



# The CELLYTE 6/12-TLG Series

6/12V flat plate monobloc Gel  
battery

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



# 6/12-TLG



## Specification

<b>Positive electrode:</b>	Lead Calcium Tin grid alloy
<b>Negative electrode:</b>	Lead Calcium grid alloy
<b>Float voltage:</b>	2.25 - 2.30 vpc $\pm$ 1% at 25°C
<b>Max. charge voltage:</b>	2.35 vpc $\pm$ 1% at 25°C
<b>Electrolyte:</b>	Thixotropic high purity silica Gel electrolyte
<b>Safety valve:</b>	1-3 psi self-resealing
<b>Separators:</b>	Microporous separator
<b>Terminals:</b>	Integral brass insert for stainless steel bolt
<b>Electrical:</b>	6V 105-202Ah & 12V 14.9-235Ah at C/10 to 1.80vpc @ 25°C

## Design life

<b>Float life:</b>	10-years in float service @ 25°C.
<b>Cycle life:</b>	400 cycles @ 80% DOD @ 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 6/12-TLG series

#### Offers rugged, reliable performance

The Cellyte 6/12-TLG series combines Gel technology with VRLA principles to produce a tough, no-nonsense battery. The 6/12-TLG is perfect for deep-cycle applications where a cost-effective but reliable solution is required.

With a range of international certifications, the 6/12-TLG is a proven choice. It has a 10-year design life and offers up to 400 cycles at 80% depth of discharge in the correct environment. The 6/12-TLG range is manufactured in SEC's ISO approved factories and is backed by a full 2-year warranty as standard.

#### Industry-leading construction

The Cellyte 6/12-TLG series is built with the Cellyte 6/12-TLA 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 available in a range of 6V and 12V blocs with a choice of standard or flame-retardant casing. The 6/12 TLG series is made with a range of international components including Swedish safety valves and Japanese designed triple-post sealant.

## Product features

- Thixotropic Gel technology with VRLA design
- Advanced one-way safety valve for gas release
- Spill-proof and leak-proof with triple-post seals
- Long service life when used in correct conditions
- Ideal in a wide range of deep-cycle applications
- Standard or flame-retardant casing
- Engineered with internationally recognised reliable components
- Extended cycle life and capacity
- Optimised Lead Calcium grid design to maximise float life
- Central manifold gassing system
- Wide operating temperature range
- Low maintenance; does not require water top-up

*“A flat plate monobloc with a deep-cycle design and gelled electrolyte ensures the maximum cycle life from Lead Calcium technology.”*

**Dr. Mike McDonagh**  
**SEC Group**

## Product benefits

### Reliable valve regulated Gel design

The 6/12-TLG features a patented safety valve as standard. This means a reduced risk of fire plus highly efficient operation. The valve does not allow the ingress of oxygen, which is harmful to the function and service life of the battery.

### Sealed for extra safety

The 6/12-TLG uses advanced electrolyte technology. The acid is immobilised in a highly pure mixture of silica gelling agent and Sulphuric Acid electrolyte. This treatment of the acid makes the 6/12-TLG a safe choice with virtually no risk of spillage.

### 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 assists in enabling good recovery from over or deep-discharge. It also ensures low self-discharge rates and excellent cycling capability.

### Performs well under variable temperature conditions

This series is suited to a wide operating temperature range in many applications. Although the 6/12-TLG has an operating temperature range of -10°C to +50°C, continuous or regular operation above 45°C is not recommended.

### Higher power and efficiency

The 6/12-TLG competes well with other conventional deep cycle batteries. Low resistance plates enable quick recharge and operation at cooler temperatures. This makes it more efficient when your application demands a quick turnaround.

### Extended battery life and cycle service

The 6/12-TLG is constructed for long life and reliability. In the right conditions it has a design life of over 10-years and an average of 400 charge/discharge cycles at 80% DOD.

