

Deltec

POWER DISTRIBUTORS (PTY) LTD

LEADER IN MAINTENANCE-FREE BATTERY TECHNOLOGY

DELTEC LEAD CRYSTAL RANGE



YACHTS



WIND TURBINES



SECURITY ALARMS



TELECOMS



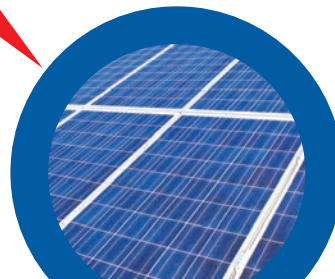
SOLAR LIGHTS



SECURITY GATES



UPS



SOLAR FARMS



WHAT IS UNIQUE ABOUT THE LEAD CRYSTAL BATTERY TECHNOLOGY AS A PRODUCT?

The lead crystal battery technology consists of lead plates, and an acidic solution of SiO_2 as electrolyte. During the initial charge and discharge cycles the electrolyte solidifies and forms a non toxic white crystalline substance. This eventually results in a safe, fluid-less high performance, environmentally friendly battery.

The lead crystal battery's performance is superior to conventional lead acid batteries. With the following functional advantages:

- **Battery life** – Lead crystal batteries have a float life of 18-20 years at 20°C. Having a battery cycle life of 3 100 (charge discharge) cycles depending on the Depth of Discharge (DOD).
- **Shelf life** – Lead crystal batteries can be stored for 2 years without additional charging. This impacts significantly on rotational charge and logistics.
- **High-rate discharge** – Lead crystal batteries have a discharge rate of up to 10V, without significantly impacting on the battery life.
- **Excellent charge performance** – The lead crystal battery has a charge time, 3-5 times faster than conventional batteries, when charged by conventional means, a generator or solar.
- **Depth of discharge** – The lead crystal battery can be discharged to 0 Volt (100% DOD) and then restored to full rated capacity.
- **Temperature resistance** – Lead crystal batteries operating temperature ranges from -40°C to +65°C. Due to the low internal resistance, the internal temperature remains low when charged and discharged. Tested and cycled at +41°C ambient temperature resulted in only 23% loss of battery life, which is rated between 7 to 10 years. The battery delivers more than 85% of its rated capacity at -40°C.
- **A greener option** – Lead crystal batteries emit no mist or harmful, gaseous emission, as the basic electrolyte is neutral and non-corrosive. Lead crystal batteries will not cause pollution – in line with ever increasing environmental protection requirements (ISO 14001 certification).
- **Safe to transport** – Lead crystal batteries are classified as non-hazardous devices and are safe to transport by land, sea or air.

PRODUCTS

The product range consists of the following:

- a. 2 Volt, from 100 Ahr to 3 000 Ahr
- b. 6 Volt, from 4 Ahr to 12 Ahr
- c. 12 Volt, from 2.3 Ahr to 200 Ahr

BASIC COMPARISON BETWEEN BATTERY TECHNOLOGIES:

ITEM	LEAD ACID	GEL	LEAD CRYSTAL	LITHIUM	SUPERIOR PRODUCT
Range of working temperature	-18°C to +45°C	-18°C to +50°C	-40°C to +65°C	-20°C to +65°C	Lead crystal
Life usage	2-3 years	3-4 years	7-10 years	5-8 years	Lead crystal
Environment	Not friendly	Not friendly	Friendly	Friendly	Lead crystal lithium
Safety transportation	No good	Normal	Good	Good	Lead crystal lithium
Discharge cycle at 80%	450	500	3 100	1 000	Lead crystal lithium
Discharge ability at high current	No good	No good	Good	Normal	Lead crystal
Work ability as a battery pack	OK	OK	Good	Normal	Lead crystal
Cost – value for money	Lower	Low	Slightly more than gel midrange	Much more than gel	Lead crystal

DELTEC LEAD CRYSTAL BATTERIES

LEAD CRYSTAL RANGE

The Deltec lead crystal range has been specifically created for deep cycle, applications resulting in extended battery life and reliability and signals a break through in superior battery solutions.

Because of the ability of the Deltec lead crystal range of batteries to discharge to such a very low level, system designers have more flexibility in their design parameters which results in a far more cost effective system.

Exclusive lead crystal technology optimizes battery life, power capacity and reliability far more than conventional lead acid batteries.

The robust and long lasting design of the Deltec lead crystal range has resulted in a single range that can be used in multiple applications; mobile telecoms, fixed telecoms, ups, solar, power utilities, military communications, network communications, data transmission, television signal transmission, recreational golf carts and wheel chairs.

