

# KB1272 12V 7.2Ah



The KB Standard series consists in VRLA batteries - AGM technology (Absorbent Glass Mat), with a design life of 3-5 years and it is designed for general applications such as UPS, telecommunications and electrical applications.



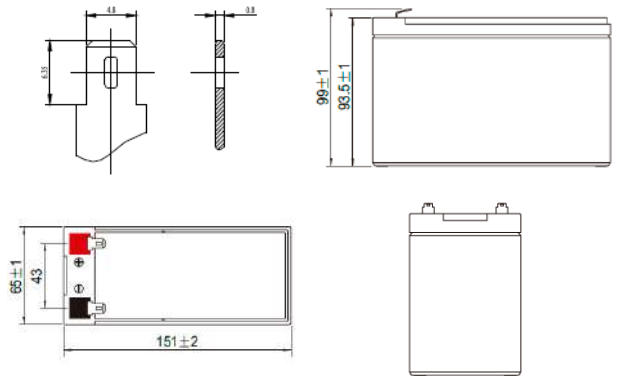
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	151 / 5.94
	Width (mm / inch)	65 / 2.56
	Height (mm / inch)	93.5 / 3.68
	Total Height (mm / inch)	101 / 3.98
Approx Weight	(Kg / lbs) 2.20 / 4.86	
Design Life	5 years	
Terminal	F1	
Container Material	ABS	
Rated Capacity	6.84Ah / 0.34A	(20hr, 1.80V / cell, 25°C / 77°F)
	6.40Ah / 0.64A	(10hr, 1.80V / cell, 25°C / 77°F)
	5.3Ah / 1.06A	(5hr, 1.75V / cell, 25°C / 77°F)
	4.15Ah / 4.15A	(1hr, 1.60V / cell, 25°C / 77°F)
Max. Discharge Current	105A (5s)	
Internal Resistance	Approx 25mΩ	
Operating Temp. Range	Discharge : -20 ~ 60°C (-4 ~ 140°F)	
	Charge : -10 ~ 60°C (14 ~ 140°F)	
	Storage : -20 ~ 60°C (-20 ~ 140°F)	
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 1.44A	
	Voltage: 14.4V ~ 14.7V at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	Initial Charging Current less than 1.44A	
	Voltage: 13.5V ~ 13.8V at 25°C (77°F)	
	Temp. Coefficient: -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Fully charged Kaise Standard Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	22.2	14.6	11.7	6.75	3.64	1.56	1.04	0.64	0.34
1.75V	23.8	15.5	12.3	7.15	3.79	1.63	1.06	0.65	0.35
1.70V	25.3	16.4	12.9	7.51	3.93	1.69	1.08	0.66	0.35
1.65V	26.8	17.3	13.4	7.86	4.05	1.75	1.10	0.67	0.36
1.60V	28.3	18.1	13.9	8.18	4.15	1.80	1.12	0.68	0.36

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- |                            |                                       |
|----------------------------|---------------------------------------|
| Alarm systems              | Marine equipment                      |
| Cable television           | Medical equipment                     |
| Communications Equipment   | Micro processor based office machines |
| Control Equipment          | Portable cine & Video lights          |
| Computers                  | Solar powered systems                 |
| Electronic Cash Registers  | Telecommunications systems            |
| Electric Test Equipment    | Television & Video recorders          |
| Emergency lighting systems | Toys                                  |
| Fire & Security            | Uninterruptible power supply systems  |
| Geophysical equipment      | Vending machines                      |

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

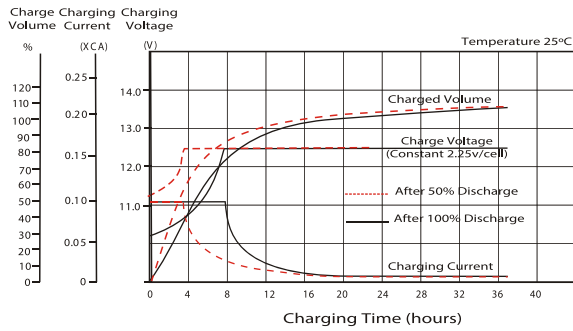
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current [A]	$I \leq 0.1CA$	$0.25CA \geq I > 0.1CA$	$0.55CA \geq I > 0.25CA$	$I > 0.55CA$

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

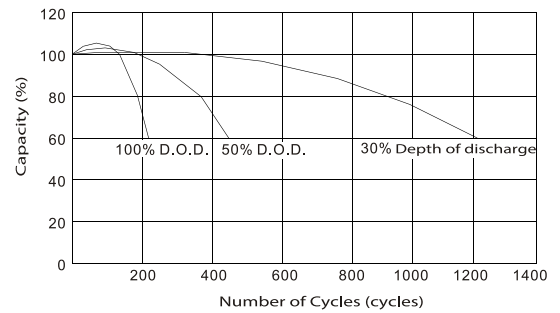
Volts/cell	5min	10min	15min	30min	45min	1h	2h	3h	5h
1.80V	40.8	27.6	22.0	12.6	9.55	7.43	4.44	3.11	2.08
1.75V	43.5	29.4	23.1	13.2	9.98	7.78	4.59	3.22	2.14
1.70V	46.1	31.1	24.1	13.8	10.40	8.03	4.74	3.32	2.19
1.65V	48.6	32.8	25.0	14.4	10.80	8.37	4.87	3.41	2.23
1.60V	51.0	34.5	25.8	14.9	11.20	8.70	4.98	3.50	2.26

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

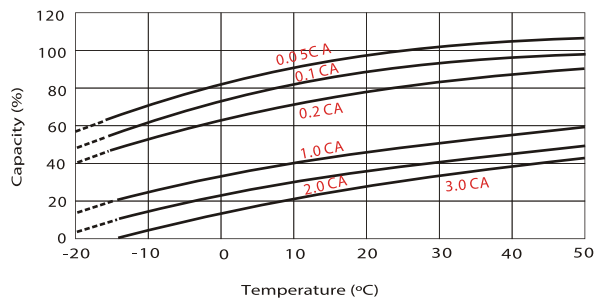
## Charging Characteristics (float use)



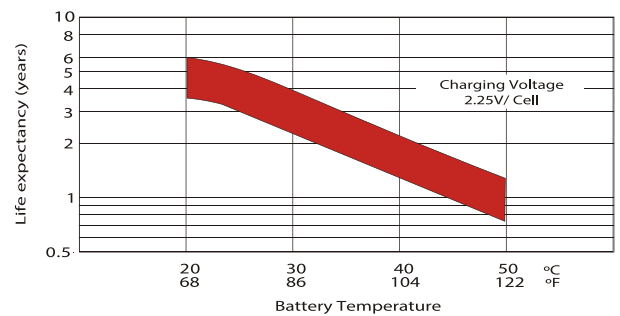
## Cycle Life in Relation to Depth of Discharge



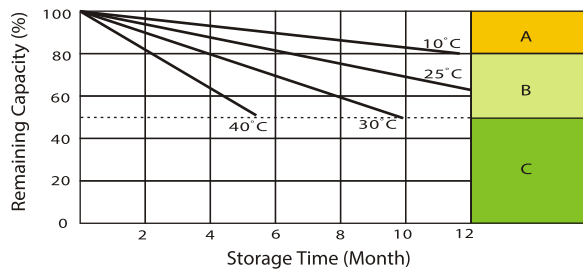
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.



# KB1290 12V 9.0Ah



The KB Standard series consists in VRLA batteries - AGM technology (Absorbent Glass Mat), with a design life of 3-5 years and it is designed for general applications such as UPS, telecommunications and electrical applications.



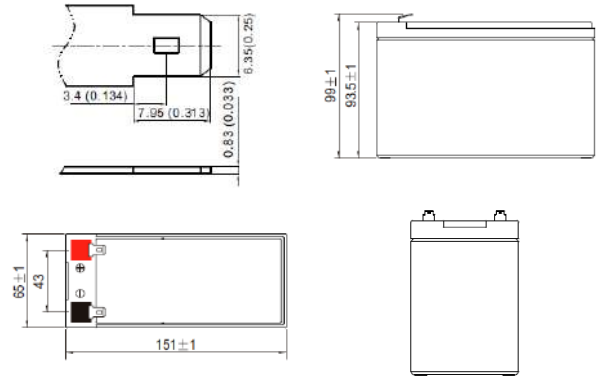
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	151 / 5.94
	Width (mm / inch)	65 / 2.56
	Height (mm / inch)	94 / 3.70
	Total Height (mm / inch)	100 / 3.94
Approx Weight	(Kg / lbs) 2.50 / 5.51	
Design Life	5 years	
Terminal	F2	
Container Material	ABS	
Rated Capacity	8.0Ah / 0.40A	(20hr, 1.80V / cell, 25°C / 77°F)
	7.64Ah / 0.76A	(10hr, 1.80V / cell, 25°C / 77°F)
	6.74Ah / 1.34A	(5hr, 1.75V / cell, 25°C / 77°F)
	5.50Ah / 5.50A	(1hr, 1.60V / cell, 25°C / 77°F)
Max. Discharge Current	120A (5s)	
Internal Resistance	Approx 20mΩ	
Operating Temp. Range	Discharge : -20 ~ 60°C (-4 ~ 140°F)	
	Charge : -10 ~ 60°C (14 ~ 140°F)	
	Storage : -20 ~ 60°C (-20 ~ 140°F)	
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 1.8A	
	Voltage: 14.4V ~ 14.7V at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	Initial Charging Current less than 1.8A	
	Voltage: 13.5V ~ 13.8V at 25°C (77°F)	
	Temp. Coefficient: -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Fully charged Kaise Standard Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	27.2	19.3	13.0	8.25	5.02	2.00	1.32	0.76	0.40
1.75V	28.0	20.1	13.7	8.60	5.18	2.05	1.34	0.76	0.40
1.70V	28.6	20.9	15.2	8.92	5.31	2.10	1.36	0.77	0.42
1.65V	31.3	21.5	15.6	9.15	5.43	2.14	1.38	0.77	0.42
1.60V	32.0	22.0	16.0	9.35	5.50	2.18	1.41	0.77	0.42

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- |                            |                                       |
|----------------------------|---------------------------------------|
| Alarm systems              | Marine equipment                      |
| Cable television           | Medical equipment                     |
| Communications Equipment   | Micro processor based office machines |
| Control Equipment          | Portable cine & Video lights          |
| Computers                  | Solar powered systems                 |
| Electronic Cash Registers  | Telecommunications systems            |
| Electric Test Equipment    | Television & Video recorders          |
| Emergency lighting systems | Toys                                  |
| Fire & Security            | Uninterruptible power supply systems  |
| Geophysical equipment      | Vending machines                      |

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

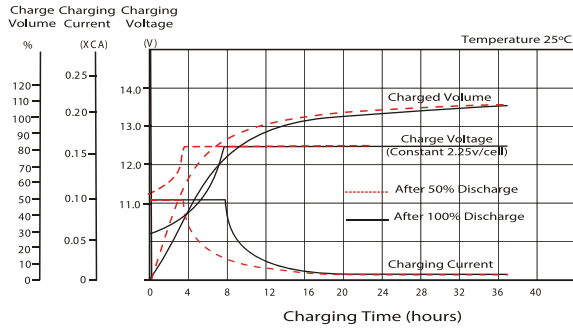
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current [A]	$I \leq 0.1CA$	$0.25CA \geq I > 0.1CA$	$0.55CA \geq I > 0.25CA$	$I > 0.55CA$

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

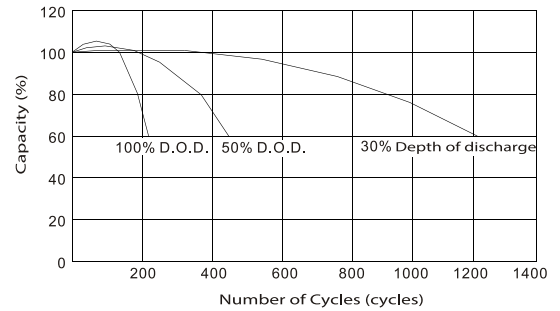
Volts/cell	5min	10min	15min	30min	45min	1h	2h	3h	5h
1.80V	52.6	37.5	27.4	15.4	11.6	9.3	5.51	3.70	2.60
1.75V	58.0	39.3	29.2	16.5	12.3	9.9	5.66	3.85	2.70
1.70V	61.4	40.8	30.1	17.4	13.0	10.4	5.80	3.97	2.73
1.65V	64.8	42.2	31.0	17.8	13.5	10.7	5.93	4.05	2.76
1.60V	68.3	42.7	31.7	18.2	13.8	11.0	6.00	4.09	2.78

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

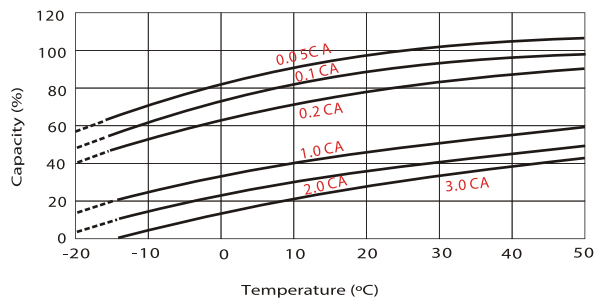
## Charging Characteristics (float use)



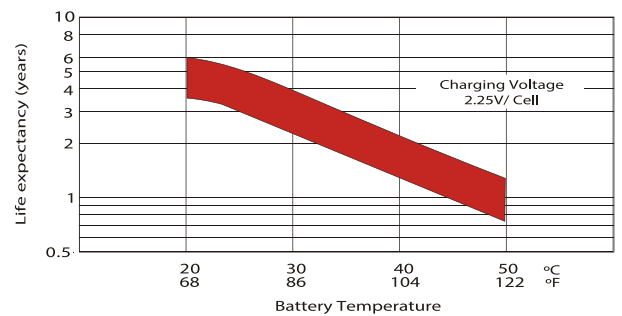
## Cycle Life in Relation to Depth of Discharge



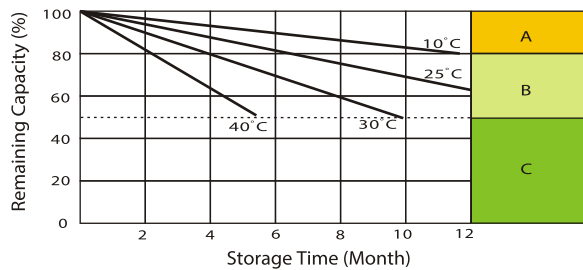
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.



