

MSB ULTRA

LIFE EXPECTANCY OF UP TO 12 YEARS

Maintenance-Free Rechargeable Battery

GEL
TECHNOLOGY



IEC 896-2: 1995



M-B Gel Sealed VRLA Batteries

M-B ULTRA GEL series of valve regulated gelled flat plate batteries are designed to provide a long life and maintenance free power for various standby applications. The thick positive plates ensures long life and improves cycling abilities.

Applications

- UPS standby
- Telecommunications
- Emergency Lighting
- Solar
- Electric Vehicle/ Cycles/ Wheelchair
- Navigational Aids
- Electric Gates

Features

- Sealed
- Gel Electrolyte
- Spill proof
- High Impact Containers
- Float/ Cycle Use
- Low self discharge

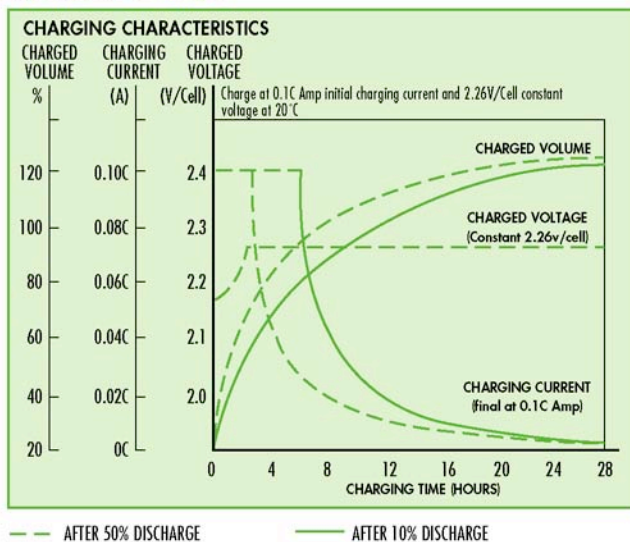
Charging

Recommended charging by constant potential current limited is preferred. Other charging methods can be applied but 'close monitor' of current, voltage and time is required. Float charging setting is dependent on operating temperature as per below.

20- 25°C	13.5 VPC
25 - 35°C	13.38 VPC
Above 35°C	13.26 VPC

For 'Cyclic Applications', a higher charge intensity of 14.1 ~ 14.7 VPC is recommended to maintain the battery. A higher initial current of 0.3C(Amps) is also required.

Cyclic use-recharge



Specifications

- Voltage : 6 & 12 Volts Mono Blocks
- Plate : Flat Plate Lead Calcium/ Tin
- Electrolyte: Sulphuric Acid Thixotropic GEL
- Terminal : Brass/ Copper inserts for both positive & negative terminals
- Container : High Impact Flame Retardant ABS. FV'O' can be supplied on request

Construction

The battery uses sulphuric acid which is immobilized with fumed silica (thickening agent) to form a special gelled mixture. Thus, if the battery container is cracked, the battery will still continue to function. Moreover the thickening agent prevents stratification by preventing the movement of electrolyte. Furthermore, the container is fully sealed thereby allowing the battery to be used in a vertical or horizontal* position.

Valve Regulated Gas Recombination System

The battery uses the gas recombination system whereby gases evolved are recombined internally during normal operations. This recombination is controlled by the safety release rubber valve which will only open when internal pressures exceeds 4 ~ 5 p.s.i. during 'overcharge' and automatically re-closes when internal pressures drops to less than 1 p.s.i. The design of the internal top cover and the design + position of the valve prevents any ingress from an external source which may be harmful to the operation of the battery.

Operation Temperature Range/life Expectancy

The standard thick positive plates ensures long life and cycling capabilities however high temperatures will affect its life tremendously. The operating temperature should not exceed 50°C. Preferred operating temperature are between 20 ~ 30°C. Battery life is affected by high ambient operating temperatures where every 10°C increase will halve the life of the battery.

