

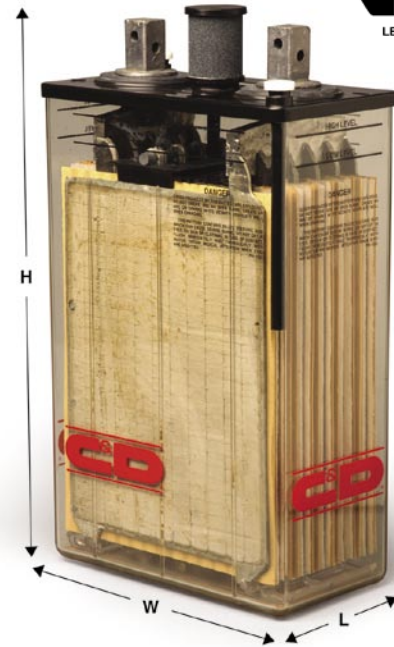


KCR LEAD-CALCIUM KAR LEAD-ANTIMONY

FOR SWITCHGEAR AND CONTROL APPLICATIONS

Capacities from 200 to 825 Ampere-hours

C&D Technologies' flooded batteries are engineered to provide superior performance and reliability over the life of the product. These batteries are designed using proprietary techniques and quality components and materials for reduced maintenance and extended battery life.



APPLICATIONS

- **Electric Power Generation Facilities**
- **Electric Utility Substations**
- **Emergency Systems**
- **Manufacturing Facilities**
 - **Assembly Lines**
 - **Process Controls**
- **Petrochemical processing plants**
- **Pipelines**

FEATURES & BENEFITS

- Electrical testing to 100% capacity on every cell prior to shipping assures performance of every battery upon delivery.
- Proprietary vacuum-assisted, bottom-pour, positive-grid casting assures void-free grid quality resulting in long service life.
- Waterbath charging results in consistently formed plates for reliable performance out of the box (no cycling required in the field).
- Suspended positive plates permit free growth without pressure on jar and cover.
- 20 year environmental and seismic qualification (calcium).

SAFE OPERATION

- Flame-retardant covers enhance battery plant safety with self-extinguishing properties, LOI>32%, UL 94V-0.
- Low-evaporation, flame-arrester vent to extend watering intervals and prevent external sparks from reacting with the hydrogen inside the cell.

COST SAVINGS

- Transparent container allows visual inspection of plates.
- Soft rubber post seal minimizes stress on post reducing maintenance requirements.
- Computer controlled heli-arc welded post seals result in consistent and reliable seals for less maintenance and longer product life.

SPECIFICATIONS

Plates	Height	Width	Thickness
Positive	11.38 in (289 mm)	8.75 in (222 mm)	0.312 in (7.90 mm)
Negative	11.38 in (289 mm)	8.75 in (222 mm)	0.210 in (5.30 mm)
Outside Negative	11.38 in (289 mm)	8.75 in (222 mm)	0.130 in (3.30 mm)
Electrolyte height above plates	2.06 in (52 mm)		
Sediment space	0.75 in (19.1 mm)		
Electrolyte @ 77°F (25°C)	Sulfuric acid, 1.215 specific gravity nominal		
Recommended Float voltages (average string voltage)	2.21 - 2.22 volts per cell (calcium); 2.15-2.18 volts per cell (antimony)		
Container - standard	Thermoplastic, transparent, (SAN)		
Cover - standard	High-impact, flame-retardant thermoplastic with tongue-and-groove seal. Flammability ratings: UL 94-V0; ASTM D-635 self-extinguishing		
Separator	Microporous with fibrous glass mat		
Safety Vent Systems	Flame-arrester type with dust cover		
Terminals			
KCR/KAR (5 through 13 plates)	Two, 1-in (25 mm) square posts with 2 cross-bolt holes		
KCR/KAR (15 through 21 plates)	Two, 1-in (25 mm) square copper-inserted posts with single-bolt hole		
Withdrawal tubes	Two per cell		
* Optional container	Transparent, flame-retardant polycarbonate. Flammability ratings: UL 94-HB; ASTM D-635 self-extinguishing		

