

# Sealed VRLA Monobloc Gel Battery

## SOLAR POWER BATTERY

Capacities : 20 Ah to 300 Ah @ C/100



**CELLYTE TLG Bloc Gel**, sealed valve regulated lead acid rechargeable batteries are maintenance free. **CELLYTE TLG** advanced gelled electrolyte gas recombination technology ensures reliable performance, safety, outstanding battery life and value. **CELLYTE TLG** batteries are designed for universal float service / cycling applications. Battery life will depend on frequency and depth of discharge and temperature of operation. (See curve) UL Recognised Component.

### APPLICATIONS

- \* Photovoltaic / Solar / Wind
- \* Telecommunications
- \* Cycling / Float service
- \* Wheelchair / Electric vehicle
- \* Boats/Marine/Navigational Aids
- \* Engine Starting
- \* Golf caddy
- \* Portable medical equipment
- \* Cathodic Protection

### SPECIFICATIONS

Voltage .....6 and 12 volt nominal  
 Plate alloy ..... Lead calcium/Tin grid alloy  
 Container/Case .... Grade 6 ABS  
 Charge voltage ..... Cycle 2.35 vpc; Float 2.25 vpc @ 20/25°C  
 Specific gravity ..... 1.280  
 Electrolyte ..... Sulphuric acid thixotropic gel  
 Vent ..... Self sealing - 2psi Operation

### INNOVATIVE FEATURES

- \* Gelled Thixotropic electrolyte
- \* Central Point Gassing System  
(Check Catalogues for Models)
- \* Valve Regulated Lead Acid  
with optional Mini-Catalyst
- \* Multi-position usage
- \* Low self-discharge
- \* Complies - BS 6290 Part 4 (with V-0 option)
- \* FAA and IATA Approved as NON Hazardous
- \* Flame Retardant material V-0  
Available to meet BS 6290 Part 4)

# Introduction.

SEC batteries have been used in the industrial battery market for over 20 years. SEC's high quality, 10 year design life, reliable Gel technology lead acid batteries have a proven record and we have now extended our range of 12TLG batteries to include larger sizes. New features include handles for easy lifting, brass insert terminals for higher current capacity and reduced damage during transportation, designed to comply with EUROBAT (draft IEC 896-2), IEEE, JIS and BS 6290 Part 4, using UL certified components.

- **Valve Regulated (Sealed) Construction.**

The battery is of the Gel ( gelled electrolyte technology), valve regulated (sealed) VRLA rechargeable type. The acid is immobilised in a specially formulated mixture of gelling agent and sulphuric acid electrolyte. All the acid is absorbed in this manner and it provides a safe non-spillable Battery.

- **Gas Recombination System.**

The gasses generated in the normal charge/discharge use of a rechargeable battery are internally recombined during normal operating parameters. In fact, in normal operational use, more than 99% of the gases generated are recombined.

- **Maintenance.**

The battery has been designed and built such that no addition of electrolyte is needed during the life of the battery. There is no requirement to add water or take time consuming specific gravity readings.

- **Battery Life - Float Service.**

The SEC TLG battery is suitable for float (standby) service with life of 10 years at 20 °C

- **Battery Life - Cycle Service.**

The SEC TLG battery is designed for 500 to 3700 charge/discharge cycles, actual quantity will depend on the depth of discharge. (see cycling curve)

- **Safety Valve.**

If excess pressure builds up within the battery, the safety valve automatically opens releasing the gas at 1-3 p.s.i then automatically closes. Fitted with optional Mini-Catalyst to enhance the gas recombination, reduce cell dry-out, lower float current, minimize thermal runaway, positive plate corrosion and negative plate polarization. The valve does not allow the ingress of oxygen which is harmful to the efficient operation and life of the battery.

- **Temperature Range for Normal Operation.**

The SEC battery has a wide operating temperature range. However for maximum life and safety, continuous operation over 45 Deg C is not recommended for any VRLA battery.

