

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

LEAD CRYSTAL[®] BATTERIES

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SPECIFICATION

Nominal Voltage	8V		
Rated Capacity (3 hour rate)	135 AH		
Dimension	Total Height (top of terminal)	285 mm	11.22"
	Height	285 mm	11.22"
	Length	261 mm	10.27"
	Width	181 mm	7.12"

Weight	Approximately 33 kg / 72.69 lbs		
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Capacity 25°C	10 hour rate (16.5A)	165 AH
	5 hour rate (30A)	150 AH
	2 hour rate (60A)	120 AH

Internal Resistance	Fully charged Battery (25°C)	=<4.0mΩ
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Self-Dis-charge 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	1350A (5S)
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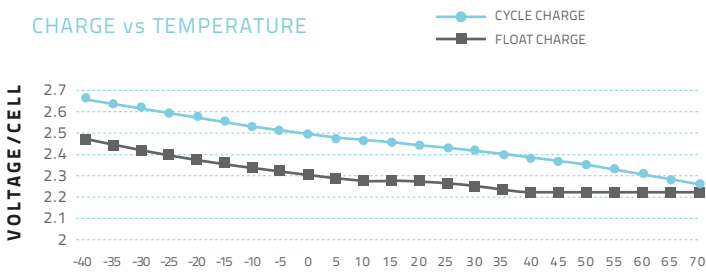
Terminal	Standard	M8
	Optional	

Charging (Constant Voltage)	Cycle	Initial Charging Current 27A 9.8V (25°C)
	Float	9.14V (25°C)

DISCHARGE CURRENT AND END VOLTAGE

Discharge current (A)	End voltage (V)
0.05C or below or Intermittent discharge	7.6
0.05C of current close to it	7.4
0.1C of current close to it	7.2
0.2C of current close to it	7.0
From 0.2C to 0.5C	6.8
From 0.5C to 1C	6.4
From 1C to 3C	6.0
Current in excess of 3C	5.2

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)

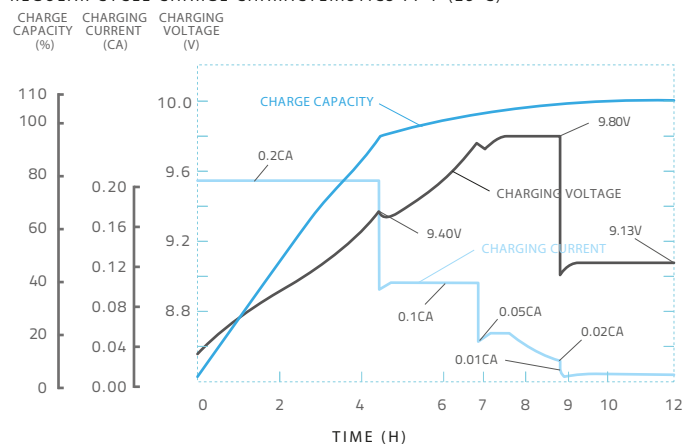
End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	445	284	187	141	97.3	65.1	49.5	39.5	33.0	30.2	22.6	17.3	15.2	9.48	7.64
1.67V	383	257	173	133	96.1	64.3	48.4	38.6	32.3	28.8	21.8	16.9	14.9	9.32	7.64
1.70V	366	249	168	132	95.3	63.5	47.8	37.8	31.8	27.7	21.2	16.8	14.8	9.24	7.62
1.75V	333	233	161	126	94.5	62.7	47.3	37.1	31.3	26.6	20.6	16.6	14.7	9.07	7.60
1.80V	294	214	155	122	94.0	61.8	46.2	36.4	30.6	26.5	20.2	16.5	14.4	8.91	7.57
1.83V	257	195	143	113	91.5	61.0	45.1	34.9	30.0	25.5	19.4	16.0	13.7	8.82	7.35
1.85V	219	177	132	105	89.1	60.2	43.4	33.6	29.3	24.7	18.8	15.5	13.3	8.74	7.14

