



General Presentation
December 2021



Summary Capability Data – Amaero Engineering

Site	Employees	Equipment	Certifications	Services
Notting Hill VIC Australia Company HQ	11	6 LPBF Printers (inc. large format) Ancillary Powder Handling Equipment 1 DLD (Trumpf 7400) 1 HIP Furnace 4 Specialised Furnaces (hi temp/Ar/Vac) Workshop / post processing facilities	AS9100D ISO9001 DISP	Specialised Alloy & Materials Development Design for Additive Manufacturing & Advanced Simulation Prototype Development & Evaluation Samples Qualification & Serial Production of LPBF Parts Metal Printing Machine Sales & Turnkey Solutions Ti64 Powder Production (from Q3 2022)
Edinburgh North SA Australia	3	4 LPBF Printers 1 Specialised Furnace (Argon Atm) Ancillary Powder Handling Equipment Workshop / post processing facilities	AS9100D ISO9001 DISP	Design for Additive Manufacturing Prototype Development & Evaluation LPBF Parts Qualification & Serial Production of LPBF Parts
El Segundo CA USA USA HQ	7	4 LPBF Printers Ancillary Powder Handling Equipment	AS9100D	Design for Additive Manufacturing Prototype Development & Evaluation LPBF Parts Qualification & Serial Production of LPBF Parts Metal Printing Machine Sales & Turnkey Solutions
Chesterfield MI USA	1	Sales office		AM Applications, Metal Printing Machine Sales
	22			







Established in 2013 AMAERO is a leading full-service metal Additive Manufacturing(AM) solution provider. Our organization is founded on core values of Safety, Quality and Delivery. Our AM solutions begin with a deep understanding of Materials Science, Technology and Repeatability. AMAERO offers a full-service suite supporting DfAM Engineering, Iterative Prototyping, Serial Production and integrated Machine solutions. We are partnered with leading universities, research organizations and technology providers. With locations in Australia and North America we provide an ecosystem of AM solutions to some of the world's largest Commercial and Defense Aerospace Companies.

Partner Organisations









Monash Centre for Additive Manufacturing (MCAM)





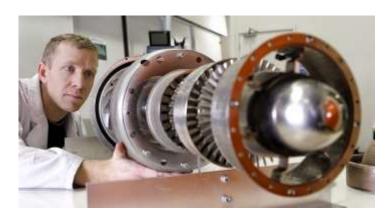


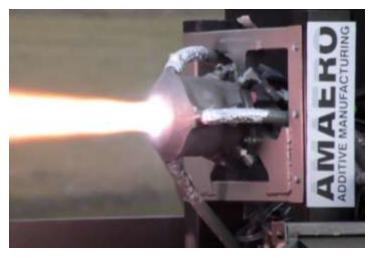


Emergence of Amaero Engineering

Spinout from Monash University, Founded mid-2013

- Co-located with Monash Centre for Additive Manufacturing
- First Concept Laser Xline production parameters
- Xline system hardware and software improvements
- Demonstration projects with federal government funding support
- Worlds first 3D Printed Jet Engine
- First offshore production facility established in Toulouse 2016
- Worlds first 3D Printed Aerospike Rocket Motor test fired 2017
- Completion of Apache Gearbox project 2018 for Boeing
- Establishment of USA Manufacturing Facility Sept 2019
- Listed on ASX Dec 2019
- Launch of Adelaide facility Mar 2020
- AS9100D Certification 2020 for Notting Hill (Feb), El Segundo (July), Edinburgh North (Sep)
- Approval for Ti Alloy Powder Manufacturing 2021







Amaero International Locations

Australia



Amaero Inc est. 2019 El Segundo, Los Angeles, California

United States

Headquarters and R&D Centre

13 Normanby Road Notting Hill Melbourne, Victoria 3168 Australia

North American Head Office

Amaero Inc

445 S. Douglas Street, Suite 200 El Segundo California 90245 United States

Regional Sales Office

Greater Detroit Area



AMAERO International – Who We Are

Executive Team

Barrie Finnin Chief Executive Officer



David Hanna Chairman



Stuart Douglas
Exec Director



Kathryn Presser Non-Exec Director



Australian Team

Sam Tartaglia Program Manager Tooling



Sandy Awad AM Engineer



Michael Devitt

AM Engineer



Bernie Wirz Project Manager



Mike Wong AM Engineer



Henry Hondros AM Engineer



Marina Arrighi
Administration
and Quality
Coordinator



Dr. Dacian TomusManager.
Digital
Manufacturing



Daniel CollingwoodQuality Manager



Jane Storey Accounts & Admin Manager



Amit Tamber AM Engineer



Jason Miller
Program Manager
Aviation, Defense
& Space



Simon Bartlett AM Consultant



North American Team

Kenneth Davis
Vice President
North America



John McKellar VP Strategic Operations



Dr. Jim SearsTechnology
Fellow



Darryl Cummins
Manager
Digital
Manufacturing



Rod Soltero AM Engineer



Hansel Weihs AM Quality Engineer



Shon Dionne Sales Engineer



Jef Amirian AM Engineer





Our Clients

Working with the world's foremost Aviation, Defence, Space and Mining Companies

AMAERO is proud to be the first company to provide certified 3D printed metal products to Virgin Australia. Some of the largest Manufactures lean on AMAERO to develop integrated Part and Manufacturing solutions through Additive Manufacturing(AM)











CSIRO



















Our Capabilities

- **Additive Manufacturing**
- SLM, DED Technologies
- Serial Production
- Repair (laser cladding)
- Alloy Development
- Metallurgical Testing
- **Heat Treatment**
- Modelling and Simulation
- Multi-Material Structures
- **Laser Joining**

