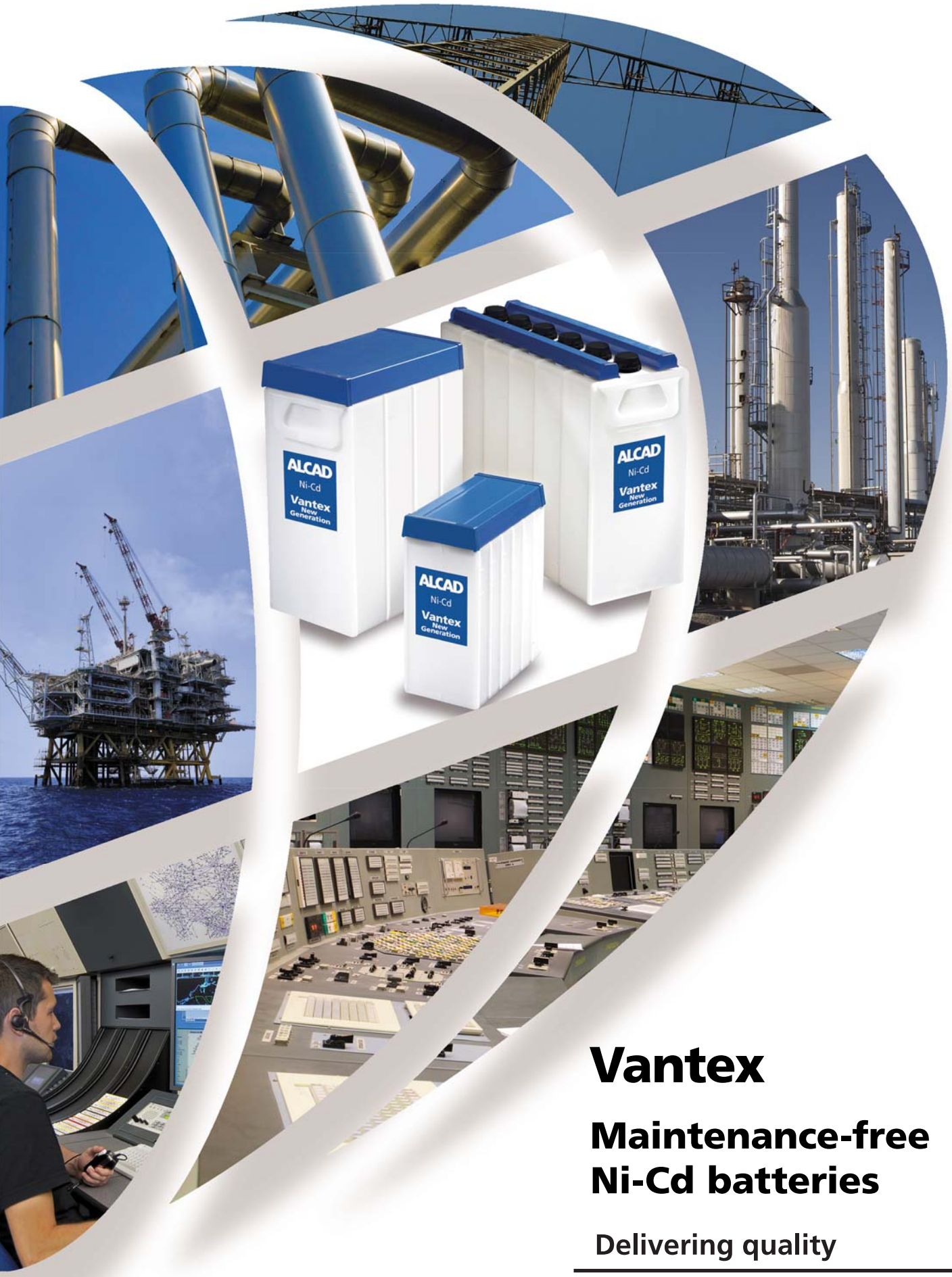
VTX 2.2 S
June 2012



Vantex

Maintenance-free Ni-Cd batteries

Delivering quality

ALCAD

Vantex New Generation

Your first choice for peace of mind

Alcad – providing you with reliable batteries for stationary applications

Since the start of the 20th Century we've been working alongside our clients – companies at the forefront of their industries - to provide well-established Ni-Cd battery solutions.

Our world-class batteries offer optimum security and availability for stationary applications including power backup, engine starting and bulk energy storage.

The Alcad ethos is to strive to be the best at what we do. Our R&D teams respond pro-actively to evolving technologies and streamline our manufacturing processes, assuring customers benefit from the highest quality products.

