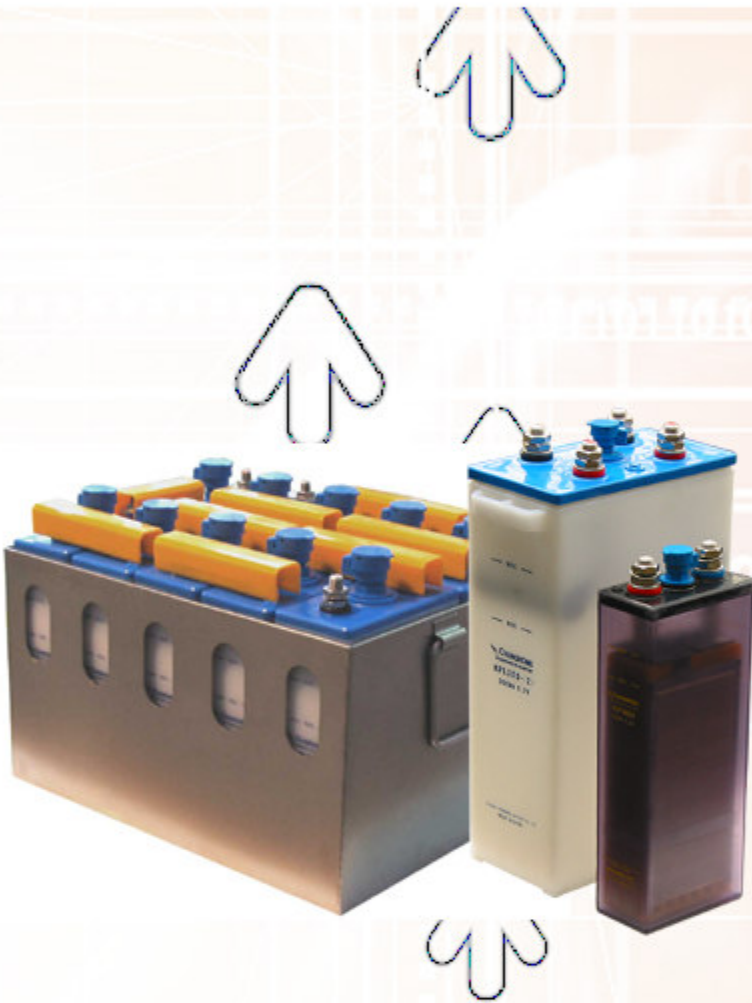


# KPH Ni-Cd Battery



January 2010

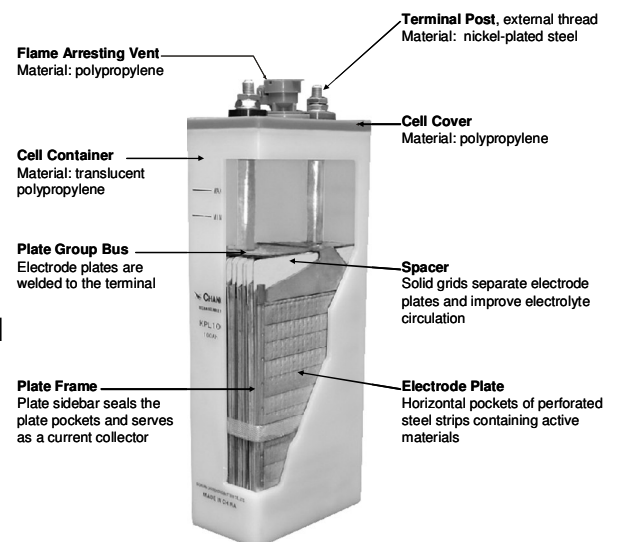


**Qualmega** KPH Series nickel cadmium batteries are designed for general industrial applications where absolute reliability is a necessity. Service-proven pocket-plate technology ensures long uninterrupted battery life without the risk of sudden loss of power.

KPH Series batteries are suitable for high discharge rate applications (30 minutes and below) such as switchgear tripping, diesel engine starting, UPS, etc.

