

ARTS

ENERGY



**DESIGNER AND MANUFACTURER
OF BATTERIES AND ENERGY SOLUTIONS**
FOR PROFESSIONAL & TECHNICALLY DEMANDING APPLICATIONS

We design energy products and solutions according to our customer needs

From 1Wh to 10kWh
Up to 60V



ELECTROCHEMISTRY EXPERTS

- Multi battery technologies experts
- ARTS Energy develops and produces Nickel based technologies
- Electrochemical analysis
- Customised electrochemical compositions and electrodes
- In-house electrical laboratory to test Cells, Battery packs, Devices
- Competition benchmarking



MECHANICAL DESIGN EXPERTS

- Design to cost
- Standard terminals available
- Customised Products available
- Plastic moulding capability
- Ultrasonic assembly design experts
- Fast prototyping



SYSTEM & ELECTRONIC EXPERTS

- Customised and optimised solutions
- Intelligence associated with the battery
- Technical management of safety considerations
- Co-development with customers
- Communication interfaces



HIGH CAPACITY & FLEXIBLE EQUIPMENTS

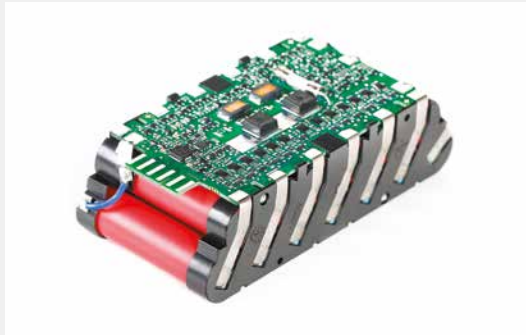
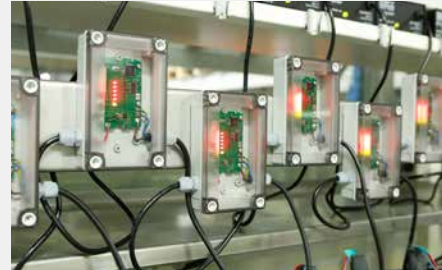
- Electrical welding experts
- In-house equipment design and validation
- High modularity & line flexibility

Your partner
for energy storage
solutions

With highly skilled Designers

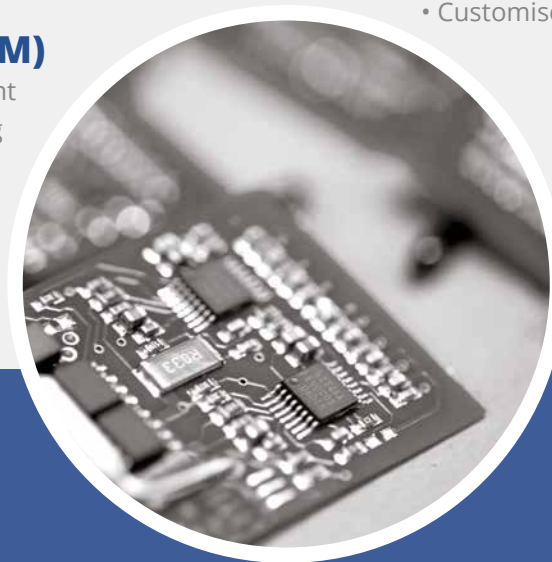
EMS (ENERGY MANAGEMENT SYSTEM)

- Optimisation of energy consumption
- Customer application management
- Interface battery/customer application
- Energy and cost savings



BMS (BATTERY MANAGEMENT SYSTEM)

- Customised battery management
- Customers training & partnering
- Optimisation of battery performances
- Safety and reliability



SYSTEMS

- Plug & Play
- Communication interface available
- SMART products
- With long experience of production

CHARGERS

- Fully compliant with safety rules
- For Nickel or Lithium based battery packs
- Customised connectors



