

FIAMM

Industrial Batteries

ENDURLITE

SGL-SGH

series



FIAMM's **SGL-SGH** battery range can be used in standby mode on all applications requiring high performance and deep discharge. The **SGL-SGH** battery range is specially designed to ensure the highest reliability for special applications such as Nuclear and Thermal Power Plants and Electrical Utilities. The extra thick pure lead planté plates and a high reliable post seal guarantee a long life even in the worst operating conditions. The design life of the **SGL-SGH** batteries is 25 years in float operation and benign temperature environment.

FIAMM has a program of continuous improvement investing in manufacturing processes, equipment and technology.

FIAMM's Standby Battery factories are ISO 9001-2000 certified. Our continuous investment in battery technology is reflected by means of premium products that are of the highest quality and reliability.

FIAMM's **SGL-SGH** pure lead planté vented lead acid batteries are the ideal energy source for many different industrial applications.

Technical Features

Positive Plates: manufactured with planté technology, cast from pure lead to ensure there is no loss in capacity throughout the battery life.

Negative Plates: designed to have service life consistent with the positive plates. The alloy and curing process are designed so that porosity of active material is maintained during operation.

Electrolyte: high purity sulphuric acid solution with a specific gravity of 1.21 (± 0.01) at 77°F.

Separators: made of high quality microporous material, with low electrical resistance to achieve the lowest self discharge and highest efficiency.

Containers: injection molded from high quality transparent SAN (Styrene acrylonitrile) for easy cell status inspection.

Lids: made of opaque SAN. Flame retardant ABS is optional.

Vent Caps: effectively prevent acid spray from the cell when 'gassing' during equalizing charge. They are constructed with a ceramic filter and bayonet lock, designed to prevent any errant spark or flame from entering the cell.

Cell Pillars, Connectors and Hardware: the cell terminal pillars are lead with solid copper inserts (only SGL's) providing high conductivity. Intercell connectors are of tin plated solid copper, stainless steel accessories are supplied as standard.

Post Seals: high integrity post seal design to prevent electrolyte leakage and terminal corrosion.

Applications

Nuclear and Thermal Power plants
Electrical Utilities

Product Features

- + The most reliable design in the lead acid battery technologies
- + Long proven Life: up to 25 years on float in temperature controlled environments
- + High performance
- + 100% capacity throughout battery life
- + High operational reliability

