

# Uptimax Ni-Cd Battery

Maintenance-free solution for backup power applications

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# Uptimax

## The ideal choice for total security and availability

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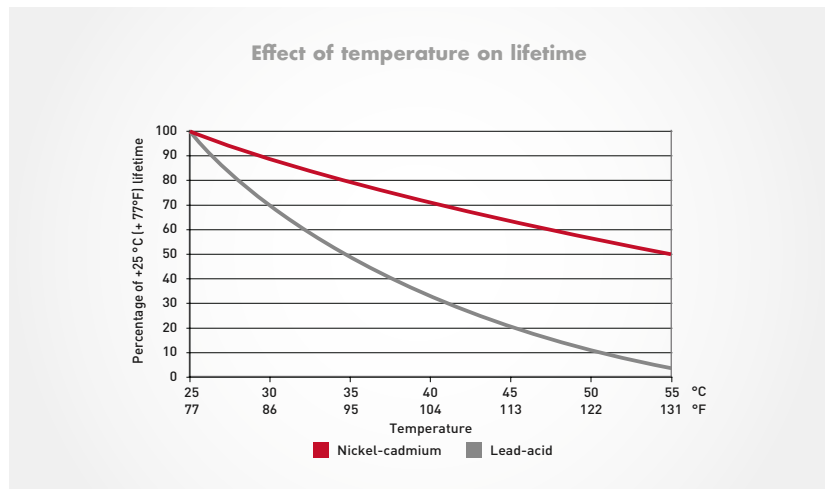
### Saft – your trusted battery partner for stationary applications

Saft has over 100 years of experience working in partnership with leading industrial customers to deliver well-proven Ni-Cd battery solutions optimized to ensure the total security and availability of stationary applications including power backup, engine starting and bulk energy storage. Our R&D and engineering philosophy is focused on continual improvement of every aspect of our technologies and industrial processes, ensuring that all Saft products and components are designed and manufactured to the very highest quality standards. Saft's comprehensive global service provides expert support throughout every stage of your battery's life from initial concept through volume supply, installation and training to end of life recycling.

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### Uptimax ensures total reliability and long life – even at high temperatures

Saft's robust Ni-Cd technology sets the benchmark for industrial batteries operating in difficult and demanding conditions. It has established a reputation for performance, reliability and a long, totally predictable, service life – with no risk of sudden death failure. Uptimax builds on this heritage by ensuring a 20-year plus service life at + 25°C (+ 77°F). Even at + 35°C (+ 95°F), its lifetime falls by just 20% compared with a 50% reduction for a lead-acid battery.



# Uptimax

## The 1<sup>st</sup> Ni-Cd battery for Plug & Play replacement of lead-acid

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### The perfect fit to replace lead-acid batteries:

The latest generation of Uptimax is the perfect fit to replace lead-acid batteries. Thanks to its 1.39 V/cell single level charge without the need for boost charge, Uptimax can be charged in all commonly used DC-systems with +/- 10% voltage window. This reduces the need for dropping diodes or DC/DC converters, and as a consequence it decreases the overall cost of DC-systems.

When a fast recharge is needed, 95% State-Of-Charge (SOC) in 8h can be reached at 1.45 V/cell for maximum availability after a power failure and minimum downtime.

### Uptimax: The maintenance-free<sup>(1)</sup> battery for stationary applications

Uptimax is Saft's latest development in Ni-Cd pocket plate battery technology. It combines maintenance-free<sup>(1)</sup> operation with total reliability to provide the ideal backup power solution for industrial installations.

Together with other key features such as its low pressure flame arresting vent, high electrical performance and chargeability, Uptimax delivers an optimized TCO (Total Cost of Ownership).

(1) Maintenance-free means that no addition of water is necessary during the life time of the product when operating under Saft's recommended conditions.

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# Uptimax

## Delivering high performance and maintenance-free operation

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### Maintenance-free<sup>(1)</sup> design reduces battery service costs

Uptimax is maintenance-free<sup>(1)</sup> thanks to a new high-tech design concept.

- Uptimax never needs water to be added throughout its entire service life (under Saft's recommended operating conditions - from - 20°C [- 4°F] to + 40°C [+ 104°F]).
- Maintenance is reduced to a minimum: only preventive maintenance is necessary.
- The high level of gas recombination is beyond the requirements of IEC 62259 (recombination level higher than 95%), and reduces water consumption and gas emissions.
- Uptimax is equipped with a low pressure flame arresting vent which operates as a valve regulated vent.

### High performance optimizes battery life cost

Uptimax offers high performance. This enables installers to specify a battery optimized for their specific application, saving on initial purchase costs.