# KB12120 12V 12Ah



The KB Standard series consists in VRLA batteries - AGM technology (Absorbent Glass Mat), with a design life of 3-5 years and it is designed for general applications such as UPS, telecommunications and electrical applications.



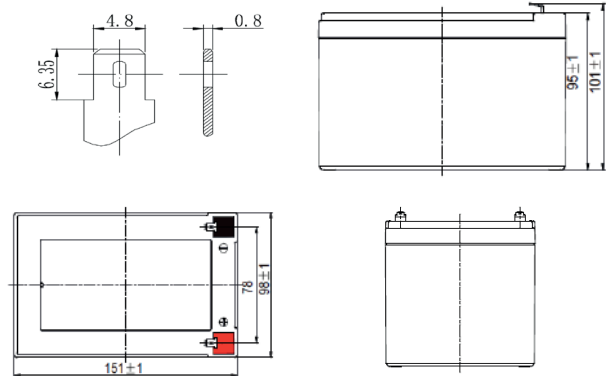
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	151 / 5.94
	Width (mm / inch)	98 / 3.86
	Height (mm / inch)	95 / 3.74
	Total Height (mm / inch)	101 / 3.98
Approx Weight	(Kg / lbs) 3.67 / 8.01	
Design Life	5 years	
Terminal	F1	
Container Material	ABS	
Rated Capacity	12.0Ah / 0.60A	(20hr, 10.5V / cell, 25°C / 77°F)
	11.4Ah / 1.14A	(10hr, 10.5V / cell, 25°C / 77°F)
	10.25Ah / 2.05A	(5hr, 10.5V / cell, 25°C / 77°F)
	8.14Ah / 8.14A	(1hr, 9.6V / cell, 25°C / 77°F)
Max. Discharge Current	180A (5s)	
Internal Resistance	Approx 19mΩ	
Operating Temp. Range	Discharge : -20 ~ 60°C (-4 ~ 140°F)	
	Charge : -10 ~ 60°C (14 ~ 140°F)	
	Storage : -20 ~ 60°C (-4 ~ 140°F)	
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 4.8A	
	Voltage: 2.4V ~ 2.45V at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	No limit on Initial Charging Current	
	Voltage: 2.35V ~ 2.30V at 25°C (77°F)	
	Temp. Coefficient: -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Fully charged Kaise Standard Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	40.6	22.6	22.6	12.7	7.75	3.06	2.02	1.12	0.59
1.75V	42.1	23.2	23.2	13.0	7.85	3.09	2.05	1.14	0.60
1.70V	43.5	23.7	23.7	13.3	7.94	3.12	2.07	1.16	0.61
1.65V	45.0	24.3	24.3	13.5	8.04	3.15	2.10	1.17	0.61
1.60V	46.4	24.8	24.8	13.8	8.14	3.18	2.12	1.18	0.61

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- |                            |                                       |
|----------------------------|---------------------------------------|
| Alarm systems              | Marine equipment                      |
| Cable television           | Medical equipment                     |
| Communications Equipment   | Micro processor based office machines |
| Control Equipment          | Portable cine & Video lights          |
| Computers                  | Solar powered systems                 |
| Electronic Cash Registers  | Telecommunications systems            |
| Electric Test Equipment    | Television & Video recorders          |
| Emergency lighting systems | Toys                                  |
| Fire & Security            | Uninterruptible power supply systems  |
| Geophysical equipment      | Vending machines                      |

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

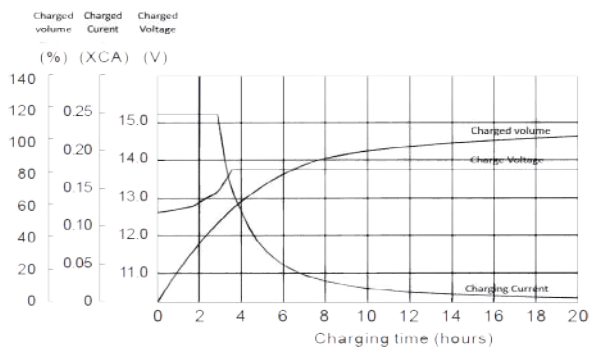
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current [A]	$I \leq 0.1CA$	$0.25CA \geq I > 0.1CA$	$0.55CA \geq I > 0.25CA$	$I > 0.55CA$

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

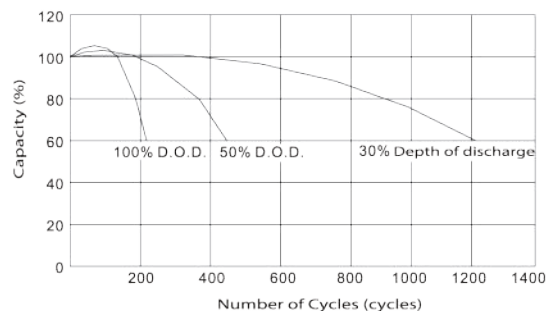
Volts/cell	5min	10min	15min	30min	45min	1h	2h	3h	5h
1.80V	77.6	54.6	43.9	25.4	19.6	15.5	8.16	6.24	4.08
1.75V	79.8	55.6	44.6	25.8	19.9	15.7	8.25	6.31	4.11
1.70V	81.9	56.6	45.3	26.2	20.1	15.8	8.33	6.37	4.14
1.65V	84.1	57.7	46.0	26.6	20.4	16.0	8.42	6.44	4.17
1.60V	86.2	58.7	46.7	27.0	20.6	16.1	8.50	6.50	4.20

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

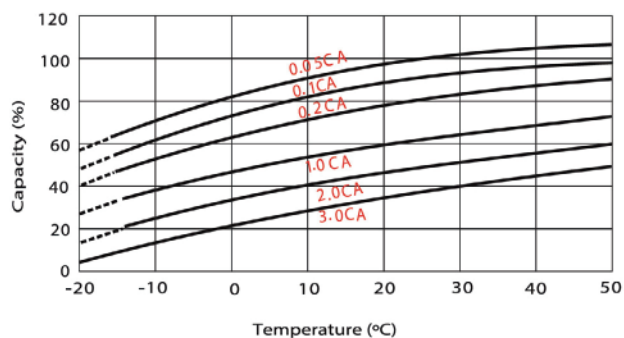
## Charging Characteristics (float use)



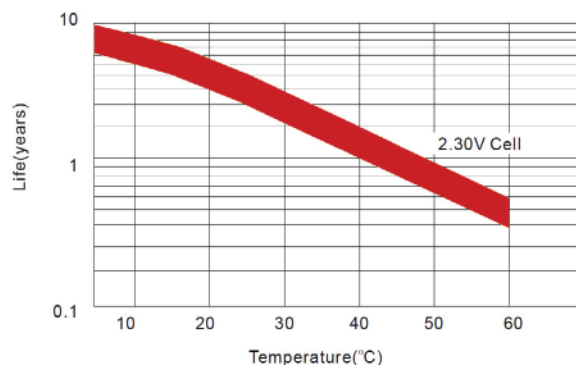
## Cycle Life in Relation to Depth of Discharge



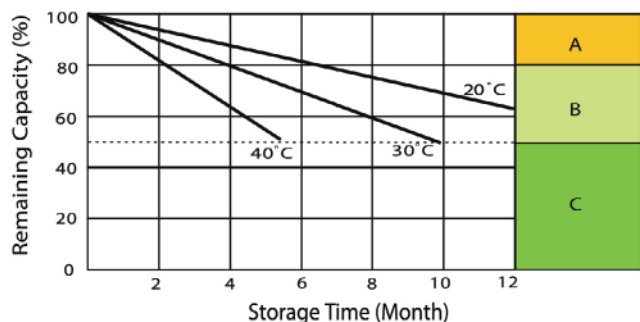
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.

2018/11/11



# KB12180 12V 18Ah



The KB Standard series consists in VRLA batteries - AGM technology (Absorbent Glass Mat), with a design life of 3-5 years and it is designed for general applications such as UPS, telecommunications and electrical applications.



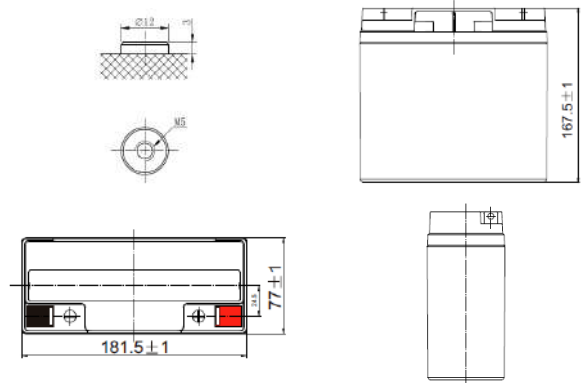
## Performance Characteristics

Nominal Voltage	12V		
Dimensions	Length (mm / inch)	181.5 / 7.14	
	Width (mm / inch)	77 / 3.03	
	Height (mm / inch)	167.5 / 6.59	
	Total Height (mm / inch)	167.5 / 6.59	
Approx Weight	(Kg / lbs)	5.4 / 11.9	
Design Life	5 years		
Terminal	M5		
Container Material	ABS		
Rated Capacity	18.0Ah / 0.90A	(20hr, 1.80V / cell, 25°C / 77°F)	
	16.7Ah / 1.67A	(10hr, 1.80V / cell, 25°C / 77°F)	
	15.3Ah / 3.05A	(5hr, 1.75V / cell, 25°C / 77°F)	
	11.2Ah / 11.2A	(1hr, 1.60V / cell, 25°C / 77°F)	
Max. Discharge Current	270A (5s)		
Internal Resistance	Approx 16mΩ		
Operating Temp. Range	Discharge : -20 ~ 60°C (-4 ~ 140°F)		
	Charge : -10 ~ 60°C (14 ~ 140°F)		
	Storage : -20 ~ 60°C (-20 ~ 140°F)		
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)		
Cycle Use	Initial Charging Current less than 3.6A		
	Voltage: 14.4V ~ 14.7V at 25°C (77°F)		
	Temp. Coefficient: -30mV/°C		
Standby Use	Initial Charging Current less than 3.6A		
	Voltage: 13.5V ~ 13.8V at 25°C (77°F)		
	Temp. Coefficient: -20mV/°C		
Capacity affected by Temperature	40°C (104°F)	103%	
	25°C (77°F)	100%	
	0°C (32°F)	86%	
Self Discharge	Fully charged Kaise Standard Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.		

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

Volts/cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	41.0	27.3	22.1	15.1	9.47	4.32	2.97	1.67	0.900
1.75V	49.2	31.3	24.6	16.2	10.0	4.46	3.05	1.72	0.909
1.70V	57.1	35.0	27.1	17.3	10.4	4.58	3.12	1.74	0.925
1.65V	63.0	37.9	29.0	18.2	10.8	4.70	3.19	1.76	0.938
1.60V	69.5	41.0	31.2	19.2	11.2	4.82	3.25	1.79	0.943

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- |                            |                                       |
|----------------------------|---------------------------------------|
| Alarm systems              | Marine equipment                      |
| Cable television           | Medical equipment                     |
| Communications Equipment   | Micro processor based office machines |
| Control Equipment          | Portable cine & Video lights          |
| Computers                  | Solar powered systems                 |
| Electronic Cash Registers  | Telecommunications systems            |
| Electric Test Equipment    | Television & Video recorders          |
| Emergency lighting systems | Toys                                  |
| Fire & Security            | Uninterruptible power supply systems  |
| Geophysical equipment      | Vending machines                      |

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

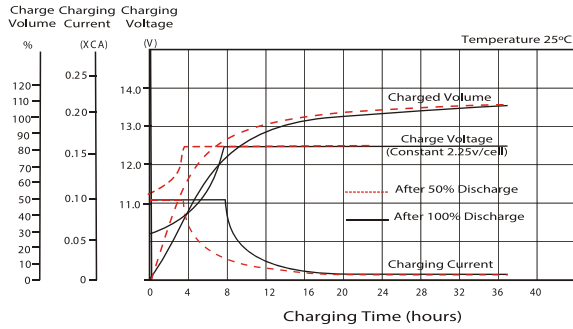
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current [A]	$I \leq 0.1CA$	$0.25CA \geq I > 0.1CA$	$0.55CA \geq I > 0.25CA$	$I > 0.55CA$

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

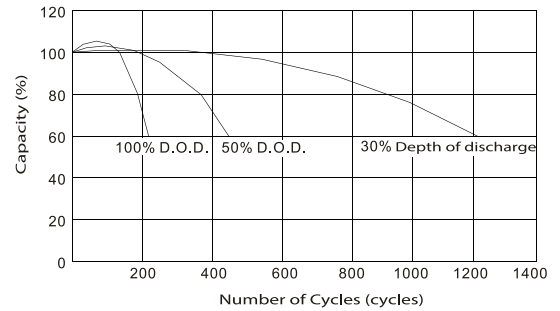
Volts/cell	5min	10min	15min	30min	45min	1h	2h	3h	5h
1.80V	74.2	50.1	40.9	28.5	22.1	18.2	11.1	8.37	5.79
1.75V	88.2	56.8	45.0	30.3	23.5	19.1	11.5	8.62	5.93
1.70V	100.9	62.6	49.1	32.2	24.5	19.9	11.9	8.82	6.05
1.65V	109.7	66.8	52.0	33.6	25.4	20.4	12.2	9.03	6.16
1.60V	118.8	71.3	54.9	34.9	26.2	21.1	12.5	9.20	6.28

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

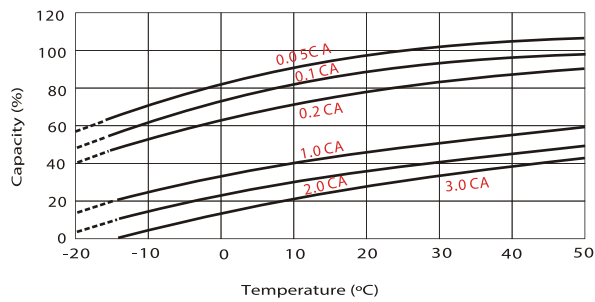
## Charging Characteristics (float use)



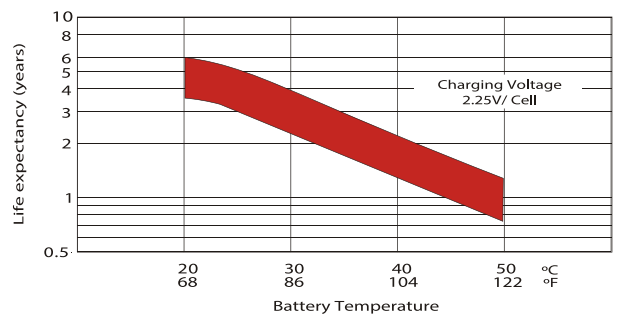
## Cycle Life in Relation to Depth of Discharge



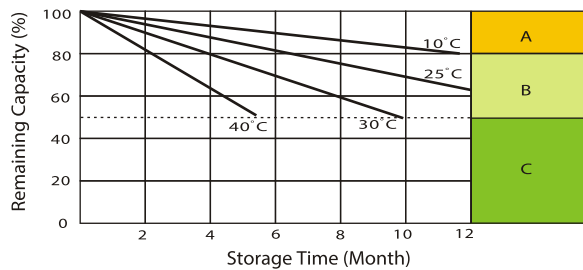
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.





