



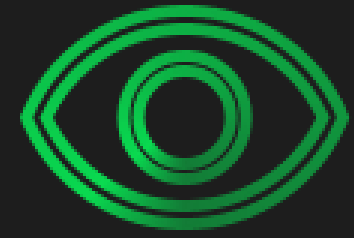
# AMAERO

INVESTOR BRIEFING

27 SEPTEMBER 23

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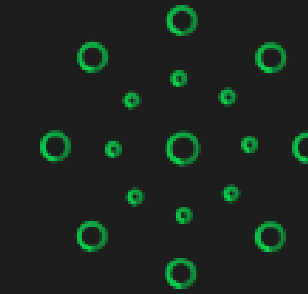
## Our vision

- › Vision statement
- › Facility
- › Leadership



## Strategic advantages

- › American reshoring
- › Tennessee location
- › Technology
- › Scale
- › Combined expertise



## Market landscape

- › Vital industries
- › Competition

# A bold vision for a brand new Amaero

Dear Stakeholders and Partners,

We are pleased to convey Amaero's deep appreciation to the dedicated stakeholders who swiftly collaborated to present a compelling case for relocating our global headquarters, flagship titanium, refractory, and specialty alloy powder production operations, and applied research and development endeavours to the United States.

Following recent geopolitical events, Amaero is positioned to leverage the resurgence of the U.S. manufacturing sector and the robust regional ecosystem. We are strategically establishing a vital industrial capability that aligns with the nation's paramount initiatives in advanced materials and manufacturing, while bolstering supply chain resilience for critical minerals and aerospace and defence production.

This marks a significant milestone for Amaero — and an important turning point that for our valued shareholders, dedicated employees and esteemed customers. As we embark on this transformative journey, we extend our heartfelt appreciation for your unwavering support.

Sincerely,

Hank J. Holland

Eric Bono

Amaero International Ltd (ASX:3DA) | Amaero Advanced Materials & Manufacturing, Inc.



**Hank J. Holland**

Chairman & Chief Executive Officer



**Eric Bono**

President & Chief Technical Officer

# Our journey begins with a modern, purpose-built facility in Tennessee

Prompted by the Ukraine conflict, it became a national security imperative to reshore critical manufacturing back to America. Given the geopolitical backdrop and the critical needs of industry, Amaero pursued the re-location of its manufacturing, applied research & development and its corporate headquarter to the United States. In turn, Amaero set its sights on Tennessee.

Located at 130 Innovation Drive in McDonald, Tennessee, Amaero signed a 15-year lease on 9300-sq-metre building within Spring Branch Industrial Park, a 300-acre dedicated, modern manufacturing park.

As shown in the picture, the shell of the building has been completed. We expect that the purpose-designed fit out will commence in 4Q CY2023, that installation of 1<sup>st</sup> atomiser will commence in 2Q CY2024 and that powder production will commence in 4Q CY2024. The 1<sup>st</sup> atomiser is scheduled to arrive at Port of Savannah, Georgia in September 2023.



McDonald, Tennessee

# Led by industry pioneers with a proven track record of delivering results



Management team has prior employment experience with the above entities.

