

# THE *m-s* **endur II** SERIES VRLA BATTERY *THE TRUE LONG-LIFE BATTERY™*

**For UPS Standby Power Applications**  
CAPACITIES FROM 0.669 TO 3.121 KILOWATTS PER CELL



The msEndur II is the latest advancement in battery technology with enhanced features for UPS applications

**By combining the service life reliability of a flooded battery with the performance energy density of a valve-regulated battery, C&D has created the msEndur II — The True Long-Life Battery™.**

The msEndur II series of batteries are unmatched in power density with space saving modular designs and have a 20-year design life to reduce the total cost of ownership.

With its much lower float current, the msEndur II yields significant electrical costs savings over its life making it more environmentally friendly than other 2V VRLA batteries.

## APPLICATIONS

- Data Centers
- Network Operations Centers
- Internet Hosting Sites
- Banks & Financial Markets
- Manufacturing Facilities
- Emergency 911 Response Centers
- Computer Rooms
- Industrial Process Controls

## FEATURES & BENEFITS

### ADVANCED SYSTEM FEATURES

- Modular design for ease of installation and stacking flexibility
- Space saving design for the greatest amount of power in a small footprint
- Exceeds 1997 UBC Zone 4 seismic requirements for at or below grade installations
- Certified as NEBS Level 3 and compliant to Earthquake Risk Zone 4 in various system configurations
- Exceeds 2000/2003 IBC requirements for 125% g level
- Tin-plated copper alloy connectors minimize maintenance
- New Ohmic Ring™ for ease of maintenance readings. With specially adapted probes only one technician is required to take readings.

### ADVANCED MATERIALS

- Advanced micro-porous **A**bsorbed **G**lass **M**at separators for ultra-low float current — reduces grid corrosion for a long, usable service life
- Proprietary calcium alloys to minimize positive grid corrosion and growth — maximizes battery life
- Robust polypropylene container and cover — enhances product quality and improves strength of materials for safe operation with flammability rating UL94 VO, LOI>28%

- Highly efficient, proprietary plate processing for high utilization of active material — results in high energy density and low float current

### ADVANCED PROCESSES

- Advanced formation process results in a narrow float voltage window making on-site float matching unnecessary
- Highly controlled manufacturing processes for exceptional and consistent plate quality

### ADVANCED SERVICE LIFE & WARRANTY

- Proprietary cell design and manufacturing process provides for 20 year design life and documented long-lasting service life
- Best 2V VRLA Warranty in the Market: 5 years full warranty for UPS float service applications

### ADVANCED EXPERIENCE

- Over 100 years of experience in the battery industry
- The only producer and marketer of complete battery and electronics systems for total power solutions
- Fully backed by a worldwide network for local service

## Constant Power Discharge Ratings

| KILOWATTS PER CELL @ 77°F (25°C) |        |       |       |        |        |        |        |        |       |
|----------------------------------|--------|-------|-------|--------|--------|--------|--------|--------|-------|
| FV/Cell                          | Model  | 1 min | 5 min | 10 min | 15 min | 20 min | 30 min | 45 min | 1 hr  |
| 1.67                             | AT-07P | 0.837 | 0.791 | 0.730  | 0.669  | 0.612  | 0.520  | 0.430  | 0.373 |
|                                  | AT-09P | 1.117 | 1.055 | 0.973  | 0.892  | 0.816  | 0.693  | 0.574  | 0.497 |
|                                  | AT-11P | 1.396 | 1.318 | 1.217  | 1.115  | 1.020  | 0.866  | 0.717  | 0.622 |
|                                  | AT-13P | 1.602 | 1.514 | 1.397  | 1.288  | 1.170  | 0.994  | 0.823  | 0.714 |
|                                  | AT-15P | 1.954 | 1.846 | 1.704  | 1.561  | 1.427  | 1.213  | 1.004  | 0.870 |
|                                  | AT-17P | 2.233 | 2.110 | 1.947  | 1.784  | 1.631  | 1.386  | 1.147  | 0.995 |
|                                  | AT-19P | 2.512 | 2.373 | 2.190  | 2.007  | 1.835  | 1.559  | 1.291  | 1.119 |
|                                  | AT-21P | 2.792 | 2.637 | 2.434  | 2.230  | 2.039  | 1.733  | 1.434  | 1.243 |
|                                  | AT-23P | 3.071 | 2.901 | 2.677  | 2.452  | 2.243  | 1.906  | 1.578  | 1.368 |
|                                  | AT-25P | 3.350 | 3.164 | 2.920  | 2.675  | 2.447  | 2.079  | 1.721  | 1.492 |
|                                  | AT-27P | 3.629 | 3.428 | 3.164  | 2.898  | 2.651  | 2.253  | 1.864  | 1.617 |
| AT-29P                           | 3.908  | 3.692 | 3.407 | 3.121  | 2.855  | 2.426  | 2.008  | 1.741  |       |