## Product Features:

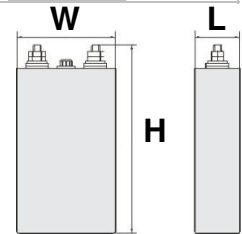
- Proven pocket-plate nickel-cadmium technology
- 50 years of experience in developing and manufacturing nickel-cadmium batteries.
- High tolerance to electrical abuses such as overcharge and overdischarge
- High tolerance to rough handling and mechanical abuse due to strong components and robust construction
- Trouble-free long cycle life
- No risk of sudden death due to the chemistry and the cell structure
- Wide operating temperature:  $-40^{\circ}\text{C}$  to  $50^{\circ}\text{C}$
- Generous electrolyte reserve for long maintenance intervals
- Clear (MBS) or translucent (PP) plastic cell case for easy electrolyte level inspection
- Plastic grid spacers eliminate separator deterioration problem
- Custom cell dimensions available
- 20 years service life in stationary applications
- Conforms to IEC60623



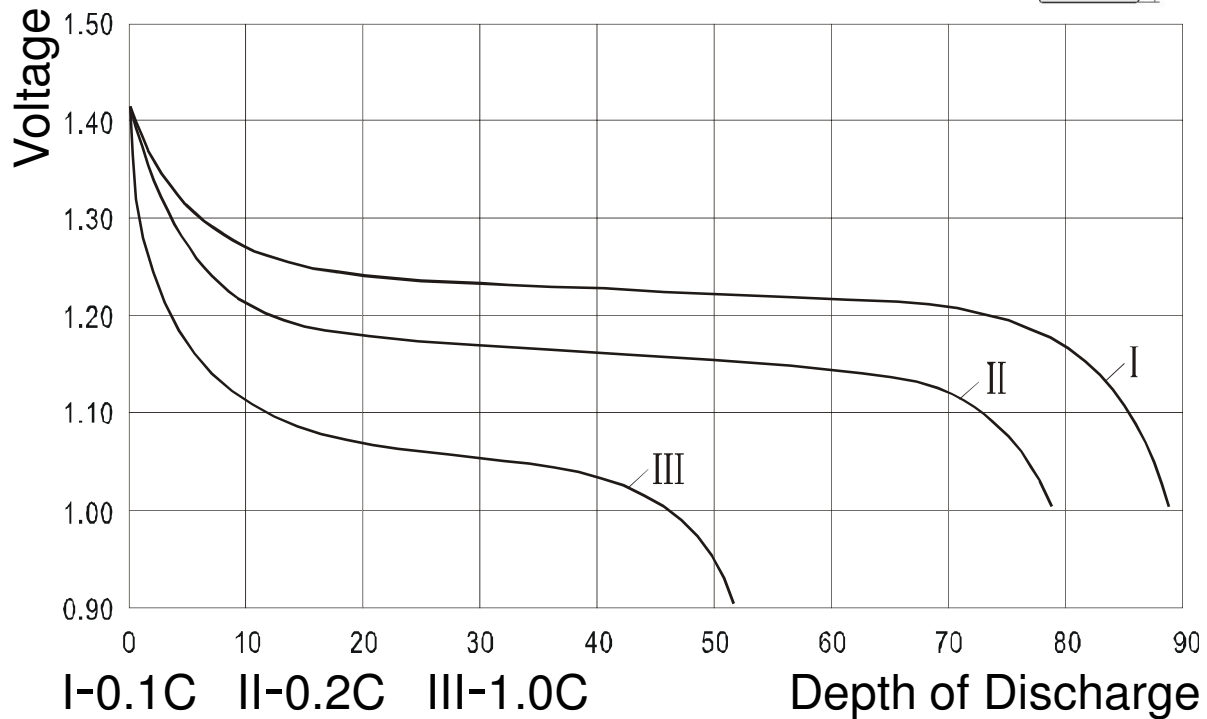
**Qualmega** nickel-cadmium batteries are manufactured by **Sichuan Changhong Battery Co., Ltd. (SCBC)**, the largest industrial nickel-cadmium battery manufacturer in China. Established for over five decades, SCBC specializes in developing and manufacturing industrial alkaline rechargeable batteries. It currently supplies their high quality batteries to railroad, aviation and industrial markets throughout the world. SCBC is ISO 9001 certified.

