CHEE YUEN INDUSTRIAL CO LTD
CASIL ELECTRONIC PRODUCTS LTD

Subsidiaries of China Aerospace International Holdings Limited

SEALED LEAD ACID BATTERY

LITHIUM BATTERY

- STANDBY USE
- CYCLE USE
- SOLAR CELL GENERATION
- STORAGE

www.casilbattery.com

MISSION STATEMENT

We ship to customers worldwide to take advantage of our **premium quality performance** products.

Building long-term relationships with our customers is something **CASIL** strongly believes in and we go to **great lengths** to ensure our valuable customers receive first rate service

1965
Setup tooling and injection molding in Hong Kong as a private company

1969
Established as a limited company in Hong Kong

1975
Becoming a subsidiary of Conic group (Conic - one of the largest electronic products manufacturers in Hong Kong)

Established plants in Tai Po Industrial Estate, Hong Kong

1981
Conic listed in Hong Kong (Stock code: 00031)

1989
Setup tooling and injection molding plants, Huizhou

1993
China Aerospace Corporation acquired Conic group and renamed it as China Aerospace International Holdings Limited ("CASIL")

1994
Setup Shenzhen office and injection molding plant

1995
Chee Yuen Hong Kong: ISO 9001 Certified

2000
Setup battery plant and electroplating plant, Huizhou

2001
Chee Yuen group production plants relocated to Huizhou (Phase I)

2003
Huizhou & Shenzhen plants ISO 9001, ISO 14001 Certifed

2004
ISO/TS 16949/ QS 9000 certificated for molding and electroplating plants

2005
Setup electric products plant, Huizhou (Phase II)

2010
Setup injection molding plant, Huizhou (Phase II)

2013
OHSAS 18001 for Battery Plant

2015
Setup surface treatment plant, Boluo, Huizhou

Two new robotic paint lines at molding plant, Huizhou

Attended ISC West Exhibition, Las Vegas

2016
Attended ISC West Exhibitions, Las Vegas

2017
Produtcion plant transformed from traditional manual to automated casting and welding production, the proportion reach 90% from total

2018
Set up a 4V micro-density production line with a designed annual production capacity of 15 million units

2019
Invested a new plant in Vietnam-Chee Yuen (Vietnam) Electronic Technology Co., Ltd

Expand the battery plant, increase production efficiency by 20%

2020
Rare earth alloys for long-life battery & UPS high power low battery attenuation are successfully developedRare earth alloys for long-life battery & UPS high power low battery attenuation are successfully developed

