

AEROSPACE

High Performance Machining

The aerospace manufacturing sector is renowned for its complexity and innovation, yet it is also fraught with challenges that require constant evolution and adaptation. KARCAN Cutting Tools has emerged as a leader by collaborating closely with aerospace OEMs, machine tool builders, and tier one, two, and three suppliers to deliver high-quality composite (CFRP) solutions.



BEYOND
THE
MACHINING



WELCOME TO THE WORLD OF **KARCAN CUTTING TOOLS...**

Who we are?

Founded in 1996 in Eskişehir, Turkey to manufacture carbide cutting tools, we are the first and largest carbide cutting tool manufacturer and one of the top 130 R&D centers in our country. From this aspect, we are the first and the only R&D Center in the cutting tool industry of Turkey.

What we manufacture?

- Carbide Endmills
- Carbide Drill Bits
- Carbide Reamers
- Form Endmills, Drill Bits, Reamers
- Form Carbide,PCD & CBN Inserts
- Composite Inserts
- Micro Tools
- Combined Tools

Which industries we serve?



General
Engineering



Mold&Die



Aviation
& Aerospace



Defence



Automotive



Medical

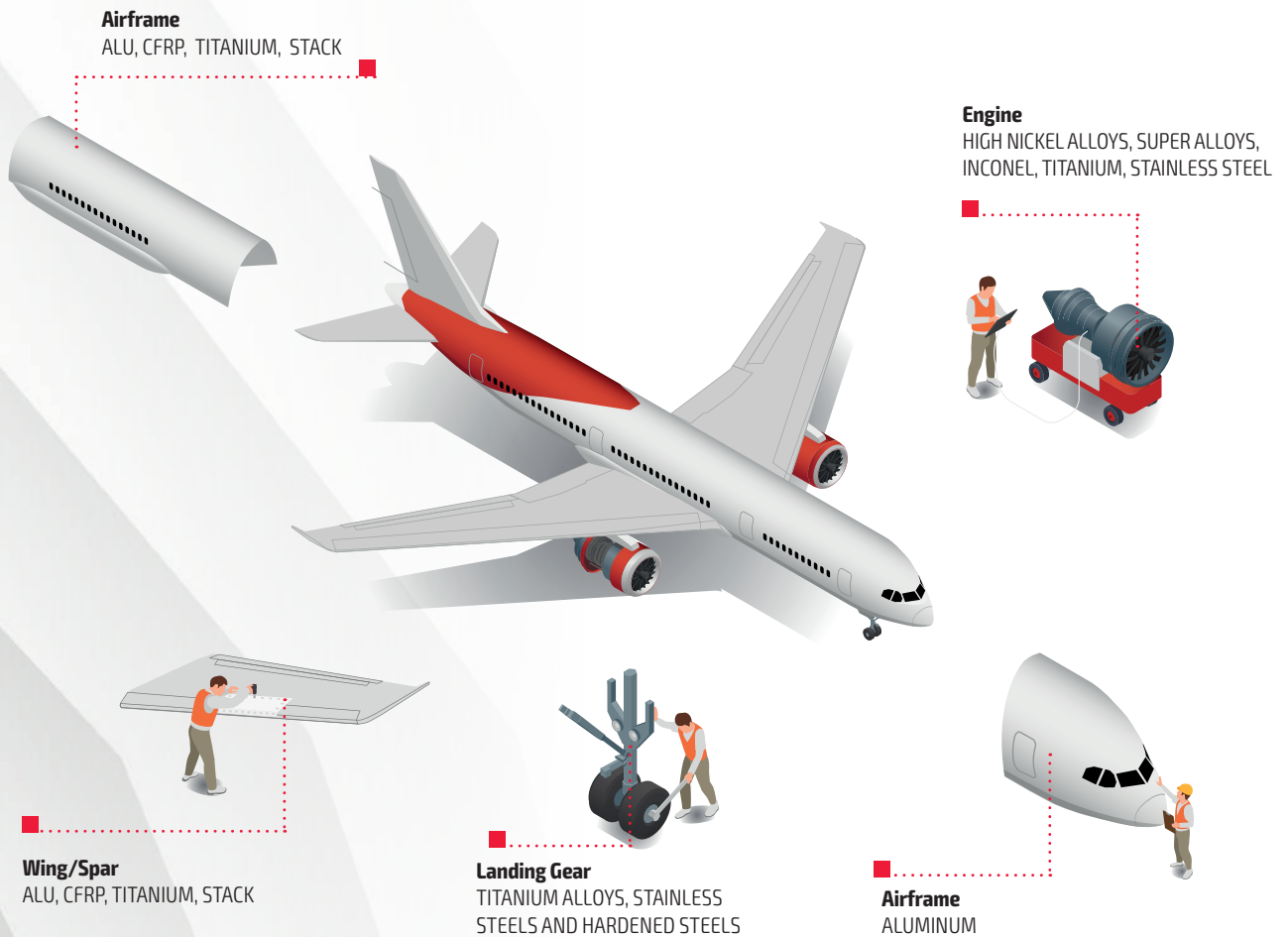


Energy



Rail
Systems





The aerospace manufacturing sector is renowned for its complexity and innovation, yet it is also fraught with challenges that require constant evolution and adaptation. Within this dynamic industry, materials such as carbon, glass, Kevlar, and other fiber-reinforced plastics play a crucial role across diverse applications. These materials are integral to crafting everything from primary structures like airframes and engines to non-structural components. Additionally, metals such as titanium and Inconel are essential for their superior performance in structural frames and engine parts, especially in high-temperature zones, while aluminum continues to serve as a versatile choice for airframe and critical as well as non-critical components.

In this demanding environment, KARCAN Cutting Tools has emerged as a leader by collaborating closely with aerospace OEMs, machine tool builders, and tier one, two, and three suppliers to deliver high-quality composite machining (CFRP) solutions. Through these strategic partnerships, KARCAN Cutting Tools has developed 'premium' products and processes, ensuring that their approach is not only innovative but also cost-effective and reliable.

