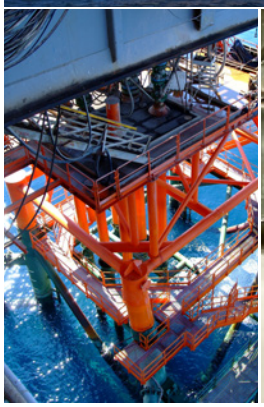
SPH Ni-Cd battery

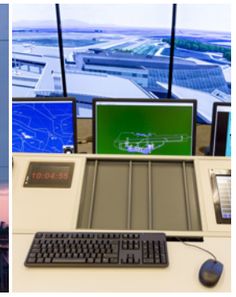
Instant power



saft

SPH Ni-Cd battery
Immediate performance in critical applications



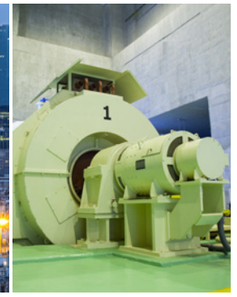


Saft SPH battery's reliability in critical situations makes it the perfect choice for UPS, engine starting and many other high rate discharge duties.

Your critical hospital, traffic control, power generation plant or offshore application can be seriously endangered without the guarantee of reliable back-up power. Saft batteries offer powerful protection with designed-in durability, low maintenance and low life-cost.

SPH Ni-Cd battery
The low life cycle cost, low maintenance battery





Saft SPH is your key to safety and productivity, efficiently operating wherever and whenever needed.

The cost-efficient solution

Engineers and manufacturers around the world fit SPH as original equipment and to replace old lead acid products. Saft experts will match battery weight, size and performance to perfectly meet your requirement.

Due to the long life and low maintenance of the SPH battery you can benefit significantly from savings over regular replacement, maintenance and down-time costs that attend lead acid batteries.

Uninterruptible power supply

SPH delivers the high power within a narrow voltage window that is essential for UPS. Sintered/pbe is well-proven technology giving excellent performance and durability, without the risk of sudden electrical failure.

Starting engines, every time

In conditions off-shore, on-shore, on industrial production lines and in hospitals committed to meet demanding schedules, SPH Ni-Cd high power and reliability can make a life and death difference.

Reliable in all conditions: a worldwide language

Some of the world's most critical installations rely on Saft SPH for top performance and total peace of mind: Buenos Aires Hospital, Rome ATC, Finnish Defence Ministry, AT&T, Amoco, Elf Serepca, Qatar Gas Extraction Plant, Mitsui Engineering and Shipbuilding, Thai Oil Company, Bahamas Cititrust Bank, together with industrial and marine applications.

Generally operating between temperatures of –20°C to +50°C (–4°F to +122°F), SPH batteries can tolerate extremes of –50°C to +70°C (–58°F to +158°F) for short periods. They can also remain in storage for many years before commissioning without affecting subsequent performance.

SPH Ni-Cd battery
A proven design



Saft nickel-cadmium SPH batteries are perfectly suited for UPS and engine starting

Optimum size and weight

SPH batteries are generally interchangeable with other batteries used in UPS systems and engine starting applications.

Small voltage window

Saft's advanced nickel-cadmium technology and well-proven sintered/plastic bonded electrode design together provide optimum performance. This high power in a constrained voltage window is particularly geared to UPS and often allows a smaller battery capacity to be installed.

Exceptional all round performance

High resistance to electrical abuse

The SPH range tolerates high ripple current and remains unaffected by deep or complete discharge, high charge currents or voltage reversal.

No temperature constraints

SPH batteries maintain their high performance levels even in the most punishing climates and temperatures, in hot and remote desert locations or freezing arctic temperatures. At –20°C (–4°F) SPH still provides more than 90% of its rated capacity where lead acid is virtually unusable below freezing.

No corrosive fumes

SPH's alkaline electrolyte produces no corrosive fumes, thereby giving no risk of corrosion to sensitive electrical or electronic equipment.

Faster recharging

SPH will recharge faster than a VRLA battery, minimizing the period when your power supply is not protected, or more rapidly being available for your next engine start.



Trouble-free storage

SPH batteries do not need refreshed charging and will operate with complete reliability, even after years in storage.