# Qualmega KPH General Specifications:

Cell Type	Capacity (C5 Ah)	Dimensions						Weight				Terminal	Cell Case Material
		Length		Width		Height		Without Electrolyte		With Electrolyte			
		mm	in	mm	in	mm	in	kg	lb.	kg	lb.		
KPH10	10	48	1.9	81	3.2	245	9.6	1.5	3.3	1.8	4.0	M10	MBS
KPH20	20	68	2.7	134	5.3	245	9.6	2.4	5.3	3.0	6.6	M10	PP
KPH30	30	70	2.8	134	5.3	285	11.2	3.0	6.6	4.0	8.8	M10	MBS
KPH40	40	80	3.1	141	5.6	370	14.6	4.0	8.8	6.0	13.2	M10	PP
KPH50	50	80	3.1	141	5.6	370	14.6	4.6	10.1	6.2	13.6	M10	PP
KPH60	60	80	3.1	141	5.6	370	14.6	5.0	11.0	6.5	14.3	M10	PP
KPH70	70	106	4.2	164	6.5	345	13.6	6.5	14.3	9.0	19.8	M20	PP
KPH80	80	106	4.2	164	6.5	345	13.6	7.5	16.5	9.5	20.9	M20	PP
KPH100	100	106	4.2	164	6.5	345	13.6	8.0	17.6	10.0	22.1	M20	PP
KPH120	120	164	6.5	167	6.6	345	13.6	10.5	23.2	14.0	30.9	M20	PP
KPH150	150	138	5.4	276	10.9	420	16.5	14.5	32.0	19.5	43.0	M16	PP
KPH180	180	138	5.4	276	10.9	420	16.5	18.0	39.7	20.5	45.2	M16	PP
KPH200	200	176	6.9	291	11.5	510	20.1	22.0	48.5	34.5	76.1	M20	MBS
KPH250	250	176	6.9	291	11.5	510	20.1	25.0	55.1	36.0	79.4	M20	MBS
KPH300	300	176	6.9	291	11.5	510	20.1	27.5	60.6	36.7	80.9	M20	MBS
KPH350	350	186	7.3	398	15.7	570	22.4	32.0	70.6	54.0	119.1	M20	MBS
KPH400	400	186	7.3	398	15.7	570	22.4	36.0	79.4	56.0	123.5	M20	MBS
KPH500	500	186	7.3	398	15.7	570	22.4	40.0	88.2	59.0	130.1	M20	MBS



