

Our Credentials

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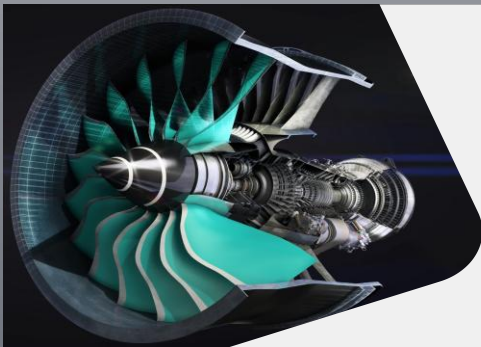
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AZAD

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Structural Manufacturing Franchise at an Operational Inflection Point

[\(Refer: Company Overview & Industry Context section\)](#)

Azad Engineering represents a high-visibility, long-duration aerospace and energy manufacturing franchise that is entering a phase of structural improvement in margins, asset efficiency, and return ratios. The investment case is anchored in identifiable operational triggers rather than near-term earnings momentum, supported by a strong multi-year order book, OEM-led capacity expansion, and improving manufacturing economics. Together, these factors position the company for sustained improvement in business quality over the next three to five years.

Margin Expansion Driven by OEM-Led Lean Capacity Expansion

[\(Refer: Capacity Expansion & Manufacturing Strategy section\)](#)

Azad is in the midst of a large capacity expansion program, executed through multiple dedicated, lean manufacturing facilities developed in close coordination with top global OEMs. OEM key management has been directly involved in factory design and layout planning, enabling production lines to be structured around specific platforms rather than generic machining capacity. This reduces internal material movement, rehandling, and scheduling inefficiencies while improving turnaround times.

Lean factory layouts are expected to lower internal logistics costs and energy consumption, while improved line balancing and manpower deployment enhance throughput per employee. As utilization ramps up across these facilities, incremental volumes are expected to be absorbed at meaningfully higher contribution margins. Margin expansion is therefore driven by operating leverage and manufacturing efficiency rather than pricing assumptions, representing a structural upgrade in manufacturing quality rather than a volume-led expansion.

Strong Order Book Anchors Multi-Year Revenue Visibility

[\(Refer: Order Book & Customer Visibility section\)](#)

Azad has an order book in excess of ₹6,000 crore, providing clear revenue visibility for at least the next five years. The order book is anchored in long-term programs across aerospace, energy, and defence, reducing dependence on any single platform or cycle. These programs are linked to assets with multi-decade operating lives and are backed by OEMs with strong backlog visibility. The order book is already aligned with ongoing capacity expansion, materially reducing execution risk and capital misallocation. Beyond the disclosed order book, Azad benefits from recurring service and replacement demand in turbine and aerospace platforms, aerospace OEM backlogs extending close to a decade, and increasing content per platform as the company progresses toward higher-complexity components, providing growth optionality beyond the visible horizon.

Wallet Share Expansion & Growth Headroom

A key driver of Azad's long-term growth lies in its extremely low current wallet share across its core customers. Management has highlighted that Azad's share of customer spend across energy, aerospace, defence, and oil & gas programs is currently only ~1–1.5% of the addressable wallet. This implies significant headroom for growth even within the existing customer base, without requiring customer additions or platform wins. The magnitude of this opportunity is reflected in the cadence of contracts being signed with large OEMs. For instance, Azad signed Phase 1 of its contract with Mitsubishi Heavy Industries in November 2024, commissioned and inaugurated the dedicated facility in March 2025, and has already signed Phase 2 of the same contract shortly thereafter. This rapid progression underscores both strong underlying demand and customer confidence in Azad's execution capabilities.

Importantly, management has indicated that the strategy of building customer-dedicated plants is directly linked to this wallet share expansion opportunity, as each large customer has the potential to scale Azad's revenues toward current consolidated levels over time. The company's growth guidance of 25–30% has been articulated after factoring in this substantial demand visibility across customers, reinforcing confidence that growth is driven not by incremental assumptions but by tangible expansion within already embedded relationships.

Working Capital Outlook Focused on Medium-Term Normalization

[\(Refer: Working Capital & Management Commentary section\)](#)

While Azad operates in a structurally working-capital-intensive industry, management expects working capital intensity to improve gradually over the medium term as scale stabilizes and operational initiatives take effect. The focus is on normalization rather than aggressive compression.

Key initiatives include the creation of a separate raw material holding entity to reduce reliance on short-term working capital borrowings and smooth liquidity management. Although procurement costs may be marginally higher, interest cost savings are expected to largely offset this impact, resulting in improved balance sheet resilience. In parallel, continued indigenization of raw material sourcing following OEM approvals for domestic suppliers such as Sunflag and Star Wire is expected to reduce lead times, lower buffer inventory requirements, and improve supply chain flexibility. As newly commissioned programs move beyond the qualification and ramp-up phase, inventory and work-in-progress levels are expected to normalize relative to revenue. Free cash flow generation is likely to remain muted in the near term due to ongoing capex, with meaningful improvement expected once the expansion cycle stabilizes.

Asset Turns and Return Ratios at a Clear Inflection Point

Historically, Azad's return ratios have been constrained by front-loaded capex, under-utilized newly commissioned capacity, and elevated asset intensity during qualification phases. As utilization improves across the expanded asset base, asset turns are expected to increase meaningfully, with the fixed asset base generating higher revenue without proportional incremental capex. This improvement is expected to mechanically drive higher ROCE, ROIC, and ROE over time. Importantly, the improvement in return ratios is driven by utilization normalization, better throughput per machine, and working capital stabilization rather than aggressive margin assumptions, making the trajectory more sustainable and visible.

Competitive Advantages Reinforced by Execution-Focused Management

(Refer: [Competitive Advantages – Page 56](#); [Management & Governance – Page 59](#))

Azad's competitive positioning is underpinned by deep OEM integration, high qualification barriers, and a portfolio of mission-critical components where switching risk is structurally low once qualification is achieved. The company has demonstrated an ability to scale complex manufacturing while maintaining tight tolerances, reinforcing its credibility with global customers. Management quality further strengthens conviction. The leadership team brings long operating experience in aerospace and energy manufacturing, strong capital allocation discipline, and a consistent track record of conservative guidance and execution. Management's clear understanding of operational bottlenecks, capacity planning, and working capital dynamics materially reduces execution risk in a capital-intensive and qualification-driven business.

Long Runway for Growth and Quality-Led Compounding

(Refer: [Industry Outlook](#); [Order Book & Capacity Expansion sections](#))

With more than five years of visible revenue growth, structural margin expansion from lean capacity, gradual normalization of working capital intensity, rising asset turns, and strong industry tailwinds supported by global OEM backlogs, Azad is transitioning from a capex-heavy growth phase toward a phase of quality-led compounding. The convergence of these operational and financial inflection points underpins our investment thesis.

Azad Engineering Ltd. (“Azad”) is a precision manufacturer supplying complex and highly engineered forged and machined components to global Original Equipment Manufacturers (OEMs) in the energy, aerospace & defence, and oil & gas industries.

These components are mission- and life-critical, often adhering to a “zero parts per million defect” standard. Since inception, the company has built deep relationships with leading OEMs across the USA, Europe, China, Middle East, and Japan, establishing itself as a key link in the global supply chain for high-end critical components.

Azad operates through five advanced manufacturing facilities located in Hyderabad, India, covering a total area of approximately 32,000 sq. meters. Within the energy segment, airfoils contributed nearly 80% of the segment’s sales in FY2024, with the company also supplying various other precision components for energy turbines. Azad’s aerospace and defence components cater to both commercial and military aircraft, serving applications in propulsion, actuation, hydraulics, and flight control systems. The company has cumulatively delivered over 3.09 million units between FY2009 and FY2023.

The demand for Azad’s products is structurally supported by rising global energy requirements and aircraft demand. Global energy consumption increased from 433 EJ in 2019 to 445 EJ in 2023 (CAGR ~1%), while global power generation capacity stood at 9,436 GW in 2023, including 2,007 GW in gas power, 416 GW in nuclear, and 2,204 GW in coal-based generation. Industrial energy consumption also rose from 143 GW in 2010 to 173 GW in 2023, with over three-fourths used for non-power applications such as oil & gas, marine, and chemical industries. In gas turbines, 327 units were ordered globally in 2023, with GE, Siemens Energy, and Mitsubishi Power being the top manufacturers. Azad supplies components to customers that together control ~75% of the global gas turbine market, based on technology ownership and order volume (as of 9M FY2024).

In the aerospace sector, Revenue Passenger Kilometers (RPK) for commercial aviation are projected to rise to ~12 billion by 2029, growing at a 6% CAGR between 2024–29, rebounding strongly from pandemic lows (8.7 Bn in 2019 → 3.0 Bn in 2020 → 8.2 Bn in 2023). Airbus SE and Boeing Co., which together hold over 90% global market share, have a combined order backlog of ~15,000 aircraft units as of 2024, of which 84% are narrow-body aircraft (A220, A320, Boeing 737 families). In defense, global military expenditure reached USD 2.33 trillion in 2023, about 2.3% of global GDP, sustaining multi-year visibility for Azad’s defense-related components. The company’s parts are used across flagship aircraft platforms such as B737, B737 Max, B747, B777, B777X, A320, A350, A355, A350 XWB, and Gulfstream G550.

According to estimates based on IEA, S&P Global, and OEM data, the total addressable market (TAM) for Azad’s served industries is expected to expand from INR 1.50 trillion in 2023 to INR 2.50 trillion in 2029, implying a CAGR of ~9%. Within this, Aerospace & Defense is the largest and fastest-growing segment, projected to rise from INR 1.19 trillion to INR 2.19 trillion (CAGR 11%). The Energy turbine components market—including gas, coal, industrial, and nuclear turbine parts—is expected to remain steady at ~INR 314 billion, while oilfield drilling components form an additional addressable market of INR 340 billion (CAGR 4%) for drill bits and downhole drilling tools.

Azad’s industries have high entry barriers, driven by the critical nature of components, lengthy qualification and certification processes (often >15 months), and OEM reluctance to switch suppliers due to high switching costs and co-investment in tooling and design validation. Vendors are evaluated rigorously on technical capability, quality control, and traceability. The ability to maintain a highly skilled workforce while optimizing cost is essential, as OEMs prioritize suppliers capable of long-term scalability, reliability, and cost competitiveness.

Given the current geopolitical environment, India’s low-risk and high-skill ecosystem positions Azad favorably. OEMs are increasingly pursuing supplier base consolidation and prefer locations with stable geopolitical profiles. Azad, being one of the few fully qualified Indian manufacturers in this niche, benefits from strong entry barriers, growing global outsourcing trends, and a rapidly expanding TAM, positioning it as a strategic supplier to the world’s leading energy and aerospace OEMs.

Addressable market size for the company (2023-29) (INR’000 Mn)

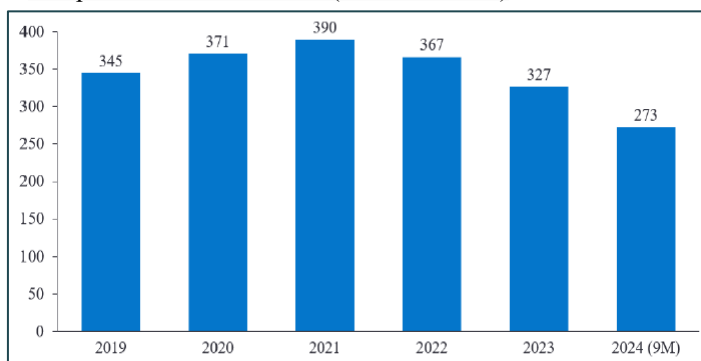
Market size	2023	2029	CAGR (2023-29)
Energy turbine components	314	308	0%
Power generation	0	0	
Gas turbine blades	57	57	0%
Gas turbine non-blades	186	187	0%
Nuclear turbine blades	4	4	0%
Nuclear turbine diaphragm	7	7	0%
Coal turbine blades	48	40	-3%
Industrial gas turbine blades	12	12	1%
Aerospace & Defence components	1,187	2,192	11%
Total addressable market	1,501	2,500	9%

PRESENCE OF AZAD ENGINEERING LTD. IN THE ENERGY INDUSTRY

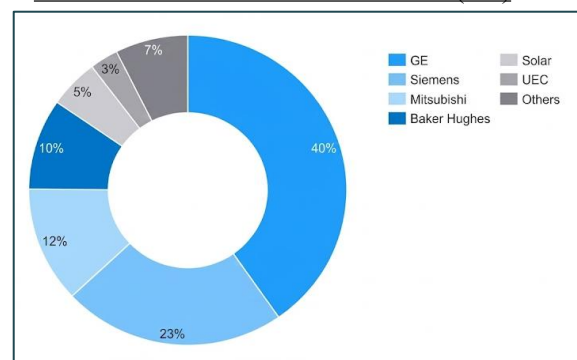
Azad Engineering Ltd. plays a critical role in the global energy turbine ecosystem by supplying high-precision, forged and machined components used in power and industrial turbines across gas, nuclear and coal-based applications. The company specializes in advanced airfoils and other special machined parts that form the hot section of turbines, where performance requirements are among the most stringent in the industry. These components are mission-critical and must consistently meet zero-defect standards, placing Azad among a limited group of suppliers capable of manufacturing to such precision. Over the years, Azad has built deep relationships with leading global OEMs, many of whom dominate the gas turbine market worldwide, and the company continues to gain share in the supply of airfoils and associated turbine components. With more than a decade of experience serving as a qualified supplier to major turbine manufacturers, Azad has developed the engineering expertise, process capability and material know-how required for high-temperature, high-stress turbine environments. Demand for the company's products is driven by both new turbine installations and the recurring service and overhaul cycles associated with existing fleets, which in turn are linked to global energy consumption patterns and the shift toward more efficient generation technologies. This section of the report provides an overview of the energy sector and the turbine market dynamics that underpin long-term demand for Azad's components.

Gas power turbines orders overview

Gas power turbines ordered (2019-2024 9M)

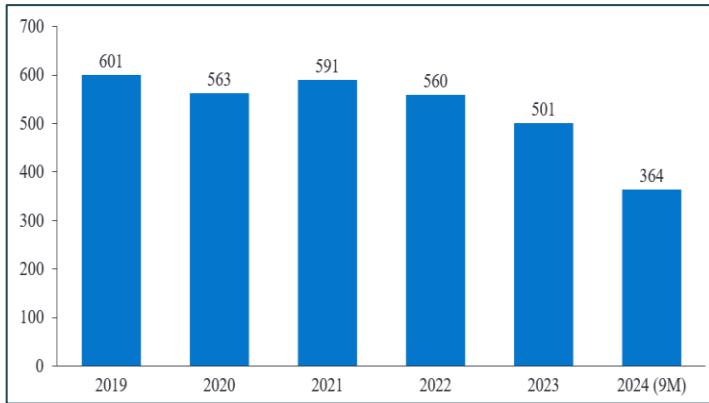


Market share for gas power turbines manufacturers based on orders in 2024 (9M)

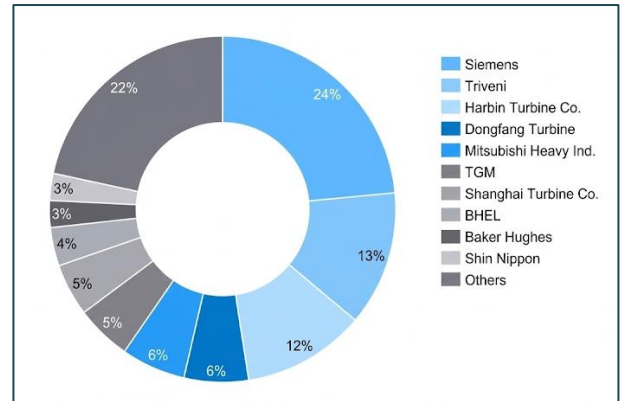


The global market for gas power turbines remains concentrated and structurally important within the broader energy landscape, driven by the need for flexible, reliable and fast-ramping generation that complements the growth of renewable energy. Gas turbine orders have remained steady over the past few years, with 327 units ordered in 2023 and 367 units in 2022, before recording 273 units in the first nine months of 2024 according to McCoy data. Although annual variations are visible, the medium-term demand environment remains stable as utilities and industrial operators continue to invest in both simple-cycle and combined-cycle configurations for efficiency gains and grid balancing. The competitive landscape is dominated by a small number of global OEMs, with the top three players accounting for roughly three-fourths of global orders in 2024. GE holds the largest share at around 40 percent, followed by Siemens at 23 percent and Mitsubishi at 12 percent, highlighting a high-entry-barrier market concentrated among technologically advanced turbine manufacturers. This concentration reflects the immense technical complexity of gas turbines, which rely on high-temperature alloys, precision-machined hot-section components and stringent performance standards. As the power sector transitions toward higher efficiency and lower emissions, the demand for advanced turbine platforms and replacement of ageing fleets is expected to remain resilient, sustaining long-term opportunities for qualified suppliers involved in turbine blades, stator vanes, combustion components and other critical rotating parts.

Steam power turbines ordered (2019-2024 9M)



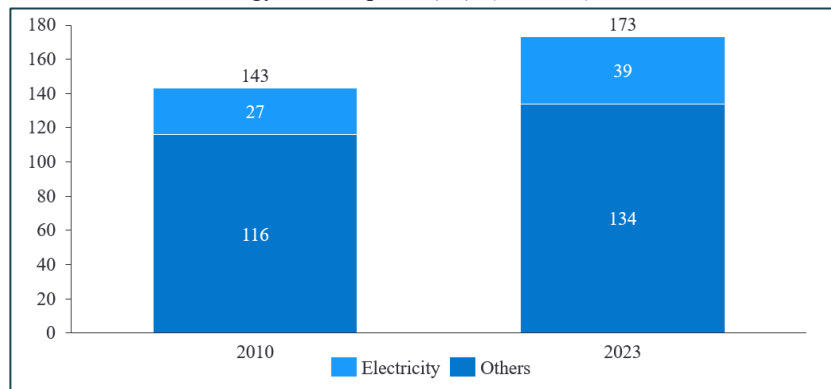
Market share for steam power turbine manufacturers based on orders in 2024 9M



Steam turbine demand has remained steady over the past several years, supported by its wide applicability across fossil, biomass, nuclear and industrial power generation. According to McCoy, global steam turbine orders stood at 560 units in 2022 and moderated slightly to 501 units in 2023, with 364 units recorded in the first nine months of 2024. The market continues to be driven by a combination of new capacity additions, industrial captive power requirements and replacement cycles for ageing assets in traditional baseload systems. Despite the growing penetration of renewable energy, steam turbines remain an essential part of the generation mix in regions with coal and biomass infrastructure, and in nuclear power where turbines form the core of the generation island. The competitive landscape is concentrated, with the top five manufacturers accounting for roughly sixty percent of global orders in 2024. Siemens Energy and Triveni Turbines together command close to thirty-eight percent of the market, reflecting the significant technological, material and scale barriers that limit new entrants. The continued reliance on high-efficiency steam turbines across diverse fuel types ensures steady long-term demand for mission-critical rotating components, making this segment an important area of opportunity for precision-engineered turbine part suppliers.

Industrial turbines market and outlook

Global industrial energy consumption (EJ), (2010-23)



Industrial energy consumption continues to grow steadily across the world, rising from 143 exajoules in 2010 to 173 exajoules in 2023. A large share of this demand originates not from electricity generation but from industrial processes that require mechanical power, heat or compression. By 2030, global industrial energy consumption is projected to range between 178 and 193 exajoules depending on the scenario adopted by the International Energy Agency. This structural rise in industrial energy use underpins the long-term demand for industrial turbines, which serve as essential mechanical drivers across a wide variety of sectors.

Industrial turbines differ from utility-scale power turbines because they are not always used to generate electricity. Instead, they often provide direct mechanical power to industrial equipment. These turbines are deployed in oil and gas, petrochemicals, fertilisers, cement, marine transportation, pulp and paper, textiles and mining, where continuous, reliable and high-efficiency rotational power is required. In the oil and gas sector in particular, turbines play a central role in pipeline compression. Natural gas must be pressurised before it can travel long distances through pipelines, and industrial gas turbines supply the mechanical energy needed to drive the compressors. They also power refrigeration systems that cool the compressed gas for liquefaction and onward distribution. Similar roles exist in petrochemical plants, refineries and LNG terminals, where turbines drive pumps, compressors and blowers used in critical processing operations.

The attraction of industrial turbines lies in their reliability, fast start-stop capability, ability to operate in harsh environments and strong fuel flexibility. They are often preferred over electric motors in remote locations, offshore platforms and high-power applications because turbines provide high energy density and can be powered directly by process gases available on-site. Their use in industries such as cement, steel, fertilisers and mining also reflects the need for robust mechanical power sources that can support heavy-duty continuous operations.

This wide industrial applicability creates a stable and diversified demand base for turbine components, independent of fluctuations in utility-scale power generation. As industries expand capacity, modernise equipment or replace ageing assets, demand for new industrial turbines and high-performance replacement parts continues to rise. This ensures sustained long-term opportunities for manufacturers of mission-critical turbine parts such as rotating blades, vanes, shrouds and other hot-section components, where precision engineering and high-temperature material expertise are essential.

Key turbine manufacturers and Azad's positioning

The turbine manufacturing landscape is concentrated among a limited number of global OEMs with deep technical capabilities and extensive installed bases. GE Power, Siemens Energy and Mitsubishi Power together command the largest share of global gas turbine orders, contributing close to seventy-five percent of the market in 2024. Steam turbines, which span fossil, biomass and nuclear applications, are similarly concentrated, with Siemens Energy and Triveni Turbines accounting for more than one-third of global orders in the first nine months of 2024. Other notable players include Ansaldo Energia, BHEL, Harbin Turbine, Dongfang Electric, Shanghai Electric, Baker Hughes and Solar Turbines, each catering to a mix of power generation, industrial and oil and gas applications. The presence of such large, technically intensive OEMs underscores the high entry barriers in turbine manufacturing, where qualification requirements, material expertise and reliability standards are extremely stringent.

Azad Engineering's position within this ecosystem is distinguished by the breadth of its customer relationships and its ability to supply mission-critical rotating and stationary components to several of the world's leading turbine manufacturers. The company supplies components to five of the major OEMs listed above, reflecting long-standing trust in its engineering capabilities and manufacturing precision. Its relevance in the global turbine market has further strengthened through specialized approvals and new program wins. Azad holds approvals from EDF and, in November 2024, signed a contract with Arabelle Solutions, a subsidiary of EDF, to supply highly engineered components for nuclear steam turbine systems. This builds on its earlier contract with GE Steam Power signed in February 2023 and positions the company as a qualified supplier for high-complexity nuclear and thermal turbine programs. These partnerships reinforce Azad's strategic importance in the turbine value chain and provide multi-year visibility across both industrial and utility-scale turbine demand globally.

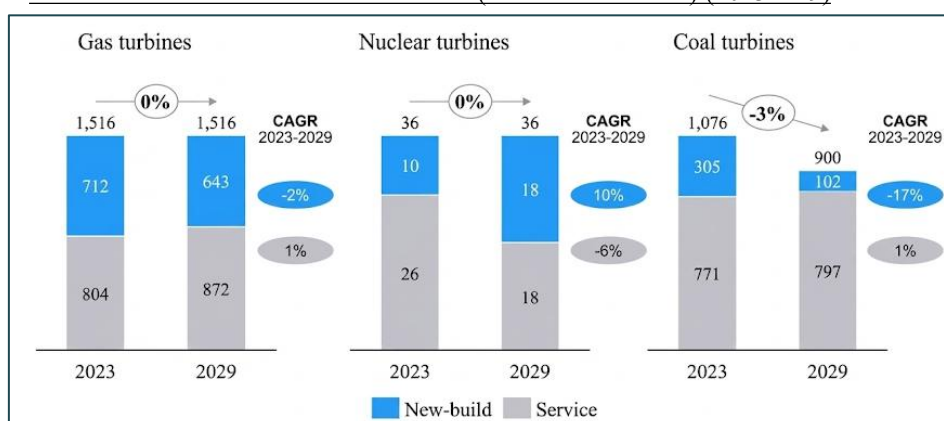
Details of key turbine manufacturers Players

Players	Description	Energy related products	End-use Segments
General Electric	US based conglomerate that is present in diverse industries.	Gas Turbine, Steam Turbine, Generators, Boilers	Power generation, Renewable energy, Healthcare, Oil and gas, Industrial solutions
Siemens Energy AG	Germany based MNC that provides solutions and services across different industries.	Energy Automation & Smart Grid, Turbine, Other power gen. equipment	Power generation, Industry & manufacturing, Infrastructure & buildings, Healthcare, Digitalization and software solutions
Mitsubishi Power Ltd.	Japan based company with expertise in power generation, industrial equipment & infra solutions.	Gas Turbine, Steam Turbine, Generators, Power plant solution, Boilers	Thermal power plants, Renewable Energy, Integrated Energy solution, Environmental solutions
Ansaldo Energia S.P.A.	Italy based company recognized for its expertise in power generation equipment.	Gas Turbine, Steam Turbine, Generators, Power Plant solution	Thermal power generation, Industrial power generation, Renewable energy
Bharat Heavy Electricals Limited (BHEL)	Indian PSU that manufactures power generation equipment.	Gas Turbine, Steam Turbine, Generators, Boilers	Aerospace, Defence, Electrical Equipment, Locomotive
Triveni Turbines Ltd.	India based Steam Turbine manufacturer	Steam Turbine	Textiles, Oil & Gas, Chemical, Power Generation
Harbin Turbine Co. Ltd.	China based enterprise that manufactures all types of turbines	Gas Turbine, Steam Turbine, Nuclear Turbine, Fossil Turbine	Power generation, Transmission, distribution, Nuclear, Oil and Gas

Players	Description	Energy related products	End-use Segments
Dongfang Electric Corporation	China state-owned company that builds steam turbines	Steam Turbine	Power generation, Transmission, distribution, Oil and Gas
Shanghai Electric Power Generation Group	China based MNC that deals in power generation & electrical equipment	Steam Turbine, Wind Turbines	Power generation, Transmission, distribution, Electrical
Baker Hughes	US based company with diverse offerings across energy & industrial value chain	Gas Turbine, Steam Turbine	Oil and Gas, Industrial applications
Solar Turbines	US based company which supplies energy solutions for power generation & other applications	Gas turbines	Energy, Industrial, Renewable, Marine

Outlook for new and serviceable turbines in power generation industry

Outlook for new and serviceable turbines (number of turbines) (2023 – 29)



The outlook for gas, nuclear and coal turbines between 2023 and 2029 highlights a market that is stabilising in terms of new installations while continuing to generate steady demand for service and overhaul activity. Gas turbines remain the largest segment, with the total installed base expected to remain broadly unchanged at around fifteen hundred units over the period, although the mix shifts toward a higher proportion of serviceable turbines as the fleet ages. New gas turbine additions see a marginal decline, but the service market continues to expand, supported by the role of gas in enabling lower-emission power generation and balancing renewable intermittency. The industry's transition toward hydrogen-ready turbine designs further extends the relevance of gas-fired generation in future energy systems.

Nuclear turbines show a stable total installed base, with modest new-build activity offset by continued refurbishment of existing assets. Although nuclear capacity additions remain limited globally, the segment maintains a consistent service demand profile because turbines form the central component of the generation island and require periodic replacement of critical rotating elements. Coal turbines, by contrast, experience a decline in new installations given the global shift away from coal-fired generation, but service demand remains resilient due to the large operating fleet in Asia and the continued use of coal plants for grid stability. Even as new-build activity in coal slows, the installed base continues to require periodic overhauls and component replacement.

Taken together, these trends indicate that while new-build turbine volumes are plateauing or contracting in certain categories, the service and refurbishment market continues to provide durable long-term demand for high-precision turbine components. The shift toward higher efficiency, lower-emission and hydrogen-compatible turbine technologies further increases the complexity of critical parts, reinforcing the importance of suppliers capable of meeting stringent engineering and material requirements.

Key Components of a Turbine and Their Importance

1. Air / Steam Inlet

The inlet is the entry point for the working fluid that drives the turbine. In gas turbines, this is where atmospheric air is drawn in, filtered and channelled smoothly toward the compressor. In steam turbines, this inlet admits high-pressure steam produced in a boiler. A clean and stable flow at this stage is essential because disturbances or contaminants can reduce efficiency, damage blades and shorten the life of downstream components. The quality of the inlet design directly influences the overall performance and reliability of the turbine.

2. Compression / Pressurisation Stage

Gas turbines include a compressor that uses rows of rotating and stationary airfoils to increase air pressure before combustion. This stage determines how efficiently fuel can be burned, making it critical to turbine output and fuel consumption. Steam turbines do not require a compressor because steam arrives already pressurised, but both technologies rely on precisely shaped blade geometries to manage the fluid's energy and prevent flow instabilities. Any defect in these airfoils can cause stalling, vibrations or efficiency losses, making manufacturing precision extremely important.

3. Combustion or Steam Admission

In gas turbines, the combustion chamber mixes high-pressure air with fuel and ignites it to produce extremely hot, high-energy gas. Steam turbines receive high-pressure, high-temperature steam directly from an external boiler instead. Despite this difference, the purpose is the same: to create a high-energy working fluid capable of delivering maximum force to the turbine blades. Effective combustion or steam admission is essential for stable operation, efficiency and emissions control.

4. Turbine Section (Energy Conversion Zone)

This is the heart of both gas and steam turbines. As hot gas or steam passes through the turbine, it expands and strikes rows of rotor blades, causing them to spin at high speeds. Stationary blades, or stators, guide the flow at the optimal angle to maximise energy extraction. The mechanical rotation generated here drives a generator in power plants or industrial equipment such as compressors and pumps. Because blades operate under extreme temperatures, pressures and centrifugal forces, they require advanced metallurgy, cooling channels and flawless machining. Their performance defines the efficiency, output and lifespan of the turbine.

5. Blades / Airfoils

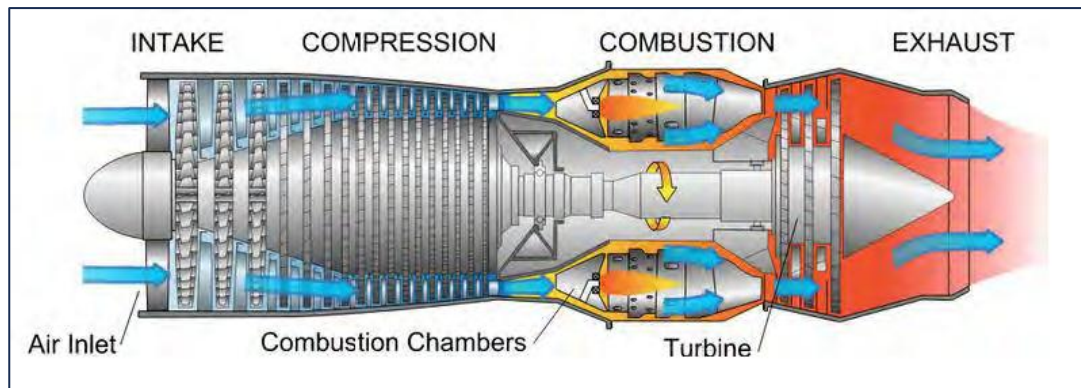
Blades are the most critical and technologically demanding components in a turbine. Each blade consists of an aerodynamic airfoil, a platform, a shank and a dovetail that locks it into the rotor. Gas turbine blades often contain intricate internal cooling passages to survive temperatures exceeding the melting point of the metal itself. There are two primary types: rotor blades, which rotate and extract energy, and stator blades, which remain fixed and direct fluid flow. The precision, material strength and heat resistance of these components determine turbine efficiency and reliability, making them a core focus area for high-precision manufacturers like Azad Engineering.