THE ONE STOP SOLUTION TO VARIED APPLICATIONS

The Deltec lead crystal range is designed and engineered to offer reliable maintenance free back up power for renewable energy applications where frequent deep cycles are required and where remote sites need not be visited or maintained for complete peace of mind.

The Deltec lead crystal range is approved for non-hazardous cargo for ground, sea, and air transport – dot 49 cfr173.159 (D), (i) and (ii).

TECHNICAL FEATURES

PLATES AND GRIDS

- Extra thick plates with grids cast from high purity lead calcium selenium alloy to ensure an extended life.
- The lead crystal battery positive grid alloy contains tin and calcium. This alloy is used to increase the plate resistance to corrosion and improve deep cycle performance
- The lead crystal battery uses a lead alloy combination in the negative grid plates. This alloy improves resistance (lowers internal resistance) and improves the charge acceptance.

SEPARATORS

- Micro porous high absorbent mat (patented)
- Polyethylene envelope separators

CONTAINERS AND LIDS

- Made from thick walled ABS plastic, for unsurpassed strength.
- Lids are heat sealed for added strength, durability and quality. Making every battery 100% leak proof.
- Lead crystal battery cases are made of Polycarbonate/Acrylonitrile Butadiene Styrene (PC/ABS) – A blend of PC and ABS that creates a stronger flame retardant plastic.

TERMINALS

- Threaded post terminals with brass inserts allowing for better conductivity and maximum torque retention. Embedded M8 brass terminals are sealed with double seal O-rings and epoxy resin.

HANDLES

- Handles are integrated in the case, being either rope or plastic for ease of carrying and fold away neatly when not needed.

SAFETY VALVES

- Due to the low gassing of the lead crystal batteries there are only pressure release valves on the battery, with no need for flash back arrestors as the batteries generate marginal amounts of hydrogen.
- According to tests performed by SGS (CE authorized) testing facility, the quantity of gas emitted during the chemical reaction phase (Charging phase – Discharge phase) by the lead crystal batteries is only 1/200 of a normal lead acid battery or AGM batteries. This is a very small amount of gas, making it safe for use. Our batteries pose no risk of explosion. It is very safe. There is no need for a flame arrestor.
- Due to the crystallization process that occurs in the battery during its life, the lead crystal batteries only emit 0.008ml of gas during the charge cycle and not during the discharge or storage cycles. The lead acid and gel batteries emit 0.037ml and 0.034ml of gas during all 3 cycles.

DELTEC LEAD CRYSTAL RANGE IS MANUFACTURED TO THE HIGHEST STANDARDS AND HAS BEEN EXTENSIVELY FIELD TESTED. THIS ENSURES:

- Longer life
- DOD to 100% of stated capacity
- Restores itself to full stated capacity after second charging cycle
- Operating temperatures of -40°C and +65°C
- Double the cycles
- Quicker charge rate

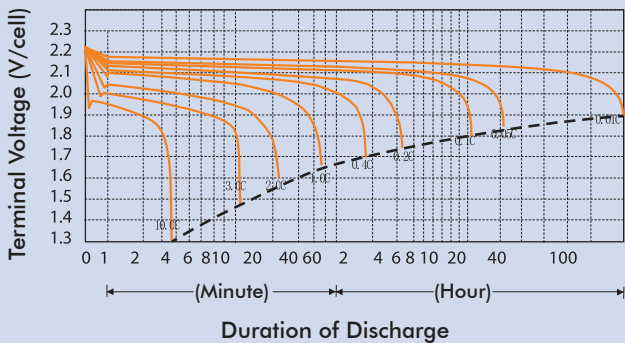
PRODUCT FEATURES

- Longer life
- Versatile use across applications
- Cost effective
- Reliable
- Non-hazardous transport ability
- IEC 60896-21-22 compliant
- Field tested
- Conforms to ISO 9001
- Conforms to ISO 14001
- Can be installed vertically, horizontally or inverse (not that you would want to)
- Electrical characteristics

DELTEC LEAD CRYSTAL RANGE

SPECIFICATION CHARTS

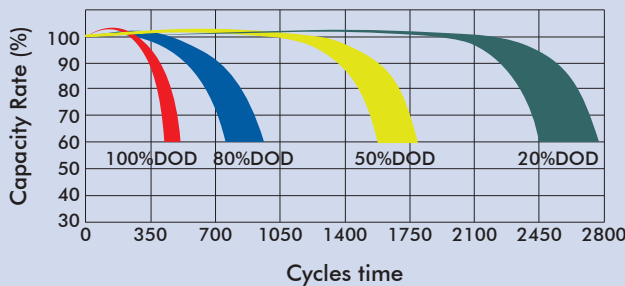
DISCHARGE CHARACTERISTICS 77°F (25 °C)



