

# **Tungsten Carbide Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, 2018-2028 Segmented By End User (Automotive, Aerospace & Defense, Construction, Oil & Gas, Electronic, Others), By Application (Cemented Carbide, Industrial Alloys, Surgical Tools, Others), By Region and Competition**

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## **Abstracts**

Global Tungsten Carbide Market has valued at USD21.48 billion in 2022 and is anticipated to project robust growth in the forecast period with a CAGR of 5.21% through 2028. Tungsten carbide is an incredibly versatile alloy that surpasses titanium in terms of hardness properties. This remarkable material exhibits exceptional heat resistance, scratch resistance, and rust resistance, thanks to its composition of tungsten and carbide mixed in equal proportions. With the ability to be precisely cut and molded into any desired shape, the versatility of this alloy is further enhanced by its recyclability.

The outstanding properties of tungsten carbide, including its strength, durability, and exceptional resistance to abrasion, make it the ideal material for various industries such as automotive, oil & gas, mining, and construction. The automotive industry, in particular, is experiencing significant growth, creating a positive outlook for the market. Tungsten carbide finds extensive use in the production of high-performance auto parts that can withstand high stress and heat, including ball joints, brakes, crankshafts, and studs for tires.

Moreover, the utilization of tungsten carbide in the manufacturing of cutting tools used in the production of automotive engines, transmissions, axles, and steering assemblies is acting as a significant growth-inducing factor. The drilling and mining industry is also witnessing an increasing demand for tungsten carbide, as it is used in the production of

drill bits, roller cutters, downhole hammers, and tunnel boring machines. This surge in demand is providing substantial momentum to the market growth.

Furthermore, the adoption of tungsten carbide in three-dimensional (3D) printing is fueling the market growth. This innovative application allows for the creation of highly efficient and cost-effective high-performance parts. Additionally, the medical sector extensively utilizes tungsten carbide to produce surgical instruments, including scissors, forceps, blade handles, hemostats, graspers, needle holders, and cautery. This widespread application in the medical field is further driving the market growth.

Other factors contributing to the market growth include the increasing recycling of product scrap, the incorporation of tungsten carbide in sports gear, and the significant growth in the construction industry. The Asia-Pacific region stands as the largest contributor to the tungsten carbide market and is expected to continue growing over the forecast period. With the market witnessing extreme growth due to the rise in manufacturing activities, the future looks promising for the tungsten carbide industry.

## Key Market Drivers

### Growing Demand of Tungsten Carbide from Automotive Industry

Tungsten carbide, a compound composed of tungsten and carbon, is widely acclaimed for its exceptional hardness and remarkable resistance to high temperatures. These outstanding properties make it an ideal material for a wide range of industrial applications, encompassing the production of machine tools, cutting tools, and abrasives.

One industry that significantly contributes to the escalating demand for tungsten carbide is the automotive sector. The hardness, durability, and heat resistance of this material make it a preferred choice for manufacturing various automotive components. Engine parts and exhaust systems, which necessitate high heat resistance, extensively employ tungsten carbide. Moreover, it is widely utilized in the production of cutting tools for machining parts, enhancing their efficiency and longevity.

Furthermore, as the automotive industry increasingly emphasizes vehicle lightweighting to enhance fuel efficiency, the high strength-to-weight ratio of tungsten carbide positions it as a favored material for automotive manufacturers. The growing demand for tungsten carbide in the automotive sector has significant implications for the global market. With automotive manufacturers continuously seeking durable and efficient materials for their

components, the demand for tungsten carbide is expected to surge further.

Additionally, the shift towards electric vehicles (EVs) is anticipated to bolster the tungsten carbide market. EVs necessitate high-performance materials like tungsten carbide for various components, including battery technology and electric motor parts. This further underlines the growing importance of tungsten carbide in the automotive industry.

In conclusion, the escalating demand for tungsten carbide in the automotive sector serves as a key driver of the global tungsten carbide market. As automotive manufacturers persistently seek robust and efficient materials, this trend is projected to continue, contributing to the market's sustained growth and evolution.

