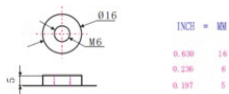
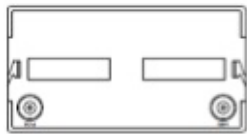
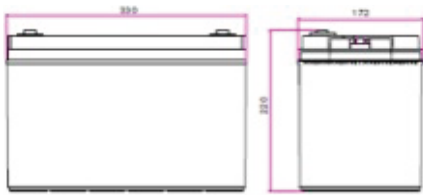


# the power of tomorrow

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**

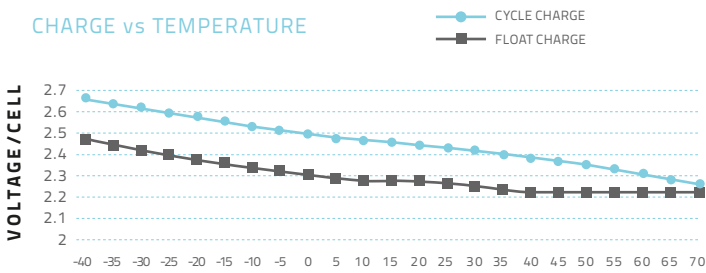
POWERED BY  
**Betta Batteries**



## SPECIFICATION

Nominal Voltage	12V		
Rated Capacity (3 hour rate)	80 AH		
Dimension	Total Height (top of terminal)	220mm	8.66"
	Height	216 mm	8.50"
	Length	330 mm	12.99"
	Width	172 mm	6.77"
Weight	Approximately 31.5 kg / 69.38 lbs		
Capacity 25°C	10 hour rate (10A)	100 AH	
	5 hour rate (17.6A)	88 AH	
	2 hour rate (35A)	70 AH	
Internal Resistance	Fully charged Battery (25°C)	≈<7.0mΩ	
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	800A (5S)		
Terminal	Standard	F3	
	Optional		
Charging (Constant Voltage)	Cycle	Initial Charging Current 16A 14.6V~14.7V (25°C)	
	Float	13.6V~13.7V (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	2.61	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	2.40	2.39	2.37	2.36	2.34	2.33	2.31	2.30	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)

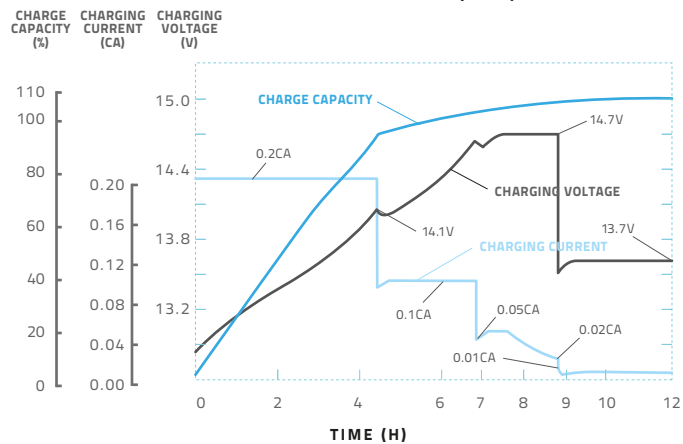
End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	252	161	106	79.9	60.1	36.9	28.0	22.3	18.7	17.1	12.8	10.5	8.64	5.37	4.33
1.67V	217	146	98.4	75.7	58.5	36.4	27.4	21.9	18.3	16.3	12.3	10.3	8.49	5.28	4.33
1.70V	207	141	95.3	74.8	56.0	35.9	27.1	21.4	18.0	15.7	12.0	10.2	8.41	5.23	4.32
1.75V	188	132	91.6	71.9	54.5	35.5	26.8	21.0	17.7	15.1	11.6	10.1	8.33	5.14	4.31
1.80V	166	121	88.1	69.2	53.2	35.0	26.1	20.6	17.3	15.0	11.4	10.0	8.18	5.04	4.29
1.83V	145	110	81.4	64.3	51.8	34.5	25.5	19.8	17.0	14.4	11.0	9.70	7.80	5.00	4.17
1.85V	124	100	74.8	59.5	50.4	34.1	24.6	19.0	16.6	14.0	10.6	9.43	7.58	4.95	4.04

