

PHOENIXTEC™ Battery

# PHOENIXTEC™ BATTERY PH12V SERIES

Valve Regulated Lead-acid UPS Batteries



## Product Introduction

PHOENIXTEC™ battery PH12V series batteries adopt unique and advanced technology and production processes. They are being designed with more focus on compatibility with UPS and system optimization. Compared to other batteries on the market, PH12V series batteries can provide longer float charging life time and more powerful discharging characteristics. It is an ideal product for UPS backup application.

## Applications

UPS, Telecom, Security Standby Power Supply, Medical Instruments, and so on.

## Product Features

- **Long-life Design**

The advanced grid manufacturing technology leads to a highly improved grid corrosion resistance. The battery design life is over 10 years at floating condition.

- **Excellent High Rate Discharge Performance**

Due to a special plate design and a terminal design, together with an advanced formulation and a welding process, the high rate discharge performance is significantly increased with the ensuring of enough battery capacity.

- **Flame Retardant**

The battery containers and lids are manufactured with UL94-V0 level frame retardant ABS materials.

- **Low Self-discharge Rate**

Battery self-discharge rate is less than 3% at 25°C after 28 days.

- **High Consistency**

Thanks to the automatic production process and the resulting high productivity, Phoenixtec batteries have good performance in plate and battery consistency. They are more suitable for being used in series in UPS application.

- **Best Compatibility With UPS**

The product design work was done to achieve a perfect combination with UPS and whole system cost optimization.

- **Convenient Installation And Maintenance**

The embedded terminal design makes the installation and maintenance work simple and convenient. It also increases the high current trafficability performance.

**PHOENIXTEC™**

# Specifications

Item No.	Voltage (V)	Capacity /Ah (C20@25°C)	W/cell 1.67V@15min	Internal Resistance (mΩ)	Dimensions (mm)				Weight (Kg)	Terminal
					L	W	H	TH		
PH12-18	12	18	61.7	4.0	181.5	77	167.5	181.5	5.4	T3
PH12-26	12	26	89.1	4.0	166	175	125	166	7.8	M5
PH12-38	12	38	123	4.0	197	165	170	197	11.4	M6
PH12-65	12	65	210	4.0	325	167	174	325	19.2	M6
PH12-100	12	100	324	4.0	330	173	216	330	28.0	M8
PH12-120	12	120	336	4.0	408	177	225	408	32.3	M8
PH12-150	12	150	420	3.5	483	170	238	483	41.5	M8
PH12-200	12	200	560	2.7	522	240	218	522	57.1	M8



# Battery Characteristics

<b>Design life</b>	10 years (25°C)
<b>Operating Temperature Range</b>	Charge: -20°C ~ 40°C Discharging: -20°C ~ 55°C Storage: -15°C ~ 50°C
<b>Capacity Affected by Temperature</b>	103% C <sub>20</sub> @40°C 100% C <sub>20</sub> @25°C 86% C <sub>20</sub> @0°C
<b>Float Charging Voltage</b>	13.5V - 13.8V (Recommend 13.6V)
<b>Equalizing Charging Voltage</b>	14.1V - 14.4V (Recommend 14.1V)
<b>Float Charging Temp. Coefficient</b>	-18mV/°C
<b>Recycling Usage Temp. Coefficient</b>	-30mV/°C
<b>Max. Charging Current</b>	0.25CA
<b>Max AC ripple (charger)</b>	Less than 2%
<b>Monthly Self Discharge Rate</b>	Less than 3% (25°C)

# Constant Power Discharge (Watts/Cell@25°C )

## PH12-18

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	99.1	69.7	54.6	44.3	32.9	24.2	20.3	15.1	12.0	9.00	7.12	5.94	5.10	4.05	3.31	1.79
1.75	106.7	73.8	57.2	46.1	34.1	25.0	20.9	15.5	12.3	9.20	7.27	6.06	5.19	4.11	3.35	1.81
1.70	114.0	77.8	59.8	48.0	35.2	25.7	21.6	15.9	12.7	9.43	7.43	6.18	5.29	4.18	3.40	1.83
1.67	118.0	80.1	61.7	49.0	35.9	26.2	21.9	16.2	12.8	9.55	7.51	6.24	5.34	4.21	3.43	1.84
1.60	128.6	85.7	64.7	51.5	37.5	27.2	22.7	16.7	13.3	9.84	7.72	6.40	5.47	4.30	3.49	1.87

