

# C&D TECHNOLOGIES

Power Solutions

## Liberty SERIES 2000 MAX™ HDL/RHDL

### LOW GRAVITY, VRLA BATTERIES FOR LOW FLOAT VOLTAGE APPLICATIONS

Capacities: 170 to 4800 AH

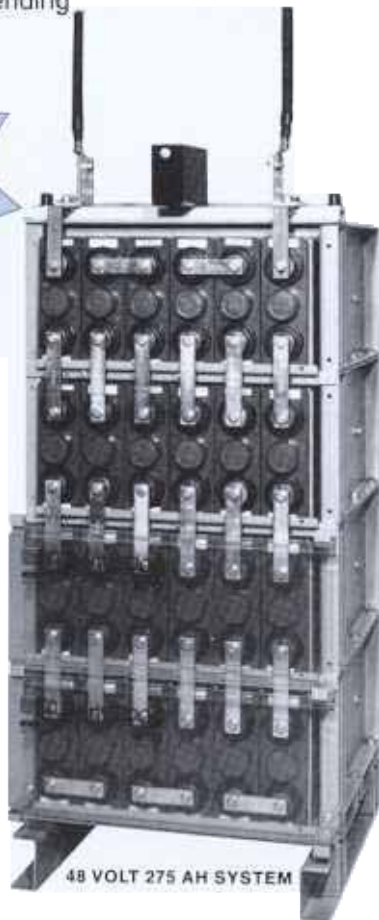
Design Life: 20 years

\*Patents Pending

- Central Office
- Remote Switching Offices
- Substation

#### UNIQUE BENEFITS

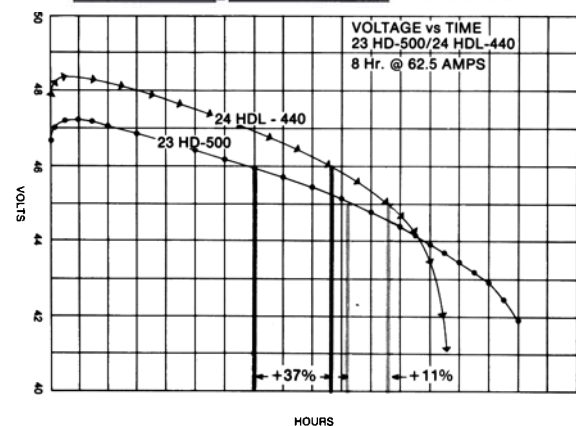
- ★ Easily Paralleled with Flooded Cells
- ★ Outperforms 23-Cell 1.300 Specific Gravity Systems (See Graph Below)
- ★ PVC Jar and Cover
- ★ Patented, Leak Free Post Seal
- ★ Leak Free, Epoxy Jar/Cover Seal
- ★ Internal Cell Support System
- ★ Pressure Plate System for Easy Cell Removal and Consistent Cell Compression
- ★ Innovative Ribbed Cell/Ventilated Module Design
- ★ Integrated Module System Exceeds UBC Zone 4 Requirements



#### CELL SPECIFICATIONS

- Jar and Cover** - PVC, flame retardant, UL94-VO
- Separators** - Microporous glass mat
- Safety Valve w/Flash Arrester** - 1 PSIG nominal
- Terminals** - Threaded Solid Copper Insert
- Plates** - Proprietary Calcium Alloy
- Float Voltage** - 2.19-2.21 VPC at 77 F (25 C)
- Electrolyte** - 1.250 Specific Gravity
- Life** - 20 years at Full Float at 77 F (25 C)
- Self Discharge** - 0.5 to 0.75% per week at 77 F (25 C)

#### Liberty 2000 MAX™



## Cell Specifications

Product Model Number	Positive plates	Width in (mm)	Depth in (mm)	Height in (mm)	Weight lbs (kgs)
RHDL-160	3	3.0 (76.2)	15.44 (392)	8.9 (226)	38 (17)
RHDL-215	4	3.8 (96.5)			48 (22)
RHDL-270	5	4.5 (114.3)			57 (26)
RHDL-375	7	5.9 (149.9)			75 (34)
RHDL-500	9	7.4 (188.0)			93 (42)
HDL-260	3	3.0 (76.2)	23.13 (588)	8.9 (226)	55 (25)
HDL-350	4	3.8 (96.5)			72 (33)
HDL-440	5	4.5 (114.3)			88 (40)
HDL-610	7	5.9 (149.9)			119 (54)
HDL-785	9	7.4 (188.0)			150 (68)
HDL-960	11	8.9 (226.0)			181 (82)
HDL-1135	13	10.3 (261.6)			212 (95)