## Applications



**Telecommunication**



**Cathodic protection**



**Solar**



**Engine starting**



**Navigation aid**



**Renewables**



**Motive**

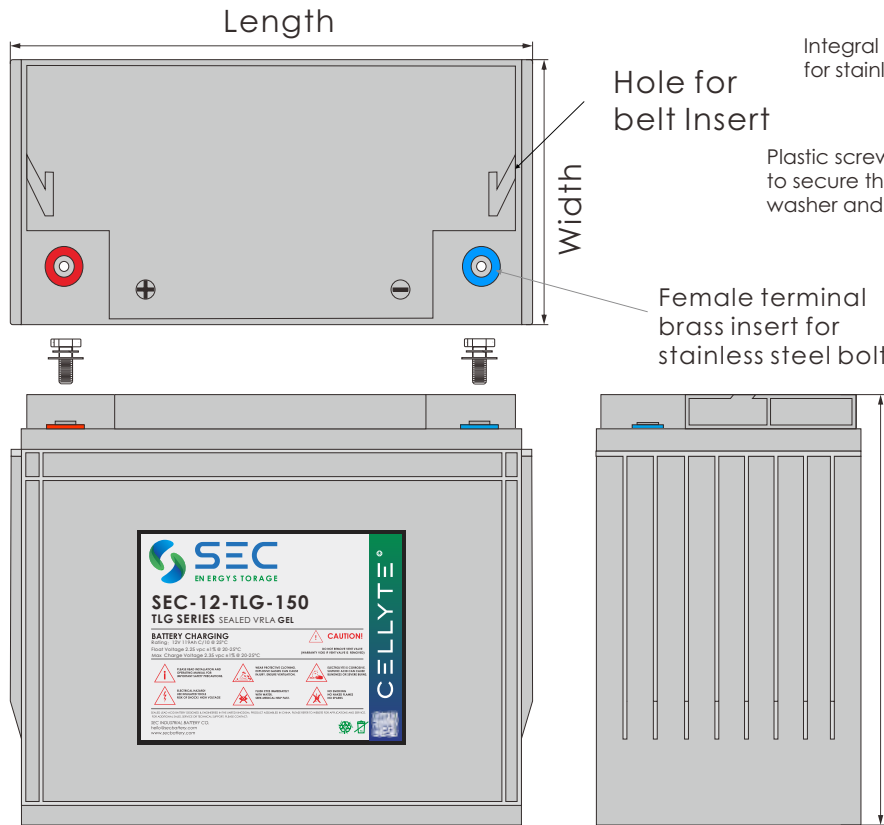


**Deep cycle**

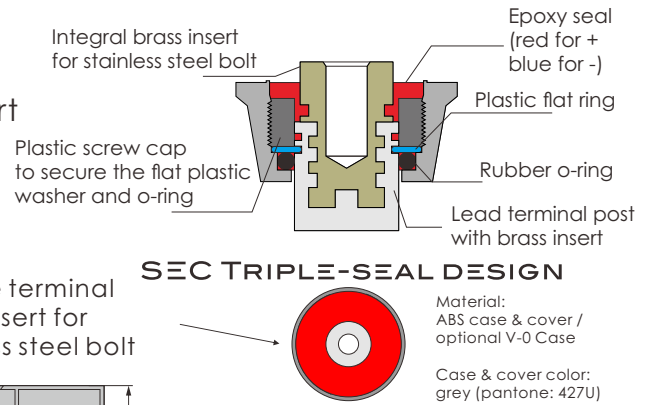


**Marine**

## Cell outline



## Triple-seal detail



## Female terminal type

Female terminal type	Description
<b>FT2</b>	12mm ø brass insert terminal for M5 bolt
<b>FT3</b>	14mm ø brass insert terminal for M6 bolt
<b>FT4</b>	16mm ø brass insert terminal for M6 bolt
<b>FT5</b>	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						Short circuit amps	Internal resistance (mΩ)	Maximum charge current(A)	Female terminal type
		kg	lbs	Length		Width		Height					
				mm	Inch	mm	Inch	mm	Inch				
<b>6-TLG-130</b>	105	16.0	35.3	196	7.72	170	6.69	214	8.43	3200	3.00	21.0	FT 4
<b>6-TLG-220</b>	175	30.5	67.2	323	12.7	178	7.01	230	9.06	5000	2.30	35.0	FT 5
<b>6-TLG-250</b>	202	31.5	69.4	243	9.57	188	7.40	275	10.8	5400	2.10	40.4	FT 5
<b>12-TLG-20</b>	14.9	5.80	12.8	181	7.13	77.0	3.03	167	6.57	750	12.00	2.98	FT 3
<b>12-TLG-30</b>	22.8	9.7	21.4	165	6.50	125	4.92	176	6.93	1100	8.20	4.56	FT 3
<b>12-TLG-40</b>	27.2	10.5	23.1	196	7.72	131	5.16	181	7.13	1500	7.30	5.44	FT 3
<b>12-TLG-50</b>	36.8	14.0	30.9	197	7.76	165	6.50	170	6.69	1700	6.00	7.36	FT 3
<b>12-TLG-60</b>	48.2	18.0	39.7	230	9.06	138	5.43	228	8.98	1900	5.60	9.64	FT 3
<b>12-TLG-70</b>	57.0	22.0	48.5	350	13.8	167	6.57	179	7.05	2000	5.50	11.4	FT 3
<b>12-TLG-80</b>	61.4	23.8	52.5	260	10.2	169	6.65	227	8.94	2100	5.40	12.3	FT 3
<b>12-TLG-90</b>	70.1	25.0	55.1	260	10.2	169	6.65	227	8.94	2400	4.50	14.0	FT 3

# Cell dimensions

## Dimensions/ Weights/ Data

SEC bloc type	Nominal capacity (Ah) C/10 1.80 vpc	Battery weight		Overall battery dimension						Short circuit amps	Internal resistance (mΩ)	Maximum charge current(A)	Female terminal type
				Length		Width		Height					
		kg	lbs	mm	Inch	mm	Inch	mm	Inch				
<b>12-TLG-100</b>	78.9	29.5	65.0	307	12.1	170	6.69	227	8.94	2650	4.30	15.8	FT 3
<b>12-TLG-110</b>	87.7	30.5	67.2	307	12.1	170	6.69	227	8.94	2900	3.90	17.5	FT 4
<b>12-TLG-120</b>	96.4	33.0	72.8	331	13.0	176	6.93	225	8.86	3000	3.40	19.3	FT 4
<b>12-TLG-130</b>	105	35.0	77.2	331	13.0	176	6.93	225	8.86	3300	3.10	21.0	FT 4
<b>12-TLG-150</b>	119	42.5	93.7	342	13.5	173	6.81	285	11.2	4200	2.90	23.8	FT 4
<b>12-TLG-170</b>	133	46.0	101	483	19.0	170	6.69	240	9.45	4500	2.70	26.6	FT 5
<b>12-TLG-190</b>	150	54.0	119	532	20.9	207	8.15	240	9.45	4600	2.50	30.0	FT 5
<b>12-TLG-210</b>	167	56.0	123	532	20.9	207	8.15	240	9.45	4700	2.30	33.4	FT 5
<b>12-TLG-250</b>	202	65.0	143	522	20.6	240	9.45	225	8.86	5400	2.20	40.4	FT 5
<b>12-TLG-300</b>	235	74.4	164	522	20.6	269	10.6	245	9.65	6050	2.10	47.0	FT 5

Catalyst can be added upon request except 6-TLG-130, 6-TLG-220, 12-TLG-20, 12-TLG-30, 12-TLG-40, 12-TLG-50 and 12-TLG-70 can not be fitted with catalyst. 6-TLG-130 and 6-TLG-220 are not filled with gel electrolyte.

## Operating temperature

<b>Design operating temperature</b>	25°C
<b>Limit for charging</b>	-10 to +50°C
<b>Limit for discharging</b>	-15 to +50°C
<b>Limit for storage</b>	-20 to +50°C

