

ALL BATTERIES RANGES

AGM VRLA



FIAMM AGM batteries have optimized internal gas recombination and are maintenance free without topping up. They are non-spillable, non-harzardous for transportation and 100% recyclable.

AGM VRLA SSLA



The SSLA battery range has been designed to cover a wide range of applications. The footprint of products are ideal for critical installations. Connection is simple on smaller models sizes thanks to the easy ‘fast-on’ terminals.

GEL VRLA



FIAMM GEL batteries are maintenance free and combine the benefits of a gelled electrolyte which provides a longer life and wider temperature operating range.

FLOODED



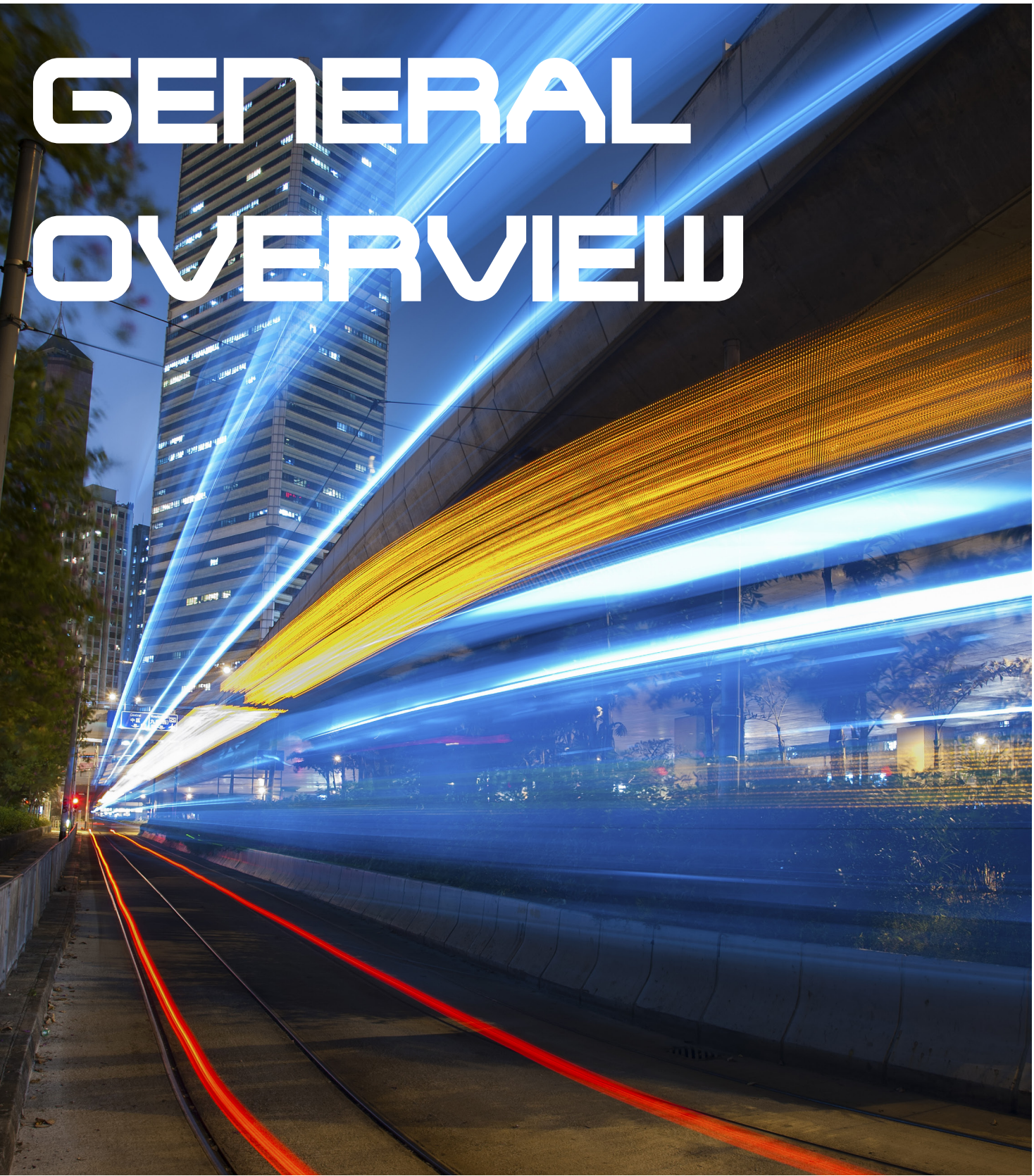
FIAMM vented batteries are available for several discharge profiles and for applications with unstable grid and deep discharge rate. Minimun maintenance and topping up are required.



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 youtube.com/user/FIAMMvideo

GENERAL OVERVIEW



Reserve Power Solutions

+ FIAMM.COM



LEAD ACID
BATTERIES COLOR
CODE

SSLA

GEL

AGM

VENT



Renewable
Energy



Light
Traction



Leisure



Security System &
Emergency Lighting



UPS & Data
Centre



Utilities &
Industry



Oil & Gas



Railway



Telecom

FG

Standard Commercial 1.2 - 65 Ah

FGH

High Rate 5 - 18 Ah

FGL

Long Life 17 - 205 Ah

FGHL

High Rate, Long Life 5 - 11 Ah

FLB

High Rate and Long Life
100 - 700 Wpc

FIT

Front Terminal and Very Long Life 40 - 195 Ah

SLA

Top Terminal and Very Long Life 24 - 2000 Ah

SD-SDH

High Rate and Flat Plate 80 - 2320 Ah

SMG

GEL Tubular Plate OPzV 100 - 3640 Ah

LM

Tubular Plate OPzS 100 - 3500 Ah

FHC

Cycles, High Temp, PSOC
95 - 175 Ah

FHT

High Temp, Front Terminal
95 - 180 Ah

SGL-SGH

Pure Lead Planté Plate GRoE 79 - 2860 Ah

RES

Residential Energy Solution
6.2 - 12.5 kWh

FHC

Cycles, High Temp, PSOC
95 - 175 Ah

SMG S

GEL Tubular Plate
265 - 4240 Ah

LM S

Vented Tubular Plate
150 - 5000 Ah

DESIGN LIFE

The SAFT logo is displayed in red, with the word "SAFT" in a bold, sans-serif font and a thick horizontal line underneath.

Ni-Cd Block battery range

The sustainable approach to
performance and reliability
for industrial applications



TotalEnergies

Meeting industry's power back-up challenges

Make Saft your long term partner to help you reduce your CO2 emissions

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 with a reduced CO2 emissions secure energy for stationary applications. Saft's products are designed to meet the environment, 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 to minimize their material consumption. 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

Sustainable, 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. Saft nickel cadmium batteries capable of operating at higher temperature with very limited performances changes will allow the end users to reduce their energy consumption by limiting the need to cool down the batterie room. 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.



In 2023, the sustainability performance of Saft was evaluated by Ecovadis, a leading Environment and Social Responsibility rating Agency. This evaluation focuses on the following matters: environment, labor an human rights, ethics as well as sustainable procurement.

Saft is ranked within the top 1% of companies involved in the manufacture of batteries and accumulators.

Saft LE/M/H Block battery range: a wide choice of capacity and performance to select to optimized product limiting the usage of raw material

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,

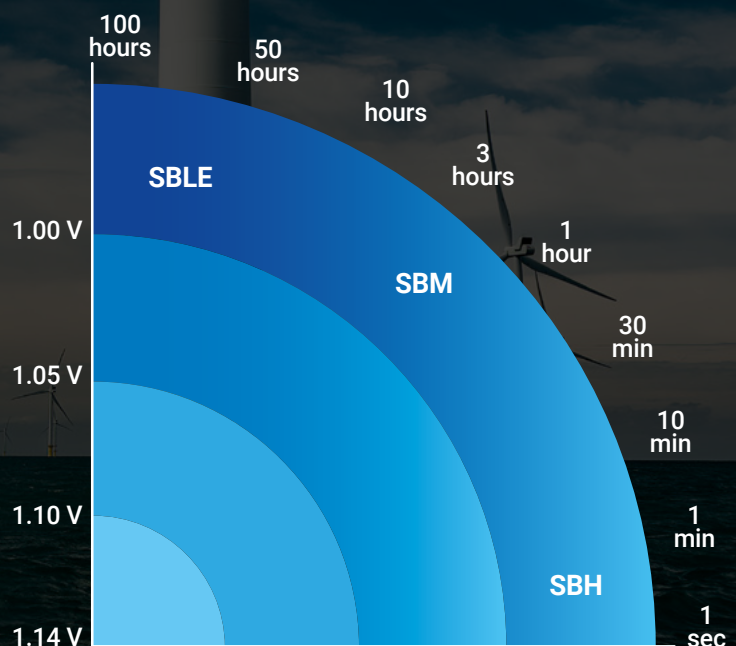
based on the required discharge time and end of discharge voltage. Thanks to the robust and reliable Saft Nife® pocket plate technology they resist electrical abuse, shock and vibrations. Furthermore, a generous reserve of electrolyte means that the block

batteries need only basic maintenance, while operating across a wide range of fluctuating temperatures. This ensures an optimized solution as regard to environment and economics 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



Soft Ni-Cd technology - the proven advantages of a sustainable, 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 battery benefits

► Sustainable

- Soft manufacturing process and recycling capability ensure lowest CO2 footprint
- Soft Ni-Cd wide operating temperature range makes AC and heating redundant, hence saving energy

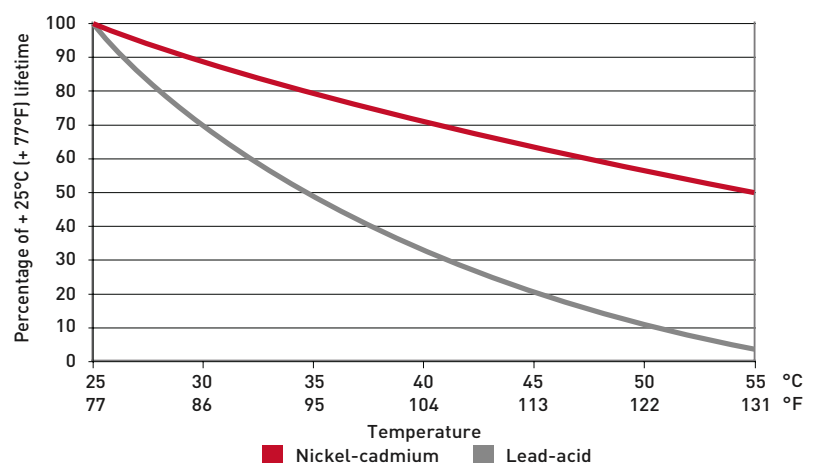
► Reliable

- Long operational life of over 20 years, at least 3 times longer than lead-acid batteries
- No risk of sudden death failure

► Economical

- Lowest total cost of ownership

Effect of temperature on lifetime



Block battery construction –

- 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.

