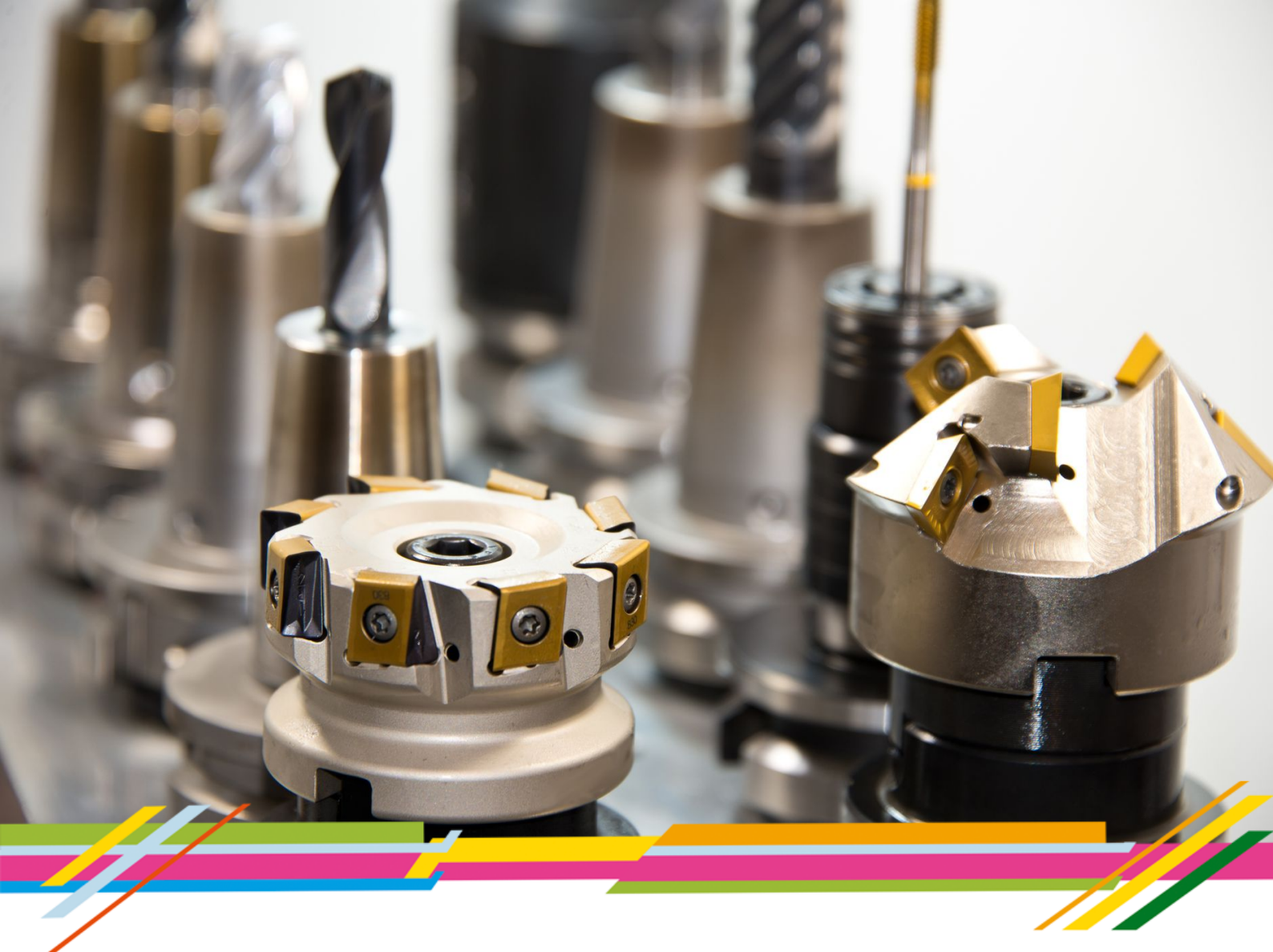




Global Tungsten Carbide Market

Market size, segmentation, competitive landscape and outlook

2021-2031

Moving forward, together



Every one of us has, at some point, heard the line from *Alice in Wonderland*: “It takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast.” Cliché as the quote has become, our world is changing at extraordinary speed. And yet, to my mind, it matters not only to run fast, but — more importantly — to know where you are running.

