

EverExceed[®]
power your applications

Nickel Cadmium Industrial BATTERY SOLUTIONS



*Reliable capacities
for increased security*

NICKEL CADMIUM BATTERIES
SINTERED / POCKET PLATES
 5AH to 1000AH / 20+ years long life

EverExceed Nickel Cadmium industrial cells using advanced sintered plate / pocket plate technology have been used successfully in industrial battery applications for long years. With a design life of more than 20 years, they have proved to be a very reliable DC power source in float service or cyclic applications in harsh conditions with temperatures up to 60°C.



XHP Series (Ultra High Discharge Rate Cells)

XHP Series Ultra High Discharge Rate nickel cadmium battery is made of sintered plate, characterized by compact construction, low internal resistance, high reliability, high capacity, long service life and excellent low temperature performance. The battery is suitable for ultra high rate discharging such as AGV, engine starting, switch tripping and closing and any special purpose.

EBH Series (High Discharge Rate Cells)

EBH Series High Discharge Rate nickel cadmium battery is made of pocket plate with the characteristics of thin plate, high porosity and low internal resistance. The battery is particularly suitable for short discharge periods such as switch-gear tripping and closing, UPS, etc.

EBM Series (Medium Discharge Rate Cells)

EBM Series Medium Discharge Rate nickel cadmium battery is made of pocket plate. The battery is suitable for medium discharge periods between 30 minutes and 5 hours such as standby for UPS, gas turbine control, etc.

EBL Series (Low Discharge Rate Cells)

EBL Series Low Discharge Rate nickel cadmium battery is made of pocket plate. The battery is designed for general purpose and standby applications such as lighting on train and operation of circuit breaker, etc.

Battery Model	Discharge Performance	Plate Type	Applications
XHP Series	Ultra High Discharge Rate	Sintered Plate	AGV, gas turbine generation, engine starting, operating / control of computer systems, transportation networks, airport, etc.
EBH Series	High Discharge Rate	Pocket Plate	Engine starting, UPS (up to 30 minutes), operation and control of DC motor, water treatment plants, etc.
EBM Series	Medium Discharge Rate	Pocket Plate	UPS (over 30 minutes), railway DC power sources, auxiliary power sources for power stations, chemical plants, oil refineries, iron works, etc.
EBL Series	Low Discharge Rate	Pocket Plate	Emergency lighting, telecommunications, operation of communication equipment on a ship lighting, air conditioner control on a train, etc.



Container: Translucent Plastic or Steel
Terminal Seal: Compressed O-Ring
Plates: Sintered / Pocket Plates
Electrolyte: Potassium Hydroxide 1.19~1.20kg/l

Float Voltage

Boost / Equalize Charge

XHP Type: 1.38~1.40 VPC
EBH/EBM Type: 1.42~1.45 VPC
EBL Type: 1.48~1.50 VPC

XHP Type: 1.46~1.48 VPC
EBH/EBM/EBL Type: 1.55~1.60 VPC

Temperature Range: -20°C to +60°C



Connector covers

Material: plastic.

Flame arresting vents

Material: polypropylene.

Cell container

Material: translucent polypropylene.

Plate tab

Spot-welded both to the plate side frames and to the upper edge of the pocket plate.

Plate group bus

Connects the plate tabs with the terminal post. Plate tabs and terminal post are projection welded to the plate group bus.

Separating grids

Separate the plates and insulate the plate frames from each other. The grids allow free circulation of electrolyte between the plates.

Plate frame

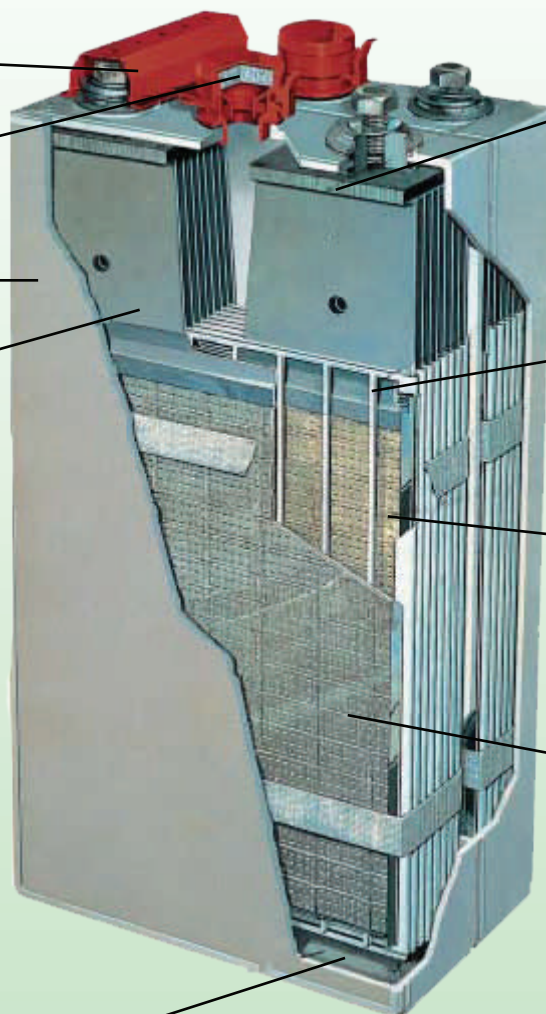
Seals the plate pockets and serves as a current collector.

Plate

Horizontal pockets of double-perforated steel strips.

Electrolyte

An alkaline solution of potassium hydroxide (KOH) which does not corrode steel.



Battery Charging

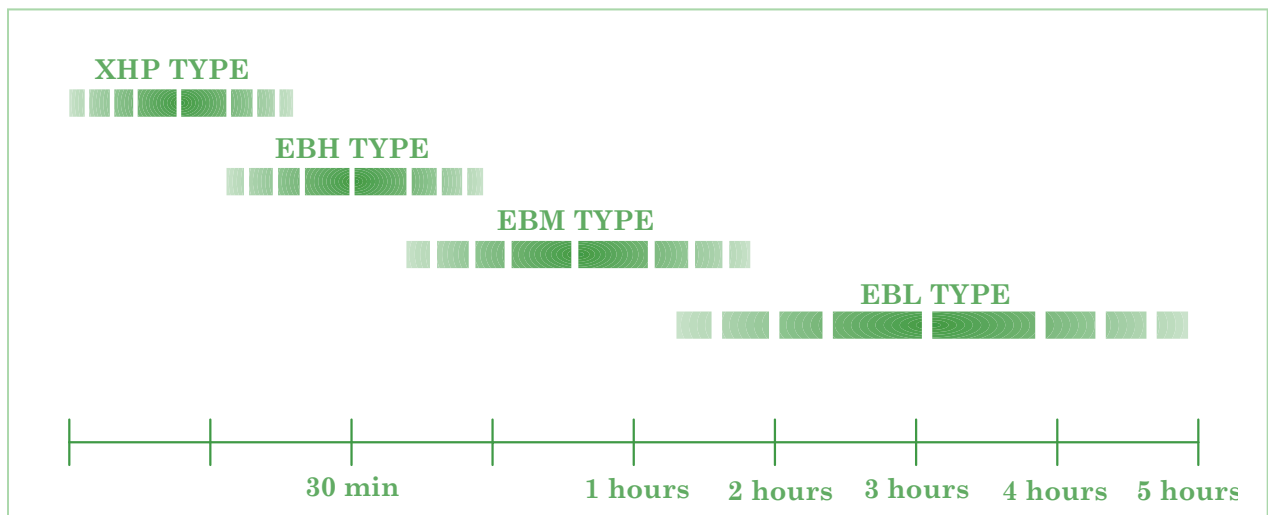
It is recommended to use Constant Voltage method of charging for Nickel Cadmium Batteries, usually with current limitation to C/5 or C/10. Charging voltages must be regularly checked. To optimize the battery performance, it is necessary to ensure that the voltage is kept within the following limits:

Recommended Charging Voltage Per Cell

Cell Type	IEC Type	Floating Charge	Equalizing Charge
XHP	KXP	1.38~1.40	1.46~1.49
EBH	KHP	1.42~1.45	1.55~1.60
EBM	KMP	1.42~1.45	1.55~1.60
EBL	KLP	1.48~1.50	1.55~1.60

Recommended Type Selection

According to backup time required by application:



Initial Charging

The whole charge should preferably be carried out at constant current. The charging time is inversely proportional to the current which is set by the current limit of the charging equipment.

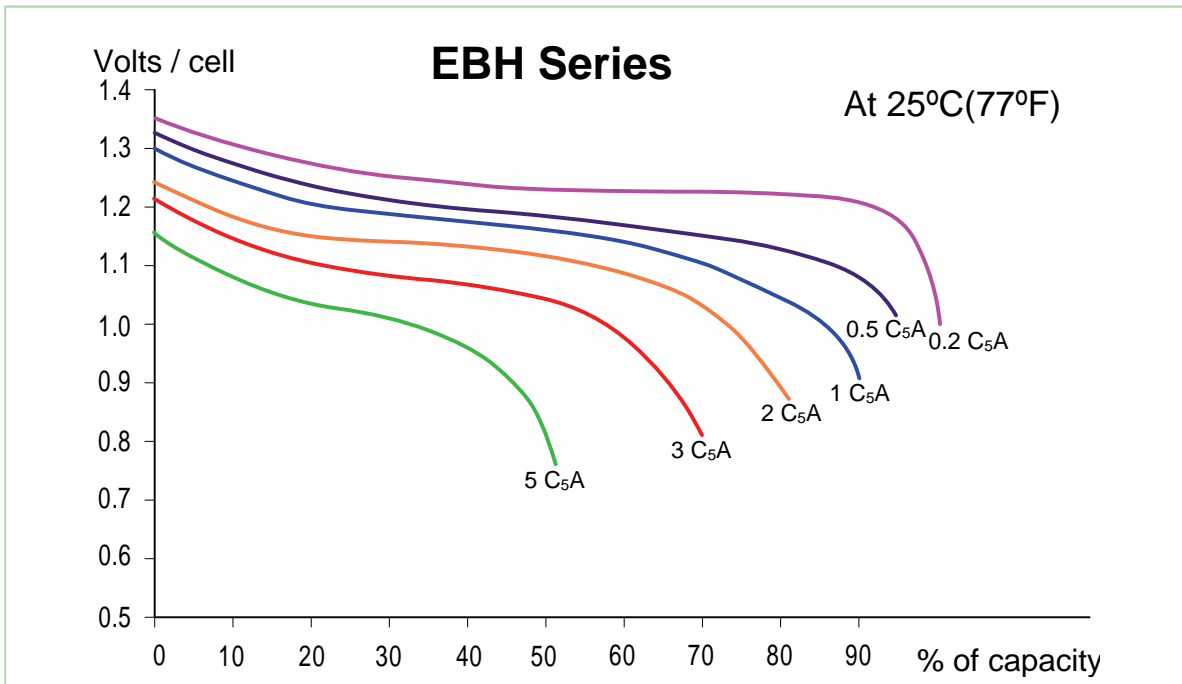
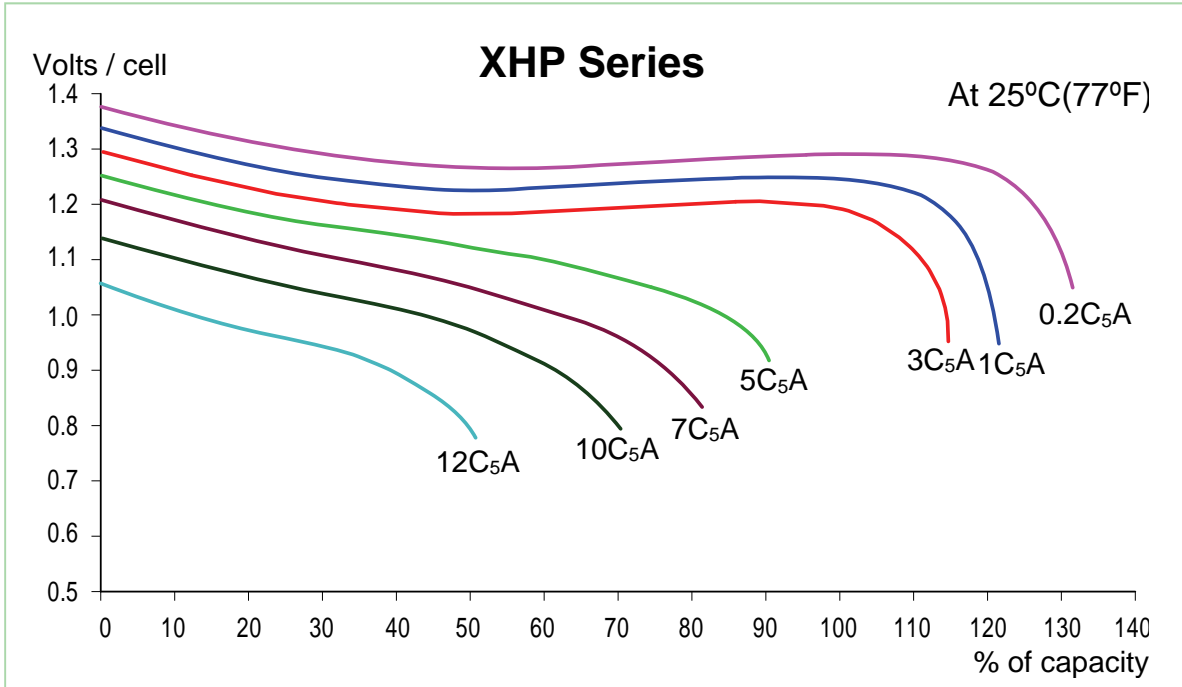
Recommended rates for the first charging:

0.2 C₅A for 10 hours

0.1 C₅A for 20 hours

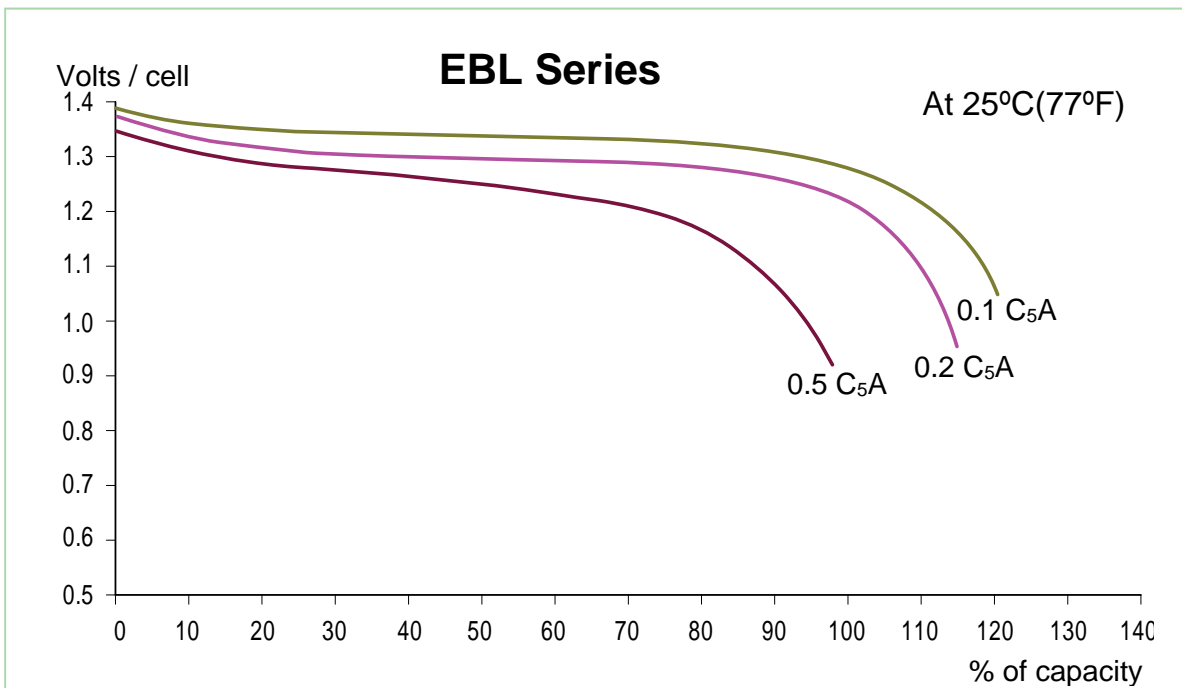
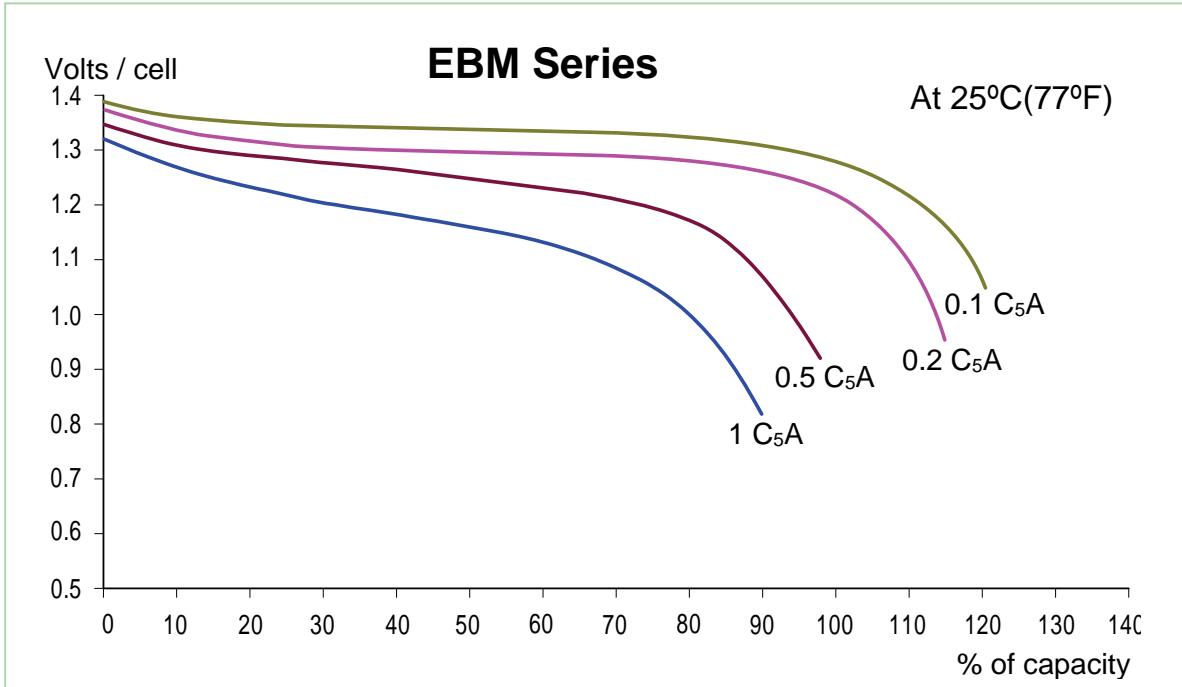
Discharging Curves

Nominal voltage: 1.2V/Cell



Discharging Curves

Nominal voltage: 1.2V/Cell



EverExceed XPH Series – Ultra High Discharge Rate Type

Cell Type	Capacity (C5 Ah)	Dimensions						Max. Weight		Terminal	Volume of Electrolyte L	Container Material
		Length		Width		Height		kg	l b.			
		mm	in	mm	in	mm	in					
XPH10	10	29.0	1.14	81.0	3.19	218	8.58	1.05	1.32	M10	0.160	PA
XPH20	20	36.5	1.44	81.5	3.21	244	9.61	1.30	2.87	M10	1.150	AS
XPH30	30	42.5	1.67	81.5	3.21	255	10.04	1.65	3.64	M10	0.222	AS
XPH30-(2)	30	36.5	1.44	80.5	3.17	235	9.25	1.50	3.31	M10	0.200	PA
XPH35	35	36.0	1.42	81.0	3.19	237	9.33	1.60	3.53	M10	0.190	PA
XPH40	40	42.5	1.67	81.5	3.21	255	10.04	1.75	3.86	M10	0.212	AS
XPH40-(2)	40	49.0	1.93	81.5	3.21	244	9.6	1.85	4.08	M10	0.200	ABS
XPH40-(3)	40	66.5	2.62	81.0	3.19	175	6.89	1.90	4.19	M10	0.210	PA
XPH50	50	49.0	1.93	81.5	3.21	244	9.6	2.00	4.41	M10	0.190	AS
XPH60	60	62.0	2.44	138.5	5.45	267	10.5	3.80	8.38	M16	0.910	ABS
XPH60-(2)	60	50.0	1.97	80.5	3.17	250	9.8	2.20	4.85	M10	0.250	PA
XPH70	70	70.0	2.76	134	5.28	285	11.2	4.40	9.70	M16	1.000	ABS
XPH80	80	70.0	2.76	134	5.28	285	11.2	4.80	10.6	M16	1.000	ABS
XPH80-(2)	80	62.0	2.44	138.5	5.45	267	10.5	4.00	8.8	M16	0.900	ABS
XPH80-(3)	80	74.5	2.93	81.0	3.19	243	9.6	3.00	6.6	M12	0.450	PA
XPH90	90	70.0	2.76	134	5.28	285	11.2	4.80	10.6	M16	0.950	ABS
XPH90-(2)	90	74.5	2.93	81.0	3.19	243	9.6	3.10	6.8	M12	0.400	PA
XPH100	100	70.0	2.76	134	5.28	285	11.2	5.00	11.0	M16	0.850	ABS
XPH100-(2)	100	62.0	2.44	138.5	5.45	267	10.5	4.20	9.3	M16	0.780	ABS
XPH120	120	62.0	2.44	138.5	5.45	267	10.5	4.30	9.5	M16	0.700	ABS
XPH120-(2)	120	79.0	3.11	140	5.51	367	14.4	7.00	15.4	M16×1.5	1.300	ABS
XPH120-(3)	120	70.0	2.76	134	5.28	285	11.2	5.00	11.0	M16	0.800	ABS
XPH140	140	79.0	3.11	140	5.51	367	14.4	7.20	15.9	M16×1.5	1.200	PP
XPH140-(2)	140	107	4.21	165	6.50	348	13.7	8.80	19.4	M20	2.000	PP
XPH170	170	107	4.21	165	6.5	348	13.7	9.20	20.3	M20	1.750	PP
XPH170-(2)	170	79.0	3.11	140	5.5	367	14.4	7.40	16.3	M16×1.5	1.020	PP
XPH190	190	79.0	3.11	140	5.51	367	14.4	8.00	17.6	M16×1.5	1.000	PP
XPH190-(2)	190	107	4.21	165	6.5	348	13.7	10.00	22.0	M20	1.700	PP
XPH200	200	71.0	2.80	137	5.4	432	17.0	8.80	19.4	M20	1.000	ABS
XPH200-(2)	200	107	4.21	165	6.50	348	13.7	10.00	22.0	M20	1.700	PP
XPH210	210	107	4.21	165	6.5	348	13.7	10.30	22.7	M20	1.650	PP
XPH220	220	107	4.21	165	6.50	348	13.7	10.50	23.1	M20	1.650	PP
XPH230	230	107	4.21	165	6.5	348	13.7	10.60	23.4	M20	1.600	PP
XPH240	240	107	4.21	165	6.5	348	13.7	10.70	23.6	M20	1.600	PP
XPH250	250	107	4.21	165	6.5	348	13.7	10.90	24.0	M20	1.600	PP

EverExceed EBH Series – High Discharge Rate Type

Cell Type	Capacity (C5 Ah)	Dimensions						Weight				Terminal	Cell Case Material
		Length		Width		Height		Without Electrolyte		With Electrolyte			
		mm	in	mm	in	mm	in	kg	lb.	kg	lb.		
EBH10	10	48	1.89	81.0	3.2	245	9.6	1.5	3.3	1.8	4.0	M10 X1	MBS
EBH20	20	68	2.68	134	5.3	245	9.6	1.8	4.0	2.8	6.2	M10 X1	MBS/PP
EBH30	30	70	2.76	134	5.3	285	11.2	3.0	6.6	4.0	8.8	M16	MBS/PP
EBH35	35	70	2.76	134	5.3	285	11.2	3.2	7.1	4.0	8.8	M16	MBS/PP
EBH40	40	70	2.76	134	5.3	285	11.2	3.3	7.3	4.5	9.9	M16	MBS/PP
EBH50	50	80	3.15	141	5.6	370	14.6	4.7	10.4	6.2	13.7	M16	MBS/PP
EBH60	60	80	3.15	141	5.6	370	14.6	5.0	11.0	6.5	14.3	M16	MBS/PP
EBH70	70	106	4.17	164	6.5	345	13.6	6.8	15.0	9.0	19.8	M20	MBS/PP
EBH80	80	106	4.17	164	6.46	345	13.6	7.50	16.5	9.20	20.3	M20	MBS/PP
EBH100	100	106	4.17	164	6.46	345	13.6	7.90	17.4	10.0	22.0	M20	MBS/PP
EBH120	120	164	6.46	167	6.57	365	14.4	10.0	22.0	14.0	30.9	M20	MBS/PP
EBH150	150	164	6.46	167	6.57	365	14.4	13.5	29.8	15.0	33.1	M20	MBS/PP
EBH180	180	162	6.38	200	7.87	450	17.7	14.8	32.6	22.0	48.5	M20	MBS
EBH200	200	176	6.93	291	11.5	510	20.1	22.0	48.5	34.5	76.1	2xM20	MBS
EBH250	250	176	6.93	291	11.5	510	20.1	25.0	55.1	35.5	78.3	2xM20	MBS
EBH300	300	176	6.93	291	11.5	510	20.1	27.5	60.6	37.0	81.6	2xM20	MBS
EBH350	350	176	6.93	291	11.5	510	20.1	29.0	63.9	38.0	83.8	2xM20	MBS
EBH400	400	186	7.32	398	15.7	570	22.4	37.0	81.6	58.0	128	3xM20	MBS
EBH500	500	186	7.32	398	15.7	570	22.4	40.0	88.2	59.0	130	3xM20	MBS



Please visit www.everexceed.com for more product information.



