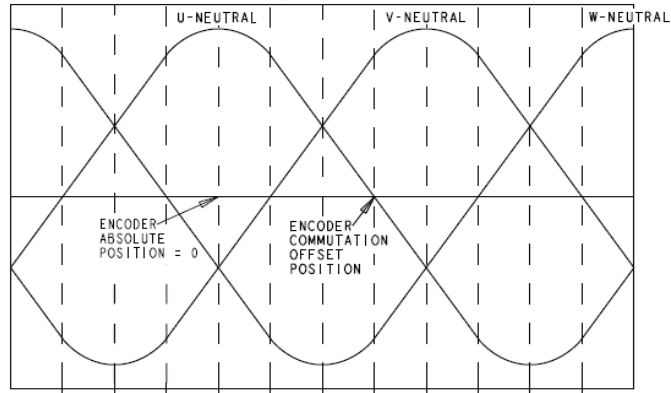
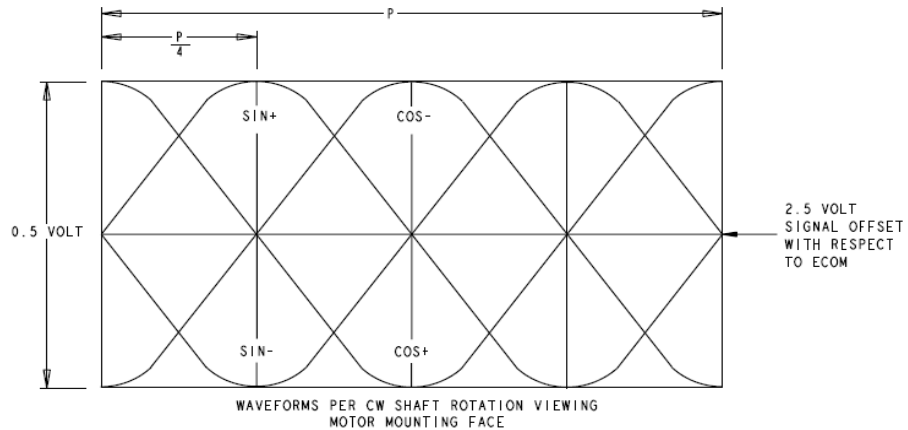


PHASE - NEUTRAL BACK EMF, ENCODER ABSOLUTE POSITION



-30° 0° 30° 60° 90° 120° 150° 180° 210° 240° 270° 300° 330° ELECTRICAL DEGREES

SIN+, SIN-, COS+, COS- ENCODER OUTPUT WAVEFORMS




**NOTES:**

**General Specifications:**

1. Motor type: 3 phase, wye winding, permanent magnet rotor, totally enclosed, non-ventilated.	
2. Motor poles: .....	38
3. Operating Speed, max: .....	785 RPM
4. Base speed (max speed at peak torque), Ref, at 440 VAC RMS operating voltage: .....	347 RPM
5. Continuous stall torque, max, at max winding temperature in a 40C ambient: .....	49.2 Nm (435 lb-in)
6. Winding temperature, max, in a 40C ambient: .....	150 degrees C
7. Continuous stall current, max: .....	10.0 Amps 0 to peak
8. Heatsink size, aluminum, attached to front mounting flange for continuous torque specifications: .....	407 x 407 x 19.1mm (16 x 16 x 0.75 inch)
9. Peak stall torque, max: .....	110 Nm (974 lb-in)
10. Peak stall current, max: .....	31.0 Amps 0 to peak
11. Rated Speed (UL file and motor nameplate Rated RPM): .....	750 RPM
12. Continuous power rating, max: .....	3.18 kW (4.26 hp)
13. Speed at continuous power rating: .....	729 RPM
14. Continuous torque, max, at continuous power rating: .....	41.7 Nm (369 lb-in)
15. Continuous current, Ref, at continuous power rating: .....	8.5 Amps 0 to peak
16. Operating voltage, Ref (Not for direct connection to AC line): .....	480 VAC RMS
17. Insulation class: .....	155C (Class F)
18. Housing temperature, max: .....	125C (257F)
19. Ke, +/-10%, phase to phase at 25C +/- 5C: .....	683 V/kRPM 0 to peak
20. Kt (sine), Ref, at 25C +/- 5C: .....	5.65 Nm/Amp (50.01 lb-in/Amp) 0 to peak
21. Winding resistance, +/- 10%, phase to phase at 25C +/- 5C: .....	3.11 ohms
22. Winding inductance, Ref, phase to phase: .....	25.4 mH
23. Dielectric rating of motor power connections (U,V,W), to ground for 1 second: .....	2352 VAC RMS 50/60 Hz
24. Audible noise, Ref, at 1 meter distance: .....	65 dbA
25. Rotor inertia, +/- 10%: .....	0.028 kg-m <sup>2</sup> (0.25 lb-in-sec <sup>2</sup> )
26. Friction torque, Ref: .....	1.4 Nm (12.4 lb-in)
27. Cogging torque, Ref: .....	0.79 Nm (7.0 lb-in) peak to peak
28. Thermal resistance, Ref, winding to ambient: .....	0.302 degrees C/watt
29. Thermal time constant, Ref, winding to ambient: .....	76 minutes
30. Product weight, Ref: .....	28.6 kg (63 lb)
31. Shipping weight, Ref: .....	36.8 kg (81 lb)
32. Operating ambient temperature: .....	0C to 40C (32F to 104F)
33. Storage ambient temperature: .....	-30C to 70C (-22F to 158F)

