

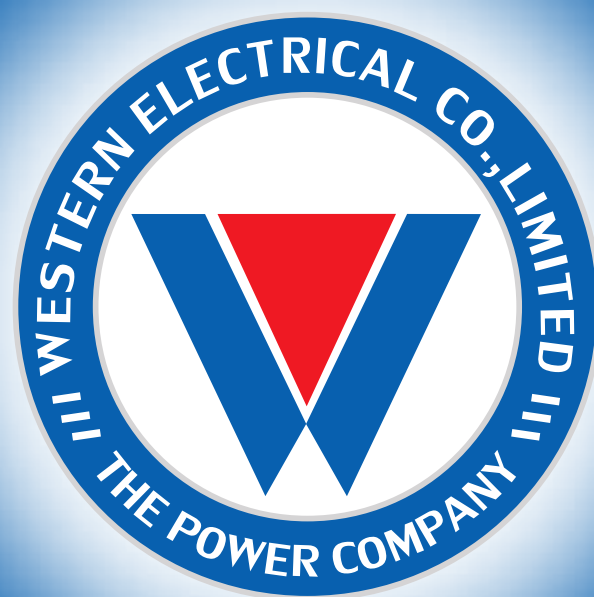


FEEL THE
POWER



GENERAL CATALOGUE

INNOVATION, QUALITY, SERVICE-EVERYTHING AT A GLANCE



GENERAL BATTERY CATALOGUE

THE BOOK OF POWER

DISCLAIMER

These instructions have been written with the most current information available at the time of publication, based on sound engineering principles, research, extensive field experience, and the technical judgment of industry members. However, users are cautioned that this information is subject to change upon developments in technology, field experience, and available fitment data. Western Electrical cannot or does not claim any express or implied responsibility, representation, or warranty concerning this catalogue's data or recommendations. Although this catalogue has been compiled with the utmost care, Western Electrical shall in no event be liable for any loss or damages claimed to have occurred as a result of use of this data or from the recommendations set hence forth. Users should always use the most current edition of the Western Electrical catalogue & applications and consult their equipment manufacturer's user manual or service department for specific replacement battery application information.

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Company Profile

Our Vision

To be a global power supplier in the field of stored energy, power products and environment friendly new technologies.

Our Mission

We will deliver superior products at reasonable prices to our worldwide customers by constant innovation in technology and constant improvement in operational efficiency.

Our Value

Western Electrical will grow reliably through innovation and an intense focus on customers' needs. As we grow, we value most highly the integrity of our business dealings, the quality of our battery products and the development of our people.

We are guided by the following core values:

- **We Take Responsibility for the Quality.**
Our customer can depend on quality as demonstrated in the performance, reliability and durability of our battery products. We commit to deliver excellence, strive for continuous improvement and respond vigorously to change. Each of us is responsible for the quality of whatever we do.
- **We Deliver Customer Satisfaction.**
We are dedicated to satisfying our customers. We believe in respecting our customers, listening to their requests and understanding their expectations. We strive to exceed their expectations in affordability, quality and on-time delivery.
- **We Regard Our Supplier as Essential Team Members.**
We owe our suppliers the same type of respect that we show to our customers. Our suppliers deserve fair and equitable treatment, clear agreements and honest feedback on performance. We consider our suppliers' needs in conducting all aspects of our business.
- **We Act with Integrity in All We Do.**
We are each personally accountable for the highest standards of behavior, including honesty and fairness in all aspects of our work. We fulfill our commitments as responsible citizens and employees. We will consistently treat customers and company resources with the respect they deserve.
- **We Value Every Western Electrical People.**
We treat one another with respect and take pride in the significant contributions that come from the diversity of individuals and ideas. Our continued success requires us to provide the education and development needed to help our people grow. We are committed to openness and trust in all relationships.

About Western Electrical

Established at the beginning of 21st century, Western Electrical Co., Limited is an integrated storage energy power solution supplier with its business area mainly involves in designing, manufacturing and marketing an innovative range of lead acid batteries for starting, lighting, standby and energy storage purpose to cover a wide application of automotive vehicles, motorcycle & power sports motor engine, the latest developed electric vehicles and industrial UPS, solar, telecommunication .etc

With a clear vision of being a global power supplier in the field of stored energy, Western Electrical commits itself to satisfy the demanding of clients that involve in transportation and energy storage industries both in the domestic and the overseas market by operating with 3 major battery manufacturing plants throughout China today, which all are sure to strictly compliance with the highest manufacturing standard under the rule of ISO9001:2008, ISO14001, CE, UL and so on, to offer our clients the most trustworthy and reliable products with the solid backup by the advance battery technology, state-of-the-art manufacturing facilities, highly experienced work force and dedicated modern management team.

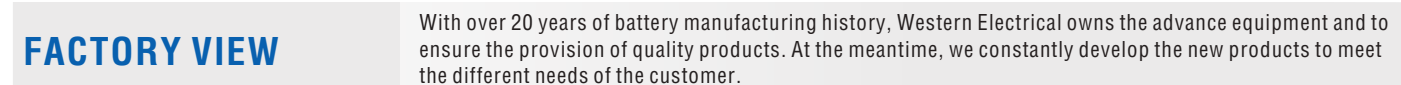
Through years of constant innovation in technology and development, hard working together with undivided commitment and continuous search of excellence, Western Electrical is proud to be able to provide its battery products to boost most of the automotive cars, heavy duty trucks, powersports vehicles on the current market, and with a vast range of deep cycle VRLA batteries to meet the fast increasing power demands in the field of stand by and storage energy field , aslo the motive power batteries for the fuel saving electric vehicles.

Customer-oriented service is one of the key factors to our success, fully understanding that, Western Electrical always place high value on all of its customers, try to listen their requests and understand their expectations as much as possible, then strive itself to put its perfect power solution to meet their expectations, that's why we can, again and again, offer the market products which guarantee improved power and reliable products to further extend our position in the competition and lead us as one of the major players in the highly competitive battery industry.

THE POWER FOR TODAY AND THE FUTURE

The future is being built today, and we believe that with the continuous on the investment in innovation, improvement of production process and customer-oriented service, Western Electrical can make that future more productive, more secure and more sustainable. Here with Western Electrical, welcome to contact and get start, of the power for today and the future.

Western Electrical apply and strictly follows the certifications, to provide customers with the most reliable quality guarantee.



Western Electrical people know the power of technology, regard over 20 years as one day and spur with long accumulation. Preparing for every exceed power to continually develop its quality, promote the continuous development of company. Western Electrical possesses a professional R&D force, with more than 20 technicians, including 5 senior engineers with 35 years experiences more on lead acid battery. Western Electrical choose impeccable quality control systems, with a strong research teams, strict management systems for many process such as raw and auxiliary material purchasing, product promotion, production, inspection and so on. All the products will be inspected by the company or clients standard before delivery. We not only do our best to provide high quality product but also provide timely and thoughtful service supporting for customer.



HOW IS A BATTERY BEEN MADE

Western Electrical offers a full portfolio of lead-acid batteries that cover an extensive range of application, and our dedication to safety, quality and continuous improvement ensure the highest quality. Each battery is built to meet the specific needs of our global customer base of original equipment manufacturers and aftermarket customers.

The path from raw material to a fully charged premium battery involves numerous production phases. The strict fulfilment of top quality production parameters secures performance and safety and serves to convince both leading automotive manufacturers and end consumers.

Western Electrical owns the first-class battery equipment and technologies, introducing and strictly following the international advanced standards and production process. With strict quality control procedures, to produce high quality battery products and provide a powerful guarantee, to lay a solid foundation for our reputation.

Sample as automotive battery, follow the steps and know how is a battery been made, from the raw materiel to the assembly line until the finally finished product that ready for delivery.



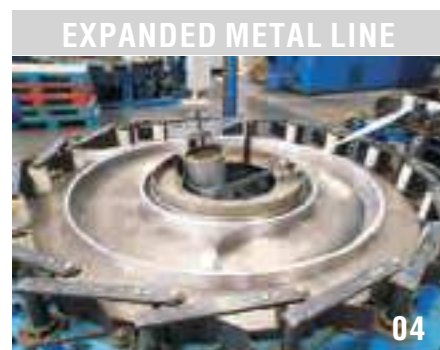
LEAD AS A RAW MATERIAL.
Lead in 45kg bars is the most important battery raw material. The lead delivered is processed into positive and negative charged plates.



PRODUCTION OF LEAD OXIDE.
A ball mill comminutes the lead into a fine powder in order to create the largest possible surface for oxidation.



PRODUCTION OF LEAD OXIDE IN THE BARTON REACTOR.
Very fine lead droplets and air are used to create lead oxide, which is then stored in oxide silos.



GRIDS FROM ROLLED LEAD.
Expanded metal grids are produced using rolled, positive and negative lead strip.



CAST GRIDS.
Depending on the battery type, the lead belt casting process is used to produce lead grids alloyed with antimony and calcium.



GRID CASTING WITH ROTATING ROLLERS.
During the production of negative grids using the continuous casting process, melted lead alloys solidify on a cooled, rotating grid roller.



AUTO PASTING, EXPANDED METAL AND CONTINUOUS CASTING.
Punching and drawing are used to create an expanded metal grid into which lead paste is worked.



PASTING OF BOOK CAST GRIDS.
During book casting, positive or negative lead pastes are worked into the grids and must then mature.



MATURING OF PASTER GRID PLATES.
The pasted plates are stored in a maturation chamber for 24 to 56 hours. This creates optimum current absorption and storage capacity. Subsequently, the plates are ready for assembly.



PLATE SEPARATION.
Before the book cast plates are put into storage, they are separated with the result that each pasted grid produces two plates.



THE PLATE WAREHOUSE.
The plate warehouse is designed to hold supplies for 6 to 11 days. On average, lead bars are turned back into finished plates in around 22 days.



BATTERY ASSEMBLY.
Western Electrical manufactures batteries on six production lines in 4-shift operation. Up to 1.2 million plates are needed daily for some 15 different battery types.



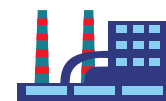
CONTAINER FILLING IN.
Conventional starter batteries are filled during container formation. Charging, cleaning, load testing, labeling, coding, storage or dispatch then follow.



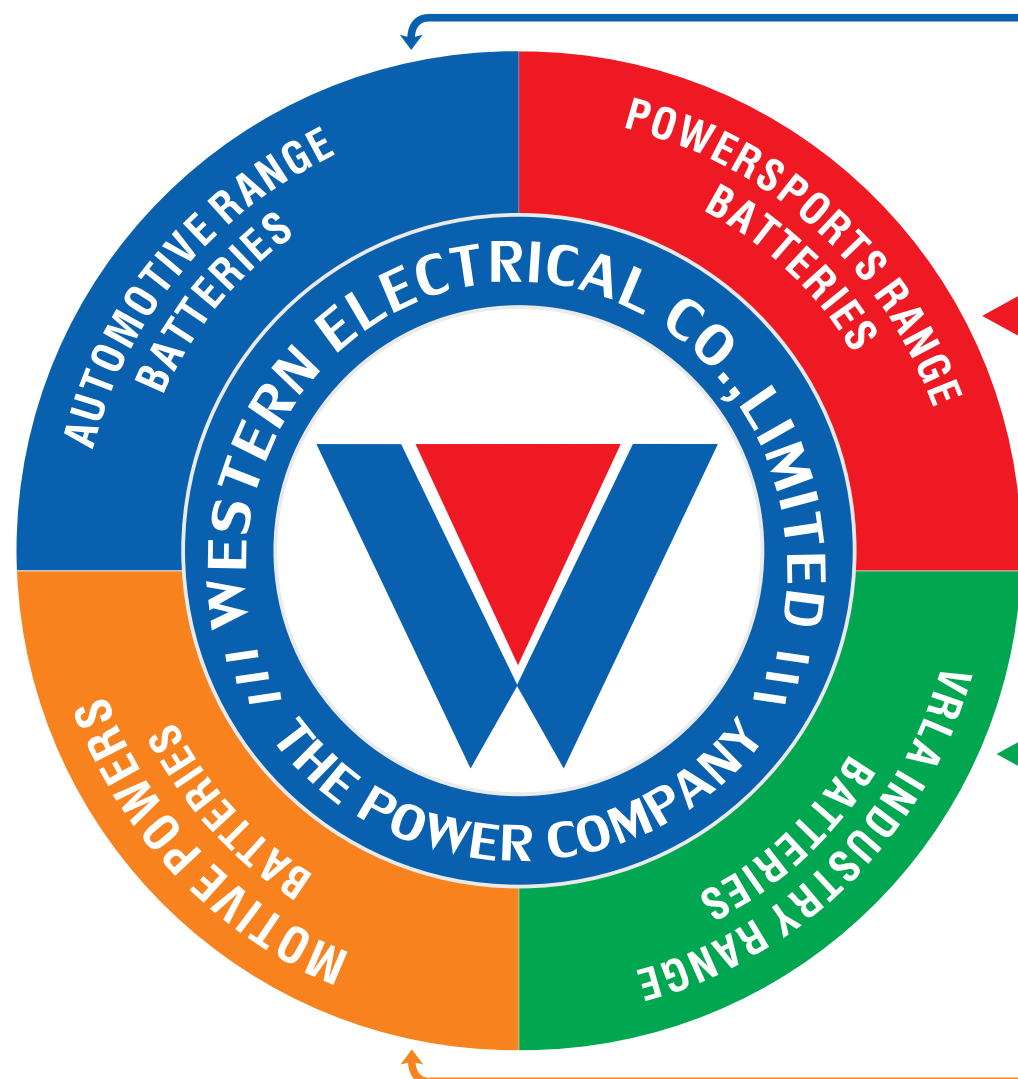
THE BATTERY WAREHOUSE.
Western Electrical could store between 250,000 and 400,000 batteries. March and April sees stocking up, August and September warehouse clearance.



BATTERY DELIVERY.
Up to 40 trucks deliver starter and industrial batteries, and wheel weights daily. These are delivered to Western Electrical's sales branches, OEM customers and retailers..



THE WESTERN ELECTRICAL POWERFUL BATTERY RANGES



AUTOMOTIVE	AGM Start-Stop Range	The extreme battery for car with start-stop function, and micro hybrid & hybrid vehicles.
	EFB Start-Stop Range	The battery for entrevel level start-stop function vehicles.
	SMF Battery Range	A line of eco-friendly lead-calcium maintenance free batteries for most of cars, truck, bus and other heavy-duty equipment. The most popular battery type on the after-service market currently.
	Dry charged Range	The cost-effctive classic battery series for car and truck that with less power requirement, low self discharge rate, limited maintenance allow and perfect for long storage requirement.
POWERSPORT	GEL Battery Range	Sealed activated batteries with gel silica electrolyte and smooth welding technology for extreme power performance and multi-position fitment.
	SMF Battery Range	The most recommend battery type that fully sealed and activated in the factory, with AGM technology and absolutely maintenance free, easy handle and none-spillable for multi-position fitment.
	MF Battery Range	A battery series that come with acid bottle, AGM technology, once with acid added and activated then no longer need for maintenance. Low self discharge rate for long storage required condition.
	Conventional Range	A line of classic flood type of battery series that come with dry charged stated, cost-effective with reliable starting power maintenance-able and .
VRLA INDUSTRY	FM Range	AGM Battery for general purpose, 4V & 6V & 12V, 1.3Ah-28Ah, 5 yeas life design.
	FMA & GFM Gel Range	AGM Battery for deep cycle application, 12V, 33Ah to 250Ah, 10 years life design.
	DFM2 & GFM2 2V Range	2V Long life AGM storage battery, 200Ah to 3000Ah, over 18 years life design.
	FTA & FTG Range	Front terminal battery, 12V, 55Ah to 220Ah, over 10 years life design.
	OPzV Range	Tubular gel type battery, 2V, 200Ah to 3000Ah, over 20 years life design.
	OPzS Range	Tubular flooded type battery, 2V, 200Ah to 3000Ah, over 20 years life design.
MOTIVE POWER	DZM Range	AGM deep cycle battery for electric scooter, bicycle, 12V & 18V, 12Ah-32Ah.
	EVF Range	AGM deep cycle battery for electric vehicles, 6V & 12V, 35Ah-220Ah.
	EVG Range	Tubular flooded deep cycle battery for electric rickshaw, 12V.
	EV Range	AGM deep cycle battery for golf cart, 6V & 8V, 145Ah-210Ah.

MAIN BRANDS AND TRADEMARKS



OEM Service

1:Product OEM Available.

2:Brands OEM Available.

Why You Can Rely on Western Electrical as Your Complete Power Solutions Provider.



20 Years Experience since 2000.

Western Electrical is one of the main power solution provider in the field of lead acid battery since 2000. Each battery has been especially designed to satisfy the individual demands of our customers.



Innovation and Technology

Western Electrical invest significantly in research, development and our production facility to ensure we continue to meet the needs of the market place and the next generation of power requirement.



Comprehensive Product Range

Western Electrical product range includes a comprehensive selection of technologically advanced products including starting, deep cycle, heavy duty and motive power batteries for use in a diverse range of energy storage applications.



Worldwide Warranty

Each Western Electrical battery is supported by a fully comprehensive warranty. This provides peace of mind that your battery is covered against faulty materials or workmanship worldwide.



ODM & OEM Service

We developed corresponding product series that closely following the pulse of the market, with extensive ODM & OEM service to satisfy the specific request of the customer new product developing and private labeling requirement.



Fully Recyclable Products

We dedicated to provide economy and environmental friendly batteries that available fully recyclable to create a new widespread field for storage battery products with our customers by joint efforts.



Key Partnerships

We are dedicated to satisfying our customers and business associated partners. We believe in respecting our customers, listening to their requests and understanding their expectations, and strive our effort to exceed their expectations in afford ability, quality and on-time delivery.

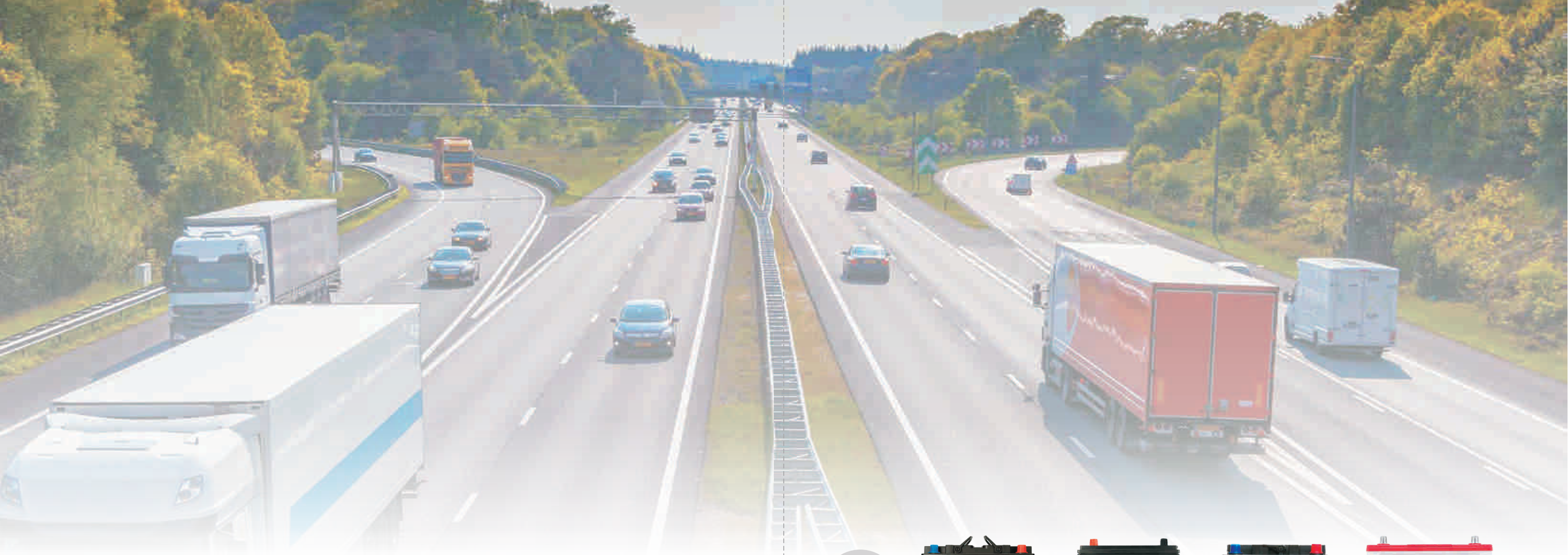


(SECTION 2)



GENERAL CATALOGUE

AUTOMOTIVE BATTERY RANGE



THE TAILOR-MADE POWER FOR EVERY VEHICLES.

The battery could be treated as the heart of every vehicle as it's the only power source that supply the current to the starter motor and ignition system when you start the engine, while modern vehicles make massive demands on the starter batteries, it is more important than ever to choose the right battery.

Designed to deliver reliable starting power and dependable performance, Western Electrical automotive batteries are the perfect solution for vehicles starting, lighting and fuel ignition.

Covering a wide range of powerful batteries and brands, we are proud to be able to provide the right power at the right place nowadays, whether it's for a modern auto engine system, daylily used car, heavy duty truck, or the heavy duty construction equipment. And thanks for the continuous technology innovation and application, all our batteries are sure constructed to deliver maximum performance and reliable starting power on every single day, and under all conditions to boost the “heart” of your vehicle.

With years of technology innovation and continuous improvement, these batteries are manufactured under strictly quality standard to provide you with tailor-made power for every application at all class power requirement level just when you need it.

Battery Series at a Glance:

- **AGM Supreme battery series** for recently launched, high-performance cars that featured with start-stop system for both superior quick starting and excellent deep cycle power.
- **EFB Advance series** for the entry level cars with Start-Stop system for the superior starting power and light deep cycle ability.
- **Endurance SMF battery series** offer a combination of good value and cost effective to fit the vehicles with standard power requirement and people with better things to do than battery maintenance.
- **Dry Charged Battery series** offer a balance of quality and cost for vehicles that require regular electric demands.



Series	AGM SPREME	EFB ADVANCE	SMF ENDURANCE	DRY BAT
Application	AGM Start Stop/ Miro Hybrid Cars	EFB Start Stop/ Miro Hybrid Cars	All Standard Power Requirement Vehicles	Standard Power Requirement Vehicles
Technology	Absorbent Glass Mat /Explant Grid/VRLA	Enhanced Flood/Explant Grid/Carbon Coating Plate	Calium Plus Explant Frame Grid/Carbon Coating Plate	Casting Grid/Pocket Separator with Glass Mat
Power Rate				
Maintenance	Maintenance Free	Maintenance Free	Maintenance Free	Low Maintenance
Indicator	No	Yes	Yes	Yes
Warranty	2 Years	2 Years	1 Years	1 Years
Main Benefits	<ul style="list-style-type: none">• Over 3 times cycle life.• Superior Deep cycle ability.• Supreme starting power.• None-spillable.• All climate.	<ul style="list-style-type: none">• 2 times cycle life.• Superior starting power.• Light Deep cycle ability.• Sealed safety protection.• All climate.	<ul style="list-style-type: none">• Complete series offered for 99% of the vehicles.• Excellent starting power.• Sealed safety protection• Cost effective.	<ul style="list-style-type: none">• Good starting power.• Low self-dsicharge rate.• Long storage life.• Cost effective.



POWER THAT BEHIND AND BEYOND.



AGM SUPREME



THE MAX POWER FOR MAX PERFORMANCE.

High-performance, highly equipped vehicles lay massive demands from their battery nowadays, and the continuous investments in R&D allowed Western Electrical to introduce the latest innovative AGM batteries to the aftermarket.

Featured with superb starting and deep cycle ability, the Western Electrical AGM Supreme automotive battery series is the perfect solution for vehicle featuring advanced Start-Stop technology that with regenerative braking and additional hybrid fuel-saving technologies. Only the specially developed automotive batteries with AGM technology can meet the challenges imposed by these systems.

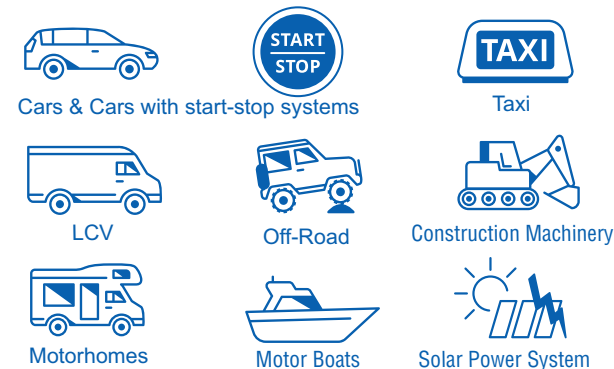
Compared to the traditional batteries, this latest battery series offer even greater performance and versatility, and are capable of reliably supplying power to an even greater range of devices.



FEATURES & BENEFITS

- Innovative AGM Technology (Absorbent Glass Mat) with high compression fleece separator.
- Latest OE technology for advanced Start-Stop vehicles.
- Three to four times more cycle life and can meet the demands of all Start-Stop vehicles and high-end luxury vehicles.
- High charging acceptance for absorbing large surges of electrical energy generated via brake energy recuperation.
- Excellent starting power, so you can rely on the engine starting- even at a low state of charge.
- Leak-proof and Spill-proof.
- Totally maintenance-free.