## PH12-26

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	143	101	78.8	64.0	47.5	34.9	29.4	21.8	17.4	13.0	10.3	8.58	7.36	5.84	4.78	2.58
1.75	154	107	82.6	66.5	49.2	36.1	30.2	22.4	17.8	13.3	10.5	8.75	7.50	5.94	4.84	2.61
1.70	165	112	86.3	69.3	50.9	37.2	31.1	23.0	18.3	13.6	10.7	8.92	7.64	6.03	4.91	2.64
1.67	171	116	89.1	70.8	51.9	37.8	31.6	23.3	18.5	13.8	10.8	9.01	7.72	6.09	4.95	2.66
1.60	186	124	93.4	74.4	54.2	39.3	32.9	24.2	19.2	14.2	11.2	9.25	7.90	6.21	5.04	2.71

## PH12-38

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	173	132	109	90.6	67.5	50.4	41.8	31.0	24.9	18.4	14.7	12.4	10.7	8.47	7.06	3.77
1.75	185	139	114	94.1	69.9	52.0	43.0	31.9	25.5	18.8	15.1	12.6	10.9	8.60	7.16	3.82
1.70	198	147	119	98.0	72.3	53.6	44.3	32.8	26.2	19.3	15.4	12.9	11.1	8.74	7.26	3.86
1.67	204	151	123	100	73.8	54.5	45.0	33.2	26.5	19.5	15.6	13.0	11.2	8.82	7.31	3.89
1.60	219	160	128	105	76.9	56.7	46.7	34.4	27.4	20.1	16.0	13.4	11.5	9.00	7.45	3.96

## PH12-65

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	295	225	186	155	115	86.2	71.5	53.1	42.5	31.5	25.2	21.2	18.3	14.5	12.1	6.46
1.75	317	239	195	161	120	89.0	73.6	54.5	43.6	32.2	25.7	21.6	18.6	14.7	12.2	6.53
1.70	338	251	203	168	124	91.6	75.8	56.0	44.8	33.0	26.3	22.0	19.0	14.9	12.4	6.61
1.67	349	258	210	171	126	93.2	77.0	56.8	45.4	33.4	26.6	22.3	19.2	15.1	12.5	6.66
1.60	375	274	219	180	132	97.0	80.0	58.9	46.9	34.4	27.3	22.9	19.6	15.4	12.7	6.77

# Constant Current Discharge (Ampere@25°C )

## PH12-18

F.V. (V/cell)	Time															
	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H	20H
1.80	52.7	36.8	28.7	23.2	17.1	12.6	10.5	7.78	6.19	4.61	3.64	3.03	2.59	2.05	1.67	0.90
1.75	57.5	39.4	30.3	24.4	17.9	13.1	10.9	8.04	6.38	4.73	3.73	3.10	2.65	2.09	1.70	0.91
1.70	62.2	42.0	32.1	25.6	18.7	13.6	11.3	8.32	6.59	4.87	3.82	3.17	2.70	2.13	1.73	0.92
1.67	65.0	43.6	33.1	26.4	19.2	13.9	11.6	8.47	6.70	4.95	3.87	3.21	2.74	2.15	1.74	0.93
1.60	71.6	47.2	35.5	28.1	20.3	14.6	12.1	8.84	6.98	5.13	4.00	3.30	2.81	2.20	1.78	0.95

## PH12-26

F.V. (V/cell)	Time															
	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H	20H
1.80	76.1	53.1	41.4	33.5	24.8	18.2	15.2	11.2	8.95	6.66	5.25	4.37	3.74	2.96	2.42	1.30
1.75	83.0	56.9	43.8	35.2	25.9	18.9	15.8	11.6	9.22	6.84	5.38	4.47	3.82	3.02	2.46	1.32
1.70	89.9	60.7	46.3	37.0	27.0	19.6	16.4	12.0	9.52	7.04	5.52	4.57	3.90	3.07	2.49	1.33
1.67	93.9	63.0	47.8	38.1	27.7	20.1	16.7	12.2	9.68	7.14	5.59	4.63	3.95	3.10	2.52	1.34
1.60	104	68.1	51.2	40.6	29.3	21.1	17.5	12.8	10.1	7.41	5.78	4.77	4.06	3.18	2.57	1.37