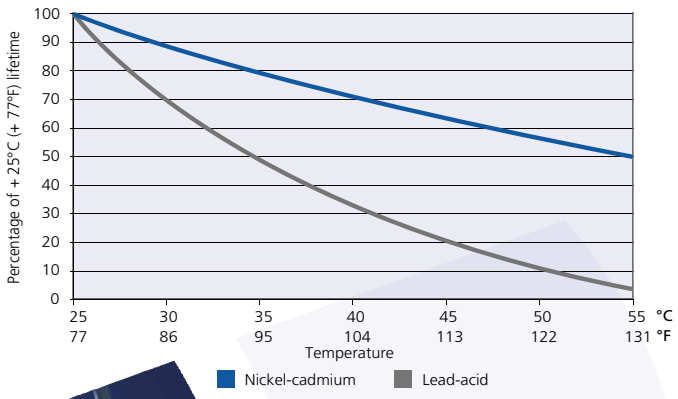
Alcad's fully integrated, worldwide service gives professional support and guidance right from your project's inception, through to supply of the batteries, installation, professional training and end of life recycling.

Vantex New Generation gives you complete peace of mind and long life – including operation at high temperatures

Alcad's proven Ni-Cd technology has set the standard in industry for battery performance in challenging environments. Our batteries are renowned for their high performance and reliability, with clients assured of long battery life with no risk of sudden death failure.

Vantex New Generation improves on this impressive track-record by providing a service life of over 20 years at + 25°C [+ 77°C]. Even at temperatures up to + 35°C [+ 95°F], battery life drops by only 20%, as opposed to a 50% fall for a lead-acid battery.

Effect of temperature on lifetime



Vantex New Generation

Advanced technology for challenging industrial applications

Vantex New Generation: The maintenance-free(*) solution for stationary applications

Alcad's most recent innovations have brought improved dependability to the world of industrial batteries. The latest Ni-Cd pocket plate technology offers maintenance-free(*) operation, making Vantex New Generation the ideal backup power supply.

Important features include its low pressure flame-arresting vent, enhanced electrical performance and improved chargeability. Vantex New Generation batteries deliver exceptional performance for optimal TCO (Total Cost of Ownership).

Vantex New Generation: Essential support for vital systems

When you need a power backup system you can trust, you need Vantex New Generation.

Our batteries are the essential component in power backup systems across the following industries:

- Oil and gas exploration
- Utilities
- Manufacturing and production

Losing mains power is not a problem for systems with Vantex backup. Our batteries provide a crucial power supply to deliver continuity of mission-critical loads, expedite safe shutdown processes, bridge to standby power and safeguard computer data.

Our batteries are frequently used as power backup for:

- UPS
- Substation switchgear
- Process control systems
- Emergency lighting
- Fire alarms
- Security systems

*(*) The term **maintenance-free** means that no addition of water is necessary during the lifetime of the product, when following Alcad's recommended operating conditions.*

Vantex

Vantex New Generation

Providing optimum, maintenance-free(*) performance

Maintenance-free(*) design keeps running costs down

Vantex's new state-of-the-art design concept gives our customers maintenance-free(*) batteries.

- No need to add water throughout the service life of the battery (following Alcad's recommended operating conditions – from - 20°C (- 4°F) to + 40°C (+ 104°F), at 1.43 V/cell with temperature compensation).
- Minimal servicing is required with only preventative maintenance needed.
- Water use and gas emissions are reduced due to the high level of gas recombination of more than 90% – far beyond the requirements of IEC 62259.
- Vantex is supplied with a new type of low pressure flame-arresting vent – one that works as a valve regulated vent.

Increased efficiency optimizes battery life cost

Vantex New Generation has had a performance upgrade that puts it well ahead of the original Vantex. Installers can now select a specific battery that fits individual operational requirements, reducing primary purchase costs.

- Our latest design has enhanced electrical performance by up to 10% under relevant discharge times, enabling a smaller capacity battery.
- Bringing batteries into service is a straightforward procedure. Even after six months of storage, the battery commissioning is easy and simple. It can be performed with any commercial charger.

Fast battery charging reduces downtime

- Quick and simple charging, inside a narrow voltage window, leads to good availability with minimal downtime.
- Single or two-level charging regimes are available:
  - Single level charge
    - 1.43 ± 0.01 V/cell
  - Two level charge
    - Float level: 1.43 ± 0.01 V/cell
    - High level: 1.45 ± 0.01 V/cell
- 95% capacity is available, even at + 40°C (+ 104°F), after a constant voltage charge at 1.43 V/cell for 15 hours with an available charge current of 0.1 C_5A.

