

Guarantee

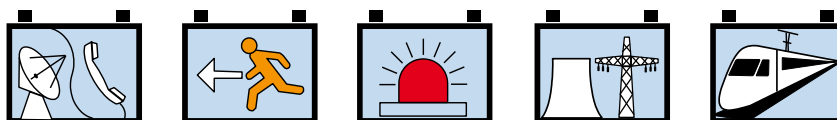
EverExceed®
power your applications

V4.1

**Sealed NiCd - Low Maintenance
SEBM Pocket plate Range
10-1100Ah**



**»Premium quality for
uninterrupted communication«**



www.everexceed.com



**Sealed NiCd - Low Maintenance
SEBM Pocket plate Range
10-1100Ah**

The block battery - for dependability

The wide range of low, medium and high capacity types makes accurate selection easy, based on discharge time and end of discharge voltage. Robust construction and generous electrolyte reserve enable the battery to withstand wide temperature fluctuations in stationary cycling behaviour over its 20+ years' life.

Built with a future Nickel-cadmium plates are completely reliable, with no risk of thermal runaway or sudden death.

Generally operating between temperatures of -40°C to $+60^{\circ}\text{C}$ (-40°F to $+140^{\circ}\text{F}$), they can tolerate extremes of -50°C to $+70^{\circ}\text{C}$ (-58°F to $+158^{\circ}\text{F}$) for short periods.

With only periodic checks, the block battery will provide up to 20+ years' completely faithful service.

Trouble-free long cycle life

The EverExceed nickel-cadmium block battery's unique electrochemistry enables it to regularly withstand any depth of discharge.

Following a deep discharge the block battery is designed to recharge very quickly and economically, using standard single or two-level charging equipment.

Be sure of a low overall cost

The Ni-Cd block battery is the most highly cost-efficient solution to stored power requirements.

- | | |
|----------------------------|----------------------|
| No downtime | No replacement costs |
| Minimal maintenance | Ease of installation |
| 20+ years' operating life. | |

Easy storage and installation

Nickel-cadmium block batteries are quick and easy to install as original equipment and may be stored for many years in a discharged state under correct conditions.

On installation a simple bolted connector enables the battery to be rapidly commissioned.

Assured reliability

Ni-Cd is equally dependable in controlled city environments or harsh, unpredictable conditions in the world's most remote and unpopulated areas.

The Ni-Cd battery's block construction makes it highly resistant to electrical abuse and transport over rough terrain, precluding risk of subsequent failure.

Optimized for performance:

An electrolyte solution of potassium hydroxide and a small amount of lithium hydroxide acts only as an ion transfer medium, delivering optimum performance without causing base material degradation.

Good reserves and circulation of the electrolyte are achieved by a wide inter-plate space.

Injection moulded plastic grids both separate plate and insulate plate edges. For extremely low temperatures a special high density electrolyte is available.

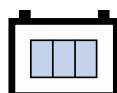
The block battery is fitted with a specially designed flame arresting flip top vent and does not produce corrosive vapours. The tough polypropylene casing ensures the battery's structural integrity throughout its long life.

Supports these Single Cell ranges with:

Quality approved manufacture to ISO 9001 and the TUV certification

Single Cell batteries have been developed in line with the safety requirements of EN-50272-2 and components used (such as insulated cable connectors and end lug covers) are defined to ensure high protection against electric shocks (Ip2 level).

Full recycling service to protect the environment



Protective cover

- To prevent external short-circuits
- In line with EN 50272-2 (safety) with ip2 level

Plate group bus

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

Plate

Horizontal pockets of double-perforated steel strips.

Cell container

Material: translucent/transparent polypropylene

Flame-arresting vents

Material: polypropylene.

Plate tab

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

Separating grids

- These 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.

The cells are welded together to form rugged blocks of 1-6 cells depending on the cell size and type.

The EverExceed Single Cell ranges fully comply and exceed the IEC 60623 standard requirements.

Performance Data

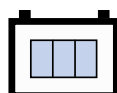
Many nickel-cadmium batteries are used in stationary standby power applications where discharges occur infrequently and the battery is continuously charged by a float or constant potential charge.

Under these circumstances there is a modification in the level of the discharge curve and allowances must be made for this when sizing the battery.

In order to simplify this process, the data EverExceed supplies in this publication has both the fully charged data to IEC 60623 and the fully charged data after prolonged float charge, which can be used directly in battery sizing calculations.

