



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

For Standby Telecom Applications
CAPACITIES FROM 345 - 2180 AMPERE-HOURS



The msEndur II is the latest advancement in battery technology with enhanced features for TEL 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 the most environmentally 2V VRLA battery.

APPLICATIONS

- **Wireless**
- **Wireline**
- **Central Office**
- **Mobile Switching Centers**
- **PBX Systems**
- **Microwave**
- **Broadband Headend**
- **Network Operation Ctrs**
- **Data Centers**

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
- Certified as NEBS Level 3 and compliant to Earthquake Risk Zone 4 in various system configurations
- Exceeds 1997 UBC Zone 4 seismic requirements for at or below grade installations
- Exceeds 2006 IBC requirements up to 300% g level and 2007 CBC compliant
- Tin-plated copper alloy connectors minimize maintenance
- New C&D 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
- Industry leading warranty

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 Current Discharge Ratings

AMPERES @ 77°F (25°)											
FV/Cell	Models	1 hr	2 hr	3 hr	4 hr	5 hr	6 hr	8 hr	10 hr	12 hr	24 hr
1.75	AT-07P	189	123	93	75	63	55	43	36	30	16
	AT-09P	259	170	129	104	88	76	60	50	42	23
	AT-11P	324	213	161	130	110	95	75	62	53	28
	AT-13P	352	228	172	139	117	101	80	66	56	30
	AT-15P	454	298	225	182	154	133	105	87	74	40
	AT-17P	505	327	247	200	168	145	115	95	81	43
	AT-19P	583	383	290	234	198	171	135	112	95	51
	AT-21P	631	409	309	250	210	182	144	119	101	54
	AT-23P	713	468	354	287	241	209	165	136	116	62
	AT-25P	757	491	370	299	252	218	172	143	122	65
	AT-27P	843	553	418	339	285	247	195	161	138	73
	AT-29P	884	573	432	349	294	255	201	166	142	76
AT-35P	1102	723	547	443	373	323	255	211	180	96	
AT-39P	1199	777	586	474	399	345	273	226	193	103	

Constant Power Discharge Ratings

KILOWATTS PER CELL @ 77°F (25°C)									
FV/Cell	Models	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	1.558	1.471	1.358	1.244	1.138	0.967	0.800	0.694
	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
	AT-35P						2.946	2.438	2.114
	AT-39P							2.725	2.363