Protective cover

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

Flame-arresting vents

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

Plate group bus

Plate tab

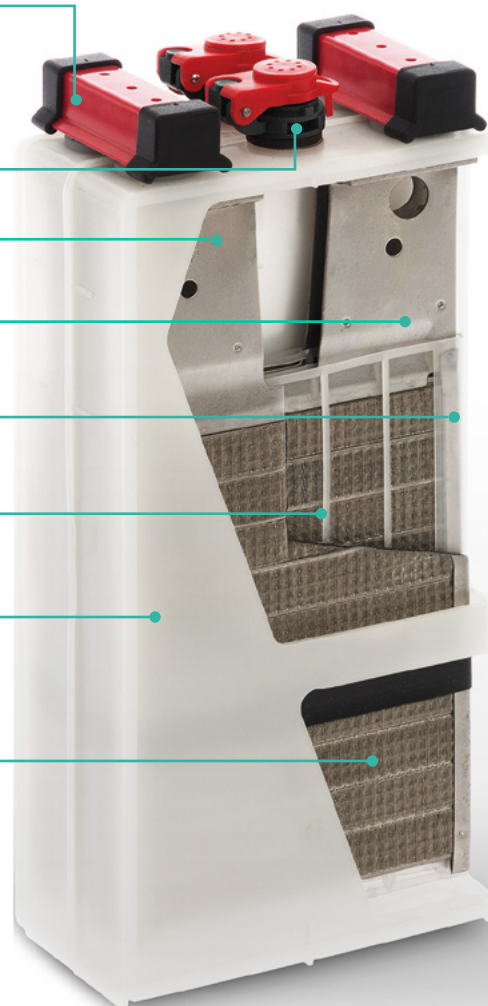
Plate frame

Separating grids

Cell container

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 CO₂ needed during the operational life of the product.

- 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



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. to be quickly commissioned

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

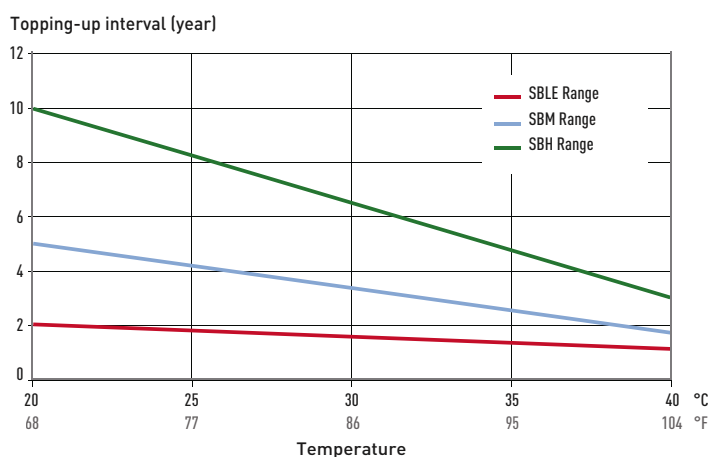
1.45 - 1.70 V/cell for SBM and SBH

A high voltage will increase the speed and efficiency of the recharging.

→ For single level charge:

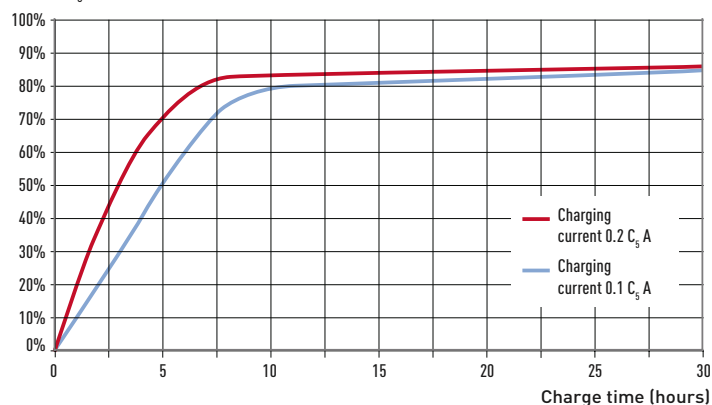
1.43 - 1.50 V/cell.

Typical topping up intervals at recommended charge voltage



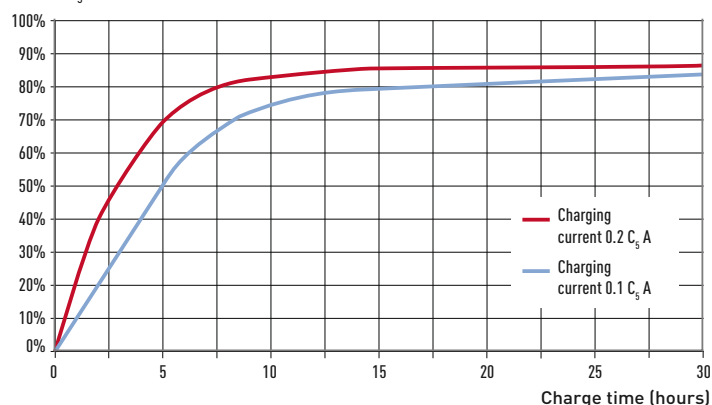
SBLE Range - Available capacity after constant voltage charge at 1,42 V at + 20°C (+ 68°F)

Available capacity
[% of C_5 Ah]



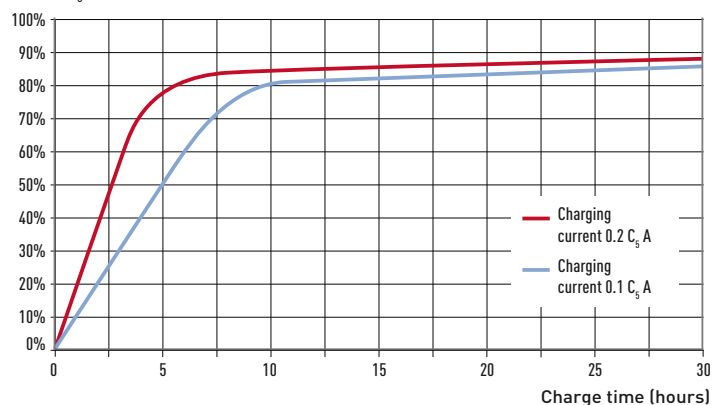
SBM Range - Available capacity after constant voltage charge at 1,40 V at + 20°C (+ 68°F)

Available capacity
[% of C_5 Ah]



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

Available capacity
[% of C_5 Ah]



Quality built, quality tested for sustainability, durability and performance

Saft Excellence System



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 of Ni-cd

- 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.
- Saft operates the only plant in the world that produces nickel-cadmium batteries incorporating metals that have been reclaimed on site from spent batteries, reducing their eco-footprint. The recycling of Ni-Cd batteries is a complex process that involves separating the nickel, cobalt and cadmium from the electrodes, a process perfected by Saft's plant in Oskarshamn, Sweden. This plant in Sweden is the only one in the world which combines the recycling of used batteries and the manufacturing of new ones, hence facilitating the incorporation of recycled materials into new products.
- Saft operates a network of over 30 bring back points worldwide that receive spent Ni-Cd batteries manufactured by Saft. The bring back points located in northern Europe bring these used batteries back to Oskarshamn, minimizing transportation. Other bring back points work with other fully permitted recycling partners selected by Saft. This take back and recycling service ensures that the recycling efficiency mandated by the EU battery directive is met and that we have closed the loop on responsible production of Ni-Cd batteries.

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.

This tool allows you to evaluate your environmental footprint against lead acid and see the Saft Nickel cadmium benefits

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

www.saftbatteries.com

Cell type	Cells number	Rated capacity (Ah)	Required capacity (Ah)	Final voltage (V)	Topping-up interval (hours)	Battery weight (kg)	Battery Footprint (m²)	Battery volume (m³)	Ratio	Actions		
Packaging solution	Battery	SBM 402	57	492	496.65	1.138	2.4	2105.40	3.10	2.92	1.00	

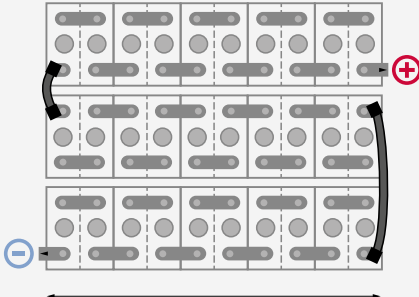
Connecting your batteries for optimum efficiency

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.

