

# the power of tomorrow

CLEAN ENERGY DEFINES THE WORLD THAT WE LIVE IN TODAY AND TOMORROW.  
LEAD CRYSTAL® TECHNOLOGY CREATES POWER THAT IS CLEAN SAFE AND  
HIGH PERFORMING FOR A BETTER FUTURE

**LEAD  
CRYSTAL®  
BATTERIES**

POWERED BY  
**Betta Batteries**



## SPECIFICATION

Nominal Voltage	6V		
Rated Capacity (10 hour rate)	12 AH		
Dimension	Total Height (top of terminal)	100 mm	3.94"
	Height	94 mm	3.7"
	Length	151 mm	5.94"
	Width	50 mm	1.97"
Weight	Approximately 2.1 kg / 4.62 lbs		

## 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

Capacity	120 hour rate (120mA)	14.4 AH
25°C	20 hour rate (660mA)	13.2 AH
	10 hour rate (1.2A)	12 AH

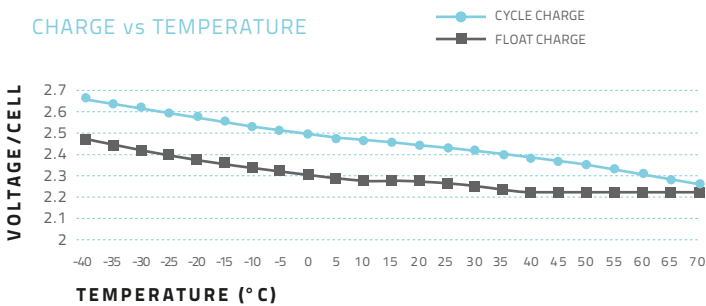
Internal Resistance	Fully charged Battery (25°C)	8mΩ
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Self-Discharge 25°C	Capacity after 3 month storage	95%
	Capacity after 6 month storage	85%
	Capacity after 12 month storage	80%

Max Discharge Current 25°C	120A (5S)
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Terminal	Standard	F2
	Optional	
Charging (Constant Voltage)	Cycle	Initial Charging Current 3.6A 7.4V / (25°C)
	Float	6.8V (25°C)

## 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)

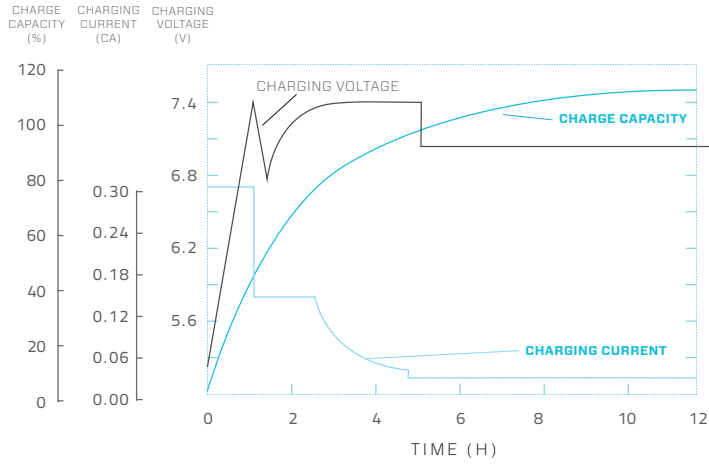
End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	44.035	23.304	14.081	10.266	8.268	4.737	3.440	2.698	2.301	1.956	1.491	1.242	1.042	0.678	0.554
1.67V	40.925	22.541	13.872	10.195	8.254	4.717	3.378	2.684	2.268	1.942	1.489	1.228	1.040	0.676	0.552
1.70V	40.507	22.195	13.733	10.058	8.185	4.675	3.357	2.670	2.233	1.921	1.484	1.228	1.037	0.674	0.551
1.75V	37.109	21.499	13.596	9.989	8.046	4.585	3.343	2.637	2.213	1.908	1.477	1.214	1.032	0.671	0.551
1.80V	33.293	20.112	13.039	9.710	7.838	4.516	3.330	2.629	2.185	1.887	1.471	1.200	1.027	0.649	0.549
1.83V	31.824	18.451	12.833	9.365	7.492	4.474	3.198	2.518	2.136	1.817	1.439	1.151	0.985	0.642	0.542
1.85V	29.822	17.894	12.000	9.018	7.283	4.294	3.114	2.483	2.081	1.757	1.422	1.138	0.971	0.635	0.538

## 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	73.583	40.919	26.355	19.211	15.454	8.947	6.540	5.181	4.376	3.759	2.899	2.400	2.018	1.346	1.103
1.67V	70.048	40.295	25.289	19.073	15.466	8.947	6.547	5.174	4.376	3.752	2.899	2.393	2.018	1.345	1.103
1.70V	69.631	40.017	25.277	19.073	15.327	8.877	6.443	5.155	4.307	3.724	2.878	2.372	1.997	1.339	1.103
1.75V	64.846	39.532	25.305	19.072	15.258	8.808	6.429	5.146	4.293	3.697	2.864	2.356	1.997	1.339	1.096
1.80V	59.507	37.520	24.759	18.725	15.189	8.808	6.422	5.132	4.265	3.697	2.857	2.344	1.997	1.304	1.096
1.83V	57.425	34.469	24.552	18.171	14.565	8.739	6.242	4.959	4.217	3.579	2.857	2.275	1.963	1.290	1.089
1.85V	53.195	33.706	22.818	17.478	14.148	8.531	6.069	4.896	4.099	3.509	2.747	2.254	1.928	1.276	1.082