- Uptimax design enables high battery electrical performance whatever discharge time is needed.
- Commissioning is simple and easy, even up to 6 months of storage it can still be carried out using any commercially available charger.

### Good chargeability minimizes battery downtime

Uptimax features fast and simple charging, within a narrow voltage window, for minimal downtime and maximum availability.

- Single or two-level charging regimes are possible:
  - Single level charge
    - 1.39 or 1.42 +/- 0.01 V/cell
  - Two level charge
    - Float level: 1.39 or 1.42 +/- 0.01 V/cell
    - High level: 1.45 ± 0.01 V/cell
- The fast recharge enables 95% SOC in 8h at 1.45 V/cell for maximum availability after a power failure, at + 20°C (+ 68°F), after a constant voltage charge at 1.39 V/cell for 15 hours with an available charge current of 0.1 C5A.

(1) The term maintenance-free means that no addition of water is necessary during the life time of the product when operating under Saft's recommended conditions.

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# Uptimax

## Developed for demanding industrial installations



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### Uptimax: Vital support for critical systems

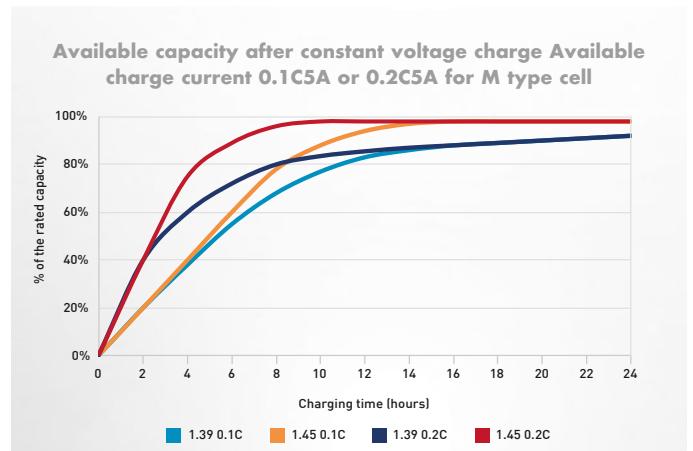
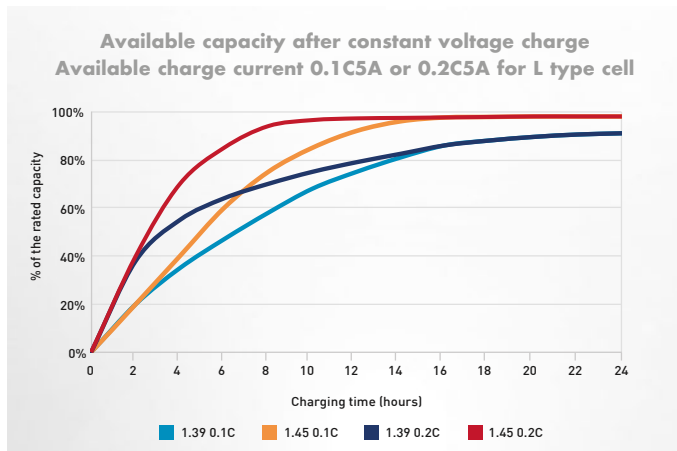
Uptimax batteries are at the heart of power backup systems throughout the oil & gas exploration and production, utility and manufacturing industries. If mains power is lost, Uptimax delivers the vital power to ensure the continuity of mission-critical loads, facilitate safe shutdown processes, bridge to standby power and safeguard computer data. Typical power backup applications include: UPS, substation, switchgear, process control systems, emergency lighting, fire alarms and security systems.

### Total reliability ensures the safe operation of your industrial equipment, in even the most demanding operating conditions

Uptimax provides complete peace of mind, whatever the application, whatever the location.

- Total reliability is based on a unique Ni-Cd electrochemistry/technology combined with the well proven Saft Nife® pocket plate design

- It enables a long service life of over 20 years at + 25°C (+ 77°F)
- Robust construction eliminates risk of sudden death failure
- Uptimax delivers long life and outstanding performance in temperatures up to + 40°C (+ 104°F) and tolerates - 40°C (- 40°F) to + 70°C (+ 158°F) for short durations.



# Uptimax

## Modular approach based on flexible block configurations

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### Facilitates ease of handling, installation and operation

Uptimax batteries make transportation, installation and operation fast and easy.

- Batteries are only delivered filled with electrolyte and in electrically charged condition.
- Storage for up to 2 years in normal conditions is possible.
- Design enables batteries to be assembled in blocks of up to 10 cells connected in series.
- Flexible block configuration makes the battery easy and fast to install.

