# GET A BATTERY THAT LASTS LONG, REALLY LONG



AMARON®

LASTS LONG, REALLY LONG.

# INTRODUCTION

Amaron has firmly established itself as a distinguished force within the global automotive battery sector, renowned for its cutting edge and reliable battery solutions that resonate with a diverse and widespread audience. Amaron's high performance products, trusted by car owners worldwide, exemplify enduring strength and consistent power. Amaron's utilization of state of the art technology ensures not only smooth vehicle starts but also optimal operational efficiency. This technological prowess positions Amaron as the preferred choice among discerning drivers on a truly international scale.

Amara Raja Energy Mobility Limited, formerly known as Amara Raja Batteries Ltd, plays a pivotal role as a technological trailblazer within the esteemed Amara Raja Group. As a leading manufacturer of lead acid batteries, Amaron caters comprehensively to the diverse needs of both the industrial and automotive sectors in India's dynamic storage battery industry. Going beyond national borders, Amaron's industrial and automotive batteries have found homes in over 55 countries worldwide, cementing the company's status as a key player on the global stage. This global reach underscores Amaron's unwavering commitment to deliver top tier solutions that captivate audiences around the world.

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# MILESTONES

**1985** – Amara Raja Batteries Ltd established at Tirupati, Andhra Pradesh, India

**2000** – Introduced Amaron Automotive Batteries

**2004** – First to introduce 2W AGM Batteries in India

**2007** – Introduced PRO & GO range

**2008** – Introduced FLO range

**2015** – Inaugurated Amara Raja Growth Corridor (ARGC) at Chittoor, Andhra Pradesh, India

**2019** – Introduced EFB Start Stop Batteries

**2022** – Introduced AGM Batteries (JADE)

**2023** – Launch of PEARL Marine Deep Cycle Batteries

Amara Raja Batteries Ltd name changed in Amara Raja Energy & Mobility Ltd

**2024** – Introducing AGM Auxiliary and Lawn & Garden Battery

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# PASSENGER CAR BATTERIES


## ADD FORCE TO YOUR FOUR-WHEELER

In the fusion of our daily automotive experiences, cars seamlessly integrate into our lives, offering a sense of comfort and connection. The key to unlocking the ultimate driving comfort lies in a powerful start. This unparalleled experience is made possible only with a hi-cranking power battery, the heartbeat of your vehicle. Elevating this experience to new heights is the unmatched performance of Amaron automotive batteries, where every ignition is not merely a mechanical start but a symphony of power and precision.

Engineered with a meticulous focus on high heat tolerance, Amaron automotive batteries stand as beacons of reliability in the face of challenging conditions. What sets us apart is the ground-breaking RAD GRID technology, ensuring not just a powerful start but sustained power and an extended cyclic life. In the realm of automotive batteries, Amaron emerges as the standard-bearer of excellence, where every turn of the key is a testament to our commitment to superior performance. Since our inception in 2000, Amaron has consistently elevated the driving experience, earning unwavering customer satisfaction and loyalty across the expansive landscape of rural, semi-urban, and urban markets pan India and Global markets. Welcome to a journey where technology meets trust, and every start is a testament to Amaron's enduring excellence.

# RAD GRID SLI BATTERY CONSTRUCTION

**BIC Vent**

Superior design with Built in Vent Seal, Flame Arrestor and Improved Gas Exit Profile - prevents acid spewing during Recharge and Improved Safety feature. Superior Drain- Back design supports zero maintenance


**Cast on Strap**

The wide cast-on strap supports better conductivity and allows for more current, resulting in faster cranking

**Positive Grid Design**

Radial grid design facilitates quick current flow and offers high heat tolerance, with the advanced paste recipe in the grid enhancing corrosion resistance for increased durability.

**PE Separator**

High Performance robust PE separator – lowering internal resistance and higher CCA

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# SLI BATTERIES WITH RAD GRID TECHNOLOGY


## WHAT POWERS OUR BATTERIES!

**AMARON with RAD GRID Technology**

Batteries with the break-through RAD GRID technology are built with advanced plate making process for excellent conductivity and robust design.

This ensures superior battery performance with longer life in all type of passenger vehicles.

## ADVANTAGES OF RAD GRID TECHNOLOGY

- Higher cranking performance
- Zero Maintenance
- Optimised Lead Distribution
- Consistence in battery performance
- Higher cyclical life (Longer life)

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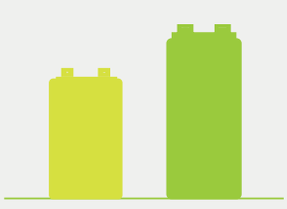
# SLI RAD GRID SERIES


| Battery | RAD GRID | Applications | Consumers | Cold Cranking Amps |
|---|---|---|---|---|
| PRO | ✓ | All premium vehicles with high power needs | | +++ |
| FLO | ✓ | All standard vehicles with medium power needs | | ++ |
| GO | ✓ | All standard vehicles with basic power needs | | + |

## RAD GRID TECHNOLOGY DESIGN AND FEATURES

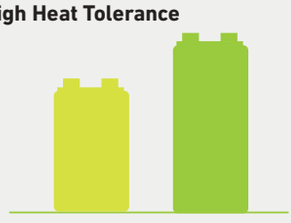
**Grid Strength**
Stronger and more rigid
Enhanced Corossion Resistance