## Charging method

<b>Float charging voltage at 25°C</b>	2.25 - 2.30vpc with temperature compensation
<b>Maximum charging voltage at 25°C</b>	2.35vpc with temperature compensation
<b>Float charge temperature compensation factor</b>	-3 mV/cell/°C above 25°C +3 mV/cell/°C below 25°C
<b>Cyclic charge temperature compensation factor</b>	-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	72hr	100hr
6-TLG-130	1.80	39.8	51.0	57.2	1.85	63.0	64.6	72.5	78.5	82.4	85.4	88.2	96.8	98.3	100	113	118	122	126
	1.75	43.3	53.0	58.9	1.80	64.5	68.5	76.9	83.3	87.5	90.5	93.6	102	105	107	118	122	126	130
	1.67	45.5	54.0	59.2	1.75	65.0	70.2	78.8	85.2	89.6	92.9	96.0	105	108	110	122	125	129	133
6-TLG-220	1.80	66.3	85.0	95.3	1.85	105	108	121	131	137	142	147	161	164	167	188	196	203	210
	1.75	72.0	88.0	98.3	1.80	108	114	128	139	146	151	156	171	175	179	197	204	210	217
	1.67	75.8	90.0	98.3	1.75	108	117	131	142	149	155	160	175	180	184	203	209	215	221
6-TLG-250	1.80	76.3	98.0	110	1.85	121	124	139	150	158	164	169	185	188	192	216	226	234	242
	1.75	82.8	101	113	1.80	124	131	147	160	168	174	180	197	202	205	227	234	242	250
	1.67	87.0	104	113	1.75	125	135	151	164	172	178	184	202	207	211	233	240	247	255
12-TLG-20	1.80	5.65	7.25	8.10	1.85	8.90	9.10	10.3	11.1	11.7	12.1	12.5	13.7	13.9	14.2	16.0	16.7	17.3	17.9
	1.75	6.13	7.50	8.33	1.80	9.10	9.70	10.9	11.8	12.4	12.8	13.3	14.5	14.9	15.2	16.8	17.3	17.9	18.0
	1.67	6.43	7.65	8.40	1.75	9.20	9.90	11.2	12.1	12.7	13.2	13.6	14.9	15.3	15.6	17.3	17.7	18.0	18.8
12-TLG-30	1.80	8.63	11.1	12.4	1.85	13.6	14.0	15.7	17.0	17.9	18.5	19.1	21.0	21.3	21.7	24.4	25.4	26.4	27.0
	1.75	9.35	11.5	12.8	1.80	14.0	14.8	16.7	18.0	19.0	19.6	20.3	22.2	22.8	23.2	25.6	26.4	27.3	28.0
	1.67	9.83	11.7	12.8	1.75	14.1	15.2	17.1	18.5	19.4	20.1	20.8	22.8	23.4	23.9	26.4	27.1	28.0	28.8
12-TLG-40	1.80	10.3	13.2	14.8	1.85	16.3	16.7	18.7	20.3	21.3	22.1	22.8	25.0	25.4	25.9	29.0	30.2	31.5	32.6
	1.75	11.2	13.7	15.2	1.80	16.7	17.7	19.8	21.5	22.6	23.4	24.2	26.5	27.2	27.7	30.5	31.6	32.4	33.6
	1.67	11.7	14.0	15.3	1.75	16.8	18.1	20.4	22.0	23.2	24.0	24.8	27.2	27.9	28.4	31.4	32.2	33.1	34.0
12-TLG-50	1.80	14.0	17.9	20.0	1.85	22.0	22.6	25.4	27.5	28.9	29.9	31.0	33.8	34.4	35.0	39.4	41.2	42.5	44.0
	1.75	15.1	18.5	20.6	1.80	22.6	24.0	26.9	29.1	30.6	31.7	32.8	35.9	36.8	37.5	41.3	42.7	43.9	45.6
	1.67	15.9	18.9	20.7	1.75	22.7	24.6	27.6	29.9	31.4	32.5	33.6	36.8	37.8	38.5	42.6	43.7	45.2	46.0
12-TLG-60	1.80	18.3	23.4	26.2	1.85	28.9	29.6	33.2	36.0	37.8	39.2	40.5	44.3	45.0	45.9	51.6	53.8	55.9	57.8
	1.75	19.8	24.2	27.0	1.80	29.6	31.4	35.2	38.1	40.0	41.5	43.0	47.0	48.2	49.1	54.2	56.0	57.6	59.7
	1.67	20.8	24.8	27.1	1.75	29.8	32.2	36.1	39.0	41.1	42.6	44.0	48.2	49.5	50.5	55.8	57.4	59.0	60.9
12-TLG-70	1.80	21.6	27.7	31.0	1.85	34.1	35.0	39.2	42.5	44.7	46.3	47.9	52.4	53.2	54.2	61.0	63.8	66.1	68.0
	1.75	23.5	28.6	31.9	1.80	35.0	37.1	41.6	45.0	47.2	49.0	50.8	55.5	57.0	58.1	64.1	66.2	68.3	70.5
	1.67	24.5	29.3	32.0	1.75	35.2	38.0	42.7	46.2	48.4	50.3	52.1	57.0	58.5	59.6	66.0	67.7	69.8	72.0
12-TLG-80	1.80	23.2	29.8	33.3	1.85	36.7	37.7	42.3	45.8	48.0	49.8	51.6	56.5	57.3	58.4	65.7	68.6	71.2	73.6
	1.75	25.3	30.8	34.4	1.80	37.6	39.9	44.8	48.6	51.0	52.9	54.7	59.8	61.4	62.5	68.9	71.0	73.4	75.9
	1.67	26.5	31.5	34.5	1.75	37.9	41.0	46.0	49.8	52.3	54.0	56.1	61.4	63.0	64.3	71.0	73.0	75.3	77.0
12-TLG-90	1.80	26.5	34.0	38.1	1.85	42.0	43.1	48.4	52.2	54.8	57.0	58.8	64.5	65.5	66.8	75.1	78.5	81.3	84.0
	1.75	28.8	35.2	39.3	1.80	43.0	45.7	51.2	55.5	58.3	60.4	62.4	68.4	70.1	71.4	78.8	81.4	84.1	86.8
	1.67	30.3	36.0	39.5	1.75	43.3	46.8	52.6	56.9	59.6	61.9	64.1	70.1	72.0	73.4	81.1	83.5	86.0	88.6
12-TLG-100	1.80	29.8	38.3	42.8	1.85	47.2	48.4	54.4	58.8	61.9	64.0	66.3	72.6	73.7	75.2	84.5	88.3	92.1	96.0
	1.75	32.5	39.6	44.2	1.80	48.4	51.4	57.7	62.4	65.6	68.0	70.2	76.9	78.9	80.4	88.7	91.6	95.6	99.6
	1.67	34.0	40.5	44.3	1.75	48.7	52.7	59.1	63.9	67.2	69.5	72.0	78.9	81.0	82.6	91.4	94.0	97.2	101
12-TLG-110	1.80	33.3	42.5	47.6	1.85	52.5	53.8	60.4	65.4	68.7	71.0	73.7	80.6	81.9	83.5	93.8	97.9	102	105
	1.75	36.0	44.0	49.1	1.80	53.8	57.1	64.1	69.3	72.8	75.5	78.0	85.5	87.7	89.3	98.6	102	105	108
	1.67	37.8	45.0	49.3	1.75	54.1	58.5	65.7	71.1	74.7	77.4	80.1	87.7	90.0	91.8	102	104	107	111
12-TLG-120	1.80	36.5	46.8	52.4	1.85	57.7	59.2	66.4	72.0	75.6	78.3	81.0	88.7	90.1	91.9	103	108	112	116
	1.75	39.5	48.4	54.0	1.80	59.2	62.8	70.5	76.2	80.0	83.0	85.8	94.0	96.4	98.3	108	112	116	119
	1.67	41.5	49.5	54.2	1.75	59.6	64.4	72.2	78.2	82.0	85.0	88.1	96.4	99.0	101	112	115	118	122
12-TLG-130	1.80	39.8	51.0	57.2	1.85	63.0	64.6	72.5	78.5	82.4	85.4	88.2	96.8	98.3	101	113	118	122	126
	1.75	43.3	53.0	58.9	1.80	64.5	68.5	76.9	83.3	87.5	90.5	93.6	102	105	107	118	122	126	130
	1.67	45.5	54.0	59.2	1.75	65.0	70.2	78.8	85.2	89.6	92.9	96.0	105	108	111	122	125	129	133
12-TLG-150	1.80	45.3	58.0	64.7	1.85	71.4	73.2	82.2	89.0	93.5	96.8	100	110	111	114	128	133	138	143
	1.75	49.0	60.0	66.8	1.80	73.1	77.7	87.2	94.4	99.2	103	106	116	119	121	134	138	143	148
	1.67	51.5	61.0	67.1	1.75	73.6	79.5	89.4	96.6	102	105	109	119	122	125	138	142	146	151

