

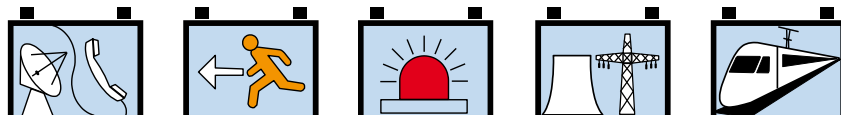
Guarantee

**EverExceed**<sup>®</sup>  
power your applications

**Sealed NiCd - Low Maintenance  
SEBL Pocket plate Range  
10-1200Ah**



»Premium quality for  
uninterrupted communication«



[www.everexceed.com](http://www.everexceed.com)



## Sealed NiCd - Low Maintenance SEBL Pocket plate Range 10-1200Ah

This series of rechargeable battery is specially designed and developed for various operation environment conditions. Which not only has the characteristic of traditional batteries, but also the advantage of maintenance ultra-low. It is especially applied to electric power, telecommunication, railway, metallurgy, mining, lighting, UPS power supply and other devices as standby power supply, diesel engine and direct motor as starting power supply, and transportation tools as direct power supply.

### Low maintenance

The rechargeable battery adopts "valve-regulated vent plug technology", therefore, the water consumption is low, the electrolyte is rich.

Within service life, the battery top up time up to 3~5 years due to EverExceed excellent valve-regulated.

### High reliability

The positive and the negative plates of the battery adopt pocket type plates and pasted plates of high mechanical strength, and the container adopts semi-transparent engineering plastic materials of anti-impact and anti-aging. The container and the lid are welded together by intelligent heat welding machine, which is assuring the sealed structure reliability of battery.

The battery has the capability of over-charge, over-discharge and short circuit resistance, which can be installed on the present electric power systems of the customers.

### High performance

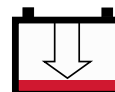
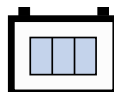
The battery adopts the optimized design, which can produce high performance battery, and can be applied under the temperature of -50°C~70°C(58°F~ 158°F). The service life can be more than 20 years according to the recommended maintenance and operation methods.

### Applications

Valve-regulated vent plug with low pressure and fire prevention is installed on the battery. If its internal pressure is beyond the safety value, the hydrogen and the oxygen not combined by the negative pole are released through the valve of valve-regulated vent plug and the normal operating pressure is 0.2 bar; when the pressure falls below the releasing pressure, the valve of valve-regulated vent plug will re-close to prevent air entering, avoiding carbonatization of the electrolyte.

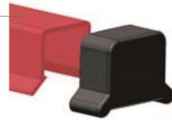
### High float-charge efficiency

The battery adopts high performance positive and negative active materials, improving the charging efficiency of positive and negative electrodes, reducing the float-charge voltage of the battery, under the lower float charge voltage; The consumes capacity of the battery will be highly recovered. After being float charged for 16h by 1.41V/cell ±0.01V/cell, the battery can be discharged by 80% of the rated capacity.



**Protective cover**

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



**Flame-arresting vents**  
Material: polypropylene.

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

**Plate**

Horizontal pockets of double-perforated steel strips.

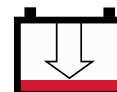
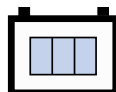
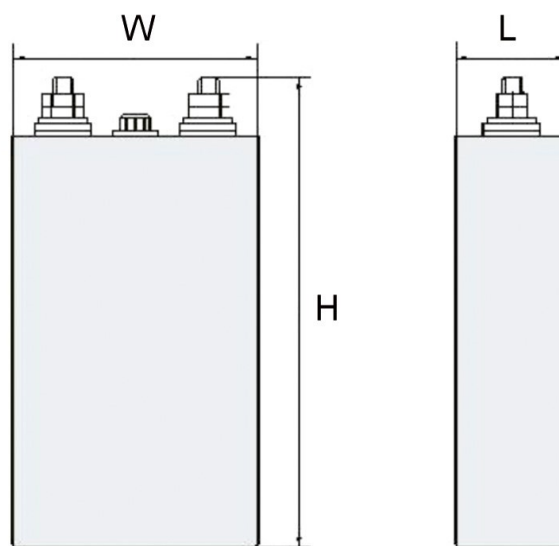
**Separating grids**

