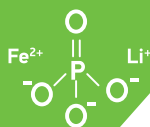




LEOCH LITHIUM

LFelLi 12V & 24V BATTERIES



AERIAL WORK PLATFORM



LEISURE



CLEANING & MAINTENANCE



MOBILITY



MATERIALS HANDLING



MARINE



GOLF



ELECTRIC VEHICLES



RENEWABLE ENERGY

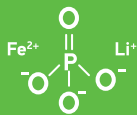


SIGNALING & MOBILE ENERGY

Series:
► LFeLi



Lithium



About Leoch Battery UK

Leoch Battery UK is one of the UK's leading battery specialists - we are committed to providing the highest quality products and optimum levels of service. Our dedicated experts are here to listen to your business needs and carefully formulate honest power solutions that consistently deliver excellent results. We supply throughout the distribution chain, to OEM customers directly; to general battery distributors and market-specific providers, plus end-user customers via our retail offering Battery Store. With Leoch Battery UK you're always in expert hands and can be sure to benefit from:

- A comprehensive range of technologies – including Sealed Maintenance-free, AGM, Gel, Lead Carbon and Pure Lead Carbon, to the latest in advanced LiFePO₄ Lithium Iron Phosphate
- Expert guidance – ensuring you receive the most suitable batteries for you, and your customers' requirements
- Fast shipping – next day delivery available from our bonded warehouse

