



# **POWER-PLUS**

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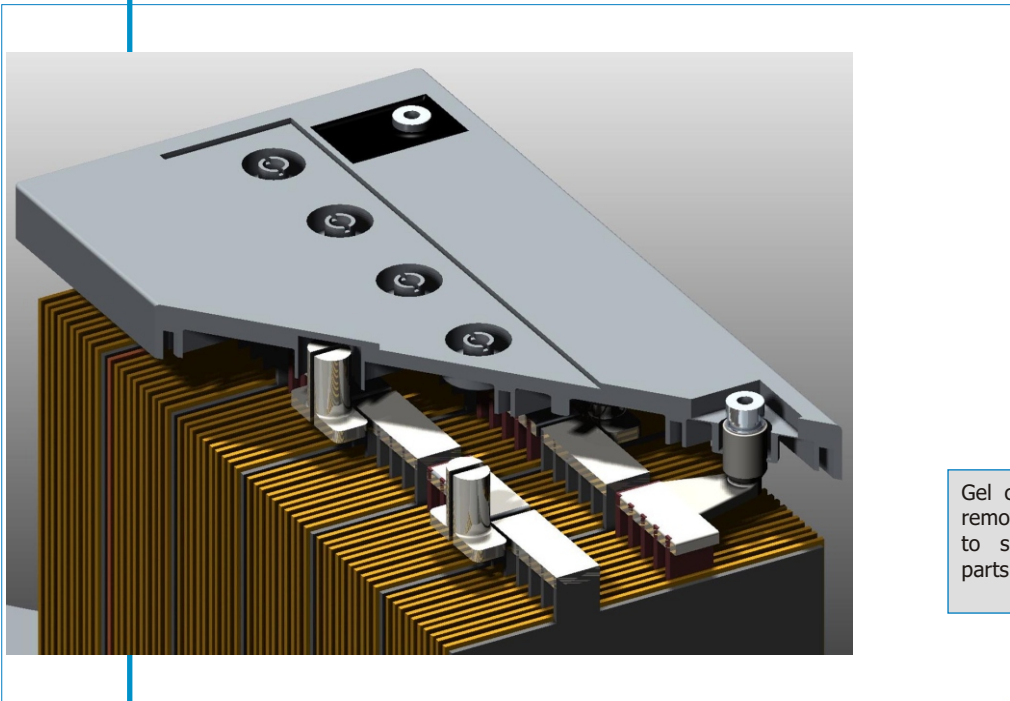
**Sealed Lead Acid 6 & 12 Volt  
Monobloc  
Gelled Electrolyte Range**

**CONSTRUCTION** - Gel battery construction is as shown in the diagram. The positive and negative grids are cast from a calcium/tin lead alloy to reduce grid growth and corrosion. The active material is manufactured from a high purity lead (99.9999%) to minimize the negative effects of impurities.

Separator is manufactured by a world leader in the field, utilizing the latest German technology. The base material is a microporous duroplastic exhibiting excellent high temperature stability and mechanical strength, resulting in very good resistance to vibration and mechanical shock. The integrity of the battery will be maintained under extreme conditions.

The purpose of the separator is to maintain a constant distance between the positive and negative plates, totally eliminating the possibility of short circuits whilst allowing the active materials to fully react with the gelled electrolyte.

The separator also has an open construction, which allows little resistance to the flow of the electrolyte during filling. A thin layer (typically 0.4mm) of non-woven glass mat is an integral part of the separator and is placed against the positive plate for improved surface contact.

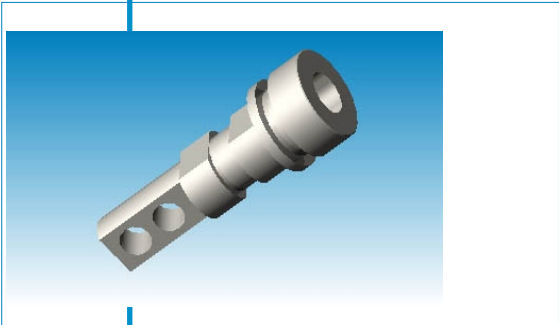


Typical separator properties are:

- Acid displacement - 150 ml /sqm
- Pore volume - 70%
- Average pore size - 0.5 micro m
- Maximum pore Diameter - 1 micro m

Gel construction with case removed and cover cut away to show internal battery parts.

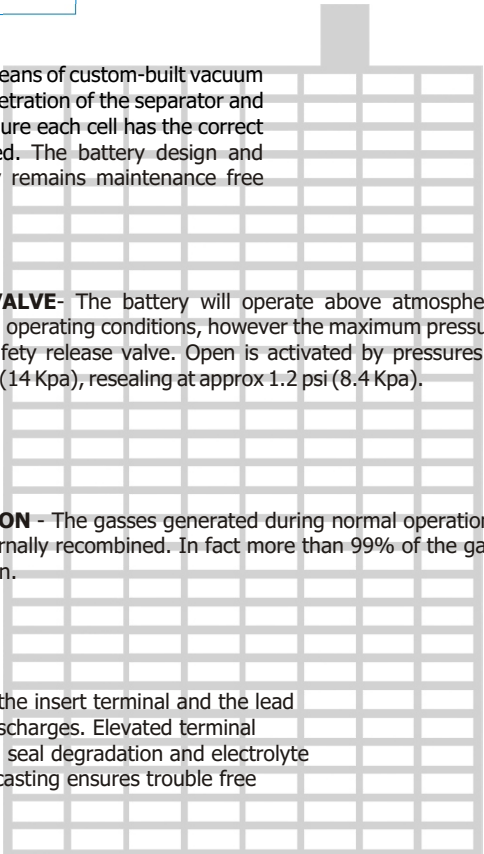
**ELECTROLYTE FILLING** - Gelled electrolyte is introduced to the cell by means of custom-built vacuum filling machines. It is vitally important that the electrolyte achieves full penetration of the separator and plates therefore; vacuum cycling is utilized after the filling process. To ensure each cell has the correct amount of gel, they are first overfilled, the extra gel is then removed. The battery design and construction negates the need for electrolyte addition and the battery remains maintenance free throughout its design life.



**SAFETY RELEASE VALVE**- The battery will operate above atmospheric pressure under normal operating conditions, however the maximum pressure is governed by the safety release valve. Open is activated by pressures in excess of approx. 2 psi (14 Kpa), resealing at approx 1.2 psi (8.4 Kpa).

**GAS RECOMBINATION** - The gasses generated during normal operation of the battery are internally recombined. In fact more than 99% of the gas achieves recombination.

**TERMINAL CONSTRUCTION** - The contact quality between the insert terminal and the lead post is of vital importance during short duration / high Amp discharges. Elevated terminal temperatures are the result of poor contact, eventually causing seal degradation and electrolyte leaks. Power Plus design and assembly technique for terminal casting ensures trouble free operation for the design life of the battery.



