Americase®

CASE STUDY

CUSTOM-ENGINEERED BATTERY BACKUP UNIT (BBU) CASES DELIVER COST SAVINGS, EFFICIENCY, SAFETY, AND STREAMLINED LOGISTICS TO DATA CENTERS

OVERVIEW

Americase collaborated with a Fortune 50 company to address logistical and operational challenges associated with the transportation and storage of rack level ORV2 and ORV3 compatible lithium-ion Battery Backup Units (BBUs) used in data centers. The objective was to design a reusable, durable packaging solution to streamline operations, minimize waste, and enhance workplace safety.

THE PROBLEM

The existing process resulted in OSHA recordable injuries from repetitive motion of repackaging. The BBUs arrived at the data center packaged in fiberboard boxes on wooden pallets, which were not compliant with facility standards. The logistics team had to dismantle the pallets of BBUs, repackage the BBUs into server environment-approved crates, and remove all the debris. This process took two people one hour to complete for each pallet. After repackaging, the BBUs had to be placed in specialized storage rooms per insurance requirements for hazardous materials. This process resulted in:

- Increased risk of workplace injuries due to repetitive tasks.
- Significant labor costs.
- Excessive waste from discarded materials.
- Operational inefficiencies, including additional costs for fire-rated storage rooms or third-party logistics (3PL) to meet insurance requirements for hazardous materials.

THE SOLUTION

Americase developed a UN-compliant protective shipping and storage container specifically tailored for lithium-ion BBUs. This innovative solution was designed for longevity, safety, regulatory compliance, and efficiency, featuring:

- **Lightweight, durable aluminum construction** with a 10+ year lifespan.
- **Easy handling** with Data Center automation compatibility- forklifts, pallet jacks, Automated Gated Vehicles, and others as required.
- **HDPE inner shuttle** to keep each BBU separate for secure transportation. ▶

- **Static dissipative foam** for added protection.
- **Stackable design** to optimize storage and transportation thus reducing emissions and carbon footprint.
- **Removes the need for separate DG rooms** to store inventory.
- **100% recyclable aluminum** to reduce carbon footprint.

Key functions included secure, efficient, and regulatory compliant transport of BBUs for reuse, removal, or disposal. Designed and tested as a **full containment solution in the event of a thermal runaway**, the end-to-end BBU shipping and storage cases significantly reduced manual handling, logistical complexities, carbon footprint, and operational costs.

RESULTS

The implementation of Americase's solution delivered substantial benefits:

- **Cost Savings:**
  - $1.4 million saved by eliminating the need for new BBU storage rooms.
  - $100,000 per month saved in 3PL and off-site storage costs.
  - A net-neutral investment achieved in 3.5 months through reusable cycles.
- **Operational Efficiency:**
  - Reduced labor hours with a streamlined process.
  - Consistency in packaging and storage across the logistics chain.
  - Field-repairable, reusable solution with a 10+ year field life minimizes operational downtime.
- **Safety & Regulatory Compliance:**
  - Endorsed by the Environmental Health and Safety (EHS) department for reducing injury risks and improving ergonomics for employees.
  - Tested and proven thermal containment solution for lithium-ion BBUs.
  - UN code-compliant packaging for shipping and storage.
- **Environmental Benefits:**
  - Elimination of waste from fiberboard and dunnage.
  - Reusable solution to reduce carbon footprint.
  - 100% recyclable aluminum.
- **Insurance Benefits:**
  - Approved by the client's insurance provider, removing the requirement for on-site specialized storage and 3PL solutions, delivering significant cost reductions.

Custom Case Design Tackles Unique Shipping and Storage Needs

Americase used its proven three-step consultative approach to identify customer pain points and deliver a smart, efficient solution.

- **Comprehensive Collaboration:** Partnered with the entire value chain, from OEM to recycler, to design a BBU container that optimizes logistics.
- **On-Site Insights:** Identified the need for cost-effective BBU storage, eliminating reliance on 3PL or fire-rated rooms.
- **Expert Testing:** Ensured safety and thermal runaway containment through extensive testing.
- **Regulatory Guidance:** Leveraged in-house HazMat experts to achieve full compliance with complex regulations.

CONCLUSION

After seven months of design, testing, and manufacturing, Americase's container was adopted company wide. The solution continues to prove to be versatile, cost-effective, and environmentally friendly, addressing all of the customer's pain points. The successful design and integration of this packaging solution underscores Americase's commitment to innovation, efficiency, and sustainability in operational logistics.