Over time, these relationships have delivered solutions that significantly enhance productivity and efficiency within the aerospace sector. By prioritizing collaboration and technical excellence, KARCAN Cutting Tools is well-positioned to address the complex challenges of modern aerospace manufacturing, providing clients with secure solutions that meet both current and future demands. This dedication to fostering strong industry relationships and advancing material technologies underscores KARCAN Cutting Tools's commitment to excellence. As the aerospace landscape continues to evolve, their proven track record and strategic focus ensure that they remain at the forefront of delivering value-driven results.

KARCAN Cutting Tools delivers innovations to industries worldwide through superior tooling solutions, expert support, and world-class delivery services. With a commitment to excellence, KARCAN Cutting Tools is at the forefront of tooling technology, continually advancing the standards in high precision and efficiency.

AIRFRAME

Aluminium



For generations, aircraft manufacturers have been driven to produce airplanes using the lightest and most advanced materials available. Among these, Aluminum Alloys have been crucial in the construction of airframes, structural, and non-structural components due to their lightweight and durable properties.

KARCAN Cutting Tools is at the forefront of addressing the challenges associated with machining aluminum with its innovative solutions, including Alu-Mac high performance endmills and high performance D-TECH Aluminium Drills.

Our high performance aluminium milling and drilling tools are specifically designed to tackle the common machining issues such as smearing, build-up edge and non-smooth finishes. We've introduced a groundbreaking geometry that significantly reduces tool pressure while providing an optimized flutes, ensuring superior chip evacuation. Coatings such as Diamond-Like Carbon (DLC) and the use of micro grain substrates further extend tool life, enhancing overall performance and expanding tool life.



Hole-Making X-TYPE DRILLS

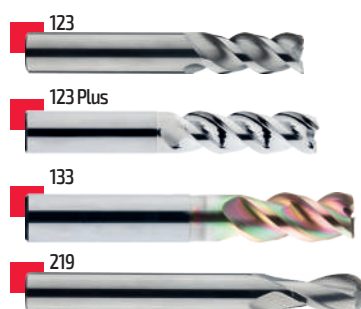
When it comes to drilling aluminum, our Precision **D-TECH Aluminium Drills** are engineered to deliver exceptional performance.

These tools are designed to meet the meticulous demands of drilling, offering the durability and consistency necessary for high-precision drilling operations.



Solid Carbide ALU-MAC

Our dedication to quality and performance positions KARCAN Cutting Tools as your trusted solution-maker partner in achieving impeccable results in machining aluminum.