Standby Products



SGL-SGH series

CELL TYPE	DIN 40738 STANDARD Type	CAPACITY (Ah) at 77°F 8 hr to 1.75	DIMENSIONS						WEIGHT		ELECTROLYTE VOLUME (Sg 1.21) Gals	TERMINALS	
			Length		Width		Total Height		lbs	kg		+	-
			in	mm	in	mm	in	mm					
SGL 7D	3 GroE 75	84	6.02	153	7.17	182	16.25	413	38.5	17.5	1.43	1	1
SGL 9D	4 GroE 100	112	6.02	153	7.17	182	16.25	413	43.4	19.7	1.37	1	1
SGL 11D	5 GroE 125	140	6.02	153	7.17	182	16.25	413	48.2	21.9	1.35	1	1
SGL 13D	6 GroE 150	168	6.02	153	7.17	182	16.25	413	53	24.1	1.29	1	1
SGL 15D	7 GroE 175	196	6.02	153	7.17	182	16.25	413	57.9	26.3	1.27	1	1
SGL 17D	8 GroE 200	224	8.98	228	7.17	182	16.25	413	73	33.2	2.03	1	1
SGL 19D	9 GroE 225	252	8.98	228	7.17	182	16.25	413	77.9	35.4	1.98	1	1
SGL 21D	10 GroE 250	280	8.98	228	7.17	182	16.25	413	82.7	37.6	1.95	1	1
SGL 23D	11 GroE 275	308	8.98	228	7.17	182	16.25	413	87.6	39.8	1.90	1	1
SGL 25D	12 GroE 300	336	8.98	228	7.17	182	16.25	413	92.4	42	1.85	1	1
SGL 27D	13 GroE 325	364	13.39	340	7.17	182	16.25	413	115.5	52.5	3.06	2	2
SGL 29D	14 GroE 350	392	13.39	340	7.17	182	16.25	413	120.1	54.6	2.99	2	2
SGL 31D	15 GroE 375	420	13.39	340	7.17	182	16.25	413	124.7	56.7	2.93	2	2
SGL 33D	16 GroE 400	448	13.39	340	7.17	182	16.25	413	129.6	58.9	2.88	2	2
SGL 35D	17 GroE 425	476	13.39	340	7.17	182	16.25	413	134.2	61	2.80	2	2
SGL 37D	18 GroE 450	504	13.39	340	7.17	182	16.25	413	138.6	63	2.72	2	2
SGH 11D	5 GroE 500	577	10.55	268	12.91	328	23.81	605	211.2	96	7.03	1	1
SGH 13D	6 GroE 600	692	10.55	268	12.91	328	23.81	605	233.2	106	6.97	1	1
SGH 15D	7 GroE 700	807	10.55	268	12.91	328	23.81	605	250.8	114	6.92	2	2
SGH 17D	8 GroE 800	923	10.55	268	12.91	328	23.81	605	270.6	123	6.71	2	2
SGH 19D	9 GroE 900	1038	10.55	268	12.91	328	23.81	605	290.4	132	6.50	2	2
SGH 21D	10 GroE 1000	1153	10.55	268	12.91	328	23.81	605	310.2	141	6.29	2	2
SGH 23D	11 GroE 1100	1269	10.55	268	12.91	328	23.81	605	330	150	6.08	2	2
SGH 25D	12 GroE 1200	1384	13.70	348	12.91	328	23.81	605	382.8	174	8.45	3	3
SGH 27D	13 GroE 1300	1500	13.70	348	12.91	328	23.81	605	400.4	182	8.22	3	3
SGH 29D	14 GroE 1400	1615	13.70	348	12.91	328	23.81	605	420.2	191	8	3	3
SGH 31D	15 GroE 1500	1730	13.70	348	12.91	328	23.81	605	437.8	199	7.79	3	3
SGH 33D	16 GroE 1600	1845	17.24	438	12.91	328	23.81	605	495	225	10.62	3	3
SGH 35D	17 GroE 1700	1960	17.24	438	12.91	328	23.81	605	514.8	234	10.38	3	3
SGH 37D	18 GroE 1800	2077	17.24	438	12.91	328	23.81	605	532.4	242	10.17	3	3
SGH 39D	19 GroE 1900	2192	17.24	438	12.91	328	23.81	605	552.2	251	9.96	3	3
SGH 41D	20 GroE 2000	2307	17.24	438	12.91	328	23.81	605	569.8	259	9.75	3	3
SGH 43D	21 GroE 2100	2421	20.83	529	12.91	328	23.81	605	649	295	12.55	4	4
SGH 45D	22 GroE 2200	2537	20.83	529	12.91	328	23.81	605	666.6	303	12.34	4	4
SGH 47D	23 GroE 2300	2652	20.83	529	12.91	328	23.81	605	686.4	312	12.02	4	4
SGH 49D	24 GroE 2400	2767	20.83	529	12.91	328	23.81	605	704	320	11.91	4	4
SGH 51D	25 GroE 2500	2882	20.83	529	12.91	328	23.81	605	741.4	337	12.79	4	4
SGH 53D	26 GroE 2600	2997	20.83	529	12.91	328	23.81	605	761.2	346	12.55	4	4

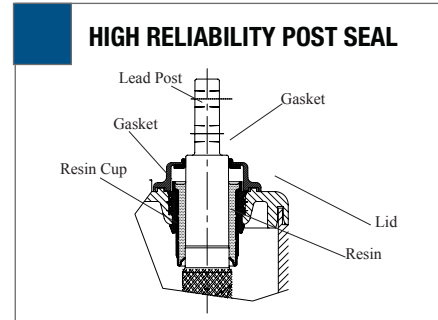
Electrical Characteristics

- ✦ NOMINAL VOLTAGE: 2 Vpc
- ✦ FLOAT VOLTAGE CHARGE AT 77°F: 2.23 Vpc
- ✦ BOOST CHARGE: 2.4 Vpc with a maximum current of $0.15 \times C_8$ (A)
- ✦ MAXIMUM SHORT CIRCUIT CURRENT: for fully charged cells and without the voltage losses associated with connectors, SGL cells = $20 \times C_8$ (A), SGH cells = $16 \times C_8$ (A)
- ✦ INTERNAL RESISTANCE: SGL cells = $0.1 \times 1/C_8$ Ohm; SGH cells = $0.13 \times 1/C_8$ Ohm

FIAMM planté cells are long life batteries with a design life of up to 25 years on float in temperature controlled environment.

