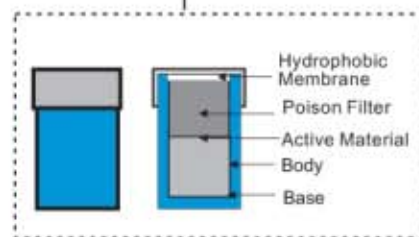


## Solar Battery for up to 30°C Operation Sealed VRLA Solar Monobloc Introducing New Monobloc Catalyst Technology Designed for Full Life at 30°C Operation Capacities: 20Ah. to 300Ah. @ C/100



**Monobloc Catalyst  
( Optional)**

### SPECIFICATIONS

- Voltage** ..... 6 & 12 Volt nominal
- Plates** ..... Extra Heavy Duty
- Plate alloy** ..... Virgin Pure Lead /1.6% Tin
- Terminal** ..... Copper insert for SS bolts
- Container /cover** ... ABS
- Charge voltage** .... Cycle 2.35 Vpc;  
Float 2.25 to 2.30 Vpc @ 20 C
- Specific gravity** ... 1.280
- Electrolyte** ..... Sulphuric acid thixotropic gel
- Vent** ..... Self sealing - 2psi operation
- Operating temperature** : -25 to +55 (However we recommend that the batteries be operated in the temperature range of 20 to 30 C, to obtain full life and optimum performance.)

### EXTRA FEATURES (with optional Catalyst)

- \* Will reduce float current by about 50%
- \* Will reduce gassing by up to 80%
- \* Will minimise water loss
- \* Reduce cell failure due to dry out
- \* Will extend battery float service life due to reduced plate corrosion
- \* Batteries will have full design life when used in temperatures up to 30 C.
- \* Will maintain full battery capacity by preventing depolarization of negative plate
- \* Reduces the possibility of thermal runaway

### DEEP CYCLE APPLICATIONS

- \* Alternative Energy Storage
- \* Solar Photovoltaic/Wind
- \* Cycling/Float Service
- \* Wheelchair/Electric vehicle
- \* Boats/Marine/Navigational Aids
- \* Floor Cleaning machines
- \* Engine Starting
- \* Water Pumping/Golf caddy
- \* Portable medical equipment
- \* Cathodic Protection

### INNOVATIVE FEATURES

- \* Valve Regulated Lead Acid
- \* Fully tank formed plates
- \* Gelled Thixotropic electrolyte
- \* Spill-proof / leak proof
- \* Multi-position usage
- \* Multi-cell container
- \* Low self-discharge
- \* Quality system - ISO 9001
- \* FAA and IATA Approved as NON Hazardous

## **CELLYTE Solar TSG Bloc Batteries**

In keeping with our philosophy to stay at the forefront of the ever expanding Renewable Energy battery market we have extended our range of gelled electrolyte batteries to include Monobloc battery fitted with a Catalyst increasing the operating temperature at which the battery can be operated up to 30 C without loss of battery life, this is a - World First.

Also included are several innovative features: triple barrier terminal post seal, high Tin / Calcium positive plate alloy for improved, by up to 40%, deep cycle capability of the Solar TSG batteries.

### **Sealed Valve Regulated Construction**

\*These batteries are of the gelled electrolyte technology (Gel). All the electrolyte in the cells is immobilized in a Thixotropic Gel providing a safe non-spillable battery.

### **Gas Recombination System**

\*The gasses generated in the normal charge / discharge use of a rechargeable lead acid battery are internally recombined during normal operating parameters and in normal operational use, more than 99% of the gas generated is recombined.

### **SEC Catvent - Catalyst Vent**

\*SEC's VRLA cells /batteries incorporate the Philadelphia Scientific Monobloc precious metal Catalyst Catvent which prevents the negative plate from depolarizing reduces the cell float current by up to 50%, reduces the cell gassing by about 80%,thus reducing the cell dry out rate which is the major cause of VRLA battery failure

### **Battery Maintenance**

\*The battery has been designed and built such that no addition of electrolyte or water is needed during the life of the battery.

### **Battery Life in Float Service**

\*CELLYTE Solar TSG batteries a suitable for float / standby service with a design life of about 10 -12 years at 20C. when fitted with VRLA Catalyst

### **Batteries Engineered in the USA**

### **Battery Life in Cycle Life**

\*CELLYTE Solar TSG batteries are designed for 550 to 4000 charge/ discharge cycles, battery life will depend on temperature, depth and frequency of cycling, however the use of the Catvent Catalyst will improve life.

### **Battery One-Way Safety Valve**

\*When pressure builds up in the cell the B & S German safety one-way valve opens at 2-3 psi and releases the excessive pressure and then closes. The one-way valve does not allow the ingress of oxygen which is harmful and reduces battery life.

### **Temperature Range for Normal Operation**

\*CELLYTE Solar TSG batteries have a wide operating temperature range -25 C. to +55 C. However for maximum life it is recommended to operate the battery at 15 C. to 30 C.

### **Plate Design and Paste Formulation**

\*SEC has optimised the plate and paste formulation to maximise the operating life of the battery. The High Tin (1.6%) / Calcium plate alloy is used to minimise positive plate corrosion, extend battery life and cycling capability. SEC's special paste formulation will provide excellent recovery from deep discharge, with low self discharge to ensure maximum storage time.





