

Complete power solutions

Autonomy for fighters in the field



Saft battery solutions

Leading the way

Saft is a global, multi-technology battery specialist. We lead the world in providing the complete power systems required for today's sophisticated electronic battlefield equipment.

In the field, demands for more power, longer duration, increased strength and total reliability must not compromise soldier manoeuvrability and safety.

Saft is a single-source provider of lightweight, compact, robust and proven solutions. Our response is to co-ordinate power storage, electrical systems and charging into autonomous units with easy operation.

Our expertise lies in advancing precisely designed, cutting-edge technological solutions as part of our customers' strategic product development.



Worldwide capability

Saft has modern and highly efficient defence battery manufacturing sites in Poitiers and Nersac (France), South Shields (UK), Büdingen (Germany), Valdese and Cockeysville (USA). This capability is part of its international infrastructure of sales and support expertise.

Rapid response

Saft's global footprint enables the fastest response to any location as military needs dictate.



Multiple ranges, many needs

Saft markets an exceptionally wide variety of cutting-edge and mature battery technologies, including Li-SOCl₂, Li-SO₂, Li-MnO₂, Li-ion, Ni-Cd, and Ni-MH. These can be configured into optimised systems for many defence applications.

Reliable performance

- High energy density: the most energy for size and volume
- Long operating life
- High rate capability
- Lightweight: for improved agility
- No voltage delay: instant power, even following long storage
- Versatility of missions: same batteries for low and high temperature
- Long storage life: simple logistics
- Safety: no toxic compounds or heavy metals – hermetically sealed
- Reliability: security and survival

Durable, efficient, light

Powerful performance, preferred by soldiers

Military battery needs are varied and demanding. But total reliability is key –

- during prolonged exposure to arctic and desert conditions
- during missions and training exercises
- during transport and in operation

Saft produces the best battery systems for all military needs – low weight, robust, transportable.

Saft's optimised systems achieve peak performance and enable long, reliable application life. Customised power systems including design and manufacture of Primary and Rechargeable batteries, and charging equipment, are built to precise requirements. Total systems are supplied from a single source.



Applications and references

Autonomous applications depend on guaranteed reliability and durability. Major defence OEMs and prestigious military customers such as the French and German Armies, UK MoD, Australian Defence Forces, and the United States Armed Forces already choose the proven performance of Saft systems for:

- portable radio communications
- night vision equipment
- target acquisition and firing systems
- satellite positioning system
- computer encryption
- mine detection
- chemical agent monitoring
- memory back-up
- etc...

The future: Saft has arrived already

The quality of Saft's research and development is key to its technological leadership and commercial success.

The company is deeply involved in the Soldier Modernisation Program development through its participation in high profile initiatives such as

- Future Combat Systems, USA
- Felin, France
- ComFut, Spain.



Saft: a complete capability, including expertise in batteries...

Saft batteries for military markets are safe, low weight, high performance solutions that guarantee a reliable power source for the critical demands of modern applications. Look at our extensive range of technologies: a strong platform of high performance, simple portability and long lifetime factors. Saft can meet precisely the needs of your application.

Lithium systems (Li-SOCl₂, Li-SO₂, Li-MnO₂, Li-ion)

- highly efficient, compact and transportable autonomous power. Manufactured in France, UK, Germany and the USA, Saft's maintenance-free Lithium products operate even in extreme temperatures and provide high energy density at a low life cycle cost.

Nickel systems (Ni-Cd, Ni-MH)

- robust, mature, and proven to provide unfailing service. A vast range of possible configurations enables electrical and operational criteria to be met precisely, with minimal maintenance and maximum reliability. Long life, totally reliable solutions.

