

# Sealed Lead-Acid Batteries

Powerful performance for everyday life.



# sealed lead-acid batteries



UNIVERSAL® AGM



UNIVERSAL® GEL



KINETIK® PRO GEL



Our line of Universal® AGM, Universal® GEL and Kinetik® Pro GEL batteries are defined as Non-Hazardous & Non-Spillable by DOT (Department of Transportation), IATA (International Airline Transport Association), and ICAO (International Civil Aviation Organization.)

## Our SLA Batteries Offer:

- > Outstanding performance, withstanding high current output and deep cycling
- > Excellent resistance to vibration, shock, chemicals and heat
- > Lower self-discharge
- > Reliable power for critical applications
- > DOT 60 classified for easy transportation
- > UL recognized

AGM  
&  
GEL

Although every effort has been made to ensure the accuracy of the information in this catalog, it may still contain typographical, pictorial or specification errors. Errors brought to our attention will be corrected in subsequent issues. UPG reserves the right to make product changes from time to time, without prior notification, which may impact the specifications shown. We recommend that specifications be confirmed before using for customer projects or product development.

# agm & gel battery design



AGM & GEL batteries are lead-acid and of the same battery chemistry (lead dioxide, sponge-lead and sulfuric acid electrolyte) but the electrolyte is stabilized differently.



agm

The electrolyte is suspended in fiberglass mat separators which act as absorbent sponges.



gel

The electrolyte is suspended in silica-based gel as a thick pasty material.

## diagram



UNIVERSAL BATTERY®

## sealed lead-acid batteries/agm

UPG No.	Model No.	Terminal	Nominal Voltage	Capacity 20 hr. Rate
45797	UB22000	I8	2	200
45798	UB23000	I8	2	300
40559	UB445	F1	4	4.50
D5798	UB490	F1	4	9.00
46050	UB610	F1	6	1.00
D5731	UB613	F1	6	1.30
D5695	UB632	F1	6	3.20
D5732	UB634	F1	6	3.40
D5733	UB645	F1	6	4.50
40565	UB645WL	WL	6	4.50
D5697	UB650S Lantern	S2	6	5.00
D5897	UB650F Lantern	F1	6	5.00
D5734	UB670	F1	6	7.00
D5735	UB685	F1	6	8.50
D5736	UB6120	F1	6	12.0
D5778	UB6120	F2	6	12.0
40575	UB6130 TOY	Neg F1, Pos F2	6	13.0
D5737	UB6120 TOY	Wire Lead w/ P2	6	12.0
40560	UB6420	F2	6	42.0
45969	UB62000 (Grp 27 Case)	I4	6	200
45966	UB-GC2 (Golf Cart)	L5	6	200
40870	UB63800 (L16)	Auto Post & Stud	6	380
45968	UB-GC8	I8	8	200
45791	UB1208	Amp Connector	12	0.80
45799	UB1208	JST Connector	12	0.80
46014 or D5738	UB1213	F1	12	1.30
D2790	UB1220-T	ST	12	2.00
D5739	UB1222	F1	12	2.20
40836	UB1223A	PC	12	2.30
D5700	UB1229T	F1	12	2.90
D5740	UB1234	F1	12	3.40
46094 or 45650	UB1240	F1	12	4.00
D5741	UB1250	F1	12	5.00
D5777	UB1250	F2	12	5.00
40800 or 46095	UB1270	F1	12	7.00
40760 or 46040	UB1272	F1	12	7.20
D5743 or 46021	UB1280	F1	12	8.00
D5779 or 46022	UB1280	F2	12	8.00
40749	UB1290	F1	12	9.00
40748	UB1290	F2	12	9.00
40756	UB1290	T3	12	9.00
D5719	UB12100-S	F2	12	10.0
D5744 or 46043	UB12120	F1	12	12.0
D5775 or 46023	UB12120	F2	12	12.0
40842	UB12120	Nut & Bolt	12	12.0
40658	UB12150	.31" Tab w/ 4 mm hole	12	15.0
40672 or 46079	UB12150	F2	12	15.0
D5745 or 46025	UB12180	T4	12	18.0
40648 or 46039	UB12180	F2	12	18.0
45570 or 46041	UB12180	I1	12	18.0
40696	UB12220	T4	12	22.0
40582	UB12220	I10	12	22.0
D5747 or 46016	UB12260	T3	12	26.0
40598 or 46010	UB12260	I2	12	26.0
40596	UB122260T	L2	12	26.0
46001	UB12330 (PP Case)	F4	12	33.0
D5722 or 46042	UB12350 (Group U1)	L1	12	35.0
45976	UB12350 (Group U1)	I2	12	35.0
3 45977 or 46024	UB12500	L2	12	50.0