**CELLYTE Bloc 6-12TSG - Solar - Ampere Hour Data @ 20 C.**

SEC 6-12TSG TYPE	END Volts / CELL	DISCHARGE DATA			END Volts / CELL	DISCHARGE DATA AMPERE HOURS @ 20 C														
		TIME IN MINUTES				DISCHARGE TIME IN HOURS														
		15	30	45		1	1.5	2	3	4	5	6	8	10	12	20	24	48	72	100
6TSG 130*	1.80	159	102	76.2	1.85	63.0	64.6	72.5	78.5	82.5	85.4	88.4	96.8	98.3	100	109	113	118	122	126
	1.75	173	106	78.5	1.80	64.5	68.5	76.9	83.3	87.5	90.7	93.8	103	105	107	117	118	122	126	130
	1.67	182	108	78.9	1.75	65.0	70.2	78.8	85.3	89.6	92.9	96.1	105	108	110	120	122	125	129	133
6TSG 220*	1.80	265	170	127	1.85	105	108	121	131	137	142	147	161	164	167	182	188	196	203	210
	1.75	288	176	131	1.80	108	114	128	139	146	151	156	171	175	179	194	197	204	210	217
	1.67	303	180	131	1.75	108	117	131	142	149	155	160	175	180	184	200	203	209	215	221
6TSG 250	1.80	305	196	146	1.85	121	124	139	150	158	164	169	185	188	192	209	216	226	234	242
	1.75	331	202	151	1.80	124	131	147	160	168	174	180	197	202	205	224	227	234	242	250
	1.67	348	207	151	1.75	125	135	151	164	172	178	184	202	207	211	230	233	240	247	255
12TSG 20**	1.80	22.6	14.5	10.8	1.85	8.9	9.1	10.3	11.1	11.7	12.1	12.5	13.7	13.9	14.2	15.6	16.0	16.7	17.3	17.9
	1.75	24.5	15.0	11.1	1.80	9.1	9.7	10.9	11.8	12.4	12.8	13.3	14.5	14.9	15.2	16.5	16.8	17.3	17.9	18.4
	1.67	25.7	15.3	11.2	1.75	9.2	9.9	11.2	12.1	12.7	13.2	13.6	14.9	15.3	15.6	17.0	17.3	17.7	18.3	18.8
12TSG30**	1.80	34.5	22.1	16.5	1.85	13.6	14.0	15.7	17.0	17.9	18.5	19.2	21.0	21.3	21.7	23.9	24.4	25.5	26.4	27.3
	1.75	37.4	22.9	17.0	1.80	14.0	14.8	16.7	18.0	19.0	19.6	20.3	22.2	22.8	23.2	25.3	25.6	26.5	27.3	28.2
	1.67	39.3	23.4	17.1	1.75	14.1	15.2	17.1	18.5	19.4	20.1	20.8	22.8	23.4	23.9	26.0	26.4	27.1	28.0	28.8
12TSG 40	1.80	41.2	26.4	19.7	1.85	16.3	16.7	18.7	20.3	21.3	22.1	22.8	25.0	25.4	25.9	28.5	29.1	30.4	31.5	32.6
	1.75	44.7	27.3	20.3	1.80	16.7	17.7	19.9	21.5	22.6	23.4	24.2	26.5	27.2	27.7	30.1	30.6	31.6	32.6	33.6
	1.67	46.9	27.9	20.4	1.75	16.8	18.1	20.4	22.0	23.2	24.0	24.8	27.2	27.9	28.5	31.0	31.5	32.4	33.3	34.3
12TSG 50	1.80	55.8	35.7	26.7	1.85	22.0	22.6	25.4	27.5	28.9	29.9	31.0	33.9	34.4	35.1	38.2	39.4	41.2	42.7	44.2
	1.75	60.5	37.0	27.5	1.80	22.6	24.0	26.9	29.1	30.6	31.7	32.8	35.9	36.8	37.5	40.8	41.4	42.8	44.2	45.6
	1.67	63.6	37.8	27.6	1.75	22.7	24.6	27.6	29.9	31.4	32.5	33.6	36.8	37.8	38.6	42.0	42.6	43.8	45.2	46.5
12TSG 60	1.80	73.0	46.8	34.9	1.85	28.9	29.6	33.2	36.0	37.8	39.2	40.5	44.4	45.0	45.9	50.1	51.6	54.0	55.9	57.8
	1.75	79.2	48.4	36.0	1.80	29.6	31.4	35.3	38.2	40.1	41.5	43.0	47.0	48.2	49.1	53.5	54.2	56.0	57.8	59.7
	1.67	83.2	49.5	36.1	1.75	29.8	32.2	36.1	39.1	41.1	42.6	44.1	48.2	49.5	50.5	55.0	55.8	57.4	59.2	60.9
12TSG 70	1.80	86.3	55.3	41.3	1.85	34.1	35.0	39.3	42.5	44.7	46.3	47.9	52.4	53.2	54.3	59.2	61.0	63.8	66.1	68.4
	1.75	94	57.2	42.5	1.80	35.0	37.1	41.7	45.1	47.4	49.1	50.8	55.6	57.0	58.1	63.2	64.1	66.2	68.3	70.5
	1.67	98	58.5	42.7	1.75	35.2	38.0	42.7	46.2	48.6	50.3	52.1	57.0	58.5	59.7	65.0	66.0	67.9	69.9	72.0
12TSG 80	1.80	92.9	59.5	44.4	1.85	36.7	37.7	42.3	45.8	48.1	49.8	51.6	56.5	57.3	58.5	63.7	65.7	68.7	71.2	73.6
	1.75	101	61.6	45.8	1.80	37.6	40.0	44.9	48.6	51.0	52.9	54.7	59.8	61.4	62.5	68.0	69.0	71.3	73.6	75.9
