Power. Sheet.

6CRP525 RENEWABLE POWER

The Power Behind Performance

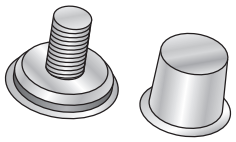
CROWN RENEWABLE POWER BATTERIES

Crown Battery Manufacturing's team of research and development engineers welcome the opportunity to discuss your technical requirements during the application design and specification stage. To access this technical assistance, please contact:

Crown Battery Manufacturing's Product Support Department
+1.419.334.7181 | sales@crownbattery.com | Fax +1.419.334.7124

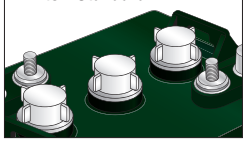
AVAILABLE TERMINAL STYLE:

Standard Type

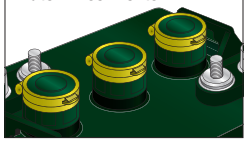


VENT CAP OPTIONS:

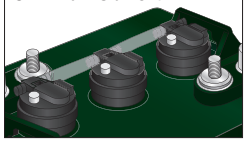
White – Standard



Water-Miser Vents



SPW Manifold Vent



PHYSICAL SPECIFICATIONS:

BCI Group Size	Model Description	Nominal Voltage	Length		Width		Container Height		Terminal Height		Weight		Cover & Container Material	Case to Cover Seal Method
			in	mm	in	mm	in	mm	in	mm	lbs	kgs		
903	6CRP525	6	12.38	314	7.19	183	15.29	388	16.13	410	122	55.3	Polypropylene Plastic	Heat Seal

ELECTRICAL SPECIFICATIONS:

Ampere Hour Capacity (Ah)							Reserve Capacity Minutes					KWH (kWh)	Internal Resistance
100 Hr	72 Hr	48 Hr	20 Hr	10 Hr	5 Hr	2 Hr	100A	75A	50A	25A	10A	100 Hr	80°F / 27°C
525	490	445	395	343	298	247	156	225	374	892	2735	3.0577	8.1mΩ

TYPICAL BATTERY CYCLE LIFE / DEPTH OF DISCHARGE:

100% DOD Cycles	End-Cycle Voltage	80% DOD Cycles	End-Cycle Voltage	70% DOD Cycles	End-Cycle Voltage	50% DOD Cycles	End-Cycle Voltage	30% DOD Cycles	End-Cycle Voltage	20% DOD Cycles	End-Cycle Voltage	10% DOD Cycles	End-Cycle Voltage
700	1.75 VPC	900	1.82 VPC	1100	1.86 VPC	1550	1.94 VPC	3000	2.02 VPC	3250	2.05 VPC	3500	2.09 VPC

The battery life references presented above are estimations based upon stationary life cycle testing conducted at Crown Battery Manufacturing's Test Center in Fremont, Ohio, USA. The data references are nominal and should not be construed as maximum or minimum values for specifications or for final design. Data for this product type may vary from that shown herein, and Crown Battery makes no warranties – expressed or implied – based upon the data shown above.

APPLICATION RECOMMENDATIONS:

Specific Gravity	Operating Temperature Range	Self Discharge	Terminal Torque Specifications
Full charge battery specific gravity (100% state-of-charge) is 1.275 Full discharge battery specific gravity (100% depth-of-discharge) is 1.125	-40°F to 120°F (-40°C to 49°C). Flooded lead acid battery capacities are temperature sensitive: refer to the temperature / capacity projection chart on Page 2 to identify available capacity at the application operating temperature. **Application Note:** Maintain a state of charge greater than 60 percent when operating flooded lead acid batteries at temperatures below 32°F (0°C).	Fully charged batteries that are stored at a temperature of 80°F (27°C) will self-discharge at a rate of 3.5% per week.	SAE / Automotive Terminal Style: 50 to 70 in-lbs / 6 to 8 Nm Stainless Threaded Terminal: 100 to 120 in-lbs / 11 to 14 Nm

Application Note: *Lead acid batteries contain corrosive battery electrolyte and generate highly flammable hydrogen gas. When working near batteries or battery electrolyte wear personal protective equipment and always work in a well-ventilated area. Do not over-torque terminals. Over-torque can result in terminal damage, breakage, terminal meltdown or fire.*

Crown Battery's flooded lead acid renewable power batteries require periodic maintenance and effective charging service to ensure dependable service life. Customers can find Crown Battery's recommended best practices for battery care, maintenance and application at ***www.crownbattery.com/en/wp-content/uploads/2012/10/SafetyFirst-DeepCycle2.pdf*** *or by contacting Crown Battery.*

