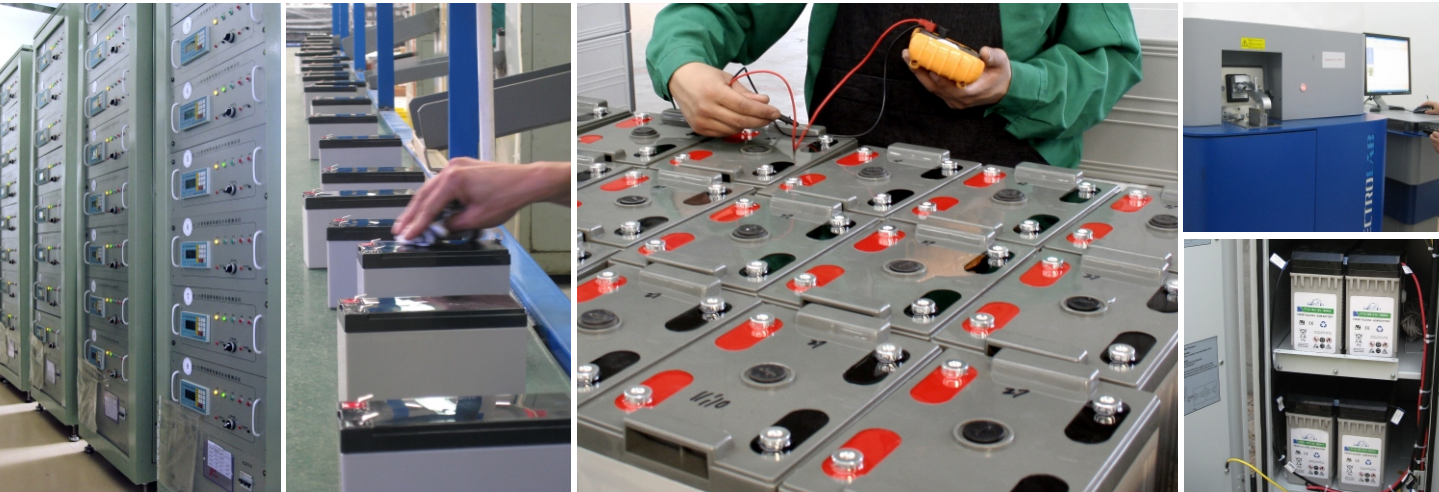


BATTERY CARE AND MAINTENANCE



Influence of Temperature

These Gel batteries are designed to operate within a temperature range between -30 °C and +50 °C. Below -15 °C, there is a risk of freezing the equipment. On the other hand it is possible to use the batteries at lower temperatures, under specific conditions (contact your representative). The use of VRLA batteries at high temperatures affects their service life. The service life is divided by factor 2 for an increasing of temperature of 10 °C. The optimum operating temperature is 20 °C.

The battery temperature affects the available capacity (please refer to the chart on this subject in each series). Above 35 °C, the increasing of capacity is negligible.

Top-charge and precautions

Any VRLA-GEL battery will be damaged by continually undercharging or overcharging (Capacity is reduced and life is shortened), although **LEOCH** batteries accept a charge very well due to their low internal resistance. Overcharging is extremely harmful to any VRLA battery because of the sealed design. Overcharging dries out the electrolyte by driving the oxygen and hydrogen out of the battery through the pressure relief valves which will lead to less capacity and shorter lifetime. If a battery is continually undercharged, a barrier layer of sulfate will build up on the negative plate which will impact recharging acceptability. Premature plate shedding can also happen. Performance is reduced and life is shortened.

It is critical that a charger be used that limits voltage. The charger must be temperature-compensated to prevent under or overcharging due to ambient temperature changes (Please refer to the table titled as “ **Charge Voltage and Temperature Ranges** ” on Page 3). The warranty is void if improperly charged. Use a good constant potential, temperature-compensated, voltage-regulated charger. Constant current chargers should never be used on VRLA-GEL batteries.

Maintenance for Battery Storage

The location in which the batteries are being stored must be clean and well maintained.

Appropriate inventory turnover, will ensure the highest operating quality of the products.

Prior to installation the battery casings must be cleaned, never use solvents or abrasives.

For longer storage periods, storage periods, checking the open circuit voltage (OCV) at the following intervals is recommended:

Storage at 20 °C: after a storage period of 12 months, then charge batteries every 3 months afterwards.

Storage at 30 °C: after a storage period of 6 months, then charge batteries every 2 months afterwards.



ETL SEMKO



TS16949

ISO14001

ISO9001

OHSAS18001



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LEOCH BATTERIES



VRLA-GEL
BATTERIES

WWW.LEOCH.US
Stock Code: 00842.HK

- **LPG SERIES- GENERAL PURPOSE GEL**
- **LPFG SERIES- FRONT TERMINAL GEL**
- **LPCG SERIES- DEEP CYCLE GEL**



Leoch International Technology Limited

Leoch International Technology Limited

FACTORY LAYOUT

Jiangsu Factory



Dongguan Factory



Anhui Factory



Malaysia Factory



Sri Lanka Factory



COMPANY INTRODUCTION

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LEOCH International Technology Limited, founded in 1999, specializes in the research, development, manufacturing and sales of the globally renowned LEOCH brand lead-acid batteries. Leoch is an international new technology corporation launching stock successfully on Hongkong main board (Leoch International 00842.HK). After years of innovation, LEOCH has become a leading manufacturer of lead-acid batteries and the largest lead-acid batteries exporter in China.

LEOCH enterprise consists of three production factories located in Jiangsu, Guangdong, Anhui in China, and two abroad in Malaysia and Sri Lanka. It covers an area of nearly 910,000 square meters, with 70 battery production lines and corresponding testing machines, 2 research and development centers in Guangdong and Jiangsu. Today, LEOCH has over 10,000 employees, more than 400 experienced researchers and technicians worldwide. LEOCH has mainly produce AGM, Start and Motive Power types, including AGM VRLA battery, Gel battery, ENERPURE batteries, UPS High Rate batteries, Marine batteries, Railway batteries , Start-Stop batteries ,OPzV, OPzS, PzB, PzS tubular plate batteries, automotive battery, motorcycle battery, golf cart battery, Scrubber Sweeper batteries, electric vehicle battery. These products are widely used by many different industries, such as telecommunication, power system, radio and television system, railway, solar, UPS, electric vehicles, cars, golf cars, forklifts, emergency lights, security, alarm, gardening tool, baby carrier etc. Annual gross production value exceeds 20 million KVAh.

With a highly qualified R&D team and unparalleled quality manufacturing standards, LEOCH continues to maintain its competitive edge in the industry. LEOCH has sales facilities in the United States, Europe and SoutheastAsia, with more than 30 domestic and overseas sales offices. Its worldwide sales network already covers more than 100 countries and regions,

and has a good cooperation partnership with several excellent external operators.

