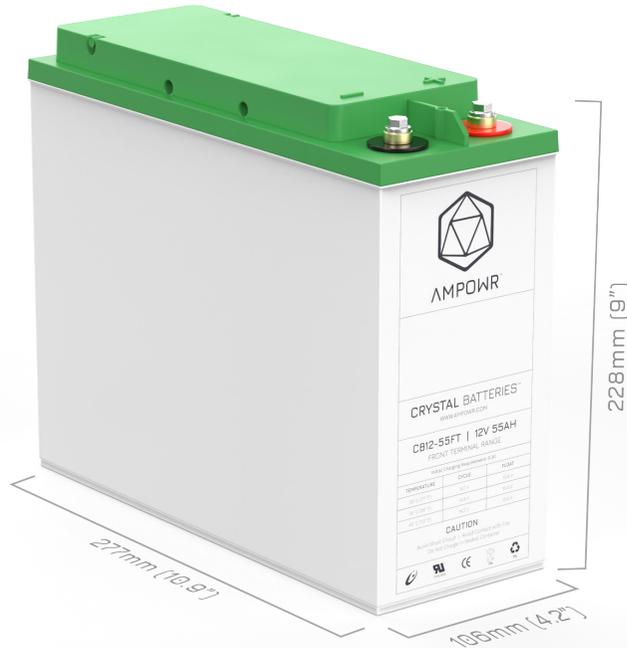


CB12-55FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL



Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO₂ electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

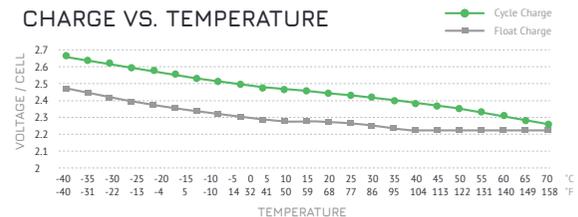
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	55Ah
WEIGHT	~ 16.3 kg / 35.9 lbs
DIMENSIONS	Height: 228mm (9") Length: 277mm (10.9") Width: 106mm (4.2")
CAPACITY 25 °C (77 °F)	120 hour rate (0.55A) - 66Ah 20 hour rate (3.0A) - 60Ah 10 hour rate (5.5A) - 55Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 8mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	550 A (5s)
TERMINAL	M6 (13.5)
(CHARGING) CYCLE	Initial Charging Current 16.5A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

DATASHEET - CB12-55FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
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	2.42	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

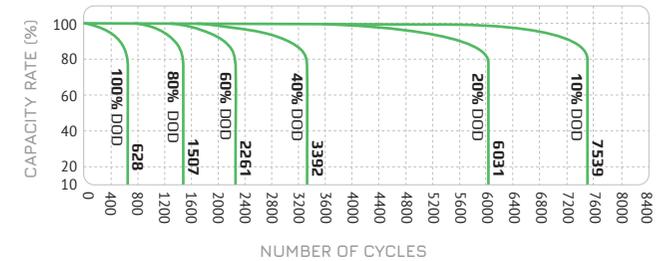
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	201.83	106.81	64.54	47.05	37.90	21.71	15.77	12.37	10.55	8.97	6.84	5.69	4.78	3.11	2.54
1.67V	187.57	103.31	63.58	46.73	37.83	21.62	15.48	12.30	10.40	8.90	6.83	5.63	4.77	3.10	2.53
1.70V	185.66	101.73	62.94	46.10	37.52	21.43	15.39	12.24	10.24	8.81	6.80	5.63	4.75	3.09	2.53
1.75V	170.08	98.54	62.32	45.78	36.88	21.01	15.32	12.08	10.14	8.74	6.77	5.56	4.73	3.08	2.52
1.80V	152.59	92.18	59.76	44.51	35.92	20.70	15.26	12.05	10.01	8.65	6.74	5.50	4.71	2.97	2.52
1.83V	145.86	84.57	58.82	42.92	34.34	20.51	14.66	11.54	9.79	8.33	6.60	5.28	4.51	2.94	2.49
1.85V	136.69	82.02	55.00	41.33	33.38	19.68	14.27	11.38	9.54	8.05	6.52	5.21	4.45	2.91	2.46

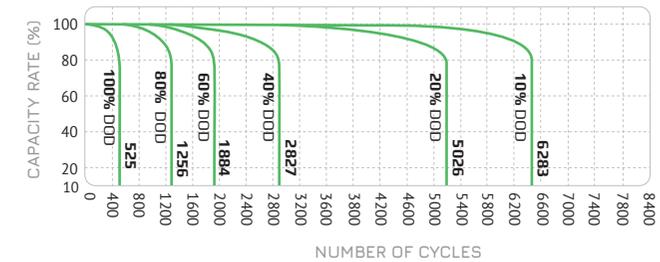
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	337.26	187.55	120.79	88.05	70.83	41.01	29.98	23.75	20.06	17.23	13.29	11.00	9.25	6.17	5.05
1.67V	321.05	184.69	115.91	87.42	70.89	41.01	29.59	23.71	20.06	17.20	13.29	10.97	9.25	6.17	5.05
1.70V	319.14	183.41	115.85	87.42	70.25	40.69	29.53	23.63	19.74	17.07	13.19	10.87	9.15	6.13	5.05
1.75V	297.21	181.19	115.98	87.42	69.93	40.37	29.47	23.59	19.68	16.94	13.13	10.80	9.15	6.13	5.02
1.80V	272.74	171.97	113.48	85.83	69.62	40.37	29.44	23.52	19.55	16.94	13.10	10.74	9.15	5.98	5.02
1.83V	263.20	157.98	112.53	83.28	66.75	40.05	28.61	22.73	19.33	16.40	13.10	10.43	9.00	5.91	4.99
1.85V	243.81	154.49	104.58	80.11	64.85	39.10	27.81	22.44	18.79	16.08	12.59	10.33	8.84	5.85	4.96