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

**Cell container**

Material: translucent/transparent polypropylene

**Plate frame**  
Seals the plate pockets and serves as a current collector.



## 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:

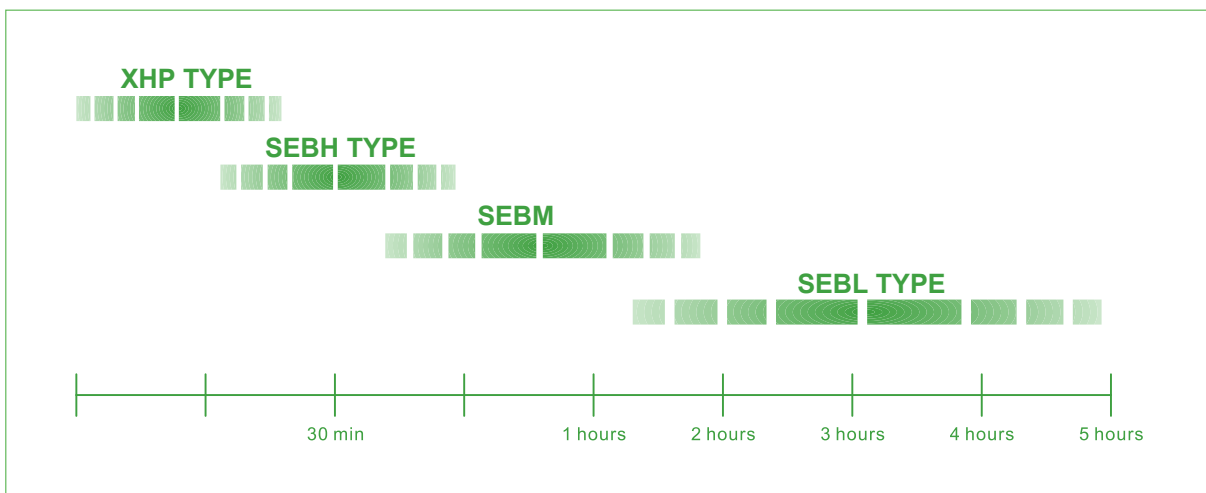
- Recommended charging voltage. 1.50 - 1.55 V/cell.

◆ **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

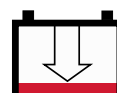
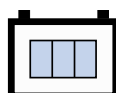
According to backup time required by application:



## 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

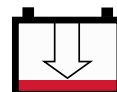
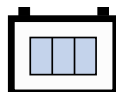