*(*) The term **maintenance-free** means that no addition of water is necessary during the lifetime of the product, when following Alcad's recommended operating conditions.*

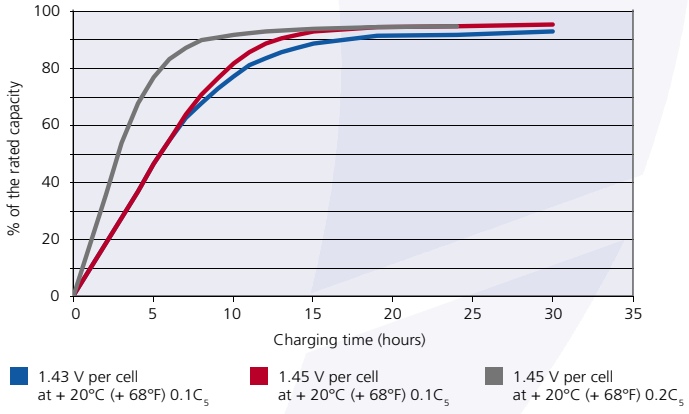
A battery you can trust in the most challenging operating conditions

When safety is of paramount importance, Vantex New Generation batteries offer complete reliability, any time, anywhere.

- Our unique Ni-Cd electrochemistry works in conjunction with the tried and tested Alcad pocket plate design to give you absolute peace of mind.
- Vantex batteries are an enduring option with a lifetime service of over 20 years at + 25°C (+ 77°F).
- Strong build quality cuts out the risk of sudden death failure.
- Vantex provides exceptional performance combined with a long service life in temperatures up to + 40°C (+ 104°F), and tolerates - 40°C (- 40°F) to + 70°C (+ 158°F) for short durations.

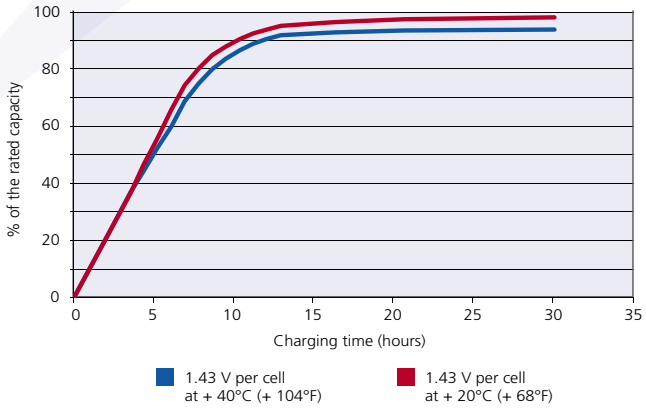
Vantex New Generation VTX1 L
L type cell
Range of 34 cells
15 – 1700 Ah
For low rate discharges over long periods between 1 and 100 hours

Available capacity after constant voltage charge
Available charge current 0.1 C_5A or 0.2 C_5A for L type cell



Vantex New Generation VTX1 M
M type cell
Range of 38 cells
8 – 1330 Ah
For varied loads with low and high discharge rates, between 30 minutes and 3 hours

Available capacity after constant voltage charge
Available charge current 0.1C_5A for M type cell



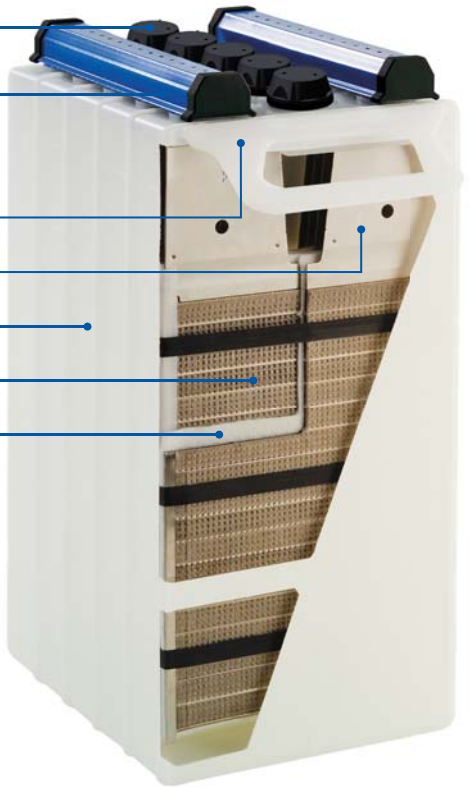
Vantex New Generation

A simple approach: our modular system allows versatile block configurations

Our straightforward design promotes smooth handling, fitting and operation.