## Gel Vs AGM

Each battery has its advantages and disadvantages, it is therefore important to choose the right battery for the application. Advantages of Gel Batteries:

- Full recovery from deep discharge, even when the battery is not recharged immediately.
- Ideal for repeat cycling daily use.
- Excellent performance over long discharges
- Good tolerance to higher temperature applications
- Suitable where mains power is unstable
- Zero stratification due to immobilized electrolyte
- No equalization charge necessary
- Reduced self-discharge
- Limiting design protects the positive plates to greatly improve cycle life
- Thicker plates for reduced grid corrosion and increased cycle life
- Improved charge acceptance due to low internal resistance
- High resistance to water loss with the right charging set up
- Ultra stable polymer separator with glass mat for increased performance
- High resistance to shorting due to superior mechanical strength of the polymer separator
- Increased tolerance to poor charging parameters
- Can be discharged even when full recharge has not been achieved, without loss of battery capacity

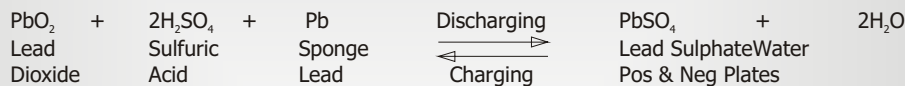


## Applications

- Cycling / Float service
  - Residential
  - Telecommunications
  - Refrigeration
  - Photovoltaic
  - Solar
  - Wind
  - Engine Starting
  - Wheelchair
  - Electric Vehicle
  - Floor Cleaning Machines
  - Water Pumping
  - Golf Caddy
  - Portable Medical Equipment
  - Cathodic Protection
  - Boats
  - General Marine
  - Navigation Aids
- Many other deep cycle applications

Discharge Time	Capacity temperature correction Factor to be applied to Data at 20 Degrees C									
	0 °C	5 °C	10 °C	15 °C	20 °C	25 °C	30 °C	35 °C	40 °C	
5 minutes to 59 minutes	0.8	0.86	0.91	0.96	1	1.037	1.063	1.085	1.1	
1 Hour to 100 Hours	0.86	0.9	0.93	0.97	1	1.028	1.05	1.063	1.07	

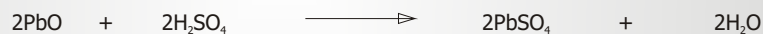
**CHEMICAL REACTION-** The chemical reaction for the Discharge / Recharge process is represented by the following formula:



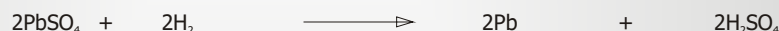
Under normal float charge conditions the oxygen passes through the separator from the positive to the negative plate where it reacts with the negative active material to form lead oxide.



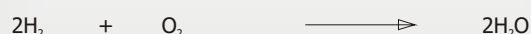
In the acid conditions the lead oxide reacts with the sulfuric acid to form lead sulphate.

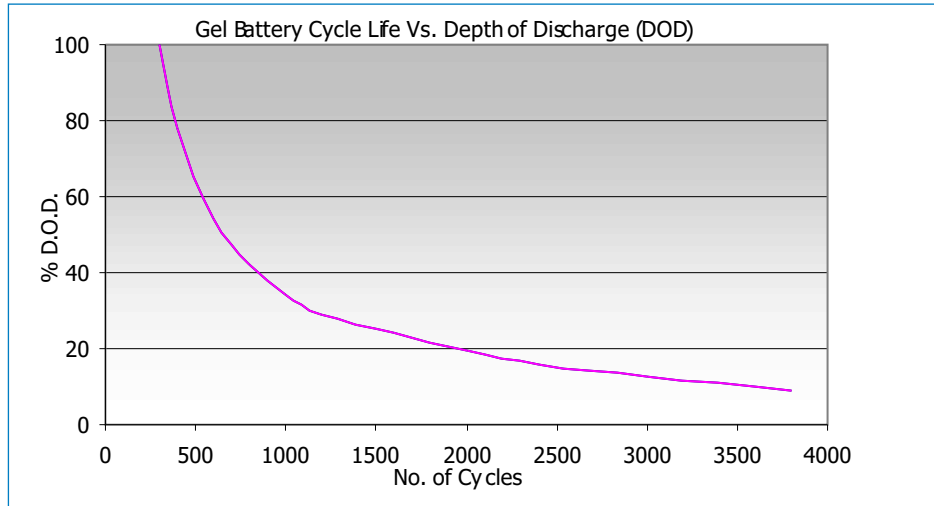


The lead sulphate formed on the negative is then reduced to lead and sulfuric acid by the evolving hydrogen.



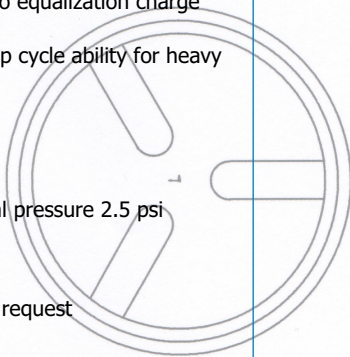
If the equations are resolved and like terms cancelled out on both sides of the equation the result is:





### Innovative Features

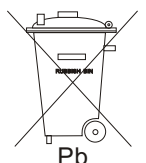
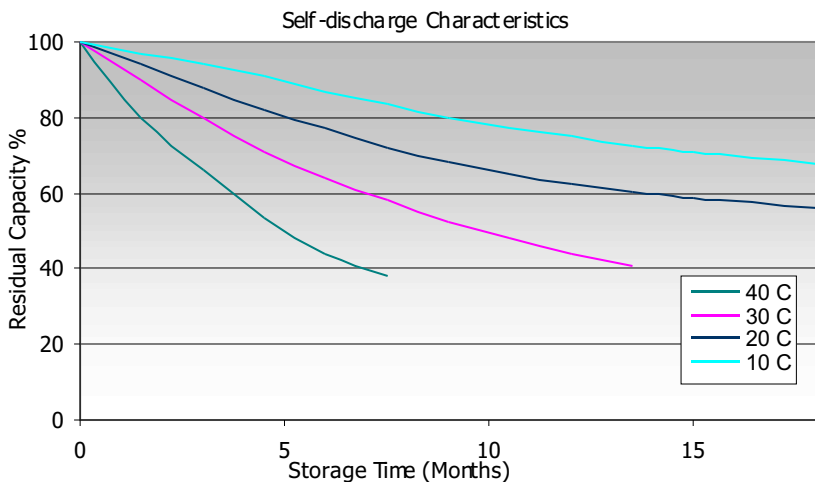
- Completely maintenance free, sealed
- Construction eliminates the need for watering
- Electrolyte will not stratify, no equalization charge required
- Increased durability and deep cycle ability for heavy demand applications
- Fully tank formed plates
- Gelled thixotropic electrolyte
- Spill proof / leak proof
- Valve regulated Max internal pressure 2.5 psi
- Multi-position usage
- Multi-cell container
- ABS Case and cover - VO on request
- Low self discharge
- Utilising the latest in German technology
- FAA and IATA approved as non-hazardous