Your Global Battery Partner



14

Subsidiaries & Sales
Offices Worldwide



10

Manufacturing
Plants



10

Warehouses



12,000

Employees
Worldwide



100

Countries Supplied
across the World



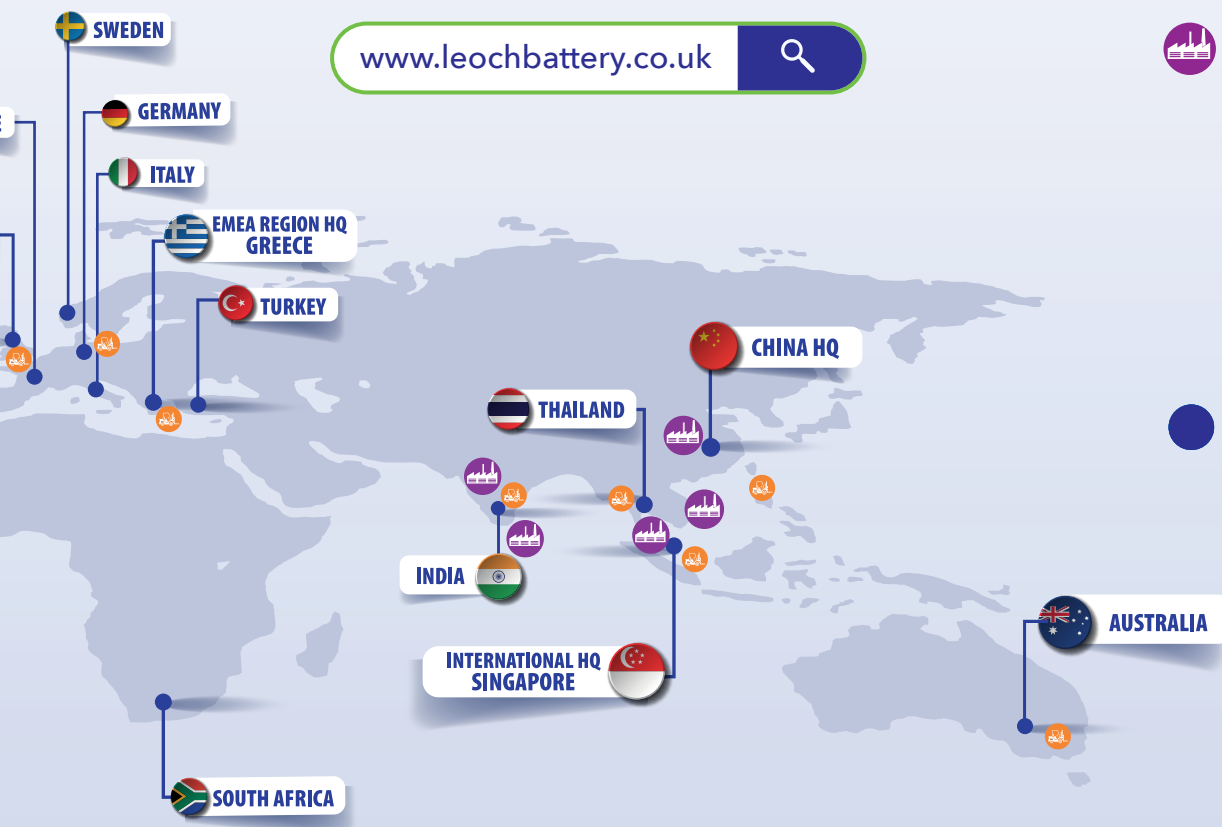
20

GVAH Production
Capacity per Year



1.5b

US\$ Annual
Turnover



Manufacturing Plants (10)

- China Zhaoqing
- China Jiangsu
- China Anhui (3)
- Sri Lanka
- Malaysia (2)
- India
- Vietnam



Subsidiaries / Sales Offices

EMEA region (9)

- Athens, Greece
- Leicestershire, UK
- Paris, France
- Paderborn, Germany
- Milan, Italy
- Valencia, Spain
- Ankara, Turkey
- Johannesburg, S. Africa
- Stockholm, Sweden

APAC region (5)

- Shenzhen, China
- Singapore
- Bangalore, India
- Sydney, Australia
- Bangkok, Thailand

Los Angeles, USA



Subsidiaries /
Sales Offices



Manufacturing
Plants

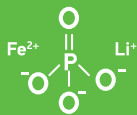


Warehouses

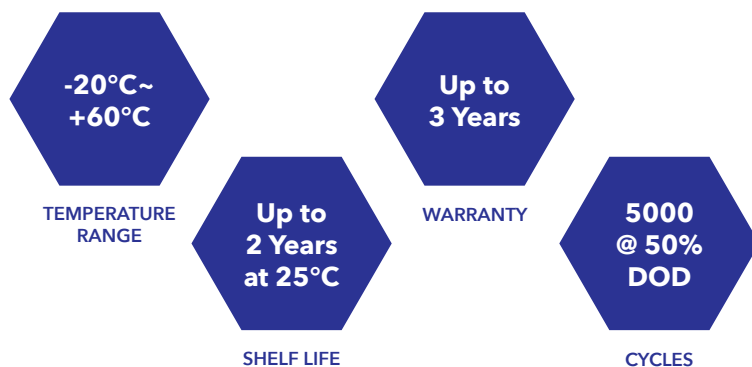
About Leoch

Leoch Battery was founded in 1999, with the core business in research, development and manufacture of lead acid batteries, with deep-cycle batteries a specialism. The Company has been listed on the Hong Kong Stock Exchange since 2010 and as a leader in R&D, the Leoch Group works alongside international and domestic battery experts to develop new technologies. Leoch offers the broadest product range of any lead acid battery provider, and now takes its development expertise even further by offering LiFePO₄ lithium technologies.

More information on our parent company can be found at www.leoch.com



Leoch Lithium LFeLi Series



Engineered to the highest quality standards, Leoch's new range of Lithium Iron Phosphate (LiFePO₄) batteries takes the technologies provided by Leoch to a whole new level. Long life, no maintenance, light-weight and fast charging – all the attributes you'd expect from lithium but directly available to you from our parent company, removing doubts as to production origins, providing manufacturing integrity and offering the peace of mind of a long warranty included.

The Leoch LFeLi series of 12V and 24V batteries offers extremely high cyclic characteristics which surpass the performance levels of the majority of lead acid batteries on the market, with an outstanding cycle life of up to 2,000 @100% DOD and up to 5,000 @50% DOD. The products are available in popular group sizes including 24, 31 and 8D and come in at a surprisingly-affordable price-point given the advanced technology. Partial State of Charge resilience is a major advantage – unlike many other batteries, opportunity charging can take place at convenient times throughout an operative's working day, increasing productivity.


