

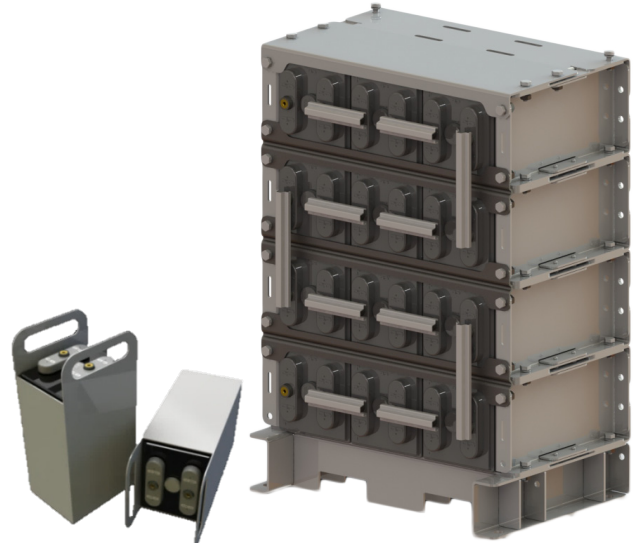


Liberty[®] MSE

THE LIBERTY MSE 50 SERIES FLOAT SERVICE BATTERY

For Standby Power Applications

The Liberty MSE features the latest battery technology in a space efficient, cost effective package. MSE technology provides for low operating float current and resulting unmatched operational life.



Modular systems & single jacketed cells available

APPLICATIONS

- Network Operation Centers
- Central Offices
- Manufacturing Facilities
- Emergency 911 Response Centers
- Industrial Process Controls
- Mobile Switching Centers
- Wireless Sites
- Wireline Sites
- Broadband Headend
- Microwave Sites
- Emergency Lighting Systems

FEATURES & BENEFITS

ADVANCED SYSTEM FEATURES

- Modular design for ease of installation and stacking flexibility
- Reduced system hardware for rapid installation
- Space saving design for the greatest amount of power in a small footprint
- Meets IBC and UBC seismic requirements
- Tin-plated copper alloy connectors minimize maintenance
- Advanced micro-porous Absorbent Glass Mat 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
- Flame retardant, UL94V0/28% LOI is optional
- Non-Spillable design is classified as non-hazardous for any mode of transportation (land, air and water)

- 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 performance

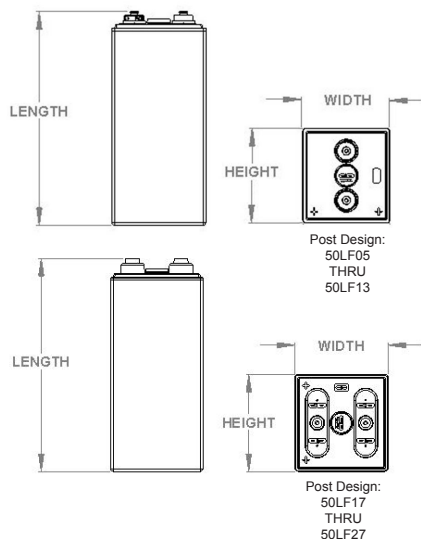
ADVANCED SERVICE LIFE & WARRANTY

- Proprietary cell design and manufacturing process provides for 20 year design life and documented long-lasting MSE technology 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

DIMENSIONS



Liberty MSE Model	Height		Width		Length		Weight	
	inches	mm	inches	mm	inches	mm	lbs	kg
50LF05	6.19	157	2.00	51	13.96	355	18	8.2
50LF09			3.50	89			29	13.2
50LF13			5.00	127			42	19.1
50LF17	6.50	165	6.25	159	14.23	361	56	25.4
50LF19	7.25	184					61	27.7
50LF21	8.00	203					68	30.8
50LF23	8.75	222					74	33.6
50LF25	9.50	241					80	36.6
50LF27	10.25	260					90	40.8
50LF29	11.00	279					96	43.5
50LF31	11.75	299					103	46.7
50LF33	12.50	318					108	49.0

SPECIFICATIONS

Cells, Voltage per unit	1 cell, 2 VDC
Typical Operating Temperature	77°F (25°C)
Connection Torque	110 in-lbs (12.4 N-m)
Recommended float charging voltage	2.25 - 2.27 Volts per cell @ 77°F (25°C)
Recommended cycle service voltage	2.35 - 2.40 Volts per cell @ 77°F (25°C)
Recommended charging current limit	6 x I10 w/voltage limit of 2.40 Volts per cell @ 77°F (25°C)
Charger temperature compensation (not recommended for cycle service)	-2mV/cell/°F above 77°F (25°C) +2mV/cell/°F below 77°F (25°C)

