



G.A. HOORNWEG bv

Rolls

New AGM Range



Rolls AGM 6V Deep Cycle Series

- 6V Heavy Duty Deep Cycle
- 5 Year Warranty
- Maintenance Free, Non-Hazardous
- Low Self Discharge Rate
- Low Internal Resistance
- Rugged Construction



Article	Capacity – 100 Hr Rate	Capacity - 20 Hr Rate	Dimensions	Weight
S-275AGM	(275 Ah (C100) / 6V)	(250 Ah (C20) / 6V)	264 x 181 x 262 mm	35.1 kg
S-370AGM	(370 Ah (C100) / 6V)	(335 Ah (C20) / 6V)	295 x 178 x 366 mm	47.8 Kg
S-460AGM	(460 Ah (C100) / 6V)	(415 Ah (C20) / 6V)	295 x 178 x 424 mm	123.2 Kg

Rolls AGM 12V Deep Cycle Series

- 12V Heavy Duty Deep Cycle
- 5 Year Warranty
- Maintenance Free, Non-Hazardous
- Low Self Discharge Rate
- Low Internal Resistance
- Rugged Construction



Article	Capacity – 100 Hr Rate	Capacity - 20 Hr Rate	Dimensions	Weight
S12-95AGM	(94 Ah (C100) / 12V)	(85 Ah (C20) / 12V)	260 x 170 x 215 mm	25.1 kg
S12-128AGM	(128 Ah (C100) / 12V)	(115 Ah (C20) / 12V)	328 x 172 x 214 mm	30.2 Kg
S12-160AGM	(161 Ah (C100) / 12V)	(145 Ah (C20) / 12V)	341 x 173 x 287 mm	44.3 Kg
S12-230AGM	(231 Ah (C100) / 12V)	(210 Ah (C20) / 12V)	530 x 209 x 214 mm	59.5 Kg
S12-240AGM	(237 Ah (C100) / 12V)	(215 Ah (C20) / 12V)	520 x 269 x 208 mm	60.0 Kg
S12-290AGM	(290 Ah (C100) / 12V)	(260 Ah (C20) / 12V)	521 x 269 x 224 mm	78.1 Kg

Rolls AGM 2V Deep Cycle Series

- 2V Heavy Duty Deep Cycle
- 5 Year Warranty
- Maintenance Free, Non-Hazardous
- Gas Pressure Venting System
- Explosion Proof
- Long Design Life



Article	Capacity – 100 Hr Rate	Capacity - 20 Hr Rate	Dimensions	Weight
S2-590	(590 Ah (C100) / 12V)	(550 Ah (C20) / 12V)	255 x 178 x 395 mm	32.1 kg
S2-945	(945 Ah (C100) / 12V)	(880 Ah (C20) / 12V)	545 x 420 x 390 mm	53.6 Kg
S2-1180	(1180 Ah (C100) / 12V)	(1100 Ah (C20) / 12V)	490 x 190 x 405 mm	64.3 Kg
S2-1895	(1895 Ah (C100) / 12V)	(1750 Ah (C20) / 12V)	430 x 362 x 390 mm	104.0 Kg
S2-2375	(2375 Ah (C100) / 12V)	(2200 Ah (C20) / 12V)	510 x 365 x 405 mm	130.2 Kg
S2-3560	(3560 Ah (C100) / 12V)	(3300 Ah (C20) / 12V)	735 x 370 x 420 mm	195.6 Kg

ROLLS BATTERY AGM PRODUCT LINE

ROLLS PART NO.		20 HR RATE (AH)	100 HR RATE (AH)	Terminal Type	LENGTH Inches / cm	WIDTH Inches / cm	HEIGHT Inches / cm	WEIGHT lbs / kg
6 V	S6-275AGM	250	275	M8	10.31" 26.20 cm	7.13" 18.10 cm	10.76" 27.33 cm	76 lbs 34.5 kg
	S6-370AGM	335	370	DT	11.61" 29.50 cm	7.00" 17.78 cm	14.41" 36.60 cm	105 lbs 47.8 kg
	S6-460AGM	415	460	DT	11.61" 29.50 cm	7.00" 17.78 cm	16.69" 42.40 cm	123 lbs 55.8 kg
12 V	S12-95AGM	85	94	M6	10.24" 26.00 cm	6.65" 16.90 cm	9.34" 23.72 cm	55 lbs 25.1 kg
	S12-128AGM	115	128	M8	12.91" 32.80 cm	6.77" 17.20 cm	9.31" 23.64 cm	72 lbs 32.7 kg
	S12-160AGM	145	161	M8	13.34" 34.10 cm	6.81" 17.30 cm	12.18" 30.94 cm	98 lbs 44.3 kg
	S12-230AGM	210	231	LT	20.87" 53.00 cm	8.23" 20.90 cm	8.58" 21.80 cm	133 lbs 60.5 kg
	S12-240AGM	215	237	DT	15.00" 38.10 cm	7.01" 17.80 cm	14.61" 37.10 cm	132 lbs 60.0 kg
	S12-290AGM	260	290	LT	20.51" 52.10 cm	10.59" 26.90 cm	8.82" 22.40 cm	172 lbs 78.1 kg
2 V	S2-590AGM	550	590	M8	9.49" 24.10 cm	6.77" 17.20 cm	14.37" 36.50 cm	82 lbs 37.2 kg
	S2-945AGM	880	945	M8	16.18" 41.40 cm	6.89" 17.50 cm	14.37" 36.50 cm	136 lbs 61.5 kg
	S2-1180AGM	1100	1180	M8	18.66" 47.40 cm	6.89" 17.50 cm	14.41" 36.60 cm	162 lbs 73.5 kg
	S2-1895AGM	1750	1895	M8	15.79" 40.10 cm	13.66" 34.70 cm	14.88" 37.80 cm	243 lbs 110.2 kg
	S2-2375AGM	2200	2375	M8	19.29" 49.00 cm	13.74" 34.90 cm	15.04" 38.20 cm	322 lbs 146.1 kg
	S2-3560AGM	3300	3560	M8	27.99" 71.10 cm	13.90" 35.30 cm	15.04" 38.20 cm	485 lbs 220.0 kg

Brass AP terminal included on S6-275AGM, S12-95AGM, S12-128AGM & S12-160AGM models. Dimensions note battery size including AP terminal for these models only. AP terminal height: 0.88" 2.22 cm



S6-275AGM



S6-460AGM



S12-128AGM



S2-945AGM

Rolls Technical Support - 1-800-681-9914 / 1-902-597-3767 support@rollsbattery.com

ROLLS BATTERY AGM MODEL WARRANTY

AGM Battery Warranty:

2V Rolls AGM batteries have a **5 year pro-rated warranty** with a **2 year free replacement period** when installed in Renewable Energy, Marine or RV applications. Rolls batteries for other applications (excluding Renewable Energy, Marine or RV) are pro-rated for **3 years**. The warranty period starts at the time of purchase. If the original receipt is lost, the warranty will be based on the battery date code. The warranty covers failure due to defects in material or workmanship. It does not cover failure caused by abuse, neglect or breakage. The warranty does not cover consequential damage or injury, discharged batteries, rental, freight, labor or administrative costs. Replacement batteries will be provided at the time the warranty is requested and approved. Rolls Battery cannot issue monetary credit and a claim cannot be made against the previous purchase of a new battery at regular price. For more information, please contact Rolls Battery Sales or Technical Support.

ROLLS AGM BATTERY CHARGING INSTRUCTIONS

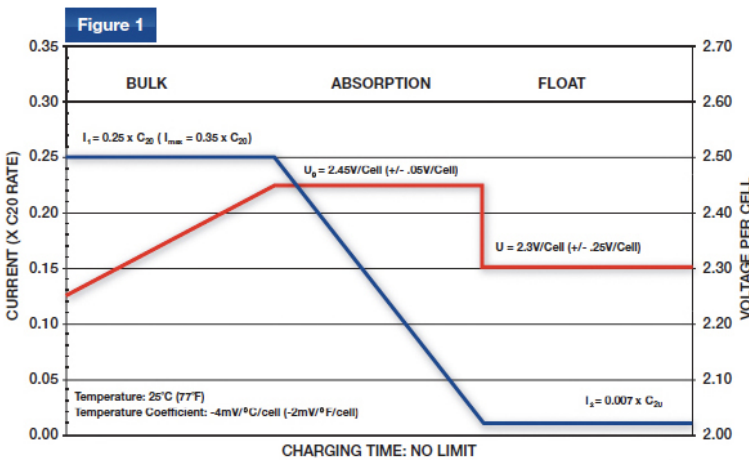
To maximize the life of your Rolls battery, it is important that it is properly charged. Over and under-charging a Rolls battery will result in shortened service life. The best protection from improper charging is the use of a quality charger and routinely checking that the charger current and voltage settings are maintained. Please review the following Rolls Battery Charging Instructions.

Charger Inspection - The charger cabling should be insulated and free of breaks or cuts. The cable connectors should be clean and properly mate with the battery terminals to ensure a snug connection. The charger's AC cord should be free of breaks or cuts and the wall plug should be clean.

Charging Guidelines - Fully charge batteries after each use. Charge in a ventilated area as gasses may be released through the pressure relief valve if the batteries are excessively over-charged. Never charge a frozen battery. Ideal charging temperatures: 32°F – 104°F (0°C – 40°C).

Charging Characteristics - If the charger has a setting for AGM, use this setting to charge your Rolls battery. To maximize your battery life a voltage regulated charger with temperature compensation is strongly recommended. See Figure 1 for the recommended voltage regulated charge profile.

