SPEE3D

PRESS KIT

2023

Company Overview

SPEE3D is a leading global supplier of metal additive manufacturing technology, headquartered in Australia with additional offices in Europe and the US. Founded in 2015 by Byron Kennedy and Steven Camilleri, SPEE3D has revolutionized the manufacturing industry with its patented Cold Spray Additive Manufacturing (CSAM) process and printer technology.

With roots in energy-efficient motor technology, the founders leveraged their extensive manufacturing experience to address common issues of cost, lead time, and product quality in mass-manufacturing. This led to the development of SPEE3D's groundbreaking CSAM technology that enables significantly faster and more scalable production than traditional metal printing techniques.

SPEE3D's technology has the unique ability to manufacture large 40kg metal parts on-site in just hours, with rapid build rates of up to 100 grams a minute. This innovative approach has been successfully field-tested with the Australian Army, US Navy, and British Army, demonstrating its robustness and deployability in challenging environments.

The company's most recent innovation, XSPEE3D, offers a containerized, ruggedized, and deployable metal Additive Manufacturing capability, providing organizations operating in remote locations with a self-sustaining, in-house sovereign metal manufacturing ability. This empowers them to produce critical replacement parts on-demand, ensuring operations are resumed quickly and smoothly.

SPEE3D's technology is globally recognized for its efficiency, versatility, and transformative potential in the manufacturing landscape. SPEE3D stands at the forefront of innovation, committed to pushing the boundaries of what's possible in metal additive manufacturing.

Products

SPEE3D offers a range of innovative products that leverage their unique Cold Spray Additive Manufacturing (CSAM) technology. This patented process, known as 'Supersonic 3D Deposition', uses a rocket nozzle to accelerate air up to three to four times the speed of sound. Metal powder is then injected into this high-speed air stream and deposited onto a substrate moved by a six-axis robotic arm.

The kinetic energy of the particles colliding causes the powders to bind together, forming a high-density part with superior metallurgical properties compared to casting. The process can deposit powder at an impressive rate of 100g per minute, enabling the manufacturing of metal parts in minutes and larger parts in just hours. This rapid production far outpaces traditional metal 3D printing technologies such as laser powder bed fusion.

SPEE3D's product line includes the LightSPEE3D, WarpSPEE3D, and XSPEE3D printers. The LightSPEE3D is their smallest machine, capable of building metal parts up to 350mmx300mm in diameter and up to 4kg. The WarpSPEE3D, their second-largest format machine, can build metal parts up to 1000mmx700mm in diameter, and up to 40kg. Their largest format machine is the XSPEE3D, a containerized, ruggedized, deployable metal Additive Manufacturing capability, designed specifically for remote location use. It can build large metal parts in any location, up to 1000mmx700mm in diameter, and up to 40kg.

These machines have been successfully field-tested with various military organizations, demonstrating their robustness and deployability. For instance, the M113 armored vehicle case study highlights the significant improvements in efficiency and reliability offered by SPEE3D's technology in producing spare parts in the field. Their technology not only transforms the production and maintenance of spare parts across industries but also enhances speed, part quality, affordability, and sustainability.

LightSPEE3D

WarpSPEE3D

XSPEE3D

Executive Bios

BYRON KENNEDY, CO-FOUNDER AND CEO

Byron is a serial entrepreneur, having cofounded the first spin-off company from Charles Darwin University before exiting to NYSE listed company Regal Beloit (Fasco). Product successes have included world record holding solar cars, innovative electric motors, electric bicycles, pool pumps and more. Byron served as R&D Director at Regal Beloit 2006-2014 and has a Master's degree in Engineering, Electrical and Electronics Engineering.

Byron Kennedy

STEVEN CAMILLERI – CO-FOUNDER AND CTO

Steve, a holder of multiple patents, has a Master's degree in Engineering. Prior to founding SPEE3D, he co-founded In Motion Technologies, a Charles Darwin University spin-off launched to commercialize axial flux electric motors. In Motion Technologies was acquired by Fasco Motors, part of NYSE listed Regal Beloit. Steve's product successes have included world record holding solar cars, innovative electric motors, electric bicycles and high efficiency pool pumps. Steve has a wide range of interests across many fields of manufacturing, science and engineering and speaks several languages.

