Mighty Max Battery ML12-12F22417

Mighty Max Battery ML12-12 - 12V 12AH F2 SLA AGM DEEP-CYCLE RECHARGEABLE BATTERY User Manual

Model: ML12-12F22417 | Brand: Mighty Max Battery

1. Introduction

This manual provides essential information for the safe and effective use of your Mighty Max ML12-12 12V 12AH F2 SLA AGM Deep-Cycle Rechargeable Battery. Please read this manual thoroughly before installation and operation to ensure optimal performance and longevity of your battery.

2. Product Features

- ML12-12F2 SLA is a 12V 12AH Sealed Lead Acid (SLA) rechargeable maintenance free battery - UL Certified.
- SLA / AGM spill proof battery has a characteristic of high discharge rate, wide operating temperatures, long service life and deep discharge recover.
- Rechargeable battery that can be mounted in any position, resists shocks and vibration. Long lasting high performance in high and low temperatures.
- Provides maximum conductivity, designed to reduce power loss and ensure consistent flow of power.
- Maintenance-free and easy to use.

3. Specifications

Specification	Value
Model	ML12-12F22417
Voltage	12V
Capacity	12AH
Dimensions (L x W x H)	5.94 x 3.86 x 3.98 inches (15.08 x 9.8 x 10.11 cm)
Weight	9 pounds (4.08 kg)

Terminal Type	F2 Terminal
Battery Type	Sealed Lead Acid (SLA) / Absorbent Glass Mat (AGM)
UL Certified	Yes

MIGHTYMAX BATTERY



ML12-12 *(12V12Ah/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	F2	Fiberglass	Sulfuric acid

General Feature

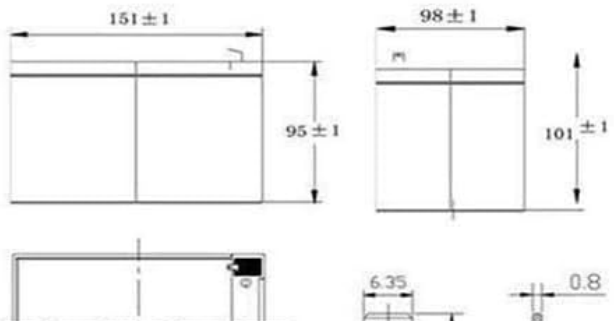
- Absorbent Glass Mat(AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- Computer designed lead, calcium tin alloy grid for high power density.
  Long service life, float or cyclic applications.
  Maintenance-free operation.
- Low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

Performance Characteristics

Capacity 77°F(25℃)	20 hour rate (0.6A、10.5V)	12Ah
	10 hour rate (1.14A、10.5V)	11.4Ah
	5 hour rate (2.05A、10.5V)	10.2Ah
	1 hour rate (7.5 A、9.6V)	7.5Ah
Internal Resistance	Full charged Battery77°F(25℃):20mΩ	
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℃): 180A(5S)		
Charge (Constant Voltage)	Float: 13.6~13.8 V/77° F/(25℃)	
	Cycle:14.5~14.9 V/77°F/(25℃) Max. Current: 3.6A	

SPECIFICATION

Nominal voltage ····· 12V
Number of cell ····· 6
Length(mm/inch) ····· 151/5.94
Width(mm/inch ····· 98/3.86
Height(mm/inch) ····· 95/3.74
Total Height(mm/inch) ····· 101/3.98
Approx. Weight(kg/lbs) ····· 3.4/7.48



Discharge Constant Current (Amperes at 77° F25 ℃)

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℃)

End Point Volts/Cell	5min	10min	15min	30min	45min	1h	2h	3h	5h
1.60V	88.0	59.2	47.7	28.2	21.0	15.6	9.78	6.52	4.24
1.65V	82.5	55.7	45.1	26.8	20.0	14.9	9.49	6.36	4.17

