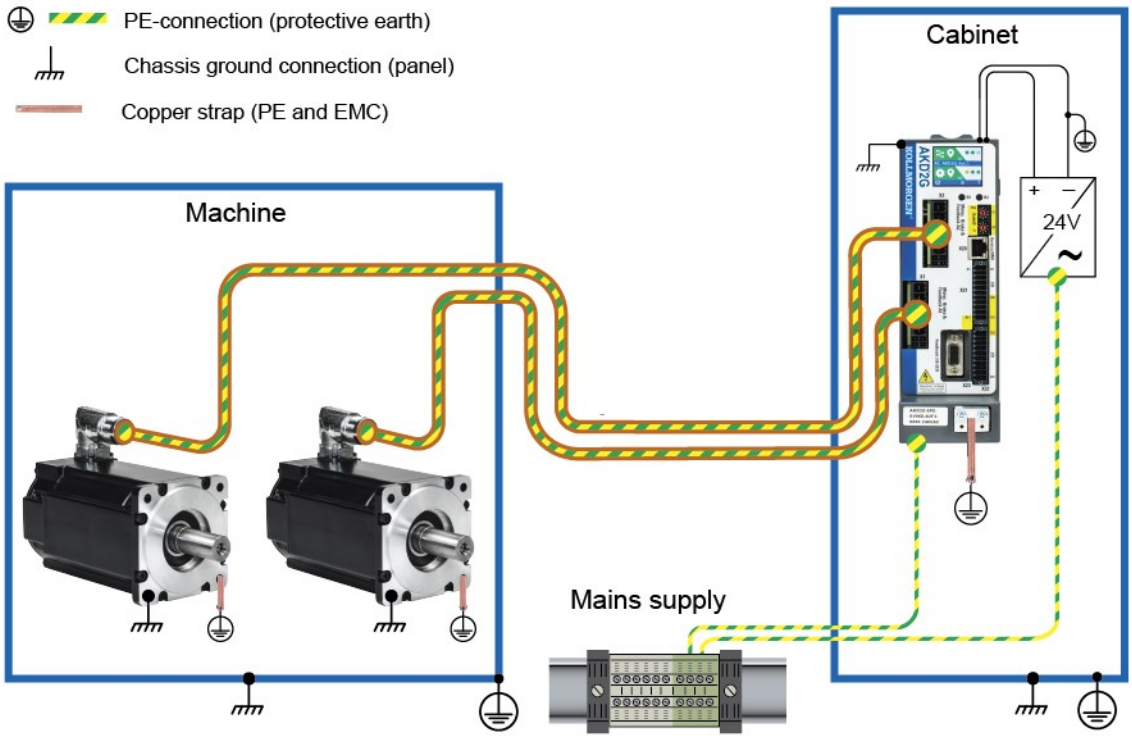
Remove any fitted key (if present) from the shaft before letting the motor run without a coupled load, to avoid the key being thrown out by centrifugal forces.

	**CAUTION Hot surface!** The surfaces of the motors can be very hot in operation, according to their protection category. Risk of minor burns! The surface temperature can exceed 100 °C. • Measure the temperature, and wait until the motor has cooled down below 40 °C before touching it.
	**DANGER Grounding! High Voltages!** It is vital that you ensure that the motor housing is safely earthed to the PE (protective earth) busbar in the switch cabinet. Risk of electric shock. Without low-resistance earthing no personal protection can be guaranteed and there is a risk of death from electric shock. Not having optical displays does not guarantee an absence of voltage. Power connections may carry voltage even if the motor shaft is not rotating. • Do not unplug any connectors during operation. There is a risk of death or severe injury from touching exposed contacts. Power connections may be live even when the motor shaft is not rotating. This can cause flashovers with resulting injuries to persons and damage to the contacts. • After disconnecting the servo amplifier from the supply voltage, wait several minutes before touching any components which are normally live (e.g., contacts, screw connections) or opening any connections. • The capacitors in the servo amplifier can still carry a dangerous voltage several minute safter switching off the supply voltages. To be extra safe, measure the DC-link voltage and wait until the voltage has fallen below 60 V.
	**WARNING Secure hanging loads!** Built-in holding brakes do not ensure functional safety! • Hanging loads (vertical axes) require an additional, external mechanical brake to ensure personnel safety.

3.2 Use As Directed

- The EB and EBH series of servo motors is designed especially for drives for factory automation, machine tools, textile and packing machinery and similar with high requirements for dynamics.
- The user is only permitted to operate the motors under the ambient conditions which are defined in this documentation.
- The motors are installed as components in electrical apparatuses or machines and can only be commissioned and put into operation as integral components of such apparatuses or machines.
- The thermal sensor which is integrated in the motor windings must be observed and evaluated.
- The holding brakes are designed as standstill brakes and are not suited for repeated operational, dynamic braking.

NOTE Wire the PE connections immediately after installing the devices as the first electrical connection. Next, insert all other lines and connectors. For disassembly, release the PE connections as the last connection.



3.3 ATEX Specific Conditions of Use

- Fasteners used must be stainless steel grade A2 (AISI 304) or A4 (AISI 316) property class 70 (450 MPa min yield stress).
- Flamepaths specified for this device are greater than the minimums specified in IEC 60079-1:2007 and are not to be altered.
- Thermostat leads shall be connected to a latched power-down circuit per installation instructions.
- An Ex d IIB certified conduit seal must be installed at the cable entry.

3.4 Prohibited Use

- The use of Standard Motors is prohibited:
  - directly on mains supply networks,
  - in contact with food and beverage,
  - in environments with caustic and/or electrically conducting acids, bases, oils, vapors, dusts.

- Commissioning the motor is prohibited if the machine in which it was installed:
  - does not meet the requirements of the EC Machinery Directive,
  - does not comply with the EMC Directive,
  - does not comply with the Low Voltage Directive.

- Built-in holding brakes without further equipment must not be used to ensure functional safety
- Do not operate the motor in a hazardous location with any securing screws or covers removed.
- Do not remove any screws or covers while the motor is in a hazardous location.

4 Package

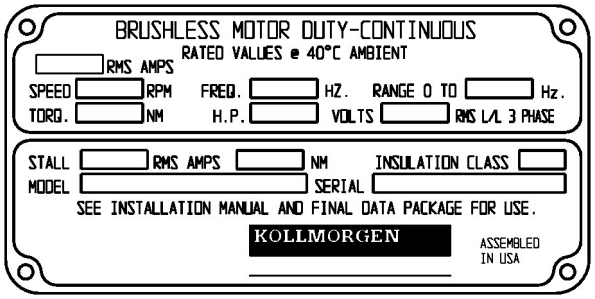
4.1 Delivery Package

- Motor from EB or EBH series

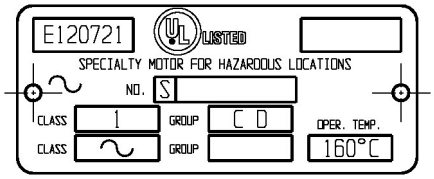
4.2 Nameplate

- Each motor ships with two nameplates.
  - the motor part number and rated values
  - the explosion-proof listing
- A third nameplate is included for Brake models (optional).
- Year of manufacturing is coded in the serial number. The first two digits of the serial number are the year of manufacturing, e.g., "17" means 2017.

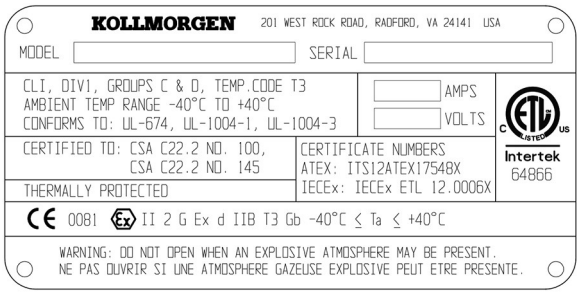
4.2.1 EB/EBH-Motor Part Number Nameplate



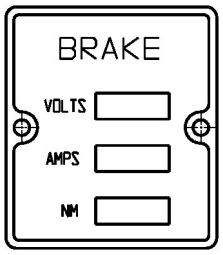
4.2.2 EB-Motor UL Version Nameplate



4.2.3 EB/EBH Motor ATEX/IECEx/ETL Version Nameplate



4.2.4 EB/EBH Motor Brake Nameplate



4.3 Model Number Description

EB – 10 2 – A – 1 1 – B2 – XXX – ATEX

EB/EBH Series
EB 230 V
EBH 480 V

Frame Size

EB	EBH	
10	12	100 mm
20	22	114 mm
40	42	142 mm
60	62	180 mm
80	–	224 mm

Stack Length
2
4
6

Winding
A-Z

Approvals ‡
[blank] UL Class 1, Division 1, Groups C and D
ATEX IECEx/ATEX ExII 2 G Ex d IIB T3 Gb
-40°C ≤ Ta ≤ +40°C

Custom
[blank] Standard
XXX Custom variations not affecting controlled features of flame-paths

Standard Additions
[blank] No Brake
B2 90 V_{DC} fail-safe brake
B3 24 V_{DC} fail-safe brake

Mounting Option
1 Standard metric mount, no rear shaft extension

Connection Option
1 Flying Leads, 609 mm with 3/4-NPT conduit hold

NOTICE

‡ EB motors can be ordered in either **cULus** or **ATEX/IECEx + cETLus** configurations. EBH motors can only be ordered with ATEX/IECEx configurations. These configurations, and their corresponding certifications, are mutually exclusive. UL configurations do not have ATEX/IECEx. ATEX/IECEx+cETLus have the ETL listed mark instead of the UL listed mark, using equivalent UL and CSA standards.

NOTE

Not all options are available. Availability depends upon the compliance required.

4.4 Approvals & Certifications

4.4.1 Motor Certifications

Goldline EB/EBH Certifications		
Frame Size	**UL**	**ATEX/IECEx**
EB-10x	Approved	Approved
EB-20x	Approved	Approved
EB-40x	Approved	Approved
EB-60x	Approved	Approved
EB-80x	Approved	N/A
EBH-12x	N/A	Approved
EBH-22x	N/A	Approved
EBH-42x	N/A	Approved
EBH-62x	N/A	Approved

See Approvals & Certifications Lookup for more information on specific standards and file numbers.

4.4.2 UL

See Model Number Description for models that meet UL certification requirements. EB models meet UL certification requirements per UL 674 and CSA C22.2 No. 145 for use in Class 1, Division 1, Groups C and D hazardous locations. Zone and group equivalency applies. The EBH series is not offered with UL certification.

4.4.3 ATEX/IECEx/ETL

See Model Number Description for models that meet ATEX/IECEx. EB and EBH models meet ETL certification requirements per UL 674 and CSA C22.2 No. 145 for use in Class 1, Division 1, Groups C and D hazardous locations. Zone and group equivalency applies.

- EB and EBH models that meet ATEX/IECEx are for use in IECEx/ATEX Ex II 2 G Ex d IIB T3 Gb -40 °C ≤ Ta ≤ +40deg °C .
- Currently, the EB-80x series is not offered in ATEX/IECEx.

4.5 Motor Inspection

Remove the motor from the shipping container being careful not to damage the leadwires extending from the connection fitting. Do not lay the motor on top of the leadwires as it may damage the wires. Visually inspect the motor for any shipping damage that may have occurred.

- Motor frame and exterior covers are to be free of nicks, burrs, or upsets with all motor fasteners in place and tight.
- Output shaft & keyway are to be free of nicks, burrs, or blemishes that would prevent safe assembly of mechanical connections.
- Front endbell flange and mounting pilot are to be free of nicks, burrs, or damage that would prevent proper motor mating or alignment to mounting surfaces and diameters.
- Mounting holes are to be free of damage or debris that would prevent installation of mounting fasteners.
- Leadwires are to be free of nicks, cuts, or cracked insulation that exposes bare wire.
- If damage is noted or suspected, notify the shipping carrier immediately.

5 Mechanical Installation

Dimension drawings can be found in Dimensional Drawings.

5.1 Important Notes

Only qualified staff with knowledge of mechanical engineering are permitted to assemble the motor.

- Protect the motor from unacceptable stresses. Ensure the components are not damaged during transport or handling.
- The site must be free of conductive and aggressive material.
- Ensure there is unhindered ventilation of the motors and observe the permissible ambient and flange temperatures. For ambient temperatures above 40 °C please consult our applications department beforehand. Ensure that there is adequate heat transfer in the surroundings and the motor flange.
- Motor flange and shaft are especially vulnerable during storage and assembly - so avoid brute force. It is important to use the locking thread which is provided to tighten up couplings, gear wheels, or pulley wheels and warm up the drive components, where possible.
- Blows or the use of force will lead to damage to the bearings and the shaft
- Wherever possible, use only backlash-free, frictionally-locking collets or couplings. Ensure correct alignment of the couplings. A displacement will cause unacceptable vibration and the destruction of the bearings and the coupling.
- In all cases, do not create a mechanically constrained motor shaft mounting by using a rigid coupling with additional external bearings (e.g., in a gearbox).
- Take note of the number of motor poles and the number of resolver poles (if applicable) and ensure that the correct setting is made in the servo amplifier being used. An incorrect setting can lead to the destruction of the motor, especially with small motors.
- Avoid axial loads on the motor shaft, as far as possible. Axial loading significantly shortens the life of the motor.

6 Electrical Installation

Ensure that the servo amplifier and motor are compatible by comparing the rated voltage and rated current of the units. Be sure to follow the wiring diagram in the servo amplifier's installation manual. The connections to the motor are shown in Leadwire Diagram.

6.1 Important Notes

Only staff qualified and trained in electrical engineering are allowed to wire up the motor.

DANGER High Voltages!

- Always make sure that the motors are de-energized during assembly and wiring, i.e., no voltage may be switched on for any piece of equipment which is to be connected.
- There is a risk of death or severe injury from touching exposed contacts. Ensure that the switch cabinet remains turned off (barrier, warning signs etc.). The individual voltages will only be turned on again during setup.
- Never undo the electrical connections to the motor while it is energized. Risk of electric shock! In unfavorable circumstances, electric arcs can arise causing harm to people and damaging contacts.
- A dangerous voltage, resulting from residual charge, can be still present on the capacitors up to 10 minutes after switch-off of the mains supply. Even when the motor is not rotating, control and power leads may be live.
- Measure the DC-link voltage and wait until it has fallen below 60V.

6.2 Kollmorgen Servo Drive Options

All EB and EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details see Kollmorgen Servo Amplifiers & Torque Angle Advance.

Carry out the wiring according to the wiring diagram in the instruction manual of the servo amplifier. This should include input power, controller, servo amplifier/drive, and motor, and additional external I/O.

Kollmorgen Servo drive Installation manuals may be found at:

- AKD2G: https://www.kollmorgen.com/en-us/products/drives/servo/akd2g/akd2g-servo-drive/
- AKD: https://www.kollmorgen.com/en-us/products/drives/servo/akd/

  AKD and AKD2G series servo drives do not offer TAA by default. Please contact Kollmorgen Customer Support for further technical guidance, including expected motor performance without the use of TAA algorithms. A white paper for EB-series use with AKD is available.

- S600: https://www.kollmorgen.com/en-us/products/drives/servo/serviced-drives/s600/
- S700: https://www.kollmorgen.com/en-us/products/drives/servo/s700/
- CD Series and other Serviced drives may be found at Kollmorgen Developer Network: https://kdn.kollmorgen.com

7 EB/EBH Motor Set Up

The following setup procedure is an example setup. A different method may be appropriate or necessary, depending on the application of the equipment.

1. Check the assembly and orientation of the motor.
2. Check the drive components (clutch, gear unit, belt pulley) for the correct seating and setting (observe the permissible radial and axial forces).
3. Check the wiring and connections to the motor and the servo amplifier. Check that the earthing is correct.
4. Test the function of the holding brake, if used. (apply 24 V or 90 V, brake must be released).
5. Check whether the rotor of the motor revolves freely (release the brake, if necessary). Listen for grinding noises.
6. Check that all the required measures against accidental contact with live and moving parts have been carried out.
7. Carry out any further tests which are specifically required for your system.
8. Now commission the drive according to the setup instructions for the servo amplifier.
9. In multi-axis systems, individually commission each drive unit (amplifier and motor).

7.1 Servo Amplifier Requirements

- Servomotors are operated in drive systems together with a servo amplifier, which may vary by size and operating characteristics (voltage, current, internal Resistance, inductance, rotor inertia, etc.). Typical amplifiers used with Kollmorgen's high performance permanent magnet brushless motors are three-phase sine wave, pulse-width modulated type. They are fully regenerative four-quadrant bi-directional velocity loop amplifiers.
- Do not install the servo amplifier in a hazardous location.
- Consult the manufacturer of the amplifier to assure operation per the motor’s nameplate data.

7.2 Typical Servo Amplifier & Power Supply Ratings

7.2.1 Typical Servo Amplifier & Power Supply Ratings for EB Motors

Input Power	Rated Supply Voltage	240 V_{AC} (50 to 60 Hz), three (3)-phase*
	Operational Supply Voltage (line-to-line)	12-265 V_{AC}
Output Power	Power Supply DC Bus	340 V_{DC}
	Amplifier: at rated load	230 V_{AC} (L-L) $_{RMS}$, Nominal +/-10%
	Continuous Current (A_{RMS}/Phase)	As required to produce motor's rated continuous current/phase (Arms/phase).
	Intermittent RMS Current	Five (5) ** seconds maximum; 200% of drive's continuous current or as otherwise specified by a specific Kollmorgen drive.
Ambient Operating Temperature	0-50 °C, with no internal regen resistor.	
Switching Frequency	5.2-15 kHz (typical)	
Cooling	Fan, Convection (cold plate)	

** For single-phase applications, contact Customer Support.*
*** For longer times above continuous current, contact Customer Support.*

7.2.2 Typical Servo Amplifier & Power Supply Ratings for EBH Motors

Input Power	Rated Supply Voltage	480 V_{AC} (50 to 60 Hz), three (3)-phase
	Operational Supply Voltage (line-to-line)	24-525 V_{AC}
Output Power	Power Supply DC Bus	680 V_{DC}
	Amplifier: at rated load	480 V_{RMS} (L-L), Nominal ±10%
	Continuous Current (A_{RMS}/Phase)	As required to produce motor's rated continuous current/phase (Arms/phase).
	Intermittent RMS Current	Five (5) ** seconds maximum; 200% of drive's continuous current or as otherwise specified by a specific Kollmorgen drive.
Ambient Operating Temperature	0-50 °C, with no internal regen resistor.	
Switching Frequency	3.5-11kHz (typical)	
Cooling	Fan, Convection (cold plate)	

*** For longer times above continuous current, contact Customer Support.*

7.3 Kollmorgen Servo Amplifiers & Torque Angle Advance

The EB and EBH series motors were originally designed for use with the Kollmorgen family of servo drives for optimum performance. When combined with the Kollmorgen digital amplifier series (using Kollmorgen's patented Torque Angle Advance [TAA] algorithms), the system performance provides the most optimized peak torque and speed.

All EB and EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes TAA.

EB and EBH series motors may be operated with servo drives that do not offer TAA, including alternative Kollmorgen drives and third-party drives. This may result in a reduction of torque, specifically at speeds higher than 50% of rated speed. For these scenarios, please contact Kollmorgen Customer Support for further technical guidance, including expected motor performance without the use of TAA algorithms.

7.4 Servo Amplifier Wiring

Pinout of the servo amplifier's end can be found in the instruction manual of the servo amplifier.

7.4.1 Motor Thermostat

- The motor thermostat is an automatic resetting device that is used to shut the power down from the motor controller should an over temperature condition occur in the motor windings. The thermostat leads should be connected into a latched (lock-out) power down type circuit which will require manual reset.
- Thermostat to be wired with twisted pair.

7.4.2 Motor Brake

All motors are optionally available with a holding brake, either a 90 V_{DC} brake (Option code "B2"), or a 24 V_{DC} failsafe brake (Option Code "B3"). These brake options are spring applied brakes and are integrated into the motors. When this brake is de-energized it blocks the rotor from rotation.

- Energize the brake before switching the motor on and while it is in operation. For proper operation, use an electrical interlock circuit to ensure that the brake is not engaged while the motor is energized.
- Full brake specifications can be found in Technical Data For Brakes.

7.5 Troubleshooting

The following table is to be seen as a “First Aid” box. There can be many different reasons for a fault, depending on your system setup. The fault causes described below are mostly those which directly influence the motor. Peculiarities which show up in the control loop behavior can usually be traced back to an error in the parameterization of the servo amplifier. The documentation for the servo amplifier and the setup software provides more information.

For multi-axis systems there may be further hidden reasons for faults.

Fault	Possible Cause	Remedy
Motor doesn’t rotate	• Servo amplifier not enabled • Break in setpoint lead • Motor phases in wrong sequence • Brake not released • Drive is mechanically blocked	• Supply ENABLE signal • Check setpoint lead • Correct the phase sequence • Check brake controls • Check mechanism
Motor runs away	• Motor phases in wrong sequence	• Correct the phase sequence
Motor oscillates	• Break in the shielding of the feedback cable • Amplifier gain too high	• Replace feedback cable • Use motor default values
Error message: brake	• Short-circuit in the supply voltage lead to the motor holding brake • Faulty motor holding brake	• Remove the short-circuit • Replace motor
Error message: output stage fault	• Motor cable has short-circuit or earth short • Motor has short-circuit or earth short	• Replace cable • Replace motor
Error message: feedback	• Feedback connector is not properly plugged in • Break in feedback cable, cable crushed or similar	• Check connector • Check cables
Error message: motor temperature	• Motor thermosensor has switched • Loose feedback connector or break in feedback cable	• Wait until the motor has cooled down. Then, investigate why the motor becomes so hot. • Check connector, replace feedback cable if necessary
Brake does not grip	• Required holding torque too high • Brake faulty • Motor shaft axially overloaded	• Check the dimensioning • Replace motor • Check the axial load, reduce it. Replace motor, since the bearings have been damaged

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8 Technical Data

8.1 General Technical Description

Technical data for every motor type can be found in this chapter. For more information see:

- Motor Specifications For EB-10x
- Motor Specifications For EB-20x
- Motor Specifications For EB-40x
- Motor Specifications For EB-60x
- Motor Specifications For EB-80x
- Motor Specifications For EBH-12x
- Motor Specifications For EBH-22x
- Motor Specifications For EBH-42x
- Motor Specifications For EBH-62x

<table>
<tr><td>Ambient temperature (at rated values)</td><td>• 5...+40 °C for site altitude up to 1000m amsl
• It is vital to consult our applications department for ambient temperatures above 40 °C and encapsulated mounting of the motors.</td></tr>
<tr><td>Permissible humidity (at rated values)</td><td>• 95% rel. humidity, no condensation</td></tr>
<tr><td>Power De-Rating (Current and Torque)</td><td>• for site altitude above 1000m amsl and 40 °C:
  • 6% up to 2000m amsl
  • 17% up to 3000m amsl
  • 30% up to 4000m amsl
  • 55% up to 5000m amsl</td></tr>
<tr><td>Ball-bearing life</td><td>• ≥ 20.000 operating hours</td></tr>
<tr><td>Protection Class</td><td><table><tr><th>Standard Motor</th><th>Connector Option</th><th>Shaft Seal</th><th>Protection class</th></tr><tr><td>EB/EBH</td><td>1</td><td>without*</td><td>IP40</td></tr></table>• Shaft seal option is not available for EB or EBH Series units.
• Code "4" protects from objects greater than 1mm.
• Code "0" states the device is not protected against liquid.</td></tr>
<tr><td>Insulation Material class</td><td>• Motors employ a Class F, 155 °C insulation system per IEC 60085 and UL 1446.</td></tr>
</table>

8.2 Performance Curve Data

All EB and EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

System torque/speed information is designed to help select the optimum brushless servo motor/drive combination. The nominal values in this data illustrate performance for the recommended motor/controller systems

- The performance characteristics of a brushless servo system (motor/drives combination) are described by a torque/speed operating envelope. The curves indicate the continuous duty and intermittent duty zones of the system.
- The continuous duty zone is bordered by the maximum continuous torque line up to the intersection with the intermittent duty line. The continuous torque line is set by either the motor's maximum rated temperature, or the drives' rated continuous current output, whichever is less. The system voltage limit line is set by the voltage rating of the drives, the line voltage supplied, and the motor winding. The system can operate on a continuous basis anywhere within this area, assuming the ambient temperature is 40 °C or less.
- The intermittent duty zone is bordered by the peak torque line and the system voltage limit line. The peak torque line is set by either the drives' peak current rating, which the drive can produce for a limited time, or the maximum rated peak current for the motor, whichever is less. Refer to the Rating Data on the pages that follow. NOTE: Higher torque levels may be achievable at higher power levels.

The system voltage limit line is set by the voltage rating of the drive, the line voltage applied, and the motor winding. Operation in the intermittent zone must be limited to a duty cycle that will produce an RMS system torque falling within the continuous duty area. The RMS torque value is a function of the magnitude of the intermittent torque and the percentage of the time spent at that torque. Consult Kollmorgen Customer Support for more details.

8.3 Motor Specifications For EB-10x

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Not all windings are available, depending upon the compliance required.

