



The world's leading battery brand



HRL SERIES-LONG LIFE BATTERIES

HRL 12450W



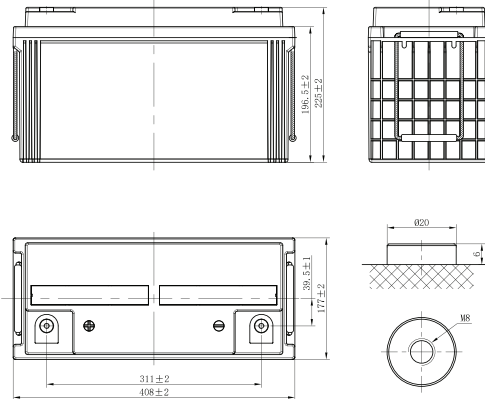
www.starmaxbatteries.com

HRL Series

HRL 12450W



LAYOUT



General Features

- ✓ **High quality AGM separator:** Extend cycle life and prevent micro short circuit
- ✓ **PbCaSn alloy for plate grids:** Less gassing, less self-discharging
- ✓ **Unique vent valve design:** Reduce water losing and prevent air/spark going inside

Applications

- ✓ UPS
- ✓ Hospitals & Testing Laboratories
- ✓ Emergency Power Supply
- ✓ Industrial Process Control Facilities
- ✓ Banks & Financial Markets
- ✓ Data & Network Operation Centers

Standards

- ✓ Compliance with IEC 60896 and YD/T 3427 standards
- ✓ Manufactured in Starmax, ISO 45001, ISO 9001 and ISO 14001 certified production facilities



SPECIFICATIONS

Rated Voltage	12V		
Nominal Rate	(W ₁₅ ,1.67V/cell)	450W/cell	
Nominal Capacity	(C ₁₀ ,1.80V/cell)	115Ah	
Dimensions	Length	408±2mm (16.1 inches)	
	Width	177±2mm (6.97 inches)	
	Container height	225±2mm (8.86 inches)	
	Total height	225±2mm (8.86 inches)	
Approx. weight	37.1kg (81.8 lbs)		
Terminal	M8		
Container material	ABS: UL 94 HB or V-0 optional		
Rated capacity (25°C)	115.0 Ah	C10(11.5A,1.80V/cell)	
	107.2 Ah	C8(13.4A,1.80V/cell)	
	101.0 Ah	C5(20.2A,1.75V/cell)	
	89.7 Ah	C3(29.9A,1.75V/cell)	
	73.2 Ah	C1(73.2A,1.60V/cell)	
Max. discharge current	1150A (5s)		
Internal resistance (25°C)	Approx 4.0mΩ		
Operating temp. range	Discharge	-20~55°C (4~131°F)	
	Charge	-20~40°C (-4~104°F)	
	Storage	-15~50°C (5~122°F)	
Nominal operating temp. range	25±3°C (77±5°F)		
Max.Charging Current(25°C)	28.75A		
Charge voltage(25°C)	Charge voltage		Temp. Coefficient
	Float	2.25~2.30V/cell	-3mV/cell/°C
	Equalization	2.30~2.40V/cell	-4mV/cell/°C
Effect of temp. to Capacity	40°C (104°F)		106%
	25°C (77°F)		100%
	0°C (32°F)		86%
Self discharge	≤3%/month @ 25°C		

