



CATALOGUE

CHANGHONG®

**CHANGHONG POCKET TYPE NICKEL CADMIUM
RECHARGEABLE BATTERY**



CHANGHONG®



SICHUAN CHANGHONG BATTERY CO., LTD.



Introduction

So far, nickel cadmium rechargeable battery has become an obvious first choice for user looking for a reliable, long life, low maintenance system. As leading battery manufacturer in China, Sichuan Changhong Battery Co.,Ltd. has been specialized in the R&D , manufacturing , maintenance and after-service of the Ni-Cd rechargeable cells since decades ago. Advanced devices and continuous technology improvements guarantee the excellent performance and reliable quality of **CHANGHONG®** rechargeable battery. So far, Changhong pocket type Nickel cadmium rechargeable battery has been exported to 40 countries and districts around the word.

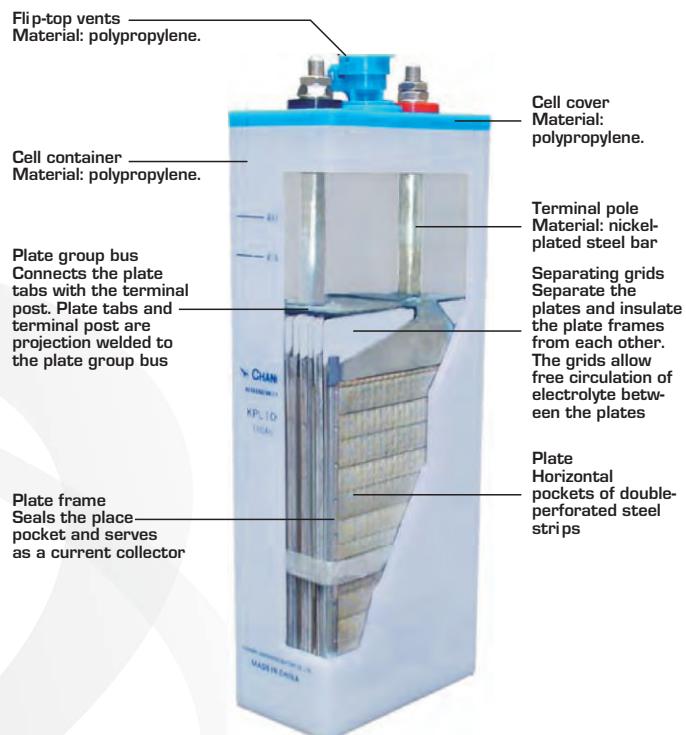
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Changhong pocket type nickel cadmium rechargeable battery (hereinafter called “The Battery” for short), can be divided into 3 kinds: low discharge rate (KPL), medium discharge rate (KPM) and high discharge rate (KPH), according to different applications (Namely, with different discharging current). Low discharge rate (KPL series) is suitable for the applications, that discharging current is lower than 0.5ItA. Medium discharge rate (KPM series) is applicable for those, that the discharging current is between 0.5ItA~3.5ItA, and high discharge rate (KPH series) is applicable for those, that discharging current is between 3.5ItA~7ItA.. After the fully charging in accordance with standard specifications under the ambient temperature of $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$, the battery can be operated in the ambient temperature of $-40^{\circ}\text{C} \sim 60^{\circ}\text{C}$, obviously the capacity discharged will be different under different temperature.

Structure Characteristics ↴

Low and medium discharge rate batteries (KPL and KPM series) are mainly applicable as standby or DC power supply for electricity, telecommunication, railway, metallurgy, mining, emergency lighting, UPS, and also used as energy storage battery for wind, solar and other renewable energy power systems. High discharge rate battery (KPH series) is widely applied for diesel engines, starting power supply of rail traffic and other DC systems.



Structure Schematic Diagram of Changhong Pocket Type Ni-Cd Cell



Plates

The main material of positive plate is nickel hydroxide, and the main material of negative plate is cadmium oxide. These active materials are separately retained in pocket formed nickel plated steel strip which is double perforated by a patented process. According to the capacity required, quantities of plate strips are mechanically linked together, then cut to the size corresponding to the plate width required and compressed to the final plate dimensions. At last, the plates are welded or assembled on the current collectors, which not only ensure the high mechanical strength, but also improve the conductivity.

Because the structural component of the plate is steel, the plates are not gradually weakened by repeated cycling, which gives Changhong pocket type Ni-Cd batteries an exceptionally good cycle life. Besides, the alkaline electrolyte inside doesn't react with steel, which means that the supporting structure of the battery stay intact and unchanged during their whole life. Since there is no corrosion, there is no risk of "sudden death". In contrast, the structure and the active material of the lead plate brings about shedding of the positive plate material and eventual structural collapse of lead acid batteries.



Separator

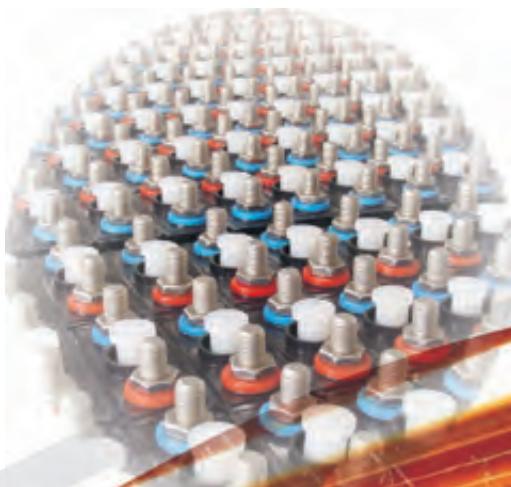
The Separators are made of plastic separator grids, which separate the plates and insulate the plate frames from each other. By providing a large space between the positive and negative plates and a generous quantity of electrolyte between plates, good electrolyte circulation and gas dissipation are provided, thus there is no stratification of the electrolyte as found with lead acid batteries.

Electrolyte

The electrolyte used in Changhong pocket type Ni-Cd battery is a solution of potassium hydroxide and lithium hydroxide, which brings about the performance, service life and energy efficiency of the battery to the optimization in certain temperature ranges. The concentration of the standard electrolyte allows the battery to be operated at wide temperature range of $-40^{\circ}\text{C} \sim 60^{\circ}\text{C}$, and adapted for the high temperature fluctuation in certain regions.

Terminal Pole

Terminal poles are made from nickel-plated steel bar with good conductive performance and high mechanical strength, then welded with the plate bus bars and plates to form plate group. The cell covers and the terminal poles are sealed by compression lock washers, which ensure the good sealing throughout the life of the battery.





Venting System

Various kinds of vent plugs, such as flame-arresting flip-top vents, could be fitted with Changhong pocket type Ni-Cd batteries to give an effective and safe venting system.



Cell Container

The cell container is made from the engineering plastic (MBS or PP material) with high mechanical strength.



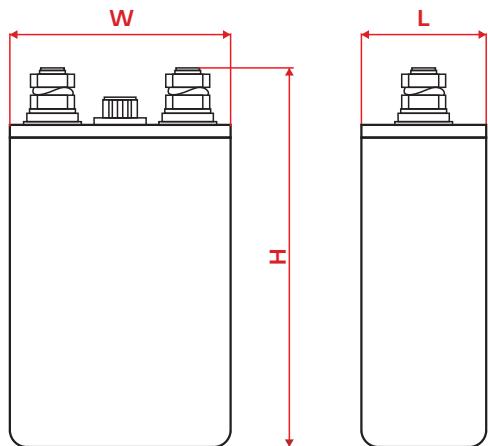
Common Troubles and Trouble Shootings

Common Troubles	Reasons	Trouble Shootings
Capacity Loss	Electrolyte has been used for a long times, and carbonate content is too much	Replace electrolyte
	Electrolyte is improperly prepared or fail to the standard	Use the electrolyte that exclusively meets the formula supplied by the manufacturer only
	Electrolyte is too little to cover the plate group	Top-up the distilled water and adjust the density of electrolyte, then overcharge the battery
	Too much harmful impurity in the electrolyte	Clean the inside of the battery, and replace qualified electrolyte
	The battery is charged or discharged improperly	Charge or discharge the battery in strict accordance with manufacturer instructions
	Short circuit or slight short circuit occurs in the interior of the battery	Spill electrolyte, clean the inside, filtrate or replace electrolyte, and overcharge the battery. Should other reasons be discovered, disassemble the battery and repair it
	Short circuit or slight short circuit occurs in the exterior of the battery	Keep dry around the battery, strengthen insulation, and clean out all the troubles making short circuit
	The calibration of instruments is inaccuracy	Check and adjust the ammeter and voltmeter
Abnormal voltage	Short circuit, open circuit, or no electrolyte inside the battery	Check reasons, after cleaning the battery, replace electrolyte, or disassemble the battery to repair, and refill electrolyte
	Short circuit or open circuit occurs in exterior of the battery	Keep dry around the battery, strengthen insulation, and clean out all the troubles making short circuit or open circuit
	Poor wire connection or disconnection	Check the wiring (including connectors and leads)