APPLICATION



Size Group	Model No.		AMP (Ah)20HR	CCA(A) (EN)	Dimension(mm)				Cell Layout	Terminal Type	Hold Down
	Short Code	CN NO.			L	W	H	TH			
L2	L2-H5-60	6-QTF-60(660)	60	660	242	175	190	190	0	A	B13
L3	L3-H6-70	6-QTF-70(720)	70	720	278	175	190	190	0	A	B13
L4	L4-H7-80	6-QTF-80(800)	80	800	315	175	190	190	0	A	B13
L5	L5-H8-92	6-QTF-92(850)	92	850	353	175	190	190	0	A	B13
L6	L6-H9-105	6-QTF-105(950)	105	950	394	175	190	190	0	A	B13

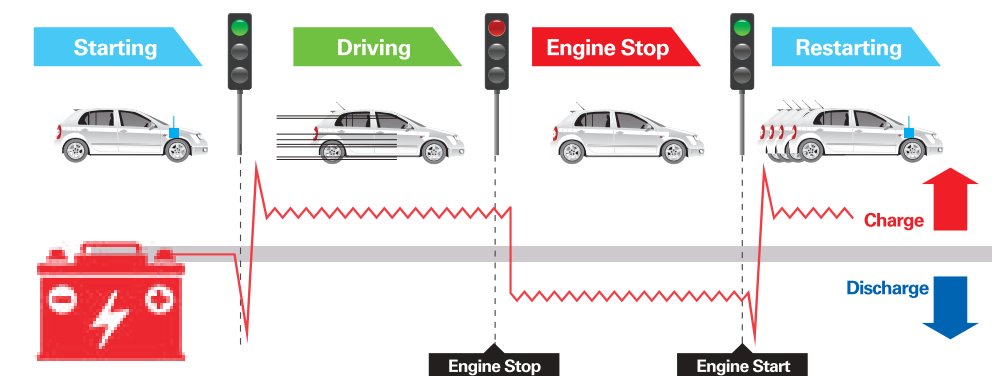
[^]The technical drawing of Cell Layout, Terminal Type and Base Hold Down, please see on Page 24



THE START STOP SYSTEM AND THE ROLE OF A START STOP BATTERY

The Start Stop System controls the engine to stop when the vehicle is not moving and restarts the engine when the vehicle begins its acceleration. This technology can help to avoid unnecessary energy loss caused by engine idling and has in fact been proven to cut fuel consumption by 5-15%. The Start Stop System also improves engine silence for the consumer's driving comfort.

Start Stop vehicles require an enhanced battery due to the frequent start and stop events at traffic lights. Therefore, a battery with enhanced durability and charge acceptance is required to withstand the severe driving environments for the Start Stop vehicles. The Western Electrical AGM Supreme Start Stop battery series has enhanced durability and battery life that is perfectly optimized for the Start Stop vehicles.



NEGATIVE PLATE: TALL PLATE GROUP

Framed negative plate with high compression

SEALED DOUBLE SECURITY LID

with degassing outlet and flame arrester



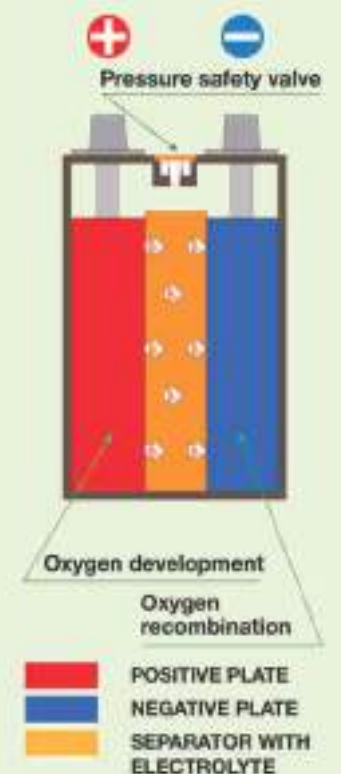
POSITIVE PLATE:

New framed grid design with high-tech alloy. The high-capillarity glass mat separator provides extra absorption for maximum electrolyte volume and to avoid stratification

Absorbent Glass Mat Separator:
Glass fleece separator holding the electrolyte

Thicker Polypropylene Case

AGM BATTERY DURING DISCHARGE



WARNING
Traditional lead-acid batteries are not suitable for Start-Stop micro hybrid vehicles. In case of replacement Western Electrical recommends the installation of EFB/AGM batteries in all above models, respecting the original battery technology.

ICONS ON LABELS AND CARTON BOX:





EFB ADVANCE



EXTRA POWER , PREMIUM PERFORMANCE.

Advanced EFB technology(Enhanced Flooded Battery) for high performance and longer life, the Western Electrical EFB Advance battery series is a real bonus for offering extra starting power and provides consistently power output for longer periods of time.

A range of batteries that designed to meet the specialized power requirement of modern made vehicles, these batteries incorporate industry leading design features and are manufactured in accordance with the latest production methods and quality controls to deliver an ultra reliability, unmatched energy recovery and exceptional dynamic charge acceptance, which all led this battery series with ability to well supports all vehicles, with and without Start-Stop systems, which have high cycling requirements.



FEATURES & BENEFITS

- Optimized EFB (Enhanced Flooded Battery) Technology with “polyester scrim”.
- Latest OE technology for high requirement and standard entry-level Start-Stop vehicles.
- Improved charge acceptance for recovering energy more quickly during driving phase.
- Twice the cycle life of standard lead-acid starter batteries
- Superior starting performance.
- Longer cycle life than standard lead-acid starter batteries (when measured in terms of energy output)
- Totally maintenance-free

APPLICATION



Size Group	Model No.		AMP (Ah)20HR	CCA(A) (EN)	Dimension(mm)				Cell Layout	Terminal Type	Hold Down
	Short Code	CN NO.			L	W	H	TH			
L1	EH4-L1-50	6-QTPE-50(540)	50	540	206	175	175	190	0	A	B13
D23	D23-60	6-QTPA-60(610)	60	610	230	172	202	222	0	A	B1
D26	D26-65	6-QTPA-65(645)	65	645	259	172	202	222	0	A	B1
L2	EH5-L2-60	6-QTPE-60(640)	60	640	241	175	190	190	0	A	B13
L3	EH6-L3-70	6-QTPE-70(700)	70	700	278	175	190	190	0	A	B13
LB4	T7-LB4-75	6-QTPE-75(720)	75	720	315	175	175	175	0	A	B13

^The technical drawing of Cell Layout, Terminal Type and Base Hold Down, please see on Page 24



EFB TECHNOLOGY

EVOLUTION OF TRADITIONAL LEAD-ACID BATTERIES

The EFB (Enhanced Flooded Battery) is an evolution of traditional lead-acid batteries. The main features that differentiate an EFB battery from a traditional lead acid battery are:

1. Electrolyte reservoir increased;
2. High exchange surface with the electrolyte;
3. Negative plates features:
 - a. grids with a special Lead-Calcium-Tin alloy;
 - b. negative active mass with an higher Carbon content;
 - c. mixture of different expanders studied to face Start & Stop cycles;
 - d. application of a specific organic fiber layer;
4. positive plates characterized by:
 - a. grids with a special Pb-Ca-Sn alloy (Lead-Calcium-Tin);
 - b. grid specifically designed to resist to corrosion and high temperatures (SAEJ2801);
 - c. layer to contain the expansion of the active mass during cycling;
5. protection of the electrodes against corrosion and potential danger.

NEGATIVE PLATE:

- + grids with a special Lead-Calcium-Tin alloy;
- + negative active mass with an higher Carbon content;
- + mixture of different expanders studied to face Start-Stop cycles.

SPILL-PROOF SECURITY LID with flame arrester



POSITIVE PLATE:

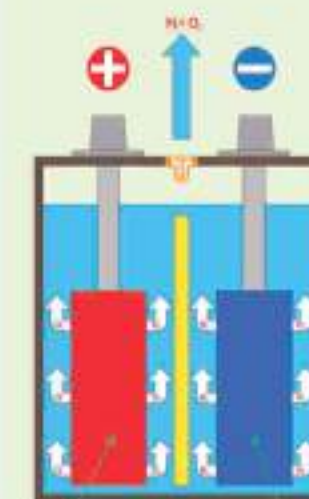
- + Grids with a special Pb-Ca-Sn alloy;
- + Grid specifically designed to resist to corrosion and high temperatures
- + Layer to contain the expansion of the active mass during cycling

PLATE GROUP

- + Pocket separator;
- + with medium compression

Thicker Polypropylene Case

ADVANCED FLOODED BATTERY DURING DISCHARGE



Oxygen development

Hydrogen development

- POSITIVE PLATE
- NEGATIVE PLATE
- SEPARATOR
- ELECTROLYTE

WARNING

Traditional lead-acid batteries are not suitable for Start-Stop micro hybrid vehicles. In case of replacement Western Electrical recommends the installation of EFB/AGM batteries in all above models, respecting the original battery technology.

ICONS ON LABELS AND CARTON BOX

For advanced Start-Stop systems



Matching original spare parts



Long cycle life
*2 times cycle life compared with conventional battery



Idea for superior equipment



Environment friendly





SMF ENDURANCE

Plus **CALCIUM-SILVER**



THE PRECISE PERFORMANCE - FOR EVERY RIGHT APPLICATION.

When talking about the starting battery power requirement for the vehicle, superior starting, consistent performance and absolute reliability is always required, and that's exactly what you can get with Western Electrical SMF (sealed maintenance free) automotive battery series, a tried and trusted choice in the aftermarket.

As a battery series of trustworthy and maintenance free choice that offers a combination of good value and cost effective, the SMF automotive battery series is a real power all rounder and the best-selling replacement parts battery in the aftermarket-no doubt due to the excellent quality while you don't have to cost the earth.

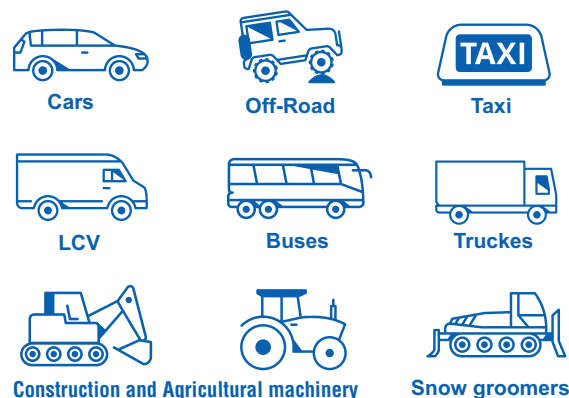
With years of technology innovation and continuous improvement, this battery series is able to offer an extensive models selection to suit the most of the vehicles on the market nowadays, no matter it's for regular cars, buses, heavy duty trucks or construction and agricultural machineries.



FEATURES & BENEFITS

- Wide models selection to suit the most of made cars and vehicles on the market.
- Advanced Calcium technology combined with improved design to guarantee performance.
- Modern design featuring recessed terminals for added safety and stable ability.
- Improved internal design for maximum performance and long life span.
- The latest in polyethylene envelope with glass fiber separators to protect against vibration
- Solid and reliable performance.
- Best-selling product on the after service market.
- Totally maintenance free, eco friendly.

APPLICATION



ICONS ON LABELS AND CARTON BOX



THE BATTERY WITH BETTER PERFORMANCE AND LONG LIFESPAN

Why do virtually people from all around the world choose Western Electrical batteries to fit their vehicles? Because Western Electrical brings together state-of-the-art technology, years of experience and stunning innovations to guarantee the perfect energy supply for every single vehicle at all class power requirement.

Whichever battery you choose from Western Electrical, you're sure to have made the right choice and can rest assured you'll benefit from maximum starting power, a continuous power supply and 100% reliability. After all, Western Electrical battery products combine all these advantages with cutting edge, pioneering technology.

CONSTRUCTION OF WESTERN ELECTRICAL SMF AUTOMOTIVE BATTERY



THE TECHNOLOGY THAT BEHIND, INSIDE AND BEYOND

1. PLATES:

- Expanded Full Frame Grid design prevents grid growth & short circuits; Low-resistance, better adhesion of active materials; quick transmission of electrical power
- High Density Pasted Cured Plate enhances the adhesion of active materials for better anti-vibration; Improves starting power and longer service life

2. SEPARATOR:

The enveloped separator with micro fiber glass lower the electric resistance for reliable starting power and prevents internal short between positive and negative plates.

3. HIGH CONDUCTIVE POLES AND TERMINAL:

Mechanical operation ensure no-leakage. Special technical processing, which make sure the poles are more durable than traditional one.

4. CENTRAL BUSBAR:

Adopting the most advanced COS machine to connect the plates, which is not easy to break and the busbar has high resistance to vibration, low resistance and good electric conductivity.

5. DUST-PROOF FLAME ARRESTER:

Prevent explosion caused by overflow sulphuric acid and charging spark.

6. BUILT-IN MAGIC EYE INDICATOR:

Easy to check charging state, green means good condition, black represents charging necessary, white means the battery need to be replaced.

7. DOUBLE LID & HEAT SEALED COVER:

Prevent leakage by dual structure of separation of gas and liquid, makes the battery totally maintenance free.

8. INTEGRATED HANDLE DESIGN:

Enhances safety by Integrated computer design, easy for installation and transportation.

9. POLYPROPYLENE BATTERY CASE:

Durable material combines light weight with high impact strength. Reinforced design to support battery elements to withstand road vibration.

If you are serious about your driving, We get the right battery for you...



SPECIFICATION CHAT 1

SMF Battery Series-JIS Standard - For Japanese Made Vehicles

NO.	SIZE GROUP	JIS CODE		CAPACITY (AH)20HR	CCA(A) (AT-18°C)	DIMENSION(MM)				CELL LAYOUT	TERMINAL TYPE	HOLD DOWN
		Old	New			L	W	H	TH			
1	B20	NS40	32B20R	32	300	195	127	200	220	1	B	B0
2		NS40L	32B20L	32	300	195	127	200	220	0	B	B0
3		NS40ZS	36B20RS	36	320	195	127	200	220	1	B	B0
4		NS40ZLS	36B20LS	36	320	195	127	200	220	0	B	B0
5		NS40Z	36B20R	36	320	195	127	200	220	1	A	B0
6		NS40ZL	36B20L	36	320	195	127	200	220	0	A	B0
7	B24	N40S	50B24RS	36	350	237	127	200	220	1	B	B0
8		N40LS	50B24LS	40	350	237	127	200	220	0	B	B0
9		N40	50B24R	40	350	237	127	200	220	1	A	B0
10		N40L	50B24L	40	350	237	127	200	220	0	A	B0
11		NS60S	46B24RS	45	420	237	127	200	220	1	B	B0
12		NS60LS	46B24LS	45	420	237	127	200	220	0	B	B0
13		NS60	46B24R	45	420	237	127	200	220	1	A	B0
14		NS60L	46B24L	45	420	237	127	200	220	0	A	B0
15	D23	—	55D23R	60	550	231	173	200	220	1	A	B1
16		—	55D23L	60	550	231	173	200	220	0	A	B1
17		—	75D23R	65	580	231	173	200	220	1	A	B1
18		—	75D23L	65	580	231	173	200	220	0	A	B1
19		—	80D23R	70	600	231	173	200	220	1	A	B1
20		—	80D23L	70	600	231	173	200	220	0	A	B1
21	D26	N50	48D26R	50	450	258	172	200	220	1	A	B1
22		N50L	48D26L	50	450	258	172	200	220	0	A	B1
23		N50Z	55D26R	60	500	258	172	200	220	1	A	B1
24		N50ZL	55D26L	60	500	258	172	200	220	0	A	B1
25		NS70	65D26R	65	550	258	172	200	220	1	A	B1
26		NS70L	65D26L	65	550	258	172	200	220	0	A	B1
27		NX110-5	80D26R	70	600	258	172	200	220	1	A	B1
28		NX110-5L	80D26L	70	600	258	172	200	220	0	A	B1
29	D31	N70	65D31R	70	600	304	172	200	220	1	A	B1
30		N70L	65D31L	70	600	304	172	200	220	0	A	B1
31		N70Z	75D31R	75	650	304	172	200	220	1	A	B1
32		N70ZL	75D31L	75	650	304	172	200	220	0	A	B1
33		NX120-7	95D31R	80	670	304	172	200	220	1	A	B1
34		NX120-7L	95D31L	80	670	304	172	200	220	0	A	B1
35		N90	105D31R	90	740	304	172	200	220	1	A	B1
36		N90L	105D31L	90	740	304	172	200	220	0	A	B1
37	E41	N100	95E41R	100	800	404	173	201	221	1	A	B0
38		N100L	95E41L	100	800	404	173	201	221	0	A	B0
39		NS120	115E41R	110	850	404	173	201	221	1	A	B0
40		NS120L	115E41L	110	850	404	173	201	221	0	A	B0
41	F51	N120	135F51	120	860	505	180	208	230	4	A	B0
42		N135		135	880	505	180	208	230	4	A	B0
43	G51	N150	154G51	150	1000	505	220	210	232	4	A	B0
44		N180		180	1100	505	220	210	232	4	A	B0
45	H52	N200	190H51	200	1200	508	265	215	238	4	A	B0
46		NX400-20	245H52	220	1350	508	265	215	238	4	A	B0



SPECIFICATION CHAT 2

SMF Battery Series - DIN Standard- For European Made Vehicles

NO.	SIZE GROUP	MODEL NO	CAPACITY (AH)20HR	CCA(A) (AT-18°C)	RC (min)	DIMENSION(MM)				CELL LAYOUT	TERMINAL TYPE	HOLD DOWN
						L	W	H	TH			
1	L1	54464	44	360	64	208	175	190	190	1	A	B13
2		54434	44	360	64	208	175	190	190	0	A	B13
3	LB2	54519	45	380	66	243	175	175	175	0	A	B13
4		54520	45	380	66	243	175	175	175	1	A	B13
5		55056	50	420	75	243	175	175	175	0	A	B13
6		55057	50	420	75	243	175	175	175	1	A	B13
7		55457	54	450	90	243	175	175	175	0	A	B13
8		55458	54	450	90	243	175	175	175	1	A	B13
9	L2	56077	60	500	98	243	175	175	175	0	A	B13
10		55559	55	480	93	243	175	190	190	0	A	B13
11		55565	55	480	93	243	175	190	190	1	A	B13
12		56045	60	500	96	243	175	190	190	0	A	B13
13		56046	60	500	96	243	175	190	190	1	A	B13
14		56219	62	520	105	243	175	190	190	0	A	B13
15	LB3	56220	62	520	105	243	175	190	190	1	A	B13
16		55415	54	450	90	279	175	175	175	0	A	B13
17		56318	63	525	115	279	175	175	175	0	A	B13
18		56828	68	560	120	279	175	175	175	0	A	B13
19	L3	56821	68	560	120	279	175	175	175	1	A	B13
20		56638	66	540	112	279	175	190	190	0	A	B13
21		56633	66	540	112	279	175	190	190	1	A	B13
22		57219	72	600	125	279	175	190	190	1	A	B13
23		57220	72	600	125	279	175	190	190	0	A	B13
24		57512	75	620	135	279	175	190	190	0	A	B13
25	LB4	57513	75	620	135	279	175	190	190	0	A	B13
26		58013	80	680	145	315	175	175	175	1	A	B13
27	L4	58014	80	680	145	315	175	175	175	0	A	B13
28		58043	80	680	145	315	175	190	190	0	A	B13
29		58515	85	700	155	315	175	190	190	0	A	B13
30		58515	85	700	155	353	175	175	175	0	A	B13
31	LB5	58840	88	720	160	353	175	175	175	0	A	B13
32		58827	88	720	160	353	175	190	190	0	A	B13
33		58821	88	720	160	353	175	190	190	1	A	B13
34		59540	95	760	170	353	175	190	190	0	A	B13
35		59541	95	760	170	353	175	190	190	1	A	B13
36		60038	100	820	180	353	175	190	190	0	A	B13
37	L5	60044	100	820	180	353	175	190	190	1	A	B13

SPECIAL SIZE

6TN - For Tanks and Military Application

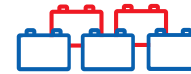
NO.	SIZE GROUP	MODEL NO	CAPACITY (AH)20HR	CCA(A) (SAE)	RC (min)	DIMENSION(MM)				CELL LAYOUT	TERMINAL TYPE	HOLD DOWN
						L	W	H	TH			
1	6TN	6TN	100	800	195	280	267	208	230	2	A	B13
2		US-6TN	100	800	198	280	267	208	230	6	A	B13



SPECIFICATION CHAT 3

SMF Battery Series-**BCI Standard**- for American made vehicles

NO.	SIZE GROUP	MODEL NO	CAPACITY	CCA(A)	RC	DIMENSION(MM)				CELL LAYOUT	TERMINAL TYPE	HOLD DOWN
			(AH)20HR	SAE	(min)	L	W	H	TH			
1	24	24-450	50	450	80	258	172	200	220	10	A	B1
2		24-500	60	500	90	258	172	200	220	10	A	B1
3		24-550	65	550	100	258	172	200	220	10	A	B1
4		24-600	70	600	114	258	172	200	220	10	A	B1
5	24R	24R-450	50	450	80	258	172	200	220	11	A	B1
6		24R-500	60	500	90	258	172	200	220	11	A	B1
7		24R-550	65	550	100	258	172	200	220	11	A	B1
8		24R-600	70	600	114	258	172	200	220	11	A	B1
9	25	25-550	60	550	100	231	173	200	220	10	A	B1
10		25-580	65	580	110	231	173	200	220	10	A	B1
11		25-600	70	600	114	231	173	200	220	10	A	B1
12	35	35-550	60	550	100	231	173	200	220	11	A	B1
13		35-580	65	580	110	231	173	200	220	11	A	B1
14		35-600	70	600	114	231	173	200	220	11	A	B1
15	27	27-600	70	600	114	304	172	200	220	10	A	B1
16		27-650	75	650	130	304	172	200	220	10	A	B1
17		27-670	80	670	140	304	172	200	220	10	A	B1
18		27-740	90	740	150	304	172	200	220	10	A	B1
19	27R	27R-600	70	600	114	304	172	200	220	11	A	B1
20		27R-650	75	650	130	304	172	200	220	11	A	B1
21		27R-670	80	670	140	304	172	200	220	11	A	B1
22		27R-740	90	740	150	304	172	200	220	11	A	B1
23	31	31-660	78	660	135	330	172	218	242	18	TOP	B0
24		31-700	84	700	140	330	172	218	242	18	TOP	B0
25		31-750	90	750	155	330	172	218	242	18	TOP	B0
26		31-800	96	800	170	330	172	218	242	18	TOP	B0
27		31-850	100	850	180	330	172	218	242	18	TOP	B0
28		31-1000	105	1000	250	330	172	218	242	18	TOP	B0
29	31S	31S-660	78	660	135	330	172	218	242	18	STUD	B0
30		31S-700	84	700	140	330	172	218	242	18	STUD	B0
31		31S-750	90	750	155	330	172	218	242	18	STUD	B0
32		31S-800	96	800	170	330	172	218	242	18	STUD	B0
33		31S-850	100	850	180	330	172	218	242	18	STUD	B0
34		31S-1000	105	1000	250	330	172	218	242	18	STUD	B0
35	47	47-500	55	500	93	243	175	190	190	24	A	B13
36		47-550	60	550	96	243	175	190	190	24	A	B13
37		47-600	62	600	105	243	175	190	190	24	A	B13
38	48	48-560	66	560	112	279	175	190	190	24	A	B13
39		48-620	72	620	125	279	175	190	190	24	A	B13
40		48-650	74	650	135	279	175	190	190	24	A	B13
41		48-660	75	660	138	279	175	190	190	24	A	B13
42	49	49-750	88	750	160	353	175	190	190	24	A	B13
43		49-760	95	750	170	353	175	190	190	24	A	B13
44		49-850	100	850	180	353	175	190	190	24	A	B13



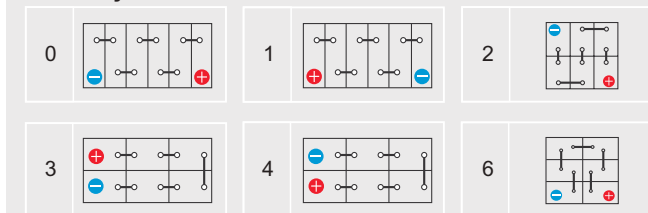
SPECIFICATION CHAT 4

SMF Battery Series-**BCI Standard**- for American made vehicles

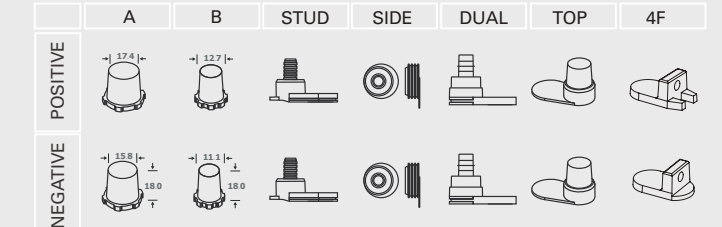
NO.	SIZE GROUP	MODEL NO	CAPACITY	CCA(A)	RC	DIMENSION(MM)				CELL LAYOUT	TERMINAL TYPE	HOLD DOWN
			(AH)20HR	SAE	(min)	L	W	H	TH			
45	65	65-650	75	650	135	295	190	170	190	10	A	B8
46		65-750	85	750	158	295	190	170	190	10	A	B8
47		65-850	95	850	185	295	190	170	190	10	A	B8
48	65R	65R-650	75	650	135	295	190	170	190	11	A	B8
49		65R-750	85	750	158	295	190	170	190	11	A	B8
50		65R-850	95	850	185	295	190	170	190	11	A	B8
51	75	75-460	45	460	80	230	179	180	180	17	SIDE	B1
52		75-550	55	550	95	230	179	180	180	17	SIDE	B1
53		75-550	60	550	95	230	179	180	180	17	SIDE	B1
54	78	78-550	55	550	95	260	179	180	180	17	SIDE	B1
55		78-675	66	675	110	260	179	180	180	17	SIDE	B1
56		78-720	72	720	125	260	179	180	180	17	SIDE	B1
57	90	90-530	55	530	90	243	175	175	175	24	A	B13
58	91	91-580	60	580	100	279	175	190	190	24	A	B13
59	93	93-800	85	800	145	353	175	175	175	24	A	B13
60	4D	4D-1000	150	1000	300	505	220	210	232	3	A	B0
61	8D	8D-1200	200	1200	400	505	265	215	238	3	A	B0
62		8D-1400	220	1400	460	505	265	215	238	3	A	B0

TECHNICAL DRAWING

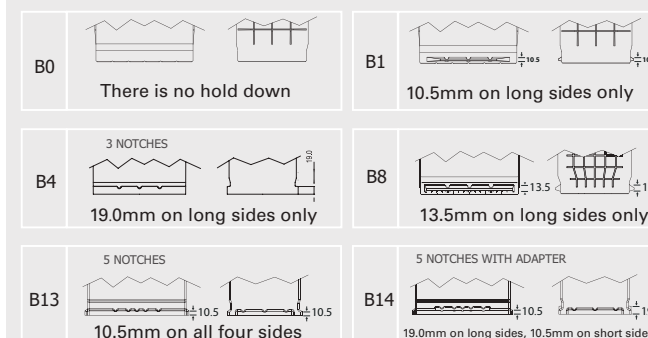
Cell Lay out



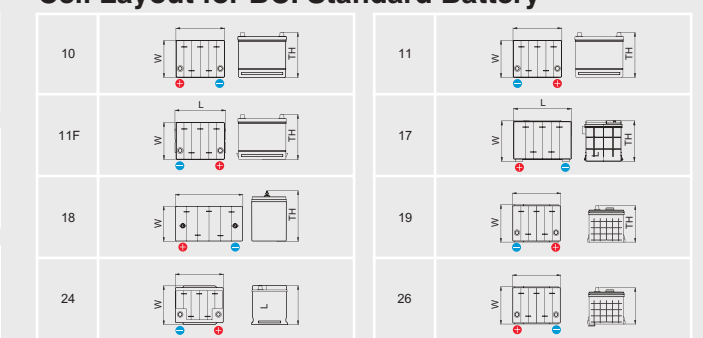
Terminal Type



Base Hold Down



Cell Layout for BCI Standard Battery



Notice:

1. Due to various battery models, if the battery model you interested not show in the specification chart, you are welcome to contact us.
2. The specification is subject to change without notification for the reason of improvement.