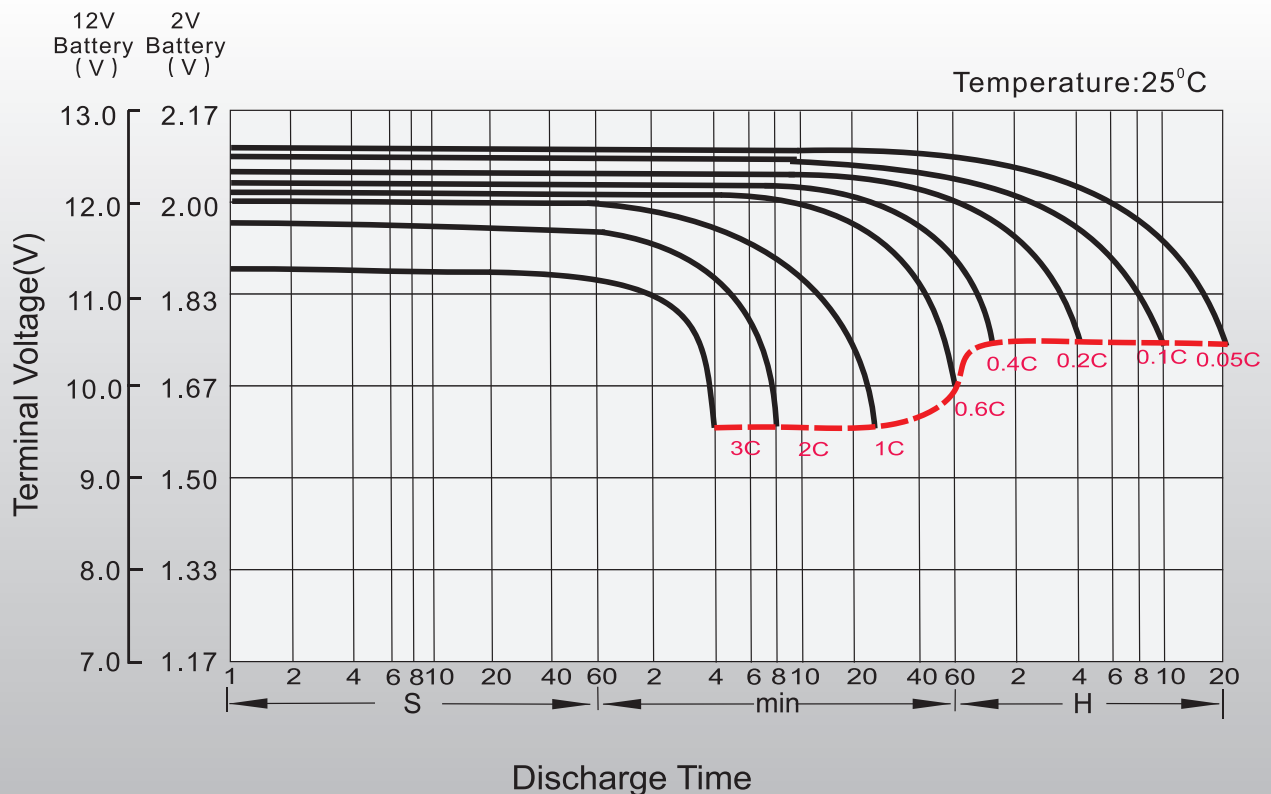
Constant Current Discharge (Amperes) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	1.5h	2h	3h	4h	5h	8h	10h
1.85V/cell	269.2	214.9	186.3	146.5	101.5	78.1	63.3	46.5	38.0	28.3	22.4	18.9	13.1	11.2
1.80V/cell	306.1	243.9	211.2	165.7	114.5	82.9	65.4	47.9	40.2	29.2	23.2	19.7	13.4	11.5
1.75V/cell	332.9	264.8	228.8	179.0	123.3	87.9	68.1	49.8	41.8	29.9	24.0	20.2	13.5	11.5
1.70V/cell	355.5	282.1	242.8	189.6	130.5	92.9	71.1	51.9	42.8	30.5	24.6	20.7	13.7	11.6
1.67V/cell	367.9	291.0	249.9	194.8	133.7	95.0	71.9	53.3	43.8	31.2	24.9	21.0	13.9	11.8
1.60V/cell	380.9	301.0	257.6	199.8	136.9	97.4	73.2	55.1	44.7	32.0	25.4	21.4	13.9	11.9

