



## VRLA Rechargeable Battery

# HRL50-12 (HRL50-12FR)

### FEATURES

- Maintenance free(no water topping-up required)
- No free acid(Non-spillable battery)
- Can be used in any orientation(excluding used inverted)
- The battery is designed for high rate usage
- Long life expectancy up to 10 years in float application
- Absorbent Glass Mat technology for efficient gas recombination
- The power density at 5 min~15min discharging rate is 30% higher than BP series

### APPLICATION

- UPS
- Wheelchairs
- Medical Equipments
- Golf-Carts
- Wind Power
- Jump Starter



### SPECIFICATIONS

Nominal Voltage	12V	
Nominal Capacity	10 Hour Rate (4800mA, 10.5V)	48.0 Ah
	15 Min Rate (1200W, 7.8V)	25.0 Ah
Approx. Weight	15.3Kg(33.74lbs.)	
Terminals	B2 (Fitting bolt & nut) , I1 and I2 are optional	
Max. Discharge Current	600 A (5 sec.)	
Max. Charge Current	14.4 A	
Operating Temperature Range	Charge	0°C~40°C(32°F~104°F)
	Discharge	-20°C~50°C(-4°F~122°F)
	Storage	-20°C~40°C(-4°F~104°F)
Self Discharge	< 3% per month (25°C)	
Internal Resistance	≤ 5m Ω (Fully Charged)	

### CONTAINER MATERIAL

- HRL50-12:  
ABS: UL 94-HB (Dark gray color)
- HRL50-12FR:  
ABS: UL 94-V0 (Light gray color)

ISO 9001

ISO14001

CE

- IEC 61056-1
- JIS C 8702-1
- GB/T 19639.1

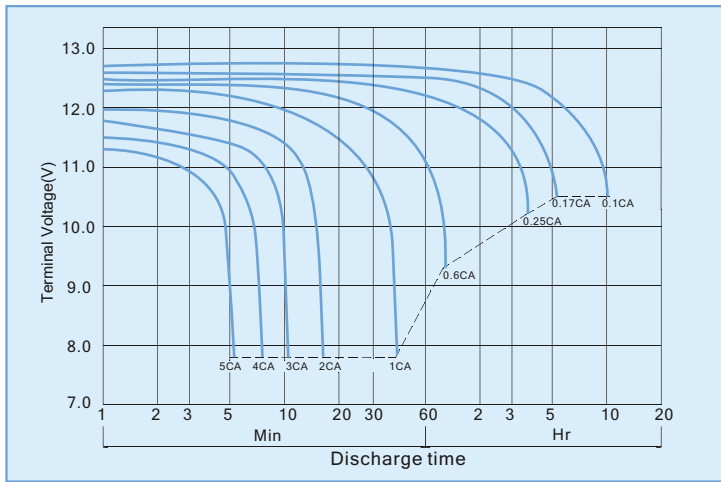
OUTER DIMENSIONS mm(inch)	Length (L)	Width (W)	Container Height (H)	Total Height (TH)
		197±1.5(7.76±0.06)	165±1.5(6.50±0.06)	171±1.5(6.73±0.06)

### TERMINAL TYPE

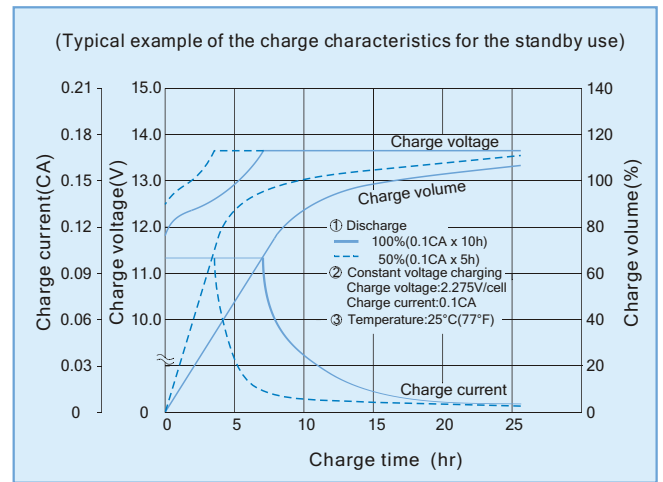
- Terminal B2: [M5 BOLT & NUT] with dimensions 15.0(0.59), 5.2(0.20), 7.5(0.30), 17.0(0.67), 5.5(0.22)
- Terminal I1: [M5 BOLT & NUT] with dimensions 2.0(0.08), M5x0.8
- Terminal I2: [M6 BOLT] with dimensions 2.0(0.08), M6x1.0

