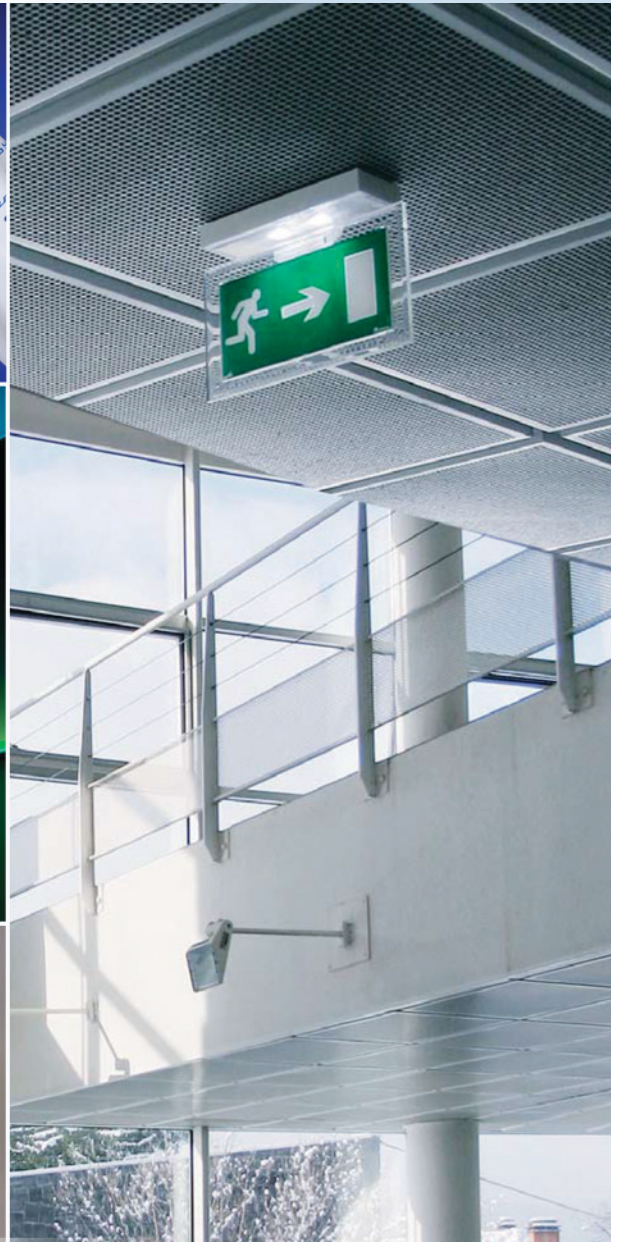


ARTS Energy : the durable choice

The world leader in powering emergency lights



Advanced Rechargeable Technology and Solutions



ARTS Energy batteries for Emergency Lighting Units

Constant innovation for better reliability and longer life



One of our guiding principles at ARTS Energy is constant innovation. Our R&D teams are known for their technological breakthroughs and for the results of their work to find new and better answers to our customers' needs.

Our offer for emergency lighting units (ELUs) is an excellent example of this. ARTS Energy supplies more batteries to manufacturers of self-contained emergency luminaires and low-profile/LED units than any other supplier in the world.

Why are we the global leader in this domain? Because beyond having batteries that are irreproachably reliable and robust, ARTS Energy also offers product lines with state-of-the-art features that cannot be purchased anywhere else. Our expertise and our experience are unparalleled.



Irreproachable quality

All of our products meet or surpass the specific requirements of regulatory standards in this domain; including International (IEC 61951), US (UL 924), Japanese (JISC 8705) and UK (ICEL 1010) standards. In the event of an emergency, you can be certain that ARTS Energy batteries will operate reliably for up to 5 hours.

Install and relax

Safety lighting is serious business, but you can rest easy when you choose from ARTS Energy's wide range of products for ELUs. ARTS Energy batteries have been proven to work for 4 years if not even longer – without maintenance, and at temperatures as low as - 20°C or as high as + 55°C.