Length		Width		Total Height		Weight lbs. +/- 5%	Case Qty	Skid Qty
in.	mm	in.	mm	in.	mm			
6.73	170.9	4.73	120.1	14.37	364.9	27.56	1	96
6.77	171.9	5.95	151.1	14.37	364.9	39.68	1	69
1.86	47.24	1.87	47.49	4.16	105.6	1.10	20	1500
4.04	102.6	1.73	43.94	3.96	100.5	2.19	20	800
2.01	51.04	1.65	41.91	2.24	56.89	0.53	40	2000
3.82	97.02	0.96	24.38	2.28	57.91	0.64	60	2520
2.60	66.04	1.30	33.02	4.03	102.3	1.28	30	2160
5.28	134.1	1.34	34.03	2.64	67.05	1.52	20	1700
2.78	70.61	1.88	47.75	4.18	106.1	1.59	20	1700
2.76	70.10	1.85	46.99	3.98	101.0	1.59	20	1600
2.64	67.05	2.64	67.05	4.65	119.3	1.76	20	1000
2.64	67.05	2.64	67.05	4.00	104.1	1.76	20	1000
5.94	150.8	1.34	34.03	3.94	100.0	2.43	10	1000
3.90	99.06	2.24	56.89	4.53	115.0	3.30	10	800
5.94	150.8	1.94	49.27	3.94	100.0	4.18	10	650
5.94	150.8	1.94	49.27	3.82	97.02	4.06	10	650
4.25	107.9	2.82	71.62	5.51	139.9	5.07	10	650
4.25	107.9	2.78	70.61	5.47	138.9	5.18	10	650
6.30	160.0	3.50	88.90	6.69	169.9	13.20	2	180
12.05	306.0	6.61	167.8	8.95	227.3	60.62	1	42
10.24	260.0	7.09	180.0	10.67	271.0	62.40	1	50
11.60	294.6	7.10	180.3	16.80	426.7	123.0	1	24
10.23	259.8	7.08	179.8	10.67	271.0	78.30	1	30
3.78	96.01	0.98	24.89	2.44	61.97	0.75	30	1350
3.78	96.01	0.98	24.89	2.44	61.97	0.75	30	1350
3.82	97.02	1.89	48.00	2.28	57.91	1.21	20	2000
5.91	150.1	0.79	20.06	3.50	88.90	1.54	20	1200
7.01	178.0	1.40	35.56	2.60	66.04	2.14	20	1400
7.17	182.1	0.93	23.62	2.43	61.72	1.71	20	1600
3.11	78.99	2.20	55.88	4.10	104.1	2.59	10	1080
5.30	134.6	2.64	67.05	2.63	66.80	3.02	10	800
3.54	89.91	2.76	70.10	4.25	107.9	2.90	10	850
3.54	89.91	2.76	70.10	4.25	107.9	3.09	10	850
3.54	89.91	2.76	70.10	4.25	107.9	3.09	10	850
5.94	150.8	2.58	65.53	4.06	103.1	4.70	4	544
5.94	150.8	2.58	65.53	4.06	103.1	4.85	8	544
5.94	150.8	2.56	65.02	4.06	103.1	4.96	8	544
5.95	150.8	2.56	65.02	4.06	103.1	4.96	8	544
5.94	150.8	2.56	65.02	4.06	103.1	5.17	8	544
5.94	150.8	2.56	65.02	4.06	103.1	5.17	8	544
5.94	151.0	2.56	65.00	4.20	107.0	5.17	8	544
5.94	150.8	2.56	65.02	4.61	117.0	6.83	8	504
5.94	150.8	3.89	98.80	4.06	103.1	8.16	4	336
5.94	150.8	3.89	98.80	4.06	103.1	8.16	4	336
5.94	150.8	3.89	98.80	4.19	106.4	8.16	4	336
5.94	151.1	3.89	98.80	3.94	100.0	8.50	4	336
5.95	151.1	3.89	98.80	3.94	100.0	8.50	4	336
7.15	181.6	3.06	77.72	6.60	167.6	11.40	4	240
7.13	181.6	3.06	77.72	6.60	167.6	11.40	4	240
7.13	181.6	3.06	77.72	6.60	167.6	11.40	4	240
7.15	181.6	3.06	77.72	6.60	167.6	13.01	2	250
7.15	181.6	3.06	77.72	6.60	167.6	13.01	2	250
6.57	166.8	6.89	175.0	5.04	128.0	17.90	2	168
6.57	166.8	6.89	175.0	5.04	128.0	17.90	2	168
6.50	165.1	4.96	125.9	7.05	179.0	17.90	2	150
7.75	196.8	5.19	131.82	6.25	159.0	22.10	1	128
7.75	196.8	5.19	131.8	7.13	181.1	22.50	1	128
7.75	196.8	5.19	131.8	6.30	160.0	22.50	1	128
7.72	197.1	6.50	165.1	7.17	182.1	30.20	1	100 / 125

## sealed lead-acid batteries/agm

UPG No.	Model No.	Terminal	Nominal Voltage	Capacity 20 hr. Rate
45979 or 46080	UB12500	I6	12	50.00
45825 or 46012	UB12550 (Group 22NF)	Z1	12	55.00
40740	UB12550 (+ ON LEFT)	Z1	12	55.00
45980 or 46081	UB12550 (Group 22NF)	I4	12	55.00
40503	UB12600 (Group 34 AGM)	I6	12	60.00
45821 or 46082	UB12750 (Group 24)	Z1	12	75.00
45822 or 46009	UB12750 (Group 24)	I4	12	75.00
45826 or 46103	UB12900 (Group 27)	Z1	12	90.00
45823	UB12900 (Group 27)	I4	12	90.00
45978	UB121000 (Group 27)	Z1	12	100.00
45973	UB121000 (Group 27)	I6	12	100.00
D5751	UB121100 (Group 30H)	L3	12	110.00
45824	UB121100 (Group 30H)	FL1	12	110.00
45981 or 46046	UB121100 (Group 30H)	I6	12	110.00
40505	UB31 (Group 31 AGM)	Dual Post - Threaded & Auto	12	100.00
40994	UB121350	I6	12	135.00
45965	UB-4D AGM	L4	12	200.00
45972	UB-4D AGM w/ Auto Post	Auto Post	12	200.00
45964 or 46013	UB-8D AGM	L4	12	250.00
45971 or 46110	UB-8D AGM w/ Auto Post	Auto Post	12	250.00
40653	16BAT-U (with 12V Tap)	I6	12	16.00/12.00

