

Sealed Valve Regulated Lead Acid Gel Battery Solar Power / Deep Cycle Battery

JP / JXH Series



Mpower Plus Gel, sealed valve regulated lead acid rechargeable batteries are maintenance free. **Mpower Plus Gel** advanced gelled electrolyte gas recombination technology ensures reliable performance, safe, outstanding battery life and value. **Mpower Plus Gel** batteries are designed for almost all types of floating services and cyclic applications.

FEATURES

Silicon Gel electrolyte / Maintenance-free / Multiple position Usage
Negligible gas emissions / Low self discharge / Valve regulated /
Systems compatible / No equalizing charge required / No free Acid
(Non-spillable Battery).

APPLICATIONS

Alternative Energy Storage / Solar Photovoltaic / Wind /
Telecommunications / Electrical Wheelchair and Vehicles / Cyclic &
Float services / Boats, Marine & Navigational Aids / Engine Starting /
Golf Caddy / Portable Medical Equipment.



INTRODUCTION

The latest MPower state-of-the-art technology has brought about the new GEL series of batteries capable of yielding even better performances and endurance than comparable batteries. The designed with the unique valve regulating devices and acid free construction, ensuring safety and suitable to the all environment.

* **Valve Regulated (Sealed) Construction.**

The battery is of the GEL (gelled electrolyte technology), valve regulated (sealed) VRLA rechargeable type. The acid is immobilised in a specially formulated mixture of gelling agent and sulphuric acid electrolyte. All the acid is absorbed in this manner and it provides a safe non-spillable Battery.

•**Gas Recombination System**

The gasses generated in the normal charge/discharge use of a rechargeable battery are internally recombined during normal operating parameters. In fact, in normal operational use, more than 99% of the gasses are recombined.

•**Maintenance Free**

The battery has been designed and built in such that no topping up of electrolyte is needed through out the battery life spend. There is no requirement for adding battery water and checking on the specific gravity reading.

•**Battery Life – Floating Application / Cycle Application**

Floating – The Mpower Plus GEL battery service life is capable of up to 10 years @ 20°C for floating application.

•Cyclic – The Mpower Plus GEL battery is designed for 500 to 3000 charged/discharge cycles, however, actual performances depends on the depth of discharge and the operating temperature range. (Refer Cyclic Curve)

• **Operating Temperature Range**

Mpower Plus GEL battery are capable of operating in a wide temperature range, however, in-order to maximize the battery life spend and for safety issue, it is recommended to operate the battery between 20 – 25°C , continues operating at high temperature (40°C or above) will shorten the life spend of the battery and it is not recommended for all VRLA battery to operate at over 50°C.

•**Gas Pressure Venting System**

•Designed to release excessive gas and reseal automatically in the event gas pressure rises to a level above the normal rate. Thus, there is no excessive gas build-up in the battery.

•**Grid Design & Paste Formulation**

By optimized the grid design and paste formulation are able to maximize the operation and storage life of the battery. With excellent recovery from deep or over discharge, low self discharge to ensure maximum storage time when not in use, excellent cyclic application , adequate safety margin in tough operating conditions.

SPECIFICATIONS

Voltage:	12 volt nominal
Plate Alloy:	Pb-Ca-Sn-A1 / Lead Calcium/Tin alloy grid
Container/Case:	ABS
Charge voltage:	Float:2.27~2.28 vpc./ Cycle:2.35~2.4 vpc. @ 25°C
Specific gravity:	1.30
Electrolyte:	Sulphuric acid silicon gel
Operating Temperature:	-15°C to 50°C

In-order to obtain full battery life and optimum performance, it is recommended to operate the battery @ the temperature range 20 – 25°C

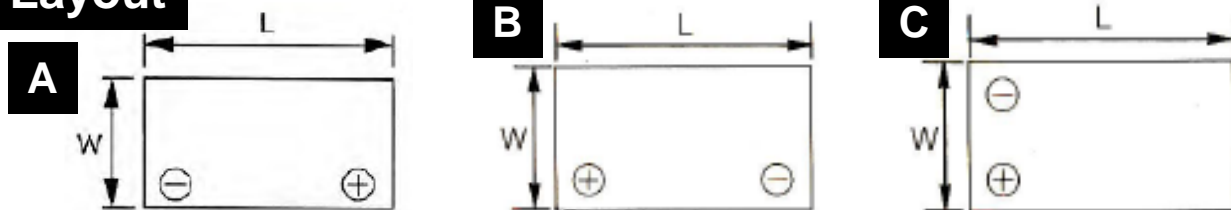
“JP” SERIES GEL TYPE

Model	Volts	Nominal Capacity (20Hr rate)	Approx. Dimensions ± 1 mm			Approx. Weight ± 2%	Terminals Type (Refer Drawing)	Layout
			Length	Width	Overall Height			
			mm	mm	mm	Kg		
JP65-12G	12	65	350	166	174	21	2 (M6)	A
JP80-12G		80	259	168	213	25,8	3 (M8)	B