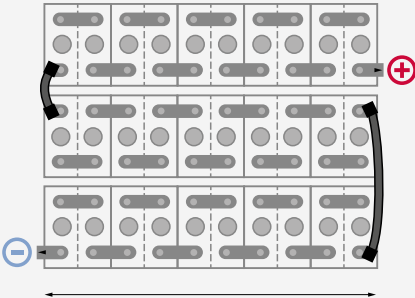
Two ways to configure the battery

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



Length-to-length connection





Width-to-Width connection

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.



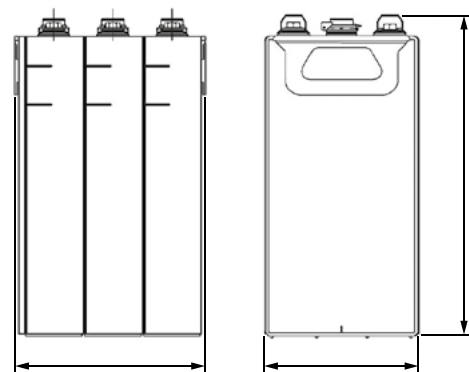
Dimensions

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:

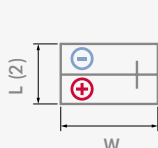
• All the tabulated dimensions are maximum values.

- All block types with a cell weight exceeding 8.4 kg (18.5 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.

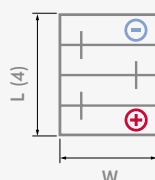
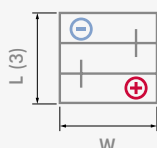


Position of terminals

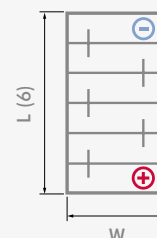
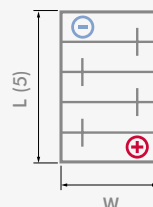
Blocks of cells with single pole bolt



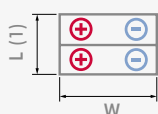
SBLE 7.5 → 62



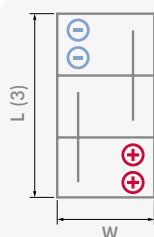
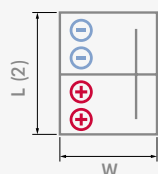
SBLE 75 → 275
SBM 11 → 241
SBH 8.3 → 118



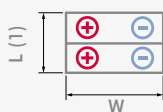
Blocks of cells with 2 poles bolt per poles



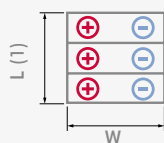
SBLE 300 → 510
SBM 250 → 392
SBH 137 → 157



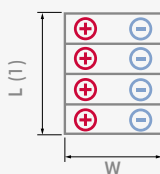
Blocks of cells with 2 poles bolt per poles



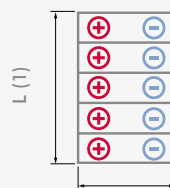
SBLE 550
SBM 415 → 482
SBH 177 → 256
SBH 270 → 281
SBH 307



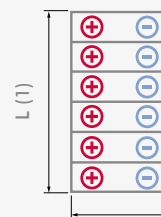
SBLE 600 → 830
SBM 505 → 723
SBH 265 / 294
SBH 323 → 383
SBH 400 → 460



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

Cell Type	Capa- city	Height		Width		Lenght per block										Approx. Weight per cell		Approx. Electrolyte vol. between level marks	Approx. electrolyte per cell			Internal Resistance	Cell connection bolt per pole
						1 cells		2 cells		3 cells		4 cells		5 cells									
	C, Ah	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	cm³	L	kg	mOhm		
SBLE 7.5	7.5	190	7.5	123	4.8					101	4.0	125	4.9	149	5.9	0.8	1.8	87	0.08	0.24	14.00	M6	
SBLE 15	15	270	10.6	123	4.8					101	4.0	125	4.9	149	5.9	1.1	2.4	87	0.12	0.35	8.33	M6	
SBLE 22	22	270	10.6	123	4.8					143	5.6	178	7.0	212	8.3	1.7	3.7	129	0.17	0.53	5.45	M6	
SBLE 30	30	270	10.6	123	4.8					143	5.6	178	7.0	212	8.3	1.8	4.0	129	0.15	0.46	4.17	M6	
SBLE 34	34	270	10.6	123	4.8					191	7.5	238	9.4	284	11.2	2.3	5.1	177	0.23	0.70	3.53	M6	
SBLE 40	40	270	10.6	123	4.8					239	9.4	298	11.7	356	14.0	3.0	6.6	224	0.29	0.90	3.00	M6	
SBLE 47	47	270	10.6	123	4.8					191	7.5	238	9.4	284	11.2	2.3	5.1	177	0.20	0.59	2.66	M6	
SBLE 62	62	270	10.6	123	4.8					239	9.4	298	11.7	356	14.0	3.2	7.1	224	0.25	0.70	2.02	M6	
SBLE 70	70	350	13.8	195	7.7			79	3.1	115	4.5					4.1	9.0	299	0.33	1.00	2.29	M8	
SBLE 75	75	350	13.8	195	7.7			79	3.1	115	4.5					4.1	9.0	299	0.38	1.00	2.13	M8	
SBLE 85	85	411	16.2	195	7.7			79	3.1	115	4.5					4.9	10.8	299	0.45	1.40	1.94	M8	
SBLE 95	95	411	16.2	195	7.7			79	3.1	115	4.5					4.7	10.4	299	0.45	1.20	1.74	M8	
SBLE 100	100	350	13.8	195	7.7			103	4.1	151	5.9					5.4	11.9	404	0.49	1.50	1.60	M10	
SBLE 110	110	350	13.8	195	7.7			103	4.1	151	5.9					5.6	12.3	404	0.49	1.20	1.45	M10	
SBLE 125	125	411	16.2	195	7.7			103	4.1	151	5.9					6.7	14.8	404	0.58	1.70	1.32	M10	
SBLE 140	140	411	16.2	195	7.7			103	4.1	151	5.9					6.5	14.3	404	0.58	1.80	1.18	M10	
SBLE 149	149	350	13.8	195	7.7			127	5.0	187	7.4					6.6	14.6	510	0.59	1.80	1.07	M10	
SBLE 165	165	411	16.2	195	7.7			127	5.0	187	7.4					8.4	18.5	510	0.71	2.20	1.00	M10	
SBLE 176	176	350	13.8	195	7.7			153	6.0	226	8.9					7.9	17.4	624	0.72	2.20	0.91	M10	
SBLE 185	185	411	16.2	195	7.7			127	5.0	187	7.4					8.4	18.5	510	0.71	2.00	0.89	M10	
SBLE 200	200	411	16.2	195	7.7			159	6.3	232	9.1					10.2	22.5	624	0.86	2.60	0.83	M10	
SBLE 215	215	411	16.2	195	7.7			159	6.3	232	9.1					10.2	22.5	624	0.86	2.60	0.77	M10	
SBLE 220	220	350	13.8	195	7.7			183	7.2	268	10.6					9.1	20.1	729	0.81	2.50	0.73	M10	
SBLE 230	230	411	16.2	195	7.7			159	6.3	232	9.1					9.9	21.8	624	0.86	2.30	0.72	M10	
SBLE 255	255	411	16.2	195	7.7			183	7.2	268	10.6					11.9	26.2	729	1.00	3.00	0.65	M10	
SBLE 275	275	411	16.2	195	7.7			183	7.2	268	10.6					11.5	25.4	729	1.00	2.90	0.60	M10	
SBLE 285	285	411	16.2	195	7.7			183	7.2	268	10.6					11.9	26.2	729	0.98	3.00	0.58	M10	
SBLE 300	300	411	16.2	195	7.7			229	9.0	337	13.3					14.8	32.6	914	1.29	3.90	0.55	2xM10	
SBLE 325	325	411	16.2	195	7.7			229	9.0	337	13.3					14.5	32.0	914	1.29	3.50	0.51	2xM10	
SBLE 334	334	411	16.2	195	7.7			253	10.0	373	14.7					14.8	32.6	1019	1.27	3.90	0.49	2xM10	
SBLE 344	344	411	16.2	195	7.7			253	10.0	373	14.7					16.5	36.4	1019	1.40	4.30	0.48	2xM10	
SBLE 355	355	411	16.2	195	7.7			253	10.0	373	14.7					16.5	36.4	1019	1.42	4.30	0.46	2xM10	
SBLE 365	365	411	16.2	195	7.7			253	10.0	373	14.7					16.5	36.4	1019	1.42	4.30	0.45	2xM10	
SBLE 375	375	411	16.2	195	7.7			253	10.0	373	14.7					16.8	37.0	1019	1.42	4.00	0.44	2xM10	
SBLE 395	395	411	16.2	195	7.7	146	5.7	279	11.0							18.0	39.7	1133	1.57	4.70	0.42	2xM10	
SBLE 415	415	411	16.2	195	7.7	146	5.7	279	11.0							18.3	40.3	1133	1.57	4.30	0.40	2xM10	
SBLE 425	425	411	16.2	195	7.7	146	5.7	279	11.0							18.3	40.3	1133	1.53	4.70	0.39	2xM10	
SBLE 435	435	411	16.2	195	7.7	159	6.3	305	12.0							19.8	43.7	1247	1.73	5.20	0.38	2xM10	
SBLE 460	460	411	16.2	195	7.7	159	6.3	305	12.0							19.8	43.7	1247	1.73	4.60	0.36	2xM10	
SBLE 470	470	411	16.2	195	7.7	159	6.3	305	12.0							20.0	44.1	1247	1.69	5.20	0.35	2xM10	

