



KOBN General Electric Solution

KOBN General Electric Solution – Your Global Partner in Power & Innovation!



KOB BATTERY MANUAL

MANUAL OF OPERATION AND MAINTANANCE

INTRODUCTION



At KOBN General Electric Solution, we specialize in high-performance nickel-cadmium (Ni-Cd) pocket-type alkaline storage batteries designed to deliver reliable and long-lasting power across a wide range of applications. These batteries are classified into low, medium, and high-rate types based on their discharge current capacity—ranging from 0.5C₅A for low-rate, up to 7.5C₅A for high-rate models—ensuring suitability for various power demands.

Our Ni-Cd batteries are widely used in telecommunications, lighting systems, UPS systems, transportation, solar energy storage, and other critical power supply applications. Their robust design ensures dependable standby and DC power in both industrial and mobile environments.

Each battery cell is constructed with precision-engineered pocket plates, where the active materials are embedded in perforated steel strips to form positive and negative electrodes. These are separated by insulating material to prevent short circuits and are securely housed in a durable plastic container. A sealed lid, reinforced terminals, and a gas release plug ensure safe, low-maintenance operation while protecting the cell from external contaminants.

With a commitment to quality and performance, KOBN General Electric Solution delivers advanced battery technology to power the systems that keep the world moving.



CONTENTS



1. General.....	(2)
2. Construction of the cell	(2)
3. Main performance of the battery	(2)
4. Operating principle and electrical performance of the battery	(3)
5. Starting use of the battery	(4)
6. Battery maintenance	(5)
7. Storage of the battery.....	(6)
8. Main troubles and trouble shooting.....	(6)
Appendix 1. The electrolyte selection, preparation, and storage	(7)
Appendix 2. External dimensions, weight and other data of low rate Ni-Cd pocket type battery.....	(9)
Appendix 3. External dimensions, weight and other data of medium rate Ni-Cd pocket type battery.....	(11)
Appendix 4. External dimensions, weight and other data of high rate Ni-Cd pocket type battery.....	(12)
Appendix 5. Reference charge and discharge curves of low and medium rate batteries	(13)

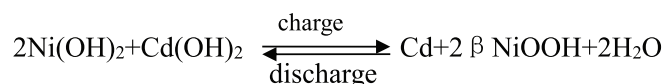
CAUTION: NEVER ACTIVATE OR TOP OFF WITH ACID



Operating Principle and Electrical Performance

Operating Principle:

During charging, oxidation occurs at the positive electrode and reduction at the negative electrode. The reverse happens during discharge. The reactions are represented by a simplified equation (not fully detailed in the text).



Main Electrical Performance

The nominal voltage of the cell is 1.2V.

Discharge performance at 20°C.

Main Performance of the Battery

- Long service life: Over 500 charging/discharging cycles (IEC test method) or more than 20 years in float charge state.
- Good endurance ability: Resistant to overcharging and discharging without losing effectiveness.
- Wide operating temperature: Usable at -40°C to +45°C after charging at 15°C to 30°C.
- Excellent discharge performance: 100% deep discharge achievable after 8 hours at 0.2 C₅A charging.
- Mechanical robustness: Suitable for shock and vibration conditions.
- Higher reliability.
- Low maintenance.

General

Nickel-cadmium pocket type alkaline storage batteries can be divided into low, medium, and high rate based on their discharge current (discharge rate). The maximum discharge rate of a low-rate battery is 0.5C₅A (C₅ is the capacity), a medium-rate battery is 3.5 C₅A, and a high-rate battery is 7.5 C₅A. They are widely used in telecommunications, lighting, UPS as standby or DC power supply, as well as for starting in transport vehicles and solar energy cells.

Construction of the Cell

The positive and negative active materials are pocketed respectively in perforated steel strips and pressed into plates, forming the positive and negative electrodes. A separator is placed between the electrodes. The electrode groups are firmly mounted in a plastic container, with the lid and container welded together. The positive and negative terminals pass through holes in the lid and are tightened by nuts. An electrolyte filling hole in the cover, usually equipped with a plastic gas-plug, allows for electrolyte filling and releases gas generated inside the battery while





The cell should be charged for 8h at $0.2C_5A$. The discharge performance at various discharge rate specified in Table 1.

Table 1

Discharge conditions		Minimum discharge duration		
Rate constant of current(A)	Final voltage(V)	Low rate	Medium rate	High rate
$0.2C_5$	1.0	$\geq 5h$	$\geq 5h$	$\geq 5h$
$1C_5$	1.0	/	$\geq 40min$	$\geq 50min$
$5C_5$	0.8	/	/	$\geq 4min$

4.2.3 Discharge performance at $-18^\circ C$ The cell should be charged for 8h at $0.2C_5A$ and ambient temperature of $20^\circ C$. The cell shall be then discharged at temperature of $-18^\circ C$, the discharge performance specified in Table 2.

