

PB UPS

4V 450Ah / 2V 900Ah @ C20

Battery

OASIS™



(VRLA AGM GEL)

Developed by scientists at Firefly Energy, Microcell™ Carbon Foam is a material that's revolutionizing the battery industry. Compared to spongy lead negative plates, one of the main components of conventional lead acid batteries, carbon foam Negative plates deliver longer service life, increased energy efficiency and better performance under extreme conditions. That's why we used it to create our revolutionary Firefly MCF battery.

Firefly carbon foam design resists hard sulfation and corrosion two of the primary causes of failure in lead-acid batteries, while dramatically increasing the surface area in contact with the Active material within the battery, resulting in greater energy capacity, faster recharges, and deeper discharge capability.

SALIENT FEATURES

- Sealed and requires no maintenance
- More than 3 - times cycle life compared to gel & AGM VRLA batteries at 50% DOD.
- Lower cost per kWh delivered compared to premium VRLA 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.
- Lowest cost of ownership Industry leading warranty.
- Compatible with existing lead acid battery recycling infrastructure.
- Outstanding long life even under partial state of charge operation.

OASIS™

MCF- MICROCELL CARBON FOAM TECHNOLOGY

APPLICATIONS



L-16 4V 450Ah/2V 900Ah @ C20

(VRLA AGM GEL Deep cycle Battery)

OASIS

	4v 450 Ah	2v 900 Ah
Partial state of charge	Ampere-hour >97% & watt hour >90%	
cycling Efficiency		
Nominal Voltage	4 V	2 V
Maximum charge voltage	4.70 V / Battery	2.35 V / Battery
Maximum charge current	0.5CAmps current limit for continuous charge 1C Amps can be tolerated for Sporadic sessions	
Internal resistance	1.2 Milli ohms/Cell	0.60 Milli ohms/Cell
Shelf life@25°C(77°F)	2 years	
Self-Discharge	<2%perMonth	
CCA	2070Amps	4140Amps

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

Weight & Dimensions	
Length	10.55in/268mm
Width	6.85 in/174mm
Height	16.65in/423mm
Weight	95.9 lbs/43.6kgs
Volume	1203.3Cu.in/ 19.72 liters
Construction	
Terminal Configuration	3/8 "-16 UNC
Case/Cover	PPCP

Discharge Rates to 1.75V Per Cell*

	4v 450 Ah			2v 900 Ah		
Hours	Amps	Ah		Amps	Ah	Kwh
0.25	400.0	100		800.0	200	0.40
1	270.0	270		540.0	540	1.08
3	114.0	343		228.0	686	1.37
5	74.5	372		149.0	744	1.49
10	42.5	425		85.0	850	1.70
20	22.5	450		45.0	900	1.80

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
- IS 15549:2005
- ISO 9001:2015
- IEC 60095
- IEC 61056

Charge Temperature Compensation

Operating Temperature	°C	-20	25	40	55
	°F	-4	77	104	131
Absorption Charge Voltage	4V 450	5.15	4.70	4.55	4.40
	2V 900	2.57	2.35	2.28	2.20

Discharge current in Amps to End volt of 1.75V/cell

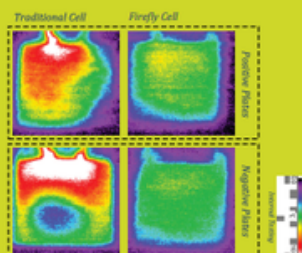
Battery Type	C20-Ah	No of Cells/Bty	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	4 hrs	5 hrs	6 hrs	7 hrs	8 hrs	9 hrs	10 hrs	20 hrs
4V450 AH	450	2	493.5	449.4	409.5	367.5	273.0	168.0	132.3	105.0	87.2	76.7	67.2	60.9	54.6	50.4	24.3
2V900 AH	900	1	987.0	898.8	819.0	735.0	546.0	336.0	264.6	210.0	174.3	153.3	134.4	121.8	109.2	100.8	48.5

Constant Watts Discharge/Battery to End volt of 1.75V/cell

Battery Type	C20-Ah	No of Cells/Bty	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	4 hrs	5 hrs	6 hrs	7 hrs	8 hrs	9 hrs	10 hrs	20 hrs
4V450 AH	450	2	1776.6	1617.8	1474.2	1337.7	999.2	618.2	489.5	390.6	338.1	297.4	262.1	241.1	218.4	206.6	99.4
2V900 AH	900	1	1776.6	1617.8	1474.2	1337.7	999.2	618.2	489.5	390.6	338.1	297.4	262.1	241.1	218.4	206.6	99.4

Constant Watts Discharge/Cell (WPC) to End volt of 1.75V/cell

Battery Type	C20-Ah	No of Cells/Bty	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	4 hrs	5 hrs	6 hrs	7 hrs	8 hrs	9 hrs	10 hrs	20 hrs
4V450 AH	450	2	888.3	808.9	737.1	668.9	499.6	309.1	244.8	195.3	169.1	148.7	131.0	120.6	109.2	103.3	49.7
2V900 AH	900	1	1776.6	1617.8	1474.2	1337.7	999.2	618.2	489.5	390.6	338.1	297.4	262.1	241.2	218.4	206.6	99.4



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.