**Notes:**

- "Ref" denotes untoleranced specifications, provided for reference only.
- Speed, torque and current specifications are for operation with Allen Bradley drives.

	CONFIDENTIAL AND PROPRIETARY INFORMATION	Engineering Specification Electrical		Sheet <b>2</b> of <b>4</b>	
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	Dr. S. Johnson	Date	10-13-09	Ver <b>00</b>	

**General Specifications, continued:**


- 34. Relative humidity, non-condensing: ..... 5% to 95%
- 35. Liquid / dust protection: ..... IP65
- 36. Shock, max, 6 msec duration: ..... 20 g peak
- 37. Vibration, max, 30 to 2000 Hz: ..... 2.5 g peak
- 38. Bearing arrangement: None internal to motor. Shaft is supported by customer's shaft / bearing system.
- 39. Shaft material: ..... Steel
- 40. Paint color, gloss level, except rear cover: ..... Black, 20 to 35 gloss units
- 41. Rear cover color (Pantone color code), painted or exposed material color: ..... Cool gray # 5, 0 to 20 gloss units
- 42. Shaft, key (if provided), front mounting surface, and connectors are not painted.

**Feedback Specifications:**

- 1. Feedback interface type (encoder supplier proprietary), order designation: ..... Endat, 2.2/01
- 2. SIN, COS waveform output signals/rev: ..... 2048 sinusoids/rev
- 3. SIN, COS waveform amplitude, measured differentially from SIN+ to SIN-, or COS+ to COS-: ..... 0.75 to 1.2 VAC peak to peak
- 4. SIN, COS voltage offset with respect to ECOM, +/- 0.5 VDC: ..... 2.5 VDC
- 5. DATA+, DATA-, CLK+, CLK- signals applicable standard, signals type: ..... RS 485, Synchronous
- 6. CLK+, CLK- clock frequency, Ref, when operating with Kinetix Endat adapter kit: ..... 468.75 kHz
- 7. Communication hierarchy: Encoder is slave, communication is externally initiated.
- 8. Single turn absolute position value range: ..... 0 to 8191 (13 bit)
- 9. Multi-turn absolute shaft revolution value range: ..... 0 to 4095 revolutions (12 bit)
- 10. Absolute position data: Binary, value increases with CW shaft rotation viewing motor mounting face.
- 11. Memory storage capacity available for Rockwell parameters, EEPROM, min: ..... 64 words, 16 bits/word
- 12. EPWR 5V (encoder power) input voltage: ..... 3.6 to 14 VDC
- 13. EPWR 5V continuous input current,max, at 5.0 VDC: ..... TBD mADC
- 14. EPWR 5V inrush input current, max, when connected to Kinetix6000 drive: ..... TBD ADC
- 15. TS+, TS- PTC Thermistor transition temperature, +/-5C: ..... 160 degrees C
- 16. TS+, TS- PTC thermistor circuit resistance, Ref, at thermistor transition temperature: ..... 1100 ohms
- 17. TS+, TS- PTC thermistor circuit resistance, Ref, at 25 C +/- 5C: ..... 160 ohms
- 18. TS+, TS- PTC thermistor resistance vs temperature curves applicable standards: ..... DIN 44081 / 44082
- 19. TS+, TS- PTC thermistor circuit configuration (number of thermistors): ..... 2 in series