Table 2

Discharge conditions		Minimum discharge duration		
Rate of constant current(A)	Final voltage(V)	Low rate	Medium rate	High rate
$0.2C_5$	1.0	$\geq 2h\ 30min$	$\geq 3h$	$\geq 3h\ 30min$
$1C_5$	0.9	/	$\geq 15min$	$\geq 25min$
$2C_5$	0.9	/	/	$\geq 7min\ 30s$

4.2.4 Self-discharge performance of the cell

The cell can be charged at $0.2C_5A$ for 8h at ambient temperature of $20 \pm 5^\circ C$, then store it in the same conditions for 28 days and nights. Then discharge it at $0.2C_5A$ to end voltage of 1.0V/cell. Its discharge duration should not be less than 4h.

4.2.5 Cycle life

According to IEC Standard, it should be 500 cycles at least. In case of float charge application, its cycle life more than 20 years.

4.2.6 Storage

The cell can be stored for long time. During the storage period, taking effective measures to prevent plated parts from rust.

5 Starting use of the battery

5.1 Preparation before start using

The battery leaves factory in discharged state without electrolyte. Before start using, it is needed to do following preparation:

5.1.1 Measure the cell's open circuit voltage one by one. If the value is lower than 0.5V, a small amount of electrolyte can be filled in, and then measure it again. If the voltage goes up to 0.5V, it will be regarded as the qualified.

5.1.2 Check the nut one by one whether are tightened enough.

5.1.3 Filling with the electrolyte



Unscrew the vent plug, fill the electrolyte into the battery in time (electrolyte standard and preparation method is shown in Appendix 1.) Adjust electrolyte level between two limit lines. Screw the vent plug again, move the sealer on the hole of the vent plug and clean the battery. The battery must be soaked for 4 hours after filling with electrolyte then adjust electrolyte level again

5.1.4 Place the battery in its location and connect the battery in series with connector. In the end, connect the last positive terminal with the positive lead of charger, and the negative terminal is connected with the charger's negative lead. Mistake connection is forbidden.

5.2 Starting use

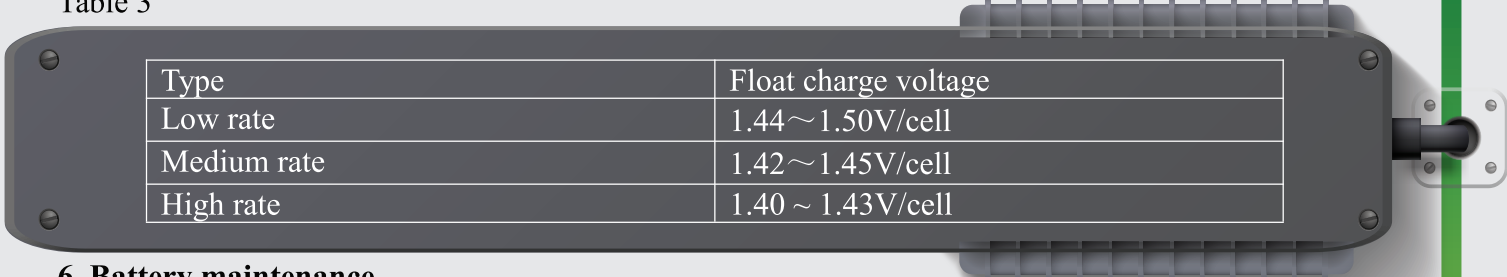
5.2.1 The battery which has been stored for 3-6 months should be charged at $0.2C_5A$ for 15 hours, then they can be put into operation.

5.2.2 The new battery which stored for more than 6 months should be charged at $0.2C_5A$ for 12 hours, then discharged 5 hours. When the voltage is less than $1.0V/cell$ within 5 hours, it can be stopped. Repeat the above charge and discharge for 3-5 cycles until the discharge duration is 5 hours and the battery voltage isn't less than $1.0V/cell$, charge it at $0.2C_5A$ for 8h, and then the battery can be put into operation.

5.2.3 Float charge application

After charge in accordance with condition 5.2.1 or 5.2. and then float charge. The float charge voltage specified in Table 3.

