Industry Research (/ibisworld) > Heating & Air Conditioning Equipment Manufacturing in the US IBISWorld

Last Updated: Aug 23, 2024
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Industry at a Glance

KEY STATISTICS

P

3,404 $ million
PROFIT

CAGR:
2005 - 2024
0.54 %

P

6.50 %
PROFIT MARGIN

CAGR:
2005 - 2024
1.08 %

R

52,362 $ million
REVENUE

CAGR:
2005 - 2024

PROJECTED:
2024 - 2030

-0.54 %

2.77 %

E

1,317 Units

ENTERPRISES

CAGR:
2005 - 2024
-0.78 %

PROJECTED:
2024 - 2030
0.77 %

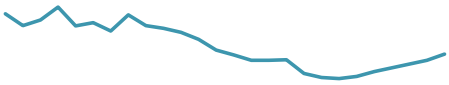
E

1,604 Units

ESTABLISHMENTS

CAGR:
2005 - 2024
-0.73 %

PROJECTED:
2024 - 2030
0.92 %



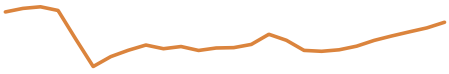
E

127,176 Units

EMPLOYMENT

CAGR:
2005 - 2024
-0.81 %

PROJECTED:
2024 - 2030
1.92 %



W

8,564 $ million

WAGES

CAGR:
2005 - 2024
-0.21 %

PROJECTED:
2024 - 2030
2.09 %

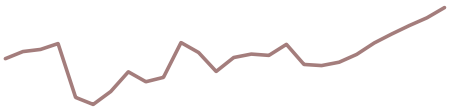
I

12,654 $ million

IVA

CAGR:
2005 - 2024
-0.05 %

PROJECTED:
2024 - 2030
2.51 %



I

24,689 $ million

IMPORTS

CAGR:
2005 - 2024
4.43 %

PROJECTED:
2024 - 2030
1.61 %

E

7,916 $ million

EXPORTS

CAGR:
2005 - 2024
-0.64 %

PROJECTED:
2024 - 2030
3.45 %

Figures have been adjusted for inflation and are presented in 2024 currency.

EXECUTIVE SUMMARY

Heating and air conditioning manufacturing produces residential, commercial and industrial heating, ventilation, air conditioning and refrigeration (HVACR) equipment. Rock-bottom interest rates in 2020 and rising per capita disposable income supported residential construction activity, bolstering industry sales. As disposable income increased, consumers had more funds to invest in home improvements, including HVACR upgrades. The value of private nonresidential construction, a significant market for new HVACR equipment, has been hampered by reduced

demand for commercial space since the pandemic. Rising interest rates and prices have weighed on HVACR equipment sales growth, contributing to an expected cooling in downstream markets. Industry revenue is forecast to drop at a CAGR of 0.1% to $52.4 billion through the end of 2024, with a 1.2% climb expected during 2024 as renovation and building activity continue to expand.

A widening trade gap has tempered opportunities for revenue expansion, as major global HVACR manufacturers have expanded their production facilities in countries with low labor costs. Imported HVACR products have increased, while industry exports have declined over the past five years. This trade gap has also been exacerbated by an appreciation of the US dollar, which makes industry exports relatively more expensive and less attractive to buyers overseas. Lower-cost imports have prevented domestic manufacturers from expanding profit.

Manufacturers will benefit from recovering nonresidential construction activity over the next five years, boosting spending on HVACR installations, upgrades and retrofits. Continued growth in consumer spending is also expected to drive demand for industry products, especially among downstream industries. Energy-efficiency improvements will encourage sales, as the inherent cost savings are expected to raise equipment replacement rates. Revenue is forecast to climb at a CAGR of 2.8% to $60.0 billion through the end of 2029.

CURRENT PERFORMANCE

RESIDENTIAL CONSTRUCTION DEMAND, A LYNCHPIN OF THE INDUSTRY, BOOMS

Manufacturers benefited from the rising value of residential construction as the Federal Reserve lowered interest rates in response to the pandemic. By the outset of 2022, interest rates were at historic lows and residential demand boomed.
Aided by historically low interest rates, housing starts, which measure the number of new, privately owned housing units built, increased rapidly in the years following the pandemic's start.
Consistent growth in disposable income has also made consumers more willing to spend on remodeling projects, including the replacement of air conditioners and heaters.
More recently, the sharp rise in inflation has caused the Federal Reserve to rapidly increase interest rates. The sharp rise in interest rates since the middle of 2022 has reduced housing demand, thereby undercutting the need for HVACR equipment.

PANDEMIC DISRUPTIONS UNDERCUT COMMERCIAL DEMAND IN 2020

The construction market is key to the industry's performance, comprising the largest segment of residential, commercial and industrial heating, ventilation, air conditioning and refrigeration (HVACR) demand.
HVACR products are installed in new building projects to provide heating and air conditioning, regulate climate conditions, refrigerate inventories and provide ventilation for commercial venues.
Nonresidential investment fell due to the widespread slowdown in economic activity stemming from the pandemic. This undercut the demand for HVACR products from commercial clients.
The industry hinges on demand from contractors that install and repair climate control systems in new construction and renovation projects, which declined across virtually all commercial segments throughout the pandemic.

MANUFACTURERS ADAPT TO STRINGENT ENERGY EFFICIENCY REGULATIONS

Rising concerns about climate change have filtered down to the industry. Regulations designed to improve energy efficiency have become more stringent, forcing manufacturers to innovate.
In 2006, a minimum efficiency standard for new central air conditioning systems was set and air conditioners and heat pumps are now rated on a seasonal energy-efficiency ratio (SEER).
HVACR units with a greater heating or cooling output per unit of energy consumption receive a higher SEER rating. Consumers interested in reducing energy consumption, both for environmental concerns and to reduce energy costs, are drawn to these higher-rated products.
New air conditioning systems have been subject to rising SEER requirements, with the minimum SEER slated to climb from 13 to 14 beginning in 2023.

THE INDUSTRY HAS BECOME INCREASINGLY GLOBALIZED

The HVACR industry has become ever more globalized, with international trade growing in importance over the past two decades. Today, many of the industry's leading domestic brands manufacture products abroad before importing them into the United States.
Import growth has far outpaced export growth over the past decade, with imports expected to account for nearly a third of all domestic demand in 2023.

Mexico and China are the largest sources of HVACR imports, generating nearly two-thirds of all industry import revenue. HVACRs manufactured in both countries benefit from lower labor costs and the extensive production capacity developed in Mexican and Chinese plants.

HVACRs manufactured in the United States are primarily intended for markets in Canada and Mexico, as countries in North America benefit from free trade agreements. These countries are likewise better able to absorb the comparatively higher wage costs of products manufactured domestically.

FUTURE OUTLOOK

RISING INTEREST RATES SLOW DOWN RESIDENTIAL EXPANSION

Nonresidential construction activity is anticipated to expand over the next five years, signaling an increase in demand for heating, ventilation, air conditioning and refrigeration (HVACR) equipment.

While the Federal Reserve slashed rates in response to the pandemic, it has increased the pace of rate hikes as inflation rose. Higher-than-anticipated rate hikes have caused mortgage rates to rapidly increase, tempering construction activity.

As a result, the growth in the value of residential construction will be limited over the next five years, limiting demand for HVACR installations and upgrades.

COMMERCIAL MARKETS SLATED TO REBOUND

Steady per capita disposable income growth and higher consumer spending are anticipated to increase spending at restaurants and other food service businesses in the future.

Growth in restaurants and other food service businesses is expected to stimulate further demand for refrigeration equipment, such as walk-in coolers and refrigerated display cases.

Commercial construction, which came to a halt during the pandemic, is expected to generate demand as businesses upgrade refrigeration for inventories and provide ventilation for commercial venues.

GLOBALIZATION WILL PROVIDE NEW AVENUES FOR EXPORTED HVACR EQUIPMENT

Export opportunities will remain strong moving forward, primarily focused on North American markets because of their proximity. The strengthening of free trade

agreements will continue to cement Canada and Mexico as the primary industry export markets.
Higher anticipated consumer spending will encourage domestic manufacturing moving forward. This will ultimately keep leading manufacturers focused on domestic opportunities, with American-made products exported abroad.
Large global manufacturers seeking to avoid increased costs of shipping HVACR equipment are expected to maintain their domestic manufacturing footprint by keeping facilities within the United States.
Exports are slated to rise to nearly one-fifth of total revenue moving forward, generating more than $10.0 billion in revenue for domestically produced HVACR units.

IN A GLOBALIZING MARKETS, IMPORTS WILL CONTINUE TO FLOW INTO THE US

Imported HVACR products will continue to flow into domestic markets as demand for new products, both as a result of greater construction and the desire to upgrade to the latest energy-efficient units and fuel spending.
Like exported goods, imports will flow from existing plants in Mexico and Canada as a result of their proximity and free trade benefits. Mexico alone accounts for nearly a third of all imports.
However, the lower labor costs in countries like Mexico will also encourage imports from countries where labor costs are even lower, like China. HVACR products manufactured in China have already grown to account for nearly a third of all imported industry products.
With the pace of imports expected to remain strong, the industry's trade balance will become increasingly lopsided. By 2028, imports will approach 40.0% of domestic demand.