DRY CHARGE BATTERIES SERIES



PROVEN TECHNOLOGY, FRESH POWER!

Western Electrical Classic Dry Charge Automotive Battery Series uses a proven technology combined with the latest battery designs that have provided higher performance than previously achieved.

This battery series offers an optimal combination of price and performance and is the obvious choice for customers who demand an excellent product for a super price. In this respect, this battery series is the ideal solution - reliable power for the pure engine start, limited maintenance by means of proven lead-calcium with low antimony technology.

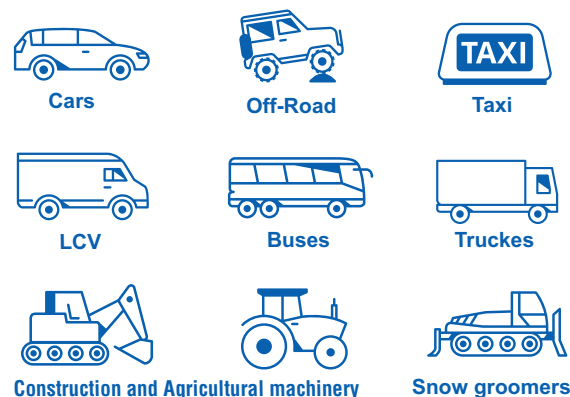
And due to these batteries are shipped under dry charged and unfilled state without acid inside, that's led the maximum power freshness could be ensure and low self discharge rate also long storage time could be happen, and the highest transport safety standards.

DRY^{BAT}

FEATURES & BENEFITS

- Proven technology delivers reliable power.
- Lead-Calcium low antimony alloy for better anti-crossion and reduce the water consuming, effectively reduce the regular maintenance rate.
- The latest in polyethylene envelope with glass fiber separator to protect against vibration.
- Polypropylene case and cover resists damage from gasoline and oil, withstands extreme weather conditions..
- Optimized internal construction for high cranking power.
- Extremely low self discharge rate.
- Shipped and unfilled with acid gives the product a long shelf life up to 18 month.
- Cost effective

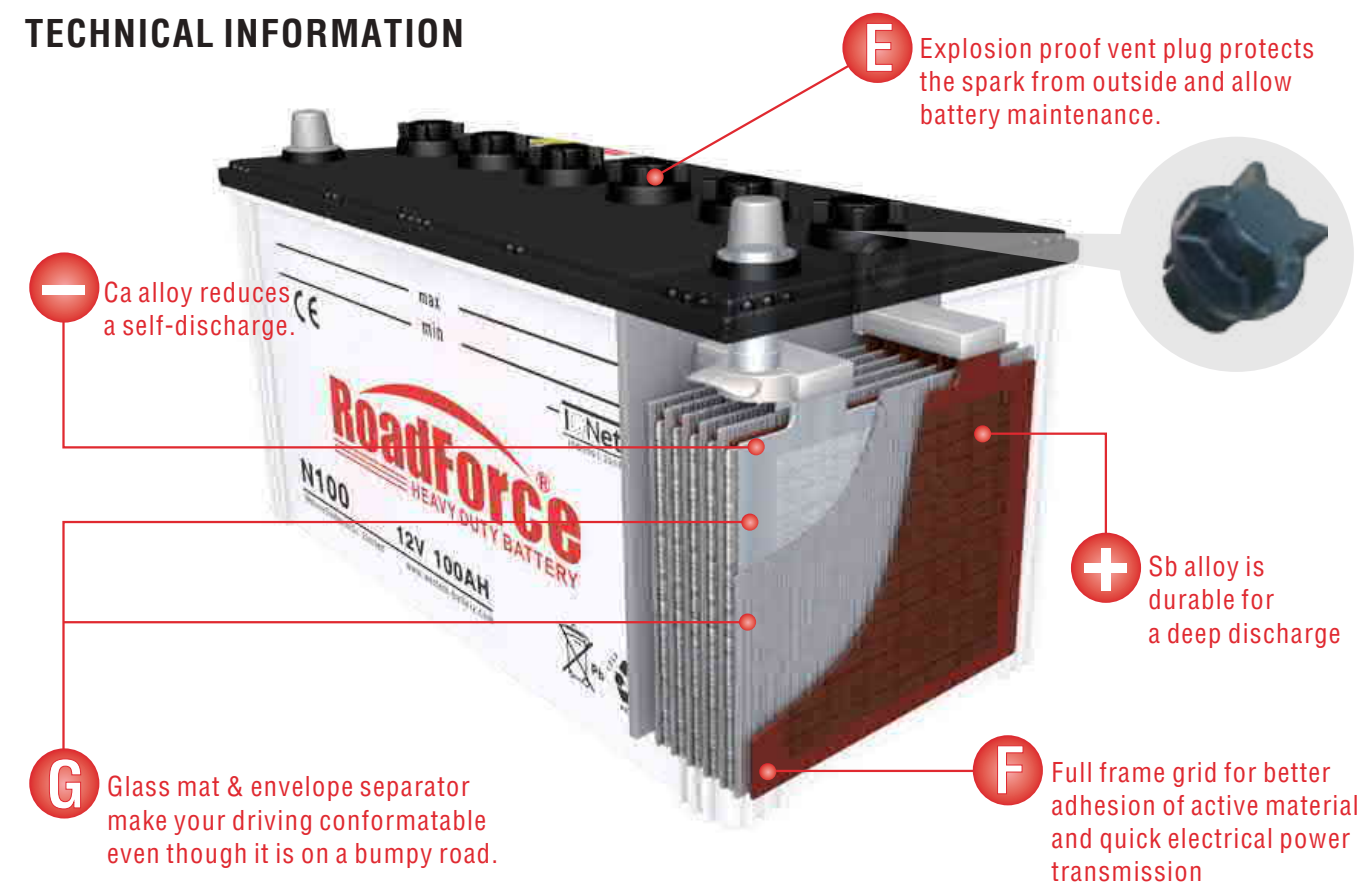
APPLICATION



ICONS ON LABELS AND CARTON BOX



TECHNICAL INFORMATION



THE MANUFACTURING CONCEPTS OF WESTERN ELECTRICAL DRY BATTERIES

Long Service Life

Extreme energy throughput, low corrosion with High density paste.

Powerful Cranking

Excellent starting power with dual separator of PE-Glassmat.

Robust Design

High mechanical and cyclic durability due to construction techniques.

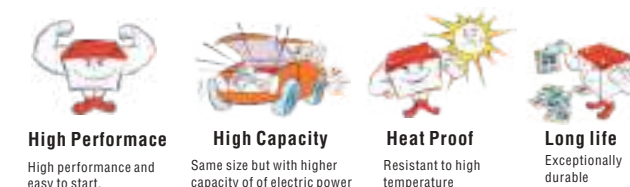
Heavy Duty Proof

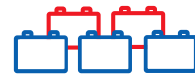
Battery was designed for high tolerance of charging & discharging especially for commercial vehicles

Long Shelf Storage Life

The batteries are shipped under dry charged state without acid filled, extremely low self-discharge rate, which make the battery shelf storage life could be up to 18 month.

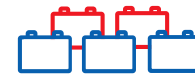
Idea for you:





SPECIFICATION CHAT 1 JIS Standard- for Japanese Vehicles-Dry Charge Battery Series

NO.	SIZE GROUP	JIS CODE		CAPACITY (AH)20HR	CCA(A) (EN)	DIMENSION(MM)				TERMINAL		HOLD DOWN
		Old	New			L	W	H	TH	LAYOUT	TYPE	
1	B20	36B20R	NS40Z	36	305	195	128	200	220	1	A	B0
2		36B20L	NS40ZL	36	305	195	128	200	220	0	A	B0
3	B24	32B24R	N40	40	320	236	127	199	219	1	A	B0
4		32B24L	N40L	40	320	236	127	199	219	0	A	B0
5		46B24RS	NS60S	45	395	236	127	199	219	1	A	B0
6		46B24LS	NS60LS	45	395	236	127	199	219	0	A	B0
7	D23	55D23RS	—	55	440	230	173	200	220	1	A	B0
8		55D23LS	—	55	440	230	173	200	220	0	A	B0
9		55D23R	—	60	520	230	173	200	220	1	A	B0
10		55D23L	—	60	520	230	173	200	220	0	A	B0
11		75D23R	—	65	550	230	173	200	220	1	A	B0
12		75D23L	—	65	550	230	173	200	220	0	A	B0
13		48D26R	N50	50	400	257	172	201	221	1	A	B0
14		48D26L	N50L	50	400	257	172	201	221	0	A	B0
15	D26	55D26R	N60	60	520	257	172	201	221	1	A	B0
16		55D26L	N60L	60	520	257	172	201	221	0	A	B0
17		65D26R	NS70	65	560	257	172	201	221	1	A	B0
18		65D26L	NS70L	65	560	257	172	201	221	0	A	B0
19		80D26R	NX110-5	70	585	257	172	201	221	1	A	B0
20		80D26L	NX110-5L	70	585	257	172	201	221	0	A	B0
21	D31	65D31R	N70	70	585	305	173	205	225	1	A	B0
22		65D31L	N70L	70	585	305	173	205	225	0	A	B0
23		75D31R	N70Z	75	620	305	173	205	225	1	A	B0
24		75D31L	N70ZL	75	620	305	173	205	225	0	A	B0
25		95D31R	NX120-7	80	645	305	173	205	225	1	A	B0
26		95D31L	NX120-7L	80	645	305	173	205	225	0	A	B0
27		105D31R	—	90	705	305	173	205	225	1	A	B0
28		105D31L	—	90	705	305	173	205	225	0	A	B0
29		110D31R	—	95	730	305	173	205	225	1	A	B0
30		110D31L	—	95	730	305	173	205	225	0	A	B0
31	CMF	—	N90	90	710	362	174	214	234	1	A	B0
32		—	N90L	90	710	362	174	214	234	0	A	B0
33		—	N96	96	740	362	174	214	234	1	A	B0
34		—	N96L	96	740	362	174	214	234	0	A	B0
35	E41	95E41R	N100	100	780	414	172	211	231	1	A	B0
36		95E41L	N100L	100	780	414	172	211	231	0	A	B0
37	F51	135F51	N120	120	860	505	180	208	230	4	A	B0
38		—	N135	135	880	505	180	208	230	4	A	B0
39	G51	154G51	N150	150	1000	505	220	210	232	4	A	B0
40		—	N180	180	1100	505	220	210	232	4	A	B0
41	H52	190H51	N200	200	1200	508	265	215	238	4	A	B0
42		245H52	NX400-20	220	1350	508	265	215	238	4	A	B0



SPECIFICATION CHAT 2 DIN Standard-For European Vehicles-Dry Charge Battery Series

NO.	SIZE GROUP	MODEL NO	CAPACITY (AH)20HR	CCA(A) (EN)	RC (min)	DIMENSION(MM)				TERMINAL		HOLD DOWN
						L	W	H	TH	LAYOUT	TYPE	
1	LB1	53646	36	305	45	208	175	175	175	0	A	B13
2		53647	36	305	45	208	175	175	175	1	A	B13
3		54045	40	320	50	208	175	175	175	0	A	B13
4		54046	40	320	50	208	175	175	175	1	A	B13
5	L1	53624	36	305	45	208	175	190	190	0	A	B13
6		53621	36	305	45	208	175	190	190	1	A	B13
7		54464	44	350	60	208	175	190	190	1	A	B13
8		54434	44	350	60	208	175	190	190	0	A	B13
9	LB2	54523	45	360	65	242	175	175	175	0	A	B13
10		54524	45	360	65	242	175	175	175	1	A	B13
11		55056	50	400	80	242	175	175	175	0	A	B13
12		55057	50	400	80	242	175	175	175	1	A	B13
13	L2	55530	55	450	90	242	175	190	190	0	A	B13
14		55548	55	450	90	242	175	190	190	1	A	B13
15		56068	60	490	95	242	175	190	190	0	A	B13
16		56069	60	490	95	242	175	190	190	1	A	B13
17		56219	62	500	100	242	175	190	190	0	A	B13
18		56220	62	500	100	242	175	190	190	1	A	B13
19	LB3	56318	63	510	105	275	175	175	175	0	A	B13
20		56319	63	510	105	275	175	175	175	1	A	B13
21		56828	68	550	115	275	175	175	175	0	A	B13
22		56521	68	550	115	275	175	175	175	1	A	B13
23	L3	56618	66	540	110	275	175	190	190	0	A	B13
24		56633	66	540	110	275	175	190	190	1	A	B13
25		57219	72	590	120	275	175	190	190	0	A	B13
26		57220	72	590	120	275	175	190	190	1	A	B13
27		57535	75	620	130	275	175	190	190	0	A	B13
28		27536	75	620	130	275	175	190	190	1	A	B13
29	LB4	58013	80	640	140	315	175	175	175	0	A	B13
30		58014	80	640	140	315	175	175	175	1	A	B13
31		58540	85	670	150	315	175	175	175	0	A	B13
32		58541	85	670	150	315	175	175	175	1	A	B13
33	L5	58815	88	700	160	345	175	190	190	0	A	B13
34		58821	88	700	160	345	175	190	190	1	A	B13
35		60038	100	800	175	345	175	190	190	0	A	B13
36		60044	100	800	175	345	175	190	190	1	A	B13

NOTICE:

- 1.The technical drawing of Cell Layout, Terminal Type and Base Hold Down, please see on Page 24;
- 2.The specification is subject to change without notification for the reason of improvement;
- 3.Due to various battery models, if the model you interested not show on this chart, you are welcome to contact us.





No smoking
no naked flames
no sparks



Shielded
eyes



Keep away
from children



Battery
acid



Explosive
gas



Note operating
instructions

PRECAUTION

If treated with care and taking the proper precautions, lead acid batteries can be handled safely with minimum risk. However, lead acid batteries contain sulfuric acid which is both poisonous and corrosive. This makes them potentially hazardous and can cause serious injury when standard handling procedures and safety measures are not respected.

SAFETY

- Always wear acid resistant clothing, protective goggles, PVC gloves and rubber boots.
- Avoid smoking, sparks and fumes near operating or charging lead acid batteries.
- Keep metal objects away from terminals.
- Batteries are heavy. Lift carefully and do not place on unstable surfaces.
- Keep away from children.

EMERGENCY ACTION

- Splashes in eyes : wash out the eye with plenty of water for at least 15 minutes.
- Splashes on skin : Remove contaminated clothing carefully and wash the affected skin areas with plenty of water.
- Swallowed : Drink copious amounts of milk of magnesia, water or milk. Do not induce vomiting.

STORAGE

- Keep batteries upright
- Don't be exposed direct to the sun.
- Keep batteries clean and always store in a cool, dry place.
- Never stack over 4 layers.
- Never drop, never overthrow.
- In all cases, (First In, First Out) storage procedure should be applied.

INSTALLATION

- Check that vehicle's engine is turned off.
- Remove the negative terminal connection of old battery
- Remove the positive terminal connection and then, remove the hold-down bracket or clamp.
- Replace old battery to new battery and fix the new one in the tray.
- Prior to replace new one, inspect the tray for corrosion. Clean battery holder, and battery terminals using a wire brush if necessary.
- Connect the positive terminal.
- Connect the negative terminal. The negative terminal should always be replaced last.

DISPOSAL

- Batteries must NEVER be disposed of in household waste.
- Recyclable material
- Do not throw away



NEVER DROP
NEVER OVERTHROW



NEVER STACK
OVER 4 LAYERS



KEEP UPRIGHT



NEVER TIP
OVER 45°



RECYCLE



Pb



BATTERY TESTING PROCEDURES

A. VISUAL CHECK

- Check the Container, Cover and terminals
When physical damage is present, replace the battery.
- Check the Indicator (If battery have the Indicator)
Always look right down when viewing the Indicator and lightly tap the Indicator on the battery to dislodge any air bubbles.



GOOD
CONDITION



CHARGING
NECESSARY



REPLACE
BATTERY

B. VOLTAGE CHECK

- If OCV is below 12.4V, recharge the battery immediately.

C. DISCHARGE TEST (LOAD TEST)

- Connect the battery tester to battery terminals.
- Measure the temperature of the battery around
- Set the battery tester ampere values for ½ of the CCA rating
- Apply the load for 15 seconds and read the voltage when this time is over.
- Compare measured values with the values in the table. If values are outside in Table 2, recharge and test again. If the battery fails the load test twice, then replace the battery.

Some times, electronic testers such as MIDTRONICS, SNAP-ON and etc. are used instead of load tester.

Electronic testers are only suitable for batteries that have been in use for a certain time.

They cannot rate the performance of new or unused batteries.

For this reason, ATLASBX recommends the test defined in global standards to confirm rated specifications.

BATTERY CHARGE

If the battery is below 12.4V or fails to pass the load test, battery must be recharged as soon as possible to prevent lead sulfation. During charge, if the battery sprays electrolyte through the vent holes or gets hot (over 52°C), the charge must be stopped for a time to allow the battery to cool.

CONSTANT CURRENT CHARGE

General guidelines for constant-current-charge are given in Table 3.

The table summarizes approximate amperes and hours in need of charge according to 20Hr-rate capacity and OCV.

CONSTANT VOLTAGE CHARGE

Another method is to charge a battery at a specified voltage (14.4~16V). At the beginning of charge, a high rate current flows into the battery and as battery is charged the current is getting reduced. Generally this method needs more time than the constant-current-charge, but overcharge risk is less.

END OF CHARGE

If a battery has been properly charged, voltage output across battery terminals on charge can be maintained at constant level for 2 hours.

TABLE3. CONSTANT CURRENT CHARGE CONDITION

OCV	31-40AH	41-50AH	51-60AH	61-70AH	71-80AH	81-90AH	91-100AH
12.4-12.49	4X3	5X3	6X3	7X3	8X3	9X3	10X3
12.3-12.39	4X5	5X5	6X5	7X5	8X5	9X5	10X5
12.2-12.29	4X7	5X7	6X7	7X7	8X7	9X7	10X7
12.1-12.19	4X8	5X8	6X8	7X8	8X8	9X8	10X8
12.0-12.09	4X10	5X10	6X10	7X10	8X10	9X10	10X10
BELOW 11.99	4X13	5X13	6X13	7X13	8X13	9X13	10X13

TABLE1. STATE OF CHARGE

Approximate State of Charge	OCV
100%	12.75
75%	12.40
50%	12.20
25%	12.00
Discharged	11.90

FOR REFERENCE ONLY

TABLE2. LOAD TEST

Minimum Voltage	Temperature
9.6V	21°C & above
9.4V	10°C
9.1V	-1°C
8.9V	-7°C
8.5V	-18°C



Power for all
■ ■ ■ **your needs**
— ■ —



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WESTERN
Electrical Corporation

WESTERN

Electrical Corporation

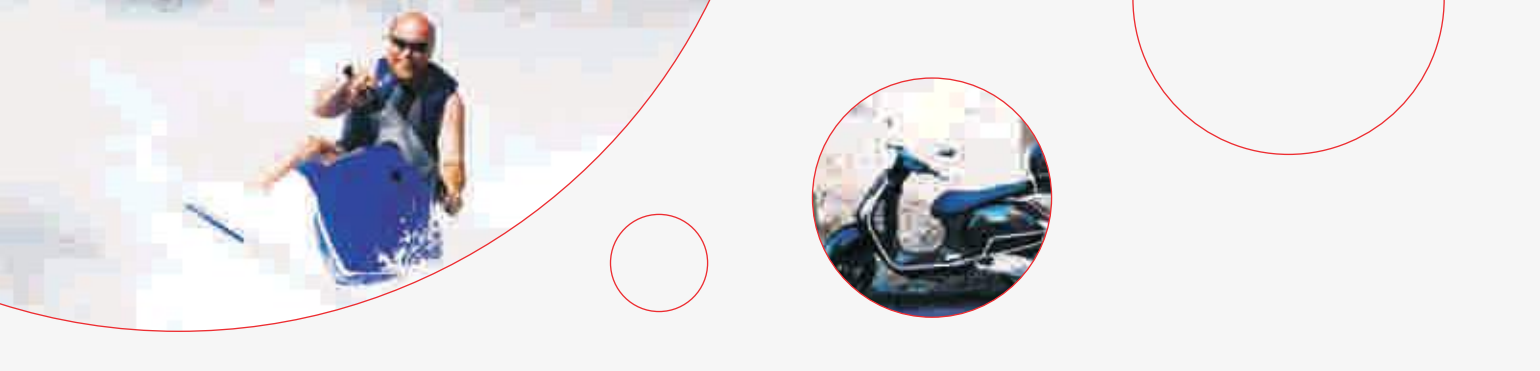


(SECTION 3)



GENERAL CATALOGUE

MOTORCYCLE & POWERSPORTS BATTERIES



Whether you're cruising the highway, taming the extreme off road trails, or riding waves out on the open water, Western Electrical has the power solution for you.



Manufactured to the highest international standards from durable internal components and the latest engineering techniques, Western Electrical Motorcycle & Powersports Batteries are designed to provide reliable starting power and performance when it is needed the most.

Featuring a comprehensive selection of both flooded Maintainable and Gel and AGM Maintenance Free VRLA (Valve Regulated Lead Acid) batteries, Western Powersports Batteries are suitable for a diverse range of applications including:

- MOTORCYCLES • SCOOTERS • ATV'S
- WATER CRAFTS • SNOW MOBILES

Guaranteed Performance

Western Electrical Motorcycle and Powersports batteries never fail to impress, regardless of the application - be it motorcycles, scooters, quad bikes, jet skis or snowmobiles. After all, if you choose a battery developed specifically for your requirements, you'll discover the true meaning of reliable energy and long-lasting driving pleasure.

