



The CELLYTE 2-TLG Series

2 Volt flat plate Gel batteries
fitted with SEC CatVent™
catalyst

**Deep-cycling top
terminal for tough
environments**

FITTED
WITH



2-TLG



Specification

Positive electrode:	Lead Calcium Tin grid alloy
Negative electrode:	Lead Calcium grid alloy
Float voltage:	2.25 - 2.30 vpc \pm 1% at 25°C
Max. charge voltage:	2.35 vpc \pm 1% at 25°C
Electrolyte:	Thixotropic high purity silica Gel electrolyte
Safety valve:	1-3 psi self-resealing
Separators:	Microporous separator
Terminals:	Integral brass insert for stainless steel bolt
Electrical:	2V 150Ah to 1000Ah at C/10 to 1.80vpc @ 25°C

Design life

Float life:	15 years in float service @ 30°C with an approved catalyst
Cycle life:	650 cycles @ 80% DOD at 25°C

Product compliance

IEC	60896-21/22-2004
BS	6290 part 4
UL	component approval
Eurobat	

Company accreditation

ISO	9001:2015
ISO	14001:2004

Product information

The CELLYTE 2TLG series

Offers rugged, reliable performance

The CELLYTE 2TLG series combines Gel technology with VRLA principles to produce a tough, no nonsense battery. The 2TLG is perfect for deep-cycle applications where a cost-effective but reliable solution is required.

With a range of international certifications, the 2TLG is a proven choice. It has a 15-year design life and offers up to 650 cycles at 80% depth of discharge in the correct environment. The 2TLG range is manufactured in SEC's ISO approved factories and is backed by a full 3-year warranty as standard.

Industry leading construction

The CELLYTE 2TLG series builds on the CELLYTE 2TLA platform utilising the same classic top terminal construction. In addition, it features highly pure Thixotropic, Gelled Electrolyte and thick Lead Calcium grids to improve cycling capability.

This series is a range of high-powered 2V cells with a choice of standard or flame retardant casing. It employs international components including Swedish safety valves and Japanese designed triple-post sealant.

Product features

- Thixotropic Gel technology with VRLA design
- Long service life when used in correct conditions
- Engineered with international components
- Wide operating temperature range
- One-way safety valve for gas release
- Ideal in a wide range of deep cycle applications
- Extended cycle life
- Low maintenance; does not require additional water top ups
- Spill-proof and leak-proof with triple-seal posts
- Standard or flame retardant container options
- Thick Lead Calcium Tin positive grids
- Extended capacity range

“The 2V flat plate Gelled battery cell is an industry-standard, multipurpose workhorse. SEC has upgraded the standard design to include the best available grid alloys, and have optimised its formation and technology to provide a class-leading variation of a proven technology. When this is combined with the unique CatVent™ recombination plug, it outperforms and outlasts the industry standard design.”

Dr. Mike McDonagh SEC Group

Product benefits

Reliable valve regulated Gel design

The 2TLG features a safety valve as standard. It reduces risk of an accidental fire and acts as a highly efficient gas control. The valve prevents the ingress of oxygen to the cell, which increases the battery's life and improves its functional characteristics

Performs under temperature fluctuations

This range is suited to a wide operating temperature range in many applications. While continuous operation over 45°C is not recommended for any VRLA battery, the 2TLG has an operating temperature range of -15°C to + 50°C.

Sealed for extra safety

The 2TLG uses advanced electrolyte technology. The acid is immobilised in a highly pure mixture of gelling agent and sulphuric acid electrolyte, which makes the 2TLG a safe choice with little risk of spillage.

Higher efficiency

The 2TLG competes well with other conventional deep-cycle batteries. Low resistance plates allow quick recharge and operation even at cooler temperatures. This makes it more efficient when your application demands a quick turnaround.

Optimised grid design and paste formulation

SEC has optimised the grid design and paste formulation to maximise the operating and storage life of the battery. This gives excellent recovery from deep-discharge or over-discharge; it also ensures low self-discharge and excellent cycling capability.

Extended battery life and cycle service

The 2TLG was constructed for long life and reliability. In the right conditions it has a design life of over 15-years with a cycle life of 650 cycles at 80% depth of discharge.