# 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	72hr	100hr
<b>12-TLG-170</b>	1.80	50.5	64.5	72.4	1.85	79.8	81.8	91.8	99.0	104	108	112	122	124	127	143	149	155	160
	1.75	54.8	67.0	74.6	1.80	81.7	86.8	97.0	105	111	115	119	130	133	136	150	155	160	166
	1.67	57.5	68.5	75.0	1.75	82.3	88.9	99.8	108	114	118	122	133	137	139	154	159	163	168
<b>12-TLG-190</b>	1.80	56.8	72.5	81.8	1.85	89.7	92.0	103	112	118	122	126	138	140	143	161	168	174	180
	1.75	61.5	75.0	84.0	1.80	92.0	97.7	110	119	125	129	134	146	150	152	168	174	180	186
	1.67	64.8	77.0	84.0	1.75	92.6	100	112	122	128	132	137	150	154	157	174	179	184	190
<b>12-TLG-210</b>	1.80	63.0	81.0	90.8	1.85	99.7	102	115	124	130	135	140	153	156	158	178	186	193	200
	1.75	68.5	83.5	93.0	1.80	102	108	122	132	138	144	149	162	167	169	187	193	200	206
	1.67	72.0	85.5	93.8	1.75	103	111	125	135	142	147	152	166	171	174	193	198	204	211
<b>12-TLG-250</b>	1.80	76.3	98.0	110	1.85	121	124	139	150	158	164	169	185	188	192	216	226	234	242
	1.75	82.8	101	113	1.80	124	131	147	160	168	174	180	197	202	205	227	234	242	250
	1.67	87.0	104	113	1.75	125	135	151	164	172	178	184	202	207	211	233	240	248	255
<b>12-TLG-300</b>	1.80	89.0	114	128	1.85	141	144	162	175	184	191	197	216	219	224	252	263	273	282
	1.75	96.5	118	131	1.80	144	153	172	186	195	202	209	229	235	239	264	273	282	291
	1.67	102	121	132	1.75	145	157	176	191	200	207	215	235	241	246	272	280	288	297