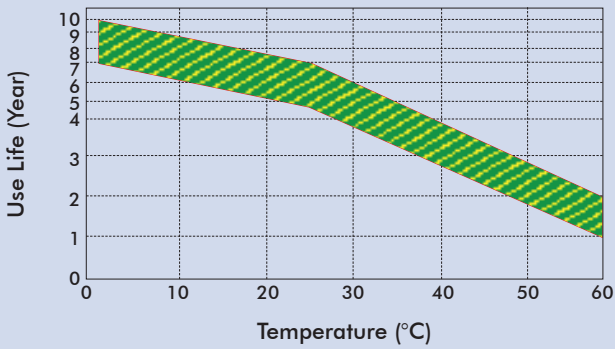
DISCHARGE CURRENT AND FINAL DISCHARGE VOLTAGE

DISCHARGE CURRENT (A)	FINAL DISCHARGE VOLTAGE (V/CELL)
0.05C or below or intermittent discharge	1.9
0.05C of current close to it	1.85
0.1C of current close to it	1.75
From 0.2C to 0.5C	1.7
From 0.5C to 1C	1.6
From 1C to 3C	1.5
Current in excess of 3C	1.3

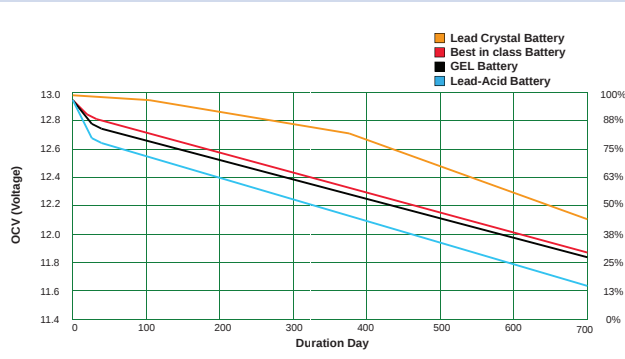
LIFE CYCLE CURVES



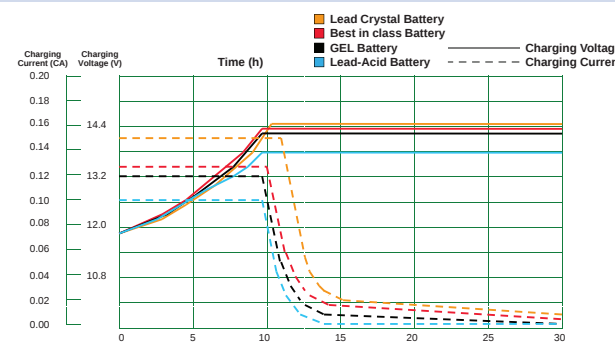
FLOAT SERVICE LIFE



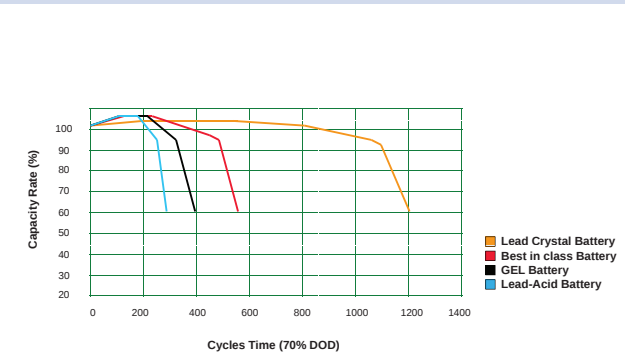
COMPARISON GRAPHS: SELF DISCHARGE CURVE (25 °C)



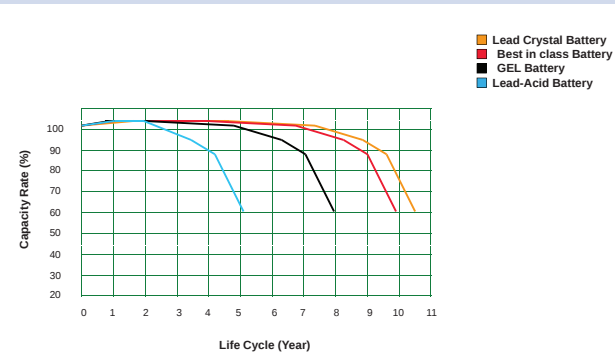
COMPARISON GRAPHS



COMPARISON GRAPHS: CYCLE LIFE CURVES (25 °C)