Table 3



Type	Float charge voltage
Low rate	$1.44 \sim 1.50V/cell$
Medium rate	$1.42 \sim 1.45V/cell$
High rate	$1.40 \sim 1.43V/cell$

6. Battery maintenance

6.1 When there are such following case during the using period, the charge method should be as the following.

6.1.1 The battery must be overcharged when it is overdischarged, reverse charged, or when the capacity is not enough in case of long time use.

6.1.2 When battery is stored for 1-3 months after charge, it is needed to charge by complementary method before its operation.

6.1.3 If the battery operated at float charge condition, when the load supply is stopped, equilibrium charge should be used and then change into float charge. If the battery operated at float charge condition for a long time, equilibrium charge should be adopted 1-3 times every year.

The charge method is shown in Table 4.

Table 4

Charge method	Charge current (A)	Charge voltage (V)	Charge duration (H)	Charge temperature (°C)
Overcharge	$0.2C_5$		12	$20 \pm 5^\circ C$
Complementary charge	$0.2C_5$		3-5	$20 \pm 5^\circ C$

Telecom Station



KOB telecom station



6.2 The electrolyte density should be kept in specified scope during operation period(See table 7).So check the electrolyte level often whether is on the original level(Between the two limit line).The time which is specified to check the level is as the following:

If the battery used by constant current charge method, check it before charge every time.

If the battery used by float charge method, check it every 6 months.

The reason why the level decrease is different, so the trouble shootings are different(See Table 5).

Table 5

The reason of level decreasing	Trouble shootings
Water is brined electrolysis when charge it.	Add distilled water or purified water
The electrolyte leaks out	Add electrolyte
Unknown reason	Measure the electrolyte density (See Table 7). When it is below the provisions, add the electrolyte, otherwise, add distilled water or purified water.

6.3 Clean the electrolyte which is leaked out in time to keep the battery clean

6.4 Attention

6.4.1 If the battery is used at the temperature of $20 \pm 10^{\circ}\text{C}$,its electrolyte should be KOH electrolyte contained with LiOH. Otherwise, its service life will be reduced.

If the battery is used at the temperature of above 35°C ,its electrolyte should be NaOH electrolyte contained with LiOH, it will be good for battery's capacity and life.

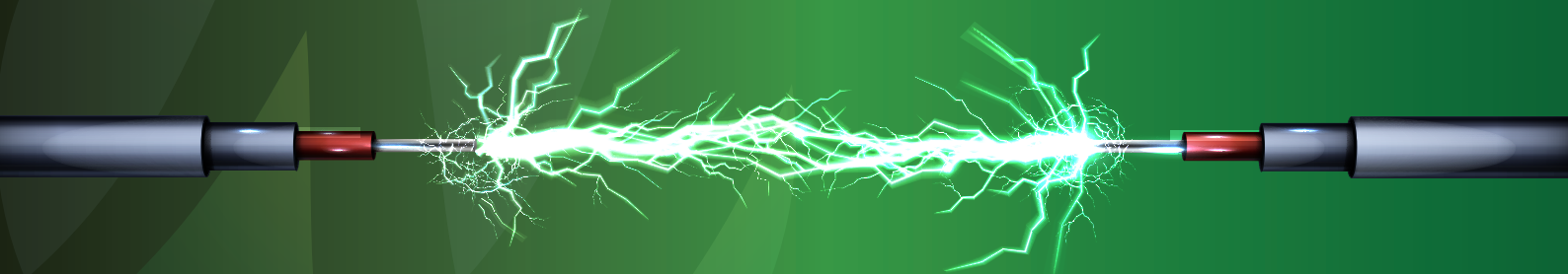
6.4.3 If the battery is used at the temperature of below 0°C ,the electrolyte of No.3 and No.4 in Table 7 should be used.

6.4.4 If the battery have to be charged at the temperature of above 30°C and below 10°C ,it will be reduced charge efficiency and service life. So heat preservation measure is necessary. In the special case overcharge method should be adopted, but it is not good to use often.

7. Storage of the battery

7.1 Long-time storage

If the battery is stored for a long time, it is advisable to spill out the electrolyte and screw the vent plug tightly at once after normal discharge, then clean it. If there is a hole on the vent plug, seal it with medical glue. Coat the metal parts with vaseline oil and store them in a dry, acidless, and well-ventilated room .





