



## ALCAD - Single Cell Range

**Alcad nickel-cadmium batteries are the battery of choice for many applications.**

**Their outstanding features are :**

- ✓ operation over a temperature range between  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  , with short term extremes of  $-50^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
- ✓ life in excess of 25 years in many applications
- ✓ good performance at low temperatures
- ✓ resistance to high temperature ageing and to electrical and mechanical abuse
- ✓ simple maintenance and low installation cost
- ✓ low life-cycle cost
- ✓ meets and exceeds the requirements of the IEC 60623 Standard

**The major design features of the Alcad Single Cell ranges are :**

- ✓ fully welded internal construction of steel components
- ✓ strong welded polypropylene containers as standard
- ✓ flame retardant welded containers, as option
- ✓ flip-top flame arresting vents as standard (UL recognised)
- ✓ insulated cable connectors and end lug covers in line with EN 50272-2 (safety) with IP2 level.



**The Single Cell portfolio comprises three ranges of high, medium and low rate discharge types.**

### **H Range**

The H range uses very thin plates and is designed for applications where there is a demand for a relatively high current over short periods, usually less than 30 minutes in duration.

The applications can have frequent or infrequent discharges. The range is typically used in starting and power back-up applications.

### **M Range**

The M range is designed for applications where the batteries are usually required to sustain electrical loads for between 30 minutes to 3 hours or for mixed loads which involve a mixture of high and low discharge rates. The applications can have frequent or infrequent discharges. The range is typically used in power back-up applications.

### **LE Range**

The improved L range (designated LE) has the thickest plates and has been specifically enhanced in terms of energy efficiency, cycling and high temperature operation, to optimise it for applications where the battery is required to provide a reliable source of energy over relatively long discharge periods. Normally, the current is relatively low in comparison with the total stored energy and typical uses are power backup and bulk energy storage.



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## ALCAD - Vantex Ranges

### Their outstanding features are :

- ✓ Extended performance ranges from 30 minutes (Vantex M) to more than 10 hours (Vantex L range)
- ✓ Flooded, not starved electrolyte, cells maintain advantages of nickel-cadmium batteries in difficult environments
- ✓ Up to 10 years without any need of water replenishment under any conditions.
- ✓ Controlled recombination rates eliminate risk of thermal runaway
- ✓ Proven pocket plate reliability with lifetime > 20 years and high resistance to failure
- ✓ Exceptional high and low temperature performance
- ✓ Extended lifetime of better than 20 years with established low life cycle cost
- ✓ Easily meets the requirements of the IEC 60623 and 62259 Standards

### The major design features of the Alcad Vantex ranges are :

- ✓ Proven fully welded internal construction of steel components
- ✓ Industrialised strong welded polypropylene containers as standard
- ✓ Unique fibre separator to improve recombination and reduce water consumption
- ✓ Specially developed flame arresting vents as standard
- ✓ protective cover in line with EN 50272-2 (safety) with IP2 level.



**With a 20-year life and ultra-low maintenance requirements, Vantex uses the established Vantage technology which has become the cost-effective first choice for trouble-free standby power in the most demanding applications.**

### More reliable

Vantex can continue to supply power for 20 years or more thanks to its corrosion free construction and Alcad's tried and tested pocket-plate technology. No physical plate degradation and no sudden death with resulting costly downtime.

### Low life-cycle cost

The cost of ownership of a battery system can be calculated across three distinct phases: the initial investment, including the cost of purchase and installation; ongoing maintenance costs, including unexpected and expensive downtime periods; finally, the battery replacement costs, which include the expense of disposal as well as renewal. Based on the Alcad Vantex technology, Vantex is the most cost-effective solution for any application – onshore or offshore – where long battery life, low maintenance costs, resistance to corrosion and total reliability are prime operating requirements.

### No water filling

Water filling is only necessary every 10 years during the more than 20-year service life of the Vantex battery. This maintenance period is significantly more than the expected **lifetime** of the best VRLA

### More durable

Vantex will survive treatment which would destroy lead acid batteries. This battery accepts ripple currents up to 0.2 C5A eff without problems and can be over-discharged or reversed without damage.



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## ALCAD - XHP Range

**High performance with low maintenance.**

**Their outstanding features are :**

- ✓ flooded, not starved electrolyte, cells maintain advantages of nickel-cadmium batteries in difficult environments
- ✓ low maintenance resulting from the small floating current due to the high conductivity of the plate structure
- ✓ requires less space due to the high energy density plates
- ✓ narrow voltage window gives high charge acceptance at low voltages
- ✓ high performance due to the large surface area sintered positive plates
- ✓ fulfils all the requirements of the IEC 60623 Standard

**The major design features of the Alcad XHP range are :**

- ✓ fully welded internal construction of steel components
- ✓ sintered positive electrodes and plastic bonded negative electrodes
- ✓ strong welded polypropylene containers as standard
- ✓ special separator to ensure controlled recombination and reduce footprint
- ✓ flame arresting vents as standard



**The XHP is designed for vital UPS, engine starting and emergency backup duties requiring instant guaranteed power. The built-in reliability of sintered/pbe technology and alkaline electrolyte provides up to 20+ years of cost-effective trouble-free service, requiring virtually no maintenance.**

### **Future-proof construction**

XHP's steel superstructure and tough polypropylene casing hold sintered and plastic-bonded electrodes with copious amounts of alkaline electrolyte. XHP batteries only require topping-up every 10 years.