	Li-SOCl ₂ Bobbin	Li-SOCl ₂ Spiral	Li-SO ₂	Li-MnO ₂	Li-ion	Ni-Cd	Ni-MH
Energy density	(Wh/L)	1220	860	490	560	380	150
		(Wh/Kg)	740	470	310	260	180
Voltage	(V)	3.6	3.6	3	3	3.75	1.2
Power capability		low	good	excellent	excellent	good	excellent
Performance	Low temp	good	good	excellent	good	good	moderate
	High temp	good	good	moderate	good	moderate	good
Passivation		moderate	moderate	moderate	low	n/a	n/a
Self discharge rate		very low	low	low	low	moderate	moderate
Operating temp. range		-40/+85°C	-40/+85°C	-40/+70°C	-30/+70°C	-40/+60°C	-40/+50°C
Fast moving conflict		•	•	•	•		
Training/peace-keeping						•	•



Strength in action

Winning solutions for military equipment

...and total, integrated systems

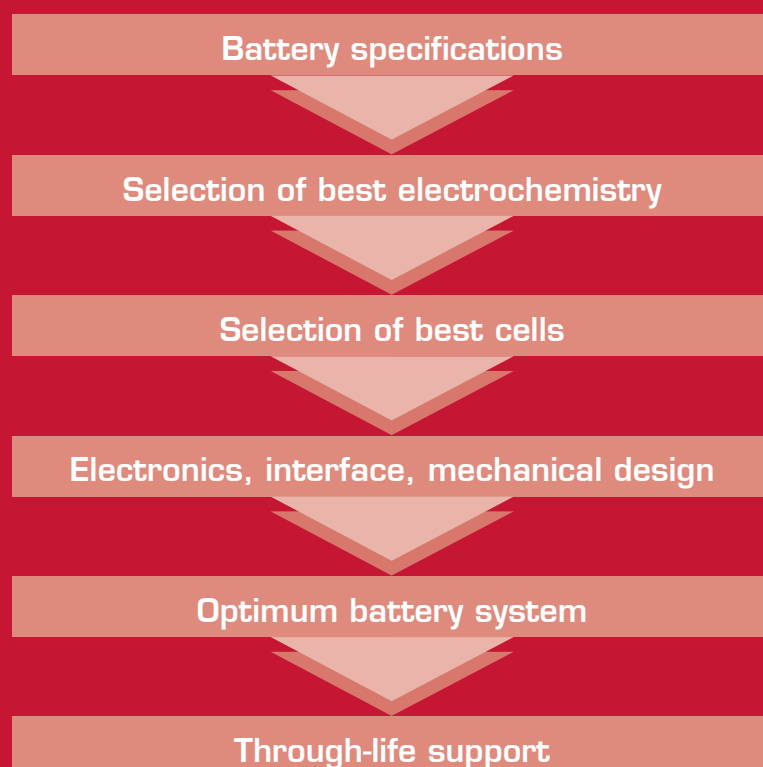
Fast, quiet and intuitive: Saft's intelligent, state-of-the-art charging equipment is rugged and built for the purpose of operations in the field.

Chargers

- Mobile and tactical multi-chemistry chargers recognise automatically battery types and chemistries and can charge batteries simultaneously in extreme operational conditions.
- Tactical lithium-ion chargers are compact, lightweight, soldier-portable units featuring two channel, two position technology providing totally dependable performance.