	1.67	106	63.0	46.0	1.75	37.9	41.0	46.0	49.8	52.3	54.2	56.1	61.4	63.0	64.3	70.0	71.1	73.1	75.3	77.5
12TSG 90	1.80	106	68.0	50.8	1.85	42.0	43.1	48.4	52.3	55.0	57.0	59.0	64.5	65.5	66.8	72.8	75.1	78.5	81.3	84.1
	1.75	115	70.4	52.4	1.80	43.0	45.7	51.3	55.5	58.3	60.4	62.5	68.4	70.1	71.5	77.8	78.8	81.4	84.1	86.8
	1.67	121	71.9	52.6	1.75	43.3	46.8	52.6	56.9	59.8	61.9	64.1	70.1	72.0	73.4	80.0	81.2	83.5	86.0	88.6
12TSG 100	1.80	119	76.5	57.1	1.85	47.2	48.4	54.4	58.9	61.9	64.1	66.3	72.6	73.7	75.2	81.9	84.5	88.3	92.1	96.0
	1.75	130	79.2	58.9	1.80	48.4	51.4	57.7	62.5	65.6	68.0	70.4	76.9	78.9	80.4	87.5	88.7	91.6	95.6	99.6
	1.67	136	80.9	59.1	1.75	48.7	52.7	59.1	64.0	67.2	69.7	72.1	78.9	81.0	82.6	90.0	91.4	94.0	97.5	101
12TSG 110	1.80	133	85.0	63.5	1.85	52.5	53.8	60.4	65.4	68.7	71.2	73.7	80.6	81.9	83.5	91.0	93.9	98.1	102	105
	1.75	144	88.0	65.5	1.80	53.8	57.1	64.1	69.4	72.9	75.5	78.2	85.5	87.7	89.3	97.2	98.6	102	105	108
	1.67	151	89.9	65.7	1.75	54.1	58.5	65.7	71.1	74.7	77.4	80.1	87.7	90.0	91.8	100	102	104	108	111
12TSG 120	1.80	146	93.5	69.8	1.85	57.7	59.2	66.5	72.0	75.6	78.3	81.1	88.7	90.1	91.9	100	103	108	112	116
	1.75	158	96.8	72.0	1.80	59.2	62.8	70.5	76.3	80.2	83.1	86.0	94.0	96.4	98.3	107	108	112	116	119
	1.67	166	98.9	72.3	1.75	59.6	64.4	72.3	78.2	82.2	85.1	88.1	96.4	99.0	101	110	112	115	118	122
12TSG 130	1.80	159	102	76.2	1.85	63.0	64.6	72.5	78.5	82.5	85.4	88.4	96.8	98.3	109	109	113	118	122	126
	1.75	173	106	78.5	1.80	64.5	68.5	76.9	83.3	87.5	90.7	93.8	103	105	117	117	118	122	126	130
	1.67	182	108	78.9	1.75	65.0	70.2	78.8	85.3	89.6	92.9	96.1	105	108	120	120	122	125	129	133
12TSG 150	1.80	181	116	86.3	1.85	71.4	73.2	82.2	89.0	93.5	96.8	100	110	111	114	124	128	133	138	143
	1.75	196	120	89.0	1.80	73.1	77.7	87.2	94.4	99.2	103	106	116	119	121	132	134	138	143	148
	1.67	206	122	89.4	1.75	73.6	79.6	89.4	96.7	102	105	109	119	122	125	136	138	142	146	151
12TSG 170	1.80	202	129	97	1.85	79.8	81.8	91.9	99	104	108	112	123	124	127	138	143	149	155	160
	1.75	219	134	99	1.80	81.7	86.8	97	105	111	115	119	130	133	136	148	150	155	160	166
	1.67	230	137	100	1.75	82.3	88.9	100	108	114	118	122	133	137	140	152	154	159	163	168
12TSG 190	1.80	227	145	109	1.85	89.7	92	103	112	118	122	126	138	140	143	156	161	168	174	180
	1.75	246	150	112	1.80	92	98	110	119	125	129	134	146	150	153	166	169	174	180	186
	1.67	259	154	112	1.75	93	100	112	122	128	132	137	150	154	157	171	174	179	184	190
12TSG 210	1.80	252	162	121	1.85	99.7	102	115	124	131	135	140	153	156	159	173	178	186	193	200
	1.75	274	167	124	1.80	102	108	122	132	139	144	149	162	167	170	185	187	193	200	206
	1.67	288	171	125	1.75	103	111	125	135	142	147	152	167	171	174	190	193	198	205	211
12TSG 250	1.80	305	196	146	1.85	121	124	139	150	158	164	169	185	188	192	209	216	226	234	242
	1.75	331	202	151	1.80	124	131	147	160	168	174	180	197	202	205	224	227	234	242	250
	1.67	348	207	151	1.75	125	135	151	164	172	178	184	202	207	211	230	233	240	248	255
12TSG 300	1.80	356	228	170	1.85	141	144	162	175	184	191	197	216	219	224	244	252	263	273	282
	1.75	386	236	175	1.80	144	153	172	186	195	202	210	229	235	239	260	264	273	282	291
	1.67	406	241	176	1.75	145	157	176	191	200	207	215	235	241	246	268	272	280	288	297