## PH12-38

F.V. (V/cell)	Time															
	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H	20H
1.80	92.2	69.6	57.2	47.5	35.2	26.2	21.6	16.0	12.8	9.44	7.53	6.32	5.43	4.29	3.57	1.90
1.75	101	74.7	60.5	49.8	36.8	27.2	22.4	16.5	13.2	9.69	7.71	6.46	5.55	4.37	3.63	1.92
1.70	109	79.6	63.9	52.4	38.4	28.3	23.3	17.1	13.6	9.97	7.91	6.61	5.67	4.45	3.68	1.95
1.67	114	82.5	65.9	53.9	39.4	28.9	23.8	17.4	13.8	10.1	8.02	6.69	5.74	4.50	3.72	1.96
1.60	125	89.3	70.7	57.4	41.6	30.4	24.9	18.2	14.4	10.5	8.28	6.89	5.90	4.60	3.80	2.00

## PH12-65

F.V. (V/cell)	Time															
	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H	20H
1.80	158	119	97.8	81.2	60.2	44.8	37.0	27.4	21.9	16.1	12.9	10.8	9.30	7.35	6.11	3.25
1.75	172	128	203	85.2	62.9	46.6	38.4	28.3	22.6	16.6	13.2	11.1	9.49	7.48	6.20	3.29
1.70	186	136	109	89.6	65.7	48.4	39.8	29.3	23.3	17.1	13.5	11.3	9.70	7.61	6.30	3.33
1.67	195	141	113	92.2	67.4	49.4	40.6	29.8	23.7	17.3	13.7	11.4	9.81	7.69	6.36	3.36
1.60	215	153	121	98.2	71.2	52.0	42.6	31.1	24.6	18.0	14.2	11.8	10.1	7.87	6.49	3.42

# Constant Power Discharge (Watts/Cell@25°C )

## PH12-100

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	415	322	287	224	166	122	103	76.3	61.1	45.5	36.1	30.2	26.2	21.3	18.4	9.79
1.75	446	342	300	233	172	126	106	78.3	62.6	46.5	36.9	30.8	26.7	21.6	18.6	9.91
1.70	475	359	313	243	178	130	109	80.5	64.2	47.7	37.7	31.4	27.2	22.0	18.9	10.0
1.67	497	370	324	248	182	132	111	81.6	65.1	48.3	38.1	31.7	27.4	22.2	19.0	10.1
1.60	528	392	338	260	190	138	115	84.6	67.3	49.8	39.2	32.6	28.1	22.6	19.4	10.3

## PH12-120

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	472	361	297	250	191	144	123	93	74	55.9	44.7	37.5	32.6	25.8	21.5	11.77
1.75	507	382	311	260	198	149	127	95	76	57.2	45.7	38.3	33.2	26.2	21.8	11.91
1.70	541	402	325	271	204	153	131	98	78	58.6	46.6	39.0	33.8	26.6	22.1	12.05
1.67	559	414	336	277	208	156	133	99	79	59.3	47.2	39.4	34.2	26.9	22.3	12.13
1.60	601	439	351	290	217	162	138	103	82	61.1	48.5	40.5	35.0	27.4	22.7	12.34

## PH12-150

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	590	451	371	312	238	180	154	116	93.0	69.9	55.9	46.9	40.7	32.2	26.9	14.7
1.75	634	478	389	325	247	186	159	119	95.3	71.5	57.1	47.8	41.5	32.8	27.2	14.9
1.70	676	503	406	338	256	192	164	122	97.8	73.2	58.3	48.8	42.3	33.3	27.6	15.1
1.67	699	517	420	346	261	195	166	124	99.1	74.1	59.0	49.3	42.7	33.6	27.8	15.2
1.60	751	548	438	362	272	203	173	129	102	76.4	60.6	50.6	43.7	34.3	28.3	15.4

