Business Overview

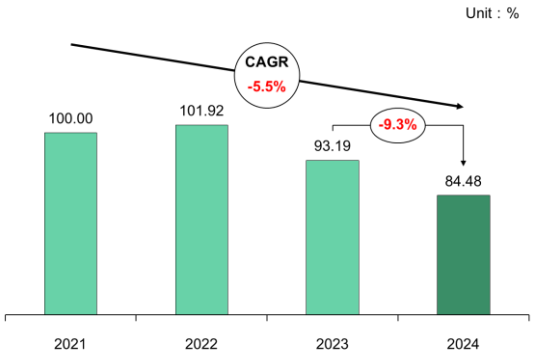
- **Automotive HVAC (Heating, Ventilation, and Air Conditioning) components are the various parts of a vehicle's air conditioning system that control the temperature, humidity, and air quality inside the passenger compartment. This system consists of several critical components that work in harmony.** One of the key components is the Compressor, which pressurizes the refrigerant. From there, the high-pressure refrigerant flows through the Condenser, which removes heat from the refrigerant. It then passes to the Expansion valve, which regulates the flow and reduces the pressure of the refrigerant. The refrigerant then enters the Evaporator, where hot air from the cabin is cooled as it absorbs heat. In addition, the Receiver-dryer filters contaminants and removes moisture from the refrigerant, while the blower fan distributes cool air throughout the cabin. All of these components are connected by hoses and lines that are divided into high pressure, low pressure, and liquid lines. This intricate system allows the HVAC system to operate efficiently and ensure passenger comfort in all weather conditions.

- Thailand's automotive HVAC components industry is currently undergoing a period of adjustment to accommodate the transition to electric vehicles (EVs) and the demand for high-efficiency air conditioning systems. This shift is further influenced by government policies aimed at establishing the country as an ASEAN EV Hub. These factors are driving the development of new HVAC systems designed to integrate with the battery structures and electrical systems of modern vehicles. Consequently, the expansion of both domestic and international markets for vehicles, automotive components, and machinery parts are among the major factors driving the growth of the automotive HVAC components and machinery parts industry.

Overview of Thailand's Manufacturing and Export of Automotive HVAC components

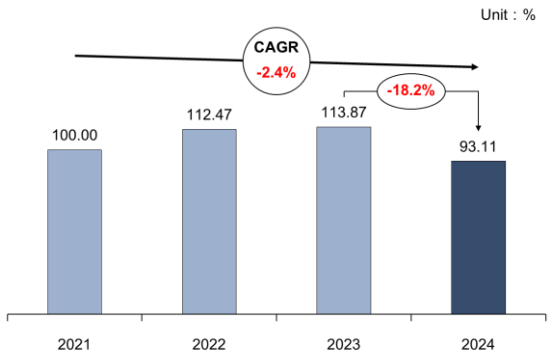
- **Thailand's production of automotive HVAC components can be estimated from the production of vehicles and automotive parts. According to the Manufacturing Production Index (MPI) of the Office of Industrial Economics (OIE) in the category of manufacturing parts and accessories for motor vehicles, production decreased by 9.3%YoY in 2024. Considering the period from 2021 to 2024, production decreases by about 5.5%CAGR, which is in line with the industrial production index in the category of motor vehicles, which decreases by 18.2%YoY in 2024 and about 2.4%CAGR from 2021 to 2024. This reflects a decline in domestic demand in the auto parts market.** The main factors contributing to the contraction of the automotive parts industry are the slowdown in the domestic economy, especially the high household debt and reduced consumer purchasing power, which resulted in a significant decline in domestic car sales. In addition, stricter lending policies by financial institutions and high interest rates have further delayed consumers' car purchase decisions. **As a result, the production trend of automotive HVAC components may tend to decline in the short to medium term.** However, manufacturers that can adapt and innovate to meet the demands of the electric and intelligent vehicle markets may have growth opportunities in the future, especially for high-efficiency and more environmentally friendly air conditioning systems.

Figure 1 MPI for the Automotive Parts and Accessories Sector



Source: LH Bank Business Research Analysis based on data from OIE.

