



## Battery Range Summary

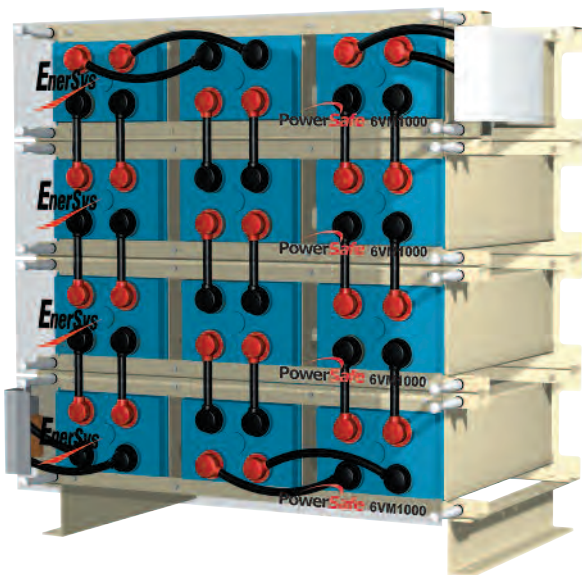
The PowerSafe<sup>®</sup> VM battery range offers the ideal solution for large capacity, valve regulated lead acid battery requirements. PowerSafe VM batteries' modular design concept, with its integral racking system, provides a cost effective, compact battery solution combined with a quick, simple on site installation process. PowerSafe VM batteries' extra thick positive grids provide excellent performance and service life across an extensive range of applications including, telecommunications, power generation/distribution sites, both low and high rate UPS and emergency lighting.

PowerSafe VM batteries are designed using proven gas recombination technology which removes the need for regular water addition by regulating the emission of hydrogen and oxygen during charging. Oxygen evolved at the positive plates diffuses through microporous separators to the negative plates, and, by a series of chemical reactions within the cell, recombines to form water. Each cell incorporates its own safety valve that allows the controlled release of gas when pressure builds up within the cell.

The use of gas recombination technology for lead acid batteries has completely changed the concept of standby power. This technology provides the user with the freedom to use lead acid batteries in a wide range of applications.

### Features and Benefits

- Capacity range: 200Ah - 5000Ah
- Excellent design life
- Side or top terminations depending on configuration
- Front connections provide excellent maintenance access
- UL94 V-0 rated flame retardant container and lid as standard
- 100% nominal C<sub>10</sub> capacity check prior to despatch
- Proven in service



## Construction

- Extra thick lead-tin-calcium positive grids to minimise corrosion and prolong service life
- Balanced lead-calcium negative grids to optimise recombination efficiency
- Separator in low resistance microporous fibre glass material within which the electrolyte is fully absorbed, thus preventing acid spills in the case of accidental damage
- Container and heat sealed lid in UL94 V-0 rated flame retardant polypropylene as standard
- Cells housed in steel modules complete with integral racking system
- Optional seismic Zone 4 UBC 1997 approved racking available upon request
- Terminals with a large surface area copper insert to provide maximum conductivity
- Ring burn terminal seal with secondary epoxy resin seal, 100% factory tested and proven in service
- Self regulating pressure relief valve with integral flame arrestor

## Installation & Operation

- Recommended float charge voltage: 2.280Vpc at 20°C, 2.265Vpc at 25°C
- The PowerSafe® VM battery range is designed for horizontal installation and can be installed safely within equipment rooms. A separate dedicated battery room is not necessary
- Six month shelf life at 20°C
- Minimal maintenance: no addition of water required

## Standards

- Compliant with international standard IEC 60896-21/22
- Classified as "Very Long Life" (> 12 years) according to Eurobat guide 2015
- Approved to be shipped as non-hazardous cargo in accordance with the requirements of IMDG (International Maritime Code for Dangerous Goods) and ICAO (International Civil Aviation Organisation)
- UL recognised component
- All cells are proven to have 100% of rated C<sub>10</sub> capacity in the factory prior to dispatch
- The management systems governing the manufacture of PowerSafe® DDm products are ISO 9001:2000 and ISO 14001:2004 certified

## General Specifications

Battery Type	Nominal Voltage (V)	Nominal Capacity (Ah)		Nominal Dimensions (mm)			Typical Weight (kg) <sup>(3)</sup>	Short Circuit Current (A)	Internal Resistance (mΩ)
		10 hr rate to 1.80Vpc @ 20°C	8 hr rate to 1.75Vpc @ 77°F	Length	Depth <sup>(1)</sup>	Height <sup>(2)</sup>			
12VM-200	12	200	200	665	330	218	108	2746	4.370
12VM-300	12	300	300	893	330	218	158	3882	3.090
12VM-400	12	400	400	843	516	218	204	4050	2.950
12VM-500	12	500	500	957	516	218	239	5180	2.310
12VM-600	12	600	580	1071	516	218	281	6090	1.970
6VM-850	6	850	840	801	516	218	203	7980	0.750
6VM-1000	6	1000	1000	915	516	218	245	9275	0.640
6VM-1000A	6	1000	1000	801	584	218	235	7212	0.832
6VM-1100	6	1100	1080	972	516	218	255	9673	0.620
6VM-1200	6	1200	1200	915	584	218	269	8219	0.730
6VM-1300	6	1300	1300	972	584	218	287	8571	0.700
6VM-1360	6	1360	1360	1145	516	218	316	10453	0.570
6VM-1500	6	1500	1500	915	558	278	359	10733	0.560
6VM-1600	6	1600	1600	1145	584	218	369	11057	0.540
6VM-1700	6	1700	1640	972	558	278	386	11215	0.535
4VM-2000	4	2000	2000	791	558	278	307	17467	0.229
2VM-2600	2	2600	2600	676	584	218	196	17391	0.115
2VM-3000A	2	3000	3000	801	584	218	235	22222	0.090
2VM-3000	2	3000	3000	638	558	278	236	21978	0.091
2VM-3600	2	3600	3600	915	584	218	269	25000	0.080
2VM-4000	2	4000	4000	791	558	278	307	26667	0.075
2VM-4500	2	4500	4500	915	558	278	359	32780	0.061
2VM-5000	2	5000	4920	972	558	278	386	34483	0.058

Notes:

<sup>(1)</sup> The depth shown in the table is for the module only. Add 86mm to obtain the overall depth including the front panel.

<sup>(2)</sup> To calculate the total height of a battery stack multiply the module height by the number of modules in the stack and add 100mm for the base support except for the VM -1500, 1700, 2000, 3000, 4000, 4500 and 5000 modules where 120mm must be added.

<sup>(3)</sup> The typical weight of the module excludes the connectors, terminal plates, front panels and base support.

<sup>(4)</sup> The excellent flexibility afforded by the modular construction design provides for further combinations of capacity, voltage or footprint in addition to those illustrated in the above tabulation, eg 2VM-3200, 2VM-4800, 4VM-1000, 4VM-1700 etc.

## Outline Drawings