In an endless pursuit of perfection, LEOCH International Technology Limited continues to blaze new trails in quality battery production. LEOCH International Technology Limited has received many product quality recognitions such as the Global ISO, Europe's IEC and Germany's VdS certifications. LEOCH is certified to / by ISO9001: 2000, ISO 14001, the National Battery & Telecommunications Ministries, as well as, the ministries of Power and Information. LEOCH Battery Products have also obtained the CE authentication of the European Union, UL recognition of the USA, PCT authentication of Russia, Kenya's national authentication, China Telecom, China Mobile, China Unicom, Certificate of National Broadcast and television Bureau, Certificate of China Ship's classification Organization etc. LEOCH has also received ISO/TS16949 certification, a requisite certification for supplying to the automobile and motorcycle industries. In essence, LEOCH has achieved many technical breakthroughs and received numerous national patents through its innovative research. Leoch International Technology Limited's mission statement and business model is to produce and sell the most reliable rechargeable batteries for all critical applications for the protection of people and assets while at the same time protecting the environment by maximizing the resource entrusted in our hand. Our reputation is built on the promise that ethical behavior and fair business practices will result in a satisfied and growing customer base. LEOCH International Technology Limited prides itself by delivering its promises in a timely and efficient manner. We listen attentively to our customers, and are constantly reviewing our business practices and procedures in order to make changes that will further benefit all our customers.

WWW.LEOCH.US

LEOCH VRLA-GEL BATTERY FEATURES

INTRODUCTION

LEOCH VRLA Gel batteries are based on true gel technology which has more than a half century experience. This type of battery contains gel electrolyte primarily produced by the homogeneous distributed SiO₂ in a diluted sulfuric acid named gel SOL with thixotropic properties. The special designed vent valves are also used to control the gassing and water losing rate. Since no maintenance is required and valve regulated, they are classified as one type of VRLA batteries (The other type is VRLA-AGM batteries). After 5 years of development, LEOCH now has built up two series and 40 gel battery models, from 2V to 12V in the voltage range, and from 24Ah to 3500 Ah in the capacity range, which can be used for general purpose application (named as LPG Series) and Telecom/UPS application with front terminal(named as LPFG Series). LEOCH can produce batteries from scratch and is capable of engineering tools and molds upon customer's special requests.

APPLICATIONS

- LEOCH VRLA-GEL Batteries are designed and categorized into two series for different applications as below:
- Applications of LPG Series-General Purpose Gel Batteries**
- 1) Cycle applications
 - Golf trolleys • Garden equipment • Portable equipment • Wheelchairs • Solar and wind mill units
 - Medical equipment • Flash units also for mining (head flash) • Portable video/radio • Military • Railway crossing
 - Traffic lights • Street signs • Boats or buoys • Cottage camping • SOS pillars • Toys and hobby applications
 - Portable equipment for communication, testing, distance measuring ...etc. • Pump system
 - 2) Standby applications
 - Telecommunication backup • Power plants • Burglar alarms • Medical equipment (stationary and portable i.e. X-ray)
 - Computer back-up (high power) • Communication systems • Fire alarm systems • Transmitter systems
 - Cash register systems • Emergency light signal systems • Telephone systems • Clocks systems • Uninterrupted
 - Power supplies • Elevator emergency power supply (skyscrapers) • Solar applications • Mobile stations
 - Airport/ runway emergency illumination • Emergency power supply for hospitals • Radar and satellite stations

- Applications of LPFG Series-Front Terminal Gel Batteries**
- Telecom application (19 inches and 23 inches power cabinets) UPS, Standby power supply• Systems Solar Power
 - Network connection equipment of communication system • Power station systems • Railway and marine • Cable TV

FUNDAMENTAL BASICS OF VRLA GEL BATTERIES:

- What is gel?**
- Gel is usually produced by homogeneous dispersion of pyrogenic silica in diluted sulfuric acid. Pyrogenic silica is a kind of powder of very well dispersed SiO₂ ,which absorbs more than 10 times its weight in liquid, producing gel. Because of the thixotropic properties of gel (liquid by stirring and solid by resting), after a certain gelling time, the agglomerates are connecting themselves together to form a network which keeps the liquid inside and gives the gel structure. This form can be broken by stirring to single agglomerates giving again a liquid form.
- Main difference from AGM batteries**
- Using gel SOL as electrolyte
 - Using the extra microporous separator which can reduce the depolarization of the negative electrode and avoid the PCL 3 effect (premature capacity loss due to negative plate sulphation); significantly decreasing thermal runaway; during deep discharge or pole reversal, helps to prevent short circuits by dendrite growth between the plates
 - Plate thickness tolerance is not critical since the high compression of plate group assembly is not required
 - More electrolytes for better contact with plates and active materials and container walls, good for releasing internal heat and cooling battery temperature
 - Better vent valve design to lower gassing rate and water losing rate to extend battery lifetime

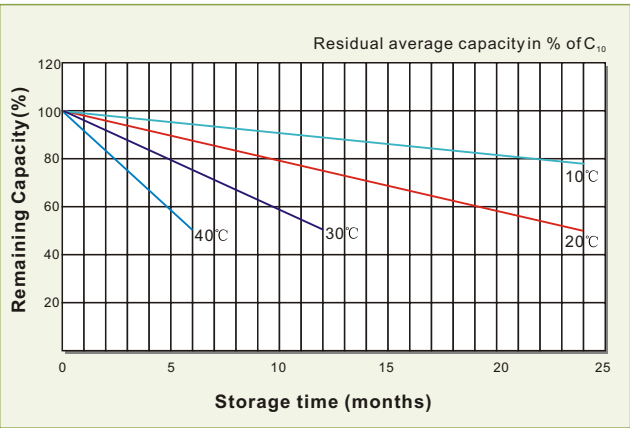
ADVANTAGE OF GEL BATTERIES

- No electrolyte adjustment needed
- Do not need quick recharging after discharging
- Insensitive to occasional deep discharge. Deep discharging resistance is high and much higher than in case of AGM since AGM has less electrolyte (only about 66% in comparison to gel)
- Extremely low gas extrication during charging
- Low self-discharge: 50% of the nominal capacity after a 12 months' storage in room temperature
- High charge acceptance
- High energy at low temperature
- Higher operating reliability and longer lifetime, as mistakes due to wrong maintenance will not occur
- The tendency to thermo-runaway-effect is strongly reduced for gel batteries since the higher electrolyte content than AGM (b/c the contact between plates and container walls for heat dispersion through the surrounding gel)
- Can be stored and used in upright or on side position (side position may give less capacity)
- No pollution problems if container is damaged
- Approved for air transport (IATA)
- Almost no acid stratification which can occur in AGM and conventional wet cells, especially on the tall batteries
- Self-sealing valves with adapter to reduce severe water losing and extend battery life
- Low cost rate (cost vs. lifetime and cost vs. Cycles)