INDUSTRY DEFINITION

Companies in this industry manufacture residential, commercial and industrial heating, ventilation, air conditioning and refrigeration (HVACR) equipment. Industry revenue includes miscellaneous receipts for the resale of products without further manufacturing, contract work done for others on respective items and acknowledgments for repair, scrap and refuse sales. Automotive units are excluded from this industry.

INDUSTRY IMPACT

POSITIVE IMPACT

Capital Intensity Level
low

MIXED IMPACT

Life Cycle Stage
mature

SWOT ANALYSIS

S

STRENGTHS

High Profit vs. Sector Average

Low Capital Requirements

W

WEAKNESSES

High Imports

High Customer Class Concentration

High Product/Service Concentration

Low Revenue per Employee

O

OPPORTUNITIES

High Revenue Growth (2019-2024)

High Revenue Growth (2024-2029)

High Performance Drivers

Value of private nonresidential construction

T

THREATS

Low Revenue Growth (2005-2024)

Low Outlier Growth

Value of residential construction

KEY TRENDS

The industry has high barriers to entry. High capital costs and brand recognition limit smaller manufacturers from competing with larger, more established players. This dynamic preserves market dominance for big companies.

Imports are increasing competitive pressure on domestic goods. Products manufactured abroad are cheaper due to lower labor costs. This price disparity is forcing local businesses to find new ways to stay competitive.

Higher interest rates and prices have begun to weigh on industry demand. The sharp rise in rates since mid-2022 has reduced housing demand, undercutting the need for HVACR equipment. Industry impacts are becoming increasingly evident.

The pandemic-driven surge in renovation and construction boosted HVACR equipment spending. Strong residential construction spurred demand for climate control systems. This trend highlights the significant impact of pandemic-era home improvement activities on the HVACR industry.

Market share has become more concentrated over the past decade. The largest companies boast recognizable brands known for their quality. This brand strength helps maintain its dominance in the industry.

Market share has become more concentrated over the past decade. Trane Technologies, Carrier Global, and Johnson Controls generate nearly half of all industry revenue. Their established brands are synonymous with quality, ensuring continued dominance.

The construction industry's cyclical nature directly affects its suppliers. Due to ongoing system replacements, stable long-term demand persists. This consistent need mitigates some effects of construction market fluctuations.

Manufacturers will eliminate ozone-depleting chlorofluorocarbons by 2030. These pollutants have been phased out gradually to protect the ozone layer. This move aligns with global environmental regulations and sustainability goals.

Despite rising demand, profitability has barely budged. Volatile input costs are squeezing margins and companies are struggling to increase profits

despite fluctuating prices for essential materials.

Purchases constitute the largest part of industry spending. Rising input costs have largely been passed on to downstream markets. Businesses are managing these increased costs by adjusting their pricing structures accordingly.

Manufacturers are concentrated in population centers and industrial hubs. The Southeast and Great Lakes regions host the most significant number of industry operators. These areas benefit from robust infrastructure and access to skilled labor.

Businesses are drawn to the Southeast due to tax savings. New manufacturers are particularly attracted by the ability to avoid sales taxes. This region's favorable tax environment is driving its industrial growth.

Looser financial conditions spurred residential construction. The housing boom driven by low interest rates in 2020 increased demand for HVAC and refrigeration products, significantly impacting the market over the past five years.

Industrial construction is poised for a rebound. New demand from commercial clients, previously slowed by the pandemic, will drive the need for industry products. This resurgence highlights the sector's recovery and growing business opportunities.

Supply Chain

EXTERNAL DRIVERS

V

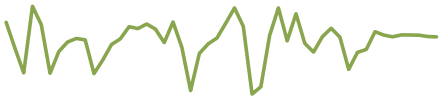
VALUE OF PRIVATE NONRESIDENTIAL CONSTRUCTION

Demand for industry products is linked to new building construction, as new commercial and retail facilities require installing new heating and air conditioning equipment. As a result, demand for industry products moves in line with construction markets. Growth in the value of private nonresidential construction represents a potential opportunity for the industry.

CAGR: **PROJECTED:**

1980 - 2024
0.30 %

2024 - 2030
2.94 %



V

VALUE OF RESIDENTIAL CONSTRUCTION

Residential construction is a key market for industry products because new homes are typically built with various related systems. As a result, an increase in housing construction typically boosts demand for a variety of HVACR products. Contractions in the value of residential construction poses a potential threat to the industry.

CAGR:
1980 - 2024
1.91 %

PROJECTED:
2024 - 2030
3.01 %

T

TRADE-WEIGHTED INDEX

The trade-weighted index (TWI) represents the strength of the US dollar relative to the currencies of its major trading partners. Industry exports make up less than one-fifth of industry revenue. An appreciating dollar can make imported goods more attractive to domestic consumers, while exports become relatively more expensive for foreign buyers.

CAGR:
1980 - 2024
0.52 %

PROJECTED:
2024 - 2030
-2.43 %

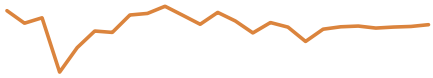
D

DEMAND FROM HEATING AND AIR-CONDITIONING CONTRACTORS

Contractors primarily install and service heating and air conditioning equipment through new installations, additions, maintenance or repair of residential and commercial properties. As contractors' workloads increase in response to new construction and the renovation of existing properties, demand for a range of heating and air conditioning equipment rises in turn.

CAGR:
2005 - 2024
2.03 %

PROJECTED:
2024 - 2030
2.00 %



D

DEMAND FROM REFRIGERATION EQUIPMENT WHOLESALING

Refrigeration equipment wholesalers demand commercial refrigeration equipment from the industry's manufacturers. Wholesalers supply a range of downstream food-service clients, including restaurants, hotels, fast-food outlets, supermarkets, convenience stores, gas stations and mobile food service operators, with refrigerated trucks, display cases and storage units.

CAGR:
2005 - 2024
0.92 %

PROJECTED:
2024 - 2030
0.36 %

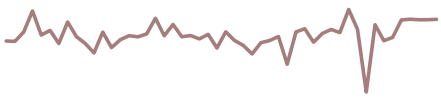
P

PER CAPITA DISPOSABLE INCOME

Per capita disposable income measures the amount of personal money available to the average consumer. This includes income from a range of sources, including salaries (HTTPS://EN.WIKIPEDIA.ORG/WIKI/SALARIES) and wages (HTTPS://EN.WIKIPEDIA.ORG/WIKI/WAGES), retirement income, near-cash government transfers like food stamps (HTTPS://EN.WIKIPEDIA.ORG/WIKI/SUPPLEMENTAL_NUTRITION_ASSISTANCE_PROGRAI and investment (HTTPS://EN.WIKIPEDIA.ORG/WIKI/INVESTMENT) gains. When Americans' disposable income rises, so does their ability to spend on HVACR products.

CAGR:
1980 - 2024
1.83 %

PROJECTED:
2024 - 2030
4.03 %



SUPPLY CHAIN

TIER 1 SUPPLIERS

Metal Pipe & Tube Manufacturing in the US (/ibisworld/reportkey/1/573) **Aluminum Manufacturing in the US**

(/ibisworld/reportkey/1/578) **Iron & Steel Manufacturing in the US** (/ibisworld/reportkey/1/569)

Electrical Equipment Manufacturing in the US (/ibisworld/reportkey/1/795) **Screw, Nut & Bolt Manufacturing in the US**

(/ibisworld/reportkey/1/646)

TIER 2 SUPPLIERS

Ferrous Metal Foundry Products in the US (/ibisworld/reportkey/1/597) **Navigational Instrument Manufacturing in the US**

(/ibisworld/reportkey/1/763) **Valve Manufacturing in the US** (/ibisworld/reportkey/1/655)

HEATING & AIR CONDITIONING EQUIPMENT MANUFACTURING IN THE US

TIER 1 BUYERS

Heating & Air-Conditioning Contractors in the US (/ibisworld/reportkey/1/1945) **Refrigeration Equipment Wholesaling in the US**

(/ibisworld/reportkey/1/944) **Refrigerated Storage in the US** (/ibisworld/reportkey/1/1225)

Heating & Air Conditioning Wholesaling in the US (/ibisworld/reportkey/1/943)