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Common Troubles	Reasons	Trouble Shootings
Bubbles appear inside the battery	Organic impurity is in the electrolyte	Replace the qualified electrolyte
Cell container swells	Positive plates bulge	Hard to repair,regardless influences in operating as principle
	Vent plug is blocked up	Clean the vents with hot water to make it smooth or replace with new vent plugs
	Interior short circuit or too much impurity in the electrolyte. Too much gas generated and the vent can't exhaust it in time	Clean the battery immediately,keep it ventilated and dry
Alkaline corrosion	Electrolyte level is too high	Suck out redundant electrolyte,and adjust the electrolyte level to the height required
	Terminal poles and vent plugs are not well sealed	Replace and tighten the sealing spare parts
	Electrolyte spills	Clean the battery immediately, and keep it ventilated and dry
Electrolyte leakage	Poor sealing between container and lid,or there is crack or damage caused by improper transportation or operation	Wash and clean the damaged parts, smear the acetylene tetrachloride solution with 5% ABS resin by brush

Recommended Model Tables of the Battery



KPL Series

Model	Rated Voltage V	Rated Capacity I _t Ah	Max. External Dimension mm			Max. Weight kg	Electrolyte Volume L	Screw Thread of Terminal poles	Container Material
			Length	Width	Height				
KPL10	1.2	10	38	84	138	0.80	0.2	M6	MBS or PP
KPL20	1.2	20	32	113	220	1.2	0.3	M6	MBS or PP
KPL30	1.2	30	68	134	245	2.8	0.8	M10×1	MBS or PP
KPL40	1.2	40	68	134	245	3.0	0.8	M10×1	MBS or PP
KPL50	1.2	50	68	134	245	3	0.7	M10×1	MBS or PP
KPL60	1.2	60	70	134	285	4.2	0.9	M16	MBS or PP
KPL80	1.2	80	80	141	365	5.8	1.7	M10×1	MBS or PP
KPL100	1.2	100	80	141	365	6.2	1.6	M10×1	MBS or PP
KPL120	1.2	120	80	141	365	6.4	1.4	M10×1	MBS or PP
KPL150	1.2	150	106	164	345	9	2.5	M20	MBS or PP
KPL200	1.2	200	106	164	345	10	1.8	M20	MBS or PP
KPL250	1.2	250	164	167	345	13.5	2.8	M20	MBS or PP
KPL300	1.2	300	164	167	345	15	2.7	M20	MBS or PP
KPL400	1.2	400	152	170	385	17.5	4.7	M20	PP
KPL500	1.2	500	138	276	490	27	6.1	2×M16	PP
KPL600	1.2	600	176	291	510	38	9.2	2×M20	MBS
KPL700	1.2	700	176	291	510	39	8.4	2×M20	MBS
KPL800	1.2	800	186	398	570	59	17.2	3×M20	MBS
KPL900	1.2	900	186	398	570	60	15.6	3×M20	MBS
KPL1000	1.2	1000	186	398	570	61	15.0	3×M20	MBS

KPM Series

Model	Rated Voltage V	Rated Capacity I _t Ah	Max. External Dimension mm			Max. Weight kg	Electrolyte Volume L	Screw Thread of Terminal poles	Container Material
			Length	Width	Height				
KPM10	1.2	10	48	81	245	1.5	0.3	M10×1	MBS
KPM20	1.2	20	68	134	245	2.5	0.8	M10×1	MBS or PP
KPM30	1.2	30	68	134	245	3.0	0.7	M10×1	MBS or PP
KPM40	1.2	40	70	134	285	4.0	1.0	M16	MBS or PP
KPM50	1.2	50	70	134	285	4.2	1.0	M16	MBS or PP
KPM60	1.2	60	80	141	370	6.0	1.8	M16	MBS or PP
KPM70	1.2	70	80	141	370	6.4	1.5	M16	MBS or PP
KPM80	1.2	80	80	141	370	6.6	1.4	M16	MBS or PP
KPM100	1.2	100	106	164	345	9	2.1	M20	MBS or PP
KPM120	1.2	120	106	164	345	9.5	2.1	M20	MBS or PP
KPM150	1.2	150	164	167	345	13	3.7	M20	MBS or PP
KPM200	1.2	200	164	167	345	14.5	3.3	M20	MBS or PP
KPM250	1.2	250	152	170	385	16	3.3	M20	PP
KPM300	1.2	300	162	200	450	23	4.6	2×M16	PP
KPM350	1.2	350	162	200	450	24	4.6	2×M16	PP
KPM400	1.2	400	138	278	490	27	4.2	2×M16	PP
KPM500	1.2	500	176	291	510	40	9.1	2×M20	MBS
KPM600	1.2	600	176	291	510	42	8.3	2×M20	MBS
KPM700	1.2	700	186	398	570	58	16.7	3×M20	MBS
KPM800	1.2	800	186	398	570	60	16.0	3×M20	MBS
KPM900	1.2	900	186	398	570	64	14.7	3×M20	MBS
KPM1000	1.2	1000	186	398	570	65	13.0	3×M20	MBS

Operating Curves of the Battery

KPH Series

Model	Rated Voltage V	Rated Capacity I _t Ah	Max. External Dimension mm			Max. Weight kg	Electrolyte Volume L	Screw Thread of Terminal poles	Container Material
			Length	Width	Height				
KPH10	1.2	10	48	81	245	1.8	0.25	M10×1	MBS
KPH20	1.2	20	68	134	245	2.8	0.70	M10×1	MBS or PP
KPH30	1.2	30	70	134	285	4.0	1.0	M16	MBS or PP
KPH40	1.2	40	70	134	285	4.5	0.9	M16	MBS or PP
KPH50	1.2	50	80	141	370	6.2	1.5	M16	MBS or PP
KPH60	1.2	60	80	141	370	6.5	1.5	M16	MBS or PP
KPH70	1.2	70	106	164	345	9	2.2	M20	MBS or PP
KPH80	1.2	80	106	164	345	9.2	1.7	M20	MBS or PP
KPH100	1.2	100	106	164	345	10	2.1	M20	MBS or PP
KPH120	1.2	120	164	167	365	14	4.0	M20	MBS or PP
KPH150	1.2	150	164	167	365	15	3.2	M20	MBS or PP
KPH200	1.2	200	176	291	510	22	10.7	2×M20	MBS
KPH250	1.2	250	176	291	510	36	10.3	2×M20	MBS
KPH300	1.2	300	176	291	510	37	9.3	2×M20	MBS
KPH350	1.2	350	176	291	510	38	7.5	2×M20	MBS
KPH400	1.2	400	186	398	570	58	18.4	3×M20	MBS
KPH500	1.2	500	186	398	570	59	16.5	3×M20	MBS

Remarks:

- The above specifications may be modified without prior notice.
- The above dimensions are only a part of our standard products' range, we may design and develop any other battery model, according to specific end-user's requirements.

