

## POWER-plus V.R.L.A.

## PBC 2V-Series

### **Valve Regulated Lead Acid (V.R.L.A.) 2 Volt Flat Pasted Plate GEL Battery Range Capacities: 50AH to 4000AH**

POWER-plus PBC 2V-Series Valve Regulated Lead Acid (V.R.L.A.) Gel batteries are designed for the long standby back-up power requirements of wireless/PCS telecommunications, MTSO's, Power Plant, utilities, switchgear and control applications. POWER-plus advanced Gel electrolyte technology ensures reliable performance, safety, outstanding battery life and value. Battery has a design life of 20 years and complies with BS6290 Part4, EUROBAT (draft IEC 896-2) standards and is a recognized component of UI1989 under the Standby Battery Category.

#### **Features**

- Valve regulated Lead Acid (VRLA) design
- Non-gassing
- Never needs addition of water
- Spill-proof and lead-proof
- Operates at a low internal pressure
- For use in vertical or horizontal position
- Each cell has a low pressure safety Release venting system
- Flame Retardant material
- (Option-required to meet BS6290 Part)

#### **Specifications**

- Positive Plate: Calcium Flat Plate Grid
- Negative Plate: Flat Pasted Grid
- Electrolyte: Gel Electrolyte
- Container & Cover: Grade 6 ABS
- Separators: Micro-porous Separator
- Float Voltage: 2.25 VPC  $\pm$  1% at 25°C / 25°C
- Safety One-Way Valve: 1-2psi self-resealing as Low pressure vent
- Internal Impedance: 0.18  $\pm$  0.01 milliOhm
- Terminals / Interconnects: Copper Bar or Insulated Cable
- Float current:  $\leq$  7 milliAmps per 100 Ah-Capacity

#### **Applications**

Telecommunications  
Emergency-Lighting  
Navigation Aids  
UPS system  
Switchgear Cellular  
Radio Control  
Systems  
Standby Power Supply  
Photovoltaic  
Power Plant



#### **Operating temperature range**

Discharge: -40°F (-40°C) to 140°F (60°C)

Charge: -4°F (-20°C) to +122°F (50°C)

Ideal operating temperature range

68°F (20°C) to 77°F (25°C)



## **Introduction**

POWER-plus PBC 2V-Series are of the Gel Electrolyte type. The cells are designed so that a controlled amount of electrolyte is contained within an absorbent non-woven separator material that also separates the battery plates. This type of separator construction allows full wetting of the plates with the available electrolyte and also allows the free passage of the oxygen generated during charging. This construction is generally referred to as Gel Glass Mat (GGM) type.

Valve regulated batteries are fully sealed with exception of a one way valve that opens when excess pressure builds up inside the battery and closes when the pressure is released. The recombination of charge gases is accomplished by allowing oxygen produced at the positive plate. The safety valve controls the internal pressure of the battery to optimize the efficiency of the recombination reaction and minimize the possible loss of electrolyte.

## **General Features**

### **Valve Regulated (Sealed) Construction**

POWER-plus PBC 2V-Series valve regulated GGM (Gel Glass Mat) rechargeable lead acid batteries for safe, maintenance free operation in Vertical or Horizontal position. The Gel acid is suspended in a specially formulated non-woven glass mat separator. All the acid is absorbed in this manner and it provides a safe leak proof & non-spillable battery.

### **Gas Recombination System**

The gasses generated in the normal charge / discharge use of the battery are recombined during normal operation. In normal operation, more than 99% of the gases generated are efficiently recombined.

### **Maintenance Free**

The Gel Battery has been designed and built such that no addition of electrolyte is needed for the life of the battery. There is no need to add water or take specific gravity readings.

### **Battery Life – Float Service**

POWER-plus PBC 2V-Series Gel Battery are designed for float (Standby) service with design life of 20 years at 25°C (77°F).

### **Battery Life – Cycle Service**

POWER-plus PBC 2V-Series Gel Battery are designed for more than 3000 charge / discharge cycles at 20% DOD and 1200 Cycles at 80% DOD At 25°C (77°F), actual quantity of cycle will depend on the Depth of Discharge (D.O.D.).

### **Safety Valve**

If excess pressure builds up within the battery, the safety valve automatically opens and re-closes, releasing the gas at 1-2psi. The valve does not allow the ingress of oxygen which is harmful and reduces the life expectation of the battery.

### **Temperature Range for Normal Operation**

POWER-plus PBC 2V-Series Gel Battery have a wide operating temperature range. However for maximum life and safety, continuous operation over 45°C is not recommended.

### **Grid Design and Paste Formation**

POWER-plus has optimized the grid design and paste formation to maximize the operating and storage life of the Gel Battery. This optimized design provides the following advantages:

- Excellent recovery from deep discharge or over discharge;
- Low self-discharge to ensure maximum storage time when not in use;
- Adequate safety margins in tough operating conditions.

