

# SD-SDH



SD-SDH Battery Range

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**T**HE SD-SDH RANGE IS THE PERFECT CHOICE WHEN APPLICATION REQUIRES HIGH POWER IN A SHORT PERIOD OF TIME.

THE RANGE IS CONSTRUCTED TO PROVIDE A HIGH LEVEL OF ROBUSTNESS AND DESIGNED FOR APPLICATIONS WHERE HIGH ENERGY PEAKS ARE NEEDED IN A SHORT TIMEFRAME. DUE TO A SPECIAL LOW ANTIMONY PLATES DESIGN THE RANGE OFFERS USERS THE BENEFIT OF LOW MAINTENANCE RESULT IN IMPROVED OPERATING COSTS. BATTERIES NEED TOPPING-UP ONCE EVERY THREE YEARS UNDER NORMAL OPERATING CONDITIONS. FURTHERMORE THE DESIGN IS OPTIMIZED TO OFFER VERY LOW SELF-DISCHARGE FOR LONG STORAGE PERIOD WITHOUT A REFRESHING CHARGE. LIKE ALL FIAMM LEAD-ACID BATTERIES THE SD SDH RANGE IS ECO-FRIENDLY AND FULLY RECYCLABLE.



#### MAIN APPLICATIONS:



INDUSTRIAL UPS



UTILITIES AND INDUSTRY



OIL & GAS

### SPECIFICATIONS

The flat plates design provides a larger active surface area; the result is maximum performance with a high rate discharge

Electrolyte: sulphuric acid electrolyte with specific gravity of 1.27 kg/l at 68°F

Low internal resistance due to high porosity separators

Robust box construction made of SAN with a flame retardant ABS lid

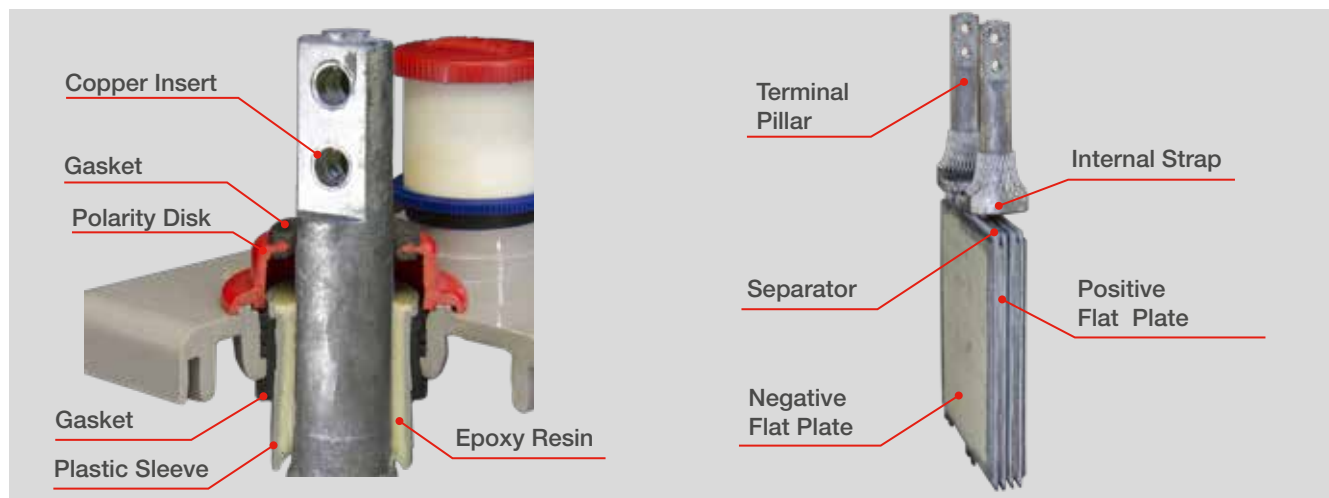
Flameproof vent plugs made of porous materials for superior safety

Long shelf life of up to six months is possible without recharge (<2% discharge per month)

Flat post is designed for high contact area with rigid connection

Rigid copper connections to allow higher currents

# TECHNOLOGY



THE UNIQUE FIAMM TERMINAL DESIGN PERMITS PILLAR GROWTH DURING CELL LIFE WITHOUT LEAKAGE. THE SD-SDH RANGE HAS A DESIGN LIFE IS 15 YEARS DUE TO HIGH RELIABILITY AND COMPONENTS MANUFACTURE PROCESS.