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

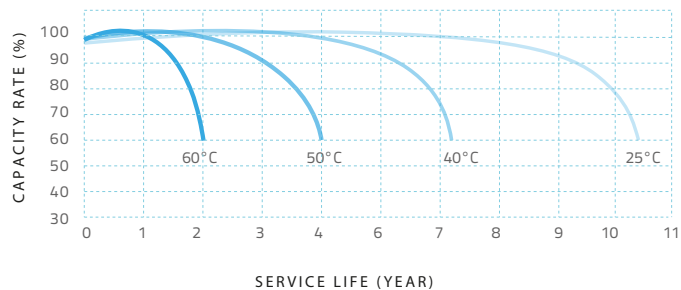
End Voltage per cell	5min	15min	30min	45min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	735	495	338	258	180	130	91.9	74.0	63.0	55.3	41.8	34.1	28.5	17.7	14.8
1.67V	657	461	317	247	179	126	91.8	73.7	61.7	54.6	41.0	33.3	28.4	17.7	14.8
1.70V	635	449	308	244	179	123	89.4	73.2	60.8	54.3	40.8	32.9	28.2	17.6	14.8
1.75V	587	422	298	237	178	119	88.1	72.0	60.3	53.5	40.0	32.6	28.0	17.6	14.8
1.80V	532	389	288	229	177	115	87.4	70.7	59.5	52.6	39.3	32.3	27.7	17.5	14.8
1.83V	470	360	269	215	177	110	86.7	68.4	59.0	51.2	38.0	31.5	27.0	17.5	14.4
1.85V	407	331	250	200	176	106	86.0	65.9	58.2	49.7	36.7	30.6	26.4	17.4	14.0

CHARGE CHARACTERISTIC 77°F (25°C)

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

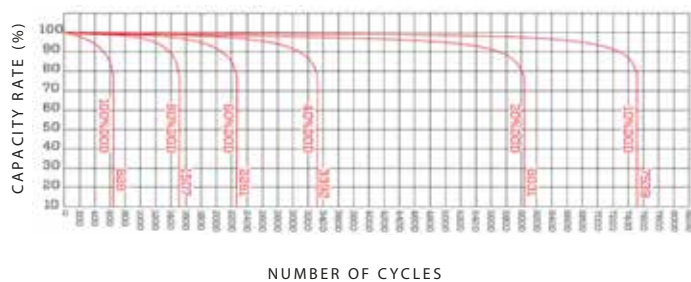


TEMPERATURE AND FLOAT SERVICE LIFE

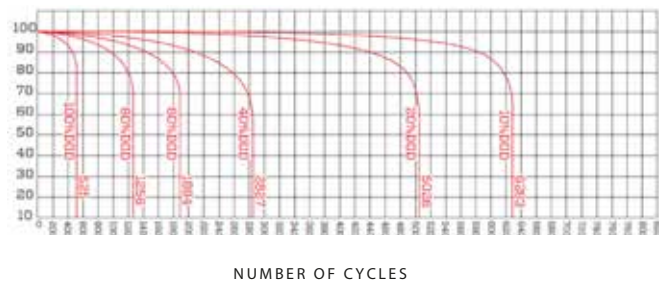


CYCLE LIFE CURVE GRAPH

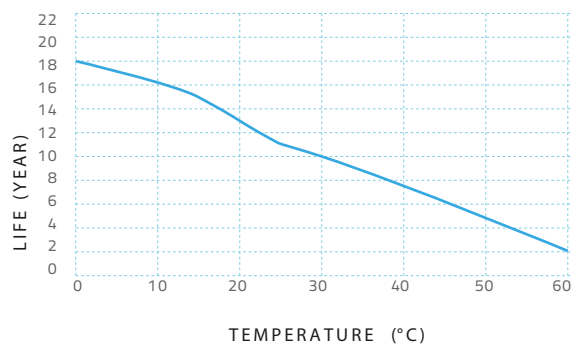
CYCLE LIFE CURVE GRAPH (25°C)



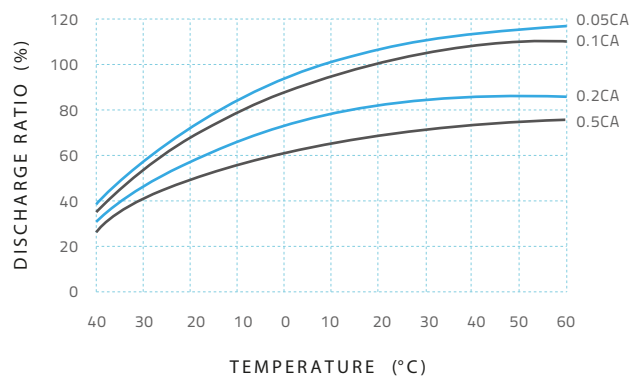
CYCLE LIFE CURVE GRAPH (40°C)



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 SiO₂ 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).