We see ourselves as the navigator, ready at the right moment to point out the correct course. By providing current, timely information for the decisions that matter, we aim to protect our clients from missteps and to help them find new opportunities.

It matters to us that you are satisfied with the work we have done. If you have any questions about this report, we will be glad to answer them.

ANDREY SHEVCHENKO, Managing Partner

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Market at a glance

This demo shows the **form and depth** of the report — real narrative with the detailed figures and tables masked as “XXX”. When you order the report, every figure is finalised and verified for your copy, and the full report is delivered within 24–72 hours.

Indicator	Value
Market size (2025)	USD 24.6 bn
Forecast (2031)	USD 34.9 bn
CAGR (2021-2031)	6%
Study period	2021-2031
Largest region	Asia-Pacific · 52%
Fastest-growing region	Asia-Pacific · 6.6%
Market concentration	Moderate
Licence	Individual / Company

The global tungsten carbide market reached USD XXX billion in 2025 and is forecast to expand to USD XXX billion by 2031, advancing at a XX% CAGR. Demand is being reinforced by precision machining, automated manufacturing, mineral extraction, infrastructure construction, aerospace production and the substitution of conventional wear materials with longer-life cemented carbide. Asia-Pacific accounts for XX% of market value, supported by China's integrated tungsten chain and the region's concentration of automotive, electronics, machine-tool and construction activity. Supply security, carbide recycling and premium submicron grades will determine competitive advantage through 2031.

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Executive summary

The global tungsten carbide market reached USD XXX billion in 2025 and is forecast to expand to USD XXX billion by 2031, advancing at a XX% CAGR. Demand is being reinforced by precision machining, automated manufacturing, mineral extraction, infrastructure construction, aerospace production and the substitution of conventional wear materials with longer-life cemented carbide. Asia-Pacific accounts for XX% of market value, supported by China's integrated tungsten chain and the region's concentration of automotive, electronics, machine-tool and construction activity. Supply security, carbide recycling and premium submicron grades will determine competitive advantage through 2031.

Indicator	Value
Market size 2025	XXX
Forecast 2031	XXX
CAGR	XXX
Largest region	XXX
Fastest region	XXX

Key findings

- The market generated USD XXX billion in 2025 and will reach USD XXX billion in 2031.
- Asia-Pacific represented XX% of 2025 market value and will grow at a XX% CAGR through 2031.
- Cutting tools accounted for XX% of market value in 2025, reflecting carbide's central role in turning, milling, drilling and hole-making.
- Cobalt-bonded carbide represented XX% of 2025 revenue, while nickel-bonded and alternative-binder systems are gaining in corrosion-sensitive applications.
- China produced approximately XXX metric tons of mined tungsten in 2023, equal to XX% of global output, according to the U.S. Geological Survey.
- Production outside China remained near XX% of worldwide tungsten concentrate output in 2024, despite new Australian operations, according to the U.S. Geological Survey.
- China introduced export controls covering 25 rare-metal products across five categories, including tungsten products and related technologies, on February 4, 2025.
- The United States increased Section 301 tariffs on three specified tungsten product subheadings from China to XX% beginning in 2025.

Market size and forecast

Market value by year, USD bn

Indicator	2026	2027	2028	2029	2030	2031	CAGR
Market value, USD bn	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Market volume	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Production	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Imports	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Exports	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Apparent consumption	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

Year-over-year value change

Indicator	2027	2028	2029	2030	2031	CAGR
Market value	X%	X%	X%	X%	X%	X%
Production	X%	X%	X%	X%	X%	X%
Imports	X%	X%	X%	X%	X%	X%
Exports	X%	X%	X%	X%	X%	X%

Source: XXX

Global Tungsten Carbide Market Trends and Growth Drivers

Tungsten carbide demand is governed by industrial output, but value growth increasingly reflects productivity rather than production volume alone. Manufacturers are paying for longer tool life, predictable wear, higher cutting speed and fewer interventions in automated cells. This shifts value toward engineered powders, submicron grades, advanced coatings and supplier-supported tooling systems.

The supply side is defined by an unusual combination of upstream concentration and downstream technical diversity. China's position in mined tungsten and conversion gives it substantial influence over availability, while carbide performance depends on tightly controlled powder characteristics, binder chemistry, pressing, sintering and finishing. Export licensing and trade measures therefore transmit quickly into inventories, qualification programs and customer pricing.