**Longer life**




**Grid Design**
Radial Design
Optimized Lead Distribution

**Enhanced CCA**
**High Heat Tolerance**




**Alloy**
Corossion Resistant
Silver Alloys

**Lower water consumption**
**Better charge acceptance**

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# DATA SHEET

## AMARON PRO/FLO/GO

| | | | | -18°C | 0°C | | Inches | | | Millimeters (mm) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCI Group | Battery Model | Series | Ref. AH Capacity @ C20 | CCA @ 0°F Amps(SAE) | CA @ 32°F Amps(SAE) | RC in mins | L | W | H | L | W | H | Terminal |
| | 50B19 L/R | PRO | 40 | 342 | 410 | 55 | 7.36 | 5.00 | 8.94 | 187 | 127 | 227 | T1 |
| | 46B19 L/R | FLO | 35 | 304 | 365 | 52 | 7.36 | 5.00 | 8.94 | 187 | 127 | 227 | T1 |
| | 34B19 L/R | GO | 32 | 250 | 300 | 38 | 7.36 | 5.00 | 8.94 | 187 | 127 | 227 | T1 |
| | 42B20 R/L/RS/LS/ BH | FLO | 35 | 335 | 400 | 55 | 7.76 | 5.08 | 8.94 | 197 | 129 | 227 | T1/T2 |
| | 38B20 R/L | GO | 35 | 300 | 360 | 43 | 7.76 | 5.08 | 8.94 | 197 | 129 | 227 | T1/T2 |
| 51/51R | 65B24 R/RS/L/LS | PRO | 50 | 420 | 500 | 80 | 9.37 | 5.08 | 8.94 | 238 | 129 | 227 | T1/T2 |
| | 55B24 R/RS/L/LS | FLO | 45 | 380 | 456 | 75 | 9.37 | 5.08 | 8.94 | 238 | 129 | 227 | T1/T2 |
| | 45B24 R/RS/L/LS | GO | 45 | 335 | 400 | 56 | 9.37 | 5.08 | 8.94 | 238 | 129 | 227 | T1/T2 |
| 25 | 90D23 R/RBH | PRO | 65 | 560 | 670 | 114 | 9.13 | 6.81 | 8.86 | 232 | 173 | 225 | T2 |
| | 85D23 R/RBH | FLO | 60 | 550 | 660 | 110 | 9.13 | 6.81 | 8.86 | 232 | 173 | 225 | T2 |
| | 55D23 R/RBH | GO | 60 | 540 | 640 | 74 | 9.13 | 6.81 | 8.86 | 232 | 173 | 225 | T2 |
| 35 | 90D23 L/LBH | PRO | 65 | 560 | 670 | 114 | 9.13 | 6.81 | 8.86 | 232 | 173 | 225 | T2 |
| | 85D23 L/LBH | FLO | 60 | 550 | 660 | 110 | 9.13 | 6.81 | 8.86 | 232 | 173 | 225 | T2 |
| | 55D23 L/LBH | GO | 60 | 540 | 640 | 74 | 9.13 | 6.81 | 8.86 | 232 | 173 | 225 | T2 |
| 24/24R | 110D26 R/L/ BH | PRO | 80 | 670 | 800 | 150 | 10.24 | 6.81 | 8.86 | 260 | 173 | 225 | T2 |
| | 100D26 R/L/ BH | PRO | 70 | 620 | 740 | 128 | 10.24 | 6.81 | 8.86 | 260 | 173 | 225 | T2 |
| | 95D26 R/L/ BH | FLO | 65 | 600 | 720 | 115 | 10.24 | 6.81 | 8.86 | 260 | 173 | 225 | T2 |
| | 80D26 R/L/ BH | FLO | 60 | 500 | 600 | 110 | 10.24 | 6.81 | 8.86 | 260 | 173 | 225 | T2 |
| | 75D26 R/L/ BH | GO | 60 | 450 | 540 | 98 | 10.24 | 6.81 | 8.86 | 260 | 173 | 225 | T2 |
| | 65D26 R/L/ BH | FLO | 50 | 420 | 500 | 90 | 10.24 | 6.81 | 8.86 | 260 | 173 | 225 | T2 |

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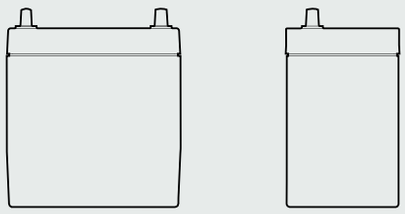
# DATA SHEET

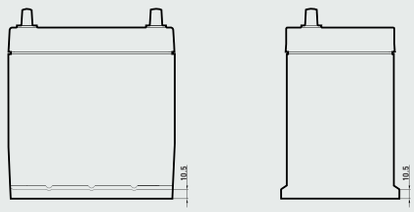
## AMARON PRO/FLO/GO

| | | | | -18°C | 0°C | | Inches | | | Millimeters (mm) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCI Group | Battery Model | Series | Ref. AH Capacity @ C20 | CCA @ 0°F Amps(SAE) | CA @ 32°F Amps(SAE) | RC in mins | L | W | H | L | W | H | Terminal |
| 27/27R | 125D31 R//L/ BH | PRO | 95 | 775 | 930 | 165 | 12.05 | 6.81 | 8.86 | 306 | 173 | 225 | T2 |
| | 115D31 R//L/ BH | FLO | 90 | 750 | 900 | 160 | 12.05 | 6.81 | 8.86 | 306 | 173 | 225 | T2 |
| | 105D31 R//L/ BH | FLO | 80 | 700 | 840 | 160 | 12.05 | 6.81 | 8.86 | 306 | 173 | 225 | T2 |
| | 95D31 R//L/ BH | GO | 70 | 600 | 720 | 125 | 12.05 | 6.81 | 8.86 | 306 | 173 | 225 | T2 |
| 99 (T4/LB1) | DIN 45 | PRO | 45 | 365 | 430 | 76 | 8.15 | 6.89 | 6.89 | 207 | 175 | 175 | T2 |
| 140R (H4/L1) | DIN 50 | PRO | 50 | 430 | 510 | 86 | 8.15 | 6.89 | 7.48 | 207 | 175 | 190 | T2 |
| 47 (H5/L2) | DIN 55/ DIN55R | PRO | 55 | 500 | 600 | 103 | 9.53 | 6.89 | 7.48 | 242 | 175 | 190 | T2 |
| 42 (T5/LB2) | DIN 55 | PRO | 55 | 484 | 580 | 95 | 9.53 | 6.89 | 6.89 | 242 | 175 | 175 | T2 |
| | DIN 60 | PRO | 60 | 528 | 630 | 109 | 9.53 | 6.89 | 6.89 | 242 | 175 | 175 | T2 |
| 47 (H5/L2) | DIN 66/ DIN 66R | PRO | 66 | 550 | 660 | 121 | 9.53 | 6.89 | 7.48 | 242 | 175 | 190 | T2 |
| 48 (H6/L3) | DIN 74/ DIN74 R | PRO | 74 | 690 | 820 | 131 | 10.94 | 6.89 | 7.48 | 278 | 175 | 190 | T2 |
| 92 (T7/LB4) | DIN 80 | PRO | 80 | 704 | 845 | 143 | 12.40 | 6.89 | 6.89 | 315 | 175 | 175 | T2 |
| 49 (H8/L5) | DIN 90 | PRO | 90 | 736 | 880 | 162 | 13.90 | 6.89 | 7.48 | 353 | 175 | 190 | T2 |
| 49 (H8/L5) | DIN 100 | PRO | 95 | 874 | 1040 | 181 | 13.90 | 6.89 | 7.48 | 353 | 175 | 190 | T2 |
| 65 | GR65-75R | FLO | 70 | 700 | 840 | 150 | 12.05 | 7.48 | 7.56 | 306 | 190 | 192 | T2 |

## HOLD DOWN AND CONTAINER FEATURES

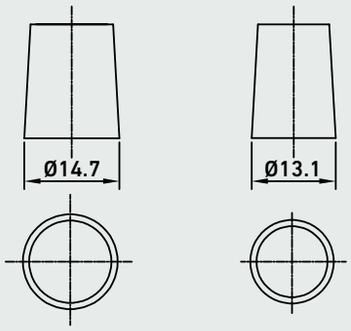


B0-NORMAL



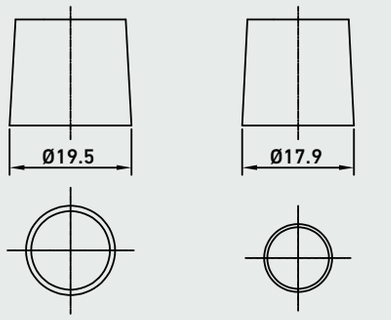
B13-BOTTOM HOLD

## TERMINAL TYPE




Positive Terminal Negative Terminal

T-1




Positive Terminal Negative Terminal

T-2

# WORLD SCALE MANUFACTURING PLANTS

# AGM/EFB

## ADVANCEMENT OF BATTERY TECHNOLOGY FOR HYBRID VEHICLES

Governments are continually updating emission regulations to curb pollution, compelling automobile manufacturers to confront the challenges of compliance. These regulatory pressures have driven technical research, resulting in significant advancements in both engine and battery technologies. As a consequence, a new generation of hybrid vehicles has emerged, spanning from compact mini and micro hybrids to advanced hybrid models, featuring innovative idle-stop-start systems.