- **Grid Design and Paste Formulation.**

SEC has optimized the grid design and paste formulation to maximize the operating and storage life of the battery. This optimized design provides the following advantages:- Excellent recovery from deep discharge or over discharge. Low self discharge to ensure maximum storage time when not in use. Excellent cycling capability. Adequate safety margins in tough operating conditions.

- **Use In any Position.**

The SEC TLG battery is designed to use in horizontal and vertical positions.

**These features make the 12TLG batteries suitable for renewable energy deep cycle applications.**





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

SEC 6-12TLG 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
6TLG 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
6TLG 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
6TLG 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
12TLG 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
12TLG30	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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TG 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

# CELLYTE 6-12TLG 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 Dimensions							
									Battery Weight		Length		Width		Height	
									KG	lbs	Inch	mm	Inch	mm	Inch	mm
6TLG 130*	130	120	92.9	760	1010	3200	3.0	FT 4	16.0	35.2	7.68	195	6.69	170	8.13	207
6 TLG 220*	221	200	155	1150	1440	5000	2.3	FT 5	31.5	69.3	12.7	323	7.01	178	9.25	235
6 TLG 250	255	230	178	1240	1650	5400	2.1	FT 5	33.0	72.6	9.57	243	7.40	188	10.8	275
12TLG20	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
12TLG 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
12TLG 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
12TLG 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 TLG 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
12TLG 70	72.0	65.0	50.6	390	510	2000	5.5	FT3	22.5	49.5	13.8	350	6.61	168	7.05	179
12TLG 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
12TLG 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
12TLG 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
12TLG 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
12TLG 120	122	110	85.1	710	960	3000	3.4	FT 4	34.0	74.8	13.3	339	6.73	171	9.06	230
12TLG 130	133	120	92.9	760	1020	3300	3.1	FT 4	35.0	77	13.3	339	6.73	171	9.06	230
12TLG 150	151	136	105	970	1300	4200	2.9	FT 4	42.5	93.5	13.5	342	6.81	173	11.2	285
12TLG 170	168	152	118	1060	1390	4500	2.7	FT 5	48.5	107	19.0	483	6.69	170	9.49	241
12TLG 190	190	171	132	1100	1410	4600	2.5	FT 5	57.0	125	20.9	530	8.23	209	8.86	225
12TLG 210	211	190	147	1150	1440	4700	2.3	FT 5	60.0	132	20.9	530	8.23	209	8.86	225
12TLG 250	255	230	178	1240	1670	5400	2.2	FT 5	66.0	145	20.6	522	9.45	240	8.86	225
12TLG 300	294	265	205	1240	1670	5400	2.2	FT 5	80.5	177	20.6	522	10.59	269	8.66	220

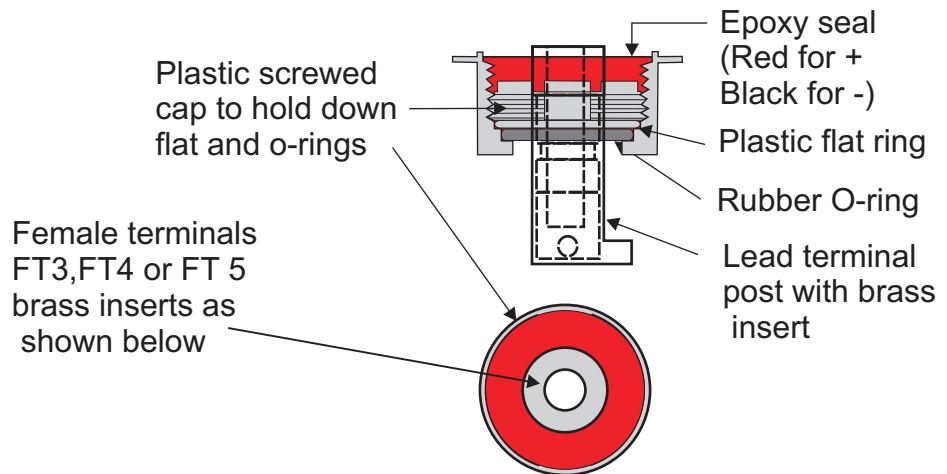
\* Gel sizes not yet available

## \* NOTE:-

SEC Battery Types \*12TLG 60, \*12TLG 90 and \*12TLG 110 have a central manifold gassing systems, which incorporates a sintered PP flame-arrestor membrane so that they can be used in enclosed cabinets, and any gases vented and dispersed safely to the outside environment. With the V-0 cover and case material batteries available to meet BS 6290 Part 4.

