

Automotive HVAC System Market Report by Component (Evaporator, Compressor, Condensor, Receiver-drier, Expansion Valve, and Others), Technology (Automatic, Manual), Vehicle Type (Passenger Car, Commercial Vehicle, Electric Vehicle), and Region 2024-2032

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Abstracts

The global automotive HVAC system market size reached US\$ 42.8 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 66.6 Billion by 2032, exhibiting a growth rate (CAGR) of 4.9% during 2024-2032. The growing consumer demand for comfort, rising vehicle production across the globe, significant technological advancements, escalating adoption of electric and hybrid vehicles, imposition of stringent emission regulations, and ongoing impact of climate change are some of the major factors propelling the market.

An automotive heating, ventilation, and air conditioning (HVAC) system refers to a multi-component setup integrated within vehicles to regulate internal air temperature and airflow. It consists of essential components, such as a compressor, evaporator, condenser, and air-handling units. Automotive HVAC system finds extensive application in various vehicle types, including passenger cars, commercial trucks, electric vehicles, buses, and off-road machinery. It aids in improving driver comfort, enhancing visibility by defogging windows, and enhancing air quality. In addition, it provides numerous advantages, such as increased vehicle resale value, efficient energy use, and reduced engine strain.

The escalating adoption of electric and hybrid vehicles, which often come equipped with specialized HVAC systems to optimize battery performance, is boosting the market

growth. Besides this, the imposition of stringent emission regulations, compelling manufacturers to develop eco-friendly HVAC systems to adhere to global emission norms, is contributing to the market growth. In addition, the ongoing impact of climate change and escalating global temperatures, which make air conditioning nearly indispensable, is acting as another growth-inducing factor. Furthermore, the escalating awareness about in-cabin air quality is facilitating the demand for advanced HVAC systems that are equipped with built-in air purifiers and filters. Moreover, the widespread system installation in commercial vehicles, such as trucks and buses, owing to the expanding logistics and transportation sectors, is positively influencing the market growth.

Automotive HVAC System Market Trends/Drivers:

The growing consumer demand for comfort

The rising consumer demand for in-cabin comfort is a cornerstone driving the automotive HVAC system market. Driving is not just becoming a mode of transportation but also an experience, which, in turn, is escalating the importance of comfort factors, such as the vehicle's internal temperature and air quality. Furthermore, consumers are looking for a comprehensive driving experience that incorporates not just speed and power but also a comfortable environment, especially for long drives or commutes. In line with this, high-quality HVAC systems are becoming not just optional upgrades but essential features that buyers check before making a purchasing decision. This demand has transcended basic climate control, as modern consumers are now seeking advanced features such as multi-zone climate control, smart sensors, and even mood-based temperature adjustments.

The rising vehicle production across the globe

The increasing vehicle production across the globe is an important factor driving the market growth. Economies around the world are continuously growing, which, in turn, is expanding the demand for vehicles, both personal and commercial. This spike in vehicle production automatically leads to a parallel increase in the demand for HVAC systems. Furthermore, HVAC systems are becoming a standard feature even in entry-level models, especially in developing economies, where the emergence of a middle class with disposable income has boosted car sales. Moreover, the lowering of international trade barriers has made global markets more interconnected, allowing manufacturers to incorporate standardized features like HVAC systems to meet the diverse expectations of the international consumer base. As a result, the rising production of vehicles worldwide creates a cascading effect, driving demand for advanced, efficient, and

versatile automotive HVAC systems.

The significant technological advancements

The ongoing technological advancements are another major driver in the automotive HVAC system market. In line with this, the incorporation of digital technologies, such as the Internet of Things (IoT) sensors, artificial intelligence (AI), and machine learning (ML), to analyze a range of environmental and user preference data to offer personalized climate control is boosting the market growth. Furthermore, the introduction of sensor-based climate systems that can automatically adjust temperature and airflow based on the number of occupants in the car or the external weather conditions is supporting the market growth. Innovations like dual-zone and even tri-zone climate control enable individualized temperature settings for different areas within the vehicle, enhancing user satisfaction. Automotive manufacturers are keenly investing in research and development (R&D) to integrate these technological advancements, understanding well that such features significantly bolster the market attractiveness of their offerings.