With a complete line of Motorcycle and Powersports batteries, Western Electrical has the right power solution exactly what customers want: long life and no hassles. From our high performance maintenance free range that comes factory-charged and ready to install, to our conventional line of flooded products, all are designed for maximum performance and reliability.



- MOTORCYCLES • SCOOTERS • ATV'S • WATER CRAFT • SNOWMOBILE



CHOOSING THE RIGHT BATTERY

An engine and battery are designed to complement each other and although some may look similar, not all batteries are equal. It is the internal, unseen components which make Western Electrical Motorcycle & Powersports Batteries stand out from the rest.

GEL SMF Series (Fourth Generation)

Featuring the latest in battery design and the unique leak-proof gel technology, the GEL SMF battery series is a maintenance-free product that's designed for the harshest conditions and most rugged terrain. And it's perfectly suited to all-terrain vehicles, plus touring bikes with plenty of extra performance features, such as anti-lock brakes.

- Ideal for touring bikes with extra features, such as anti-lock brakes.
- Completely maintenance-free
- Minimal self-discharge, up to 12 months' shelf life at 20 °C
- High inclination to fit in any angle.
- Extremely safe thanks to completely sealed Gel battery technology.



AGM MF Series (Second Generation)

Featuring the latest in battery design and technology, the AGM MF series battery deliver superior starting power, require no-ongoing maintenance and provide exceptional vibration and impact resistance. Once activated, these batteries do not require refilling and keep maintenance free for the entire life of the battery.

- Advanced lead calcium technology maximises starting power.
- Long storage life up to 18 month.
- Holds charge for longer.
- Spill-proof design.
- Sulphation retardant reduces battery plate sulphation.



AGM SMF Series (Third Generation)

No measuring, pouring or initial charge required, Western Electrical AGM SMF series battery is the perfect solution for people with better things to do than battery maintenance. This compact, rugged, lightweight AGM SMF battery is the ultimate in motorcycle & powersports battery technology and the preferred choice for today's high performance motor engines.

- Up to 80% more starting power per kg.
- Totally Maintenance free.
- Spill proof design for multi angle fitment.
- Superior vibration resistance.
- Reduced self discharge for longer battery life.
- Factory activated – filled sealed and charged at the factory.



Dry Charged Series (First Generation)

A range of batteries designed to meet the special demands of more complex machines. Specialist separators, robust internal materials and a power boosting design, ensures increased power, reduced maintenance and longer life.

- Patented separators for high cranking power.
- Through-partition construction delivers maximum power.
- Unique sealed posts resist corrosion for longer battery life.
- Heat sealed, bonded unit and container resists damage from fuel, oil and impact.



RELIABLE STARTING POWER & PERFORMANCE



GEL



GEL Sealed Maintenance Free Series

INTRODUCTION

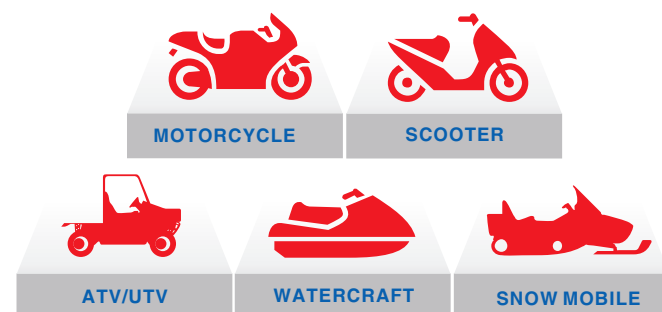
Featuring the latest in battery design and the unique leak-proof gel technology, Western Electrical GEL SMF motorcycle battery series is the best choice for any premium motorcycle, scooter and sports vehicle.

It is designed to ensure maximum comfort on the road, ensuring the adequate power supply of high energy absorption devices such as ABS, GPS and heated grips. It is completely safe against spills, and highly resistant to vibrations, making it ideal also for off-road use, while it's resistance to deep discharges and low self-discharge make it perfect for long periods of storage and seasonal use.

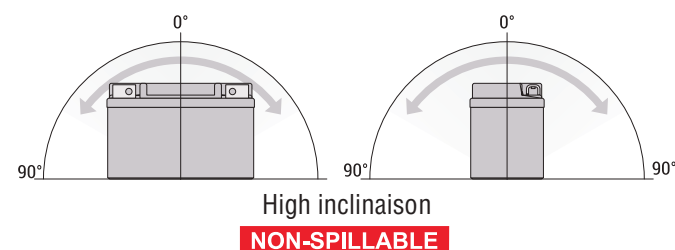
FEATURES

- Ideal for high-performance vehicles with high-energy electrical equipment.
- Low self-discharge - perfect for seasonal use.
- Resistant to deep discharge - up to 12 months of storage without decreasing the expected life.
- Maximum safety and high resistance to vibrations - easily tackles roads in difficult conditions.
- Ready to use, initial filling with acid is not provided.
- Ready & easy to use
- Maintenance free - no water topping up.
- The most up-to-date original implant technology.

APPLICATION



MOUNTING ANGLES



Icons on Labels and Carton Box



GEL SMF SERIES

No.	Battery Model	Voltage	Capacity	Dimensions(mm)			Assembly Figure	Terminal Type	Weight	CCA
		Volt	Ah(10hr)	L	W	H			(Kg±5%)	A
1	GYB2.5L	12	2.5	81	77	105		Line	1.1	30
2	GYB3L	12	3	97	56	109		A	1.3	35
3	GTX4L	12	3.5	114	70	86		A	1.4	50
4	GTZ5S	12	4.5	114	70	86		A	1.6	65
5	GTZ6S	12	5	113	70	106		A	1.84	70
6	12N5-3B	12	5.5	120	60	130		A	1.95	75
7	GYB5L-B	12	6	120	60	130		A	2.1	85
8	GTZ7S	12	6	113	70	105		A	2.2	95
9	GTX6.5L	12	6.5	139	66	102		A	2.3	95
10	GTX7A	12	7	151	87	95		A	2.5	105
11	GTX7L	12	7	114	70	133		A	2.4	100
12	GTX7DL	12	7	150	60	130		A	2.4	100
13	GYB7-A	12	7	135	76	123		A	2.5	100
14	GTZ10S	12	8.6	150	87	95		A	3	140
15	GTX9	12	9	152	87	107		A	3.05	135
16	GYB9-B	12	9	137	77	133		A	2.76	120
17	GTZ12S	12	11	150	87	105		A	3.5	160
18	GTX12	12	12	150	87	132		A	3.7	180

ENJOY THE PURE RIDING FUN, TO THE TOP!





SMF



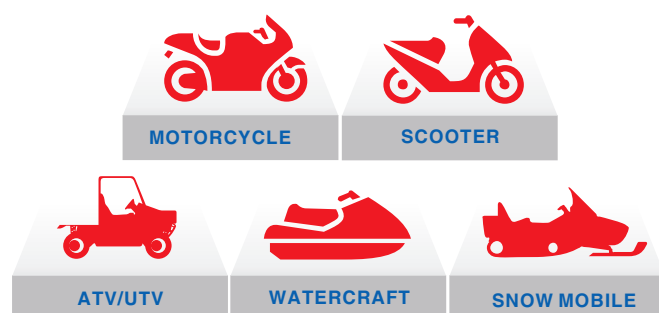
Sealed Maintenance Free Series

SMF INTRODUCTION

Design to meet the increasing demand of today's high performance machines, this compact, rugged, high performance SMF Motorcycle battery series is the ultimate in motorcycle battery technology and the preferred choice for every powersports vehicle.

No measuring, pouring or initial charge required, this battery series is the perfect choice for people with better things to do than battery maintenance, under sealed and activated state from the factory, they are completely spill proof that enabling high inclination fitment, never require refilling and are totally maintenance free for the entire life of the battery.

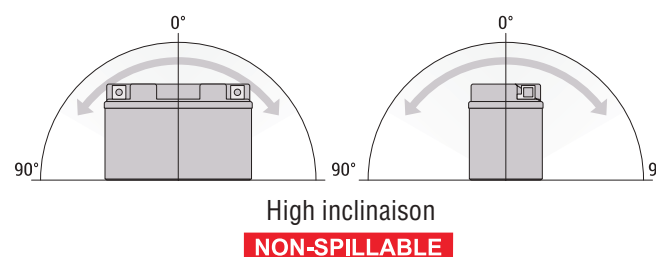
TECHNOLOGY



FEATURES

- AGM construction (Absorbed Glass Material)
- VRLA battery (Valve Regulated Lead Acid)
- Sealed and factory activated
- Environmentally friendly, spill proof design
- Multi-positional fitment
- Absolutely maintenance free
- Ready & easy to use
- No acid handling - Very safe
- Increased power & extended life
- Extreme vibration resistance

MOUNTING ANGLES



ICONS ON LABELS AND CARTOON BOX



AGM SMF SERIES

No.	Battery Model	Voltage	Capacity	Dimensions(mm)			Assembly figure	Terminal Type	Weight	CCA
		Volt	Ah(10hr)	L	W	H			(Kg±5%)	A
1	6N4-1A	6	4	70	49	100		Line	0.7	/
2	6N4-2A	6	4	70	70	92		Line	0.73	/
3	6N6-3B	6	6	97	56	111		B	1.05	/
4	YTR4A	12	2.5	114	48	85		I	1.15	30
5	YT4B-4	12	2.5	114	38	86		J	1.05	25
6	YB2.5LMF	12	2.5	81	77	105		Line	1.05	25
7	YTX3L	12	3	98	56	109		B	1.15	35
8	YTX4L	12	3.5	114	70	86		A	1.43	60
9	12N4-3B	12	4.2	114	70	86		A	1.52	65
10	YTZ5S	12	4.5	114	70	87		A	1.57	70
11	YTZ6S	12	5	113	70	109		A	1.95	65
12	12N5-3B	12	5	120	60	131		B	1.8	80
13	12N6-3B	12	6	135	75	95		A	1.83	85
14	YTZ7S	12	6	113	70	105		A	2.1	95
15	YTX6.5L	12	6.5	139	66	102		B	2.1	80
16	YTX7A	12	7	152	87	95		A	2.5	105
17	YTX7L	12	7	114	70	133		A	2.45	100
18	YTX7DL	12	7	149	60	129		B	2.4	100
19	12N7-4A	12	7	137	76	123		B	2.5	95
20	YT7B-4	12	7	150	65	94		A	2.1	90
21	YTX9	12	9	152	87	107		A	3.05	135
22	YTX9A	12	9	137	77	138		B	2.95	120
23	YT9B-4	12	9	150	70	105		A	2.8	140
24	YTZ10S	12	8.6	150	87	95		A	2.9	140
25	YTZ12S	12	11.2	150	87	105		A	3.4	160
26	YTX12	12	12	150	87	132		A	4	155
27	YT12B-4	12	12	150	70	130		A	4.1	160
28	YTX14	12	14	150	87	148		A	4.8	200
29	YT14B-4	12	14	150	70	145		A	4.25	180
30	YTX15L	12	15	175	87	130		A	4.95	230
31	YTX16-4	12	16	150	87	166		A	5.25	250
32	YB16CL-BS	12	16	175	100	175		A	6.57	265
34	YTX20L	12	20	175	87	155		A	6.8	310
35	YTX20CH	12	20	150	87	161		A	6.03	270
36	YTX24HL	12	22	205	91	164		A	6.9	280
37	YTX30L	12	30	166	126	175		A	6.5	320



Maintenance Free Series

INTRODUCTION

The AGM MF Motorcycle & Powersports battery series provides premium power over long periods with no loss in performance. Due to the special construction, this battery series is also featured spill and leak-proof to 45° and resistant to vibration and deep cycling.

These batteries are shipped under dry charged and unfilled state with acid bottle separately in order to ensure the max power freshness. Once the acid has been properly added to the battery, the fiberglass mat completely absorbs the acid making it virtually spill and leak-proof.

Once activated, these batteries do not require refilling and remain maintenance free for the life of the battery.

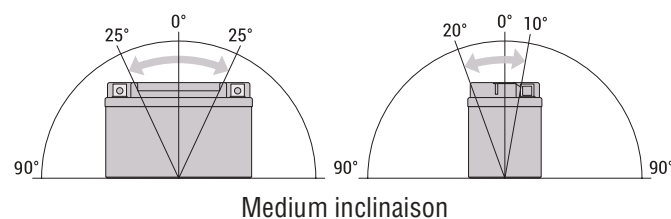
FEATURES

- Upright installation only
- Maintenance free (no water refilling)
- Sealed after filling, no gas emission through venting hole (under normal operation)
- High power
- Does not need to be recharged while stocked
- Suitable for cold weather
- Reduction of plate sulfation
- Higher life cycle
- Longer voltage hold

TECHNOLOGY

- AGM construction (absorbed acid)
- VRLA battery (Valve Regulated Lead Acid)
- Supplied with a separate acid pack
- Homologated by OEM

MOUNTING ANGLES



Acid pack included for activation

ICONS ON LABELS AND CARTON BOX



AGM MF SERIES

No.	Battery Model	Voltage	Capacity	Dimensions(mm)			Assembly figure	Terminal Type	Weight (Kg±5%)	
		Volt	Ah(10hr)	L	W	H			Total	Acid
1	6N4-BS	6	4	71	71	93		Line	0.75	0.17
2	YT4B-BS	12	2.3	114	39	86		/	1.1	0.12
3	YTX2.5L-BS	12	2.5	80	70	105		/	0.95	0.27
4	YTX3L-BS	12	3	100	58	105		B	1.15	0.24
5	YTX4L-BS	12	3.5	114	70	86		A	1.45	0.28
6	YTH4L-BS	12	4	114	70	86		A	1.5	0.28
7	YTX4AL-BS	12	4	120	71	92		A	1.7	0.27
8	YTX5L-BS	12	5	114	71	105		A	1.9	0.35
9	YB5L-BS	12	5	120	60	127		B	1.95	0.43
10	YTX6.5L-BS	12	6.5	138	70	109		A	2.1	0.45
11	YTX7L-BS	12	7	114	71	131		A	2.5	0.48
12	YTX7A-BS	12	7	150	86	95		A	2.5	0.48
13	YTX7D-BS	12	7	150	60	130		B	2.35	0.48
14	12N7-BS	12	7	135	75	135		B	2.62	0.64
15	YTX9A-BS	12	9	135	75	135		B	2.9	0.64
16	YTX9-BS	12	9	150	87	105		A	3.1	0.65
17	YTX9L-BS	12	9	150	87	105		A	3.1	0.65
18	YTX10L-BS	12	10	133	89	143		A	3.65	0.8
19	YTX12A-BS	12	10	150	87	105		A	3.5	0.5
20	YTX12-BS	12	12	150	87	130		A	3.9	0.8
21	YTX14AH-BS	12	12	135	90	164		A	5	1.2
22	YT14B-BS	12	12	150	70	145		A	5.3	0.6
23	YTX14-BS	12	14	150	87	145		A	4.7	0.95
24	YTX15L-BS	12	13	175	87	130		A	4.7	0.74
25	YTX16-BS	12	16	150	87	161		A	4.7	1.03
26	YTX16-BS-1	12	14	150	87	161		A	4.9	1.1
27	YTX18L-BS	12	18	205	87	160		A	6.73	1.12
28	YTX20CH-BS	12	18	150	87	161		A	5.3	0.82
29	YTX20HL-BS	12	18	175	87	155		A	6.8	0.93
30	YTX20-BS	12	20	175	85	155		A	5.5	1.2
31	YTX20L-BS	12	20	175	85	155		A	5.5	1.2
32	YTX24HL-BS	12	21	205	87	160		A	7.85	1.06

THE BATTERY OF LONG STORAGE,
REALLY LONG.





DRY
BAT



Dry Charge Battery Series

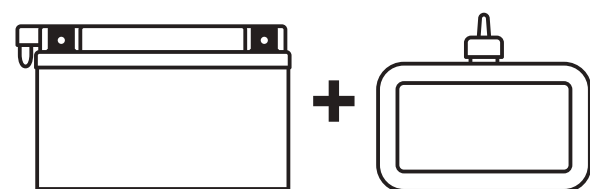
(Conventional & High Performance)

INTRODUCTION

Western Electrical Dry Charge Motorcycle Battery series is the pinnacle of conventional yet cutting-edge batteries. Its above-average starting power in any weather is the result of a perfectly adapted plate construction, innovative grid design and special separator, providing it with enough energy to tackle the tough situation. The overall construction is resistant against vibration and impacts, so it's up to the challenge whatever the application.

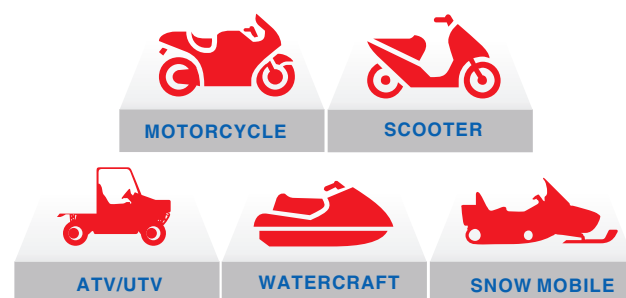
FEATURES

- Upright installation only
- Has to be checked periodically and refilled with water if necessary
- Internal gas emission through venting hole
- Handle with care to prevent acid spillage
- Regular life duration
- Does not need to be recharged while stocked



Acid pack included for activation

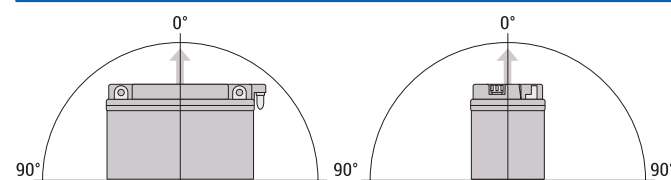
APPLICATION



TECHNOLOGY

- Upright installation only
- Low self-discharge rate batteries use
- 6 & 12V available

MOUNTING ANGLES



Upright instalation only



DRY CHARGE CONVENTIONAL SERIES

No.	Battery Model	Voltage	Capacity	Dimensions(mm)			Assembly figure	Terminal Type	Weight (Kg±5%)	
		Volt	Ah(10hr)	L	W	H			Total	Acid
1	6N4-2A	6	4	71	71	96		Line	0.6	0.2
2	6N4B-2A	6	4	100	47	96		Line	0.9	0.4
3	6N6-3B	6	6	100	58	109		B	0.9	0.4
4	6N6-3B-1	6	6	100	58	109		B	0.9	0.4
5	6N5.5-1D	6	5.5	90	70	100		Line	0.9	0.4
6	B39-6	6	7	126	48	126		B	1.2	0.4
7	B49-6	6	10	91	83	161		B	1.8	0.5
8	6N11A-1B	6	11	122	62	132		B	1.6	0.6
9	12N2.5-3C	12	2.5	80	70	105		Line	0.7	0.4
10	12N3-3A	12	3	100	57	110		B	0.8	0.4
11	12N3-3B	12	3	100	57	110		B	0.8	0.4
12	12N4-3B	12	4	120	70	92		A	1.3	0.3
13	12N5-3B	12	5	120	60	130		B	1.6	0.4
14	12N5-4B	12	5	120	60	130		B	1.6	0.4
15	12N5.5-3B	12	5.5	135	60	130		B	1.5	0.55
16	12N5.5-4B	12	5.5	135	60	130		B	1.5	0.55
17	12N6-3B	12	6	135	70	95		B	1.55	0.55
18	12N6-4B	12	6	135	70	95		B	1.55	0.55
19	12N6.5-3A	12	6.5	138	65	102		B	1.6	0.6
20	12N6.5-3B	12	6.5	138	65	102		B	1.6	0.6
21	12N7B-4B	12	7	150	87	95		D	1.8	0.6
22	12N7-3A	12	7	135	75	133		B	1.8	0.6
23	12N7-4A	12	7	135	75	133		B	1.8	0.6
24	12N7-3B	12	7	135	75	133		B	2.2	0.6
25	12N7-4B	12	7	135	75	133		B	2.2	0.6
26	12N7B-3A	12	7	150	60	130		B	2.2	0.6
27	12N7B-4A	12	7	150	60	130		B	2.2	0.6
28	12N7D-3B	12	7	135	75	150		B	2.2	0.5
29	12N9-3B	12	9	135	75	140		B	2.5	0.9
30	12N9-4B-1	12	9	135	75	140		B	2.5	0.9
31	12N10-3A	12	10	135	90	145		B	2.6	1
32	12N10-3B	12	10	135	90	145		B	2.6	1
33	12N11-3A	12	11	135	90	155		B	3.2	1
34	12N11-3B	12	11	135	90	155		B	3.2	1
35	12N12-3A	12	12	200	75	134		B	3.5	1
36	12N12-3B	12	12	200	75	134		B	3.5	1
37	12N14-3A	12	14	135	90	165		D	3.5	1.1
38	12N16-3A	12	16	175	100	155		B	4.4	1.3
39	12N16-3B	12	16	175	100	155		B	4.4	1.3
40	12N16-4B	12	16	175	100	155		B	4.4	1.3
41	12N18-3A	12	18	206	91	164		C	4.6	1.5
42	12N24-3A	12	24	186	125	176		G	6.2	1.8



DRY CHARGE HIGH PERFORMANCE SERIES

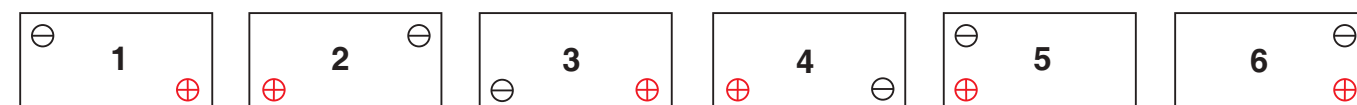
No.	Battery Model	Voltage	Capacity	Dimensions(mm)			Assembly figure	Terminal Type	Weight (Kg ±5%)	
		V	AH(10hr)	L	W	H			Total	Acid
1	YB2.5L-C	12	2.5	80	70	105		/	0.88	0.4
2	YB3L-A	12	3	100	57	110		B	0.9	0.4
3	YB3L-B	12	3	100	57	110		B	0.9	0.4
4	YB4L-A	12	4	120	70	92		A	1.3	0.3
5	YB4L-B	12	4	120	70	92		A	1.3	0.4
6	YB5L-B	12	5	120	60	130		B	1.6	0.55
7	YB6L-B	12	6	135	70	95		B	1.55	0.55
8	Yb7-A	12	7	135	75	133		B	2	0.85
9	YB7B-B	12	7	150	60	130		B	2	0.8
10	YB7C-A	12	7	130	90	114		E	2.2	0.85
11	YB9L-B	12	9	135	75	140		B	2.5	0.9
12	Yb9-B	12	9	135	75	140		B	2.5	0.9
13	YB10L-B	12	11	135	90	145		B	3	1
14	YB10L-B2	12	11	135	90	145		D	3	1
15	YB12A-A	12	12	135	80	160		B	3	1
16	YB12A-B	12	12	135	80	160		B	3	1
17	YB12AL-A	12	12	135	80	160		B	3	1
18	YB12AL-A2	12	12	135	80	160		B	3	1
19	YB12B-B2	12	12	160	90	130		D	3.2	1
20	YB12C-A	12	12	135	80	175		A	3.1	1
21	Yb14-A2	12	14	135	90	166		D	3.5	1.1
22	Yb14-B2	12	14	135	90	166		D	3.5	1.1
23	YB14L-A2	12	14	135	90	166		D	3.5	1.1
24	YB14L-B2	12	14	135	90	166		D	3.5	1.1
25	YB16AL-A2	12	16	205	71	164		F	4.2	1.2
26	YB16L-B	12	19	175	100	155		B	4.4	1.4
27	YB16B-A	12	16	160	90	161		A	4.1	1.2
28	YB16CL-B	12	19	175	100	175		A	4.5	1.4
29	YB18L-A	12	18	180	90	162		C	4.2	1.4
30	Y50-N18L-A	12	20	205	90	162		C	4.4	1.6
31	Y60-N24L-A	12	28	186	125	175		G	5.8	/
32	YB30L-B	12	30	168	132	176		A	7.4	1.8
33	51814	12	19(20hr)	186	82	171		G	4.5	1.2
34	51913	12	19(20hr)	186	82	171		G	4.5	1.2
35	53030	12	30(20hr)	186	130	171		G	6.8	1.8



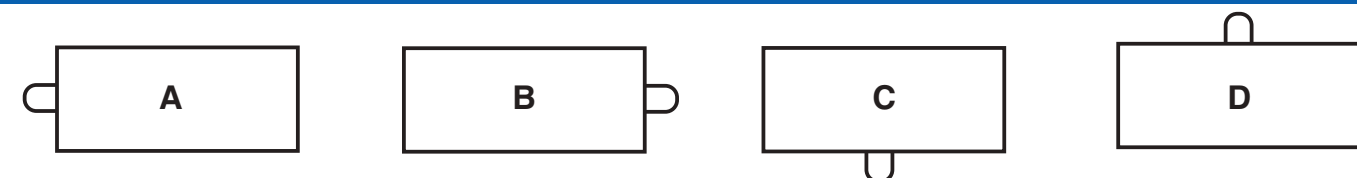
Terminal Type

No.	Front	Side	Top	Figure	No.	Front	Side	Top	Figure
1					8				
2					9				
3					10				
4					11				
5					12				
6					13				
7					14				

Polarity Location



Exhaust Vent Location



Designation of Battery Type Numbers

Conventional
12 N12A-4 A-1
 1 2 3 4 5 6
 1 Nominal voltage
 2 Conventional battery
 3 Size of battery case
 4 Polarity location
 5 Exhaust location
 6 Designates unique terminal

High Performance Conventional
YB16A L-A2
 1 2 3 4
 1 High Performance battery
 2 Size of battery case
 3 Polarity location
 4 Terminal and Exhaust location

AGM MF
YTX14 A H L-BS-1
 1 2 3 4 5 6 7
 1 High Performance AGM (YTX, YTZ, YT)
 2 Performance classification
 3 Designates unique battery case size
 4 Higher CCA
 5 Polarity location
 6 Bottle supplied electrolyte
 7 Designates unique terminal



TECHNOLOGY FEATURES AND BENEFITS AT A GLANCE

Component	Features	Benefits
Cast Grid	Special Grid Design	Severe vibration resistance & improved conductivity.
Active Material	Proprietary Formulation	Reduced shedding, maximum utilization & long service life.
Pasted Plates	Specified Thickness & Weight	Ensures vibration resistance through precise compression & proper service life through specified active material balance.
Dried-Charged Plates	Tank Formed & Dried Plates	Properly dried plates in a sealed battery have a virtually limitless shelf-life, while still retaining 70-80% state of charge when initially filled with acid.
Top Lead Connections	Through-Partition Construction, Large Straps	Shorter current path for increased electrical conductivity & higher starting currents, heavier parts for maximum durability.
Case-Cover Seal	Thermal Bonded Plastic	Air tight seal to prevent air ingress & acid seepage.
Terminal-Cover Seal	Patented Poly-Seal Terminal	Eliminates acid seepage, reduces corrosion & extends battery life.
Case & Cover	Polypropylene	Superior resistance to gasoline & oil, impact resistant in extreme weather conditions.
Additive	Sulfate Stop (Some models)	Sulfate stop added to reduce the solubility of lead into the acid, which then reduces battery sulfation potential.
Conventional/High Performance		
Separator	Leaf or Envelope Separator	Polyethylene with glass mat sheet bonded for compression to withstand severe vibration conditions.
Maintenance Free AGM		
Separator	AGM (Absorbed Glass Mat)	Absorbs acid while creating cell compression for extreme vibration resistance.
Top Lead Alloy	Calcium Alloy	Increased weld strength & severe vibration resistance.
Vent System	Valve & Flame Arrestor	Valve relieves excess pressure to prevent bursting, flame arrestor frit prevents internal combustion.
Factory Activated AGM		
Grid System	Computer-Designed Radial Grids	Increased conductivity for higher starting wattage, increased vibration resistance.
Separator	Puncture Resistant AGM (Absorbed Glass Mat) Material	High puncture resistant separator for increased service in high vibration applications.