Voltage Regulated Charger - IUU



Bulk Stage - the charger should deliver the initial current I_1 until the voltage limit U_0 is reached.

Absorption Stage - the charger should maintain the voltage U_0 until the current tapers to I_1 .

The initial charge current is recommended to be set at $I_1 = 0.25 \times C_{20}$ ($I_{max} = 0.35 \times C_{20}$) in order to fully charge the batteries within a reasonable amount of time. It can be set lower, however please be aware that charge time will increase so make sure the batteries have enough time to fully charge before being put back into service. Rolls batteries have a low internal resistance allowing them to be charged at a higher current, therefore faster, than conventional flooded/wet batteries.

Float Stage and Termination – the charger can maintain the current I_1 indefinitely or until the charger is shut off or unplugged. This stage is ideal to maintain battery state of charge. Make sure the temperature compensation is programmed as specified in Figure 1 (-4mV/°C/cell or -2mV/°F/cell) or manually adjust the voltage setting for temperatures varying from 25°C (77°F). As the temperature decreases, the voltage should be increased and as the temperature increases the voltage should be decreased.

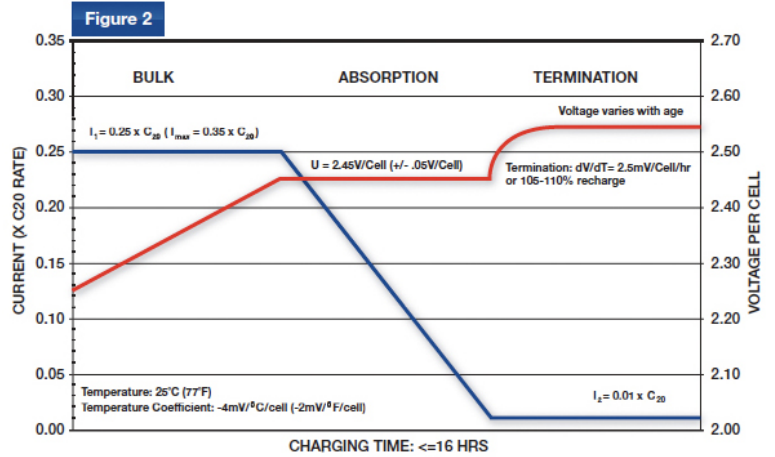
The profile in Figure 1 can be used with or without the float stage. Without the float stage, recharge can be terminated based on time (this will need to be determined as it will vary with depth of discharge and charge current) or percentage recharge (~105%-110%).

Charge Voltage Quick Reference

12 V Battery	32°F (0°C)	50°F (10°C)	68°F (20°C)	77°F (25°C)	86°F (30°C)	104°F (40°C)
Charge Voltage	15.30	15.06	14.82	14.70	14.58	14.34
Float Voltage	14.25	14.01	13.77	13.65	13.53	13.29

Constant Current Charger - IUI

A constant current charger can also be used, however it is important to adhere to the termination criteria mentioned below to minimize the chance of excessive over-charge. See Figure 2 for the recommended constant current charge profile.



Bulk Stage - the charger should deliver the initial current I_1 until the voltage limit U_0 is reached.

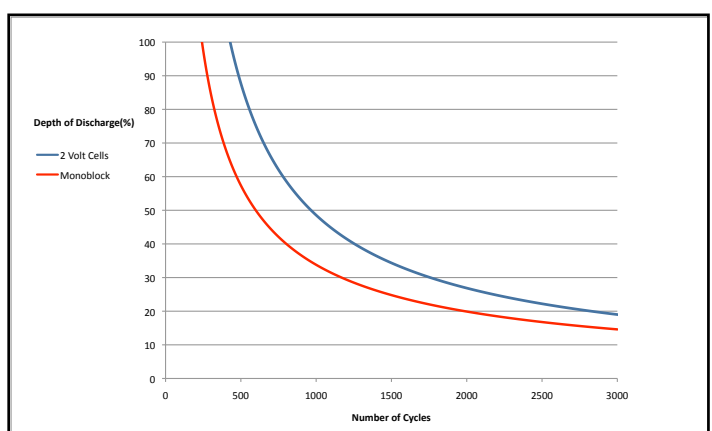
Absorption Stage - the charger should maintain the voltage U_0 until the current tapers to I_1 .

Termination - If the charger can be programmed, the charge should terminate when the voltage stops increasing over time. This is called a dV/dT termination. The charge should terminate when the dV/dT is equal to 2.5mV/cell/hour. The charge time in the final phase should not exceed 8 hours and the total charge time should not exceed 20 hours. The percentage recharge should be between 105%-110%.

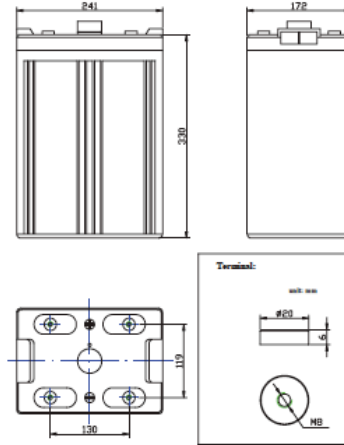
Refresh Charge - If Rolls batteries are properly charged they should never require an equalizing charge. If they were not properly charged and there is a decrease in capacity, recharge the batteries and make sure they complete the entire charge cycle. If the batteries are stored for extended periods of time, recharge them as follows

Storage Temperature	Refresh Charge Interval
Below 68°F (20°C)	9 Months
68°F (20°C) - 86°F (30°C)	6 Months
Higher than 86°F (30°C)	3 months

Cycle Life vs. Depth of Discharge:



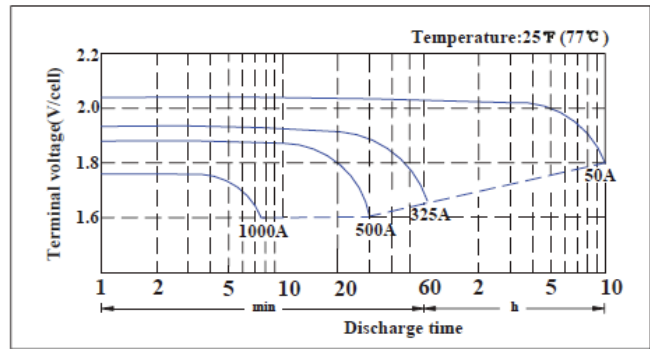
S2-590AGM



Specifications

Nominal Voltage		2V
Rated Capacity (10 hour rate)		500AH
Dimension	Total Height	365mm(14.37inches)
	Height	330mm(12.99inches)
	Length	241mm(9.49inches)
	Width	172mm(6.77inches)
Weight		Approx 31.50kg (69.3lbs)

Discharge characteristics 77°F (25°C)



Float charge method: Constant voltage: 2.23V/Cell(25°C)
Temperature compensation factor: - 3mV/°C/Cell

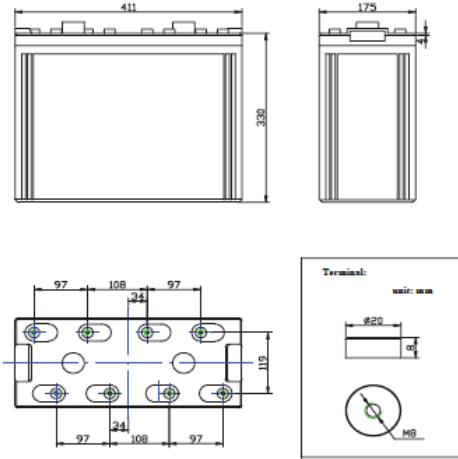
Constant power discharge watts per cell @ 77°F(25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	1834	1494	1281	1139	1003	927	855	798	754	645	398	290	192	128	104	87.2	45.2
1.63	1745	1416	1248	1092	971	892	838	784	742	628	386	283	190	128	104	87.2	45.2
1.65	1697	1403	1218	1085	964	884	820	769	730	628	386	283	186	128	103	87.2	45.2
1.67	1639	1380	1193	1063	953	869	808	760	722	628	386	283	186	125	102	87.2	45.2
1.70	1586	1300	1163	1028	925	845	794	751	714	610	376	271	182	125	100.5	87.2	45.2
1.75	1464	1244	1093	984	893	817	767	733	692	593	363	265	178	122	99.5	86.7	45.2
1.80	1327	1142	1007	923	842	789	735	697	670	570	351	262	174	120	98.5	84.5	45.1
1.85	1017	920	858	791	736	685	650	607	586	514	325	244	161	112	93.5	80.2	43
1.90	812	751	706	659	619	591	566	542	525	463	303	224	152	105	88.2	75.6	40.4

Constant current discharge ratings amperes @ 77°F(25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	1106	879	732	639	556	510	469	435	409	346	208	152	100	64.9	52.6	44.2	22.9
1.63	1036	842	707	604	536	488	459	422	400	338	205	149	98	64.9	52.6	44.2	22.9
1.65	999	809	684	600	529	484	446	415	393	334	202	147	96.2	64.9	52.1	44.2	22.9
1.67	952	786	663	588	523	473	437	410	388	329	199	144	95.2	64.1	51.5	44.2	22.9
1.70	910	751	643	564	505	458	429	405	383	323	196	141	94.3	63.3	51	44.2	22.9
1.75	827	688	602	537	483	440	410	391	369	312	189	137	91.7	62.5	50.5	43.9	22.9
1.80	731	626	551	500	453	424	392	370	355	300	182	135	89.3	61	50	42.9	22.9
1.85	546	491	457	422	388	359	340	317	305	267	167	125	82	56.8	47.2	40.5	21.7
1.90	427	393	369	343	321	306	292	280	270	237	152	114	76.9	52.6	44.3	38	20.3