COMPARISON GRAPHS: CYCLE LIFE CURVES (25 °C)



THE CAPACITY AND SIZES OF LEAD CRYSTAL BATTERIES

6V DELTEC LEAD CRYSTAL BATTERY	No.	Type	Rated	Rated	Out	Line	Size	(2mm)	Weight for
			Voltage (V)	Capacity (Ah/10hr)	L	W	H	Total H	Reference (kg)
	1	3-CNFJ -7.2	6	7.2	151	35	84	100	1.35
	2	3-CNFJ -10	6	10	151	50	94	100	2
	3	3-CNFJ -12	6	12	151	50	94	100	2.1
12V DELTEC LEAD CRYSTAL BATTERY	4	6-CNFJ -2.3	12	2.3	180	35	61	67	0.98
	5	6-CNFJ -7.2	12	7.2	151	65	94	100	2.3
	6	6-CNFJ -10	12	10	151	99	94	100	4
	7	6-CNFJ -12	12	12	151	99	94	100	4.15
	8	6-CNFJ -14	12	14	151	99	98	104	4.35
	9	6-CNFJ -18	12	18	181	76	170	170	6.5
	10	6-CNFJ -22	12	22	181	76	170	170	6.8
	11	6-CNFJ -24	12	24	175	166	125	125	7.8
	12	6-CNFJ -28	12	28	175	166	125	125	8.5
	13	6-CNFJ -28	12	28	185	105	130	135	7.7
	14	6-CNFJ -35	12	35	194	132	172	190	11.4
	15	6-CNFJ -40	12	40	198	166	172	172	14.2
	16	6-CNFJ -55	12	55	229	138	210	220	18.4
	17	6-CNFJ -65	12	65	348	167	175	175	22
	18	6-CNFJ -70	12	70	259	169	206	210	23
	19	6-CNFJ -90	12	90	306	169	206	210	23
	20	6-CNFJ -100	12	100	408	174	211	234	33
	21	6-CNFJ -120	12	120	408	174	211	234	37
	22	6-CNFJ -150	12	150	486	170	241	241	45
	23	6-CNFJ -180	12	180	522	240	219	240	61
	24	6-CNFJ -200	12	200	522	240	219	244	64
2V DELTEC LEAD CRYSTAL BATTERY	25	CNFJ -100	2	100	171	72	205	210	7
	26	CNFJ -200	2	200	176	110	330	365	15
	27	CNFJ -300	2	300	176	154	330	365	22
	28	CNFJ -400	2	400	210	175	330	365	28
	29	CNFJ -500	2	500	244	175	330	365	32.5
	30	CNFJ -600	2	600	301	175	330	366	38.5
	31	CNFJ -800	2	800	410	175	330	366	55.5
	32	CNFJ -1000	2	1000	475	175	330	365	65
	33	CNFJ -1500	2	1500	401	351	342	78	110
	34	CNFJ -2000	2	2000	491	351	344	383	130
	35	CNFJ -3000	2	3000	712	353	341	382	220

DELTEC LEAD CRYSTAL FRONT TERMINAL BATTERY

6-CNFJ-170



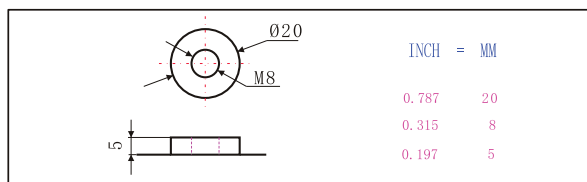
Specifications

Nominal Voltage		12V
Rated Capacity(10 hour rate)		170AH
Dimension	Total Height (with terminals)	320mm(12.6inches)
	Height	320mm(12.6inches)
	Length	560mm(22.05inches)
	Width	125mm(4.92inches)
Weight		Approx. 60kg (132.16lbs)