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

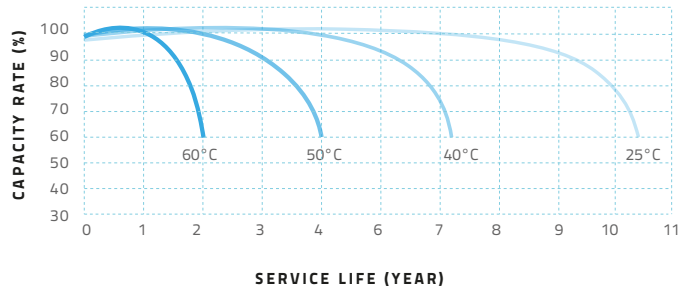
End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	416	280	192	146	106	74.0	52.1	41.9	35.7	31.3	23.7	20.8	16.1	10.0	8.42
1.67V	372	261	179	140	103	71.7	52.0	41.7	34.9	30.9	23.2	20.3	16.1	10.0	8.42
1.70V	360	254	174	138	102	69.8	50.7	41.4	34.4	30.7	23.1	20.1	16.1	10.0	8.41
1.75V	332	239	169	134	101	67.5	49.9	40.8	34.2	30.3	22.6	19.9	16.1	10.0	8.40
1.80V	301	220	163	130	100	65.3	49.5	40.0	33.7	29.8	22.3	19.7	15.7	9.95	8.39
1.83V	266	204	152	121	100	62.8	49.1	38.7	33.4	29.0	21.5	19.2	15.3	9.95	8.17
1.85V	231	188	141	113	98.8	60.4	48.7	37.3	33.0	28.1	20.8	18.7	14.9	9.86	7.97

CHARGE CHARACTERISTIC 77°F (25°C)

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

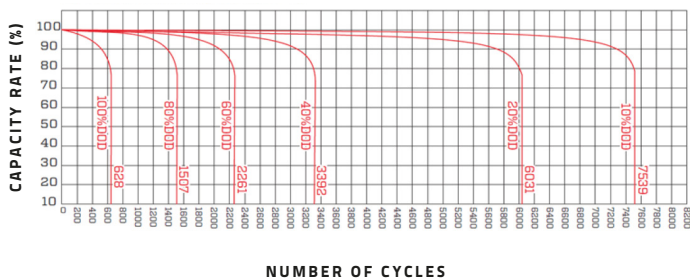


TEMPERATURE AND FLOAT SERVICE LIFE

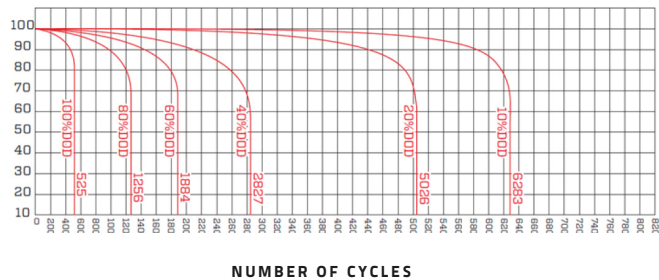


CYCLE LIFE CURVE GRAPH

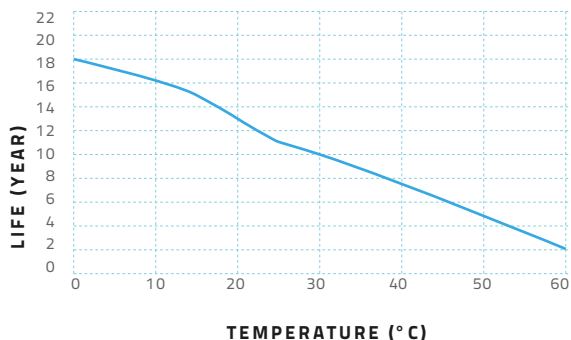
CYCLE LIFE CURVE GRAPH (25°C)



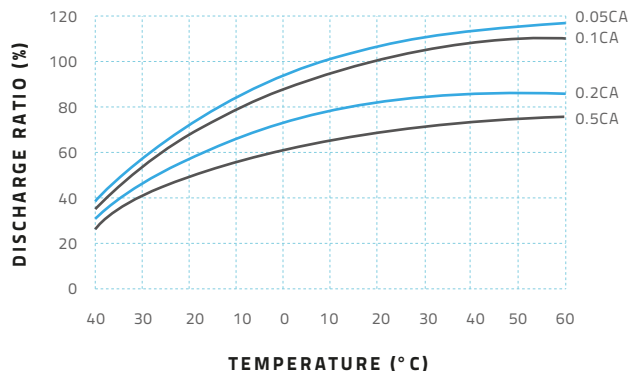
CYCLE LIFE CURVE GRAPH (40°C)



FLOAT SERVICE LIFE CURVE GRAPH



TEMPERATURE & DISCHARGE CAPACITY



## 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).