## PH12-200

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	908	693	572	477	355	265	220	163	131	97.0	77.6	65.2	56.3	44.6	37.1	19.87
1.75	976	734	599	495	368	274	226	168	134	99.2	79.2	66.5	57.3	45.3	37.7	20.10
1.70	1040	773	626	516	381	282	233	172	138	101	80.9	67.8	58.4	46.0	38.2	20.34
1.67	1075	795	647	527	388	287	237	175	140	102	81.8	68.5	58.9	46.4	38.5	20.48
1.60	1155	842	675	553	405	298	246	181	144	106	84.1	70.3	60.4	47.4	39.2	20.83

# Constant Current Discharge (Ampere@25°C )

## PH12-100

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	222	171	151	117	86.8	63.5	53.3	39.3	31.4	23.3	18.4	15.4	13.3	10.8	9.30	5.00
1.75	242	183	159	123	90.7	66.1	55.3	40.7	32.4	23.9	18.9	15.8	13.6	11.0	9.44	5.03
1.70	262	195	169	130	94.7	68.6	57.3	42.0	33.4	24.6	19.4	16.1	13.9	11.2	9.59	5.05
1.67	274	202	174	133	97.1	70.2	58.5	42.8	33.9	25.0	19.6	16.3	14.0	11.3	9.68	5.09
1.60	302	219	186	142	103	73.8	61.3	44.7	35.4	25.9	20.3	16.8	14.4	11.6	9.88	5.18

## PH12-120

F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	252	191	156	131	99	74.9	64.0	47.8	38.3	28.6	22.8	19.1	16.6	13.0	10.9	6.00
1.75	275	205	165	137	104	78.0	66.3	49.5	39.4	29.4	23.4	19.6	16.9	13.3	11.0	6.08
1.70	298	218	175	145	109	80.9	68.8	51.1	40.7	30.3	24.0	20.0	17.3	13.6	11.2	6.15
1.67	311	226	180	149	111	82.7	70.2	52.0	41.4	30.7	24.3	20.3	17.5	13.7	11.3	6.20
1.60	343	245	193	158	118	87.0	73.6	54.4	43.1	31.8	25.1	20.9	18.0	14.0	11.6	6.31

## PH12-150

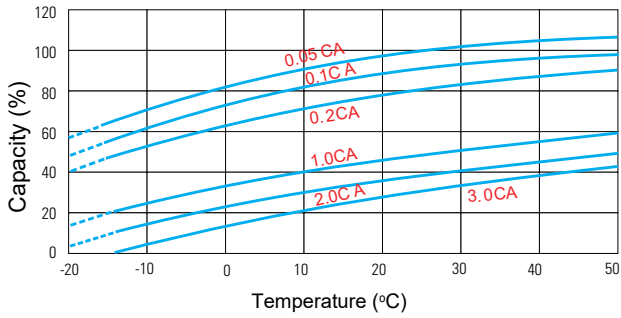
F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	315	239	195	164	124	93.6	80.0	59.8	47.8	35.8	28.5	23.9	20.7	16.4	13.6	7.50
1.75	344	256	207	172	130	97.4	82.9	61.8	49.3	36.8	29.3	24.5	21.2	16.7	13.8	7.60
1.70	373	273	218	181	136	101	86.0	63.9	50.9	37.8	30.0	25.0	21.6	16.9	14.0	7.69
1.67	389	283	225	186	139	103	87.8	65.1	51.7	38.4	30.4	25.3	21.9	17.1	14.1	7.75
1.60	429	306	242	198	147	109	89.2	68.0	53.9	39.8	31.4	26.1	22.5	17.5	14.4	7.89

## PH12-200

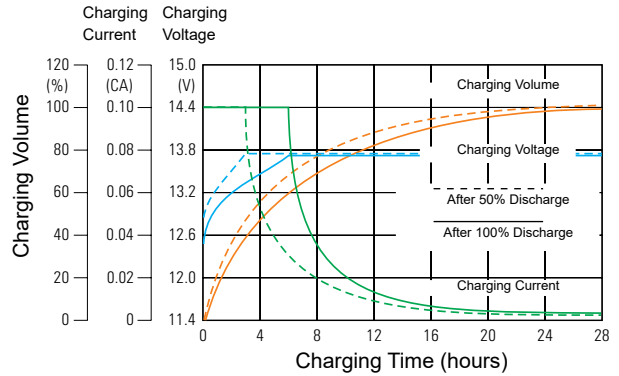
F.V.	Time															
	(V/cell)	5min	10min	15min	20min	30min	45min	1H	1.5H	2H	3H	4H	5H	6H	8H	10H
1.80	485	366	301	250	185	138	114	84.2	67.3	49.7	39.6	33.2	28.6	22.6	18.8	10.00
1.75	530	393	318	262	194	142	118	87.1	69.4	51.0	40.5	34.0	29.2	23.0	19.1	10.13
1.70	573	419	336	276	202	149	122	90.0	71.6	52.5	41.7	34.8	29.8	23.4	19.4	10.25
1.67	599	434	347	284	207	152	125	91.6	72.8	53.3	42.2	35.2	30.2	23.7	19.6	10.33
1.60	660	470	372	302	219	160	131	95.7	75.8	55.2	43.6	36.3	31.0	24.2	20.0	10.52