### **Predictable cost and long life**

Owing to electrochemistry and sturdy construction, accurately predicting your battery's life-cost is now possible. XHP can easily repay your investment within 3-6 years – well within the application lifetime

### **Reliable in all conditions**

XHP is specified onshore for hospitals, traffic control, power generation and process control, and offshore in oil and gas exploration and other hazardous marine installations, where the implications of main power supply interruption cannot be tolerated. They can also remain in storage for many years before commissioning without affecting subsequent performance.

### **Best for engines – perfect for UPS**

Delivery of high power within a narrow voltage window perfectly suits XHP for UPS duties. There is no risk of sudden death, and because Ni-Cd batteries do not produce corrosive fumes, they can be installed next to sensitive electronic equipment.



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# ALCAD - Solar Range

## Low maintenance Ni-Cd batteries for stand-alone hybrid systems

### Their outstanding features are :

- ✓ Designed for photovoltaic applications
- ✓ Well proven pocket plate technology
- ✓ Low Maintenance using flooded, not starved electrolyte, cells maintain advantages of nickel-cadmium batteries in difficult environments
- ✓ Robust construction for long life and cycling ability
- ✓ lifetime > 20 years
- ✓ the efficient internal gas recombination technology meets the IEC 62259 Standard

### The major design features of the Alcad Solar range are :

- ✓ fully welded internal construction of steel components
- ✓ strong welded polypropylene containers as standard
- ✓ special fibre separator to reduce water consumption
- ✓ flame arresting vents as standard
- ✓ protective cover in line with EN 50272-2 (safety) with IP2 level.



**Battery systems have a difficult job maintaining reliable service in isolated locations and hostile environments. Demands upon them fluctuate widely and charging depends entirely on irregular and unpredictable weather patterns. For renewable energy applications in remote outdoor installations, Alcad Solar is the natural choice.**

### Long-term low maintenance

The low life-cycle cost Alcad Solar range battery is a reliable long-term investment. It is constructed to resist electrical and physical abuses and therefore requires very low maintenance. In return it will provide totally reliable service at a predictable cost over 20 years.

### Efficient and reliable in tough conditions

Managing complex charging patterns is essential for efficient running of a hybrid system. Alcad Solar will continue to operate at any state of charge and are compatible with all current photovoltaic charge regulators and conventional industrial battery chargers.

### Extreme operating temperature

Alcad Solar's robust construction and stable electrochemistry enable it to operate comfortably within a temperature range of  $-20^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$  and will tolerate extremes of  $-50^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$ .

### Low life-cycle cost

Long maintenance intervals, Ni-Cd's inherent safety and total reliability combine to make Alcad Solar an exceptionally low life-cycle cost solution.



## **ALCAD - Vantage Range**

**Ultra-high reliability, ultra-low maintenance.**

### **Their outstanding features are :**

- ✓ flooded, not starved electrolyte, cells maintain advantages of nickel-cadmium batteries in difficult environments
- ✓ controlled recombination rates eliminate risk of thermal runaway
- ✓ possibility of water replenishment under difficult environmental conditions to prevent dry-out
- ✓ proven pocket plate reliability with lifetime > 20 years and high resistance to failure
- ✓ good high and low temperature performance
- ✓ lifetime > 20 years and low life cycle cost
- ✓ meets the requirements of the IEC 60623 and 62259 Standards

### **The major design features of the Alcad Vantage range are :**

- ✓ fully welded internal construction of steel components
- ✓ strong welded polypropylene containers as standard
- ✓ special fibre separator to improve recombination and reduce water consumption
- ✓ flame arresting vents as standard



**With a 20-year life and ultra-low maintenance requirements, Vantage has become the cost-effective first choice – worldwide – for trouble-free standby power in the most demanding applications.**

### **More reliable**

Vantage can continue to supply power for 20 years or more thanks to its corrosion free construction and Alcad's tried and tested pocket-plate technology. No physical plate degradation and no sudden death with resulting costly downtime.

### **Low life-cycle cost**

The cost of ownership of a battery system can be calculated across three distinct phases: the initial investment, including the cost of purchase and installation; ongoing maintenance costs, including unexpected and expensive downtime periods; finally, the battery replacement costs, which include the expense of disposal as well as renewal. Vantage is the most cost-effective solution for any application – onshore or offshore – where long battery life, low maintenance costs, resistance to corrosion and total reliability are prime operating requirements.

### **No water filling**

No water filling is necessary during the Vantage 20-year service life because of the controlled recombination and the valve regulated venting system (topping-up is possible if required).

### **More durable**

Vantage will survive treatment which would destroy lead acid batteries. This battery accepts ripple currents up to 0.2 C5 A eff and can be over-discharged or reversed without damage. Prolonged abusive overcharge can easily be compensated by refurbishment with water.