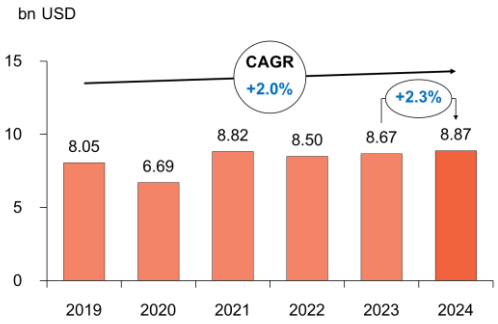
Figure 2 MPI for the Automotive Manufacturing Sector



Source: LH Bank Business Research Analysis based on data from OIE.

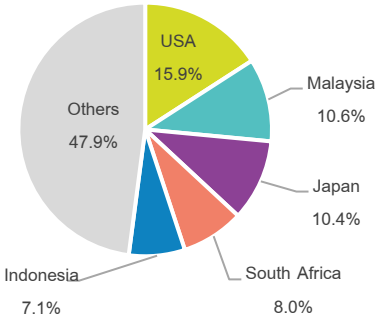
- **Thailand's export of Automotive HVAC components can be estimated from the trend of automotive parts exports. Data on Thailand's automotive parts and accessories exports from 2019 to 2024 show an increase of about 2.0%CAGR, with the export value growing by about 2.3%YoY in 2024. The major export markets are the United States (15.9% share), followed by Malaysia (10.6%) and Japan (10.4%), indicating the increasing demand in the automotive parts market. This expanding trend in automotive parts and accessories exports reflects potential growth opportunities for Thailand's Automotive HVAC components exports.** The expansion in major export markets such as the US, Malaysia and Japan indicates increasing demand in key markets with high purchasing power. In addition, the global growth trend in the electric vehicle (EV) industry is an important supporting factor as HVAC systems remain critical components in EVs and may see increased demand to accommodate new technologies such as battery thermal management. Thailand's internationally recognized manufacturing capabilities and expertise in automotive parts provide a competitive advantage in efficiently meeting global market demands.
- **However, Thailand faces significant challenges from U.S. trade policy, particularly the announcement of import tariffs on automotive-related goods. President Trump has announced his intention to impose import tariffs of approximately 25% on automobiles and automotive parts, which could have a significant impact on the global automotive industry, including Thailand's Automotive HVAC parts exports.** The impact could be both direct and indirect as Thailand is part of the global automotive supply chain, especially in exporting parts to countries that may be directly affected, such as Japan. Therefore, Thai manufacturers should closely monitor the situation and prepare contingency plans to manage the uncertainties of US trade policy to maintain competitiveness.

Figure 3 Export Value of Thai Automotive Parts and Accessories



Source: LH Bank Business Research Analysis based on data from MOC.

Figure 4 Export Destinations of Automotive Parts and Accessories in 2024

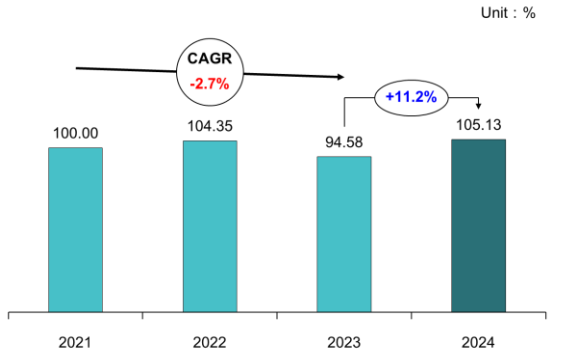


Source: LH Bank Business Research Analysis based on data from MOC.