Executive



**Hank J. Holland**  
Chairman & Chief Executive Officer



**Eric Bono**  
President & Chief Technical Officer

Operations



**Chris Scanlon**  
Chief Financial Officer



**Jay Chandran**  
Vice President, Operations



**Ken Davis**  
Vice President, Corporate Development

Technical Advisors



**Fred Yolton**  
Technical Fellow – Powder Metallurgy & Materials Engineering



**Dr. David Schmidt**  
Director of Computational Analysis

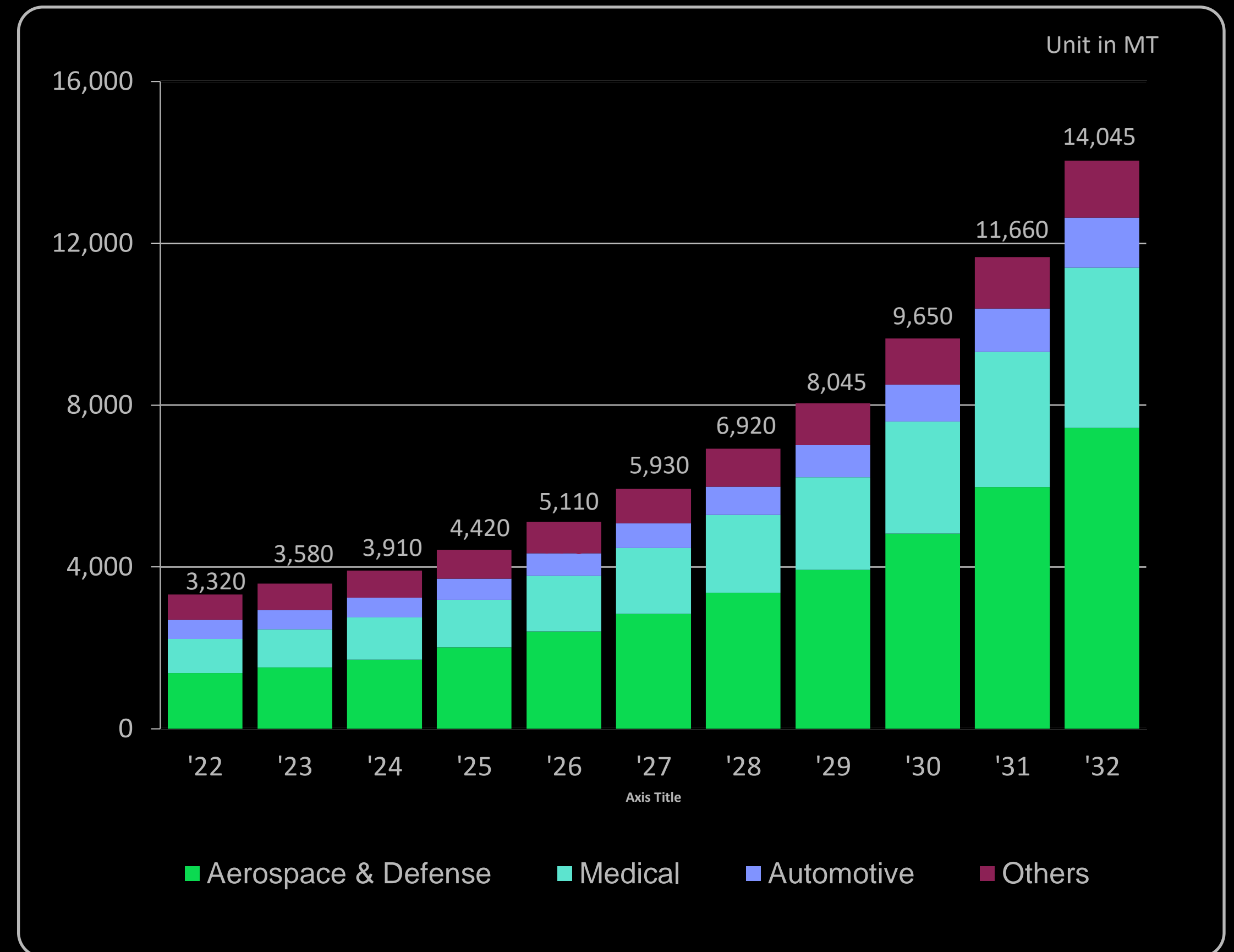
# At the forefront of America's industrial manufacturing renaissance

This is the dawn of a new era. Set against a complex geopolitical landscape with global supply chain disruption, we are witnessing the reshoring of critical manufacturing capabilities to the United States. And while the U.S. government has declared titanium as one of 35 mineral commodities vital to U.S. economic and national security, America is reliant on imports of primary titanium. (1)

The titanium market is set to cross \$4.5 billion in 2032, largely driven by increased applications within the aerospace & defence, space, and medical sectors — which creates an opportunistic backdrop. (2)

