



# SG 1200H

Power Lead carbon Premium Battery

**SG SERIES**  
Solar Gel Deep Cycle



\*\*\* The color and the printed specifications of the products are subject to change without prior notice.

NEWMAX Solar gel batteries are true maintenance-free sealed batteries engineered specially to satisfy the need for frequent deep cycles from PVs and renewable energy storage applications. We are confident that our technology-intensive, long-lasting, and environment friendly SG batteries will provide stability and efficiency for your everyday renewable energy needs.

**01 Longer Life    02 Maintenance Free    03 Leak Free    04 Safety**

High density, anti-corrosion lead calcium alloy is used in harmony with the GEL electrolyte to reduce the sulfation effect significantly.

NEWMAX battery has a gas recombining design that doesn't need maintenance until the end of its life.

Gel Technology is applied to prevent leakage. They won't spill even if the battery is tipped upside down.

Specially designed anti-explosion filter and safety valves prevent gas leakage when overcharged.

**General Feature**

◆ Plate	Paste type
◆ Battery type	Sealed and Maintenance free / Non-spillable construction design
◆ Case/cover mat	High-stiffness engineering PP plastic (Heat Deflection Temp. 140°C) RoHS Compliant EU Directive 2002/95/EC
◆ Safety performance	Safety valve & flame arrestor installation for explosion proof.
◆ High quality, high reliability and low self discharge rate	◆ Exceptional deep discharge recovery performance
◆ Flexibility design for multiple install positions (Position Free, GEL Technology)	
◆ Designed in accordance with and published in compliance with applicable IEC and BS EN, KS stds.	

- IEC 60896-21/22 Stationary lead-acid batteries – Valve regulated types
- BS EN 61427 Secondary cells and batteries for photovoltaic energy systems (PVES)
- KS C 8518 Stationary sealed lead-acid batteries – Valve regulated types

**Technical Feature**



**Fahrenheit-Schutz™ Heat Protection Case**

Specially Formulated heat and flame resistant PP case material is used to effectively block ambient heat thus preventing heat related malfunctions such as thermal runaway. This proprietary high rigidity case material has heat deflection rating of 140°C.



**MaxPress™ Grid Technology**

Patent pending grid compressing technology which increase the density of the lead grain of the grids. The grain density is typically 400% greater than that of the conventional casting method. This up-to-date grid technology enables our batteries to survive even the toughest deep discharge and PSoC applications.



**ThixoPure™ GEL Technology**

Application of refined pure thixotropic colloidal silica GEL technology to battery electrolyte has greatly increased the cycle life by both preventing plate stratification and providing extra temperature protection against heat and cold. We are the first Korean company to successfully commercialize the GEL technology in the VRLA battery industry.



**FlexSealing™ Anti Explosion Filter**

Patent pending proprietary cap filtering and sealing technology. Battery cell caps are sealed simultaneously using specially designed O-ring and explosion filters to prevent leakage and gassing more effectively than ever before.

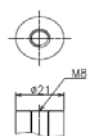


**Active Carbon™**

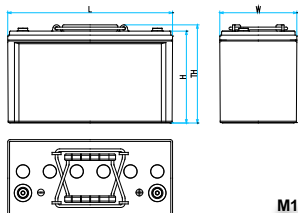
In every NEWMAX battery, proprietary active carbon additive is used in the active material for both positive and negative plates to enhance charge acceptance and cycle endurance. Active Carbon™ works to strengthen charge pathways to improve performance consistency and enhance performance at partial state of charge(PSoC) environment.

**Operating temperature range**

Discharge	Charge	Storage
-20°C~60°C	0°C~50°C	-20°C~60°C



Standard

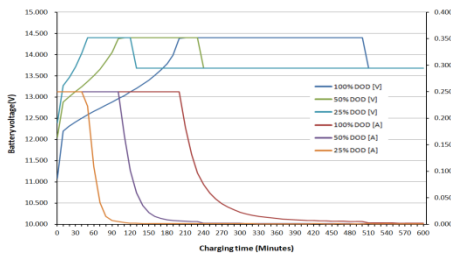


M1-02

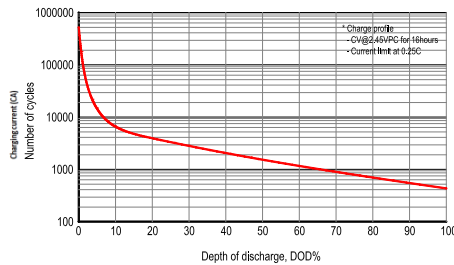
Battery model	SG 1200H (12V120AH / 20 HOUR RATE)			
Capacity (@25°C)	C <sub>20</sub> (1.80VPC)	C <sub>10</sub> (1.80VPC)	C <sub>5</sub> (1.70VPC)	C <sub>1</sub> (1.60VPC)
	120Ah	100Ah	96Ah	72Ah
Dimensions (mm/inch)	Length	Width	Height	Total Height
	371(14.60)	173(6.81)	205(8.07)	220(8.66)
Weight (kg/lbs)	32.7kg(72.09 lbs) ± 5%			
Internal resistance (mΩ)	≤3.74mΩ (25°C, 77°F), Full charged			
Max. discharge current (5sec)	800A	Max. discharge current(continuous)		300 A
Capacity affected by Temperature	@30°C (86°F)	@25°C (77°F)	@10°C (50°F)	@-10°C (14°F)
	105%	103%	95%	78%
Self discharge (@25°C, 77F)	After 1 month ≤2%		After 3 month ≤6%	After 6 month ≤12%
Max. short duration discharge current (0.1sec)	2,000A ± 10%			
Recommended charging (@25°C) Solar system	<b>1<sup>st</sup> Bulk step</b>	<b>2<sup>nd</sup> Absorption step</b>		<b>3<sup>rd</sup> Floating step</b>
	0.20~0.25C CC	2.40V/cell CV, (cut-off A : 0.005C)		2.28V/cell CV



