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Exhaust Heat Recovery System Market Research Report—Global Forecast till 2032

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Description:

Exhaust Heat Recovery System Market Overview:

Global Exhaust Heat Recovery System Market Size was valued at USD 30.8 Billion in 2022. The Exhaust Heat Recovery System Market industry is projected to grow from USD 33.2 Billion in 2023 to USD 62.0 Billion by 2032, exhibiting a compound annual growth rate (CAGR) of 8.10% during the forecast period (2023 - 2032). Restrictive emission regulations and increasing demand for energy-efficient systems are the key market drivers enhancing the market growth.

Exhaust Heat Recovery System Market Overview

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

Exhaust Heat Recovery System Market Trends

Stringent Emission Regulations Propels Market Growth.

Market CAGR for exhaust heat recovery system is being driven by the stringent emission regulations. With the increased focus on the effects of climate change and the UN warning that the world has just a 12-year window to act, various industry verticals, including the automotive industry, are taking steps to decrease their CO2 footprint. According to the World Health Organization, the transportation sector is the fastest-growing contributor to overall greenhouse gas emissions. This is primarily due to land and air transportation, but the vehicle production process is just as harmful as driving itself. The EU remains committed to reducing greenhouse gas emissions throughout the Kyoto Protocol's second commitment period, which runs from 2013 to 2020. The goal for 2020 was to reduce GHG emissions by 20% compared to 1990.

The EU committed to a GHG reduction target for the years 2021 to 2030 as part of the Paris Agreement (COP21). The commitment for 2030 is to reduce GHG emissions by 40% compared to 1990. As a result, stringent emission laws implemented by governments around the world are likely to boost the worldwide exhaust heat recovery system market during the forecast period.

The amount of CO2 emissions connected with all of a person's or other entity's action (for example, a building, corporation, or country) is referred to as the carbon footprint. It comprises direct emissions from the combustion of fossil fuels in production, heating, and transportation, as well as emissions required to produce the power connected with the goods and services consumed. Furthermore, the carbon footprint idea frequently includes other greenhouse gas emissions, such as methane, nitrous oxide, or chlorofluorocarbons (CFCs).As climate change and other environmental challenges gain prominence and touch all aspects of society, automobile manufacturers are taking steps to lessen their carbon footprint. Even minor activities can have a significant environmental impact.

The Exhaust Heat Recovery System (EHRS) Market is expanding rapidly due to rising demand for energy-efficient systems. With growing environmental concern and rising fuel costs, there is a growing need for solutions that can assist reduce fuel usage and emissions. EHRS technology is one such solution that is gaining traction among automakers and commercial vehicle manufacturers.

The EHRS technology recovers waste heat from the exhaust fumes of internal combustion engines and turns it into usable energy. This energy can then be used to power other systems within the car, such as the air conditioning, power steering, and electrical systems. The EHRS technology improves the overall energy efficiency of the vehicle by using waste heat that would otherwise be lost. Furthermore, governments throughout the world are enacting legislation to minimize car emissions, which is encouraging the adoption of EHRS technology. For example, the European Union has mandated that by 2021, all new cars sold in the region must include EHRS technology.

Exhaust Heat Recovery System Market Segment Insights:

Exhaust Heat Recovery System Component Insights

The global Exhaust Heat Recovery System Market segmentation, based on Component includes Turbine, TEG Module, Compressor, Evaporator, EGR Valve & Cooler, Condenser and Others. The EGR valve and cooler category of the Exhaust Heat Recovery System (EHRS) industry is now dominant. This market is predicted to expand further due to increased demand for fuel economy and the reduction of greenhouse gas emissions. The EGR valve and cooler segment is an important part of the EHRS system since it recirculates exhaust gases back into the engine's combustion chamber, lowering emissions and improving fuel efficiency.

Exhaust Heat Recovery System Vehicle Type Insights

The global Exhaust Heat Recovery System Market segmentation, based on Vehicle Type, includes Passenger Car, LCV, and HCV. The passenger car segment is the largest vehicle type segment. The increased need for fuel-efficient and environmentally friendly automobiles is boosting the use of EHRS technology in passenger vehicles. EHRS technology can recover waste heat from internal combustion engine exhaust fumes and transform it into useable energy, which may subsequently be used to power various vehicle components.

Figure1: Global Exhaust Heat Recovery System Market, by Vehicle Type, 2022 & 2032 (USD Billion)

Global Exhaust Heat Recovery System Market, by Vehicle Type, 2022 & 2032

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

Exhaust Heat Recovery System Technology Insights

The global Exhaust Heat Recovery System Market segmentation, based on technology, includes Exhaust Gas Recirculation (EGR), Thermoelectric Generator (TEG), Organic Rankine Cycle (ORC), Turbocharger and Others. The thermoelectric generator (TEG) sector is predicted to be the market's fastest growing. TEG technology has the potential to significantly enhance fuel efficiency and lower emissions, making it an appealing option for the automotive sector..

Exhaust Heat Recovery System Regional Insights

By region, the study provides the market insights into North America, Europe, Asia-Pacific and Rest of the World. North America has the greatest market for Exhaust Heat Recovery Systems (EHRS), due to the increasing demand for fuel-efficient automobiles and the presence of major automotive manufacturers in the region.

Further, the major countries studied in the market report are The US, Canada, German, France, the UK, Italy, Spain, China, Japan, India, Australia, South Korea, and Brazil.

