



## C161-35227-110 Brushless DC Motor for Centrifuge Product Datasheet

### C161-35227-110 BLDC Overview

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



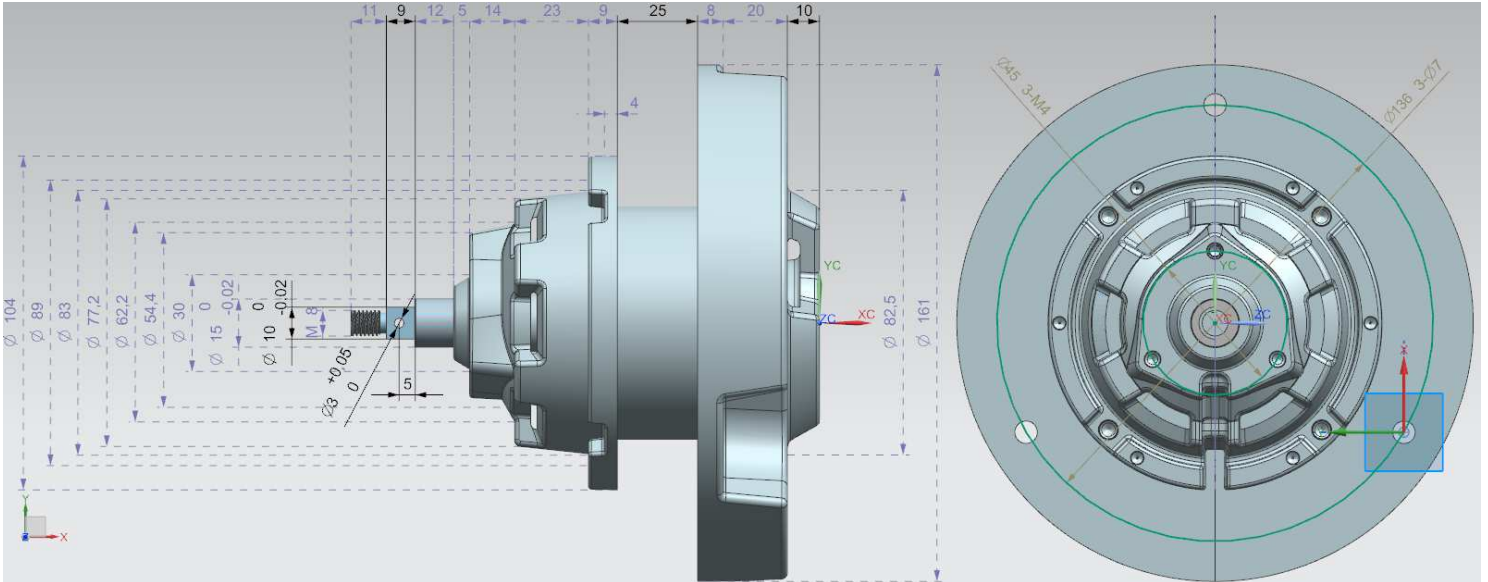
Parameters	C161-35227-110 BLDC Absolute Maximum Ratings	Unit
Rotor/Bearing Broken Speed	18000	rpm
Winding and Rotor Temperature	130	°C
Front/Rear Lids Surface Temperature	0 to 70	°C
HIPOT (Winding to Shell)	2000VDC, 1s	

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

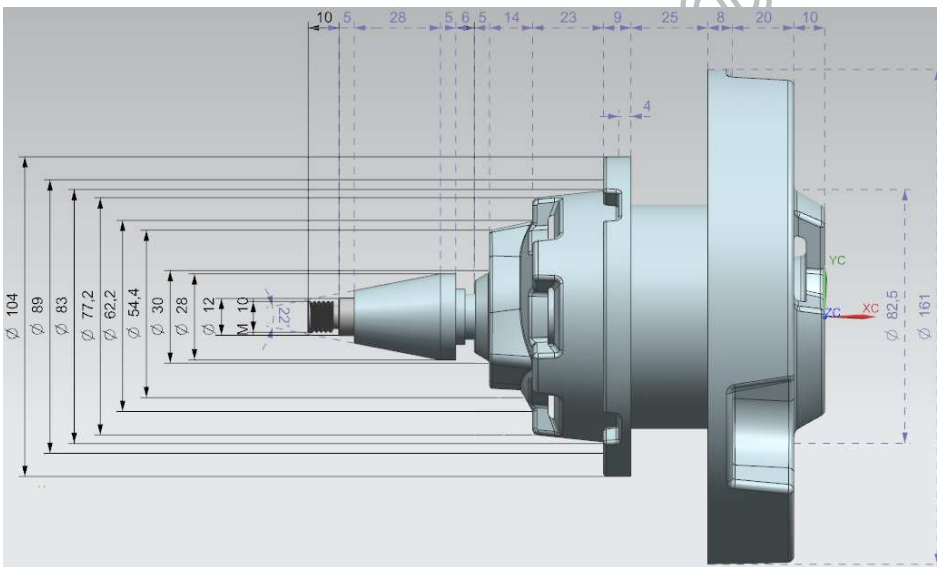
Parameters	C161-35227-110 BLDC Intrinsic Characteristics (20°C)		Unit
Resistance (Including Line)	1.2		Ohm
Inductance (Including Line)	5		mH
Speed-Torque Gradient	2400		rpm/Nm
Torque Constant	0.17		Nm/A
Speed Constant	65		rpm/V
Back-EMF Constant	15		mV/rpm
Rotor Magnetic Poles	4		Poles
Weight (Including Line)	Approximate	5100	g



