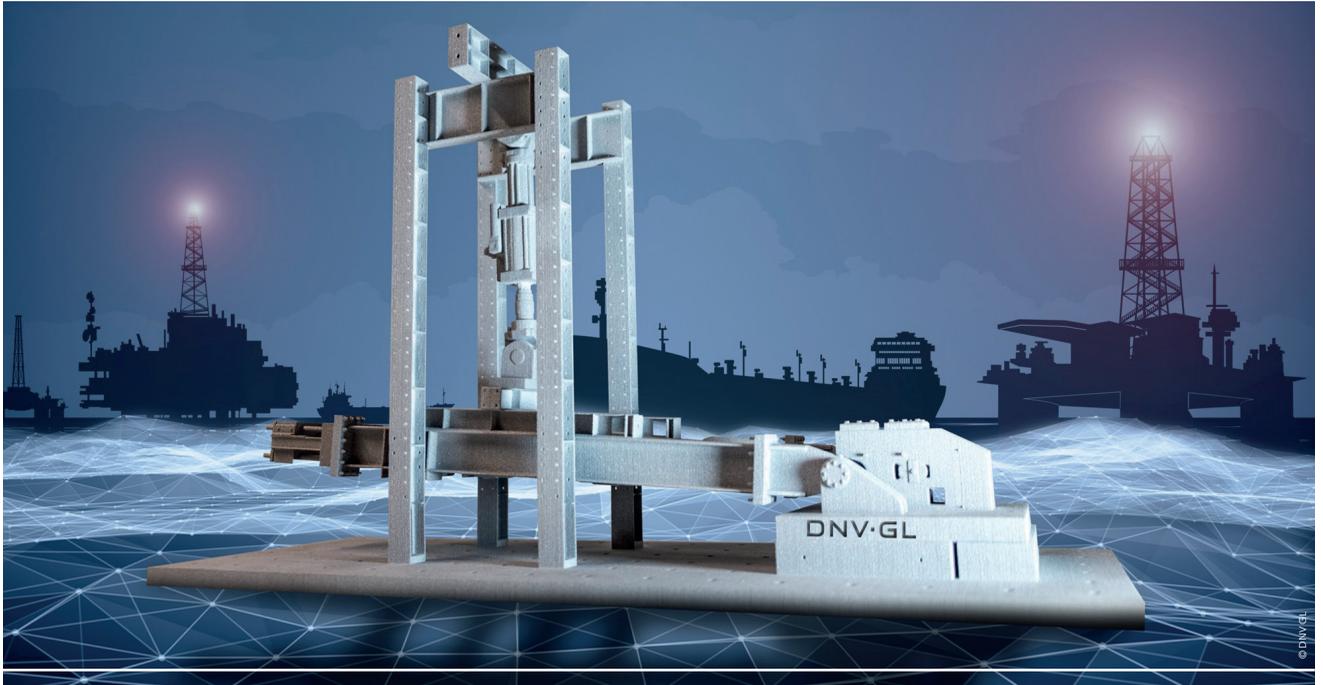


ADDITIVE MANUFACTURING BUSINESS NETWORK DIRECTORY 2019 / 2020

Published by:





EMBARKING ON ADDITIVE MANUFACTURING?

As your independent partner, our additive manufacturing technical experts in Singapore are here to support you throughout the entire additive manufacturing supply chain. With strong local presence and a global network of laboratories, we provide assurance for your business to operate safer, more efficient and cleaner.

Consulting and Advisory

- Feasibility studies
- Technology qualification
- Digital assurance
- Laboratory testing
- Training

Qualification and Certification

- Approval of manufacturer
- Certification of personnel
- Certification of materials
- Certification of components
- Process qualification

R&D and Innovation

- Technology development
- Standards development
- Joint industry projects (JIPs)
- Proof of concept
- Risk and reliability studies



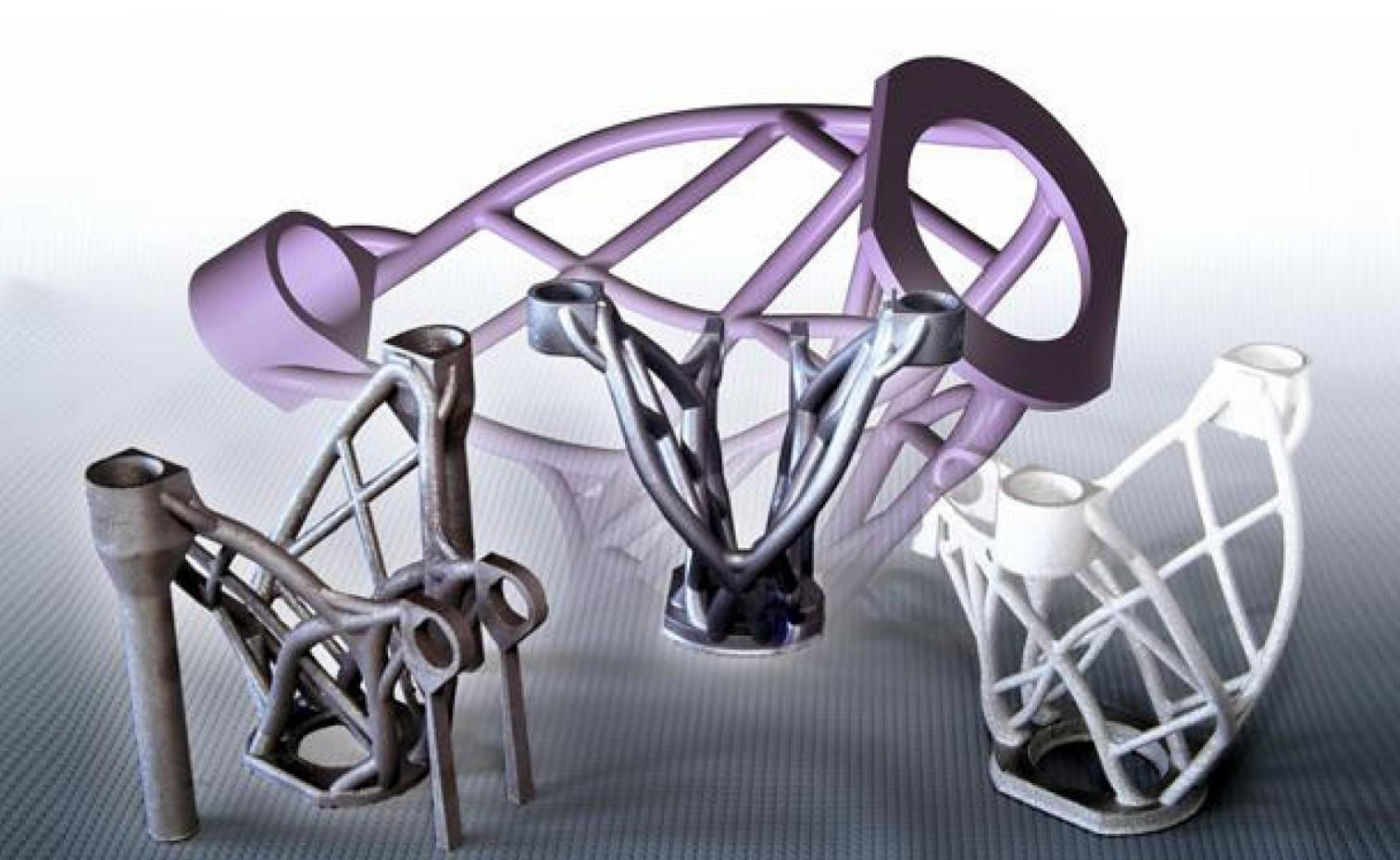
DNV GL Global Additive Manufacturing Centre of Excellence
158A Gul Circle, Singapore 629616

www.dnvgl.com/additive-manufacturing

SAFER, SMARTER, GREENER

DNV-GL

Successfully implementing
Additive Manufacturing in your
company!