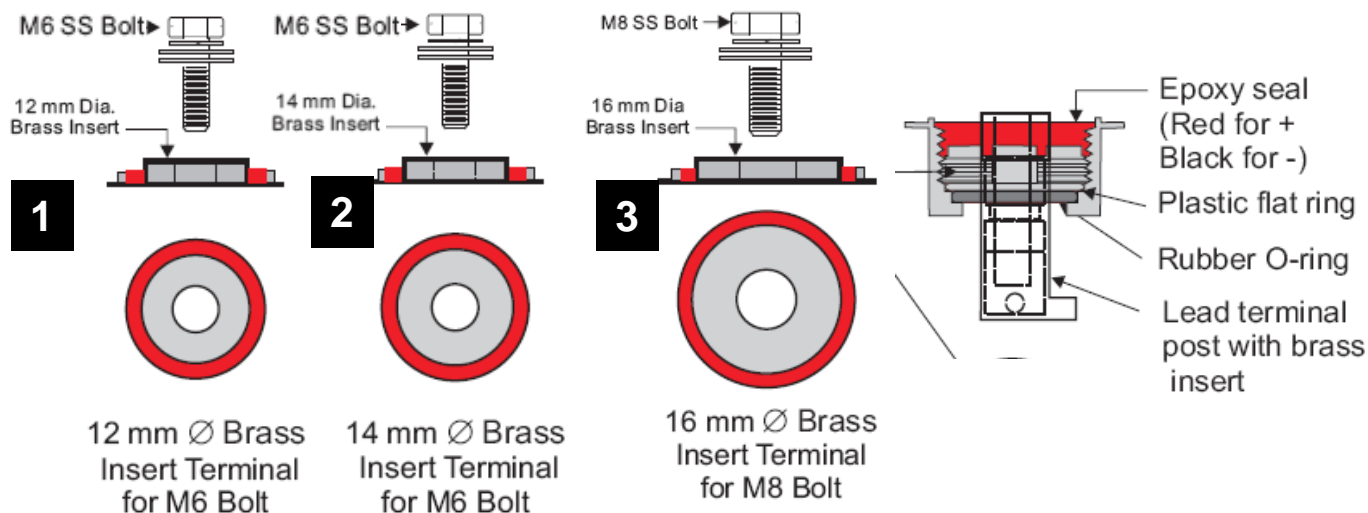
“JXH” SERIES GEL TYPE

Model	Volts	Nominal Capacity (20Hr rate)	Approx. Dimensions ± 1 mm			Approx. Weight ± 2%	Terminals Type	Layout
			Length	Width	Overall Height			
			mm	mm	mm	Kg		
JXH100-12G	12	100	330	172	215	30	3 (M8)	B
JXH120-12G		120	407	175	240	38	3 (M8)	B
JXH150-12G		150	484	170	240	45	3 (M8)	B
JXH200-12G		200	520	240	224	60	3 (M8)	C

Layout



Terminals



Constant Voltage Charging

It is recommended to use Constant Voltage charging method for Valve Regulated lead acid (VRLA) batteries. Charging voltage must be regularly checked and to optimize the battery performance it is necessary to ensure that the voltage is kept within the following limits.

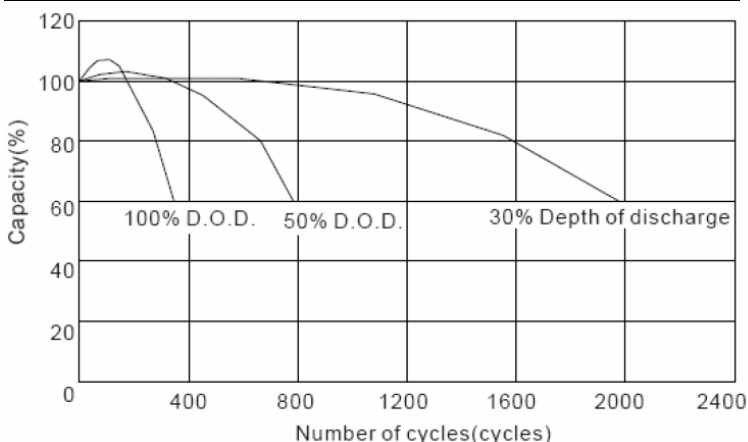
Float Application:: 2.27 ~ 2.28 Volts Per Cell @ 25°C (77°F)

