



# Company Profile

- I. Company overview**
- II. Business area**
- III. Core Technology**
- IV. Main Products**
- V. Sales**

# I. Company overview

MAROO-ON

# I. Company overview

(주)마루온

MarooOn Inc.

www.maroo-on.com

MarooOn ?

Maroo = 'Highest' in Korean

On = 'Overall, whole' in Korean



## Biz idea

How to use batteries longer?

- ✓ Exported to over 90 countries (As of December 2022)
- ✓ Exported Battery equipment more than 80% of total sales

- CEO : Mr. Han, Yeonsoo
- Establishment Date : February, 2009
- Employees : 24 employees
- Head Office (R&D Center) :  
1247, Dureungyuri-ro, Ochang-eup, Cheongwon-gu, Cheongju-si,  
Chungcheongbuk-do, Korea (28128)
- Main business :  
Battery Restoration system, Charger, Discharger,  
Battery Monitoring system, UPS
- marooOn Keyword  
#Quality #Technical service #export

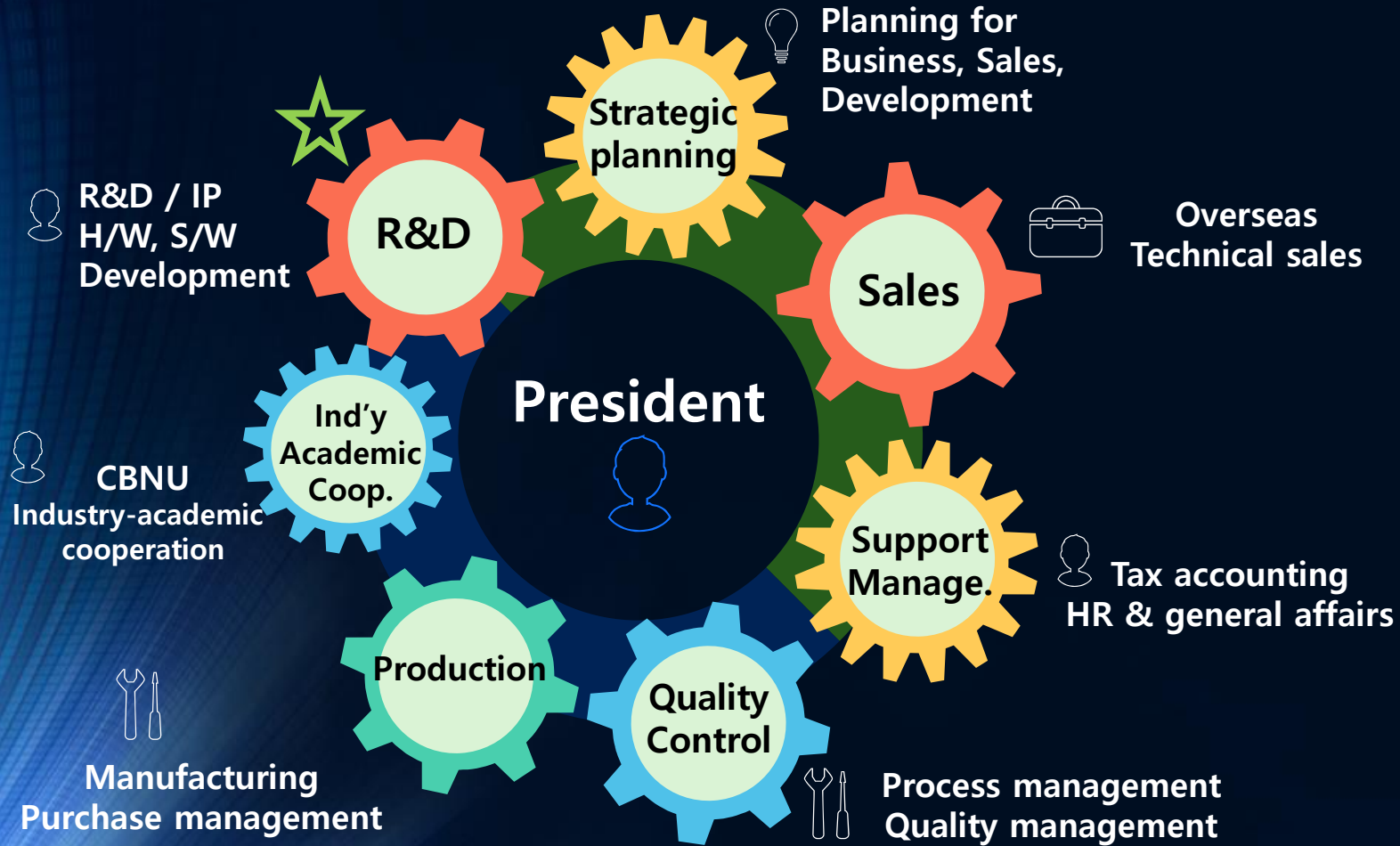
# I. Company overview

## ● Company history





# I. Organization



## <Organization of MarooOn>

### 1. Company specialized in R&D

- Overall staff : 24 employees
- Research developer : 13 employees  
(Large power, Core developer over 15 years of experience : 6 employees)

### 2. Develop technology based on patent

- All the products certified
- Develop H/W, S/W (Possible quick support)

