

TS16949 ISO14001 ISO9001 OHSAS18001



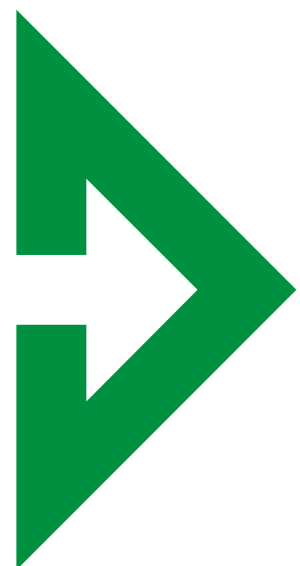
LEOCH UPS VRLA BATTERY

- General Power — LPX Series
- High Power — LCP Series
- High Power & Long Life — PLX series
- Front Terminal — LPF Series

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Leoch International Technology Limited

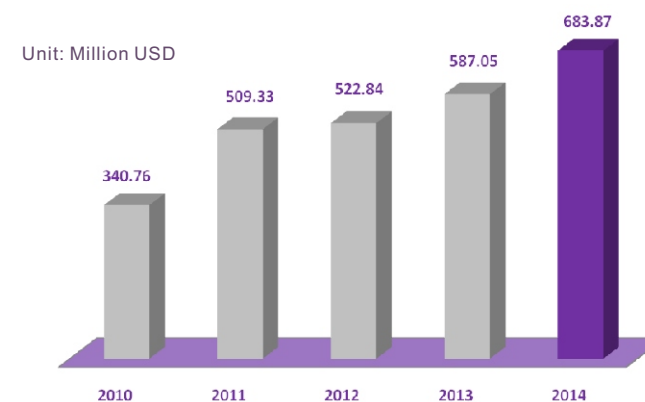


Overview

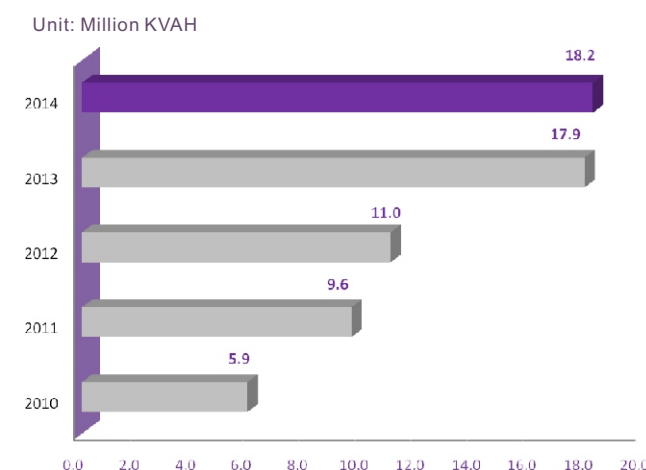
Leoch International Technology Limited was founded in 1999, specializes in the research, development, manufacturing and sales of the globally renowned LEOCH brand lead-acid batteries. Now Leoch is an international new technology corporation launching stock successfully on Hong Kong main board (Leoch 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.

With a highly qualified R&D team and unparalleled quality manufacturing standards, Leoch continues to maintain its competitive edge in the telecom industry. Leoch International Technology Limited has received many product quality recognitions such as UK's IEC and Germany's VDS norm certifications. Leoch International 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 Quality Escape Certificate, Certificate of Quality Inspection Issued by the National Battery Quality Inspection Center, China Telecom, China Mobile, China Unicom, Certificate of National Broadcast and television Bureau, Certificate of China Ship' classification Organization etc. 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.

