

Ni-Cd Block battery range

Proven back-up performance and reliability for industrial applications



Meeting industry's power back-up challenges



Make Saft your long term partner

Saft has been a trusted battery partner for the world's leading industrial players for over 100 years, with a range of well-proven solutions that deliver secure energy for stationary applications. Saft's products are designed to meet the reliability, safety and security challenges of today's industrial landscape where they provide power back-up, starting power and bulk energy storage. Saft's commitment to research and development and innovative engineering ensures that our nickel-cadmium (Ni-Cd) batteries offer the very latest in design, quality and industrial process technology. They also come with comprehensive through-life global service support, from initial consultancy to volume delivery, including training, maintenance and expert technical back-up.

Saft Block batteries: flexible solutions for a wide range of industrial applications

Reliable and robust batteries for back-up power

Stationary batteries are used in refineries, power plants, onshore & offshore oil & gas industries, substations, airports & building infrastructure – locations where it is absolutely critical to have batteries that will work when they should, even under extreme operating conditions. Power is absolutely vital to Uninterruptible Power Supply (UPS) systems, switching and transmission functions, emergency and security

systems, industrial fire monitors and alarms, process control installations, substation switchgear, signaling systems and more. If the primary power source for these applications is suddenly unavailable, a back-up system provides a temporary source of power until primary power re-engages or while systems operators perform a controlled shutdown. But back-up power is only as good as the stationary battery that enables it!

Instant starting power

Cranking up an emergency generator or switching on heaters, pumps or other equipment requires batteries that are very reliable, offer high discharge capabilities

and function properly in extreme temperatures. Saft batteries recover their voltage instantaneously, making them the ideal choice for starting applications.

Power generation
UPS
Emergency and security systems

Refineries
Process control installations
SCADA
Switching and transmission DC back-up
Industrial fire monitors and alarms

Saft LE/M/H Block battery range: a wide choice of capacity and performance

Saft has developed the SBLE, SBM and SBH ranges of block batteries to offer the optimum, flexible solution for all stationary applications. The choice of low rate discharge, medium and high performance types makes it easy to select the ideal battery, based on the

required discharge time and end of discharge voltage. Thanks to the robust and reliable Saft Nife® pocket pocket plate technology they resist electrical abuse, shock and vibrations. Furthermore, a generous reserve of electrolyte means that the block

batteries need only basic maintenance, while operating across a wide range of fluctuating temperatures. This ensures an optimized Total Cost of Ownership (TCO) over a life cycle that can last 20 years or more.

	LE Type	M Type	H Type
Capacity steps	58	68	51
Capacity	7.5 – 1690 Ah	11 – 1445 Ah	8.3 – 920 Ah
Performance	For low rate discharge over long periods between 1 and 100 hours	For varied loads with low and high discharge rates between 30 minutes and 3 hours	For high rate discharge over short periods less than 30 minutes
Applications	Power back-up applications		Power back-up and starting applications

From seconds to hours - every discharge need is covered

Saft has a Block battery range to suit every discharge profile from 1 second to 100 hours



Saft Ni-Cd technology - the proven advantages of a safe and robust design



Specify the ideal battery for every application

- Performance optimized for each application according to plate thickness.

→ LE type

- Thicker plates
- High energy
- Low cost per Amp at low rates

→ M type

- Thinner plates
- Medium power
- Optimised between H and L design for mixed loads