**NiCd Pocket Plate SEBL Range Electrical Specifications & Dimensions**

Model	Nominal Voltage (V)	Capacity (C5 Ah)	Dimensions (mm/inch)						Weight (kg/lb.)				Terminal	Cell Case Material
			Length		Width		Height		Without Electrolyte		With Electrolyte			
SEBL10	1.2	10	40	1.6	85	3.3	150	5.9	0.7	1.5	1	2.2	M8	PP
SEBL20	1.2	20	55	2.2	134	5.3	270	10.6	1.1	2.4	1.8	4.0	M10	PP
SEBL30	1.2	30	55	2.2	134	5.3	270	10.6	1.5	3.3	2.2	4.8	M10	PP
SEBL40	1.2	40	55	2.2	134	5.3	270	10.6	1.8	4.0	2.6	5.7	M10	PP
SEBL50	1.2	50	60	2.4	140	5.5	270	10.6	2.4	5.3	3.2	7.1	M10	PP
SEBL60	1.2	60	60	2.4	140	5.5	270	10.6	2.8	6.2	3.8	8.4	M10	PP
SEBL70	1.2	70	70	2.8	140	5.5	295	11.6	2.9	6.4	4.1	9.0	M10	PP
SEBL80	1.2	80	70	2.8	140	5.5	295	11.6	3.4	7.5	4.6	10.1	M10	PP
SEBL90	1.2	100	80	3.1	140	5.5	365	14.4	4.2	9.3	6	13.2	M10	PP
SEBL100	1.2	100	80	3.2	140	5.5	365	14.4	4.5	9.9	6.2	13.7	M10	PP
SEBL120	1.2	120	80	3.2	140	5.5	365	14.4	5	11.0	6.5	14.3	M10	PP
SEBL150	1.2	150	105	4.1	165	6.5	345	13.6	6.9	15.2	9.5	20.9	M20	PP
SEBL200	1.2	200	105	4.1	165	6.5	345	13.6	7.8	17.2	10	22.0	M20	PP
SEBL250	1.2	250	165	6.5	167	6.6	345	13.6	10.2	22.5	14.2	31.3	M20	PP
SEBL300	1.2	300	145	5.7	280	11.0	450	17.7	13.8	30.4	21	46.3	2 x M16	PP
SEBL350	1.2	350	145	5.7	280	11.0	450	17.7	15	33.1	22	48.5	2 x M16	PP
SEBL400	1.2	400	145	5.7	280	11.0	450	17.7	15.8	34.8	22.8	50.3	2 x M16	PP
SEBL500	1.2	500	145	5.7	280	11.0	490	19.3	16.8	37.0	24	52.9	2 x M20	PP
SEBL600	1.2	600	175	6.9	290	11.4	500	19.7	27	59.5	37	81.5	2 x M20	ABS
SEBL700	1.2	700	175	6.9	290	11.4	500	19.7	29	63.9	39	86.0	2 x M20	ABS
SEBL800	1.2	800	186	7.3	398	15.7	565	22.2	39	86.0	58	128	3 x M20	ABS
SEBL900	1.2	900	186	7.3	398	15.7	565	22.3	41	90.4	60	132	3 x M20	ABS
SEBL1000	1.2	1000	186	7.3	398	15.7	565	22.3	44	97.0	61	134	3 x M20	ABS
SEBL1100	1.2	1100	186	7.3	398	15.7	565	22.4	45	99.2	62	137	3 x M20	ABS
SEBL1200	1.2	1200	186	7.3	398	15.7	565	22.4	46	101	63	139	3 x M20	ABS

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

Transparent case optional.



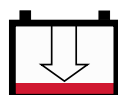
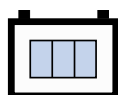
## Discharge Date Table

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

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

Final voltage: 1.14 V/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
SEBL10	10	1.05	1.26	1.94	3.05	3.87	4.49	5.18	5.53	6.48	7.15	7.59	8.50	9.87	12.9	14.0	15.1	15.5
SEBL20	20	2.08	2.47	3.90	6.08	7.76	8.96	10.7	10.8	13.1	14.6	15.4	17.0	19.8	25.8	27.9	30.1	30.9
SEBL30	30	3.13	3.73	5.85	9.14	11.8	13.6	15.7	16.5	19.6	21.5	22.8	25.6	29.8	38.6	41.9	45.3	46.6
SEBL40	40	4.16	4.96	7.80	12.6	15.5	17.9	20.8	21.1	26.0	28.4	30.4	34.0	39.5	51.7	55.6	60.6	61.8
SEBL50	50	5.25	6.18	9.73	15.4	19.4	22.8	26.3	28.8	32.6	35.8	37.9	42.7	49.4	64.9	69.8	75.3	77.8
SEBL60	60	6.24	7.48	11.9	18.2	23.2	26.9	31.1	31.7	38.9	42.9	45.6	51.5	59.3	77.8	83.5	90.3	92.7
SEBL70	70	7.31	8.67	13.9	21.3	27.1	31.5	36.8	37.1	45.3	50.1	53.4	59.6	69.1	90.1	97.4	105	108
SEBL80	80	8.34	9.89	15.8	24.5	30.9	35.9	41.6	46.4	51.8	57.5	60.5	68.3	79.1	103	111	121	124
SEBL90	90	9.51	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
SEBL100	100	10.6	12.5	19.8	30.6	38.7	44.9	52.1	57.7	65.1	71.3	75.8	85.3	98.6	129	139	150	155
SEBL120	120	12.7	14.8	23.7	36.6	46.6	53.9	62.3	73.4	77.8	85.7	91.1	102	117	155	167	180	185
SEBL150	150	15.8	18.6	29.5	45.7	57.9	67.3	77.8	76.5	97.2	106	113	127	147	193	208	229	232
SEBL200	200	21.1	24.9	38.8	61.2	77.5	90.1	103	106	129	142	151	170	197	258	278	300	309
SEBL250	250	26.3	30.9	48.9	75.3	96.1	112	129	139	162	176	188	212	246	321	347	380	387
SEBL300	300	31.4	37.5	58.6	91.2	115	134	154	160	194	212	227	253	294	385	416	456	463
SEBL350	350	36.6	43.4	67.9	106	136	156	180	191	222	251	263	293	345	449	483	525	541
SEBL400	400	41.8	49.5	77.6	121	154	179	208	211	260	284	303	340	393	515	556	598	617
SEBL500	500	52.4	62.1	96.7	151	193	223	258	283	323	353	378	423	491	642	693	760	773
SEBL600	600	62.8	74.5	116	181	231	268	309	340	387	424	453	507	589	770	832	912	927
SEBL700	700	72.8	86.5	136	213	273	312	360	383	445	504	525	587	691	899	968	1051	1082
SEBL800	800	83.4	99.1	154	243	309	359	416	464	519	569	606	680	787	1030	1112	1197	1234
SEBL900	900	93.8	111	174	273	345	402	464	517	581	636	680	760	884	1156	1248	1353	1390
SEBL1000	1000	104	124	194	301	383	445	515	567	647	704	754	849	985	1285	1388	1504	1545
SEBL1100	1100	114	136	213	331	421	489	567	623	712	775	829	934	1083	1414	1527	1654	1700
SEBL1200	1200	125	149	233	361	460	534	618	680	776	845	905	1019	1182	1542	1666	1805	1854