8.3.1 EB-102-A Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data A
Volts (Line to Line)		Rated	V rtd	V_{RMS}	230
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	0.6
				N * m	0.84
Cont. Line Current		Nom.	Ic	A_{RMS}	2.4
Maximum Speed		Nom.	N max	RPM	7500
Peak Torque *		Nom.	Tp	lb * ft	1.8
				N * m	2.41
Peak Line Current		Nom.	Ip	A_{RMS}	7.2
Theoretical Acceleration		Nom	acc	rad/sec²	78070
Horsepower		Rated	Hp rtd	HP	0.73
Speed		Rated	N rtd	RPM	7500
Torque		Rated	T rtd	lb * ft	0.51
				N * m	0.69
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	0.26
				N * m/A_{RMS}	0.35
		+/- 10%	Kb	V_{RMS}/KRPM	21.32
Max Line to Line Volts		Max	V max	V_{RMS}	250
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	6.8
Inductance (line to line)		+/- 30%	Lm	mh	30
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	2.54
	Elec	Nom.	Te	msec	4.4
Motor Constant @ 25 °C		Nom.	Km	ft-lb/(watts)^.5	

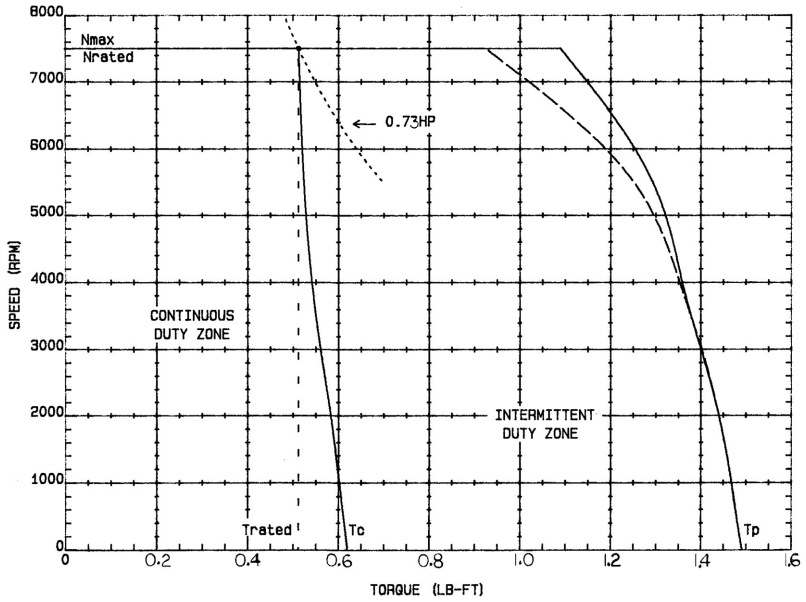
** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0000228
		kg * m²	.000031
Weight	Wt	lb	5.5
		kg (f)	2.5
Static Friction	Tf	lb * ft	0.03
		N * m	.040
Thermal Time Constant	TCT	minutes	2
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.002
		N * m/KRPM	.002

8.3.2 EB-102-A Performance Curve

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Motor	Voltage
EB-102-A	230 V_{AC}



8.3.3 EB-104-A, B Catalog Data

Motor Parameters	Tol	Symbol	Units	Winding Data A	Winding Data B
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	1.1	1.2
			N * m	1.55	1.57
Cont. Line Current	Nom.	Ic	A_{RMS}	3	4.2
Maximum Speed	Nom.	N max	RPM	5600	7500
Peak Torque *	Nom.	Tp	lb * ft	3.2	3.3
			N * m	4.38	4.45
Peak Line Current	Nom.	Ip	A_{RMS}	9	12.6
Theoretical Acceleration	Nom	acc	rad/sec²	95000	96500
Horsepower	Rated	Hp rtd	HP	1.20	1.50
Speed	Rated	N rtd	RPM	5600	7500
Torque	Rated	T rtd	lb * ft	1.14	1.06
			N * m	1.55	1.44
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	0.38	0.27
			N * m/A_{RMS}	0.51	0.37
	+/- 10%	Kb	V_{RMS}/KRPM	31	22.5
Max Line to Line Volts	Max	V max	V_{RMS}	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	5.3	2.72
Inductance (line to line)	+/- 30%	Lm	mh	28.1	14.4
Time Constant @ 25 °C	Nom.	Tm	msec	1.40	1.40
	Nom.	Te	msec	5.3	5.3
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	0.143	0.144

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

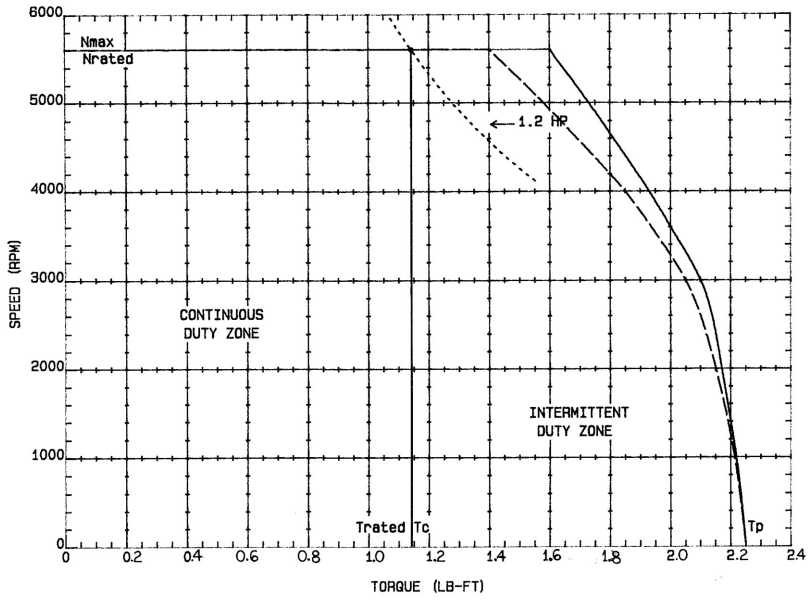
Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.000034
		kg * m²	.000046
Weight	Wt	lb	7
		kg (f)	3.2
Static Friction	Tf	lb * ft	0.04
		N * m	.050
Thermal Time Constant	TCT	minutes	3
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.002
		N * m/KRPM	.003

8.3.4 EB-104-A, B Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

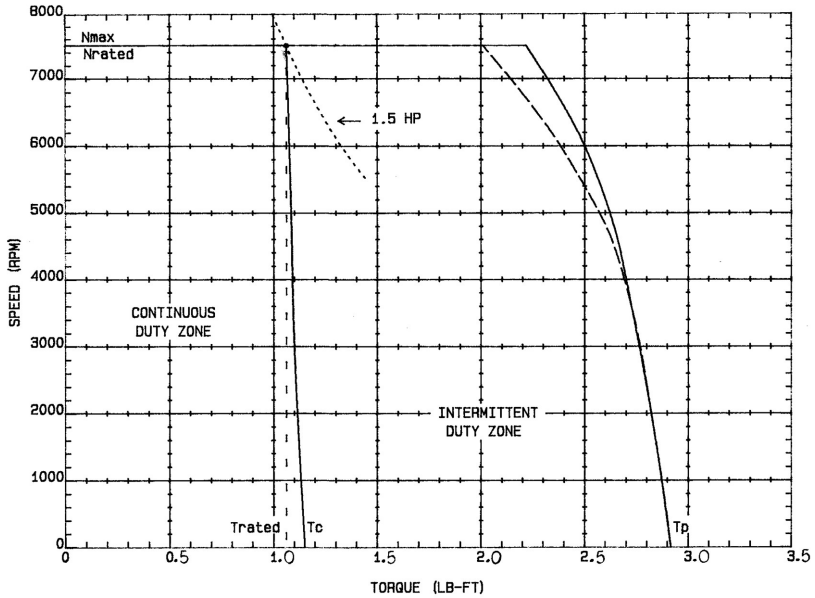
8.3.4.1 EB-104-A

Motor	Voltage
EB-104-A	230 V_{AC}



8.3.4.2 EB-104-B

Motor	Voltage
EB-104-A	230 V_{AC}



8.3.5 EB-106-A, B Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data A	Winding Data B
Volts (Line to Line)		Rated	V rtd	V_{RMS}	230	230
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	1.62	1.64
				N * m	2.20	2.22
Cont. Line Current		Nom.	Ic	A_{RMS}	3.0	6.0
Maximum Speed		Nom.	N max	RPM	4200	7500
Peak Torque *		Nom.	Tp	lb * ft	4.56	4.69
				N * m	6.18	6.36
Peak Line Current		Nom.	Ip	A_{RMS}	9.0	18.0
Theoretical Acceleration		Nom	acc	rad/sec²	80789	83193
Horsepower		Rated	Hp rtd	HP	1.2	2.0
Speed		Rated	N rtd	RPM	4200	7500
Torque		Rated	T rtd	lb * ft	1.50	1.38
				N * m	2.03	1.87
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	0.533	0.274
				N * m/A_{RMS}	0.723	0.372
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	43.7	22.5
Max Line to Line Volts		Max	V max	V_{RMS}	250	250
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	6.50	1.60
Inductance (line to line)		+/-30%	Lm	mh	37.5	9.4
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	1.4	1.3
	Elec	Nom.	Te	msec	5.8	5.9
Motor Constant @ 25 °C		Nom.	Km	ft-lb/(watts)^.5	0.181	0.189

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

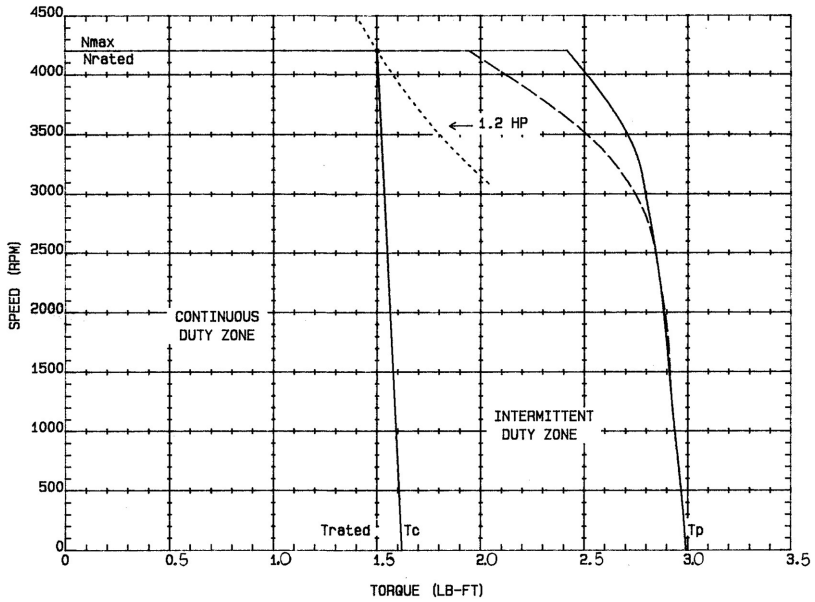
Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0000564
		kg * m²	0.0000765
Weight	Wt	lb	8.5
		kg (f)	3.9
Static Friction	Tf	lb * ft	0.05
		N * m	0.07
Thermal Time Constant	TCT	minutes	12
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.003
		N * m/KRPM	.004

8.3.6 EB-106-A, B Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

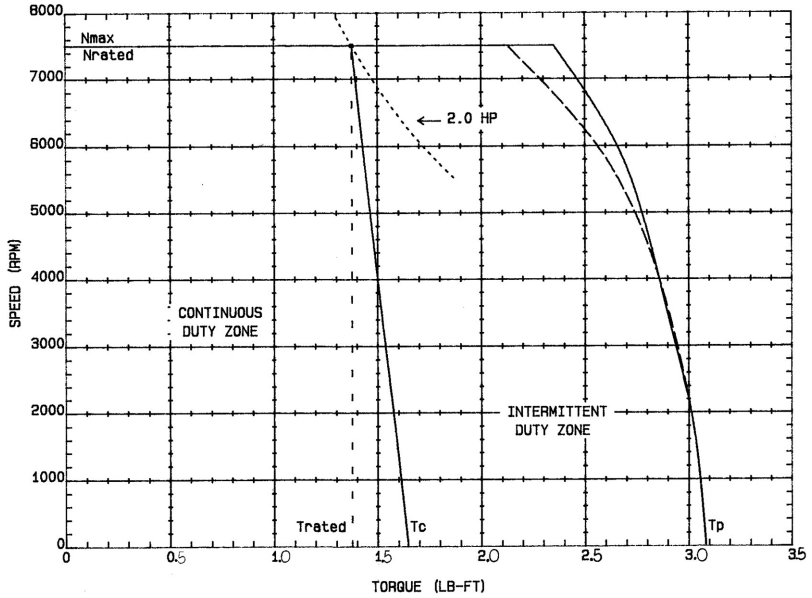
8.3.6.1 EB-106-A

Motor	Voltage
EB-106-A	230 V_{AC}



8.3.6.2 EB-106-B

Motor	Voltage
EB-106-B	230 V_{AC}



8.4 Motor Specifications For EBH-12x

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Not all windings are available, depending upon the compliance required.

8.4.1 EBH-122 Catalog Data

Motor Paramters		Tol	Symbol	Units	Winding Data A
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	0.500
				N * m	0.678
Cont. Line Current		Nom.	Ic	A_{RMS}	0.961
Maximum Speed		Nom.	N max	RPM	7500
Peak Torque *		Nom.	Tp	lb * ft	1.778
				N * m	2.41
Peak Line Current		Nom.	Ip	A_{RMS}	3.60
Theoretical Acceleration		Nom	acc	rad/sec²	78000
Horsepower		Rated	Hp rtd	HP	0.543
kW		Rated	kW rtd	kW	0.405
Speed		Rated	N rtd	RPM	7500
Torque		Rated	T rtd	lb * ft	0.380
				N * m	0.515
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	0.520
				N * m/A_{RMS}	0.705
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	42.6
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	35.0
Inductance (line to line)		+/- 30%	Lm	mh	120.0
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	3.26
	Elec	Nom.	Te	msec	3.43
Motor Constant @ 25 °C		Nom.	Km	ft-lb/(watts)^.5	0.0764

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0000228
		kg * m²	0.0000309
Weight	Wt	lb	8.00
		kg (f)	3.63
Static Friction	Tf	lb * ft	0.0300
		N * m	0.0407
Thermal Time Constant	TCT	minutes	10
Viscous Damping	Fi	lb * ft/KRPM	0.00200
Infinite Z Source		N * m/KRPM	0.00271
Pole Pairs	PP		2
Max. Line to Line Voltage Spike		Vo-p	1000

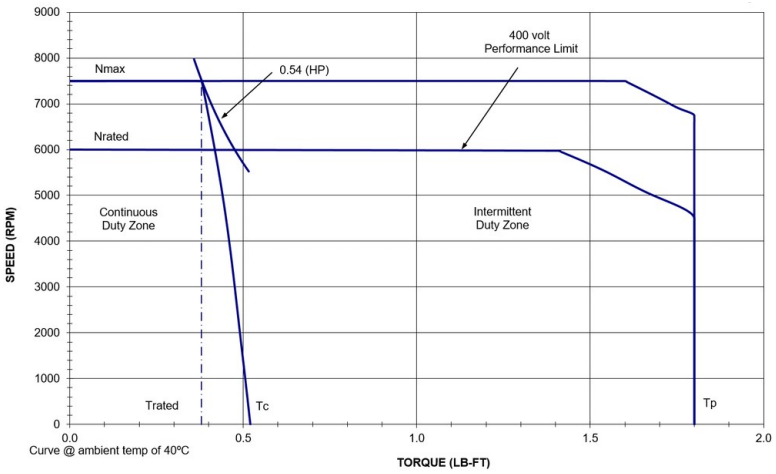
Continuous ratings with motor on 12" x 8" x 0.25" isolated aluminum heat sink.

8.4.2 EBH-122-A Performance Curve

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

8.4.2.1 EBH-122-A

Motor	Voltage
EBH-122-A	480 V_{AC}



8.4.3 EBH-124 Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data B
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	0.980
				N * m	1.329
Cont. Line Current		Nom.	Ic	A_{RMS}	1.788
Maximum Speed		Nom.	N max	RPM	7500
Peak Torque *		Nom.	Tp	lb * ft	3.28
				N * m	4.45
Peak Line Current		Nom.	Ip	A_{RMS}	6.30
Theoretical Acceleration		Nom	acc	rad/sec²	96500
Horsepower		Rated	Hp rtd	HP	1.157
kW		Rated	kW rtd	kW	0.863
Speed		Rated	N rtd	RPM	7500
Torque		Rated	T rtd	lb * ft	0.810
				N * m	1.098
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	0.548
				N * m/A_{RMS}	0.743
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	44.9
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	12.43
Inductance (line to line)		+/- 30%	Lm	mh	57.6
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	1.556
	Elec	Nom.	Te	msec	4.63
Motor Constant @ 25 °C		Nom.	Km	ft-lb/(watts)^.5	0.1351

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0000340
		kg * m²	0.0000461
Weight	Wt	lb	10.00
		kg (f)	4.54
Static Friction	Tf	lb * ft	0.0400
		N * m	0.0542
Thermal Time Constant	TCT	minutes	11
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.00200
		N * m/KRPM	0.00271
Pole Pairs	PP		2
Max. Line to Line Voltage Spike		Vo-p	1000

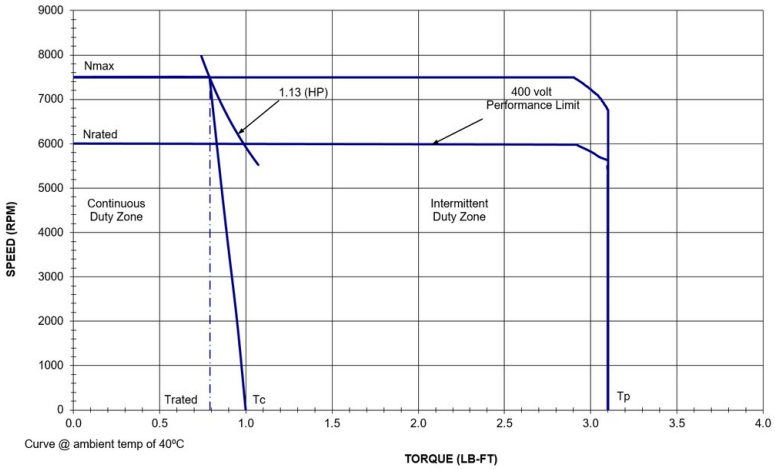
Continuous ratings with motor on 12" x 8" x 0.25" isolated aluminum heat sink.

8.4.4 EBH-124-B Performance Curve

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

8.4.4.1 EBH-124-B

Motor	Voltage
EBH-124-B	480 V_{AC}



8.4.5 EBH-126 Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data B
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	1.400
				N * m	1.898
Cont. Line Current		Nom.	Ic	A_{RMS}	2.55
Maximum Speed		Nom.	N max	RPM	7500
Peak Torque *		Nom.	Tp	lb * ft	4.68
				N * m	6.35
Peak Line Current		Nom.	Ip	A_{RMS}	9.00
Theoretical Acceleration		Nom.	acc	rad/sec²	83000
Horsepower		Rated	Hp rtd	HP	1.571
kW		Rated	kW rtd	kW	1.171
Speed		Rated	N rtd	RPM	7500
Torque		Rated	T rtd	lb * ft	1.100
				N * m	1.491
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	0.548
				N * m/A_{RMS}	0.743
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	44.9
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	8.21
Inductance (line to line)		+/- 30%	Lm	mh	37.6
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	1.704
	Elec	Nom.	Te	msec	4.58
Motor Constant @ 25 °C		Nom.	Km	ft-lb/(watts)^.5	0.1662

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0000564
		kg * m²	0.0000765
Weight	Wt	lb	12.00
		kg (f)	5.44
Static Friction	Tf	lb * ft	0.0500
		N * m	0.0678
Thermal Time Constant	TCT	minutes	12
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.00300
		N * m/KRPM	0.00407
Pole Pairs	PP		2
Max. Line to Line Voltage Spike		Vo-p	1000

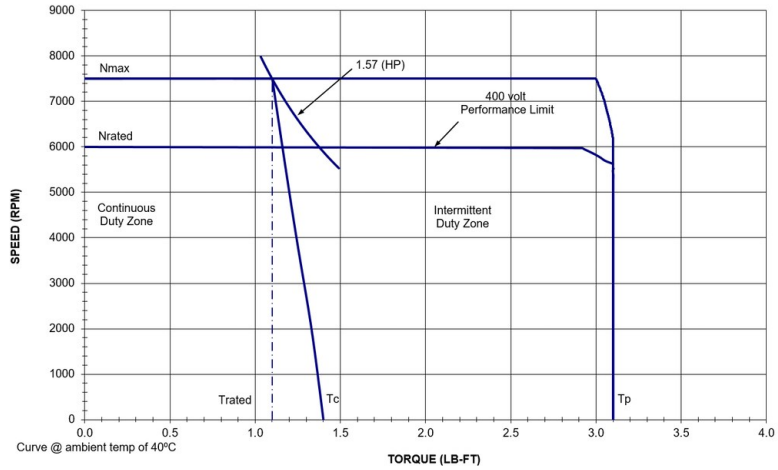
Continuous ratings with motor on 12" x 8" x 0.25" isolated aluminum heat sink.

8.4.6 EBH-126-B Performance Curve

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

8.4.6.1 EBH-126-B

Motor	Voltage
EBH-126-B	480 V_{AC}



8.5 Motor Specifications For EB-20x

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Not all windings are available, depending upon the compliance required.

8.5.1 EB-202-A, B, C Catalog Data

Motor Parameters				Winding Data		
	Tol	Symbol	Units	A	B	C
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	1.8	1.8	1.8
			N * m	2.50	2.50	2.50
Cont. Line Current	Nom.	Ic	A_{RMS}	1.9	3	5.1
Maximum Speed	Nom.	N max	RPM	2500	3800	6200
Peak Torque *	Nom.	Tp	lb * ft	5.2	5.2	5.2
			N * m	7.05	7.05	7.05
Peak Line Current	Nom.	Ip	A_{RMS}	6.1	9	15.7
Theoretical Acceleration	Nom	acc	rad/sec²	70750	70750	70750
Horsepower	Rated	Hp rtd	HP	0.08	1.30	1.80
Speed	Rated	N rtd	RPM	2500	3800	6200
Torque	Rated	T rtd	lb * ft	1.61	1.75	1.5
			N * m	2.18	2.37	2.03
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	0.97	0.61	0.36
			N * m/A_{RMS}	1.32	0.82	0.49
	+/- 10%	Kb	V_{RMS}/KRPM	79.5	49.7	29.6
Max Line to Line Volts	Max	V max	Volts RMS	250	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	17.1	6.3	2.34
Inductance (line to line)	+/- 30%	Lm	mh	185	74	25
Time Constant @ 25 °C	Nom.	Tm	msec	1.53	1.39	1.46
	Nom.	Te	msec	10.5	8.3	10.7
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	0.200	0.196	0.203

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

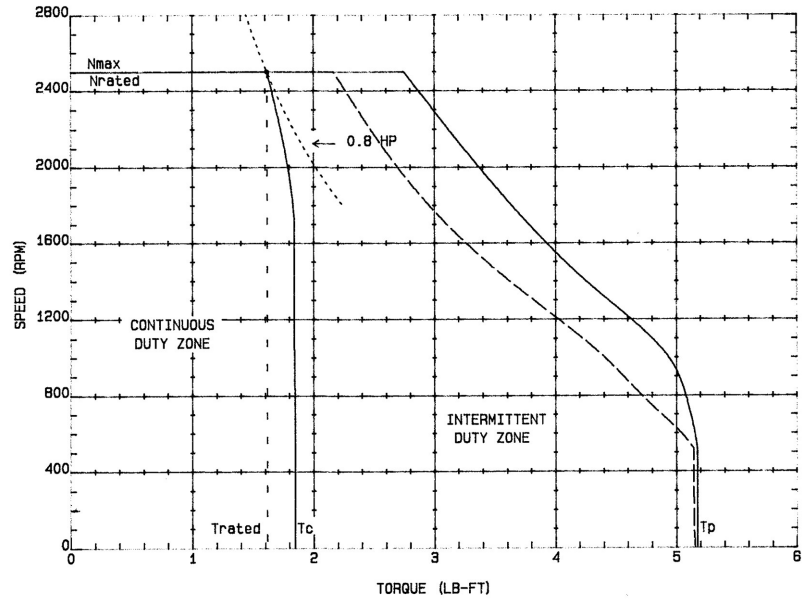
Basic Motor Constants			
	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0000735
		kg * m²	.000100
Weight	Wt	lb	15
		kg (f)	6.8
Static Friction	Tf	lb * ft	0.005
		N * m	.007
Thermal Time Constant	TCT	minutes	18
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.003
		N * m/KRPM	.004

8.5.2 EB-202-A, B, C Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

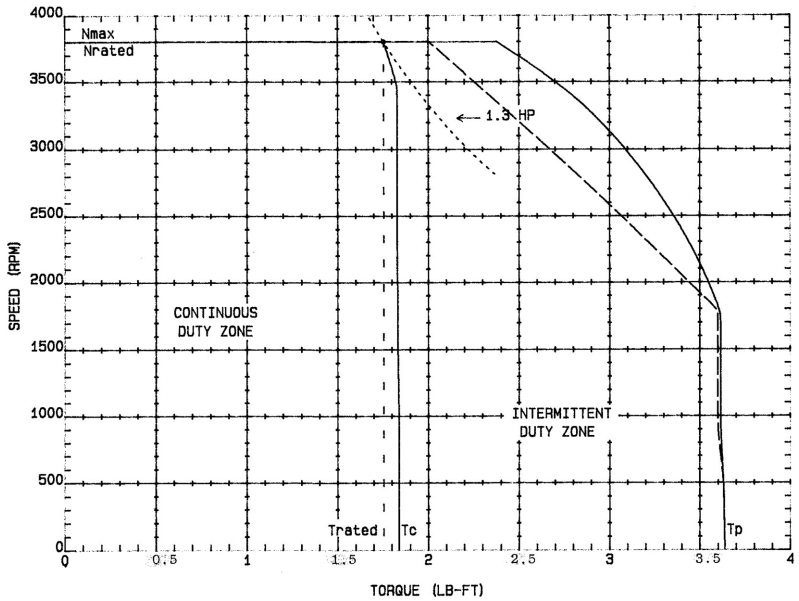
8.5.2.1 EB-202-A

Motor	Voltage
EB-202-A	230 V_{AC}



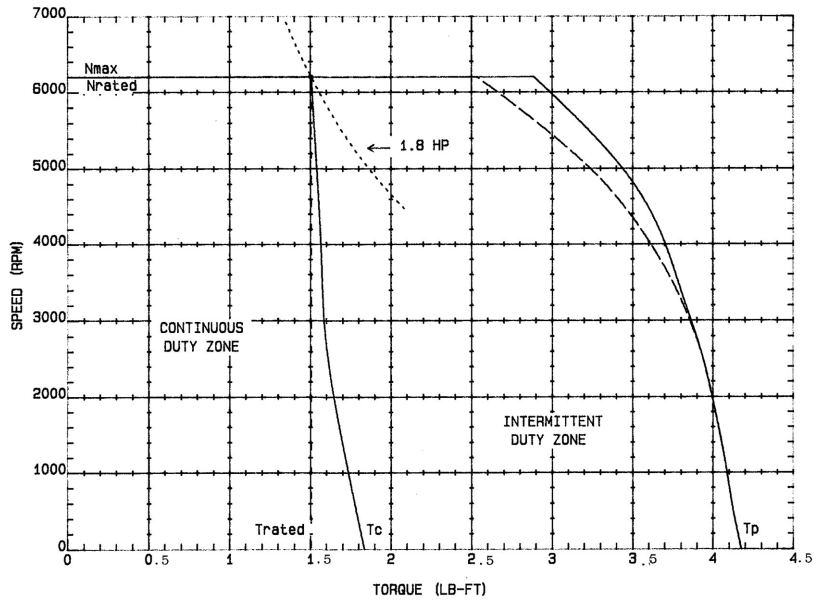
8.5.2.2 EB-202-B

Motor	Voltage
EB-202-B	230 V_{AC}



8.5.2.3 EB-202-C

Motor	Voltage
EB-202-C	230 V_{AC}



8.5.3 EB-204-A, B, C Catalog Data

Motor Parameters	Tol	Symbol	Units	Winding Data A	B	C
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	3.6	3.6	3.6
			N * m	4.88	4.88	4.88
Cont. Line Current	Nom.	Ic	A_{RMS}	2.9	5.7	9.9
Maximum Speed	Nom.	N max	RPM	1900	3600	6200
Peak Torque *	Nom.	Tp	lb * ft	9.4	10.3	9.0
			N * m	12.79	13.99	12.13
Peak Line Current	Nom.	Ip	A_{RMS}	8.1	17.4	26.1
Theoretical Acceleration	Nom.	acc	rad/sec²	73969	80950	70199
Horsepower	Rated	Hp rtd	HP	1.16	2.34	3.69
Speed	Rated	N rtd	RPM	1900	3600	6200
Torque	Rated	T rtd	lb * ft	3.2	3.41	3.13
			N * m	4.34	4.62	4.24
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	1.23	0.62	0.36
			N * m/A_{RMS}	1.66	0.85	0.49
	+/- 10%	Kb	V_{RMS}/KRPM	100.5	51.2	29.6
Max Line to Line Volts	Max	V max	V_{RMS}	250	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	9.46	2.48	0.786
Inductance (line to line)	+/- 30%	Lm	mh	133	38	12
Time Constant @ 25 °C	Nom.	Tm	msec	0.89	0.90	0.85
	Nom.	Te	msec	14.1	15.3	15.3
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	0.345	0.343	0.353