EverExceed EBM Series – Medium Discharge Rate Type

Cell Type	Capacity (C5 Ah)	Dimensions						Weight				Terminal	Cell Case Material
		Length		Width		Height		Without Electrolyte		With Electrolyte			
		mm	in	mm	in	mm	in	kg	lb.	kg	lb.		
EBM10	10	48	1.9	81	3.2	245	9.6	1.2	3.3	1.5	4	M10 X1	MBS
EBM20	20	68	2.7	134	5.3	245	9.6	1.7	3.7	2.5	5.5	M10 X1	MBS/PP
EBM30	30	68	2.7	134	5.3	245	9.6	2.3	5.1	3.0	6.6	M10 X1	MBS/PP
EBM40	40	70	2.8	134	5.3	285	11.2	3.0	6.6	4.0	8.8	M16	MBS/PP
EBM48	48	70	2.8	134	5.3	285	11.2	3.4	7.5	4.2	9.1	M16	MBS/PP
EBM50	50	70	2.8	134	5.3	285	11.2	3.2	7.1	4.2	9.3	M16	MBS/PP
EBM60	60	80	3.1	141	5.6	370	14.6	4.2	9.3	6.0	13.2	M16	MBS/PP
EBM70	70	80	3.1	141	5.6	370	14.6	4.9	10.8	6.4	14.1	M16	MBS/PP
EBM80	80	80	3.1	141	5.6	370	14.6	5.2	11.5	6.6	14.6	M16	MBS/PP
EBM85	85	80	3.1	141	5.6	370	14.6	5.0	11.0	6.6	14.6	M16	MBS/PP
EBM95	95	106	4.2	164	6.5	345	13.6	6.0	13.2	9.0	19.8	M20	MBS/PP
EBM100	100	106	4.2	164	6.5	345	13.6	6.9	15.2	9.0	19.8	M20	MBS/PP
EBM120	120	106	4.2	164	6.5	345	13.6	7.3	16.1	9.5	20.9	M20	MBS/PP
EBM150	150	164	6.5	167	6.6	345	13.6	9.3	20.5	13.0	28.7	M20	MBS/PP
EBM160	160	164	6.5	167	6.6	345	13.6	9.5	20.9	12.5	27.6	M20	MBS/PP
EBM200	200	164	6.5	167	6.6	345	13.6	13.5	29.8	14.5	32.0	M20	MBS/PP
EBM250	250	138	5.4	276	10.9	450	17.7	12.7	28.0	16.0	35.3	M20	PP
EBM280	280	138	5.4	276	10.9	450	17.7	15.5	34.2	22.0	48.5	2xM16	PP
EBM300	300	162	6.4	200	7.9	450	17.7	18.4	40.6	23.0	50.7	2xM16	PP
EBM350	350	162	6.4	200	7.9	450	17.7	19.4	42.8	24.0	52.9	2xM16	PP
EBM380	380	176	6.9	291	11.5	505	19.9	24.0	52.9	36.0	79.4	2xM16	PP
EBM400	400	138	5.4	276	10.9	490	19.3	22.0	48.5	27.0	59.5	2xM16	PP
EBM500	500	176	6.9	291	11.5	510	20.1	28.0	61.7	40.0	88.2	2xM20	MBS
EBM600	600	176	6.9	291	11.5	510	20.1	31.0	68.3	42.0	92.6	2xM20	MBS
EBM700	700	186	7.3	398	15.7	570	22.4	42.0	92.6	58.0	128	3xM20	MBS
EBM800	800	186	7.3	398	15.7	570	22.4	44.0	97.0	60.0	132	3xM20	MBS
EBM830	830	186	7.3	398	15.7	570	22.4	44.0	97.0	60.0	132	3xM20	MBS
EBM900	900	186	7.3	398	15.7	570	22.4	46.0	101	64.0	141	3xM20	MBS
EBM1000	1000	186	7.3	398	15.7	570	22.4	50.0	110	65.0	143	3xM20	MBS



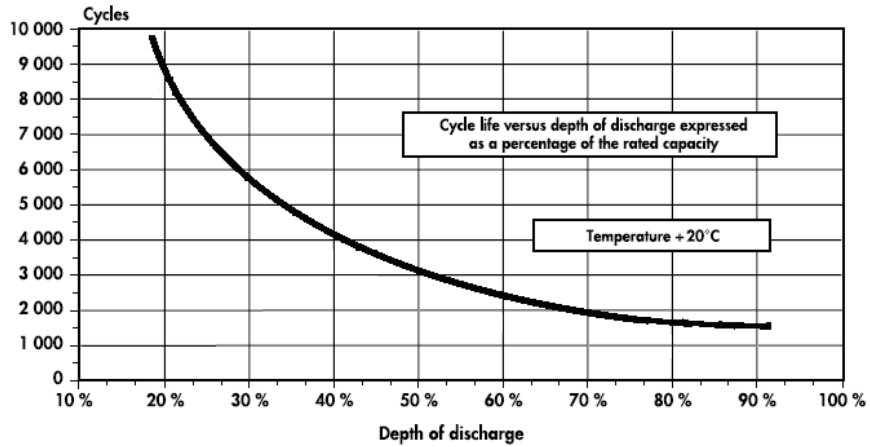
EverExceed EBL Series – Low Discharge Rate Type

Cell Type	Capacity (C5 Ah)	Dimensions						Weight				Terminal	Cell Case Material
		Length		Width		Height		Without Electrolyte		With Electrolyte			
		mm	in	mm	in	mm	in	kg	l b.	kg	lb.		
EBL10	10	38.0	1.50	84.0	3.31	138	5.43	0.60	1.32	0.80	1.76	M6	MBS/PP
EBL20	20	32.0	1.26	113	4.45	220	8.66	0.90	1.98	1.20	2.65	M6	MBS/PP
EBL22	22	48.0	1.89	81.0	3.19	245	9.65	1.20	2.65	1.30	2.87	M6	MBS/PP
EBL25	25	32.0	1.26	113	4.45	223	8.78	1.15	2.54	1.30	2.87	M6	MBS/PP
EBL30	30	68.0	2.68	134	5.28	245	9.65	2.00	4.41	2.80	6.17	M10 X1	MBS/PP
EBL40	40	68.0	2.68	134	5.28	245	9.65	2.20	4.85	3.00	6.61	M10 X1	MBS/PP
EBL45	45	53.0	2.09	115	4.53	280	11.0	2.40	5.29	3.20	7.05	M10 X1	MBS/PP
EBL50	50	68.0	2.68	134	5.28	245	9.65	2.30	5.07	3.00	6.60	M10 X1	MBS/PP
EBL60	60	70.0	2.76	134	5.28	285	11.2	3.30	7.28	4.20	9.26	M16	MBS/PP
EBL70	70	80.0	3.15	144	5.67	365	14.4	3.50	7.72	5.50	12.1	M10 X1	MBS/PP
EBL80	80	80.0	3.15	141	5.55	365	14.4	4.10	9.04	5.80	12.8	M10 X1	MBS/PP
EBL90	90	80.0	3.15	141	5.55	365	14.4	4.20	9.26	6.00	13.2	M10 X1	MBS/PP
EBL100	100	80.0	3.15	141	5.55	365	14.4	4.60	10.1	6.20	13.7	M10 X1	MBS/PP
EBL115	115	80.0	3.15	141	5.55	365	14.4	4.90	10.8	6.30	13.9	M10 X1	MBS/PP
EBL120	120	80.0	3.15	141	5.55	365	14.4	5.00	11.0	6.40	14.1	M10 X1	MBS/PP
EBL130	130	80.0	3.15	141	5.55	365	14.4	5.30	11.7	6.50	14.3	M10 X1	MBS/PP
EBL135	135	92.0	3.62	141	5.55	365	14.4	6.00	13.2	7.80	17.2	M10 X1	MBS/PP
EBL140	140	92.0	3.62	141	5.55	365	14.4	6.00	13.2	8.00	17.6	M10 X1	MBS/PP
EBL150	150	106	4.17	164	6.46	345	13.6	6.50	14.3	9.00	19.8	M20	MBS/PP
EBL160	160	106	4.17	164	6.46	345	13.6	7.00	15.4	9.20	20.3	M20	MBS/PP
EBL180	180	106	4.17	164	6.46	345	13.6	7.60	16.8	9.80	21.6	M20	MBS/PP
EBL200	200	106	4.17	164	6.46	345	13.6	8.20	18.1	10.0	22.0	M20	MBS/PP
EBL230	230	164	6.46	167	6.57	345	13.6	9.50	20.9	13.0	28.7	M20	MBS/PP
EBL250	250	164	6.46	167	6.57	345	13.6	10.7	23.6	13.5	29.8	M20	MBS/PP
EBL260	260	138	5.43	276	10.9	425	16.7	13	28.7	20.0	44.1	M20	MBS/PP
EBL280	280	138	5.43	276	10.9	450	17.7	14	30.9	21.0	46.3	M20	MBS/PP
EBL300	300	164	6.46	167	6.57	345	13.6	12.3	27.1	15.0	33.1	M16	MBS/PP
EBL315	315	138	5.43	276	10.9	450	17.7	15	33.1	21.6	47.6	M16	MBS/PP
EBL320	320	138	5.43	276	10.9	450	17.7	16	35.3	22.5	49.6	M16	MBS/PP
EBL340	340	162	6.38	200	7.87	450	17.7	15.5	34.2	22.0	48.5	M16	MBS/PP
EBL350	350	152	5.98	170	6.7	385	15.2	16	35.3	22.5	49.6	M16	MBS/PP
EBL400	400	152	5.98	170	6.69	385	15.2	14.2	31.3	17.5	38.6	M16	PP
EBL420	420	138	5.43	276	10.9	450	17.7	17.5	38.6	23.5	51.8	M16	PP
EBL450	450	138	5.43	276	10.9	450	17.7	18	39.7	24.0	52.9	M16	PP
EBL500	500	138	5.43	276	10.9	490	19.3	20	44.1	27.0	59.5	2X M16	PP
EBL600	600	176	6.93	291	11.5	510	20.1	27	59.5	38.0	83.8	2X M20	MBS
EBL700	700	176	6.93	291	11.5	510	20.1	29	63.9	39.0	86.0	2X M20	MBS
EBL800	800	186	7.32	398	15.7	570	22.4	39	86.0	59.0	130	3X M20	MBS
EBL900	900	186	7.32	398	15.7	570	22.4	41	90.4	60.0	132	3X M20	MBS
EBL1000	1000	186	7.32	398	15.7	570	22.4	44	97.0	61.0	134	3X M20	MBS
EBL1100	1100	186	7.32	398	15.7	570	22.4	45	99.2	62.0	137	3X M21	MBS
EBL1210	1210	186	7.32	398	15.7	570	22.4	47	103.6	63.0	139	3X M22	MBS



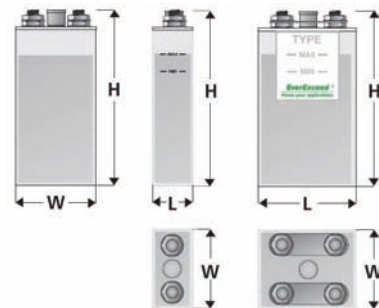
Please visit www.everexceed.com for more product information.

Cycling Curve



Typical cycle life versus depth of discharge

NiCd Cell Dimension



Other cell types of special requirements also available (Custom design, not included in the above list), please contact EverExceed Nickel Cadmium Division for more details.