Circularity is moving from an environmental program to a strategic feedstock model. Worn inserts and mining buttons contain recoverable tungsten and cobalt at concentrations far above most primary ores, enabling integrated producers to reduce raw-material risk and carbon intensity. Collection density, scrap sorting, chemical recovery and the ability to return recycled material to premium grades will separate market leaders from commodity suppliers.

Growth drivers

Automated machining raises carbide intensity

Automated production cells require predictable tool life, high cutting speeds and fewer unplanned changes, favoring coated cemented-carbide inserts and solid-carbide tools. Automotive, general engineering and electronics manufacturers are standardizing premium grades across connected CNC fleets, increasing carbide revenue per machine hour.

Mining and infrastructure renew wear demand

Road rehabilitation, tunnelling, quarrying and mineral extraction consume carbide buttons, picks, teeth and wear plates under severe abrasion and impact. Mechanization in emerging mining regions increases both the installed base of carbide-equipped equipment and the recurring replacement opportunity.

Aerospace and defence support premium grades

Machining titanium, nickel superalloys and hardened steels requires grades that retain edge strength under heat and interrupted cutting. Rising aircraft backlogs, turbine investment and defence procurement support higher-value micrograin carbides, specialized geometries and engineered coatings.

Tool-life economics favor carbide conversion

Manufacturers increasingly purchase against cost per finished component rather than nominal tool price. Carbide's combination of hardness, compressive strength and wear resistance reduces downtime and supports higher throughput, widening its addressable market against conventional tool steels.

Precision industries accelerate submicron demand

Semiconductor equipment, printed-circuit-board drilling, dental tools and medical-device machining require small diameters, sharp edges and dimensional stability. Submicron and nanograin carbide enables these attributes and carries a sustained premium over conventional medium-grain material.

Carbide recycling strengthens supply resilience

Buy-back programs recover tungsten and cobalt from worn inserts, drilling components, grinding sludge and production scrap. Closed-loop conversion reduces virgin-material exposure, improves product carbon intensity and secures feedstock for producers with established collection networks.

Restraints

Concentrated tungsten supply amplifies disruption

China dominates mined tungsten and several conversion stages, leaving carbide producers exposed to licensing policy, export availability and logistics interruptions. Buyers are increasing safety stocks and qualifying non-Chinese material, but new mines and conversion facilities require lengthy development cycles.

Raw-material volatility compresses margins

Changes in ammonium paratungstate, tungsten powder, cobalt and electricity prices can move carbide production costs faster than contractual selling prices. Smaller independent manufacturers and distributors carry the greatest working-capital and inventory-revaluation exposure.

Trade barriers complicate qualification

Export controls and tariffs encourage diversification but also raise landed costs and documentation requirements. Aerospace, defence and medical customers face extended validation cycles when changing powder sources, binders or sintering locations.

Advanced substitutes target specific applications

PCD, cubic boron nitride, ceramics, cermets and coated high-speed steel can outperform carbide in selected non-ferrous, hardened-steel, high-temperature or cost-sensitive duties. The effect is concentrated in application niches rather than broad displacement of cemented carbide.

Tungsten Carbide Market Driver and Restraint Impact on the Forecast

Drivers — impact on forecast

Driver	Impact on CAGR	Geography	Horizon
Automated machining raises carbide intensity	XXX	XXX	XXX
Mining and infrastructure renew wear demand	XXX	XXX	XXX
Aerospace and defence support premium grades	XXX	XXX	XXX
Tool-life economics favor carbide conversion	XXX	XXX	XXX
Precision industries accelerate submicron demand	XXX	XXX	XXX
Carbide recycling strengthens supply resilience	XXX	XXX	XXX

Source: XXX

Restraints — impact on forecast

Restraint	Impact on CAGR	Geography	Horizon
Concentrated tungsten supply amplifies disruption	XXX	XXX	XXX
Raw-material volatility compresses margins	XXX	XXX	XXX
Trade barriers complicate qualification	XXX	XXX	XXX
Advanced substitutes target specific applications	XXX	XXX	XXX

Source: XXX

Tungsten Carbide Market Segmentation by Form, Grade, Binder and Application

By Product Form

Finished inserts, wear parts, buttons and engineered components dominate because their value includes powder conversion, pressing, sintering, grinding and application-specific geometry. Rods and blanks are gaining as independent tool grinders and localized toolmakers expand. Thermal-spray powders grow fastest as operators extend component life in energy, aerospace, steelmaking and process industries.

