Power your life

LONG

RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

WP4.5-12 12Volt 4.5Ah

Specifications

Nominal Voltage(V) 12V

Nominal Capacity

20 hour rate	(0.225A	to	10.50V)	4.5Ah
10 hour rate	(0.428A	to	10.50V)	4.275Ah
5 hour rate	(0.765A	to	10.20V)	3.825Ah
1 C	(4.5A	to	9.60V)	2.55Ah
3 C	(13.5A	to	9.60V)	1.8Ah

Weight Approx. 1.62kg(3.56Lbs.)

Internal Resistance (at 1KHz) Approx. 34.5 mΩ

Maximum Discharge Current for 5 seconds: 67.5A

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage	14.4 to 15.0V
Coefficient -5.0mV/℃/cell	
Maximum Charging Current :	1.35A

Standby use:

Float Charging Voltage	13.5 to 13.8V
Coefficient -3.0mV/℃/cell	

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

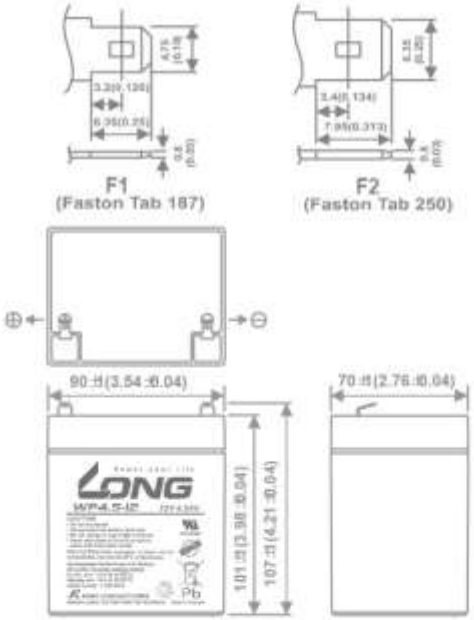
1 month	92%
3 month	90%
6 month	80%

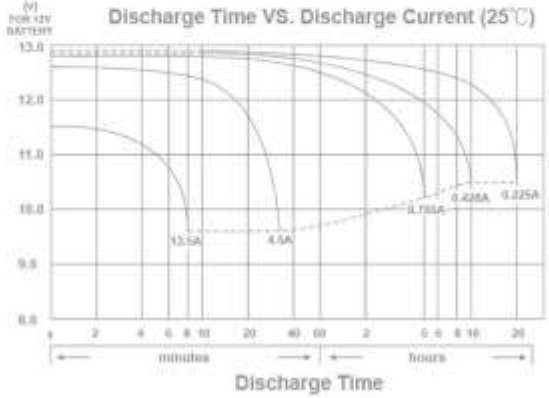
Case Material ABS UL94 HB

Option: Flammability resistance of (UL94 V-0)

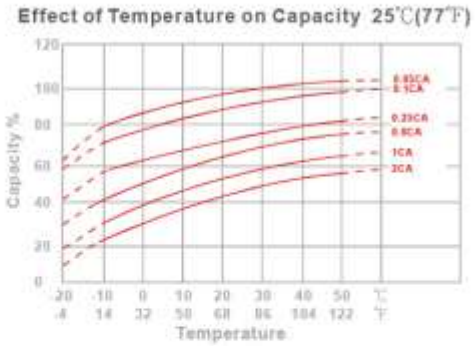
Terminal F1 or F2 (Faston Tab 187 or 250)

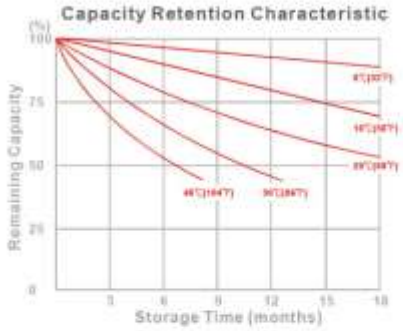
Dimensions mm(inch)

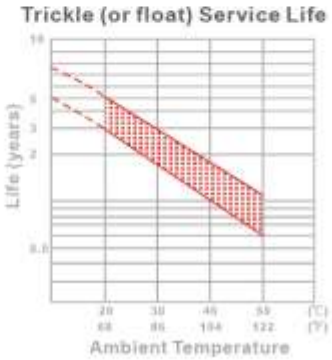


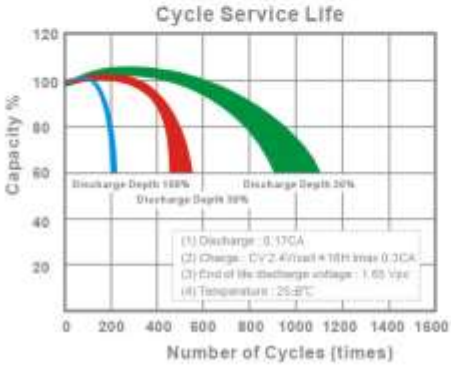


WP4.5-12









- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	22.7	25.7	27.8	29.8	30.7	31.7	32.8
10	min	16.4	18.7	20.0	21.0	21.3	21.8	22.3
15	min	13.3	14.8	15.4	15.8	16.0	16.1	16.3
30	min	7.78	8.73	9.08	9.43	9.53	9.65	9.77
60	min	4.38	4.95	5.32	5.62	5.68	5.78	5.87
120	min	2.70	2.97	3.10	3.20	3.25	3.32	3.38
180	min	2.12	2.30	2.40	2.47	2.50	2.55	2.60
240	min	1.72	1.85	1.93	1.98	2.02	2.03	2.07
300	min	1.53	1.64	1.68	1.72	1.73	1.75	1.78
600	min	0.950	1.01	1.03	1.05	1.07	1.09	1.10
1200	min	0.490	0.518	0.538	0.552	0.555	0.562	0.568

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	14.9	17.0	18.3	18.8	19.0	19.2	19.4
10	min	10.0	11.3	11.6	11.8	11.9	12.0	12.1
15	min	7.21	7.83	8.31	8.53	8.58	8.65	8.74
30	min	4.36	4.82	4.97	5.11	5.15	5.21	5.26
60	min	2.53	2.78	2.89	2.97	2.99	3.02	3.05
120	min	1.42	1.54	1.62	1.65	1.66	1.67	1.69
180	min	1.14	1.21	1.23	1.25	1.26	1.27	1.28
240	min	0.889	0.948	0.973	0.996	1.00	1.01	1.02
300	min	0.808	0.839	0.852	0.863	0.867	0.872	0.878
600	min	0.458	0.480	0.495	0.503	0.507	0.511	0.515
1200	min	0.231	0.245	0.257	0.265	0.268	0.272	0.276

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

WP7-12(28W) 12Volt 28W

Specifications

Nominal Voltage(V) 12V

Nominal Power

15 mins rate: 28W/cell to 1.60V/cell

Nominal Capacity

20 hour rate	(0.35A	to	10.50V)	7Ah
10 hour rate	(0.665A	to	10.50V)	6.65Ah
5 hour rate	(1.19A	to	10.20V)	5.95Ah
1 C	(7A	to	9.60V)	4.43Ah
3 C	(21A	to	9.60V)	2.8Ah

Weight Approx. 2.2kg(4.84Lbs.)

Internal Resistance (at 1KHz) Approx. 19 mΩ

Maximum Discharge Current for

5 seconds: 105A

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage 14.4 to 15.0V

Coefficient -5.0mV/℃/cell

Maximum Charging Current : 2.1A

Standby use:

Float Charging Voltage 13.5 to 13.8V

Coefficient -3.0mV/℃/cell

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

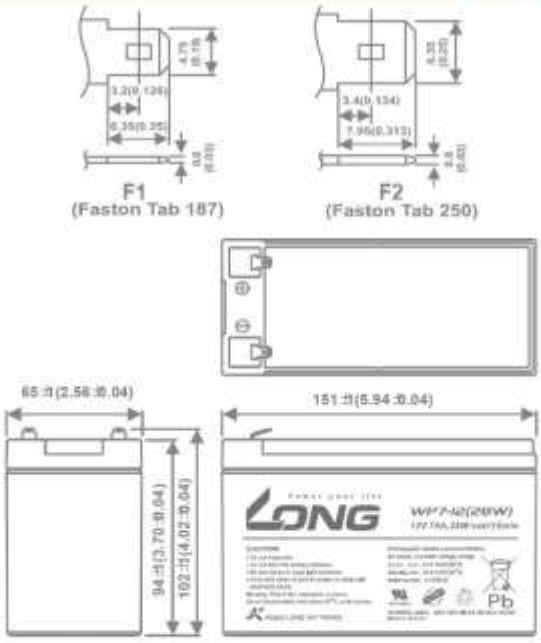
1 month	92%
3 month	90%
6 month	80%

Case Material ABS UL94 HB

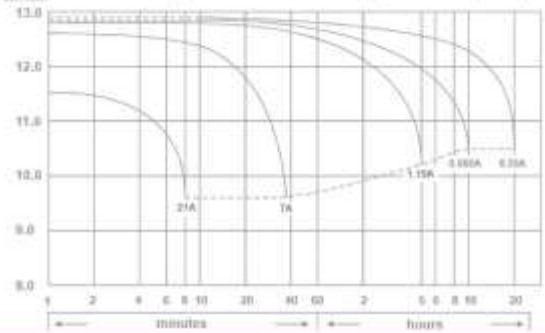
Option: Flammability resistance of (UL94 V-0)

Terminal F1 or F2 (Faston Tab 187 or 250)

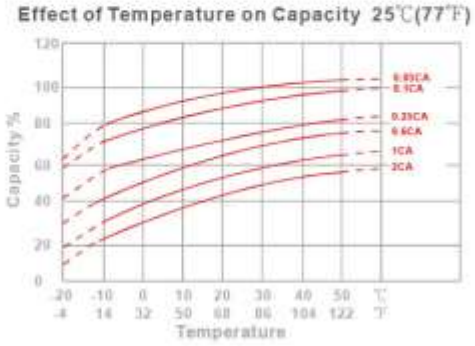
Dimensions mm(inch)

