



Manuals.plus /

- › **Mighty Max Battery** /
- › Mighty Max Battery ML12-6F2 6V 12AH SLA Battery User Manual

## Mighty Max Battery ML12-6F2

# Mighty Max Battery ML12-6F2 6V 12AH SLA Battery User Manual

**Brand:** Mighty Max Battery

**Model:** ML12-6F2

[Overview](#)

[Safety Information](#)

[Installation  
Specifications](#)

[Operation  
Warranty](#)

[Maintenance](#)

[Troubleshooting](#)

## 1. PRODUCT OVERVIEW

The Mighty Max Battery ML12-6F2 is a 6V 12AH Sealed Lead Acid (SLA) rechargeable battery designed for various applications, including UPS systems. This maintenance-free battery is UL Certified and engineered for reliable performance across a wide range of operating temperatures.

### Key Features:

- **Model:** ML12-6F2 SLA, 6V 12AH.
- **Construction:** Sealed Lead Acid (SLA) / Absorbent Glass Mat (AGM) technology ensures a spill-proof design.
- **Maintenance-Free:** Requires no water additions or specific maintenance during its service life.
- **Durability:** Designed to resist shocks and vibrations, offering long-lasting high performance in both high and low temperatures.
- **Versatile Mounting:** Can be mounted in any position or orientation without affecting performance.
- **Certification:** UL Certified for safety and quality assurance.
- **Terminals:** Features F2 terminals for secure connections.



Figure 1.1: Mighty Max Battery ML12-6F2 6V 12AH SLA Battery. This image displays the exterior of the battery, highlighting its compact design and branding.

## 2. SAFETY INFORMATION

Please read and understand all safety instructions before installing or operating the battery. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Always wear appropriate personal protective equipment (PPE), including safety glasses and gloves, when handling batteries.
- Do not short circuit the battery terminals. This can cause severe sparks, heat, and potential explosion.
- Keep the battery away from open flames, sparks, and heat sources. Batteries can produce flammable gases.
- Do not disassemble, crush, puncture, or modify the battery. Internal components are corrosive and can cause injury.
- Avoid contact with battery acid. If contact occurs, flush immediately with water and seek medical attention.
- Do not charge the battery in a sealed container. Ensure adequate ventilation during charging.
- Store batteries in a cool, dry place, away from direct sunlight and extreme temperatures.

- Dispose of batteries properly according to local regulations. Do not dispose of in household waste.

### 3. INSTALLATION GUIDE

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This section provides general guidelines for installing your Mighty Max Battery. Always refer to the specific instructions of the equipment the battery is being installed into for detailed steps.

1. **Preparation:** Ensure the equipment is turned off and disconnected from any power source. Gather necessary tools (e.g., screwdriver, wrench) and wear safety gear.
2. **Remove Old Battery (if applicable):** Carefully disconnect the negative (-) terminal first, then the positive (+) terminal. Remove any mounting hardware and extract the old battery.
3. **Inspect New Battery:** Check the new Mighty Max Battery for any signs of damage. Verify that the voltage and capacity match the requirements of your equipment.
4. **Positioning:** Place the new battery in the designated compartment. The SLA/AGM design allows for mounting in any position (upright, side, or inverted) without leakage.
5. **Connect Terminals:** Connect the positive (+) terminal first, then the negative (-) terminal. Ensure connections are tight and secure to prevent arcing or poor performance. The ML12-6F2 uses F2 terminals.
6. **Secure Battery:** If applicable, secure the battery with any original mounting hardware to prevent movement during operation.
7. **Initial Charge:** For optimal performance, it is recommended to fully charge the battery before its first use. Refer to the "Operation" section for charging instructions.



Figure 3.1: Close-up view of an F2 battery terminal. This image illustrates the F2 terminal type, which is used on the ML12-6F2 battery for electrical connections.

Your browser does not support the video tag.

Video 3.1: Mighty Max Battery Product Overview. This video provides a general overview of Mighty Max batteries, demonstrating features like shock resistance, various terminal types, spill-proof design, and mounting versatility. It also shows a battery being installed in a motorcycle.

## 4. OPERATION AND CHARGING

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The Mighty Max ML12-6F2 battery is designed for reliable power delivery. Proper charging is crucial for maximizing its lifespan and performance.

### Charging Guidelines:

- Use a charger specifically designed for 6V Sealed Lead Acid (SLA) or AGM batteries.
- **Floating Use (Standby):** For applications where the battery is continuously connected to a charger and used as a backup power source (e.g., UPS), the recommended voltage regulation is 6.80V - 6.90V.
- **Cycle Use:** For applications where the battery is regularly discharged and recharged (e.g., portable devices), the recommended voltage regulation is 7.25V - 7.45V.