Committed to environmentally-friendly solutions

An industry pioneer in eco-designed products, all of ARTS Energy's batteries are built with sustainable development in mind. From the production of batteries to their disposal and recycling, ARTS Energy's team are focused on protecting natural resources and minimizing all impacts of our activity to the environment. And of course, ARTS Energy factory adheres strictly to environmental regulations concerning air, water, ground and solid waste standards.

Close to you

ARTS Energy has a state-of-the-art, fully automated factory in Nersac, France and battery assembly facilities in the United States. ARTS Energy's worldwide network means faster delivery times and a highly competitive cost/quality ratio.

ARTS ENERGY



A product line that is unique on the market

ARTS Energy has the broadest and most complete line of batteries on the market today, offering features and qualities that cannot be found anywhere else.

Our time-tested VNT D U HC and VNT Cs U nickel-cadmium (Ni-Cd) cells are recognised around the world for their quality and performance. Indeed, these batteries carry the United Kingdom's coveted ICEL 1010 label, providing independent proof of their exceptional performance and reliability in even the most demanding installations.

We are nevertheless always striving to extend our catalogue to meet the evolving needs of our customers. Our VHT U batteries, for example, are the first and only nickel-metal hydride (Ni-MH) batteries capable of lasting 4 years or longer at temperatures up to + 55°C.

No other supplier can make that claim. Our VHT 7/5 Cs U is also currently the only Ni-MH battery in the world to have ICEL 1010 status.

Our ARTS Energy ecolife Ni-Cd batteries provide further proof of the way our batteries are engineered with the highest standards in mind. Their unmatched combination of quality and reduced environmental impact sets them apart. Beyond their good storage capacities and

excellent charge efficiencies, ARTS Energy ecolife batteries also last up to 8 years at + 40°C, twice as long as standard batteries, with zero maintenance, and are perfectly suitable for outdoor use in cold temperatures as well.

With the unique qualities of ARTS Energy batteries like these, you benefit from reduced costs of maintenance and a lower Total Cost of Ownership.

ARTS ecolife

ARTS Energy ecolife batteries are designed to have a reduced environmental impact. But don't just take our word for it: Ask for the Product Environmental Profile (PEP).

A product life cycle assessment has been carried out on our ARTS Energy ecolife products range encompassing raw material extraction, manufacturing, distribution and use. We can provide you with a PEP upon request.

Whatever your emergency lighting needs and wherever you are in the world, ARTS Energy's focus on innovation ensures you will have reliable, economical, ecological and long-lasting power.

ARTS Energy's offer for + 40°C



Safety first

Emergency lighting units exist to ensure the safety of the people who live and work in the buildings in which they are installed. ARTS Energy cells and their components have been carefully chosen and designed to guarantee quality and dependability throughout the entire service life of such luminaires. Our products meet or surpass the requirements of a variety of norms and standards, including IEC 60598-2-22.

Long life

ARTS Energy's + 40°C VT, VNT and VST Ni-Cd batteries and VHT Ni-MH batteries

have been designed to last at least 4 years and have an excellent charge efficiency in alignment with IEC 61951-1 (Ni-Cd T-type) or IEC 61951-2 (Ni-MH T-type).

ARTS Energy's ecolife batteries will last up to 8 years – a life expectancy that sets us apart from our competitors and significantly reduces your Total Cost of Ownership and maintenance costs.

Sturdy and resistant to cold

ARTS Energy's VNT Ni-Cd serie benefits from our innovative PNE (Plastic-bonded Nickel Electrode). Our VHT line is built upon our market-leading expertise in Ni-MH technology. Both lines ensure

improved energy density and an excellent resistance to cold weather conditions. You can be confident of their reliability and autonomy outdoors, even at temperatures as low as - 20°C.

