Made by GS Yuasa
For Japanese cars
EFB-battery (EPIY)
Explanatory materials

EFB+Li

GS YUASA

Three features of EPIY Series

◆ 1 - Evolved Next-Generation Battery

- **Compatible with the latest vehicles**
- **Adopts the latest technology**

◆ 2- Wide range of compatibility

- **Able to be mounted both on STOP & START and regular vehicles**
- **Excellent quick charge performance**

◆ 3 - Made by GS Yuasa, a reliable Japanese brand

- **No. 1 of battery share in Japan**

1. Evolved Next-Generation Battery

Correspond with the latest automaker's specification requirements

Adopted into new cars by all Japanese automakers ※

Responds to evolving state-of-the-art STOP & START vehicles.

Allows start – stop and other emission reduction systems to operate to their full potential.

Perfect fit for Start & Stop

※ Including 1 OEM and co-developed vehicles

With the latest technology

Excellent STOP & START life and quick charge performance. Suitable for use in various environments.


Suitable for hot/cold climate

2. Suitable for many vehicles

Wide range of compatibility

Able to be mounted both on STOP & START and regular vehicles

Sales Benefits

★ Reduction of inventory burden, reduction of missed sales opportunities
★ Preventing troubles by installing normal products on STOP & START vehicles

Adapt to the evolution of STOP & START generations

★ Supports vehicle control by the latest Japanese automakers

Excellent quick charge performance

Even in short-distance operation the battery is quickly charge extending service life

3. Trusted Brand GS Yuasa

No. 1 of battery share in Japan

- No.1 Domestic aftermarket share ※1
- No.1 Share of new cars in Japan ※2
- No.1 Share of new battery for START & STOP vehicles ※3

Battery: Made in Japan by GS Yuasa

Made in Japan

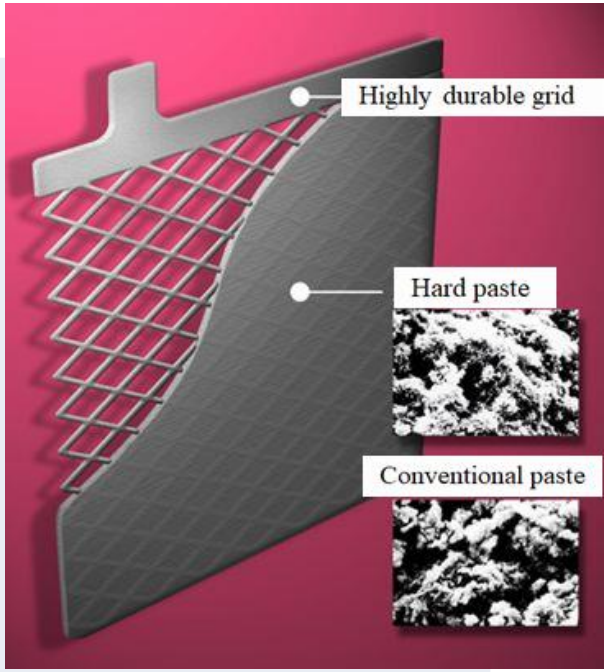
It has a 100-year history.
It also produces batteries for the International Space Station, submarines and emergency power supplies.

※1 In the 2018 Domestic Automobile Repair Battery Share Survey by Domestic Research Companies
※2 In a 2018 investigation of battery share for new vehicles by domestic research companies
※3 In 2018, a survey by domestic research companies on battery shares for new vehicles for STOP &START vehicles in Japan

Details of EPIY Series Technologies

ULL structure

ULL (Ultra Long Life) structure is adopted for internal elements.
Allows start – stop and other emission reduction systems to operate to their full potential.