Figure2: Global Exhaust Heat Recovery System Market Share By Region 2022 (Usd Billion)

Global Exhaust Heat Recovery System Market Share By Region 2022

Source: Secondary Research, Primary Research, MRFR Database and Analyst Review

Europe Exhaust Heat Recovery System Market accounts for the second-largest market share. The region is putting more emphasis on lowering greenhouse gas emissions. Further, the German Exhaust Heat Recovery System Market held the largest market share, and the UK Exhaust Heat Recovery System Market was the fastest growing market in the European region

The Asia-Pacific Exhaust Heat Recovery System Market is expected to grow at the fastest CAGR from 2023 to 2032. This is because of the tremendous growth of the automotive sector in nations such as China, India, and Japan. Moreover, China’s Exhaust Heat Recovery System Market held the largest market share, and the Indian Exhaust Heat Recovery System Market was the fastest growing market in the Asia-Pacific region.

Exhaust Heat Recovery System Key Market Players & Competitive Insights

Leading market players are investing heavily in research and development in order to expand their product lines, which will help the Exhaust Heat Recovery System Market, grow even more. Market participants are also undertaking a variety of strategic activities to expand their global footprint, with important market developments including new product launches, contractual agreements, mergers and acquisitions, higher investments, and collaboration with other organizations. To expand and survive in a more competitive and rising market climate, Exhaust Heat Recovery Systemindustry must offer cost-effective items.

Manufacturing locally to minimize operational costs is one of the key business tactics used by manufacturers in the global Exhaust Heat Recovery System industry to benefit clients and increase the market sector. In recent years, the Exhaust Heat Recovery System industry has offered some of the most significant advantages to medicine. Major players in the Exhaust Heat Recovery System Market, including Valeo (France), Dana (US), Calsonic Kansei (Japan), Delphi Technologies (UK), Mitsubishi Electric (Japan), Hitachi Ltd. (Japan), Bosal (Belgium) and others, are attempting to

increase market demand by investing in research and development operations.

Faurecia SE is a French global automobile supplier headquartered in Nanterre, a suburb of Paris in the west. It was the world's ninth largest multinational automotive components maker in 2018 and ranked first in vehicle interiors and pollution control technology. Faurecia equips one out of every three autos. It creates seats, exhaust systems, interior systems (dashboards, centre consoles, door panels, acoustic modules), and vehicle aesthetic elements (aluminium, wood). In 2020, Faurecia announced a collaboration with Dongfeng Motor Corporation in China to develop and manufacture exhaust heat recovery systems for commercial vehicles.

BorgWarner Inc. is a multinational automobile supplier based in Auburn Hills, Michigan. The corporation has around 49,000 people and maintains production facilities and technological systems at 93 sites (as of June 6, 2022) in 22 countries globally. BorgWarner is one of the world's top 25 automobile suppliers. BorgWarner Inc.'s CEO is Frédéric Lissalde. Borg-Warner Corporation was established in 1928. It was created by the merger of many companies, including Borg & Beck, Marvel-Schebler, Warner Gear, and Mechanics Universal Joint. In 1969, Borg-Warner formed Aisin-Warner, a joint company with Aisin Seiki that specialized in automatic gearboxes. In 2021, BorgWarner has introduced its next-generation exhaust heat recovery system (EHRS), which is intended to increase fuel efficiency and reduce emissions in hybrid and combustion engine vehicles.

Key Companies in the Exhaust Heat Recovery System market include

- Faurecia (France)
- Mahle (Germany)
- Continental (Germany)
- Denso (Japan)
- Valeo (France)
- Dana (US)
- Calsonic Kansei (Japan)
- Delphi Technologies (UK)
- Mitsubishi Electric (Japan)
- Hitachi Ltd. (Japan)
- Bosal (Belgium)
- Tenneco Inc. (US)
- Borgwarner Inc. (US)

Exhaust Heat Recovery System Industry Developments

September 2019, MAHLE GmbH has announced the release of their innovative EHRS technology, which recovers waste heat from exhaust gases via a heat exchanger. The method is intended to boost the efficiency of internal combustion engines while lowering their carbon impact.

May 2021, Cummins has introduced a new exhaust heat recovery system (EHRS) for diesel engines, which is intended to enhance fuel efficiency and reduce pollutants. A thermoelectric generator is used in the system to convert waste heat into electrical energy.

January 2020, Denso Corporation has announced the development of a novel EHRS that recovers waste heat from exhaust fumes using a Rankine cycle. The technology is intended to enhance fuel efficiency and lower emissions in hybrid and gasoline-powered automobiles.

Exhaust Heat Recovery System Market Segmentation:

Exhaust Heat Recovery System Market By Component Outlook

- Turbine
- TEG Module
- Compressor
- Evaporator
- EGR Valve & Cooler
- Condenser

- Others

Exhaust Heat Recovery System Market By Vehicle Type Outlook

- Passenger Car
- LCV
- HCV

Exhaust Heat Recovery System Market By Technology Outlook

- Exhaust Gas Recirculation (EGR)
- Thermoelectric Generator (TEG)
- Organic Rankine Cycle (ORC)
- Turbocharger
- Others

Exhaust Heat Recovery System Regional Outlook

- North America
    - US
    - Canada
- Europe
    - Germany
    - France
    - UK
    - Italy
    - Spain
    - Rest of Europe
- Asia-Pacific
    - China
    - Japan
    - India
    - Australia
    - South Korea
    - Australia
    - Rest of Asia-Pacific
- Rest of the World
    - Middle East
    - Africa
    - Latin America

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