→ H type

- Thinnest plate
- High power
- Low cost per Amp at high rates

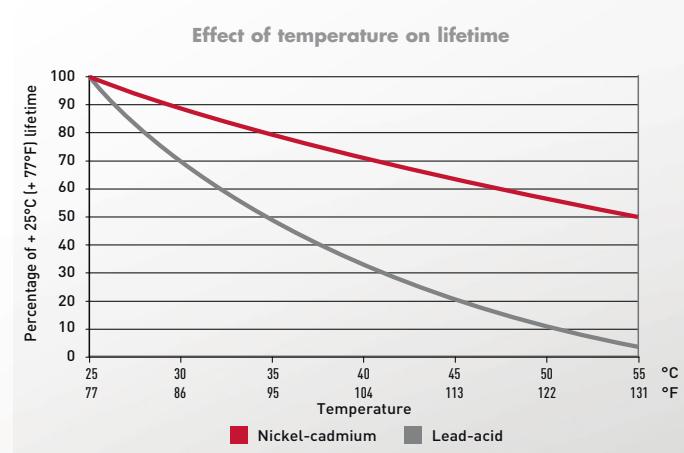
- Optimized design boosts electrical performance by up to 10% depending on discharge time.
- Twice the number of capacity steps compared with previous designs enables accurate matching with calculated amp-hour requirements.

Improved performance and more capacity steps allow you to select the best, cost-effective battery for your application.

Ni-Cd means proven reliability

Saft's robust Ni-Cd technology sets the benchmark for industrial batteries operating in difficult and demanding conditions.

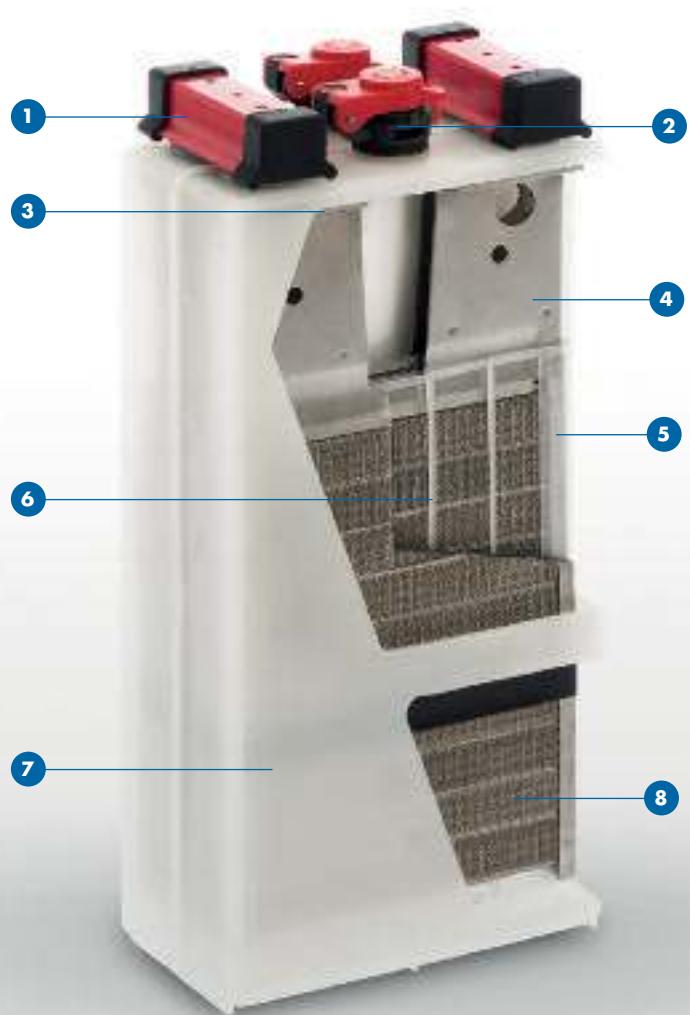
- Delivers performance, reliability and a long, totally predictable, service life – with no risk of sudden death failure.
- Ensures a 20-year plus service life at + 25°C (+ 77°F).
- Even at + 35°C (+ 95°F), lifetime falls by just 20% compared with a 50% reduction for a lead-acid battery.





Block battery construction – essential features

- The steel pocket plate structure does not suffer from « sudden death » or internal corrosion since there is no interaction between the active material and the electrolyte.
- Tough polypropylene casing ensures structural integrity throughout a long life.
- An engineered electrolyte solution delivers optimum performance without causing degradation of plate materials.
- Plenty of space is allowed for a good reserve of electrolyte.
- A special electrolyte is available for extremely low temperature applications.
- A specially designed flame arresting flip top vent ensures the battery does not produce corrosive emissions.
- The Block battery offers a long shelf life when stored under Saft's recommended conditions and is easy to install.



