

Data Sheet

SubC Nickel-Zinc Batteries



Introduction

Rechargeable nickel-zinc (NiZn) batteries offer many compelling benefits for stationary, mission critical, and industrial applications. NiZn provides a safer, higher reliability, greener and more powerful alternative to both lead acid and lithium-ion batteries.



SubC Cells

Individual and 10 Pack Configuration shown

NiZn Technology Benefits

ZincFive Nickel-Zinc (NiZn) batteries are rechargeable batteries featuring a wide range of customer benefits over lead-acid and lithium-ion batteries. The proprietary ZincFive NiZn technology increases the power density and usable life of NiZn batteries without compromising the high-performance properties inherent to the chemistry including safety and reliability.

Superior Power Density – The ZincFive NiZn high discharge rate battery delivers higher current in a smaller and lighter package than other rechargeable batteries. This reduces the size of the NiZn battery in high power applications compared to other leading battery technologies.

High Energy Density – The ZincFive NiZn battery offers dramatically higher energy density than lead-acid batteries and comparable energy density to other Nickel based batteries when measured by either weight (Watt hours per kilogram) or by volume (Watt hours per liter).

Safety – NiZn battery chemistry has physical safety advantages over lead-acid and lithium-ion batteries. ZincFive’s NiZn batteries do not exhibit thermal runaway per UL testing. They are non-flammable and fail-safe and therefore are not subject to the travel restrictions placed on lithium-ion products. NiZn batteries are recommended in applications where physical safety is essential.

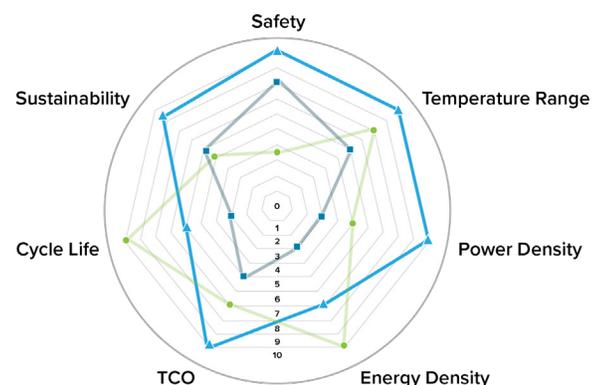
Sustainability – ZincFive’s NiZn batteries offer significantly lower climate impact than either lead-acid or lithium batteries as verified by third party life cycle analysis of the various battery chemistries. Low carbon footprint in manufacturing as well as ease of recyclability contributes to the 400% reduction in carbon payback time when using ZincFive’s NiZn batteries compared to lead-acid and lithium batteries.

Reliability – Unlike lead-acid and lithium-ion chemistries, a weak or depleted NiZn cell remains conductive, allowing the battery string to continue operating. This reduces the risk of downtime or premature energy storage system shutdown as well as enabling a planned maintenance approach vs. emergency unplanned repair.

Charge/Discharge Rate – The NiZn battery chemistry excels at high discharge rates while retaining thermal stability and is also capable of fast recharging, a key benefit for many applications including Uninterruptible Power Supply (UPS) and battery backup units (BBU) where high charge acceptance is necessary.

Long Operational Life – ZincFive’s NiZn battery offers more than twice the operational life of typical lead-acid batteries and competes well with lithium-ion operational life in many applications.

Lower TCO – ZincFive’s NiZn provides a significant total cost of ownership savings over other rechargeable batteries due to the numerous integration, operational, and end of life benefits in addition to its long operational life.



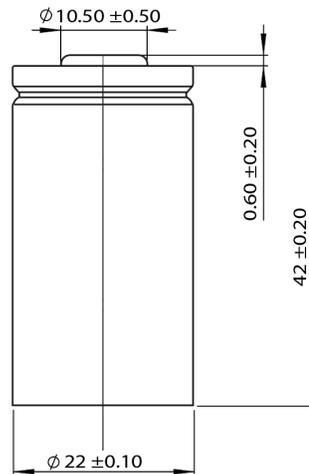
Specifications

Model	Z5 1.7-2 M X SC	Z5 1.7-2 H X SC
Electrical		
Nominal Voltage	1.7VDC	1.7VDC
Operating Voltage Room Temperature Range	1.2V-1.9V	1.2V-1.9V
Nominal Capacity	>1800mAh	>1800 mAh
Impedance AC (1kHz)	<11mOhm	<7mOhm
Charge Voltage at 25°C	1.9V CV until 0.1A	1.9V CV until 0.1A
Minimum and Maximum Charge Amps	500mA to 4A	500mA to 4A
Minimum and Maximum Discharge Amps	500mA to 4A	500mA to 20A
Temperature Compensated Charge Voltage	(TCV)=-0.0022xT+1.955 V/cell	(TCV)=-0.0022xT+1.955 V/cell
Chemistry	Nickel-Zinc, Sealed	Nickel-Zinc, Sealed
Electrolyte	Starved, KOH, Aqueous (no acid)	Starved, KOH, Aqueous (no acid)
Environmental		
Operating Temperature Range*	Discharge (-20°C to 50°C) Charge (0°C to 50°C)	Discharge (-20°C to 50°C) Charge (0°C to 50°C)
Storage Temperature Range*	-20°C to 60°C	-20°C to 60°C
Transport	No Transportation Restrictions	No Transportation Restrictions
Mechanical		
Diameter (mm) SubC Cell only (Optional)	22.00 +/- 0.10	22.00 +/- 0.10
Diameter (mm) SubC Cell with cover (Standard)	22.50 +/- 0.50	22.50 +/- 0.50
Height (mm)	42 +/- 0.20	42 +/- 0.20
Weight (g) SubC Cell only (Optional)	49 +/- 1g	51 +/- 1g
Weight (g) SubC Cell with cover (Standard)	49.7 +/- 1.5g	51.6 +/- 1.5g
Certifications		
UL/CSA	Recognized UL-2054, UL/CAN 1973	Recognized UL-2054, UL/CAN 1973

* consult with ZincFive for use outside this temperature range

*All Specifications Valid at 25°C *All Specifications Subject to Change

Technical Drawings



Size: SubC, Cylindrical