

IBCS

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INDUSTRIAL BATTERY
AND CHARGER SERVICES LTD

Revolutionary INNOVATION



IBCS

INDUSTRIAL BATTERY AND CHARGER SERVICES LTD

 **SUNLIGHT**
Reliable Battery Solutions

Li.ONFORCE
 SUNLIGHT

Xtreme Force
More Power Under Any Condition >>>

ALL ENQUIRIES: 0845 208 8748 | www.ibcs.co.uk

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THE COMPLETE SERVICE SOLUTION

IBCS offers **nationwide service** by **fully trained battery and charger engineers**, with same or next day response to ensure our customer's equipment is kept moving, minimising disruption to their business.

There's a **wealth of experience on hand**, which means we can offer assistance, and provide independent advice to our customers. We have recently increased our salesforce to cope with demand, and further **develop our business**.

NATIONWIDE COVERAGE

IBCS is one of the very few companies that offer a rapid nationwide service throughout the week, with an option to provide a bespoke 24 hour, 7 day a week plan. This is recognition that customers need prompt individual attention at all times.

Nationwide coverage coupled with local expert knowledge and technical after-sales support is an essential element of the IBCS strategy to 'Keep Business Moving'.

The IBCS package provides a bespoke single source for battery, charger and accessory installation, maintenance and repair.

IBCS
NATIONWIDE
CARE & SERVICE

Whatever your industry
IBCS is the
intelligent
nationwide choice



KEEP BUSINESS MOVING



As a member of a strong and developing business ecosystem, SUNLIGHT relies on its modern infrastructure, continuous innovation and its passion for excellence, to develop and supply reliable battery solutions.

Our manufacturing plant, located in Xanthi, Northern Greece, is a core element of our dynamic growth. We have systematically invested in the development of **one of the most modern industrial units**, in accordance with the strictest international standards. It covers **200.000m²**, with indoors areas of more than 60.000m².

The company has consistently invested in developing one of the **one of the most advanced industrial plants in the world**, running highly specialized production and assembly lines. The plant is fully compliant with the strictest international standards and is certified for Quality, Occupational Health & Safety and Environmental management systems.

The products are developed by SUNLIGHT R&D team which constantly designs and evaluates new innovative solutions to better meet market needs based on the latest technological trends, industry developments and market feedback. Advanced technology systems, comprising batteries such as Li-ion and Silver-Zinc with innovative electronics, have been developed and manufactured for over three decades to meet the highest of standards regarding safety and quality.