1/ Protective cover

In line with IEC 62485-2 / EN 50272-2 (safety) with IP2 level

2/ Flame-arresting vents

Compliant with UL 1989 - Section 7 -
Flame arrester vent cap tests

3/ Plate group bus

4/ Plate tab

5/ Plate frame

6/ Separating grids

7/ Cell container

8/ Saft NiFe® pocket plate technology

Note: The cells are welded together to form rugged blocks of 1-6 cells depending on the cell size and type. Saft cells fully comply with the requirements of the IEC 60623 standard.

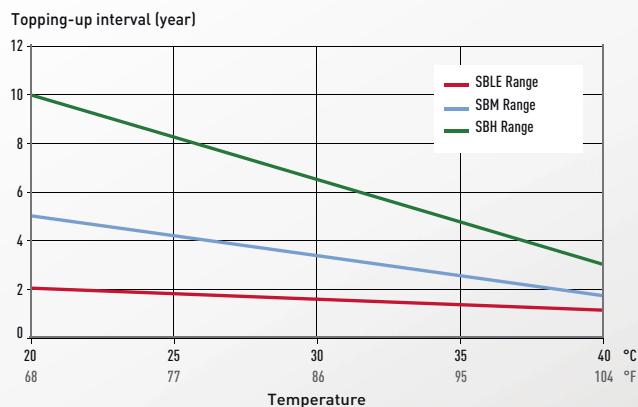
Setting the benchmark for industrial batteries



Low maintenance means lower lifetime costs

- Topping-up intervals are now up to two times longer under standard conditions at + 20°C (+ 68°F) and at float voltage.
- A simple annual maintenance exercise is recommended to check correct functioning of the charging system, battery and the auxiliary electronics.
- Easy maintenance thanks to:
 - Visible electrolyte level
 - Simple bolted connector for fast installation and allowing the battery to be quickly commissioned

Typical topping up intervals at recommended charge voltage



Higher chargeability minimises down time

- Faster recharge time enables at least 80% recovery of capacity from fully discharged conditions in 15 hours at float voltage level.

Recommended charging voltage:

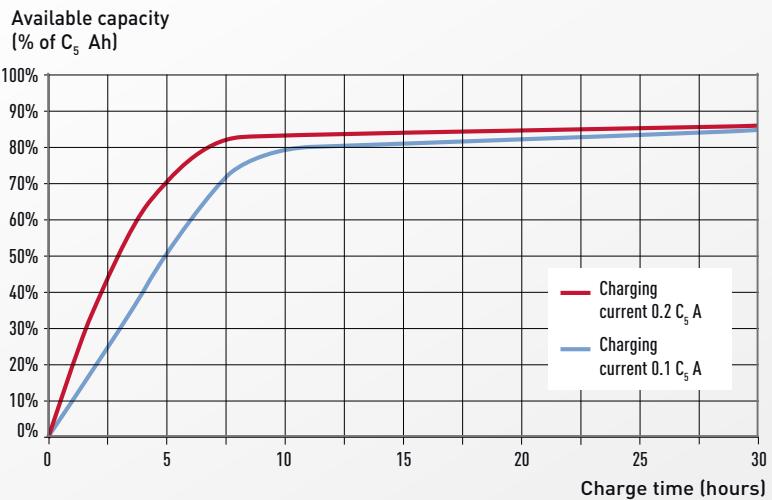
→ For two level charge:

- Float level:
1.42 ± 0.01 V/cell for SBLE
1.40 ± 0.01 V/cell for SBM and SBH

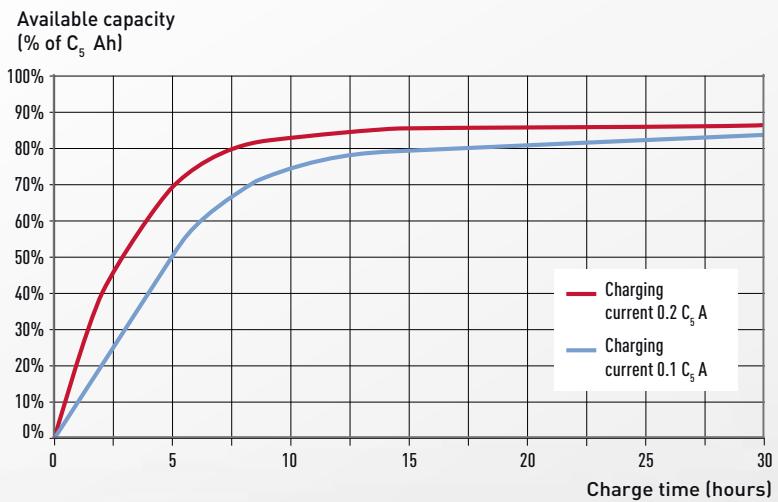
- High level:
1.47 - 1.70 V/cell for SBLE
1.45 - 1.70 V/cell for SBM and SBH
A high voltage will increase the speed and efficiency of the recharging.

→ For single level charge: 1.43 - 1.50 V/cell.

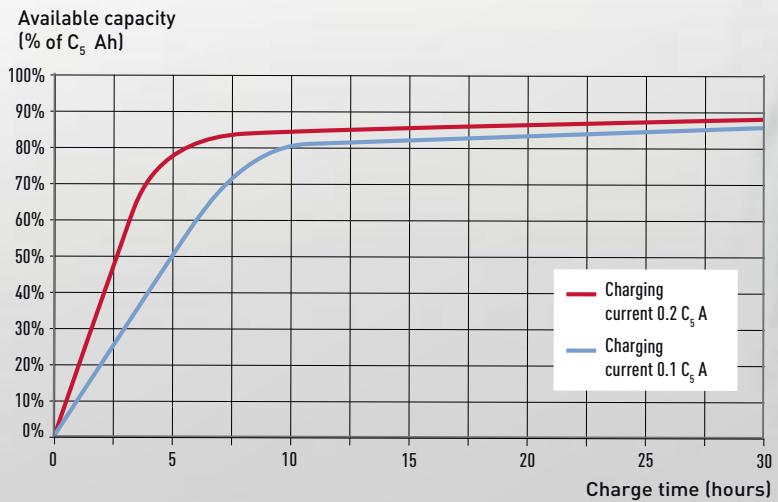
**SBLE Range – Available capacity after constant voltage charge
at 1,42 V at + 20°C (+ 68°F)**



**SBM Range – Available capacity after constant voltage charge
at 1,40 V at + 20°C (+ 68°F)**



**SBH Range – Available capacity after constant voltage charge
at 1,40 V at + 20°C (+ 68°F)**



Quality built, quality tested for durability and performance



Saft Block batteries are designed in full compliance with the highest quality, safety and environmental standards

Electrical characteristics:

- Certified IEC 60623 - Secondary cells and batteries containing alkaline or other non-acid electrolytes - Vented nickel-cadmium prismatic rechargeable single cells.

Safety:

- Complies with EN 50272-2/ IEC 62485-2 - Safety requirements for secondary batteries and battery installations - Part 2: Stationary batteries - The protective covers for terminals and connectors, the insulated cables are compliant with IP2 level protection against electrical shocks according to safety standard.
- Complies with UL 1989 - Section 7: Flame arrester vent cap tests - UL standard for safety for standby batteries.

Quality:

- ISO 9001 and ISO 14001
- Saft world class continuous programme

Environment & Recycling:

- Fully recyclable
- RoHS – Although batteries and accumulators are not within the scope of the RoHS directive, Saft has taken voluntary measures to make sure that the substances forbidden by RoHS are not present in the battery, with the exception of the electro-chemical core.
- REACH – The Saft Group has adopted internal procedures to ensure conformity with the European REACH (Registration, Evaluation, Authorisation and Restriction of Chemical Substances) Regulation.