Applications



Marine



Cathodic protection



Deep cycle



Emergency lighting



Navigation aids



Solar



UPS



Renewable



Oil and gas



Control system



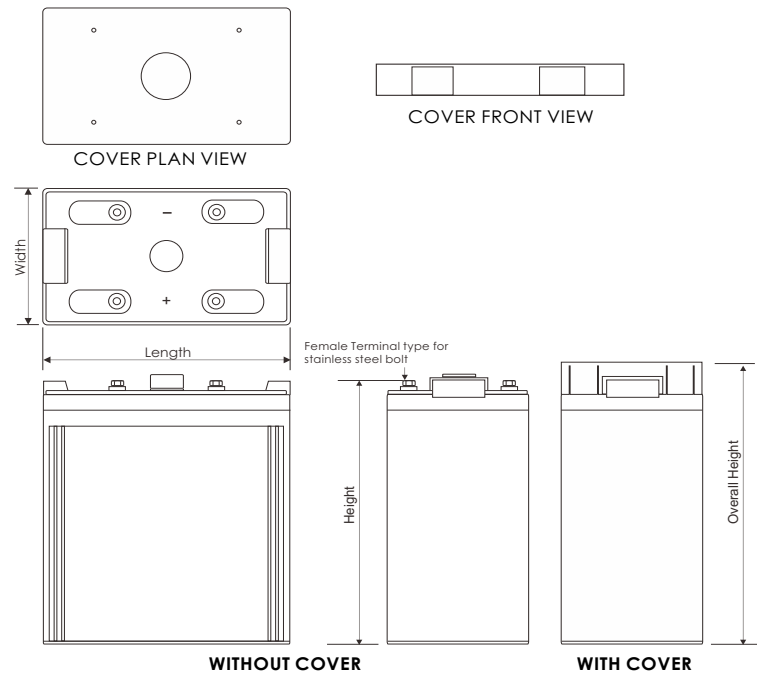
Telecommunication



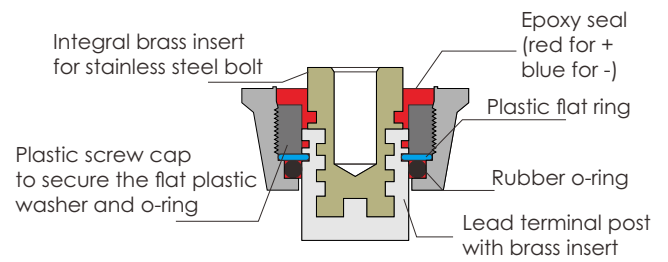
Industrial standby

Engineering

Cell outline



Triple-seal detail



SEC TRIPLE-SEAL DESIGN

Female terminal type

Female terminal type	Description
FT4	16mm ø brass insert terminal for M6 bolt
FT5	16mm ø brass insert terminal for M8 bolt

Cell dimensions

Dimensions/ Weights/ Data

SEC bloc type	Nominal capacity (Ah) C/10 1.80 vpc	Battery weight		Overall battery dimension								Internal resistance (mΩ)	Maximum charge current (A)	Short circuit current (A)	No. of terminal post	Terminal type
				Length		Width		Height		Overall height						
				kg	lbs	mm	Inch	mm	Inch	mm	Inch					
2-TLG-150	150	11.0	24.3	172	6.77	102	4.02	205	8.07	245	6.77	0.72	30.0	1395	2	FT5
2-TLG-200	200	14.0	30.9	173	6.81	111	4.37	329	13.0	365	6.81	0.60	40.0	1440	2	FT5
2-TLG-300	300	21.0	46.3	171	6.73	151	5.94	330	13.0	366	6.73	0.48	60.0	2160	2	FT5
2-TLG-400	400	27.0	59.5	211	8.31	176	6.93	329	13.0	367	8.31	0.43	80.0	2880	4	FT5
2-TLG-450	450	30.0	66.1	223	8.78	187	7.36	351	13.8	373	8.78	0.40	90.0	3240	4	FT5
2-TLG-500	500	32.0	70.5	211	8.31	176	6.93	329	13.0	367	8.31	0.36	100	3600	4	FT5
2-TLG-600	600	40.0	88.2	301	11.9	175	6.89	331	13.0	366	11.9	0.34	120	4320	4	FT5
2-TLG-800	800	57.0	126	410	16.1	175	6.89	330	13.0	365	16.1	0.24	160	5760	8	FT5
2-TLG-1000	1000	63.0	139	475	18.7	175	6.89	330	13.0	365	18.7	0.19	200	7110	8	FT5