Actual Battery Discharge Data may be +/-5% of figures shown.

\* Gel sizes not yet available

\*\* Batteries too small for Catalyst



# CELLYTE 6-12TSG Bloc Data & Dimensions

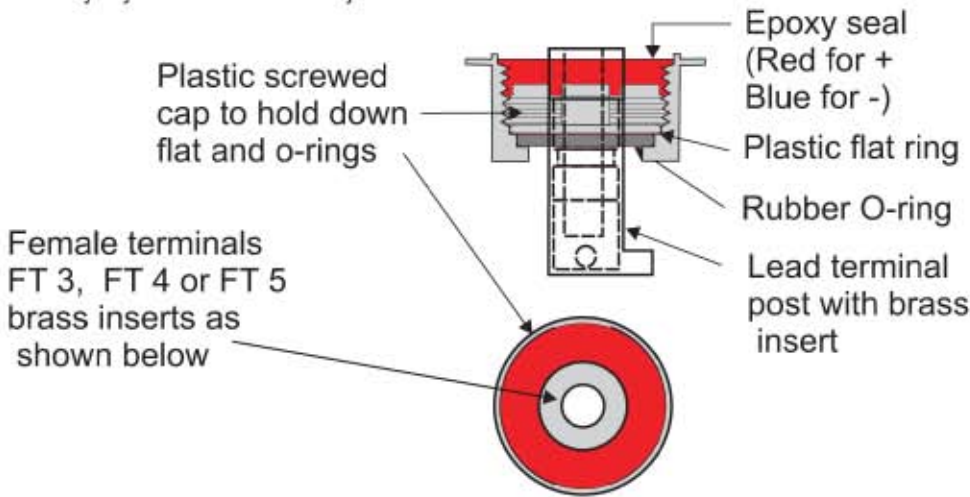
SEC Battery Type	Capacity C/100 1.80 vpc	Capacity C/20 1.75 vpc	Capacity C/5 1.75 vpc	CCA at -18 C 0 F.	CCA at 0 C. 32 F.	Short Circuit Amps	Internal Resistance $\Omega$ Ohms	Female Terminal Type	Battery Weight		Overall Length		Battery Width		Dimensions Height	
									KG	lbs	Inch	mm	Inch	mm	Inch	mm
									6TSG 130*	130	120	92.9	760	1010	3200	3.0
6TSG 220*	221	200	155	1150	1440	5000	2.3	FT 5	31.5	69.3	12.7	323	7.01	178	9.25	235
6TSG 250	255	230	178	1240	1650	5400	2.1	FT 5	33.0	72.6	9.57	243	7.40	188	10.8	275
12TSG 20**	18.8	17.0	13.2	110	165	750	12	FT 3	6.0	13.2	7.07	180	2.99	76	6.61	168
12TSG 30**	28.8	26.0	20.1	190	250	1100	8.2	FT 3	10.0	22.0	6.54	165	4.96	127	6.93	176
12TSG 40	34.3	31.0	24.0	240	320	1500	7.3	FT 3	11.0	24.2	7.72	196	5.16	131	6.34	161
12TSG 50	46.5	42.0	32.5	260	350	1700	6.0	FT 3	14.8	32.56	7.76	197	6.54	166	6.69	170
12 TSG 60	60.9	55.0	42.6	280	380	1900	5.6	FT 3	19.0	41.8	9.02	229	5.43	138	8.43	214
13 TSG 70	72.0	65.0	50.6	390	510	2000	5.5	FT3	21.3	46.9	13.8	350	6.61	168	7.05	179
12TSG 80	77.5	70.0	54.2	410	550	2100	5.4	FT 3	25.5	56.1	10.2	259	6.61	168	8.44	215
12TSG 90	88.6	80.0	61.9	460	620	2400	4.5	FT 3	26.5	58.3	10.2	259	6.61	168	8.46	215
12TSG 100	99.6	90.0	69.7	510	680	2650	4.3	FT 3	30.5	67.1	12.1	307	6.65	169	8.46	215
12TSG 110	111	100	77.4	580	780	2900	3.9	FT 4	32.5	71.5	13.0	330	6.69	170	8.46	215
12TSG 120	122	110	85.1	710	960	3000	3.4	FT 4	34.0	74.8	13.0	330	6.69	170	8.46	215
12TSG 130	133	120	92.9	760	1020	3300	3.1	FT 4	34.0	74.8	13.3	339	6.73	171	9.06	230
12TSG 150	151	136	105	970	1300	4200	2.9	FT 4	42.5	93.5	13.5	342	6.81	173	11.2	285
12TSG 170	168	152	118	1060	1390	4500	2.7	FT 5	48.5	107	19.0	483	6.69	170	9.49	241
12TSG 190	190	171	132	1100	1410	4600	2.5	FT 5	57.0	125	20.9	530	8.23	209	8.86	225
12TSG 210	211	190	147	1150	1440	4700	2.3	FT 5	60.0	132	20.9	530	8.23	209	8.86	225
12TSG 250	255	230	178	1240	1670	5400	2.2	FT 5	66.0	145	20.6	522	9.45	240	8.86	225
12TSG 300	294	265	205	1240	1670	5400	2.2	FT 5	80.5	177	20.6	522	10.55	268	8.66	220

\* Gel size not yet available \*\* Batteries too small for Catalyst

## The Worlds First - Monobloc Catalyst Battery

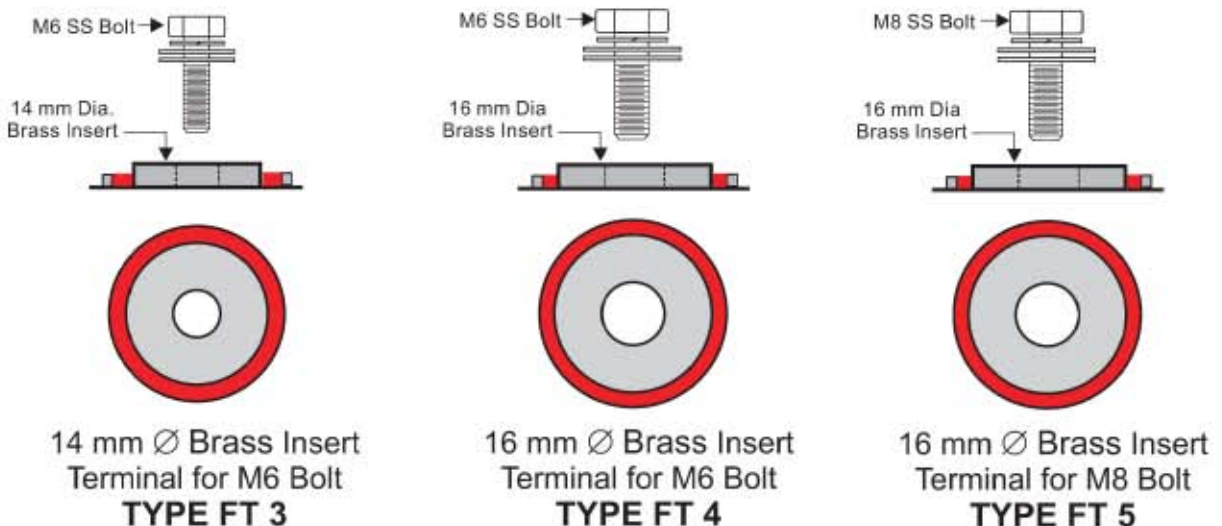
SEC CELLYTE Solar TSG Monobloc batteries are the first to use a **CatVent Catalyst** in the cell head space. This is done for several very good reasons. The Catalyst changes the electrochemical actions within the cell, this causes balance within the cell preventing the negative plate from depolarising over time and improves cell capacity. A healthy balance in the cell will be immediately obvious by a reduction of the cell's float current by up to 50%. What that means is a dramatic reduction, by up to 80% in cell gassing, reduced loss which delays cell dry out\*, reduced positive plate corrosion, reduced cell heating, reducing the risk of thermal run away and a reduction in the energy required to cool the cells / batteries.

\* **Please note:** Battery dry out is one of the major failure modes of VRLA batteries.