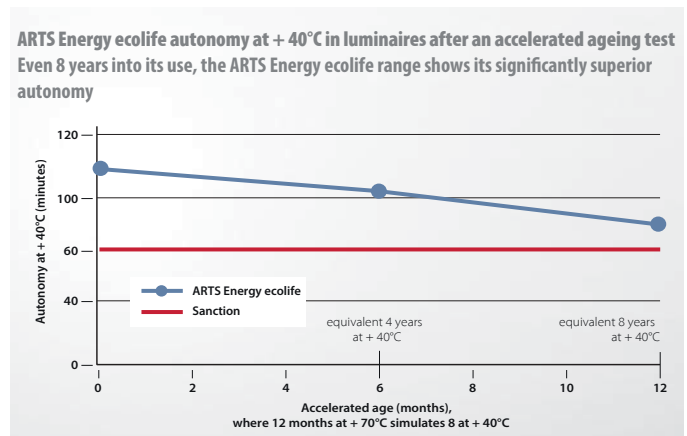
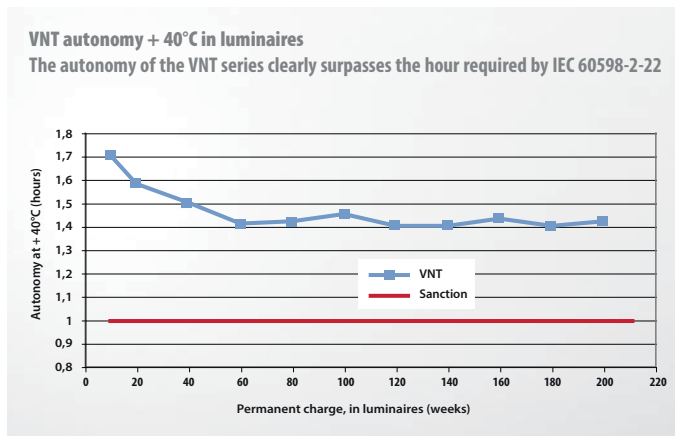
Suitable for low profile and slim fixtures

Our VHT line of batteries benefits from our experience with nickel-metal hydride (Ni-MH) technology and its high volumetric energy qualities. They will last up to 4 years and are well suited to modern low profile and slim designs.



	ARTS Energy type		IEC capacity at 0.2C rate		Standard charge (16h)	Recommended permanent charge	Typical internal impedance	Max. dimensions for bare cells		Typical weight
	Nominal voltage 1.2 volts/cell	Tech.	Typical [mAh]	Minimum [mAh]	Current [mA]	Current [mA]	[mOhm]	Diameter [mm]	Height [mm]	[g]
VT	VT 1/2 D	Ni-Cd	2500	2200	220	110	10	32.2	36.8	80
	VT F	Ni-Cd	7500	7000	700	350	5	32.2	91.1	196
VST	VST AA	Ni-Cd	860	800	80	40	30	14.0	49.3	26
VNT	VNT Cs	Ni-Cd	1650	1600	160	80	8	22.2	42.2	45
	VNT D	Ni-Cd	4250	4000	400	200	6	32.2	60.3	115
ARTS Energy ecolife	ecolife AA	Ni-Cd	650	600	60	30	30	14.0	49.3	26
	ecolife Cs	Ni-Cd	1570	1500	150	75	8	22.2	42.2	45
	ecolife D	Ni-Cd	4250	4000	400	200	6	32.2	60.3	115
VHT	VHT AA	Ni-MH	1150	1100	110	intermittent charge	18	14.0	49.3	24
	VHT Cs	Ni-MH	2200	2000	200	intermittent charge	5	22.2	42.7	48
	VHT 7/5 Cs	Ni-MH	4200	4000	400	intermittent charge	20	22.2	60.0	74
	VHT D	Ni-MH	6450	6000	600	intermittent charge	4	32.3	58.6	135
	VHT F	Ni-MH	11000	10000	1000	intermittent charge	5	32.3	89.2	215

VHT batteries must be maintained charged using intermittent charge.