**POWER-plus PBC 2V-Series Cell Discharge Watts Data @ 25°C (77°F)**

Cell Type	End VPC	Discharge Watts Per Cell @ 25°C						End VPC	Discharge Watts Per Cell @ 25°C								
		Discharge Time In Minutes							Discharge Time In Hours								
		5	10	15	30	45	60		1.5	2	3	4	5	8	10	12	24
2-50	1.80	230	175	147	97.1	74.8	61.5	1.85	39.2	32.7	24.4	19.1	15.9	11.3	9.37	7.99	4.38
	1.75	236	179	150	101	75.8	63.6	1.80	41.4	34.6	25.8	20.2	16.8	12.0	9.92	10.2	4.65
	1.67	253	193	163	103	77.6	64.3	1.75	41.7	34.8	26.1	20.4	17.0	12.1	10.1	10.3	4.70
2-100	1.80	461	349	294	194	150	123	1.85	78.4	65.4	48.9	38.3	31.9	22.6	18.7	16.0	8.76
	1.75	481	365	306	205	155	130	1.80	82.7	69.1	51.7	40.5	33.7	24.0	19.8	16.9	9.28
	1.67	505	382	332	209	158	131	1.75	85.0	71.1	53.2	41.7	34.7	24.7	20.5	17.4	9.59
2-120	1.80	553	419	353	233	180	148	1.85	94.1	78.5	58.7	46.0	38.3	27.1	22.4	19.2	10.5
	1.75	577	438	367	246	186	156	1.80	99.2	82.9	62.0	48.6	40.4	28.8	23.8	20.3	11.1
	1.67	606	458	398	251	190	157	1.75	102	85.3	63.8	50.0	41.6	29.6	24.6	20.9	11.5
2-150	1.80	659	500	420	278	214	176	1.85	118	96.1	73.3	57.4	47.8	34.0	28.1	24.0	13.1
	1.75	689	522	438	293	221	186	1.80	124	104	77.5	60.7	50.5	36.0	29.8	25.4	13.9
	1.67	720	543	475	299	227	188	1.75	127	107	79.8	62.5	52.1	37.1	30.7	26.2	14.4
2-200	1.80	615	533	448	348	280	234	1.85	158	132	96.2	76.9	64.0	45.5	37.7	32.1	17.7
	1.75	715	583	502	369	292	249	1.80	165	138	103	80.9	67.4	47.9	39.7	33.8	18.6
	1.67	770	657	552	378	299	251	1.75	171	143	107	83.8	69.8	49.7	41.3	35.2	19.3
2-250	1.80	769	666	560	434	351	293	1.85	197	164	123	96.1	80.0	56.9	47.1	40.1	22.0
	1.75	893	728	627	461	364	311	1.80	207	173	129	101	84.2	59.9	49.6	42.3	23.2
	1.67	962	820	689	472	373	314	1.75	213	178	133	105	87.2	62.0	51.4	43.8	24.1
2-300	1.80	922	799	672	521	421	351	1.85	236	197	147	115	95.9	68.2	56.4	48.1	26.4
	1.75	1071	873	752	553	437	373	1.80	248	207	155	121	101	71.9	59.5	50.7	28.0
	1.67	1153	983	826	567	447	377	1.75	256	214	160	125	105	74.4	61.6	52.5	28.9
2-400	1.80	1230	1066	895	695	561	468	1.85	314	262	196	153	128	90.8	75.2	64.1	35.1
	1.75	1427	1163	1001	737	582	496	1.80	331	276	207	162	135	95.9	79.4	67.6	37.1
	1.67	1536	1310	1100	755	596	502	1.75	341	285	213	167	139	99.1	82.1	69.9	38.4
2-500	1.80	1537	1332	1119	869	701	586	1.85	394	328	245	192	160	114	94.1	80.2	44.0
	1.75	1786	1456	1254	922	728	621	1.80	414	346	258	202	168	120	99.2	84.5	46.4
	1.67	1923	1640	1377	945	746	628	1.75	426	357	267	209	174	124	103	87.5	48.1
2-600	1.80	1845	1599	1343	1043	841	703	1.85	472	394	294	230	192	136	113	96.2	52.7
	1.75	2142	1747	1503	1106	874	745	1.80	496	415	310	243	202	144	119	101	55.7
	1.67	2306	1967	1652	1133	895	753	1.75	511	428	320	251	209	149	123	105	57.7
2-700	1.80	2114	1802	1545	1025	827	690	1.85	515	422	316	254	213	149	124	105	58.2
	1.75	2336	1960	1681	1184	942	792	1.80	628	464	342	277	234	154	131	112	60.0
	1.67	2708	2215	1869	1300	992	838	1.75	659	479	350	278	237	163	136	116	60.6
2-800	1.80	2460	2132	1791	1390	1122	937	1.85	629	525	392	307	256	182	151	128	70.3
	1.75	2857	2330	2005	1475	1165	994	1.80	662	553	413	324	270	192	159	135	74.3
	1.67	3076	2624	2203	1511	1194	1005	1.75	682	571	427	335	279	198	165	140	77.0
2-1000	1.80	3074	2664	2239	1738	1402	1171	1.85	786	656	490	384	320	227	188	160	87.8
	1.75	3568	2910	2505	1842	1455	1242	1.80	827	691	517	405	337	240	198	169	92.8
	1.67	3843	3277	2750	1888	1491	1255	1.75	852	713	533	418	348	248	205	175	96.1