- Machine Sales and Service
- Powders for AM
- **Tooling Cores and Inserts**
- Design for Additive Manufacturing
- Prototype Development
- First Article Qualification
- Post-Processing and Finishing
- Non-destructive Testing

R&D and Manufacturing Facilities

- North America, El Segundo, CA AS9100 Rev D, ISO9001
- Notting Hill, Australia AS9100 Rev D, ISO9001
- Adelaide, Australia AS9100 Rev D, ISO9001



Certificate of Registration

Amaero Engineering Pty Ltd

13 Normanby Road, NOTTING HILL, VIC. 3168, Australia 445 S Douglas Street, Suite 200, EL SEGUNDO, CALIFORNIA, 90245, United States of America 95 Wimma Road, EDINBURGH NORTH, SA, 5113, Australia

Quality Management System

which complies with the requirements of:

ISO 9001:2015 and AS 9100D

AS 9100D a technically equivalent to EN 9100 2018 & JISQ 9100 2016. This certification has been performed in accordance with the requirements of AS 9104/1 2012. TQCSI is accredited under the IAQG ICOP Scheme

Certification Structure - Multiple Sees

The registration covers the manufacture of metal components using additive manufacturing technology

Original Certification: 19 February 2020 Certification/Reissue Date: 9 Octuber 2020.



Craig J Bates President TQCS International (Group) Pty Ltd For the TQCSI Certification Approval Fenel

Registration No: AU1535-QCM



Accreditation Manage TQCS International Pty Ltd

This continues werens the original varificate issued and is valid as long as it is displayed as an electronic oppy at www.top.com and surveillance audits are satisfactority completed. TQCS International Pty Ltd (ABN 25 005 953 953 957 Quality House, 117A Tapleys Hill Road, Rendon, SA, 5014. Australia lause certification subject to the TQCSI Rules of Certification.















Materials Available

Qualified materials

Ti6Al4V

AlSi10Mg

AlSi7Mg

316L Stainless Steel

Inconel 625

Inconel 718

Hastelloy X

Invar 36

MS1 Maraging Tool Steel

H-13 Tool Steel

CoCr alloys

Materials in development

Amaero HOT AI – excellent strength at 250°C for over 3000hrs

Amaero Beta Ti – superior fatigue strength performance

BNNT strengthened alloys – advanced metal matrix nano composite

Advanced CoCr alloys – specialised hot tooling applications





AMAERO full range of Laser Powder Bed Fusion Printing Machines and Ancillaries



Amaero SP800 Largest production Laser Powder Bed machine available from 2022

Safe powder handling equipment



DU40 Decanting Unit PS20/PS60 Powder Storage PS20/PS60 Powder Storage

VC40 Vacuum Unit G4 Glove Box Unit



SP100 100 Ø x 80mm build volume



SP260 250 x 250 x 400mm build volume



SP400 400 x 400 x 400mm build volume



SP500 500 x 250 x 260mm build volume



SP800 build volume to be confirmed



Equipment Currently in Australian Facilities – Adelaide and Melbourne



Adelaide Facility
Renishaw AM 400 - Al Alloys
Renishaw AM 400 - Ferrous Alloys
Renishaw AM 400 - TI Alloys
250 x 250 x 300mm build volume



Concept laser Xline 1000R - Multiple Alloys 620 x 400 x 500mm build volume



EOS M280 - Multiple Alloys R&D 250 x 250 x 325mm build volume



EOS M290 - Multiple Alloys R&D 250 x 250 x 325mm build volume



SP500 dual beam - Tool Steels 500 x 250 x 250mm build volume



Concept laser Xline 2000R – Multiple Alloys 800 x 400 x 500mm build volume



Trumpf TrueLaser 7040 DLD - Multiple Alloys 4500 mm x 1800 mm x 1500mm build volume



SP100 – various alloys 100 Ø x 80 mm build volume



Post Processing Capabilities (Australia)



Inert atmosphere powder handling unit



Modular powder handling systems



Inert atmosphere heat treatment up to1200°C



Avure QIH-9 Hot isostatic press up to 3000 Bar (43.5 ksi) and 2000°C



Wire EDM



De-Powdering & Fettling



Media blaster



Assembly and Inspection



Equipment Currently in USA Facilities - El Segundo



EOS M400 400 x 400 x 400mm build volume

The facility has floorspace capacity for another **five** production M400 machines and will be expanded as demand grows. Also included are areas for post processing, machining and finishing, assembly, storage and shipping/receiving.

Remaining floorspace is dedicated to a showroom for new printing machines and ancillaries distributed by Amaero.



Amaero SP500 500 x 250 x 350mm build volume



EOS M280 - Multiple Alloys R&D 250 x 250 x 325mm build volume



SP100 – Ti Alloy 100 Ø x 80 mm build volume



DU40 Decanting Unit



PS20/PS60 Powder Storage



PS20/PS60 Powder Storage



VC40 Vacuum Unit



G4 Glove Box Unit



Contact Details:

Jason Miller

Program Manager Aviation, Defence & Space

Amaero Engineering Pty Ltd 13 Normanby Rd, Notting Hill, Vic 3168, AUSTRALIA

T: +61 (0)3 9905-4916 M: +61 (0)422-967-100

E: jason.miller@amaero.com.au

www.amaero.com.au

Ken Davis

Vice President
North American Operations

AM Aero Inc. Suite 200, 445 S Douglas St El Segundo, CA 90254, U.S.A

T: +1 (424) 203-1830 M: +1 (818) 581-1940

E: ken.davis@amaeroinc.com

www.amaeroinc.com

