

CELLYTE 12 PLF & 12PLT Range

Sealed VRLA Pure Lead Range of Batteries
15 year design life in float service at 20°C



Pure Lead Monobloc batteries using advanced thin pressed plates to provide very high performance, energy density, reliability and very long life in both float and cyclic service. Initially the Pure Lead range comprises of 3 sizes of Front Terminal 12PLF 110 Ah. to 200 Ah. and 2 sizes of Top Terminal 12PLT 18 Ah. to 110 Ah. for use in Telecom racks and cabinets.

Telecom Applications

- Telecommunication
- Telecom BTS
- Standby Power
- Emergency lighting
- Uninterruptable Power Supplied
- Cellular radio
- Renewable Energy
- Solar PV Systems
- Switchgear

Key Features

- Long standby design life
- High-rate performance
- Low internal resistance
- Low self-discharge rate
- High energy density
- Fast charging acceptance
- Heat sealed plastic container
- Flame retardant to UL94-VO
- Up to 2 years shelf life @ 20°C (68°F)

Manufacturing Standards



Advance Pure Lead Technology

In keeping with SEC's philosophy to stay at the forefronts of the ever expanding Telecom Standby battery markets SEC has now extended its battery range to include extra high performance Pure Lead gas recombination technology 12 volt batteries with proven design life of 15 years in float service at 20°C. These batteries are of the Absorbed Glass Mat (AGM) technology combined with thin punched Pure Lead plates. The gases generated in the normal charge / discharge use of a rechargeable lead acid battery are internally recombined during normal use more than 99% of the gas.

Pure Lead Batteries combine benefits of high performance and long life in a cost effective battery solution for telecommunications, UPS, electric utilities and engine starting applications. The use of gas recombination technology for lead acid batteries has completely changed the concept of standby power. This technology provides the user with the freedom to use lead acid batteries in a range of applications. The minimal level of gas production allows battery installation in cabinets or on stands, in offices or near main equipment, thus maximising space utilisation and reducing battery installation and maintenance costs.

Wide operating temperature range -40 to +40°C. The batteries can be installed in any orientation except upside down (vents on the bottom).

Pure Lead Battery Construction

Terminal posts comprise high conductivity brass female insert with Stainless Steel M8 & M5 bolt and washers. The terminal post is sealed with a compressed rubber grommet for long trouble free battery life. Container case and cover ABS co-polymer flame retardant to UL94V-0 heat sealed for maximum strength. One way safety valve with flame arrestor maintains positive internal pressure ensuring that oxygen cannot enter the cell.

Batteries designed with manifolded venting system, neoprene tubing can be provided to vent gases from the battery enclosure if required. Batteries designed for float service or cyclic applications. The electrolyte used is medical quality dilute sulphuric acid and is 100% absorbed into the ABS separator material.

Energy Density

The advanced thin plate pure lead technology promotes exceptionally efficient utilisation of the active materials. Pure Lead Batteries energy density is typically 10 to 30 % higher than conventional lead Calcium VRLA batteries

Battery Installation

Before conducting a capacity discharge test the batteries must be given an equalize charge or have been on float charge for at least 7 days. Please see SEC Installation and Operating manual for full installations details.

Approvals and Standards

The batteries, their shipping container and external packaging must be labelled "nonspillable" or "nonspillable battery".

- 12PLF & 12PLT batteries fully compliant with IEC 60896-21/22:2004.
- Manufactured to comply with all current internationally recognised codes, DOT 173.159, ICAO/IATA Packaging instruction 806 and A67.
- IMDG UN No 2800 Class 8 Exempt when securely packaged and protected against short circuits.
- Manufactured in compliant facility ISO9001:2000, ISO14001, TS16949 in UL registered production facility.



