DELTEC FREEDOM BATTERIES
for standby applications

DELTEC FREEDOM

The concept of the DELTEC FREEDOM batteries allows both engine cranking and deep cycling (approx. 50%) capability in one power source.

NO TOPPING UP
NO MAINTENANCE
BUILT-IN HYDROMETER
LONG STORAGE LIFE

The batteries are of a flooded cell construction with a sealed cover which cannot be removed and which prevent contamination. They are equipped with a safety vent which includes a flame arrester and do not require any periodic topping-up. The batteries are certified maintenance free. “Wrought lead-calcium” technology which improves the self discharge characteristics has been used. There is a built-in hydrometer which allows for an immediate and easy check on charge status. The batteries are capable of meeting engine cranking as well as domestic loads and are resistant to overcharge, heat and vibration.

Deltec Batteries may be stored during the winter without the need for periodic charging provided that they start fully charged and are disconnected from all loads however small.

HYDROMETER or INDICATOR

Deltec Freedom batteries are fitted with a hydrometer. Visual inspection will show the following conditions :

INDICATION	FREEDOM BATTERY	VOYAGE BATTERY	INDICATOR
Green dot visible	Above 65% SOC Ready for use	Above 70% SOC Ready for use	
Dark – no dot visible	Below 65% SOC Recharge before use	Between 50% & 70% SOC Recharge if possible	
Red dot visible	-------	Below 50% SOC Recharge before use	
Clear / light Yellow	Electrolyte level low Do not test or charge Replace battery	Electrolyte level low Do not test or charge Replace battery	

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CAUTION

On battery applications where override charging systems and inverters are used, the manufacturer's recommendations as to fitment and battery technology must be followed.

BATTERIES FOR ENGINE STARTING

Starting requirements vary with engine type, size and configuration together with lubricating oils viscosity and temperature. Please consult your engine handbook or dealer for details of recommended battery capacity requirements.

SAFETY FEATURES

All lead acid batteries give off gasses, including hydrogen, when on charge. All Deltec Batteries are vented to the atmosphere via a flame arrester which prevents external flames or sparks entering the battery.

SPECIFICATIONS

TYPE	VOLT	Ah	RC mins	CCA DIN	Length mm	Width mm	Height mm	Weight kg	Terminal Type
2535 Slimline	12	35	52	330	196	128	219	10.2	Round
2736	12	36	60	325	207	175	175	11.5	Round
4736	12	36	75	400	207	175	175	12.1	Flat Lug
3545 Slimline	12	45	75	450	237	128	219	12.4	Round
2745	12	45	75	400	207	175	175	12.1	Round
4745	12	45	75	400	207	175	175	12.1	Flat Lug
2766	12	66	110	550	277	175	175	16.4	Round
1250	12	102	180	625	330	175	240	26	Stud
1251	12	102	180	625	330	175	240	26	Round

DEFINITIONS

Ah = ampere hours delivered by a fully charged battery at a constant load of Rate / 20 for 20 hours & maintain 10. 5 volts minimum.
RC = Number of minutes a fully charged battery can carry a load of 25 amps and maintain 10.5 volts minimum.
DIN = amps at - 18ºC a fully charged battery can carry and maintain 9.0V minimum for 30 secs & 6.0V minimum for 150 secs.

Batteries may be handled at angles of up to 45 degrees but should be mounted horizontally on a flat base.

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NORMAL CHARGING REQUIREMENTS

Optimum battery life will be obtained if “green” hydrometer condition can be maintained batteries should not be left in a deeply discharged state. Batteries should be recharged as soon as possible once a “red” hydrometer is observed. Once state-of-charge has reached 100%, charging should only be continued for long periods as a reduced rate (on-charge voltage of 13.5 / 13.8 volts) to prevent long term electrolyte loss voltage regulator setting should be in the order of 13.8 – 14.4 voltsthe higher setting being preferred on applications with repetitive deep cycling a charging voltage of at least 14.8 volts is recommended, however the on-charge voltage should not exceed 15.8 volts. Chargers with charge rates up to 50 amperes are generally satisfactory if any battery becomes hot to the touch, or starts to spew electrolyte, charging should be reduced or stopped to allow the battery to cool before continuing.

CHARGING A VERY FLAT BATTERY

A very flat or completely discharged battery may initially only accept a very low charge current (milliamps) which may not be detected on the chargers ammeter. If the open circuit voltage is below 11 volts it may be necessary to override any reverse polarity on the charger.

The time required for the battery to accept measurable charge current may be as follows:

ON-CHARGE VOLTAGE	HOURS
16.0 or more	Up to 4 hours – check every half hour
14.0 – 15.9	Up to 8 hours – check every half hour
13.9 or less	Up to 16 hours – check every half hour

If the charge current is not measurable at the end of the above charging times, the battery should be considered permanently damaged and should be replaced if the charge current is measurable during the above times, the battery should be considered good and charging should be completed in the normal manner.