Operating temperature

Design operating temperature	30°C with an approved catalyst
Limit for charging	-10 to +50°C
Limit for discharging	-15 to +50°C
Limit for storage	-20 to +50°C

Charging method

Float charging voltage at 25°C	2.25 - 2.30vpc with temperature compensation
Maximum charging voltage at 25°C	2.35vpc with temperature compensation
Float charge temperature compensation factor	-3 mV/cell/°C above 25°C +3 mV/cell/°C below 25°C
Cyclic charge temperature compensation factor	-5 mV/cell/°C above 25°C +5 mV/cell/°C below 25°C

Capacity

Ampere hour at 25°C

SEC bloc type	Discharge ampere hour at 25°C																	
	End volts /Cell	Discharge time in minutes			End Volts /Cell	Discharge time in hours												
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr
2-TLG-150	1.80	43.0	66.0	75.0	1.85	76.9	88.8	96.4	107	114	121	126	135	142	146	158	163	175
	1.75	49.1	70.6	80.2	1.80	82.5	93.8	102	113	120	127	133	142	150	153	166	172	185
	1.67	54.4	73.0	81.9	1.75	83.4	96.6	104	116	124	131	137	147	154	158	171	177	190
2-TLG-200	1.80	57.3	88.0	100	1.85	103	118	129	142	152	161	168	180	190	194	211	218	234
	1.75	65.5	94.1	107	1.80	110	125	135	150	160	169	177	190	200	204	222	229	246
	1.67	72.6	97.3	109	1.75	111	129	139	154	165	174	182	196	206	210	228	236	254
2-TLG-300	1.80	86	132	150	1.85	154	178	193	213	228	241	252	271	284	291	316	327	350
	1.75	98	141	160	1.80	165	188	203	225	240	254	265	285	300	306	333	344	369
	1.67	109	146	164	1.75	167	193	209	232	247	262	273	294	308	315	342	355	380
2-TLG-400	1.80	115	176	200	1.85	205	237	257	284	304	322	336	361	379	388	421	436	467
	1.75	131	188	214	1.80	220	250	271	300	320	338	354	380	400	408	444	459	492
	1.67	145	195	219	1.75	222	258	278	309	330	349	364	392	411	420	456	473	507
2-TLG-450	1.80	129	198	225	1.85	231	266	289	320	342	362	378	406	427	437	474	490	525
	1.75	147	212	241	1.80	248	281	305	338	360	380	398	427	450	459	499	516	554
	1.67	163	219	246	1.75	250	290	313	348	371	393	410	441	462	473	513	532	571
2-TLG-500	1.80	143	220	250	1.85	256	296	321	356	380	402	420	451	474	485	526	545	584
	1.75	164	235	267	1.80	275	313	338	375	400	423	442	475	500	510	554	574	615
	1.67	181	243	273	1.75	278	322	348	386	412	436	455	490	514	526	570	591	634
2-TLG-600	1.80	172	264	300	1.85	308	355	386	427	456	482	504	541	569	582	632	654	701
	1.75	197	282	321	1.80	330	375	406	450	480	507	531	570	600	612	665	688	738
	1.67	218	292	328	1.75	333	386	418	463	494	523	546	588	617	631	684	709	761
2-TLG-800	1.80	229	352	400	1.85	410	473	514	569	608	643	673	721	758	776	842	872	934
	1.75	262	376	428	1.80	440	500	541	600	640	676	707	759	800	816	887	918	984
	1.67	290	389	437	1.75	445	515	557	618	659	698	729	783	822	841	912	945	1014
2-TLG-1000	1.80	287	440	500	1.85	513	592	643	711	760	804	841	902	948	970	1053	1090	1168
	1.75	328	470	535	1.80	550	625	677	750	800	845	884	949	1000	1020	1109	1147	1230
	1.67	363	486	546	1.75	556	644	696	772	824	872	911	979	1028	1051	1140	1182	1268