LOW SELF-DISCHARGE ALLOWS UP TO 6 MONTHS WITHOUT RECHARGE IN OPEN CIRCUIT CONDITION. ALL SD-SDH MODELS ARE AVAILABLE IN A DRY CHARGE VERSION.

CELL TYPE	NOMINAL CAPACITY (Ah) 10H to 1.8VPC at 68°F	SHORT CIRCUIT CURRENT (A) IEC 60896-11	INTERNAL RESISTANCE (mOhm) IEC 60896-11	NOMINAL DIMENSION (in.)			ELECTROLYTE QUANTITY (Gals)	TYPICAL WEIGHT (with electrolyte) (lbs)
				Length	Width	Height		
SD 5	80	1280	1.625	4.06	8.11	16.65	1.16	30.5
SD 7	120	1920	1.083	4.06	8.11	16.65	1.06	34.2
SD 9	160	2560	0.813	4.88	8.11	16.65	1.37	38.6
SD 11	200	3200	0.650	4.88	8.11	16.65	1.27	45.2
SD 13	240	3840	0.542	5.71	8.11	16.65	1.58	51.8
SD 15	280	4480	0.464	5.71	8.11	16.65	1.58	58.1
SD 17	320	5120	0.406	7.36	8.11	16.65	2.11	65.0
SD 19	360	5760	0.361	7.36	8.11	16.65	2.03	67.5
SD 21	400	6400	0.325	7.36	8.11	16.65	2.01	70.5
SD 23	440	7040	0.295	7.36	8.11	16.65	1.95	77.2
SDH 13	480	4800	0.438	5.71	8.11	27.95	2.88	96.7
SDH 15	560	5600	0.375	5.71	8.11	27.95	2.77	103
SDH 17	640	6400	0.330	7.52	8.27	27.95	4.01	126
SDH 19	720	7200	0.292	7.52	8.27	27.95	3.80	131
SDH 21	800	8000	0.263	7.52	8.27	27.95	3.80	147
SDH 23	880	8800	0.239	9.17	8.27	27.95	4.85	157
SDH 25	960	9600	0.219	9.17	8.27	27.95	4.64	174
SDH 27	1040	10400	0.202	9.17	8.27	27.95	4.43	168
SDH 29	1120	11200	0.188	10.83	8.27	27.95	5.49	204
SDH 31	1200	12000	0.175	10.83	8.27	27.95	5.38	210
SDH 33	1280	12800	0.164	10.83	8.27	27.95	5.28	216
SDH 35	1360	13600	0.154	10.83	8.27	27.95	5.17	223
SDH 37	1440	14400	0.146	14.49	8.58	27.05	9.71	258
SDH 39	1520	15200	0.138	14.49	8.58	27.05	9.18	266
SDH 41	1600	16000	0.131	14.49	8.58	27.05	8.73	274
SDH 43	1680	16800	0.125	14.49	8.58	27.05	8.13	281
SDH 45	1760	17600	0.119	14.49	8.58	27.05	7.70	289
SDH 47	1840	18400	0.114	14.49	8.58	27.05	6.54	297
SDH 49	1920	19200	0.109	14.49	8.58	27.05	7.15	305
SDH 51	2000	20000	0.105	17.64	8.58	27.05	9.50	331
SDH 53	2080	20800	0.101	17.64	8.58	27.05	9.29	335
SDH 55	2160	21600	0.097	17.64	8.58	27.05	8.87	346
SDH 57	2240	22400	0.094	17.64	8.58	27.05	8.65	354
SDH 59	2320	23200	0.091	17.64	8.58	27.05	8.31	362