Value by product Form, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Finished Cemented Carbide Components	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Tungsten Carbide Powder and Ready-to-Press Powder	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Rods, Blanks and Preforms	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Thermal-Spray and Surface-Engineering Powders	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Carbide Grade

Medium-grain carbide retains the broadest use across general machining and wear parts because it balances toughness, hardness and processing cost. Fine and ultrafine grades serve precision cutting and drilling, while coarse grades remain important where mining and construction tools require impact resistance. Submicron and nanograin materials are gaining fastest in micro-drilling, medical tools, electronics and high-speed finishing.

Value by carbide Grade, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Submicron and Nanograin	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Ultrafine and Fine Grain	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Medium Grain	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Coarse and Extra-Coarse Grain	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Binder System

Cobalt remains the standard binder for cutting, mining and wear applications because the WC-Co system has mature processing routes and a wide property envelope. Nickel-bonded grades gain in chemical processing, valves and corrosion-sensitive service. Iron-nickel and alternative binders expand from a small base as producers address cobalt cost, sourcing and occupational-health priorities.

Value by binder System, USD bn

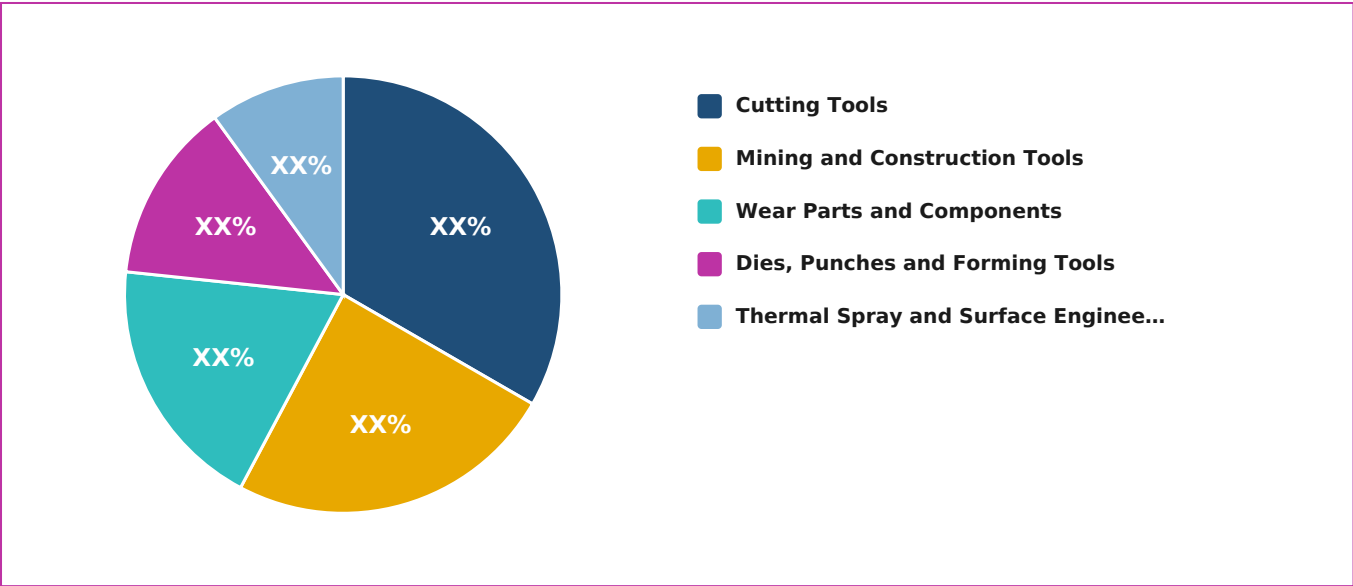
Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Cobalt-Bonded	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Nickel-Bonded	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Iron-Nickel and Mixed Binders	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Binderless and Other Systems	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By Application

Cutting tools lead because carbide is the default substrate for high-productivity turning, milling, drilling and solid-tool applications. Mining and construction components form the second-largest pool through drill buttons, road picks, coal-cutting tools and wear inserts. Thermal spraying is expanding fastest as asset owners seek localized wear protection without replacing entire high-value components.