The advantages of these advancements are manifold:

**Emission Reduction:** The implementation of hybrid technology has led to a substantial reduction in emission particles, contributing to cleaner air and a more sustainable environment.

**Fuel Efficiency:** Hybrid vehicles harness the power of multiple engine stops and starts, resulting in noteworthy fuel savings. This not only benefits consumers by reducing their fuel expenses but also helps in minimizing the overall carbon footprint.

To meet the stringent emission standards, battery technology has seen remarkable progress. This progress has resulted in the development of Enhanced Flooded Batteries (EFB) for entry-level hybrid vehicles and Absorbent Glass Mat (AGM) batteries for advanced hybrid models. These advanced batteries are pivotal in enhancing the performance and efficiency of hybrid vehicles while also meeting the demanding requirements of modern emission standards.

# AGM/EFB
# EFFICIENCY AND INNOVATION

## HOW AUTOMATIC START-STOP SYSTEMS AND REGENERATIVE BREAKING SYSTEM ARE CHANGING THE FUTURE OF VEHICLE TECHNOLOGY

- **Automatic start-stop system function:**

  Detects when the car is stationary

  Based on sensors, determines various factors about the car's operating mode

  Stops the engine when the car is stationary and in neutral or when speed falls below a certain value

  Electrical systems are still powered by the vehicle's battery when the engine is off

  Engine restarts when the clutch is actuated or the brake is released (for automatic/dual-clutch transmission vehicles)

- **Sensors involved in the automatic start-stop system:**

  Neutral Gear Sensor

  Wheel Speed Sensor

  Crankshaft Sensor

  Electronic Battery Sensor (EBS)

- **Components of the starter unit are reinforced to handle the increased number of starts**

- **Batteries for automatic start-stop systems:**

  AGM (Absorbent Glass Mat) batteries are designed for vehicles with start-stop and Regenerative Breaking systems

  AGM batteries can efficiently accept energy generated through Regenerative Breaking System

  EFB (Enhanced Flooded Battery) batteries are for entry-level start-stop systems

- **Regenerative Breaking System (generation of electricity from braking energy):**

  Electrical energy is generated when the vehicle brakes, and the engine goes into thrust mode

  The recovered energy is fed back into the battery for use during stop phases

  AGM batteries are essential for efficient Regenerative Breaking System

  Some vehicles decouple the generator during acceleration phases to improve efficiency and use the battery to power electrical functions

# ISS VS CONVENTIONAL VEHICLES

| Feature | Advanced Hybrid ISS Vehicle | Conventional Non ISS Vehicle |
|---|---|---|
| Powertrain | Uses an internal combustion engine (ICE) and one or more electric motors to power the vehicle | Uses an ICE only to power the vehicle |
| Battery | High-capacity battery that can be recharged by the ICE, electric motors, and regenerative braking | Smaller battery that is used to start the engine and run electrical accessories |
| Fuel economy | Typically achieves better fuel economy than conventional vehicles due to the use of electric motors | Fuel economy depends on the size and efficiency of the engine, as well as the driving conditions |
| Emissions | Produces fewer emissions than conventional vehicles due to the use of electric motors | Emissions depend on the size and efficiency of the engine, as well as the driving conditions |
| Charging system | Optimizes for AGM batteries | Not optimized for AGM batteries |

| Operating Mode | Advanced Hybrid Vehicle |
|---|---|
| Electric-only mode | The vehicle is powered by the electric motors and the ICE is turned off. This is typically the most fuel-efficient mode and produces the lowest emissions. |
| Hybrid mode | The ICE and electric motors work together to power the vehicle. This mode is typically used when the vehicle needs more power, such as when accelerating or driving uphill. |
| Engine-only mode | The ICE is the only source of power for the vehicle. This mode is typically used when the vehicle is travelling at high speeds or when the battery is depleted. |

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# CARS HAVE MORE POWER DEMAND AND WE HAVE SOLUTIONS FOR THAT

When it comes to battery power, cars can be pretty demanding. Even in older cars, there are huge differences when it comes to energy consumption. The number of electronic devices, the climatic conditions, or the type of traffic (e.g., around town vs. highway) can all play a role. We provide ranges of batteries to meet all customer needs.

| Battery technology | Start-Stop | Cold Cranking Amps | Cycle life compared to conventional batteries | Type of Vehicle Application |
|---|---|---|---|---|
| AGM must be replaced with AGM. |   |   | Enhanced | **Amaron Jade AGM** All start-stop applications + modern cars with superior needs. |
| EFB can be replaced with EFB or AGM start stop batteries. |   |   | Improved | **Amaron Onyx EFB** Cars with entry-level start –stop power needs. |
| **CONVENTIONAL** Batteries should always be replaced with the equivalent battery to meet the car's needs. You need more power because of extreme climate conditions or more electronic devices? AGM or upgrade within our SLI product range. | — |   | ● | **Non Start Stop PRO-FLO.** Conventional cars with Superior Power needs. |
| | — |   | ● | **GO** Cars with lower power needs. |

***Beware of the dangers of replacing AGM or EFB with a conventional battery.**

Serious performance and safety risks might occur when a conventional battery is fitted to a start-stop vehicle. This applies even if the start-stop function will be deactivated by the driver.

**Loss of warranty**

**Failure of comfort functions**


**Start-Stop function will not work properly**

**Acid spillage can cause damage to other engine parts**

**Overcharging may cause the battery to become hot and rupture**

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# JADE AGM BATTERIES

## WHAT SETS OUR BATTERIES APART!

**AMARON with Absorbent Glass Mat (AGM) construction**


AGM, or Absorbent Glass Mat, is a type of improved lead-acid battery that provides greater power to satisfy today's increased energy demands in cars and start-stop applications. AGM batteries are exceptionally vibration resistant, completely sealed, non-spillable, and require no maintenance. AGM batteries designed with superior safety features. Thus, making them the most suitable for big automobiles, SUVs, vans, and other vehicles with increased energy throughout battery life.

