Mighty Max Battery ML5-12

Mighty Max Battery ML5-12 12V 5AH SLA Replacement Battery User Manual

Introduction

This manual provides essential information for the safe and effective use of your Mighty Max Battery ML5-12 12V 5AH Sealed Lead Acid (SLA) replacement battery. This battery is a rechargeable, maintenance-free unit, UL Certified, and designed for various applications requiring reliable power.

Key Features:

- 12V 5AH Sealed Lead Acid (SLA) rechargeable battery.
- Maintenance-free design.
- UL Certified for safety and quality.
- Spill-proof AGM technology for high discharge rates and wide operating temperatures.
- Resistant to shocks and vibration.
- Can be mounted in any position.

Safety Information

WARNING: Risk of fire, explosion, or burns. Do not disassemble, heat above 60°C, or incinerate. Do not short the battery terminals. Do not mix new and old batteries or batteries of different types. Keep away from sparks or open flame. Recharge after use.

Always handle batteries with care. Ensure proper ventilation during charging. Keep out of reach of children.

Product Overview

The Mighty Max Battery ML5-12 is a compact and robust power source. Understanding its components and dimensions is crucial for proper installation and application.

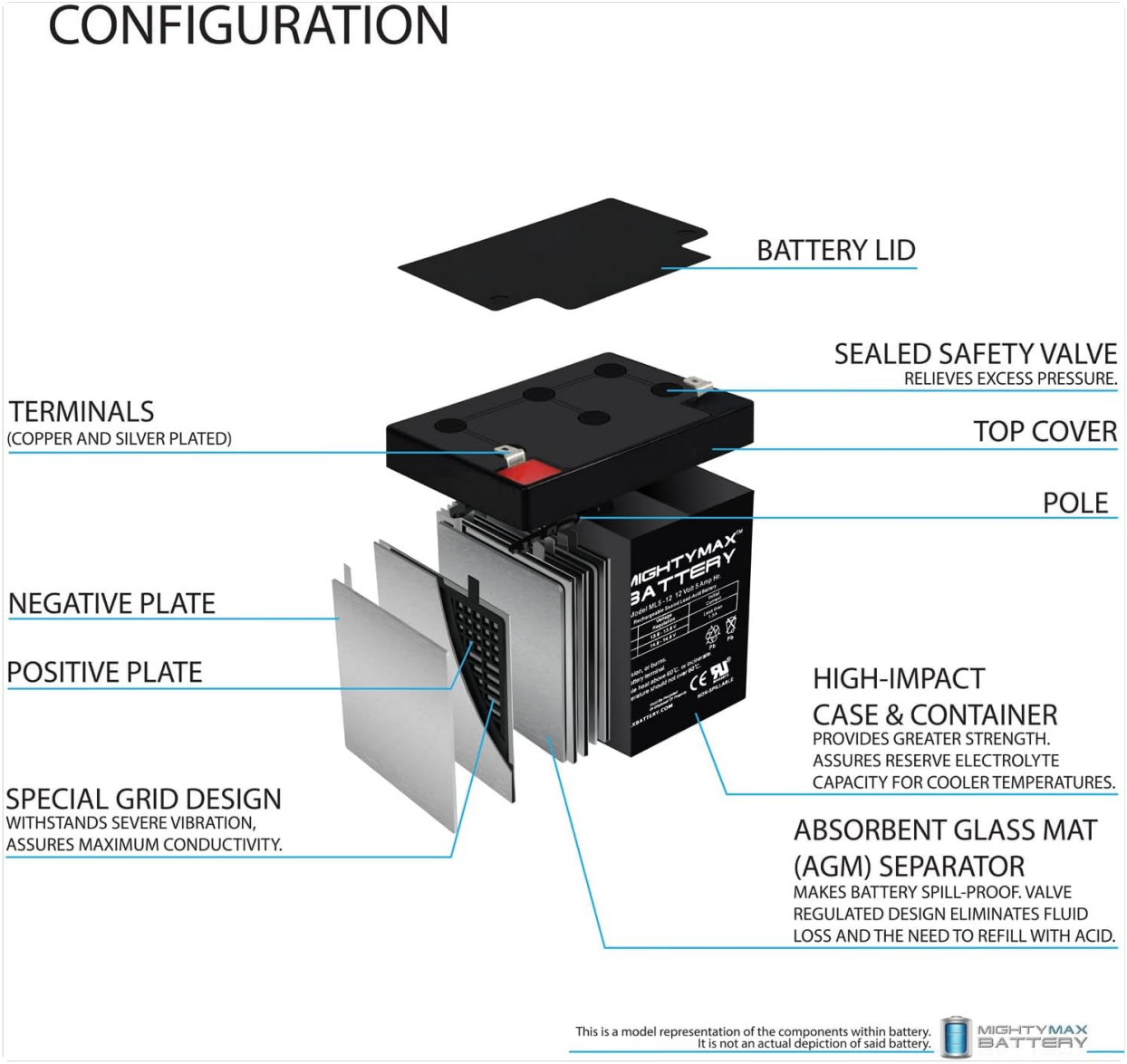

Image: Mighty Max Battery ML5-12 showing its physical dimensions. The battery measures 3.58 inches (9.09 cm) in width, 2.76 inches (7.0 cm) in depth, and 4.21 inches (10.69 cm) in height including the terminal.

Image: Diagram illustrating the internal components of the Mighty Max Battery ML5-12. Key components include the battery lid, sealed safety valve, top cover, terminals (copper and silver plated), positive plate, negative plate, high-impact case and container, special grid design, and absorbent glass mat (AGM) separator.

The battery features F1 terminals, which are standard spade-type terminals for easy connection.

Image: A close-up view of the F1 terminal on the Mighty Max Battery, highlighting its design for secure connections.

Setup and Installation

Before installation, ensure the battery is fully charged. Verify that the battery dimensions and terminal type (F1) match the requirements of your device. This battery is designed for versatility and can be mounted in any position.

Installation Steps:

1. **Safety First:** Disconnect power to the device before handling batteries. Wear appropriate personal protective equipment, including gloves and eye protection.