Trouble-free in service too

The SPH's structure makes it resistant to internal corrosion. As a result there is no risk of sudden death, the serious problem that unpredictably affects lead acid batteries.

Long lifetime

The SPH has an exceptionally long lifetime of over 20 years – three to five times the life-expectancy of a VRLA battery.

High performance engine starting

SPH can provide very high currents of up to 20 times the battery's nominal capacity. This high cranking current allows for a battery with a lower capacity and a lower cost, distinct advantages over VRLA. Additionally, SPH's sintered positive and compact plastic-bonded negative electrode enable it to maintain high performance levels throughout its life, even when it is partially discharged.

Electrolyte

SPH holds a large electrolyte reservoir that, together with sintered/plastic-bonded electrodes and robust steel construction, gives the cell its capability to function even in harsh conditions.

The alkaline solution does not alter during electro-chemical reactions and does not react with steel components. As a result the cell will not prematurely age and will continue in faithful service for up to 20 years or more.

SPH Ni-Cd battery
Advanced technology with proven reliability

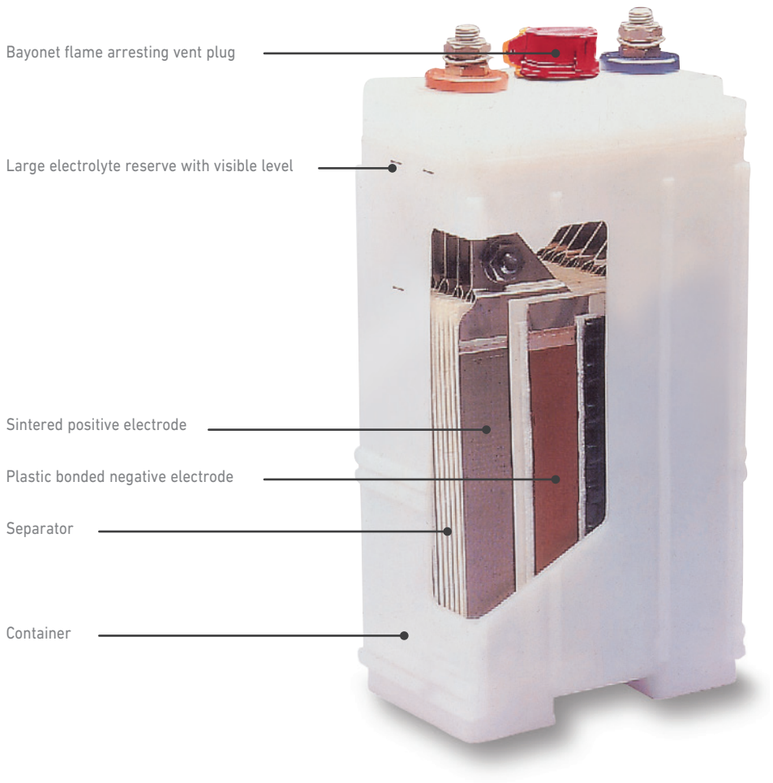
Virtually maintenance-free

Under normal conditions SPH batteries will require no maintenance within 10 years other than routine checks. This electro-chemistry makes sudden death impossible and keeps performance high whilst maintenance remains very low.

The battery may be safely stored for many years without affecting performance. Predictable life-costs now make long-term budgeting simple.

The technology to rely on

Saft's sintered/pbe technology has a proven track-record of reliability and a rapid recharge capability at either single or dual rate. These are the essential battery characteristics where uninterrupted power or quick engine starting must be guaranteed.



SPH Ni-Cd battery
Worldwide expertise for industry

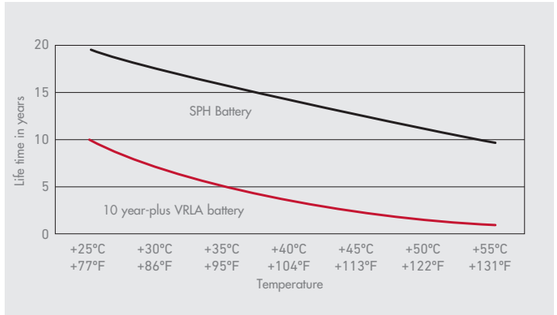
Sizing calculation made easy

Calculations can be quickly made with BaSics, Saft's easy-to-use battery sizing software. After inputting performance criteria, BaSics establishes the cranking current/battery size for your engine starting application, or the ideal battery for your UPS stand-by requirement. With SPH's very high currents, you may find a lower capacity battery is suitable, giving a lower total cost.

