



Energy Evolved.

Lead Crystal Energy Solutions

Next-generation lead crystal battery systems for a sustainable future. High-performance, high-safety, and 99% recyclable.

**LEAD
CRYSTAL[®]**
BATTERIES

LEAD CRYSTAL[®] BATTERIES

POWERED BY

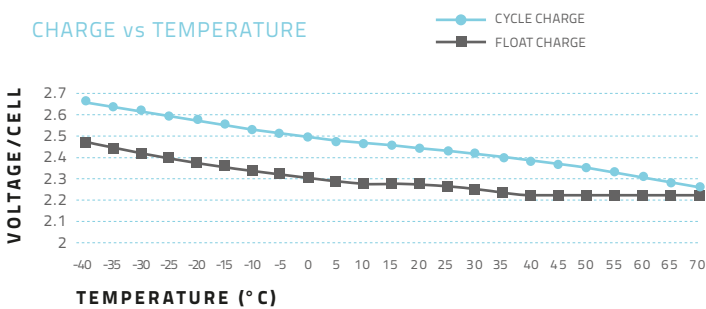
Betta Batteries



DISCHARGE CURRENT AND END VOLTAGE

Discharge current (A)	End voltage (V)
0.05C or below or Intermittent discharge	5.70
0.05C of current close to it	5.55
0.1C of current close to it	5.40
0.2C of current close to it	5.25
From 0.2C to 0.5C	5.10
From 0.5C to 1C	4.80
From 1C to 3C	4.50
Current in excess of 3C	3.90

CHARGE vs TEMPERATURE



CHARGE vs TEMPERATURE CHART

temperature	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Cycle Charge	2.66	2.64	2.62	2.60	2.58	2.56	2.54	2.52	2.50	2.48	2.47	2.47	2.45	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27
Float Charge	2.46	2.44	2.42	2.40	2.38	2.36	2.34	2.32	2.31	2.30	2.29	2.29	2.29	2.27	2.26	2.24	2.23	2.23	2.23	2.23	2.23	2.23	2.23

CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES (25°C)

End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	14.678	7.768	4.694	3.422	2.756	1.579	1.147	0.899	0.767	0.652	0.497	0.414	0.347	0.226	0.185
1.67V	13.642	7.514	4.624	3.398	2.751	1.572	1.126	0.895	0.756	0.647	0.496	0.409	0.347	0.225	0.184
1.70V	13.502	7.398	4.578	3.353	2.728	1.558	1.119	0.890	0.744	0.640	0.495	0.409	0.346	0.225	0.184
1.75V	12.370	7.166	4.532	3.330	2.682	1.528	1.114	0.879	0.738	0.636	0.492	0.405	0.344	0.224	0.184
1.80V	11.098	6.704	4.346	3.237	2.613	1.505	1.110	0.876	0.728	0.629	0.490	0.400	0.342	0.216	0.183
1.83V	10.608	6.150	4.278	3.122	2.497	1.491	1.066	0.839	0.712	0.606	0.480	0.384	0.328	0.214	0.181
1.85V	9.941	5.965	4.000	3.006	2.428	1.431	1.038	0.828	0.694	0.586	0.474	0.379	0.324	0.212	0.179

DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL (25°C)