# KB12200 12V 17Ah



The KB Standard series consists in VRLA batteries - AGM technology (Absorbent Glass Mat), with a design life of 3-5 years and it is designed for general applications such as UPS, telecommunications and electrical applications.



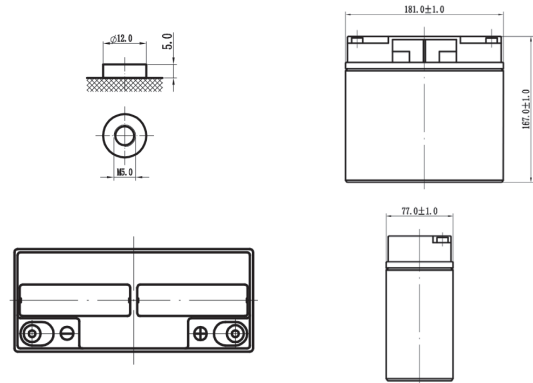
## Performance Characteristics

Nominal Voltage	12V		
Dimensions	Length (mm / inch)	181 / 7.13	
	Width (mm / inch)	77 / 3.03	
	Height (mm / inch)	167 / 6.57	
	Total Height (mm / inch)	167 / 6.57	
Approx Weight	(Kg / lbs)	5.9 / 13	
Design Life	5 years		
Terminal	M5		
Container Material	ABS		
Rated Capacity	17Ah / 0.85A	(20hr, 10.5V / cell, 25°C / 77°F)	
	16.9Ah / 1.69A	(10hr, 10.5V / cell, 25°C / 77°F)	
	16.55Ah / 3.31A	(5hr, 10.5V / cell, 25°C / 77°F)	
	13Ah / 13A	(1hr, 9.6V / cell, 25°C / 77°F)	
Max. Discharge Current	225A (5s)		
Internal Resistance	Approx 15mΩ		
Operating Temp. Range	Discharge : -20 ~ 60°C (-4 ~ 140°F)		
	Charge : -10 ~ 60°C (14 ~ 140°F)		
	Storage : -20 ~ 60°C (-4 ~ 140°F)		
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)		
Cycle Use	Initial Charging Current less than 6.0A		
	Voltage: 2.40V ~ 2.45V at 25°C (77°F)		
	Temp. Coefficient: -30mV/°C		
Standby Use	No limit on Initial Charging Current		
	Voltage: 2.23V ~ 2.30V at 25°C (77°F)		
	Temp. Coefficient: -20mV/°C		
Capacity affected by Temperature	40°C (104°F)	103%	
	25°C (77°F)	100%	
	0°C (32°F)	86%	
Self Discharge	Fully charged Kaise Standard Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.		

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

Volts/cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	65.9	44.7	34.9	20.4	12.2	4.88	3.24	1.65	0.84
1.75V	67.6	46.0	35.8	20.7	12.4	4.96	3.31	1.69	0.85
1.70V	69.3	47.2	36.7	21.0	12.6	5.04	3.37	1.73	0.90
1.65V	71.1	48.4	37.5	21.4	12.8	5.12	3.44	1.76	0.91
1.60V	72.8	49.7	38.4	21.7	13.0	5.20	3.50	1.79	0.92

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- |                            |                                       |
|----------------------------|---------------------------------------|
| Alarm systems              | Marine equipment                      |
| Cable television           | Medical equipment                     |
| Communications Equipment   | Micro processor based office machines |
| Control Equipment          | Portable cine & Video lights          |
| Computers                  | Solar powered systems                 |
| Electronic Cash Registers  | Telecommunications systems            |
| Electric Test Equipment    | Television & Video recorders          |
| Emergency lighting systems | Toys                                  |
| Fire & Security            | Uninterruptible power supply systems  |
| Geophysical equipment      | Vending machines                      |

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

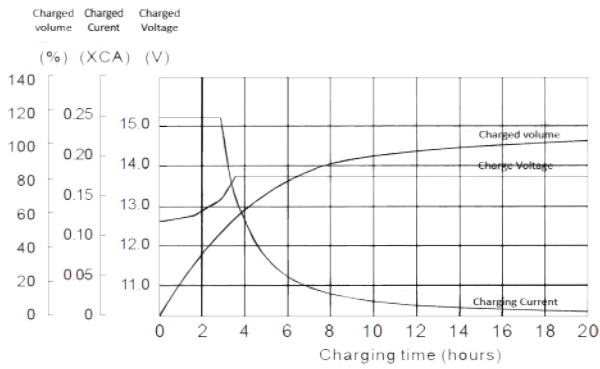
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current [A]	$I \leq 0.1CA$	$0.25CA \geq I > 0.1CA$	$0.55CA \geq I > 0.25CA$	$I > 0.55CA$

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

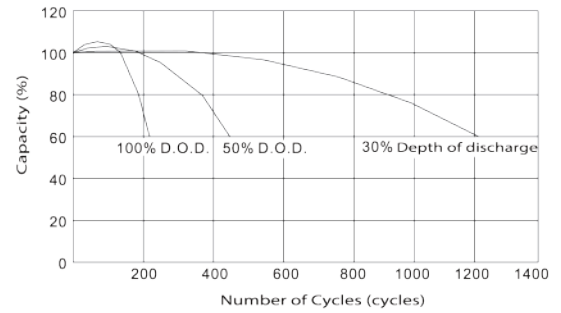
Volts/cell	5min	10min	15min	30min	45min	1h	2h	3h	5h
1.80V	128	94.9	76.0	42.0	32.6	25.5	14.2	9.9	6.78
1.75V	133	96.3	77.3	42.7	33.0	25.8	14.4	10.0	6.79
1.70V	138	98.2	78.7	43.3	33.4	26.0	14.5	10.1	6.88
1.65V	143	100	80.1	43.9	28.6	26.3	14.7	10.2	6.96
1.60V	147	102	81.5	44.6	34.2	26.6	14.9	10.3	7.05

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

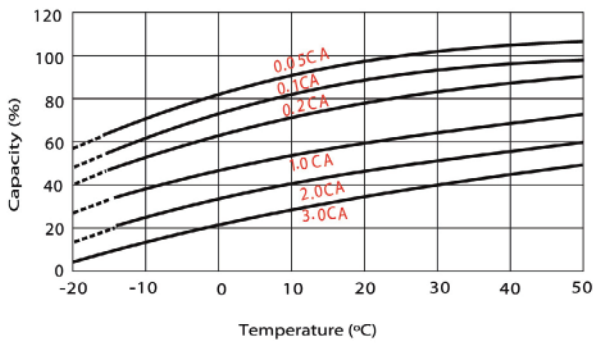
## Charging Characteristics (float use)



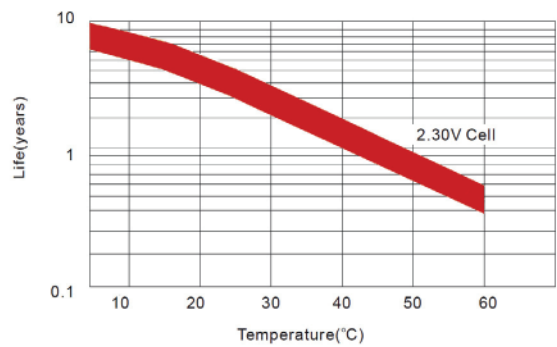
## Cycle Life in Relation to Depth of Discharge



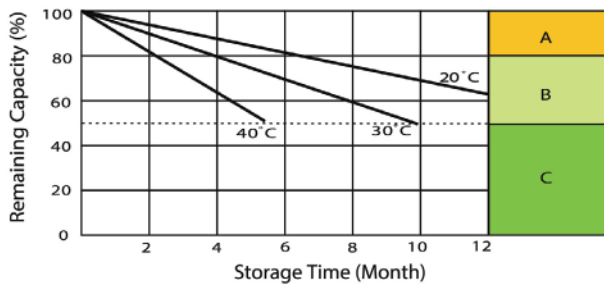
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.

2018/11/11





## KBL12260 12V 26Ah(10hr)

The rechargeable batteries are lead-lead dioxide systems. The dilute sulfuric acid electrolyte is absorbed by separators and plates and thus immobilized. Should the battery be accidentally overcharged producing hydrogen and oxygen, special one-way valves allow the gases to escape thus avoiding excessive pressure build-up. Otherwise, the battery is completely sealed and is, therefore, maintenance-free, leak proof and usable in any position.



### Battery Construction

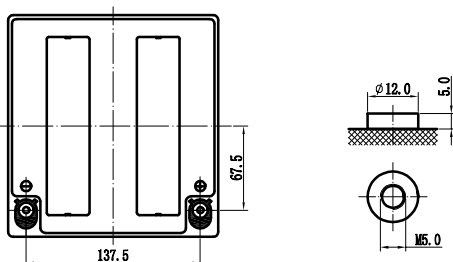
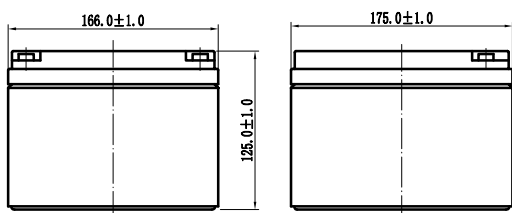
Component	Positive plate	Negative plate	Container	Cover	Safety valve	Terminal	Separator	Electrolyte
Raw material	Lead dioxide	Lead	ABS	ABS	Rubber	Pb	Fiberglass	Sulfuric acid

### General Features

- Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance or water adding.
- Not restricted for air transport-complies with IATA/ICAO Special Provision A67.
- UL-recognized component.
- Can be mounted in any orientation.
- Computer designed lead, calcium tin alloy grid for high power density.
- Long service life, float or cyclic applications.
- Maintenance-free operation.
- Low self discharge.

### Dimensions and Weight

Length(mm / inch).....165 / 6.50  
 Width(mm / inch).....125 / 4.92  
 Height(mm / inch).....175 / 6.89  
 Total Height(mm / inch).....182 / 7.17  
 Approx. Weight(Kg / lbs).....9.75 / 21.5



### Performance Characteristics

Nominal Voltage .....12V  
 Number of cell .....6  
 Design Life .....10 years  
 Nominal Capacity 77°F(25°C)  
 20 hour rate (1.4A, 10.5V) ..... 28Ah  
 10 hour rate (2.65A, 10.5V)..... 26.5Ah  
 5 hour rate (4.8A, 10.5V) ..... 24Ah  
 1 hour rate (19.6A, 9.6V) ..... 19.6Ah  
 Internal Resistance  
 Fully Charged battery 77°F(25°C) ..... 11mOhms  
 Self-Discharge  
 3% of capacity declined per month at 20°C(average)  
 Operating Temperature Range  
 Discharge .....-20~60°C  
 Charge .....-10~60°C  
 Storage .....-20~60°C  
 Max. Discharge Current 77°F(25°C) .....310A(5s)  
 Short Circuit Current ..... 1400A  
 Charge Methods: Constant Voltage Charge 77°F(25°C)  
 Cycle use ..... 14.5-14.9V  
 Maximum charging current ..... 11.2A  
 Temperature compensation .....-30mV/°C  
 Standby use ..... 13.6-13.8V  
 Temperature compensation .....-20mV/°C

