



C161-35224-220 Brushless DC Motor for Centrifuge Product Datasheet

C161-35224-220 BLDC Overview

- Three Phase, Six Step, Full Wave, Y-Circuit
- Sintered Nd-Fe-B Permanent Magnet Rotor
- Hall Sensor
- Step (Low Cogging)
- Slot



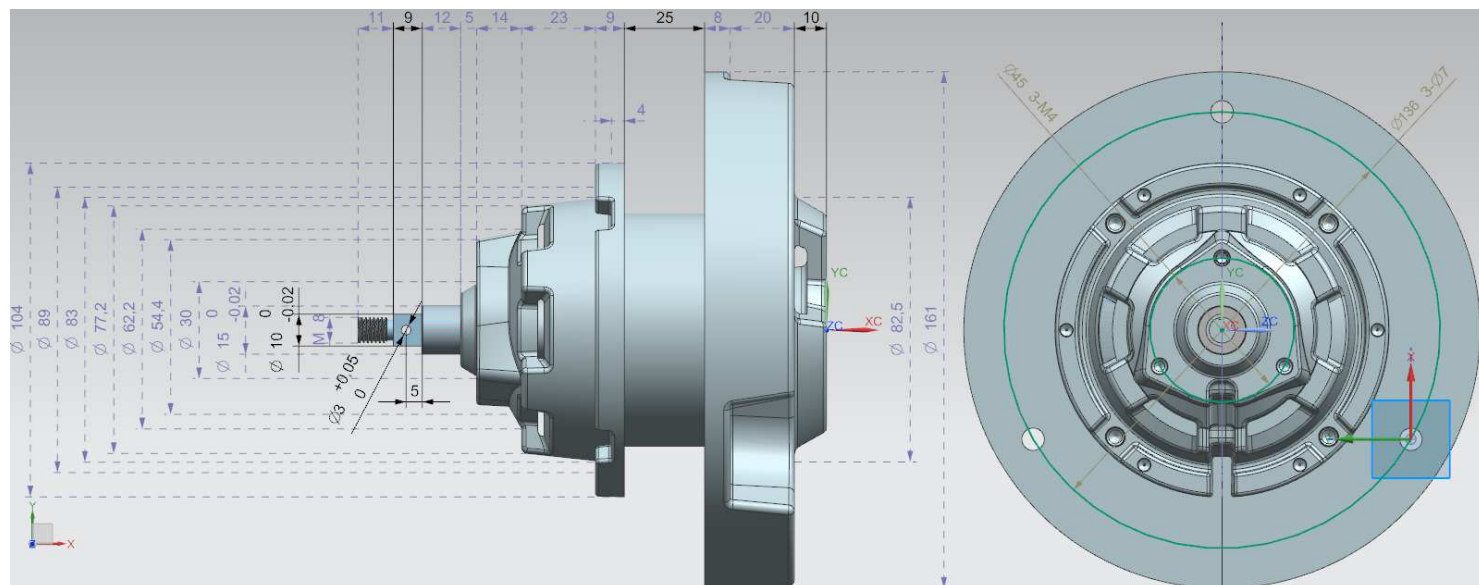
Parameters	C161-35224-220 BLDC Absolute Maximum Ratings	Unit
Rotor/Bearing Broken Speed	18000	rpm
Winding and Rotor Temperature	130	°C
Front/Rear Lids Surface Temperature	0 to 70	°C
HIPOT (Winding to Shell)	2000VDC, 1s	

Notice: The Absolute Maximum Ratings are those values beyond which the safety of the device cannot be guaranteed