Please visit www.everexceed.com for more product information.

Final Discharge Voltage 1.14 Volts Per Cell

Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
XPH10	10			1.93			6.2	9.1		16.8	23.2		28.8	38.6	51.0	57.0	72.6	76.5
XPH20	20			3.9			12.4	18.2		33.6	44.5		55.3	74.2	97.9	109	139	146
XPH30	30			5.8			18.6	27.3		50.4	69.5		86.5	115	152	170	217	229
XPH40	40			7.7			24.8	36.4		67.2	89.0		110	148	196	218	278	294
XPH50	50			9.7			31	45.5		84	115		144	193	254	284	363	382
XPH60	60			11.6			37.2	54.6		101	139		173	232	306	341	445	458
XPH70	70			13.5			43.4	63.7		118	162		202	270	356	398	508	535
XPH80	80			15.4			49.6	72.8		135	185		231	309	408	455	581	612
XPH90	90			17.4			55.8	81.9		151	216		260	350	454	513	657	697
XPH100	100			19.3			62	91		168	232		288	386	510	569	726	764
XPH120	120			23.2			74.4	109		202	278		346	464	612	683	871	918
XPH140	140			27			86.8	128		235	324		404	541	714	796	1017	1070
XPH170	170			32.8			106	155		286	393		490	656	866	967	1234	1300
XPH190	190			36.7			118	173		319	440		548	733	968	1080	1379	1452
XPH200	200			38.6			124	182		336	474		587	793	1040	1147	1483	1559
XPH220	220			42.5			137	200		370	508		632	847	1118	1246	1591	1675
XPH230	230			44.4			143	209		387	536		670	896	1185	1339	1689	1772
XPH240	240			46.3			149	219		403	567		719	958	1246	1421	1782	1875
XPH250	250			48.3			155	228		420	595		762	1030	1306	1494	1864	1978
EBH10	10	1.1	1.3	2.0	3.1	4.5	5.8	8.3	9.4	12.4	14.2	16.3	19.0	23.9	38.6	41.3	48.9	50.5
EBH20	20	2.1	2.5	4.0	6.2	9.0	11.5	16.5	18.7	24.3	28.3	32.5	38.1	47.9	77.3	82.6	97.9	101
EBH30	30	3.2	3.8	5.9	9.3	13.6	17.5	24.7	34.5	36.6	43.8	48.6	56.7	71.6	109	125	147	151
EBH35	35	3.7	4.4	7.1	11.3	14.2	21.1	29.4	38.1	43.9	52.6	58.4	68.1	86.0	131	150	177	182
EBH40	40	4.2	5.0	7.9	12.4	18.0	23.3	33.6	37.5	48.9	58.5	65.4	75.7	95.8	145	165	196	202
EBH50	50	5.3	6.3	9.9	15.5	22.7	29.4	41.9	48.9	61.3	73.1	82.4	94.8	121	181	207	245	253
EBH60	60	6.3	7.6	11.8	18.5	27.0	35.0	49.4	59.7	72.1	87.6	98.4	113	144	218	250	294	304
EBH70	70	7.4	8.9	13.9	21.6	31.4	40.8	57.9	67.0	85.8	102	115	132	168	253	289	343	354
EBH80	80	8.4	10.1	15.9	24.7	36.1	46.6	67.2	77.3	98.1	117	131	151	192	290	331	391	405
EBH100	100	10.5	12.9	20.1	30.9	44.8	58.2	83.9	113	123	146	165	191	240	361	413	489	506
EBH120	120	12.6	15.1	23.7	37.1	53.8	70.0	98.9	118	144	175	197	227	288	438	501	587	604
EBH150	150	16.0	19.1	29.9	46.4	67.5	87.0	126	155	180	213	247	285	361	546	618	736	759
EBH180	180	19.7	23.2	36.1	57.7	19.6	106	152	187	216	155	299	345	436	675	745	886	912
EBH200	200	21.1	25.5	39.7	61.8	89.6	116	168	196	247	284	330	381	479	726	826	979	1011
EBH250	250	26.3	31.5	49.4	77.3	113	145	209	242	299	355	409	482	606	906	1033	1224	1265
EBH300	300	31.5	37.9	59.3	92.7	135	175	252	330	361	426	489	571	723	1092	1240	1471	1517
EBH350	350	36.8	44.3	69.2	108	158	203	293	340	419	497	573	672	845	1267	1446	1713	1771
EBH400	400	42.0	50.5	79.1	129	179	232	335	391	489	569	654	758	958	1442	1652	1957	2023
EBH500	500	52.5	63.1	98.9	155	225	289	418	484	598	711	814	948	1203	1804	2065	2446	2529
EBM10	10	1.1	1.3	2.0	3.0	4.2	5.2	6.1	6.2	8.5	9.9	11.0	12.6	15.0	21.1	23.5	27.1	27.9
EBM20	20	2.1	2.5	4.0	6.0	8.4	10.3	12.6	13.2	17.1	19.8	22.0	25.1	30.1	42.2	47.0	54.2	55.8
EBM30	30	3.2	3.8	5.9	9.0	12.7	15.5	19.1	18.5	25.8	29.7	33.0	37.7	45.1	63.3	70.5	81.4	83.9
EBM40	40	4.2	5.0	8.1	11.9	16.9	20.6	25.1	26.8	34.2	39.6	44.1	50.3	60.3	84.5	93.9	108	111
EBM48	48	5.2	6.1	9.8	14.8	20.6	25.5	31.1	33.1	42.3	48.9	54.5	62.1	74.5	104	116	134	137

Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
EBM50	50	5.3	6.3	9.9	14.9	21.1	25.8	31.4	33.0	42.7	49.4	55.1	62.8	75.2	105	117	135	139
EBM60	60	6.4	7.6	11.8	18.0	25.5	30.9	37.7	39.1	50.3	59.3	66.1	75.7	90.2	128	141	163	168
EBM70	70	7.4	8.9	13.9	21.1	29.6	36.1	44.0	47.0	59.8	38.6	77.3	88.1	105	148	165	192	197
EBM80	80	8.4	10.7	17.2	27.2	25.3	41.2	47.4	50.9	55.2	64.9	72.5	82.0	95.7	132	151	175	191
EBM85	85	8.8	11.3	17.6	27.8	36.4	43.3	50.0	52.5	57.0	69.0	74.8	84.6	98.9	138	156	182	196
EBM95	95	10.1	13.0	20.3	32.0	41.9	48.4	57.5	60.5	63.9	77.3	86.1	94.8	114	159	179	210	225
EBM100	100	10.5	12.9	19.8	29.9	42.2	51.5	62.8	67.0	85.5	98.9	110	126	150	211	235	271	279
EBM120	120	12.6	15.1	23.7	36.1	50.7	61.8	75.4	77.3	103	119	133	150	181	253	282	325	336
EBM150	150	16.0	19.0	29.9	44.8	62.8	77.3	94.8	97.9	128	148	166	188	226	316	352	407	419
EBM160	160	16.6	20.8	33.5	52.5	68.7	81.5	93.9	98.9	111	131	145	159	185	264	296	346	386
EBM200	200	21.0	25.2	39.6	59.7	84.5	103	126	144	171	199	221	251	301	422	470	543	559
EBM250	250	26.3	31.5	49.4	74.7	105.1	129	158	163	213	247	276	314	376	527	587	678	700
EBM280	280	30.3	36.4	55.6	86.1	121	149	182	188	246	285	318	362	434	608	677	782	808
EBM300	300	31.5	38.1	59.3	89.6	126	155	190	195	255	297	331	378	451	633	705	814	839
EBM350	350	36.8	44.3	69.2	104	147	180	221	227	299	346	385	441	526	740	822	950	976
EBM380	380	40.2	49.5	77.4	116	165	202	248	253	334	387	431	493	589	827	919	1062	1092
EBM400	400	42.0	50.5	79.1	119	169	206	252	258	342	396	441	505	602	845	939	1084	1117
EBM500	500	52.5	63.1	98.9	149	210	258	315	319	426	494	551	628	752	1056	1174	1354	1396
EBM600	600	63.0	75.7	118	179	252	309	379	386	512	593	661	754	903	1267	1409	1625	1675
EBM700	700	73.5	88.4	138	209	295	361	442	448	597	692	773	880	1054	1478	1644	1896	1954
EBM800	800	84.0	101	159	239	337	412	505	515	683	791	882	1005	1204	1689	1879	2167	2233
EBM900	900	94.8	113	178	269	379	464	569	597	768	890	992	1131	1353	1900	2114	2438	2512
EBM1000	1000	105	127	198	299	421	515	628	683	854	989	1102	1257	1504	2112	2348	2709	2791
EBL10	10	1.0	1.2	2.0	3.0	3.9	4.5	5.2	5.5	6.5	7.1	7.6	8.5	9.9	12.9	13.9	15.0	15.5
EBL20	20	2.1	2.5	3.9	6.1	7.7	9.0	10.4	10.8	13.0	14.4	15.5	17.0	19.7	25.8	27.8	30.1	30.9
EBL22	22	2.1	3.0	4.5	6.3	7.4	8.7	10.4	11.3	12.9	14.0	14.5	15.3	17.5	20.4	22.4	24.8	25.3
EBL25	25	2.5	3.5	5.3	7.2	8.4	9.9	12.2	13.3	15.1	16.4	17.0	18.0	20.5	23.9	26.2	29.1	29.7
EBL30	30	3.1	3.7	5.8	9.2	11.8	13.5	15.6	16.5	19.6	21.4	22.8	25.5	29.6	38.6	41.7	45.1	46.4
EBL40	40	4.2	4.9	7.7	12.2	15.5	18.0	20.8	21.1	26.0	28.4	30.3	34.0	39.3	51.5	55.6	60.3	61.8
EBL45	45	5.2	6.1	9.3	12.9	15.2	17.8	21.2	23.0	26.5	28.8	29.6	31.4	35.6	41.8	45.6	50.6	52.0
EBL50	50	5.2	6.2	9.7	15.2	19.4	22.5	26.0	28.8	32.3	35.6	37.9	42.5	49.3	64.4	69.5	75.2	77.3
EBL60	60	6.2	7.4	11.6	18.2	23.2	26.9	31.1	31.7	38.8	42.7	45.4	51.0	59.1	77.5	83.4	90.2	92.7
EBL70	70	7.3	8.7	13.6	21.4	27.2	31.4	36.3	37.1	45.3	50.0	53.0	59.5	69.0	90.1	97.3	105	108
EBL80	80	8.3	9.9	15.5	24.3	30.9	36.1	41.2	46.4	51.7	57.2	60.6	68.0	78.3	103	111	121	124



Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
EBL90	90	9.5	12.4	18.5	25.8	30.5	35.5	41.9	47.0	52.9	59.7	62.8	70.0	81.4	108	118	126	134
EBL100	100	10.4	12.4	19.6	30.4	38.6	44.8	51.8	57.7	64.7	71.3	75.7	85.0	98.6	129	139	150	155
EBL115	115	12.3	14.6	22.7	35.0	45.8	53.1	61.4	68.3	76.6	84.4	89.7	101	117	153	165	178	183
EBL120	120	13.2	14.9	24.4	37.6	49.2	57.0	66.0	73.4	82.3	90.7	96.4	108	125	164	177	191	197
EBL130	130	13.9	17.5	26.6	37.0	44.1	51.3	61.4	66.3	76.5	83.1	85.5	90.9	103	119	132	145	150
EBL135	135	14.4	18.1	27.6	38.4	45.8	53.3	63.9	69.0	79.4	86.3	88.8	94.5	107	125	137	151	156
EBL140	140	15.0	18.8	28.6	39.8	47.5	55.2	66.1	71.4	82.4	89.6	92.1	98.0	111	129	142	157	162
EBL150	150	15.7	18.5	29.0	42.7	51.0	59.2	70.8	76.5	88.3	95.9	98.7	104	118	142	163	168	173
EBL160	160	17.2	20.4	31.9	47.0	56.0	65.1	77.7	84.1	97.0	105	108	114	130	156	179	184	190
EBL180	180	19.8	24.2	36.9	51.2	61.3	71.1	84.9	91.9	106	115	118	125	142	171	196	202	208
EBL200	200	20.8	24.7	38.7	60.8	77.3	89.6	103	106	129	142	151	170	197	258	278	300	309
EBL230	230	24.6	29.3	45.9	72.0	89.1	106	122	126	153	168	179	201	233	305	329	355	366
EBL250	250	26.1	30.9	48.4	75.2	95.8	111	129	139	162	176	188	212	246	321	347	380	386
EBL260	260	27.9	33.1	50.5	78.3	103	119	138	149	173	189	202	227	264	344	372	407	414
EBL280	280	31.0	36.7	56.0	86.8	114	132	153	165	192	209	224	252	293	382	412	452	459
EBL300	300	31.2	37.1	58.2	91.2	115	134	150	160	194	212	227	253	295	387	416	456	464
EBL315	315	33.8	40.1	62.9	98.6	125	145	163	173	209	229	245	274	319	419	450	493	501
EBL320	320	35.3	42.0	65.9	97.3	124	152	170	181	219	240	256	287	333	438	471	516	525
EBL340	340	38.6	45.9	72.1	108	135	166	186	198	240	263	281	314	365	480	515	565	574
EBL350	350	37.6	43.3	68.0	106	136	156	180	191	222	251	263	294	345	449	483	525	541
EBL400	400	41.7	49.4	77.5	122	155	179	208	211	260	284	303	340	393	515	556	598	618
EBL420	420	45.1	53.5	83.8	131	167	194	225	228	281	307	327	368	426	557	602	647	668
EBL450	450	49.8	59.0	92.4	145	175	214	248	252	310	339	361	406	470	615	664	714	738
EBL500	500	52.0	61.8	97.9	150	192	222	258	273	323	352	377	424	492	643	694	760	773
EBL600	600	62.4	74.2	116	181	231	268	309	340	387	424	453	507	589	770	832	913	927
EBL700	700	72.8	86.5	136	213	273	312	361	383	445	504	525	587	692	899	967	1051	1082
EBL800	800	83.2	98.9	155	243	309	358	416	464	519	569	606	680	787	1030	1112	1197	1234
EBL900	900	93.7	111	175	273	345	402	464	517	581	637	680	760	884	1156	1248	1353	1391
EBL1000	1000	104	124	194	301	383	445	515	567	647	705	754	849	985	1285	1388	1504	1545
EBL1100	1100	114.4	136	213	331	421	489	567	623	712	775	829	934	1083	1414	1527	1654	1700
EBL1210	1210	126	150	234	364	464	538	623	685	783	852	912	1027	1191	1555	1680	1820	1869

Final Discharge Voltage 1.10 Volts Per Cell

Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
XPH10	10			1.95			6.35	9.3		17.3	24.4		40.2	45.6	63.1	72.6	75.5	94.5
XPH20	20			3.9			12.7	18.6		34.6	47.0		77.0	87.4	121	139	144	181
XPH30	30			5.9			19.1	27.9		51.9	73.3		121	136	188	217	226	283
XPH40	40			7.8			25.4	37.2		69.2	93.9		153	174	242	278	289	363
XPH50	50			9.8			31.8	46.5		86.5	122		201	228	315	363	377	472
XPH60	60			11.7			38.1	56		104	146		241	273	378	436	452	567
XPH70	70			13.6			44.4	65.3		121	171		281	318	441	508	527	661
XPH80	80			15.5			50.8	74.6		139	196		321	365	505	581	604	756
XPH90	90			17.6			56.4	82.2		142	219		362	408	574	653	680	851
XPH100	100			19.5			63.5	93.3		173	244		408	455	630	726	754	945
XPH120	120			23.4			76.2	112		208	294		482	547	757	871	905	1134
XPH140	140			27.3			88.9	130		242	342		562	638	883	1017	1056	1323
XPH170	170			33.1			108	158		294	415		683	775	1072	1234	1282	1606
XPH190	190			37			121	177		329	465		763	865	1198	1379	1448	1795
XPH200	200			39			127	186		186	499		820	927	1292	1483	1539	1930
XPH220	220			43			140	205		381	536		881	998	1381	1591	1652	2070
XPH230	230			45			146	214		398	577		937	1051	1473	1689	1761	2204
XPH240	240			46.8			152	223		415	613		989	1112	1555	1782	1859	2328
XPH250	250			48.8			159	233		433	649		1040	1195	1648	1875	1967	2451
EBH10	10	1.1	1.3	2.0	3.2	4.8	6.2	8.9	13.4	14.9	17.6	20.1	23.5	28.3	42.7	48.4	58.2	60.8
EBH20	20	2.2	2.5	4.0	6.5	9.5	12.5	17.8	20.1	29.7	35.3	40.2	46.4	56.7	85.0	96.8	116	122
EBH30	30	3.2	3.8	6.0	9.6	14.4	18.6	26.8	30.9	43.8	52.8	59.9	70.6	85.0	128	145	175	182
EBH35	35	3.8	4.6	7.1	11.3	17.0	22.1	31.4	36.1	51.5	61.8	70.0	82.4	99.4	149	170	206	213
EBH40	40	4.3	5.2	8.0	13.0	19.1	24.7	35.6	58.2	70.6	79.9	92.7	113.3	170	194	232	242	254
EBH50	50	5.4	6.3	10.0	16.2	23.8	30.9	44.6	53.6	72.6	88.1	99.9	116	142	213	242	289	304
EBH60	60	6.5	7.6	11.9	19.3	28.8	37.6	53.6	61.8	87.6	105	119	139	170	254	290	348	365
EBH70	70	7.6	8.9	14.0	22.7	33.5	43.3	62.4	72.1	100.9	124	140	165	199	299	340	407	424
EBH80	80	8.7	10.2	16.0	25.9	37.9	49.4	71.3	85.5	116	141	160	185	228	340	387	464	484
EBH100	100	10.8	12.9	20.1	32.4	16.6	61.8	89.1	129	145	176	200	232	284	425	484	579	606
EBH120	120	13.0	15.5	24.2	38.6	57.2	74.7	108	134	175	210	239	278	340	510	581	696	729
EBH150	150	16.3	19.1	30.0	48.5	71.1	92.7	134	155	218	264	300	348	426	639	726	867	908
EBH180	180	20.1	23.6	36.1	60.0	85.5	113	166	191	270	319	361	430	515	767	898	1072	1092
EBH200	200	21.6	25.3	40.2	64.9	95.0	124	178	258	290	351	400	464	569	850	968	1157	1210
EBH250	250	27.1	31.7	50.0	81.9	118	155	222	268	364	439	500	580	711	1062	1210	1445	1513
EBH300	300	32.4	38.1	59.9	97.0	142	185	268	340	436	526	598	695	852	1275	1452	1735	1816
EBH350	350	37.9	44.4	70.0	114	166	216	311	391	510	614	698	812	994	1487	1700	2024	2119
EBH400	400	43.3	51.5	80.3	130	190	247	355	464	581	701	798	927	1136	1700	1936	2312	2421
EBH500	500	54.1	63.4	100	164	237	309	445	567	726	878	999	1159	1411	2125	2421	2890	3026
EBM10	10	1.1	1.3	2.0	3.1	4.5	5.7	7.3	9.2	10.0	11.7	12.9	14.8	17.8	25.4	26.8	32.7	36.1
EBM20	20	2.2	2.6	4.0	6.3	9.1	11.3	14.6	15.5	20.0	23.5	25.8	29.7	35.6	51.1	53.6	65.3	71.6
EBM30	30	3.2	3.8	6.0	9.5	13.6	17.0	21.9	23.0	30.0	35.2	38.6	44.5	53.6	76.3	80.3	97.9	107
EBM40	40	4.3	5.2	8.0	12.6	18.1	22.7	29.3	30.9	40.0	47.0	51.5	59.3	71.3	102	107	130	142
EBM48	48	5.3	6.4	9.7	15.5	22.4	28.0	36.2	38.2	49.4	56.7	63.7	73.3	88.1	123	129	160	176

Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
EBM50	50	5.5	6.4	10.0	15.8	22.7	28.3	36.6	38.3	50.0	58.7	64.4	74.2	89.1	127	134	162	178
EBM60	60	6.5	7.6	11.9	19.1	27.3	34.0	43.9	46.4	59.9	70.5	77.3	89.0	107	152	161	195	214
EBM70	70	7.6	9.0	14.0	22.1	31.9	39.7	51.5	55.7	70.0	82.4	90.1	103	125	178	187	228	249
EBM80	80	8.7	10.2	16.0	25.2	36.3	45.3	58.7	63.9	79.9	93.9	103	118	142	203	214	260	285
EBM85	85	9.1	11.1	17.8	28.6	39.6	48.4	59.7	65.4	76.5	89.8	94.8	106	119	158	166	209	242
EBM95	95	10.2	12.8	20.1	33.0	44.3	55.7	67.0	75.3	88.1	103	109	122	138	181	191	241	279
EBM100	100	10.8	12.7	20.1	31.4	45.3	56.7	73.1	77.3	100	117	129	148	178	253	268	324	356
EBM120	120	13.0	15.2	24.0	37.7	54.6	68.0	87.8	92.7	119	141	155	177	213	305	321	389	427
EBM150	150	16.5	19.1	30.4	47.4	68.0	85.0	110	118	149	176	194	222	263	381	402	484	536
EBM160	160	18.1	20.9	33.4	52.1	74.7	93.4	121	130	164	194	213	244	289	419	441	532	588
EBM200	200	21.6	25.3	40.0	62.8	90.6	113	146	170	200	235	258	297	350	505	533	643	713
EBM250	250	27.3	31.9	50.0	78.8	113	142	183	192	249	294	321	366	438	631	664	809	876
EBM280	280	31.5	36.8	57.6	91.0	131	164	212	221	288	339	371	422	505	728	766	933	1010
EBM300	300	32.4	38.1	60.0	94.8	136	170	221	230	299	352	386	439	525	757	797	964	1069
EBM350	350	38.1	44.4	70.0	110	159	199	258	268	349	412	450	512	613	883	930	1125	1226
EBM380	380	42.6	49.6	78.3	123	177	222	288	299	390	461	503	572	685	987	1040	1258	1371
EBM400	400	43.3	51.0	79.9	126	181	227	293	306	400	470	515	585	700	1009	1063	1285	1401
EBM500	500	54.6	64.0	100	158	227	283	367	383	496	587	643	731	876	1262	1329	1607	1751
EBM600	600	64.9	76.2	119	188	272	340	441	459	597	705	773	878	1051	1514	1594	1928	2101
EBM700	700	75.7	88.8	140	220	317	397	513	536	698	822	900	1024	1329	1766	1860	2250	2451
EBM800	800	86.5	101	160	251	363	453	587	613	799	939	1030	1170	1401	2019	2127	2570	2802
EBM900	900	97.3	114	180	282	408	510	659	710	893	1057	1158	1316	1576	2271	2392	2892	3152
EBM1000	1000	108	127	200	313	453	567	733	814	993	1174	1285	1463	1751	2524	2657	3214	3502
EBL10	10	1.1	1.3	2.0	3.2	4.4	5.2	6.1	6.2	7.5	8.5	9.2	10.0	11.8	15.2	16.1	17.7	17.9
EBL20	20	2.1	2.5	3.9	6.3	8.8	10.3	12.2	12.4	15.1	17.0	18.3	20.0	23.7	30.4	32.0	35.3	35.8
EBL22	22	2.5	3.0	4.6	6.8	8.5	10.5	12.5	13.7	15.5	17.1	18.3	19.2	21.0	24.6	26.1	31.0	32.4
EBL25	25	2.9	3.5	5.4	8.0	9.7	11.9	14.6	16.0	18.1	20.0	21.5	22.4	24.6	28.8	30.5	36.3	38.0
EBL30	30	3.2	3.8	5.9	9.5	13.4	15.5	18.2	18.5	22.7	25.5	27.4	29.9	35.5	45.4	48.2	57.2	59.3
EBL40	40	4.2	5.1	7.8	12.7	17.5	20.6	24.3	25.8	30.2	34.0	36.6	39.9	47.4	60.8	64.1	70.6	71.6
EBL50	50	5.3	6.3	9.8	15.9	21.7	25.8	30.4	30.9	37.9	42.7	45.8	50.0	59.2	75.7	80.3	88.1	89.6
EBL60	60	6.3	7.6	11.8	19.1	26.3	30.9	36.5	37.1	45.3	51.0	54.9	59.7	71.1	90.8	96.4	106	107



Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
EBL70	70	7.3	8.7	13.6	21.4	27.2	31.4	36.3	37.1	45.3	50.0	53.0	59.5	69.0	90.1	97.3	105	108
EBL80	80	8.3	9.9	15.5	24.3	30.9	36.1	41.2	46.4	51.7	57.2	60.6	68.0	78.3	103	111	121	124
EBL90	90	9.5	12.4	18.5	25.8	30.5	35.5	41.9	47.0	52.9	59.7	62.8	70.0	81.4	108	118	126	134
EBL100	100	10.4	12.4	19.6	30.4	38.6	44.8	51.8	57.7	64.7	71.3	75.7	85.0	98.6	129	139	150	155
EBL115	115	12.3	14.6	22.7	35.0	45.8	53.1	61.4	68.3	76.6	84.4	89.7	101	117	153	165	178	183
EBL120	120	13.2	14.9	24.4	37.6	49.2	57.0	66.0	73.4	82.3	90.7	96.4	108	125	164	177	191	197
EBL130	130	13.9	17.5	26.6	37.0	44.1	51.3	61.4	66.3	76.5	83.1	85.5	90.9	103	119	132	145	150
EBL135	135	14.4	18.1	27.6	38.4	45.8	53.3	63.9	69.0	79.4	86.3	88.8	94.5	107	125	137	151	156
EBL140	140	15.0	18.8	28.6	39.8	47.5	55.2	66.1	71.4	82.4	89.6	92.1	98.0	111	129	142	157	162
EBL150	150	15.7	18.5	29.0	42.7	51.0	59.2	70.8	76.5	88.3	96.0	98.7	104	118	142	163	168	173
EBL160	160	17.2	20.4	31.9	47.0	56.0	65.1	77.7	84.1	97.0	105	108	114	130	156	179	184	190
EBL180	180	19.8	24.2	36.9	51.2	61.3	71.1	84.9	91.9	106	115	118	125	142	171	196	202	208
EBL200	200	20.8	24.7	38.7	60.8	77.3	89.6	103	106	129	142	151	170	197	258	278	300	309
EBL230	230	24.6	29.3	45.9	72.0	89.1	106	122	126	153	168	179	201	233	305	329	355	366
EBL250	250	26.1	30.9	48.4	75.2	95.8	111	129	139	162	176	188	212	246	321	347	380	386
EBL260	260	27.9	33.1	50.5	78.3	103	119	138	149	173	189	202	227	264	344	372	407	414
EBL280	280	31.0	36.7	56.0	86.8	114	132	153	165	192	209	224	252	293	382	412	452	459
EBL300	300	31.2	37.1	58.2	91.2	115	134	150	160	194	212	227	253	295	387	416	456	464
EBL315	315	33.8	40.1	62.9	98.6	125	145	163	173	209	229	245	274	319	419	450	493	501
EBL320	320	35.3	42.0	65.9	97.3	124	152	170	181	219	240	256	287	333	438	471	516	525
EBL340	340	38.6	45.9	72.1	108	135	166	186	198	240	263	281	314	365	480	515	565	574
EBL350	350	37.6	43.3	68.0	106	136	156	180	191	222	251	263	294	345	449	483	525	541
EBL400	400	41.7	49.4	77.5	122	155	179	208	211	260	284	303	340	393	515	556	598	618
EBL420	420	45.1	53.5	83.8	131	167	194	225	228	281	307	327	368	426	557	602	647	668
EBL450	450	49.8	59.0	92.4	145	175	214	248	252	310	339	361	406	470	615	664	714	738
EBL500	500	52.0	61.8	97.9	150	192	222	258	273	323	352	377	424	492	643	694	760	773
EBL600	600	62.4	74.2	116	181	231	268	309	340	387	424	453	507	589	770	832	913	927
EBL700	700	72.8	86.5	136	213	273	312	361	383	445	504	525	587	692	899	967	1051	1082
EBL800	800	83.2	98.9	155	243	309	358	416	464	519	569	606	680	787	1030	1112	1197	1234
EBL900	900	93.7	111	175	273	345	402	464	517	581	637	680	760	884	1156	1248	1353	1391
EBL1000	1000	104	124	194	301	383	445	515	567	647	705	754	849	985	1285	1388	1504	1545
EBL1100	1100	114.4	136	213	331	421	487	567	680	712	775	829	934	1083	1414	1527	1654	1700
EBL1210	1210	126	150	234	364	464	536	623	748	783	852	912	1027	1191	1555	1680	1820	1869

Final Discharge Voltage 1.05 Volts Per Cell

Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds			
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1	
XPH10	10			1.98			6.48	9.5			17.8	27.5		46.1	55.6	72.8	81.9	87.2	111
XPH20	20			4			13	19			35.6	52.8		88.5	106	139	157	167	214
XPH30	30			6			19.4	28.5			53.4	82.6		138	167	218	245	262	336
XPH40	40			7.9			26	38			71.2	105		176	213	279	314	335	430
XPH50	50			10			32.4	47.5			89	137		230	278	364	409	436	559
XPH60	60			11.9			38.9	57			107	165		276	334	437	491	523	672
XPH70	70			13.9			45.4	66.5			125	193		322	389	510	574	610	783
XPH80	80			15.8			51.8	76			142	220		369	445	583	655	698	896
XPH90	90			17.8			58.1	85.3			157	252		412	500	649	731	774	993
XPH100	100			19.8			64.8	95			178	275		460	556	728	819	872	1120
XPH120	120			23.8			77.8	114			214	331		553	667	874	983	1048	1344
XPH140	140			27.7			90.7	133			249	385		645	779	1020	1146	1222	1568
XPH170	170			33.7			110	162			303	468		783	946	1238	1392	1483	1903
XPH190	190			37.6			123	181			338	523		876	1057	1384	1555	1658	2128
XPH200	200			40			130	190			356	561		941	1133	1487	1669	1786	2342
XPH220	220			43.7			143	209			392	603		1009	1218	1595	1794	1912	2453
XPH230	230			45.5			149	219			409	639		1082	1298	1689	1916	1926	2565
XPH240	240			47.5			156	228			427	678		1154	1365	1782	2029	2039	2668
XPH250	250			49.5			162	238			445	716		1221	1432	1875	2142	2163	2760
EBH10	10	1.1	1.3	2.1	3.3	4.8	6.4	9.3	13.4	16.5	21.6	23.8	27.8	34.5	49.4	56.7	67.1	71.6	
EBH20	20	2.2	2.6	4.1	6.6	9.8	12.9	18.6	21.6	33.2	43.3	47.6	55.6	69.0	99.0	113	137	143	
EBH30	30	3.3	3.9	6.2	10.0	14.5	19.2	28.8	33.0	49.4	64.9	73.6	87.0	109	145	169	206	211	
EBH35	35	4.0	4.6	7.4	11.8	17.5	22.7	34.0	39.1	59.7	77.8	86.5	103.0	129	170	203	248	254	
EBH40	40	4.4	5.2	8.2	13.4	19.7	25.8	37.3	46.4	66.4	86.5	95.3	111	138	198	227	274	286	
EBH50	50	5.6	6.4	10.3	16.6	24.7	32.1	46.6	57.7	82.9	105.1	118.5	139	172	244	283	342	357	
EBH60	60	6.7	7.7	12.4	20.1	29.6	38.6	56.1	72.1	99.4	127	143	168	207	294	340	412	430	
EBH70	70	7.8	9.0	14.4	23.2	34.5	45.3	65.4	86.5	116.4	148	167	196	242	343	397	480	502	
EBH80	80	8.9	10.3	16.3	26.5	39.3	51.5	74.6	97.9	133	169	191	224	276	397	453	536	573	
EBH100	100	11.1	12.9	20.4	33.1	49.2	64.4	93.2	113	166	211	238	279	345	489	567	670	716	
EBH120	120	13.4	15.5	24.5	40.2	59.0	77.3	112.3	132	199	253	286	335	414	587	680	803	859	
EBH150	150	16.7	19.3	30.6	50.0	73.6	96.8	140	167	249	317	355	414	519	736	846	1004	1071	
EBH180	180	20.1	23.7	37.6	60.8	89.1	122	173	206	308	392	439	512	642	910	1045	1241	1324	
EBH200	200	22.2	25.8	40.8	66.1	98.5	129	186	221	332	423	474	556	690	979	1133	1339	1433	
EBH250	250	27.8	32.1	51.0	84.6	124	162	234	335	415	528	592	690	864	1261	1432	1674	1797	
EBH300	300	33.4	38.5	61.3	100	147	194	280	330	497	634	711	828	1038	1472	1691	2009	2142	
EBH350	350	38.9	45.3	71.6	118	172	227	328	371	581	742	829	966	1210	1621	1991	2343	2502	
EBH400	400	44.5	51.5	81.6	132	197	258	373	464	663	847	948	1112	1380	1957	2266	2678	2859	
EBH500	500	55.6	64.3	102	168	245	322	467	546	829	1057	1185	1380	1720	2405	2822	3348	3574	
EBM10	10	1.1	1.3	2.1	3.2	4.8	6.2	8.2	9.3	11.7	13.9	14.9	17.3	20.6	28.8	31.9	38.1	39.2	
EBM20	20	2.3	2.6	4.1	6.5	9.7	12.4	16.5	19.1	23.5	27.8	29.9	34.5	41.2	57.2	63.3	75.7	78.5	
EBM30	30	3.3	3.9	6.2	10.3	14.5	18.6	24.7	27.8	35.5	41.2	45.3	52.2	61.3	85.5	94.8	113	117	
EBM40	40	4.5	5.2	8.2	13.0	19.4	24.3	33.0	37.1	46.9	54.6	60.8	69.0	81.9	114	127	151	157	



Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
EBM48	48	5.5	6.4	10.2	16.0	23.9	30.0	40.7	44.8	57.9	67.5	75.1	85.3	101.2	141	157	187	194
EBM50	50	5.6	6.5	10.3	16.5	24.2	30.9	41.2	46.5	59.2	69.0	76.2	87.0	103.0	142	159	188	197
EBM60	60	6.7	7.7	12.4	19.6	29.4	37.3	49.4	55.7	70.6	82.4	90.6	104.0	122.6	171	190	226	236
EBM70	70	7.8	9.0	14.4	23.2	34.0	42.8	57.7	67.0	82.4	96.3	106.1	122	144	200	221	265	281
EBM80	80	9.0	10.3	16.3	26.0	38.6	48.4	65.9	75.1	93.9	109.2	122	138	165	228	253	301	314
EBM85	85	9.1	11.3	18.0	29.3	41.2	50.5	66.1	79.0	96.4	108	116	126	146	191	211	254	273
EBM95	95	10.2	13.0	20.7	33.7	47.4	58.1	76.1	90.9	111	124	134	145	168	219	243	293	314
EBM100	100	11.1	12.9	20.6	33.0	48.0	61.8	82.4	92.9	117	137	151	173	206	284	316	376	392
EBM120	120	13.4	15.5	24.7	39.1	57.7	74.7	98.9	111	141	165	181	207	247	341	381	451	471
EBM150	150	16.7	19.3	30.9	49.4	72.1	92.7	124	139	175	204	225	261	307	425	476	567	592
EBM160	160	18.3	21.2	33.9	54.3	79.2	102	136	153	192	224	247	286	337	467	523	622	651
EBM200	200	22.2	25.8	40.8	65.9	95.8	123	165	191	235	273	302	345	409	572	631	752	786
EBM250	250	27.8	32.1	51.0	82.4	121	155	209	233	293	338	374	431	510	709	786	940	979
EBM280	280	29.9	37.1	58.8	95.1	139	178	241	269	337	390	431	497	588	817	907	1085	1129
EBM300	300	33.5	38.6	61.3	99	144	184	247	278	350	406	448	516	612	850	942	1128	1174
EBM350	350	38.9	45.0	71.4	115	168	215	288	324	410	474	523	603	716	992	1104	1318	1378
EBM380	380	43.5	50.3	79.8	129	188	241	323	363	458	530	585	674	801	1109	1235	1474	1541
EBM400	400	44.5	51.5	81.6	132	192	245	330	371	464	546	603	690	817	1143	1262	1504	1571
EBM500	500	55.6	64.4	103	165	240	307	412	465	585	675	747	860	1020	1416	1571	1880	1957
EBM600	600	66.7	77.3	123	198	287	367	494	557	701	810	896	1032	1224	1700	1885	2256	2348
EBM700	700	77.9	89.9	143	231	336	430	577	650	819	945	1045	1205	1432	1983	2207	2637	2755
EBM800	800	89.1	103	163	264	383	488	659	743	935	1079	1195	1380	1633	2287	2524	3008	3142
EBM900	900	100.1	115	183	297	432	552	742	861	1053	1214	1344	1550	1838	2554	2833	3384	3523
EBM1000	1000	111	129	204	330	479	613	824	985	1169	1349	1494	1720	2039	2833	3142	3760	3914
EBL10	10	1.1	1.3	2.1	3.2	4.6	5.7	6.9	7.7	8.8	9.8	10.9	11.8	13.7	17.6	19.1	21.9	22.5
EBL20	20	2.1	2.6	4.1	6.5	9.3	11.4	13.9	15.0	17.6	19.7	21.8	23.7	27.8	35.2	38.1	43.9	44.5
EBL22	22	2.4	3.0	4.6	7.0	9.7	11.8	15.0	16.6	16.7	19.8	21.1	23.1	25.8	29.8	32.2	36.3	38.2
EBL25	25	2.7	3.5	5.4	8.0	11.3	13.9	17.6	19.4	19.5	23.1	24.7	27.0	30.1	34.8	37.7	42.4	44.7
EBL30	30	3.2	3.9	6.1	9.8	13.9	17.1	20.6	22.6	26.8	29.5	32.8	35.5	41.2	52.7	59.9	65.9	66.7
EBL40	40	4.2	5.2	8.2	13.0	18.5	22.9	27.6	30.1	35.2	39.3	43.7	47.4	55.4	70.2	76.2	87.8	89.0



Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
EBL45	45	4.9	6.1	9.5	14.2	19.6	24.0	30.9	34.0	34.2	40.2	43.4	47.4	52.7	60.9	66.0	74.2	78.2
EBL50	50	5.3	6.4	10.3	16.3	23.2	28.5	34.4	37.7	44.5	18.2	54.6	59.2	68.5	88.1	94.8	109	111
EBL60	60	6.4	7.7	12.4	19.7	27.8	34.2	41.2	45.3	53.4	58.9	65.5	71.1	82.4	105	113	131	134
EBL70	70	7.4	9.0	14.4	22.8	32.1	40.0	48.2	52.7	62.3	68.8	76.4	83.0	95.9	124	134	152	156
EBL80	80	8.5	10.3	16.3	26.1	37.1	45.8	55.2	60.3	70.5	78.7	87.3	94.8	111	140	152	170	177
EBL90	90	9.8	12.4	19.0	28.5	39.3	48.1	61.8	67.9	68.4	80.1	86.7	94.8	105	122	132	148	157
EBL100	100	10.6	12.9	20.4	32.4	46.4	57.1	68.7	75.4	88.1	98.3	109	118	137	176	190	212	221
EBL115	115	12.6	15.3	24.2	38.4	54.9	67.6	81.4	89.3	104	116	129	140	162	209	224	251	262
EBL120	120	13.5	16.4	26.0	41.3	59.0	72.6	87.5	96.0	112	125	139	151	174	224	241	270	282
EBL130	130	14.1	17.6	27.4	41.2	56.8	69.4	89.2	98.1	99.0	115.7	126	136	152	176	191	214	225
EBL135	135	14.7	18.2	28.4	42.7	58.9	72.1	92.7	102	103	121	130	141	158	182	198	222	234
EBL140	140	15.2	19.0	29.6	44.3	61.2	74.8	96.1	105	106	125	135	146	164	190	205	231	242
EBL150	150	16.0	19.3	30.6	48.7	69.3	85.6	103	112	133	147	164	177	205	264	284	329	332
EBL160	160	17.5	20.6	33.6	53.5	76.2	94.0	113	123	146	162	180	195	225	290	312	361	364
EBL180	180	19.6	24.3	37.9	57.0	78.6	96.2	124	135	136	160	173	190	210	243	264	297	313
EBL200	200	21.2	25.8	40.8	65.0	91.7	113	137	150	177	196	218	237	274	352	379	424	443
EBL230	230	25.1	30.5	48.3	76.9	106	134	162	178	210	232	259	281	325	417	449	503	525
EBL250	250	26.6	32.1	51.0	81.2	115	142	171	188	221	244	273	296	342	440	474	530	553
EBL260	260	28.5	34.4	54.6	86.9	124	152	183	202	237	261	292	317	366	471	508	568	592
EBL280	280	29.9	36.1	57.2	96.4	137	169	203	224	263	290	324	351	406	523	563	630	657
EBL300	300	31.9	38.6	61.3	97.3	138	168	206	226	266	295	328	354	410	527	569	637	663
EBL315	315	34.5	40.7	66.3	105	149	182	223	244	287	319	354	383	443	570	615	688	717
EBL320	320	36.1	41.2	69.4	104	156	190	233	255	301	333	371	401	464	597	643	720	751
EBL340	340	39.5	45.1	75.9	114	171	208	255	279	329	365	406	439	508	653	704	788	821
EBL350	350	37.2	45.0	71.4	113	162	200	244	264	311	344	381	412	477	616	662	743	774
EBL400	400	42.4	51.5	81.6	130	183	227	274	301	352	391	437	474	548	705	758	849	886
EBL420	420	45.9	55.7	88.2	140	198	245	296	325	381	423	472	512	593	762	820	918	958
EBL450	450	47.9	61.5	97.4	155	219	270	327	359	420	467	521	565	654	841	905	1013	1057
EBL500	500	53.0	64.4	102	163	227	283	342	377	440	489	546	592	685	881	948	1061	1107
EBL600	600	63.9	77.3	123	195	276	336	412	452	531	589	655	709	820	1055	1137	1273	1327
EBL700	700	74.3	90.1	143	227	322	399	488	527	621	688	762	824	953	1231	1324	1485	1547
EBL800	800	85.0	103	163	260	363	453	547	603	706	783	873	948	1096	1409	1516	1697	1772
EBL900	900	95.5	115	183	293	410	510	616	678	792	881	983	1066	1233	1585	1709	1910	1993
EBL1000	1000	106	129	204	325	453	567	684	754	880	979	1092	1185	1370	1761	1895	2122	2215
EBL1100	1100	117	142	224	358	499	623	752	829	968	1076	1201	1303	1507	1937	2085	2334	2436
EBL1210	1210	128	156	247	394	548	685	828	912	1064	1184	1321	1433	1658	2131	2293	2567	2680

Final Discharge Voltage 1.00 Volts Per Cell

Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
XPH10	10			2			6.55	9.63		18.3	30.9		51.5	70.0	93.9	103	109	128
XPH20	20			4			13.1	19.3		36.6	59.3		99.0	134	180	198	210	245
XPH30	30			6			19.7	28.9		54.9	87.6		155	210	281	310	330	383
XPH40	40			8			26.2	38.5		73.2	118		198	269	361	397	421	491
XPH50	50			10			32.8	48		91.5	155		258	350	470	517	549	640
XPH60	60			12			39.3	57.8		110	185		309	420	563	621	659	767
XPH70	70			14			45.9	67.4		129	216		361	490	657	724	769	895
XPH80	80			16			52.5	77.1		147	247		412	560	752	828	880	1024
XPH90	90			18			58.7	86.9		164	278		464	630	838	940	990	1119
XPH100	100			20			65.5	96.3		183	309		515	700	939	1035	1099	1279
XPH120	120			24			157	116		220	371		618	840	1128	1242	1319	1536
XPH140	140			28			91.7	135		256	433		721	981	1315	1449	1539	1791
XPH170	170			34			111	164		311	525		876	1191	1598	1759	1868	2175
XPH190	190			38			125	183		348	587		979	1331	1785	1966	2089	2431
XPH200	200			40			131	193		366	628		1051	1432	1910	2112	2229	2620
XPH220	220			44			144	212		403	678		1129	1535	2059	2268	2408	2804
XPH230	230			46			151	222		421	709		1185	1617	2256	2421	2544	2987
XPH240	240			48			157	231		439	742		1226	1689	2338	2534	2678	3245
XPH250	250			50			164	241		458	773		1257	1751	2421	2627	2802	3378
EBH10	10	1.1	1.3	2.1	3.4	5.0	6.6	9.6	11.3	17.5	23.5	27.8	32.0	39.8	57.7	64.9	79.3	84.5
EBH20	20	2.3	2.7	4.1	6.8	10.0	13.2	19.2	23.7	35.0	47.0	55.4	64.1	79.5	115	130	159	169
EBH30	30	3.4	4.1	6.2	10.1	15.0	19.8	28.8	37.1	52.5	70.0	81.4	96.3	119	174	195	238	253
EBH35	35	3.7	4.6	7.3	12.9	16.7	21.6	19.7	36.8	46.1	60.8	69.8	91	132	173	186	251	274
EBH40	40	4.5	5.4	8.2	13.5	20.2	26.4	38.7	48.4	70.0	93.9	109.2	129	159	232	260	317	338
EBH50	50	5.7	6.8	10.3	16.9	25.2	33.0	48.4	60.8	87.6	117	136	161	199	289	325	397	422
EBH60	60	6.8	8.1	12.4	20.4	30.4	39.8	58.0	72.1	106	141	163	193	239	347	389	476	507
EBH70	70	7.9	9.5	14.4	23.8	35.3	46.9	68.0	84.5	123	166	191	225	283	433	497	577	639
EBH80	80	9.1	10.8	16.5	27.0	40.4	53.0	77.4	95.8	140	187	217	258	319	464	519	634	676
EBH100	100	11.3	13.5	20.6	33.7	50.5	66.0	96.8	118	175	235	272	320	398	577	649	793	845
EBH120	120	13.6	16.3	24.7	40.7	60.0	78.8	118	144	210	281	324	383	478	692	773	948	1004
EBH150	150	17.0	20.3	30.9	51.0	75.7	99.9	145	183	263	354	409	481	602	865	1066	1195	1294
EBH180	180	20.6	24.7	39.1	62.8	91.7	123	175	227	319	427	494	577	743	1069	1318	1477	1599
EBH200	200	22.7	27.1	41.2	67.4	100	134	194	239	350	472	545	642	801	1154	1288	1566	1687
EBH250	250	28.3	33.8	51.5	85.0	126	166	242	330	438	590	681	793	1001	1442	1607	1957	2156
EBH300	300	34.0	40.7	61.8	102	151	200	290	361	525	708	817	962	1195	1730	1928	2369	2536
EBH350	350	39.7	47.4	72.1	119	176	232	338	412	613	826	953	1122	1392	2019	2250	2750	2982
EBH400	400	45.3	54.1	82.4	136	200	265	386	474	700	943	1089	1282	1590	2307	2575	3131	3378
EBH500	500	56.7	67.6	103	170	251	331	483	597	876	1179	1361	1586	1988	2884	3214	3914	4223
EBM10	10	1.1	1.4	2.1	3.4	4.9	6.4	8.9	10.8	13.4	15.7	17.1	19.6	23.7	33.0	36.6	43.6	45.3
EBM20	20	2.3	2.7	4.1	6.7	9.9	12.9	17.7	22.3	26.8	31.4	34.5	38.6	46.9	65.4	73.1	87.0	90.1
EBM30	30	3.4	4.1	6.2	10.1	14.9	19.2	26.6	32.4	40.2	46.9	51.0	58.2	70.6	98.4	110	131	136
EBM40	40	4.5	5.5	8.2	15.5	20.1	25.8	34.7	42.8	52.8	62.8	68.5	77.3	93.7	131	146	174	180



Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
EBM48	48	5.5	6.7	10.2	19.1	24.2	31.8	41.7	51.5	65.3	77.7	82.4	95.5	113	162	181	215	223
EBM50	50	5.7	6.8	10.3	17.0	25.2	32.0	43.8	53.6	66.4	78.3	85.5	96.8	117	164	183	218	226
EBM60	60	6.8	8.1	12.4	20.2	29.9	38.3	53.0	64.4	80.3	93.7	102	116	141	197	219	262	271
EBM70	70	7.9	9.5	14.4	23.5	34.7	45.0	61.3	75.2	93.0	110	119	136	165	230	256	311	315
EBM80	80	9.1	10.8	16.5	30.4	39.7	51.5	70.0	86.0	107	126	137	155	187	262	293	348	361
EBM85	85	9.2	11.4	18.5	29.9	42.2	52.7	72.4	91.2	117	134	147	151	169	210	241	276	298
EBM95	95	10.3	12.9	21.3	33.5	48.6	60.7	83.4	102	135	154	170	174	194	242	277	318	343
EBM100	100	11.3	13.9	20.6	33.6	49.4	64.4	87.6	107	133	157	171	194	235	328	366	436	451
EBM120	120	13.9	16.5	24.7	40.3	59.2	76.7	105.1	128	160	187	204	232	282	393	439	523	541
EBM150	150	17.0	20.6	30.9	50.5	74.2	95.4	132	161	200	234	255	290	352	491	549	653	677
EBM160	160	18.7	22.6	33.9	54.1	81.5	104.8	145	177	220	257	281	319	387	540	603	717	743
EBM200	200	22.7	27.1	41.2	67.0	97.9	127	175	221	266	310	341	386	469	654	731	870	901
EBM250	250	28.3	34.0	51.5	83.9	123	159	219	268	332	387	425	483	586	818	915	1089	1127
EBM280	280	32.7	39.2	59.4	94.2	141	183	253	309	383	447	491	557	676	943	1055	1256	1300
EBM300	300	34.0	40.7	61.8	100	147	191	263	321	398	465	510	580	703	982	1097	1306	1352
EBM350	350	39.7	47.4	72.1	117	172	222	307	375	465	542	595	677	821	1145	1280	1523	1578
EBM380	380	44.3	51.5	80.6	131	192	249	343	419	519	606	666	757	918	1281	1432	1704	1765
EBM400	400	45.3	54.1	82.4	134	196	253	350	428	530	619	680	773	937	1308	1463	1741	1803
EBM500	500	56.7	68.0	103	168	245	317	438	536	663	774	850	966	1172	1636	1828	2176	2254
EBM600	600	68.0	81.4	124	201	294	380	525	643	795	928	1020	1159	1406	1962	2194	2611	2704
EBM700	700	79.3	94.8	144	235	343	444	613	750	928	1083	1190	1352	1641	2290	2560	3047	3155
EBM800	800	90.6	108	165	268	391	507	700	857	1061	1238	1360	1545	1875	2616	2925	3481	3605
EBM900	900	103	122	185	302	441	571	788	993	1193	1393	1530	1739	2109	2942	3291	3917	4056
EBM1000	1000	113	135	206	335	489	633	876	1136	1326	1547	1700	1931	2343	3270	3657	4352	4506
EBL10	10	1.1	1.3	2.1	3.4	4.8	6.1	7.7	8.8	10.0	11.4	12.4	13.7	15.7	20.3	21.9	24.9	26.3
EBL20	20	2.2	2.7	4.1	6.7	9.7	12.2	15.5	17.7	20.1	23.2	24.7	27.4	31.4	40.7	43.9	50.0	52.5
EBL22	22	2.4	3.0	4.6	7.1	10.1	12.9	17.4	19.6	22.1	23.8	24.4	26.8	28.8	34.0	36.6	43.3	44.3
EBL25	25	2.8	3.5	5.4	8.1	11.8	15.1	20.4	22.9	25.2	27.8	27.8	31.3	33.0	39.8	42.8	49.4	50.5
EBL30	30	3.3	4.0	6.2	10.1	14.4	18.1	23.2	26.5	19.7	34.3	37.1	41.2	47.0	61.3	65.9	74.7	78.8
EBL40	40	4.3	5.4	8.2	13.5	19.3	24.3	30.9	35.3	40.0	45.8	49.4	54.8	62.8	81.4	87.8	100	105



Cell Type	C5 Ah	Discharge Time in Hours							Discharge Time in Minutes							Time in Seconds		
		10	8	5	3	2	1.5	1	45	30	20	15	10	5	1	30	5	1
EBL45	45	4.9	6.2	9.6	14.4	20.6	26.3	35.5	39.8	45.3	48.9	50.1	54.7	58.7	69.6	75.4	88.6	90.7
EBL50	50	5.5	6.7	10.3	17.0	24.2	30.4	38.6	44.3	50.0	57.2	61.8	68.5	78.3	101	110	125	132
EBL60	60	6.5	8.0	12.4	20.6	28.8	36.3	46.4	52.9	59.9	68.6	74.4	82.4	93.9	122	132	149	158
EBL70	70	7.6	9.3	14.4	23.7	33.7	42.4	54.1	61.8	70.0	80.0	86.5	95.8	109	142	155	175	185
EBL80	80	8.7	10.8	16.5	26.6	38.1	47.9	61.8	70.7	79.3	90.6	97.9	109	126	161	173	196	202
EBL90	90	9.9	12.4	19.1	29.4	41.2	52.7	71.3	79.5	90.6	97.9	101	111	132	170	183	205	209
EBL100	100	10.8	13.4	20.6	33.7	48.2	60.8	77.3	88.6	99.9	114	124	137	157	203	216	245	252
EBL115	115	12.8	15.9	24.4	39.9	57.1	72.0	91.5	102	118	135	146	162	185	240	256	290	299
EBL120	120	13.0	16.0	24.7	40.4	58.2	72.6	92.7	110	119	137	148	164	187	243	263	295	303
EBL130	130	14.4	17.7	27.4	41.7	59.2	76.2	103	114	130	140	144	158	169	200	209	255	262
EBL135	135	14.7	18.3	28.8	43.3	61.4	79.1	107	119	135	145	150	164	176	208	217	265	272
EBL140	140	15.2	19.1	29.9	44.9	63.7	82.0	111	124	140	151	156	170	182	215	225	275	281
EBL150	150	16.3	20.1	30.9	50.5	72.3	90.6	115	132	149	171	185	206	235	304	324	368	379
EBL160	160	17.5	22.1	33.9	55.4	77.3	96.8	127	145	164	188	204	226	258	334	356	404	416
EBL180	180	19.7	24.7	38.1	58.7	81.7	106	142.1	159	180	194	200	218	234	303	328	353	363
EBL200	200	21.6	26.8	41.2	67.1	96.0	121	152	176	198	227	245	273	311	404	433	489	505
EBL230	230	25.6	31.7	48.8	79.4	114	143	181	209	234	268	290	323	368	478	512	580	598
EBL250	250	27.3	33.2	51.5	83.9	119	149	185	220	247	283	304	340	386	500	541	613	633
EBL260	260	29.2	35.5	55.2	89.9	128	160	199	236	265	303	325	364	414	535	579	656	679
EBL280	280	32.4	39.4	61.2	99.7	142	177	220	262	294	337	361	404	459	594	643	728	753
EBL300	300	32.4	39.8	61.8	100	144	181	231	265	299	341	369	407	464	597	644	734	757
EBL315	315	35.1	43.0	66.8	108	156	196	250	286	323	369	399	440	501	646	696	794	819
EBL320	320	36.7	45.0	69.9	113	163	205	261	300	338	386	417	460	525	676	728	831	857
EBL340	340	40.2	49.2	76.5	124	179	225	286	328	370	422	457	504	574	740	797	909	938
EBL350	350	37.9	46.5	72.1	116	167	210	270	309	350	399	433	478	548	709	757	858	884
EBL400	400	43.3	53.0	82.4	134	191	238	292	353	396	453	490	546	623	809	865	979	1004
EBL420	420	46.8	57.4	89.1	145	206	257	318	382	428	490	530	590	674	874	936	1058	1086
EBL450	450	51.6	63.3	98.3	160	227	284	351	422	472	541	585	652	744	965	1033	1168	1199
EBL500	500	54.1	66.4	103	168	239	299	371	442	494	567	608	680	773	997	1082	1226	1262
EBL600	600	64.9	79.6	124	200	285	358	442	529	589	675	723	814	927	1193	1285	1471	1514
EBL700	700	75.7	92.7	144	234	334	420	540	618	698	797	863	956	1095	1416	1514	1716	1766
EBL800	800	86.5	106	165	266	381	476	610	707	787	901	966	1082	1236	1590	1714	1957	2009
EBL900	900	97.3	119	185	301	428	536	685	795	886	1015	1088	1215	1391	1789	1928	2206	2271
EBL1000	1000	108	134	206	336	478	597	773	884	999	1133	1215	1360	1545	1988	2163	2451	2524
EBL1100	1100	119	147	227	369	526	657	850	972	1099	1246	1337	1496	1700	2187	2379	2697	2776
EBL1210	1210	131	162	249	406	578	723	935	1069	1209	1371	1471	1645	1869	2405	2617	2966	3053

Final Discharge Voltage 0.85 Volts Per Cell

Cell Type	C5 Ah	Discharge Time in Minutes				Discharge Time in Seconds		
		20	10	5	1	30	5	1
XPH10	10	33.0	57.7	101	196	206	254	266
XPH20	20	64.9	109	187	371	391	433	515
XPH30	30	97.9	172	279	546	587	687	710
XPH40	40	132	215	334	721	783	902	924
XPH50	50	165	264	433	876	979	1168	1226
XPH60	60	198	340	494	1051	1277	1494	1544
XPH70	70	231	397	577	1226	1490	1555	1669
XPH80	80	263	464	631	1318	1432	1710	1782
XPH90	90	295	505	721	1483	1586	1864	1957
XPH100	100	356	546	829	1648	1782	2055	2168
XPH120	120	396	680	994	1978	2328	2585	2585
XPH140	140	453	803	1195	2307	2657	2905	2936
XPH170	170	552	948	1463	2781	3203	3595	3492
XPH190	190	609	1030	1627	2987	3399	3777	3832
XPH200	200	642	1097	1669	3193	3543	3935	4099
XPH220	220	707	1236	1751	3399	3852	4223	4331
XPH230	230	733	1308	1794	3554	3996	4398	4604
XPH240	240	762	1380	1844	3708	4151	4635	4851
XPH250	250	788	1452	1906	3863	4305	4841	5099

Final Discharge Voltage 0.65 Volts Per Cell

Cell Type	C5 Ah	Discharge Time in Minutes				Discharge Time in Seconds		
		20	10	5	1	30	5	1
XPH10	10	34.0	67.0	109	221	247	381	422
XPH20	20	68.0	125	209	433	482	742	824
XPH30	30	102	191	324	636	752	1070	1185
XPH40	40	136	251	407	846	958	1450	1613
XPH50	50	170	307	505	1065	1185	1798	1967
XPH60	60	204	382	607	1349	1504	2057	2275
XPH70	70	238	446	708	1574	1754	2348	2596
XPH80	80	272	497	778	1748	1875	2436	2679
XPH90	90	306	525	865	1839	2050	2740	2890
XPH100	100	340	619	975	2173	2369	3297	3417
XPH120	120	408	742	1156	2553	2750	4002	4018
XPH140	140	474	870	1340	2987	3306	4100	4530
XPH170	170	577	1138	1547	3399	3811	4739	5096
XPH190	190	639	1237	1741	3561	4017	4972	5344
XPH200	200	675	1298	1792	3749	4151	5068	5449
XPH220	220	742	1391	1854	4123	4429	5160	5664
XPH230	230	762	1483	1906	4305	4563	5284	5850
XPH240	240	786	1566	1967	4491	4687	5408	6026
XPH250	250	811	1648	2029	4635	4862	5562	6180

Calculation Methods

Information required for battery capacity calculation

The following information needed for a precise battery capacity calculation:

-Nominal voltage of the system	-Load current required	-Backup time required
-Maximum voltage (for charging)	-Minimum voltage	-Temperature range
-Battery layout and available space	-Physical condition	

Float Voltage Operation

In these conditions the float voltage, being the voltage at which the general load circuit will operate, then a decision will have to be reached on the cell float voltage needed to maintain the battery in the required condition.

$$\text{Number of cells required} = \frac{\text{Circuit voltage}}{\text{Cell Float voltage}}$$

$$\text{Minimum cell voltage} = \frac{\text{Minimum D.C. voltage}}{\text{Number of cells}}$$

The most commonly used float voltages are 1.40-1.48 voltage per cell, but the exact figure has to be related carefully to circumstances.

For Example

An EverExceed Nickel Cadmium battery is required to maintain an inverter load of 50KVA at 0.8 power factor for a backup time of 30 minutes, at 20~25°C temperature. The DC voltage to the inverter operates within the limit of 265 volts with the battery on float charge to a minimum of 202 volts at end of back up time. The inverter has an 85% efficiency rate.

- Number of Cells (at recommended float of 1.44VPC) = $265/1.44 \approx 184$ cells
- Minimum Cell Voltage = $202/184 \approx 1.10$ volts per cell
- Maximum Battery Current

$$= \frac{\text{Inverter load in KVA} \times \text{Power factor}}{\text{Min. cell voltage} \times \text{Number of cells} \times \text{Inverter efficiency}}$$

$$= \frac{50\text{KVA} \times 0.80}{1.10 \times 184 \times 0.85} = 232.5 \text{ Amps}$$

We shall choose the battery with capacity equal or just above 232.5Amps.

To meet the 30 minutes backup time requirement, we determine to choose the battery size from EBM Range.

From our catalogue data, the cell type is EBM300.

Battery shall comprise 184 cells of EverExceed Nickel Cadmium type EBM300.

System Voltage	Number of Cells	Spread Range Number of Cells
24	20	18~21
36	30	27~31
48	40	36~41
110	92	88~93
220	184	180~186

The number of cells in a battery may be determined by simply dividing the nominal voltage of the system by the nominal voltage of a cell (1.2 Volts).



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