CELLYTE - Battery Sizing 12PLF & 12PLT Range

12PLF110 Discharge Data Amp & Amps Hours - 25°C

End Voltage per Cell	Discharge Data Amps					Discharge Data Amps Hours										
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	12 Hr	20 Hr	48 Hr	100 Hr
1.85 vpc	189	162	139	107	78.9	63.3	73.0	78.9	83.6	87.5	96.0	98.4	100	109	113	131
1.80 vpc	211	176	150	112	82.4	65.3	74.6	80.4	85.2	89.0	98.4	100	102	111	115	133
1.75 vpc	229	188	158	117	84.4	66.9	76.0	82.2	86.8	90.5	100.0	102	104	113	117	136
1.70 vpc	248	200	164	120	86.7	68.1	77.0	83.4	88.0	92.5	100.8	103	105	114	118	137
1.67 vpc	266	211	171	123	88.3	69.1	78.4	84.9	89.6	93.5	101.6	104	106	115	120	139
1.60 vpc	283	220	178	127	90.1	70.4	79.4	85.8	90.8	95.0	103.2	105	107	117	121	140

12PLF160 Discharge Data Amp & Amp Hours - 25°C

End Voltage per Cell	Discharge Data Amps					Discharge rate Amp Hours										
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	12 Hr	20 Hr	48 Hr	100 Hr
1.85 vpc	287	246	218	166	122	97.0	112	122	130	135	145	147	150	163	169	196
1.80 vpc	318	270	232	173	126	100	115	125	132	137	147	150	153	167	173	200
1.75 vpc	346	288	243	180	130	103	118	128	134	140	150	153	156	170	176	204
1.70 vpc	364	304	253	185	134	106	120	130	137	142	152	155	158	172	178	206
1.67 vpc	383	316	261	190	137	108	122	132	139	144	154	156	159	173	179	208
1.60 vpc	408	330	268	194	140	110	124	134	141	146	155	158	161	175	182	210

12PLF200 Discharge Data Amp & Amp Hours - 25°C

End Voltage per Cell	Discharge Data Amps					Discharge Data Amps Hours										
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	12 Hr	20 Hr	48 Hr	100 Hr
1.85 vpc	373	320	283	215	159	126	145	159	168	176	188	191	195	212	220	255
1.80 vpc	413	350	301	225	164	130	150	163	172	178	191	195	199	216	224	260
1.75 vpc	450	374	316	234	170	134	153	166	175	181	195	199	203	221	229	265
1.70 vpc	474	395	329	240	174	137	156	169	178	184	198	202	206	224	232	268
1.67 vpc	498	410	339	247	178	140	159	172	181	187	200	203	207	225	233	270
1.60 vpc	530	430	348	253	182	143	161	174	184	190	202	205	210	228	236	274

12PLT18 Discharge Data Amp & Amp Hours - 25°C

End Voltage per Cell	Discharge Data Amps					Discharge Data Amps Hours										
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	12 Hr	20 Hr	48 Hr	100 Hr
1.85 vpc	37.1	31.8	28.0	21.3	15.5	12.2	13.6	14.3	15.1	15.7	16.6	17.0	17.3	18.9	19.6	22.6
1.80 vpc	42.9	35.6	30.2	22.4	16.2	12.7	14.0	14.7	15.4	16.0	16.9	17.3	17.5	19.1	19.8	22.9
1.75 vpc	48.0	38.7	32.4	23.5	16.8	13.1	14.3	15.1	15.7	16.2	17.3	17.4	17.7	19.3	20.0	23.2
1.70 vpc	52.9	41.8	34.4	24.6	17.4	13.5	14.7	15.3	16.0	16.5	17.4	17.6	18.0	19.5	20.2	23.4
1.67 vpc	58.7	44.9	36.2	25.7	18.1	13.9	15.0	15.7	16.2	16.7	17.6	17.9	18.3	19.9	20.6	23.8
1.60 vpc	64.0	47.4	37.9	26.7	18.6	14.3	15.3	16.0	16.5	16.9	17.8	18.1	18.5	20.1	20.8	24.1

12PLT110 Discharge Data Amp & Amp Hours - 25°C

End Voltage per Cell	Discharge Data Amps					Discharge Data Amps Hours										
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	12 Hr	20 Hr	48 Hr	100 Hr
1.85 vpc	181	155	136	105	79.3	63.6	74.2	80.1	84.4	88.0	96.8	98.4	100	109	113	131
1.80 vpc	209	173	147	113	83.5	66.8	76.6	82.5	86.8	90.5	98.4	100	102	111	115	133
1.75 vpc	237	190	157	119	86.9	69.1	78.8	84.9	89.2	92.5	100	102	104	113	117	136
1.70 vpc	260	205	168	125	90.5	71.5	80.8	86.7	90.8	94.0	102	103	105	114	118	137
1.67 vpc	283	219	177	130	94.0	73.9	82.4	88.2	92.8	95.5	102	104	106	115	120	139
1.60 vpc	303	231	185	136	97.1	76.1	84.4	90.0	94.0	96.5	104	105	107	117	121	140

Actual battery capacity may be +/- 5% of figures shown



CELLYTE - Battery Sizing 12PLF & 12PLT Range

12PLF110 Constant Current Discharge Data Amps at 25°C.