2022
Obtain the patent certificate for quick-moild change technology, Lithium battery put into mass production


Conic Group, Hong Kong


Chee Yuen Office, Hong Kong


CASIL Industrial Park, Huizhou

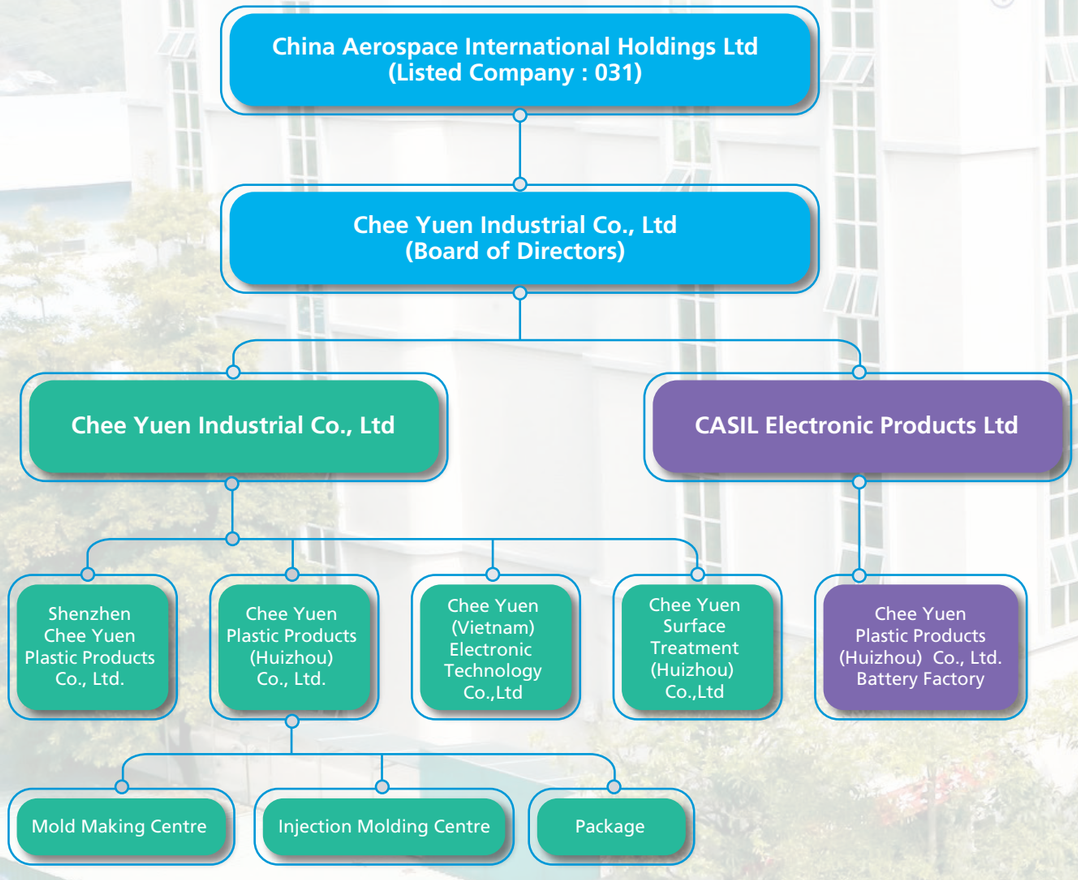

Injection Molding Plant, Huizhou


Chee Yuen Battery Plant, Huizhou


Electric Products Plant, Huizhou

Electronic Technology Plant, Vietnam

Chee Yuen Industrial Company Limited ("Chee Yuen") was setup in 1965, is one of the large-scale and well developed manufacturers in Hong Kong, and we have the capacity of complete design, processing, and manufacturing for the series of core products from tool making to injection molding, electroplating, metal stamping, electronic assembly, painting and so on. Our main production factories include Chee Yuen Plastic Products (Huizhou) Co., Ltd., Huizhou Chee Yuen Mold Factory, Huizhou Chee Yuen Battery Factory, Shenzhen Chee Yuen Plastic Products Co., Ltd., Huizhou Cheefat Metal Product & Plastic Plating Co., Ltd., Chee Yuen Electronics Technology Huizhou Co., Ltd. Chee Yuen Industrial Co., Ltd. is a subsidiary of China Aerospace International Holdings Limited, which is listed in Hong Kong stock exchange (HKSE: 00031, "CASIL"). Chee Yuen invested a new plant in Vietnam in 2019, which is named Chee Yuen (Vietnam) Electronic Technology Co.,Ltd

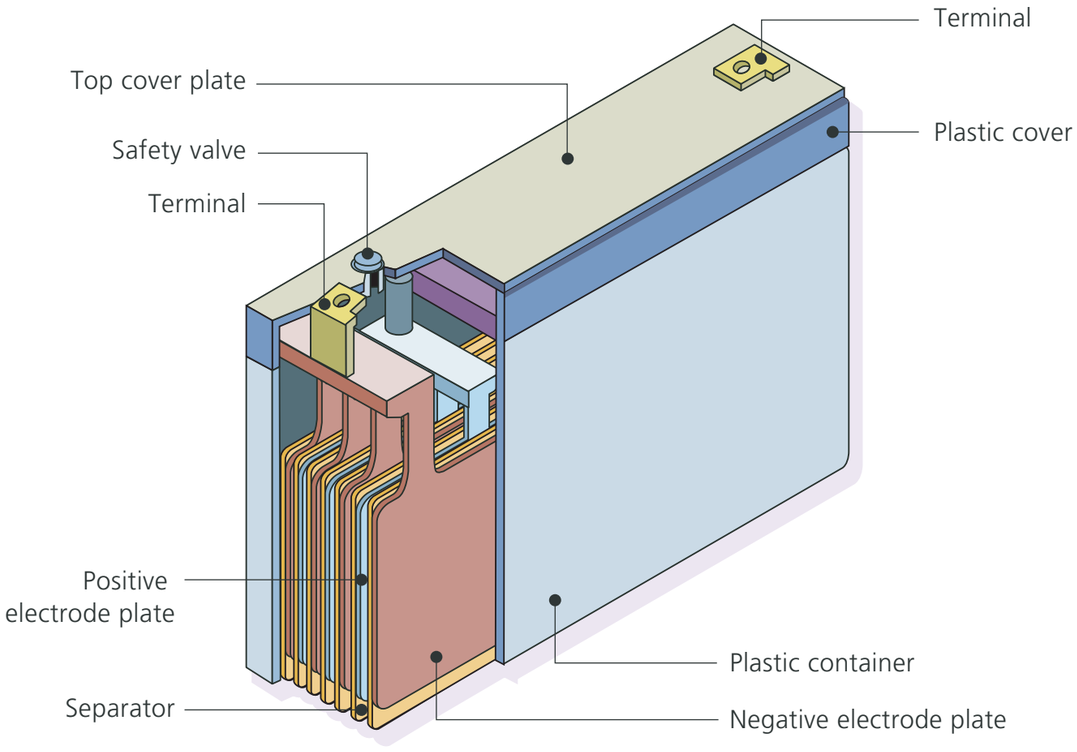


Chee Yuen Battery Factory was founded in 1997, is a subsidiary company of China Aerospace International Holdings Limited and Chee Yuen Industrial Company Limited. We produce sealed lead acid battery and lithium battery (PACK), engage in related products technology and professional design, also own and produce the battery brand "CASIL".

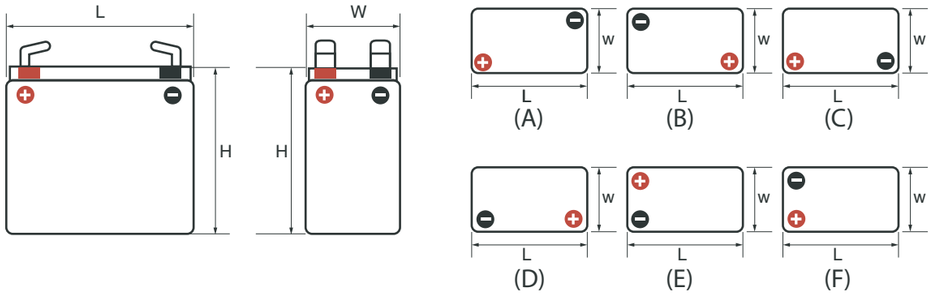
In terms of sealed lead acid battery, we have 4 automatic casting and welding liness, 1 micro-density battery production lines, 80 microcomputer charging and discharging machines, 14 multi-functional testing machines, and 20 computerized testing equipments. For lithium battery (PACK), we have 2 professional lithium battery (PACK) assembly lines, 2 batteries matching diaphragm machines, 6 electric welding machines, 2 finished products comprehensive testers equipments, etc.