## Constant Current Discharge Ratings

| AMPERES @ 77°F (25°C) |        |       |        |        |        |        |      |      |      |
|-----------------------|--------|-------|--------|--------|--------|--------|------|------|------|
| FV/Cell               | Model  | 1 min | 15 min | 30 min | 60 min | 90 min | 3 hr | 5 hr | 8 hr |
| 1.75                  | AT-07P | 397   | 330    | 268    | 189    | 148    | 93   | 63   | 43   |
|                       | AT-09P | 530   | 440    | 360    | 259    | 205    | 129  | 88   | 60   |
|                       | AT-11P | 662   | 550    | 450    | 324    | 256    | 161  | 110  | 75   |
|                       | AT-13P | 759   | 631    | 512    | 362    | 283    | 177  | 121  | 82   |
|                       | AT-15P | 927   | 770    | 629    | 454    | 358    | 225  | 154  | 105  |
|                       | AT-17P | 1058  | 880    | 713    | 505    | 395    | 247  | 168  | 115  |
|                       | AT-19P | 1192  | 989    | 809    | 583    | 460    | 290  | 198  | 135  |
|                       | AT-21P | 1322  | 1100   | 892    | 631    | 494    | 309  | 210  | 144  |
|                       | AT-23P | 1457  | 1209   | 989    | 713    | 562    | 354  | 241  | 165  |
|                       | AT-25P | 1586  | 1320   | 1070   | 757    | 592    | 370  | 252  | 172  |
|                       | AT-27P | 1722  | 1429   | 1169   | 843    | 665    | 418  | 285  | 195  |
| AT-29P                | 1851   | 1540  | 1248   | 884    | 691    | 432    | 294  | 201  |      |

Please refer to the **msEndur II Performance Specifications Brochure, 12-1015**, for an expanded list of constant power and constant current ratings and end voltages.