Cycle Application: 2.35 ~ 2.40 Volts Per Cell @ 25°C (77°F)

Temperature Compensation

Temperature compensation is the [process whereby the charge voltage is changed as a function of the battery temperature. For higher or lower temperatures outside the range, use temperature correction factors of 0.003±0.01 per volt/per cell/°C

Discharge Depth VS Cycle times Curve



Battery Float Charging (Temperature compensation)	
Temperature °C	Float Charge Volt/Cell
5	2.31
10	2.29
15	2.28
20	2.27
25	2.27
30	2.25
35	2.23

CONSTANT DISCHARGE CURRENT PERFORMANCE (Amps/Watts)

Temperature: 25° C (77° F)

(Watts and Amperes Per Cell) Amperes to F.V. 1.60 Volts Per Cell

Time		1 min	5 min	10 min	15 min	20 min	25 min	30 min	35 min	40 min	45 min	1 hr	2 hr	3 hr	5 hr	8 hr	10 hr	20 hr
JXH100-12	A	370	312	227	167	134	112	99.0	88.0	81.0	74.0	60.0	-	-	-	-	-	-
	W	603	524	405	306	248	209	187	167	154	141	115	-	-	-	-	-	-
JXH150-12	A	555	468	341	251	201	168	149	132	122	111	90						
	W	903.5	786	607	459	372	313	281	251	231	212	173						
JXH200-12	A	740	624	454	334	268	224	198	176	162	148	120	-	-	-	-	-	-
	W	1204	1048	808	612	496	416	374	334	308	282	230	-	-	-	-	-	-

Temperature: 25° C (77° F)

(Watts and Amperes Per Cell) Amperes to F.V. 1.65 Volts Per Cell

Time		5 min	10 min	15 min	20 min	25 min	30 min	35 min	40 min	45 min	1 hr	2 hr	3 hr	5 hr	8 hr	10 hr	20 hr
JXH100-12	A	347	295	211	159	130	111	97.5	86.5	79.0	72.5	59.0	37.0	-	-	-	-
	W	578.5	506.5	378	292	241	207	185	165	151	139	114	69	-	-	-	-
JXH150-12	A	520.5	442.5	316	239	195	166	146	130	119	109	88.5	55.5				
	W	866.8	759.3	566	438	362	310	277	247	226	208	170	106				
JXH200-12	A	694	590	421	318	260	221	195	173	158	145	118	74.0	-	-	-	-
	W	1155	1012	754	584	482	412	369	329	301	277	227	142	-	-	-	-

Temperature: 25° C (77° F)

(Watts and Amperes Per Cell) Amperes to F.V. 1.70 Volts Per Cell

Time		5 min	10 min	15 min	20 min	25 min	30 min	35 min	40 min	45 min	1 hr	2 hr	3 hr	5 hr	8 hr	10 hr	20 hr
JXH100-12	A	324	278	194	151	126	109	96.0	85.0	77.0	71.0	58.0	36.0	26.0	-	-	-
	W	554	489	351	278	234	205	182	162	147	136	112	70.0	51.0	-	-	-
JXH150-12	A	486	417	291	227	189	164	144	128	116	107	87	54	39			
	W	830	732.5	526	417	351	307	273	243	221	204	168	105	76.5			
JXH200-12	A	648	556	388	302	252	218	192	170	154	142	116	72.0	52.0	-	-	-
	W	1106	976	700	556	468	408	364	324	294	272	224	140	102	-	-	-

Temperature: 25° C (77° F)