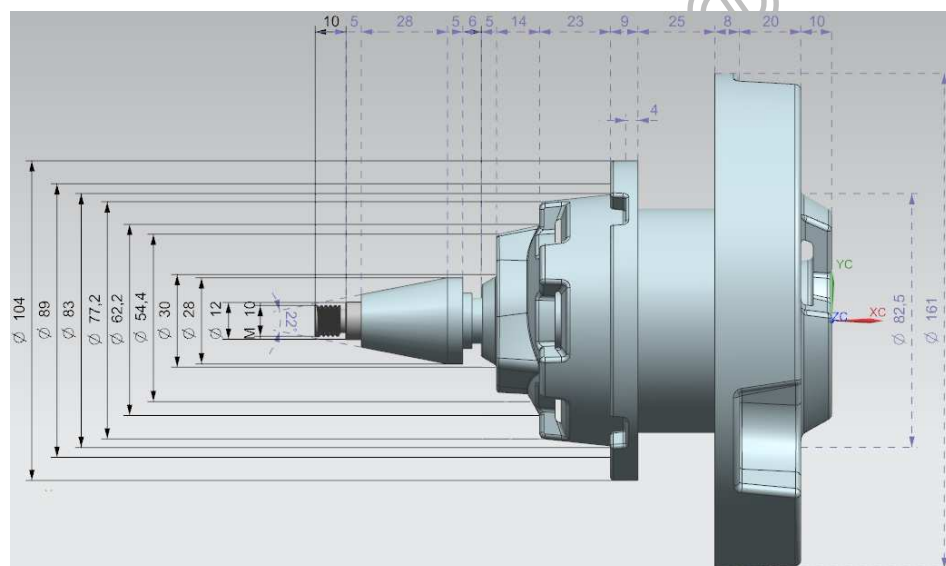
Parameters	C161-35224-220 BLDC Intrinsic Characteristics (20°C)		Unit
Resistance (Including Line)	1.1		Ohm
Inductance (Including Line)	4		mH
Speed-Torque Gradient	12600		rpm/Nm
Torque Constant	0.18		Nm/A
Speed Constant	80		rpm/V
Back-EMF Constant	12		mV/rpm
Rotor Magnetic Poles	4		Poles
Weight (Including Line)	Approximate	5100	g



C161-35224-220 BLDC Physical Size (Unit: mm)



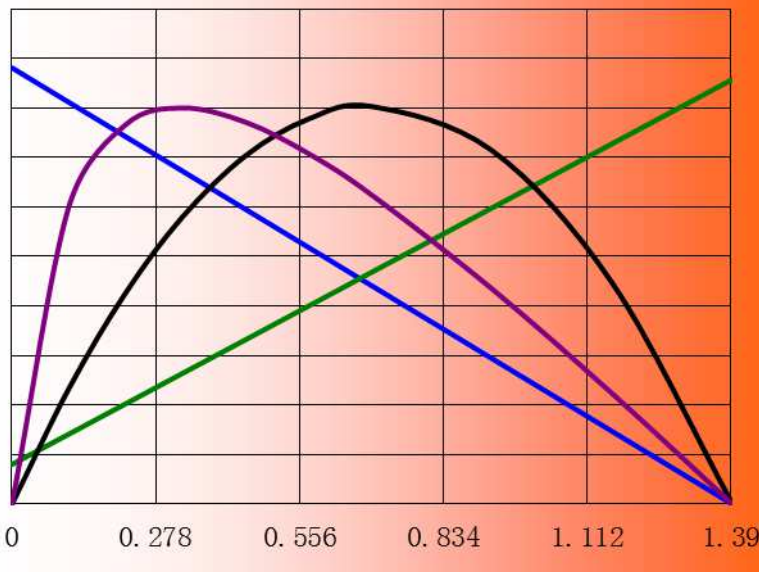
Multi-step Shaft



Taper Shaft



Parameters	C161-35224-220 BLDC Performance Characteristics (20℃)					Unit
Nominal Voltage	220					V
Maximum Output Power (P2)	640					W
(See Curves Below)	No Load Point	Some Loaded Points Performance				
Output Torque (T)	0	0.1	0.2	0.3	0.4	Nm
Output Speed (N)	17600	16340	15080	13820	12560	rpm
Input Current (I)	0.8	1.4	1.9	2.5	3.0	A
Output Power (P2)	0	171	316	434	526	W
Efficiency (η)	0	57	75	80	79	%
External Forced Ventilation Cooling	<u>Please keep the front and rear air holes unblocked. If PTC protection is often active (R>1Kohm), fan or other cooling equipments must be installed. Otherwise the motor may be damaged by hotness.</u>					