* Height including the IP2X terminal cover

Cell Type	Capacity	Height		Width		Lenght per block				Approx. Weight per cell		Approx. Electrolyte vol. between level marks	Approx. electrolyte per cell		Internal Resistance	Cell connection bolt per pole
						1 cells		2 cells								
	C, Ah	mm	in	mm	in	mm	in	mm	in	kg	lb	cm³	L	kg	mOhm	
SBLE 480	480	411	16.2	195	7.7	171	6.7	329	13.0	21.8	48.1	1353	1.86	5.60	0.34	2xM10
SBLE 500	500	411	16.2	195	7.7	171	6.7	329	13.0	21.8	48.1	1353	1.86	5.60	0.33	2xM10
SBLE 510	510	411	16.2	195	7.7	171	6.7	329	13.0	21.4	47.2	1353	1.86	5.20	0.32	2xM10
SBLE 550	550	411	16.2	195	7.7	183	7.2			23.0	50.7	1458	1.99	5.80	0.30	2xM10
SBLE 570	570	411	16.2	195	7.7	183	7.2			23.5	51.8	1458	1.95	6.00	0.29	2xM10
SBLE 600	600	411	16.2	195	7.7	206	8.1			26.7	58.9	1643	2.28	6.30	0.28	3xM10
SBLE 620	620	411	16.2	195	7.7	206	8.1			26.1	57.5	1643	2.21	6.80	0.27	3xM10
SBLE 650	650	411	16.2	195	7.7	219	8.6			28.0	61.7	1757	2.44	6.60	0.25	3xM10
SBLE 700	700	411	16.2	195	7.7	232	9.1			30.0	66.1	1871	2.59	6.90	0.24	3xM10
SBLE 750	750	411	16.2	195	7.7	244	9.6			31.3	69.0	1977	2.72	7.50	0.22	3xM10
SBLE 762	762	411	16.2	195	7.7	244	9.6			31.4	69.2	1977	2.72	8.10	0.22	3xM10
SBLE 790	790	411	16.2	195	7.7	256	10.1			33.4	73.6	2082	2.85	8.50	0.21	3xM10
SBLE 830	830	411	16.2	195	7.7	268	10.6			34.5	76.1	2187	2.99	8.70	0.20	3xM10
SBLE 855	855	411	16.2	195	7.7	268	10.6			35.0	77.2	2187	2.89	8.90	0.19	3xM10
SBLE 890	890	411	16.2	195	7.7	292	11.5			37.2	82.0	2381	3.30	9.80	0.19	4xM10
SBLE 905	905	411	16.2	195	7.7	292	11.5			37.8	83.3	2381	3.18	9.80	0.18	4xM10
SBLE 925	925	411	16.2	195	7.7	305	12.0			39.6	87.3	2495	3.45	9.20	0.18	4xM10
SBLE 980	980	411	16.2	195	7.7	317	12.5			41.0	90.4	2600	3.58	10.70	0.17	4xM10
SBLE 1000	1000	411	16.2	195	7.7	329	13.0			43.0	94.8	2706	3.72	11.10	0.17	4xM10
SBLE 1020	1020	411	16.2	195	7.7	329	13.0			42.8	94.4	2706	3.72	10.40	0.16	4xM10
SBLE 1070	1070	411	16.2	195	7.7	341	13.4			45.0	99.2	2811	3.85	11.50	0.15	4xM10
SBLE 1100	1100	411	16.2	195	7.7	353	13.9			46.0	101.4	2917	3.98	11.60	0.15	4xM10
SBLE 1125	1125	411	16.2	195	7.7	353	13.9			46.6	102.7	2917	3.87	11.90	0.15	4xM10
SBLE 1150	1150	411	16.2	195	7.7	378	14.9			48.6	107.1	3119	4.31	12.90	0.14	5xM10
SBLE 1200	1200	411	16.2	195	7.7	390	15.4			51.1	112.7	3224	4.45	12.10	0.14	5xM10
SBLE 1250	1250	411	16.2	195	7.7	402	15.8			52.6	116.0	3330	4.58	13.60	0.13	5xM10
SBLE 1300	1300	411	16.2	195	7.7	413	16.3			54.3	119.7	3426	4.69	13.60	0.13	5xM10
SBLE 1350	1350	411	16.2	195	7.7	426	16.8			56.6	124.8	3540	4.84	14.40	0.12	5xM10
SBLE 1400	1400	411	16.2	195	7.7	438	17.2			57.5	126.8	3646	4.98	14.50	0.12	5xM10
SBLE 1450	1450	411	16.2	195	7.7	463	18.2			60.2	132.7	3848	5.31	15.80	0.11	6xM10
SBLE 1500	1500	411	16.2	195	7.7	487	19.2			64.2	141.5	4059	5.58	15.60	0.11	6xM10
SBLE 1560	1560	411	16.2	195	7.7	499	19.6			66.2	145.9	4164	5.71	17.00	0.11	6xM10
SBLE 1600	1600	411	16.2	195	7.7	511	20.1			67.4	148.6	4270	5.84	16.80	0.10	6xM10
SBLE 1660	1660	411	16.2	195	7.7	523	20.6			69.0	152.1	4375	5.97	17.40	0.10	6xM10
SBLE 1690	1690	411	16.2	195	7.7	523	20.6			69.8	153.9	4375	5.97	17.80	0.10	6xM10
SBLE 1710	1710	411	16.2	195	7.7	523	20.6			69.8	153.9	4375	5.78	17.80	0.10	6xM10

* Height including the IP2X terminal cover

Cell Type	Capacity	Height		Width		Lenght per block				Approx. Weight per cell		Approx. Electrolyte vol. between level marks	Approx. electrolyte per cell		Internal	Cell connection bolt per pole
						2 cells		3 cells								
	C, Ah	mm	in	mm	in	mm	in	mm	in	kg	lb	cm³	L	kg	mOhm	
SBM 11	11	190	7.5	123	4.8	64	2.5	94	3.7	0.9	2.0	109	0.09	0.30	5.00	M6
SBM 15	15	190	7.5	123	4.8	74	2.9	109	4.3	1.2	2.6	129	0.10	0.33	3.67	M6
SBM 22	22	270	10.6	123	4.8	64	2.5	94	3.7	1.5	3.3	109	0.13	0.46	2.82	M6
SBM 30	30	270	10.6	123	4.8	74	2.9	109	4.3	1.8	4.0	129	0.15	0.46	2.07	M6
SBM 39	39	270	10.6	123	4.8	98	3.9	145	5.7	2.4	5.3	177	0.28	0.70	1.59	M6
SBM 43	43	350	13.8	195	7.7	69	2.7	100	3.9	3.4	7.5	255	0.32	0.95	1.81	M6
SBM 46	46	270	10.6	123	4.8	122	4.8	181	7.1	2.8	6.2	224	0.29	0.90	1.35	M6
SBM 50	50	350	13.8	195	7.7	69	2.7	100	3.9	3.6	7.9	255	0.32	1.00	1.56	M6
SBM 55	55	270	10.6	123	4.8	122	4.8	181	7.1	3.4	7.5	224	0.36	1.10	1.13	M6
SBM 56	56	411	16.2	195	7.7	69	2.7	100	3.9	4.0	8.8	255	0.38	1.10	1.54	M6
SBM 65	65	350	13.8	195	7.7	79	3.1	115	4.5	4.1	9.0	299	0.37	1.00	1.20	M8
SBM 72	72	350	13.8	195	7.7	79	3.1	115	4.5	4.4	9.7	299	0.36	1.10	1.08	M8
SBM 77	77	270	10.6	123	4.8	191	7.5	284	11.2	4.8	10.6	353	0.46	1.40	0.81	2xM6
SBM 84	84	411	16.2	195	7.7	79	3.1	115	4.5	4.9	10.8	299	0.43	1.20	1.02	M8
SBM 86	86	350	13.8	195	7.7	94	3.7	138	5.4	5.2	11.5	365	0.44	1.30	0.91	M8
SBM 90	90	350	13.8	195	7.7	94	3.7	138	5.4	5.7	12.6	365	0.42	1.30	0.87	M8
SBM 93	93	411	16.2	195	7.7	79	3.1	115	4.5	5.1	11.2	299	0.43	1.30	0.92	M8
SBM 100	100	411	16.2	195	7.7	94	3.7	138	5.4	6.4	14.1	365	0.52	1.60	0.86	M8
SBM 107	107	350	13.8	195	7.7	127	5.0	187	7.4	7.0	15.4	510	0.62	1.90	0.73	M10
SBM 112	112	411	16.2	195	7.7	94	3.7	138	5.4	6.3	13.9	365	0.52	1.40	0.77	M8
SBM 118	118	411	16.2	195	7.7	94	3.7	138	5.4	6.3	13.9	365	0.52	1.60	0.73	M8
SBM 125	125	350	13.8	195	7.7	127	5.0	187	7.4	7.4	16.3	510	0.59	1.80	0.62	M10
SBM 130	130	350	13.8	195	7.7	127	5.0	187	7.4	7.5	16.5	510	0.61	1.80	0.60	M10
SBM 138	138	411	16.2	195	7.7	115	4.5	169	6.7	7.6	16.8	457	0.66	1.70	0.62	M10
SBM 150	150	350	13.8	195	7.7	159	6.3	232	9.1	8.9	19.6	624	0.77	2.30	0.52	M10
SBM 161	161	411	16.2	195	7.7	127	5.0	187	7.4	8.4	18.5	510	0.71	2.10	0.53	M10
SBM 168	168	350	13.8	195	7.7	183	7.2	268	10.6	10.1	22.3	729	0.92	2.70	0.46	M10
SBM 169	169	411	16.2	195	7.7	127	5.0	187	7.4	8.9	19.6	510	0.68	2.10	0.51	M10
SBM 184	184	411	16.2	195	7.7	159	6.3	232	9.1	9.9	21.8	624	0.91	2.40	0.47	M10
SBM 192	192	411	16.2	195	7.7	159	6.3	232	9.1	10.5	23.1	624	0.91	2.70	0.45	M10
SBM 200	200	411	16.2	195	7.7	183	7.2	268	10.6	12.0	26.5	729	1.08	3.20	0.43	M10
SBM 208	208	411	16.2	195	7.7	183	7.2	268	10.6	11.5	25.4	729	1.08	2.90	0.41	M10
SBM 216	216	411	16.2	195	7.7	183	7.2	268	10.6	12.0	26.5	729	1.08	3.20	0.40	M10
SBM 225	225	411	16.2	195	7.7	187	7.4	274	10.8	12.8	28.2	729	1.04	3.20	0.38	2xM8
SBM 231	231	411	16.2	195	7.7	183	7.2	268	10.6	12.0	26.5	729	1.01	2.90	0.37	M10
SBM 241	241	411	16.2	195	7.7	183	7.2	268	10.6	12.5	27.6	729	1.01	3.00	0.36	M10
SBM 250	250	411	16.2	195	7.7	229	9.0	337	13.3	15.5	34.2	914	1.32	3.90	0.34	2xM10
SBM 260	260	411	16.2	195	7.7	229	9.0	337	13.3	15.5	34.2	914	1.32	3.90	0.33	2xM10
SBM 270	270	350	13.8	195	7.7	279	11.0	412	16.2	16.5	36.4	1133	1.33	4.10	0.29	2xM10
SBM 277	277	411	16.2	195	7.7	229	9.0	337	13.3	14.5	32.0	914	1.32	3.50	0.31	2xM10