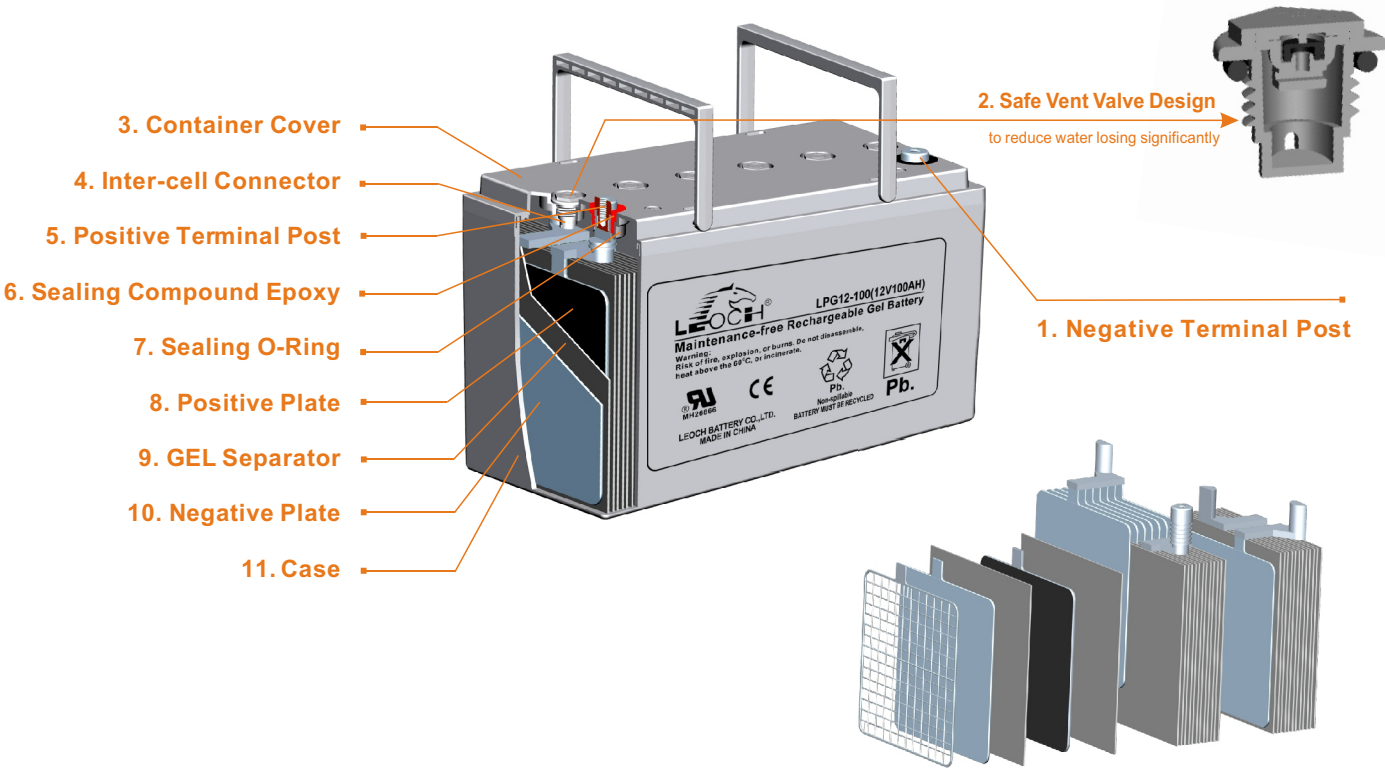
Charge Voltages and Temperature Ranges

Temp (°F)	Boost Charge(V/cell)		Float Charge(V/cell)		Temp (°C)
	Optimum	Maximum	Optimum	Maximum	
≥120	2.23	2.28	2.15	2.18	≥49
110-120	2.27	2.32	2.17	2.22	43-49
100-11	2.28	2.33	2.18	2.23	38-43
90-100	2.30	2.35	2.20	2.25	32-38
80-90	2.32	2.37	2.22	2.27	27-32
70-80	2.35	2.40	2.25	2.30	21-27
60-70	2.38	2.43	2.28	2.33	16-21
50-60	2.40	2.45	2.30	2.35	10-16
40-50	2.43	2.48	2.33	2.38	4-10
30-40	2.46	2.51	2.34	2.39	(-1)-4
20-30	2.49	2.54	2.36	2.41	(-6)-(-1)
10-20	2.53	2.58	2.38	2.43	(-12)-(-6)
≤10	2.58	2.63	2.39	2.44	≤-12

General relation of Capacity vs. Storage time



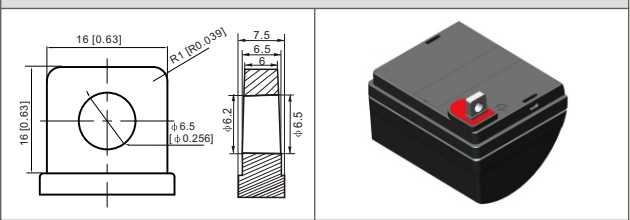
VRLA GEL BATTERY CONSTRUCTION



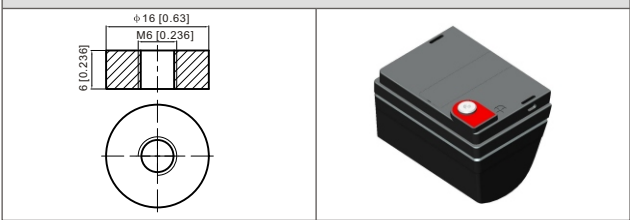
LEOCH VRLA-GEL
BATTERY TERMINAL OPTIONS

Unit:mm[inch]

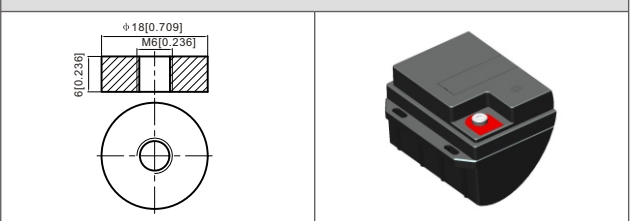
T5 Terminal Lead
Torque: 3.9 ~ 5.4 N*m (34.39 ~ 47.75 in*lbs)



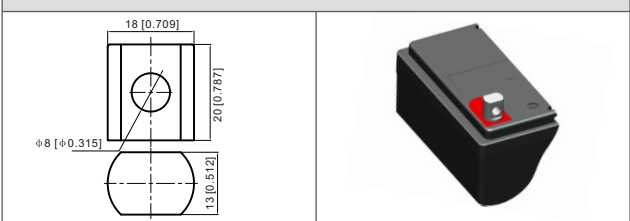
T6 Terminal Brass Coated With Tin; Threaded Insert 6mm STUD
Torque: 3.9 ~ 5.4 N*m (34.39 ~ 47.75 in*lbs)



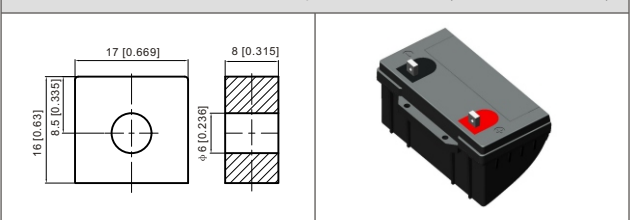
T7 Terminal Brass Coated With Tin; Threaded Insert 6mm STUD
Torque: 3.9 ~ 5.4 N*m (34.39 ~ 47.75 in*lbs)



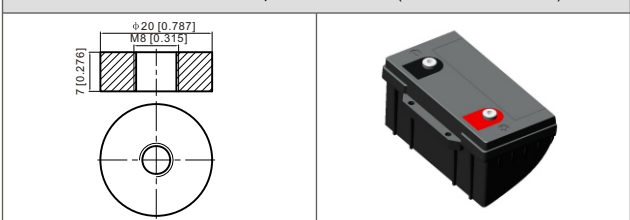
T9 Terminal Lead
Torque: 11 ~ 14.7 N*m (97.28 ~ 130.0 in*lbs)