**Notes:**

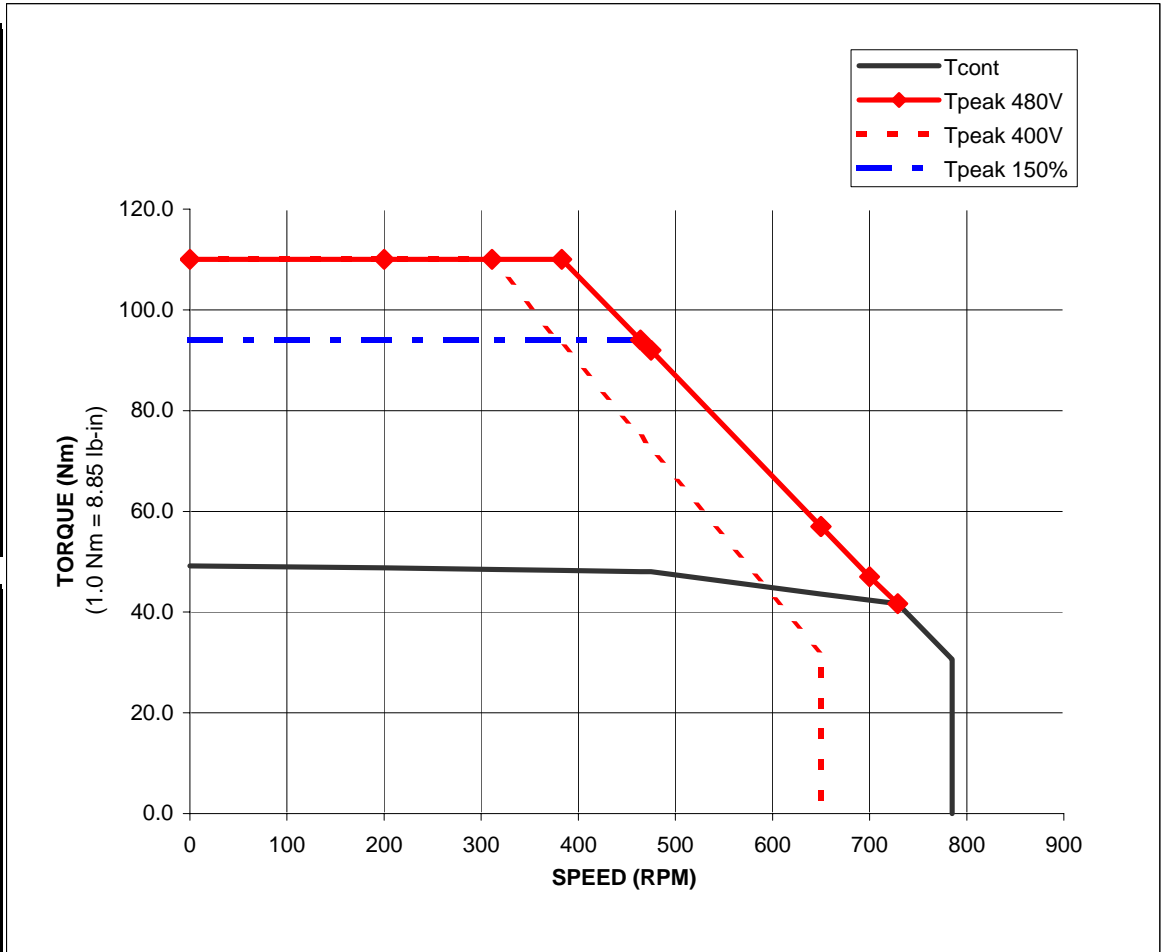
- 1. "Ref" denotes untoleranced specifications, provided for reference only.

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**RDB-B29016-7B72AA Performance with 2094-BC02-M02S  
at 480 and 400 VAC 3 phase Converter Input, 40C Motor Ambient**

SPEED RPM	TORQUE			
	Tcont	Tpeak 480V	Tpeak 400V	Tpeak 150%
	Nm	Nm	Nm	Nm
0	49.2	110	110	94
200	48.8	110	110	94
311	48.5	110	110	94
383	48.3	110	93	94
464	48	94	75	94
475	48	92	72	#N/A
650	43.6	57	32.2	#N/A
650	43.6	57	0	#N/A
700	42.4	47	#N/A	#N/A
729	41.7	41.7	#N/A	#N/A
785	30.6	#N/A	#N/A	#N/A
785	0	#N/A	#N/A	#N/A

SPEED RPM	TORQUE			
	Tcont	Tpeak 480V	Tpeak 400V	Tpeak 150%
	lb-in	lb-in	lb-in	lb-in
0	435	974	974	832
200	432	974	974	832
311	429	974	974	832
383	427	974	823	832
464	425	832	664	832
475	425	814	637	#N/A
650	386	504	285	#N/A
650	386	504	0	#N/A
700	375	416	#N/A	#N/A
729	369	369	#N/A	#N/A
785	271	#N/A	#N/A	#N/A
785	0	#N/A	#N/A	#N/A



**Notes:**

1. Nm torque values shown are converted from tested lb-in data.
2. "Tpeak 150%" line shown applies when the drive peak current limit is set to 150% of the drive continuous current rating.



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Engineering Specification Electrical

**RDB-B29016-7B72AA**

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Sheet **4** of **4**

Size

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