Automotive HVAC System Industry Segmentation:

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

Breakup by Component:

- Evaporator
- Compressor
- Condensor
- Receiver-drier
- Expansion Valve
- Others

Compressor dominates the market

The report has provided a detailed breakup and analysis of the market based on component. This includes evaporator, compressor, condenser, receiver-drier, expansion valve, and others. According to the report, compressor represented the largest segment.

The compressor is currently dominating the market due to its critical role in the overall system's functionality. It is the core of the HVAC system and initiates the cooling process by pressurizing the refrigerant, thereby facilitating its circulation through the system. Furthermore, its effective operation directly impacts the efficiency and performance of the entire HVAC setup. Besides this, advances in compressor technology, which have allowed for more energy-efficient designs, are positively influencing the market growth. Additionally, the rise of electric and hybrid vehicles, which has accelerated the development of more compact and lightweight compressors, is contributing to the market growth. Moreover, manufacturers are investing heavily in research and innovation to produce compressors that can operate efficiently under varying conditions, be it extreme heat or cold, thereby making them a versatile and indispensable component.

Breakup by Technology:

Automatic

Manual

Automatic hold the largest share in the market

A detailed breakup and analysis of the market based on technology has also been provided in the report. This includes automatic and manual. According to the report, automatic represented the largest segment.

Automatic HVAC systems are increasingly dominating the market as they offer superior convenience and ease of use. They automatically adjust the cabin temperature based on pre-set conditions, eliminating the need for manual intervention, which is particularly attractive to consumers who prioritize comfort and convenience in their vehicles. Additionally, automatic systems are incorporating advanced technologies like sensors and artificial intelligence (AI) to achieve more precise climate control, thereby enhancing user experience further. Moreover, they are generally more energy-efficient as they can conform to environmental conditions, ensuring that the system only uses the amount of energy necessary to maintain optimal cabin conditions, which results in fuel savings and reduced carbon dioxide emissions. Along with this, the integration of smart features like multi-zone climate control, voice activation, and smartphone compatibility, making automatic systems more appealing to tech-savvy consumers, is boosting the market growth.

Breakup by Vehicle Type:

Passenger Car

Commercial Vehicle

Electric Vehicle

Passenger car holds the largest share in the market

A detailed breakup and analysis of the market based on vehicle type has also been provided in the report. This includes passenger car, commercial vehicle, and electric vehicle. According to the report, passenger car accounted for the largest market share.

The passenger car is currently dominating the market owing to the sheer volume of passenger cars on the road, which far outweighs that of commercial vehicles, buses, or other specialized automotive types. This higher production and sales volume naturally leads to a greater demand for HVAC systems within this category. Additionally, the increasing consumer expectations for comfort features in passenger cars, making HVAC systems a standard offering rather than a luxury add-on, is propelling the market growth. Besides this, the intensifying competition among automakers to differentiate their products is driving the inclusion of advanced HVAC features, such as multi-zone climate control. Furthermore, the advent of electric and hybrid passenger cars, which rely less on engine heat for warming the vehicle, necessitating the inclusion of efficient HVAC systems, is contributing to the market growth.

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

Asia Pacific exhibits a clear dominance, accounting for the largest automotive HVAC system market share

The market research report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, Asia Pacific accounted for the largest market share.

The Asia Pacific region is currently dominating the market due to industrialization and urbanization, which is fueling a massive demand for automobiles, thereby driving the need for advanced HVAC systems. Furthermore, the region hosts some of the world's largest automotive manufacturers, creating a localized supply chain advantage that can rapidly meet demand and innovate. Besides this, the emerging middle class in the Asia Pacific, which is increasingly seeking vehicles with added comfort features, including effective HVAC systems, is propelling the market growth. Additionally, the prevalence of extreme weather conditions in certain parts of the region, such as hot summers, making HVAC systems a near-essential feature for consumers is supporting the market growth. Moreover, the active investment in research and development (R&D) by regional players, focusing on energy-efficient and smart HVAC solutions compatible with the global push toward electric and smart vehicles, is contributing to the market growth.

Competitive Landscape:

The leading players in the automotive HVAC system market are currently focusing on innovation and technology integration to stay competitive. They are investing in research and innovation to create more efficient, eco-friendly, and smart HVAC systems. Furthermore, companies are also exploring partnerships and collaborations

with tech firms to integrate Internet of Things (IoT) capabilities into their HVAC systems, allowing for more personalized user experiences and remote diagnostics. Besides this, they are working to develop HVAC systems that use eco-friendly refrigerants, have lower emissions, and are more energy-efficient. Moreover, leading manufacturers are also expanding their geographical footprint through mergers, acquisitions, and establishing new manufacturing facilities in emerging markets, which allows them to capitalize on local demand while also diversifying their supply chain operations.