Providing a wide scope of support and services



Saft offers total end to end application support

Saft's stationary battery experts offer a comprehensive range of skills and expertise to help our global customers specify the ideal battery solution for their particular application.

This end to end support starts at the design stage, such as advice on battery sizing, and carries customers through installation and commissioning.

Saft's after-sales service covers support, maintenance and diagnostics as well as end of life recycling.

Saft organizes battery training seminars for consultants, engineering teams and maintenance departments.

To ensure that customers receive the optimum service, wherever they are in the world, we are continuing to expand and enhance our network of approved service stations in the Middle East, Asia, Europe and North America.



Perform your own sizing

Saft's Battery Sizing and Configuration System, known as BaSiCs, helps our customers to quickly and easily find the right battery for their back-up or starting applications. BaSiCs helps users create the layout for one or more stands as well as the battery layout itself.

To download the BaSiCs application, search for "BaSiCs" on our web site:

www.saftbatteries.com



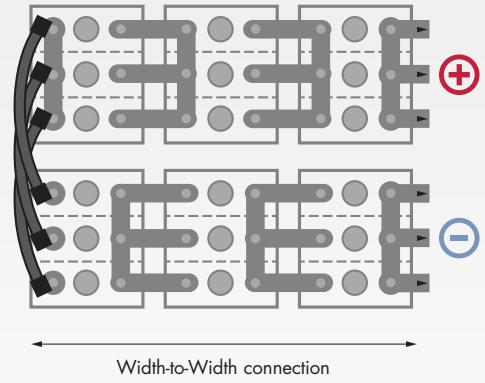
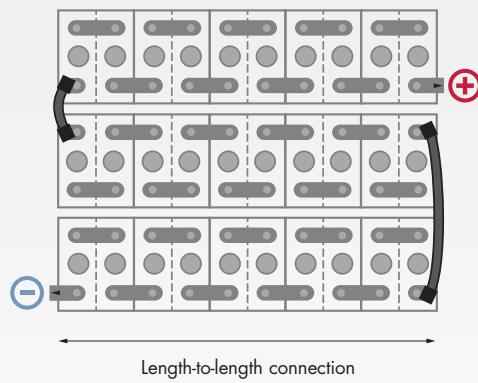
Connecting your batteries for optimum efficiency

Standard layouts

Saft has developed a series of standard layouts for ordering a battery. Whether the battery is being installed on a rack, in a cabinet or is simply freestanding, the same configuration principals can be applied.

Two ways to configure the battery

	Normal connection	Crosswise connection
SBLE	7.5 → 510	550 → 1690
SBM	11 → 392	415 → 1445
SBH	8.3 → 157	177 → 920



The cell is turned through 90° and then connected width-to-width. This is referred to as "crosswise" mounted and its purpose is to minimize the installation's over-all length. The cell's width is used to calculate the row length.

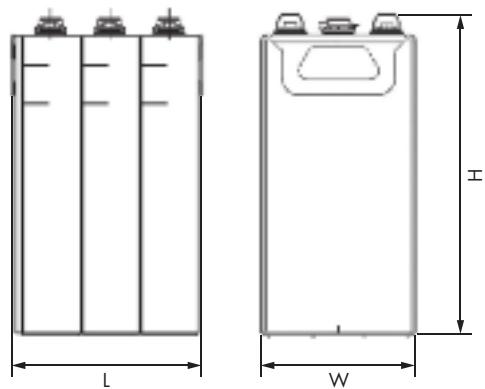


Dimensions

The dimensions of all available cell types are listed in the tables. The block length is determined by the cell length and the number of cells in the block.

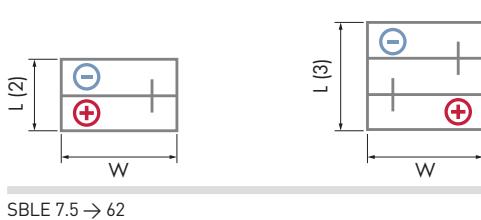
Notes:

- All the tabulated dimensions are maximum values.
- All block types with a cell weight exceeding 8.4 kg (18.5 lbs) have handles. The tabulated block length includes 6 mm for handles for these types.
- All the cell heights given in the tables include the height of the IP2X terminal cover.