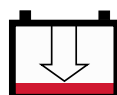
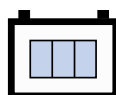
## Discharge Date Table

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

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

Final voltage: 1.10 V/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
SEBL10	10	1.06	1.29	1.96	3.17	4.41	5.17	6.10	6.24	7.59	8.52	9.17	9.99	11.9	15.2	16.1	17.7	17.9
SEBL20	20	2.06	2.48	3.85	6.16	8.52	10.1	11.8	12.4	14.9	16.7	17.9	19.5	23.3	29.7	31.3	34.5	34.9
SEBL30	30	3.17	3.82	5.89	9.51	13.2	15.5	18.3	18.5	22.7	25.6	27.5	29.9	35.5	45.8	48.6	57.2	59.5
SEBL40	40	4.24	5.12	7.86	12.7	17.4	20.6	24.5	25.8	30.2	34.1	36.6	39.9	47.4	60.9	64.1	70.7	71.8
SEBL50	50	5.27	6.35	9.82	15.9	21.8	25.9	30.4	30.9	37.8	42.7	45.8	49.9	59.7	75.8	80.5	88.1	89.9
SEBL60	60	6.35	7.66	11.8	18.9	26.4	31.2	36.5	37.1	45.6	51.1	55.2	59.9	71.2	90.9	96.4	106	107
SEBL70	70	7.38	8.91	13.9	22.2	30.4	36.2	42.6	43.3	52.9	60.3	64.1	70.1	83.1	106	112	124	126
SEBL80	80	8.45	10.2	15.8	25.5	34.9	41.5	48.6	49.4	60.4	68.1	73.6	79.8	94.9	121	129	141	143
SEBL90	90	9.58	11.5	17.8	28.7	39.5	46.8	54.7	55.8	68.0	76.6	82.8	89.8	107	136	145	159	161
SEBL100	100	10.6	12.9	19.7	31.9	43.9	51.7	60.8	61.8	76.3	85.1	91.6	99.8	119	151	161	176	179
SEBL120	120	12.7	15.4	23.8	38.3	52.6	61.9	73.1	78.7	91.4	102	110	120	142	181	193	212	215
SEBL150	150	15.9	19.1	29.5	47.6	65.8	77.4	91.5	92.7	113	128	137	149	178	228	241	286	297
SEBL200	200	21.3	25.5	39.3	63.6	86.9	103	122	124	151	170	182	199	237	303	321	352	357
SEBL250	250	26.3	31.9	49.2	79.1	109	129	152	155	188	213	229	249	297	379	402	442	447
SEBL300	300	31.5	38.5	59.2	94.9	131	155	182	185	227	255	274	299	355	453	482	572	582
SEBL350	350	36.9	44.5	68.8	110	151	180	213	222	265	298	320	349	415	530	562	666	670
SEBL400	400	42.6	50.9	78.5	126	173	206	243	247	302	340	366	399	474	606	643	702	715
SEBL500	500	52.7	63.5	98	157	218	258	304	309	376	425	457	499	592	757	803	884	894
SEBL600	600	63.4	76.5	117	190	262	309	365	371	453	510	541	597	706	896	964	1143	1164
SEBL700	700	73.7	88.8	137	219	303	361	425	433	528	595	639	698	826	1052	1125	1333	1339
SEBL800	800	84.4	101	157	252	346	412	486	494	604	680	731	820	948	1211	1285	1405	1430
SEBL900	900	94.7	114	176	284	389	464	547	556	680	765	824	923	1066	1363	1446	1586	1607
SEBL1000	1000	105	127	196	315	433	515	608	618	755	850	915	997	1185	1514	1607	1766	1789
SEBL1100	1100	116	140	216	347	476	567	669	680	831	935	1007	1097	1304	1665	1768	1943	1968
SEBL1200	1200	126	152	235	378	520	618	730	742	906	1020	1098	1196	1422	1817	1928	2119	2147