8. Main troubles and Trouble shootings

Table 6 Troubles and trouble shootings

Troubles	Causes	Trouble shootings
The capacity of the battery decreases	1.The electrolyte has been used for a long time and the carbonate content in it is too high.	Replace the electrolyte
	2.The electrolyte is improperly used.	Replace the electrolyte
	3.The electrolyte isn't enough, and the level of the electrolyte is below the top of the plates.	See Table 5
	4.Harmful impurities contained in the electrolyte is too high.	Replace the electrolyte
	5.The charge/discharge method is not correct.	See the 5.2 and 6
	6.Short-circuit or slight-short circuit in the cell	Replace the short-circuit cell.
	7.Short-circuit or slight-short circuit occurs out of the cell.	Keep the cells in a dry temperature
	8.The instruments used is not correct.	Check and rectify the ampere meter and voltmeter.
Voltage is not normal	1.The inner circuit of the cell is short or cut, the electrolyte has been run out.	Clean the cell, or change the electrolyte
	2.The out circuit of the battery is short or cut.	Keep the cell dry, and check
	3.Contact fault	Check and repair
Bubbles appear in the inside of the cell	The electrolyte contains organic impurities	Replace the electrolyte
The cell container swells	1.The positive plate swells.	If necessary, change the cell.
	2.The vent is blocked up.	Clean with hot water or replace it.
Creeping of electrolyte	1.The level of electrolyte is too high	Drain out the superfluous electrolyte.
	2.The vent plug and terminal is unsealed	Replace the sealing parts and screw tightly.
	3.Too much electrolyte overflows.	Clean and keep dry

Renewable **energy**



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renewable energy

**Appendix 1. The electrolyte selection, preparation, and storage.****1. The selection of electrolyte and technical requirement.**

1.1 The selection of electrolyte are determined by operating temperature of the battery. See Table 7.

Table 7

No.	Operating temp. (°C)	Density (g/cm ³)	Composition of electrolyte	Solid alkali content in the electrolyte	Weight ratio (alkaline : water)
1	10~45	1.18 ± 0.02	NaOH+10g/L LiOH•H ₂ O	201	1 : 5
2	-10~35	1.20 ± 0.02	KOH+15g/L LiOH•H ₂ O	265	1 : 3
3	-25~10	1.25 ± 0.01	KOH	329	1 : 2
4	-40~15	1.28 ± 0.01	KOH	374	1 : 2

1.2 The technical requirements of electrolyte, see Table 8.

(The reference density is 1.20 ± 0.02 g/cm³)

Table 8

Items	Technical requirements	
	New electrolyte	Limiting value during operation
Outward appearance	Colourless, transparent, no suspended substance	
Density(15°C)	1.20 ± 0.02	1.20 ± 0.02
Content(g/L)	KOH : 240~270, NaOH : 215~240	KOH : 240~270, NaOH : 215~240
Cl ⁻ (g/L)	< 0.1	0.2
K ₂ CO ₃ (g/L)	< 20	60
Ca ²⁺ •Mg ²⁺ (g/L)	< 0.19	0.3
Fe/KOH(NaOH)(%)	< 0.05	0.05

1.3 Technical requirements for raw material

KOH: chemical pure

NaOH: chemical pure

LiOH•H₂O: industrial pure, LiOH content should not be less than 50%.

Water: distilled water, deionized water, softened water or electroosmosis water

2. Vessels and implements

The vessels for preparation of the electrolyte should be plastic, porcelain enamel wares or restless steel. The tools include: hydrometer(1.10~1.30), thermometer, graduate cylinder, funnel, plastic scoop, platform scale stirrer or plastic rod



3. Preparation and storage

3.1 According to Table 7 and Table 8, weigh the needed amount of alkaline.

3.2 Put water into the vessel, add alkali slowly with constant stirring, then add the required lithium hydroxide into the vessel, stir to dissolve thoroughly. Cool to $20\pm 5^{\circ}\text{C}$. Finally, determine the density and adjust to the required value.(Filter if necessary).

3.3 Storage

The prepared electrolyte must be well-sealed in plastic or porcelain vessels. Keep away from acid or other impurities.

4. Safety recommendation

When preparing electrolyte, the alkali should be put into water slowly. It is prohibited to put water into alkali. In preparation of electrolyte, one should put on goggles, rubber gloves, rubber overshoes and work clothes to protect one's skin from being harmed by alkali. If one's skin is touched by alkali, he must wash it off at once with 3% boric acid solution.