### Growing Demand of Tungsten Carbide from Medical Industry

The medical industry is a vital catalyst for the increasing demand for tungsten carbide. This remarkable material's exceptional qualities, including hardness, durability, and corrosion resistance, make it an ideal choice for manufacturing a wide range of medical devices and surgical instruments.

Tungsten carbide finds extensive use in the production of surgical instruments that require precise and sharp edges, such as scalpel blades and surgical scissors. Additionally, it is also utilized in the manufacturing of orthopedic joint replacement parts due to its exceptional wear resistance and biocompatibility.

Furthermore, the demand for tungsten carbide in the medical industry is expected to witness further growth, driven by advancements in medical technology and the continuous rise in healthcare expenditures worldwide. As the medical field continues to evolve and seeks durable and efficient materials for medical devices and instruments, the demand for tungsten carbide is poised to increase even more.

Moreover, with ongoing innovations in the medical field, such as minimally invasive surgical techniques and robotic surgeries, there will be a greater need for high-precision tools made of tungsten carbide. This will further propel the market, as these advanced medical procedures demand reliable and long-lasting instruments.

In conclusion, the surging demand for tungsten carbide in the medical sector significantly impacts the global market. As medical technologies advance and the need for robust and efficient materials continues to rise, this trend is expected to persist,

driving further growth in the market. By providing the necessary strength and precision required in medical applications, tungsten carbide is poised to play a pivotal role in shaping the future of the global tungsten carbide market.

## Key Market Challenges

### Volatility in Price of Raw Materials

Tungsten carbide, an incredibly robust and heat-resistant alloy composed of tungsten and carbon, has gained immense popularity in a wide range of industrial applications. This remarkable material is highly sought after for its exceptional hardness, making it an ideal choice for various cutting tools, abrasives, and machine tools used in demanding industries.

However, despite its versatility and widespread use, the tungsten carbide market is currently facing significant challenges. The fluctuating costs of raw materials, particularly tungsten, directly impact the production cost of tungsten carbide. These price fluctuations can arise from a multitude of factors, including supply-demand imbalances, global economic conditions, and geopolitical issues.

Recent studies have shown that the price volatility of tungsten carbide has a substantial impact on international trade relationships within the cemented carbide industry. For example, the ongoing conflict in Ukraine has resulted in soaring prices and increased market volatility.

As the demand for tungsten carbide continues to grow, understanding the intricate dynamics of its supply chain and the factors driving price fluctuations becomes crucial for industry players. By closely monitoring and adapting to these challenges, stakeholders can navigate the turbulent market conditions and ensure the continued success of this indispensable material in various industrial sectors.

## Key Market Trends

### Growing Demand for Additive Manufacturing

Additive manufacturing, also known as 3D printing, has revolutionized various industries, and the tungsten carbide market is no exception. The exceptional hardness, durability, and heat resistance of tungsten carbide make it an outstanding choice for manufacturing intricate components with the utmost precision.

The increasing demand for ultrafine tungsten carbide can be attributed to its expanding utilization in a wide range of applications, such as cutting tools. Additive manufacturing techniques have enabled the creation of complex geometric shapes that were previously challenging or even impossible to manufacture.

The rise of additive manufacturing has left a significant impact on the global tungsten carbide market. As industries continue to adopt additive manufacturing techniques, driven by their advantages of precision, flexibility, and cost-effectiveness, the demand for tungsten carbide is poised to witness substantial growth.

Moreover, additive manufacturing allows for the efficient utilization of materials, leading to reduced waste and potentially mitigating some of the challenges posed by raw material price volatility, which has been a significant concern in the tungsten carbide market.

In conclusion, the increasing demand for additive manufacturing represents a significant trend in the global tungsten carbide market. As industries wholeheartedly embrace this technology and reap its numerous benefits, this trend is expected to persist, contributing to the continued growth and evolution of the market.

## Segmental Insights

### End User Insights

Based on the category of end user, the automotive segment emerged as the dominant player in the global market for Tungsten Carbide in 2022. Tungsten Carbide, known for its exceptional durability, hardness, wear-resistance, and rust-free properties, finds significant applications in the automotive industry. It is widely used in manufacturing drills, metal cutting tools, and various automotive components, contributing to its high demand in the market.