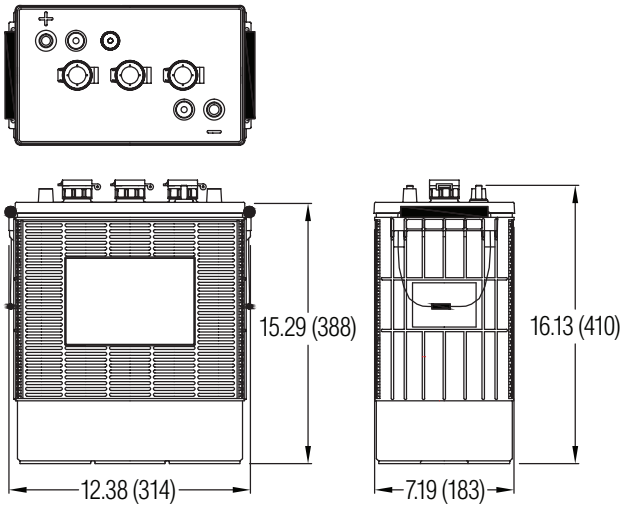
6CRP525 Renewable Power Battery

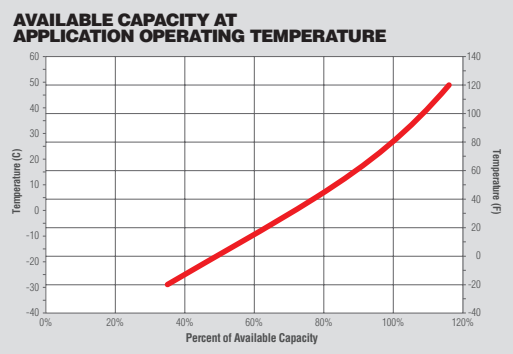
RENEWABLE POWER BATTERY CHARGING:

Best Practices & System Setup Recommendations

Proper charging of renewable power batteries is essential to optimize the performance and life of the batteries. To ensure dependability and life batteries should be fully charged after each discharge period. Regular monitoring of individual battery voltage and specific gravity conditions are recommended to verify system recharging performance. Many RE charge controllers have adjustable equalization settings that ensure batteries are regularly restored to full capacity. Batteries used in RE systems should be equalized every thirty days – with more frequent equalization occurring for battery systems that are regularly discharged below 50% of the battery's rated capacity. Refer to the following table for additional charge control setting information:

Voltage Setting	VPC	System Voltage		
		12 Volts	24 Volts	48 Volts
Daily Charge (Absorption)	2.42	14.5	29.0	58.1
Equalize	2.58	15.5	31.0	61.9
Float	2.25	13.5	27.0	54.0





CHARGING FORMULAS & CALCULATIONS

▶ *Exclusively from Crown Battery*

GENERAL CALCULATION FOR DETERMINING DURATION OF DAILY CHARGE (Charge Absorption)

Generalized Charge Absorption Time Calculation:

Time (hours) = 0.46 x (C ÷ I) x CF Where: C = 20 Hr Battery Capacity Rating

I = Charging Current

- For 25% D.O.D. - use 0.45 for CF
- For 50% D.O.D. - use 0.70 for CF
- For 80% D.O.D. - use 1.10 for CF

Example of How to Calculate Charge Absorption Time:

When the RE Batteries are rated at: 48 Volt Bank of Crown 6CRP525 Batteries (48 Volts, 395 Ah @ 20 Hour Rate)

When the RE System is rated at: RE System Rated at 1,900 Watts

When the RE System D.O.D. is set to: System D.O.D. Set to 50% (CF) = 0.70

Nominal Charge Current: Ohm's Law: Amperes = Watts ÷ Volts

39.6 Amperes = 1900 Watts ÷ 48 Volts

39.6 Amperes Charge Current

Charge Absorption Time Calculation:

Time (hours) = 0.46 X (C ÷ I) X CF

0.46 x (395 Ah ÷ 39.6) x 0.70 = 3.21 Hours

Charge Absorption Time:

Time (hours) = 3.21 Hours

Effect of Battery Temperature on Battery Life:

Typical battery life is based upon a baseline operating temperature of 80°F / 27° C. Temperature increases of 15°F / 10°C over the baseline will cause the battery's rate of internal chemical reactions to double – something that will reduce battery life due to the accelerated deterioration of internal components. Please contact Crown Battery to discuss any minimal requirements for battery life when operating batteries in temperatures greater than 80°F / 27° C.

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CROWN® BATTERY SINCE 1926

1445 Majestic Drive | P.O. Box 990
Fremont, OH 43420-0990 USA
+1.419.334.7181 | Fax +1.419.334.7124
www.crownbattery.com
sales@crownbattery.com

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