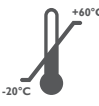





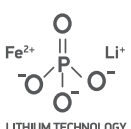



The LiFePO₄ chemistry within the Leoch Lithium portfolio is one of the safest Lithium technologies on the market, with the risk of thermal runaway greatly reduced compared with other Lithium chemistries – you can rest assured you're investing in a great power source which is above all, safe. Excellent shelf presence is provided with a range of eye-catching cartons and labels, to compliment the Leoch blue case colour.

Leoch Lithium: A Unique BMS

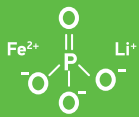
Leoch's Technical Team has developed a superior BMS (Battery Management System) for selected 12V Lithium batteries. Designed specifically for the UK market, the LFeLi-1220S, LFeLi-1233S and LFeLi-12100S products contain a BMS enabling them to be connected in Series, as well as the normal Parallel connection. Note however that they must only be connected in Series or Parallel – not both simultaneously! For cranking applications, the LFeLi-12100C contains an embedded BMS to support the cranking capability. The standard Leoch BMS benefits of preventing over-charge, over-discharge and over-current apply to all products within the range.



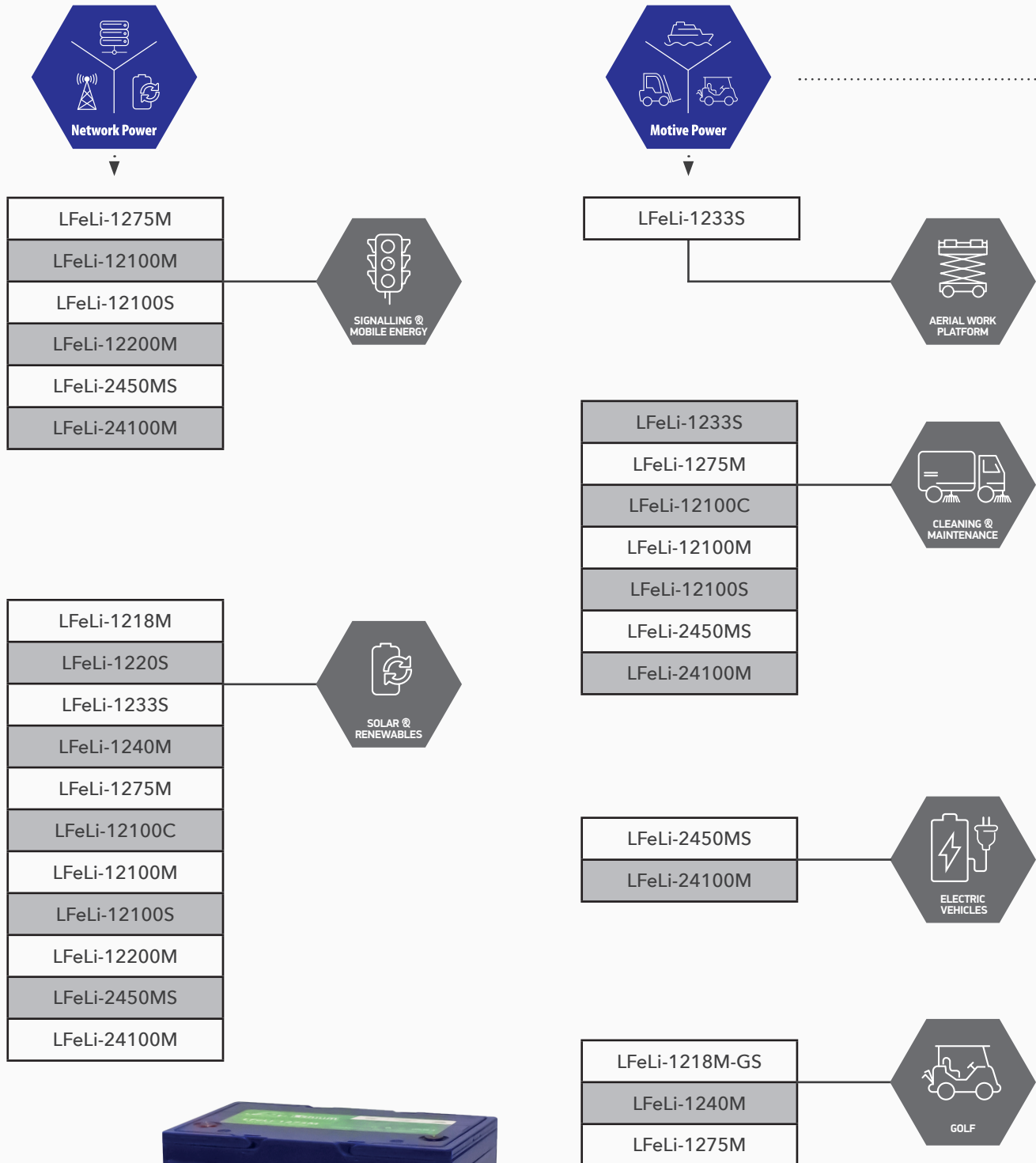
Leoch Lithium: Features & Advantages

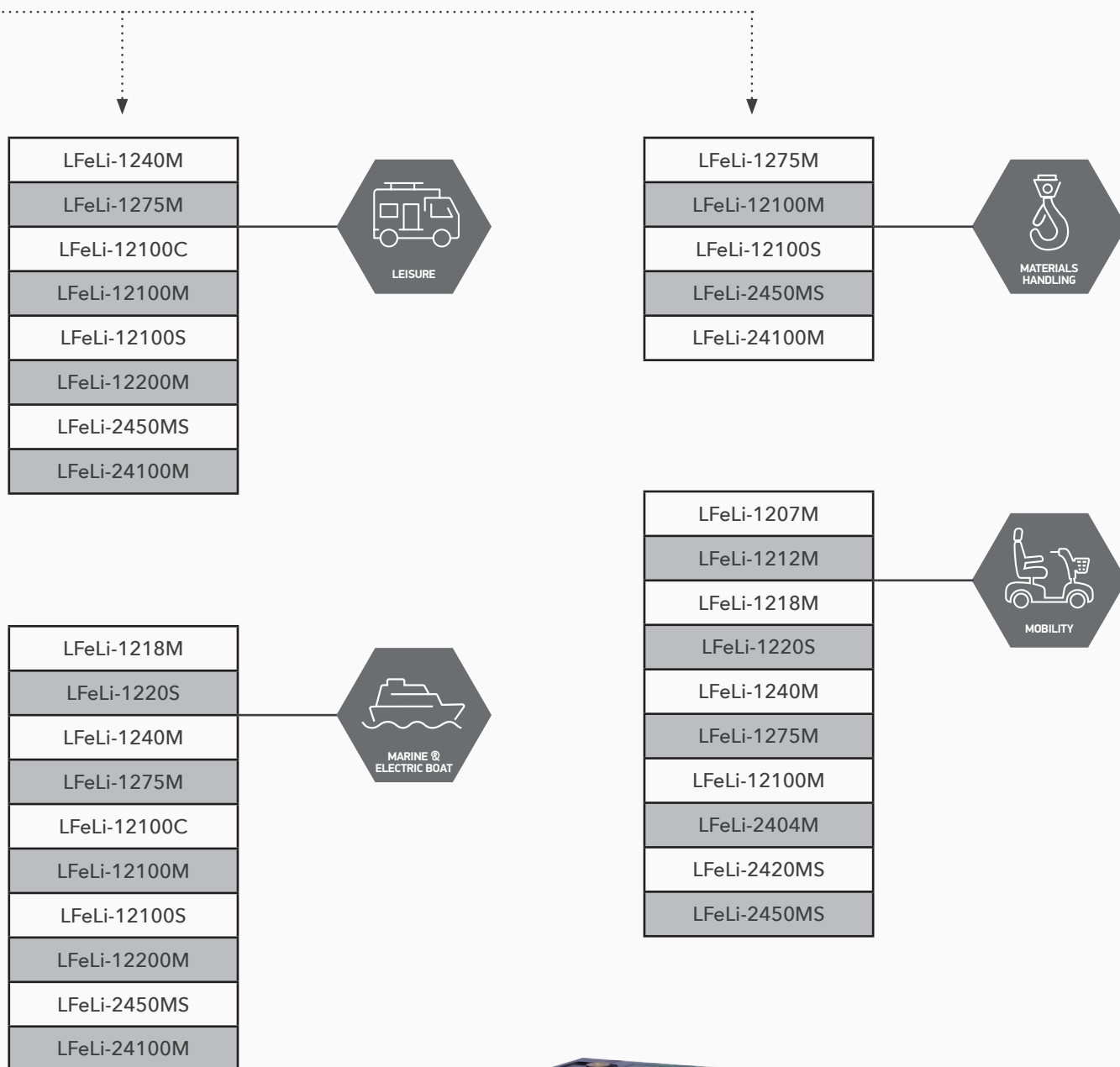
	FEATURES	ADVANTAGES
 CYCLE LIFE	Up to 2,000 cycles @100% DOD and up to 5,000 cycles @50% DOD	Costs for replacement; purchase frequency and cost of ownership are all reduced