TEMPERATURE
MANAGEMENT

PROTECTION ADAPTED TO THE TECHNOLOGIES

- User Safety First, especially for lithium
- Safety level SIL 1 as a minimum (ref EN61508)
- Large range available for all technologies
- In-house conception, and qualification



VOLTAGE
MANAGEMENT



CHARGE
PROTECTION



DISCHARGE
PROTECTION



CHARGE
MANAGEMENT



CURRENT
MANAGEMENT

Qualified high quality products

WITH OVER 40 YEARS OF EXPERIENCE

EXPERTS IN BATTERY STANDARDS AND TRANSPORTATION REGULATIONS

We support our customers and manage battery certifications upon request

- IEC61951-1, 61951-2
- IEC61960
- IEC62133
- UL 2054
- UN/DOT 38.3 compliance for Lithium
- FR21G



ELECTRICAL LABORATORY

- Comprehensive resources (Expertise & Test Equipment)
- Very long term tests (up to 20 years) at different temperatures
- Customers application tests
- Dedicated team
- Benchmarking tests

QUALITY & ENVIRONMENT

- High level of product traceability
- Dedicated project and production quality teams
- Member of Recharge Association
- Research program in partnership with BASF
- Dedicated after sales team



LOGISTIC

- High flexibility with Lean manufacturing
- Fast delivery worldwide
- Consignment or safety stock ability



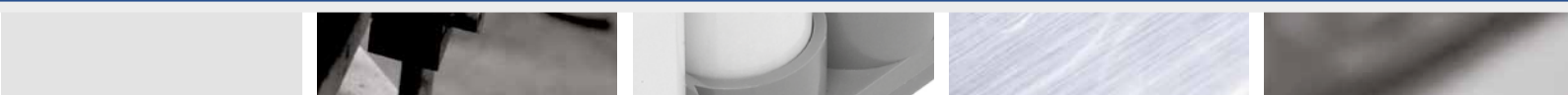
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ARTS ENERGY
NICKEL ENERGY SOLUTIONS



More than 40 years expertise delivered to our customers

We offer Nickel based technologies with the industries recognised high performance and quality cells in the market.



Ni-MH TECHNOLOGY	ENERGY TYPE HIGH ENERGY DENSITY								40°C BACK UP TYPE T TYPE - VHT, ecolife MH RANGES					55°C BACK UP TYPE U TYPE - VHT U RANGE			
	AAA	AA	4/5A	A	C	4/3A	4/3fatA	AA	Cs	7/5Cs	D	F	AA	Cs	7/5Cs	D	
Capacity (Ah) minimum	0,55 - 0,93	1,5 - 2,5	2 - 1,95	2,45	3,1	3,6 - 3,7	4,1 - 4,2	0,8 - 1,1	2	4	6	10	0,8 - 1,1	2	4	6	

Ni-MH TECHNOLOGY	POWER TYPE HIGH DRAIN CURRENT						LARGE TEMPERATURE RANGE LARGE CYCLING, LONG LIFE TYPE									
	4/5fatA	Cs	4/3fatA	D	F	AAA	AA	4/5fatA	4/5A	A	Cs	5/4Cs	LfatA	7/5Cs	D	F
Capacity (Ah) minimum	1,8	3,2	3,4 - 3,75	9,5	15	0,46 - 0,5	0,8 - 1,1	1,5	1,6	1,9	2	3	3,5	4	6	10



Ni-Cd TECHNOLOGY	POWER TYPE (HIGH DRAIN CURRENT) - VRE & VSE RANGES							40°C BACK UP TYPE T TYPE - VT, VST, VNT, ecolife RANGES				
	AA	Cs	C	1/2D	D	F	AA	Cs	1/2D	D	F	
Capacity (Ah) minimum	0,7 - 0,94	1,5 - 1,7	2,3	2,4	4,5 - 5	8	0,6 - 0,8	1,5 - 1,6	2,2	4	7	