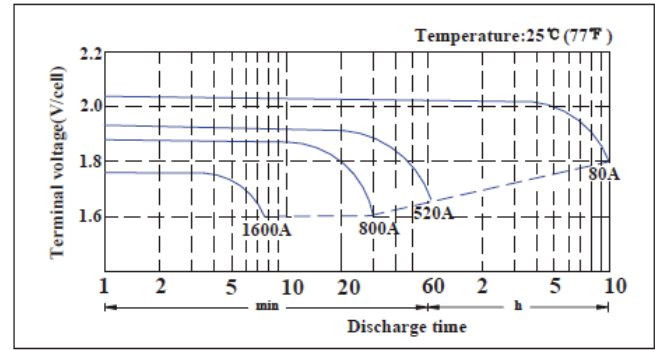
S2-945AGM



Specifications

Nominal Voltage		2V
Rated Capacity (10 hour rate)		800AH
Dimension	Total Height	365mm(14.37inches)
	Height	330mm(12.99inches)
	Length	411mm(16.18inches)
	Width	175mm(6.89inches)
Weight		Approx.54.50kg (119.9Ibs)

Discharge characteristics 77°F (25°C)



Float charge method: Constant voltage: 2.23V/Cell(25°C)
Temperature compensation factor: - 3mV/°C/Cell

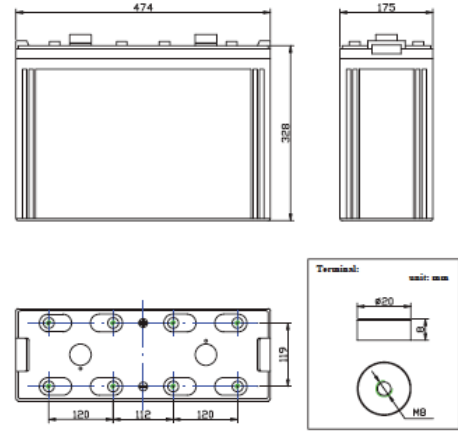
Constant power discharge watts per cell @ 77°F(25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	2935	2390	2049	1822	1606	1485	1369	1277	1207	1031	637	464	307	204	166	139	72.4
1.63	2792	2266	1995	1748	1554	1428	1340	1253	1187	1005	617	453	305	204	166	139	72.4
1.65	2715	2246	1949	1736	1543	1416	1312	1230	1170	1005	616	453	298	204	164	139	72.4
1.67	2622	2208	1910	1700	1525	1390	1292	1216	1155	1005	617	453	298	200	163	139	72.4
1.70	2538	2081	1860	1645	1480	1352	1271	1202	1143	977	600	436	292	199	160	139	72.4
1.75	2341	1989	1748	1573	1429	1309	1227	1175	1108	949	580	424	284	195	159	139	72.4
1.80	2124	1827	2460	1477	1347	1263	1176	1114	1072	914	562	420	278	191	157	135	72.4
1.85	1627	1471	1373	1266	1178	1096	1039	972	938	823	520	390	258	179	150	129	68.6
1.90	1300	1201	1130	1055	991	946	906	866	841	741	479	358	244	167	141	121	64.6

Constant current discharge ratings amperes @ 77°F (25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	1770	1405	1170	1024	890	817	750	696	656	553	333	243	160	104	84	70.8	36.8
1.63	1659	1348	1131	966	858	781	735	677	639	542	328	239	157	104	84	70.8	36.8
1.65	1598	1295	1097	960	847	773	713	665	629	534	324	235	154	104	83.2	70.8	36.8
1.67	1524	1258	1061	940	837	757	700	656	621	527	318	230	152	102	82.4	70.8	36.8
1.70	1454	1202	1029	904	808	733	687	646	614	518	312	224	150	101	81.6	70.8	36.8
1.75	1323	1101	962	859	773	705	656	626	591	500	302	219	146	100	80.8	70	36.8
1.80	1170	1001	882	800	724	679	628	591	568	480	291	216	143	97.6	80	68.8	36.6
1.85	874	786	730	676	622	575	545	508	488	428	267	200	131	91.1	75.5	64.9	34.7
1.90	683	629	591	548	513	489	468	447	433	381	243	182	123	84	70.8	60.7	32.5

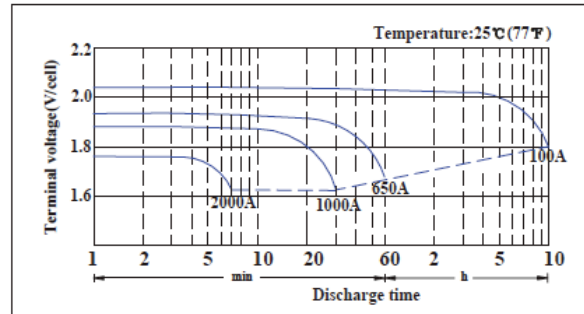
S2-1180AGM



Specifications

Nominal Voltage		2V
Rated Capacity (10 hour rate)		1000AH
Dimension	Total Height	366mm(14.4inches)
	Height	328mm(12.9inches)
	Length	474mm(18.66inches)
	Width	175mm(6.89inches)
Weight		Approx.64.50kg (141.9lbs)

Discharge characteristics 77°F (25°C)



Float charge method: Constant voltage: 2.23V/Cell(25°C)
 Temperature compensation factor: - 3mV/°C/Cell

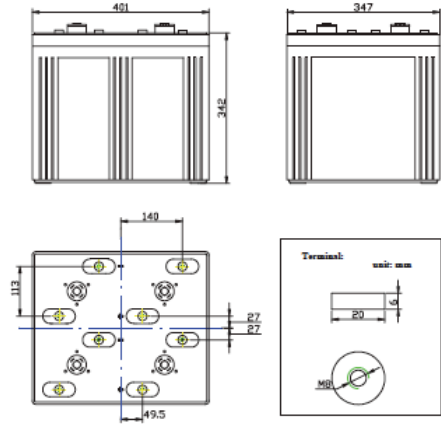
Constant power discharge watts per cell @ 77°F(25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	3669	2987	2591	2278	2008	1856	1711	1596	1509	1289	796	580	384	255	207	174	90.4
1.63	3489	2832	2524	2185	1943	1785	1676	1567	1484	1256	771	566	381	255	207	174	90.4
1.65	3394	2806	2464	2169	1928	1769	1641	1538	1459	1256	771	566	372	255	205	174	90.4
1.67	3277	2760	2416	2126	1907	1737	1614	1520	1444	1256	771	566	372	250	203	174	90.4
1.70	3172	2601	2353	2056	1851	1690	1588	1502	1428	1220	751	543	365	249	201	174	90.4
1.75	2928	2487	2212	1967	1786	1634	1534	1466	1384	1186	726	530	356	244	199	174	90.4
1.80	2654	2284	2039	1846	1684	1578	1470	1393	1340	1142	702	524	347	240	197	169	90.2
1.85	2034	1840	1736	1583	1473	1370	1299	1215	1172	1028	650	488	322	224	187	161	85.7
1.90	1625	1501	1429	1318	1239	1183	1132	1083	1051	925	596	447	306	209	176	151	80.8

Constant current discharge ratings amperes @ 77°F (25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	2212	1757	1480	1279	1112	1021	937	869	820	691	417	303	200	130	105	88.5	45.9
1.63	2073	1685	1431	1208	1072	977	919	846	799	677	410	299	196	130	105	88.5	45.9
1.65	1997	1619	1385	1199	1059	966	892	831	786	668	403	294	192	130	104	88.5	45.9
1.67	1904	1573	1342	1175	1046	946	875	819	777	659	398	288	190	128	103	88.5	45.9
1.70	1819	1501	1301	1130	1010	917	859	809	767	647	392	282	189	127	102	88.5	45.9
1.75	1654	1376	1218	1074	966	881	820	782	737	626	377	274	183	125	101	87.7	45.9
1.80	1462	1251	1115	999	906	847	785	739	710	599	364	270	179	122	100	85.8	45.8
1.85	1091	983	923	844	778	719	681	635	611	535	333	250	164	114	94.3	81.1	43.3
1.90	853	786	747	684	641	611	585	559	542	476	303	227	154	105	88.5	75.9	40.6

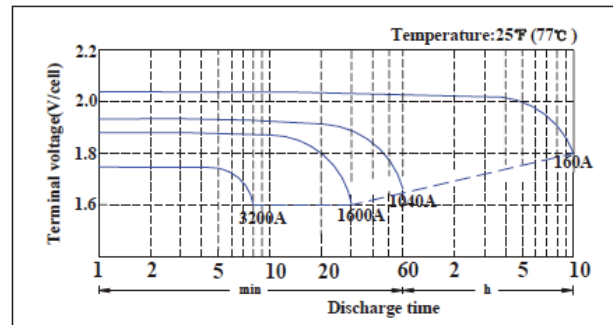
S2-1895AGM



Specifications

Nominal Voltage		2V
Rated Capacity (10 hour rate)		1600AH
Dimension	Total Height	378mm(14.88inches)
	Height	342mm(13.46inches)
	Length	401mm(15.79inches)
	Width	347mm(13.66inches)
Weight		Approx105.8kg (233.25lbs)

Discharge characteristics 77°F (25°C)



Float charge method: Constant voltage: 2.23V/Cell(25°C)
Temperature compensation factor: - 3mV/°C/Cell