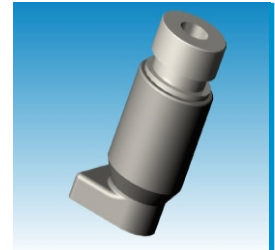
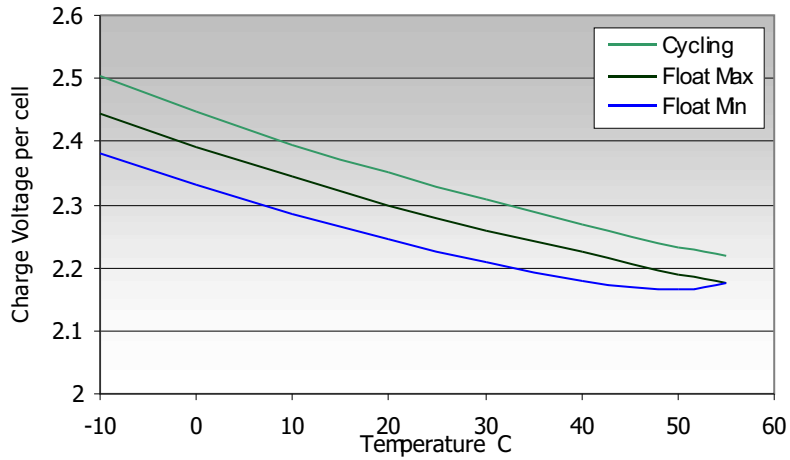
### Specifications

Nominal Voltage	6 & 12 Volts
Design Life	12 Years
Operating Temperature	-20 °C to 50 °C
Grid alloy	Calcium / Tin lead alloy
Plates	Flat Pasted
Separator	Microporous Duroplastic
Active material	Very high purity lead
Case and cover	ABS (VO on request)
Charge Voltage	Float 2.27 - 2.30 VPC @25 °C Cycling 2.35 @25 °C
Electrolyte	Max. 2.4 VPC Max ripple 0.05C (A) Sulphuric acid Analytical grade purity
Venting Valve	EPDM Rubber 1.5 to 2 psi (10.5 - 14 KPa) release pressure. Resealing at 1 psi (7 KPa)
Terminal	Various types Epoxy sealed by extended mechanical paths
Torque setting	The recommended torque value for all types is 5-7 Nm
Cables	Insulated cables / connectors supplied on request.

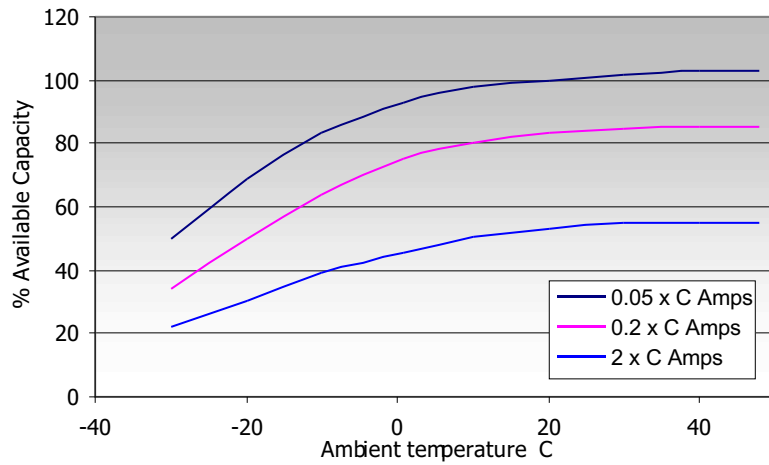
Compliant with Bs6290 Pt4 - UL Registered and approved  
Power Plus Battery Company keenly encourages environmental awareness; PLEASE follow guidelines for the recycling /disposal of lead.



Relationship Between Charge Voltage and Temperature



Capacity Vs Ambient Temperature



### CHARGING CHARACTERISTICS

**Floating** - The optimum float voltage for a battery is temperature dependant, at 15 - 24°C the recommended value is 2.27 - 2.30V. It is recommended that battery installation sites are temperature controlled, however float voltage can be increased or decreased to compensate for temperature variations. Adjustment is calculated at +/- 3 mV per degree C.

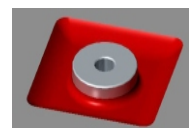
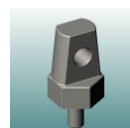
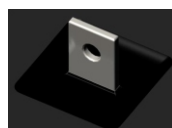
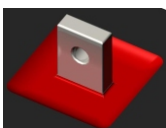
#### Terminal Options (left to right)

- ▶ Lead Flag
- ▶ Automotive
- ▶ J Type
- ▶ Copper Flag
- ▶ J Type Adapter
- ▶ Insert

Insert are made from brass with copper, nickel and silver plating giving excellent mechanical, electrical and corrosion resistant properties.

Operating Temperature	Recommended Applied Float Voltage VPC
0-9	2.33 - 2.35
10-14	2.30 - 2.33
15-19	2.27 - 2.30
20-24	2.27 - 2.30
25-29	2.25 - 2.27
30-34	2.23 - 2.25
35-40	2.21 - 2.23

The most suitable charging method for battery life and performance is the constant voltage method with a limited initial current, usually limited to a maximum of  $C_{20}/4$ .



# POWER PLUS

## Amps & Ampere Hours Data

Battery Model	Time in Minutes - Amps to 1.80 VPC						
	5	10	15	30	45	60	90
PG6-7.5	17.9	13.3	10.0	6.8	4.9	3.9	3.1
PG6-10	25.2	18.8	14.2	9.6	7.1	5.8	4.4
PG6-12	30.1	22.5	17.0	11.6	8.5	7.0	5.6
PG12-7.5	17.4	13.0	9.7	6.6	4.7	3.9	3.1
PG12-12	30.2	22.4	16.9	11.5	8.4	6.9	5.5
PG12-18	38.1	29.5	23.5	14.9	11.1	10.0	7.2
PG12-26	53.5	40.5	33.2	22.2	16.2	13.6	10.7
PG12-33	67.7	52.0	41.8	28.5	20.9	17.8	13.8
PG12-44	89.0	68.0	54.8	35.6	26.9	22.5	18.0
PG12-55	117	89.5	71.9	49.1	36.1	29.8	20.8
PG12-70J	149	114	91.5	59.3	44.7	37.1	27.9
PG12-70	147	113	91.1	58.9	44.3	36.7	27.7
PG12-80	166	126	102	66.3	49.7	42.1	31.1
PG12-90	192	147	116	76.5	56.7	47.5	35.5
PG12-100	212	163	131	84.1	63.6	53.0	39.8
PG12-110	233	178	144	94.9	70.1	59.9	44.6
PG12-120	255	195	155	101	77.2	63.9	47.8
PG12-135	287	219	176	114	86.5	71.8	53.8
PG12-150	319	244	196	126	95.9	79.7	59.8
PG12-160	382	292	236	152	115	92.5	66.9
PG12-200	425	325	261	168	128	106	79.9
PG12-230	492	377	304	196	150	124	94
PG6-110	251	191	152	97.7	72.4	62.5	44.6
PG6-160	382	292	236	150	112	90	66.9
PG6-200	425	325	261	168	128	107	79.9