Current

Ampere at 25°C

SEC bloc type	Discharge data amps at 25°C																	
	End volts /Cell	Discharge time in minutes			End Volts /Cell	Discharge time in hours												
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr
2-TLG-150	1.80	172	132	100	1.85	76.9	59.2	48.2	35.6	28.5	24.1	21.0	16.9	14.2	12.1	6.58	3.41	1.75
	1.75	197	141	107	1.80	82.5	62.5	50.8	37.5	30.0	25.4	22.1	17.8	15.0	12.8	6.93	3.59	1.85
	1.67	218	146	109	1.75	83.4	64.4	52.2	38.6	30.9	26.2	22.8	18.4	15.4	13.1	7.12	3.69	1.90
2-TLG-200	1.80	229	176	133	1.85	103	78.9	64.3	47.4	38.0	32.2	28.0	22.5	19.0	16.2	8.77	4.54	2.34
	1.75	262	188	143	1.80	110	83.3	67.7	50.0	40.0	33.8	29.5	23.7	20.0	17.0	9.24	4.78	2.46
	1.67	290	195	146	1.75	111	85.9	69.6	51.5	41.2	34.9	30.4	24.5	20.6	17.5	9.50	4.92	2.54
2-TLG-300	1.80	344	264	200	1.85	154	118	96.4	71.1	57.0	48.2	42.0	33.8	28.4	24.3	13.2	6.81	3.50
	1.75	393	282	214	1.80	165	125	102	75.0	60.0	50.7	44.2	35.6	30.0	25.5	13.9	7.17	3.69
	1.67	436	292	219	1.75	167	129	104	77.2	61.8	52.3	45.5	36.7	30.8	26.3	14.2	7.39	3.80
2-TLG-400	1.80	459	352	267	1.85	205	158	129	94.8	76.0	64.3	56.0	45.1	37.9	32.3	17.5	9.08	4.67
	1.75	524	376	285	1.80	220	167	135	100	80.0	67.6	58.9	47.5	40.0	34.0	18.5	9.56	4.92
	1.67	581	389	291	1.75	222	172	139	103	82.4	69.8	60.7	49.0	41.1	35.0	19.0	9.85	5.07

Current

Ampere at 25°C

SEC bloc type	Discharge data amps at 25°C																	
	End volts /Cell	Discharge time in minutes			End Volts /Cell	Discharge time in hours												
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr
2-TLG-450	1.80	516	396	300	1.85	231	178	145	107	85.5	72.4	63.0	50.7	42.7	36.4	19.7	10.2	5.25
	1.75	590	423	321	1.80	248	188	152	113	90.0	76.1	66.3	53.4	45.0	38.3	20.8	10.8	5.54
	1.67	653	438	328	1.75	250	193	157	116	92.7	78.5	68.3	55.1	46.2	39.4	21.4	11.1	5.71
2-TLG-500	1.80	573	440	333	1.85	256	197	161	119	95.0	80.4	70.1	56.4	47.4	40.4	21.9	11.4	5.84
	1.75	655	470	356	1.80	275	208	169	125	100.0	84.5	73.7	59.3	50.0	42.5	23.1	12.0	6.15
	1.67	726	486	364	1.75	278	215	174	129	103	87.2	75.9	61.2	51.4	43.8	23.7	12.3	6.34
2-TLG-600	1.80	688	528	400	1.85	308	237	193	142	114	96.5	84.1	67.6	56.9	48.5	26.3	13.6	7.01
	1.75	786	564	428	1.80	330	250	203	150	120	101	88.4	71.2	60.0	51.0	27.7	14.3	7.38
	1.67	871	584	437	1.75	333	258	209	154	124	105	91.1	73.4	61.7	52.6	28.5	14.8	7.61
2-TLG-800	1.80	917	704	533	1.85	410	316	257	190	152	129	112	90.2	75.8	64.7	35.1	18.2	9.34
	1.75	1048	753	570	1.80	440	333	271	200	160	135	118	94.9	80.0	68.0	37.0	19.1	9.84
	1.67	1161	778	583	1.75	445	343	278	206	165	140	121	97.9	82.2	70.1	38.0	19.7	10.1
2-TLG-1000	1.80	1147	880	667	1.85	513	395	321	237	190	161	140	113	94.8	80.8	43.9	22.7	11.7
	1.75	1310	941	713	1.80	550	417	338	250	200	169	147	119	100	85.0	46.2	23.9	12.3
	1.67	1452	973	728	1.75	556	429	348	257	206	174	152	122	103	87.6	47.5	24.6	12.7

