NorthBatt
Power for Life

Traction Batteries

[PzS & PzB and PzV & PzVB]

NorthBatt lead acid batteries are designed to power all types of forklifts, pallet trucks and sweepers. Excellent energy efficiency and capacity make NorthBatt batteries an excellent choice for powering electric wheeled vehicles. With more than forty years of expertise in traction batteries and experienced staff, we serve you more efficiently because we understand your needs.

Executive Summary

Our company ranks amongst the leaders in energy solutions companies in Greece, expanding in the global market. NorthBatt specializes in batteries for industrial applications (i.e. batteries for motive and reserve power). Northbatt is today one of the biggest independant assemblers in EMEA region.

Having four decades of experience, NorthBatt is committed to providing the most efficient solutions to cover its customers' industrial needs, giving power to people's life. Our company has long-lasting collaborations, high quality product standards and comprehensive after-sales technical support, offering solutions for batteries, chargers and all the relevant equipment.
Our products are designed to satisfy the needs for applications like industrial vehicles, forklifts, solar & renewable energy sources, IT (Information Technology), utility networks, telecommunications, UPS, marine, etc. We proudly welcome you to our battery and energy solutions family!

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We are driven by our passion to create products that deliver great results for your business.

MOTIVE POWER PRODUCTS

PzS & PzB

Cells & Batteries
Excellent solution with a positive tubular constructed design for heavy duty applications, it provides high performance, reliability, low maintenance and longer life.

PzV & PzVB

Cells & Batteries
Unique gel technology for high cycle life, maintenance free.

ACCESSORIES

A complete range of accessories like connectors, battery chargers, electrolyte level indicators, battery filling and monitoring systems etc is also available.

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Connectors

Manufactured from thermoplastic rubber.
Acid resistance.
High flexibility.
Easy to fit and re-place.

Bolts

Insulated plastic-head connector bolt.

Trays

Steel construction protected with plastic powder coating offering high protection against corrosion.

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Traction Batteries [PzS]

Plate Type: 60 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm*** b: 198	h1: 343 / h2: 370	Weight (KG)**
		l		
2 PzS 120	120	47		8.5
3 PzS 180	180	65		12.0
4 PzS 240	240	83		15.4
5 PzS 300	300	101		19.0
6 PzS 360	360	119		22.5
7 PzS 420	420	137		26.0
8 PzS 480	480	155		29.5
9 PzS 540	540	174		33.0
10 PzS 600	600	192		36.5

Plate Type: 80 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm*** b: 198	h1: 408 / h2: 435	Weight (KG)**
		l		
2 PzS 160	160	47		10.0
3 PzS 240	240	65		14.2
4 PzS 320	320	83		18.4
5 PzS 400	400	101		22.6
6 PzS 480	480	119		26.7
7 PzS 560	560	137		31.3
8 PzS 640	640	155		35.1
9 PzS 720	720	174		39.3
10 PzS 800	800	192		43.4

Plate Type: 90 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm*** b: 198	h1: 478 / h2: 505	Weight (KG)**
		l		
2 PzS 180	180	47		11.9
3 PzS 270	270	65		17.0
4 PzS 360	360	83		22.1
5 PzS 450	450	101		27.1
6 PzS 540	540	119		32.2
7 PzS 630	630	137		37.2
8 PzS 720	720	155		42.3
9 PzS 810	810	174		47.4
10 PzS 900	900	192		52.4

Plate Type: 105 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm*** b: 198	h1: 514 / h2: 541	Weight (KG)**
		l		
2 PzS 210	210	47		13.5
3 PzS 315	315	65		19.1
4 PzS 420	420	83		24.6
5 PzS 525	525	101		30.5
6 PzS 630	630	119		36.1
7 PzS 735	735	137		41.8
8 PzS 840	840	155		47.4
9 PzS 945	945	174		53.1
10 PzS 1050	1050	192		58.4

* According to IEC60254 - Part1
** Filled and charged cell weights ±5%
*** Cells'dimensions according to IEC60254 - Part2

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Traction Batteries [PzS]

Plate Type: 115 Ah				
Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 548 h2: 575 l	
2 PzS 230	230	47		14.2
3 PzS 345	345	65		20.3
4 PzS 460	460	83		26.4
5 PzS 575	575	101		32.4
6 PzS 690	690	119		39.0
7 PzS 805	805	137		44.7
8 PzS 920	920	155		50.6
9 PzS 1035	1035	174		56.6
10 PzS 1150	1150	192		62.7