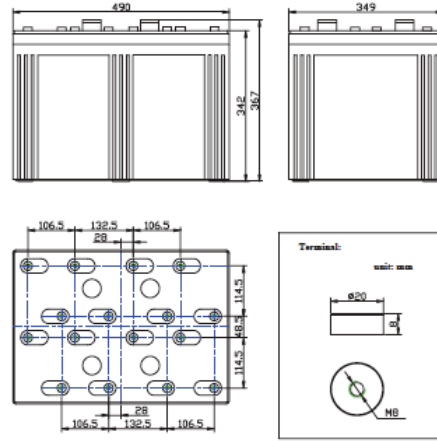
Constant power discharge watts per cell @ 77°F (25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	5928	4720	4048	3602	3176	2936	2707	2526	2389	2042	1261	928	614	408	332	279	144
1.63	5515	4477	3944	3455	3073	2824	2652	2480	2350	1989	1222	906	610	408	332	279	144
1.65	5363	4434	3851	3432	3051	2798	2595	2433	2309	1989	1222	906	596	408	328	279	144
1.67	5180	4363	3775	3361	3016	2749	2554	2405	2286	1989	1222	906	595	400	325	279	144
1.70	5014	4111	3677	3253	2926	2673	2515	2377	2262	1934	1188	869	584	398	320	279	144
1.75	4626	3928	3455	3116	2828	2584	2428	2325	2193	1879	1148	848	568	390	318	279	144
1.80	4192	3609	3185	2916	2662	2495	2326	2205	2125	1808	1109	840	556	382	314	270	144
1.85	3013	2726	2544	2347	2184	2032	1926	1803	1739	1527	965	732	483	336	281	242	129
1.90	2407	2224	2093	1955	1837	1754	1679	1608	1560	1374	890	671	459	314	265	227	121

Constant current discharge ratings amperes @ 77°F (25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	3497	2762	2313	1507	1760	1616	1484	1376	1297	1060	660	485	320	208	168	142	73.6
1.63	3276	2664	2237	1910	1695	1545	1454	1339	1265	1073	649	478	314	208	168	142	73.6
1.65	3156	2559	2165	1897	1674	1529	1411	1315	1245	1057	639	470	308	208	166	142	73.6
1.67	3009	2486	2097	1859	1655	1497	1385	1297	1229	1044	631	461	305	205	165	142	73.6
1.70	2698	2372	2033	1788	1598	1450	1359	1282	1214	1026	622	451	300	202	163	141	73.6
1.75	2614	2173	1906	1699	1529	1393	1301	1241	1169	994	598	436	292	200	161	140	73.6
1.80	2310	1977	1744	1582	1432	1344	1243	1166	1123	947	574	416	284	195	160	137	73.6
1.85	1617	1457	1353	1252	1153	1066	1010	942	906	794	495	375	246	170	142	122	65
1.90	1264	1166	1094	1015	951	906	868	829	804	706	450	341	231	158	133	114	60.9

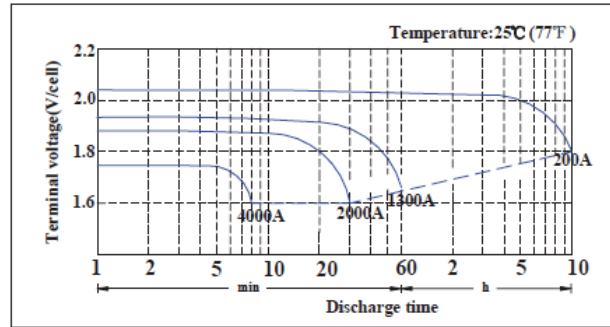
S2-2375AGM



Specifications

Nominal Voltage		2V
Rated Capacity (10 hour rate)		2000AH
Dimension	Total Height	382mm(15.04inches)
	Height	342mm(13.46inches)
	Length	490mm(19.29inches)
	Width	349mm(13.74inches)
Weight		Approx 130.2kg (287.04lbs)

Discharge characteristics 77°F (25°C)



Float charge method: Constant voltage: 2.23V/Cell(25°C)
 Temperature compensation factor: - 3mV/°C/Cell

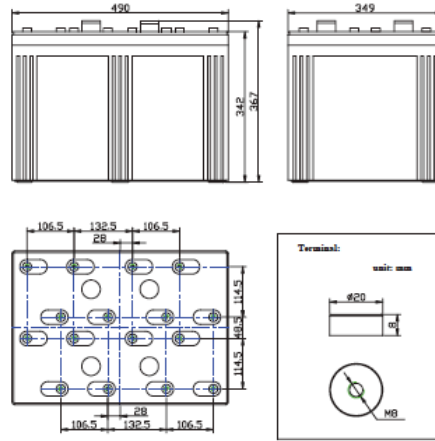
Constant power discharge watts per cell @ 77°F(25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	7248	5901	5061	4503	3970	3670	3384	3158	2987	2552	1576	1160	768	510	415	349	181
1.63	6893	5596	4930	4319	3841	3530	3315	3100	2937	2486	1527	1132	762	510	415	349	181
1.65	6706	5543	4814	4288	3812	3498	3246	3042	2888	2486	1527	1132	744	510	410	349	181
1.67	6474	5454	4719	4202	3770	3436	3193	3007	2857	2486	1527	1132	744	500	406	349	181
1.70	6266	5139	4596	4065	3659	3342	3140	2972	2827	2415	1487	1086	730	498	402	349	181
1.75	5784	4914	4321	3889	3530	3231	3035	2901	2740	2349	1437	1060	712	488	398	348	181
1.80	5244	4512	3982	3649	3329	3121	2908	2756	2653	2261	1390	1048	694	479	394	339	181
1.85	4018	3635	3392	3129	2912	2709	2570	2403	2319	2036	1287	976	644	448	374	321	172
1.90	3211	2966	2791	2607	2450	2339	2239	2143	2080	1832	1180	894	612	418	352	302	162

Constant current discharge ratings amperes @ 77°F (25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	4371	3446	2892	1669	2200	2020	1855	1720	1621	1310	825	606	400	260	210	177	91.7
1.63	4094	3330	2795	2388	2119	1932	1817	1674	1581	1341	812	597	392	260	211	177	91.7
1.65	3945	3198	2706	2372	2094	1912	1765	1644	1556	1322	798	588	385	260	208	177	91.7
1.67	3761	3108	2621	2324	2068	1871	1731	1622	1536	1305	789	576	381	256	206	177	91.7
1.70	3594	2966	2541	2233	1997	1814	1698	1601	1518	1279	776	563	377	253	204	177	91.7
1.75	3267	2719	2379	2123	1909	1743	1623	1548	1459	1239	747	548	367	250	202	175	91.7
1.80	2888	2472	2178	1976	1791	1677	1553	1463	1405	1186	720	541	357	244	200	172	91.7
1.85	2157	1942	1804	1670	1538	1422	1346	1255	1209	1058	660	500	328	227	189	162	86.7
1.90	1685	1554	1458	1354	1268	1210	1158	1105	1072	942	600	455	308	211	177	152	81.2

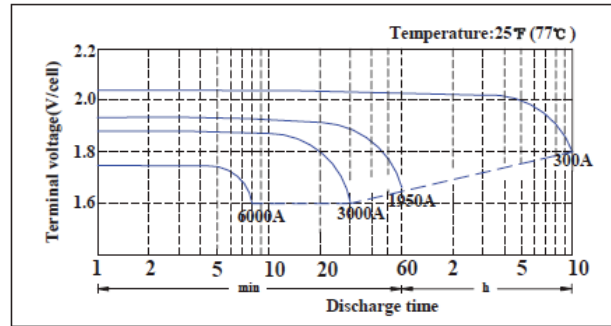
S2-3560AGM



Specifications

Nominal Voltage		2V
Rated Capacity (10 hour rate)		3000AH
Dimension	Total Height	382mm(15.04inches)
	Height	342mm(13.46inches)
	Length	711mm(27.99inches)
	Width	353mm(13.90inches)
Weight		Approx 195.6kg (430.32lbs)

Discharge characteristics 77°F (25°C)



Float charge method: Constant voltage: 2.23V/Cell(25°C)
 Temperature compensation factor: - 3mV/°C/Cell

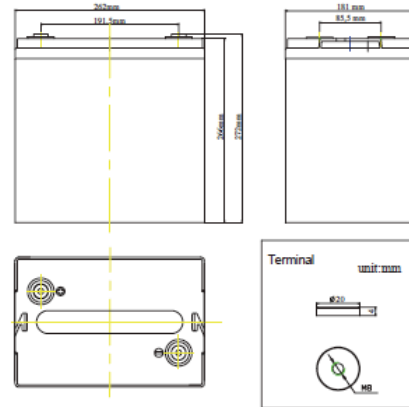
Constant power discharge watts per cell @ 77°F(25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	10871	8851	7591	6755	5955	5505	5076	4736	4480	3829	2364	1740	1152	765	622	523	271
1.63	10340	8394	7395	6479	5762	5295	4972	4650	4406	3729	2290	1698	1143	765	622	523	271
1.65	10059	8315	7221	6432	5718	5247	4869	4564	4332	3729	2290	1698	1116	765	616	523	271
1.67	9712	8181	7078	6303	5655	5154	4790	4511	4286	3729	2290	1698	1116	750	609	523	271
1.70	9399	7708	6894	6097	5488	5012	4711	4458	4241	3623	2230	1629	1095	747	603	523	271
1.75	8676	7371	6481	5834	5296	4847	4553	4352	4110	3523	2156	1590	1068	732	597	522	271
1.80	7865	6769	5973	5473	4993	4682	4362	4135	3979	3382	2085	1577	1041	719	591	508	271
1.85	6026	5452	5088	4694	4368	4063	3855	3605	3478	3054	1931	1464	966	672	560	481	257
1.90	4816	4449	4187	3910	3675	3509	3359	3215	3119	2748	1770	1341	918	627	529	454	243