# Current

## Ampere at 25°C

SEC bloc type	Discharge 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	72hr	100hr	
6-TLG-130	1.80	159	102	76.2	1.85	63.0	43.1	36.3	26.2	20.6	17.1	14.7	12.1	9.83	8.33	4.69	2.45	1.69	1.26	
	1.75	173	106	78.5	1.80	64.5	45.7	38.5	27.8	21.9	18.1	15.6	12.8	10.5	8.92	4.92	2.54	1.75	1.30	
	1.67	182	108	78.9	1.75	65.0	46.8	39.4	28.4	22.4	18.6	16.0	13.1	10.8	9.17	5.08	2.60	1.79	1.33	
6-TLG-220	1.80	265	170	127	1.85	105	71.8	60.4	43.6	34.3	28.4	24.5	20.1	16.4	13.9	7.82	4.08	2.82	2.10	
	1.75	288	176	131	1.80	108	76.0	64.0	46.3	36.5	30.2	26.0	21.4	17.5	14.9	8.21	4.24	2.92	2.17	
	1.67	303	180	131	1.75	108	78.0	65.5	47.3	37.3	31.0	26.7	21.9	18.0	15.3	8.46	4.35	2.99	2.21	
6-TLG-250	1.80	305	196	146	1.85	121	82.5	69.5	50.0	39.5	32.8	28.2	23.1	18.8	16.0	9.00	4.70	3.25	2.42	
	1.75	331	202	151	1.80	124	87.3	73.5	53.2	41.9	34.7	30.0	24.6	20.2	17.1	9.44	4.88	3.36	2.50	
	1.67	348	207	151	1.75	125	89.7	75.5	54.5	43.0	35.6	30.7	25.2	20.7	17.6	9.71	5.00	3.43	2.55	
12-TLG-20	1.80	22.6	14.5	10.8	1.85	8.90	6.07	5.14	3.70	2.92	2.42	2.08	1.71	1.39	1.18	0.67	0.35	0.24	0.18	
	1.75	24.5	15.0	11.1	1.80	9.10	6.47	5.45	3.93	3.10	2.56	2.22	1.81	1.49	1.27	0.70	0.36	0.25	0.18	
	1.67	25.7	15.3	11.2	1.75	9.20	6.60	5.60	4.03	3.17	2.63	2.27	1.86	1.53	1.30	0.72	0.37	0.25	0.19	
12-TLG-30	1.80	34.5	22.1	16.5	1.85	13.6	9.33	7.85	5.67	4.47	3.70	3.19	2.62	2.13	1.81	1.02	0.53	0.37	0.27	
	1.75	37.4	22.9	17.0	1.80	14.0	9.87	8.34	6.00	4.74	3.92	3.38	2.78	2.28	1.93	1.07	0.55	0.38	0.28	
	1.67	39.3	23.4	17.1	1.75	14.1	10.1	8.54	6.16	4.85	4.02	3.47	2.85	2.34	1.99	1.10	0.56	0.39	0.29	
12-TLG-40	1.80	41.2	26.4	19.7	1.85	16.3	11.1	9.35	6.76	5.33	4.41	3.80	3.13	2.54	2.16	1.21	0.63	0.44	0.33	
	1.75	44.7	27.3	20.3	1.80	16.7	11.8	9.90	7.17	5.65	4.68	4.03	3.31	2.72	2.31	1.27	0.66	0.45	0.34	
	1.67	46.9	27.9	20.4	1.75	16.8	12.1	10.2	7.33	5.79	4.80	4.13	3.40	2.79	2.37	1.31	0.67	0.46	0.34	
12-TLG-50	1.80	55.8	35.7	26.7	1.85	22.0	15.1	12.7	9.16	7.22	5.98	5.16	4.23	3.44	2.92	1.64	0.86	0.59	0.44	
	1.75	60.5	37.0	27.5	1.80	22.6	16.0	13.5	9.70	7.65	6.34	5.47	4.49	3.68	3.13	1.72	0.89	0.61	0.46	
	1.67	63.6	37.8	27.6	1.75	22.7	16.4	13.8	10.0	7.84	6.50	5.60	4.60	3.78	3.21	1.78	0.91	0.63	0.46	
12-TLG-60	1.80	73.0	46.8	34.9	1.85	28.9	19.7	16.6	12.0	9.45	7.83	6.75	5.54	4.50	3.83	2.15	1.12	0.78	0.58	
	1.75	79.2	48.4	36.0	1.80	29.6	20.9	17.6	12.7	10.0	8.30	7.17	5.88	4.82	4.09	2.26	1.17	0.80	0.60	
	1.67	83.2	49.5	36.1	1.75	29.8	21.5	18.1	13.0	10.3	8.51	7.34	6.03	4.95	4.21	2.33	1.20	0.82	0.61	
12-TLG-70	1.80	86.3	55.3	41.3	1.85	34.1	23.3	19.6	14.2	11.2	9.26	7.98	6.55	5.32	4.52	2.54	1.33	0.92	0.68	
	1.75	94.0	57.2	42.5	1.80	35.0	24.7	20.8	15.0	11.8	9.80	8.47	6.94	5.70	4.84	2.67	1.38	0.95	0.71	
	1.67	98.0	58.5	42.7	1.75	35.2	25.3	21.4	15.4	12.1	10.1	8.68	7.12	5.85	4.97	2.75	1.41	0.97	0.72	
12-TLG-80	1.80	92.9	59.5	44.4	1.85	36.7	25.1	21.2	15.3	12.0	10.0	8.60	7.06	5.73	4.87	2.74	1.43	0.99	0.74	
	1.75	101	61.6	45.8	1.80	37.6	26.6	22.4	16.2	12.8	10.6	9.12	7.48	6.14	5.21	2.87	1.48	1.02	0.76	
	1.67	106	63.0	46.0	1.75	37.9	27.3	23.0	16.6	13.1	10.8	9.35	7.67	6.30	5.36	2.96	1.52	1.05	0.77	
12-TLG-90	1.80	106	68.0	50.8	1.85	42.0	28.7	24.2	17.4	13.7	11.4	9.80	8.06	6.55	5.57	3.13	1.64	1.13	0.84	
	1.75	115	70.4	52.4	1.80	43.0	30.5	25.6	18.5	14.6	12.1	10.4	8.55	7.01	5.95	3.28	1.70	1.17	0.87	
	1.67	121	71.9	52.6	1.75	43.3	31.2	26.3	19.0	14.9	12.4	10.7	8.76	7.20	6.12	3.38	1.74	1.19	0.89	
12-TLG-100	1.80	119	76.5	57.1	1.85	47.2	32.3	27.2	19.6	15.5	12.8	11.1	9.07	7.37	6.27	3.52	1.84	1.28	0.96	
	1.75	130	79.2	58.9	1.80	48.4	34.3	28.9	20.8	16.4	13.6	11.7	9.61	7.89	6.70	3.70	1.91	1.33	1.00	
	1.67	136	80.9	59.1	1.75	48.7	35.1	29.6	21.3	16.8	13.9	12.0	9.86	8.10	6.88	3.81	1.96	1.35	1.01	
12-TLG-110	1.80	133	85.0	63.5	1.85	52.5	35.9	30.2	21.8	17.2	14.2	12.3	10.1	8.19	6.96	3.91	2.04	1.41	1.05	
	1.75	144	88.0	65.5	1.80	53.8	38.1	32.1	23.1	18.2	15.1	13.0	10.7	8.77	7.44	4.11	2.12	1.46	1.08	
	1.67	151	89.9	65.7	1.75	54.1	39.0	32.9	23.7	18.7	15.5	13.4	11.0	9.00	7.65	4.23	2.17	1.49	1.11	
12-TLG-120	1.80	146	93.5	69.8	1.85	57.7	39.5	33.2	24.0	18.9	15.7	13.5	11.1	9.01	7.66	4.29	2.25	1.55	1.16	
	1.75	158	96.8	72.0	1.80	59.2	41.9	35.3	25.4	20.0	16.6	14.3	11.8	9.64	8.19	4.50	2.33	1.61	1.19	
	1.67	166	98.9	72.3	1.75	59.6	42.9	36.1	26.1	20.5	17.0	14.7	12.1	9.90	8.42	4.65	2.39	1.64	1.22	
12-TLG-130	1.80	159	102	76.2	1.85	63.0	43.1	36.3	26.2	20.6	17.1	14.7	12.1	9.83	8.38	4.69	2.45	1.69	1.26	
	1.75	173	106	78.5	1.80	64.5	45.7	38.5	27.8	21.9	18.1	15.6	12.8	10.5	8.95	4.92	2.54	1.75	1.30	
	1.67	182	108	78.9	1.75	65.0	46.8	39.4	28.4	22.4	18.6	16.0	13.1	10.8	9.21	5.08	2.60	1.79	1.33	
12-TLG-150	1.80	181	116	86.3	1.85	71.4	48.8	41.1	29.7	23.4	19.4	16.7	13.7	11.1	9.47	5.32	2.77	1.92	1.43	
	1.75	196	120	89.0	1.80	73.1	51.8	43.6	31.5	24.8	20.5	17.7	14.5	11.9	10.1	5.58	2.88	1.99	1.48	
	1.67	206	122	89.4	1.75	73.6	53.0	44.7	32.2	25.4	21.0	18.2	14.9	12.2	10.4	5.75	2.96	2.03	1.51	