* Height including the IP2X terminal cover

Cell Type	Capacity	Height		Width		Lenght per block						Approx. Weight per cell		Approx. Electrolyte vol. between level marks	Approx. electrolyte per cell		Internal	Cell connection bolt per pole
						1 cells		2 cells		3 cells								
	C, Ah	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	cm³	L	kg	mOhm	
SBM 286	286	411	16.2	195	7.7			229	9.0	337	13.3	15.6	34.4	914	1.27	3.90	0.30	2xM10
SBM 287	287	350	13.8	195	7.7			305	12.0	451	17.8	16.0	35.3	1247	1.54	4.20	0.27	2xM10
SBM 300	300	411	16.2	195	7.7			241	9.5	355	14.0	15.5	34.2	966	1.37	3.70	0.29	2xM10
SBM 323	323	411	16.2	195	7.7			253	10.0	373	14.7	17.3	38.1	1019	1.43	3.90	0.27	2xM10
SBM 335	335	411	16.2	195	7.7			253	10.0	373	14.7	17.6	38.8	1019	1.36	4.20	0.26	2xM10
SBM 346	346	411	16.2	195	7.7	146	5.7	279	11.0			19.5	43.0	1133	1.62	4.80	0.25	2xM10
SBM 359	359	350	13.8	195	7.7	183	7.2	353	13.9			20.0	44.1	1458	1.73	5.00	0.22	2xM10
SBM 369	369	411	16.2	195	7.7	159	6.3	305	12.0			20.5	45.2	1247	1.81	4.80	0.23	2xM10
SBM 382	382	411	16.2	195	7.7	159	6.3	305	12.0			20.5	45.2	1247	1.72	5.30	0.23	2xM10
SBM 392	392	411	16.2	195	7.7	171	6.7	329	13.0			22.1	48.7	1353	1.99	5.30	0.22	2xM10
SBM 404	404	411	16.2	195	7.7	171	6.7	329	13.0			22.3	49.2	1353	1.92	5.90	0.21	2xM10
SBM 415	415	411	16.2	195	7.7	183	7.2					23.7	52.2	1458	2.16	5.80	0.21	2xM10
SBM 431	431	350	13.8	195	7.7	232	9.1					25.5	56.2	1871	2.31	6.40	0.18	3xM10
SBM 438	438	411	16.2	195	7.7	183	7.2					23.5	51.8	1458	2.09	5.80	0.20	2xM10
SBM 450	450	411	16.2	195	7.7	183	7.2					24.3	53.6	1458	1.98	6.10	0.19	2xM10
SBM 461	461	411	16.2	195	7.7	183	7.2					24.0	52.9	1458	2.03	5.70	0.19	2xM10
SBM 482	482	411	16.2	195	7.7	183	7.2					24.7	54.5	1458	2.03	5.90	0.18	2xM10
SBM 505	505	411	16.2	195	7.7	213	8.4					27.5	60.6	1704	2.47	6.50	0.17	3xM10
SBM 526	526	411	16.2	195	7.7	213	8.4					27.6	60.8	1704	2.47	7.30	0.16	3xM10
SBM 540	540	350	13.8	195	7.7	268	10.6					31.5	69.4	2187	2.59	7.50	0.14	3xM10
SBM 555	555	411	16.2	195	7.7	232	9.1					30.0	66.1	1871	2.72	7.20	0.15	3xM10
SBM 575	575	411	16.2	195	7.7	305	12.0					34.0	75.0	2495	2.72	8.60	0.14	4xM10
SBM 576	576	411	16.2	195	7.7	232	9.1					30.3	66.8	1871	2.72	8.00	0.15	3xM10
SBM 600	600	411	16.2	195	7.7	244	9.6					32.1	70.8	1977	2.89	8.50	0.14	3xM10
SBM 625	625	411	16.2	195	7.7	268	10.6					35.5	78.3	2187	3.24	8.70	0.14	3xM10
SBM 649	649	411	16.2	195	7.7	268	10.6					35.4	78.0	2187	3.24	9.50	0.13	3xM10
SBM 674	674	411	16.2	195	7.7	268	10.6					35.9	79.1	2187	3.18	9.30	0.13	3xM10
SBM 690	690	411	16.2	195	7.7	268	10.6					37.0	81.6	2187	3.04	8.60	0.12	3xM10
SBM 703	703	411	16.2	195	7.7	268	10.6					36.5	80.5	2187	2.96	9.10	0.12	3xM10
SBM 720	720	411	16.2	195	7.7	353	13.9					40.5	89.3	2917	3.04	10.00	0.11	4xM10
SBM 723	723	411	16.2	195	7.7	268	10.6					37.0	81.6	2187	3.04	8.90	0.12	3xM10
SBM 740	740	411	16.2	195	7.7	305	12.0					40.0	88.2	2495	3.63	9.60	0.12	4xM10
SBM 768	768	411	16.2	195	7.7	305	12.0					40.2	88.6	2495	3.63	10.60	0.11	4xM10
SBM 792	792	411	16.2	195	7.7	317	12.5					42.0	92.6	2600	3.80	11.20	0.11	4xM10
SBM 808	808	411	16.2	195	7.7	329	13.0					44.5	98.1	2706	3.80	11.70	0.11	4xM10
SBM 830	830	411	16.2	195	7.7	353	13.9					47.0	103.6	2917	4.32	11.70	0.10	4xM10
SBM 849	849	411	16.2	195	7.7	341	13.4					46.0	101.4	2811	4.03	12.40	0.10	4xM10
SBM 866	866	411	16.2	195	7.7	353	13.9					47.6	104.9	2917	4.32	12.70	0.10	4xM10
SBM 890	890	411	16.2	195	7.7	353	13.9					47.6	104.9	2917	4.26	12.50	0.10	4xM10
SBM 900	900	411	16.2	195	7.7	438	17.2					50.5	111.3	3646	4.06	12.50	0.09	5xM10

* Height including the IP2X terminal cover

Cell Type	Capa- city	Height		Width		Lenght per block		Approx. Weight per cell		Approx. Electrolyte vol. between level marks	Approx. electrolyte per cell		Internal	Cell connection bolt per pole
						1 cells								
	C, Ah	mm	in	mm	in	mm	in	kg	lb		cm³	L	kg	
SBM 920	920	411	16.2	195	7.7	353	13.9	49.5	109.1	2917	4.06	11.80	0.09	4xM10
SBM 940	940	411	16.2	195	7.7	353	13.9	48.7	107.4	2917	4.12	12.00	0.09	4xM10
SBM 965	965	411	16.2	195	7.7	373	14.7	50.5	111.3	3057	4.28	11.40	0.09	6xM10
SBM 1009	1009	411	16.2	195	7.7	402	15.8	53.7	118.4	3330	4.88	14.30	0.09	5xM10
SBM 1040	1040	411	16.2	195	7.7	438	17.2	57.5	126.8	3646	5.40	14.60	0.08	5xM10
SBM 1082	1082	411	16.2	195	7.7	438	17.2	58.8	129.6	3646	5.40	16.70	0.08	5xM10
SBM 1107	1107	411	16.2	195	7.7	438	17.2	59.3	130.7	3646	5.34	15.60	0.08	5xM10
SBM 1150	1150	411	16.2	195	7.7	438	17.2	60.0	132.3	3646	5.07	15.70	0.07	5xM10
SBM 1181	1181	411	16.2	195	7.7	438	17.2	60.9	134.3	3646	5.14	15.00	0.07	5xM10
SBM 1220	1220	411	16.2	195	7.7	511	20.1	67.5	148.8	4270	6.31	16.90	0.07	6xM10
SBM 1250	1250	411	16.2	195	7.7	499	19.6	68.5	151.0	4164	5.85	18.00	0.07	6xM10
SBM 1274	1274	411	16.2	195	7.7	511	20.1	69.0	152.1	4270	6.31	18.50	0.07	6xM10
SBM 1324	1324	411	16.2	195	7.7	523	20.6	71.0	156.5	4375	6.42	18.80	0.06	6xM10
SBM 1390	1390	411	16.2	195	7.7	523	20.6	72.0	158.7	4375	6.09	17.40	0.06	6xM10
SBM 1445	1445	411	16.2	195	7.7	523	20.6	73.7	162.5	4375	6.09	17.70	0.06	6xM10
SBM 1465	1465	411	16.2	195	7.7	523	20.6	73.7	162.5	4375	6.09	17.70	0.06	6xM10