Constant current discharge ratings amperes @ 77°F (25°C)

End Point Volt/cell	Operation Time To End Point Voltage																
	5min	10min	15min	20min	25min	30min	35min	40min	45min	1h	2h	3h	5h	8h	10h	12h	24h
1.60	6557	5207	4338	3793	3298	3030	2782	2580	2432	2053	1238	909	600	390	316	266	138
1.63	6142	4994	4194	3582	3179	2898	2726	2509	2372	2011	1218	896	588	390	316	266	138
1.65	5917	4798	4058	3557	3139	2867	2647	2466	2333	1984	1198	882	577	390	313	266	138
1.67	5642	4661	3932	3485	3055	2807	2596	2433	2304	1957	1183	865	571	385	309	266	138
1.70	5392	4450	3812	3349	2995	2720	2548	2402	2277	1919	1164	845	566	380	306	266	138
1.75	4901	4079	3569	3184	2864	2614	2434	2322	2190	1859	1121	822	550	375	303	263	138
1.80	4332	3707	3268	2964	2687	2515	2330	2194	2108	1779	1080	811	536	366	300	258	138
1.85	3235	2913	2706	2504	2306	2133	2019	1882	1813	1587	990	750	492	3410	283	243	130
1.90	2527	2330	2188	2031	1902	1814	1737	1659	1608	1411	900	682	462	316	266	228	122

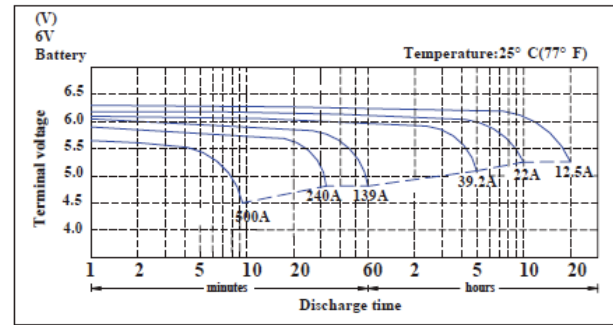
S6-275AGM



Specifications

Nominal Voltage		6V
Rated Capacity (20 hour rate)		250AH
Dimension	Total Height (with terminals)	272mm(10.71inches)
	Height	266mm(10.47inches)
	Length	262mm(10.31inches)
	Width	181mm(7.13inches)
Weight		Approx.34.5kg (75.91lbs)

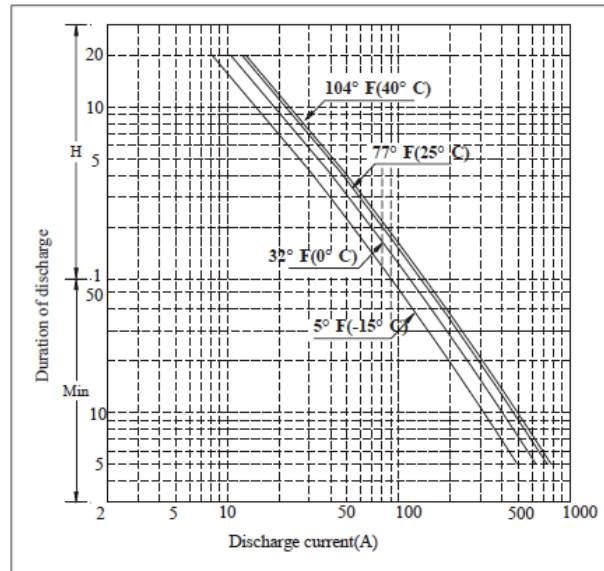
Discharge characteristics 77°F (25°C)



Characteristics

Capacity 77°F (25°C)	20 hour rate (12.5A to 5.25Volts)	250AH
	10 hour rate (22A to 5.25Volts)	220AH
	5 hour rate (39.2A to 5.1Volts)	196AH
Internal Resistance	Full charged 77°F (25°C)	1.3mΩ
Capacity affected by Temperature (20 hour rate)	104°F (40°C)	102%
	77°F (25°C)	100%
	32°F (0°C)	85%
	5°F (-15°C)	65%
Self-Discharge 77°F (25°C)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Standard Terminal	M8	
Max. Discharge Current 77°F (25°C)	2000A (5s)	
Reserve Capacity (Minutes to 5.25V at 80°F (27°C))	@ 25Amps	510Min
	@ 75Amps	130Min
Charging (Constant Voltage)	Cycle	Initial Charging Current 50A Or Small 7.25V~7.45V/77°F(25°C)
	Float	6.8V~6.9V/77°F(25°C)

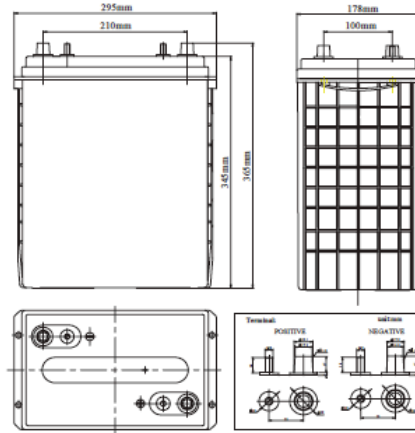
Duration of discharge vs. Discharge current



Constant Current Discharge Rating Amperes @ 77 °F (25°C)

Cut off voltage V/cell	30M	45M	1H	2H	3H	5H	8H	10H	12H	20H	24H
1.75V	214	158	130.7	75.4	54.3	38.1	26.1	21.60	18.40	12.50	10.82

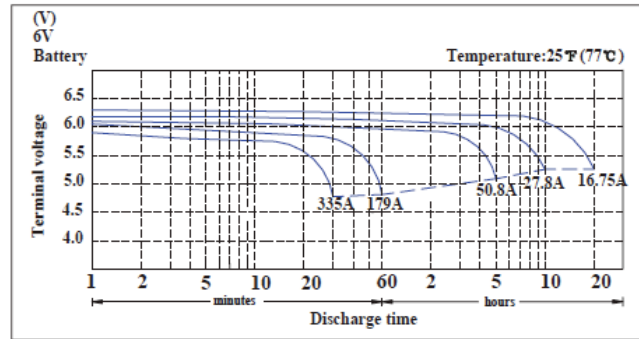
S6-370AGM



Specifications

Nominal Voltage		6V
Rated Capacity (20 hour rate)		335AH
Dimension	Total Height (with terminals)	365mm(14.37inches)
	Height	345mm(13.58inches)
	Length	295mm(11.61inches)
	Width	178mm(7.00inches)
Weight		Approx. 47.8kg (105.38lbs)

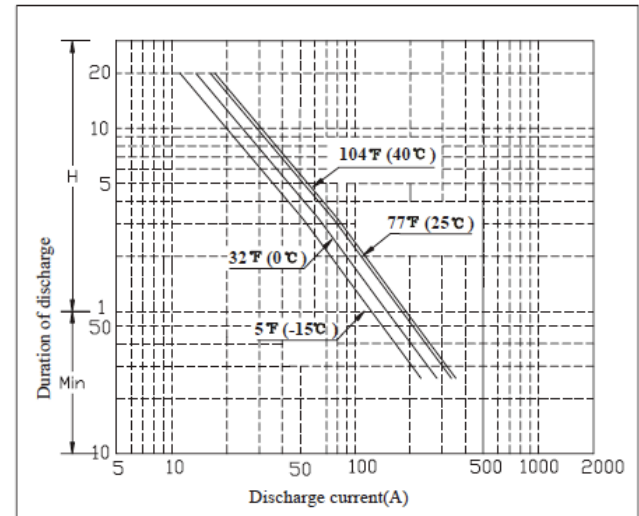
Discharge characteristics 77°F (25°C)



Characteristics

Capacity 77°F (25°C)	20 hour rate (16.75A to 5.25Volts)	335AH
	10 hour rate (27.8A to 5.25Volts)	278AH
	5 hour rate (50.8A to 5.1Volts)	254AH
Internal Resistance	Full charged 77°F (25°C)	1.6mΩ
Capacity affected by Temperature (20 hour rate)	104°F (40°C)	102%
	77°F (25°C)	100%
	32°F (0°C)	85%
	5°F (-15°C)	65%
Self-Discharge 77°F (25°C)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Standard Terminal	DT	
Max. Discharge Current 77°F (25°C)	2000A (5s)	
Reserve Capacity (Minutes to 5.25V at 80°F (27°C))	@ 25Amps	695Min
	@ 75Amps	200Min
Charging (Constant Voltage)	Cycle	Initial Charging Current 67A Or Small 7.25V~7.45V/77°F (25°C)
	Float	6.8V~6.9V/77°F (25°C)

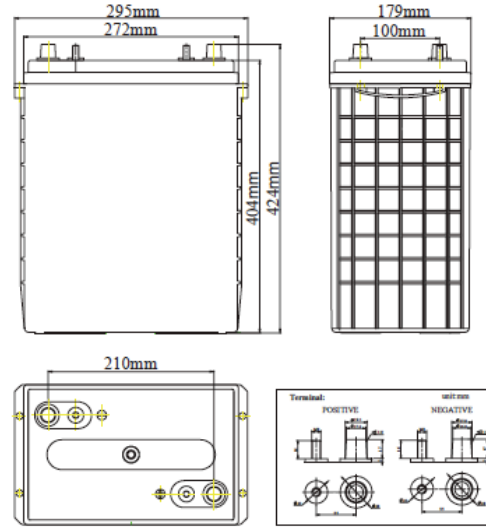
Duration of discharge vs. Discharge current