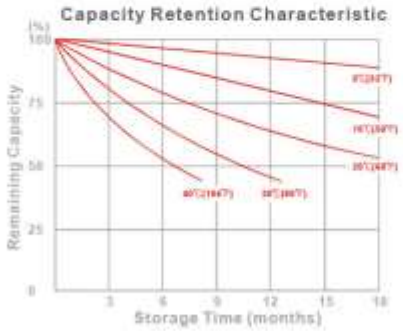


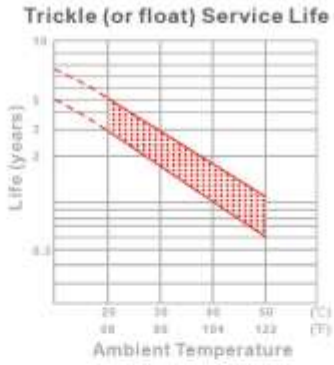
Discharge Time VS. Discharge Current (25℃)

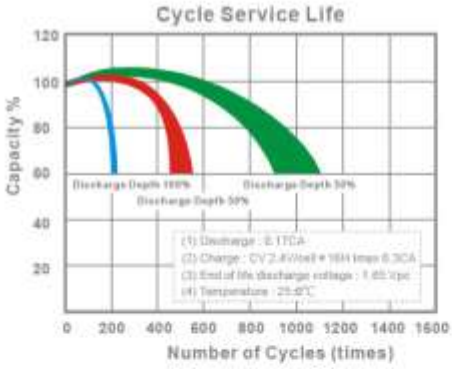


WP7-12(28W)









- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	43.8	47.0	49.0	51.0	51.8	52.8	54.3
10	min	30.0	31.8	33.2	34.3	34.8	35.5	36.5
15	min	24.0	25.2	25.8	26.5	26.8	27.3	28.0
30	min	12.1	12.9	13.6	14.1	14.3	14.4	14.6
60	min	7.70	8.38	8.63	8.87	8.97	9.08	9.23
120	min	4.10	4.52	4.72	4.92	4.98	5.07	5.20
180	min	3.08	3.32	3.48	3.62	3.67	3.72	3.80
240	min	2.85	2.93	3.00	3.05	3.07	3.10	3.15
300	min	2.47	2.53	2.58	2.62	2.63	2.65	2.68
600	min	1.36	1.40	1.42	1.43	1.44	1.44	1.45
1200	min	0.690	0.705	0.718	0.728	0.732	0.737	0.743

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	23.1	26.2	27.8	29.1	29.6	30.5	31.7
10	min	16.1	17.3	18.1	18.6	18.9	19.2	19.8
15	min	12.6	13.1	13.5	13.8	14.0	14.1	14.3
30	min	6.54	7.05	7.28	7.47	7.56	7.68	7.85
60	min	4.02	4.25	4.41	4.52	4.58	4.63	4.71
120	min	2.26	2.38	2.45	2.49	2.51	2.54	2.57
180	min	1.65	1.74	1.79	1.82	1.83	1.85	1.88
240	min	1.35	1.40	1.44	1.47	1.49	1.51	1.53
300	min	1.10	1.16	1.21	1.25	1.27	1.28	1.29
600	min	0.667	0.675	0.682	0.687	0.690	0.694	0.698
1200	min	0.339	0.346	0.350	0.353	0.355	0.357	0.359

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

LONG

RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

WP12-12A 12Volt 12Ah

Specifications

Nominal Voltage(V)	**12V**

Nominal Capacity

20 hour rate	(0.6A	to	10.50V)	**12Ah**
10 hour rate	(1.14A	to	10.50V)	**11.4Ah**
5 hour rate	(2.04A	to	10.20V)	**10.2Ah**
1 C	(12A	to	9.60V)	**6.4Ah**
3 C	(36A	to	9.60V)	**4.2Ah**

Weight	Approx. **3.75kg(8.25Lbs.)**
Internal Resistance (at 1KHz)	Approx. **13 mΩ**

Maximum Discharge Current for

5 seconds:	**180A**

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage	**14.4 to 15.0V**
Coefficient -5.0mV/℃/cell	
Maximum Charging Current :	**3.6A**

Standby use:

Float Charging Voltage	**13.5 to 13.8V**
Coefficient -3.0mV/℃/cell	

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

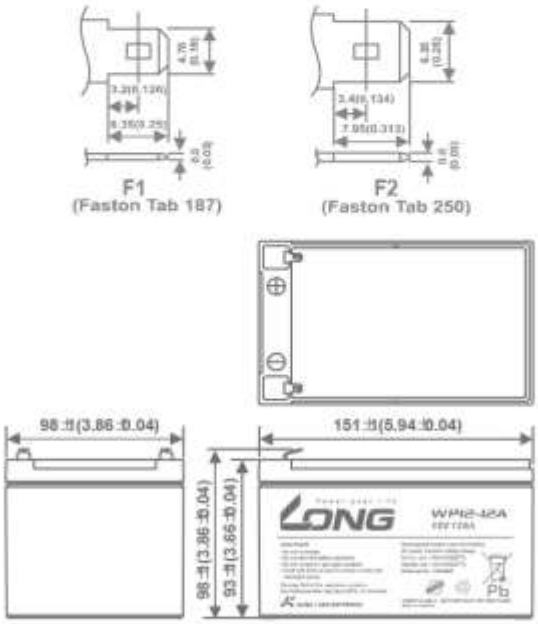
1 month	92%
3 month	90%
6 month	80%

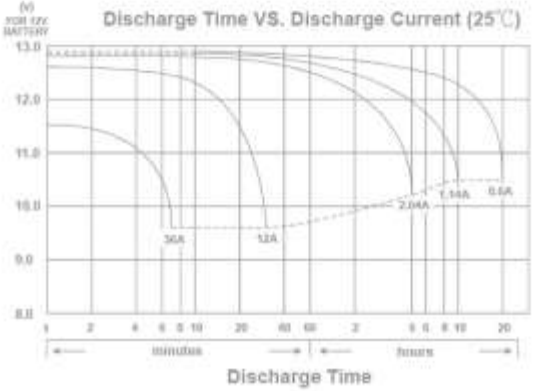
Case Material	**ABS UL94 HB**

Option: Flammability resistance of (UL94 V-0)

Terminal	**F1 or F2 (Faston Tab 187 or 250)**

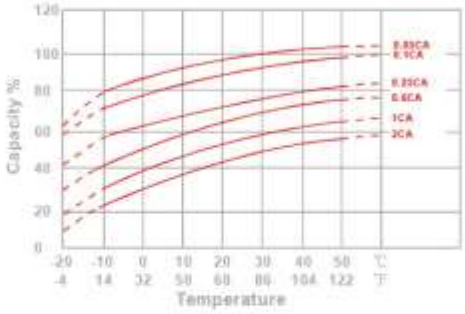
Dimensions mm(inch)



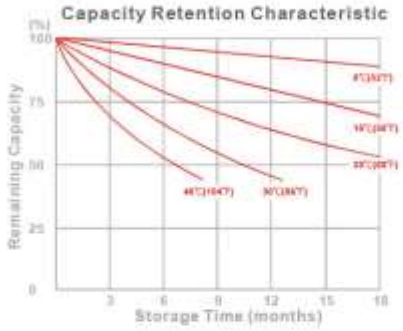


WP12-12A

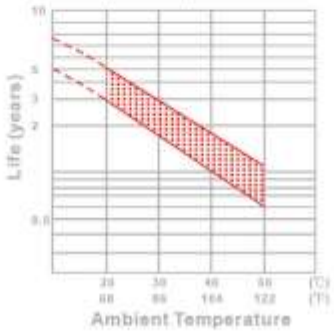
Effect of Temperature on Capacity 25℃(77℉)



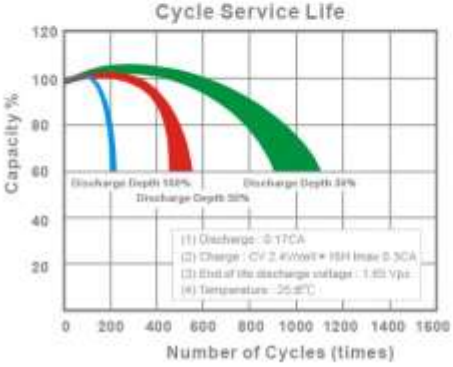
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	67.6	75.2	80.8	86.7	89.3	91.9	97.0
10	min	48.0	52.5	54.9	57.3	58.2	59.5	61.0
15	min	38.6	41.0	42.6	44.1	44.5	45.4	46.6
30	min	22.2	23.6	24.6	25.4	25.7	25.9	26.3
60	min	15.8	16.3	16.7	17.0	17.2	17.3	17.5
120	min	8.63	8.92	9.04	9.14	9.18	9.24	9.32
180	min	5.65	5.87	6.05	6.20	6.27	6.35	6.42
240	min	4.78	4.88	4.96	5.06	5.12	5.20	5.26
300	min	3.96	4.08	4.18	4.30	4.33	4.38	4.48
600	min	2.34	2.40	2.44	2.47	2.48	2.50	2.52
1200	min	1.19	1.21	1.25	1.26	1.28	1.29	1.32

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	37.2	41.4	44.5	47.7	49.1	50.6	53.4
10	min	25.7	28.1	29.4	30.7	31.2	31.9	32.7
15	min	19.8	21.3	22.1	22.9	23.2	23.5	24.2
30	min	11.4	12.1	12.6	13.0	13.1	13.3	13.5
60	min	8.21	8.40	8.52	8.63	8.68	8.74	8.82
120	min	4.21	4.36	4.47	4.56	4.59	4.63	4.68
180	min	2.87	3.06	3.13	3.19	3.22	3.25	3.29
240	min	2.38	2.43	2.47	2.52	2.55	2.58	2.62
300	min	1.97	2.03	2.08	2.14	2.16	2.19	2.23
600	min	1.16	1.18	1.20	1.22	1.23	1.24	1.25
1200	min	0.592	0.599	0.618	0.627	0.634	0.642	0.656