* Height including the IP2X terminal cover

Cell Type	Capacity	Height	Width	Lenght per block						Approx. Weight per cell		Approx. Electrolyte vol. between level marks	Approx. electrolyte per cell		Internal	Cell connection bolt per pole		
				1 cells		2 cells		3 cells										
	C, Ah	mm	in	mm	in	mm	in	mm	in	kg	lb	cm³	L	kg	mOhm			
SBH 8.3	8.3	270	10.6	123	4.8			53	2.1	77	3.0	1.1	2.4	87	0.11	0.36	3.61	M6
SBH 12	12	270	10.6	123	4.8			64	2.5	94	3.7	1.5	3.3	109	0.13	0.44	2.50	M6
SBH 16	16	270	10.6	123	4.8			74	2.9	109	4.3	1.8	4.0	129	0.15	0.48	1.88	M6
SBH 19	19	350	13.8	195	7.7			57	2.2	82	3.2	2.8	6.2	202	0.28	0.77	2.05	M6
SBH 25	25	411	16.2	195	7.7			57	2.2	82	3.2	3.2	7.1	202	0.36	0.92	1.68	M6
SBH 29	29	350	13.8	195	7.7			69	2.7	100	3.9	3.7	8.2	255	0.34	0.95	1.34	M6
SBH 34	34	270	10.6	123	4.8			122	4.8	181	7.1	3.6	7.9	224	0.36	1.10	0.88	M6
SBH 38	38	411	16.2	195	7.7			69	2.7	100	3.9	4.0	8.8	255	0.40	1.20	1.11	M6
SBH 39	39	350	13.8	195	7.7			79	3.1	115	4.5	4.5	9.9	299	0.38	1.10	1.00	M8
SBH 49	49	350	13.8	195	7.7			94	3.7	138	5.4	5.4	11.9	365	0.47	1.30	0.80	M8
SBH 51	51	411	16.2	195	7.7			79	3.1	115	4.5	4.9	10.8	299	0.45	1.30	0.82	M8
SBH 59	59	350	13.8	195	7.7			103	4.1	151	5.9	6.2	13.7	404	0.55	1.50	0.66	M10
SBH 64	64	411	16.2	195	7.7			94	3.7	138	5.4	6.3	13.9	365	0.55	1.60	0.66	M8
SBH 69	69	350	13.8	195	7.7			127	5.0	187	7.4	7.3	16.1	510	0.66	1.80	0.57	M10
SBH 77	77	411	16.2	195	7.7			103	4.1	151	5.9	6.7	14.8	404	0.55	1.60	0.55	M10
SBH 79	79	350	13.8	195	7.7			127	5.0	187	7.4	7.7	17.0	510	0.62	1.80	0.49	M10
SBH 88	88	350	13.8	195	7.7			159	6.3	232	9.1	9.1	20.1	624	0.80	2.20	0.44	M10
SBH 89	89	411	16.2	195	7.7			115	4.5	169	6.7	7.6	16.8	457	0.67	1.90	0.47	M10
SBH 98	98	350	13.8	195	7.7			159	6.3	232	9.1	9.4	20.7	624	0.76	2.20	0.40	M10
SBH 102	102	411	16.2	195	7.7			127	5.0	187	7.4	8.4	18.5	510	0.74	2.10	0.41	M10
SBH 110	110	350	13.8	195	7.7			183	7.2	268	10.6	10.6	23.4	729	0.92	2.90	0.35	M10
SBH 115	115	411	16.2	195	7.7			159	6.3	232	9.1	9.9	21.8	624	0.95	2.80	0.37	M10
SBH 118	118	350	13.8	195	7.7			183	7.2	268	10.6	11.0	24.3	729	0.88	2.70	0.33	M10
SBH 128	128	411	16.2	195	7.7			159	6.3	232	9.1	10.5	23.1	624	0.90	2.60	0.33	M10
SBH 137	137	350	13.8	195	7.7			253	10.0	373	14.7	14.5	32.0	1019	1.32	3.70	0.28	2xM10
SBH 141	141	411	16.2	195	7.7			183	7.2	268	10.6	11.5	25.4	729	1.09	3.30	0.30	M10
SBH 149	149	350	13.8	195	7.7			253	10.0	373	14.7	14.9	32.8	1019	1.33	4.10	0.26	2xM10
SBH 153	153	411	16.2	195	7.7			183	7.2	268	10.6	12.0	26.5	729	1.04	3.20	0.27	M10
SBH 157	157	350	13.8	195	7.7			253	10.0	373	14.7	15.3	33.7	1019	1.24	3.70	0.25	2xM10
SBH 170	170	350	13.8	195	7.7			279	11.0	412	16.2	16.8	37.0	1133	1.49	4.60	0.23	2xM10
SBH 177	177	350	13.8	195	7.7			305	12.0	451	17.8	17.6	38.8	1247	1.60	4.50	0.22	2xM10
SBH 179	179	411	16.2	195	7.7			229	9.0	337	13.3	14.5	32.0	914	1.33	3.80	0.23	2xM10
SBH 190	190	411	16.2	195	7.7			241	9.5	355	14.0	16.5	36.4	966	1.53	4.70	0.22	2xM10
SBH 196	196	350	13.8	195	7.7	159	6.3					18.3	40.3	1247	1.52	4.40	0.20	2xM10
SBH 204	204	411	16.2	195	7.7	133	5.2					18.0	39.7	1019	1.47	4.60	0.21	2xM10
SBH 218	218	411	16.2	195	7.7	146	5.7					19.2	42.3	1133	1.75	5.40	0.19	2xM10
SBH 230	230	411	16.2	195	7.7	159	6.3					20.0	44.1	1247	1.89	5.60	0.18	2xM10
SBH 236	236	350	13.8	195	7.7	183	7.2					21.4	47.2	1458	1.76	5.70	0.17	2xM10
SBH 244	244	411	16.2	195	7.7	159	6.3					20.5	45.2	1247	1.88	5.80	0.17	2xM10
SBH 256	256	411	16.2	195	7.7	159	6.3					21.7	47.8	1247	1.79	5.20	0.16	2xM10
SBH 265	265	350	13.8	195	7.7	232	9.1					26.1	57.5	1871	2.40	6.80	0.15	3xM10