1) The Tennessean  
2) Global Market Insights

Titanium Powder Market Growth  
Global Demand - By End Use Segment, 2022-32



Source: Frost and Sullivan Feasibility Study, April 2023

# The thriving Tennessee Valley offers a rich regional ecosystem

Tennessee has proven to be business-friendly and close to customers, R&D partners, supply chains, skilled employees and capital markets. Additionally, Amaero has secured long-term support from Tennessee Valley Authority (TVA), including investment credits and a 10-year electricity rate subsidy, providing competitive advantage.

Leveraging our proximity, we expect to closely collaborate with Oak Ridge National Laboratory and the University of Tennessee, Knoxville to advance applied research and development projects. Our location in the Tennessee Valley also positions us nearby the industry ecosystem in Huntsville, Alabama.

“

Tennessee is the best state in the nation for companies to succeed, thanks to our strong economy, unmatched business climate and highly skilled workforce. I thank Amaero for choosing Tennessee to establish its first U.S. facility and for creating more than 100 jobs in Bradley County, providing greater opportunity to Tennesseans.”

– BILL LEE, GOVERNOR

The following representative companies are in the Tennessee Valley area.

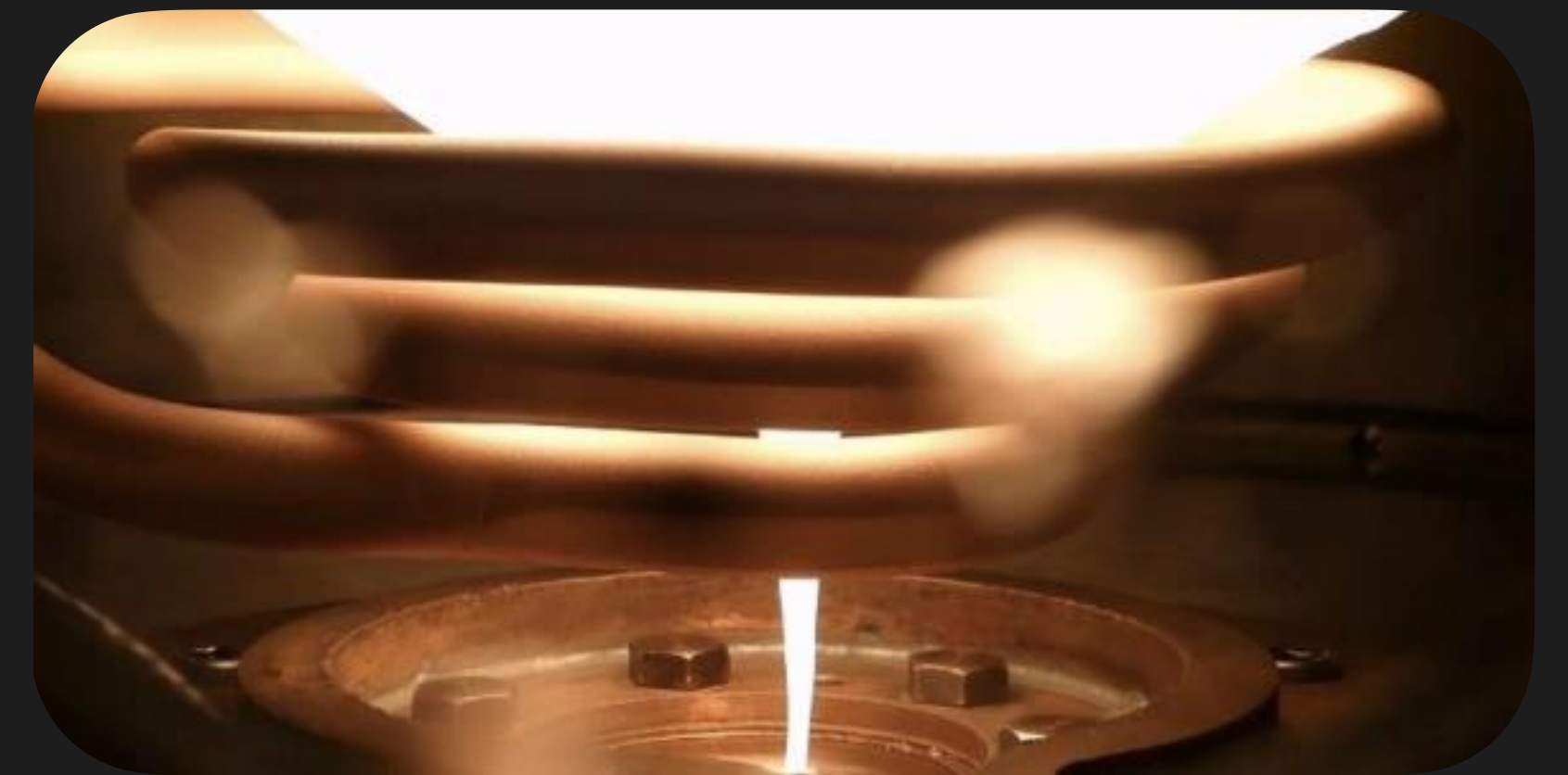
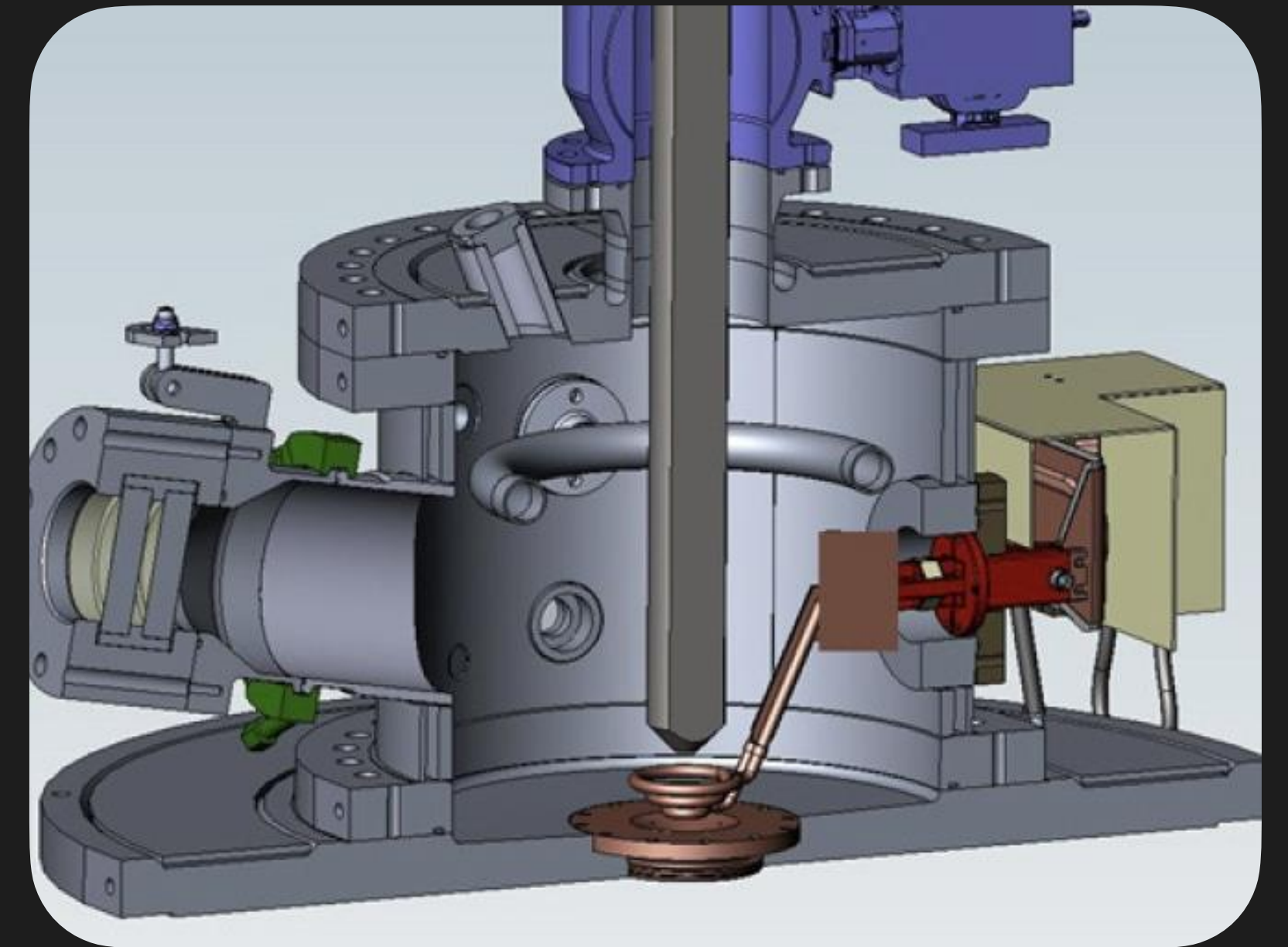