Environmental impact indicators for the ARTS Energy ecolife line

Impact indicators	Unit	per g of ARTS Energy ecolife	per ARTS Energy ecolife AA	per ARTS Energy ecolife Cs	per ARTS Energy ecolife D
Raw Material Depletion (RMD)	Y-1	8.12E-16	2.11E-14	3.65E-14	9.34E-14
Energy Depletion (ED)	MJ	0.128	3.33	5.76	14.7
Water Depletion (WD)	dm3	0.197	5.12	8.87	22.7
Global Warming Potential (GW)	g -CO2	4.93	128	222	567
Ozone Depletion (OD)	g -CFC-11	5.27E-07	1.37E-05	2.37E-05	6.06E-05
Air Toxicity (AT)	m3	3878	1.01E+05	1.75E+05	4.46E+05
Photochemical Ozone Creation (POC)	Yg -C2H4	0.00216	0.056	0.097	0.248
Air Acidification (AA)	g -H+	0.00341	0.089	0.153	0.392
Water Toxicity (WT)	dm3	0.618	16.1	27.8	71.1
Water Eutrophication (WE)	g -PO4	0.0087	0.226	0.392	1.00
Hazardous Waste Production (HWP)	kg	1.22E-05	3.17E-04	5.48E-04	1.40E-03

ARTS Energy's offer for + 55°C



Safety guaranteed, even in extreme conditions

Choosing from this line means you can ensure the safety of building occupants even in the severe conditions described by IEC 60598-2-22.

The specific electrochemical design and carefully chosen components of our cells can withstand temperatures all the way up to + 55°C for at least 4 years or longer, and still be ready to function immediately if they are needed. As a result, they are a highly reliable choice for outdoor ELUs

as well as units that will be exposed to significant temperature variations. In particular, only ARTS Energy has the state-of-the-art Ni-Cd VNT U and Ni-MH VHT U batteries, both of which are capable of lasting for 4 years at temperatures up to + 55°C.

Excellent charge efficiency

Our products have an excellent charge efficiency all the way up to + 55°C, as defined by IEC 61951-1 (Ni-Cd U-type), US UL924 and IEC 61951-2 (Ni-MH U-type).

Adapted to today's slim and low profile designs

With their higher volumetric energy, the VHT U range is particularly well adapted to low profile emergency lighting fixtures, and thanks to their particularly compact size, this line can also fit into the slimmest modern designs.

+ 55°C

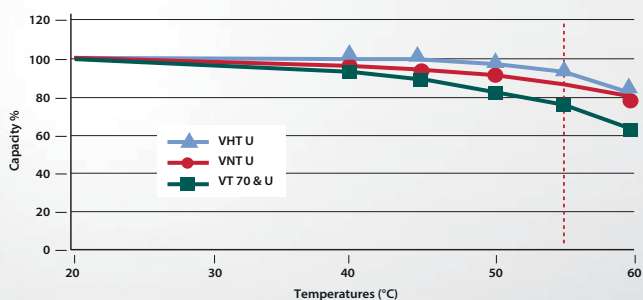


	ARTS Energy type		IEC capacity at 0.2C rate		Standard charge (16h)	Recommended permanent charge	Typical internal impedance	Max. dimensions for bare cells		Typical weight
	Nominal voltage 1.2 volts/cell	Tech.	Typical [mAh]	Minimum [mAh]	Current [mA]	Current [mA]	[mOhm]	Diameter [mm]	Height [mm]	[g]
VT	VT F 70	Ni-Cd	7700	7000	700	350	5	32.2	89.2	196
VNT U	VNT Cs U	Ni-Cd	1650	1600	160	80	8	22.2	42.2	45
	VNT C U	Ni-Cd	2650	2500	250	125	8	25.3	49.5	75
	VNT D U	Ni-Cd	4250	4000	400	200	6	32.2	60.3	115
	VNT D U HC	Ni-Cd	4500	4200	420	200	6	32.2	60.3	124
VHT U	VHT AA U	Ni-MH	1150	1100	110	-	18	14.0	49.2	24
	VHT Cs U	Ni-MH	2200	2000	200	-	5	22.2	42.7	48
	VHT 7/5 Cs U	Ni-MH	4200	4000	400	-	20	22.2	60.0	74

VHT U batteries must be maintained charged using intermittent charge.