Saft's comprehensive programme management solution



Soft batteries for military applications

Non-rechargeable batteries

Battery name	Chemistry	Nominal voltage (V)	Nominal capacity (Ah)	Operating temperature range	Weight (g)	Dimensions max. (mm) Height x Diameter Height x Width x Depth	Transport status	NATO Stock Nbr	Most typical application	Made in
BA 5112 A/U	Li-SO ₂	11.2	2.3	-40/+70°C	180	77.8 x 57.2 x 39.1	Class 9	6135-01-235-4168	Radiocommunication	USA
BA 5368/U	Li-MnO ₂	12.0	0.9	-40/+70°C	145	76.2 x 26.9	Non-restricted	6135-01-455-7947	Radiocommunication	USA
BA 5372/U	Li-MnO ₂	6.0	0.5	-40/+70°C	20	16.5 x 33.0	Non-restricted	6135-01-214-6441	Radiocommunication	USA
BA 5390/U	Li-MnO ₂	15.0/30.0	24.0/12.0	-40/+70°C	1410/3100	127 x 111.8 x 62	Non-restricted	6135-01-036-3495	Radiocommunication	USA
BA 5557 A/U	Li-SO ₂	14.0/28.0	4.4/2.2	-40/+70°C	500	100.1 x 106.3 x 37.3	Class 9	6135-01-088-2707	Radiocommunication	USA
BA 5587 A/U	Li-SO ₂	2.8	1.0	-40/+70°C	20	25.9 x 19.9	Non-restricted	6135-01-090-5363	Night vision	USA
BA 5588 A/U	Li-SO ₂	13.5	3.5	-40/+70°C	295	96 x 90 x 31	Class 9	6135-00-088-2708	Radiocommunication	USA
BA 5590 A/U	Li-SO ₂	13.5/27.0	15.0/7.5	-40/+70°C	1020	127 x 111.8 x 62.2	Class 9	6135-01-523-3037	Radiocommunication***	USA
BA 5590 B/U*	Li-SO ₂	13.5/27.0	15.0/7.5	-40/+70°C	1020	127 x 111.8 x 62.2	Class 9	6135-01-036-3495	Radiocommunication	USA
BA 5590 HC	Li-SO ₂	13.5/27.0	18.2/9.1	-40/+70°C	1020	127 x 111.8 x 62.2	Class 9	tbd	Radiocommunication	USA
BA 5598 A/U	Li-SO ₂	13.5	7.5	-40/+70°C	680	120.7 x 92 x 54	Class 9	6135-01-034-2239	Radiocommunication	USA
BA 5599 A/U	Li-SO ₂	8.1	7.5	-40/+70°C	450	152 x 38 x 64	Class 9	6135-01-069-8575	Radio Tester	USA
BA 5600 A/U	Li-SO ₂	8.1	7.5	-40/+70°C	360	185.9 x 39.4	Class 9	6135-01-168-2944	Communication terminal	USA
BA 5800 A/U	Li-SO ₂	5.3	7.5	-40/+70°C	220	128.5 x 35.5	Class 9	6135-99-798-9851	Compact Air Supply Unit (CASU)& GPS	USA
BA 5847 B/U	Li-SO ₂	5.3	7.5	-40/+70°C	220	95 x 64.8 x 38	Class 9	6135-01-090-5364	Radiocommunication + Mine detector	USA
BT 5313	Li-SO ₂	25.2	7.2	-40/+70°C	1100	131 x 110 x 65	Class 9	n/a	Missile launcher	USA
BT 5790	Li-SO ₂	14.0	7.5	-40/+70°C	630	186.5 x 35.7 x 66.7	Class 9	n/a	Radiocommunication	USA
BT 5791	Li-SO ₂	14.0	15.0	-40/+70°C	1200	186.5 x 70.0 x 65.3	Class 9	n/a	Radiocommunication	USA
G 6-104	Li-SO ₂	5.6	7.5	-60/+70°C	200	128.5 x 35.5	Class 9	6135-99-798-9851	GPS + other applications	UK
G 6-105	Li-SO ₂	5.6	3.2	-60/+70°C	110	55 x 28.1 x 56	Class 9	6135-99-658-9085	Aircraft probe	UK
G 9-124	Li-SO ₂	8.4	7.5	-40/+70°C	370	110 x 42 x 83	Class 9	6135-14-383-9768	Missile launcher	UK