Train Battery **System**



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Train battery system


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Appendix 2 External dimensions, weight of low rate Ni-Cd pocket type battery

KOBL= (Low Rate Type)						Pocket Plate----Pocket Plate			
Cell Type	Nominal Voltage (V)	Rated Capacity (Ah)	Dimension(mm)			Thread of pole	Weight (filled) (Kg)	Electrolyte Volume (L)	Container Material
			L	W	H				
KOBL10	1.2	10	85	39	150	M8	1	0.2	ABS / PP
			82	33	245	M10*1.5	0.95	0.2	ABS
KOBL20	1.2	20	114	52	266	M10*1.5	2	0.6	ABS
			82	43	258	M10*1.5	1.3	0.3	ABS / PP
KOBL30	1.2	30	135	54	265	M10*1.5	1.8	0.6	ABS / PP
			114	52	266	M10*1.5	2.2	0.5	ABS
KOBL40	1.2	40	135	54	265	M10*1.5	2.2	0.6	ABS / PP
			114	52	266	M10*1.5	2.3	0.4	ABS
KOBL45	1.2	45	138	61	266	M10*1.5	2.5	0.6	ABS / PP
			141	66	226	M10*1.5	2.6	0.5	PP
KOBL50	1.2	50	138	61	266	M10*1.5	2.9	0.7	ABS / PP
			141	71	295	M10*1.5	3	0.9	ABS
KOBL60	1.2	60	138	61	266	M10*1.5	3	0.8	PP
			135	53	370	M10*1.5	3.2	0.7	ABS / PP
KOBL70	1.2	70	141	71	295	M10*1.5	3.5	0.9	PP
			135	53	370	M10*1.5	3.9	1.0	PP
KOBL75	1.2	75	141	71	295	M10*1.5	4	1.1	PP
			139	79	295	M10*1.5	4.3	1.1	ABS
KOBL80	1.2	80	138	61	266	M10*1.5	3.8	0.8	ABS / PP
			139	79	295	M10*1.5	4.4	1.0	ABS
KOBL90	1.2	90	141	71	295	M10*1.5	4	0.9	PP
			195	79	331	M8	8.3	2.5	PP
KOBL100	1.2	100	139	79	291	M10	4.6	1.1	ABS
			141	71	295	M10*1.5	4.6	0.9	PP
KOBL110	1.2	110	139	79	295	M10*1.5	4.6	1.1	ABS
			139	79	295	M10*1.5	4.6	1.1	ABS
KOBL120	1.2	120	139	79	295	M10*1.5	4.6	1.1	ABS
			139	79	295	M10*1.5	4.6	1.1	ABS
KOBL130	1.2	130	139	79	295	M10*1.5	4.6	1.1	ABS
			139	79	295	M10*1.5	4.6	1.1	ABS
KOBL150	1.2	150	139	79	362	M10*1.5	5.9	1.4	ABS / PP
			139	79	362	M10*1.5	5.9	1.4	ABS / PP

KOBL= (Low Rate Type)						Pocket Plate----Pocket Plate			
Cell Type	Nominal Voltage (V)	Rated Capacity (Ah)	Dimension(mm)			Thread of pole	Weight (filled) (Kg)	Electrolyte Volume (L)	Container Material
			L	W	H				
KOBL100	1.2	100	139	79	362	M10*1.5	6	1.4	ABS / PP
			143	100	280	M10*1.5	6.1	1.3	ABS
KOBL110	1.2	110	139	79	362	M10*1.5	6	1.4	ABS / PP
			143	100	280	M10*1.5	6.1	1.3	ABS
KOBL120	1.2	120	139	79	362	M10*1.5	6.2	1.3	ABS/PP
KOBL130	1.2	130	164	104	345	M20×1.5	9	1.9	ABS / PP
KOBL150	1.2	150	167	162	345	M20×1.5	12	3.0	ABS / PP


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			164	104	345	M20×1.5	9.3	2.0	ABS / PP
KOBL180	1.2	180	167	162	345	M20×1.5	13	3.3	ABS / PP
			165	105	345	M20×1.5	9.4	1.8	ABS / PP
KOBL200	1.2	200	167	162	345	M20×1.5	14	3.3	ABS / PP
	1.2	200	164	104	345	M20×1.5	10	1.8	ABS / PP
KOBL230	1.2	230	167	162	345	M20×1.5	13.7	3.3	ABS / PP
KOBL250	1.2	250	167	162	345	M20×1.5	14.5	3.4	ABS / PP
			277	145	420	M16	15.7	2.6	PP
KOBL300	1.2	300	282	170	348	M20×1.5	22.5	5.0	PP
			176	161	540	M16/20	20.5	4.7	ABS
			277	145	450	M16	21	6.0	PP
KOBL400	1.2	400	282	170	348	M20×1.5	25	5.0	PP
KOBL500	1.2	500	285	172	490	M20×1.5	33.6	7.8	ABS
KOBL600	1.2	600	285	172	490	M20×1.5	34	7.5	ABS
KOBL700	1.2	700	285	172	490	M20×1.5	39	8.4	ABS
KOBL800	1.2	800	395	180	560	M20×1.5	57.5	15.5	ABS
KOBL900	1.2	900	395	180	560	M20×1.5	59	15.0	ABS
KOBL1000	1.2	1000	395	180	560	M20×1.5	60	14.0	ABS
KOBL1100	1.2	1100	395	180	560	M20×1.5	62	12.0	ABS
KOBL1200	1.2	1100	395	180	560	M20×1.5	62	11.3	ABS

