EaglePicher

EaglePicher Technologies, LLC
Power - Defense
P.O. Box 47
Joplin, MO 64802
(417) 623-8000
inquiry.silverzinc@eaglepicher.com

Silver Zinc Battery Designs Principal Characteristics

Operating characteristics shown are typical. Modifications to the cell parameters can be made to optimize any characteristic desired such as cycle life, calendar life, discharge current, etc.

ELECTROCHEMICAL			
AgO+Zn → Ag + ZnO	**Theoretical Energy Density**: 300 Wh/Kg	**Open Circuit Voltage**: 1.6 to 1.85 volts	**Sizes:** 0.8 to 850 Ah

COMPONENT CONSTRUCTION		LIFE EXPECTANCY
Positive Plates: Sintered silver or silver oxide on highly conductive grid mesh. Electro formation controlled to 80-90% for dry charge units.	**Negative Plates**: Electroformed zinc, charged to limit oxide formation or zinc oxide pasted on highly conductive grid mesh.	**Shelf:** Dry, 2-5 years; Wet - up to 2.0 years at 21° C
Separators: Absorbent and multiple semi-permeable membranes.	**Plate, Tab and Terminals:** Fusion welded or soldered, depending on design. Pure silver lead wires.	**Cycle:** Cycle life is dependent on depth-of-discharge and other operation conditions. Typically high rate cells produce 10 to 30 cycles and low rate cells produce 50 to 100 cycles. At very low depth-of-discharge over 5,000 cycles are possible.
Connectors: Standard or custom to users requirements.	**Plate Construction:** Developed for optimum recycling. High surge power and rugged operation	
Cell Cases: Low pressure vented, non-spillable, molded Styrene and nylon or high performance ABS.	**Battery Containers:** Stainless steel, magnesium, titanium, plastic and PVC	**Charge Retention:** Up to 1 year at 27° C
Electrolyte: Aqueous solution of potassium hydroxide	**Heater:** Thermostatically controlled, designed not to emit noise; for +4° C and below operations.	**Charge Characteristics:** Constant current or constant potential of 1.96 to 1.98 volts. Can be completely recharged in 16 hours. Electrolyte maintenance not normally required.

ENERGY DENSITY	ENVIRONMENTAL CAPABILITY	
Watt Hours per Kilogram: 55 to 286 as cells; 37 to 253 as batteries	**Operating Temperature**: -40°C to +74°C (with heater) & +4°C to +74°C (without heater)	**Storage Temperature:** -54° C to +74° C
Watt Hours per Liter: 80 to 415 as cells; 55 to 262 as batteries	**Shock:** (Typical) Mechanical; 100 g's	**Thermal:** -54° C to +74° C
Working Voltage: 1.55 to 1.0 volts	**Vibration:** (Typical) 20 g's; 5-2000 Hz	**Acceleration:** (Typical) 120 g's
Voltage Regulation: 0.1 volts for 90% discharge	**Altitude:** No limit	**Special:** Can be made non-magnetic