Additive Manufacturing Business Network Directory 2019/2020

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Whilst every effort has been made to ensure the accuracy of information, no liability will be accepted by NAMIC for any errors that may appear in this publication.





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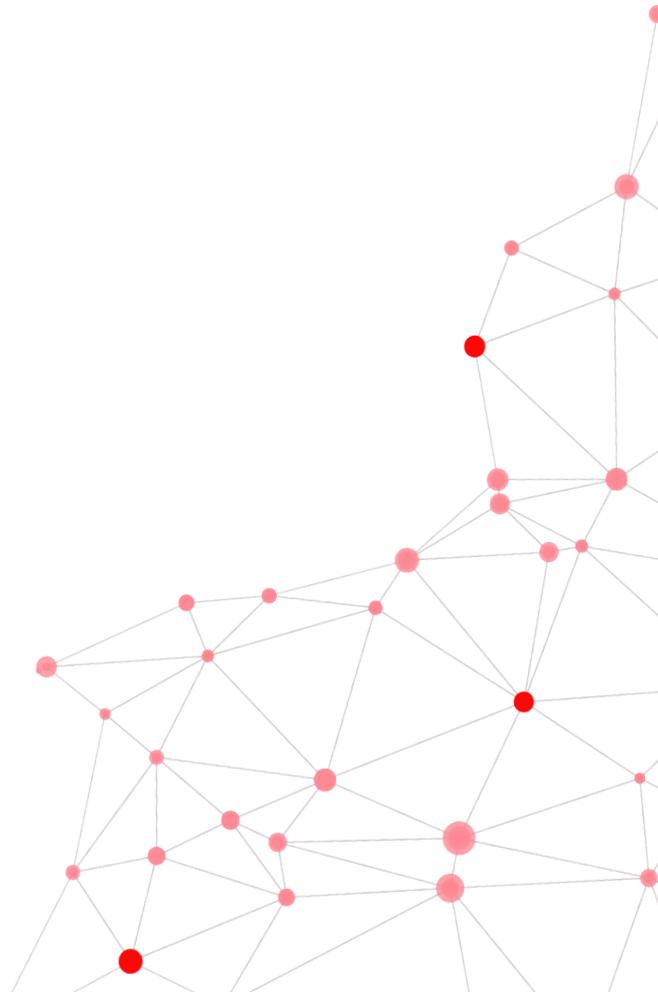
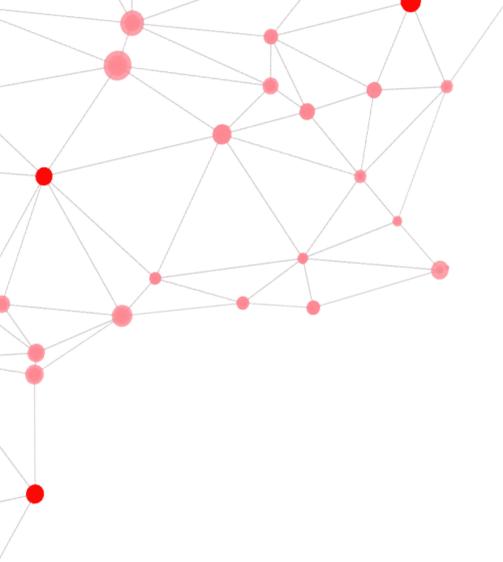
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FOREWORD



DR. HO CHAW SING
MANAGING DIRECTOR
NATIONAL ADDITIVE MANUFACTURING
INNOVATION CLUSTER (NAMIC)

The global additive manufacturing (AM) market has been growing at an average CAGR of 24% since 2010, reaching USD \$9.8 billion in 2018 (Wohlers Report 2019), and is expected to reach in excess of USD \$30 billion by 2024. Despite its impressive double-digit CAGR, industrial adoption of AM for manufacturing is still very much in its infancy, representing less than 0.1% of the global manufacturing output estimated at USD \$12.8 trillion.

The number of companies in Singapore deploying and offering additive manufacturing (AM) technology solutions has grown rapidly. Close to 25% of the global AM companies have established a presence in Singapore, with more in the pipeline. They include original equipment manufacturers, material feedstock suppliers, service bureaus, test certification, as well as engineering and product companies. Beyond prototyping, more companies are adopting AM technologies for low-volume high SKU end part manufacturing, create manufacturing aids such as jigs and fixtures, and innovative functional parts that are difficult to manufacture with traditional methods. The non-regulated industrial, electrical and consumer product segments are the primary early adopters. The economic value-add in Singapore from 3D printing activities has also scaled up rapidly in the last few years. Although the industry is still nascent, the growth trajectory is encouraging.

2019 is a special year as NAMIC enters its 4th anniversary. One of the significant milestones which reflects AM's growing industry traction, is our curation and launch of the first regional **AM Business Network Directory** in Singapore. This is an information portal listing all the AM service and solution companies with a presence in Singapore and Asia Pacific region. The motivation for such a business network reflects what is a growing global trend - the formation of regional AM coalitions, such as **Mobility Goes Additive (MgA)**, a Deutsche Bahn spin-off initiative with more than 100 European partners, as well as **America Makes**, a leading public-private AM innovation institute based in the US, with more than 200 members, among many others.

To-date, 111 AM companies have committed to be listed in the inaugural edition of the **AM Business Network Directory**. We intend to update and publish a new edition every year. To mark this occasion and to thank all our participating companies as well as sponsors, we intend to formally launch this at the **NAMIC Global AM Summit**, held in conjunction with the **Industrial Transformation Asia Pacific – a Hannover Messe event on 23 October 2019**. This directory will serve as a valuable resource to all members in the AM community in the global network, especially in the Indo Asia-Pacific region. We look forward to your feedbacks and continuous support as we enter this next phase to help our businesses innovate and transform as they embark on the AM journey.

Yours truly,

A handwritten signature in black ink, appearing to read 'Chaw Sing'.

Dr Ho Chaw Sing
Managing Director, NAMIC Singapore

ENGINEERING THE FUTURE WITH

ADDITIVE MANUFACTURING

FROM DESIGN AND MANUFACTURING, TO TESTING AND CERTIFICATION, LEVERAGE ST ENGINEERING'S ADDITIVE MANUFACTURING EXPERIENCE TO STAY COMPETITIVE IN INDUSTRY 4.0.

