

4.5 KW BLDC MOTOR SPECIFICATION



TR120-4500W

Highlights

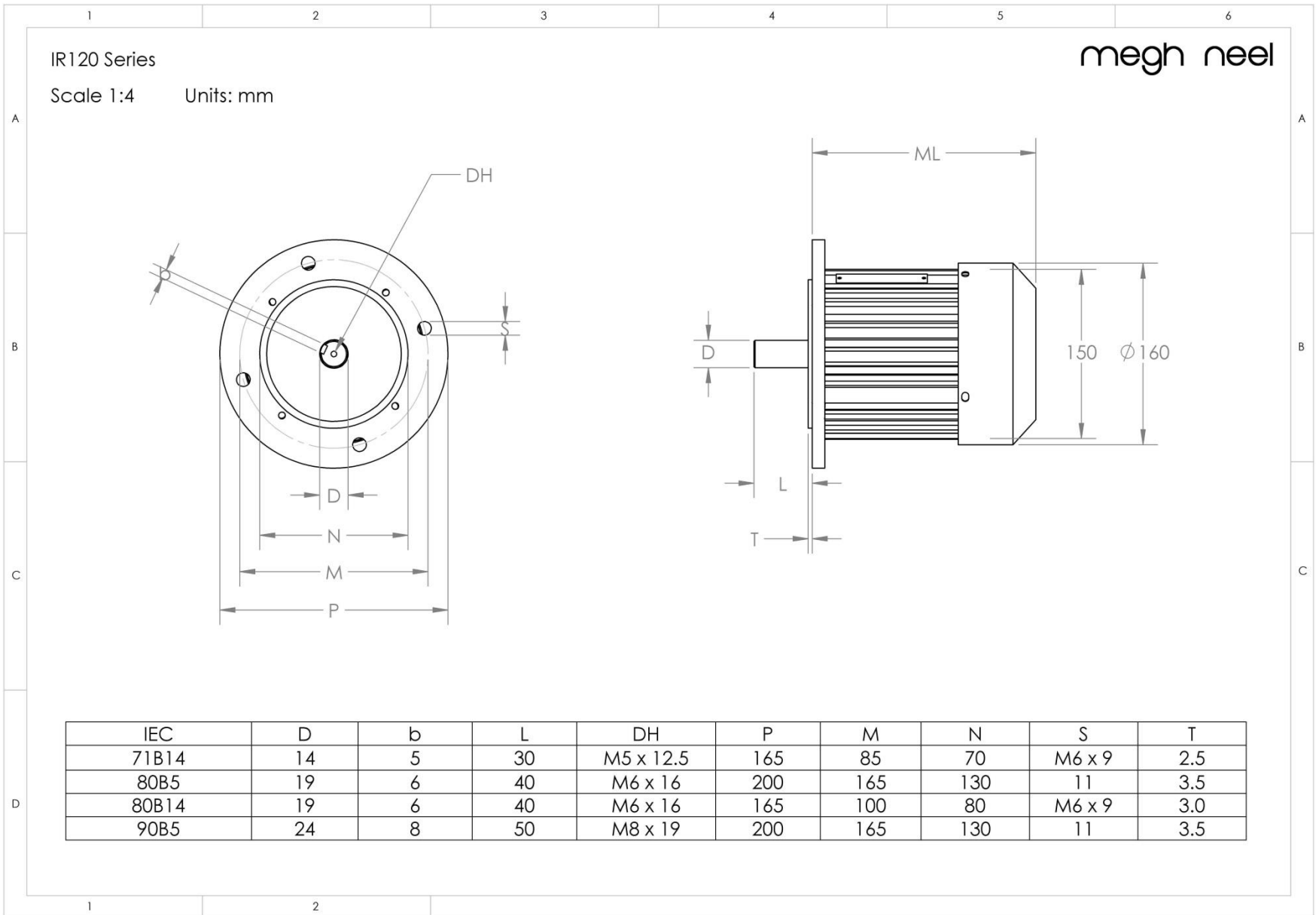
- ✓ 60VDC, 4500Watts (Output), 3750 RPM Brushless DC Motor
- ✓ In-runner with shaft output and keyway
- ✓ External Control
- ✓ Built in Hall Sensors with Hall Effect Angle of 120 degrees
- ✓ Insulation Class F
- ✓ Operating temperature 150°C