The market research report has provided a comprehensive analysis of the competitive landscape. Detailed profiles of all major companies have also been provided. Some of the key players in the market include:

Denso Corporation
Hanon Systems
Highly Marelli
Japan Climate Systems Corporation
Johnson Electric Holdings Limited
Mahle GmbH
Mitsubishi Heavy Industries Ltd
Sanden Corporation
Sensata Technologies Inc
Valeo

(Please note that this is only a partial list of the key players, as the complete list is provided in the report.)

Recent Developments:

In August 2021, Valeo introduced a new heat pump for EVs that uses natural refrigerant and acquires two-thirds of its energy demand from ambient air.

In November 2021, Hanon Systems launched two new facilities, which will provide manufacturing space and accommodate equipment and testing for automotive air conditioning lines.

In September 2022, Denso launched Everycool, a cooling system for commercial vehicles that improves cooling efficiency and reduces environmental impact.

Key Questions Answered in This Report

1. What was the size of the global automotive HVAC system market in 2023?
2. What is the expected growth rate of the global automotive HVAC system market during 2024-2032?

3. What has been the impact of COVID-19 on the global automotive HVAC system market?
4. What are the key factors driving the global automotive HVAC system market?
5. What is the breakup of the global automotive HVAC system market based on the component?
6. What is the breakup of the global automotive HVAC system market based on the technology?
7. What is the breakup of the global automotive HVAC system market based on the vehicle type?
8. What are the key regions in the global automotive HVAC system market?
9. Who are the key players/companies in the global automotive HVAC system market?

Contents

1 PREFACE

2 SCOPE AND METHODOLOGY

- 2.1 Objectives of the Study
- 2.2 Stakeholders
- 2.3 Data Sources
 - 2.3.1 Primary Sources
 - 2.3.2 Secondary Sources
- 2.4 Market Estimation
 - 2.4.1 Bottom-Up Approach
 - 2.4.2 Top-Down Approach
- 2.5 Forecasting Methodology

3 EXECUTIVE SUMMARY

4 INTRODUCTION

- 4.1 Overview
- 4.2 Key Industry Trends

5 GLOBAL AUTOMOTIVE HVAC SYSTEM MARKET

- 5.1 Market Overview
- 5.2 Market Performance
- 5.3 Impact of COVID-19
- 5.4 Market Forecast

6 MARKET BREAKUP BY COMPONENT

- 6.1 Evaporator
 - 6.1.1 Market Trends
 - 6.1.2 Market Forecast
- 6.2 Compressor
 - 6.2.1 Market Trends
 - 6.2.2 Market Forecast
- 6.3 Condensor

- 6.3.1 Market Trends
- 6.3.2 Market Forecast
- 6.4 Receiver-drier
 - 6.4.1 Market Trends
 - 6.4.2 Market Forecast
- 6.5 Expansion Valve
 - 6.5.1 Market Trends
 - 6.5.2 Market Forecast
- 6.6 Others
 - 6.6.1 Market Trends
 - 6.6.2 Market Forecast

7 MARKET BREAKUP BY TECHNOLOGY

- 7.1 Automatic
 - 7.1.1 Market Trends
 - 7.1.2 Market Forecast
- 7.2 Manual
 - 7.2.1 Market Trends
 - 7.2.2 Market Forecast

8 MARKET BREAKUP BY VEHICLE TYPE

- 8.1 Passenger Car
 - 8.1.1 Market Trends
 - 8.1.2 Market Forecast
- 8.2 Commercial Vehicle
 - 8.2.1 Market Trends
 - 8.2.2 Market Forecast
- 8.3 Electric Vehicle
 - 8.3.1 Market Trends
 - 8.3.2 Market Forecast

9 MARKET BREAKUP BY REGION

- 9.1 North America
 - 9.1.1 United States
 - 9.1.1.1 Market Trends
 - 9.1.1.2 Market Forecast

