

FIAMM

Industrial Batteries

ENDURLITE

SD-SDH

series



The FIAMM's **SD-SDH** battery range can be used in standby mode for duties requiring high performance and reliability. The SD-SDH family is specially designed for discharge rates that are required for switchgears, power stations, UPS's. Thick pasted plates and a high integrity post seal guarantee a long life even in unfavorable operating conditions.

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 **SD-SDH** flooded lead acid batteries are the ideal energy source for many different industrial and standby applications.

Technical Features

Positive Plates: pasted plate construction with grids cast from lead selenium alloy. Grids cast from lead calcium alloy available upon request.

Negative Plates: rugged pasted grid construction with a service life compatible 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 1.24 (± 0.01) at 77°F, lower specific gravity acid available upon request.

Separators: microporous plastic matched with fiberglass mats provide maximum electrolyte utilization while retaining minimum internal resistance.

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

Lids: made of opaque SAN. Flame retardant ABS is available upon request.

Vent Caps: effectively prevent acid spray from the cell when 'gassing' during boost 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 of lead with solid copper insert of high conductivity. Intercell connectors are of tin plated solid copper, stainless steel hardware is supplied as standard.

Post Seals: new design of the high integrity post seals to prevent electrolyte leakage and terminal corrosion.

Applications

UPS Systems
Telecommunications
Electrical Utilities/Switchgear

Product Features

- + High Performance
- + Design Life: up to 20 years on float in temperature controlled environments
- + Very Low Maintenance
- + High Efficiency
- + High Operational Reliability

Standby Products



SD-SDH series

CELL TYPE	CAPACITY (Ah) at 77°F 8 hrs to 1.75 Vpc	DIMENSIONS						WEIGHT		ELECTROLYTE VOLUME (Sg. 1.24) Gals	TERMINALS	
		Length		Width		Total Height		lbs	kg		+	-
		in	mm	in	mm	in	mm					
SD 5	80	4	103	8.1	206	16.6	423	31.9	14.5	1.16	1	1
SD 7	120	4	103	8.1	206	16.6	423	34.1	15.5	1.06	1	1
SD 9	160	4.9	124	8.1	206	16.6	423	41.8	19	1.37	1	1
SD 11	200	4.9	124	8.1	206	16.6	423	45.1	20.5	1.27	1	1
SD 13	240	5.7	145	8.1	206	16.6	423	51.7	23.5	1.59	1	1
SD 15	280	5.7	145	8.1	206	16.6	423	55	25.0	1.59	1	1
SD 17	320	7.4	187	8.1	206	16.6	423	64.9	29.5	2.11	1	1
SD 19	360	7.4	187	8.1	206	16.6	423	67.3	30.6	2.03	1	1
SD 21	400	7.4	187	8.1	206	16.6	423	70.4	32.0	2.01	1	1
SD 23	440	7.4	187	8.1	206	16.6	423	73.1	33.2	1.95	1	1
SDH 13	480	5.7	145	8.1	206	28.1	714	93.7	42.6	2.88	1	1
SDH 15	560	5.7	145	8.1	206	28.1	714	100.3	45.6	2.77	1	1
SDH 17	640	7.5	191	8.3	210	28.1	714	125.4	57.0	4.02	2	2
SDH 19	720	7.5	191	8.3	210	28.1	714	130.9	59.5	3.80	2	2
SDH 21	800	7.5	191	8.3	210	28.1	714	137.5	62.5	3.80	2	2
SDH 23	880	2	233	8.3	210	28.1	714	156.2	71.0	4.86	2	2
SDH 25	960	9.2	233	8.3	210	28.1	714	161.7	73.5	4.65	2	2
SDH 27	1040	9.2	233	8.3	210	28.1	714	167.2	76.0	4.44	2	2
SDH 29	1120	10.8	275	8.3	210	28.1	714	184.8	84.0	5.49	2	2
SDH 31	1200	10.8	275	8.3	210	28.1	714	191.4	87.0	5.39	2	2
SDH 33	1280	10.8	275	8.3	210	28.1	714	196.9	89.5	5.28	2	2
SDH 35	1360	10.8	275	8.3	210	28.1	714	203.5	92.5	5.18	2	2
SDH 37	1440	14.5	368	8.6	218	27.1	690	277.2	126	9.72	3	3
SDH 39	1520	14.5	368	8.6	218	27.1	690	279.4	127	9.19	3	3
SDH 41	1600	14.5	368	8.6	218	27.1	690	281.6	128	8.74	3	3
SDH 43	1680	14.5	368	8.6	218	27.1	690	283.8	129	8.14	3	3
SDH 45	1760	14.5	368	8.6	218	27.1	690	286	130	7.71	3	3
SDH 47	1840	14.5	368	8.6	218	27.1	690	286	130	6.55	3	3
SDH 49	1920	14.5	368	8.6	218	27.1	690	288.2	131	7.16	3	3
SDH 51	2000	17.6	448	8.6	218	27.1	690	330	150	9.51	3	3
SDH 53	2080	17.6	448	8.6	218	27.1	690	334.4	152	9.30	3	3
SDH 55	2160	17.6	448	8.6	218	27.1	690	338.8	154	8.88	3	3
SDH 57	2240	17.6	448	8.6	218	27.1	690	343.2	156	8.66	3	3
SDH 59	2320	17.6	448	8.6	218	27.1	690	347.6	158	8.32	3	3