Plate Type: 125 Ah				
Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 568 h2: 595 l	
2 PzS 250	250	47		15.0
3 PzS 375	375	65		21.2
4 PzS 500	500	83		27.4
5 PzS 625	625	101		33.9
6 PzS 750	750	119		40.3
7 PzS 875	875	137		46.5
8 PzS 1000	1000	155		53.1
9 PzS 1125	1125	174		59.4
10 PzS 1250	1250	192		66.0

Plate Type: 140 Ah				
Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 688 h2: 715 l	
2 PzS 280	280	47		17.5
3 PzS 420	420	65		24.7
4 PzS 560	560	83		31.8
5 PzS 700	700	101		39.3
6 PzS 840	840	119		46.7
7 PzS 980	980	137		53.9
8 PzS 1120	1120	155		61.3
9 PzS 1260	1260	174		68.6
10 PzS 1400	1400	192		76.0

Plate Type: 155 Ah				
Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 713 h2: 740 l	
2 PzS 310	310	47		18.9
3 PzS 465	465	65		26.7
4 PzS 620	620	83		34.6
5 PzS 775	775	101		42.6
6 PzS 930	930	119		50.5
7 PzS 1085	1085	137		58.5
8 PzS 1240	1240	155		66.4
9 PzS 1395	1395	174		74.4
10 PzS 1550	1550	192		82.4

* According to IEC60254 - Part1
** Filled and charged cell weights ±5%
*** Cells'dimensions according to IEC60254 - Part2

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Traction Batteries [PzB]

Plate Type: 55 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm*** b: 158 h1: 401 h2: 428 l	Weight (KG)**
2 PzB 110	110	45	7.9
3 PzB 165	165	61	11.0
4 PzB 220	220	77	14.0
5 PzB 275	275	93	17.1
6 PzB 330	330	109	20.1
7 PzB 385	385	125	23.2
8 PzB 440	440	141	26.2
9 PzB 495	495	157	29.2
10 PzB 550	550	173	32.3

Plate Type: 65 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm*** b: 158 h1: 457 h2: 484 l	Weight (KG)**
2 PzB 130	130	45	9.1
3 PzB 195	195	61	12.5
4 PzB 260	260	77	16.1
5 PzB 325	325	93	19.5
6 PzB 390	390	109	23.0
7 PzB 455	455	125	26.5
8 PzB 520	520	141	30.1
9 PzB 585	585	157	33.5
10 PzB 650	650	173	37.0

Plate Type: 75 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm*** b: 158 h1: 514 h2: 541 l	Weight (KG)**
2 PzB 150	150	45	10.3
3 PzB 225	225	61	14.2
4 PzB 300	300	77	18.2
5 PzB 375	375	93	22.2
6 PzB 450	450	109	26.2
7 PzB 525	525	125	30.2
8 PzB 600	600	141	34.2
9 PzB 675	675	157	38.2
10 PzB 750	750	173	42.2

Plate Type: 85 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm*** b: 158 h1: 570 h2: 597 l	Weight (KG)**
2 PzB 170	170	45	11.5
3 PzB 255	255	61	16.2
4 PzB 340	340	77	20.5
5 PzB 425	425	93	25.0
6 PzB 510	510	109	29.4
7 PzB 595	595	125	33.8
8 PzB 680	680	141	38.4
9 PzB 765	765	157	42.6
10 PzB 850	850	173	47.2

* According to IEC60254 - Part1
** Filled and charged cell weights ±5%
*** Cells'dimensions according to IEC60254 - Part2

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Traction Batteries [PzB]

Plate Type: 100 Ah				
Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 158	h1: 606 h2: 633	
		l		
2 PzB 200	200	45		12.3
3 PzB 300	300	61		16.8
4 PzB 400	400	77		21.5
5 PzB 500	500	93		26.1
6 PzB 600	600	109		30.8
7 PzB 700	700	125		35.4
8 PzB 800	800	141		40.1
9 PzB 900	900	157		44.5
10 PzB 1000	1000	173		48.9

Plate Type: 105 Ah				
Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 158	h1: 686 h2: 713	
		l		
2 PzB 210	210	45		14.1
3 PzB 315	315	61		19.4
4 PzB 420	420	77		24.8
5 PzB 525	525	93		30.1
6 PzB 630	630	109		35.4
7 PzB 735	735	125		40.9
8 PzB 840	840	141		46.3
9 PzB 945	945	157		52.5
10 PzB 1050	1050	173		58.4

* According to IEC60254 - Part1
** Filled and charged cell weights ±5%
*** Cells'dimensions according to IEC60254 - Part2

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Traction Batteries [PzV]