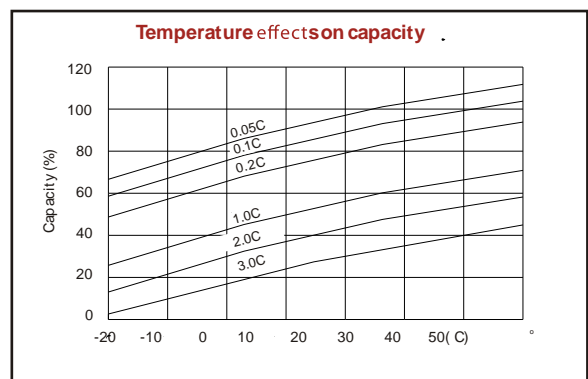
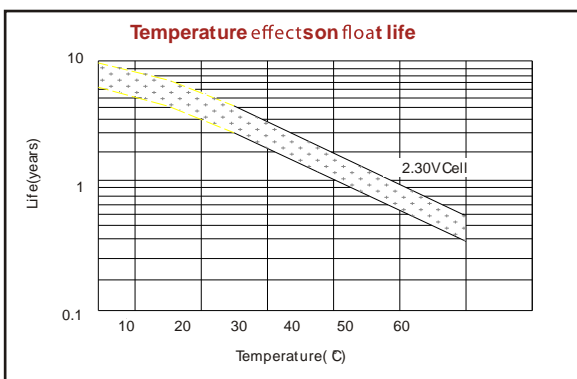
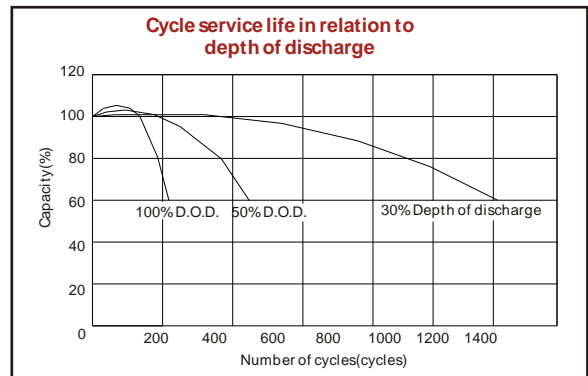
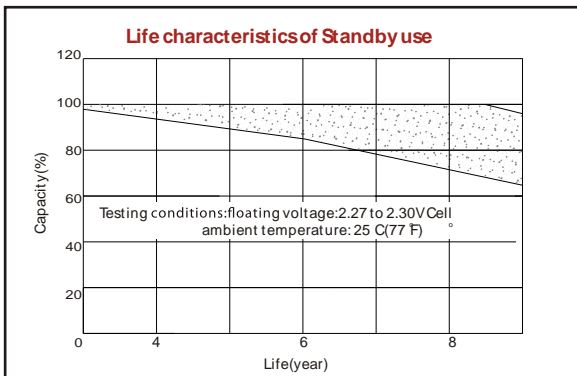
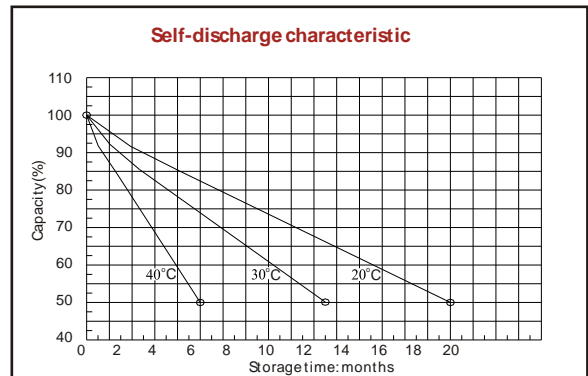
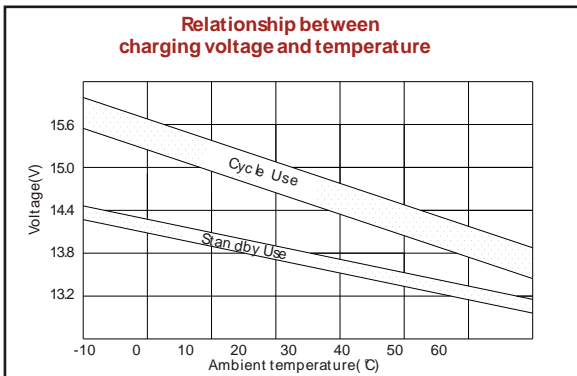
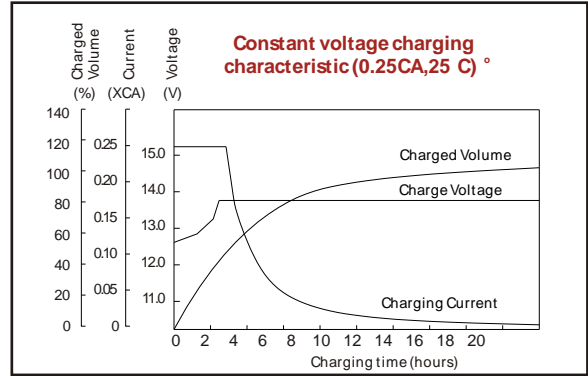
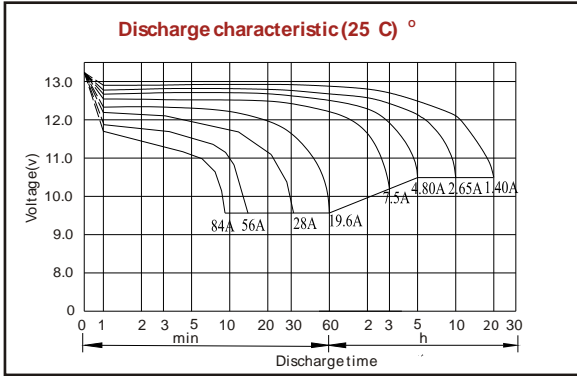
### Discharge Constant Current (Amperes at 77°F25°C)

End Point Volts/Cell	5min	10min	15min	30min	1h	3h	5h	10h	20h
1.60V	112	73.0	55.0	32.0	19.6	8.02	5.20	2.81	1.45
1.65V	106	69.5	52.6	30.7	18.9	7.77	5.08	2.77	1.44
1.70V	100	65.9	50.1	29.4	18.1	7.50	4.95	2.71	1.42
1.75V	93.9	62.2	47.5	28.0	17.3	7.20	4.80	2.65	1.40
1.80V	87.6	58.5	44.8	26.5	16.5	6.88	4.63	2.58	1.38

### Discharge Constant Power (Watts at 77°F25°C)

End Point Volts/Cell	5min	10min	15min	30min	45min	1h	2h	3h	5h
1.60V	208	135	105	61.7	46.7	36.7	24.0	16.0	10.4
1.65V	195	127	99.3	58.6	44.5	35.1	23.3	15.6	10.2
1.70V	183	119	93.6	55.4	42.3	33.5	22.5	15.2	10.0
1.75V	170	111	87.8	52.2	40.0	31.8	21.6	14.4	9.9
1.80V	157	104	82.0	49.0	37.7	30.1	20.7	13.8	9.8

(Note)The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.



# KBL12330 12V 33Ah



The KAISE LONG LIFE Series 10 years has been designed for different applications, such as UPS, electric and telecommunications applications that require a long useful life.



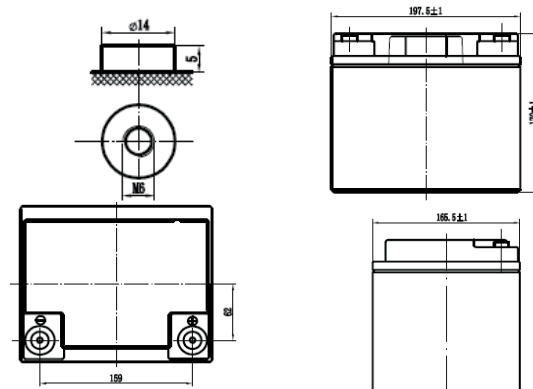
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	195 / 7.68
	Width (mm / inch)	130 / 5.12
	Height (mm / inch)	155 / 6.10
	Total Height (mm / inch)	168 / 6.61
Approx. Weight (Kg / lbs)	11.0 / 24.3	
Design Life	10 years	
Terminal	M6	
Container Material	ABS	
Rated Capacity	33.0Ah / 3.30A	(10hr, 10.8V/cell, 25°C / 77°F)
	27.9Ah / 5.58A	(5hr, 10.5V/cell, 25°C / 77°F)
	22.3Ah / 22.3A	(1hr, 9.6V/cell, 25°C / 77°F)
Max. Discharge Current	330A (5s)	
Internal Resistance	Approx 10mΩ	
Operating Temp. Range	Discharge : -20 ~ 60°C (-4 ~ 140°F)	
	Charge : -10 ~ 60°C (14 ~ 140°F)	
	Storage : -20 ~ 60°C (-4 ~ 140°F)	
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 9.9A	
	Voltage: 2.40VPC ~ 2.45VPC at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage	
	2.20VPC ~ 2.30VPC at 25°C (77°F)	
	Temp. Coefficient: -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Fully charged Kaise Long Life Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	10min	15min	30min	1h	3h	5h	10h
1.80V	60.0	49.5	31.9	19.8	8.18	5.50	3.30
1.75V	69.0	52.0	32.8	20.3	8.25	5.58	3.31
1.70V	73.0	54.5	33.2	21.2	8.45	6.15	3.32
1.65V	77.3	59.4	36.3	21.9	8.97	6.25	3.35
1.60V	80.2	61.5	37.0	22.3	9.08	6.30	3.36

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- UPS
- Telecommunications equipment
- Solar energy systems
- Cable TV
- Power station
- Marine equipment
- Military equipment
- Emergency power systems
- Railway systems

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

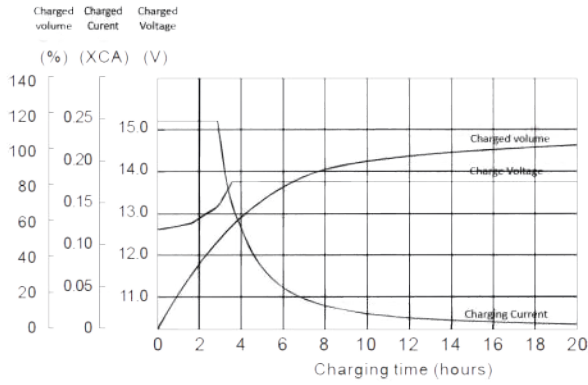
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current (A)	I ≤ 0.1CA	0.25CA ≥ I > 0.1CA	0.55CA ≥ I > 0.25CA	I > 0.55CA

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

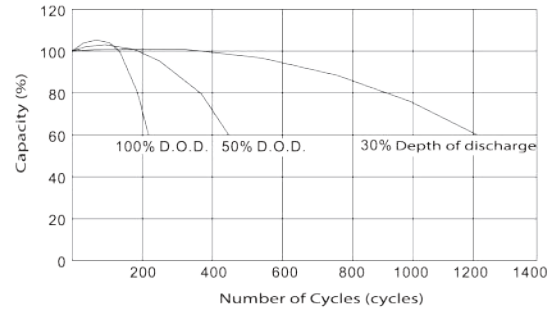
Volts/cell	10min	15min	30min	45min	1h	2h	3h	5h
1.80V	116	97.9	61.0	48.8	38.3	21.0	15.2	11.0
1.75V	132	103	62.7	49.1	39.1	21.8	16.0	11.3
1.70V	136	107	64.5	51.2	39.9	22.6	16.8	11.5
1.65V	145	110	69.3	53.2	40.5	23.1	17.3	11.9
1.60V	150	117	72.4	53.8	40.9	23.3	17.4	12.2

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

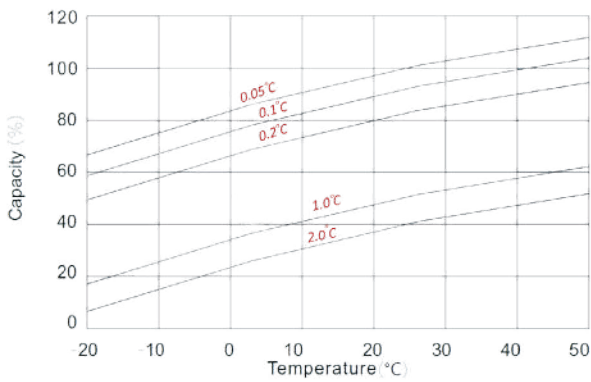
## Charging Characteristics (float use)



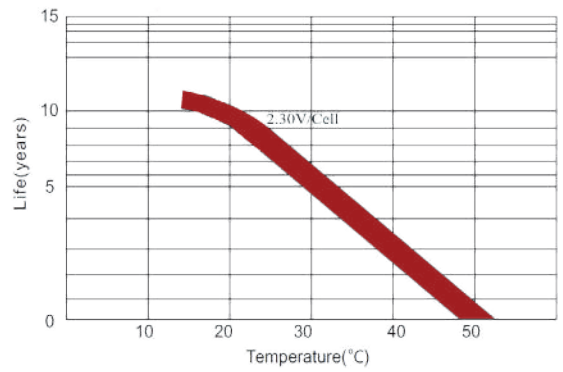
## Cycle Life in Relation to Depth of Discharge



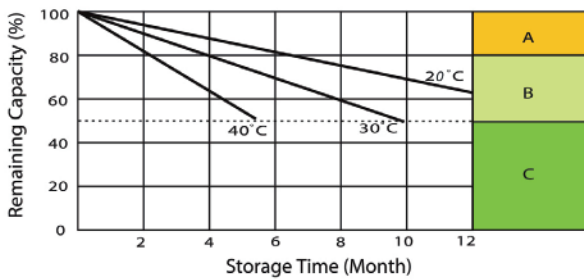
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.

2018/11/11



# KBL12400 12V 40Ah



The KAISE LONG LIFE Series 10 years has been designed for different applications, such as UPS, electric and telecommunications applications that require a long useful life.