## kinetik® marine

UPG No.	Model No.	Terminal	Nominal Voltage	Capacity 20 hr. Rate
40601	UB12750 (Group 24)	Marine Post	12	75.00
40602	UB12900 (Group 27)	Marine Post	12	90.00
40603	UB121100 (Group 30H)	Marine Post	12	110.00

## flame retardant sealed lead-acid/absorbent glass mat

UPG No.	Model No.	Terminal	Nominal Voltage	Capacity 20 hr. Rate
45565	UB1250FR	F2	12	5.00
45566 or 46096	UB1270FR	F2	12	7.00
45800	UB1280FR	F2	12	8.00
45567	UB12120FR	F2	12	12.00
45568	UB12180FR	T4	12	18.00
45500	UB12180FR	I2	12	18.00
45501	UB12260FR	I2	12	26.00
D5880	UB12350FR	L1	12	35.00
45502	UB12350FR	I2	12	35.00
45506	UB12500FR	I4	12	50.00
D5881	UB12550FR	Z1	12	55.00
45503	UB12550FR	I6	12	55.00
D5882	UB12750FR	Z1	12	75.00
45983	UB12750FR	I4	12	75.00
D5883	UB12900FR	Z1	12	90.00
45504	UB12900FR	IT	12	90.00
45505	UB121100FR	I6	12	110.00
5 D5879	UB-4DFR	L4	12	200.00

Length		Width		Total Height		Weight lbs. +/- 5%	Case Qty	Skid Qty
in.	mm	in.	mm	in.	mm			
7.76	197.1	6.50	165.1	6.90	175.2	30.20	1	100
9.10	231.14	5.44	138.17	9.25	234.95	38.60	1	84
9.06	230.12	5.44	138.17	9.25	234.95	38.60	1	84
9.06	230.12	5.44	138.17	8.43	214.12	38.60	1	84
10.00	254.00	6.40	162.56	7.20	182.88	38.14	1	80
10.24	260.09	6.61	167.89	9.23	234.44	49.10	1	60
10.24	260.09	6.61	167.89	8.27	210.05	49.10	1	60
12.05	306.07	6.61	167.89	9.13	231.90	59.50	1	52
12.05	306.07	6.61	167.89	8.35	212.09	59.50	1	52
12.17	309.11	6.61	167.89	9.16	232.66	63.93	1	52
12.17	309.11	6.61	167.89	8.35	212.09	63.93	1	52
13.00	330.20	6.90	175.26	9.60	243.84	63.30	1	47
13.00	330.20	6.90	175.26	9.60	243.84	63.30	1	47
13.00	330.20	6.90	175.26	8.57	217.67	63.30	1	47
12.99	329.95	6.81	172.97	9.33	236.99	65.00	1	47
13.40	340.36	6.81	172.97	11.30	287.02	87.00	1	30
20.90	530.86	8.11	205.99	9.65	245.11	114.60	1	24
20.90	530.86	8.15	207.01	9.65	245.11	114.60	1	24
20.50	520.70	10.55	267.97	9.65	245.11	154.00	1	18
20.50	520.70	10.60	269.24	9.65	245.11	154.00	1	18
11.85	300.99	6.65	168.91	14.20	360.68	50-71	1	30

Length		Width		Total Height		Weight lbs. +/- 5%	Case Qty	Skid Qty
in.	mm	in.	mm	in.	mm			
10.24	260.09	6.61	167.89	10.04	255.01	54.50	1	60
12.05	306.07	6.61	167.89	10.12	257.04	59.75	1	47
12.91	327.91	6.77	171.95	10.53	267.46	74.65	1	47

Length		Width		Total Height		Weight lbs. +/- 5%	Case Qty	Skid Qty
in.	mm	in.	mm	in.	mm			
3.54	89.916	2.76	70.104	4.21	106.93	3.09	10	850
5.94	150.87	2.58	65.532	4.06	103.12	4.70	8	576
5.95	151.13	2.56	65.024	3.94	100.08	4.96	8	544
5.94	150.87	3.78	96.01	4.06	103.12	8.16	4	336
7.13	181.10	3.06	77.724	6.60	167.64	11.40	4	240
7.15	181.61	3.06	77.724	6.60	167.64	11.90	4	240
6.57	166.878	6.89	75.006	5.04	128.016	18.10	2	168
7.75	196.85	5.19	131.82	7.13	181.10	22.50	1	128
7.75	198.85	5.19	131.826	6.18	156.97	23.20	1	128
7.76	197.104	6.53	165.862	6.90	175.26	30.20	1	100
9.02	229.11	5.44	138.17	9.17	232.91	36.38	1	84
9.40	238.76	5.50	139.7	8.45	214.63	37.00	1	84
10.24	260.09	6.61	167.89	9.13	231.90	50.70	1	60
10.24	260.09	6.61	167.89	8.27	210.05	50.70	1	60
12.05	306.07	6.61	167.89	9.13	231.90	59.50	1	52
12.05	306.07	6.61	167.894	8.35	212.09	59.52	1	52
13.00	330.20	6.90	175.26	8.70	220.98	65.70	1	47
20.9	530.86	8.11	205.994	9.65	245.11	114.60	1	24

## battery storage

- > Batteries should always be stored fully charged in a cool and dry place to maintain maximum service life.
- > Depending on storage temperature, batteries hold their charge for 3 to 6 months until recharge is necessary. Above 30°C (86°F), recharge at 6 months. Above 40°C (104°F), recharge at 3 months. Do not store above 40°C (104°F).
- > If a battery is stored for 6 months or longer without being charged, its service life may be shortened.
- > Never store batteries in a sealed environment or incorporate into a sealed structure/enclosure without adequate ventilation.