This phenomenon occurs with all nickel-cadmium batteries, but some other manufacturers of nickel-cadmium batteries may not take this effect into account in published data.

When calculating for deep discharges (0.65 V and 0.85 V) it is not necessary to take this effect into account.



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:

Batteries can be charged in:

- ◆ **constant voltage mode with load connected**
- or
- ◆ **constant current or declining current mode when load is isolated.**

High rate or over charge will not damage the battery.

Minimum float charging current: 2 mA per Ah.

◆ Constant voltage mode:

For continuous parallel operation:

- Float voltage: 1.40 - 1.45 V/cell for SEBL, SEBM & SEBH
- Boost Voltage:
 - SEBL : 1.60 - 1.70 V/cell
 - SEBM : 1.60 - 1.65 V/cell
 - SEBH : 1.60 - 1.65 V/cell

A higher voltage will reduce the charge duration and increase the efficiency of recharging but may increase water consumption.

Single stage charging (without boost):

SEBL:	1.47 - 1.50 V/cell
SEBM:	1.46 - 1.49 V/cell
SEBH:	1.45 - 1.48 V/cell

For starting application:

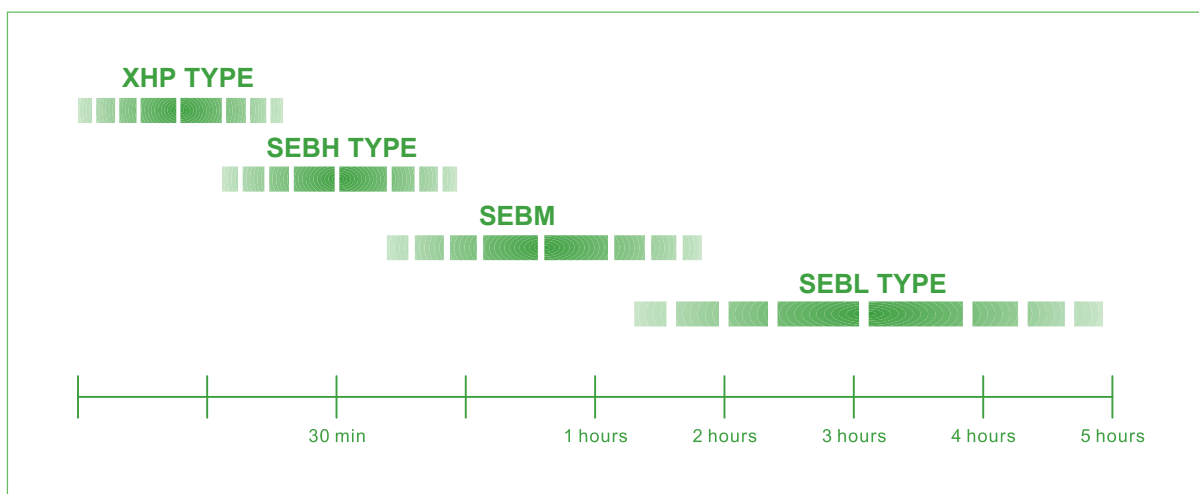
- Recommended charging voltage. 1.50 - 1.55 V/cell.

◆ Constant current mode:

- Normal charging: 0.2 C5 A for 8 hours
- Recommended for quick charging: 0.4 C5 A for 2.5 hours followed by 0.2 C5 A for 2.5 hours

Recommended Type Selection

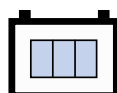
According to backup time required by application:



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

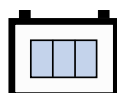


NiCd Pocket Plate SEBM Range Electrical Specifications & Dimensions

Cell Type	Nominal Voltage (V)	Capacity (C5 Ah)	Dimensions (mm/inch)						Weight (kg/lb.)				Terminal	Cell Case Material
			Length		Width		Height		Without Electrolyte		With Electrolyte			
SEBM10	1.2	10	43	1.7	85	3.3	260	10.2	0.75	1.7	1.2	2.6	M10	PP
SEBM20	1.2	20	55	2.2	134	5.3	270	10.6	1.1	2.4	1.9	4.2	M10	PP
SEBM30	1.2	30	55	2.2	134	5.3	270	10.6	1.6	3.5	2.4	5.3	M10	PP
SEBM40	1.2	40	60	2.4	140	5.5	270	10.6	2.5	5.5	3.6	7.9	M10	PP
SEBM50	1.2	50	70	2.8	140	5.5	295	11.6	3	6.6	4.2	9.3	M10	PP
SEBM60	1.2	60	70	2.8	140	5.5	295	11.6	3.2	7.1	4.4	9.7	M10	PP
SEBM70	1.2	70	70	2.8	140	5.5	295	11.6	3.4	7.5	4.6	10.1	M10	PP
SEBM80	1.2	80	80	3.1	140	5.5	365	14.4	4.8	10.6	6.5	14.3	M10	PP
SEBM90	1.2	90	80	3.1	140	5.5	365	14.4	5.2	11.5	6.7	14.8	M10	PP
SEBM100	1.2	100	105	4.1	165	6.5	345	13.6	7	15.4	9.2	20.3	M20	PP
SEBM120	1.2	120	105	4.1	165	6.5	345	13.6	7.2	15.9	9.5	20.9	M20	PP
SEBM150	1.2	150	165	6.5	167	6.6	345	13.6	9.2	20.3	12.5	27.6	M20	PP
SEBM200	1.2	200	165	6.5	167	6.6	345	13.6	10.6	23.4	14	30.9	M20	PP
SEBM250	1.2	250	145	5.7	280	11.0	450	17.7	15.8	34.8	21.5	47.4	2 x M16	PP
SEBM300	1.2	300	145	5.7	280	11.0	450	17.7	16.5	36.4	22.5	49.6	2 x M16	PP
SEBM350	1.2	350	145	5.7	280	11.0	490	19.3	19.5	43.0	25.5	56.2	2 x M20	PP
SEBM400	1.2	400	145	5.7	280	11.0	490	19.3	20.8	45.8	27	59.5	2 x M20	PP
SEBM500	1.2	500	175	6.9	290	11.4	500	19.7	27.5	60.6	38	83.8	2 x M20	ABS
SEBM600	1.2	600	175	6.9	290	11.4	500	19.7	30	66.1	40	88.2	2 x M20	ABS
SEBM700	1.2	700	186	7.3	398	15.7	565	22.2	41	90.4	55	121	3 x M20	ABS
SEBM800	1.2	800	186	7.3	398	15.7	565	22.2	43	94.8	58	128	3 x M20	ABS
SEBM900	1.2	900	186	7.3	398	15.7	565	22.2	46	101	61	134	3 x M20	ABS
SEBM1000	1.2	1000	186	7.3	398	15.7	565	22.2	48	106	64	141	3 x M20	ABS
SEBM1100	1.2	1100	186	7.3	398	15.7	565	22.2	50	110	66	145	3 x M20	ABS

EverExceed SEBM batteries fulfil all requirements specified by IEC publication 60623.

Transparent case optional.



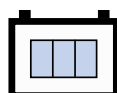
Discharge Data Table

Discharge performance data after fully charged by constant current according to IEC60623

Available amperes at +20°C ±5°C(+68°F ±9°F)