6. Supporting Systems (Casing, Bearings, Seals and Control Systems)

The turbine casing contains the high-pressure working fluid and houses the rotating assembly. Bearings support the rotor shaft and minimise friction, while seals, cooling passages and diaphragms maintain performance under extreme operating conditions. Control systems such as governors regulate speed and ensure safe, stable operation. These supporting systems protect the turbine from overheating, vibration and premature wear, enabling long operational life.

Turbine repair cycle

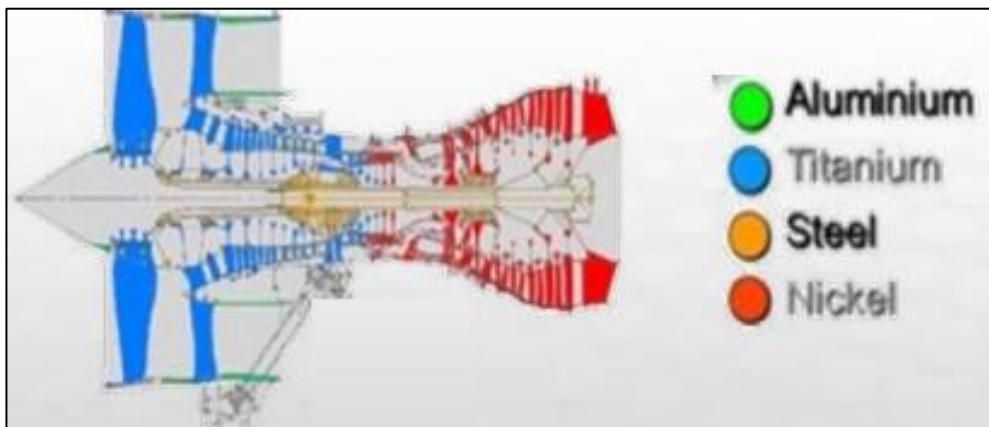
Turbines operate in extremely demanding environments, and their performance gradually declines due to heat stress, material fatigue and erosion of blades and seals. To maintain efficiency, reliability and safety, turbines follow a well-defined maintenance and repair cycle. Gas turbines typically require inspection or minor repairs every three to eight years, depending on operating hours and fuel quality, while major overhauls occur once every ten to sixteen years, during which critical hot-section components such as blades, vanes and combustion liners are refurbished or replaced. Steam turbines operate at lower temperatures and generally have longer intervals between major maintenance cycles, but they still require periodic attention to bearings, diaphragms, seals and rotor alignment to prevent efficiency loss. Most new turbines are sold with long-term service agreements that guarantee scheduled overhauls, but operators without such contracts rely on OEMs or specialised third-party service providers. Because the repair cycle recurs throughout a turbine's life, which typically exceeds thirty years, the aftermarket for high-precision replacement parts remains a significant and stable revenue opportunity. This recurring demand is particularly strong for components within the hot section, where wear rates are highest and material specifications are most exacting.



Azad Engineering manufactures precision-machined airfoils, stator vanes and rotating components that form part of the turbine section, although not in the extreme first-stage zone that requires directionally solidified or single-crystal blades. The company's components operate in downstream turbine stages and adjacent hot-gas-path areas, where precision machining, material strength and tight tolerances remain critical. This positions Azad as a strategic supplier for turbine manufacturers without competing in the ultra-specialised casting-intensive first-stage blade segment dominated by a handful of global suppliers.

Gas turbines require directionally solidified or single crystal blades in their first and second stages because temperatures at the turbine inlet exceed the limits of conventional materials. These advanced castings are essential to withstand creep, oxidation and thermal fatigue. Steam turbines, by contrast, operate at much lower temperatures and therefore do not require DS or SX technology, relying instead on forged and machined alloys. Azad Engineering supplies airfoils and rotating components for later-stage gas turbines and for steam turbines, where precision machining and material strength remain critical but DS or SX casting capability is not needed.

Material distribution in an Aeroengine



Aerospace & Defence Industry

Presence of Azad Engineering Ltd. in the Aerospace & Defence Industry

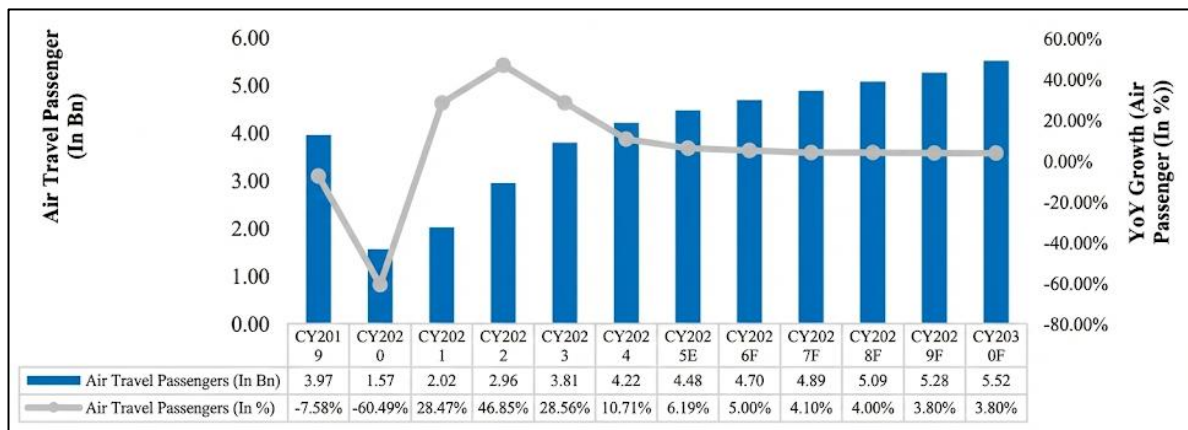
Azad Engineering Ltd. plays a critical role in the global aerospace and defence value chain by supplying high-precision engine airfoils and other forged and machined components used across commercial aircraft, defence aircraft, spacecraft, and mission-critical defence systems. These components support essential functions such as propulsion, actuation, hydraulics, and flight control, and are supplied both for new aircraft platforms as well as to MRO service providers. Given that engine components operate under extreme temperature and stress cycles, Azad's products are engineered to meet stringent life-critical performance norms and adhere to a "zero parts per million" defect standard.

The company has built long-standing relationships with major global and Indian OEMs and supplies critical components for several aircraft platforms including the B737 family, B747, B777, B777X, A320, A350 series and Gulfstream business jets. Its portfolio is positioned in the Tier-2 segment of the supply chain, delivering parts to leading Tier-1 integrators such as Honeywell, Eaton, GE Aerospace and Collins, who then supply to Airbus and Boeing. This positioning enables Azad to be deeply embedded in long-duration engine and platform programs with high entry barriers and stable revenue visibility. The company has also expanded its strategic relevance by signing a recent JV with Pratt & Whitney, strengthening its presence across next-generation propulsion platforms.

This section sets the context for understanding the commercial and defence aviation outlook, MRO dynamics, and the component-level opportunities that sustain demand for precision-engineered airfoils and machined parts that Azad specializes in.

Global Aerospace Manufacturing Market

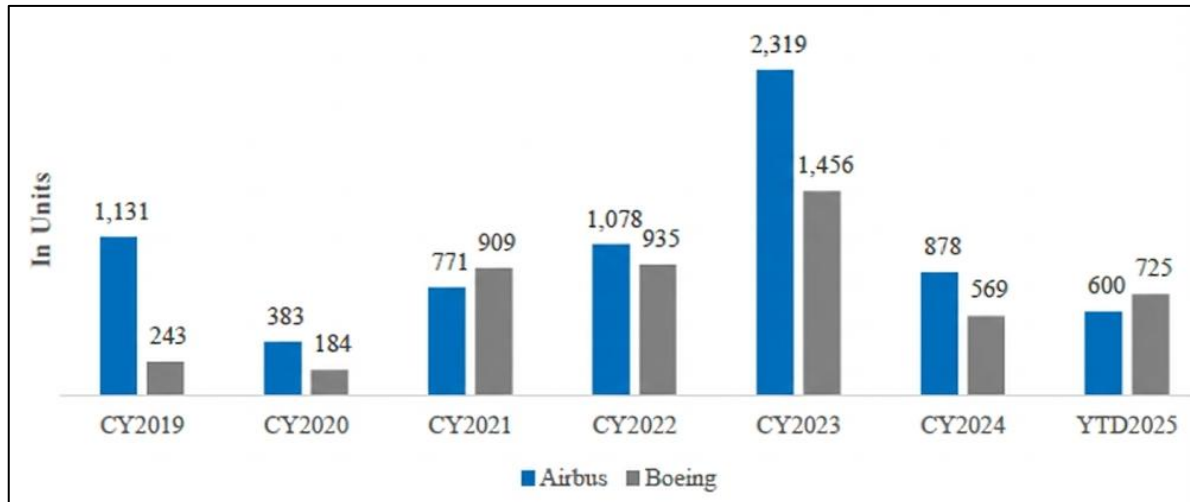
Global Air Travel Growth (In Bn & In Percentage), CY2019-CY2030F



Source: International Air Transport Association (IATA), International Civil Aviation Organization (ICAO) and Frost & Sullivan Analysis

Global air travel has moved from an unprecedented collapse to a structurally strong multi-year recovery cycle. Passenger volumes fell sharply by over 60 percent in 2020 due to COVID-19, but the speed and consistency of the rebound since then signal durable demand rather than a temporary bounce-back. The market expanded by 28 percent in 2021, nearly 47 percent in 2022, and close to 29 percent in 2023, indicating a broad-based global recovery across leisure, business, and long-haul segments. Passenger traffic in 2024 is estimated at 4.22 billion, already closing in on pre-pandemic highs and projected to surpass 2019 levels by 2025. Long-term demand remains robust, with global passengers expected to reach 5.5 billion by 2030, driven by higher disposable incomes, expanding global connectivity, and the rapid growth of low-cost carriers. This sustained traffic expansion provides multi-year visibility for aircraft OEMs and the entire aerospace supply chain, reinforcing the attractiveness of component manufacturers as beneficiaries of rising production rates and long backlogs.

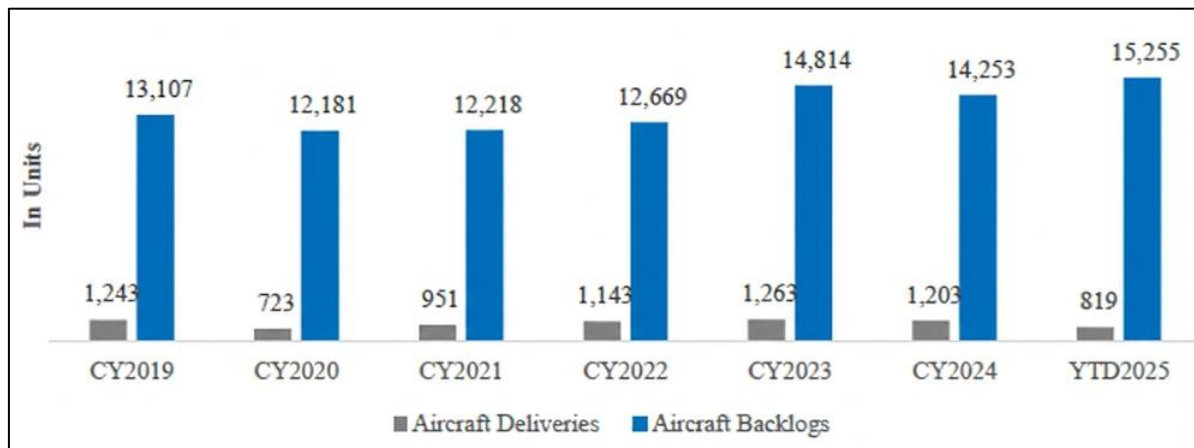
Global Aircraft Orders (In Units), CY2019-YTD2025



Source: Airbus & Boeing | Note: YTD 2025 data as on August 31st 2025

Global aircraft ordering has entered a strong expansion phase following the pandemic, reflecting renewed airline confidence and long-term traffic visibility. Orders fell sharply in 2020 as airlines deferred fleet decisions, but the rebound since 2021 has been both steep and sustained. Airbus and Boeing saw order volumes surge through 2021 and 2022, culminating in an exceptionally strong 2023 where Airbus recorded 2,319 orders and Boeing 1,456, driven by accelerated fleet replacement and expansion plans. Even YTD 2025 data suggests continued momentum, with both OEMs maintaining healthy intake levels. This surge has expanded the backlog significantly, stretching delivery timelines and increasing the dependence of OEMs on their existing qualified supplier base. Because onboarding a new supplier is time-consuming and technically complex, OEMs prioritize stability over experimentation during production ramp-ups. As a result, incumbent suppliers benefit disproportionately from record backlogs and aggressive rate increases, reinforcing high entry barriers and strengthening long-term revenue visibility for established precision component manufacturers.

Growth in Aircraft Deliveries and Backlogs (In Units), CY2019-YTD2025

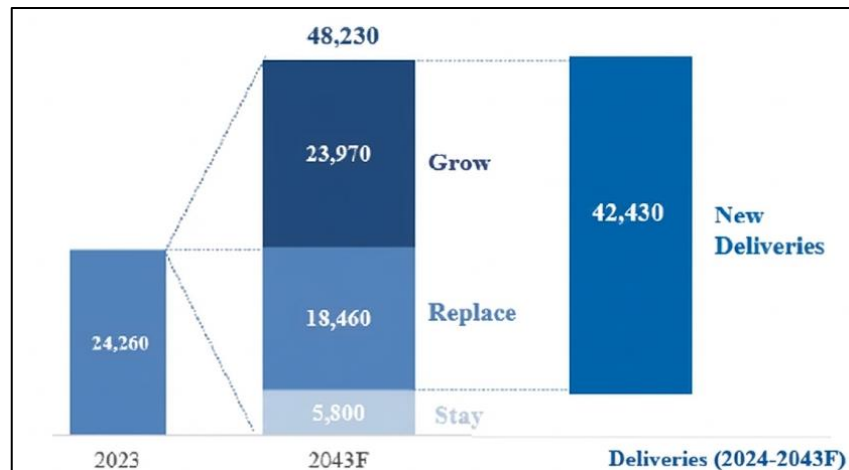


Source: Airbus & Boeing | Note: YTD2025 data as on August 31st 2025

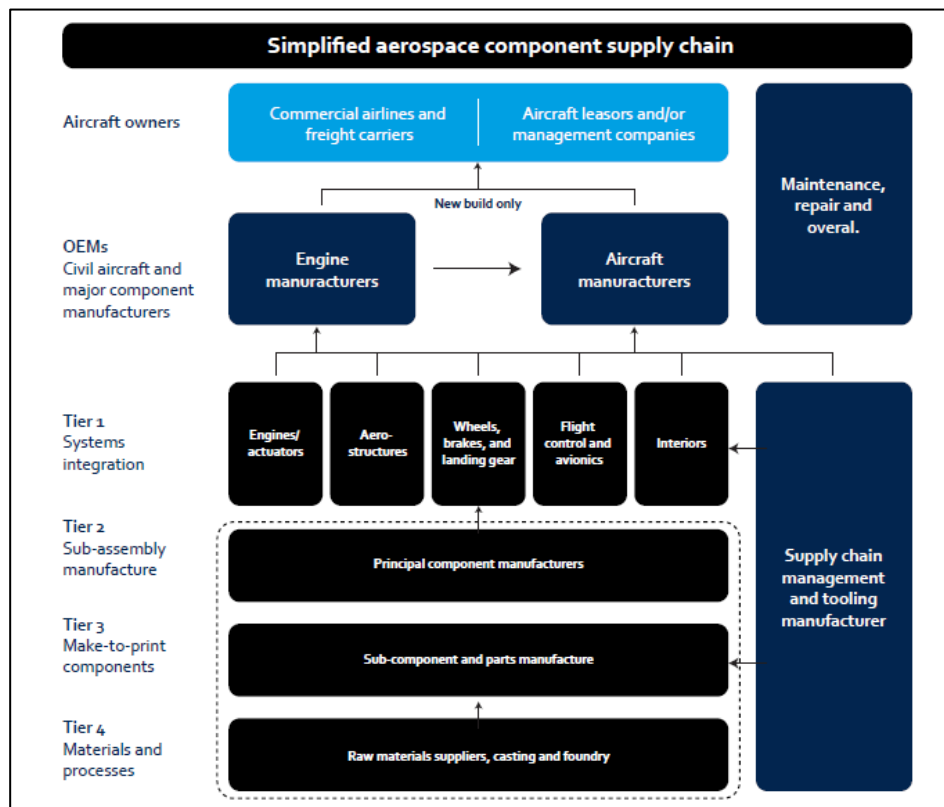
Aircraft deliveries have not yet returned to pre-pandemic levels, but the steady rise in backlogs highlights the strength of long-term demand. Deliveries fell from 1,243 aircraft in 2019 to 819 aircraft in YTD 2025 due to supply chain constraints, while backlogs expanded from 13,107 to 15,255 units over the same period. This reflects a structural shortage of supply rather than softness in demand. With Airbus and Boeing committed to significant production increases, including Airbus' plan to reach 75 A320 aircraft per month by 2027 and Boeing's planned ramp up across its Dreamliner and narrow-body programs by 2026, their dependence on the existing qualified supplier base will only deepen. Onboarding new suppliers is slow and costly, which limits the flexibility of OEMs during rate increases and strengthens the position of established component manufacturers already embedded in the supply chain.

Long-term demand visibility is further supported by fleet replacement and expansion needs. Between 2024 and 2043, the industry is projected to deliver 42,430 aircraft. The global fleet is expected to rise from 24,260 aircraft in 2023 to 48,230 aircraft by 2043, driven by both growth and replacement cycles. Approximately 23,970 new aircraft will be added to support expanding air travel demand, while 18,460 aircraft will replace older and less efficient models. This combination of growth and renewal provides a stable and predictable production pipeline for OEMs and creates sustained multi-decade opportunities for their tier 2 and tier 3 suppliers.

Fleet Replacement (In Units), 2023-2043F



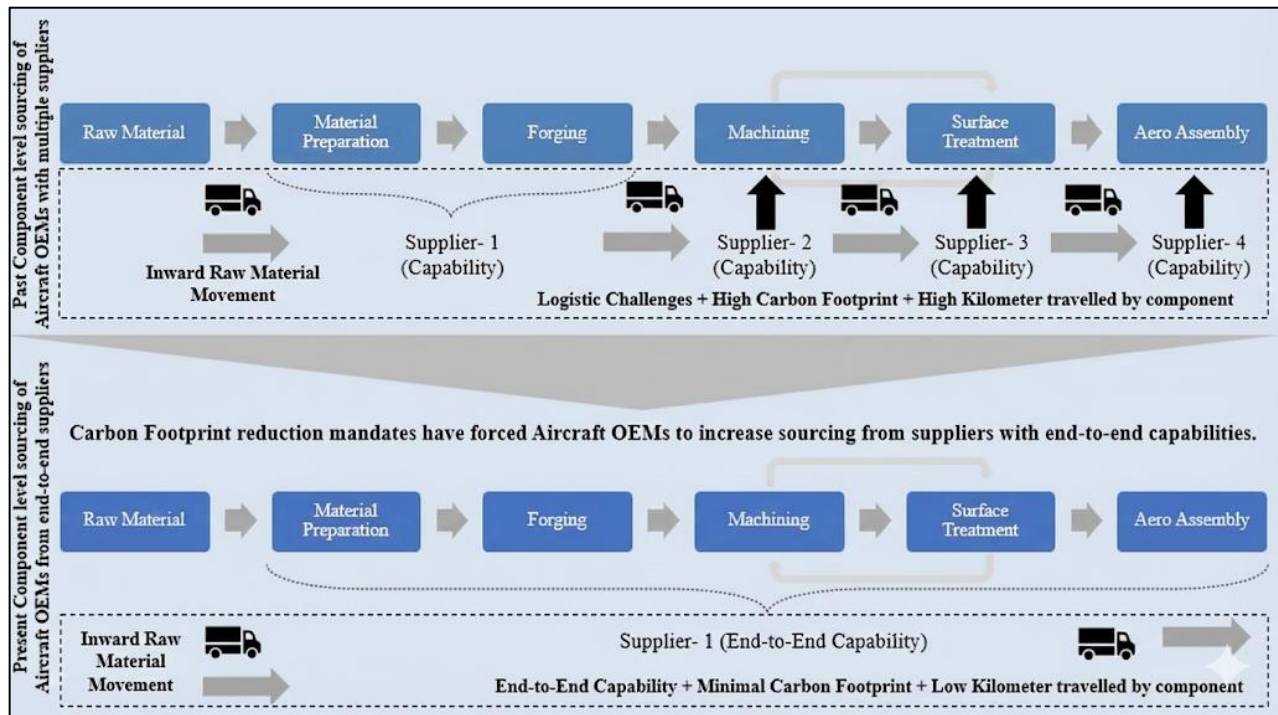
Source: Airbus Global Market Forecast



Source: ValueQuest Deep Dive

The aerospace value chain is highly hierarchical, with aircraft requirements defined by airlines and lessors and translated into design by aircraft and engine OEMs. These OEMs depend on a global network of tiered suppliers, where Tier 1 companies integrate major systems such as engines, aerostructures, avionics, landing gear, and interiors. Below them, Tier 2 and Tier 3 manufacturers produce sub-assemblies and precision components, while Tier 4 companies supply materials and critical processes. Over decades, Tier 1 and OEM players have consolidated significant intellectual property, capital strength, and technical depth, allowing them to withstand shocks such as the COVID downturn. The lower tiers, however, were far more vulnerable. Many Tier 2, 3, and 4 suppliers exited the industry during the pandemic, constrained by limited balance sheets and the loss of skilled labor. When aviation demand rebounded faster than expected, OEMs and Tier 1 integrators were faced with a supply base that had structurally shrunk. This shortage has created a significant opportunity for emerging precision manufacturers, particularly in countries like India, where supply chains are viewed as more secure and IP-friendly than China. As global OEMs diversify their sourcing and look for reliable, long-term partners with strong engineering capabilities, Indian companies such as Azad Engineering are positioned to capture a larger share of the mid-tier value chain. Their expertise in high-precision machining, critical rotating components, and stringent aerospace qualifications aligns directly with the gaps created in the global supplier ecosystem. This shift marks one of the most attractive multi-year opportunities for Indian aerospace manufacturers as Western OEMs accelerate outsourcing to stable, capability-rich partners.

Aerospace Component Value Chain

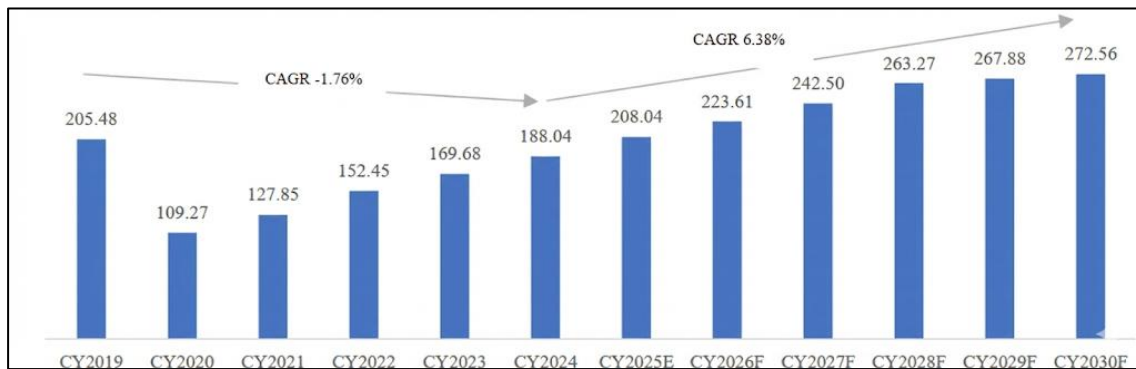


The aerospace component value chain has traditionally been fragmented across multiple suppliers for material preparation, forging, machining, surface treatment and final assembly. This created complex logistics, higher carbon emissions and quality risks, since each stage required transportation, revalidation and coordination across several independent vendors. With Airbus and Boeing now mandating carbon footprint reduction and tighter supply chain control, OEMs increasingly prefer suppliers that can deliver end-to-end manufacturing within a single ecosystem. Integrating forging, machining, special processes and assembly under one roof reduces part movement, improves traceability and ensures consistent quality, which is especially important as global aircraft production rates rise. This shift raises significant entry barriers because setting up a full-stack aerospace manufacturing capability requires deep process expertise, heavy capital investment, global certifications and multi-year customer qualification cycles. Companies like Azad Engineering, which already operate with high-precision machining, special process approvals and vertically integrated workflows, are well positioned to benefit from this structural transition. OEMs are prioritizing reliable, certified, end-to-end partners over fragmented supply chains, creating long-term visibility and stronger competitive moats for established players.

Complexity Involved in Aerospace Components Manufacturing compared to Automotive Component Manufacturing

Particulars	Aerospace Components Manufacturing	Automotive Components Manufacturing
Precision Requirements	Requires ultra-high precision (up to 4 microns) due to strict safety standards.	Precision needed, but tolerances (10–50 microns) are generally more flexible
Complexity of Designs	Features intricate geometries and lightweight structures needing advanced machining.	Generally simpler designs focused on mass production efficiency.
Materials Used	Utilizes high-performance alloys like titanium, requiring specialized machining.	Uses cost-effective materials like steel, aluminium, and plastics for high-volume use
Manufacturing Technologies	Employs advanced tech like 5-axis CNC and additive manufacturing for complex parts	Relies on traditional CNC and automation; focus is on cost and efficiency
Vendor Onboarding and Timeline	Lengthy and certification-heavy (e.g., NADCAP); high entry barriers.	Faster onboarding with easier certification, driven largely by cost and specifications

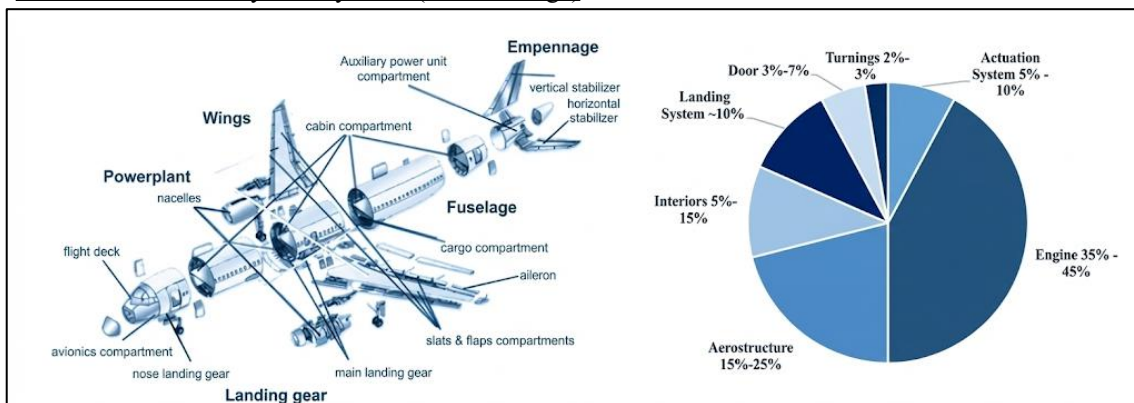
Global Aerospace Market Size (In USD Bn),CY2019-CY2030F



Source: Frost & Sullivan Analysis | Note: The above market is for commercial aircraft

The global aerospace manufacturing market is entering a renewed growth cycle after the disruptions of the pandemic. The sector contracted in 2020 but recovered steadily as air travel rebounded and OEM production rates began rising again. Market size increased from USD 188.04 billion in 2024 and is projected to reach USD 272.56 billion by 2030, implying a healthy compound annual growth rate of 6.38 percent. This growth is supported by sustained demand for new aircraft, expanding global backlogs, and higher replacement cycles across both commercial and defense aviation. The duopoly of Airbus and Boeing continues to shape industry structure, but their heavy reliance on global supply chains creates significant downstream opportunities for qualified component manufacturers. Structural trends such as sustainability mandates, advancements in green propulsion technologies and the adoption of automation, AI and additive manufacturing are further elevating the technological intensity of the sector. Although challenges such as geopolitical risks and supply chain bottlenecks persist, the industry's long-term trajectory remains robust, driven by rising passenger traffic, production ramp-ups and increased investment across aerospace and space systems. This provides durable multi-year visibility for suppliers embedded in the manufacturing value chain.

Aircraft Breakdown by Sub-Systems (In Percentage)



Source: Researchgate and Frost & Sullivan Analysis

The cost structure of a commercial aircraft is heavily weighted toward a few critical sub-systems, with engines representing the single largest component at roughly 35 to 45 percent of total aircraft value. This reflects the technical complexity, material intensity, and regulatory demands associated with modern propulsion systems, which are central to fuel efficiency and overall aircraft performance. Aerostructures, including the fuselage, wings, and empennage, account for an additional 15 to 25 percent of value, underscoring the importance of high-precision machining and lightweight material capability across the supply chain. Interiors represent between 5 and 15 percent of cost, while landing systems contribute another 10 percent. Smaller but essential categories such as doors, actuation systems, and turnings make up the remaining share. This distribution illustrates why tiers supplying engine components, structural parts, and critical rotating elements hold strategic importance within the aerospace ecosystem. It also highlights the depth of opportunity for precision manufacturing companies positioned in these high-value segments, particularly as global aircraft production accelerates and OEMs broaden their sourcing base across emerging manufacturing hubs like India.

Key components used in the aerospace & defence

An aircraft typically consists of three key components: Outer structure, engine, and operational systems.

1. Outer structure: The outer structure of an aircraft consists of the following four main parts:

- a. **Fuselage:** This is the main part of the aircraft, the long hollow tube that forms most of the aircraft. This is the part where cargo, cabin crew, passengers, & pilot are seated. It also includes the cockpit. For a weight reduction, it is hollow from inside.
- b. **Wings:** Airplanes have fixed wings, whereas helicopters have rotating wings, wings perform the important function of lift in the aircraft. Wings have two parts: flaps and ailerons, ailerons are used to control the rotation around the front-to-back axis of the aircraft, whereas flaps are used to provide lift & drag to the airplane.
- c. **Empennage:** They work to guide the aircraft to reach its destination and includes the complete section of tail of the aircraft. The rudder helps steer the aircraft. They are the tail unit at end rear end of the fuselage.
- d. **Landing gear:** The landing gear is the part of the aircraft that aids landing, take-off & taxi for the aircraft. It is an integral part of the aircraft. Retractable gears are also present in some of the fast aircrafts. The landing gear absorbs the shock while pilot performs landing of the aircraft.

