

# DELTEC VOYAGE BATTERIES for solar & standby applications

## DELTEC VOYAGE / S2000

The concept of the DELTEC VOYAGE / S2000 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 Voyage / S2000 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<br>Ready for use                                    | Above 70% SOC<br>Ready for use                                    |  |
| Dark – no dot visible | Below 65% SOC<br>Recharge before use                              | Between 50% & 70%<br>SOC<br>Recharge if possible                  |  |
| Red dot visible       | -----   | Below 50% SOC<br>Recharge before use                              |  |
| Clear / light Yellow  | Electrolyte level low<br>Do not test or charge<br>Replace battery | Electrolyte level low<br>Do not test or charge<br>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. On all models shown, except for the 72-170V, M24MF and M27MF, a pipe can be fitted to the vent outlet to enable remote venting.

On models 54-105V, 64-105V, DC31 and DC31T a flexible tube of 9.6mm inside diameter and with a maximum Wall thickness of 2.00mm is required.

On models 20-60V, 30-70V and 20-90V a rigid elbow to fit a 10mm deep by 5.9mm diameter bore recess is required. Any suitable pipe may be used as an extension.

## SPECIFICATIONS

| TYPE    | VOLT | Ah  | RC mins | CCA DIN | CCA IEC | CCA BCI | Length mm | Width mm | Height mm | Weight kg | Terminals |        |
|---------|------|-----|---------|---------|---------|---------|-----------|----------|-----------|-----------|-----------|--------|
|         |      |     |         |         |         |         |           |          |           |           | Type      | Layout |
| 20-60V  | 12   | 60  | 100     | 250     | 275     | 400     | 242       | 175      | 190       | 14.40     | Post      | A      |
| 30-70V  | 12   | 70  | 120     | 300     | 325     | 500     | 277       | 175      | 190       | 16.99     | Post      | B      |
| 20-90V  | 12   | 90  | 150     | 360     | 390     | 600     | 381       | 175      | 190       | 23.30     | Post      | A      |
| 54-105V | 12   | 105 | 165     | 300     | 350     | 625     | 330       | 175      | 240       | 26.9      | Post      | C      |
| 64-105V | 12   | 105 | 165     | 300     | 350     | 625     | 330       | 175      | 240       | 26.9      | Stud      | C      |
| 72-170V | 12   | 170 | 350     | 550     | 600     | 900     | 513       | 217      | 210       | 44.10     | Post      | D      |
| M24MF   | 12   | 75  | 125     | 210     | 250     | 400     | 275       | 172      | 227       | 20.25     | Post/Stud | B      |
| M27MF   | 12   | 105 | 160     | 300     | 350     | 550     | 320       | 172      | 227       | 23.20     | Post/Stud | B      |
| DC31    | 12   | 105 | 165     | 300     | 350     | 625     | 330       | 175      | 240       | 26.35     | Stud      | C      |
| DC31T   | 12   | 105 | 165     | 300     | 350     | 625     | 330       | 175      | 240       | 26.35     | Post      | C      |

## 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 - 18°C a fully charged battery can carry and maintain 9.0V minimum for 30 secs & 6.0V minimum for 150 secs.

IEC = amps at - 18°C a fully charged battery can carry and maintain 8.4V minimum for 60secs.

BCI = amps at - 18°C a fully charged battery can carry and maintain 7.2V minimum for 30 secs.

SOC = State-of-charge 0% SOC = Flat battery 100% SOC = Fully charged battery

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

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| HOURS OF USABLE POWER           |        |         |         |                   |        |         |         |
|---------------------------------|--------|---------|---------|-------------------|--------|---------|---------|
| FOR STANDARD USE                |        |         |         | FOR EMERGENCY USE |        |         |         |
| To 50% State-f-charge from 100% |        |         |         |                   |        |         |         |
| MODEL                           | LOAD   |         |         | MODEL             | LOAD   |         |         |
|                                 | 5 Amps | 15 Amps | 25 Amps |                   | 5 Amps | 15 Amps | 25 Amps |
| Hours                           |        |         |         | Hours             |        |         |         |
| 20-60V                          | 5.10   | 1.50    | 0.85    | 20-60V            | 10.2   | 3.0     | 1.70    |
| 30-70V                          | 6.75   | 1.85    | 1.00    | 30-70V            | 13.5   | 3.7     | 2.00    |
| 20-90V                          | 8.75   | 2.25    | 1.25    | 20-90V            | 17.5   | 4.5     | 2.50    |
| 54-105V                         | 11.00  | 2.80    | 1.37    | 54-105V           | 22.0   | 5.6     | 2.75    |
| 64-105V                         | 11.00  | 2.80    | 1.37    | 64-105V           | 22.0   | 5.6     | 2.75    |
| 72-170V                         | 16.00  | 4.40    | 2.90    | 72-170V           | 32.0   | 8.8     | 5.80    |
| M24MF                           | 7.20   | 2.00    | 1.05    | M24MF             | 14.4   | 4.0     | 2.10    |
| M27MF                           | 9.30   | 2.50    | 1.35    | M27MF             | 18.6   | 5.0     | 2.70    |
| DC31                            | 11.00  | 2.80    | 1.37    | DC31              | 22.0   | 5.6     | 2.75    |
| DC31T                           | 11.00  | 2.80    | 1.37    | DC31T             | 22.0   | 5.6     | 2.75    |

Note that the above values are for a single battery at 100% SOC  
A second battery in parallel will double the values  
Allowances should be made for other states-of-charge and the age of the battery

## 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 volts the 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.