## Cell Ratings in Amperes at 77F (25C)

Final Volts	Models	1 Hr	2 Hr	3 Hr	4 Hr	5 Hr	8 Hr
1.95	RHDL-160	42.6	36.9	29.1	24.0	20.4	14.4
	RHDL-215	56.8	49.2	38.8	32.0	27.2	19.2
	RHDL-270	71.0	61.5	48.5	40.0	34.0	24.0
	RHDL-375	99.4	86.1	67.9	56.0	47.6	33.6
	RHDL-500	127.8	110.7	87.3	72.0	61.2	43.2
	HDL-260	69.3	54.6	42.6	39.9	33.9	24.0
	HDL-350	92.4	72.8	56.8	53.2	45.2	32.0
	HDL-440	115.5	91.0	71.0	66.5	56.5	40.0
	HDL-610	161.7	127.4	99.4	93.1	79.1	56.0
	HDL-785	207.9	163.8	127.8	119.7	101.7	72.0
	HDL-960	254.1	200.2	156.2	146.3	124.3	88.0
	HDL-1135	300.3	236.6	184.6	172.9	146.9	104.0
	1.88	RHDL-160	72.0	48.9	38.1	30.9	26.4
RHDL-215		96.0	65.2	50.8	41.2	35.2	24.0
RHDL-270		120.0	81.5	63.5	51.5	44.0	30.0
RHDL-375		168.0	114.1	88.9	72.1	61.6	42.0
RHDL-500		216.0	146.7	114.3	92.7	79.2	54.0
HDL-260		116.0	81.6	63.3	51.6	44.1	30.3
HDL-350		154.6	108.8	84.4	68.8	58.8	40.4
HDL-440		193.3	136.0	105.5	86.0	73.5	50.5
HDL-610		270.8	190.4	147.7	120.4	102.8	70.7
HDL-785		347.9	244.8	189.9	154.8	132.2	90.9
HDL-960		425.3	299.2	232.1	189.2	161.6	111.1
HDL-1135		502.6	353.8	274.3	223.6	191.0	131.3
1.84		RHDL-160	83.1	54.3	41.4	33.6	28.2
	RHDL-215	110.8	72.4	55.2	44.8	37.6	26.0
	RHDL-270	138.5	90.5	69.0	56.0	47.0	32.5
	RHDL-375	193.9	126.7	96.6	78.4	65.8	45.5
	RHDL-500	249.3	162.9	124.2	100.8	84.6	58.5
	HDL-260	132.6	90.3	69.0	56.1	47.1	32.7
	HDL-350	176.8	120.4	92.0	74.8	62.8	43.6
	HDL-440	221.0	150.5	115.0	93.5	78.5	54.5
	HDL-610	309.4	210.7	161.0	130.9	109.9	76.3
	HDL-785	397.8	270.9	207.0	168.3	141.3	98.1
	HDL-960	486.2	331.1	253.0	205.7	172.7	119.9
	HDL-1135	574.6	391.3	299.0	243.1	204.1	141.7
	1.75	RHDL-160	95.4	61.2	45.6	36.6	30.9
RHDL-215		127.2	81.6	60.8	48.8	41.2	28.4
RHDL-270		159.0	102.0	76.0	61.0	51.5	35.5
RHDL-375		222.6	142.8	106.4	85.4	72.1	49.7
RHDL-500		286.2	183.6	136.8	109.8	92.7	63.9
HDL-260		156.3	101.7	75.9	61.2	51.3	35.1
HDL-350		208.4	135.6	101.2	81.6	68.4	46.8
HDL-440		260.5	169.5	126.5	102.0	85.5	58.5
HDL-610		364.7	237.3	177.1	142.8	119.7	81.9
HDL-785		468.9	305.1	227.7	183.6	153.9	105.3
HDL-960		573.1	372.9	278.3	224.4	188.1	128.7
HDL-1135		677.3	440.7	328.9	265.2	222.3	152.1

All ratings conform to IEEE 485.  
For complete rating information, please refer to brochure 12-376-AMP.

### POWERCOM DIVISION

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## Module Specifications

Design a system using these standard building blocks. We offer you the flexibility to:

- ★ Stack modules 8 tiers high
- ★ Mount modules in relay racks (19", 23", 30")
- ★ Mount relay rack on top of modules
- ★ Choose module width to meet floor loading or height requirements

Module Building Blocks	No. of cells	Volts	8-Hour capacity (Ampere hours)	Width in (mm)	Height* in (mm)	Depth** in (mm)	Weight*** in (mm)	
6-RHDL-160†	6	12	170	21.2 (538)	16.95 (430.5)		280 (127)	
4-RHDL-215†	4	8	225	18.3 (465)			236 (107)	
6-RHDL-215	6	12	225	25.9 (658)			343 (156)	
4-RHDL-270†	4	8	280	21.2 (538)			277 (126)	
6-RHDL-270	6	12	280	30.2 (767)			405 (184)	
3-RHDL-375†	3	6	390	21.2 (538)			272 (124)	
4-RHDL-375	4	8	390	27.0 (686)			356 (161)	
6-RHDL-375	6	12	390	39.0 (991)			523 (237)	
3-RHDL-500	3	6	495	26.1 (663)			340 (155)	
4-RHDL-500	4	8	495	33.2 (843)			435 (198)	
6-HDL-260†	6	12	275	21.4 (544)			9.9 (251.5)	415 (187)
4-HDL-350†	4	8	370	18.5 (470)				360 (163)
6-HDL-350	6	12	370	26.1 (663)				525 (238)
4-HDL-440†	4	8	460	21.4 (544)	430 (194)			
6-HDL-440	6	12	460	30.4 (772)	630 (284)			
3-HDL-610†	3	6	640	21.4 (544)	430 (194)			
4-HDL-610	4	8	640	27.3 (693)	565 (255)			
6-HDL-610	6	12	640	39.3 (998)	830 (374)			
3-HDL-785	3	6	825	26.1 (663)	530 (239)			
4-HDL-785	4	8	825	33.2 (843)	700 (315)			
3-HDL-960	3	6	1010	30.4 (772)	630 (284)			
4-HDL-960	4	8	1010	39.3 (998)	830 (374)			
3-HDL-1135	3	6	1190	34.4 (874)	730 (329)			
4-HDL-1135††	4	8	1190	45.5 (1156)	970 (440)			

\* Add 4.9 inches (4.4" for RHDL), the height of the channel base for total stack height. A reduced height (2.5" tall) base is available as an option.

\*\* Depth includes clear faceplate over terminal connections.

\*\*\* Add channel base weight of 34 lbs (15.3 kgs) to 55 lbs (25 kgs) depending on width.

† These modules can be installed in a 23" relay rack. Allow 4", the height of the rack base, for the total stack height.

†† Stack height is limited to six modules.

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