Constant Current Discharge Rating Amperes @ 77 °F (25°C)

Cut off voltage V/cell	30M	45M	1H	2H	3H	5H	8H	10H	12H	20H	24H
1.75V	279	206	170.5	94.8	70.2	49.2	33.7	27.80	23.77	16.75	14.50

S6-460AGM



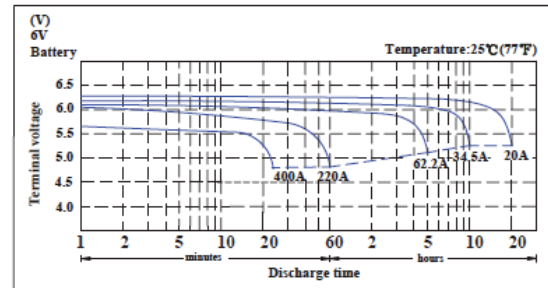
Specifications

Nominal Voltage		6V
Rated Capacity (20 hour rate)		400AH
Dimension	Total Height (with terminals)	424mm(16.69inches)
	Height	404mm(15.90inches)
	Length	295mm(11.61inches)
	Width	179mm(7.04inches)
Weight		Approx. 56.0 kg (123.2 Ibs)

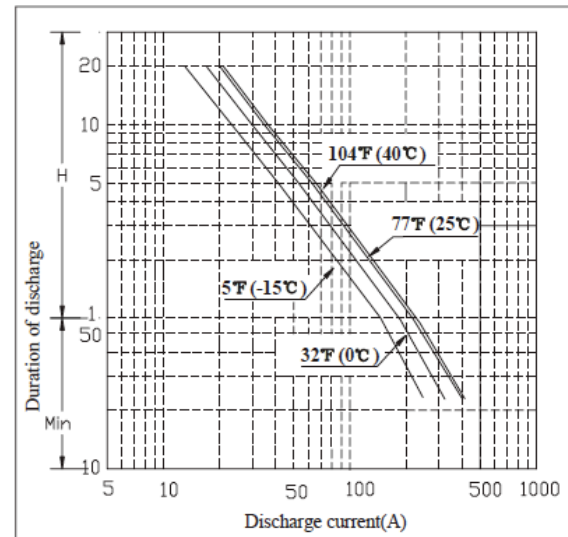
Characteristics

Capacity 77°F (25°C)	20 hour rate (20A to 5.25Volts)	400AH
	10 hour rate (34.5A to 5.25Volts)	345AH
	5 hour rate (62.2A to 5.1Volts)	311AH
Internal Resistance	Full charged 77°F (25°C)	1.6mΩ
Capacity affected by Temperature (20 hour rate)	104°F (40°C)	102%
	77°F (25°C)	100%
	32°F (0°C)	85%
	5°F (-15°C)	65%
Self-Discharge 77°F (25°C)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Standard Terminal	DT	
Max. Discharge Current 77°F (25°C)	2000A (5s)	
Reserve Capacity (Minutes to 5.25V at 80°F (27°C))		@ 25Amps 850Min @ 75Amps 240Min
Charging (Constant Voltage)	Cycle	Initial Charging Current 80A Or Small 7.25V~7.45V/77°F (25°C)
	Float	6.8V~6.9V/77°F (25°C)

Discharge characteristics 77°F (25°C)



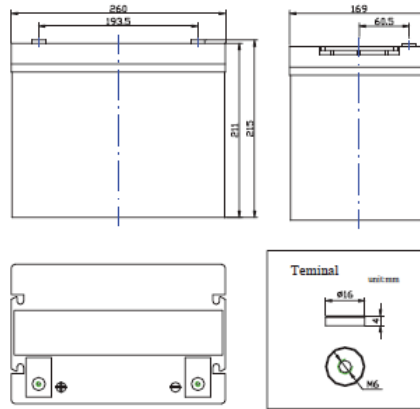
Duration of discharge vs. Discharge current



Constant Current Discharge Rating Amperes @ 77 °F (25°C)

Cut off voltage V/cell	30M	45M	1H	2H	3H	5H	8H	10H	12H	20H	24H
1.75V	354	261	212.0	113.0	86.0	60.3	41.3	34.50	29.13	20.00	17.3

S12-95AGM



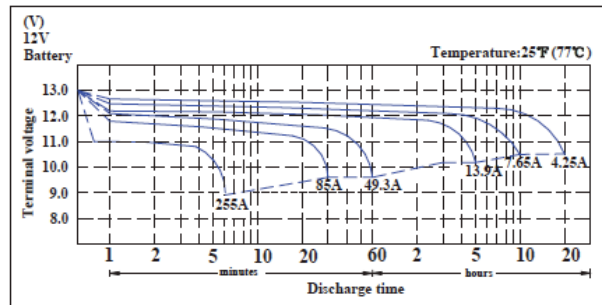
Specifications

Nominal Voltage		12V
Rated Capacity (20 hour rate)		85AH
Dimension	Total Height (with terminals)	215mm(8.46 inches)
	Height	211mm(8.31 inches)
	Length	260mm(10.24inches)
	Width	169mm(6.69inches)
Weight		Approx.25.1kg (55.34lbs)

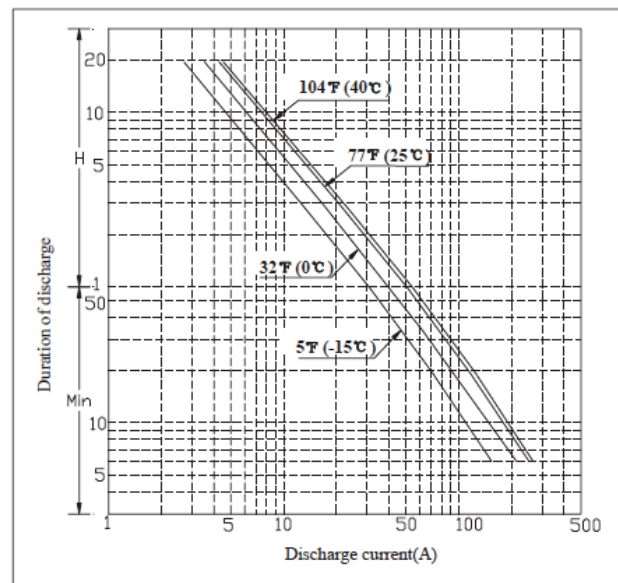
Characteristics

Capacity 77°F (25°C)	20 hour rate (4.25A to 10.5Volts)	85AH
	10 hour rate (7.65A to 10.5Volts)	76.5AH
	5 hour rate (13.9A to 10.2Volts)	69.5AH
Internal Resistance	Full charged Battery 77°F (25°C)	5.3m Ω
Capacity affected by Temperature (20 hour rate)	104°F (40°C)	102%
	77°F (25°C)	100%
	32°F (0°C)	85%
	5°F (-15°C)	65%
Self-Discharge 77°F (25°C)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Standard Terminal	M6	
Max. Discharge Current 77°F (25°C)	1000A (5s)	
Cranking Performance	Cranking Amps (30-sec amps to 7.2V @ 32° F (0° C)	600A
	Cold Cranking Amps (30-sec amps to 7.2V @ 0° F (-18° C)	510A
Reserve Capacity (Minutes to 10.5V at 80°F (27°C)	@ 25Amps	130Min
	@ 75Amps	34Min
Charging (Constant Voltage)	Cycle	Initial Charging Current 17A Or Small 14.5V~14.9V/77°F (25°C)
	Float	13.6V~13.8V/77°F (25°C)

Discharge characteristics 77°F (25°C)



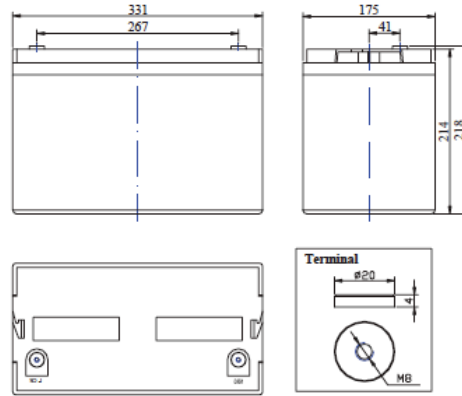
Duration of discharge vs. Discharge current



Constant Current Discharge Rating Amperes @ 77 °F (25°C)

Cut off voltage V/cell	15M	30M	45M	1H	2H	3H	5H	8H	10H	12H	20H	24H
1.75V	123	79	58	48.3	25.6	19.2	13.5	9.2	7.65	6.52	4.25	3.56

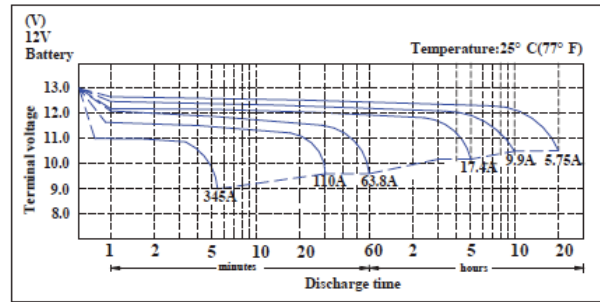
S12-128AGM



Specifications

Nominal Voltage		12V
Rated Capacity (20 hour rate)		115AH
Dimension	Total Height (with terminals)	218mm(8.58inches)
	Height	214mm(8.43inches)
	Length	331mm(13.03inches)
	Width	175mm(6.89inches)
Weight		Approx. 32.9kg (72.38lbs)

