

# Data Sheet

Batteries for Stationary, Motive and Start-Stop Applications



ZincFive

## 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.



Z5 13 80 H x x  
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 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.

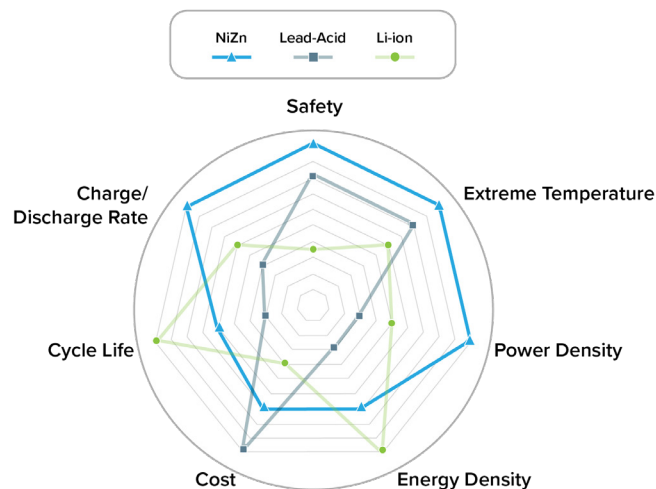
**Lower Cost** - Inherently less expensive, provides a significant total cost of ownership savings over other rechargeable batteries.

**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 battery has a significantly longer shelf life and requires no trickle charging to maintain capacity performance.



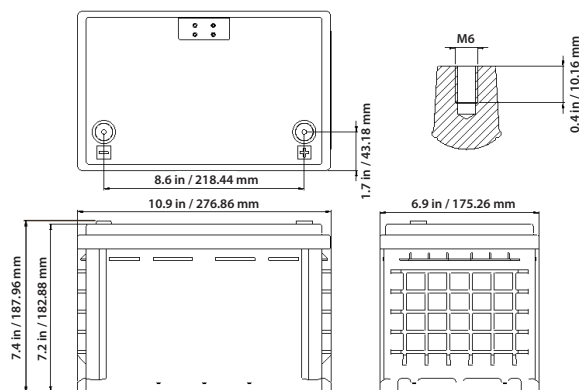
# Specifications

<b>Part number</b>	Z5 13-80 H x x
<b>Electrical</b>	
<b>Nominal Voltage</b>	13 Vdc
<b>Number of Cells per Battery</b>	8 cells
<b>Operating Voltage Range<sup>1</sup></b>	10.0V - 15.2V
<b>Nominal Capacity (1C rate)<sup>1</sup></b>	80Ah
<b>Nominal Energy (1C rate)<sup>1</sup></b>	1.0 kWh
<b>Max Continuous Discharge Power (100% to 0% SoC)</b>	8,000W (>15°C)
<b>Short Circuit Current</b>	5,400 A
<b>Cycle Life</b>	500 (100% DoD) to 250K (1% DoD)
<b>Impedance AC (1kHz)</b>	<2.5 mΩ
<b>Lead Acid Equivalent at 80A Discharge (1C) Rate</b>	Typical 250Ah (C10)
<b>Charge Voltage<sup>1</sup></b>	CC to 15.2 Vdc; CV until 4.0 A cutoff
<b>Charge Rate</b>	20A – 160A
<b>Discharge Rate</b>	40A – 800A
<b>Chemistry</b>	Nickel-Zinc, non-spillable
<b>Electrolyte</b>	Starved, KOH, Aqueous (no acid)
<b>Environmental</b>	
<b>Operating Temperature Range<sup>1</sup></b>	Discharge (-20°C to 50°C) Charge (0°C to 40°C)
<b>Storage Temperature Range</b>	-20°C to +60°C
<b>Design Life</b>	>15 years at 25°C
<b>Transport</b>	No Transportation Restrictions
<b>Mechanical</b>	
<b>Terminal</b>	M6 x 1 10mm deep threads
<b>Terminal Torque (Initial and annual retorque)</b>	Initial 11.3N-m (100in-lb) Annual retorque should not exceed 11.3N-m (100in-lb)
<b>Length (in/mm)</b>	11/280
<b>Width (in/mm)</b>	6.9/175.26
<b>Height (in/mm)</b>	7.4/187.96
<b>Weight (lbs/kg)</b>	33/15
<b>Certifications</b>	
<b>UL/CSA</b>	UL-1989, CSA 22.2 No. 60896-21
<b>UL 9540A</b>	No thermal runaway exhibited at cell-level test

<sup>1</sup>All 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 (blank for F for Flame retardant)

## Technical Drawings



Z5 13 80 H x x  
Size: LN3