- **Initial Current:** The initial charging current should be less than 3.6A.
- Avoid overcharging, as this can damage the battery and reduce its lifespan.
- Charge the battery in a well-ventilated area.

### **Discharge:**

The battery is designed for a high discharge rate. Avoid deep discharges whenever possible to prolong battery life. Recharge the battery promptly after discharge.

## **5. MAINTENANCE AND STORAGE**

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The Mighty Max ML12-6F2 is a maintenance-free battery, but proper care and storage practices will ensure its longevity.

### **General Maintenance:**

- Keep battery terminals clean and free of corrosion. Use a wire brush and a mixture of baking soda and water to clean if necessary, then rinse with clean water and dry thoroughly.
- Ensure all connections are tight and secure.
- Regularly inspect the battery casing for any signs of damage, cracks, or swelling. If damage is observed, discontinue use and replace the battery.

### **Storage:**

- Store the battery in a cool, dry, and well-ventilated area, away from direct sunlight, heat sources, and corrosive materials.
- The optimal storage temperature is around 25°C (77°F).
- For long-term storage, fully charge the battery before storing. Recharge the battery every 3-6 months to prevent self-discharge and maintain capacity.
- Avoid storing the battery in temperatures below -15°C (5°F) or above 50°C (122°F).

## **6. TROUBLESHOOTING**

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If you encounter issues with your Mighty Max Battery, refer to the common problems and solutions below. If the problem persists, contact customer support.

Problem	Possible Cause	Solution
Battery not holding a charge	<ul style="list-style-type: none"> <li>Faulty charger</li> <li>Over-discharge</li> <li>End of battery life</li> <li>Poor connections</li> </ul>	<ul style="list-style-type: none"> <li>Test charger with another battery or use a different charger.</li> <li>Avoid deep discharges. Recharge promptly.</li> <li>Replace battery if it has reached its end of life.</li> <li>Check and tighten all terminal connections.</li> </ul>
Equipment not powering on	<ul style="list-style-type: none"> <li>Battery not charged</li> <li>Incorrect installation</li> <li>Faulty equipment</li> </ul>	<ul style="list-style-type: none"> <li>Ensure battery is fully charged.</li> <li>Verify correct positive and negative terminal connections.</li> <li>Test the equipment with a known good power source or battery.</li> </ul>
Battery swelling or leaking	<ul style="list-style-type: none"> <li>Overcharging</li> <li>Internal damage</li> <li>Exposure to extreme heat</li> </ul>	<ul style="list-style-type: none"> <li>Immediately discontinue use.</li> <li>Do not attempt to charge or use.</li> <li>Safely remove and dispose of the battery according to local regulations.</li> <li>Replace with a new battery.</li> </ul>

## 7. PRODUCT SPECIFICATIONS

Detailed technical specifications for the Mighty Max Battery ML12-6F2.

Feature	Detail
<b>Model Number</b>	ML12-6F2MP22831
<b>Voltage</b>	6 Volts
<b>Battery Capacity</b>	12 Amp Hours (AH)
<b>Battery Cell Composition</b>	Lead Acid (SLA/AGM)
<b>Terminal Type</b>	F2
<b>Dimensions (L x W x H)</b>	5.94 x 2.01 x 3.94 inches (15.08 x 5.11 x 10 cm)
<b>Item Weight</b>	8.12 Pounds (approx. 3.68 kg)
<b>Reusability</b>	Rechargeable
<b>Certifications</b>	UL Certified
<b>Manufacturer</b>	Mighty Max Battery