KEY SERVICES:

- DESIGN CONSULTANCY
- MATERIAL DEVELOPMENT
- 3D PRINTING
- POST-PROCESSING
- SINGLAS-CERTIFIED TEST SERVICES
- CERTIFIED QUALITY MANAGEMENT



Photo credits:

*Dragon Design by Natalie Mae Tan Sze Ying
Design inspired by "Dove" by Mike Le Page*

*Department of Architecture / School of Design and
Environment / National University of Singapore
NUS Centre for Additive Manufacturing (AM.NUS)
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COMPANY PROFILES

3D



3D MATTERS

Business Nature :

AM Service Bureau

Industry / Sector :

Marine & Offshore, Manufacturing (Others),
Consumer Product

**End-to-end 3D printing solutions
from design and consultancy to
actual print and production**



THE COMPANY

Founded in 2012, we are one of Singapore's earliest integrated 3D Printing companies that supports clients from idea to finished product. This includes everything from consultancy and diagnostics to design capture and scanning, CAD design and optimisation, material advisory, printing, finishing, post-processing, quality assurance and testing.

Apart from helping clients with scale-accurate models and fast prototyping, we are also able to enhance their design and manufacturing capabilities to shorten lead times for spares and obsolete parts, redesign products for improved performance or functionality, or even speed up time-to-market for new products.

We are the first 3D Printing company in Singapore to receive the global quality management system standards certification for our end-to-end additive manufacturing process. The ISO9001:2015 acknowledges 3D Matters' commitment to continual improvement, customer satisfaction and overall sustainable business performance. The accreditation is also a recognition of our ability to consistently deliver products and services that meet customer, statutory and regulatory requirements.

3D Matters has a sister company, 3D Metalforge, a specialist metal additive manufacturer based in Singapore and the US, and operates one of Asia's first and leading ISO-certified Additive Manufacturing Centre dedicated to designing, engineering and printing metal end-use parts. For more information on 3D Metalforge, please visit www.3dmetalforge.com.

PRODUCTS AND SERVICES

To discover more about our solutions, please refer to

<http://3dmatters.com.sg/industries/>

<http://3dmatters.com.sg/capabilities/>

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info@3dmatters.com.sg

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www.3dmatters.com.sg



3D METALFORGE

Business Nature :
AM Service Bureau

Industry / Sector :
Marine & Offshore, Oil & Gas, Precision Engineering, Manufacturing (Others)

Large format 3D printing for industrial and commercial end use



THE COMPANY

We are a leading global AM company which supports cutting-edge companies with their global metal and polymer printing requirements. Our hi-tech facilities and engineering teams are based in Singapore and the USA. With one of the most advanced ranges of printing equipment, including selective laser melting, laser aided additive manufacturing and hybrid wire-arc additive manufacturing technologies, we are able to print high quality metal parts up to 1.5 metres in size and at a speed of up to 1kg/hr.

3D Metalforge's full range of additive manufacturing (AM) services cover consultancy (including site and opportunity assessment and diagnostics), 3D scanning, 3D modelling, engineering and design optimisation, actual printing/production as well as post production services (e.g. surface polishing and heat treatment).

We have been awarded the ISO9001:2015 certification for achieving consistent and high-quality standards in 3D printing for our world-class customers, and our Additive Manufacturing Centre (AMC) has also been accredited with the Lloyd's Register (LR) AM Facility Qualification.

PRODUCTS AND SERVICES

To understand more about our solutions, please refer to <https://3dmetalforge.com/en/services/> and our product gallery at <https://3dmetalforge.com/en/applications/>

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- info@3dmetalforge.com
- www.linkedin.com/company/3dmetalforge
- www.3dmetalforge.com

3D SYSTEMS

Business Nature:

AM Machine Manufacturer / OEM, AM Service Bureau, AM Software Solution Provider

Industry / Sector :

AM Technology (Hardware / Process), AM Technology (Software)

Originator of 3D Printing and an innovator of future 3D solutions

THE COMPANY

3D Systems provides comprehensive 3D products and services, including 3D printers, print materials, on-demand manufacturing services and digital design tools. Its ecosystem supports advanced applications from the product design shop to the factory floor and the operating room. 3D Systems' precision healthcare capabilities include simulation, Virtual Surgical Planning, and printing of medical and dental devices as well as patient-specific surgical instruments. As the originator of 3D printing and a shaper of future 3D solutions, 3D Systems has spent its 30-year history enabling professionals and companies to optimise their designs, transform their workflows, bring innovative products to market and drive new business models. More information on the company is available at www.3dsystems.com

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 www.linkedin.com/company/3d-systems

 www.3dsystems.com

PRODUCTS AND SERVICES

3D Systems provides the broadest portfolio of 3D printers that span from plastics to metals, serving applications ranging from prototyping to production.



Photo credits:

*Dragon Design by Natalie Mae Tan Sze Ying
Design inspired by "Dove" by Mike Le Page*

*Department of Architecture / School of Design and
Environment / National University of Singapore
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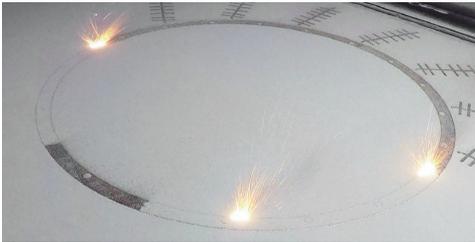
COMPANY PROFILES

A-E

DMP Factory 500

Meet the

AM Factory



Experience the future of metal manufacturing today with the workflow-optimised DMP Factory 500 3D printing solution. Achieve massive scalability and repeatable production of high-quality parts up to 500 x 500 x 500 mm in size while profiting from high throughput and low total cost of ownership.

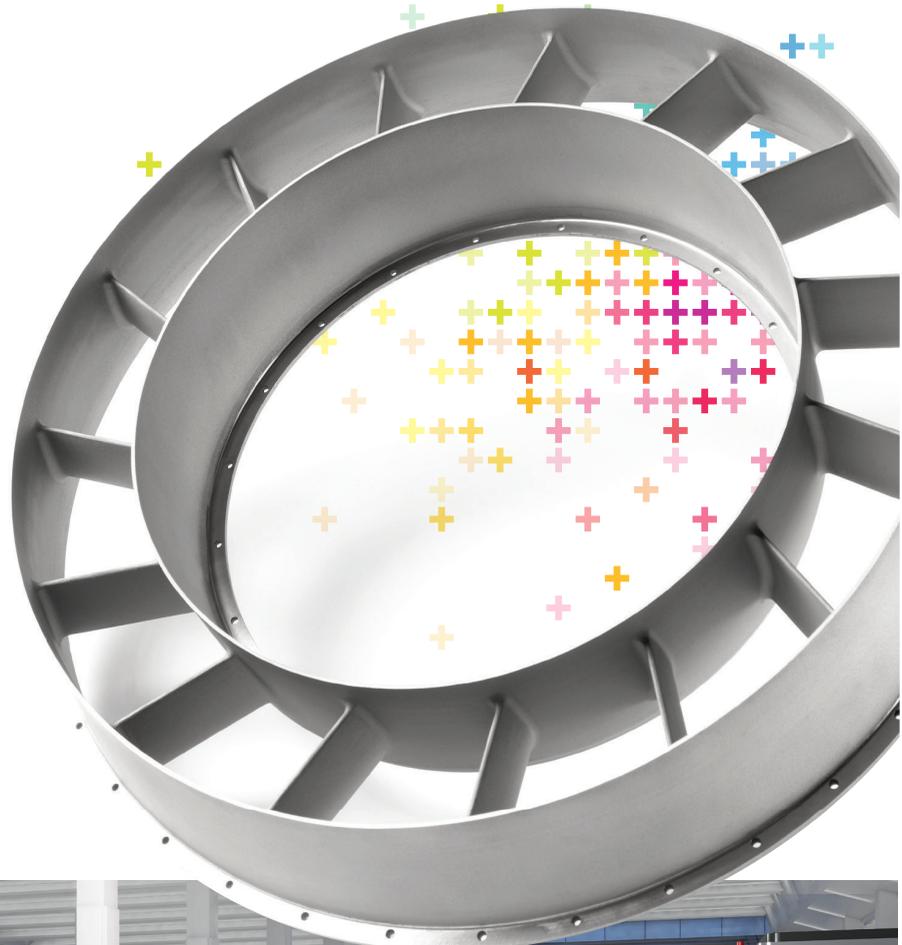
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Email: carlos.gazio@georgfischer.com