Figure 1 Charging Curves of KPL Series (20°C±5°C)

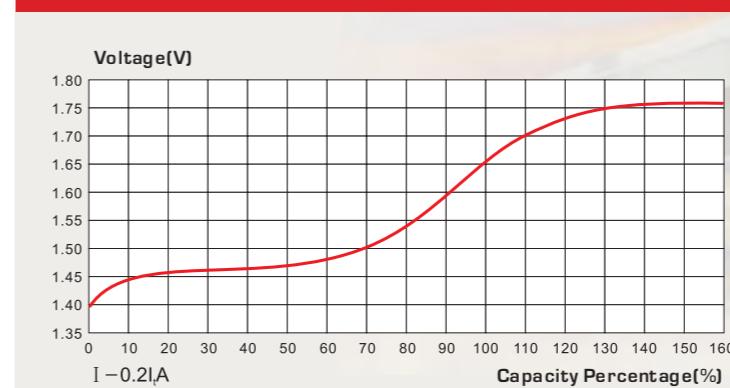


Figure 2 Discharging Curves of KPL Series (20°C±5°C)

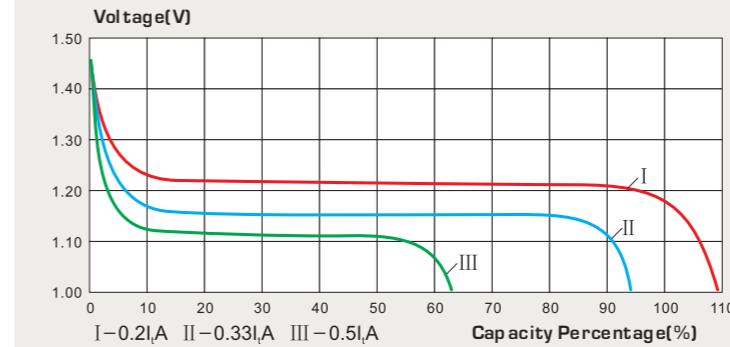
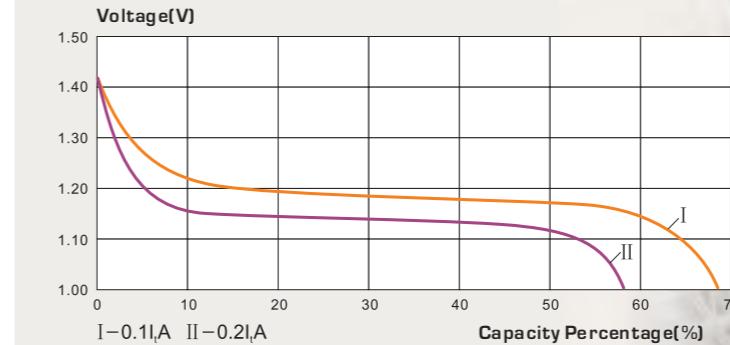


Figure 3 Discharging Curves of KPL Series (-18°C±2°C)



This chapter lists all the operating curves of the battery, such as KPL, KPM, and KPH series, since there are differences among the 3 series that applies to the operating curves as well. Accordingly, the listed operating curves are for reference only, and not regarded as the battery acceptance standards.

Operating Curves of the Battery

Figure 4 Temperature Effect Curves of KPL Series

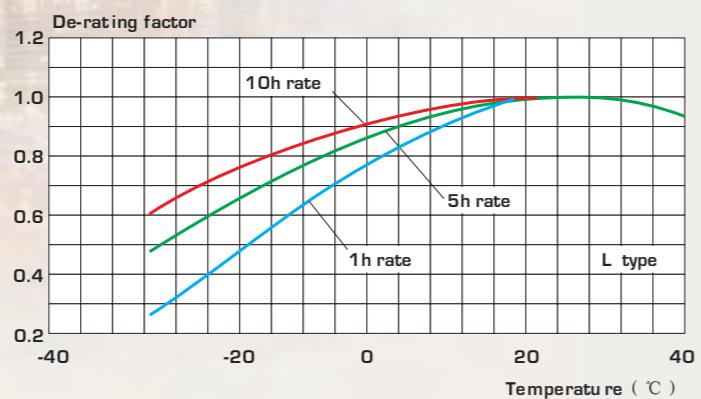


Figure 7 Discharging Curves of KPM Series (-18°C ± 2°C)

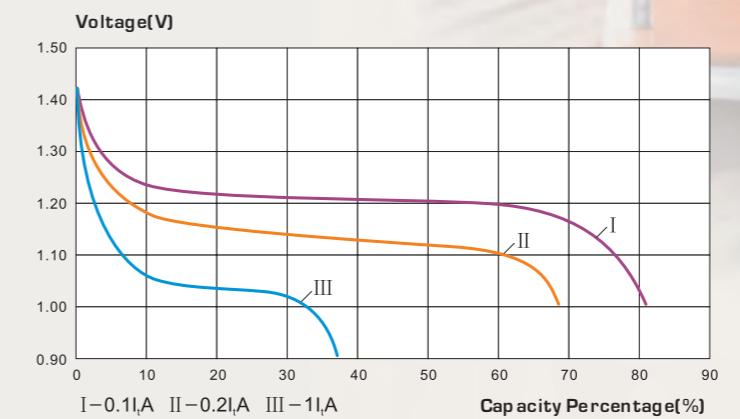


Figure 5 Charging Curves of KPM Series (20°C ± 5°C)

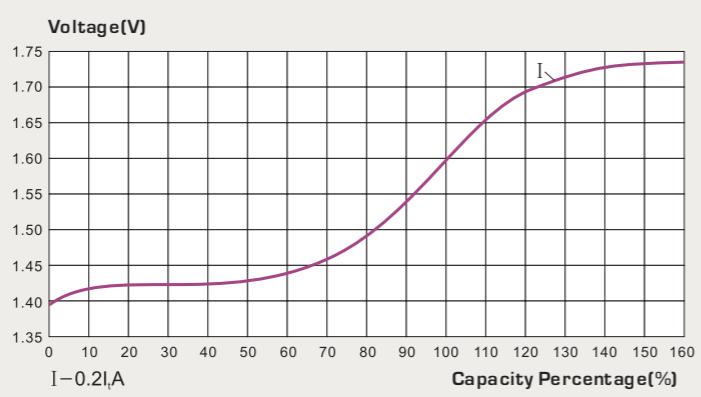


Figure 8 Temperature Effect Curves of KPM Series

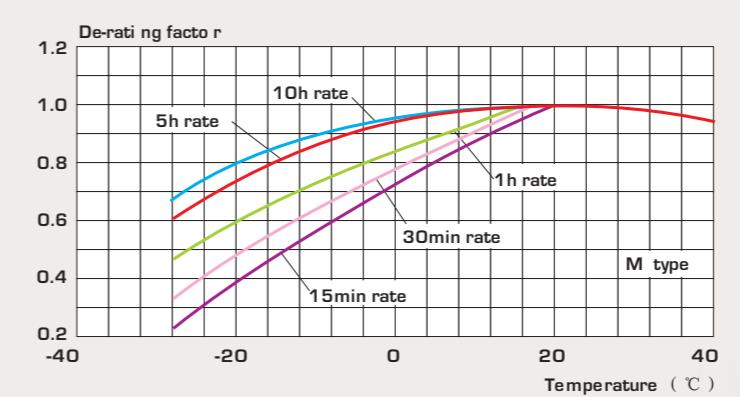
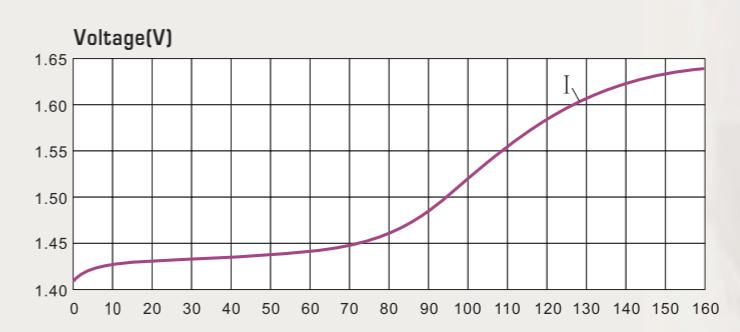


Figure 6 Discharging Curves of KPM Series (20°C ± 5°C)



Figure 9 Charging Curves of KPH Series (20°C ± 5°C)



Operating Curves of the Battery

Figure 10 Discharging Curves of KPH Series ($20^{\circ}\text{C} \pm 5^{\circ}\text{C}$)

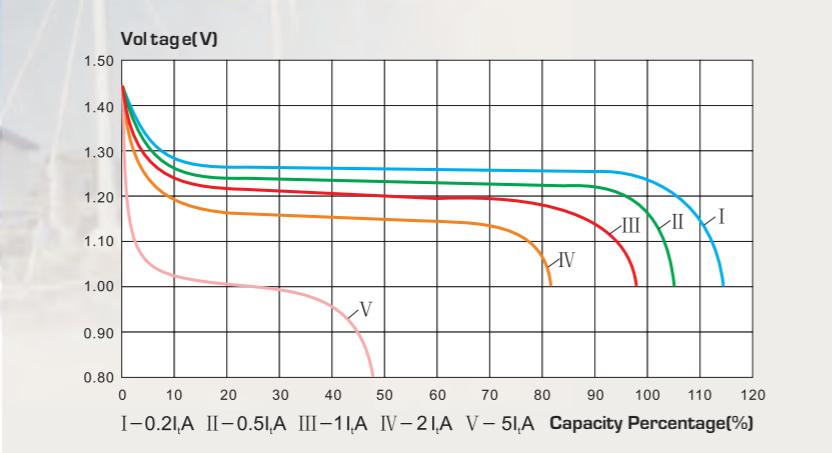


Figure 13 Loss Values of Open Circuit under Different Temperature

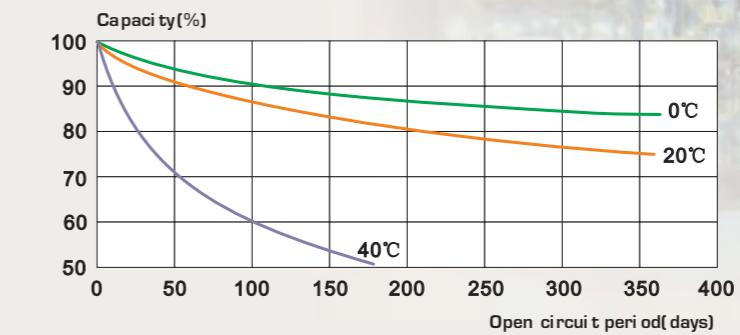


Figure 11 Discharging Curves of KPH Series ($-18^{\circ}\text{C} \pm 2^{\circ}\text{C}$)

