6 KW BLDC MOTOR SPECIFICATION

megh neel

TR120-6000W-4000RPM

Highlights

- ✓ 60VDC/72VD, 6000 Watts (Input), 4000 RPM Brushless DC Motor.
- ✓ In-runner with shaft output and keyway or Hollow shaft with internal splines suitable for differential gear box
- ✓ External Control
- ✓ Built in Hall Sensors with Hall Effect Angle of 120 degrees
- ✓ Insulation Class F
- ✓ Maximum operating temperature of 150^{o}C

Specifications

Parameter	Value	
Rated Voltage*	60 VDC	72 VDC
Rated Current	100 A	83 A
Rated Power (Input)	6000 Watts	
Rated Speed (RPM)	3800 RPM	
Rated Torque (Nm)	12.8 Nm	
Peak Torque (Nm)	31 Nm	
No Load Current (A)	8.5 A	
No Load RPM	4500 RPM	
Current Density (A/square mm)	6 A/square mm	
Variable Speed Range	0-4500 RPM	
Motor Mounting	Flange / Face only	
Frame Size	IEC 80B5 (See below)	
Motor Diameter	160 mm	
Motor Length (ML)	255 mm (With cooling fan)	
Shaft Diameter	19 mm diameter	
Shaft Length	52 mm	
Finish	Powder Coated	

***Note:** Please specify voltage while ordering.

Dimensions

IR120 Series

Scale 1:4 Units: mm

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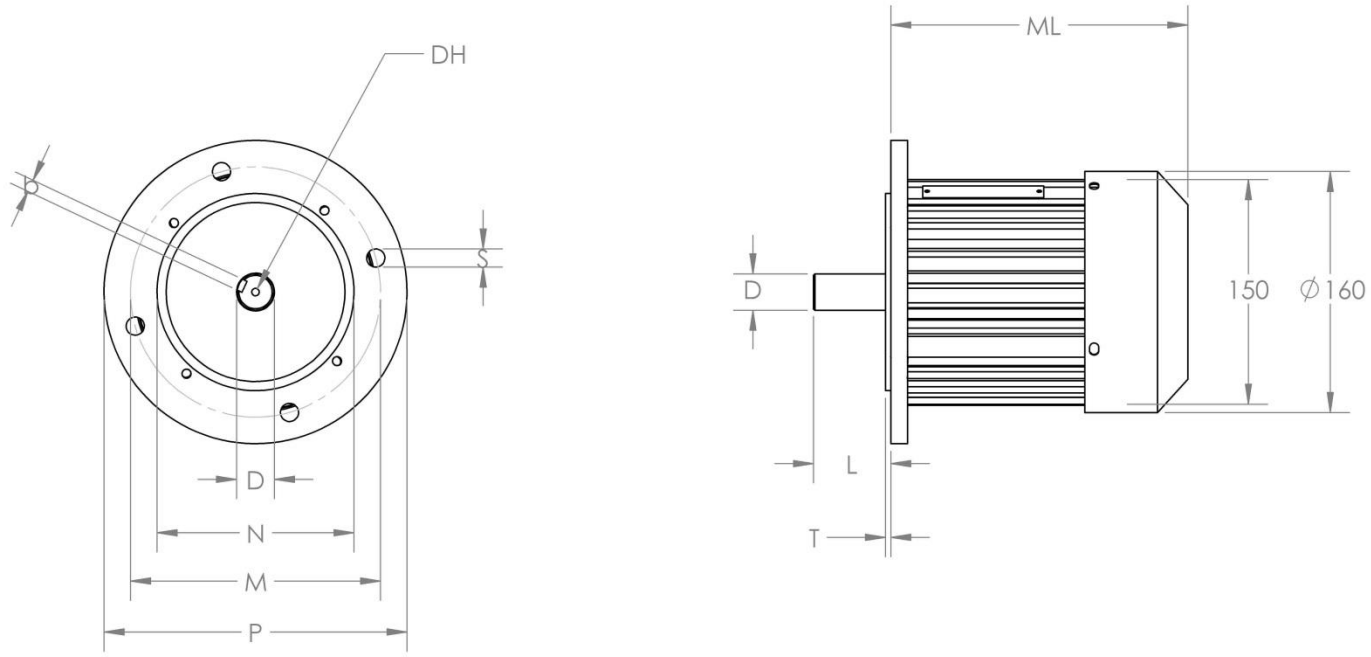