* Height including the IP2X terminal cover

Cell Type	Capa- city	Height		Width		Lenght per block		Approx. Weight per cell		Approx. Electrolyte vol. between level marks	Approx. electrolyte per cell		Internal	Cell connection bolt per pole
						1 cells								
	C, Ah	mm	in	mm	in	mm	in	kg	lb		cm³	L	kg	
SBH 270	270	411	16.2	195	7.7	171	6.7	23.4	51.6	1353	1.98	6.10	0.16	2xM10
SBH 281	281	411	16.2	195	7.7	183	7.2	24.8	54.7	1458	2.17	6.60	0.15	2xM10
SBH 293	293	411	16.2	195	7.7	183	7.2	25.2	55.6	1458	2.14	6.60	0.14	2xM10
SBH 294	294	350	13.8	195	7.7	232	9.1	27.2	60.0	1871	2.28	6.50	0.13	3xM10
SBH 307	307	411	16.2	195	7.7	183	7.2	25.6	56.4	1458	2.07	6.50	0.14	2xM10
SBH 323	323	411	16.2	195	7.7	206	8.1	28.1	61.9	1643	2.42	7.50	0.13	3xM10
SBH 334	334	411	16.2	195	7.7	219	8.6	29.4	64.8	1757	2.66	8.20	0.13	3xM10
SBH 345	345	411	16.2	195	7.7	232	9.1	31.3	69.0	1871	2.84	8.40	0.12	3xM10
SBH 353	353	350	13.8	195	7.7	268	10.6	31.8	70.1	2187	2.63	8.60	0.11	3xM10
SBH 363	363	411	16.2	195	7.7	232	9.1	31.5	69.4	1871	2.79	8.60	0.12	3xM10
SBH 375	375	411	16.2	195	7.7	232	9.1	31.9	70.3	1871	2.76	8.50	0.11	3xM10
SBH 383	383	411	16.2	195	7.7	232	9.1	32.2	71.0	1871	2.69	7.80	0.11	3xM10
SBH 393	393	350	13.8	195	7.7	305	12.0	36.1	79.6	2495	3.03	8.70	0.10	4xM10
SBH 400	400	411	16.2	195	7.7	244	9.6	33.9	74.7	1977	2.88	8.90	0.11	3xM10
SBH 410	410	411	16.2	195	7.7	256	10.1	35.1	77.4	2082	3.09	9.50	0.10	3xM10
SBH 422	422	411	16.2	195	7.7	268	10.6	37.0	81.6	2187	3.26	9.80	0.10	3xM10
SBH 440	440	411	16.2	195	7.7	268	10.6	37.4	82.5	2187	3.21	9.90	0.10	3xM10
SBH 450	450	411	16.2	195	7.7	268	10.6	37.9	83.6	2187	3.18	9.80	0.09	3xM10
SBH 460	460	411	16.2	195	7.7	268	10.6	38.3	84.4	2187	3.11	9.70	0.09	3xM10
SBH 471	471	350	13.8	195	7.7	353	13.9	42.2	93.0	2917	3.51	11.40	0.08	4xM10
SBH 473	473	411	16.2	195	7.7	305	12.0	40.6	89.5	2495	3.83	11.80	0.09	4xM10
SBH 484	484	411	16.2	195	7.7	305	12.0	41.4	91.3	2495	3.77	11.60	0.09	4xM10
SBH 491	491	350	13.8	195	7.7	378	14.9	45.1	99.4	3119	3.79	10.90	0.08	5xM10
SBH 510	510	411	16.2	195	7.7	305	12.0	42.7	94.1	2495	3.58	10.40	0.08	4xM10
SBH 523	523	411	16.2	195	7.7	305	12.0	42.7	94.1	2495	3.58	10.40	0.08	4xM10
SBH 537	537	411	16.2	195	7.7	329	13.0	44.4	97.9	2706	4.00	12.30	0.08	4xM10
SBH 560	560	411	16.2	195	7.7	353	13.9	49.2	108.5	2917	4.34	13.10	0.08	4xM10
SBH 575	575	411	16.2	195	7.7	353	13.9	49.7	109.6	2917	4.32	13.30	0.07	4xM10
SBH 589	589	411	16.2	195	7.7	353	13.9	50.2	110.7	2917	4.29	13.20	0.07	4xM10
SBH 590	590	350	13.8	195	7.7	438	17.2	52.6	116.0	3646	4.39	14.30	0.07	5xM10
SBH 600	600	411	16.2	195	7.7	353	13.9	50.6	111.6	2917	4.19	12.90	0.07	4xM10
SBH 615	615	411	16.2	195	7.7	353	13.9	51.0	112.4	2917	4.15	13.00	0.07	4xM10
SBH 630	630	411	16.2	195	7.7	378	14.9	52.5	115.7	3119	4.55	14.00	0.07	5xM10
SBH 640	640	411	16.2	195	7.7	378	14.9	52.5	115.7	3119	4.48	13.00	0.07	5xM10
SBH 655	655	411	16.2	195	7.7	390	15.4	55.0	121.3	3224	4.67	14.40	0.06	5xM10
SBH 670	670	411	16.2	195	7.7	402	15.8	56.7	125.0	3330	4.86	15.00	0.06	5xM10
SBH 680	680	411	16.2	195	7.7	414	16.3	56.7	125.0	3435	5.07	15.60	0.06	5xM10
SBH 690	690	411	16.2	195	7.7	426	16.8	57.6	127.0	3540	5.30	16.30	0.06	5xM10
SBH 705	705	411	16.2	195	7.7	438	17.2	60.5	133.4	3646	5.43	16.40	0.06	5xM10
SBH 725	725	411	16.2	195	7.7	438	17.2	62.5	137.8	3646	5.36	16.50	0.06	5xM10

* Height including the IP2X terminal cover

Cell Type	Capacity		Height		Width		Lenght per block		Approx. Weight per cell		Approx. Electrolyte vol. between level marks	Approx. electrolyte per cell		Internal	Cell connection bolt per pole
							1 cells								
	C, Ah	mm	in	mm	in	mm	in	kg	lb	cm³		L	kg		
SBH 753	753	411	16.2	195	7.7	438	17.2	63.5	140.0	3646	5.33	16.40	0.06	5xM10	
SBH 765	765	411	16.2	195	7.7	438	17.2	60.0	132.3	3646	5.18	16.20	0.05	5xM10	
SBH 785	785	411	16.2	195	7.7	463	18.2	64.9	143.1	3848	5.59	17.20	0.05	6xM10	
SBH 800	800	411	16.2	195	7.7	463	18.2	65.9	145.3	3848	5.52	17.00	0.05	6xM10	
SBH 825	825	411	16.2	195	7.7	499	19.6	68.5	151.0	4164	6.08	18.70	0.05	6xM10	
SBH 840	840	411	16.2	195	7.7	511	20.1	69.5	153.2	4270	6.27	19.30	0.05	6xM10	
SBH 865	865	411	16.2	195	7.7	498	19.6	72.6	160.1	4155	5.92	18.10	0.05	6xM10	
SBH 890	890	411	16.2	195	7.7	523	20.6	74.7	164.7	4375	6.34	19.50	0.05	6xM10	
SBH 910	910	411	16.2	195	7.7	523	20.6	75.8	167.1	4375	6.27	19.30	0.05	6xM10	
SBH 920	920	411	16.2	195	7.7	523	20.6	76.5	168.7	4375	6.22	19.20	0.05	6xM10	

* Height including the IP2X terminal cover

We energize
the world.
On land,
at sea,
in the air
and in space.

**Saft has launched a sustainability
initiative, Program Net Zero,
consisting of 5 pillars:**

1. Reducing the environmental footprint of our activities and that of our battery solutions.
2. Assisting Saft's customers in lowering their environmental footprint.
3. Using natural resources sustainably and implementing circular economy principles throughout our operations.
4. Prioritizing suppliers with strong environmental, social, and human rights records.
5. Working to always ensure compliance with environmental regulations and best practices in all locations.

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Saft is a company of TotalEnergies
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UP RANGE

Oil & Gas, Utilities, Rails,
Communications and other
industrial use.

AVAILABILITY

- ✓ Zero self-discharge when stored, at any state of charge
- ✓ Zero ageing in floating or storage condition
- ✓ Integrated system (BMS) for monitoring, diagnostics and data logging
- ✓ Module level redundancy

OPERATIONAL

- ✓ Up to 80% reduction in footprint and 3 times in weight than conventional batteries
- ✓ Status LED on front panel
- ✓ Low total cost of ownership (TCO)
- ✓ Scalable modules in parallel
- ✓ Expandable without limitation on battery age
- ✓ Parallel operation with other batteries
- ✓ Hot swappable
- ✓ Boost charging not required
- ✓ No memory effect
- ✓ Compatible with most industrial AC and DC UPS

HORIEN MANUFACTURING

- ✓ More than 1 GWh deployed in 50 countries
- ✓ Made in Switzerland
- ✓ ISO 9001 – Quality Management System
- ✓ ISO 14001 – Environmental Management System

ENVIRONMENT

- ✓ No active cooling required.
Constant performance and >20 years design life at:
-20°C to +60°C / -4°F to +140°F continuous operation
-40°C to +75°C / -40°F to +167°F peak
- ✓ Suitable for outdoor installation and marine environment
- ✓ Module ingress protection of IP55 and up to IP65
- ✓ Free of toxic material and 96% recyclable

SAFETY

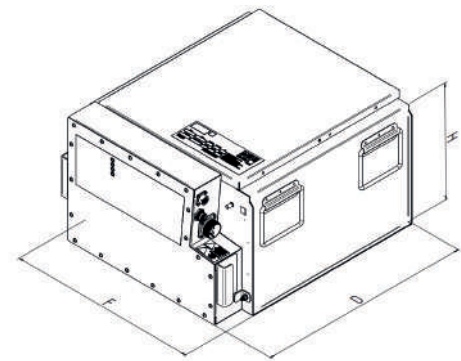
- ✓ No gassing or emission
- ✓ No risk of explosion even in presence of external fire
- ✓ Safest among existing batteries in all conditions: transport, storage and operation
- ✓ Embedded DC protection for load disconnection and short circuit protection
- ✓ Ready for remote monitoring
- ✓ Stainless steel case

APPLICABLE STANDARDS

- ✓ EN 61000-6-2 / EN 61000-6-4
- ✓ CE
- ✓ UL9540A (Safety)
- ✓ IEC62984 / IEC60529 / IEC61508
- ✓ Comply with DNV and ABS rules for offshore installations
- ✓ UL1973

GENERAL CHARACTERISTICS

OPERATING TEMPERATURE RANGE	-20°C / +60°C -4°F / +140°F continuous -40°C / +75°C -40°F / +167°F peak*
STORAGE DURATION	Indefinite (-40° / +60°C)
DESIGN LIFE	>20 years
INGRESS PROTECTION	IP55 (IP65 as optional)
MAX CHARGING CURRENT	Self limited up to 0.2C
CYCLES	> 4500 Cycles at 80% DoD



DIMENSIONS AND WEIGHT

MODEL	FRONT (mm / in.)	DEPTH (mm / in.)	HEIGHT (mm / in.)	WEIGHT (kg / lb)
24UP120	498 / 12.6	341 / 13.4	322 / 12.7	45 / 99
24UP160	498 / 12.6	374 / 14.7	322 / 12.7	55 / 121
24UP200	498 / 12.6	374 / 14.7	322 / 12.7	61 / 134
48TL200	498 / 12.6	558 / 21.9	320 / 12.6	104 / 229
110UP80	495 / 19.4	520 / 20.4	322 / 12.7	94 / 207
125UP80	495 / 19.4	557 / 21.90	322 / 12.7	104 / 229
130UP80	495 / 19.4	593 / 23.3	322 / 12.7	108 / 238
220UP40	495 / 19.4	520 / 20.4	322 / 12.7	94 / 207
250UP40	495 / 19.4	557 / 21.9	322 / 12.7	103 / 227