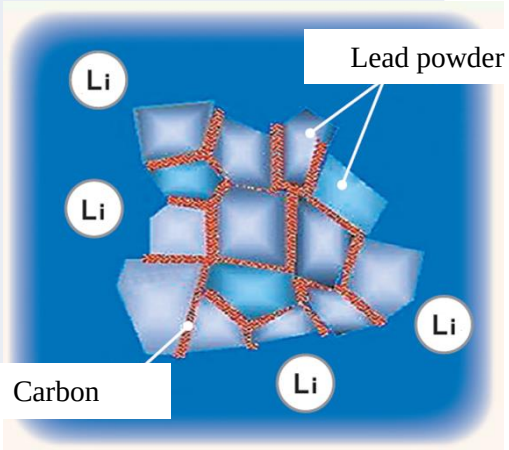


Electrolyte lithium formulation

Optimization of carbon volume

+Li
Quick charging performance

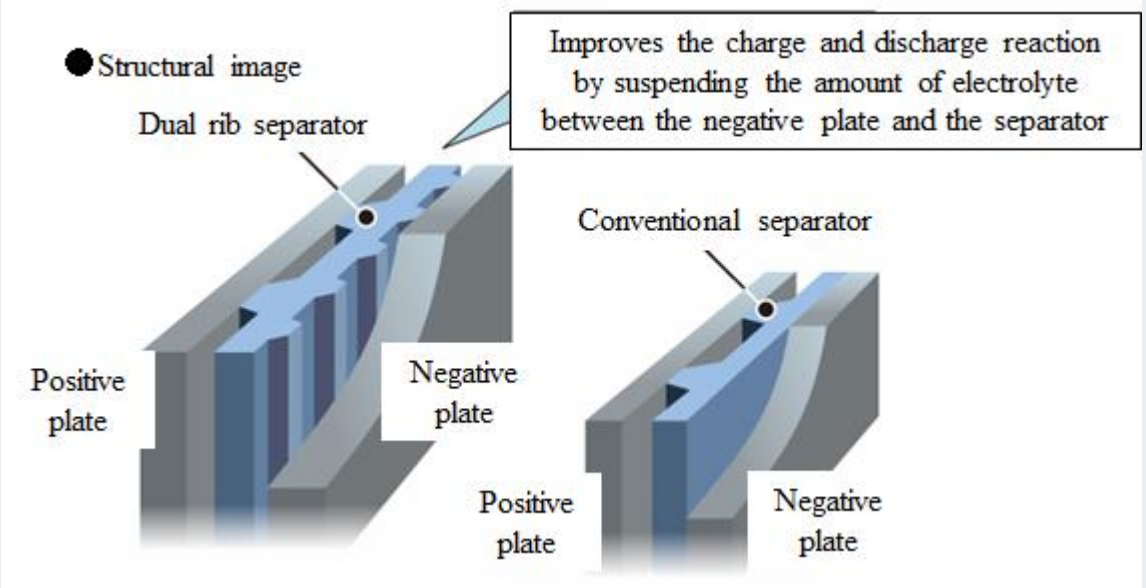
Optimization of carbon quantity and lithium formulation within electrolyte liquid greatly improve charge acceptance.



Details of EPIY Series Technologies

New separator

By forming a new rib on the negative pole side of the separator as well, the reaction of the pole plate as a whole is improved. This reduces electrolyte to stratification prolong battery life.

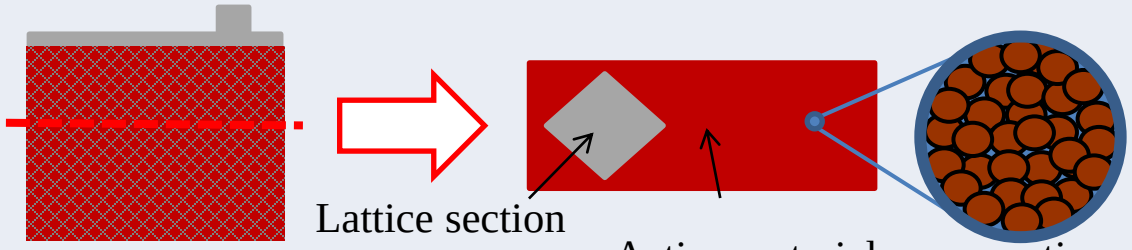


Trademark application pending for "dual rib separator"

Details of EPIY Series Technologies

Positive active additive

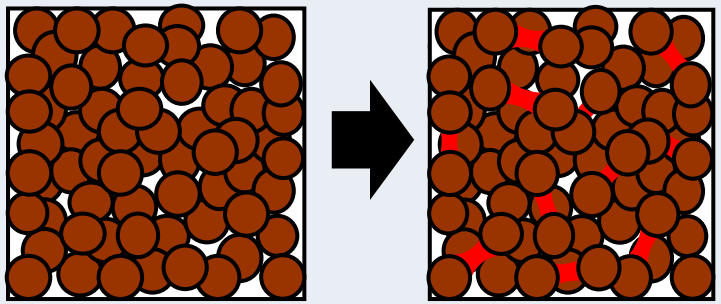
Adopted additives to strengthen the network of active material particles reduces the softening of the positive electrode plate and improves durability.



