



# C&D MSE SERIES

## VRLA BATTERY

### For Stand-by Applications



#### PRODUCT HIGHLIGHTS

- The C&D MSE series is the latest advancement in battery technology. Using the proven 20 years MsEndur II technique and manufacturing processes, an economic version of 20 years battery life in float application with enhanced feature for Telecom, UPS and Switchgear & Control applications.
- The C&D MSE series of batteries are specially designed with high energy density suitable for both high rate discharge UPS applications as well as long backup time Telecom Applications.
- The cells can be installed in Upright or Horizontal orientation, flexible to meet any battery room dimensions and floor loading.
- With its much lower float current, the C&D MSE yields significant electrical costs savings over its life making it more environmentally friendly than other 2V VRLA batteries.

#### APPLICATIONS

- Wireless
- Wireline
- Center Office
- Mobile Switching Centers
- PBX Systems
- Microwave
- Broadband Headend
- Network Operation Centers
- Data Centers

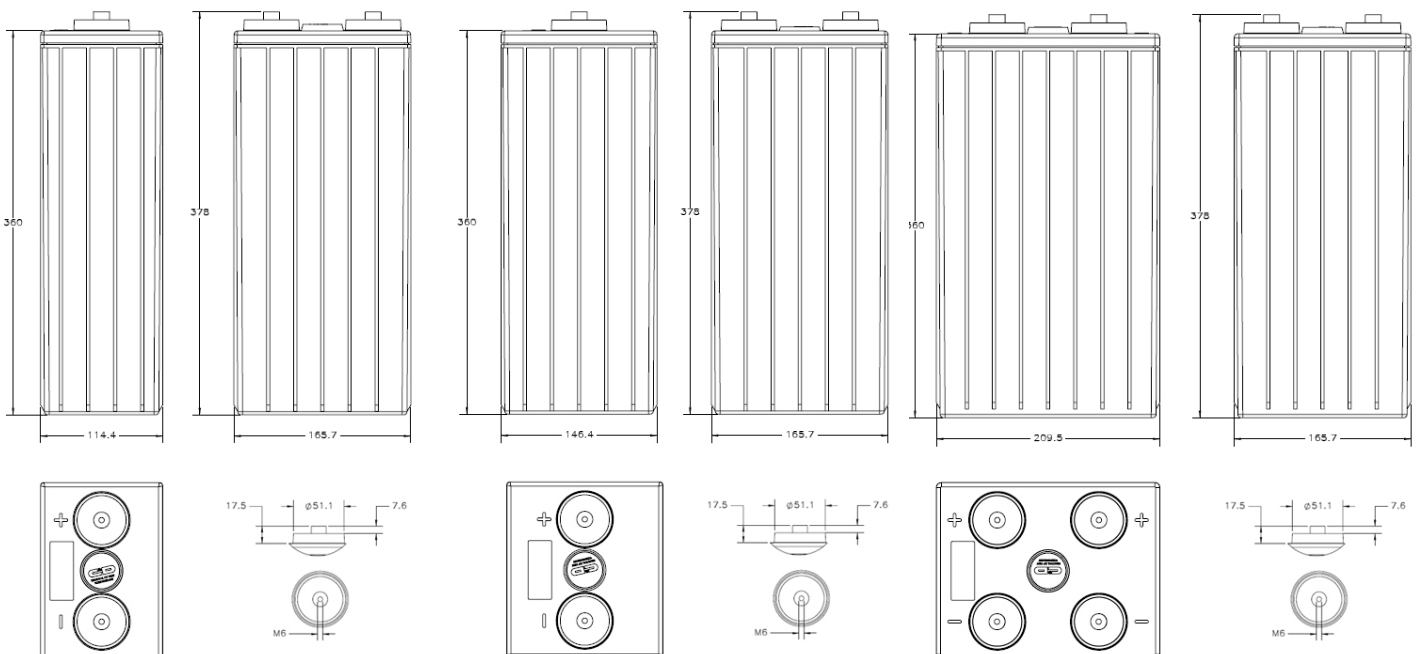
#### FEATURES & BENEFITS

- High energy density, space saving design for greatest amount of power in small footprint.
- New terminal design for ease of maintenance readings.
- Advanced micro-porous Absorbed Glass Mat separators for ultra-low float current reduce grid corrosion for long, usable service life.
- Proprietary positive grid alloy to minimize positive grid corrosion and growth in float application and to increase cycling capability - Maximize battery life.
- Robust polypropylene container and cover enhances product quality and improves strength of materials for safe operation with flammability rating UL94-V0, LOI>28%
- Thermally welded case-to-cover bond to eliminate leakage.
- High efficient, proprietary plate processing for high utilization of active material - results in high energy density and low float current.
- 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.
- Proprietary cell design and manufacturing process provides for 20 years design life in float application and documented long-lasting service life.
- Industry leading warranty