2. **Remove Old Battery:** Carefully disconnect the negative (-) terminal first, then the positive (+) terminal of the old battery. Remove the old battery from its compartment.
3. **Inspect Compartment:** Clean the battery compartment, ensuring it is free of debris or corrosion.
4. **Install New Battery:** Place the Mighty Max ML5-12 battery into the compartment. Ensure it fits securely and does not move during operation.
5. **Connect Terminals:** Connect the positive (+) terminal of the new battery first, then the negative (-) terminal. Ensure connections are tight and secure to prevent power loss and arcing.
6. **Secure Battery:** If applicable, use any straps or clamps provided with your device to secure the battery

in place.

The following video demonstrates a battery installation process, which can be used as a general guide for various applications.

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Video: An official product video from Mighty Max Battery demonstrating the installation of a battery in a motorcycle. This video highlights the ease of installation and the versatility of Mighty Max batteries for various applications.

Operating Instructions

The Mighty Max ML5-12 battery is designed for reliable performance in both float and cyclic applications. It is a sealed, maintenance-free battery, meaning it does not require water additions.
Charging:

- Use a charger specifically designed for 12V SLA/AGM batteries.
- For float use (standby power), the recommended voltage regulation is 13.6V - 13.8V.
- For cyclic use (regular discharge and recharge), the recommended voltage regulation is 14.5V - 14.9V.
- Initial current should be less than 5.4A.
- Avoid overcharging, as this can damage the battery and reduce its lifespan.

Discharging:

- Avoid deep discharges below the recommended voltage levels to prolong battery life.
- The battery is designed for high discharge rates, suitable for power tools and similar applications.

Maintenance

The Mighty Max ML5-12 is a maintenance-free battery, but proper care ensures optimal performance and longevity.
General Care:

- 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 terminal connections are always tight. Loose connections can cause resistance, heat, and power loss.
- Store the battery in a cool, dry place when not in use. The storage temperature should not exceed 60°C (140°F).
- Recharge the battery periodically during storage to prevent self-discharge from dropping the voltage too low.

