



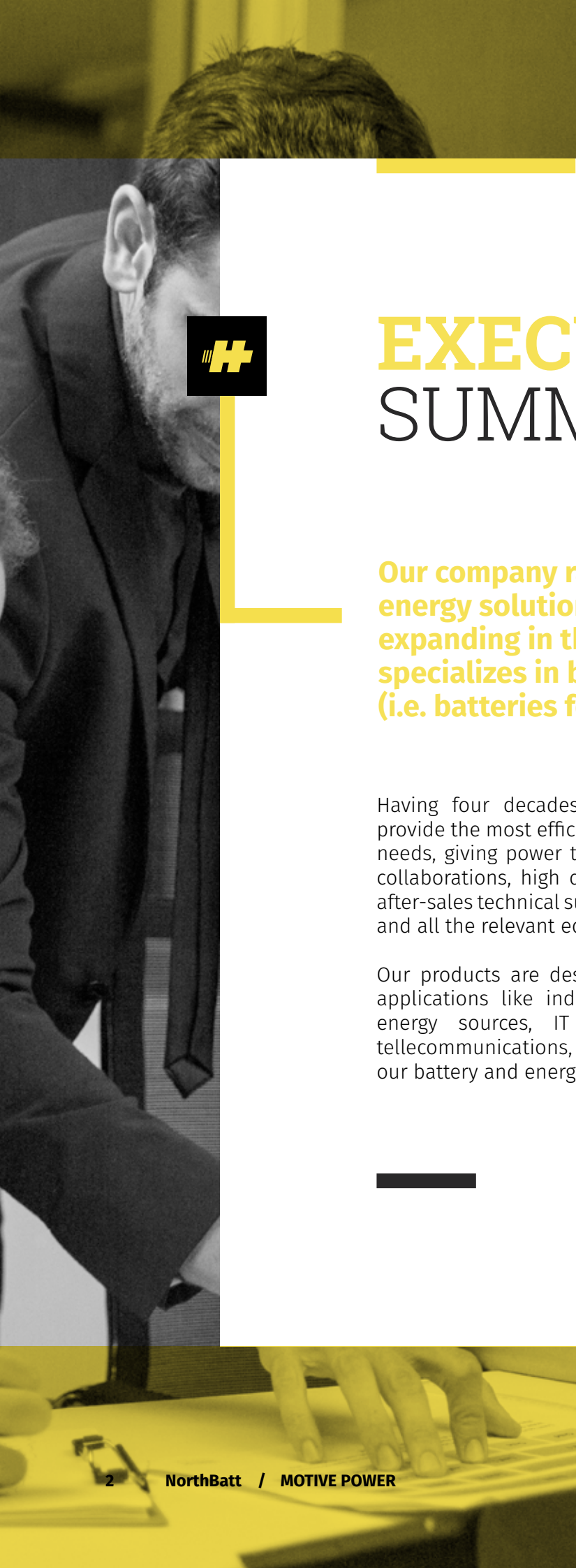
NorthBa 
Power for Life

MOTIVE POWER

**LEAD ACID
CELLS & BATTERIES**

PzS DIN & PzB BS





EXECUTIVE SUMMARY

Our company ranks amongst the leaders in energy solutions companies in Greece, currently expanding in the global market. Northbatt specializes in batteries for industrial applications. (i.e. batteries for motive and reserve power).

Having four decades of experience, Northbatt is committed to provide the most efficient solutions to cover its customer's 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 the following 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!





**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 positive tubular
constructed design for
heavy duty applications,
provides high performance,
reliability, low maintenance
and longer life.

PzV & PzVB

Cells and Batteries
Unique gell technology
for high cycle life,
maintenance free.

ACCESSORIES

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



Connectors

Manufactured of thermoplastic rubber
Acid resistance.
High flexibility
Easy to fit and replace.

Bolt

Insulated plastic- head
connector bolt.

