

F

SPECIAL EDITION: MANUFACTURING M&A AND CAPITAL MARKETS OUTLOOK

# Advanced Manufacturing in Space & Defense

FOCUS is a leading national M&A brand for the lower middle market. With over 40 years of experience, a global footprint, and hundreds of successful deals across myriad industries, FOCUS continues its mission to redefine the banker/client relationship.





## The aerospace and defense sectors are undergoing a profound transformation driven by the convergence of advanced manufacturing technologies and next-generation materials science.

Artificial intelligence (AI), robotics, additive manufacturing (AM) and digital manufacturing, and autonomous production systems are fundamentally altering how military and space systems are designed, produced, and sustained. At the same time, traditional precision machining is still playing a huge role in these developments as well. Simultaneously, a new generation of materials, including high-entropy alloys (HEAs), ceramic matrix composites (CMCs), self-healing polymers, and carbon fiber reinforced composites, is enabling capabilities that were previously unattainable. **All of these trends are creating financial opportunities for Companies serving these sectors with robust acquisition multiples and a plethora of investor interest in providing growth capital through debt and equity instruments.**

Modern aerospace and defense engineering operates at the intersection of extreme physics and geopolitical urgency. Hypersonic missiles must endure aerodynamic heating exceeding 2,000°C while maneuvering at Mach 10. Satellites must withstand cosmic radiation, thermal cycling of  $\pm 150^{\circ}\text{C}$ , and micrometeoroid impacts for decades without maintenance. Jet engines must sustain combustion temperatures above the melting point of the metals from which they are made. These demands have historically required decades of incremental materials research and manufacturing refinement.

The pace of that refinement is now accelerating dramatically. These figures reflect not merely commercial enthusiasm but a fundamental recognition that traditional manufacturing paradigms, which are centralized, slow-moving, and dependent on fragile global supply chains, are inadequate for the security environment of the 21st century.

## ADDITIVE MANUFACTURING: FROM PROTOTYPING TO STRATEGIC PRODUCTION

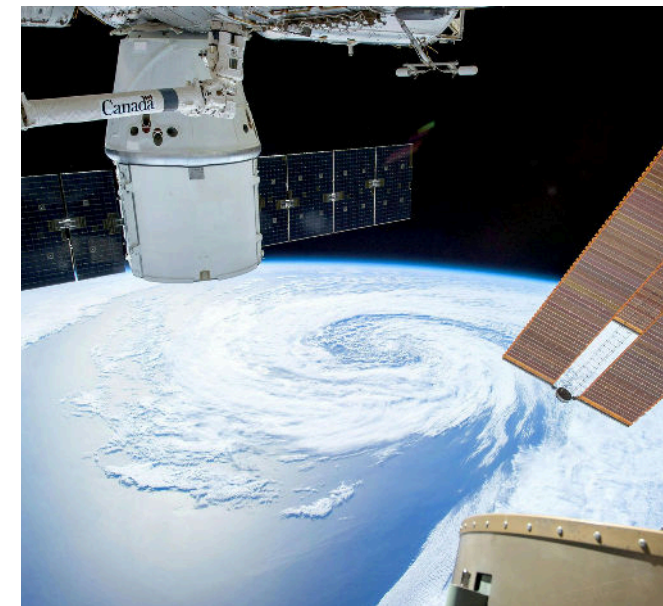
In aerospace and defense, Additive Manufacturing (AM) has evolved from a rapid prototyping tool into a production-grade technology for mission-critical components. This evolution has been driven by advances in metal powder quality, process control software, and post-processing techniques, as well as by the urgent need to reduce lead times, lower costs, and manufacture geometries that improve system performance.

Hypersonic weapons, which travel at speeds greater than Mach 5, represent one of the most demanding manufacturing challenges in modern defense. The extreme aerodynamic heating encountered at these speeds requires components capable of withstanding temperatures exceeding 1,500–2,000°C while maintaining structural integrity and precise aerodynamic geometry. Traditional manufacturing methods struggle to produce the complex internal cooling channels and heat-resistant geometries required for scramjet propulsion systems.

The DoD has explicitly identified AM as essential to hypersonic production. In FY2024, the Pentagon requested \$11 billion for long-range missiles including hypersonic weapons<sup>(1)</sup>. The DoD's GAMMA-H (Growing Additive Manufacturing Maturity for Airbreathing Hypersonics) initiative, launched in FY2023, awarded Aerojet Rocketdyne a \$22 million contract to revolutionize the scramjet manufacturing process using advanced AM techniques, consolidating multiple production steps to reduce cost and schedule.<sup>(1)</sup>

DARPA's complementary MACH (Materials Architectures and Characterization for Hypersonics) program focuses on developing new materials architectures for shape-stable, actively cooled leading edges, which are the most thermally stressed components on a hypersonic vehicle. The program investigates scalable net-shape manufacturing and advanced thermal design to enable passive and active thermal management systems.<sup>(2)</sup>

A strategic evolution in AM is the shift from centralized production to distributed, expeditionary manufacturing. Traditional defense manufacturing concentrates production in a small number of specialized facilities, creating single points of failure and long logistics chains. Advanced AM platforms, particularly those using high-performance polymers and composites, can be deployed closer to the point of operational need.