Specifications

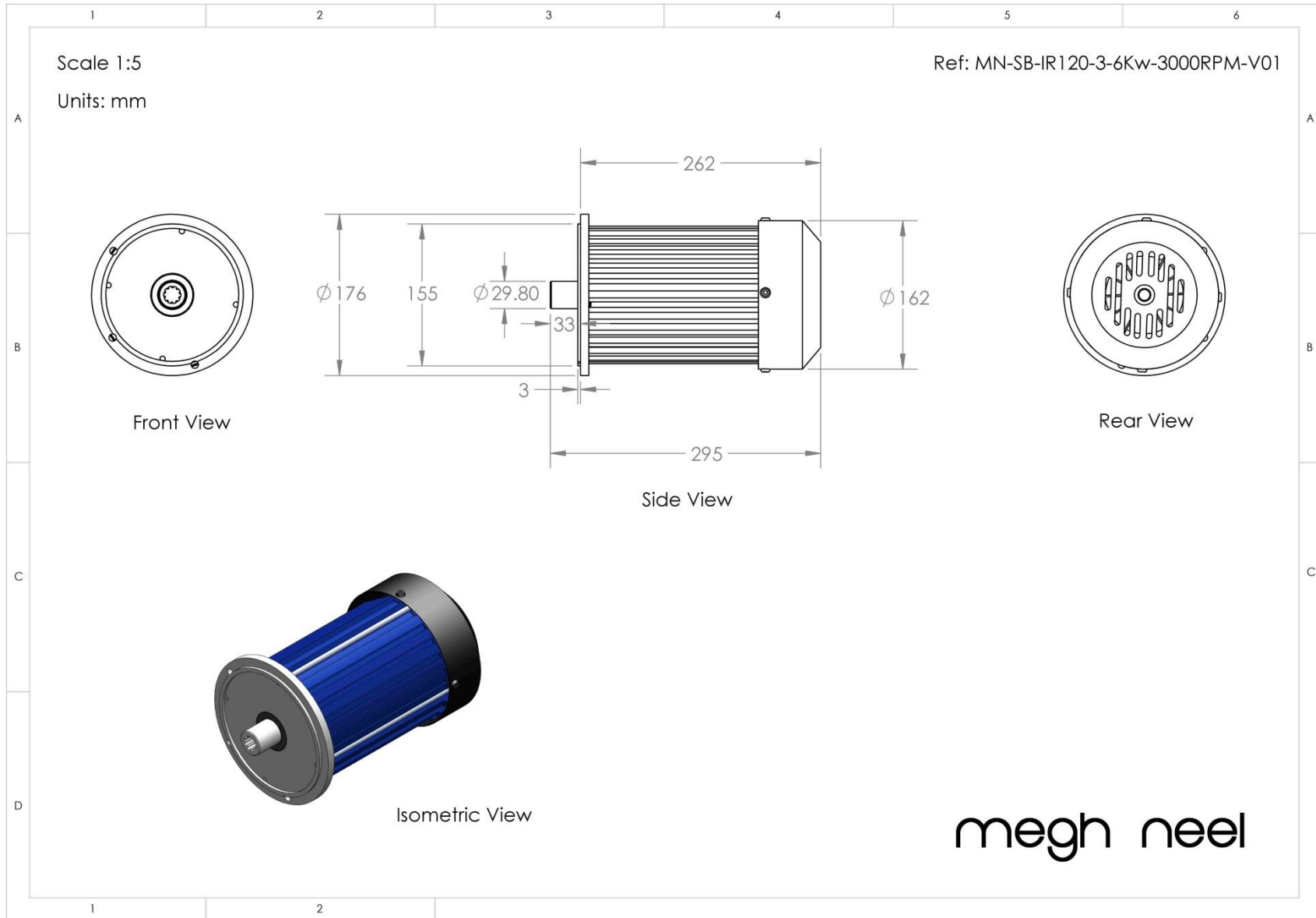
Parameter	Value
Rated Voltage	60VDC
Rated Current	90 A
Rated Power (Output)	4500 Watts
Rated Speed (RPM)	3750 RPM
Rated Torque (Nm)	11.46 Nm
No Load Current (A)	8 A
No Load RPM	5000 RPM
Current Density (A/square mm)	6 A/square mm
Variable Speed Range	0-5000 RPM
Motor Mounting	Flange / Face only
Frame Size	IEC 90B5 (See below)
Motor Diameter	160 mm
Motor Length (ML)	255 mm (With cooling fan)
Shaft Diameter	24 mm diameter
Shaft Length	52 mm
Finish	Powder Coated