### 3. Man-power in charge of Overseas team

- 2 person in charge of overseas sales
- Focus on customer support, gaining new customers

- ❖ Registered Patent: 21
- ❖ Registered Design & Trademark: 17



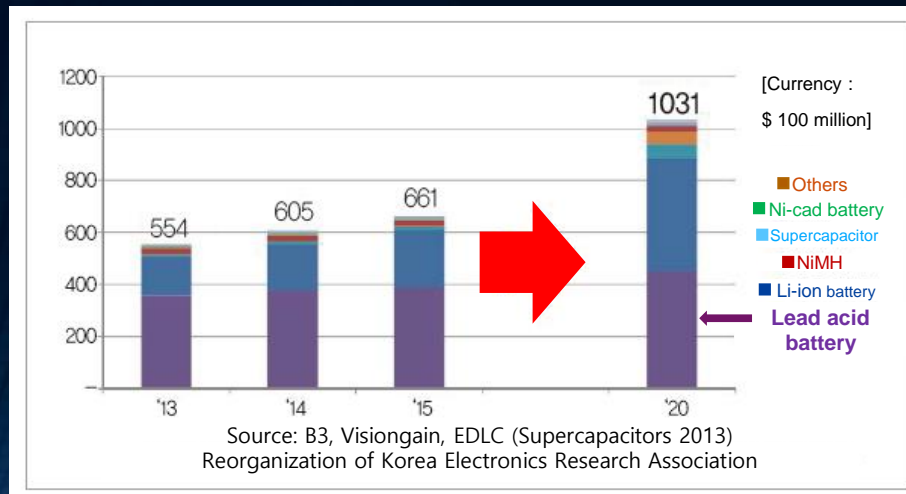
## II. Business area

MAROO-ON



## II. Business area

- Global Secondary battery(rechargeable battery) market



- According to the market research organization B3, the secondary battery in 2013 worldwide total sales was **\$55.4 billion.**
- In 2020, the secondary battery market will grow to 103.1 billion dollars. The **lead acid battery** market is expected to be worth **\$42 billion.**

#Source: B3, Visiongain, EDLC (Supercapacitors 2013) Reorganization of Korea Electronics Research Association



## II. Business area

- Target market

### 1. Fixed type of UPS battery market



Telecom/ Server center/ Broadcasting



Bank computer room



Hospital, Government office



Military

### 2. Mobile logistics battery market



Large manufacturing site



Airport/port facilities



Logistics company



Golf Club



Electric logistics rental business

# II. Business area

## ● Reference BIZ Model

### ❖ Sales of Battery maintenance equipment

- ✓ Exported to over 90 countries
  - Germany "Linde", USA "Liftech", "Hyster-Yale", "Raymond", "Crown", "Toyota" etc.



- ✓ As of December 2018, +20 **battery recycling service factories** in 5 countries
- ✓ Battery maintenance service for large carriers in Southeast Asia and South America
  - Thailand : AIS, ToT, Thai airline, DHL
  - Indonesia : Telkomsel
  - South America(Chile) : Telefnica, Claro, Movistar, Gtd manquehue



[Thailand Battery restoration system factories]



[Indonesia Battery restoration system factories]

**Extend battery usage period!!**

**Save the Earth!!**

**Save your money!!**

### ❖ Battery maintenance service

#### ■ Before

Industrial battery



Used  
Replace period  
1 ~ 10 years

Disposal



#### ■ After battery restoration service by MarooOn system

The most batteries can be **reused**

Except for batteries in real messy condition

Industrial battery



Reuse

Restoration



Disposal





# II. Business area

- Reference BIZ Model

- Case of maintenance for large industrial battery in Carrier

- 1) Nunyoa Station in Santiago of Movistar, Chile



## Standby Battery Information

- A. Brand : C&D, U.S.A.
- B. Using period : 1998 ~2015 (17years)
- C. Model No. : LCT2175 / 2V 2,175AH

- Initial Discharge **before** Restoration

Date	Discharge condition	Discharge Min. Voltage	Total Discharge time	Rate compare to New Battery
July 04, 2015	90A/h	1.86V/cell 44.6V (As per spec.)	13h 29	55.0%

- 1<sup>st</sup> Discharge **after** Restoration by MCS-1007F

Date	Discharge condition	Discharge Min. Voltage	Total Discharge time	Rate compare to New Battery
July 8, 2015	90A/h	1.86V/cell 44.6V (As per spec.)	23h30	97.2%



# II. Business area

- Reference BIZ Model

- Case of maintenance for large industrial battery in Carrier

- 2) Piamm battery of ToT, Thailand



## Standby Battery Information

- A. Brand : Piamm, Italy
- B. Using period : 2004Y ~2016Y (12years)
- C. Model No. : 16OpzS2000 / 2V 2,100AH

- Initial Discharge **before** Restoration

Date	Discharge condition	Discharge Min. Voltage	Total Discharge time	Rate compare to New Battery
Nov 29, 2016	210A/h	1.8V/cell 43.2V (As per spec.)	1h 45	18%