T10 Terminal Lead
Torque: 3.9 ~ 5.4 N*m (34.39 ~ 47.75 in*lbs)



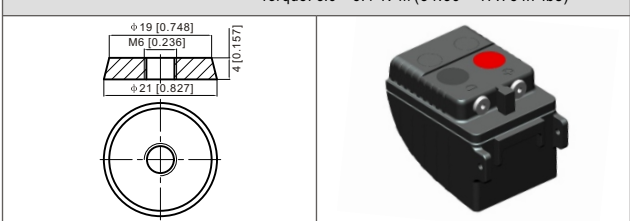
T11 Terminal Brass Coated With Tin; Threaded Insert 8mm STUD
Torque: 11~14.7 N*m (97.28 ~ 130.0 in*lbs)



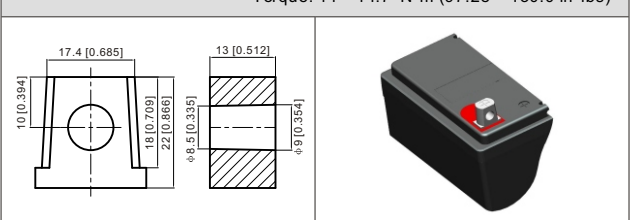
T12 Terminal Brass Coated With Tin; Threaded Insert 5mm STUD
Torque: 2.0 ~ 3.0 N*m (17.69 ~ 26.53 in*lbs)



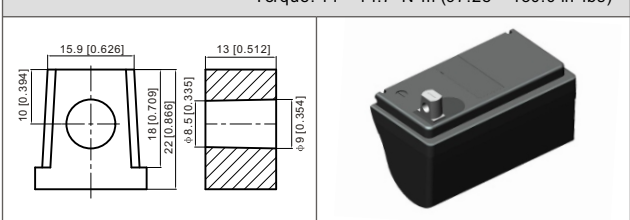
T13 Terminal Brass Coated With Tin; Threaded Insert 6mm STUD
Torque: 3.9 ~ 5.4 N*m (34.39 ~ 47.75 in*lbs)



T14-1 Positive Lead
Torque: 11 ~ 14.7 N*m (97.28 ~ 130.0 in*lbs)



T14-2 Negative Lead
Torque: 11 ~ 14.7 N*m (97.28 ~ 130.0 in*lbs)



Note: the figures below just show the appearance and dimension. For the positioning on each battery model, please check the specification on www.leoch.com.

LPG SERIES -
GENERAL PURPOSE GEL



General Features

- ◆ Long discharge time
- ◆ Suitable for standby power and energy storage power use
- ◆ Special plate design, long cycle lifetime
- ◆ Using special lead-calcium alloy to boost up the grid anti-corrosive performance and extend the battery using lifetime
- ◆ Special separator to boost up the battery internal performance
- ◆ High thermal capacity, reduce the risk of thermal runaway and drying up, can be used in poor environment
- ◆ High gas recombination efficiency
- ◆ Little water losing, no electrolyte stratification phenomenon
- ◆ Long storage time
- ◆ Good deep discharge resilience performance
- ◆ Using nano-fumed silica,with small particle size,and big specific surface area.

Typical Applications

- 1) Cycle applications
- ◆ Golf trolleys ◆ Garden equipments ◆ Portable equipments ◆ Wheel chairs ◆ Solar and wind mill units
 - ◆ Medical equipments ◆ Flash units also for mining (head flash) ◆ Portable video/radio ◆ Military ◆ Railway crossing
 - ◆ Traffic lights ◆ Street signs ◆ Boats or buoys ◆ Cottage camping ◆ SOS pillars ◆ Toys and hobby applications
 - ◆ Portable equipments for communication, testing, distance measuring ...etc. ◆ Pump system
- 2) Standby applications
- ◆ Telecommunication backup ◆ Power plants ◆ Burglar alarms ◆ Medical equipments (stationary and portable i.e. X-ray) ◆ Computer back-up (high power) ◆ Communication systems ◆ Fire alarm systems ◆ Transmitter systems
 - ◆ Cash register systems ◆ Emergency lights signal systems ◆ Telephone systems ◆ Clocks systems ◆ Uninterrupted power supplies ◆ Elevators emergency power supply (skyscrapers) ◆ Solar applications ◆ Mobile stations
 - ◆ Airport / runway emergency illumination ◆ Emergency power supply for hospitals ◆ Radar and satellite stations

LPG Models and Parameters (Small, Middle Size)

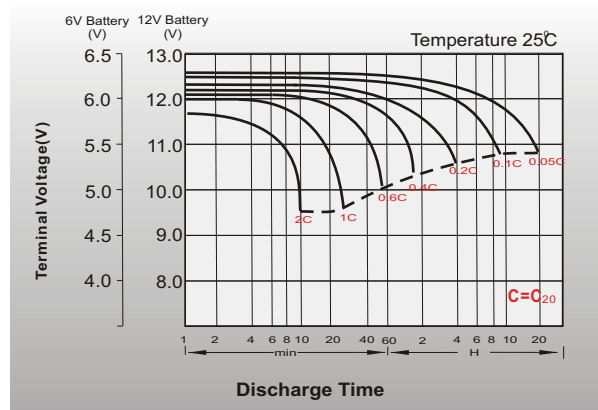
Model	Nominal Voltage (V)	Rated Capacity(AH)				Approx Dimension								Approx Weight		Terminal type
		20HR	10HR	5HR	1HR	Length		Width		Height		Total Height				
		1.80V/cell	1.75V/cell	1.75V/cell	1.67V/cell	mm	in.	mm	in.	mm	in.	mm	in.	kg	lbs	
LPG12-17	12	17	15.5	13.6	9.35	181.5	7.15	77	3.03	167.5	6.59	167.5	6.59	5.80	12.79	T12
LPG12-26	12	26	24.2	20.8	14.3	166.0	6.54	175	6.89	125	4.92	125	4.92	8.70	19.18	T12
LPG12-31	12	30	27.9	24.0	17.1	195	7.68	130	5.12	164	6.46	180	7.09	10.7	23.59	T5/T6
LPG12-38	12	38	35.3	30.4	20.9	197	7.76	165	6.50	170	6.69	170	6.69	13.5	29.77	T6
LPG12-45	12	45	40.0	36.0	24.7	257	10.1	132	5.20	200	7.87	200	7.87	16.2	35.72	T6
LPG12-50	12	50	46.5	40.0	27.5	229	9.02	138	5.43	205	8.07	211	8.31	16.6	36.60	T6
LPG12-60	12	60	55.8	48.0	33.0	325	12.8	167	6.57	174	6.85	174	6.85	21.5	47.41	T6