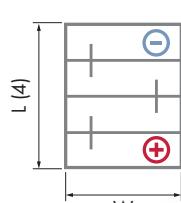


Position of terminals

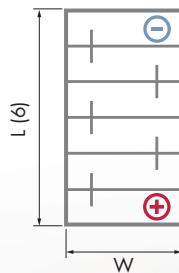
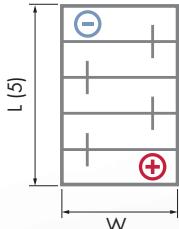
Blocks of cells with single pole bolt



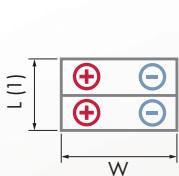
SBLE 7.5 → 62



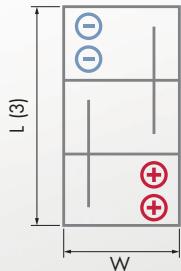
SBLE 75 → 275
SBM 11 → 241
SBH 8.3 → 118



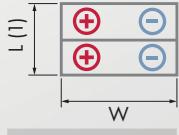
Blocks of cells with 2 poles bolt per poles



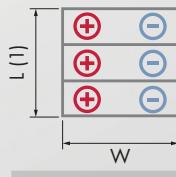
SBLE 300 → 510
SBM 250 → 392
SBH 137 → 157



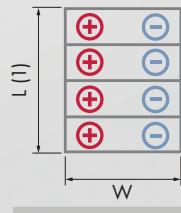
Blocks of cells with 2 - 6 poles bolt per poles



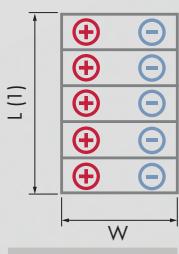
SBLE 550
SBM 415 → 482
SBH 177 → 256
SBH 270 → 281
SBH 307



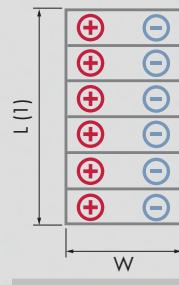
SBLE 600 → 830
SBM 505 → 723
SBH 265 / 294
SBH 323 → 383
SBH 400 → 460



SBLE 890 → 1100
SBM 740 → 940
SBH 393 / 471
SBH 510 → 560
SBH 600 → 615



SBLE 1150 → 1400
SBM 1009 → 1181
SBH 471 / 590
SBH 640 → 765



SBLE 1450 → 1690
SBM 965
SBM 1220 → 1445
SBH 800 → 920

Note:

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Saft is committed to the highest standards of environmental stewardship

As part of this environmental commitment, Saft prioritises the use of recycled raw materials over virgin raw materials in all manufacturing processes. We also strive, year on year, to reduce air and water emissions from our plants, as well as minimizing water usage, reducing consumption of fossil energy consumption and associated CO₂ emissions, and ensuring that all our customers have access to recycling solutions for their

spent batteries. To facilitate the end-of-life collection and recycling of industrial batteries, including our nickel & lithium-based technologies, Saft has developed well-established partnerships with collection companies in most EU countries, in North America and in many other countries worldwide. This collection network receives spent batteries from our customers and dispatches them to fully approved recycling facilities, in compliance

with the laws governing trans-boundary waste shipments. This collection network is currently undergoing minor adaptations to meet the requirements of the EU batteries directive. A list of our battery collection points is available on our web site. In other countries, Saft will assist anyone using our batteries in finding environmentally sound recycling solutions. Please contact your sales representative for further information.



Saft

12, rue Sadi Carnot
93170 Bagnolet - France
Tel. : +33 1 49 93 19 18
Fax : +33 1 49 93 19 64
www.saftbatteries.com

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