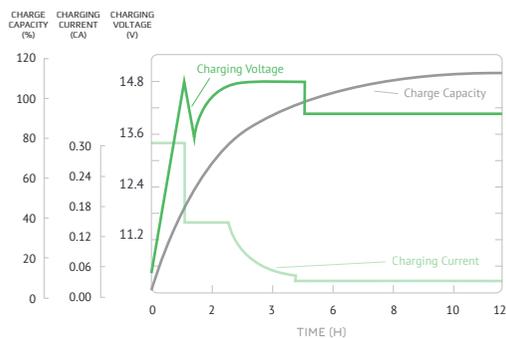
CYCLE LIFE CURVE GRAPH 25°C (77°F).



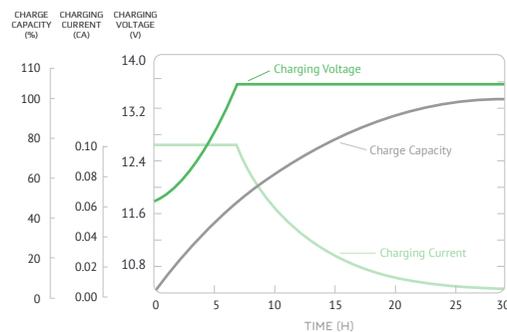
CYCLE LIFE CURVE GRAPH 40°C (104°F).



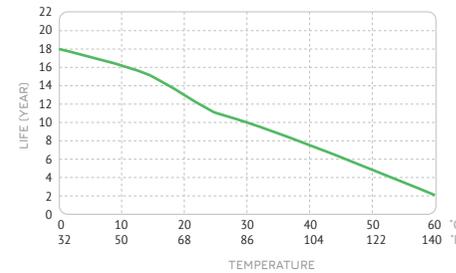
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



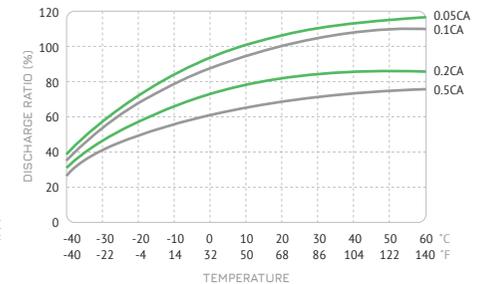
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



CB12-90FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL



Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

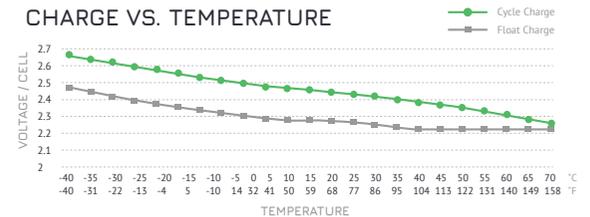
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	90Ah
WEIGHT	~ 31.5 kg / 69.5 lbs
DIMENSIONS	Height: 286mm (11.3") Length: 396mm (15.6") Width: 110mm (4.3")
CAPACITY 25 °C (77 °F)	120 hour rate (0.9A) - 108Ah 20 hour rate (5.0A) - 100Ah 10 hour rate (9A) - 90Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 6.3mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	900A (5s)
TERMINAL	M6 (13.5)
(CHARGING) CYCLE	Initial Charging Current 27A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

DATASHEET - CB12-90FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
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	2.42	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

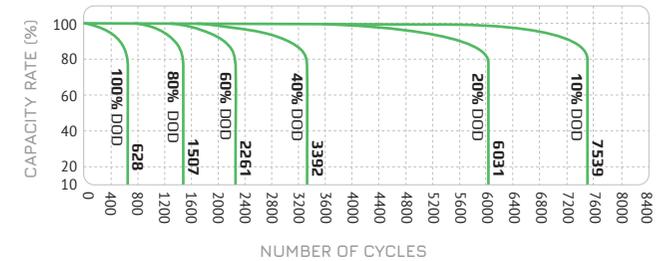
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	330.26	174.78	105.61	76.99	62.01	35.53	25.80	20.24	17.26	14.67	11.18	9.31	7.82	5.09	4.16
1.67V	306.94	169.06	104.04	76.46	61.90	35.38	25.34	20.13	17.01	14.57	11.17	9.21	7.80	5.07	4.14
1.70V	303.80	166.46	103.00	75.43	61.39	35.06	25.18	20.03	16.75	14.41	11.13	9.21	7.78	5.06	4.14
1.75V	278.32	161.24	101.97	74.92	60.35	34.39	25.07	19.78	16.60	14.31	11.08	9.10	7.74	5.04	4.13
1.80V	249.70	150.84	97.79	72.83	58.79	33.87	24.97	19.72	16.39	14.15	11.03	9.00	7.70	4.86	4.12
1.83V	238.68	138.38	96.25	70.24	56.19	33.55	23.98	18.88	16.02	13.63	10.79	8.64	7.39	4.81	4.07
1.85V	223.67	134.21	90.00	67.63	54.62	32.20	23.36	18.62	15.61	13.18	10.67	8.53	7.28	4.76	4.03