We has an independent production plants with a usable area of 15,000 square meters, more than 400 employees work in industrial area, and 50+ managers at different levels of various types. The planning capacity of sealed lead acid battery is 1 million kVA (equivalent to 30 million 6V4 batteries) and 100,000 KVAH for lithium battery (PACK) as such. At present, our customers and partners come from all over the world, the main sales markets at Europe, American, South America, Africa, Southeast Asia, Russia and Mainland China.

"CASIL" Sealed Lead Acid Battery (SLA battery) is an advanced and economic rechargeable battery. It has several properties that differs from other types of batteries:



Terminal positions



Maintenance free

As it is valve-regulated, sealed and glass-mat is utilized, acid is trapped inside. So, refilling is not needed and is also leak proof.

High power-to-weight ratio

"CASIL" (SLA) 2V, 4V 6V and 12V battery ranges from 0.6AH to 1000AH. Weight ranges from approximately 0.3 to 82.5 kg. So it can provide more power in comparison to its weight.

No memory effect

Some batteries, such as nickel-cadmium batteries, will become conditioned to provide small power after repetitive short usage/discharge.

Low self-discharge

The self-discharge rate for "CASIL" SLA battery is about 2-3% per month at room temperature compared with 20-30% for other common battery systems.

Long service life

Utilized thick and massive calcium grids cause "CASIL" SLA battery has a long service life.

High discharge rate

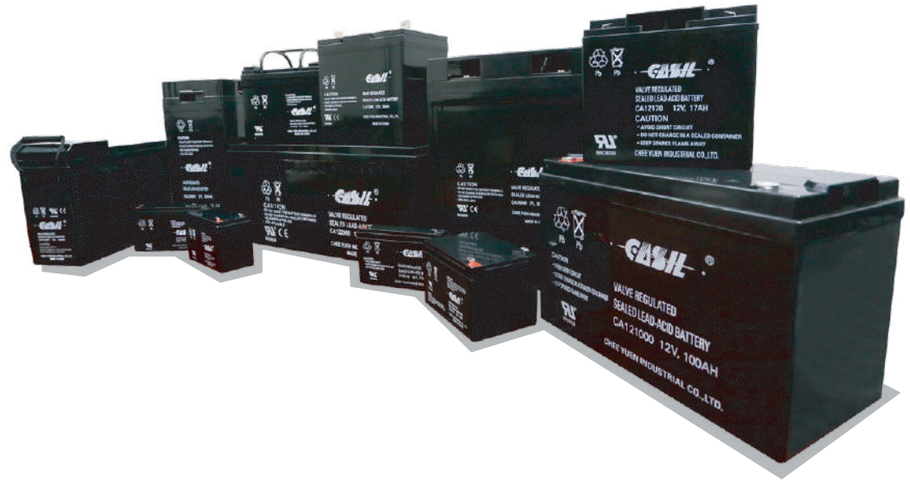
Since the internal resistance is low, the battery can provide high rate of discharge.

Wide operating temperature range

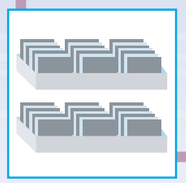
"CASIL" SLA battery is rated at 20°C (68°F) and operates from -60°C to +60°C when it is fully charged.

Ease of shipment

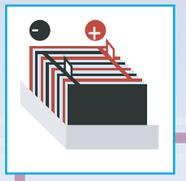
It is classified as dry battery and is acceptable shipment on passenger and cargo aircraft.



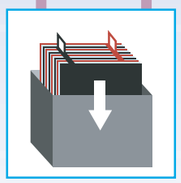
Setup battery plate pack with separator



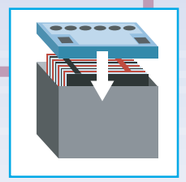
Set battery plate pack



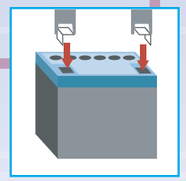
Weld connectors



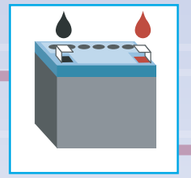
Insert battery plate packs into plastic case



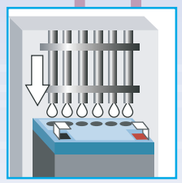
Assemble battery middle cover with case



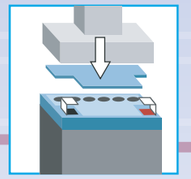
Weld terminals



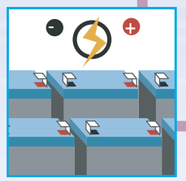
Indicate positive and negative terminals



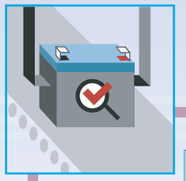
Infuse electrolyte (acid) with vacuum acid filler



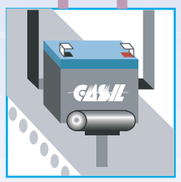
Ultrasonic welding safety valve and top lid