# CONFIGURATION

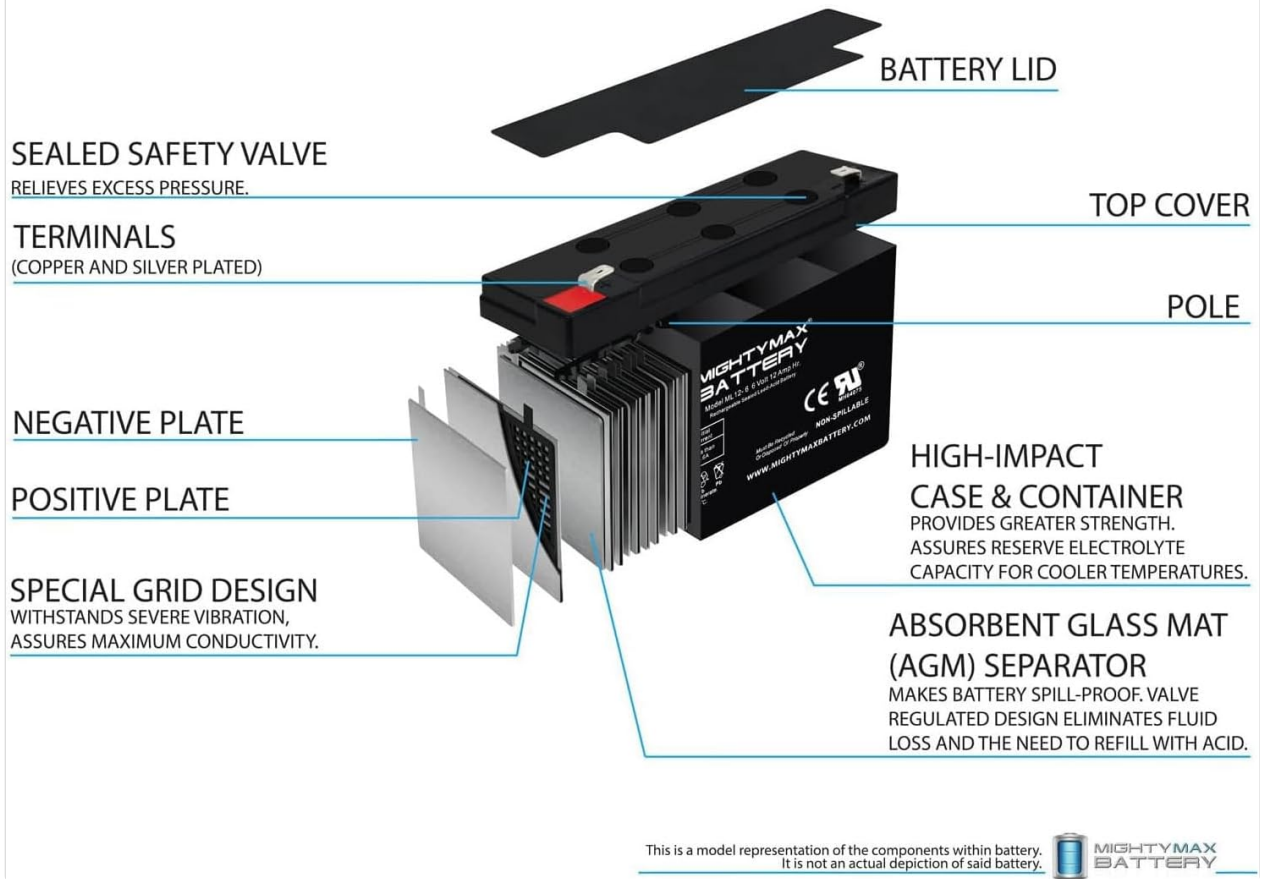


Figure 7.1: Dimensional drawing of the Mighty Max Battery ML12-6F2. This image provides precise measurements of the battery, including height with and without terminals, width, and length.

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Figure 7.2: Internal configuration diagram of a Mighty Max Battery. This diagram illustrates key internal components such as the sealed safety valve, terminals, negative and positive plates, high-impact case, and absorbent glass mat (AGM) separator.



# ML12-6<sub>(6V12Ah/20hr)</sub>

The rechargeable batteries are lead-lead dioxide systems. The dilute sulfuric acid electrolyte is absorbed by separators and thus immobilized.

Should the battery be accidentally overcharged producing hydrogen and oxygen, Special one-way valves allow the gases to escape thus avoiding excessive pressure build-up. Otherwise, the battery is completely sealed and is, therefore, maintenance-free, leak proof and usable in any position.

## Battery Construction

Component	Positive plate	Negative plate	Container	Cover	Safety valve	Terminal	Separator	Electrolyte
Raw material	Lead dioxide	Lead	ABS	ABS	Rubber	F2	Fiberglass	Sulfuric acid

## General Feature

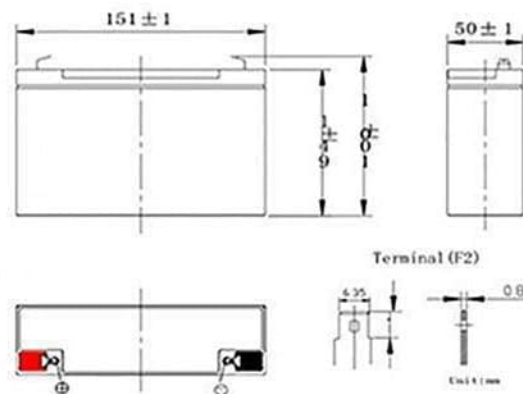
- Absorbent Glass Mat(AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- Computer designed lead, calcium tin alloy grid for high power density. Long service life, float or cyclic applications. Maintenance-free operation.
- Low self discharge.