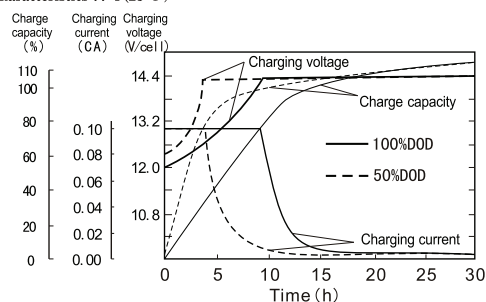
Characteristics

Capacity 77°F(25°C)	120 hour rate (1.8A)	216AH
	20 hour rate (9.5A)	190AH
	10 hour rate (17A)	170AH
Internal Resistance	Full charged Battery 77°F(25°C)	3mΩ
Self - Discharge 77°F(25°C)	Capacity after 3 month storage	95%
	Capacity after 6 month storage	85%
	Capacity after 12 month storage	80%
Max. Discharge Current 77°F(25°C)	1800A(5S)	
Terminal	Standard	F4
	Optional	
Charging (Constant Voltage)	Cycle	Initial Charging Current 54A or small 14.4V~14.8V/77°F(25°C)
	Float	13.5V~13.8V/77°F(25°C)

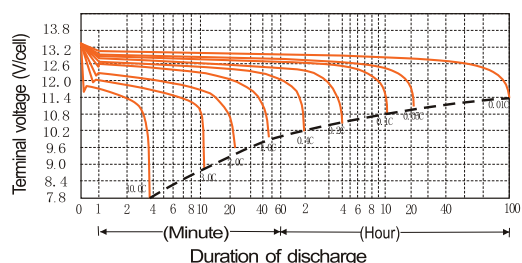
Terminal (F4)



Charge characteristics 77°F(25°C)



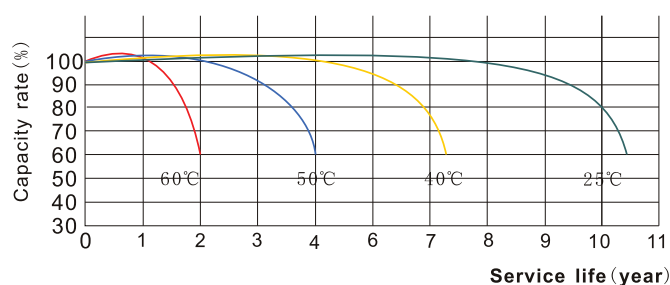
Discharge characteristics 77°F(25°C)



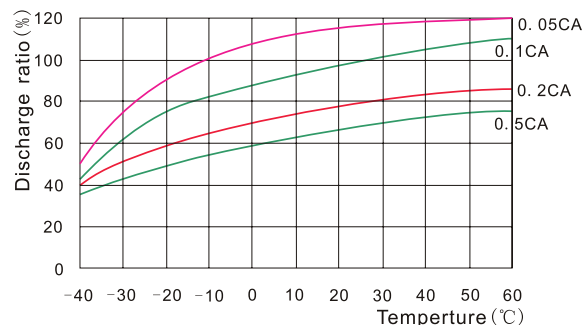
Discharge current and final discharge voltage

Discharge current (A)	Final discharge voltage (V/cell)
0.05C or below or intermittent discharge	11.4
0.05C of current close to it	11.1
0.1C of current close to it	10.8
0.2C of current close to it	10.5
From 0.2C to 0.5C	10.2
From 0.5C to 1C	9.6
From 1C to 3C	9.0
Current in excess of 3C	7.8

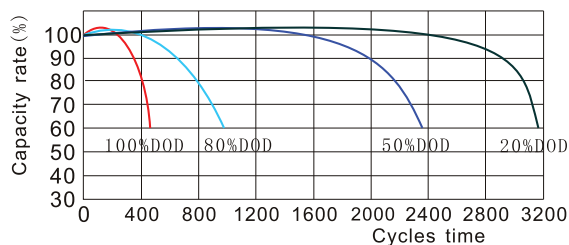
Temperature and float service life



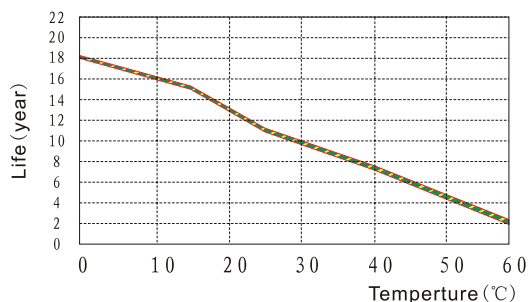
Temperature and discharge capacity



Cycle life curves (25°C)



Float service life



DELTEC LEAD CRYSTAL FRONT TERMINAL BATTERY (continued)

6-CNFJ-170

CONSTANT CURRENT DISCHARGE CHARACTERISTICS

UNITS: AMPERES (25°C, 77°F)