## usage precautions

SLA batteries, if used under recommended conditions, generate no sulfuric acid gasses. However, because they contain lead and sulfuric acid, which are both toxic, proper care and handling is important in order to avoid accidental fires, damage to property, bodily injuries or even death.

- > Improper charging and poor maintenance may cause battery to emit hydrogen gas; therefore, do not use battery near a spark, fuse, flame and/or equipment that emits sparks.
- > Never mix the SLA batteries together with other types of batteries, such as dry cells and nickel-cadmium batteries.
- > Keep the battery terminals from contact with wire, metal cabinets, metal tools, such as screw drivers, spanners, torque wrenches unless they are properly insulated. Do not wear any watches, personal jewelry, hair pins or any other metallic objects when servicing the batteries.
- > Short circuiting the terminals of the battery can cause burns, injuries, damage to the storage battery, or trigger explosions.
- > Do not direct solder to terminal. This may lead to electrolyte leakage.
- > Do not use SLA batteries in the upside down position.
- > Do not use organic solvent, cleaning agents, paint/thinner, petroleum products to clean battery surface. These products can lead to battery container/cover cracking.
- > SLA batteries may not be compatible with certain equipment. Any uncertainty about the specifications of the battery should be brought to our attention.
- > Observe circuit polarities. Do not make or break live circuits.
- > As appropriate, use an insulating blanket to cover exposed portions of the battery system when performing extended maintenance that could result in personal or equipment contact with energized conductors.

## love your battery



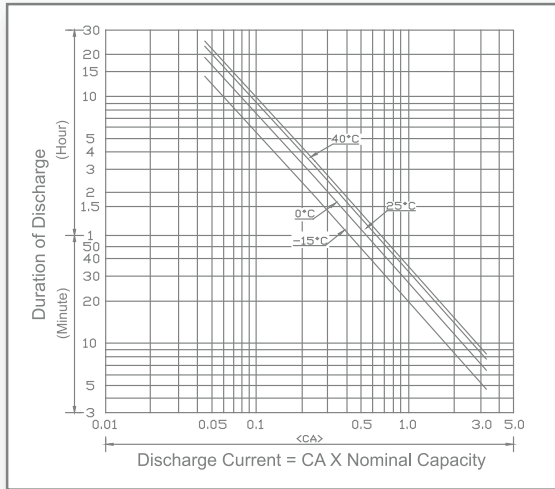
To properly charge your deep cycle AGM/GEL battery:

- > Active user: Charge daily.
- > Occasional user: Charge your battery before any outing, after use, and every 90 days if no use.
- > Only use with a specified charger. Only use appropriate charger to charge AGM vs GEL batteries as charging rates differ.
- > Never use an automotive or wet type charger on a AGM/GEL battery.
- > Top charge your battery frequently and/or leave on charger/maintainer.