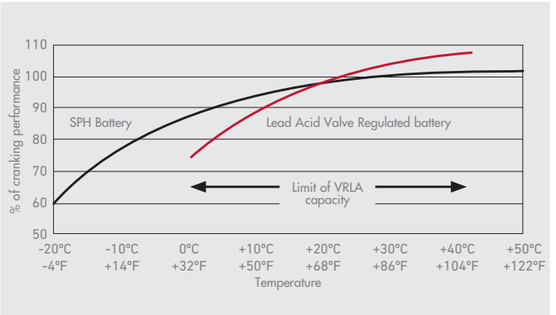
Visit Saft on the web

On our website www.saftbatteries.com you will find details on Saft's Ni-Cd battery ranges and applications. Alternatively, ask for assistance on battery specification via the Saft Worldwide Network.

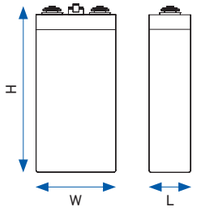
SPH versus Valve Regulated Lead Acid: variation of lifetime according to temperature



SPH versus Valve Regulated Lead Acid: variation of cranking performance according to temperature



SPH Ni-Cd battery
Physical properties



Cells are normally supplied as single cells, taped together into blocks or assembled in steel crates

SPH type	Capacity at the 5hr rate	Length per cell L		Width per cell W		Overall height H		Approx. weight per cell		Volume of liquid electrolyte above plates
	Ah	mm	in	mm	in	mm	in	Kg	lb	cc
SPH 11	11	46.5	1.8	86	3.4	196	7.2	1.0	2.2	66
SPH 16	16	46.5	1.8	86	3.4	276	10.9	1.5	3.5	160
SPH 21	21	46.5	1.8	86	3.4	276	10.9	1.6	3.5	160
SPH 24	24	46.5	1.8	86	3.4	276	10.9	1.7	3.8	160
SPH 28	28	61	2.4	86	3.4	276	10.9	2.0	4.4	215
SPH 36	36	86	3.4	86	3.4	276	10.9	2.7	6.0	325
SPH 45	45	86	3.4	86	3.4	276	10.9	2.9	6.4	315
SPH 52	52	86	3.4	86	3.4	276	10.9	2.9	6.4	315
SPH 60	60	86	3.4	86	3.4	306	12.1	3.4	7.5	405
SPH 70	70	86	3.4	86	3.4	306	12.1	3.5	7.5	405
SPH 80	80	86	3.4	86	3.4	306	12.1	3.5	7.5	390
SPH 90	90	78	3.1	166	6.5	339	13.4	5.8	12.8	750
SPH 100	100	78	3.1	166	6.5	339	13.4	6.1	13.5	735
SPH 115	115	78	3.1	166	6.5	339	13.4	6.3	13.9	720
SPH 130	130	87	3.4	166	6.5	339	13.4	7.0	15.4	815
SPH 150	150	103	4.1	166	6.5	339	13.4	8.2	18.1	990
SPH 170	170	117	4.6	166	6.5	339	13.4	9.7	21.6	1135
SPH 190	190	117	4.6	166	6.5	339	13.4	10.0	22.3	1115
SPH 220	220	198	8.0	166	6.5	339	13.4	14.7	32.4	2155
SPH 250	250	198	8.0	166	6.5	339	13.4	15.3	33.7	2120
SPH 280	280	198	8.0	166	6.5	339	13.4	15.8	34.6	2080
SPH 300	300	198	8.0	166	6.5	339	13.4	16.1	35.5	2060
SPH 320	320	198	8.0	166	6.5	339	13.4	16.5	36.2	2030

SPH batteries fulfil all requirements specified by IEC publication 60623. Flame retardant (F) option available. Please add 1.5 % to dimensions.

Mounting

Saft recommend that Ni-Cd batteries are mounted onto suitable racking or into cabinets for safety during operation. Strong, purpose-built racks in plastic-coated steel can be supplied unassembled for easy installation on site.