The thick positive plate enhances life expectancy of up to 12 years @ 20°C

Cycling Performance

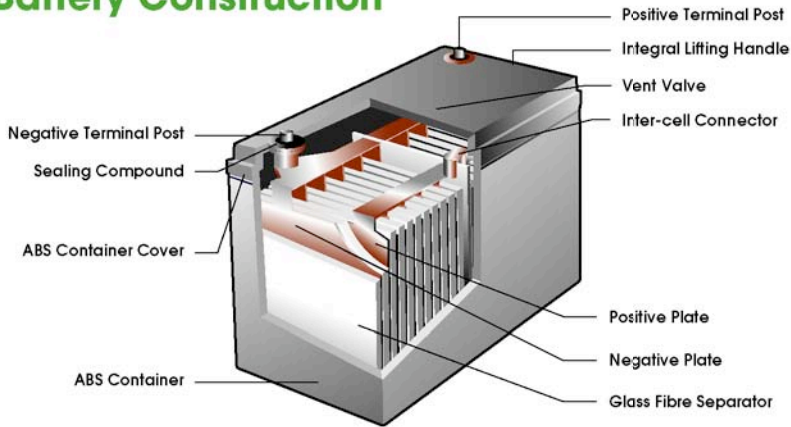
The battery performs credibly in cycling applications with more than 3000 charge/ discharge cycles depending on the discharge rate, end voltage and depth of discharge.

Typical Cyclic Performance

CAPACITY TAKEN	CYCLES (6/12V)
100%	200/300
80%	400/500
50%	600/700
20%	1500/2000

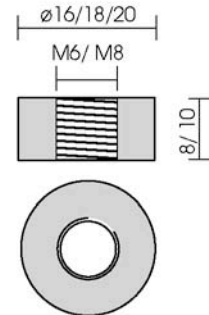
* Please refer to manufacturer

Battery Construction



Standard Terminal(mm)

Threaded Insert 6mm STUD

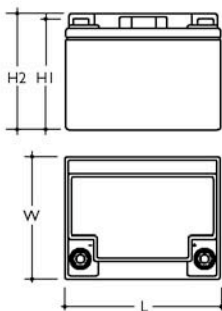


Specifications

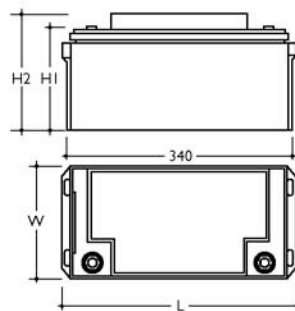
MODEL	VOLTAGE	CAPACITY @ 10hr	DIMENSIONS(mm)				WEIGHT (kg)	INT.RES	TER./HOLE SIZE
			Length(L)	Width(W)	Height (H1)	Overall Height (H2)			
MSG12-40 ULTRA	12	40	197±2	166±2	170±2	170±2	15.0	8.0mΩ	M6/16
MSG12-65 ULTRA	12	65	348±3	167±2	178±2	178±2	25.0	6.5mΩ	M6/16
MSG12-80 ULTRA	12	80	330±3	173±2	212±2	220±2	29.0	4.5mΩ	M6/16
MSG12-100 ULTRA	12	100	330±3	173±2	212±2	220±2	31.5	4.3mΩ	M6/16
MSG12-120 ULTRA	12	120	410±2	177±2	211±2	230±2	38.0	3.0mΩ	M6/16
MSG12-150 ULTRA	12	150	485±2	170±1	242±2	242±2	46.5	3.0mΩ	M6/18
MSG12-200 ULTRA	12	200	522±3	238±2	217±2	223±2	64.0	2.4mΩ	M8/20