## DISCHARGE DATA - POWER

Model	Constant Power Discharge Rates Watt per cell to 1.67 Vpc at 77°F (25°C)											
	Minutes											
	1	5	7	10	12	15	20	30	60	120	180	480
SD5	130	111	103	93.4	87.4	80	71	58	40	26.4	20.2	9.4
SD7	195	167	140	131	120	107	87	87	60	39.6	30.3	14.1
SD9	260	222	206	187	175	160	142	116	80	52.8	40.4	18.8
SD11	325	278	258	234	219	200	178	145	100	66	50.5	23.5
SD13	390	333	309	280	262	240	213	174	120	79.2	60.6	28.2
SD15	455	389	361	327	306	280	249	203	140	92.4	70.7	32.9
SD17	520	444	412	374	350	320	284	232	160	106	80.8	37.6
SD19	585	500	464	420	393	360	320	261	180	119	90.9	42.3
SD21	650	555	515	467	437	400	355	290	200	132	101	47
SD23	715	611	567	514	481	440	391	319	220	145	111	51.7
SDH13	504	465	450	426	408	393	363	321	240	162	123	57
SDH15	588	543	525	497	476	459	424	375	280	189	144	66.5
SDH17	672	620	600	568	544	524	484	428	320	216	164	76
SDH19	756	698	675	639	612	590	545	482	360	243	185	85.5
SDH21	840	775	750	710	680	655	605	535	400	270	205	95
SDH23	924	853	825	781	748	721	666	589	440	297	226	105
SDH25	1008	930	900	852	816	786	726	642	480	324	246	114
SDH27	1092	1008	975	923	884	852	787	696	520	351	267	124
SDH29	1176	1085	1050	994	952	917	847	719	560	378	287	133
SDH31	1260	1163	1125	1065	1020	983	908	803	600	405	308	143
SDH33	1344	1240	1200	1136	1088	1048	968	856	640	432	328	152
SDH35	1428	1318	1275	1207	1156	1114	1029	910	680	459	349	162
SDH37	1512	1395	1350	1278	1224	1179	1089	963	720	486	369	171
SDH39	1596	1473	1425	1349	1292	1245	1150	1017	760	513	390	181
SDH41	1680	1550	1500	1420	1360	1310	1210	1070	800	540	410	190
SDH43	1764	1628	1575	1491	1428	1376	1271	1124	840	567	431	200
SDH45	1848	1705	1650	1562	1496	1441	1331	1177	880	594	451	209
SDH47	1932	1783	1725	1633	1564	1507	1392	1231	920	621	472	219
SDH49	2016	1860	1800	1704	1632	1572	1452	1284	960	648	492	228
SDH51	2100	1935	1875	1775	1700	1635	1510	1330	1000	675	513	238
SDH53	2184	2015	1950	1846	1768	1703	1570	1390	1040	702	533	247
SDH55	2268	2090	2025	1917	1836	1765	1630	1440	1080	729	554	257
SDH57	2351	2170	2100	1988	1904	1834	1690	1490	1120	756	574	266
SDH59	2433	2246	2173	2057	1970	1898	1749	1542	1159	782	594	275