Battery Model	Time in Hours			
	2	3	4	5
PG6-7.5	2.4	1.6	1.3	1.0
PG6-10	3.2	2.2	1.8	1.5
PG6-12	4.2	2.9	2.2	1.8
PG12-7.5	2.4	1.6	1.3	1.0
PG12-12	4.2	2.9	2.2	1.8
PG12-18	5.3	3.9	3.1	2.6
PG12-26	8.0	5.9	4.6	3.9
PG12-33	9.9	7.0	5.6	4.8
PG12-44	12.8	9.2	7.3	6.1
PG12-55	16.6	12.1	9.5	7.9
PG12-70J	21.1	15.3	12.3	10.2
PG12-70	20.6	15.0	11.9	9.8
PG12-80	23.6	17.1	13.5	11.4
PG12-90	26.9	19.4	15.4	12.9
PG12-100	30.2	21.7	17.2	14.4
PG12-110	33.2	24.0	19.0	15.8
PG12-120	36.3	26.1	20.9	17.6
PG12-135	41.2	29.9	23.9	19.9
PG12-150	45.3	32.9	26.2	21.9
PG12-160	52.6	37.7	29.9	24.9
PG12-200	60.4	43.5	34.5	28.9
PG12-230	69.8	50.5	40.1	33.7
PG6-110	33.5	24.2	19.2	16.0
PG6-160	52.6	37.7	29.9	24.9
PG6-200	60.4	43.5	34.5	28.9

Battery Model	Time in Minutes - Amps to 1.75 VPC						
	5	10	15	30	45	60	90
PG6-7.5	18.3	13.7	11.2	7.0	5.2	4.3	3.5
PG6-10	26.0	19.5	15.5	12.9	7.1	6.0	4.6
PG6-12	31.6	23.6	18.7	11.7	8.8	7.3	5.6
PG12-7.5	18.3	13.7	11.2	7.0	5.2	4.3	3.5
PG12-12	31.6	23.6	18.7	11.7	8.8	7.3	5.6
PG12-18	39.8	31.0	25.0	16.0	11.7	10.7	7.3
PG12-26	54.2	41.7	34.4	23.2	16.7	14.1	11.4
PG12-33	78.6	58.3	45.1	28.1	21.7	17.9	13.5
PG12-44	103	76.9	59.0	37.1	28.2	23.9	17.4
PG12-55	135	100.1	77.5	48.5	36.7	30.3	22.5
PG12-70J	172	128	98.4	61.1	46.2	38.6	29.1
PG12-70	169	126	96.6	60.4	46.0	38.4	28.8
PG12-80	191	143	110	68.6	51.5	42.7	32.3
PG12-90	221	163	126	78.4	59.6	49.6	36.4
PG12-100	246	183	141	86.6	65.3	54.3	40.5
PG12-110	270	201	155	96.7	72.2	59.9	47.4
PG12-120	295	219	169	105	78.7	65.4	49.4
PG12-135	332	247	190	119	88.7	73.7	55.1
PG12-150	368	275	212	132	98.7	82.0	60.7
PG12-160	442	329	254	153	115	96.0	73.3
PG12-200	491	366	282	176	133	110	81.6
PG12-230	570	424	327	203	152	128	95.0
PG6-110	292	216	166	100	75.4	62.1	45.6
PG6-160	446	331	256	155	117	97.9	73.7
PG6-200	491	366	282	176	133	110	81.6

Battery Model	Time in Hours			
	2	3	4	5
PG6-7.5	2.6	1.8	1.4	1.1
PG6-10	3.4	2.4	1.9	1.5
PG6-12	4.2	3.0	2.3	1.9
PG12-7.5	2.6	1.8	1.4	1.1
PG12-12	4.2	3.0	2.3	1.9
PG12-18	5.6	4.1	3.2	2.7
PG12-26	8.3	6.1	4.8	4.0
PG12-33	10.3	7.3	5.9	4.9
PG12-44	13.3	9.6	7.6	6.4
PG12-55	17.4	12.7	9.9	8.2
PG12-70J	22.1	16.0	12.8	10.6
PG12-70	21.6	15.7	12.4	10.2
PG12-80	24.7	17.8	14.1	11.8
PG12-90	28.1	20.3	16.0	13.4
PG12-100	31.6	22.7	18.0	15.0
PG12-110	34.7	25.0	19.8	16.5
PG12-120	37.9	27.3	21.8	18.3
PG12-135	43.1	31.3	24.9	20.7
PG12-150	47.4	34.4	27.3	22.7
PG12-160	55.0	39.4	31.2	25.9
PG12-200	63.1	45.4	36.0	30.1
PG12-230	73.0	52.8	41.8	35.0
PG6-110	35.1	25.3	20.0	16.6
PG6-160	55.0	39.4	31.2	25.9
PG6-200	63.1	45.4	36.0	30.1

Battery Model	Time in Minutes - Amps to 1.67 VPC					
	5	10	15	30	45	60
PG6-7.5	21.2	15.2	11.6	7.0	5.2	4.4
PG6-10	30.5	21.8	16.7	12.7	10.7	10.0
PG6-12	36.5	26.0	19.8	15.3	13.2	12.0
PG12-7.5	21.2	15.2	11.6	7.0	5.2	4.4
PG12-12	36.5	26.0	19.8	15.3	13.2	12.0
PG12-18	45.5	33.4	25.8	16.4	12.5	11.1
PG12-26	61.6	45.5	36.5	24.4	17.5	15.1
PG12-33	84.9	65.3	48.9	29.1	21.5	18.1
PG12-44	112	83.7	62.7	37.7	29.0	24.7
PG12-55	146	109	81.4	48.9	37.5	30.9
PG12-70J	186	139	105	62.4	47.4	39.3
PG12-70	182	137	103	61.7	47.0	39.0
PG12-80	207	156	117	69.9	52.3	43.0
PG12-90	239	178	133	80.3	59.3	50.5
PG12-100	266	198	148	89.3	66.0	55.3
PG12-110	293	219	164	98.6	72.7	60.7
PG12-120	318	238	178	108	79.0	65.9
PG12-135	358	268	201	121	89.3	74.2
PG12-150	399	298	223	134	99.6	82.5
PG12-160	479	358	268	160	118	97.9
PG12-200	530	398	296	178	134	111
PG12-230	614	460	343	206	154	130
PG6-110	313	234	175	103	77.0	63.8
PG6-160	479	358	268	160	118	99.8
PG6-200	530	398	296	178	134	111

Battery Model	Time in Hours			
	2	3	4	5
PG6-7.5	2.7	1.8	1.4	1.1
PG6-10	3.5	2.5	1.9	1.6
PG6-12	4.3	3.1	2.4	1.9
PG12-7.5	2.7	1.8	1.4	1.1
PG12-12	4.3	3.1	2.4	1.9
PG12-18	5.8	4.2	3.3	2.8
PG12-26	8.6	6.3	5.0	4.1
PG12-33	10.7	7.6	6.1	5.1
PG12-44	13.8	10.0	7.8	6.6
PG12-55	18.0	13.1	10.3	8.5
PG12-70J	22.8	16.6	13.2	10.9
PG12-70	22.3	16.3	12.8	10.5
PG12-80	25.5	18.5	14.6	12.2
PG12-90	29.1	21.0	16.6	13.8
PG12-100	32.7	23.5	18.6	15.5
PG12-110	35.9	25.9	20.4	17.0
PG12-120	39.2	28.2	22.5	18.8
PG12-135	44.6	32.4	25.7	21.4
PG12-150	49.0	35.6	28.2	23.4
PG12-160	56.9	40.8	32.2	26.7
PG12-200	65.3	47.0	37.1	31.0
PG12-230	75.5	54.7	43.2	36.1
PG6-110	36.3	26.2	20.6	17.1
PG6-160	56.9	40.8	32.2	26.7
PG6-200	65.3	47.0	37.1	31.0