End Voltage per Cell	Discharge Data Amps					Discharge rate Amps							
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	189	162	139	107	78.9	63.3	36.5	26.3	20.9	17.5	12.0	9.84	5.46
1.80 vpc	211	176	150	112	82.4	65.3	37.3	26.8	21.3	17.8	12.3	10.0	5.55
1.75 vpc	229	188	158	117	84.4	66.9	38.0	27.4	21.7	18.1	12.5	10.2	5.66
1.70 vpc	248	200	164	120	86.7	68.1	38.5	27.8	22.0	18.5	12.6	10.3	5.72
1.67 vpc	266	211	171	123	88.3	69.1	39.2	28.3	22.4	18.7	12.7	10.4	5.77
1.60 vpc	283	220	178	127	90.1	70.4	39.7	28.6	22.7	19.0	12.9	10.5	5.83

12PLF160 Constant Current Discharge Data Amps at 25°C.

End Voltage per Cell	Discharge Data Amps					Discharge rate Amp Hours							
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	287	246	218	166	122	97.0	55.8	40.7	32.4	27.0	18.1	14.7	8.16
1.80 vpc	318	270	232	173	126	100	57.5	41.8	33.1	27.4	18.4	15.0	8.33
1.75 vpc	346	288	243	180	130	103	58.9	42.6	33.6	27.9	18.8	15.3	8.49
1.70 vpc	364	304	253	185	134	106	60.0	43.4	34.2	28.3	19.0	15.5	8.60
1.67 vpc	383	316	261	190	137	108	61.0	44.0	34.8	28.8	19.2	15.6	8.66
1.60 vpc	408	330	268	194	140	110	62.1	44.7	35.3	29.2	19.4	15.8	8.77

12PLF200 Constant Current Discharge Data Amps at 25°C.

End Voltage per Cell	Discharge Data Amps					Discharge rate Amps							
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	373	320	283	215	159	126	72.5	52.9	42.1	35.1	23.5	19.1	10.61
1.80 vpc	413	350	301	225	164	130	74.8	54.3	43.0	35.6	23.9	19.5	10.82
1.75 vpc	450	374	316	234	170	134	76.6	55.4	43.7	36.3	24.4	19.9	11.04
1.70 vpc	474	395	329	240	174	137	78.0	56.4	44.5	36.8	24.7	20.2	11.18
1.67 vpc	498	410	339	247	178	140	79.3	57.2	45.2	37.4	25.0	20.3	11.26
1.60 vpc	530	430	348	253	182	143	80.7	58.1	45.9	38.0	25.2	20.5	11.40

12PLT18 Constant Current Discharge Data Amps at 25°C.

End Voltage per Cell	Discharge Data Amps					Discharge rate Amp Hours							
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	37.1	31.8	28.0	21.3	15.5	12.2	6.80	4.78	3.78	3.13	2.08	1.70	0.944
1.80 vpc	42.9	35.6	30.2	22.4	16.2	12.7	6.99	4.90	3.85	3.19	2.11	1.72	0.955
1.75 vpc	48.0	38.7	32.4	23.5	16.8	13.1	7.16	5.02	3.92	3.24	2.14	1.74	0.966
1.70 vpc	52.9	41.8	34.4	24.6	17.4	13.5	7.34	5.11	3.99	3.29	2.17	1.76	0.977
1.67 vpc	58.7	44.9	36.2	25.7	18.1	13.9	7.51	5.22	4.06	3.34	2.20	1.79	0.993
1.60 vpc	64.0	47.4	37.9	26.7	18.6	14.3	7.67	5.33	4.12	3.38	2.23	1.81	1.005

12PLT110 Constant Current Discharge Data Amps at 25°C.