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### Uptimax construction features

Low pressure vent

Terminal pillars protected by covers in line with EN 50272-2 / IEC 62485-2 (safety) with IP2 level

Plate group bus bar

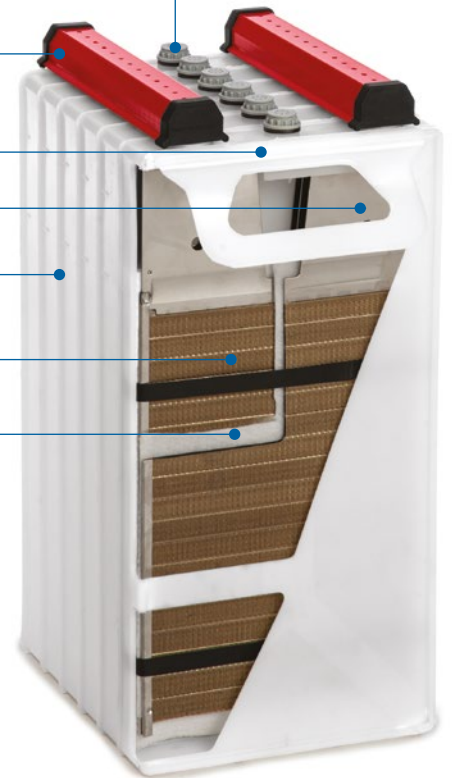
Plate tab

Polypropylene cell container

Pocket plate

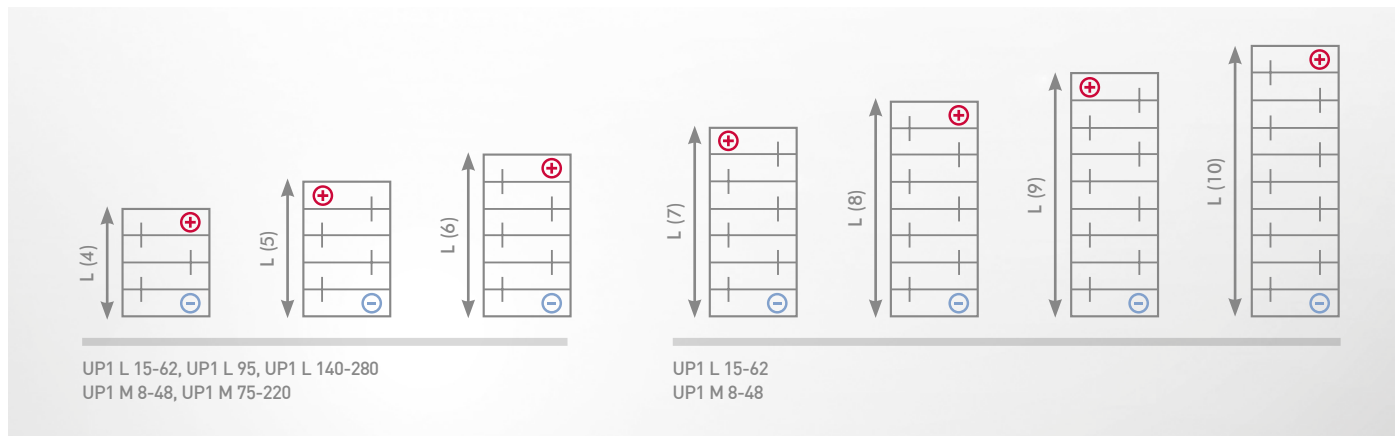
Polypropylene fibrous separators

*Cells are welded together to form a rugged block up to 10 depending on cell size and type*