Steven Camilleri

Timeline

Date	Announcement Headline	Details	Link
21/11/019	SPEE3D smashes world record for fastest 3D print of a metal part	SPEE3D printed a 1.012kg copper sledgehammer in 10 minutes and 2 seconds live in front of a crowd on the floor at Formnext in Frankfurt. Formnext is the leading global additive manufacturing exhibition running from the 19th – 22nd November 2019.	Link to story
21/11/019	Deployed by the Royal Australian Navy	The Australian Government announced a $1.5 million investment into a two-year pilot of SPEE3D technology for the Royal Australian Navy including the deployment of a WarpSPEE3D 3D metal printer.	Link to story
15/4/2020	ACTIVAT3D copper kills SARS-CoV-2 virus	SPEE3D successfully developed and tested a fast and affordable way to 3D print anti-microbial copper onto metal surfaces. Laboratory tests have shown that touch surfaces modified by this process 'contact kills' 96% of SARS-CoV-2, the virus that causes COVID-19, in just two hours.	Link to story
25/6/2020	World First Field Deployment by the Australian Army	Successful 3-day field trial of WarpSPEE3D in Northern Territory, proving ability to deploy SPEE3D printers	Link to story
05/05/2020	US Army's Rock Island Arsenal	Phillips Federal, a division of Phillips Corporation, has added a LightSPEE3D, to support its Public Private Partnership and Additive Manufacturing programmes at the US Army's Rock Island Arsenal (RIA).	Link to story
21/08/2020	Australian Army's 2nd Field Trial	A two-week trial of WarpSPEE3D at Mount Bundey training featuring 3 real world case studies	Link to story

Date	Announcement Headline	Details	Link
10/11/20	Royal Australian Navy printer installed	Royal Australian Navy Installs the Tactical WarpSPEE3D at HMAS Coonawarra	Link to story
20/01/2021	Brazil Distributer Announced	SPEE3D Incorporated has signed a Reseller Agreement with Infocus Laser Systems to represent SPEE3D in Brasil.	Link to story
23/03/2021	South America Distributer Announced	3D in Metal's WarpSPEE3D printer arriving in El Salvador, fast-tracking Latin America into a future booming 3D metal printing industry.	Link to story
16/04/2021	SPEE3D Game Launch	SPEE3D releases SPEE3DCraft; a novel free-to-download additive manufacturing (AM) simulator where individuals can explore genuine metal 3D printing technologies and processes in a way that is both fun and educational, directly from their PC.	Link to story
18/05/2021	Defence Innovation Award	SPEE3D wins ADMA Foundation's Land Forces 2021 SME Innovation Award.	Link to story
24/06/2021	Penn State University Acquisition	Penn State University's Applied Research Laboratory acquired SPEE3D's high-speed metal 3D printing technology, bringing new research and development opportunities to Additive Manufacturing in the U.S and D.o.D.	Link to story
08/07/2021	SPACE3D Project	SPEE3D, an Australian metal 3D printing company, is set to make a revolutionary breakthrough for rocket applications in the Space Industry with its project: 'SPACE3D'.	Link to story

Date	Announcement Headline	Details	Link
27/07/2021	Elementum 3D Acquisition	Elementum 3D, an additive manufacturing (AM) research and development company that specializes in the creation of advanced metals, composites, and ceramics, has acquired a SPEE3D printer.	Link to story
01/11/2021	Australian Army trial proves metal armored vehicle parts can be 3D printed and certified in the field	The Australian Army have proven it is possible to 3D print and replace armored vehicle parts in the field during Exercise Koolendong, an annual bilateral military exercise between the Australian Army and the Marine Rotational Force – Darwin.	Link to story
27/01/2022	Phillips Federal Expands Rock Island Arsenal Acquisition	Phillips Federal has signed an agreement to acquire a new WarpSPEE3D Metal AM printer from SPEE3D to be located at their Center of Innovation at the Rock Island Arsenal.	Link to story
15/02/2022	SPEE3D Inaugural Winner of US Military Expeditionary Manufacturing Award	SPEE3D wins DSI Military AM, “Award for Expeditionary & Tactical 3D Printing Excellence”	Link to story
01/03/2022	EWI chooses SPEE3D technology for new cold spray research centre	Prestigious Welding Institute Embraces the Future of Manufacturing	Link to story