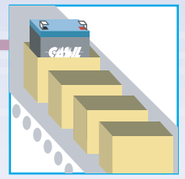
Charge & discharge



Testing



Silk screening



Packing & export

KN SERIES SPECIFICATION

No.	Battery Model	Dimension (mm)	Weight (g±3%)	Capacity (AH)	Colour	Terminal
1	KN402	22*20*40.5	29	0.19	Black	copper sheet
2	KN404B	24.5*22*48	41	0.34	Black	copper sheet
3	KN409B	35*22*64	79	0.72	Black	copper sheet
4	KN416B	34.5*22*91	128	1.33	Black	copper sheet
5	KN420	28*47*75	190	2	Black	copper sheet
6	KN430	26*60.5*75.5	250	2.6	Black	copper sheet
7	KN440	35*60.2*90.5	375	4	Black	copper sheet
8	KN616	35*35*91	205	1.4	Black	copper sheet

6 VOLT SPECIFICATION

No.	Battery Model	Dimension (mm)	Weight (g±3%)	Capacity (AH)	Colour	Terminal
1	CA640(700g)	70*47*100	700	4.5	Black	187(F1)/250(F2)
2	CA640(710g)	70*47*100	710	4.5	Black	187(F1)
3	CA640(730g)	70*47*100	730	4.5	Black	187(F1)/250(F2)
4	CA640(800g)	70*47*100	800	4.8	Black	187(F1)/250(F2)
5	CA640(840)	70*47*100	840	5	Black	187(F1)/250(F2)
6	CA650	67*67*97	910	5	Black	Spring Terminal
7	CA650B	67*67*97	770	4.5	Black	Spring Terminal

HOUSEHOLD APPLIANCES Field:

LED lights, Emergency lights, Portable lamps, small electrical appliances

SECURITY System:

Fire System, Alarm System, Life Safety

Control Panel

Life Safety

Fire Extinguisher

SPECIFICATION

No.	Battery Model	Dimension (mm)	Weight (g±3%)	Capacity (AH)	Colour	Terminal
1	CA1240	90*70*101	1200	4.0	Black	187(F1)/250(F2)
2	CA1240 1260G	90*70*101	1260	4.0	Black	187(F1)/250(F2)
4	CA1270	151*65*94	2090	7.0	Black	187(F1)/250(F2)
5	CA1270C	151*65*94	2050	7.0	Black	187(F1)/250(F2)
6	CA1270F	151*65*94	2060	7.2	Black	187(F1)/250(F2)
7	CA1270G	151*65*94	2170	7.0	Black	250(F2)
8	CA1270H	151*65*94	1980	7.0	Black	187(F1)/250(F2)
9	CA1270J	151*65*94	2000	7	Black	187(F1)/250(F2)
10	CA1270K	151*65*94	2020	7	Black	187(F1)/250(F2)
11	CA1270SS	151*65*94	1950	7.0	Black	187(F1)/250(F2)
12	CA12120B	151*99*95	4000	12	Black	187(F1)/250(F2)
13	CA12120C	151*99*95	3650	12	Black	187(F1)/250(F2)
14	CA12120F	151*99*95	3300	12	Black	187(F1)/250(F2)
15	CA12120G	151*99*95	3480	12	Black	250(F2)
16	CA12120S	151*99*95	3250	12	Black	187(F1)/250(F2)
17	CA12140	151*99*95	3600	12	Black	250(F2)

POWER SUPPLY Field: Apply for Solar System, UPS System, Computers, Servers, etc.

TRACTION POWER Field: Apply for MOTORCYCLES, etc.

SPECIFICATION

No.	Battery Model	Dimension (mm)	Weight (g±3%)	Capacity (AH)	Colour	Terminal
1	CA1270	151*65*94	2090	7.0	Black	187(F1)/250(F2)
2	CA1270C	151*65*94	2050	7.0	Black	187(F1)/250(F2)
3	CA1270F	151*65*94	2060	7.2	Black	187(F1)/250(F2)
4	CA1270G	151*65*94	2170	7.0	Black	250(F2)
5	CA1270H	151*65*94	1980	7.0	Black	187(F1)/250(F2)
6	CA1270J	151*65*94	2000	7	Black	187(F1)/250(F2)
7	CA1270K	151*65*94	2020	7	Black	187(F1)/250(F2)
8	CA1270SS	151*65*94	1950	7.0	Black	187(F1)/250(F2)
9	CA1272	151*65*94	2200	7.2	Black	187(F1)/250(F2)
10	CA1280	151*65*94	2140	8.0	Black	187(F1)/250(F2)
11	CA1285	151*65*94	2350	8.5	Black	187(F1)/250(F2)
12	CA1290	151*65*94	2480	8.5	Black	187(F1)/250(F2)
13	CA1290A	151*65*94	2460	9.0	Black	187(F1)/250(F2)



SPECIFICATION

No.	Battery Model	Dimension (mm)	Weight (g±3%)	Capacity (AH)	Colour	Terminal
1	MCA1230 YTX4L-BS	113*69*83	1270	3.0	Black	
2	MCA1240 YTX5L-BS	113*69*105	1640	4.0	Black	
3	MCA1260 YTX7L-BS	113*69*130	2200	6	Black	
4	MCA1260 YTX7A-BS	149*85*93	2550	6.0	Black	
5	MCA1280 YTX9-BS	150*86*107	2800	8.0	Black	
6	MCA12100 YTX12-BS	150*88*131	3450	10	Black	
7	MCA12120 YTX14AH-BS	135*91*167	4000	12	Black	
8	MCA12120 YTX14-BS	150*88*147	4200	12.0	Black	
9	MCA12180 YTX20L-BS	177*87*154	5100	18	Black	