End voltage per cell	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	635	336	203	148	119	68.3	49.6	38.9	32.9	28.2	21.5	17.9	15.0	9.78	7.99
1.67V	590	325	200	147	119	68.0	48.7	38.7	32.7	28.0	21.5	17.7	15.0	9.75	7.96
1.70V	584	320	198	145	118	67.4	48.4	38.5	32.2	27.7	21.4	17.7	14.9	9.72	7.95
1.75V	535	310	196	144	116	66.1	48.2	38.0	31.9	27.5	21.3	17.5	14.9	9.68	7.94
1.80V	480	290	188	140	113	65.1	48.0	37.9	31.5	27.2	21.2	17.3	14.8	9.35	7.92
1.83V	459	266	185	135	108	64.5	46.1	36.3	30.8	26.2	20.8	16.6	14.2	9.25	7.82
1.85V	430	258	173	130	105	61.9	44.9	35.8	30.0	25.6	20.0	16.4	14.0	9.15	7.75

DISCHARGE DATA WITH CONSTANT POWER

UNITS: WATTS PER CELL (25°C, 77°F)

End voltage per cell	5 min	15 min	30 min	45 min	1h	2h	3h	4h	5h	6h	8h	10h	12h	20h	24h
1.60V	1061	590	380	277	223	129	94.3	74.7	63.1	54.2	41.8	34.6	29.1	19.4	15.9
1.67V	1010	581	365	275	223	129	93.1	74.6	63.1	54.1	41.8	34.5	29.1	19.4	15.9
1.70V	1004	577	365	275	221	128	92.9	74.3	62.1	53.7	41.5	34.2	28.8	19.3	15.9
1.75V	935	570	365	275	220	127	92.7	74.2	61.9	53.3	41.3	34.0	28.8	19.3	15.8
1.80V	858	541	357	270	219	127	92.6	74.0	61.5	53.3	41.2	33.8	28.8	18.8	15.8
1.83V	828	497	354	262	210	126	90.0	71.5	60.8	51.6	41.2	32.8	28.3	18.6	15.7
1.85V	767	486	248	252	204	123	87.5	70.6	59.1	50.6	39.6	32.5	27.8	18.4	15.6

COMPARISON: LEAD CRYSTAL BATTERIES VERSUS OTHER BATTERY TYPES

PARAMETERS	SPECIFICATIONS	LEAD CRYSTAL BATTERIES (YES/NO) - DETAILS
Battery Type	Cyclic Valve Regulated Lead Acid VLRA Gel Type - Gel Tubular OPZV - or other technologies	Yes - New Technology – Valve Regulated Lead Crystal Batteries
Battery nominal volts	48V	Yes - (48V) full charged 2.255 volt per cell 54.13 volt per bank
Battery Capacity	300Ah / 600Ah / 900Ah / 1200Ah	Yes - 300Ah / 600Ah / 900Ah / 1200Ah lead times differ
Application	Cyclic: 2 cycles /day up to 80% DOD	Yes - This has been done in our POC and research site, DOD 100% 2 cycles per day 110 x 2volt/3 000Ah cells in series. 3 Months no signs of deterioration 6 months no deterioration.
Max. foot print	Manufacturer to specify	Yes - Lead crystal batteries conform to standard rack dimensions
Battery container	Poly Propylene Fire retardant -URL 94V	Yes - Standard
Operating Temperature	25 to 35°C	Yes - Lead crystal batteries range is -45°C to +65°C
Compliance	TEC certification/any international standards body certification	Yes - Lead crystal batteries are CE certified and tested according to EN-61000-6-1:2007, EN-61000-6-3:2007, CISPR 16-1-2:2006, CISPR 16-2-1:2005, IEC61000-4-2:2001, IEC61000-4-3:2008
Float Charge / Cell	Manufacturer to specify (Airtel desire 2.27 volts per cell @ 25°C for 48V)	Yes - Lead crystal batteries (2.25 - 2.30 volt per cell @ 25°C for 48V pack)
Boost Charge / Cell	Manufacturer to specify	Yes - Lead crystal batteries (2.40 - 2.48 volt per cell @ 25°C for 48V pack)
End Voltage / Cell	1.75V @ 10 hour rate of discharge at 27°C	Yes - Lead crystal batteries conform (1.75 - 1.80 volt)
Nominal Voltage	2.0V	Yes - (2.0 volt)
Open Circuit Voltage	2.1V	Yes - 2.1 to 2.20 volt per cell
Service Life (As per TEC test method at 80% DOD)	3 000 cycles	Yes - Lead crystal batteries at 20% DOD 3150 Cycles, at 80% DOD 1150 Cycles
Regular depth of discharge feasible	80 - 100%	Yes - Lead crystal batteries can achieve these targets
Charge / Discharge curves and Cyclic life vs depth of discharge at 25 & 35°C temp.	To be provided	(To be provided)
Acceptance Procedure	1. During the test individual cell voltage should not vary more than 0.05V from the Avg. cell voltage 2. Test to be conducted for 0.1°C, 0.5°C as well as 1°C capacity	Yes - Lead crystal batteries conform
Self discharge / month % of c 10 capacity	less than 5 %	Yes - Lead crystal batteries self discharge is less than 2% per month
Recharge	Suitable for recharging at 20% of AH capacity	Yes
Efficiency of gas recombination cycle	Greater than 98%	Yes - Lead crystal batteries conform
Battery Terminals	The battery should be of a sealed maintenance free type with front administered terminals	Yes - Lead crystal batteries conform
Storage	The batteries shall be capable of being stored for up to six months from the date of delivery, without losing more than 30% of its full capacity charge at a maximum of 25°C	Yes - Lead crystal batteries conform less than 30% after 12 months of storage, battery can be discharge 100% in storage and charged back to full capacity with no effect to battery life
Product Markings	The polarity marking of both the negative and positive terminals shall comply with IEC 896-21. Each battery block shall be provided with a bar-coded serial number for asset management purposes.	Yes - Lead crystal batteries conform