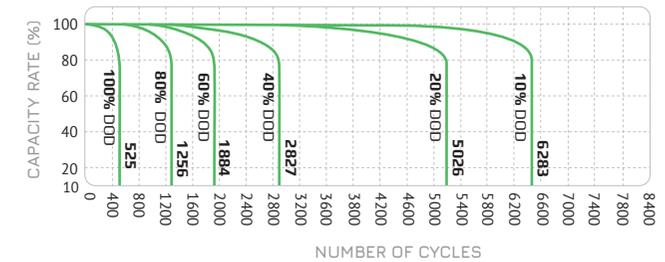
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	551.88	306.90	197.66	144.08	115.91	67.10	49.05	38.86	32.82	28.19	21.74	18.00	15.14	10.09	8.27
1.67V	525.36	302.21	189.67	143.05	116.00	67.10	48.43	38.80	32.82	28.14	21.74	17.95	15.14	10.09	8.27
1.70V	522.23	300.13	189.58	143.05	114.95	66.58	48.32	38.66	32.30	27.93	21.59	17.79	14.98	10.04	8.27
1.75V	486.35	296.49	189.79	143.04	114.44	66.06	48.22	38.60	32.20	27.72	21.48	17.67	14.98	10.04	8.22
1.80V	446.30	281.40	185.70	140.44	113.92	66.06	48.17	38.49	31.99	27.72	21.43	17.58	14.98	9.78	8.22
1.83V	430.69	258.52	184.14	136.28	109.23	65.54	46.81	37.19	31.63	26.84	21.43	17.06	14.72	9.68	8.17
1.85V	398.96	252.79	171.13	131.09	106.11	63.98	45.51	36.72	30.74	26.32	20.60	16.91	14.46	9.57	8.11

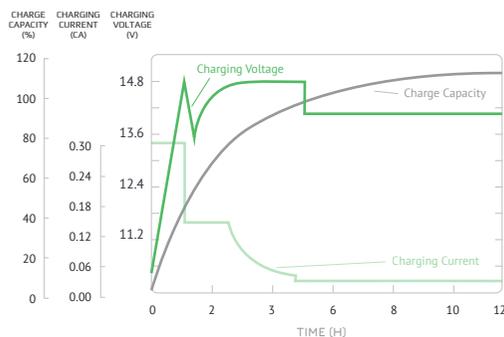
CYCLE LIFE CURVE GRAPH 25°C (77°F).



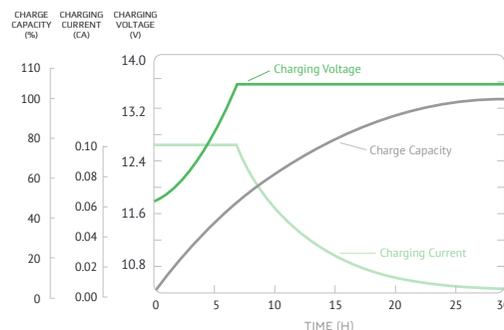
CYCLE LIFE CURVE GRAPH 40°C (104°F).



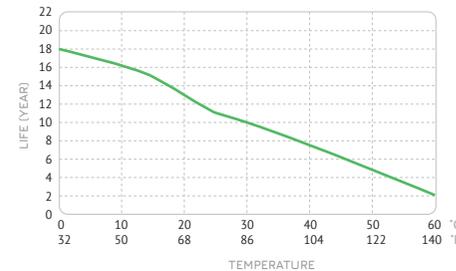
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



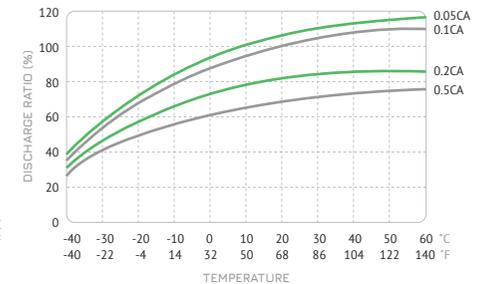
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



CB12-100FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL

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The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

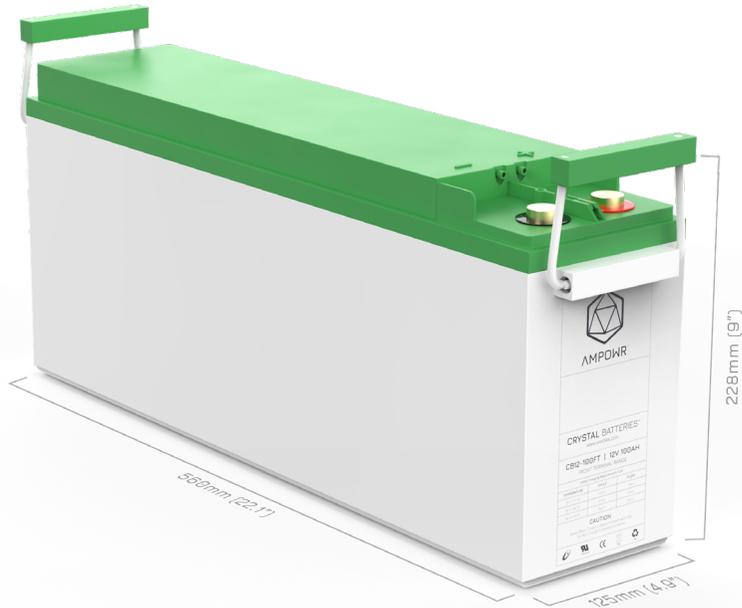
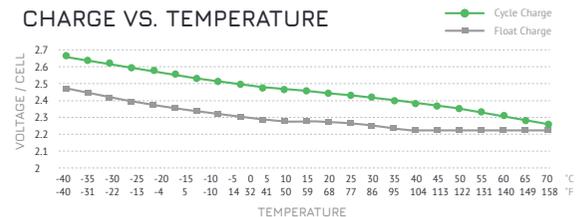
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	100Ah
WEIGHT	~ 30.5 kg / 76.1 lbs
DIMENSIONS	Height: 228mm (9") Length: 560mm (22.1") Width: 125mm (4.9")
CAPACITY 25 °C (77 °F)	120 hour rate (1.2A) - 120Ah 20 hour rate (5.4A) - 108Ah 10 hour rate (10A) - 100Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 6mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1000A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 30A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

