

The Battery Built for Real Trucking

Firefly Carbon Foam Batteries deliver the deep-cycle power modern trucks demand - providing reliable energy for auxiliary systems, driver comfort, and onboard electronics.

Built using advanced Microcell Carbon Foam technology originally developed in Caterpillar R&D labs, Firefly batteries outperform traditional AGM batteries in the most demanding trucking environments.

www.fireflyenergy.com | info@fireflyenergy.com

G31M

OASIS

(VRLA AGM GEL)

THE POWER OF FIREFLY CARBON FOAM TECHNOLOGY

Firefly batteries uses Microcell Carbon Foam technology, replacing traditional lead plates with highly conductive carbon foam structures.

This advanced aerospace age material dramatically improves how the battery charges, discharges, and recovers — especially in demanding trucking applications.

Unlike conventional AGM batteries that degrade quickly under repeated cycling, Firefly batteries are designed to operate reliably under partial state of charge conditions, deep discharge cycles, and harsh temperature environments.

The result is a battery that lasts longer, charges faster, and delivers dependable power for modern trucking equipment.

WHY FIREFLY CARBON FOAM MATTERS FOR TRUCKING

Compared to conventional AGM batteries:

- 3× longer cycle life in deep-cycle applications
- Fast recharge capability during short driving periods
- Outstanding performance in partial state of charge operation
- Superior resistance to sulfation
- Higher throughput efficiency (>90%)
- Reliable performance in extreme temperatures (−4 °F / -20°C to +122 °F / +50°C)

DESIGNED FOR MODERN TRUCK POWER DEMANDS

Today's trucks rely on batteries for far more than engine starting.
Firefly OASIS G31M batteries are engineered to deliver reliable power for:

- Auxiliary Power Units (APU)
- Cabin comfort systems
- Liftgate operations
- Refrigeration units
- Truck electronics & telematics
- Medical devices such as CPAP machines
- Hotel loads during overnight stops

Traditional starting batteries are not designed for repeated deep discharge. This often leads to premature battery failure and costly replacements.

Firefly batteries are true deep-cycle batteries built to handle heavy cycling without losing performance.

Trucking

OASIS



Built for Fleet Economics

Fleet operators measure performance by total cost of ownership. Firefly batteries help reduce operational costs through:

Longer Battery Life

Up to three times longer cycle life, reducing replacement frequency.

Less Downtime

Designed to tolerate repeated deep discharge without permanent damage.

Faster Charging

Recharge quickly while the truck is driving.

Maintenance-Free Operation

Sealed VRLA AGM design requires no watering or maintenance.

Environmentally Responsible

Fully recyclable within existing lead-acid recycling infrastructure.

FIREFLY VS CONVENTIONAL BATTERIES

Feature	Traditional AGM	Lithium	Firefly Carbon Foam
Deep Cycle Capability	Limited	Excellent	Excellent
Cost	Low	Very High	Moderate
Performance in Heat & Cold	Moderate	Limited	Excellent
Recharge Speed	Moderate	Fast	Fast
Recyclability	Yes	Limited	Yes

12V G31M BATTERY

(VRLA AGM GEL)

OASIS™

Partial state of charge cycling Efficiency	Ampere-hour >97% & watt hour >90%
Nominal Voltage	12V
Maximum charge voltage	14.10V
Maximum charge current	0.5C Amps for continuous charge
	1C Amps can be tolerated for Sporadic sessions.
Internal resistance	5.0 mΩ
Shelf life@25°C(77°F)	2 years
Self- Discharge	<2% per Month
CCA	630 Amps

Temperature	Low	High
Operation	-20°C/-4°F	50°C/122°F
Storage	-30°C/-22°F	60°C/140°F

Weights & Dimensions	
Length	14.0in/356mm
Width	6.73in/171mm
Height	8.6in/218 mm
Weight	69.5lbs/31.5kgs
Volume	813Cu.in/13.0liters
	Construction
Terminal configuration	3/8 "-16 UNC
Case/Cover	ABS
Racks	Available upon request

*Discharge Rates to 1.75V Per Cell**

Hours	Amps	Ah	Kwh
0.25	155	38.8	0.47
1	63	63	0.76
3	26.7	80	0.96
5	17.4	87	1.04
10	10	100	1.20
20	5.25	105	1.26

*Battery Life**

DOD(%)	Cycles
30	7500-11250
50	3000-3500
65	1500-2000
80	850-1100
100	500-700

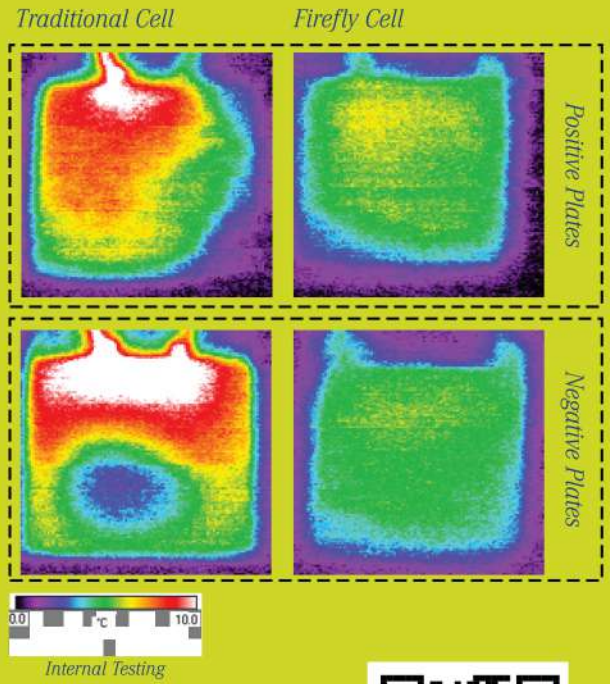
*All above are at 25°C/77°F

International Compliance

- IEC 60896-21/22:2004
- IEC 61427
- IEC 60095
- IS 15549:2005
- IEC 61056
- ISO 9001:2015

Charge Temperature Compensation

Operating Temperature	°C	-20	25	40	55
	°F	-4	77	104	131
Absorption Charge Voltage	V	15.3	14.1	13.8	13.5



Infrared thermal images snapped at the end of a 5C (12 minute) discharge of both a Firefly 3D cell and a Traditional cell.

More uniform temperature distribution, as the Carbon Foam is thermally conductive, results in

- Uniform current density distribution.
- Higher overall active material utilization.
- Less localized positive grid corrosion.
- Less localized positive active material wear out.

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firefly® energy
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