

## ***Global Idling Stop System Market: Key Research Findings 2009***

### Research Outline

Yano Research Institute has conducted a study on global idling stop system (idle stop system, idling reduction system, idle reduction system, start and stop system) market with following conditions.

1. Research period: September to November 2009
2. Research targets: Auto manufacturers, vehicle system makers, etc.
3. Research methodologies: Face-to-face interviews, telephone and email surveys, literature research

#### **DEFINITION of Idling Stop System Market**

Idling stop system automatically shuts the engine off when a vehicle is not in motion and restart the engine when trying to start. The research targets in this study are five major configuring systems of engine control, engine restart, battery management, power management and transmission oil pressure control that are mounted on all passenger cars or commercial vehicles whose weight is under 3.5 tons, excluding route buses and trucks. Among hybrid cars, strong and mild hybrid cars that use driving force of drive motor when a vehicle starts are excluded from the research targets, while idling stop system vehicles without drive motor and micro hybrid cars that have idling stop function and power regeneration function at the time of speed reduction are included in the targets.

### Key Findings

- ◆ **Global sales quantity of idling stop system vehicles is estimated at approximately 904 thousand units in 2009 and it is forecast to be over 10 million units in 2015**

While the sales quantity of passenger cars is dropping worldwide, idling stop system vehicles are rapidly growing. The global sales quantity of idling stop system vehicles is estimated at approximately 904 thousand units in 2009. By region, the European market accounts for a large portion selling approximately 881 thousand units, followed by the Japanese market which sells approximately 18 thousand units.

In Europe idling stop system is expected to increasingly prevail due to CO2 emissions regulation and shift to CO2-based car tax obligation. In Japan the adoption of the system would increase mainly to light and small vehicles due to its cost-effective fuel consumption. The global sales quantity of idling stop system vehicles is forecast to be at approximately 10,430 thousand units in 2015 as they become popular in Europe and Japan after 2010.

- ◆ **Global market size of idling stop system vehicles is estimated at 13,680 million yen in 2009 and 170,870 million yen in 2015 due to appearance of next generation system after 2012**

The 2009 market size of idling stop system is estimated at approximately 13,680 million yen, most of which is occupied by engine restart system sector. Next generation idling stop system with highly efficient power regeneration technology is expected to appear after 2012. As a result, power management system sector would largely grow. The 2015 market size of idling stop system is expected to be at approximately 170,870 million yen growing at an annual rate of 51.9 percent.

### Report format:

Published report: "Idling Stop System Market 2009"

Issued in: November 2009

Language: Japanese

Format: 123 pages in A4 format

Price: 130,000 yen (6,500 yen of consumption tax will be additionally charged for sales in Japan.)

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## Research Summary

### 1. Market Overview and Outlook

Strict environmental and fuel regulations are enforced in advanced countries, and hybrid cars are spread and electric vehicles began to be sold. However, new sales are mostly for gasoline or diesel engine cars worldwide, and how to improve fuel efficiency is a large issue. Under this environment, idling stop system is being paid attention as a measure to increase fuel efficiency.

The global sales quantity of idling stop system vehicles was approximately 904 thousand units in 2009. By region, Europe accounts for 97.5 percent selling approximately 881 thousand units, followed by Japan that sold approximately 18 thousand units.

In Europe a gradual enforcement of CO<sub>2</sub> emission regulation will start in 2012 and each country is shifting to CO<sub>2</sub>-based auto tax system. Therefore, environmental friendly vehicles are expected to be produced and sold aggressively. Furthermore, the barrier is low in this region as many use a manual transmission vehicle and do not require strict engine restart timing. Moreover, oil pressure system is unnecessary because of clutch engagement, and thus idling stop system can be implemented at low cost. It is anticipated that the ratio of idling stop system vehicles will exceed 40 percent with sales quantity of approximately 8,840 thousand units in 2015.

Although the 2009 sales quantity of idling stop system vehicles in Japan is only 18 thousand units, the 2015 sales quantity is expected to reach approximately 940 thousand units due to the plan to mount idling stop system on light cars and small cars to which hybrid system is difficult to apply.