Model	Nominal Voltage (V)	Rated Capacity (AH)				Approx Dimension								Approx Weight		Terminal type
		20HR	10HR	5HR	1HR	Length		Width		Height		Total Height				
						1.80V/cell	1.75V/cell	1.75V/cell	1.67V/cell	mm	in.	mm	in.	mm	in.	
LPG12-65	12	65.0	60.5	52.0	35.8	325	12.79	167	6.57	174	6.85	174	6.85	24.0	52.92	T6
LPG12-70H	12	70.0	65.1	56.0	38.5	259	10.2	168	6.61	208	8.19	214	8.43	23.0	50.72	T6
LPG12-85	12	85.0	78.0	68.0	46.8	305	12.01	168	6.61	207	8.15	213	8.39	26.7	58.90	T6
LPG12-100	12	96.0	90.0	80.0	55.0	330	12.99	173	6.81	212	8.35	218	8.58	31.0	68.36	T11
LPG12-110	12	110	102.3	88.0	60.5	410	16.14	177	6.97	225	8.86	225	8.86	36.0	79.38	T11
LPG12-125	12	130	120.0	104	71.5	345	13.58	172	6.77	274	10.79	280	11.02	47.3	104.30	T11
LPG12-140	12	135	125.6	108	74.3	485	19.09	170	6.69	240	9.45	240	9.45	44.2	97.46	T11
LPG12-200	12	200	186.0	160	110	522	20.55	240	9.45	218	8.58	224	8.82	62.9	138.69	T11
LPG6-200	6	200	185.0	160	110	322	12.68	178	7.01	228	8.98	234	9.21	31.3	69.02	T11

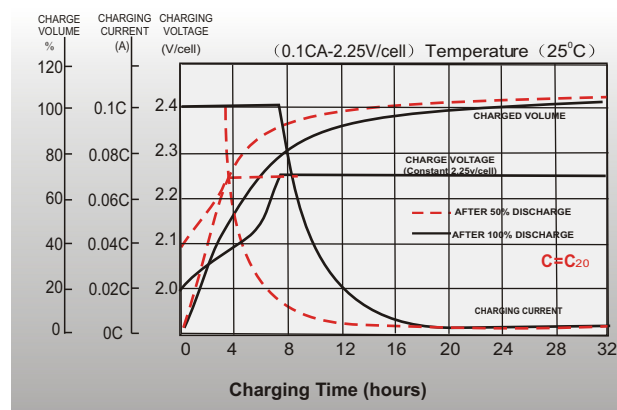
Note: model number followed with H-tall version and L-long version

LPG Performance Characteristics (Small, Middle size)

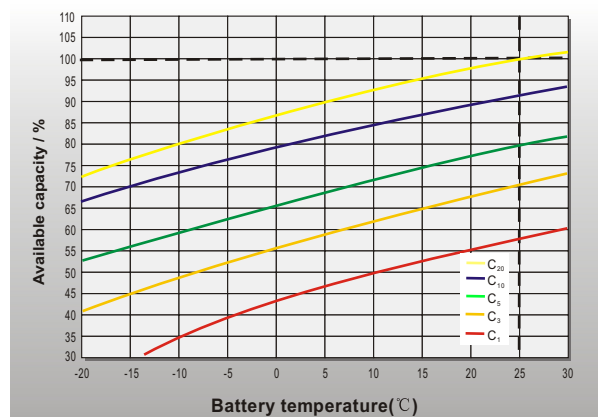
DISCHARGE CHARACTERISTICS



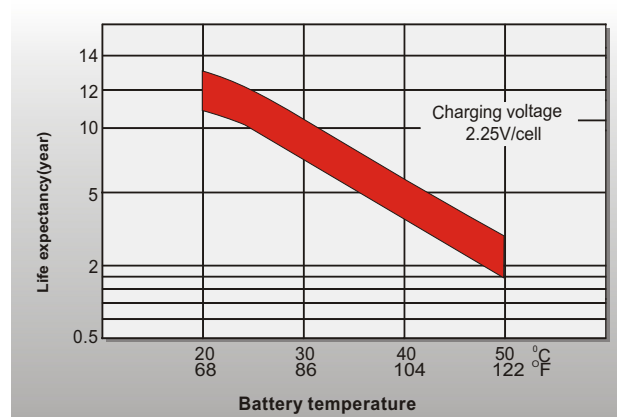
CHARGING CHARACTERISTICS



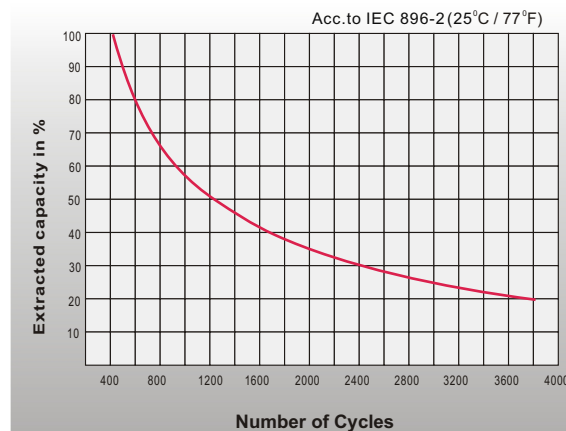
TEMPERATURE EFFECTS IN RELATION TO BATTERY CAPACITY



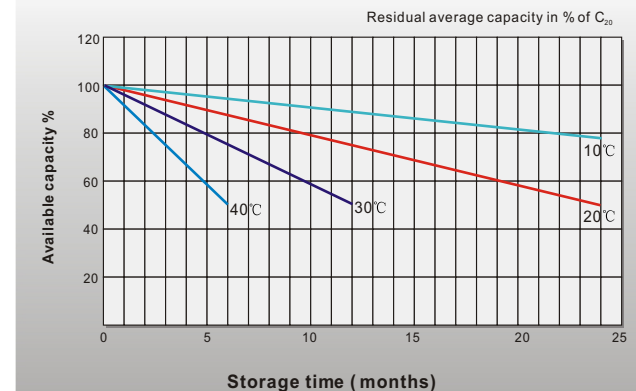
EFFECT OF TEMPERATURE ON LONG TERM FLOAT LIFE



CYCLE LIFE IN RELATION TO DEPTH OF DISCHARGE



GENERAL RELATION OF CAPACITY VS. STORAGE TIME



LPG Models and Parameters (2V Series)

Model	Nominal Voltage (V)	Rated Capacity (AH)				Approx Dimension								Approx Weight		Terminal type
		20HR	10HR	5HR	1HR	Length		Width		Height		Total Height				
														1.80V/cell	1.75V/cell	
LPG2-65	2	65.0	60.0	51.6	35.2	170	6.69	72	2.83	205	8.07	212	8.35	5.2	11.47	T6
LPG2-100	2	96	90	77.4	52.8	170	6.69	72	2.83	205	8.07	212	8.35	6.2	13.67	T6
LPG2-150	2	144	135	116.1	79.2	170	6.69	98	3.86	205	8.07	212	8.35	8.8	19.40	T7
LPG2-200	2	213.3	200	172	117.3	170	6.69	110	4.33	328	12.91	340	13.39	13.7	30.21	T11
LPG2-300	2	320	300	258	176	170	6.69	150	5.91	328	12.91	340	13.39	19.0	41.90	T11
LPG2-400	2	426.7	400	344	234.7	210	8.27	175	6.89	330	12.99	339	13.35	27.5	60.6	T11
LPG2-500	2	533.4	500	430	293.3	240	9.45	175	6.89	330	12.99	340	13.39	30.0	66.15	T11
LPG2-600	2	640	600	516	352	300	11.81	175	6.89	330	12.99	340	13.39	36.5	80.5	T11
LPG2-800	2	853.4	800	688	469.3	410	16.14	175	6.89	330	12.99	340	13.39	50.6	111.6	T11
LPG2-1000	2	1067	1000	860	586.7	475	18.7	175	6.89	328	12.91	338	13.31	61.3	135.17	T11
LPG2-1500	2	1600	1500	1290	880	403	15.87	354	13.94	339	13.35	349	13.74	90.5	199.6	T11
LPG2-2000	2	2133	2000	1720	1173	490	19.29	350	13.78	339	13.35	349	13.74	132.5	292.2	T11
LPG2-3000	2	3200	3000	2580	1760	709	27.91	350	13.78	337	13.27	347	13.66	190.0	419.0	T11