Date	Announcement Headline	Details	Link
05/23/2022	US Navy's MaintenX Exercise	SPEE3D's Cold Spray Metal 3D Technology to Print Military Maritime Parts From Port and Sea Helping Reduce and Eliminate Supply Chain Issues	Link to story
06/11/2022	Phaser Nozzle Released	SPEE3D Releases New High Velocity Phaser Nozzle For World's Fastest Metal Printer	Link to story
9/9/2022	First in the World to Successfully Print Parts on US Naval Ship	WarpSPEE3D was chosen as part of NAVSEA's REPTX exercise, conducted as part of ANTX-Coastal Trident 2022 at Naval Base Ventura County in Port Hueneme, California.	Link to story
21/10/22	XSPEE3D Launched	XSPEE3D is fully transportable as a standard shipping container with the printer and all auxiliary equipment in one box. The printer is easy to use and deploy, requiring only a connection to electrical power.	Link to story
2/11/22	Convergence Trial	SPEE3D Chosen by the British Army for the US Army's Project Convergence Exercise.	Link to story
9/11/22	SPAC3D Hotfire Test	SPEE3D's SPACE3D Program Successfully Trials AM Rocket Engine in First Hot Fire Test.	Link to story
30/03/23	UK Army Announcement	SPEE3D Will Work With British Army To Develop Their Additive Manufacturing Capabilities	Link to story
17/05/23	Point of Need Challenge	SPEE3D Wins Office Of The Secretary Of Defense Manufacturing Technology "Point Of Need Challenge"	Link to story

Date	Announcement Headline	Details	Link
30/05/23	US Navy Subsafe Announcement	SPEE3D Chosen By US Navy To Develop Subsafe Manufacturing Materials With Patented Cold Spray Technology	Link to story
15/06/23	University of Hamburg Partnership	SPEE3D Partners With the University of Applied Sciences Hamburg (HAW)	Link to story
4/08/23	Marine Corps Annual Integrated Training Exercise (ITX) 4-23	SPEE3D Successfully Participates in Annual US Marines Corps Integrated Training Exercise	Link to story
30/08/23	US Navy Printer	XSPEE3D Cold Spray Technology To Be Installed At The US Naval Postgraduate School (NPS)	Link to story

Awards

Year	Award
2015	Bosch Venture Forum Awards
2016	Tech23.2016 - Award for Innovation
2018	NSW Export Finalist TCT Rising Star - Highly Commended TCT Awards - Hardware Non Polymer Recipient
2020	NT Exporter of the Year Australian Trusted Trader Technology and Innovation Award AIDN-NT Innovation Award
2021	Landforces SME Innovation of Year Defence Connect Industry Awards SME of the Year Finalist InnovationAus Awards 2021 Advanced Manufacturing Finalist NTEIA 2021 Advanced Technologies Award Winner
2022	DSI Expeditionary and Tactical 3D Printing Excellence Award Defence Connect Industry Awards SME of the Year Finalist 2022 2022 Governor of Victorian Export Awards - Manufacturing and Advanced Materials
2023	Leader in Defence, Aerospace, and Space Award 2023 Victorian Manufacturing Hall of Fame Awards Startup Tech Daily Awards - Scale up of Year Finalist Australian Defence Industry Awards - Defence Innovator of the Year – Finalist AU Manufacturing Top 50 Most Innovative Australian Companies - Silver Recipient

FAQs

What is SPEE3D's core technology and how does it work?