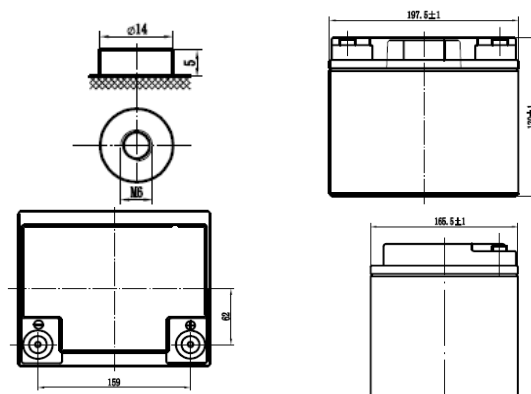
## Performance Characteristics

Nominal Voltage	12V		
Dimensions	Length (mm / inch)	197.5 / 7.78	
	Width (mm / inch)	165.5 / 6.52	
	Height (mm / inch)	170 / 6.69	
	Total Height (mm / inch)	170 / 6.69	
Approx. Weight	(Kg / lbs)	13.8 / 30.4	
Design Life	10 years		
Terminal	M6		
Container Material	ABS		
Rated Capacity	41 Ah / 4.10A	(10hr, 1.70V / cell, 25°C / 77°F)	
	34.9 Ah / 6.97A	(5hr, 1.70V / cell, 25°C / 77°F)	
	24.2 Ah / 24.2A	(1hr, 1.70V / cell, 25°C / 77°F)	
Max. Discharge Current	400A (5s)		
Internal Resistance	Approx 9.7mΩ		
Operating Temp. Range	Discharge : -20 ~ 60°C (-4 ~ 140°F)		
	Charge : -10 ~ 60°C (14 ~ 140°F)		
	Storage : -20 ~ 60°C (-4 ~ 140°F)		
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)		
Cycle Use	Initial Charging Current less than 8A.		
	Voltage: 2.35VPC ~ 2.40VPC at 25°C (77°F)		
	Temp. Coefficient: -30mV/°C		
Standby Use	Initial Charging Current less than 8A.		
	2.25VPC ~ 2.30VPC at 25°C (77°F)		
	Temp. Coefficient: -20mV/°C		
Capacity affected by Temperature	40°C (104°F)	103%	
	25°C (77°F)	100%	
	0°C (32°F)	86%	
Self Discharge	Fully charged Kaise Long Life Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.		

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

Volts/cell	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	69.9	55.2	35.8	23.5	9.43	6.66	4.00	2.11
1.75V	73.6	61.0	36.1	23.9	9.65	6.83	4.05	2.15
1.70V	77.8	64.5	37.3	24.2	9.89	6.97	4.10	2.18
1.65V	82.2	67.1	38.7	24.6	10.1	7.10	4.15	2.20
1.60V	86.5	70.7	39.9	24.9	10.3	7.22	4.20	2.22

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- UPS
- Telecommunications equipment
- Solar energy systems
- Cable TV
- Power station
- Marine equipment
- Military equipment
- Emergency power systems
- Railway systems

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

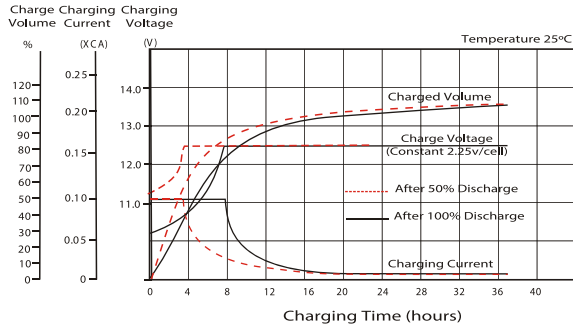
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current (A)	I ≤ 0.1CA	0.25CA ≥ I > 0.1CA	0.55CA ≥ I > 0.25CA	I > 0.55CA

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

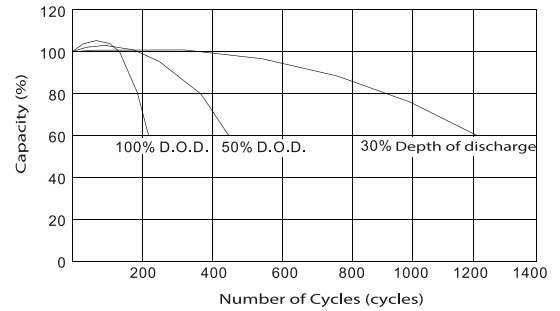
Volts/cell	10min	15min	30min	45min	1h	2h	3h	5h
1.80V	130	109	71.3	55.4	46.7	25.8	19.6	13.3
1.75V	138	113	73.8	56.6	47.5	26.2	20.0	13.4
1.70V	144	117	76.3	57.8	48.3	26.6	20.3	13.6
1.65V	152	120	78.8	59.0	49.2	27.1	20.7	13.8
1.60V	158	124	81.2	60.2	49.9	27.5	21.0	14.0

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

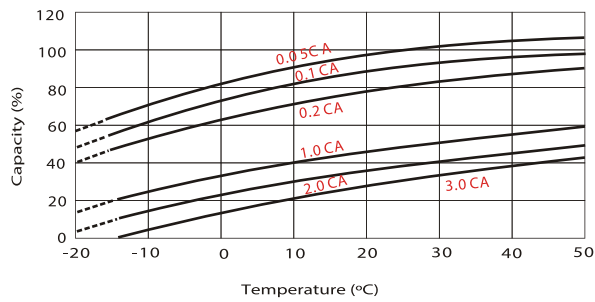
## Charging Characteristics (float use)



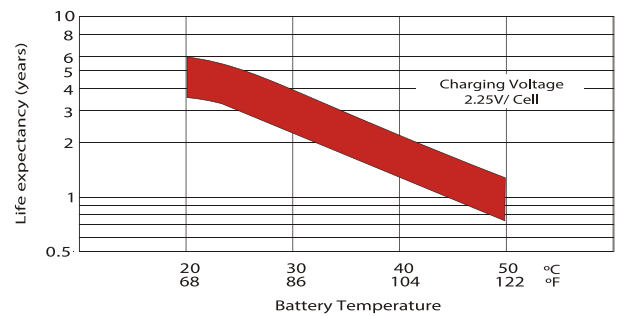
## Cycle Life in Relation to Depth of Discharge



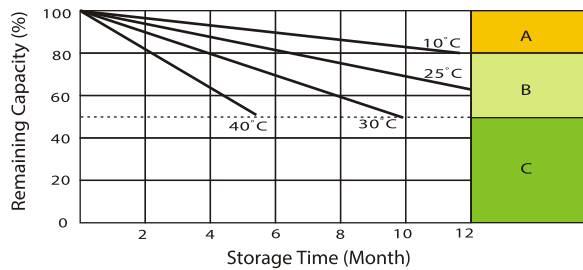
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.





# KBL12550 12V 55Ah



The KAISE LONG LIFE Series 10 years has been designed for different applications, such as UPS, electric and telecommunications applications that require a long useful life.



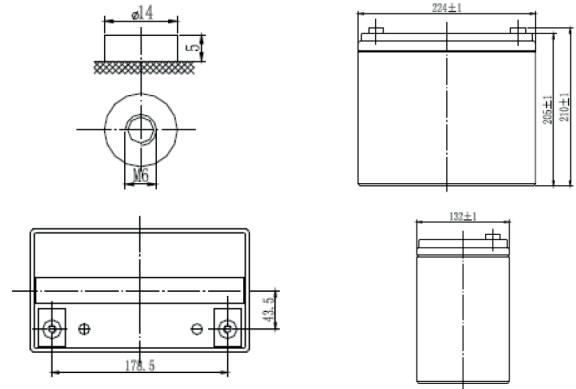
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	239 / 9.41
	Width (mm / inch)	132 / 5.20
	Height (mm / inch)	205 / 8.07
	Total Height (mm / inch)	210 / 8.27
Approx. Weight	(Kg / lbs) 17.3 / 38.2	
Design Life	10 years	
Terminal	M6	
Container Material	ABS	
Rated Capacity	55Ah / 5.5A	(10hr, 10.8V / cell, 25°C / 77°F)
	46.15Ah / 9.23A	(5hr, 10.8V / cell, 25°C / 77°F)
	35.1Ah / 35.1A	(1hr, 9.6V / cell, 25°C / 77°F)
Max. Discharge Current	550A (5s)	
Internal Resistance	Approx 7.2mΩ	
Operating Temp. Range	Discharge : -20 ~ 60°C (-4 ~ 140°F)	
	Charge : -10 ~ 60°C (14 ~ 140°F)	
	Storage : -20 ~ 60°C (-4 ~ 140°F)	
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 16.5A.	
	Voltage: 2.40VPC ~ 2.45VPC at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage	
	2.20VPC ~ 2.30VPC at 25°C (77°F)	
	Temp. Coefficient: -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Fully charged Kaise Long Life Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	99.8	79.5	51.9	31.7	13.3	9.06	5.50	2.90
1.75V	106	85.8	53.8	32.5	13.6	9.23	5.55	2.93
1.70V	115	90.6	55.6	33.3	13.9	9.40	5.60	2.95
1.65V	124	95.4	57.4	34.2	14.2	9.57	5.65	2.96
1.60V	129	99.4	59.2	35.1	14.6	9.82	5.70	2.97

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- UPS
- Telecommunications equipment
- Solar energy systems
- Cable TV
- Power station
- Marine equipment
- Military equipment
- Emergency power systems
- Railway systems

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

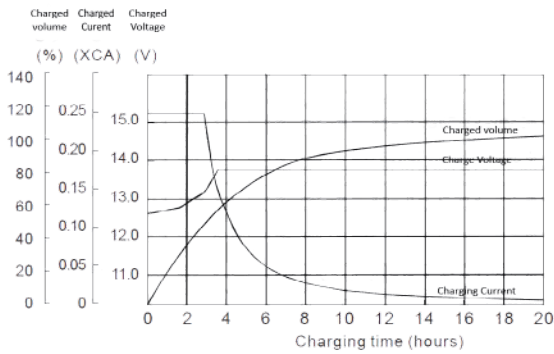
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current (A)	I ≤ 0.1CA	0.25CA ≥ I > 0.1CA	0.55CA ≥ I > 0.25CA	I > 0.55CA

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

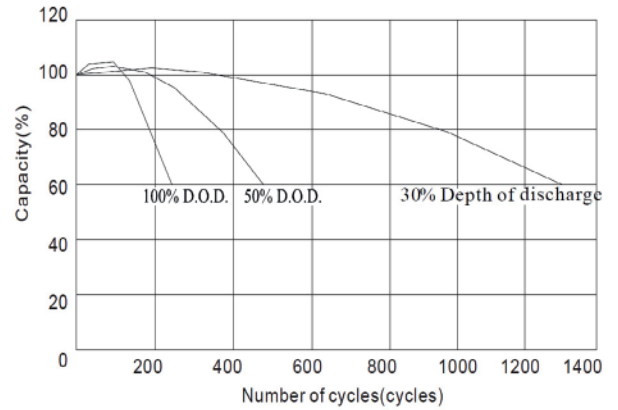
Volts/cell	10min	15min	30min	45min	1h	2h	3h	5h
1.80V	186	154	104	78.4	62.6	37.4	26.7	17.9
1.75V	200	162	105	80.5	64.3	38.4	27.3	18.0
1.70V	213	169	107	82.3	65.8	39.4	27.9	18.2
1.65V	225	177	109	84.0	67.3	40.2	28.5	18.6
1.60V	238	185	111	85.3	68.9	41.1	29.1	18.8

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

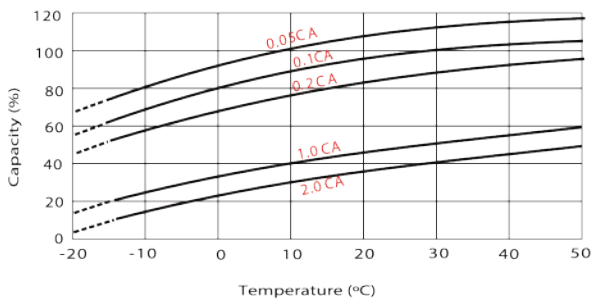
## Charging Characteristics (float use)



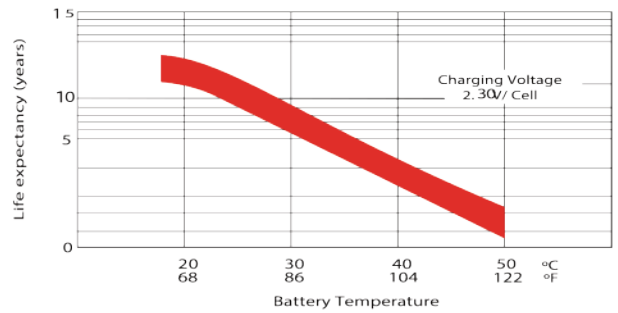
## Cycle Life in Relation to Depth of Discharge



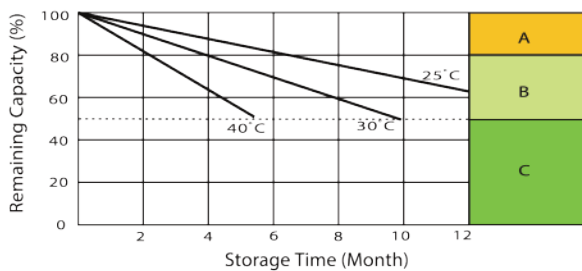
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.

2018/01/11



# KBL12650 12V 65Ah



The KAISE LONG LIFE Series 10 years has been designed for different applications, such as UPS, electric and telecommunications applications that require a long useful life.