Ni-Cd TECHNOLOGY	55°C BACK UP TYPE U TYPE - VT, VNT U RANGES					-40°C BACK UP TYPE VERY LOW TEMPERATURE RANGE			
	Cs	C	D	F	Cs	C	D	F	
Capacity (Ah) minimum	1,6	2,5	4 - 4,2	7	1,4	2,3	4	6,5	

We offer a comprehensive range

OF STANDARD BATTERY PACKS:

CELLS SLEEVED : CFG

The cell is delivered sleeved with or without washer



CELLS SLEEVED WITH LONG TABS : CLG

The cell is delivered sleeved and equipped with 2 long tabs on the same side



CELLS SLEEVED WITH SHORT TABS ON TOP AND BOTTOM: HBG

The cell is delivered sleeved and equipped with 2 short tabs on the opposite side



CELLS SLEEVED WITH SHORT TABS ON TOP: HHG

The cell is delivered sleeved and equipped with 2 tabs on the top



BLOC BATTERY PACK WITHOUT SLEEVE

The battery pack is built with one or 2 rows and equipped with tabs.



BLOC BATTERY PACK WITH FLANGES

The battery pack is built with 2 rows and plastic flanges with tabs



STICK BATTERY PACK WITH TABS

The battery pack is built as a stick with tabs.



AND ALSO CUSTOMISED BATTERY PACKS TO MATCH YOUR APPLICATION:

- Your dimensions
- Casing on demand
- Electronic development



Meet ARTS Energy

ALL OVER THE WORLD



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ARTS ENERGY
LITHIUM ENERGY SOLUTIONS



More than 40 years expertise delivered to our customers

We offer lithium technologies with the industry recognised best cells in the market.

LI-ION



OUR LITHIUM ION RANGE

• Based on several technologies, as LCO, NMC, NCA or LiFePO4

LITHIUM RANGE		ENERGY TYPE HIGH ENERGY DENSITY						POWER TYPE HIGH DRAIN CURRENT			LONG LIFE TYPE LONG CYCLING (>2000)		
CYLINDRICAL	Format XYYYY XX : diameter (mm) YYY : length (mm)	14430	14500	14650	16650	16650	18650	14650	18650 Li & LFP	26650 LFP	14500	18650 Li & LFP	26650 LFP
	Capacity (Ah)	0,6-0,7	0,7-0,8	0,95-1	2,2-2,5	1,4-1,7	2-3,5	1	1,1-2,9	3	0,5	1-1,1	3
PRISMATIC	Width (mm)	<34	34-44	44-51	51-60								
	Capacity (Ah)	0,7-2,35	0,7-3,2	1,3-3,2	2,7-4,17								



Panasonic® SONY®

PROTECTION CIRCUITS BOARDS (non exhaustive list)

- Off the shelf for quick sampling
- Large range from 1S to 16S

TYPE OF CIRCUITS	PHOTOGRAPH	MAX DISCH CURRENT
1S		3A
1S		1,5A
2S		2A
2S		5A
3S/4S		6A

TYPE OF CIRCUITS	PHOTOGRAPH	MAX DISCH CURRENT
3S/4S/5S		8A
7S to 10S		8A
13S		8A
11S to 15S		15A

OTHER CIRCUITS WITH GAUGE AND COMMUNICATION

- I2C, SMBUS
- Obsolescence management

CHARGERS

- We can provide a whole package
- From 1S to 14S
- EN60601 compliant if needed
- EU, UK or US plugs
- Fully compliant with our safety rules

We have a comprehensive range

OF STANDARD BATTERY PACKS:

CHARGE

• 0°C to 45°C

DISCHARGE

• -20°C to 60°C

STORAGE

• -20°C to 50°C

OUTPUT

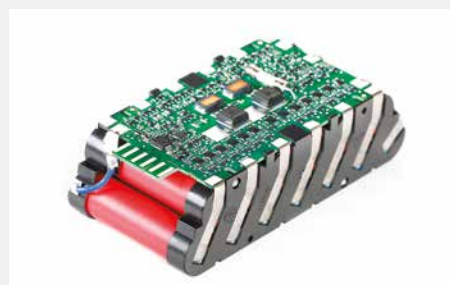
• Molex 2139-3A serie NTC 10KOhm

IEC CODE	ELECTRICAL			DISCHARGE CURRENT MAX (A)	CHARGE CC-CV		MECHANICAL (mm)		BALANCING
	CAPACITY MIN (Ah)	VOLTAGE (V)	ENERGY (Wh)		CURRENT (A)	VOLTAGE (V)	DIMENSIONS	WIRE LENGTH	
1 ICR/ INR 19/66	2,1 - 3,25	3,6	7,56 - 11,7	5	1,5	4,2	Ø19,8 x 69,4	190	
1 ICR 14/66	0,94	3,7	3,478	1,5	0,94	4,2	Ø15,8 x 69,4	190	
1 ICR 15/51	0,68	3,6	2,448	1,36	0,68	4,2	Ø15,8 x 69,4	190	
1 ICR/ INR 19/66-2	4,2 - 6,4	3,6	15,12 - 23,04	1,5	3 - 3,5	4,2	19,15 x 38,05 x 67,9	170	
1 ICR 14/66-2	1,88	3,7	6,956	1,5	1,88	4,2	14,8 x 28,5 x 67,9	170	
1 ICR 15/51-2	1,36	3,6	4,896	1,5	1,36	4,2	14,8 x 28,5 x 51,3	170	
2 ICR/ INR 19/66	2,1 - 3,2	7,2	15,12 - 23,04	4,87	1,5 - 1,75	8,4	18,9 x 36,8 x 73,45	190	
2 ICR/ INR 19/66-2	5 - 6,4	7,2	37 - 46,08	5	3 - 3,5	8,4	19,2 x 73,6 x 74,15	190	
3 ICR/ INR 19/66	2,1 - 3,2	10,8	22,68 - 34,56	4,3 - 5	1,5 - 1,75	12,6	19,5 x 58,5 x 73,45	158	X
3 ICR/ INR 19/66-2	4,2 - 6,4	10,8	45,36 - 69,12	5	3 - 3,5	12,6	38,15 x 62,9 x 71	80	X
4 ICR/ INR 19/66	2,1 - 3,2	14,4	30,24 - 46,08	4,3 - 5	1,5 - 1,75	16,8	38,15 x 44 x 70,8	100	X
4 ICR/ INR 19/66-2	4,2 - 6,4	14,4	60,48 - 92,16	5	3 - 3,25	16,8	38,15 x 75,95 x 72,5	130	X
7 ICR/ INR 19/66	2,1 - 3,2	25,2	52,92 - 80,64	4,3 - 5	1,5 - 1,75	29,4	38 x 114 x 72,5	75	X
7 ICR/ INR 19/66-2	4,2 - 6,4	25,2	105,84 - 161,28	9,74	3 - 3,25	29,4	51,75 x 137,25 x 73,5	75	X
13 ICR/ INR 19/66	2,1 - 3,2	46,8	98,28 - 149,76	4,3 - 5	1,5 - 1,75	54,6	45 x 138,45 x 67,6	62	X
1 IFpR 19/66	1,05	3,2	3,36	5	1,05	3,6	Ø19,8 x 69,4	190	
4 IFpR 19/66	1,05	12,8	13,44	5	1,05	14,4	38,15 x 44 x 70,8	100	X
4 IFpR 19/66-2	2,1	12,8	26,88	5	2,1	14,4	38,15 x 75,95 x 72,5	130	X



AND ALSO CUSTOMISED BATTERY PACKS TO MATCH YOUR APPLICATION:

- Your dimensions and connectors
- Casing on demand
- Specific functions (jauge, communication, memory...)



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