- All batteries arrive filled with electrolyte and ready charged.
- The batteries have a long storage period of up to two years in normal conditions, and can be stored at elevated temperatures in certain circumstances.
- Up to ten cells can be configured into single integrated blocks connected in series.
- Adaptable block configuration allows for quick and simple installation.

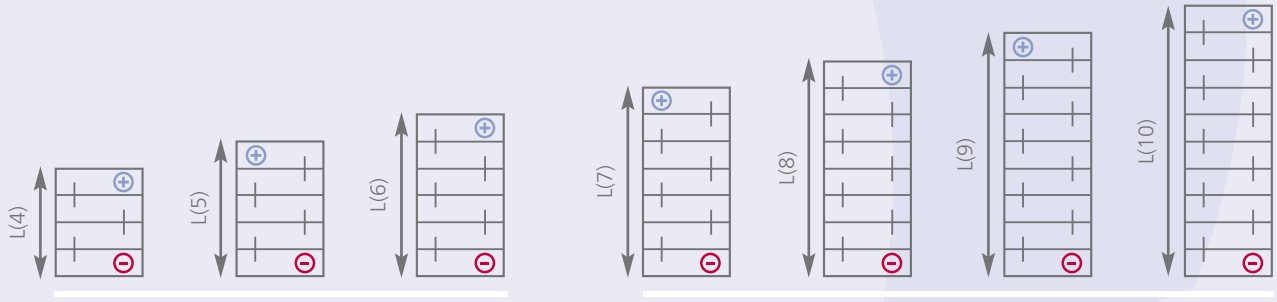
Vantex New Generation construction features



Cells are welded together into a block, up to a maximum of ten cells, subject to cell size and type