DATASHEET - CB12-100FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
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	2.42	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

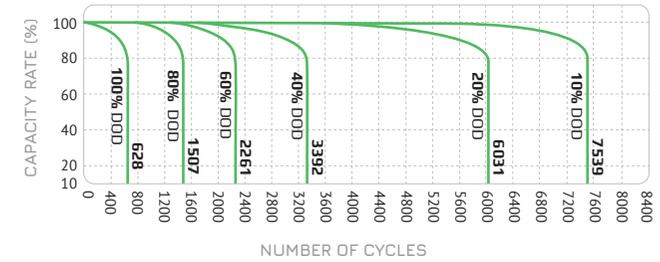
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	366.96	194.20	117.34	85.55	68.90	39.48	28.67	22.49	19.18	16.30	12.43	10.35	8.68	5.65	4.62
1.67V	341.04	187.84	115.60	84.96	68.78	39.31	28.15	22.37	18.90	16.19	12.41	10.23	8.67	5.64	4.60
1.70V	337.56	184.96	114.44	83.81	68.21	38.96	27.98	22.25	18.61	16.01	12.37	10.23	8.64	5.62	4.60
1.75V	309.24	179.16	113.30	83.24	67.05	38.21	27.86	21.97	18.44	15.90	12.31	10.12	8.60	5.60	4.59
1.80V	277.44	167.60	108.66	80.92	65.32	37.63	27.75	21.91	18.21	15.72	12.25	10.00	8.56	5.40	4.58
1.83V	265.20	153.76	106.94	78.04	62.43	37.28	26.65	20.98	17.80	15.14	11.99	9.60	8.21	5.35	4.52
1.85V	248.52	149.12	100.00	75.15	60.69	35.78	25.95	20.69	17.34	14.64	11.85	9.48	8.09	5.29	4.48

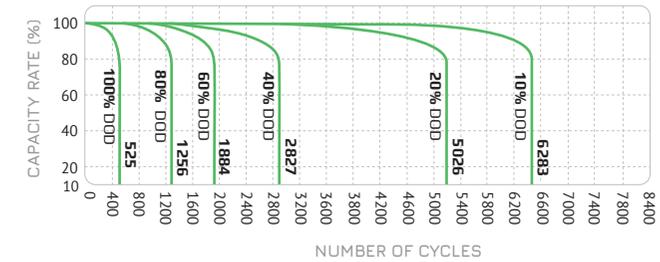
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	613.20	341.00	219.62	160.09	128.79	74.56	54.50	43.17	36.47	31.33	24.16	20.00	16.82	11.21	9.19
1.67V	583.73	335.79	210.74	158.94	128.88	74.56	53.81	43.12	36.47	31.27	24.16	19.94	16.82	11.21	9.19
1.70V	580.26	333.48	210.64	158.94	127.72	73.98	53.69	42.96	35.89	31.04	23.99	19.77	16.65	11.15	9.19
1.75V	540.38	329.43	210.88	158.94	127.15	73.40	53.58	42.88	35.78	30.81	23.87	19.63	16.65	11.15	9.13
1.80V	495.89	312.67	206.33	156.05	126.57	73.40	53.52	42.77	35.54	30.81	23.81	19.54	16.65	10.87	9.13
1.83V	478.54	287.24	204.60	151.42	121.37	72.82	52.02	41.32	35.14	29.82	23.81	18.96	16.36	10.75	9.07
1.85V	443.29	280.88	190.15	145.65	117.90	71.09	50.57	40.80	34.16	29.24	22.89	18.78	16.07	10.63	9.02

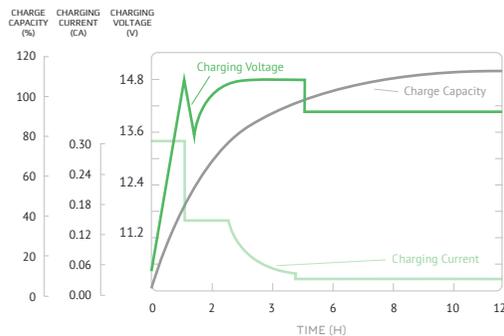
CYCLE LIFE CURVE GRAPH 25°C (77°F).



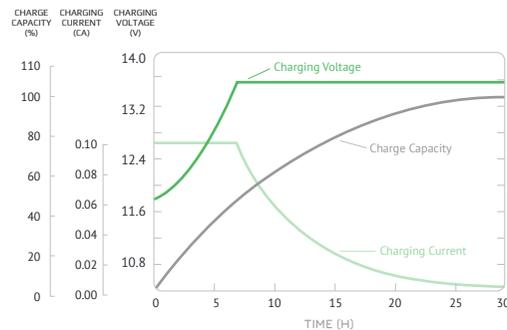
CYCLE LIFE CURVE GRAPH 40°C (104°F).



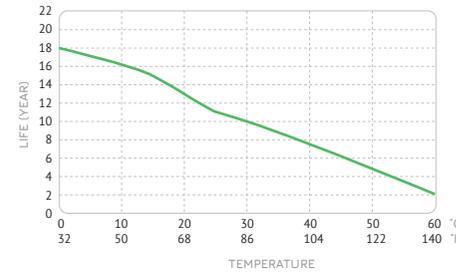
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



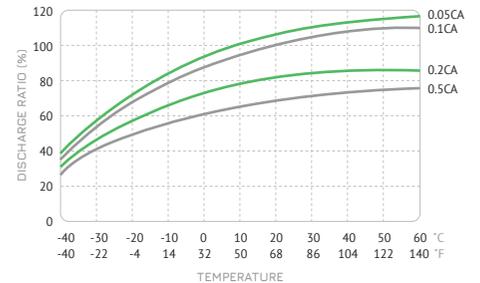
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