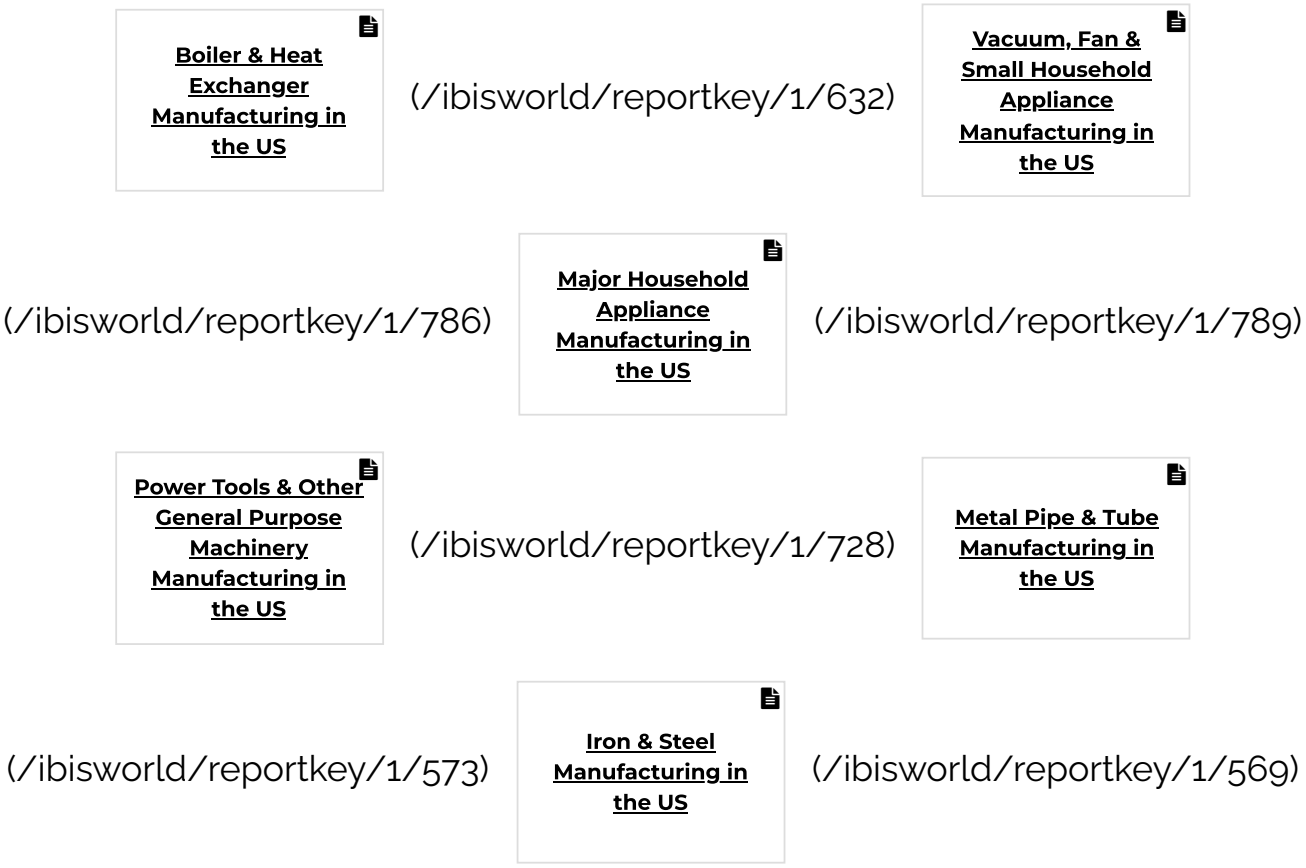
TIER 2 BUYERS

Municipal Building Construction in the US (/ibisworld/reportkey/1/1917) **Home Builders in the US**

(/ibisworld/reportkey/1/169) **Apartment & Condominium Construction in the US** (/ibisworld/reportkey/1/170)

Commercial Building Construction in the US (/ibisworld/reportkey/1/1916)

SIMILAR INDUSTRIES



RELATED INTERNATIONAL INDUSTRIES

Heating, Cooling and Ventilation Equipment Manufacturing in Australia

(/ibisworld/reportkey/61/281)

Air-Conditioner Manufacturing in China

(/ibisworld/reportkey/86/617)

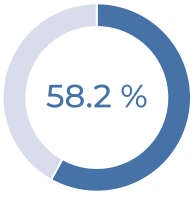
Heating & Air-Conditioning Equipment Manufacturing in Canada

(/ibisworld/reportkey/124/698)

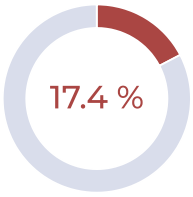
Heating, Cooling and Ventilation Equipment Manufacturing in New Zealand

(/ibisworld/reportkey/64/281)

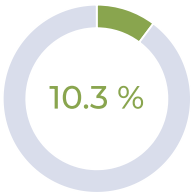
PRODUCTS & SERVICES



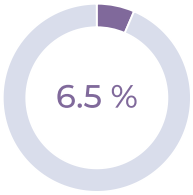
AIR CONDITIONING, WARM AIR HEATING AND REFRIGERATION EQUIPMENT



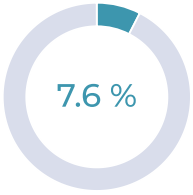
UNITARY AIR CONDITIONERS



HEATING EQUIPMENT



AIR PURIFICATION EQUIPMENT



INDUSTRIAL AND COMMERCIAL FANS AND BLOWERS

AIR CONDITIONING, WARM AIR HEATING AND REFRIGERATION EQUIPMENT

This segment includes mechanically refrigerated and self-contained heat transfer equipment, compressors and compressor units using all refrigerants, excluding automotive and commercial refrigerators and related equipment.
This segment also includes industrial heat transfer equipment, such as plate heat exchangers. As housing and construction markets grew, demand for products in this segment rose.

UNITARY AIR CONDITIONERS ARE GROWING IN DEMAND

Unitary air conditioners are made of air-to-air conditioning systems, such as residential central air conditioning systems, packaged air-to-air systems and split systems for commercial air conditioning.
Housing and construction markets have grown in response to housing needs and rock-bottom interest rates aimed at counteracting the economic challenges of the COVID-19 pandemic. As a result, demand for products in this segment rose.

HEATING EQUIPMENT FALL AS SHARE OF REVENUE DUE TO HVAC EQUIPMENT

The heating equipment segment includes domestic heating stoves; cast iron, aluminum and other nonferrous metal boilers, radiators and convectors; furnaces, heaters, mechanical stokers and parts; and steel boilers for steam or hot water that are less than or equal to 15 pounds per square inch.
The proliferation of central HVAC equipment has reduced this segment's revenue share.

INDUSTRIAL AND COMMERCIAL FANS AND BLOWERS EXPERIENCING BOLSTERED DEMAND

The major products in this segment include centrifugal, axial and propeller fans and blowers, shutters, guards and other parts and accessories.
The growth of the industrial sector has bolstered demand for related fans and blowers.

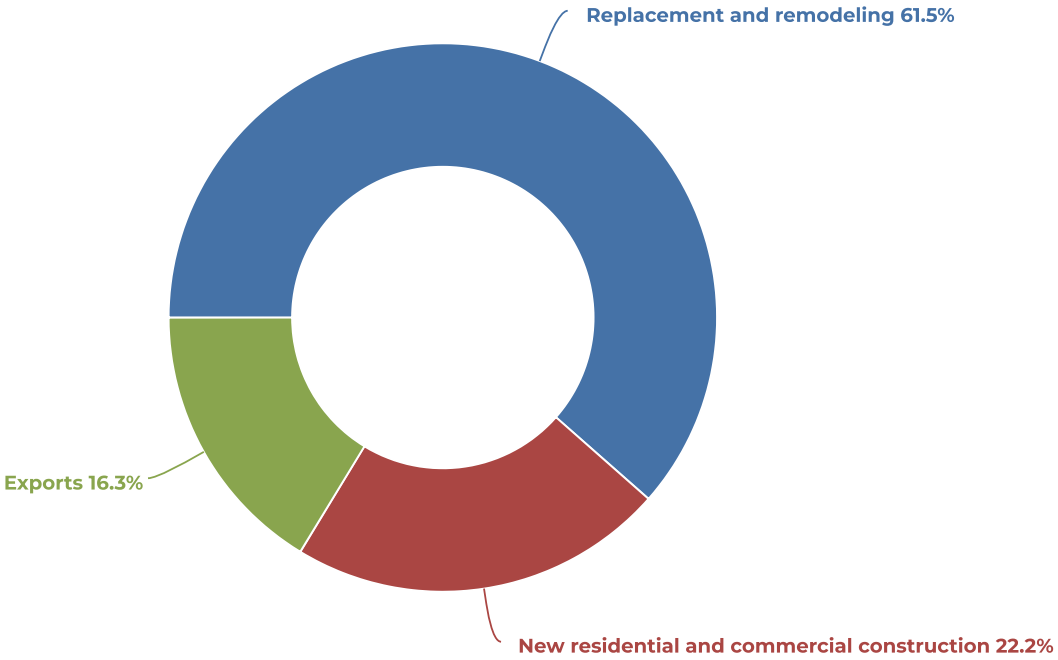
AIR PURIFICATION EQUIPMENT HAVE DECLINED AS SHARE OF REVENUE IN RECENT YEARS

This segment includes dust collection and purification equipment for industrial gasses; filters for air conditioners and furnaces; and parts for related equipment.
Revenue for this segment has declined in recent years.