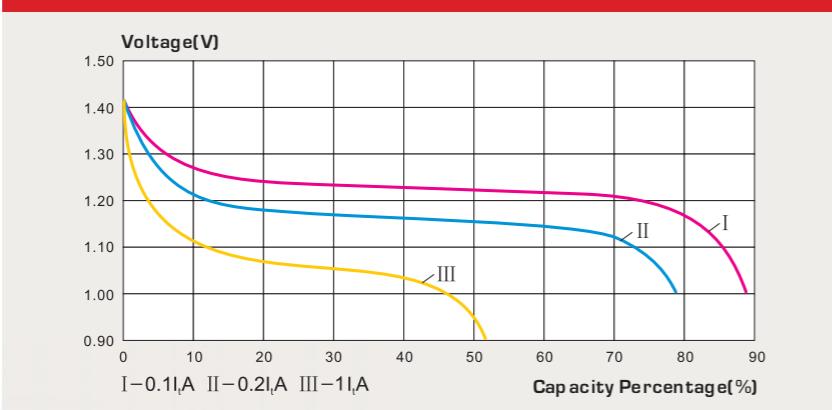


Figure 14 Cycle Life Comparison Curves between pocket Type Ni-Cd cell and VRLA Cell under Different Temperature

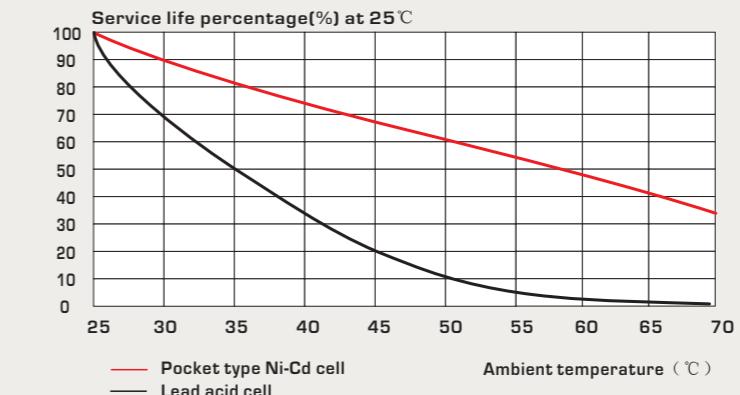


Figure 12 Temperature Effect Curves of KPH Series

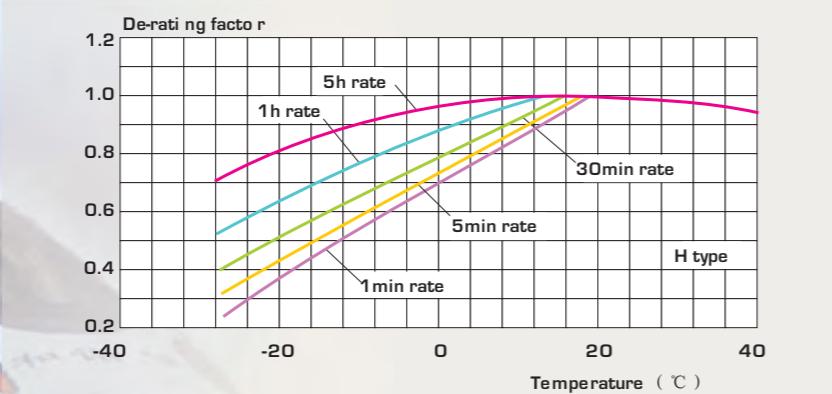
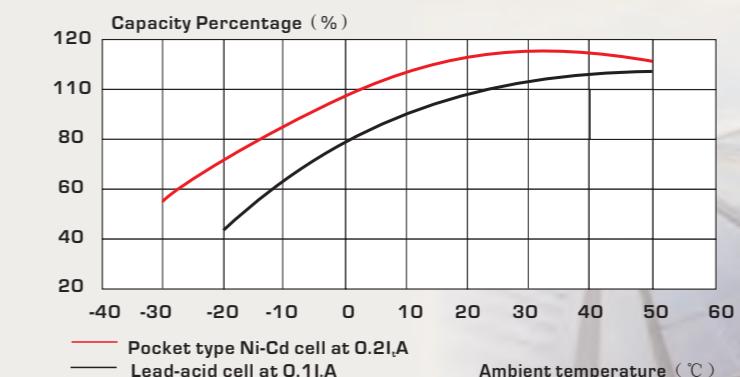


Figure 15 Capacity Comparison Curves between pocket Type Ni-Cd cell and VRLA Cell under Different Temperature



Discharge Performance Data

KPL series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$

Final voltage 1.14V/cell

Models	I_t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPL10	10	1.01	1.20	1.88	2.95	3.75	4.35	5.03	6.28	6.92	7.35	8.25	9.57	12.5	13.5	14.6	15.0	
KPL20	20	2.02	2.40	3.76	5.90	7.50	8.70	10.1	12.6	13.8	14.7	16.5	19.1	25.0	27.0	29.2	30.0	
KPL30	30	3.03	3.60	5.64	8.85	11.3	13.1	15.1	18.8	20.8	22.1	24.8	28.7	37.5	40.5	43.8	45.0	
KPL40	40	4.04	4.80	7.52	11.8	15.0	17.4	20.2	25.2	27.6	29.4	33.0	38.2	50.0	54.0	58.5	60.0	
KPL50	50	5.05	6.00	9.40	14.8	18.8	21.8	25.2	31.4	34.6	36.8	41.3	47.9	62.5	67.5	73.0	75.0	
KPL60	60	6.06	7.20	11.3	17.7	22.5	26.1	30.2	37.7	41.5	44.1	49.5	57.4	75.2	81.0	87.6	90.0	
KPL70	70	7.07	8.40	13.2	20.7	26.3	30.5	35.2	44.0	48.4	51.5	57.8	67.0	87.5	94.5	102	105	
KPL80	80	8.08	9.60	15.0	23.6	30.0	34.8	40.2	50.2	55.4	58.8	66.0	76.6	100	108	117	120	
KPL100	100	10.1	12.0	18.8	29.5	37.5	43.5	50.3	62.8	69.2	73.5	82.5	95.7	125	135	146	150	
KPL120	120	12.1	14.4	22.6	35.4	45.0	52.2	60.4	75.3	83.0	88.2	99.0	114	150	162	175	180	
KPL150	150	15.2	18.0	28.2	44.2	56.2	65.2	75.4	94.2	103	110	123	143	187	202	222	225	
KPL200	200	20.2	24.0	37.6	59.0	75.0	87.0	100	125	138	147	165	191	250	270	291	300	
KPL250	250	25.3	30.0	47.0	73.0	93.0	108	125	157	171	183	206	239	312	337	369	375	
KPL300	300	30.3	36.0	56.4	88.4	112	130	150	188	206	220	246	286	374	404	443	450	
KPL350	350	35.4	42.0	65.8	103	132	151	175	216	244	255	285	335	436	469	510	525	
KPL400	400	40.4	48.0	75.2	118	150	174	202	252	276	294	330	382	500	540	581	599	
KPL500	500	50.5	60.0	94.0	146	186	216	250	314	342	366	412	478	624	674	738	750	
KPL600	600	60.6	72.0	113	176	224	260	300	376	412	440	492	572	748	808	886	900	
KPL700	700	70.7	84.0	132	207	265	303	350	432	489	510	570	671	873	939	1020	1050	
KPL800	800	80.8	96.0	150	236	300	348	404	504	552	588	660	764	1000	1080	1162	1198	
KPL900	900	90.9	108	169	265	335	390	450	564	618	660	738	858	1122	1212	1314	1350	
KPL1000	1000	101	120	188	292	372	432	500	628	684	732	824	956	1248	1348	1460	1500	