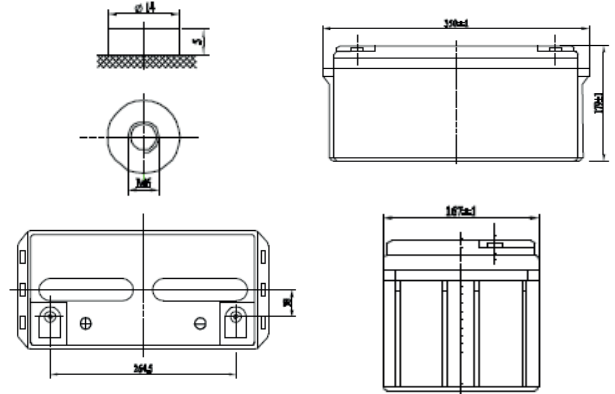
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	350 / 13.8
	Width (mm / inch)	167 / 6.57
	Height (mm / inch)	179 / 7.05
	Total Height (mm / inch)	179 / 7.05
Approx. Weight (Kg / lbs)	22.4 / 49.4	
Design Life	10 years	
Terminal	M6	
Container Material	ABS	
Rated Capacity	65.0Ah / 6.5A	(10hr, 10.8V / cell, 25°C / 77°F)
	54.0Ah / 10.8A	(5hr, 10.5V / cell, 25°C / 77°F)
	43.1Ah / 43.1A	(1hr, 9.6V / cell, 25°C / 77°F)
Max. Discharge Current	650A (5s)	
Internal Resistance	Approx 6.8mΩ	
Operating Temp. Range	Discharge : -20 ~ 60°C (-4 ~ 140°F)	
	Charge : -10 ~ 60°C (14 ~ 140°F)	
	Storage : -20 ~ 60°C (-4 ~ 140°F)	
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 19.5A.	
	Voltage: 2.40VPC ~ 2.45VPC at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage	
	2.20VPC ~ 2.28VPC at 25°C (77°F)	
Capacity affected by	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Fully charged Kaise Long Life Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	116	96.5	59.9	39.0	15.4	10.6	6.50	3.36
1.75V	127	104	62.2	39.9	15.7	10.8	6.52	3.40
1.70V	138	110	64.3	41.0	16.1	11.0	6.54	3.43
1.65V	149	116	66.3	42.0	16.5	11.2	6.56	3.46
1.60V	154	121	68.4	43.1	16.9	11.5	6.58	3.48

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- UPS
- Telecommunications equipment
- Solar energy systems
- Cable TV
- Power station
- Marine equipment
- Military equipment
- Emergency power systems
- Railway systems

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

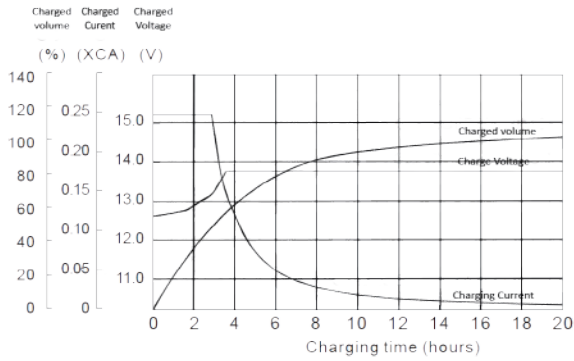
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current (A)	$I \leq 0.1CA$	$0.25CA \geq I > 0.1CA$	$0.55CA \geq I > 0.25CA$	$I > 0.55CA$

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

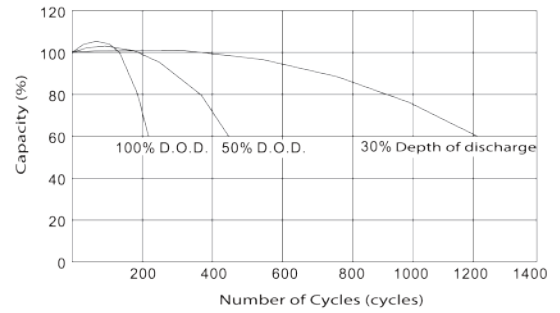
Volts/cell	10min	15min	30min	45min	1h	2h	3h	5h
1.80V	212	177	112	87.3	72.7	43.3	31.1	21.4
1.75V	229	186	114	89.6	73.5	44.5	31.8	21.6
1.70V	243	190	117	91.7	75.3	45.5	32.4	21.8
1.65V	258	193	118	93.6	77.0	46.5	33.1	22.3
1.60V	272	197	119	95.1	78.8	47.5	33.8	22.5

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

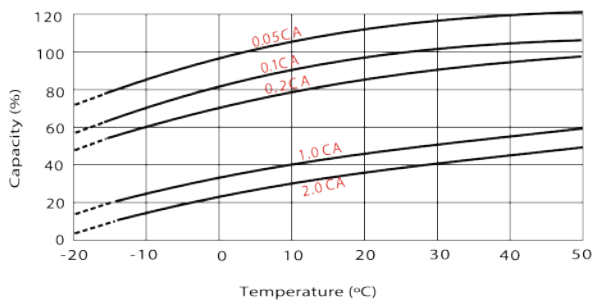
## Charging Characteristics (float use)



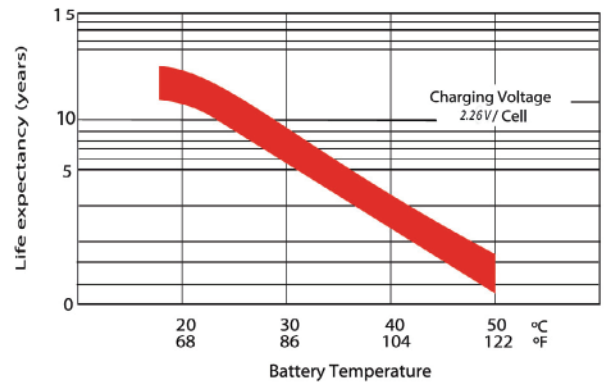
## Cycle Life in Relation to Depth of Discharge



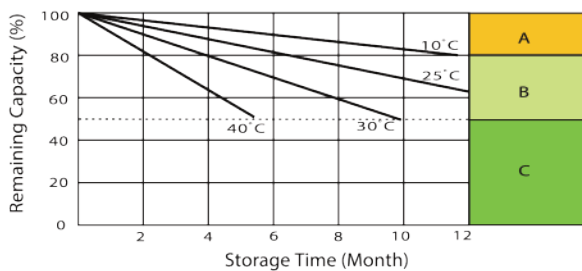
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.

2018/11/11



# KBL121000 12V 100Ah



The KAISE LONG LIFE Series 10 years has been designed for different applications, such as UPS, electric and telecommunications applications that require a long useful life.



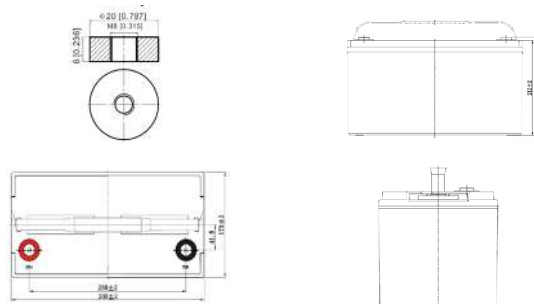
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	330 / 12.99
	Width (mm / inch)	173 / 6.81
	Height (mm / inch)	212 / 8.35
	Total Height (mm / inch)	220 / 8.66
Approx. Weight	(Kg / lbs) 31.5 / 69.5	
Design Life	11 years	
Terminal	M11	
Container Material	ABS	
Rated Capacity	107.0 Ah / 5.35A	(20hr, 1.80V / cell, 25°C / 77°F)
	100 Ah / 10.0A	(10hr, 1.80V / cell, 25°C / 77°F)
	87.0 Ah / 17.4A	(5hr, 1.75V / cell, 25°C / 77°F)
	62.0 Ah / 62.0A	(1hr, 1.60V / cell, 25°C / 77°F)
Max. Discharge Current	1200A (5s)	
Internal Resistance	Approx 4.9 mΩ	
Operating Temp. Range	Discharge : -15 ~ 50°C (5 ~ 104°F)	
	Charge : 0 ~ 40°C (32 ~ 104°F)	
	Storage : -15 ~ 40°C (5 ~ 104°F)	
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 30.0A.	
	Voltage: 14.4VPC ~ 15.0VPC at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage.	
	13.5VPC~13.8VPC at 25° C (77°F)	
	Temp. Coefficient: -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Fully charged Kaise Long Life Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	15min	30min	1h	3h	5h	10h	20h
1.80V	110.5	78.6	50.5	25.0	17.0	10.0	5.35
1.75V	124.5	85.5	55.0	26.0	17.4	10.3	5.49
1.70V	138.2	93.3	58.2	27.4	18.4	10.7	5.63
1.65V	147.9	98.5	60.2	28.5	19.0	11.0	5.80
1.60V	162.0	105.1	62.0	29.2	19.4	11.2	5.89

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- UPS
- Telecommunications equipment
- Solar energy systems
- Cable TV
- Power station
- Marine equipment
- Military equipment
- Emergency power systems
- Railway systems

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

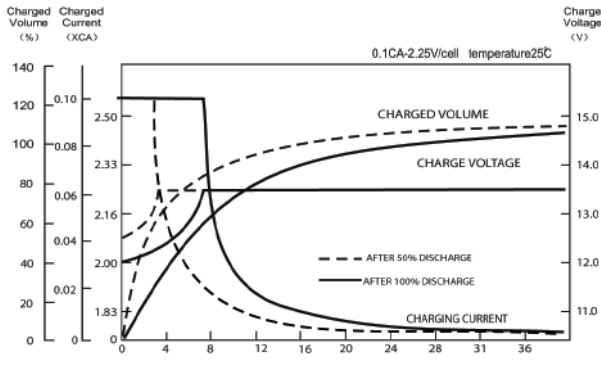
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current (A)	I ≤ 0.1CA	0.25CA ≥ I > 0.1CA	0.55CA ≥ I > 0.25CA	I > 0.55CA

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

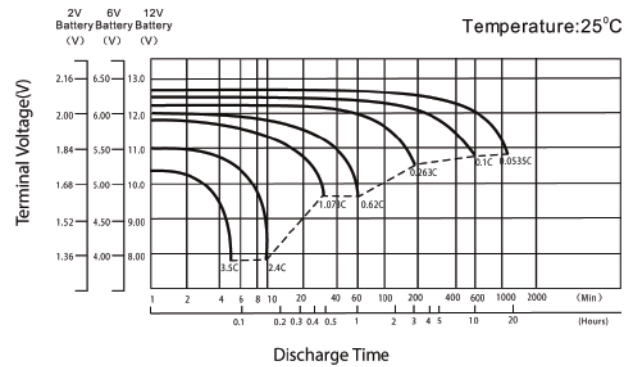
Volts/cell	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	247.1	205.6	149.2	97.8	49.0	33.5	20.0	10.7
1.75V	276.2	228.9	160.8	106.1	50.7	34.2	20.5	10.9
1.70V	304.9	250.5	174.6	112.0	53.3	36.1	21.2	11.2
1.65V	324.5	266.2	182.7	115.0	55.2	37.1	21.8	11.6
1.60V	348.9	286.8	193.6	117.8	56.4	37.9	22.2	11.7

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

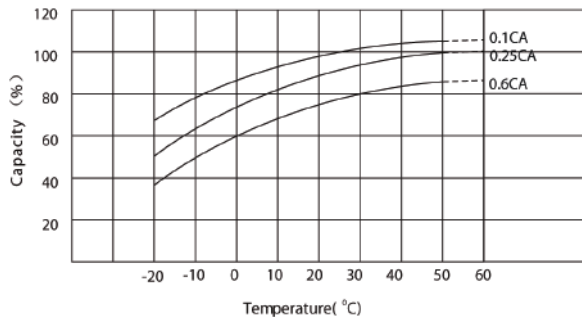
## Charging Characteristics (float use)



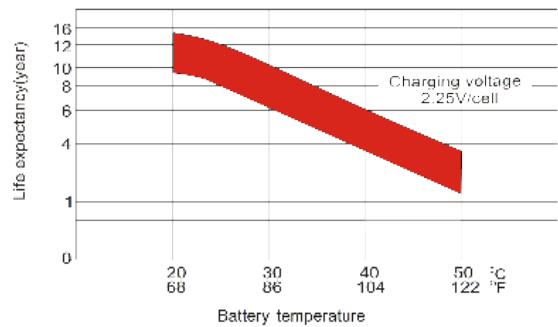
## Discharge Characteristics



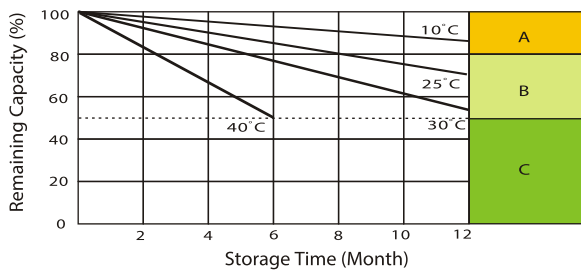
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.



# KBL121200 12V 120Ah



The KBL Long Life series consists in VRLA batteries - AGM technology (Absorbent Glass Mat), with a design life of 10 years and it is designed for general applications such as UPS, telecommunications and electrical applications.



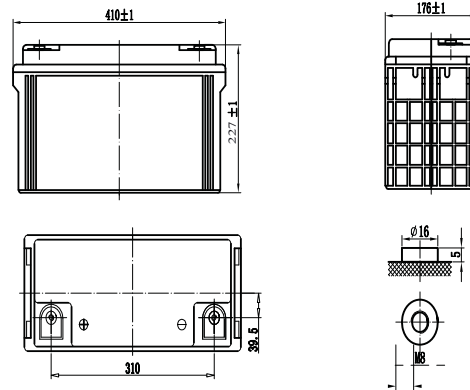
## Performance Characteristics

Nominal Voltage	12V		
Dimensions	Length (mm / inch)	410 / 16.1	
	Width (mm / inch)	176 / 6.92	
	Height (mm / inch)	227 / 8.94	
	Total Height (mm / inch)	227 / 8.94	
Approx Weight	(Kg / lbs)	35.0 / 77.0	
Design Life	15 years		
Terminal	M8		
Container Material	ABS		
Rated Capacity	120Ah / 12.0A	(10hr, 10.5V / cell, 25°C / 77°F)	
	100h / 20.0A	(5hr, 10.5V / cell, 25°C / 77°F)	
	71.6Ah / 71.6A	(1hr, 9.6V / cell, 25°C / 77°F)	
Max. Discharge Current	950A (5s)		
Internal Resistance	Approx 5.3mΩ		
Operating Temp. Range	Discharge : -20 ~ 60°C (-4~140°F)		
	Charge : -10 ~ 60°C (-14 ~140°F)		
	Storage : -20 ~ 60°C (-4 ~ 140°F)		
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)		
Cycle Use	Initial Charging Current less than 3.6A		
	Voltage: 2.40V ~ 2.45V at 25°C (77°F)		
	Temp. Coefficient: -30mV/°C		
Standby Use	No limit on Initial Charging Current		
	Voltage: 13.6V ~ 13.8V at 25°C (77°F)		
	Temp. Coefficient: -20mV/°C		
Capacity affected by Temperature	40°C (104°F)	103%	
	25°C (77°F)	100%	
	0°C (32°F)	86%	
Self Discharge	Fully charged Kaise Standard Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.		