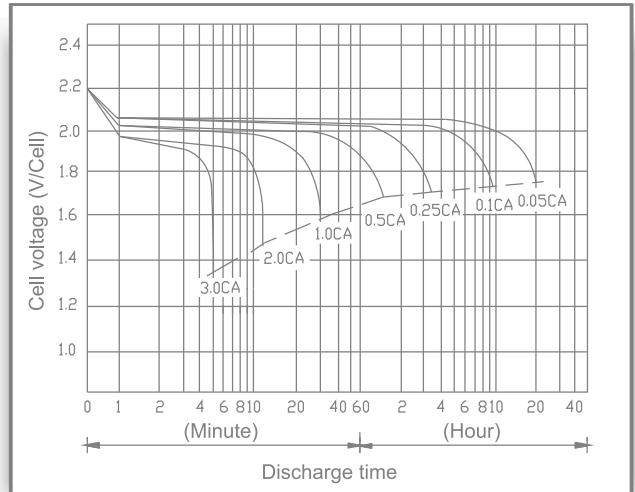


# performance characteristics

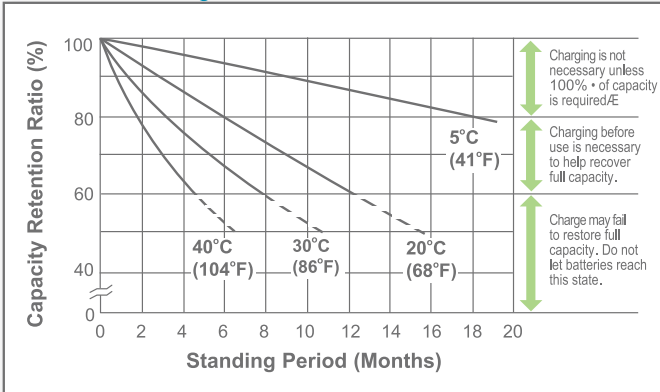
## Discharge Time vs. Discharge Current



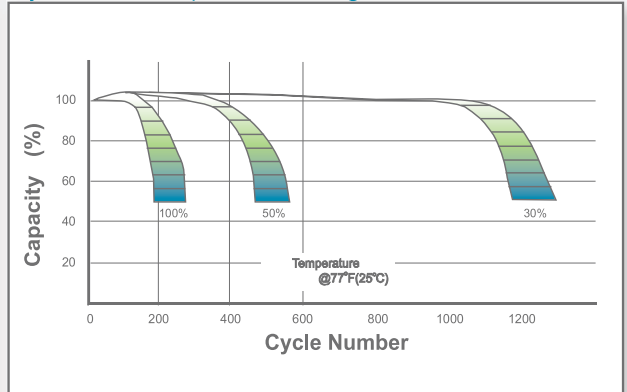
## Discharge Characteristics



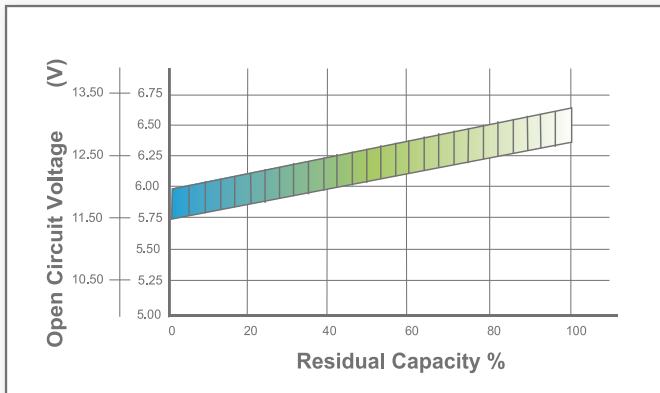
## Shelf Life & Storage



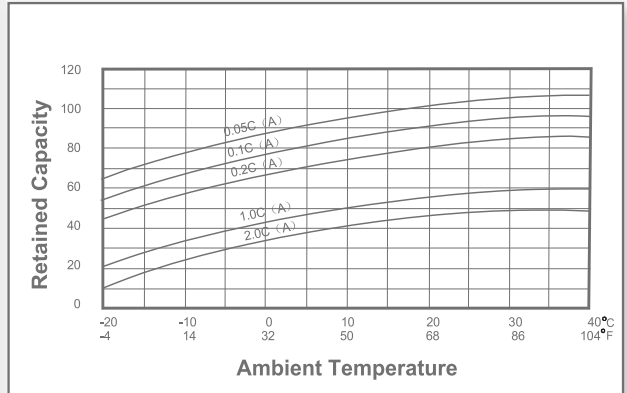
## Cycle Life vs Depth of Discharge



## Open Circuit Voltage vs Residual Capacity



## Effect of Temperature on Capacity

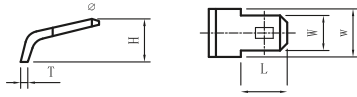


## Charge Current & Final Discharge Voltage

Application	Charge Voltage(V/Cell)			Max.Charge Current	Final Discharge Voltage V/Cell	Discharge Current(A)	1.75	1.70	1.60	1.30
	Temperature	Set Point	Allowable Range							
Cycle Use	25°C(77°F)	2.45	2.40~2.47	0.30C	1.75	0.2C>(A)	1.70	1.70	1.60	1.30
Standby	25°C(77°F)	2.30	2.27~2.30							

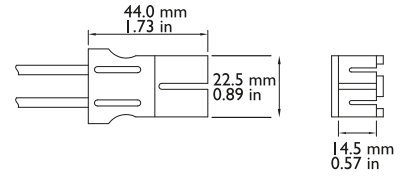
# terminal configurations

## F Series (Faston Tabs)

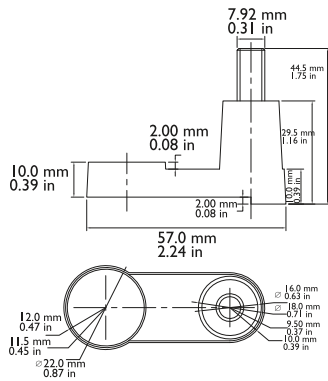


Dimension	L	W	w	H	T
Type					
F1	6.50 mm 0.26 in	4.75 mm 0.19 in	6.00 mm 0.24 in	5.00 mm 0.20 in	0.80 mm 0.03 in
F2	7.80 mm 0.31 in	6.35 mm 0.25 in	7.80 mm 0.31 in	6.00 mm 0.24 in	0.80 mm 0.03 in

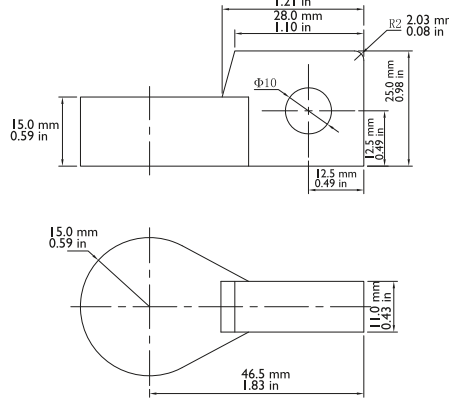
## P Series (Plastic Connector) P2



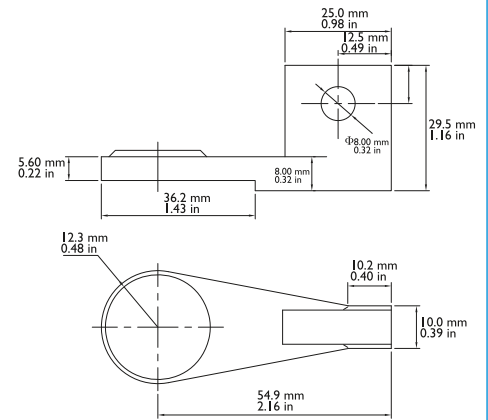
## Marine Combo Post



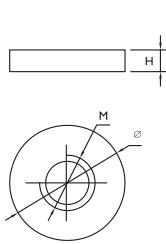
## Flag Terminal (FL1)