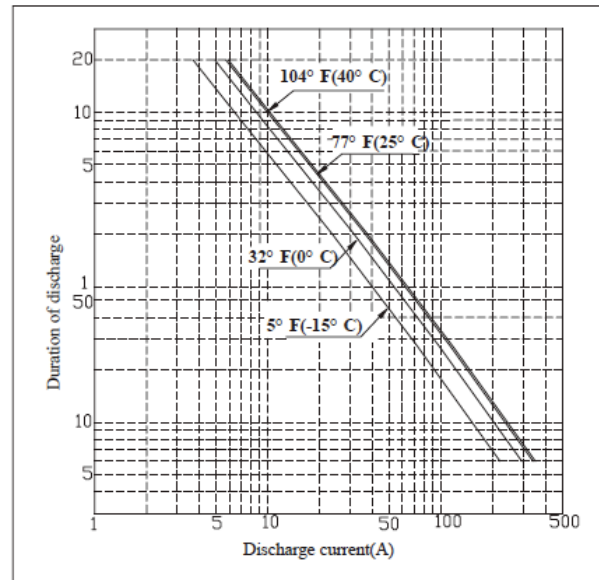
Discharge characteristics 77°F (25°C)



Characteristics

Capacity 77°F (25°C)	20 hour rate (5.75A to 10.5Volts)	115AH
	10 hour rate (9.9A to 10.5Volts)	99AH
	5 hour rate (17.4A to 10.2Volts)	87AH
Internal Resistance	Full charged Battery 77°F (25°C)	3.8mΩ
Capacity affected by Temperature (20 hour rate)	104°F (40°C)	102%
	77°F (25°C)	100%
	32°F (0°C)	85%
	5°F (-15°C)	65%
Self-Discharge 77°F (25°C)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Standard Terminal	M8	
Max. Discharge Current 77°F (25°C)	1100A (5s)	
Cranking Performance	Cranking Amps (30-sec amps to 7.2V @ 32° F (0° C))	720A
	Cold Cranking Amps (30-sec amps to 7.2V @ 0° F (-18° C))	605A
Reserve Capacity (Minutes to 10.5V at 80°F (27°C))	@ 25Amps	165Min
	@ 75Amps	45Min
Charging (Constant Voltage)	Cycle	Initial Charging Current 22A Or Small 14.5V~14.9V/77°F (25°C)
	Float	13.6V~13.8V/77°F (25°C)

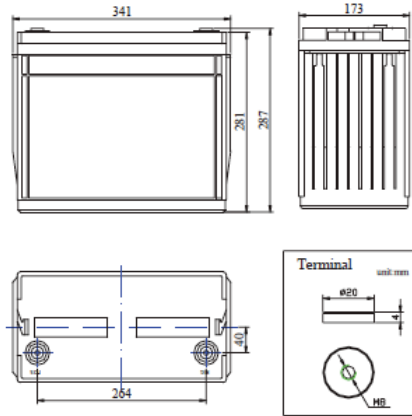
Duration of discharge vs. Discharge current



Constant Current Discharge Rating Amperes @ 77 °F (25°C)

Cut off voltage V/cell	15M	30M	45M	1H	2H	3H	5H	8H	10H	12H	20H	24H
1.75V	152	98	72	59.7	31.6	23.8	16.7	11.4	9.90	8.43	5.75	4.88

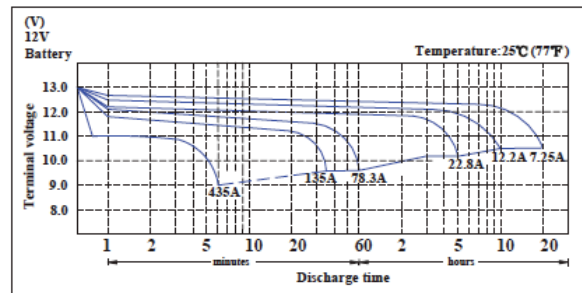
S12-160AGM



Specifications

Nominal Voltage		12V
Rated Capacity (20 hour rate)		145AH
Dimension	Total Height (with terminals)	287mm(11.30inches)
	Height	281mm(11.06inches)
	Length	341mm(13.43inches)
	Width	173mm(6.81inches)
Weight		Approx.44.3kg (97.46lbs)

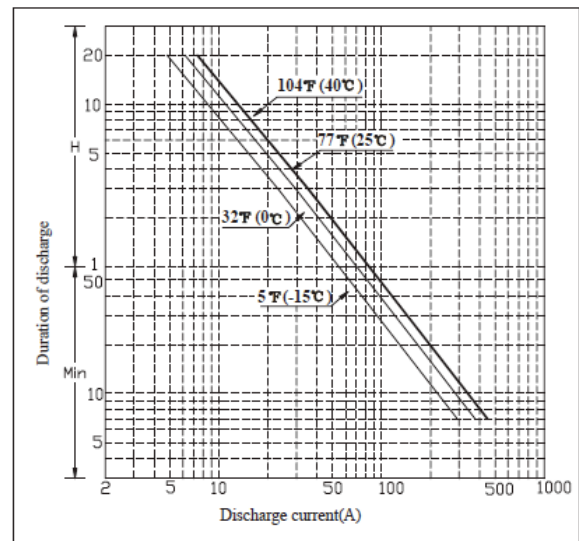
Discharge characteristics 77 °F (25 °C)



Characteristics

Capacity 77°F (25°C)	20 hour rate (7.25A to 10.5Volts)	145AH
	10 hour rate (12.2A to 10.5Volts)	122AH
	5 hour rate (22.8A to 10.2Volts)	114AH
Internal Resistance	Full charged 77°F (25°C)	3.6mΩ
Capacity affected by Temperature (20 hour rate)	104°F (40°C)	102%
	77°F (25°C)	100%
	32°F (0°C)	85%
	5°F (-15°C)	65%
Self-Discharge 77°F (25°C)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Standard Terminal	M8	
Max. Discharge Current 77°F (25°C)	1400A (5s)	
Cranking Performance	Cranking Amps (30-sec amps to 7.2V @ 32° F (0° C)	975A
	Cold Cranking Amps (30-sec amps to 7.2V @ 0° F (-18° C)	820A
Reserve Capacity (Minutes to 10.5V at 80°F (27°C)	@ 25Amps	260Min
	@ 75Amps	70Min
Charging (Constant Voltage)	Cycle	Initial Charging Current 27A Or Small 14.4V~14.9V/77°F (25°C)
	Float	13.6V~13.8V/77°F (25°C)

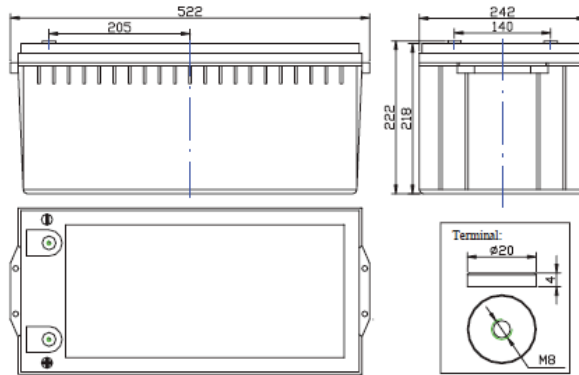
Duration of discharge vs. Discharge current



Constant Current Discharge Rating Amperes @ 77°F (25°C)

Cut off voltage V/cell	15M	30M	45M	1H	2H	3H	5H	8H	10H	12H	20H	24H
1.75V	280	134	97	76.7	43.7	31.7	21.4	14.7	12.15	10.35	7.25	6.15

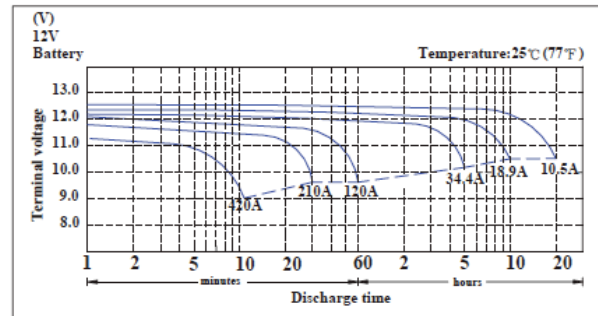
S12-230AGM



Specifications

Nominal Voltage		12V
Rated Capacity (20 hour rate)		210AH
Dimension	Total Height (with terminals)	222mm(8.74inches)
	Height	218mm(8.58inches)
	Length	522mm(20.55inches)
	Width	242mm(9.53 inches)
Weight		Approx.66.5kg (146.3lbs)

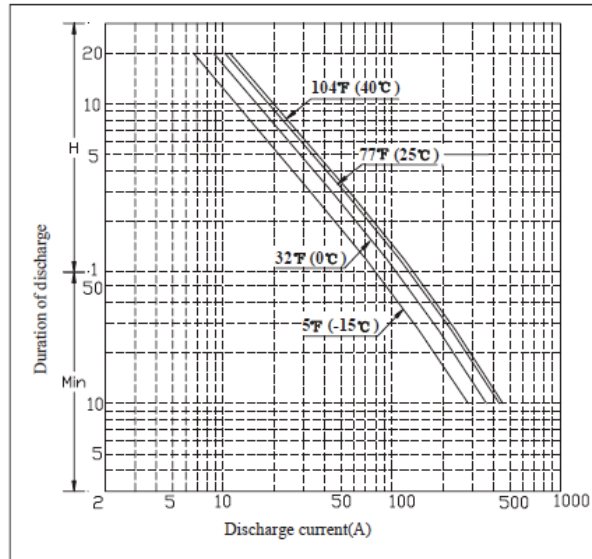
Discharge characteristics 77°F (25°C)



