

# Analysis of Aerospace Fastener Market in China

## Introduction

China's aerospace sector has expanded rapidly, fuelling demand for high-performance fasteners. And fasteners in this sector must withstand immense stresses, temperature extremes, and vibrations to secure critical parts of aircraft, spacecraft, and military systems.

## 中国航太紧固件市场分析

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## Market Size & Growth

Globally, the aerospace fastener market was valued at approximately USD 6 to 7 billion in 2024, with projections to reach USD 10 to 12 billion by 2030. China's domestic aerospace fastener market currently represents over 8% of the global market, translating to more than USD 530 million in 2024. Looking ahead, **industry reports anticipate China's market size exceeding USD 3 billion by 2030, reflecting a robust CAGR of over 8%.**

## Market Drivers

Domestic Aerospace Expansion, such as China's aerospace industry encompassing commercial (e.g., COMAC C919), military (J-20, J-31), and space exploration endeavours, is on an aggressive growth trajectory.

- **Commercial Aviation – COMAC C919**
- **Order Backlog & Ambitions**

As of 2024, the COMAC C919 had an order book of 1,000 units, valued at roughly USD 100 billion. COMAC aims to capture 20% of the global narrowbody market and 33% of the domestic Chinese market by 2035, projecting 2,000 sales of the C919 by 2037.

### - Broader Aircraft Demand Projections

**Boeing is forecasting that China will need 8,560 new commercial airplanes through 2042**, driven by economic growth well above the global average and increasing demand for domestic air travel. China's commercial airliner fleet will more than double to nearly 9,600 jets over the next 20 years, according to Boeing's Commercial Market Outlook (CMO), the company's long-term forecast of demand for commercial airplanes and related services.

### • Military Aviation – (J-20 and J-31)

#### - J-20 Production & Future Projection

**Production has ramped significantly since inception. Estimates show:**

- End of 2023: over 200 J-20s produced, with more than 70 added between mid-2023 and mid-2024. Mid-2024 estimates range between 195 aircraft in service up to 250 produced, with an annual output rate of about 100 aircraft/year. **A conservative projection suggests up to 800 J-20s by 2030.**

- Additional expert commentary notes the J-20 production is running at ~100 aircraft per year.

## • Space Exploration & Satellite Infrastructure

- Space Technology Market: China's space technology market was valued at USD 53.8 million in 2024, with forecasts **projecting growth to USD 95.4 million by 2030— a CAGR of ~10.6%.**
- China contributes approximately 11.5% of the global space technology market and is expected to lead the Asia-Pacific region in revenue terms by 2030.
- Commercial Space (Low-Altitude Economy & Satellites)  
**The broader “low-altitude economy,” including drone operations and emerging commercial airspace services, is expected to grow fivefold to RMB 3.5 trillion (approx. USD 490 billion) by 2035.**
- The commercial space sector is projected to reach RMB 2.8 trillion (US\$389 billion) by 2025, driven by satellite constellations, reusable launch tech, and deep-space investments.

## - Space Situational Awareness

The market for satellite tracking, space object detection, and related services in China was estimated at USD 45.16 million in 2023, and is **projected to grow to USD 386.56 million by 2035, reflecting a robust CAGR of ~20.8%.**

## - Satellite Infrastructure (Mega-constellations)

China is planning a massive satellite initiative—**launching 648 satellites by end-2025** as part of a 1,296-satellite first construction phase, leading up to a total constellation size of 15,000+ satellites.

## - Civil Space Achievements

Under CNSA oversight, China's space program has achieved milestones such as:

- o Landing on the far side of the Moon (Chang'e 4),
- o Lunar sample return missions (Chang'e 5 & 6),
- o Successful Mars rover operation (Tianwen-1),
- o Ongoing asteroid exploration (Tianwen-2)

## Challenges

**(a) Technical Gaps:** Despite rapid growth, many Chinese fastener manufacturers still operate with early-generation designs using basic materials like carbon structural steel. High-end applications—such as in nuclear power, automotive, and aerospace—require advanced, high-strength, fatigue-resistant fasteners, where domestic R&D needs enhancement.

**(b) Competitive Pressure & Supply Chain Vulnerabilities:** The market features intense competition from both local and global players. Profitability is squeezed amid raw material price volatility and geopolitical uncertainties that can disrupt supply chains.

**(c) Import Dependence for Advanced Materials:** Cutting-edge aerospace applications often still depend on imported materials or components. Ensuring quality while developing local substitutes remains a growing but challenging objective.



## Innovation & Technological Trends

In the Chinese aerospace fastener market, innovation is increasingly shaped by the adoption of advanced materials, smarter manufacturing processes, and environmentally compliant surface treatments. One of the most prominent shifts is the **growing use of titanium alloys, high-performance superalloys such as MP35N, and composite materials.** These advanced materials not only contribute to significant weight reduction but also enhance strength and thermal stability—key requirements in both commercial and military aerospace applications (Global Market Insights Inc.; Mordor Intelligence; Credence Research Inc.). Their integration into China's production ecosystem reflects the country's determination to align its fastener industry with international performance benchmarks.

Alongside material innovation, automation and digitalization are transforming Chinese production lines. Modern manufacturing methods now incorporate robotics, real-time traceability systems, and advanced digital monitoring. These technologies are vital in ensuring the precision, reliability, and safety demanded by aerospace regulations, and they also improve productivity and quality control across local manufacturers. As China ramps up aircraft production and invests in high-end aerospace programs, these digital innovations are becoming critical enablers of competitiveness.

Another area of technological progress is coatings and process innovation. Globally, aerospace manufacturers are moving away from traditional cadmium plating due to environmental and health concerns, **favoring alternatives such as zinc-nickel coatings.** This trend has direct implications for Chinese producers, who are increasingly adopting environmentally compliant processes to meet both domestic regulatory changes and international export requirements. By embracing

these new coating technologies, Chinese aerospace fastener companies not only address sustainability concerns but also strengthen their position in the global supply chain.

## Conclusion

China's aerospace fastener market is poised for strong expansion through 2030 and beyond, with projections indicating growth from approximately USD 480 million in 2023 to over USD 3 billion by the end of the decade (P Market Research; Fastener World). This trajectory is being fueled by rapid advances in the domestic aerospace sector, robust policy support, and the increasing potential for exports. The coming years will be defined by several transformative forces. High-performance materials are expected to gradually replace legacy designs, ensuring that Chinese fasteners meet the stringent demands of modern aviation. At the same time, advanced manufacturing—particularly the widespread adoption of automation and digitalization—will be critical for scaling production to global standards. Strategic global integration, including supply-chain diversification and international partnerships, will further strengthen the competitiveness of local producers. Equally important, regulatory convergence with international aerospace norms will prepare Chinese fastener manufacturers to compete on the global stage.

Taken together, these dynamics underscore that the Chinese aerospace fastener industry stands at an inflection point. With government backing, a rapidly growing aerospace ecosystem, and rising emphasis on quality and innovation, the sector is transitioning from a peripheral role to becoming a major global contributor. Although technical and competitive challenges remain, the projected CAGR of over 8% and a market valuation surpassing USD 3 billion by 2030 highlight a path of significant momentum. The ability to innovate in materials, manufacturing processes, and international alignment will ultimately define the next generation of China's aerospace fastener industry.


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