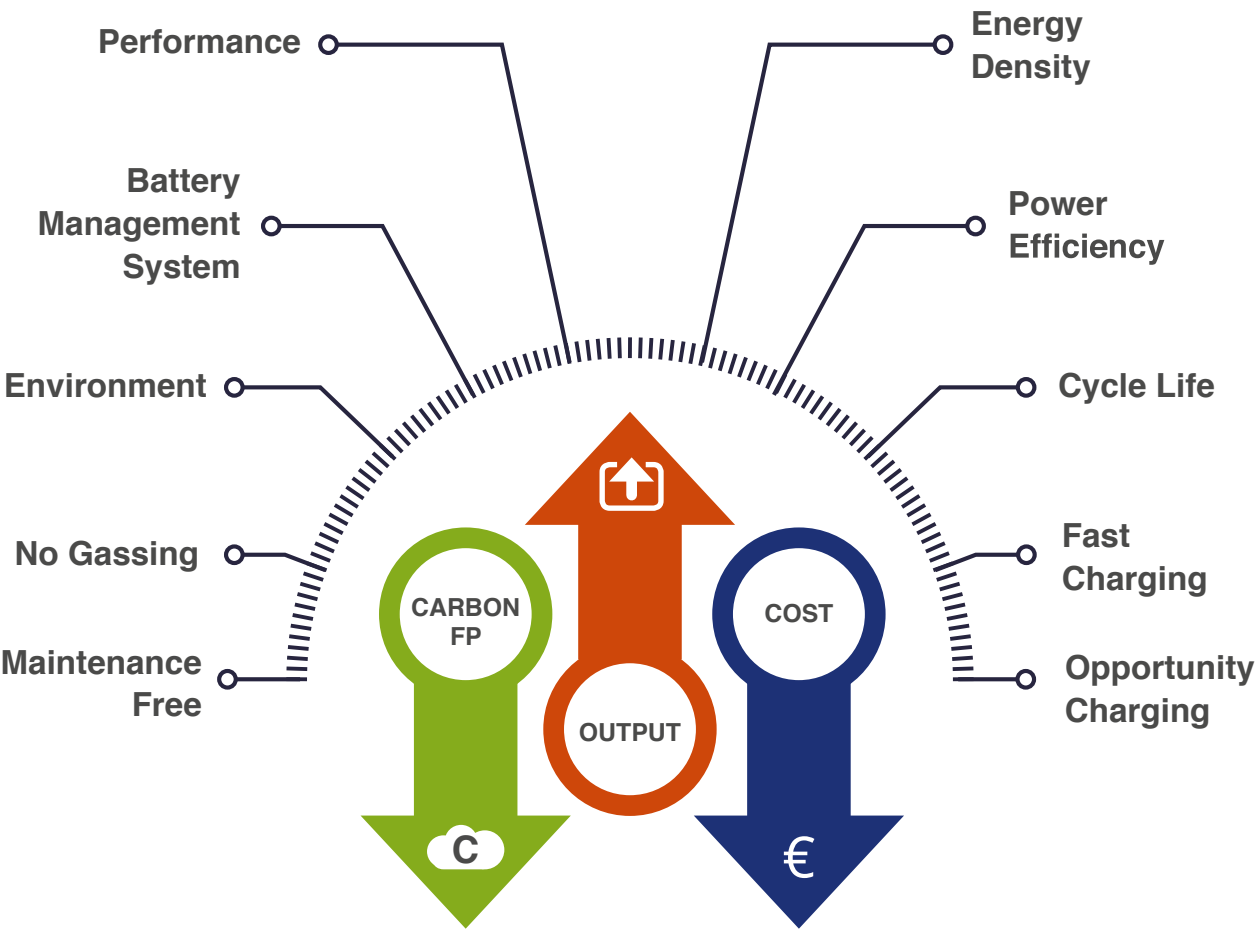


The increasing demands of Material Handling and Logistics Industry as well as the diversity of applications of modern forklifts/ trucks require batteries capable to operate under extreme conditions and run longer.

SUNLIGHT Li.ON FORCE motive power range incorporates SUNLIGHT's vast know-how and long experience in the design & production of Lithium-Ion batteries for advanced applications into a robust product destined for a broad spectrum of industries, including Material Handling and Logistic.



Advantages of Lithium-Ion vs Lead Acid Batteries



Characteristics	Lead Acid Batteries	Li.ON FORCE Batteries
Energy Density	~ 100 Wh/L	> 233 Wh/L
Charging Efficiency [%]	Up to 80%	Up to 95%
Emissions	Environmental unfriendly / Gassing and water loss when charging	Environmental friendly / Emission free
Maintenance	Required / water filling - check points	Not required
Charging Time (Full Charging)	8h	~ 1 - 1.5h
Opportunity Charging	Negative effect on service life	Yes, with NO negative effect on service life
Energy Efficiency	Up to 80%	95%
Operating Temperature	-20°C up to 55°C (-4°F up to 131°F)	-20°C up to 55°C (-4°F up to 131°F)
Temperature during Charge	-10°C up to 55°C (14°F up to 131°F)	0°C up to 45°C (32°F up to 113°F)

Technical Features



Full Charge time	Standard 80min, Full charge at 1 hour possible
Standard Charge Current	0.5C
Maximum Charge Current	1C
Opportunity Charge Current	0.75C
Max. Continuous Discharge Current	1C
Temperature during charge	0°C up to 45°C (32°F up to 113°F)
Temperature during discharge	-20°C up to 55°C (-4°F up to 131°F)
Nominal battery voltage range	25.6V - 38.4V - 51.2V - 83.2V
Available Capacities	up to 864Ah
Tray Sizes (Dimensions, weights)	DIN, BS, Customized
State of Charge indicator	Integrated on the battery
Communication Protocol	CAN bus
Intercell connections	Copper Nickel-plated connectors
Electrical Power Connection	REMA, Anderson

Product Range



Fully certified Cells according to
**UL1642, IEC62660-3:2016,
IEC62619:2017, UN / DOT 38.3**

Fully cetrified Batteries according to
**UN / DOT 38.3, ISO 9001 ISO14001,
BS OHSAS 18001**

Design according to
UL 2580, IEC 62619, IEC 61508



SUNLIGHT Li.ON FORCE Charger series advantages:

- Innovative and worldwide unique multi-resonance converter technology
- High Energy Efficiency up to 97%
- IU charging characteristic
- Fast and opportunity charging modes
- Able to achieve full recharge of the battery within 1 hour
- IP21, higher protection categories up to IP54 upon request
- Fixed connections – ready to “plug & charge”
- Small footprint – decentralized charging point installed in the area where the vehicle operates
- Touch graphic display
- Integrated CAN interface with established data transfer and communication with Li.ON FORCE BMS offering fully-controlled, advanced charging procedure