2. Engine: Part of the propulsion that move the aircraft forward by exerting thrust. A jet engine includes the below mentioned parts:

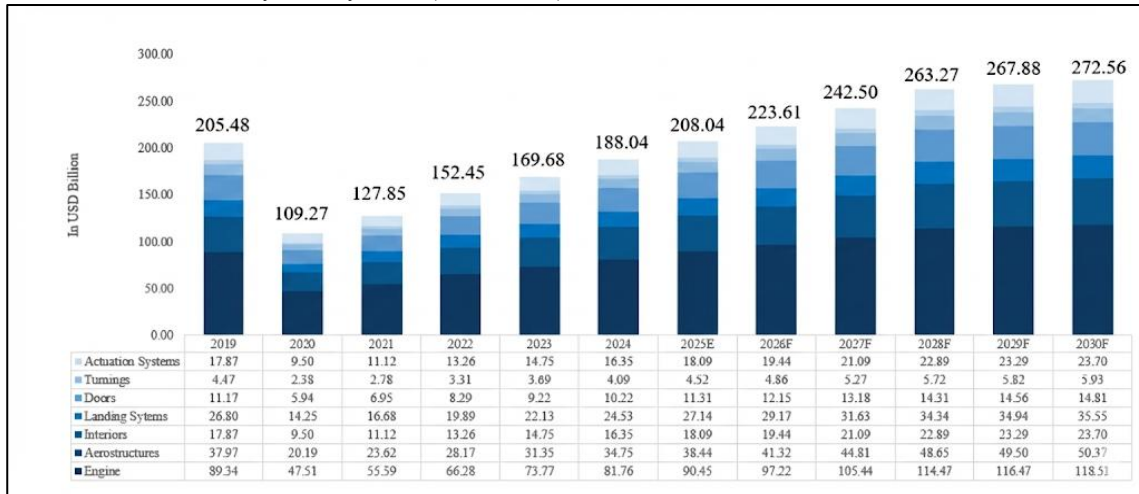
- a. **Fan:** The key responsibility of airfoils in this section is to suck in air which splits into two parts. The first part of the air passes through the engine core, whereas the second part completing skips the engine core and enters a duct (which is encompassing the core and back of the engine) to provide thrust to the jet engine.
- b. **Compressor:** In the compressor section, airfoils squeeze the air entering into the engine core to increase its pressure. This results in a high potential energy of air and then pushed into the combustor. The compression ratio between inlet and outlet pressure determines the thrust and efficiency of the engine so the compressor components are highly critical to maintain the optimum compression ratio.
- c. **Combustor:** The combustor, manufactured from ceramic materials can withstand the temperatures as high as 2,700 degrees Celsius. This is the location where fuel and air get mixed. This results in ignition of the engine. The fuel burns in tandem with the presence of oxygen in the pressurized air.
- d. **Turbine:** Blades of a turbine move when air which is highly energized enter the turbine. The fan that is present in the front of compressor moves via the movement of the turbine shaft. The turbine moves the air through the engine, and it is the force with which the turbine moves the air which provides the aircraft with the required thrust. Hence component criticality is of prime importance.
- e. **Nozzle:** It is responsible to push the plane in a particular direction.

3. Operational Systems: Systems that are required in an aircraft for its proper functioning. Some of the important systems within the aircraft are listed:

- a. Pneumatic systems
- b. Hydraulic systems
- c. Rotary wings systems
- d. Fuel System
- e. Environmental control system
- f. Avionics Technology
- g. Engine control systems
- h. Flight control systems

Components like rotor & stator airfoils are used across various end-use-applications like commercial aircrafts, defence aircrafts and helicopters.

Aircraft Breakdown by Sub-Systems (In USD Bn), 2019-2030F

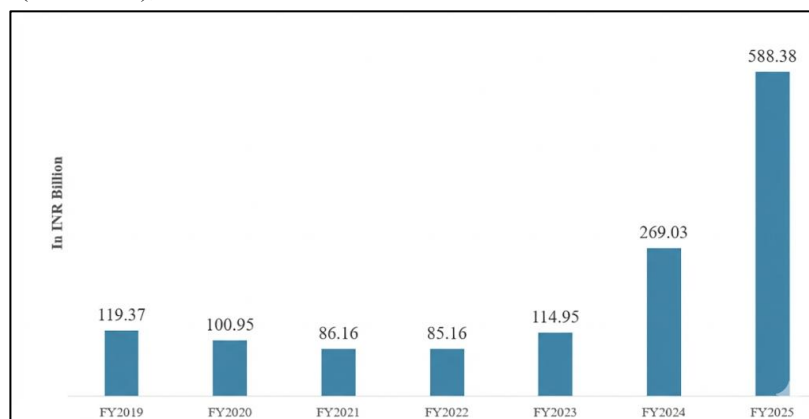


Source: Frost & Sullivan Analysis

The aircraft sub-systems market is projected to expand from USD 188.04 billion in 2024 to USD 272.56 billion by 2030, reflecting a compound annual growth rate of 5.55 percent. This rise is supported by increasing global aircraft production, sustained traffic recovery and the accelerating shift toward lighter, more fuel-efficient platforms. Engines, aerostructures, interiors and landing systems continue to form the bulk of industry value, and each of these segments is benefitting from greater use of advanced materials, tighter thermal and mechanical performance requirements and higher precision standards. As OEM ramp-ups place renewed pressure on the supply chain, the market's growth is expected to disproportionately benefit companies with capabilities in critical rotating components, tight-tolerance machining and certified special processes. This plays strongly to the strengths of Indian precision manufacturers such as Azad Engineering, which operate in high-value sub-system verticals and hold qualifications that align with segments experiencing the fastest expansion.

Indian Aerospace Manufacturing Market

Increase in Export of Aerospace Engineered Components from India (In INR Bn), FY2019 -FY2025



Source: Ministry of Commerce | Note: The above data includes Aircraft parts and space parts, Aircraft Orders- India

India's aerospace manufacturing market is expanding rapidly, supported by strong domestic air travel growth, rising e-commerce activity and the country's increasing relevance as a global supply hub. Strategic collaborations between domestic players and major OEMs such as Airbus and Boeing are strengthening local capabilities and reinforcing the shift toward indigenous production. This evolution is reflected in the sharp rise in India's aerospace component exports, which increased from INR 119.37 billion in FY2019 to INR 588.38 billion in FY2025. The jump highlights India's ability to meet stringent global quality standards and produce high-precision components at scale. Policy initiatives focused on self-reliance, the development of aerospace-focused industrial zones and an expanding base of qualified suppliers have further supported this growth. As global OEMs diversify their supply chains and seek dependable long-term partners, India's manufacturing ecosystem has emerged as a credible and increasingly preferred destination for complex aerospace components.

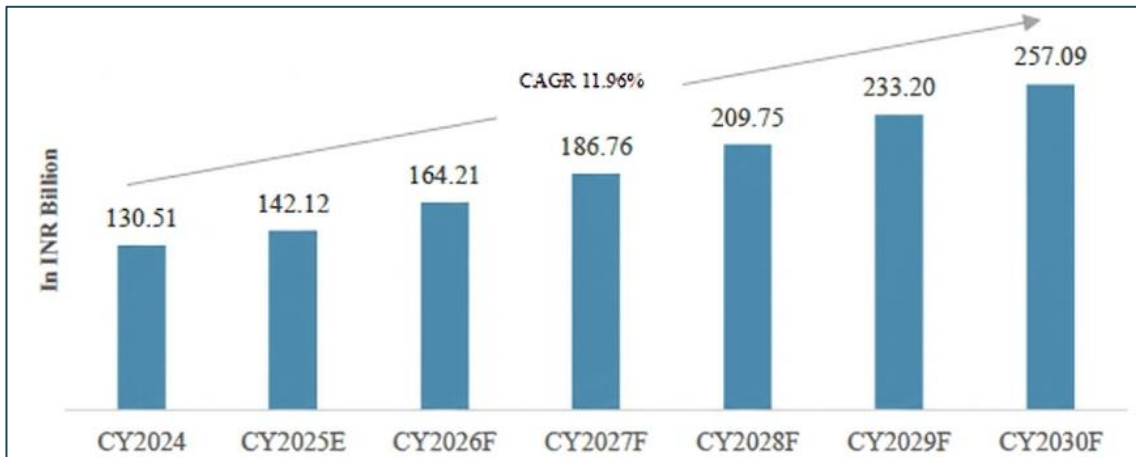
		GLOBAL SUPPLIERS	INDIA SUPPLIERS	INDIA REVENUE POTENTIAL
AIRBUS	2020	15000	~50	\$650M
	2025	18000	~120	\$1.4B
	Growth	~20%	~140%	~115%
BOEING	2020	12000	~200	\$1B
	2025	13000	~300	\$1.25B
	Growth	~8%	~50%	~25%

Source: Accel Advanced Manufacturing Report

Airbus has steadily increased its sourcing footprint in India in recent years, reflecting the country's rising strategic importance in the global aerospace supply chain. The number of Indian suppliers supporting Airbus programs has expanded from about fifty in 2020 to an expected one hundred and twenty by 2025, while the value of annual sourcing is projected to more than double from roughly USD 650 million to about USD 1.4 billion over the same period. This growth has been driven by India's improving precision manufacturing ecosystem, government support for aerospace investments, and the increasing scale of domestic airline orders. The expansion in Airbus' supplier base has also contributed to rising employment, with more than ten thousand jobs now supported through its India sourcing activities.

Boeing has followed a similar trajectory in deepening its engagement with Indian suppliers. Its annual sourcing from India has increased from approximately USD 1 billion in 2020 to an expected USD 1.25 billion by 2025, supported by a supplier base that is set to grow from around two hundred to roughly three hundred vendors. A significant share of these suppliers belongs to the MSME segment, making India one of the most dynamic sourcing destinations for Boeing. The company's sustained ramp-up reflects India's cost advantages, strong engineering capabilities, and the need for OEMs to diversify supply chains while addressing capacity constraints in traditional manufacturing hubs. The simultaneous expansion by both Airbus and Boeing signals a structural opportunity for Indian precision manufacturers, especially those with advanced machining and qualification capabilities like Azad Engineering.

Indian Aerospace Manufacturing Market Size (In INR Bn), CY2024-CY2030F



Source: Frost & Sullivan Analysis | Note: The above market is for commercial aircrafts,
Note : Currency exchange rate taken as of 31st March for the respective year, 1 USD = 85.00 INR from 2025 Onwards

Indian Aircraft Sub System Market In INR Bn), CY2024-CY2030F



Source: Frost & Sullivan Analysis | Note: The above market is for commercial aircrafts | Note: Others include components like engine systems components, cables and wire harnesses, communication system components, to name a few, Note : Currency exchange rate taken as of 31st March for the respective year, 1 USD = 83.00 INR

The Indian aerospace manufacturing market is entering a phase of sustained expansion, with total market size expected to increase from INR 130.51 billion in 2024 to INR 257.09 billion by 2030, reflecting a robust compound annual growth rate of nearly twelve percent. This growth is supported by rising domestic aircraft orders, deeper integration of Indian suppliers into global programs and a policy push toward localisation of aerospace manufacturing. Within this overall market, aircraft sub-systems are experiencing broad-based momentum. Aerostructures remain the largest category and are projected to nearly double from INR 53.95 billion in 2024 to INR 104.58 billion by 2030, driven by increased production of commercial aircraft and higher outsourcing of structural assemblies. The engine segment, although smaller in absolute size, is expected to grow the fastest and expand from INR 2.70 billion to INR 12.45 billion, reflecting the rising complexity of propulsion components manufactured in India. Actuation systems, turnings, landing systems and interiors also show steady growth as OEMs shift more work to Indian suppliers who meet stringent aerospace qualification standards. This upward trajectory underscores India's strengthening position as a reliable source of precision-engineered aerospace components and reflects the widening opportunity set for advanced manufacturers capable of meeting global quality and delivery benchmarks.

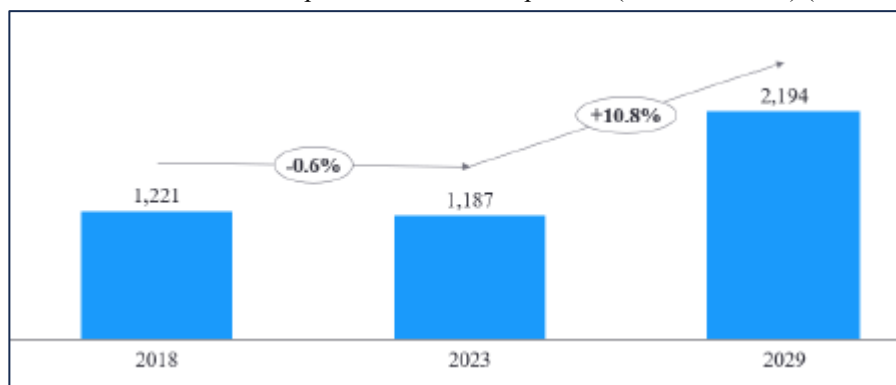
Azad's positioning and SOM in this Aerospace value chain

The global aerospace value chain is dominated by a small number of OEMs and Tier 1 system integrators who control design, IP and final assembly. These companies rely extensively on Tier 2 and Tier 3 suppliers for precision machining, forgings, high-tolerance components and subsystems that go into engines, aerostructures, landing systems and actuation assemblies. Over the last few years, capacity constraints and supplier exits in Western Tier 2 and Tier 3 ecosystems have created a meaningful supply gap just as aircraft demand, fleet expansion and engine overhauls have accelerated. This shift has increased the strategic importance of countries like India, where suppliers offer high-quality manufacturing, competitive cost structures and strong IP protection.

Value within the aerospace chain is most concentrated in engines, aerostructures and actuation systems, which together account for the largest share of aircraft cost and require the highest levels of qualification and engineering precision. These areas are also growing rapidly as global production rates rise. For India, engine components, rotating parts, complex machined assemblies and structural elements form the most attractive opportunity pool, benefitting suppliers that can consistently meet aerospace quality and delivery standards.

Azad Engineering operates as a Tier 2 supplier within this value chain, manufacturing high-precision components that enter major aircraft programs through Tier 1 integrators rather than through direct supply to Airbus or Boeing. Its products flow into platforms via global Tier 1 companies such as Honeywell, Eaton and Collins, which supply engines, APUs, avionics and mechanical assemblies to airframers. In propulsion, Azad works directly with GE Aerospace and has recently strengthened its presence through a joint venture with Pratt & Whitney. This positioning allows Azad to participate across multiple aircraft families without needing to secure direct OEM relationships, while still fully capturing the upside from rising OEM production rates and engine deliveries. Azad's opportunity set is anchored not in hypothetical market capture but in the growth trajectories of its existing customers. GE Aerospace has expanded its commercial engines and services business from USD 13.0 billion in 2020 to USD 23.7 billion in 2023, while Honeywell and Eaton continue to scale their mechanical systems, electronic solutions and power businesses. Boeing's commercial airplanes revenue has recovered sharply, rising from USD 16.2 billion to USD 33.9 billion over the same period. These categories directly overlap with Azad's machining and engineering capabilities, creating durable multi-year revenue visibility. Management notes in the QIP document indicate that Azad's near-term and medium-term growth will be driven largely by deeper penetration and larger wallet share within this existing customer bas

Addressable market for aerospace & defence components (in INR'000 Mn) (2019-29)



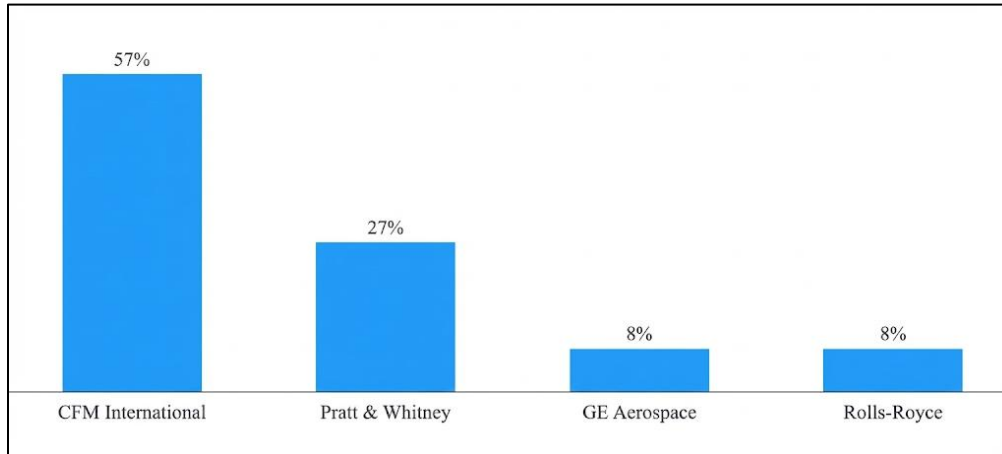
Source: Company annual reports

Note: The market includes the market for five key players: Eaton Corporation Plc, The Boeing Company, Honeywell International Inc., GE Aerospace & HAL ; 1 US\$ = 85 INR assumed for conversion

The addressable market for precision components supplied to Azad's customer ecosystem stood at INR 1,187 billion in 2023 and is projected to grow to INR 2,194 billion by 2029. This expansion is concentrated in engine components, actuation systems, aerostructures, connectors and rotating parts, all of which require the tight tolerances, special processes and complex machining that define Azad's core competence. As global OEMs continue to increase their sourcing from India, driven by supply-chain diversification, cost advantages and the need for reliable qualified partners, Azad's share of business within its existing customer funnel is expected to rise meaningfully.

Azad's SOM is best understood through its positioning rather than through a single numerical estimate. The company already sits inside the procurement funnels of global aerospace leaders at a time when these firms are expanding production rates and enlarging their supplier bases in India. This creates an asymmetric opportunity for Azad relative to smaller domestic manufacturers that are still undergoing qualification or operate in lower-value segments. With rising aircraft deliveries, engine shipments and aftermarket support requirements, Azad is structurally placed to capture a growing portion of the high-value precision manufacturing pool even without factoring in new customer additions.

Aircraft engine manufacturers market share (%) based on 2023 deliveries*



Source: Commercial Engines Report -2023 by Flight Global, Note: Data is for deliveries in 12 months to June 2023

Passenger aircraft engines in service by manufacturers (2024)

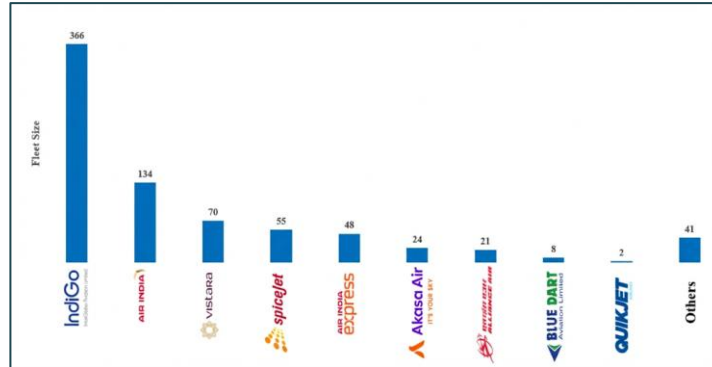
Manufacturers	Number of Engines
GE Aerospace & its JVs	44,000
Pratt & Whitney	13,000
Rolls-Royce	12,560

Details of key manufacturers

Players	Description	Player type	Products (aircraft related)
The Boeing Company	US based MNC that builds, designs & manufactures aircraft	OEM	Commercial Aircrafts, Defence, Space & Security
Airbus SE	European company that is involved in designing & manufacturing of aircrafts	OEM	Commercial Aircraft, Defence & Space
Collins Aerospace	American firm that is involved in designing & manufacturing components for aircraft	Component/ Sub-system manufacturer	Aerostructures, Avionics, Mechanical Systems
Eaton Corporation Plc	American Irish conglomerate with focus on power management	Component/ Sub-system manufacturer	Power & Control, Fluid Conveyance Systems, Fuel Systems, Motion Control Systems
GE Aerospace	US based MNC operating in multiple industries	Engine manufacturer	Aircraft Engines
HAL	Indian PSU aerospace & defence company that develops, designs & manufactures aircrafts	OEM	Defence Aircrafts, Helicopters, UAVs
Honeywell International Inc.	USA based large multinational conglomerate with presence across different industries	Component/ Sub-system manufacturer	Engine & Power System, Mechanical Systems, Electronics Systems
Lockheed Martin Corp.	USA based aircraft manufacturer and a leading supplier to the US Defence	OEM	Aircrafts, Radar, Sensors, Weapon systems
Safran S.A.	French MNC that develops, designs & manufactures aircraft engines	Engine manufacturer	Aircraft Engines

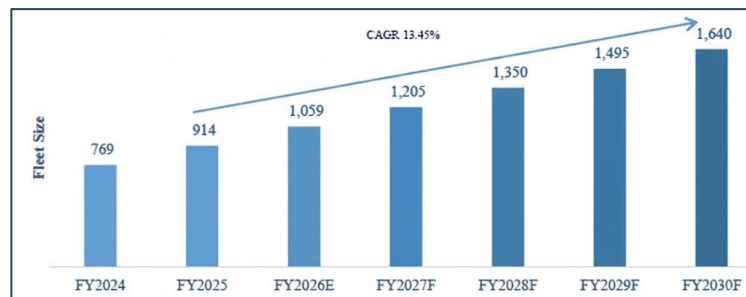
India has emerged as one of the most important growth markets for commercial aviation, reflected in the rapid expansion of its fleet and the scale of aircraft orders placed by domestic airlines. IndiGo, Air India and Akasa Air have collectively driven a substantial share of India's order pipeline as rising incomes, expanding cities and increasing travel frequency have accelerated air transport demand. In FY2024, IndiGo accounted for nearly half of the country's commercial fleet with 366 aircraft, followed by Air India with 134 and Vistara with 70. Their fleet expansion plans have translated into one of the world's largest order backlogs. IndiGo alone has approximately 916 aircraft on order, Air India has 344 aircraft and Vistara has 56, leading India's total pending orders to reach nearly 1,260 aircraft as of June 2025.

Total Indian Fleet, FY2024



The commercial fleet is expected to rise meaningfully in the coming years. India's fleet size stood at 769 aircraft in FY2024 and is projected to expand at a compound annual growth rate of about thirteen and a half percent to reach 1,640 aircraft by FY2030. This growth is underpinned by sustained travel demand, operational expansion by full-service and low-cost carriers and increasing connectivity across Tier 2 and Tier 3 cities. The long-term nature of these fleet addition programs ensures a strong pull for upstream aerospace component suppliers that support global OEM platforms.

Total Indian Fleet, FY2024-FY2030F



The mix of aircraft being ordered also highlights India's evolving aviation landscape. Most domestic routes rely on narrow-body aircraft, such as the Airbus A320 and Boeing 737 families, which are optimized for short- and medium-haul networks. Wide-body aircraft, which serve international long-haul routes, remain a smaller but important segment, especially after the Air India-Vistara merger. This consolidation, completed in November 2024, created a combined full-service carrier operating over five thousand six hundred weekly flights with a fleet of more than two hundred aircraft. The enlarged entity is expected to accelerate India's global connectivity and stimulate further investments in both narrow-body and wide-body platforms.

What is a Narrow Body Plane?

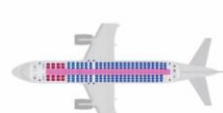
These aircraft are typically used for short- to medium-haul flights and have a passenger capacity of 90 to 230 people, depending on the model. Common examples include the Boeing 737 and Airbus A320 families.

What is a Wide Body Plane?

A wide-body aircraft is a large airliner with a fuselage wide enough to accommodate two passenger aisles, commonly known as a twin-aisle aircraft. These planes are designed for long-haul flights and can carry a large number of passengers, typically between 200 and 850.

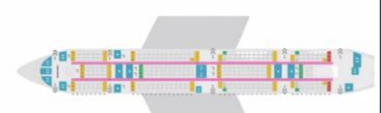
NARROWBODY

Single Aisle

WIDEBODY

Multiple Aisles

Source : Company, Trinetra Asset Managers

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Government policies have played a central role in enabling this growth. The Make in India initiative has attracted major global manufacturers to establish or expand local operations, strengthening India's aerospace manufacturing base and creating deeper integration with global supply chains. Recent investments include GE Aerospace's plan to spend more than INR 2.40 billion to expand its Pune facility with new machinery and manufacturing programs, and the SAFHAL joint venture between Safran Helicopter Engines and HAL aimed at producing next-generation helicopter engines in India. Similarly, HAL and Airbus have partnered to establish an MRO facility for the A320 family, enhancing India's maintenance and overhaul ecosystem. These developments signal a broader shift toward building indigenous capability across aircraft systems including fuselage structures, wings, engines and landing gears.

Policy reforms have further supported this momentum. The Production-Linked Incentive scheme for drones and aerospace components has encouraged domestic value addition, while the Bhartiya Vayuyan Vidheyak Bill of 2024 modernizes India's regulatory framework to improve safety, sustainability and oversight in civil aviation. In addition, the liberalization of foreign direct investment in defence manufacturing has facilitated greater participation from global firms, enabling technology transfer and deepening India's capabilities in critical aerospace and defence programs.

Taken together, these industry trends reflect a rapidly strengthening aerospace ecosystem in India. The combination of strong airline demand, rising fleet sizes, large aircraft order pipelines and supportive government initiatives creates a long-term growth environment for the aerospace supply chain. Companies positioned within high-value segments of the manufacturing ecosystem stand to benefit directly from this structural expansion.

Indian Demography data

Demography & talent to play in India's favour

Rising educated, English-speaking population plays to India's advantage vs other nations in manufacturing

However, as India scales in manufacturing, the govt. is focusing on bridging the quantity – quality gap:

Employability remains low due to poor curriculum-industry alignment.

Vocational skilling is underdeveloped.

Advanced manufacturing and R&D skills are scarce in the workforce.

FACTORS	INDIA	CHINA	JAPAN	SOUTH KOREA
Median Age	28 Years	39 Years	49 Years	44 Years
STEM Talent Output	1.5M+ engineers/year	-1.3M engineers/year	-0.2M engineers/year	-0.15M engineers/year
Workforce Availability	Young & Scalable	Shrinking Youth Cohort	Rapidly aging, Labor shortages	Shrinking Population
Cost of Talent	Low to moderate	Rising	High	High
English Proficiency	High (esp. in tech roles)	Low	Very Low	Low
Global Work Integration	Strong diaspora & global exposure	Growing but state-led	Limited	Regionally Focused
Talent Quality / Industry Readiness	Low Employability (~20-25%) despite High Volume	Improving with strong regional variance	High Quality, Low Scalability	Strong Foundational Skills, Narrow Talent Base
Automation Readiness	Nascent Automation Adoption	High in Industrial Hubs	Very High (Robotics Leadership)	High Automation Readiness
University-Industry Linkages	Weak but improving	Strong in key zones	Conservative, slow to reform	Moderate, tech-focused
R&D Spend (% of GDP)	~0.7%	~2.4%	~3.3%	~4.8%
Key Challenge	Skilling & Employability	Aging & Cost Escalation	Aging & Workforce Shrinkage	Innovation Scalability

Source: UN DESA World Population Prospects 2024; UNESCO-UIS (Tertiary STEM graduates); Georgetown CSET "Global Distribution of STEM Graduates" (2023); EF English Proficiency Index 2023; ILOSTAT wage statistics & national labour bureaus (2024); International Federation of Robotics 2023; IMD World Talent Ranking 2024; World Economic Forum Global Competitiveness Report 2019; World Bank WDI (June 2025); OECD International Migration Outlook 2024;

RANKING SCALE LOW HIGH

Source: Accel Advanced Manufacturing Report

Industry Overview – Oil and Gas

Oil & Gas Drilling Tools

•**Market Characteristics:** The drilling tools market serves upstream oil & gas by supplying equipment for exploration and well construction. Key products include **drill bits** (the rotating cutting tools) and **downhole tools** (reamers, stabilizers, hole openers, etc.). These tools are essential for drilling performance and are used in onshore and offshore rigs. The market spans bit manufacturers, drilling service companies, and specialist tool fabricators. Large oilfield service firms (Schlumberger, Baker Hughes, Halliburton, NOV) integrate drilling services with equipment, but numerous specialized machining firms supply individual components. The industry is cyclical and heavily tied to upstream capital expenditure cycles.

•**Market Size and Trends:** Global drill bits market was ~₹340,000 Mn in 2023 and is forecast to reach ~₹433,000 Mn by 2029 (~+4% CAGR). The downhole tool market was ~₹389,000 Mn in 2023, reaching ~₹496,000 Mn by 2029 (also ~+4% CAGR). Combined, the drilling tools TAM is on the order of ₹729,000 Mn (2023). These markets are recovering from the COVID dip, tracking the revival of global E&P spending. For context, upstream capital expenditure had rebounded above pre-2020 levels (global upstream capex ~\$603 Bn in 2024 and projected to ~\$738 Bn by 2030). Rig count is likewise improving (global average ~1,734 rigs in 2024, up from pandemic lows).

•**Growth Drivers:** Key demand drivers include:

- **E&P Investment:** As oil prices and demand recover, oil & gas companies ramp up drilling. New offshore plays and unconventional projects require advanced drilling tools.
- **Technology Advancements:** Improved drilling techniques (directional, deepwater, managed pressure drilling) increase demand for sophisticated bits and reamers.
- **Infrastructure Projects:** New pipeline and refining capacity in emerging regions spur drilling for wells and field development.
- **Replacement Demand:** Drill bits have finite life; rigs operating more days per year or in harder formations accelerate wear, creating steady aftermarket sales.

•**Key Players:** The upstream market is dominated by a few large integrated service companies (Schlumberger, Baker Hughes, Halliburton, etc.). These firms often maintain internal manufacturing or preferred supplier relationships. Specialist companies like **Schoeller-Bleckmann Oilfield Equipment (SBM)**, **United Drilling Tools (India)**, and **Drilling Tools International (USA)** provide drilling tools and are key OEM suppliers. Equipment is often sourced through OFSE contractors rather than oil companies directly. In India, United Drilling Tools is a prominent domestic player. Azad competes as a high-precision machining subcontractor, supplying components (e.g. bit blanks, stabilizer parts) to these OEMs.

•**Tailwinds and Risks:** Upstream drilling is recovering in 2024–25, which bodes well for drilling tool demand. Geopolitical factors (e.g. new pipelines, exploration in Middle East/Asia) can boost spending. However, the sector faces risks: volatility in oil prices can quickly cut drilling budgets; the global energy transition and push to reduce fossil fuel use may dampen long-term growth; and technological shifts (e.g. more reliance on automation or alternative drilling methods) could change equipment needs. Technologically, advanced tools must keep pace or face obsolescence. Competition is intense and pricing pressure is common, as bit designs become standardized.

Company Overview

Azad Engineering Limited, founded in 2008 by Mr. Rakesh Chopdar, is a precision engineering company engaged in the design and manufacturing of highly engineered, mission- and life-critical components for the global aerospace, defence, energy, and oil & gas industries. The company has established itself as a key enabler of India's precision manufacturing capabilities, supported by advanced technology, stringent process controls, and world-class infrastructure.

Over the years, Azad has transitioned from a niche component manufacturer to a preferred strategic partner for several leading global OEMs and national defence agencies. Its strong zero-defect culture, compliance with rigorous international quality standards, and proven ability to execute complex, high-precision manufacturing programs have positioned it as a reliable player in global supply chains. Key clients include GE Vernova, Rolls-Royce, Mitsubishi Heavy Industries, Honeywell Aerospace, Siemens Energy, Eaton, and Baker Hughes.

The company's core differentiation lies in its capability to deliver precision at scale specializing in complex geometries, advanced materials, and high-tolerance applications where reliability and system integrity are non-negotiable. Azad is one of the qualified Indian partner for several mission-critical components across its served industries, underscoring its technical credibility and long-term customer trust. These accreditations, earned through extensive audits, testing, and certifications, form a strong competitive moat.