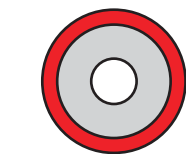
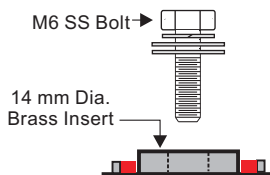
## Applicable Standards

- UL Component approval BS 6290 Part 4
- Eurobat IEC 60896-21/22-2004 (Testing in progress)

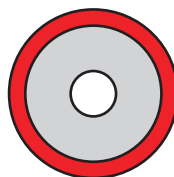
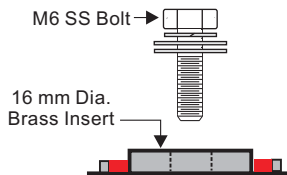


TYPICAL TRIPLE SEAL DETAIL

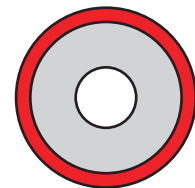
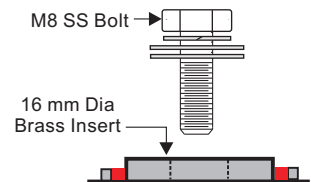
## FEMALE TERMINAL (FT) DETAILS



14 mm  $\varnothing$  Brass Insert Terminal for M6 Bolt  
**TYPE FT 3**



16 mm  $\varnothing$  Brass Insert Terminal for M6 Bolt  
**TYPE FT 4**



16 mm  $\varnothing$  Brass Insert Terminal for M8 Bolt  
**TYPE FT 5**

# Constant Voltage Charging.

It is recommended to use Constant Voltage method of charging for Valve Regulated lead acid (VRLA) batteries. Charging voltages must be regularly checked and to optimize the battery performance it is necessary to ensure that the voltage is kept within the following limits.

Float Service 2.25 ±0.1% Volts Per Cell at 20/25 Deg C.

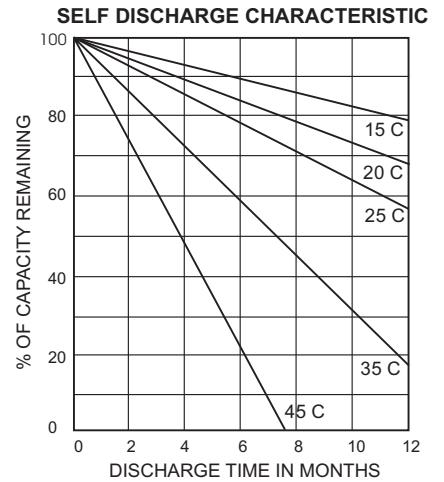
Cycle Service 2.35 ±0.1%Volts Per Cell at 20/25 Deg C.