When magnified by an electromicroscope, the active matter is a porous body in which particles gather

Function of additives

Additives improve the durability of the positive plate



STOP & START life over 200%

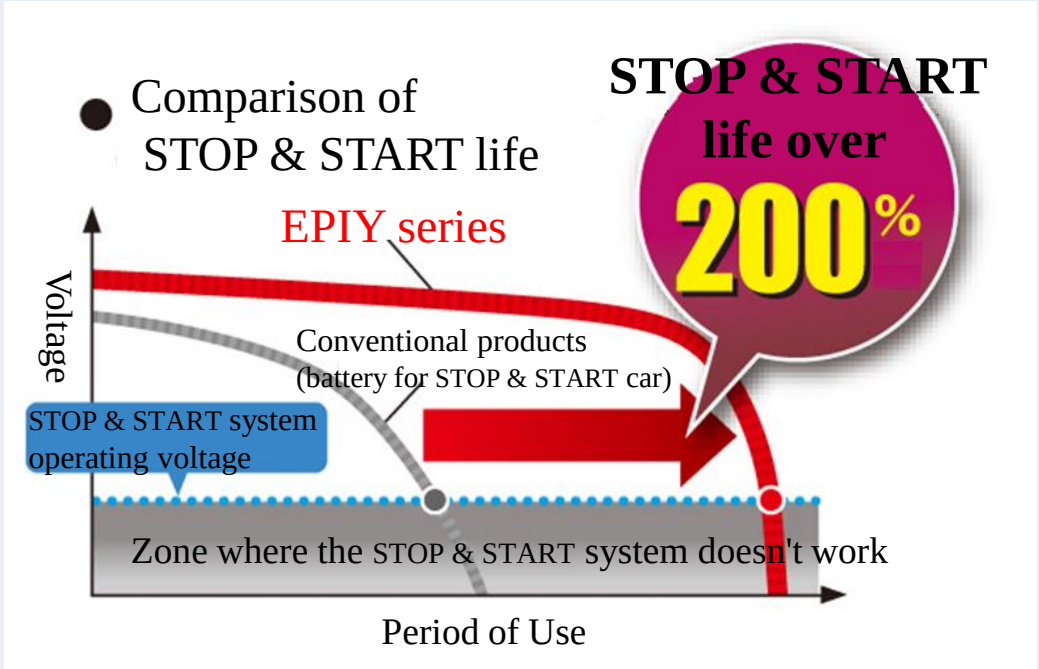
New separator

Positive active additive

Increase in the number of plates

ULL structure

STOP & START life has been improved by suppressing the drop in voltage caused by degradation.
Reduces environmental impact by reducing fuel consumption and CO2 emissions of STOP & START vehicles.