Value share by application, 2025



Source: XXX

Value by application, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Cutting Tools	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Mining and Construction Tools	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Wear Parts and Components	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Dies, Punches and Forming Tools	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Thermal Spray and Surface Engineering	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

By End-Use Industry

Automotive remains the largest end-use sector through engine, transmission, chassis, brake and electric-drive machining, although its application mix is changing with electrification. General industrial machinery provides stable, diversified demand across pumps, bearings, gears and capital equipment. Aerospace and defence record the fastest growth because difficult-to-machine alloys, tight tolerances and production backlogs raise tool consumption and premium-grade intensity.

Value by end-Use Industry, USD bn

Segment	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Automotive and Transportation	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Industrial Machinery and General Engineering	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Mining and Construction	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Aerospace and Defence	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Electronics, Medical and Precision Manufacturing	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Oil, Gas and Energy	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

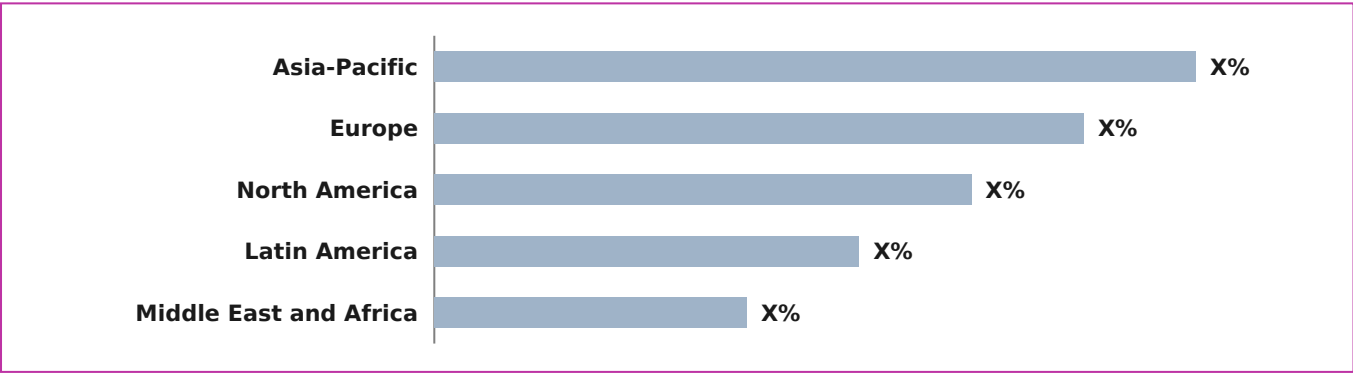
Tungsten Carbide Market Regional Analysis and Country Outlook

Asia-Pacific generated XX% of global tungsten carbide revenue in 2025. China anchors the region through its tungsten resources, powder-conversion capacity, cemented-carbide manufacturing base and large domestic machine-tool, automotive, electronics, mining and construction industries. Japan and South Korea sustain demand for high-consistency grades used in automotive, semiconductor and precision manufacturing, while India provides the region's strongest incremental demand from infrastructure, engineering exports and localized tooling production.

Europe accounted for XX% of market value, led by Germany, Italy, Sweden, Austria and the wider Central European machining cluster. The region's competitive advantage lies in premium cutting systems, powder metallurgy expertise, carbide recycling and integration with aerospace and automotive customers. The EU Critical Raw Materials Act is directing attention toward diversified tungsten extraction, processing and recovery, supporting investment in Iberian mining, Austrian conversion and closed-loop scrap systems.

North America represented XX% of 2025 revenue and will expand at a XX% CAGR. Aerospace, defence, oilfield equipment, reshoring of precision manufacturing and infrastructure maintenance support demand, while the absence of current U.S. commercial tungsten mining increases the strategic value of recycling and allied-country supply. Latin America and the Middle East and Africa remain smaller markets but gain from copper, iron ore, gold, quarrying, roadbuilding and oil-and-gas wear applications.