Environmental Considerations:

- The battery performs well in wide operating temperatures but extreme temperatures (both high and low) can affect performance and lifespan.
- The SLA/AGM design is spill-proof, making it safe for various environments.

Troubleshooting

If you encounter issues with your Mighty Max ML5-12 battery, consider the following common problems and solutions:

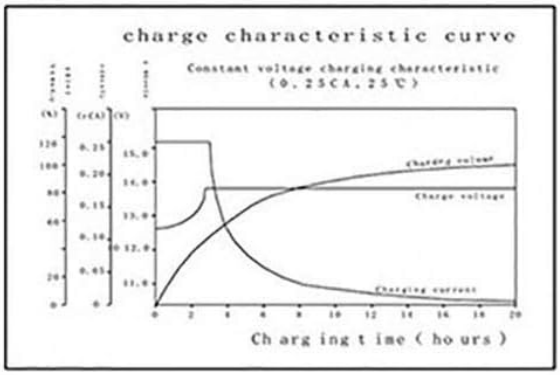
Problem	Possible Cause	Solution
Battery not holding charge	Over-discharge, sulfation, faulty charger, end of lifespan.	Ensure proper charging voltage and current. Avoid deep discharges. Test with a different charger. If battery is old, consider replacement.
Device not powering on	Low battery charge, loose connections, faulty device.	Charge the battery fully. Check and tighten all terminal connections. Test the battery in another compatible device if possible.
Battery overheating during charge	Overcharging, faulty charger, internal short.	Disconnect immediately. Verify charger settings. Use a charger with proper voltage and current regulation. If problem persists, discontinue use and contact support.
Reduced run time	Partial charging, aging battery, increased load.	Ensure full charge cycles. Battery capacity naturally decreases with age. Check device for increased power consumption.

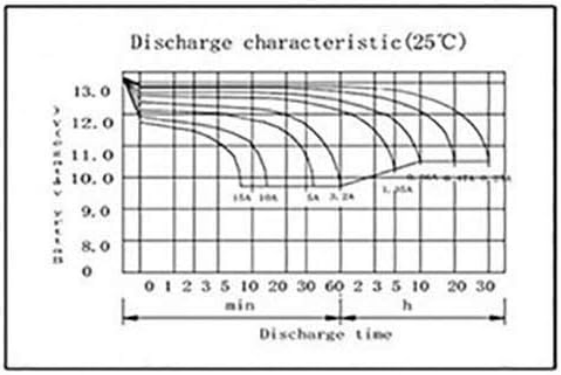
Specifications

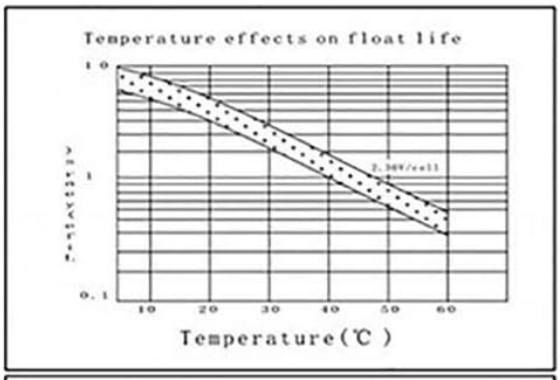
Detailed technical specifications for the Mighty Max Battery ML5-12.