# Typical Curves

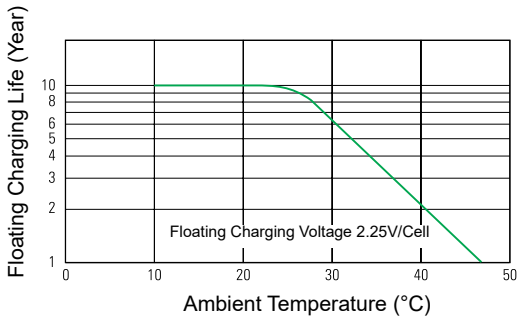
**Ambient Temperature in Relation to Discharge Capacity**



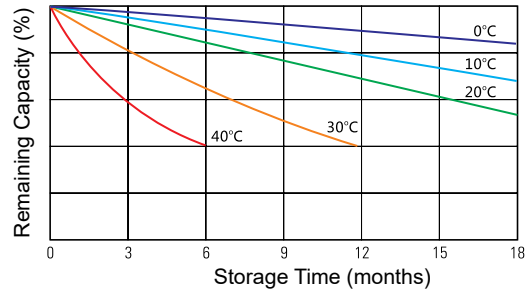
**Charging Characteristics**



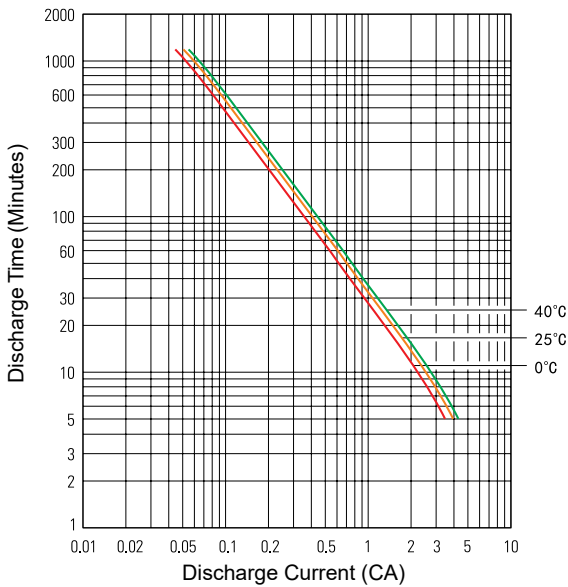
**Float Charging Life Characteristics**



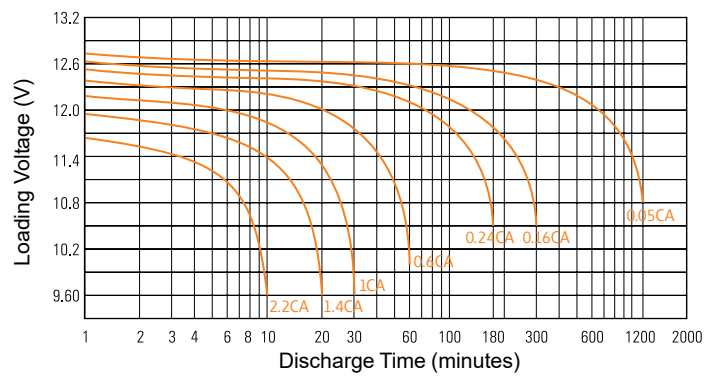
**Self-discharge Characteristics**



**Discharge Current in