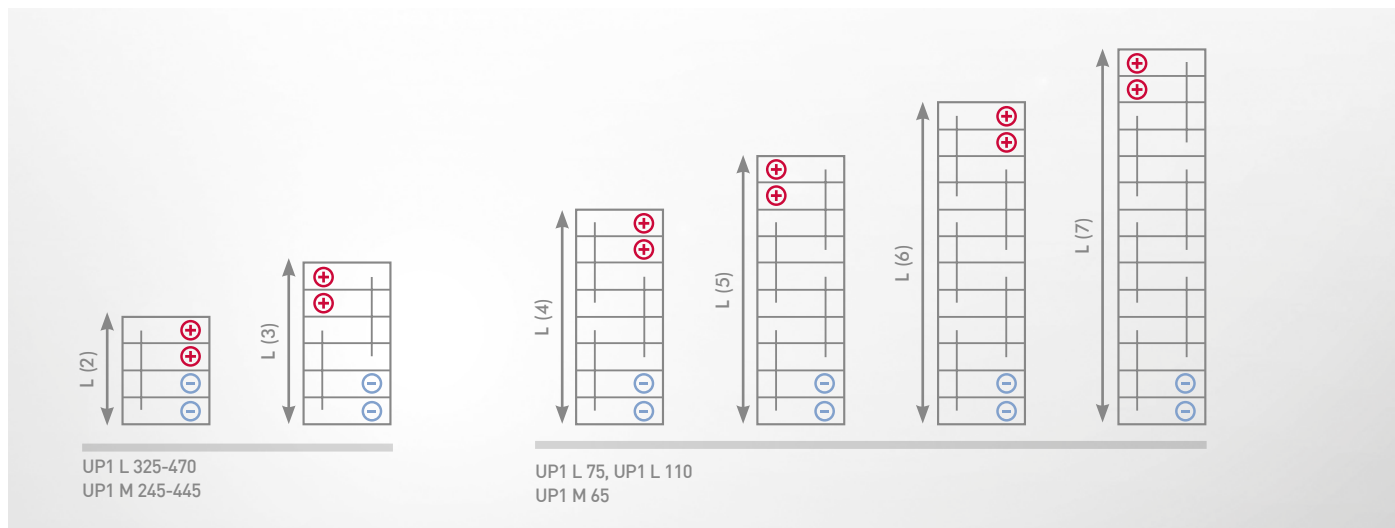


## Flexible configuration based on cell blocks

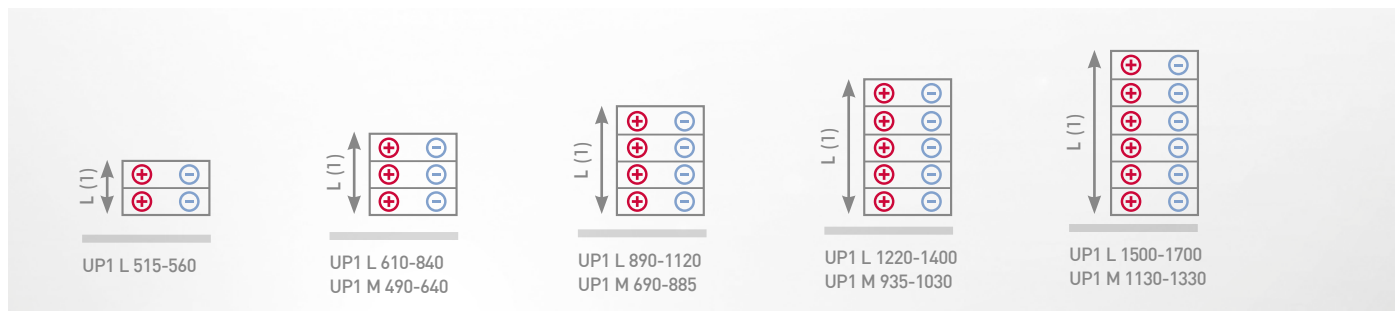
With single pole bolts



With double pole bolts



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





# Uptimax

## Easy to operate and install

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### A wide choice of capacity and performance

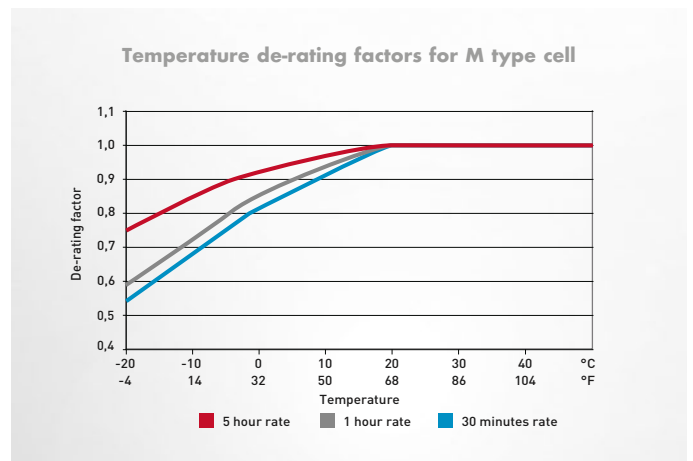
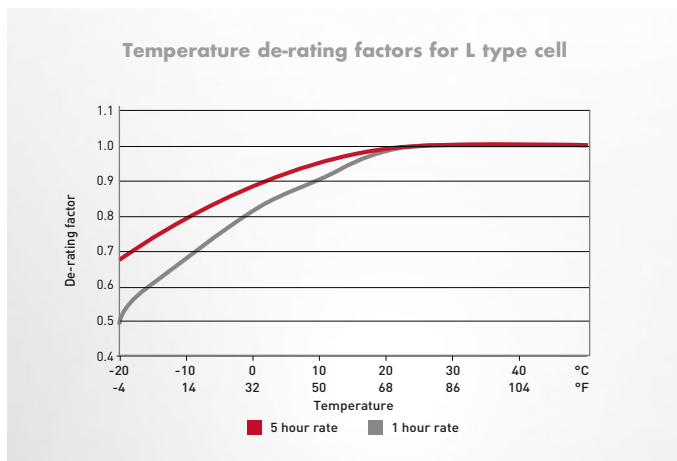
Uptimax cells are available in capacities from 8 – 1700 Ah in a choice of two ranges:

- UP1 L energy range, optimized for long discharge periods with a relatively low current
- UP1 M medium power range, specifically designed for mixed loads with varying current

Uptimax UP1 L
L type cell
Range of 34 cells
15 – 1700 Ah
For low rate discharges over long periods between 1 and 100 hours

Uptimax UP1 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

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# Uptimax

## Designed with the highest standards



Uptimax batteries are designed in full compliance with the highest quality, safety and environmental standards



#### Electrical characteristics:

- Certified IEC 62259 - Secondary cells and batteries containing alkaline or other non-acid electrolytes - Nickel-cadmium prismatic secondary single cells with partial gas recombination. Uptimax New Generation exceeds gas recombination requirements.
- Certified IEC 60623 - Secondary cells and batteries containing alkaline or other non-acid electrolytes - Vented nickel-cadmium prismatic rechargeable single cells.

#### 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 und ISO 14001
- Saft world class continuous programme

#### Environment & Recycling:

- Fully recyclable
- RoHS - Although batteries and accumulators are not within the scope of the RoHS directive, Saft has taken voluntary measures to make sure that the substances forbidden by RoHS are not present in the battery, with the exception of the electro-chemical core.
- REACH - The Saft Group has adopted internal procedures to ensure conformity with the European REACH (Registration, Evaluation, Authorisation and Restriction of Chemical Substances) Regulation.

Saft offers total end to end application support

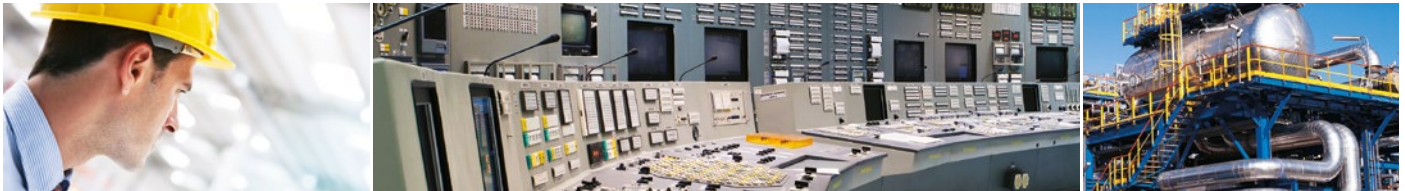
Saft's stationary battery experts can call upon a comprehensive range of skills and expertise to help our global customer specify the ideal battery solution for their particular application. Our end to end support starts at the design stage, such as advice on battery sizing, and carries customers through installation and commissioning. Saft after-sales cover support, maintenance, diagnostic services as well as end of life recycling. Saft organizes battery training seminars for consultants, engineering and maintenance departments. To ensure that our customers receive the optimum service, wherever they are in the world, Saft is continuing to expand and enhance its network of approved service stations in the Middle East, Asia and North America.