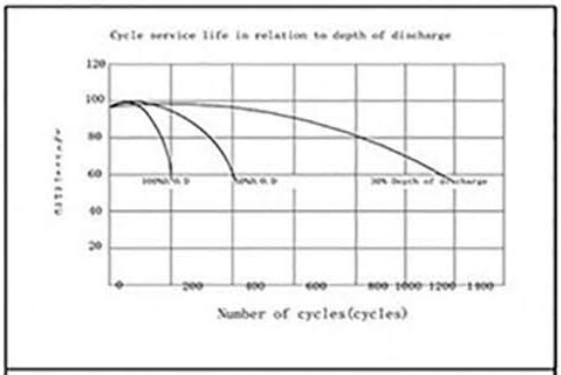
MIGHTY MAX BATTERY

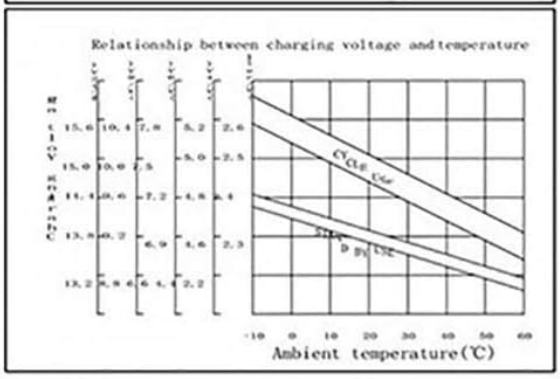
ML5-12 (12V5Ah)

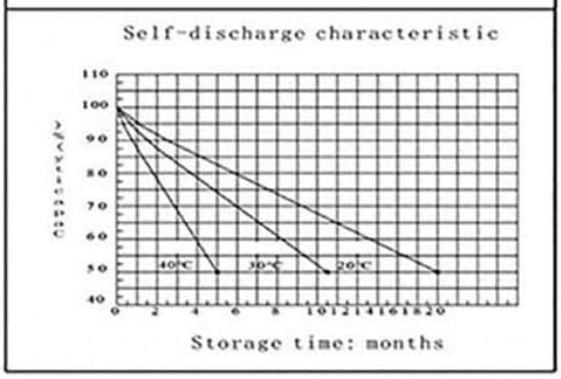


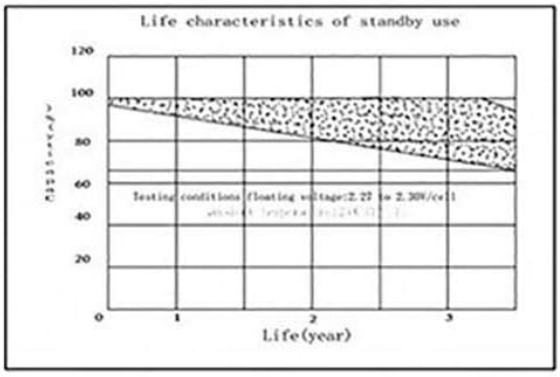












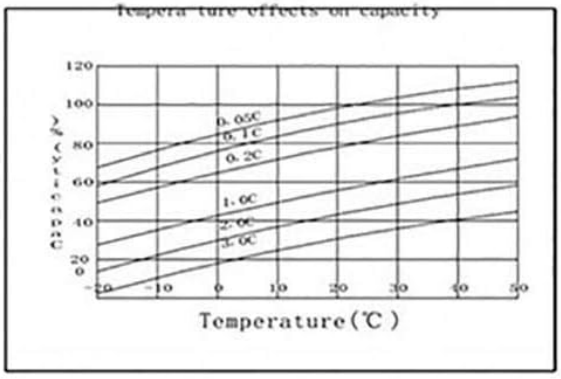


Image: The warning label and general specifications printed on the Mighty Max Battery ML5-12, including voltage regulation for float and cycle use, and initial current.

MIGHTYMAX BATTERY

ML5-12 *(12V5Ah/20hr)*

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 bydrogen 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

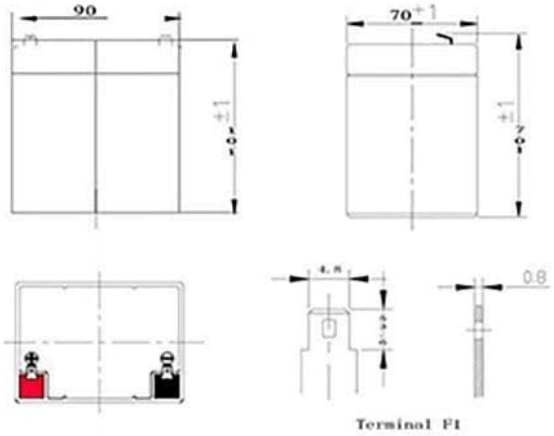
Component	Positive plate	Negative plate	Container	Cover	Safety valve	Terminal	Separator	Electrolyte
Raw material	Lead dioxide	Lead	ABS	ABS	Rubber	F1	Fiberglass	Sulfuric acid

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.