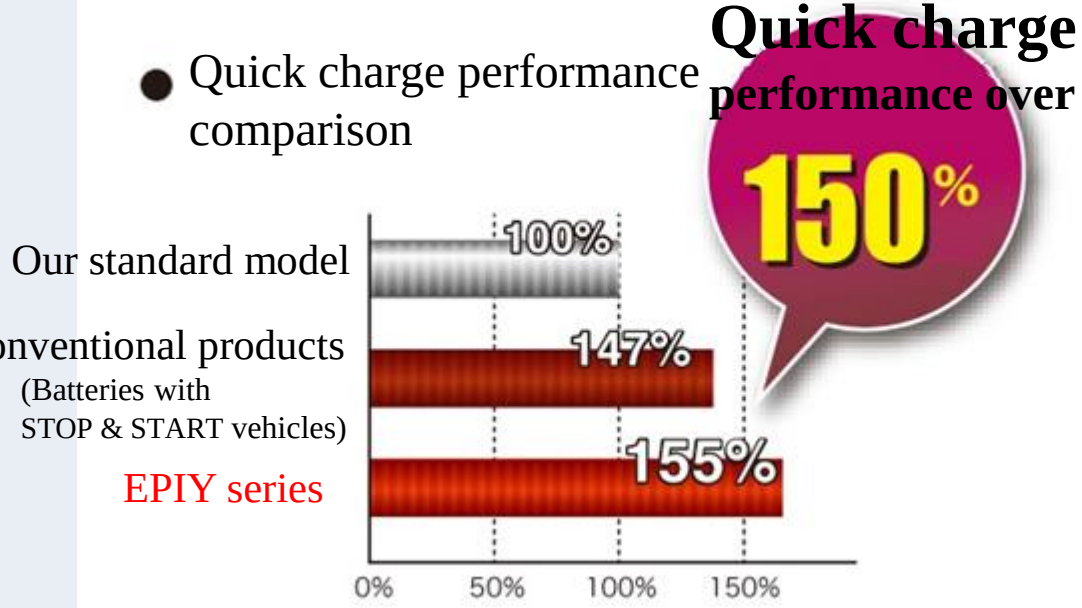


Quick Charge Performance over 150%

Electrolyte lithium formulation | **Optimization of carbon volume** | **Increase in the number of plates**

Batteries in STOP & START vehicles are regularly discharged and need to be charged in shorter periods.
Lithium is mixed in the electrolyte to improve quick charge performance.
It is also beneficial for vehicles traveling short distances.

- Quick charge performance comparison



+Li
Quick charging performance

Life when installed in regular vehicles over 250%

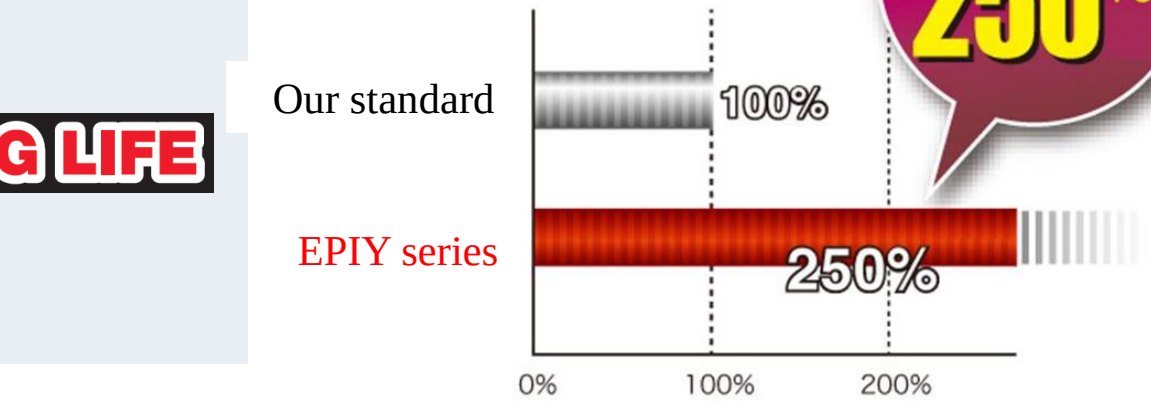
ULL structure

Increase in the number of plates

When EPIY series is mounted on a normal vehicle (non STOP & START), it achieves an overwhelmingly long life.
As a dual-use model it can also be mounted on standard ignition cars, which are still prevalent in the market
We can make suggestions based on the keyword “long life”.