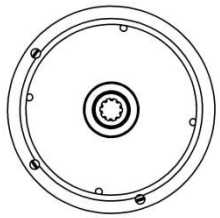
IEC	D	b	L	DH	P	M	N	S	T
71B14	14	5	30	M5 x 12.5	165	85	70	M6 x 9	2.5
80B5	19	6	40	M6 x 16	200	165	130	11	3.5
80B14	19	6	40	M6 x 16	165	100	80	M6 x 9	3.0
90B5	24	8	50	M8 x 19	200	165	130	11	3.5

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

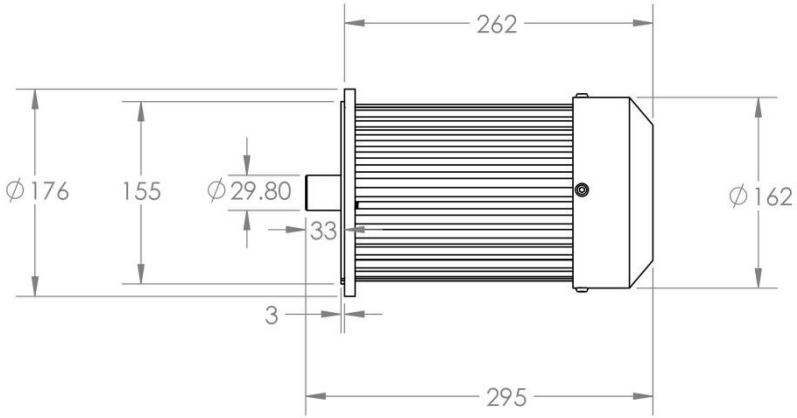
Scale 1:5

Units: mm

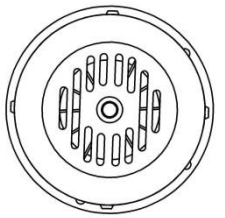
Ref: MN-SB-IR120-3-6Kw-3000RPM-V01



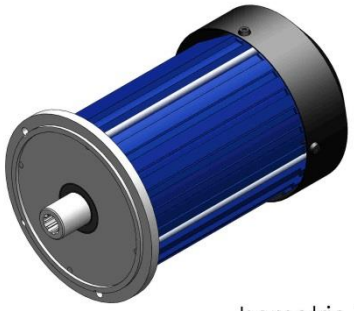
Front View



Side View



Rear View



Isometric View

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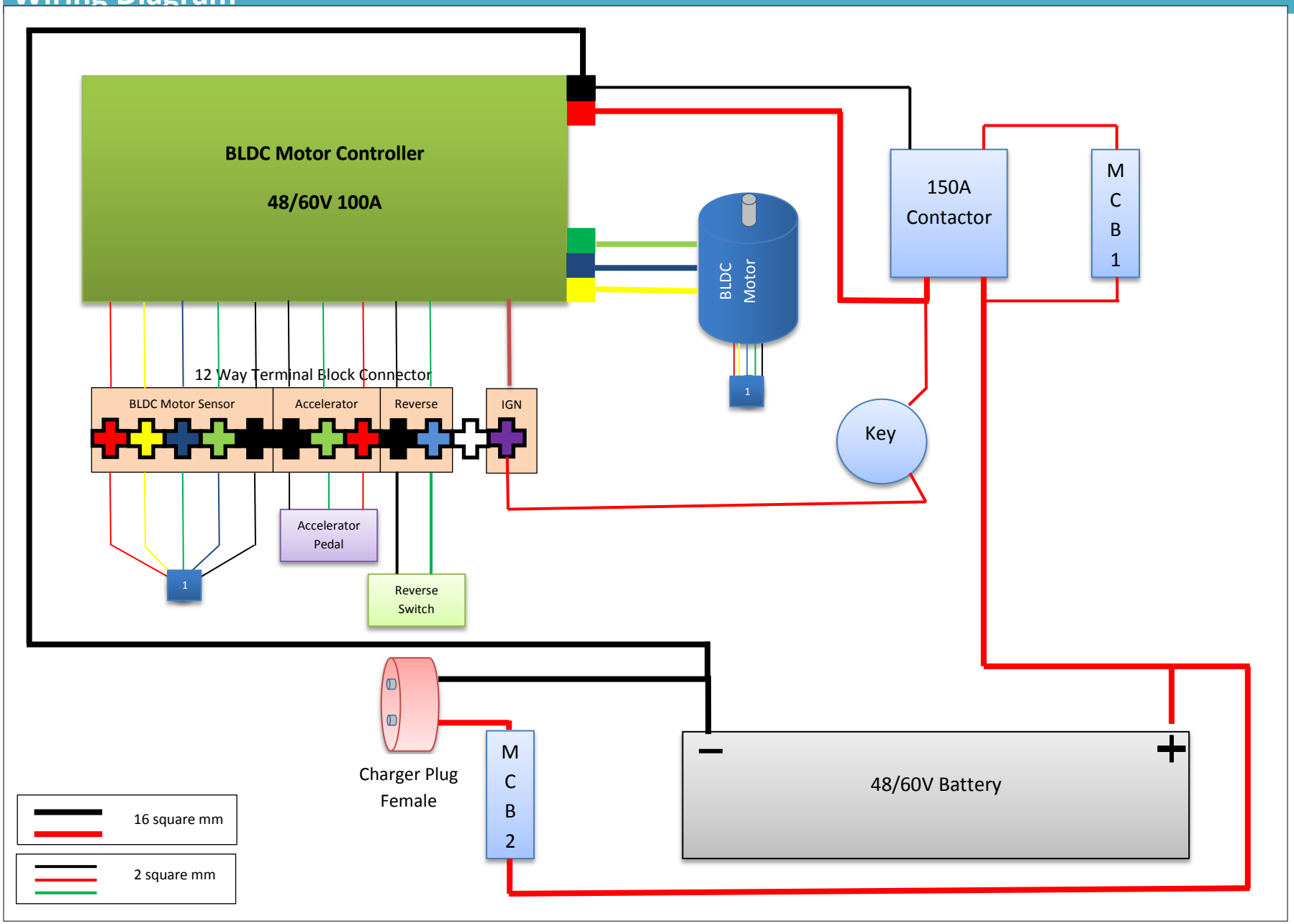
Motor Performance Characteristics

Input		Watts	RPM	Net Output	Torque Nm	Efficiency
VDC	A			Watts		
60.88	4.63	282.15	714.2	182.80	2.44	64.79%
60.78	8.59	521.85	986.7	354.76	3.43	67.98%
60.70	8.53	517.65	978.8	354.19	3.46	68.42%