Electrical Characteristics

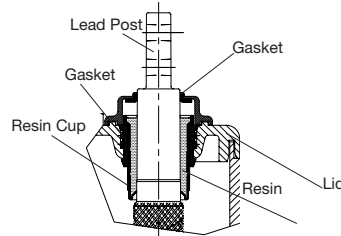
- ✦ NOMINAL VOLTAGE: 2 Vpc
- ✦ INTERNAL RESISTANCE: SD range: 0.13/C₈ (Ohm); SDH range: 0.23/C₈ (Ohm)
- ✦ SHORT CIRCUIT CURRENT: SD range: 16 x C₈ (A); SDH range: 10 x C₈ (A)
- ✦ FLOAT CHARGE AT 77°F(25°C): 2.23 Vpc
- ✦ BOOST CHARGE: 2.40 Vpc with a maximum current of 0.15 x C₈ (A)

FIAMM Lead Selenium cells are the perfect compromise for the lead acid pasted plate technology.

The lead selenium presents both the advantages of lead calcium and lead antimony alloys while exhibiting none of their disadvantages.

Capacity recovery after discharge is very fast even on float, with recovery of 90 % of 8 hour capacity in less than 15 hours.

High Reliability Post Seal

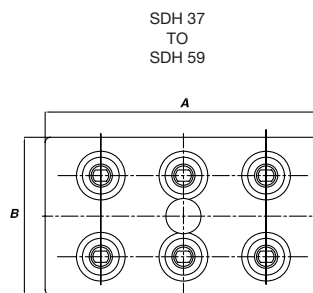
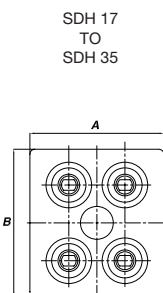
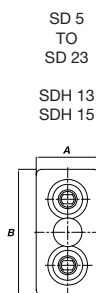


CELL TYPE	Electrical Characteristics	
	SD	SDH
Nominal Voltage (V)	2	2
Float Voltage at 77°F	2.23 Vpc	2.23 Vpc
Equalization Charge	2.4 Vpc	2.4 Vpc
Max Charge Current (A)	initial 15% C ₈ Capacity final 8% of C ₈ Capacity	initial 15% C ₈ Capacity final 8% of C ₈ Capacity
Self Discharge at 77°F	< 2% per month	< 2% per month
Internal Resistance (ohm)	0.13/C ₈	0.21/C ₈
Short Circuit Current (A)	16xC ₈	10xC ₈