A variety of rack dimensions is available. For rack information and advice on the battery configuration that best suits your installation, contact Saft.

Charging

Normal charging is made at constant voltage. The charge can use either single or dual rate charging (charging voltage at +20°C/+68°F).

Single rate:	1.41 ± 0.01 V/cell at +20°C/+68°F
Dual rate:	
High rate charge	1.45 ± 0.01 V/cell at +20°C/+68°F
Float charge	1.40 ± 0.01 V/cell at +20°C/+68°F

At +20°C/+68°F, the above values ensure 10 topping-up free years with a single rate charge. It is not necessary to limit the current during charge at constant voltage.

Terminals

SPH 11 - SPH 80	M10
SPH 90 - SPH 150	M12
SPH 170 - SPH 320	2 x M12

Setting standards

At Saft, our world standing enables us to meet, and regularly exceed current international specifications (IEC, UL, IEEE, etc.) and we will maintain a leading position in the market for future generations.

SPH Ni-Cd battery
Electrical performance for engine starting applications

Performance for fully charged cells by a constant current charge according to IEC 60623 standard

Available amperes at +20°C ± 5°C (+68°F ± 9°F) Final voltage: 0.65 V/cell

SPH type	Capacity (C_5Ah)	Minutes		Seconds			
		1.5	1	30	15	5	1
SPH 11	11	149	161	177	185	202	225
SPH 16	16	217	234	257	270	294	328
SPH 21	21	285	307	338	354	385	430
SPH 24	24	325	351	386	404	440	492
SPH 28	28	380	410	450	472	514	574
SPH 36	36	488	527	579	607	660	738
SPH 45	45	610	658	724	758	826	922
SPH 52	52	705	761	837	876	954	1070
SPH 60	60	813	878	966	1011	1101	1235
SPH 70	70	949	1024	1127	1179	1284	1440
SPH 80	80	1085	1171	1288	1348	1468	1646
SPH 90	90	1120	1230	1400	1500	1650	1790
SPH 100	100	1240	1370	1560	1660	1830	1990
SPH 115	115	1400	1540	1760	1860	2080	2230
SPH 130	130	1570	1720	1950	2080	2290	2470
SPH 150	150	1820	1990	2250	2400	2640	2850
SPH 170	170	2110	2320	2650	2830	3120	3380
SPH 190	190	2360	2590	2960	3160	3490	3780
SPH 220	220	2680	2950	3360	3560	3990	4270
SPH 250	250	3050	3360	3820	4050	4530	4850
SPH 280	280	3390	3710	4200	4480	4930	5330
SPH 300	300	3630	3970	4500	4800	5290	5710
SPH 320	320	3760	4160	4710	4970	5480	5930

Available amperes at +20°C ± 5°C (+68°F ± 9°F) Final voltage: 0.85 V/cell

SPH type	Capacity (C_5Ah)	Minutes			Seconds			
		3	1.5	1	30	15	5	1
SPH 11	11	95.5	107	115	124	133	148	162
SPH 16	16	139	156	167	181	194	215	235
SPH 21	21	182	205	219	237	254	282	309
SPH 24	24	208	234	250	271	291	323	353
SPH 28	28	243	273	292	316	339	376	412
SPH 36	36	313	351	375	407	436	484	530
SPH 45	45	391	439	469	509	545	605	662
SPH 52	52	451	508	541	588	630	699	765
SPH 60	60	520	586	624	678	727	807	883
SPH 70	70	607	684	728	792	848	941	1030
SPH 80	80	694	782	832	905	969	1075	1177
SPH 90	90	709	826	895	997	1090	1210	1290
SPH 100	100	787	917	994	1110	1210	1340	1430
SPH 115	115	885	1040	1120	1250	1370	1510	1600
SPH 130	130	997	1150	1250	1390	1510	1670	1780
SPH 150	150	1150	1330	1440	1600	1740	1930	2050
SPH 170	170	1340	1560	1690	1880	2050	2280	2430
SPH 190	190	1500	1740	1890	2100	2300	2550	2710
SPH 220	220	1690	1980	2140	2390	2620	2890	3060
SPH 250	250	1920	2250	2430	2720	2980	3290	3470
SPH 280	280	2150	2480	2680	3000	3250	3600	3820
SPH 300	300	2300	2660	2870	3210	3480	3857	4100
SPH 320	320	2390	2760	2990	3330	3640	4000	4270