DEMAND DETERMINANTS

Demand for industry products is linked to new building construction, as new commercial and retail facilities require installing new heating and air conditioning equipment. As a result, demand for industry products moves in line with construction markets. Growth in the value of private nonresidential construction represents a potential opportunity for the industry.

MARKET SEGMENTATION



REPLACEMENT AND REMODELING REPRESENT THE MAJORITY OF DEMAND

The replacement and remodeling markets are driven by consumer employment and income levels, as well as ordinary wear and tear of already installed units.
Climbing income levels positively affect consumers' private investments in home improvements, as individuals have more money to spend replacing existing units with upgraded equipment.
Ordinary wear and tear lead to the gradual obsolescence of existing equipment, spurring replacement demand. Likewise, natural disasters can result in significant

damage to existing units, spurring regional demand.
Government regulations, tax incentives and savings from replacing old systems with new energy-efficient equipment have increased consumer demand for the latest replacement equipment.

NEW RESIDENTIAL AND COMMERCIAL CONSTRUCTION CRUCIAL TO MANUFACTURERS

An increase in housing construction boosts residential customers' demand for heating and air conditioning equipment. Major nonresidential users of these products include office buildings, retail shopping centers and entertainment centers.
Rising employment, corporate profit and easy access to credit have encouraged new residential and commercial construction, translating into increased demand for the latest industry products.
However, the pandemic reduced demand from commercial customers, while recent interest rate hikes by the Federal Reserve will reduce demand for new residential construction.

EXPORTS EXPERIENCE DECLINE OVER PAST FIVE YEARS

Exports of industry equipment are relatively more expensive to consumer markets overseas as a result of the strong dollar. As the US dollar rises, exports become ever more costly.
Slower global growth, especially in emerging nations such as China, has contributed to the drop in exports. Companies have looked to establish facilities overseas, hurting domestic manufacturing.

INTERNATIONAL TRADE

IMPORTS
moderate and steady

EXPORTS
moderate and steady

STRONG US DOLLAR ENCOURAGES IMPORT GROWTH

Import penetration has increased amid a rise in the US dollar. A strong US dollar makes domestic equipment relatively more expensive than goods produced abroad.

This has helped manufacturers access the United States with goods in remote markets, counteracting high transportation costs. China has risen to the second-largest source of imports into the industry, followed by Thailand.

IMPORTS FROM MEXICO AND CHINA BENEFIT FROM LOWER COSTS

Numerous US companies have shifted manufacturing operations overseas. They seek to take advantage of lower wage costs and lighter regulations.
Mexico has strong competitive advantages because it is located near many US manufacturers and has relatively low labor costs. Imports from China have likewise grown, accounting for more than a quarter of all imported goods.

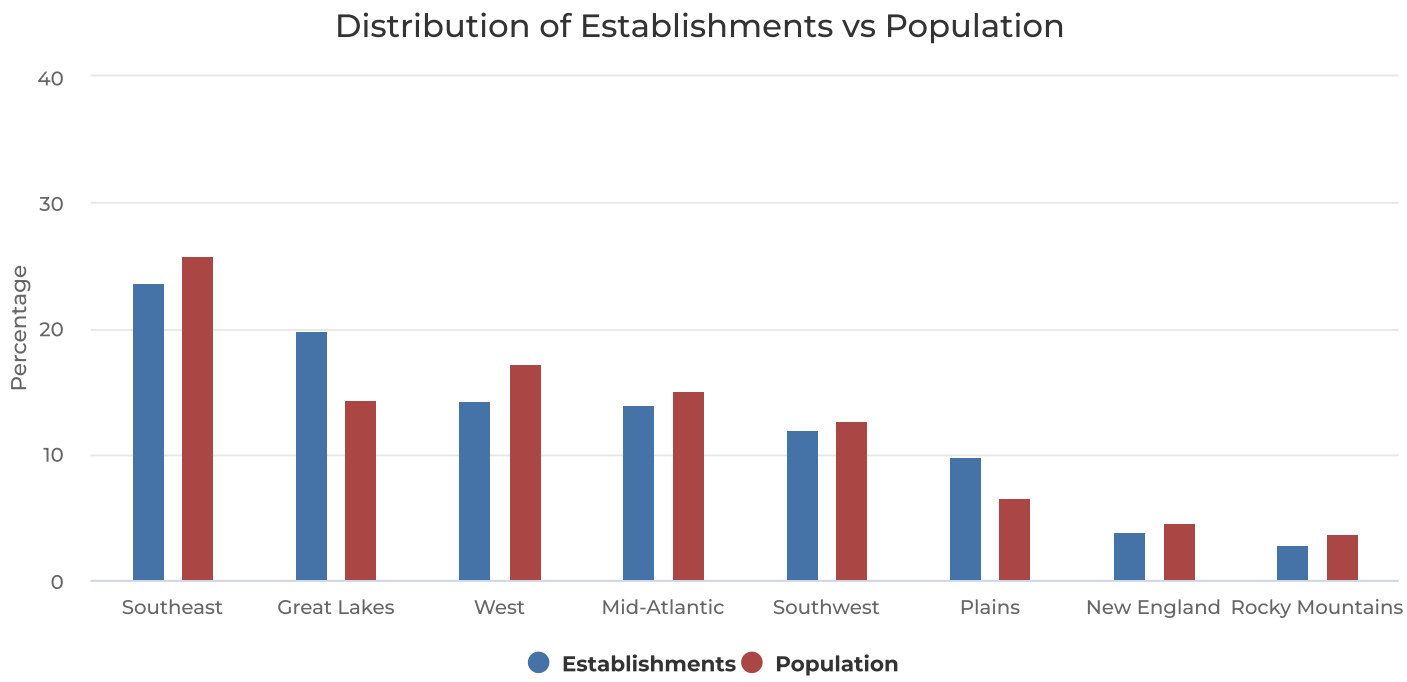
EXPORTS' SHARE OF INDUSTRY REVENUE HAS DECLINED

Rising competition from foreign-based manufacturers that are able to offer lower prices due to lower labor costs has led to a decline in export revenue.
The value of the US dollar has also increased, making US-produced goods more expensive abroad. This undermines the competitiveness of exported products relative to goods produced in-country.

TRADE AGREEMENTS SECURE TRADING PARTNERS

The United States-Mexico-Canada Agreement (USMCA) ensures that Mexico and Canada are continuously among the top buyers of US exports, updating previous free trade agreements established under the North American Free Trade Agreement (NAFTA).
Both Mexico and Canada benefit from geographic proximity, as transportation is quick and relatively inexpensive. Moreover, these countries, especially Canada, are better able to absorb the comparatively high wage costs of American-made products.

BUSINESS LOCATIONS



THE SOUTHEAST IS A POPULATION CENTER

The spread of industry establishments generally follows US population and construction activity, and the Southeast is one of the fastest growing regions in the country.
New houses built in warmer states, like those of the Southeast during the summer, are more likely to be fitted with air conditioning than those built in cooler states, where the installation of central heating systems tends to be higher.
Recent state legislation exempting manufacturers from sales taxes on the production of machinery and equipment has encouraged the high concentration, especially around Florida.

THE GREAT LAKES ARE HISTORICALLY A MANUFACTURING HUB

The Great Lakes region has been a manufacturing center for the better part of a century, with large manufacturing footprints in Michigan, Ohio and Indiana, in particular.
The region's cold winters, combined with an abundance of manufacturing activity, create a strong demand base for industrial and residential heating, ventilation, air conditioning and refrigeration equipment.

Competitive Landscape

BASIS OF COMPETITION

MODERATE competition

INCREASING competition

The industry has high barriers to entry. High capital costs and brand recognition limit smaller manufacturers from competing with larger, more established players. This dynamic preserves market dominance for big companies.
Imports are increasing competitive pressure on domestic goods. Products manufactured abroad are cheaper due to lower labor costs. This price disparity is forcing local businesses to find new ways to stay competitive.

BARRIERS TO ENTRY

MODERATE barriers

STEADY barriers

FACTORS FOR INCREASED BARRIERS

Life Cycle Stage
mature

FACTORS FOR DECREASED BARRIERS

Capital Intensity Level
low

LEGAL

There are no specific regulations for manufacturers, but all companies must comply with regulations put in place to prevent environmental contamination.

START-UP COSTS

Start-up costs are due to the initial capital associated with the construction and development of specialized plants and machinery. Purchasing costs are also considerable.

DIFFERENTIATION

Products vary based on price, quality and performance, with manufacturers establishing leverage based on leadership across product segments. The importance of each factor depends on individual product segments.

LABOR EXPENSES

Manufacturers depend heavily on skilled labor, which is required throughout the production process. Labor is also required to operate production lines, and engineers are essential to product development.

MARKET SHARE CONCENTRATION

MODERATE concentration

MAJOR PLAYERS HAVE A COMPETITIVE ADVANTAGE

Due to the significant capital investment required in manufacturing and product development, entering the market is challenging.
Large companies benefit from established name recognition and a wide range of products, which allows them to compete across all market segments through complementary products.