Dimensions



Dimensions – Suitable for 3W & 4W Rear Wheel Axle



Motor Performance Characteristics

Voltage	A	Input Watts	RPM	Output Watts	Torque	Efficiency
60	5.7	342	866	221.58	2.444832	0.647896
60	10.5	630	1191	428.28	3.434031	0.679808
60	10.5	630	1191	431.07	3.456391	0.684235
60	21	1260	1761	926.35	5.024047	0.735196
60	30	1800	2175	1346.83	5.914768	0.748238
60	40	2400	2591	1806.65	6.659424	0.752773
60	50.4	3024	2846	2278.48	7.647224	0.753465
60	60	3600	3232	2753.90	8.138462	0.764972
60	74	4440	3755	3612.50	9.188935	0.813627
60	74	4440	3722	3621.68	9.29275	0.815694
60	73.8	4428	3759	3723.78	9.460365	0.840962
60	84	5040	3806	4242.90	10.6479	0.848846
60	90	5400	3806	4600.34	11.54491	0.851915
60	94	5640	3806	4753.50	11.92805	0.852819

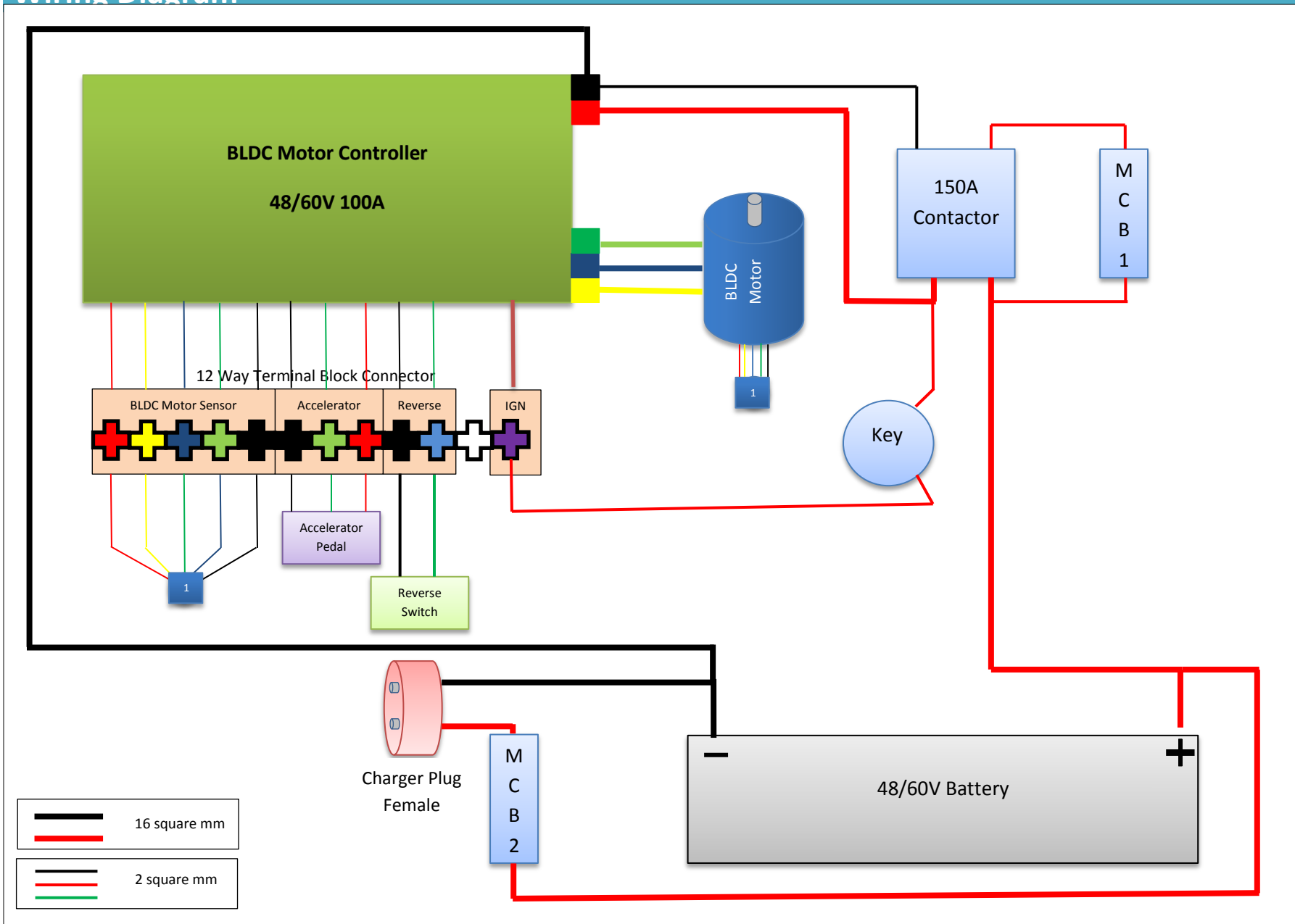


BLDC Motor Controller Technical Specifications

Parameter	Value
Working Voltage	60VDC
Phase Angle	120°
Motor Control Scheme	Trapezoidal Commutation
Rated Output Current	100 A
Max Output Power	6000 W
Cooling	Air Cooled
Peak Current Limit	120 A
Low Voltage Protection	52.5 V +/- 0.5 V
IP Protection	IP54
Weight	< 3 Kg



Wiring Diagram



Controller-Motor Connections

