



### Φ37-20211-36 Brushless DC Motor Product Datasheet

#### Φ37-20211-36 BLDC Overview

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

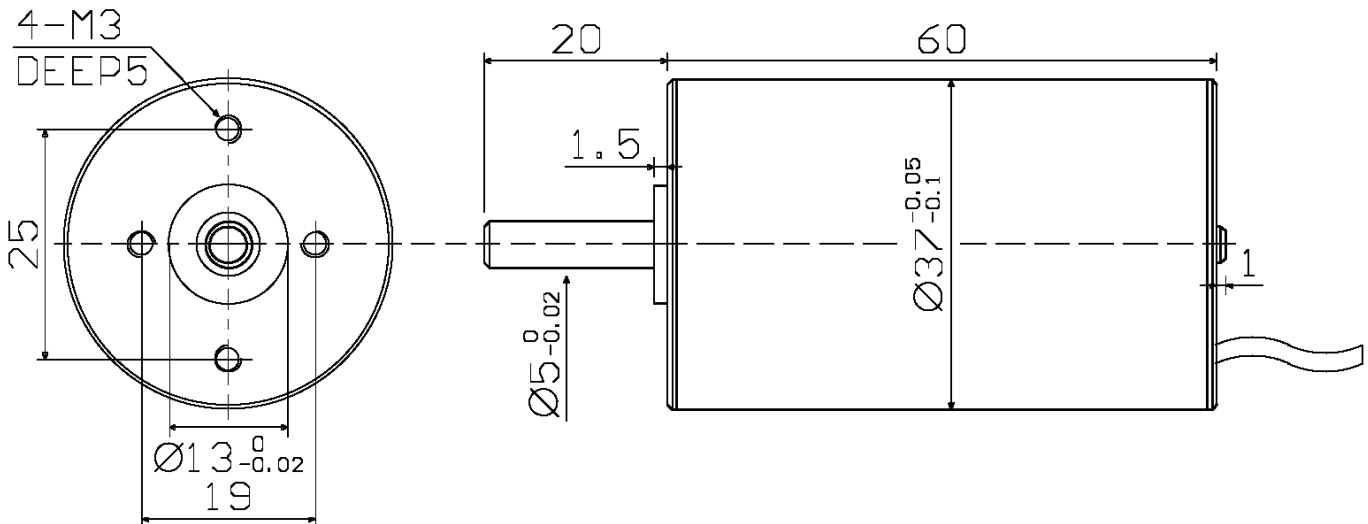


Parameters	Φ37-20211-36 BLDC Absolute Maximum Ratings	Unit
Rotor/Bearing Broken Speed	20000	rpm
Winding and Rotor Temperature	-20 to +130	°C
Ambient Temperature	-20 to +85	°C

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

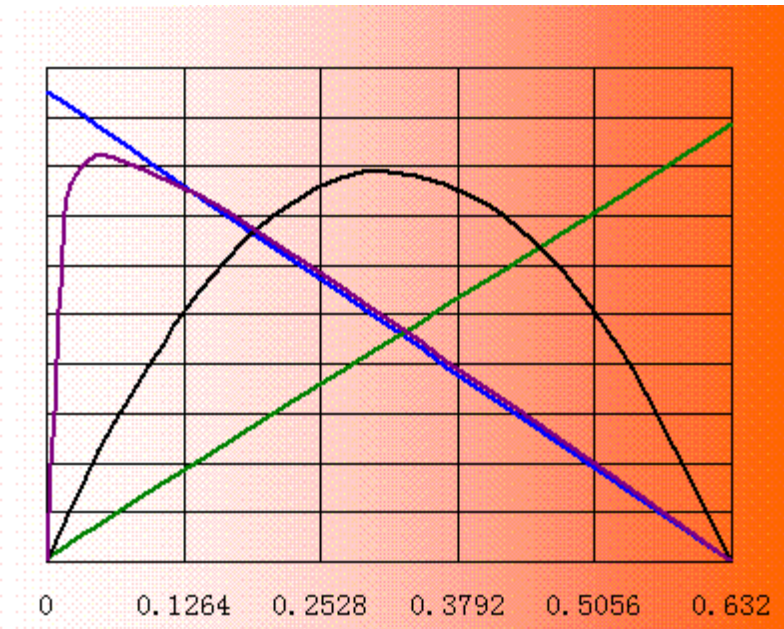
Parameters	Φ37-20211-36 BLDC Intrinsic Characteristics (20°C)	Unit
Resistance (Including 0.5m Line)	0.71	Ohm
Speed-Torque Gradient	22600	rpm/Nm
Torque Constant	0.024	Nm/A
Speed Constant	397	rpm/V
Back-EMF Constant	2.5	mV/rpm
Rotor Magnetic Poles	4	Poles
Ball Bearing No Load Continuous Life (At Nominal Voltage)	15000	<u>(Please order if have special requirement)</u> Hours
Weight (Including 0.5m Line)	Approximate	250 g