Type of cell		Overall dimensions			Approx. wt. lbs (kgs)		Electrolyte per cell
Calcium	Antimony	L in (mm)	W in (mm)	H in (mm)*	Net filled	Dom. packed	lbs (kgs)
KCR-5	N/A	3.62 (91.9)	10.44 (265)	18.25 (464)	45 (20.4)	51 (23.1)	12 (5.4)
KCR-7	KAR-7	3.62 (91.9)			56 (25.4)	61 (27.7)	15 (6.8)
KCR-9	KAR-9	4.62 (117)			73 (33.1)	80 (36.3)	20 (9.1)
KCR-11	KAR-11	4.62 (117)			82 (37.2)	89 (40.4)	19 (8.6)
KCR-13	KAR-13	5.59 (142)			97 (44.0)	105 (47.6)	23 (10.4)
KCR-15	KAR-15	6.59 (167)			114 (51.7)	124 (56.2)	28 (12.7)
KCR-17	KAR-17	8.53 (217)			134 (60.8)	145 (65.8)	39 (17.7)
KCR-19	KAR-19	8.53 (217)			143 (64.9)	155 (70.3)	38 (17.2)
KCR-21	KAR-21	8.53 (217)			152 (68.9)	165 (74.8)	36 (16.3)

Note: Electrolyte weighs approximately 10 lbs per gallon (1.210 kgs per liter).
*H (Height) dimension is to the top of the flame arresting vent (highest point on the cell).

For information on battery racks, please refer to brochure 12-560.

WHAT DOES THE C&D'S BATTERY SELECTION APPLICATION DO?

WWW.CDSTANDBYPOWER.NET

The C&D's Battery Selection Application allows users to quickly calculate many values essential for the proper selection of standby battery product via an online application. This allows users to access all the information they need to size and select the proper battery without having to download and install software.

This includes the ability to:

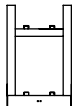
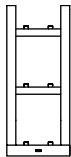

- Select batteries based on complex step loads and generate IEEE-485 Sizing Work Sheets.
- Select batteries based on constant current loads.
- Select batteries based on constant power loads.
- View and customize rating tables.
- Do battery run time analysis.
- Calculate the hydrogen evolution rate.

RATINGS TABLE: AMPERES

Final Volts	Models	Nominal AH Rating	*Nominal Rates @ 77°F (25°C) in 1.215 Nominal SG (includes connector voltage drop).							
			Amperes							
			8 hr	4 hr	3 hr	1.5 hr	1 hr	30 min	15 min	1 min
1.75	KCR/KAR-5	200	25	41	50	77	94	128	165	243
	KCR/KAR-7	250	31	53	65	101	126	173	221	309
	KCR/KAR-9	330	41	71	87	135	168	231	294	412
	KCR/KAR-11	410	52	88	108	166	206	284	364	508
	KCR/KAR-13	495	61	106	131	204	254	351	450	655
	KCR/KAR-15	577	72	124	152	237	297	411	532	797
	KCR/KAR-17	660	82	142	174	272	340	470	604	871
	KCR/KAR-19	742	92	159	195	303	378	520	664	949
	KCR/KAR-21	825	103	176	215	332	413	567	728	1028
1.78	KCR/KAR-5	194	24	41	49	74	91	122	154	213
	KCR/KAR-7	239	30	51	62	95	117	158	198	264
	KCR/KAR-9	319	40	68	83	126	156	211	264	353
	KCR/KAR-11	401	50	84	102	155	191	260	327	435
	KCR/KAR-13	478	60	102	124	191	236	320	404	560
	KCR/KAR-15	558	70	119	145	222	275	375	477	682
	KCR/KAR-17	637	80	136	166	254	315	429	542	745
	KCR/KAR-19	718	90	152	186	283	350	474	596	812
KCR/KAR-21	802	100	169	205	310	382	518	653	881	
1.81	KCR/KAR-5	190	24	39	48	71	86	114	140	183
	KCR/KAR-7	231	29	49	59	88	108	143	175	221
	KCR/KAR-9	310	39	65	78	117	144	191	233	294
	KCR/KAR-11	390	49	80	97	145	177	235	289	364
	KCR/KAR-13	464	58	97	118	178	218	290	357	467
	KCR/KAR-15	541	68	114	138	207	254	339	422	569
	KCR/KAR-17	618	77	130	157	237	291	388	479	621
	KCR/KAR-19	698	87	146	176	264	323	429	527	677
KCR/KAR-21	778	97	161	194	289	353	469	577	736	

*Data based on discharge directly from a 72-hour float condition per IEEE-450 procedures.