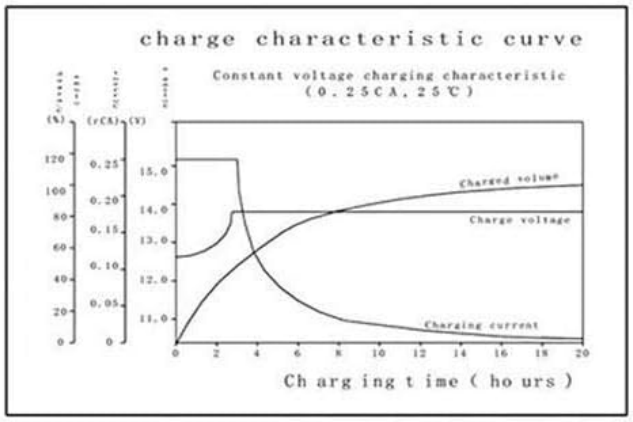


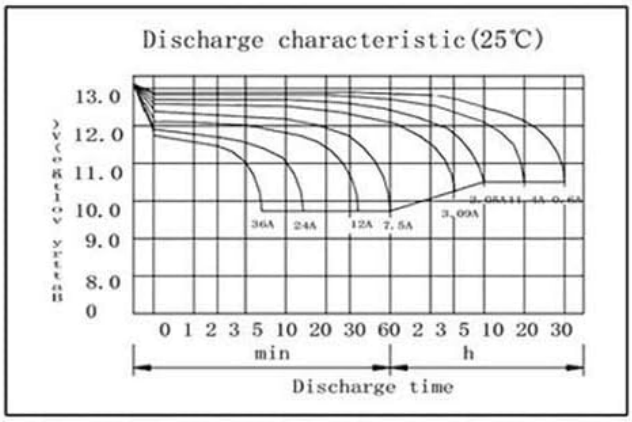
1.75V	71.7	48.8	39.8	23.9	18.0	13.5	8.81	6.00	4.00
1.80V	66.4	45.4	37.2	22.4	17.0	12.8	8.43	5.80	3.90

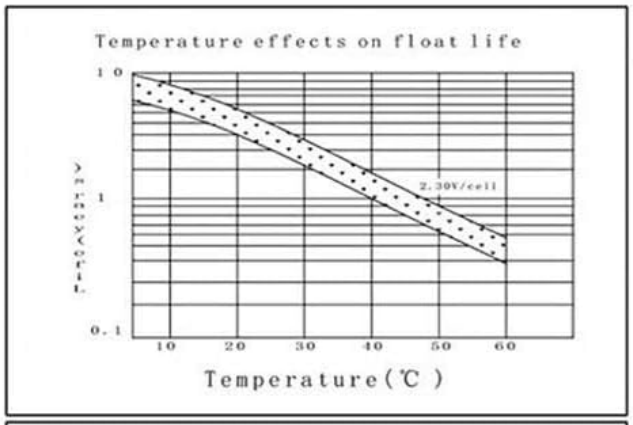
Figure 3.1: Detailed specifications and performance characteristics of the ML12-12 battery, including voltage regulation, initial current, and temperature effects.