## Flag Terminal (FL2)

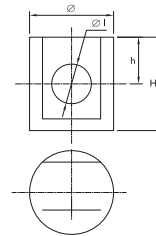


## I Series (Internal Thread)



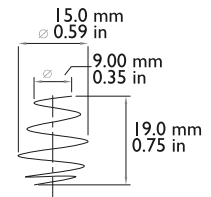
Dimension	M	∅	H
Type			
I1	6.00 mm 0.24 in	13.0 mm 0.51 in	4.00 mm 0.16 in
I2	6.00 mm 0.24 in	15.0 mm 0.59 in	3.00 mm 0.12 in
I3	9.52 mm 0.37 in	16.0 mm 0.63 in	4.00 mm 0.16 in
I4	6.00 mm 0.24 in	15.0 mm 0.59 in	4.00 mm 0.16 in
I5	9.52 mm 0.37 in	17.0 mm 0.67 in	4.00 mm 0.16 in
I6	6.00 mm 0.24 in	16.0 mm 0.63 in	4.00 mm 0.16 in
I7	9.52 mm 0.37 in	16.0 mm 0.63 in	4.00 mm 0.16 in
I8	10.0 mm 0.39 in	19.0 mm 0.75 in	2.00 mm 0.08 in
I9	9.52 mm 0.37 in	19.0 mm 0.75 in	4.00 mm 0.16 in

## Z Series (Z Post Terminal)

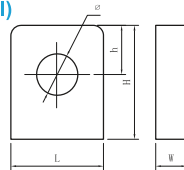


Dimension	∅	∅1	H	h
Type				
Z1	17.0 mm 0.67 in	8.00 mm 0.32 in	21.5 mm 0.85 in	9.00 mm 0.35 in

## S Series S1

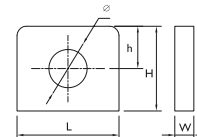


## L Series (L Type Terminal)



Dimension	L	W	H	h	∅
Type					
L1	17.5 mm 0.69 in	7.00 mm 0.28 in	17.0 mm 0.69 in	7.00 mm 0.28 in	8.50 mm 0.34 in
L2	17.0 mm 0.69 in	9.00 mm 0.35 in	17.0 mm 0.69 in	9.00 mm 0.35 in	6.50 mm 0.26 in
L3	25.5 mm 1.00 in	7.00 mm 0.28 in	22.0 mm 0.87 in	10.5 mm 0.41 in	8.50 mm 0.34 in
L4	26.5 mm 1.04 in	8.00 mm 0.32 in	24.5 mm 0.97 in	12.0 mm 0.47 in	9.00 mm 0.35 in
L5	26.5 mm 1.04 in	8.50 mm 0.34 in	24.0 mm 0.95 in	10.0 mm 0.39 in	8.00 mm 0.32 in

## T Series (Tab Terminal)



Dimension	L	W	w	h	∅
Type					
T3	14.0 mm 0.55 in	2.00 mm 0.09 in	12.5 mm 0.49 in	6.00 mm 0.24 in	6.00 mm 0.24 in
T4	12.0 mm 0.47 in	3.00 mm 0.12 in	12.5 mm 0.49 in	5.00 mm 0.20 in	5.50 mm 0.22 in



**PRO GEL**  
High-Performance Construction  
Non-Spillable VRLA



**Designed for optimum power when exceptional performance counts.**

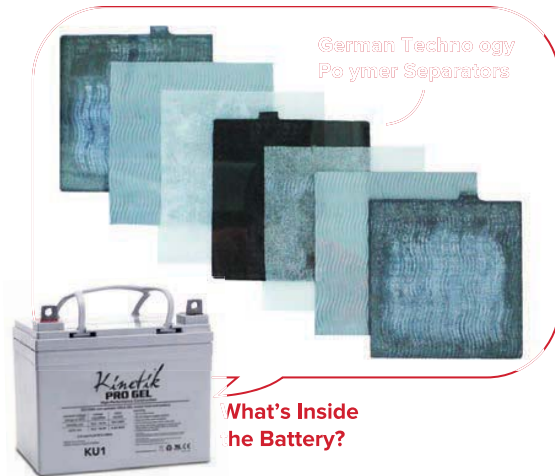
The KINETIK® PRO GEL battery is engineered to deliver optimum deep cycle performance. Designed with high-grade construction using time-tested German technology, the KINETIK® PRO GEL delivers best in class performance when stability, reliability and performance counts.