Plate Type: 55 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 341.5 h2: 371.5	
		l		
2 PzV 110	110	47		8.3
3 PzV 165	165	65		11.5
4 PzV 220	220	83		15.0
5 PzV 275	275	101		18.5
6 PzV 330	330	119		22.3
7 PzV 385	385	137		24.8
8 PzV 440	440	155		28.7
9 PzV 495	495	173		31.9
10 PzV 550	550	191		35.1

Plate Type: 70 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 404 h2: 434	
		l		
2 PzV 140	140	47		9.7
3 PzV 210	210	65		14.0
4 PzV 280	280	83		18.2
5 PzV 350	350	101		22.3
6 PzV 420	420	119		26.3
7 PzV 490	490	137		30.5
8 PzV 560	560	155		34.9
9 PzV 630	630	173		38.9
10 PzV 700	700	191		43.0

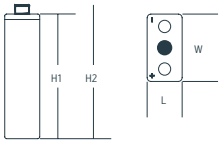
Plate Type: 80 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 458.5 h2: 488.5	
		l		
2 PzV 160	160	47		11.1
3 PzV 240	240	65		15.9
4 PzV 320	320	83		20.5
5 PzV 400	400	101		25.6
6 PzV 480	480	119		30.1
7 PzV 560	560	137		34.5
8 PzV 640	640	155		39.0
9 PzV 720	720	173		43.8
10 PzV 800	800	191		48.4

Plate Type: 100 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 554 h2: 584	
		l		
2 PzV 200	200	47		14,8
3 PzV 300	300	65		20,4
4 PzV 400	400	83		26,4
5 PzV 500	500	101		32,7
6 PzV 600	600	119		39,1
7 PzV 700	700	137		43,6
8 PzV 800	800	155		51,4
9 PzV 900	900	173		57,1
10 PzV 1000	1000	191		63,6

± 5% weight tolerance
H1: Height over lid
H2: Overall height including connector and bolt
Torque: 23Nm



* According to IEC60254 - Part1
** Filled and charged cell weights ±5%
*** Cells'dimensions according to IEC60254 - Part2

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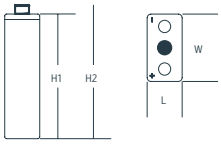
Traction Batteries [PzV]

Plate Type: 120 Ah				
Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 671.5 h2: 701.5	
		l		
2 PzV 240	240	47		16.0
3 PzV 360	360	65		23.0
4 PzV 480	480	83		30.1
5 PzV 600	600	101		37.0
6 PzV 720	720	119		44.7
7 PzV 840	840	137		50.7
8 PzV 960	960	155		58.1
9 PzV 1080	1080	173		64.7
10 PzV 1200	1200	191		71.9

Plate Type: 140 Ah				
Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 713.5 h2: 743.5	
		l		
2 PzV 280	280	47		17.5
3 PzV 420	420	65		25.5
4 PzV 560	560	83		33.8
5 PzV 700	700	101		39.6
6 PzV 840	840	119		48.0
7 PzV 980	980	137		55.6
8 PzV 1120	1120	155		63.0
9 PzV 1260	1260	173		70.2
10 PzV 1400	1400	191		78.3

± 5% weight tolerance
H1: Height over lid
H2: Overall height including connector and bolt
Torque: 23Nm



* According to IEC60254 - Part1
** Filled and charged cell weights ±5%
*** Cells'dimensions according to IEC60254 - Part2

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Traction Batteries [PzVB]

Plate Type: 61 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 158	h1: 454 h2: 484	
		l		
2 PzVB 122	122	46		8.3
3 PzVB 183	183	62		11.9
4 PzVB 244	244	78		15.1
5 PzVB 305	305	94		18.5
6 PzVB 366	366	110		21.8
7 PzVB 427	427	126		25.3
8 PzVB 488	488	142		28.2
9 PzVB 549	549	158		32.0
10 PzVB 610	610	174		35.6
11 PzVB 671	671	190		39.1
12 PzVB 732	732	206		42.5

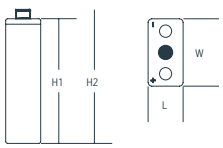
Plate Type: 71 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 158	h1: 515 h2: 545	
		l		
2 PzVB 142	142	46		9.8
3 PzVB 213	213	62		13.7
4 PzVB 284	284	78		17.6
5 PzVB 355	355	94		21.7
6 PzVB 426	426	110		25.5
7 PzVB 497	497	126		29.3
8 PzVB 568	568	142		33.4
9 PzVB 639	639	158		37.3
10 PzVB 710	710	174		41.5
11 PzVB 781	781	190		45.5
12 PzVB 852	852	206		49.5