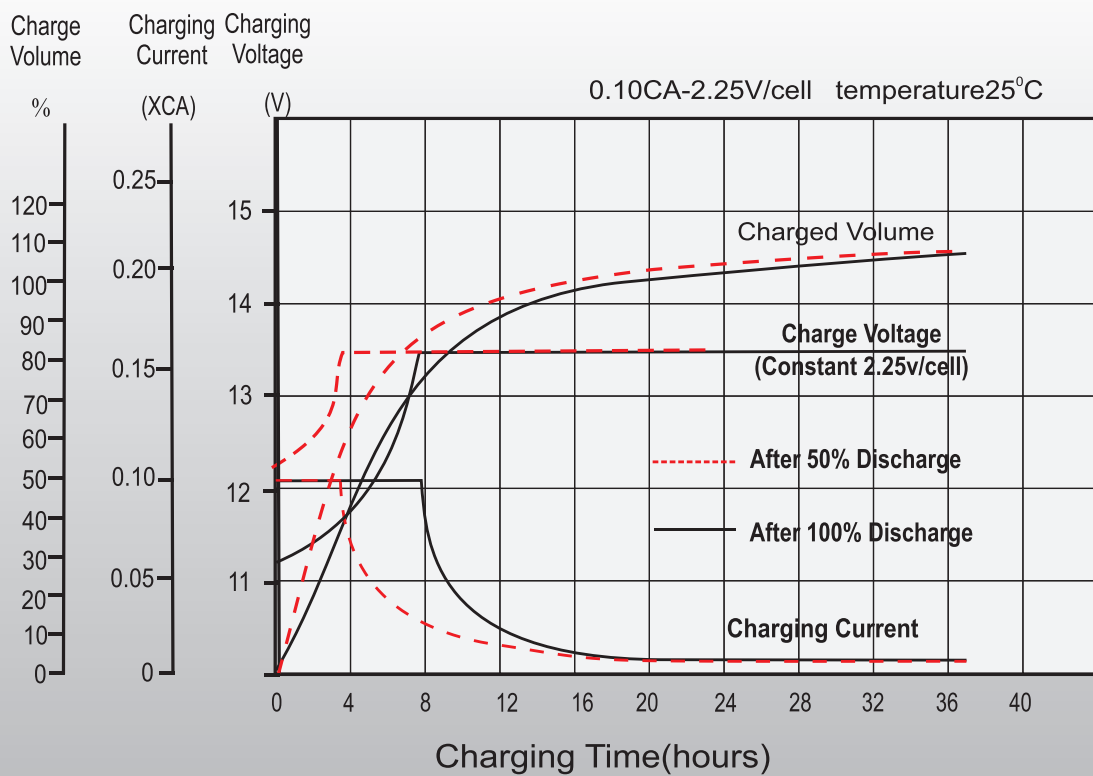
Constant Power Discharge (Watts/cell) at 25°C (77°F)

F.V/Time	5min	10min	15min	20min	30min	45min	1h	1.5h	2h	3h	4h	5h	8h	10h
1.85V/cell	502.7	404.3	352.8	278.7	194.0	150.2	122.4	90.1	73.9	55.3	43.9	37.3	26.0	22.2
1.80V/cell	562.4	452.3	394.7	311.8	217.1	158.4	125.8	92.3	77.9	56.9	45.4	38.6	26.4	22.8
1.75V/cell	600.9	483.2	421.7	333.1	231.9	167.0	130.4	95.7	80.6	57.9	46.7	39.6	26.6	22.9
1.70V/cell	631.0	507.4	442.8	349.8	243.5	175.2	135.4	99.2	82.1	59.0	47.6	40.4	27.0	23.0
1.67V/cell	641.3	515.7	450.0	355.5	247.5	178.0	136.1	101.3	83.7	60.0	48.1	40.7	27.2	23.4
1.60V/cell	650.2	522.9	456.3	360.5	251.0	181.0	137.7	104.0	84.9	61.2	49.0	41.4	27.3	23.5