BATTERY CUTAWAY DIAGRAM

Conventional and Conventional High Performance

Battery terminal construction
Reduces corrosion and prevents acid leakage for a longer service life

Cell connectors
Directly linking the individual battery cells via the plate block creates a shorter "energy path", increasing the starting power

Specialised grid design
Optimum conductivity and high vibration resistance

Special Active Material
compounded to withstand vibration, prolong battery life and dependability

Special separator
withstands severe vibration, assures maximum conductivity

Casing and lid material
The special oil and petrol-resistant plastic protects against extreme temperatures



AGM VRLA

Sealed Terminal
Prevents acid leakage, reduces corrosion, extends battery life

Integral Flame Arrestors
The integral flame arrestors protect the battery from sparks and flames

Thru-Partition Connectors
Directly linking the individual battery cells via the plate blocks creates a shorter "energy path", increasing the starting power

Special Active Material
compounded to withstand vibration, prolong battery life and dependability

Glass mat (AGM)
The special glass mat (AGM-Absorbent Glass Mat) absorbs all the acid and ensures high cyclic stability

Specialized grid design
Optimum conductivity and high vibration resistance

Heat Sealed Case to Cover
bonded unit provides greater strength; protects against seepage and corrosion

Polypropylene Cover and Container
Assures reserve electrolyte capacity for cooler operating temperatures; provides greater resistance to gas and oil; withstands higher impact in extreme weather conditions



THE SUPERB PERFORMANCE ON ANY TERRAIN.



Whether it's a classic bike or the very latest model, on a leisurely ride through the countryside, off-road or on a racetrack, motorcycles represent one thing above all: freedom, and one requirement in common – dependable performance from a motorcycle battery in a variety of conditions.

To enjoy it to the full fun, rides have to be able to rely 100 % on their bikes and their batteries, while Western Electrical motorcycle batteries just supply such power to allow the true rides to enjoy the uninterrupted and thrill driving pleasure.



With their excellent agility, scooters are extremely popular in big cities, offering convenient mobility for short distances. In addition to ignition and the headlights, frequent use of the indicators, the brake lights and - once in a while, the horn - all require power, and Western Electrical scooter battery knows how to provide it.



It's a thrilling experience of riding a quad bike or ATV (All Terrain Vehicles) both on and off-road, however seldom knows these vehicles have to face some of the harshest and most extreme conditions than other powersports vehicles, which means a battery must build special to catch up. But don't bother, Western Electrical spill and vibration - proof powersports batteries always offer choice for anyone who demands top performance from their vehicle, especially on rugged terrain.



Out on the water, jet-skis or watercraft riding are the epitome of sporty fun. Whether it's on a calm lake or on the open sea, jet-skis or watercraft offer limitless fun as long as the battery holds out. However, out in open water also is the place where the strength in design and construction of a powersports battery perhaps matters most, because it's the last place you want to experience power failure.

Fortunately, Western Electrical have the excellent solution, as our powersports batteries for jet-skis or watercraft application are resistant to mechanical strain, including that caused by jumps and waves.



Cold start performance takes on a whole new meaning when it comes to snowmobiles and it's batteries. Ever since batteries have been used for ignition, icy temperatures have been the ultimate test of top quality. With Western Electrical powersports batteries for snowmobiles, you can enjoy snow, forests and mountains to the full. Discover a whole new world!



With the right mower and the appropriate Western Electrical Powersports battery, cutting the grass couldn't be easier. Western Electrical Powersports batteries boast reliability and endurance even on large lawns-making gardening simpler and more convenient. Now, you could enjoy your garden time and we will provide the power.



(SECTION 4)



GENERAL CATALOGUE

INDUSTRIAL VRLA BATTERIES




THE POWER -WHEN THE RELIABILITY IS CRITICAL.

As a integrated lead-acid battery solution provider, Western Electrical applied its expertise to developed a high quality range of VRLA (Valve Regulated Lead Acid) batteries to satisfy the fast increasing power demand in the field of stand by and storage energy .


Manufactured strictly according the international standards by using some of the highest quality materials and internal components, and Incorporated the technology from flood tubular, AGM to latest GEL, the Western Electrical VRLA industry battery range provides stable, reliable, and trouble free power in the demanding of long service life than ever.

After years of innovative and continuously improvement, this battery range has been developed a wide model selection to cover the most of the stand by and storage application, no matter it’s for general purpose of tiny toy cars, alarm systems, security systems, medical equipment, or the massive power loading in UPS, telecom, IT, power generation station, and the latest green energy of wind and solar power system.


From the automotive battery range for the transportation to the powersports vehicles, Western Electrical batteries are synonymous with quality and excellence, and now with this wide range of deep cycle VRLA industrial batteries, to the next following motive power batteries, we are dedicated to meet all your power requirement, where quality and reliability is critical.




Alarm




Medical




UPS/EPS




Solar power




Renewable energy




Emergency power generators












Power station Energy plant



Transformer stations



Communications systems and telecommunications

THE BATTERY RANGE DETAIL AT A GALTANCE	GENERAL	DEEP CYCLE		2V LONG LIFE		FRONT TERMINAL		OPzV	OPzS
	FM(agg)	DFM (agg)	GFM (gel)	DFM (agg)	GFM (gel)	FTA (agg)	FTG(gel)	OPzV (gel)	OPzS (flood)
IMAGES									
TYPICAL APPLICATIONS	Fire alarm systems Danger warning systems UPS systems	UPS systems Fire alarm systems Solar operation Railway technology Telecommunications Remote control systems Emergency power supply Power station operation		Solar operation Substations Telecommunications Emergency power supply Power station operation		UPS systems Telecommunications Switchgear Traffic technology Power station operation		Solar operation Substations Telecommunications Emergency power supply	Telecommunications Emergency power supply Solar operation Safety lighting Power station operation
System	Sealed	Sealed	Sealed	Sealed	Sealed	Sealed	Sealed	Sealed	Closed
Capacity range in Ah	1.3-28 ■■	33-250 ■	33-250 ■	200-3000 ■	200-3000 ■	55-200 ■	55-200 ■	200-3000 ■	200-3000 ■
Voltage	6V, 12V bloc bat.	12V bloc bat.	12V bloc bat.	2V single cells	2V single cells	12V bloc bat.	12V bloc bat.	2V single cells	2V single cells
Positive electrode	Grid plates	Grid plates	Grid plates	Grid plates	Grid plates	Grid plates	Grid plates	Tubular plates	Tubular plates
Alloy	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-calcium	Lead-antimony
Electrolyte	AGM **	AGM **	Gel*	AGM **	Gel*	AGM **	Gel*	Gel*	Flood
Typical discharge times	5min - 1h	5min - 1h	5min - 1h	30min - 3h	30min - 3h	5min - 1h	5min - 1h	30min - 10h	1h - 10h
Water refilling intervals (with ceramic plugs)	Not required	Not required	Not required	Not required	Not required	Not required	Not required	Not required	3 years
Electrolyte-tight, screwed terminal design, fully insulated	●	●	●	●	●	●	●	●	●
Standard/hinged cover				●	●				●
Valve	●	●	●	●	●		●	●	
Life span design(years)	5	10	10	18	18	10	10	20	20

Footnote: * With gelatinised electrolyte; ** With absorbed electrolyte in a glass fibre mat; ● Standard; ■ Ah - C10/20°C; ■■ Ah - C20/20°C

FM Series



INTRODUCTION

Western Electrical FM battery is a series of superior quality, high performance multi-purpose batteries designed to provide dependable primary and back-up power in domestic and commercial applications.

This battery series incorporate AGM technology which suspends the liquid electrolyte within highly porous glass fiber mat separators. These act as a sponge like material absorbing the loose electrolyte, eliminating accidental leaks or spills. The VRLA recombinant design eliminates the need for regular maintenance and enables fitment in hard to reach locations without the loss of performance, capacity, electrolyte, or cycle life.

FEATURES

- Capacity range: 1.2Ah-26Ah
- Voltage class: 6V/12
- Long design life(25°C): 5 years
- Low self-discharge rate: < 3%/month
- Good high rate discharge performance
- High sealed reaction efficiency: ≥ 99%
- Wide operation temperature: -20°C to 60°C

STANDARDS

1. IEC 60896-21/22
2. IEC 61427
3. ISO9001/14001/18001
4. Eurobat guide, long life
5. BS6290 part 4
6. GB/T 22473
7. CE, IATA and IMDG

BATTERY CONSTRUCTION

- Positive plate-Thick high Sn low Ca grid with special paste.
- Negative plate-Balanced Pb-Ca high density expanded grid for improved recombination efficiency
- Separator - AGM separator, low internal resistance & high assembling pressure to increase cycle life
- Electrolyte: Dilute high purity sulfuric acid
- Battery container and cover- High strength ABS(UL94-HB)and UL94-V0 is optional.
- Pillar seal – Two layers epoxy resin seal.
- Relief valve – Complete with integrated flame arrester.



FM SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/20hr	Length	Width	Height	Total Height	Kg	Type	Position
6V										
1	3-FM-1.3	6	1.3	97	24	52	58	0.3	F3	C
2	3-FM-3.2	6	3.2	134	34	62	68	0.7	F3	C
3	3-FM-4	6	4	70	47	101	107	0.72	F1	A
4	3-FM-4.5	6	4.5	70	47	101	107	0.84	F1	A
5	3-FM-7	6	7	150	34	94	100	1.15	F1	C
6	3-FM-7.5	6	7.5	150	34	94	100	1.3	F1	C
7	3-FM-10	6	10	151	50	94	100	1.82	F2	C
8	3-FM-12	6	12	151	50	94	100	1.95	F2	C
12V										
9	6-FM-1.3	12	1.3	97	43	52	58	0.58	F3	E
10	6-FM-3.3	12	3.3	134	67	60	67	1.3	F3	E
11	6-FM-4	12	4	90	70	101	107	1.43	F1	C
12	6-FM-4.5	12	4.5	90	70	101	107	1.68	F1	C
13	6-FM-5	12	5	90	70	101	107	1.80	F1	C
14	6-FM-7	12	7	151	65	95	101	2.25	F1,F2	F
15	6-FM-7.5	12	7.5	151	65	95	101	2.55	F1,F2	F
16	6-FM-8	12	8	151	65	95	101	2.56	F1,F2	F
17	6-FM-9	12	9	151	65	95	101	3.3	F1,F2	F
18	6-FM-10	12	10	151	98	95	101	3.48	F2	F
19	6-FM-12	12	12	151	98	95	101	4.0	F2	F
20	6-FM-14	12	14	151	98	95	101	4.3	F2	F
21	6-FM-17	12	17	181	76	167	167	5.4	T5	D
22	6-FM-18	12	18	181	76	167	167	5.6	T5	D
23	6-FM-20	12	20	181	76	167	167	6.3	T5	D
24	6-FM-22	12	22	181	76	167	167	6.7	T5	D
25	6-FM-24	12	24	175	166	125	125	8.4	F5/F8	D
26	6-FM-26	12	26	175	166	125	125	9.4	F5/F8	D
27	6-FM-28	12	28	165	126	175	182	10.	T9	D



UPS/EPS



Alarm systems



Security systems



Toy cars



Medical equipment



Fire alarm systems



Emergency power generators



Emergency/escape route lighting

DFM & GMF Series



FEATURES

DFM series is the general purpose battery with 10 years design life in float service. With up-dated AGM vale regulated technology and high-purity raw materials, the DFM series battery maintains high consistency for better performance and reliable standby service life.

GFM series is specially designed for frequent cyclic performance, idea for standby or frequent cyclic discharge applications under extreme environments. By adopting thicker grids, high purity 99.9% lead and patented Gel Silicon electrolyte, GFM series offers excellent recovery performance after deep discharge under frequent cyclic discharge use.

FEATURES

- Capacity range: 33Ah- 225Ah
- Voltage class: 12V
- Long design life (25°C): 10 years
- Low self-discharge rate: ≤3%/month
- Ecellent high rate discharge performance
- High sealed reaction efficiency: ≥99%
- Wide operation temperature range: -20°C to 60°C

STANDARDS

1. IEC 60896-21/22
2. IEC 61427
3. ISO9001/14001/18001
4. Eurobat guide, long life
5. BS6290 part 4
6. GB/T 22473
7. CE, IATA and IMDG

BATTERY CONSTRUCTION

- Positive plate-Thick high Sn low Ca grid with special paste.
- Negative plate-Balanced Pb-Ca high density expanded grid for improved recombination efficiency
- Separator - AGM separator, low internal resistance & high assembling pressure to increase cycle life
- Electrolyte:
 - (1) Dilute high purity sulfuric acid for DFM series;
 - (2) Gel Silicon for GFM series.
- Battery container and cover- High strength ABS(UL94-HB)and UL94-V0 is optional.
- Pillar seal – Two layers epoxy resin seal.
- Relief valve – Complete with integrated flame arrester.



DFM & GFM SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
DFM-12V AGM Series										
1	6-DFM-33	12	33	195	130	159	183	10.0	F7/F11	C
2	6-DFM-35	12	35	195	130	159	183	11.7	F7/F11	C
3	6-DFM-38	12	38	197	165	170	170	12.1	F4/F11	D
4	6-DFM-40	12	40	197	165	170	170	12.4	F4/F11	D
5	6-DFM-45	12	45	197	165	170	170	13.5	F4/F11	D
6	6-DFM-50	12	50	230	138	208	213	16.0	F15/F11	C
7	6-DFM-55	12	55	230	138	208	213	16.5	F15/F11	C
8	6-DFM-65	12	65	350	166	176	176	21.5	F15/F11	C
9	6-DFM-75	12	75	258	168	208	212	23.0	F15/F11	C
10	6-DFM-80	12	80	258	168	208	212	24.0	F15/F11	C
11	6-DFM-90	12	90	305	168	208	212	28.0	F15/F12	C
12	6-DFM-100	12	100	330	172	215	221	30.5	F15/F12	C
13	6-DFM-120	12	120	406	174	208	233	34.0	F15/F12	C
14	6-DFM-135	12	135	344	173	280	282	41.5	F15/F12	C
15	6-DFM-150	12	150	485	172	240	240	42.5	F15/F12	C
16	6-DFM-180	12	180	525	243	220	245	53.0	F16/F12	E
17	6-DFM-200	12	200	525	243	220	245	60.0	F16/F13	E
18	6-DFM-250	12	250	520	268	220	249	72.5	F16/F14	E
GFM-12V AGM GEL SERIES										
1	6-GFM-33	12	33	195	130	159	183	10.0	F11	C
2	6-GFM-35	12	35	195	130	159	183	11.7	F11	C
3	6-GFM-38	12	38	197	165	170	170	12.4	F11	D
4	6-GFM-40	12	40	197	165	170	170	13.0	F11	D
5	6-GFM-45	12	45	197	165	170	170	13.7	F11	D
6	6-GFM-50	12	50	230	138	208	213	16.0	F11	C
7	6-GFM-55	12	55	230	138	208	213	16.5	F11	C
8	6-GFM-65	12	65	350	166	176	176	21.1	F11	C
9	6-GFM-75	12	75	258	168	208	212	23.8	F11	C
10	6-GFM-80	12	80	258	168	208	212	24.0	F11	C
11	6-GFM-90	12	90	305	168	208	212	28.5	F12	C
12	6-GFM-100	12	100	330	172	215	221	31.5	F12	C
13	6-GFM-120	12	120	406	174	208	233	35.3	F12	C
14	6-GFM-135	12	135	344	173	280	282	42.0	F12	C
15	6-GFM-150	12	150	485	172	240	240	44.2	F12	C
16	6-GFM-180	12	180	525	243	220	245	54.5	F12	E
17	6-GFM-200	12	200	525	243	220	245	61.0	F13	E
18	6-GFM-250	12	250	520	268	220	249	68.0	F14	E



DFM & GMF 2V Series



INTRODUCTION

DFM 2V series is the general purpose battery with 18 years design life in float service. With heavy duty grids, thicker plates, special additives and updated AGM valve regulated technology, the DFM 2V battery provides consistent performance and long service life. The new grid design effectively reduces the internal resistance, which provides higher specific energy density and excellent high rate discharge characteristics.

GFM 2V Series come with silicon Gel electrolyte on the basis of DFM 2V series.

FEATURES

- Capacity range: 200Ah-3000Ah
- Voltage class: 2V
- Long design life: more than 18 years
- Polarity sign: symmetrical and more clear
- Low self-discharge rate: $\leq 3\%$ per month
- High recombination efficiency: $\geq 99\%$
- Compact structure and high specific energy
- Wide operation temperature: -20°C to 60°C

BATTERY CONSTRUCTION

- Grid: thicker grid and radiative grid structure
- Positive plate: Pasted flat type, latest grid alloy
- Separator: AGM separator with high adsorptive and low resistance
- Battery container: High strength ABS;
- Post sealing: patent multi-layer post sealing with M8 copper insert terminal;
- Safety Valve: sensitive operate pressure and reliable equipped with explosion-proof arrester and acid filter.

MAIN BENEFITS

- Non-Spillable, fully sealed technology ensures no electrolyte leakage, guarantees the handling safety and efficient operation in any position.
- Long service life in float or cyclic service up to 18 years @ 25°C .
- Maintenance-free, no need to check the gravity of the electrolyte or add water during the float service life.
- Heavy Duty lead-calcium alloy grids ensure good performance and service life in both float and cyclic applications.
- Low self discharge rate due to the Lead-Calcium alloy grids, allowed long time storage without recharge.



DFM - 2V AGM SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg $\pm 5\%$	Type	Position
1	DFM2-200	2	200	172	111	330	365	13.0	F10	A
2	DFM2-300	2	300	172	150	330	365	18.5	F10	G
3	DFM2-400	2	400	211	175	330	365	26.2	F10	H
4	DFM2-500	2	500	241	175	330	365	32.0	F10	H
5	DFM2-600	2	600	301	175	330	365	38.0	F10	H
6	DFM2-750	2	750	410	175	330	365	46.0	F10	J
7	DFM2-800	2	800	410	175	330	365	51.5	F10	J
8	DFM2-1000	2	1000	475	175	330	365	62.0	F10	J
9	DFM2-1200	2	1200	475	175	330	365	68.5	F10	J
10	DFM2-1500	2	1500	401	350	342	378	96.6	F10	K
11	DFM2-2000	2	2000	490	350	342	378	130.0	F10	L
12	DFM2-3000	2	3000	712	353	340	382	192.0	F10	L

GFM - 2V AGM GEL SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg $\pm 5\%$	Type	Position
1	GFM2-200	2	200	172	111	330	365	13.5	F10	A
2	GFM2-300	2	300	172	150	330	365	19.0	F10	G
3	GFM2-400	2	400	211	175	330	365	27.0	F10	H
4	GFM2-500	2	500	241	175	330	365	32.4	F10	H
5	GFM2-600	2	600	301	175	330	365	38.5	F10	H
6	GFM2-750	2	750	410	175	330	365	46.0	F10	J
7	GFM2-800	2	800	410	175	330	365	52.0	F10	J
8	GFM2-1000	2	1000	475	175	330	365	62.5	F10	J
9	GFM2-1200	2	1200	475	175	330	365	69.5	F10	J
10	GFM2-1500	2	1500	401	350	342	378	98.0	F10	K
11	GFM2-2000	2	2000	490	350	342	378	132.0	F10	L
12	GFM2-3000	2	3000	712	353	340	382	194.0	F10	L

Bringing reliable power to the green





FTA & FTG Series



INTRODUCTION

The FTA (Front Terminal AGM) series is specially designed for telecom use with over 10 years life design in floating service. By adopting a new AGM separator and centralized venting system, this batteries are featured none-spillable and allowed to be installed in any position with high safety reliability.

The FTG(Front Terminal GEL) series come with silicon Gel electrolyte on the basis of FTA series, longer in life design, higher security in leakage , which is better suit for the variable and complex environment situation.

FEATURES

- Capacity range:40Ah-200Ah
- Voltage class:12V
- Long design life (25°C): over 10 years
- Low self- discharge rate:≤3%month
- Good high rate discharge performance
- High sealed reaction efficiency:≥99%
- Wide operation temperature range:-20°C to 60°C

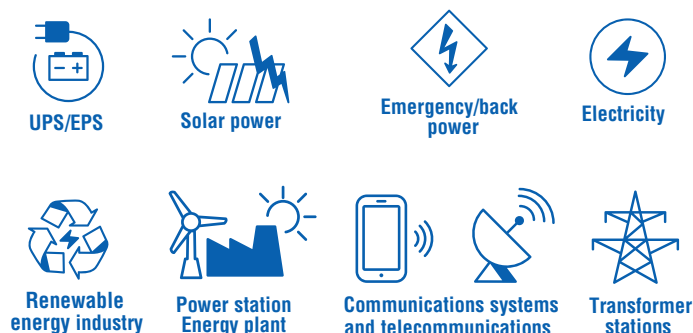
BATTERY CONSTRUCTION

- Narrow structure: each cell has same heat dissipation efficiency, thus effective to prevent “terminal runaway”.
- Plate: Pasted flat type
- Centralized vent system: battery internal gas can be vented out of the system and flame arrester is equipped.
- Terminal cover: avoiding short circuit and dust, the inspection hole is available for maintenance:
- Separator: improved AGM separator for lower electric current resistance, higher compression pressure to increase deep cycle life.
- Terminal sealing: double sealing technic.

MAIN BENEFITS

1. These two battery series for telecom industry comes with slim shape design and front connection, easy for installation and maintenance, space also can be saved.
2. Radial grid design plus tight assembly technology assures this rechargeable battery prominent high rate discharge performance.
3. Totally maintenance free design makes sure that the electrolyte volume can be hardly reduced during use and addition of water is not necessary during the battery service life.
4. Long service life due to unique corrosion resistant grid alloy, the power storage cell can serve for more than over 10 years in standby current at a temperature of 25°C.
5. Fully made from high purity materials, the front access AGM battery comes with extremely low self discharge, while the gas recombination technology makes this power supply device environment friendly.