Final voltage: 1.14V/cell

Cell Type	Capacity (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
SEBM10	10	1.07	1.23	1.90	3.16	4.32	5.28	6.90	7.48	9.34	11.0	13.0	14.8	17.5	24.3	27.0	32.8	36.2
SEBM20	20	1.94	2.40	3.77	6.14	8.46	10.4	12.7	14.5	18.7	22.1	24.0	27.8	33.1	46.6	52.0	60.1	63.0
SEBM30	30	2.91	3.61	5.66	9.21	12.7	15.6	19.1	21.7	25.5	30.1	32.8	37.9	45.1	63.6	71.0	81.9	85.9
SEBM40	40	3.88	4.81	7.55	12.3	16.9	20.8	25.4	28.9	34.0	40.1	43.7	50.6	60.2	84.8	94.6	109	115
SEBM50	50	4.86	6.01	9.44	15.3	21.2	26.0	31.8	36.1	42.5	50.1	54.7	63.2	75.2	106	118	137	143
SEBM60	60	5.83	7.21	11.3	18.4	25.4	31.2	38.2	43.4	51.0	60.2	65.6	75.8	90.3	127	142	164	172
SEBM70	70	6.80	8.41	13.2	21.5	29.6	36.3	44.5	50.6	59.5	70.2	76.5	88.5	105	148	166	191	200
SEBM80	80	7.77	9.61	15.1	24.6	33.8	41.5	50.9	57.8	68.0	80.2	87.4	101	120	170	189	218	229
SEBM90	90	8.74	10.8	17.0	27.6	38.1	46.7	57.2	65.0	76.4	90.2	98.4	114	135	191	213	246	258
SEBM100	100	9.71	12.0	18.9	30.7	42.3	51.9	63.6	72.3	84.9	100	109	126	150	212	237	273	286
SEBM120	120	11.7	14.4	22.6	36.8	50.8	62.3	76.3	86.7	102	120	131	152	181	254	284	328	344
SEBM150	150	14.6	18.0	28.3	46.0	63.5	77.9	95.4	108	127	150	164	190	226	318	355	410	430
SEBM200	200	19.4	24.0	37.7	61.4	84.6	104	127	145	170	201	219	253	301	424	473	546	573
SEBM250	250	24.3	30.0	47.2	76.7	106	130	159	181	212	251	273	316	376	530	591	683	716
SEBM300	300	29.1	36.1	56.6	92.1	127	156	191	217	255	301	328	379	451	636	710	819	859
SEBM350	350	34.0	42.1	66.1	107	148	182	223	253	297	351	383	442	527	742	828	956	1002
SEBM400	400	38.8	48.1	75.5	123	169	208	254	289	340	401	437	506	602	848	946	1092	1145
SEBM500	500	48.6	60.1	94.4	153	212	260	318	361	425	501	547	632	752	1060	1183	1365	1432
SEBM600	600	58.3	72.1	113	184	254	312	382	434	510	602	656	758	903	1272	1419	1638	1718
SEBM700	700	68.0	84.1	132	215	296	363	445	506	595	702	765	885	1053	1483	1656	1911	2004
SEBM800	800	77.7	96.1	151	246	338	415	509	578	680	802	874	1011	1204	1695	1892	2184	2291
SEBM900	900	87.4	108	170	276	381	467	572	650	764	902	984	1138	1354	1907	2129	2457	2577
SEBM1000	1000	97.1	120	189	307	423	519	636	723	849	1003	1093	1264	1505	2119	2365	2730	2864
SEBM1100	1100	107	132	208	338	465	571	700	795	934	1103	1202	1390	1655	2331	2602	3003	3150



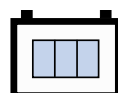
Discharge Data Table

Discharge performance data after fully charged by constant current according to IEC60623

Available amperes at +20°C ±5°C(+68°F ±9°F)

Final voltage: 1.10V/cell

Cell Type	Capacity (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
SEBM10	10	1.10	1.26	1.97	3.30	4.60	5.80	8.00	8.80	10.9	12.9	15.2	17.4	20.5	28.3	31.4	39.1	42.4
SEBM20	20	2.00	2.48	3.92	6.40	9.00	11.4	14.7	17.0	21.8	25.7	28.2	32.6	38.7	54.3	60.5	71.5	75.9
SEBM30	30	3.00	3.69	5.88	9.60	13.5	17.1	22.1	25.5	29.7	35.1	38.4	44.4	52.8	74.1	82.5	97.5	104
SEBM40	40	4.00	4.92	7.84	12.8	18.0	22.8	29.5	34.0	39.6	46.8	51.2	59.2	70.4	98.8	110	130	138
SEBM50	50	5.00	6.15	9.80	16.0	22.5	28.5	36.9	42.5	49.5	58.5	64.0	74.0	88.0	124	138	163	173
SEBM60	60	6.00	7.38	11.8	19.2	27.0	34.2	44.2	51.0	59.4	70.2	76.8	88.8	106	148	165	195	207
SEBM70	70	7.00	8.61	13.7	22.4	31.5	39.9	51.6	59.5	69.3	81.9	89.6	104	123	173	193	228	242
SEBM80	80	8.00	9.84	15.7	25.6	36.0	45.6	59.0	68.0	79.2	93.6	102	118	141	198	220	260	276
SEBM90	90	9.00	11.1	17.6	28.8	40.5	51.3	66.3	76.5	89.1	105	115	133	158	222	248	293	311
SEBM100	100	10.0	12.3	19.6	32.0	45.0	57.0	73.7	85.0	99.0	117	128	148	176	247	275	325	345
SEBM120	120	12.0	14.8	23.5	38.4	54.0	68.4	88.4	102	119	140	154	178	211	296	330	390	414
SEBM150	150	15.0	18.5	29.4	48.0	67.5	85.5	111	128	149	176	192	222	264	371	413	488	518
SEBM200	200	20.0	24.6	39.2	64.0	90.0	114	147	170	198	234	256	296	352	494	550	650	690
SEBM250	250	25.0	30.8	49.0	80.0	113	143	184	213	248	293	320	370	440	618	688	813	863
SEBM300	300	30.0	36.9	58.8	96.0	135	171	221	255	297	351	384	444	528	741	825	975	1035
SEBM350	350	35.0	43.1	68.6	112	158	200	258	298	347	410	448	518	616	865	963	1138	1208
SEBM400	400	40.0	49.2	78.4	128	180	228	295	340	396	468	512	592	704	988	1100	1300	1380
SEBM500	500	50.0	61.5	98.0	160	225	285	369	425	495	585	640	740	880	1235	1375	1625	1725
SEBM600	600	60.0	73.8	118	192	270	342	442	510	594	702	768	888	1056	1482	1650	1950	2070
SEBM700	700	70.0	86.1	137	224	315	399	516	595	693	819	896	1036	1232	1729	1925	2275	2415
SEBM800	800	80.0	98.4	157	256	360	456	590	680	792	936	1024	1184	1408	1976	2200	2600	2760
SEBM900	900	90.0	111	176	288	405	513	663	765	891	1053	1152	1332	1584	2223	2475	2925	3105
SEBM1000	1000	100	123	196	320	450	570	737	850	990	1170	1280	1480	1760	2470	2750	3250	3450
SEBM1100	1100	110	135	216	352	495	627	811	935	1089	1287	1408	1628	1936	2717	3025	3575	3795