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

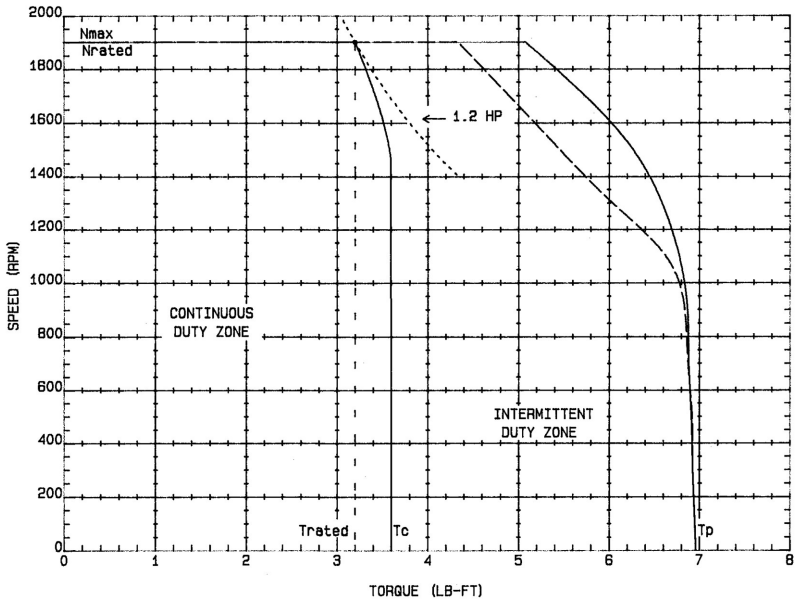
Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0001275
		kg * m²	.000173
Weight	Wt	lb	18
		kg (f)	8.2
Static Friction	Tf	lb * ft	0.005
		N * m	.007
Thermal Time Constant	TCT	minutes	20
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.005
		N * m/KRPM	.007

8.5.4 EB-204-A, B, C Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

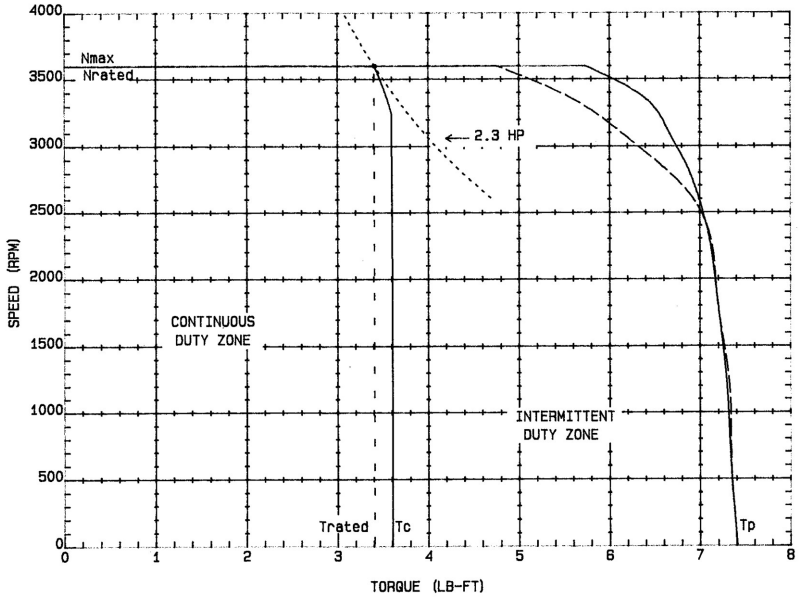
8.5.4.1 EB-204-A

Motor	Voltage
EB-204-A	230 V_{AC}



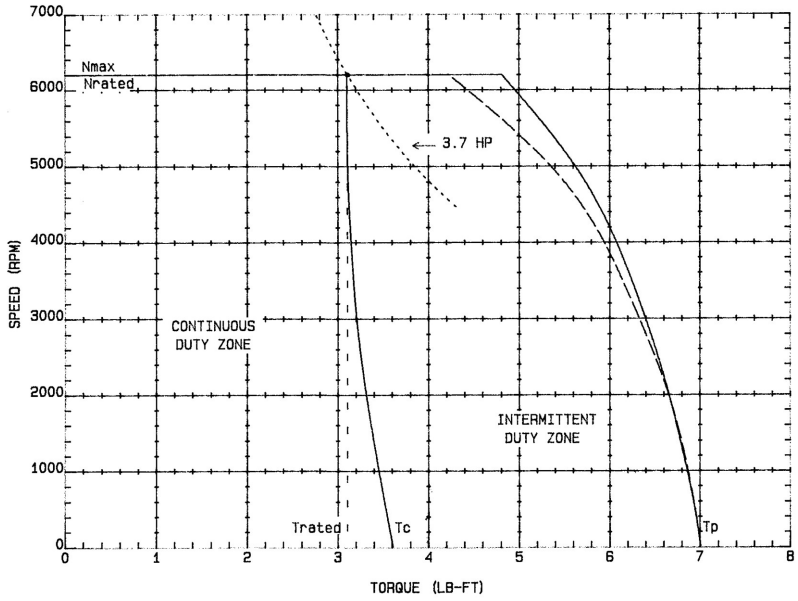
8.5.4.2 EB-204-B

Motor	Voltage
EB-204-B	230 V_{AC}



8.5.4.3 EB-204-C

Motor	Voltage
EB-204-C	230 V_{AC}



8.5.5 EB-206-A, B, C, D Catalog Data

Motor Parameters	Tol	Symbol	Units	Winding Data A	B	C	D
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	4.6	4.6	4.8	4.6
	N * m	N * m	N * m	6.24	6.24	6.44	6.24
Cont. Line Current	Nom.	Ic	A_{RMS}	2.9	5.8	10.3	14.4
Maximum Speed	Nom.	N max	RPM	1400	2800	4900	7000
Peak Torque *	Nom.	Tp	lb * ft	14.0	14.0	12.5	14.7
			N * m	19.02	19.02	17.00	19.96
Peak Line Current	Nom.	Ip	A_{RMS}	9.3	18.6	28.7	48.5
Theoretical Acceleration	Nom	acc	rad/sec²	75706	75706	67648	79447
Horsepower	Rated	Hp rtd	HP	1.20	2.45	3.78	4.53
Speed	Rated	N rtd	RPM	1400	2800	4900	7000
Torque	Rated	T rtd	lb * ft	4.5	4.6	4.06	3.4
			N * m	6.10	6.24	5.50	4.61
Torque Sensitivity *	+/- 10%	Kt	lb * ft/ A_{RMS}	1.59	0.79	0.46	0.32
			N * m/ A_{RMS}	2.15	1.08	0.62	0.43
	+/- 10%	Kb	V_{RMS}/ KRPM	130.2	65.1	37.7	26.2
Max Line to Line Volts	Max	V max	V_{RMS}	250	250	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	8.82	2.32	0.78	0.38
Inductance (line to line)	+/- 30%	Lm	mh	130	32	14	5.3
Time Constant @ 25 °C	Nom.	Tm	msec	0.72	0.75	0.76	0.76
	Nom.	Te	msec	14.7	13.8	17.9	13.9
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	0.460	0.450	0.441	0.450

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

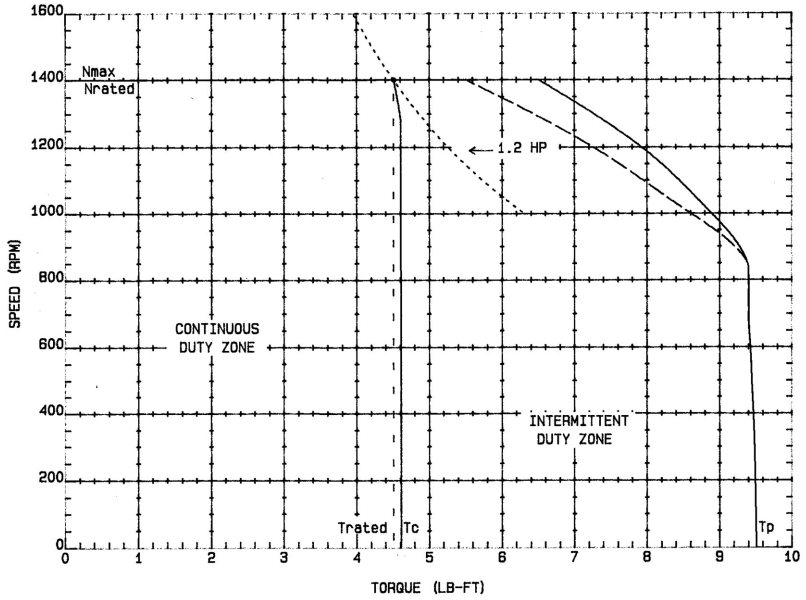
Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0001853
		kg * m²	.000251
Weight	Wt	lb	21
		kg (f)	9.5
Static Friction	Tf	lb * ft	0.005
		N * m	.007
Thermal Time Constant	TCT	minutes	22
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.008
		N * m/KRPM	.011

8.5.6 EB-206-A, B, C, D Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

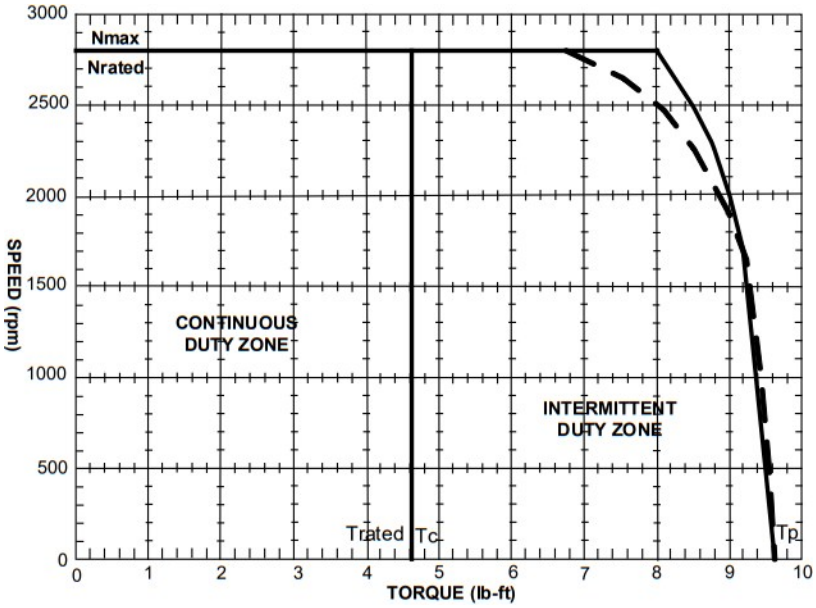
8.5.6.1 EB-206-A

Motor	Voltage
EB-206-A	230 V_{AC}



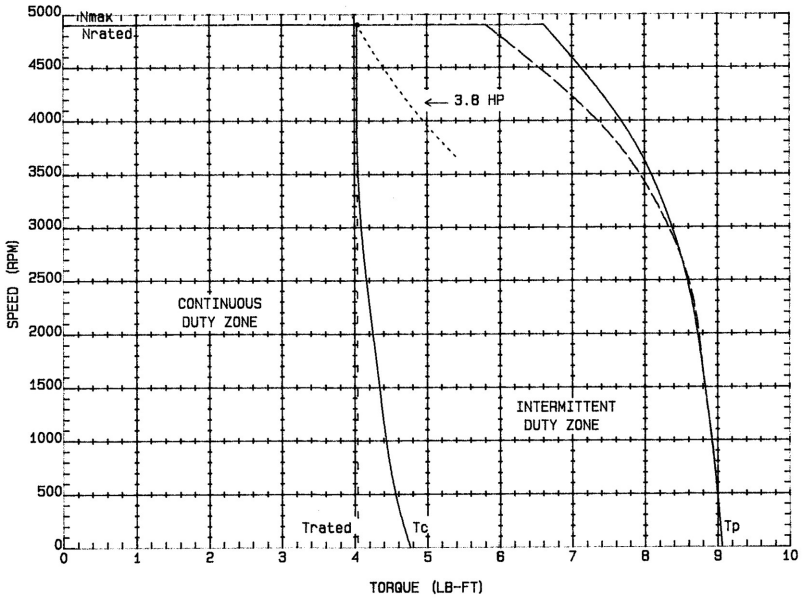
8.5.6.2 EB-206-B

Motor	Voltage
EB-206-B	230 V_{AC}



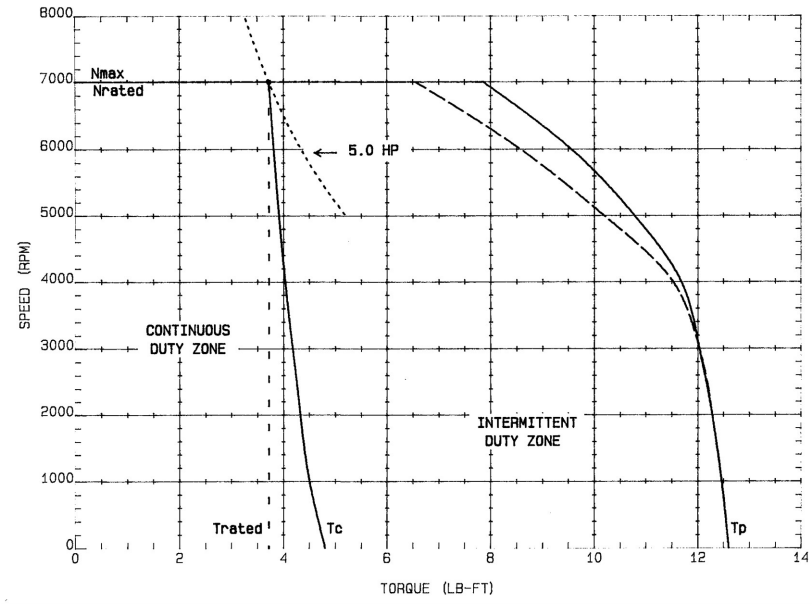
8.5.6.3 EB-206-C

Motor	Voltage
EB-206-C	230 V_{AC}



8.5.6.4 EB-206-D

Motor	Voltage
EB-206-D	230 V_{AC}



8.6 Motor Specifications For EBH-22x

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Not all windings are available, depending upon the compliance required.

8.6.1 EBH-222 B, E Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data B	Winding Data E
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	1.530	1.530
				N * m	2.07	2.07
Cont. Line Current		Nom.	Ic	A_{RMS}	1.281	2.47
Maximum Speed		Nom.	N max	RPM	3800	7000
Peak Torque *		Nom.	Tp	lb * ft	5.22	5.18
				N * m	7.07	7.02
Peak Line Current		Nom.	Ip	A_{RMS}	4.60	8.80
Theoretical Acceleration		Nom	acc	rad/sec²	71000	70500
Horsepower		Rated	Hp rtd	HP	1.013	1.653
kW		Rated	kW rtd	kW	0.755	1.232
Speed		Rated	N rtd	RPM	3800	7000
Torque		Rated	T rtd	lb * ft	1.400	1.240
				N * m	1.898	1.681
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	1.194	0.620
				N * m/A_{RMS}	1.619	0.840
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	97.9	50.8
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	35.4	8.90
Inductance (line to line)		+/- 30%	Lm	mh	272	74.0
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	2.02	1.884
	Elec	Nom.	Te	msec	7.69	8.31
Motor Constant @ 25 °C		Nom.	Km	ft-lb/(watts)^.5	0.1744	0.1805

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0000735
		kg * m²	0.0000997
Weight	Wt	lb	14.00
		kg (f)	6.35
Static Friction	Tf	lb * ft	0.0600
		N * m	0.0813
Thermal Time Constant	TCT	minutes	18
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.00500
		N * m/KRPM	0.00678
Pole Pairs	PP		2
Max. Line to Line Voltage Spike		Vo-p	1000

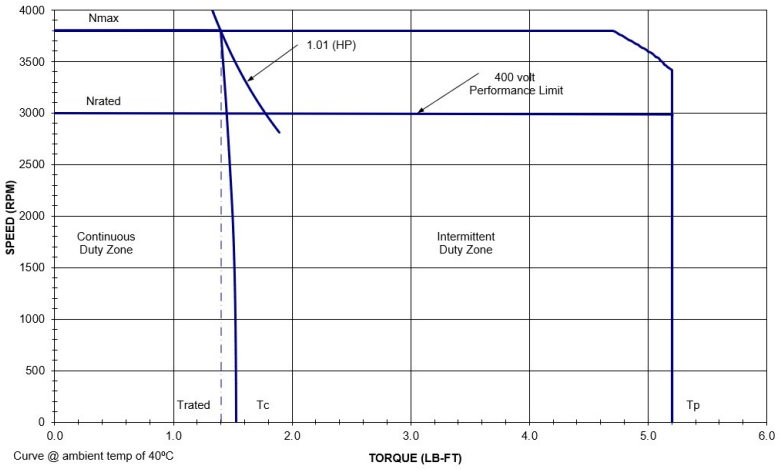
Continuous ratings with motor on 12" x 8" x 0.25" isolated aluminum heat sink.

8.6.2 EBH-222-B, E Performance Curves

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

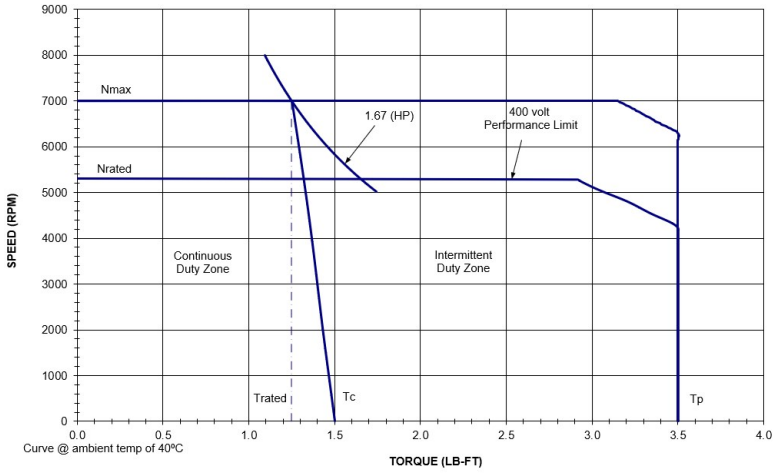
8.6.2.1 EBH-222-B

Motor	Voltage
EBH-222-B	480 V_{AC}



8.6.2.2 EBH-222-E

Motor	Voltage
EBH-222-E	480 V_{AC}



8.6.3 EBH-224 Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data A	B	G
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	2.70	2.80	2.80
				N * m	3.66	3.80	3.80
Cont. Line Current		Nom.	Ic	A_{RMS}	1.101	2.24	2.95
Maximum Speed		Nom.	N max	RPM	1900	3600	4700
Peak Torque *		Nom.	Tp	lb * ft	10.01	9.50	9.39
				N * m	13.58	12.88	12.73
Peak Line Current		Nom.	Ip	A_{RMS}	4.30	8.00	10.40
Theoretical Acceleration		Nom	acc	rad/sec²	78500	74500	73600
Horsepower		Rated	Hp rtd	HP	0.807	1.638	2.14
kW		Rated	kW rtd	kW	0.602	1.222	1.595
Speed		Rated	N rtd	RPM	1900	3600	4700
Torque		Rated	T rtd	lb * ft	2.23	2.39	2.39
				N * m	3.02	3.24	3.24
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480	480	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	2.45	1.250	0.950
				N * m/A_{RMS}	3.32	1.695	1.288
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	201	102.5	77.9
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	49.1	12.54	7.42
Inductance (line to line)		+/- 30%	Lm	mh	532	152.0	90.0
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	1.153	1.131	1.160
	Elec	Nom.	Te	msec	10.82	12.13	12.12
Motor Constant @ 25 °C		Nom.	Km	ft-lb/ (watts)^.5	0.304	0.307	0.303

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0001275
		kg * m²	0.0001729
Weight	Wt	lb	18.00
		kg (f)	8.16
Static Friction	Tf	lb * ft	0.0700
		N * m	0.0949
Thermal Time Constant	TCT	minutes	20
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.00700
		N * m/KRPM	0.00949
Pole Pairs	PP		2
Max. Line to Line Voltage Spike		Vo-p	1000

Continuous ratings with motor on 12" x 8" x 0.25" isolated aluminum heat sink.

8.6.4 EBH-224-A, B, G Performance Curves

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

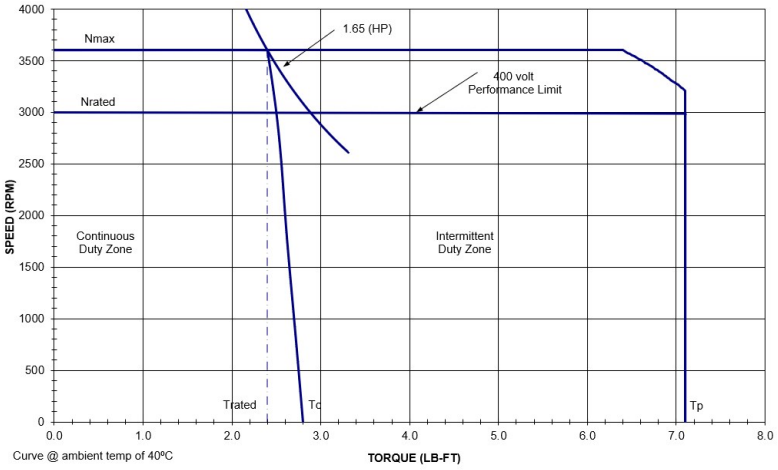
8.6.4.1 EBH-224-A

Motor	Voltage
EBH-224-A	480 V_{AC}

For more information on this frame size, contact Customer Support.

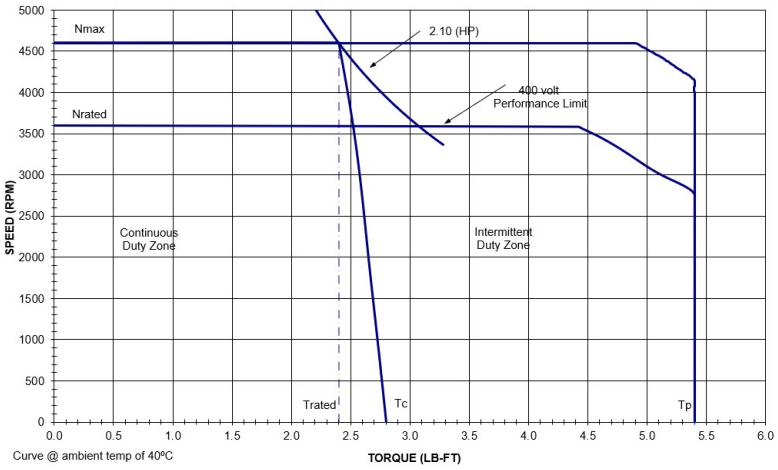
8.6.4.2 EBH-224-B

Motor	Voltage
EBH-224-B	480 V_{AC}



8.6.4.3 EBH-224-G

Motor	Voltage
EBH-224-G	480 V_{AC}



8.6.5 EBH-226 Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data C	D	E
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	4.10	4.12	4.10
				N * m	5.56	5.59	5.56
Cont. Line Current		Nom.	Ic	A_{RMS}	4.46	6.43	3.00
Maximum Speed		Nom.	N max	RPM	4900	7000	3200
Peak Torque *		Nom.	Tp	lb * ft	14.40	14.70	14.90
				N * m	19.52	19.93	20.2
Peak Line Current		Nom.	Ip	A_{RMS}	16.50	24.3	11.50
Theoretical Acceleration		Nom	acc	rad/sec²	77700	79300	80400
Horsepower		Rated	Hp rtd	HP	2.95	4.00	2.25
kW		Rated	kW rtd	kW	2.20	2.98	1.681
Speed		Rated	N rtd	RPM	4900	7000	3200
Torque		Rated	T rtd	lb * ft	3.16	3.00	3.70
				N * m	4.28	4.07	5.02
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480	480	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	0.920	0.640	1.366
				N * m/A_{RMS}	1.247	0.868	1.852
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	75.4	52.5	112.0
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	4.13	1.900	8.50
Inductance (line to line)		+/- 30%	Lm	mh	44.0	21.2	92.0
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	1.000	0.950	0.933
	Elec	Nom.	Te	msec	10.67	11.16	10.83
Motor Constant @ 25 °C		Nom.	Km	ft-lb/ (watts)^.5	0.393	0.404	0.407

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0001853
		kg * m²	0.000251
Weight	Wt	lb	22.0
		kg (f)	9.98
Static Friction	Tf	lb * ft	0.0800
		N * m	0.1085
Thermal Time Constant	TCT	minutes	21
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.00900
		N * m/KRPM	0.01220
Pole Pairs	PP		2
Max. Line to Line Voltage Spike		Vo-p	1000

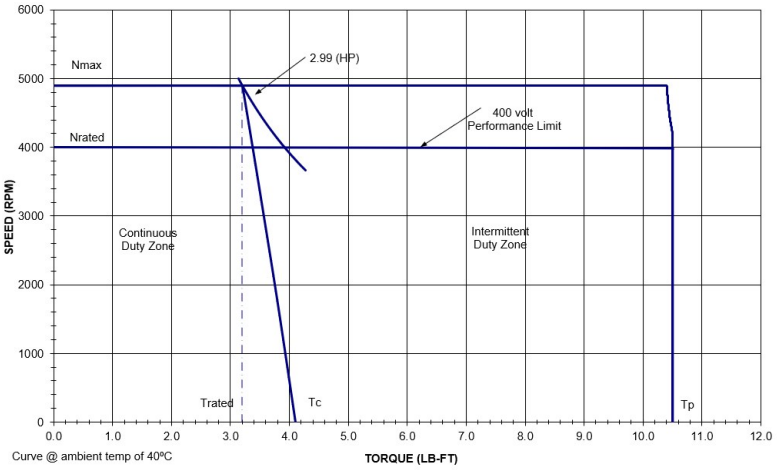
Continuous ratings with motor on 12" x 8" x 0.25" isolated aluminum heat sink.