Appendix 3 External dimensions, weight of medium rate Ni-Cd pocket type battery

KOBM = (Medium Rate Type)						Pocket Plate----Pocket Plate			
Cell Type	Nominal Voltage (V)	Rated Capacity (Ah)	Dimension(mm)			Thread of pole	Weight (filled) (Kg)	Electrolyte Volume (L)	Container Material
			L	W	H				
KOBM10	1.2V	10	82	43	258	M10*1.5	1.20	0.40	ABS / PP
KOBM20	1.2V	20	135	54	265	M10*1.5	1.90	0.60	ABS / PP
			114	52	266	M10*1.5	2.10	0.70	ABS
KOBM30	1.2V	30	135	54	265	M10*1.5	2.40	0.60	ABS / PP
KOBM40	1.2V	40	141	71	295	M10*1.5	3.60	1.00	PP
			138	61	266	M10*1.5	3.62	0.84	ABS / PP

High Performance

Reliable nickel-cadmium (Ni-Cd) batteries with discharge rates up to 7.5C₅A, suitable for telecommunications, UPS, and solar energy storage.



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KOBM50	1.2V	50	139	79	295	M10/M16	4.65	1.00	ABS
			141	71	295	M10*1.5	4.20	1.00	PP
KOBM60	1.2V	60	139	79	295	M16	5.30	1.20	ABS
			141	71	295	M10*1.5	4.40	1.00	PP
KOBM70	1.2V	70	139	79	295	M16	5.40	1.20	ABS
			139	79	362	M16	6.20	1.42	ABS / PP
			141	71	295	M10*1.5	4.60	1.00	PP
KOBM80	1.2V	80	139	79	362	M16	6.50	1.40	ABS / PP
			143	100	280	M10*1.5	5.80	1.5	ABS
KOBM90	1.2V	90	164	104	345	M20×1.5	8.20	1.62	ABS / PP
			139	79	362	M16	6.50	1.25	ABS / PP
KOBM100	1.2V	100	164	104	345	M20×1.5	9.30	1.8	ABS / PP
KOBM120	1.2V	120	164	104	345	M20×1.5	9.50	1.80	ABS / PP
			139	89	362	M16	7.50	1.50	PP
KOBM130	1.2V	130	165	105	345	M20×1.5	9.50	1.75	ABS / PP
			167	162	345	M20×1.5	11.40	2.70	ABS / PP
KOBM140	1.2V	140	165	105	345	M20×1.5	9.60	1.75	ABS / PP
KOBM150	1.2V	150	167	162	345	M20×1.5	12.50	2.70	ABS / PP
			165	105	345	M20×1.5	9.60	1.60	ABS / PP
KOBM160	1.2V	160	167	162	345	M20×1.5	12.80	3.00	ABS / PP
KOBM180	1.2V	180	167	162	345	M20×1.5	13.60	3.40	ABS / PP
KOBM200	1.2V	200	167	162	345	M20×1.5	14.00	2.90	ABS / PP
KOBM250	1.2V	250	282	170	348	M20×1.5	20.60	4.60	ABS
			277	145	450	M20×1.5	21.50	4.60	ABS
			176	161	540	M16	20.60	4.60	ABS
KOBM280	1.2V	280	282	170	348	M20×1.5	23	5	ABS
KOBM300			176	161	540	M20×1.5	22.60	5.00	ABS
			232	172	410	M20×1.5	23.00	4.80	ABS
KOBM400	1.2V	400	282	170	348	M20×1.5	24.00	6.00	ABS
			285	172	490	M20×1.5	31.80	7.00	ABS
			277	140	490	M20×1.5	26.50	5.00	PP
KOBM500	1.2V	500	285	172	490	M20×1.5	36.50	8.50	ABS
KOBM600	1.2V	600	285	172	490	M20×1.5	39.00	10.00	ABS
KOBM700	1.2V	700	395	180	560	M20×1.5	54.70	11.50	ABS
KOBM800	1.2V	800	395	180	560	M20×1.5	66.00	15.00	ABS
KOBM900	1.2V	900	395	180	560	M20×1.5	66.00	15.00	ABS
KOBM1100	1.2V	1100	395	180	560	M20×1.5	68.30	12.50	ABS