Growth rate by region, 2025-2031



Source: XXX

Market value by region, USD bn

Region	2026	2027	2028	2029	2030	2031	Share 2025	CAGR
Asia-Pacific	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Europe	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
North America	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Latin America	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX
Middle East and Africa	XXX	XXX	XXX	XXX	XXX	XXX	XXX	XXX

Source: XXX

Market value by leading country, USD bn

Country	2025	2031	Share 2025	CAGR
United States	XXX	XXX	XXX	XXX
Germany	XXX	XXX	XXX	XXX
United Kingdom	XXX	XXX	XXX	XXX
Belgium	XXX	XXX	XXX	XXX
Netherlands	XXX	XXX	XXX	XXX
Japan	XXX	XXX	XXX	XXX
China	XXX	XXX	XXX	XXX
Mexico	XXX	XXX	XXX	XXX

Source: XXX

Tungsten Carbide Market Competitive Landscape and Company Share

The market is moderately concentrated: a group of vertically integrated international suppliers controls premium powders, proprietary grades, coatings, engineered geometries and global recycling networks, while numerous regional manufacturers compete in standard inserts, rods, blanks and wear parts. Sandvik, CERATIZIT and Plansee, Kennametal, Xiamen Tungsten, Mitsubishi Materials, Sumitomo Electric and Tungaloy combine material science with application engineering and established industrial distribution.

Competitive positioning increasingly depends on upstream security. Chinese manufacturers benefit from proximity to tungsten mining and conversion, while European, Japanese and U.S. suppliers are expanding scrap recovery, long-term procurement and multi-region production. Premium suppliers protect margins through process guarantees, tool-management contracts, reconditioning, digital inventory services and grades designed around specific workpiece materials.

Acquisitions remain focused on specialist cutting-tool makers, digital manufacturing platforms and regional distribution rather than large-scale consolidation of the upstream tungsten chain. Capital is moving toward automated pressing and sintering, low-carbon furnaces, recycled-powder processing, advanced coatings and capacity in India and Southeast Asia. Company-share gains through 2031 will favor suppliers capable of documenting origin, recycled content, carbon intensity and consistent performance across globally qualified plants.

Leading companies

Company	HQ	Est. revenue 2025	Market share 2025	YoY
Sandvik AB	XXX	XXX	XXX	XXX
CERATIZIT S.A.	XXX	XXX	XXX	XXX
Kennametal Inc.	XXX	XXX	XXX	XXX
Xiamen Tungsten Co., Ltd.	XXX	XXX	XXX	XXX
Mitsubishi Materials Corporation	XXX	XXX	XXX	XXX
Sumitomo Electric Industries, Ltd.	XXX	XXX	XXX	XXX
Tungaloy Corporation	XXX	XXX	XXX	XXX
Hyperion Materials & Technologies	XXX	XXX	XXX	XXX

Source: XXX

Tungsten Carbide Market Forecast, Recycling and Strategic Opportunities

The tungsten carbide market will add USD XXX billion in annual revenue between 2025 and 2031. Base-case growth rests on industrial production normalization, infrastructure investment, aerospace build rates and continued conversion toward high-productivity tools. Price and mix will remain meaningful contributors as submicron powders, coated inserts and application-engineered wear components grow faster than standard grades.

Supply diversification will shape investment decisions throughout the forecast. China's export-control framework, U.S. tariffs and the EU's strategic-material benchmarks are encouraging long-term offtake agreements, regional conversion capacity and greater recovery of carbide scrap. Producers with integrated recycling will be able to stabilize input availability and offer lower-carbon product lines without sacrificing grade performance.

The strongest returns will be concentrated in precision rods, micro-tools, thermal-spray powders, aerospace machining grades and severe-service mining components. A downside scenario would combine prolonged weakness in Chinese construction and European manufacturing with elevated input costs; an upside scenario would arise from faster aerospace output, defence procurement, infrastructure execution and qualification of recycled-content carbide by major OEMs.

Opportunities

- Low-carbon carbide grades with high recycled content
- Localized powder conversion and sintering outside China
- Binder-reduced and cobalt-free carbide formulations
- Additively manufactured carbide geometries and near-net-shape components
- Application-specific carbide for hypersonics, semiconductors and medical devices
- Digital scrap collection, tool tracking and product-passport services

This preview shows the form and depth of the report. The full report contains every figure, segment- and country-level detail and full company profiles. On purchase all figures are finalised and verified, and the report is delivered within 24–72 hours.