

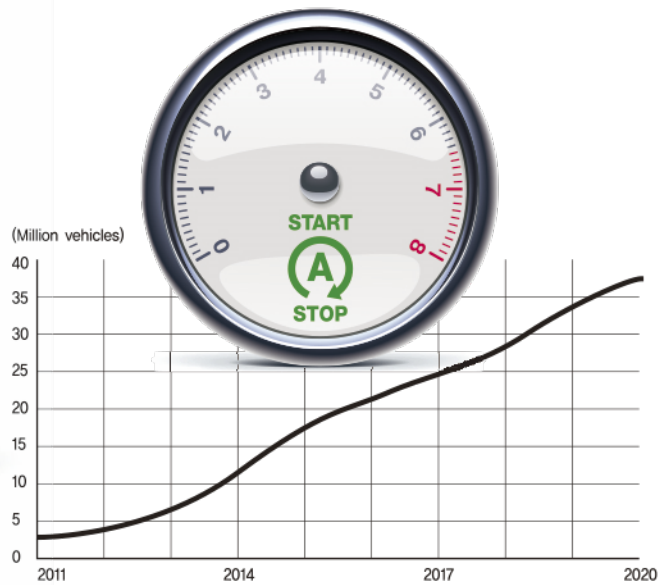


# Toasan<sup>®</sup>

## AGM START-STOP BATTERY







## Fuel economy trend by Automotive Technologies

From 2012, international environmental regulations against global car makers have come to the fore. Major countries of vehicle production and sales such as the United States, China, Japan and European Union have been reinforcing the regulations on CO<sub>2</sub> emission and the fuel economy to cope with global climate change and excessive energy consumption.

Start-stop technology is one of the fuel economy car technologies to help reduce the CO<sub>2</sub> emission, playing a key role in a way to achieve stringent emission norms for vehicle manufacturer. On the other hand it reduces fuel consumption, which is what a vehicle owner mostly looks for in a vehicle, with ever increasing fuel prices.

## What is Start Stop System?

Start Stop system controls engine to stop when the vehicle is not in movement and restart the engine when vehicle begins its acceleration. This technology can help to avoid unnecessary energy loss caused by engine idling and has in fact been proved to cut fuel consumption by 5~15%, also Start Stop system improves engine silence for the consumer's driving comfort.

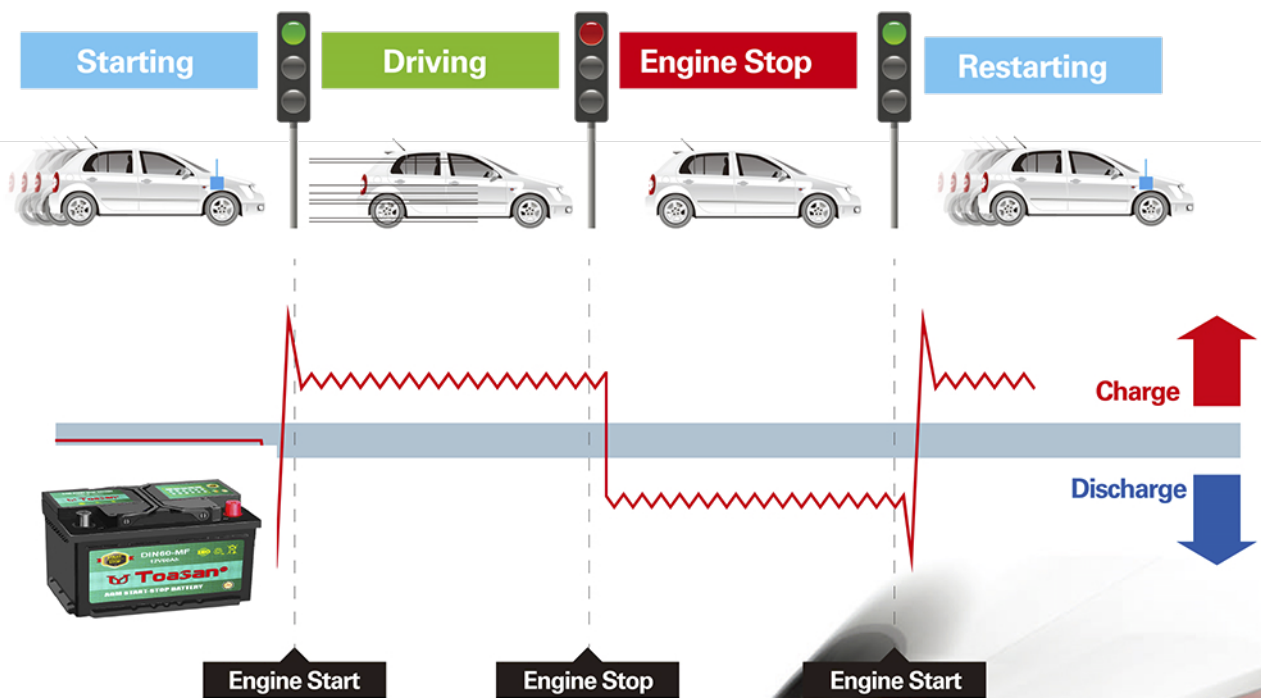
## Next icon to drive your business forward

In 2013, 8 million vehicles were equipped with Start Stop system and it is forecasted to grow up to 23 million vehicles by 2017. Particularly in Europe, around 70% of total vehicle sales in 2015 will include Start Stop system.

## The Role of Start Stop Battery

Start Stop vehicles require enhanced battery due to the frequent start and stop events at traffic light. Therefore, battery with enhanced durability and charge acceptance is required to withstand the severe driving environments for the Start Stop vehicles. **Toasan** Start Stop series have enhanced the durability and battery life to perfectly optimize for the Start Stop vehicles. Also it is not only optimized for Start Stop vehicles but it could perform higher stability and longer life for the previous Internal Combustion Engine(ICE) equipped vehicles as well.

### Start Stop System



**Toasan battery**  
**ACCELERATING YOUR POWER**



## Start Stop Plus with AGM Technology

Start Stop plus with AGM Series, the primary choice of vehicle manufacturers, is specially designed to meet and even go beyond all requirements of advanced start stop vehicles heavily equipped with electronic devices, the most prestigious vehicles.

| No. | Type      | Cap. | CCA  | Overall Dimensions (mm) |     |     |     | Layout | A Class  |
|-----|-----------|------|------|-------------------------|-----|-----|-----|--------|----------|
|     |           | (Ah) | (Ah) | L                       | W   | H   | TH  |        | (Kgs)    |
| 1   | DIN60-MF  | 60   | 660  | 242                     | 175 | 190 | 190 | A      | 18.7±0.3 |
| 2   | DIN70-MF  | 70   | 720  | 278                     | 175 | 190 | 190 | A      | 21.5±0.3 |
| 3   | DIN80-MF  | 80   | 800  | 315                     | 175 | 190 | 190 | A      | 24.5±0.3 |
| 4   | DIN92-MF  | 92   | 850  | 353                     | 175 | 190 | 190 | A      | 27±0.3   |
| 5   | DIN105-MF | 105  | 950  | 394                     | 175 | 190 | 190 | A      | 30±0.3   |

### Key Features

- Absorbent Glass Mat separator
- VRLA sealed construction
- X-Frame Technology
- Reinforced case design
- Meets OE quality, performance & specification

### Benefits

- x4 time longer idling stop life cycle
- Charge acceptance 150% up
- Starting power 130% up
- Optimal safety for passenger compartment installation

## Application



► Start Stop system



► Regenerative Braking System



► Urban intensive use



► Heavily equipped electronic devices