 OPERATING TEMPERATURE RANGE	Wide operating temperature range from -20°C to +60°C	No restrictions on usage in extreme weather situations
 MAINTENANCE-FREE	Maintenance-free technology	Less operative time required to ensure the battery is in good working order
 LIGHT WEIGHT	Up to 40% lighter than lead acid equivalents	Ideal in weight-sensitive applications such as mobility scooters, leisure and marine
 FAST CHARGING	Fast charging capability under 1C charge*	Less downtime for operatives and users
 PSoC RESILIENT	Partial state of charge (PSoC) resilient	Charge time for operatives is reduced, saving time and providing opportunity charging
 CHARGE ENDURANCE	Low self-discharge rate (<2% per month) with no memory effect	Self-discharge does not impact on battery life, thus prolonging it and saving on repeat purchase costs
 LITHIUM TECHNOLOGY	LiFePO4 lithium chemistry: one of the safer lithium technologies with high degree of resistance to thermal runaway	Risk of explosion or combustion is eliminated in a high-impact, overcharging or short-circuit situation
 ECO FRIENDLY	Environmentally-friendly: contains no heavy metals	Helps to fulfil corporate and individual environmental responsibilities
 BMS	Specially-developed BMS System for the UK Market	Increased Voltage potential via Series Connection (selected models)
 WARRANTY	Long warranty of up to 3 years	Peace of mind should rare problems occur

