

## Comprehensive Guide to 6-CNFJ-150 Allgrand Energy Storage Solutions

### Understanding the 6-CNFJ Series Architecture

The 6-CNFJ-150 Allgrand represents a high-performance lead-acid battery solution designed for modern energy storage demands. As part of Allgrand's professional series, this 12V/150AH unit inherits the brand's signature engineering excellence seen in its sibling models like the 6-CNFJ-120 and 6-CNFJ-38 configurations.

### Core Technical Specifications

Rated voltage: 12V DC  $\pm 5\%$

Nominal capacity: 150Ah @ 20-hour discharge rate

Weight tolerance:  $\pm 3\%$  of 22kg standard weight

Cycle durability: 1,200 cycles at 50% DOD

Operating temperature range:  $-20^{\circ}\text{C}$  to  $50^{\circ}\text{C}$

### Innovative Design Features

Building on Allgrand's proven battery architecture, the 6-CNFJ-150 incorporates multiple technological advancements:

#### Advanced Plate Construction

Utilizing proprietary lead-calcium-tin alloy grids, these batteries achieve 18% higher active material utilization compared to conventional designs. The staggered grid pattern - imagine a honeycomb structure at microscopic level - enhances current distribution while reducing internal resistance.

### Safety & Maintenance Enhancements

Recombinant gas management system with 99% oxygen recombination efficiency

Flame-arresting ceramic filters in vent caps

Automatic electrolyte circulation through patented AGM separator design

### Practical Applications in Renewable Energy Systems

A 2024 field study in Qinghai Province demonstrated that using eight 6-CNFJ-150 units in a 48V solar array configuration achieved 92% system efficiency during winter operations. The installation powered:

3kW continuous load for 8.5 hours daily



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- Peak surge capacity of 15kW for pump startups
- Autonomous operation through 72-hour cloud cover periods

## Installation Best Practices

When deploying multiple units in series/parallel configurations:

- Maintain 20mm inter-unit spacing for thermal management
- Use copper busbars with 35mm<sup>2</sup> cross-section for connections
- Implement tapered charging: bulk (14.4V) -> absorption (13.8V) -> float (13.2V)

## Performance Comparison Across CNFJ Series

- Model
- Capacity (Ah)
- Cycle Life
- Weight (kg)

6-CNFJ-38  
38  
800  
11

6-CNFJ-120  
120  
1,000  
19

6-CNFJ-150  
150  
1,200  
22

## Maintenance Protocols for Optimal Longevity

While these batteries boast "maintenance-free" operation, smart users follow these pro tips:

- Conduct quarterly impedance testing using a DLRO meter
- Apply anti-corrosion gel to terminals after initial installation
- Implement equalization charging every 6 months (15.5V for 4 hours)

## Real-World Efficiency Metrics

In a recent microgrid project, the 6-CNFJ-150 demonstrated 94% Coulombic efficiency during peak solar harvesting periods, outperforming comparable lithium-ion solutions in cost-per-cycle calculations under 35°C ambient conditions.

## Certification & Compliance Overview

Allgrand's manufacturing excellence is validated through:

- IEC 60896-21/22 compliance for stationary applications
- UN38.3 certification for transportation safety
- RoHS 2.0 compliance (EU 2015/863)

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