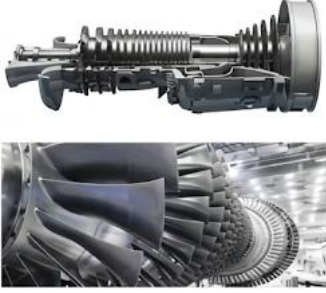
With multi-year contracts, deep OEM relationships, and a healthy order pipeline, Azad is well positioned to capitalize on rising global demand for precision-engineered components. The company's focus on operational excellence, capacity expansion, and diversification across end-markets provides strong visibility for sustained growth and margin resilience in the medium to long term.

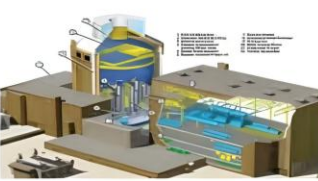
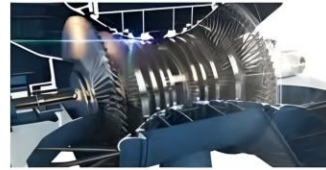
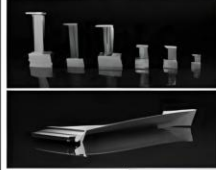
Key Milestones

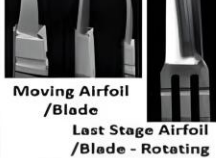
Calendar year	Milestone
2008	Established CNC machine shop
	Purchase order for delivery of moving airfoils/ blades to a large government-owned power generation equipment manufacturer
2012	Constructed a forge shop and a heat treatment facility for production.
2014	Moved to new facility. For details, see “ – Changes in our Registered and Corporate Office” on page 235.
2017	Inaugurated exclusive manufacturing bay for Mitsubishi Hitachi Power Systems Industries, Ltd. (erstwhile name of Mitsubishi Industries, Ltd.) to produce critical gas/ thermal turbines parts
2019	Entered into a long-term contract with Honeywell International Inc. for supply of aerospace products.
2021	Acquired 23.45 acres of land to construct a new plant (Phase 1 expansion) for production.
	600 million worth of capital raised for the first time by our Company.
	Entered into a long-term contract with GE Aviation for supply of aerospace products.
	Established capabilities for special processes.
2022	Acquired 18.50 acres of land to construct a new plant (Phase 2 expansion) for production.
	2,173 million worth of capital raised for the first time by our Company.
	Received the certificate for “Fluid Distribution Systems” from the National Aerospace and Defense Contractors Accreditation Program (NADCAP) for the aerospace products of the Company.
2023	Onboarded marquee investors from the sports fraternity.

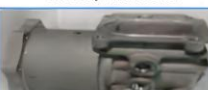
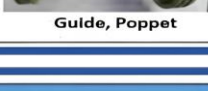
Product Portfolio

Energy

APPLICATION	PRODUCT CATEGORY	OUR PRODUCTS	END-USE INDUSTRY	PRODUCT FUNCTION
 Natural Gas Turbine	 Turbine Airfoil Assembly	 Airfoils  Vaness  Hot Gas Path Parts	1. Electric Power Generation 2. Marine Propulsion 3. Industrial Applications Emergency Power Generation 4. Oil and Gas Industry 5. Renewable Energy Integration 6. District Heating and Cooling 7. Waste-to-Energy	Gas turbines, also known as combustion turbines, are versatile machines that play a crucial role in various industries due to their efficiency, reliability, and flexibility. They operate on the principle of converting fuel energy into mechanical energy through combustion and then using this mechanical energy to generate electricity, propel vehicles, or drive other mechanical systems. Here are some of the most common uses of gas turbines: The use of gas turbines continues to evolve as technology advances, with a focus on improving efficiency, reducing emissions, and integrating with renewable energy sources to create more sustainable and resilient energy system.

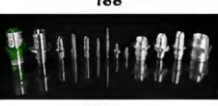
APPLICATION	PRODUCT CATEGORY	OUR PRODUCTS	END-USE INDUSTRY	PRODUCT FUNCTION
 Nuclear Power Turbine	 Turbine Airfoil Assembly	Airfoils   Airfoils  Nozzle Diaphragm  LSB	1. Electricity Generation 2. Power Production 3. Baseload Power 4. Low Environmental Impact 5. Energy Security 6. Diverse Energy Portfolio 7. Research and Development	The nuclear turbine system is a critical part of nuclear power plants, enabling the efficient conversion of nuclear energy into electricity. It's designed to operate safely, efficiently, and reliably while adhering to strict safety measures to prevent the release of radioactive materials into the environment

APPLICATION	PRODUCT CATEGORY	OUR PRODUCTS	END-USE INDUSTRY	PRODUCT FUNCTION
 Thermal Power Turbine	 Turbine Airfoil Assembly	 Fixed Airfoil/Blade  Moving Airfoil /Blade  Last Stage Airfoil /Blade - Rotating	1. Electric Power Generation 2. Combined Heat and Power (CHP) Plants 3. Geothermal Power Generation 4. Marine Propulsion 5. District Heating and Cooling 6. Desalination Plants 7. Waste-to-Energy Plants: Pulp and Paper Industry: Sugar Mills	Steam turbines are mechanical devices that convert thermal energy stored in steam into mechanical work, which can then be used to generate electricity, drive machinery, or perform various other tasks. They have been a fundamental component of power generation and industrial processes for over a century.

APPLICATION	PRODUCT CATEGORY	OUR PRODUCTS	END-USE INDUSTRY	PRODUCT FUNCTION
 Actuator Systems in Aircraft	 Actuator System in Aircraft	 Cover, Actuator  Housing, Actuator  Cover  Housing Actuator  Guide, Poppet	1. Business Jet Aircraft 2. Commercial Aircraft 3. Defence Aircrafts 4. Training Jet Aircrafts.	Actuators in the aerospace market are used widely throughout aircraft, both fixed- and rotary-wing, as well as in missiles, spacecraft, and other marine and surface vehicles. Functions range from moving flight control surfaces to extending the footrests in business-class seats.
 Military Jet Engine  Commercial Aircraft Engine	 Aero Engine Assembly	 Aero Airfoils  Impeller, NGV  Fan Blisk	1. Business Jet Aircraft 2. Commercial Aircraft 3. Defence Aircrafts 4. Training Jet Aircrafts.	A jet engine turbine blade is the individual component that makes up the turbine section of an aircraft engine. Turbine Airfoils/blades function is to convert the energy of the bypassing gas into a rotation of the rotor. The forced rotation in compressor Airfoils/ blades of the rotor (via an engine) leads to air being sucked in and compressed by the airfoils of multiple stages.
 Auxiliary power unit ("APU")	 APU System in Aircraft	 Housing, Fan  Housing, compressor  Housing Mount  Housing Support  Body, Assembly	1. Business Jet Aircraft 2. Commercial Aircraft 3. Defence Aircrafts 4. Training Jet Aircrafts.	The APU is a small jet engine that enables the aircraft to become self-sufficient from external power. It supplies bleed air for air conditioning and to start the engines. It can be used during take-off to power the air conditioning, avoiding a reduction in engine thrust and increasing performance Systems.

APPLICATION	PRODUCT CATEGORY	OUR PRODUCTS	END-USE INDUSTRY	PRODUCT FUNCTION
 Auxiliary power unit ("APU")  Aero Engines	 Air Generation and Valve Assembly in Aircraft Engine	 Body Valve  Plate Butterfly  Seal Rings  FRV	1. Business Jet Aircraft 2. Commercial Aircraft 3. Defence Aircrafts 4. Training Jet Aircrafts.	In Aircraft Engine Valve and Air generation systems facilitate the control of airflow in and around various functions of the aircraft, regulating temperatures throughout the cabin and cockpit.

APPLICATION	PRODUCT CATEGORY	OUR PRODUCTS	END-USE INDUSTRY	PRODUCT FUNCTION
 Missile System	 Airframes & Booster	 Skirts  Base  FWD Cover  Base  Structure Base  Igniter Body	Defence, Missile Manufacturing Industries.	A missile is an intelligent unmanned rocket designed to carry the payload to a designated point with an aim of destroying the object/target. The missile is designed keeping its target, trajectory, warhead, range, velocity and launch platform.

APPLICATION	PRODUCT CATEGORY	OUR PRODUCTS	END-USE INDUSTRY	PRODUCT FUNCTION
 Hydraulic System in Aircraft	 Hydraulic System in Aircraft	 Adaptors  Elbows  Tee  FLD	1. Business Jet Aircraft 2. Commercial Aircraft 3. Defence Aircrafts 4. Training Jet Aircrafts. 5. Helicopters	Aviation hydraulic products are used in Business Jet, Commercial Jet, Defence, Training Jet aircrafts and Helicopters to help control and manage brakes, flaps, thrust reversers, flight controls, and landing gear. Hydraulic systems are the preferred system because they offer the perfect amount of pressure to operate these systems.

APPLICATION	PRODUCT CATEGORY	OUR PRODUCTS	END-USE INDUSTRY	PRODUCT FUNCTION
 Oil and Gas	 Up & Mid Stream – Sub System 	 Slips  Drill bit  DRS & CWI  Frame  Bonnet  Flow Tube	Oil & Gas Up Stream & Mid Stream Applications	Slips is a device used to grip and hold the upper part of a drill string to the drill floor on an oil rig. The slips are constructed as a collection of metal wedges, hinged together to form a circular shape around the drill pipe. On the inside surface, the slips normally has replaceable steel teeth that grips the pipe. In the oil and gas industry, a drill bit is a tool designed to produce a generally cylindrical hole (wellbore) in the earth's crust by the rotary drilling method for the discovery and extraction of hydrocarbons such as crude oil and natural gas.

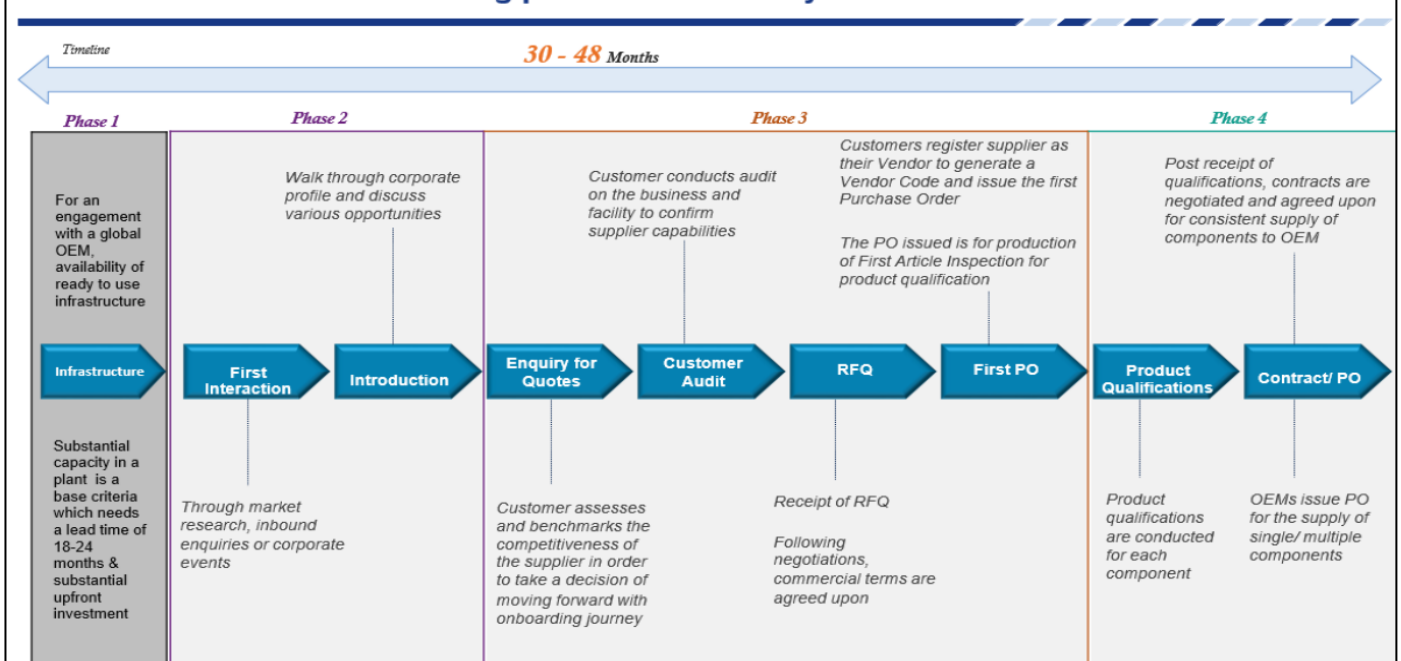
Azad Engineering operates in the niche domain of **high-precision manufacturing**, where components are designed to perform under **extreme temperature, pressure, and stress conditions**. The company's products ranging from turbine blades and vanes to nozzles and airfoils are deployed in mission-critical environments such as **aerospace, defense, and energy systems**, where even minor deviations in geometry or material integrity can lead to catastrophic failure.

Azad Engineering: End-to-End Manufacturing Lifecycle

1. OEM Empanelment: The Longest and Hardest Stage

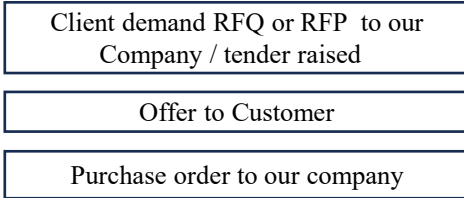
Empanelment with a global aerospace or turbine OEM is the most demanding step in Azad's lifecycle. It can take thirty to forty-eight months because OEMs admit suppliers only after extensive capability audits. Azad is evaluated on infrastructure, certifications, machining accuracy, heat treatment standards, traceability, documentation systems, metallurgical capability and operator skill levels. OEMs compare Azad's capability against global incumbents and inspect repeatability, defect rates, measurement systems and adherence to NADCAP and AS9100 standards. Once these audits are cleared, a vendor code is issued and Azad receives a first order for First Article Inspection. Passing FAI is a major milestone and forms the basis for Azad being considered a long-term supplier.

Illustrative customer on-boarding process for Industry

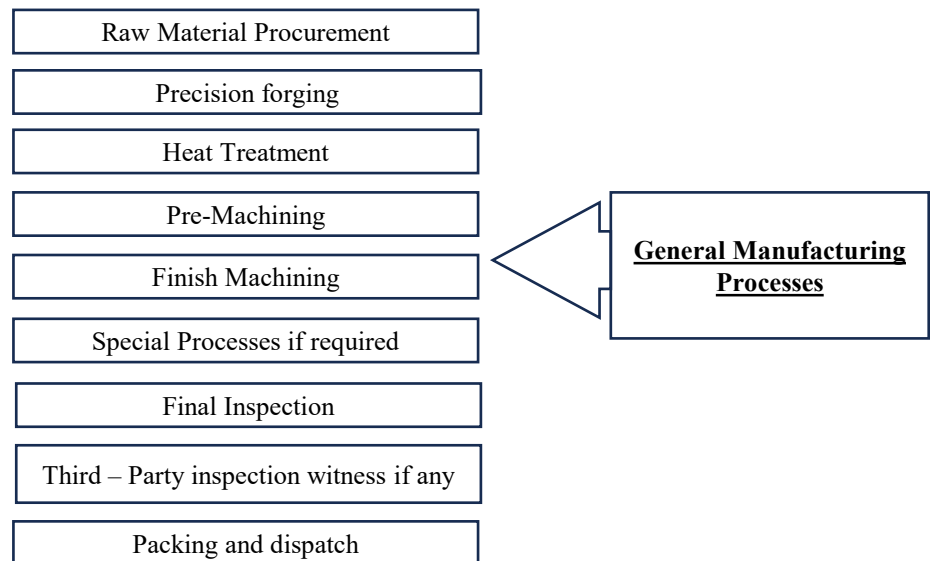
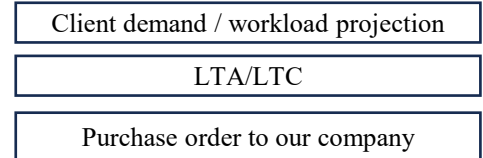


Business Model

Request for quote (RFQ) / request for Proposal (RFP)/ Tender



Long-term agreement (LTA)/ Long-term contract (LTC)



2. Moving to LTAs: The Transition to Recurring Order Flow

Once Azad successfully completes FAIs and initial deliveries, OEMs typically sign Long-Term Agreements that specify pricing structures, delivery timelines, program duration and expected annual volumes. LTAs result in recurring back-to-back purchase orders, allowing Azad to plan raw material procurement, staffing and machine-loading efficiently. During this stage, Azad also collaborates with OEMs to create lean manufacturing cells tailored to specific components. These cells optimise workflows, reduce cycle time and embed Azad deeper into the OEM's long-term program roadmap.

3. Build-to-Print Manufacturing Begins After PO Release

Once an OEM releases a purchase order, Azad begins the build-to-print manufacturing process, executing every dimension, tolerance, machining step, heat treatment parameter and inspection plan exactly as per OEM specifications. Azad does not redesign parts; it manufactures them precisely to customer drawings.

4. Raw Material → Forging → Machining Sequence

Raw materials such as billets, bars, forgings or OEM-supplied castings are sourced only from OEM-approved mills. If forging is required, Azad produces near-net shapes with controlled grain structure, followed by heat treatment. Components are then machined on five-axis CNC machines to achieve complex geometries and tight tolerances. This stage reflects Azad's technical backbone, as machining accuracy often reaches microns.

5. Special Processes and Surface Treatments

Depending on the component, Azad performs NADCAP-certified heat treatment, shot peening, surface enhancement, deburring, grinding and coating processes. These steps ensure fatigue resistance, corrosion protection, thermal stability and dimensional accuracy. Every operation is documented and tied to a traceability system because aerospace and turbine components cannot tolerate variability.

6. In-Process and Final Inspection

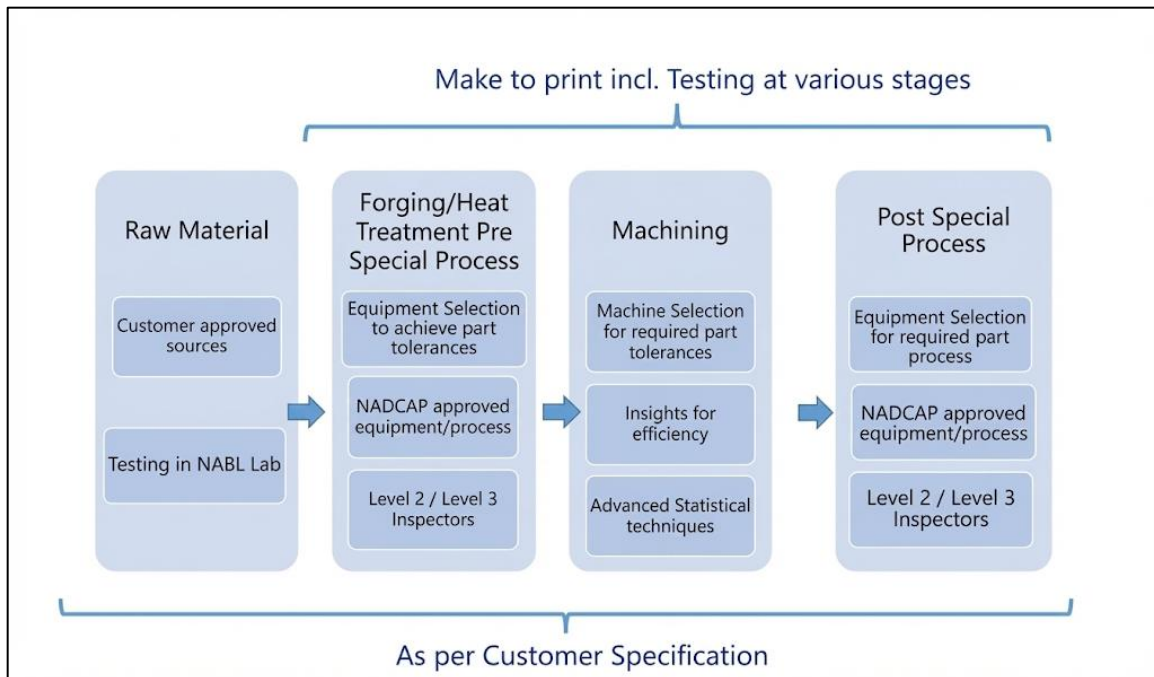
Throughout manufacturing, components pass through strict inspection gates using CMMs, laser scanners, airfoil profilers, borescopes and non-destructive testing techniques such as ultrasonic, radiography or dye penetrant testing. Final inspection involves complete dimensional verification and a review of all traceability documents. Some OEMs rely on Azad's quality data directly, while others send inspectors to the plant.

7. Dispatch

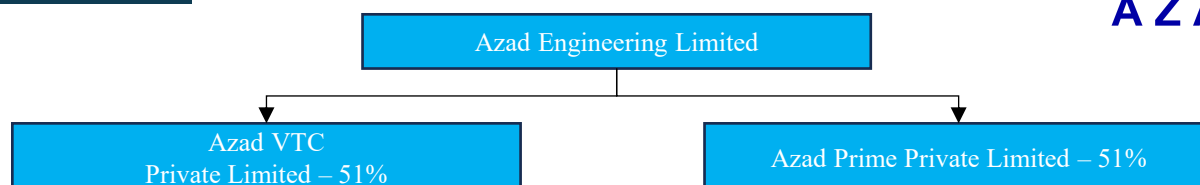
Some OEMs entirely trust Azad's inspection data and approve shipments based on documentation. Others send inspectors to Azad's facility for verification. Only after receiving **shipping release clearance** can the part be dispatched.

This process repeats for every lot, every order, and every program ensuring **zero-defect, zero-deviation** execution

Brief details of "make to print" manufacturing process



Subsidiary & J/V Structure



Acquisition Table

Subsidiary / Asset Acquired	Agreement Date	Consideration (₹ Cr)	Azad Stake	FY25 Revenue (₹ Cr)	FY25 PAT (₹ Cr)
Azad VTC Pvt Ltd (assets of VTC Surface Technologies)	09-May-24	0.19 Cr	51%	0.35 Cr	–0.05 Cr
Azad Prime Pvt Ltd (assets of Leo Primecomp)	25-Jul-24	12.44 Cr	51%	0.16 Cr	–0.15 Cr

During FY25, Azad Engineering executed two strategic capability-building acquisitions: **Azad VTC Pvt Ltd** and **Azad Prime Pvt Ltd**, both structured as majority-owned (51%) subsidiaries with the transferor retaining 49% and Azad holding call options to acquire the balance stake in the future. These were **asset acquisitions**, deliberately designed to expand Azad’s technical depth rather than acquire large revenue pools, and therefore the initial financial contribution is modest while the strategic impact is significant.

In May 2024, Azad acquired the coating and special-process assets of VTC Surface Technologies for **₹0.19 crore**, forming **Azad VTC Pvt Ltd**. The subsidiary reported **₹0.35 crore** in revenue and a small loss of **₹0.05 crore** in FY25, consistent with the early stage of integration and capability ramp-up. The rationale for this acquisition is clear: coatings are a critical aerospace and energy special process, previously outsourced, leading to higher job-work charges and logistical inefficiencies. By internalising NADCAP-capable coating processes, Azad reduces dependency on external vendors, lowers lead times, and materially strengthens delivery reliability, a key differentiator in global supply chains. Management indicated that job-work cost reduction would begin from H2 FY25, and by Q2 FY26 the subsidiary had already achieved **NADCAP accreditation**, placing Azad on qualified-manufacturer lists for aerospace customers and enhancing long-term margin visibility.

In July 2024, Azad acquired the large-critical-component manufacturing assets of Leo Primecomp for **₹12.44 crore**, forming **Azad Prime Pvt Ltd**. The business enables Azad to enter the high-value manufacturing of large, mission-critical components such as rotors, diaphragms, casings and valves, expanding its relevance across **Nuclear (including SMRs), Gas Turbines, Thermal Power and Oil & Gas segments**. FY25 saw limited revenue contribution of **₹0.16 crore** and a PAT loss of **₹0.15 crore**, which is expected given the transition phase, customer qualification cycles, and tooling setup. Azad also paid a non-refundable advance of **₹0.54 crore** toward future acquisition of the remaining 49% equity under the SHA. The strategic rationale is long-term: by complementing its existing small and medium-sized component portfolio with large-part capability, Azad materially increases its addressable market and improves overall asset turnover potential. This acquisition is aligned with global OEM consolidation trends, where suppliers capable of delivering a wider size range gain preferential positioning.

Management commentary across FY24–FY26 reinforces the operational progress of both subsidiaries. The company confirmed that internalizing coatings would reduce logistics friction and improve customer confidence, while the Prime acquisition opens access to high-growth, high-value nuclear and energy platforms. Importantly, by **Q1 FY26**, management stated that both Azad VTC and Azad Prime had turned **EBITDA-neutral**, demonstrating successful operational stabilization within a year of acquisition. The subsequent NADCAP accreditation for Azad VTC in **Q2 FY26** further validates Azad’s capability expansion strategy and strengthens the company’s qualification funnel for long-cycle aerospace and defence programs.

Notwithstanding the strong strategic rationale, investors should note that the shareholder agreement governing **Azad Prime Pvt Ltd** embeds call–put options with a **minimum buyout price**, which could result in Azad committing to a fixed capital outlay for the remaining 49% stake irrespective of near-term operating performance. Given the modest FY25 revenue base of the subsidiary, this structure can be **optically interpreted as an overpayment risk**, particularly if scale-up or customer qualification timelines extend beyond expectations. Management has justified this construct on the basis of the **capability-led nature of the acquisition**, the **replacement cost of specialised assets**, and the retention of **experienced technical management from Leo Prime**, which is critical for execution in long-cycle nuclear and energy programs. While early EBITDA stabilisation provides comfort, the ultimate value accretion from this transaction remains **contingent on successful ramp-up and asset utilisation**, making this a key area for ongoing monitoring.

Revenue Recognition Policy (FY21–FY25)

Azad Engineering's revenue recognition policy has remained consistent across FY21–FY25 and follows Ind AS 115 with no changes during the period. Revenue from sale of products is recognised at a point in time when control of the goods is transferred to the customer, typically on delivery. Revenue from job-work and machining services is also recognised at a point in time upon completion and dispatch of products. Export incentives are recognised when there is reasonable assurance of receipt and compliance with conditions. Interest income is recognised on a time-proportion basis using the effective interest rate method. This consistent accounting treatment ensures comparability across years and aligns with Azad's predominantly manufacturing-led business model, where each sales order represents a single performance obligation.

Particulars	2021	2022	2023	2024	2025	CAGR
Total Revenue	123	194	252	341	457	39%
Sale of products	74	117	148	269	374	50%
As a % of total revenue	60%	60%	59%	79%	82%	
Sale of services	44	68	94	59	70	12%
As a % of total revenue	36%	35%	37%	17%	15%	
Other Operating revenue	5	9	10	13	14	31%
As a % of total revenue	4%	5%	4%	4%	3%	
Scrap sales	3	8	10	11	10	39%
As a % of total revenue	2%	4%	4%	3%	2%	
Export Incentives	2	1	0	2	4	17%
As a % of total revenue	2%	1%	0%	1%	1%	

Domestic Exports Split

Particulars	2021	2022	2023	2024	2025	CAGR
Outside India (in ₹ Cr)	101	152	202	298	419	43%
Outside India % (in %)	82%	78%	80%	88%	92%	
With in India (in ₹ Cr)	22	43	49	43	39	15%
With in India % (in %)	18%	22%	20%	12%	8%	

Azad Engineering's revenue growth remains strongly product-led, export-oriented, and structurally improving, reflecting the company's transition from a mixed services–products model to a pure-play high-precision advanced manufacturing partner for global OEMs. Over FY21–FY25, the share of product revenue has expanded sharply from ~60% to over 80%, driven by scale-up in complex turbine components, airfoils, blades, vanes, and mission-critical assemblies. This shift naturally enhances margin visibility, as finished components command significantly higher realisations compared to service-based machining or job-work income.

Export revenues remain dominant due to Azad's entrenched relationships with global clients across the Energy, Aerospace & Defence, and Oil & Gas value chains. The company's ability to manufacture flight-critical and safety-critical components with near-zero defect tolerances positions it as a value provider rather than a cost-arbitrage supplier, supporting long-term contracting and recurring offtake from Tier-1 and OEM customers.

Other operating income, comprising scrap sales and export incentives moves in line with production volumes and export intensity. Scrap sales increase proportionately with machining throughput, while export incentives fluctuate based on government schemes but remain a derivative of Azad's high export mix.

Customer Wise

Particulars	2021	2022	2023	2024
Customer 1	-	5	83	55
Customer 2	9	17	22	47
Customer 3	9	42	6	0
Customer 4	14	17	-	40
Customer 5	32	17	-	0
Customer 6	9	7	16	16
Customer 7	7	7	11	13
Customer 8	4	11	8	25
Customer 9	-	5	8	25
Customer 10	3	12	9	2

Azad Engineering continues to maintain a moderately concentrated but stable customer base, characteristic of Tier-1 suppliers in the global turbine, aerospace, and defence ecosystems. In FY2025, the **top customer contributed ~14.3% of total revenue**, while the **top five customers accounted for ~52%**, as per the consolidated financial disclosures. This level of concentration reflects the nature of long-cycle, qualification-intensive relationships with global OEMs, where switching costs are extremely high and programs run for decades.

The company's top relationship cluster in FY2025 consisted of **GE Vernova, Siemens Energy, and Mitsubishi Heavy Industries**, each supported by long-term agreements, multi-year order visibility, and, in some cases, customer-dedicated manufacturing facilities. Given Azad's deep engineering integration, rigorous qualification cycles, and strong execution record, this dependence does not pose elevated risk; instead, it represents **sticky, recurring, high-visibility revenue streams** typical of mission-critical component manufacturing. The diversified presence across Energy, A&D, and O&G additionally mitigates concentration risk at the portfolio level.

Region Wise

Particulars	2021	2022	2023	2024	CAGR
Japan	41	65	89	55	10%
As a % of Total revenue	33.7%	33.5%	35.5%	16.3%	
USA	31	47	58	115	54%
As a % of Total revenue	25.5%	24.0%	23.0%	33.8%	
India	22	43	50	44	26%
As a % of Total revenue	17.9%	22.2%	19.7%	13.0%	
UAE	9	17	22	47	74%
As a % of Total revenue	7.3%	8.7%	8.8%	13.8%	
Germany	9	7	16	19	30%
As a % of Total revenue	7.2%	3.4%	6.3%	5.7%	
Switzerland	4	2	0	0	-73%
As a % of Total revenue	3.4%	0.8%	0.0%	0.0%	
UK	4	4	1	8	33%
As a % of Total revenue	2.9%	1.8%	0.5%	2.4%	
Hungary	1	1	0	3	44%
As a % of Total revenue	0.9%	0.7%	0.0%	1.0%	
France	1	8	15	36	272%
As a % of Total revenue	0.6%	4.3%	6.1%	10.6%	
Italy	0	0	0	4	103%
As a % of Total revenue	0.3%	0.0%	0.0%	1.0%	
Sweden	0	0	0	0	-100%
As a % of Total revenue	0.3%	0.0%	0.0%	0.0%	
South Africa	0	0	0	0	0%
As a % of Total revenue	0.0%	0.2%	0.0%	0.0%	
Poland	0	0	0	7	NA
As a % of Total revenue	0.0%	0.2%	0.0%	2.0%	
Saudi Arabia	0	0	0	0	0%
As a % of Total revenue	0.0%	0.0%	0.0%	0.0%	
Singapore	0	0	0	1	NA
As a % of Total revenue	0.0%	0.0%	0.0%	0.3%	

Azad Engineering's revenue base remains strongly export-driven, with Japan continuing to be the largest geography, contributing ~33–40% of revenues on the back of long-standing turbine component programs for major Japanese OEMs. The USA has emerged as the fastest-growing market (CAGR ~54%), supported by increasing offtake in both Energy and Aerospace segments, while India's share has risen due to expanding demand from domestic Energy and Defence customers.

