

# 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)	200 AH		
Dimension	Total Height (top of terminal)	230 mm	9.06"
	Height	226 mm	8.90"
	Length	323 mm	12.72"
	Width	178 mm	7.01"

Weight	Approximately 30 kg / 66.08 lbs		
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Capacity 20°C	120 hour rate (2.0A)	240 AH
	20 hour rate (10.8A)	216 AH
	10 hour rate (20A)	200 AH

Internal Resistance	Fully charged Battery (20°C)	1.5mΩ
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Self-Discharge 20°C	Capacity after 3 month storage	95%
	Capacity after 6 month storage	85%
	Capacity after 12 month storage	80%

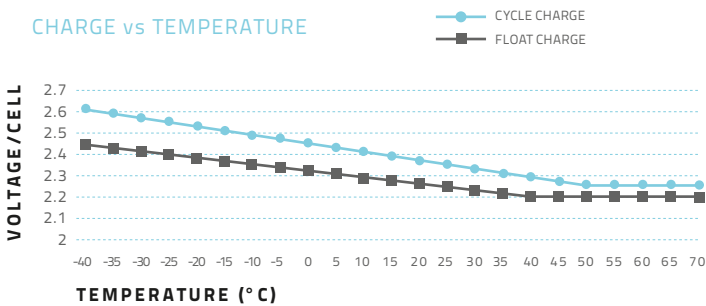
Max Discharge Current 20°C	2000A (5S)
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Terminal	Standard	F3
	Optional	
Charging (Constant Voltage)	Cycle	Initial Charging Current 60A or smaller 7.20V -7.4V/ (20°C)
	Float	6.75V -6.9V/ (20°C)

## 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	2.61	2.59	2.57	2.55	2.53	2.51	2.49	2.47	2.45	2.43	2.41	2.39	2.37	2.35	2.33	2.31	2.29	2.27	2.25	2.25	2.25	2.25	2.25
Float Charge (voltage/cell)	2.45	2.43	2.42	2.4	2.39	2.37	2.36	2.34	2.33	2.31	2.3	2.28	2.27	2.25	2.24	2.22	2.21	2.21	2.21	2.21	2.21	2.21	2.21

## 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	733.92	388.40	234.68	171.09	137.80	78.95	57.34	44.97	38.36	32.60	24.86	20.69	17.37	11.31	9.24
1.67V	682.08	375.68	231.20	169.92	137.56	78.61	56.30	44.74	37.80	32.37	24.82	20.46	17.34	11.27	9.20
1.70V	675.12	369.92	228.88	167.63	136.42	77.92	55.95	44.51	37.22	32.02	24.74	20.46	17.28	11.24	9.19
1.75V	618.48	358.32	226.60	166.48	134.10	76.42	55.72	43.95	36.88	31.79	24.62	20.23	17.20	11.19	9.18
1.80V	554.88	335.20	217.32	161.84	130.64	75.26	55.49	43.82	36.42	31.45	24.51	20.00	17.11	10.81	9.16
1.83V	530.40	307.52	213.88	156.08	124.86	74.57	53.29	41.97	35.61	30.29	23.99	19.19	16.42	10.69	9.04
1.85V	497.04	298.24	200.00	150.29	121.38	71.56	51.91	41.39	34.68	29.29	23.70	18.96	16.18	10.58	8.96

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

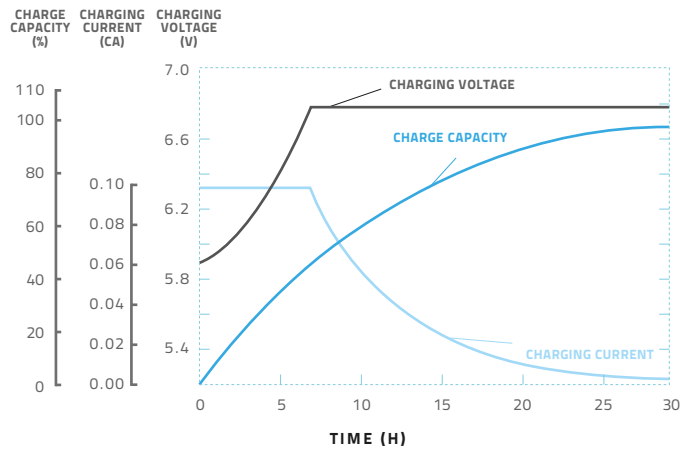
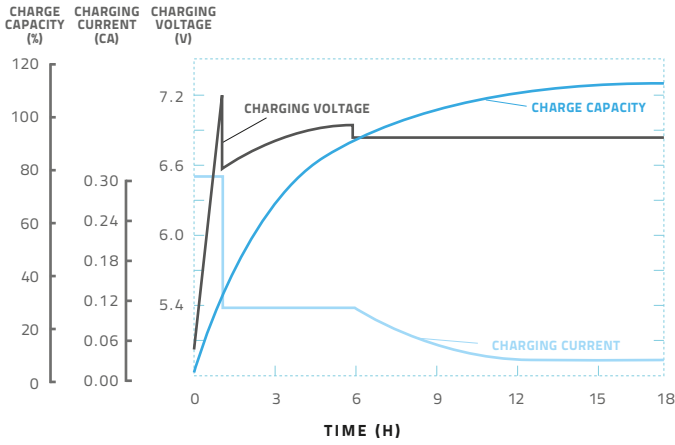
End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1226.4	682.0	439.2	320.2	257.6	149.1	109.0	86.3	72.9	62.7	48.3	40.0	33.6	22.4	18.4
1.67V	1167.5	671.6	421.5	317.9	257.8	149.1	107.6	86.2	72.9	62.5	48.3	39.9	33.6	22.4	18.4
1.70V	1160.5	667.0	421.3	317.9	255.4	148.0	107.4	85.9	71.8	62.1	48.0	39.5	33.3	22.3	18.4
1.75V	1080.8	658.9	421.8	317.9	254.3	146.8	107.2	85.8	71.6	61.6	47.7	39.3	33.3	22.3	18.3
1.80V	991.8	625.3	412.7	312.1	253.1	146.8	107.0	85.5	71.1	61.6	47.6	39.1	33.3	21.7	18.3
1.83V	957.1	574.5	409.2	302.8	242.7	145.6	104.0	82.6	70.3	59.6	47.6	37.9	32.7	21.5	18.1
1.85V	886.6	561.8	380.3	291.3	235.8	142.2	101.1	81.6	68.3	58.5	45.8	37.6	32.1	21.3	18.0