KARCAN Cutting Tools offers the precise geometries needed for various applications by super polished flutes, extended length tools for improved reach, various corner radius selections, neck relief tools, and coolant-through options. Our comprehensive range addresses your aluminum machining requirements, as well as larger diameter tools, available in High-Speed Steel (HSS) and HSS-Cobalt (HSSCo) variants.



AIRFRAME

Composites



Milling, Trimming, And Cutting Cfrp Parts,

The process of milling, trimming, and cutting Carbon Fiber Reinforced Polymer (CFRP) parts is a critical step prior to their assembly in aircraft, yet it is fraught with challenges such as delamination and fiber pull-out. Efficient dust evacuation and extended tool life are essential for successful CFRP manufacturing. Recognizing these needs, KARCAN Cutting Tools has developed an extensive line of CFRP end mills designed to tackle these issues head-on. Our selection encompasses a variety of specialized tools, from chip breaker endmills that facilitate efficient chip management to compression and helical flute designs that minimize delamination risks.

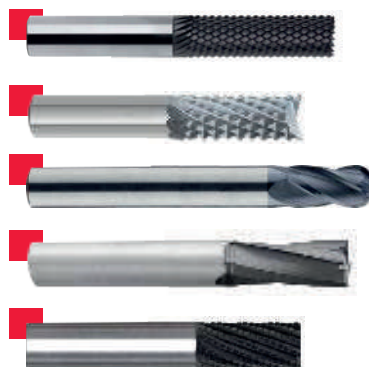
Drilling Cfrp And Cfrp / Metal Stacks

Drilling Carbon Fiber Reinforced Polymers (CFRP) and CFRP/Metal Stacks presents a set of unique challenges that require specialized solutions. Issues such as delamination, fiber pull-out, and reduced tool life frequently complicate these processes. With the increasing presence of CFRP, CFRP/Aluminum, and CFRP/Titanium in next-generation aircraft, KARCAN Cutting Tools has engineered a series of advanced drills, including straight drills, combination drill-countersinks, and dedicated countersinks.

COMPOSITE MILLING

Furthermore, our one-shot roughing and finishing end mill series allows for streamlined operations, ensuring both precision and quality in a single pass.

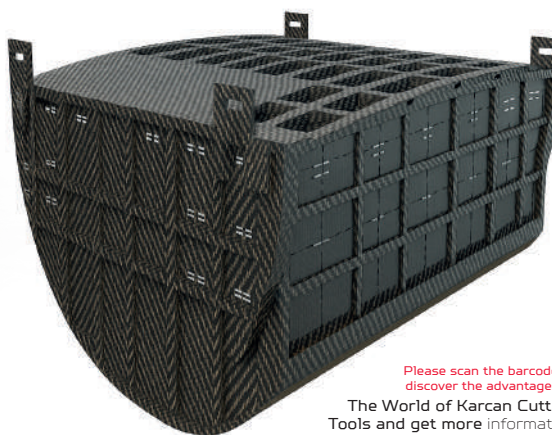
By investing in unique tooling solutions for trimming and cutting CFRP, KARCAN Cutting Tools is equipped to serve clients across all platforms and machine types. Our range is complemented by unparalleled technical support, ensuring that our customers have the guidance and resources they need to maximize the performance of their milling operations. Karcan Cutting Tools is committed to advancing the capabilities of CFRP part manufacturing.



COMPOSITE DRILLING

Our precision tools are specifically designed to navigate the complexities of drilling these demanding materials.

Karcan Cutting Tools ensures comprehensive coverage of various drilling techniques used in the industry, whether via gantries with 3, 4, or 5-axis systems, robotic end effectors, power feed machines, or handheld operations. Each of our drilling products delivers exceptional performance, achieving high production rates while maintaining the most economical cost per hole, without compromising on the superior standards of quality that clients have come to expect from us.