KPL series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under 20°C ±5°C

Final voltage 1.10V/cell

Models	I _t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPL10	10	1.02	1.23	1.9	3.07	4.25	5.00	5.90	7.33	8.25	8.88	9.70	11.5	14.8	15.6	17.2	17.4	
KPL20	20	2.04	2.46	3.80	6.14	8.50	10.0	11.8	14.7	16.5	17.8	19.4	23.0	29.5	31.1	34.3	34.8	
KPL30	30	3.06	3.69	5.70	9.21	12.8	15.0	17.7	22.0	24.8	26.6	29.0	34.5	44.1	46.8	55.5	57.6	
KPL40	40	4.08	4.92	7.60	12.3	16.9	20.0	23.6	29.3	33.0	35.5	38.7	46.0	59.0	62.2	68.5	69.5	
KPL50	50	5.10	6.15	9.50	15.4	21.1	25.0	29.5	36.7	41.3	44.4	48.4	57.5	73.5	78.0	85.5	87.0	
KPL60	60	6.12	7.38	11.4	18.4	25.5	30.0	35.4	44.0	49.5	53.3	58.0	69.0	88.2	93.6	103	104	
KPL70	70	7.14	8.61	13.3	21.5	29.5	35.0	41.3	51.3	57.8	62.2	67.7	80.5	103	109	120	122	
KPL80	80	8.16	9.84	15.2	24.6	33.8	40.0	47.2	58.6	66.0	71.0	77.4	92.0	118	125	137	139	
KPL100	100	10.2	12.3	19.0	30.7	42.2	50.0	59.0	73.3	82.5	88.8	96.7	115	147	156	171	174	
KPL120	120	12.2	14.8	22.8	36.9	51.0	60.0	70.8	88.0	99.0	107	116	138	176	187	206	209	
KPL150	150	15.3	18.5	28.5	46.2	63.5	75.0	88.5	110	124	133	145	173	221	234	278	288	
KPL200	200	20.4	24.6	38.0	61.4	84.2	100	118	147	165	177	193	230	294	312	342	347	
KPL250	250	25.5	30.8	47.5	76.5	106	125	148	183	207	222	242	288	368	390	429	434	
KPL300	300	30.6	36.9	57.0	92.0	127	150	177	220	248	266	290	345	440	468	555	565	
KPL350	350	35.7	43.1	66.5	107	147	175	207	257	289	311	339	403	515	546	647	650	
KPL400	400	40.8	49.2	76.0	122	168	200	236	293	330	355	387	460	588	624	682	694	
KPL500	500	51.0	61.5	95.0	152	212	250	295	365	413	444	484	575	735	780	858	868	
KPL600	600	61.2	73.8	114	184	254	300	354	440	495	525	580	685	870	936	1110	1130	
KPL700	700	71.4	86.1	133	213	294	350	413	513	578	620	678	802	1021	1092	1294	1300	
KPL800	800	81.6	98.4	152	245	336	400	472	586	660	710	796	920	1176	1248	1364	1388	
KPL900	900	91.8	111	171	276	378	450	531	660	743	800	896	1035	1323	1404	1540	1560	
KPL1000	1000	102	123	190	306	420	500	590	733	825	888	968	1150	1470	1560	1715	1737	

Discharge Performance Data

KPL series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$

Final voltage 1.05V/cell

Models	I_t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPL10	10	1.03	1.25	1.98	3.16	4.50	5.54	6.68	8.55	9.54	10.6	11.5	13.3	17.1	18.5	21.3	21.8	
KPL20	20	2.06	2.50	3.96	6.32	9.0	11.1	13.4	17.1	19.1	21.2	23.0	26.9	34.2	37.0	42.6	43.2	
KPL30	30	3.09	3.74	5.94	9.48	13.5	16.6	20.0	25.9	28.6	31.8	34.5	39.9	51.2	58.2	63.9	64.8	
KPL40	40	4.12	4.99	7.92	12.6	18.0	22.2	26.8	34.2	38.2	42.4	46.0	53.8	68.2	74.0	85.2	86.4	
KPL50	50	5.15	6.24	9.9	15.8	22.5	27.7	33.4	43.2	47.7	53.0	57.5	66.5	85.5	92.0	106	108	
KPL60	60	6.18	7.49	11.9	19.1	27.0	33.2	40.0	51.8	57.2	63.6	69.0	79.8	102	110	127	130	
KPL70	70	7.21	8.73	13.9	22.1	31.2	38.8	46.8	60.5	66.8	74.2	80.5	93.1	120	129	148	151	
KPL80	80	8.24	10.0	15.8	25.3	36.0	44.4	53.6	68.4	76.4	84.8	92.0	108	136	148	165	172	
KPL100	100	10.3	12.5	19.8	31.5	44.9	55.4	66.7	85.5	95.4	106	115	133	171	184	206	215	
KPL120	120	12.4	15.0	23.8	38.2	53.8	66.4	80.0	103	114	127	138	159	205	220	251	258	
KPL150	150	15.5	18.7	29.7	47.3	67.3	83.1	100	129	143	159	172	199	256	276	319	322	
KPL200	200	20.6	25.0	39.6	63.0	89.0	110	133	172	190	212	230	266	342	368	412	430	
KPL250	250	25.8	31.2	49.5	78.8	112	138	166	215	237	265	287	332	427	460	515	537	
KPL300	300	30.9	37.4	59.4	94.5	134	163	200	258	286	318	344	398	512	552	618	644	
KPL350	350	36.1	43.7	69.3	110	157	194	237	302	334	370	400	463	598	643	721	751	
KPL400	400	41.2	49.9	79.2	126	178	220	266	342	380	424	460	532	684	736	824	860	
KPL500	500	51.5	62.4	99	158	220	275	332	427	475	530	575	665	855	920	1030	1075	
KPL600	600	61.8	74.9	119	189	268	326	400	516	572	636	688	796	1024	1104	1236	1288	
KPL700	700	72.1	87.3	139	220	313	387	474	603	668	740	800	925	1195	1285	1442	1502	
KPL800	800	82.4	100	158	252	352	440	531	683	760	848	920	1064	1368	1472	1648	1720	
KPL900	900	92.7	112	178	284	398	495	598	769	855	954	1035	1197	1539	1656	1854	1935	
KPL1000	1000	103	125	198	316	440	550	664	854	950	1060	1150	1330	1710	1840	2060	2150	

KPL series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under 20°C ± 5°C

Final voltage 1.00V/cell

Models	I _t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPL10	10	1.05	1.29	2.00	3.27	4.68	5.88	7.50	9.70	11.1	12.0	13.3	15.2	19.7	21.3	24.2	25.5	
KPL20	20	2.10	2.58	4.00	6.54	9.36	11.8	15.0	19.4	22.2	24.0	26.6	30.4	39.4	42.6	48.5	51.0	
KPL30	30	3.15	3.86	6.00	9.81	14.0	17.6	22.5	29.1	33.3	36.0	39.9	45.6	59.1	63.9	72.5	76..5	
KPL40	40	4.20	5.15	8.00	13.1	18.7	23.6	30.0	38.8	44.4	48.0	53.2	60.8	78.8	85.2	97.0	102	
KPL50	50	5.25	6.44	10.0	16.4	23.4	29.4	37.5	48.5	55.5	60.0	66.5	76.0	98.5	107	121	128	
KPL60	60	6.30	7.73	12.0	19.6	28.0	35.2	45.0	58.2	66.6	72.0	79.8	91.2	118	128	145	153	
KPL70	70	7.35	9.01	14.0	22.9	32.7	41.2	52.5	67.9	77.7	84.0	93.1	106	138	149	169	179	
KPL80	80	8.40	10.3	16.0	25.8	37.0	46.4	60.0	77.0	88.0	95.0	106	122	156	168	190	196	
KPL100	100	10.5	12.9	20.0	32.7	46.8	58.8	75.0	97.0	111	120	133	152	197	210	238	245	
KPL120	120	12.6	15.5	24.0	39.2	56.1	70.5	90.0	116	133	144	159	182	236	255	286	294	
KPL150	150	15.8	19.3	30.0	49.0	70.2	88.0	112	145	166	180	199	228	295	315	357	368	
KPL200	200	21.0	25.8	40.0	65.1	93.2	117	148	192	220	238	265	302	392	420	475	490	
KPL250	250	26.3	32.2	50.0	81.5	116	145	180	240	275	295	330	375	484	525	595	613	
KPL300	300	31.5	38.6	60.0	97.0	140	176	224	290	331	358	395	450	580	625	713	735	
KPL350	350	36.8	45.1	70.0	113	162	204	262	339	387	419	464	532	688	735	833	858	
KPL400	400	42.0	51.5	80.0	130	185	231	296	384	440	476	530	604	784	840	950	975	
KPL500	500	52.5	64.4	100	163	232	290	360	480	550	590	660	750	968	1050	1190	1225	
KPL600	600	63.0	77.3	120	194	277	348	429	572	655	702	790	900	1158	1248	1428	1470	
KPL700	700	73.5	90.1	140	227	324	408	524	678	774	838	928	1063	1375	1470	1666	1715	
KPL800	800	84.0	103	160	258	370	462	592	764	875	938	1050	1200	1544	1664	1900	1950	
KPL900	900	94.5	116	180	292	416	520	665	860	985	1056	1180	1350	1737	1872	2142	2205	
KPL1000	1000	105	129	200	326	464	580	750	970	1100	1180	1320	1500	1930	2100	2380	2450	