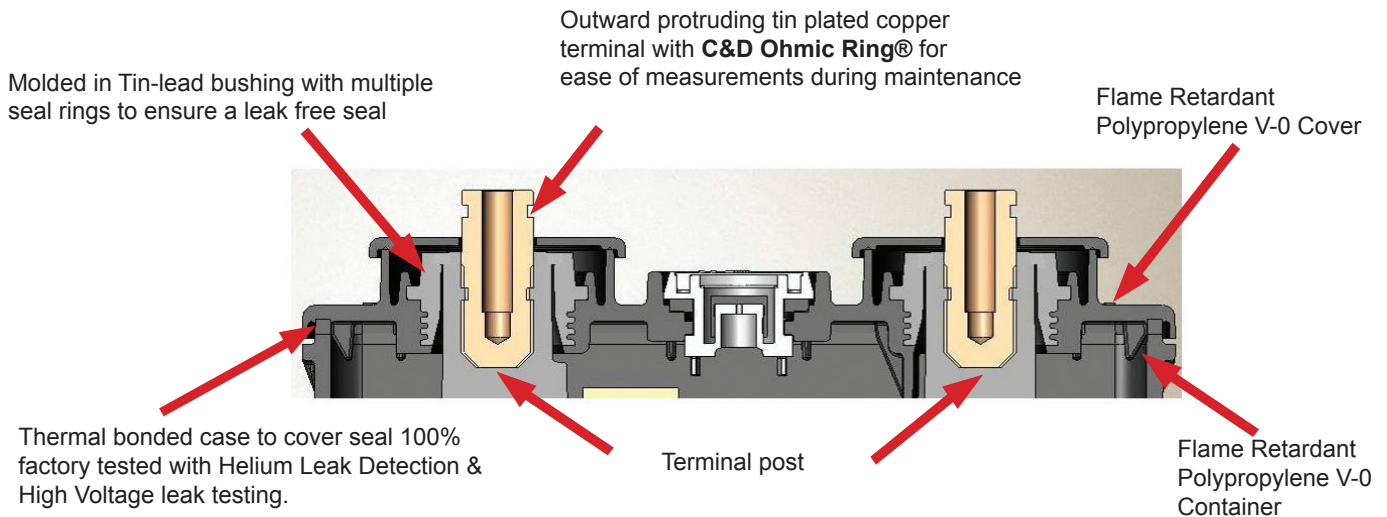
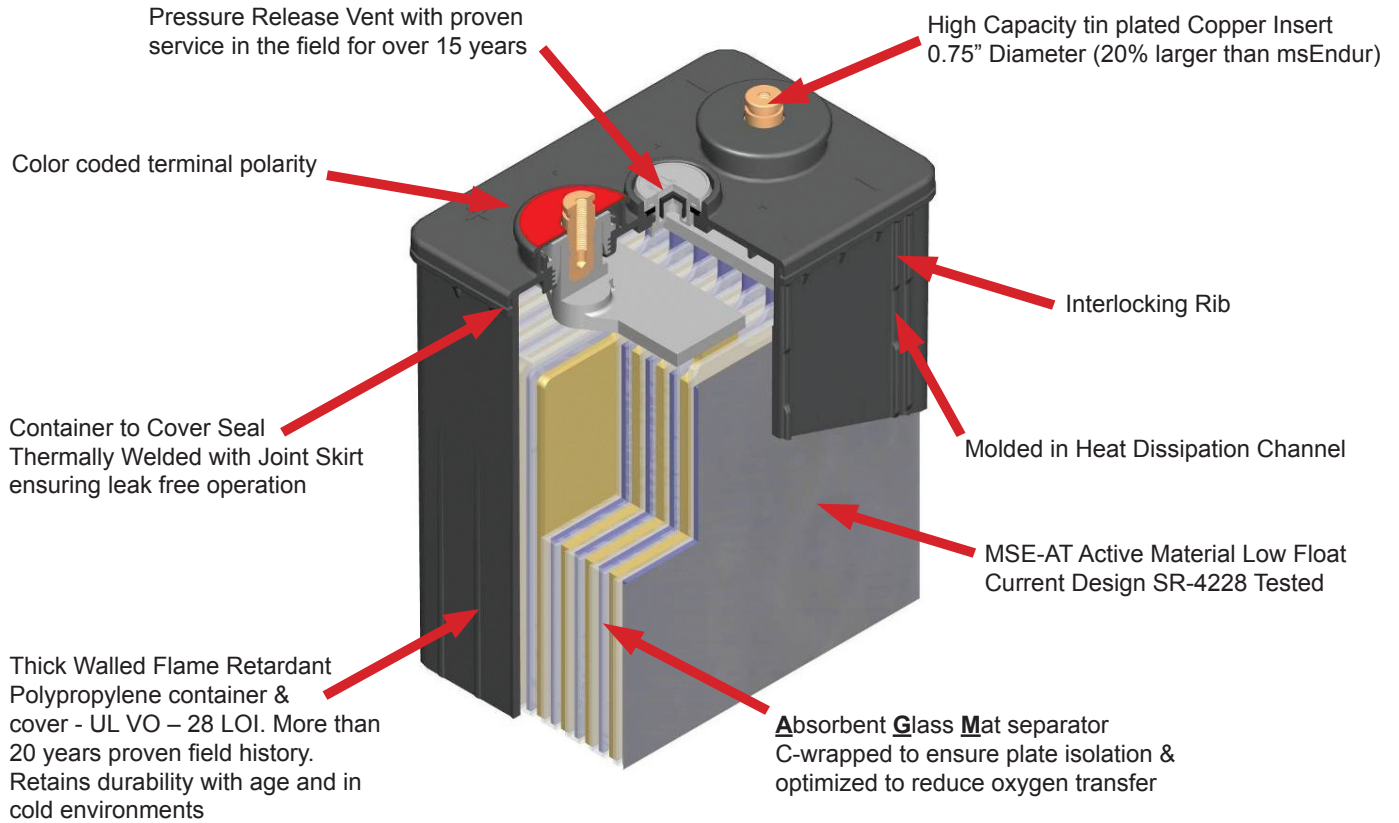
Please refer to the **msEndur II Stackable Module System with Module Dimensions and Weights brochure, 12-1014**, for a listing of typical msEndur II Module Systems dimensions and weights.

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 **C&D Battery Sizing Program** at www.cdstandbypower.net

Specifications and Characteristics

Cells, Voltage per Unit		1 cell, 2 VDC													
Energy Saving Operating Temperature		77°F (25°C)													
Connection Torque:		Initial: 160 in-lbs (18 N-m), Re-torque: 125 in-lbs (14 N-m)													
Recommended Float Charging Voltage (ATL Recommended Float Voltage)		AT-P = 2.25 - 2.27 volts per cell average @ 77°F (25°C) ATL-P = 2.17 - 2.22 volts per cell average @ 77°F (25°C)													
Charger Compensation Temperature / Voltage		(-)2 mV/cell/°F above 77°F (-3.6 mV/cell/°C above 25°C) +2 mV/cell/°F below 77°F (+3.6 mV/cell/°C below 25°C)													
	AT-07P ATL-07P	AT-09P ATL-09P	AT-11P ATL-11P	AT-13P ATL-13P	AT-15P ATL-15P	AT-17P ATL-17P	AT-19P ATL-19P	AT-21P ATL-21P	AT-23P ATL-23P	AT-25P ATL-25P	AT-27P ATL-27P	AT-29P ATL-29P	AT-35P ATL-35P	AT-39P ATL-39P	
Number of Terminals	2	2	2	2	2	2	4	4	4	4	4	4	4	4	
8 Hr AH Rate to 1.75 v/c @ 77°F (25°C)	345 / 295	480 / 390	600 / 490	640 / 515	840 / 685	920 / 780	1080 / 880	1150 / 980	1320 / 1075	1380 / 1175	1560 / 1270	1605 / 1370	2040 / 1660	2180 / 1855	
10 Hr AH Rate to 1.80 v/c @ 68°F (20°C)	330 / 275	460 / 365	575 / 460	610 / 485	800 / 645	875 / 735	1030 / 825	1095 / 920	1260 / 1010	1315 / 1100	1490 / 1195	1535 / 1285	1945 / 1560	2085 / 1745	



Modules

msEndur II cells are designed to be mounted in stackable modules of either 3, 4, 5, 6, 8 & 10 cells. The most popular module sizes and configurations for Telecom systems are:

	AT-07P through AT-21P	AT-15P through AT-39P
Cells Wide/Module	6	3
Modules High	4	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**.