## Performance Characteristics

Capacity 77°F(25°C)	20 hour rate (0.6A, 5.25V)	12Ah
	10 hour rate (1.14A, 5.25V)	11.4Ah
	5 hour rate (2.05A, 5.25V)	10.2Ah
	1 hour rate (7.5A, 4.8V)	7.5Ah
Internal Resistance	Full charged Battery 77°F(25°C): 20mΩ	
Capacity affected by Temperature (20 hour rate)	104° F(40°C)	102%
	77° F(25°C)	100%
	32° F(10°C)	85%
	5° F(-15°C)	65%
Self-Discharge 68°F(20°C)	Capacity after 3 month storage	90%
	Capacity after 6 month storage	80%
	Capacity after 12 month storage	60%
Max. discharge current 77°F(25°C): 180A(5S)		
Charge (Constant Voltage)	Float: 6.80~6.90 V/77° F(25°C)	
	Cycle: 7.25~7.45 V/77°F(25°C) Max. Current: 3.6A	

## SPECIFICATION

Nominal voltage ..... 6V  
 Number of cell ..... 3  
 Length(mm/inch) ..... 151/5.94  
 Width(mm/inch) ..... 50/1.97  
 Height(mm/inch) ..... 94/3.70  
 Total Height(mm/inch) ..... 100/3.94  
 Approx. Weight (kg/lbs) ..... 1.7/3.75



Discharge Constant Current (Amperes at 77° F 25° c)

End Point Volts/Cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.60V	45.6	31.0	24.3	13.3	7.50	3.15	2.12	1.18	0.61
1.65V	44.2	30.1	23.8	12.9	7.43	3.12	2.10	1.17	0.61
1.70V	42.7	29.2	23.2	12.6	7.37	3.09	2.07	1.16	0.61
1.75V	41.3	28.3	22.7	12.3	7.30	3.06	2.05	1.14	0.60
1.80V	39.8	27.5	22.1	12.0	7.23	3.03	2.02	1.12	0.59

Discharge Constant Power (watts at 77° F 25° c)

End Point Volts/Cell	5min	10min	15min	30min	15min	1h	3h	5h
1.60V	88.0	59.2	47.7	28.2	21.0	15.6	9.78	6.52
1.65V	82.5	55.7	45.1	26.8	20.0	14.9	9.49	6.36
1.70V	77.1	52.3	42.5	25.3	19.0	14.2	9.17	6.19
1.75V	71.7	48.8	39.8	23.9	18.0	13.5	8.81	6.00
1.80V	66.4	45.4	37.2	22.4	17.0	12.8	8.43	5.80

(Note) The above characteristics data are average values obtained Within three charge/discharge cycles not the minimum values.

Figure 7.3: Technical data sheet for Mighty Max Battery ML12-6F2. This image presents detailed performance characteristics, general features, and specifications including voltage regulation, discharge rates, and temperature effects.