8.6.6 EBH-226-C, D, E Performance Curves

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

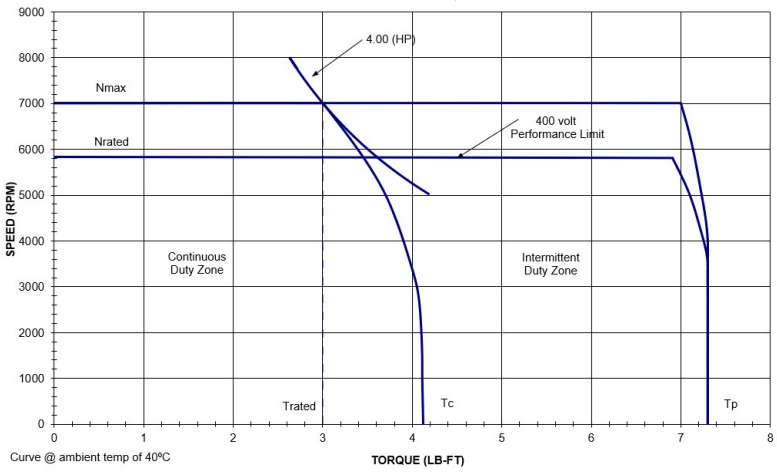
8.6.6.1 EBH-226 C

Motor	Voltage
EBH-226-C	480 V_{AC}



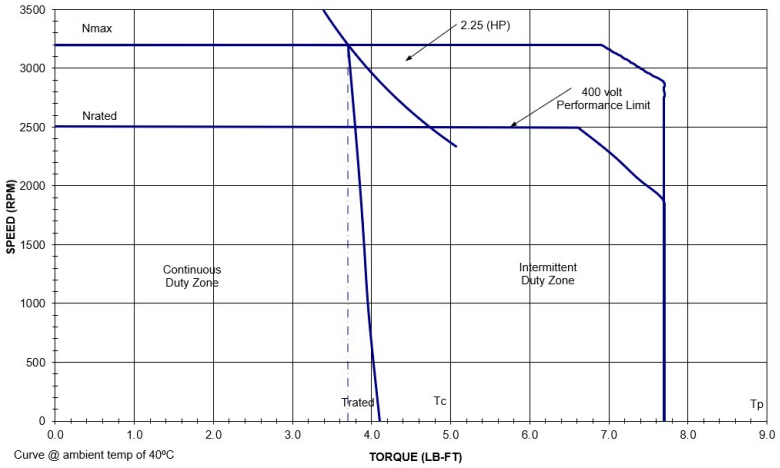
8.6.6.2 EBH-226-D

Motor	Voltage
EBH-226-D	480 V_{AC}



8.6.6.3 EBH-226-E

Motor	Voltage
EBH-226-E	480 V_{AC}



8.7 Motor Specifications For EB-40x

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Not all windings are available, depending upon the compliance required.

8.7.1 EB-402-A, B, C Catalog Data

Motor Parameters				Winding Data		
	Tol	Symbol	Units	A	B	C
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	5.0	5.2	4.8
	N * m	N * m	N * m	6.80	7.00	6.50
Cont. Line Current	Nom.	Ic	A_{RMS}	3	6.4	9.8
Maximum Speed	Nom.	N max	RPM	1500	3000	5000
Peak Torque *	Nom.	Tp	lb * ft	14.6	14.6	14.6
			N * m	19.80	19.80	19.80
Peak Line Current	Nom.	Ip	A_{RMS}	9.3	18.8	31.3
Theoretical Acceleration	Nom	acc	rad/sec²	61344	61344	61344
Horsepower	Rated	Hp rtd	HP	1.30	2.90	3.80
Speed	Rated	N rtd	RPM	1500	3000	5000
Torque	Rated	T rtd	lb * ft	4.5	5	4
			N * m	6.10	6.80	5.40
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	1.66	0.82	0.49
			N * m/A_{RMS}	2.50	1.11	0.66
	+/- 10%	Kb	V_{RMS}/KRPM	136.1	67.2	40.2
Max Line to Line Volts	Max	V max	V_{RMS}	250	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	10.54	2.6	0.97
Inductance (line to line)	+/- 30%	Lm	mh	220	50	21
Time Constant @ 25 °C	Nom.	Tm	msec	1.00	1.02	0.06
	Nom.	Te	msec	20.9	19.2	21.6
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	0.440	0.437	0.428

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

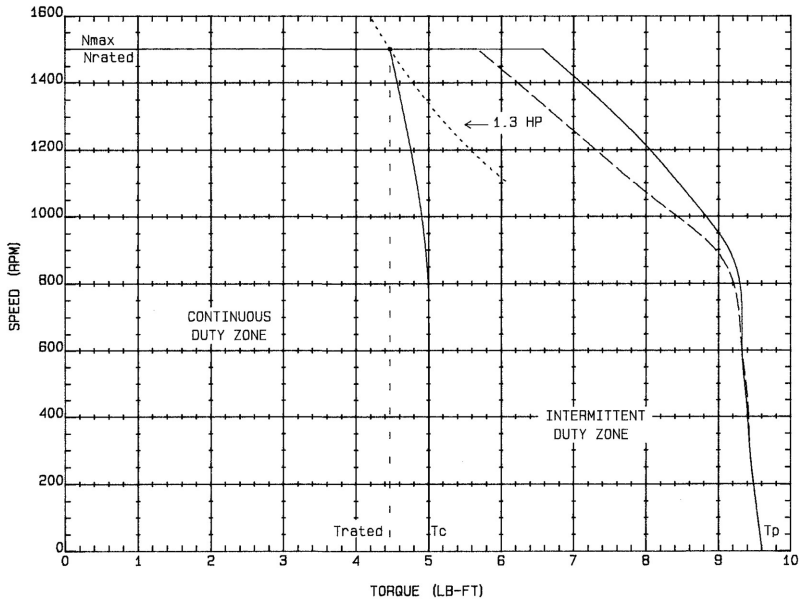
Basic Motor Constants			
	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.000238
		kg * m²	.000323
Weight	Wt	lb	18.5
		kg (f)	8.4
Static Friction	Tf	lb * ft	0.18
		N * m	.240
Thermal Time Constant	TCT	minutes	6
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.011
		N * m/KRPM	.015

8.7.2 EB-402-A, B, C Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

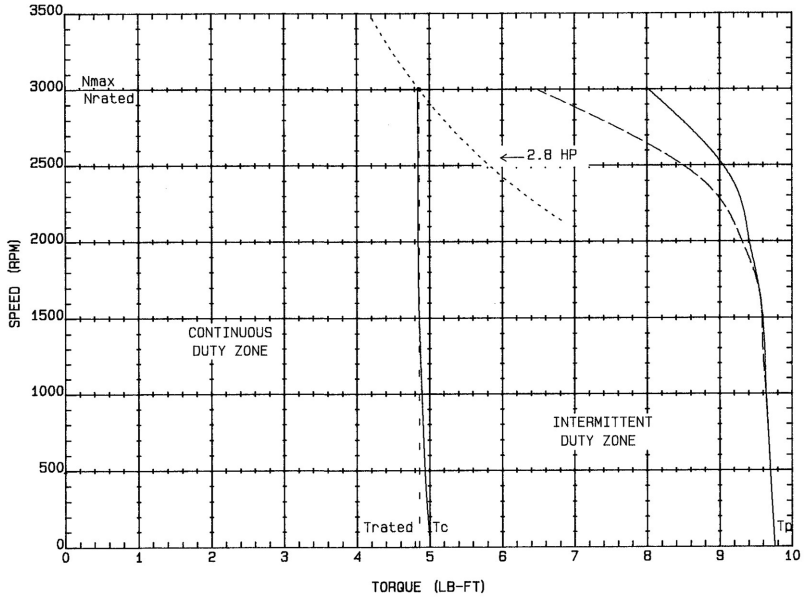
8.7.2.1 EB-402-A

Motor	Voltage
EB-402-A	230 V_{AC}



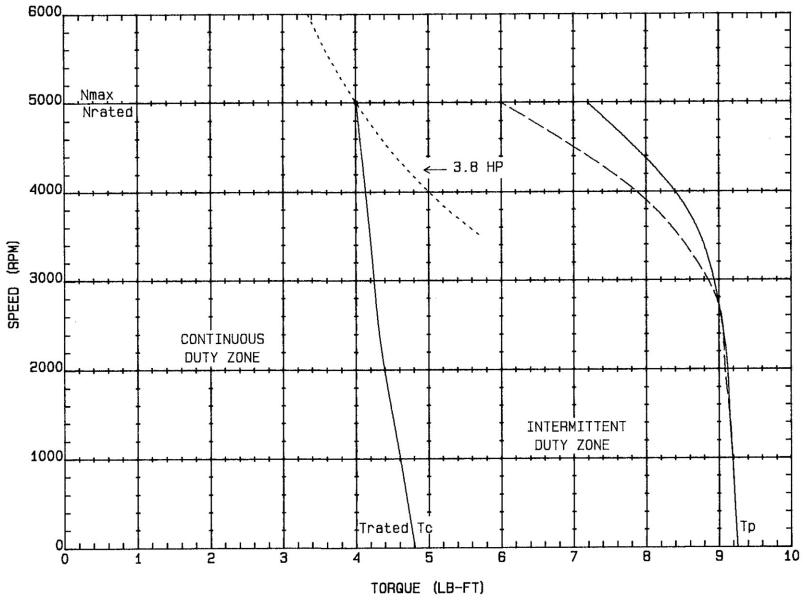
8.7.2.2 EB-402-B

Motor	Voltage
EB-402-B	230 V_{AC}



8.7.2.3 EB-402-C

Motor	Voltage
EB-402-C	230 V_{AC}



8.7.3 EB-404-A, B, C, D Catalog Data

Motor Parameters				Winding Data			
	Tol	Symbol	Units	A	B	C	D
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	9.6	9.8	9.7	9.7
	N * m	N * m	N * m	13.00	13.30	13.10	13.10
Cont. Line Current	Nom.	Ic	A_{RMS}	6	9.9	19.8	15
Maximum Speed	Nom.	N max	RPM	1500	2500	5000	3700
Peak Torque *	Nom.	Tp	lb * ft	26.5	27.0	26.0	27.6
			N * m	35.90	36.60	35.30	37.50
Peak Line Current	Nom.	Ip	A_{RMS}	16.4	28.8	55.9	45
Theoretical Acceleration	Nom	acc	rad/sec²	54752	55785	53719	57025
Horsepower	Rated	Hp rtd	HP	2.70	4.50	7.30	6.00
Speed	Rated	N rtd	RPM	1500	2500	5000	3700
Torque	Rated	T rtd	lb * ft	9.6	9.4	7.7	8.5
			N * m	13.00	12.70	10.40	11.50
Torque Sensitivity *	+/- 10%	Kt	lb * ft/ A_{RMS}	1.70	0.99	0.49	0.65
			N * m/ A_{RMS}	2.31	1.34	0.66	0.88
	+/- 10%	Kb	V_{RMS}/ KRPM	139.4	81.2	40.2	53
Max Line to Line Volts	Max	V max	V_{RMS}	250	250	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	4.1	1.32	0.34	0.63
Inductance (line to line)	+/- 30%	Lm	mh	102	33.5	8.4	15
Time Constant @ 25 °C	Nom.	Tm	msec	0.73	0.69	0.72	0.81
	Nom.	Te	msec	24.9	25.4	24.7	23.8
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	0.725	0.743	0.725	0.702

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

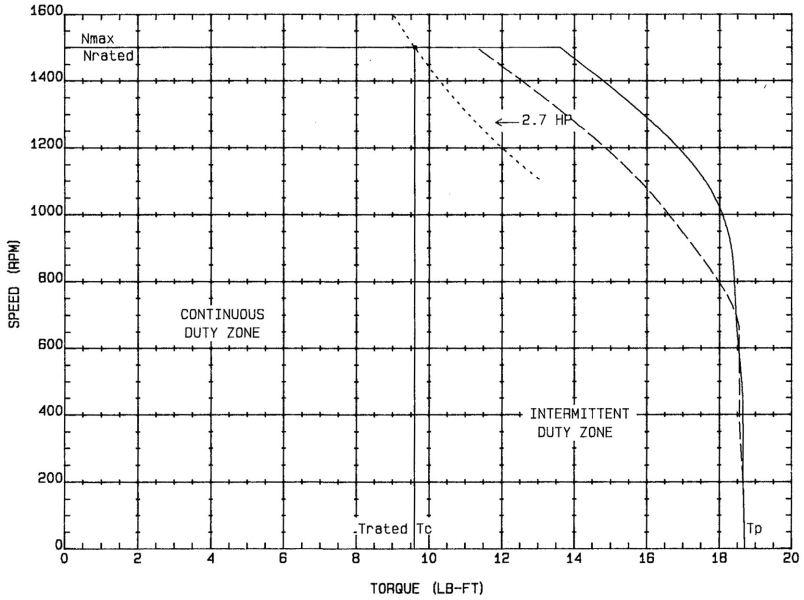
Basic Motor Constants			
	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.000484
		kg * m²	.000656
Weight	Wt	lb	27.5
		kg (f)	12.5
Static Friction	Tf	lb * ft	0.19
		N * m	.260
Thermal Time Constant	TCT	minutes	9
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.013
		N * m/KRPM	.018

8.7.4 EB-404-A, B, C, D Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

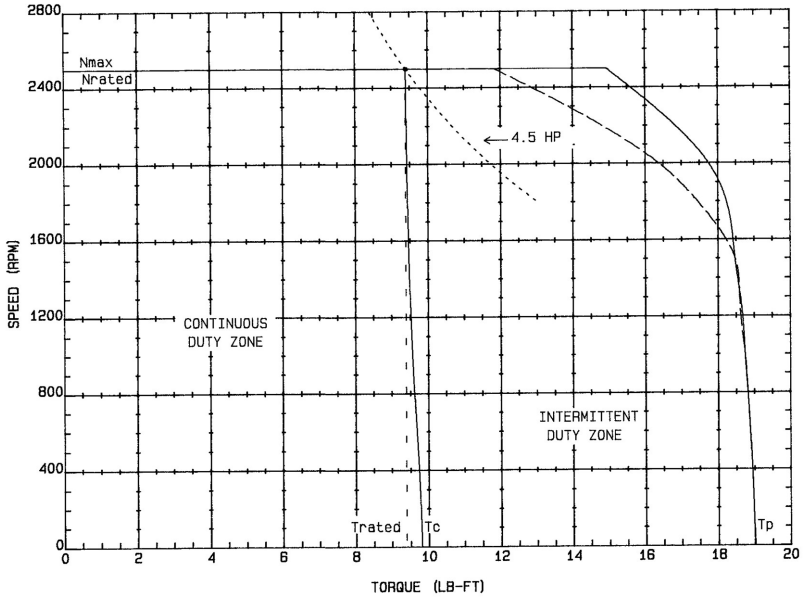
8.7.4.1 EB-404-A

Motor	Voltage
EB-404-A	230 V_{AC}



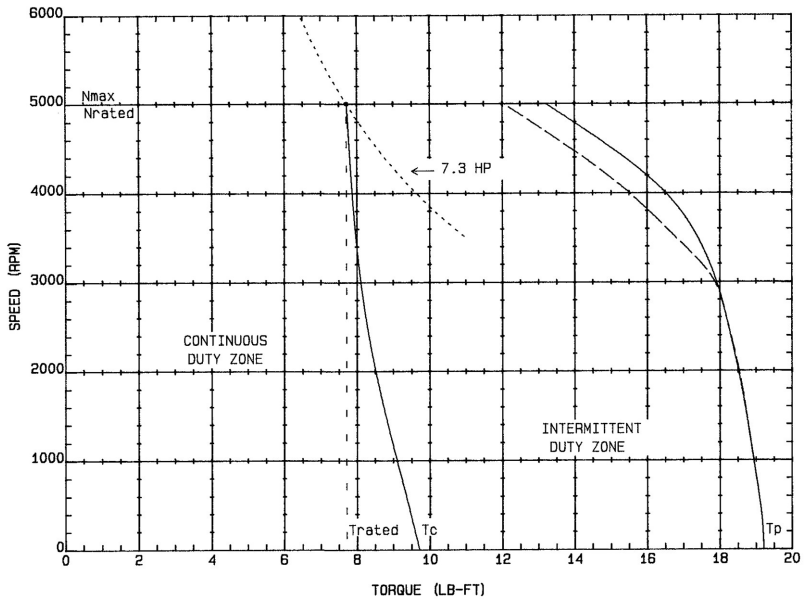
8.7.4.2 EB-404-B

Motor	Voltage
EB-404-B	230 V_{AC}



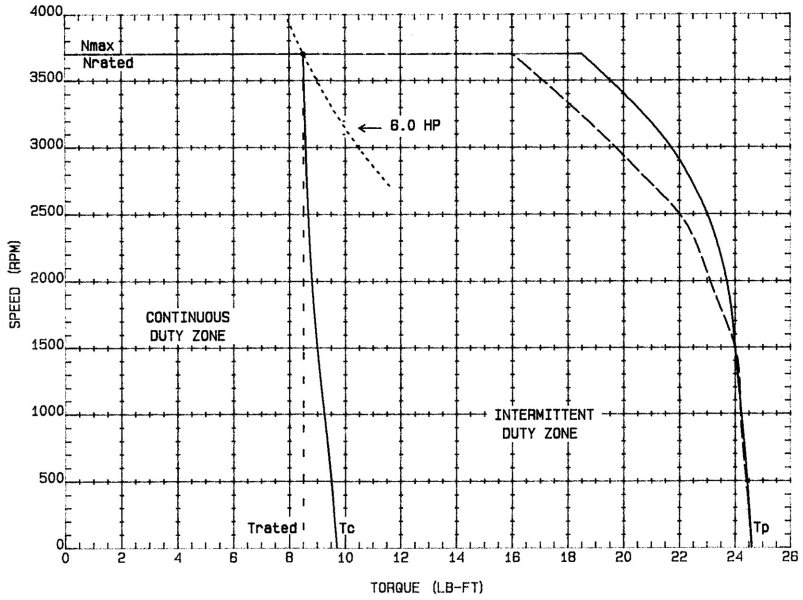
8.7.4.3 EB-404-C

Motor	Voltage
EB-404-C	230 V_{AC}



8.7.4.4 EB-404-D

Motor	Voltage
EB-404-D	230 V_{AC}



8.7.5 EB-406-A, B, C Catalog Data

Motor Parameters	Tol	Symbol	Units	Winding Data A	B	C
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	13.0	13.7	12.5
	N * m	N * m	N * m	17.60	18.60	17.00
Cont. Line Current	Nom.	Ic	A_{RMS}	9.5	19.1	27.2
Maximum Speed	Nom.	N max	RPM	1700	3200	5000
Peak Torque *	Nom.	Tp	lb * ft	35.8	36.5	35.6
			N * m	48.50	49.50	48.30
Peak Line Current	Nom.	Ip	A_{RMS}	27.3	53.3	81.4
Theoretical Acceleration	Nom	acc	rad/sec²	52263	53285	51971
Horsepower	Rated	Hp rtd	HP	3.90	7.40	9.60
Speed	Rated	N rtd	RPM	1700	3200	5000
Torque	Rated	T rtd	lb * ft	12	12.1	10.1
			N * m	16.30	16.40	13.70
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	1.38	0.72	0.46
			N * m/A_{RMS}	1.87	0.98	0.63
	+/- 10%	Kb	V_{RMS}/KRPM	113.2	58.8	37.7
Max Line to Line Volts	Max	V max	V_{RMS}	250	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	1.7	0.44	0.2
Inductance (line to line)	+/- 30%	Lm	mh	42	12	4.8
Time Constant @ 25 °C	Nom.	Tm	msec	0.68	0.65	0.67
	Nom.	Te	msec	24.7	27.3	24.0
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	0.920	0.934	0.935

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

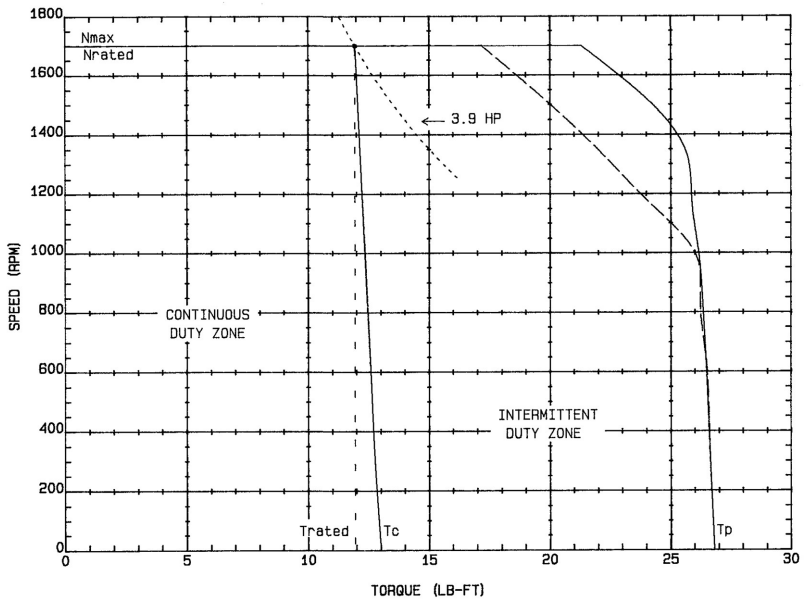
Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.00685
		kg * m²	.000929
Weight	Wt	lb	47.6
		kg (f)	21.5
Static Friction	Tf	lb * ft	0.212
		N * m	.287
Thermal Time Constant	TCT	minutes	12
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.015
		N * m/KRPM	.020

8.7.6 EB-406-A, B, C Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

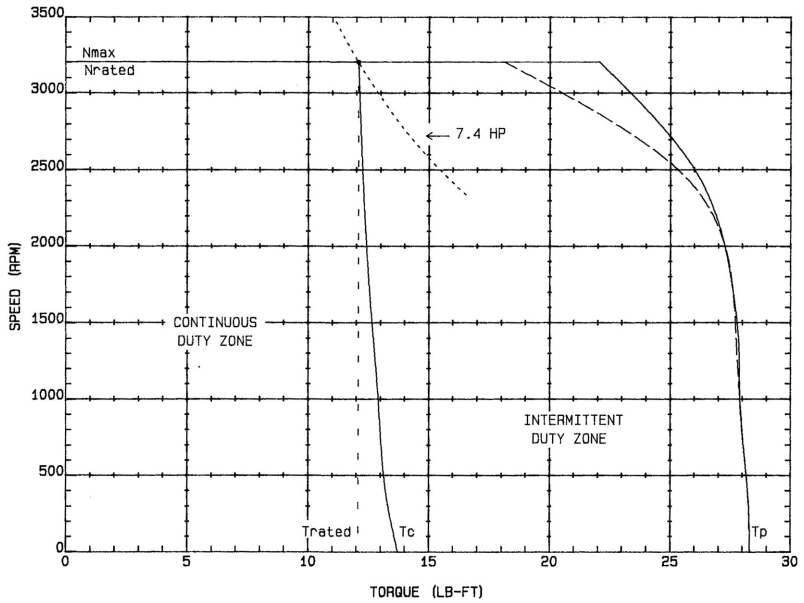
8.7.6.1 EB-406-A

Motor	Voltage
EB-406-A	230 V_{AC}



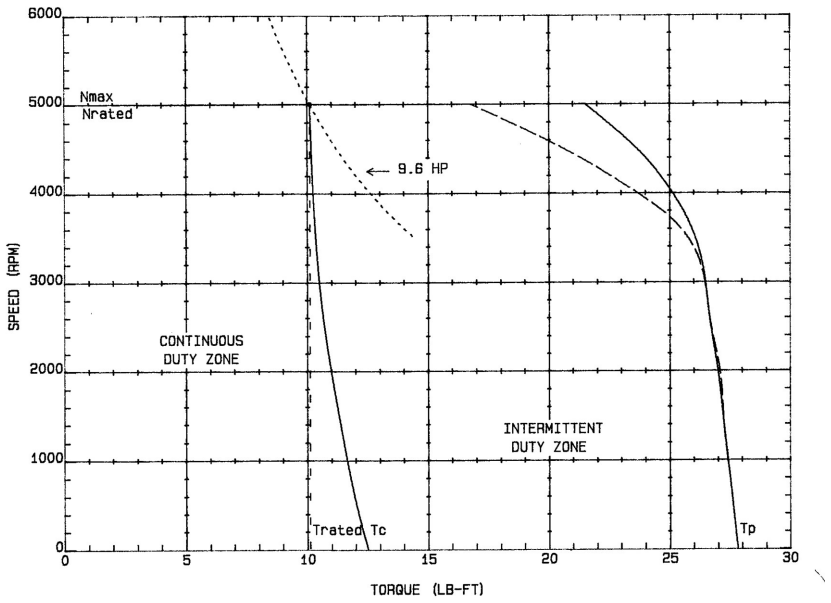
8.7.6.2 EB-406-B

Motor	Voltage
EB-406-B	230 V_{AC}



8.7.6.3 EB-406-C

Motor	Voltage
EB-406-C	230 V_{AC}



8.8 Motor Specifications For EBH-42x

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Not all windings are available, depending upon the compliance required.