## ADVANTAGES OF AGM TECHNOLOGY

- Higher cold cranking performance
- Higher Life
- Zero Maintenance
- Non Spill able/Leak Proof
- Vibration resistant
- Fully sealed battery
- Higher Safety
- No Terminal Corrosion
- Low self discharge
- Fit and forget
- Absorbent glass mat
- Regenerative braking
- Higher Corrosion Resistance
- Faster Recharge
- Recombinant VRLA (valve regulated)
- Long shelf life
- Supports Start Stop system Aids Reduced Fuel Consumption and $CO_2$ Emissions

**FUTURE READY TECHNOLOGIES FOR FUTURISTIC VEHICLES**

# AGM BATTERY CONSTRUCTION

## Polypropylene Container:

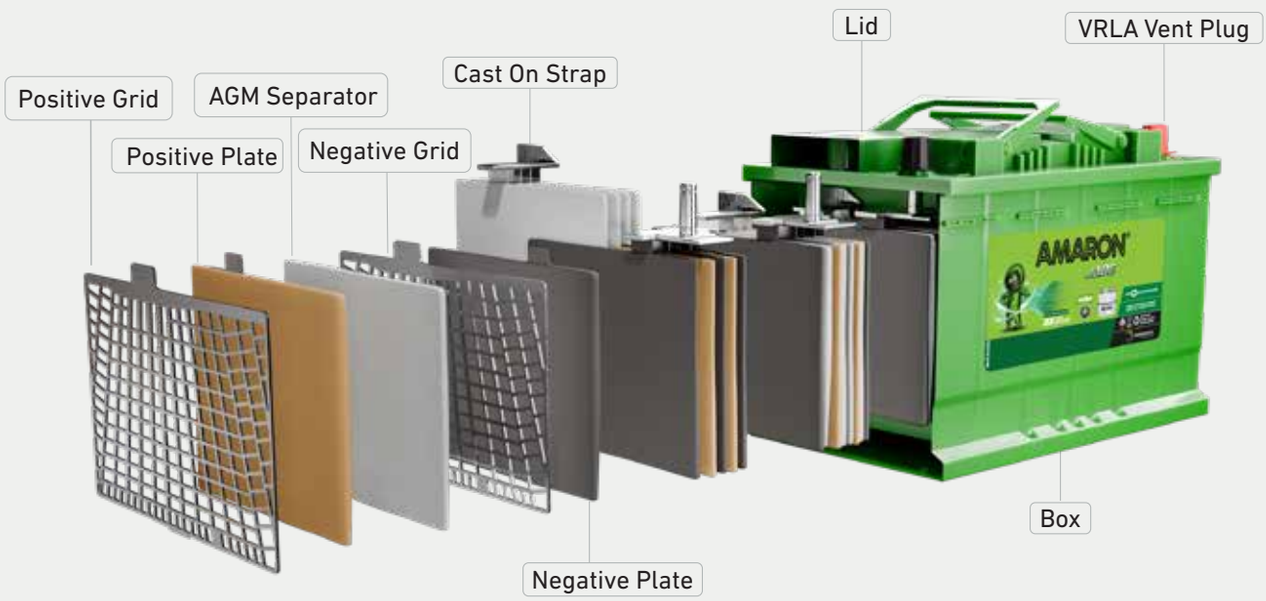
- Made of high quality durable material strengthens to withstand internal pressure

## Largest cast on Strap Area:

- Helps in High Vibration resistance minimizing the shedding of Active material

## Special Cover Structure assures Saftey.:

- Sealed and Non-Spillable AGM Design eliminated need for frequent Maintenance & Top-Up
- Eliminates emission of Gases due to its recombinant nature




## RAD GRID Technology:

- Constructed with more lead and uniform wire/mesh thickness maximizes current flow and increases charge efficiency
- Dynamic Charge Acceptance: Faster charging and discharging performance
- High Tin calcium alloy ensures highest corrosion resistance
- Low Internal resistance leads to Highest Cranking Power

## AGM Separator:

- Ultra High Strength glass mat micro-Porous separator absorbs electrolyte eliminates acid spills & terminal corrosion
- Optimized component compressed packing reduces loss of active material
- Highly efficient and maximum charge reaction due to even distribution of electrolyte

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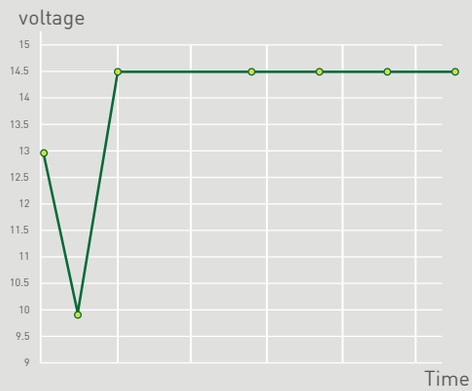
# LOAD DIAGRAM

### Battery in conventional vehicle

The battery requirements from charge/ discharge cycles are in the "normal" range.

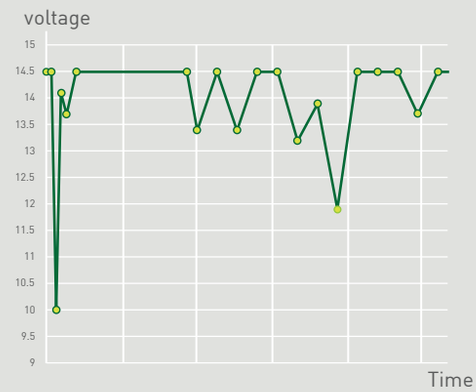



### Characteristic

A start operation followed by recharging.

### Battery in start-stop vehicle

Start-stop system dramatically altered the load profile. It demands a battery which can withstand high cyclic frequency, ensuring a reliable power supply.




### Characteristic

Large number of start operations, resulting in higher load on the battery.

| | | | | -18°C | 0°C | | Inches | | | Millimeters (mm) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCI Group | Battery Model | Series | Ref. AH @ C20 | CCA @ 0° F | CA @ 32° F | RC in mins | L | W | H | L | W | H | Terminal |
| 140R (H4/L1) | H4-Din 50 | Jade | 50 | 500 | 600 | 80 | 8.15 | 6.89 | 7.48 | 207 | 175 | 190 | T2 |
| 47 (H5/L2) | H5-Din 60 | Jade | 60 | 680 | 816 | 105 | 9.53 | 6.89 | 7.48 | 242 | 175 | 190 | T2 |
| 48 (H6/L3) | H6-Din 70 | Jade | 70 | 760 | 912 | 120 | 10.94 | 6.89 | 7.48 | 278 | 175 | 190 | T2 |
| 94R (H7/L4) | H7-Din 80 | Jade | 80 | 850 | 1020 | 140 | 12.40 | 6.89 | 7.48 | 315 | 175 | 190 | T2 |
| 49 (H8/L5) | H8-Din 95 | Jade | 95 | 900 | 1080 | 160 | 13.90 | 6.89 | 7.48 | 353 | 175 | 190 | T2 |
| 95R (H9/L6) | H9-Din 100 | Jade | 100 | 950 | 1140 | 190 | 15.55 | 6.93 | 7.48 | 395 | 176 | 190 | T2 |
| 65 | GR-65 | Jade | 68 | 750 | 900 | 120 | 12.05 | 7.56 | 7.56 | 306 | 192 | 192 | T2 |
| 35 | GR-35 | Jade | 55 | 650 | 780 | 100 | 9.06 | 6.93 | 8.86 | 230 | 176 | 225 | T2 |
| AUXILLIARY AGM | | | | | | | | | | | | | |
| AUX14R | AUX14R | Jade | 14 | 200 | | | 5.91 | 3.43 | 5.71 | 150 | 87 | 145 | Square |
| AUX12R | AUX12R | Jade | 12 | 180 | | | 5.91 | 3.43 | 5.12 | 150 | 87 | 130 | Square |

