

# 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

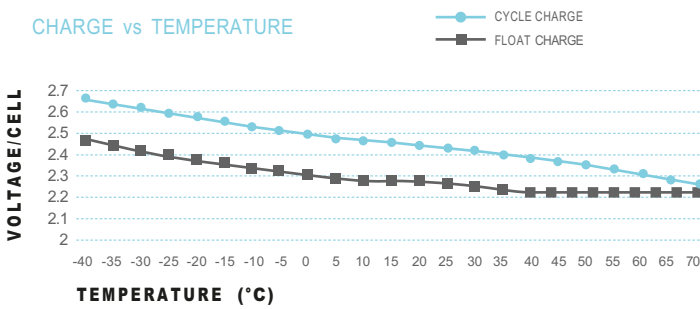
# LEAD CRYSTAL<sup>®</sup> BATTERIES



## DISCHARGE CURRENT AND END VOLTAGE

Discharge current (A)	End voltage (V)
0.05C or below or Intermittent discharge	1.9
0.05C of current close to it	1.85
0.1C of current close to it	1.8
0.2C of current close to it	1.75
From 0.2C to 0.5C	1.7
From 0.5C to 1C	1.6
From 1C to 3C	1.5
Current in excess of 3C	1.3

## 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	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	3242.88	2068.8	1363.2	1026.0	838.80	500.40	363.60	282.60	240.00	206.40	156.00	126.00	106.20	66.36	55.60
1.67V	2791.15	1875.6	1263.6	972.00	812.40	477.60	345.60	279.60	228.00	204.00	153.60	123.60	106.20	66.36	55.60
1.70V	2666.45	1818.0	1224.0	960.00	784.80	470.40	338.40	277.20	226.80	202.80	152.40	122.40	106.20	66.24	55.44
1.75V	2423.95	1701.6	1176.0	922.80	759.60	452.40	328.80	270.00	219.60	198.00	150.00	121.20	105.24	66.24	55.32
1.80V	2143.15	1558.8	1131.6	889.20	727.20	436.80	324.00	265.20	214.80	193.20	146.40	120.00	102.96	66.00	55.08
1.83V	1870.85	1424.4	1045.2	826.40	687.60	417.60	312.00	254.40	205.20	186.00	141.60	116.40	100.20	65.76	53.52
1.85V	1599.55	1290.0	960.00	764.40	649.20	399.60	300.00	244.80	196.80	180.00	136.80	113.16	97.32	65.64	51.96

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

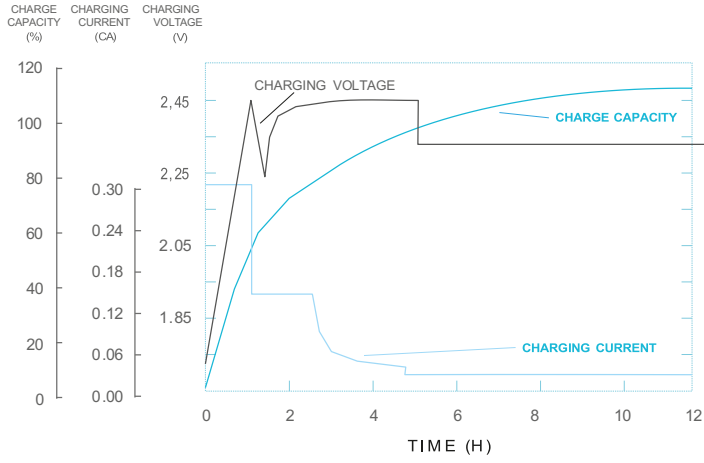
End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	5377.15	3620.42	2477.99	1888.80	1564.80	955.20	696.0	541.18	460.80	404.40	306.00	249.40	208.80	129.60	108.72
1.67V	4803.55	3375.60	2319.60	1807.20	1524.00	925.44	679.2	538.80	446.40	399.60	299.94	243.60	208.80	129.60	108.72
1.70V	4648.66	3287.95	2256.01	1788.00	1480.79	901.20	651.6	535.20	438.00	397.19	298.96	241.20	208.80	129.60	108.60
1.75V	4291.23	3091.17	2181.59	1732.81	1440.01	871.25	636.0	526.80	427.20	391.20	292.80	238.76	208.80	129.60	108.48
1.80V	3890.39	2848.81	2107.18	1677.59	1385.99	842.40	628.8	517.23	416.40	385.20	288.00	236.40	202.80	128.40	108.24
1.83V	3435.65	2637.56	1967.98	1572.00	1316.39	811.19	607.2	500.40	402.00	374.40	278.41	230.40	198.00	128.40	105.48
1.85V	2980.80	2426.32	1828.79	1466.40	1248.00	779.99	585.6	482.40	386.40	363.60	268.80	224.40	193.20	127.20	102.84

## SPECIFICATION

Nominal Voltage	2V		
Rated Capacity (10 hour rate)	1200 AH		
Dimension	Total Height (top of terminal)	342 mm	13.46"
	Height	342mm	13.46"
	Length	401 mm	15.79"
	Width	351 mm	13.82"
Weight	Approximately 73.2 kg / 161.37 lbs		
Capacity	120 hour rate (12.0A)	1440 AH	
25°C	20 hour rate (66A)	1320 AH	
	10 hour rate (120A)	1200 AH	
Internal Resistance	Fully charged Battery (25°C)	0.13mΩ	
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	12000A (5S)		
Terminal	Standard	F4	
	Optional		
Charging (Constant Voltage)	Cycle	Initial Charging Current 360A 2.45V/ (25°C)	
	Float	2.27V/ (25°C)	