This unique battery design differentiates itself from any other type of battery since it does not lose capacity throughout service life.

The unique post design guarantees high integrity seal which prevents electrolyte leakage while simultaneously reducing terminal corrosion.



CELL TYPE	ELECTRICAL CHARACTERISTICS	
	SGL	SGH
Nominal Voltage (V)	2	2
Float Voltage at 77°F	2.23 Vpc	2.23 Vpc
Equalization Charge	2.4 Vpc	2.4 Vpc
Short Circuit Current	20xC ₈ (A)	16xC ₈ (A)
Internal Resistance at 77°F	0.112/C ₈ (ohms)	0.115/C ₈ (ohms)

Cell Type	CELL SPECIFICATIONS					
	SGL			SGH		
Electrolyte SG at 77 °F	1.21±0.01			1.21±0.01		
Plates Dimensions	Height	Width	Thickness	Height	Width	Thickness
Positive	8.2"	5.0"	0.31"	14.6"	10"	0.4"
Negative	8.3"	5.0"	0.16"	15.2"	10"	0.2"
Sediment Space	1.4"			2.0"		
Electrolyte Over Plates	2.7" max/1.7" min			1.8"		
Container Material	Transparent S.A.N			Transparent S.A.N		
Cover Material	Opaque S.A.N			Opaque S.A.N		
Terminal Post Type	Lead (Copper Insert)			Lead (Copper Insert)		
Plate Suspension	Positive Supported from side lugs at top Negative: Bottom Supported			Positive Supported from side lugs at top Negative: Bottom Supported		
Intercell Connectors	Tin Plated Copper			Tin Plated Copper		
Connector Hardware	Stainless Steel			Stainless Steel		
Torque Settings	53-62 inlbs (6-7 Nm)			124-141.7 inlbs (14-16 Nm)		
Terminal Type	Bolt 1/4 W			Bolt M10		

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CELL TYPE	Constant Current Discharge Rates Amperes to 1.75 Vpc at 77°F (25°C) Sg 1.21									
	MINUTES							HOURS		
	1	5	10	15	20	30	60	2	3	8
SGL 7D	175	139	114	97.5	86.4	70.5	49.8	28.5	21.0	10.5
SGL 9D	234	185	152	130	115	94.0	55.4	38.0	28.0	14.0
SGL 11D	293	232	190	163	144	118	83.0	47.5	35.0	17.5
SGL 13D	351	278	228	195	173	141	99.6	57.0	42.0	21.0
SGL 15D	410	324	266	228	202	165	116	66.5	49.0	24.5
SGL 17D	468	370	304	260	230	188	133	76.0	56.0	28.0
SGL 19D	527	417	342	293	259	212	149	85.5	63.0	31.5
SGL 21D	585	463	380	325	288	235	166	95.0	70.0	35.0
SGL 23D	644	509	418	358	316	259	183	105	77.0	38.5
SGL 25D	702	556	456	390	346	282	199	114	84.0	42.0
SGL 27D	761	602	494	423	374	306	216	124	91.0	45.5
SGL 29D	819	648	532	455	403	329	232	133	98.0	49.0
SGL 31D	878	695	570	488	432	353	249	143	105	52.5
SGL 33D	936	741	608	520	461	376	266	152	112	56.0
SGL 35D	992	786	644	551	488	398	282	161	118	59.5
SGL 37D	1049	830	681	583	516	421	298	170	125	63
SGH 11D	890	725	620	550	500	430	303	195	145	72.0
SGH 13D	1068	870	744	660	600	516	363	234	174	86.4
SGH 15D	1246	1015	868	770	700	602	424	273	203	101
SGH 17D	1424	1160	992	880	800	688	484	312	232	115
SGH 19D	1602	1305	1116	990	900	774	545	351	261	130
SGH 21D	1780	1450	1240	1100	1000	860	605	390	290	144
SGH 23D	1958	1595	1364	1210	1100	946	666	429	319	158
SGH 25D	2136	1740	1488	1320	1200	1032	726	468	348	173
SGH 27D	2314	1885	1612	1430	1300	1118	787	507	377	187
SGH 29D	2492	2030	1736	1540	1400	1204	847	546	406	202
SGH 31D	2670	2175	1860	1650	1500	1290	908	585	435	216
SGH 33D	2848	2320	1984	1760	1600	1376	968	624	464	230
SGH 35D	3026	2465	2108	1870	1700	1462	1029	663	493	245
SGH 37D	3204	2610	2232	1980	1800	1548	1089	702	522	259
SGH 39D	3382	2755	2356	2090	1900	1634	1150	741	551	274
SGH 41D	3560	2900	2480	2200	2000	1720	1210	780	580	288
SGH 43D	3738	3045	2604	2310	2100	1806	1271	819	609	302
SGH 45D	3914	3190	2728	2420	2200	1892	1331	858	638	317
SGH 47D	4087	3331	2849	2527	2297	1976	1390	896	666	331.5
SGH 49D	4261	3473	2970	2635	2395	2060	1449	934	694	345.9
SGH 51D	4435	3615	3091	2742	2493	2144	1508	972	723	360.2
SGH 53D	4609	3757	3212	2850	2591	2228	1567	1010	751	374.6