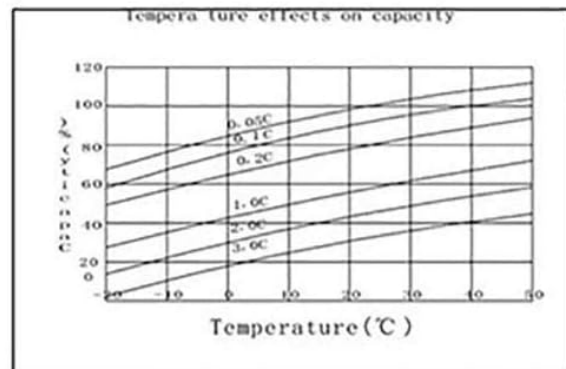
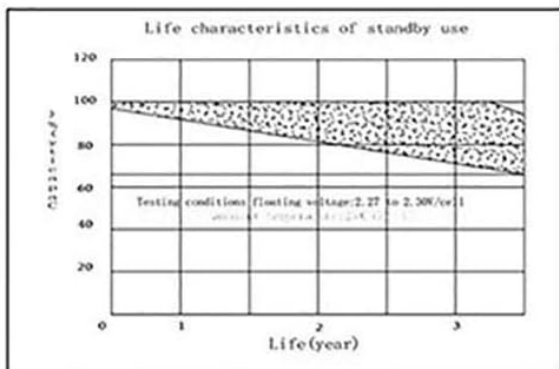
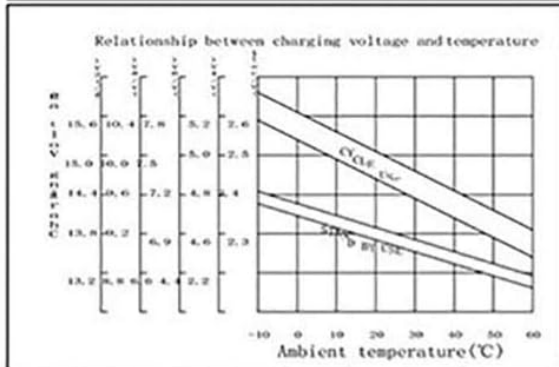
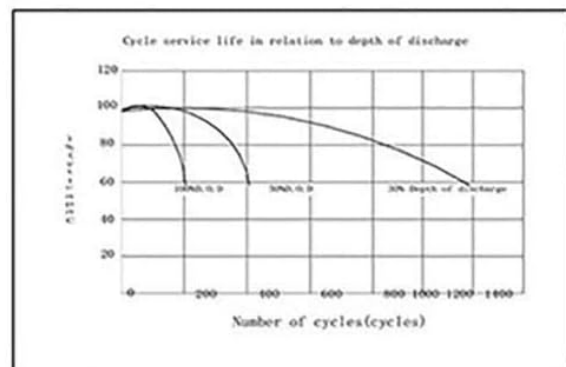
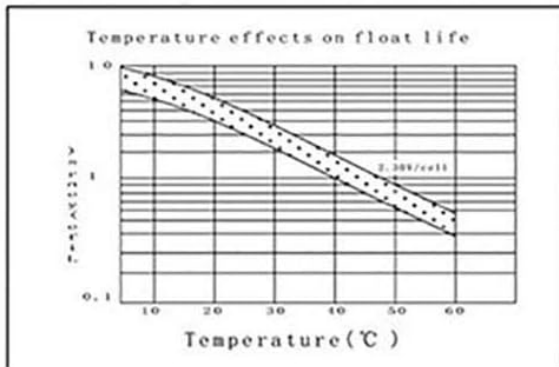
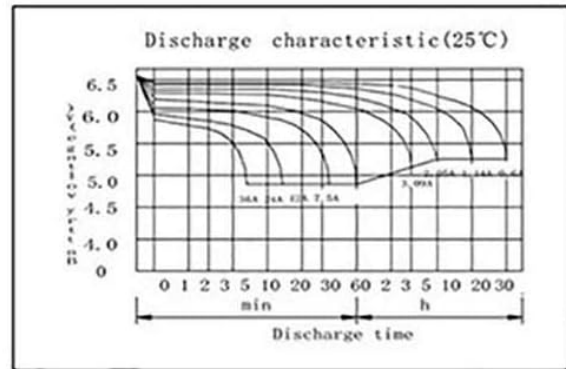
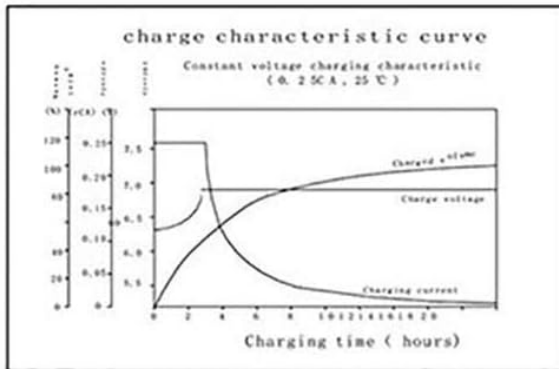


Figure 7.4: Performance characteristic curves for Mighty Max Battery ML12-6F2. This image displays various graphs illustrating charge characteristics, temperature effects on float life, cycle service life, self-discharge characteristics, and temperature effects on capacity.

## 8. WARRANTY INFORMATION

The Mighty Max Battery ML12-6F2 comes with a **One Year Manufacturer's Warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use and service.

The warranty does not cover damage resulting from:

- Improper installation or connection.
- Misuse, abuse, or neglect.
- Overcharging or undercharging.
- Exposure to extreme temperatures or environmental conditions.
- Unauthorized repairs or modifications.
- Normal wear and tear.

For warranty claims or further details, please contact Mighty Max Battery customer support.

## **9. CUSTOMER SUPPORT**

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If you have any questions, require technical assistance, or need to make a warranty claim, please contact Mighty Max Battery customer support through their official website or the retailer where the product was purchased.

Please have your product model number (ML12-6F2) and proof of purchase ready when contacting support.