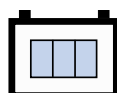
Discharge Data Table

Discharge performance data after fully charged by constant current according to IEC60623

Available amperes at +20°C ±5°C(+68°F ±9°F)

Final voltage: 1.05V/cell

Cell Type	Capacity (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
SEBM10	10	1.13	1.30	2.00	3.40	4.82	6.38	9.36	10.6	13.5	16.3	18.2	20.3	24.0	33.0	36.9	45.9	50.8
SEBM20	20	2.06	2.55	3.98	6.59	9.43	12.5	17.2	20.4	27.0	32.7	33.8	38.1	45.5	63.5	71.3	84.1	91.1
SEBM30	30	3.09	3.79	5.97	9.89	14.1	18.8	25.9	30.6	36.8	44.6	46.1	51.9	62.0	86.5	97.2	115	124
SEBM40	40	4.12	5.06	7.96	13.2	18.9	25.1	34.5	40.8	49.1	59.4	61.4	69.3	82.7	115	130	153	166
SEBM50	50	5.15	6.32	9.95	16.5	23.6	31.4	43.1	51.0	61.4	74.3	76.8	86.6	103	144	162	191	207
SEBM60	60	6.18	7.59	11.9	19.8	28.3	37.6	51.7	61.2	73.7	89.2	92.2	104	124	173	194	229	248
SEBM70	70	7.21	8.85	13.9	23.1	33.0	43.9	60.4	71.4	85.9	104	108	121	145	202	227	268	290
SEBM80	80	8.24	10.1	15.9	26.4	37.7	50.2	69.0	81.6	98.2	119	123	139	165	231	259	306	331
SEBM90	90	9.27	11.4	17.9	29.7	42.4	56.4	77.6	91.8	110	134	138	156	186	260	292	344	373
SEBM100	100	10.3	12.6	19.9	33.0	47.2	62.7	86.2	102	123	149	154	173	207	288	324	382	414
SEBM120	120	12.4	15.2	23.9	39.6	56.6	75.2	103	122	147	178	184	208	248	346	389	459	497
SEBM150	150	15.5	19.0	29.8	49.4	70.7	94.1	129	153	184	223	230	260	310	433	486	573	621
SEBM200	200	20.6	25.3	39.8	65.9	94.3	125	172	204	246	297	307	346	414	577	648	764	828
SEBM250	250	25.8	31.6	49.7	82.4	118	157	216	255	307	371	384	433	517	721	810	956	1035
SEBM300	300	30.9	37.9	59.7	98.9	141	188	259	306	368	446	461	519	620	865	972	1147	1242
SEBM350	350	36.1	44.3	69.6	115	165	219	302	357	430	520	538	606	724	1010	1134	1338	1449
SEBM400	400	41.2	50.6	79.6	132	189	251	345	408	491	594	614	693	827	1154	1296	1529	1656
SEBM500	500	51.5	63.2	99.5	165	236	314	431	510	614	743	768	866	1034	1442	1620	1911	2070
SEBM600	600	61.8	75.9	119	198	283	376	517	612	737	892	922	1039	1241	1731	1944	2293	2484
SEBM700	700	72.1	88.5	139	231	330	439	604	714	859	1040	1075	1212	1448	2019	2268	2675	2898
SEBM800	800	82.4	101	159	264	377	502	690	816	982	1189	1229	1385	1654	2308	2592	3058	3312
SEBM900	900	92.7	114	179	297	424	564	776	918	1105	1337	1382	1558	1861	2596	2916	3440	3726
SEBM1000	1000	103	126	199	330	472	627	862	1020	1228	1486	1536	1732	2068	2885	3240	3822	4140
SEBM1100	1100	113	139	219	363	519	690	949	1122	1350	1634	1690	1905	2275	3173	3563	4204	4554