» THE DEVELOPMENT OF LEOCH «



● Leoch annual revenue from 2010 to 2014



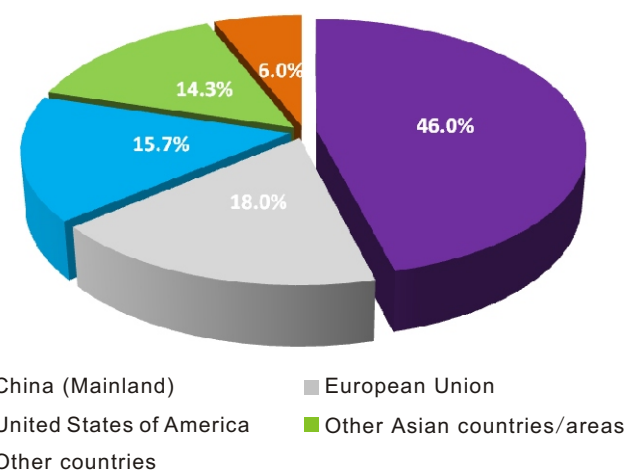
1999: Leoch Established in Shenzhen with core business in the research, development and manufacture of lead-acid batteries.

2010: Listed on the main board of Hong Kong stock exchange (HKEx: 00842).

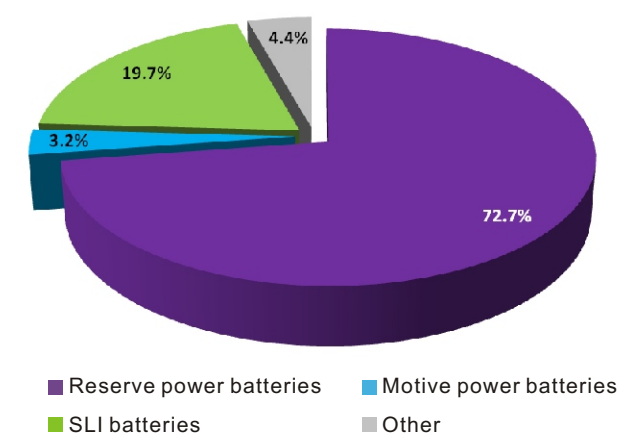
Leoch ranks No. 1 of exporter of lead-acid batteries in China. (source : Asia Battery Association)

» LEOCH 2014 ANNUAL REVENUE «

● Leoch 2014 annual revenue by countries



● Leoch 2014 annual revenue by product



▶ **LEOCH R&D and Manufacture Base**



Sri Lanka



Malaysia



Zhaoqing



Anhui



Jiangsu

LEOCH UPS VRLA battery

Main include the following types and series

- **General Power Type:**
LPX Series
28.4~783.3 W/cell 15min rate 1.67V/cell or 7~250Ah 1.8V/cell C₈
- **High Power Type:**
LCP Series
30~775 W/cell 15min rate 1.67V/cell or 7~250Ah 1.8V/cell C₁₀
- **High Power & Long Life Type:**
PLX series
405~715 W/cell 15min rate 1.67V/cell or 38~250Ah 1.8V/cell C₁₀
- **Front Terminal:**
LPF Series
100~600 W/cell 15min rate 1.67V/cell or 40~170Ah 1.8V/cell C₈

General Application

- Uninterruptable Power Supply (UPS)
 - Internet Data Center (IDC)
 - Emergency Power System (EPS)
 - Finance
 - Rail Transit
- Manufacturing industry
 - Network communication
 - Aircraft signal
 - DC power supply Auto control system
 - Tele-communication central station (wired or cellular)



General Power UPS Battery

LPX Series



General Features

- Valve Regulated Lead Acid (VRLA) Battery, Maintenance Free
- PbCaSn alloy for plate grids: less gassing, less self-discharging
- ABS material for container: UL94-HB. (Flame-retardant ABS is optional: UL94-V0)
- Unique vent valve design: control water losing, prevent air and spark entering
- Oxygen recombination efficiency ≥98%
- Wide temperature: -15~50℃
- Design life: 10 years

Compliant Standard

- ISO 9001
 - ISO 14001
 - ISO/ TS 16949
 - OHSAS 18001
- IEC60896-21/22
 - BS6290-4
 - UL924 and UI1989
 - VDS2344:2005-12(06)
- Bellcore 4228
 - Eurobat Guide
 - Telcordia SR-4228