End Voltage per Cell	Discharge Data Amps					Discharge rate Amps							
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	181	155	136	105	79.3	63.6	37.1	26.7	21.1	17.6	12.1	9.84	5.46
1.80 vpc	209	173	147	113	83.5	66.8	38.3	27.5	21.7	18.1	12.3	10.0	5.55
1.75 vpc	237	190	157	119	86.9	69.1	39.4	28.3	22.3	18.5	12.5	10.2	5.66
1.70 vpc	260	205	168	125	90.5	71.5	40.4	28.9	22.7	18.8	12.7	10.3	5.72
1.67 vpc	283	219	177	130	94.0	73.9	41.2	29.4	23.2	19.1	12.8	10.4	5.77
1.60 vpc	303	231	185	136	97.1	76.1	42.2	30.0	23.5	19.3	13.0	10.5	5.83

Actual battery capacity may be +/- 5% of figures shown

CELLYTE - Battery Sizing 12PLF & 12PLT Range

12PLF110 Constant Power Discharge Data Watts at 25 °C.

End Voltage per Cell	Constant Power Discharge Data Watts per cell												
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	358	309	269	209	155	125	72.5	52.6	41.9	35.3	24.3	20.0	10.50
1.80 vpc	394	333	287	217	161	129	73.9	53.5	42.7	35.8	24.7	20.2	10.64
1.75 vpc	422	352	298	224	164	131	75.1	54.4	43.3	36.3	25.1	20.6	10.77
1.70 vpc	450	369	308	228	167	133	75.7	55.1	43.8	36.9	25.3	20.8	10.86
1.67 vpc	476	385	318	234	169	134	76.7	55.8	44.3	37.3	25.5	20.9	10.94
1.60 vpc	494	394	327	238	171	135	77.3	56.0	44.8	37.6	25.6	21.0	10.99

12PLF160 Constant Power Discharge Data Watts at 25 °C.

End Voltage per Cell	Constant Power Discharge Data Watts per cell												
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	544	470	420	322	239	192	111	81.3	65.1	54.4	36.5	29.9	15.75
1.80 vpc	593	510	443	335	246	197	114	83.3	66.3	55.1	37.0	30.4	15.95
1.75 vpc	638	538	460	345	253	203	116	84.7	67.1	56.0	37.7	30.8	16.15
1.70 vpc	661	562	474	352	258	206	118	85.9	68.1	56.7	38.1	31.2	16.28
1.67 vpc	686	578	485	360	262	210	120	86.9	69.0	57.5	38.5	31.4	16.41
1.60 vpc	712	592	492	364	266	212	121	87.7	69.7	57.9	38.6	31.4	16.48

12PLF200 Constant Power Discharge Data Watts at 25 °C.

End Voltage per Cell	Constant Power Discharge Data Watts per cell												
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	707	611	546	419	311	249	144	106	84.6	70.7	47.5	38.9	20.48
1.80 vpc	771	663	576	436	320	256	148	108	86.2	71.6	48.1	39.5	20.74
1.75 vpc	830	700	598	448	329	263	151	110	87.2	72.8	49.0	40.0	21.00
1.70 vpc	859	730	617	457	335	268	153	112	88.5	73.7	49.5	40.6	21.16
1.67 vpc	892	751	631	468	341	272	155	113	89.7	74.8	50.1	40.8	21.33
1.60 vpc	925	769	639	473	345	276	157	114	90.6	75.3	50.2	40.8	21.42

12PLT18 Constant Power Discharge Data Watts at 25 °C.

End Voltage per Cell	Constant Power Discharge Data Watts per cell												
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	70.2	60.9	54.0	41.4	30.3	24.1	13.5	9.56	7.60	6.32	4.20	3.45	1.817
1.80 vpc	80.1	67.3	57.9	43.3	31.6	24.9	13.9	9.76	7.72	6.42	4.26	3.48	1.833
1.75 vpc	88.5	72.4	61.3	45.0	32.6	25.6	14.1	10.0	7.84	6.50	4.30	3.52	1.854
1.70 vpc	96.0	77.1	64.5	46.7	33.6	26.4	14.4	10.1	7.94	6.58	4.36	3.55	1.870
1.67 vpc	105	82.0	67.3	48.7	34.6	27.0	14.7	10.3	8.06	6.67	4.40	3.59	1.891
1.60 vpc	112	85.1	69.5	50.0	35.2	27.6	14.9	10.5	8.13	6.71	4.43	3.60	1.896

12PLT110 Constant Power Discharge Data Watts at 25 °C.