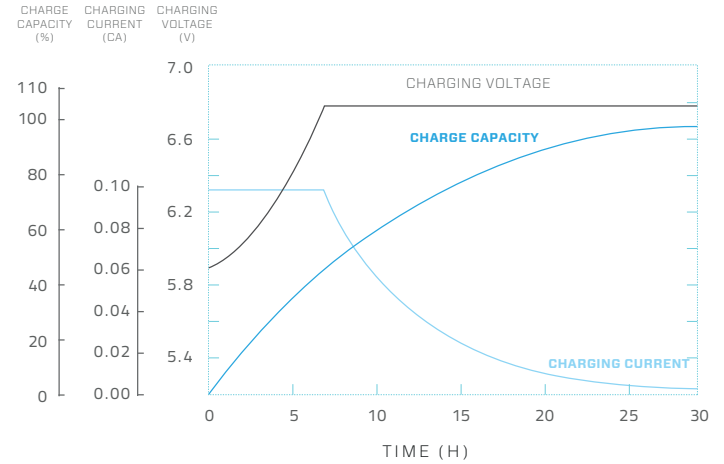
**CYCLE CHARGE CHARACTERISTIC (25°C)**

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



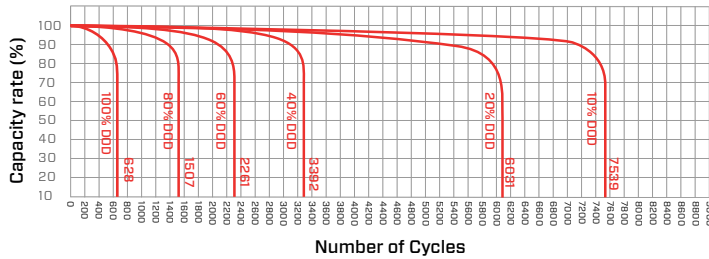
**FLOATING CHARGE CHARACTERISTIC (25°C)**

FLOATING CHARGE CHARACTERISTICS 77°F (25°C)

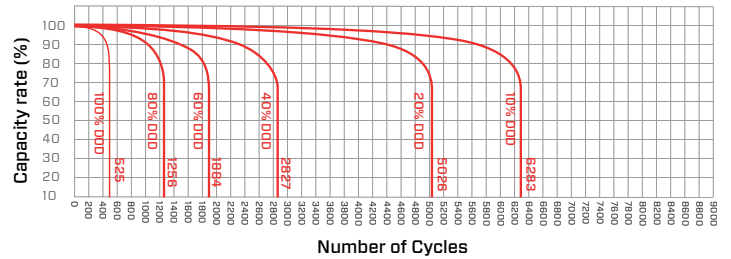


**CYCLE LIFE CURVE GRAPH**

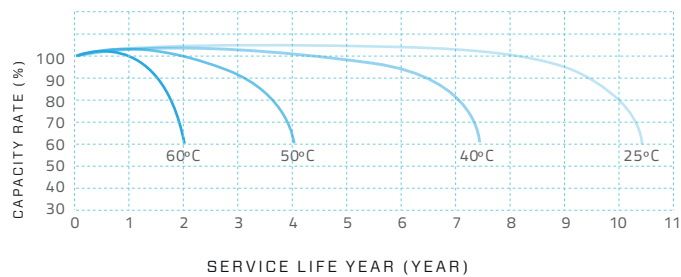
Cycle life curve graph (25°C) 6V



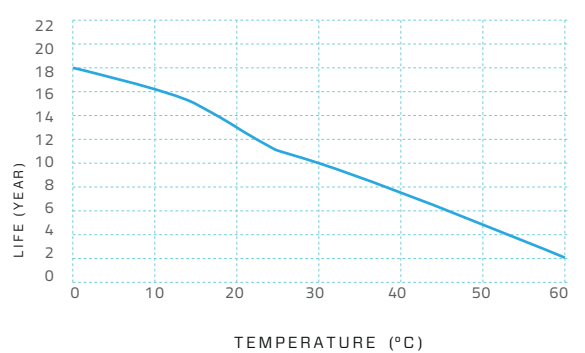
Cycle life curve graph (40°C) 6V



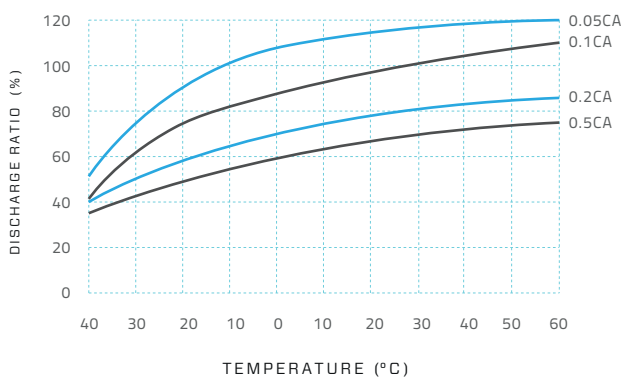
**TEMPERATURE & FLOAT SERVICE LIFE**



**FLOAT SERVICE LIFE CURVE GRAPH**



**TEMPERATURE & DISCHARGE CAPACITY**





## 3-CNFJ-12 6V/12Ah

### LEAD CRYSTAL®: CHANGING THE FUTURE

**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 SiO<sub>2</sub> electrolyte solution that solidifies into a white crystalline powder when charged/discharged.

**Cleaner & safe** 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).