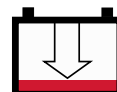
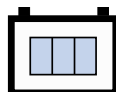
## Discharge Date Table

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

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

Final voltage: 1.05 V/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
SEBL10	10	1.08	1.31	2.05	3.26	4.68	5.75	6.91	7.7	8.82	9.85	10.9	11.9	13.8	17.6	19.1	22.1	22.5
SEBL20	20	2.15	2.61	4.08	6.55	9.31	11.5	13.9	15.0	17.7	19.9	21.9	23.8	27.9	35.4	38.5	43.9	44.7
SEBL30	30	3.12	3.79	5.95	9.49	13.7	16.8	20.3	22.6	26.2	28.8	32.1	34.7	40.1	51.5	58.4	64.2	65.1
SEBL40	40	4.25	5.16	8.20	13.2	18.7	22.9	27.9	30.1	35.4	39.4	43.8	47.4	55.5	70.4	76.3	87.9	89.2
SEBL50	50	5.31	6.49	10.3	16.3	23.2	28.6	34.5	37.7	44.7	49.2	54.7	59.5	68.7	88.1	94.9	109	111
SEBL60	60	6.39	7.73	12.3	19.7	27.9	34.3	41.5	45.3	53.4	59.2	65.7	71.1	82.4	105	113	131	134
SEBL70	70	7.46	9.01	14.5	22.9	32.5	40.1	48.4	52.7	62.4	68.9	76.4	83.1	95.9	124	133	152	156
SEBL80	80	8.51	10.5	16.4	26.2	37.1	45.9	55.3	60.3	70.5	78.8	87.5	94.9	111	140	152	170	177
SEBL90	90	9.59	11.8	18.5	29.5	41.7	51.6	62.5	67.8	79.7	88.8	98.4	107	125	158	171	191	199
SEBL100	100	10.7	12.9	20.4	32.6	46.5	57.2	68.9	75.4	88.2	98.5	109	119	137	176	190	212	221
SEBL120	120	12.9	15.5	24.6	39.6	55.6	68.4	82.5	96.0	106	117	131	142	164	211	227	259	266
SEBL150	150	16.1	19.3	30.7	48.8	69.5	85.6	103	112	133	147	164	177	205	264	284	329	332
SEBL200	200	21.3	25.8	40.8	64.9	91.9	113	137	150	177	196	218	237	274	352	379	424	443
SEBL250	250	26.6	32.4	50.9	81.5	115	142	171	188	221	244	273	296	342	440	474	530	553
SEBL300	300	31.9	38.5	61.2	97.5	138	168	206	226	266	295	327	354	410	527	569	636	663
SEBL350	350	37.2	45.1	71.4	113	162	200	244	264	311	344	381	412	477	616	662	743	774
SEBL400	400	42.7	51.5	81.6	130	183	227	274	301	352	391	437	474	548	704	758	849	886
SEBL450	450	47.9	61.5	97.4	155	219	270	327	359	420	467	521	565	654	841	905	1013	1057
SEBL500	500	53.1	64.4	102	163	227	283	342	377	440	489	546	592	685	881	948	1061	1107
SEBL600	600	63.9	77.5	123	195	276	336	412	452	531	589	655	709	820	1055	1137	1273	1327
SEBL700	700	74.4	90.1	143	227	322	399	488	527	621	688	762	824	953	1231	1324	1485	1547
SEBL800	800	84.9	103	163	260	363	453	547	603	703	783	873	948	1096	1409	1516	1697	1772
SEBL900	900	95.6	115	183	292	410	510	616	678	792	881	983	1066	1233	1585	1706	1910	1993
SEBL1000	1000	106	129	204	325	453	567	684	754	880	979	1092	1185	1370	1761	1895	2122	2215
SEBL1100	1100	117	142	224	358	499	623	752	829	968	1076	1201	1303	1507	1937	2085	2334	2436
SEBL1200	1200	128	156	247	394	548	685	828	912	1064	1184	1321	1433	1658	2131	2293	2567	2680