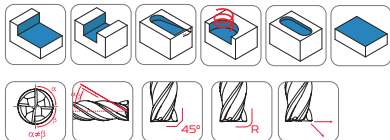


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ENGINE

- HIGH NICKEL ALLOYS
- SUPER ALLOYS
- INCONEL
- TITANIUM
- STAINLESS STEEL



Heat resistant alloys, structural, and stainless steel are integral materials in the construction of aircraft engines. These materials, while essential due to their strength and durability, present specific challenges during the machining process, particularly in terms of thermal conductivity. Unlike other materials, heat-resistant alloys do not effectively carry heat away in the chip, necessitating the use of specialized tools and techniques to manage heat during machining. To address these challenges, Karcen Cutting Tools offers a range of advanced solutions designed to optimize thermal transfer and enhance cutting performance.

Our cutting tools feature unique edge roundings, special dropletless coatings and super smooth surface finishings that enhance heat deflection and reduce tool wear. Additionally, our advanced processes are engineered to minimize the arc of engagement and incorporate additional flutes to aid in heat dissipation.

Solid Carbide D-Tech X-TYPE DRILLS

The drilling of Inconel 718, a nickel-based superalloy, and Titanium Alloy presents notable challenges due to their material properties and operating conditions.

These materials cause a significant amount of abrasive tool wear. KARCEN Cutting Tools' D-TECH X Type Drills (M3DX-M5DX and M8DF) are specifically developed to provide the best solutions for these demanding applications, ensuring high-quality outcomes and extended tool life.



Solid Carbide ULTRA Δ -BITE

High Performance Endmill

Among our flagship products is the 101 Series featuring double core Technology and 111 Series featuring various helix-various pitch which provides unparalleled strength and efficiency in slotting, roughing, and finishing operations in Titanium and stainless steels.

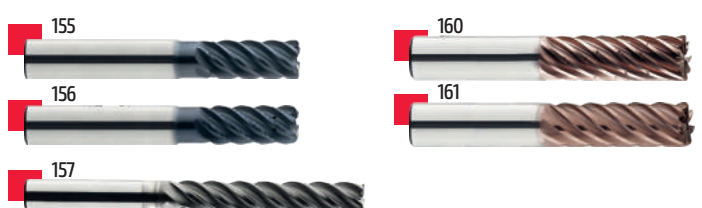
KARCEN Cutting Tools also offers the 5-flute 99 Series HPC and trochoidal milling. This tool features a unique core design for unmatched strength, ensuring reliable performance even under challenging conditions. The 111 Series range, known for its variable helix and pitch corner radius options, serves as an excellent alternative in these scenarios. Additionally, the 111 series is also engineered for the efficient machining of large titanium parts, helping to significantly reduce tooling costs.

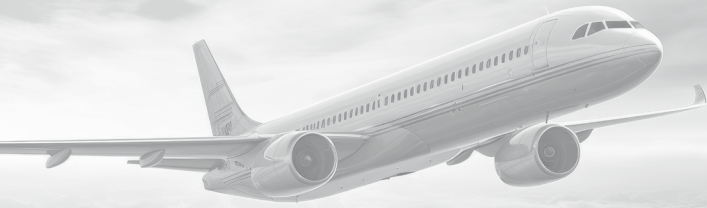


Solid Carbide HPC

High Performance Machining

For high-speed machining and trochoidal milling operations, our HPC 155, 156, 157 Series, 160(Falcon) Series and 161(Archon) Series Chip Splitter provide a chatter-free experience, making it ideal for stable and efficient machining.





Solid Carbide THRE^ΔD MILL

Single Solution for Different Workpiece Materials

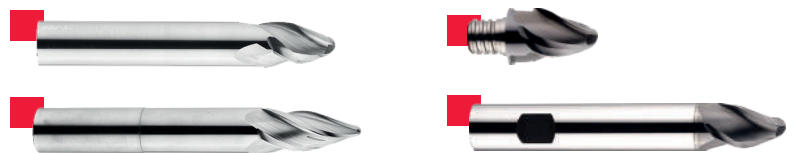


Our comprehensive range of products ensures that our customers can achieve optimal performance, reliability, and cost-effectiveness in their machining processes.

For manufacturers striving to excel in this demanding field, KARCAN Cutting Tools remains a trusted solution partner committed to delivering excellence.

Solid Carbide ENDLESS RADIUS BARREL ENDMILL

Our Endless Radius Barrel End mills are optimized for use with 5-axis CNC machines, providing a larger cutting surface and allowing for the machining of extensive widths compared to conventional ball end mills.



