

# RHL45-12FR (Flame Retardant) 12 Volt, 45 Watt/Cell High Rate Industrial Battery

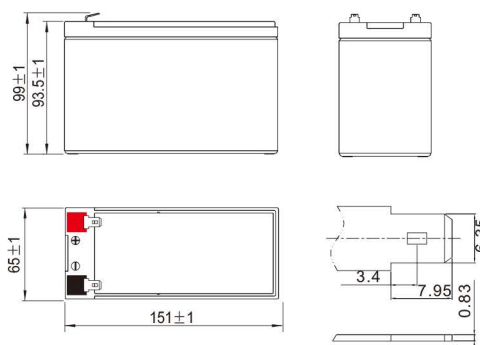
# HALLE Industrial Battery

## Features

- High Rate Industrial Battery 30% better high power discharge performance compared to conventional batteries
- Pure Lead Battery Technology improves battery theoretical lifetime
- UL 94-V0 Grade Flame Retardant Material

## Specifications

Rated Voltage	12V		
Nominal Rate ( $W_{15r}$ , 1.67V/cell)	45W		
Nominal Capacity( $C_{10}$ , 1.80V/cell)	7.8Ah		
Dimension	Length	151±1mm (5.94 inches)	
	Width	65±1mm (2.56 inches)	
	Container Height	93.5±1mm (3.68 inches)	
	Total Height	99±1mm (3.90 inches)	
Approx. Weight	2.50 Kg (5.51 lbs)		
Terminal	T2		
Container Material	ABS: UL 94 HB or V-0		
Rated Capacity (25°C)	7.81 Ah	(10hr, 0.781A, 1.80V/cell)	
	7.66 Ah	(8hr, 0.958A, 1.80V/cell)	
	7.20 Ah	(5hr, 1.44A, 1.75V/cell)	
	6.63 Ah	(3hr, 2.21A, 1.75V/cell)	
	5.46 Ah	(1hr, 5.46A, 1.67V/cell)	
Max. Discharge Current	108A		
Internal Resistance (25°C)	Approx. 20mΩ		
Operating Temp. Range	Discharge	-20 ~ 55°C (-4 ~ 131°F)	
	Charge	-20 ~ 40°C (-4 ~ 104°F)	
	Storage	-15 ~ 50°C (5 ~ 122°F)	
Recommended Operating Temperature	≤ 25°C		
Max. Charging Current(25°C)	2.00A		
Charge voltage(25°C)	Charge voltage	Temp. Coefficient	
	Float	2.25 ~ 2.30V/cell	-3mV/cell/°C
Effect of temp. to Capacity	Equalization	2.30 ~ 2.40V/cell	-4mV/cell/°C
	40°C (104°F)	106%	
	25°C (77°F)	100%	
0°C (32°F)	86%		
Self Discharge	≤3%/month @ 25°C		



## Constant Power Discharge (Watts/cell) at 25 °C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	1.5h	2h	3h	4h	5h	8h	10h
1.85V/cell	47.3	31.7	26.6	20.1	15.0	10.9	8.73	6.47	5.19	3.90	3.09	2.58	1.77	1.45
1.80V/cell	54.5	37.0	30.5	22.9	16.8	12.1	9.60	7.04	5.62	4.20	3.32	2.77	1.89	1.54
1.75V/cell	58.7	39.2	32.9	23.8	17.4	12.5	9.88	7.23	5.76	4.30	3.39	2.83	1.92	1.57
1.70V/cell	62.7	41.3	34.3	24.8	18.0	12.9	10.2	7.43	5.91	4.40	3.47	2.88	1.95	1.59
1.67V/cell	64.9	42.5	35.0	25.3	18.4	13.1	10.3	7.54	5.99	4.45	3.51	2.91	1.97	1.60
1.60V/cell	70.7	45.5	36.9	26.6	19.2	13.6	10.7	7.81	6.20	4.59	3.60	2.99	2.01	1.63

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## Applications

- UPS
- For standard power cabinet
- Network connection equipment of communication system
- Power system of special network of local area network
- Power station systems