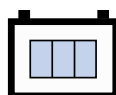
## Discharge Date Table

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

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

Final voltage: 1.00 V/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
SEBL10	10	1.09	1.35	2.06	3.39	4.85	6.10	7.75	8.82	10.1	11.5	12.4	13.8	15.8	20.3	22.2	25.1	26.5
SEBL20	20	2.17	2.68	4.15	6.76	9.66	12.2	15.5	17.7	20.0	22.9	24.9	27.6	31.5	40.6	44.1	50.1	52.6
SEBL30	30	3.26	4.01	6.19	10.4	14.6	18.5	23.3	26.5	30.3	34.4	37.1	41.5	47.2	60.9	65.8	74.9	79.1
SEBL40	40	4.38	5.32	8.28	13.6	19.8	24.6	31.3	35.3	40.1	45.9	49.6	54.9	62.8	81.2	87.9	100	105
SEBL50	50	5.47	6.69	10.5	16.9	24.5	30.6	38.9	44.3	50.1	57.3	62.0	68.9	78.5	101	110	125	132
SEBL60	60	6.56	7.99	12.6	20.5	28.9	36.4	46.6	52.9	60.4	68.9	74.5	82.5	94.3	122	132	149	158
SEBL70	70	7.59	9.29	14.6	23.7	33.9	42.5	54.2	61.8	69.9	80.3	86.8	95.9	110	142	153	174	184
SEBL80	80	8.69	10.9	16.5	26.7	38.3	47.9	62.1	70.7	79.6	90.8	97.9	109	126	161	173	196	202
SEBL90	90	9.90	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
SEBL100	100	10.9	13.5	20.7	33.9	48.4	60.7	77.3	88.6	100	114	124	137	157	203	216	245	252
SEBL120	120	13.2	16.1	24.9	40.4	57.9	72.6	92.9	110	119	137	148	164	187	243	263	295	303
SEBL150	150	16.3	20.1	30.9	50.5	72.3	90.6	115	132	149	171	185	205	235	304	324	368	379
SEBL200	200	21.6	26.8	41.2	67.1	96.0	121	152	176	198	227	245	273	311	404	433	489	505
SEBL250	250	27.3	33.2	51.5	84.1	119	149	185	220	247	283	304	340	386	499	541	613	631
SEBL300	300	32.5	39.8	61.8	100	144	181	231	265	299	341	369	407	464	597	644	734	757
SEBL350	350	37.9	46.7	72.3	116	167	210	270	309	349	399	432	478	548	709	757	858	884
SEBL400	400	43.3	53.0	82.4	134	191	238	305	353	396	453	490	546	622	808	865	979	1004
SEBL500	500	54.1	66.4	103	168	239	299	371	442	494	567	608	680	773	997	1082	1226	1262
SEBL600	600	64.9	79.6	124	200	285	358	442	529	589	675	723	814	927	1193	1285	1471	1514
SEBL700	700	75.7	92.9	144	234	334	420	540	618	698	797	858	956	1095	1416	1514	1716	1766
SEBL800	800	86.6	106	165	266	381	476	610	707	787	901	966	1082	1236	1590	1714	1957	2009
SEBL900	900	97.5	119	185	301	428	536	685	795	886	1015	1088	1215	1391	1789	1928	2206	2271
SEBL1000	1000	108	133	206	336	478	597	773	884	999	1133	1215	1360	1545	1988	2163	2451	2524
SEBL1100	1100	119	147	227	369	526	657	850	972	1099	1246	1337	1496	1700	2187	2379	2697	2776
SEBL1200	1200	130	160	247	403	574	716	928	1061	1199	1360	1458	1632	1854	2386	2596	2941	3029