SPECIFIC CHARACTERISTICS PER MODEL

MODEL	NOMINAL VOLTAGE (V)	CHARGE VOLTAGE RANGE (V)	NOMINAL CAPACITY at 4 hour late		MINIMUM VOLTAGE (V)	MAX CONTINUOS DISCHARGE CURRENT (A)	MAX CHARGING CURRENT (A)	INTERFACE
			(Ah)	(Wh)				
24UP120	24	27-30	120	2880	18	90	24	RS485 / USB
24UP160	24	27-30	160	3840	18	120	32	RS485 / USB
24UP200	24	27-30	200	4800	18	150	40	RS485 / USB
48TL200	48	55-59	200	9600	40	150	40	RS485 / USB
110UP80	110	121-160	80	8450	79	120	16	RS485 / Canbus / USB
125UP80	125	135-160	80	9600	90	120	16	RS485 / Canbus / USB
130UP80	130	141-160	80	9980	94	120	16	RS485 / Canbus / USB
220UP40	220	242-300	40	8640	162	60	8	RS485 / Canbus / USB
250UP40	250	270-300	40	9600	180	60	8	RS485 / Canbus / USB

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TL RANGE

**Telecom, Energy Storage,
Residential and other industrial
applications.**

AVAILABILITY

- ✔ Zero self-discharge when stored, at any state of charge
- ✔ Zero ageing in floating or storage condition
- ✔ Integrated system (BMS) for monitoring, diagnostics and data logging
- ✔ Module level redundancy
- ✔ Effective theft deterrent

ENVIRONMENT

- ✔ No active cooling required.
Constant performance and >20 years design life at:
-20°C to +60°C / -4°F to +140°F continuous operation
-40°C to +75°C / -40°F to +167°F peak
- ✔ Suitable for outdoor installation and marine environment
- ✔ Module ingress protection of IP55
- ✔ Free of toxic material and 96% recyclable

OPERATIONAL

- ✔ Up to 80% reduction in footprint and 3 times in weight than conventional batteries
- ✔ Status LED on front panel
- ✔ Low total cost of ownership (TCO)
- ✔ Scalable modules in parallel
- ✔ Expandable without limitation on battery age
- ✔ Parallel operation with other batteries
- ✔ Hot swappable
- ✔ Embedded DC breaker for low voltage disconnect (LVD) and short circuit protection
- ✔ Boost charging not required
- ✔ No memory effect
- ✔ Compatible with any standard DC power supply and rectifiers

SAFETY

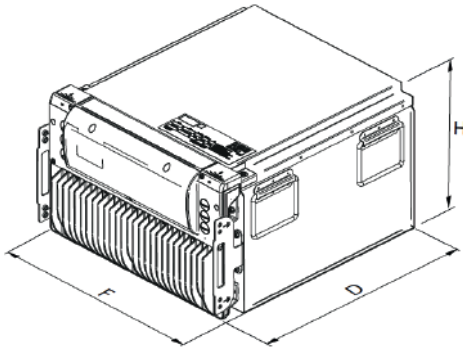
- ✔ No gassing or emission
- ✔ No risk of explosion even in presence of external fire
- ✔ Safest among existing batteries in all conditions: transport, storage and operation
- ✔ Embedded DC protection for load disconnection and short circuit protection
- ✔ Ready for remote monitoring
- ✔ Stainless steel case

DIMENSIONS AND WEIGHT

MODEL	FRONT	DEPTH	HEIGHT	WEIGHT
48TL120	498 mm / 19.6 in.	558 mm / 21.9 in.	320 mm / 12.6 in.	77 kg / 170 lb
48TL160	498 mm / 19.6 in.	558 mm / 21.9 in.	320 mm / 12.6 in.	91 kg / 201 lb
48TL200	498 mm / 19.6 in.	558 mm / 21.9 in.	320 mm / 12.6 in.	104 kg / 229 lb

GENERAL CHARACTERISTICS

OPERATING TEMPERATURE RANGE	-20°C / +60°C -4°F / +140°F continuous -40°C / +75°C -40°F / +167°F peak*
STORAGE DURATION	Indefinite (-40°/+60°C -40°F / +140°F)
DESIGN LIFE	>20 years
INGRESS PROTECTION	IP55
MAX CHARGING CURRENT	Self limited up to 0.2C
CYCLES	>4500 Cycles at 80% DoD



*Tested up to 16 hours continuously

SPECIFIC CHARACTERISTICS PER MODEL

MODEL	NOMINAL VOLTAGE (V)	CHARGE VOLTAGE RANGE (V)	NOMINAL CAPACITY at 4 hour late		MINIMUM VOLTAGE (V)	MAX DISCHARGE CURRENT* (A)	MAX CHARGING CURRENT (A)	INTERFACE
			(Ah)	(Wh)				
48TL120	48	55-59	120	5700	40	90	24	RS485 / USB
48TL160	48	55-59	160	7700	40	120	32	RS485 / USB
48TL200	48	55-59	200	9600	40	150	40	RS485 / USB

*Higher peak can be tolerated for limited period of time

HORIEN MANUFACTURING

- More than 1 GWh deployed in 50 countries
- Made in Switzerland
- ISO 9001 – Quality Management System
- ISO 14001 – Environmental Management System

APPLICABLE STANDARDS

- EN IEC 61000-6-2 / EN IEC 61000-6-4
- CE
- UL9540A (Safety)
- UL1973
- IEC62984 / IEC60529
- NEBS DA1976 Level 1 and Level 3
- EN IEC 62485-1 / EN IEC 62485-2
- Comply with DNV and ABS rules for offshore installations

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ST523

Community, industrial and
Large-Scale energy storage
installations.

AVAILABILITY

- ✔ Zero self-discharge when stored, at any state of charge
- ✔ Zero ageing in floating or storage condition
- ✔ Integrated system (BMS) for monitoring, diagnostics and data logging
- ✔ Module level redundancy

ENVIRONMENT

- ✔ No active cooling required.
Constant performance and >20 years design life at:
-20°C to +60°C / -4°F to +140°F continuous operation
- ✔ Suitable for indoor and outdoor installation (IP43)
- ✔ Free of toxic material and 96% recyclable

OPERATIONAL

- ✔ 100% maintenance free in operation
- ✔ Allows remote monitoring
- ✔ Up to 80% reduction in footprint and 3 times in weight than conventional batteries
- ✔ User interface on Web Server
- ✔ No memory effect
- ✔ Low total cost of ownership (TCO)
- ✔ Scalable modules in parallel
- ✔ Expandable without limitation on battery age
- ✔ Easy integration with Power Conversion Systems

SAFETY

- ✔ No gassing or emission
- ✔ No risk of explosion even in presence of external fire
- ✔ Safest among existing batteries in all conditions: transport, storage and operation
- ✔ Embedded DC protection for load disconnection and short circuit protection
- ✔ Redundant safety features (chemistry, cell, battery module and BMS)

GENERAL CHARACTERISTICS

NOMINAL VOLTAGE	620 VDC
OPERATING VOLTAGE RANGE	450 to 670 VDC
NOMINAL CAPACITY	38 Ah (100% DOD)
RATED ENERGY	22.5 kWh (100% DOD at C/10)
CYCLES	>4500 Cycles at 80% DoD
ROUND TRIP EFFICIENCY	90% Round Trip Efficiency (at 6.25 kW Discharge/Charge power; 80% DOD)

BMS CHARACTERISTICS

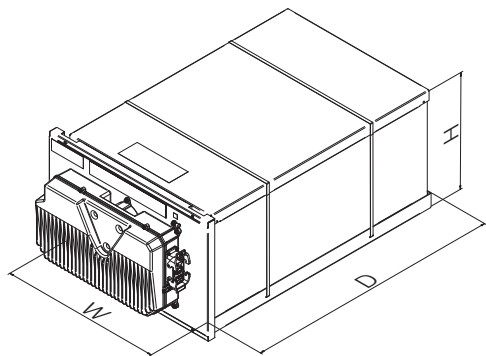
EXTERNAL POWER SUPPLY	24 VAC and 600 VDC
MONITOR/CONTROL	Internal contactors for automatic safe disconnection, both on Positive and Negative poles External contact available for remote battery disconnection
CHARGE CONTROL	Embedded electronic charge regulator (DC/DC converter)
ST523 GATEWAY	The battery system controller (Gateway) allows to manage one or more ST523 batteries connected in parallel. The battery system controller. The Gateway communicates through Modbus TCP/IP over Ethernet.

DIMENSIONS AND WEIGHT

WIDTH (W)	DEPTH (D)	HEIGHT (H)	WEIGHT
624 mm / 24.6 in	1023 mm / 40.2 in	406 mm / 16 in	256 kg / 564 lb

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APPLICABLE STANDARDS

- EN IEC 62485-1:2018
- EN IEC 62485-2:2018
- BS EN IEC 61000-6-2:2019
- CE marking, in conformity with:
 - EU Directive 2001/95/EC General Product Safety
 - EU Directive 2014/30/EU Electromagnetic Compatibility
 - EU Directive 2014/35/EU Low Voltage Directive
- Comply with DNV rules for offshore installations
- Comply with RINA rules for ships classification (marine)

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