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

LONG

RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

WP18-12NSHR 12Volt 18Ah

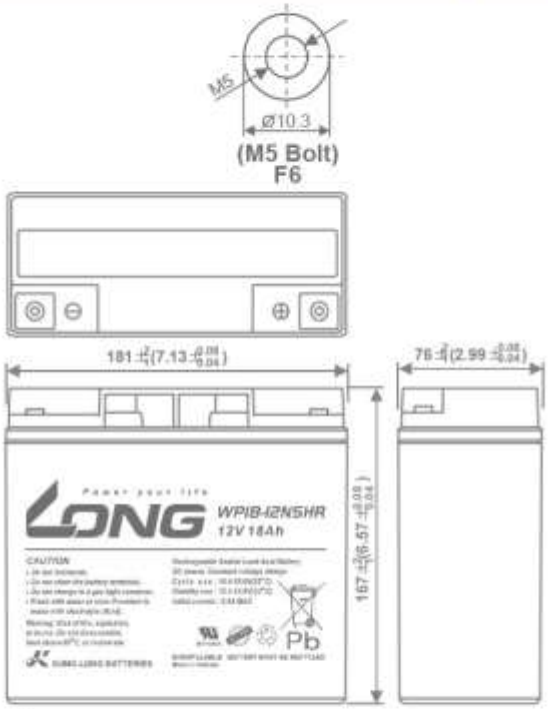
Specifications

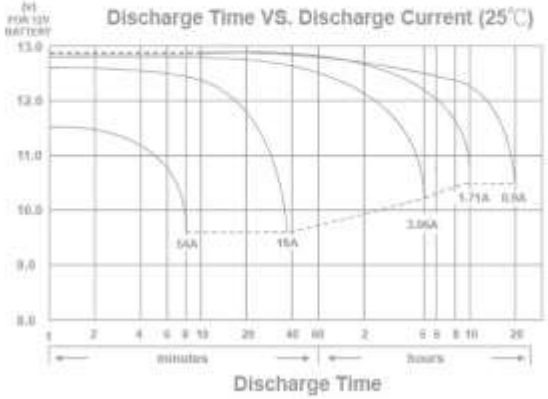
Nominal Voltage(V)				**12V**
Nominal Capacity				
20 hour rate	(0.9A	to	10.50V)	**18Ah**
10 hour rate	(1.71A	to	10.50V)	**17.1Ah**
5 hour rate	(3.06A	to	10.20V)	**15.3Ah**
1 C	(18A	to	9.60V)	**11.4Ah**
3 C	(54A	to	9.60V)	**7.2Ah**
Weight				Approx. **5.6kg(12.32Lbs.)**
Internal Resistance (at 1KHz)				Approx. **10.5 mΩ**
Maximum Discharge Current for 5 seconds:				**270A**
Charging Methods at 25℃(77℉)				
Cycle use:				
Charging Voltage				**14.4 to 15.0V**
Coefficient -5.0mV/℃/cell				
Maximum Charging Current :				**5.4A**
Standby use:				
Float Charging Voltage				**13.5 to 13.8V**
Coefficient -3.0mV/℃/cell				
Operating Temperature Range				
Charge	-15℃(5℉)	to	40℃(104℉)	
Discharge	-15℃(5℉)	to	50℃(122℉)	
Storage	-15℃(5℉)	to	40℃(104℉)	
Charge Retention (shelf life) at 20℃(68℉)				
1 month				**92%**
3 month				**90%**
6 month				**80%**
Case Material				**ABS UL94 HB**
Option: Flammability resistance of (UL94 V-0)				
Terminal				**F6**

Description of torque value of hard ware for the terminals:

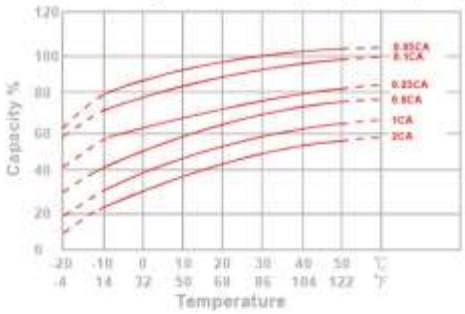
Recommended torque value	**M5: 5 N-m (51kgf-cm)**
Maximum allowable torque value	**M5: 6 N-m (61kgf-cm)**

Dimensions mm(inch)

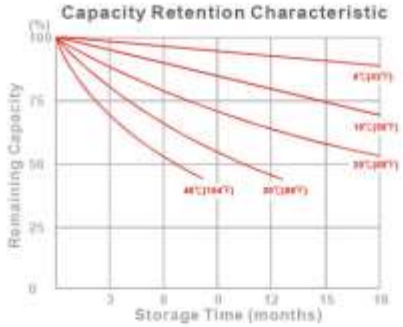




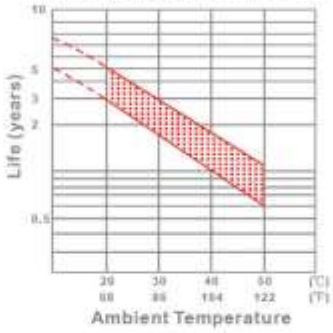
Effect of Temperature on Capacity 25℃(77℉)



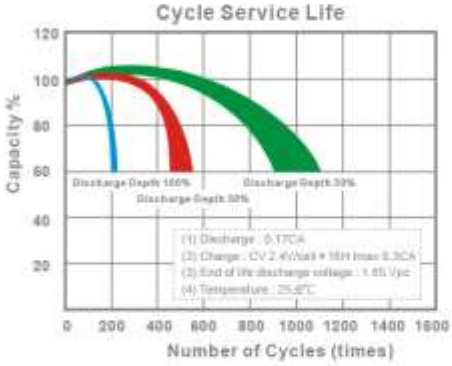
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	98.9	116	128	135	137	139	141
10	min	67.0	77.1	84.5	89.1	90.2	91.7	92.9
15	min	57.2	64.5	69.4	72.5	73.3	74.2	75.1
30	min	32.7	35.1	37.7	39.4	39.8	40.3	40.8
60	min	18.8	19.8	20.7	21.3	21.5	21.8	22.2
120	min	11.9	12.4	12.7	13.1	13.2	13.3	13.5
180	min	8.75	9.10	9.33	9.53	9.60	9.68	9.78
240	min	6.63	6.93	7.12	7.27	7.32	7.38	7.46
300	min	5.82	6.05	6.17	6.27	6.30	6.35	6.41
600	min	3.40	3.52	3.60	3.67	3.68	3.72	3.75
1200	min	1.77	1.83	1.88	1.92	1.93	1.95	1.96

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	62.6	68.3	71.9	75.1	76.4	77.8	80.2
10	min	38.6	41.8	44.3	46.5	47.4	48.4	50.1
15	min	31.9	34.6	36.3	37.7	38.2	38.8	39.7
30	min	17.4	18.7	19.8	20.7	21.0	21.4	21.9
60	min	9.74	10.3	10.7	11.0	11.1	11.3	11.5
120	min	5.98	6.23	6.39	6.53	6.58	6.64	6.72
180	min	4.35	4.52	4.64	4.73	4.76	4.80	4.85
240	min	3.43	3.52	3.58	3.62	3.63	3.65	3.68
300	min	2.96	3.02	3.07	3.11	3.12	3.14	3.16
600	min	1.73	1.77	1.80	1.82	1.83	1.84	1.85
1200	min	0.893	0.914	0.931	0.946	0.952	0.959	0.962

All data on the spec. sheet is an average value:
The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

LONG

RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

WP22-12N 12Volt 22Ah

Specifications

Nominal Voltage(V) 12V

Nominal Capacity

20 hour rate	(1.1A	to	10.50V)	22Ah
10 hour rate	(2.09A	to	10.50V)	20.9Ah
5 hour rate	(3.74A	to	10.20V)	18.7Ah
1 C	(22A	to	9.60V)	12.47Ah
3 C	(66A	to	9.60V)	8.8Ah

Weight Approx. 6.9kg(15.18Lbs.)

Internal Resistance (at 1KHz) Approx. 9 mΩ

Maximum Discharge Current for 5 seconds: 330A

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage	14.4 to 15.0V
Coefficient -5.0mV/℃/cell	
Maximum Charging Current :	6.6A

Standby use:

Float Charging Voltage	13.5 to 13.8V
Coefficient -3.0mV/℃/cell	

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

1 month	92%
3 month	90%
6 month	80%

Case Material ABS UL94 HB

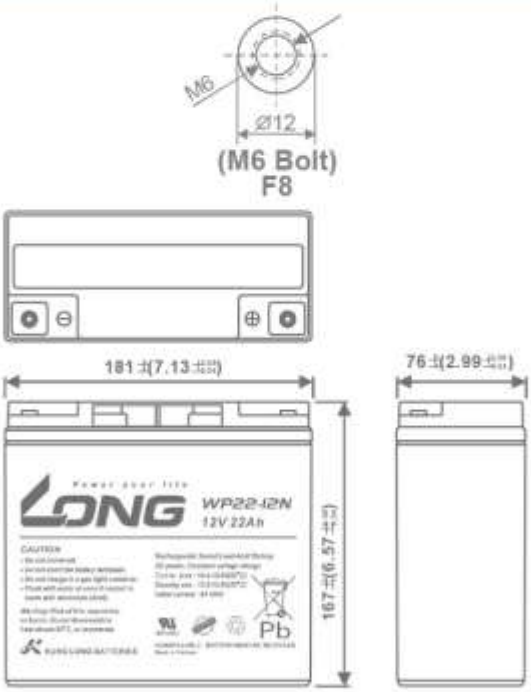
Option: Flammability resistance of (UL94 V-0)

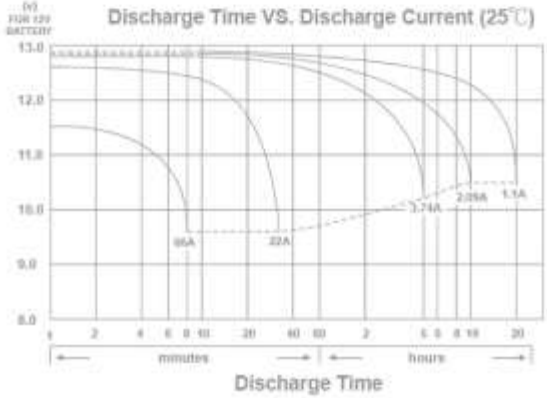
Terminal F8

Description of torque value of hard ware for the terminals:

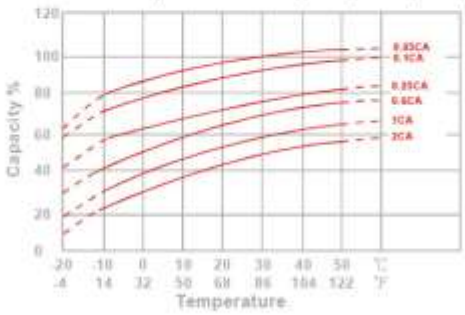
Recommended torque value	M6: 7 N-m (71kgf-cm)
Maximum allowable torque value	M6: 9 N-m (92kgf-cm)