FILON FUTURE High Frequency

Charging Voltage
24V, 36V, 48V, 72V, 80V

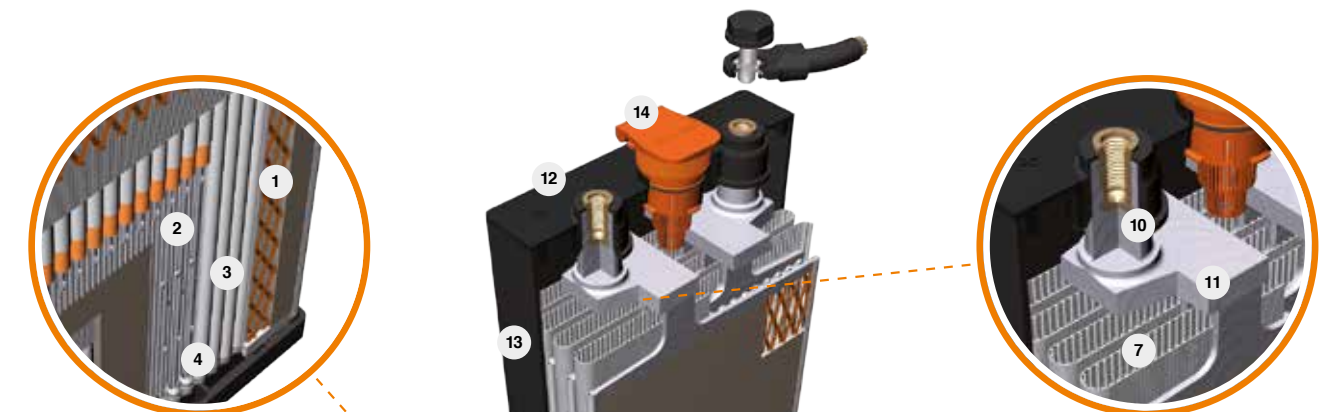
Charging current:
50A up to 400A

Mains voltage:
Single Phase: 230V, 50/60 Hz
Three Phase: 400V, 50/60Hz

Also available for USA market with ETL certification
Mains voltage: Three phase 480V, 60Hz



Designed & Manufactured for Ultimate Performance & Longevity



1 Negative Grid

- ⚙️ Copper grid ensuring more uniform current density distribution over the plate surface.
- ✓ Reducing internal resistance

2 Positive Grid

- ⚙️ Die Casted Grid using Optimized Lead - Antimony Alloy
- ✓ High tensile strength, corrosion resistance, excellent interface with the active mass

3 Positive Active Mass

- ⚙️ 100% Red Lead
- ✓ Efficient formation ensures that full cell capacity is achieved after 3-5 cycles
- ⚙️ Dry filling Process
- ✓ Uniformly filled positive plates, 100% weight controlled
- ⚙️ In house Red Lead production
- ✓ Constant quality, homogeneous tamped density
- ⚙️ Produced by 99,99% Primary Lead
- ✓ Long service life, high conductivity, increased performance

4 Gauntlet

- ⚙️ Non woven, high quality polyester
- ✓ Prevents mass shedding, high mechanical stability

5 Bottom Bar

- ⚙️ Ultrasonically Welded
- ✓ Provides space for the unavoidable growth of the spine

6 Negative Active Mass

- ⚙️ In house production of Lead Oxide
- ✓ Consistent Quality
- ⚙️ Fully automatic Vacuum Negative Paste Mixing process

- ⚙️ Key Features
- ⚙️ Design Features
- ✓ Benefits

7 Separator

- ⚙️ Highly porous Polyethylene, enveloped using mechanically crimped sleeve
- ✓ Increased performance preventing short-circuits

8 Formation & Activation

- ⚙️ Fully automatic Jar Formation process
- ✓ Constant quality in each and every cell

9 Electrolyte

- ⚙️ High Purity
- ✓ Long life performance

10 Pole Terminal

- ⚙️ Innovative conical design of the pole sealing system
- ✓ Uses the unavoidable growth of the plates to press against the grommet and improve the sealing
- ⚙️ Tin plated 16 mm diameter inserts

11 Pole Bridge

- ⚙️ Cast On Strap manufactured pole bridge
- ✓ Consistent & uniform composition ensures superior connections

