Kunray MY1020

Kunray MY1020 48V 2000W Brushless DC Motor User Manual

Model: MY1020

1. Safety Information

Please read all safety instructions carefully before installing or operating the Kunray MY1020 Brushless DC Motor. Failure to follow these instructions may result in injury, damage to the product, or property damage.

- **Burn Hazard:** Do not touch the motor with your body during or immediately after use, as it can become very hot and cause burns.
- **Installation:** Read the installation instructions thoroughly before use to prevent damage to your device. If you are unsure about any step, seek professional assistance.
- **Intended Use:** Kunray motors are designed for off-road use only. Ensure compliance with all local laws and regulations regarding the use of electric motors in vehicles.
- **Traffic Safety:** Always yield to pedestrians and obey all traffic regulations. Be aware that riding on sidewalks may be prohibited in your area.
- **Age Restriction:** This product is not suitable for individuals under 14 years of age.
- **Water Exposure:** The motor has an IP54 level protection, meaning it is protected against daily rain splashes. It cannot be directly soaked in water.

Image 1.1: Motor safety operation warning sign. This sign highlights risk factors such as mechanical damage, electric shock, squeeze collision, object strike, and other injuries. It advises reading instructions carefully before operation and contacting customer service for problems.

2. Product Overview

The Kunray MY1020 is a high-speed brushless DC (BLDC) motor designed for various electric vehicle and DIY applications. It features robust construction and efficient performance.

Image 2.1: The Kunray MY1020 Brushless DC Motor, showcasing its aluminum body and integrated wiring harness.

Key Features:

- **Motor Type:** High-Speed BLDC Brushless Motor.
- **Construction:** Durable aluminum body with full copper coil for enhanced conductivity and longevity.
- **Cooling:** Naturally air-cooled design, heat resistant for sustained operation.
- **Performance:** Low noise operation, high quality, and extended service life.
- **Heat Sink:** Equipped with a removable snap-in radiator to reduce motor temperature by up to 30%, extending operational time and motor life. The radiator is made of extruded aluminum for fast heat conduction.
- **Protection:** IP54 level protection against rain splashes.

Image 2.2: An internal view of the motor, illustrating the high-quality copper core windings that contribute to its smooth and powerful operation.

Applications:

This motor is suitable for a wide range of electric applications, including:

- Electric Scooters
- Folding Bikes
- Small E-Motos
- Mini Electric Cars
- Go Karts
- DIY machine engines and custom electric projects

Image 2.3: Examples of the Kunray MY1020 motor integrated into different electric vehicles, demonstrating its versatility.

3. Setup and Installation

Proper installation is crucial for the safe and efficient operation of your Kunray MY1020 motor. If you are not experienced with electrical systems or motor installation, it is highly recommended to seek professional assistance.

3.1. Unpacking and Inspection

- Carefully remove the motor from its packaging.
- Inspect the motor for any visible damage that may have occurred during shipping.
- Verify that all components listed in the packaging are present. The package typically includes 1pcs motor.

3.2. Physical Installation

The motor is designed for center/mid-drive installation. Ensure the mounting surface is stable and capable of supporting the motor's weight (approximately 4.2 kg).

Image 3.1: Technical drawing illustrating the precise dimensions of the Kunray MY1020 motor, including diameter (107mm) and mounting points.

- Mount the motor securely using appropriate fasteners. Refer to the dimension diagram for mounting hole patterns.
- Ensure proper alignment for the T8F sprocket chain application.

3.3. Electrical Connections

The motor features a wiring harness with 3 larger wires for motor phases and 5 smaller wires for Hall sensors. Correct wiring is essential for proper motor function and to prevent damage.

- Connect the three phase wires (typically thicker) from the motor to the corresponding phase outputs on your BLDC motor controller.
- Connect the five Hall sensor wires (typically thinner) to the Hall sensor input on your BLDC motor controller. Ensure correct polarity and sequence.
- Connect the motor controller to a compatible 48V power source (battery).
- Always double-check all connections before applying power to avoid short circuits or component damage.