## PRECISION MACHINING: THE FOUNDATION OF MISSION-CRITICAL MANUFACTURING

While additive manufacturing commands significant attention, precision subtractive machining, specifically multi-axis Computer Numerical Control (CNC) machining, remains the indispensable foundation of aerospace and defense manufacturing. The global precision machining market was valued at \$117.2 billion in 2025 and is projected to reach \$243.8 billion by 2035 (a 7.6% CAGR), with aerospace and defense serving as primary growth engines.<sup>(3)</sup>

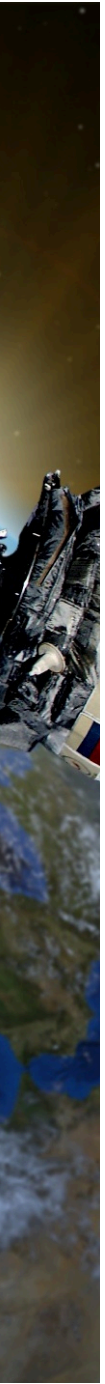
Aerospace and defense applications operate in environments where component failure is catastrophic. A commercial airliner contains millions of parts, and military systems require even greater reliability under extreme stress. Precision machining achieves the tight tolerances, often down to  $\pm 0.0001$  inches (or  $\pm 0.0025$  mm), required for these applications.<sup>(4)</sup>

For example, hypersonic missile defense components must withstand sustained temperatures exceeding  $1,648^{\circ}\text{C}$  ( $3,000^{\circ}\text{F}$ ) while maneuvering at Mach 5+. The dimensional accuracy of these components is critical for proper function, leaving no margin for manufacturing variance. Standard machining tolerances of  $\pm 0.010$  inches support most structural applications, but critical guidance and propulsion components demand far tighter specifications.<sup>(5)</sup>

The transition from traditional 3-axis to 5-axis CNC machining represents a leap in manufacturing capability. 5-axis machines can rotate on two additional axes, allowing the cutting tool to approach the workpiece from almost any angle. This capability is critical for producing the complex geometries required in modern aerospace design, such as turbine blades, impellers, and adaptive wing structures.

Furthermore, Multi-Tasking Machines (MTM) integrate milling, turning, and drilling into a single operation. In the defense sector, where precision is non-negotiable and lead times are compressed, MTMs minimize handling and reduce the risk of misalignment. The global 5-axis CNC machine market for aerospace applications alone was valued at \$8.7 billion in 2025 and is projected to reach \$14.2 billion by 2034.<sup>(6)</sup>





## MATERIAL CHALLENGES AND TOOLING INNOVATION

Precision machining in aerospace and defense requires cutting advanced materials that are notoriously difficult to machine. Titanium alloys (used in engine parts for their strength-to-weight ratio), Inconel (used in high-temperature turbine sections), and advanced composites present unique challenges including rapid tool wear, heat generation, and work hardening.

To address these challenges, the industry is adopting High-Speed Machining (HSM) techniques and advanced tooling solutions. HSM increases the speed of the cutting process, which, counterintuitively, can reduce the heat transferred to the workpiece by transferring it to the chip instead. Specialized cutting fluids and cryogenic cooling are also employed to manage the extreme temperatures generated when machining exotic alloys.

Rather than competing, precision machining and additive manufacturing are increasingly integrated. AM is used to create complex near-net-shape blanks with internal cooling channels or topological optimization that cannot be machined. These printed blanks are then finished using 5-axis CNC machining to achieve the tight tolerances and surface finishes required for mating surfaces, bearing journals, and aerodynamic profiles. This hybrid approach minimizes material waste (critical when using expensive titanium or superalloy powders) while delivering the precision of subtractive manufacturing.

### MATERIAL CHALLENGES ADDRESSED

**Titanium alloys:**

High strength-to-weight ratio for engine parts.

**Inconel:**

Extreme heat resistance for high-temperature turbine sections.

**Advanced composites:**

Lightweight structural airframe components.

**Thermal Management:**

High-Speed Machining (HSM) and cryogenic cooling techniques manage extreme temperatures during cutting.

## AI, ROBOTICS, AND THE DIGITAL MANUFACTURING ENTERPRISE

The integration of AI into manufacturing quality control is transforming defect detection and process assurance. Aerospace manufacturers implementing AI-driven computer vision inspection systems achieve defect detection rates of up to **98.7%**, compared to approximately **78%** with conventional human inspection methods.<sup>(7)</sup> These systems use machine learning models trained on synthetic and real-world defect imagery to identify imperfections, misaligned parts, and material anomalies in real time, reducing the risk of defective components entering service.

Synthetic data generation is emerging as a critical enabler for AI inspection in aerospace. Because real-world defect data is scarce and expensive to collect, manufacturers are using physics-based simulation to generate thousands of synthetic defect images, training inspection models to recognize rare failure modes before they occur in production.