Ignition: Connect the 48/60V Battery Positive to the Controller Red Wire Bullet Connector via a key switch.

Motor Direction:

Connect the Controller Phase Wires and the Hall Sensor wires to the respective wires from the motor as given below to achieve the desired direction

Direction – Clockwise (From the Shaft Side)

Motor Phase Connection	Yellow	Blue	Green		
Controller Phase Connection	Blue	Yellow	Green		
Motor Hall Sensor Connection	Yellow	Blue	Green	Red	Black
Controller Hall Sensor Connection	Yellow	Green	Blue	Red	Black

Direction – Anti-Clockwise (From the Shaft Side)

Motor Phase Connection	Yellow	Blue	Green		
Controller Phase Connection	Yellow	Blue	Green		
Motor Hall Sensor Connection	Yellow	Blue	Green	Red	Black
Controller Hall Sensor Connection	Green	Yellow	Blue	Red	Black

Throttle / Accelerator

Connect the 3 pin female connector (Red, Black, Green) to the throttle/accelerator plug. Ensure that the color codes match while connecting.

Red: +5 VDC, Black: Ground, Green: 0-3.4 VDC

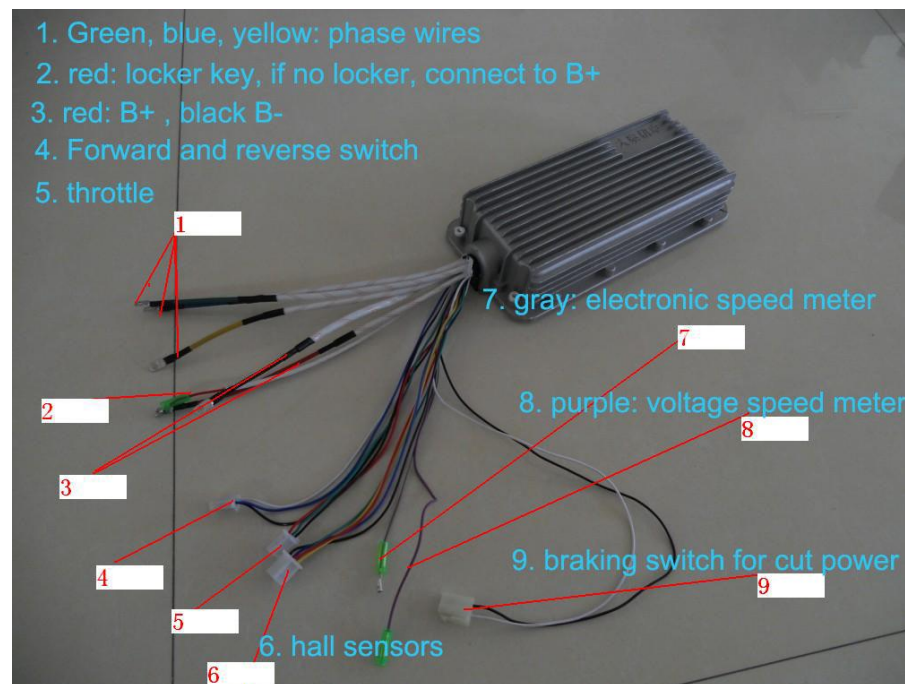


Reverse

From the BLDC Motor Controller, use the 3 pin female connector (Blue, Black, White). Short the black wire with Blue / White using a switch or Joystick to achieve forward/reverse direction.