**ROBUST CONSTRUCTION**

- > High-purity lead
- > High-stability German technology polymer separators with glass mat component
- > Vacuum filled gel
- > Tank-formed lead plates
- > Analytical-grade sulfuric acid
- > Superior acid stratification resistance for optimum performance
- > 99.9997 pure lead fumed silica for the basis of the gel electrolyte
- > 99.9997 pure lead distilled and de-ionized water for electrolyte
- > “BUNSEN” design sealing valves in each cell
- > LEAD/CALCIUM grid lead alloy enhances “deep discharge” recoverability
- > Compression of cell plate assemblies in their case eliminates positive plate “shedding”, and provides superior impact and vibration resistance

**PROVEN PERFORMANCE**

- > 100% of rated initial capacity vs leading brand at 85%
- > High performance
- > Optimum durability and stability
- > Superior cycle life - as much as 300% over AGM
- > Superior high temperature performance
- > Exceptional power for demanding applications



**What's Inside the Battery?**

UPG No.	Model No.	Terminal	Nominal Voltage	Capacity 20 hr. Rate	Length in mm	Width in mm	Height in mm	Weight lbs. +/- 5%
47600	KU1	L	12	31.00	7.76 197	5.20 132	6.15 156	22.5
47609	K42	I6	12	42.00	7.80 198	6.57 167	6.18 157	29.8
47601	K22NF	Z1	12	55.00	9.00 229	5.50 140	8.40 213	39.0
47602	K24	Z	12	75.00	10.25 260	6.79 172	9.23 234	53.0
47603	K34	I6	12	60.00	10.24 260	6.61 168	7.05 180	47.4

# universal® sealed lead-acid batteries/gel



UPG No.	Model No.	Terminal	Nominal Voltage	Capacity 20 hr. Rate	Dimensions			Weight lbs. +/- 5%	Case Qty	Skid Qty
					Length in	Width in	Height in			
40703	UB-GC2 (Golf Cart) Gel	L5	6	200.00	10.26	7.12	9.67	63.20	1	54
D5870	U1 GEL	L1	12	32.00	7.69	5.19	7.00	23.10	1	128
D5871	UB-22NF GEL	Z1	12	55.00	9.02	5.38	9.13	38.58	1	84
D5872	UB-24 GEL	Z1	12	75.00	10.25	6.63	9.25	50.10	1	60
D5873	UB-27 GEL	Z1	12	90.00	12.05	6.61	9.13	59.52	1	52
40502	UB-31 GEL	Dual	12	100.00	12.99	6.81	9.33	65.25	1	47
40500	UB-34 GEL	F10	12	60.00	9.84	6.30	7.20	39.00	1	80
D5874	UB-30H GEL	FL2	12	100.00	12.91	6.77	9.29	67.24	1	47
40701	UB-4D GEL	L4	12	180.00	20.87	8.11	9.61	132.28	1	24
40702	UB-8D GEL	L4	12	250.00	20.47	10.55	9.65	171.96	1	16

# ups batteries



UPG No.	Model No.	Terminal	Nominal Voltage	Watts Per Cell	Capacity 20 hr. Rate	Dimensions			Weight lbs. +/- 5%	Case Qty	Skid Qty
						Length in	Width in	Height in			
47000	BU1275	F2	12	24	7.50	2.56	3.94	5.40	8	420	
47001	BU1270W	F2	12	35	7.00	2.56	3.94	5.85	8	420	
47002	BU1248W	F2	12	30	5.00	2.76	4.21	4.19	10	600	
47003	BU12120	F2	12	48	12.00	3.86	3.86	8.71	4	312	
47004	BU12180	T4	12	67	18.00	2.99	6.57	12.67	4	192	
47005	BU-HRL12290W FR*	I6	12	304	75.00	6.61	8.39	55.99	1	60	
47006	BU-HRL12340W FR*	I6	12	374	90.00	6.61	8.43	66.14	1	48	
47007	BU-HRL12390W FR*	I6	12	413	110.00	6.85	9.37	68.2	1	48	

\*High rate, long life, flame retardant (up to 10 years)

Do not see what you need? Contact [sales@upgi.com](mailto:sales@upgi.com) or 866.892.1122 to speak with a Sales Representative.



## Advantages of UPG's Universal® AGM & Gel



GEL



AGM

For end-users of powerchairs and personal mobility devices, the most important performance feature of your battery must be that of “deep cycle” operation for longer daily run times. UPG's Universal® “Deep-Cycle” Sealed Lead-Acid, in short SLA battery, is a type of battery that is at its best when it is the primary power source for a personal mobility device. UPG's Universal® AGM and Gel batteries have been optimized to constantly cycle and deliver a long life.

## Getting Started

As an owner of a powerchair, scooter or other battery powered mobility applications, it is critical to choose the right quality battery for your equipment to maximize its performance. This guide will assist you in making that selection and provide helpful tips on how to charge, maintain and prolong the life of your battery.

## Not Every Battery is the Same

Did you know there are many different configurations of chemical and mechanical compositions for lead acid batteries, depending on the application?

Powerchairs and personal mobility devices from most manufacturers come with Deep-Cycle Sealed Lead-Acid batteries of either Gel or AGM design. AGM batteries are known as Sealed Lead Acid AGM or Absorbent Glass Mat batteries, meaning the electrolyte is absorbed in highly porous microfiber glass separators between the positive and negative plates. This creates a non-spillable battery or a battery with no excess liquid. In a flooded or wet cell battery, you can hear the liquid or electrolyte moving around. In an AGM battery you can't.

Because of this, non-spillable AGM batteries are advantageous because you can set them in any position except upside down.

On the other hand, flooded batteries require maintenance. You must add water to them occasionally. With AGM batteries they are maintenance free.



## What About Battery Safety?

Unlike wet cell lead acid or conventional batteries, Universal® Gel and AGM batteries are made with captured electrolyte and are declared by DOT to be non-spillable in 49 CFR 173.159 a, (d) of the hazardous materials regulations. As such, they are excused by the DOT, IATA, ICOA, and IMDG from compliance with the hazmat shipping rules. Portable applications where non-spillable batteries are used, are free to travel by any means desired. This includes airlines and other public transportation. This is considerably important and advantageous because conventional (wet cell) lead-acid batteries are classified as hazardous material by the Department of Transportation.