REASONABLE PRICE

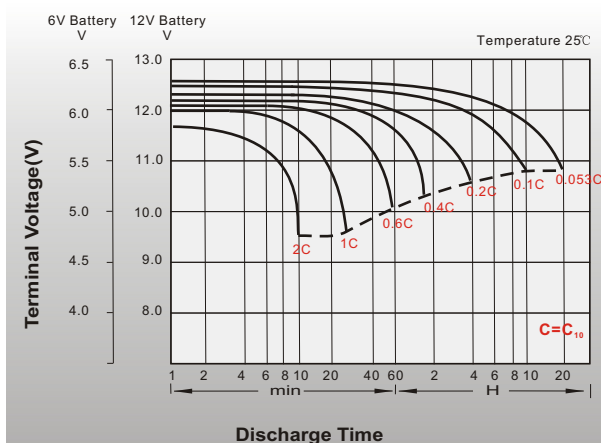
RELIABLE QUALITY

TIMELY DELIVERY

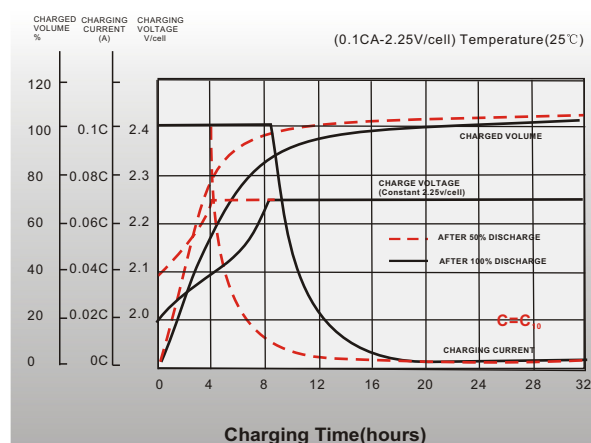
FRIENDLY SERVICE

LPG Performance Characteristics (2V Series)

DISCHARGE CHARACTERISTICS



CHARGING CHARACTERISTICS



LPFG SERIES - FRONT TERMINAL GEL



General Features

- ◆ Specifically ideal for 19 inches or 23 inches power cabinets
- ◆ Front terminals make the installation, maintenance and supervision easy
- ◆ Shield designs protect terminals from short circuit and show good appearance
- ◆ Unique vent valve design: reduce water losing and prevent air/spark going inside
- ◆ Thick plates, special formula of paste and plate manufacturing process for a long service life
- ◆ ABS material: increase the strength of battery container (Flame-retardant ABS is optional)
- ◆ Long discharge time
- ◆ Suitable for standby power and energy storage power use
- ◆ Special plate design, long cycle life
- ◆ Using special lead-calcium alloy to boost up the grid anti-corrosive performance and extend the battery using life
- ◆ Special separators boost up the battery internal performance
- ◆ High thermal capacity, reduce the risk of thermal runaway and drying up, can be used in poor environment
- ◆ High gas recombination efficiency
- ◆ Little water losing, no electrolyte stratification phenomenon
- ◆ Long storage time
- ◆ Good deep discharge resilience performance
- ◆ Use nano-fumed silica, with small particle size, and big specific surface area.

LPFG Models and Parameters

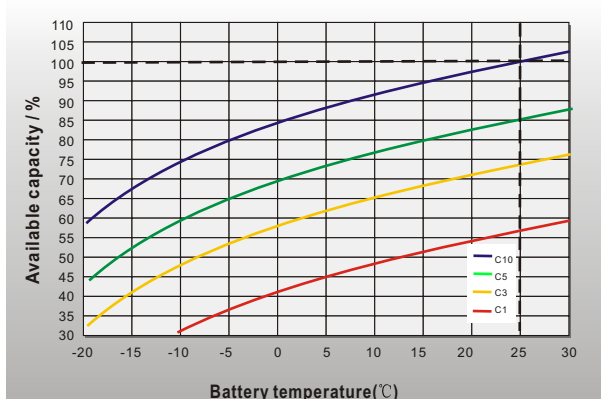
Typical Applications

- ◆ For standard 19 inches or 23 inches power cabinets
- ◆ Network connection equipment of communication system
- ◆ Power system of special network or local area network
- ◆ UPS, standby power supply
- ◆ Power station systems
- ◆ Railway and marine systems

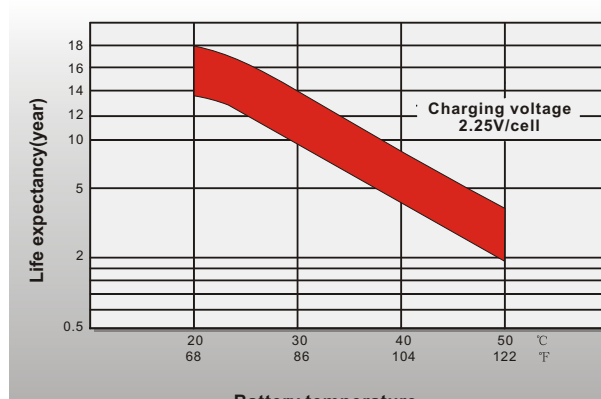
Model	Nominal Voltage (V)	Rated Capacity (AH)				Approx Dimension								Approx Weight		Terminal type	
						Length		Width		Height		Total Height					
		20HR	10HR	5HR	1HR									mm	in.		mm
		1.80V/cell	1.80V/cell	1.75V/cell	1.60V/cell												
LPFG12-70	12	70.0	65.8	57.8	40.3	564	22.20	114	4.49	187.0	7.36	187	7.36	26.0	57.3		T6
LPFG12-100	12	90.0	85.0	74.5	49.1	508	20.00	110	4.33	238.5	9.39	238.5	9.39	32.3	71.2		T13
LPFG12-100L	12	100	95.0	82.7	54.5	560	22.05	110	4.33	233.0	9.17	233	9.17	35.6	78.5		T13
LPFG12-100H	12	96.0	90.0	79.2	52.2	394	15.51	110	4.33	285.0	11.22	285	11.22	35.0	77.2		T6
LPFG12-150	12	144	135	118.8	78.3	552	21.73	110	4.33	288.0	11.34	288	11.34	47.4	104.5		T6
LPFG12-180	12	158	150	132.0	87.0	550	21.65	126	4.96	280.0	11.02	280	11.02	54.5	120.2		T13

