

# Microchannel Heat Exchanger Market worth \$29.84 billion by 2030 - Exclusive Report by 360iResearch

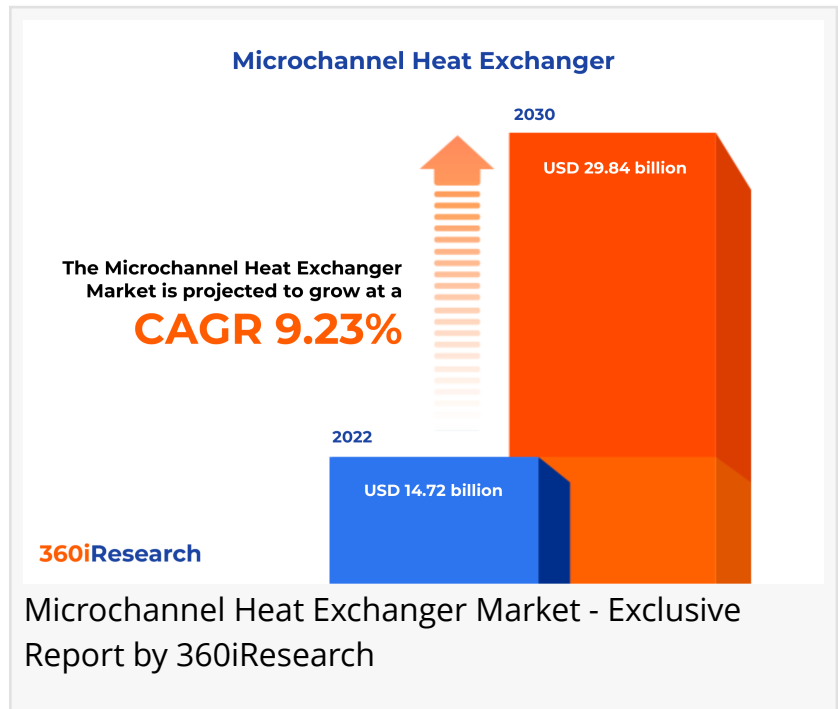
*The Global Microchannel Heat Exchanger Market to grow from USD 14.72 billion in 2022 to USD 29.84 billion by 2030, at a CAGR of 9.23%.*

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-- The "[Microchannel Heat Exchanger Market](#) by Material Type (Ceramic, Metal), Fluid Mechanism (Dual Coil, Multi Coil, Single Coil), Application - Global Forecast 2023-2030" report has been added to 360iResearch.com's offering.

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A Microchannel Heat Exchanger (MCHE) is a heat exchanger that features channels with hydraulic diameters typically less than 1 mm. These microchannels are manufactured using materials such as aluminum and copper, allowing for efficient heat transfer with a reduced refrigerant charge. The compact and lightweight structure of MCHEs results in a smaller footprint compared to traditional heat exchangers. Advancements in material science and demand for energy-efficient cooling solutions are propelling the growth of the microchannel heat exchanger market. Additionally, the rise in global temperatures and increased spending on infrastructure development in emerging economies contribute to enhanced demand. However, the high cost of developing microchannel heat exchangers creates a hindrance to market growth. The technical complexity of designing microchannel heat exchangers for specific applications poses a



formidable challenge for manufacturers. Furthermore, the introduction of technologically advanced microchannel heat exchangers creates significant opportunities for market growth.

**Material Type:** Growing adoption of ceramic materials due to its high thermal resistance and chemical durability

Ceramic materials in microchannel heat exchangers are highly valued for their exceptional thermal stability, corrosion resistance, and chemical inertness. These properties make ceramic heat exchangers ideal for high-temperature environments and aggressive chemical processes where metallic counterparts may fail and degrade rapidly. Industries that prefer ceramic heat exchangers include chemical manufacturing, aerospace, and applications involving corrosive fluids and high-temperature gasses. Metal microchannel heat exchangers, made typically from aluminum and stainless steel, are widespread in various industries due to their excellent thermal conductivity, mechanical strength, and manufacturability. These exchangers are often used in the HVAC industry, automotive cooling systems, and other applications where efficient heat transfer is crucial and the operational environment is less corrosive.