LPX Series Specification

Model	Rated Voltage(V)	Capacity C ₁₀ (AH)	Power 15min(W)	Dimension/mm				Terminal	Weight/Kg
				Length	Width	Height	Total Height		
				mm	mm	mm	mm		
LPX12-7.0	12	7.23	29	151	65	93.5	99	T2	2.5
LPX12-12	12	12.6	49.8	151	98	95	101	T2	4.05
LPX12-18	12	18.7	67.4	181.5	77	167.5	167.5	T3	6
LPX12-20	12	20.4	81.4	181.5	77	166.5	166.5	T12	6.9
LPX12-24	12	25.5	99.8	166	175	125	125	T3	8.6
LPX12-38	12	38.7	126.3	197	165	170	170	T6	13.2
LPX12-65	12	67.4	221.2	348	167	178	178	T6	21.2
LPX12-100	12	104.0	356.1	330	173	212	220	T11	30.4
LPX12-120	12	124.0	483.8	408	177	225	225	T11	37.6
LPX12-150	12	155.0	487.5	483	170	238.5	238.5	T11	43.5
LPX12-200	12	206.0	675.8	522	240	218	224	T11	61.5
LPX12-250	12	258.0	783.3	522	268	220	226	T11	73
LPX6-200	6	206.0	675.8	322	178	228	234	T11	30.5

High Power UPS Battery

LCP Series



General Features

- Valve Regulated Lead Acid (VRLA) Battery, Maintenance Free
- PbCaSn alloy for plate grids: less gassing, less self-discharging
- 3D structure: optimized design for pasting and active material adherence. Thin grid and plate offers more surface area for high power delivery
- Special paste formula, TTP welding ensure excellent power capability (W/15Mr raise 20% up)
- ABS material for container: UL94-HB. (Flame-retardant ABS is optional: UL94-V0)
- Unique vent valve design: control water losing, prevent air and spark entering
- Oxygen recombination efficiency ≥98%
- Wide temperature: -15~50°C
- Design life: 12 years
- Special grid & plate manufacture technology, automatic manufacture line, raise battery life & uniformity

Compliant Standard

- ISO 9001
- ISO 14001
- ISO/ TS 16949
- OHSAS 18001
- IEC60896-21/22
- BS6290-4
- UL924 and UI1989
- VDS2344:2005-12(06)
- Bellcore 4228
- Eurobat Guide
- Telcordia SR-4228

LCP Series Specification

Model	Rated Voltage(V)	Capacity C ₁₀ (AH)	Power 15min(W)	Dimension/mm				Terminal	Weight/Kg
				Length	Width	Height	Total Height		
				mm	mm	mm	mm		
LCP12-24	12	6.5	24	151	65	93.5	99	T2	2.02
LCP12-26	12	7	26	151	65	93.5	99	T2	2.15
LCP12-30	12	7	30	151	65	93.5	99	T2	2.24
LCP12-34	12	7.5	34	151	65	93.5	99	T2	2.35
LCP12-38	12	7.5	38	151	65	93.5	99	T2	2.50
LCP12-80	12	18	81	181.5	77	166.5	166.5	T12	5.80
LCP12-90	12	20	90	181.5	77	166.5	166.5	T12	6.35
LCP12-135	12	38	135	197	165	170	170	M6	11.4
LCP12-225	12	65	225	348	167	178	178	M6	19.2
LCP12-300	12	80	300	260	168	208	214	M6	24.2

Model	Rated Voltage(V)	Capacity C ₁₀ (AH)	Power 15min(W)	Dimension/mm				Terminal	Weight/Kg
				Length	Width	Height	Total Height		
				mm	mm	mm	mm		
LCP12-350	12	90	350	306	168	207	214	M6	27.8
LCP12-400	12	100	400	330	173	213	216	M6	30.2
LCP12-450	12	100	450	330	173	213	216	M6	31.2
LCP12-700	12	220	720	522	240	218	224	T11	64.0
LCP12-800	12	250	820	522	268	220	226	T11	73.0

High Rate & Long Life UPS Battery

PLX Series

Pure lead Technology
Punching Technology
TTP Technology
COS Technology



PLX series batteries incorporate punched thin pure lead plate, cast on strap (COS) welding and TTP technology together for ultra high rate performance in UPS applications. Punched thin plate can ensure the reaction contact area which will improve the utilization of active material. At the same time the pure lead grid can make sure the fast recharge performance and superior long shelf life.