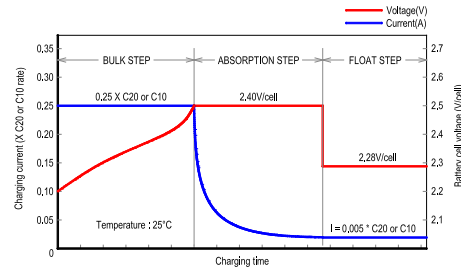
### DOD % vs charging time curve (@25°C)



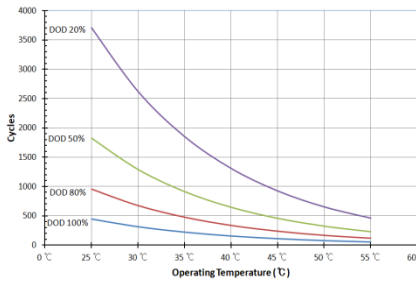
### Cycle life vs detail DOD% (@25°C)



### Solar charging characteristics (@25°C)

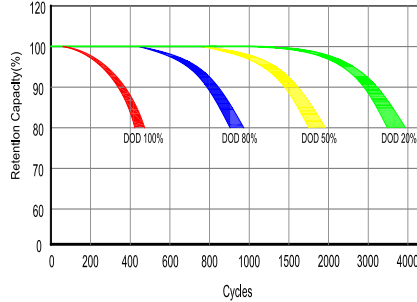


### Relationship between cycle life & temp.

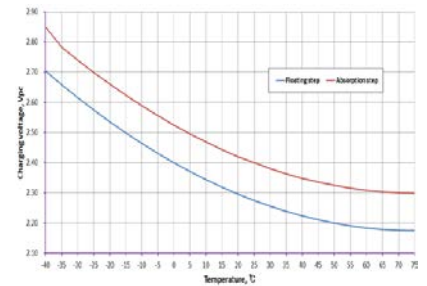


### Cycle life characteristics (@25°C)

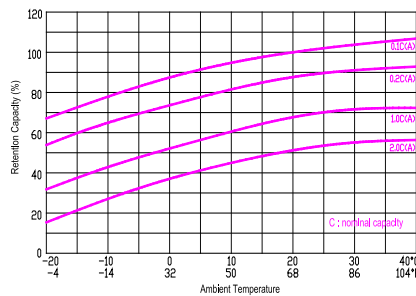
Discharge Current : 0.17C Amphere (cut-off 1.70V/cell) Charging Current : 2.40V/cell, MAX 0.25CA  
Charging : 120% of discharge capacity (25°C)



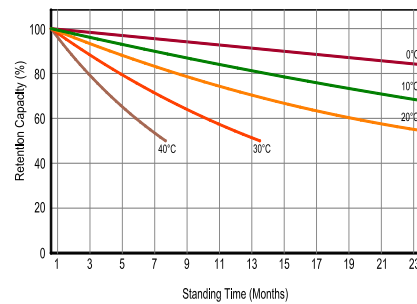
### Relationship between charging voltage & temp. (For solar system)



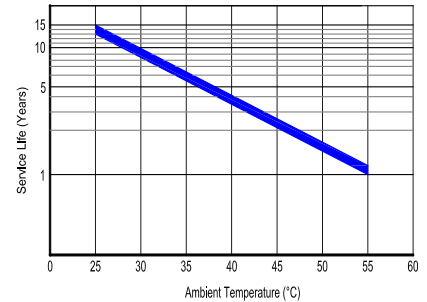
### Effect of temperature on capacity



### Self discharge



### Relationship between Floating life & temp.



### Discharge ratings – Amperes @ 25°C

V/cell	Minutes						Hours						
	5	10	15	20	30	45	1	2	3	5	8	10	20
1.85V	222	175	145	123	100	74.1	59.6	35.6	25.3	17.4	11.2	9.14	5.50
1.80V	259	198	160	135	109	81.0	64.9	37.7	26.6	18.6	12.2	10.0	6.00
1.75V	294	223	179	149	118	85.4	67.5	38.7	27.1	19.0	12.4	10.2	6.01
1.70V	329	241	188	155	121	87.1	68.8	39.3	27.6	19.2	12.6	10.3	6.01
1.65V	362	252	195	159	124	88.9	70.1	39.7	28.0	19.4	12.8	10.4	6.04
1.60V	403	266	202	161	126	91.5	71.9	40.1	28.3	19.6	12.9	10.5	6.10

### Discharge ratings – Watts / Block @ 25°C

V/cell	Minutes						Hours						
	5	10	15	20	30	45	1	2	3	5	8	10	20
1.85V	2,507	2,035	1,708	1,467	1,220	919	748	429	306	210	136	110	66.5
1.80V	2,881	2,239	1,852	1,587	1,307	981	793	443	314	214	139	112	67.4
1.75V	3,207	2,449	2,004	1,689	1,366	1,014	817	460	323	221	142	114	67.4
1.70V	3,519	2,589	2,070	1,728	1,386	1,028	828	465	325	223	144	116	67.9
1.65V	3,773	2,716	2,136	1,770	1,412	1,048	841	469	330	226	146	118	68.7
1.60V	3,992	2,798	2,173	1,798	1,434	1,063	850	473	333	229	148	120	69.9