## Discharge Performance at $-18^{\circ}\text{C}$ [ $0^{\circ}\text{F}$ ]:



# Qualmegea KPH Cell Performance

Available amperes at 20 °C

Discharge current is for fully charged cells

Final voltage: 1.14 V/cell

Cell Type	C5 Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPH10	10	0.98	1.17	1.75	3.02	4.41	5.71	7.52	10.0	11.7	12.9	14.3	17.6	27.3	31.9	38.8	42.6	
KPH20	20	1.96	2.34	3.50	6.00	8.80	11.4	15.0	20.1	23.3	25.8	28.7	35.1	54.6	63.8	77.6	85.1	
KPH30	30	2.94	3.50	5.30	9.10	13.3	17.1	22.6	30.1	35.0	38.7	43.0	52.7	81.9	95.7	116	127	
KPH40	40	3.92	4.70	7.50	12.1	17.7	22.9	30.4	41.2	47.9	52.8	58.5	71.5	111	129	160	168	
KPH50	50	4.90	5.90	9.40	15.1	22.2	28.7	38.1	51.5	59.9	66.0	73.0	89.0	139	161	201	210	
KPH60	60	5.88	7.10	11.2	18.1	26.6	34.4	45.7	61.7	71.9	79.0	88.0	107	166	193	241	252	
KPH70	70	6.86	8.30	13.0	21.1	31.0	40.1	53.3	72.0	84.0	92.0	102	125	194	225	281	294	
KPH80	80	7.84	9.40	15.0	24.2	35.4	46.0	61.0	82.0	96.0	106	117	143	222	257	321	336	
KPH100	100	9.80	11.8	18.7	30.2	44.0	57.0	76.0	103	120	132	146	179	277	321	401	420	
KPH120	120	11.8	14.2	22.4	36.2	53.2	69.0	91.0	123	144	158	175	214	333	386	481	504	
KPH150	150	14.7	17.7	28.1	45.3	66.5	86.0	114	155	180	198	219	269	415	481	601	630	
KPH200	200	19.7	23.4	35.0	60.4	88.2	114	150	201	233	258	287	351	547	638	776	851	
KPH250	250	24.5	29.5	46.8	76.0	111	143	190	257	300	330	365	447	692	802	1002	1050	
KPH300	300	29.4	35.4	56.1	90.0	132	171	225	301	347	381	418	506	755	865	1022	1102	
KPH350	350	34.3	41.3	65.5	106	155	201	266	360	420	462	511	626	969	1123	1403	1470	
KPH400	400	39.2	47.2	74.8	121	177	229	304	412	479	528	585	715	1110	1290	1600	1680	
KPH500	500	49.2	59.0	94.0	151	222	287	381	515	599	659	731	893	1390	1610	2010	2100	

Final voltage: 1.10 V/cell

Cell Type	C5 Ah	Hours							Minutes							Seconds		
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1	
KPH10	10	1.00	1.23	1.94	3.15	4.63	6.05	8.61	13.3	15.4	17.2	19.1	22.8	34.5	39.8	48.9	52.1	
KPH20	20	2.00	2.46	3.88	6.30	9.26	12.1	17.2	26.6	30.8	34.4	38.2	45.6	69.1	79.6	97.8	104	
KPH30	30	3.00	3.69	5.82	9.45	13.9	18.2	25.8	39.9	46.2	51.6	57.3	68.4	104	119	147	156	
KPH40	40	4.00	4.90	7.77	12.6	18.5	24.2	34.5	53.3	61.6	68.7	76.4	91.4	138	160	196	208	
KPH50	50	5.06	6.13	9.71	15.8	23.2	30.3	43.1	66.7	77.1	85.9	96.0	114	173	200	245	260	
KPH60	60	6.07	7.35	11.7	18.9	27.8	36.3	51.7	80.0	92.4	103	115	137	207	240	294	312	
KPH70	70	7.08	8.58	13.6	22.1	32.4	42.4	60.3	93.4	108	120	134	160	242	280	343	364	
KPH80	80	8.09	9.80	15.5	25.2	37.0	48.4	68.9	107	123	137	153	183	276	320	392	416	
KPH100	100	10.1	12.3	19.4	31.5	46.3	60.5	86.1	133	154	172	191	228	345	400	490	521	
KPH120	120	12.1	14.7	23.3	37.8	55.6	72.6	103	160	185	206	229	274	415	480	588	625	
KPH150	150	15.2	18.5	29.1	47.3	69.5	90.8	129	200	232	258	287	342	518	601	736	786	
KPH200	200	20.3	24.7	38.9	63.1	92.8	122	173	268	310	346	384	458	692	798	980	1045	
KPH250	250	25.4	30.8	48.5	78.9	116	152	216	334	388	430	480	572	868	1010	1236	1321	
KPH300	300	30.4	37.1	58.6	94.8	141	185	262	403	468	520	578	690	1048	1198	1479	1569	
KPH350	350	35.4	43.2	68.2	114	168	218	310	471	543	610	674	804	1220	1424	1725	1846	
KPH400	400	40.5	49.2	77.9	128	188	246	348	539	621	692	770	921	1388	1610	1972	2094	
KPH500	500	50.6	61.4	97.4	162	238	309	438	671	776	863	966	1148	1739	2010	2462	2623	