SPEE3D's core technology is Cold Spray Additive Manufacturing (CSAM), also known as 'Supersonic 3D Deposition'. This patented process uses a rocket nozzle to accelerate air up to three times the speed of sound, into which metal powder is injected then deposited onto a substrate maneuvered by a robotic arm. The kinetic energy from the particles hitting each other causes the powders to bind together, forming a near net shape part with superior metallurgical properties compared to casting.

How does SPEE3D's technology compare to traditional metal 3D printing technologies?

SPEE3D's CSAM technology surpasses traditional metal 3D printing technologies such as laser powder bed fusion in terms of speed and efficiency. For instance, SPEE3D's process can manufacture stainless steel parts at a rapid build rate of 4kg/hr, compared to LBPF's build rate of 0.2kg/hr.

XSPEE3D's main distinguishing feature is its deployability. Designed as a 20ft standard shipping container, XSPEE3D can be easily transported by Civilian and Defense Heavy Vehicles.

What problem does XSPEE3D solve?

XSPEE3D addresses the challenge of deployability of advanced manufacturing equipment for remote use. By integrating all auxiliary equipment and printing capability into a single 20ft container, XSPEE3D makes it easier to transport and operate the technology. This solution optimizes logistics, reduces carbon footprint, and increases efficiency for remotely-placed customers, including Defence organizations.

How does SPEE3D contribute to sustainability in manufacturing?

SPEE3D's on-demand, point-of-need metal additive manufacturing reduces the carbon footprint associated with shipping mass-produced parts. Our process consumes 33% less energy and emits 60% less CO2 compared to casting. Additionally, our machines can potentially be powered using renewable or clean energy sources, further reducing the carbon footprint.

How does SPEE3D ensure quality and safety in its manufacturing process?

SPEE3D addresses quality challenges in metal additive manufacturing by producing dense, low-porosity parts with reduced residual stress. Quality control measures include material selection, equipment maintenance, in-process monitoring, and post-processing inspection. For safety, SPEE3D implements measures such as integrated combustible dust control and uses sealed aluminum canisters for powder packaging.

Can you share some examples of SPEE3D's successful collaborations with defence?

SPEE3D has successfully collaborated with the Royal Australian Navy, US Navy, and British Army. With the Royal Australian Navy, we conducted trials that proved the feasibility of using advanced metal manufacturing for maritime applications. In the US Navy's NAVSEA project, SPEE3D's technology was chosen to develop materials that meet SUBSAFE quality standards. With the British Army, we participated in the Project Convergence Program, where our technology was used to produce parts for training forces. These collaborations validate SPEE3D's technology's robustness, deployability, and versatility.

SPEE3D's technology has been used in various military field trials with the Australian Army, Royal Australian Navy, US Navy, and British Army, demonstrating its robustness, versatility, and deployability. Some examples include manufacturing and certifying metal 3D printed marine applications for an Armidale Class Patrol Boat, producing parts for a multi-national training force as part of the US Army’s Project Convergence Program, and printing dozens of military maritime parts on US Navy Ship ex-US Paul F. Foster, DD 964, the Self Defense Test Ship (SDTS), as part of the NCMS REPTX exercise.