TYPICAL APPLICATION



FTA - 12V AGM SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
1	FTA12-55	12	55	277	105	222	222	17	F11	E
2	FTA12-75	12	75	562	114	188	188	27	F11	E
3	FTA12-80	12	80	562	114	188	188	27.5	F14	E
4	FTA12-90	12	90	507	109	223	238	29	F14	E
5	FTA12-100	12	100	507	109	223	238	30	F14	E
6	FTA12-100S	12	100	395	110	285	285	31.5	F14	E
7	FTA12-120	12	120	550	110	288	288	42	F9	E
8	FTA12-150	12	150	550	110	288	288	45	F9	E
9	FTA12-180	12	180	560	125	316	316	52.5	F9	E
10	FTA12-200	12	200	560	125	316	316	56	F9	E

FTG - 12V AGM GEL SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
1	FTG12-55	12	55	277	105	222	222	17.5	F11	E
2	FTG12-75	12	75	562	114	188	188	27.3	F11	E
3	FTG12-80	12	80	562	114	188	188	28	F14	E
4	FTG12-90	12	90	507	109	223	238	29.5	F14	E
5	FTG12-100	12	100	507	109	223	238	31	F14	E
6	FTG12-100S	12	100	395	110	285	285	32	F14	E
7	FTG12-120	12	120	550	110	288	288	43	F9	E
8	FTG12-150	12	150	550	110	288	288	47	F9	E
9	FTG12-180	12	180	560	125	316	316	54	F9	E
10	FTG12-200	12	200	560	125	316	316	58	F9	E





OPzV 2V Series



INTRODUCTION

With Tubular Plate GEL technology specially for stationary applications, Western Electrical OPzV tubular battery series is characterized by maintenance-free, long service life and excellent reliable performance even in harsh conditions and excellent durability under cyclic use, thus providing a premium efficient and cost effective energy solution.

Optimum design, according to DIN international standards, exclusive use of high quality raw materials, robust construction and the state of art manufacturing processes make this OPzV battery series as an ideal solution for high demanding stationary situation.

FEATURES

- Capacity range(C_{10}): 200Ah-3000 Ah
- Voltage: 2V
- Floating design life: 20 years at 25°C
- Cycle life: 80% DOD >2000cycles; 25% DOD>6000cycles.
- Self discharge rate: less than 2% per month.
- Wide operation temperature: -40°C~70°C.
- Storage life : 2 years at 20°C after fully charged.
- Excellent deep discharge recovery performance.

STANDARDS

- IEC 60896-21 and compliant to IEC 60896-22.
- IEC 61427 requirements for photovoltaic energy systems.
- Optimized for deep discharge recovery in accordance to DIN 43539T5 Part 5.
- Conform to DIN 40742 specifications for OPzV cells and DIN 40744 for OPzV blocks.
- Compliant to safety requirements of EN 50272-2 for stationary batteries.
- Certified to ISO 9001, ISO 14001, BS OHSAS 18001.

MAIN BENEFITS

Long service life

Tubular positive plates, unique sliding pole design (in most models) and special alloy compositions offer superior cycle and service life in stationary applications field.

Performance and reliability

Optimized design, qualified raw materials, and state-of-the-art production facilities ensure industry leading performance that exceeds all applicable international standards.

Maintenance free

Maintenance-free design without water topping-up needs.

Space optimization

Vertical and horizontal installation. Racks designed for easy and quick installation, battery maintenance and optimal space utilization.

Safety

Compliant with Global Standards and verified by independent third party certification agencies.

Complete solution

Complete and ready to install systems with all the necessary accessories available if necessary.

Optimum Total Cost of Ownership

Low cost of ownership particularly in hybrid systems where using batteries can greatly reduce the genset daily run time resulting in fuel savings and less CO₂ emission.

TYPICAL APPLICATION



UPS/EPS



Solar power



Emergency/back power



Electricity



Renewable energy industry



Power station Energy plant



Communications systems and telecommunications



Transformer stations



OPzV - 2V TUBULAR GEL SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Weight	Terminal	
		V	Ah/10hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
1	OPzV-200	2	200	103	206	354	380	17	M8	G
2	OPzV-250	2	250	124	206	354	380	20.5	M8	G
3	OPzV-300	2	300	145	206	354	380	24.5	M8	G
4	OPzV-350	2	350	124	206	470	496	28	M8	G
5	OPzV-420	2	420	145	206	470	496	32.5	M8	G
6	OPzV-490	2	500	166	206	470	496	37.5	M8	G
7	OPzV-600	2	600	145	206	645	671	46	M8	G
8	OPzV-700	2	700	225	206	470	496	52	M8	G
9	OPzV-770	2	770	225	206	470	496	56	M8	G
10	OPzV-800	2	800	191	210	645	671	64	M8	H
11	OPzV-1000	2	1000	233	210	645	671	74	M8	H
12	OPzV-1200	2	1200	275	210	645	671	92	M8	H
13	OPzV-1500	2	1500	275	210	795	821	110	M8	H
14	OPzV-2000	2	2000	399	212	772	797	152	M8	I
15	OPzV-2500	2	2500	487	212	772	797	190	M8	J
16	OPzV-3000	2	3000	576	212	772	797	225	M8	J

1 Positive Plates

- Tubular plate design
- Optimized Lead Calcium Tin Alloy reducing hydrogen evolution
- Red Lead in-house production by Pure Lead

2 Negative Plates

- Pasted negative plates of grid design
- Optimized Lead Calcium Tin Alloy
- Robust construction

3 Gauntlet

- Highly porous woven material
- Increased diameter with high Positive Active Mass (PAM)

4 Bottom Bar

- Secure fitment with gauntlet

5 Terminal Brige

- Manufactured with high quality, robust materials following certified processes

BATTERY CONSTRUCTION

12 Terminals

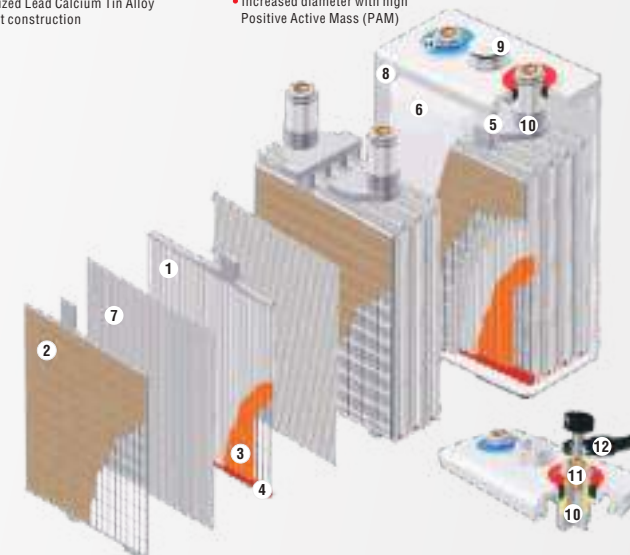
- Threaded female M10 terminal posts

11 Intercell Connector

- Flexible
- Copper
- Fully insulated
- Fixed with plasticized safety screw and probe hole on the top

10 Sliding Poles

- Premium sliding design with brush insert and rubber seal in the lid
- Hardness and acid resistance



6 Electrolyte

- Immobilized in GEL form
- World class equipment for GEL production and battery filling

7 Separators

- High porosity grade material

8 Container and Lid

- Heavy duty ABS material
- Optionally flame retardant (Class V0) ABS material
- Thick wall container

9 Valve

- Pressure relief
- Integral flame arrestor

**Innovative
Technology
Proven Expertise
Best in Class
Solutions**



OPzS 2V Series



INTRODUCTION

Vented Tubular Plate Batteries for stationary application, Western Electrical OPzS battery series is characterized by low maintenance requirements, long service life and excellent capacity performance while operating in high temperature or unstable power network, thus providing a premium efficient and cost effective energy solution.

Optimized design, according to DIN international standard, exclusive use of high quality raw materials, robust construction and state of the art manufacturing process make the OPzS range the ideal solution for stationary application demanding high level of safety and reliability.

FEATURES

- Capacity range(C10): 200-3000Ah
- Voltage: 2V
- Floating design life: 20 years at 25°C
- Cycle life: more than 2200 at 80% DOD and 6000 at 25% DOD
- Self discharge rate: 5% per month
- Wide operation temperature: -40°C ~70°C

STANDARDS

- Compliant with IEC 61427 requirements for photovoltaic energy systems.
- Compliant with IEC 60896-11 requirements for vented lead-acid batteries.
- Conform to DIN 40736-1 specifications for OPzS cells and DIN 40737-3 for OPzS blocks.
- Compliant to safety requirements of EN 50272-2 for stationary batteries.
- Certified with ISO 9001, ISO 14001, BS OHSAS 18001.

BENEFITS

- Tubular flooded technology battery
- High charge acceptance performance
- Excellent deep discharge recovery performance
- Super long service life and low maintenance
- Reliable and robust against harsh environments
- Special filter unit for acid fog proof
- High quality and high safety
- Special terminal sealed technology
- Less sensitive to heat issues
- Transparent containers can be convenient to observe
- Design life at 25°C (77°F): 20+ years



OPzS - 2V TUBULAR FLOODED SERIES

No.	Model No.	Voltage	Capacity	Dimension(mm)				Dry Weight	Terminal	
		V	Ah/20hr	Length	Width	Height	Total Height	Kg±5%	Type	Position
1	OPzS2-200	2	200	103	206	354	409	13.2	M8	G
2	OPzS2-250	2	250	124	206	354	409	15.2	M8	G
3	OPzS2-300	2	300	145	206	354	409	18.5	M8	G
4	OPzS2-350	2	350	124	206	470	525	21.0	M8	G
5	OPzS2-420	2	420	145	206	470	525	24.6	M8	G
6	OPzS2-490	2	490	166	206	470	525	28.4	M8	G
7	OPzS2-600	2	600	145	206	645	700	34.5	M8	G
8	OPzS2-800	2	800	191	210	645	700	47.0	M8	H
9	OPzS2-1000	2	1000	233	210	645	700	58.4	M8	H
10	OPzS2-1200	2	1200	275	210	645	700	68.6	M8	H
11	OPzS2-1500	2	1500	275	210	795	850	83.5	M8	I
12	OPzS2-1750	2	1750	399	214	771	826	96.5	M8	I
13	OPzS2-2000	2	2000	399	214	771	826	112.0	M8	I
14	OPzS2-2250	2	2250	487	212	771	826	128.6	M8	I
15	OPzS2-2500	2	2500	487	212	771	826	142.0	M8	J
16	OPzS2-3000	2	3000	576	212	771	826	168.0	M8	J

CONSTRUCTION OF OPzS SERIES BATTERY

- Positive Plates:** Tubular plate with lead selenium grid alloy and woven gauntlet.
- Negative Plates:** Fully enveloped flat pasted plate with lead selenium grid alloy.
- Gauntlet:** Highly porous woven material, low electrical resistance.
- Bottom Bar:** Ultrasonic welding.
- Terminal Brige:** Welding with high quality alloy.
- Electrolyte:** Dilute solution of sulfuric acid SG1.240 ±0.01 at 20°C.
- Separators:** Micro porous plastic separators.
- Container:** High impact resistant, transparent SAN container.
- Valve Vent:** Fully tested Flame arrestor ceramic vents.
- Sliding Poles:** Premium sliding design with rubber seal in the lid.
- Internal Intercell Connector:** Fully insulated copper.
- Terminal:** Robust design d.30 mm with M10 threaded insert.



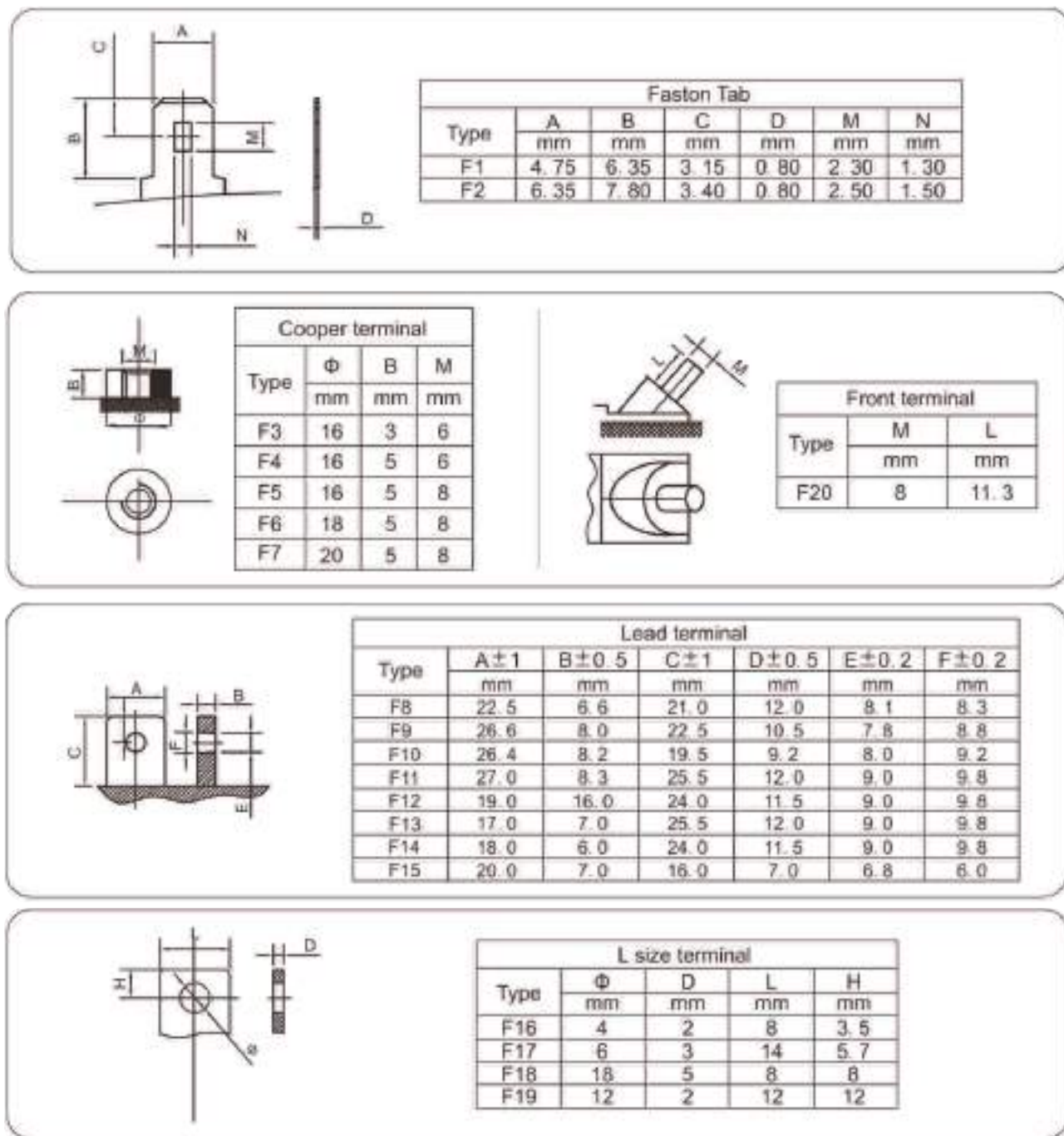
THE EFFECTIVE ENERGY SOLUTION

OPzS batteries are similar to OPzV batteries in the sense that they both use tubular plate technology and with similar applications. The main difference is that OPzV batteries utilize gel technology in a sealed container, require zero maintenance, while OPzS batteries are flooded and require low maintenance from time to time. Western Electrical OPzS series batteries are well-known for their utilization of corrosion-resistant alloy, eliminating intergranular corrosion, which is one of the most common causes of cell failure. Our OPzS batteries are designed and engineered to offer high operational reliability and excellent cyclability.

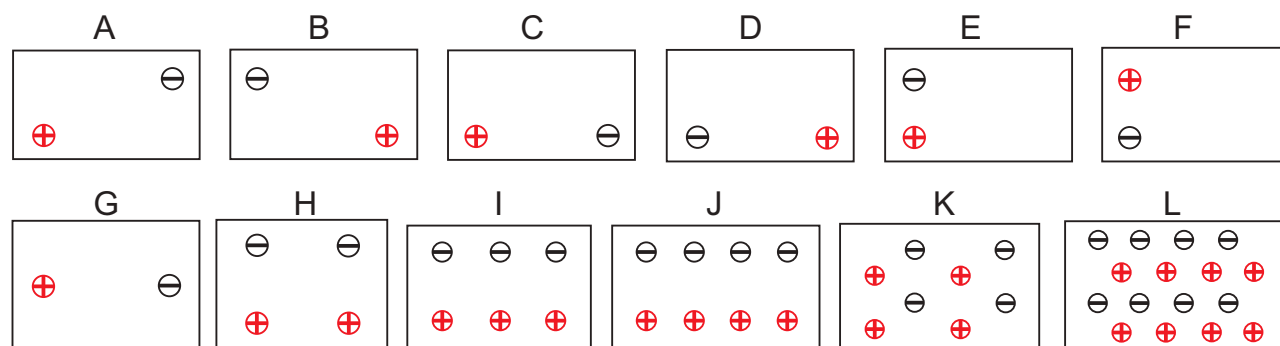




TERMINAL DRAWING: F1 - F19



TERMINAL POSITION: A, B, C, D, E, F, G, H, I, J, K, L



WARNING AND SAFETY INSTRUCTION FOR LEAD ACID BATTERIES.



the operating instructions and keep them close to the battery. work on batteries should be carried out by skilled personnel only!



No smoking! Do not expose batteries to naked flames, glowing embers or sparks, as it may cause the battery to explode.



use protective glasses and clothes when working on batteries. pay attention to the accident prevention rules as well as EN IEC 62485-2 and EN 50110-1.



Risk of explosion and fire, avoid short circuits! Caution: metal parts of the battery are always live. Do not place tools or other metal objects on the battery! Do not remove the plugs.



Electrolyte is strongly corrosive. Risk of corrosion caused by leaking electrolyte.



Batteries and cells are heavy. Ensure secure installation! use only suitable handling equipment. Lifting hooks must not damage the cells, connectors or cables.



Dangerous voltage! Caution: Metal parts of the battery are always alive - avoid contact and short circuits. Do not place tools or other metal object on the battery!



Acid splashes into the eyes or on the skin must be washed with plenty of water. In case of accident after abundant fushing consult a doctor immediately! Clothing contaminated by acid should be washed in water.

WARRANTY TERMS AND CONDITIONS FOR VRLA INDUSTRY LEAD ACID BATTERY

In accordance with the terms and conditions, we offer a individual warranty period for the faultless operation of the battery, starting after the date of purchase. The purchase must be proven with the original receipt and a warranty certificate. The receipt and warranty certificate must contain the following information:

- + name and address of the buyer;
- + date of purchase;
- + accurate battery information: type, serial number, nominal voltage and capacity;
- + stamp and signature of retailer.

WE HEREBY UNDERTAKE THAT ALL FAULTS AND TECHNICAL DIFFICULTIES WITH PRODUCTS UNDER WARRANTY WILL BE FIXED FREE OF CHARGE UNDER THE FOLLOWING CONDITIONS:

- + the faulty battery is delivered with a valid warranty certificate and original receipt;
- + the battery has been used and maintained in accordance with the operation manual;
- + the battery is being charged using a suitable charger;
- + the charging currents do not exceed the current that regulated;
- + the battery is without any mechanical damage;
- + the installation procedure and service repairs have been performed by the manufacturer or an authorized person;
- + the manufacturer's repair service was informed immediately after the occurrence of the fault.

WARRANTY IS VALID FOR ANY FAULTS THAT OCCUR DURING THE WARRANTY PERIOD AND FOR DEFECTS THAT CAUSE THE BATTERY TO STOP FUNCTIONING PROPERLY IN ACCORDANCE WITH THE MANUFACTURER'S INFORMATION:

- + the capacity of a fully charged battery is less than 80% of the nominal capacity (C₁₀) at a nominal temperature of 20°C;
- + a short-circuit in one or more cells of the battery;
- + an obvious disconnection within the cell.

CONTACT INFORMATION FOR CUSTOMER CLAIMS:

- + please contact your supplier.

WARRANTY DOES NOT APPLY IN THE FOLLOWING CASES:

- + mechanical damage or ordinary wear of the battery;
- + improper installation or maintenance work conducted by unauthorized personnel;
- + improper or careless handling of the battery that is not in accordance with the manufacturer's instructions;
- + failure to perform regular capacity measurements;
- + the introduction of additives into the electrolyte.

WARRANTY DOES NOT APPLY IN CASE OF FAILURE TO COMPLY WITH THE MANUFACTURER'S INSTRUCTIONS.

The warranty includes services like maintenance work and the provision of necessary replacement parts. We guarantee the availability of replacement parts for 3 year after the end of the warranty period. A capacity test performed by a unauthorized person and without our supervision is not binding in terms of this warranty.

THE MANUFACTURER IS NOT LIABLE FOR ANY INDIRECT DAMAGE THAT COULD POTENTIALLY OCCUR DUE TO THE FUNCTION OR MALFUNCTION OF THE BATTERY.



VRLA

INDUSTRY BATTERIES



When You Need Power... We'll be there.

WESTERN

Electrical Corporation



(SECTION 5)



GENERAL CATALOGUE

MOTIVE POWER BATTERIES

DZM Series



INTRODUCTION

Western Electrical DZM battery series is specially designed for motive power applications, i.e. electric bikes/scooters, electric tricycles, electric motorcycles and other device require deep cycle power source. By adopting the most advanced battery technologies, these batteries are feature with great ability of long cycle life, large current discharge capability, reliability and eco-friendly.

This light weight battery series is functional and safe. It is valve regulated which makes it impossible to spill, and with its tightly sealed construction, it can be operated from any angle. With its hard plastic case, it can take severe amounts of high impact and not do any damage. It even has a low pressure safety release valve. This battery will last a long time both physically and chemically.











APPLICATION

- Electric Bikes/Electric Scooters.
- Electric Motorcycles.
- Electric Tricycles.
- Electric Tools, i.e. electric sweeper, electric cooler/heater, etc.
- Other electric devices require DC power supply.

STANDARDS

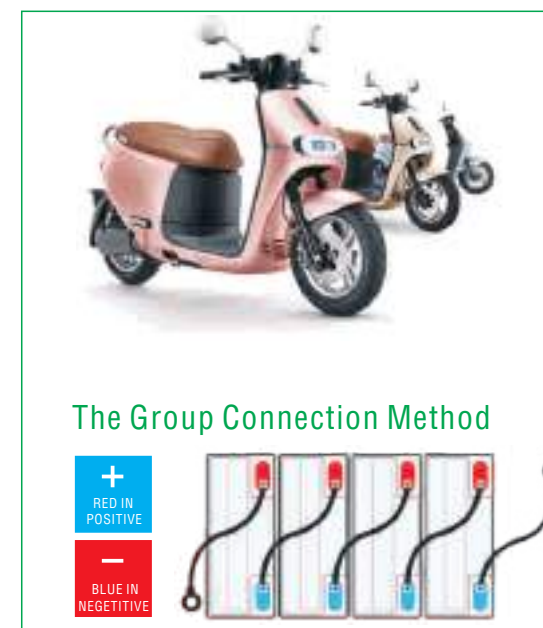
- ISO9001, ISO14001
- GB/T-28001
- CE, ROHS
- GB/T221999-2008,
- GB/T18332.1-2009.

FEATURES & BENEFITS

- | | |
|---|--|
|  Fast charging
Super fast charging capabilities |  Cold temperature performance
Impressive cold cranking performance |
|  Multi-positioning mounting
Up to 180°C |  Ready to use
No need for preparation, just plug and play |
|  Very safe and environmental friendly
None-spillable, no leakage risk, no toxic |  Robust brass terminals
For enhanced electrical and mechanical performance |
|  Extensive cycle life
Over 1000 cycles under normal usage condition |  Heat resistance
Heat temperature resistance up to 70°C |
|  Very low self-discharge
Can start engine after a long period of storage |  Lighter weight
Perfect application for racing, off-road and heavy bikes |

SPECIFICATION

No.	Model No.	Voltage	Capacity	Dimension(mm)				Battery Weight
		V	Ah/20hr	Length	Width	Height	Total Height	Kg±3%
1	6-DZM-12	12	12	151	100	99	99	4.1
2	6-DZM-20	12	20	180	76	170	170	6.4
3	6-DZM-12I	12	13.1	151	100	99	99	4.3
4	6-DZM-20I	12	22.1	180	76	170	170	6.8
5	6-DZM-12II	12	13.3	151	100	99	99	4.5
6	6-DZM-20II	12	22.3	180	76	170	170	6.9
7	6-DZM-22	12	22	180	76	170	170	7.1
8	6-DZM-24	12	24	185	105	130	130	7.3
9	6-DZM-28	12	28	175	166	125	125	9.5
10	6-DZM-32	12	32	175	166	125	125	10.3
11	8-DZM-14	16	14	201	112	100	100	6.5
12	8-DZM-20	16	20	250	100	130	130	9.5



REGULAR BATTERY CHARGER SETTING

Battery Model	Quantity Each Group	Charger Setting			
		Max Voltage (V)	Floating Voltage (V)	Max Current (A)	Switch Current (A)
6-DZM-12	3	43.8-44.2	41.0-41.4	1.8-2.2	0.38-0.43
6-DZM-12	4	58.6-59.0	54.8-55.2	1.8-2.2	0.38-0.43
6-DZM-20	4	58.6-59.0	54.8-55.2	2.3-2.7	0.55-0.60
6-DZM-20	5	73.3-73.7	68.6-69.0	2.3-2.7	0.55-0.60
6-DZM-20	6	88.0-88.4	82.3-82.7	2.3-2.7	0.55-0.60
6-DZM-32	4	58.6-59.0	54.8-55.2	4.0-4.4	0.80-0.90
6-DZM-32	5	73.3-73.7	68.6-69.0	4.0-4.4	0.80-0.90
6-DZM-32	6	88.0-88.4	82.3-82.7	4.0-4.4	0.80-0.90



EVF Series



INTRODUCTION

Western Electrical EVF battery range is a high performance deep cycle gel battery range that similar to the DZM range but with special design to suit various types of Electric Vehicles that requiring larger capacity than the DZM battery range.