8.8.1 EBH-422 Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data D
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	4.30
				N * m	5.83
Cont. Line Current		Nom.	Ic	A_{RMS}	4.03
Maximum Speed		Nom.	N max	RPM	4600
Peak Torque *		Nom.	Tp	lb * ft	14.58
				N * m	19.77
Peak Line Current		Nom.	Ip	A_{RMS}	14.40
Theoretical Acceleration		Nom	acc	rad/sec²	61300
Horsepower		Rated	Hp rtd	HP	2.80
kW		Rated	kW rtd	kW	2.09
Speed		Rated	N rtd	RPM	4600
Torque		Rated	T rtd	lb * ft	3.20
				N * m	4.34
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	1.066
				N * m/A_{RMS}	1.446
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	87.4
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	6.12
Inductance (line to line)		+/- 30%	Lm	mh	89.0
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	1.416
	Elec	Nom.	Te	msec	14.55
Motor Constant @ 25 °C		Nom.	Km	ft-lb/(watts)^.5	0.375

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.000238
		kg * m²	0.000323
Weight	Wt	lb	28.0
		kg (f)	12.70
Static Friction	Tf	lb * ft	0.1800
		N * m	0.244
Thermal Time Constant	TCT	minutes	22
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.01100
		N * m/KRPM	0.01491
Pole Pairs	PP		2
Max. Line to Line Voltage Spike		Vo-p	1000

Continuous ratings with motor on 12" x 11.5" x 0.625" isolated aluminum heat sink.

8.8.2 EBH-422-D Performance Curve

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

8.8.2.1 EBH-422-D

Motor	Voltage
EBH-422-D	480 V_{AC}

For more information on this frame size, contact Customer Support.

8.8.3 EBH-424 Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data A	B	D
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	8.20	8.30	8.20
				N * m	11.12	11.25	11.12
Cont. Line Current		Nom.	Ic	A_{RMS}	2.41	4.19	6.34
Maximum Speed		Nom.	N max	RPM	1500	2500	3700
Peak Torque *		Nom.	Tp	lb * ft	26.5	27.1	27.7
				N * m	35.9	36.7	37.5
Peak Line Current		Nom.	Ip	A_{RMS}	8.20	14.40	22.5
Theoretical Acceleration		Nom	acc	rad/sec²	54700	56000	57100
Horsepower		Rated	Hp rtd	HP	1.954	3.43	4.44
kW		Rated	kW rtd	kW	1.457	2.56	3.31
Speed		Rated	N rtd	RPM	1500	2500	3700
Torque		Rated	T rtd	lb * ft	6.84	7.20	6.30
				N * m	9.27	9.76	8.54
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480	480	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	3.40	1.981	1.294
				N * m/A_{RMS}	4.61	2.69	1.755
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	279	162.4	106.1
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	19.68	7.09	3.28
Inductance (line to line)		+/- 30%	Lm	mh	408	134.0	60.0
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	0.911	0.967	1.050
	Elec	Nom.	Te	msec	20.7	18.90	18.26
Motor Constant @ 25 °C		Nom.	Km	ft-lb/ (watts)^.5	0.666	0.646	0.620

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.000484
		kg * m²	0.000656
Weight	Wt	lb	36.0
		kg (f)	16.33
Static Friction	Tf	lb * ft	0.1900
		N * m	0.258
Thermal Time Constant	TCT	minutes	25
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.01300
		N * m/KRPM	0.01763
Pole Pairs	PP		2
Max. Line to Line Voltage Spike		Vo-p	1000

Continuous ratings with motor on 12" x 11.5" x 0.625" isolated aluminum heat sink.

8.8.4 EBH-424-A, B, D Performance Curves

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

8.8.4.1 EBH-424-A

Motor	Voltage
EBH-424-A	480 V_{AC}

For more information on this frame size, contact Customer Support.

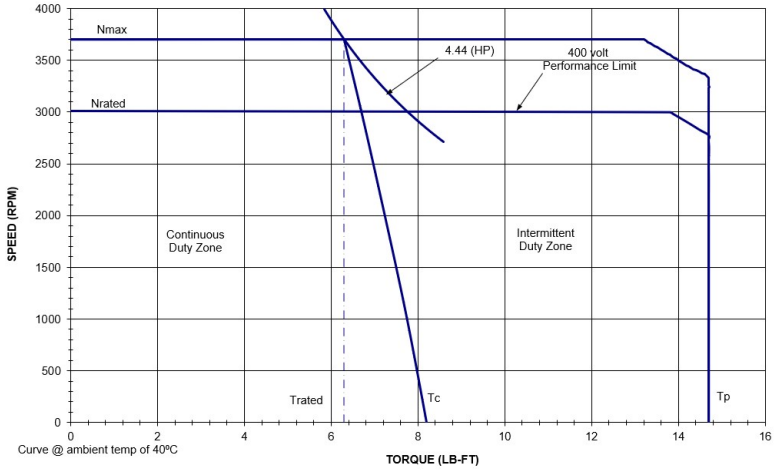
8.8.4.2 EBH-424-B

Motor	Voltage
EBH-424-B	480 V_{AC}

For more information on this frame size, contact Customer Support.

8.8.4.3 EBH-424-D

Motor	Voltage
EBH-424-D	480 V_{AC}



8.8.5 EBH-426 Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data A	B	C	H
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	11.65	11.65	11.40	11.60
				N * m	15.80	15.80	15.46	15.73
Cont. Line Current		Nom.	Ic	A_{RMS}	4.55	8.09	12.39	9.06
Maximum Speed		Nom.	N max	RPM	2100	3200	5000	3600
Peak Torque *		Nom.	Tp	lb * ft	36.5	36.5	35.6	35.7
				N * m	49.5	49.5	48.2	48.4
Peak Line Current		Nom.	Ip	A_{RMS}	15.00	26.7	40.7	29.4
Theoretical Acceleration		Nom	acc	rad/sec²	53300	53300	51900	52200
Horsepower		Rated	Hp rtd	HP	3.19	5.67	7.89	6.31
kW		Rated	kW rtd	kW	2.38	4.23	5.89	4.70
Speed		Rated	N rtd	RPM	1800	3200	5000	3600
Torque		Rated	T rtd	lb * ft	9.30	9.30	8.29	9.20
				N * m	12.61	12.61	11.24	12.47
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480	480	480	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	2.56	1.441	0.920	1.280
				N * m/A_{RMS}	3.47	1.953	1.247	1.735
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/ KRPM	210	118.1	75.4	104.9
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	7.20	2.28	0.915	1.900
Inductance (line to line)		+/- 30%	Lm	mh	185.0	48.0	19.20	39.7
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	0.831	0.834	0.820	0.879
	Elec	Nom.	Te	msec	25.7	21.0	21.0	20.9
Motor Constant @ 25 °C		Nom.	Km	ft-lb/ (watts)^.5	0.829	0.828	0.835	0.807

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Components	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.000685
		kg * m²	0.000929
Weight	Wt	lb	44.0
		kg (f)	19.96
Static Friction	Tf	lb * ft	0.212
		N * m	0.287
Thermal Time Constant	TCT	minutes	28
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.01500
		N * m/KRPM	0.0203
Pole Pairs	PP		2
Max. Line to Line Voltage Spike		Vo-p	1000

Continuous ratings with motor on 12" x 11.5" x 0.625" isolated aluminum heat sink.

8.8.6 EBH-426-A, B, C, H Performance Curves

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

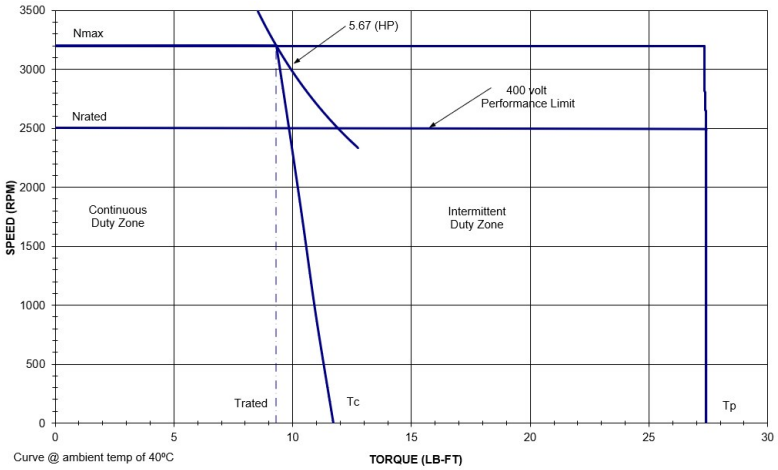
8.8.6.1 EBH-426-A

Motor	Voltage
EBH-426-A	480 V_{AC}

For more information on this frame size, contact Customer Support.

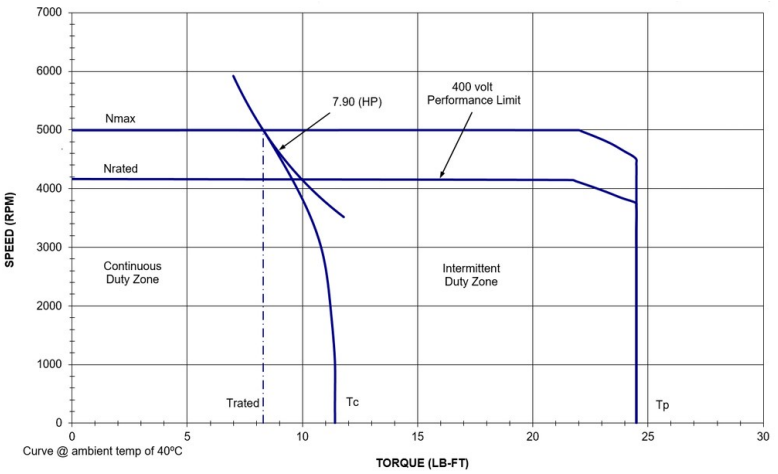
8.8.6.2 EBH-426-B

Motor	Voltage
EBH-426-B	480 V_{AC}



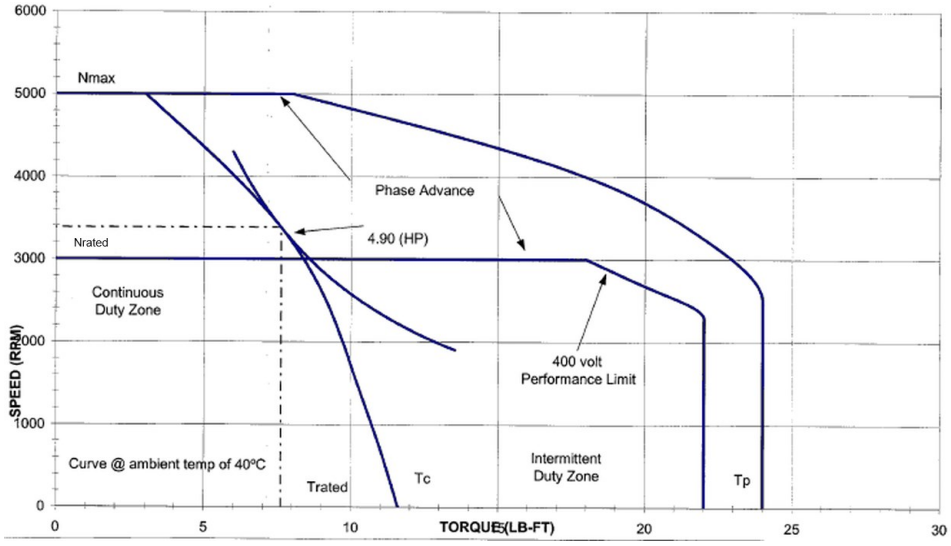
8.8.6.3 EBH-426-C

Motor	Voltage
EBH-426-C	480 V_{AC}



8.8.6.4 EBH-426-H

Motor	Voltage
EBH-426-H	480 V_{AC}



8.9 Motor Specifications For EB-60x

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Not all windings are available, depending upon the compliance required.

8.9.1 EB-602-A, B, C Catalog Data

Motor Parameters				Winding Data		
	Tol	Symbol	Units	A	B	C
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	13.0	12.8	12.8
	N * m	N * m	N * m	17.63	17.36	17.36
Cont. Line Current	Nom.	Ic	A_{RMS}	10	20	15
Maximum Speed	Nom.	N max	RPM	2000	4000	3000
Peak Torque *	Nom.	Tp	lb * ft	37.7	36.7	36.5
			N * m	51.20	49.80	49.50
Peak Line Current	Nom.	Ip	A_{RMS}	30.5	61.4	45
Theoretical Acceleration	Nom	acc	rad/sec²	48681	48417	48945
Horsepower	Rated	Hp rtd	HP	4.40	7.70	6.10
Speed	Rated	N rtd	RPM	2000	4000	3000
Torque	Rated	T rtd	lb * ft	11.6	10.1	10.7
			N * m	15.70	13.70	14.50
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	1.30	0.63	0.85
			N * m/A_{RMS}	1.77	0.85	1.16
	+/- 10%	Kb	V_{RMS}/KRPM	106.8	51.6	70
Max Line to Line Volts	Max	V max	V_{RMS}	250	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	1.548	0.382	0.674
Inductance (line to line)	+/- 30%	Lm	mh	32	9	14
Time Constant @ 25 °C	Nom.	Tm	msec	0.77	0.81	0.77
	Nom.	Te	msec	20.7	23.6	20.8
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	0.909	0.887	0.900

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

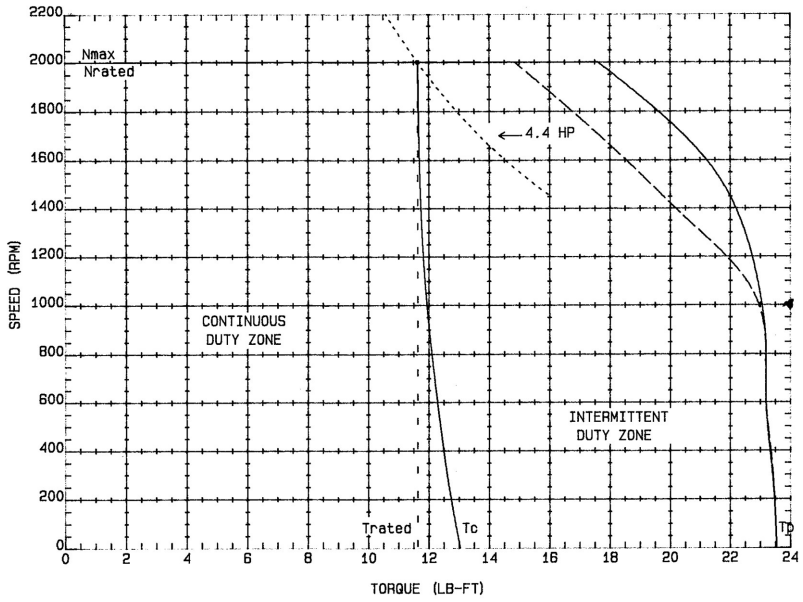
Basic Motor Constants			
	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.000758
		kg * m²	.001028
Weight	Wt	lb	37
		kg (f)	16.8
Static Friction	Tf	lb * ft	0.36
		N * m	.490
Thermal Time Constant	TCT	minutes	12
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.053
		N * m/KRPM	.072

8.9.2 EB-602-A, B, C Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

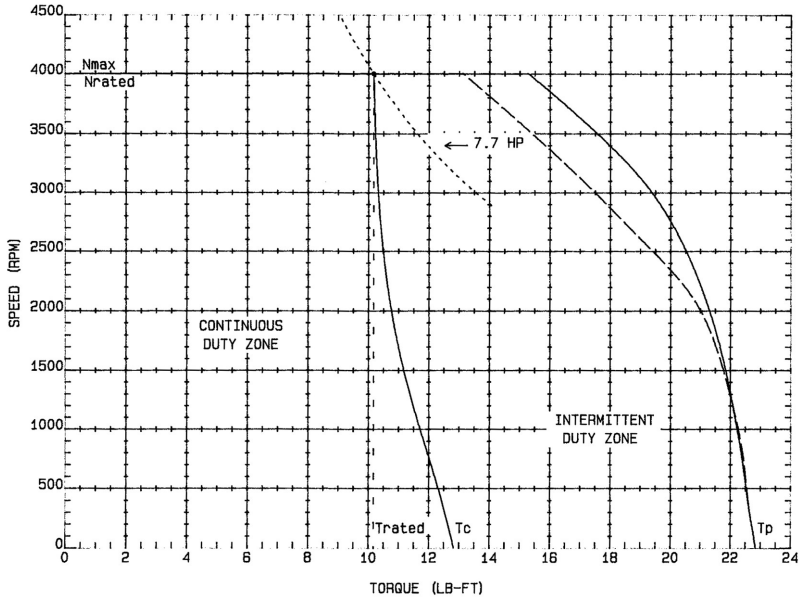
8.9.2.1 EB-602-A

Motor	Voltage
EB-602-A	230 V_{AC}



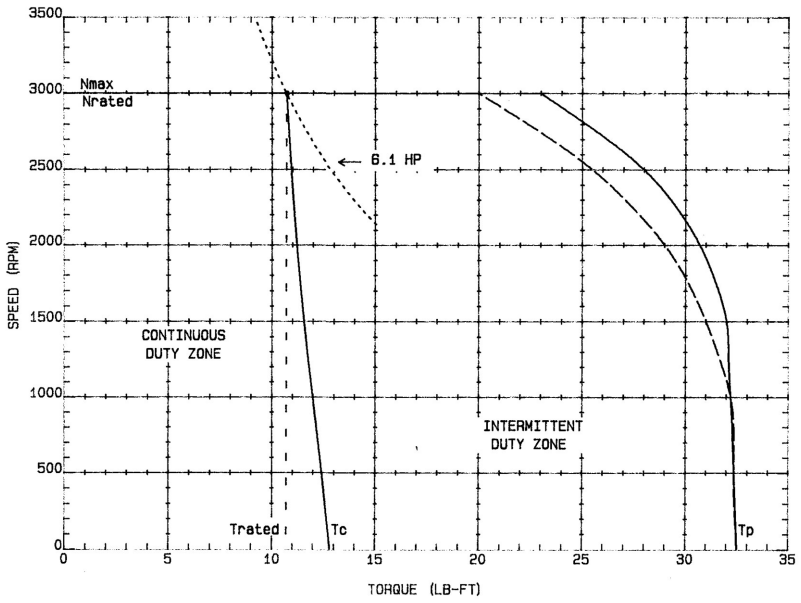
8.9.2.2 EB-602-B

Motor	Voltage
EB-602-B	230 V_{AC}



8.9.2.3 EB-602-C

Motor	Voltage
EB-602-C	230 V_{AC}



8.9.3 EB-604-A, B, C Catalog Data

Motor Parameters				Winding Data		
	Tol	Symbol	Units	A	B	C
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	22.2	22.2	23.0
	N * m	N * m	N * m	30.10	30.10	31.20
Cont. Line Current	Nom.	Ic	A_{RMS}	19	27.7	39.4
Maximum Speed	Nom.	N max	RPM	2150	3150	4300
Peak Torque *	Nom.	Tp	lb * ft	63.7	64.7	63.7
			N * m	86.40	87.70	86.40
Peak Line Current	Nom.	Ip	A_{RMS}	57.4	84.8	114.8
Theoretical Acceleration	Nom	acc	rad/sec²	42467	43133	42467
Horsepower	Rated	Hp rtd	HP	8.00	12.00	13.00
Speed	Rated	N rtd	RPM	2150	3150	4300
Torque	Rated	T rtd	lb * ft	19.5	20	15.9
			N * m	26.50	27.10	21.60
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	1.17	0.80	0.58
			N * m/A_{RMS}	1.58	1.09	0.79
	+/- 10%	Kb	V_{RMS}/KRPM	95.78	65.85	47.89
Max Line to Line Volts	Max	V max	V_{RMS}	250	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	0.508	0.234	0.126
Inductance (line to line)	+/- 30%	Lm	mh	13.3	6.3	3.3
Time Constant @ 25 °C	Nom.	Tm	msec	0.62	0.60	0.61
	Nom.	Te	msec	26.2	26.9	26.2
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	1.421	1.455	1.430

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

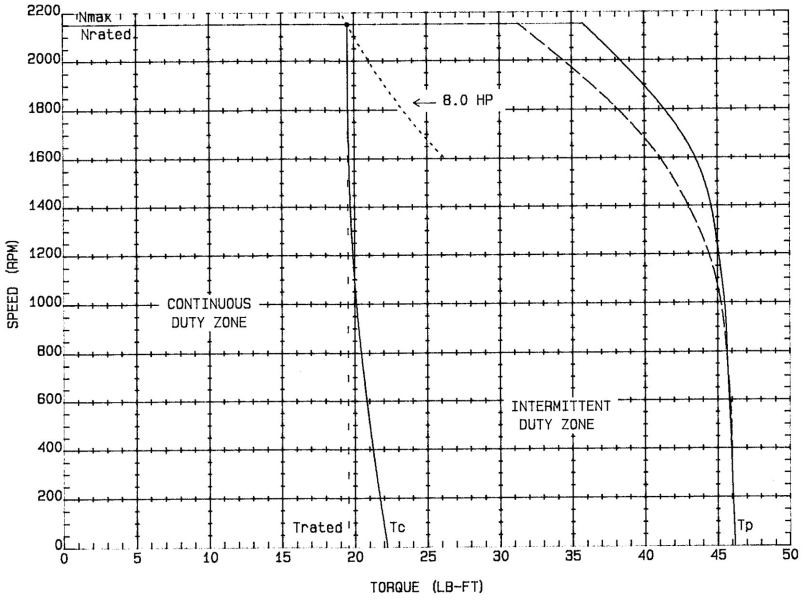
Basic Motor Constants			
	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0015
		kg * m²	.002034
Weight	Wt	lb	51
		kg (f)	23.1
Static Friction	Tf	lb * ft	0.38
		N * m	.520
Thermal Time Constant	TCT	minutes	14
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.080
		N * m/KRPM	.109

8.9.4 EB-604-A, B, C Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

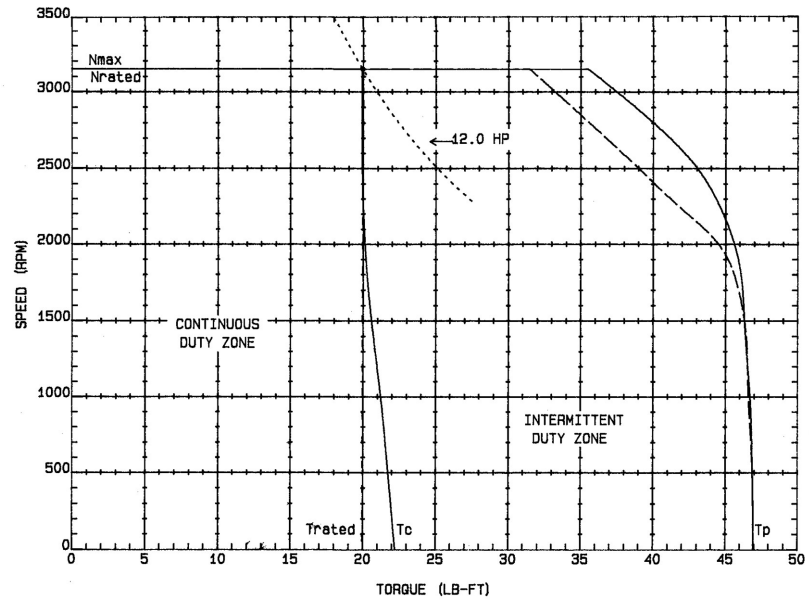
8.9.4.1 EB-604-A

Motor	Voltage
EB-604-A	230 V_{AC}



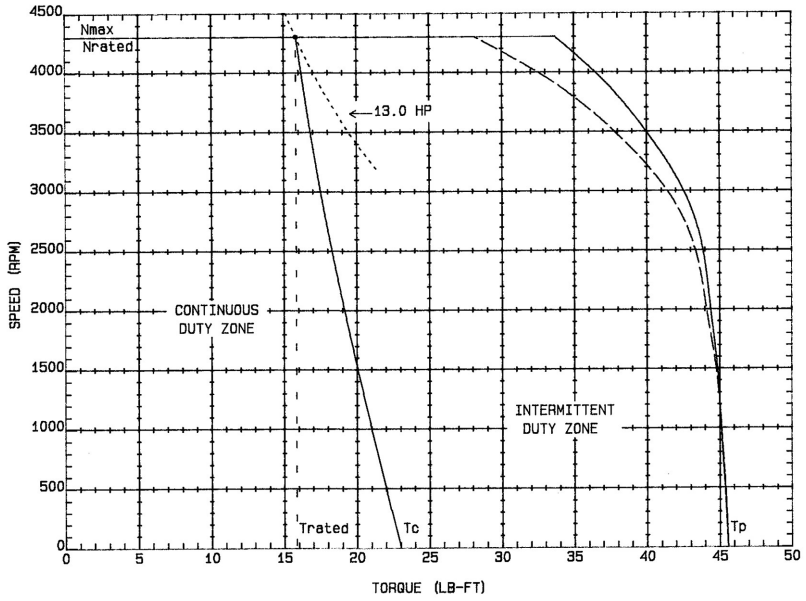
8.9.4.2 EB-604-B

Motor	Voltage
EB-604-B	230 V_{AC}



8.9.4.3 EB-604-C

Motor	Voltage
EB-604-C	230 V_{AC}



8.9.5 EB-606-A, B, C, D Catalog Data

Motor Parameters	Tol	Symbol	Units	Winding Data A	B	C	D
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	33.0	33.0	33.0	31.0
	N * m	N * m	N * m	44.80	44.80	44.80	42.03
Cont. Line Current	Nom.	Ic	A_{RMS}	20	40	54.8	28
Maximum Speed	Nom.	N max	RPM	1550	3050	4150	2300
Peak Torque *	Nom.	Tp	lb * ft	97.2	93.0	91.6	90.4
			N * m	131.90	126.10	124.30	122.60
Peak Line Current	Nom.	Ip	A_{RMS}	62	118.6	160	86.2
Theoretical Acceleration	Nom	acc	rad/sec²	43393	41518	40893	40357
Horsepower	Rated	Hp rtd	HP	8.80	13.70	14.20	11.00
Speed	Rated	N rtd	RPM	1550	3050	4150	2300
Torque	Rated	T rtd	lb * ft	29.7	23.6	18	25.03
			N * m	40.27	32.00	24.40	33.94
Torque Sensitivity *	+/- 10%	Kt	lb * ft/ A_{RMS}	1.65	0.83	0.60	1.10
			N * m/ A_{RMS}	2.24	1.12	0.82	1.50
	+/- 10%	Kb	V_{RMS}/ KRPM	135.4	67.7	49.5	90.5
Max Line to Line Volts	Max	V max	V_{RMS}	250	250	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	0.5	0.14	0.076	0.26
Inductance (line to line)	+/- 30%	Lm	mh	15.6	3.8	2.1	7
Time Constant @ 25 °C	Nom.	Tm	msec	0.45	0.51	0.52	0.53
	Nom.	Te	msec	31.2	27.1	27.6	26.9
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	2.030	1.911	1.903	1.881