Solid Carbide Drills For Titanium SPECIAL COATED

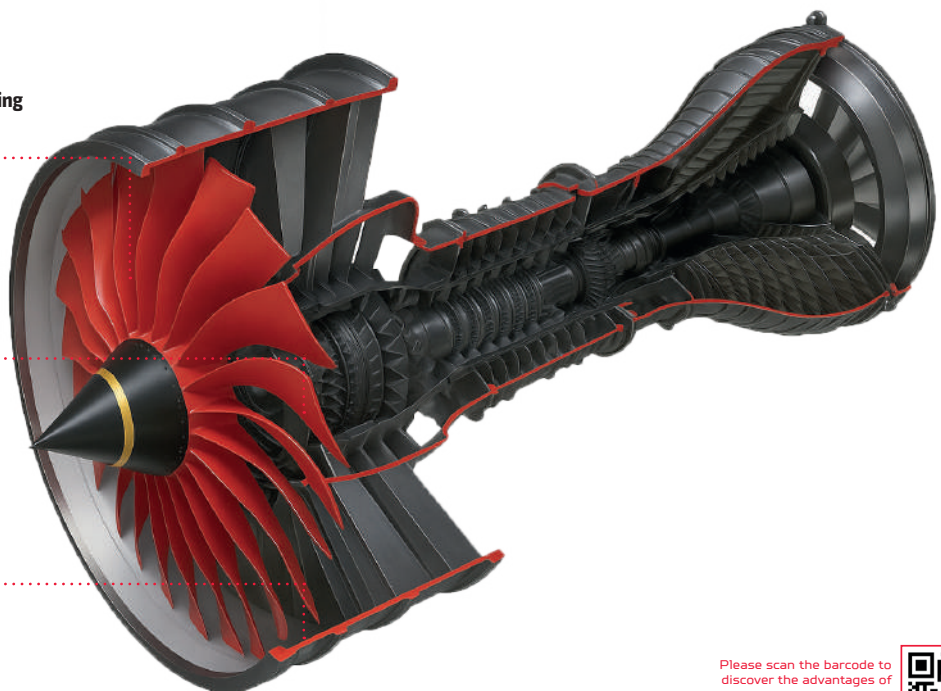
Special flute geometry along with special coating ensures the best performance for machining titanium alloys



Designed For **High-Performance Machining**
Of Advanced Technology Materials

Our Endless Radius Barrel End mills are optimized for use with 5-axis the machining of extensive widths compared to conventional ball end mills.

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LANDING Gear



Tackling The Challenges Of Machining Titanium Alloys, Stainless Steels And Pre-Hardened Steels In Landing Gear Manufacturing

In the realm of landing gear manufacturing, the use of titanium, stainless steel, and pre-hardened steel plays a crucial role in ensuring the structural integrity and performance of aircraft components. However, these materials present their own unique set of challenges in machining, characterized by issues such as smearing and sticking, part distortion during roughing, poor surface finishes, and difficulties in chip evacuation—all of which can adversely affect tool life. Pre-hardened materials, in particular, can reach hardness levels of up to 60HRC, demanding specialized machining processes and tools.



Solid Carbide D-Tech HOLE-MAKING

Drilling titanium alloys and stainless steels poses significant challenges due to their material properties, operating conditions, and high quality requirements.

To combat the high levels of abrasive tool wear caused by carbides within the material matrix, our D-TECH X Type Drills (M3DF-M5DF and M8DF) offer an effective and robust solution.



Solid Carbide MIC-CUT

Micro Sharpen-Edge Endmill

Alongside this, our 150,153 and 250 series stands out due to its high accuracy and diverse size options, providing adaptable and precise solutions tailored to a wide range of applications.

Our uniquely qualified products are designed to address the needs of machining hard components.



Solid Carbide ULTRA-Δ-BITE

High Performance Endmill

The 100,101,112,158, Series and 111 series, available in 4,5, and 6 flute versions, comprehensively cover all requirements for solid carbide end mills.

The 111 Series features various helix-various pitch and 101 Series with its double core technology, offer strong and reliable performance in both titanium and stainless steel applications, allowing for efficient slotting and finishing operations.