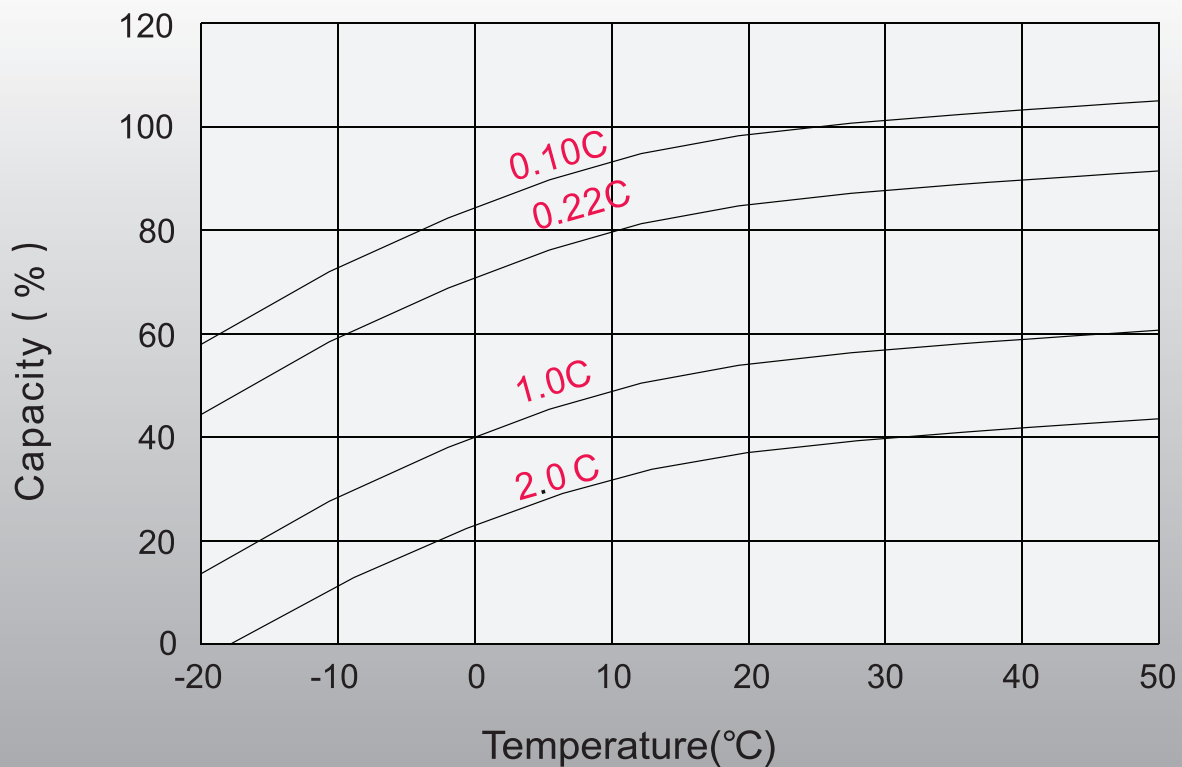
Discharge Characteristics



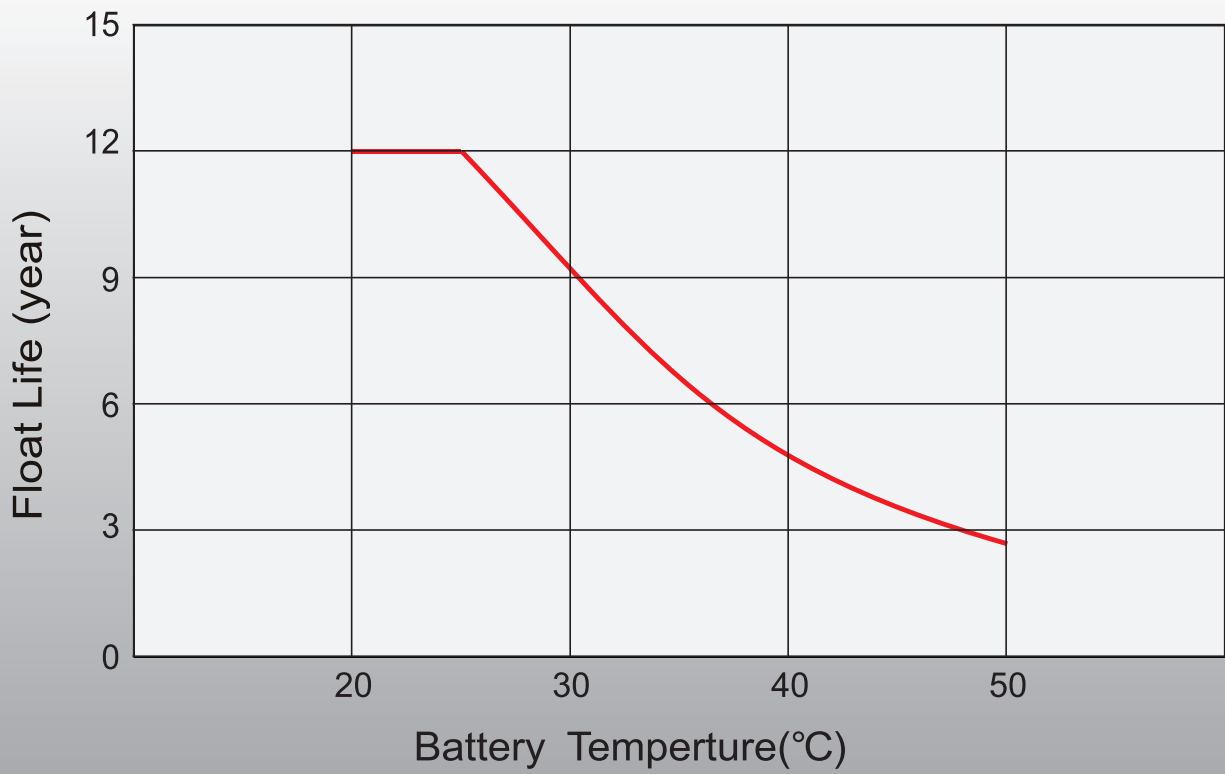
Float Charging Characteristics



Temperature Effects in Relation to Battery Capacity



Effect of Temperature on Long Time Float Life





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