TYPICAL TRIPLE SEAL DETAIL

## TYPICAL FEMALE TERMINAL DETAIL





# CELLYTE Bloc6-12TSG - Solar - Amps Data @ 20 C .

SEC 6-12TSG TYPE	END Volts / CELL	DISCHARGE DATA			END Volts / CELL	DISCHARGE DATA AMPS @ 20 C														
		TIME IN MINUTES				DISCHARGE TIME IN HOURS														
		15	30	45		1	1.5	2	3	4	5	6	8	10	12	20	24	48	72	100
6TSG 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	8.35	5.46	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	8.93	5.83	4.93	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	9.18	6.00	5.08	2.61	1.79	1.33
6TSG 220*	1.80	265	170	127	1.85	105	71.8	60.4	43.6	34.4	28.5	24.6	20.2	16.4	13.9	9.10	7.82	4.09	2.82	2.10
	1.75	288	176	131	1.80	108	76.1	64.1	46.3	36.5	30.2	26.1	21.4	17.5	14.9	9.72	8.21	4.24	2.92	2.17
	1.67	303	180	131	1.75	108	78.0	65.7	47.4	37.4	31.0	26.7	21.9	18.0	15.3	10.0	8.46	4.35	2.99	2.21
6TSG 250	1.80	305	196	146	1.85	121	82.5	69.5	50.1	39.5	32.8	28.2	23.2	18.8	16.0	10.5	9.00	4.70	3.25	2.42
	1.75	331	202	151	1.80	124	87.5	73.7	53.2	41.9	34.7	30.0	24.6	20.2	17.1	11.2	9.44	4.88	3.36	2.50
	1.67	348	207	151	1.75	125	89.7	75.6	54.5	43.0	35.6	30.7	25.2	20.7	17.6	11.5	9.73	5.00	3.44	2.55
12TSG 20**	1.80	22.6	14.5	10.8	1.85	8.9	6.1	5.14	3.71	2.92	2.42	2.09	1.71	1.39	1.18	0.78	0.67	0.35	0.24	0.18
	1.75	24.5	15.0	11.1	1.80	9.1	6.5	5.5	3.93	3.10	2.57	2.22	1.82	1.49	1.27	0.83	0.70	0.36	0.25	0.18
	1.67	25.7	15.3	11.2	1.75	9.2	6.6	5.6	4.03	3.17	2.63	2.27	1.86	1.53	1.30	0.85	0.72	0.37	0.25	0.19
12TSG30**	1.80	34.5	22.1	16.5	1.85	13.6	9.33	7.86	5.67	4.47	3.70	3.19	2.62	2.13	1.81	1.20	1.02	0.53	0.37	0.27
	1.75	37.4	22.9	17.0	1.80	14.0	9.90	8.34	6.01	4.74	3.93	3.39	2.78	2.28	1.94	1.26	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	4.86	4.02	3.47	2.85	2.34	1.99	1.30	1.10	0.57	0.39	0.29
12TSG 40	1.80	41.2	26.4	19.7	1.85	16.3	11.1	9.37	6.76	5.33	4.41	3.81	3.13	2.54	2.16	1.43	1.21	0.63	0.44	0.33
	1.75	44.7	27.3	20.3	1.80	16.7	11.8	9.9	7.17	5.65	4.68	4.04	3.31	2.72	2.31	1.51	1.27	0.66	0.45	0.34
	1.67	46.9	27.9	20.4	1.75	16.8	12.1	10.2	7.35	5.79	4.80	4.14	3.40	2.79	2.37	1.55	1.31	0.67	0.46	0.34
12TSG 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	1.91	1.64	0.86	0.59	0.44
	1.75	60.5	37.0	27.5	1.80	22.6	16.0	13.5	9.72	7.66	6.35	5.47	4.49	3.68	3.13	2.04	1.72	0.89	0.61	0.46
	1.67	63.6	37.8	27.6	1.75	22.7	16.4	13.8	9.95	7.84	6.50	5.61	4.60	3.78	3.21	2.10	1.78	0.91	0.63	0.46
12TSG 60	1.80	73.0	46.8	34.9	1.85	28.9	19.7	16.6	12.0	9.45	7.83	6.76	5.54	4.50	3.83	2.50	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	8.31	7.17	5.88	4.82	4.09	2.67	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	2.75	2.33	1.20	0.82	0.61
12TSG 70	1.80	86.3	55.3	41.3	1.85	34.1	23.3	19.6	14.2	11.2	9.3	7.98	6.55	5.32	4.52	2.96	2.54	1.33	0.92	0.68
	1.75	94	57.2	42.5	1.80	35.0	24.7	20.8	15.0	11.8	9.8	8.47	6.94	5.70	4.84	3.16	2.67	1.38	0.95	0.71
	1.67	98	58.5	42.7	1.75	35.2	25.4	21.4	15.4	12.1	10.1	8.68	7.12	5.85	4.97	3.25	2.75	1.41	0.97	0.72
12TSG 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	3.19	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	3.40	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	3.50	2.96	1.52	1.05	0.77
12TSG 90	1.80	106	68.0	50.8	1.85	42.0	28.7	24.2	17.4	13.7	11.4	9.8	8.06	6.55	5.57	3.64	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	3.89	3.29	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	8.77	7.20	6.12	4.00	3.38	1.74	1.20	0.89
12TSG 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	4.10	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	9.62	7.89	6.70	4.37	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	6.89	4.50	3.81	1.96	1.35	1.01
12TSG 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	4.55	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	4.86	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	5.00	4.23	2.18	1.49	1.11
12TSG 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	5.01	4.30	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	5.35	4.52	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	5.50	4.65	2.39	1.64	1.22
12TSG 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	9.10	5.46	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	9.73	5.83	4.93	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	10.0	6.00	5.08	2.61	1.79	1.33
12TSG 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	6.19	5.32	2.78	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	6.61	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	21.1	18.2	14.9	12.2	10.4	6.80	5.75	2.96	2.03	1.51
12TSG 170	1.80	202	129	96.5	1.85	79.8	54.5	45.9	33.1	26.1	21.6	18.7	15.3	12.4	10.6	6.92	5.95	3.11	2.15	1.60
	1.75	219	134	99.5	1.80	81.7	57.9	48.7	35.2	27.7	23.0	19.8	16.2	13.3	11.3	7.39	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	16.7	13.7	11.6	7.60	6.43	3.31	2.27	1.68
12TSG 190	1.80	227	145	109	1.85	89.7	61.4	51.7	37.3	29.4	24.4	21.0	17.2	14.0	11.9	7.78	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	8.31	7.02	3.63	2.50	1.86
	1.67	259	154	112	1.75	92.6	66.7	56.2	40.5	31.9	26.5	22.8	18.7	15.4	13.1	8.55	7.23	3.72	2.56	1.90
12TSG 210	1.80	252	162	121	1.85	99.7	68.2	57.4	41.4	32.6	27.1	23.3	19.2	15.6	13.2	8.65	7.43	3.88	2.68	2.00
	1.75	274	167	124	1.80	102	72.3	60.9	43.9	34.6	28.7	24.8	20.3	16.7	14.1	9.23	7.80	4.03	2.78	2.06
	1.67	288	171	125	1.75	103	74.1	62.4	45.0	35.5	29.4	25.4	20.8	17.1	14.5	9.50	8.04	4.13	2.84	2.11
12TSG 250	1.80	305	196	146	1.85	121	82.5	69.5	50.1	39.5	32.8	28.2	23.2	18.8	16.0	10.5	9.00	4.70	3.25	2.42
	1.75	331	202	151	1.80	124	87.5	73.7	53.2	41.9	34.7	30.0	24.6	20.2	17.1	11.2	9.44	4.88	3.36	2.50
	1.67	348	207	151	1.75	125	89.7	75.6	54.5	43.0	35.6	30.7	25.2	20.7	17.6	11.5	9.73	5.00	3.44	2.55
12TSG 300	1.80	356	228	170	1.85	141	96.2	81.0	58.4	46.0	38.2	32.9	27.0	21.9	18.7	12.2	10.48	5.48	3.79	2.82
	1.75	386	236	175	1.80	144	102.0	85.9	62.0	48.8	40.5	34.9	28.6	23.5	19.9	13.0	11.01	5.68	3.92	2.91
	1.67	406	241	176	1.75	145	104.5	88.0	63.5	50.0	41.5	35.8	29.4							