## C161-35227-110 BLDC Physical Size (Unit: mm)



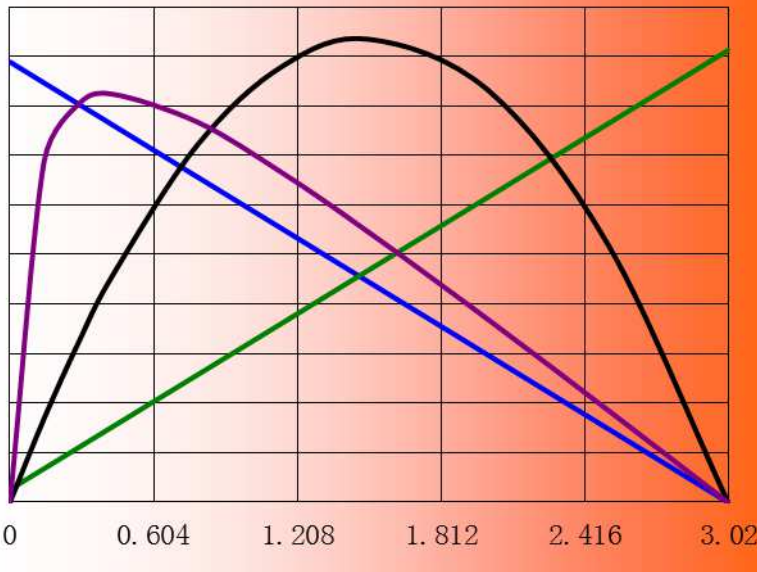
Multi-step Shaft



Taper Shaft



Parameters	C161-35227-110 BLDC Performance Characteristics (20°C)					Unit
Nominal Voltage	110					V
Maximum Output Power (P2)	560					W
(See Curves Below)	No Load Point	Some Loaded Points Performance				
Output Torque (T)	0	0.2	0.4	0.7	1	Nm
Output Speed (N)	7100	6620	6140	5420	4700	rpm
Input Current (I)	0.5	1.7	2.9	4.6	6.4	A
Output Power (P2)	0	139	257	397	492	W
Efficiency (η)	0	75	82	78	70	%
External Forced Ventilation Cooling	<p><u>Please keep the front and rear air holes unblocked. If PTC protection is often active (R&gt;1Kohm), fan or other cooling equipments must be installed. Otherwise the motor may be damaged by hotness.</u></p>					



η (%)      P2(W)      I(A)      N(rpm)  
 100          600          20          8000

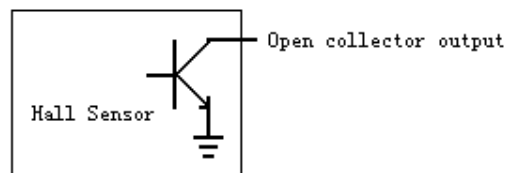
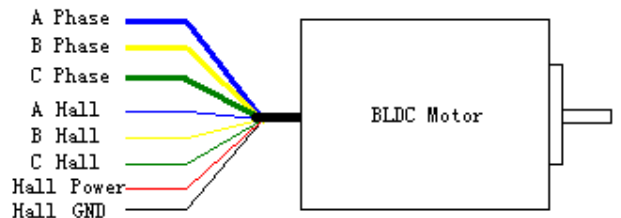
Efficiency vs. Torque: η -----  
 Output Power vs. Torque: P2 -----  
 Current vs. Torque: I -----  
 Speed vs. Torque: N -----

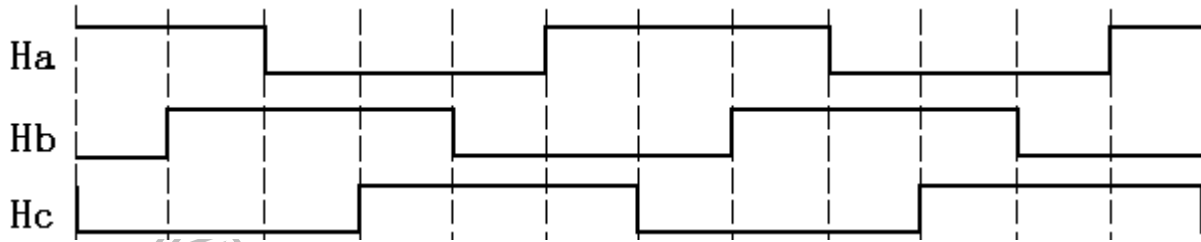
Short Term  
 Operation Range:  

Torque (Nm)

### C161-35227-110 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

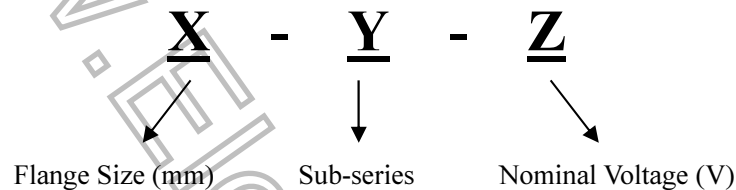




Hall Sensor Output Commutation Waveforms

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



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