Relation to Discharge Time**



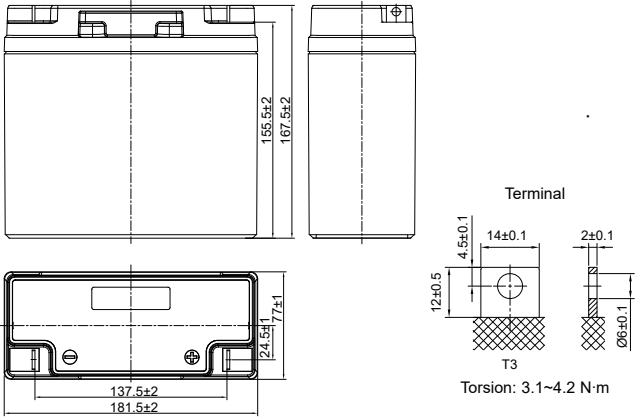
**Discharge Characteristics**



# Dimensions

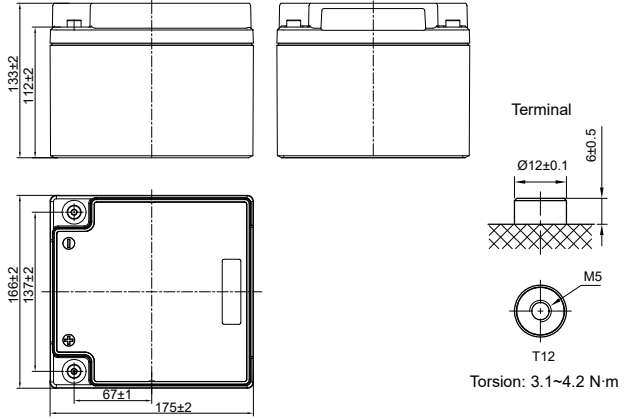
## PH12-18

Size (mm)



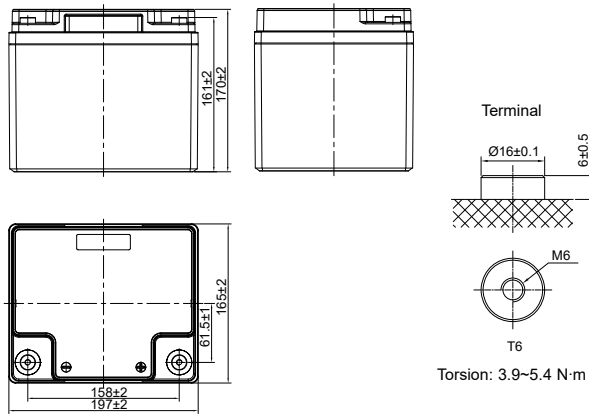
## PH12-26

Size (mm)



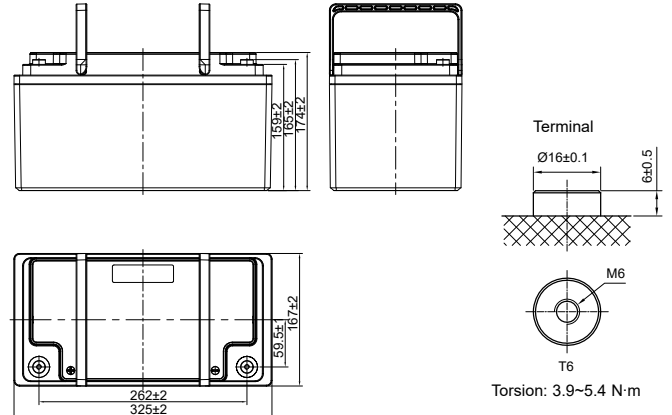
## PH12-38

Size (mm)

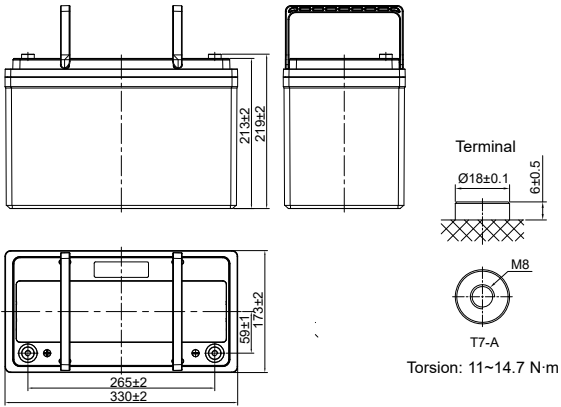


## PH12-65

Size (mm)