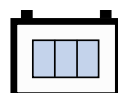
Discharge Data Table

Discharge performance data after fully charged by constant current according to IEC60623

Available amperes at +20°C (+68°F ±9°F)

Final voltage: 1.00V/cell

Cell Type	Capacity (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
SEBM10	10	1.17	1.32	2.02	3.43	4.94	6.57	9.83	11.2	15.1	18.5	20.6	23.2	27.4	38.0	42.1	53.3	58.4
SEBM20	20	2.12	2.60	4.02	6.66	9.62	12.9	18.1	21.6	30.2	36.9	38.2	43.4	51.9	73.0	81.2	97.5	103.8
SEBM30	30	3.18	3.87	6.03	10.0	14.4	19.4	27.2	32.4	41.2	50.4	52.1	59.2	70.7	100	111	133	142
SEBM40	40	4.24	5.16	8.04	13.3	19.2	25.8	36.2	43.2	55.0	67.2	69.4	79.0	94.3	133	148	177	189
SEBM50	50	5.30	6.45	10.0	16.6	24.1	32.3	45.3	54.1	68.7	84.0	86.8	98.7	118	166	185	222	236
SEBM60	60	6.37	7.74	12.1	20.0	28.9	38.7	54.3	64.9	82.5	101	104	118	141	199	222	266	283
SEBM70	70	7.43	9.03	14.1	23.3	33.7	45.2	63.4	75.7	96.2	118	121	138	165	232	259	310	330
SEBM80	80	8.49	10.3	16.1	26.6	38.5	51.7	72.4	86.5	110	134	139	158	189	265	295	355	378
SEBM90	90	9.55	11.6	18.1	30.0	43.3	58.1	81.5	97.3	124	151	156	178	212	299	332	399	425
SEBM100	100	10.6	12.9	20.1	33.3	48.1	64.6	90.5	108	137	168	174	197	236	332	369	443	472
SEBM120	120	12.7	15.5	24.1	39.9	57.7	77.5	109	130	165	201	208	237	283	398	443	532	566
SEBM150	150	15.9	19.3	30.1	49.9	72.2	96.9	136	162	206	252	260	296	354	498	554	665	708
SEBM200	200	21.2	25.8	40.2	66.6	96.2	129	181	216	275	336	347	395	472	664	739	887	944
SEBM250	250	26.5	32.2	50.2	83.2	120	161	226	270	344	420	434	494	589	829	923	1108	1180
SEBM300	300	31.8	38.7	60.3	100	144	194	272	324	412	504	521	592	707	995	1108	1330	1416
SEBM350	350	37.1	45.1	70.3	117	168	226	317	378	481	588	607	691	825	1161	1293	1552	1652
SEBM400	400	42.4	51.6	80.4	133	192	258	362	432	550	672	694	790	943	1327	1477	1773	1888
SEBM500	500	53.0	64.5	100	166	241	323	453	541	687	840	868	987	1179	1659	1847	2217	2360
SEBM600	600	63.7	77.4	121	200	289	387	543	649	825	1007	1041	1184	1415	1991	2216	2660	2832
SEBM700	700	74.3	90.3	141	233	337	452	634	757	962	1175	1215	1382	1650	2322	2585	3103	3304
SEBM800	800	84.9	103	161	266	385	517	724	865	1100	1343	1389	1579	1886	2654	2954	3547	3776
SEBM900	900	95.5	116	181	300	433	581	815	973	1237	1511	1562	1777	2122	2986	3324	3990	4248
SEBM1000	1000	106	129	201	333	481	646	905	1081	1375	1679	1736	1974	2358	3318	3693	4434	4720
SEBM1100	1100	117	142	221	366	529	710	996	1189	1512	1847	1909	2171	2593	3649	4062	4877	5192