Additional ratings and application information is available in the battery selection program at www.cdstandbypower.net

Battery			Racks					
Lead-Calcium	Lead-Antimony	# of cells per string	Two tier rack 		Three tier rack 		Two step rack 	
			Rack qty	Rack P/N*	Rack qty	Rack P/N*	Rack qty	Rack P/N*
KCR-5	N/A	58	1	RDB0801-10P	1	RDB0802-07P	1	RDB0803-10P
KCR-7	KAR-7	58	1	RDB0801-10P	1	RDB0802-07P	1	RDB0803-10P
KCR-9	KAR-9	58	1	RDB0801-13P	1	RDB0802-09P	1	RDB0803-13P
KCR-11	KAR-11	58	1	RDB0801-13P	1	RDB0802-09P	1	RDB0803-13P
KCR-13	KAR-13	58	1	RDB0801-15P	1	RDB0802-11P	1	RDB0803-15P
KCR-15	KAR-15	58	2	RDB0801-09P	1	RDB0802-12P	2	RDB0803-09P
KCR-17	KAR-17	58	2	RDB0801-12P	1	RDB0802-16P	2	RDB0803-12P
KCR-19	KAR-19	58	2	RDB0801-12P	1	RDB0802-16P	2	RDB0803-12P
KCR-21	KAR-21	58	2	RDB0801-12P	1	RDB0802-16P	2	RDB0803-12P
KCR-5	N/A	60	1	RDB0801-11P	1	RDB0802-07P	1	RDB0803-11P
KCR-7	KAR-7	60	1	RDB0801-11P	1	RDB0802-07P	1	RDB0803-11P
KCR-9	KAR-9	60	1	RDB0801-13P	1	RDB0802-09P	1	RDB0803-13P
KCR-11	KAR-11	60	1	RDB0801-13P	1	RDB0802-09P	1	RDB0803-13P
KCR-13	KAR-13	60	1	RDB0801-16P	1	RDB0802-11P	1	RDB0803-16P
KCR-15	KAR-15	60	2	RDB0801-09P	1	RDB0802-12P	2	RDB0803-09P
KCR-17	KAR-17	60	2	RDB0801-12P	1	RDB0802-16P	2	RDB0803-12P
KCR-19	KAR-19	60	2	RDB0801-12P	1	RDB0802-16P	2	RDB0803-12P
KCR-21	KAR-21	60	2	RDB0801-12P	1	RDB0802-16P	2	RDB0803-12P

* For Seismic racks, add EP1 and EP2 to the rack part number - example RDB0801-10EP1P.
* IEEE-693-2005 qualified racks are available for 2 tier and 2 step racks. Contact C&D Product Management.

A CENTURY OF EXPERIENCE YOU CAN TRUST

From our inception over 100 years ago, C&D Technologies has been a pioneer in the development of energy storage and power conversion systems that enable telecommunications, data transmission, computer system infrastructure and utilities to maintain critical operations during power outages. C&D supplies batteries and power plants to the leading telecommunications companies, from the smallest outside plant and wireless sites to the largest major central office switch facilities preventing loss of traffic and associated revenue. Our batteries and chargers are used in electrical power generation plants and substations for major electric utility companies, preventing damage to expensive infrastructure equipment. C&D batteries are used in large data centers, network operations centers, financial institutions and many other sites that depend on uninterruptible power supplies to maintain power to their critical equipment. To this day, C&D continues to be the industry leader providing the highest quality products, including reliable long lasting batteries for most industrial and commercial standby power applications. Our web site www.cdtechno.com provides product data and contact information for our local representatives and branches, located in over 40 countries. Our continued success is due to many factors including our products, our employees and our sales partners. But mostly, C&D's success is due to the loyalty of our customers, for which we are thankful.

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