#### Φ37-20211-36 BLDC Physical Size (Unit: mm)





Parameters	Φ37-20211-36 BLDC Performance Characteristics (20°C)					Unit
Nominal Voltage	36					V
Maximum Output Power	237					W
(See Curves Below)	No Load Point	Some Loaded Points Performance				
Output Torque	0	0.06	0.08	0.1	0.12	Nm
Output Speed	14300	12940	12490	12040	11590	rpm
Input Current	0.25	2.74	3.58	4.41	5.24	A
Output Power	0	81	105	126	146	W
Efficiency	0	82	81	79	77	%
External Forced Ventilation Cooling	<u>If the shell temperature of the motor is higher than 85°C., more effective cooling equipments must be installed. Otherwise the motor may be damaged by hotness.</u>					



$\eta$ (%)    P(W)    I(A)    N(rpm)  
**100**    **300**    **30**    **15000**

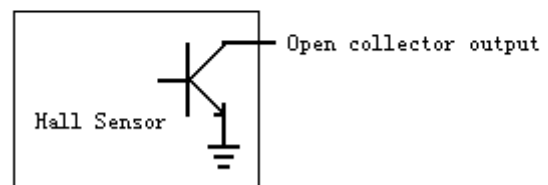
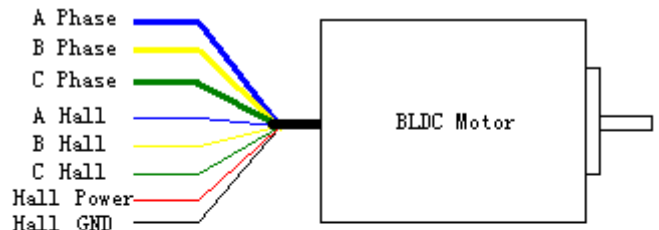
Efficiency vs. Torque :  $\eta$  -----  
 Output Power vs. Torque : P -----  
 Current vs. Torque : I -----  
 Speed vs. Torque : N -----

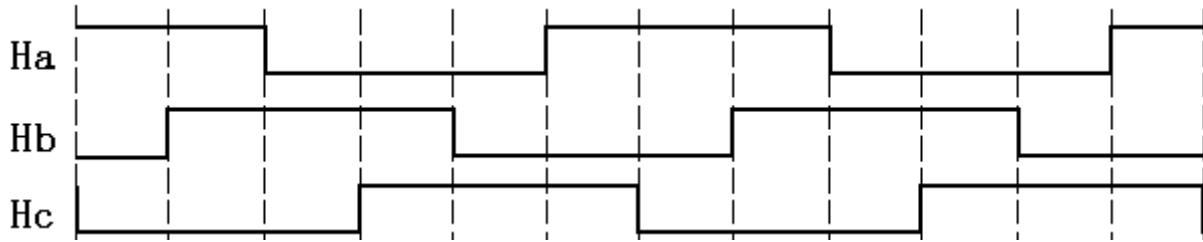
Short Term Operation Range:  

Torque(Nm)

### Φ37-20211-36 BLDC Connection Diagram and Hall Output Waveforms

- Connection: Blue thick--A phase, Yellow thick--B phase, Green thick--C phase, Blue thin--A hall, Yellow thin--B hall, Green thin--C hall, Red thin--Hall power supply, Black thin--Hall GND
- Hall Supply Voltage: 4.5 to 16VDC Regulated Supply
- Hall Power Supply Current: Less than 30mA
- Hall Output: Open collector. Require external pull-up resistors for proper logical operation. Maximum output voltage is 16V
- Electrical Hall Sensor Phasing: 120°
- Line Length: 0.5m, (Please order if have special requirement)

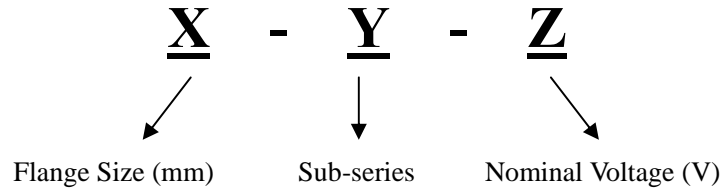




Hall Sensor Output Commutation Waveforms

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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### 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](mailto:SALES@ELETECHNIC.COM)

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

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<http://www.eletechnic.com>