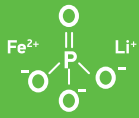
*subject to certain preconditions or in single unit mode



Leoch Lithium: Which Products suit which Market





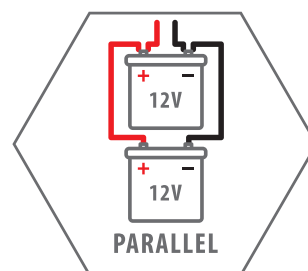
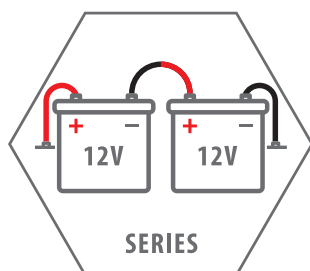


Leoch Lithium Battery Specifications

Leoch Part Number	Industry Part Number / Size	Nominal Voltage (V)	Capacity		
			C10 (Ah)	POWER (Wh)	Continuous / Peak (A)
LFeLi-1207M		12.8	7	89.6	15/20
LFeLi-1212M		12.8	12	153.6	24/30
LFeLi-1218M		12.8	18	230	9/18
LFeLi-1218M-GS**		12.8	18	230	9/18
LFeLi-1220S		12.8	20	256	50/90
LFeLi-1233S		12.8	33	422	33/66
LFeLi-1240M		12.8	40	512	80/100
LFeLi-1275M	Group 24	12.8	75	960	80/100
LFeLi-12100C***	Group 31	12.8	100	1280	100/800
LFeLi-12100M	Group 31	12.8	100	1280	100/120
LFeLi-12100S	Group 31	12.8	100	1280	100/200
LFeLi-12200M	8D	12.8	200	2560	120/140
LFeLi-2404M		25.6	4	102.4	4/6
LFeLi-2420MS		25.6	21	537.6	10/15
LFeLi-2450MS	Group 31	25.6	50	1280	30/50
LFeLi-24100M	8D	25.6	100	2560	30/50

* Signifies that this product is suitable for both Series and Parallel Connection, but not at the same time.

Leoch Lithium: Series and Parallel Connection Capabili



	Qty in Series Capability	Quantity in Parallel Capability	Battery Sizes (mm)			Weight (Kg)	Terminal Type
			Length	Width	Height		
		4 = 28Ah	151	65	99	0.93	T2
		4 = 48Ah	151	98	101	1.9	T2
		4 = 72Ah	181.5	77	167.5	2.7	T3
		4 = 72Ah	181.5	77	167.5	2.5	T3
	4 = 48 Volts *	4 = 80Ah *	181.5	77	167.5	2.6	T3
	4 = 48 Volts *	4 = 132Ah *	195	130	167	4.2	T6 (M6)
		4 = 160Ah	197	165	170	5.4	T6 (M6)
		4 = 300Ah	260	168	214	9.3	T6 (M6)
			330	173	220	13.1	T11 (M8)
		4 = 400Ah	330	173	220	13.1	T11 (M8)
	4 = 48 Volts *	4 = 400Ah *	330	173	220	13.1	T11 (M8)
		4 = 800Ah	522	240	224	24.2	T11 (M8)
		4 = 16Ah	151	65	99	0.93	T2
		4 = 84Ah	195	165	175	5.92	T6 (M6)
		4 = 200Ah	330	170	214	15	T11 (M8)
		4 = 400Ah	522	240	224	29.6	T11 (M8)

Additional Information

**LFeLi-1218M-GS - Golf version - includes LC2213 Charger & Battery Bag

***LFeLi-12100C - Suitable for Cranking applications (high discharge current for 5-10 seconds)

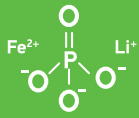
ty

Within our Leoch Lithium Series part codes, an 'M' signifies that the battery is suitable to be connected in Parallel, whilst an 'S' means that the battery can be connected in Series. Thanks to a superior BMS, our 'S' range can also be connected in Parallel, as well as Series but not at the same time.

To increase the voltage but maintain the capacity (Ah), connect in Series

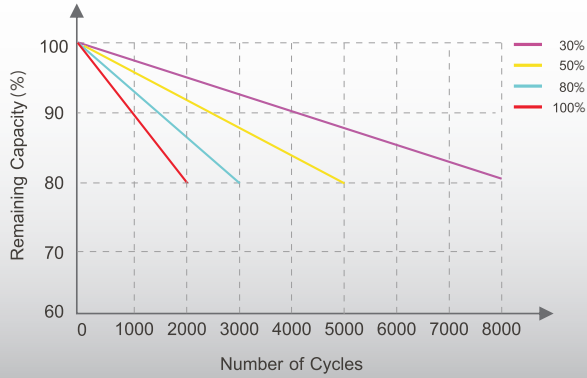
To increase the capacity (Ah) but maintain the voltage, connect in Parallel

A maximum of 4 batteries can be connected either way, for those part codes which we state are suitable. Contact our office for further information.