# Our modern, purpose-built facility designed for world-leading technology

Our advanced powder production capability utilizes a next-generation atomiser that produces industry-leading yield of the highest value spherical powder spectrum. The atomizer produces twice the yield of highest value spectrum powder compared to other technology that's most widely installed and operated by alloy powder manufacturers.

We expect to install multiple next-generation atomiser plants in the Tennessee facility. The modular nature of our manufacturing process allows the ability to dedicate an atomiser to a specific alloy for large scale production runs or to utilize an atomiser to accommodate small-batch production runs for multiple high-value, specialty alloys.



Contact-free, contamination-free atomisation

# We have planned the largest titanium, refractory and specialty alloy powder scale in the U.S.

Our facility will be purpose-designed for the largest production capacity for titanium, refractory and specialty alloy powder in the United States. We strategically specialise in the efficient production of high-value specialty alloys with a focus on production for critical industries such as aerospace & defence and space.

Distinct from lesser-grade titanium used in products such as consumer electronics, our titanium is suitable for use in mission-critical applications. Additionally, we have full-lot traceability, which can be customised based on customer needs.



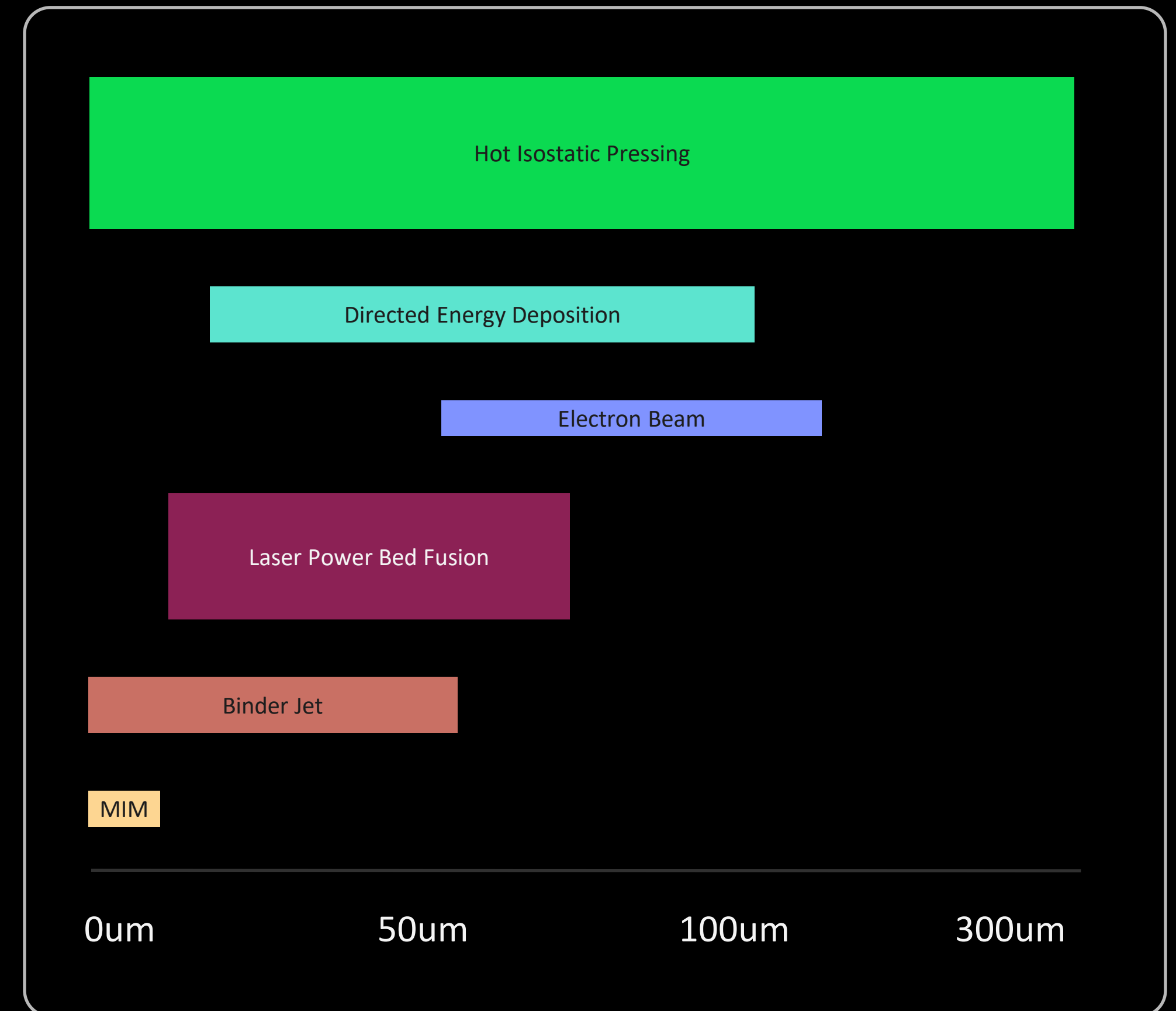
# We uniquely combine powder metallurgy and advanced manufacturing expertise

Amaero's expertise combines the principles of powder metallurgy with the specialised process of Near-Net Shape Consolidated Hot Isostatic Pressing (HIP) to create advanced components.

While powder bed fusion is the most valuable application, HIP Consolidation addresses our customers' immediate needs around forgings and castings.

Together, this unique combination of powder metallurgy and advanced manufacturing expertise addresses core customer imperatives and efficiently uses the total spectrum of our powder to improve unit economics.

SPECTRUM OF POWDER APPLICATIONS



# We meet the demands of vital industries



Aerospace



Space



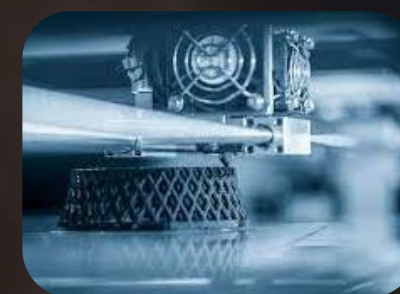
Defence



Medical



Tooling



Automotive



Energy

# Speed, agility and singular focus set us apart from our competitors

Amaero is fast, agile and has a singular focus on high-quality, spherical titanium, refractory and specialty alloy powder.

Our next-generation atomiser, the first of its kind in the U.S. and the second globally, boasts a world-leading yield of the highest-value powder spectrum.

As customers across vital industries demand faster, more responsive and more custom production fulfillment, Amaero is well positioned to become an integral and primary supplier of titanium, refractory and specialty alloy powder.