Amps to 1.85 VPC				
	8	10	12	20
	0.67	0.55	0.48	0.37
	1.0	0.82	0.70	0.50
	1.2	1.0	0.90	0.65
	0.67	0.55	0.48	0.37
	1.2	1.0	0.90	0.65
	1.7	1.4	1.2	0.83
	2.6	2.1	1.8	1.2
	3.3	2.8	2.4	1.6
	4.2	3.5	3.0	2.0
	5.4	4.4	3.8	2.6
	6.9	5.7	4.9	3.2
	6.7	5.5	4.8	3.2
	7.8	6.4	5.5	3.7
	8.9	7.3	6.3	4.2
	9.9	8.2	7.1	4.6
	10.9	9.0	7.7	5.1
	12.1	10.0	8.6	5.6
	13.4	11.1	9.5	6.2
	14.9	12.4	10.5	7.0
	17.1	14.1	12.0	7.7
	20.0	16.6	14.2	9.3
	23.3	19.4	16.5	10.7
	11.0	9.1	7.8	5.2
	17.1	14.1	12.0	7.7
	20.0	16.6	14.2	9.3

Battery Model	Time in Hours Ah to 1.85 VPC								
	2	3	4	5	8	10	12	20	
PG6-7.5	4.8	4.9	5.0	5.2	5.4	5.5	5.8	7.4	
PG6-10	6.4	6.6	7.0	7.3	7.8	8.2	8.4	10.0	
PG6-12	8.4	8.6	8.8	9.0	9.6	10.2	10.8	13.0	
PG12-7.5	4.8	4.9	5.0	5.2	5.4	5.5	5.8	7.4	
PG12-12	8.4	8.6	8.8	9.0	9.6	10.2	10.8	13.0	
PG12-18	10.7	11.7	12.4	13.1	13.8	14.4	14.4	16.5	
PG12-26	15.9	17.6	18.4	19.4	20.9	21.4	21.8	24.4	
PG12-33	19.8	21.1	22.5	23.8	26.7	27.6	28.8	32.0	
PG12-44	25.5	27.6	29.0	30.7	33.6	34.9	35.9	39.0	
PG12-55	33.2	36.4	38.1	39.6	42.8	44.3	45.5	51.0	
PG12-70J	42.2	46.0	49.0	51.0	55.4	57.3	58.8	64.4	
PG12-70	41.3	45.1	47.5	49.2	53.2	55.3	57.0	63.2	
PG12-80	47.2	51.2	54.1	56.9	62.4	64.0	66.0	73.2	
PG12-90	53.8	58.2	61.5	64.5	71.0	73.2	75.4	83.0	
PG12-100	60.4	65.2	69.0	72.2	79.5	82.3	84.7	92.0	
PG12-110	66.4	71.9	75.9	79.2	87.2	90.0	92.4	102.5	
PG12-120	72.6	78.3	83.5	87.863	97.0	100	103	112	
PG12-135	82.4	89.8	95.6	100	107	111	114	123	
PG12-150	90.624	99	105	109	119	124	126	139	
PG12-160	105	113	120	125	137	141	144	154	
PG12-200	121	130	138	145	160	166	170	186	
PG12-230	140	152	161	168	186	194	198	215	
PG6-110	67.1	72.6	76.7	80.0	88.1	90.9	93.3	103.5	
PG6-160	105	113	120	125	137	141	144	154	
PG6-200	121	130	138	145	160	166	170	186	

Amps to 1.80 VPC				
	8	10	12	20
	0.7	0.6	0.5	0.4
	1.0	0.8	0.7	0.5
	1.3	1.1	1.0	0.7
	0.7	0.6	0.5	0.4
	1.3	1.1	1.0	0.7
	1.8	1.5	1.2	0.9
	2.7	2.2	1.9	1.3
	3.5	2.8	2.5	1.6
	4.4	3.6	3.1	2.0
	5.6	4.6	3.9	2.7
	7.2	6.0	5.1	3.3
	6.9	5.8	4.9	3.3
	8.1	6.7	5.7	3.8
	9.2	7.6	6.5	4.3
	10.3	8.6	7.3	4.8
	11.3	9.4	8.0	5.3
	12.6	10.4	8.9	5.8
	14.0	11.5	9.9	6.4
	15.5	12.9	10.9	7.2
	17.8	14.7	12.5	8.0
	20.7	17.3	14.8	9.7
	24.2	20.2	17.2	11.2
	11.4	9.5	8.1	5.4
	17.8	14.7	12.5	8.0
	20.7	17.3	14.8	9.7

Battery Model	Time in Hours Ah to 1.80 VPC								
	2	3	4	5	8	10	12	20	
PG6-7.5	5.2	5.4	5.6	5.5	5.8	6.0	6.5	7.8	
PG6-10	6.8	7.2	7.5	7.7	8.0	8.4	8.8	10.0	
PG6-12	8.4	9.0	9.2	9.5	10.4	11.0	11.6	14.0	
PG12-7.5	5.2	5.4	5.6	5.5	5.8	6.0	6.5	7.8	
PG12-12	8.4	9.0	9.2	9.5	10.4	11.0	11.6	14.0	
PG12-18	11.2	12.3	13.0	13.6	14.4	14.9	14.9	17.0	
PG12-26	16.6	18.4	19.2	20.1	21.6	22.1	22.4	25.1	
PG12-33	20.7	22.0	23.5	24.7	27.7	28.5	29.7	32.8	
PG12-44	26.7	28.9	30.2	31.9	34.9	36.3	37.3	40.6	
PG12-55	34.7	38.0	39.8	41.2	44.5	46.1	47.3	53.0	
PG12-70J	44.1	48.0	51.1	53.0	57.6	59.6	61.2	67.0	
PG12-70	43.1	47.1	49.6	51.2	55.3	57.5	59.3	65.7	
PG12-80	49.4	53.5	56.4	59.2	64.9	66.6	68.6	76.1	
PG12-90	56.2	60.8	64.2	67.1	73.8	76.1	78.4	86.3	
PG12-100	63.1	68.1	71.9	75.1	82.7	85.6	88.1	95.7	
PG12-110	69.4	75.1	79.2	82.4	90.7	93.6	96.1	107	
PG12-120	75.8	81.8	87.0	91.4	101	104	107	116	
PG12-135	86.1	93.8	100	104	112	115	119	128	
PG12-150	94.7	103	109	114	124	129	131	145	
PG12-160	110	118	125	130	142	147	150	160	
PG12-200	126	136	144	150	166	173	177	193	
PG12-230	146	158	167	175	194	202	206	223	
PG6-110	70.1	75.9	79.9	83.2	91.6	94.5	97.1	108	
PG6-160	110	118	125	130	142	147	150	160	
PG6-200	126	136	144	150	166	173	177	193	