12V7AH

Features:

- Maintenance-free operation
- Stable quality and high reliability
- Compact design
- 5 years design time (at 25°C)

Applications

- UPS
- Emergency lighting
- Fire alarm and security systems
- Telecommunication system
- Backup power for testing and measuring instruments
- Alarm and security system
- Electronic apparatus and equipment
- Communication power supply
- DC power supply
- Auto control system

Specifications

Nominal Voltage	12V(6cells)	
Nominal Capacity	7.0AH (20hr,1.75V/cell,25°C/77°F) 6.30AH (5hr,1.75V/cell,25°C/77°F) 4.20AH(1 hr,1.60V/cell,25°C/77°F)	
Dimension	Length	151±1mm
	Width	65±1mm
	Container Height	95±2mm
	Total Height (with Terminal)	102±2mm
Weight	1980G ± 3%	
Terminal	F1	
Container Material	ABS	
Max.Discharge Current	105A(5S)	
Internal Resistance	Approx 30mΩ	

Operationg Temp Range	Discharge: -15—50°C (5—122°F)
	Charge : 0—40°C (32—104°F)
	Storage : -15—40°C (5—104°F)
Nominal Operating Temp Range	25±3°C (77±5°F)
Cycle Use	14.4~14.8V (25°C/77°F) Temp.Coefficient-30mV/°C Initial Charging Current Less than 2.10A
Standby Use	13.5V~13.8V(25°C/77°F) Temp.Coefficient-20mV/°C No limit on Initial Charging Current
Capacity affected by Temperature	40°C (104°F) 103% 25°C (77°F) 100% 0°C (32°F) 86%
Self Discharge	CASIL CA series batteries may be stored for up to 6 months at 25°C(77°F)and then a freshening charge is required. For higher temperatures the time interval will be shorter.

Constant Current Discharge (Amperes at 25°C/77°F)

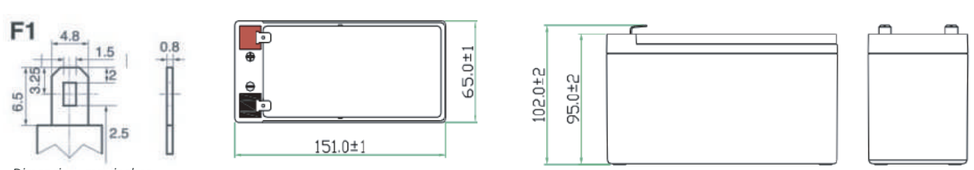
F.V/Time	5min	10min	15min	30min	45min	1h	3h	4h	5h	6h	8h	10h	20h
1.60V	22.4	17.5	11.9	6.6	5.6	4.20	1.8	1.46	1.24	1.09	0.95	0.656	0.364
1.67V	22.0	17.2	11.7	6.4	5.49	4.12	1.8	1.44	1.23	1.08	0.94	0.649	0.361
1.70V	21.5	16.8	11.4	6.3	5.38	4.03	1.8	1.43	1.21	1.07	0.93	0.643	0.357
1.75V	21.1	16.5	11.2	6.2	5.27	3.95	1.75	1.40	1.19	1.05	0.91	0.630	0.350
1.80V	20.7	16.1	11.0	6.1	5.17	3.87	1.72	1.37	1.17	1.03	0.89	0.617	0.343

Constant Power Discharge (Watts per cell at 25°C/77°F)

F.V/Time	5min	10min	15min	30min	45min	1h	3h	4h	5h	6h	8h	10h	20h
1.60V	40.3	31.5	21.4	11.8	10.6	8.0	3.64	2.91	2.48	2.19	1.89	1.31	0.728
1.67V	39.5	30.9	21.0	11.6	10.4	7.8	3.61	2.88	2.45	2.16	1.87	1.30	0.721
1.70V	38.7	30.3	20.6	11.4	10.2	7.7	3.57	2.86	2.43	2.14	1.86	1.29	0.714
1.75V	37.9	29.6	20.2	11.1	10.0	7.5	3.50	2.80	2.38	2.10	1.82	1.26	0.700
1.80V	37.2	29.1	19.8	10.9	9.8	7.4	3.43	2.74	2.33	2.06	1.78	1.23	0.686

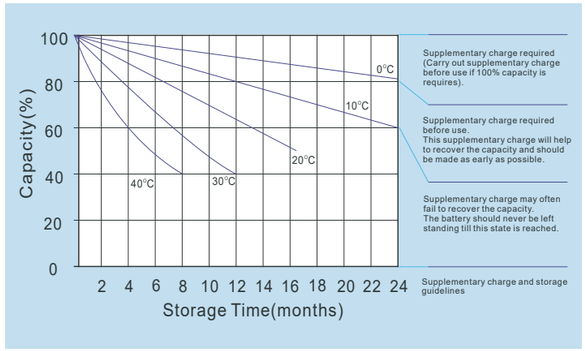
Note: The above characteristics data are average values obtained within three charge/discharge cycles, not the minimum values.