4. Operating Instructions

Once the motor is correctly installed and wired to a compatible controller and power source, follow these general operating guidelines:

- **Power On:** Activate the power supply to the motor controller.
- **Throttle Control:** Use the throttle or control input connected to your motor controller to gradually increase motor speed.
- **Monitoring:** Pay attention to any unusual noises, vibrations, or excessive heat during initial operation. If any anomalies are detected, immediately power off the system and troubleshoot.
- **Load Management:** Avoid overloading the motor beyond its specified power and current limits to prevent overheating and damage.

Image 4.1: The Kunray MY1020 motor, designed to deliver high torque and strong power for demanding applications.

5. Maintenance

Regular maintenance helps ensure the longevity and optimal performance of your Kunray MY1020 motor.

5.1. Cleaning

- Keep the motor clean and free from dust, dirt, and debris. Use a soft, dry cloth for cleaning.
- Ensure the cooling fins of the heat sink are clear of obstructions to maintain efficient heat dissipation.

Image 5.1: The Kunray MY1020 motor with its heat sink assembly, designed for efficient thermal management.

5.2. Heat Sink Management

The motor features a removable heat sink for improved thermal performance.

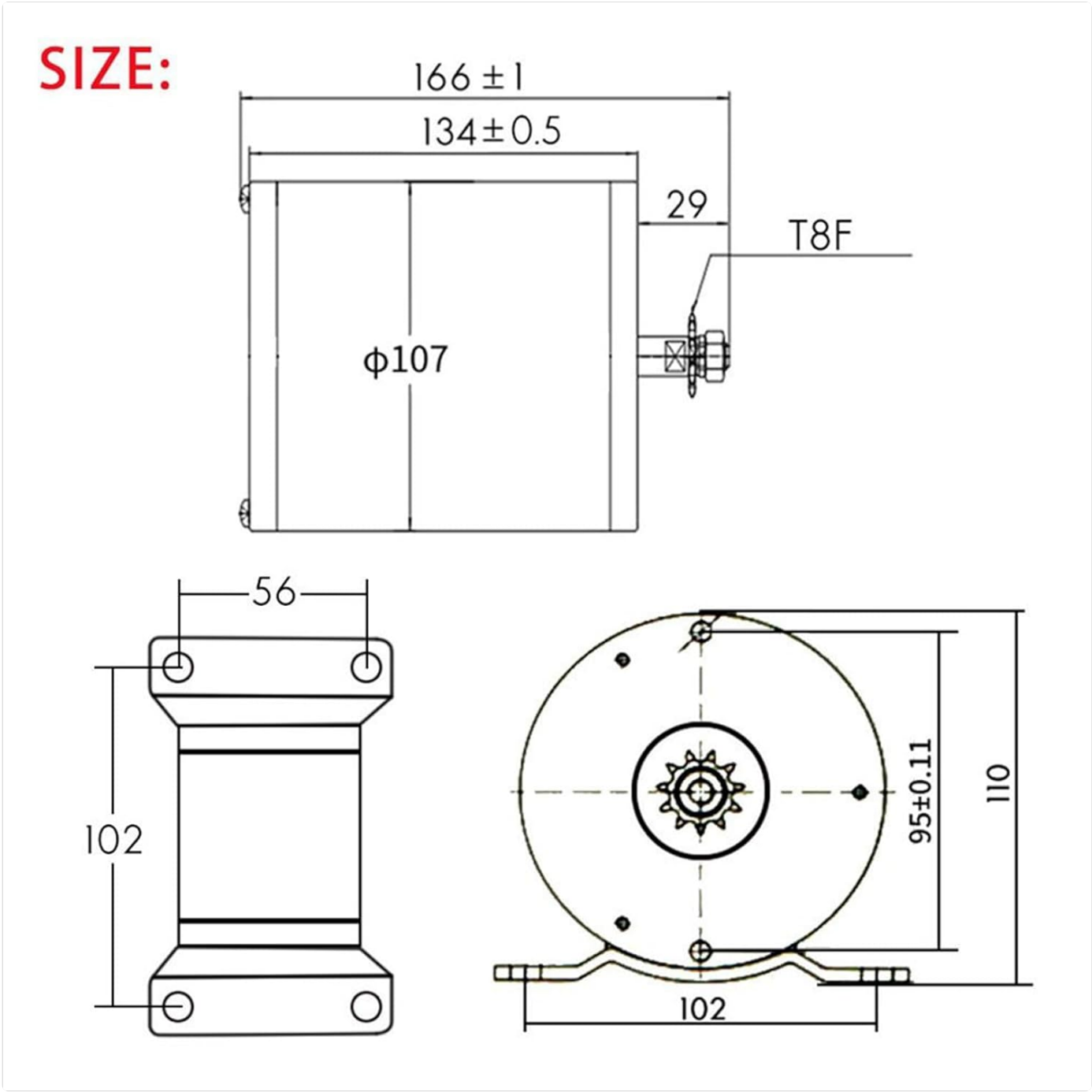
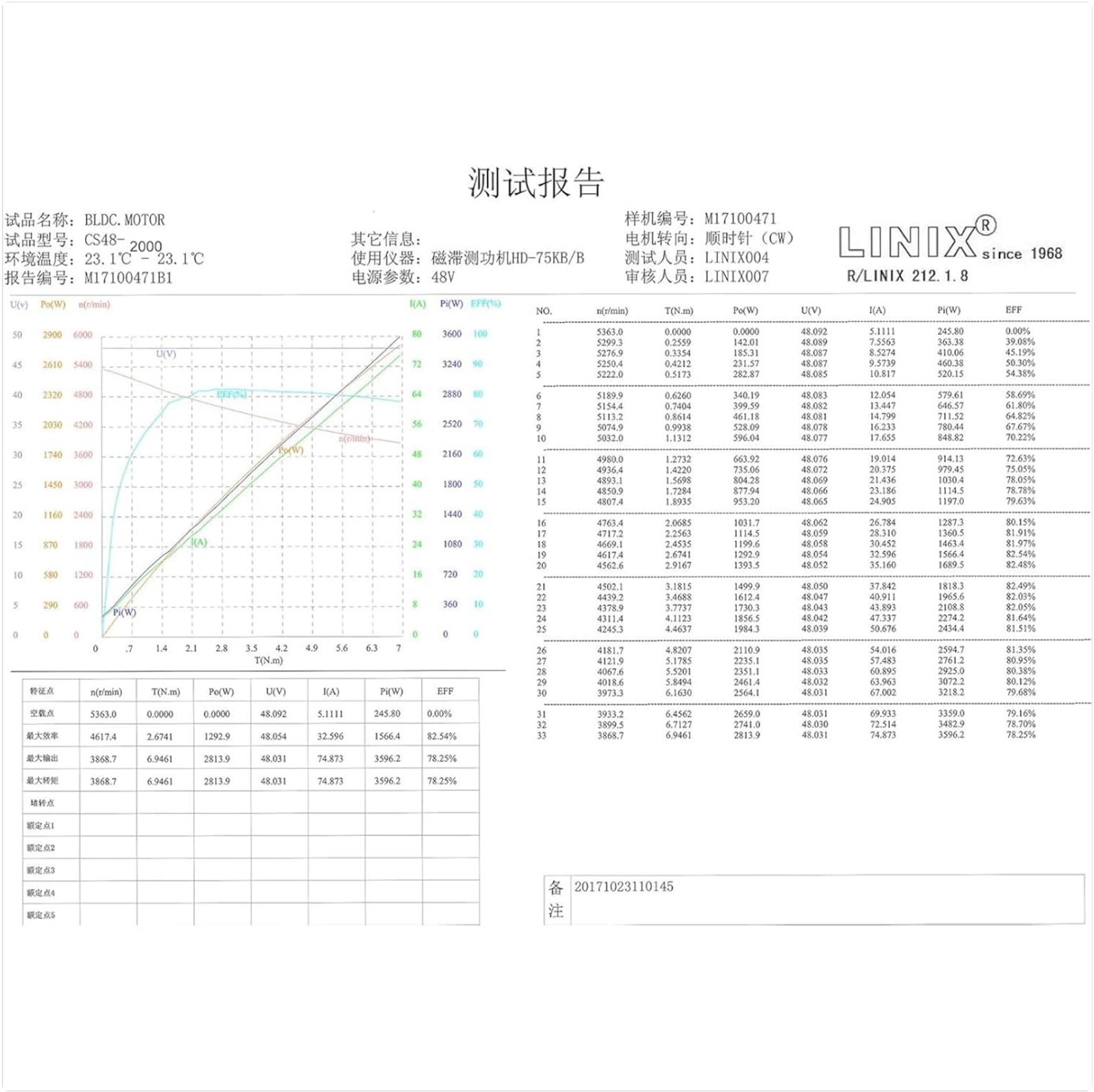