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

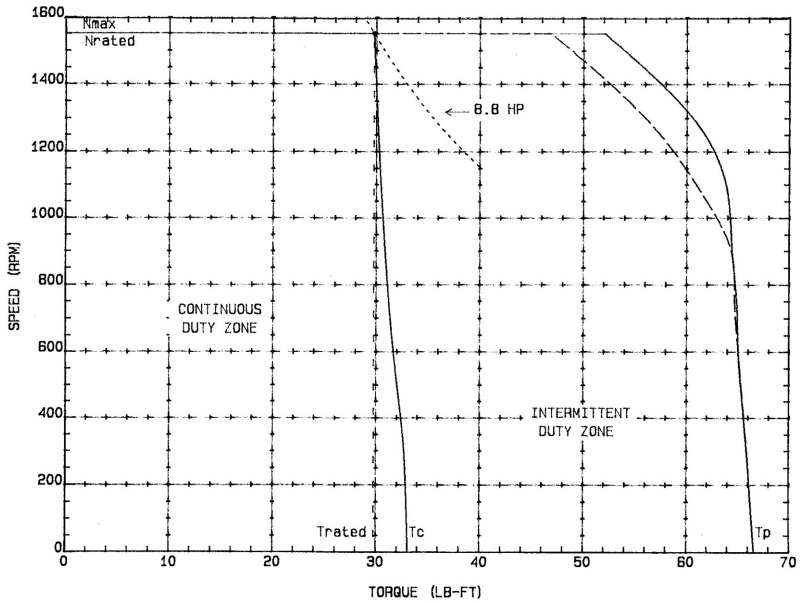
Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.00224
		kg * m²	.003040
Weight	Wt	lb	66
		kg (f)	29.9
Static Friction	Tf	lb * ft	0.694
		N * m	.941
Thermal Time Constant	TCT	minutes	16
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.108
		N * m/KRPM	.147

8.9.6 EB-606-A, B, C, D Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

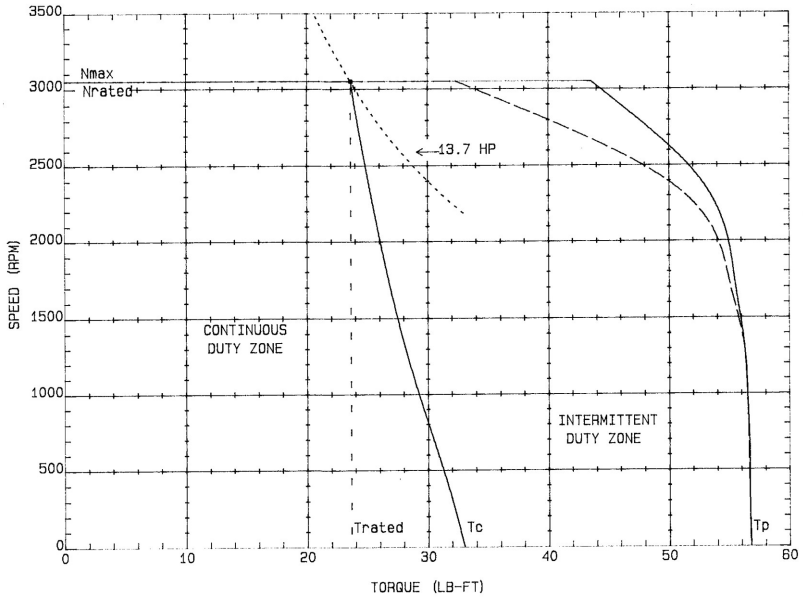
8.9.6.1 EB-606-A

Motor	Voltage
EB-606-A	230 V_{AC}



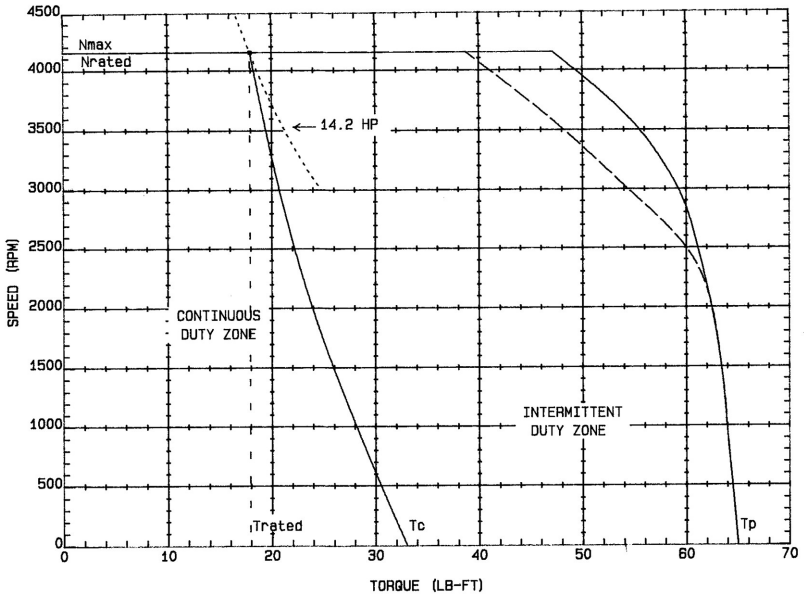
8.9.6.2 EB-606-B

Motor	Voltage
EB-606-B	230 V_{AC}



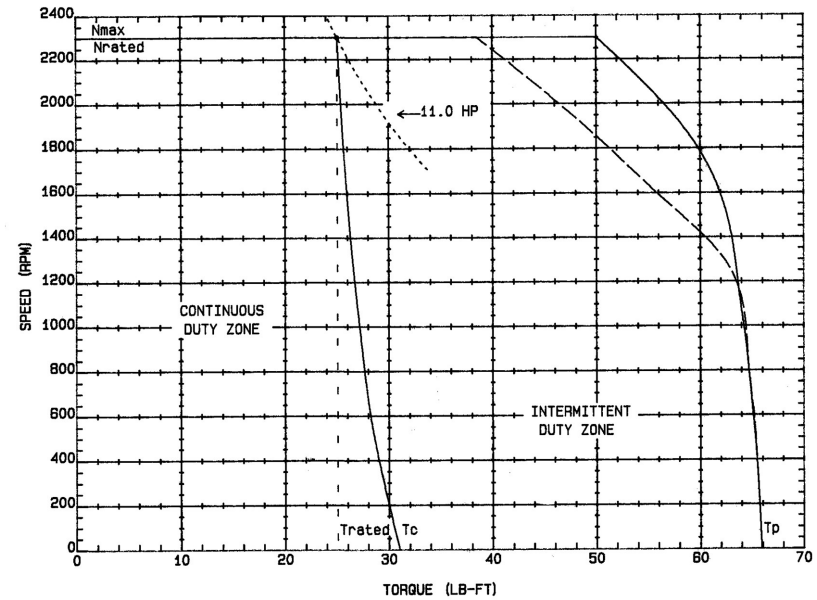
8.9.6.3 EB-606-C

Motor	Voltage
EB-606-C	230 V_{AC}



8.9.6.4 EB-606-D

Motor	Voltage
EB-606-D	230 V_{AC}



8.10 Motor Specifications For EBH-62x

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Not all windings are available, depending upon the compliance required.

8.10.1 EBH-622 Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data A	Winding Data B
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	10.78	10.98
				N * m	14.62	14.89
Cont. Line Current		Nom.	Ic	A_{RMS}	4.17	8.43
Maximum Speed		Nom.	N max	RPM	2000	4000
Peak Torque *		Nom.	Tp	lb * ft	37.5	37.7
				N * m	50.8	51.2
Peak Line Current		Nom.	Ip	A_{RMS}	15.25	30.5
Theoretical Acceleration		Nom	acc	rad/sec²	49400	49800
Horsepower		Rated	Hp rtd	HP	3.31	5.87
kW		Rated	kW rtd	kW	2.47	4.38
Speed		Rated	N rtd	RPM	2000	4000
Torque		Rated	T rtd	lb * ft	8.70	7.71
				N * m	11.80	10.45
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	2.59	1.303
				N * m/A_{RMS}	3.51	1.766
Back EMF (Line to Line) *		+/- 10%	Kb	V_{RMS}/KRPM	212	106.8
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	7.83	1.905
Inductance (line to line)		+/- 30%	Lm	mh	128.0	32.0
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	0.982	0.941
	Elec	Nom.	Te	msec	16.35	16.80
Motor Constant @ 25 °C		Nom.	Km	ft-lb/(watts)^.5	0.803	0.820

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.000758
		kg * m²	0.001028
Weight	Wt	lb	45.0
		kg (f)	20.41
Static Friction	Tf	lb * ft	0.360
		N * m	0.488
Thermal Time Constant	TCT	minutes	28
Viscous Damping	Fi	lb * ft/KRPM	0.0530
Infinite Z Source		N * m/KRPM	0.0719
Pole Pairs	PP		3
Max. Line to Line Voltage Spike		Vo-p	1000

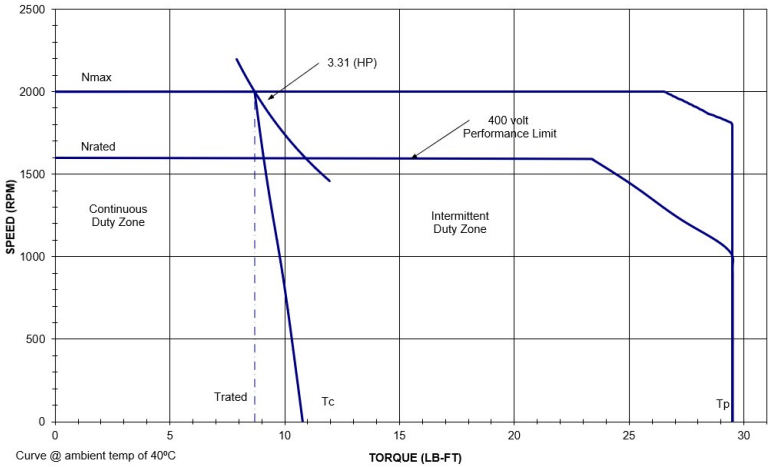
Continuous ratings with motor on 12" x 8" x 0.75" isolated aluminum heat sink.

8.10.2 EBH-622-A, B Performance Curves

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

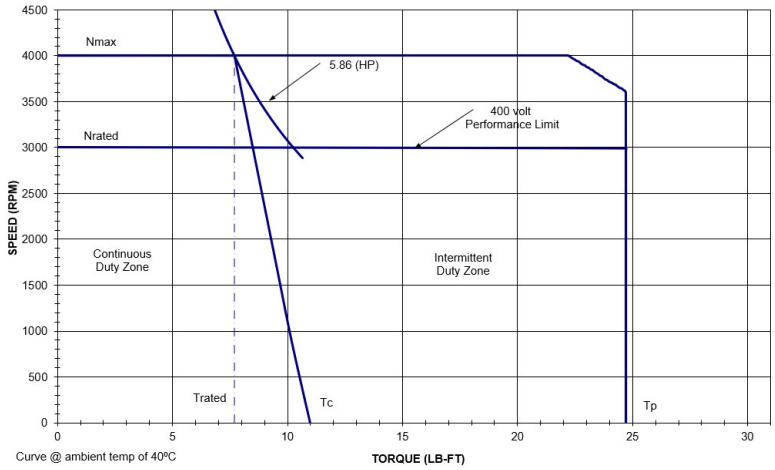
8.10.2.1 EBH-622-A

Motor	Voltage
EBH-622-A	480 V_{AC}



8.10.2.2 EBH-622-B

Motor	Voltage
EBH-622-B	480 V_{AC}



8.10.3 EBH-624 Catalog Data

Motor Parameters		Tol	Symbol	Units	Winding Data A	C	D	E
Continuous Torque (stall) @ 40 °C Ambient *		Nom.	Tc	lb * ft	18.30	18.56	18.90	18.87
				N * m	24.8	25.2	25.6	25.6
Cont. Line Current		Nom.	Ic	A_{RMS}	4.44	17.03	12.39	14.46
Maximum Speed		Nom.	N max	RPM	1200	4500	3300	3850
Peak Torque *		Nom.	Tp	lb * ft	64.2	64.3	64.3	64.2
				N * m	87.1	87.2	87.2	87.1
Peak Line Current		Nom.	Ip	A_{RMS}	16.40	62.2	44.4	51.8
Theoretical Acceleration		Nom	acc	rad/sec²	42800	42900	42900	42800
Horsepower		Rated	Hp rtd	HP	3.45	9.52	8.36	9.75
kW		Rated	kW rtd	kW	2.58	7.10	6.23	7.27
Speed		Rated	N rtd	RPM	1200	4500	3300	3850
Torque		Rated	T rtd	lb * ft	15.12	11.11	13.30	13.30
				N * m	20.5	15.06	18.03	18.03
Volts (Line to Line)		Rated	V rtd	V_{RMS}	480	480	480	480
Torque Sensitivity *		+/- 10%	Kt	lb * ft/A_{RMS}	4.12	1.089	1.525	1.305
				N * m/A_{RMS}	5.59	1.477	2.07	1.770
Back EMF (Line to Line) *		+/- 10%	Kb	Vrms/KRPM	338	89.3	125.0	107.0
DC Res @ 25 °C (line to line)		+/- 10%	Rm	Ohms	7.79	0.526	1.000	0.735
Inductance (line to line)		+/- 30%	Lm	mh	168.0	11.70	23.0	17.00
Time Constant @ 25 °C	Mech	Nom.	Tm	msec	0.760	0.736	0.714	0.715
	Elec	Nom.	Te	msec	21.6	22.2	23.0	23.1
Motor Constant @ 25 °C		Nom.	Km	ft-lb/ (watts)^.5	1.283	1.305	1.325	1.323

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.001500
		kg * m²	0.00203
Weight	Wt	lb	62.0
		kg (f)	28.1
Static Friction	Tf	lb * ft	0.380
		N * m	0.515
Thermal Time Constant	TCT	minutes	33
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.0800
		N * m/KRPM	0.1085
Pole Pairs	PP		3
Max. Line to Line Voltage Spike		Vo-p	1000

Continuous ratings with motor on 12" x 8" x 0.75" isolated aluminum heat sink.

8.10.4 EBH-624-A, C, D, E Performance Curves

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

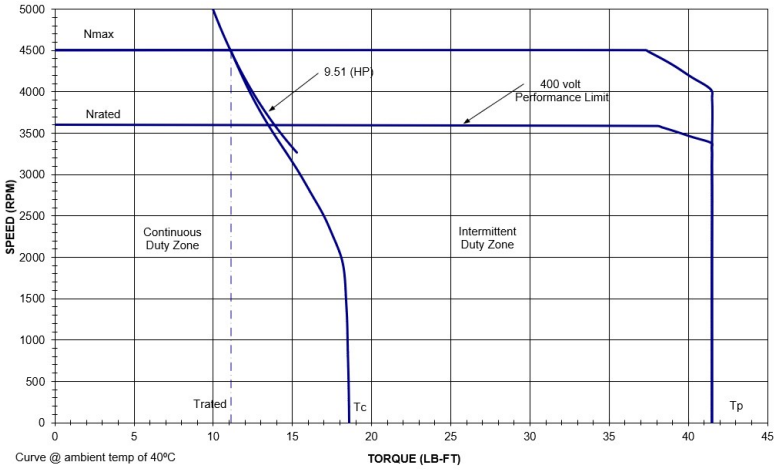
8.10.4.1 EBH-624-A

Motor	Voltage
EBH-624-A	480 V_{AC}

For more information on this frame size, contact Customer Support.

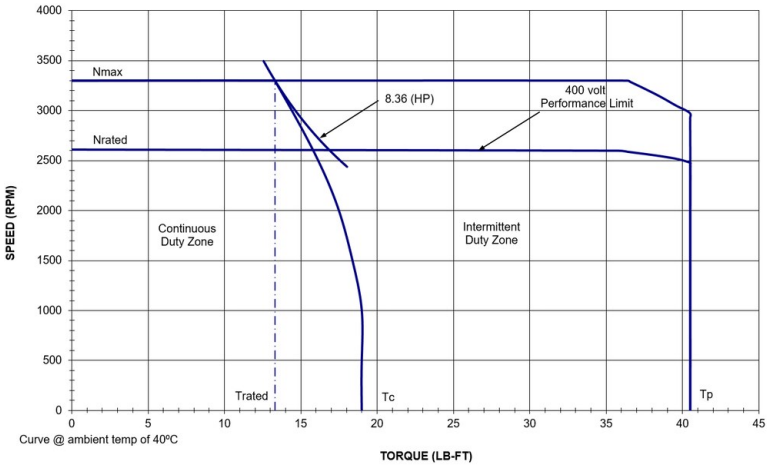
8.10.4.2 EBH-624-C

Motor	Voltage
EBH-624-C	480 V_{AC}



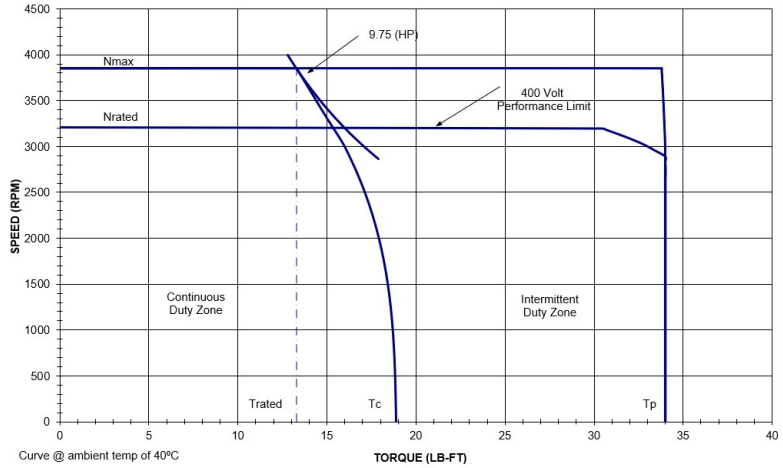
8.10.4.3 EBH-624-D

Motor	Voltage
EBH-624-D	480 V_{AC}



8.10.4.4 EBH-624-E

Motor	Voltage
EBH-624-E	480 V_{AC}



8.10.5 EBH-626 Catalog Data

Motor Parameters					Winding Data					
	Tol	Symbol	Units	A	B	C	D	E	F
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	26.1	27.0	27.0	26.9	26.1	27.1
			N * m	35.4	36.6	36.6	36.5	35.4	36.7
Cont. Line Current	Nom.	Ic	A_{RMS}	17.51	16.29	8.41	12.50	19.69	23.4
Maximum Speed	Nom.	N max	RPM	3300	3000	1550	2300	3700	3000
Peak Torque *	Nom.	Tp	lb * ft	92.9	92.8	92.7	92.1	92.9	92.9
			N * m	125.9	125.8	125.7	124.9	125.9	126.0
Peak Line Current	Nom.	Ip	A_{RMS}	65.6	59.0	30.4	45.0	73.8	84.3
Theoretical Acceleration	Nom	acc	rad/sec²	41500	41400	41400	41100	41500	41500
Horsepower	Rated	Hp rtd	HP	11.56	10.85	6.46	9.59	9.99	9.94
kW	Rated	kW rtd	kW	8.62	8.09	4.82	7.15	7.45	7.41
Speed	Rated	N rtd	RPM	3300	3000	1550	2300	3000	3000
Torque	Rated	T rtd	lb * ft	18.40	18.99	21.9	21.9	17.49	17.40
			N * m	24.9	25.7	29.7	29.7	23.7	23.6
Volts (Line to Line)	Rated	V rtd	V_{RMS}	480	480	480	480	480	480
Torque Sensitivity *	+/- 10%	Kt	lb * ft/ A_{RMS}	1.491	1.655	3.21	2.16	1.325	1.160
			N * m/ A_{RMS}	2.02	2.24	4.35	2.92	1.796	1.573
Back EMF (Line to Line) *	+/- 10%	Kb	V_{RMS}/ KRPM	122.2	135.7	263	176.7	108.6	95.1
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	0.545	0.630	2.21	1.080	0.430	0.324
Inductance (line to line)	+/- 30%	Lm	mh	13.60	16.80	60.6	28.0	10.70	10.60
Time Constant @ 25 °C Mech	Nom.	Tm	msec	0.607	0.570	0.532	0.576	0.607	0.597
Time Constant @ 25 °C Elec	Nom.	Te	msec	25.0	26.7	27.4	25.9	24.9	32.7
Motor Constant @ 25 °C	Nom.	Km	ft-lb/ (watts)^.5	1.754	1.812	1.875	1.802	1.755	1.771

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

Basic Motor Constants			
	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.00224
		kg * m²	0.00304
Weight	Wt	lb	80.0
		kg (f)	36.3
Static Friction	Tf	lb * ft	0.694
		N * m	0.941
Thermal Time Constant	TCT	minutes	38
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	0.1080
		N * m/KRPM	0.1464
Pole Pairs	PP		3
Max. Line to Line Voltage Spike		Vo-p	1000

Continuous ratings with motor on 12" x 8" x 0.75" isolated aluminum heat sink.

8.10.6 EBH-626-A, B, C, D, E, F Performance Curves

All EBH rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

8.10.6.1 EBH-626-A

Motor	Voltage
EBH-626-A	480 V_{AC}

For more information on this frame size, contact Customer Support.

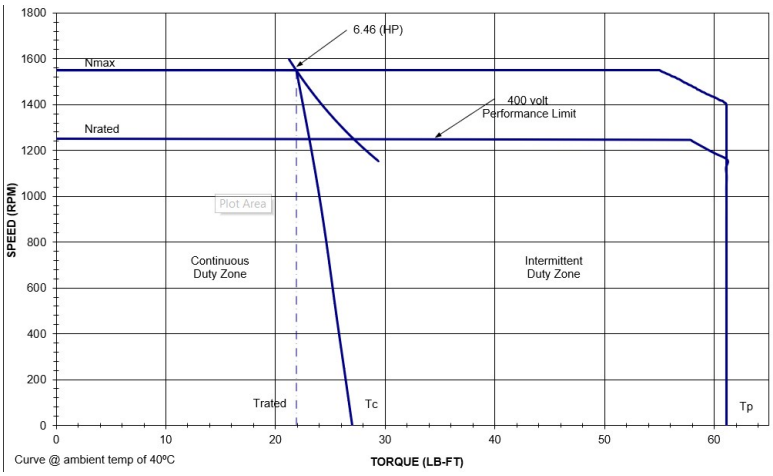
8.10.6.2 EBH-626-B

Motor	Voltage
EBH-626-B	480 V_{AC}

For more information on this frame size, contact Customer Support.

8.10.6.3 EBH-626-C

Motor	Voltage
EBH-626-C	480 V_{AC}



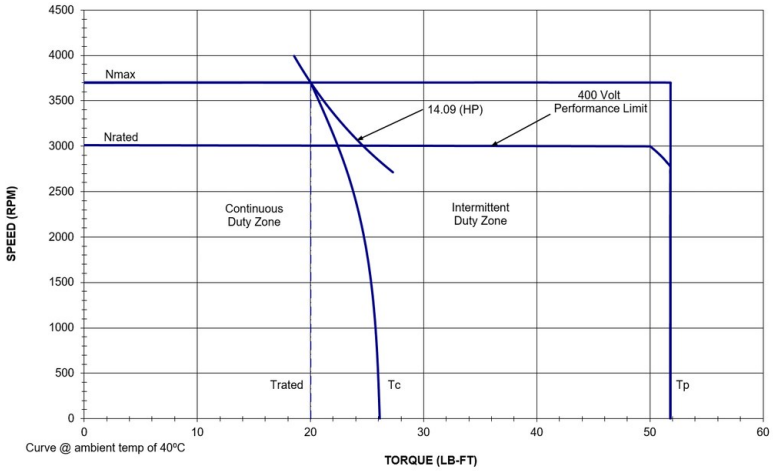
8.10.6.4 EBH-626-D

Motor	Voltage
EBH-626-D	480 V_{AC}

For more information on this frame size, contact Customer Support.

8.10.6.5 EBH-626-E

Motor	Voltage
EBH-626-E	480 V_{AC}



8.10.6.6 EBH-626-F

Motor	Voltage
EBH-626-F	480 V_{AC}

For more information on this frame size, contact Customer Support.

8.11 Motor Specifications For EB-80x

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

Not all windings are available, depending upon the compliance required.