Website: www.gfms.com/sg



ADDITIVE3D ASIA

ADDITIVE3D ASIA

Business Nature :

AM Service Bureau

Industry / Sector :

Automotive / Transport, Biomedical / Healthcare, Building & Construction, Consumer Product, Education, Precision Engineering

Offering the latest and production quality technology in 3D Printing from plastic, resin, powder, metal and more materials



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www.3DPrintingStudios.com



THE COMPANY

Since 2013, Additive3D Asia has been a pioneer and one of the leading 3D Printing Services Bureaus operating one-stop 3D printing customer experience centres with regional operations in Singapore, Malaysia and Australia offering a wide range of training and sales of reputable brand desktop 3D printers and consumables catering to different industries.

Our motivation is to help our customers '**Bring Their Ideas to Life**' by leveraging various 3D technologies in their business and making them a part of their competitive edge and advantage in their respective industries.

Whether you are a complete newcomer to 3D technologies or an expert CAD modeller, we can help. The experienced team at Additive3D Asia consists of qualified and highly skilled 3D Industrial Designers, Product Designers and Engineers. Additive3D Asia has delivered many successful projects and assignments of all sizes and complexity using a wide range of the latest 3D technologies.

PRODUCTS AND SERVICES





ADDITIVE FLIGHT
SOLUTIONS

ADDITIVE FLIGHT SOLUTIONS PTE LTD

Business Nature :

AM Service Bureau, Engineering

Industry / Sector :

Aerospace / Defence, Manufacturing (Others)

Production of Certified Aircraft Cabin Interior Parts



THE COMPANY

Additive Flight Solutions is a joint venture between SIA Engineering Company (SIAEC) and Stratasys. By utilising Stratasys' deep know-how and expertise in additive manufacturing, coupled with the comprehensive maintenance, repair and overhaul (MRO) capabilities at SIAEC, Additive Flight Solutions can provide Additive Manufactured aerospace parts solutions to airline customers around the globe.

We offer engineering, certification support and part production to SIAEC's well-established network of partners and customers, and to other industries outside of the aerospace segment. Our highly experienced staff from each parent company can provide domain expertise and drive the development of aerospace applications. We aim to be the go-to partner for additive manufacturing, providing high quality printed parts for cost-effective and timely solutions.

Our Quality Management Systems are certified to ISO9001:2015 standards in the provision of engineering, certification support and production of additive manufactured parts solutions for the aerospace and other industries. Working together with our parent SIA Engineering Company, which holds both CAAS and EASA DOA and POA approvals in 3D printing, we are capable of producing aircraft parts to meet airworthiness requirements.

PRODUCTS AND SERVICES

Services offered include 3D printing of production parts, rapid prototyping, tooling and other application requirements.

CONTACTS

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✉ contact@additiveflightsolutions.com

🌐 www.additiveflightsolutions.com

ADDITIVE INDUSTRIES ASIA PACIFIC PTE LTD

Business Nature :
AM Machine Manufacturer / OEM

Industry / Sector :
AM Technology (Hardware / Process), AM
Technology (Software)

Accelerating industrial additive
manufacturing of high quality,
functional, metal parts by
offering a modular, end-to-
end laser powder bed fusion
system including a seamlessly
integrated information platform



CONTACTS

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- www.linkedin.com/company/additive-industries/?originalSubdomain=sg
- www.additiveindustries.com/

THE COMPANY

Established in 2012 in the “Brainport Ecostructure” around Eindhoven in The Netherlands, Additive Industries is the world’s first dedicated equipment manufacturer for industrial metal additive manufacturing systems. Built on the high tech systems, optics and electronics heritage of this region, founders Jonas Wintermans and Daan Kersten have created a company of talented professionals committed to industrialising 3D printing using ‘open innovation’ principles to capitalise on proven technology. By putting the customer first in everything we do, we enable them to improve their designs, product performance and business cases for the best competitive position in their market.

From its headquarters in The Netherlands, Additive Industries is building a global network to best serve local customers. Research & development and system integration as well as software development are done centrally in Eindhoven, while the activities closest to the customer are executed from regional Process & Application Development Centers and Service & Support hubs.

PRODUCTS AND SERVICES



Larger capacity, Multiple materials
Additional functionality



Small series
Full automation



Process & Application
Development, Prototyping



ADVANCED MATERIALS TECHNOLOGIES PTE LTD

Business Nature :
AM Service Bureau

Industry / Sector :
Biomedical / Healthcare, Automotive / Transport, Semiconductor & Electronics

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www.linkedin.com/company/advanced-materials-technologies-pte-ltd/

www.amt-mat.com



THE COMPANY

We are a leading contract manufacturer providing end-to-end device development and manufacturing services. We specialize in metal, copper and ceramic injection moulding, 3D metal printing, precision machining, assembly capabilities, contract ETO sterilisation services, customise surgical and procedural kitting solutions. We possess over 25 years of industry-leading expertise in advanced manufacturing technology.

We specialise in 3D metal printing services in stainless steel, tool steel, cobalt-chromium, inconel, aluminium and titanium, using an SLM Solutions machine from Germany.

The benefits of 3D metal printing (Additive Manufacturing) are:

Increases design innovation - New ideas and shapes with a quick turnaround for a physical part to gauge, look and feel.

Speeds up time-to-market - Makes idea to prototype cycle much faster. Necessary adjustments can be made more rapidly.

