Valve Regulated Lead Acid Battery

DYNASTY VRLA Batteries
Engine Starting Applications

The typical starting, lighting and ignition (SLI) battery used in automotive engine starting applications is designed with the maximum possible number of thin plates per cell. As a result, more "cranking current" can be supplied by the battery however it may have a short life expectancy when subjected to continuous charging as in stand-by power "float" service. Further, as a result of having a liquid electrolyte, on continuous "float" charge there will be a water loss from the electrolyte due to "gassing" and a resulting requirement to periodically add make up water to the battery cells. These SLI batteries are sometimes used in continuous float applications for starting standby generators and usually with poor results.

The DYNASTY valve regulated lead acid (VRLA) batteries are intended to provide long service life while on a continuous "float" charge as a result of having much thicker plates. However, this also results in lower "cranking amp's" than the typical SLI battery. Further, these VRLA batteries have an immobilized electrolyte and implement an oxygen recombination cycle to minimize gassing and eliminate electrolyte maintenance.

There are times when a user wishes to replace a liquid electrolyte SLI lead acid battery with a VRLA battery in hopes of achieving longer life and eliminating the battery electrolyte maintenance. However, when specifying a VRLA battery for standby power engine starting applications, four important aspects of application must be considered:

1. The charging system must be of the constant voltage - current limited type for VRLA batteries.

   The charging system must be set to the recommended float voltage value 13.5 to 13.8 volts DC average per 12 volt series connected VRLA battery.

3. The installation should be in a ventilated area such that the VRLA battery is not exposed to excessive heat, such as next to the engine block or radiator, and that emitted gasses can not accumulate.

4. The VRLA battery will have different terminations than the SLI battery being replaced.

If the "wet" SLI battery being replaced required frequent "watering" it may have been due to the type of charger utilized or that the environment of the battery was excessively warm. In these situations the cause of the SLI battery premature failures must be corrected prior to installation of the VRLA battery.

The SLI battery being replaced is typically identified by BCI group size, cold cranking amperes, marine cranking amperes or minutes reserve capacity.

Form 41-7955 (3/99) Printed in U.S.A.

The BCI (Battery Council International) group size simply defines a standard set of physical dimensions for the container. The group size does not define the performance of the battery. A particular group size could contain any of a variety of plate designs and number of plates per cell, which would result in significantly different performance.

The cold cranking rating (**CCA**) is the amperes a battery can produce for 30 seconds at 0° F (-17.8°C) to a final voltage of 1.2 volts per cell (7.2 volts for a 12 volt battery).

The marine cranking rating (**MCA**) is the amperes a battery can produce for 30 seconds at 32° F (0° C) to a final voltage of 1.2 volts per cell.

With the gelled (U-1 and GC series) products, the CCA is approximately 5 times the 20 hour rated ampere-hour rated capacity while the MCA is approximately 120% of the CCA rate. The actual CCA performance of the battery is a function of the design of the specific batteries plates and "top lead".

The reserve capacity is the number of minutes the battery can supply 25 amperes at 80°F (26°C) until the voltage declines to 1.75 volts per cell (10.5 volts for a 12 volt battery). This provides a general idea of how long the battery could supply the automobile electrical system in the event of an alternator failure.

Engine starting SLI batteries are not typically rated in ampere-hours capacity.

Dynasty Model No.	Amp-Hr Capacity @ 20 Hour Rate to 1.75 V/C	Approximate Cold Cranking Amperes	Approximate Marine Cranking Amperes	BCI Group Container Size	Reserve Minutes at 25 amperes to 1.75 V/C
U1-31	31	150	180	U-1	27
GC12V45	45	225	270	22NF	55
GC12V65	65	285	340	24	105
GC12V75	82	410	492	27	120
GC12V100	87	435	522	31	150
BBG-165-RT	86	430	516	27	165
BBG-180-RT	92	460	552	31	180
GC6V200	170	780	935	4	335

With the AGM (UPS series) products, the CCA is approximately 7.5 times the 20 hour rated ampere-hour capacity while the MCA is approximately 122% of the CCA ampere rating. Again the actual CCA performance of the battery is a function of the design of the specific batteries plates and "top lead".

Dynasty Model No.	Amp-Hr Capacity @ 20 Hour Rate to 1.75 V/C	Approximate Cold Cranking Amperes	Approximate Marine Cranking Amperes	BCI Group Container Size	Reserve Minutes at 25 amperes to 1.75 V/C
UPS12-95	33	255	305	U-1	57
UPS12-100	26	190	230	U-2	38
UPS12-140	32	220	265	U-1	58
UPS12-170	50	345	415	22NF	90
UPS12-200	52	430	515	22NF	100
UPS12-225	75	540	650	24	155
UPS12-270	75	650	780	24	140
UPS12-275	88	650	780	27	160
UPS12-300	100	650	780	29	180
UPS12-310	88	750	900	27	160
UPS12-370	100	860	1030	31	180
UPS12-475	134	920	1100	Tall 31	280
UPS6-620	200	1300	1560	4	425

While the GC and UPS series batteries were not designed with engine starting as the intended application, certainly they can be used for this purpose when longer float service life and freedom from electrolyte maintenance are the criterion.