G 15-114	Li-SO ₂	14.0	1.9	-60/+70°C	270	90.6 x 40.3 x 71	Class 9	6135-99-795-4351	Radiocommunication + other applications	UK
G 15-127	Li-SO ₂	2 x 14.0	34 or 68	-60/+70°C	3500	216 x 152 x 92	Class 9	6135-99-794-2896	Special forces	UK
G 18-115	Li-SO ₂	16.8	7.5	-60/+70°C	850	131.6 x 66.8 x 128	Class 9	6135-99-795-4350	Radiocommunication + other applications	UK
G 30-101	Li-SO ₂	28.0	7.5	-60/+70°C	1500	184.5 x 73.5 x 80	Class 9	6135-99-747-4430	Radiocommunication + other applications	UK
G 30-102/B	Li-SO ₂	28.0	16.0	-60/+70°C	2500	184 x 72.5 x 133	Class 9	6135-99-840-0109	Radiocommunication + other applications	UK
Li/3	Li-SO ₂	8.4	7.5	-40/+70°C	450	110 x 42 x 81	Class 9	6135-14-383-9768	Missile launcher & night vision	USA
PS 40A	Li-SOCl ₂	14.0	4.6	-60/+85°C	285	108 x 65 x 49	Class 9	6135-14-420-1760	Radiocommunication	France
PS 42A	Li-SOCl ₂	7.0	9.0	-60/+85°C	230	69.9 x 67.2 x 34	Class 9	6135-14-434-0766	Radiocommunication	France
PS 48B	Li-SOCl ₂	17.5	18.0	-60/+85°C	1150	212.4 x 72.7 x 68.5	Class 9	6135-14-451-7198	Radiocommunication	France
PS 52A	Li-SOCl ₂	7.2	12.5	-60/+85°C	225	77.5 x 63.5 x 34.6	Class 9	6135-14-459-9265	Radiocommunication	France
PS 53B	Li-SOCl ₂	21.0	12.5	-60/+85°C	720	210.5 x 68.5 x 37.5	Class 9	6135-14-459-9266	Radiocommunication	France
3.M20**	Li-MnO ₂	9.0	10.5	-40/+70°C	360	65 x 64 x 69	Class 9	-	EPIRB	Germany
4.M52 HR**	Li-MnO ₂	12.0	4.5	-40/+70°C	270	40 x 58.5 x 105	Class 9	6135-12-322-9102	ABC protective equipment	Germany
5.M20**	Li-MnO ₂	15.0	10.5	-40/+70°C	740	100 x 110	Class 9	6135-12-310-5164	ABC protective equipment	Germany
6.M20**	Li-MnO ₂	18.0	10.5	-40/+70°C	710	124 x 64 x 69	Class 9	6135-12-346-1035	EPIRB	Germany
6.M20**	Li-MnO ₂	18.0	10.5	-40/+70°C	950	80 x 90 x 125	Class 9	-	Military use	Germany
10.M20**	Li-MnO ₂	30.0	10.5	-40/+70°C	1500	162 x 68 x 109	Class 9	6135-12-339-0295	ABC protective equipment	Germany
MIRA**	Li-MnO ₂	30.0	20.0	-40/+70°C	2500	133 x 72 x 184	Class 9	6135-12-329-3740	Thermal sight system MIRA (for missile system MILAN)	Germany
MR 506**	Li-MnO ₂	18.0	1.8	-40/+70°C	200	37 x 56 x 78	Class 9	6135-12-339-9599	Emergency radio	Germany
MR 509**	Li-MnO ₂	9.0	4.5	-40/+70°C	180	54 x 37 x 75	Class 9	6135-12-353-2558	Emergency radio	Germany
SEM 52**	Li-MnO ₂	9.0	4.5	-40/+70°C	208	65 x 33 x 78.5	Class 9	6135-12-308-9723	Radiocommunication (SEM 52)	Germany
SEM 70**	Li-MnO ₂	18.0	10.5	-40/+70°C	750	38 x 72 x 191	Class 9	6135-12-309-8604	Radiocommunication (SEM 70)	Germany
SEM 91/93**	Li-MnO ₂	9.0	4.5	-40/+70°C	208	65 x 33 x 78.5	Class 9	6135-12-355-0737	Radiocommunication (SEM 91/93)	Germany