Terminal Hardware Initial Torque:  
B2/I1(4.0Nm±5%),I2(5.5Nm±5%)

### HRL50-12 (HRL50-12FR) discharge characteristics (25°C /77°F)



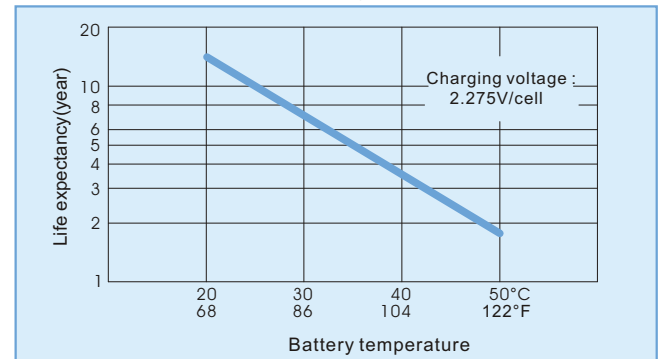
### Battery Charging Characteristics



### Charging Procedure

Application	Charging method	Charging Voltage at 25°C (V/cell)	Temperature compensation coefficient of charging voltage (mV/°C /cell)	Max. charging current (CA)	Charging time 0.1CA, 25°C (h)		Temp (°C)
					100% discharge	50% discharge	
For standby power Source	Constant voltage & Constant current charging (with current restriction)	2.25~2.30	-3	0.3	24	20	0~40 (32~104°F)
For cycle service					16	10	

### Effect Of Temperature On Long Term Float Life



### Constant power discharge characteristics at 25 °C/77 °F Unit: W

F.V. (V/cell) \ Discharge Time	5 Min	10 Min	15 Min	20 Min	30 Min	40 Min	50 Min	60 Min	120 Min
1.80V	2050.0	1400.0	1014.0	865.0	658.0	500.0	418.0	368.0	202.8
1.70V	2450.0	1563.0	1103.0	916.0	685.0	519.0	431.0	376.0	206.7
1.60V	2625.0	1644.0	1153.0	950.0	700.0	531.0	440.0	383.0	210.0
1.50V	2700.0	1675.0	1178.0	965.0	709.0	538.0	445.0	386.0	211.1
1.40V	2750.0	1698.0	1191.0	974.0	714.0	541.0	449.0	389.0	211.7
1.30V	2775.0	1713.0	1200.0	980.0	718.0	544.0	451.0	390.0	212.2

### Constant current discharge characteristics at 25 °C/77 °F Unit: A

F.V. (V/cell) \ Discharge Time	5 Min	10 Min	15 Min	20 Min	30 Min	40 Min	50 Min	60 Min	120 Min
1.80V	183.04	122.81	87.72	74.19	55.76	42.05	34.98	30.67	16.90
1.70V	222.73	137.11	95.42	78.56	58.05	43.65	36.07	31.33	17.23
1.60V	238.64	144.21	99.74	81.48	59.32	44.66	36.82	31.92	17.50
1.50V	245.45	146.93	101.90	82.76	60.08	45.25	37.24	32.17	17.59
1.40V	250.00	148.95	103.03	83.53	60.51	45.50	37.57	32.42	17.64
1.30V	252.27	150.26	103.81	84.05	60.85	45.75	37.74	32.50	17.68

All data shall be changed without prior notice, BB reserves the right to explain and update the information contained herein.

Trials A/0 REV. Dec. 2010

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