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

Volts/cell	10min	15min	30min	1h	3h	5h	10h
1.80V	197	167	106	65.4	28.1	19.3	12.0
1.75V	210	179	108	67.5	30.5	20.0	12.1
1.70V	223	187	112	69.7	31.0	20.7	12.2
1.65V	245	195	116	71.1	31.5	21.0	12.3
1.60V	250	195	120	71.6	32.0	21.0	12.5

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- |                                       |                                       |
|---------------------------------------|---------------------------------------|
| Alarm systems                         | Marine equipment                      |
| Cable television                      | Medical equipment                     |
| Communications Equipment              | Micro processor based office machines |
| Control Equipment                     | Portable cine & Video lights          |
| Computers                             | Solar powered systems                 |
| Electronic Cash Registers             | Telecommunications systems            |
| Electric Test Equipment               | Television & Video recorders          |
| Emergency lighting systems            | Toys                                  |
| Fire & Security Geophysical equipment | Uninterruptible power supply systems  |
|                                       | Vending machines                      |

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

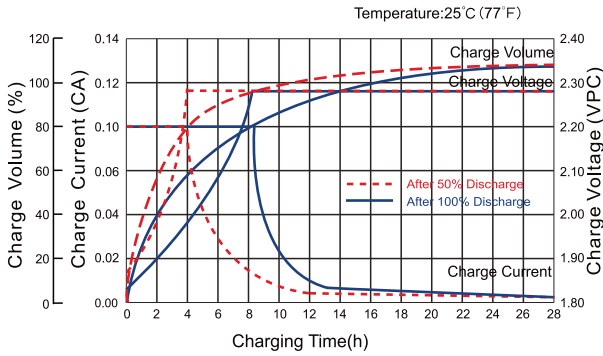
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current [A]	$I \leq 0.1CA$	$0.25CA \geq I > 0.1CA$	$0.55CA \geq I > 0.25CA$	$I > 0.55CA$

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

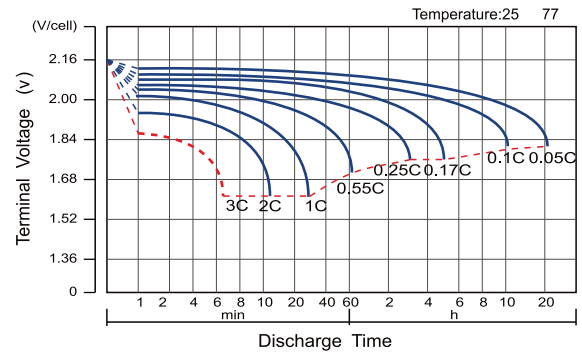
Volts/cell	10min	15min	30min	1h	3h	5h
1.80V	583	101	99	124	92.4	37.0
1.75V	383	334	206	128	93.4	37.4
1.70V	404	346	213	131	55.0	38.3
1.65V	426	358	220	137	56.6	37.4
1.60V	583	370	227	141	59.2	37.0

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

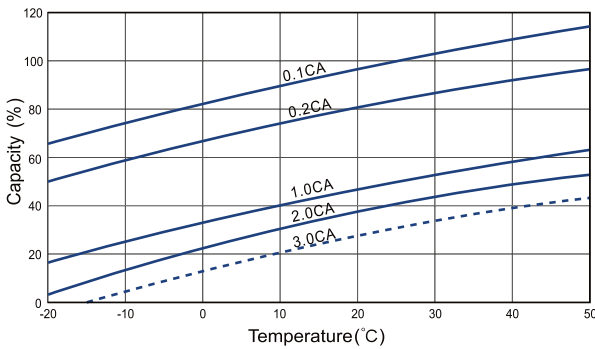
## Charging Characteristics (float use)



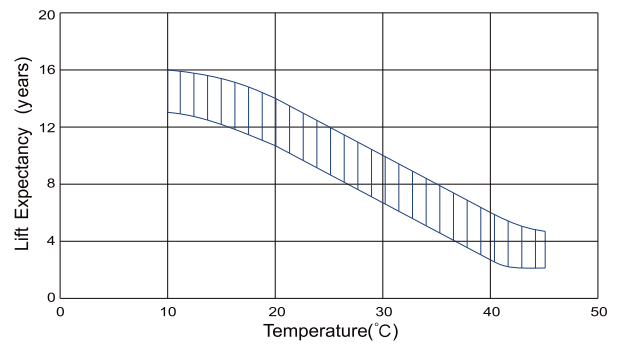
## Discharge Characteristics



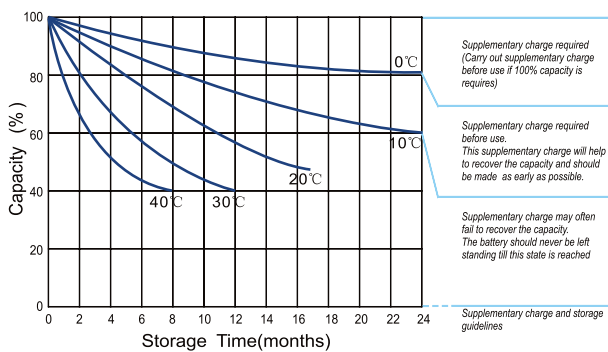
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.





# KBL121500 12V 150Ah



The KAISE LONG LIFE Series 10 years has been designed for different applications, such as UPS, electric and telecommunications applications that require a long useful life.



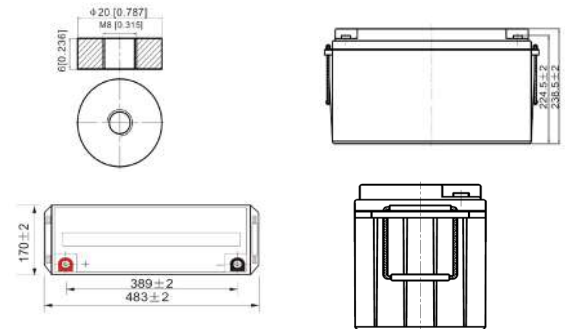
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	483 / 19.09
	Width (mm / inch)	170 / 6.69
	Height (mm / inch)	238.5 / 9.39
	Total Height (mm / inch)	238.5 / 9.39
Approx. Weight (Kg / lbs)	47.2 / 104.8	
Design Life	10 years	
Terminal	M8	
Container Material	ABS	
Rated Capacity	160.5Ah / 8.03A	(20hr, 1.80V / cell, 25°C / 77°F)
	150.0Ah / 15.0A	(10hr, 1.80V / cell, 25°C / 77°F)
	130.5Ah / 26.1A	(5hr, 1.75V / cell, 25°C / 77°F)
	93.0Ah / 93.0A	(1hr, 1.60V / cell, 25°C / 77°F)
Max. Discharge Current	1500A (5s)	
Internal Resistance	Approx 3.5 mΩ	
Operating Temp. Range	Discharge : -15 ~ 50°C (5 ~ 122°F)	
	Charge : 0 ~ 40°C (32 ~ 104°F)	
	Storage : -15 ~ 40°C (5 ~ 104°F)	
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 45.0A.	
	Voltage: 14.4VPC~15.0VPC at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage.	
	13.5VPC~13.8VPC at 25°C (77°F)	
	Temp. Coefficient: -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Fully charged Kaise Long Life Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	200.8	165.7	118.0	75.7	37.5	25.5	15.0	8.03
1.75V	228.1	186.8	128.2	82.5	39.0	26.1	15.4	8.23
1.70V	257.6	207.3	139.9	87.3	41.1	27.6	16.0	8.44
1.65V	276.6	221.9	147.7	90.3	42.7	28.5	16.4	8.70
1.60V	304.3	243.0	157.6	93.0	43.8	29.2	16.8	8.84

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- UPS
- Telecommunications equipment
- Solar energy systems
- Cable TV
- Power station
- Marine equipment
- Military equipment
- Emergency power systems
- Railway systems

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

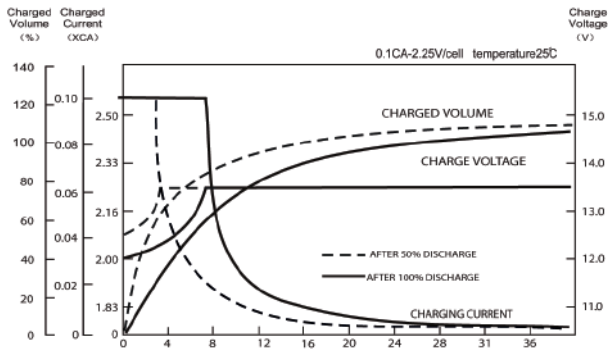
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current (A)	I ≤ 0.1CA	0.25CA ≥ I > 0.1CA	0.55CA ≥ I > 0.25CA	I > 0.55CA

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

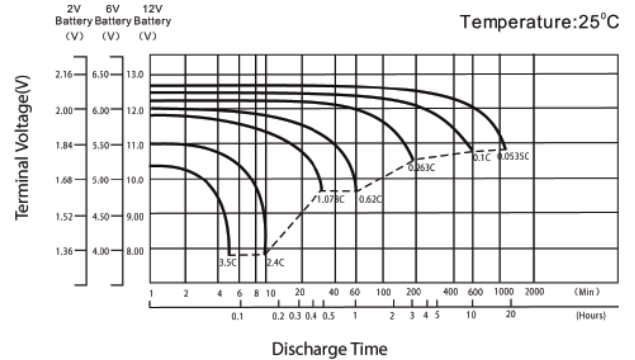
Volts/cell	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	370.6	308.4	223.7	146.7	73.4	50.3	29.9	16.0
1.75V	414.2	343.4	241.1	159.2	76.1	51.3	30.7	16.4
1.70V	457.4	375.7	261.8	167.9	79.9	54.1	31.9	16.8
1.65V	486.7	399.2	274.1	172.5	82.8	55.7	32.7	17.3
1.60V	523.4	430.1	290.4	176.7	84.5	56.8	33.3	17.6

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

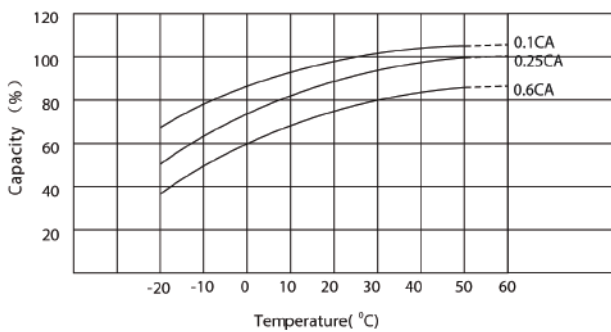
## Charging Characteristics (float use)



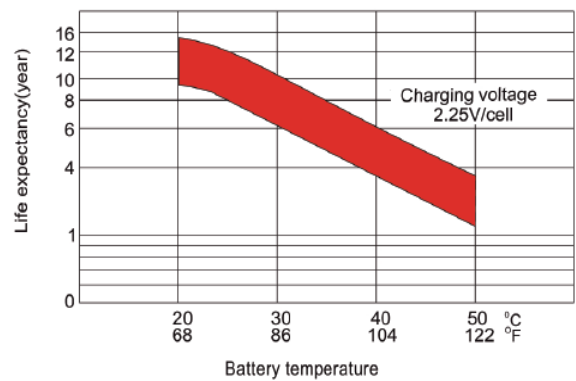
## Discharge Characteristics



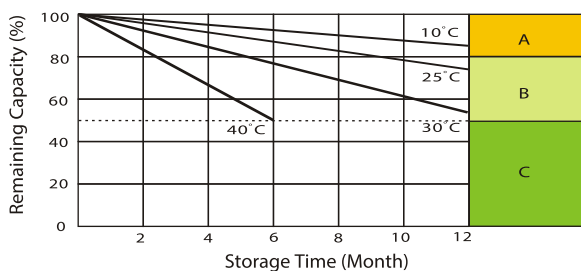
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.



# KBL12750 12V 75Ah



The KBL Long Life series consists in VRLA batteries - AGM technology (Absorbent Glass Mat), with a design life of 10 years and it is designed for general applications such as UPS, telecommunications and electrical applications.