Overall, the geographic mix highlights a well-distributed export profile with no excessive dependence on a single region. Growth across the USA, India, and several European and Middle Eastern markets underscores Azad's increasing integration into global OEM supply chains and the scalability of its multi-vertical manufacturing platform.

Segment Wise

Particulars	2021	2022	2023	2024	2025	CAGR
Energy & Oil & Gas	115	174	219	285	359	33%
As a % of total revenue	94%	90%	87%	84%	78%	
Domestic	NA		34	23	NA	
Exports			185	262		
Aerospace & Defence	8	20	23	44	81	81%
As a % of total revenue	6%	10%	9%	13%	18%	
Domestic	NA		5	8	NA	
Exports			17	36		
Other operating	0	0	10	12	14	
As a % of total revenue	0%	0%	4%	4%	3%	
Domestic	NA		10	12	NA	

Azad Engineering's revenue composition shows a clear evolution from a predominantly Energy & Oil & Gas supplier toward a more balanced multi-vertical advanced manufacturing partner. The Energy & O&G segment continues to anchor the business, growing at a healthy **33% CAGR** and contributing **78% of FY25 revenues**, supported by long-standing programs with **GE Vernova, Siemens Energy, and Mitsubishi Heavy Industries**. Growth in this segment is driven by deeper wallet share across turbine airfoils, rotating parts, combustion components, and specialized machine parts, with several new LTAs signed in FY24–FY25 enabling multi-year visibility.

The most notable shift is the rapid rise of the **Aerospace & Defence segment**, which has scaled from **6% of revenues in FY21 to 18% in FY25**, delivering an **81% CAGR**. This acceleration reflects Azad's successful completion of long qualification cycles and greater integration into global aircraft and propulsion programs. Key partnerships expanded during this period include **Honeywell Aerospace, Rolls-Royce, Pratt & Whitney Canada, and Eaton**, with Azad adding new product families such as APU components, actuator assemblies, unison rings, structural parts, and precision rotating components. As global A&D outsourcing accelerates and OEMs increasingly rely on Indian suppliers for precision-critical parts, Azad is positioned to capture a meaningful share of a rapidly expanding TAM.

Product Wise

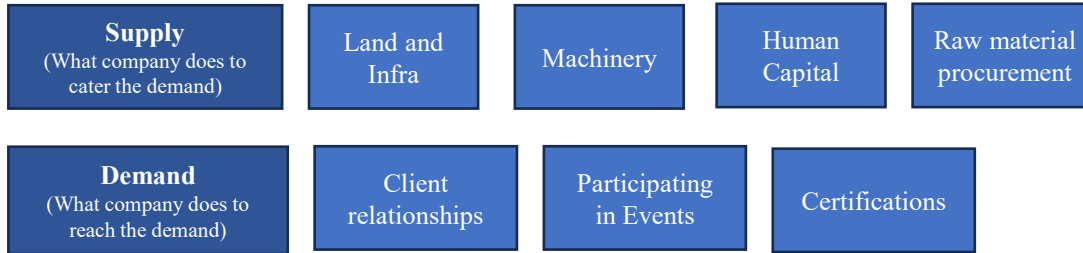
Particulars	2022	2023	2024
Energy	165.1	219.0	279.8
Airfoil/blade	145.8	198.0	225.5
Engineering Charges	-	-	0.2
Non-airfoil	19.2	21.0	54.1
Aerospace and defence	20.3	22.5	43.8
Air Generation System	8.8	3.4	18.6
Airfoil	1.8	1.3	1.9
APU/Engine	1.2	1.9	6.5
Engineering charges	3.0	-	0.0
Hydraulic system	2.2	7.5	0.1
Engine	1.4	2.0	-
Generator	0.5	1.9	-
Propulsion system	0.0	1.9	2.6
Structural joints	0.2	0.3	-
Missile	0.3	0.4	0.4
Others	0.9	1.9	13.8
Oil and gas	0.0	0.0	4.5
Airfoil	-	-	-
Drilling and Services	-	0.0	0.4
Completions	-	-	0.5
Engineering Charges	-	-	0.9
Combustion	-	-	2.7
Non - Airfoil	-	-	-
Scrap	7.8	9.7	10.6
Others	1.3	0.4	2.1
Subsidiaries	-	-	-
Total	194.5	251.7	340.8

Azad's current revenue mix indicates that the company's core competency continues to lie in **rotating parts, airfoils, and cold-section components** for **gas turbines, steam turbines, and early-stage aerospace programs**. Within the Energy segment, the bulk of revenues arise from **airfoils/blades and non-airfoil rotating components**, which are typically used in the **compressor and cold/intermediate sections** of turbines. These parts experience high mechanical loads but do not require the advanced metallurgy, single-crystal casting, or ceramic coating capabilities that are essential for true **hot-section turbine components**. This aligns with Azad's current manufacturing infrastructure, which is optimized for precision machining and forging of nickel-based and stainless alloys rather than superalloy single-crystal technology.

In Aerospace & Defence, the revenue profile further reflects Azad's **early positioning in cold-section and peripheral systems**. Current deliveries include **air generation systems, APU components, actuators, structural joints, generator housings, and propulsion system machined parts**, but **not combustor liners, HPT blades, or other hot-section aero-engine components**. This confirms that Azad is scaling capability in A&D through lower-temperature, high-precision components while progressing gradually toward more technologically demanding programs.

The data does not fully clarify whether Azad supplies to the **hot section of Energy gas turbines**, where temperatures also exceed 1,000–1,300°C and require advanced metallurgy similar to aerospace. Given the significant share of revenues from airfoils, a detailed breakdown between **compressor blades (cold)** and **turbine blades/vanes (hot)** is not disclosed. This remains a relevant question for management, as entry into the hot section of industrial gas turbines would mark a major step-up in technical complexity, capability, and margin profile.

Overall, the table highlights that Azad's growth so far has been driven by **cold/intermediate section turbine components and non-hot-section aerospace subsystems**, with capability expansion under way but not yet extending into single-crystal or high-temperature aero-engine programs.



Land and Infra

S. No.	Location & Address	Usage / Function	Ownership Status	Tenure / Terms	Key Notes & Additional Information
1	90/C, 90/D, 90/E, Phase I, I.D.A., Jeedimetla, Hyderabad – 500055, Telangana	Registered & Corporate Office and Main Manufacturing Facility	Leased land	Lease from Sep 1, 2024 to Aug 31, 2033 and Mar 1, 2024 to Feb 28, 2034	Long-term lease with Swastik Coaters Pvt. Ltd. & Roulund Chemicals Pvt. Ltd.; annual escalation 5%; refundable deposit. Serves as the core operational and administrative hub.
2	Industrial Shed No. D-42 & 43, Phase V, TSIIC IDA, Jeedimetla, Quthbullapur Mandal, Medchal–Malkajgiri District, Hyderabad – 500055	Factory – Manufacturing	Leased land	Sep 14, 2024 to Sep 14, 2026	Focused on precision component manufacturing; part of Hyderabad’s aerospace ecosystem.
3	Industrial Plot No. 63/A, Phase I, TSIIC IDA, Jeedimetla Village, Quthbullapur Mandal, Medchal–Malkajgiri District, Hyderabad – 500055	Factory – Manufacturing	Leased land	Aug 6, 2024 to Jun 30, 2026	Short-term leased unit catering to capacity augmentation.
4	Plot No. 17/B, Phase III, Industrial Park, Pashamylaram, Patancheru, Medak – 502205	Factory – Precision Forging, Testing, Heat Treatment & RM Warehouse	Owned land	N.A.	Fully owned facility, providing strategic control over forging and quality assurance operations.
5	Plot Nos. 30 & 31, Phase V, IDA, Jeedimetla, Medchal–Malkajgiri, Hyderabad – 500055	Factory – Manufacturing	Leased land	May 1, 2025 to Apr 31, 2027	New leased facility for incremental capacity expansion within existing industrial base.
6 (New)	Tuniki Bollaram Village, SY No. 340, Industrial Park, Siddipet District, Telangana – 502279	Upcoming Manufacturing Facility	Leased land (Agrima Logistics)	10-year lease from Mar 1, 2024	Greenfield facility spanning ~94,899 sq. m.; funded through internal accruals; proximity to Hyderabad provides logistical and supplier advantages. EPC contractor engaged for aerospace-grade infrastructure setup.
7 (New)	Mangampet Village, Sangareddy District, Telangana	Upcoming Manufacturing Facility	Allotted by TSIIC (application for additional 5 acres pending)	Awaiting final approval	Planned area ~74,867 sq. m.; expansion approved by Board (Feb 15, 2022). Writ Petition No. 18735 of 2024 filed by local residents (July 2024) challenging land allotment. Company filed response (Sep 9, 2024); matter pending before Telangana High Court. Management remains confident of a favourable outcome.

Azad’s land strategy reflects a **disciplined capital allocation framework**, combining the stability of owned assets with the flexibility of leased operations. The company’s long-term lease structures typically 10 years with annual escalation clauses and refundable deposits align with industry norms while minimizing upfront capex burden. Its owned forging and testing facility at Pashamylaram represents a key strategic advantage, offering control over critical quality processes.

The upcoming greenfield units at **Tuniki Bollaram** and **Mangampet** mark a pivotal expansion phase, collectively adding over **1.7 lakh sq. metres** of manufacturing area. Both projects are internally funded, indicating strong operational cash generation. While the **Mangampet land dispute (W.P. No. 18735/2024)** poses a procedural risk, it is not expected to materially affect long-term capacity rollout.

Exclusive Unit of	Place	Square metres
Multiple Companies	Hyderabad, Telangana	20,000
Phase 1 Mitsubishi Heavy Industries - 7,200 sq. mts - Inaugurated in March 2025 GE Vernova - 7,600 sq. mts - Inaugurated in April 2025 Siemens Energy - 7,200 sq. mts - Inaugurated in September 2025 Upcoming companies	Hyderabad, Tuniki Bollaram village	94,898.78
Phase 2	Hyderabad, Mangampet village	74,866.84

Exclusive Unit of	Place	Square metres	Capacity (hours per annum)	Actual production (hours per annum)	CU
Multiple Companies	Hyderabad, Telangana	20,000	6,42,310	5,78,316	90%

Azad Engineering follows a **phased, client-driven expansion model**, developing dedicated facilities for long-term contracts with global OEMs such as Mitsubishi Heavy Industries, GE Vernova, and Siemens Energy. Each phase of capacity addition is aligned with **existing signed agreements**, ensuring high revenue visibility and disciplined capital allocation. The company's ~170,000 sq. m. of upcoming capacity has been planned in line with customers' multi-year production roadmaps.

Azad's manufacturing units are **multi-purpose and flexible**, allowing shared use across defence, aerospace, and oil & gas segments to optimize capital efficiency. This **build-to-assure approach** minimizes execution risk, strengthens customer relationships, and provides predictable long-term growth visibility.

Machinery

The following section outlines our key manufacturing capabilities, special processes, testing protocols, and the variety of alloys employed in production.

Manufacturing Capability	Special Processes	Testing	Alloys
Machining 5 - Axis Milling 3/4 - Axis Milling - Ultra-Precision Turning - Bar Feed Turning - Turn Mill, VTL/VTC - High-Precision Grinding - Wire-Cut / Spark Erosion Assembly - Rivetted - Mechanical - Welding Precision Forgings 5 Axis Auto Grinding and Airfoil Polishing (Robotic) Shot Peening 7 Axis Robotic (Multi Nozzle) Metal Forming - Deep Drawing - Cold Forming	Metal Joining - GTAW/TIG, A-MIG, Spot, Precision Riveting, Gluing Heat Treatment - Annealing - Stress Relieving - Hardening - Tempering - Solutioning Painting & Coatings (M&A) - Brush & Spray - Lubricant, Hard & Heat resistant	Acceptance Testing - Hydro Testing - Pneumatic Testing - Static Balancing - Functional testing Non Destructive Testing - Ultra sonic - Magnetic Particle - Red Dye Penetrant - Fluorescent Dye Penetrant	Aluminium 2024, 2219, 4043, 3358, 6061, 7025, 7050 Steels 321, 304, 318, 17/4, 15/5 ph Maraging, 440C Titanium - Ti 6Al 4V, BT6, BT20 Other Alloys - Inconel 718, Stellite, Cu - C - Al, Nimonic

Machinery lies at the heart of Azad Engineering’s manufacturing value chain, enabling precision across its aerospace, defence, and energy segments. The company’s equipment strategy reflects a **phased modernization plan**, executed through capital raised in **two distinct rounds** — the **IPO proceeds (FY24)** and the **QIP proceeds (FY25)**.

These investments are focused on **multi-axis machining, robotic airfoil processing, forging, and advanced metrology systems**, all of which are essential for the complex geometries and tight tolerances demanded by global OEMs. Notably, Azad’s machinery is **import-driven** and heavily **custom-engineered**, sourced from global leaders such as **Yamazaki Mazak (Japan/Singapore)**, **Grob (Germany)**, **Victor Taichung (Taiwan)**, **DMG Mori (Germany)**, and **Carl Zeiss (Germany)**.

Each machine is tied to specific product mandates and customer programs — highlighting Azad’s **“build-to-assure” capex approach**, where investments are made only against confirmed long-term contracts rather than speculative growth assumptions.

Table 1: Key Machinery Procured from IPO (FY24)

S. No.	Equipment / Model	Purpose / Function	Vendor / Origin	Remarks
1	Universal Machining Centre G550A	Aerofoil root precision milling	Grob Machine Tools India Pvt. Ltd. (Germany)	For turbine blade and aerofoil machining with sub-micron accuracy
2	Vortex I-630V/6S, I-800V/8S, Integrex I-500S, I-250H S	Multi-axis milling and complex part machining	Yamazaki Mazak Singapore Pte. Ltd.	5-axis CNC for blisks, turbine blades, and engine housings
3	Victor Horizontal Machining Centre VMC 1880 / H630HD	Large component machining	Victor Taichung, Taiwan	Handles heavy-duty components for oil & gas and aerospace
4	Zeiss 3D Coordinate Measuring Machine (CMM) – CONTURA / RDS XXT	Dimensional and geometric accuracy testing	Carl Zeiss, Germany	Core to quality assurance and AS9100D compliance
5	Hexagon ENSPCE SCAN 8.10.6 / Global Lite 12.22.10	Coordinate measurement and inspection	Hexagon, Germany	Enables validation of component accuracy and alignment
6	Laser Hardening, Ultrasonic Peening Systems	Surface hardness & fatigue resistance	Imported (Germany/Japan)	Extends part lifespan for aerospace and defence use
7	5-Axis Robotic Grinding & Airfoil Polishing Unit	Automated surface finishing	Custom-built (Germany)	Improves throughput and aerodynamic surface finish
8	Hydraulic Closed Die Forging Hammer (4500T)	Forging for defence and energy components	Anyang Make, China	Enables in-house forging and reduces supplier dependency
9	Zoller Tool Presetter & LightBand Roughness Tester	Balancing and surface validation	Germany / USA	Improves tool precision and repeatability
10	CNC Lathes, Wire-Cut EDMs, Testing Machines	Precision manufacturing & testing	Multiple OEMs	Complements core machining processes

Table 2: Key Machinery Proposed from QIP (FY25)

S. No.	Equipment / Model	Purpose / Function	Vendor / Origin	Remarks
1	Jyoti CNC – RDX 30, ABX 40	Multi-axis CNC machining	Jyoti CNC, India	Enhances local sourcing and shorter commissioning timelines
2	Integrex I-250H S / I-500S / I-1000U / I-1250H S	Aerofoil precision milling	Yamazaki Mazak Singapore Pte. Ltd.	Next-gen 5-axis machines for complex energy/aerospace parts
3	Victor Machine VMT X260 / H630HD	High-capacity horizontal machining	Victor Taichung, Taiwan	Supports large energy and industrial components
4	Zeiss CMMs – CONTURA 9/18/8, 12/24/10, 12/18/10	Precision coordinate measurement	Carl Zeiss, Germany	Sub-micron inspection accuracy; integrated with CAD models
5	ACE Micromatic Lathes & Surface Grinders	Machining and finishing	ACE Micromatic, India	Improves process control in supporting lines
6	SPM for Airfoil Polishing & Robotic Trimming	Blade finishing and surface profiling	Germany / Japan	Enhances efficiency and consistency of turbine part finishing
7	Laser Hardening & Heat Treatment Units	Thermal processing for durability	Imported	Improves fatigue resistance and coating adhesion
8	Cleanroom HVAC (ISO 6 & ISO 8)	Environment control for aerospace assembly	Hasicom Infra Pvt. Ltd.	Maintains contamination-free machining and testing environment
9	DMG Mori & Mazak VMCs / VTLs	Turning & milling of critical parts	Japan / Germany	Multi-axis integration for precision and flexibility
10	Advanced Testing – Balancing, Leak, Ultrasonic	End-stage validation	Imported	Strengthens internal certification and quality control

Human Capital

Particulars	2024	2025	YoY Growth
Number of Employees	1212	1,453	20%
Avg expense per employee	0.06	0.06	4%
Revenue Per employee	0.28	0.31	12%

Azad Engineering's operations depend on a **highly skilled workforce**, comprising precision machinists, engineers, and senior leaders with deep expertise in **aerospace, defence, and energy manufacturing**. The company maintains a **core base of permanent employees**, supplemented by a **layer of outsourced and job-worked resources** to manage demand variability.

Given the specialized nature of its products, Azad's employee base has grown in tandem with capacity expansion, while maintaining **stable cost efficiency and productivity metrics**.

Given the complexity of aerospace, defence, and energy components, the company places strong emphasis on **technical training and skill upgradation** to maintain global quality standards.

Azad conducts **structured in-house training programs** across machining, forging, and quality assurance, led by experienced engineers and OEM partners. These programs include **hands-on sessions on multi-axis CNCs, quality systems (AS9100D, NADCAP), and advanced metrology tools**. In addition, employees undergo **safety, process control, and lean manufacturing workshops** to align with customer-specific production requirements.

Raw Materials

Sourcing and Supply Chain

Azad's raw material procurement is **back-to-back and customer-approved**, meaning the company sources materials either directly from **OEM-approved suppliers** or from vendors **nominated by its customers**. Price agreements are structured as **tri-party contracts** between Azad, the customer, and the raw material supplier — ensuring full transparency and alignment with global OEM pricing.

A key characteristic of these materials is their **long lead times**, often extending to **3–12 months**, due to their specialized metallurgical properties and limited global supplier base. To mitigate this, Azad maintains a **rolling procurement plan** synchronized with its order book and delivery timelines, minimizing working capital lock-up while securing continuity of supply. Over the last few years, the company has made meaningful progress in **localizing its raw material supply chain**. Through collaboration with its energy-sector clients, Azad has successfully **indigenized sourcing for select alloy grades**, working with Indian producers such as **Sunflag Iron & Steel** and **Star Wire (India)**. This initiative has helped reduce lead times, foreign dependency, and logistics costs, while enhancing supply-chain control and visibility.

Price and Currency Risk Management

Given that **over 93% of Azad's revenues come from exports**, the company enjoys a **natural foreign exchange hedge**, as raw material imports and export receipts are largely in the same currencies.

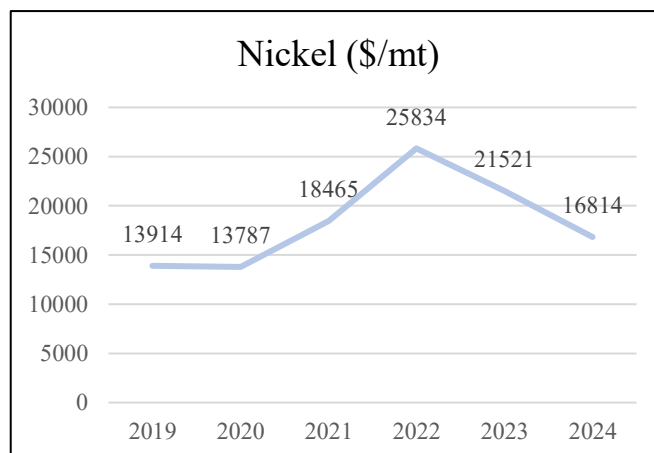
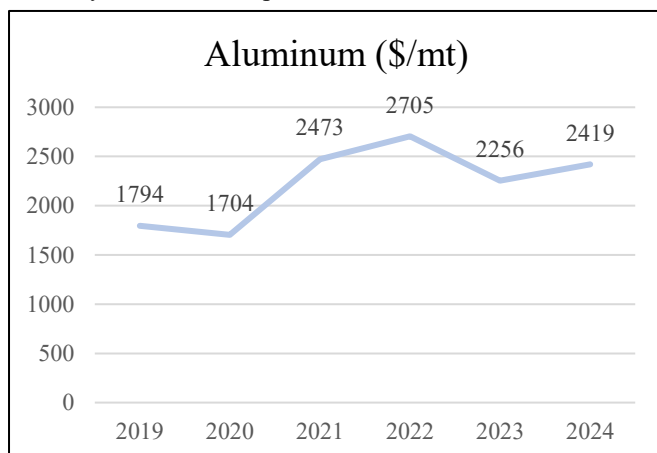
To manage **raw material price volatility**, Azad's long-term customer contracts include a **5% price fluctuation absorption clause** wherein Azad bears any variance up to $\pm 5\%$, and any movement beyond this threshold is shared or adjusted with the OEM or the supplier. This ensures **margin stability** even in periods of input cost inflation.

The company's **fixed-price, long-term contracts (5–7 years)** with customers, combined with tri-party sourcing arrangements and selective localization, effectively shield profitability from commodity price shocks and supply disruptions.

Primary Raw Materials and Melting Points

Raw Material / Alloy	Material Type	Typical Application Context	Melting Point (°C)
X-22	Nickel-based superalloy	Gas turbine hot-section components	1,340 – 1,380
GTD-450	Nickel-based superalloy	Industrial & aero gas turbine parts	1,320 – 1,360
CB-403	Nickel-based / cobalt-bearing superalloy	High-temperature turbine components	1,300 – 1,350
Nimonic (series alloys)	Nickel-based superalloy	Aero-engine & turbine components	1,300 – 1,370
Inconel (series alloys)	Nickel-based superalloy	Aerospace engines, energy turbines	1,260 – 1,350
Titanium (alloys)	Titanium alloy	Aerospace structural & engine parts	1,600 – 1,670
Specialised Steel	Alloy / stainless steels	Structural & load-bearing components	1,370 – 1,500
Aluminium	Aerospace-grade aluminium alloys	Lightweight structural components	580 – 660
Castings	Alloy-based cast inputs	Near-net-shape inputs for machining	Depends on base alloy

Primary Raw Material price trends



The above charts present global aluminium and nickel price trends based on World Bank commodity data and are used solely as directional proxies for underlying metal cost trends. Over CY2019–CY2024, both metals experienced significant volatility, with prices rising sharply into 2022 due to energy cost inflation, supply disruptions and post-pandemic industrial demand, followed by partial normalisation thereafter. However, aerospace-grade alloys such as Inconel, Nimonic, X-22 and GTD-450 are not traded on spot markets and are procured under long-term contractual arrangements that include premiums for processing, certification and machining. Accordingly, base metal price movements do not translate one-to-one into alloy pricing, and given the Company’s tri-party sourcing framework involving customers and approved suppliers where raw material costs are either passed through or subject to agreed pricing reset mechanisms underlying commodity price volatility has not resulted in material gross margin volatility.

Demand Side

Azad Engineering's demand side is anchored by **deep, multi-year relationships with leading global OEMs** in the **aerospace, defence, energy, and oil & gas sectors**. The company's reputation for **zero-defect manufacturing, on-time delivery, and high reliability** has been instrumental in building and retaining trust with its marquee customers.

Azad's precision engineering capabilities, validated through stringent international certifications allow it to operate as a **strategic Tier-I supplier** for mission-critical components. The company's long-standing relationships with clients such as **Rolls-Royce, GE Vernova, Mitsubishi Heavy Industries and Siemens Energy** have translated into **repeat orders and long-term contracts**, providing stable revenue visibility and entry into new programs.

Key clients and Order book

Year	Announcement Date	Contract Value	Entity	Domain	Contract Term
FY26	November 18,2025	ND	Pratt and Whitney Canada Corp	Aerospace	ND
FY26	September 26,2025	651	Mitsubishi Heavy Industries Limited, (MHI Phase 2)	Energy	5 Years
FY26	August 05 ,2025	Concall Q1FY26 Order book - 6000 Cr plus Energy - 3400 crs Aero and Defense - 1700 crs Oil and Gas - 850 crs			
FY26	May 19,2025	ND	Nuovo Pignone Srl (Baker Hughes)	Oil and Gas	5 Years
FY26	May 4, 2025	452	GE Steam Power GMBH (GE Vernova)	Energy	6 Years
FY25	February 5, 2025	ND	Rolls- Royce PLC	Aerospace	ND
FY25	January 29, 2025	811	Siemens Energy Global GmbH	Energy	6 Years
FY25	Janrary 27, 2025	ND	Bharat Heavy Electrical Limited (BHEL)	Energy	1 Year
FY25	January 15, 2025	960	GE Vernova International LLC,USA	Energy	6 Years
FY25	November 03,2024	700	Mitsubishi Heavy Industries Limited, Japan (MHI)	Energy	5 Years
FY25	November 12, 2024	340	Arabelle Solutions France	Energy	5 Years
FY25	October 24, 2024	136	Honeywell Aerospace ISC, USA (Phase 1)	Aerospace	ND
FY25	July 11, 2024	ND	Siemens Energy Global GmbH & Co. KG, Germany	Energy	5 Years
FY25	May 23, 2024	NA	GTRE - Azad Engineering secured a nation-critical contract from GTRE for end-to-end manufacturing and delivery of fully integrated Advanced Turbo Gas Generator Engines by early 2026. This marks Azad's entry into propulsion systems with complete turnkey capability, becoming a single-source Industry Partner for GTRE.	Aerospace	NA
FY24	March 13, 2024	298	GE Steam Power GMBH (GE Vernova)	Energy	7 Years
FY24	March 12, 2024	ND	Baker Hughes Oilfield Operations LLC, USA	Oil and Gas	5 Years
FY24	March 07,2024	ND	Subsidiary of Baker Hughes	Oil and Gas	ND
FY24	March 06,2024	ND	Nuovo Pignone Srl (Bake Hughes)	Oil and Gas	ND
FY24	January 29, 2024	ND	Rolls-Royce PLC	Aerospace	ND

Client Relationships and Collaboration

Azad actively participates in **global aerospace and energy events**, leveraging them as platforms to **showcase new capabilities, form collaborations**, and **sign Memoranda of Understanding (MoUs)** with potential partners.

These engagements help the company expand its customer base, deepen technical partnerships, and align with new component development programs.

Key clients and their Order book (Visibility)

Sr No	Client	Sector	OrderBook
1	GE Aero	Aerospace	\$180B+
2	RTX Group (Pratt and Whitney, Collins Aero)	Group	\$236B
3	Mitsubishi Heavy Industries	Group	\$63.56B
4	GE Vernova (Includes Electrification, Wind and Energy revenues)	Group	\$54B
5	Rolls- Royce PLC	Aerospace	2000 Engines
6	Siemens Energy Global GmbH	Energy	€54B
7	BHEL	Energy (Power segment only)	₹1,57,922 Cr
8	Honeywell Aerospace	Aerospace	\$39.1B

Certifications and Accreditations

Azad Engineering's ability to secure and maintain global supply contracts is built on its strong portfolio of **international and domestic accreditations**. These certifications are **prerequisites** for working with aerospace and defence OEMs and are awarded only after rigorous audits of process capability, traceability, and quality.

Aerospace manufacturing demands extremely high reliability, precision, and traceability. Certifications such as **ISO 9001, AS9100D, NADCAP, ISO 14001, and ISO 27001** form the backbone of quality assurance and risk mitigation across the value chain.

AS9100D is essential for entering the aerospace supply ecosystem, while NADCAP serves as the elite benchmark for special processes that directly impact flight safety.

Together, these certifications demonstrate a supplier's ability to deliver **consistent quality, process discipline, environmental responsibility, and data security**, enabling them to participate in critical global programs.

Description of Contracts

Azad Engineering receives business through a mix of RFQs and RFPs, long-term agreements that typically range from five to ten years, and annual or project-based tenders. These contracts operate within high-entry-barrier industries where qualification requirements, testing protocols, material traceability, and ongoing performance audits are stringent. Customers often require Azad to procure raw materials only from approved mills, dedicate specific bays or machinery for certain programs, and provide first-preference delivery for strategic customers.

Contract terms typically include provisions for delivery delays, quality deviations, or supply non-compliance. Certain agreements allow customers to terminate contracts without cause, which is standard in mission-critical component supply chains. Long-term pricing is usually fixed, although a 5 percent raw material fluctuation band is absorbed by Azad, with any deviation beyond that requiring a tri-party price adjustment between Azad, the OEM, and the approved raw material supplier. Foreign exchange risk is naturally hedged due to Azad's predominantly export-based revenue.

The company's customer relationships are built through lengthy qualification cycles and technology assessments, which often span several years but translate into durable, high-visibility revenue streams once completed. Management emphasized in the FY26 concall that Azad's contracts increasingly convert into multi-year repeat orders due to strong execution, engineering capability, and process reliability. This is evident in the expansion of long-term engagements such as the multi-phase Mitsubishi Heavy Industries program and newly inaugurated customer-dedicated factories for Siemens Energy and GE Steam.

Recent developments include Azad's first long-term collaboration with **Safran Aircraft Engines**, marking entry into the global aero-engine ecosystem across all major OEMs. The MOU follows technical assessments and will transition into a full contract after further qualification. Management noted that such engine platforms require complex validation cycles and multi-stage approvals, making these engagements strategic and long-duration by nature.

The company continues to deepen strategic partnerships across Energy, A&D, and O&G, supported by dedicated production lines, new facilities, and an expanding Centre of Excellence designed to support next-generation programs.

Aerospace and Defence Engines

The global aerospace and defence industry is entering a strong growth cycle, supported by a rebound in commercial air travel and sustained defence modernization worldwide. Global passenger traffic measured in revenue passenger kilometres (RPKs) rose by over 10% in 2024, surpassing pre-pandemic levels for the first time since 2019 (IATA). Fleet expansion, air-travel recovery across emerging economies, and accelerated replacement of older, less fuel-efficient aircraft are driving large new engine programs from leading OEMs such as Rolls-Royce, GE Aerospace, and Pratt & Whitney.

On the defence side, global military expenditure reached **US\$2.44 trillion in 2023**, up 6.8% year-on-year (SIPRI), reflecting renewed investments in air power and indigenous capability building. These dynamics are generating multi-year demand for advanced aero-engine components — turbine blades, vanes, and discs — manufactured from exotic alloys like titanium, Inconel, and Nimonic. At the same time, increasing offset obligations under India's Defence Procurement Policy and co-development programs (LCA Mk-II, AMCA, and IMRH) are deepening the domestic supplier ecosystem. Together, commercial and defence aviation tailwinds are expanding global outsourcing opportunities for certified, precision-engineering suppliers capable of meeting stringent aerospace quality and traceability standards.