Image 5.2: The removable heat sink component, which can be detached for cleaning or specific vehicle configurations.

- The heat sink can be detached for cleaning or to adapt to different vehicle models.
- When reattaching the heat sink, ensure the thermal grease pad is properly positioned between the motor and the heat sink for optimal heat transfer.



测试报告

试品名称：BLDC.MOTOR
试品型号：CS48-2000
环境温度：23.1℃ - 23.1℃
报告编号：M17100471B1

其它信息：
使用仪器：磁滞测功机HD-75KB/B
电源参数：48V

样机编号：M17100471
电机转向：顺时针（CW）
测试人员：LINIX004
审核人员：LINIX007

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特征点	n(r/min)	T(N.m)	Po(W)	U(V)	I(A)	Pi(W)	EFF
空载点	5363.0	0.0000	0.0000	48.092	5.1111	245.80	0.00%
最大效率	4617.4	2.6741	1292.9	48.054	32.596	1566.4	82.54%
最大输出	3868.7	6.9461	2813.9	48.031	74.873	3596.2	78.25%
最大转矩	3868.7	6.9461	2813.9	48.031	74.873	3596.2	78.25%
堵转点							
额定点1							
额定点2							
额定点3							
额定点4							
额定点5							

NO.	n(r/min)	T(N.m)	Po(W)	U(V)	I(A)	Pi(W)	EFF
1	5363.0	0.0000	0.0000	48.092	5.1111	245.80	0.00%
2	5299.3	0.2559	142.01	48.089	7.5563	363.38	39.08%
3	5276.9	0.3354	185.31	48.087	8.5274	410.06	45.19%
4	5250.4	0.4212	231.57	48.087	9.5739	460.38	50.30%
5	5222.0	0.5173	282.87	48.085	10.817	520.15	54.38%
6	5189.9	0.6260	340.19	48.083	12.054	579.61	58.69%
7	5154.4	0.7404	399.59	48.082	13.447	646.57	61.80%
8	5113.2	0.8614	461.18	48.081	14.799	711.52	64.82%
9	5074.9	0.9938	528.09	48.078	16.233	780.44	67.67%
10	5032.0	1.1312	596.04	48.077	17.655	848.82	70.22%
11	4980.0	1.2732	663.92	48.076	19.014	914.13	72.63%
12	4936.4	1.4220	735.06	48.072	20.375	979.45	75.05%
13	4893.1	1.5698	804.28	48.069	21.436	1030.4	78.05%
14	4850.9	1.7284	877.94	48.066	23.186	1114.5	78.78%
15	4807.4	1.8935	953.20	48.065	24.905	1197.0	79.63%
16	4763.4	2.0685	1031.7	48.062	26.784	1287.3	80.15%
17	4717.2	2.2563	1114.5	48.059	28.310	1360.5	81.91%
18	4669.1	2.4535	1199.6	48.058	30.452	1463.4	81.97%
19	4617.4	2.6741	1292.9	48.054	32.596	1566.4	82.54%
20	4562.6	2.9167	1393.5	48.052	35.160	1689.5	82.48%
21	4502.1	3.1815	1499.9	48.050	37.842	1818.3	82.49%
22	4439.2	3.4688	1612.4	48.047	40.911	1965.6	82.03%
23	4378.9	3.7737	1730.3	48.043	43.893	2108.8	82.05%
24	4311.4	4.1123	1856.5	48.042	47.337	2274.2	81.64%
25	4245.3	4.4637	1984.3	48.039	50.676	2434.4	81.51%
26	4181.7	4.8207	2110.9	48.035	54.016	2594.7	81.35%
27	4121.9	5.1785	2235.1	48.035	57.483	2761.2	80.95%
28	4067.6	5.5201	2351.1	48.033	60.895	2925.0	80.38%
29	4018.6	5.8494	2461.4	48.032	63.963	3072.2	80.12%
30	3973.3	6.1630	2564.1	48.031	67.002	3218.2	79.68%