Layout

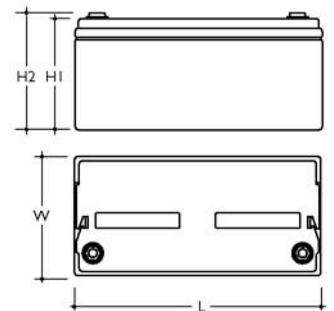
MSG12-40 ULTRA



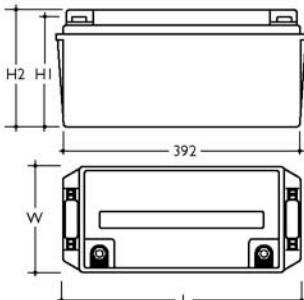
MSG12-65 ULTRA



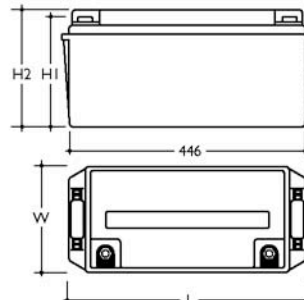
MSG12-80 ULTRA/MSG12-100 ULTRA



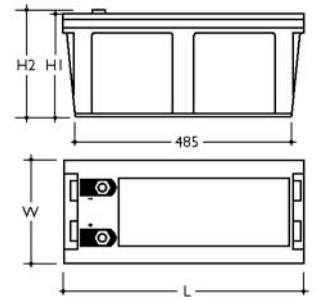
MSG12-120 ULTRA



MSG12-150 ULTRA



MSG12-200 ULTRA



Discharge Performance

Constant Current (Amps) Discharge Characteristics @ 25 °C to 1.60 volts per cell (vpc)

MODEL TIME	Rating	10 min	15 min	20 min	30 min	1 hr	2 hr	3 hr	4 hr	5 hr	8 hr	10 hr
MSG12-40	40	88.0	68.4	57.0	42.8	24.4	15.0	10.4	8.2	6.8	5.0	4.3
MSG12-65	65	143.0	111.2	92.6	69.6	39.7	24.4	16.9	13.3	11.1	8.1	7.0
MSG12-80	80	176.0	136.8	114.0	85.6	48.8	30.0	20.8	16.4	13.6	10.0	8.6
MSG12-100	100	220.0	171.0	142.5	107.0	61.0	37.5	26.0	20.5	17.0	12.5	10.8
MSG12-120	120	264.0	205.2	171.0	128.4	73.2	45.0	31.2	24.6	20.4	15.0	12.9
MSG12-150	150	330.0	256.5	213.8	160.5	91.5	56.3	39.0	30.8	25.5	18.8	16.1
MSG12-200	200	440.0	342.0	285.0	214.0	122.0	75.0	52.0	41.0	34.0	25.0	21.5

Constant Current (Amps) Discharge Characteristics @ 25 °C to 1.70 volts per cell (vpc)

MODEL TIME	Rating	10 min	15 min	20 min	30 min	1 hr	2 hr	3 hr	4 hr	5 hr	8 hr	10 hr
MSG12-40	40	76.8	59.0	53.0	40.0	24.0	14.0	10.0	7.8	6.6	4.4	4.1
MSG12-65	65	124.8	95.9	86.1	65.0	39.0	22.8	16.3	12.7	10.7	7.2	6.7
MSG12-80	80	153.6	118.0	106.0	80.0	61.6	28.0	20.0	15.6	13.2	8.8	8.2
MSG12-100	100	192.0	147.5	132.5	100.0	60.0	35.0	25.0	19.5	16.5	11.0	10.3
MSG12-120	120	230.4	177.0	159.0	120.0	72.0	42.0	30.0	23.4	19.8	13.2	12.3
MSG12-150	150	288.0	221.3	198.8	150.0	90.0	52.5	37.5	29.3	24.8	16.5	15.4
MSG12-200	200	384.0	295.0	265.0	200.0	120.0	70.0	50.0	39.0	33.0	22.0	20.5

Constant Current (Amps) Discharge Characteristics @ 25 °C to 1.80 volts per cell (vpc)

MODEL TIME	Rating	10 min	15 min	20 min	30 min	1 hr	2 hr	3 hr	4 hr	5 hr	8 hr	10 hr
MSG12-40	40	73.5	51.0	48.0	38.8	23.0	13.4	9.8	7.8	6.6	4.4	4.0
MSG12-65	65	119.4	82.9	78.0	63.1	37.4	21.8	15.9	12.7	10.7	7.2	6.5
MSG12-80	80	147.0	102.0	96.0	77.6	46.0	26.8	19.6	15.6	13.2	8.8	8.0
MSG12-100	100	183.8	127.5	120.0	97.0	57.5	33.5	24.5	19.5	16.5	11.0	10.0
MSG12-120	120	220.5	153.0	144.0	116.4	69.0	40.2	29.4	23.4	19.8	13.2	12.0
MSG12-150	150	275.6	191.3	180.0	145.5	86.3	50.3	36.8	29.3	24.8	16.5	15.0
MSG12-200	200	367.5	255.0	240.0	194.0	115.0	67.0	49.0	39.0	33.0	22.0	20.0