* features two sets of terminals

** FRIVO battery

*** features state of charge indicator

Soft batteries for military applications

Rechargeable batteries

Battery name	Alternative names	Soft Part Number	Nominal voltage (V)	Nominal capacity (Ah)	Weight (g)	Dimensions (nominal) Height x Width x Depth	Gas Gauge	Transport status	NATO Stock Nbr	Most typical application
BA 684A	ALI 142 BA 639 TRC 9100	08143Z	7.5	2.6	350	89 x 68 x 38	5 LED	Non-restricted	-	Hand held radio
BA 684A	ALI 142 TRC 9100	08232S	7.5	6.8	450	89 x 68 x 38	5 LED	Class 9	-	Hand held radio
BA 684A	ALI 142 TRC 9100	08379V	7.5	4.8	390	89 x 68 x 38	5 LED	Non-restricted	-	Hand held radio
BA 685A	ALI 116 ALI 143 TRC 9200	08266C	15.0	13.6	1700	259 x 79 x 73	5 LED	Class 9	6140-14-529-5973	Manpack radio
BB 2386	06552E	06552E	11.25	13.6	1300	241 x 92 x 56	-	Class 9	-	Manpack radio
BB 2590	SAI-2590	08109P	15/30	11.6/5.8	1360	62.2 x 111.8 x 127	LCD	Class 9	-	Manpack radio
BB 2800	08034L	08034L	7.4	5.4	265	Ø = 129 x 35.5	-	Non-restricted	-	GPS
BB 2847	PRC-68 PRM-34 TS-3951	06611S	7.5	6.8	370	96 x 66 x 39	10 LED	Class 9	6140-01-493-8092	Thermal weapon sight
BB 5087	06580K	06580K	15	5.3	510	137 x 56 x 65	-	Non-restricted	-	Fire control
Clansman™*	PRC-351	08181F	26.0	13.6	3000	136 x 193 x 72	-	Class 9	-	Manpack radio
ECLIPS™	Clansman™	0097-250-019	24	12	3200	128 x 212 x 75	3 LED	Class 9	6140-99-580-6345	Manpack radio
LTV	08352S	08352S	3.75	6.8	190	70.5 x 62.0 x 21.5	-	Class 9	-	Training, Simulation
PES *	08340E	08340E	15	6.8	620	150 x 82 x 46	5 LED	Class 9	-	Portable Energy System
RGS *	08258U	08258U	11.25	4.8	500	85.5 x 73 x 55	4 LED	Non-restricted	-	Unattended ground sensors
SOPHIE™	A86 Mirabel™	06554G	11.25	5.3	530	145 x 62.6 x 55.5	-	Non-restricted	6140-14-527-4774	Thermal imaging
SOPHIE™	A86 Mirabel™	08151P 08153K	11.25	5.3	530	145 x 62.6 x 55.5	LED	Non-restricted	-	Thermal imaging
SOPHIE™	A86 Mirabel™	08314C	11.25	2.6	360	145 x 62.6 x 55.5	-	Non-restricted	-	Thermal imaging

The operating temperature range for these batteries is - 30/+ 60°C

The above selection of rechargeable military batteries is representative of a much larger range available to military OEMs and developers of military equipment. Soft has hundreds of battery references for current and on-going military programs, special development projects and purpose-made equipment. For further information or assistance please contact your local Soft representative.

All trademarked™ names remain the property of their respective owners and are used here for descriptive purposes only.

* features SMBus

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saft

About Saft

Saft is a world specialist in the design and manufacture of high-tech batteries for industry. Saft batteries are used in high performance applications such as industrial infrastructure and processes, transportation, space and defence. Saft is the world's leading manufacturer of nickel-cadmium batteries for industrial applications and of primary lithium batteries for a wide range of end markets. The group is also the European leader for specialised advanced technologies for the defence and space industries. With approximately 3,900 employees worldwide, Saft is present in 18 countries. Its 18 manufacturing sites and extensive sales network enable the group to serve its customers worldwide.

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