**Fluid Mechanism:** Increasing deployment of multi coil systems for complex and larger scale systems

Dual coil microchannel heat exchangers are designed for systems that require simultaneous heating and cooling processes. These units utilize two independent coils within a single frame, offering enhanced control over the thermal management process. The need for dual coil systems is often found in applications with limited space that also demand high thermal efficiency, such as in residential HVAC systems, aerospace, and automotive cooling systems. Multi-coil microchannel heat exchangers present a solution for complex HVACR systems where multiple fluid streams need to be managed concurrently. These exchangers have several coils that can operate independently of one another, making them suitable for variable refrigerant flow (VRF) systems and industrial processes that require different temperature zones. Single-coil microchannel heat exchangers are commonly used for more straightforward cooling and heating applications. They consist of one coil and are often preferred for their simplicity, ease of installation, and lower cost. These heat exchangers are typically utilized in residential and commercial refrigeration, air-conditioning systems, and automotive applications.

**Application:** Expansion of automotive sector driving the adoption of microchannel heat exchangers for improving the performance and better fuel & energy consumption.

The automotive industry is the key consumer of microchannel heat exchangers. The stringent environmental regulations and the demand for fuel-efficient vehicles have led to the increasing adoption of microchannel heat exchangers. These components are integral in automotive air conditioning systems and battery thermal management systems, especially for electric vehicles (EVs) where efficient heat dissipation is critical. Commercial refrigeration applications, which comprise chillers, freezers, and refrigerated display cases, rely heavily on microchannel heat exchangers. These sectors prioritize energy efficiency and cost-effectiveness to manage overall operational expenses. HVAC systems are integral to maintaining indoor comfort in residential, commercial, and industrial settings. The need for energy-efficient and environmentally

responsive solutions drives the adoption of microchannel heat exchangers in this segment.

#### Regional Insights:

The American region showed significant growth in the microchannel heat exchanger market, with a focus on technological advancements and eco-friendly solutions. The American automotive sector is a considerable consumer of microchannel heat exchangers, driven by stringent environmental regulations and high-efficiency standards. Consumer needs within the Americas lean toward products that offer long-term savings through energy efficiency and reliability. European Union countries are forerunners in enforcing stringent energy efficiency standards that drive the demand for high-performance microchannel heat exchangers. The EU's focus on decreasing greenhouse gas emissions has been a critical factor in the adoption of energy-efficient microchannel heat exchangers in industrial and residential markets. The Middle East, with its extreme climates, requires robust cooling systems and thus forms a significant market for microchannel heat exchangers. In Africa, the growing awareness of eco-friendly technologies is driving the microchannel heat exchangers market. The Asia Pacific region is witnessing rapid industrial growth, leading to an increase in demand for efficient cooling systems in sectors such as automotive, HVAC, and electronics. Countries including China, Japan, and India are spearheading the region's demand for microchannel heat exchangers due to the buoyant automotive industry and escalating demand for energy-efficient cooling systems. Customer purchasing behavior in this region is heavily governed by efficiency and price competitiveness.

#### FPNV Positioning Matrix:

The FPNV Positioning Matrix is essential for assessing the Microchannel Heat Exchanger Market. It provides a comprehensive evaluation of vendors by examining key metrics within Business Strategy and Product Satisfaction, allowing users to make informed decisions based on their specific needs. This advanced analysis then organizes these vendors into four distinct quadrants, which represent varying levels of success: Forefront (F), Pathfinder (P), Niche (N), or Vital(V).

#### Market Share Analysis:

The Market Share Analysis offers an insightful look at the current state of vendors in the Microchannel Heat Exchanger Market. By comparing vendor contributions to overall revenue, customer base, and other key metrics, we can give companies a greater understanding of their performance and what they are up against when competing for market share. The analysis also sheds light on just how competitive any given sector is about accumulation, fragmentation dominance, and amalgamation traits over the base year period studied.