Overview of Thailand's Manufacturing and Export of Machinery parts

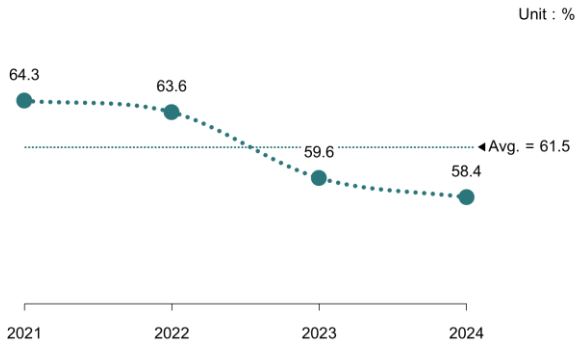
- **As for the manufacture of machinery parts in Thailand, it can be estimated from the overall manufacture of machinery and equipment. According to the Manufacturing Production Index (MPI) data for the machinery and equipment manufacturing sector in 2024, there was an expansion of 11.2%YoY. This trend shows a significant recovery compared to the previous three years (2021-2023), which saw a decrease of about 2.7%CAGR,** reflecting increased demand in the overall machinery and equipment market. The recovery in Thailand's machinery and equipment production can be attributed to several key factors. First, there has been a revival in both domestic and international demand, particularly in industries that rely on machinery and equipment as production inputs, supported by growth in the construction sector and exports. In addition, government policies to support investment, such as the BOI's investment promotion measures and large-scale infrastructure development projects, have continued to stimulate demand for machinery. In addition, the adaptation of industrial enterprises in the implementation of technology and automation in production has resulted in increased demand for modern machinery. Together, these significant factors support the continued growth of the machinery parts manufacturing business.
- **However, when considering the Capacity Utilization Rate (CAPU) of Thailand's manufacturing sector, a continuous declining trend is observed from 2021 to 2024. In 2024, the rate decreased to 58.4%, which is lower than the average of 61.5% over the past four years. This decline in capacity utilization reflects a reduction in production volume across Thai industries, which directly affects domestic machinery demand.** In considering the relationship between capacity utilization and machinery demand, the declining trend in CAPU indicates that industrial operators are likely to delay investment in new machinery. That's because the existing production capacity is not being fully utilized, and additional machinery investment would only occur when there is a need to expand production capacity or improve efficiency. In the current situation of declining capacity utilization, companies may focus on improving the efficiency of existing machinery or opt for maintenance rather than purchasing new equipment. **As a result, demand for machinery tends to decline in line with this trend. Declining capacity utilization is a factor that may limit the growth potential of the machinery parts business.**

Figure 5 MPI for the Machinery and Equipment Manufacturing Sector



Source: LH Bank Business Research Analysis based on data from OIE.

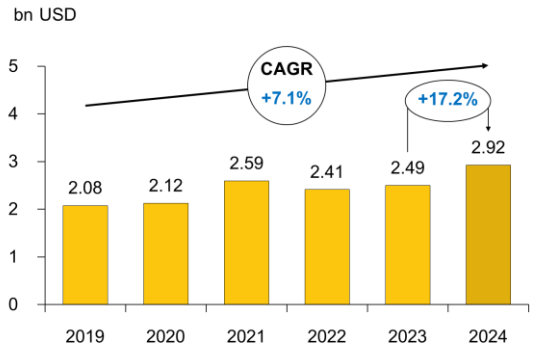
Figure 6 MPI for the Overall Manufacturing Sector



Source: LH Bank Business Research Analysis based on data from OIE.

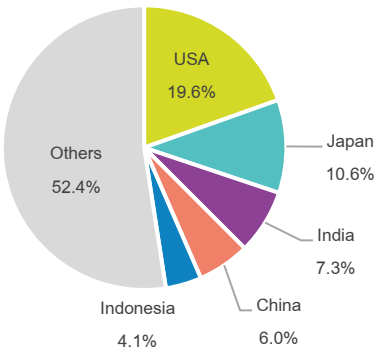
- **Thailand's exports of machinery parts can be estimated from the country's exports of machinery and components. Data on Thailand's machinery and components exports from 2019 to 2024 show an increase of about 7.1%CAGR, with the export value growing by about 17.2%YoY in 2024. The main export destinations are the United States (19.6% share), followed by Japan (10.6%) and India (7.3%), respectively.** This continuous expansion trend in machinery and components exports reflects the potential and competitiveness of Thailand's machinery industry in the global market. Thailand's advantage in producing internationally recognized quality standards makes its machinery and parts highly sought after in foreign markets. In addition, Thailand's free trade agreements with various countries and regions, as well as its membership in the ASEAN Economic Community, continue to enhance market expansion opportunities and strengthen the country's machinery parts export industry in the long term. **However, challenges remain with regards U.S. import tariffs, as machinery and components are among the product groups affected by increased U.S. import taxes.**

Figure 7 Export Value of Thai Machinery and Components



Source: LH Bank Business Research Analysis based on data from MOC.