Note: model number followed with H-tall version and L-long version

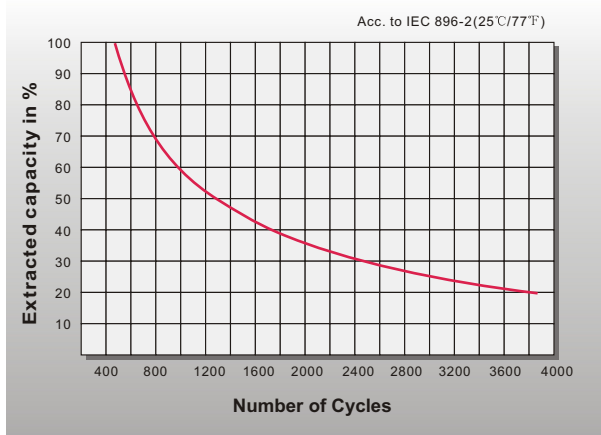
TEMPERATURE EFFECTS IN RELATION TO BATTER CAPACITY



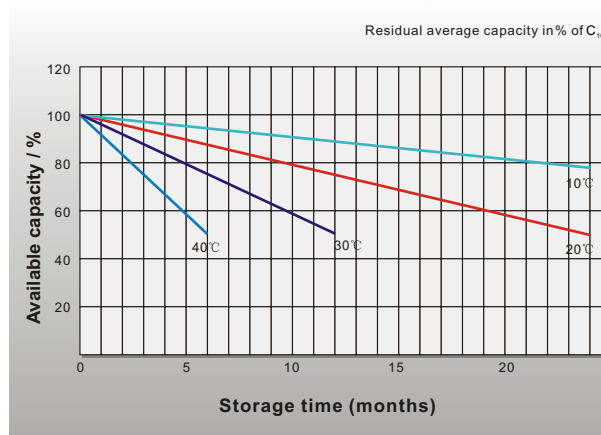
EFFECT OF TEMPERATURE ON LONG TERM FLOAT LIFE



CYCLE LIFE IN RELATION TO DEPTH OF DISCHARGE



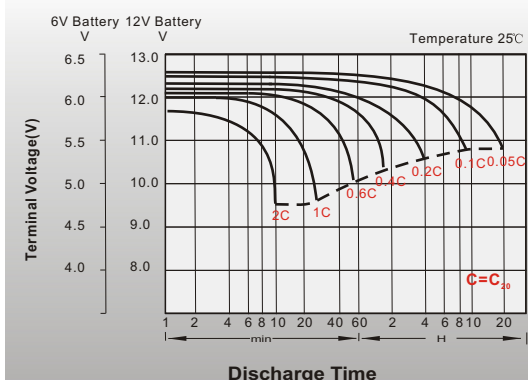
GENERAL RELATION OF CAPACITY VS. STORAGE TIME



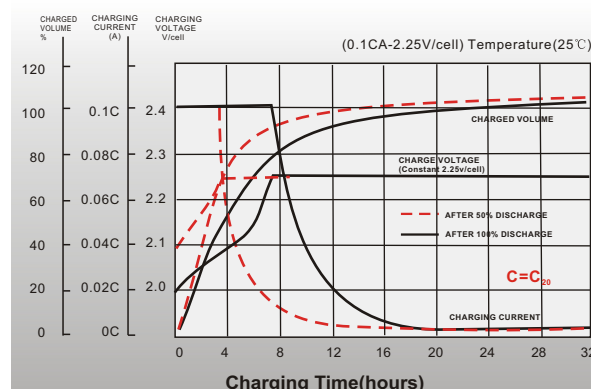


LPCG Performance Characteristics

DISCHARGE CHARACTERISTICS



CHARGING CHARACTERISTICS



LPCG SERIES - DEEP CYCLE GEL

General Features

- ◆ For longer cycle life: special paste formula, over dimensioned negative plate, optimised manufacturing process, additives for deep discharge
- ◆ Special anti-vibration design (optional)
- ◆ Thick plates, special formula of paste and plate manufacturing process for a long service life
- ◆ ABS material: increase the strength of battery container (Flame-retardant ABS is optional)
- ◆ Long discharge time
- ◆ Suitable for standby power and energy storage power use
- ◆ Special plate design, long cycle life
- ◆ Using special lead-calcium alloy to boost up the grid anti-corrosive performance and extend the battery using life
- ◆ Special separators boost up the battery internal performance
- ◆ High thermal capacity, reduce the risk of thermal runaway and drying up, can be used in poor environment
- ◆ High gas recombination efficiency
- ◆ Little water losing, no electrolyte stratification phenomenon
- ◆ Long storage time
- ◆ Good deep discharge resilience performance

LPCG Models and Parameters

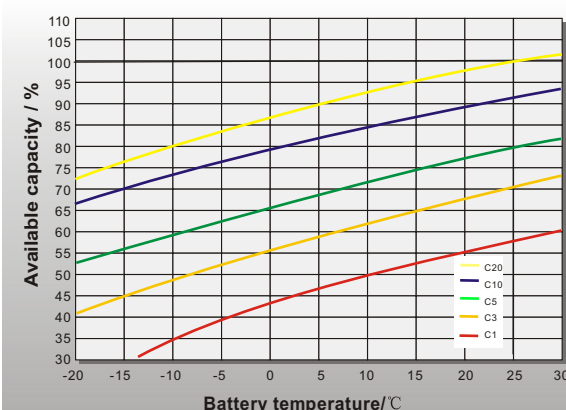
Typical Applications

- ◆ Vehicle in place of walking
- ◆ Power system of special network or local area network
- ◆ Power station systems
- ◆ Golf trolleys and golf cart
- ◆ UPS, standby power supply
- ◆ Railway and marine systems

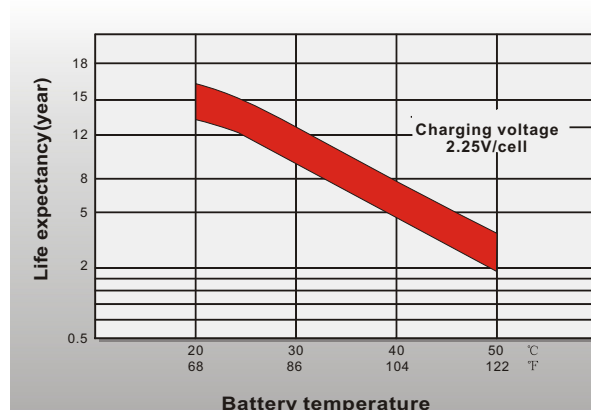
Model	Nominal Voltage (V)	Rated Capacity (AH)				Approx Dimension								Approx Weight		Terminals type
		20HR	10HR	5HR	1HR	Length		Width		Height		Total Height				
						1.80V/cell	1.80V/cell	1.75V/cell	1.60V/cell	mm	in.	mm	in.	mm	in.	
LPCG12-24	12	24.0	22.6	19.8	13.8	166	6.54	175	6.89	125	4.92	125	4.92	8.70	19.4	T12
LPCG12-24P	12	24.0	22.6	19.8	13.8	166	6.54	175	6.89	125	4.92	125	4.92	8.70	19.4	T12
LPCG12-30	12	30.0	27.6	24.3	17.8	195	7.68	130	5.12	164	6.46	180	7.09	10.7	23.6	T5/T6
LPCG12-40	12	38.0	35.0	30.7	22.5	197	7.76	165	6.50	170	6.69	170	6.69	13.5	29.8	T6
LPCG12-45	12	45.0	41.5	36.4	26.7	257	10.1	132	5.20	200	7.87	200	7.87	16.2	35.7	T6
LPCG12-50	12	50.0	46.1	40.5	29.7	229	9.02	138	5.43	205	8.07	211	8.31	17.6	38.8	T6
LPCG12-60	12	60.0	55.4	48.6	35.6	259	10.2	168	6.61	190	7.48	190	7.48	19.7	43.4	T6
LPCG12-70	12	70.0	64.6	56.5	41.5	259	10.2	168	6.61	208	8.19	230	9.05	25.0	55.1	T14