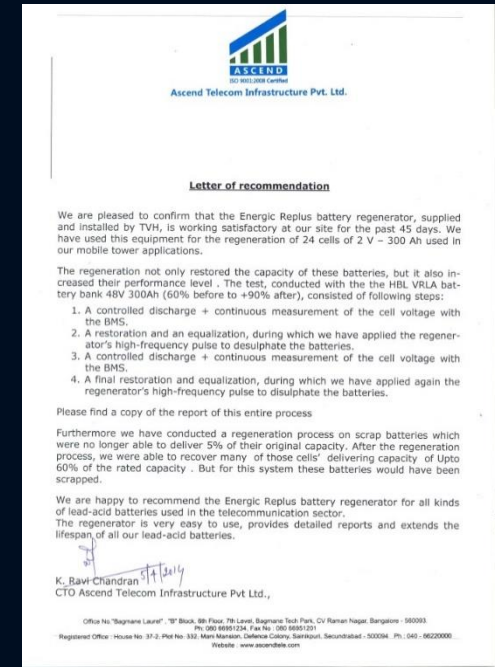
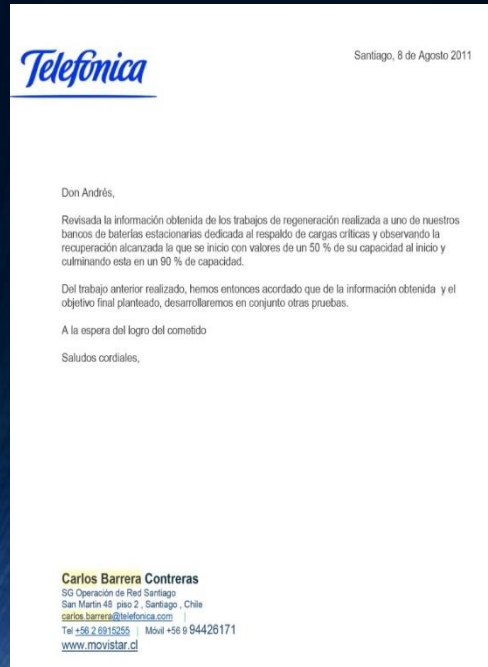
- 1<sup>st</sup> Discharge **after** Restoration by MCS1007F

Date	Discharge condition	Discharge Min. Voltage	Total Discharge time	Rate compare to New Battery
Dec 2, 2016	210A/h	1.8V/cell 43.2V (As per spec.)	9h15	93%

# II. Business area

## ● Reference BIZ Model

### ❖ Carrier battery maintenance – Recommendation letters



## II. Business area

- MarooOn global sales partners & Brands



[Europe/South America/Asia]



[North America]



[East Asia]



- Global Reference





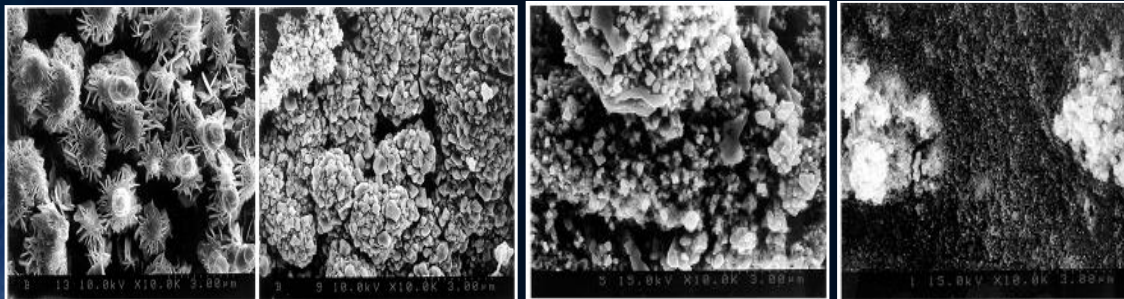
# III. Core Technology

MAROO-ON

# III. Core technology

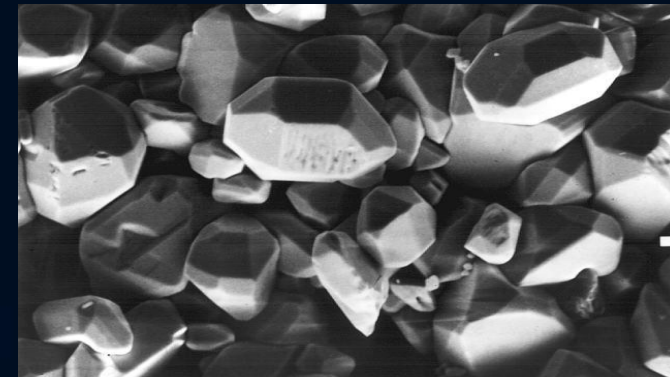
- **Causes of battery degradation – What is Sulfation?**

While using batteries, small lead sulfate crystals are formed. This is normal and not harmful. In case of a prolonged lack of charge, however, lead sulfate is converted to a crystalline form deposited on a negative plate. This leads to a large crystal that reduces active substances of batteries that are responsible for high capacity and low resistance, which block the current passage on the surface of the electric current plate, which increases the resistance. When attached to more than 50% of the electric current plate, batteries are unable to charge and discharge and eventually will have to be discarded.