Amps to 1.75 VPC				
	8	10	12	20
	0.7	0.6	0.6	0.4
	1.0	0.9	0.7	0.5
	1.3	1.1	1.0	0.7
	0.7	0.6	0.6	0.4
	1.3	1.1	1.0	0.7
	1.8	1.5	1.3	0.9
	2.8	2.3	1.9	1.3
	3.5	2.9	2.5	1.7
	4.5	3.7	3.2	2.1
	5.7	4.7	4.1	2.7
	7.4	6.1	5.2	3.4
	7.1	5.9	5.1	3.4
	8.4	6.9	5.9	3.9
	9.5	7.8	6.7	4.4
	10.6	8.8	7.6	4.9
	11.7	9.6	8.2	5.5
	13.0	10.8	9.2	6.0
	14.4	11.9	10.2	6.6
	16.0	13.3	11.2	7.4
	18.3	15.1	12.9	8.2
	21.4	17.8	15.2	10.0
	25.0	20.8	17.7	11.5
	11.8	9.7	8.3	5.5
	18.3	15.1	12.9	8.2
	21.4	17.8	15.2	10.0

Battery Model	Time in Hours Ah to 1.75 VPC								
	2	3	4	5	8	10	12	20	
PG6-7.5	5.3	5.5	5.7	5.6	6.0	6.2	6.6	8.0	
PG6-10	7.0	7.4	7.7	7.9	8.2	8.6	9.0	10.3	
PG6-12	8.6	9.2	9.4	9.7	10.7	11.3	11.9	14.4	
PG12-7.5	5.3	5.5	5.7	5.6	6.0	6.2	6.6	8.0	
PG12-12	8.6	9.2	9.4	9.7	10.7	11.3	11.9	14.4	
PG12-18	11.6	12.7	13.4	14.0	14.7	15.3	15.2	17.3	
PG12-26	17.2	19.0	19.8	20.7	22.2	22.6	22.9	25.4	
PG12-33	21.4	22.8	24.3	25.5	28.3	29.1	30.3	33.3	
PG12-44	27.6	29.9	31.2	32.9	36.0	37.4	38.4	41.8	
PG12-55	35.9	39.3	41.1	42.4	45.8	47.5	48.7	54.6	
PG12-70J	45.7	49.7	52.7	54.6	59.3	61.4	63.0	69.0	
PG12-70	44.6	48.8	51.2	52.7	57.0	59.2	61.1	67.7	
PG12-80	51.1	55.4	58.2	61.0	66.8	68.6	70.7	78.4	
PG12-90	58.2	62.9	66.2	69.1	76.0	78.4	80.7	88.9	
PG12-100	65.3	70.5	74.3	77.3	85.2	88.2	90.8	99	
PG12-110	71.9	77.7	81.7	84.9	93.4	96.4	99	110	
PG12-120	78.5	84.7	89.9	94.1	104	108	111	120	
PG12-135	89.1	97	103	107	115	119	122	132	
PG12-150	98	107	113	117	128	133	135	149	
PG12-160	114	122	129	134	147	151	154	165	
PG12-200	131	141	149	155	171	178	183	199	
PG12-230	151	164	173	180	200	208	213	230	
PG6-110	72.6	78.5	82.5	85.7	94.3	97.4	100	111	
PG6-160	114	122	129	134	147	151	154	165	
PG6-200	131	141	149	155	171	178	183	199	

Battery Model	Time in Minutes - Watts per cell to 1.80 VPC						
	5	10	15	30	45	60	90
PG6-7.5	32.2	23.9	18.0	12.2	8.8	7.0	5.6
PG6-10	45.4	33.8	25.6	17.3	12.8	10.4	7.9
PG6-12	54.2	40.5	30.6	20.9	15.3	12.6	10.1
PG12-7.5	31.3	23.4	17.5	11.9	8.5	7.0	5.6
PG12-12	54.4	40.3	30.4	20.7	15.1	12.4	9.9
PG12-18	68.6	53.7	43.0	27.7	21.2	19.2	13.8
PG12-26	96.2	73.8	60.8	41.3	30.9	26.0	20.5
PG12-33	122	94.6	76.4	52.9	39.9	34.0	26.6
PG12-44	160	124	100	66.3	51.3	43.1	34.5
PG12-55	210	163	131	91.3	68.9	57.1	40.0
PG12-70J	268	207	168	110	85.3	71.0	53.5
PG12-70	264	205	167	109	84.6	70.2	53.2
PG12-80	298	230	187	123	95.0	80.6	59.8
PG12-90	346	267	213	142	108	91.1	68.1
PG12-100	381	296	239	156	122	102	76.5
PG12-110	420	325	263	176	134	115	85.6
PG12-120	458	354	285	189	147	122	91.9
PG12-135	516	399	322	212	165	138	103
PG12-150	574	444	359	235	183	153	115
PG12-160	687	532	431	282	219	177	128
PG12-200	764	591	478	313	244	204	153
PG12-230	886	686	556	365	287	238	180
PG6-110	452	348	278	182	138	120	86
PG6-160	687	532	431	278	214	173	128
PG6-200	764	591	478	313	244	206	153

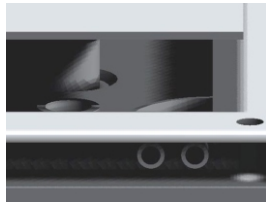
Battery Model	Time in Hours - Watts per cell to 1.85 VPC							
	2	3	4	5	8	10	12	20
PG6-7.5	4.6	3.2	2.5	2.0	1.3	1.1	1.0	0.7
PG6-10	6.2	4.3	3.4	2.9	1.9	1.6	1.4	1.0
PG6-12	8.1	5.6	4.3	3.5	2.4	2.0	1.8	1.3
PG12-7.5	4.6	3.2	2.5	2.0	1.3	1.1	1.0	0.7
PG12-12	8.1	5.6	4.3	3.5	2.4	2.0	1.8	1.3
PG12-18	10.3	7.6	6.1	5.1	3.4	2.9	2.4	1.7
PG12-26	15.4	11.4	9.0	7.6	5.2	4.3	3.6	2.4
PG12-33	19.1	13.7	11.1	9.4	6.6	5.5	4.8	3.2
PG12-44	24.7	18.0	14.2	12.1	8.3	7.0	6.0	3.9
PG12-55	32.1	23.6	18.7	15.6	10.6	8.8	7.6	5.1
PG12-70J	40.8	29.9	24.0	20.1	13.8	11.4	9.8	6.5
PG12-70	39.9	29.3	23.3	19.4	13.2	11.0	9.5	6.3
PG12-80	45.6	33.3	26.5	22.4	15.5	12.8	11.0	7.3
PG12-90	52.0	37.8	30.2	25.4	17.6	14.6	12.6	8.3
PG12-100	58.4	42.3	33.8	28.4	19.8	16.4	14.1	9.2
PG12-110	64.2	46.7	37.2	31.2	21.7	17.9	15.4	10.3
PG12-120	70.1	50.9	41.0	34.6	24.1	20.0	17.2	11.2
PG12-135	79.7	58.3	46.9	39.3	26.7	22.1	19.0	12.4
PG12-150	87.6	64.1	51.4	43.1	29.6	24.7	20.9	13.9
PG12-160	102	73.5	58.6	49.1	34.0	28.1	24.0	15.4
PG12-200	117	84.7	67.7	56.9	39.6	33.1	28.4	18.6
PG12-230	135	98.5	78.7	66.4	46.3	38.6	33.1	21.5
PG6-110	64.8	47.2	37.6	31.5	21.9	18.1	15.5	10.4
PG6-160	102	73.5	58.6	49.1	34.0	28.1	24.0	15.4
PG6-200	117	84.7	67.7	56.9	39.6	33.1	28.4	18.6