CB12-155FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL



Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO₂ electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	155Ah
WEIGHT	~ 48 kg / 105.8 lbs
DIMENSIONS	Height: 283mm (11.1") Length: 558mm (22") Width: 125mm (4.9")
CAPACITY 25 °C (77 °F)	120 hour rate (1.55A) - 186Ah 20 hour rate (8.5A) - 170Ah 10 hour rate (15.5A) - 155Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 3.5mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1550A (5s)
TERMINAL	M6 (13.5)
(CHARGING) CYCLE	Initial Charging Current 46.5A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

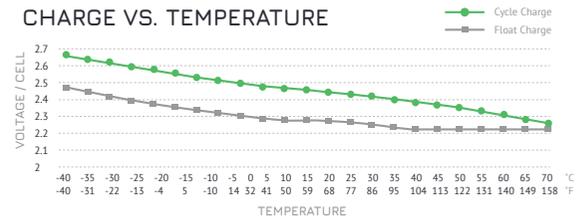
Extreme temperature resistance. Operates from -40 °C (40 °F) to +65 °C (149 °F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

CHARGE VS. TEMPERATURE



DATASHEET - CB12-155FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
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	2.42	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

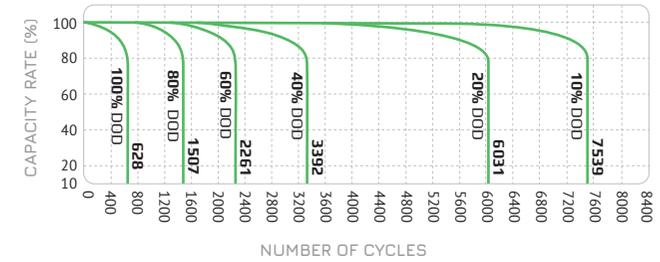
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	568.79	301.01	181.88	132.60	106.80	61.19	44.44	34.85	29.73	25.27	19.26	16.04	13.46	8.76	7.16
1.67V	528.61	291.15	179.18	131.69	106.61	60.93	43.63	34.67	29.30	25.09	19.24	15.86	13.44	8.74	7.13
1.70V	523.22	286.69	177.38	129.91	105.73	60.39	43.36	34.49	28.85	24.82	19.17	15.86	13.40	8.71	7.12
1.75V	479.32	277.70	175.62	129.02	103.93	59.22	43.18	34.06	28.58	24.64	19.08	15.68	13.33	8.67	7.11
1.80V	430.03	259.78	168.42	125.43	101.24	58.33	43.01	33.96	28.22	24.37	18.99	15.50	13.26	8.38	7.10
1.83V	411.06	238.33	165.76	120.96	96.77	57.79	41.30	32.52	27.60	23.47	18.59	14.87	12.72	8.29	7.00
1.85V	385.21	231.14	155.00	116.48	94.07	55.46	40.23	32.07	26.88	22.70	18.37	14.69	12.54	8.20	6.94

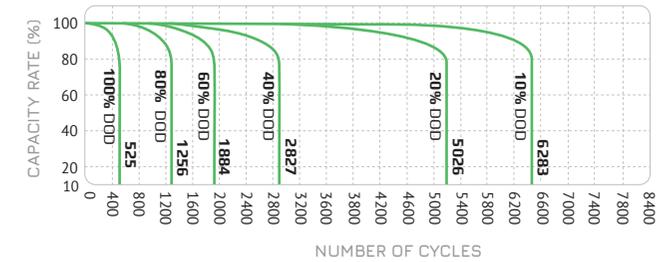
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	950.45	528.54	340.42	248.14	199.62	115.56	84.48	66.92	56.53	48.55	37.45	31.00	26.07	17.38	14.24
1.67V	904.78	520.48	326.65	246.36	199.77	115.56	83.40	66.83	56.53	48.46	37.45	30.91	26.07	17.38	14.24
1.70V	899.40	516.89	326.50	246.36	197.97	114.67	83.22	66.58	55.63	48.11	37.18	30.64	25.80	17.29	14.24
1.75V	837.60	510.62	326.86	246.35	197.08	113.77	83.05	66.47	55.45	47.75	37.00	30.43	25.80	17.29	14.15
1.80V	768.63	484.64	319.81	241.87	196.19	113.77	82.95	66.29	55.09	47.75	36.91	30.28	25.80	16.84	14.15
1.83V	741.74	445.23	317.13	234.71	188.12	112.87	80.62	64.05	54.47	46.23	36.91	29.38	25.35	16.66	14.06
1.85V	687.10	435.37	294.73	225.76	182.75	110.19	78.39	63.25	52.94	45.33	35.48	29.11	24.90	16.48	13.98

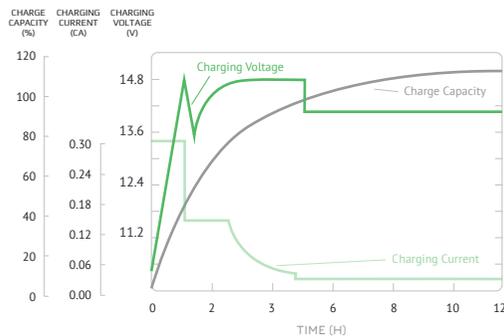
CYCLE LIFE CURVE GRAPH 25°C (77°F).



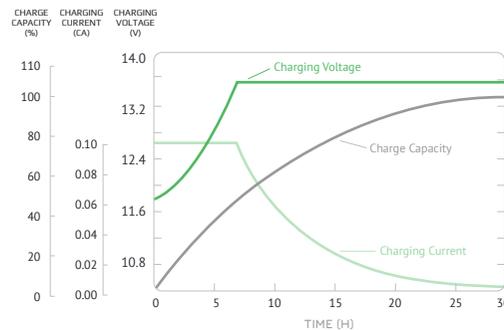
CYCLE LIFE CURVE GRAPH 40°C (104°F).