Ternminal

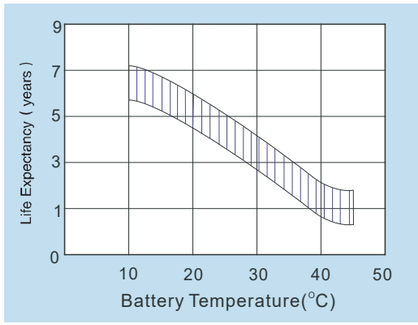


Dimension: mm:inches

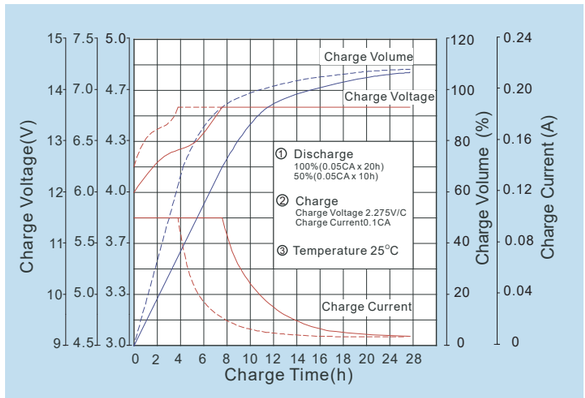
Storage characteristics



Effect of temperature on long term float life

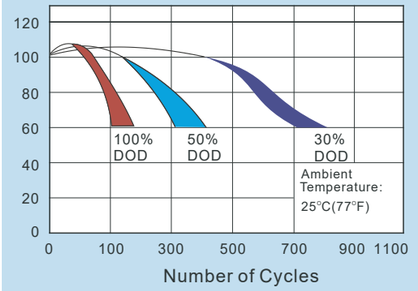


Charge characteristic Curve for standby use

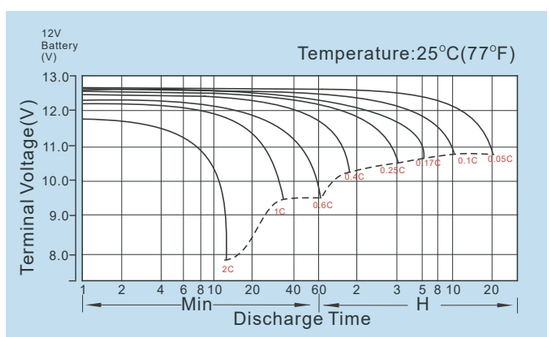


Cycle Life in Relation to Depth of Discharge

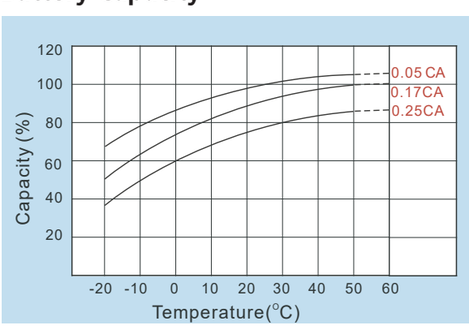
Testing condition
Discharging: current 0.17C(FV 1.7V/cell);
Charging: current 0.25C max, voltage 2.45V/cell;
Charging volume:125% of discharged capacity.



Discharge characteristic Curve



Temperature Effects in Relation to Battery Capacity



This information is generally descriptive only and is not intended to make or imply any representation, guarantee or warranty with respect to any cells and batteries. Cell and battery designs/specifications are subject to modification without notice.

1. STRING

2. COATING

3. PRESSING

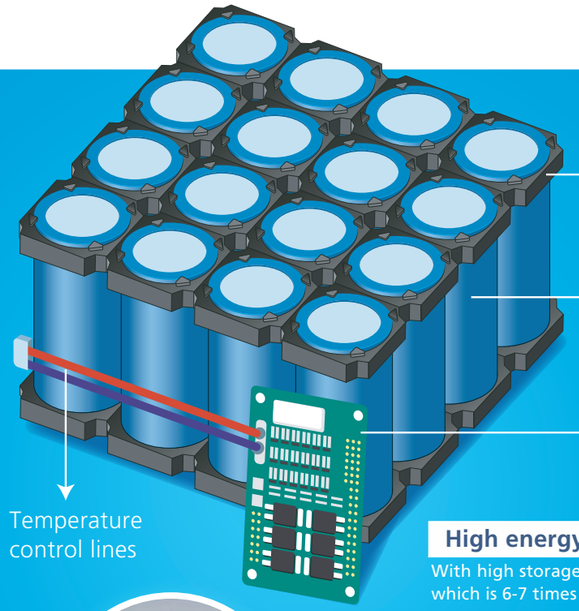
4. SLITTING

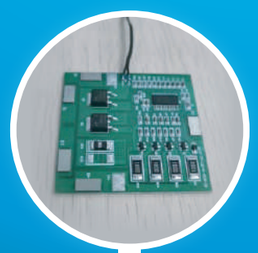
5. DIR-CUTTING & WINDING

6. CELL-PACKAGING

7. TOP & SIDE SEALING

8. INJECTION





High energy storage

With high storage energy density and is has reached 460-600Wh/kg, which is 6-7 times that of lead-acid batteries;

Long service life

Battery with lithium iron phosphate as the positive electrode is charged and discharged at 1C (100% DOD), reach 10,000 times of use and more than 6 years battery life.

High-rated voltage (Single operating 3.7V or 3.2V)

Approximately equal to the series voltage of 3 nickel-cadmium or nickel-hydrogen rechargeable batteries, which is convenient to form a battery power pack.