Past Press Releases and Visuals

High-Res photos and videos available for download here

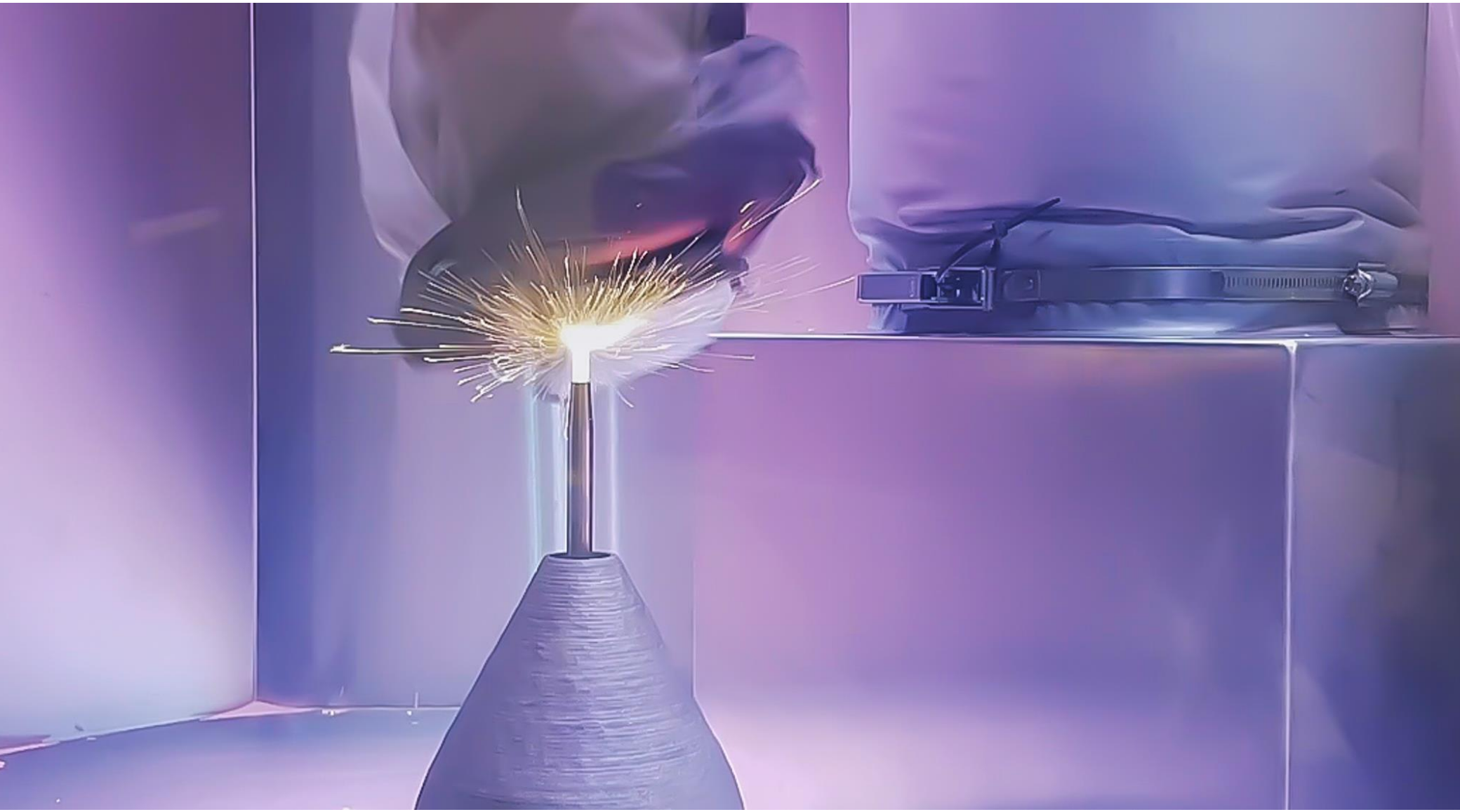

SPEE3D
VIDEO
PART & MACHINE STATUS
0.00 %
COMPLETE
STATE
FAULT
CURRENT PART
17.0 °C
HEAD TEMP
0.0 bar
HEAD PRESSURE
1.1 kg
POWDER REMAINING