8.11.1 EB-802-A, B Catalog Data

Motor Parameters	Tol	Symbol	Units	Winding Data A	Winding Data B
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	31.0	30.0
	N * m	N * m	N * m	42.00	40.70
Cont. Line Current	Nom.	Ic	A_{RMS}	24.9	32.4
Maximum Speed	Nom.	N max	RPM	2000	2750
Peak Torque *	Nom.	Tp	lb * ft	96.0	95.3
			N * m	130.20	129.20
Peak Line Current	Nom.	Ip	A_{RMS}	81	108.2
Theoretical Acceleration	Nom	acc	rad/sec²	26667	26472
Horsepower	Rated	Hp rtd	HP	10.60	13.60
Speed	Rated	N rtd	RPM	2000	2750
Torque	Rated	T rtd	lb * ft	27.8	26
			N * m	37.70	35.30
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	1.25	0.93
			N * m/A_{RMS}	1.69	1.26
	+/- 10%	Kb	V_{RMS}/KRPM	102.3	76
Max Line to Line Volts	Max	V max	V_{RMS}	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	0.361	0.2
Inductance (line to line)	+/- 30%	Lm	mh	16.3	9.4
Time Constant @ 25 °C	Nom.	Tm	msec	0.92	0.93
	Nom.	Te	msec	45.1	47.0
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	1.806	1.801

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

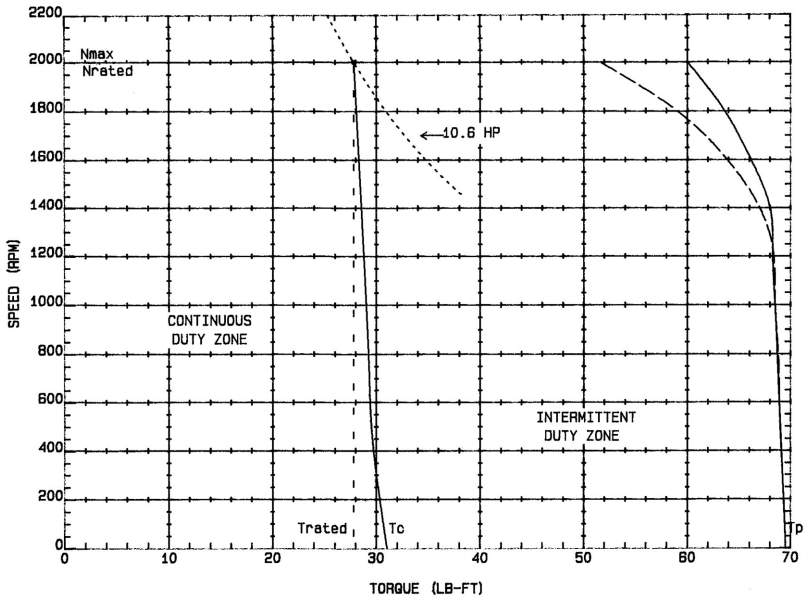
Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0036
		kg * m²	.004880
Weight	Wt	lb	79
		kg (f)	36.0
Static Friction	Tf	lb * ft	0.47
		N * m	.640
Thermal Time Constant	TCT	minutes	0.6
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.175
		N * m/KRPM	.237

8.11.2 EB-802-A, B Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

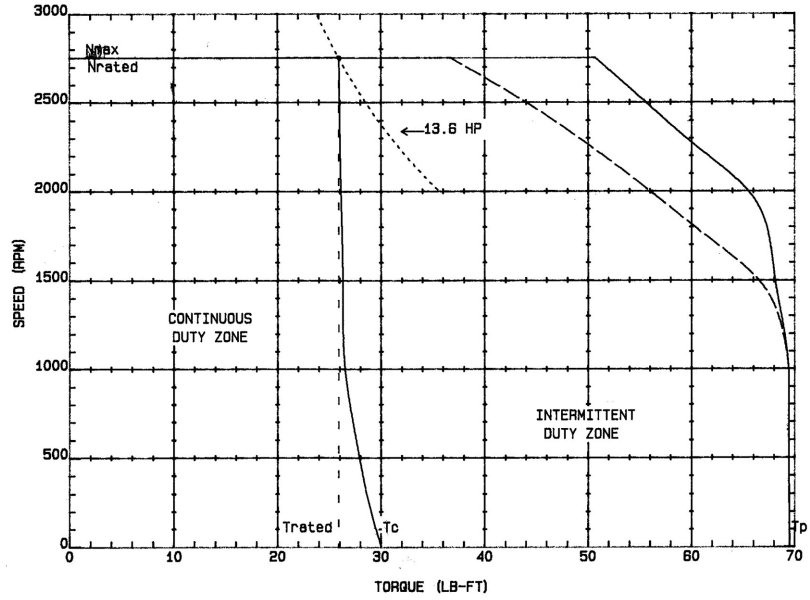
8.11.2.1 EB-802-A

Motor	Voltage
EB-802-A	230 V_{AC}



8.11.2.2 EB-802-B

Motor	Voltage
EB-802-B	230 V_{AC}



8.11.3 EB-804-A, B Catalog Data

Motor Parameters	Tol	Symbol	Units	Winding Data A	Winding Data B
Volts (Line to Line)	Rated	V rtd	A_{RMS}	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	58.0	58.0
	N * m	N * m	N * m	78.70	78.70
Cont. Line Current	Nom.	Ic	A_{RMS}	35	48
Maximum Speed	Nom.	N max	RPM	1500	2000
Peak Torque *	Nom.	Tp	lb * ft	171.2	169.5
			N * m	232.10	230.00
Peak Line Current	Nom.	Ip	A_{RMS}	108.5	147
Theoretical Acceleration	Nom	acc	rad/sec²	27613	27339
Horsepower	Rated	Hp rtd	HP	14.50	18.60
Speed	Rated	N rtd	RPM	1500	2000
Torque	Rated	T rtd	lb * ft	50.8	48.8
			N * m	68.90	66.20
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	1.66	1.21
			N * m/A_{RMS}	2.25	1.65
	+/- 10%	Kb	V_{RMS}/KRPM	136.2	99.6
Max Line to Line Volts	Max	V max	V_{RMS}	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	0.23	0.129
Inductance (line to line)	+/- 30%	Lm	mh	13	7.2
Time Constant @ 25 °C	Nom.	Tm	msec	0.57	0.60
	Nom.	Te	msec	56.5	55.8
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	3.010	2.940

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

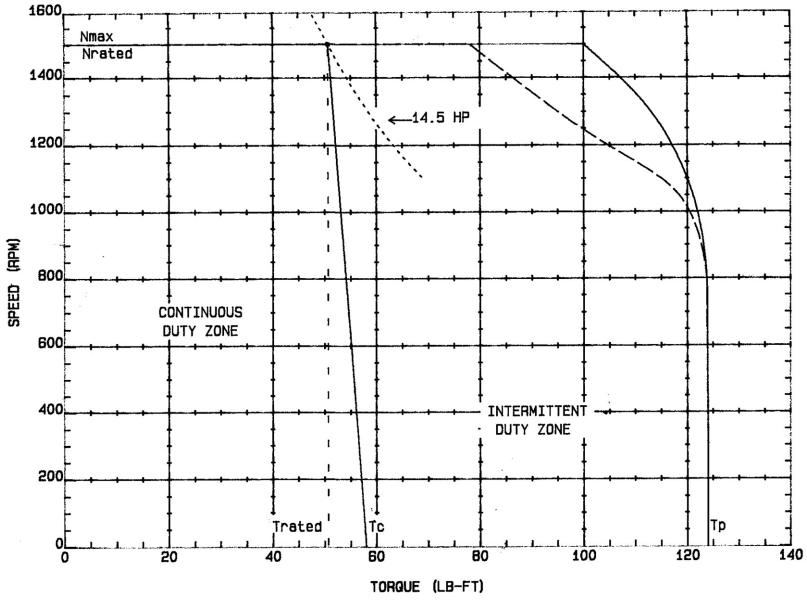
Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0062
		kg * m²	.008400
Weight	Wt	lb	112
		kg (f)	50.6
Static Friction	Tf	lb * ft	0.67
		N * m	.900
Thermal Time Constant	TCT	minutes	0.7
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.221
		N * m/KRPM	.300

8.11.4 EB-804-A, B Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

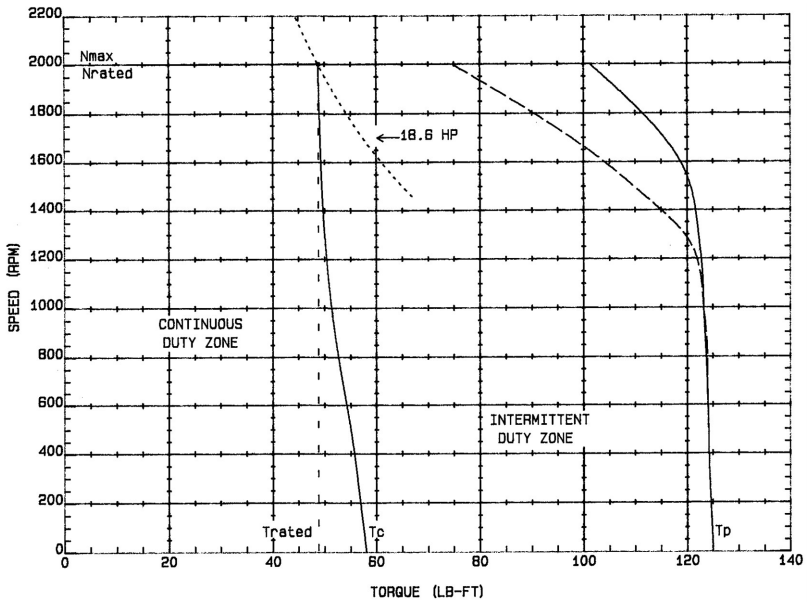
8.11.4.1 EB-804-A

Motor	Voltage
EB-804-A	230 V_{AC}



8.11.4.2 EB-804-B

Motor	Voltage
EB-804-B	230 V_{AC}



8.11.5 EB-806-A, C Catalog Data

Motor Parameters	Tol	Symbol	Units	Winding Data A	Winding Data C
Volts (Line to Line)	Rated	V rtd	V_{RMS}	230	230
Continuous Torque (stall) @ 40 °C Ambient *	Nom.	Tc	lb * ft	80.0	80.0
	N * m	N * m	N * m	108.50	108.50
Cont. Line Current	Nom.	Ic	A_{RMS}	49.1	30
Maximum Speed	Nom.	N max	RPM	1600	900
Peak Torque *	Nom.	Tp	lb * ft	238.2	267.0
			N * m	323.00	362.00
Peak Line Current	Nom.	Ip	A_{RMS}	153.8	100
Theoretical Acceleration	Nom	acc	rad/sec²	25613	28710
Horsepower	Rated	Hp rtd	HP	21.20	12.00
Speed	Rated	N rtd	RPM	1600	900
Torque	Rated	T rtd	lb * ft	69.5	70
			N * m	94.20	95.00
Torque Sensitivity *	+/- 10%	Kt	lb * ft/A_{RMS}	1.63	2.67
			N * m/A_{RMS}	2.21	3.62
	+/- 10%	Kb	V_{RMS}/KRPM	133.7	219
Max Line to Line Volts	Max	V max	V_{RMS}	250	250
DC Res @ 25 °C (line to line)	+/- 10%	Rm	Ohms	0.13	0.34
Inductance (line to line)	+/- 30%	Lm	mh	8	20
Time Constant @ 25 °C	Nom.	Tm	msec	0.50	0.51
	Nom.	Te	msec	61.5	59.3
Motor Constant @ 25 °C	Nom.	Km	ft-lb/(watts)^.5	3.930	3.980

** AT ULTIMATE WINDING TEMPERATURE . . . FOR 25 °C AMBIENT DATA MULTIPLY BY: 1.064*

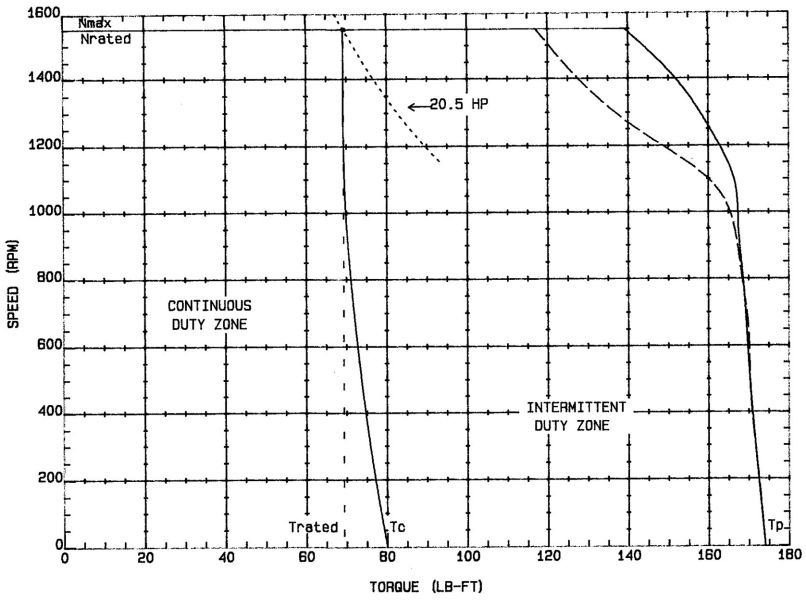
Basic Motor Constants	Symbol	Units	Value
Rotor Inertia	Jm	lb ft sec²	0.0093
		kg * m²	.012600
Weight	Wt	lb	200
		kg (f)	91.0
Static Friction	Tf	lb * ft	1.02
		N * m	1.380
Thermal Time Constant	TCT	minutes	0.8
Viscous Damping Infinite Z Source	Fi	lb * ft/KRPM	.267
		N * m/KRPM	.362

8.11.6 EB-806-A, C Performance Curves

All EB rated values and performance curves in this document assume operation with Kollmorgen drives, which includes Torque Angle Advance (TAA). For further details, see Kollmorgen Servo Amplifiers & Torque Angle Advance or contact Kollmorgen Customer Support.

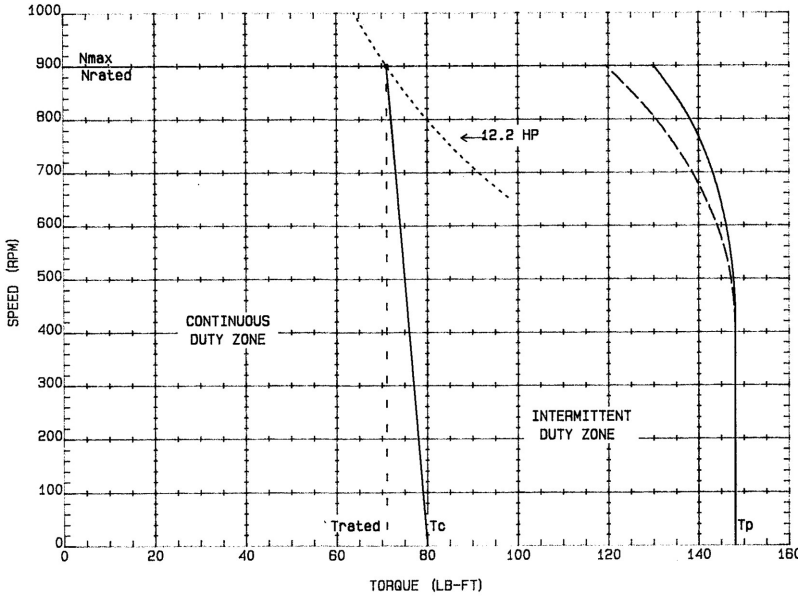
8.11.6.1 EB-806-A

Motor	Voltage
EB-806-A	230 V_{AC}



8.11.6.2 EB-806-C

Motor	Voltage
EB-806-C	230 V_{AC}



8.12 Technical Data For Brakes

The holding brake is designed to provide static holding torque to the motor shaft with the brake coil de-energized. The brake must first be released (coil energized) prior to commanding motor rotation as determined by its drop-out time.

IMPORTANT

The brake is intended for holding or “parking” a stationary motor. It is not intended for dynamic braking. There should be absolutely no motion of the rotor when power is removed from the brake coil.

The brake may be used for a limited number of emergency stop conditions, however such use will eventually cause wear, leading to eventual malfunction of the brake. The number of emergency stops strongly depends on applied load. Contact Kollmorgen for proper calculation of energy that needs to be absorbed during emergency stops in application.

NOTE

Contamination of the motor's internal compartment by oil or other foreign materials will result in failure of the brake. Check the suitability of motor sealing for the working environment.

Motor Family	Units	EB-10x		EB-20x		EB-40x		EB-60x, -80x	
		EBH-12x		EBH-22x		EBH-42x		EBH-62x	
Brake Option	-	B2	B3	B2	B3	B2	B3	B2	B3
Nominal Operating Voltage	V_{DC}	90	24	90	24	90	24	90	24
Coil Resistance [@20 °C]	Ohms	551 ±10%	39.7 ±10%	800 ±10%	46.5 ±10%	387 ±10%	27.37 ±10%	288 ±10%	19.65 ±10%
Response Time	msec	100 (Engagement)							
		200 (Disengagement)		250 (Disengagement)					
MIN Rated Nominal Static Torque	N-m	2.3		6.0		8.0		48	
Brake Temperature Range	°C	-40 °C to +60 °C							
Maximum Speed	RPM	6000		5000				6000	

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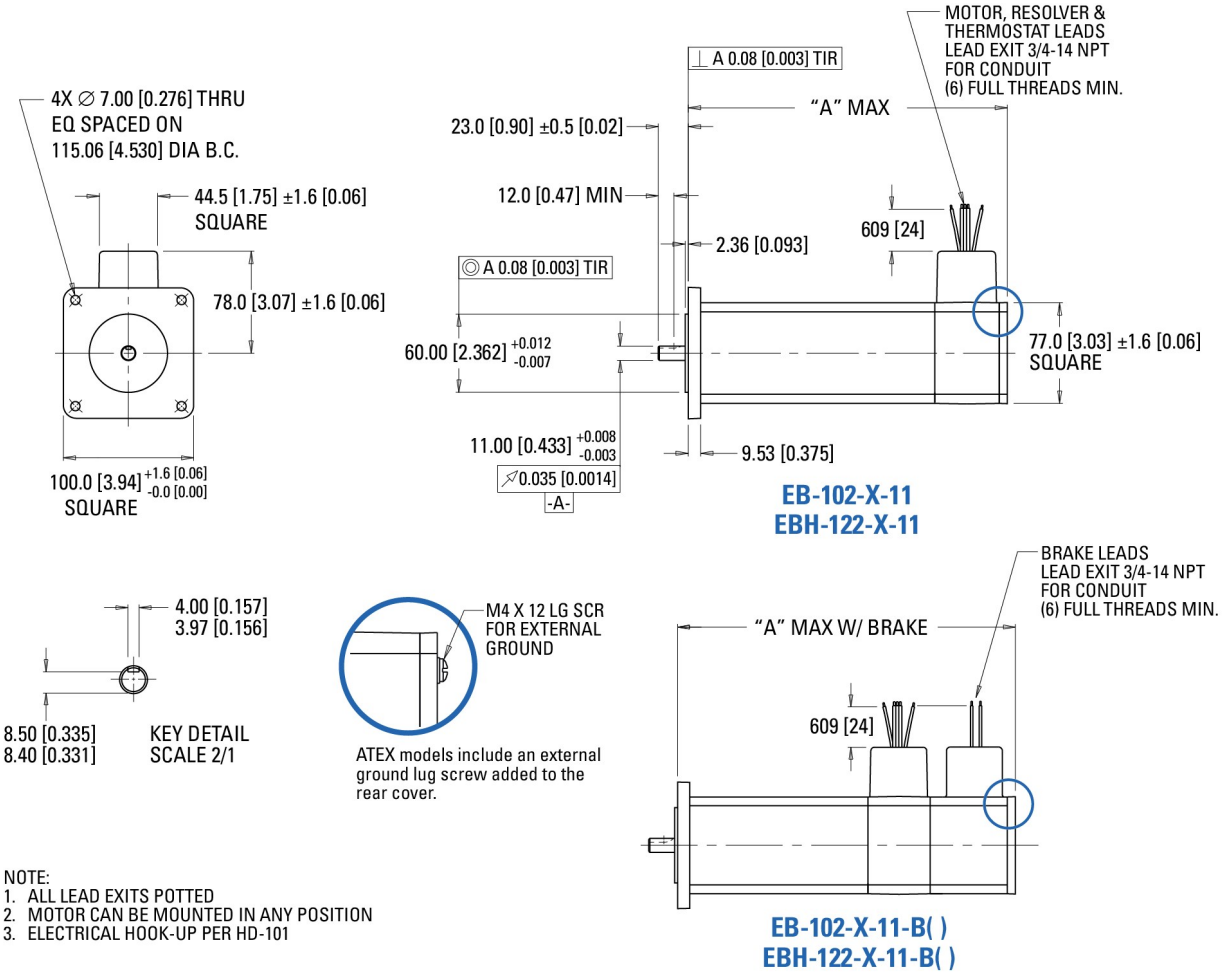
9 Dimensional Drawings

9.1 EB-102 and EBH-122 Dimensional Drawing

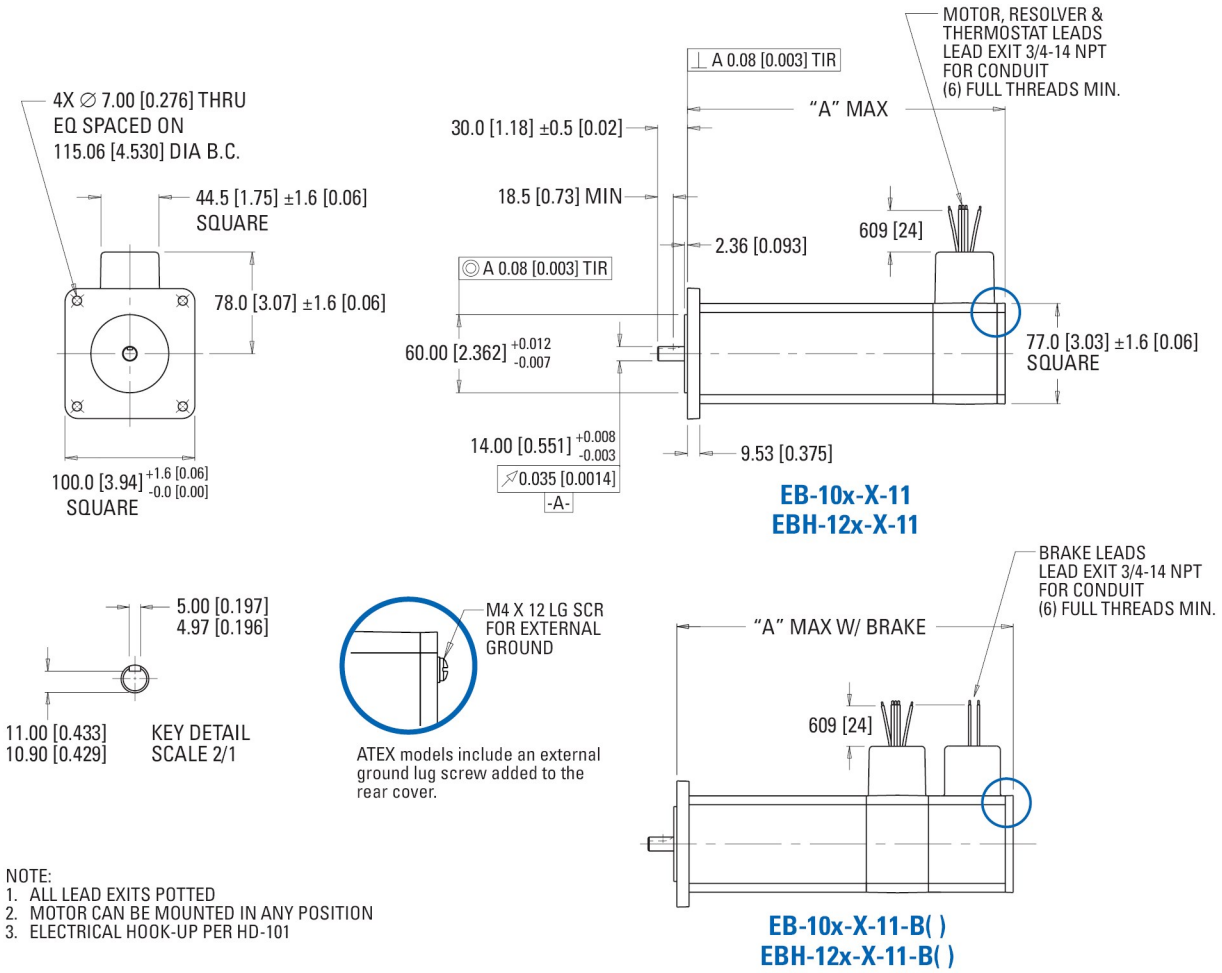
Motor	"A" MAX No Brake	"A" MAX with Brake
EB-102 / EBH-122	224.3 [8.83]	276.0 [10.87]



NOTE:
1. ALL LEAD EXITS POTTED
2. MOTOR CAN BE MOUNTED IN ANY POSITION
3. ELECTRICAL HOOK-UP PER HD-101

9.2 EB-104/106 and EBH-124/126 Dimensional Drawing

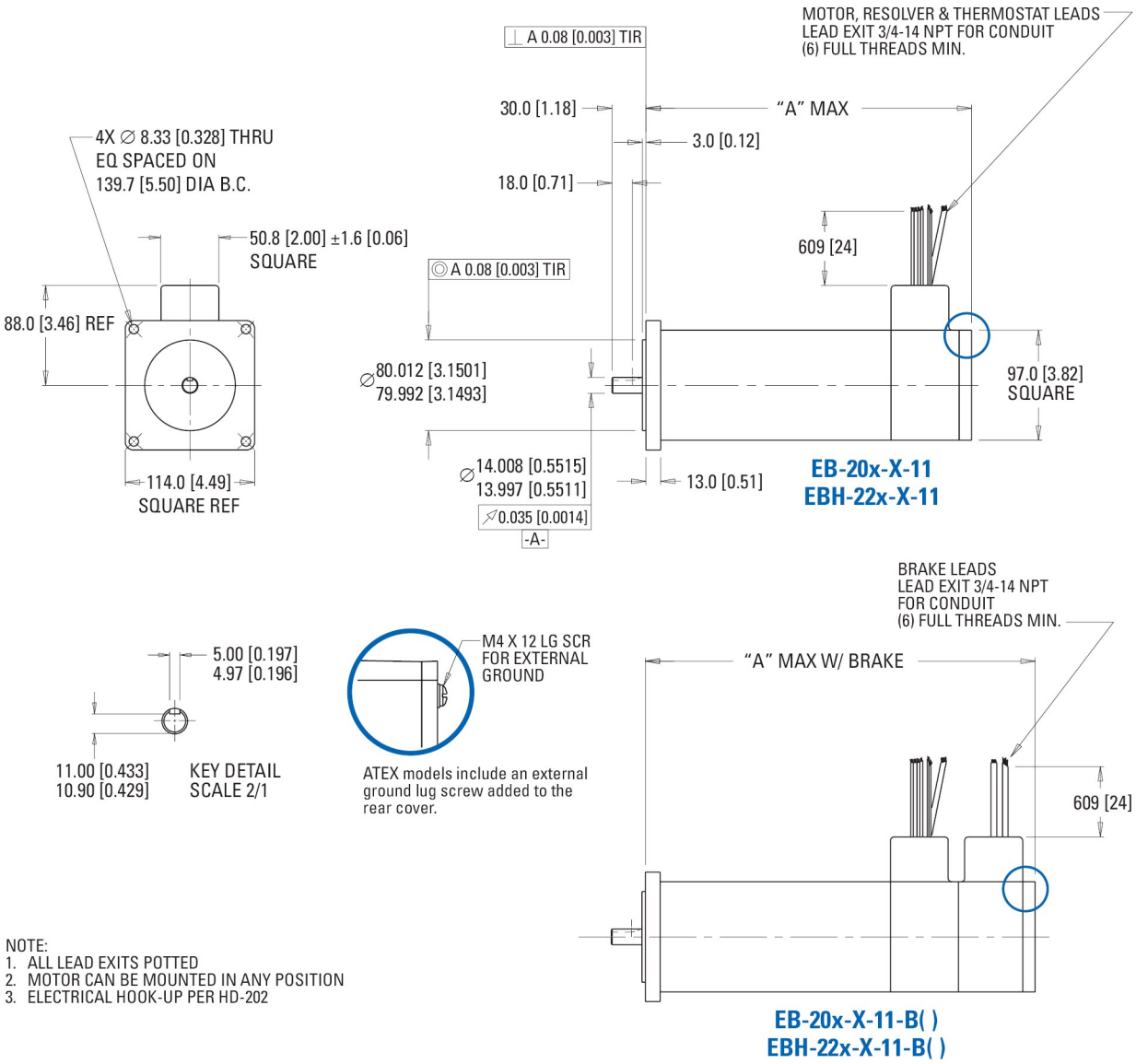
Motor	"A" MAX No Brake	"A" MAX with Brake
EB-104 / EBH-124	254.8 [10.03]	307.2 [12.09]
EB-106 / EBH-126	285.3 [11.23]	337.6 [13.29]