Durable & Versatile

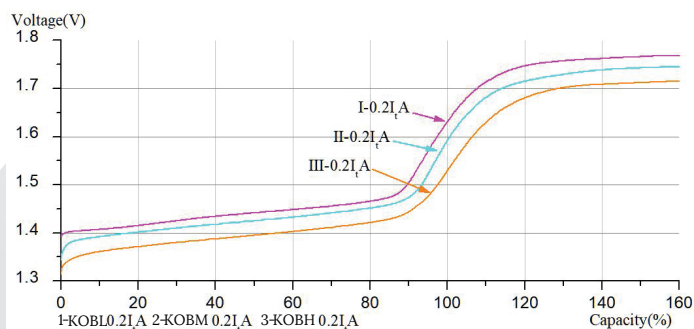
Operates in extreme temperatures (-40°C to +45°C) and offers over 500 cycles or 20+ years in float charge.



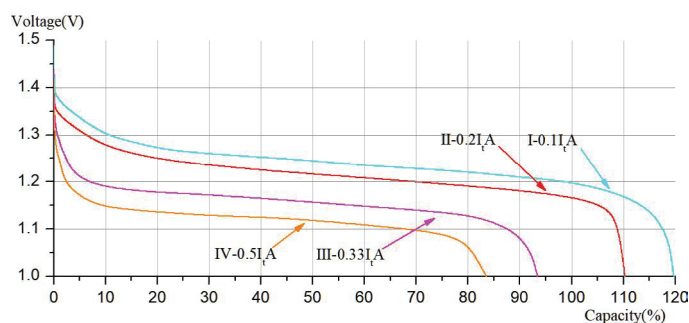
Appendix 4 External dimensions, weight of high rate Ni-Cd pocket type battery

KOBH=GNG(High Rate Type)						Pocket----Pocket			
Cell Type	Nominal Voltage (V)	Rated Capacity (Ah)	Dimension(mm)			Thread of pole	Weight (filled) (Kg)	Electrolyte Volume (L)	Container Material
			L	W	H				
KOBH10	1.2	10	135	54	266	M10*1.5	2.15	0.8	ABS/PP
KOBH20	1.2	20	135	54	266	M10*1.5	2.55	0.63	ABS/PP
KOBH30	1.2	30	141	71	291	M16	4.3	1.2	PP
KOBH40	1.2	40	139	79	295	M16	5.3	1.2	ABS/PP
KOBH50	1.2	50	139	79	370	M16	6.2	0.4	ABS/PP
KOBH60	1.2	60	139	79	370	M16	6.5	1.4	ABS/PP
KOBH70	1.2	70	165	105	345	M20×1.5			ABS/PP
			143	100	275	M20×1.5	6.7	1.2	ABS
KOBH80	1.2	80	165	105	345	M20×1.5	9.6	2	ABS/PP
KOBH90	1.2	90	165	105	345	M20×1.5	9.9	2	ABS/PP
KOBH100	1.2	100	167	162	345	M20×1.5	13.3	3.6	ABS/PP
KOBH120	1.2	120	167	162	345	M20×1.5	14	0.96	ABS/PP
KOBH150	1.2	150	282	170	348	M20×1.5	21.8	6.2	ABS
KOBH200	1.2	200	282	170	348	M20×1.5	25.6	6.1	ABS
			165	128	401	M20×1.5	16.2	3.5	ABS
KOBH250	1.2	250	282	170	348	M20×1.5	27	6	ABS
KOBH300	1.2	300	285	170	490	M20×1.5			ABS

Appendix 5 Reference charge & discharge curves of low and medium rate Ni-Cd batteries



Charging curves of Ni-Cd pocket type battery at 0.2C₅A (20±5°C)