# Current

## Ampere at 25°C

SEC bloc type	Discharge 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	72hr	100hr	
<b>12-TLG-170</b>	1.80	202	129	96.5	1.85	79.8	54.5	45.9	33.0	26.0	21.6	18.7	15.3	12.4	10.6	5.95	3.10	2.15	1.60	
	1.75	219	134	99.5	1.80	81.7	57.9	48.5	35.0	27.7	23.0	19.8	16.2	13.3	11.3	6.24	3.22	2.22	1.66	
	1.67	230	137	100	1.75	82.3	59.3	49.9	36.0	28.4	23.5	20.3	16.6	13.7	11.6	6.42	3.31	2.26	1.68	
<b>12-TLG-190</b>	1.80	227	145	109	1.85	89.7	61.3	51.5	37.3	29.4	24.4	21.0	17.2	14.0	11.9	6.69	3.50	2.42	1.80	
	1.75	246	150	112	1.80	92.0	65.1	54.8	39.6	31.2	25.8	22.3	18.3	15.0	12.7	7.02	3.63	2.50	1.86	
	1.67	259	154	112	1.75	92.6	66.7	56.0	40.5	31.9	26.4	22.8	18.7	15.4	13.1	7.23	3.72	2.56	1.90	
<b>12-TLG-210</b>	1.80	252	162	121	1.85	99.7	68.0	57.4	41.3	32.6	27.0	23.3	19.1	15.6	13.2	7.42	3.88	2.68	2.00	
	1.75	274	167	124	1.80	102	72.0	60.9	43.9	34.6	28.7	24.8	20.3	16.7	14.1	7.79	4.02	2.78	2.06	
	1.67	288	171	125	1.75	103	74.0	62.4	45.0	35.5	29.4	25.3	20.8	17.1	14.5	8.04	4.13	2.84	2.11	
<b>12-TLG-250</b>	1.80	305	196	146	1.85	121	82.5	69.5	50.0	39.5	32.8	28.2	23.1	18.8	16.0	9.00	4.70	3.25	2.42	
	1.75	331	202	151	1.80	124	87.3	73.5	53.2	41.9	34.7	30.0	24.6	20.2	17.1	9.44	4.88	3.36	2.50	
	1.67	348	207	151	1.75	125	89.7	75.5	54.5	43.0	35.6	30.7	25.2	20.7	17.6	9.71	5.00	3.44	2.55	
<b>12-TLG-300</b>	1.80	356	228	170	1.85	141	96.0	81.0	58.3	46.0	38.2	32.8	27.0	21.9	18.7	10.5	5.48	3.79	2.82	
	1.75	386	236	175	1.80	144	102	85.9	62.0	48.8	40.4	34.9	28.6	23.5	19.9	11.0	5.68	3.92	2.91	
	1.67	406	241	176	1.75	145	105	88.0	63.5	50.0	41.4	35.8	29.4	24.1	20.5	11.3	5.83	4.00	2.97	

# Power

## Watt at 25°C

SEC bloc type	Discharge Data Watt 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	72hr	100hr	
6-TLG-130	1.80	294	191	143	1.85	121	82.9	70.1	51.0	40.4	33.6	29.1	24.0	19.6	16.7	9.41	4.92	3.39	2.57	
	1.75	311	193	145	1.80	122	87.2	73.8	53.8	42.7	35.5	30.7	25.3	20.8	17.7	9.83	5.08	3.50	2.64	
	1.67	319	194	144	1.75	121	88.2	74.8	54.5	43.3	36.1	31.2	25.7	21.3	18.1	10.1	5.17	3.55	2.70	
6-TLG-220	1.80	490	319	239	1.85	201	138	117	85.0	67.2	55.9	48.4	40.0	32.7	27.8	15.7	8.20	5.66	4.28	
	1.75	518	321	242	1.80	205	145	123	89.7	71.2	59.2	51.1	42.3	34.7	29.6	16.4	8.48	5.83	4.41	
	1.67	530	324	240	1.75	201	147	124	90.8	72.0	60.2	52.0	42.9	35.4	30.2	16.8	8.64	5.93	4.49	
6-TLG-250	1.80	564	368	275	1.85	231	159	134	97.5	77.5	64.6	55.7	45.9	37.5	32.0	18.1	9.43	6.52	4.93	
	1.75	596	369	279	1.80	235	167	141	103	81.7	68.0	59.0	48.6	40.1	34.0	18.9	9.75	6.72	5.09	
	1.67	609	373	276	1.75	233	169	143	105	83.1	69.1	59.8	49.4	40.7	34.7	19.3	9.93	6.81	5.18	
12-TLG-20	1.80	41.8	27.2	20.3	1.85	17.0	11.7	9.9	7.2	5.7	4.77	4.12	3.40	2.77	2.36	1.34	0.70	0.48	0.36	
	1.75	44.1	27.4	20.5	1.80	17.2	12.3	10.5	7.6	6.0	5.02	4.36	3.58	2.96	2.52	1.40	0.72	0.50	0.37	
	1.67	45.0	27.5	20.5	1.75	17.2	12.4	10.6	7.7	6.1	5.11	4.42	3.65	3.01	2.56	1.43	0.73	0.50	0.38	
12-TLG-30	1.80	63.8	41.5	31.1	1.85	26.0	18.0	15.2	11.0	8.8	7.29	6.31	5.21	4.25	3.61	2.04	1.06	0.74	0.55	
	1.75	67.3	41.8	31.4	1.80	26.5	18.8	16.0	11.6	9.2	7.68	6.65	5.49	4.52	3.85	2.13	1.10	0.76	0.57	
	1.67	68.8	42.1	31.3	1.75	26.3	19.0	16.2	11.8	9.4	7.81	6.76	5.59	4.61	3.93	2.18	1.12	0.77	0.58	