General Features

- Valve Regulated Lead Acid (VRLA) Battery, Maintenance Free
- Pure lead grid: fast recharge performance
- Punched thin plate, utilization of active material for optimized high power density
- High quality AGM separators with less electrical resistance improve high current discharging properties
- COS and TTP technology, providing low resistance connections & minimal power loss
- ABS+PC material for container: Flame-retardant UL94-V0
- Front terminal design which suitable for 19"/21" cabinet
- Automatic production, good conformance
- Low self discharge rate and long shelf life: 2 years@25°C
- Wide temperature: -40~65°C
- Design life: 20 years

Compliant Standard

- ISO 9001
 - ISO 14001
 - ISO/ TS 16949
 - OHSAS 18001
- IEC60896-21/22
 - BS6290-4
 - UL924 and UI1989
 - VDS2344:2005-12(06)
- Bellcore 4228
 - Eurobat Guide
 - Telcordia SR-4228

PLX Series Specification

Model	Rated Voltage(V)	Capacity C ₁₀ (AH)	Power 15min(W)	Dimension/mm				Terminal	Weight/Kg
				Length	Width	Height	Total Height		
				mm	mm	mm	mm		
PLX12-400	12	100	420	341.5	175	213	215	T11	32
PLX12-400FT	12	100	405	397	108	287	287	T11	31.6
PLX12-600FT	12	150	600	562	125	260	260	T11	48.3
PLX12-700FT	12	190	715	562	125	320	320	T11	61

Front Terminal UPS Battery

LPF Series



General Features

- Valve Regulated Lead Acid (VRLA) Battery, Maintenance Free
- PbCaSn alloy for plate grids: less gassing, less self-discharging
- Front terminal for fast and easy installation and maintenance
- Suitable for 19"/23" cabinet or rack
- ABS material for container: UL94-HB. (Flame-retardant ABS is optional: UL94-V0)
- Integrated central degassing system
- Oxygen recombination efficiency ≥98%
- Wide temperature: -15~50℃
- Design life: 15 years

Compliant Standard

- ISO 9001
 - ISO 14001
 - ISO/ TS 16949
 - OHSAS 18001
- IEC60896-21/22
 - BS6290-4
 - UL924 and UI1989
 - VDS2344:2005-12(06)
- Bellcore 4228
 - Eurobat Guide
 - Telcordia SR-4228

LPF Series Specification

Model	Rated Voltage(V)	Capacity C ₁₀ (AH)	Power 15min(W)	Dimension/mm				Terminal	Weight/Kg
				Length	Width	Height	Total Height		
				mm	mm	mm	mm		
LPF12-40	12	41.5	136.3	277	106	222	222	T6	15.5
LPF12-55	12	50	171.6	277	106	222	222	T6	18
LPF12-70	12	70	228.4	564	114	187	187	T6	25.5
LPF12-75	12	75	253	564	114	187	187	T6	26
LPF12-90	12	94.4	294.6	508	110	238.5	238.5	T13	32
LPF12-90H	12	94.4	294.6	394	110	285	285	T6	32.6
LPF12-100A	12	100	309.1	508	110	238.5	238.5	T13	35
LPF12-100B	12	100	311.3	560	110	233	233	T13	35.6
LPF12-100H	12	100	309.1	394	110	285	285	T6	34.5
LPF12-125	12	125	386.4	551	110	287	287	T6	41.5
LPF12-150A	12	150	463.7	551	110	287	287	T6	46.4
LPF12-150B	12	150	476.7	560	110	280	280	T13	46
LPF12-180	12	170	525.5	560	126	280	280	T13	54