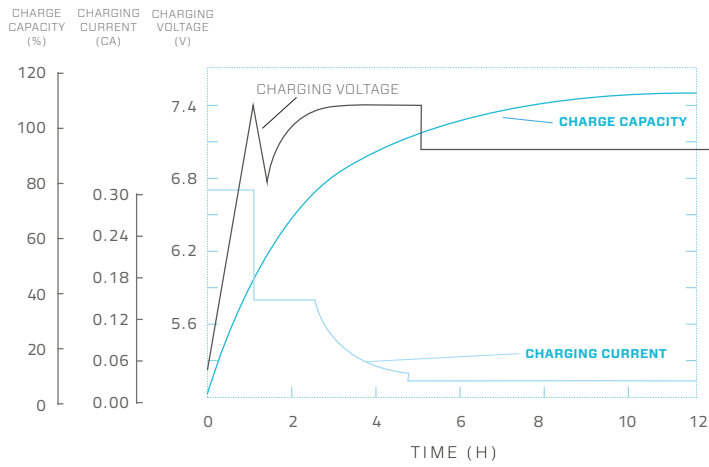
End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	24.528	13.640	8.785	6.404	5.151	2.982	2.180	1.727	1.459	1.253	0.966	0.800	0.673	0.449	0.368
1.67V	23.349	13.432	8.430	6.358	5.155	2.982	2.152	1.725	1.459	1.251	0.966	0.798	0.673	0.448	0.368
1.70V	23.210	13.339	8.426	6.358	5.109	2.959	2.148	1.718	1.436	1.241	0.959	0.791	0.666	0.446	0.368
1.75V	21.615	13.177	8.435	6.357	5.086	2.936	2.143	1.715	1.431	1.232	0.955	0.785	0.666	0.446	0.365
1.80V	19.836	12.507	8.253	6.242	5.063	2.936	2.141	1.711	1.422	1.232	0.952	0.781	0.666	0.435	0.365
1.83V	19.142	11.490	8.184	6.057	4.855	2.913	2.081	1.653	1.406	1.193	0.952	0.758	0.654	0.430	0.363
1.85V	17.732	11.235	7.606	5.826	4.716	2.844	2.023	1.632	1.366	1.170	0.916	0.751	0.643	0.425	0.361

SPECIFICATION

Nominal Voltage	6V		
Rated Capacity (10 hour rate)	4 AH		
Dimension	Total Height (top of terminal)	105 mm	4.13"
	Height	100 mm	3.94"
	Length	70 mm	2.76"
	Width	47.5 mm	1.87"
Weight	Approximately 0.70 kg / 1.54 lbs		
Capacity	120 hour rate (40mA)	4.8 AH	
	25°C 20 hour rate (230mA)	4.6 AH	
	10 hour rate (400mA)	4 AH	
Internal Resistance	Fully charged Battery (25°C)	16mΩ	
Self-Discharge 25°C	Capacity after 3 month storage	95%	
	Capacity after 6 month storage	85%	
	Capacity after 12 month storage	80%	
Max Discharge Current 25°C	40A (5S)		
Terminal	Standard	F1	
	Optional	F2	
Charging (Constant Voltage)	Cycle	Initial Charging Current 1.2A 7.4V / (25°C)	
	Float	6.8V / (25°C)	

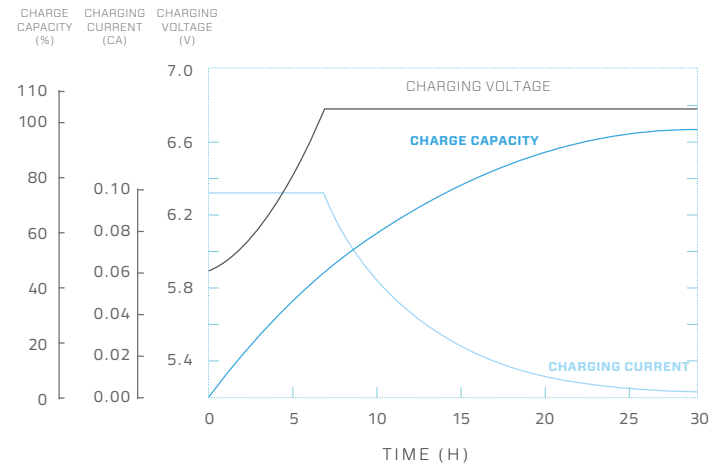
CYCLE CHARGE CHARACTERISTIC (25°C)

REGULAR CYCLE CHARGE CHARACTERISTICS 77°F (25°C)



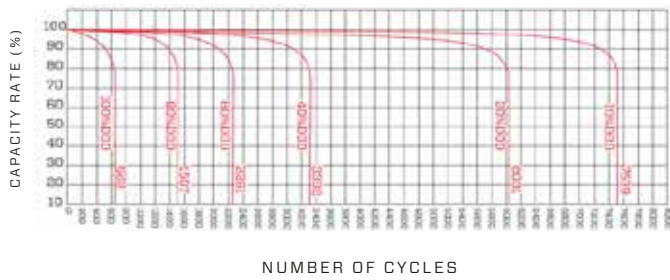
FLOATING CHARGE CHARACTERISTIC (25°C)