SPH Ni-Cd battery
Electrical performance for stationary applications

Performance after prolonged float charge of fully charged cells



Available amperes at +20°C ± 5°C (+68°F ± 9°F) — Final voltage: 1.00 V/cell

SPH type	Capacity (C_5Ah)	Hours				Minutes								Seconds		
		8	5	3	2	90	60	30	20	15	10	5	1	30	5	1
SPH 11	11	1.4	2.2	3.6	5.4	7.2	10.6	20.6	29.6	35.9	45.3	52.8	66.2	73.1	90.1	99.8
SPH 16	16	2.0	3.2	5.3	7.9	10.4	15.4	30.0	43.0	52.3	65.8	76.8	96.4	107	132	145
SPH 21	21	2.7	4.2	7.0	10.4	13.7	20.3	39.4	56.5	68.6	86.4	101	127	140	173	191
SPH 24	24	3.0	4.8	8.0	11.8	15.7	23.1	45.0	64.6	78.4	98.8	115	145	160	197	218
SPH 28	28	3.6	5.6	9.3	13.8	18.3	27.0	52.5	75.3	91.4	115	135	169	187	230	254
SPH 36	36	4.6	7.2	11.9	17.8	23.5	34.7	67.5	96.8	118	148	173	216	240	295	328
SPH 45	45	5.7	9.0	14.9	22.2	29.4	43.4	84.4	121	147	185	217	271	300	369	410
SPH 52	52	6.6	10.4	17.2	25.6	33.9	50.1	97.5	140	170	214	250	313	346	426	473
SPH 60	60	7.5	12.0	19.9	29.6	39.2	57.9	112	159	190	225	250	308	337	402	443
SPH 70	70	8.8	14.0	23.2	34.5	45.7	67.5	130	186	221	263	292	360	394	469	517
SPH 80	80	10.2	16.0	26.5	39.4	52.2	77.1	149	212	253	300	334	411	449	536	591
SPH 90	90	11.4	18.0	29.8	44.4	58.7	86.8	165	230	268	317	375	511	574	701	754
SPH 100	100	12.7	20.0	33.1	49.3	65.3	96.4	183	255	297	352	417	568	638	779	838
SPH 115	115	14.6	23.0	38.1	56.7	75.1	111	210	293	342	405	479	653	733	896	964
SPH 130	130	16.5	26.0	43.1	64.1	84.9	125	238	332	386	458	542	738	829	1010	1090
SPH 150	150	19.0	30.0	49.7	74.0	97.9	145	274	383	446	528	625	852	957	1170	1260
SPH 170	170	21.6	34.0	56.3	83.8	111	164	311	434	505	599	708	965	1080	1320	1420
SPH 190	190	24.1	38.0	63.0	93.7	124	183	347	485	565	669	791	1080	1210	1480	1590
SPH 220	220	27.9	44.0	72.9	108	143	212	402	561	654	775	916	1250	1400	1710	1840
SPH 250	250	31.7	50.0	82.8	123	163	241	457	638	743	881	1040	1420	1590	1950	2100
SPH 280	280	35.5	56.0	92.8	138	182	270	512	714	832	986	1170	1590	1790	2180	2350
SPH 300	300	38.1	60.0	99.4	147	195	289	548	765	892	1060	1250	1700	1910	2340	2510
SPH 320	320	40.6	64.0	106	157	208	309	585	816	951	1130	1330	1820	2040	2490	2680