Power

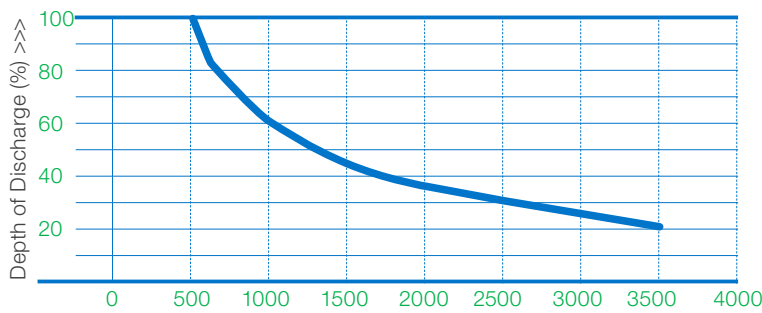
Watts/cell at 25°C

SEC bloc type	Discharge data watts/cell at 25°C																	
	End volts /Cell	Discharge time in minutes			End Volts /Cell	Discharge time in hours												
		15min	30min	45min		1hr	1.5hr	2hr	3hr	4hr	5hr	6hr	8hr	10hr	12hr	24hr	48hr	100hr
2-TLG-150	1.80	318	248	188	1.85	147	114	93.2	69.3	55.9	47.5	41.5	33.6	28.4	24.2	13.2	6.83	3.57
	1.75	354	258	197	1.80	154	119	97.4	72.6	58.5	49.7	43.5	35.2	29.8	25.4	13.9	7.17	3.75
	1.67	381	263	200	1.75	155	121	99.1	74.1	59.7	50.8	44.4	36.0	30.3	25.9	14.1	7.33	3.86
2-TLG-200	1.80	424	330	251	1.85	196	152	124	92.4	74.5	63.4	55.4	44.8	37.8	32.3	17.6	9.11	4.76
	1.75	472	343	263	1.80	206	159	130	96.9	78.0	66.2	57.9	46.9	39.7	33.8	18.5	9.56	5.00
	1.67	508	350	267	1.75	207	162	132	98.8	79.6	67.8	59.2	48.0	40.4	34.6	18.9	9.78	5.15
2-TLG-300	1.80	636	496	376	1.85	294	228	186	139	112	95.0	83.1	67.2	56.7	48.5	26.4	13.7	7.14
	1.75	708	515	395	1.80	309	239	195	145	117	99.3	86.9	70.4	59.5	50.7	27.7	14.3	7.51
	1.67	762	525	400	1.75	311	243	198	148	119	102	88.8	72.0	60.7	51.9	28.3	14.7	7.72
2-TLG-400	1.80	849	661	502	1.85	392	304	249	185	149	127	111	89.6	75.6	64.6	35.2	18.2	9.51
	1.75	944	687	526	1.80	411	318	260	194	156	132	116	93.8	79.4	67.6	37.0	19.1	10.0
	1.67	1016	700	533	1.75	415	324	264	198	159	136	118	96.0	80.9	69.1	37.7	19.6	10.3
2-TLG-450	1.80	955	743	565	1.85	441	342	280	208	168	143	125	101	85.1	72.7	39.6	20.5	10.7
	1.75	1061	773	592	1.80	463	358	292	218	176	149	130	106	89.3	76.1	41.6	21.5	11.3
	1.67	1143	788	600	1.75	466	364	297	222	179	152	133	108	91.0	77.8	42.4	22.0	11.6
2-TLG-500	1.80	1061	826	627	1.85	490	380	311	231	186	158	138	112	94.5	80.8	44.0	22.8	11.9
	1.75	1179	858	658	1.80	514	398	325	242	195	166	145	117	99.2	84.5	46.2	23.9	12.5
	1.67	1270	876	666	1.75	518	405	330	247	199	169	148	120	101	86.4	47.2	24.4	12.9
2-TLG-600	1.80	1273	991	753	1.85	588	455	373	277	224	190	166	134	113	97.0	52.8	27.3	14.3
	1.75	1415	1030	789	1.80	617	477	390	291	234	199	174	141	119	101	55.4	28.7	15.0
	1.67	1524	1051	800	1.75	622	486	396	296	239	203	178	144	121	104	56.6	29.3	15.4
2-TLG-800	1.80	1697	1321	1004	1.85	784	607	497	370	298	253	222	179	151	129	70.4	36.5	19.0
	1.75	1887	1374	1052	1.80	823	636	520	387	312	265	232	188	159	135	73.9	38.2	20.0
	1.67	2033	1401	1066	1.75	829	647	529	395	318	271	237	192	162	138	75.5	39.1	20.6
2-TLG-1000	1.80	2121	1652	1255	1.85	981	759	621	462	373	317	277	224	189	162	88.0	45.6	23.8
	1.75	2359	1717	1315	1.80	1029	795	650	484	390	331	290	235	198	169	92.4	47.8	25.0
	1.67	2541	1751	1333	1.75	1036	809	661	494	398	339	296	240	202	173	94.3	48.9	25.7