CELL TYPE	Cell Specifications					
	SD			SDH		
Plate Dimension	Height	Width	Thickness	Height	Width	Thickness
Positive	8.4"	7.1"	0.2"	17.5"	7.1"	0.2"
Negative	8.4"	7.1"	0.15"	17.5"	7.1"	0.16"
Electrolyte SG at 77°F	1.24 ± 0.01			1.24 ± 0.01		
Sediment Space	0.91"			1.26"		
Container Material	Transparent SAN			Transparent SAN		
Cover Material	Opaque SAN			Opaque SAN		
Separators	Microporous+ Fiberglass Mat			Microporous+ Fiberglass Mat		
Terminal Post Type	Lead (Copper Insert)			Lead (Copper Insert)		
Plate Support	Positive & Negative : Bottom Supported			Positive & Negative : Bottom Supported		
Intercell Connectors	Tin Plated Copper			Tin Plated Copper		
Connector Hardware	Stainless Steel			Stainless Steel		
Vent Plugs	Flame Arrestor Type			Flame Arrestor Type		

Cell Specifications

- ✦ Torque Value: 88.5-106.3 inlbs (10-12 Nm)
- ✦ Terminal Type: Bolt (M8)



ENDURLITE**SD-SDH series**

CELL TYPE	Constant Current Discharge Rates Amperes to 1.75 Vpc at 77°F (25°C) Sg 1.24											
	MINUTES							HOURS				
	1	5	10	15	30	45	60	2	3	5	8	10
SD 5	155	127	104	89.9	63.7	50.3	42.3	26.9	20.4	14.1	10.1	8.29
SD 7	233	191	156	135	95.5	75.4	63.4	40.4	30.6	21.2	15.1	12.4
SD 9	311	254	209	180	127	101	84.5	53.8	40.7	28.2	20.1	16.6
SD 11	388	318	261	225	159	126	106	67.3	50.9	35.3	25.2	20.7
SD 13	466	382	313	270	191	151	127	80.7	61.1	42.3	30.2	24.9
SD 15	544	445	365	315	223	176	148	94.2	71.3	49.4	35.2	29.0
SD 17	621	509	417	360	255	201	169	108	81.5	56.4	40.3	33.1
SD 19	699	572	469	405	287	226	190	121	91.7	63.5	45.3	37.3
SD 21	777	636	521	450	318	251	211	135	102	70.6	50.3	41.4
SD 23	854	700	573	494	350	276	232	148	112	77.6	55.4	45.6
SDH 13	633	574	514	459	360	292	248	162	123	84.1	60.0	48.7
SDH 15	739	669	599	535	420	341	289	189	144	98.1	70.0	56.9
SDH 17	844	765	685	611	480	390	330	215	164	112	80.0	65.0
SDH 19	950	861	771	688	540	438	371	242	185	126	90.0	73.1
SDH 21	1055	956	856	764	600	487	413	269	205	140	100	81.2
SDH 23	1161	1052	942	841	660	536	454	296	226	154	110	89.4
SDH 25	1266	1148	1028	917	720	584	495	323	246	168	120	97.5
SDH 27	1372	1243	1113	994	780	633	537	350	267	182	130	106
SDH 29	1404	1285	1163	1049	840	682	578	377	288	196	140	114
SDH 31	1504	1377	1246	1123	900	731	619	404	308	210	150	122
SDH 33	1604	1469	1329	1198	960	779	660	431	329	224	160	130
SDH 35	1704	1561	1412	1273	1020	828	702	458	349	238	170	138
SDH 37	1710	1687	1495	1334	1048	877	743	485	370	252	180	146
SDH 39	1805	1781	1578	1409	1106	925	784	512	390	266	190	154
SDH 41	1899	1874	1661	1483	1164	974	825	539	411	280	200	162
SDH 43	1994	1968	1744	1557	1222	1023	867	566	431	294	210	171
SDH 45	2089	2062	1827	1631	1280	1071	908	593	452	308	220	179
SDH 47	2184	2155	1910	1705	1339	1120	949	620	472	322	230	187
SDH 49	2279	2249	1993	1779	1397	1169	991	646	493	336	240	195
SDH 51	2308	2148	1943	1781	1438	1200	1032	673	513	350	250	203
SDH 53	2400	2234	2021	1852	1496	1248	1073	700	534	364	260	211
SDH 55	2493	2320	2099	1923	1553	1296	1114	727	554	378	270	219
SDH 57	2585	2406	2176	1994	1611	1344	1156	754	575	393	280	227
SDH 59	2677	2492	2254	2065	1668	1392	1197	781	596	407	290	236

