

# LEAD CALCIUM SEMI-SEALED MAINTENANCE FREE BATTERY

## ROYAL

The Royal calcium battery is a general purpose semi-sealed battery with a design life up to **3 - 5 years** in standby use.

### FEATURES:

- Complete protection against reduction of sulfuric acid
- Preventing electrolyte losses by collecting and returning liquid to the reservoir
- Consistent starting performance
- High durability achieved by adoption of special wrought lead calcium grids
- Low resistance envelope separator
- Extremely low rate of self discharge

### APPLICATIONS:

- UPS BACK-UP SYSTEMS
- INVERTER BACKUP SYSTEMS
- INDUSTRIAL BACKUP SYSTEMS
- MARINE

Model	Nominal Capacity (20hr/ah)	Nominal Voltage	Reserve Capacity (Minutes)	Cold cranking Amps @ -18°C	Height (mm)	Length (mm)	Width (mm)	Weight (Approx.kg)	Terminal Type
NS40	35	12	52	310	230	200	135	9.54	SAE Post
NS60	45	12	75	325	230	240	135	11.52	SAE Post
NS70	65	12	110	550	230	265	190	16.86	SAE Post
56637K	65	12	110	550	175	275	175	16.08	SAE Post
1150K	105	12	180	625	240	335	175	24.78	10mm Stud
N150	150	12	300	900	230	510	220	41.5	SAE Post
N200	200	12	430	1000	245	520	280	55.7	SAE Post



NS40



NS60



NS70



1150K



N150 & N200

### DESCRIPTION

Royal batteries uses specially alloyed lead-calcium which allows extremely low levels of "electrolyte decrease".

Therefore there is no need to supplement distilled water if the charging system remains error free. Special liquid-gas separators keep the electrolyte inside. An electrolyte is any substance containing free ions that behave as an electrically conductive medium. These separators are also used between the positive and negative plates of a lead acid battery to prevent a short circuit through physical contact. No filler caps are required and there is therefore no electrolyte contamination, over watering or damage in use. Unique wrought lead-calcium grid design means less internal corrosion and efficient current conductivity for more power and longer life. It also cuts gassing, resists overcharge, heat and thermal runaway.

### TERMS AND RATINGS

**Cold cranking amperes (CCA)** is the amount of current a battery can provide at 0 °F (-18 °C). The ratings defined as the current a lead-acid battery at that temperature can deliver for 30 seconds and maintain at least 1.2 volts per cell (7.2 volts for a 12-volt battery). It is a more demanding test than those at higher temperatures.

**Hot cranking amperes (HCA)** is the amount of current a battery can provide at 80 °F (26.7 °C). The rating is defined as the current a lead-acid battery at that temperature can deliver for 30 seconds and maintain at least 1.2 volts per cell (7.2 volts for a 12-volt battery).

**Reserve capacity minutes (RCM)**, also referred to as reserve capacity (RC) is a battery's ability to sustain a minimum stated electrical load. It is defined as the time (in minutes) that a lead-acid battery at 80 °F (27 °C) will continuously deliver 25 amperes before its voltage drops below 10.5 volts.

**The hydrometer** measures the density and therefore indirectly, the amount of sulfuric acid in the electrolyte. A low reading means that sulfate is bound to the battery plates and that the battery is discharged. Upon recharge of the battery, the sulfate returns to the electrolyte.

# DEEP-CYCLE ROYAL MARINE SERIES

## ROYAL

The Royal calcium battery is a general purpose semi-sealed battery with a design life up to **3 - 5 years** in standby use.

### FEATURES:

- Low - Resistance envelope separators
- Flame arrester
- Hydrometer
- Heat-Sealed covers
- Polypropylene case
- Wrought lead calcium grids
- Centered cast-on plate straps
- Exclusive patented liquid gas separator

### APPLICATIONS:

- UPS Back-Up Systems
- Inverter Backup Systems
- Industrial Backup Systems
- Marine



BCI Group Size	Catalogue Number	Nominal Capacity (20hr/ah)	Nominal Voltage	Reserve Capacity (Minutes)	Cranking Amps @ 0°C	Height (mm)	Length (mm)	Width (mm)	Weight (Approx kg)	Terminal Type
24	DC24	70	12	275	620 (MCA)	229	275	172	20.3	SAE Post & Wing Nut
27	DC27	80	12	320	720 (MCA)	229	320	172	23.7	SAE Post & Wing Nut
31	DC31	100	12	110	790 (MCA)	234	330	172	27	SAE Post & Wing Nut

Battery Council International (BCI) Trade organization of lead-acid battery manufacturers.

Cranking amperes (CA), also sometimes referred to as marine cranking amperes (MCA), is the amount of current a battery can provide at 32°F (0°C).

### HOW TO RECHARGE:

The battery is an energy storage device. When energy is removed from the battery it must be put back by recharging. The amount of energy to be replaced depends on how much was taken out. The recharge time depending on the output ampere and type of charger. The Delkor Royal Marine and Deep Cycle battery has a built-in state-of-charge indicator to show how much energy is left in the battery. A green coloured ball or black coloured ball may be visible in the indicator.

### BATTERY CONNECTIONS:

Automotive batteries typically have different types of terminals. The most common design is the **SAE Post**, consisting of two lead posts in the shape of truncated cones, positioned on the top of the battery, with slightly different diameters to differentiate between plus and minus.



SAE Post



Clamp



SAE Post & Wingnut



8mm Screw Terminal  
GP121000



10mm Stud/Nut

### HOW TO HANDLE AND STORE BATTERIES:

Batteries should be stored in cool, dry (**15 - 27 °C**) places and out of direct sunlight (make sure the battery is fully charged). Delkor Royal batteries are tightly sealed to prevent acid leakage. However tilting the battery to an angle of 45 degrees or more can cause acid to leak through the over pressure relief vents on the sides. Batteries should therefore always be stored in their upright positions. Prevent placing any aqueous or solid (i.e. Conductors such as Screwdrivers, Spanners, Links, etc.) bodies on top of the battery. It is extremely dangerous to use tools such as hammers, on the battery terminals when connecting cables to the mounted battery. Use only the correct isolated tools and spanners. When storing the battery for long periods of time, check the voltage of the battery every 6 months. If the voltage (OCV) drops below 12.5V, recharge the battery before placing it back in storage. Check the hydrometer periodically on stored batteries. If 1 or 2 of the indicators appear black, recharge the battery immediately.