Adaptable block configurations

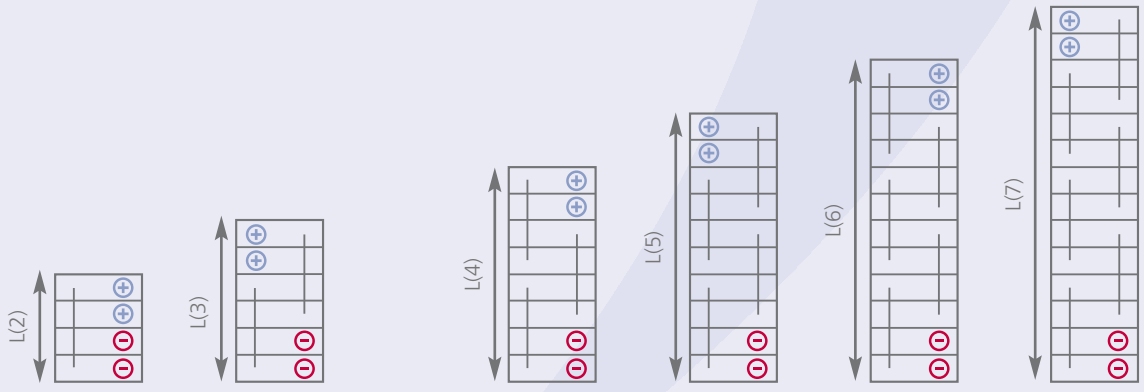
With single pole bolts



VTX1 L 15-62, VTX1 L 95, VTX1 L 140-280
VTX1 M 8-48, VTX1 M 75-220

VTX1 L 15-62
VTX1 M 8-48

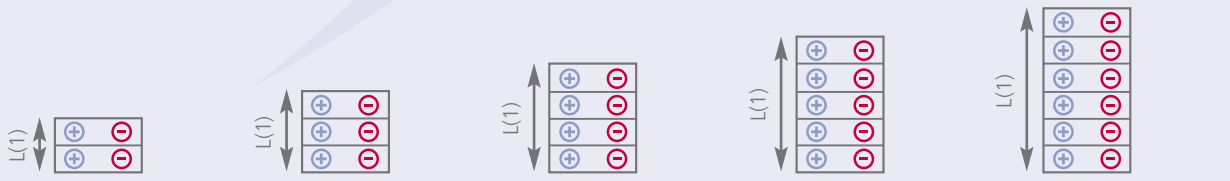
With double pole bolts



VTX1 L 325-370
VTX1 M 245-445

VTX1 L 75, VTX1 L 110
VTX1 M 65

With 2-6 bolts per pole, crosswise mounted on racks



VTX1 L 515-560

VTX1 L 610-840
VTX1 M 490-640

VTX1 L 890-1120
VTX1 M 690-885

VTX1 L 1220-1400
VTX1 M 935-1030

VTX1 L 1500-1700
VTX1 M 1130-1330

Vantex New Generation

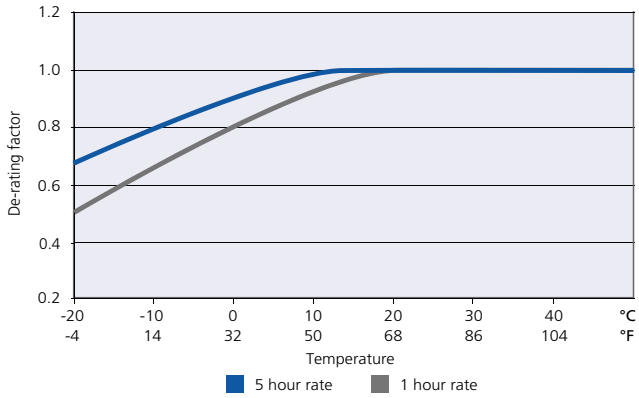
The practical choice – straightforward usage and installation

Batteries with a wide range of specifications

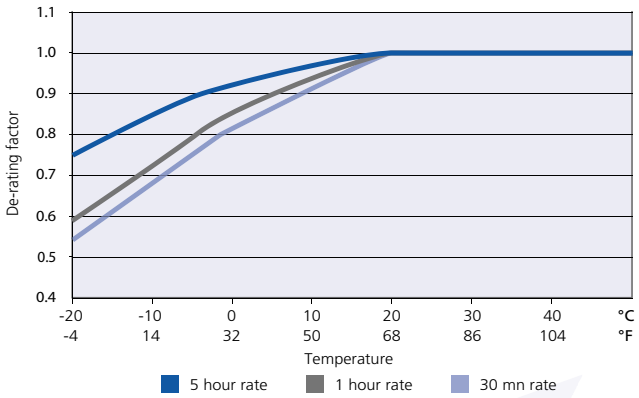
The capacity of Vantex New Generation batteries extends from 8 – 1700 Ah in a choice of two ranges:

- VTX1 L energy range, optimized for long discharge periods with a relatively low current
- VTX1 M medium power range, especially designed for mixed loads with varying current

Temperature de-rating factors for L type cell



Temperature de-rating factors for M type cell



The Vantex New Generation battery design meets the highest international quality, safety and environmental standards

Electrical specifications:

- Certified IEC 62259 – Secondary cells and batteries containing alkaline or other non-acid electrolytes – Nickel-cadmium prismatic secondary single cells with partial gas recombination. Vantex exceeds gas recombination requirements.

Safety:

- Complies with EN 50272-2 / IEC 62485-2 – Safety requirements for secondary batteries and battery installations – Part 2: Stationary batteries – The protective covers for terminals and connectors, the insulated cables are compliant with IP2 level protection against electrical shocks according to safety standard.

Quality:

- ISO 9001 and ISO 14001
- Alcad world class continuous programme

Environment & Recycling:

- Fully recyclable
- RoHS – Despite batteries and accumulators not being within the remit of the RoHS directive, Alcad has taken voluntary steps to ensure that the substances forbidden by RoHS are not present in the battery, except in the electro-chemical core.
- REACH – Alcad has agreed internal procedures to conform to the European REACH (Registration, Evaluation, Authorisation and Restriction of Chemical Substances) Regulation.

Tailored support for all our customers from start to finish

Customers around the globe come to Alcad for the ideal battery solution for their individual requirements. Our experienced stationary battery experts work on everything from the initial design through to installation and commissioning. And our after-sales support assists with maintenance, diagnostic services and end of life recycling. Alcad also provides battery training seminars for relevant personnel as required.

As our customer base grows, we are continuing to expand our network of approved service stations in the Middle East, Asia and North America, to give the best possible service, worldwide.