## SPECIFICATIONS

Model	MSE-200	MSE-300	MSE-400	MSE-500	MSE-600
Volt Per Unit (Volts)	2V				
Nominal Capacity,C8 to 1.75v/c @ 25°C	200	300	400	500	600
Number of Terminals	2	2	2	4	4
Alloy	Pb-Ca-Sn				
Recommended Operation Temperature	25°C				
Design Life	20 years, @ 25°C, Floating operation				
Recommended Float Charge Voltage	2.25 to 2.27 VPC @ 25°C				
Recommended Compensation Temperature/Voltage	Below 25°C, +3.6mV/°C; Above 25°C, -3.6mV/°C				
Depth(mm)	378				
Width(mm)	165.7				
Height(mm)	114.4	114.4	146.4	209.5	209.5
Weight(Kg)	13	18	23	30	33.5
Container and Cover Materials	Flame Retardant PP, UL94-V0, LOI > 28%				
Terminal Hardware Initial Torque	12 N-m				
Terminal hardware Annual Torque	10 N-m				

## DIMENSIONS

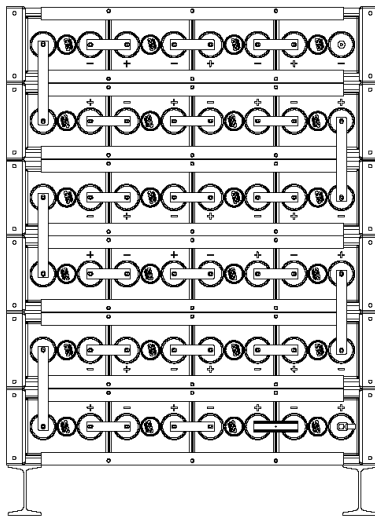


**MSE-200, MSE-300**

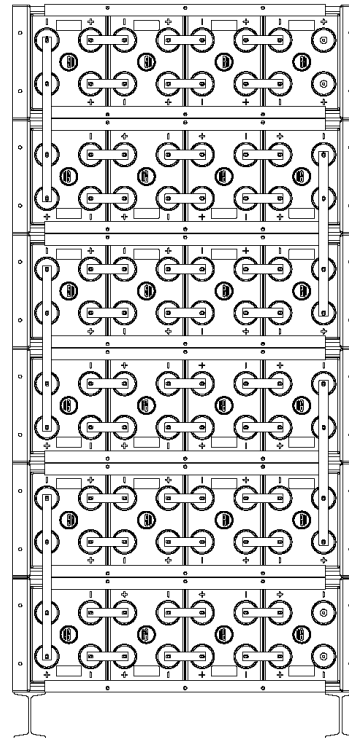
**MSE-400**

**MSE-500, MSE-600**

## Battery Mounted Schematics



MSE-200, MSE-300, MSE-400



MSE-500, MSE-600

## Constant Current Discharge Ratings - Amperes @ 77°F (25°C)

EPV	Model	1min	5min	10min	15min	20min	30min	45min	1hr	2hr	3hr	5hr	8hr
1.75	MSE-600	662.1	629.1	588.6	549.7	513.2	449.5	376.4	324.1	212.7	160.9	109.7	75
	MSE-500	551.8	524.3	490.5	458.1	427.7	374.6	313.7	270.1	177.3	134.1	91.4	62.5
	MSE-400	441.4	419.4	392.4	366.5	342.1	299.7	250.9	216.1	141.8	107.3	73.1	50
	MSE-300	331.1	314.6	294.3	274.9	256.6	224.8	188.2	162.1	106.4	80.5	54.9	37.5
	MSE-200	220.7	209.7	196.2	183.2	171.1	149.8	125.5	108.0	70.9	53.6	36.6	25.0

EPV	Model	1min	5min	10min	15min	20min	30min	45min	1hr	2hr	3hr	5hr	8hr
1.80	MSE-600	553.7	532.6	506.2	480	454.3	406.4	346.3	300.5	199.5	152.2	105.1	72.7
	MSE-500	461.4	443.8	421.8	400.0	378.6	338.7	288.6	250.4	166.3	126.8	87.6	60.6
	MSE-400	369.1	355.1	337.5	320	302.9	270.9	230.9	200.3	133	101.5	70.1	48.5
	MSE-300	276.9	266.3	253.1	240	227.2	203.2	173.2	150.3	99.8	76.1	52.6	36.4
	MSE-200	184.6	177.5	168.7	160.0	151.4	135.5	115.4	100.2	66.5	50.7	35.0	24.2

EPV	Model	1min	5min	10min	15min	20min	30min	45min	1hr	2hr	3hr	5hr	8hr
1.83	MSE-600	492	474.2	452.2	430.6	409.8	371.1	321.8	282.9	191.7	146.8	101.6	70.2
	MSE-500	410.0	395.2	376.8	358.8	341.5	309.3	268.2	235.8	159.8	122.3	84.7	58.5
	MSE-400	328	316.1	301.5	287.1	273.2	247.4	214.5	188.6	127.8	97.9	67.7	46.8
	MSE-300	246	237.1	226.1	215.3	204.9	185.6	160.9	141.5	95.9	73.4	50.8	35.1
	MSE-200	164.0	158.1	150.7	143.5	136.6	123.7	107.3	94.3	63.9	48.9	33.9	23.4