Characteristics

Capacity 77°F (25°C)	20 hour rate (10.5A to 10.5Volts)	210AH
	10 hour rate (18.9A to 10.5Volts)	189AH
	5 hour rate (34.4A to 10.2Volts)	172AH
Internal Resistance	Full charged 77°F (25°C)	2mΩ
Capacity affected by Temperature (20 hour rate)	104°F (40°C)	102%
	77°F (25°C)	100%
	32°F (0°C)	85%
	5°F (-15°C)	65%
Self-Discharge 77°F (25°C)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Standard Terminal	MS	
Max. Discharge Current 77°F (25°C)	2100A (5s)	
Reserve Capacity		@ 25Amps 415Min
(Minutes to 10.5V at 80°F (27°C))		@ 75Amps 110Min
Charging (Constant Voltage)	Cycle	Initial Charging Current 42A Or Small 14.5V~14.9V/77°F (25°C)
	Float	13.6V~13.8V/77°F (25°C)

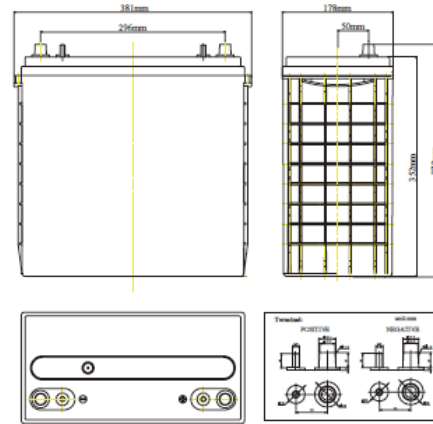
Duration of discharge vs. Discharge current



Constant Current Discharge Rating Amperes @ 77 °F (25°C)

Cut off voltage V/cell	30M	45M	1H	2H	3H	5H	8H	10H	12H	20H	24H
1.75V	196	144	119.4	63.2	47.5	33.3	22.8	18.90	16.10	10.50	8.79

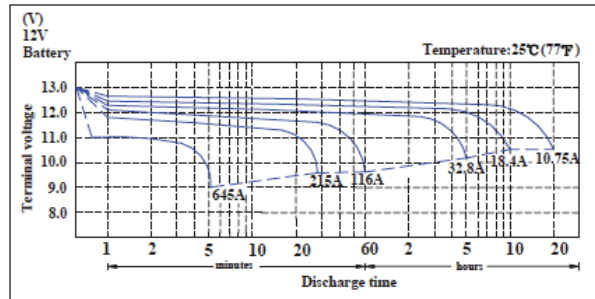
S12-240AGM



Specifications

Nominal Voltage		12V
Rated Capacity (20 hour rate)		215AH
Dimension	Total Height (with terminals)	372mm(14.65inches)
	Height	352mm(13.86inches)
	Length	381mm(15inches)
	Width	178mm(7.01inches)
Weight		Approx60kg (132.28Ibs)

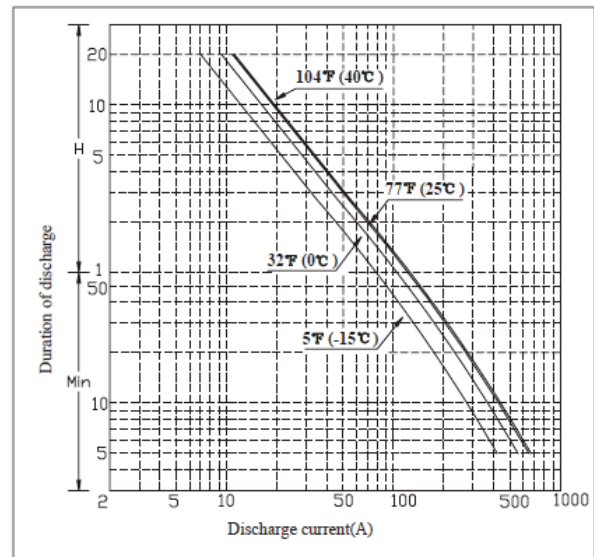
Discharge characteristics 77°F (25°C)



Characteristics

Capacity 77°F (25°C)	20 hour rate (10.75A to 10.5Volts)	215AH
	10 hour rate (18.4A to 10.5Volts)	184AH
	5 hour rate (32.8A to 10.2Volts)	164AH
Internal Resistance	Full charged 77°F (25°C)	2.3mΩ
Capacity affected by Temperature (20 hour rate)	104°F (40°C)	102%
	77°F (25°C)	100%
	32°F (0°C)	85%
	5°F (-15°C)	65%
Self-Discharge 77°F (25°C)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Standard Terminal	DT	
Max. Discharge Current 77°F (25°C)	2000A (5s)	
Reserve Capacity (Minutes to 10.5V at 80°F (27°C))	@ 25Amps	420Min
	@ 75Amps	95Min
Charging (Constant Voltage)	Cycle	Initial Charging Current 43A Or Small 14.5V~14.9V/77°F (25°C)
	Float	13.6V~13.8V/77°F (25°C)

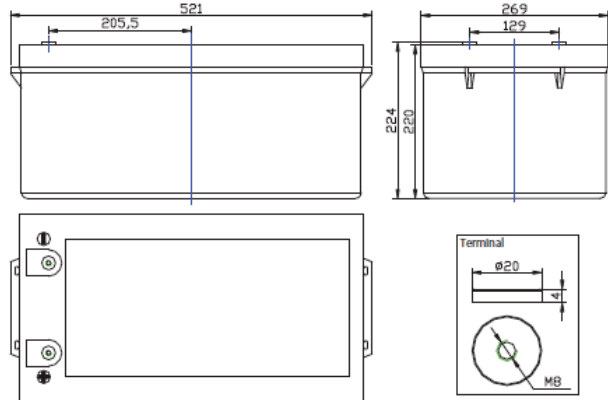
Duration of discharge vs. Discharge current



Constant Current Discharge Rating Amperes @ 77 °F (25°C)

Cut off voltage V/cell	30M	45M	1H	2H	3H	5H	8H	10H	12H	20H	24H
1.75V	195	148	112	63	48.2	32.1	21.6	18.4	15.72	10.75	9.31

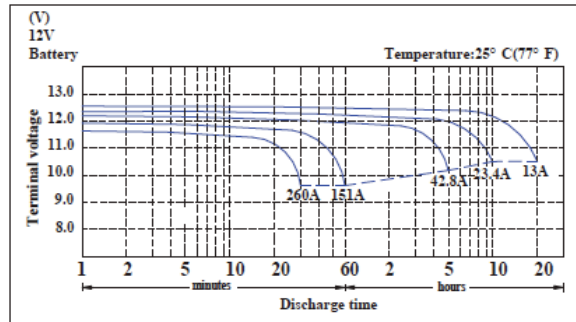
S12-290AGM



Specifications

Nominal Voltage		12V
Rated Capacity (20 hour rate)		260AH
Dimension	Total Height (with terminals)	224mm(8.82inches)
	Height	220mm(8.66inches)
	Length	521mm(20.51inches)
	Width	269mm(10.59inches)
Weight		Approx.78.2kg (172.40Ibs)

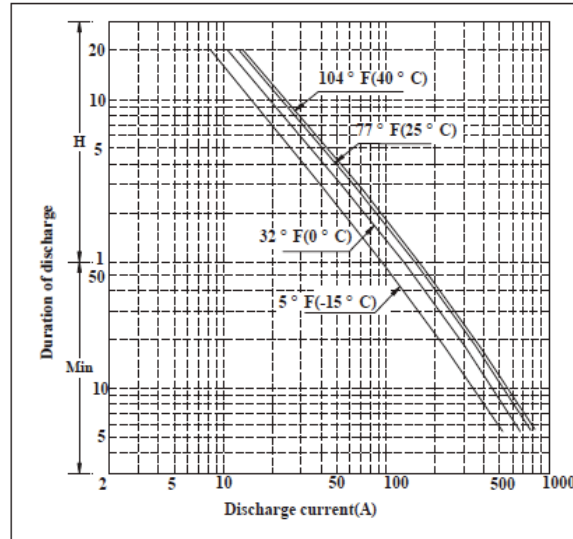
Discharge characteristics 77°F (25°C)



Characteristics

Capacity 77°F (25°C)	20 hour rate (13A to 10.5Volts)	260AH
	10 hour rate (23.4A to 10.5Volts)	234AH
	5 hour rate (42.8A to 10.2Volts)	214AH
Internal Resistance	Full charged 77°F (25°C)	1.8mΩ
Capacity affected by Temperature (20 hour rate)	104°F (40°C)	102%
	77°F (25°C)	100%
	32°F (0°C)	85%
	5°F (-15°C)	65%
Standard Terminal	M8	
Self-Discharge 77°F (25°C)	Capacity after 3 month storage	91%
	Capacity after 6 month storage	82%
	Capacity after 12 month storage	64%
Max. Discharge Current 77°F (25°C)	2600A (5s)	
Reserve Capacity (Minutes to 10.5V at 80°F (27°C))	@ 25Amps	530Min
	@ 75Amps	130Min
Charging (Constant Voltage)	Cycle	Initial Charging Current 52A Or Small 14.5V~14.9V/77°F (25°C)
	Float	13.6V~13.8V/77°F (25°C)

Duration of discharge vs. Discharge current



Constant Current Discharge Rating Amperes @ 77 °F (25°C)

Cut off voltage V/cell	30M	45M	1H	2H	3H	5H	8H	10H	12H	20H	24H
1.75V	233	172	147.8	78.3	58.9	41.3	28.3	23.40	19.93	13.00	10.88