2-1200	1.80	3689	3197	2687	2086	1682	1405	1.80	943	787	588	461	384	272	226	192	105
	1.75	4282	3492	3006	2210	1746	1490	1.75	992	829	620	486	404	288	238	203	111
	1.67	4612	3932	3300	2266	1789	1506	1.67	1022	856	640	502	418	298	246	210	115
2-1400	1.80	4407	3731	3134	2433	1964	1640	1.80	1101	919	686	538	447	318	263	224	123
	1.75	4988	4067	3501	2575	2035	1735	1.75	1158	968	723	567	471	336	278	237	130
	1.67	5371	4581	3847	2639	2084	1755	1.67	1191	996	746	584	487	346	287	245	134
2-1500	1.80	4722	3997	3358	2607	2104	1757	1.85	1180	985	735	576	479	341	282	240	132
	1.75	5344	4358	3751	2759	2180	1859	1.80	1241	1037	775	607	505	360	298	254	139
	1.67	5755	4908	4122	2827	2233	1880	1.75	1276	1067	799	626	522	371	307	262	144
2-1600	1.80	5037	4263	3582	2781	2244	1874	1.80	1259	1051	784	614	511	364	301	256	141
	1.75	5700	4649	4001	2943	2325	1983	1.75	1324	1106	827	647	539	384	318	271	148
	1.67	6139	5235	4397	3015	2382	2005	1.67	1361	1138	852	668	557	396	327	279	154
2-1800	1.80	5534	4796	4029	3128	2525	2108	1.80	1416	1182	883	691	575	410	338	289	158
	1.75	6426	5241	4511	3317	2621	2236	1.75	1489	1244	930	728	607	431	357	304	167
	1.67	6920	5902	4956	3400	2686	2260	1.67	1535	1283	960	753	627	446	370	315	173
2-2000	1.80	6149	5329	4477	3476	2805	2342	1.85	1573	1313	981	768	639	455	376	321	176
	1.75	7140	5823	5012	3686	2912	2484	1.80	1654	1382	1033	809	674	479	397	338	186
	1.67	7689	6558	5507	3778	2984	2511	1.75	1705	1426	1067	837	697	496	411	350	192
2-2500	1.80	7686	6661	5597	4345	3506	2928	1.85	1966	1641	1226	960	799	566	470	401	220
	1.75	8922	7276	6263	4607	3639	3105	1.80	2068	1728	1291	1012	842	599	496	423	232
	1.67	9608	8195	6882	4721	3728	3138	1.75	2130	1782	1334	1046	871	620	513	437	240
2-3000	1.80	9223	7993	6716	5214	4207	3514	1.85	2359	1969	1471	1152	959	682	564	481	265
	1.75	10708	8733	7517	5529	4368	3726	1.80	2482	2074	1550	1214	1011	719	595	507	279
	1.67	11532	9835	8260	5665	4475	3766	1.75	2557	2139	1601	1255	1045	744	616	525	289
2-4000	1.80	12297	10658	8955	6952	5609	4685	1.85	3146	2625	1962	1537	1279	909	752	641	351
	1.75	14278	11644	10023	7372	5823	4968	1.80	3309	2765	2066	1619	1348	959	794	676	371
	1.67	15377	13114	11013	7554	5967	5022	1.75	3409	2852	2135	1673	1394	992	822	700	384

Actual battery performance data may be  $\pm 5\%$  of figures shown above

### POWER-plus PBC 2V-Series Cell Discharge Amperes Data @ 25°C (77°F)

Cell Type	End VPC	Discharge Amps Per Cell @ 25°C						End VPC	Discharge Amps Per Cell @ 25°C								
		Discharge Time In Minutes							Discharge Time In Hours								
		5	10	15	30	45	60		1.5	2	3	4	5	8	10	12	24
2-50	1.80	128	96.0	80.0	52.5	39.4	32.0	1.85	20.4	16.9	12.5	9.75	8.08	5.70	4.70	4.00	2.18
	1.75	133	99.5	82.9	54.4	40.8	33.2	1.80	21.7	18.0	13.3	10.4	8.60	6.06	5.00	5.10	2.32
	1.67	148	112	90.9	55.9	41.7	33.7	1.75	22.1	18.4	13.6	10.6	8.77	6.18	5.10	5.20	2.37
2-100	1.80	256	192	160	105	78.7	64.0	1.85	40.7	33.8	25.1	19.5	16.2	11.4	9.40	7.99	4.36
	1.75	270	203	169	111	83.1	67.6	1.80	43.3	36.0	26.7	20.8	17.2	12.1	10.0	8.50	4.64
	1.67	299	225	185	114	85.1	68.6	1.75	45.1	37.4	27.7	21.6	17.9	12.6	10.4	8.84	4.83
2-120	1.80	307	230	192	126	94.4	76.8	1.85	48.8	40.6	30.1	23.4	19.4	13.7	11.3	9.59	5.23
	1.75	324	244	203	133	100	81.1	1.80	52.0	43.2	32.0	25.0	20.6	14.5	12.0	10.2	5.57
	1.67	359	270	222	137	102	82.3	1.75	54.1	44.9	33.2	25.9	21.5	15.1	12.5	10.6	5.80
2-150	1.80	366	275	229	150	113	91.5	1.85	61.1	50.8	37.6	29.3	24.3	17.1	14.1	12.0	6.54
	1.75	387	290	242	159	119	96.7	1.80	65.0	54.0	40.0	31.1	25.8	18.2	15.0	12.8	6.96
	1.67	428	323	265	163	122	98.3	1.75	67.6	56.2	41.6	32.4	26.8	18.9	15.6	13.3	7.24
2-200	1.80	342	293	244	188	148	122	1.85	81.9	68.0	50.4	39.2	32.5	22.9	18.9	16.2	8.77
	1.75	402	324	277	200	157	130	1.80	86.7	72.0	53.3	41.5	34.4	24.3	20.0	17.0	9.28