End Voltage per Cell	Constant Power Discharge Data Watts per cell												
	10 Min	15 Min	20 Min	30 Min	45 Min	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr	10 Hr	20 Hr
1.85 vpc	342	297	263	204	156	126	73.7	53.5	42.5	35.5	24.4	20.0	10.50
1.80 vpc	391	328	282	218	163	131	76.0	54.9	43.6	36.3	24.8	20.2	10.64
1.75 vpc	437	356	297	228	168	135	77.9	56.2	44.5	37.0	25.1	20.6	10.77
1.70 vpc	472	379	316	237	175	139	79.4	57.2	46.2	37.5	25.4	20.8	10.86
1.67 vpc	507	400	330	247	180	143	80.6	58.0	45.9	38.1	25.7	20.9	10.94
1.60 vpc	528	414	340	254	184	146	82.0	58.8	46.4	38.3	25.8	21.0	10.99

Actual battery capacity may be +/- 5% of figures shown

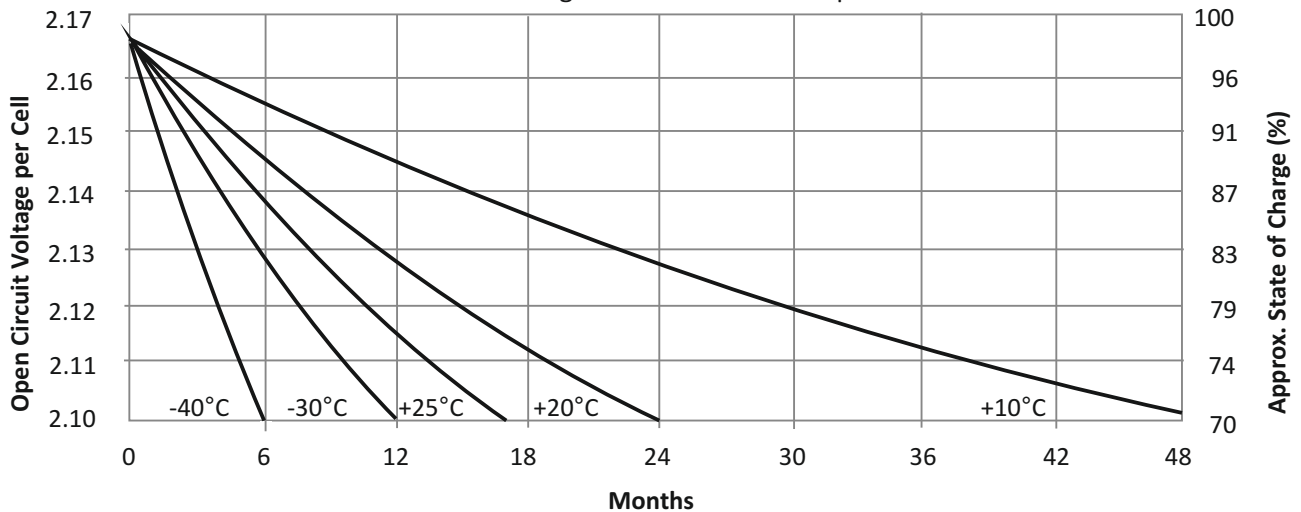
CELLYTE 12PLF & 12PLT Bloc Data & Dimensions