Discharge Performance Data

KPM series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$

Final voltage 1.14V/cell

Models	I_t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPM10	10	1.02	1.23	1.92	2.9	4.1	5.0	6.1	8.3	9.6	10.7	12.2	14.6	20.5	22.8	26.3	27.1	
KPM20	20	2.04	2.45	3.84	5.8	8.2	10	12.2	16.6	19.2	21.4	24.4	29.2	41.0	45.6	52.6	54.2	
KPM30	30	3.06	3.68	5.76	8.7	12.3	15	18.3	24.9	28.8	32.1	36.6	43.8	61.5	68.4	78.9	81.3	
KPM40	40	4.08	4.90	7.68	11.6	16.4	20	24.4	33.2	38.4	42.8	48.8	58.4	82	91.2	105.	108.	
KPM50	50	5.10	6.13	9.60	14.5	20.5	25	30.5	41.5	48	53.5	61	73	102	114	131	135	
KPM60	60	6.12	7.35	11.5	17.4	24.6	30	36.6	48.8	57.6	64.2	73.2	87.6	123	137	158	163	
KPM70	70	7.14	8.58	13.4	20.3	28.7	35	42.7	58.1	67.2	74.9	85.4	102	144	160	186	191	
KPM80	80	8.16	9.80	15.4	23.2	32.8	40	48.8	66.4	76.8	85.6	97.6	117	164	183	212	218	
KPM100	100	10.2	12.3	19.2	29	41	50	61	83	96	107	122	146	205	228	263	271	
KPM120	120	12.2	14.7	23.0	34.8	49.2	60	73.2	99.6	116	129	146	176	246	274	316	326	
KPM150	150	15.3	18.4	28.8	43.5	61	75	92	124	144	161	183	219	307	342	395	407	
KPM200	200	20.4	24.5	38.4	58	82	100	122	166	193	215	244	292	410	456	527	543	
KPM250	250	25.5	30.6	48.0	72.5	102	125	153	207	240	268	305	365	512	570	658	679	
KPM300	300	30.6	36.8	57.6	87	122	150	184	248	288	321	367	438	615	684	790	815	
KPM350	350	35.7	42.9	67.2	101	143	175	215	290	336	374	428	511	718	798	922	948	
KPM400	400	40.8	49.0	76.8	116	164	200	245	332	384	428	489	584	820	912	1052	1084	
KPM500	500	51.0	61.3	96.0	145	204	250	306	414	480	535	610	730	1025	1140	1315	1355	
KPM600	600	61.2	73.5	115	174	245	300	368	497	576	642	732	877	1230	1368	1578	1626	
KPM700	700	71.4	85.8	134	203	286	350	429	580	672	749	854	1023	1435	1596	1841	1897	
KPM800	800	81.6	98.0	154	232	327	400	490	663	768	856	976	1169	1640	1824	2104	2168	
KPM900	900	91.8	110	173	261	368	450	552	746	864	963	1098	1314	1845	2052	2367	2439	
KPM1000	1000	102	123	192	290	409	500	610	829	960	1070	1220	1460	2050	2280	2630	2710	

KPM series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under 20°C±5°C

Final voltage 1.10V/cell

Models	I _t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPM10	10	1.05	1.23	1.94	3.05	4.40	5.50	7.10	9.70	11.4	12.5	14.4	17.3	24.7	26.0	31.7	35.0	
KPM20	20	2.10	2.46	3.88	6.10	8.80	11.0	14.2	19.4	22.8	25.0	28.8	34.6	49.4	52.0	63.4	69.4	
KPM30	30	3.15	3.69	5.82	9.18	13.2	16.5	21.3	29.1	34.2	37.5	43.2	51.9	74.1	78.0	95.0	104	
KPM40	40	4.20	4.93	7.76	12.2	17.6	22.0	28.4	38.8	45.6	50.0	57.6	69.2	98.8	104	126	138	
KPM50	50	5.25	6.16	9.70	15.3	22.0	27.5	35.5	48.5	57.0	62.5	72.0	86.5	123	130	157	173	
KPM60	60	6.30	7.39	11.6	18.4	26.4	33.0	42.6	58.2	68.4	75.0	86.4	104	148	156	189	208	
KPM70	70	7.35	8.62	13.6	21.4	30.8	38.5	49.7	67.9	79.8	87.5	100	121	173	182	221	242	
KPM80	80	8.40	9.85	15.5	24.4	35.2	44.0	56.8	77.6	91.2	100	115	138	197	208	252	277	
KPM100	100	10.5	12.3	19.4	30.5	44.0	55.0	71.0	97.0	114	125	144	173	246	260	315	346	
KPM120	120	12.6	14.8	23.3	36.6	52.8	66.0	85.2	116	137	150	172	207	296	312	378	415	
KPM150	150	15.8	18.5	29.1	45.8	66.0	82.5	107	145	171	188	216	255	369	390	470	519	
KPM200	200	21.0	24.6	38.8	61.0	88.0	110	142	194	228	250	288	340	490	517	624	692	
KPM250	250	26.3	30.8	48.5	76.3	110	137.5	178	242	285	312	355	425	613	645	785	850	
KPM300	300	31.5	36.9	58.2	91.6	132	165	214	290	342	375	426	510	735	774	936	1038	
KPM350	350	36.8	43.1	67.9	107	154	193	249	339	399	437	497	595	857	903	1092	1190	
KPM400	400	42.0	49.3	77.6	122	176	220	284	388	456	500	568	680	980	1032	1248	1360	
KPM500	500	52.5	61.6	97.0	153	220	275	356	482	570	624	710	850	1225	1290	1560	1700	
KPM600	600	63.0	73.9	116	183	264	330	428	580	684	750	852	1020	1470	1548	1872	2040	
KPM700	700	73.5	86.2	136	214	308	385	498	678	798	874	994	1290	1715	1806	2184	2380	
KPM800	800	84.0	98.5	155	244	352	440	569	776	912	1000	1136	1360	1960	2064	2496	2720	
KPM900	900	94.5	111	175	274	396	495	640	867	1026	1124	1278	1530	2205	2322	2808	3060	
KPM1000	1000	105	123	194	304	440	550	712	964	1140	1248	1420	1700	2450	2580	3120	3400	