●Comparison of life when installed in non- START & STOP Vehicles

Life when installed in normal vehicles is over 250%



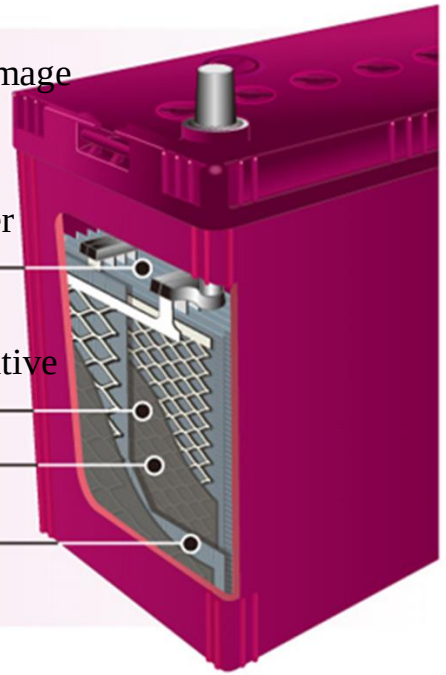
ULTRA LONG LIFE

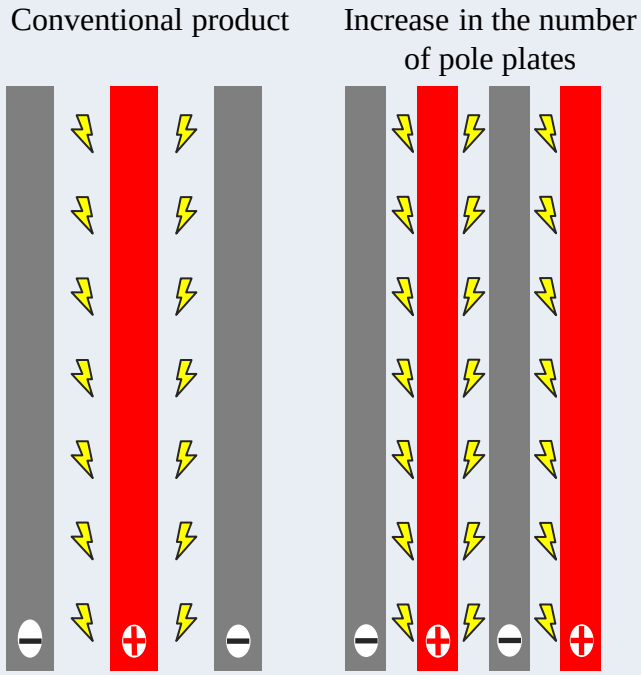
High performance rank

Increase in the number of plates

Increasing the number of plates increases the reactive surface area and improves performance.
The load on the active material is dispersed by the increase of the reaction surface area. This improves durability.

● Internal structure image





Features of GS Yuasa EFB-battery (EPIY)

★ Improve STOP & START life expectancy by over 200%
Contributing to reduced fuel efficiency and environmental impact by maintaining performance for a long time

★ Quick charge performance improvement of over 150%
Reducing battery deterioration due to increased electric discharge
Reliable even in cars with frequent short-haul trips

★ Life expectancy increased in regular cars by over 250%
The longest battery life in GS Yuasa's history for passenger cars

★ Suitable for a wide range of models with high performance requirements
Can be installed in many Japanese automobile manufacturers's vehicles

★ Reliable Japanese-made
High quality Japanese-made EFB batteries delivered by GS Yuasa

Reference: Maintenance of EFB batteries

★ Self-discharging and supplementary charging of the battery

The battery discharges naturally (self-discharges) during storage
If you don‘t charge it, you won’t be able to demonstrate 100% of it’s ability.

★ Differences in self-discharge amount between normal JIS batteries and EFB batteries

Generally, EFB batteries for STOP & START vehicles tend to self-discharge faster than ordinary JIS-batteries.

★ Inventory maintenance

STOP & START systems monitor the battery charge status. Therefore, even if a new battery with low-charge is installed, there is a possibility that STOP & START will not work. As a guideline, measure the open-circuit voltage once a month and recharge the battery if it falls below 12.4V.

EFB Battery Line Up

EFB Model	JIS Model	20HR	CCA	RC
M-42R	55B20R	38 Ah	415	56
M-42	55B20L	38 Ah	385	56
N-65	75B24L	50 Ah	500	73
Q-85R	95D23R	66 Ah	590	107
Q-85	95D23L	66 Ah	590	107
S-95R	110D26R	74 Ah	655	124
S-95	110D26L	74 Ah	655	124
T-115R	130D31R	87 Ah	740	145
T-115	130D31L	87 Ah	740	145

Reference: Performance rank display

JIS standard (for normal vehicles) | SBA standard (for STOP & START cars)

55B20R / M-42R

55	B	20	R	/	M-	42	R
Performance rank	Size		Terminal polarity		Size		Performance rank	Terminal polarity ※

※ R type only listed

★ What are JIS and SBA standards?

JIS standards: standards established by Japanese Industrial Standards (normal car battery)
SBA standards: standards established by the Battery Manufacturers Association (EFB batteries for STOP & START vehicles)

Size	
JIS	SBA
B19	K
B20	M
B24	N
D23	Q
D26	S
D31	T

★ Performance Ranks for EPIY Series

Differences in Performance Ranks between Normal and STOP & START Vehicles

Normal cars ••• "Performance rank calculation method after JIS 2006 (New JIS)"
For STOP & START Vehicles •••"*New car part numbers"
※ The model numbers for new models are shown so that compatibility with new models is easy to understand.

END