Available amperes at +20°C ± 5°C (+68°F ± 9°F) — Final voltage: 1.05 V/cell

SPH type	Capacity (C_5Ah)	Hours				Minutes								Seconds		
		8	5	3	2	90	60	30	20	15	10	5	1	30	5	1
SPH 11	11	1.4	2.2	3.6	5.4	7.1	10.5	20.2	27.5	32.7	38.3	43.9	55.3	62.3	76.9	85.6
SPH 16	16	2.0	3.2	5.3	7.8	10.3	15.2	29.4	40.0	47.5	55.7	63.9	80.4	90.5	112	125
SPH 21	21	2.6	4.2	6.9	10.3	13.5	20.0	38.5	52.5	62.4	73.1	83.9	106	119	147	164
SPH 24	24	3.0	4.8	7.9	11.8	15.5	22.9	44.0	60.0	71.3	83.6	95.9	121	136	168	187
SPH 28	28	3.5	5.6	9.2	13.7	18.1	26.7	51.4	70.0	83.2	97.5	112	141	159	196	218
SPH 36	36	4.5	7.1	11.8	17.6	23.2	34.3	66.1	90.0	107	125	144	181	204	252	280
SPH 45	45	5.7	8.9	14.8	22.1	29.0	42.9	82.6	113	134	157	180	226	255	315	350
SPH 52	52	6.5	10.3	17.1	25.5	33.5	49.5	95.4	130	154	181	208	261	294	364	405
SPH 60	60	7.5	11.9	19.7	29.4	38.7	57.1	109	145	168	187	206	257	285	342	373
SPH 70	70	8.8	13.9	23.0	34.3	45.2	66.7	127	169	196	218	240	300	333	399	436
SPH 80	80	10.1	15.9	26.3	39.2	51.6	76.2	145	193	223	249	274	343	380	456	498
SPH 90	90	11.3	17.9	29.6	44.1	58.1	85.7	157	202	230	262	307	435	490	600	650
SPH 100	100	12.6	19.8	32.9	49.0	64.5	95.2	175	225	256	291	341	483	544	667	723
SPH 115	115	14.5	22.8	37.8	56.4	74.2	110	201	259	294	335	393	556	626	767	831
SPH 130	130	16.4	25.8	42.8	63.7	83.9	124	227	292	332	379	444	628	708	867	940
SPH 150	150	18.9	29.8	49.3	73.5	96.8	143	262	337	383	437	512	725	817	1000	1080
SPH 170	170	21.4	33.7	55.9	83.3	110	162	297	382	434	495	580	821	925	1130	1230
SPH 190	190	23.9	37.7	62.5	93.1	123	181	332	427	485	553	648	918	1030	1270	1370
SPH 220	220	27.7	43.7	72.4	108	142	210	384	495	562	641	751	1060	1200	1470	1590
SPH 250	250	31.4	49.6	82.2	123	161	238	436	562	639	728	853	1200	1360	1670	1810
SPH 280	280	35.2	55.6	92.1	137	181	267	489	630	715	816	956	1350	1520	1870	2020
SPH 300	300	37.7	59.5	98.7	147	194	286	524	675	767	874	1020	1450	1630	2000	2170
SPH 320	320	40.3	63.5	105	157	207	305	559	719	818	932	1090	1550	1740	2130	2310