The International Organization of Motor Vehicle Manufacturers (OICA) reported a total global automotive production of 80,145,988 units in 2021, indicating the rapid growth and development in the automotive sector. As the industry continues to expand, the demand for tungsten carbide in cutting tools and other automotive machinery parts is expected to surge. Consequently, the global tungsten carbide industry is poised for substantial growth during the forecast period, driven by the significant demand from the automotive sector.

## Application Insights

The cemented carbide segment is projected to experience rapid growth during the forecast period. The cemented carbide, which is a metal matrix composite, utilizes tungsten carbide particles and cobalt powder for the production of highly efficient metal cutting tools. The market for cutting tools is experiencing significant growth due to the increasing demand across various end-use industries such as automotive, mining, construction, and others. This surge in demand can be attributed to the exceptional properties of tungsten carbide, including outstanding wear resistance, toughness, and hardness, which make it an ideal material for metal cutting applications in major industries.

Furthermore, the automotive sector, in particular, is witnessing a substantial rise in the utilization of cutting tools. As per the data provided by the Society of Indian Automobile Manufacturers (SIAM), the total automotive production in India reached a remarkable figure of 22,933,230 units during the fiscal year 2021-22. This impressive growth in the automotive industry, along with thriving production activities, has significantly contributed to the increasing demand for tungsten carbide in metal cutting tool applications.

With the robust expansion of cutting tool applications across various industries, the Tungsten Carbide Market is poised to witness rapid growth during the forecast period. The continuous advancements in technology and the ever-increasing need for precision and efficiency in metal cutting processes are further driving the demand for tungsten carbide-based cutting tools.

## Regional Insights

Asia Pacific emerged as the dominant player in the Global Tungsten Carbide Market in 2022, holding the largest market share in terms of both value and volume. The robust growth of tungsten carbide in the Asia-Pacific region is influenced by its flourishing demand across various industries such as metalworking, construction, automotive, and others. The rise in construction activities, particularly in major countries such as China, Japan, India, and others, is propelling the demand for tungsten carbide. This versatile material finds application in saws, alloys, drill bits, and other construction materials.

According to the World Bank data, the construction sector held a significant share of 38% in the GDP of China for the year 2020. Moreover, the flourishing oil and gas

projects as well as mining and drilling activities in the APAC region are further boosting the growth prospects in the Tungsten Carbide Market. The establishment of large-scale mining activities and mineral-processing units is driving the demand for tungsten carbide.

With the development in major end-use sectors and the growing demand for tungsten carbide in the Asia-Pacific region, the Tungsten Carbide Market is expected to witness rapid growth during the forecast period. This growth trajectory is fueled by the increasing adoption of tungsten carbide in various industries, along with the region's focus on infrastructure development and resource extraction.

### Key Market Players

American Elements Corp

Buffalo Tungsten Inc.

CERATIZIT S.A.

CY Carbide Mfg. Co., Ltd.

Extramet Products, LLC.

Federal Carbide Company

Guangdong Xianglu Tungsten Co., Ltd.

H.C. Starck Tungsten GmbH

Jiangxi Yaosheng Tungsten Co., Ltd.

Kennametal Inc.

### Report Scope:

In this report, the Global Tungsten Carbide Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

### Tungsten Carbide Market, By End User:

Automotive

Aerospace & Defense

Construction

Oil & Gas

Electronic

Others

### Tungsten Carbide Market, By Application:

Cemented Carbide

Industrial Alloys

Surgical Tools

Others

### Tungsten Carbide Market, By Region:

North America

United States

Canada

Mexico

Europe

France

United Kingdom



Italy

Germany

Spain

Asia-Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Kuwait

Turkey

## Egypt

### Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Tungsten Carbide Market.

### Available Customizations:

Global Tungsten Carbide Market report with the given market data, Tech Sci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

### Company Information

Detailed analysis and profiling of additional market players (up to five).

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