	<b>1.67</b>	448	375	308	207	161	132	<b>1.75</b>	90.6	75.2	55.7	43.4	35.9	25.3	21.0	17.8	9.70
<b>2-250</b>	<b>1.80</b>	427	366	305	235	185	153	<b>1.85</b>	102	85.0	62.9	49.0	40.6	28.6	23.6	20.1	11.0
	<b>1.75</b>	502	405	346	249	196	162	<b>1.80</b>	108	90.0	66.7	51.9	43.0	30.3	25.0	21.3	11.6
	<b>1.67</b>	559	469	385	258	201	164	<b>1.75</b>	113	94.0	69.6	54.2	44.9	31.6	26.1	22.2	12.1
<b>2-300</b>	<b>1.80</b>	512	439	366	283	222	183	<b>1.85</b>	123	102	75.5	58.7	48.8	34.3	28.3	24.1	13.1
	<b>1.75</b>	602	485	415	299	235	194	<b>1.80</b>	130	108	80.0	62.3	51.6	36.4	30.0	25.5	14.0
	<b>1.67</b>	670	562	461	310	241	198	<b>1.75</b>	136	113	83.5	64.9	53.8	38.0	31.3	26.6	14.5
<b>2-400</b>	<b>1.80</b>	683	586	488	376	295	244	<b>1.85</b>	163	136	101	78.2	64.8	45.7	37.7	32.0	17.5
	<b>1.75</b>	801	646	553	398	313	259	<b>1.80</b>	173	144	107	83.0	68.8	48.5	40.0	34.0	18.6
	<b>1.67</b>	893	749	615	412	321	263	<b>1.75</b>	181	150	111	86.5	71.7	50.6	42.0	35.4	19.4
<b>2-500</b>	<b>1.80</b>	854	732	610	470	370	305	<b>1.85</b>	205	170	126	98.0	81.2	57.2	47.2	40.1	22.0
	<b>1.75</b>	1003	809	693	498	392	324	<b>1.80</b>	217	180	133	104	86.0	60.6	50.0	42.5	23.3
	<b>1.67</b>	1118	937	770	516	401	329	<b>1.75</b>	226	189	139	108	89.8	63.3	52.2	44.4	24.2
<b>2-600</b>	<b>1.80</b>	1025	878	732	564	443	366	<b>1.85</b>	245	204	151	117	97.4	68.6	56.6	48.1	26.3
	<b>1.75</b>	1203	970	831	598	470	388	<b>1.80</b>	260	216	160	125	103	72.8	60.0	51.0	28.0
	<b>1.67</b>	1341	1124	923	619	481	395	<b>1.75</b>	271	225	167	130	108	75.9	62.6	53.2	29.1
<b>2-700</b>	<b>1.80</b>	1170	998	833	623	491	399	<b>1.85</b>	278	218	165	129	108	75.0	62.0	52.7	29.0
	<b>1.75</b>	1335	1101	936	648	508	418	<b>1.80</b>	301	242	180	142	119	78.0	66.0	56.1	30.0
	<b>1.67</b>	1584	1280	1056	710	528	449	<b>1.75</b>	316	249	182	144	121	83.0	69.0	58.7	30.5
<b>2-800</b>	<b>1.80</b>	1366	1171	976	752	590	488	<b>1.85</b>	327	272	201	157	130	91.5	75.5	64.2	35.0
	<b>1.75</b>	1605	1294	1108	797	626	518	<b>1.80</b>	347	288	213	166	138	97.0	80.0	68.0	37.1
	<b>1.67</b>	1789	1499	1231	826	642	526	<b>1.75</b>	362	301	223	173	144	101	83.5	71.0	38.8
<b>2-1000</b>	<b>1.80</b>	1708	1464	1220	939	738	610	<b>1.85</b>	409	339	251	196	162	114	94.3	80.2	43.8
	<b>1.75</b>	2005	1617	1384	996	782	647	<b>1.80</b>	433	360	267	208	172	121	100	85.0	46.4
	<b>1.67</b>	2234	1873	1538	1032	802	657	<b>1.75</b>	452	375	278	216	179	126	104	88.7	48.5
<b>2-1200</b>	<b>1.80</b>	2050	1757	1464	1127	886	732	<b>1.85</b>	491	407	301	235	194	137	113	96.2	52.6
	<b>1.75</b>	2406	1940	1661	1195	938	776	<b>1.80</b>	520	432	320	250	206	145	120	102	55.7
	<b>1.67</b>	2681	2248	1846	1238	962	788	<b>1.75</b>	542	450	334	259	215	151	125	106	58.2
<b>2-1400</b>	<b>1.80</b>	2391	2050	1708	1315	1033	854	<b>1.85</b>	572	475	352	274	227	161	133	113	61.3
	<b>1.75</b>	2802	2260	1934	1392	1094	903	<b>1.80</b>	607	504	373	290	241	170	140	119	65.0
	<b>1.67</b>	3123	2618	2149	1442	1121	918	<b>1.75</b>	632	525	389	304	251	176	146	124	67.7
<b>2-1500</b>	<b>1.80</b>	2562	2196	1830	1409	1107	915	<b>1.85</b>	613	509	377	294	243	172	142	121	65.7
	<b>1.75</b>	3002	2421	2072	1491	1172	968	<b>1.80</b>	650	540	400	311	258	182	150	128	69.6
	<b>1.67</b>	3346	2805	2303	1545	1201	984	<b>1.75</b>	677	562	417	326	269	189	156	133	72.5
<b>2-1600</b>	<b>1.80</b>	2733	2342	1952	1503	1181	976	<b>1.85</b>	654	543	402	314	259	183	151	129	70.1
	<b>1.75</b>	3202	2582	2210	1590	1250	1033	<b>1.80</b>	693	576	427	332	275	194	160	137	74.2
	<b>1.67</b>	3569	2992	2457	1648	1281	1050	<b>1.75</b>	722	599	445	348	287	202	166	142	77.3
<b>2-1800</b>	<b>1.80</b>	3074	2635	2196	1691	1328	1098	<b>1.85</b>	736	611	453	354	293	206	170	145	79.2
	<b>1.75</b>	3610	2912	2492	1794	1409	1165	<b>1.80</b>	780	648	480	374	310	219	180	153	83.5
	<b>1.67</b>	4023	3372	2769	1858	1444	1184	<b>1.75</b>	814	676	501	390	323	228	188	159	87.2
<b>2-2000</b>	<b>1.80</b>	3416	2928	2440	1879	1476	1220	<b>1.85</b>	818	679	513	393	325	229	189	161	88.0
	<b>1.75</b>	4011	3235	2769	1993	1566	1294	<b>1.80</b>	867	720	533	415	344	243	200	170	92.8
	<b>1.67</b>	4470	3747	3077	2064	1604	1315	<b>1.75</b>	904	751	557	433	359	253	209	177	96.9