Battery Model	Time in Minutes - Watts per cell to 1.75 VPC						
	5	10	15	30	45	60	90
PG6-7.5	32.8	24.7	20.3	13.0	9.8	8.2	6.7
PG6-10	46.5	35.1	28.1	23.9	13.4	11.5	8.8
PG6-12	56.6	42.5	33.8	21.6	16.6	13.9	10.7
PG12-7.5	32.8	24.7	20.3	13.0	9.8	8.2	6.7
PG12-12	56.6	42.5	33.8	21.6	16.6	13.9	10.7
PG12-18	71.3	55.8	45.2	29.6	22.2	20.5	13.9
PG12-26	97.0	75.0	62.3	42.9	31.6	26.9	21.8
PG12-33	141	105	81.6	52.0	41.0	34.1	25.8
PG12-44	185	138	107	68.6	53.3	45.7	33.3
PG12-55	242	180	140	89.6	69.3	57.9	43.2
PG12-70J	307	231	178	113	87.2	73.7	55.8
PG12-70	303	228	175	112	86.9	73.3	55.2
PG12-80	343	257	200	127	97.4	81.5	61.8
PG12-90	395	293	227	145	113	94.7	69.7
PG12-100	440	329	255	160	123	104	77.5
PG12-110	483	362	280	179	136	114	90.7
PG12-120	527	395	306	194	149	125	94.6
PG12-135	593	445	345	219	168	141	105
PG12-150	660	495	383	244	187	157	116
PG12-160	792	593	460	284	217	183	140
PG12-200	879	658	511	325	252	210	156
PG12-230	1020	763	591	375	288	245	182
PG6-110	523	388	300	186	142	119	87
PG6-160	798	596	463	287.3	220	187	141
PG6-200	879	658	511	325.2	252	210	156

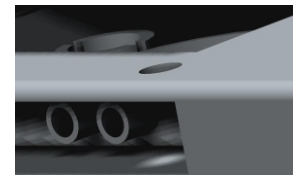
Battery Model	Time in Hours - Watts per cell to 1.80 VPC							
	2	3	4	5	8	10	12	20
PG6-7.5	5.0	3.5	2.7	2.2	1.5	1.2	1.1	0.8
PG6-10	6.6	4.7	3.7	3.0	2.0	1.7	1.5	1.0
PG6-12	8.1	5.8	4.5	3.7	2.6	2.2	1.9	1.4
PG12-7.5	5.0	3.5	2.7	2.2	1.5	1.2	1.1	0.8
PG12-12	8.1	5.8	4.5	3.7	2.6	2.2	1.9	1.4
PG12-18	10.7	7.9	6.3	5.3	3.6	2.9	2.5	1.7
PG12-26	16.0	11.9	9.4	7.9	5.3	4.4	3.7	2.5
PG12-33	19.9	14.2	11.5	9.7	6.8	5.6	4.9	3.3
PG12-44	25.7	18.7	14.7	12.5	8.6	7.2	6.2	4.0
PG12-55	33.4	24.5	19.4	16.1	11.0	9.1	7.8	5.3
PG12-70J	42.4	31.0	24.9	20.8	14.2	11.8	10.1	6.7
PG12-70	41.5	30.4	24.2	20.0	13.7	11.3	9.8	6.6
PG12-80	47.5	34.6	27.5	23.2	16.0	13.1	11.4	7.6
PG12-90	54.1	39.3	31.3	26.3	18.2	15.0	13.0	8.6
PG12-100	60.7	44.0	35.1	29.4	20.4	16.9	14.6	9.5
PG12-110	66.7	48.5	38.6	32.3	22.4	18.5	15.9	10.6
PG12-120	72.9	52.8	42.4	35.8	24.9	20.6	17.8	11.6
PG12-135	82.8	60.6	48.6	40.6	27.6	22.7	19.7	12.8
PG12-150	91.1	66.6	53.2	44.5	30.6	25.4	21.7	14.4
PG12-160	106	76.4	60.8	50.8	35.2	28.9	24.8	16.0
PG12-200	121	88.0	70.1	58.9	41.0	34.0	29.4	19.3
PG12-230	140	102.3	81.6	68.6	47.9	39.7	34.2	22.3
PG6-110	67.4	49.0	39.0	32.6	22.6	18.6	16.1	10.7
PG6-160	106	76.4	60.8	50.8	35.2	28.9	24.8	16.0
PG6-200	121	88.0	70.1	58.9	41.0	34.0	29.4	19.3

Battery Model	Time in Minutes - Watts per cell to 1.67 VPC					
	5	10	15	30	45	60
PG6-7.5	37.8	27.1	20.7	12.5	9.3	7.8
PG6-10	54.4	38.8	29.8	22.6	19.1	17.8
PG6-12	65.0	46.3	35.3	27.3	23.5	21.4
PG12-7.5	37.8	27.1	20.7	12.5	9.3	7.8
PG12-12	65.0	46.3	35.3	27.3	23.5	21.4
PG12-18	81.2	59.9	46.6	30.2	23.1	21.2
PG12-26	110	81.7	65.9	44.8	32.4	28.7
PG12-33	151	117	88.4	53.5	39.8	34.3
PG12-44	200	150	113	69.2	53.6	46.9
PG12-55	260	196	147	89.9	69.4	58.7
PG12-70J	331	250	189	115	87.7	74.7
PG12-70	325	245	186	113	87.0	74.2
PG12-80	370	279	211	129	96.7	81.8
PG12-90	425	320	241	148	110	96.0
PG12-100	474	356	268	164	122	105
PG12-110	522	394	296	181	134	115
PG12-120	566	428	322	198	146	125
PG12-135	638	482	362	222	165	141
PG12-150	711	536	402	246	184	157
PG12-160	853	642	484	294	219	186
PG12-200	945	714	535	326	249	211
PG12-230	1094	825	620	379	285	247
PG6-110	558	420	316	190	143	121
PG6-160	853	642	484	294	219	190
PG6-200	945	714	535	326	249	211