COMPARISON: LEAD CRYSTAL BATTERIES VERSUS OTHER BATTERY TYPES (continued)

PARAMETERS	SPECIFICATIONS	LEAD CRYSTAL BATTERIES (YES/NO) - DETAILS
Interconnection	All the necessary inter-cell and inter-row connectors, terminal take-off plates, nuts, bolts and washers shall be supplied with each battery string as per the ordering requirement. All interconnections and cell/monobloc terminals shall be insulated against accidental short circuits, but shall allow access to the terminals for voltage readings, without the need to remove the insulation.	Yes - Lead crystal batteries conform
Safety	Protection against internal ignition from external spark sources shall comply with IEC 896-21. Suppliers complying with this clause shall supply certification. The valve operation of all products shall comply with EC 896-22. Suppliers complying with this clause shall supply certificate.	Yes - Terminals are designed to have a flash back prevention, lead crystal batteries emits virtually no gas or vapour
Battery Rack - General (Shelter Indoor Usage) – Cost to be quoted separately	Manufacturer to specify	Yes
Battery Rack - Dimensions	Manufacturer to specify	Yes
Battery Rack - Protective Coating	All shelves shall be powder coated, and special care shall be taken to prevent the ingress of electrolyte into any joints and crevices	Yes
Warranty	The batteries shall have a minimum warranty period of at least 3 years from date of delivery	Yes - A 3 year warranty is provided against manufacturing defects that cause or contribute to poor performance; not against performance criteria
State of Charge vs On Voltage Graph at C5 rate of discharge		(To be provided)
Wh Efficiency of Normal Battery @ 100% DOD		96% Efficiency
Wh Efficiency of SRS Profile @ 100% DOD		85% Efficiency
Recharge time to 96% SoC		Fully discharged, with 0.25C initial current and constant voltage 2.4V/cell charging time in 12 hours. This level is reached within 45 minutes during fast charge.
Charge Efficiency		Less than 20% SOC, the charging efficiency is greater than 98%

DELTEC LEAD CRYSTAL RANGE – TYPICAL APPLICATIONS:

UPS, TELECOMS, POWER UTILITIES, RAILWAY SIGNALS, SOLAR, GOLF CARTS, WHEEL CHAIRS, GENERATORS, WIND TURBINES, STREET LIGHTING, SOLAR HOME SYSTEMS, ALARM INSTALLATIONS, TRAFFIC LIGHTS, PUMP SYSTEMS, SURVEY AND MAPPING SYSTEMS, HYDRO SYSTEMS, CCTV SYSTEMS, MARINE INSTALLATIONS, AIRCRAFT SIGNAL SYSTEMS

FREQUENTLY ASKED QUESTIONS: DELTEC LEAD CRYSTAL BATTERIES

Q. What is a lead crystal battery?

- A. A Deltec lead crystal battery is a lead acid electric storage battery that:
- Is sealed.
 - Is completely maintenance free.
 - Has an electrolyte that crystallises on the plates.
 - Is not classified as being hazardous and can be transported by air.
 - Uses a recombination reaction to prevent the escape of hydrogen and oxygen gases normally lost in a flooded lead acid battery.
 - Is non-spillable and can therefore be operated in virtually any position. The upside down position is not recommended.