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# Uptimax

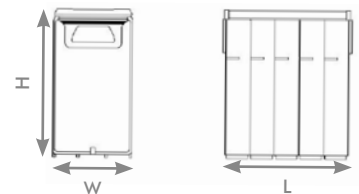
## Physical properties L range

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Cell type	Capacity C, Ah	Height		Width		Length per block												Approx. weight per cell		Internal resistance <sup>(1)</sup> mOhm	Cell connection bolt per pole		
		mm	in	mm	in	4 cells		5 cells		6 cells		7 cells		8 cells		9 cells		10 cells					
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in			kg	lb
UP1 L 15	15	270	10,6	123	4,8	123	4,8	153	6,0	182	7,2	212	8,3	241	9,5	271	10,6	300	11,8	1,10	2,42	12,1	M6
UP1 L 30	30	270	10,6	123	4,8	143	5,6	178	7,0	212	8,3	247	9,7	281	11,1	316	12,4	350	13,8	1,80	3,96	6,03	M6
UP1 L 47	47	270	10,6	123	4,8	191	7,5	238	9,4	284	11,2	331	13,0	377	14,8	424	16,7	470	18,5	2,50	5,51	3,85	M6
UP1 L 62	62	270	10,6	123	4,8	239	9,4	298	11,7	356	14,0	415	16,3	473	18,6	532	20,9	590	23,2	3,20	7,05	2,92	M6
UP1 L 75	75	270	10,6	123	4,8	329	13,0	410	16,1	491	19,3	572	22,5	-	-	-	-	-	-	4,30	9,47	2,41	2 x M6
UP1 L 95	95	421	16,6	195	7,7	157	6,2	193	7,6	229	9,0	-	-	-	-	-	-	-	-	4,90	10,8	2,55	M8
UP1 L 110	110	270	10,6	123	4,8	425	16,7	530	20,9	635	25,0	740	29,1	-	-	-	-	-	-	5,70	12,5	1,65	2 x M6
UP1 L 140	140	421	16,6	195	7,7	205	8,1	253	10,0	301	11,9	-	-	-	-	-	-	-	-	6,70	14,7	1,73	M10
UP1 L 185	185	421	16,6	195	7,7	253	10,0	313	12,3	373	14,7	-	-	-	-	-	-	-	-	8,40	18,5	1,31	M10
UP1 L 235	235	421	16,6	195	7,7	305	12,0	378	14,9	451	17,8	-	-	-	-	-	-	-	-	9,90	21,8	1,03	M10
UP1 L 280	280	421	16,6	195	7,7	353	13,9	438	17,2	523	20,6	-	-	-	-	-	-	-	-	11,5	25,3	0,86	M10

Cell type	Capacity C, Ah	Height		Width		Length per block						Approx. weight per cell		Internal resistance <sup>(1)</sup> mOhm	Cell connection bolt per pole
		mm	in	mm	in	1 cells		2 cells		3 cells		kg	lb		
		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in		
UP1 L 325	325	421	16,6	195	7,7	-	-	229	9,0	337	13,3	15,1	33,2	0,74	2 x M10
UP1 L 375	375	421	16,6	195	7,7	-	-	253	10,0	373	14,7	16,8	37,0	0,65	2 x M10
UP1 L 420	420	421	16,6	195	7,7	146	5,7	279	11,0	412	16,2	18,3	40,3	0,58	2 x M10
UP1 L 470	470	421	16,6	195	7,7	159	6,3	305	12,0	451	17,8	19,8	43,6	0,51	2 x M10
UP1 L 515	515	405	15,9	195	7,7	171	6,7	-	-	-	-	21,4	47,1	0,47	2 x M10
UP1 L 560	560	405	15,9	195	7,7	183	7,2	-	-	-	-	23,0	50,7	0,43	2 x M10
UP1 L 610	610	405	15,9	195	7,7	207	8,1	-	-	-	-	26,5	58,4	0,40	3 x M10
UP1 L 650	650	405	15,9	195	7,7	219	8,6	-	-	-	-	28,2	62,1	0,37	3 x M10
UP1 L 700	700	405	15,9	195	7,7	232	9,1	-	-	-	-	29,7	65,4	0,35	3 x M10
UP1 L 750	750	405	15,9	195	7,7	243	9,6	-	-	-	-	31,4	69,2	0,32	3 x M10
UP1 L 800	800	405	15,9	195	7,7	256	10,1	-	-	-	-	32,9	72,5	0,3	3 x M10
UP1 L 840	840	405	15,9	195	7,7	268	10,6	-	-	-	-	34,5	76,0	0,29	3 x M10
UP1 L 890	890	405	15,9	195	7,7	292	11,5	-	-	-	-	38,1	83,9	0,27	4 x M10
UP1 L 940	940	405	15,9	195	7,7	305	12,0	-	-	-	-	39,6	87,3	0,26	4 x M10
UP1 L 980	980	405	15,9	195	7,7	315	12,4	-	-	-	-	41,2	90,8	0,25	4 x M10
UP1 L 1030	1030	405	15,9	195	7,7	328	12,9	-	-	-	-	42,9	94,5	0,23	4 x M10
UP1 L 1120	1120	405	15,9	195	7,7	353	13,9	-	-	-	-	46,0	101,4	0,22	4 x M10
UP1 L 1220	1220	405	15,9	195	7,7	388	15,3	-	-	-	-	51,3	113,0	0,20	5 x M10
UP1 L 1300	1300	405	15,9	195	7,7	413	16,3	-	-	-	-	54,4	119,9	0,19	5 x M10
UP1 L 1400	1400	405	15,9	195	7,7	438	17,2	-	-	-	-	57,5	126,7	0,17	5 x M10
UP1 L 1500	1500	405	15,9	195	7,7	473	18,6	-	-	-	-	62,8	138,4	0,16	6 x M10
UP1 L 1600	1600	405	15,9	195	7,7	498	19,6	-	-	-	-	65,9	145,2	0,15	6 x M10
UP1 L 1700	1700	405	15,9	195	7,7	523	20,6	-	-	-	-	69,0	152,1	0,14	6 x M10