12-TLG-40	1.80	76.2	49.6	37.1	1.85	31.2	21.4	18.1	13.2	10.4	8.69	7.51	6.21	5.06	4.31	2.43	1.26	0.88	0.66	
	1.75	80.5	49.8	37.5	1.80	31.6	22.5	19.0	13.9	11.0	9.17	7.93	6.54	5.40	4.59	2.54	1.32	0.90	0.68	
	1.67	82.1	50.2	37.3	1.75	31.3	22.7	19.4	14.1	11.2	9.32	8.06	6.66	5.49	4.68	2.60	1.33	0.91	0.69	
12-TLG-50	1.80	103	67.0	50.2	1.85	42.1	29.0	24.5	17.9	14.2	11.8	10.2	8.41	6.86	5.84	3.29	1.72	1.18	0.90	
	1.75	109	67.5	50.7	1.80	42.8	30.5	25.8	18.8	14.9	12.4	10.7	8.87	7.30	6.22	3.44	1.78	1.22	0.93	
	1.67	111	68.0	50.5	1.75	42.3	30.9	26.2	19.1	15.1	12.6	10.9	9.02	7.44	6.33	3.53	1.81	1.25	0.93	
12-TLG-60	1.80	135	87.8	65.7	1.85	55.3	37.9	32.1	23.4	18.5	15.4	13.3	11.0	8.97	7.65	4.32	2.25	1.56	1.18	
	1.75	143	88.3	66.4	1.80	56.1	39.9	33.8	24.6	19.5	16.3	14.1	11.6	9.56	8.14	4.52	2.33	1.60	1.21	
	1.67	146	89.1	66.1	1.75	55.6	40.5	34.3	24.9	19.9	16.5	14.3	11.8	9.74	8.30	4.62	2.37	1.63	1.24	
12-TLG-70	1.80	160	104	77.7	1.85	65.2	44.8	37.9	27.6	21.9	18.2	15.8	13.0	10.6	9.04	5.10	2.67	1.84	1.39	
	1.75	169	104	78.4	1.80	66.3	47.2	39.9	29.1	23.0	19.2	16.6	13.7	11.3	9.63	5.34	2.76	1.90	1.43	
	1.67	172	105	78.1	1.75	65.6	47.8	40.5	29.5	23.4	19.5	16.9	14.0	11.5	9.81	5.46	2.80	1.93	1.46	
12-TLG-80	1.80	172	112	83.6	1.85	70.2	48.3	40.9	29.8	23.5	19.6	17.0	14.0	11.4	9.74	5.49	2.87	1.98	1.50	
	1.75	182	112	84.5	1.80	71.2	50.8	43.0	31.4	24.9	20.7	17.9	14.8	12.2	10.4	5.74	2.96	2.04	1.54	
	1.67	186	113	84.2	1.75	70.7	51.5	43.7	31.8	25.3	21.0	18.2	15.0	12.4	10.6	5.88	3.02	2.08	1.56	
12-TLG-90	1.80	196	128	95.6	1.85	80.3	55.2	46.8	33.9	26.9	22.5	19.4	16.0	13.1	11.1	6.28	3.28	2.27	1.71	
	1.75	207	128	96.7	1.80	81.4	58.2	49.2	35.8	28.4	23.7	20.4	16.9	13.9	11.8	6.57	3.39	2.34	1.77	
	1.67	212	129	96.3	1.75	80.8	58.8	49.9	36.4	28.8	24.0	20.8	17.2	14.2	12.1	6.71	3.45	2.37	1.80	
12-TLG-100	1.80	220	144	107	1.85	90.3	62.1	52.6	38.2	30.4	25.2	21.8	18.0	14.7	12.5	7.06	3.69	2.57	1.96	
	1.75	234	145	109	1.80	91.7	65.4	55.4	40.3	32.0	26.6	23.0	19.0	15.7	13.3	7.39	3.82	2.66	2.03	
	1.67	238	146	108	1.75	90.8	66.2	56.1	40.9	32.5	27.0	23.4	19.3	15.9	13.6	7.56	3.89	2.68	2.05	
12-TLG-110	1.80	246	160	120	1.85	100	69.0	58.4	42.5	33.7	28.0	24.3	20.0	16.3	13.9	7.85	4.09	2.83	2.14	
	1.75	259	161	121	1.80	102	72.7	61.5	44.7	35.5	29.6	25.6	21.1	17.4	14.8	8.22	4.24	2.92	2.20	
	1.67	264	162	120	1.75	101	73.5	62.3	45.5	36.1	30.1	26.0	21.5	17.7	15.1	8.40	4.30	2.96	2.25	
12-TLG-120	1.80	270	175	131	1.85	110	75.9	64.2	46.8	37.1	30.9	26.7	22.0	18.0	15.3	8.61	4.52	3.11	2.36	
	1.75	284	177	133	1.80	112	79.9	67.7	49.2	39.0	32.5	28.1	23.2	19.1	16.3	9.00	4.66	3.22	2.42	
	1.67	291	178	132	1.75	111	80.9	68.5	50.0	39.6	33.0	28.6	23.6	19.5	16.6	9.23	4.75	3.25	2.48	
12-TLG-130	1.80	294	191	143	1.85	121	82.9	70.1	51.0	40.4	33.6	29.1	24.0	20.6	18.2	9.41	4.92	3.39	2.57	
	1.75	311	193	145	1.80	122	87.2	73.8	53.8	42.7	35.5	30.7	25.3	21.6	19.4	9.83	5.08	3.50	2.64	
	1.67	319	194	144	1.75	121	88.2	74.8	54.5	43.3	36.1	31.2	25.7	22.0	19.7	10.1	5.17	3.55	2.70	
12-TLG-150	1.80	335	218	162	1.85	137	93.9	79.4	57.8	45.9	38.1	33.0	27.2	22.1	18.9	10.7	5.56	3.85	2.91	
	1.75	353	219	164	1.80	138	98.9	83.7	61.0	48.4	40.2	34.7	28.7	23.6	20.1	11.2	5.75	3.97	3.01	
	1.67	361	220	164	1.75	137	99.9	84.8	61.8	49.1	40.8	35.4	29.2	24.0	20.5	11.4	5.88	4.03	3.07	