0.00	16.80	1014.30	1417.7	745.71	5.02	73.52%
0.00	24.00	1419.00	1714.5	1061.75	5.91	74.82%
59.13	31.32	1852.00	1999.5	1394.13	6.66	75.28%
59.23	38.89	2303.28	2167.5	1735.44	7.65	75.35%
59.30	45.03	2670.00	2397.0	2042.48	8.14	76.50%
59.20	53.75	3182.00	2691.0	2588.96	9.19	81.36%
59.23	56.98	3374.40	2829.0	2752.48	9.29	81.57%
59.30	58.99	3498.12	2970.0	2941.79	9.46	84.10%
0.00	67.20	4015.20	3032.0	3380.18	10.65	84.18%
59.75	75.51	4512.00	3045.0	3802.80	11.93	84.28%
59.75	83.83	5008.80	3380.3	4239.33	11.98	84.64%
59.75	92.14	5505.60	3715.5	4707.85	12.10	85.51%
59.75	100.46	6002.40	4050.8	5190.88	12.24	86.48%
59.90	100.50	6019.95	4052.5	5273.01	12.43	87.59%

BLDC Motor Controller Technical Specifications

Parameter	Value
Working Voltage	60VDC / 72VDC
Phase Angle	120^{o}
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 60V/72V 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.