### AI and Robotics Applications in Aerospace Manufacturing



Computer vision quality control and defect detection  
(98.7% accuracy)



AI-guided process control for additive manufacturing



Agentic AI for supply chain management and  
autonomous production scheduling



Robotic automated fiber placement (AFP) for  
composite structures



Digital twin simulation for predictive maintenance  
and process optimization

## ADVANCED MATERIALS FOR EXTREME ENVIRONMENTS

### High-Entropy Alloys: Engineering Extremes <sup>(8)</sup>

High-Entropy Alloys (HEAs) represent a fundamental departure from conventional alloy design philosophy. Rather than building around a single dominant element (as in nickel superalloys or titanium alloys), HEAs consist of five or more elements in roughly equal proportions, creating high configurational entropy that stabilizes simple crystal structures and produces unexpected combinations of properties.

Property	Conventional Superalloys	High-Entropy Alloys	Application Relevance
High-temperature strength	Excellent (up to ~1,050°C)	Comparable/superior (refractory HEAs)	Turbine engines, hypersonic vehicles
Cryogenic toughness	Moderate	Exceptional (Cantor alloy)	Liquid hydrogen tanks, rocket fuel systems
Radiation resistance	Limited	Improved (atomic disorder absorbs defects)	Deep space structures, nuclear propulsion
Oxidation resistance	Excellent (with coatings)	Variable; under development	Hypersonic leading edges
Density	Moderate	Can be high (refractory variants)	Weight-sensitive aerospace structures

Refractory HEAs, containing elements such as niobium (Nb), tantalum (Ta), molybdenum (Mo), and tungsten (W), are being actively evaluated for hypersonic vehicle leading edges and next-generation turbine engine components. Their multi-element composition slows atomic diffusion, enhancing thermal stability and creep resistance at temperatures that challenge even the best nickel superalloys. The Cantor alloy (Fe-Mn-Ni-Cr-Co) has demonstrated exceptional fracture toughness at cryogenic temperatures, making it a strong candidate for liquid hydrogen storage tanks and cryogenic fuel system hardware in space launch vehicles.

AM is a natural partner for HEA development. Because HEAs are compositionally tunable, additive processes allow engineers to rapidly experiment with new compositions and produce functionally graded materials, which are parts with continuously varying composition optimized for specific stress and temperature gradients.



## Ceramic Matrix Composites for Hypersonic and Propulsion Systems

Ceramic Matrix Composites (CMCs), ceramics reinforced with ceramic fibers, combine the high-temperature strength of ceramics with improved fracture toughness. CMCs can operate at temperatures of 1,200–1,600°C, enabling turbine engines to run hotter and more efficiently, and providing thermal protection for hypersonic vehicles.

DARPA's MACH program specifically targets new CMC architectures for hypersonic leading edges, which must maintain precise aerodynamic shapes under extreme thermal loads while managing heat flux through passive or active cooling systems. The ability to manufacture CMCs via AM, particularly stereolithography of pre-ceramic resins, as demonstrated on the ISS, opens new possibilities for complex internal cooling architectures that are impossible to machine conventionally.

## Carbon Fiber Reinforced Composites in Structural Applications

Carbon fiber reinforced polymer (CFRP) composites have become the dominant structural material for modern military aircraft and spacecraft. The F-35 Lightning II is approximately 35% composite by weight, while the Boeing 787 Dreamliner uses composites for 50% of its structural weight. These materials offer exceptional strength-to-weight ratios, corrosion resistance, and the ability to tailor stiffness and strength in specific directions.

Advanced automated fiber placement (AFP) and automated tape laying (ATL) systems, guided by AI and robotics, are accelerating the production of large composite structures. Boeing's Phantom Works Advanced Composite Fabrication Center in Arizona exemplifies the integration of robotic manufacturing with advanced composite materials for defense platforms. Northrop Grumman similarly manufactures composite structures for programs including the F-35 and the B-21 Raider stealth bomber.

## LARGE CAP MERGERS & ACQUISITIONS: STRATEGIC CONSOLIDATION (2024–2026)

The convergence of advanced manufacturing, space systems, and defense technology has driven a wave of strategic mergers and acquisitions. As defense budgets rise and geopolitical tensions emphasize the need for rapid technological deployment, traditional defense primes and private equity firms are aggressively acquiring capabilities in AI, additive manufacturing, space-based sensing, and advanced materials.