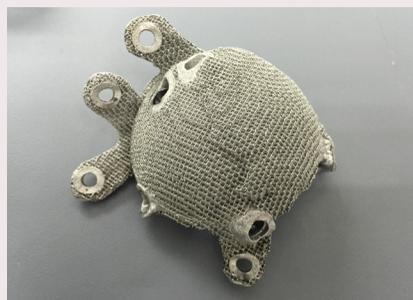
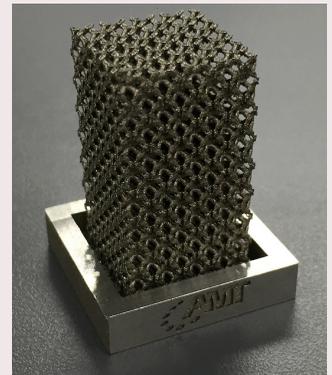
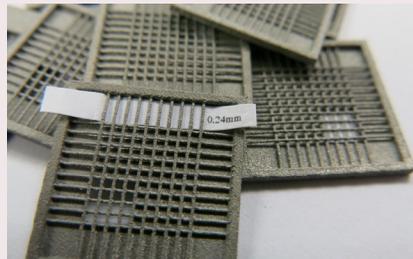
Reduces development cost - Use less materials. No requirement for tooling.

Reverse engineering - Obsolete parts without drawings can now be scanned and reproduced easily.

Enables smaller batch production - Low volume parts of less than 1,000 pieces.

PRODUCTS AND SERVICES

3D Metal Printing





ADVANCED TECHNOLOGY ENTERPRISE PTE LTD

Business Nature :
AM Products Distributor

Industry / Sector :
AM Technology (Software)

**Technology enabler and
transformation agent in 3D
product innovation consisting
of CAD/CAM/Digital Twin and
Smart Manufacturing**

CONTACTS

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 www.ateworks.net



THE COMPANY

ATE is a technology enabler empowering local engineers to meet engineering challenges through best-in-class engineering technology. Beginning as a SOLIDWORKS® reseller, we have transformed into a top-tier 3D Engineering Solutions company providing software, hardware and best-practice processes and services.

Today, ATE continues to provide SOLIDWORKS® Suite of products through its subsidiary CADvision Systems in Singapore and Malaysia. In addition, ATE continues to develop partnerships with market-leading products such as Altair, Ultimaker, SolidCAM and many more through its alliance of partners. We provide leading edge CAD/CAM/CAE/PLM technologies and innovative solutions to various engineering industries by partnering with industry leaders. In addition, we consult with clients in the adoption of best-practices and technologies using SIRI as a framework to prepare them for Industry 4.0 adoption. With extensive industry domain knowledge, our people can complement your engineering and manufacturing team to transform into market leaders in your own markets.

PRODUCTS AND SERVICES



SolidCAM
iMachining – The Revolution in CAM!



Altair

Ultimaker





ALTAIR ENGINEERING SDN BHD

Business Nature :
Design and Engineering

Industry / Sector :
Software (Engineering, IoT, AI, Cloud)

Altair is a global technology company that provides software and cloud solutions in the areas of product development, high performance computing and data intelligence

THE COMPANY

Altair is a global technology company that provides software and cloud solutions in the areas of product development, high performance computing and data intelligence. Altair enables organisations across broad industry segments to compete more effectively in a connected world while creating a more sustainable future. To learn more, please visit: altair.com

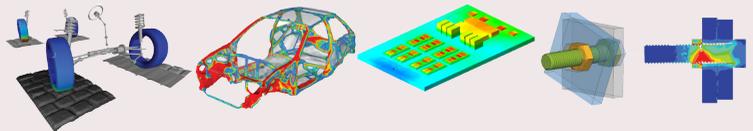


PRODUCTS AND SERVICES

Altair Inspire™

The Future of Simulation-Driven Design. Altair Inspire enhances the concept development process by enabling Simulation-Driven Design. Altair Inspire enhances your product's efficiency, strength and manufacture ability.

Fast, Easy, Accurate and Affordable



 Altair | HyperWorks®

CONTACTS

Altair Engineering Sdn Bhd (962039-H)

 B-10-7, Tower 3B, Level 10, Plaza Sentral, KL Sentral 50470, Kuala Lumpur, Malaysia

 +603 2742 7890

 marketing-asean@altair.com

 www.altair.com



 Altair | PBS Works



 Altair | SmartWorks™



Anqlave

ANQLAVE PTE LTD

Business Nature :

AM Software Solution Provider

Industry / Sector :

AM Technology (Software)

We secure digital assets

CONTACTS

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 enquiries@anqlave.co

 www.anqlave.co

THE COMPANY

Anqlave is a Singapore-based software company which designs products that protects data in all forms and states.

Anqlave builds components which are based on 'Hardware Rooted Trust' technology and will support enterprises to comply with data security risks and data privacy requirements.

PRODUCTS AND SERVICES

Anqlave offers two suites of products:

Cloud Security Product Suite:

Anqlave Data Vault for Key Management - Secure and scalable key management service that was designed to perform cryptographic operations in a trusted execution environment. Can be deployed in the cloud or on-premise.

Anqlave Cloud Protection - Easy to integrate and powerful product that provides an additional layer of fortification for data in the cloud.

Anqlave Secure Open Source - Anqlave brings secure open source enterprise applications. Using Intel SGX, we secure open source applications to be executed in a trusted execution environment and ensure data protection in all states: data at rest, data in motion and data in use.

Enterprise Blockchain Product Suite:

Smart Contract Framework - A unique architecture for publishing and subscribing to smart contract validation rules that may be different for different entities in a smart contracting process. The SCF coordination engine allows for easy fault tolerant coordination between smart contract entities.

Trusted Ledger DB - An immutable database that cannot be manipulated by malicious users, owners or administrators.

Anqlave Crypto Vault - A solution that was designed for Cryptocurrency-custody and Cryptocurrency-exchange providers to allow secure management of wallets and keys. All actions related to wallet management such as key generation, signing of transactions and verification of transactions will be executed inside a Trusted Execution Environment.

ARBURG

ARBURG PTE LTD

Business Nature :

AM Machine Manufacturer / OEM

Industry / Sector :

Aerospace/ Defence , AM Technology
(Hardware/ Process), Automotive/
Transport, Consumer Product, Biomedical/
Healthcare, Environment and Clean Tech,
Food and Beverage, Robotics/Automation,
Semiconductor and Electronics

**Material diversity, Open system,
Multi-component technology**

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🌐 www.arburg.com.sg

THE COMPANY

ARBURG is one of the world's leading manufacturers of high-end machines for plastics processing. From high-volume production to one-off parts: our product portfolio with ALLROUNDER injection moulding machines, turnkey systems and the freeformer for industrial additive manufacturing offers you an individually adapted, efficient production solution for every requirement. ARBURG is committed to comprehensive pre- and after-sales services. We bring technology and services to all customers in a targeted approach. Our specialists support you all the way - from detailed technology consulting to fast on-site service.

PRODUCTS AND SERVICES





ARKEMA PTE LTD

Business Nature :

AM Material Manufacturer

Industry / Sector :

Aerospace / Defence, Automotive / Transport,
Biomedical / Healthcare, Consumer Product

Premier supplier of innovative 3D Printing solutions including cutting-edge products and collaborative development for new industrial AM applications

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🌐 www.arkema.com/en/markets-and-solutions/solutions/3d-printing/

THE COMPANY

Arkema is a designer of materials and innovative solutions. We are a global company with a turnover of USD\$10B, employing 20,000 people in 50 countries. Innovation is in our DNA. We have been listed 7 years in a row in the top 100 innovative companies of the world by Clarivate Analytics.