Dimensions mm(inch)

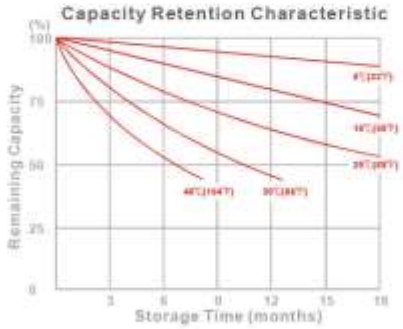




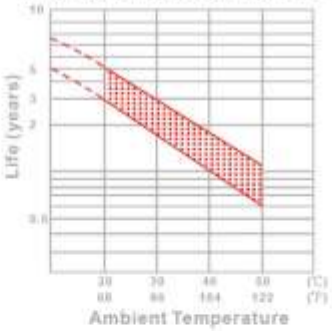
Effect of Temperature on Capacity 25℃(77℉)



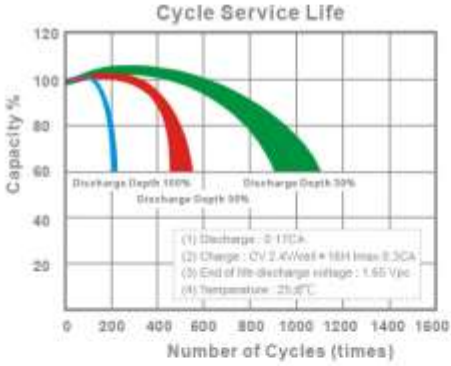
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	136	152	164	171	173	175	177
10	min	88.3	99.7	107	112	113	114	116
15	min	67.4	75.1	80.1	83.2	84.1	85.0	85.8
30	min	39.8	43.9	46.6	48.3	48.8	49.3	49.7
60	min	25.2	26.0	26.7	27.1	27.3	27.4	27.6
120	min	15.2	15.5	15.7	15.9	16.0	16.1	16.2
180	min	10.8	11.1	11.3	11.4	11.5	11.5	11.6
240	min	8.60	8.87	9.02	9.14	9.19	9.24	9.31
300	min	7.25	7.48	7.65	7.78	7.84	7.87	7.91
600	min	4.12	4.32	4.47	4.57	4.60	4.63	4.67
1200	min	2.20	2.28	2.35	2.41	2.42	2.44	2.45

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	74.8	83.3	90.1	97.6	99.3	102	105
10	min	48.1	54.0	57.4	59.9	60.8	61.5	62.3
15	min	36.6	41.4	43.1	44.4	44.8	45.3	45.9
30	min	20.0	22.1	23.5	24.2	24.4	24.7	25.1
60	min	12.4	12.8	13.1	13.4	13.5	13.6	13.8
120	min	7.61	7.83	7.98	8.12	8.16	8.21	8.27
180	min	5.32	5.51	5.64	5.75	5.79	5.83	5.88
240	min	4.17	4.33	4.45	4.54	4.58	4.61	4.65
300	min	3.56	3.68	3.77	3.84	3.87	3.89	3.92
600	min	2.06	2.14	2.21	2.26	2.27	2.29	2.31
1200	min	1.07	1.12	1.16	1.19	1.20	1.21	1.22

All data on the spec. sheet is an average value:
The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

LONG

RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

WP30-12T 12Volt 30Ah

Specifications

Nominal Voltage(V) 12V

Nominal Capacity

20 hour rate	(1.5A	to	10.50V)	30Ah
10 hour rate	(2.85A	to	10.50V)	28.5Ah
5 hour rate	(5.1A	to	10.20V)	25.5Ah
1 C	(30A	to	9.60V)	17.0Ah
3 C	(90A	to	9.60V)	12.0Ah

Weight Approx. 10.5kg(23.1Lbs.)

Internal Resistance (at 1KHz) Approx. 9 mΩ

Maximum Discharge Current for

5 seconds: 600A

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage 14.4 to 15.0V

Coefficient -5.0mV/℃/cell

Maximum Charging Current : 9A

Standby use:

Float Charging Voltage 13.5 to 13.8V

Coefficient -3.0mV/℃/cell

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

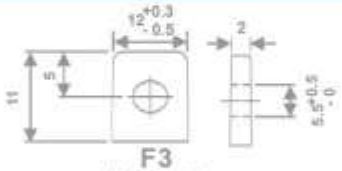
1 month	92%
3 month	90%
6 month	80%

Case Material ABS UL94 HB

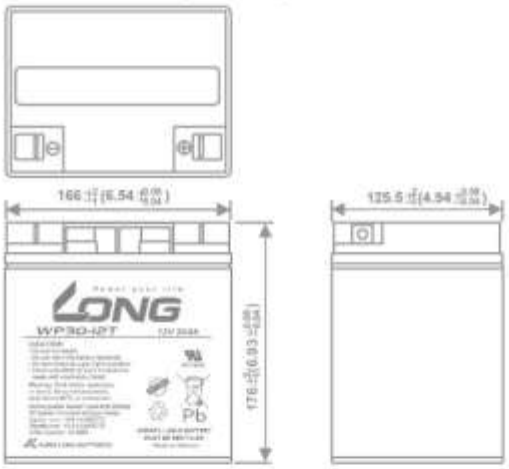
Option: Flammability resistance of (UL94 V-0)

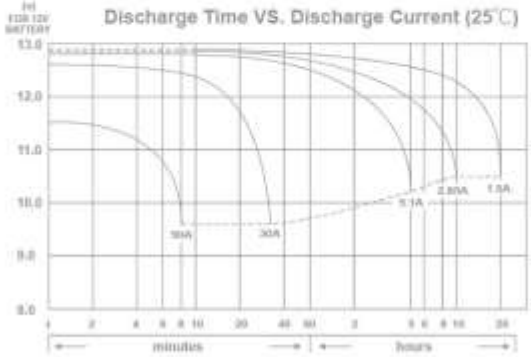
Terminal F3

Dimensions mm(inch)

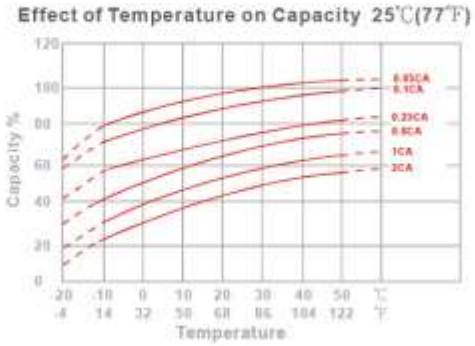


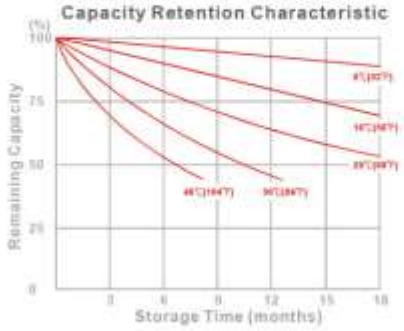
F3
(M5 Bolts)

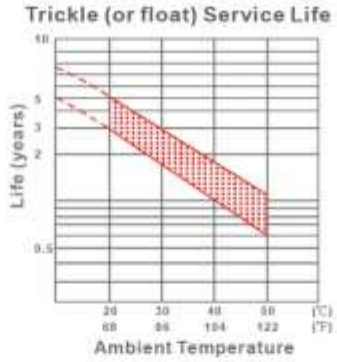


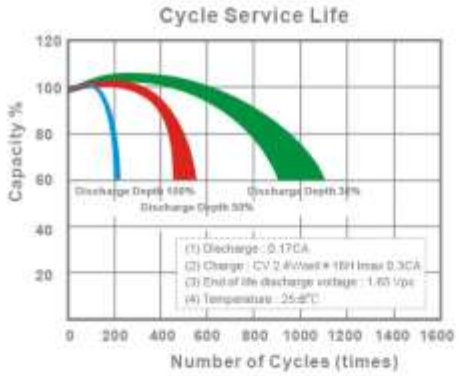


WP30-12T









- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	141	177	198	209	213	217	222
10	min	108	124	135	142	146	149	153
15	min	94.4	105	110	114	116	117	119
30	min	58.4	63.1	65.0	66.5	66.8	67.4	68.1
60	min	34.4	37.1	38.5	39.5	39.8	40.4	40.9
120	min	20.3	21.7	22.5	23.2	23.3	23.7	24.0
180	min	15.5	16.1	16.4	16.7	16.8	17.0	17.2
240	min	12.7	13.2	13.5	13.7	13.7	13.8	14.0
300	min	10.4	10.9	11.1	12.1	11.3	11.4	11.5
600	min	5.81	6.02	6.17	6.30	6.33	6.39	6.45
1200	min	3.13	3.26	3.33	3.38	3.40	3.44	3.47

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	75.3	96.7	110	118	121	124	128
10	min	56.4	65.5	71.8	77.0	78.8	81.0	83.4
15	min	48.6	54.4	57.1	59.7	60.6	61.4	62.7
30	min	29.3	31.8	32.9	33.8	34.1	34.5	34.9
60	min	16.9	18.3	19.2	19.8	20.0	20.2	20.4
120	min	10.4	10.9	11.3	11.6	11.7	11.8	11.9
180	min	7.51	7.83	8.04	8.21	8.28	8.35	8.46
240	min	6.12	6.41	6.54	6.66	6.70	6.74	6.81
300	min	5.09	5.34	5.46	5.55	5.59	5.63	5.68
600	min	2.81	2.92	3.00	3.06	3.08	3.11	3.14
1200	min	1.52	1.57	1.61	1.64	1.65	1.67	1.69

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

021216-1F

Power your life

LONG

RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

WP50-12N 12Volt 50Ah

Specifications

Nominal Voltage(V) 12V

Nominal Capacity

20 hour rate	(2.5A	to	10.50V)	50Ah
10 hour rate	(4.75A	to	10.50V)	47.5Ah
5 hour rate	(8.5A	to	10.20V)	42.5Ah
1 C	(50A	to	9.60V)	28.33Ah
3 C	(150A	to	9.60V)	20Ah

Weight Approx. 15.1kg(33.2Lbs.)