SMALL COMPANIES FILL NICHES

The industry has significant gaps filled by specialized companies, with more than half of all locations employing fewer than 20 workers.
These manufacturers produce compressors, parts or other tertiary goods essential to servicing industry products.

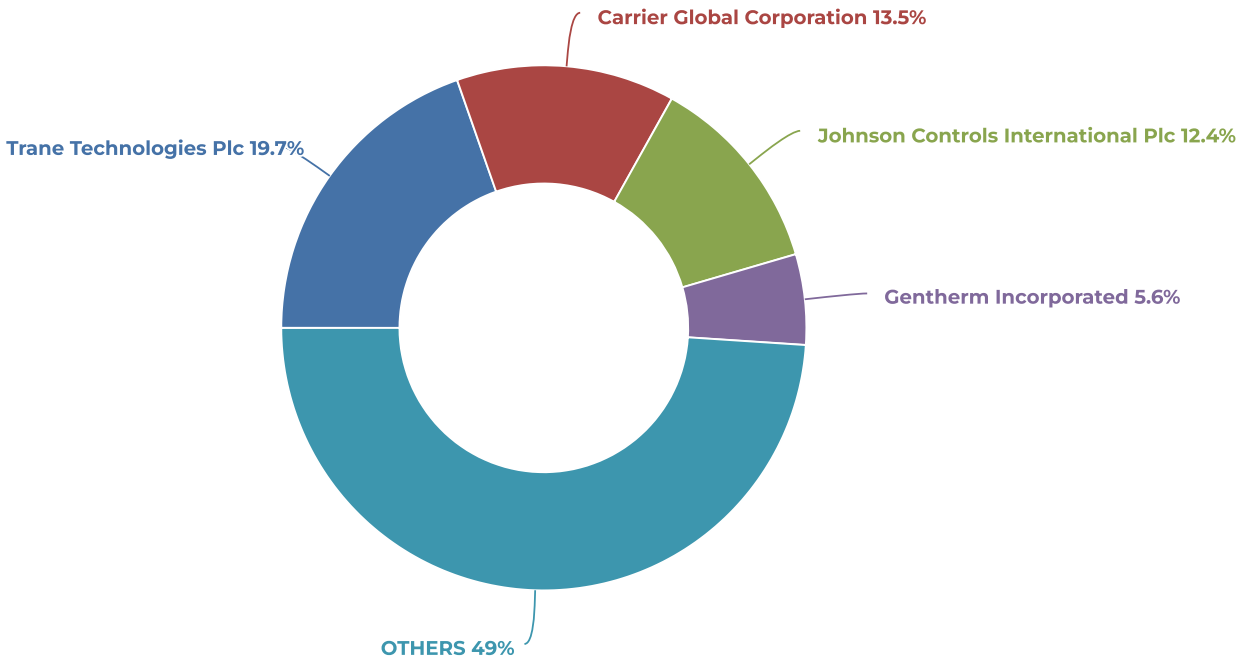
INDUSTRY GLOBALIZATION

MODERATE globalization

INCREASING globalization

MAJOR PLAYERS

Market Share for 2024



2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017 2018 2019 2020 2021 2022 2023 2024

TRANE TECHNOLOGIES PLC

SUB-BRANDS: AMERICAN STANDARD, AMERISTAR, FRIGOBLOCK, ICS COOL ENERGY, OXBOX, RUNTRU, THERMO KING, THERMOCOLD

MARKET SHARE: 19.7 %
REVENUE: 10,286,600,000 $ million

TRANE TECHNOLOGIES MANUFACTURED SOLUTIONS FOR TEMPERATURE-CONTROLLED VACCINE TRANSPORTATION

Trane Technologies PLC (Trane) was impacted by the COVID-19 (coronavirus) pandemic. Particularly in the first half of 2020, Trane saw lower demand, supply chain delays, temporary facility closures and smaller work crews. However, Trane also provided products and solutions which helped maintain stable temperatures along the vaccine supply line.

TRANE TECHNOLOGIES WAS LAUNCHED FOLLOWING THE INDUSTRIAL SEGMENT OF INGERSOL-RAND SEPARATING

In March of 2020, the industrial segment of Ingersoll-Rand plc was separated from the rest of the company and combined with Gardner Denver. The only remaining segment of Ingersoll-Rand plc was the climate segment, which was then renamed Trane Technologies PLC.

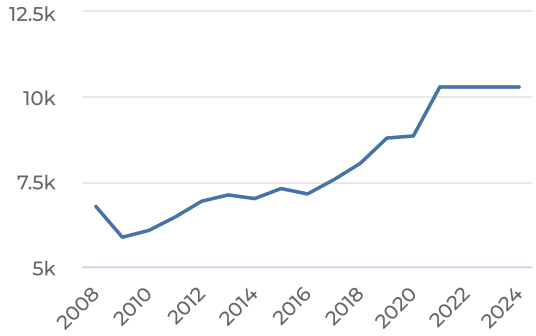
TRANE TECHNOLOGIES COMPLETED THE ACQUISITION OF FARRAR SCIENTIFIC

In September of 2021, Trane Technologies PLC (Trane) announced that it had completed its acquisition of Farrar Scientific, a producer of ultra-low temperature control technologies for biopharmaceutical and other life science applications. Farrar Scientific has been incorporated into Trane's Life Science Solutions segment.

YEAR	REVENUE $ MILLION	GROWTH % CHANGE	OPERATING INCOME $ MILLION	GROWTH % CHANGE
2008	6,766		1,171	
2009	5,859	-13	1,014	-13
2010	6,058	3	1,048	3
2011	6,455	7	1,117	7
2012	6,920	7	1,197	7
2013	7,107	3	1,229	3
2014	6,998	-2	1,211	-2
2015	7,293	4	1,262	4
2016	7,135	-2	1,234	-2
2017	7,557	6	1,263	2
2018	8,040	6	1,365	8
2019	8,783	9	1,521	11
2020	8,844	1	1,532	1
2021	10,287	16	2,101	37
2022	10,287		2,101	
2023	10,287	0	2,101	0
2024	10,287	0	2,101	0

** Estimates*

REVENUE



REVENUE **OPERATING INCOME**

CARRIER GLOBAL CORPORATION

SUB-BRANDS: A-D, ARITECH, AUTOMATED LOGIC, AUTRONICA, CHUBB, CIAT, EDWARDS, FIREYE, IMODIUM, KIDDE, LENELS2, MARIOFF, NORESCO, PAYNE, ROLAIDS, SUDAFED, SUPRA, TEMPSTAR

MARKET SHARE: 13.5 %
REVENUE: 7,047,200,000 $ million

CARRIER GLOBAL CREATES NEW CORPORATE VENTURE GROUP FOR SUSTAINABLE INNOVATION

In February 2022, Carrier Global Corporation (Carrier) announced the creation of its new global venture capital group, Carrier Ventures. The group is focused on investing in opportunities that will accelerate the development of sustainable innovations. This creation is integral to the company's mission and target goal of reducing carbon footprints by over one gigaton by 2030. The company announced its first two investments: AddVolt, a low-maintenance plug-in electric system that reduces major emissions and avoids fuel usage; and OhmConnect, a free rewards service that grants users rewards for saving energy when demand on the electric grid is high.

CARRIER CONTINUES TO FOCUS ON CORE BUSINESS WITH SALE OF CHUBB FIRE & SECURITY

In January 2022, Carrier announced it had completed the sale of its Chubb fire and security business to APi Group Corporation (APi) for $3.1 billion. This sale enables Carrier to focus on its core business and enhance the company's growth, margin and free cash flow. Additionally, the sale gives Carrier $2.6 billion in capital deployment, positioning them for a strong 2022. Carrier's global fire and safety products were not included as part of the sale as they are an important part of the company's health, safety and sustainability strategy.

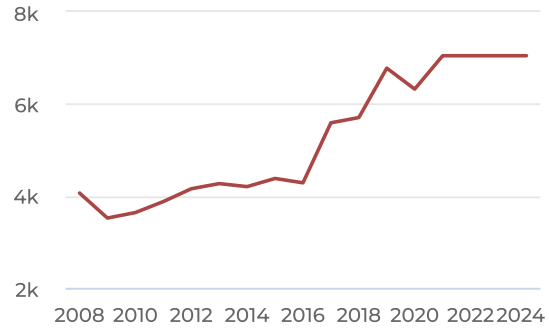
CARRIER INCREASES GLOBALIZATION EFFORTS WITH ACQUISITION OF TOSHIBA'S VRF & HVAC SEGMENTS

In February 2022, Carrier announced it had entered an agreement to acquire Toshiba Corporation's (Toshiba) ownership in Toshiba Carrier Corporation (TCC), a joint venture with Carrier, for $869.0 million. Carrier, which originally had 40.0%, now has 95.0% ownership over TCC's variable refrigerant flow (VRF) and light commercial HVAC segments. This acquisition positions Carrier as one of the fastest growing HVAC companies, as well as increases its production on a global scale with VRF. The acquisition is expected to close in the third quarter of 2022.