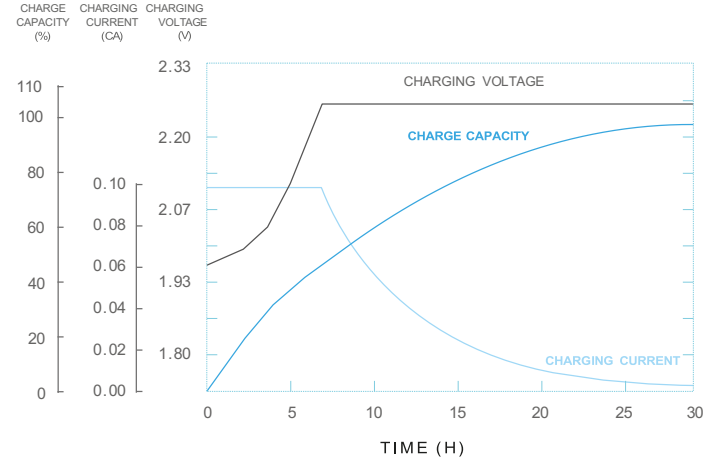
**CYCLE CHARGE CHARACTERISTIC (25°C)**

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



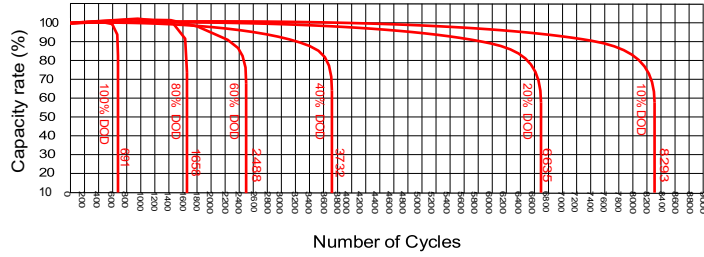
**FLOATING CHARGE CHARACTERISTIC (25°C)**

FLOATING CHARGE CHARACTERISTICS 77°F (25°C)

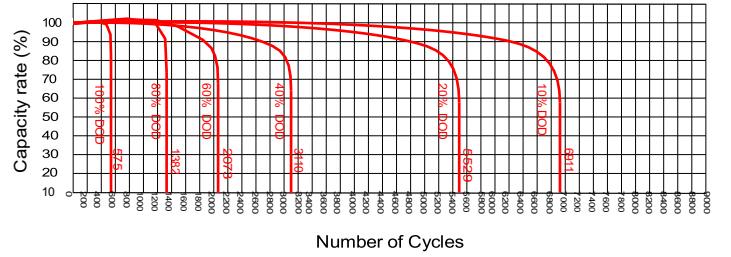


**CYCLE LIFE CURVE GRAPH**

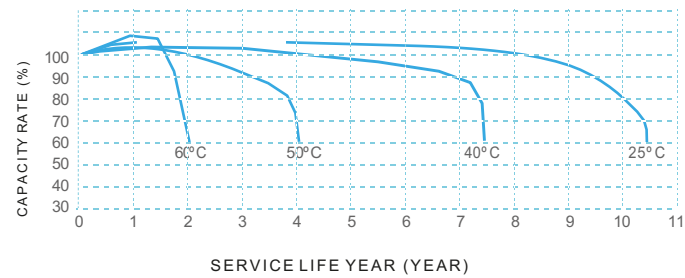
Cycle life curve graph (25°C) 2V



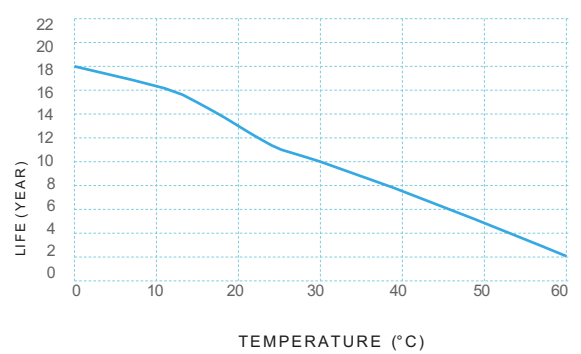
Cycle life curve graph (40°C) 2V



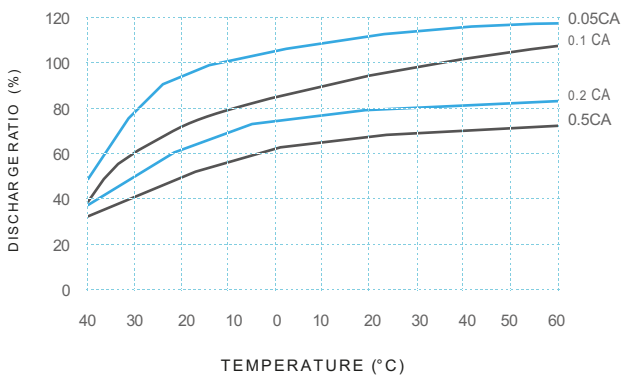
**TEMPERATURE & FLOAT SERVICE LIFE**



**FLOAT SERVICE LIFE CURVE GRAPH**



**TEMPERATURE & DISCHARGE CAPACITY**



# CNFJ-1200 2V/1200Ah

## 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).

