

Dynasty Frequently Asked Questions

Charging

What is the recommended float charging voltage for the DYNASTY valve regulated lead acid battery?

The float charging voltage is a function of the electrolyte specific gravity and will be indicated on the battery label. The DYNASTY VRLA batteries with an electrolyte specific gravity of 1.280 to 1.300 should be float charged at an average voltage of between 2.25 and 2.30 vdc per cell. For example, 10 each of the 12-volt units connected in series as a 60 cell, 120-volt string should be float charged at between 135 and 138 vdc.

When is the DYNASTY VRLA battery to be equalized?

When a system is initially installed it is recommended that it be equalized at a voltage of 2.4 volts per cell average for 12 to 24 hours. This practice will assure the system is fully charged and also aid in minimizing the on charge voltage differences between units in the same series string. Otherwise, equalization should not be required.

When should a DYNASTY VRLA battery be given a freshening charge?

The term “freshening charge” usually relates to periodic charging of batteries that are in inventory or storage. Twelve-volt DYNASTY VRLA batteries should be given a freshening charge at 2.4 volts per cell average for 12 hours when their open circuit voltage declines to an average of 2.08 volts per cell.

Design – Components

Why is the electrolyte specific gravity in the DYNASTY VRLA battery (1.300) higher than that used in an automotive (SLI) battery (approximately 1.260)?

The sulfuric acid (H_2SO_4) in the electrolyte is actually one of the three active materials in the battery. By increasing the percent acid, or specific gravity, of the electrolyte it increases the high rate performance and ampere-hour capacity of the battery. However, increasing the electrolyte specific gravity will also increase the open circuit voltage and required charging voltage of the battery.

How is the DYNASTY VRLA battery open circuit voltage related to the electrolyte specific gravity?

The cell open circuit voltage (OCV) is approximately equal to the electrolyte specific gravity (SG) number plus the number 0.84. For example, with an electrolyte SG of 1.300 the OCV will be 2.14 ($1.300 + 0.84$)

Discharging

During discharge of the battery string, one of the individual batteries gets hot. What is wrong?

It is most probable that the “hot” unit has a shorted cell or a low capacity cell that “reversed”.

What will happen if I take the battery to a lower end point voltage than that recommended?

Potentially, some of the cells could “reverse”. The active material on the plates could be stressed and sloughed. This over-discharging can reduce the life expectancy of the cell. If over-discharged at a very low rate, the cell could become hydrated resulting in “through separator shorts”.

Hazardous Materials

What materials are used in the DYNASTY VRLA battery?

The primary ingredients in the DYNASTY VRLA battery are lead and acid. In general, the battery is approximately 72% lead and lead compounds and 22% dilute sulfuric acid electrolyte by weight. The other 6% of the weight consists of the separators, container, vents, etc. The electrolyte has a specific gravity of approximately 1.300 and is therefore approximately 39% sulfuric acid by weight.

Installation

What codes or standards may be involved in the installation of a DYNASTY VRLA battery system?

The battery system installation may be subject to local, state, and national building, fire, and electrical codes. There are also guides as published by the IEEE. Relevant codes and guides may include, among others, the following:

- National Electric Code (NEC) Section 480 – Storage Batteries
 - Uniform Building Code (UBC) Article 307
 - Uniform Fire Code (UFC) Article 64
 - IEEE – 1187 “Recommended Practice for Installation of Valve Regulated Lead Acid Batteries”
 - OSHA 1926.403
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Periodic Maintenance

What codes or standards may be involved in the maintenance of a DYNASTY VRLA battery system?

The battery system maintenance may be subject to local, state, and national codes depending on the application. There are also guides as published by the IEEE. These codes and guides may include, among others, the following:

- IEEE – 1188 “Recommended Practice for Maintenance and Testing of Valve Regulated Lead Acid Batteries”
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Storage and Inventory Control

How can I determine the age of a DYNASTY VRLA battery?

Batteries shipped prior to December 31, 1999, have a three-digit shipping code with the first digit being the year and the following two being the month which the battery was shipped from the factory. For example, a code of 910 would be interpreted as 1999, October.

Batteries shipped on or after January 1, 2000, have a four-digit shipping code with the first two digits being the year and the following two being the month in which the battery was shipped from the factory. For example, a code of 0010 would be interpreted as 2000, October.

Temperature Affects

How will temperature affect the discharge time obtained from a DYNASTY VRLA battery system?

The battery operating time will increase somewhat for temperatures above 77°F while the operating time will decreased, significantly in some cases, for operating temperatures below 77°F.

Testing and Replacement

What useful tests can be performed on individual DYNASTY VRLA batteries?

There are several tests which can be performed on individual batteries including:

- Open circuit voltage test
- High rate momentary load test
- Internal resistance / impedance / conductance test
- Capacity test

Transportation

Can I take my wheelchair, scooter, or other equipment that is powered by a DYNASTY VRLA battery with me on the passenger airplane or cruise ship?

There should be no problem if the battery is of the absorbed glass mat (AGM) type – this includes TEL, UPS, MPS, and DCS series. These series of DYNASTY VRLA batteries are classified as “Battery, wet non-spillable, not subject to regulations” by DOT and IMO. By IATA they are classified as “Not restricted for air transport” and they are in compliance with IATA/ICAO special provision A67.

However, it must be remembered that the carrier may have more restrictive policies and they should be contacted prior to scheduling and ticketing. Also, be aware that the “Captain” has the final word on items carried on the aircraft/ship.

The gelled electrolyte DYNASTY VRLA batteries (GC and BBG series) are not judged to be in compliance with IATA/ICAO special provision A67. It is not recommended that they be shipped by “air”. The gelled electrolyte batteries are classified as “Battery, wet, filled with acid, UN2794, Class 8”. They must be treated in transportation as though they were “wet” batteries. While they can be legally shipped via air with special packaging etc., we do not recommend it.