### 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.

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

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.

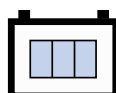
To meet the 30 minutes backup time requirement, we determine to choose the battery size from SEBL Range.

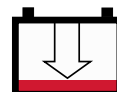
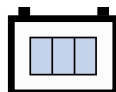
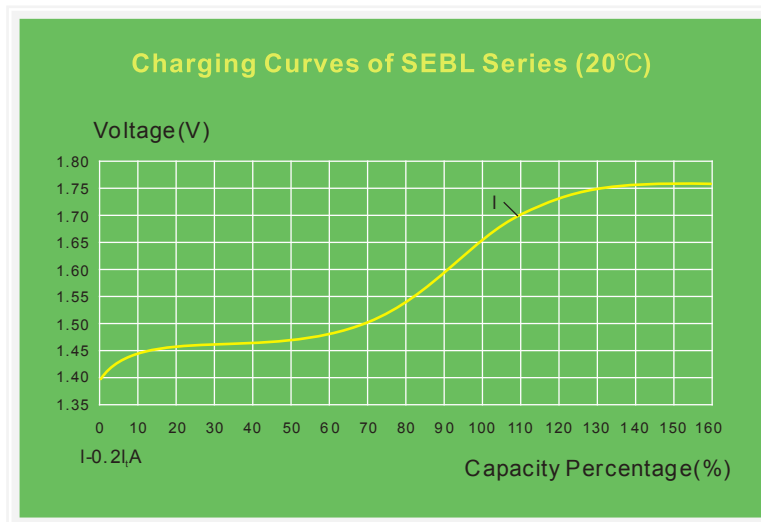
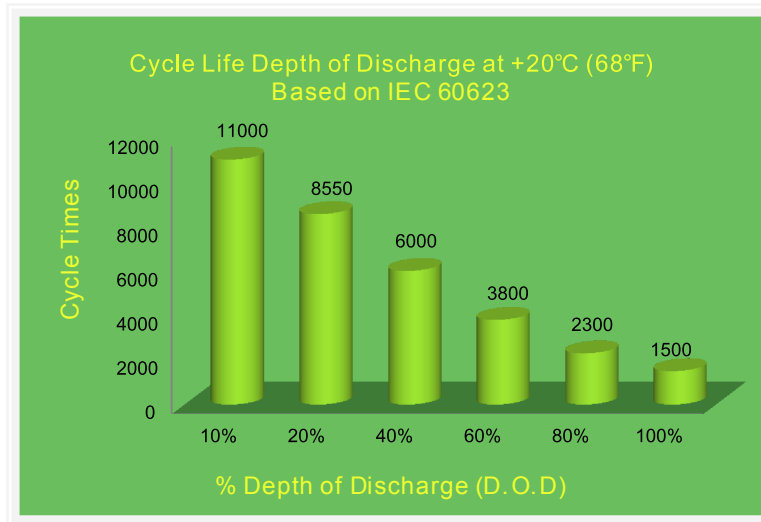
From our catalogue data, the cell type is SEBL300.