FLOATING CHARGE CHARACTERISTICS 77°F (25°C)

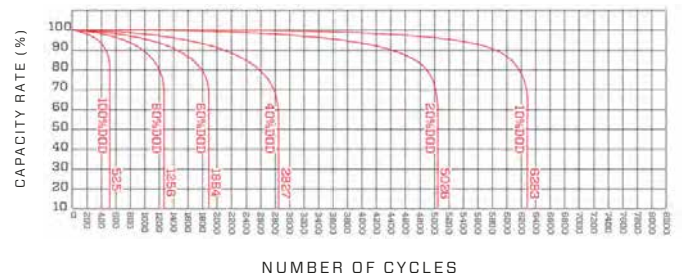


CYCLE LIFE CURVE GRAPH

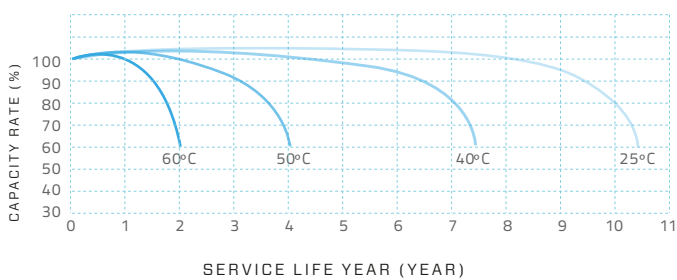
CYCLE LIFE CURVE GRAPH (25°C)



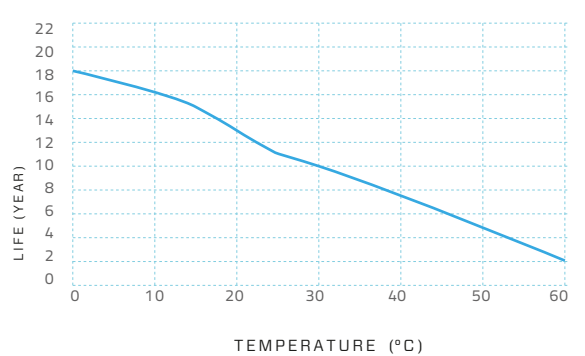
CYCLE LIFE CURVE GRAPH (40°C)



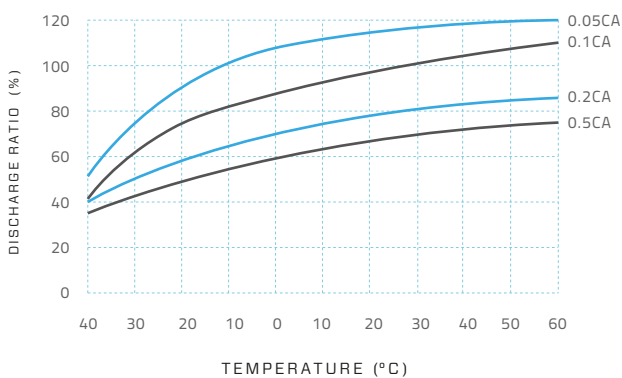
TEMPERATURE & FLOAT SERVICE LIFE



FLOAT SERVICE LIFE CURVE GRAPH



TEMPERATURE & DISCHARGE CAPACITY



3-CNFJ-4 6V / 4 A



Energy Evolved.

Performance: Robust, resilient, high performing. Lead Crystal® batteries can be discharged deeper, cycled more often (also in extreme temperatures) and have a longer service life. They recover to full rated capacity over and over again.

Technology: A unique micro-porous high absorbent mat (AGM), high-purity lead calcium selenium plates, safe SiO₂ electrolyte solution that solidifies into a white crystalline powder when charged/discharged.

Cleaner & Safer: Less acid, no cadmium, no antimony. Lead Crystal® batteries are up to 99% recyclable and are classified as non-hazardous goods for transport.

Markets: Lead Crystal® batteries are being used in telecoms, UPS, petrochem/marine, defence, renewable energy, health care, manufacturing, transportation and electric motion (wheelchairs, golf carts & trolleys).



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