Plate Type: 85 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 158	h1: 610.5 h2: 640.5	
		l		
2 PzVB 170	170	46		11.4
3 PzVB 255	255	62		15.9
4 PzVB 340	340	78		20.7
5 PzVB 425	425	94		25.3
6 PzVB 510	510	110		29.6
7 PzVB 595	595	126		34.4
8 PzVB 680	680	142		39.3
9 PzVB 765	765	158		43.5
10 PzVB 850	850	174		48.7
11 PzVB 935	935	190		53.2
12 PzVB 1020	1020	206		57.5

± 5% weight tolerance
H1: Height over lid
H2: Overall height including connector and bolt
Torque: 23Nm



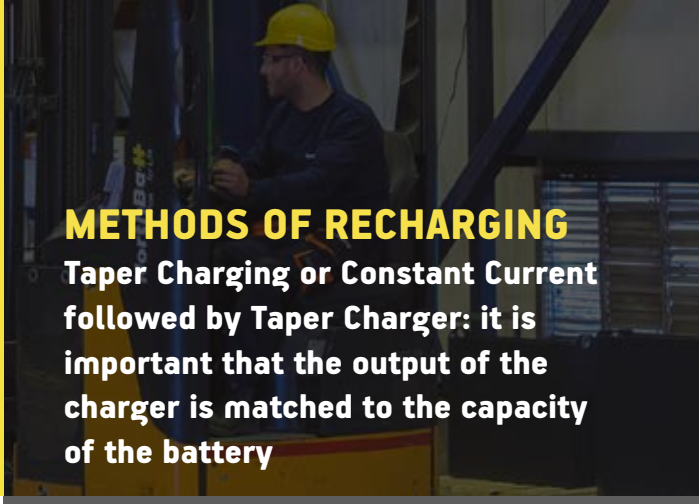
* According to IEC60254 - Part1
** Filled and charged cell weights ±5%
*** Cells'dimensions according to IEC60254 - Part2

NorthBa Power for Life

MOTIVE

POWER CELL

OPERATION & MAINTENANCE (Flooded Tubular)



METHODS OF RECHARGING

Taper Charging or Constant Current followed by Taper Charger: it is important that the output of the charger is matched to the capacity of the battery

GENERAL

It is recommended that the battery is not discharged over 80% of the nominal capacity. When the battery is discharged it should be recharged as soon as possible with the appropriate charger. The battery compartment should be open for additional ventilation during charging. The vent plugs should be left firmly in position.

- A battery is ready for operation after it is properly charged.
- Batteries must be put on recharge immediately after discharge.
- Recharging to be done with Recommended Traction Taper Chargers only.
- Carry out an Equalizing Charge once every 2 weeks if the battery is worked heavily (80% DOD). If the battery is discharged up to 50% **everyday**, an equalizing charge can be carried out once in 4 weeks.
- Keep battery top clean and dry. Check earth leakage and if the leakage voltage is more than 7-8 % of the battery voltage, thoroughly wash the battery and dry it.
- Water topping-up with battery grade water has to be done on a regular basis.

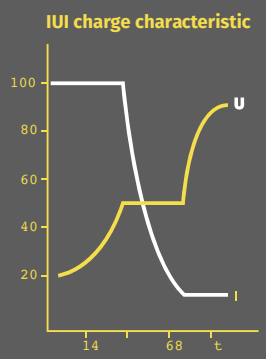
Typical IUI Recharge:

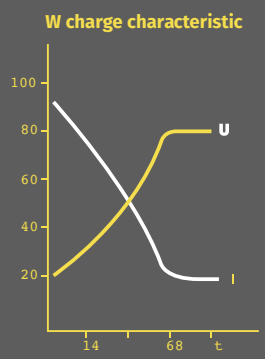
Taper Charging or Constant Current followed by Taper Charger: it is important that the output of the charger is matched to the capacity of the battery.