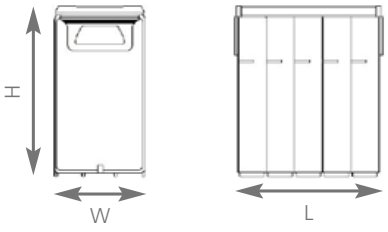
Vantex New Generation

Cell dimensions and internal resistance - L range

L type	Capacity	Height		Width		Length per block														Approx. weight per cell		Internal resistance (1)	Cell connection bolt per pole
						4 cells		5 cells		6 cells		7 cells		8 cells		9 cells		10 cells					
	C_5 Ah	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	mOhm	
VTX1 L 15	15	270	10.6	123	4.8	123	4.8	153	6.0	181	7.1	210	8.3	239	9.4	268	10.6	297	11.7	1.10	2.42	12.1	M6
VTX1 L 30	30	270	10.6	123	4.8	143	5.62	177	6.96	211	8.30	245	9.65	279	11.0	313	12.3	347	13.7	1.80	3.96	6.03	M6
VTX1 L 47	47	270	10.6	123	4.8	191	7.51	237	9.33	283	11.1	329	13.0	375	14.8	421	16.6	467	18.4	2.50	5.51	3.85	M6
VTX1 L 62	62	270	10.6	123	4.8	239	9.40	297	11.6	355	13.9	413	16.3	471	18.5	529	20.8	587	23.1	3.20	7.05	2.92	M6
VTX1 L 75	75	270	10.6	123	4.8	329	12.9	409	16.1	490	19.2	571	22.5	-	-	-	-	-	-	4.30	9.47	2.41	2xM6
VTX1 L 95	95	421	16.6	195	7.7	156	6.14	192	7.55	228	8.97	-	-	-	-	-	-	-	-	4.90	10.8	2.55	M8
VTX1 L 110	110	270	10.6	123	4.8	425	16.7	529	20.8	634	24.9	739	29.1	-	-	-	-	-	-	5.70	12.5	1.65	2xM6
VTX1 L 140	140	421	16.6	195	7.7	204	8.03	252	9.92	300	11.8	-	-	-	-	-	-	-	-	6.70	14.7	1.73	M10
VTX1 L 185	185	421	16.6	195	7.7	252	9.92	312	12.2	372	14.6	-	-	-	-	-	-	-	-	8.40	18.5	1.31	M10
VTX1 L 235	235	421	16.6	195	7.7	304	11.9	377	14.8	450	17.7	-	-	-	-	-	-	-	-	9.90	21.8	1.03	M10
VTX1 L 280	280	421	16.6	195	7.7	352	13.8	437	17.2	522	20.5	-	-	-	-	-	-	-	-	11.5	25.3	0.86	M10

L type	Capacity	Height		Width		Length per block						Approx. weight per cell		Internal resistance (1)	Cell connection bolt per pole
						1 cell		2 cells		3 cells					
	C_5 Ah	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	mOhm	
VTX1 L 325	325	421	16.6	195	7.7	-	-	228	8.97	336	13.2	15.1	33.2	0.74	2xM10
VTX1 L 375	375	421	16.6	195	7.7	-	-	252	9.92	372	14.6	16.8	37.0	0.65	2xM10
VTX1 L 420	420	421	16.6	195	7.7	-	-	278	10.9	411	16.1	18.3	40.3	0.58	2xM10
VTX1 L 470	470	421	16.6	195	7.7	-	-	304	11.9	450	17.7	19.8	43.6	0.51	2xM10
VTX1 L 515	515	405	15.9	195	7.7	171	6.73	-	-	-	-	21.4	47.1	0.47	2xM10
VTX1 L 560	560	405	15.9	195	7.7	183	7.20	-	-	-	-	23.0	50.7	0.43	2xM10
VTX1 L 610	610	405	15.9	195	7.7	207	8.14	-	-	-	-	26.5	58.4	0.40	3xM10
VTX1 L 650	650	405	15.9	195	7.7	219	8.62	-	-	-	-	28.2	62.1	0.37	3xM10
VTX1 L 700	700	405	15.9	195	7.7	232	9.13	-	-	-	-	29.7	65.4	0.35	3xM10
VTX1 L 750	750	405	15.9	195	7.7	243	9.56	-	-	-	-	31.4	69.2	0.32	3xM10
VTX1 L 800	800	405	15.9	195	7.7	256	10.0	-	-	-	-	32.9	72.5	0.3	3xM10
VTX1 L 840	840	405	15.9	195	7.7	268	10.5	-	-	-	-	34.5	76.0	0.29	3xM10
VTX1 L 890	890	405	15.9	195	7.7	291	11.4	-	-	-	-	38.1	83.9	0.27	4xM10
VTX1 L 940	940	405	15.9	195	7.7	304	11.9	-	-	-	-	39.6	87.3	0.26	4xM10
VTX1 L 980	980	405	15.9	195	7.7	315	12.4	-	-	-	-	41.2	90.8	0.25	4xM10
VTX1 L 1030	1030	405	15.9	195	7.7	327	12.8	-	-	-	-	42.9	94.5	0.23	4xM10
VTX1 L 1120	1120	405	15.9	195	7.7	352	13.8	-	-	-	-	46.0	101.4	0.22	4xM10
VTX1 L 1220	1220	405	15.9	195	7.7	387	15.2	-	-	-	-	51.3	113.0	0.20	5xM10
VTX1 L 1300	1300	405	15.9	195	7.7	412	16.2	-	-	-	-	54.4	119.9	0.19	5xM10
VTX1 L 1400	1400	405	15.9	195	7.7	437	17.2	-	-	-	-	57.5	126.7	0.17	5xM10
VTX1 L 1500	1500	405	15.9	195	7.7	472	18.5	-	-	-	-	62.8	138.4	0.16	6xM10
VTX1 L 1600	1600	405	15.9	195	7.7	497	19.5	-	-	-	-	65.9	145.2	0.15	6xM10
VTX1 L 1700	1700	405	15.9	195	7.7	522	20.5	-	-	-	-	69.0	152.1	0.14	6xM10