SPECIFICATION

Nominal voltage ····· 12V
Number of cell 6
Length(mm/inch) ····· 90/3.54
Width(mm/inch ····· 70/2.76
Height(mm/inch) ····· 101/3.98
Total Height(mm/inch) ····· 107/4.21
Approx. Weight(kg/lbs) ····· 1.35/2.97



Performance Characteristics

Capacity 77°F(25℃)	20 hour rate (0.25A、10.5V)	5.0Ah
	10 hour rate (0.47A、10.5V)	4.7Ah
	5 hour rate (0.86A、10.5V)	4.3Ah
	1 hour rate (3.2A、9.6V)	3.2Ah
Internal Resistance	Full charged Battery77°F(25℃):25mΩ	
Capacity affected by Temperature (20 hour rate)	104° F(40℃)	102%
	77° F(25℃)	100%
	32° F(10℃)	85%
	5° F(-15℃)	65%
Self-Discharge 68°F(20℃)	Capacity after 3 month storage	90%
	Capacity after 6 month storage	80%
	Capacity after 12month storage	60%
Max. discharge current77°F(25℃): 75A(5S)		
Charge (Constant Voltage)	Float: 13.6~13.8 V/77° F/(25℃)	
	Cycle:14.5~14.9 V/77°F/(25℃) Max. Current: 1.5A	

Discharge Constant Current (Amperes at 77° F25 ℃)

End Point Volts/Cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.60V	16.8	13.5	10.9	5.22	3.20	1.43	0.91	0.50	0.27
1.65V	15.9	12.9	9.55	5.01	3.08	1.40	0.90	0.49	0.26
1.70V	15.0	12.2	9.10	4.79	2.96	1.35	0.88	0.48	0.25
1.75V	14.0	11.5	8.60	4.56	2.83	1.30	0.86	0.47	0.25
1.80V	13.0	10.8	8.10	4.31	2.70	1.24	0.82	0.45	0.24

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

End Point Volts/Cell	5min	10min	15min	30min	45min	1h	2h	3h	5h
1.60V	33.3	23.2	18.2	10.4	7.74	6.40	3.65	2.63	1.27
1.65V	31.3	21.9	17.2	9.90	7.38	6.13	3.54	2.57	1.23
1.70V	29.2	20.5	16.2	9.36	7.01	5.85	3.42	2.50	1.20
1.75V	27.2	19.2	15.2	8.82	6.63	5.56	3.29	2.42	1.66
1.80V	25.2	17.8	14.2	8.27	6.25	5.26	3.15	2.34	1.62

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

Image: Detailed specifications and performance characteristics for the Mighty Max Battery ML5-12, including component materials, general features, capacity at various discharge rates, internal resistance, temperature effects on capacity, charge parameters, and discharge constant power values.

Specification	Value
Model Number	ML5-12
Voltage	12V
Capacity	5 Amp Hours (5AH)
Battery Cell Composition	Lead Acid (SLA/AGM)
Product Dimensions	3.58 x 2.76 x 4.21 inches
Item Weight	10.5 pounds (for 3-pack)
Terminal Type	F1
Recommended Uses	Power Tool, General Purpose
Manufacturer	Mighty Max Battery

Warranty Information

The Mighty Max Battery ML5-12 comes with a **Full One Year Warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims.
The warranty does not cover damage caused by misuse, abuse, improper installation, unauthorized modifications, or natural wear and tear.

Support and Contact

For technical assistance, warranty claims, or any questions regarding your Mighty Max Battery ML5-12, please contact Mighty Max Battery customer support.
Manufacturer: Mighty Max Battery
Please refer to the official Mighty Max Battery website or your purchase documentation for the most current contact information.