High-tolerance power

Capacity of charge and discharge for Lithium iron phosphate lithium Ion batteries for electric vehicles can reach 15-30C; facilitate high-intensity startup acceleration.

Low self-discharge rate

One of the most prominent advantages of the battery, less than 1%/month, lower than nickel-metal hydride battery of 1/20.

Light weight

The weight is about 1/6-1/5 compare with lead-acid products in same volume.

Wide operating temperature range

Can be used in the environment of -20°C – 60°C, -45°C after technical treatment.

Eco-Friendly

Regardless of the production, use process and reimbursement, it does not contain or produce any toxic and harmful heavy metal elements and substances such as lead, mercury and cadmium.

SECURITY: Emergency lighting/ Security-kid toys

Battery Specification list for changing from lead acid to lithim battery (6V/12V)

No.	Battery Model	Nominal Voltage (V)	Nominal Capacity (Ah)	Dimension (mm±2)			
				Length	Width	Height	Height
1	LFP6.4V3AH	6.4	3	70	47	100	19.2
2	LFP6.4V6AH	6.4	6	70	47	100	38.4
3	LFP12.8V4AH	12.8	4	90	70	101	51.2
4	LFP12.8V7AH	12.8	7	151	65	95	89.6
5	LFP12.8V8AH	12.8	8	151	65	95	102.4
6	LFP12.8V10AH	12.8	10	151	65	94	128.0
7	LFP12.8V12AH	12.8	12	151	99	96	153.6

MOTORCYCLE

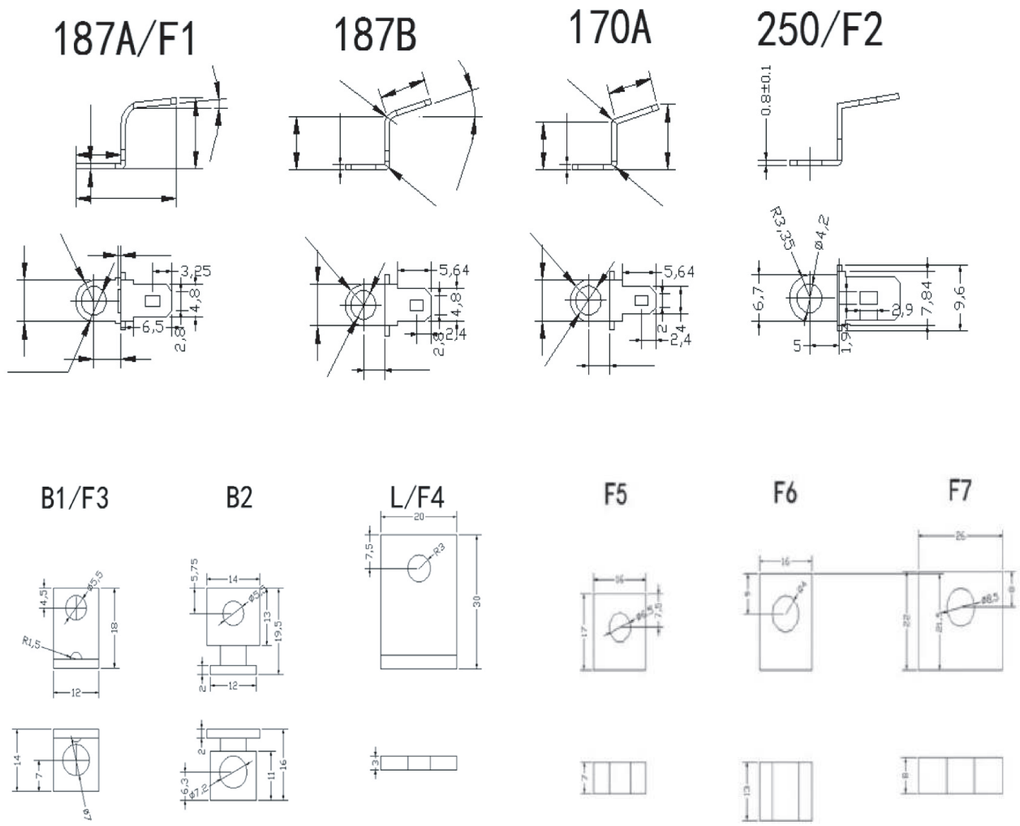
Battery Specification list for changing from lead acid to lithim battery

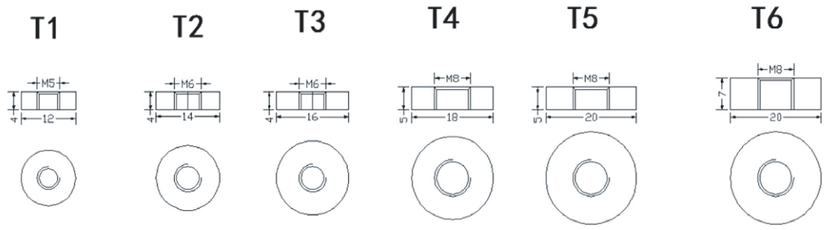
No.	Battery Model	Nominal Voltage (V)	Nominal Capacity (Ah)	Dimension (mm±2)			
				Length	Width	Height	Height
1	LFP-YTX4L	12.8	2	113	69	83	25.6
2	LFP-YTX5L	12.8	2	113	69	105	25.6
3	LFP-YTX7L	12.8	2	113	69	130	25.6
4	LFP-YTX7A	12.8	3	149	85	93	38.4
5	LFP-YTX9	12.8	3	150	86	107	38.4
6	LFP-YTX12	12.8	4	150	88	131	51.2
7	LFP-YTX14	12.8	4	150	88	147	51.2
8	LFP-YTX14AH	12.8	4	135	91	167	51.2
9	LFP-YTX20L	12.8	6	177	87	154	76.8