Workshop Scene



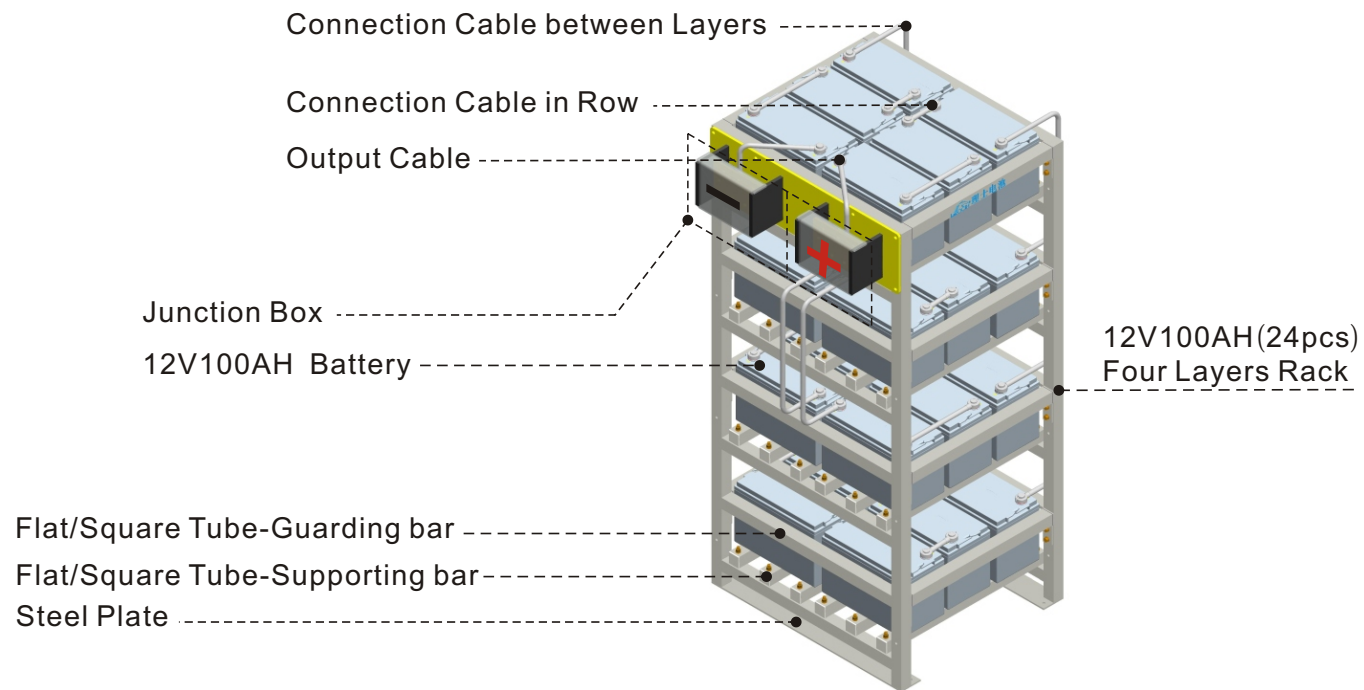
➤ **UPS Standard Rack**

Model	Dimension no Terminal			Battery NO./String	Rack Dimension			Rack Weight /kg	Rack NO.
	Length	Width	Height		Length	Width	Height		
	mm	mm	mm		mm	mm	mm		
12V24H	164	125	172	18~24	640	460	1230	69.9	12242401
				25~32	826			77.8	12243201
				33~40	1013			85.7	12244001
				41~48	1199			93.6	12244801
				49~56	1386			101.5	12245601
12V38	197	165	170	18~24	635	504	1380	74.5	12382401
				25~32	820			82.3	12383201
				33~40	1005			90.2	12384001
				41~48	1192			98	12384801
				49~56	1375			105.9	12385601
12V55	229	138	205	18~24	554	568	1490	75	12552401
				25~32	712			81.5	12553201
				33~40	870			88	12554001
				41~48	1028			95	12554801
				49~56	1186			102	12555601
12V65	348	167	178	18~24	641	806	1490	96	12652401
				25~32	828			106	12653201
				33~40	1015			117	12654001
				41~48	1202			127	12654801
				49~56	1389			168	12655601
12V70H	260	168	208	18~24	644	628	1610	101	12702401
				25~32	832			115	12703201
				33~40	1020			127	12704001
				41~48	1208			140	12704801
				49~56	1396			182	12705601
12V90H	306	168	207	18~24	644	720	1610	106	12902401
				25~32	832			120	12903201
				33~40	1020			132	12904001
				41~48	1208			145	12904801
				49~56	1396			190	12905601
12V100	330	173	212	18~24	659	770	1610	121	121002401
				25~32	852			139	121003201
				33~40	1045			157	121004001
				41~48	1238			175	121004801
				49~56	1431			223	121005601
12V120	408	177	225	18~24	671	930	1610	129	121202401
				25~32	868			150	121203201
				33~40	1065			166	121204001
				41~48	1262			184	121204801
				49~56	1459			236	121205601