# ONYX EFB (ISS)

## WHAT SETS OUR BATTERIES APART!

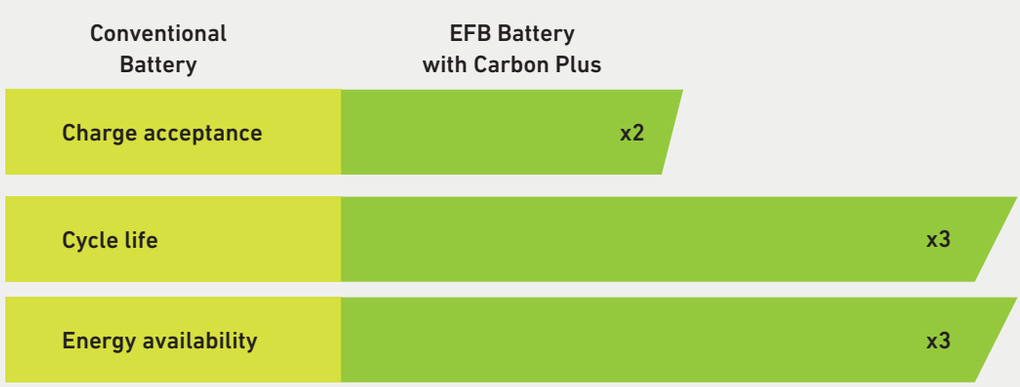

EFB Batteries are Conventional Flooded Lead Acid batteries in design with improved specification and Performance. EFB Batteries features with increased cyclic durability and an improved charge acceptance by current and designed with various changes to battery construction and materials.

EFB Batteries offers a cost effective solution for entry Level Idle Stop Start (ISS) vehicles where the battery will not be operating at such a low State of charge (SOC) as an AGM Battery. Entry Level Vehicles already have lower $CO_2$ emission than High performance and advanced specification vehicles which requires AGM Battery.

Dynamic Charge Acceptance (DCA) to accept charge immediately after starting the engine and from energy produced by Regenerative Breaking system is twice that of a conventional flooded battery.

# EFB TECHNOLOGY

- High dynamic charge acceptance over battery lifespan
- Extra energy and extra life for vehicles with ISS systems
- Optimised regenerative braking functionality in vehicles with Start-Stop systems - ensuring maximum fuel savings and less $CO_2$ emissions
- Optimal operation in engine compartment
- RAD GRID technology
- Large number of vehicle models coverage from a limited number of SKUs
- Long shelf life

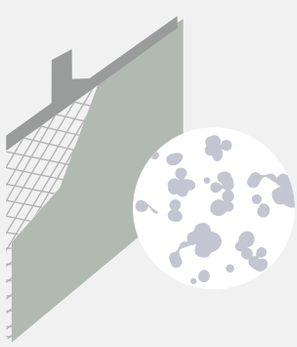



# CARBON PLUS IN EFB BATTERIES

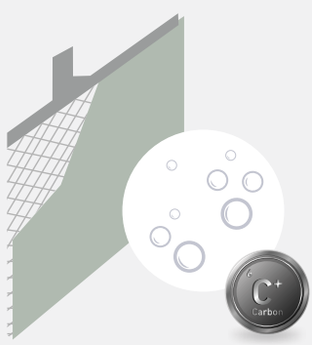
Idle Stop Start system vehicles have multiple stops and starts everyday due to short runs, engine switch off when vehicle is not moving causing frequent discharges. In city driving, there will be higher number of charge discharge cycles and normal batteries without longer duration of charging are prone to sulphation and acid stratification, damaging battery life span.

## Sulphation

During life span of batteries lead sulphate particles formed during chemical reaction creates a layer on the negative plates. This lead sulphate layer delays recharging process, as current supplied is mainly used for dissolving the lead suphate.



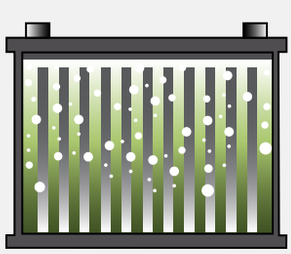
**Without Carbon Plus**
The plates are covered with sulfate



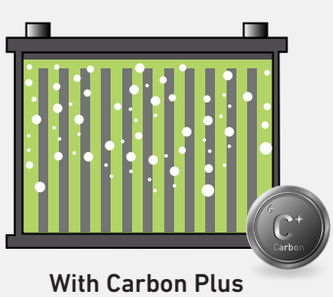
**With Carbon Plus**
Sulfate is reduced due to Carbon Plus Technology

## Acid Stratification

Lead Sulphate particles formed on the plates during discharging, starts dissolving into electrolyte during charging and turn into sulphuric acid. This is heavier than the electrolyte, so it sinks to the bottom, creating a range of negative effects, including reduced capacity. Stratification also occurs if the battery charge is regularly around 80-90%, which is common in EFB batteries which are fitted in Idle start stop system.



**Without Carbon Plus**
Causing uneven acid concentration at plate surface level



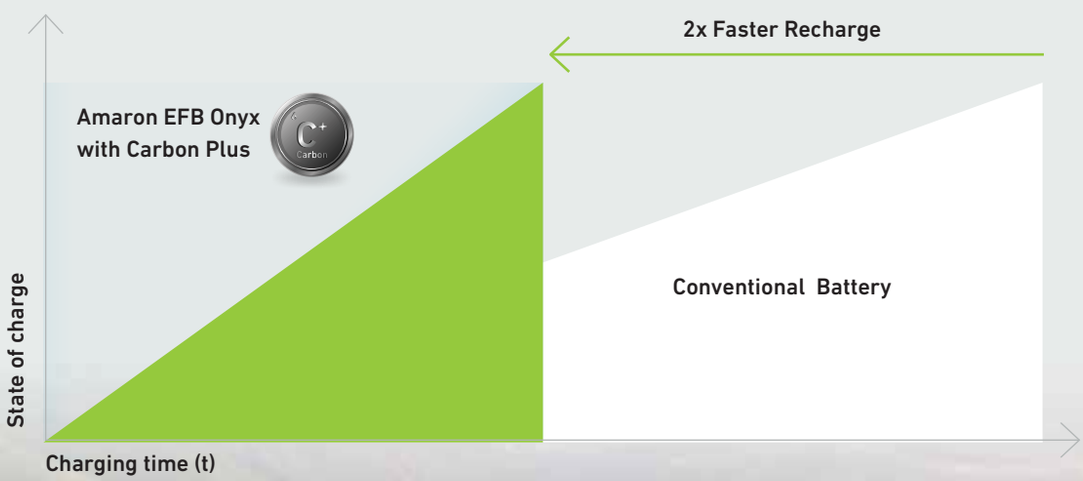
**With Carbon Plus**
Controlled gassing mixes the electrolytes and reduces stratification. Even distribution of acid in the electrolyte boosts controlled gassing and reduces stratification