Note:LPCG12-24P could collocate with a charging board

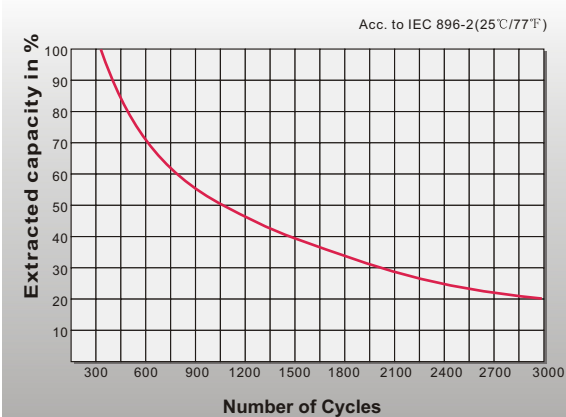
TEMPERATURE EFFECTS IN RELATION TO BATTER CAPACITY



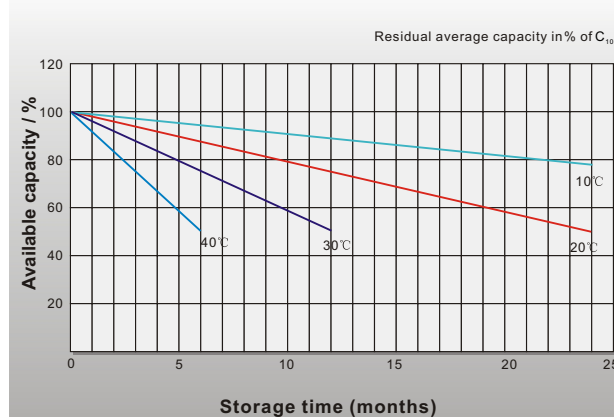
EFFECT OF TEMPERATURE ON LONG TERM FLOAT LIFE



CYCLE LIFE IN RELATION TO DEPTH OF DISCHARGE

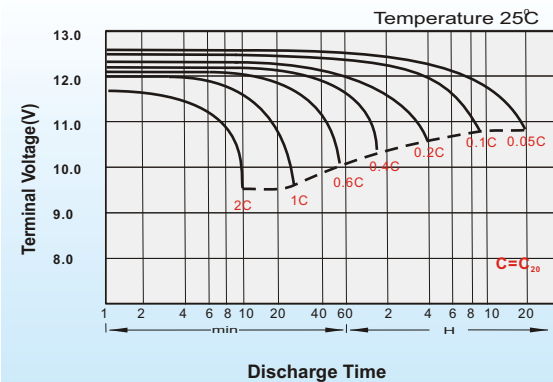


GENERAL RELATION OF CAPACITY VS. STORAGE TIME

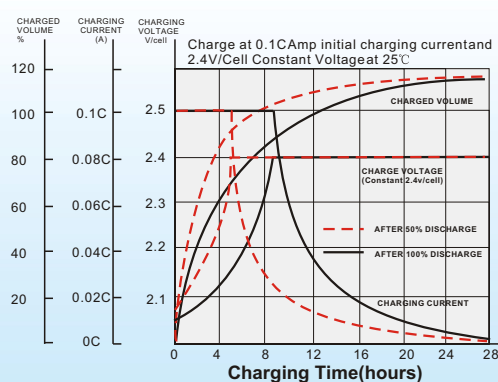


LPCG Performance Characteristics

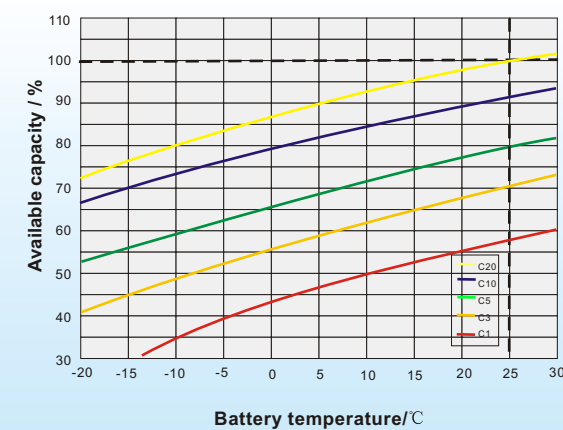
DISCHARGE CHARACTERISTICS



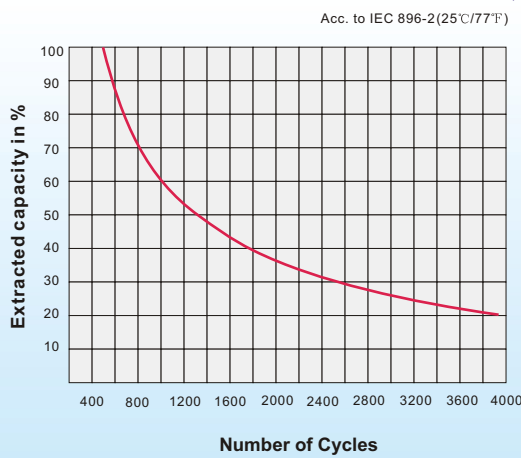
CHARGING CHARACTERISTICS (CYCLE USE)



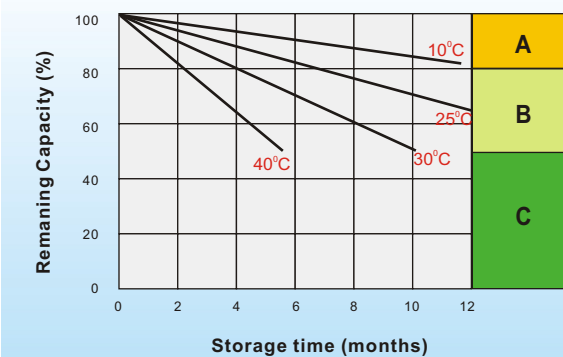
TEMPERATURE EFFECTS IN RELATION TO BATTERY CAPACITY



EFFECT OF TEMPERATURE ON LONG TERM FLOAT LIFE



SELF DISCHARGE CHARACTERISTICS



- A** No supplementary charge required
(Carry out supplementary charge before use if 100% capacity is required.)
- B** Supplementary charge required before use. Optional charging way as below:
1. Charged for above 3 days at limited current 0.25CA and constant voltage 2.25V/cell.
2. Charged for above 20 hours at limited current 0.25CA and constant voltage 2.4V/cell.
3. Charged for 8~10 hours at limited current 0.05CA.
- C** Supplementary charge may often fail to recover the capacity.
The battery should never be left standing till this is reached.

LEOCH factory



LEOCH sales office



Customers