Figure 8 Export Destinations of Machinery and Components in 2024

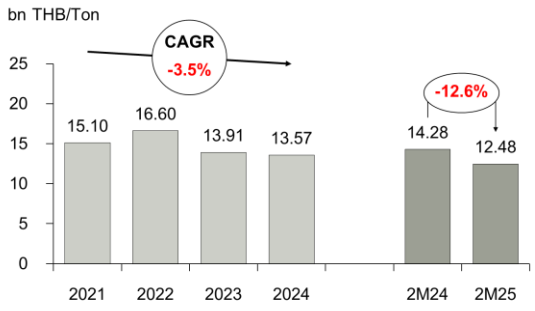


Source: LH Bank Business Research Analysis based on data from MOC.

Overview of production costs for Automotive HVAC components and Machinery parts

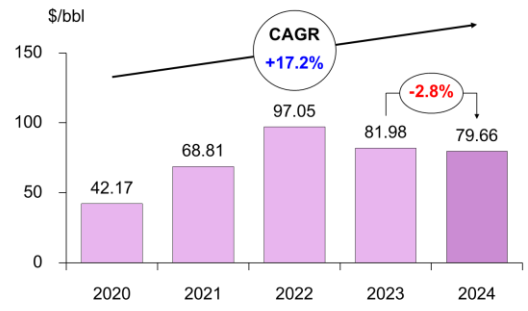
- **The production of Automotive HVAC components and machinery parts primarily uses key raw materials such as metals, consisting of approximately 60% steel and cast iron, 10% aluminum, and other materials (including rubber, polymers, titanium, composites, and refrigerants for HVAC systems). As a result, manufacturing costs are highly dependent on the price of these raw materials, particularly steel. In addition, the production of these components, as well as steel prices, is affected by energy cost trends. According to statistics from the Iron and Steel Institute, in the first two months of 2025, the price of steel scrap fell by 12.6%YoY, continuing the declining trend from the period 2021-2024, which saw a decline of approximately 3.5%CAGR. This is consistent with the declining trend in global energy prices, as evidenced by the average price of crude oil (Dubai) on the world market, which decreased by 2.8% YoY in 2024.** These trends indicate that the production costs of automotive HVAC components and machinery parts are likely to benefit from the downward trend in steel and energy prices. This positive development allows manufacturers of automotive HVAC components and machinery parts to maintain their profit margins.

Figure 9 Export Value of Thai Machinery and Components



Source: LH Bank Business Research Analysis based on data from Iron & Steel Intelligence Unit.

Figure 10 Export Destinations of Machinery and Components in 2024



Source: LH Bank Business Research Analysis based on data from World Bank Commodity Price.

Business Outlook

- **Thailand's Automotive HVAC Components and Machinery parts manufacturing industry is expected to experience limited growth in the coming year as it faces several challenges. The production of Automotive HVAC components will be affected by the declining trend in the automotive and automotive parts manufacturing industry,** which reflects the reduced domestic demand due to the economic slowdown, high household debt, and reduced consumer purchasing power. **In addition, exports of automotive components and accessories may expand only moderately as they are likely to be affected by U.S. tariffs on automotive-related goods.**
- **In terms of demand for machinery parts, although there is a positive growth trend in exports of machinery parts and components, especially to key international markets such as the United States, Malaysia and Japan, significant challenges remain. A major concern is the U.S. trade policy affecting exports, especially the announcement of import tariffs on machinery and components.** Therefore, Thai

manufacturers need to closely monitor the global trade situation and adjust their business strategies to cope with uncertainties that may arise from the trade policies of major powers. **In addition, the demand for machinery parts is also affected by the declining Capacity Utilization Rate (CAPU) in the Thai manufacturing sector. This decline may cause manufacturers to slow down their investment in new machinery as the existing production capacity is not fully utilized.**

- **However, the industry has the potential to benefit from significant drivers, including the growing trend of the electric vehicle (EV) industry. This trend creates important opportunities for adaptable manufacturers of Automotive HVAC components and machinery parts and increases demand for highly efficient and environmentally friendly HVAC systems. In addition, the declining trend in the prices of key raw materials and energy is helping manufacturers to better control costs, which has a positive impact on profitability. In addition, the BOI's investment promotion policies, which focus on supporting joint ventures between Thai and foreign companies in the automotive parts manufacturing sector, are a key factor in strengthening the industry.** Nevertheless, manufacturers need to invest in research and development of new technologies and adapt to stricter environmental standards to maintain long-term competitiveness.

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