Model	Dimension no Terminal			Battery NO./String	Rack Dimension			Rack Weight /kg	Rack NO.
	Length	Width	Height		Length	Width	Height		
	mm	mm	mm		mm	mm	mm		
12V150	483	170	238.5	18~25	650	1080	1610	134	121502401
				25~33	840			151	121503201
				33~41	1030			169	121504001
				41~49	1220			187	121504801
				49~57	1410			240	121505601
12V200	522	240	218	18~26	860	1154	1610	156	122002401
				25~34	1120			181	122003201
				33~42	1380			242	122004001
				41~50	1640			267	122004801
				49~58	1900			291	122005601
12V250	522	268	220	18~24	944	1154	1610	164	122502401
				25~32	1232			191	122503201
				33~40	1520			255	122504001
				41~48	1808			282	122504801
				49~56	2096			310	122505601

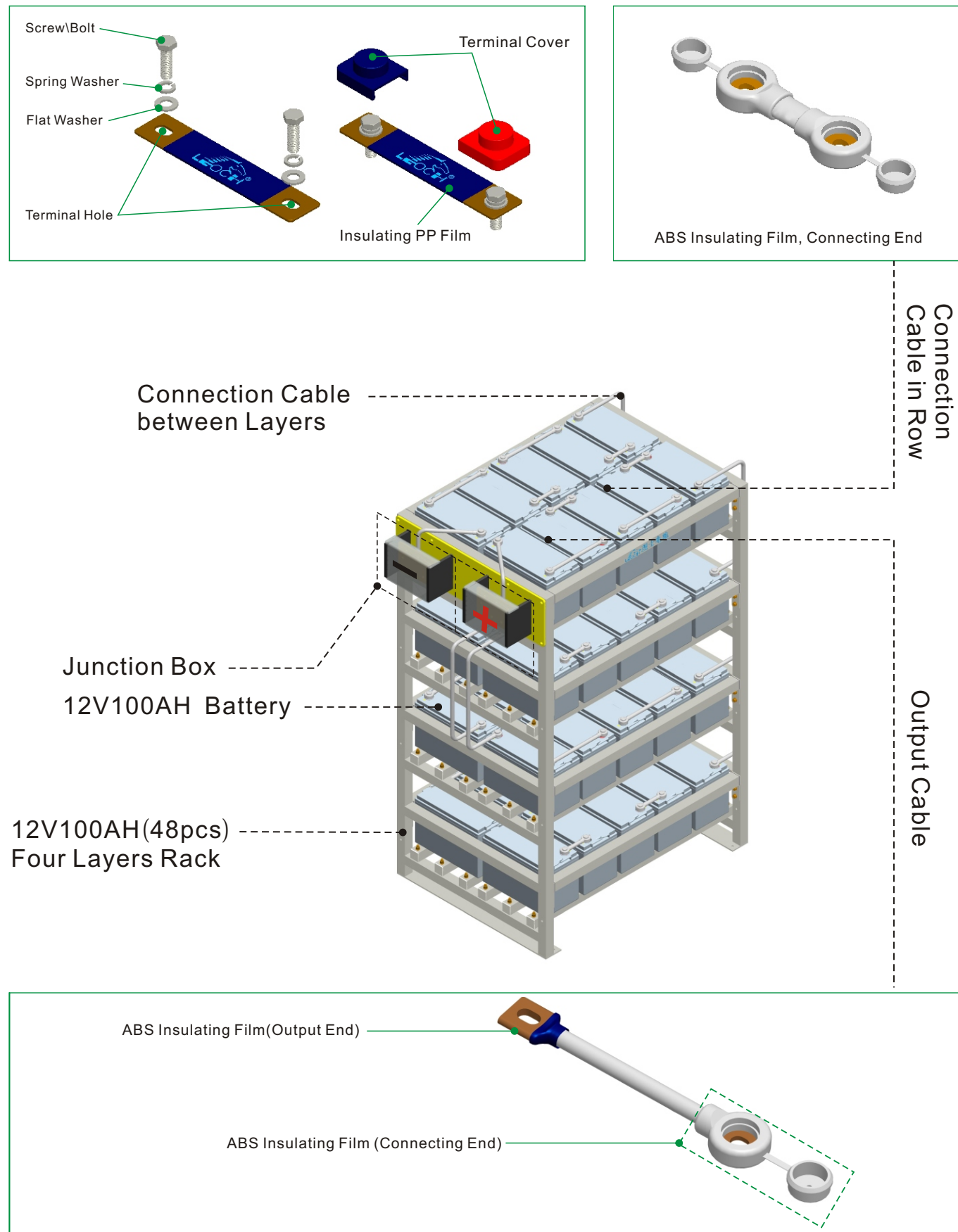
➤ **Simulated Images
after Installation (12V100AH)**