Tray

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



DIN CELL RANGE

Plate Type: 60 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)**
		b: 198	h1: 343	
			h2: 370	
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***		Weight (KG)**
		b: 198	h1: 408	
			h2: 435	
l				
2 PzS 160	160	47		10.5
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***		Weight (KG)**
		b: 198	h1: 478	
			h2: 505	
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***		Weight (KG)**
		b: 198	h1: 515	
			h2: 545	
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		53.0
10 PzS 1050	1050	192		58.4

DIN CELL RANGE

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



BS CELL RANGE

Plate Type: 55 Ah

Type Designation	Nominal Capacity Ah (C5)*	max cell dimensions mm***		Weight (KG)*
		b:158	h1: 401	
			h2: 428	
		l		
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***		Weight (KG)*
		b: 158	h1: 457	
			h2: 484	
		l		
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***		Weight (KG)
		b: 158	h1: 514	
			h2: 541	
		l		
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***		Weight (KG)
		b: 158	h1: 570	
			h2: 597	
		l		
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

BS CELL RANGE

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 IEC 60254- Part 1

** Filled and charged cell weights \pm 5%

*** Cells' dimensions according to IEC 60254-Part 2

Power for Life





PzV CELLS DIN

158mm wide, with bolted connectors

Plate Type: 55 Ah*			
wide 198mm	cap Ah (C5)	weight (kg)	Length (mm)
2 PzV	110	9,0	47
3 PzV	165	12,7	65
4 PzV	220	16,7	83
5 PzV	275	20,5	101
6 PzV	330	24,2	119
7 PzV	385	28,0	137
8 PzV	440	32,0	155
9 PzV	495	35,6	173
10 PzV	550	39,7	191

Plate Type: 70 Ah*			
wide 198mm	cap Ah (C5)	weight (kg)	Length (mm)
2 PzV	150	11,6	47
3 PzV	225	16,4	65
4 PzV	300	20,7	83
5 PzV	375	25,3	101
6 PzV	450	30,3	119
7 PzV	525	35,1	137
8 PzV	600	40,0	155
9 PzV	675	45,3	173
10 PzV	750	49,9	191

Plate Type: 100 Ah*			
wide 198mm	cap Ah (C5)	weight (kg)	Length (mm)
2 PzV	220	19,3	47
3 PzV	330	26,1	65
4 PzV	440	32,8	83
5 PzV	550	40,1	101
6 PzV	660	47,0	119
7 PzV	770	53,8	137
8 PzV	880	60,0	155
9 PzV	990	68,8	173
10 PzV	1100	75,4	191

Plate Type: 120 Ah*			
wide 198mm	cap Ah (C5)	weight (kg)	Length (mm)
2 PzV	250	22,0	47
3 PzV	375	30,3	65
4 PzV	500	38,0	83
5 PzV	625	46,5	101
6 PzV	750	54,4	119
7 PzV	875	62,2	137
8 PzV	1000	69,3	155
9 PzV	1125	79,5	173
10 PzV	1250	87,1	191

PzV CELLS BS

158mm wide, with bolted connectors

Plate Type: 61 Ah*

wide 158mm	cap Ah (C5)	weight (kg)	Length (mm)
2 PzV-BS	122	9,7	45
3 PzV-BS	183	13,5	61
4 PzV-BS	244	16,9	77

Plate Type: 71 Ah*

wide 158mm	cap Ah (C5)	weight (kg)	Length (mm)
2 PzV-BS	142	10,6	45
3 PzV-BS	213	14,8	61
4 PzV-BS	284	18,5	77

Plate Type: 85 Ah*

wide 158mm	cap Ah (C5)	weight (kg)
2 PzV-BS	170	11,8
3 PzV-BS	255	16,1
4 PzV-BS	340	20,7

* Capacity per positive plate Ah (C5) at 30° C.
Weight cell is filled and charged ± 5%.
Heights given ± 2mm.



**Batteries for forklifts,
trucks, cleaning
machines and
different kind of
electrical vehicles.**

Battery Features & Advantages

- **MAXIMUM STRENGTH**
- **EXTRA CAPACITY**
- **LONGER LIFE**
- **RELIABILITY**
- **EASY AT OPERATION**



MOTIVE POWER CELL

OPERATION & MAINTENANCE (Flooded Tubular)

GENERAL

It is recommended that the battery is not discharged beyond 80% of nominal capacity. When the battery has been discharged it should be recharged as soon as possible on the appropriate charger. Open the battery compartment to get additional ventilation during a charge. Leave the vent plugs firmly in position.

- A battery is ready for operation after its properly charged.
- Batteries must be put on recharge immediately after discharge.
- Recharging to be done with Recommended Traction Taper Chargers only.
- Carry out Equalizing Charge once every 2 weeks if the battery is worked heavily (80% DOD). If the battery is discharged up to 50% everyday, 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.