$\text{PbO}_2$ (Anode)

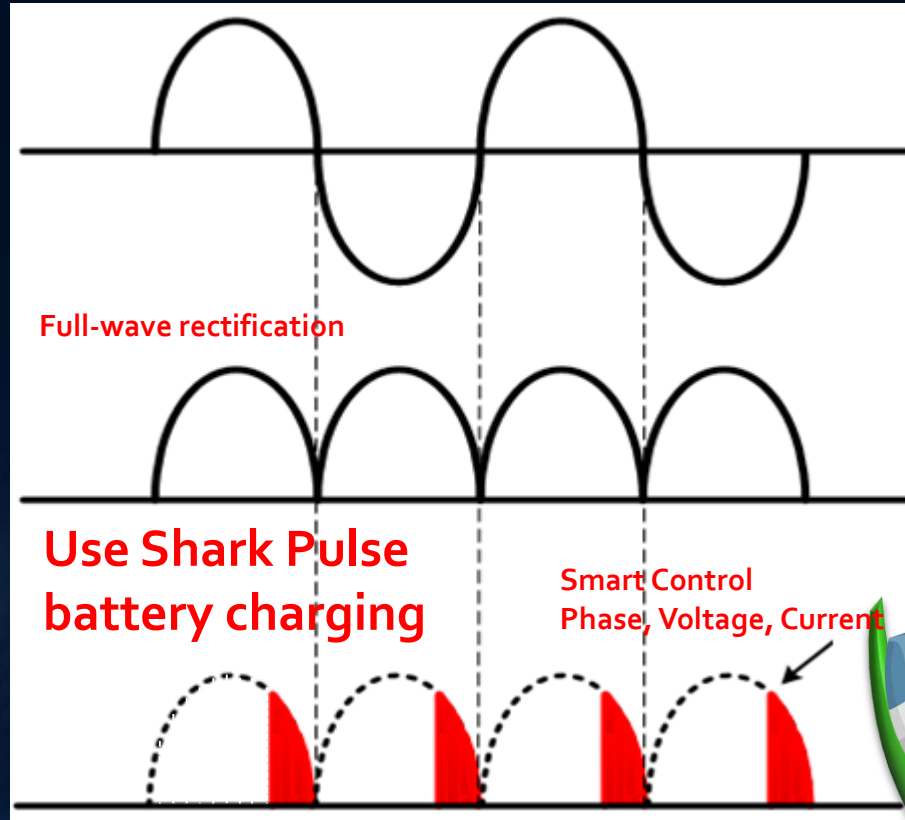
Pb(Cathode)



Lead sulfate

# II. Core technology

- MCS Explanations of how a battery restoration
  - How to remove the hard sulfation(crystal shape)



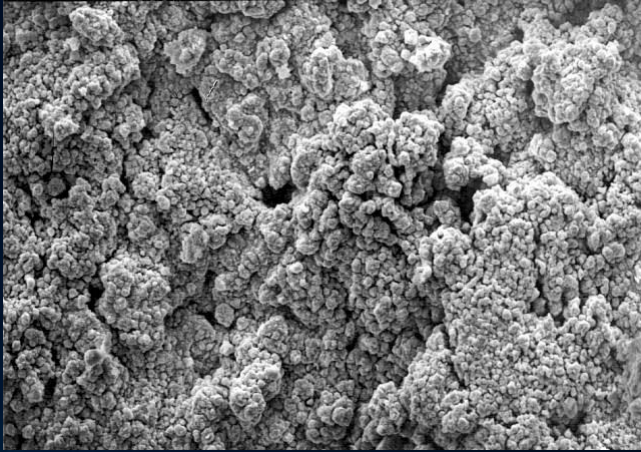
- ✓ Shark pulse made by chopping half cycle (4,000) of input electricity.
- ✓ Smart control Phase, Voltage, Current.
- ✓ The sulfuric acid lead which sticks in the electrode effective removal

**The marooOn Advanced  
Desulfation Technology Solution !!**

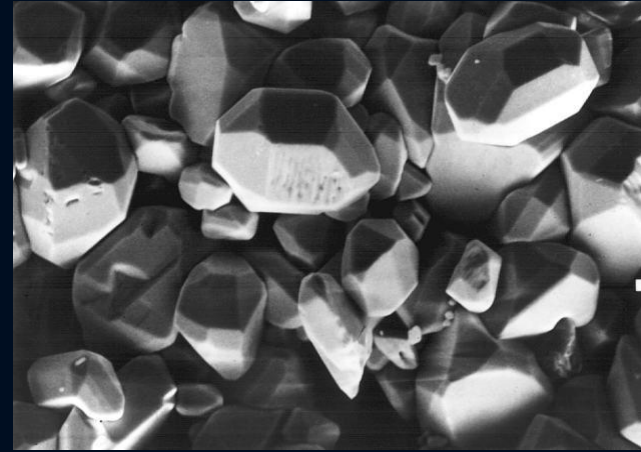


# III. Core technology

- Changes of battery status – Lead acid battery



new lead sponge  
battery plate.



battery plate that has been  
coated by dense, hardened,  
crystalline lead sulfate.  
Notice that no active  
lead sponge is visible



The final recovery of  
the plate to active  
sponge lead.



The size of the lead sulfate  
crystals is decreased, and the  
crystals are pitted as they are  
destroyed.