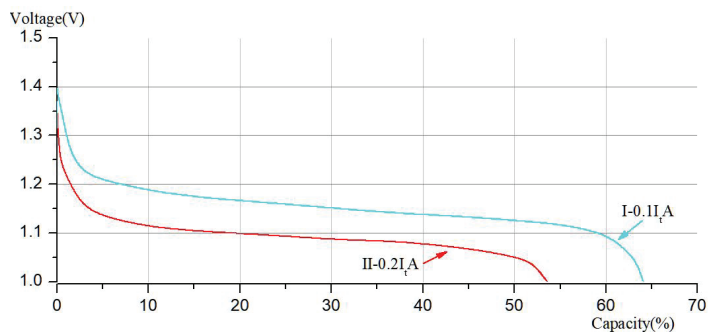


Discharge curves of low rate Ni-Cd battery at 20±5°C

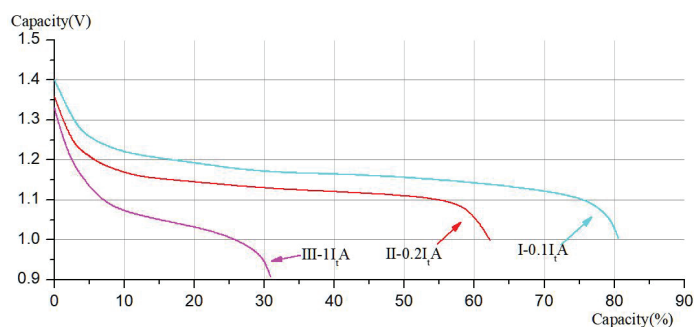


KOB

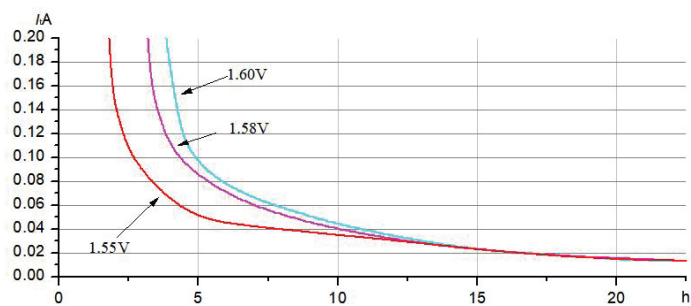
Battery Manual



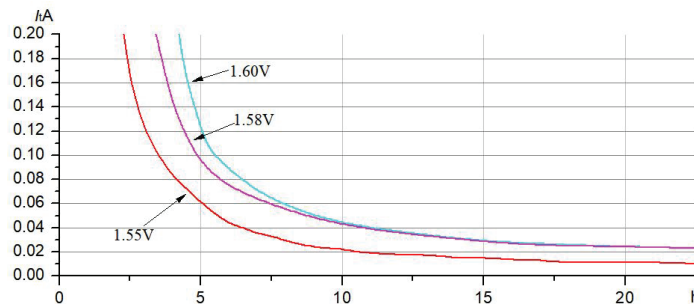
Discharge curves of medium rate Ni-Cd battery at $20 \pm 5^\circ\text{C}$



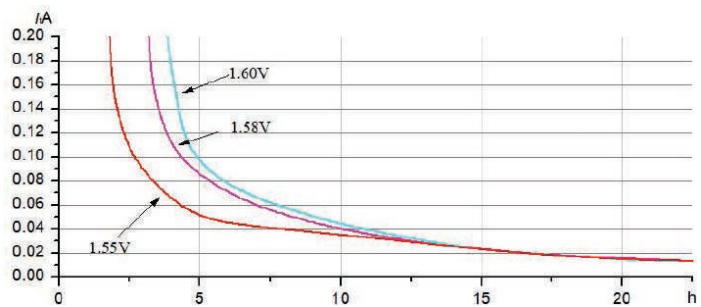
Discharge curves of High rate Ni-Cd battery at $20 \pm 5^\circ\text{C}$



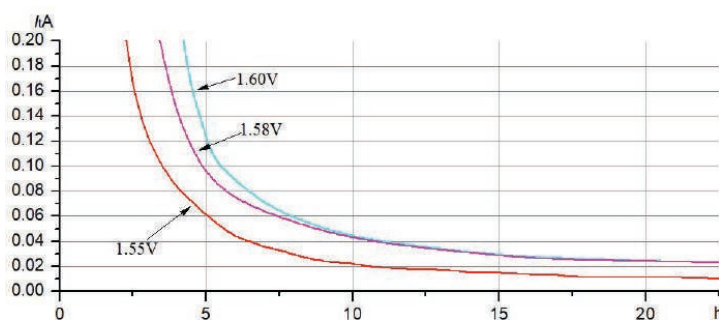
Low temperature (-18°C) discharge low rate curve $0.2C_5A$ of Ni-Cd battery series.



Low temperature (-18°C) discharge medium rate curve of Ni-Cd battery series.



Constant voltage charging A-h curves of Low rated Ni-Cd battery series at $20 \pm 5^\circ\text{C}$



Constant voltage charging A-h curves of medium rate Ni-Cd battery series at $20 \pm 5^\circ\text{C}$

Low Maintenance

Robust pocket-plate design with sealed construction, resistant to overcharge/discharge and minimal electrolyte upkeep.





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