12V100AH(24pcs) four layers rack

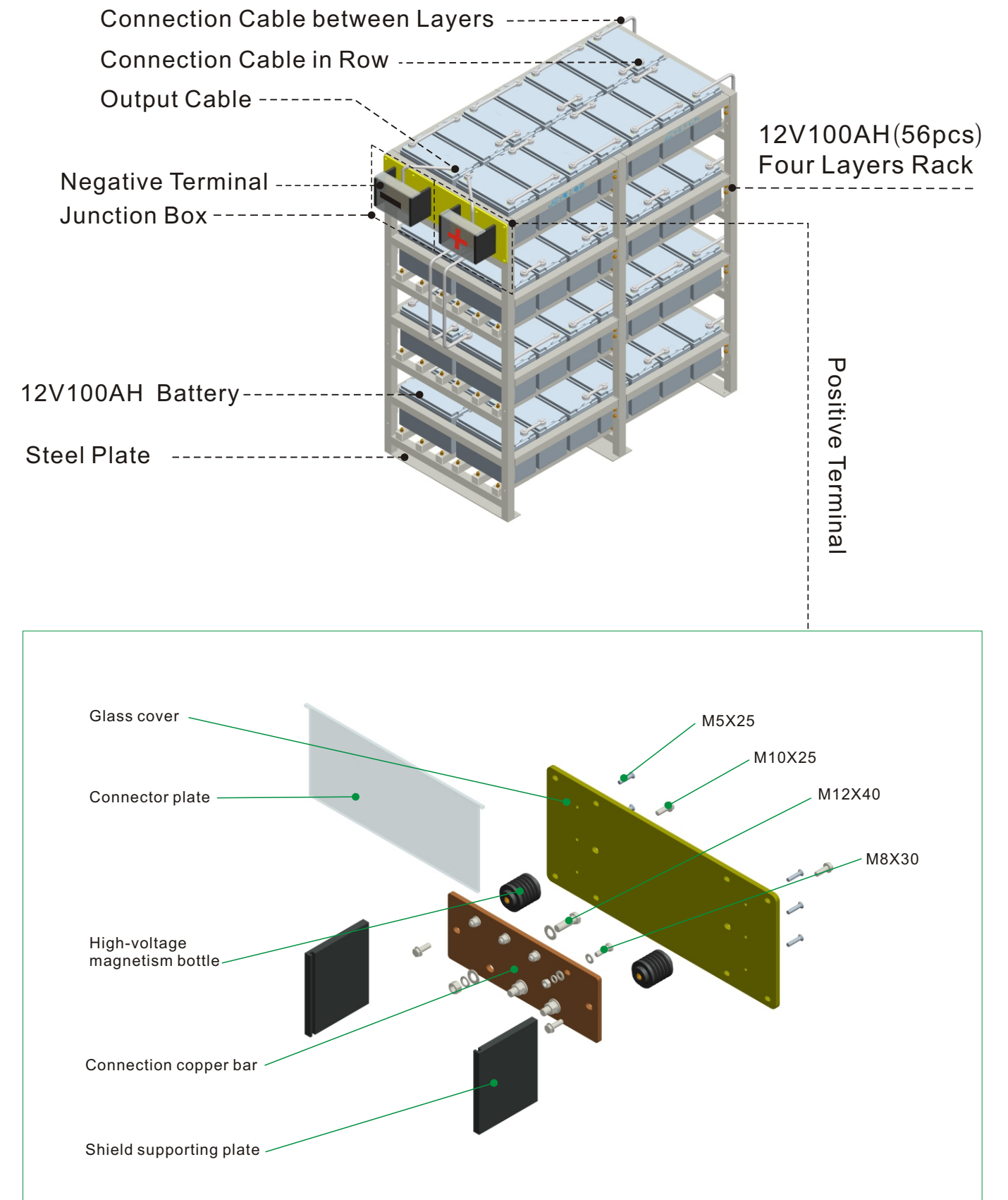


12V100AH(48pcs) four layers rack

High power/Big current could select copper bar connection



12V100AH(56pcs) four layers rack



UPS Configuration



Power required for UPS (KW)	UPS rating(P_{UPS}) Power Factor(Pf)
Power required from battery	Inverter Efficiency(η)
Actual Power required from battery	Aging Factor(F) Temperature
Power required from each cell(KW)	P_{cell} Number of battery per string(N)
Battery Selection	Back up Time(T) End Voltage(U)

$$(P_{cell}) = \frac{P_{ups} \times Pf \times F}{N \times \eta}$$



BATTERY CARE AND MAINTENANCE



Top-charge and precautions

Any VRLA-AGM battery will be damaged by continual 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 positive 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 batteries.

Battery storage

If the battery has high temperature or poor ventilation during storage and delivery, the self-discharge will increase. So, keep good ventilation and keep away from fire, flame, heat supply etc. When storing the battery, take it off from the charger and load and keep it in the dry and cool place. Please supplement charge before use when the battery has been kept for a long time.

Cautions:

- 1) Keep batteries in a place, where children cannot easily reach.
- 2) Do not attempt to disassemble, revise, damage, impact, dispose batteries, otherwise the battery can leak, be overheated, or explode.
- 3) Do not dispose of the batteries in water, fire, and do not heating the batteries.
- 4) Do not short circuit the battery terminals.
- 5) Do not put your face near the top of batteries. Please wear gloves, eye protection when you measure or repair batteries.
- 6) There is sulfuric acid in the battery. Do not make contact with sulfuric acid in skin, clothes, or especially in eyes. If eyes make contact with sulfuric acid, please wash with a lot of clean water, and consult a physician immediately.
- 7) The suitable temperature is $-15^{\circ}\text{C} \sim +50^{\circ}\text{C}$, but it will have longer life in the temperature from $+20^{\circ}\text{C} \sim +30^{\circ}\text{C}$. The operation circumstances are defined as: discharging temperature range $-15^{\circ}\text{C} \sim +50^{\circ}\text{C}$; charging temperature range $0^{\circ}\text{C} \sim +40^{\circ}\text{C}$.

Data subject to change without notice.

LEOCH GLOBAL SALES NETWORK



Regional Sales Office

- | | | |
|-----------|-------------|---------|
| London | Los Angeles | |
| Hong Kong | Singapore | Beijing |

LEOCH BATTERY