DISCHARGE RATINGS

Hours	Amperes to 1.75 VPC @ 77°F (25°C)									
	1	2	4	5	6	8	10	12	20	24
50LF05	54.1	34.2	20.6	17.5	15.3	12.4	10.6	9.2	6.2	5.3
50LF09	112.9	71.6	42.4	35.8	31.1	24.9	20.9	18.0	11.7	10.0
50LF13	169.3	107.6	63.6	53.7	46.7	37.4	31.3	27.0	17.6	15.0
50LF17	225.7	143.5	84.8	71.6	62.3	49.8	41.8	36.0	23.5	20.0
50LF19	253.9	161.4	95.4	80.6	70.1	56.1	47.0	40.5	26.4	22.5
50LF21	282.1	179.4	106.0	89.5	77.9	62.3	52.2	45.0	29.3	25.0
50LF23	310.3	197.3	116.6	98.5	85.7	68.5	57.4	49.5	32.2	27.5
50LF25	338.6	215.3	127.2	107.4	93.4	74.8	62.6	54.0	35.2	30.0
50LF27	366.8	233.2	137.8	116.4	101.2	81.0	67.9	58.5	38.1	32.5
50LF29	375.2	238.6	141.0	119.0	103.6	82.9	69.4	59.9	39.0	33.3
50LF31	402.0	255.6	151.1	127.5	111.0	88.8	74.4	64.2	41.8	35.6
50LF33	428.8	272.7	161.1	136.0	118.4	94.7	79.3	68.4	44.6	38.0

*All ratings are subject to change by C&D Technologies, Inc.

MODULE CONFIGURATIONS

Module Type	Volts	Nominal Ah Capacity (8 hr)	Stacking Dimensions						Module Weight	
			Width		Height*		Depth**		lbs	kg
			in	mm	in	mm	in	mm		
12-50LF05	24	100	16.84	428	13.07	332	13.69	348	257	117
12-50LF09	24	200	25.78	655					410	186
12-50LF13	24	300	34.78	883					586	266
3-50LF17	6	400	21.91	557	6.88	175	16.08	408	212	96
4-50LF17	8	400	28.25	718					275	125
3-50LF19	6	450	21.91	557	7.63	194			294	133
4-50LF19	8	450	28.25	718					226	103
3-50LF21	6	500	21.91	557	8.38	213			249	112
4-50LF21	8	500	28.25	718					325	147
3-50LF23	6	550	21.91	557	9.13	232			266	121
4-50LF23	8	550	28.25	718					348	158
3-50LF25	6	600	21.91	557	9.88	251			290	132
4-50LF25	8	600	28.25	718					376	171
3-50LF27	6	650	21.91	557	10.63	270			318	144
4-50LF27	8	650	28.25	718					416	189
3-50LF29	6	700	21.91	557	11.38	289	336	152		
4-50LF29	8	700	28.25	718			439	199		
3-50LF31	6	750	21.91	557	12.13	308	358	162		
4-50LF27	8	750	28.25	718			469	213		
3-50LF33	6	800	21.91	557	12.88	327	378	171		
4-50LF27	8	800	28.25	718			494	224		

*Height does not include base. Typical base height is 4.00" (102 mm)

** Depth does not include terminal protection. Typical terminal protection adds 0.50" (12.7 mm)

SINGLE CELL TRAY DIMENSIONS



Liberty MSE Model	Height		Width		Length		Weight	
	in	mm	in	mm	in	mm	lbs	kg
50LF05	17.12	435	2.20	56	6.37	162	23	10
50LF09			3.69	94			35	16
50LF13			5.19	132			48	22
50LF17	17.13	435	6.78	172	6.58	167	69	31
50LF19			7.53	191			74	34
50LF21			8.28	210			82	37
50LF23			9.03	229			89	40
50LF25			9.78	248			95	43
50LF27			10.53	267			106	48
50LF29	11.34	288	118	53				
50LF31	6.64	169	12.09	307	126	57		
50LF33			12.84	326	131	60		

*All dimensions are subject to change by C&D Technologies, Inc.

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