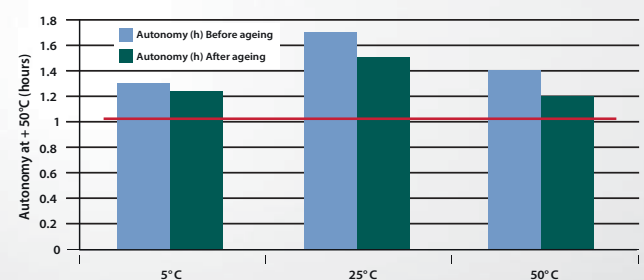
Charge efficiency profile

The charge efficiency for this entire range is excellent:
The VNT U and VHT U series deliver more than 80% of capacity at + 55°C.



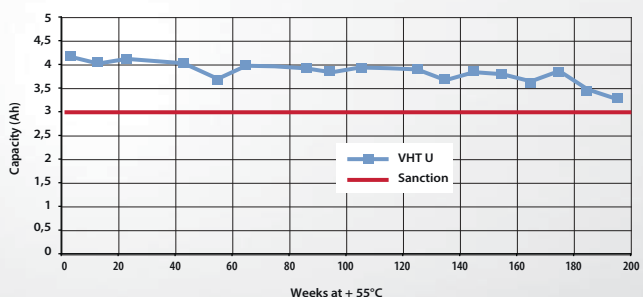
Autonomy of VNT U after an accelerated ageing test

Even after 4 years at + 50°C, the VNT U shows its significantly superior autonomy over a whole range of temperatures, surpassing the minimums required by IEC 60598-2-22



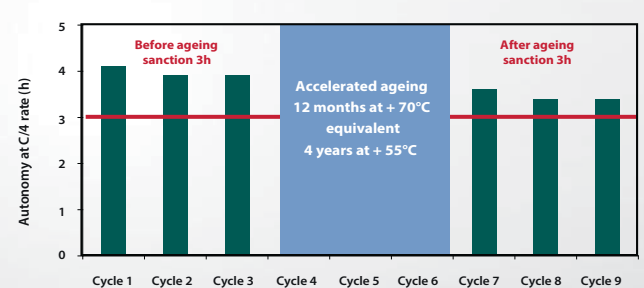
Intermittent charge at + 55°C, with discharge at C/4

The VHT U range is designed to operate for 4 years at + 55°C using an intermittent charge



ICEL 1010

VNT D U HC and VHT 7/5 Cs U are registered ICEL 1010 for + 55°C applications



ARTS Energy is committed to the highest standards of environmental stewardship

As part of its environmental commitment, ARTS Energy gives priority to recycled raw materials over virgin raw materials, reduces its plant's air and water releases year after year, minimizes water usage, reduces fossil energy consumption and associated CO₂ emissions, and ensures that its customers have recycling solutions for their spent batteries. Regarding industrial batteries,

ARTS Energy has had partnerships for many years with collection companies in most EU countries, in North America and in other countries. This collection network receives and dispatches our customers batteries at the end of their lives to fully approved recycling facilities, in compliance with the laws governing trans-boundary waste shipments.

ARTS Energy has selected a recycling process for industrial lithium-ion cells with very high recycling efficiency. A list of our current collection points is available on our web site. In other countries, ARTS Energy assists users of its batteries in finding environmentally sound recycling solutions. Please contact your sales representative for further information.



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