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SD-SDH series

CELL TYPE	Constant Current Discharge Rates Amperes to 1.80 Vpc at 77°F (25°C) Sg 1.24											
	MINUTES						HOURS					
	1	5	10	15	30	45	60	2	3	5	8	10
SD 5	131	112	93.2	80.0	58.3	46.6	39.8	26.1	19.8	13.9	9.91	8.19
SD 7	197	167	140	120	87.4	69.9	59.7	39.1	29.7	20.8	14.9	12.3
SD 9	262	223	186	160	117	93.2	79.6	52.2	39.6	27.7	19.8	16.4
SD 11	328	279	233	200	146	117	99.5	65.2	49.5	34.6	24.8	20.5
SD 13	393	335	280	240	175	140	119	78.2	59.4	41.6	29.7	24.6
SD 15	459	391	326	280	204	163	139	91.3	69.3	48.5	34.7	28.7
SD 17	524	447	373	320	233	186	159	104	79.2	55.4	39.6	32.8
SD 19	590	502	419	360	262	210	179	117	89.1	62.4	44.6	36.8
SD 21	655	558	466	400	291	233	199	130	99.0	69.3	49.5	40.9
SD 23	721	614	513	440	320	256	219	143	109	76.2	54.5	45.0
SDH 13	489	459	427	387	315	261	232	155	118	81.8	58.5	48.2
SDH 15	570	536	498	451	367	304	271	180	138	95.4	68.3	56.2
SDH 17	652	612	569	516	419	347	310	206	157	109	78.0	64.2
SDH 19	733	689	640	580	472	391	349	232	177	123	87.8	72.3
SDH 21	815	765	711	645	524	434	387	258	197	136	97.5	80.3
SDH 23	896	842	782	709	577	478	426	283	217	150	107	88.3
SDH 25	978	918	854	774	629	521	465	309	236	164	117	96.3
SDH 27	1059	995	925	838	682	564	504	335	256	177	127	104
SDH 29	1084	1029	966	885	734	608	542	361	276	191	137	112
SDH 31	1161	1102	1035	948	786	651	581	386	295	205	146	120
SDH 33	1238	1175	1104	1011	839	695	620	412	315	218	156	128
SDH 35	1316	1249	1173	1074	891	738	659	438	335	232	166	136
SDH 37	1320	1350	1242	1126	915	782	697	464	354	245	176	145
SDH 39	1393	1425	1311	1189	966	825	736	489	374	259	185	153
SDH 41	1467	1500	1380	1251	1017	868	775	515	394	273	195	161
SDH 43	1540	1575	1449	1314	1068	912	814	541	413	286	205	169
SDH 45	1613	1650	1518	1376	1119	955	852	567	433	300	215	177
SDH 47	1687	1725	1587	1439	1170	999	891	592	453	314	224	185
SDH 49	1760	1800	1656	1501	1221	1042	930	618	472	327	234	193
SDH 51	1833	1875	1725	1564	1271	1085	969	644	492	341	244	201
SDH 53	1907	1950	1794	1626	1322	1129	1007	670	512	354	254	209
SDH 55	1980	2025	1863	1689	1373	1172	1046	695	531	368	263	217
SDH 57	2053	2100	1932	1751	1424	1216	1085	721	551	382	273	225
SDH 59	2127	2175	2001	1814	1475	1259	1124	747	571	395	283	233

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