## DISCHARGE DATA - CURRENTS

Model	Constant Current Discharge Rates Amperes to 1.75 Vpc at 77°F (25°C)											
	Minutes											
	1	5	7	10	12	15	20	30	60	120	180	480
SD5	160	131	120	107	100	92.6	81	65.6	43.8	28	21.2	10
SD7	240	197	180	161	150	139	122	98.4	65.7	42	31.8	15
SD9	320	262	240	215	200	185	162	131	87.6	56	42.4	20
SD11	400	328	300	269	250	232	203	164	110	70	53	25
SD13	480	393	360	322	300	278	243	197	131	84	63.6	30
SD15	560	459	420	376	350	324	284	230	153	98	74.2	35
SD17	640	524	480	430	400	370	324	262	175	112	84.8	40
SD19	720	590	540	483	450	417	365	295	197	126	95.4	45
SD21	800	655	600	537	500	463	405	328	219	140	106	50
SD23	880	721	660	591	550	509	446	361	241	154	117	55
SDH13	636	576	549	519	498	471	432	372	267	174	132	60
SDH15	742	672	641	606	581	550	504	434	312	203	154	70
SDH17	848	768	732	692	664	628	576	496	356	232	176	80
SDH19	954	864	824	779	747	707	648	558	401	261	198	90
SDH21	1060	960	915	865	830	785	720	620	445	290	220	100
SDH23	1166	1056	1007	952	913	864	792	682	490	319	242	110
SDH25	1272	1152	1098	1038	996	942	864	744	534	348	264	120
SDH27	1378	1248	1190	1125	1079	1021	936	806	579	377	286	130
SDH29	1484	1344	1281	1211	1162	1099	1008	868	623	406	308	140
SDH31	1590	1440	1373	1298	1245	1178	1080	930	668	435	330	150
SDH33	1696	1536	1464	1384	1328	1256	1152	992	712	464	352	160
SDH35	1802	1632	1556	1471	1411	1335	1224	1054	757	493	374	170
SDH37	1908	1728	1647	1557	1494	1413	1296	1116	801	522	396	180
SDH39	2014	1824	1739	1644	1577	1492	1368	1178	846	551	418	190
SDH41	2120	1920	1830	1730	1660	1570	1440	1240	890	580	440	200
SDH43	2226	2016	1922	1817	1743	1649	1512	1302	935	609	462	210
SDH45	2332	2112	2013	1903	1826	1727	1584	1364	979	638	484	220
SDH47	2438	2208	2105	1990	1909	1806	1656	1426	1024	667	506	230
SDH49	2544	2304	2196	2076	1992	1884	1728	1488	1068	696	528	240
SDH51	2597	2352	2242	2119	2034	1923	1768	1525	1097	716	543	250
SDH53	2639	2390	2278	2153	2067	1954	1800	1556	1121	733	556	260
SDH55	2631	2419	2305	2179	2092	1978	1825	1581	1141	749	568	270
SDH57	2692	2438	2323	2196	2108	1993	1843	1600	1156	764	579	280
SDH59	2786	2523	2404	2273	2181	2062	1907	1656	1196	790	599	290

## ELECTRICAL CHARACTERISTICS

Float Voltage: 2.23 V/cell at 68°F  
 Boost Voltage: 2.40 V/cell  
 Float Voltage Compensation with Temperature: -1.39 mV/cell/°F  
 Self-Discharge at 68°F: <2%/month

## STANDARDS

IEC 60896 Part 11 – vented types requirements & tests  
 BS 6290 part 2 – British Standard specification