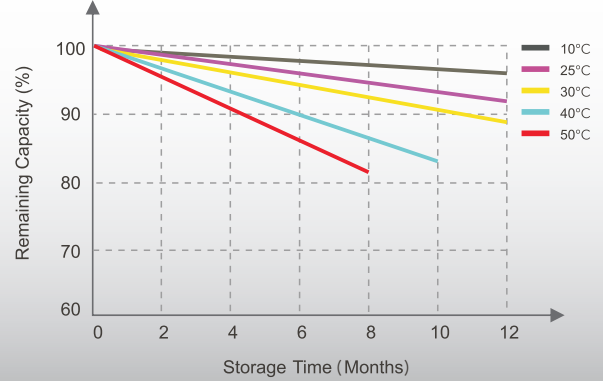


Performance Characteristics

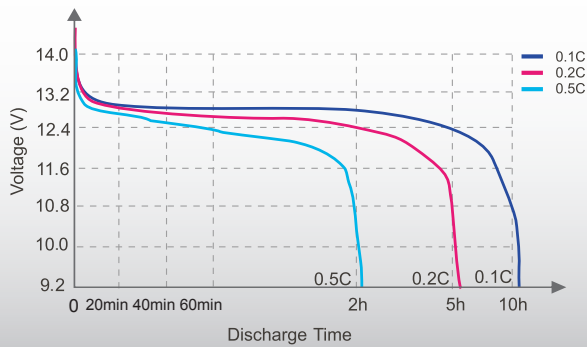
DOD Discharge Cycle Life



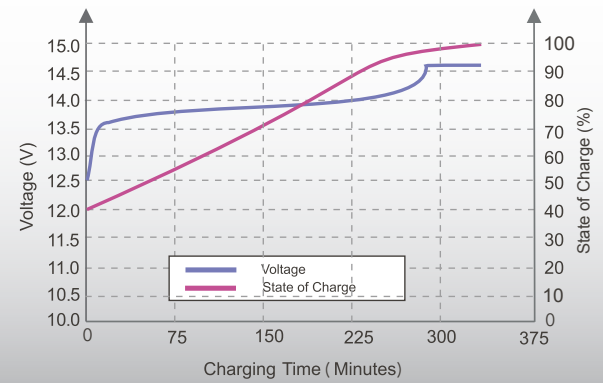
Temperature Self Discharge



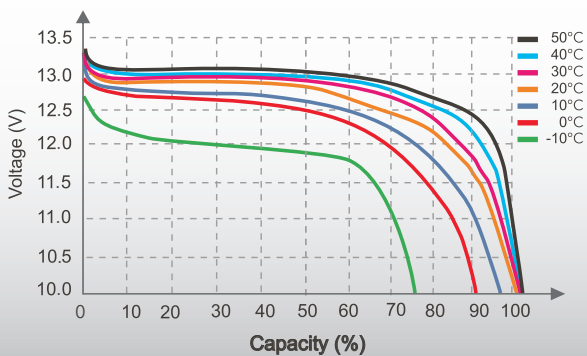
Rate Discharge (25°C)



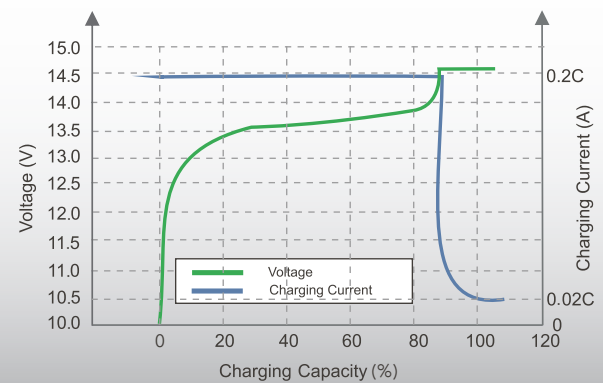
State of Charge (0.5C, 25°C)

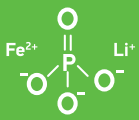


Temperature Discharge (0.5C)



Charging Characteristics (0.5C, 25°C)





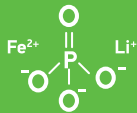
Also Available: Lithium LFeLi 48V Batteries



For extremely demanding telecom applications LEOCH has developed 48V Lithium Iron Phosphate (LiFePO₄) modules to replace front terminal 48V strings of lead acid batteries, providing high cyclic capabilities of up to 3,500 cycles at 100% DOD or 5,000 cycles at 80% DOD. A 19" rack mounting design facilitates simple replacement in existing installations and easy maintenance. Also ideal for Energy Storage applications and other deep cycle usage - please contact us for details.