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.

$$\text{Number of cells required} = \frac{\text{Circuit voltage}}{\text{Cell Float voltage}} \quad \text{Minimum cell voltage} = \frac{\text{Minimum D.C. voltage}}{\text{Number of cells}}$$

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.

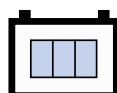
To meet the 30 minutes backup time requirement, we determine to choose the battery size from SEBM Range.

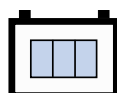
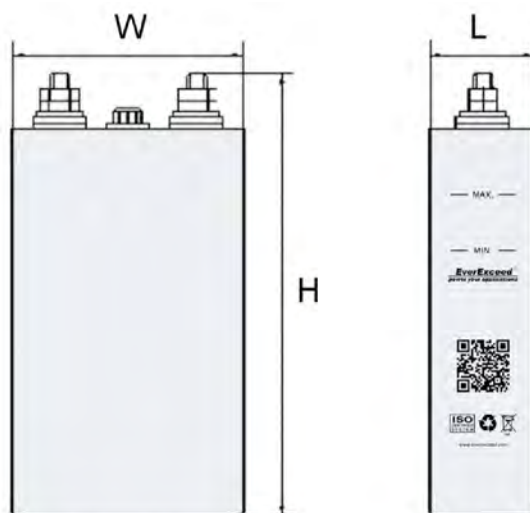
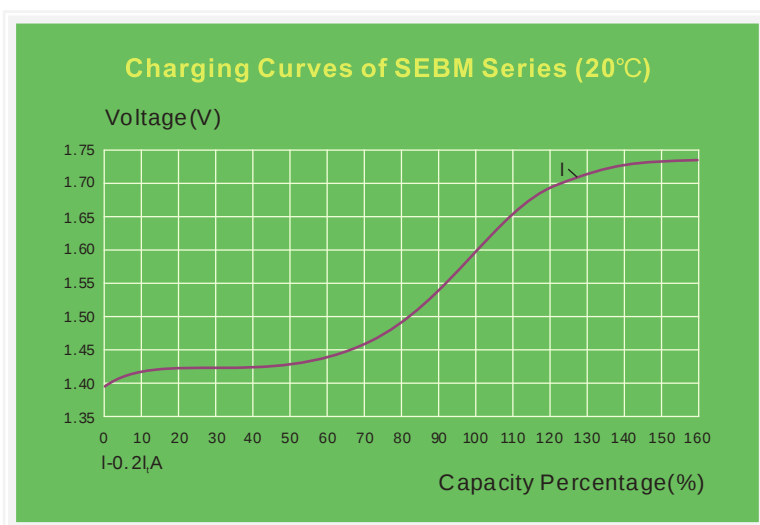
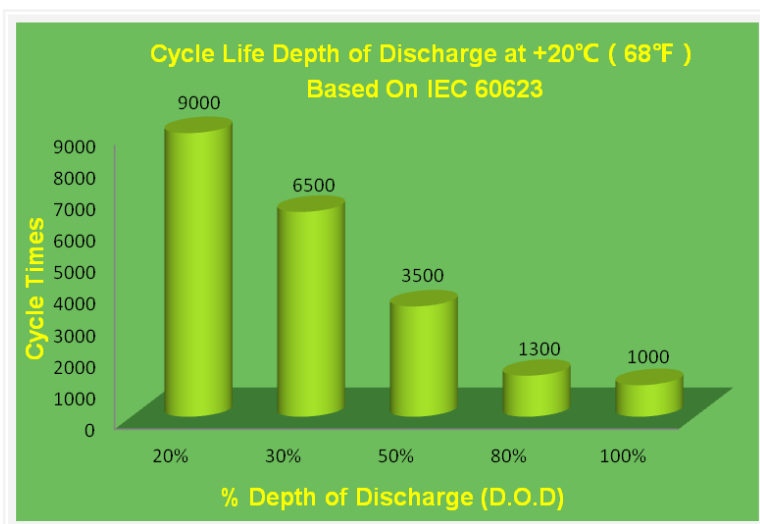
From our catalogue data, the cell type is SEBM300.

