



# THE UNIQUE FLOW BATTERY SYSTEM DESIGNED FOR YOUR HOME OR OFFICE



## What is ZCell?

ZCell is a new type of battery with performance characteristics that make it ideally suited to store energy for your home or office.

The Australian-designed ZCell is an innovative zinc-bromine flow battery that can deliver 10 kilowatt-hours (kWh) of stored energy each day, harvesting energy from your solar panels or lower-cost off-peak power, for use when you need it. About the size of an air-conditioning unit, ZCell is designed by ASX-listed company Redflow Limited (ASX:RFX), based on its core ZBM2 battery, which is operating at sites around the world including Australia, Asia, Africa, America and Europe.

Installing ZCell as part of your energy management system can reduce your power costs, keep your lights on during grid power cuts and increase your energy independence.



## What are the benefits of ZCell compared to other batteries?

- + ZCell delivers 100 per cent cycle depth of discharge without any risk of battery damage
- + ZCell retains its full 10 kWh of storage capacity for its warranted 10-year life, unlike other battery types which lose significant storage capacity with age
- + ZCell requires no reserved capacity, unlike other battery types that must reserve a portion of their storage capacity to avoid damage to their battery
- + ZCell presents no fire risk, its bromide-based electrolyte is inherently non-flammable while mechanical damage does not risk explosion or 'thermal runaway'
- + ZCell operates at temperatures as hot as 50°C without active cooling
- + ZCell offers unlimited shelf life: You can switch off a ZCell at any state of charge, hibernate it for extended periods of time, and then restore it within 60 seconds
- + ZCell has a great recycling story, made with major components that are easy to recycle or reuse
- + ZCell is Australian-designed and developed.

On-grid or off grid energy storage: As ZCell is a modular system, it is straightforward to connect multiple ZCells to deliver more energy storage for larger homes or businesses. ZCell is a great battery choice for either AC or DC power, on-grid or off-grid storage energy systems, or a bit of both.

24/7 battery management allows you to use an easy web-based browser via smartphone or PC to set up, monitor, and control your ZCell. It also reports battery status and operational information that lets your AC inverter/ charger optimise use of the energy stored in your ZCell.

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## WHY ZCELL?



ZCell delivers 100% cycle depth of discharge, without any battery damage or reserve capacity required.



ZCell retains its full 10kWh of storage capacity for its warranted lifetime.



ZCell offers an unlimited shelf life & can switch off & hibernate at any state of charge, for extended periods of time.



ZCell can be used on-grid and off-grid & multiple ZCells can be connected for larger homes or businesses.



ZCell enables you to buy energy 'low' and consume when 'high' - during peak demand price periods.



ZCell allows the storage and shifting of renewables for anytime use.

To learn more about installing ZCell in your home or business or becoming a ZCell installer, visit [WWW.ZCELL.COM](http://WWW.ZCELL.COM)



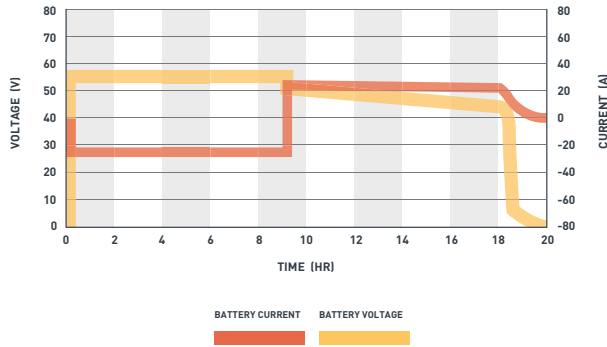
**Australian designed and developed**  
ZCell components are recyclable or reusable



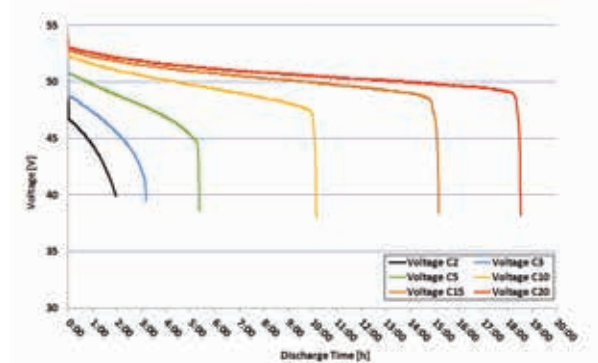
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TYPICAL CHARGE AND DISCHARGE CURVES

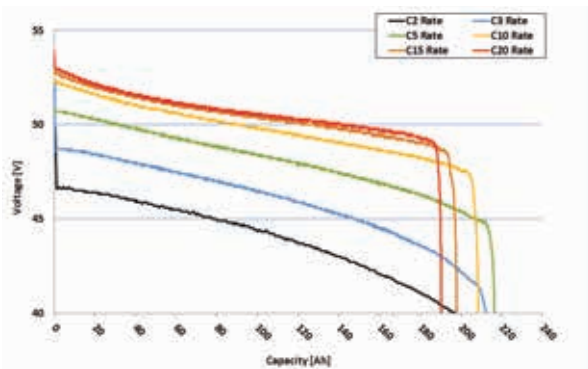
Battery Voltage vs Battery Current



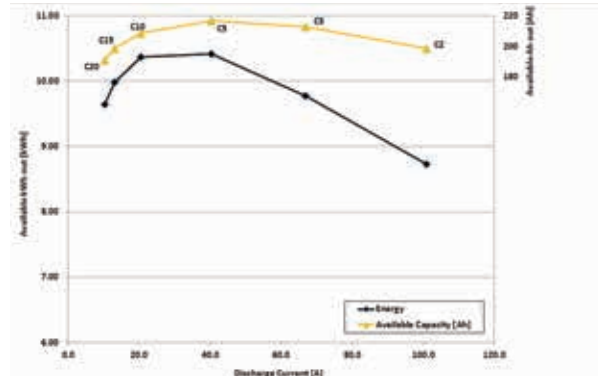
Discharge Curves





Discharge - Capacity Curves



Energy - Capacity Curves




ZCell technical specifications:

- + 48 Volt DC nominal battery (typical operating range 40-60V)
- + Maximum 10kWh energy output per daily cycle
- + No reserved battery capacity requirement - full 10kWh cycle depth available
- + Warranted electrode stack: 36,500 kWh energy throughput or 10 years (whichever comes first).
- + No cycle depth limitations - battery performance and lifetime is not sensitive to cycle depth
- + Charge current 50A continuous (linear charge curve, no drop in charge rate up to 100 per cent full)
- + Discharge current 75A continuous, 100A for 30 minutes, 125A for one minute
- + Regulatory compliance marks  

- + Operating electrolyte temperature range of 15-50 degrees Celsius. ZCell can typically operate at ambient temperatures outside this range for extended periods - visit the ZCell FAQ at [faq.zcell.com](http://faq.zcell.com) for details
- + On-board battery management, control and monitoring system. Monitors electrolyte fluid and outside ambient temperature, cell voltage, charge/discharge current, and includes two fluid leak detectors
- + ZCell self-protects by suspending operations automatically if safe limits are exceeded. Where appropriate, ZCell will automatically return to normal operation when conditions improve
- + ZCell enclosure includes secondary electrolyte containment to accommodate the unlikely event of an electrolyte leak from the ZBM2 battery core
- + Bundled with the ZCell Battery Management System (BMS) - a WiFi/web-based configuration, control and monitoring system that interfaces one or more ZCell batteries to a range of energy inverter/charger/rectifier products. The ZCell BMS logs operating data and provides web-based system performance graphs.

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