Solid Carbide ULTRA-Δ-BITE

Finishing Endmill

KARCAN Cutting Tools has developed the 112 Plus, 203 Plus and 102 Plus Series, specifically engineered to machine materials up to 70HRC with high efficiency.



AIRCRAFT

Assembly



In the fast-paced world of aerospace manufacturing, precision and efficiency are paramount. Hand-held drilling tools play a critical role in the assembly and maintenance of aircraft, where accuracy and reliability can dramatically impact both safety and performance.

These versatile tools are crucial for tasks that demand meticulous attention to detail, such as drilling holes for rivets and fasteners in various aircraft materials including aluminum, titanium, and composites. The unique challenges presented by these materials require hand-held drilling tools that combine power with precision.

Modern hand-held drilling tools for aircraft are designed to meet the exacting standards of the aerospace industry. They come equipped with advanced features such as variable speed controls, ergonomic designs for operator comfort, and high torque capabilities to handle tough materials without compromising on accuracy. With continued advancements in technology, these tools are set to become even more efficient and reliable, aiding in the production of safer and more efficient aircraft for tomorrow's skies.

Karcan Cutting Tools also stands out for their adaptability, providing versatile tools that accept various drill bits and accessories. This enables technicians to swiftly transition between tasks while maintaining high levels of precision and durability—attributes that are particularly crucial in the aerospace industry.

THREADED SHANK

For use in right-angle drilling motor in confined spaces



STRAIGHT SHANK

High Performance Hand Drills for Titanium, CFRP, Aluminium materials.



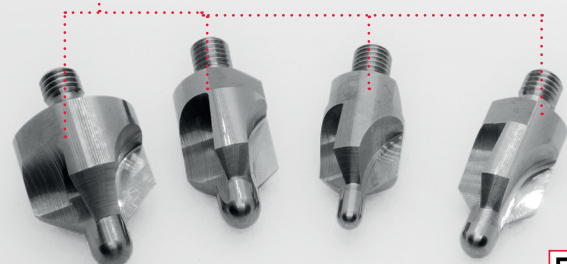
ADE-EDU DRILLS

The best option for Automatic Drilling Equipments/ Units in high precision holes on structural bodies.

To reach extended tool-life even for Stack Materials thanks to its special polished flute geometry along with special cutting edges.



Special Countersink Tools possible with any type of Screw or intersection radius/angles.



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CUSTOMIZED SOLUTIONS ■

For Aerospace

In the complex realm of aerospace manufacturing, where precision and customization are key, nearly half the tooling requirements necessitate specialized solutions. Karcan Cutting Tools, renowned for their innovations, is leading the charge to meet this demand with unmatched expertise and commitment to excellence.

Dedication to Tailored Solutions

Understanding the distinct needs of each aerospace project, Karcan Cutting Tools is dedicated to providing customized tooling solutions. Their engineering and production teams excel in designing and manufacturing specialized tools that address the specific needs of each client. This dedication to customization ensures that Karcan can fulfill the varied and stringent requirements of the aerospace industry, covering everything from bespoke projects to expansive production endeavors.

Strategically Positioned for Excellence

Karcan Cutting Tools has established specialized facilities in key manufacturing regions. These strategic locations allow them to stay abreast of industry shifts and respond quickly to client demands. By operating in these core areas, Karcan harnesses local expertise and supply chain efficiencies, ensuring clients enjoy rapid service and exceptional support.

A Legacy of Experience and Skilled Professionals

With decades of industry experience, Karcan Cutting Tools boasts one of the most skilled workforces in aerospace tooling. Their team includes proficient engineers and technical experts who bring extensive knowledge to every project. Whether it's designing detailed tools or integrating the latest technological advances, Karcan's professionals are equipped to meet the challenging needs of aerospace tool manufacturing.

Innovation at the Forefront

Karcan embraces innovation as a cornerstone of their operations. By consistently investing in research and development, they guarantee that their tooling solutions are state-of-the-art. This innovation allows Karcan to deliver tools that are not only specialized but also superior in quality, enhancing the efficiency and precision of aerospace manufacturing processes.

Why Partner with Karcan?

Choosing Karcan means partnering with a company that prioritizes precision, reliability, and bespoke solutions. Their commitment to fostering long-term relationships with clients is evident in their customer service approach, which focuses on understanding and resolving the unique challenges each client faces. By offering tailored service along with cutting-edge tooling solutions, Karcan has established itself as a trusted partner in the aerospace industry.