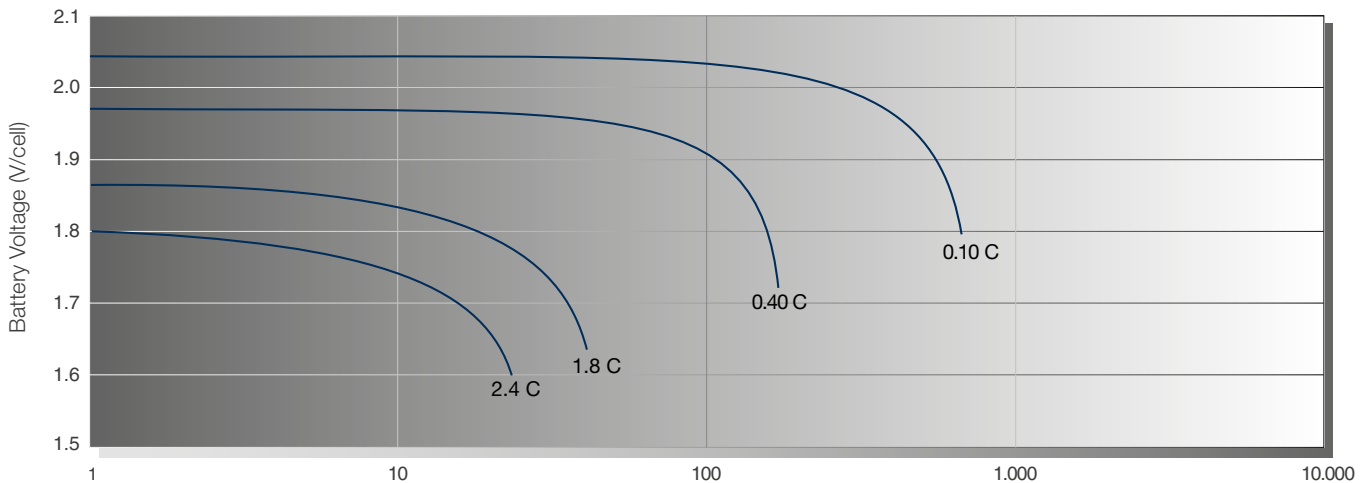
## CERTIFICATIONS

ISO 9001 Quality Management System  
 ISO 14001 Environmental Management System  
 ISO 45001 Workplace Safety & Health

## ACCESSORIES

Recombination plug  
 Filtering plugs to DIN standard  
 Racks for battery installation (standard and anti-seismic)  
 Monitoring system

### DISCHARGE CURVES at different current / final voltage (at 68°F)

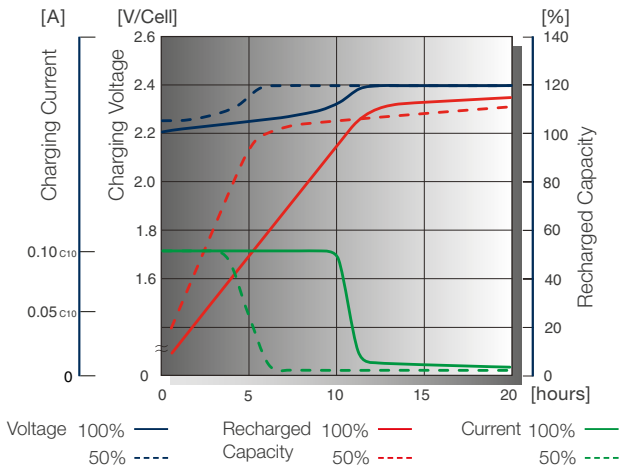


The above discharge curves are typical. For more detailed information please see the specific product sheets.

Discharge time (min)

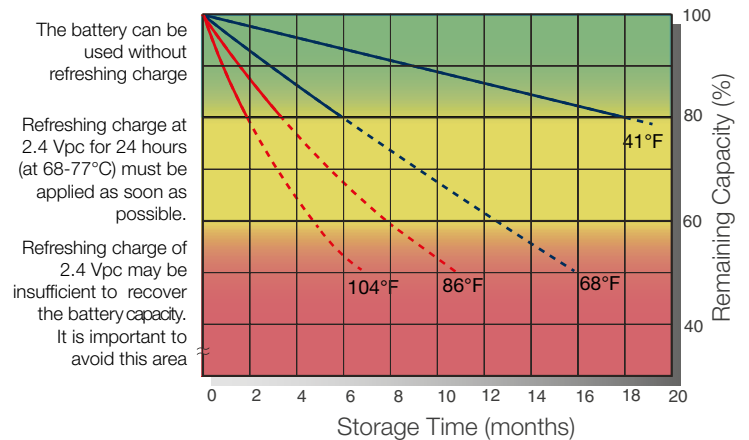
### TYPICAL CHARGE CURVES

Battery Voltage and Charge Time for Standby Use (at 68°F)



### STORAGE

Capacity loss during storage at various temperatures



The battery can be used without refreshing charge

Refreshing charge at 2.4 Vpc for 24 hours (at 68-77°C) must be applied as soon as possible.

Refreshing charge of 2.4 Vpc may be insufficient to recover the battery capacity. It is important to avoid this area



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