Final voltage: 1.05 V/cell

Cell Type	C5 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	1.24	1.97	3.23	4.72	6.26	8.98	16.1	19.7	21.6	24.3	28.8	43.2	49.4	60.9	65.7	
KPH20	20	2.04	2.48	3.94	6.46	9.44	12.3	18.0	32.2	39.4	43.2	48.2	57.6	86.4	99.2	121	132	
KPH30	30	3.06	3.72	5.91	9.69	14.3	18.8	26.9	48.3	59.1	64.8	72.9	88.2	128	150	180	191	
KPH40	40	4.08	5.01	7.92	13.0	19.2	25.1	36.4	65.3	80.2	88.0	99.7	118	175	200	245	266	
KPH50	50	5.10	6.25	9.90	16.2	24.0	31.4	45.5	81.6	100	110	125	147	219	250	307	332	
KPH60	60	6.12	7.50	11.9	19.4	28.7	37.7	54.6	97.9	120	132	150	177	263	300	368	398	
KPH70	70	7.14	8.75	13.9	22.7	33.5	44.0	63.7	114	140	154	175	206	306	350	430	465	
KPH80	80	8.16	10.0	15.8	25.9	38.3	50.2	72.8	131	160	176	199	235	350	400	491	531	
KPH100	100	10.2	12.5	19.8	32.4	47.9	62.8	91.0	163	200	220	249	294	438	500	614	664	
KPH120	120	12.2	15.0	23.8	38.9	57.5	75.4	109	196	241	264	299	353	525	600	736	797	
KPH150	150	15.3	18.8	29.7	48.6	71.9	94.2	137	245	300	330	374	441	657	750	921	996	
KPH200	200	20.6	25.1	39.6	64.8	95.8	126	182	326	400	440	498	588	876	1000	1228	1328	
KPH250	250	25.8	31.3	49.5	81.0	120	157	228	408	500	550	623	735	1095	1250	1535	1660	
KPH300	300	30.9	37.5	59.4	97.2	144	188	273	489	600	660	747	882	1314	1550	1842	1992	
KPH350	350	36.1	43.8	69.3	115	170	220	319	571	700	770	872	1030	1535	1750	2149	2324	
KPH400	400	41.2	50.2	79.4	132	194	256	369	659	808	887	1004	1188	1388	1610	1972	2094	
KPH500	500	51.4	62.5	99.6	168	246	320	461	822	1010	1112	1263	1482	2210	2516	3088	3336	