Energy Turbines

Global power demand continues to rise amid the energy transition, keeping gas, steam, and wind turbines central to electricity generation. The International Energy Agency (IEA) projects electricity consumption to grow steadily through the decade as emerging markets industrialize and renewables require grid-balancing capacity. Gas turbines remain critical as flexible baseload sources, especially with new hydrogen-compatible and low-emission models gaining traction. Service and aftermarket demand also forms a recurring revenue base, as turbines require major overhauls every 10–16 years. The modernization of ageing gas and steam fleets, efficiency upgrades, and the shift toward high-temperature alloys and advanced aerofoil geometries are driving demand for precision-engineered turbine components. Consolidation among global OEMs and the need for cost-competitive, technically capable suppliers continue to reshape the industry's sourcing geography, expanding manufacturing activity in Asia and particularly India.

Oil & Gas and Industrial Equipment

The oil and gas industry is witnessing a steady recovery in investment after several years of under-spending. According to IEA and industry data, global upstream capital expenditure has rebounded from pandemic lows to over **US \$600 billion**, driven by new exploration, LNG infrastructure, and petrochemical projects. Despite the long-term energy transition, hydrocarbons remain essential for transportation, industrial feedstocks, and power generation ensuring ongoing demand for high-precision valves, compressor parts, and flow-control components.

The sector's component requirements are becoming increasingly complex, involving high-pressure and high-temperature materials such as duplex stainless steels, titanium, and nickel-based alloys. In parallel, OEMs are diversifying sourcing away from single-region dependency, fostering opportunities for qualified global suppliers with proven metallurgy and process certifications. Ageing infrastructure and periodic maintenance cycles further support recurring replacement demand, creating a sustained base of precision-engineering requirements across the value chain.

Macro and Structural Drivers

Across all three segments, industry growth is underpinned by broad structural trends the **diversification of global supply chains away from China and Europe, India's cost-competitive manufacturing base, and policy support through initiatives like Make in India and the PLI schemes**. Continuous improvements in **certification compliance (AS9100D, NADCAP, ISO)** and the rise of domestic alloy suppliers are strengthening India's standing as a global precision-manufacturing hub. As OEMs increasingly pursue de-risked, multi-region sourcing models, India's engineering ecosystem is well positioned to capture a larger share of global high-value manufacturing demand.

1. Increasing Product Penetration Across Existing Clients

Azad has long-standing relationships with global OEMs across aerospace, energy, and industrial sectors. The company continues to expand its **share of wallet** by adding new components within existing engine and turbine platforms. Its ability to deliver high-precision, zero-defect parts on time has resulted in a growing number of **repeat and multi-platform orders**. This cross-selling strategy not only deepens client engagement but also stabilizes revenue through long-term contracts and recurring demand from the same customer base.

2. Expanding Client Base Through Proven Capabilities

With a strong track record of quality and delivery, Azad is leveraging its **certifications (AS9100D, NADCAP, ISO)** and process reliability to onboard new global clients. The company's proven expertise in machining complex geometries and working with exotic alloys has positioned it as a preferred precision manufacturer for new OEM programs. As global supply chains look for cheaper manufacturing hubs, Azad is witnessing growing inbound interest from new international customers, further widening its client portfolio.

3. Moving Up the Value Chain in Domestic Programs

Azad is transitioning from being a component supplier to becoming a **system integrator** for domestic aerospace and energy programs. The company is actively expanding into the **manufacture and assembly of full turbines and sub-systems**, including advanced gas, steam, and nuclear turbines as well as landing gears. This strategic move allows Azad to capture a larger portion of the overall contract value, enhance margins, and align itself with India's indigenization initiatives under the *Make in India* and *Atmanirbhar Bharat* programs.

4. Strategic Acquisitions and Backward Integration

The company is pursuing **inorganic opportunities** to complement its capabilities, focusing on backward integration into forgings, castings, and alloy processing. By internalizing these critical inputs, Azad aims to **reduce raw material dependence**, improve control over lead times, and enhance cost efficiency. Such acquisitions will enable end-to-end production capabilities and expand operating margins through vertical integration.

Gross Profit Margin

Particulars	2021	2022	2023	2024	2025
Revenue from Operations	123	194	252	341	457
YoY Growth		58%	29%	35%	34%
COGS	14	21	30	46	64
YoY Growth		50%	45%	53%	38%
As a % of revenue	11%	11%	12%	14%	14%
Cost of material consumed	22	38	50	67	105
Changes in inventories	-8	-17	-19	-21	-41
Gross Profit	109	174	222	295	394
Gross Profit Margins	89%	89%	88%	86%	86%

Cost of goods sold –

Trend - COMC has increased steadily over FY21–FY25, both in absolute terms and as a percentage of revenue, primarily due to a clear shift in the company’s revenue mix toward product-heavy segments such as energy turbines, aerospace, and oil & gas, which inherently require more exotic alloys and higher raw-material intensity. The sharp rise in product volumes — especially in FY24 and FY25 — combined with a reduction in low-material services revenue has structurally increased overall material consumption. Higher complexity components, increased machining scrap in early-stage ramp-ups, and larger WIP levels associated with multi-year programs have also contributed to a higher COMC ratio. Pricing volatility remains limited due to OEM-approved sources and tri-party price agreements that cap fluctuation to ±5%, ensuring COGS as a % of revenue stays broadly stable despite sharp growth in absolute terms.

Operating Profit Margin

Particulars	2021	2022	2023	2024	2025
Employee benefit expenses	33	46	59	74	93
YoY Growth		42%	28%	25%	25%
As a % of revenue	27%	24%	24%	22%	20%
Other expenses	48	65	90	104	140
YoY Growth		35%	38%	15%	34%
As a % of revenue	39%	34%	36%	30%	31%
EBITDA	28	62	72	117	161
EBITDA Margins	23%	32%	29%	34%	35%
Depreciation and amortisation expenses	9	13	17	21	29
As a % of revenue	7%	7%	7%	6%	6%
EBIT	19	49	56	96	132
EBIT Margins	16%	25%	22%	28%	29%

Employee Benefit expenses –

Trend - Employee benefit expenses have increased consistently over FY21–FY25, but as a percentage of revenue they have steadily declined from **27% in FY21 to 20% in FY25**. This reflects operating leverage from higher production volumes, improved workforce productivity, and stronger revenue growth relative to headcount additions. The company continues to expand its skilled workforce to support ramp-ups in aerospace, energy, and oil & gas programs, but efficiency improvements and capacity utilisation gains have kept employee cost ratios trending downward.

Other expenses –

Trend - Other expenses have increased steadily from FY21 to FY25 in line with scale-up in operations, higher machining throughput, and expansion of manufacturing activities across new verticals. However, as a percentage of revenue, other expenses have **declined from 39% in FY21 to ~31% in FY25**, reflecting strong operating leverage, optimisation of outsourced processes, and better absorption of fixed overheads as volumes ramped up. While tools, job work, power & fuel, and stores & spares remain the major cost components, their intensity per unit of revenue has gradually reduced with process automation and efficiency gains.

FY2022 vs FY2023 – Up 38% YoY (34% → 36% of revenue)

Increase driven by higher machining activity, greater consumption of tools, higher power usage, and more outsourcing to manage peak capacity.

Revenue grew at 29%, slower than cost growth, causing the ratio to rise slightly.

One-time fire incident charges (~₹3.18 Cr) inflated FY23 other expenses.

Depreciation and Amortization –

Trend – Depreciation as a % of revenue has stayed in the range of 6-7%. This may change going ahead depending on the CAPEX plans and the method of depreciating it and the asset turnover that CAPEX brings.

Net Profit Margin

Particulars	2021	2022	2023	2024	2025
Finance costs	5	14	52	47	18
As a % of revenue	4%	7%	21%	14%	4%
Other Income	2	5	10	32	11
As a % of revenue	2%	2%	4%	9%	2%
EBT	16	40	13	81	124
EBT Margins	13%	21%	5%	24%	27%
Tax expenses	5	11	5	22	37
As a % of Revenue	4%	5%	2%	7%	8%
Effective Tax rate	29%	27%	36%	27%	30%
PAT	12	29	8	59	87
PAT Margins	9%	15%	3%	17%	19%

Finance Costs –

Trend - Finance costs have generally ranged between **4–6% of revenue**, rising temporarily during FY23–FY24 due to higher borrowings, interest on compulsory convertible debentures (CCDs), and premium on redemption of optionally convertible debentures (OCDs). These instruments were used to fund capacity expansion, working capital, and business growth during the scaling-up phase. With the repayment of high-cost debt and redemption liabilities using QIP proceeds in FY25, finance costs have declined sharply both in absolute terms and as a percentage of revenue.

Fluctuations

- **FY21 vs FY22:** Increase driven by higher term-loan interest as the company expanded capacity and added machinery; finance cost rose from ₹5 Cr to ₹14 Cr.
- **FY22 vs FY23:** Sharp spike to ₹52 Cr due to interest on CCDs and premium on redemption of OCDs, which were one-time financing structures used before the equity infusion.
- **FY23 vs FY24:** Marginal decline to ₹47 Cr as term-loan interest reduced and OCD premium expense dropped to zero, partially offset by higher CCD interest and borrowing costs.
- **FY24 vs FY25:** Significant reduction to ₹18 Cr after repayment of expensive debt through QIP proceeds, normalization of borrowing costs, and improved balance sheet strength.

Other Income –

Trend - Other income has remained modest but generally stable as a percentage of revenue, with the exception of **FY24**, which saw a temporary spike due to one-time gains. Core components include treasury income, FX gains, and small miscellaneous receipts.

Fluctuations

- FY22**: Slight increase due to liability write-backs and gain on sale of a subsidiary.
- FY23**: Increase driven by higher foreign exchange gains (~₹60 Cr) and higher interest income.
- FY24**: Sharp rise to ₹32 Cr due to **one-time gains**, including profit on sale of land and investment in a subsidiary.
- FY25**: Normalization to ₹11 Cr as one-offs of FY24 did not repeat, returning to typical operating levels.

Effective Tax Rate –

Trend - Azad's effective tax rate has fluctuated between **25%–36%** over FY21–FY25, primarily due to differences in timing of deductions, deferred tax adjustments linked to capital additions, and the impact of one-time items affecting pre-tax profitability. From FY25 onward, the company has opted for the concessional tax regime under Section **115BAA**, stabilizing the effective tax rate around **25%-30%** going forward.

Asset Turnover

Particulars	2021	2022	2023	2024	2025
Revenue from Operations	123	194	252	341	457
YoY Growth		58%	29%	35%	34%
Total Assets	256	404	589	797	1,861
YoY growth		58%	46%	35%	133%
Fixed Assets	121	168	255	303	516
YoY growth		39%	52%	19%	70%
Total Asset turnover	0.48	0.48	0.43	0.43	0.25
Fixed Asset turnover	1.01	1.16	0.99	1.13	0.89

Asset Turnover –

Azad Engineering's total asset turnover has shown a declining trend over FY21–FY25, falling from **0.48x to 0.25x**, while fixed asset turnover declined from **1.01x to 0.89x**. This decline is primarily driven by **large-scale capacity additions** and **heavy capital work-in-progress (CWIP)** ahead of revenue realization. The business has transitioned into a **high-capex, precision manufacturing model**, where asset deployment precedes revenue generation by 12–24 months due to long client qualification cycles and longer lead times of high end machines. As capacity ramps up and new contracts enter peak production, asset turnover is expected to normalize.

Azad's asset turnover decline is **not operational deterioration** but a **structural feature of its growth model**. The company invests heavily upfront to build precision machining and forging capability aligned with long-term contracts. As utilization improves over FY26–FY28 and new lines move from qualification to full-scale production, turnover is expected to recover toward its historical range.

Leverage

Particulars	2021	2022	2023	2024	2025
Total Assets	256	404	589	797	1,861
Debt	88	197	301	39	263
Equity	91	120	204	645	1,393
Debt/Equity	0.97	1.64	1.47	0.06	0.19
Leverage (Total assets/Equity)	2.82	3.37	2.89	1.24	1.34

Trend - Azad Engineering's leverage profile has gone through **two distinct phases**. From FY21–FY23, the company operated with **elevated debt levels**, primarily to fund rapid capacity expansion, import high-value precision machinery, and support working capital for multi-year OEM programs. This resulted in a rising Debt/Equity ratio, peaking at **1.64x in FY22**. From FY24 onward, leverage declined sharply due to major equity infusion through the IPO/QIP and repayment of term debt, bringing Debt/Equity down to **0.06x in FY24** and settling at a conservative **0.19x in FY25**.

ROE

Particulars	2021	2022	2023	2024	2025
Profit after tax	12	29	8	59	87
Revenue from operations	123	194	252	341	457
Total Assets	256	404	589	797	1,861
Equity	91	120	204	645	1,393
Leverage	2.82	3.37	2.89	1.24	1.34
Total Assets turnover	0.48	0.48	0.43	0.43	0.25
PAT Margins	9%	15%	3%	17%	19%
ROE	13%	25%	4%	9%	6%
ROE (Leverage Constant)	13%	21%	4%	21%	13%
ROE (Asset Turnover Constant)	13%	24%	5%	10%	12%
ROE (PAT Margins Constant)	13%	15%	12%	5%	3%

$$\text{ROE} = \text{PAT Margin} \times \text{Asset Turnover} \times \text{Leverage}$$

Trend - Azad Engineering's ROE has fluctuated meaningfully over FY21–FY25, driven primarily by **volatility in PAT margins** and **changes in leverage**, while **asset turnover has remained relatively low and stable** due to long qualification cycles, high WIP, and the capex-heavy nature of the business. ROE peaked in FY22 at **25%**, dropped sharply in FY23 due to margin compression and elevated finance costs, and recovered modestly in FY24–FY25, supported by improved profitability and a cleaner balance sheet post equity infusion.

FY22 vs FY21 – Strong Improvement due to Margin Expansion

ROE increased from **13% to 25%**, primarily due to a sharp expansion in PAT margins driven by: higher operating leverage on rising revenue, favourable product mix, and improved gross margins from higher volumes in energy & aerospace. Leverage also remained high (3.37x), amplifying returns.

FY23 vs FY22 – Sharp Decline due to Margin Collapse & High Finance Costs

ROE fell dramatically from **25% to 4%** because: PAT margins collapsed from 15% to 3% due to a spike in finance costs (CCD/OCPS-related), operating cost inflation, and one-time expenses. Asset turnover also dipped due to rising asset base, worsening the impact.

FY24 vs FY23 – Recovery Driven by Margin Expansion & Deleveraging

ROE improved from **4% to 9%**, supported by: PAT margin expansion (3% → 17%), aided by operating leverage, strong product mix, and one-off gains, a clean-up of finance costs after debt repayment via IPO, despite asset turnover staying low at 0.43x.

FY25 vs FY24 – Moderate Improvement in Profitability but Lower ROE due to Equity Base Expansion

Although PAT improved and margins expanded (from 17% → 19%), ROE moderated from **9% to 6%** because: the equity base more than doubled post-QIP, asset turnover fell sharply (0.43x → 0.25x) due to large asset base sitting in Cash and Bank Balances. Lower leverage (1.34x) also reduced the multiplier effect on returns.

Working Capital

Particulars	2021	2022	2023	2024	2025
Revenue from Operations	123	194	252	341	457
YoY Growth		58%	29%	35%	34%
Working Capital	50	89	157	253	333
As a % of revenue	40%	46%	62%	74%	73%
Inventories	34	57	86	133	189
As a % of revenue	28%	30%	34%	39%	41%
Raw Materials	16	20	25	53	63
Work in Progress	10	28	40	60	97
Finished Goods	3	2	7	2	4
Scrap inventory	0	0	3	8	10
Consumable stores, spares & fixtures	5	7	11	10	15
Trade Recievables	53	75	119	170	223
As a % of revenue	43%	38%	47%	50%	49%
Trade Payables	37	43	48	50	80
As a % of revenue	30%	22%	19%	15%	18%
WC Turnover	2.48	2.17	1.60	1.35	1.37
Inventory Turnover	3.58	3.39	2.92	2.56	2.42
Trade Recievables turnover	2.33	2.61	2.12	2.01	2.05
Payable Turnover	3.29	4.57	5.29	6.82	5.71
Working Capital days	147	168	228	271	265
Inventories days	102	108	125	142	151
Raw Materials	48	38	37	57	50
Work in Progress	31	53	58	64	77
Finished Goods	8	4	9	2	3
Scrap inventory	0	0	5	9	8
Consumable stores, spares & fixtures	15	13	16	11	12
Debtor days	156	140	172	182	178
Payable days	111	80	69	54	64

Trend - Azad Engineering operates in an industry characterized by **long production cycles, imported raw materials, engineered-to-order components, and stringent client qualification processes**, all of which structurally elevate working capital needs. As a result, **working capital as a % of revenue has steadily risen from 40% in FY21 to ~73–74% in FY24–FY25**. The rise is primarily due to higher **inventory intensity** especially raw materials and WIP driven by growing business volumes, minimum order quantity (MOQ) requirements for exotic alloys, and stocking programs undertaken to support large OEM contracts.

Receivable days consistently remain in the **140–180-day range**, reflecting the industry norm of extended credit cycles (120–150 days) and the back-ended revenue skew in H2. Payable days, meanwhile, have trended down due to a shift toward domestic suppliers (Sunflag, Star Wire) and higher immediate payment requirements for imported materials.

Management has stated that the **ideal steady-state cash conversion cycle for the business is 140–150 days**, which the energy segment already achieves. The current levels are temporarily elevated due to qualification-related stocking and the execution of newly signed long-term programs.

Management Actions for Future Reduction

- Azad is **creating a separate entity to hold raw materials** exclusively for its production lines.
 - This reduces the need for short-term working capital loans.
 - Slightly higher procurement prices will offset interest savings → **Net neutral impact**, but smoother liquidity.
- **Indigenization of raw materials** (Sunflag, Star Wire approvals) has structurally reduced lead times and buffer-stock requirements.

ROIC

Particulars	2021	2022	2023	2024	2025
EBIT	19	49	56	96	132
NOPAT (EBIT-Cash tax)	12	44	46	81	114
NOPAT Growth		273%	4%	77%	40%
NOPAT Margin	10%	23%	18%	24%	25%
Fixed Assets	121	168	255	303	516
Working Capital	50	89	157	253	333
Invested Capital	171	258	412	556	848
YoY Growth		51%	60%	35%	53%
Invested Capital Turnover	0.72	0.76	0.61	0.61	0.54
ROIC	7%	17%	11%	15%	13%
ROIC Pre Tax	11%	19%	14%	17%	16%

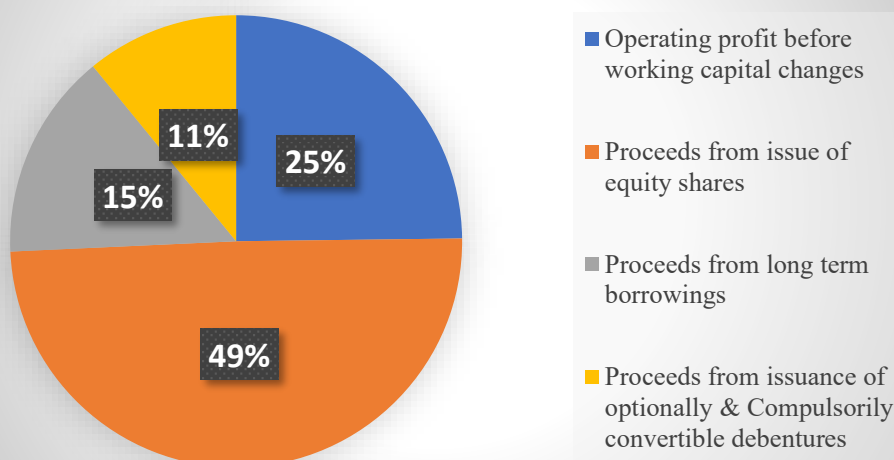
Re-Investment Rate

Particulars	2021	2022	2023	2024	2025
Capex for the year	20	117	84	59	295
Working capital changes	17	40	81	149	97
CFO before WC	29	66	80	156	169
Reinvestment rate = Capex + changes in WC/CFO	128%	239%	205%	133%	233%

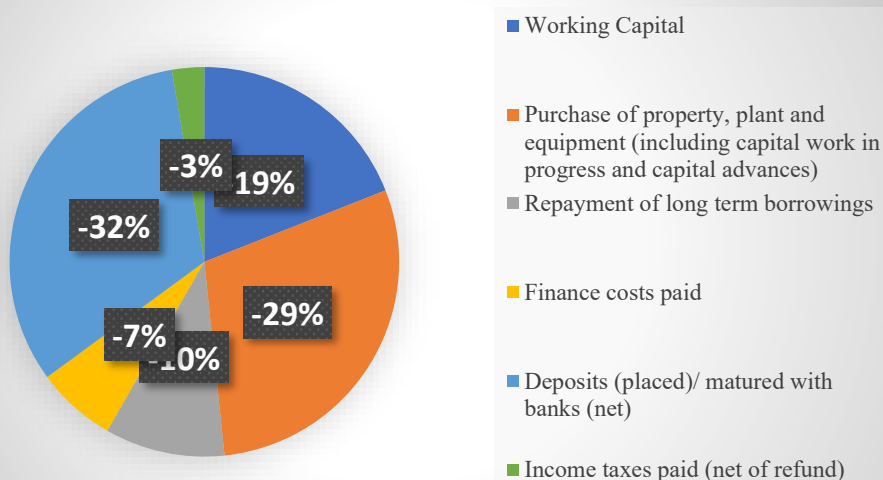
ROIC – Azad’s ROIC has remained healthy in the **11–17% range**, supported by strong NOPAT margin expansion even as invested capital surged due to heavy capex and qualification-driven inventory buildup. ROIC temporarily moderated because capital deployment has outpaced revenue recognition, but is expected to improve as new facilities ramp up and asset turns normalize.

Reinvestment Rate – The company is in an aggressive growth phase, reflected in a consistently high **reinvestment rate of 130–230%**, driven by large capex programs and elevated working capital needs. While this depresses near-term free cash flow, it sets the foundation for strong future EBIT growth, provided ROIC remains above the cost of capital—which it currently does.

Inflows



Outflows



Azad's inflows are dominated by **equity issuance (49%)**, reflecting the IPO/QIP-led balance sheet strengthening, followed by healthy **operating profit before working capital changes (25%)**, indicating a solid underlying business. Additional inflows came from **long-term borrowings (15%)** and **convertible instruments (11%)**, aligned with capex and OEM program requirements.

On the outflow side, the majority of funds were deployed toward **working capital (32%)** and **capex (29%)**, consistent with Azad's expansion cycle, qualification inventory, and multi-year contract ramp-up. Repayment of borrowings (10%) and finance costs (7%) highlight the clean-up of earlier high-cost debt.

Overall, fund flows show that capital raised is being channelled into **capacity creation and operational scaling**, with finance costs reducing and internal accruals expected to play a larger role going forward.

Table of Debt

Particulars	2021	2022	2023	2024	2025
Debt	88	197	301	39	263
Long Term Borrowings	41	123	221	29	188
Short Term Borrowings	46	75	80	10	75
Finance Costs	5	14	52	47	18
Avg total cost of debt	6%	7%	17%	120%	7%
Interest Coverage Ratio	3.6	3.6	1.1	2.0	7.2
Debt as a % of Total Asset	34%	49%	51%	5%	14%
Debt/Equity	0.97	1.64	1.47	0.06	0.19

Azad Engineering's debt levels have fluctuated meaningfully over FY21–FY25 in line with its capex cycle and working capital requirements. Borrowings increased sharply between FY21–FY23 as the company funded large machinery imports, facility expansion, and higher qualification-linked inventory, pushing total debt to ₹301 crore in FY23 and elevating the average cost of debt due to expensive CCD from Piramal Structured Credit opportunities. FY24 marked a major balance sheet reset IPO proceeds were used to repay most borrowings, reducing debt to ₹39 crore and bringing Debt/Equity down to 0.06x. In FY25, debt increased again to ₹263 crore as the company re-entered an investment phase, funding new plants and precision machinery; however, the stronger equity base due to QIP kept leverage comfortable at 0.19x. Interest coverage also improved sharply to 7.2x in FY25 as finance costs normalized and operating profitability strengthened.

Both Piramal and DMI financings were high-cost structured private credit instruments used by Azad between FY22–FY24. Piramal invested ₹160 cr via CCDs in Aug-2022, which carried escalating interest (10–20%) and an 18% guaranteed IRR; this instrument converted into 49.78 lakh shares on 11-Dec-2023 after generating ₹21.4 cr of interest cost. DMI provided ₹60 cr in Jun-2023 through CCD + OCD, with coupons of 10–20% and 14% and IRRs as high as 22%, and these instruments were fully converted/redeemed in Dec-2023 during the IPO clean-up. Although both turned into equity or were repaid before listing, they created significant finance costs and dilution while tightly restricting the company through covenants and pledges.

Table of Equity

Particulars	2021	2022	2023	2024	2025
Equity share capital	2	2	2	12	13
Other equity	89	118	202	633	1,381
Securities premium	0	0	75	456	1139
Retained earnings	89	115	123	173	261
Capital redemption reserve	-	4	4	4	4
Remeasurement of defined benefit obligations (net of tax)	0	0	0	0	-1
Derivative instrument	0	0	0	-	-23
Equity attributable to the owners of the parent	91	120	204	645	1,394
Non controlling Interest	-	-	-	-	-1
Total equity	91	120	204	645	1,393

Particulars	2021	2022	2023	2024	2025
Outstanding at the beginning of the year	15,13,200	15,13,200	15,13,200	16,51,826	5,91,12,993
Add:					
Impact of shares split	0	0	0	66,07,304	0
Issue of bonus shares	0	0	0	4,12,95,650	0
Allotment of Equity shares pursuant to conversion of CCD's into Equity	0	0	43,488	49,78,062	0
Shares issued during the year	0	0	95,138	45,80,151	54,68,750
Outstanding at the end of the year	15,13,200	15,13,200	16,51,826	5,91,12,993	6,45,81,743

Equity has expanded rapidly from **₹91 crore in FY21 to ₹1,394 crore in FY25**, driven by a series of major capital events. In **FY23**, the first significant jump came from the **conversion of 1,600 CCDs issued to Piramal Structured Credit Opportunities Fund**, which were converted on **11 December 2023** into **4,978,062 equity shares** at a pre-agreed **EV/EBITDA valuation of 18× FY23 EBITDA (net of debt)**. This boosted the securities premium and strengthened the balance sheet. In **FY24**, equity rose substantially following multiple corporate actions: a **share split (1:5) on 12 September 2023**, a **5:1 bonus issue** capitalized from retained earnings, and most importantly, the **IPO on 28 December 2023** where the company issued **4,580,151 fresh shares at ₹524 per share**, raising **₹740 crore (500 crores was OFS)**, significantly increasing net worth and liquidity. The largest increase came in **FY25**, when Azad completed a **QIP on 31 March 2025**, issuing **5,468,750 shares at ₹1,280 per share (₹1,278 premium)**, raising **₹700 crore**, with **₹6,812 million** net proceeds after expenses. This further boosted equity while enabling debt optimization and funding for capex. Across all years, retained earnings continued to grow with rising profitability, while strategic equity infusions positioned the company for capacity expansion and long-term growth.

Shareholding Pattern

Particulars	Dec-23	Mar-24	Jun-24	Sep-24	Dec-24	Mar-25	Jun-25	Sep-25
Promoters	65.9%	65.9%	65.9%	65.9%	65.9%	60.3%	55.4%	55.4%
FIIs	4.7%	7.0%	9.7%	9.7%	10.0%	14.2%	16.2%	15.8%
DIIs	5.7%	5.0%	3.4%	5.7%	6.6%	8.2%	8.9%	9.8%
Public	23.7%	22.1%	21.0%	18.6%	17.6%	17.2%	19.5%	19.0%
No. of Shareholders	1,35,090	1,06,231	1,02,445	1,28,846	1,17,613	1,24,539	1,27,692	1,27,716

Azad Engineering's shareholding pattern reflects a healthy and institutionalizing ownership base, though with a notable decline in promoter holding in **June 2025**, when the promoters reduced their stake from **60.3% in March 2025 to 55.4%**. The sale happened through open-market/off-market transactions, but no formal reason has been disclosed. Despite the reduction, promoter ownership remains comfortably high and signals continued strategic control.

FII ownership rose sharply from 4.7% in Dec 2023 to 16.2% by Jun 2025, stabilizing around **15–16%**, indicating rising global investor confidence following the IPO and QIP. **DIIs have also increased their stake consistently**, doubling from **5.7% in Dec 2023 to 9–10% by Sep 2025**, reflecting growing domestic institutional conviction in the company's long-term growth trajectory.

Public shareholding has remained stable in the **17–24%** range, even as the **total number of shareholders has expanded**, suggesting deeper market participation post listing. Overall, the trend shows **broadening institutional ownership**, improving liquidity and governance oversight. While the promoter sell-down introduces a minor question mark due to lack of disclosed reasoning, the strong institutional uptake and stable promoter majority mitigate concerns.

1. Capital-Intensive Business With Long Lead Times

Setting up a qualified manufacturing facility for global OEMs requires substantial upfront capital investment, long gestation periods, and highly engineered infrastructure. OEMs mandate that vendors demonstrate ready-to-use capacity even before the qualification process begins. This alone requires 18–24 months of planning, capex, and technology installation making it extremely difficult for new entrants to participate.

2. Exceptional Technical Expertise and Zero-Defect Manufacturing Capability

Azad manufactures complex turbine blades, vanes, airfoils, and mission-critical aerospace components that often have zero parts per million defect tolerance. These components operate under extreme temperature, pressure, and safety conditions (e.g., turbine hot sections, aircraft engine modules), requiring a blend of engineering depth, metallurgical know-how, and process innovation. Such capabilities cannot be replicated simply by installing CNC machines—what differentiates Azad is its ability to convert complex drawings into precision-engineered products at global quality benchmarks.

3. Stringent & Lengthy Qualification Cycles (30–48 Months)

Every single component must undergo a part-by-part, multi-phase qualification process involving:

- Infrastructure readiness checks
- Technical audits & facility inspections
- RFQ & prototype manufacturing
- First Article Inspection (FAI)
- Product testing and validation
- Final contract award

This process takes 30–48 months for each component and must be repeated for every new part added. The time, cost, and effort required to onboard a supplier significantly disincentivize OEMs from shifting vendors, creating high customer stickiness once qualified.

4. High Switching Costs and Deep Customer Relationships

Global OEMs spend years qualifying a vendor and millions of dollars in audits, testing, and engineering alignment. Once a supplier like Azad is approved, the switching costs become prohibitively high due to repeat audits, requalification cycles, and flight-safety implications. This creates long-term revenue visibility for Azad as contracts typically span 5–10 years with multi-year ramp-up schedules.

5. In-House Process Innovation & CNC Optimization Capabilities

A unique competitive advantage is Azad's ability to *co-develop advanced CNC machine specifications* with global machine tool vendors. Leveraging decades of manufacturing experience, Azad provides custom specifications that enhance machine output, reduce raw material wastage, and lower human intervention per kg of output. These process improvements significantly boost margins and efficiency.

Management deliberately avoids filing process patents, since their proprietary machining processes are difficult to reverse-engineer but easy to replicate once publicly disclosed.