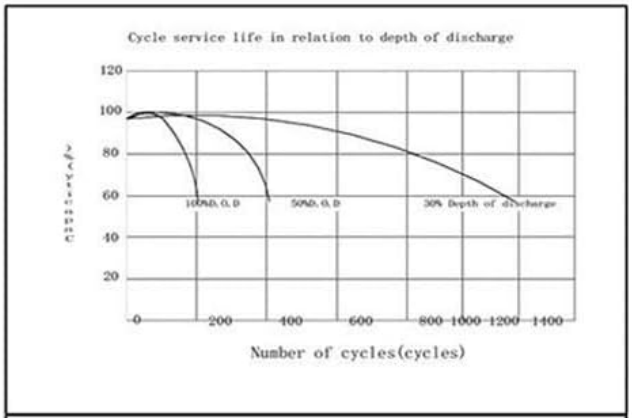
MIGHTYMAX BATTERY

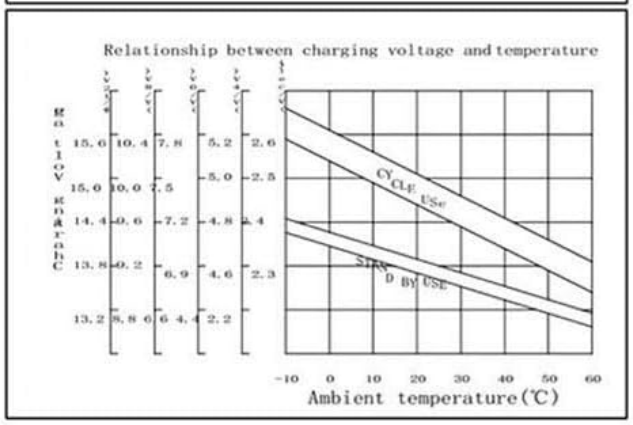
ML12-12 (12V12Ah)

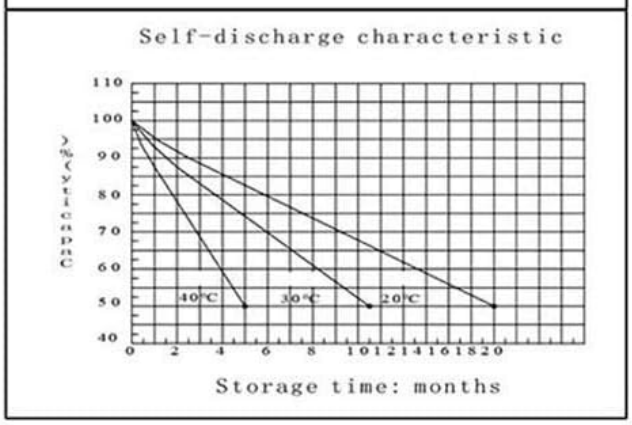


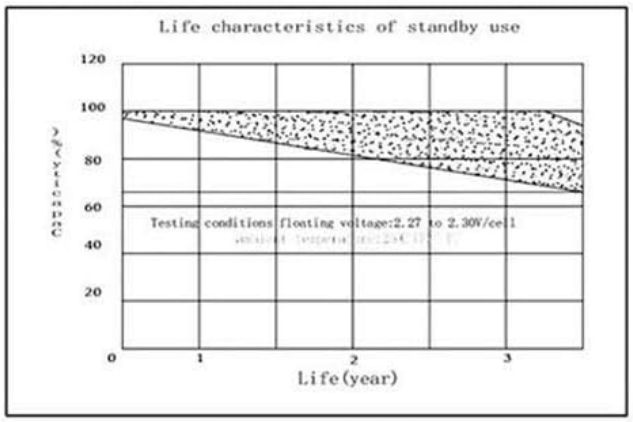












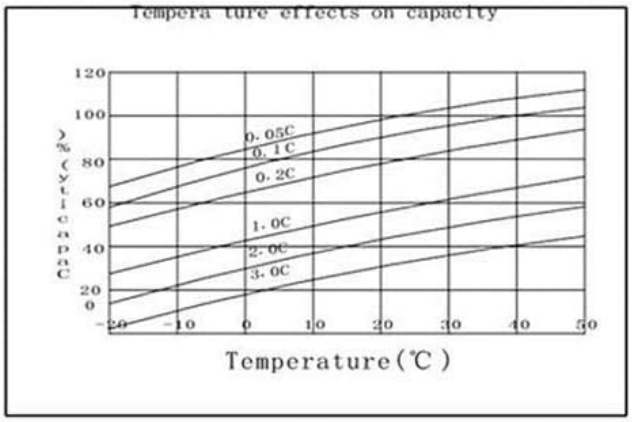


Figure 3.2: Charge characteristic curve and discharge characteristic graphs for the ML12-12 battery, showing performance under various conditions.

4. Setup and Installation

The Mighty Max ML12-12 battery is designed for versatile mounting and can be installed in any position or orientation due to its spill-proof AGM technology. Ensure proper terminal connection for safe operation.

4.1 Unpacking

Carefully remove the battery from its packaging. Inspect for any visible damage. If damage is present, do not proceed with installation and contact customer support.



Figure 4.1: The Mighty Max ML12-12 battery, showing its compact design and F2 terminals.