SEC Battery Type	Voltage	10Hr. @ 25 °C 180Vpc	8Hr. @25°C 175Vpc	Maximum Discharge Current(A)	Internal Resistance mOhms	Maximum Charge Current(A)	Female Terminal Type	Battery Dimensions							
								Weight		Length		Width		Height	
								KG	lbs	Inch	mm	Inch	mm	Inch	mm
12PLF110	12	100	100	1200	5.5	17.8	FT5-M8	30.4	67.03	15.55	395	4.25	108	11.30	278
12PLF160	12	147	147	1350	4.0	24.4	FT5-M8	46.3	101.9	22.05	560	4.92	125	10.24	260
12PLF200	12	195	195	1500	3.1	35.6	FT5-M8	59.8	131.6	22.05	560	4.92	125	12.60	320
12PLT18	12	17.3	17.3	216	8.0	3.19	FT3-M5	5.9	13.00	7.15	181.5	3.03	77	6.56	166.5
12PLT110	12	100	100	1200	3.6	18.1	FT5-M8	32.2	71.00	13.44	341.5	6.89	213	8.39	215

6 mm Female Terminal - FT 3 = 12 mm with M5 Bolt
8 mm Female Terminal - FT 5 = 20 mm with M8 Bolt

Operating Temperature Range	Discharge: 15~50 °C (5~122°F)	
	Charge: 0~40 °C (32~104°F)	
	Storage: 15~40 °C (5~104°F)	
Capacity affected by Temperature	40 °C (104° F) 103%	
	25 °C (77° F) 100%	
	0 °C (86° F) 86%	
Self discharge	The Pure Lead Range of batteries may be sorted for up to 24 months at 20 °C (68°F) and then afreshening charge is required. For higher temperature the time interval will be shorter.	

Relationship between Storage time, Open circuit voltage (OCV) and State of charge as a Function of temperature

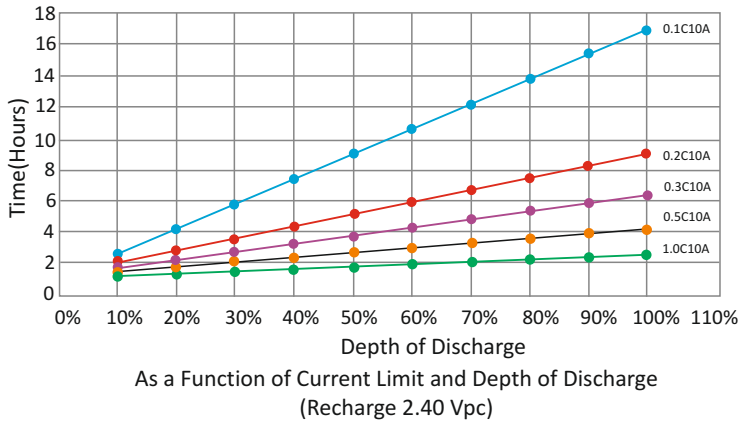


Temperature (°C / °F)	Storage Time (Months)	OCV Audit Interval (Months)
+10 / +50	48	6
+15 / +59	34	6
+20 / +68	24	4
+25 / +77	17	4
+30 / +86	12	3
+35 / +95	8.5	2
+40 / +104	6.0	2