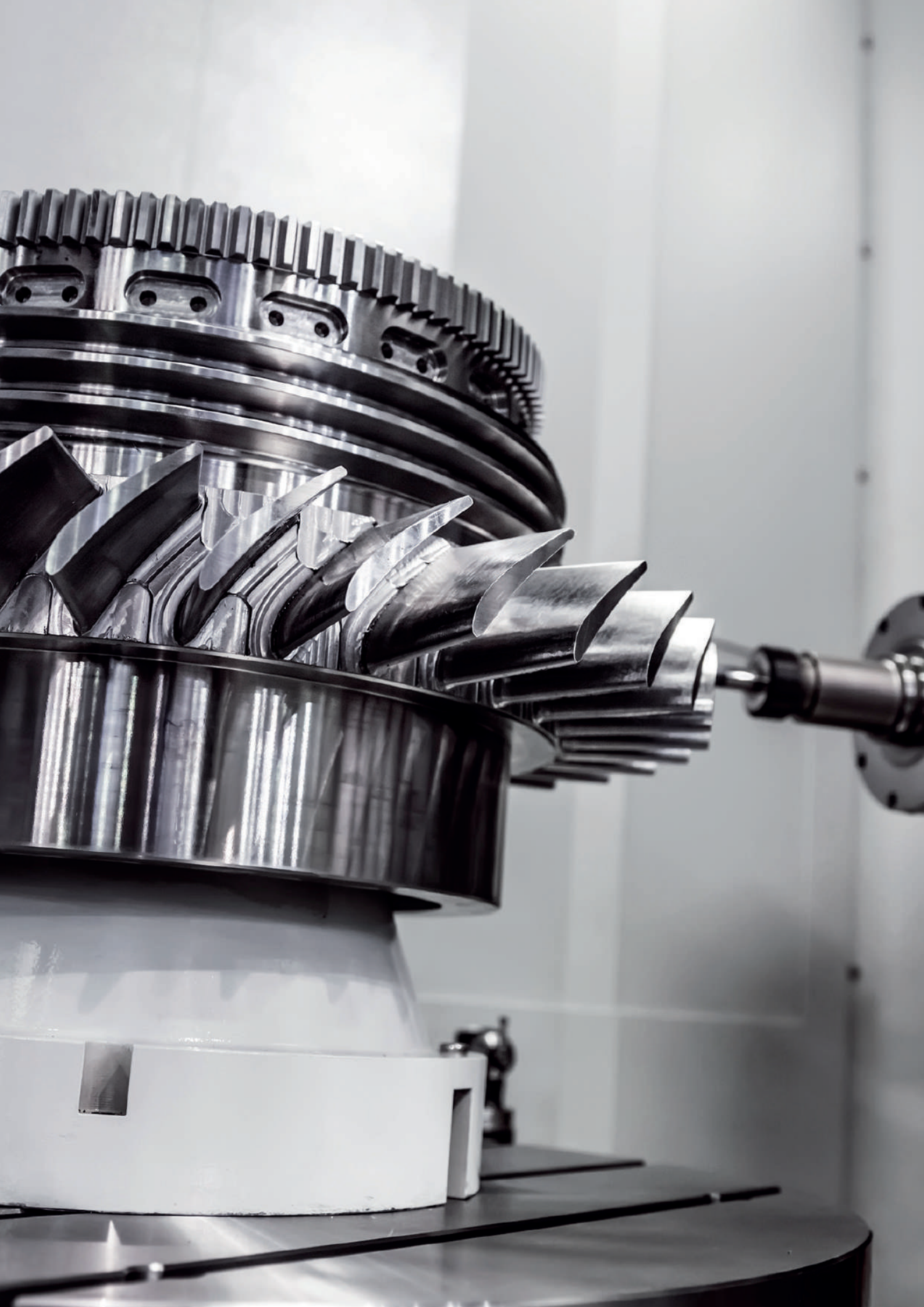
Conclusion

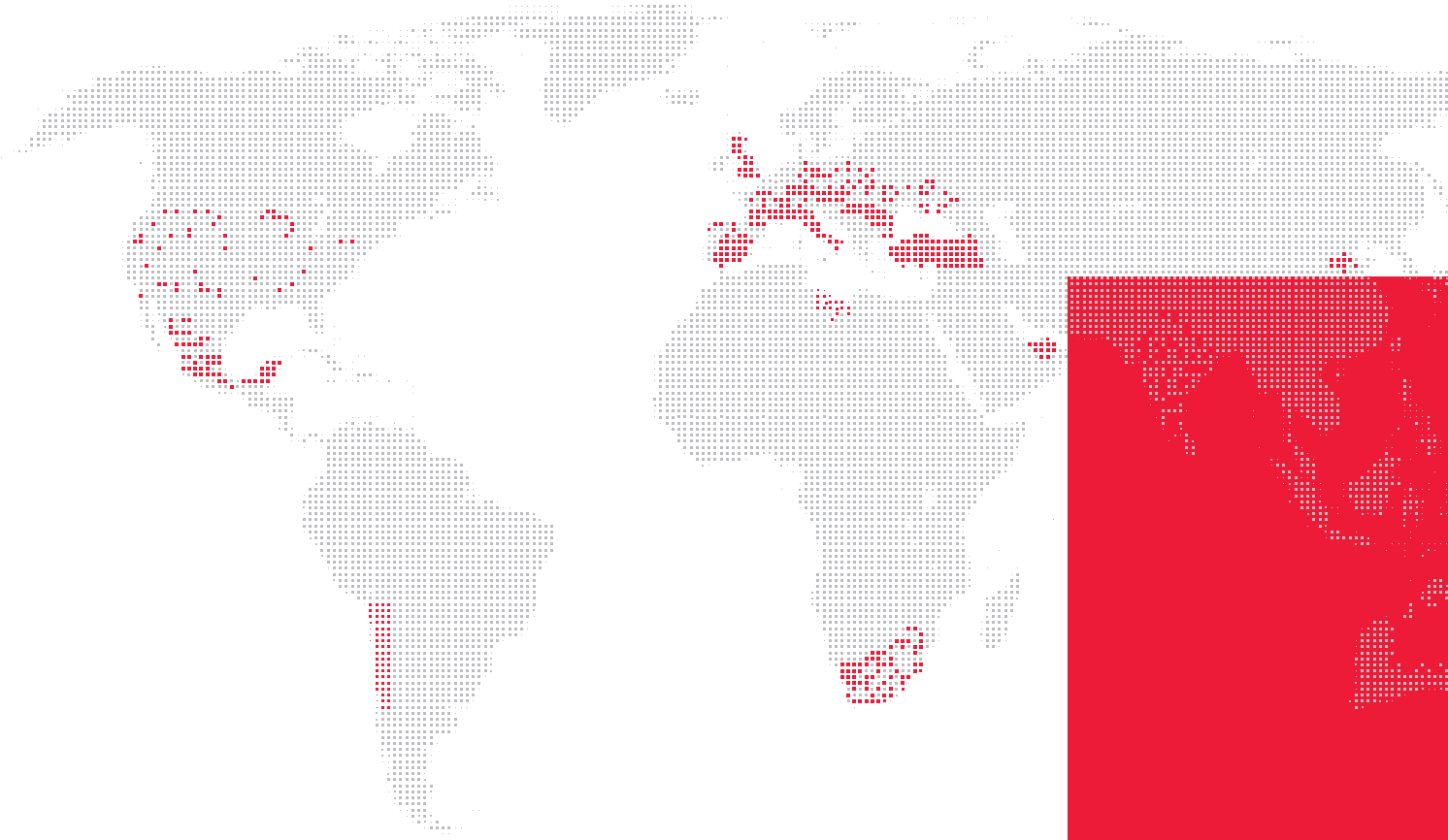
In an industry where specialized tooling is crucial, Karcan Cutting Tools sets itself apart as a major in supplying customized solutions that address the precise demands of aerospace manufacturers. With their strategic locations, skilled workforce, and strong commitment to innovation, Karcan is fully equipped to drive progress in aerospace manufacturing tooling. When it comes to meeting the industry's rigorous standards, Karcan Cutting Tools is not only prepared but proactive, consistently delivering quality and precision with every custom tool they produce.



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