Battery Model	Time in Hours - Watts per cell to 1.75 VPC							
	2	3	4	5	8	10	12	20
PG6-7.5	5.1	3.6	2.8	2.2	1.5	1.2	1.1	0.8
PG6-10	6.7	4.7	3.7	3.1	2.0	1.7	1.5	1.0
PG6-12	8.3	5.9	4.6	3.8	2.6	2.2	2.0	1.4
PG12-7.5	5.1	3.6	2.8	2.2	1.5	1.2	1.1	0.8
PG12-12	8.3	5.9	4.6	3.8	2.6	2.2	2.0	1.4
PG12-18	11.1	8.2	6.5	5.5	3.6	3.0	2.5	1.7
PG12-26	16.5	12.2	9.6	8.1	5.4	4.4	3.8	2.5
PG12-33	20.5	14.7	11.8	9.9	6.9	5.7	5.0	3.3
PG12-44	26.5	19.2	15.1	12.8	8.8	7.3	6.3	4.1
PG12-55	34.5	25.3	19.9	16.5	11.2	9.3	8.0	5.4
PG12-70J	43.9	32.0	25.6	21.3	14.5	12.1	10.3	6.8
PG12-70	42.9	31.4	24.8	20.6	14.0	11.6	10.0	6.7
PG12-80	49.0	35.6	28.2	23.8	16.4	13.5	11.6	7.8
PG12-90	55.9	40.5	32.1	27.0	18.6	15.4	13.3	8.8
PG12-100	62.7	45.4	36.0	30.2	20.9	17.3	14.9	9.7
PG12-110	69.0	50.0	39.6	33.1	22.9	18.9	16.2	10.9
PG12-120	75.4	54.5	43.6	36.7	25.4	21.1	18.1	11.9
PG12-135	85.6	62.5	49.9	41.7	28.2	23.3	20.0	13.1
PG12-150	94.1	68.7	54.7	45.7	31.3	26.1	22.1	14.7
PG12-160	109	78.8	62.4	52.1	35.9			

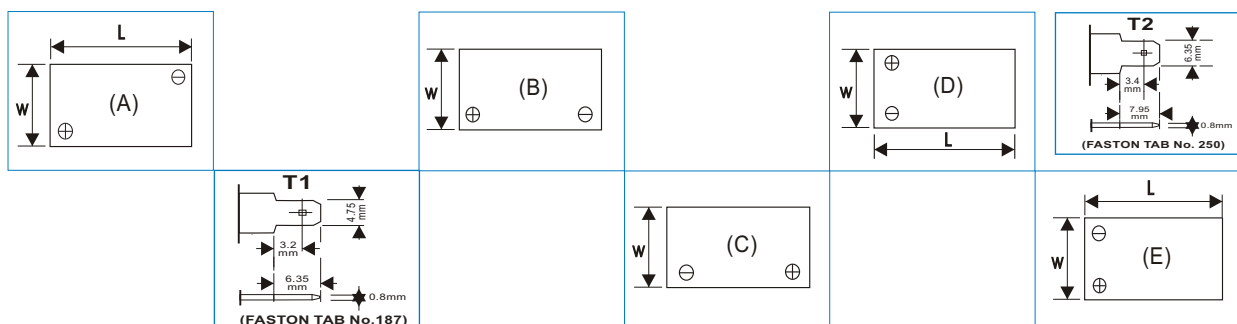


**Central Gassing** - Power Plus produce some models with a integral central gassing system. This system is a useful feature when batteries are installed in an IP66 cabinet. Sealing prevents any escaping gas from exiting the enclosure. Central gassing allows a tube carrying the emissions to pass through a seal to atmosphere. Power Plus are adding this feature to a number of sizes, if you require this feature please contact us for an up-to-date list of models included.



Battery Model	Qty Per Box	Dimensions (mm) & weight (Kg)				Dimensions (Inches) & weight (Lbs)				Terminal Details	BCI Group Size	Internal Resistance mOhms	Maximum Charge Current	CCA at 0 °C	Short Circuit Amps
		Length	Width	Height	Weight	Length	Width	Height	Weight						
PG6-7.5	10	150	34	96 (101)	1.3	5.91	1.34	3.7 (3.9)	2.8	B-T1	-	13	1.5	NA	275
PG6-10	10	151	50	97 (101)	1.9	5.94	1.97	3.7 (3.9)	4.2	B-T1	-	10	2	NA	325
PG6-12	10	151	50	98 (101)	2.0	5.94	1.97	3.7 (3.9)	4.4	B-T2	-	10	2.4	NA	500
PG12-7.5	8	151	65	99 (101)	2.5	5.94	2.56	3.7 (3.9)	5.5	D-T1	-	28	1.5	NA	275
PG12-12	4	150	97	100 (101)	4.0	5.91	3.82	3.7 (3.9)	8.8	D-T2	-	20	2.4	NA	500
PG12-18	2	181	76	167	5.9	7.13	2.99	6.57	13.0	C - M5	-	12	4.5	270	700
PG12-26	1	166	176	126	8.8	6.54	6.93	4.96	19.4	C - M5	-	9.5	6.5	300	900
PG12-33	1	195	130	160	10.9	7.68	5.12	6.30	24.1	B - M6	U1	8.5	8	320	1100
PG12-44	1	197	165	170	14.0	7.76	6.50	6.69	30.9	C - M6	-	7.5	11	350	1400
PG12-55	1	228	137	207	17.5	8.98	5.39	8.15	38.7	B - M6	22NF	6.5	14	380	1700
PG12-70J	1	350	167	179	22.1	13.78	6.57	7.05	48.8	Flag 1/4" C - M6	-	5	18	550	2100
PG12-70	1	259	168	208	21.5	10.20	6.61	8.19	47.5	B - M6	24	5	18	550	2100
PG12-80	1	259	168	208	23.3	10.20	6.61	8.19	51.5	B - M6	24	5	20	620	2400
PG12-90	1	305	168	208	29	12.01	6.61	8.19	64.1	B - M6	27	4	22	680	2650
PG12-100	1	305	168	208	28.4	12.01	6.61	8.19	62.8	B - M6	27	5	25	780	2900
PG12-110	1	332	174	213	32.2	13.07	6.85	8.39	71.2	B - M6	31	4	27	960	3000
PG12-120	1	408	176	227	35.4	16.06	6.93	8.94	78.2	B - M6	-	3	30	1020	3300
PG12-135	1	340	173	280	39.8	13.39	6.81	11.02	88.0	C - M6	-	2.5	35	1160	3750
PG12-150	1	482	170	242	44.3	18.98	6.69	9.53	97.8	B - M6	-	2	38	1300	4200
PG12-160	1	530	209	214	27.4	20.87	8.23	8.43	60.6	E - M6	4D	2	40	1440	4700
PG12-200	1	520	240	220	66.0	20.47	9.45	8.66	145.9	E - M8	-	<2	50	1670	5400
PG12-230	1	521	269	203	71.0	20.51	10.59	7.99	156.9	E - M8	8D	<2	57	1870	5900
PG6-110	1	193	168	205	16.0	7.60	6.61	8.07	35.4	A - M6	-	4	27	1010	3200
PG6-160	1	298	171	226	26.0	11.73	6.73	8.90	57.5	A - M6	-	2	40	1290	4600
PG6-200	1	318	170	225	31.0	12.52	6.69	8.86	68.5	A - M8	-	<2	50	1600	5000

### Terminal Layout details



Interlink Power System Pte Ltd  
32 Ang Mo Kio Industrial Park 2  
#04-13 Sing Industrial Complex  
Singapore 569510  
Tel : 65-64841406  
Fax : 65-64841405  
Email : [sales@interlinkpower.com.sg](mailto:sales@interlinkpower.com.sg)  
Website : [www.interlinkpower.com.sg](http://www.interlinkpower.com.sg)