

Data Sheet

Batteries for Stationary, Motive and Start-Stop Applications



Introduction

Rechargeable nickel-zinc (NiZn) batteries offer many compelling benefits for stationary, motive and industrial applications like specialty and hybrid electric vehicles, start-stop systems, EV charger power buffering, and can operate in low/high rate combination battery solutions. NiZn provides a safer, higher reliability, greener and more powerful alternative to both lead acid and lithium-ion batteries.



Size: LN3 | Voltage: 13V | Capacity: 80Ah

NiZn Technology Benefits

By significantly extending the cycling capability of a NiZn battery without compromising the high-performance properties inherent to the chemistry, ZincFive has introduced a rechargeable battery featuring a wide range of customer benefits over lead-acid and lithium-ion batteries.

High Energy Density - The ZincFive high discharge-rate battery offers dramatically higher energy density than lead-acid batteries and comparable energy density to high power lithium-ion batteries when measured by either weight (Watt hours per kilogram) or by volume (Watt hours per liter).

Superior Power Density - The ZincFive high discharge battery delivers a higher voltage in a smaller and lighter package than other rechargeable batteries. This reduces the size of the NiZn battery to less than half the size of a typical lead-acid battery.

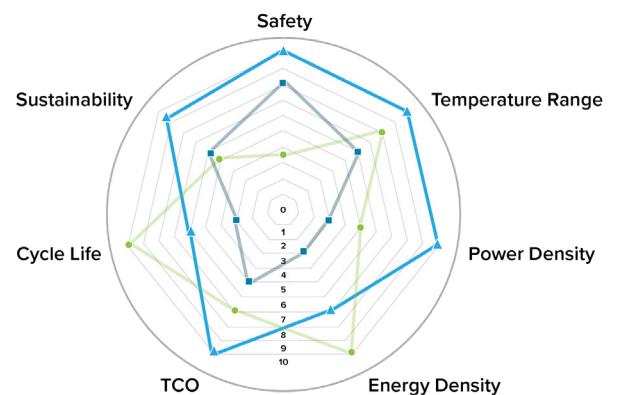
Lower Cost - Inherently less expensive, provides a significant total cost of ownership savings over other rechargeable batteries.

Safety - NiZn battery chemistry has environmental and physical safety advantages over lead-acid and lithium-ion batteries. Both nickel and zinc are recycled easily. The zinc electrode contains no lead, cadmium or mercury, and presents no threat to the environment. NiZn batteries 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.

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 and motive power where high charge acceptance is necessary.

Cycle Life - ZincFive's NiZn battery offers more than twice the cycle life of typical lead-acid batteries and competes well with lithium-ion cycle life in many applications.

Long Shelf Life - Superior to lead-acid batteries which will sulfate over time, limiting their shelf life. The ZincFive NiZn high discharge-rate battery has a significantly longer shelf life and requires no trickle charging to maintain capacity performance.



Battery Specifications

Part number	Z5 13-80 H x x
Electrical	
Nominal Voltage	13 Vdc
Number of Cells per Battery	8 cells
Operating Voltage Range ¹	10V (0% SOC) - 15V (100% SOC)
Nominal Capacity (1C rate) ¹	≥80 Ah
Nominal Energy (1C rate) ¹	1.0 kWh
Max Continuous Discharge Power (100% to 0% SoC)	8,000W (>15°C)
Short Circuit Current	5,400 A
Cycle Life	500 (100% DoD) to 250K (1% DoD)
Impedance AC (1kHz)	≤3 mΩ
Lead Acid Equivalent at 80A Discharge (1C) Rate	Typical 250Ah (C10)
Charge Voltage ¹	CC to 15.2 Vdc; CV until 4.0 A cutoff
Charge Rate	20A – 160A
Discharge Rate	40A – 800A
Chemistry	Nickel-Zinc, non-spillable
Electrolyte	Starved, KOH, Aqueous (no acid)
Environmental	
Operating Temperature Range ¹	Discharge (-20°C to 50°C) Charge (0°C to 40°C)
Storage Temperature Range	-20°C to +60°C
Design Life	>15 years at 25°C
Transport	No Transportation Restrictions
Mechanical	
Terminal	M6 x 1 10mm deep threads
Terminal Torque (Initial and annual retorque)	Initial 9.1 N-m +/- 0.9 N-m [81 lbf-in +/- 8.1 lbf-in] Annual retorque should not exceed 9.1 N-m +/- 0.9 N-m [81 lbf-in +/- 8.1 lbf-in] Assuming stainless fasteners and adequate (min 6 mm [.24"]) thread engagement.
Length (in/mm)	10.94 in / 278.0 +/- 3.0
Width (in/mm)	6.9 in / 174.6 +/- 3.0
Height (in/mm)	7.4 in / 188.0 +/- 3.0
Weight (lbs/kg)	≤35/16
Certifications	
UL/CSA	UL-1989, CSA 22.2 No. 60896-21
UL 9540A	No thermal runaway exhibited at cell-level test

¹All Specifications Valid at 25°C *All Specifications Subject to Change

The "H x x" suffix defines the power rating (H=High, M=Medium), the type of terminals (M for Motive post, S for Stationary bolted), and the case material designation (F for Flame retardant)

Technical Drawings

Z5 13 80 H x x
Size: LN3