Q. What is the life cycle of your batteries? Your competitor says theirs lasts longer?

- A. Any claims of batteries lasting longer are normally based on selective data, as a marketing gimmick (i.e. selecting the best of one and the worst of the other) and tends to be misleading. Battery life, like anything else, cannot be precisely pre-determined, any more than the life of any product that relies on a chemical reaction taking place and forming the essence of the product. The actual life out in the field, when operated under identical conditions, is the only valid criteria. One way to differentiate the life and performance is to look at the amount of materials and the type of materials used in making the product. The Deltec lead crystal battery is made up of different chemical constituents that result in longer life. The proof is in the working life of the product not the opinion of a competitor.

Q. lead crystal batteries were developed as an alternative to lead acid batteries?

- A. True

Q. What is the cycle life of a Deltec lead crystal battery?

- A. While the lead acid battery typically offers 300-500 charge cycles, the Deltec lead crystal battery provides between 2,000-3,100 cycles, equating to a battery life of between 18-20 years at normal float charge.

Q. What is the shelf life of a Deltec lead crystal battery?

- A. The Deltec lead crystal battery has a very slow self discharge rate and can be fully charged even after having been standing for 2 years. The 2 volt series can retain 99.9% of its stated capacity after standing for more than 2 months without any effect on battery life.

Q. What temperatures can the Deltec lead crystal battery operate under?

- A. The Deltec lead crystal battery operates at the extreme temperatures of -40°C and +60°C, and will deliver more than 85% of its rated capacity at these extremes.

Q. The Deltec lead crystal battery has a non-corrosive electrolyte composition, that allows the battery to be classified as non-hazardous?

- A. The electrolyte used in the Deltec lead crystal battery results in the battery being able to be shipped by air, sea and land, whilst lead acid batteries may not be transported by air, unless they are packaged according to airline requirements.

Q. Do Deltec lead crystal batteries have lower internal resistance compared to a lead acid battery?

- A. Yes, because the active material on the positive electrode is different to a lead acid battery.

Q. Does the Deltec lead crystal battery have better charging and discharging characteristics than a normal lead acid battery?

- A. Yes, because the active material on the positive electrode is different to a lead acid battery.

Q. Does the Deltec lead crystal battery have a lower Sulphatisation rate than lead acid batteries?

- A. Yes, because the active material on the positive electrode is different to a lead acid battery.

Q. Does the Deltec lead crystal battery have the ability to draw large amounts of current in a shorter period of time, compared to a lead acid battery?

- A. Yes, because the active material on the positive electrode is different to a lead acid battery.

Q. Does the Deltec lead crystal battery have a higher storage capacity compared to a lead acid battery?

- A. Yes, because the active material on the positive electrode is different to a lead acid battery.

Q. Can the Deltec lead crystal battery be charged quicker than a lead acid battery?

- A. Yes, the Deltec lead crystal battery charge time is 20% that of a lead acid battery (i.e. stemes faster).

Q. Can the Deltec lead crystal battery be discharged to 100% of its stated capacity?

- A. Yes, the Deltec lead crystal battery can be discharged to 100% and will restore itself to its stated capacity, this effectively increases the usable capacity of the Deltec lead crystal battery by 25%.

Q. Can Deltec lead crystal batteries be installed in sealed battery boxes?

- A. No, never install any type of battery in a completely sealed container. Although most of the normal gases (oxygen,hydrogen) produced in a Deltec lead crystal battery will be recombined and will not escape, these gases will escape when being subjected to an overcharge condition. For safety sake these potentially explosive gases must be allowed to vent into the atmosphere and must never be trapped in a sealed battery box or tightly enclosed space.

Q. How long have Deltec lead crystal batteries been in use?

- A. The factory has been producing these batteries for since 1994.

Q. What size Deltec lead acid battery do I need for my application?

- A. Determine how many amperes your application requires from the battery and for how long you require these. Multiply the two to obtain Ampere Hours (AH) required. Increase this by 20% for a safety cushion, and from our capacity charts, match a battery which will deliver this many AH for the required time, and voltage. Connecting the batteries in parallel will add Ampere Hours and connecting in series adds the voltage. In either case the energy (watt hours = WH) storage capability is increased by the amount of energy each additional battery provides.