YEAR	REVENUE $ MILLION	GROWTH % CHANGE	OPERATING INCOME $ MILLION	GROWTH % CHANGE
2008	4,063		811	
2009	3,518	-13	702	-13
2010	3,637	3	726	3
2011	3,876	7	774	7
2012	4,155	7	829	7
2013	4,267	3	852	3
2014	4,201	-2	839	-2
2015	4,379	4	874	4
2016	4,284	-2	855	-2
2017	5,589	30	993	16
2018	5,703	2	964	-3
2019	6,778	19	982	2
2020	6,321	-7	1,116	14
2021	7,047	11	1,260	13
2022	7,047	0	1,260	0
2023	7,047	0	1,260	0
2024	7,047		1,260	

** Estimates*

REVENUE



REVENUE **OPERATING INCOME**

JOHNSON CONTROLS INTERNATIONAL PLC

SUB-BRANDS: AMERICAN DYNAMICS, ANSUL, BENTEL, DSC, GRINNELL, METASYS, PROTECTOR, RUSKIN, SCOTT, TITUS, YORK

MARKET SHARE: 12.4 %
REVENUE: 6,475,940,000 $ million

JOHNSON CONTROLS ANNOUNCES NEW ENERGY CONSERVATION INITIATIVE

After City leadership for Rogers, Arkansas engaged Johnson controls about reducing their energy consumption across the board. Johnson Controls experts proposed building a large solar facility which is expected to generate more than 157M kilowatt-hours of electricity, which translates to around $15 million in total utility/ savings for Rogers taxpayers. This contract is not unique to Rogers, twenty-two other organizations in Arkansas have contracted Johnson controls for similar projects.

JOHNSON CONTROLS REPORT STRONG REVENUE AND ESP GROWTH IN Q1 2022

The company announced that compared to their prior year sales have grown by 10% to $5.9 billion. From their first quarter results the CEO George Oliver is excited and confident about 2022 growth. Despite persisting global economic slowdowns as well as supply chain disruptions, strong revenue growth is expected to occur as they continue the roll out of their OpenBlue digital platform.

JOHNSON CONTROLS ANNOUNCES NEW PARTNERSHIP WITH WILLOW

In February of 2023, Johnson Controls announced that it has partnered with Willow, aiming to create digital solutions that can support smarter, healthier and sustainable buildings. Willow, a provider of digital twin solutions for infrastructure and real estate, will help Johnson Controls to bringing next generation solutions to customers moving forward.

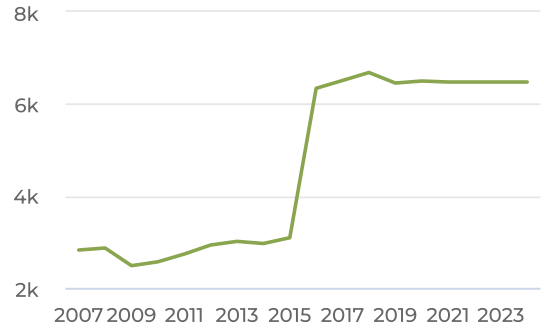
JOHNSON CONTROLS TO ACQUIRE FOGHORN

At the beginning of 2022 Johnson Controls (JCI) announced their acquisition of the AI platform company Foghorn. This acquisition is expected to further accelerate growth through 2022. Foghorns AI platform will help JCI address problems with sustainability and energy efficiency in their buildings across the world.

YEAR	REVENUE $ MILLION	GROWTH % CHANGE	OPERATING INCOME $ MILLION	GROWTH % CHANGE
2007	2,823		271	
2008	2,867	2	275	2
2009	2,483	-13	238	-13
2010	2,567	3	246	3
2011	2,735	7	263	7
2012	2,932	7	281	7
2013	3,011	3	289	3
2014	2,965	-2	285	-2
2015	3,090	4	297	4
2016	6,339	105	790	166
2017	6,509	3	832	5
2018	6,683	3	853	3
2019	6,454	-3	868	2
2020	6,498	1	910	5
2021	6,476	-0	907	-0
2022	6,476		907	
2023	6,476	0	907	0
2024	6,476	0	907	0

** Estimates*

REVENUE



REVENUE **OPERATING INCOME**

GENTHERM INCORPORATED

SUB-BRANDS: AMERICAN DYNAMICS, ANSUL, BENTEL, DSC, GRINNELL, METASYS, PROTECTOR, RUSKIN, SCOTT, TITUS, YORK

MARKET SHARE: 5.6 %
REVENUE: 2,914,650,000 $ million

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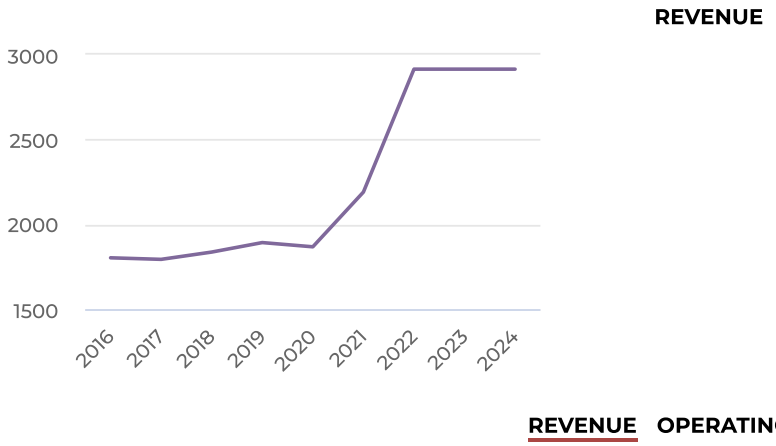
YEAR	REVENUE $ MILLION	GROWTH % CHANGE	OPERATING INCOME $ MILLION	GROWTH % CHANGE
2016	1,803		103	
2017	1,793	-1	102	-1
2018	1,836	2	105	2
2019	1,892	3	108	3
2020	1,867	-1	106	-1
2021	2,190	17	125	17
2022	2,915	33	166	33
2023	2,915	0	166	0
2024	2,915		166	