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 caoacity of the battery

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 caoacity of the battery.

01

@ 15% of rated C% till 2.35 vpc

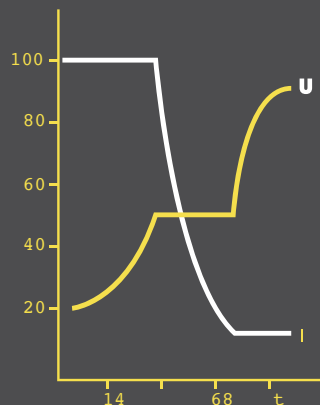
02

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

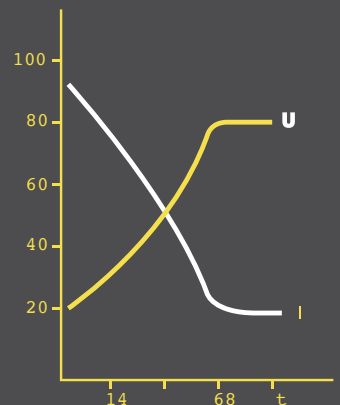
03

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

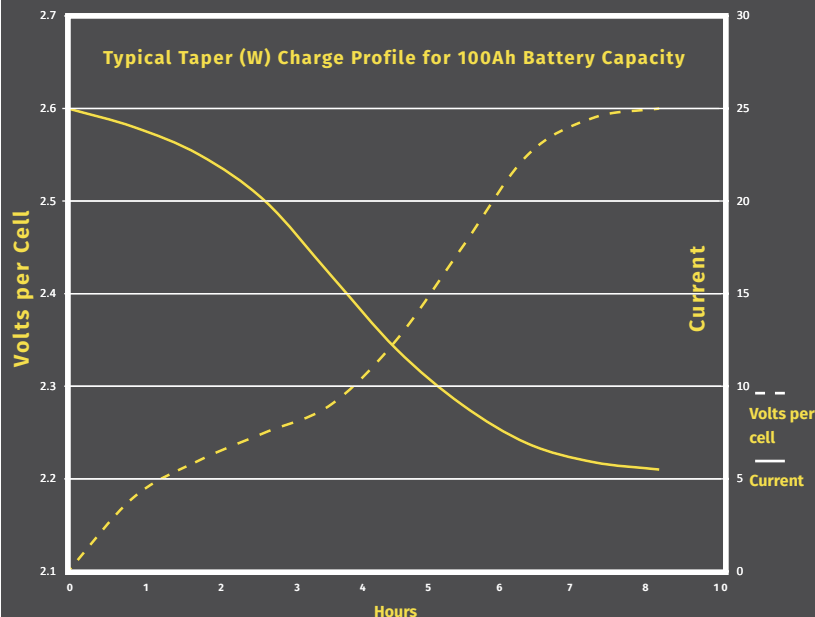
IUI charge characteristic



W charge characteristic



A TYPICAL SINGLE STEP 8 HOUR TAPER CHARGE (W CHARGE)



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 requisite level with DM water.

03

Take hourly readings of specific gravity, voltage and temperature.

04

Equalizing charges to be continued till.



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.

20% DOD ——— 3000 Cycles 60% DOD ——— 1000 Cycles
40% DOD ——— 1500 Cycles 80% DOD ——— 800 Cycles

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 no maintenance people are available.
- Where charging should be made outside of charging stations between the goods.
- Where sensible goods like fresh food are 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.



Accessories

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.



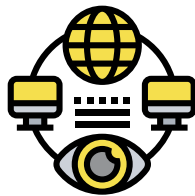


Electrolyte level monitoring system



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.

NorthBa

Power for Life

MOTIVE POWER LEAD ACID CELLS & BATTERIES PZS DIN & PZB BS

HEADQUARTERS

SCHOLIYOU 6, IONIA,
THESSALONIKI, GREECE
PC: 57 008 PO BOX: 485
E.: info@northbatt.com
T.: +30 2310 785722
F.: +30 2310 760882

MANUFACTURING PLANT

AT 53B ROAD 14, IND. SINDOU
E.: info@northbatt.com
Tel.: +30 2310 570203

OFFICES-ATHENS

PEUKON 147,
N. IRAKLEIO, ATHENS
PC: 14122
E.: info@northbatt.com
T.: +30 2310 785722