Brake

From the BLDC Motor Controller, use the 2 pin female connector (Black, White). Short the black wire with Blue / White using brake switch to brake the motor.



Important Instructions for handling Megh Neel 4500 Watts

(Inner runner, 60V, 100A, 3750 RPM)

1. Handle the motor with due care. Please ensure the following
 - a. Do not drop the motor or cause severe physical shock to the outer casing of the motor.
 - b. Do not use a hammer on the motor to prevent damage to the outer casing and the flange that mounts the motor. Use a wooden mallet.
 - c. While installing the motor do not use a hammer on the shaft to prevent the shaft from bending or to prevent damage to the wires.
 - d. Do not lift the motor using the wires as it can damage the wires/short the motor windings.

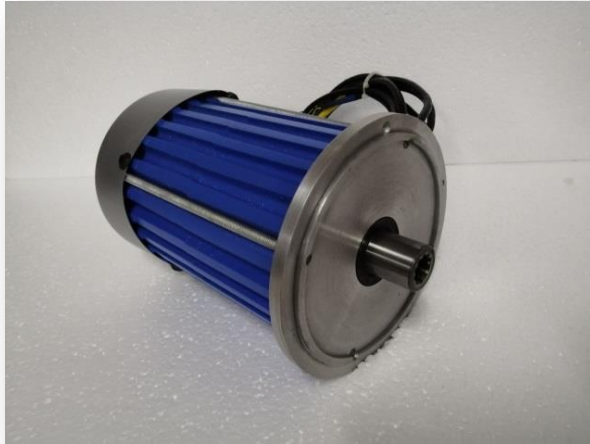
Failure to ensure the above instructions can cause severe damage to motor.

2. Do not attempt to open the motor casings as special fixtures are required to open the same without causing any damage. In case of any problems with the motor - contact us. Do not attempt to service the motor by using the services of local technicians / consultants.
3. Do not attempt to run the motor using the wrong hall sensor or phase wire sequence. As under extreme conditions it can cause the following
 - a. Heat the motor windings
 - b. Fail the motor controller
4. Please ensure that motor is not overloaded. Use appropriate gear ratios to ensure that the motor is not loaded above the rated limit during normal operating condition.

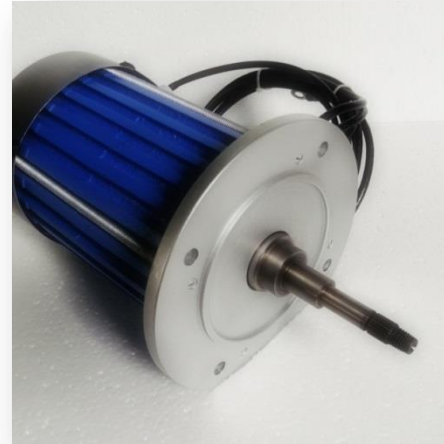


Photo Gallery

Mounting & Shaft Suitable for Differential Gear Box



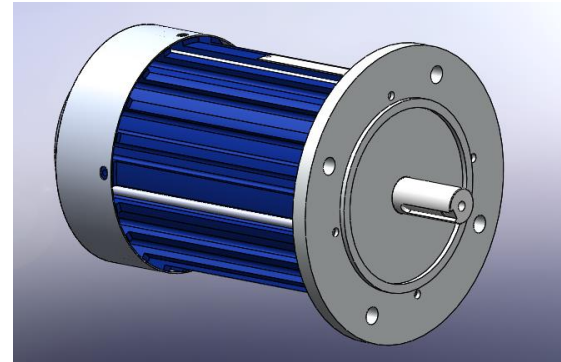
Standard Flange Mounting with Custom Shaft



Custom flange & face mounting with custom shaft



3D CAD Rendering of 6 Kw motor flange mounting and 24 mm shaft (90B5)



Contact Information

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