<b>2-2500</b>	<b>1.80</b>	4270	3660	3050	2349	1845	1525	<b>1.85</b>	1022	849	629	489	406	286	236	200	109
	<b>1.75</b>	5013	4042	3460	2490	1957	1617	<b>1.80</b>	1083	900	667	519	430	303	250	213	116
	<b>1.67</b>	5586	4683	3845	2580	2005	1643	<b>1.75</b>	1130	939	695	541	449	316	261	222	121
<b>2-3000</b>	<b>1.80</b>	5124	4392	3660	2818	2214	1830	<b>1.85</b>	1226	1019	755	587	487	343	283	241	132
	<b>1.75</b>	6016	4850	4153	2989	2348	1941	<b>1.80</b>	1300	1081	801	623	516	364	300	255	139
	<b>1.67</b>	6704	5620	4614	3096	2406	1972	<b>1.75</b>	1356	1127	835	649	538	380	313	266	145
<b>2-4000</b>	<b>1.80</b>	6832	5856	4880	3758	2953	2441	<b>1.85</b>	1635	1359	1007	783	649	457	377	321	176
	<b>1.75</b>	8022	6469	5538	3984	3131	2588	<b>1.80</b>	1733	1440	1067	830	688	485	400	340	186
	<b>1.67</b>	9147	7494	6153	4128	3207	2630	<b>1.75</b>	1809	1502	1113	866	718	506	418	354	193