6. Multi-Level Quality, Traceability & Compliance Systems

The business is built around world-class accreditations such as:

- AS9100D** – Aerospace quality management
- Nadcap** – Special processes (non-destructive testing, heat treatment)
- ISO 9001, ISO 14001, ISO 27001**

These certifications are compulsory for global aerospace and energy OEMs and take years of audits and process validations to obtain and maintain. Azad's infrastructure, documentation discipline, traceability systems, and quality loops create a strong differentiation from emerging suppliers.

7. Ability to Scale Across Verticals With the Same Infrastructure

Azad's plants are multi-purpose and flexible, enabling the same infrastructure to produce components for:

- Aerospace engine modules
- Gas, steam, and nuclear turbines
- Oil & gas equipment
- Defence systems

This allows Azad to scale wallet share across clients and verticals without requiring separate plants, leading to superior asset turns and cost efficiency.

Management Background

Name of Director	Designation	DIN	Date of Appointment	Description	Shareholding (%)
Mr. Rakesh Chopdar	Chairman & CEO (Promoter)	1795599	Originally appointed Aug 14, 2003. Re-designated Sept 13, 2023.	As the Promoter, he has been involved with the company since 2003 with over two decades of experience in engineering and manufacturing. He has been instrumental in expanding operations globally. Awards include "Young Asian Entrepreneur 2019-20" by CNBC-TV18 and the National MSME Award-2022.	54.45%
Mr. Murali Krishna Bhupatiraju	Managing Director	10883843	Appointed as Managing Director on January 3, 2025.	He holds a PhD from Ohio State University and an MBA from Michigan State University. He brings extensive global experience, having previously worked as President/CFO at Bharat Forge America, CFO at Dyson Corporation, and Plant General Manager at Gerdau Macsteel.	Nil
Ms. Jyoti Chopdar	Whole-Time Director	3132157	Director since July 1, 2014. Re-designated Sept 13, 2023.	Associated with the company for over eight years, she is actively involved in the Company's general administrative activities and holds a Bachelor's degree in Arts from Kurukshetra University.	0.22%
Mr. Vishnu Pramodkumar Malpani	Whole-Time Director	10307319	Appointed as Whole-Time Director on Sept 13, 2023.	An IIT Guwahati alumnus (B.Tech) with executive education from ISB. He has over 4 years of association with Azad. Previously worked with Wipro Technologies and Visaka Industries. He oversees corporate strategy and business re-engineering.	0.25%
Mr. Michael Joseph Booth	Independent Director	10309295	Appointed on Sept 12, 2023.	Holds a Higher National Diploma in Mechanical Engineering. He brings deep technical expertise, having previously worked with GE Caledonian Ltd as a repair team leader and with Turbine Services Ltd (owned by Chromalloy).	Nil
Mr. Subba Rao Ambati	Independent Director	1722940	Appointed on Sept 24, 2023.	Holds a B.Pharm (Hons) from BITS and a Diploma in Business Management. He has significant experience in marketing and operations, having worked with Mars Therapeutics & Chemicals Ltd and Vanguard Therapeutics.	Nil
Ms. Madhusree Vemuru	Independent Director	10304579	Appointed on Sept 12, 2023.	A science graduate admitted to the Bar Council of Andhra Pradesh. Her experience spans Corporate Social Responsibility (CSR) and business development at Andhra Paper Limited and Dr. Reddy's Foundation.	Nil
Mr. Deepak Kabra	Independent Director	10878892	Appointed on Jan 3, 2025.	A Fellow Chartered Accountant with over 15 years of experience in banking and finance. He has held senior positions at YES Bank Limited, ICICI Bank Limited, and Tata Chemicals Limited.	Nil

Management Background

Name	Designation	Background & Experience	Shareholding (%)
Mr. Ronak Jajoo	Chief Financial Officer (CFO)	Associated since 2021. Holds a BBA and a Post Graduate degree in Business Management. Previously Vice President at Pransa Financial Consultants .	0.22%
Mr. Ashok Gentyala	Head – Engineering & Operations	A company veteran associated since 2008. Holds a Diploma in Mechanical Engineering. Rose from CNC operator to Head of Operations, showcasing deep internal process knowledge.	0.43%
Mr. Balaji PR	Head – Business Growth	Joined in 2018. Holds a BBA and PG Certificate in Engineering Business Management from Warwick . Previously with Godrej & Boyce Manufacturing and Miranda Tools .	0.25%
Mr. Dinesh J Shetty	Head – Supply Chain	Joined in 2019. B.Tech in Mechanical Engineering. Experience includes procurement roles at Toshiba JSW Turbine & Generator and Terex India .	0.22%
Mr. Atin Agarwal	Head – Analytics & IT	Associated since 2016. Holds a B.Com and MS from Fairleigh Dickinson University . Previously a partner at Sanjeevani Pharma Capsules.	0.22%
Mr. Matthew Richard Childs	Head – Program Management	Joined in 2023. B.Eng from Nottingham Trent University . Extensive global experience with Alstom Power and Siemens (Demag Delaval).	Nil
Ms. Silpa Kanaka Bellamkonda	Head – Quality Management Systems	Associated since 2010. Holds an MCA and MBA. Critical role in maintaining AS9100/ISO certifications required for aerospace components.	0.18%
Mr. Praneeth Abhishek Gunda	Company Secretary & Compliance Officer	Joined in 2025. Associate Member of ICSI. Mr. Abhishek is a seasonal corporate governance professional with more than 13 years of experience in Corporate Secretarial and legal function. Prior to joining Azad, Mr. Abhishek was associated with Cohance Lifesciences Limited, KSK Energy Ventures Limited and MedRC Edutech Limited.	Nil

Management Commitment Table

Date	Document	Commitment	Fulfillment	Reasoning
FY24	CC Q4 FY24	Revenue Guidance 25% - 30% in FY25 with same facility	Yes	Exceeded guidance with 34% growth in revenue in FY25
FY24	CC Q4 FY24	Ronak Sir : "We have done quite a good progress in Q4 of this year, where we have got two of our key raw material qualified with the Indian partner. And we are on the track and probably in FY '25 and FY '26 you will see the impact on the inventory side. Because whatever we have to purchase, we have already placed the order based on the previous PO's and previous order books. And the further increase on the incremental purchase, what we do, we start from FY '25 onwards, because they have just got qualified and we can't place the order right now, because we have already placed on the existing supplier as the lead-time for these inventories are a bit higher."	Yes	Trade payable as a % of revenue increased
FY24	CC Q4 FY24	"Our business will continue to grow at 25%, 30% this year. And then once we are at an inflection point in FY26 you will see that the growth rate improves from 30% to a higher number and it will continue at that rate for a few years."	No	FY26 is now called a stabilization year rather than the inflection year in the later concalls
FY25	CC Q1 FY25	"Azad Engineering acquired Leo Primecomp Pvt. Ltd. (via its 51%-owned subsidiary, Azad Prime Pvt. Ltd.) to expand its manufacturing capabilities to large-size critical advanced technology parts, complementing its existing small and medium component portfolio. This acquisition broadens Azad's presence in Nuclear, Gas, Thermal, and Oil & Gas sectors, enhances customer reach, and is expected to improve overall asset turnover."	Monitorable	
FY25	CC Q2 FY25	"Working capital is at peak in this particular quarter and they will be tapered down as major qualifications has been completed and we are able to indigenize the raw material with one of the millers as I explained in the earlier calls."		
FY26	CC Q1 FY26	"TM happy to share that both Azad Prime and Azad VLC has turned EBITDA neutral within just a few quarters of operations, and we are confident they will become PAT positive by quarter 4 of FY26."		
FY26	CC Q2 FY26	"Look at the asset turn deployment of INR700 crores at 1.7x, 1.8x, and you will get the number"		

Management Competence

Azad Engineering's management team has demonstrated strong execution capability, deep industry understanding, and disciplined internal planning. The company has repeatedly exceeded its own revenue guidance, reflecting the rigour of its internal calculations, capacity planning, and customer engagement strategies. Management has institutionalized a structured workflow with clearly defined processes, KPIs, and accountability frameworks for every employee, enabling consistent delivery despite rapid scale-up and multi-segment expansion. Their track record in capital allocation has also been noteworthy, with investments in new facilities, customer-dedicated lines, and capability-building made ahead of demand and supported by long-term visibility from global OEMs. Overall, the leadership combines strategic clarity with operational depth, positioning the company to sustain high growth while maintaining financial and operational discipline.

Revenue (₹ Cr)	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	123	194	252	341	457
Dynamatic Technologies Ltd	1,230	1,118	1,253	1,316	1,429	1,404
PTC Industries Ltd	73	163	179	219	257	308
Aequs Ltd	NA			812	965	925
Sansera Engineering Ltd	1457	1549	1989	2338	2811	3017
Unimech Aerospace Ltd	NA		36	94	209	243
Triveni Turbines	818	703	852	1,248	1,654	2,006
Howmet Aerospace	61,753	45,753	43,256	49,268	57,768	64,641
Gross Profit Margin (%)	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	89%	89%	88%	86%	86%
Dynamatic Technologies Ltd	52%	51%	51%	52%	53%	53%
PTC Industries Ltd	71%	75%	76%	75%	76%	83%
Aequs Ltd	NA			53%	57%	58%
Sansera Engineering Ltd	57%	57%	57%	56%	57%	59%
Unimech Aerospace Ltd	NA		80%	80%	79%	78%
Triveni Turbines	46%	49%	45%	48%	50%	50%
Howmet Aerospace	27%	26%	28%	28%	28%	31%
EBITDA Margin (%)	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	23%	32%	29%	34%	35%
Dynamatic Technologies Ltd	13%	11%	14%	14%	11%	11%
PTC Industries Ltd	20%	21%	24%	27%	28%	24%
Aequs Ltd	NA			5%	13%	9%
Sansera Engineering Ltd	16%	18%	17%	16%	17%	17%
Unimech Aerospace Ltd	NA		22%	37%	38%	38%
Triveni Turbines	19%	21%	19%	19%	19%	22%
Howmet Aerospace	16%	18%	20%	21%	22%	26%
EBT Margin (%)	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	13%	21%	5%	24%	27%
Dynamatic Technologies Ltd	6%	4%	8%	9%	7%	6%
PTC Industries Ltd	10%	13%	15%	19%	22%	18%
Aequs Ltd	NA			-7%	2%	-3%
Sansera Engineering Ltd	9%	11%	11%	11%	12%	11%
Unimech Aerospace Ltd	NA		13%	33%	36%	34%
Triveni Turbines	17%	18%	16%	17%	18%	21%
Howmet Aerospace	8%	12%	15%	16%	18%	22%
PAT Margin (%)	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	9%	15%	3%	17%	19%
Dynamatic Technologies Ltd	3%	-2%	1%	3%	9%	3%
PTC Industries Ltd	2%	3%	7%	12%	16%	20%
Aequs Ltd	NA			-13%	-1%	-11%
Sansera Engineering Ltd	5%	7%	7%	6%	7%	7%
Unimech Aerospace Ltd	NA		9%	24%	28%	34%
Triveni Turbines	15%	15%	32%	15%	16%	18%
Howmet Aerospace	7%	5%	5%	8%	11%	16%

Working Capital Days	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	147	168	228	271	265
Dynamatic Technologies Ltd	67	71	72	91	107	106
PTC Industries Ltd	NA	198	219	204	242	359
Aequus Ltd	NA			94	120	149
Sansera Engineering Ltd	82	79	77	80	68	72
Unimech Aerospace Ltd	NA		82	159	94	88
Triveni Turbines	107	88	73	68	54	43
Howmet Aerospace	131	86	80	76	81	79
Asset Turnover	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	0.48	0.48	0.43	0.43	0.25
Dynamatic Technologies Ltd	0.83	0.78	0.90	0.79	0.91	0.85
PTC Industries Ltd	NA	0.41	0.42	0.40	0.29	0.19
Aequus Ltd	NA			0.60	0.52	0.49
Sansera Engineering Ltd	0.80	0.80	0.90	0.95	1.01	0.81
Unimech Aerospace Ltd	NA		0.64	1.01	1.19	0.30
Triveni Turbines	0.99	0.74	0.63	0.92	0.99	0.98
Howmet Aerospace	0.40	0.46	0.49	0.55	0.64	0.71
Leverage	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	2.82	3.37	2.89	1.24	1.34
Dynamatic Technologies Ltd	4.00	3.87	3.64	3.08	2.35	2.30
PTC Industries Ltd	NA	2.56	2.53	1.80	1.39	1.14
Aequus Ltd	NA			4.85	4.52	2.65
Sansera Engineering Ltd	2.38	2.20	2.17	2.11	2.07	1.36
Unimech Aerospace Ltd	NA		2.06	1.91	1.61	1.21
Triveni Turbines	1.56	1.49	1.58	1.78	1.74	1.68
Howmet Aerospace	3.81	3.20	2.91	2.85	2.58	2.31
ROE (%)	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	13%	25%	4%	9%	6%
Dynamatic Technologies Ltd	10%	-6%	4%	8%	18%	6%
PTC Industries Ltd	NA	3%	8%	8%	7%	4%
Aequus Ltd	NA			-39%	-3%	-14%
Sansera Engineering Ltd	10%	13%	13%	13%	14%	8%
Unimech Aerospace Ltd	NA		12%	47%	54%	12%
Triveni Turbines	23%	16%	32%	25%	28%	29%
Howmet Aerospace	10%	7%	7%	13%	19%	25%
ROIC (%)	FY20	FY21	FY22	FY23	FY24	FY25
Azad Engineering	NA	7%	17%	11%	15%	13%
Dynamatic Technologies Ltd	21%	7%	6%	8%	7%	6%
PTC Industries Ltd	NA	2%	6%	8%	8%	4%
Aequus Ltd	NA			-7%	6%	-2%
Sansera Engineering Ltd	8%	9%	9%	9%	11%	9%
Unimech Aerospace Ltd	NA		12%	34%	54%	30%
Triveni Turbines	22%	24%	25%	32%	43%	52%
Howmet Aerospace	4%	7%	9%	11%	14%	18%

1. Executive Summary: The Structural Re-Rating of Indian Precision Manufacturing

The global aerospace and energy supply chains are currently undergoing their most significant recalibration in four decades. Triggered by the "China Plus One" diversification strategy, exacerbated by geopolitical instability in Eastern Europe, and necessitated by the post-pandemic demand surge in civil aviation and energy transition, Global Original Equipment Manufacturers (OEMs) are actively seeking new Centers of Excellence (CoE). India has emerged not merely as a destination for labor arbitrage, but as a strategic hub for high-precision, high-complexity manufacturing.

This initiation coverage report provides an exhaustive analysis of seven Indian companies - Azad Engineering, Dynamatic Technologies, PTC Industries, Sansera Engineering, Triveni Turbine, Aequs, and Unimech Aerospace that are capitalizing on this secular trend. Unlike the previous cycle of Indian engineering which focused on automotive commoditization, this cohort is characterizing a shift toward "Zero Defect" cultures required for life-critical applications in jet engines, gas turbines, and structural aerospace assemblies.

Our deep-dive analysis reveals a bifurcation in business models:

- 1.The Process Specialists (Azad, Sansera):** Companies leveraging extreme process capability (machining, forging) to create sticky, long-term component supply agreements.
- 2.The Material Science Monopolists (PTC Industries):** Companies moving upstream to control the strategic raw materials (Titanium, Superalloys), thereby creating the highest entry barriers.
- 3.The Systems Integrators (Dynamatic, Unimech):** Companies moving from components to complex sub-assemblies and tooling, effectively acting as Tier-1 partners.
- 4.The Product OEMs (Triveni Turbine):** Companies that own the Intellectual Property (IP) and brand, commanding superior return ratios through aftermarket dominance.

Financially, the divergence among these peers is profound. While **Triveni Turbine** demonstrates a great working capital cycle and superior Return on Invested Capital (ROIC), **Azad Engineering** and **PTC Industries** operate with high working capital intensity, viewing inventory not as a liability but as a strategic asset to secure long-term contracts. **Dynamatic Technologies** offers a unique deleveraging narrative, while **Sansera** presents a diversification play from auto-ICE to aerospace.

This report dissects the Income Statements, Balance Sheets, and Cash Flows of these peers, utilizing primary data to explain the "why" behind their varying Asset Turnover, Leverage, and Return Ratios, benchmarking them against the global giant **Howmet Aerospace** to contextualize their maturity and potential runway.

2. Sectoral Backdrop: The Global Value Chain Architecture

To understand the positioning of Indian peers, one must first deconstruct the global aerospace and energy value chain. The industry operates on a strict tiered structure, where risk and responsibility are cascaded down.

2.1 The Tiered Hierarchy

OEMs (The Apex): Boeing, Airbus, GE Vernova, Siemens Energy, Rolls-Royce. These entities own the design, certification, and final integration. They are capital allocators and brand managers.

Tier 1 (Systems Integrators): Companies like Spirit AeroSystems (now reintegrating), Safran, and increasingly **Dynamatic Technologies** and **Azad Engineering**. They deliver complete systems (e.g., landing gears, fuselage sections, turbine modules) directly to the assembly line.

Tier 2 (Sub-System Suppliers): Manufacturers of complex assemblies (e.g., actuation systems, pumps).

Tier 3 (Component Manufacturers): Suppliers of individual parts (bolts, brackets, simple machined parts). Historically, this is where Indian manufacturing resided.

2.2 The "Life-Limited" Opportunity

In the turbine engine market (served by Azad, PTC, Howmet), revenue is driven by "Life-Limited Parts" (LLPs). Components inside the hot section of an engine (blades, vanes, discs) operate under extreme thermal stress. Regulatory bodies (FAA, EASA) mandate their replacement after a fixed number of cycles, regardless of their condition. This creates a recurring, annuity-like revenue stream that is decoupled from new aircraft sales. Suppliers qualified on these parts enjoy 20-30 year revenue visibility.

3. Peer Deep Dive: Business Models & Value Chain Positioning

3.1 Azad Engineering: The "Life-Critical" Component Fortress

Business Model Overview:

Azad Engineering has positioned itself as a manufacturer of highly engineered, complex, mission-critical rotating and stationary components. Unlike generalist engineering firms, Azad focuses exclusively on parts where the "Cost of Failure" is infinite—meaning if the part fails, the turbine explodes or the aircraft crashes. This high-stakes environment insulates Azad from the pricing pressures typical of commoditized manufacturing.

Global Value Chain Positioning:

Azad operates primarily as a Tier 1 supplier for the Energy and Aerospace industries.

•**Energy (79% of FY25 Revenue):** Azad manufactures airfoils, blade portions, and components for gas, nuclear, and thermal turbines. It supplies to OEMs that control approximately 75% of the global land-based turbine market (likely GE, Siemens, Mitsubishi).

•**Aerospace & Defence (18% of FY25 Revenue):** The company produces flight-critical engine parts and airfoils for platforms like the Boeing 737, Airbus A320/A350, and defense aircraft engines.¹ It has secured long-term contracts with Rolls-Royce for military engine parts, marking a significant entry into the defense propulsion value chain.

•**Oil & Gas:** Manufactures drill bits and other high-wear components, though this remains a smaller contributor.

The "Qualification" Moat:

Azad's primary competitive advantage is its library of over 1,700 qualified parts and 45+ specialized manufacturing processes.¹ In aerospace and energy, a supplier cannot simply bid for a contract; they must undergo a rigorous qualification process that takes 30 to 48 months. Once qualified, the supplier becomes part of the OEM's "Approved Vendor List" (AVL). Switching suppliers requires the OEM to re-certify the process, which is prohibitively expensive and time-consuming. This creates immense stickiness.

Financial Nuances:

•**Revenue Trajectory:** Azad has shown explosive growth, with revenues rising from ₹123 Cr in FY21 to ₹457 Cr in FY25 (Projected/Annualized based on trends). The company guides for 25-30% annual growth, driven by the conversion of its qualified part library into serial production.

•**Margin Profile:** Azad commands some of the highest margins in the peer group. Gross margins have consistently hovered around **86-89%** from FY21 to FY25. This exceptionally high gross margin indicates that the raw material cost is a small fraction of the final price; the value is added through precision machining and processing. EBITDA margins have expanded from 23% in FY21 to **35%** in FY25, reflecting significant operating leverage as capacity utilization improves.

•**Asset Turnover:** The asset turnover is low, currently around **0.43x** (FY24). This is characteristic of the precision machining business model, which requires heavy upfront investment in 5-axis CNC machines and testing facilities. The "gestation period" between buying a machine and reaching full serial production is long due to the qualification cycles mentioned above.

•**Working Capital Intensity:** Azad operates with a very long working capital cycle (~271 days in FY24). Inventory days are high (168-209 days) because the company must stock exotic alloys and raw materials to ensure 100% on-time delivery for global OEMs.⁶ Receivables are also stretched (150+ days), as large global OEMs often dictate payment terms.

3.2 Dynamatic Technologies: The Structural Integrator & Sole Supplier

Business Model Overview:

Dynamatic Technologies employs a sophisticated arbitrage model it calls "Art to Part." It combines high-end, capital-intensive robotic machining in its European facilities (UK and Germany) with labor-intensive, high-skill artisanal assembly in its Indian facilities (Bengaluru). This allows it to offer Western quality at blended Eastern costs.⁷

Global Value Chain Positioning:

Dynamatic is a structural Tier 1 supplier, deeply integrated into the airframe itself.

•**Aerospace (Sole Supplier Status):** Dynamatic is the **Global Single Source Supplier** for Flap Track Beams (FTB) for the Airbus A330 and A320 families.⁷ The FTB is a Class-1 flight-critical assembly that extends the wings' flaps. Being the sole supplier for the A320—the world's highest-volume commercial aircraft—is a testament to immense OEM trust. It also manufactures the rear fuselage for the Dassault Falcon 6X and has recently won the contract for Airbus A220 doors.⁸

•**Hydraulics:** It is the world's largest producer of hydraulic gear pumps for agricultural tractors, supplying to John Deere, Mahindra, and others. This segment provides steady, albeit cyclical, cash flow.⁷

•**Metallurgy:** Produces complex castings for automotive (turbochargers, manifolds) in Germany (Eisenwerk Erla) and India. This segment has faced headwinds due to the European auto slowdown.

The "Integration" Moat:

Unlike peers who supply individual parts, Dynamatic supplies fully assembled structures. An FTB involves machining titanium/aluminum, sourcing hundreds of sub-components, and assembling them with micron-level precision. The entry barrier here is supply chain management and assembly capability, not just machining.

Financial Nuances:

- **Revenue Stability vs. Growth:** Historical revenue has been relatively flat (₹1,230 Cr in FY20 to ₹1,429 Cr in FY24) due to the divestment of non-core assets (foundries, wind farms) and the pandemic's impact on travel. However, the Aerospace segment is now growing at ~27% YoY, signaling a breakout.¹¹
- **Margin Expansion:** Gross margins are stable at ~53%. However, EBITDA margins (~11%) are weighed down by the Hydraulics and Metallurgy segments. The Aerospace segment operates at a much healthier ~26-27% EBITDA margin.¹² As the revenue mix shifts toward Aerospace, the consolidated margin is expected to re-rate.
- **Deleveraging Narrative:** Dynamatic historically suffered from high leverage (Net Debt/Equity ~4.0x in FY20) due to European acquisitions. It has aggressively deleveraged by selling non-core assets (e.g., the JKM Ferrotech foundry). Leverage has reduced to ~2.35x in FY24, improving the ROE profile.⁷
- **Asset Turnover:** The company is improving its asset turnover (0.91x in FY24) by moving more work to India, where the asset base is depreciated or lower cost, thereby improving the efficiency of the capital employed.

3.3 PTC Industries: The Strategic Materials Monopolist

Business Model Overview:

PTC Industries has transformed from a traditional metal caster into a materials science company. Through its subsidiary Aerolloy Technologies, it focuses on "Investment Casting" (Lost Wax process) of exotic alloys—Titanium, Nickel-Cobalt Superalloys, and Stainless Steel.¹³

Global Value Chain Positioning:

PTC is moving upstream to control the raw material itself, a unique position in India.

- **Titanium Independence:** PTC has commissioned Vacuum Arc Remelting (VAR) and Vacuum Induction Melting (VIM) furnaces.¹³ This allows it to manufacture Titanium ingots and billets from scrap/sponge. It is one of the few companies globally with this "Sponge-to-Part" capability, breaking the reliance on Russian/Chinese titanium supply chains.
- **Defence & Aerospace:** Supplies castings for the BrahMos missile (Ti castings), Rafale engines (Safran), and M777 Ultra Lightweight Howitzers (BAE Systems).¹⁵ It is the only Indian company entrusted with Single Crystal turbine blade production for the DRDO.¹³

The "Technology" Moat:

Titanium casting is incredibly difficult. Molten titanium is highly reactive and explodes if it touches oxygen; the entire process must happen in a vacuum. PTC's mastery of this physics, combined with its new material production capability, creates a monopoly-like moat in the Indian market.

Financial Nuances:

- **Explosive Growth:** Revenue grew from ₹73 Cr in FY20 to ₹257 Cr in FY24, with H1 FY26 alone showing 83% growth.¹³ This reflects the commissioning of new capacities.
- **Margin Leadership:** PTC commands high Gross Margins (~76% in FY24) and robust EBITDA margins (~28% in FY24, expanding to 32%+ in recent quarters). The shift from industrial castings to aerospace titanium is highly margin-accretive.¹⁶
- **Return Ratios:** ROIC is currently suppressed (~8% in FY23/24) because the company is in a massive capex phase (building the Strategic Materials Technology Complex). As these assets come online and utilization ramps up, ROIC is expected to expand significantly.
- **Inventory:** PTC holds significant inventory (242 days in FY24) because it is vertically integrating. Producing its own ingots requires holding stocks of titanium sponge and scrap. This is a strategic necessity to guarantee material availability to defence customers.

3.4 Sansera Engineering: The Precision Forging Giant Pivot

Business Model Overview:

Sansera is a master of precision forging, differing from the casting focus of PTC or the machining focus of Azad. Historically an automotive powerhouse (connecting rods, rocker arms), Sansera is executing a strategic pivot to Aerospace, Defence, and Semiconductors (ADS).¹⁷

Global Value Chain Positioning:

- **Automotive Roots:** Still derives ~73% of revenue from Auto-ICE (Internal Combustion Engine), serving clients like Bajaj, Honda, and Maruti.

Aerospace & Defence: Supplies structural components, engine parts, and landing gear components. It is moving from small

components to larger forged assemblies. The ADS segment grew 80% YoY in Q2 FY26.

Semiconductors: A new entrant into manufacturing components for semiconductor fabrication equipment, diversifying its exposure.

The "Process Discipline" Moat:

Sansera brings "automotive discipline" to aerospace. Automotive manufacturing requires managing millions of parts with single-digit PPM (Parts Per Million) defect rates at low costs. Applying this efficiency to the high-margin aerospace sector allows Sansera to be cost-competitive while maintaining quality.

Financial Nuances:

Revenue Scale: Sansera is the largest in this peer group by revenue (₹2,811 Cr in FY24). It targets ₹5,000-5,500 Cr by FY27.

Margin Profile: EBITDA margins are steady at ~17%. This is lower than the pure-play aerospace peers (35%) because of the high automotive mix. However, the ADS segment is margin accretive, and as its share grows (targeted 20% of non-auto), blended margins should rise.

Asset Turnover: Sansera has the highest Asset Turnover in the manufacturing peer group (~1.0x). Forging is a faster process than machining or casting, and the high-volume automotive lines drive efficiency.

Leverage: Sansera recently raised ₹1,200 Cr via QIP to retire debt, moving to a net cash position. This gives it a "war chest" for aerospace acquisitions or capex.

3.5 Triveni Turbine: The Product OEM & Efficiency King

Business Model Overview:

Triveni Turbine is fundamentally different: it is an OEM (Original Equipment Manufacturer). It designs, builds, sells, and services its own brand of industrial steam turbines (up to 100 MW). It does not rely on build-to-print contracts from other OEMs.

Global Value Chain Positioning:

Market Leader: It is a top-2 global player in the <30MW steam turbine market, competing with Siemens and Mitsubishi.

Aftermarket Annuity: A massive 35% of its turnover comes from Aftermarket services (spares, refurbishment, repairs). This revenue is high-margin and recurring, as customers are locked into Triveni for the 20+ year life of the turbine.

The "Negative Working Capital" Moat:

Triveni operates with a negative working capital cycle. Customers pay significant advances to book manufacturing slots. This means Triveni also grows using customer capital.

Financial Nuances:

Superior ROIC: Because of the negative working capital and asset-light model (it focuses on assembly and design, outsourcing simple component manufacturing), Triveni generates best-in-class ROIC (>40%).

Margins: EBITDA margins are robust at ~26% (Q2 FY26). While lower than PTC's titanium margins, the return on capital is far higher due to the denominator effect (low capital employed).

Growth: Record order bookings of ₹6.52 billion in Q2 FY26 indicate a strong industrial capex cycle globally.

3.6 The Emerging Challengers: Aequs and Unimech

Aequs:

Model: Operates a fully integrated Special Economic Zone (SEZ) in Belagavi, offering forging, machining, surface treatment, and assembly in one location. This "ecosystem" model attempts to replicate Chinese manufacturing clusters.

Financials: Aequs is currently struggling with profitability, reporting a net loss of ₹102 Cr in FY25. High interest costs and the drag from its consumer durables business are weighing on margins. It is using IPO proceeds to deleverage.

Position: Strong capabilities but needs to prove financial viability.

Unimech Aerospace:

Model: Specializes in **Aero-Tooling** and MRO tooling. It operates a "high-mix, low-volume" model, creating the jigs, fixtures, and tools required to build and maintain aircraft.

Financials: Impressive metrics with EBITDA margins of ~38% and PAT margins of ~28% in FY24. The tooling business is engineering-intensive rather than capital-intensive, leading to high ROCE.

Risk: Small scale (Revenue ~₹243 Cr in FY25) and high client concentration.

4. Profitability Analysis (EBITDA & PAT Margins)

Gross Margins:

- **Azad (86-89%):** The outlier. This extraordinarily high gross margin suggests that raw material is a negligible cost component. Azad sells "Process IP"—the ability to machine a complex airfoil to micron tolerances. The value add is almost entirely in the manufacturing process.
- **PTC (76%):** High gross margins due to the scarcity of titanium casting capacity.
- **Triveni (50%):** Standard machinery OEM margins.
- **Howmet (Benchmark ~28-31%):** Interestingly, Azad and PTC command *higher* gross margins than their global peer. This is partly due to lower labor costs in India and partly due to differences in accounting (Howmet may include more direct manufacturing overheads in COGS).

EBITDA Margins:

- **Unimech (~38%) & Azad (~35%):** These companies command the highest operating margins. For Unimech, this is due to the "engineering services" nature of tooling (high billing rate for engineering hours) and also volumes for Unimech products are less as it is mostly in Aero tooling. For Azad, it reflects the pricing power of life-critical parts.
- **Triveni (~22-26%):** Efficient operations and high-margin aftermarket spares drive this.
- **Dynatomic (~11%):** The lowest in the group (consolidated). The "East-West" model carries high fixed costs in the UK/Germany. However, pure-play Aerospace margins are ~26%, comparable to peers.

Asset Turnover and Capital Efficiency

Asset Turnover Ratio (Sales / Total Assets):

- **Sansera (~1.0x) & Triveni (~1.0x):** These are the efficiency leaders. Sansera uses high-speed forging lines. Triveni uses an assembly-based model.
- **Azad (~0.43x) & PTC (~0.29x):** These are capital-intensive businesses.
 - *Why?* A single Vacuum Arc Remelting furnace (PTC) or a bank of 5-axis CNC machines (Azad) costs millions of dollars. These assets have long "takt times" (time to produce one part). Azad might spend 10 hours machining a single turbine blade. This naturally depresses asset turnover.
 - *Implication:* To generate high ROIC, these companies *must* sustain their high margins. They cannot compete on volume/turnover; they must compete on price/margin.