### KEY M&A TRANSACTIONS (2024–2026) <sup>(9)</sup>

The following table highlights significant transactions reflecting the strategic push into advanced manufacturing, space systems, and autonomous technologies:

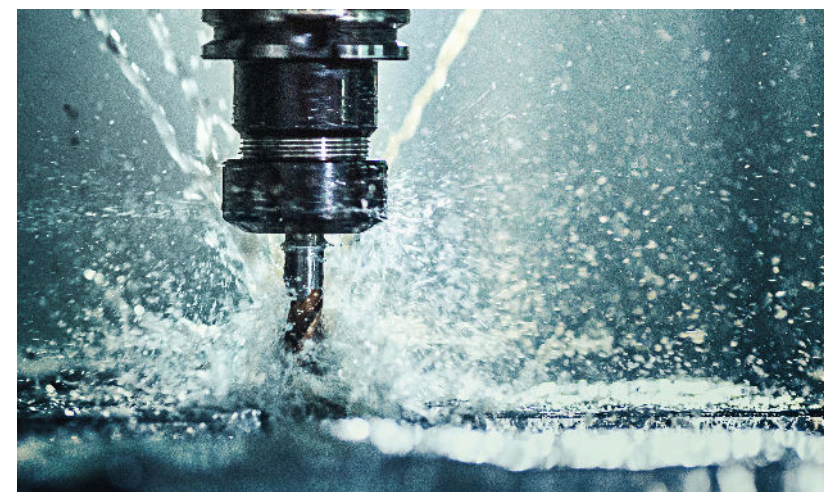
Target Company	Acquirer	Announced / Closed	Enterprise Value	Multiples (Revenue / EBITDA)	Strategic Rationale
<b>BlueHalo</b>	AeroVironment	Nov 2024 (Closed May 2025)	\$4.1 Billion	N/A	Combines AeroVironment's uncrewed systems with BlueHalo's space technologies, directed energy, and cyber capabilities to create a next-generation defense tech leader.
<b>ARKA Group</b>	CACI International	Dec 2025	\$2.6 Billion	N/A	CACI's largest-ever acquisition, significantly expanding its footprint in space-based sensing, optical payloads, and actionable intelligence.
<b>Iveco Defence Vehicles</b>	Leonardo	Jul 2025 (Expected Q1 2026)	€1.7 Billion (~\$1.9B)	N/A	Enhances Leonardo's land systems and military vehicle manufacturing capabilities.
<b>SciTec, Inc.</b>	Firefly Aerospace	Oct 2025	\$855 Million	~5.2x Revenue (\$164M LTM)	Adds mission-proven defense software, AI-enabled analytics, and space domain awareness to Firefly's launch and in-space services.
<b>Lanteris Space Systems</b>	Intuitive Machines	Nov 2025	\$800 Million	~1.2x Revenue (\$685M LTM)	Broadens Intuitive Machines' space infrastructure portfolio beyond lunar missions with GEO/LEO satellites and propulsion systems.
<b>Orbit Technologies Ltd.</b>	Kratos Defense	Nov 2025 (Closed Mar 2026)	\$356 Million	N/A	Expands Kratos' satellite-based communication systems for unmanned aerial and space systems.
<b>Seemann Composites &amp; MSC</b>	Karman Space & Defense	Jan 2025	\$220 Million	N/A	Secures advanced composite manufacturing capabilities for maritime defense, space, and strategic naval platforms.

## THE MIDDLE MARKET ENGINE: DEALS FROM \$10M TO \$300M

While multi-billion-dollar platform acquisitions capture headlines, the lower and core middle market (enterprise values between \$10 million and \$300 million) is the primary engine of consolidation in aerospace and defense manufacturing. In 2025 and early 2026, private equity firms and strategic buyers aggressively targeted specialized component manufacturers, advanced materials suppliers, and additive manufacturing service bureaus to secure supply chain resilience and acquire next-generation capabilities.

**Middle Market Valuation Dynamics** Valuations for high-quality lower middle market manufacturing firms have stabilized at strong levels following a period of macroeconomic uncertainty. While typical manufacturing businesses trade between 5.0x and 8.0x EBITDA, specialized aerospace and defense manufacturers command a significant "quality premium" which can often be in the range of 10 to 14x EBITDA depending on the differentiation and position on key programs. Buyers are selectively rewarding businesses with strong engineering capabilities, proprietary processes (such as advanced additive manufacturing), and entrenched positions on long-term defense programs.

**The Shift to "Bolt-On" Strategies** A defining trend in the middle market is the shift from standalone platform acquisitions to strategic "bolt-on" acquisitions. Private equity firms that established defense-adjacent manufacturing platforms in previous years are now utilizing those platforms to acquire smaller, highly specialized suppliers. This consolidation strategy allows buyers to vertically integrate, expand capabilities, and secure approved supplier status with major defense primes without the friction of rebranding or extensive requalification.



## KEY MIDDLE MARKET TRANSACTIONS (2025-2026)<sup>(9)</sup>

### Recent deal activity highlights the strategic focus on advanced manufacturing capabilities:

#### **Machina Labs Series C (\$124 Million, Feb 2026):**

Machina Labs, a manufacturing startup utilizing AI and robotics for software-defined sheet metal forming (RoboForming™), raised \$124 million to scale its production infrastructure. Backed by Lockheed Martin Ventures and Woven Capital, the funding will establish a 200,000-square-foot intelligent factory to produce complex structural assemblies for defense and aerospace customers, demonstrating the premium placed on autonomous manufacturing capabilities.

#### **Karman Space & Defense / Metal Technology Inc. (\$90 Million, Apr 2025):**

Karman Space & Defense acquired Metal Technology Inc. (MTI) for \$90 million in cash. MTI specializes in additive manufacturing, hot forging, and specialized forming of ultra-high temperature refractory alloys (tantalum, niobium) critical for hypersonic and strategic missile defense programs. This bolt-on acquisition directly aligns with DoD funding priorities for next-generation missile systems.