3D Printing has been a strategic innovation platform for Arkema since 1988 when our advanced materials customers in the fields of automotive, aeronautics, consumer goods and electronics started to use this technology for prototyping. The needs of these end users, who are now adopting 3D Printing as a manufacturing technology, are driving our continued innovation and investment in 3D Printing.

Our vision is to be the world's premier supplier of innovative 3D Printing solutions with cutting-edge products, rapid collaborative development and problem solving to meet the challenges of new industrial applications.

PRODUCTS AND SERVICES



Engineered resins, specialty monomers and oligomers for superior performance photocuring technologies, marketed under the N3xtDimension® brand. Arkema's Sartomer group has developed a very comprehensive range of products for optimum aesthetics: clarity, detailing and transparency as needed in markets such as dental, hearing aids, and athletic shoes. N3xtDimension® resins can be formulated to achieve a broad range of specific targeted performance properties such as impact, flexibility, and water solubility, to name a few.



High performance polyamide 11 polymers. Uniquely derived from 100% renewable and sustainable castor oil, Rilsan® polyamide 11 resins demonstrate significantly better mechanical and impact properties than polyamide 12 polymers typically used for prototyping. Available today for powder bed fusion technologies, polyamide 11 is enabling 3D printed applications in demanding markets such as consumer goods and automotive.



Ultra-High Performance PEKK polymers. Arkema's Kepstan® PEKK (polyether ether ketone) resins are among the highest performing in the world. Available for powder bed fusion or filament technologies, this new polymer family shows exceptionally good processability and outstanding properties compared to other high performance polymers such as PEEK. It pushes the limits for 3D printed parts in terms of strength, continuous use temperature (up to 260°C), dielectric properties, and durability.



Rounding out this broad Additive Manufacturing portfolio are resins from Arkema's famous Pebax® thermoplastic Elastomers, Kynar® PVDF Fluoropolymer, and Orgasol® Polyamide 12 product lines.

Arkema's engagement in the 3D Manufacturing market is not limited to its material offer. We have recognised for a long time that collaboration is key. Over many years, we have developed a full network of partners along the value chain to expand the application field of 3D Printing. We bring to these partnerships our unique innovation capabilities in new products and design, as well as our deep understanding of the customer expectations forged by decades of servicing these end use markets.



AUMED

Business Nature:
AM Service Bureau

Industry / Sector:
Biomedical / Healthcare

Shaping the Future of Medical Care with 3D Printing

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🌐 www.c3d-medical.com



THE COMPANY

AuMed is a specialized service bureau dedicated to medical 3D printing, and is a key division under Creatz3D. The team has been 3D printing medical models for surgical and education needs since 2016, for applications in and beyond Singapore.

Recreated based off patients' scans such as CT and/or MRI, the patient and pathology-specific medical models come in a range of textures from rigid to soft and rubberlike, simulating various hard and soft tissues and organs.

AuMed has worked with various organisations and institutions in the healthcare sector, locally and abroad, in creating realistic and accurate models replicating diseased human body parts for pre-surgical planning, procedural simulation, medical product demonstration, or customised for used in medical education.

PRODUCTS AND SERVICES

With our comprehensive 6-step 3D medical printing solution, Medical Professionals, Educators, R&D and Medical Device Companies can now leverage on our solutions for complementing or enhancing their medical applications. Utiling Fortus 450mc and Stratasys J750 3D Printers as well as Materialise Mimics software (FDA and CE certified), coupled with decade-long in-house knowledge in AM (Creatz3D was founded a decade ago), we offer a seamless end-to-end solution from converting CT/MRI images into 3D medical models, customised to answer your needs.





AUTODESK ASIA PTE LTD

Business Nature :
AM Software Solution Provider

Industry / Sector :
AM Technology (Software)

**Get tools that work right inside
Inventor - including advanced
simulation, 5-axis CAM, and
nesting**

THE COMPANY

Autodesk is leading the way to the future of manufacturing, allowing manufacturers to meet growing market demands by delivering better products faster, at lower cost and with less waste. With a comprehensive Design and Manufacturing portfolio, powered by Inventor and the Fusion 360 family, Autodesk provides advanced technology that automates and connects workflows for end-to-end product development. As design and manufacturing converge, we equip companies with an integrated set of desktop and cloud-based tools that brings together everything from design, engineering and simulation to collaboration, CAM, additive manufacturing and factory floor management. This unified platform breaks down the silos between disciplines, enabling more agile work among engineering teams and empowering manufacturers to become more competitive.

We're driving toward a future of push-button manufacturing that harnesses the power of connected data and artificial intelligence (AI) to help companies automate their engineering and manufacturing processes even further. With Autodesk generative design technology, customers can simultaneously generate and explore hundreds or even thousands of manufacturing-aware solutions based on product constraints and performance requirements such as strength, cost and materials. Manufacturers can leverage real-time performance data and smart manufacturing processes to accelerate the delivery of innovative new products to market. Customers ranging from General Motors to Airbus, Stanley Black & Decker, Under Armour and more are already taking advantage of this powerful technology to make anything.

PRODUCTS AND SERVICES



CONTACTS

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☎ 8008526313 (Toll Free)

✉ KeepInTouch@autodesk.com

🌐 www.autodesk.com.sg



BEAM MACHINES

Business Nature:

AM Machine Manufacturer / OEM

Industry / Sector:

AM Technology (Hardware / Process)

Manufacturer of DED Additive Solutions

CONTACTS

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THE COMPANY

BeAM is a Global OEM of Directed Energy Deposition machines headquartered in Strasbourg, France. Our technology is ideal for repairing components, adding features to existing parts or building near net shape parts with minimal post processing. Designed durably for the industrialisation of metal additive applications, BeAM's DED solutions are truly a critical ingredient in your "factory of the future".

PRODUCTS AND SERVICES

BeAM was initially founded in 2012 with a view to build a new generation of DED Solutions. With our partners, we built and tested our Magic 1.0 system over a period of the next several years. The first industrial machines were delivered in early 2016 and we have continued to grow, test, and create new systems since.

Our technology helps our clients develop and industrialise their manufacturing and repair processes with an extensive range of services of their production cycle: from feasibility studies and the pilot production phase to the sale of production units and corresponding training programs.

We collaborate with R&D centers and universities to maintain our technological lead. We also offer complete knowledge transfer to partners that wish to become regional DED experts.

Our product range comprise of Modulo 250, Modulo 400 and the Magic 800. The unique feature of our machines is the ability to perform the DED process in a controlled inert atmosphere. This extends the capability of the DED process to build with reactive metals such as titanium alloys. These reactive alloys require an atmosphere of exceedingly high purity to deposit. BeAM is the ultimate machine for such applications.

Our customer references include Safran, PFW Aerospace, University of Sheffield, Oak Ridge National Laboratory and the Nanyang Technological University. At the same time, we are a member of the Advanced Remanufacturing and Technology Centre (ARTC) to further develop DED technology in the region.