4.2 Dimensions and Terminal Types

Verify the battery dimensions and terminal type (F2) match your application's requirements before installation. The F2 terminal is a common spade-type terminal.

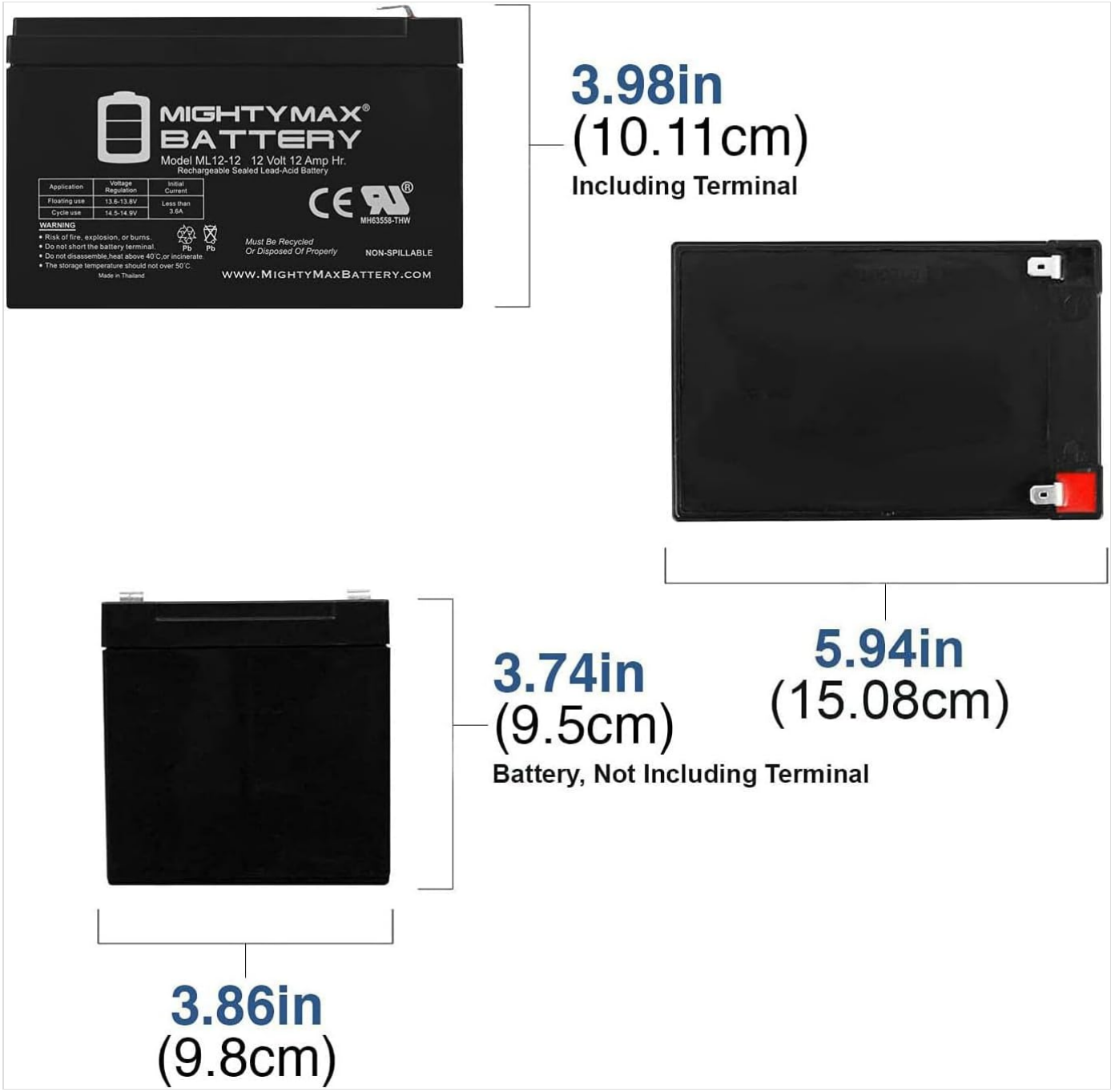


Figure 4.2: Visual representation of the battery dimensions, crucial for fitment in various applications.



