

**IRONCLAD®**



**Exclusively Square.  
Exclusively Powerful.  
Exclusively Ironclad®**



MOTIVE POWER BATTERIES

**EnerSys®**

Power/Full Solutions

# The legendary Ironclad<sup>®</sup> “Hog” batteries from EnerSys<sup>®</sup>:

Unique square tube technology for more power, more work hours and more profit

The Ironclad<sup>®</sup> battery product line is comprised of six proven performers – the legendary Hog Series batteries. All feature proven EnerSys<sup>®</sup> square tube technology to deliver higher sustained voltage and rugged reliability for higher productivity. Whatever your motive power application, there’s an Ironclad battery that’s made for the job.





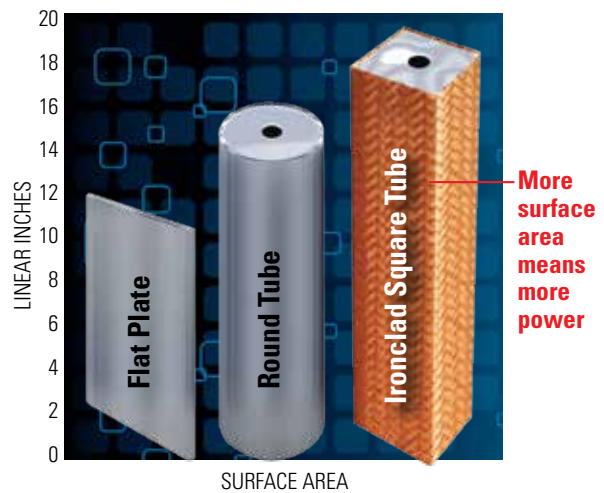
## Ironclad® technology: Square tubes, more plate surface.

For over 100 years, Ironclad® batteries with their unique square tube design, available exclusively from EnerSys®, have outperformed round tubular and flat-plate design batteries. The reason is quite simple. Square tubes provide up to 84% more surface area on the positive plate than other plate types.

As a battery is discharged, the electrolyte at the plate surface is converted to water and an electron is created that produces electricity. During this process, a layer of lead sulfate forms on the plate surface as the battery is discharged. This accumulating layer prevents electrolyte from reaching the plate surface, which inhibits the plate's ability to maintain voltage. Thus, the more surface area on the positive plate, the longer the plate is able to sustain higher levels of voltage throughout a discharge cycle.

## The Ironclad Effect: More usable power. More work capacity.

Thanks to square tube technology and industry-leading amp-hour capacity ratings, Ironclad batteries maintain higher voltages for a longer period of time than conventional design batteries. This becomes more beneficial than ever with the shift from DC to AC motors in the latest generation of electric lift trucks. That's because in order to maintain a truck's constant drive and lift performance throughout a shift, an AC motor must offset a battery's normal voltage drop during discharge by drawing more and more amps. With the ability to pack more capacity into the battery and sustain higher voltages, Ironclad batteries can extend lift truck run times well into the shift day.



## Acid- and temperature-resistant tubing

The Cladex™ tubing in Ironclad batteries is made from braided fiberglass, which is more resistant to acid and temperature extremes than polyester tubing used by other round tube manufacturers. This material is impervious to electrolyte so it will not disintegrate like polyester. The strength and rigidity of Cladex tube will retain the square shape throughout its service life.

### Quality so high, we back it with a FIVE PLUS ONE™ WARRANTY.\*

In addition to an industry-leading six-year limited warranty, we also make an up-front offer – in writing – to credit you with 25% of your original purchase price toward a new battery after five years.

\*Limited to flooded-type batteries only.  
Conditions apply / 3+2 on Loadhog E75L and E55L.



## Workhog® Batteries

More power per rating than conventional or flat plate batteries.

Rated at 75-, 90- and 125-AH, Workhog® batteries are the most powerful standard gravity batteries available. The Workhog 90-AH battery is the only 23" battery with standard, rather than high gravity electrolyte, for maximum battery life. A performance leader since 1910, the Workhog battery has proven itself as a reliable, rugged performer in thousands of applications, from small personnel carriers to the largest 100,000 lb. lift truck.

- The Ironclad® Effect will keep your trucks moving faster and lifting quicker by maintaining higher voltage levels longer during discharge than conventional flat plate or round tube batteries.
- The result of better discharge voltages is per hour with fewer amp-hours of discharge per trip.

