It's the reason of slower speed of the motor during cold weather to start engine. Battery power is available but harder to be released during cold weather.

Fahrenheit(°F)	Celsius(℃)	Starting engine ability of battery	Required starting engine ability of battery
80°F	26.7℃	100%	100%
32°F	0℃	65%	165%
0°F	-17.8℃	40%	250%
-20°F	-28.9℃	25%	350%

The capacity of battery

The capacity of battery can be indicated by Ampere hour (Ah) or Watt hour (WH).For example:

(1) Ampere hour (AH) indication:
Generally the capacity of battery will be measured by continues discharge for 20 hours.
Calculation method goes as following:
Discharge the at 80°F fully charged battery for 20 hours by fixed ampere until the voltage of the 6V battery drops to 5.25V, and the voltage of the 12V battery drops to 10.5V.Multiplied the fixed ampere value by 20 (hours) is then the capacity value of the battery.
Takes an example:
After 20 hours continues discharge in 6A current, the voltage of the 12V battery drops to 10.5V, the capacity of the battery will be 6×20=120AH.

(2) When the capacity of the battery is indicated with WH, it signifies the battery energy. WH comes out Voltage multiplied by AH. Example here: For the battery of 12V and 120AH, its battery energy value WH will be 1440WH which comes form 12V×120AH (voltage multiplied by ampere hour).

4 main functions of battery:

(1) Supplies a lot of electric current to starting motor and ignition system at the starting stage.
(2) When the electricity of the generator is mot enough available, battery will supply electricity to all electric apparatuses of the vehicle.
(3) When the electricity of the generator is enough available to all electric apparatuses, the surplus electricity of the generator will be stored-which means charged-in the battery.
(4) Stabilizes the voltage of the electric system. This protects the apparatus components from damage when the voltage is strongly changed by engine speed change or large power-consuming in short moment.

The factors of battery fault:

(1) Sulfates accumulation:
In the process of charging and discharging of the battery, the sulfates will build up on the battery plates which causes efficiency reduction of the battery and the battery finally unusable.

(2) Insufficient electrolyte:
Lead-sulfates will build up on the battery plates if the battery plates are long-term exposed to the open air without sufficient electrolyte. The battery will be not capable of charging under this condition.

(3) Short-circuit of the battery plates:
When the isolation plates do not work properly or the lead powder keeps dropping, it will lead to short-circuit of the adjoining battery plates.

(4) Over-discharge of the battery:
Over-discharge of the battery will reduce the voltage, current and their proportion. After fully charging if it's still no battery, the battery may need to be charged with weak current for more than 36 hours.

Other Information for product usage:

(1) Vehicles must be turned off over half hour for the battery testing. Freshly fully charged battery should be tested after half hour.
(2) The clinchers of the analyzer should be clinched correctly on the positive and negative terminals of the battery.
(3) The analyzer is designed for single 12V battery. Please don't use on series connected batteries.
(4) CCA value of one new battery must be higher than the value of one old battery of the same model. For example: If the CCA value of the new battery indicates 550, it may decline to 420 after one year usage.
(5) Keep from heavy falling and breaking. No assembling or disassembling of the product by non-professional staffs.

Product Features

(1) The product has stable quality, is shaking-resistant and portable.
(2) Based on sonar reflection principle, all the indexes of battery are analyzer by special alternating current signals which lead to very accurate testing results.
(3) Continuous testing won't damage battery, its safety is guaranteed.