** Estimates*

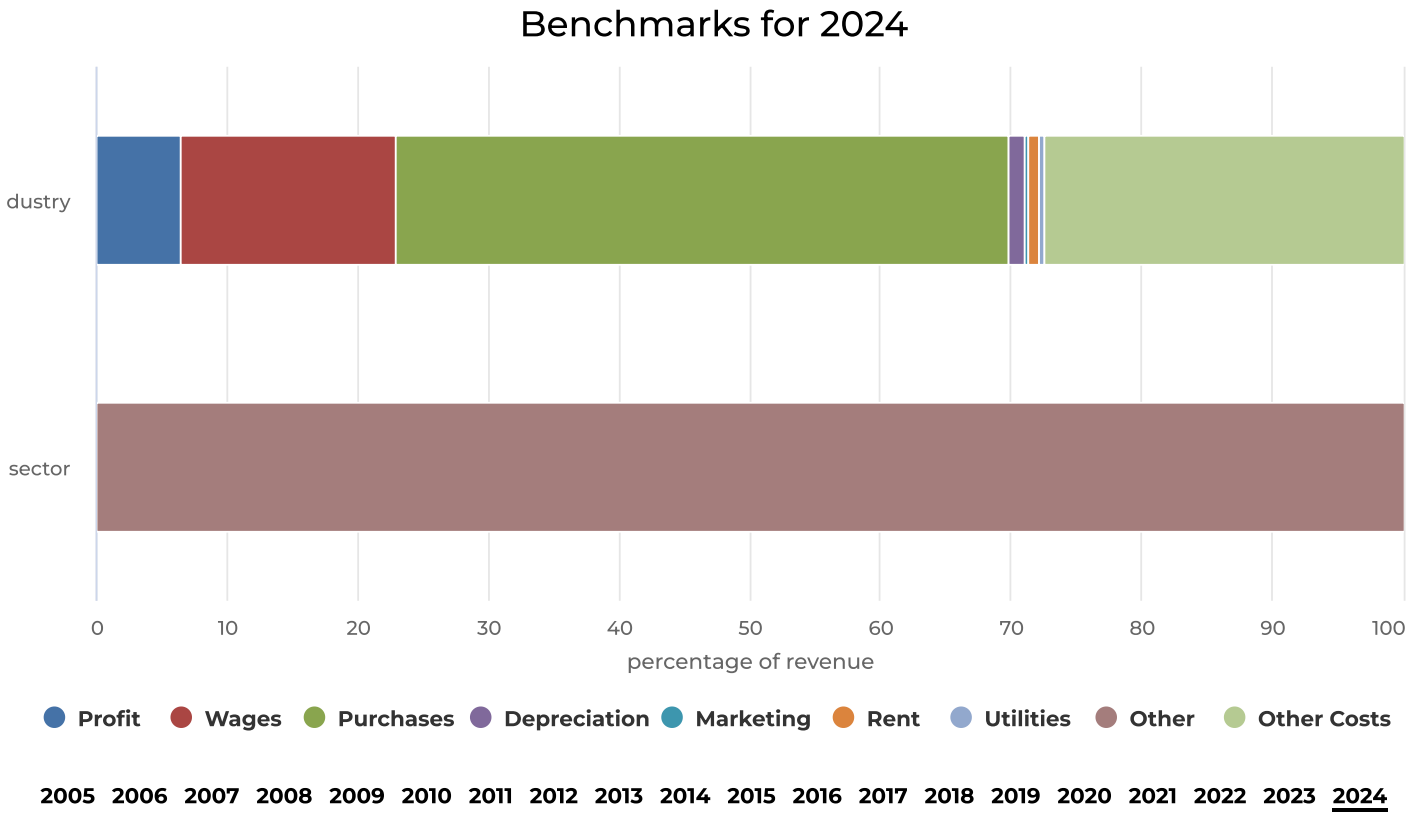


OTHER COMPANIES

MARKET SHARE: 49 %
REVENUE: 25,625,051,724 $ million

Costs & Operations

COST STRUCTURE



THE FLUCTUATION OF PURCHASE COSTS IS PASSED DOWN THE SUPPLY CHAIN

The industry purchases a wide range of materials to manufacture heating and air conditioning equipment, including steel, copper tubing, aluminum, ferrous and nonferrous castings, clays, motors and electronics.
Raw material prices have fluctuated as a result of changes in the overall economy and global demand. For instance, steel, which is a major component of heating and air conditioning equipment, has exhibited tremendous price volatility.

WAGES LIMITED BY RISING AUTOMATION

Heating, ventilation, air conditioning and refrigeration (HVACR) manufacturers have learned to increase operational efficiencies. This has allowed them to limit wage growth, which is especially important as labor costs have risen across the economy.

Even as industry revenue expanded, wages have experienced only a modest gain. Manufacturers have relied heavily on automation and other machinery, enabling them to reduce labor spending.

PROFITABILITY SEESAWS ACROSS INDUSTRY

Companies have sought to implement cost-control measures to preserve profit as manufacturers learned to streamline production. Fluctuations in raw material costs have the potential to erode profit.
In 2020, profit declined due to COVID-19, which undermined downstream demand and disrupted global supply lines. While profit has bounced back since 2021, it has been pressured by the steep rise in energy and raw material costs.

CAPITAL INTENSITY

LOW capital intensity

LABOR EXPENSES

Manufacturers depend heavily on skilled labor, which is required throughout the production process. Labor is also required to operate production lines, and engineers are essential to product development.

MODERATE technology change

ENVIRONMENTALLY FRIENDLY ADJUSTMENTS

Increased awareness of environmental concerns has encouraged manufacturers to develop products that avoid carbon emissions and reduce energy costs.
The industry's largest manufacturers have also dedicated funds to develop viable air-cooling equipment that does not rely on environmentally harmful hydrochlorofluorocarbons (HCFCs) scheduled to be phased out.

IMPROVEMENTS IN ENERGY EFFICIENCY

Manufacturers will seek to develop systems for heating and cooling which are efficient and reduce operational costs.
Energy-efficient systems can also have positive environmental impacts, contributing to environmentally friendly products.

REVENUE VOLATILITY

MODERATE revenue volatility

CYCLICAL CONSTRUCTION MARKET GENERATES VOLATILITY

The industry is susceptible to fluctuations in the construction market, which experiences cyclical growth.
During the pandemic, low interest rates spurred growth in residential construction, resulting in a rapid rise in demand.

GLOBAL ECONOMIC UNCERTAINTY DRIVES REVENUE TRENDS

The industry is sensitive to trends in both global economic conditions and exchange rates, since domestic companies rely on other countries' products in the production process.
Likewise, the appreciation of the US dollar makes domestic goods more expensive for foreigners, leading to a decline in exports and a countervailing surge in lower-cost imports.

REGULATION & POLICY

MODERATE regulation

INCREASING regulation

CLEAN AIR ACT OF 1990

The U.S. Environmental Protection Agency (EPA) limits pollution emissions from manufacturing processes, focusing on phasing out ozone-depleting substances like hydrochlorofluorocarbons (HCFCs). These chemicals, once commonly used as refrigerants in air conditioning and refrigeration, face stringent reductions. Since

January 2015, a 90% reduction in consumption is required. This cap increased to 99.5% in 2020, aiming for a complete 100% phase-out by 2030. Industries dependent on HCFCs must adopt eco-friendly alternatives to comply with these regulations.

CORONAVIRUS AID, RELIEF AND ECONOMIC SECURITY (CARES) ACT

The CARES Act mandated temporary sick leave benefits for workers previously uncovered by such provisions, aiming to mitigate the financial impact of the pandemic. Businesses with fewer than 50 or more than 500 employees are exempt, excluding many small businesses and large corporations. This exemption means that many workers in small and large companies might not benefit from these new sick leave provisions, potentially facing significant economic hardship during the pandemic.

INDUSTRY ASSISTANCE

MODERATE assistance

STEADY assistance

AIR-CONDITIONING, HEATING AND REFRIGERATION INSTITUTE

The Air-Conditioning, Heating and Refrigeration Institute (AHRI) is pivotal in assisting the HVAC industry. Representing over 90% of companies within this sector, AHRI develops and publishes technical standards, ensuring product reliability and performance. It lobbies the government on issues such as energy-efficient regulations. By advocating for the industry's interests, AHRI helps manufacturers navigate regulatory landscapes and promotes technological advancements.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR CONDITIONING ENGINEERS

ASHRAE, an international entity headquartered in Atlanta, offers extensive support to the HVACR industry. With over 55,000 members, it advances heating, refrigerating and air conditioning technology through sustainable development, research, standard writing and education. Notably, ASHRAE publishes a comprehensive four-volume handbook. This resource sets industry standards and provides critical insights, driving innovation and ensuring that HVACR professionals stay informed on best practices and emerging trends.

Questions for Owners

How is your company affected by rising imports?
Sales & Marketing

Rising imports have weighed heavily on industry operators, which has created price-based competition for domestic manufacturers.

Have exports offered an opportunity for your company?
Sales & Marketing

When the value of the dollar depreciates, there is a window of opportunity for domestic manufacturers to increase their revenue through exports.

Has your company explored acquisition opportunities in areas with well-established infrastructure?
Strategy & Operations

Consolidation in this industry is prevalent, with the industry's largest players acquiring smaller companies to boost the efficiency of their processes.

Have you looked into setting up manufacturing facilities in lower-wage regions of the country?
Strategy & Operations

Industry operators have looked to set up manufacturing facilities in lower-wage regions of the country to boost profit margin and efficiency.

Is your company investing in technology to establish a competitive edge?
Technology

Industry operators are investing in new technologies to provide high value-added products for consumers.

Have you been able to reduce wage costs through automation over the past five years?
Technology

Industry operators have tried to reduce wage costs through more efficient processes, including automation of manual labor tasks.

Have any regulatory expenses significantly affected profitability recently?

Compliance

Regulations have led industry operators to replace some lower-cost inputs with more expensive, energy efficient inputs, which has marginally affect profitability.

How does your company stay ahead of regulations, such as energy-efficiency standards?

Compliance

Industry operators are challenged by appliance-efficiency regulations. They stay ahead by following the regulations set forth, principally by the US Environmental Protection Agency.

How does your company's profit compare with your main competitors'?

Finance

The industry's largest players have the highest profit, as a result of increased efficiency.

How has input price volatility affected profit over the past 12 months?

Finance

Profit is affected by input cost volatility. Successful companies can pass down this cost to consumers.

Do you have your own retail outlets? How can you get your products into a wider variety of general home improvement stores?

Control of distribution arrangements

Control of distribution arrangements or company-owned retail outlets is a key success factor for industry operators manufacturing brand names.

Are you able to customize your models? How do you make sure your products comply with different states' legislation?

Ability to vary services to suit different needs

Due to the diverse range of HVACR systems available, industry operators must have the flexibility to manufacture models and sizes that suit customer requirements.

Do you have a good reputation? How much of your revenue goes toward marketing?

Establishment of brand names

Successful companies are able to establish strong connections between their brands and perceptions of quality and reliability.

How does low consumer confidence affect demand for your products? Do you have other revenue streams in times of low consumer confidence?

Consumer Confidence Index

When consumers feel confident in their financial futures, the decision-making process regarding replacing old equipment becomes less stressful than in times of doubt.

Do you have long-term supply contracts with heating and air conditioning contractors? How can you expand your reach in this segment?

Demand from heating and air-conditioning contractors

As contractors' workloads increase, demand for heating and air conditioning equipment increases.

How much of your revenue comes from exports? How can you further expand your overseas markets?

Trade-weighted index

Exports of HVACR equipment make up less than one-fifth of total industry revenue. A rising dollar can make imported goods more attractive to domestic consumers, while HVACR exports become relatively more expensive for foreign buyers.