Actual battery performance data may be  $\pm 5\%$  of figures shown above

### POWER-plus PBC 2V-Series Cell Discharge Ampere Hours Data @ 25°C (77°F)

Cell Type	End VPC	Discharge Amps Per Cell @ 25°C						End VPC	Discharge Ampere Hours Per Cell @ 25°C								
		Discharge Time In Minutes							Discharge Time In Hours								
		5	10	15	30	45	60		1.5	2	3	4	5	8	10	12	24
<b>2-50</b>	<b>1.80</b>	128	96.0	80.0	52.5	39.4	32.0	<b>1.85</b>	30.6	33.8	37.5	39.0	40.4	45.6	47.0	48.0	52.3
	<b>1.75</b>	133	99.5	82.9	54.4	40.8	33.2	<b>1.80</b>	32.6	36.0	39.9	41.6	43.0	48.5	50.0	61.2	55.7
	<b>1.67</b>	148	112	90.9	55.9	41.7	33.7	<b>1.75</b>	33.2	36.8	40.8	42.4	43.9	49.4	51.0	62.4	56.9
<b>2-100</b>	<b>1.80</b>	256	192	160	105	78.7	64.0	<b>1.85</b>	61.1	67.6	75.3	78.0	81.0	91.2	94.0	95.9	105
	<b>1.75</b>	270	203	169	111	83.1	67.6	<b>1.80</b>	65.0	72.0	80.1	83.2	86.0	96.8	100	102	111
	<b>1.67</b>	299	225	185	114	85.1	68.6	<b>1.75</b>	67.7	74.8	83.1	86.4	89.5	101	104	106	116
<b>2-120</b>	<b>1.80</b>	307	230	192	126	94.4	76.8	<b>1.85</b>	73.2	81.2	90.3	93.6	97.0	110	113	115	126
	<b>1.75</b>	324	244	203	133	100	81.1	<b>1.80</b>	78.0	86.4	96.0	100	103	116	120	122	134
	<b>1.67</b>	359	270	222	137	102	82.3	<b>1.75</b>	81.2	89.8	99.6	104	108	121	125	127	139
<b>2-150</b>	<b>1.80</b>	366	275	229	150	113	91.5	<b>1.85</b>	91.7	102	113	117	122	137	141	144	157
	<b>1.75</b>	387	290	242	159	119	96.7	<b>1.80</b>	97.5	108	120	124	129	146	150	154	167
	<b>1.67</b>	428	323	265	163	122	98.3	<b>1.75</b>	101	112	125	130	134	151	156	160	174
<b>2-200</b>	<b>1.80</b>	342	293	244	188	148	122	<b>1.85</b>	123	136	151	157	163	183	189	194	210
	<b>1.75</b>	402	324	277	200	157	130	<b>1.80</b>	130	144	160	166	172	194	200	204	223
	<b>1.67</b>	448	375	308	207	161	132	<b>1.75</b>	136	150	167	174	180	202	210	214	233
<b>2-250</b>	<b>1.80</b>	427	366	305	235	185	153	<b>1.85</b>	153	170	189	196	203	229	236	241	264
	<b>1.75</b>	502	405	346	249	196	162	<b>1.80</b>	162	180	200	208	215	242	250	256	278
	<b>1.67</b>	559	469	385	258	201	164	<b>1.75</b>	170	188	209	217	225	253	261	266	290
<b>2-300</b>	<b>1.80</b>	512	439	366	283	222	183	<b>1.85</b>	185	204	227	235	244	274	283	289	314
	<b>1.75</b>	602	485	415	299	235	194	<b>1.80</b>	195	216	240	249	258	291	300	306	336
	<b>1.67</b>	670	562	461	310	241	198	<b>1.75</b>	204	226	251	260	269	304	313	319	348
<b>2-400</b>	<b>1.80</b>	683	586	488	376	295	244	<b>1.85</b>	245	272	303	313	324	366	377	384	420
	<b>1.75</b>	801	646	553	398	313	259	<b>1.80</b>	260	288	321	332	344	388	400	408	446
	<b>1.67</b>	893	749	615	412	321	263	<b>1.75</b>	272	300	333	346	359	405	420	425	466
<b>2-500</b>	<b>1.80</b>	854	732	610	470	370	305	<b>1.85</b>	308	340	378	392	406	458	472	481	528
	<b>1.75</b>	1003	809	693	498	392	324	<b>1.80</b>	326	360	399	416	430	485	500	510	559
	<b>1.67</b>	1118	937	770	516	401	329	<b>1.75</b>	339	378	417	432	449	506	522	533	581
<b>2-600</b>	<b>1.80</b>	1025	878	732	564	443	366	<b>1.85</b>	368	408	453	468	487	549	566	577	631
	<b>1.75</b>	1203	970	831	598	470	388	<b>1.80</b>	390	432	480	500	515	582	600	612	672
	<b>1.67</b>	1341	1124	923	619	481	395	<b>1.75</b>	407	450	501	520	540	607	626	638	698
<b>2-700</b>	<b>1.80</b>	1170	998	833	623	491	399	<b>1.85</b>	417	436	495	516	540	600	620	632	696
	<b>1.75</b>	1335	1101	936	648	508	418	<b>1.80</b>	452	484	540	568	595	624	660	673	720

	1.67	1584	1280	1056	710	528	449	1.75	474	498	546	576	605	664	690	704	732
2-800	1.80	1366	1171	976	752	590	488	1.85	491	544	603	628	650	732	755	770	840
	1.75	1605	1294	1108	797	626	518	1.80	521	576	639	664	690	776	800	816	890
	1.67	1789	1499	1231	826	642	526	1.75	543	602	669	692	720	808	835	852	931
2-1000	1.80	1708	1464	1220	939	738	610	1.85	614	678	753	784	810	912	943	962	1051
	1.75	2005	1617	1384	996	782	647	1.80	650	720	801	832	860	968	1000	1020	1114
	1.67	2234	1873	1538	1032	802	657	1.75	678	750	834	864	895	1008	1040	1064	1164
2-1200	1.80	2050	1757	1464	1127	886	732	1.85	737	814	903	940	970	1096	1130	1154	1262
	1.75	2406	1940	1661	1195	938	776	1.80	780	864	960	1000	1030	1160	1200	1224	1337
	1.67	2681	2248	1846	1238	962	788	1.75	813	900	1002	1036	1075	1208	1250	1272	1397
2-1400	1.80	2391	2050	1708	1315	1033	854	1.85	858	950	1056	1096	1135	1288	1330	1356	1471
	1.75	2802	2260	1934	1392	1094	903	1.80	911	1008	1119	1160	1205	1360	1400	1428	1560
	1.67	3123	2618	2149	1442	1121	918	1.75	948	1050	1167	1216	1255	1408	1460	1488	1625
2-1500	1.80	2562	2196	1830	1409	1107	915	1.85	920	1018	1131	1176	1215	1376	1420	1452	1577
	1.75	3002	2421	2072	1491	1172	968	1.80	975	1080	1200	1244	1290	1456	1500	1536	1670
	1.67	3346	2805	2303	1545	1201	984	1.75	1016	1124	1251	1304	1345	1512	1560	1596	1740
2-1600	1.80	2733	2342	1952	1503	1181	976	1.85	981	1086	1206	1256	1295	1464	1510	1548	1682
	1.75	3202	2582	2210	1590	1250	1033	1.80	1040	1152	1281	1328	1375	1552	1600	1644	1781
	1.67	3569	2992	2457	1648	1281	1050	1.75	1083	1198	1335	1392	1435	1616	1660	1704	1855
2-1800	1.80	3074	2635	2196	1691	1328	1098	1.85	1104	1222	1359	1416	1465	1648	1700	1740	1901
	1.75	3610	2912	2492	1794	1409	1165	1.80	1170	1296	1440	1496	1550	1752	1800	1836	2004
	1.67	4023	3372	2769	1858	1444	1184	1.75	1221	1352	1503	1560	1615	1824	1880	1908	2093
2-2000	1.80	3416	2928	2440	1879	1476	1220	1.85	1227	1358	1539	1572	1625	1832	1890	1932	2112
	1.75	4011	3235	2769	1993	1566	1294	1.80	1301	1440	1599	1660	1720	1944	2000	2040	2227
	1.67	4470	3747	3077	2064	1604	1315	1.75	1356	1502	1671	1732	1795	2024	2090	2124	2326
2-2500	1.80	4270	3660	3050	2349	1845	1525	1.85	1533	1698	1887	1956	2030	2288	2360	2400	2616
	1.75	5013	4042	3460	2490	1957	1617	1.80	1625	1800	2001	2076	2150	2424	2500	2556	2784
	1.67	5586	4683	3845	2580	2005	1643	1.75	1695	1878	2085	2164	2245	2528	2610	2664	2904
2-3000	1.80	5124	4392	3660	2818	2214	1830	1.85	1839	2038	2265	2348	2435	2744	2830	2892	3168
	1.75	6016	4850	4153	2989	2348	1941	1.80	1950	2162	2403	2492	2580	2912	3000	3060	3336
	1.67	6704	5620	4614	3096	2406	1972	1.75	2034	2254	2505	2596	2690	3040	3130	3192	3480
2-4000	1.80	6832	5856	4880	3758	2953	2441	1.85	2453	2718	3020	3134	3247	3657	3771	3852	4214
	1.75	8022	6469	5538	3984	3131	2588	1.80	2600	2880	3201	3321	3439	3882	4000	4077	4463
	1.67	9147	7494	6153	4128	3207	2630	1.75	2714	3005	3338	3466	3590	4048	4177	4251	4638