#### **Precinmac LP / Precision Aerospace Holdings (Undisclosed, Apr 2026):**

Centerbridge Partners-backed Precinmac acquired Precision Aerospace Holdings, adding five Texas-based precision machining and EDM companies to its nine-division portfolio. The acquisition specifically targeted PAH's source-controlled manufacturing capabilities for high-complexity aerospace, defense, and space components.

#### **Avem Partners / PAMCO (Undisclosed, Apr 2026):**

Private equity firm Avem Partners acquired Precision Aircraft Machining Company (PAMCO), a California-based manufacturer of highly engineered fluid conveyance components. The acquisition serves as a foundation to build a scaled aerospace and defense platform focused on mission-critical machined parts.

#### **Tide Rock Holdings / Precision Waterjet & Laser and Made in America Mfg (Undisclosed, Oct 2025):**

Tide Rock established two complementary precision machining platforms by acquiring these AS9100D and ITAR-registered companies in California and Texas. The dual acquisition secures capacity for advanced multi-axis machining, waterjet, and laser cutting for Tier 1 defense primes and space systems.

## KEY MIDDLE MARKET TRANSACTIONS (2025-2026)<sup>(9)</sup>

### Recent deal activity highlights the strategic focus on advanced manufacturing capabilities:

#### **AFM Capital / Incodema3D (Undisclosed, Mar 2026):**

Private equity firm AFM Capital acquired a majority stake in Incodema3D, one of North America's largest independent metal additive manufacturing companies. Incodema3D operates a 60,000-square-foot facility focused on Direct Metal Laser Sintering (DMLS) for defense and space applications, illustrating the continued PE appetite for scalable, production-grade 3D printing assets.

#### **Standex International / McStarlite Co. (\$56.5 Million, Feb 2025):**

Standex acquired McStarlite, a provider of complex sheet metal aerospace components, expanding its metal forming solutions portfolio for aviation, space, and defense markets.

#### **Canopy Aerospace & Defense / Tods Technology (Undisclosed, Nov 2025):**

Canopy A&D (backed by Trive Capital) acquired Tods Technology, expanding its footprint in advanced composite structures and acoustic materials, particularly for the maritime defense sector.

*These middle market transactions reflect a broader strategic imperative: defense primes and well-capitalized platforms are using M&A as a substitute for internal R&D, rapidly acquiring the specialized manufacturing capacity and advanced materials expertise required to meet the demands of modern defense procurement.*

## M&A TRENDS AND VALUATION DRIVERS

Several clear trends emerge from recent deal activity:

### THEME 1

#### Space as a Premium Asset:

Space systems and satellite technology command significant premiums. CACI's \$2.6 billion acquisition of ARKA Group and Intuitive Machines' \$800 million purchase of Lanteris Space demonstrate a willingness to pay for established space heritage and advanced sensing capabilities.

### THEME 2

#### Autonomy and AI Integration:

AeroVironment's \$4.1 billion acquisition of BlueHalo highlights the strategic imperative to combine physical platforms (drones) with advanced software (AI, cyber, and directed energy). Similarly, Firefly's acquisition of SciTec integrates AI-driven data processing directly into its space launch services.

### THEME 3

#### Private Equity as a Consolidation Engine:

Financial sponsors remain highly active, employing "buy-and-build" strategies to assemble scaled platforms in mission-critical manufacturing and advanced materials serving the Space and Defense markets.

## EQUITY AND FINANCING MARKETS FOR \$10M-\$300M REVENUE COMPANIES SERVING SPACE AND DEFENSE MANUFACTURING

The scale of the capital shift is striking. Venture capital investment in defense technology reached **\$49.1 billion in 2025**, nearly doubling from \$27.2 billion in 2024 and far exceeding the previous record of \$27.2 billion set in 2021, according to PitchBook data.<sup>(10)</sup> Equity funding for defense technology startups more than doubled to \$17.9 billion in 2025 from \$7.3 billion in 2024, outpacing overall equity funding growth of 47%, according to CB Insights.<sup>(11)</sup> The value of VC deals in the defense sector has grown **18-fold over the past decade**, significantly outstripping deal value growth in other industries, according to Bain & Company.<sup>(12)</sup>

Private equity has followed suit. By November 2025, PE and VC spending on aerospace and defense assets reached **\$17.7 billion year-to-date**, shattering the previous full-year record of \$11 billion set in 2021, according to PE Hub data cited by Akin Gump.<sup>(13)</sup> The number of firms actively investing in defense tech increased 41% in 2025, as mainstream venture capital funds dropped prior ethical objections to defense investing and reframed it as supporting democratic values.<sup>(11)</sup>

Manufacturing-focused defense investment in particular rose to **\$4.7 billion across 39 deals in 2025**, up from \$2.6 billion across 24 deals in 2024, with much of the scale-up capital directed toward drones, space systems and infrastructure, and defense electronics and sensing.<sup>(10)</sup>



## PRIVATE EQUITY: THE PLATFORM-AND-BOLT-ON MODEL

For more mature companies in the \$50 million to \$300 million revenue range, private equity has become the dominant source of transformational capital. PE firms are deploying a "platform-and-bolt-on" strategy: acquiring a foundational company with strong capabilities and government relationships, then using that platform to acquire adjacent businesses, expand into new programs, and achieve the scale required to compete for larger prime contracts.