# CELLYTE 6-12TSG - Solar - Watts per Cell @ 20 C.

SEC 6-12TSG TYPE	END Volts / CELL	Watts per cell			END Volts / CELL	DISCHARGE DATA Watts Per Cell AT 20 C												
		TIME IN MINUTES				DISCHARGE TIME IN HOURS												
		15	30	45		1	1.5	2	3	4	5	6	8	10	12	20	24	
6TSG 130*	1.80	303	194	146	1.85	121	82.8	69.6	51.0	40.5	33.7	29.1	24.0	19.6	16.7	10.9	9.4	
	1.75	328	201	151	1.80	124	87.2	73.9	53.8	42.7	35.5	30.9	25.3	20.7	17.8	11.6	9.9	
	1.67	345	205	151	1.75	125	88.9	75.7	54.9	43.5	36.2	31.7	25.8	21.2	18.1	11.9	10.0	
6TSG 220*	1.80	504	323	244	1.85	201	138	116	85.0	67.4	56.1	48.5	40.1	32.7	27.8	18.2	15.7	
	1.75	547	334	251	1.80	207	145	123	89.6	71.1	59.2	51.5	42.2	34.5	29.6	19.4	16.4	
	1.67	575	342	252	1.75	208	148	126	91.5	72.5	60.4	52.8	43.0	35.3	30.1	19.8	16.7	
6TSG 250	1.80	580	371	280	1.85	232	159	133	97.7	77.5	64.5	55.8	46.1	37.6	32.0	21.0	18.1	
	1.75	629	384	289	1.80	238	167	142	103	81.7	68.1	59.2	48.6	39.7	34.1	22.3	18.9	
	1.67	661	393	290	1.75	239	170	145	105	83.3	69.4	60.7	49.4	40.6	34.7	22.7	19.3	
12TSG 20**	1.80	42.9	27.5	20.7	1.85	17.1	21.0	9.86	7.22	5.73	4.77	4.13	3.41	2.78	2.37	1.57	1.33	
	1.75	46.5	28.4	21.4	1.80	17.6	12.4	10.5	7.62	6.04	5.03	4.38	3.59	2.94	2.52	1.65	1.40	
	1.67	48.9	29.0	21.4	1.75	17.7	12.6	10.7	7.78	6.16	5.13	4.48	3.65	3.00	2.56	1.68	1.42	
12TSG30**	1.80	65.6	42.0	31.7	1.85	26.2	21.0	15.1	11.0	8.76	7.29	6.31	5.21	4.25	3.62	2.40	2.04	
	1.75	71.2	43.5	32.7	1.80	26.8	18.9	16.0	11.6	9.24	7.70	6.69	5.49	4.49	3.85	2.52	2.14	
	1.67	74.8	44.4	32.8	1.75	27.0	19.3	16.4	11.9	9.42	7.85	6.86	5.58	4.59	3.92	2.57	2.18	
12TSG 40	1.80	78.2	50.1	37.8	1.85	31.2	21.0	18.0	13.2	10.4	8.70	7.52	6.21	5.06	4.31	2.86	2.43	
	1.75	84.8	51.8	39.0	1.80	32.0	22.5	19.1	13.9	11.0	9.18	7.98	6.55	5.35	4.59	3.00	2.55	
	1.67	89.1	53.0	39.1	1.75	32.2	23.0	19.6	14.2	11.2	9.36	8.18	6.66	5.47	4.67	3.07	2.60	
12TSG 50	1.80	106	67.8	51.2	1.85	42.3	29.0	24.4	17.8	14.2	11.8	10.19	8.41	6.86	5.84	3.83	3.30	
	1.75	115	70.2	52.8	1.80	43.4	30.5	25.9	18.8	14.9	12.4	10.8	8.87	7.25	6.22	4.07	3.45	
	1.67	121	71.8	53.0	1.75	43.7	31.1	26.5	19.2	15.2	12.7	11.1	9.02	7.41	6.33	4.15	3.52	
12TSG 60	1.80	139	88.8	67.0	1.85	55.4	38.0	31.9	23.4	18.5	15.4	13.3	11.0	8.98	7.65	5.02	4.32	
	1.75	151	91.9	69.1	1.80	56.8	40.0	33.9	24.6	19.5	16.3	14.2	11.6	9.50	8.14	5.33	4.52	
	1.67	158	94.0	69.4	1.75	57.2	40.8	34.7	25.2	19.9	16.6	14.5	11.8	9.70	8.29	5.44	4.61	
12TSG 70	1.80	164	105	79.2	1.85	65.5	44.9	37.7	27.6	21.9	18.2	15.8	13.0	10.6	9.05	5.93	5.10	
	1.75	178	109	81.7	1.80	67.1	47.2	40.0	29.1	23.1	19.2	16.7	13.7	11.2	9.6	6.30	5.34	
	1.67	187	111	82.0	1.75	67.6	48.2	41.0	29.7	23.5	19.6	17.1	14.0	11.5	9.8	6.43	5.44	
12TSG 80	1.80	177	113	85.3	1.85	70.5	48.3	40.6	29.7	23.6	19.6	17.0	14.0	11.4	9.74	6.38	5.50	
	1.75	192	117	88.0	1.80	72.3	50.9	43.1	31.4	24.9	20.7	18.0	14.8	12.1	10.4	6.78	5.75	
	1.67	201	120	88.3	1.75	72.8	51.9	44.2	32.0	25.4	21.1	18.5	15.0	12.3	10.5	6.92	5.86	