Actual battery performance data may be  $\pm 5\%$  of figures shown above

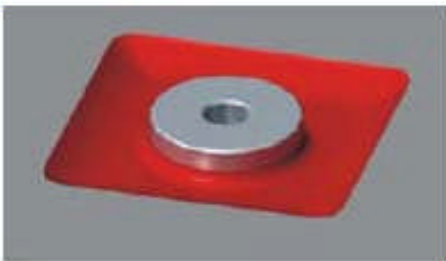
### POWER-plus PBC 2V- Series Cell Specifications

Model No.	Nominal Voltage (V)	Nominal AH Capacity @10hr to 1.80VPC	Outline Dimensions (mm/inch)				Weight (kg/lb)	Terminal Type
			Length	Width	Height	Total Height		
2-50	2	50	161/6.34	50/1.97	166/6.54	166/6.54	4.5/9.9	ST1
2-100	2	100	171/6.73	72/2.83	205/8.07	245/9.65	8/17.6	ST1
2-120	2	120	171/6.73	72/2.83	205/8.07	245/9.65	9/19.8	ST1
2-150	2	150	172/6.77	102/4.02	205/8.07	245/9.65	11/24.3	ST1
2-200	2	200	171/6.7	106/4.2	330/13.0	367/14.4	15/33.1	ST1
2-250	2	250	171/6.7	106/4.2	330/13.0	367/14.4	18/39.7	ST1



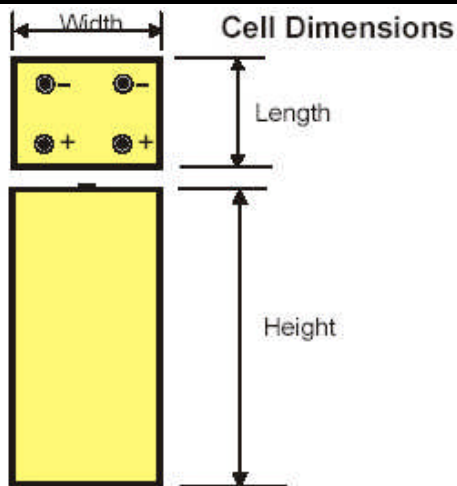
2-300	2	300	171/6.7	151/5.9	330/13.0	367/14.4	21/46.2	ST1
2-400	2	400	210/8.3	173/6.8	330/13.0	367/14.4	28/61.7	ST1
2-500	2	500	241/9.5	171/6.7	330/13.0	367/14.4	33/72.8	ST1
2-600	2	600	302/11.9	175/6.9	330/13.0	367/14.4	42/92.6	ST1
2-700	2	700	302/11.9	175/6.9	330/13.0	367/14.4	50/110.3	ST1
2-800	2	800	410/16.1	175/6.9	330/13.0	367/14.4	57/125.7	ST1
2-1000	2	1000	482/19.0	175/6.9	330/13.0	367/14.4	66/145.5	ST1
2-1200	2	1200	482/19.0	175/6.9	330/13.0	367/14.4	70/154.4	ST1
2-1400	2	1400	400/15.7	350/13.8	345/13.6	382/15.0	95/209.5	ST1
2-1500	2	1500	400/15.7	350/13.8	345/13.6	382/15.0	100/220.0	ST1
2-1600	2	1600	400/15.7	350/13.8	345/13.6	382/15.0	106/233.7	ST1
2-1800	2	1800	490/19.3	350/13.8	345/13.6	382/15.0	120/364.6	ST1
2-2000	2	2000	490/19.3	350/13.8	345/13.6	382/15.0	132/291.1	ST1
2-2500	2	2500	490/19.3	350/13.8	345/13.6	382/15.0	175/385.9	ST1
2-3000	2	3000	710/27.9	350/13.8	345/13.6	382/15.0	210/463.1	ST1
2-4000	2	4000	710/27.9	350/13.8	345/13.6	382/15.0	261/575.5	ST1

### Terminal Type



ST1

Copper Insert type terminal with 20 mm Diameter insert. Standing 5mm above the top of the battery case with M8 thread M8 bolt. Flat and Spring washer supplied.