The most active PE firms in the sector include Arlington Capital Partners, AE Industrial Partners, Arcline Investment Management, Veritas Capital, Cerberus Capital Management, and Trive Capital. These firms are targeting businesses with the following characteristics: entrenched positions on long-term defense programs, proprietary manufacturing processes (particularly in additive manufacturing, composite structures, or advanced materials), strong engineering teams with security clearances, and revenue visibility from multi-year government contracts.

Valuation multiples for PE acquisitions in this segment have remained strong despite broader market volatility. Specialized aerospace and defense manufacturers with these characteristics typically transact at 8.0x to 14.0x EBITDA, with the premium driven by the scarcity of cleared, qualified suppliers with proven manufacturing heritage.



## GOVERNMENT-BACKED FINANCING: THE NEW NON-DILUTIVE CAPITAL STACK

A significant and often underappreciated source of capital for companies in this revenue range is the expanding suite of government-backed financing programs. These instruments are particularly valuable because they are non-dilutive, meaning they provide debt or credit enhancement without requiring equity participation, and they come with strategic benefits including streamlined access to national laboratories, support for security clearances, and direct access to DoD program offices.

### The DoD Office of Strategic Capital (OSC) Domestic Manufacturing Loan Program

Established in 2022, OSC has authority to provide direct loans and loan guarantees to companies expanding the U.S. defense industrial base. In its inaugural solicitation, OSC received more than **200 applications totaling over \$8.9 billion in financing requests** across 38 states, against a \$984 million lending pool, a 9:1 oversubscription ratio that underscores the demand for this type of capital.<sup>(14)</sup> Individual loans range from \$10 million to \$150 million, targeting advanced manufacturing, cybersecurity, microelectronics, and quantum computing technologies with both defense and commercial applications.

### The Small Business Investment Company Critical Technology (SBICCT) Program

A public-private lending mechanism created through a 2023 MOU between the SBA and DoD, provides a powerful leverage structure: for every dollar of private capital a licensed SBICCT fund raises, the federal government provides two dollars in debt at the 10-year Treasury rate. This structure allows growth credit lenders to deploy capital to revenue-generating defense manufacturers at **10–15% net returns** to investors, while providing portfolio companies with senior secured debt at rates unavailable from conventional banks.<sup>(15)</sup> The program's definition of "small business" includes manufacturers with fewer than 1,500 employees regardless of revenue, meaning it can serve operationally mature companies that remain capital-constrained by conventional banking standards.

### SBIR and STTR programs

Remain foundational for earlier-stage companies. In FY2025, \$8.07 billion was awarded to 3,363 companies as SBIR/STTR contracts, an increase of \$614 million (8.2%) over FY2024.<sup>(16)</sup> The DoD's SBIR program alone invests more than \$1 billion annually in small business technology. These non-dilutive grants and contracts provide critical bridge financing for companies developing next-generation manufacturing technologies, materials, and autonomous systems.

## DEBT MARKETS: PRIVATE CREDIT AND ASSET-BASED LENDING

For companies with established revenue and EBITDA, the private credit and asset-based lending markets have expanded significantly as a source of growth capital. The collapse of Silicon Valley Bank and First Republic in 2023 created a void in venture debt that non-bank lenders have been filling, though coverage at the lower end of the market (sub-\$25 million facilities) remains thin.<sup>(15)</sup>

For companies in the \$50 million to \$300 million revenue range, direct lending from private credit funds, including BDCs (Business Development Companies) and dedicated middle market lenders, has become a viable alternative to bank debt, particularly for companies with government contract backlogs that provide revenue visibility. Direct lending facilities in this segment typically carry interest rates of SOFR + 500–700 basis points (approximately 10–12% all-in at current rates), with leverage multiples of 3.0x to 5.0x EBITDA for well-performing businesses.

## THE FINANCING LANDSCAPE: A SUMMARY MATRIX

The following table summarizes the key financing instruments available to companies in the \$10M–\$300M revenue range, their typical deal parameters, and their strategic fit:

Instrument	Typical Deal Size	Cost of Capital	Dilution	Best Fit
<b>Venture Capital / Growth Equity</b>	\$20M – \$250M	20–30% IRR hurdle	High	\$10M–\$100M revenue; dual-use tech; pre-profitability
<b>Private Equity (Platform/Bolt-On)</b>	\$50M – \$300M EV	20–25% IRR hurdle	High (control)	\$30M–\$300M revenue; EBITDA-positive; program-of-record exposure
<b>OSC Direct Loans</b>	\$10M – \$150M	~Treasury rate + spread	None	Advanced manufacturing; dual-use; CapEx-intensive
<b>SBICCT Growth Credit</b>	\$5M – \$25M	10–15% net to lender	None	Revenue-generating; sub-\$100M; scaling to production
<b>Private Credit / Direct Lending</b>	\$20M – \$150M	SOFR + 500–700 bps	None	EBITDA-positive; government contract backlog
<b>Asset-Based Lending (ABL)</b>	\$5M – \$75M	SOFR + 200–400 bps	None	Strong receivables; working capital needs
<b>SBIR / STTR Grants</b>	\$150K – \$2M (Phase I/II)	N/A (non-dilutive)	None	Early-stage R&D; prototype development
<b>IPO / Public Markets</b>	\$100M – \$1B+ raise	Market-determined	High (partial)	\$150M+ revenue; EBITDA-positive or near-term path
<b>SPAC Merger</b>	\$200M – \$2B EV	Market-determined	High (partial)	\$50M+ revenue; strong growth narrative; government alignment

The most sophisticated companies in this revenue range are building layered capital stacks, combining non-dilutive government financing (SBIR, OSC loans) with private credit for working capital, and reserving equity capital for transformational growth investments such as new facility construction or major acquisitions. This approach minimizes dilution while maximizing financial flexibility, and it is increasingly recognized by both investors and DoD program offices as a marker of financial and operational maturity.

## CONCLUSIONS

Advanced manufacturing technologies and materials are not incremental improvements to existing aerospace and defense systems; they are enabling entirely new classes of capabilities and fundamentally reshaping the economics and geopolitics of military power. The convergence of additive manufacturing, AI, robotics, and novel materials science is producing a manufacturing revolution with profound strategic implications.

The future of defense manufacturing will be distributed, autonomous, and software-defined, with production capacity deployed closer to the point of operational need rather than concentrated in vulnerable centralized facilities. Second, materials innovation, particularly in HEAs, CMCs, and self-healing polymers, is enabling systems that operate at the physical limits of what is possible, from hypersonic vehicles to deep space habitats. Third, there is still a big role for precision 5-axis CNC machining in this ecosystem.

The Advanced Manufacturing and Advanced Materials Companies in the sector will continue to have no lack of investor appetite, whether it is be a consolidator or the consolidated or wish to raise capital to further grown organically.



## ABOUT THE AUTHOR



**Kevin Frisch**  
Managing Director

Kevin Frisch is a Managing Director at FOCUS Investment Banking, specializing in the Manufacturing industry. He works primarily with companies delivering high-reliability, mission-critical solutions requiring tight tolerances, significant engineering support, and other value-added manufacturing services. His end-market experience includes aerospace, space & defense, industrial technology, and general industrial.

Within Manufacturing, Frisch has deep expertise in areas such as precision manufacturing, factory technology, and advanced materials. He combines extensive industry knowledge with creative financing and advisory solutions, ensuring clients have the best range of strategic options and expert execution.

With nearly 30 years of Wall Street experience, Frisch has held roles at Lehman Brothers, JP Morgan, Oppenheimer & Company, Imperial Capital, FBR Capital Markets, and Cascadia Capital. At Imperial Capital, he founded one of the earliest dedicated Advanced Manufacturing practices and launched the Advanced Manufacturing and Supply Chain Conference in 2020, which he has hosted for five consecutive years. He is also a frequent speaker at leading Advanced Manufacturing and Aerospace, Space & Defense conferences.

Frisch's experience spans Fortune 500 corporations, founder-led and multi-generational private businesses, and private equity-backed companies. His transaction expertise covers sell- and buy-side M&A, debt and equity financings, fairness opinions, and a broad range of strategic advisory services across the industrial sector—including capital goods, diversified industrials, and industrial distribution.

Based in New Canaan, CT, Frisch holds a BA from Duke University and an MBA from the University of Chicago Booth School of Business. On weekends, he enjoys spending time with his wife, three kids, and two dogs.

## ABOUT FOCUS BANKERS

# FOCUS Investment Banking is a trusted name in M&A advisory services with a nationwide footprint and a global reach.

Experience matters, especially when it comes to navigating the intricacies of your market. We bring senior-level experience and relatable expertise to every deal. From strategic planning to negotiations, we leverage a deep understanding of your industry to deliver customized solutions that drive the maximum value for your business.

**F**  
FOCUS OVERVIEW  
**MANUFACTURING**  
ONE OF THE MOST EXPERIENCED MIDDLE MARKET INVESTMENT BANKING TEAMS IN THE COUNTRY.

With one of the largest industry practices at FOCUS, we come from leadership positions in industry companies and can help owners make complex decisions and find the right partner at the right time.