12TSG 90	1.80	202	129	97.5	1.85	80.6	55.2	46.4	34.0	27.0	22.4	19.4	16.0	13.1	11.1	7.29	6.28	
	1.75	219	134	100.5	1.80	82.6	58.1	49.2	35.8	28.4	23.7	20.6	16.9	13.8	11.8	7.75	6.57	
	1.67	230	137	100.9	1.75	83.2	59.3	50.5	36.6	29.0	24.1	21.1	17.2	14.1	12.1	7.91	6.70	
12TSG 100	1.80	227	145	110	1.85	90.7	62.1	52.2	38.2	30.3	25.3	21.8	18.0	14.7	12.5	8.21	7.07	
	1.75	246	150	113	1.80	92.9	65.4	55.4	40.3	32.0	26.6	23.2	19.0	15.5	13.3	8.72	7.39	
	1.67	259	154	114	1.75	93.6	66.7	56.8	41.2	32.6	27.2	23.7	19.3	15.9	13.6	8.90	7.54	
12TSG 110	1.80	252	162	122	1.85	101	69.0	58.0	42.5	33.7	28.1	24.3	20.0	16.3	13.9	9.12	7.85	
	1.75	274	167	126	1.80	103	72.7	61.6	44.8	35.5	29.6	25.7	21.1	17.3	14.8	9.69	8.21	
	1.67	288	171	126	1.75	104	74.1	63.1	45.7	36.2	30.2	26.4	21.5	17.6	15.1	9.89	8.37	
12TSG 120	1.80	277	178	134	1.85	111	75.9	63.8	46.7	37.1	30.9	26.7	22.0	18.0	15.3	10.0	8.64	
	1.75	301	184	138	1.80	114	79.9	67.7	49.3	39.1	32.6	28.3	23.2	19.0	16.3	10.7	9.03	
	1.67	316	188	139	1.75	114	81.5	69.4	50.3	39.9	33.2	29.0	23.6	19.4	16.6	10.9	9.21	
12TSG 130	1.80	303	194	146	1.85	121	82.8	69.6	51.0	40.5	33.7	29.1	24.0	19.6	18.2	10.9	9.42	
	1.75	328	201	151	1.80	124	87.2	73.9	53.8	42.7	35.5	30.9	25.3	20.7	19.4	11.6	9.86	
	1.67	345	205	151	1.75	125	88.9	75.7	54.9	43.5	36.2	31.7	25.8	21.2	19.7	11.9	10.0	
12TSG 150	1.80	343	220	166	1.85	137	93.9	78.9	57.8	45.8	38.2	33.0	27.2	22.2	18.9	12.4	10.7	
	1.75	372	227	171	1.80	140	98.8	83.7	60.9	48.3	40.3	35.0	28.7	23.5	20.1	13.2	11.2	
	1.67	391	232	172	1.75	141	101	85.8	62.2	49.3	41.1	35.9	29.2	24.0	20.5	13.5	11.4	
12TSG 170	1.80	383	245	185	1.85	153	105	88.2	64.6	51.2	42.6	36.9	30.4	24.8	21.2	13.9	11.9	
	1.75	416	254	191	1.80	157	110	93.6	68.1	54.0	45.0	39.1	32.1	26.2	22.5	14.7	12.5	
	1.67	437	260	192	1.75	158	113	95.9	69.5	55.1	45.9	40.1	32.6	26.8	22.9	15.0	12.7	
12TSG 190	1.80	431	276	208	1.85	172	118	99.2	72.7	57.6	48.0	41.5	34.3	27.9	23.8	15.6	13.4	
	1.75	468	286	215	1.80	177	124	105	76.6	60.8	50.6	44.0	36.1	29.5	25.3	16.6	14.0	
	1.67	492	292	216	1.75	178	127	108	78.2	62.0	51.6	45.1	36.7	30.2	25.8	16.9	14.3	
12TSG 210	1.80	479	307	232	1.85	191	131	110	80.7	64.0	53.3	46.1	38.1	31.0	26.4	17.3	14.9	
	1.75	520	318	239	1.80	196	138	117	85.1	67.5	56.2	48.9	40.1	32.8	28.1	18.4	15.6	
	1.67	546	325	240	1.75	198	141	120	86.9	68.8	57.4	50.1	40.8	33.5	28.6	18.8	15.9	
12TSG 250	1.80	580	371	280	1.85	232	159	133	97.7	77.5	64.5	55.8	46.1	37.6	32.0	21.0	18.1	
	1.75	629	384	289	1.80	238	167	142	103	81.7	68.1	59.2	48.6	39.7	34.1	22.3	18.9	
	1.67	661	393	290	1.75	239	170	145	105	83.3	69.4	60.7	49.4	40.6	34.7	22.7	19.3	
12TSG 300	1.80	676	433	327	1.85	270	185	156	113.9	90.3	75.2	65.0	53.7	43.8	37.3	24.4	21.0	
	1.75	733	448	337	1.80	277	195	165	120	95.3	79.3	69.0	56.6	46.3	39.7	26.0	22.0	
	1.67	771	458	338	1.75	279	199	169	123	97.1	80.9	70.7	57.6	47.3	40.4	26.5	22.4	

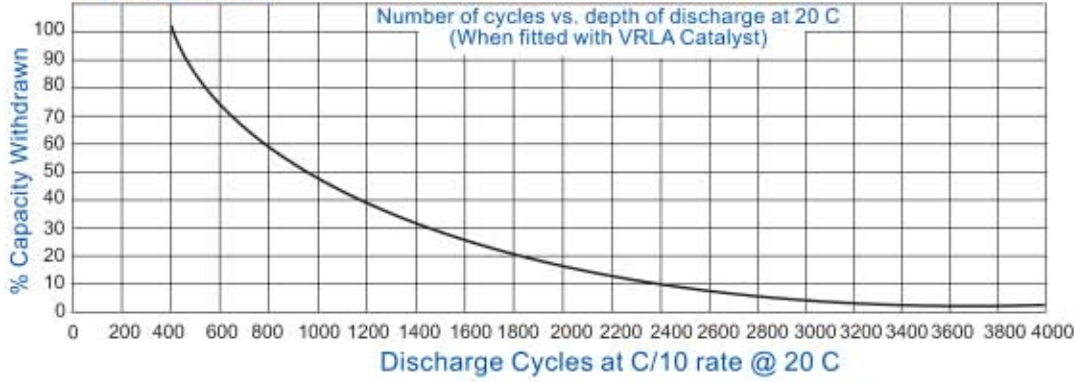
Actual Battery Discharge Data may be +/-5% of figures shown.