Available amperes at 20 °C

Discharge current is for fully charged cells

Final voltage: 1.00 V/cell

Cell Type	C <sub>5</sub> Ah	Hours							Minutes					Seconds			
		10	8	5	3	2	1.5	1	30	20	15	10	5	1	30	5	1
KPH10	10	1.03	1.26	2.00	3.27	4.84	6.37	9.33	16.4	22.3	25.6	29.4	35.2	50.4	58.1	73.1	80.3
KPH20	20	2.06	2.52	4.00	6.54	9.68	12.6	18.6	32.8	44.6	51.2	58.8	70.4	100	116	146	171
KPH30	30	3.09	3.78	6.00	9.90	14.6	19.3	28.2	51.3	69.6	78.7	90.0	109	155	178	223	245
KPH40	40	4.12	5.05	8.00	13.2	19.5	25.7	37.6	68.4	92.8	105	120	145	206	237	297	326
KPH50	50	5.15	6.31	10.0	16.4	24.4	32.1	47.0	85.5	116	132	150	181	258	296	372	408
KPH60	60	6.18	7.58	12.0	19.7	29.3	38.5	56.4	103	139	158	180	217	309	355	446	489
KPH70	70	7.21	8.84	14.0	23.0	34.2	44.9	65.8	120	162	185	210	253	361	414	520	571
KPH80	80	8.24	10.1	16.0	26.3	39.0	51.3	75.2	137	186	211	240	290	412	473	595	652
KPH100	100	10.3	12.6	20.0	32.9	48.8	64.2	94.0	171	232	264	300	362	515	592	743	816
KPH120	120	12.4	15.2	24.0	39.5	58.6	77.0	113	205	278	316	360	435	618	710	892	979
KPH150	150	15.5	18.9	30.0	49.4	73.2	96.3	141	257	348	396	450	543	773	888	1115	1224
KPH200	200	20.6	25.2	40.0	65.8	97.6	128	188	342	464	528	600	724	1030	1184	1436	1632
KPH250	250	25.8	31.5	50.0	82.3	122	161	235	428	580	660	750	905	1288	1480	1858	2040
KPH300	300	30.9	37.8	60.0	98.7	146	193	282	513	696	792	900	1086	1545	1776	2229	2448
KPH350	350	36.1	44.1	70.0	115	171	225	329	599	812	924	1050	1267	1803	2072	2600	2856
KPH400	400	41.3	50.5	80.0	132	195	257	376	684	928	1056	1200	1448	2060	2368	2972	3264
KPH500	500	51.7	63.2	101	166	246	324	474	859	1166	1326	1510	1820	2592	2974	3734	4096

Final voltage: 0.85 V/cell

Cell Type	C <sub>5</sub> Ah	Minutes		Seconds					
		5	3	90	60	30	10	5	1
KPH10	10	57.0	72.0	89.0	97.0	109	118	125	136
KPH20	20	124	159	190	207	225	246	257	281
KPH30	30	194	236	286	310	334	369	387	421
KPH40	40	246	309	350	378	413	446	467	522
KPH50	50	271	343	384	415	455	490	512	573
KPH60	60	345	401	470	498	550	595	624	680
KPH70	70	473	524	607	668	712	767	788	866
KPH80	80	540	599	694	763	814	877	900	990
KPH100	100	595	676	778	831	920	979	1025	1110
KPH120	120	646	753	857	887	1033	1083	1161	1248
KPH150	150	907	1008	1161	1237	1369	1441	1485	1664
KPH200	200	1129	1260	1417	1501	1643	1766	1842	2040
KPH250	250	1383	1544	1727	1845	2009	2162	2245	2478
KPH300	300	1660	1853	2072	2214	2411	2594	2694	2974
KPH350	350	1826	2038	2279	2435	2652	2853	2963	3271
KPH400	400	2008	2242	2507	2679	2917	3139	3260	3599
KPH500	500	2209	2466	2758	2947	3209	3453	3586	3958

Final voltage: 0.65 V/cell

Cell Type	C <sub>5</sub> Ah	Minutes		Seconds					
		5	3	90	60	30	10	5	1
KPH10	10	64.0	93.0	121	133	147	159	165	179
KPH20	20	120	200	250	273	295	321	335	361
KPH30	30	239	317	384	415	446	489	511	554
KPH40	40	284	407	485	518	561	600	632	688
KPH50	50	311	454	532	570	617	655	694	755
KPH60	60	405	520	632	670	734	793	820	876
KPH70	70	526	714	824	908	949	1031	1056	1141
KPH80	80	602	814	945	1042	1086	1179	1210	1308
KPH100	100	665	887	1049	1127	1258	1324	1380	1495
KPH120	120	730	954	1159	1201	1476	1498	1548	1688
KPH150	150	1030	1369	1597	1693	1867	1955	2011	2190
KPH200	200	1402	1718	1946	2059	2257	2398	2493	2701
KPH250	250	1673	2114	2373	2526	2749	2938	3032	3290
KPH300	300	2008	2537	2848	3031	3299	3526	3638	3948
KPH350	350	2209	2790	3133	3334	3629	3879	4002	4343
KPH400	400	2430	3069	3446	3667	3992	4267	4402	4777
KPH500	500	2673	3376	3790	4034	4391	4694	4842	5255



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