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

(1) Rigid connector included

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# Uptimax

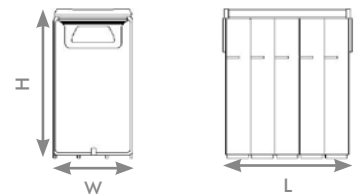
## Physical properties M range

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Cell type	Capacity C, Ah	Height		Width		Length per block												Approx. weight per cell		Internal resistance <sup>(1)</sup>	Cell connection bolt per pole		
						4 cells		5 cells		6 cells		7 cells		8 cells		9 cells						10 cells	
						mm	in	mm	in	mm	in	mm	in	mm	in	mm	in					mm	in
UP1 M 8	8	270	10,6	123	4,8	123	4,8	153	6,0	182	7,2	212	8,3	241	9,5	271	10,6	300	11,8	1,10	2,42	12,5	M6
UP1 M 16	16	270	10,6	123	4,8	123	4,8	153	6,0	182	7,2	212	8,3	241	9,5	271	10,6	300	11,8	1,50	3,30	6,25	M6
UP1 M 24	24	270	10,6	123	4,8	143	5,6	178	7,0	212	8,3	247	9,7	281	11,1	316	12,4	350	13,8	1,80	3,96	4,17	M6
UP1 M 32	32	270	10,6	123	4,8	191	7,5	238	9,4	284	11,2	331	13,0	377	14,8	424	16,7	470	18,5	2,50	5,51	3,13	M6
UP1 M 40	40	270	10,6	123	4,8	239	9,4	298	11,7	356	14,0	415	16,3	473	18,6	532	20,9	590	23,2	3,20	7,05	2,50	M6
UP1 M 48	48	270	10,6	123	4,8	239	9,4	298	11,7	356	14,0	415	16,3	473	18,6	532	20,9	590	23,2	3,30	7,27	2,08	M6
UP1 M 65	65	270	10,6	123	4,8	377	14,8	470	18,5	563	22,2	656	25,8	-	-	-	-	-	-	5,00	11,0	1,54	2 x M6
UP1 M 75	75	421	16,6	195	7,7	157	6,2	193	7,6	229	9,0	-	-	-	-	-	-	-	-	4,90	10,8	1,52	M8
UP1 M 100	100	421	16,6	195	7,7	187	7,4	231	9,1	274	10,8	-	-	-	-	-	-	-	-	6,30	13,8	1,14	M8
UP1 M 125	125	421	16,6	195	7,7	229	9,0	283	11,1	337	13,3	-	-	-	-	-	-	-	-	7,60	16,7	0,91	M10
UP1 M 150	150	421	16,6	195	7,7	253	10,0	313	12,3	373	14,7	-	-	-	-	-	-	-	-	8,40	18,5	0,76	M10
UP1 M 170	170	421	16,6	195	7,7	305	12,0	378	14,9	451	17,8	-	-	-	-	-	-	-	-	9,90	21,8	0,67	M10
UP1 M 195	195	421	16,6	195	7,7	353	13,9	438	17,2	523	20,6	-	-	-	-	-	-	-	-	11,5	25,3	0,58	M10
UP1 M 220	220	421	16,6	195	7,7	353	13,9	438	17,2	523	20,6	-	-	-	-	-	-	-	-	12,0	26,4	0,52	M10