### Battery Residual Current

Ambient temperature	Float current per 100AH
+10°C	3.9mA / 100Ah
+20°C	5.8mA / 100Ah
+25°C	6.7mA / 100Ah
+30°C	9.2mA / 100Ah
+35°C	13.4mA / 100Ah
+40°C	18.1mA / 100Ah

#### Residual Current

The residual float current should be the values shown above in the chart. These values will only be achieved after 5+ days on float charge.

### Battery Float Voltage

Ambient Temperature	Constant charge voltage In volts per cell
-20°C	2.43-2.48
-10°C	2.38-2.43
0°C	2.33-2.38
+10°C	2.28-2.33
+20°C	2.25-2.28
+25°C	2.23-2.26
+30°C	2.18-2.23

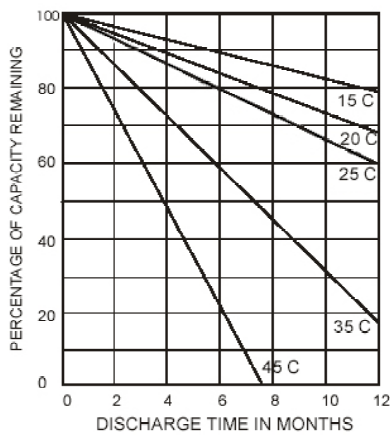
#### Battery Float Voltage

For operating temperatures other than 25°C the Constant Float Voltage should be set at the voltage per cell shown in the chart.

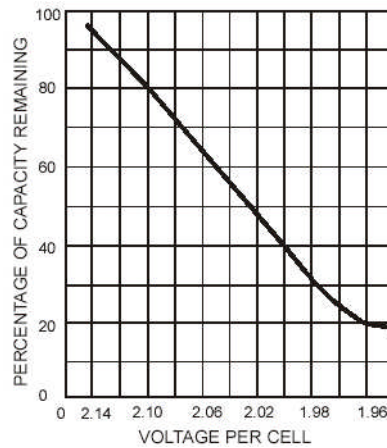


## **POWER-plus PBC 2V-Series PERFORMANCE CURVES**

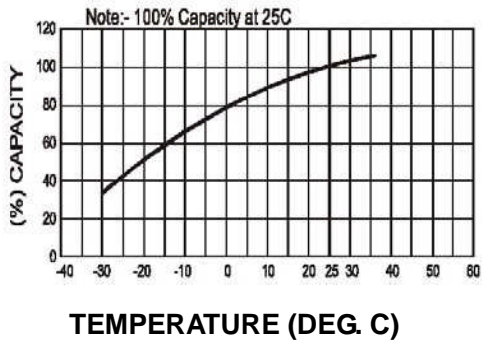
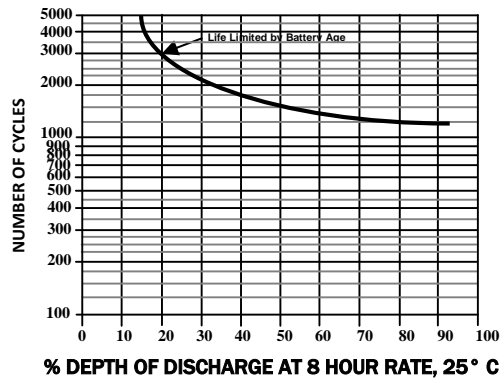
**SELF DISCHARGE CHARACTERISTIC**



**OPEN CIRCUIT VOLTAGE v.s. CAPACITY**

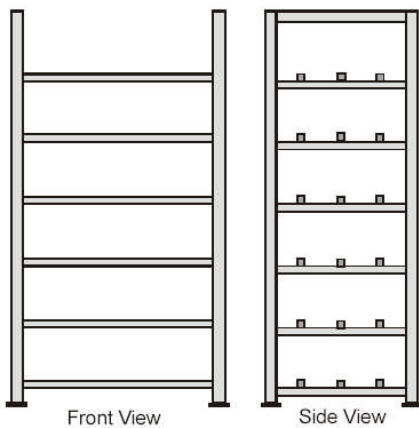


**FLOAT SERVICE/CYCLE LIFE**

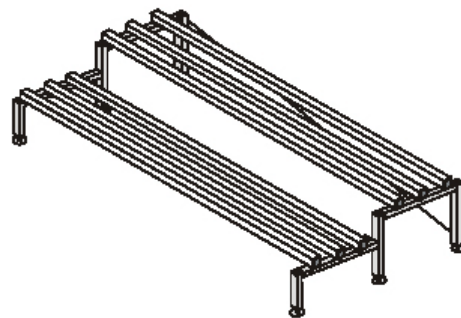


## **POWER-plus PBC 2V-Series – HORIZONTAL & VERTICAL RACKING SYSTEMS**

POWER-plus PBC 2V-Series batteries can be mounted on / in vertical or horizontal racking system. It is not recommended to mount batteries larger than 1000AH in horizontal position.



Typical rack for horizontal configuration of POWER-plus PBC 2V-Series batteries



Typical rack for vertical configuration of POWER-plus PBC 2V-Series batteries