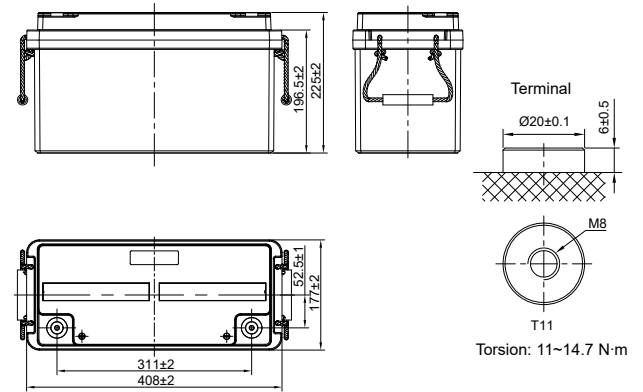


## PH12-100

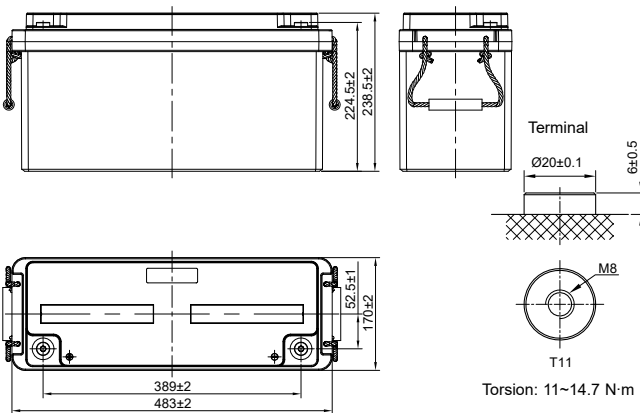


## PH12-120

Size (mm)

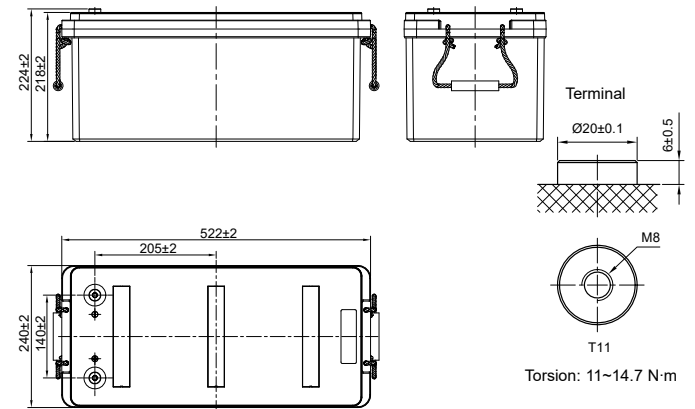


## PH12-150



## PH12-200

Size (mm)





## Operation and Maintenance

### Charging

Float Charging Voltage: 13.5 - 13.8V (Recommend: 13.6V)

Equalizing Charging Voltage: 14.1 - 14.4V (Recommend 14.1V)

### Daily Maintenance

In order to control the operation status of battery and equipment, please follow below methods periodically to check the battery and record.

Frequency	Inspection and Maintenance Items
Monthly	Battery pack overall float charging voltage, battery appearance, battery temperature, connecting parts, safety valve.
Quarterly	Battery pack overall float charging voltage, each battery float charging voltage, battery appearance, battery temperature, connecting parts, safety valve.
Annually	Battery pack overall float charging voltage, each battery float charging voltage, battery appearance, battery temperature, connecting parts, safety valve. Discharge test (discharge 30-40% of the nominal capacity and pick out the laggard batteries.)

### Problems and Processing Methods

Problems	Processing Methods	Remarks
Leakage	Replace	
Broken	Replace	
On Fire	Replace	Please use dry powder extinguisher
Abnormal appearance	Contact supplier	
Over high temperature	Please check the charging and discharging parameters or replace the faulty battery	
Insufficient Capacity	Equalizing charging the single battery for more than 24 hours	Replace if the capacity is still insufficient
Single Battery Voltage too low	Equalizing charging the single battery for more than 24 hours	

Specifications are subject to change without prior notice.

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