Internal Resistance (at 1KHz) Approx. 5 mΩ

Maximum Discharge Current for 5 seconds: 600A

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage 14.4 to 15.0V
Coefficient -5.0mV/℃/cell
Maximum Charging Current : 15A

Standby use:

Float Charging Voltage 13.5 to 13.8V
Coefficient -3.0mV/℃/cell

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

1 month	98%
3 month	94%
6 month	85%

Case Material ABS UL94 HB

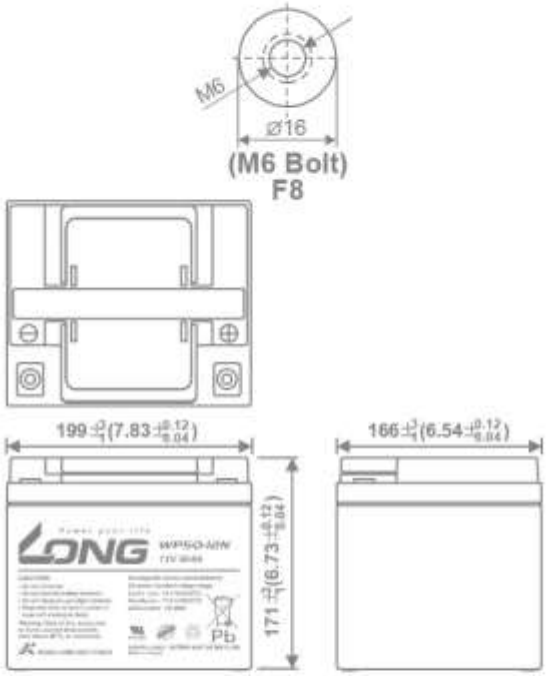
Option: Flammability resistance of (UL94 V-0)

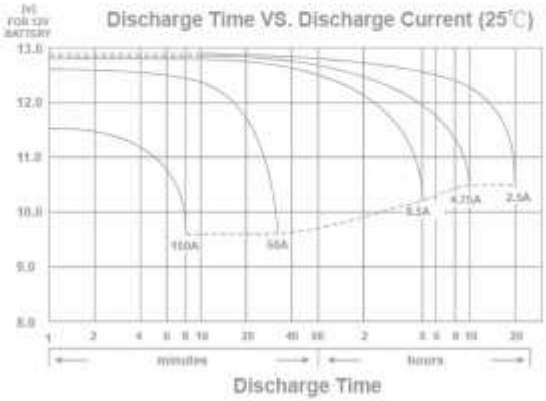
Terminal F8

Description of torque value of hard ware for the terminals:

Recommended torque value	M6: 7 N-m (71kgf-cm)
Maximum allowable torque value	M6: 9 N-m (92kgf-cm)

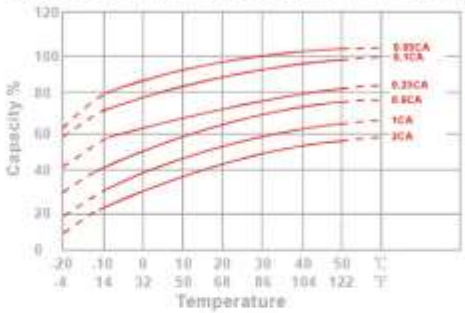
Dimensions mm(inch)



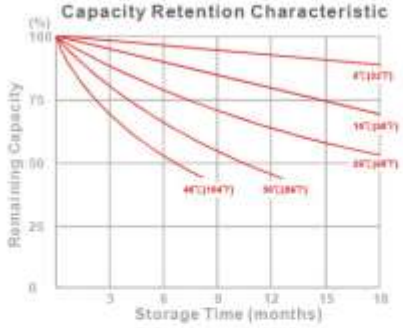


WP50-12N

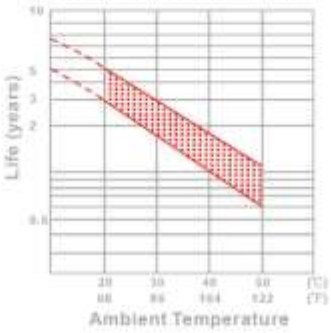
Effect of Temperature on Capacity 25℃(77℉)



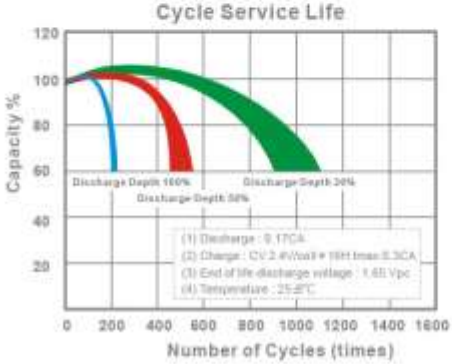
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	240	288	322	345	350	356	361
10	min	171	203	223	233	237	241	246
15	min	126	146	160	167	170	172	175
30	min	78.0	89.8	97.2	100	102	103	104
60	min	53.7	56.5	58.2	59.5	60.0	60.7	61.2
120	min	29.2	32.0	33.3	34.5	34.8	35.3	35.8
180	min	20.8	22.7	23.8	24.7	25.0	25.3	25.7
240	min	17.2	18.3	19.0	19.7	19.8	20.2	20.5
300	min	15.9	16.6	17.0	17.3	17.5	17.7	17.8
600	min	8.62	9.10	9.38	9.57	9.62	9.68	9.77
1200	min	4.58	4.87	5.05	5.17	5.20	5.25	5.30

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	139	166	185	199	206	210	214
10	min	88.5	106	117	125	128	131	134
15	min	77.8	84.5	87.6	90.2	90.9	91.8	92.9
30	min	45.4	50.7	52.8	54.4	54.9	55.5	56.2
60	min	26.0	28.8	29.9	30.6	30.8	31.1	31.4
120	min	15.1	16.2	16.8	17.3	17.5	17.7	17.9
180	min	11.0	11.7	12.1	12.4	12.5	12.6	12.7
240	min	8.96	9.44	9.70	9.89	9.96	10.1	10.2
300	min	7.85	8.26	8.50	8.67	8.73	8.80	8.87
600	min	4.41	4.65	4.76	4.82	4.84	4.87	4.91
1200	min	2.32	2.44	2.50	2.55	2.57	2.59	2.61

All data on the spec. sheet is an average value:
The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

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RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

WP55-12N 12Volt 55Ah

Specifications

Nominal Voltage(V) 12V

Nominal Capacity

20 hour rate	(2.75A	to	10.50V)	55Ah
10 hour rate	(5.225A	to	10.50V)	52.25Ah
5 hour rate	(9.35A	to	10.20V)	46.75Ah
1 C	(55A	to	9.60V)	31.17Ah
3 C	(165A	to	9.60V)	22Ah

Weight Approx. 17.0kg(37.4Lbs.)

Internal Resistance (at 1KHz) Approx. 8 mΩ

Maximum Discharge Current for
5 seconds: 660A

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage	14.4 to 15.0V
Coefficient -5.0mV/℃/cell	
Maximum Charging Current :	16.5A

Standby use:

Float Charging Voltage	13.5 to 13.8V
Coefficient -3.0mV/℃/cell	

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

1 month	98%
3 month	94%
6 month	85%

Case Material ABS UL94 HB

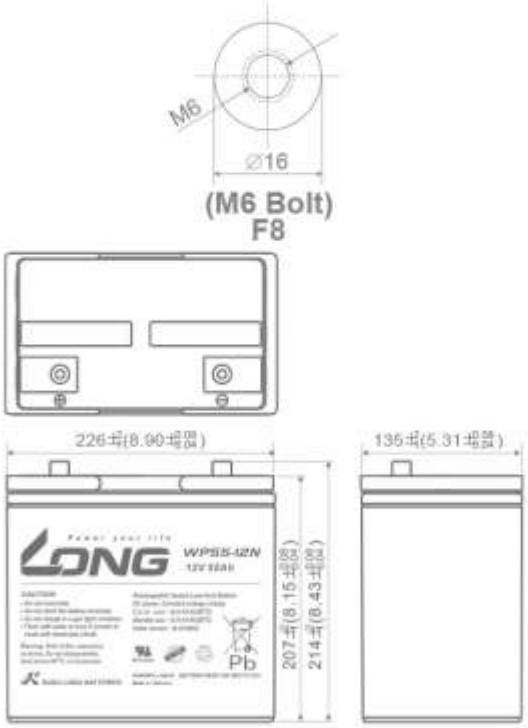
Option: Flammability resistance of (UL94 V-0)

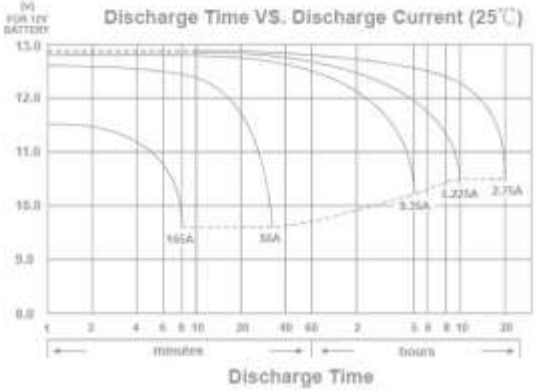
Terminal F8

Description of torque value of hard ware for the terminals:

Recommended torque value	M6: 7 N-m (71kgf-cm)
Maximum allowable torque value	M6: 9 N-m (92kgf-cm)

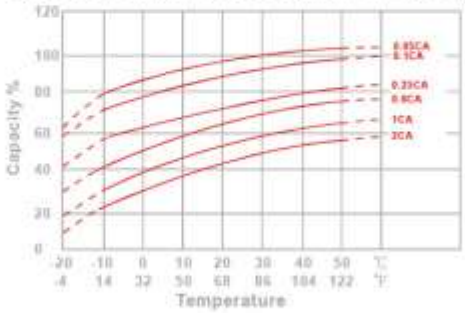
Dimensions mm(inch)