Discharge Performance Data

KPM series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$

Final voltage 1.05V/cell

Models	I_t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPM10	10	1.08	1.25	1.98	3.15	4.65	5.90	8.0	11.4	13.5	14.5	16.8	19.9	27.8	31.0	36.8	38.1	
KPM20	20	2.16	2.50	3.96	6.30	9.40	11.8	16.0	22.8	27.0	29.0	33.5	39.8	55.5	61.5	73.5	76.2	
KPM30	30	3.24	3.74	5.94	9.66	14.1	18.1	24.0	34.2	40.0	44.0	50.7	59.5	83.0	92.0	110	114	
KPM40	40	4.32	4.99	7.92	12.6	18.8	23.6	32.0	45.5	53.0	59.0	67.0	79.5	111	123	147	152	
KPM50	50	5.40	6.24	9.9	16.0	23.3	29.9	40.0	57.2	67.0	74.0	84.2	100	138	154	183	191	
KPM60	60	6.48	7.49	11.9	19.0	28.2	36.2	48.0	68.5	80.0	88.0	101	119	166	184	219	229	
KPM70	70	7.56	8.73	13.9	22.4	32.9	41.6	56.0	79.8	93.5	103	118	140	194	215	257	273	
KPM80	80	8.64	10.0	15.8	25.2	37.3	47.0	64.0	91.2	106	118	134	159	221	246	292	305	
KPM100	100	10.8	12.5	19.8	32.0	46.6	59.7	80.0	114	133	147	168	199	276	307	365	381	
KPM120	120	13.0	15.0	23.8	38.0	55.9	72.4	96.0	137	160	176	201	239	331	369	438	457	
KPM150	150	16.2	18.7	29.7	48.0	70.0	89.5	120	170	198	218	253	298	413	462	550	575	
KPM200	200	21.6	25.0	39.6	64.0	93.0	119	160	228	265	293	335	397	555	613	730	763	
KPM250	250	27.0	31.2	49.5	80	117	149	203	284	328	363	418	495	688	763	913	950	
KPM300	300	32.4	37.4	59.4	96.0	140	179	240	340	394	435	501	594	825	915	1095	1140	
KPM350	350	37.8	43.7	69.3	112	163	209	280	398	460	508	585	695	963	1072	1280	1338	
KPM400	400	43.2	49.9	79.2	128	186	238	320	450	530	585	670	793	1110	1225	1460	1525	
KPM500	500	54.0	62.4	99	160	233	298	400	568	655	725	835	990	1375	1525	1825	1900	
KPM600	600	64.8	74.9	119	192	279	356	480	681	786	870	1002	1188	1650	1830	2190	2280	
KPM700	700	75.6	87.3	139	224	326	417	560	795	917	1015	1170	1390	1925	2143	2560	2675	
KPM800	800	86.4	100	158	256	372	476	640	908	1048	1160	1340	1585	2220	2450	2920	3050	
KPM900	900	97.2	112	178	288	419	536	720	1022	1179	1305	1505	1784	2480	2750	3285	3420	
KPM1000	1000	108	125	198	320	465	590	800	1135	1310	1450	1670	1980	2750	3050	3650	3800	

KPM series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under 20°C±5°C

Final voltage 1.00V/cell

Models	I _t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPM10	10	1.10	1.31	2.00	3.30	4.78	6.20	8.58	13.0	15.2	16.6	18.8	22.8	31.8	35.5	42.3	43.8	
KPM20	20	2.20	2.63	4.00	6.50	9.62	12.4	17.2	26.0	30.3	33.3	37.5	45.5	63.5	71.0	84.5	87.5	
KPM30	30	3.30	3.94	6.00	9.80	14.4	18.6	25.8	39.0	45.5	49.5	56.5	68.5	95.5	107	127	132	
KPM40	40	4.40	5.25	8.00	14.7	19.3	24.9	33.7	51.3	60.9	66.5	75.0	91.0	127	142	169	175	
KPM50	50	5.50	6.56	10.0	16.3	24.1	31.1	42.5	64.5	76.0	83.0	94.0	114	159	178	212	219	
KPM60	60	6.60	7.88	12.0	19.6	28.7	37.2	51.5	78.0	91.0	99.0	113	137	191	213	254	263	
KPM70	70	7.70	9.19	14.0	22.8	33.7	43.5	59.5	90.3	107	116	132	160	223	249	302	306	
KPM80	80	8.80	10.5	16.0	29.4	38.5	49.7	68.0	104	122	133	150	182	254	284	338	350	
KPM100	100	11.0	13.1	20.0	32.6	48.1	62.1	85.0	129	152	166	188	228	318	355	423	438	
KPM120	120	13.2	15.8	24.0	39.1	57.5	74.5	102	155	182	198	225	274	382	426	508	525	
KPM150	150	16.5	19.7	30.0	48.8	72.0	92.6	128	194	227	248	282	342	477	533	634	657	
KPM200	200	22.0	26.3	40.0	66.0	95.0	123	170	258	301	331	375	455	635	710	845	875	
KPM250	250	27.5	32.8	50.0	81.5	119	154	213	322	376	413	469	569	794	888	1057	1094	
KPM300	300	33.0	39.4	60.0	97.5	143	185	255	386	451	495	563	683	953	1065	1268	1313	
KPM350	350	38.5	45.9	70.0	114	167	216	298	451	526	578	657	797	1112	1243	1479	1532	
KPM400	400	44.0	52.5	80.0	130	190	246	340	515	601	660	750	910	1270	1420	1690	1750	
KPM500	500	55.0	65.6	100	163	238	308	425	644	751	825	938	1138	1588	1775	2113	2188	
KPM600	600	66.0	78.8	120	195	285	369	510	772	901	990	1125	1365	1905	2130	2535	2625	
KPM700	700	77.0	91.9	140	228	333	431	595	901	1051	1155	1313	1593	2223	2485	2958	3063	
KPM800	800	88.0	105	160	260	380	492	680	1030	1202	1320	1500	1820	2540	2840	3380	3500	
KPM900	900	99.0	118	180	293	428	554	765	1158	1352	1485	1688	2048	2856	3195	3803	3938	
KPM1000	1000	110	131	200	325	475	615	850	1287	1502	1650	1875	2275	3175	3550	4225	4375	

Discharge Performance Data

KPH series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$

Final voltage 1.14V/cell

Models	I_t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPH10	10	1.02	1.23	1.92	3.01	4.40	5.67	8.05	11.9	13.8	15.8	18.4	23.2	37.5	40.1	47.5	49.1	
KPH20	20	2.04	2.45	3.84	6.00	8.75	11.2	16.1	23.6	27.5	31.6	36.8	46.4	75.0	80.2	95.0	98.2	
KPH30	30	3.06	3.68	5.76	9.00	13.1	16.9	24.1	35.5	42.5	47.2	55.0	69.5	106	121	143	147	
KPH40	40	4.08	4.90	7.68	12.0	17.4	22.6	32.6	47.5	56.8	63.5	73.5	93.0	141	160	190	196	
KPH50	50	5.10	6.13	9.60	15.0	21.8	28.3	40.7	59.5	71.0	80.0	92.0	117	176	201	238	246	
KPH60	60	6.12	7.35	11.5	18.0	26.1	33.9	47.9	70.0	85.0	95.5	110	140	212	243	285	295	
KPH70	70	7.14	8.58	13.4	21.0	30.4	39.6	56.2	83.3	99.4	112	128	163	246	281	333	344	
KPH80	80	8.16	9.80	15.4	24.0	34.8	45.2	65.2	95.2	114	127	147	186	282	321	380	393	
KPH100	100	10.2	12.3	19.2	30.0	43.5	56.5	81.5	119	142	159	184	233	352	401	475	491	
KPH120	120	12.2	14.7	23.0	36.0	52.2	67.8	95.8	140	170	191	220	280	424	486	570	589	
KPH150	150	15.3	18.4	28.8	45.0	65.5	84.5	122	175	207	238	277	351	530	601	714	737	
KPH200	200	20.4	24.5	38.4	60.0	87.0	113	163	238	276	318	370	465	705	802	950	982	
KPH250	250	25.5	30.6	48.0	75.0	109	141	203	291	345	397	468	588	880	1003	1188	1228	
KPH300	300	30.6	36.8	57.6	90.0	131	169	244	349	414	476	554	702	1060	1204	1428	1473	
KPH350	350	35.7	42.9	67.2	105	153	197	284	407	483	556	652	820	1230	1404	1663	1719	
KPH400	400	40.8	49.0	76.8	120	174	225	325	475	552	635	736	930	1400	1604	1900	1964	
KPH500	500	51.0	61.3	96.0	150	218	281	406	581	690	790	920	1168	1751	2005	2375	2455	