Amaron EFB batteries are added with unique carbon additives which dissolves the lead sulphate particles from negative plate at higher speed. This causes faster recharging of the battery hence safeguards from sulphation and acid stratification-This boost Dynamic Charge Acceptance (DCA).

The carbon additives also supports controlled gassing during recharging , which keeps the electrolyte mixed with even distribution of sulphuric acid and further reduces stratification.

## THE BENEFITS OF CARBON PLUS

- Improved charge acceptance
- Reduced acid stratification
- Faster recharging
- Enhanced cycling endurance




Lab tests show that it takes significantly less time to recharge an Amaron EFB Onyx Carbon Plus Battery than a conventional battery under the same conditions.

AMARON®
LASTS LONG, REALLY LONG.

# PEARL MARINE BATTERIES

## WHAT SETS OUR BATTERIES APART!


At the heart of every marine vessel lies an intricate network of electrical systems, powering essential functions ranging from propulsion to navigation, communication, and onboard amenities. In this intricate ecosystem, Amaron Pearl marine batteries serve as the lifeblood, providing the energy needed to ignite engines, illuminate cabins, operate electronics, and navigate uncharted waters. Unlike their terrestrial counterparts, Amaron Pearl marine batteries are engineered with deep cycle design to withstand the harsh elements and demanding conditions of the open sea.

### THE ULTIMATE DUAL-PURPOSE BATTERIES

Perfect for boats, trailers, and more, Amaron Pearl batteries deliver both starting power and ongoing energy. Designed to function as both deep cycle and cranking marine batteries, they reliably start engines and power devices like trolling motors. Experience unparalleled versatility of dual purpose Amaron Pearl batteries!

## FEATURES

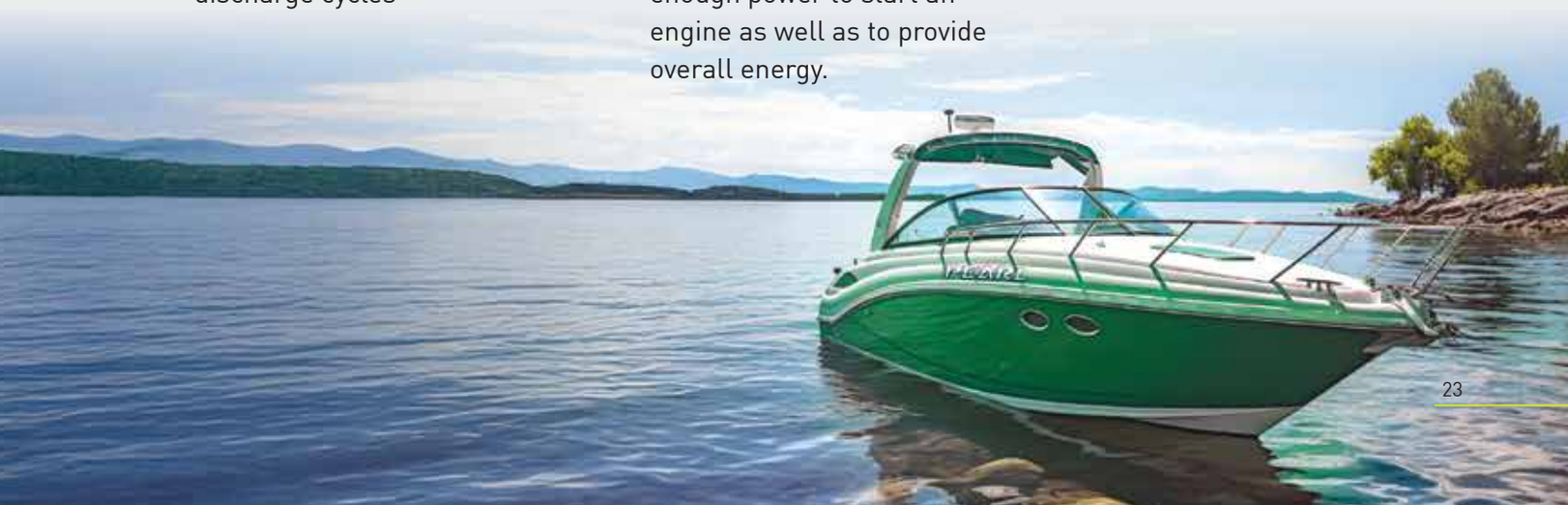
**Deep Cycle**
The hallmark of marine batteries lies in their deep-cycle design, tailored to deliver sustained power over extended periods.

**Durable Under Tough Conditions**
Thriving amidst the ceaseless tumult of marine environments, Amaron Marine batteries exhibit remarkable resilience to vibration, shock, and corrosion

**Robust Poly Design**
With its strong poly design, this product is tough, handles vibrations well, resists bulging, and is easy to install anywhere.

**Higher Cyclical Life**
Designed to withstand repeated recharge & discharge cycles

**Dual-Purpose**
Amaron Pearl Marine batteries are ideal to provide to provide enough power to start an engine as well as to provide overall energy.



## SUPERIOR MCA (MARINE CRANKING AMPS) RATED BATTERIES

Amaron Pearl batteries boast exceptional MCA ratings. The MCA rating is the maximum current a battery can sustain for 30 seconds at 32°F (0°C) while maintaining a voltage of 7.2 volts. This MCA rating is one-third higher than the corresponding Cold Cranking Amps (CCA) rating.

## STARTING POWER:

The MCA rating measures the battery's starting power, indicating how much power it can deliver in a short burst.

## OPTIMAL PERFORMANCE:

Choose Amaron Pearl batteries with a higher MCA rating for optimal performance.