# III. Core technology

- Major patent technology

- BMS (Battery Monitoring System)

Obtain accurate status of batteries while charging and discharging.

Interworking with MCS through PC program provided

Wireless connection(ZIGBEE, BLUETOOTH)



Wireless measurement device for measuring exact remaining voltage of battery

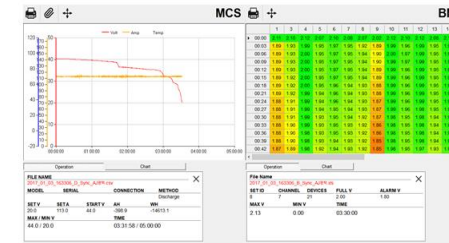
Able to verify for every single cell, It will tell you which specific cells are in bad condition.

## BMS System : Wireless detection of bad cells

- BMS 시스템을 어떻게 쉽게 이용이 가능한지 알아볼까요?

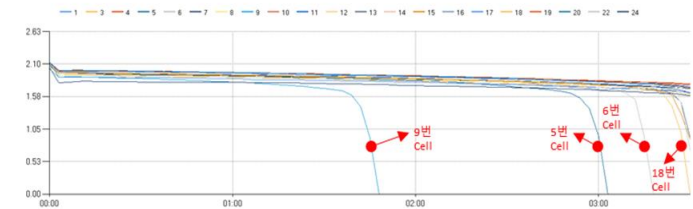


MCS 배터리 재생 시스템과 BMS를 지게차 배터리에 연결합니다. 프로그램을 이용하여 장비와 BMS를 제어합니다.

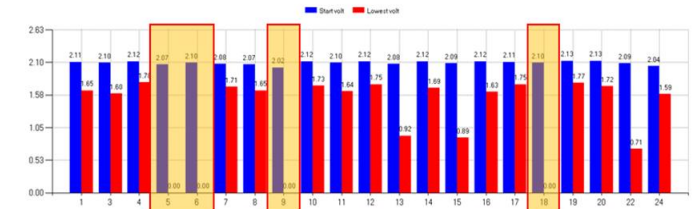


방전 작업 진행 과정

방전 작업이 몇 시간씩 진행되는 동안 작업자가 직접 배터리 개별 Cell 24개를 정해진 시간에 계속해서 측정은 불가능합니다.



Line View로 보면 방전시 배터리 Cell의 전압이 떨어지는 추세를 볼 수 있습니다. 쉽게 찾아낼 수 있습니다.



이 배터리의 경우 무조건 4개의 Cell은 교환을 해야 합니다.



# IV. Main products

MAROO-ON



# III. Main Products

Battery Regenerator  
MCS Lineup



Battery Monitoring System



Charger, Discharger



Lineup

UPS, ESS



# Main Products

## 1. MCS (Miracle Charge System)

**No.1** World's No. 1 Battery regenerator



### MCS Features

- ✓ Application of patented battery recycling technology (Patent No. 10-093150, battery regeneration device)
- ✓ Remove sulfates effectively in lead storage battery
- ✓ Support both **Charging** and **Discharging** batteries in one unit
- ✓ Automated system and easy interface
- ✓ Up to 1,000AH battery capacity
- ✓ Provide PC control & Bluetooth
- ✓ Multilingual support / 8-inch LCD Interface

# Main Products

## ❖ 4 types of MCS model



Portable

Model M-101	
Power	AC 1PH, 220V, 50/60Hz
Output	<u>1.2 ~ 30V, 0.0A ~ 30A</u>
Battery Volume	300 AH
Transformer	None



Model M-1001I	
Power	AC 1PH, 110~220V, 50/60Hz
Output	<u>1.2 ~ 100V, 0A ~ 30A</u>
Battery Volume	300 AH
Transformer	7.5 kW



Model M-1005G	
Power	AC 3PH, 200~440V, 50/60Hz
Output	<u>1.2 ~ 120V, 0A ~ 50A</u>
Battery Volume	500 AH
Transformer	10 kW



Model M-1007F	
Power	AC 3PH, 200~440V, 50/60Hz
Output	<u>1.2 ~ 150V, 0A ~ 100A</u>
Battery Volume	1,000 AH
Transformer	20 kW

Hot



# III. Main Products

## ● Competitive Comparison of Battery Regeneration Equipment

Model		MCS M-1007F	MCS M-1005G	MCS M-1001I	MIDI	BRT-100	BRT-20
Maker	MAROOMCS / KOREA				MACBAT / SWEDEN		Batterie Plus / FRANCE
INPUT Power	3Wire 3Phase 380~440V, 50/60Hz			2Wire 1Phase 220V, 50/60Hz	3Wire 3Phase 380~400V, 50/60Hz		
BATTERY VOLTAGE (V)		1.2~150	1.2~120	1.2~100	①12~48 ②48~80	12~120	12~120
BATTERY CAPACITY (AH)		1,000	500	300	1,000	1,000	1,000
CONTROL FREQ.		150/180Hz	150/180Hz	100/120Hz	15KHz	15KHz	15KHz
TRANSFORMER		20kVA	10kVA	7.5kVA	①15kVA ②20kVA	16kVA	16kVA
SIZE(cm) W×D×H		50×61.3×133	50×61.3×133	40×61.3×133	66×55×120	80×55×195	80×55×100
Discharging (방전)		○	○	○	X	X	X