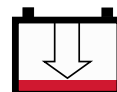
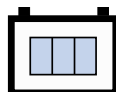
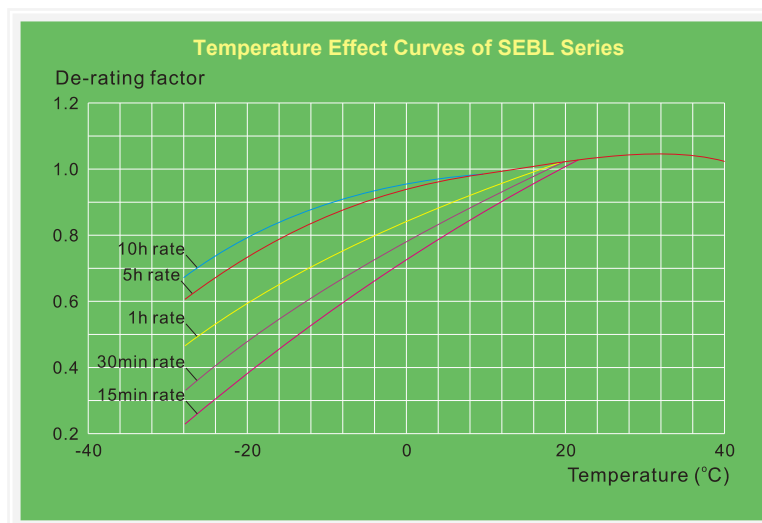
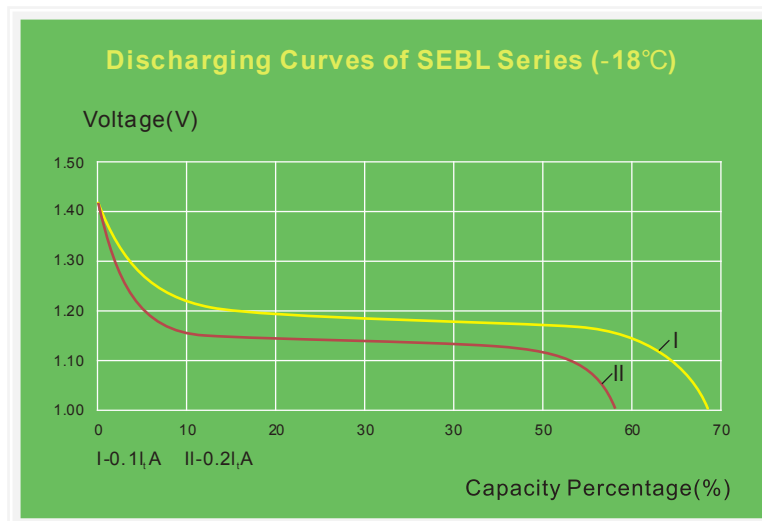
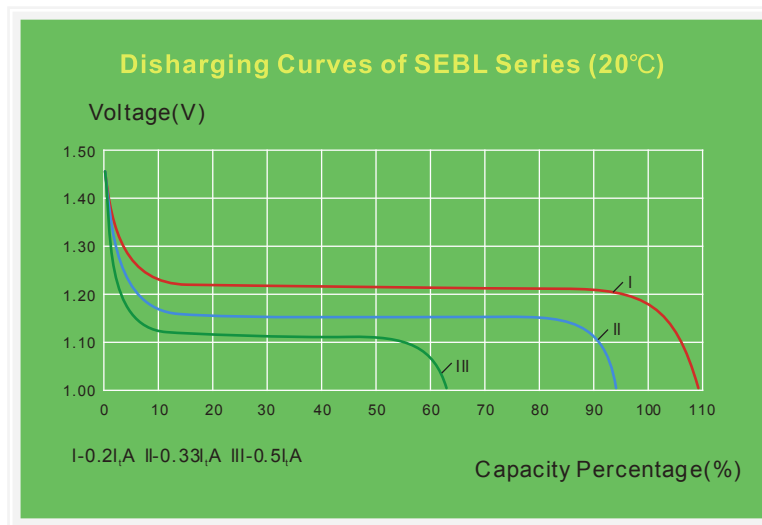
Battery shall comprise 184 cells of EverExceed Nickel Cadmium type SEBL300.

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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