31	3933.2	6.4562	2659.0	48.031	69.933	3359.0	79.16%
32	3899.5	6.7127	2741.0	48.030	72.514	3482.9	78.70%
33	3868.7	6.9461	2813.9	48.031	74.873	3596.2	78.25%

备注	20171023110145

Image 5.3: The heat sink shown with a thermal grease pad, which is essential for efficient heat transfer from the motor.

5.3. General Inspection

- Periodically check all electrical connections for tightness and signs of wear or corrosion.
- Inspect the motor housing for any cracks or damage.
- Ensure the sprocket and chain are in good condition and properly lubricated.

6. Troubleshooting

This section provides basic troubleshooting steps for common issues. For complex problems, contact customer support.

Problem	Possible Cause	Solution
Motor does not start	No power to controller; Loose electrical connections; Faulty controller; Damaged Hall sensors.	Check battery and power supply; Verify all wiring connections; Test controller functionality; Inspect Hall sensor wires.

Problem	Possible Cause	Solution
Motor runs intermittently	Loose Hall sensor connections; Intermittent power supply; Overheating.	Secure Hall sensor wires; Check battery and controller connections; Allow motor to cool down, ensure proper ventilation.
Unusual noise or vibration	Misaligned chain/sprocket; Loose mounting; Internal motor damage.	Check and adjust chain/sprocket alignment; Tighten mounting bolts; Contact support if internal damage is suspected.
Motor overheats	Excessive load; Insufficient cooling; Blocked heat sink fins.	Reduce load; Ensure adequate airflow around the motor; Clean heat sink fins; Verify thermal grease pad is correctly installed.

7. Specifications

Detailed technical specifications for the Kunray MY1020 Brushless DC Motor.

Specification	Value
Model	MY1020
Motor Type	High-Speed BLDC Brushless Motor
Rated Voltage	48 Volts
Output Power	2000 Watts
Rated Current (48V)	42A
Rated Speed (48V)	4300 RPM (max: 5400 RPM)
Weight	Approximately 4.2 KG (11 Pounds packaged)
Diameter	107mm
Installation Type	Center, Mid Drive
Application Chain	T8F Sprocket Chain
Wiring	3 Phase wires, 5 Hall sensor wires
Material	Aluminum
Protection Level	IP54 (Protected against dust and splashing water)

8. Warranty and Support

For warranty information, technical support, or any inquiries regarding your Kunray MY1020 motor, please contact Kunray customer service directly. Refer to the product packaging or the official Kunray website for contact details.
When contacting support, please have your product model (MY1020) and purchase information readily available.