## Superhog® Batteries

Power to spare for your biggest jobs.

For the fastest runs, quickest lifts and most demanding industrial and warehousing applications, turn to the super performance, long life and easy maintenance of the supercharged Superhog® battery. It delivers consistently higher voltages, so your trucks maintain optimum travel speed and lift quicker. The Superhog's industry leading 110- and 155-AH batteries can reduce or even eliminate premature battery changes or production stops.

- The Superhog E110 battery maintains 40% of its charge when a conventional 85-AH battery reaches the critical 80% discharge point and is ready to be recharged.
- The Superhog E155 battery typically lasts 2 1/2 hours longer than a conventional 125-AH battery.



## Smartpack® Battery and Charger

VRLA battery with integrated charger for plug-in convenience

The gelled, Valve Regulated Lead Acid (VRLA) Smartpack® battery with integrated charger delivers up to 600 amp-hours of gas recombinant battery power, making it the ideal choice for pallet trucks in light to medium duty applications.

- Eliminates maintenance costs for battery watering, hydrometer readings, acid equalization and neutralizing washes.
- Self-contained automatic battery charger, matched to the battery to maintain peak performance.
- Perma-Connect™ coupling means that the truck, battery and charger are always connected.
- No charging room or special AC outlets are needed – just plug it into the nearest 15A, 120V AC line.





**Deserthog® Batteries**  
The most maintenance free flooded battery in the industry.

The Deserthog® battery is the ideal choice for medium to heavy-duty applications that aren't suitable for a VRLA battery, and is available in 90-, 100- and 125-AH capacities. Unlike most low-maintenance batteries, the Deserthog battery does not lower antimony content in the plates which leads to shorter life. The Deserthog battery features increased water reserve which gives you up to four inches of watering space. Simply add water about four times a year versus every week, so you'll have a more efficient operation with lower maintenance costs.

**Smarthog® Batteries**  
The no-hassle, no-spill, no-watering battery for any electric-powered vehicle.

The Smarthog® battery offers the industry's first 23" and 31" high, 80- and 120-AH VRLA batteries. Other sizes are also available in 11", 14" and 18.5" heights. Clean, safe, and efficient, Smarthog batteries eliminate the need to remove vent caps, add water or take hydrometer readings. At the end of the workday, simply connect the battery to your charger.

- VRLA technology permits the battery to emit minimal gas under normal conditions.
- For plug-in-anywhere charging convenience use Smartpack integral battery charger units. Can be plugged into any 15A, 120V AC line.



**Loadhog® Batteries**  
High performance for long shifts.

The Loadhog® battery was the first battery to pack 100 amp-hours of capacity into a standard 85-AH compartment. That's 18% more capacity than similarly sized conventional batteries – more than enough to keep running strong through the toughest shifts.

- The Loadhog E140 battery excels in high reach or rider-type lift trucks and provides this extra capacity while still using standard electrolyte gravity.
- The 19" E75L low-profile Loadhog battery keeps your low-profile lift trucks running strong for a full shift.



**The PowerMAXX™ Total Service Program**

**Because less downtime means more profit.**

At EnerSys®, service means much more than maintenance and repairs. It also includes our Total Operation Review and Equipment Utilization Inspection programs. Your EnerSys service representative can determine the most efficient use of all your equipment so that batteries and chargers last longer, workers change batteries less often, and you maximize vehicle productivity without compromising safety.

**A nationwide service network**

With the PowerMAXX™ Total Service Program, your operation benefits from the support of over 350 trained technicians staffing a nationwide network of service locations and mobile vans in North America. Thoroughly schooled in every aspect of battery and charger technology, our technicians return to the classroom every year for formal updates on changes in technology and new products. It's the largest, strongest company-backed service and support team in the business. Our National Service and Parts Center in Richmond, Kentucky, stocks over 500,000 parts, including battery cells, charger parts and battery room safety equipment. We can ship parts within 24 hours to respond quickly and efficiently to your needs.



# IRONCLAD®

## MOTIVE POWER BATTERIES

### Recycle your spent batteries with EnerSys®.

We respect the environment. We know and comply with all federal and state regulations regarding the handling of spent lead-acid batteries. Smelters we use for recycling have RCPA Part B permits as required by the EPA. We also accept the return of any lead-acid battery for recycling regardless of the manufacturer.

**Call 1-800-EnerSys to reach your local Ironclad® Representative.**



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