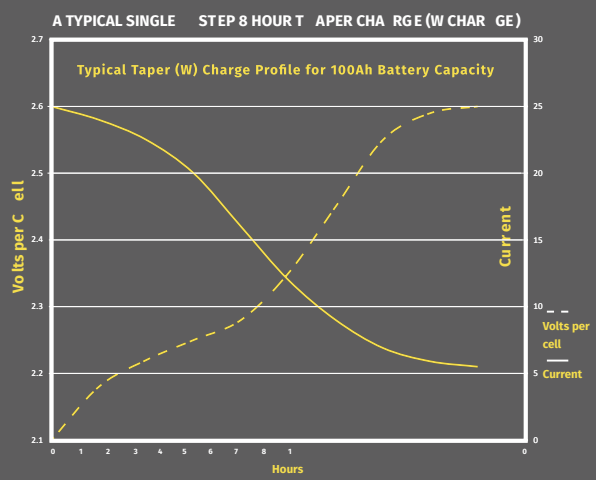
01
@ 15% of rated C% till 2.35 vpc

02
Constant Volt @ 2.35 vpc till the current tapers to 7-8% of C5

03
@ 7-8% of C5 till the voltage reaches 2.65 volt per cell







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EQUALIZING CHARGE

Traction cells over a period of use develop unequal state of charge (unequal specific gravities) and need to be equalized from time to time. If this state of inequality is allowed to continue, the battery loses effective capacity, the weakest cell capacity being the deciding factor for battery capacity.

01	Connect the battery to a charger and commence charging at 3% of battery capacity in Amperes. The current has to be kept constant throughout the charging process.
02	Top Up all cells up to the requisite level with DM water.
03	Take hourly readings of specific gravity, voltage and temperature.
04	Equalizing charges are to be continued.

CHARGING REGIME WITH IUI

- t1: Initial current: I1 = 15.20 A per 100 Ah C 5 h
- t2: Charging at 2.4 V per cell, current reduction to I2
- t3: Gas charging with I2 = 1.2 A to 1.6 A per 100 Ah C 5 h

t1, t2 and t3 are time intervals of charging steps.
(t1 + t2), is set of maximum 10 h for safety reasons
t3 should be equal to (t1 + t2), but at least 1 h and maximum 4h.

Warning:

If higher Charging currents are used (during t3), the cells will dry out. Using the above EIL charging regime and maintaining operating guidelines recommended by EIL, following cycle life can be expected.

Battery Life and Depth of Discharge (*DOD)

The lifespan of a battery is directly affected by its Depth of Discharge (DOD):

- **DOD 80% → The battery lasts for 1,500 cycles at **25°C**
- **DOD 40% → The battery lasts for 3,000 cycles at **25°C**

Analysis:

- **The higher the depth of discharge (i.e., the more energy is used before recharging), the shorter the battery's lifespan.**
- **Conversely, with a lower DOD, the battery can endure more charge-discharge cycles before degrading.**

MOTIVE POWER CELL GEL

APPLICATION

- PzV - Batteries are maintenance-free and designed for a high cycle life and a high operational safety.
- PzV - Batteries are ideal for Motive Power applications.
- Where maintenance is not possible.
- Where charging should be made outside of charging stations between the goods.
- Where sensitive goods like fresh food productsare transported.

DESIGN

- Positive plate: Robust Tubular Plate.
- Alloy: PbCaSn Alloy free from Cadmium and Antimony.
- Electrolyte: Gelled Electrolyte Using Silica.
- Pole bushing: 100% acid and gas tight.
- Poles: With brass insert and thread M10 female.
- Connectors: Bolt-on flexible, fully insulated intercell and terminal connectors
- Valve: With optimized opening pressure and with backfire barrier

OPERATION

- Operational temperature: -10 °C to +45 °C Regular.
- Discharges: Up to 60 %.
- Final charging current: Maximum 1.6 A/100 Ah C 5 h
- Self discharge: Less than 2 % per month
- No topping up during the whole life.
- No electrolyte spilling from the battery.
- Reduced ventilation requirements.

Accesories

Technical Features

Chargers

Battery chargers range available in several voltage versions to meet the charging requirements of most battery sizes.

Battery watering system

Complete system for water filling of lead acid traction batteries automatically without manual intervention.

Electrolyte circulation system

The electrolyte circulation system ensures a permanent electrolyte movement inside the cell. The air pumped into the base of the cell maintains an electrolyte circulation offering lower water consumption, lower battery temperature and long life.

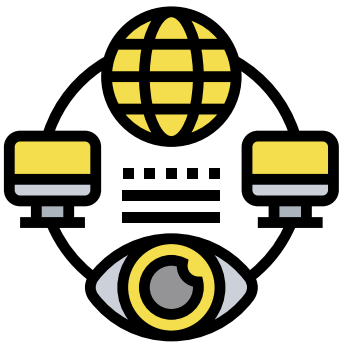
Accesories

Technical Features

Electrolyte level monitoring system

A simple yet extremely efficient monitoring system for the electrolyte level of the cells.

Battery status monitoring system



A high-quality product that provides essential information on the status of the battery such as voltage, temperature etc.

NorthBatt
Power for Life

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