Datatables & Glossary

INDUSTRY DATA

YEAR	REVENUE $ MILLION	ENTERPRISES UNITS	ESTABLISHMENTS UNITS	EMPLOYMENT UNITS	WAGES $ MILLION	IVA $ MILLION	IMPORTS $ MILLION	EXPORTS $ MILLION
2005	58,016	12,786	1,845	1,527	148,300	8,941	10,844	8,920

YEAR	REVENUE $ MILLION	ENTERPRISES UNITS	ESTABLISHMENTS UNITS	EMPLOYMENT UNITS	WAGES $ MILLION	IVA $ MILLION	IMPORTS $ MILLION	EXPORTS $ MILLION
2006	58,230	13,050	1,801	1,502	150,277	9,523	12,363	9,061
2007	58,219	13,129	1,822	1,518	151,175	9,454	13,178	8,918
2008	57,930	13,348	1,870	1,567	149,126	9,940	12,977	9,039
2009	49,566	11,344	1,800	1,519	133,259	8,009	10,733	7,915
2010	50,582	11,083	1,812	1,543	117,848	9,091	12,517	7,461
2011	52,757	11,564	1,781	1,518	123,371	9,857	14,144	7,863
2012	56,044	12,296	1,841	1,566	126,920	8,989	14,103	7,986
2013	56,601	11,928	1,801	1,537	129,839	9,632	14,794	8,183
2014	54,773	12,090	1,791	1,526	127,782	9,330	17,004	8,154
2015	56,557	13,385	1,776	1,503	129,001	9,274	17,024	8,618
2016	54,807	13,015	1,750	1,486	126,808	8,625	17,435	8,379
2017	53,923	12,311	1,710	1,447	128,185	8,486	18,902	8,326
2018	53,894	12,829	1,692	1,431	128,386	8,496	20,214	8,382
2019	55,144	12,956	1,672	1,417	130,182	8,090	19,802	8,432
2020	53,968	12,908	1,672	1,411	135,839	7,033	19,904	8,586
2021	55,363	13,318	1,674	1,375	132,480	7,297	24,625	8,948
2022	51,908	12,571	1,623	1,335	126,848	7,913	25,872	8,532
2023	51,746	12,529	1,608	1,322	126,338	7,828	24,372	8,499
2024	52,362	12,654	1,604	1,317	127,176	7,916	24,689	8,564
2025	53,690	12,945	1,612	1,321	129,211	8,177	24,988	8,717
2026	55,708	13,371	1,630	1,332	132,441	8,583	25,413	8,957
2027	57,229	13,706	1,644	1,342	134,917	8,870	25,837	9,140
2028	58,689	14,019	1,658	1,351	137,201	9,152	26,219	9,310
2029	60,005	14,307	1,672	1,361	139,416	9,416	26,520	9,472
2030	61,704	14,687	1,695	1,379	142,552	9,703	27,172	9,696

Future values are projections made by IBISWORLD.
Figures have been adjusted for inflation and are presented in 2024 currency.

ANNUAL CHANGE

YEAR	REVENUE %	ENTERPRISES %	ESTABLISHMENTS %	EMPLOYMENT %	WAGES %	IVA %
2005	N/A	N/A	N/A	N/A	N/A	N/A
2006	0.36910899662346	2.0668951802062	-2.3848238482385	-1.6371971185331	1.3331085637222	6.5078168266907
2007	-0.01809071930774	0.60828572596965	1.1660188784009	1.0652463382157	0.59756316668552	-0.72468784827025
2008	-0.49718672570583	1.6625648995017	2.6344676180022	3.2279314888011	-1.3553828344634	5.1410352149115
2009	-14.437282848243	-15.010356535366	-3.7433155080214	-3.063178047224	-10.639995708327	-19.428546265141
2010	2.0493368016545	-2.2996975375539	0.66666666666667	1.5799868334431	-11.564697318755	13.514331786422
2011	4.2993342503306	4.3397712502996	-1.7108167770419	-1.6202203499676	4.6865453804901	8.4176838711829
2012	6.2300653182928	6.3308256954486	3.3688938798428	3.1620553359684	2.8766890111939	-8.8000712443101
2013	0.99514266087702	-2.9987559893773	-2.172732210755	-1.8518518518519	2.2998739363379	7.1553441187832
2014	-3.2310138877923	1.3643642505774	-0.5552470849528	-0.71567989590111	-1.5842697494589	-3.139358897525
2015	3.2583761089702	10.705428500162	-0.83752093802345	-1.5072083879423	0.95396847756335	-0.59887251983349
2016	-3.0942051059736	-2.7593127549152	-1.463963963964	-1.1310711909514	-1.6999868218076	-6.9973571741008
2017	-1.6140077320326	-5.4143328451274	-2.2857142857143	-2.6244952893674	1.085893634471	-1.6130655395636
2018	-0.05405443117045	4.21014797921	-1.0526315789474	-1.1057360055287	0.15680461832508	0.11730764914681
2019	2.320797648614	0.99432019410502	-1.1820330969267	-0.97833682739343	1.3989064228187	-4.7792190381609
2020	-2.1325092335393	-0.37342313643009	0	-0.42342978122795	4.3454548247838	-13.066681114708
2021	2.5847921382624	3.1777721973777	0.11961722488038	-2.5513819985826	-2.472780276651	3.7614098341887
2022	-6.2407781994419	-5.610719375376	-3.0465949820789	-2.9090909090909	-4.2512077294686	8.4373712779832
2023	-0.31273608475661	-0.33426007370816	-0.92421441774492	-0.97378277153558	-0.40205600403633	-1.0817771626234
2024	1.190260580986	1.0012394361542	-0.24875621890547	-0.37821482602118	0.66330003641026	1.1255463533541
2025	2.5360090753183	2.2964344417752	0.49875311720698	0.3037205770691	1.6001446813864	3.3035612769559
2026	3.7593802908193	3.291618385477	1.1166253101737	0.83270249810749	2.499787169823	4.9613559653671
2027	2.7297646123275	2.5039076814922	0.85889570552147	0.75075075075075	1.8695117070998	3.3461883512566
2028	2.5513377879669	2.2851472723426	0.85158150851582	0.67064083457526	1.6928926673436	3.1803474594424
2029	2.2421616353348	2.051486900015	0.84439083232811	0.74019245003701	1.6144197199729	2.882367081139
2030	2.8314401514545	2.6602920310064	1.3755980861244	1.3225569434239	2.2493831411029	3.0501274426508

Future values are projections made by IBISWORLD.

KEY RATIOS

YEAR	REVENUE PER EMPLOYEE $	REVENUE PER ENTERPRISE $ MILLION	EMPLOYEES PER ESTABLISHMENT UNITS	EMPLOYEES PER ENTERPRISE UNITS	AVERAGE WAGE $	WAGES/ REVENUE %	ESTABLISHMENTS PER ENTERPRISE UNITS	IVA/ REVENUE %	IMPORTS/ DOMESTIC DEMAND %	EX RE %
2005	22	18	15	391,205	15	80	60,149	38	97	1
2006	22	20	16	387,484	16	83	60,299	39	100	1
2007	23	21	16	385,112	15	83	58,993	38	100	1
2008	23	21	17	388,463	16	80	60,616	37	95	1
2009	23	21	16	371,955	16	74	59,396	33	88	1
2010	22	23	18	429,216	15	65	63,311	33	76	1
2011	22	25	19	427,628	15	69	63,735	35	81	1
2012	22	23	16	441,567	14	69	62,919	36	81	1
2013	21	24	17	435,935	14	72	63,027	37	84	1
2014	22	27	17	428,641	15	71	63,813	36	84	1
2015	24	26	16	438,425	15	73	66,807	38	86	1
2016	24	27	16	432,207	15	72	66,073	37	85	1
2017	23	29	16	420,663	15	75	64,952	37	89	1
2018	24	31	16	419,778	16	76	65,287	38	90	1
2019	23	30	15	423,594	15	78	64,774	39	92	1
2020	24	30	13	397,296	16	81	63,205	38	96	1
2021	24	34	13	417,900	16	79	67,540	40	96	1
2022	24	37	15	409,216	16	78	67,260	39	95	1
2023	24	36	15	409,583	16	79	67,268	39	96	1
2024	24	36	15	411,727	16	79	67,337	40	97	1
2025	24	35	15	415,520	16	80	67,462	41	98	1
2026	24	35	15	420,626	16	81	67,627	42	99	1
2027	24	35	15	424,178	16	82	67,742	43	101	1
2028	24	35	16	427,759	16	83	67,856	43	102	1
2029	24	34	16	430,401	16	83	67,940	44	102	1
2030	24	34	16	432,851	16	84	68,017	45	103	1

Future values are projections made by IBISWORLD.

GLOSSARY

CHLOROFLUOROCARBONS (CFCS)

A common type of refrigerant used in air conditioning systems that is being phased out because it contributes to depleting the ozone layer.

HYDROCHLOROFLUOROCARBONS

A type of CFC, known in the industry as HCFC-22, which is thought to be more environmentally friendly than other chemicals, but is currently being phased out.

REFRIGERANT

A chemical compound or coolant used to achieve low temperatures in air conditioning and refrigeration equipment.

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