### BATTERY MODEL APPLICATIONS:

| Battery Model | Application |
|---|---|
| MR-BH M24-70R-RADG | Starts engines upto150 hp with basic electrics |
| MR-BH M27-90R-RADG | Starts engines upto 350 hp with basic & optional electrics |
| MR-BH M31-105R-RADG | Starts engines 350 hp + with basic & optional electrics |

## BASIC ELECTRICS

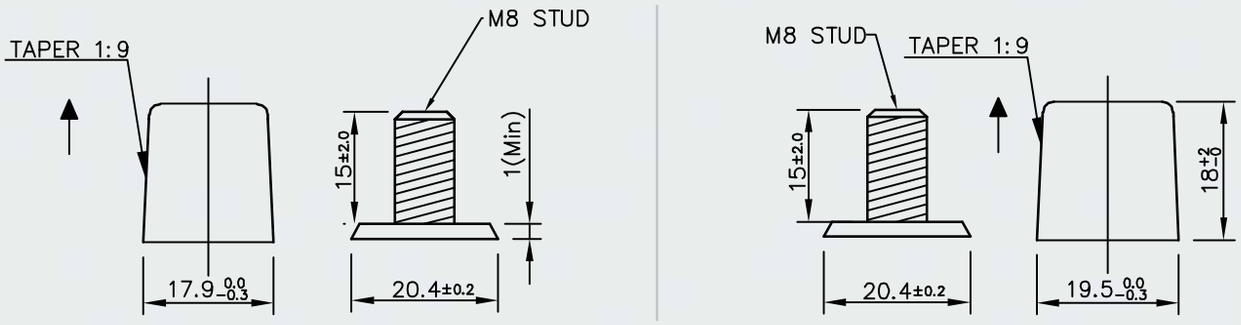
- Control Instruments
- Standard Lighting
- Bilage Pump
- UHF/VHF Radio

## OPTIONAL ELECTRICS

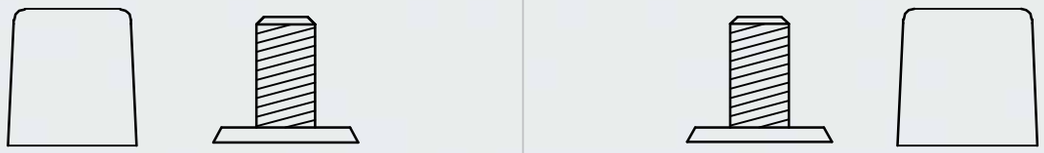
- Extra Lighting
- GPS
- Fish Finder
- Auto Pilot
- Trim Tabs
- Fridge

| | | | | -18°C | 0°C | | Inches | | | Millimeters (mm) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCI Group | Battery Model | Series | Ref. AH Capacity @ C20 | CCA @ 0°F Amps(SAE) | CA @ 32°F Amps(SAE) | RC in mins | L | W | H | L | W | H | Terminal |
| 24 | M24-70 | PEARL | 70 | 550 | 660 | 115 | 9.37 | 5.08 | 8.94 | 238 | 129 | 227 | T2/M8 |
| 27 | M27-90 | PEARL | 90 | 675 | 810 | 145 | 12.05 | 6.81 | 8.86 | 306 | 173 | 225 | T2/M8 |
| 31 | M31-105 | PEARL | 105 | 900 | 1080 | 195 | 12.99 | 6.77 | 9.37 | 330 | 172 | 238 | T2/M8 |

## TERMINAL LAYOUT




## TERMINAL TYPE



**Negative Terminal**

**Positive Terminal**

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# HIWAY- HEAVY DUTY COMMERCIAL VEHICLE BATTERY

## BATTERIES THAT MEAN BUSINESS


If you want your commercial vehicle to be as professional as yourself, look no further than Amaron. Our batteries are subjected to rigorous performance tests so that they deliver without fail every time. After all, there is no room for interruption or breakdown in a hyper competitive business environment. Your battery needs to be fighting fit in the harshest of terrains and in extreme weather conditions. Amaron's advanced zero maintenance batteries make sure that they will go the extra mile without any fear.

## FEATURES

- High Cranking Power
- Factory Charged- Ready to Use
- Highest Reserve Capacity
- Improved Safety
- High Heat Tolerance
- Long Life
- Vibration Resistance

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# DATA SHEET

## AMARON HIWAY & HARVEST

| | | | | -18°C | 0°C | | Inches | | | Millimeters (mm) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BCI Group | Battery Model | Series | Ref. AH Capacity @ C20 | CCA @ 0° F Amps(SAE) | CA @ 32° F Amps(SAE) | RC in mins | L | W | H | L | W | H | Terminal |
| 31 | GR31-900 | HI-WAY | 100 | 900 | 1050 | 160 | 12.99 | 6.77 | 9.37 | 330 | 172 | 238 | T2 |
| 31 | GR31-950 | HI-WAY | 100 | 950 | 1100 | 180 | 12.99 | 6.77 | 9.37 | 330 | 172 | 238 | T2 |
| 4D | NTX00D04R | HI-WAY | 150 | 1000 | 1200 | 300 | 21.26 | 8.74 | 9.45 | 540 | 222 | 240 | T2 |
| 4D | NT165D04R | HI-WAY | 165 | 1050 | 1260 | 325 | 21.26 | 8.74 | 9.45 | 540 | 222 | 240 | T2 |
| 4D | NT180D04R | HI-WAY | 180 | 1150 | 1380 | 355 | 21.26 | 8.74 | 9.45 | 540 | 222 | 240 | T2 |
| 8D | 245H52R | HI-WAY | 200 | 1200 | 1440 | 400 | 20.47 | 10.91 | 9.72 | 520 | 277 | 247 | T2 |

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# THE JOY OF RIDING STARTS FROM THE GENTLE PUSH OF THE SELF-START

**Amaron Two Wheeler Batteries**

## INSTANT CRANKING THAT REVS UP ALL CAPACITY ENGINES

Zero Maintenance  Corrosion Resistance  Long Service Life

AMARON®
LASTS LONG, REALLY LONG.

# ANY WEATHER. ANY TERRAIN. HASSLE-FREE STARTING

## ROBUST BATTERY TECHNOLOGY FOR ALL TYPES OF 2 WHEELERS

Whether you're an adventure sports enthusiast or a regular commuter, riding becomes a pleasure only when the engine is powered to life without a hitch, any time, every time. As one of the world's largest battery manufacturers, Amara Raja understands this universal need of two-wheelers - be it a sports bike or a scooter - only too well.

Amaron is a Sealed AGM Battery manufactured with state-of-art Lead Acid Battery Technology. Its availability in a wide array of power options makes it a battery with global appeal, ideal for any two wheeler model anywhere in the world.


**High Corrosion Resistance**
Lowest corrosion due to durable alloy materials and molecular realignment.

**Vibration Resistance**
Integrated material reduces vibration extends the battery life, making it highly durable and reliable



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## STURDY AND RESILIENT TO THE CORE

**Hi-Cranking Power**
Unique internal design delivers higher cracking power, allowing for an instant vehicle start

**Zero-Maintenance**
Fit and forget, designed for reliable performance during the entire life

**Long Service Life**
Oxygen recombination principle prevents water loss and MSG grid making process increases battery life.

