



**Eternity**  
TECHNOLOGIES

+971724 33535

info@eternitytechnologies.com

www.eternitytechnologies.com

Care & Maintenance

# Cold Stores



## Operating Motive Power batteries in cold stores and other low ambient temperature conditions

The performance of a Motive Power battery is significantly affected if it is operated in a general ambient condition of less than 0°C – and especially if operated in a cold storage application of around -30°C.

The key impact of low temperature on a Motive Power Battery is that the available capacity of the battery is reduced as the temperature reduces – this is because of the effect of the low temperature on the electrolyte within the cell.

The table below details the reduction in available capacity at various electrolyte temperatures below 30°C.

Electrolyte Temperature	Available Capacity
30°C	100%
20°C	95%
10°C	89%
0°C	83%
-10°C	70%
-20°C	55%
-30°C	35%

A number of measures can be introduced into the battery design and operation to help control the loss of available energy due to low electrolyte temperature:

Equip the battery with a tight fitting lid.

Line the lid with a suitable insulating material such as expanded polystyrene.

Always charge the battery outside of the cold storage area in an area with an ambient temperature of between 5°C and 35°C.

Always use an 8 hour charger to help increase the temperature rise during recharge.

When the correct operating procedures are followed there should be no operational difficulties when operating a Motive Power battery within an area with ambient temperatures below 0°C.