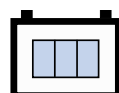
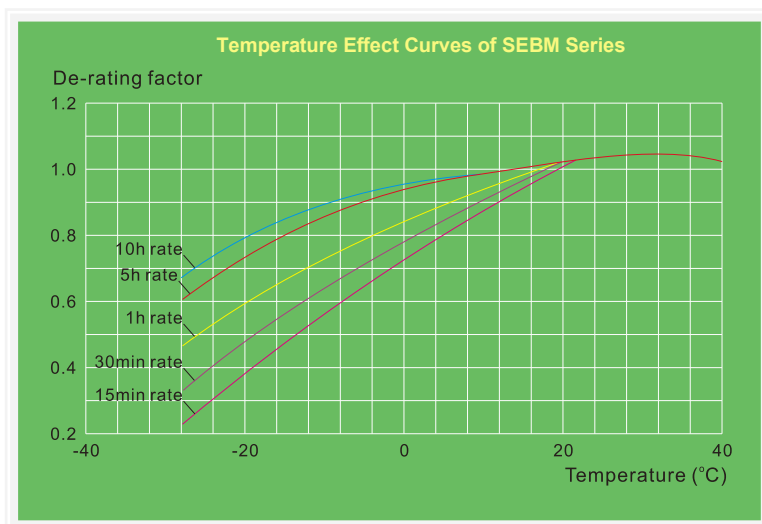
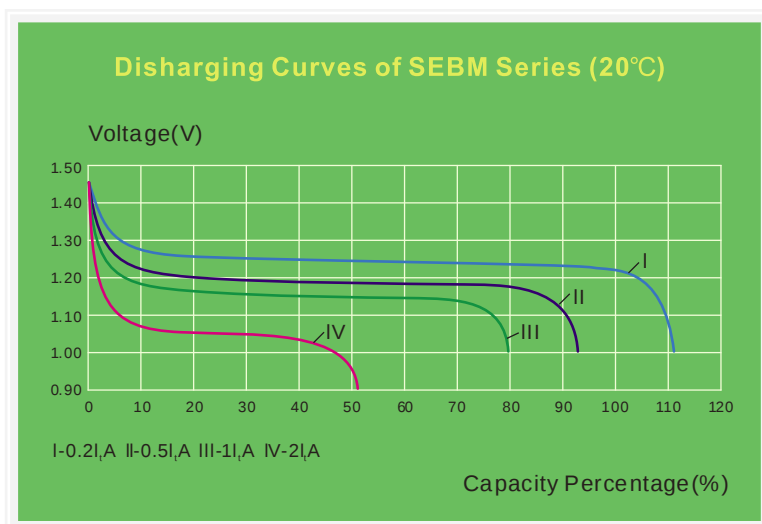
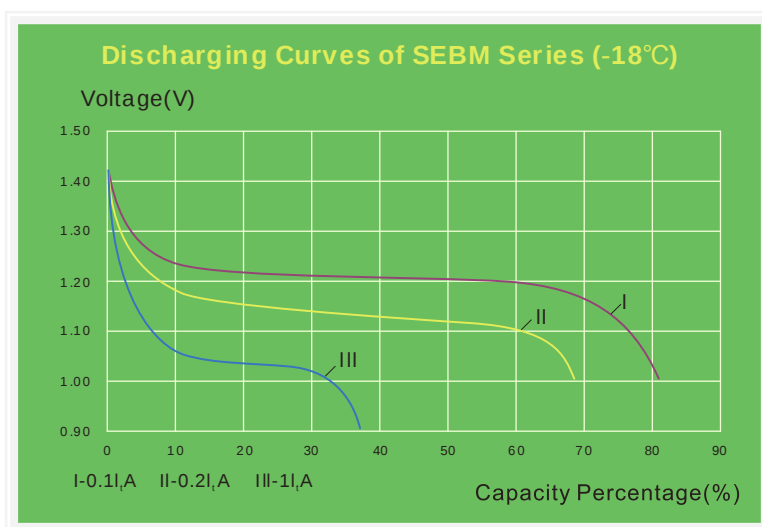
Battery shall comprise 184 cells of EverExceed Nickel Cadmium type SEBM300.

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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