BIGREP PTE LTD

Business Nature :

AM Machine Manufacturer / OEM

Industry / Sector:

AM Technology (Hardware / Process)



THE COMPANY

BigRep develops the world's largest serial production 3D printers, creating the industry benchmark for large-scale printing with the aim to reshape manufacturing. Its award-winning, German-engineered machines are establishing new standards in speed, reliability and efficiency. BigRep's printers are the preferred choice of engineers, designers and manufacturers at leading companies in the industrial, automotive and aerospace sectors. Through collaborations with its strategic partners – including Bosch Rexroth, Etihad Airways and Deutsche Bahn – and key investors – including BASF, Koehler, Klöckner and Körber – BigRep continues to develop complete solutions for integrated additive manufacturing systems, as well as a wide range of printing materials on an open-choice source. Founded in 2014, BigRep is headquartered in Berlin with offices in Singapore and Boston. Leading the way in one of the world's key technologies, our multinational engineering teams are highly trained, interdisciplinary and customer focused.

PRODUCTS AND SERVICES

bigrep ONE



AFFORDABLE AND RELIABLE LARGE-SCALE PRINTER

- One cubic metre of German 3D printing power.
- A high performance machine made for BIG application prints!
- Size: x 1850 y 2250 z 1725 (mm)

bigrep STUDIO⁶²



HIGH-RESOLUTION 3D PRINTING AT LARGE SCALE

- Large 3D printer that fits any studio, workshop or factory.
- This enclosed chamber printer is made to work 24/7. Hi-res printing using engineering grade materials for fast paced environments.
- Size: x 1715 y 1170 z 1765 (mm)

bigrep PRO



AN INDUSTRIAL MACHINE FOR BIG PRINTS

- The ONE's successor with Metering Extruder Technology (MXT) and state-of-the-art Bosch CNC system produces engineering grade functional parts in an enclosed build chamber.
- Size: x 1950 y 2430 z 1790 (mm)

bigrep EDGE



INDUSTRY LEADER FOR HIGH-END MATERIALS

- BigRep's high temperature, high performance champion with Metering Extruder Technology (MXT) and state-of-the-art Bosch CNC system.
- Built for high-end industrial applications.
- Size: x 3100 y 1600 z 2220 (mm) - (Without tower light)

CONTACTS

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www.bigrep.com



BIORITHM

Business Nature :

AM Software Solution Provider

Industry / Sector:

Biomedical / Healthcare

Medical grade platform for remote monitoring of pregnancy vitals

THE COMPANY

Founded by doctors & engineers, Biorithm is a medical signal processing company which has spun off from Nanyang Technological University Singapore (NTU) in late 2015.

Forging new frontiers in pregnancy care, Biorithm has developed a cutting-edge analytic software together with medical-grade abdominal ECG wearable designed for remote monitoring of maternal & fetal physiological parameters.

Biorithm's unique solution empowers patient and clinicians to identify early signs of maternal-fetal complication for timely intervention while reducing the overall cost of care.

PRODUCTS AND SERVICES



Advanced Analytics



Reduce Cost of Care



Reliable Home Care



Prevention & Wellness

CONTACTS

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Singapore 139967

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🌐 sg.linkedin.com/company/biorithm

🌐 www.bio-rithm.com



BRALCO ADVANCED MATERIALS PTE LTD

Business Nature:

AM Adopter

Industry / Sector:

Aerospace / Defence, Automotive / Transport, Precision Engineering, Semiconductor & Electronics, Robotics / Automation

3D printing of Magnetic Materials. Other materials we can print are stainless steel, tool steel, cobalt-chromium, inconel, aluminium and titanium



CONTACTS

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Bralco Advanced Materials

www.bralcoadvancedmaterials.com

THE COMPANY

Bralco Advanced Materials Pte Ltd is an application research, product development and commercialisation company in the field of Additively Manufactured (3D Printed) functional components using advanced, high performance functional and magnetic materials through the development of new material compositions in-house. We are an innovation company focused on leveraging the power of Additive Manufacturing to solve our customers' problems in design, prototyping and customised mass manufacturing of electromagnetic components of complex design at an economical cost and shorter delivery time. We cater to various industries such as new energy, including e-mobility, electrical devices, automotive, aerospace and robotics industries that use electromagnetic components. We work in collaboration with world leading academic institutions such as Nanyang Technology University (NTU), National University of Singapore (NUS), Singapore's Premier research institute A*STAR and industry leader GE Additive, which is engaged in the aviation and power industries.

PRODUCTS AND SERVICES

Additive Manufacturing:

1. Soft and hard (permanent) magnets, stator, rotor and sensors.
2. Stator and Rotor Core assemblies.
3. Electromagnetic components and sensor assemblies.

Technical Services:

1. Product Development, Prototyping and Material Composition Development in:

- Magnetic Materials
- Permalloys
- Nickel based alloys
- Stainless Steel 316L
- Aluminium-Alloy (AlSi10Mg)
- Titanium-Alloy (Ti6Al4V)
- Cobalt-Chromium Alloy (CoCrW)
- All compositions of Pure Iron, Iron-based Alloys (Fe-Si, Fe-Si-Al)

2. Designing of Materials:

We design the material using simulation software and direct metal laser melting process (Additive Manufacturing) to meet customers' specifications and expectations. This way, we transform material utilisation from what is available to what is required.

Analytical Testing:

1. Powder Testing:

- Powder Granulometry
- Particle Size and Distribution Sieve Analysis
- Laser Diffraction / Dynamic Image Analysis
- Powder Flowability / Flow Rate
- Powder Rheometer
- Hall Flow Measurements
- Apparent Density & Tap Density
- Hall Flowmeter
- True Density

2. Powder Characterisation:

- Chemical Composition
- FE-SEM, SEM-EDX and/or OM
- Thermal Analysis
- DSC

3. Parts Characterisation:

- Phase Identification and Crystal Structure
- X-Ray Diffraction (XRD)

Crystallographic Texture Characterisation
- Electron Backscatter Diffraction (EBSD)



BRIM PRINTERS PTE LTD

Business Nature:

AM Machine Manufacturer / OEM, AM
Material Manufacturer

Industry / Sector:

Automotive / Transport

Ultrafast Large Format Stereolithography

CONTACTS

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THE COMPANY

Founded in 2017, we are currently developing a large format ultrafast stereolithography printer for the automotive industry. Our development partner Xinquan Automotive Trim Co. would be able to cut prototyping costs while maintaining the amount of time required to produce a set of prototypes.

PRODUCTS AND SERVICES

We are developing hardware, software and resins for an ultrafast 3D printer suitable for printing large items such as automotive parts and other large prototypes.

These printers will be able to replace the large prototype market segment currently serviced by the CNC machining sector.

Our custom software solution will be able to interface with most 3D printers allowing customers to further refine their current 3D printers. Our resins are developed specifically for high speed printing.





**BUREAU
VERITAS**

BUREAU VERITAS MARINE (SINGAPORE) PTE LTD

Business Nature :

Testing / Inspection / Certification

Industry / Sector:

Marine & Offshore



THE COMPANY

Bureau Veritas is a global leader in conformity assessment and certification services, with over 190 years of experience and expertise. We are the largest, strongest and best-financed classification and verification group in the world. Bureau Veritas has a global network of 180 survey stations spread over 90 countries. These include 16 local Technical Centers and Plan Approval Offices and 12 Regional Marine Centres. Our size, geographical outreach, diversified business portfolios and exceptional range of technical and project management skills epitomise the attributes that have made us a strong partner for renowned clients globally.