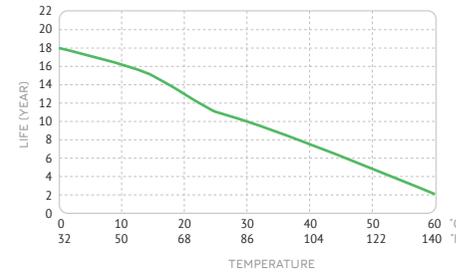
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



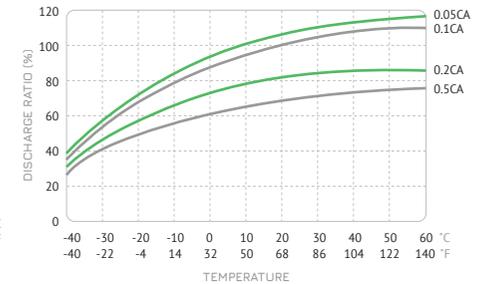
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



CB12-170FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL



Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

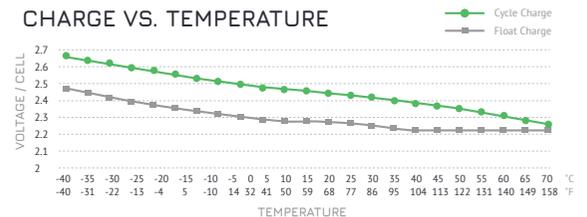
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	170Ah
WEIGHT	~ 50 kg / 111.2 lbs
DIMENSIONS	Height: 320mm (12.6") Length: 546mm (21.5") Width: 125mm (4.9")
CAPACITY 25 °C (77 °F)	120 hour rate (1.8A) - 216Ah 20 hour rate (9.5A) - 190Ah 10 hour rate (17A) - 170Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 3mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25 °C (77 °F)	1700A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 51A 14.7V / 25 °C (77 °F)
(CHARGING) FLOAT	13.6V / 25 °C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25 °C (50% DoD).

DATASHEET - CB12-170FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
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	2.42	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

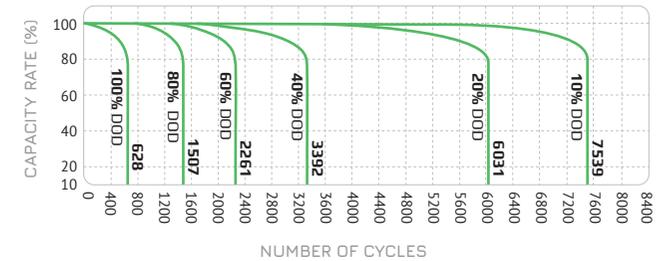
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	623.83	330.14	199.48	145.43	117.13	67.11	48.74	38.22	32.60	27.71	21.13	17.59	14.76	9.61	7.85
1.67V	579.77	319.33	196.52	144.43	116.93	66.82	47.86	38.03	32.13	27.51	21.10	17.39	14.74	9.58	7.82
1.70V	573.85	314.43	194.55	142.48	115.96	66.23	47.56	37.83	31.64	27.22	21.03	17.39	14.69	9.55	7.81
1.75V	525.71	304.57	192.61	141.51	113.99	64.95	47.36	37.35	31.35	27.02	20.93	17.20	14.62	9.51	7.80
1.80V	471.65	284.92	184.72	137.56	111.04	63.97	47.17	37.24	30.95	26.73	20.83	17.00	14.54	9.19	7.78
1.83V	450.84	261.39	181.80	132.67	106.13	63.38	45.30	35.67	30.27	25.75	20.39	16.31	13.95	9.09	7.68
1.85V	422.48	253.50	170.00	127.75	103.17	60.83	44.12	35.18	29.48	24.89	20.15	16.12	13.76	8.99	7.62

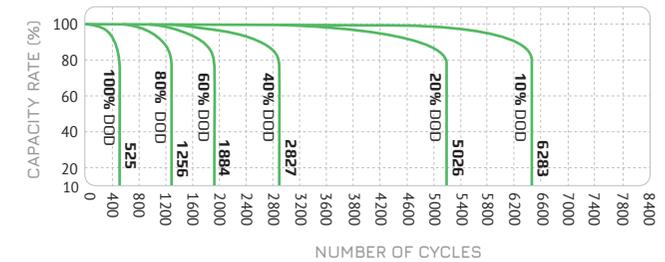
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1042.43	579.69	373.36	272.16	218.94	126.75	92.65	73.39	62.00	53.25	41.07	34.00	28.59	19.06	15.62
1.67V	992.34	570.84	358.26	270.20	219.10	126.75	91.47	73.30	62.00	53.16	41.07	33.90	28.59	19.06	15.62
1.70V	986.44	566.91	358.09	270.20	217.13	125.76	91.28	73.03	61.02	52.76	40.78	33.60	28.30	18.96	15.62
1.75V	918.65	560.03	358.49	270.19	216.16	124.78	91.08	72.90	60.82	52.37	40.58	33.38	28.30	18.96	15.52
1.80V	843.02	531.54	350.76	265.28	215.17	124.78	90.98	72.71	60.43	52.37	40.48	33.21	28.30	18.47	15.52
1.83V	813.53	488.31	347.82	257.42	206.33	123.80	88.43	70.25	59.74	50.70	40.48	32.23	27.81	18.28	15.43
1.85V	753.59	477.50	323.25	247.61	200.44	120.85	85.97	69.37	58.07	49.72	38.91	31.93	27.31	18.08	15.33

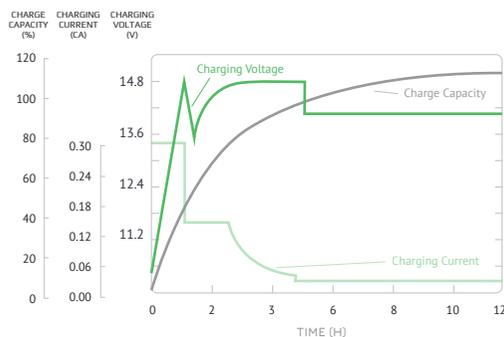
CYCLE LIFE CURVE GRAPH 25°C (77°F).