- 9.1.2 Canada
 - 9.1.2.1 Market Trends
 - 9.1.2.2 Market Forecast
- 9.2 Asia-Pacific
 - 9.2.1 China
 - 9.2.1.1 Market Trends
 - 9.2.1.2 Market Forecast
 - 9.2.2 Japan
 - 9.2.2.1 Market Trends
 - 9.2.2.2 Market Forecast
 - 9.2.3 India
 - 9.2.3.1 Market Trends
 - 9.2.3.2 Market Forecast
 - 9.2.4 South Korea
 - 9.2.4.1 Market Trends
 - 9.2.4.2 Market Forecast
 - 9.2.5 Australia
 - 9.2.5.1 Market Trends
 - 9.2.5.2 Market Forecast
 - 9.2.6 Indonesia
 - 9.2.6.1 Market Trends
 - 9.2.6.2 Market Forecast
 - 9.2.7 Others
 - 9.2.7.1 Market Trends
 - 9.2.7.2 Market Forecast
- 9.3 Europe
 - 9.3.1 Germany
 - 9.3.1.1 Market Trends
 - 9.3.1.2 Market Forecast
 - 9.3.2 France
 - 9.3.2.1 Market Trends
 - 9.3.2.2 Market Forecast
 - 9.3.3 United Kingdom
 - 9.3.3.1 Market Trends
 - 9.3.3.2 Market Forecast
 - 9.3.4 Italy
 - 9.3.4.1 Market Trends
 - 9.3.4.2 Market Forecast
 - 9.3.5 Spain

- 9.3.5.1 Market Trends
- 9.3.5.2 Market Forecast
- 9.3.6 Russia
 - 9.3.6.1 Market Trends
 - 9.3.6.2 Market Forecast
- 9.3.7 Others
 - 9.3.7.1 Market Trends
 - 9.3.7.2 Market Forecast
- 9.4 Latin America
 - 9.4.1 Brazil
 - 9.4.1.1 Market Trends
 - 9.4.1.2 Market Forecast
 - 9.4.2 Mexico
 - 9.4.2.1 Market Trends
 - 9.4.2.2 Market Forecast
 - 9.4.3 Others
 - 9.4.3.1 Market Trends
 - 9.4.3.2 Market Forecast
- 9.5 Middle East and Africa
 - 9.5.1 Market Trends
 - 9.5.2 Market Breakup by Country
 - 9.5.3 Market Forecast

10 SWOT ANALYSIS

- 10.1 Overview
- 10.2 Strengths
- 10.3 Weaknesses
- 10.4 Opportunities
- 10.5 Threats

11 VALUE CHAIN ANALYSIS

12 PORTERS FIVE FORCES ANALYSIS

- 12.1 Overview
- 12.2 Bargaining Power of Buyers
- 12.3 Bargaining Power of Suppliers
- 12.4 Degree of Competition

12.5 Threat of New Entrants

12.6 Threat of Substitutes

13 PRICE ANALYSIS

14 COMPETITIVE LANDSCAPE

14.1 Market Structure

14.2 Key Players

14.3 Profiles of Key Players

14.3.1 Denso Corporation

14.3.1.1 Company Overview

14.3.1.2 Product Portfolio

14.3.1.3 Financials

14.3.1.4 SWOT Analysis

14.3.2 Hanon Systems

14.3.2.1 Company Overview

14.3.2.2 Product Portfolio

14.3.2.3 Financials

14.3.3 Highly Marelli

14.3.3.1 Company Overview

14.3.3.2 Product Portfolio

14.3.4 Japan Climate Systems Corporation

14.3.4.1 Company Overview

14.3.4.2 Product Portfolio

14.3.5 Johnson Electric Holdings Limited

14.3.5.1 Company Overview

14.3.5.2 Product Portfolio

14.3.5.3 Financials

14.3.5.4 SWOT Analysis

14.3.6 Mahle GmbH

14.3.6.1 Company Overview

14.3.6.2 Product Portfolio

14.3.6.3 SWOT Analysis

14.3.7 Mitsubishi Heavy Industries Ltd

14.3.7.1 Company Overview

14.3.7.2 Product Portfolio

14.3.7.3 Financials

14.3.7.4 SWOT Analysis

- 14.3.8 Sanden Corporation
 - 14.3.8.1 Company Overview
 - 14.3.8.2 Product Portfolio
 - 14.3.8.3 Financials
- 14.3.9 Sensata Technologies Inc
 - 14.3.9.1 Company Overview
 - 14.3.9.2 Product Portfolio
- 14.3.10 Valeo
 - 14.3.10.1 Company Overview
 - 14.3.10.2 Product Portfolio
 - 14.3.10.3 Financials
 - 14.3.10.4 SWOT Analysis

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