(Watts and Amperes Per Cell) Amperes to F.V. 1.75 Volts Per Cell

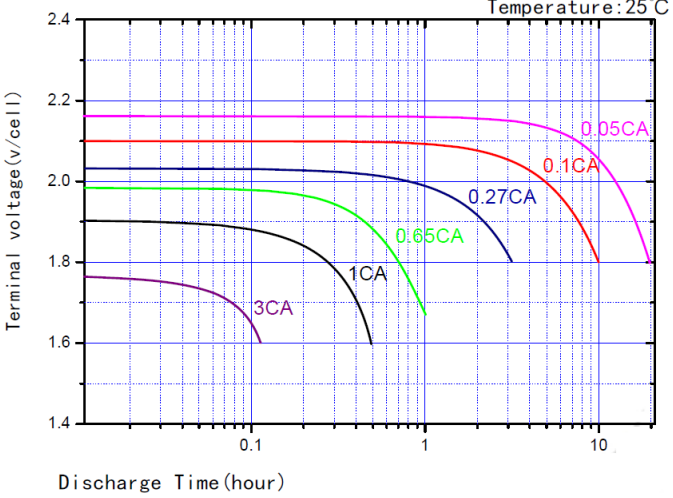
Time		5 min	10 min	15 min	20 min	25 min	30 min	35 min	40 min	45 min	1 hr	2 hr	3 hr	5 hr	8 hr	10 hr	20 hr
JXH100-12	A	292.5	252.5	181	145	122	106	94	83.5	75.5	70	57	35	25.5	16.5	11.5	-
	W	512.5	451	331	270	229	200	179	160	145	135	111	68	50	33.5	23	-
JXH150-12	A	438.8	378.8	272	218	183	158	141	125	113	105	85.5	52.5	38.3	24.8	17.3	
	W	768.8	676.5	497	404	343	299	269	239	218	202	166	102	75	50.3	34.5	
JXH200-12	A	585	505	362	290	244	211	188	167	151	140	114	70	51	33	23	-
	W	1025	902	662	539	457	399	358	319	290	269	221	136	100	67	46	-

Temperature: 25° C (77° F)

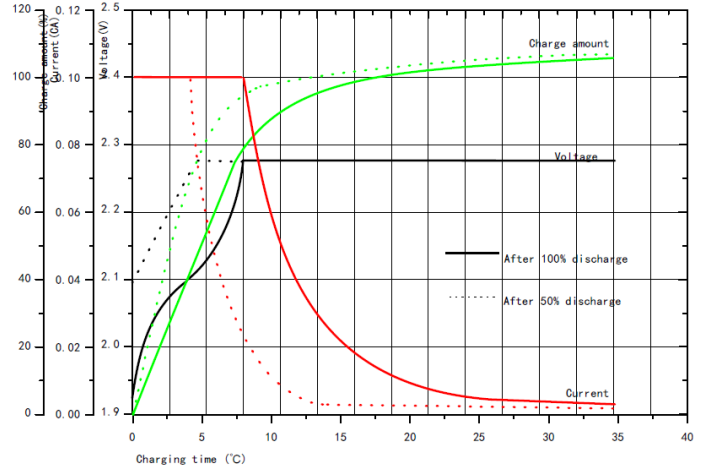
(Watts and Amperes Per Cell) Amperes to F.V. 1.80 Volts Per Cell

Time		5 min	10 min	15 min	20 min	25 min	30 min	35 min	40 min	45 min	1 hr	2 hr	3 hr	5 hr	8 hr	10 hr	20 hr
JXH100-12	A	261	227	168	139	118	102	92.0	82.0	74.0	69.0	56.0	34.0	25.0	16.0	11.0	9.3
	W	471	413	311	261	223	194	176	157	143	133	109	66.0	49.0	32.0	22.0	18.0
JXH150-12	A	390.5	339.5	252	209	177	153	138	123	111	104	84	51	37.5	24	16.5	14
	W	705.5	618.5	466	391	334	291	264	236	215	200	164	99	73.5	48	33	27
JXH200-12	A	520	452	336	278	236	204	184	164	148	138	112	68.0	50.0	32.0	22.0	18.6
	W	940	824	620	520	444	388	352	314	286	266	218	132	98.0	64.0	44.0	36.0

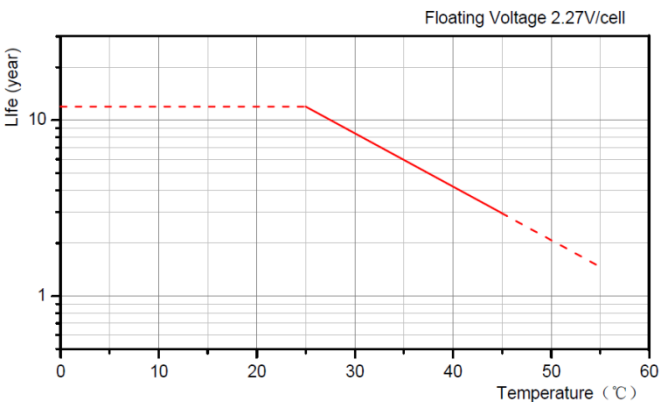
Discharge characteristics at each hour rate



Charge characteristics



LIFE TIME VS TEMPERATURE



Type Battery	Internal Resistance (mΩ)
JP 65-12G	< 8 mΩ
JP 80-12G	< 6.5 mΩ
JXH 100-12G	< 5.5 mΩ
JXH 120-12G	< 5 mΩ
JXH 150-12G	< 4.5 mΩ
JXH 200-12G	< 3.85 mΩ