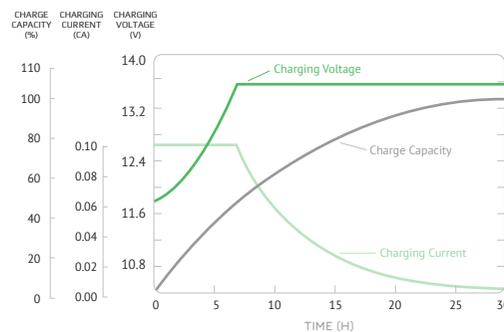
CYCLE LIFE CURVE GRAPH 40°C (104°F).



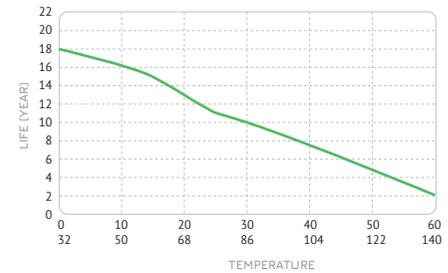
REGULAR CYCLE CHARGE CHARACTERISTICS 25°C (77°F).



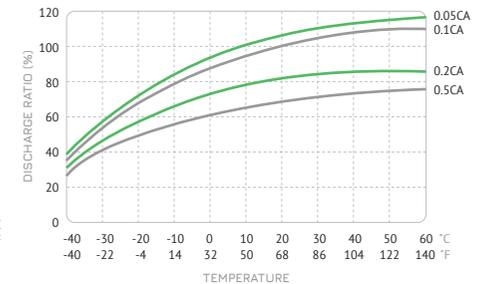
FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.



CB12-180FT

CRYSTAL BATTERY™ - FT FRONT TERMINAL



Crystal Batteries™ are a unique technology that overcomes conventional battery problems by having a nearly solid-state electrolyte. This allows the battery to be discharged deeper, cycle more often, has a longer lifetime and can withstand extreme temperatures.

The patented Crystal technology uses a unique advanced formula, a new type of composite SiO2 electrolyte developed to completely replace traditional sulphuric acid solutions.

TECHNICAL SPECIFICATIONS

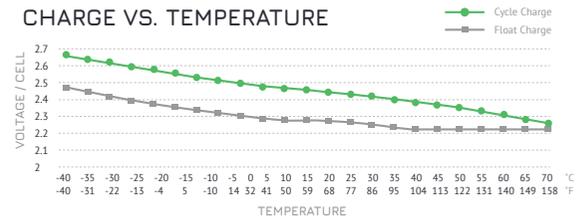
SPECIFICATION

NOMINAL VOLTAGE	12V
RATED CAPACITY (10 HOUR RATE)	180Ah
WEIGHT	~ 50.5 kg / 111.3 lbs
DIMENSIONS	Height: 320mm (12.6") Length: 546mm (21.5") Width: 125mm (4.9")
CAPACITY 25 °C (77 °F)	120 hour rate (1.7A) - 204Ah 20 hour rate (9.7A) - 194Ah 10 hour rate (18A) - 180Ah
INTERNAL RESISTANCE - FULLY CHARGED BATTERY 25°C (77 °F)	< 6mΩ
SELF DISCHARGE 25°C (77 °F) (STORAGE CAPACITY)	Capacity after 3 month - 95% Capacity after 6 month - 85% Capacity after 12 month - 80%
MAX DISCHARGE CURRENT 25°C (77 °F)	10000A (5s)
TERMINAL	M8 (19)
(CHARGING) CYCLE	Initial Charging Current 54A 14.7V / 25°C (77 °F)
(CHARGING) FLOAT	13.6V / 25°C (77 °F)

DISCHARGE CURRENT AND END VOLTAGE

DISCHARGE CURRENT (A)	End voltage (V)
0.05C OR BELOW OR INTERMITTENT DISCHARGE	11.4
0.05C OF CURRENT CLOSE TO IT	11.1
0.1C OF CURRENT CLOSE TO IT	10.8
0.2C OF CURRENT CLOSE TO IT	10.5
FROM 0.2C TO 0.5C	10.2
FROM 0.5C TO 1C	9.6
FROM 1C TO 3C	9.0
CURRENT IN EXCESS OF 3C	7.8

CHARGE VS. TEMPERATURE



CRYSTAL TECHNOLOGY

Our unique electrolyte crystallizes on the battery plates, giving the batteries their powerful features.



BETTER USAGE PERFORMANCE

Charges up to three times faster than conventional alternatives. Excellent high-current discharge.



FULL RECOVERY

Crystal Batteries™ can be 100% discharged and restored to full capacity.



PROVEN TRACK RECORD

Crystal Batteries™ have been successfully used in the telecom, industrial EV and storage markets.



THE SAFEST

No risk of thermal runaway, spontaneous combustion, no leakage, and fewer harmful chemicals.



UP TO 99% RECYCLABLE

A sustainable circular economy, less acid, no antimony or cadmium.



EXTREME TEMPERATURES

Extreme temperature resistance. Operates from -40°C (40°F) to +65°C (149°F).