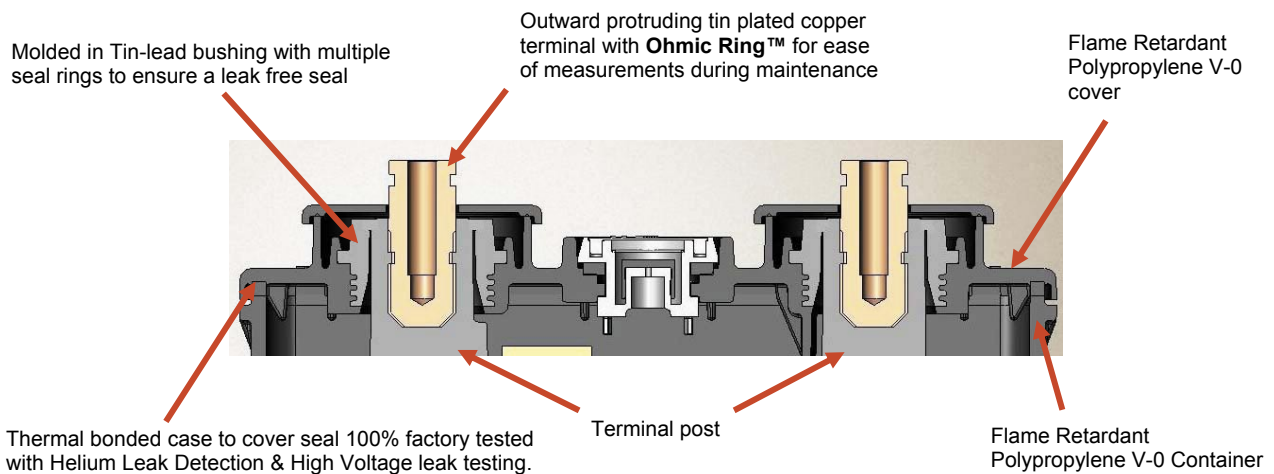
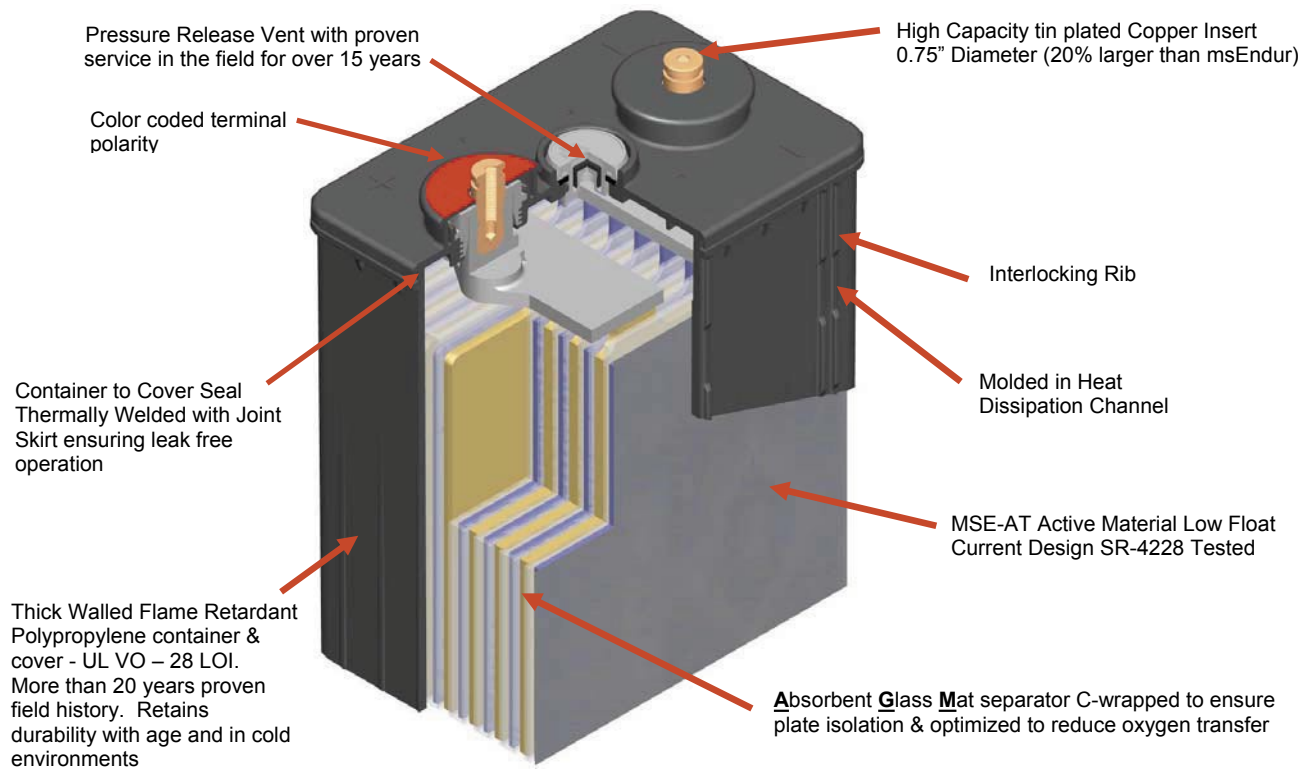
You may also access the product ratings by logging onto the free **C&D Battery Sizing program** at [www.cdstandbypower.net](http://www.cdstandbypower.net).