(1) Rigid connector included



The block length and weight are determined by the number of cells in the block. All tabulated dimensions are maximum values.

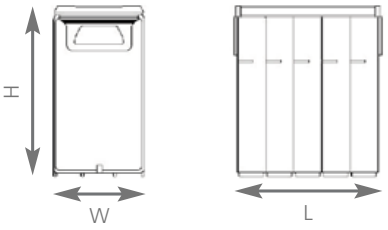
Vantex New Generation

Cell dimensions and internal resistance - M range

M type	Capacity	Height		Width		Length per block														Approx. weight per cell		Internal resistance (1)	Cell connection bolt per pole
						4 cells		5 cells		6 cells		7 cells		8 cells		9 cells		10 cells					
	C_5 Ah	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	mOhm	
VTX1M 8	8	270	10.6	123	4.8	123	4.8	153	6.0	181	7.1	210	8.3	239	9.4	268	10.6	297	11.7	1.10	2.42	12.5	M6
VTX1M 16	16	270	10.6	123	4.8	123	4.84	152	5.96	181	7.12	210	8.27	239	9.41	268	10.6	297	11.7	1.50	3.30	6.25	M6
VTX1M 24	24	270	10.6	123	4.8	143	5.62	177	6.94	211	8.3	245	9.65	279	10.9	313	12.3	347	13.6	1.80	3.96	4.17	M6
VTX1M 32	32	270	10.6	123	4.8	191	7.51	237	9.31	283	11.1	329	13.0	375	14.8	421	16.6	467	18.4	2.50	5.51	3.13	M6
VTX1M 40	40	270	10.6	123	4.8	239	9.40	297	11.6	355	13.9	413	16.3	471	18.5	529	20.8	587	23.1	3.20	7.05	2.50	M6
VTX1M 48	48	270	10.6	123	4.8	239	9.40	297	11.6	355	13.9	413	16.3	471	18.5	529	20.8	587	23.1	3.30	7.27	2.08	M6
VTX1M 65	65	270	10.6	123	4.8	377	14.8	469	18.4	562	22.1	655	25.8	-	-	-	-	-	-	5.00	11.0	1.54	2xM6
VTX1M 75	75	421	16.6	195	7.7	156	6.14	192	7.55	228	8.97	-	-	-	-	-	-	-	-	4.90	10.8	1.52	M8
VTX1M 100	100	421	16.6	195	7.7	186	7.32	230	9.03	273	10.7	-	-	-	-	-	-	-	-	6.30	13.8	1.14	M10
VTX1M 125	125	421	16.6	195	7.7	228	8.97	282	11.1	336	13.2	-	-	-	-	-	-	-	-	7.60	16.7	0.91	M10
VTX1M 150	150	421	16.6	195	7.7	252	9.92	312	12.2	372	14.6	-	-	-	-	-	-	-	-	8.40	18.5	0.76	M10
VTX1M 170	170	421	16.6	195	7.7	304	11.9	377	14.8	450	17.7	-	-	-	-	-	-	-	-	9.90	21.8	0.67	M10
VTX1M 195	195	421	16.6	195	7.7	352	13.8	437	17.2	522	20.5	-	-	-	-	-	-	-	-	11.5	25.3	0.58	M10
VTX1M 220	220	421	16.6	195	7.7	352	13.8	437	17.2	522	20.5	-	-	-	-	-	-	-	-	12.0	26.4	0.52	M10