Working Capital

The "Strategic Inventory" of Azad & PTC: Both companies have elongated cycles. This is not necessarily "inefficiency."

Azad: Must hold specialized alloys to protect against supply shocks for its 20-year contracts.

PTC: Is creating a new supply chain for Titanium. It must hold sponge/scrap inventory to feed its furnaces.

Triveni's Advance Model: Triveni receives advances (recorded as liabilities/payables), which artificially reduces its working capital needs. It effectively has a negative or near-zero funding cost for operations.

Leverage and Return Ratios (ROE / ROIC)

Return on Equity (ROE):

Unimech (~54%): Exceptional ROE due to high margins and low equity base (pre-IPO).

Triveni (~28-29%): High ROE driven by high asset turnover and reasonable margins.

Azad (~9%): Suppressed ROE.

Why? Azad recently raised massive equity (IPO + QIP). This inflated the "E" (Equity) denominator. The capital hasn't been deployed fully into capex (Machines/Plant) and is not yet fully generating revenue. As these assets turn productive, ROE is mathematically bound to expand.

Dynatomic (~18%): Recovering ROE as it deleverages.

Return on Invested Capital (ROIC):

Triveni (~43-52%): World-class. The business requires very little invested capital to grow.

Azad & PTC (~8-15%): Currently in the investment phase. The J-curve effect suggests that as the new plants (PTC's Titanium complex, Azad's new bays) reach utilization, ROIC will trend toward the 20% mark.

Indian companies and their key data points

Company	Key Aerospace Products / Capabilities	Key Customers / Partners
Tata Advanced Systems (TASL)	Aircraft fuselages, wings, empennages, composite structures, aero assemblies, UAVs	Airbus (C295, A320), Boeing (AH-64 Apache), Lockheed Martin (C-130J, F-16), DRDO
Sansera Engineering	Precision machined components, actuator & landing gear parts, engine & structural subassemblies	Airbus, HAL, Rolls-Royce, Pratt & Whitney suppliers
Azad Engineering	Turbine blades, nozzle guide vanes, stator & rotor components for aero engines	Rolls-Royce, GE Aviation, Pratt & Whitney, Honeywell
Aequis Aerospace	Aero-structures, machined parts, forgings, assembly, surface treatment	Airbus, Boeing, Safran, HAL, Collins Aerospace
Unimech Aerospace	Tubing assemblies, welded structures, sheet-metal subassemblies, ground support equipment	HAL, BEL, DRDO, BDL
Raymond Ltd (Engineering Division)	Precision tools, machined parts, aerospace-grade components and composites	HAL, ISRO, Indian Air Force programs
Dynamatic Technologies	Aircraft wing & fuselage assemblies, flight control surfaces, aero-structures	Airbus (A320, A220), Boeing (P-8I), HAL
Mahindra Aerospace	Aerostructures, composite panels, utility aircraft (GA8 Airvan)	Airbus, Boeing, Bell Helicopter, Textron
Godrej Aerospace	Engine casings, nozzle assemblies, control actuators, thrust chambers, propulsion systems	ISRO, DRDO, Rolls-Royce, GE Aviation

Source: SOIC Report

Other Global peers data



Particulars (Is \$ Millions)	FY22	FY23	FY24	FY25	CAGR
Woodward, USA	2,383	2,915	3,324	3,567	14%
Transdigm, USA	5,429	6,585	7,940	8,831	18%
HEIC, USA	2,208	2,968	3,858	4,485	27%
Aecc Aero-Engine Control Co.Ltd, China	8,374	10,939	11,768	12,079	13%
AviChina Industry & Technology Company Limited, China	5,127	4,684	3,609	4,066	-7%

Note: Converted at CNY/USD = 7.20; figures in USD millions And The financial year (FY) data presented above corresponds to each company's respective statutory reporting period. Given differences in accounting year-ends across geographies, the figures are **not normalized to a uniform fiscal calendar**, and therefore may reflect limited comparability or timing-related distortions.

EBITDA Margins	FY22	FY23	FY24	FY25
Woodward, USA	14.0%	13.9%	16.7%	19.1%
Transdigm, USA	45.2%	47.8%	48.0%	51.7%
HEIC, USA	26.8%	25.5%	25.9%	27.2%
Aecc Aero-Engine Control Co.Ltd, China	24.4%	23.2%	22.5%	23.7%
AviChina Industry & Technology Company Limited, China	10.9%	12.0%	12.1%	9.3%

PAT Margins	FY22	FY23	FY24	FY25
Woodward, USA	7.2%	8.0%	11.2%	12.4%
Transdigm, USA	16.0%	19.7%	21.6%	23.5%
HEIC, USA	15.9%	13.6%	13.3%	15.4%
Aecc Aero-Engine Control Co.Ltd, China	11.7%	13.9%	13.6%	13.7%
AviChina Industry & Technology Company Limited, China	3.9%	2.9%	2.9%	2.5%

P/E	FY22	FY23	FY24	FY25
Woodward, USA	29	32	28	34
Transdigm, USA	35	37	48	37
HEIC, USA	63	54	66	64
Aecc Aero-Engine Control Co.Ltd, China	76	49	36	39
AviChina Industry & Technology Company Limited, China	14	10	10	13

Source: Perplexity Finance

The valuation and margin dispersion across global aerospace peers is fundamentally driven by differences in **revenue mix, IP ownership, and aftermarket exposure**, rather than geography or scale.

Companies such as TransDigm command structurally superior margins and premium valuation multiples due to their **sole-source, FAA-certified component portfolios**, which create long-duration aftermarket annuities with minimal pricing elasticity. In contrast, OEM-aligned system suppliers like Woodward operate with moderated margins reflecting shared economics with engine and airframe manufacturers, despite high engineering coThe **valuation and margin dispersion across global aerospace peers** is fundamentally driven by **differences in revenue mix, aftermarket exposure, intellectual property ownership, and business model**, rather than simply geography or scale.

TransDigm Group, for example, derives a **significant portion of its revenue from aftermarket parts and proprietary products**, which tend to carry very high margins and recurring revenue streams. According to its public corporate reporting, a majority of TransDigm's products are proprietary and focused on long-lived installed bases; strategic acquisitions pursued by the company are explicitly targeted at businesses with "significant aftermarket content," where a clear path exists to long-term value creation. TransDigm's FAA-certified, proprietary components command pricing power because they are the **sole available sources for replacement parts on many platforms**, creating *high switching costs* and long-duration aftermarket annuities. This aftermarket, by definition, tends to generate **higher margins and more consistent cash flows** than OEM production, which is typically more competitive and cost-based.

In contrast, **OEM-aligned system suppliers** such as **Woodward** operate with moderated margins that reflect their participation in engine and airframe manufacturer supply chains. These companies often co-develop products with OEMs, share certification data, and accept agreed pricing terms tied to production volumes, which limits the scope for aftermarket pricing leverage relative to TransDigm's proprietary model.

HEICO Corporation competes in part by producing FAA-approved PMA (Parts Manufacturer Approval) alternatives, which allow it to serve the aftermarket at competitive pricing. However, PMA parts generally **compete with existing OEM parts**, and pricing upside is inherently constrained by the PMA framework and customer cost dynamics, which limits HEICO's margin potential relative to sole-source proprietary suppliers.

Many **Chinese aerospace enterprises** (e.g., AECC Aero-Engine Control and AviChina) benefit from **scale and state backing**, but are typically structured under policy-driven procurement models with **cost-plus or regulated pricing frameworks** and limited direct access to global commercial aftermarket channels. These characteristics often result in **lower structural margins and valuation multiples**, as capital allocation and pricing autonomy are constrained relative to Western OEMs and proprietary component suppliers.

By contrast, **pure build-to-print (BTP) manufacturers** such as **Azad Engineering** operate as **precision machining and production partners** to OEMs and Tier-1 suppliers. These firms do not own design or certification IP and typically do not participate directly in the aftermarket revenue pool or aftermarket pricing. As a result, their earnings reflect manufacturing execution, throughput, efficiency, and capacity utilisation, rather than **aftermarket pricing power or IP rents**. Their valuation multiples should therefore be benchmarked primarily against **other precision manufacturing peers**, rather than IP-centric aftermarket players.

Stock Price Sensitivity Risk Table

Risk	Why the Market Reacts	Stock Price Impact Mechanism
Valuation De-rating / Expectation Reset	Stock trades at premium multiple assuming flawless execution	Minor miss → multiple compression
Key OEM / Program Sentiment Risk	Equity narrative tied to GE Vernova, MHI, Safran, Airbus ecosystem	OEM headline → sector sell-off → sentiment-driven drawdown
Order Book Conversion Timing Risk	Order book is priced as near-term revenue	Timing slip ≠ loss, but market penalises immediately
Customer Concentration Risk	Few OEMs dominate revenue visibility	Any OEM-specific news → outsized stock reaction
CAPEX Execution / Delay Risk	Growth & margin expansion priced on capacity coming online on time	Plant delay → revenue push-out → de-rating even if demand intact

Risk Table

Risk	Description (Material)	Severity	Mitigation
1. Customer Concentration Risk	Top 5 customers contribute a major share of revenue; any slowdown directly impacts visibility.	HIGH	• Deep, long-term OEM relationships; multi-year LTAs (MHI, GE Vernova, Siemens). • Customer-specific dedicated plants increase switching cost. • Qualification of new products within existing programs.
2. Production Concentration (All units in Hyderabad)	Single-region manufacturing concentration increases business continuity risk.	HIGH	• Ramp-up of 8 dedicated lean plants across Hyderabad over next 12–18 months. • New facilities add redundancy + distributed capacity. • Insurance and preventive maintenance.
3. Order Book Volatility (LTAs not firm)	LTAs/POs may be deferred or reduced based on OEM program timelines.	HIGH	• Strong ₹6,000+ Cr order book provides multi-year visibility, Even Consumers have strong visibility. • Diversification across Energy / Aero / O&G. • New awards: MHI Phase-2, GE Vernova, Safran MoU.
4. Raw Material & Supply Chain Volatility	Imported alloys/forgings face price swings, MOQ constraints, and lead time uncertainties impacting margins.	HIGH	• Tri-party agreements with OEM + Distributor + Azad (disclosed in Q2FY26 concall) to eliminate MOQ constraints, ensure just-in-time material availability, and stabilise raw material costs. • Indigenisation of supply chain: Domestic qualification of Sunflag & Star Wire for multiple grades. • Working with OEMs to approve Indian mills for aerospace superalloys.
5. Global Competition & Pricing Pressure	Competes with global precision players; pricing pressure can compress margins.	HIGH	• Focus on high-complexity rotating/stationary components with high switching costs. • Lean factories improving cost per part. • NADCAP accreditation for coatings strengthens technical edge. • Skilled Labor availability and cost arbitrage.
6. Quality & Certification Failure	Zero-defect requirements; failures risk penalties, rejections, or loss of qualification.	HIGH	• NADCAP certification & advanced quality systems. • 260+ QC workforce & process automation.
7. Working Capital Risk	High inventory & receivable cycles due to OEM-driven supply chain.	MEDIUM	• Creation of a separate subsidiary / distribution entity (“inventory-holding company”) that purchases raw materials in bulk, holds inventory, and supplies to Azad at slightly higher prices to cover WC/holding cost. This cleans up Azad’s standalone books and reduces inventory buildup on its balance sheet. (Mgmt disclosure) • Gradual shift to domestic raw material suppliers.
8. End-Market Cyclicity	Aero build rates & power capex cycles impact order flows.	MEDIUM	• Balanced exposure across Energy, Aero, Defence Engine Programs (GTRE, Safran).
9. FX Volatility Risk	Export-heavy business faces USD/EUR fluctuation impact.	LOW-MEDIUM	• Natural hedge via imports

Scuttlebutt Insights from One-on-One Management Interaction



In an exclusive one-on-one interaction with **Mr. Vishnu Malpani (Whole-Time Director)** and **Mr. Ronak Jajoo (CFO)**, we gained valuable on-ground insights into Azad Engineering's manufacturing complexity, process evolution, cultural discipline, and operational philosophy elements that do not fully surface in public disclosures but act as deep competitive moats for the company.

1. Manufacturing Complexity: Why Azad's Products Are Hard to Make

Management showcased a technical demonstration video explaining **how a turbine airfoil is machined** - thick at the root and tapering to a micron-sensitive thin edge.

They reiterated that **even a few microns of deviation** can lead to:

- lower fuel efficiency,
- performance deterioration,
- more frequent maintenance cycles in energy applications and
- in aerospace applications, **life-critical safety risks**.

Azad does **not** perform these operations as a simple machining job; the company treats every airfoil as a **precision-engineered, mission-critical component**. The level of repeatability required is extremely rare, and this is where the firm believes it differentiates itself globally.

2. Evolution of Process Efficiency (Scrap Reduction & RM Utilization)

The team described their multi-year journey of reducing material wastage.

Earlier, **30–35 kg of raw material** was required to produce a **2 kg finished component**; today, they are able to achieve the same with about **8 kg** of input material.

Although this is a qualitative narrative, management acknowledges that **RM as a % of revenue has remained structurally stable**, since improvements in raw material efficiency are largely offset by:

- change in product mix,
- increasing complexity of parts, and
- the fact that RM cost savings often get reinvested into quality and process improvements.

3. Labour Productivity & Automation Discipline

Azad earlier operated with **one engineer per CNC machine**; today, **one engineer manages two machines**, reflecting rising labour productivity and shop-floor automation maturity.

This aligns with the declining **employee cost as a % of revenue** seen historically.

According to management, these are *not one-off efficiency gains* but outcomes of continuous internal process redesign.

4. Lean Manufacturing – Facility Design as a Competitive Advantage

Management emphasised that the new **Lean Manufacturing Facilities** have been designed **in collaboration with global OEM partners**.

Key characteristics of the Lean model:

- Raw material enters from one end and the finished product exits from the other in a **single uninterrupted flow**.

- Reduction in material movement, intra-plant logistics and WIP pile-ups.
 - Lower energy consumption and improved takt times.
 - Shorter turnaround cycles → **potential improvement in asset turns and margin profile** as utilisation ramps up.
- These plants are purpose-built for customer programmes and reflect Azad's deep integration into global OEM supply chains.

5. Culture of Accountability & Real-Time Visibility

A strong theme that emerged from the meeting is Azad's **execution culture**.

Management described how every project is tracked visually and bottoms-up:

- Shop floors contain **whiteboards** listing part-wise status: forging, machining, QC, testing, packaging.
- Product Managers** handle end-to-end program ownership.
- Every raw material batch is **digitally tagged** to avoid mix-ups and ensure traceability.
- Daily reviews ensure bottlenecks are identified and resolved early.

This is a **rare operating discipline**, more common to global Tier-1 aerospace suppliers than Indian engineering firms.

6. Internal Forecasting & Guidance Accuracy

When asked about how Azad consistently achieves and beats its guidance, management highlighted:

- Bottom-up target setting** for every employee,
- Tight monitoring of micro KPIs,
- Real-time escalation of delays, and
- Highly structured planning for capacity, manpower, and procurement.

This creates a high degree of internal visibility, enabling the company to give precise external guidance.

7. Process as the Moat — Why Azad Avoids Process Patents

A revealing insight was the company's stance on **not filing process patents**.

Management explained that:

- Product patents lie with OEMs,
- Process patents become public and can be easily tweaked by competitors,
- Their true moat is the **tribal knowledge and process mastery built over decades**, not something they want to disclose.

Thus, Azad keeps its process IP **discrete and internal**, reinforcing an intangible but powerful competitive barrier.

8. Relationship Orientation with OEMs

Management emphasised continuous communication with customers:

- OEMs are updated in real time on delivery schedules and capacity status,
- This builds credibility and trust,
- It further strengthens Azad's position as a **critical, dependable partner** in long-cycle global programs.

9. Plant Visit Note

Photography or videography was strictly prohibited inside the facility due to confidentiality and IP concerns, underscoring the sensitive and high-precision nature of the work performed.

10. Scale Economics – Factory-Level Margin Upside

Management highlighted that Azad tracks performance at a factory level, where scale materially improves economics.

Earlier-generation facilities peaked at ~₹500 crore revenue with ~18% PAT margins. In contrast, Phase-1 lean facilities are designed to scale up to ~₹1,500 crore of peak revenue, delivering structurally higher ~22–25% PAT margins at maturity.

This improvement is driven by operational leverage rather than pricing including higher asset utilisation, lower turnaround times, reduced internal logistics, and better labour productivity. As plants move from ramp-up to steady state, fixed-cost absorption and process stability naturally lift margins.

Summary

The scuttlebutt discussions with senior management indicate that **Azad's real moat lies in its process engineering, operational discipline, lean manufacturing philosophy, and cultural alignment towards precision and accountability**. These elements largely invisible in financial statements create sustainable entry barriers, support margin resilience, and enable the company to integrate deeply into global OEM supply chains.

Forensic Checklist

Particulars	2021	2022	2023	2024	2025
Cash Conversion	43%	41%	-1%	7%	44%
Cumulative Cash Conversion	NA				26%
Debt /CFO	18	9	-29	-6	5
Cash Tax/PBT	39%	10%	17%	15%	13%
Auditor	Laxminiwas & Co	MSKA & Associates + Laxminiwas & Co	MSKA & Associates	MSKA & Associates	MSKA & Associates
Payment to Auditors -	0.06	0.18	0.55	0.39	0.58
Audit Fee as a % revenue	0.04%	0.09%	0.22%	0.11%	0.13%
KMP Salary	3.27	6.57	7.07	7.43	9.02
KMP Salary as a % of PAT	22%	18%	45%	11%	9%
CWIP/Fixed Assets	0%	14%	15%	15%	15%

The temporary decline in cash conversion during FY23–FY24 was driven by a sharp increase in working capital intensity, with inventory built in advance for long-cycle aerospace and energy OEM programs and receivables stretching due to milestone-based collections from trusted global customers. This impact was amplified in FY23 by temporarily lower EBITDA margins during the scale-up phase. While EBITDA margins improved in FY24, working capital as a percentage of revenue remained elevated, reflecting structural industry characteristics rather than a deterioration in cash discipline. Cash conversion normalised in FY25, supporting this assessment.

Leverage metrics have improved materially, with Debt/CFO moderating to ~5x in FY25 from ~18x in FY21. This trajectory reflects the capital-intensive and working-capital-heavy nature of the business during its expansion phase. Net debt levels remain comfortable following the recent QIP, and interest coverage ratios are healthy, indicating balance sheet resilience rather than financial stress.

Cash tax paid as a percentage of EBT appears lower than the reported effective tax rate due to timing differences arising from accelerated tax depreciation on significant capital expenditure and the consequent build-up of deferred tax liabilities. These are non-cash accounting effects that defer tax payments rather than eliminate them, and cash taxes are expected to normalise as the capex cycle matures.

The spike in KMP remuneration to 45% of PAT in FY23 was optical rather than structural, driven by depressed profitability caused by elevated finance costs and EIR accounting related to structured instruments. KMP compensation as a percentage of PAT normalised sharply in FY24–FY25, indicating no governance or remuneration excess.

The transition to **MSKA & Associates**, a reputed audit firm auditing several multinational and large Indian corporates, represents a step-up in audit scale and process rigour. While MSKA has been referenced in select, unrelated historical cases involving audit judgement or documentation issues at specific clients (including regulatory observations and public disputes in complex or stressed situations), these matters were client- and transaction-specific. In Azad Engineering's case, the auditor transition coincides with improved disclosures, clearer tax and cash-flow reconciliation, and enhanced financial transparency, and does not indicate any governance or accounting red flags.

Overall, the identified forensic observations are **explainable by operating scale-up, capex intensity, and industry working-capital characteristics**, with no evidence of earnings manipulation or balance-sheet stress.

Profit And Loss

Income Statement	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E
Revenue	123	194	252	341	457	595	773	1,043	1,409	1,902
Cost of Goods Sold (COGS)	14	21	30	46	64	83	108	146	197	266
Gross Profit	109	174	222	295	394	511	665	897	1,211	1,635
Expenses										
Employee benefit expenses	33	46	59	74	93	121	155	209	282	380
Other Expenses	48	65	90	104	140	178	224	303	409	551
Short term/long term provisions	-	-	-	-	-	-	-	-	-	-
EBITDA	28	62	72	117	161	212	286	386	521	704
EBITDA Margins	23%	32%	29%	34%	35%	36%	37%	37%	37%	37%
Depreciation & Amortization	9	13	17	21	29	47	69	67	64	62
Depreciation	-	-	-	-	-	47	69	67	64	62
Amortization	-	-	-	-	-	-	-	-	-	-
Amortization on ROU Assets	-	-	-	-	-	-	-	-	-	-
EBIT	19	49	56	96	132	165	217	319	457	641
Less: Interest (Long Term + Lease)	5	14	52	47	18	16	12	10	8	7
Add: Other Income	2	5	10	32	11	38	11	6	11	19
Add: Interest Income	-	-	-	-	-	-	-	-	-	-
Add: Share of Associates' Profit	-	-	-	-	-	-	-	-	-	-
EBT	16	40	13	81	124	186	216	316	460	653
Taxes	5	11	5	22	37	56	65	95	139	197
PAT	12	29	8	59	87	130	151	220	321	456

Balance Sheet

Balance Sheet	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E
Liabilities										
Long Term Borrowings	41	123	221	27	171	71	47	26	6	1
Long Term Provisions	1	2	3	4	5	5	5	5	5	5
Deferred Tax Liabilities	10	12	14	21	27	27	27	27	27	27
Lease Liabilities	-	-	-	2	18	18	18	18	18	18
Other Financial Liabilities	-	-	-	-	17	17	17	17	17	17
Other non-current liabilities	-	-	-	-	-	-	-	-	-	-
Long Term Liabilities	53	136	237	54	238	137	113	92	72	68
Accounts Payable	37	43	48	50	80	113	147	198	268	361
Short Term Borrowings	46	75	80	10	73	73	73	73	73	73
CPLTD	-	-	-	-	-	15	5	5	5	5
Lease Liabilities	-	-	-	0	2	2	2	2	2	2
Other Financial Liabilities	8	16	12	26	50	50	50	50	50	50
ShortTerm Provisions	1	1	2	0	1	1	1	1	1	1
Current Tax Liabilities (Net)	4	8	2	3	18	18	18	18	18	18
Other current liabilities	17	5	4	9	7	7	7	7	7	7
Current Liabilities	113	148	148	98	230	277	302	353	423	516
Shareholders' Equity										
Share Capital	2	2	2	12	13	13	13	13	13	13
Other Equity	89	118	202	633	1,381	1,511	1,662	1,882	2,203	2,658
Non-controlling interests	-	-	-	-	1	(1)	(1)	(1)	(1)	(1)
Total Shareholders' Equity	91	120	204	645	1,393	1,523	1,674	1,894	2,215	2,670
Equity	256	404	589	797	1,861	1,938	2,089	2,340	2,710	3,254
Assets										
PPE	121	144	217	255	417	899	1,080	1,044	1,009	977
CWIP	-	24	38	45	80	-	-	-	-	-
Goodwill	-	-	-	-	-	-	-	-	-	-
Intangible Assets	-	-	-	-	-	-	-	-	-	-
Intangible Assets under Development	-	-	-	-	-	-	-	-	-	-
Right of use assets	-	-	-	3	19	19	19	19	19	19
Investment in associates	-	-	-	-	-	-	-	-	-	-
Fixed Assets	121	168	255	303	516	918	1,100	1,063	1,029	996
Investments	-	-	-	-	-	-	-	-	-	-
Loans & Advacnes	-	-	-	-	-	-	-	-	-	-
Other Financial Assets	3	3	3	25	26	26	26	26	26	26
Income tax assets (net)	-	-	-	-	-	-	-	-	-	-
Deferred tax assets (net)	-	-	-	-	-	-	-	-	-	-
Other Non Current Asset	6	65	48	48	121	121	121	121	121	121
Financial Assets	9	69	51	73	148	148	148	148	148	148
Cash & Bank	17	18	53	59	697	248	68	114	194	333
Accounts Receivable	53	75	119	170	223	291	378	510	688	929
Inventory	34	57	86	133	189	246	309	417	563	761
Investments	-	-	-	-	-	-	-	-	-	-
Short Term Loans & Advances	-	-	-	-	-	-	-	-	-	-
Other Financial Assets	1	-	0	-	3	3	3	3	3	3
Income tax assets (net)	-	-	-	-	-	-	-	-	-	-
Other Current Assets	21	18	26	60	84	84	84	84	84	84
Other Current Assets	126	168	284	422	1,197	872	842	1,129	1,533	2,110
Total Assets	256	404	589	797	1,861	1,938	2,089	2,340	2,710	3,254

Cash Flows

Cash Flow Statement	2021	2022	2023	2024	2025	2026E	2027E	2028E	2029E	2030E
Operating Cash Flow										
PBT						186	216	316	460	653
Add: Interest						16	12	10	8	7
Plus: Depreciation & Amortization						47	69	67	64	62
Less: Interest income						38	11	6	11	19
Add: Other Changes						-	-	-	-	-
Profit/Loss of associate and joint venture						-	-	-	-	-
Net Gain/Retirement on Sale of PPE						-	-	-	-	-
Net Gain on Sale of Investments						-	-	-	-	-
Gain on Assets measured at fair value						-	-	-	-	-
Less: Changes in Working Capital						91	116	189	255	344
Less: Other Changes for CA and CL										
Less: Taxes Paid						56	65	95	139	197
Cash Flow From Operations	5	21	(10)	(7)	54	65	104	102	127	162
Investing Cash Flow										
Investments in PPE (Net) and Intangibles						(450)	(250)	(30)	(30)	(30)
Investments						-	-	-	-	-
Add: Change in bank balance						-	-	-	-	-
Investments made						-	-	-	-	-
Interest and Dividend Received						38	11	6	11	19
Cash Flow From Investing Activities	(35)	(114)	(101)	(55)	(918)	(412)	(239)	(24)	(19)	(11)
Financing Cash Flow										
Issuance (repayment) of debt						(86)	(33)	(21)	(20)	(5)
Dividends Paid and Dividend Taxes						-	-	-	-	-
Issuance (repayment) of equity						-	-	-	-	-
Premium On Issue Of Equity						-	-	-	-	-
Interest Paid + Interest Capitalised						(16)	(12)	(10)	(8)	(7)
Lease Repayment Principal						-	-	-	-	-
Cash Flow From Financing Activities	24	96	126	71	877	(102)	(45)	(31)	(28)	(12)
Net increase (decrease) in cash	(6)	3	15	9	13	(449)	(180)	47	80	138
Opening Cash Balance	8	2	4	19	28	697	248	68	114	194
Closing Cash Balance	17	18	53	59	697	248	68	114	194	333

Exit PE Analysis – 2.5 Year Sensitivity table

EPSTTM	17.12	P/E	Sensitivity Table					
EPS FY28 (Forecasted)	34.11		CAGR	EPS Growth Rate				
Entry P/E	96		16%	20%	25%	32%	35%	40%
CMP/Share	1637		60	0%	4%	10%	12%	16%
Exit P/E FY28 (Assumption)	70		65	3%	7%	13%	16%	20%
EPS Growth	32%		70	6%	10%	17%	19%	24%
Exit Price	2387		75	9%	13%	20%	23%	27%
CAGR	16%		80	12%	16%	23%	26%	30%

How to read this table: Each cell shows the expected CAGR over the remaining ~2.5-year holding period for different combinations of forward EPS growth and sustained valuation multiples. This framework focuses on multiple sustainability rather than expansion. Readers may refer to the **Risk section** of the report for scenarios that could result in outcomes toward the **lower end of the valuation band**.

Exit PE Analysis – 4.5 Year Sensitivity table

EPSTTM	17.12	P/E	Sensitivity Table					
EPS FY30 (Forecasted)	70.54		CAGR	EPS Growth Rate				
Entry P/E	96		16%	29%	34%	37%	45%	50%
CMP/Share	1637		35	3%	7%	10%	16%	20%
Exit P/E FY30 (Assumption)	45		40	6%	10%	13%	19%	24%
EPS Growth	37%		45	9%	13%	16%	23%	27%
Exit Price	3174		50	12%	16%	19%	26%	30%
CAGR	16%		60	16%	21%	24%	31%	35%

Valuation interpretation and P/E sustainability rationale

Mid-cycle valuation anchor

Our base-case assumption anchors the long-term exit multiple at ~45× FY30 earnings, reflecting a **mid-cycle valuation rather than a peak multiple**. This is supported by Azad's transition into a deeply embedded aerospace supplier with long-duration program visibility and low substitution risk. Importantly, FY30 does not represent business saturation despite revenues scaling from ~₹457 crore in FY25 to ~₹1,900 crore by FY30, Azad's wallet share across existing customers is expected to rise only from ~1.5% to ~4-4.5%, even as customer wallet sizes expand. This indicates **substantial post-FY30 headroom within the current customer base**, supporting valuation durability without relying on new customer wins or platform additions.

Aerospace cycle visibility and structural tailwinds

The aerospace end-market is currently supported by **exceptionally strong structural tailwinds**, with global OEM order backlogs extending close to a **decade** across major aircraft and engine platforms. Unlike shorter industrial cycles, aerospace programs are characterised by long production runs, predictable volumes, and multi-year supplier lock-ins. This long-cycle visibility significantly reduces terminal earnings uncertainty, supporting sustained valuation multiples over extended periods.

Management execution premium

Azad's management has demonstrated a consistent track record of **meeting or exceeding stated guidance**, particularly across capacity ramp-ups, program execution, and margin delivery. In capital-intensive, qualification-driven industries, such execution credibility materially reduces perceived risk. Markets typically reward this with **multiple stability**, especially during phases of rapid scale-up where execution risk is otherwise elevated.

Structural operating advantage from India

Azad also benefits from **India's demographic and cost structure**, which provides a durable operating advantage rather than a transient cost arbitrage. Access to a deep engineering talent pool at lower structural costs enables higher engineering density, faster learning curves during new program ramp-ups, and economically viable redundancy in quality and inspection processes. This translates into **margin resilience and superior incremental returns**, reinforcing the sustainability of valuation multiples.

Unmodelled value-chain progression optionality (defence propulsion)

The valuation does not assign explicit value to potential **value-chain progression in defence propulsion**, which represents meaningful upside optionality. Management has confirmed that the indigenous jet engine program, developed with GTRE, has completed the design phase and is currently in **manufacturing**, with initial engines to be delivered shortly and **testing to be conducted by DRDO**. Azad is involved in **end-to-end manufacturing and supply**, and the engine architecture is scalable across **multiple defence platforms**, including UAVs and missile systems. While timelines and volumes remain uncertain and are therefore excluded from the base case, successful execution would materially enhance Azad's strategic relevance and support **long-term multiple durability**.

Summary perspective

Taken together, the **mid-cycle exit multiple assumption**, long-duration aerospace tailwinds, management execution strength, and structural operating advantages underpin our conviction that Azad can **sustain elevated P/E multiples across cycles**, rather than relying on one-off re-rating. The dual-horizon sensitivity tables are therefore not designed to argue for aggressive multiple expansion, but to demonstrate that **valuation is supported by durable business fundamentals and long-cycle visibility**.

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