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CELL TYPE	Constant Power Discharge Rates Amperes to 1.80 Vpc at 77°F (25°C) Sg 1.21									
	MINUTES							HOURS		
	1	5	10	15	20	30	60	2	3	8
SGL 7D	141	116	96.0	84.0	73.8	63.0	40.5	26.4	20.1	8.10
SGL 9D	188	154	128	112	98.4	84.0	54.0	35.2	26.8	10.8
SGL 11D	235	193	160	140	123	105	67.5	44.0	33.5	13.5
SGL 13D	282	231	192	168	148	126	81.0	52.8	40.2	16.2
SGL 15D	329	270	224	196	172	147	94.5	61.6	46.9	18.9
SGL 17D	376	308	256	224	197	168	108	70.4	53.6	21.6
SGL 19D	423	347	288	252	221	189	122	79.2	60.3	24.3
SGL 21D	470	385	320	280	246	210	135	88.0	67.0	27.0
SGL 23D	517	424	352	308	271	231	149	96.8	73.7	29.7
SGL 25D	564	462	384	336	295	252	162	106	80.4	32.4
SGL 27D	611	501	416	364	320	273	176	114	87.1	35.1
SGL 29D	658	539	448	392	344	294	189	123	93.8	37.8
SGL 31D	705	578	480	420	369	315	203	132	101	40.5
SGL 33D	752	616	512	448	394	336	216	141	107	43.2
SGL 35D	797	653	543	475	417	356	229	149	113	45.8
SGL 37D	843	690	574	502	441	376	242	158	119	48.4
SGH 11D	695	600	525	480	445	385	275	183	138	69.0
SGH 13D	834	720	630	576	534	462	330	219	165	82.8
SGH 15D	973	840	735	672	623	539	385	258	193	96.6
SGH 17D	1112	960	840	768	712	616	440	292	220	110
SGH 19D	1251	1080	945	864	801	693	495	329	248	124
SGH 21D	1390	1200	1050	960	890	770	550	365	275	138
SGH 23D	1529	1320	1155	1056	979	847	605	402	303	152
SGH 25D	1668	1440	1260	1152	1068	924	660	438	330	166
SGH 27D	1807	1560	1365	1248	1157	1001	715	475	358	179
SGH 29D	1946	1680	1470	1344	1246	1078	770	511	385	193
SGH 31D	2085	1800	1575	1440	1335	1155	825	548	413	207
SGH 33D	2224	1920	1680	1536	1424	1232	880	584	440	221
SGH 35D	2363	2040	1785	1632	1513	1309	935	621	468	235
SGH 37D	2502	2160	1890	1728	1602	1388	990	657	495	248
SGH 39D	2641	2280	1995	1824	1691	1463	1045	694	523	262
SGH 41D	2780	2400	2100	1920	1780	1540	1100	730	550	276
SGH 43D	2919	2520	2205	2016	1869	1617	1155	767	578	290
SGH 45D	3058	2640	2310	2112	1958	1694	1210	803	605	304
SGH 47D	3193	2757	2412	2205	2045	1769	1263	838	631	317.5
SGH 49D	3329	2874	2515	2299	2132	1844	1317	874	658	331
SGH 51D	3465	2992	2618	2393	2219	1919	1371	910	685	344
SGH 53D	3601	3109	2720	2487	2306	1995	1425	945	712	358

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