Available amperes at +20°C ± 5°C (+68°F ± 9°F) — Final voltage: 1.10 V/cell

SPH type	Capacity (C_5Ah)	Hours				Minutes								Seconds		
		8	5	3	2	90	60	30	20	15	10	5	1	30	5	1
SPH 11	11	1.4	2.2	3.5	5.3	6.9	9.9	17.6	22.5	25.8	29.8	34.9	45.1	51.6	64.0	71.3
SPH 16	16	2.0	3.1	5.2	7.6	10.0	14.4	25.5	32.8	37.5	43.3	50.7	65.6	75.1	93.1	104
SPH 21	21	2.6	4.1	6.8	10.0	13.2	18.9	33.5	43.0	49.2	56.8	66.6	86.0	98.6	122	136
SPH 24	24	3.0	4.7	7.7	11.5	15.0	21.6	38.3	49.1	56.2	65.0	76.1	98.3	113	140	156
SPH 28	28	3.5	5.5	9.0	13.4	17.6	25.2	44.7	57.3	65.6	75.8	88.7	115	131	163	182
SPH 36	36	4.5	7.1	11.6	17.2	22.6	32.4	57.4	73.7	84.3	97.4	114	148	169	210	233
SPH 45	45	5.6	8.8	14.5	21.5	28.2	40.5	71.8	92.1	105	122	143	184	211	262	292
SPH 52	52	6.5	10.2	16.7	24.8	32.6	46.8	83.0	107	122	141	165	213	244	303	337
SPH 60	60	7.5	11.8	19.3	28.6	37.6	54.0	92.6	115	128	142	162	209	234	283	310
SPH 70	70	8.7	13.7	22.5	33.4	43.9	63.0	108	134	150	166	189	244	273	329	362
SPH 80	80	9.9	15.7	25.8	38.2	50.2	72.0	124	153	171	190	216	278	313	376	414
SPH 90	90	11.2	17.6	29.0	43.0	56.4	81.0	127	154	174	200	243	353	409	501	540
SPH 100	100	12.4	19.6	32.2	47.7	62.7	90.0	142	171	193	222	270	393	454	556	600
SPH 115	115	14.3	22.5	37.0	54.9	72.1	104	163	197	222	256	311	451	522	640	690
SPH 130	130	16.1	25.5	41.9	62.1	81.5	117	184	223	251	289	351	510	590	723	780
SPH 150	150	18.6	29.4	48.3	71.6	94.0	135	212	257	290	333	405	589	681	834	900
SPH 170	170	21.1	33.3	54.8	81.1	107	153	241	291	328	378	459	667	772	946	1020
SPH 190	190	23.6	37.3	61.2	90.7	119	171	269	326	367	422	513	746	863	1060	1140
SPH 220	220	27.3	43.1	70.9	105	138	198	311	377	425	489	594	864	999	1220	1320
SPH 250	250	31.1	49.0	80.5	119	157	225	354	428	483	556	676	981	1140	1390	1500
SPH 280	280	34.8	54.9	90.2	134	176	252	396	480	541	622	757	1100	1270	1560	1680
SPH 300	300	37.3	58.8	96.6	143	188	270	425	514	580	667	811	1180	1360	1670	1800
SPH 320	320	39.8	62.7	103	153	201	288	453	549	618	711	865	1260	1450	1780	1920

Available amperes at +20°C ± 5°C (+68°F ± 9°F) — Final voltage: 1.14 V/cell

SPH type	Capacity (C_5Ah)	Hours				Minutes								Seconds		
		8	5	3	2	90	60	30	20	15	10	5	1	30	5	1
SPH 11	11	1.3	2.1	3.4	5.0	6.4	8.6	15.1	18.4	20.8	23.8	27.6	37.3	43.0	53.9	60.1
SPH 16	16	2.0	3.1	4.9	7.2	9.4	12.5	22.0	26.7	30.3	34.6	40.1	54.3	62.5	78.4	87.5
SPH 21	21	2.6	4.1	6.5	9.5	12.3	16.5	28.9	35.1	39.8	45.4	52.6	71.2	82.1	103	115
SPH 24	24	2.9	4.6	7.4	10.9	14.0	18.8	33.0	40.1	45.4	51.9	60.1	81.4	93.8	118	131
SPH 28	28	3.4	5.4	8.6	12.7	16.4	21.9	38.5	46.8	53.0	60.5	70.1	95.0	109	137	153
SPH 36	36	4.4	6.9	11.1	16.3	21.1	28.2	49.5	60.1	68.2	77.8	90.2	122	141	176	197
SPH 45	45	5.5	8.7	13.9	20.4	26.3	35.3	61.9	75.1	85.2	97.3	113	153	176	221	246
SPH 52	52	6.4	10.0	16.0	23.5	30.4	40.7	71.5	86.8	98.5	112	130	176	203	255	284
SPH 60	60	7.4	11.6	18.5	27.1	35.1	47.0	77.7	91.6	101	112	126	172	194	236	260
SPH 70	70	8.6	13.5	21.6	31.7	40.9	54.8	90.7	107	118	131	147	200	227	276	303
SPH 80	80	9.8	15.4	24.7	36.2	46.8	62.7	104	122	134	150	168	229	259	315	346
SPH 90	90	11.0	17.4	27.8	40.7	52.6	70.5	101	119	135	157	192	294	342	422	464
SPH 100	100	12.3	19.3	30.9	45.2	58.5	78.3	112	133	151	175	213	327	380	469	516
SPH 115	115	14.1	22.2	35.5	52.0	67.3	90.1	128	153	173	201	245	376	437	539	593
SPH 130	130	15.9	25.1	40.1	58.8	76.0	102	145	173	196	227	277	425	494	609	670
SPH 150	150	18.4	29.0	46.3	67.9	87.7	118	168	199	226	262	320	490	569	703	774
SPH 170	170	20.8	32.8	52.5	76.9	99.4	133	190	226	256	297	362	555	645	797	877
SPH 190	190	23.3	36.7	58.6	86.0	111	149	212	252	286	332	405	621	721	890	980
SPH 220	220	27.0	42.5	67.9	99.5	129	172	246	292	331	384	469	719	835	1030	1130
SPH 250	250	30.6	48.3	77.2	113	146	196	279	332	376	436	533	817	949	1170	1290
SPH 280	280	34.3	54.1	86.4	127	164	219	313	372	421	489	596	915	1060	1310	1440
SPH 300	300	36.8	57.9	92.6	136	175	235	335	399	451	523	639	980	1140	1410	1550
SPH 320	320	39.2	61.8	98.8	145	187	251	357	425	482	558	682	1050	1210	1500	1650