LONG BATTERY LIFE

A float service life of up to 11 years. Up to 3,100 charge / discharge cycles at 25°C (50% DoD).

DATASHEET - CB12-180FT

CELL CHARGE VOLTAGE VS. TEMPERATURE CHART

Temperature (°C)	-40	-35	-30	-25	-20	-15	-10	-5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70
Temperature (°F)	-40	-31	-22	-13	-4	5	14	23	32	41	50	59	68	77	86	95	104	113	122	131	140	149	158
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	2.42	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

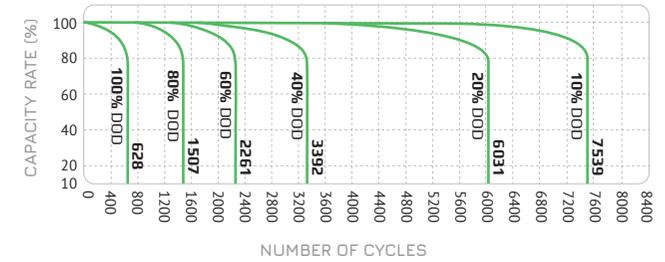
CONSTANT CURRENT DISCHARGE CHARACTERISTICS: UNITS AMPERES 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	661	350	211	154	124	71.1	51.6	40.5	34.5	29.3	22.4	18.6	15.6	10.1	8.31
1.67V	614	338	208	153	124	70.8	50.7	40.3	34.0	29.1	22.3	18.4	15.6	10.1	8.28
1.70V	608	333	206	151	123	70.1	50.4	40.1	33.5	28.8	22.3	18.4	15.6	10.1	8.27
1.75V	557	322	204	150	121	68.8	50.1	39.6	33.2	28.6	22.2	18.2	15.5	10.0	8.26
1.80V	499	302	196	146	118	67.7	49.9	39.4	32.8	28.3	22.1	18.0	15.4	9.73	8.24
1.83V	477	277	192	140	112	67.1	48.0	37.8	32.0	27.3	21.6	17.3	14.8	9.62	8.13
1.85V	447	268	180	135	109	64.4	46.7	37.2	31.2	26.4	21.3	17.1	14.6	9.52	8.06

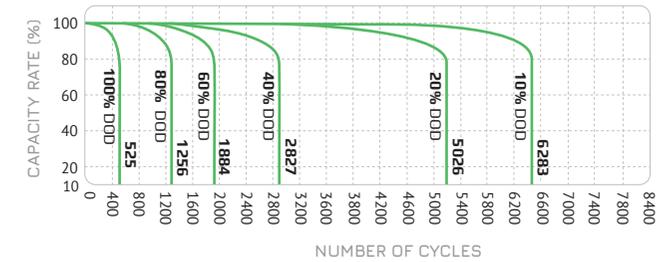
DISCHARGE DATA WITH CONSTANT POWER UNITS: WATTS PER CELL 25°C (77°F)

End Cell Voltage	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1104	614	395	288	232	134	98.1	77.7	65.6	56.4	43.5	36.0	30.3	20.2	16.5
1.67V	1051	604	379	286	231	134	96.9	77.6	65.6	56.3	43.5	35.9	30.3	20.2	16.5
1.70V	1044	600	378	286	230	133	96.3	77.3	64.6	55.9	43.2	35.6	30.0	20.1	16.5
1.75V	973	593	377	286	229	132	95.3	77.2	64.4	55.4	43.0	35.3	30.0	20.1	16.4
1.80V	893	563	371	281	228	132	94.0	77.0	64.0	55.4	42.9	35.2	30.0	19.6	16.4
1.83V	861	517	368	273	218	131	92.5	74.4	63.3	53.7	42.9	34.1	29.4	19.4	16.3
1.85V	798	506	342	262	212	128	91.0	73.4	61.5	52.6	41.2	33.8	28.9	19.1	16.2

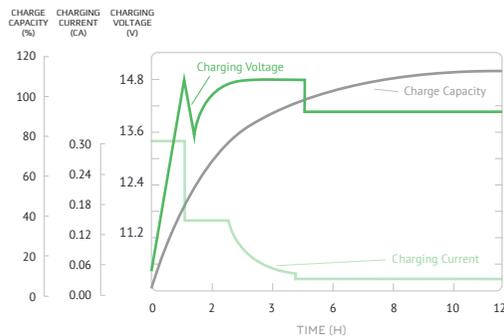
CYCLE LIFE CURVE GRAPH 25°C (77°F).



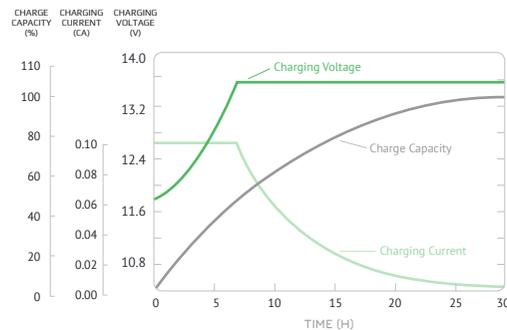
CYCLE LIFE CURVE GRAPH 40°C (104°F).



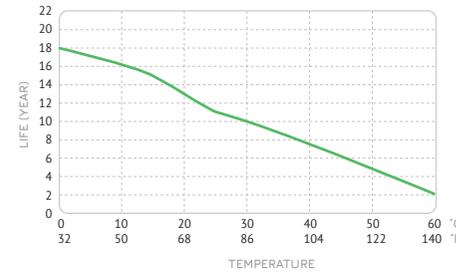
REGULAR CHARGE CHARACTERISTICS 25°C (77°F).



FLOATING CHARACTERISTICS 25°C (77°F).



FLOAT SERVICE LIFE CURVE GRAPH.



TEMPERATURE & DISCHARGE CAPACITY.