**Spill-Proof**
Absorbed glass mat, makes the battery spill-proof unlike conventional batteries.

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## OXYGEN RECOMBINATION PRINCIPLE

**Increased efficiency and extended life span**

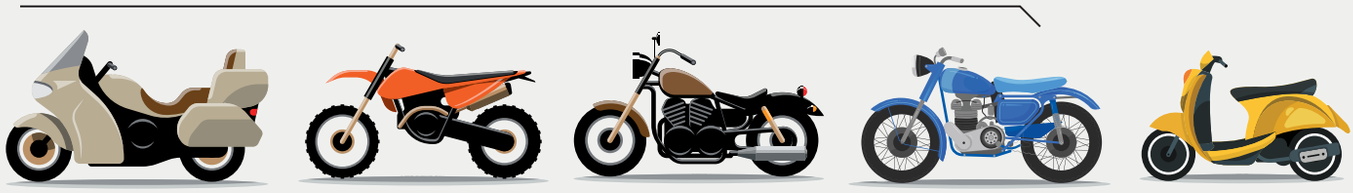
Possible only in Sealed AGM Batteries, this recombination process reduces the amount of water lost from the battery while also preventing the build-up of pressure inside the battery. This makes Amaron ideally the best batteries for high powered engines that require long-term backup power.

## ULTRA-LIGHT WEIGHT YET HIGHLY DURABLE

**Ease of handling and maintenance**

Light weight yet highly durable battery cover and container are made of eco-friendly, non-corrosive PPCP material. The significant light weight feature enables easy handling of the batteries while also contributing to reduced weight of the two wheeler


**Amaron Batteries – Instant Power for Every Engine Type**



Cruiser Bikes | Sports Bikes | Adventure Bikes | Standard Bikes | Scooters

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# MADE FOR INSTANT CRANKING - WHEREVER YOUR RIDE TAKES YOU

Blazing summers or chilly winters, heavy rains or snowfall, Amaron two-wheeler batteries ensure your engine comes to life without the least struggle. Whichever part of the world you are in and whatever the 2 wheeler you drive, be sure of the highest levels of performance in any climatic conditions.

Tested in some of the world's harshest terrains for higher cranking performance, Amaron never lets you down. Be it a dirt road or a hilly or forest area, just crank the engine with ease and rev up through any kind of terrain with ultimate confidence.

| Battery Model | Assembly Layout | Volt | Capacity @ 10hrs | L | W | H |
|---|---|---|---|---|---|---|
| ETX2.5L |  | 12 | 2.5 | 80 | 70 | 105 |
| ETX5L |  | 12 | 5 | 120 | 60 | 130 |
| ETX9R |  | 12 | 9 | 137 | 75 | 139 |
| ETX7R |  | 12 | 7 | 152 | 59 | 132 |
| ETZ4L |  | 12 | 3 | 113 | 70 | 85 |
| ETZ5S |  | 12 | 3 | 113 | 70 | 85 |
| ETZ5L |  | 12 | 4 | 113 | 70 | 105 |
| ETZ7L |  | 12 | 6 | 113 | 70 | 130 |
| ETZ9R |  | 12 | 8 | 150 | 87 | 105 |
| ETZ14R |  | 12 | 12 | 150 | 87 | 145 |



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FOR LAWN & GARDEN EQUIPMENT

# BUILT FOR DEMANDING OUTDOOR APPLICATIONS

AMARON GO Lawn & Garden batteries deliver high starting power and superior reserve capacity (RC) across all seasons. Engineered for longer life and consistent performance, these high-quality batteries offer excellent cycle life and retain charge over extended periods—ensuring reliability when it matters most.

**Easy Installation** L-type" terminals enable quick installation and compatibility with most cable assemblies.

**Enhanced Safety** Integrated flame arrestor improves safety during operation.

**Best-in-Class Venting System** Specially designed vents protect against dust, dirt, and grass ingress.

**Superior RAD Grid Design** Optimised current flow ensures consistent power delivery throughout the battery's life.


**Strong & Durable Container** Tough polypropylene case and cover resist damage from rugged outdoor usage.

**High Starting Power** Optimised radial grid and plate design deliver instant cranking power and dependable performance in all conditions.

**High Vibration Resistance** Advanced bonded Advanta paste technology provides excellent vibration resistance, making it ideal for garden and outdoor equipment.

**High Cranking Performance** Optimised plate and radial grid design deliver higher cranking power in shorter durations-ensuring instant starts and sustained long life.

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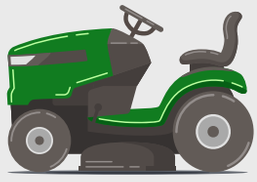
# DATA SHEET

## LAWN & GARDEN

| Battery Model | Ref. AH Capacity @ C20 | CCA @ -18°C Amps(SAE) | RC in mins | L (mm) | W (mm) | H (mm) | Terminal Type | Case Type | Hold Down |
|---|---|---|---|---|---|---|---|---|---|
| U1R-350L | 35 | 340 | 45 | 195 | 128 | 168 | Lug | U1 | B0 |
| U1-350R | 35 | 340 | 45 | 195 | 128 | 168 | Lug | U1 | B0 |
| U1R-300L | 30 | 300 | 35 | 195 | 128 | 168 | Lug | U1 | B0 |
| U1-300R | 30 | 300 | 35 | 195 | 128 | 168 | Lug | U1 | B0 |
| U1R-260L | 26 | 260 | 25 | 195 | 128 | 168 | Lug | U1 | B0 |
| U1-260R | 26 | 260 | 25 | 195 | 128 | 168 | Lug | U1 | B0 |



Ride-on mowers

Garden equipment

Farm utility vehicles

Snow blowers

FOR LAWN & GARDEN EQUIPMENT

# CERTIFICATIONS EARNED, TRUST GAINED

## YOUR ASSURANCE OF QUALITY

OCCUPATIONAL HEALTH & SAFETY OHSAS 18001:2007 CERTIFIED

QUALITY ISO 9001:2015 CERTIFIED

ENVIRONMENT ISO 14001:2015 CERTIFIED

International Automotive Task Force IATF 16949:2016

ENERGY ISO 50001:2018 CERTIFIED

HEALTH & SAFETY ISO 45001:2018 CERTIFIED

SNI

SIRIM QAS INTERNATIONAL

ECAS

DIAMOND MARK OF QUALITY
SYMBOL FOR PRODUCT QUALITY EXCELLENCE
DMM398

PS MARK
BPS
CERTIFIED
Product Quality
License No. Q-5264

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# LONG LIFE FOR EVERY VEHICLE


* Modification of the catalogue is not permitted.
* Images shown in the catalogue are indicative, actual images may differ and for representational purposes only.
* Amara Raja's design improvement is a continuous process. As a result, specifications may change without prior notice.
* The values mentioned in the specification tables are nominal and are subject to change without any prior intimation due to our continuous improvement program.

# LONG LASTING PERFORMANCE FOR EVERY VEHICLE


# AMARON®

**LASTS LONG, REALLY LONG.**


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