General Features:

- > Environmentally friendly without any heavy metals inside
- > Extreme Cycle Life, up to 3500 cycles at 100% DoD to reduce CAPEX & OPEX in demanding telecom, switchgear or hybrid applications
- > Embedded BMS developed with a multitude of safety features and measuring points alongside with an optional front LCD screen and remote management (modbus) protocols make maintenance a "hassle-free" procedure
- > Lithium Ion Phosphate chemistry has a high thermal runaway threshold being the safest market lithium technology
- > Fast charge capability of up to 1C10 offers unparalleled charging performance
- > Passive cooling and electromagnetic shielded design



At the forefront of New Technologies

Constantly developing and evolving, Leoch Lithium is just the latest addition to a wide portfolio of battery technologies manufactured within our 10 factories throughout China, Sri Lanka, Malaysia, India and Vietnam. Including traditional Flooded (Serviceable and Maintenance-Free), to AGM and Gel, through to the revolutionary Lead Carbon Series, all Leoch Lead Acid batteries utilise virgin lead.

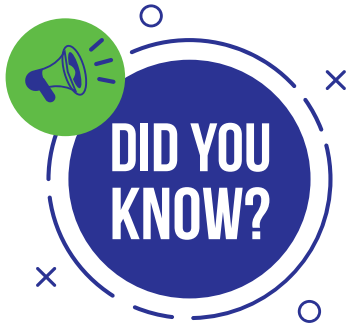
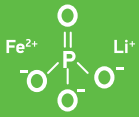
We pride ourselves on reliable, predictable performance, plus stability and longevity of all chemistries. With Leoch Battery UK being a Leoch subsidiary Company, your power needs are in safe hands.



Lithium



**DEEP CYCLE BATTERY
SPECIALISTS**



UN38.3

UN 38.3 Accreditation

Leoch Lithium 12 and 24V Lithium batteries boast Section 38.3 accreditation from the UN Manual of Tests and Criteria (UN Transportation Testing). This means they are safe to be transported by air, sea, rail and road and throughout the battery's transportation process right through to the end user. The protocol includes identifying/classifying lithium batteries; testing/qualification requirements; design guidance/conditions and packaging/shipping obligations.



CE Marking

Leoch Battery's 12 and 24V Lithium batteries are CE accredited, signifying that they conform with health, safety and environmental protection standards for products sold within the European Economic area. The batteries are assembled according to tests including IEC-61000-6-1 and 61000-6-3 which relate to the Electromagnetic Compatibility (EMC) Directive 2014/30/EU.

Our Website



www.leochbattery.co.uk is the site to bookmark for up-to-date Company information and the latest product news. Blogs, downloads and product advice can all be found here, as well as details of the latest exhibitions we're attending.

Please note that all products and specifications are subject to change.

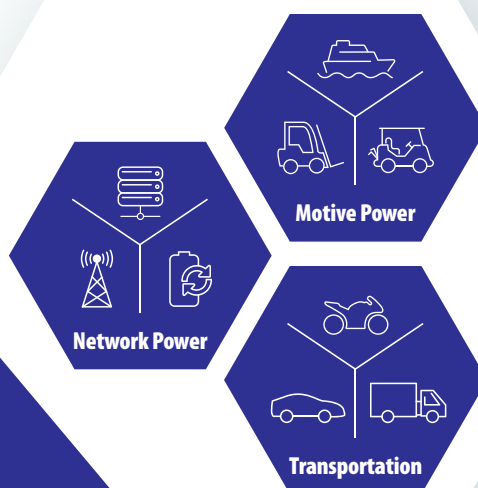
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Our team of dedicated Account Managers and office staff would be delighted to advise on further product information, technical data and suitability, regardless of the application.

Contact us via phone on **01858 433 330** or email on **sales.uk@leoch.com**

YOUR GLOBAL BATTERY PARTNER



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