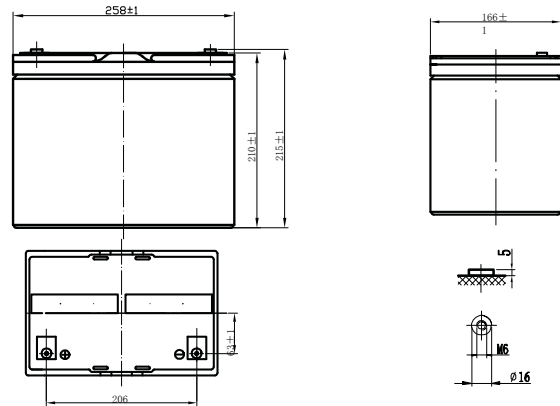
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	258 / 10.16
	Width (mm / inch)	166 / 6.54
	Height (mm / inch)	210 / 8.46
	Total Height (mm / inch)	215 / 8.46
Approx Weight	(Kg / lbs) 23.5 / 51.7	
Design Life	10 years	
Terminal	Nut&Bolt M5	
Container Material	ABS	
Rated Capacity	75.00AH / 7.50A	(10hr, 10.5V / cell, 25°C / 77°F)
	68.00AH / 13.6A	(5hr, 10.5V / cell, 25°C / 77°F)
	51.2AH / 51.9A	(1hr, 9.6V / cell, 25°C / 77°F)
Max. Discharge Current	700A (5s)	
Internal Resistance	Approx $\leq 6.6m\Omega$	
Operating Temp. Range	Discharge : -20 ~ 60°C	
	Charge : -10 ~ 60°C	
	Storage : -20 ~ 60°C	
Nominal Operating Temp. Range	25 $\pm$ 3°C (77 $\pm$ 5°F)	
Cycle Use	Initial Charging Current less than 8.4A	
	Voltage: 2.40V ~ 2.45V at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	No limit on Initial Charging Current	
	Voltage: 13.6V ~ 13.8V at 25°C (77°F)	
	Temp. Coefficient: -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C (77°F)	100%
	0°C (32°F)	86%
Self Discharge	Fully charged Kaise Long Life Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	142	114	83.4	44.3	20.1	13.4	7.50	1.48
1.75V	154	119	73.9	46.2	20.9	13.6	7.55	1.50
1.70V	161	124	78.5	47.8	46.2	14.0	7.60	1.53
1.65V	172	134	73.9	48.5	21.7	14.2	7.65	1.55
1.60V	182	140	83.4	51.1	22.1	14.4	7.67	1.56

## Dimensions and Terminal (Unit: mm (inches))



## Applications

Alarm systems	Marine equipment
Cable television	Medical equipment
Communications Equipment	Micro processor based office machines
Control Equipment	Portable cine & Video lights
Computers	Solar powered systems
Electronic Cash Registers	Telecommunications systems
Electric Test Equipment	Television & Video recorders
Emergency lighting systems	Toys
Fire & Security Geophysical equipment	Uninterruptible power supply systems
	Vending machines

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

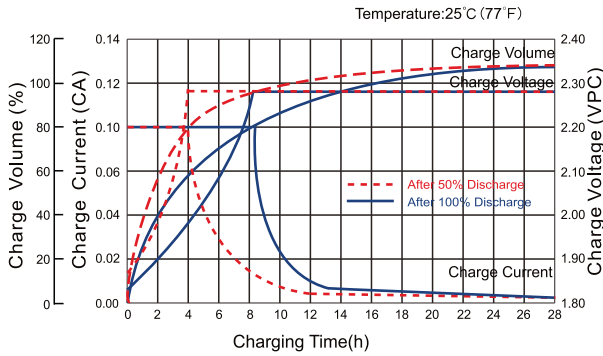
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current [A]	$I \leq 0.1CA$	$0.25CA \geq I > 0.1CA$	$0.55CA \geq I > 0.25CA$	$I > 0.55CA$

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

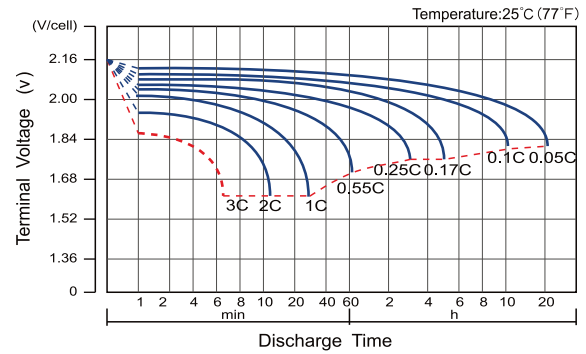
Volts/cell	10min	15min	30min	1h	3h	5h
1.80V	266	216	108	85.9	38.8	26.3
1.75V	279	227	145	88.2	39.1	26.5
1.70V	296	242	148	91.6	39.7	26.5
1.65V	306	246	156	95.5	40.0	27.1
1.60V	320	251	161	97.6	41.0	27.3

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

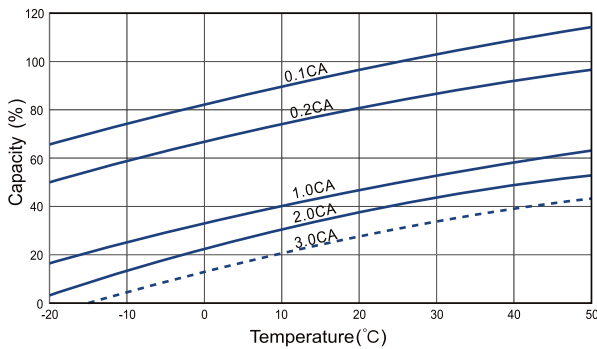
## Charging Characteristics (float use)



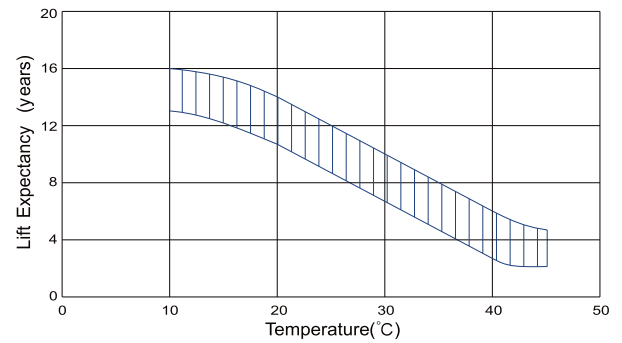
## Discharge Characteristics



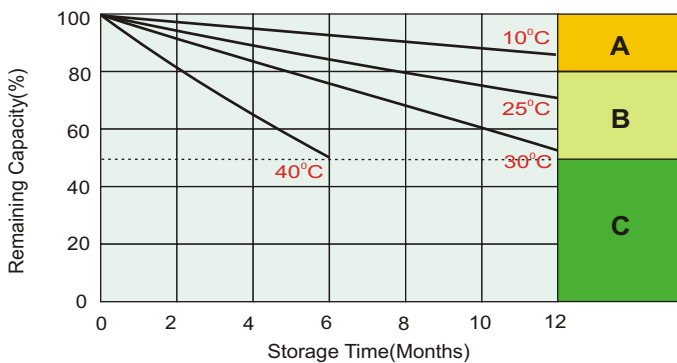
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.



# KBL122000 12V 200Ah



The KAISE LONG LIFE Series 10 years has been designed for different applications, such as UPS, electric and telecommunications applications that require a long useful life.



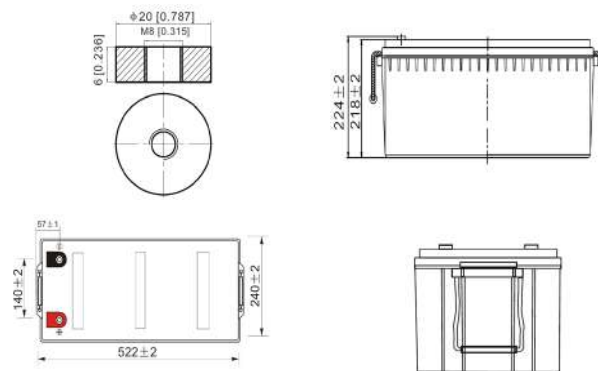
## Performance Characteristics

Nominal Voltage	12V	
Dimensions	Length (mm / inch)	522 / 20.55
	Width (mm / inch)	240 / 9.45
	Height (mm / inch)	218 / 8.58
	Total Height (mm / inch)	224 / 8.81
Approx. Weight	(Kg / lbs) 65.0 / 143.3	
Design Life	11 years	
Terminal	M8	
Container Material	ABS	
Rated Capacity	214.0Ah / 10.7A	(10hr, 1.80V / cell, 25°C / 77°F)
	200.0Ah / 20.0A	(10hr, 1.80V / cell, 25°C / 77°F)
	174.0Ah / 34.8A	(5hr, 1.75V / cell, 25°C / 77°F)
	124.0Ah / 124.0A	(1hr, 1.60V / cell, 25°C / 77°F)
Max. Discharge Current	2000A (5s)	
Internal Resistance	Approx 2.7 mΩ	
Operating Temp. Range	Discharge : -15 ~ 50°C (5 ~ 122°F)	
	Charge : 0 ~ 40°C (32 ~ 104°F)	
	Storage : -15 ~ 40°C (5 ~ 104°F)	
Nominal Operating Temp. Range	25 ± 3°C (77 ± 5°F)	
Cycle Use	Initial Charging Current less than 60A.	
	Voltage: 14.4VPC ~ 15.0VPC at 25°C (77°F)	
	Temp. Coefficient: -30mV/°C	
Standby Use	No limit on Initial Charging Current Voltage	
	13.5VPC~13.8VPC at 25° C (77°F)	
	Temp. Coefficient: -20mV/°C	
Capacity affected by Temperature	40°C (104°F)	103%
	25°C ( 77°F)	100%
	0°C ( 32°F)	86%
Self Discharge	Fully charged Kaise Long Life Series batteries may be stored for up to 6 months at 25°C (77°F) and then a freshening charge is required. For higher temperatures the time interval will be shorter.	

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

Volts/cell	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	267.8	221.0	157.3	100.9	50.0	34.0	20.0	10.7
1.75V	304.1	249.1	170.9	110.0	52.0	34.8	20.5	11.0
1.70V	343.5	276.3	186.6	116.4	54.7	36.8	21.3	11.3
1.65V	368.8	295.9	196.9	120.4	56.9	38.0	21.9	11.6
1.60V	405.8	324.1	210.1	124.0	58.4	38.9	22.4	11.8

## Dimensions and Terminal (Unit: mm (inches))



## Applications

- UPS
- Telecommunications equipment
- Solar energy systems
- Cable TV
- Power station
- Marine equipment
- Military equipment
- Emergency power systems
- Railway systems

## Certifications

ISO 9001:2008 ISO 14001:2008



## Discharge Current vs. Discharge Voltage

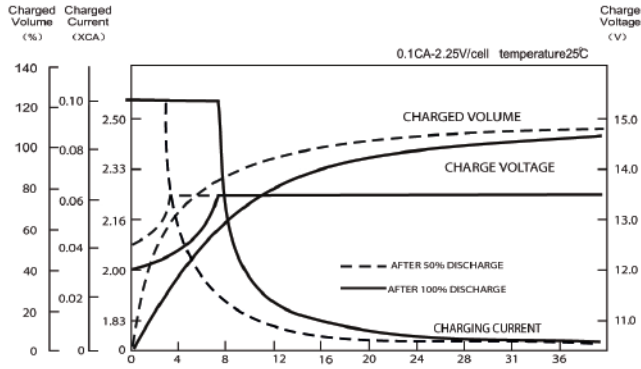
Final discharge voltage V/CELL	1.8	1.75	1.7	1.6
Discharge current (A)	$I \leq 0.1CA$	$0.25CA \geq I > 0.1CA$	$0.55CA \geq I > 0.25CA$	$I > 0.55CA$

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

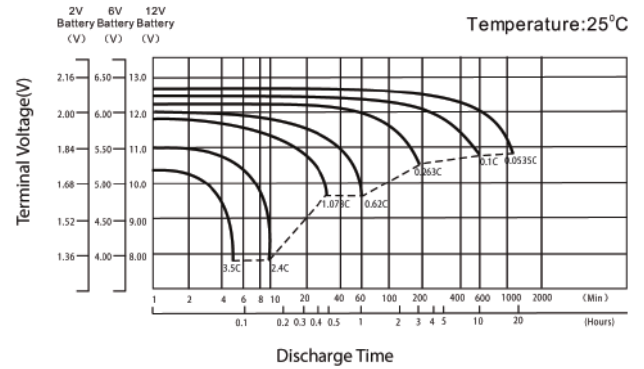
Volts/cell	10min	15min	30min	1h	3h	5h	10h	20h
1.80V	494.1	411.2	298.3	195.6	97.9	67.0	39.9	21.4
1.75V	552.3	457.9	321.5	212.3	101.4	68.4	40.9	21.9
1.70V	609.8	501.0	349.1	223.9	106.6	72.2	42.5	22.4
1.65V	648.9	532.3	365.4	230.0	110.4	74.2	43.6	23.1
1.60V	697.8	573.5	387.2	235.6	112.7	75.8	44.4	23.4

(Note) The above characteristics data are average values obtained within three charge/discharge cycles not the minimum values.

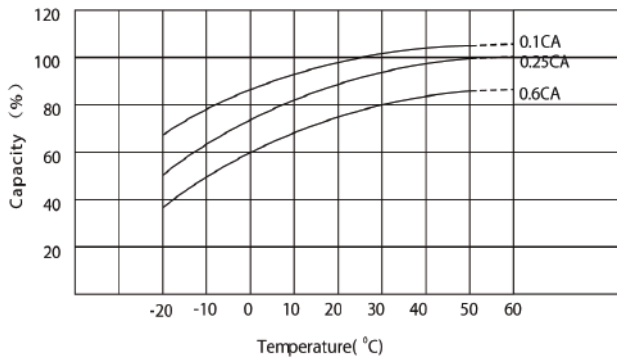
## Charging Characteristics (float use)



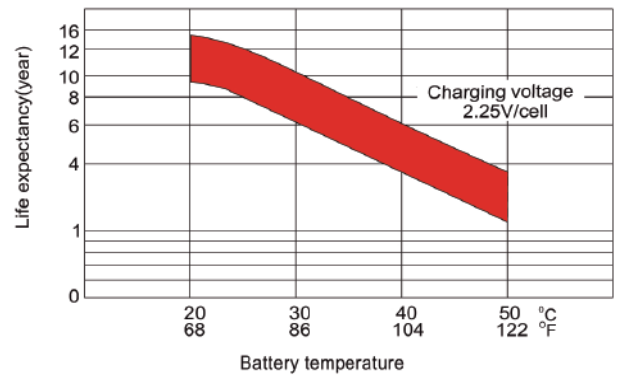
## Discharge Characteristics



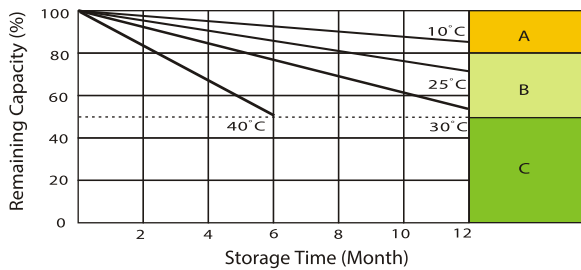
## Temperature Effects in Relation to Battery Capacity



## Effect of Temperature on Long Term Float Life



## Self Discharge Characteristics



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

IMPORTANT NOTE: The specifications presented herein are subject to revision without notice.