SPEE3D


SPEE3D


SPEE3D


SPEE3D




2021 Australian Army Field Trial of 'WarpSPEE3D'
Bradshaw Training Area, Northern Territory


SPEE3D
SPEE3D


SPEE3D
SETTINGS
STATE
REST
00:29:24
REMAINING TIME
316.3 °C
HEAD TEMP
DO NOT LOOK
INTO THE BARREL


Tetlow
BAILEY
BAILEY


SPEE3D


SPEE3D

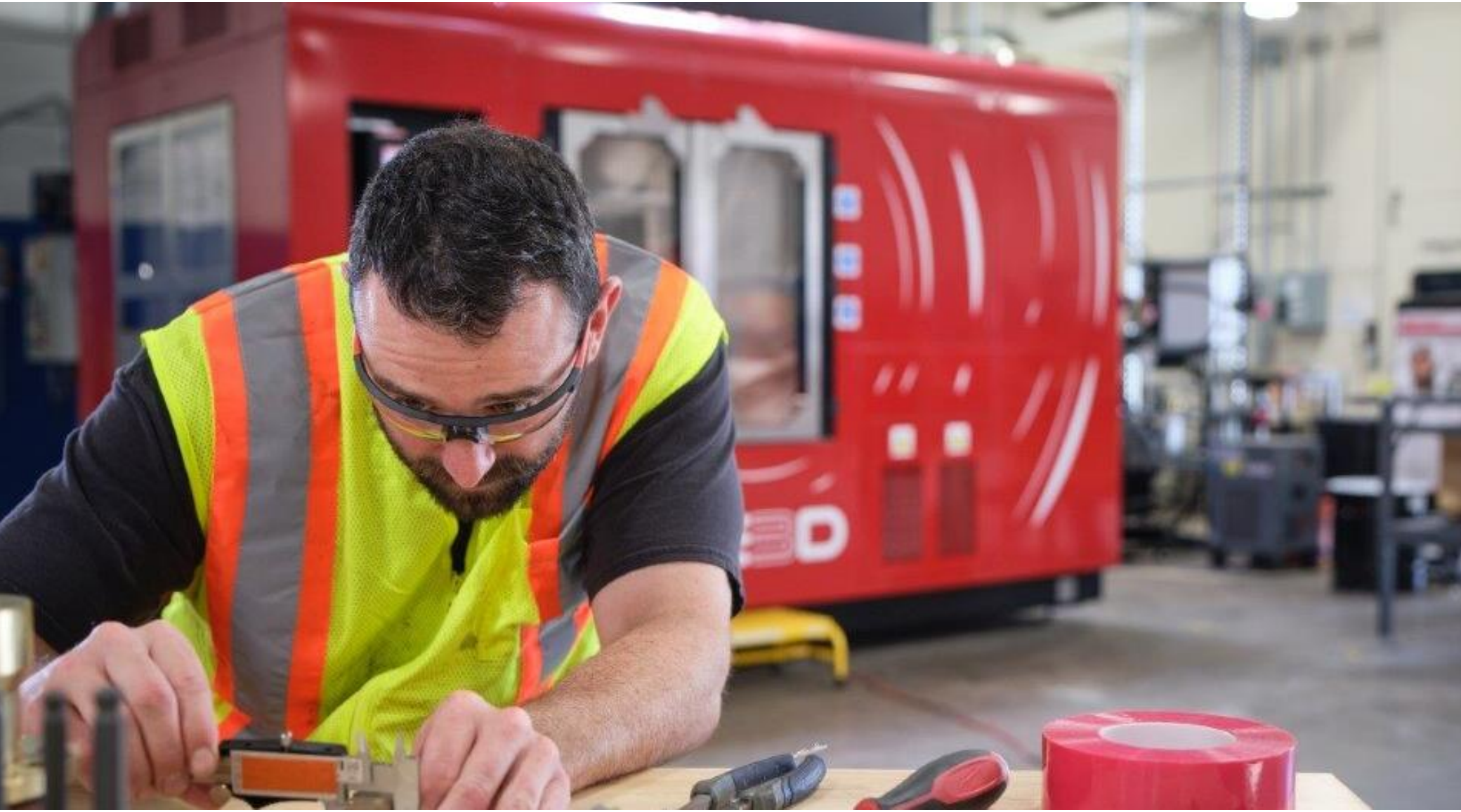

SPEE3D


SPEE3D


SPEE3D
SPEE3D
SPEE3D
SPEE3D


SPEE3D
2
SPEE3D
SPEE3D
EMERGENCY ASSEMBLY POINT
GATE 2


2
SPEE3D
SPEE3D
SPEE3D
SPEE3D
GATE 1




SPEE3D

2/2 Darby Way
Dandenong South
Melbourne, Victoria 3175, Australia
contact@spee3d.com
WWW.SPEE3D.COM