

Automotive Thermoelectric Generator Market Report by Component (Thermoelectric Module, Cooling Plates, Heat Exchangers, and Others), Material (Magnesium Silicide, Bismuth Telluride (Bi₂Te₃), Lead Telluride (PbTe), Skutterudite), Vehicle Type (Passenger Cars, Commercial Vehicles), Application (Waste Heat Recovery, Energy Harvesting, Direct Power Generation, Co-generation), and Region 2024-2032

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Abstracts

The global automotive thermoelectric generator market size reached US\$ 45.0 Million in 2023. Looking forward, IMARC Group expects the market to reach US\$ 113.5 Million by 2032, exhibiting a growth rate (CAGR) of 10.5% during 2024-2032.

An automotive thermoelectric generator is a device that transforms the waste heat of an internal combustion engine (ICE) into electrical energy using the Seebeck effect. It contains heat exchangers, cooling plates, compression assembly, and thermoelectric materials, such as bismuth telluride (Bi₂Te₃), lead telluride (PbTe), skutterudite, and magnesium silicide. An automotive thermoelectric generator is widely used to power various systems of the vehicle, such as infotainment, air conditioning, lighting, and small refrigerators. It is a relatively simple system that recycles wasted heat energy, reduces fuel consumption, minimizes operating costs, and supports vehicle electrification. An automotive thermoelectric generator is also eco-friendly and lightweight, requires low maintenance, and doesn't generate noise or vibrations.

Automotive Thermoelectric Generator Market Trends:

The increasing demand for fuel-efficient vehicles is one of the primary factors driving the market growth. An automotive thermoelectric generator is widely used in passenger and commercial vehicles to reduce fuel consumption and improve efficiency. It also replaces the generator load, provides faster warm-up of the engine and transmission, minimizes added mass, and converts selected mechanical functions of the vehicles into electrical parts, such as coolant, oil, and trans fluid pumps. Furthermore, the extensive product utilization due to the rising environmental concerns, as they reduce carbon dioxide (CO₂) emissions and minimize the use of refrigerants in cooling systems, is favoring the market growth. Apart from this, the implementation of stringent emission policies by several governments is acting as another growth-inducing factor. Additionally, the recent development of thin film thermoelectric generators for automotive applications that provide enhanced efficiency, scalability, cost-effectiveness, and reduced material wastage is positively influencing the market growth. Other factors, including increasing product adoption in hybrid and electric vehicles (H/EVs), extensive research and development (R&D) activities, rapid electrification of existing vehicles, and rising expenditure capacities of consumers, are anticipated to drive the market growth.

Key Market Segmentation:

IMARC Group provides an analysis of the key trends in each sub-segment of the global automotive thermoelectric generator market report, along with forecasts at the global, regional and country level from 2024-2032. Our report has categorized the market based on component, material, vehicle type and application.

Breakup by Component:

- Thermoelectric Module
- Cooling Plates
- Heat Exchangers
- Others

Breakup by Material:

- Magnesium Silicide
- Bismuth Telluride (Bi₂Te₃)
- Lead Telluride (PbTe)
- Skutterudite

Breakup by Vehicle Type:

Passenger Cars
Commercial Vehicles

Breakup by Application:

Waste Heat Recovery
Energy Harvesting
Direct Power Generation
Co-generation

Breakup by Region:

North America
United States
Canada
Asia-Pacific
China
Japan
India
South Korea
Australia
Indonesia
Others
Europe
Germany
France
United Kingdom
Italy
Spain
Russia
Others
Latin America
Brazil
Mexico
Others
Middle East and Africa

Competitive Landscape:

The competitive landscape of the industry has also been examined along with the

profiles of the key players being Coherent Corp., European Thermodynamics Ltd., Ferrotec (USA) Corporation (Ferrotec Holdings Corporation), Laird PLC, SANGO Co. Ltd., Thermonamic Electronics (Jiangxi) Corp. Ltd. and Yamaha Corporation. Kindly, note that this only represents a partial list of companies, and the complete list has been provided in the report.

Key Questions Answered in This Report

1. How big is the global automotive thermoelectric generator market?
2. What is the expected growth rate of the global automotive thermoelectric generator market during 2024-2032?
3. What are the key factors driving the global automotive thermoelectric generator market?
4. What has been the impact of COVID-19 on the global automotive thermoelectric generator market?
5. What is the breakup of the global automotive thermoelectric generator market based on the material?
6. What is the breakup of the global automotive thermoelectric generator market based on the vehicle type?
7. What are the key regions in the global automotive thermoelectric generator market?
8. Who are the key players/companies in the global automotive thermoelectric generator market?

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