Figure 4.3: A close-up of the F2 terminal, highlighting its design for secure connections.

4.3 Internal Configuration

The battery features a sealed safety valve to relieve excess pressure, negative and positive plates, a special grid design for maximum conductivity, and an absorbent glass mat (AGM) separator to prevent spills and eliminate the need for refilling acid.

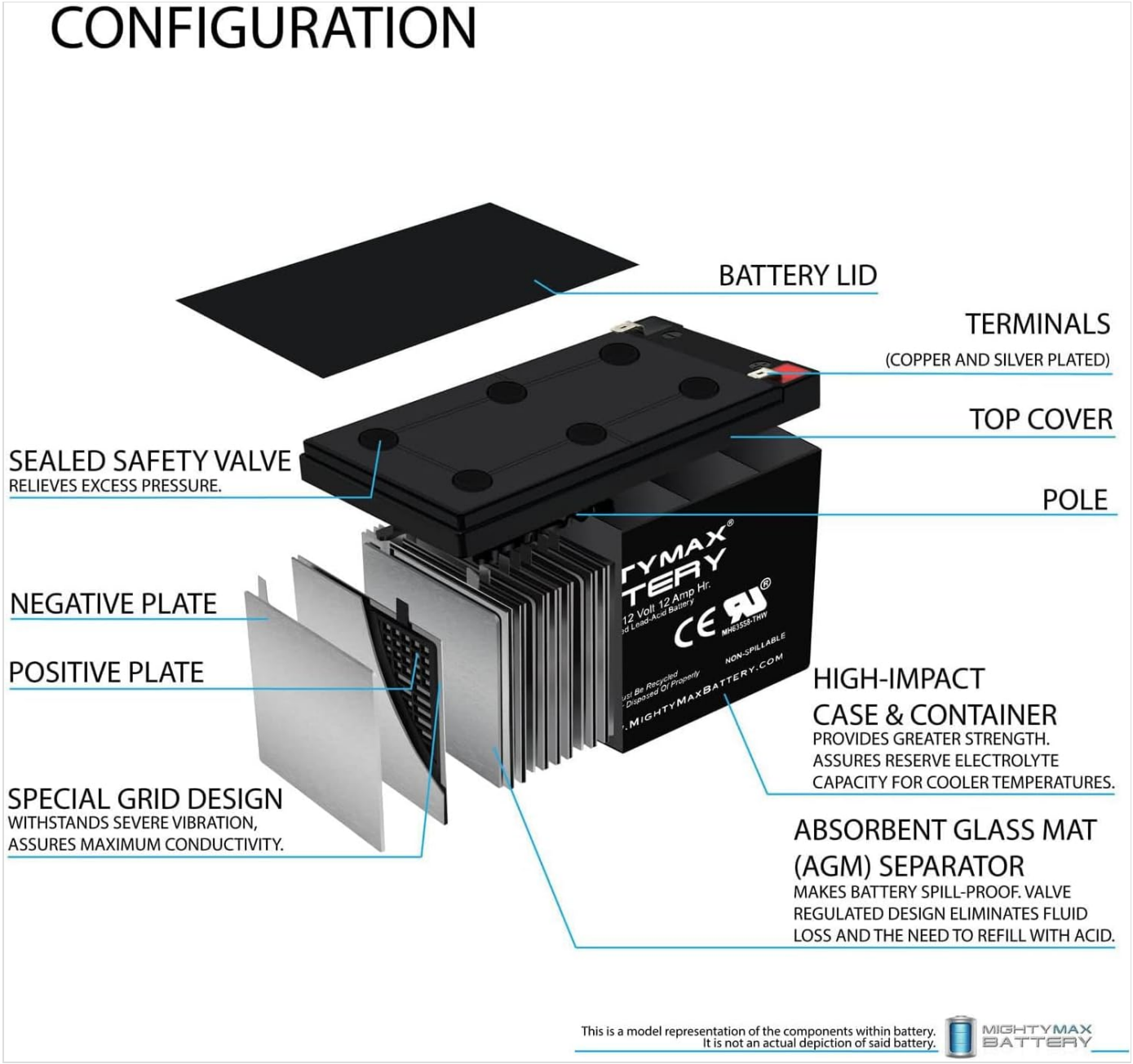


Figure 4.4: An exploded view illustrating the internal components, including the battery lid, terminals, top cover, pole, negative plate, positive plate, sealed safety valve, special grid design, high-impact case, and AGM separator.