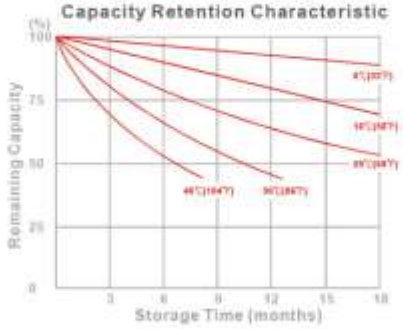


WP55-12N

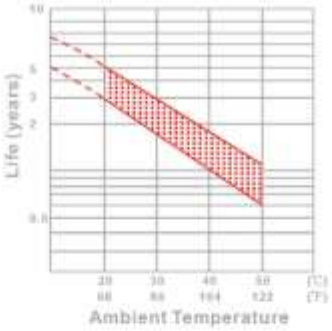
Effect of Temperature on Capacity 25℃(77℉)



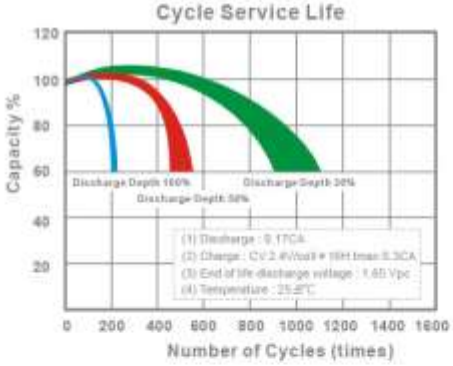
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	328	381	413	430	434	438	444
10	min	210	244	265	276	278	281	285
15	min	163	187	202	209	211	213	215
30	min	86.9	99.5	107	111	112	113	115
60	min	64.7	67.5	69.3	70.8	71.3	72.0	72.6
120	min	32.5	34.7	36.2	37.2	37.5	37.8	38.3
180	min	26.3	28.2	29.2	29.8	30.0	30.3	30.6
240	min	21.8	23.0	23.7	24.2	24.3	24.5	24.6
300	min	18.3	19.3	20.0	20.3	20.5	20.7	20.9
600	min	10.6	11.1	11.4	11.6	11.6	11.7	11.7
1200	min	5.48	5.78	5.93	6.05	6.08	6.14	6.18

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	176	204	219	228	231	234	238
10	min	110	127	138	143	145	147	149
15	min	83.5	95.6	103	107	108	109	110
30	min	43.8	50.2	54.1	55.8	56.4	57.0	57.7
60	min	29.4	33.2	34.5	35.4	35.7	36.1	36.5
120	min	16.9	18.4	19.2	19.8	20.0	20.3	20.6
180	min	13.0	13.8	14.3	14.7	14.8	15.0	15.2
240	min	10.9	11.5	11.7	11.9	12.0	12.1	12.2
300	min	9.32	9.74	9.92	10.1	10.2	10.3	10.4
600	min	5.39	5.63	5.65	5.71	5.73	5.76	5.80
1200	min	2.76	2.89	2.96	3.00	3.01	3.03	3.05

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

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RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

WPL65-12AN 12Volt 65Ah

Specifications

Nominal Voltage(V) 12V

Nominal Capacity

20 hour rate	(3.25A	to	10.50V)	65Ah
10 hour rate	(6.175A	to	10.50V)	61.75Ah
5 hour rate	(11.05A	to	10.20V)	55.25Ah
1 C	(65A	to	9.60V)	41.17Ah
3 C	(195A	to	9.60V)	26Ah

Weight Approx. 20.9kg(45.98Lbs.)

Internal Resistance (at 1KHz) Approx. 7 mΩ

Maximum Discharge Current for 5 seconds: 780A

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage	14.4 to 15.0V
Coefficient -5.0mV/℃/cell	
Maximum Charging Current :	19.5A

Standby use:

Float Charging Voltage	13.5 to 13.8V
Coefficient -3.0mV/℃/cell	

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

1 month	98%
3 month	94%
6 month	85%

Case Material ABS UL94 HB

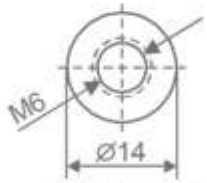
Option: Flammability resistance of (UL94 V-0)

Terminal F8

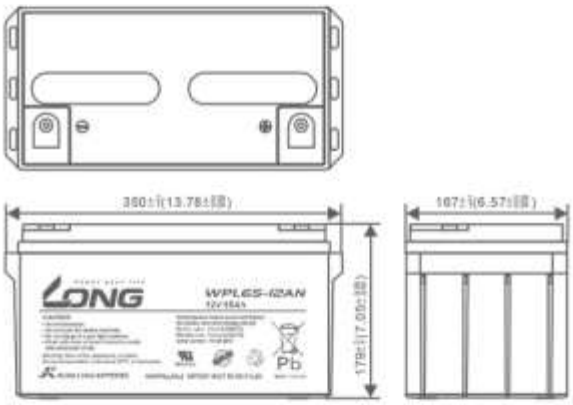
Description of torque value of hard ware for the terminals:

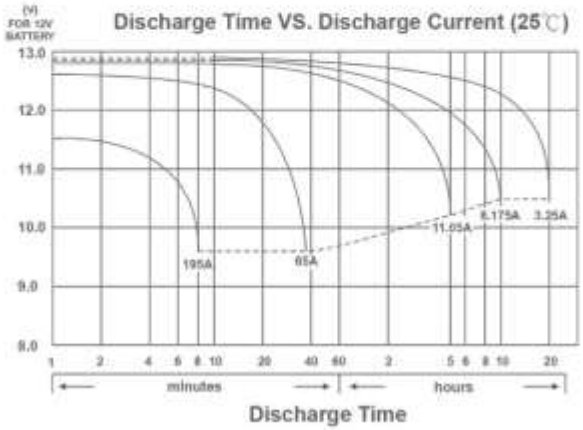
Recommended torque value	M6: 7 N-m (71kgf-cm)
Maximum allowable torque value	M6: 9 N-m (92kgf-cm)

Dimensions mm(inch)



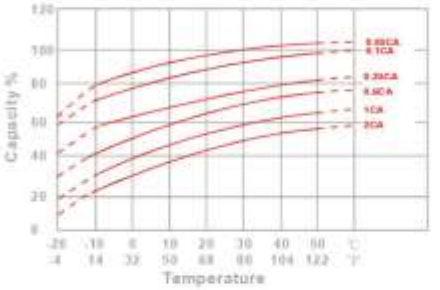
(M6 Bolt)
F8



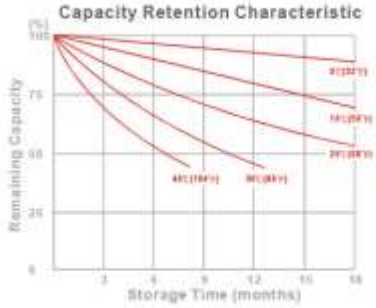


WPL65-12AN

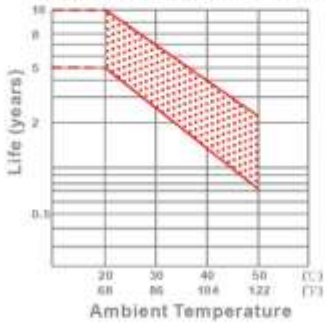
Effect of Temperature on Capacity 25℃(77℉)



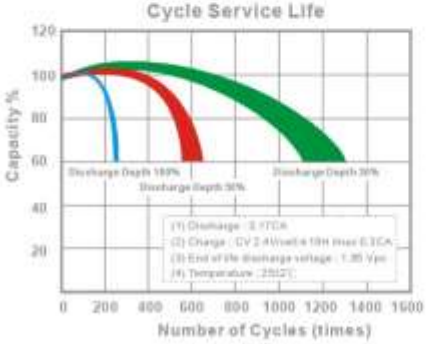
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	249	275	320	371	380	396	432
10	min	203	230	251	274	282	290	309
15	min	170	190	207	215	218	224	231
20	min	150	158	171	173	180	185	193
30	min	113	124	134	138	141	143	148
60	min	72.5	76.5	82.3	83.7	84.0	84.3	85.0
90	min	58.3	60.2	61.5	62.0	62.3	62.5	62.8
120	min	46.7	49.0	50.0	50.5	50.7	50.8	51.0
180	min	32.4	33.5	34.0	34.3	34.5	34.7	35.0
240	min	26.0	27.2	27.5	27.7	27.8	28.0	28.2
300	min	21.7	22.6	23.1	23.2	23.3	23.4	23.4
480	min	14.9	15.5	15.8	15.9	16.0	16.0	16.0
600	min	12.5	12.9	13.2	13.2	13.3	13.3	13.3
1200	min	6.54	6.76	6.86	6.87	6.89	6.91	6.94

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	137	151	177	208	213	224	245
10	min	102	123	135	149	154	158	169
15	min	91.0	100	109	116	119	122	129
20	min	61.4	82.5	89.3	92.5	94.0	96.5	101
30	min	50.7	63.6	68.5	71.5	73.4	74.7	77.2
60	min	36.6	38.5	41.5	42.5	43.0	43.6	44.2
90	min	29.5	31.1	31.8	32.2	32.8	33.0	33.4
120	min	23.1	24.3	24.8	25.0	25.3	25.5	25.8
180	min	16.2	17.0	17.3	17.5	17.7	17.8	18.0
240	min	13.0	13.6	13.8	13.9	14.0	14.1	14.2
300	min	10.8	11.3	11.5	11.6	11.7	11.8	11.9
480	min	7.43	7.73	7.87	7.92	7.94	7.96	7.98
600	min	6.19	6.43	6.54	6.58	6.60	6.61	6.63
1200	min	3.24	3.35	3.40	3.41	3.42	3.43	3.44

All data on the spec. sheet is an average value:

The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

RECHARGEABLE SEALED LEAD ACID BATTERY

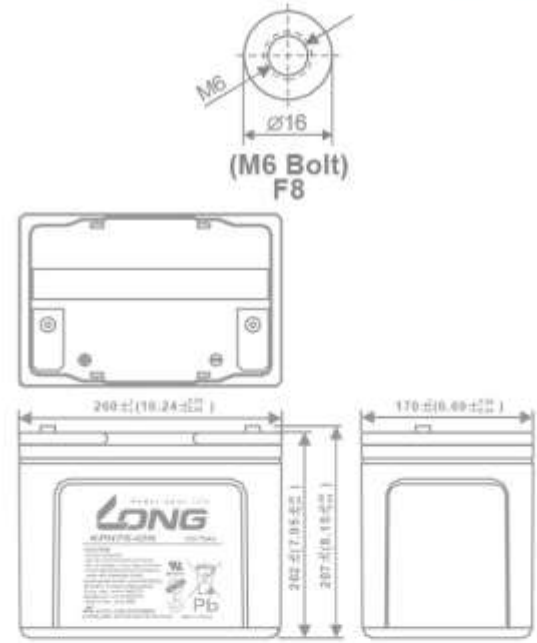
Supplier of Energy

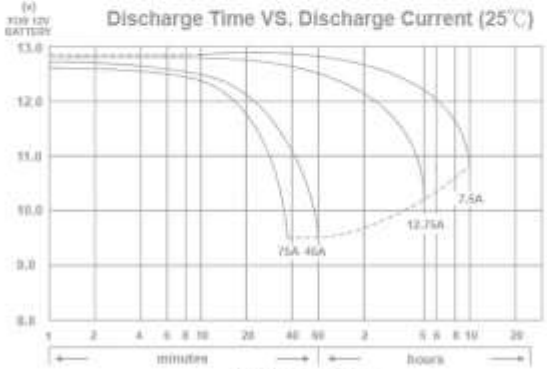
KPH75-12N 12Volt 75Ah

Specifications

Nominal Voltage(V)	**12V**
Nominal Capacity	
10 hour rate (7.5A to 10.80V)	**75Ah**
5 hour rate (12.75A to 10.20V)	**63.75Ah**
1 hour rate (45A to 9.60V)	**45Ah**
1 C (75A to 9.60V)	**47.5Ah**
Weight	Approx. **24.2kg(53.24Lbs.)**
Internal Resistance (at 1KHz)	Approx. **5 mΩ**
Maximum Discharge Current for 5 seconds:	**900A**
Charging Methods at 25℃(77℉)	
Cycle use:	
Charging Voltage	**14.4 to 15.0V**
Coefficient -5.0mV/℃/cell	
Maximum Charging Current :	**22.5A**
Standby use:	
Float Charging Voltage	**13.5 to 13.8V**
Coefficient -3.0mV/℃/cell	
Design Life	**12 years**
Operating Temperature Range	
Charge	-15℃(5℉) to 40℃(104℉)
Discharge	-15℃(5℉) to 50℃(122℉)
Storage	-15℃(5℉) to 40℃(104℉)
Charge Retention (shelf life) at 20℃(68℉)	
1 month	98%
3 month	94%
6 month	85%
Case Material	**ABS UL94 HB**
Option: Flammability resistance of (UL94 V-0)	
Terminal	**F8**
Description of torque value of hard ware for the terminals:	
Recommended torque value	**M6: 7 N-m (71kgf-cm)**
Maximum allowable torque value	**M6: 9 N-m (92kgf-cm)**

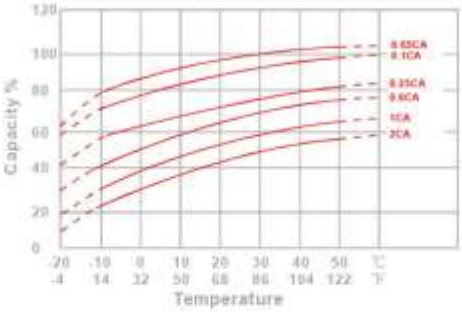
Dimensions mm(inch)



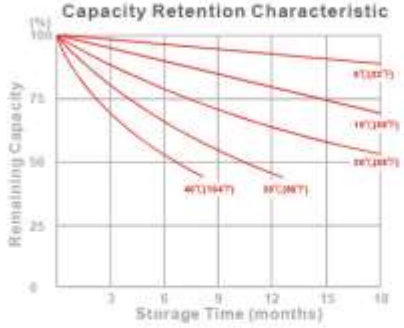


KPH75-12N

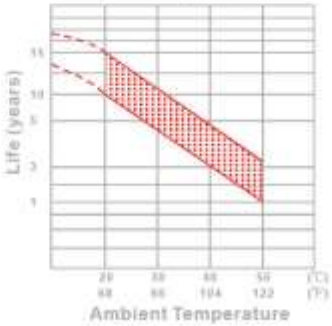
Effect of Temperature on Capacity 25℃(77℉)



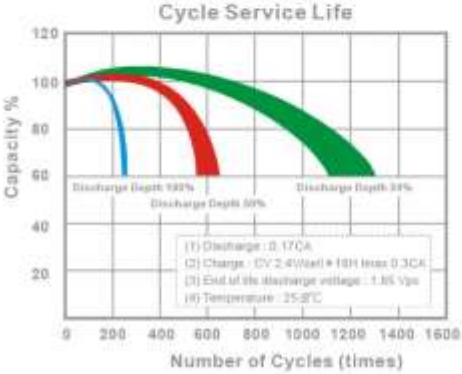
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	407	429	491	521	537	552	567
10	min	278	294	336	357	368	378	388
15	min	178	225	240	274	280	287	294
30	min	139	149	155	159	160	162	165
60	min	80.8	85.3	87.8	89.8	90.5	91.3	92.3
120	min	47.2	49.8	51.3	52.7	53.2	53.7	54.3
180	min	34.0	35.8	36.8	37.7	38.0	38.3	38.8
240	min	27.8	28.8	29.7	30.3	30.5	30.8	31.2
300	min	24.8	25.3	25.7	26.0	26.2	26.3	26.5
600	min	15.0	15.2	15.3	15.5	15.5	15.6	15.6
1200	min	7.85	7.97	8.07	8.15	8.20	8.23	8.28

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	178	214	245	272	281	292	304
10	min	112	143	167	186	192	199	207
15	min	90.5	109	124	138	141	145	150
30	min	63.2	72.6	79.4	84.5	85.6	87.2	89.0
60	min	38.6	41.5	43.3	44.8	45.3	45.9	46.7
120	min	20.2	22.4	23.9	25.0	25.4	25.8	26.3
180	min	15.8	17.4	18.4	19.3	19.6	20.0	20.4
240	min	12.9	13.9	14.7	15.3	15.6	15.9	16.2
300	min	11.8	12.6	13.1	13.4	13.6	13.8	14.1
600	min	7.53	7.62	7.69	7.74	7.76	7.81	7.85
1200	min	3.87	3.93	3.98	4.02	4.03	4.05	4.08

All data on the spec. sheet is an average value:
The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

KPH80-12N 12Volt 80Ah

Specifications

Nominal Voltage(V) 12V

Nominal Capacity

10 hour rate	(8A	to	10.80V)	80Ah
5 hour rate	(13.6A	to	10.20V)	68Ah
1 hour rate	(48A	to	9.60V)	48Ah
1 C	(80A	to	9.60V)	50.67Ah

Weight Approx. 24.2kg(53.2Lbs.)

Internal Resistance (at 1KHz) Approx. 5 mΩ

Maximum Discharge Current for 5 seconds: 960A

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage 14.4 to 15.0V

Coefficient -5.0mV/℃/cell

Maximum Charging Current : 24A

Standby use:

Float Charging Voltage 13.5 to 13.8V

Coefficient -3.0mV/℃/cell

Design Life 12 years

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

1 month	98%
3 month	94%
6 month	85%

Case Material ABS UL94 HB

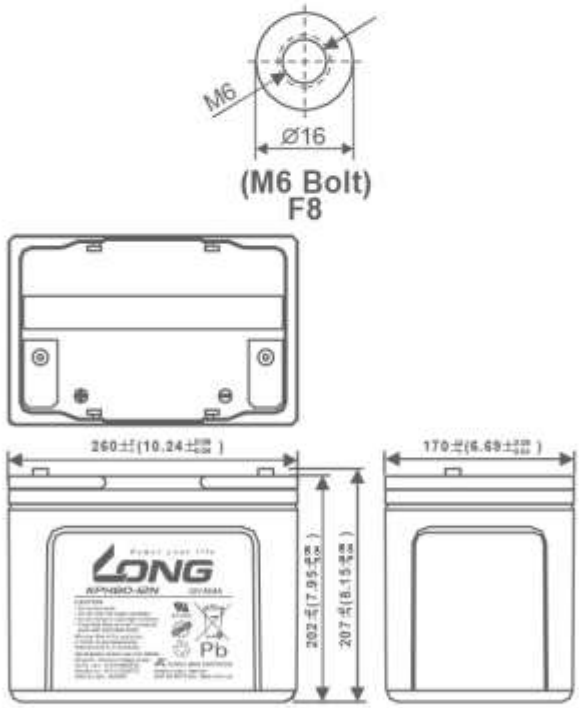
Option: Flammability resistance of (UL94 V-0)

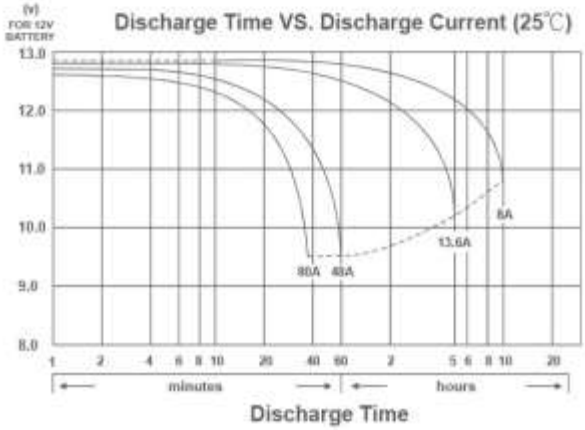
Terminal F8

Description of torque value of hard ware for the terminals:

Recommended torque value	M6: 7 N-m (71kgf-cm)
Maximum allowable torque value	M6: 9 N-m (92kgf-cm)

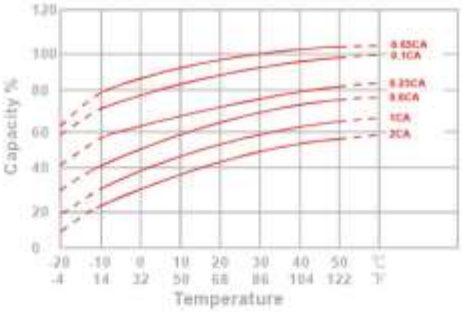
Dimensions mm(inch)