KPH series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under 20°C±5°C

Final voltage 1.10V/cell

Models	I_t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPH10	10	1.05	1.23	1.94	3.14	4.62	6.05	8.65	14.4	17.1	19.4	22.8	27.5	41.3	47.0	56.5	59.0	
KPH20	20	2.10	2.46	3.88	6.28	9.24	12.1	17.3	28.8	34.3	38.9	45.0	55.0	82.5	94.0	113	118	
KPH30	30	3.15	3.69	5.82	9.35	13.9	18.1	26.0	42.5	51.3	58.2	68.4	82.5	124	141	169	177	
KPH40	40	4.20	4.93	7.76	12.6	18.4	24.0	34.6	56.5	68.5	77.6	90.0	110	165	188	225	235	
KPH50	50	5.25	6.16	9.70	15.7	23.1	30.0	43.3	70.5	85.5	97.0	113	138	207	235	281	294	
KPH60	60	6.30	7.39	11.6	18.7	27.8	36.2	52.0	85.0	102	116	135	165	247	282	338	354	
KPH70	70	7.35	8.62	13.6	22.0	32.3	42.0	60.6	98.7	120	136	158	193	289	329	393	412	
KPH80	80	8.40	9.85	15.5	25.1	36.8	48.0	69.2	113	137	155	180	221	330	376	450	470	
KPH100	100	10.5	12.3	19.4	31.4	46.1	60.0	86.5	141	171	194	225	276	413	470	562	588	
KPH120	120	12.6	14.8	23.3	37.4	55.5	72.4	104	170	204	232	270	330	494	564	676	708	
KPH150	150	15.8	18.5	29.1	47.1	69.0	90.0	130	212	256	291	338	414	619	705	842	882	
KPH200	200	21.0	24.6	38.8	62.9	92.2	120	173	282	341	388	450	552	825	940	1123	1175	
KPH250	250	26.3	30.8	48.5	79.5	115	150	216	353	426	485	563	690	1031	1175	1403	1469	
KPH300	300	31.5	36.9	58.2	94.2	138	180	259	423	511	581	675	827	1238	1410	1684	1763	
KPH350	350	36.8	43.1	67.9	111	161	210	302	494	596	678	788	965	1444	1645	1964	2057	
KPH400	400	42.0	49.3	77.6	126	184	240	345	564	681	775	900	1103	1650	1880	2245	2350	
KPH500	500	52.5	61.6	97.0	159	229	300	432	705	852	969	1125	1370	2063	2350	2806	2938	

Discharge Performance Data

KPH series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$

Final voltage 1.05V/cell

Models	I_t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPH10	10	1.08	1.25	1.98	3.24	4.70	6.20	9.0	16.1	21.0	23.1	27.0	33.5	48.0	55.0	65.1	69.5	
KPH20	20	2.16	2.50	3.96	6.45	9.50	12.5	18.1	32.2	42.0	46.2	54.0	67.0	96.0	110	133	139	
KPH30	30	3.24	3.74	5.94	9.73	14.1	18.6	28.0	48.0	63.0	71.5	84.5	106	141	164	200	205	
KPH40	40	4.32	4.99	7.92	12.9	19.1	25.0	36.2	64.5	84.0	92.5	108	134	192	220	266	278	
KPH50	50	5.40	6.24	9.9	16.1	23.9	31.2	45.2	80.5	102	115	135	167	237	275	332	347	
KPH60	60	6.48	7.49	11.9	19.4	28.7	37.5	54.5	96.5	123	139	163	201	285	330	399	417	
KPH70	70	7.56	8.73	13.9	22.5	33.5	43.8	63.4	113	144	162	190	235	333	385	466	487	
KPH80	80	8.64	10.0	15.8	25.7	38.2	50.0	72.4	129	164	185	217	268	385	440	520	556	
KPH100	100	10.8	12.5	19.8	32.1	47.8	62.5	90.5	161	205	231	271	335	475	550	650	695	
KPH120	120	13.0	15.0	23.8	38.8	57.3	75.0	109	193	246	278	325	402	570	660	780	834	
KPH150	150	16.2	18.7	29.7	48.5	71.5	94.0	136	242	308	345	402	504	715	821	975	1040	
KPH200	200	21.6	25.0	39.6	64.2	95.6	125	181	322	411	460	540	670	950	1100	1300	1391	
KPH250	250	27.0	31.2	49.5	82.1	120	157	227	403	513	575	670	839	1224	1390	1625	1745	
KPH300	300	32.4	37.4	59.4	97.0	143	188	272	483	616	690	804	1008	1429	1642	1950	2080	
KPH350	350	37.8	43.7	69.3	115	167	219	318	564	719	805	938	1175	1574	1933	2275	2429	
KPH400	400	43.2	49.9	79.2	128	191	250	362	644	822	920	1080	1340	1900	2200	2600	2776	
KPH500	500	54.0	62.4	99	163	238	313	453	805	1026	1150	1340	1670	2335	2740	3250	3470	

KPH series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under 20°C±5°C

Final voltage 1.00V/cell

Models	I_t Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPH10	10	1.10	1.31	2.00	3.28	4.87	6.40	9.30	17.0	22.8	26.9	31.1	38.6	56.0	63.0	77.0	82.0	
KPH20	20	2.20	2.63	4.00	6.56	9.74	12.8	18.6	34.0	45.6	53.8	62.2	77.2	112	126	154	164	
KPH30	30	3.30	3.94	6.00	9.80	14.6	19.2	27.9	51.0	68.0	79.0	93.5	116	169	189	231	246	
KPH40	40	4.40	5.25	8.00	13.1	19.6	25.6	37.6	68.0	91.2	106	125	154	225	252	308	328	
KPH50	50	5.50	6.56	10.0	16.4	24.5	32.0	47.0	85.0	114	132	156	193	281	316	385	410	
KPH60	60	6.60	7.88	12.0	19.8	29.3	38.6	56.3	103	137	158	187	232	337	378	462	492	
KPH70	70	7.70	9.19	14.0	23.1	34.3	45.5	65.8	119	161	185	218	273	420	483	560	620	
KPH80	80	8.80	10.5	16.0	26.2	39.2	51.3	75.1	136	182	211	249	309	450	504	616	656	
KPH100	100	11.0	13.1	20.0	32.7	49.0	64.1	93.9	170	228	264	311	386	560	630	770	820	
KPH120	120	13.2	15.8	24.0	39.3	58.3	76.5	112	204	273	315	372	464	672	750	920	975	
KPH150	150	16.5	19.7	30.0	49.5	73.5	97.0	141	255	344	397	467	584	840	1035	1159	1256	
KPH200	200	22.0	26.3	40.0	65.4	97.0	129	188	340	458	529	623	778	1120	1250	1520	1638	
KPH250	250	27.5	32.8	50.0	82.5	122	161	235	425	573	661	770	972	1400	1560	1900	2093	
KPH300	300	33.0	39.4	60.0	99.0	147	194	282	510	687	793	934	1160	1680	1872	2300	2462	
KPH350	350	38.5	45.9	70.0	116	171	225	328	595	802	925	1089	1351	1960	2184	2670	2895	
KPH400	400	44.0	52.5	80.0	132	194	257	375	680	916	1057	1245	1544	2240	2500	3040	3280	
KPH500	500	55.0	65.6	100	165	244	321	469	850	1145	1321	1540	1930	2800	3120	3800	4100	

Discharge Performance Data

KPH series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under $20^{\circ}\text{C} \pm 5^{\circ}\text{C}$

Final voltage 0.85V/cell

Models	I_t Ah	Seconds					
		90	60	30	10	5	1
KPH10	10	70.5	76.5	85.5	98.0	106	115
KPH20	20	141	153	171	196	212	230
KPH30	30	212	230	257	294	318	345
KPH40	40	282	306	342	392	424	460
KPH50	50	353	383	428	490	530	575
KPH60	60	423	459	513	588	636	690
KPH70	70	494	536	599	686	742	805
KPH80	80	564	612	684	784	848	920
KPH100	100	705	765	855	980	1060	1150
KPH120	120	846	918	1020	1176	1272	1380
KPH150	150	1058	1148	1283	1470	1590	1725
KPH200	200	1420	1500	1710	1960	2120	2300
KPH250	250	1763	1913	2138	2450	2650	2875
KPH300	300	2115	2295	2565	2940	3180	3450
KPH350	350	3468	2678	2975	3430	3710	4025
KPH400	400	2840	3060	3420	3920	4240	4600
KPH500	500	3525	3825	4275	4900	5300	5750

KPH series Battery

Discharge performance data after fully charged by constant current according to IEC60623

Available current under 20°C ± 5°C

Final voltage 0.65V/cell

Models	I _t Ah	Seconds					
		90	60	30	10	5	1
KPH10	10	92.5	102	109	131	144	156
KPH20	20	185	204	218	262	288	312
KPH30	30	278	306	327	393	432	468
KPH40	40	370	408	436	524	576	624
KPH50	50	463	510	545	655	720	780
KPH60	60	555	612	654	786	864	936
KPH70	70	648	714	763	917	1008	1092
KPH80	80	740	816	872	1048	1152	1248
KPH100	100	925	1020	1090	1310	1440	1560
KPH120	120	1110	1224	1308	1572	1728	1872
KPH150	150	1388	1530	1635	1965	2160	2340
KPH200	200	1850	2040	2180	2620	2880	3120
KPH250	250	2313	2550	2725	3275	3600	3900
KPH300	300	2775	3060	3270	3930	4320	4680
KPH350	350	3238	3570	3815	4585	5040	5460
KPH400	400	3700	4080	4360	5240	5760	6240
KPH500	500	4625	5100	5450	6550	7200	7800

All the discharge data are just for battery sizing reference.



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