

CA @ 32°F VS CCA @ 0°F

The most common rating is **Cold Cranking Amperes (CCA) @ 0°F**. This rating tells you how many amperes a new battery at 0°F can deliver for 30 seconds, and maintain or exceed 1.2 volts per cell (7.2 volts for a 12 volt battery). For example, a new 525 CCA battery should deliver up to 525 amperes to the starter motor at 0°F for at least 30 seconds if required.

You may find a **Cranking Ampere (CA)** rating on a battery. CA's are measured @ 32°F, instead of 0°F. This rating will be about 10-30% higher than the CCA rating, depending on the design of the battery. Simply stated, this is because electrons flow faster in warm temperatures and slower in colder temperatures.

Having two different ratings, CA and CCA can be confusing! The important thing to remember is **be sure you know which ratings are being compared**. You can't compare a higher CA rated battery to a lower rated CCA battery. It's an "apples-to-oranges" comparison. **Always compare CCA to CCA or CA to CA... Never mix the two!**



Did you know lead-acid batteries are virtually 100% recyclable?

They have a higher recycling rate than other waste products such as aluminum, paper, glass and plastic. Be sure to return your scrap lead-acid battery to a retailer. In most states it is illegal to discard a battery in the trash.

BATTERY SAFETY

BE CAREFUL! Batteries produce explosive gases. Keep sparks, flames and cigarettes away from batteries at all times. **Protect your eyes at all times.**

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| ⚠ DANGER/POISON | | | | CALIFORNIA Proposition 65 Warning |
| SHIELD EYES. EXPLOSIVE GASES CAN CAUSE BLINDNESS OR INJURY. | NO SPARKS • FLAMES • SMOKING | SULFURIC ACID CAN CAUSE BLINDNESS OR SEVERE BURNS. | FLUSH EYES IMMEDIATELY WITH WATER. GET MEDICAL HELP FAST. | Batteries, battery posts, terminals and related accessories contain lead and lead compounds, and other chemicals known to the state of California to cause cancer and birth defects or other reproductive harm. Wash hands after handling. |
| KEEP OUT OF THE REACH OF CHILDREN. DO NOT TIP. KEEP VENT CAPS TIGHT AND LEVEL. DO NOT OPEN FLUSH COVER BATTERIES. | | | | |

TESTING — Whether you are taking a load test or open circuit voltage test or reading the specific gravity of the electrolyte, be sure to follow all the instructions that came with the tester and take proper safety precautions. **Always wear safety glasses when working on or near batteries.**

CHARGING — Batteries should be charged if the hydrometer reading is below 1.225 SG or 12.4 open circuit volts, or the load test is below 9.6 volts. Always follow the charging instructions that came with the charger. **Wear safety glasses and keep sparks, flames and cigarettes away from batteries at all times.**

JUMP STARTING — Never lean over battery when jump starting or performing other maintenance. Follow the proper instructions found on your booster cable set or in the vehicle's owners manual. **Shield eyes and face from batteries at all times.**

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COLD CRANKING AMPS

? Reserve Capacity 0°C

CRANKING AMPS

32°F

Cranking Amps

BATTERY PERFORMANCE

? MARINE

CHARGING Jump Starting CA

Deep Cycle

0°F CCA

CRANKING PERFORMANCE

Trolling

RC

RESERVE CAPACITY

SAFETY

Marine Starting

A CONSUMER'S GUIDE TO BATTERY RATINGS

CRANKING PERFORMANCE

The most important function of the battery is to provide power for cranking and starting the engine, regardless of temperature extremes.

In the past, the cubic inch displacement of an automobile engine was considered to be a key factor in determining what cranking capacity was needed from the battery in order to start the engine. Cars built prior to the late 1970's needed approximately one cranking amp for each cubic inch of engine displacement.

Today engine sizes are measured in liters rather than cubic inches. They also are generally more fuel efficient, with smaller engines providing more horse power. This fuel efficiency is achieved by using many components such as:

- Electronic Fuel Injection
- Electronic Ignition
- High Compression Ratios
- Turbo Chargers

However, each of these components increases the cranking amperes needed to start the engine. For example, a 1984 four-cylinder Ford Ranger requires a 380 cold cranking amp (CCA) battery, while a 2000 four-cylinder Ford Ranger requires a 540 CCA battery. Also, these newer, smaller engines run at much higher temperatures.

Because of all the components and accessories that can be combined, and each engine's unique starting characteristics, it is impossible to use a simple rule to estimate the required battery CCA capacity. Therefore, you must rely on the BCI Replacement Data Book, or owners manual, to choose the correct CCA rating.

Never select a quality grade level lower than the O.E. CCA rating. Remember that older cars, extra accessories and severe climatic conditions (extreme hot or cold) call for a more powerful battery. In these cases, you should always select a level above the O.E. requirement. **Always select a battery by CCAs...never months of warranty!** Warranties do not start engines—CCAs do. Also remember that you can never have too many CCAs. But too few will shorten battery life because the under-rated battery must work so much harder.

RESERVE CAPACITY

Another function of a battery is to provide emergency power for ignition, lights, etc., in the event of failure in the vehicle's battery recharging system. The reserve capacity rating is defined as **the number of minutes a new, fully charged battery at 80°F can be discharged at 25 amperes** and maintain a minimum voltage of 10.5 volts for a 12-volt battery or 5.25 volts for a 6-volt battery. Simply stated, the reserve capacity rating is a relative measure of how long you can drive to find a facility if your charging system fails. Runtime is shorter at cooler temperatures and longer at warmer temperatures. It also changes with the load. At half the load, runtime will more than double. At double the load, runtime will be slightly less than half.

MARINE APPLICATIONS

Marine Starting Service

When a battery is called upon to deliver several hundred amperes of power to the starting motor, it must be able to give up this power quickly...within a few seconds. This power comes off of the surface of the plates inside the battery. Therefore, a battery with more plate surface and less resistance will deliver more power than one with less plate surface and high resistance.

That's why starting batteries are made with thinner plates...because you only use the power off the surface of the plates for starting the engine.

Trolling and/or Deep Cycle Service

However, a deep cycle battery is called upon to deliver a long, slow discharge of fewer amperes...for several minutes or hours...in a deep cycle application such as running a trolling motor or marine accessory loads (e.g. depth finders, fish finders, radios, radar, lights, coolers, etc.)

In this case, the power comes from deep within the plates, not merely off the surface, as in starting. Therefore, the Deka Deep Cycle Series is specially engineered with heavier, thicker plates with fiberglass reinforcement, special power producing active material, and special heavy-duty separators.

MARINE APPLICATIONS (con't.)

With these features, the battery can withstand the potentially damaging effects of continually being deeply discharged and recharged over and over again. The unreinforced, thinner plates of any starting battery can't stand this deep cycling and will fail in short order.

Deep Cycle or Starting... Which Should I Choose?

Ideally, you could have one battery for starting and an auxiliary deep cycle battery for the trolling motor and/or accessories. **If however, you can only have one battery on board, it should be a deep cycle battery.** The deep cycle battery can handle the double duty of starting, trolling/accessories very nicely. However, **a starting battery should not be used for deep cycle service.** It simply won't hold up. If your deep cycle battery is expected to perform the double duty of engine starting, you must take special care not to discharge it too deeply with the trolling motor and accessories. Any battery that is discharged too deeply will be unsuccessful at engine starting until it is recharged.