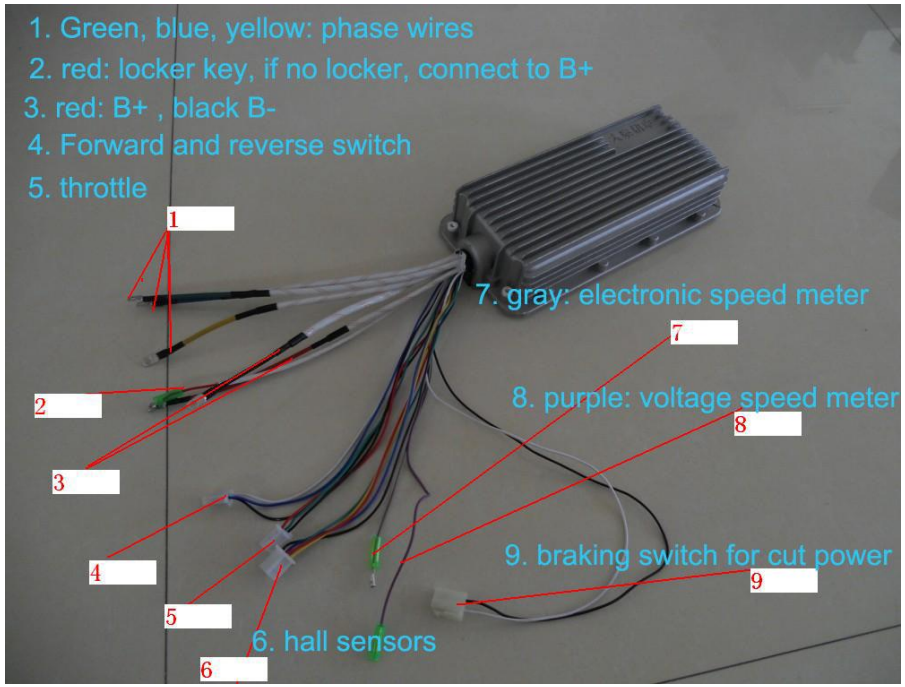
Red: +5 VDC, Black: Ground, Green: 0-3.4 VDC

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 6000 Watts

(Inner runner, 60V/72V, 100A, 4000 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.

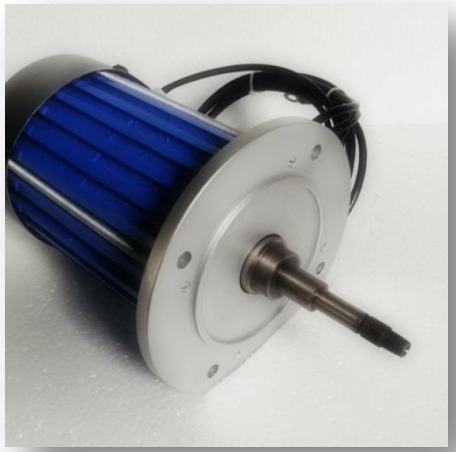
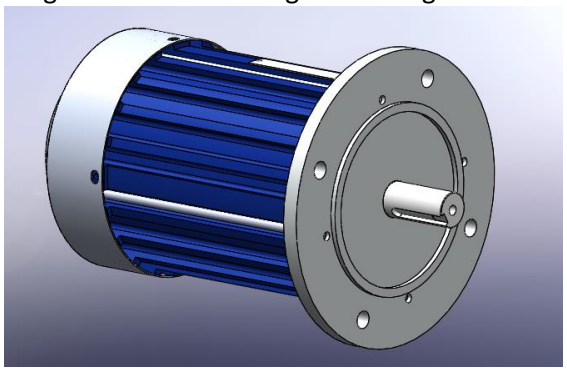
2. Do not attempt to open the motor casings as special fixtures are required to open the same without causing any damage. In case of any problems with the motor - contact us. Do not attempt to service the motor by using the services of local technicians / consultants.

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

Registered Office:

Megh Neel Renewable Power Systems Private Limited,
2/19, Elite Avenue,
Near Shivaram Nagar, Ganapathy,
Coimbatore – 641006

Mobile: +91-98410 79631 (Navin), +91-7708066207 (Sales)
Land Line: +91-422-2510165
Email: sales@meghneel.co.in
Web: www.meghneel.co.in

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