## U.S. in hypersonic weapons "arms race" with China – Reuters

“Defense companies Lockheed Martin Corp (LMT), Northrop Grumman Corp (NOC) and Raytheon Technologies Corp (RTX) have all touted their hypersonic weapons programs to investors as world focus shifted to new arms race for an emerging class of weapon.”

30 Nov. 2021

## Who is winning the hypersonic weapons race? – The National Interest

“Winning the race to deploy hypersonic weapons will be one of the most important achievements in U.S. national security in the 21st century.”

3 Nov. 2021

# Refractory and specialty alloys

Within the refractory and specialty alloys market, Amaero distinguishes production by ensuring very high-temperature alloys, such as C-103, are produced without contamination, resulting in the purest powder that can be produced today.

Amaero plans to dedicate the first atomizer's production to C-103, a Niobium alloy with high performance, heat-resistant properties that are critical to applications such as hypersonics and space.

The U.S. is woefully behind its rivals in production of the raw materials needed to enable hypersonic technologies. In fact, "current hypersonic supply chains — including supply of critical materials — are incapable of supporting deployment of hypersonic weapons at scale. And lead times have grown exponentially." - Air & Space Forces Report, May 2023.

## Market potential

In the United States, the broader hypersonics market is still largely concentrated on national defense: offensive weapons and associated countermeasures. Annual unclassified defense spending requests for hypersonic technology are already more than \$2.6 billion, with a 26 percent compound annual growth rate since 2014. This includes \$157.4 million for hypersonic defense programs in fiscal year 2020. This annual spend is expected to grow to \$5 billion by 2025. Also, the international hypersonic market is predicted to grow at a compound annual growth rate of 7.23 percent between 2018 and 2022.



Source: [Breaking New Barriers, The Rise of Hypersonics. Deloitte. March 2020](#)

# In the news



Hypersonic Missiles Are Game-Changers, and America Doesn't Have Them

18 Sept. 2023



U.S. touts progress in hypersonic arms race with China, Russia

19 July 2022



U.S. is increasing pace of hypersonic weapons development to chase China and Russia, senior admiral says

20 Nov. 2022



U.S. 'not as advanced' as China and Russia on hypersonic tech, Space Force general warns

20 Nov. 2021



Watch Russia, China, United States race to deploy 'blazingly fast' hypersonic weapons

10 Jan. 2020



Russia, China, The U.S.: Who will win the hypersonic arms race?

17 Nov. 2020

# HIP Near-Net Shapes

## INDUSTRY CHALLENGES<sup>1</sup>

A range of manufacturing challenges face the industry, at home and abroad. As it pertains to aircrafts, titanium accounts for approximately 15% of the Boeing 787's weight, with a majority of it found in large forged components such as landing gears, pylons, attachments, frames, etc.

The U.S. forging and casting industries suffer from a severe economic disadvantage over much lower cost and often lower quality imports from China and Russia. The unreliable supply of foreign sourced raw materials and the critical shortage of forging capacity in the U.S. and allied countries has resulted in the grounding of a significant number fighter aircraft and military assets. It is a strategic imperative to reshore the production of critical raw materials to the U.S. and allied countries, as well as develop innovative manufacturing methods to bolster defence critical supply chains.

Due to this disparity, the casting & forging industry supply chain has been identified by the U.S. Department of Defense as one of the four most critical areas that pose a pressing threat to national security, contributing to the offshoring and gross industry consolidation.

## AMAERO'S RESPONSE

There's a solution to the challenges that face the industry. Together, our HIP Near-Net Shape technology and U.S.-sourced metal powders can create complex-shaped components weighing up to 5 tonnes with forge-equivalent material properties and reducing lead times from years to weeks.

Additionally, we're capable of decreasing costs by minimising tooling costs and material waste to reduce the parts' environmental footprint, greatly eliminating waste and processing energy. We're a more responsive, cost-effective solution for singular production runs, coupled with better design freedom and elimination of high-cost fixed tooling.

<sup>1</sup> DOD US Forging Industry Marketing Study, August 2022.





# AMAERO

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