Cycle life

Relationship between depth of discharge and life

Ambient temperature 25°C



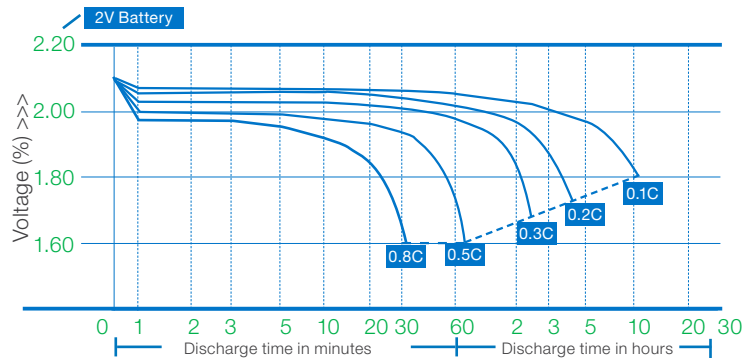
Cycle Life >>>

The depth of discharge critically affects the number of cycles which a battery will complete during its life time.

Discharge characteristics

Discharge current VS discharge time curve

Ambient temperature 25°C

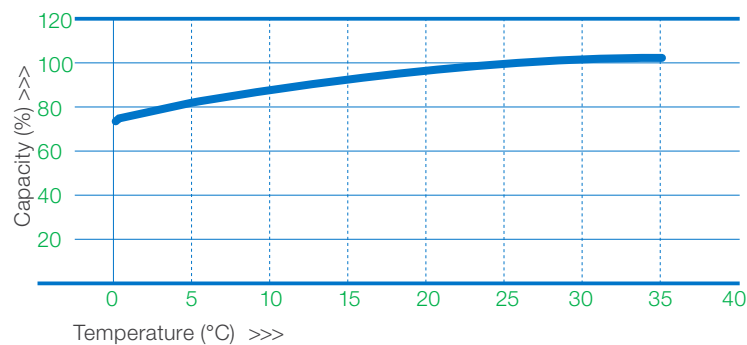


Discharge duration (h) >>>

Effect of discharge rate on battery capacity.

Effect of inclined temperature

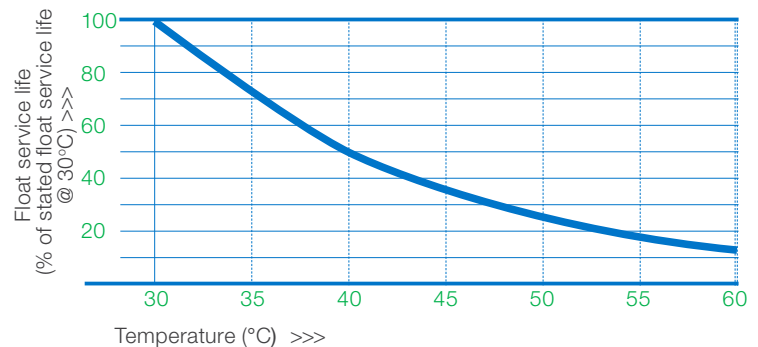
Effect of temperature on capacity at C/10 discharge rate



Temperature (°C) >>>

A high ambient temperature will increase the cell capacity but will significantly shorten its calendar and cycle life.