The EVF battery rang is a closed, valve regulated lead battery with gel electrolyte. The imbedding of the electrolyte in a gel prevents leaks and the problem of acid stratification. And by using recombination technology, the life of the battery remains unaffected by water losses. The sealed battery system prevents electrolyte leakage and minimum self-discharge means that the EVF battery range can be stored for longer periods than standard lead-acid batteries.

APPLICATION

- Electric vehicles, i.e. electric car, tricycles, etc.
- Low speed road vehicles, i.e. golf cart, electric resort car, etc.
- Electric engineering machines, i.e. forklift, lifting platform, sweeper, scraper, etc.
- Renewable energy storage system.
- Other devices require DC power supply

STANDARDS

- ISO9001, ISO14001
- GB/T-28001
- CE, ROHS
- GB18332.1-2009, QC/T 742-2006

FEATURES & BENEFITS

• Extra Long Life:

Western Electrical EVF battery range is designed with high quality grid alloy enables the grid with features of anti-corrosion, low gas emission and excellent deep cycle performance, as well as high density and special deep cycle lead paste prescription is adopted to ensure extra long cycle life. The cycle life may reach over 600 cycles @ 80% DOD.

• High Reliability and Safety:

High strength ABS battery container and lid, perfect safety valve design, and high strength & excellent large current electro conductivity copper terminal design are adopted to ensure this battery range with high reliability and safety at extreme condition.

• High Environmental Adaptability:

Western Electrical EVF battery range adopts special fumed silica Gel in electrolyte and special Gel type separator to prevent electrolyte stratification, which significantly improved the battery's service life and environmental adaptability.

• Non-Cadmium Design, Environment-friendly:

By adopting the container formation without cadmium production technology, which is in the leading position in the industry. It helps to save energy 28.5%, save water 90%, and non-discharge of waste water.

SPECIFICATION

No.	Model No.	Voltage	Capacity	Dimension(mm)				Battery Weight
		V	Ah/3hr	Length	Width	Height	Total Height	Kg±3%
1	3-EVF-170	6	170	260	180	245	250	30.0
2	3-EVF-180	6	180	260	180	270	275	32.5
3	3-EVF-200	6	200	260	180	270	275	35.0
4	3-EVF-200S	6	200	330	180	222	222	34.0
5	4-EVF-150	8	150	260	180	280	285	36.0
6	6-EVF-32A	12	32	267	77	170	170	9.6
7	6-EVF-32B	12	32	222	93	175	175	9.8
8	6-EVF-38	12	38	223	108	175	175	11.5
9	6-EVF-40	12	40	223	120	175	175	12.3
10	6-EVF-45	12	45	223	120	175	175	13.2
11	6-EVF-50	12	50	223	135	177	177	14.5
12	6-EVF-55	12	55	230	150	178	178	15.6
13	6-EVF-60	12	60	262	165	170	170	19.5
14	6-EVF-70	12	70	260	168	215	220	24.0
15	6-EVF-80	12	80	260	168	215	220	26.5
16	6-EVF-100	12	100	330	170	215	215	32.5
17	6-EVF-120	12	120	407	170	240	240	41.0
18	6-EVF-150	12	150	482	170	240	240	50.0
19	6-EVF-200	12	200	522	240	220	228	68.0

Main Product Character Chart

No.	Item	Character
1	Regular temperature capacity	≥ 100%
2	Low temperature capacity at -0°C	≥ 90%
3	Low temperature capacity at -20°C	≥ 70%
4	High temperature capacity at 45°C	≥ 110%
5	30d charging holding capacity	≥ 90%
6	Discharge capacity under 1h quick charging	≥ 96%
7	80% DOD cycle life	≥ 600 times
8	100% DOD cycle life	≥ 400 times
9	Others	Meet or exceed GB/T18332.1-2009 China national standard.



First choice for efficient fuel-saving driving, the green power for the world!

EVG Series



Specially designed for electric rickshaws, the EVG battery series is the answer to the e-rickshaw owner that requires a steady and continuous power source. Combine with the special tubular technology with years of experience in the battery manufacturing, this superior battery series was engineered to guarantee enormous power, durability and safety to meet the severe operating conditions.

As a semi-traction battery, this EVG battery series is not only just play a role for starting but also acts as a fuel for the same, which require its capacity and unique features to ensure its reliability in application, prevent plate shedding during strenuous vibration, extend in service life and make sure the continuously power output, which all further lead to better savings for the e-rickshaw owner.

FEATURES

- Low antimony design for lead alloys grid and plate reduce the corrosion and the rate of maintenance frequency.
- Correctly balanced active materials ensure long life & continuously power output performance.
- High pressure die casted spine grids for tubular positive plates to reduce early corrosion failures rate.
- Superior woven tubular gauntlets for tubular plates to prevent the rupture of plate active material, ensure the excellent deep cycling and quick power recovery ability.
- Specially fire safe vent plugs with ceramic inserts to trap water loss end ensure handling safety.
- High conductive anti corrosion terminals with corrosion resistant bolts.

BENIFITS



Cranking Efficiency

A perfect blend of the grid structure and plate chemistry ensures higher cranking power.



Higher Safety Standard

Specially engineered with flame arresters at venting locations to ensure high-level safety.



Low Maintenance

Special designed to reduce water loss and the rate of maintenance frequency.



Designed For Long Life

Robust grid and special tubular plates offer long life and excellent deep cycle ability.

No.	Model No.	Voltage	Capacity		Dimension				Weight(Kg±5%)	
		(V)	5HR	20HR	Length	Width	Height	Total Height	W/O Acid	With Acid
1	6-EVG-100	12	80	100	365	172	265	265	20.5	30.5
2	6-EVG-110	12	85	110	365	172	265	265	21.5	31.5
3	6-EVG-120	12	95	120	365	172	272	272	23	33.5
4	6-EVG-140	12	110	140	365	172	285	285	26.5	36
5	6-EVG-150	12	120	150	365	172	285	285	28	38
6	6-EVG-160	12	130	160	365	172	300	300	29.5	39.5

QWT Series



Vehicles for hire, like three wheeler auto-rickshaws that require frequent start stop functionality and the ability to travel through rough roads and the complex traffic situation, which need their batteries that offer reliable starting power, long lasting performance and the capability for the daily runs and quick start in city traffic.

Specially designed and improved for three wheeler auto-rickshaws application, Western Electrical EVT series three wheeler battery come with more cranking amps and higher amp-hour capacity to deliver reliable starting power, optimized structure for protection from corrosion & vibrations, and the unique grid design to lower internal resistance and enhance the fast re-charging ability.



BENIFITS



Faster Cranking

Designed perfectly to start your engine every time, anywhere.



Low Maintenance

Special designed to reduce water loss and the rate of maintenance frequency.



All Weather Performance

Designed to meet extreme hot and cold weather operation.

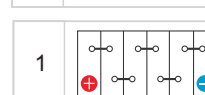
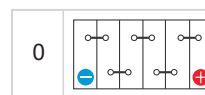


Designed For Long Life

Robust grid and special tubular plates offer long life and excellent deep cycle ability.

No.	Model No.	Voltage	Capacity	Dimension(mm)				Terminal		Battery Weight (Kg±5%)	
		V	Ah(20hr)	L	W	H	TH	Layout	Type	Dry	With Acid
Dry Charged Type											
1	6-QWT-28	12	28	185	125	160	173	1	LT	5.5	8
2	6-QWT-32	12	32	195	128	198	220	1	A	6.3	9.5
3	6-QWT-60	12	60	259	174	202	225	0	A	10.4	16.5
Maintenance Free											
4	6-QWT-28MF	12	28	185	125	160	173	1	LT	5.5	8.2
5	6-QWT-32MF	12	30	195	128	198	220	1	A	6.3	9.6
6	6-QWT-60MF	12	120	259	174	202	225	0	A	10.5	16.7

Terminal Layout



Terminal Type



A LT

EV Series



INTRODUCTION

If there is one thing we should know about the golf cart, that it's battery must be able to deliver consistent power day in and day out.

Engineered specifically to handle the rigors of continuous discharge and recharge, and with the clear purpose to deliver superior power supply, durability and reliability, the EV battery series is manufactured by utilize the highest quality components, higher-density active material plates and optimized internal current flow design to enable them to withstand the stresses of deep cycling and meet the challenges of the toughest, hilliest courses in the battery world, no matter it's for golf cart, utility vehicle and low-speed passenger vehicle, as well as hunting buggies.

TECHNICAL

- The battery consists of high-performance paste plate, compound low resistance separators, high-impact resistant polypropylene plastic tank.
- Positive plates of lead-based alloy with multiple, high-density lead paste processing, manufacturing, corrosion resistance, high-rate discharge capacity, good durability.
- Negative plates with a special formulation and double paste process, excellent low temperature discharge, charge acceptance ability, anti-sulfate and anti-off-performance.
- Tight assembly, through partition connectors, discharge stable, safe and reliable.
- Adaptability to temperature range from -40°C to 60°C under normal use.

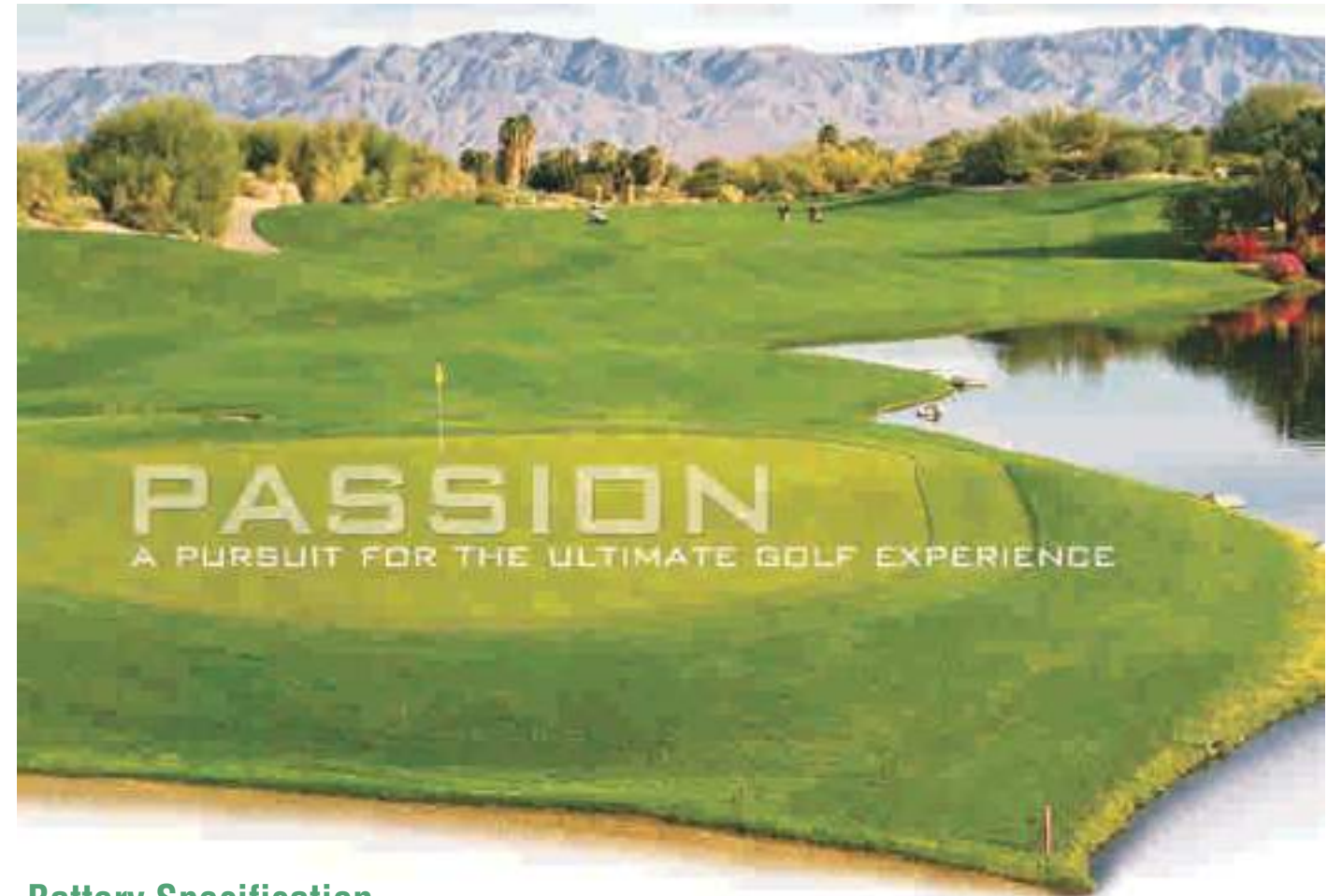


TECHNICAL

- Very thick positive and negative plates
- Special plate design for improved active mass adhesion and improved conduction
- Innovative separators
- Electrolyte: diluted sulphuric acid
- Casing material: polypropylene
- Special, patented active mass composition

APPLICATION

- Small stackers,
- Lifting platforms,
- E-vehicles, Cleaning machines,
- Golf carts, Etc.



Battery Specification

Model No.	Voltage (V)	Amp-Hour Rate(Ah)		Capacity(min)		Dimensions			Weight(kg)	
		5hr	3hr	@25Amp	@75Amp	L	W	H	Dry	Wet
3-EV-180	6	180	150	460	115	260	180	290	23.5	30.5
4-EV-180	8	180	150	450	115	260	183	305	30	38.8
3-EV-210	6	210	175	530	145	260	182	308	26	33.8
4-EV-145	8	145	108	295	117	260	183	290	23.5	30

Note:

- The number of minutes a battery can deliver when discharged at a constant rate at 80°F (27°C) and maintain a voltage above 1.75 V/cell. Capacities are based on peak performance.
- The amount of amp-hours (AH) a battery can deliver when discharged at a constant rate at 30°C (86°F) for the 5-Hour rate and maintain a voltage above 1.75V/cell. Capacities are based on peak performance.
- Dimensions are based on maximum size. Dimensions may vary depending on type of handle or terminal.
- Dimensions taken from bottom of the battery to the highest point on the battery. Heights may vary depending on type of terminal.

Available Terminal



Golf carts



Haulers



Small stackers



Sweeping machines



Lifting platforms



Electric Forklifts

» MOTIVE BATTERY TYPICAL APPLICATION FIELD

Electric Scooter /Bike/Motorcycle : DZM Battery Series



Electric Cars/Vehicles : EVF Battery Series



Electric Mobility Wheelchairs: DZM Battery Series



Golf Carts/ Electric Haulers/Hunting Buggy: EV and EVF Battery Series



THE RIGHT POWER JUST WHEN YOU NEED IT.

Sweeping Machines: EVF Battery Series



Electric Stacker/Lift Platforms/Forklifts/Wheel loader: EV and EVF Battery Series



Electric Rickshaw/Auto Rickshaw/Three Wheeler Vehicle: EVF/EVG/QWT Battery Series



Electric Tour Train/ Tour Boat, Motor Home: EVF Battery Series

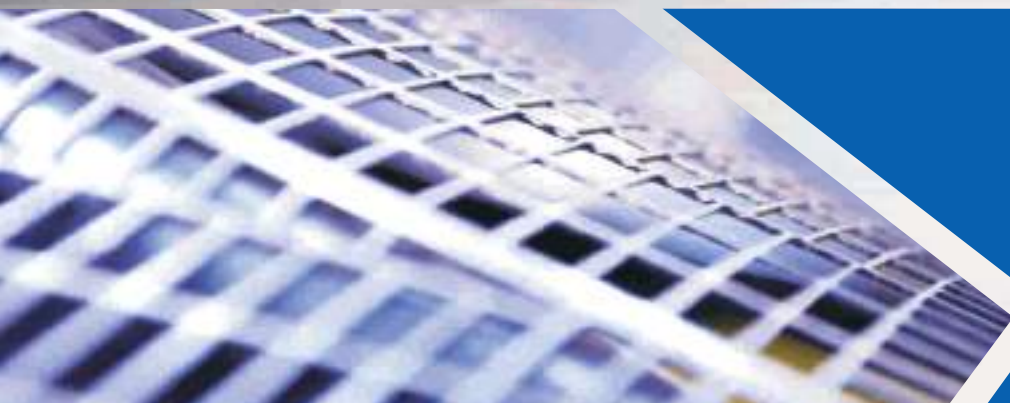


Power. Driven.



Taking more people to their game...
and job...than any other battery.

MOTIVE
BATTERIES



(SECTION 6)



GENERAL CATALOGUE

GENERAL INFORMATION



COSHH INFORMATION

Lead Acid Batteries

THIS IS IMPORTANT HEALTH AND SAFETY INFORMATION REQUIRED BY LAW, PLEASE DIRECT TO THE PERSON RESPONSIBLE FOR HEALTH AND SAFETY

We drawn up the data sheets with a view to making available information on the storage, handling and the use of our products and would welcome your co-operation in the distributing this information within your organization to those of your staff who are concerned with it.

The batteries supplied have been subject so far as is reasonable practical, to the test, examinations and necessary research as required by Section 6 of the Health and Safety at Work Act 1974 and are satisfied that they are safe and without risk to health and when used properly.

However it is imperative that all persons who test, charge, fit or handle lead acid batteries are aware of the, dangers which can exist if the tasks are carried out incorrectly. The stored electrical energy is significant, the units are heavy and the constituent parts are both corrosive and hazardous.

It is imperative that the manufacturer's instructions are read carefully and complied with.

If there is any doubt about any aspects relating to the proper use of our products, we will be only too pleased to advise you on any precautions that may be necessary.

PRODUCT SAFETY DATA

PRODUCT	Lead acid electric storage batteries filled with dilute sulphuric acid
TECHNICAL NAME	Lead Acid Accumulator
COMPONENTS	Lead Lead Dioxide Lead Sulphate Sulphuric Acid(Max Strength of 40%)
HAZARDOUS CLASSIFICATION	(Batteries filled with liquid electrolyte) Corrosive Group 8
U.N NUMBER	2794
PACKING GROUP	3
TYPE OF CONTAINER	Polypropylene
INTERNATIONAL AIR TRANSPORT ASSOCIATION CLASSIFICATION	Not classified for transport by air.

NATURE OF SUBSTANCES WITHIN THE BATTERY

Corrosive
Stored electrical energy
Toxic compounds
Explosive gas mixture involved during charging

WARNING	Hydrogen and oxygen gases are emitted from a battery when it is being charged and at other times, particularly if it is moved or shaken. These gases contain droplets of corrosive Electrolyte.
PROTECTIVE MEASURES	Keep away from children Keep away from sources of ignition No naked flames, No Smoking Keep and charge in a well ventilated area. Wear protective clothing Do not allow electrolyte to come into contact with skin or eyes. Do not ingest



ELECTROLYTE (BATTERY ACID)

The electrolyte in the battery is a mixture of sulphuric acid and water to concentrations of 40% sulphuric acid.

CORROSION	Attacks many metals with liberation of hydrogen gas which is highly flammable and forms explosive mixtures with air. Attacks clothing. Reacts with many chemicals with varying degrees of violence. Avoid contact with sulphide waste or arsenic.
FLASH POINT	Non-flammable, however hydrogen gas may be evolved
BOILING POINT	110 Degrees Centigrade

HEALTH RISKS ASSOCIATED WITH ELECTROLYTE

GENERAL	Corrosive and irritant. Inhalation and skin absorption are primary
INHALATION	The vapour can irritate all parts of the respiratory system.
EYE CONTACT	Burns the eyes severely. Permanent damage may occur if urgent medical aid is not sought
SKIN CONTACT	Prolonged contact will result in tissue damage
INGESTION	Will cause severe irritation and damage(See Emergency First Aid advice below)

SPILLAGE OF ELECTROLYTE

Wear protective clothing. A rubber or PVC apron with bib, rubber or PVC gloves and face visor.

Neutralise with alkali (soda ash, sodium carbonate, sodium bicarbonate) washed down with water and scrubbed with a hard broom

ALL SPILLAGES MUST BE CONTAINED ?DO NOT ALLOW TO ENTER MAIN DRAINAGE

If electrolyte has entered a water course or sewer or contaminated soil or vegetation, your local Environmental Agency Office should be advised.

EMERGENCY FIRST AID

INHALATION	Remove from exposure, rest and keep warm. Obtain medical attention immediately.
EYE CONTACT	Wash out with plenty of water for at least 15 minutes. Obtain URGENT medical attention.
SKIN CONTACT	Remove contaminated clothing immediately and wash affected skin with plenty of water. Obtain medical attention.
INGESTION	If the electrolyte has been confined to the mouth give large quantities of water as mouth wash ensuring that it is NOT swallowed. If electrolyte has been swallowed, give water to drink immediately. DO NO T INDUCE VOMITING. OBTAIN URGENT MEDICAL ATTENTION
BURNS	Apply sterile bandage. Obtain medical attention.

LEAD & LEAD COMPOUNDS

Lead and lead compounds are classified as being potentially toxic.

The lead and lead compounds are well contained within the battery and the possibility of lead exposure is negligible. However the battery cells should not be dismantled under any circumstances.

Small amounts of arsenic and antimony are present in certain types of battery, and during the charging process there is a chance that stibine and arsenic may be given off as gases.

The concentration of these gases are negligible and do not present any risk to health.

Guidance notes are available from Health and Safety Executive on Stibine and Arsenic (E.H.11 and E.H.12)



HANDLING AND STORAGE

- Batteries are generally heavy and awkward to handle. Care should be taken and correct lifting techniques employed.
- Keep the battery upright at all times
- Always wear protective clothing when handling batteries, rubber or PVC apron, rubber or PVC gloves and eye protection. This is particularly important during fitting and charging operations.
- Use only distilled water for topping up cells, other substances may cause a dangerous reaction in the cells. Top up the recommended level -do not over fill. Follow manufacturer's instructions.
- Ensure batteries are maintained in dry, clean conditions, to avoid the possibility of corrosion and short circuits developing.
- No attempts should be made to repair a battery. This work involves a number of hazards and should be carried out by suitably trained persons in accordance with manufacturer's instructions.
- All labelling and manufacturer's instruction must be read carefully and complied with.
- The electrolyte is dilute sulphuric acid which is both poisonous and corrosive. It must not be allowed to come into contact with eyes, skin or clothing.
- Members of the public must never remove electrolyte from a battery. This should only be carried out in a controlled environment by persons trained to perform that operation.

FIRE PRECAUTIONS

- The internal ohmic resistance of a lead acid battery is very low and a high current will flow if the terminals are short circuited. Sparks and molten metal may be ejected. It is therefore essential to avoid metal objects touching across the terminals.
- Before working on or near a battery, remove any metallic items from hands, wrist and neck, together with any such items that may fall from pockets.
- Always use insulated tools. Spanners should be of the single ended type. Do not place tools or other conductive objects on the top of batteries.
- Switch off all chargers before connection/disconnections are made to batteries. Charge off the vehicle in a well ventilated area.
- Hydrogen and oxygen gases are emitted from a battery when it is being charged and also at other times, particularly if it is moved or shaken. These gases contain droplets of corrosive electrolyte.
- A Hydrogen/air mixture can produce a violent explosion if ignited, and it must be assumed that this mixture is present in the immediate vicinity at the top of the battery at all times.
- The boxes and lid are made from several types of plastic components, which in normal conditions present no hazard. However, in the case of fire the plastic could decompose and may give off toxic vapours. Suitable respiratory protection should be worn during fire fighting.
- The following precautions therefore must always be taken:-Charging and storage must be carried out in well ventilated areas.
- No smoking or naked flames should be permitted in the charging area during installations, inspections on or near the battery.
- TO EXTINGUISH FIRE USE CO2 OR SMOTHER WITH DRY POWDER

AGM & GEL

PRODUCT SAFETY DATA

PRODUCT	A.G.M Batteries (Absorbed Glass Mat) Lead acid electric storage batteries with immobilized dilute sulphuric acid absorbed into the plates. Batteries are totally sealed with no danger of leakage.
PRODUCT	GEL Batteries (Gel filled batteries) Lead acid electric storage batteries with the electrolyte immobilized in a silica gel. Batteries are totally sealed with no danger of leakage.
TYPE OF CONTAINER	Polypropylene
TECHNICAL NAME	Lead Acid Accumulator
COMPONENTS	Lead, Lead Dioxide, Immobilized Sulphuric Acid (Max Strength of 40%)
HAZARDOUS CLASSIFICATION	(Batteries:immobilized electrolyte)
UN NUMBER	2800,
CLASS	8
	Unregulated by DOT for transportation by road, rail, sea and air, because they meet the requirements of : 49 CFR 173.159 (d) The only transportation requirements are: 1) The batteries must be securely packed in such a way as to prevent the possibility of short circuiting. 2) The battery and outer packaging must be labelled "NONSPILLABLE BATTERY"
INTERNATIONAL AIR TRANSPORT ASSOCIATION CLASSIFICATION	These batteries are unregulated for air transport because they meet the requirements of: Special Provision "A 67" as promulgated by the International Civil Aviation Association (IATA) and (ICAO). They also meet the Vibration and Pressure Differential Tests of the International Maritime Dangerous Goods(IMDG) regulations.