CYCLE CHARGE CHARACTERISTIC (25°C)

FLOATING CHARGE CHARACTERISTIC (25°C)

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

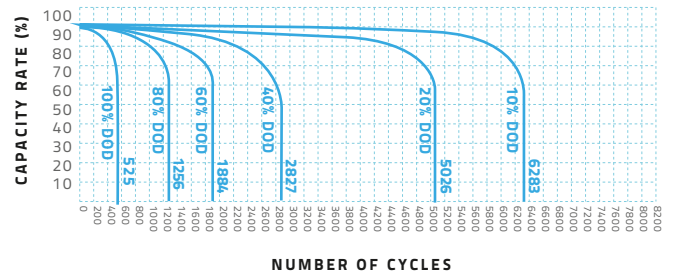
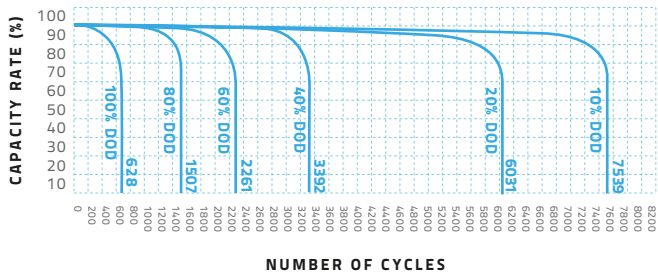
FLOATING CHARGE CHARACTERISTICS 77°F (25°C)



CYCLE LIFE CURVE GRAPH

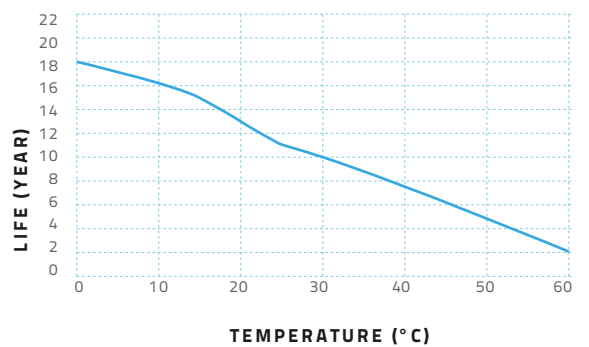
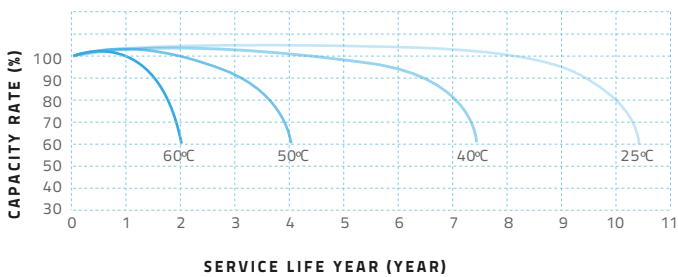
CYCLE LIFE CURVE GRAPH (25°C)

CYCLE LIFE CURVE GRAPH (40°C)

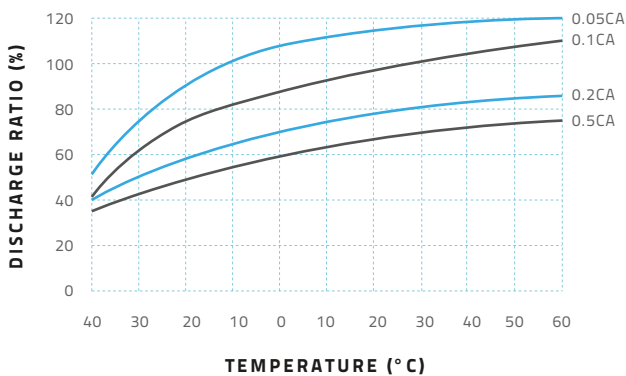


TEMPERATURE & FLOAT SERVICE LIFE

FLOAT SERVICE LIFE CURVE GRAPH



TEMPERATURE & DISCHARGE CAPACITY





3-CNFJ-200 6V/200Ah

## LEAD CRYSTAL®: WORLD'S BEST PERFORMING BATTERY

**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).



[www.leadcrystalbatteries.org](http://www.leadcrystalbatteries.org)