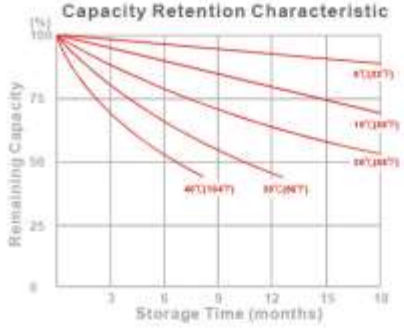


KPH80-12N

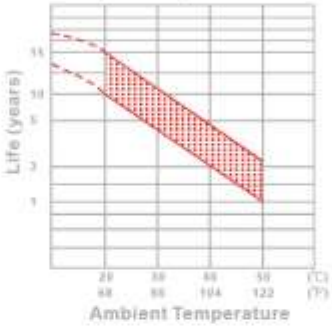
Effect of Temperature on Capacity 25℃(77℉)



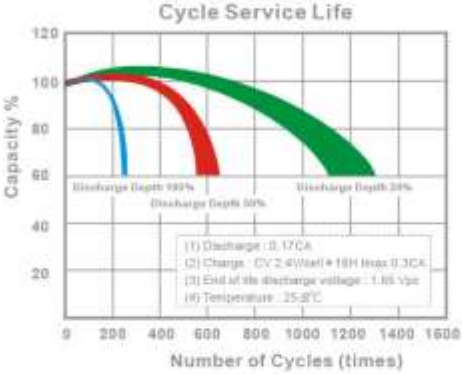
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	407	429	491	521	537	552	567
10	min	278	294	336	357	368	378	388
15	min	178	225	240	274	280	287	294
30	min	139	149	155	159	160	162	165
60	min	80.8	85.3	87.8	89.8	90.5	91.3	92.3
120	min	47.2	49.8	51.3	52.7	53.2	53.7	54.3
180	min	34.0	35.8	36.8	37.7	38.0	38.3	38.8
240	min	27.8	28.8	29.7	30.3	30.5	30.8	31.2
300	min	24.8	25.3	25.7	26.0	26.2	26.3	26.5
600	min	15.0	15.2	15.3	15.5	15.5	15.6	15.6
1200	min	7.85	7.97	8.07	8.15	8.20	8.23	8.28

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time	End Voltage	1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	178	214	245	272	281	292	304
10	min	112	143	167	186	192	199	207
15	min	90.5	109	124	138	141	145	150
30	min	63.2	72.6	79.4	84.5	85.6	87.2	89.0
60	min	38.6	41.5	43.3	44.8	45.3	45.9	46.7
120	min	20.2	22.4	23.9	25.0	25.4	25.8	26.3
180	min	15.8	17.4	18.4	19.3	19.6	20.0	20.4
240	min	12.9	13.9	14.7	15.3	15.6	15.9	16.2
300	min	11.8	12.6	13.1	13.4	13.6	13.8	14.1
600	min	7.53	7.62	7.69	7.74	7.76	7.81	7.85
1200	min	3.87	3.93	3.98	4.02	4.03	4.05	4.08

All data on the spec. sheet is an average value:
The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)

Power your life

LONG

RECHARGEABLE SEALED LEAD ACID BATTERY

Supplier of Energy

KPH100-12AN 12Volt 100Ah

Specifications

Nominal Voltage(V)	**12V**

Nominal Capacity

10 hour rate	(10A	to	10.80V)	**100Ah**
5 hour rate	(17A	to	10.20V)	**85Ah**
1 hour rate	(60A	to	9.60V)	**60Ah**
1 C	(100A	to	9.60V)	**63.33Ah**

Weight	Approx. **29.5kg(64.9Lbs.)**
Internal Resistance (at 1KHz)	Approx. **5 mΩ**

Maximum Discharge Current for

5 seconds:	**1200A**

Charging Methods at 25℃(77℉)

Cycle use:

Charging Voltage	**14.4 to 15.0V**
Coefficient -5.0mV/℃/cell	
Maximum Charging Current :	**30A**

Standby use:

Float Charging Voltage	**13.5 to 13.8V**
Coefficient -3.0mV/℃/cell	
Design Life	**12 years**

Operating Temperature Range

Charge	-15℃(5℉)	to	40℃(104℉)
Discharge	-15℃(5℉)	to	50℃(122℉)
Storage	-15℃(5℉)	to	40℃(104℉)

Charge Retention (shelf life) at 20℃(68℉)

1 month	98%
3 month	94%
6 month	85%
Case Material	**ABS UL94 HB**

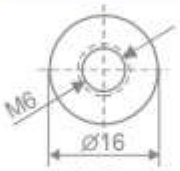
Option: Flammability resistance of (UL94 V-0)

Terminal	**F8**

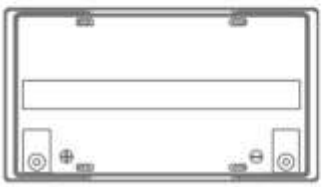
Description of torque value of hard ware for the terminals:

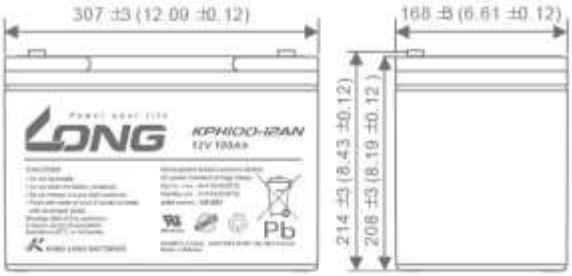
Recommended torque value	**M6: 7 N-m (71kgf-cm)**
Maximum allowable torque value	**M6: 9 N-m (92kgf-cm)**

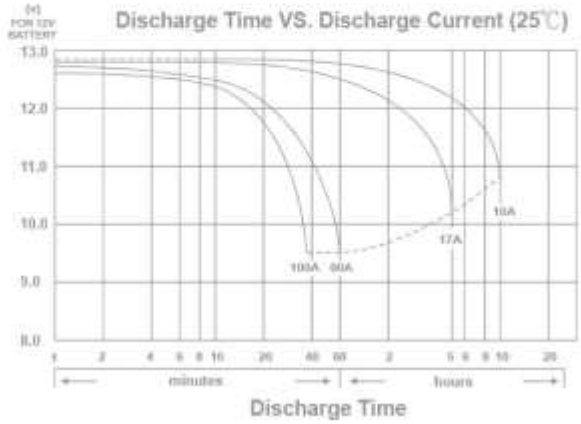
Dimensions mm(inch)



(M6 Bolt)
F8

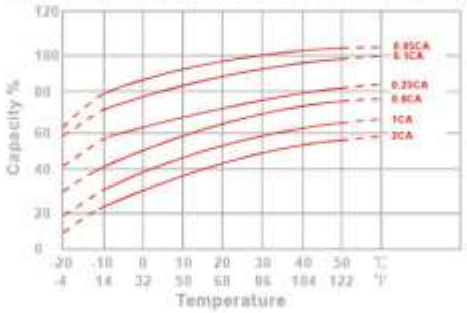




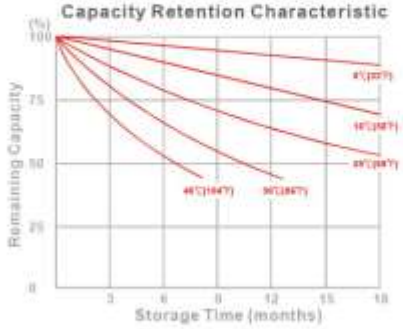


KPH100-12AN

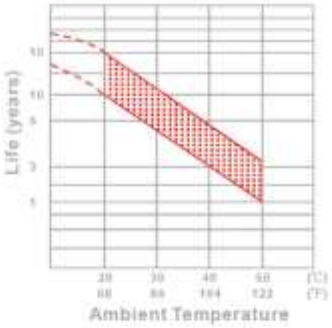
Effect of Temperature on Capacity 25℃(77℉)



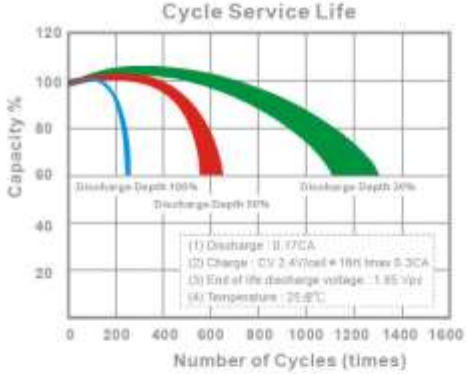
Capacity Retention Characteristic



Trickle (or float) Service Life



Cycle Service Life



- PERFORMANCE DATA

Discharge Rates in Watts to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	458	512	549	584	600	617	649
10	min	348	380	407	432	443	455	477
15	min	277	301	320	338	346	354	370
30	min	163	174	183	191	195	199	206
60	min	112	116	119	122	123	125	126
120	min	66.3	69.5	72.0	73.5	74.5	75.7	77.2
180	min	47.2	49.7	51.8	52.2	53.0	54.0	55.2
240	min	35.2	37.3	39.3	41.3	42.0	42.8	43.8
300	min	31.3	32.8	34.2	35.2	35.5	36.0	36.7
600	min	18.0	19.2	20.0	20.8	21.2	21.5	21.8
1200	min	10.4	10.7	11.0	11.2	11.3	11.4	11.5

- Discharge Rates in Amperes to Various End Voltages at 25℃(77℉)

Time \ End Voltage		1.85V	1.80V	1.75V	1.70V	1.67V	1.65V	1.60V
5	min	202	267	305	336	346	358	375
10	min	159	188	209	226	234	243	257
15	min	119	146	165	179	184	190	198
30	min	71.2	83.7	92.1	101	103	106	111
60	min	43.6	50.8	56.5	60.6	61.5	63.0	64.9
120	min	25.8	29.3	32.5	35.6	36.4	37.3	38.5
180	min	22.6	23.7	24.8	25.7	26.1	26.5	27.2
240	min	18.3	19.1	19.8	20.5	20.8	21.1	21.6
300	min	16.1	16.7	17.2	17.6	17.8	17.9	18.1
600	min	9.71	10.0	10.2	10.4	10.5	10.6	10.7
1200	min	5.09	5.26	5.38	5.48	5.53	5.57	5.64

All data on the spec. sheet is an average value:
The tolerance range : X<6min(+15%~-15%), 6min≦X<10min(+12%~-12%),10min ≦X < 60min(+8% ~-8%), X≧60min(+5%~-5%)