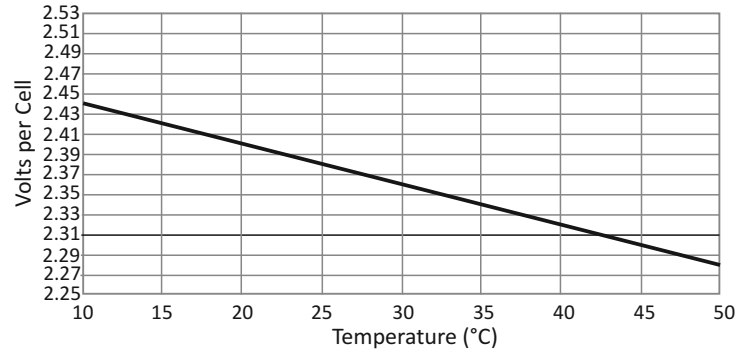


CELLYTE 12PLF & 12PLT Bloc Data

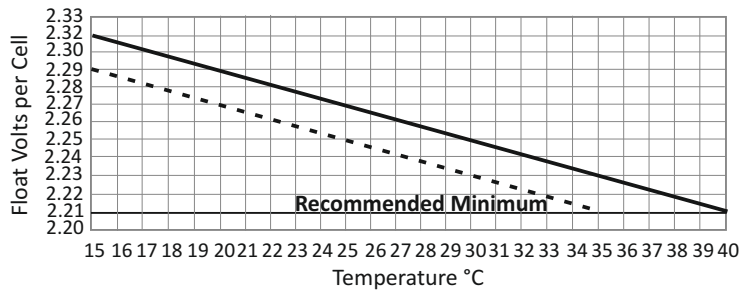
Time to Full State of Charge



Fast Charge Temperature Correction



Float Voltage Temperature Correction

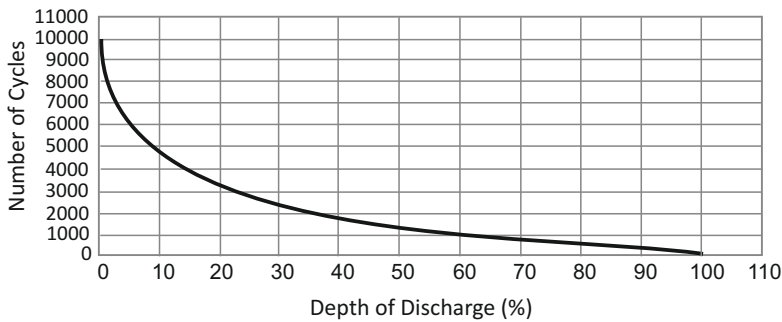


Hydrogen Evolution = ml / day / bloc

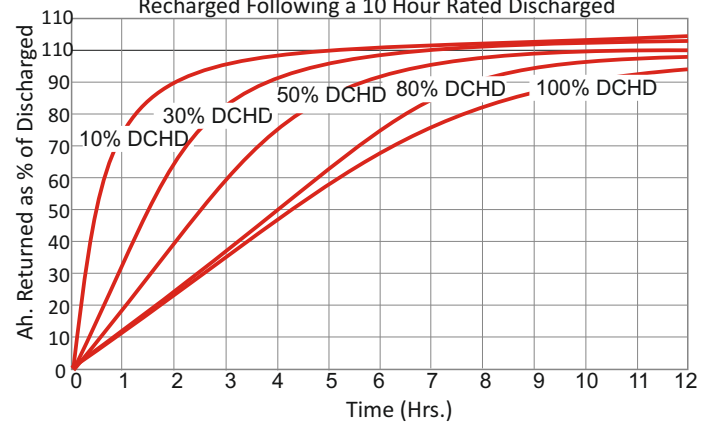
SEC Type	At 2.27Vpc	At 2.40Vpc
12PLF110	65	325
12PLF160	86	430
12PLF200	120	600
12PLT18	31	155
12PLT110	60	300

SEC Battery Type	Female Terminal Type	Torque Settings
12PLF110	M8	5 Nm / 44 in lbs
12PLF160	M8	5 Nm / 44 in lbs
12PLF200	M8	5 Nm / 44 in lbs
12PLT18	M5	3.9 Nm / 35 in lbs
12PLT110	M8	5 Nm / 44 in lbs

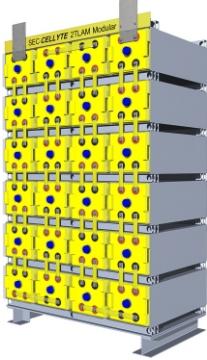
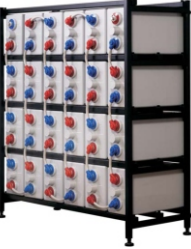
Cycle Life as a Function of Depth of Discharge @ C10 Rate



Recharge Profile @ 2.27Vpc & C/10 Amps Recharged Following a 10 Hour Rated Discharge



SEC Industrial Battery Co. range of products

			
CELLYTE 2CMT/G Modular Steel Rack	CELLYTE 2TLM/G Tubular Steel Rack	CELLYTE 2CMT/G, CELLYTE 2TLM/G with Catalyst	
			
CELLYTE 12PLF & 12PLT Range	CELLYTE 12FTA/G Range	CELLYTE 6-12TUA Range	CELLYTE 6-12TSG Range
			
CELLYTE 6-12TLA Range	CELLYTE 6-12TLG Range	MICROLYTE +Plus Range	MICROLYTE Red Top Range
			
CELLYTE 2ETG OPzV Range Tubular Steel Rack	SEC Tubular OPzS Range	Nickel Cadmium Range Pocket Plate flooded and VR	Typical VRLA catalyst

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