## Specifications and Characteristics

|  |  |
|--|--|
| Cells, Voltage per Unit                    | 1 cell, 2 VDC  |
| Recommended Operating Temperature          | 77°F (25°C)  |
| Recommended Float Charging Voltage         | 2.25 - 2.27 VPC at 77°F (25°C)   |
| Charger Compensation Temperature / Voltage | -2mV/cell/°F above 77°F (-3.6mV/cell/°C above 25°C)<br>+2mV/cell/°F below 77°F (+3.6mV/cell/°C below 25°C) |
| Connection Torque                          | Initial: 160 in-lbs (18 N-m)<br>Re-toque: 125 in-lbs (14 N-m)  |

|                     | AT-07P | AT-09P | AT-11P | AT-13P* | AT-15P | AT-17P* | AT-19P | AT-21P* | AT-23P | AT-25P* | AT-27P | AT-29P* |
|---------------------|--------|--------|--------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
| Number of Terminals | 2      | 2      | 2      | 2       | 2      | 2       | 4*     | 4*      | 4*     | 4*      | 4      | 4       |

\* New Models and Terminal Quantities



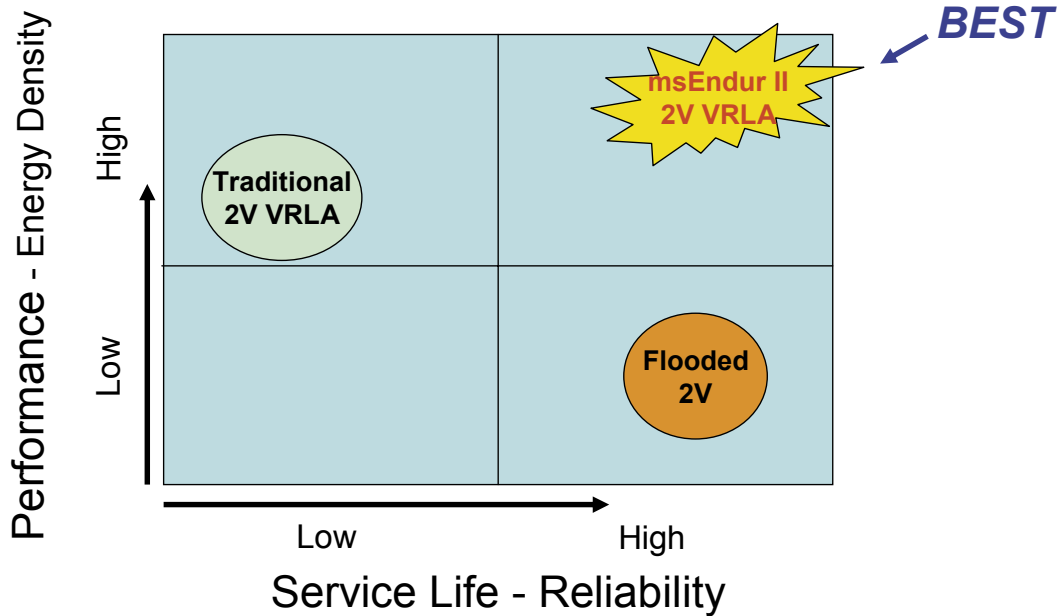
## Modules

msEndur II cells are designed to be mounted in stackable modules of either 3, 4, 5, or 6 cells. The most popular module sizes and configurations for UPS systems are:

|                           | AT-07P through AT-21P | AT-23P through AT-29P |
|---------------------------|-----------------------|-----------------------|
| <b>Cells Wide/ Module</b> | 6                     | 3                     |
| <b>Modules High</b>       | 8                     | 8                     |

The specific cell wide x module high system configuration is flexible and can be configured to best match the physical requirements of the customer's site.

Detailed system dimensions and combinations are available in the **msEndur II Module Brochure 12-1014**.



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Standard  
2V VRLA

**Has the light  
turned on yet?**  
Both devices can  
save you 75%



msEndur II

**The msEndur II sealed battery is the environmentally friendly battery that saves you money in normal operation.**

The same low float current that ensures a twenty year life, is good for the environment and saves money

- **Up to 75% lower float current**
- **Consumes up to 75% less electricity**
- **Lower float current generates less heat**
- **Less heat generated reduces required air conditioning**
- **Less electricity consumed in float charging and air conditioning = reduce carbon emissions**

Go to [www.cdtechno.com/savings](http://www.cdtechno.com/savings) to check out your possible savings

## **C&D TECHNOLOGIES, INC.**

1400 Union Meeting Road  
P.O. Box 3053 • Blue Bell, PA 19422-0858  
(215) 619-2700 • Fax (215) 619-7899 • (800) 543-8630  
customersvc@cdtechno.com  
www.cdtechno.com

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