With the expansion mainly in Europe and Japan, the world sales quantity of idling stop system vehicles is forecast to grow to approximately 10,430 thousand units in 2015.

### 2. Major Configuring Systems and Technology Trends

Among five major system sectors in the idling stop system market, engine restart system represents a large portion. The market size of engine restart system is approximately 10,230 million yen in 2009, and it is expected to be approximately 90,780 million yen in 2015, growing at an annual rate of 45.1 percent.

Power management system is expected to make the most rapid progress among the major configuring systems as Li-ion battery and capacitor sub power source systems with highly efficient and large capacity power regeneration function are highly anticipated to be used with idling stop system.

The idling stop system market size (the total sum of major configuring systems based on manufacturer shipment value) is estimated at approximately 13,680 million yen in 2009. After 2010 each manufacturer would lower the costs and average unit price of systems may decrease. However, the number of idling stop system vehicles will sharply increase and the market will grow largely in value.

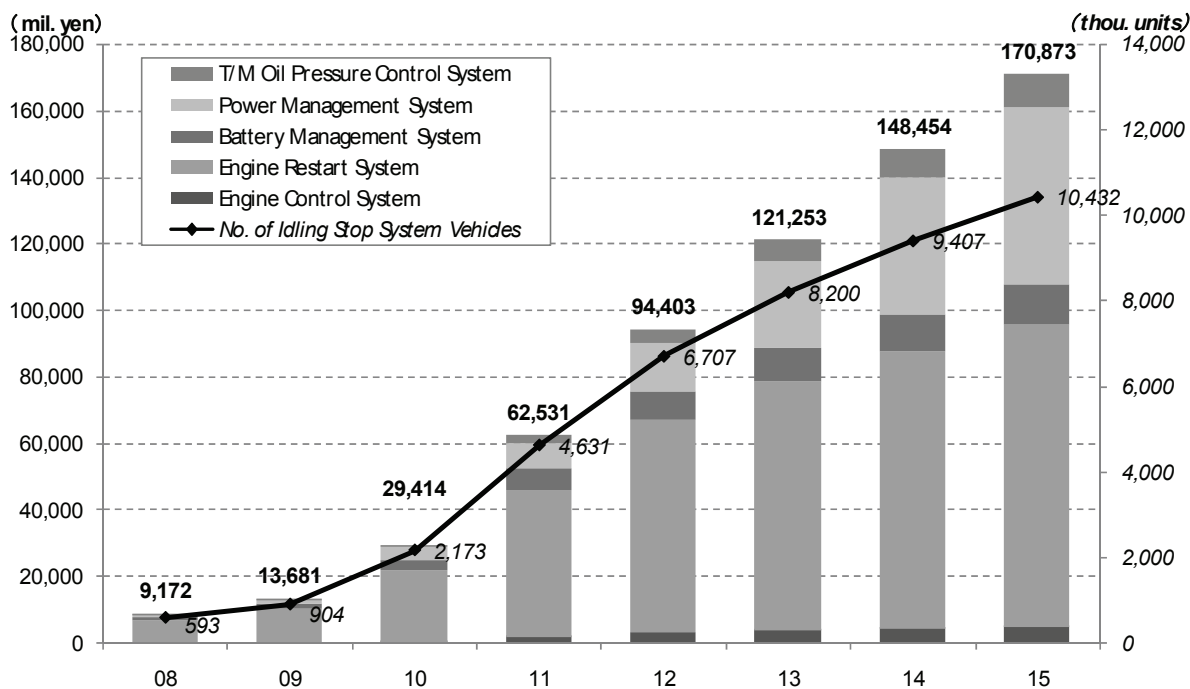
After 2012 next generation idling stop system with highly efficient power regeneration will appear and average unit price is anticipated to rise. The 2015 market size of idling stop system is forecast to be approximately 170,870 million yen with an annual growth rate of 51.9 percent.