MAROO ON  
(KOREA)



MIDI  
(SWEDEN)



BRT-100  
(SWEDEN)



BRT-20  
(FRANCE)

# IV. Main Products

## 2. IT Power Equipment (Charger based on OEM, Specialized in customized Discharger)



**Portable  
regenerator**  
(~30V, ~30A)



**Smart Charger**  
(2V - 120V, ~40A)



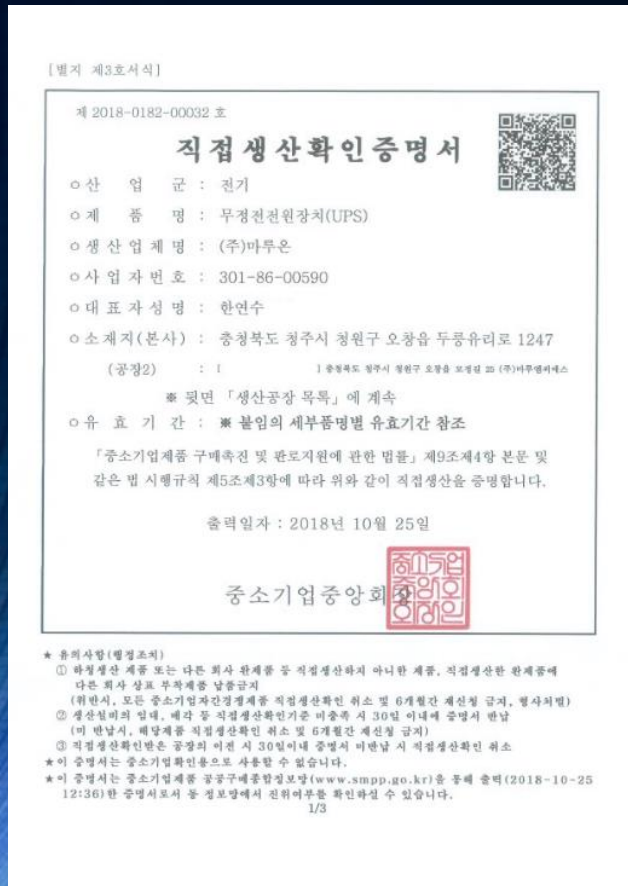
**Smart Discharger**  
(110V - 10V, ~200A)



**EV Discharger**  
(500V - 0V, ~100A)

# IV. Main Products

## 3. UPS (Specialized in customized development based on order. 1kVA ~ 300kVA)



- ❖ Technology and experience for 30 year UPS development
- ❖ Selling UPS and maintenance service
- ❖ Customized UPS from small to large capacity item based on request



Maroo Green  
UPS 11 Series  
(1kVA ~ 10kVA)

Single phase input –  
Single phase output



Maroo Green  
UPS 31 Series  
(10kVA ~ 20kVA)

3ph input – 1ph output



Maroo Green  
UPS 33 Series  
(10kVA ~ 60kVA)

3ph input – 3ph output



Maroo Green  
J Series / Rec type  
(10kVA ~ 10kVA)

1ph input – 1ph output

Maroo On

[Certificate for UPS development and production]



# IV. Main Products

## 4. Remote Battery monitoring system – Online monitoring



**FBMS**  
(Forklift battery)



**CBMS**  
(Golf cart battery)



**BBMS**  
(Telecom BTS battery)



**UBMS**  
(UPS battery)



**Program for PC & Mobile**



- Available to check battery condition on online wherever connecting with Internet
- Available to monitor with Online wherever connecting with Internet
- Can be used all the related industries
- Prohibit accident in advance and reduce cost throughout effective asset and management