Discharge Performance

Constant Power (Watts) Discharge Characteristics @ 25 °C to 1.60 volts per cell (vpc)

MODEL TIME	Rating	10 min	15 min	20 min	30 min	1 hr	2 hr	3 hr	4 hr	5 hr	8 hr	10 hr
MSG12-40	40	143.2	109.2	100.0	76.0	43.2	25.0	20.8	15.2	12.8	8.4	7.4
MSG12-65	65	232.7	177.5	162.5	123.5	70.2	40.6	33.8	24.7	20.8	13.7	12.0
MSG12-80	80	286.4	218.4	200.0	152.0	86.4	50.0	41.6	30.4	25.6	16.8	14.8
MSG12-100	100	358.0	273.0	250.0	190.0	108.0	62.5	52.0	38.0	32.0	21.0	18.5
MSG12-120	120	429.6	327.6	300.0	228.0	129.6	75.0	62.4	45.6	38.4	25.2	22.2
MSG12-150	150	537.0	409.5	375.0	285.0	162.0	93.8	78.0	57.0	48.0	31.5	27.8
MSG12-200	200	716.0	546.0	500.0	380.0	216.0	125.0	104.0	76.0	64.0	42.0	37.0

Constant Power (Watts) Discharge Characteristics @ 25 °C to 1.70 volts per cell (vpc)

MODEL TIME	Rating	10 min	15 min	20 min	30 min	1 hr	2 hr	3 hr	4 hr	5 hr	8 hr	10 hr
MSG12-40	40	136.4	97.8	90.4	70.3	39.6	24.6	18.9	14.0	11.6	7.8	7.0
MSG12-65	65	221.7	158.9	146.9	114.2	64.4	40.0	30.7	22.8	18.9	12.7	11.4
MSG12-80	80	272.8	195.6	180.8	140.6	79.2	49.2	37.8	28.0	23.3	15.6	14.0
MSG12-100	100	341.0	244.5	226.0	175.7	99.0	61.5	47.3	35.0	29.1	19.5	17.5
MSG12-120	120	409.2	293.4	271.2	210.8	118.8	73.8	56.8	42.0	34.9	23.4	21.0
MSG12-150	150	511.5	366.8	339.0	263.6	148.5	92.3	71.0	52.5	43.7	29.3	26.3
MSG12-200	200	682.0	489.0	452.0	351.4	198.0	123.0	94.6	70.0	58.2	39.0	35.0

Constant Power (Watts) Discharge Characteristics @ 25 °C to 1.80 volts per cell (vpc)

MODEL TIME	Rating	10 min	15 min	20 min	30 min	1 hr	2 hr	3 hr	4 hr	5 hr	8 hr	10 hr
MSG12-40	40	121.2	87.2	82.0	66.4	37.6	23.6	17.2	13.4	10.9	7.3	6.8
MSG12-65	65	197.0	141.7	133.3	107.9	61.1	38.4	28.0	21.8	17.7	11.9	11.1
MSG12-80	80	242.4	174.4	164.0	132.8	75.2	47.3	34.4	26.8	21.8	14.7	13.6
MSG12-100	100	303.0	218.0	205.0	166.0	94.0	59.1	43.0	33.5	27.2	18.3	17.0
MSG12-120	120	363.6	261.6	246.0	199.2	112.8	70.9	51.6	40.2	32.6	22.0	20.4
MSG12-150	150	454.5	327.0	307.5	249.0	141.0	88.7	64.5	50.3	40.8	27.5	25.5
MSG12-200	200	606.0	436.0	410.0	332.0	188.0	118.2	86.0	67.0	54.4	36.7	34.0

MSB ULTRA



DP/ACC/12V Ultra(GE1)/11-08