NOTE:
1. ALL LEAD EXITS POTTED
2. MOTOR CAN BE MOUNTED IN ANY POSITION
3. ELECTRICAL HOOK-UP PER HD-101

9.3 EB-202/204/206 and EBH-222/224/226 Dimensional Drawing

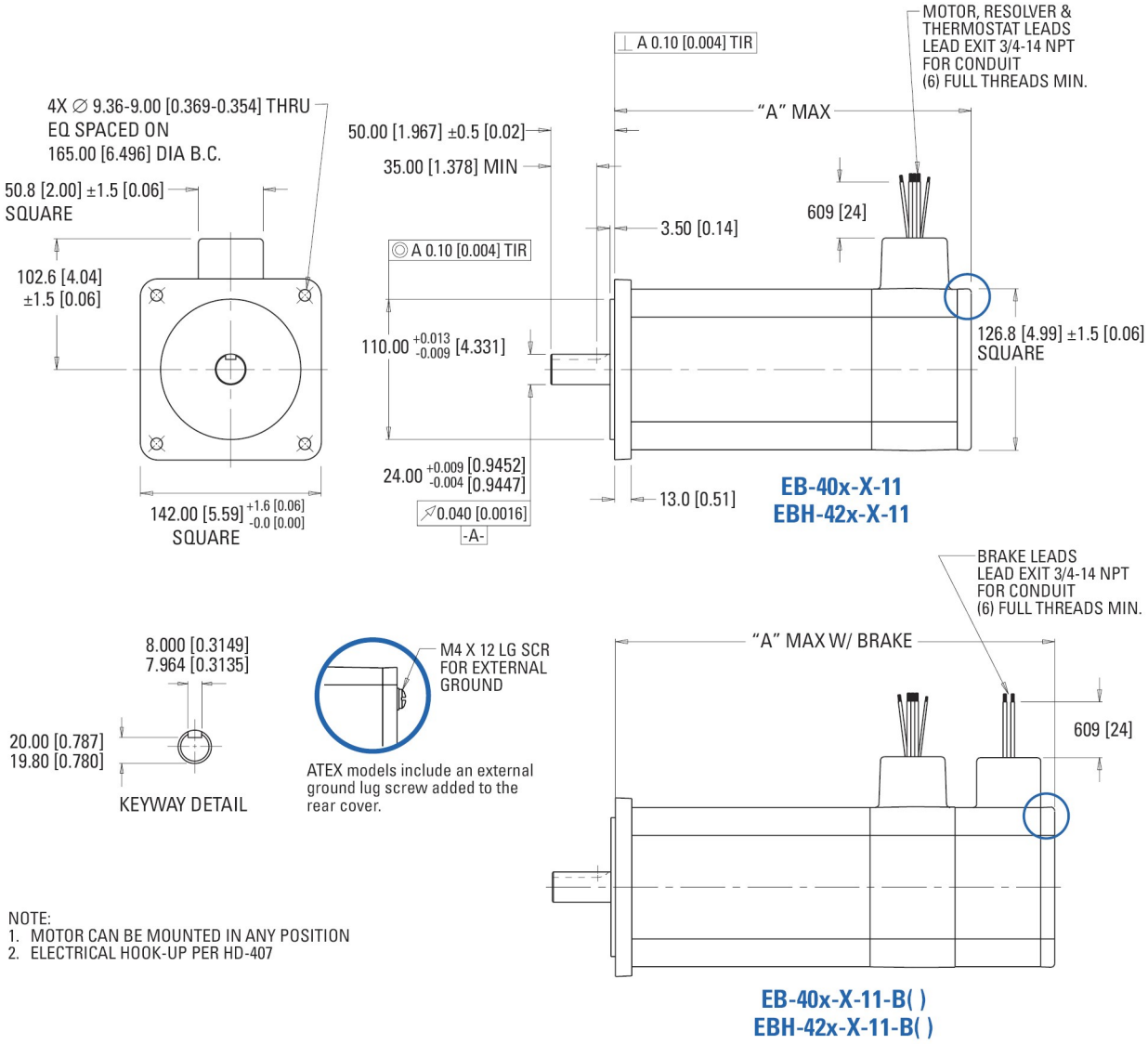
Motor	"A" MAX No Brake	"A" MAX with Brake
EB-202 / EBH-222	256.6 [10.10]	313.4 [12.34]
EB-204 / EBH-224	296.2 [11.66]	353.0 [13.90]
EB-206 / EBH-226	335.8 [13.22]	392.6 [15.46]



NOTE:
1. ALL LEAD EXITS POTTED
2. MOTOR CAN BE MOUNTED IN ANY POSITION
3. ELECTRICAL HOOK-UP PER HD-202

9.4 EB-402/404/406 and EBH-422/424/426 Dimensional Drawing

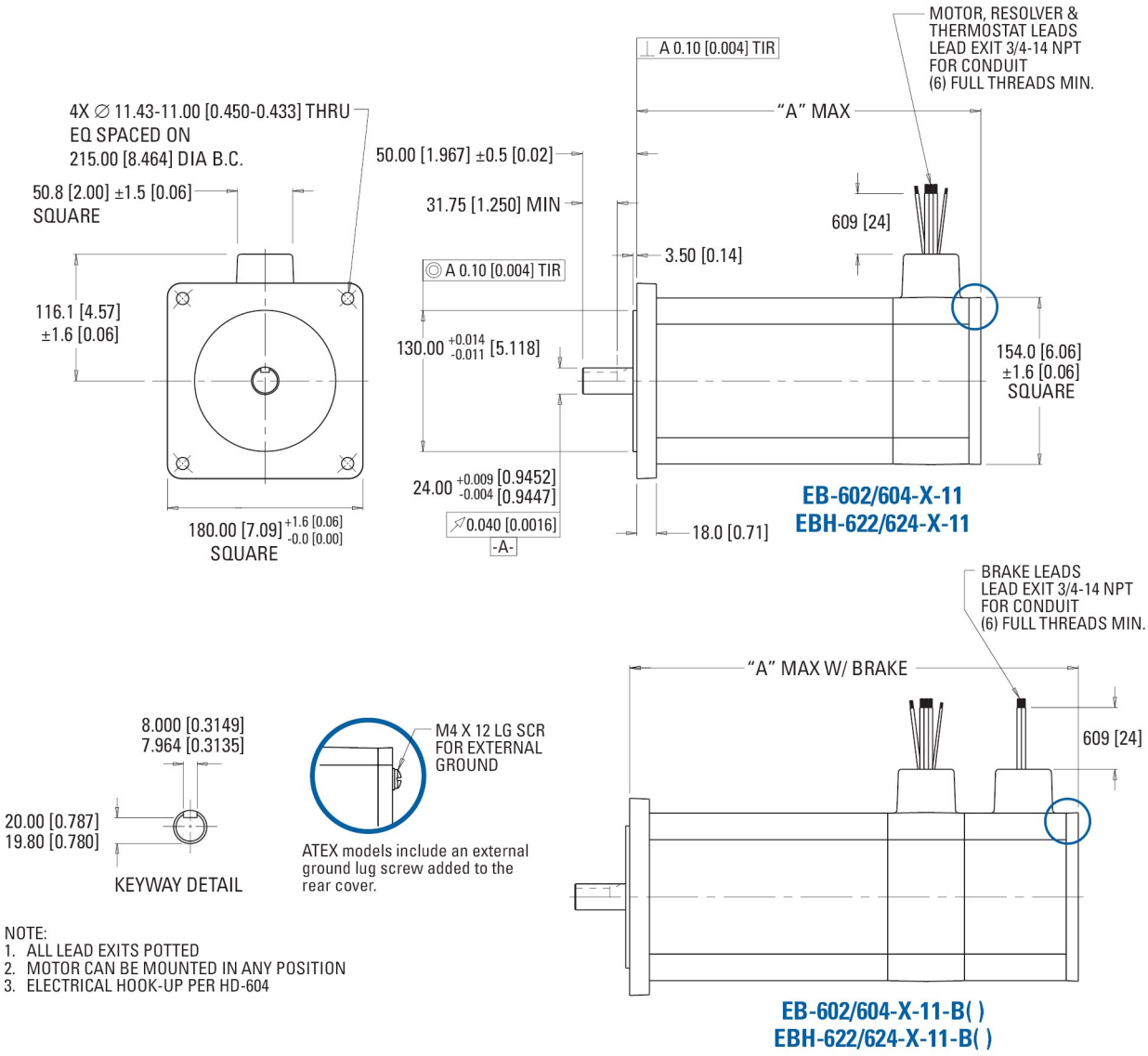
Motor	"A" MAX No Brake	"A" MAX with Brake
EB-402 / EBH-422	286.4 [11.28]	354.6 [13.96]
EB-404 / EBH-424	339.7 [13.37]	408.0 [16.06]
EB-406 / EBH-426	393.1 [15.48]	461.3 [18.16]



NOTE:
1. MOTOR CAN BE MOUNTED IN ANY POSITION
2. ELECTRICAL HOOK-UP PER HD-407

9.5 EB-602/604 and EBH-622/624 Dimensional Drawing

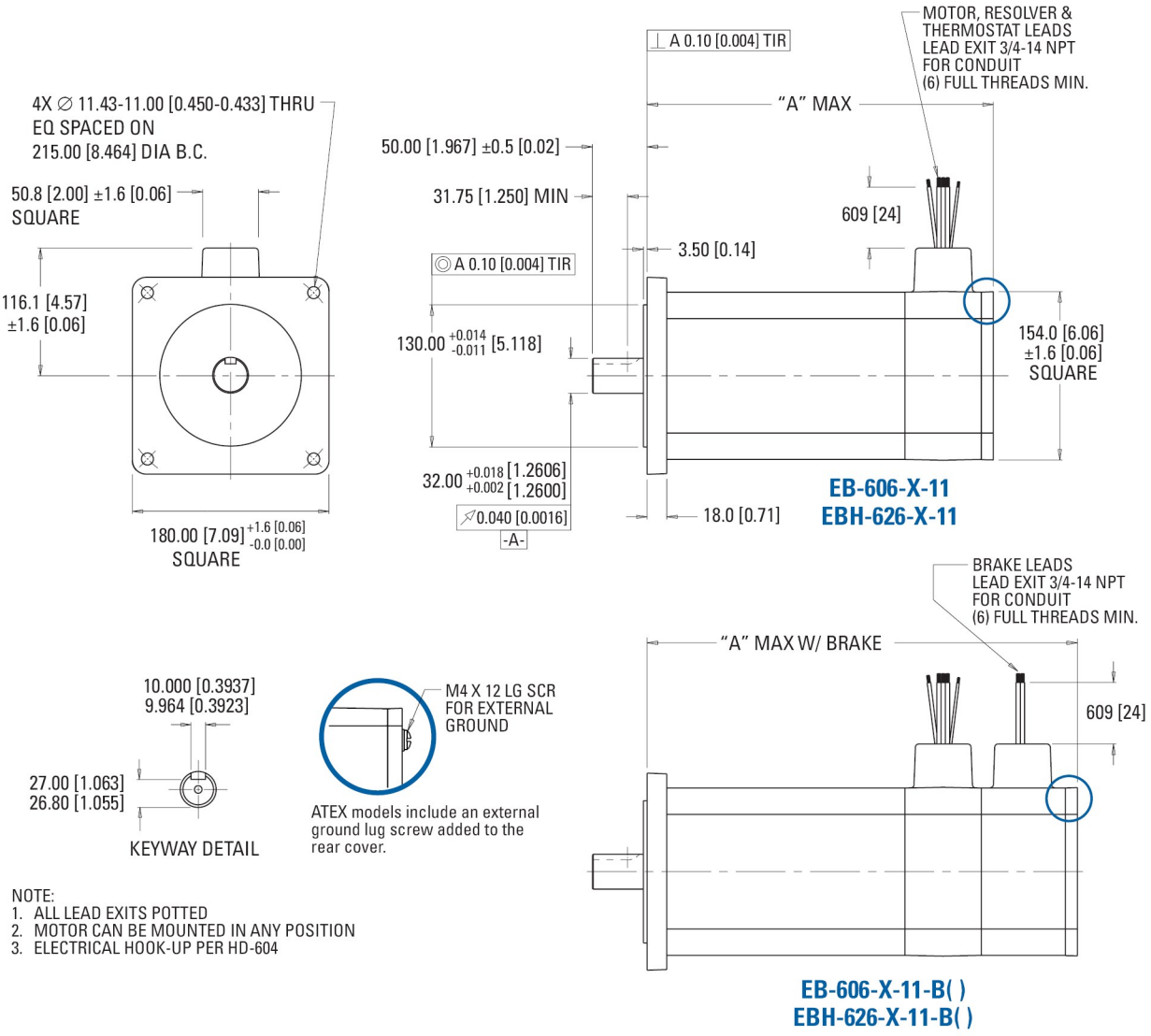
Motor	"A" MAX No Brake	"A" MAX with Brake
EB-602 / EBH-622	327.5 [12.89]	419.3 [16.51]
EB-604 / EBH-624	396.1 [15.59]	487.9 [19.21]



NOTE:
1. ALL LEAD EXITS POTTED
2. MOTOR CAN BE MOUNTED IN ANY POSITION
3. ELECTRICAL HOOK-UP PER HD-604

9.6 EB-606 and EBH-626 Dimensional Drawing

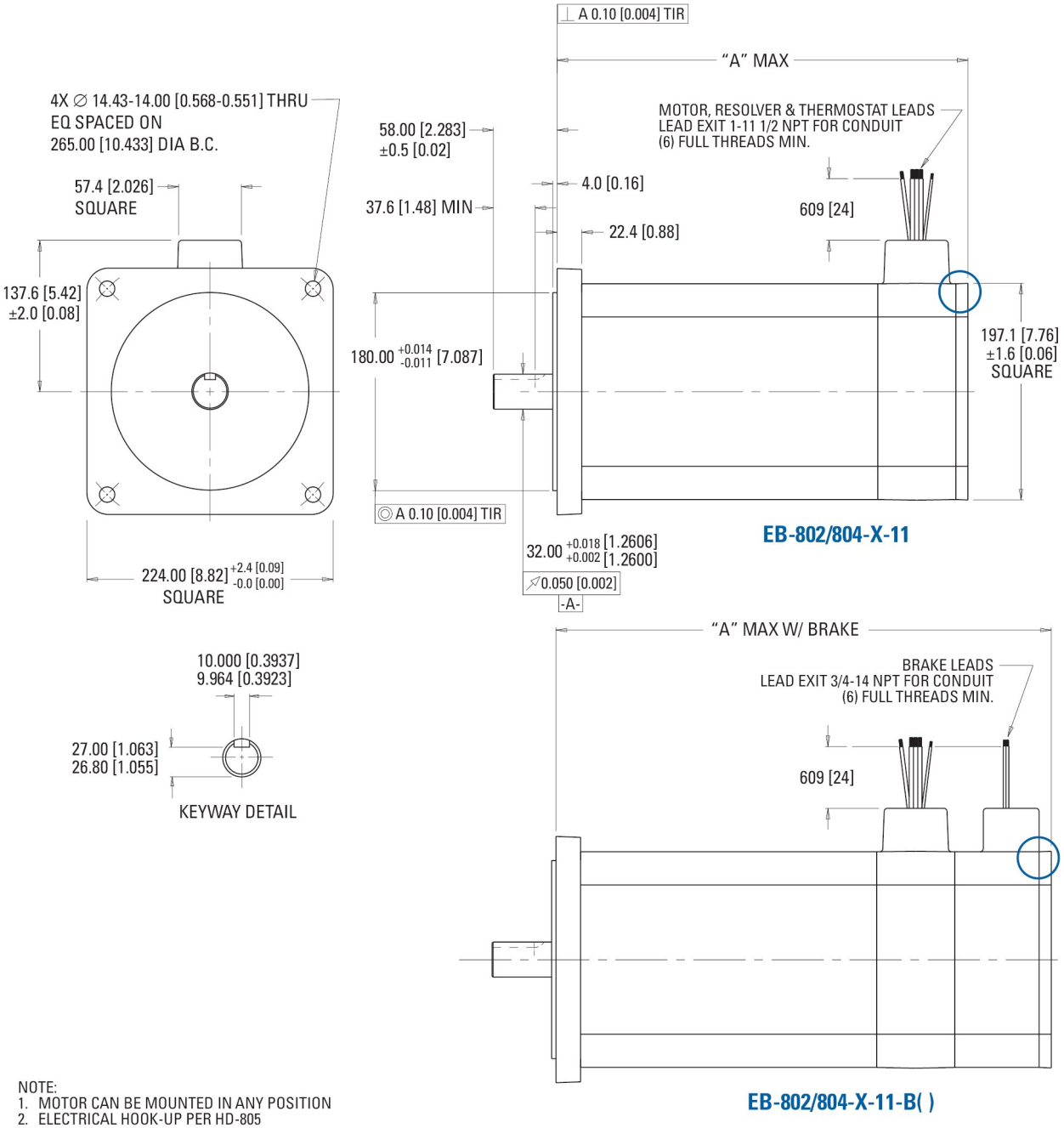
Motor	"A" MAX No Brake	"A" MAX with Brake
EB-606 / EBH-626	464.7 [18.30]	556.5 [21.91]



NOTE:
1. ALL LEAD EXITS POTTED
2. MOTOR CAN BE MOUNTED IN ANY POSITION
3. ELECTRICAL HOOK-UP PER HD-604

9.7 EB-802/804 Dimensional Drawing

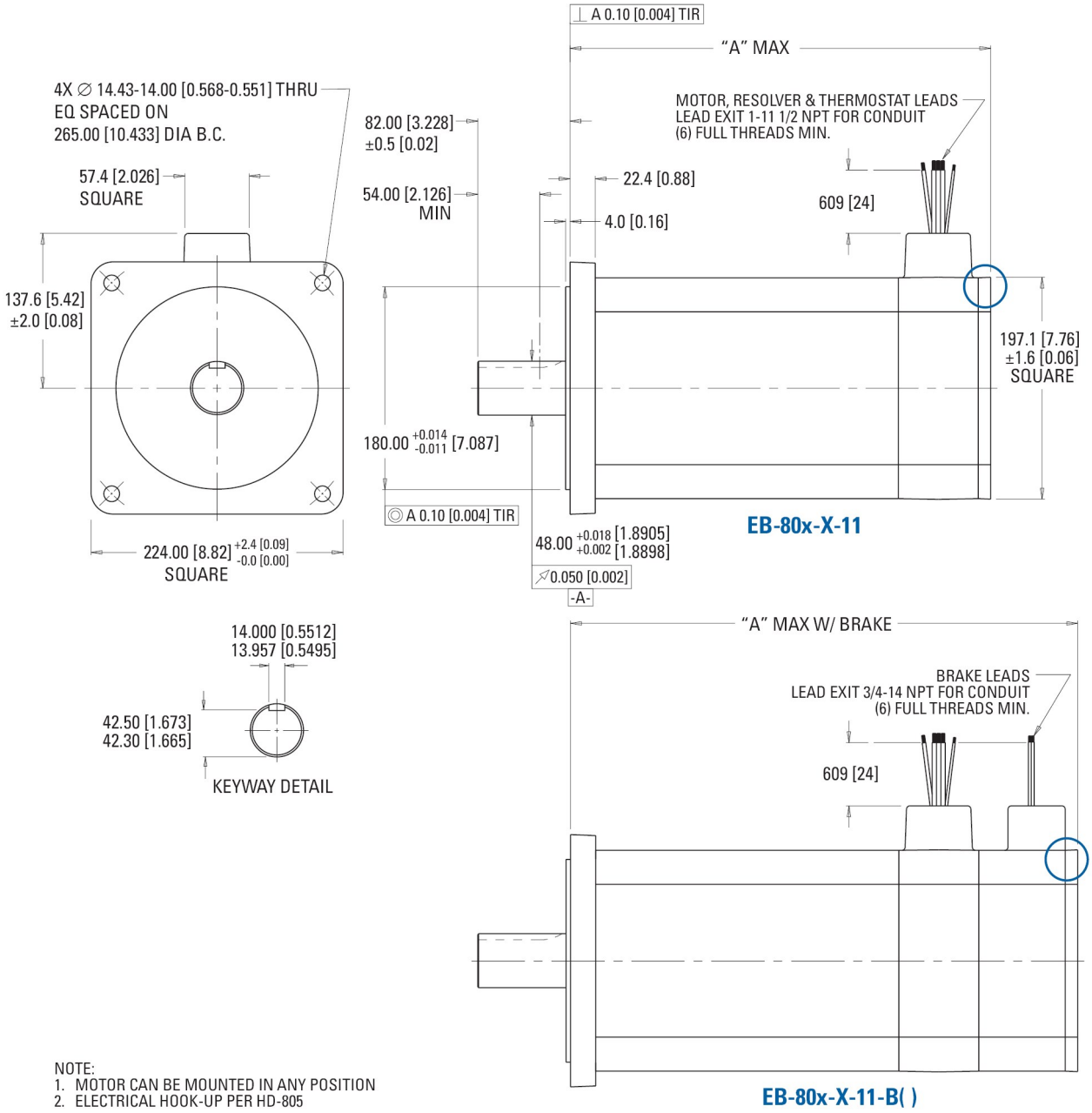
Motor	"A" MAX No Brake	"A" MAX with Brake
EB-802	384.3 [15.13]	461.4 [18.17]
EB-804	473.8 [18.65]	551.0 [21.69]



NOTE:
1. MOTOR CAN BE MOUNTED IN ANY POSITION
2. ELECTRICAL HOOK-UP PER HD-805

9.8 EB-806 Dimensional Drawing

Motor	"A" MAX No Brake	"A" MAX with Brake
EB-806	563.3 [22.18]	640.5 [25.22]



NOTE:
1. MOTOR CAN BE MOUNTED IN ANY POSITION
2. ELECTRICAL HOOK-UP PER HD-805

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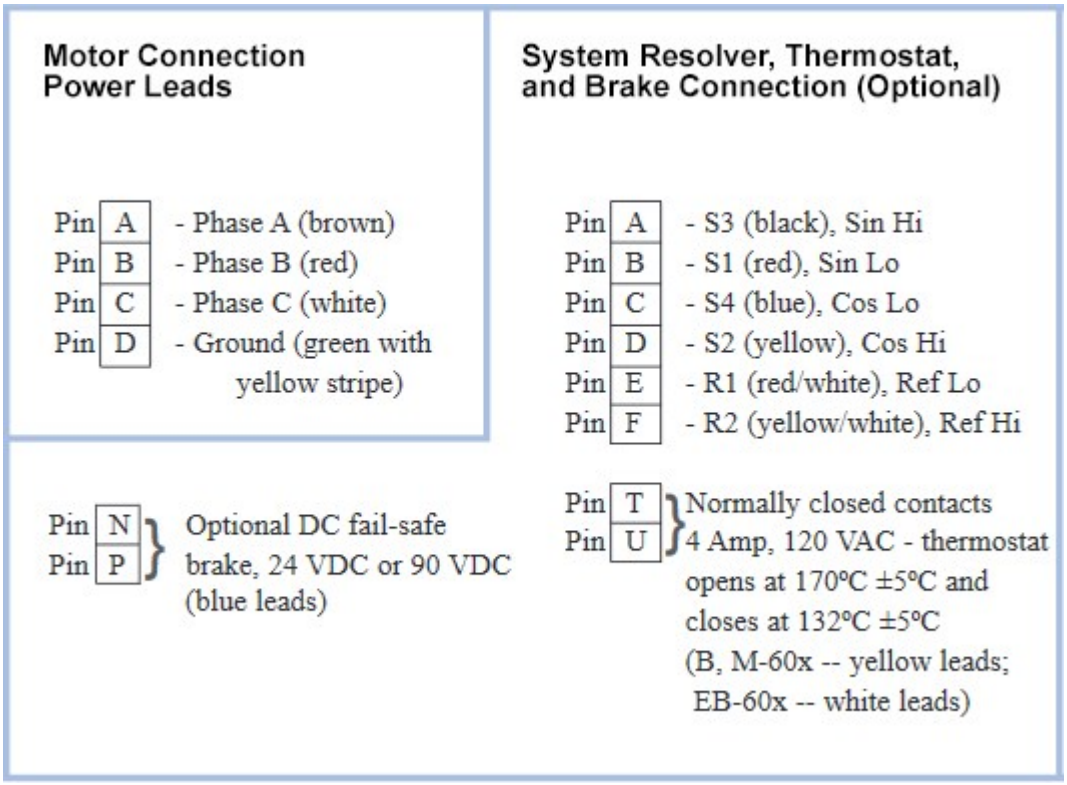
10 Leadwire Diagram



NOTE

- With a phase sequence A, C, B motor rotation shall be CW, facing mounting end.
- Thermostat preset to open at 170 °C ±5 °C and closed at 127 °C ±5 °C, normally closed. Contacts rated to 4 amps, 120 V_{AC}.
- Brake Data: Use continuous static holding and emergency dynamic stopping. Type Power On, Brake Off. For ratings see the motor specifications in the Technical Data section.

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11 Approvals & Certifications Lookup

Approval or Certification	Certificate Number(s)	Link	What to search for
ATEX & **CE**	ITS12ATEX17548X	Declaration shipped with product.	N/A
cETLus	64866	https://ramuk.intertekconnect.com/WebClients/ITS/DLP/products.nsf/$$Search?OpenForm	`kollmorgen`
IECEx	IECEx ETL 12.006X	https://www.iecex-certs.com/#/search	Search for *Equipment and Component Certificates* using the Applicant name `kollmorgen`
UL	EB-10X-20120925-E120721 EB-20X-20141021-E120721 EB-40X-20140915-E120721 EB-60X-20140915-E120721 EB-80X-20140915-E120721	https://iq.ulprospector.com/en	`E120721` Please note that the UL website requires you to register for free.

NOTE

- ATEX certified devices are also IECEx and cETLus Listed.
- UL certified devices are cULus Listed.
- For ATEX certified devices, specific conditions of use apply. See the section ATEX Specific Conditions of Use for more information.

About KOLLMORGEN

Kollmorgen is a leading provider of motion systems and components for machine builders. Through world-class knowledge in motion, industry-leading quality and deep expertise in linking and integrating standard and custom products, Kollmorgen delivers breakthrough solutions that are unmatched in performance, reliability and ease-of-use, giving machine builders an irrefutable marketplace advantage.

Join the Kollmorgen Developer Network for product support. Ask the community questions, search the knowledge base for answers, get downloads, and suggest improvements.

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