## Temperature Effects.

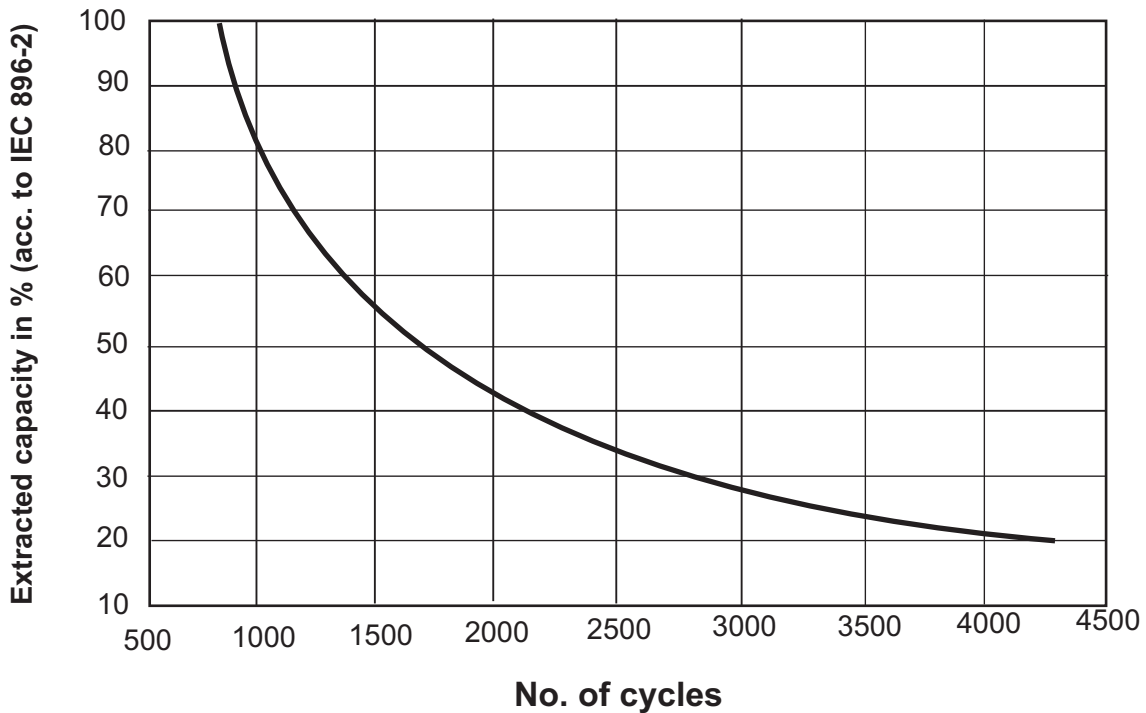
Temperature affects the battery in a number of different ways. The battery will operate in extreme temperature ranges from below Zero to over 40 Deg C. However the Valve Regulated (VRLA) Battery nominal capacity, and optimum performance are based on operating temperature of 20 Deg C.

Above this temperature the Battery capacity will increase slightly, however the life will decrease at the higher temperature.

When designing your battery system the different discharge and recharge performance at different temperature should be taken into account, details of both listed below.



## Endurance in cycles according to IEC 896-2

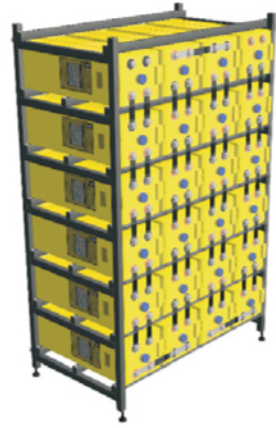


Temperature Compensation is the process whereby the charge voltage is changed as a function of the battery temperature. For higher or lower temperatures outside the table range use temperature correction factor of 0.003 ± 0.01 per volt/per/cell/deg.C

Battery Float Charging (Temperature compensation)	
Temperature Deg.C	Float Charge Volts/Cell
5	2.31
10	2.29
15	2.27
20	2.25
25	2.25
30	2.23
35	2.21



**CELLYTE 2CMT/G Modular**



**CELLYTE 2TLAM/G Tubular**



**CELLYTE 2CMT/G, 2TLAM/G with Catalyst**



**CELLYTE 12FTA/G Range**



**CELLYTE 6-12TLA Range**



**CELLYTE 6-12TUA Range**



**CELLYTE 6-12TLG Range**



**CELLYTE 6-12TSG Range**



**MICROLYTE +Plus Range**



**MICROLYTE Red Top Range**



**CELLYTE 2TLA/G Range**



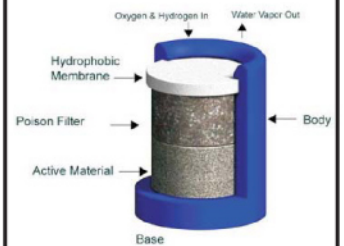
**SEC 2ETG OPzV Range  
in Tubular Rack**



**SEC Tubular OPzS Range**



**SEC Nickel Cadmium Range**



**Typical VRLA Catalyst**