- Navigating an exit or growth partnership
- Building an enterprise through targeted M&A
- Extensive international reach and research
- Recapitalizations and distressed situations

**AREAS OF FOCUS**

- Advanced Materials
- Aerospace and Defense
- Automotive Manufacturing Services
- Medical Device Fabrication
- Precision Machining and Metal Component Fabrication
- Additive Manufacturing
- Automation Integration
- Drives and Rotational Varies
- Industry 4.0
- Optics, Photonics and Sensors
- Robotics Process Automation
- Robotics and Artificial Intelligence

**TEAM CONTACTS**

**SEAN GEMINICK**  
Head of Office  
C 407.599.4300  
sean.geminick@focusbankers.com

**KEVIN FREEMAN**  
Managing Director  
C 312.344.7800  
kevin.freeman@focusbankers.com

**ORAN LADEN**  
Managing Director  
C 415.315.8124  
oran.laden@focusbankers.com

**JONAS WACHSBAUM**  
Managing Director  
C 312.344.7800  
jonas.wachsbaum@focusbankers.com

**LOUIS WELLES**  
Managing Director  
C 312.344.7800  
louis.welles@focusbankers.com

**ANDREW WELLES**  
Managing Director  
C 312.344.7800  
andrew.welles@focusbankers.com

**DEBRA WINGARD**  
Managing Director  
C 312.344.7800  
debra.wingard@focusbankers.com

**PAUL SHAW**  
Managing Director  
C 312.344.7800  
paul.shaw@focusbankers.com

**BRUCE STRAIN**  
Managing Director  
C 312.344.7800  
bruce.strain@focusbankers.com

**ALEX WILLIAMS**  
Managing Director  
C 312.344.7800  
alex.williams@focusbankers.com

**SAMPLE TRANSACTIONS**

ARTEX, DELTA, PRAXAIR, TASI, IDEV, COBE, M, COBE, ARCH, ARCH, CORE, ELIOS

**FOCUS** Member of the Citigroup Group

[LEARN MORE](#)



## REFERENCES

- (1) IDGA, "The Latest on Additive Manufacturing in Hypersonics," May 2024. Available at: <https://www.idga.org/command-and-control/articles/latest-on-additive-manufacturing-in-hypersonics>
- (2) DARPA, "Materials Architectures and Characterization for Hypersonics (MACH)." Available at: <https://www.darpa.mil/research/programs/materials-architectures-and-characterization-for-hypersonics>
- (3) "Global Precision Machining Market Report 2025-2035," Manufacturing Insights, Jan 2026.
- (4) "The Role of Tight Tolerance Precision Machining in Aerospace," MultiSource Manufacturing, 2025.
- (5) "Hypersonic Vehicle Manufacturing Challenges," Aerospace Engineering, Vol. 42, 2025.
- (6) "5-Axis CNC Machining Market Outlook," Industrial Market Research, 2025.
- (7) ResearchGate, "AI-Driven Automation for Aerospace Manufacturing: Enhancing Quality Control through Integrated Systems." Available at: [https://www.researchgate.net/publication/391543555\\_AI-Driven\\_Automation\\_for\\_Aerospace\\_Manufacturing\\_Enhancing\\_Quality\\_Control\\_through\\_Integrated\\_Systems](https://www.researchgate.net/publication/391543555_AI-Driven_Automation_for_Aerospace_Manufacturing_Enhancing_Quality_Control_through_Integrated_Systems)
- (8) California Nanotechnologies Corp, "High Entropy Alloys in Aerospace: The Future of Extreme-Performance Materials." Available at: <https://www.calnanocorp.com/nanotechnologies-news-corner/high-entropy-alloys-in-aerospace-the-future-of-extreme-performance-materials>
- (9) CapitalIQ, Publicly Available Information
- (10) Defense News, "Defense tech startups had their best funding year ever in 2025," January 2026. Available at: <https://www.defensenews.com/industry/2026/01/20/defense-tech-startups-had-their-best-funding-year-ever-in-2025/>
- (11) CB Insights / PitchBook, cited in Defense News, "Defense tech startups had their best funding year ever in 2025," January 2026. Available at: <https://www.defensenews.com/industry/2026/01/20/defense-tech-startups-had-their-best-funding-year-ever-in-2025/>
- (12) Bain & Company, "Rethinking Defense: The Role of Private Capital," December 2024. Available at: <https://www.bain.com/insights/rethinking-defense-the-role-of-private-capital/>
- (13) Akin Gump, "2026 Perspectives in Private Equity: Defense & National Security," March 2026. Available at: <https://www.akingump.com/en/insights/articles/2026-perspectives-in-private-equity-defense-and-national-security>
- (14) Inside Government Contracts, "DoD's Office of Strategic Capital Reports Significant Interest in Domestic Manufacturing Loan Program," April 2025. Available at: <https://www.insidegovernmentcontracts.com/2025/04/dods-office-of-strategic-capital-reports-significant-interest-in-domestic-manufacturing-loan-program/>
- (15) Business Executives for National Security (BENS), "Growth Credit for the Defense Industrial Base: Unlocking Private Capital for Small Business Scaling," April 2026. Available at: <https://bens.org/growth-credit-for-the-defense-industrial-base-unlocking-private-capital-for-small-business-scaling/>
- (16) GovSpend, "\$8B and Growing: What FY25 SBIR/STTR Data Reveals," May 2026. Available at: <https://govspend.com/blog/8b-and-growing-what-fy25-sbir-sttr-data-reveals/>