INTRODUCING START-STOP

A Realistic Solution for Reducing Fuel Use and Emissions

Start-stop technology is easy for automakers to apply to traditional internal combustion engines, and easy to use – no change in driving habits required. It's the most affordable, convenient way for today's drivers to cut fuel use and greenhouse gas emissions.

The popularity of start-stop technology is on the rise. Between 2016 and 2020, the global market will surge from 25 million to 65 million vehicles in North America, Europe and China.

Easy to Use

No need to change driving habits.

- Gas engine shuts off during idle.
- A robust battery keeps lights, air conditioner, heater, entertainment systems and other accessories running.
- Engine restarts automatically when you take your foot off the brake or engage the clutch.

Easy on the Wallet

The sound of silence is the sound of savings.

Up to 5% fuel savings every time you fill up your gas tank

- Included in typical fuel economy packages.
- Far less expensive than hybrid or plug-in electric technologies, which can add 20 percent to the vehicle's cost. *(Source: Edmunds)*

Better for the Environment

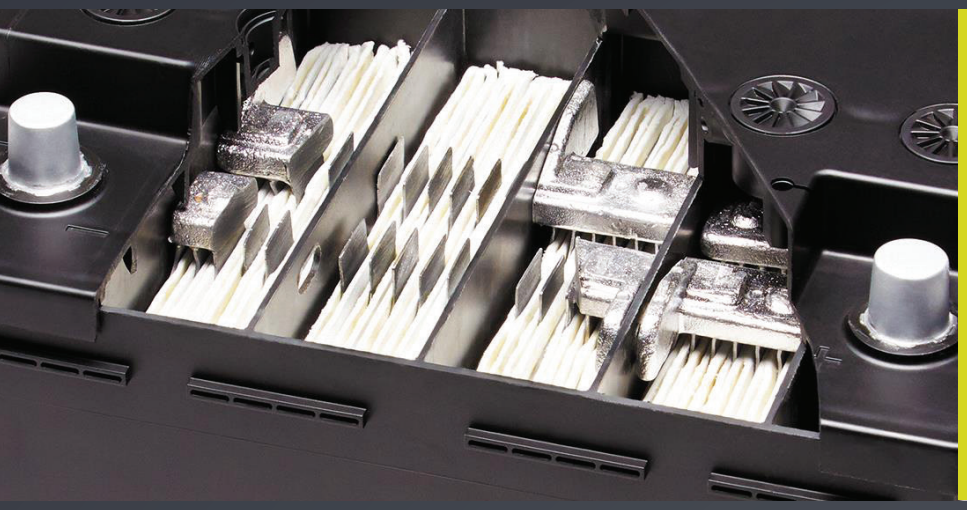
Reduced emissions from millions of vehicles add up.

- Cuts greenhouse gas emissions up to 5 percent.
- Johnson Controls start-stop battery technology is now integrated into 35 million vehicles, saving an estimated 660 million gallons of fuel and cutting greenhouse gas emissions by 5.9 million metric tons per year – equivalent to the carbon captured by 4.8 million acres of forest in one year.

660 million gallons of fuel saved

Johnson Controls

At the Heart of Start-Stop Systems: Johnson Controls Batteries



Johnson Controls batteries for start-stop vehicles are engineered for longer life and improved performance:

- Superior starting power even at low states of charge
- Reliability in harsh weather and extreme conditions
- Excellent durability in high-load applications

The World's Leading Provider

Powering popular start-stop vehicles around the globe

Johnson Controls produces 7 out of every 10 absorbent glass mat (AGM) batteries sold worldwide. In the U.S., our batteries power vehicles such as the Ford F-150, Ford Fusion and Chevy Malibu, to name a few.

Serving a Growing Global Market

Expanding our capacity to meet increasing demand

In 2020, most new cars produced will be equipped with start-stop technology.

As start-stop technology continues to gain market share, Johnson Controls is increasing global production capacity. Over the next five years, we're investing $780 million to grow our capacity for producing batteries for start-stop vehicles.

About Johnson Controls Power Solutions

Johnson Controls Power Solutions is the world's largest manufacturer of automotive batteries, supplying approximately **146** million to automakers and aftermarket retailers. Our full range of lead-acid and lithium-ion battery technology powers nearly every type of vehicle for our customers – including conventional, start-stop, micro-hybrid, hybrid and electric. Johnson Controls' recycling system has helped make automotive batteries the most recycled consumer product in the world. Globally, **15,000** employees develop, manufacture, distribute and recycle batteries at more than **50** locations.

Johnson Controls

johnsoncontrols.com