



firefly[®]
international
energy

OASIS[™]



12V G31 BATTERY

Oasis[™] Microcell[™] Carbon Foam Battery is the only battery in the world that can run on a partial state of charge and retain its original capacity. Superior to carbon plate batteries, it is built for unmatched performance requiring deep discharge/charge cycling, high power applications and maximum run times.

The Microcell[™] Carbon Foam Negative Plates with the Prismatic Positive Plates minimize the most common battery failure caused by sulfation, corrosion and overheating.

The Oasis[™] battery, in GROUP 31 size, has superior low temperature performance and extended cycle life at high temperature.

This is a multi-purpose battery ideal for both cranking and deep discharge applications – RV, Marine, Buses & Trucks, Defense and Mining Equipment, Patrolling Vehicles, Hotel Load in Commercial Vehicles.

Patented and Rewarded technology:

- 8 patents
- 22 Patent Applications pending
- First Major Development since AGM Batteries



Firefly Energy – Winner of the 2007 “R&D 100” Award



Firefly Energy – Winner of the Wall Street Journal 2007 “Technology Innovation” Award

Originally developed at CATERPILLAR to meet the harsh and rugged requirements of deep cycling and extreme environments, the patented Oasis[™] battery using Microcell Carbon Foam Technology is now the most cost effective energy storage solution.

Firefly International has world class R&D and manufacturing facilities in Peoria, Ill.

In stock delivery from Peoria, Illinois.

SALIENT FEATURES

- Sealed - requires no maintenance.
- More than four times cycle life compared to flooded, gel or AGM batteries at 50% DOD
- Very high charge/discharge capability at a fraction of the cost of 'premium' batteries
- Lower cost per kWh delivered compared to 'premium' batteries
- Unmatched ability to recover from extended storage in discharged state
- Throughput efficiency greater than 90%
- Improved high/low temperature performance
- Superior protection against corrosion and sulfation related problems
- Available with Battery Energy Management System (BEMS)
- Lowest cost of ownership
- Industry leading warranty
- Compatible with existing lead acid battery recycling infra structure
- Has outstanding long life even under partial state of charge operation



12V G31 BATTERY

Efficiency	Amp Hr 95%+	Watt Hr 90%+
Nominal Voltage	12V	
Max Charge Voltage	14.4V	
Max Charge Current	250A	
Internal Resistance	3.8 mΩ	
Shelf Life @ 25°C (77°F)	2 years	
Self-discharge	<2%/month	
Temperatures	Low	High
Operation	-20°C / -4°F	50°C / 122°F
Storage	-30°C / -22°F	50°C / 122°F
Weights & Dimensions		
Length	13.4in / 340mm	
Height	9.4in / 238mm	
Width	6.8in / 172mm	
Weight	74lbs / 33.5kg	
Volume	856.5 cu in / 13.9 ltrs.	
Construction		
Terminal Configuration	3/8 - 16 UNC	
Case/Cover	PPCP	

Discharge Rates to 1.75 VPC *

Hours	Amps	Ah	Kwh
3	30.5	91.5	1.10
10	11	110	1.32
20	5.8	116	1.39

Estimated Life

RV & Marine	5 - 10 years
Buses & Trucks	3 - 5 years
Patrolling Vehicles	3 - 5 years
Defense & Mining	5 years+
Hotel Load	4 - 8 years

Battery Life *

DOD(%)	Cycles
30	9,000
50	3,600
80	1,000

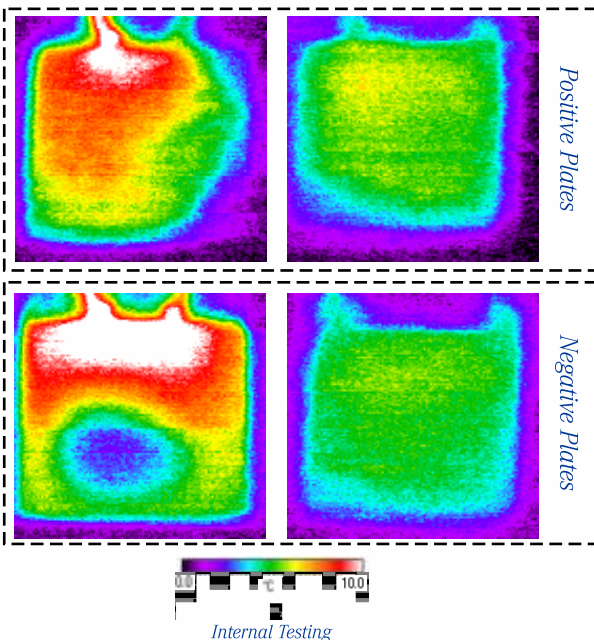
* All above data are at 25°C / 77°F.

Charge Temperature Compensation

Operating Temperature	°C	-20	-5	10	25	40	55
	°F	-4	23	50	77	104	131
Absorption Charge Voltage		15.48	15.12	14.76	14.4	14.04	13.68

Traditional Cell

Firefly Cell



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

More uniform temperature distribution, as the Carbon Foam is thermally conductive, means:

- 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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