Your Battery Needs  Too.

# safety features & benefits of universal<sup>®</sup> agm & gel batteries

For wheelchair installations and personal mobility devices.

- > For active users, Universal<sup>®</sup> AGM and Gel batteries are optimized for performance in deep cycle applications. Conventional batteries are designed for starting applications like starting your car; whereas, AGM and Gel SLA batteries are designed for discharging or cycling on a daily basis, providing superior long life in these tough applications.
- > “Non-spillable” construction prevents the acid inside the battery from spilling out.
- > Universal<sup>®</sup> AGM and Gel batteries are virtually maintenance-free and do not need to be filled with water.
- > Universal<sup>®</sup> AGM and Gel batteries are free to travel on aircraft, boat, and train without restriction because they are “non-spillable” and classified as non-hazardous.

These advantages make Universal<sup>®</sup> AGM and Gel batteries an easy first choice over any wet cell battery option.

## Charging - The Life-Force of Your Battery



Regardless of a battery being very high quality, its performance and its lifespan depends heavily on its charger. Charging a battery properly is absolutely necessary. For best results, we recommend our range of UPG mobility chargers. The following steps will guide you on correct charging procedures. Follow these steps for longer battery life, better performance and optimum results:

- > **Charge your AGM or Gel batteries at the end of every day;** even if you haven’t used the chair that day.
- > **Charge your AGM or Gel batteries during the day at any opportunity;** even for as little as half an hour; it counts towards the preserving the lifespan of your battery.
- > **Use the correct charger for AGM or Gel batteries.** The correct charger is a three-stage (regulated), digitally controlled, float-stage capable charger. The correct size charger will have an output current not less than 10% of the battery’s capacity figure. For example, a 35 amp hour battery (2 U-1 batteries) requires a 24 V charger with no less current than 3.5 A.

- > **Do not store or charge AGM or Gel batteries in extreme hot or cold temperatures.**
- > **Do not discharge your batteries below the yellow-area of the “battery charge status indicator” on your powerchair.** The “red-area” of the “battery charge status indicator” indicates the batteries must be charged. Discharge of your batteries below the red-area of your controller, will likely damage your batteries permanently, and result in premature failure.
- > **Do maintain your batteries if not being used for extended periods.** When leaving your mobility device idle for an extended period (more than one week), connect your charger to your batteries before storing your mobility device. The charger will not harm your batteries if it is left connected to the batteries indefinitely. The “float-stage” of your charger is designed as a maintainer for your batteries.

### Recommended UPG Medical Mobility Chargers

UPG MODEL NO.	MOBILITY BATTERY CAPACITY	RECOMMENDED CHARGER SIZE
24BC3000T-2	24V, 12Ah SLA	24V, 3A
24BC3000T-2	24V, 15Ah SLA	24V, 3A
24BC3500T-1	24V, 18Ah SLA	24V, 3.5A
24BC5000T-2	24V, 22Ah SLA	24V, 5A
24BC5000T-2	24V, 26AH SLA	24V, 5A
24BC5000T-2	24V, 35Ah SLA	24V, 5A
24BC8000T-1	24V, 42Ah SLA	24V, 8A
24BC8000T-1	24V, 55Ah SLA	24V, 8A
24BC8000T-1	24V, 75Ah SLA	24V, 8A

## Proper Handling

Please adhere to guidelines and pay attention to the warnings on any battery you purchase. Improper handling can result in explosion, fire, and injuries. We recommend qualified powerchair or scooter technicians install your battery.



## Recycle

Please remember to properly dispose used batteries for recycling at authorized recyclers as improper disposal can result in fines and criminal prosecution. Contact us or your provider to locate an authorized recycler near you.

# universal<sup>®</sup> agm or gel batteries –which one is right for you?

These two battery constructions are very similar, but they have distinct differences. As a result, one could be a better choice than the other in various applications. Following are the features that make them alike; or different:

## Common Features

As an owner of a powerchair, scooter or other battery powered mobility applications, it is critical to ensure you choose the right quality battery for your equipment to maximize its performance. This guide will assist you in making that selection and provide helpful tips on how to charge, maintain and prolong the life of your battery.

- > Both Gel and AGM are valve regulated lead acid batteries, therefore, non-spillable.
- > Gel and AGM are both maintenance-free designs.
- > Gel and AGM are both optimized for deep-cycle operation.
- > Both battery constructions are sealed valve regulated lead acid, so unless abused, they will not gas.
- > These battery designs are both DOT approved for air travel. This means there is no difficulty to bring aboard an aircraft.

## Differences

### AGM

- > AGM batteries have higher capacity than Gel batteries in equal case sizes.
- > AGM has higher discharge rates than Gel.
- > AGM has higher capacity (more daily range).



### GEL

- > Gel construction is more temperature stable; therefore, it can operate on a wider temperature range.
- > Because Gel is more temperature stable, in some instances it can deliver a longer cycle life than AGM (more cycles equal more daily uses).
- > Gel construction allows the lead-acid chemistry to charge more readily than AGM.
- > Gel requires a longer initial use period to reach optimal performance than AGM.



Current industry opinion about the value of the two constructions leans toward AGM, and this is reflected in the type of battery coming from the equipment manufacturers. Given that AGM has higher capacity, greater discharge capability, and is generally less expensive gives the advantage to AGM. However, some users and manufacturers choose Gel, preferring the longer cycle life, daily range and wider operating temperature range. Both options are very capable of filling the demands of wheelchair and scooter applications.



## your battery needs love too.





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