Cell type	Capacity C, Ah	Height		Width		Length per block						Approx. weight per cell		Internal resistance <sup>(1)</sup>	Cell connection bolt per pole
						1 cells		2 cells		3 cells					
						mm	in	mm	in	mm	in				
UP1 M 220	220	421	16,6	195	7,7	98	3,9	-	-	-	-	12,0	26,4	0,52	M10
UP1 M 245	245	421	16,6	195	7,7	-	-	229	9,0	337	13,3	15,2	33,5	0,47	2 x M10
UP1 M 270	270	421	16,6	195	7,7	127	5,0	241	9,5	355	14,0	16,0	35,2	0,42	2 x M10
UP1 M 295	295	421	16,6	195	7,7	133	5,2	253	10,0	373	14,7	16,8	37,0	0,39	2 x M10
UP1 M 320	320	421	16,6	195	7,7	-	-	279	11,0	412	16,2	18,3	40,3	0,36	2 x M10
UP1 M 345	345	421	16,6	195	7,7	159	6,3	305	12,0	451	17,8	19,8	43,6	0,33	2 x M10
UP1 M 370	370	421	16,6	195	7,7	-	-	329	13,0	487	19,2	21,4	47,1	0,31	2 x M10
UP1 M 395	395	421	16,6	195	7,7	-	-	353	13,9	523	20,6	23,0	50,7	0,29	2 x M10
UP1 M 420	420	421	16,6	195	7,7	-	-	353	13,9	523	20,6	23,5	51,8	0,27	2 x M10
UP1 M 445	445	421	16,6	195	7,7	-	-	353	13,9	523	20,6	24,0	52,9	0,26	2 x M10
UP1 M 490	490	405	15,9	195	7,7	219	8,6	-	-	-	-	28,2	62,1	0,23	3 x M10
UP1 M 540	540	405	15,9	195	7,7	243	9,6	-	-	-	-	31,4	69,2	0,21	3 x M10
UP1 M 590	590	405	15,9	195	7,7	268	10,6	-	-	-	-	34,5	76,0	0,19	3 x M10
UP1 M 640	640	405	15,9	195	7,7	268	10,6	-	-	-	-	35,5	78,2	0,18	3 x M10
UP1 M 690	690	405	15,9	195	7,7	305	12,0	-	-	-	-	39,6	87,3	0,17	4 x M10
UP1 M 740	740	405	15,9	195	7,7	328	12,9	-	-	-	-	42,9	94,5	0,15	4 x M10
UP1 M 785	785	405	15,9	195	7,7	353	13,9	-	-	-	-	46,0	101,4	0,15	4 x M10
UP1 M 835	835	405	15,9	195	7,7	341	13,4	-	-	-	-	45,9	101,1	0,14	4 x M10
UP1 M 885	885	405	15,9	195	7,7	353	13,9	-	-	-	-	48,0	105,8	0,13	4 x M10
UP1 M 935	935	405	15,9	195	7,7	413	16,3	-	-	-	-	54,4	119,9	0,12	5 x M10
UP1 M 985	985	405	15,9	195	7,7	438	17,2	-	-	-	-	57,5	126,7	0,12	5 x M10
UP1 M 1030	1030	405	15,9	195	7,7	413	16,3	-	-	-	-	56,4	124,3	0,11	5 x M10
UP1 M 1130	1130	405	15,9	195	7,7	498	19,6	-	-	-	-	65,9	145,2	0,10	6 x M10
UP1 M 1230	1230	405	15,9	195	7,7	492	19,4	-	-	-	-	67,6	149,0	0,09	6 x M10
UP1 M 1330	1330	405	15,9	195	7,7	523	20,6	-	-	-	-	72,0	158,7	0,09	6 x M10



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

(1) Rigid connector included

www.norwatt.es



# Saft is committed to the highest standards of environmental stewardship

Saft is committed to protecting and preserving the environment. We are engaged in a sustained effort to use resources responsibly and to act in a way that clearly demonstrates our great respect for the planet.

As part of its environmental commitment, Saft gives priority to recycled raw materials over virgin raw materials, reduces its plants' air and water releases year after year, minimizes water usage, reduces fossil energy consumption and associated CO<sub>2</sub> emissions, and ensures

that its customers have recycling solutions for their spent batteries.

Regarding industrial batteries, Saft has set up a network of Bring Back Points (BBPs) which receive end-of-life nickel-based batteries from end users free of charge. These batteries are then shipped by these BBPs to our recycling facility in Sweden or to fully permitted recycling companies, in compliance with the laws governing trans-boundary waste shipments.

The recycling efficiency of these recyclers exceeds 75% of the nickel-based battery weight (a level which exceeds the mandated recycling efficiency of 65% applicable to lead-acid batteries), and recycled materials are reused as secondary raw material for industry.

This network of Bring Back Points comprises over 30 entities and provides services in all of our major markets in Europe, North America, Asia and Africa. The list of BBPs and their contact details are available on the Saft website.



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Document N° 21818-2-0119  
Edition: January 2019

Data in this document is subject to change without notice and becomes contractual only after written confirmation.

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Cap Interactif agency - 887  
Printed on PEFC paper  
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RCS Nanterre 383 703 877

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