Saft is committed to the highest standards of environmental stewardship

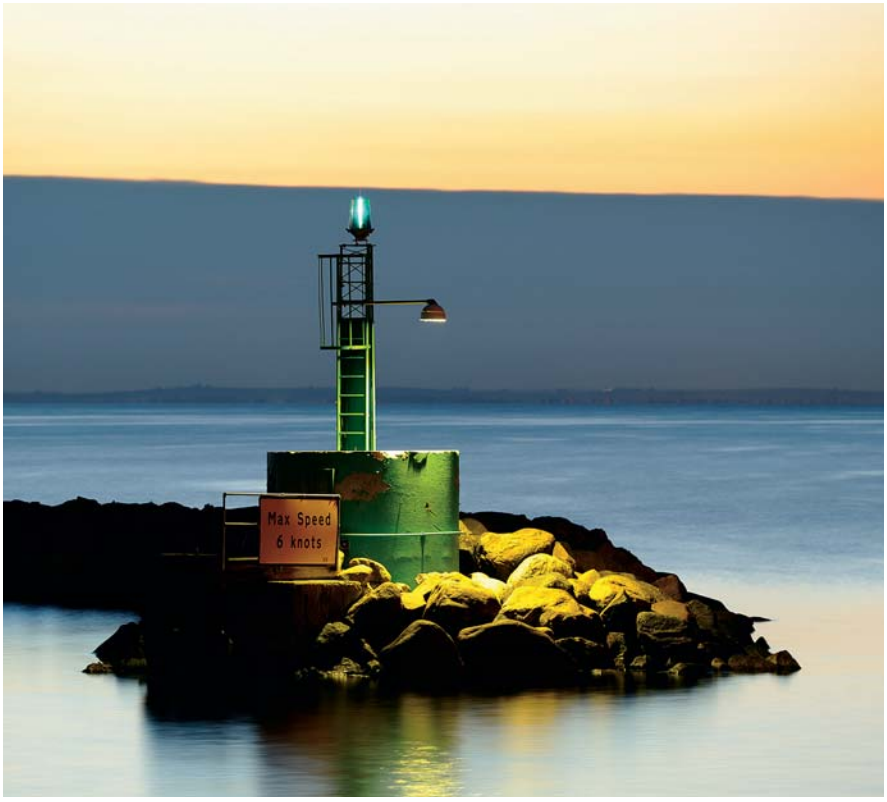
Saft is committed to protecting and preserving the environment. We are engaged in a sustained effort to use resources responsibly and to act in a way that clearly demonstrates our great respect for the planet.

As part of its environmental commitment, Saft gives priority to recycled raw materials over virgin raw materials, reduces its plants' air and water releases year after year, minimizes water usage, reduces fossil energy consumption and associated CO_2 emissions, and ensures that its customers have recycling solutions for their spent batteries.

Regarding industrial batteries, Saft has set up a network of Bring Back Points (BBPs) which receive end-of-life nickel based batteries from end users free of charge. These batteries are then shipped by these BBPs to our recycling facility in Sweden or to fully permitted recycling companies, in compliance with the laws governing trans-boundary waste shipments.

The recycling efficiency of these recyclers exceeds 75% of the nickel based battery weight (a level which exceeds the mandated recycling efficiency of 65% applicable to lead-acid batteries), and recycled materials are reused as secondary raw material for industry.

This network of Bring Back Points comprises over 30 entities, and provides services in all of our major markets in Europe, North America, Asia and Africa. The list of BBPs and their contact details are available on the Saft website.



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