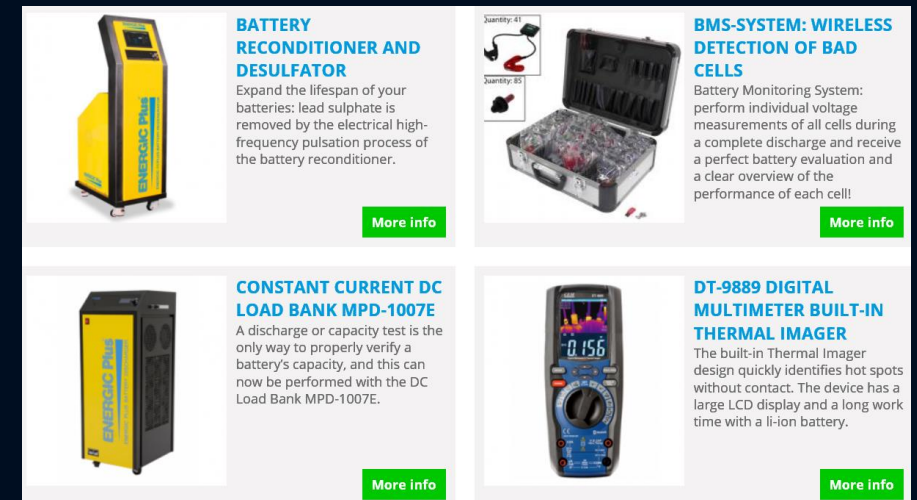
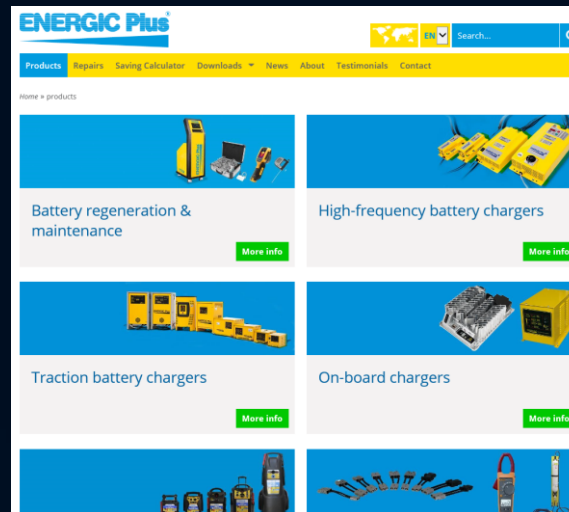
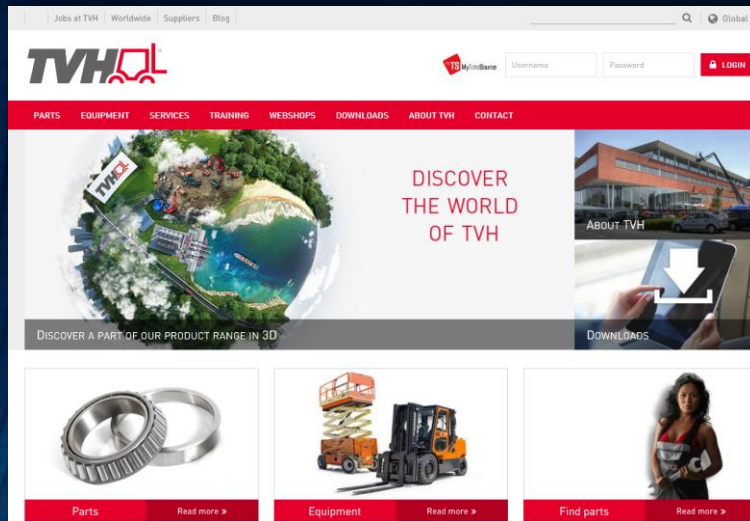
# V. Global sales

MAROO-ON

# V. Global sales

## 1. Network / Partner ship

### ● Introduction of our partner - TVH



- Sales area: Europe
- Operating 25,000 dealer ship in 170 country based on 45 work experience, No.1 electric logistic company has lots of customers
- TVH Brand : Energic Plus
- Started exporting MCS in 2011 and selling 200 units every year to all over the world
- Increasing sales 20% per year




# V. Global sales

## 1. Network / Partner ship

### ● Introduction of our partner - FSIP

**Welcome to FSIP**

FSIP provides new and remanufactured electronic products found on electric and gas powered vehicles. We also provide manufacturing services for OEM legacy type products to help limit the potential for product obsolescence. Some of the many platforms we service include industrial trucks, golf carts, scrubber-sweepers, mining cars/locomotives, electric boats, go-karts and ground support equipment.



Hyster • Yale • Crown • Clark • Toyota • Nissan • JLG • Mitsubishi Caterpillar  
Raymond • Komatsu • Yamaha • Club Car • E-Z-GO • Tennant • Nilfisk-Advance

Restore Your Batteries!

Schedule a demo at your facility!

Click Here For More Info

Our NEW online store is now open!

**SHOP NOW**

Click Here To Visit

DisChargePlus for testing 36V & 48V battery packs!

**NEW**

Click For More Info

### Lead Acid Battery Restoration

The Xtender Battery Regenerator restores and prolongs the lifespan of all sizes and types of lead-acid batteries including flooded, gel, AGM, and valve regulated (VRLA) types.

These batteries are commonly used on electric vehicles in the material handling market, golf carts, telecommunication and battery back-up (UPS) markets.

Batteries lose capacity and efficiency due to sulfation, which is the accumulation of extremely hard lead sulfate crystals. Sulfation is increased due to lack of proper maintenance, incorrect charging and inactivity.

The Xtender successfully desulfates and restores batteries by softening and dissolving the extremely hard crystals during a six stage process. These stages include discharging and electrical high-frequency pulsation phases. Watch the video below to learn more.



### Battery Regenerator Models

FSIP offers 5 different Xtender Battery Regenerator models to maintain a wide variety of batteries, from golf carts and pallets jacks, to high volume industrial lift trucks and telecommunication systems. Each of these battery regenerator machines work in conjunction with the BMS and Smart Discharger, or as stand alone units. Browse the machines below to see which Xtender suits your battery maintenance needs, or [contact us today](#).

#### Xtender Model M1001

Input	Output	Max Amp Hour Rating	Dimensions	Weight	Certification
AC 1 PH 220V	1.2V-100V 0-30A	300Ah	24x16x52.5 in	273 lbs	MET

The Xtender M1001 Model is designed to analyze, desulfate, restore and maintain batteries commonly used in golf carts, scrubber-sweepers, walkies, OTR trucks and aerial lifts. FSIP offers an [on-site demo](#) of the Xtender M1001.