Float service life VS temperature

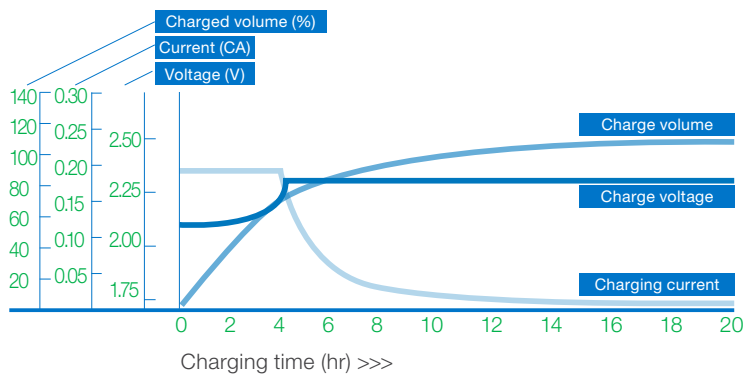


Temperature (°C) >>>

Effect of temperature on float service life.

Charge method

Constant current/voltage charge characteristics



Charging time (hr) >>>

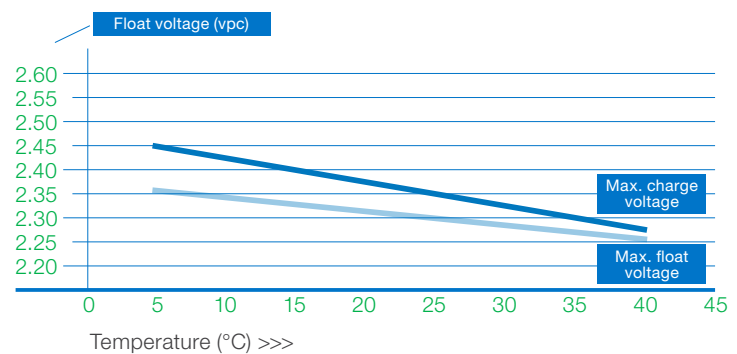
The preferred charging procedure should be in accordance with DIN 41773, constant current/constant voltage (IU characteristic). Constant float charging utilising a constant voltage charger is also acceptable.

Charging voltage measured at the battery terminals: $2.30 \pm 1\% \times \text{number of cells}$.

Equalising or fast charging can occasionally be permitted in which the charging voltage is $2.35V \times \text{number of cells}$ for a maximum fixed period of 8 hours (depends on state of charge). This will apply in deep discharge and limited recharge operations such as stand-by with parallel connections. Automatic changeover to the charging voltage of $2.25V \pm 1\% \times \text{number of cells}$ should follow after this period.

Charge compensation

Temperature compensation for float voltage



Temperature (°C) >>>

Join the SEC Partner Grid Programme for increased profits

The energy storage market is booming. From 2012 to 2016, the market has tripled from 6 billion to 18 billion US dollars, driven in large part by renewable energy needs. With more than half of the world's energy supply destined to come from renewable energy sources in the near future, continued rapid growth is a certainty. The opportunities are immense.

Let us help you grow your share of this expanding market and maximise your profits with the SEC Partner Grid Programme. We provide our partners with quality leads generated by our global marketing efforts.

Partners also receive free technical and sales marketing training, discounts, software, rewards for developing new sources of repeat business, and even subsidies for marketing efforts.



Benefits

Lead generation

Technical training

Product discounts

Market growth incentives

Sales and marketing training

Partner performance awards

Customer recruitment rewards

On demand technical and sales support

Online tools for easy direct access to SEC



Contact us today to learn more about how you can grow your profits in the booming market for energy storage with the SEC Partner Grid Programme.



+852 2304 4382



info@secbattery.com



www.secbattery.com

The SEC global network



SEC UK

SEC Industrial Battery Co. Ltd
Thorney Weir House / Thorney Mill Road
Iver / Bucks / SL0 9AQ / United Kingdom
Tel +44 1895 431543

SEC South East Asia

Pt. SEC Battery Indonesia
Jalan Siligita Blok 1 / No 1 / Nusa Dua
Bali / Indonesia
Tel +62 81246401882

SEC Asia

SEC Industrial Battery Co. Ltd
Unit 6, 6f / Hewlett Centre
54 Hoi Yuen Road
Kwun Tong Kowloon / Hong Kong
Tel +852 2304 4382

SEC China

深圳市英能电池技术有限公司

Room 1706 Dongfeng Tower /
2010 Shennan Middle Road /
Huaqiang North Street / Futian / Shenzhen/ China
深圳福田区华强北街道深南中路 2010 号东风大厦1706 室

SEC Middle East

SEC Industrial Battery B.S.C.
Office 1304, 10th floor / Bldg 614
Rd 1011 / Sanabis 410 / Kingdom of Bahrain
Tel +973 1772 1322