TRANSPORT DETAILS

Transport details for AGM & GEL Batteries

We hereby certify that all AGM (sealed lead acid) batteries and GEL type batteries supplied by Western Electrical conform to Un2800, Class 8 "wet non-spillable electrical storage". Also under the IATA Dangerous Goods Regulations they meet the requirements to conform to special provision "A67" classifying them as non-dangerous goods. They are therefore EXEMPT from the subject regulations for dangerous goods and are acceptable for transport by Air Sea Rail Road. SEE BELOW FOR DETAILS.

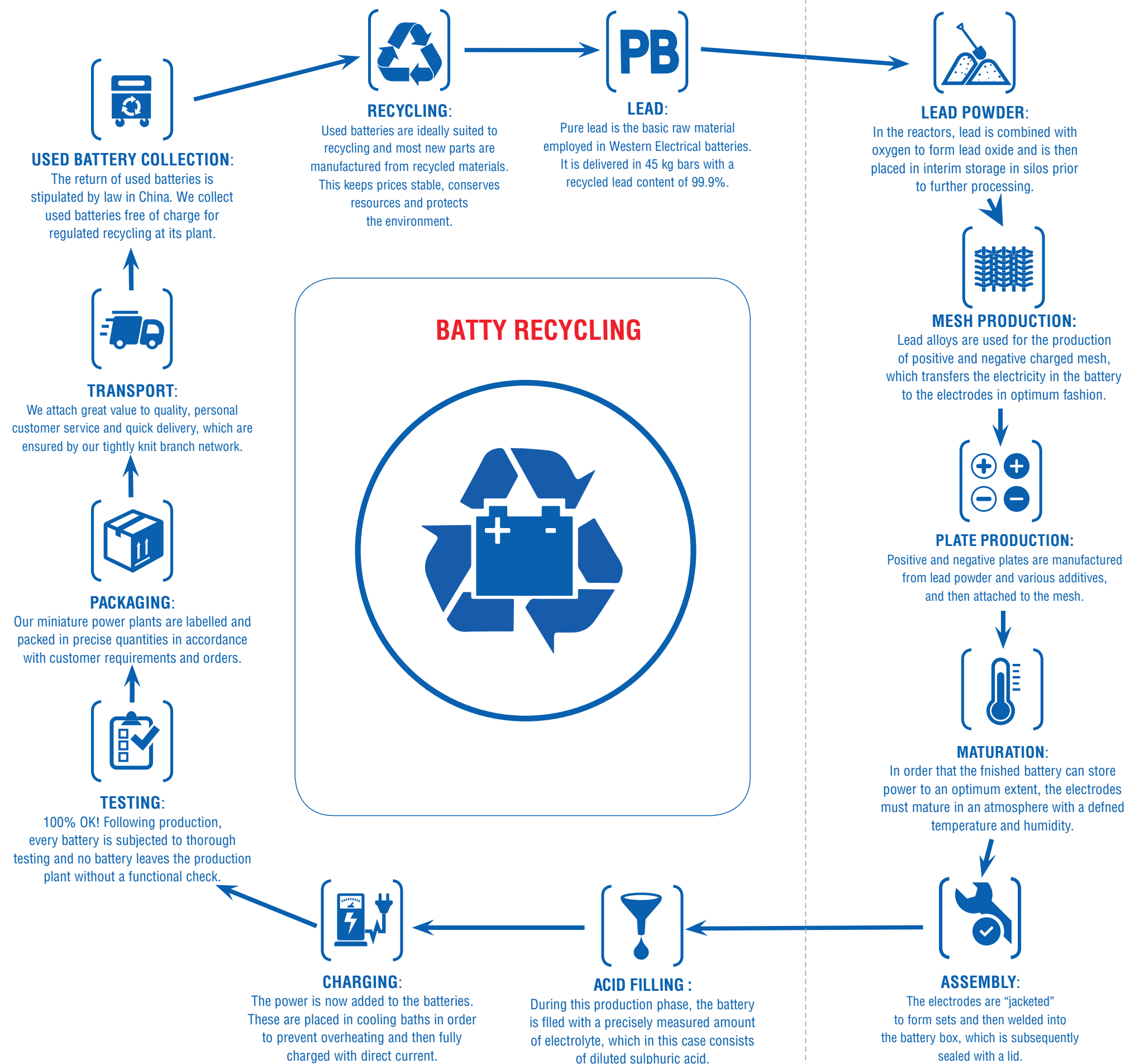
PRODUCT SAFETY DATA

PRODUCT	A.G.M Batteries (Absorbed Glass Mat) Lead acid electric storage batteries with immobilized dilute sulphuric acid absorbed into the plates. Batteries are totally sealed with no danger of leakage.
PRODUCT	GEL Batteries (Gel filled batteries) Lead acid electric storage batteries with the electrolyte immobilized in a silica gel. Batteries are totally sealed with no danger of leakage.
TYPE OF CONTAINER	Polypropylene "Non Spillable"
TECHNICAL NAME	Lead Acid Accumulator
COMPONENTS	Lead Lead Dioxide Immobilized Sulphuric Acid (Max Strength of 40%)
HAZARDOUS CLASSIFICATION	(Batteries: immobilized electrolyte) UN Number 2800, Class 8. Unregulated by DOT for transportation by Road Rail, Sea and Air, because they meet the requirements of : 49 CFR 173.159 (d) The only transportation requirements are: 1) The batteries must be securely packed in such a way as to prevent the possibility of short circuiting. 2) The battery and outer packaging must be labelled "NONSPILLABLE BATTERY"
INTERNATIONAL AIR TRANSPORT ASSOCIATION CLASSIFICATION	These batteries are unregulated for air transport because they meet the requirements of: Special Provision "A 67" as promulgated by the International Civil Aviation Association (IATA) and (ICAO). They also meet the Vibration and Pressure Differential Tests of the International Maritime Dangerous Goods (IMDG) regulations.

Transport Details for Wet Flooded Batteries

PRODUCT SAFETY DATA

PRODUCT	Lead acid electric storage batteries filled with dilute sulphuric acid.
TECHNICAL NAME	Lead Acid Accumulator.
COMPONENTS	Lead Lead Dioxide Lead Sulphate Sulphuric Acid (Max Strength of 40%)
HAZARDOUS CLASSIFICATION	(Batteries filled with liquid electrolyte) Corrosive Group 8
U.N NUMBER	2794
PACKING GROUP	3
TYPE OF CONTAINER	Polypropylene
INTERNATIONAL AIR TRANSPORTASSOCIATION CLASSIFICATION	Not classified for transport by air.



FULL POWER FOR OUR ENVIRONMENT.

WESTERN ELECTRICAL ASSUMES RESPONSIBILITY.
Among Western Electrical's key values are a great sense of ecological awareness and the fulfilment of our responsibilities to customers, employees, consumers and the environment. For these reasons, the company builds on environmentally compatible production processes, the economical use of energy and raw materials, a closed product loop from production to recycling and constant improvements aimed at minimising or preventing environmental impact. The Western Electrical plant possesses ISO 14001 certification.

WESTERN ELECTRICAL'S RECYCLING LOOP MEANS REDUCED ENVIRONMENTAL IMPACT.
Many of the components in top quality of batteries can be manufactured from recycled raw materials. At the important workshop/retail interface, new batteries are installed and used ones collected in containers to await collection. The company's in-plant battery recycling system then prepares the raw materials received for production. This saves resources, keeps prices stable and protects the environment.



**100% RECYCLABLE
RECYCLABLE**



GENERAL CONDITIONS OF SALE

1. Scope

- 1.1 These General Terms and Conditions of Business shall apply to the sale of goods and services between companies and are valid for both the delivery of such products and related services.
The conditions will be governed by United Nations Convention on Contract for the International Sale of Goods. Terms used in the contract, including EXW, FOB, CRF, CIF, DDU, DDP, shall be interpreted in accordance with the INCOTERMS 2000 of the International Chamber of Commerce.
- 1.2 Deviations from the conditions mentioned under Item 1.1 only take effect subject to the written approval of the seller.

2. Quotations

- 2.1 Seller quotations are regarded as non-binding.
- 2.2 Without the permission of the seller, no quotation or project documentation may be reproduced or made available to third parties. The return of the documentation may be demanded at any time and should the order be placed elsewhere, it is to be sent back to the seller immediately.

3. Contractual agreement

- 3.1 A contract is regarded as concluded once the seller has received written confirmation of the contract, following the receipt of the order, or has dispatched a delivery.
- 3.2 Information contained in catalogues and brochures, etc. as well as other written or verbal statements are only of material importance when the order confirmation refers to them in specific terms.
- 3.3 Subsequent alterations and supplements to the contract are only valid when confirmed in writing.

4. Prices

- 4.1 The prices are valid ex-works or ex-warehouse of the seller, excluding packing, loading and sales tax. If charges, taxes or other payments are required in connection with supply, these are to be borne by the purchaser. If direct delivery of the order has been agreed, this and any transport insurance required by the purchaser will be invoiced separately. However, this does include unloading and loading. Packaging will only be accepted back subject to express agreement.
- 4.2 In case of orders that deviate from the overall quotation, the seller retains the right to make appropriate price change.
- 4.3 Prices are based on costs at the time of the initial quotation. Should the costs increase in the period up to supply, the seller is entitled to adjust prices accordingly.
- 4.4 In the case of repair contracts, the performance recognized by the seller as appropriate will be provided and invoiced on the basis of the related expenditure. This applies to services and additional services, the necessity of which first becomes apparent in the course of the completion of the order. No special information of the purchaser is required in this regard.
- 4.5 The purchaser will be invoiced for expenses relating to the preparation of repair quotations or an expertise.

5. Delivery

- 5.1 The delivery period commences with the latest of the subsequent dates:
- Date of order confirmation.
 - Date of the fulfilment of the technical and commercial obligations and other preconditions incumbent upon the purchaser.
 - Date upon which the seller receives a prepayment or guarantee prior to the delivery of the goods.
- 5.2 Official or third party approval required for the fulfilment of conditions is to be obtained by the purchaser. Should such approval not be obtained in time, the delivery period is extended accordingly.



- 5.3 The seller is entitled to make partial or pre-deliveries and to invoice them. Should on-call delivery have been agreed, at the latest the goods are regarded as having been called up one year after ordering.

- 5.4 Where situations arise that are unforeseen or cannot be influenced by the parties, such as acts of God, and where these hinder the fulfilment of the agreed delivery deadline, this is extended to include the duration of these circumstances. In particular, such circumstances include armed conflict, official intervention and bans, delays relating to transport and customs, transport damage, shortages of power and raw materials, labour disputes and the loss of an important sub-supplier that is difficult to replace. The aforementioned conditions also justify a prolongation of the delivery period when they apply to sub-suppliers.

- 5.5 Should a contractual penalty for delivery delays have been agreed between the contractual parties, this will be dealt with according to the following terms, whereby a deviation from one of the individual conditions does not affect the remainder. A delay in the fulfilment of supply, which can be proven to be the singular responsibility of the seller, entitles the purchaser to claim a contractual penalty of a maximum of 5% for each completed week of delay, but not in excess of 5% of the value of that part of the overall order, which due to the failure to supply an important item punctually, could not be employed and where the purchaser has incurred damages to this amount. Additional claims under the heading of a delay are excluded.

6. Passing of risk and place of performance

- 6.1 The use and risk pass to the purchaser upon the departure of the delivery from the plant or warehouse of the seller, irrespective of the agreed type of pricing (e.g. delivery free, CIF, etc.). This also applies when supply takes place in the course of installation, or should the transport be completed, or organized and managed by the seller.
- 6.2 The place of performance for supply and performance is the venue at which the performance is completed. The risk related to supply or an agreed partial performance passes to the purchaser upon provision.

7. Payment

- 7.1 Unless other conditions of payment have been agreed, 1/3 of the price is to be paid upon order confirmation, 1/3 at the halfway point of the delivery period and the remainder upon delivery. Irrespective of these payments, the VAT contained in the bill must be paid within 30 days of invoicing.
- 7.2 In the case of partial invoices, partial payments are to be made upon receipt of the respective billing. This also applies to clearing amounts, which are additional to the original total amount and relate to subsequent deliveries or other agreements, irrespective of the conditions of payment agreed for the main delivery.
- 7.3 The purchaser is not entitled to withhold or offset payments for reasons of warranty claims or other counter-claims.
- 7.4 A payment is regarded as made on the day that it becomes available to the seller for disposition.
- 7.5 Should the purchaser be in arrears with an agreed payment of other obligations relating to this or other transactions, the seller can undertake the following without prejudicing other rights:
- Postpone the fulfilment of own obligations until this payment has been made, or other obligations have been met and claim a reasonable prolongation of the delivery period.
 - Call in all open claims from this or other transactions and charge default interest at a rate of 1.25% per month plus sales tax on the respective debt, unless the seller proves costs in excess of this amount. In all cases, the seller is entitled to invoice for preliminary litigation costs, in particular, reminder costs and legal expenses.
- 7.6 Agreed rebates or bonuses are subject to the prompt provision of the complete payment.
- 7.7 The seller retains ownership of all the goods supplied until complete payment of the invoiced amounts, including interest and costs, has been made. To secure the purchase price claim, the purchaser hereby assigns to the seller any claims relating to the further sale of reserved goods, even if these have been processed, altered or mixed and undertakes to make an appropriate entry into its books or on invoices. On request, the purchaser must make known to the seller the assigned claim together with the debtor and provide the information and documentation needed for a recovery of the debt and to inform the indebted third party of the transfer of the claim.
In the case of seizure or other recourse, the purchaser is obliged to point out the right of ownership of the seller and to inform the latter immediately.



8. Warranty and acceptance of responsibility for defects

- 8.1 Subject to the fulfilment of the agreed conditions of payment, the seller is obliged to repair any design, material or production defects with a negative effect upon functionality that may exist at the date of hand-over in accordance with the stipulations of the following terms. No warranty claims can be made on the basis of information contained in catalogues, brochures, advertising materials, written or verbal statements, which have not been accepted into the contract.
- 8.2 The warranty period lasts 12 months, unless special warranty periods have been agreed for individual delivery items. This also applies to supplies and services, attached to a building or real property. The warranty period commences with the risk transfer in accordance with Item 6.
- 8.3 A prerequisite for warranty claims is that the purchaser has immediately made the defect known in writing. The purchaser has to immediately prove the existence of a defect and provide the seller with available information and data.
In the case of a defect subject to warranty in accordance with Item 8.1, the seller can either choose to repair the defective article at the place of performance, have it returned for the purpose of repair, or provide an appropriate price reduction.
- 8.4 In the case of warranty, damage replacement or compensation claims owing to defects, which are asserted by customers of the buyer, claims of the buyer with regard to other related rejects shall only exist, when the seller is provided with documented evidence of the contract concluded between the buyer and the customer (e.g. customer receipt).
- 8.5 Should the seller manufacture an item on the basis of design information, drawings, models or other specifications of the purchaser, then the warranty of the seller only extends to completion according to the stipulated conditions.
- 8.6 Excluded from the warranty are defects originating from arrangement and installation not carried out by the seller, insufficient setting-up, a failure to adhere to the installation requirements and conditions for use, overloading of the components beyond the performance levels stated by the seller, negligent or incorrect handling and the use of unsuitable supplies. This also applies to defects, which can be traced to materials supplied by the purchaser.
In addition, the seller does not provide a warranty for damage caused by third parties, atmospheric discharges, overloads and chemicals. The warranty does not extend to the replacement of components subject to natural wear and tear. In the case of the purchase of second-hand goods, the seller does not provide a warranty.
- 8.7 A liability of the seller is excluded should the defect or damage derive from the use by the purchaser of a battery with insufficient capacity or rated power for the foreseen application; further when a conventional starter battery is employed by the purchaser instead of a different type as recommended by the manufacturer (for example AGM or EFB battery), or when instead of a long term dischargeable battery merely a conventional starter battery is installed (for example in the case of a caravan, camper, boat).
The use of the battery must always comply with Western Electrical's classification recommendation as contained in the General Catalogue or correspond with the battery type stipulated by the manufacturer of the device (OE number, performance requirement), otherwise resulting defects and damage shall not justify any liability of the seller.
- 8.8 The conditions 8.1 to 8.7 also apply to each case of defects arising for other legal reasons.

9. Withdrawal from the contract

- 9.1 Unless a special regulation has been agreed, the prerequisite for the withdrawal of the purchaser from the contract is a delay in delivery, which can be traced to the gross negligence of the seller and the unsuccessful completion of a reasonable extension to the delivery period. Withdrawal must be made known in the form of a registered letter.
- 9.2 Irrespective of other rights, the seller is entitled to withdraw from the contract when:
- a) The completion of the order, the begin or continuation of contractual performance is impossible, or despite a reasonable extension, has been further delayed for reasons that are the responsibility of the purchaser.
 - b) When concerns relating to the solvency of the purchaser have arisen and despite the request of the seller, the purchaser neither makes a prepayment, nor provides suitable collateral.
 - c) Due to the circumstances listed under item 5.4, the extension to the period of delivery amounts to more than half of the period agreed originally, or at least 6 months.



- 9.3 Withdrawal from the contract can also be declared for the reasons listed above with regard to an open portion of the supplies or services.

- 9.4 Should insolvency proceedings be initiated against one of the contractual parties, or an application for the introduction of insolvency proceedings be rejected on the grounds of a lack of assets, the other contractual party is entitled to withdraw from the contract without setting a period of grace.

- 9.5 In the case of withdrawal and irrespective of the damage claims of the seller, including preliminary litigation costs, supplies and services already completed are to be calculated in accordance with the contract and paid. This also applies to supplies and services not yet accepted by the purchaser, as well as preparations made by the seller. Instead, the seller also has the right to demand the return of items delivered previously.

- 9.6 Other consequences of withdrawal are excluded.

10. Liability

- 10.1 The seller is liable for damage outside the area of application relating to the product warranty only where gross negligence can be proved under the terms of legal stipulations. Liabilities of the seller for minor negligence, restitution for subsequent damage and asset losses, lost savings, interest losses and damages derived from third party claims are excluded.
- 10.2 Any claims for damages are excluded in the case of a failure to adhere to the conditions relating to installation, commissioning and use (e.g. as contained in the operating instructions) or the official conditions of certification.
- 10.3 Should contractual penalties be agreed, additional claims under the respective items are excluded.

11. Assertion of claims

Unless shorter deadlines have been separately agreed in individual cases, or are foreseen under the terms of legal stipulations, all purchaser claims must be asserted before a court within a period of three years following the transfer of risk, otherwise the claims lapse.

12. Commercial rights and copyright

- 12.1 Should an item be manufactured by the seller in accordance with design instructions, drawings, models or other specifications provided by the purchaser then the purchaser has to indemnify the seller against claims in the case of any infringements of rights.
- 12.2 Production documentation, e.g. plans, sketches and other technical information, as well as models, catalogues, brochures, picture, etc. remain the property of the seller and are subject to standard legal stipulations with regard to reproduction, copying, competition, etc. Item 2.2 also applies to production documentation.

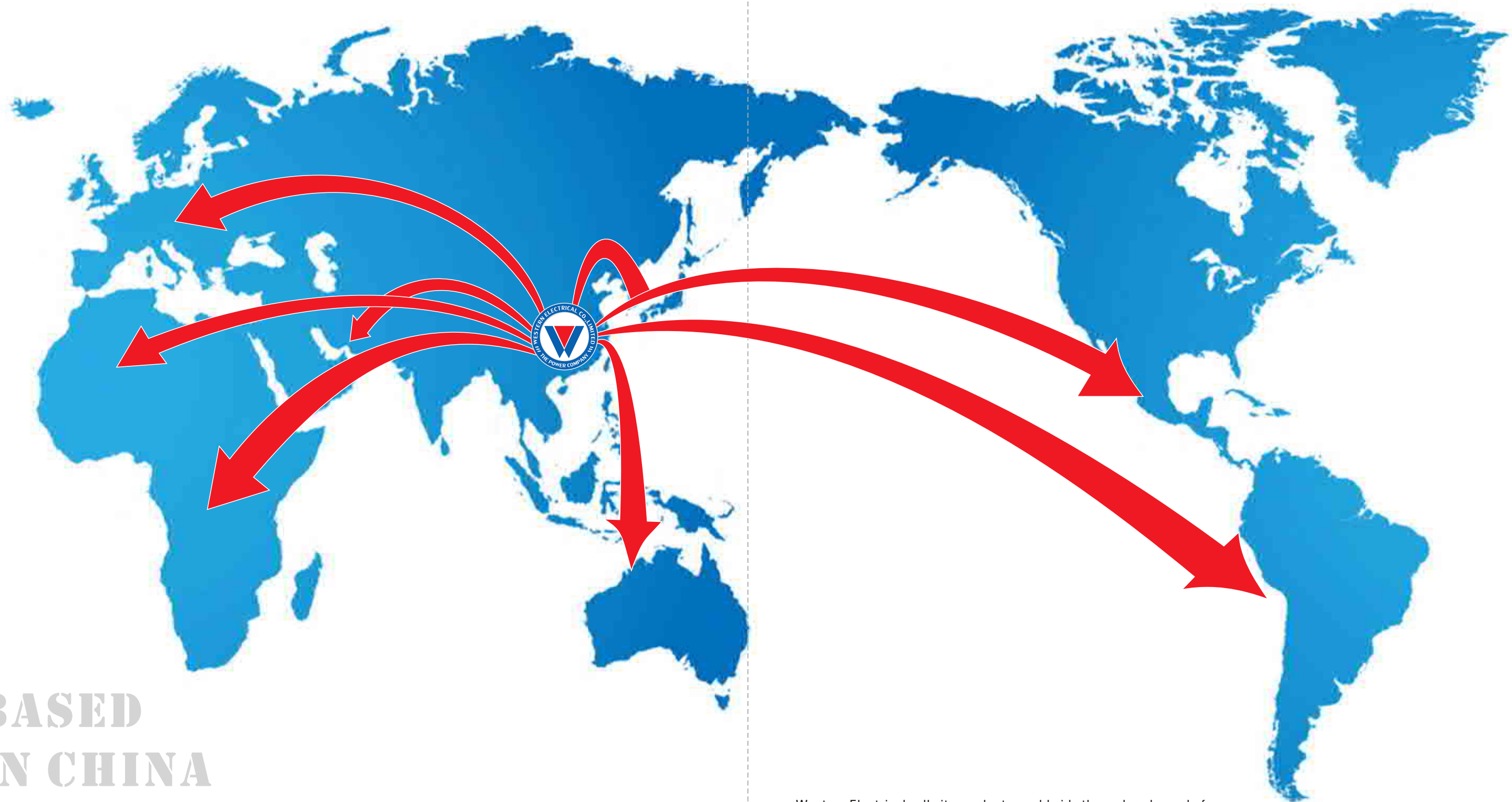
13. Miscellaneous

Should individual terms of this contract or their stipulations become invalid, this does not result in the invalidity of the remainder of the contract. The invalid term is to be replaced by one, which serves the purpose of the contract as closely as possible.

14. Copyright and usufruct

- 14.1 All photos, illustrations, text and other content, of both this homepage and the brochures, circulars, pamphlets and advertising of Western Electrical Co., Limited and its sales companies, are subject to copyright.
- 14.2 Any type of application, use, reproduction, provision to the public, etc. requires the prior written approval of Western Electrical Co., Limited.
- 14.3 The unauthorized use of pictures, illustrations, text and content subject to copyright in the either private or the business area, shall constitute an infringement of copyright and upon coming known will be met by a cease and desist warning, together with the assertion of claims for damages and legal action.

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IN CHINA
WESTERN ELECTRICAL
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Western Electrical sells its products worldwide through a channel of professional distributors, we appreciate their contribution to our worldwide presence and always welcome newcomer to join our global business.

Dedicating to become a customer-oriented power company, Western Electrical is committed to superior customer service, and so that, we always place a high value on all of our customers and strive ourselves to provide each person with the attention and details required to keep their business and support.

We'd love to hear you about the information we present and want to know what you think of our battery products, what your experience has been with Western Electrical and how we can keep making our battery products and service better for you. So, we'd be highly appreciate you would let us your idea and comments, thanks!



NOTICE:





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