HEDBOX, BUILT FOR PROFESSIONALS

Redefining Power Reliability for Broadcast and Film Professionals

Abstract

This white paper explains why HEDBOX batteries have become the benchmark for professional broadcast and film power systems. Unlike competitors that rely on inflated specifications, HEDBOX applies transparent engineering principles to deliver real-world performance and reliability.

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1. Executive Summary

In the demanding world of broadcast, film, and professional production, reliable power is not a luxury, it's a necessity. Camera operators, ENG crews, and rental facilities depend on battery systems that perform flawlessly in harsh environments, deliver consistent power over years of use, and withstand the rigors of daily operation.

HEDBOX has earned its place as the power brand of choice for national broadcasters and production companies across Europe and beyond, including France Télévisions, RAI, RTVE, TRT, HRT, RTVSLO, TVR, POP TV, and Keslow Camera in Hollywood.
This paper outlines the engineering principles, manufacturing quality, and warranty commitment that make HEDBOX batteries and chargers truly best in class.

2. Design Philosophy: Built for Professionals

HEDBOX's mission is simple: to deliver professional-grade power solutions engineered for longevity, safety, and total reliability.
Our batteries are designed from the inside out to meet (and exceed) the expectations of camera operators, OB engineers, and rental companies who demand consistent performance day after day.

Every design decision serves one goal: uncompromising reliability in real-world use.

3. Battery Longevity and Charge Cycle Integrity

3.1 Charge Cycle Rating —the Honest Approach

While some manufacturers promote inflated charge cycle figures for marketing purposes, HEDBOX applies a scientifically transparent method for determining life expectancy.

- Hedbox warrants its products to be free from defects in materials and workmanship for two years from the date of purchase.
- Battery capacity is guaranteed to retain at least 80% health or charge after one year (or 250 cycles), and at least 60% after two years (or 450 cycles), whichever comes first.
- Design life: Approximately 1,500 cycles under normal operation

Retention guarantees:

- 80% capacity from date of purchase till 12 months of usage (≤ 250 cycles)
- 60% capacity from 12 till 24 months of usage (≤ 450 cycles)

This conservative approach ensures that HEDBOX batteries not only meet, but consistently outperform their warranty expectations, delivering real-world lifespans far beyond those of typical market alternatives.

3.2 True Cycle Definition

Please note that Hedbox define a cycle as when 100% of the battery capacity has been used.

For example, 2 uses of 100% to 50 % then recharged back to 100% count as 1 cycle, not 2. For this reason, cycle counts may seem lower than those quoted by other manufacturers.

4. Advanced Charging Technology

4.1 Optimized BMS with Intelligent Charge Control

Every HEDBOX battery is equipped with an advanced Battery Management System (BMS) capable of managing charge currents up to 6A (1C rate) — a threshold that ensures efficient, safe, and balanced charging across all cells.
For maximum safety and compatibility, HEDBOX chargers are limited to 3A output per channel, protecting both premium and lower-grade batteries from overcurrent risks. This conservative limit extends component life and maintains thermal stability even during multi-channel operation.

4.2 Trickle Charge

HEDBOX integrates a “trickle charge recovery function”, allowing deeply discharged or long-shelved batteries to be revived safely.
This feature acts as a “health reset” for batteries in rental or storage conditions, extending usable life and reducing replacement costs.

4.3 Real-World Charging Times

Charging performance depends on both battery capacity and charger output power. HEDBOX batteries are optimized for simultaneous multi-channel operation, all channels charge concurrently at full efficiency. This ensures consistent turnaround times, particularly in news and production environments where every minute counts.

5. Mechanical Design & Drop Resistance

5.1 Proven Durability

HEDBOX batteries undergo drop testing from 1.78 meters, significantly above the industry standard, to simulate real-world scenarios such as crane operation or on-set handling. Independent test certificates and video documentation validate structural integrity even after impact.

- Test Height: 178 cm
- Result: Fully functional, no electrical or mechanical failures post-impact

5.2 Advanced ABS Polymer Composite Housing

All HEDBOX professional batteries — including NERO and NINA series — use a flame-retardant ABS composite polymer, developed and refined through 16 years of material engineering.
Key material properties:

- Flame-retardant and thermally stable
- Reinforced molecular lattice for exceptional toughness
- High impact resistance and dimensional stability under temperature fluctuations

5.3 Honeycomb Cell Isolation Structure

Inside each battery, every individual cell is enclosed within a reinforced ABS honeycomb structure.
This design isolates cells to:

- Prevent stress propagation from shock or vibration
- Maintain pack integrity after drops
- Ensure optimal heat dissipation

The result: exceptional mechanical resilience and unmatched operational safety.

6. Warranty and After-Sales Excellence

HEDBOX backs its engineering with one of the longest and most comprehensive

Product Type	Warranty	Guaranteed Condition
V-Mount & BP-U Batteries	24 months	80% SOH (12m) / 60% (24m)
FZ100H Batteries	12 months	80% SOH (6m) / 60% (12m)
Chargers	24 months	Full component coverage

Beyond warranty, HEDBOX maintains a robust service and repair infrastructure.
During warranty, batteries are inspected and repaired in-house by expert technicians.
Post-warranty, HEDBOX provides service schematics, spare parts, and calibration data to authorized partners, ensuring local support without compromising quality.

7. Reference Installations

HEDBOX power systems are trusted by major national broadcasters and production houses worldwide, some examples:

Organization	Country	Battery Models	Quantity
France Télévisions	France	BP75D / BP95D	3,000
TRT	Turkey	NINA-L	500
RTVE	Spain	BP75D / NERO Series	450
RAI	Italy	BP95D / NERO-M / NERO-L	300
TVR	Romania	NINA-M	100
RTVSLO	Slovenia	BP95D / NERO-M	120
HRT	Croatia	BP95D / NERO-M	80
POP TV	Slovenia	NERO-M	50

8. Conclusion

HEDBOX batteries and chargers represent the perfect balance of engineering precision, material integrity, and user-focused design.
While others chase marketing numbers, HEDBOX focuses on measurable reliability, realistic performance, and long-term value.

Professionals choose HEDBOX because:

- Our cycles are real — not theoretical
- Our housings are stronger — not cheaper
- Our warranties are longer — not limited
- Our support is human — not outsourced

From design to deployment, **HEDBOX is redefining the standard for professional power**.