[Request More Info](#)

#### Xtender Model M1005

Input	Output	Max Amp Hour Rating	Dimensions	Weight	Certification
AC 3 PH 220V	1.2V-120V 0-50A	500Ah	24x20x52.5 in	399 lbs	CE

The Xtender Model M1005 analyzes, desulfates, restores and maintains batteries commonly used in golf carts, walkies, and aerial lifts. FSIP offers an [on-site demo](#) of the Xtender M1005.

[Request More Info](#)

#### Xtender Model M1007

Input	Output	Max Amp Hour Rating	Dimensions	Weight	Certification
AC 3 PH 220V	1.2V-125V 0-100A	1000Ah	24x20x52.5 in	554 lbs	MET

#### Xtender Model M1007-480

Input	Output	Max Amp Hour Rating	Dimensions	Weight	Certification
AC 3 PH 480V	1.2V-125V 0-100A	1000Ah	24x20x52.5 in	554 lbs	MET

The Xtender Models M1007 and M1007-480 are custom designed to analyze, desulfate, restore and maintain industrial batteries which are commonly used in forklifts, aerial lifts, stationary power and telecommunications. FSIP offers an [on-site demo](#) of the Xtender M1007 and M1007-480.

[Request More Info](#)

- Company name : FSIP / U.S.A
- TVH subsidiary in USA, selling logistics equipment and service over 30 years
- FSIP Brand : Xtender
- Started selling MCS in 2015 and exporting
- To USA and Canada
- Increasing sales 20% per year making new markets

# V. Global sales

## 1. Network / Partner ship

- Introduction of our partner - IBSG



- Company : iBSG / Indonesia
- Operating a battery restoration factory in Indonesia.
- Brand : Bravo MCS
- Started exporting MCS in 2012, goes to 6 S.E Asia now
- **Battery restoration service at Telkomsel in Indonesia**





# V. Domestic sales

## 2. Domestic sales

- Selling and rental for Equipment related battery



- Main golf clubs in domestic, Selling Forklift, Rental operator for rental service

- Selling UPS / Maintenance



- Performance over 300 to University, government office etc.
- Wolsung nuclear power plant (Developed all the UPS used for nuclear waste dump)
- Red cross blood banking (Developed all the UPS used for Kyungbuk province)

- Selling Forklift battery  
GS YUASA(Japan) total distributors in Chungbuk



- Sell to AJ Networks
- Sell forklift, operator for rental forklift
- Supply to General manufacturers

✓ Increasing sales from 2018

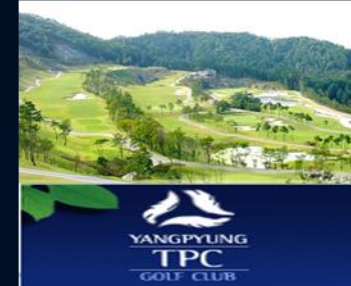
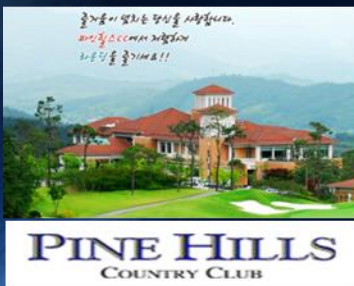
✓ Making sales network in domestic



# V. Domestic sales

## ❖ Domestic sales history

### 1) MCS sales (12 golf clubs supply)



# V. Domestic sales

## ❖ Domestic sales history

### 2) UPS sales



KOREA NUCLEAR POWER PLANT / 1Φ 2KVA



KOREA CUSTOM SERVICE / DSP1000 / 1Φ 10KVA



KOREA ARMY/ DSP1000 / 1Φ 10KVA



DTRO / DSP3000 / 3Φ 150KVA



KEPCO / DSP3000 / 3Φ 150KVA



**NUCLEAR POWER PLANT – Customize UPS**  
(As of January 2019)

**POSTECH**

POSTECH / 1Φ 15KVA



DONG-EUI UNIV / 3Φ 150KVA



PUSAN UNIV / 1Φ 15KVA



YEUNGNAM UNIV / 1Φ 15KVA



CHIMJU UNIV / 1Φ 5KVA



KIST / 1Φ 30KVA

# V. Domestic sales

## ❖ Domestic sales history

### 2) UPS sales

★ **KFCC BANK, BLOOD CENTER – Customize UPS  
BLOOD CENTER)**

**SAMSUNG**

SAMSUNG ELECTORINICS / 1Φ 30KVA



RED CROSS BLOOD CENTER/ 1Φ 15KVA

**POSCO**

POSCO / 3Φ 30KVA



GE SAMSUNG LIGHT / 3Φ 150KVA

**DAEWOO ELECTRONICS**

DAEWOO ELECTORINICS / 3Φ 240KVA



YEONGNAM NEWS / 3Φ 150KVA



KFCC BANK / 1Φ 10KVA



ULVAC KOREA / 3Φ 150KVA

Selling to 300 offices, universities, hospitals, and general companies.



The background is a deep blue gradient. On the left, there is a faint grid of small squares. On the right, there are several concentric, curved lines that create a sense of depth and movement, resembling a tunnel or a stylized eye.

# Thank you

MAROO-ON