EPV	Model	1min	5min	10min	15min	20min	30min	45min	1hr	2hr	3hr	5hr	8hr
1.85	MSE-600	450.5	435.2	416.3	398	380.4	347.5	305.1	270.7	186.4	143.3	99.2	68.5
	MSE-500	375.4	362.7	346.9	331.7	317.0	289.6	254.3	225.6	155.3	119.4	82.7	57.1
	MSE-400	300.3	290.1	277.5	265.3	253.6	231.7	203.4	180.5	124.3	95.5	66.1	45.7
	MSE-300	225.3	217.6	208.2	199	190.2	173.8	152.6	135.4	93.2	71.7	49.6	34.3
	MSE-200	150.2	145.1	138.8	132.7	126.8	115.8	101.7	90.2	62.1	47.8	33.1	22.8

## Constant Power Discharge Ratings Watts Per Cell @ 77°F (25°C)

EPV	Model	1min	5min	10min	15min	20min	30min	45min	60min
1.65	MSE-600	1444.0	1376.0	1276.0	1163.0	1052.0	893.0	0.0	0.0
	MSE-500	1203.3	1146.7	1063.3	969.2	876.7	744.2	0.0	0.0
	MSE-400	962.7	917.3	850.7	775.3	701.3	595.3	0.0	0.0
	MSE-300	722.0	688.0	638.0	581.5	526.0	446.5	0.0	0.0
	MSE-200	481.3	458.7	425.3	387.7	350.7	297.7	0.0	0.0

EPV	Model	1min	5min	10min	15min	20min	30min	45min	60min
1.67	MSE-600	1396.0	1318.0	1217.0	1115.0	1020.0	866.0	717.0	622.0
	MSE-500	1163.3	1098.3	1014.2	929.2	850.0	721.7	597.5	518.3
	MSE-400	930.7	878.7	811.3	743.3	680.0	577.3	478.0	414.7
	MSE-300	698.0	659.0	608.5	557.5	510.0	433.0	358.5	311.0
	MSE-200	465.3	439.3	405.7	371.7	340.0	288.7	239.0	207.3

EPV	Model	1min	5min	10min	15min	20min	30min	45min	60min
1.70	MSE-600	1309.0	1244.0	1158.0	1072.0	990.0	851.0	709.0	616.0
	MSE-500	1090.8	1036.7	965.0	893.3	825.0	709.2	590.8	513.3
	MSE-400	872.7	829.3	772.0	714.7	660.0	567.3	472.7	410.7
	MSE-300	654.5	622.0	579.0	536.0	495.0	425.5	354.5	308.0
	MSE-200	436.3	414.7	386.0	357.3	330.0	283.7	236.3	205.3

EPV	Model	1min	5min	10min	15min	20min	30min	45min	60min	90min	2hr	3hr	5hr	8hr
1.75	MSE-600	1164.0	1113.0	1049.0	988.0	929.0	825.0	701.0	609.0	485.0	407.0	311.0	214.0	148.0
	MSE-500	970.0	927.5	874.2	823.3	774.2	687.5	584.2	507.5	404.2	339.2	259.2	178.3	123.3
	MSE-400	776.0	742.0	699.3	658.7	619.3	550.0	467.3	406.0	323.3	271.3	207.3	142.7	98.7
	MSE-300	582.0	556.5	524.5	494.0	464.5	412.5	350.5	304.5	242.5	203.5	155.5	107.0	74.0
	MSE-200	388.0	371.0	349.7	329.3	309.7	275.0	233.7	203.0	161.7	135.7	103.7	71.3	49.3

EPV	Model	1min	5min	10min	15min	20min	30min	45min	60min	90min	2hr	3hr	5hr	8hr
1.80	MSE-600	1001.0	966.0	922.0	879.0	836.0	757.0	654.0	573.0	461.0	387.0	297.0	206.0	143.0
	MSE-500	834.2	805.0	768.3	732.5	696.7	630.8	545.0	477.5	384.2	322.5	247.5	171.7	119.2
	MSE-400	667.3	644.0	614.7	586.0	557.3	504.7	436.0	382.0	307.3	258.0	198.0	137.3	95.3
	MSE-300	500.5	483.0	461.0	439.5	418.0	378.5	327.0	286.5	230.5	193.5	148.5	103.0	71.5
	MSE-200	333.7	322.0	307.3	293.0	278.7	252.3	218.0	191.0	153.7	129.0	99.0	68.7	47.7

\* All data shall be changed without prior notice, C&D reserves the right to explain and update the information contained hereinto.