η (%) P2(W) I(A) N(rpm)
100 800 10 20000

Efficiency vs. Torque: η -----
Output Power vs. Torque: P2 -----
Current vs. Torque: I -----
Speed vs. Torque: N -----

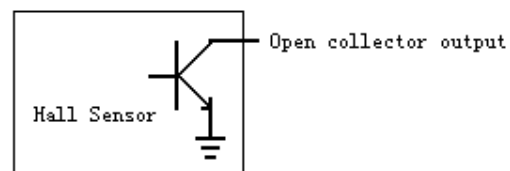
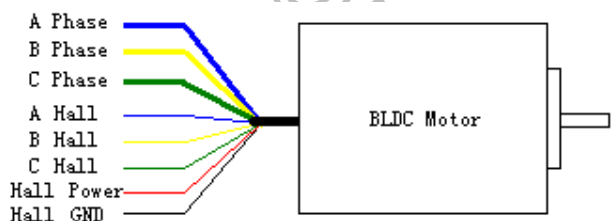
Short Term
Operation Range:

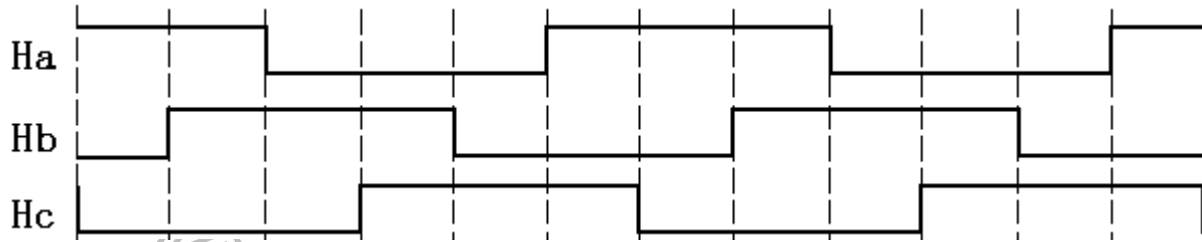


Torque (Nm)

C161-35224-220 BLDC Connection Diagram and Hall Output Waveforms

- Three Phases: AWG18, thick lines, Blue--A phase, Yellow--B phase, Green--C phase
- Halls: AWG24, thin lines, Blue--A hall, Yellow--B hall, Green--C hall, Red--Hall Positive, Black--Hall GND
- Hall Supply Voltage: 4.5 to 16VDC Regulated Supply
- Hall Power Supply Current: Less than 20mA
- Hall Output: Open collector. Require external pull-up resistors. Maximum output voltage is 16V
- Electrical Hall Sensor Phasing: 120°
- PTC: MZ6-105, Tk=105C, AWG24, Brown--Brown.
- Line Length: 0.5m





Hall Sensor Output Commutation Waveforms

Notice: The A, B, C three windings and Ha, Hb, Hc three hall sensors must be connected correctly, otherwise the controller and motor may be damaged.

Eletechnic BLDC Motor Product Code Regulation

X - **Y** - **Z**

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Flange Size (mm) Sub-series Nominal Voltage (V)



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How to reach us:

Address:

Chang Ping Qu, Er Bo Zi Gong Ye Yuan, Bei Qu Zhong Lu No.7

Beijing, 102208

P. R. China

Tel: 0086-10-68422061

Fax: 0086-10-68422061

EMAIL: SALES@ELETECHNIC.COM

[HTTP://WWW.ELETECHNIC.COM](http://WWW.ELETECHNIC.COM)

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