



VRLA Rechargeable Battery

HRL33-12 (HRL33-12FR)

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
- Electronic Medical Equipment
- Wheelchairs
- Golf-Carts
- Lawn Mowers
- Wind Power



SPECIFICATIONS

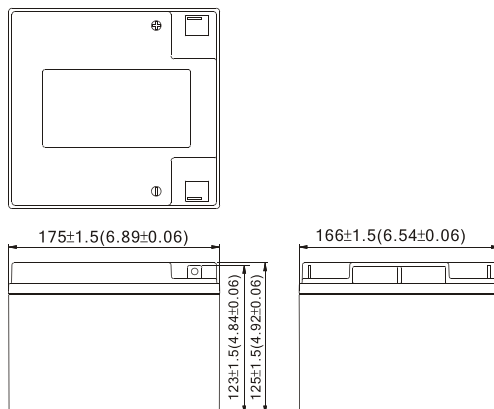
Nominal Voltage	12V	
Nominal Capacity	10 Hour Rate (3100mA, 10.5V)	31.0 Ah
	15 Min Rate (792W, 7.8V)	16.5 Ah
Approx. Weight	10.0Kg(22.05lbs.)	
Terminals	B1 (Fitting M5 bolt & nut) , T2 and I1 are optional	
Max. Discharge Current	420 A (5 sec.)	
Max. Charge Current	9.30 A	
Operating Temperature Range	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	≤ 7mΩ (Fully Charged)	

CONTAINER MATERIAL

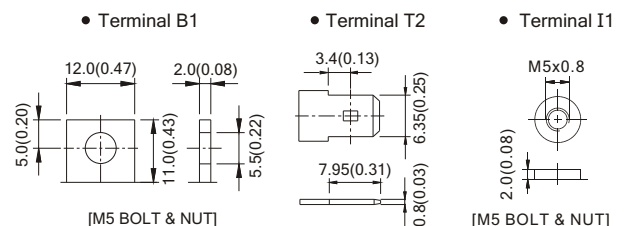
- HRL33-12:
ABS: UL 94-HB (Dark gray color)
- HRL33-12FR:
ABS: UL 94-V0 (Light gray color)

 ISO 9001	 ISO 14001
 CE <small>C4M20310-2474-E-16</small>	
<ul style="list-style-type: none"> ● 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)
	175±1.5(6.89±0.06)	166±1.5(6.54±0.06)	123±1.5(4.84±0.06)	125±1.5(4.92±0.06)

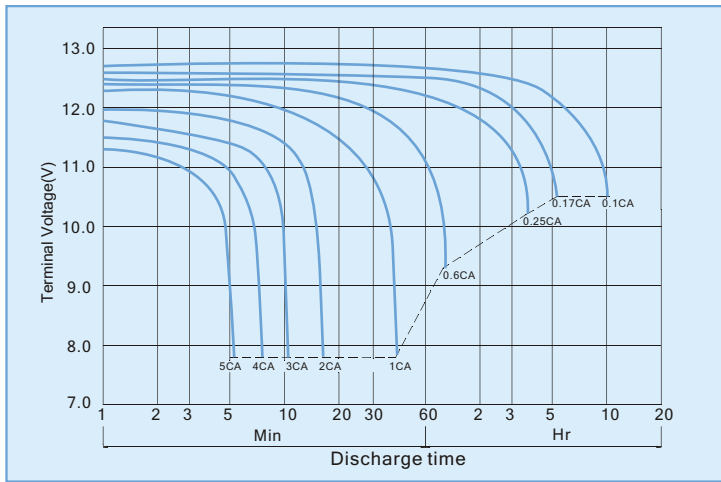


TERMINAL TYPE

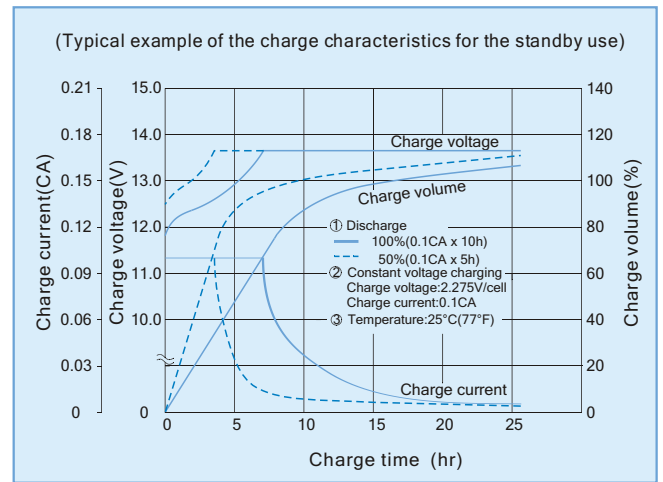


Terminal Hardware Initial Torque:
 B1(2.5Nm±5%),I1(4.0Nm±5%)

HRL33-12 (HRL33-12FR) discharge characteristics (25°C /77°F)



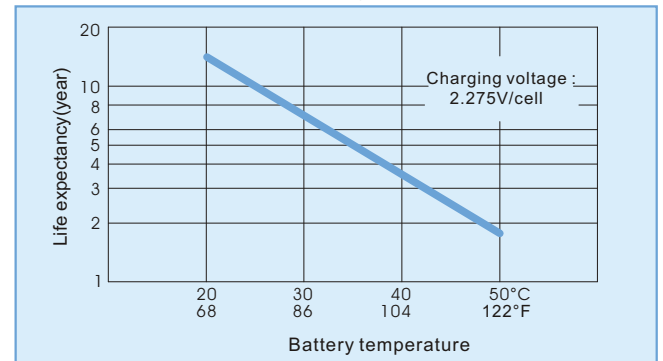
Battery Charging Characteristics



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	1353.0	924.0	669.0	571.0	434.0	330.0	276.0	243.0	133.8
1.70V	1617.0	1031.0	728.0	605.0	452.0	342.0	285.0	248.0	136.4
1.60V	1733.0	1085.0	761.0	627.0	462.0	351.0	290.0	252.0	138.6
1.50V	1782.0	1106.0	777.0	637.0	468.0	355.0	294.0	255.0	139.3
1.40V	1815.0	1120.0	786.0	643.0	471.0	357.0	296.0	257.0	139.7
1.30V	1832.0	1130.0	792.0	647.0	474.0	359.0	298.0	257.0	140.1

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	120.80	81.05	57.87	48.97	36.78	27.75	23.10	20.25	11.15
1.70V	147.00	90.44	62.98	51.89	38.31	28.76	23.85	20.67	11.37
1.60V	157.55	95.18	65.83	53.77	39.15	29.52	24.27	21.00	11.55
1.50V	162.00	97.02	67.21	54.63	39.66	29.86	24.60	21.25	11.61
1.40V	165.00	98.25	67.99	55.15	39.92	30.03	24.77	21.42	11.64
1.30V	166.55	99.12	68.51	55.49	40.17	30.19	24.94	21.42	11.68

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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