12 Lid

- ⚙️ Polypropylene reinforced lid thermo-welded to the container

13 Cell Container

- ⚙️ Polypropylene container with sufficient sediment space

14 Operational Vent Plug

- ⚙️ Electrolyte level marking, anti-surge baffle, free cell gassing
- ✓ Increased operational safety

The Foundations of the SUNLIGHT cell

Technology Choices based on Submarine Batteries | Solid Design for Long Life in Tough Conditions
Manufactured on the Best-in-Class Equipment | Uncompromised use of Raw Materials | Fully Controlled Production Process

Applications



Cold storage / Outdoor applications



Forklifts operating in high rack facilities requiring more lifting



Heavy duty applications with demanding acceleration periods during operation from the forklift



Multi-shift applications with one battery through fast and opportunity charging



Seasonal business with high activity peaks



- 1 Inter-cell Connector**

 - Fully insulated flexible bolt-on cable connectors
 - Allows fast and easy cell replacement
 - Reduces time & cost
- 2 Bolt**

 - Plastic-head connector bolt
 - Touch proof insulated with voltage measurement point
- 3 Battery Connectors (Plugs & Sockets)**

Available in the following types:

 - DIN Type connectors according to DIN 43589
 - Flat pole connectors with color coding

Design Features

Benefits

- 4 Exit Cables**

 - Insulated color marked cables
 - Prevent short circuit and allow correct and fast installation

- 5 Tray**

 - Made of steel
 - Protected with plastic powder coating (standard configuration)
 - Durability
 - Corrosion protection
 - Available in various sizes

- 6 Automatic Filling System**

Top up of the battery's cells from one central point through an integrated piping system

 - The automatic filling plugs ensure the optimum filling level of the cells
 - Minimization of the required maintenance time and cost
- 7 Airlift System**

A pump is used to circulate low-level compressed air into the cells and create a homogeneous electrolyte concentration throughout them

 - Optimum design and installation of tubes in cells for perfect sealing and efficient operation
 - The stratification of the electrolyte is prevented
 - Homogeneous density and temperature is achieved

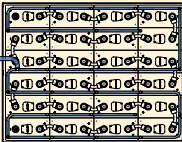


Complete Battery Features

2 Shift Operation	Higher Energy Efficiency	Standard DIN size - Higher Energy Content	Fast and Opportunity Charging
Our Xtreme Force Batteries equipped with Airlift are able to take full advantage of the fast and opportunity charging capabilities of CSM technology allowing the battery to operate on 2 shifts with opportunity charging.	Negative plates with CSM grid (Copper Stretch Metal) reduces internal resistance resulting in higher energy efficiency and higher energy content.	Within the same dimensions with standard cells (fully compatible to IEC 60254-2) offer higher capacity and higher energy content especially useful in high rack facilities and heavy-duty operations.	Our FILON FUTURE chargers enable fast and opportunity charging in 4 hours (when equipped with airlift) thus allowing multi-shift operation with one battery.

	Standard Version	Advanced Version	Advanced+ Version
Airlift	no	yes	yes
Aquafilling	no	no	yes
Fast Charge	no	yes	yes
Energy Content	higher*	higher*	higher*
Internal Resistance	up to -15%	up to -15%	up to -15%
Watering time	Normal	Normal	up to 5 times faster



+  **Airlift**

+  **Airlift**

+  **Aquafilling**

*vs the equivalent PzS



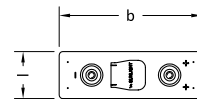
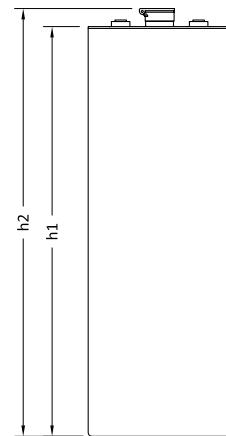
Xtreme Force Cell Range



Plate Type: 130 Ah							
Type Designation	Nominal Capacity Ah		Nominal Energy Content Wh	max cell dimensions (mm/in)		Weight* (kg/lb)	
				b: 198/7.80	h1: 568/22.36 h2: 595/23.43		
	(C ₅)	(C ₆)		l			
2 PzSCSM 260	260	264	507	47	1.85	14.3	31.53
3 PzSCSM 390	390	396	761	65	2.56	20.1	44.31
4 PzSCSM 520	520	528	1014	83	3.27	26.0	57.32
5 PzSCSM 650	650	660	1268	101	3.98	31.9	70.33
6 PzSCSM 780	780	792	1521	119	4.69	37.8	83.33
7 PzSCSM 910	910	925	1775	137	5.39	43.7	96.34
8 PzSCSM 1040	1040	1057	2028	155	6.10	49.7	109.57
9 PzSCSM 1170	1170	1189	2282	174	6.85	55.5	122.36
10 PzSCSM 1300	1300	1321	2535	192	7.56	61.4	135.36