# Power

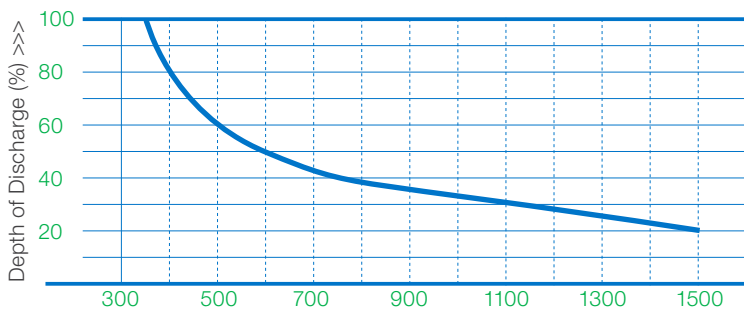
## Watt at 25°C

SEC bloc type	Discharge Data Watt 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	72hr	100hr	
<b>12-TLG-170</b>	1.80	374	242	182	1.85	153	105	88.7	64.3	51.0	42.6	36.9	30.4	24.7	21.2	11.9	6.23	4.32	3.26	
	1.75	394	245	184	1.80	155	110	93.1	67.8	54.0	45.1	38.9	32.0	26.4	22.5	12.5	6.44	4.44	3.38	
	1.67	403	247	183	1.75	153	112	94.7	69.0	54.9	45.6	39.6	32.6	27.0	22.9	12.7	6.57	4.50	3.41	
<b>12-TLG-190</b>	1.80	420	272	205	1.85	172	118	99.5	72.7	57.7	48.1	41.5	34.2	27.9	23.8	13.4	7.02	4.85	3.67	
	1.75	443	274	207	1.80	174	124	105	76.7	60.8	50.5	43.8	36.1	29.8	25.3	14.0	7.25	5.00	3.78	
	1.67	453	277	205	1.75	173	126	106	77.7	61.6	51.3	44.4	36.7	30.3	25.8	14.4	7.39	5.08	3.86	
<b>12-TLG-210</b>	1.80	466	304	228	1.85	191	131	111	80.6	64.0	53.2	46.1	38.0	31.1	26.4	14.9	7.78	5.38	4.07	
	1.75	493	305	229	1.80	193	137	117	85.0	67.5	56.2	48.8	40.0	33.1	28.0	15.6	8.04	5.56	4.19	
	1.67	504	308	229	1.75	192	139	118	86.3	68.6	57.1	49.4	40.8	33.7	28.6	16.0	8.19	5.64	4.28	
<b>12-TLG-250</b>	1.80	564	368	275	1.85	231	159	134	97.5	77.5	64.6	55.7	45.9	37.5	32.0	18.1	9.43	6.52	4.93	
	1.75	596	369	279	1.80	235	167	141	103	81.7	68.0	59.0	48.6	40.1	34.0	18.9	9.75	6.72	5.09	
	1.67	609	373	276	1.75	233	169	143	105	83.1	69.1	59.8	49.4	40.7	34.7	19.3	9.93	6.83	5.18	
<b>12-TLG-300</b>	1.80	659	428	320	1.85	270	185	157	114	90.3	75.3	64.9	53.6	43.7	37.3	21.0	11.0	7.61	5.74	
	1.75	695	431	323	1.80	273	195	165	120	95.1	79.1	68.6	56.5	46.6	39.6	22.0	11.4	7.83	5.92	
	1.67	711	434	322	1.75	270	197	167	122	96.6	80.4	69.8	57.6	47.4	40.4	22.5	11.6	7.94	6.03	

## Cycle life

### Relationship between depth of discharge and life

Ambient temperature 25°C



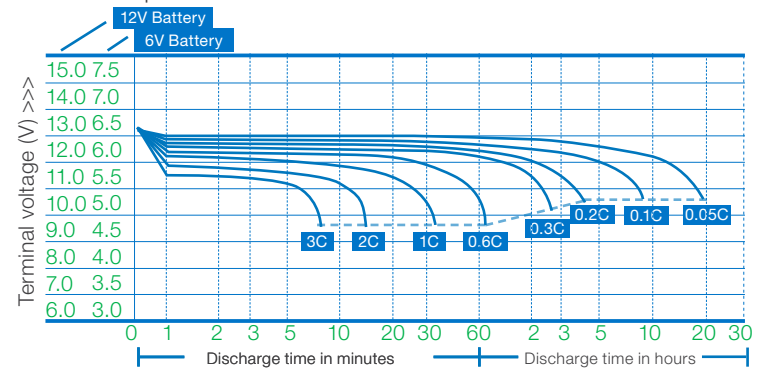
Cycle life >>>

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

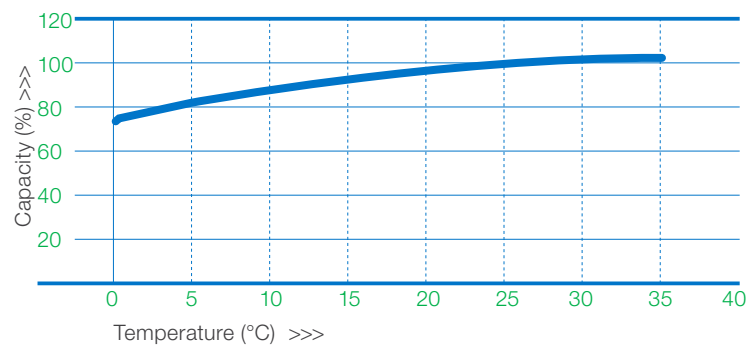


Discharge duration (h) >>>

Effect of discharge rate on battery capacity.

## Effect of inclined temperature

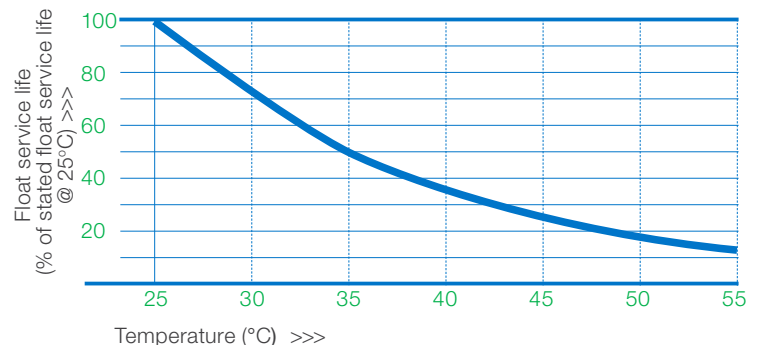
### Effect of temperature on capacity at C/10 discharge rate



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

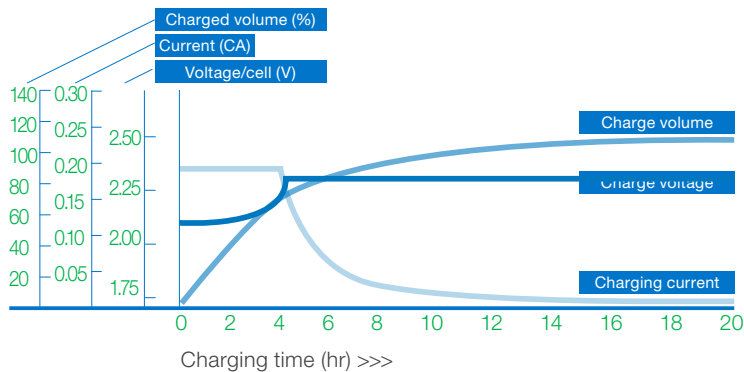


Temperature (°C) >>>

Effect of temperature on float service life.

## Charge method

### Constant current/voltage charge characteristics



Charging time (hr) >>>

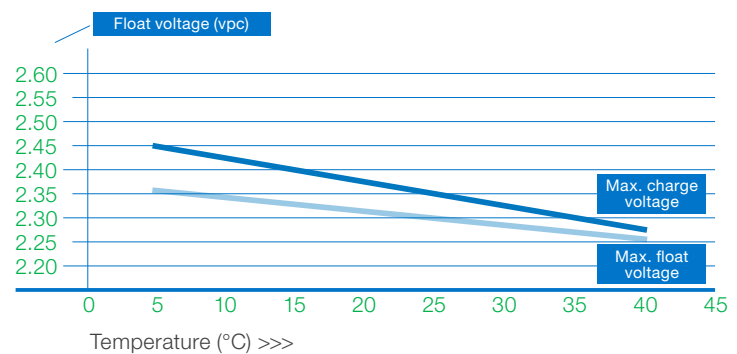
The preferred charging procedure should be in accordance with DIN 41773, constant current/constant voltage (IU characteristics). Constant float charging utilising a constant voltage charger is also acceptable.

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) >>>

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