M type	Capacity	Height		Width		Length per block						Approx. weight per cell		Internal resistance (1)	Cell connection bolt per pole
						1 cell		2 cells		3 cells					
	C_5 Ah	mm	in	mm	in	mm	in	mm	in	mm	in	kg	lb	mOhm	
VTX1M 245	245	421	16.6	195	7.7	-	-	228	8.67	336	17.2	15.2	33.5	0.47	2xM10
VTX1M 270	270	421	16.6	195	7.7	-	-	240	9.44	354	13.9	16.0	35.2	0.42	2xM10
VTX1M 295	295	421	16.6	195	7.7	-	-	252	9.92	372	14.6	16.8	37.0	0.39	2xM10
VTX1M 320	320	421	16.6	195	7.7	-	-	278	10.9	411	16.1	18.3	40.3	0.36	2xM10
VTX1M 345	345	421	16.6	195	7.7	-	-	304	11.9	450	17.7	19.8	43.6	0.33	2xM10
VTX1M 370	370	421	16.6	195	7.7	-	-	328	12.9	486	19.1	21.4	47.1	0.31	2xM10
VTX1M 395	395	421	16.6	195	7.7	-	-	352	13.8	522	20.5	23.0	50.7	0.29	2xM10
VTX1M 420	420	421	16.6	195	7.7	-	-	352	13.8	522	20.5	23.5	51.8	0.27	2xM10
VTX1M 445	445	421	16.6	195	7.7	-	-	352	13.8	522	20.5	24.0	52.9	0.26	2xM10
VTX1M 490	490	405	15.9	195	7.7	219	8.62	-	-	-	-	28.2	62.1	0.23	3xM10
VTX1M 540	540	405	15.9	195	7.7	243	9.56	-	-	-	-	31.4	69.2	0.21	3xM10
VTX1M 590	590	405	15.9	195	7.7	268	10.5	-	-	-	-	34.5	76.0	0.19	3xM10
VTX1M 640	640	405	15.9	195	7.7	268	10.5	-	-	-	-	35.5	78.2	0.18	3xM10
VTX1M 690	690	405	15.9	195	7.7	304	11.9	-	-	-	-	39.6	87.3	0.17	4xM10
VTX1M 740	740	405	15.9	195	7.7	327	12.8	-	-	-	-	42.9	94.5	0.15	4xM10
VTX1M 785	785	405	15.9	195	7.7	352	13.8	-	-	-	-	46.0	101.4	0.15	4xM10
VTX1M 835	835	405	15.9	195	7.7	340	13.3	-	-	-	-	45.9	101.1	0.14	4xM10
VTX1M 885	885	405	15.9	195	7.7	352	13.8	-	-	-	-	48.0	105.8	0.13	4xM10
VTX1M 935	935	405	15.9	195	7.7	412	16.2	-	-	-	-	54.4	119.9	0.12	5xM10
VTX1M 985	985	405	15.9	195	7.7	437	17.2	-	-	-	-	57.5	126.7	0.12	5xM10
VTX1M 1030	1030	405	15.9	195	7.7	412	16.2	-	-	-	-	56.4	124.3	0.11	5xM10
VTX1M 1130	1130	405	15.9	195	7.7	497	19.5	-	-	-	-	65.9	145.2	0.10	6xM10
VTX1M 1230	1230	405	15.9	195	7.7	491	19.3	-	-	-	-	67.6	149.0	0.09	6xM10
VTX1M 1330	1330	405	15.9	195	7.7	522	20.5	-	-	-	-	72.0	158.7	0.09	6xM10

(1) Rigid connector included



The block length and weight are determined by the number of cells in the block. All tabulated dimensions are maximum values.

Alcad:
Preserving our planet for the future

Our environmental commitment:

- Using recycled materials ahead of raw materials
- Consistently cutting emissions from our production facilities
- Minimising water consumption
- Reducing fossil fuel usage and CO_2 production
- Making provision for battery recycling

Recycling:
Making a difference all over the world

We are committed to helping our customers find recycling solutions for depleted batteries. Alcad has long links with collection companies in most EU countries, in North America and all countries where the system can be implemented. Its collection network receives and dispatches customers' batteries at the end of their lives to fully approved recycling facilities, in compliance with the laws governing trans-boundary waste shipments.

Our network of collection companies conforms to the EU batteries directive. All of our collection locations are listed on our web site. In countries where we have thus far been unable to set up collection sites, we assist our customers in seeking out viable recycling options.

For more information, please get in touch with your Alcad sales representative.

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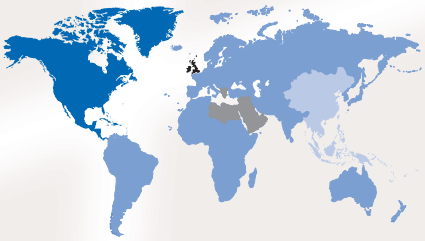
Alcad Sales Offices



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