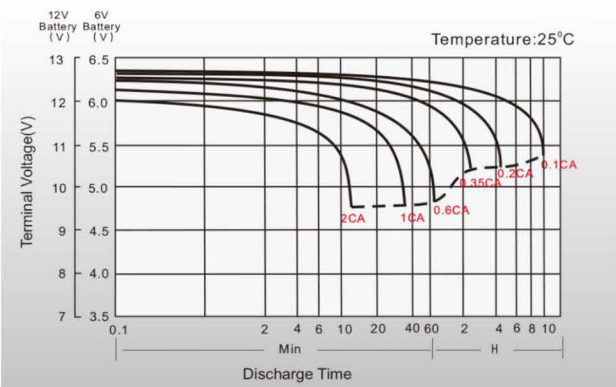
## General Features

- 5 Years design life (20°C)
- Unique vent valve design: reduce water losing and prevent air/spark going inside

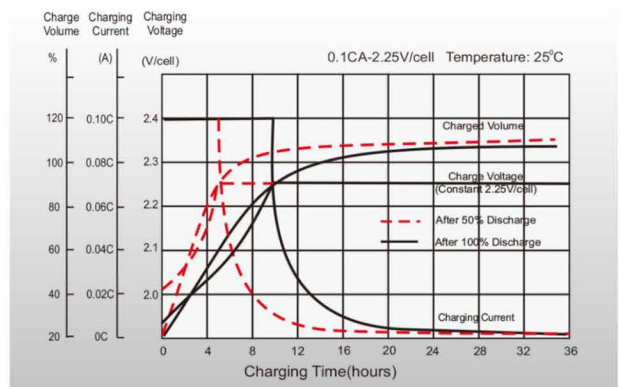
## Standards

- Compliance with IEC 60896 standards, EU Battery Directive
- UL, CE Certified
- Manufactured in IATF16949, ISO 45001, ISO 9001 and ISO 14001 certified production facilities

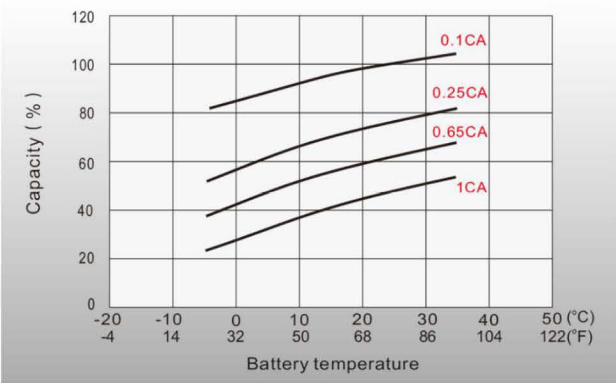
## Discharge Characteristics



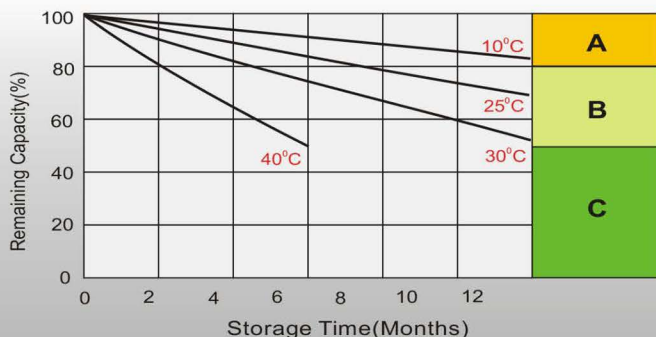
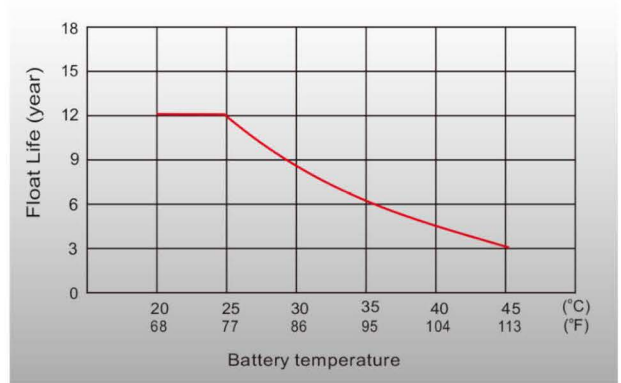
## Float Charging Characteristics



## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics

- A** No supplementary charge required  
(Carry out supplementary charge before use if 100% capacity is required.)
- B** Supplementary charge required before use. Optional charging way as below:
  1. Charged for above 3 days at limited current 0.25CA and constant voltage 2.25V/cell.
  2. Charged for above 20 hours at limited current 0.25CA and constant voltage 2.45V/cell.
  3. Charged for 8~10 hours at limited current 0.05CA .
- C** Supplementary charge may often fail to recover the capacity.  
The battery should never be left standing till this is reached.