Plate Type: 160 Ah							
Type Designation	Nominal Capacity Ah		Nominal Energy Content Wh	max cell dimensions (mm/in)		Weight* (kg/lb)	
				b: 198/7.80	h1: 713/28.07 h2: 740/29.13		
	(C ₅)	(C ₆)			I		
2 PzSCSM 320	320	328	624	47	1.85	17.7	39.02
3 PzSCSM 480	480	492	936	65	2.56	25.0	55.12
4 PzSCSM 640	640	657	1248	83	3.27	32.3	71.21
5 PzSCSM 800	800	821	1560	101	3.98	39.6	87.30
6 PzSCSM 960	960	985	1872	119	4.69	46.9	103.40
7 PzSCSM 1120	1120	1149	2184	137	5.39	54.3	119.71
8 PzSCSM 1280	1280	1313	2496	155	6.10	61.6	135.80
9 PzSCSM 1440	1440	1477	2808	174	6.85	68.8	151.68
10 PzSCSM 1600	1600	1642	3120	192	7.56	76.0	167.55

* Filled and charged cell weights $\pm 5\%$
 ** Cells' dimensions ± 2 mm, according to IEC 60254- Part 2



Xtreme Force Battery Range*

Plate Type	24V Battery	48V Battery	80V Battery
130Ah	24V-260AH (2 PzSCSM 260)	48V-260AH (2 PzSCSM 260)	80V-260AH (2 PzSCSM 260)
	24V-390AH (3 PzSCSM 390)	48V-390AH (3 PzSCSM 390)	80V-390AH (3 PzSCSM 390)
	24V-520AH (4 PzSCSM 520)	48V-520AH (4 PzSCSM 520)	80V-520AH (4 PzSCSM 520)
	24V-650AH (5 PzSCSM 650)	48V-650AH (5 PzSCSM 650)	80V-650AH (5 PzSCSM 650)
	24V-780AH (6 PzSCSM 780)	48V-780AH (6 PzSCSM 780)	80V-780AH (6 PzSCSM 780)
	24V-910AH (7 PzSCSM 910)	48V-910AH (7 PzSCSM 910)	80V-910AH (7 PzSCSM 910)
	24V-1040AH (8 PzSCSM 1040)	48V-1040AH (8 PzSCSM 1040)	80V-1040AH (8 PzSCSM 1040)
	24V-1170AH (9 PzSCSM 1170)	48V-1170AH (9 PzSCSM 1170)	80V-1170AH (9 PzSCSM 1170)
160Ah	24V-1300AH (10 PzSCSM 1300)	48V-1300AH (10 PzSCSM 1300)	80V-1300AH (10 PzSCSM 1300)
	24V-320AH (2 PzSCSM 320)	48V-320AH (2 PzSCSM 320)	80V-320AH (2 PzSCSM 320)
	24V-480AH (3 PzSCSM 480)	48V-480AH (3 PzSCSM 480)	80V-480AH (3 PzSCSM 480)
	24V-640AH (4 PzSCSM 640)	48V-640AH (4 PzSCSM 640)	80V-640AH (4 PzSCSM 640)
	24V-800AH (5 PzSCSM 800)	48V-800AH (5 PzSCSM 800)	80V-800AH (5 PzSCSM 800)
	24V-960AH (6 PzSCSM 960)	48V-960AH (6 PzSCSM 960)	80V-960AH (6 PzSCSM 960)
	24V-1220AH (7 PzSCSM 1220)	48V-1220AH (7 PzSCSM 1220)	80V-1220AH (7 PzSCSM 1220)
	24V-1280AH (8 PzSCSM 1280)	48V-1280AH (8 PzSCSM 1280)	80V-1280AH (8 PzSCSM 1280)
24V-1440AH (9 PzSCSM 1440)	48V-1440AH (9 PzSCSM 1440)	80V-1440AH (9 PzSCSM 1440)	
24V-1600AH (10 PzSCSM 1600)	48V-1600AH (10 PzSCSM 1600)	80V-1600AH (10 PzSCSM 1600)	

* The Range presented is indicative. In the case you request a different Battery Type, please contact SUNLIGHT.

6 | SYSTEMS SUNLIGHT S.A.

Motive Power | Xtreme Force

Notes