[Idling Stop System Configuring System, Type and Components]

Configuring System	System Type	Major Components
<b>Engine Control System</b>		<b>Forward and Reverse Rotation Detecting Crank Position Sensor</b>
<b>Engine Restart System</b>	<b>Starter</b>	<b>High-strength Starter</b>
	<b>Belt-driven Starter and Alternator</b>	<b>Starter and Alternator/ Belt and Belt Tensioner/ ECU (Inverter)</b>
	<b>Constant Mesh Gear Starter</b>	<b>Constant Mesh Gear Starter/ Gear</b>
	<b>Direct Injection Combustion + Starter Assist</b>	<b>High-strength Starter (excl. direct injection system)</b>
<b>Battery State Detecting System (Lead Battery Sub-power Source System)</b>		<b>Current Sensor</b>
		<b>Intelligent Battery Sensor (IBS)</b>
<b>Power Management System</b>	<b>DC-DC Converter (Voltage Regulator)</b>	<b>DC-DC Converter</b>
	<b>Lead Battery Sub-power Source System</b>	<b>Lead Sub-battery/ Relay/ Battery Sensor</b>
	<b>Li-ion Battery Sub-power Source System</b>	<b>Li-ion Battery/ Relay/ Battery Sensor/ (DC-DC Converter (Voltage Regulator))</b>
	<b>EDLC Sub-battery System</b>	<b>EDLC (Capacitor) / Relay/ (DC-DC Converter (Voltage Regulator))</b>
<b>Transmission Oil Pressure Control System</b>	<b>Electronic Oil Pump</b>	<b>Electronic Oil Pump</b>
	<b>Flow Control</b>	<b>N/A</b>

Estimated by Yano Research Institute Ltd.

## [Global Market Size of Idling Stop System Vehicle and Configuring System]



(Unit: thou. units)

	08	09	10	11	12	13	14	15
No. of Idling Stop System Vehicles	593.4	904.3	2,173.0	4,631.0	6,707.0	8,200.0	9,407.0	10,432.0
Y/Y	--	152.4%	240.3%	213.1%	144.8%	122.3%	114.7%	110.9%

(Unit: mil. yen)

	08	09	10	11	12	13	14	15
Engine Control System	110.5	257.3	724.9	1,895.3	3,278.5	4,160.9	4,670.3	5,145.4
Y/Y	--	232.9%	281.8%	261.5%	173.0%	126.9%	112.2%	110.2%
Engine Restart System	6,719.2	10,230.1	21,386.6	44,432.9	63,842.5	74,801.2	83,230.3	90,779.5
Y/Y	--	152.3%	209.1%	207.8%	143.7%	117.2%	111.3%	109.1%
Battery Management System	1,064.5	1,310.0	3,016.0	6,068.8	8,375.1	9,950.2	11,012.5	11,732.3
Y/Y	--	123.1%	230.2%	201.2%	138.0%	118.8%	110.7%	106.5%
Power Management System	1,265.0	1,780.6	3,886.8	8,019.9	14,814.3	26,130.4	41,175.3	53,177.5
Y/Y	--	140.8%	218.3%	206.3%	184.7%	176.4%	157.6%	129.1%
T/M Oil Pressure Control System	12.8	103.4	399.5	2,114.2	4,092.2	6,210.0	8,365.6	10,038.4
Y/Y	--	807.9%	386.3%	529.2%	193.6%	151.8%	134.7%	120.0%
<b>Total</b>	<b>9,172.0</b>	<b>13,681.4</b>	<b>29,413.8</b>	<b>62,531.0</b>	<b>94,402.6</b>	<b>121,252.7</b>	<b>148,454.1</b>	<b>170,873.1</b>
Y/Y	--	149.2%	215.0%	212.6%	151.0%	128.4%	122.4%	115.1%

Estimated by Yano Research Institute Ltd.

Note:

1. Number of idling stop system vehicles is base on sales quantity.
2. Configuring system market size is based on system maker shipment value.
3. The figures for 2008 and 2009 are estimates and those for 2010 to 2015 are forecasts.
4. T/M = transmission
5. The figures are rounded off, and thus the total figures are different from the sum of each figure.