#### Key Company Profiles:

The report delves into recent significant developments in the Microchannel Heat Exchanger Market, highlighting leading vendors and their innovative profiles. These include Alfa Laval AB, Amber, API Heat Transfer, Carrier Global Corporation, Climetal S.L., Danfoss A/S, Dantherm

Cooling, Inc., EVAPCO, Inc., Filson Filter, Heatric by Parker Hannifin Corporation, Johnson Controls International PLC, Kaltra GmbH, Mikros Technologies, Modine Manufacturing Company, Nanjing Metall Industrial Co., Limited, Norsk Hydro ASA, Rolls-Royce PLC, Sanhua International, Inc., Shanghai Shenglin M&E Technology Co., Ltd., Sierra S.p.A., Thermokey S.p.A., VPE Thermal LLC, WELCON Inc., Zhejiang Dunan Artificial Environment Co., Ltd., and Zhejiang Kangsheng Co. Ltd.

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### Market Segmentation & Coverage:

This research report categorizes the Microchannel Heat Exchanger Market in order to forecast the revenues and analyze trends in each of following sub-markets:

Based on Material Type, market is studied across Ceramic and Metal. The Metal is projected to witness significant market share during forecast period.

Based on Fluid Mechanism, market is studied across Dual Coil, Multi Coil, and Single Coil. The Dual Coil is projected to witness significant market share during forecast period.

Based on Application, market is studied across Automotive, Commercial Refrigeration, and HVAC. The Commercial Refrigeration is projected to witness significant market share during forecast period.

Based on Region, market is studied across Americas, Asia-Pacific, and Europe, Middle East & Africa. The Americas is further studied across Argentina, Brazil, Canada, Mexico, and United States. The United States is further studied across California, Florida, Illinois, New York, Ohio, Pennsylvania, and Texas. The Asia-Pacific is further studied across Australia, China, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam. The Europe, Middle East & Africa is further studied across Denmark, Egypt, Finland, France, Germany, Israel, Italy, Netherlands, Nigeria, Norway, Poland, Qatar, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, and United Kingdom. The Americas commanded largest market share of 39.45% in 2022, followed by Europe, Middle East & Africa.

### Key Topics Covered:

1. Preface
2. Research Methodology
3. Executive Summary
4. Market Overview
5. Market Insights
6. Microchannel Heat Exchanger Market, by Material Type

7. Microchannel Heat Exchanger Market, by Fluid Mechanism
8. Microchannel Heat Exchanger Market, by Application
9. Americas Microchannel Heat Exchanger Market
10. Asia-Pacific Microchannel Heat Exchanger Market
11. Europe, Middle East & Africa Microchannel Heat Exchanger Market
12. Competitive Landscape
13. Competitive Portfolio
14. Appendix

The report provides insights on the following pointers:

1. Market Penetration: Provides comprehensive information on the market offered by the key players
2. Market Development: Provides in-depth information about lucrative emerging markets and analyzes penetration across mature segments of the markets
3. Market Diversification: Provides detailed information about new product launches, untapped geographies, recent developments, and investments
4. Competitive Assessment & Intelligence: Provides an exhaustive assessment of market shares, strategies, products, certification, regulatory approvals, patent landscape, and manufacturing capabilities of the leading players
5. Product Development & Innovation: Provides intelligent insights on future technologies, R&D activities, and breakthrough product developments

The report answers questions such as:

1. What is the market size and forecast of the Microchannel Heat Exchanger Market?
2. Which are the products/segments/applications/areas to invest in over the forecast period in the Microchannel Heat Exchanger Market?
3. What is the competitive strategic window for opportunities in the Microchannel Heat Exchanger Market?
4. What are the technology trends and regulatory frameworks in the Microchannel Heat Exchanger Market?
5. What is the market share of the leading vendors in the Microchannel Heat Exchanger Market?
6. What modes and strategic moves are considered suitable for entering the Microchannel Heat Exchanger Market?

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