4.4 Installation Steps

1. Ensure the device or vehicle is turned off and disconnected from any power source.
2. Locate the battery compartment.
3. If replacing an old battery, disconnect the negative (-) terminal first, then the positive (+) terminal. Remove the old battery.
4. Place the new Mighty Max battery into the compartment, ensuring it fits securely.
5. Connect the positive (+) terminal first, then the negative (-) terminal. Ensure connections are tight and secure.
6. Confirm all connections are correct before powering on the device.

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Video 4.1: An official product video demonstrating the versatility and ease of installation of Mighty Max batteries in various applications, including a motorcycle. This video highlights features such as shock and vibration resistance, quick recharging, various terminal types (F1, F2, Nut & Bolt), spill-proof AGM construction, and long-lasting performance in extreme temperatures.

5. Operating Instructions

The ML12-12 is a sealed lead-acid (SLA) battery, which means it is maintenance-free and does not require water additions. It is designed for both float and cyclic applications.

5.1 Initial Charge

While batteries typically come partially charged, it is recommended to fully charge the battery before its first use to ensure maximum capacity and lifespan. Use a compatible 12V battery charger.

5.2 Charging Parameters

- **Floating Use:** 13.5 - 13.8V
- **Cycle Use:** 14.5 - 14.9V
- **Initial Current:** Less than 3.6A

Adhering to these parameters will help prolong battery life and prevent overcharging or undercharging.

6. Maintenance and Storage

Proper maintenance and storage are crucial for extending the life of your SLA battery.

6.1 Regular Charging

For optimal performance, keep the battery charged. Avoid deep discharges whenever possible. If the battery is not in regular use, charge it every 3-6 months to prevent self-discharge from reducing its capacity.

6.2 Cleaning Terminals

Periodically inspect battery terminals for corrosion. Clean them with a wire brush and a mixture of baking soda and water if necessary. Ensure terminals are dry before reconnecting.

6.3 Storage Conditions

Store the battery in a cool, dry place. The storage temperature should not exceed 50°C (122°F). Avoid direct sunlight or extreme heat sources. Ensure the battery is fully charged before long-term storage.

7. Safety Precautions and Warnings

WARNING!

- Risk of fire, explosion, or burns.
- Do not short the battery terminal.
- Do not disassemble, heat above 40°C (104°F), or incinerate.
- The storage temperature should not exceed 50°C (122°F).

Always wear appropriate personal protective equipment (PPE) such as safety glasses and gloves when handling batteries. Keep out of reach of children.

8. Troubleshooting

Problem	Possible Cause	Solution
Battery not holding charge	Undercharging; sulfation; end of life cycle.	Ensure proper charging voltage and current. Use a desulfator if applicable. Replace battery if it has reached its end of life.

Device not powering on	Loose connections; discharged battery; faulty device.	Check and tighten all terminal connections. Charge the battery fully. Test the device with a known good power source.
Battery overheating during charge	Overcharging; faulty charger; internal short.	Disconnect charger immediately. Verify charger voltage and current settings. Replace charger if faulty. If overheating persists, discontinue use and replace battery.

9. Warranty and Support

Your Mighty Max ML12-12 battery comes with a **Full One Year Warranty** from the date of purchase. This warranty covers defects in materials and workmanship under normal use.
For warranty claims, technical support, or any inquiries, please contact Mighty Max Battery customer service. Ensure you have your purchase receipt and product model number available.
Mighty Max Battery Contact Information:

Website: www.mightymaxbattery.com

Refer to your purchase platform for direct seller contact options.

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