\* Gel sizes not yet available

\*\* Batteries too small for Catalyst



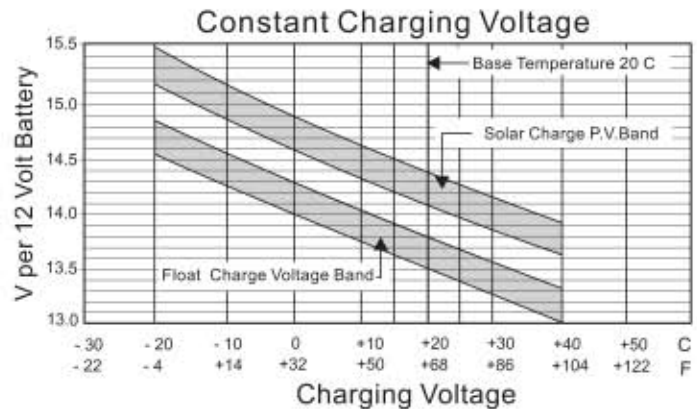
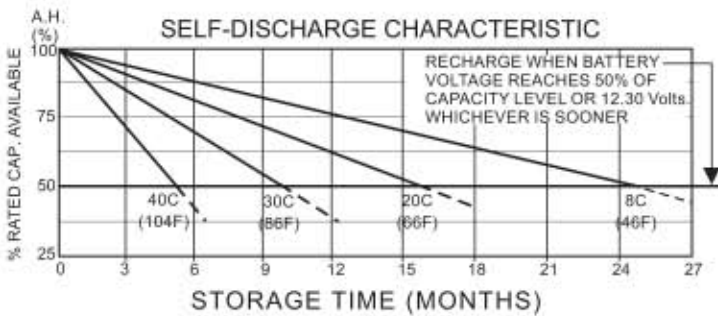
## Cycling Ability



TYPICAL CYCLIC PERFORMANCE	
CAPACITY WITHDRAWN	CYCLES
100%	400
80%	550
50%	950
40%	1200
30%	1450
20%	1800
10%	2400
5%	3000
0-2%	4000

## BATTERY CYCLING - CYCLING ABILITY

The SEC **CELLYTE** 6-12TSG Range of batteries with Virgin pure lead / 1.6% Tin Grid, fitted with VRLA Catalyst, is designed for excellent cycling ability.. **CELLYTE** 6-12TSG batteries are capable of 4000 charge / discharge cycles depending on the depth of discharge.



## Benefits of Catalyst in SEC VRLA Batteries

### Catalyst Reduces Float Current

One of the most immediate, observable effects of installing a catalyst in a VRLA cell is a sudden drop in the float current.. Typically float currents are one half or less when a catalyst is installed. Adding a catalyst to the cell prevents some of the oxygen reaching the negative plate and allows the negative plate to stay polarised. This means that less current needs to be supplied to the cell from the charging system, manifesting itself as lower float current, leading to the following benefit :-

#### \* Minimize water loss

Gasses are recombined into water inside the cell rather than exiting the cell. Too much gas leaving the cell can lead to premature dry-out and cell failure. Cell dry is a major cause of VRLA cell failure

#### \* Increased life

There are many potential failure modes of VRLA cells. A number of these failure modes can be mitigated by the catalyst technology such as: Cell dry out, positive plate corrosion, thermal runaway, capacity loss due to negative plate depolarization

#### \* Minimize positive plate corrosion

A reduction in float current reduces the amount of over-charge on the positive plate which directly impacts the corrosion rate. The design life of a lead acid cell is based on the corrosion of the plate barring any other unforeseen failure modes.

#### \* Maintain cell capacity

Many VRLA cells in service are failing capacity tests because their negative plates are depolarized. In fact significant capacity increases have been seen on some cells just by installing a catalyst.

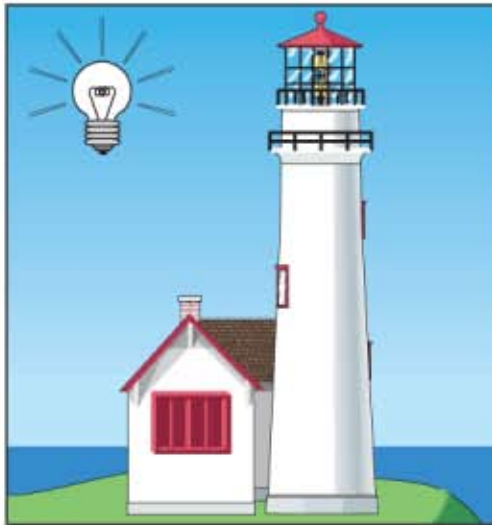
# Typical Solar Gel Battery Applications



**SOLAR FOR RENEWABLE  
ENERGY AND WIND  
GENERATION**



**SOLAR FOR REMOTE AREA  
TELECOMMUNICATIONS**



**SOLAR FOR ISOLATED  
LIGHT HOUSES**



**SOLAR FOR OCEAN  
LIFE BUOYS**

**ADVANCED AMERICAN ENGINEERED TECHNOLOGY  
MODERN COMPUTER-AIDED DESIGN  
AND MANUFACTURING TECHNIQUES  
INCORPORATING THE MONOBLOC CATALYST  
WHICH INCREASES THE OPERATING TEMPERATURE UP TO 30C  
MAKES IT THE "WORLD FIRST" BATTERY  
AND THE BEST IN THE WORLD**