POWER STORAGE:
Power Storage / Wheelchair-troling motor-security

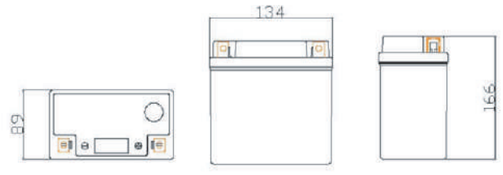
Battery Specification list for changing from lead acid to lithim battery(12V)

				Dimension (mm±2)			
No.	Battery Model	Nominal Voltage (V)	Nominal Capacity (Ah)	Length	Width	Height	Height
1	LFP12.8V18AH	12.8	18	181	76	167	230.4
2	LFP12.8V20AH	12.8	20	181	76	167	256.0
3	LFP12.8V33AH	12.8	33	195	130	163	422.4
4	LFP12.8V50AH	12.8	50	228±1	138±1	208±1	640
5	LFP12.8V100AH	12.8	100	330	171	216	1280
6	LFP12.8V200AH	12.8	200	522±1	240±1	219±1	2560
7	LFP12.8V300AH	12.8	300	521±1	267±1	220±1	3840
8	LFP12.8V400AH	12.8	400	520±1	269±1	218±1	5120
9	LFP25.6V100AH	25.6	100	521±1	238±1	217±1	2560

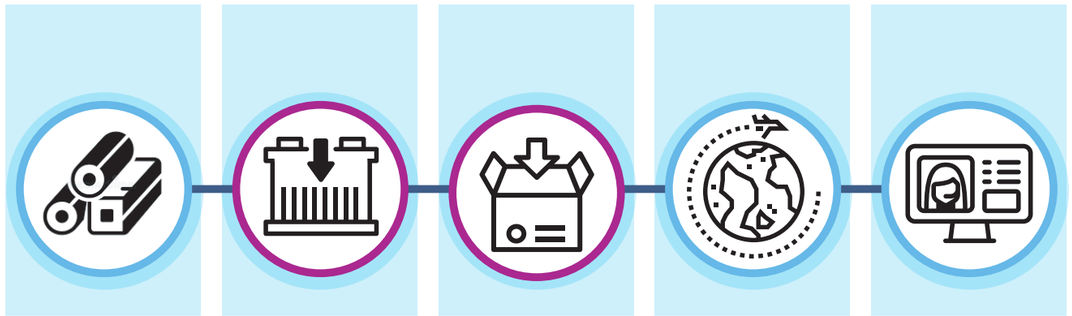




Motorcycle Battery Terminal Type



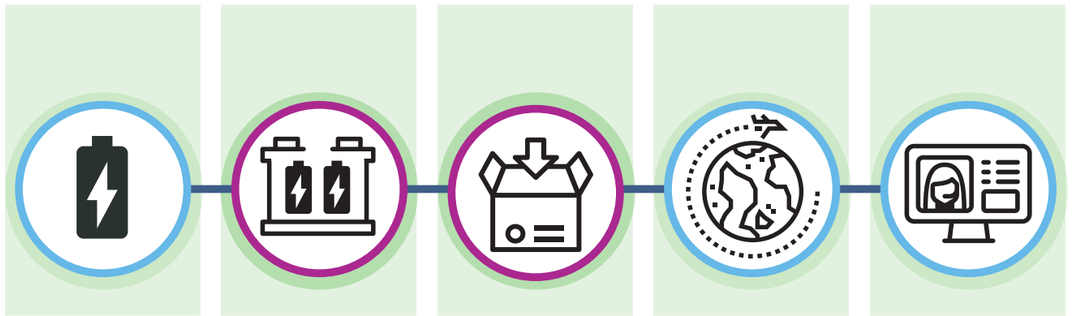
SEALED LEAD ACID BATTERY | THE MODERN BEGIN-TO-END SUPPY CHAIN



	Materials	Manufacturing	Packaging	Logistics	Customer
CASIL OFFERINGS	Price negotiation Purchasing Quality Inspection (via test equipment) Classification/ warehouse	Plates stacked & pack Infusion of acid Automatic welding Silkscreen printing Inspection/ charge	Special packing (bubble wrap/ foam insert) Automatic sealing Palletizing Labeling	Freight booking Truck / custom clearance Track and trace Delivery monitoring (VMI)	

CASIL Presence: High Low

LITHIUM BATTERY | THE MODERN BEGIN-TO-END SUPPY CHAIN



	Materials	Manufacturing	Packaging	Logistics	Customer
CASIL OFFERINGS	Price negotiation Purchasing Quality Inspection (via test equipment) Classification/ warehouse	Sorting groups Battery cells in holder Welding (nickel sheet) Connect the protection board Welding lead Silkscreen printing Inspection/ charge	Special packing (bubble wrap/ foam insert) Automatic Sealing Palletizing Labelled	Freight booking Truck / custom clearance Track and trace Delivery monitoring (VMI)	

CASIL Presence: High Low

BEST SERVICES
STRATEGY PARTNERSHIPS