We are heavily committed to research and development. Our links to universities have grown strongly as we have aligned the interests of academics, industry and class to work towards new and more efficient ways to do things at sea and in offshore energy. Through our partnership with 19 leading universities in Brazil, China, Russia, Korea, Singapore, Malaysia, Vietnam, Australia, Taiwan and France, and joining forces with ship owners, shipyards, technical institutes and equipment manufactures in a wide range of projects, Bureau Veritas has demonstrated that through wide sharing of knowledge and collaboration, we can promote faster and safer development for the benefit of the industry.

As a group, Bureau Veritas continues to grow strongly, acquiring companies with complementary expertise so that we can offer new services to the industry's stakeholders. The size of the BV group of companies has helped us to be present in every country, in every technology, in every ship type and at every part of the process, from concept through to delivery and operation of complex ships and offshore systems. Diversity, versatility, strength, control and a relentless focus on the real meaning of efficiency and effectiveness remain our key recurring themes. These are also how we can assist owners, operators and shipyards to do even more in the coming years.

CONTACTS

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🌐 marine-offshore.bureauveritas.com/



Simulation is more than Software®

CADFEM SEA PTE LTD

Business Nature:

AM Software Solution Provider, Training & Consultancy

Industry / Sector:

AM Technology (Software)

CADFEM is focused on CAE simulation since 1985. We are the world's largest ANSYS channel partner.

CONTACTS

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www.cadfem-sea.com/
www.facebook.com/cadfemsea

THE COMPANY

Engineering Simulation opens up a huge range of possibilities for every engineer. However Simulation is more than Software! CADFEM offers solutions that are critical for success with your product innovation and development. We offer leading software and hardware solutions, support, consultancy as well as transfer of know-how.

CADFEM SEA is the ANSYS Certified Channel Partner in South East Asia. From our office in Singapore, CADFEM SEA operates in Singapore, Malaysia, Indonesia, Thailand, Philippines and Vietnam. As an ANSYS channel partner, we sell all ANSYS simulation packages from structural mechanics to fluid dynamics, electromagnetics and system simulation as well as embedded software.

CADFEM SEA is a member of the CADFEM Group. The members of the CADFEM Group form, strategically, the most important channel partnership of ANSYS, the world's largest developer of simulation technology. The members of the CADFEM group have grown today to 19 companies with over 500 employees working across 30 different locations in 17 countries.

Since inception in 1985, the brand name CADFEM has stood for a tight collaboration with ANSYS, which includes the distribution and support of the entire ANSYS portfolio from structural mechanics to fluid dynamics, electromagnetics and system simulation as well as embedded software. As a vital link between ANSYS and its users, CADFEM is also an important impulse generator to bring the customer's needs into the product roadmap. With CADFEM's leadership and trendsetting in simulation based engineering, CADFEM is also an important partner for ANSYS' development and for the development of third-party-solutions.



ANSYS simulation software offers leading technical solutions for a vast range of CAE applications. As ANSYS Certified Channel Partner, CADFEM distributes the full range of ANSYS products.



ROCKY provides model creation with an almost unlimited number of particles of various sizes, shapes, and adhesion strengths. You can perform efficient Discrete Element Analysis.



Perform Robust Design Optimisation and Stochastic Analysis. optiSLang provides systematic variation of all relevant influence factors. Automate your complex processes.



eCADFEM – Simulation on Demand. The CADFEM product as SaaS provides you with need-based, time-limited access to the key products in the CADFEM software portfolio.

Hardware & IT Solutions

CADFEM delivers immediately usable IT systems that are optimally designed for the special requirements of simulation technology.

Products, Services & Know-how from One Source
Because Simulation is more than Software



CADFEM Group

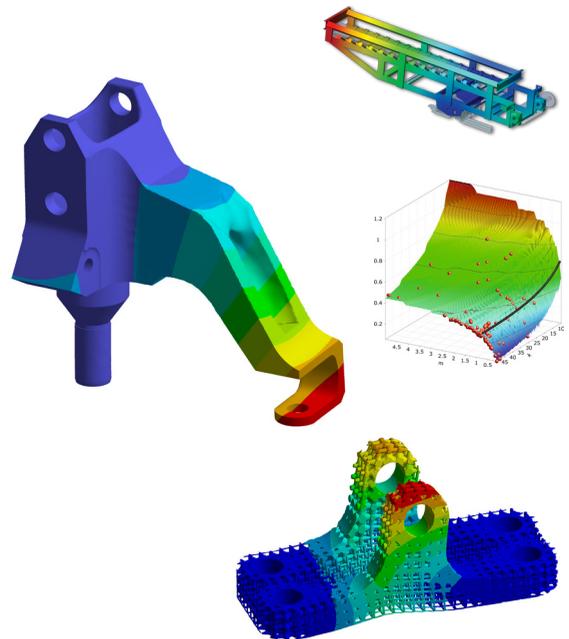
- 30+ Years of Experience in CAE Industry
- Presence in 14+ countries across the globe
- 2,500+ customers
- 500+ Technical Resources

Simulation makes lots of things possible

- Develop groundbreaking innovations
- Set standards in product quality
- Cut costs and development time

Simulations at the Core

- Simulation software from leading suppliers
 - ANSYS
 - Complementary software
 - CADFEM ANSYS Extensions
- Technical advice for Optimal Software Configuration
- Advice to develop a long term strategy for implementing simulations
- eCADFEM – Secure, Scalable & Readily Available Cloud Platform for Simulations
- Consulting services as per client request



Software | Hardware | Consulting | Support | Training

“Together, we can make the most of it.”



CAD-IT CONSULTANTS (ASIA) PTE LTD

Business Nature:

AM Products Distributor,
AM Software Solution Provider,
Design and Engineering, Training

Industry / Sector:

Aerospace / Defense, AM Technology
(Hardware / Process), AM Technology
(Software), Automotive / Transport,
Biomedical / Healthcare, Building &
Construction, Consumer Products,
Environment & Clean Tech, Food &
Beverages, Logistics, Marine & Offshore, Oil
& Gas, Robotics / Automation, Semiconductor
& Electronic

**We provide world-class design,
manufacturing solutions to help
our customers achieve greater
innovation, quality, productivity,
reduced costs and time-to-
market. We are ISO 9001:2008
certified**

CONTACTS

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cad-it-consultants-asia-pte-ltd

www.caditglobal.com

THE COMPANY

Founded in 1991, CAD-IT is a leading global ISO 9001:2008 certified Product Lifecycle Management (PLM), Service Lifecycle Management (SLM) and manufacturing systems integrator and education provider. CAD-IT's mission is to provide world-class solutions and services that enable companies and their supply chains to achieve greater product innovation, quality and productivity with drastically reduced time-to-market and costs.

CAD-IT is honoured to have received over 100 international and national awards since its inception for marketing and service excellence. Among its most recent accolades are the Singapore Enterprise 50 Award (4th Position) and 5-Year Award (2016, 2015, 2014, 2013, 2012), Singapore SME 1000 (2018, 2017, 2016, 2014, 2013, 2012, 2011), Asia Pacific Entrepreneur Award (APEA) – Outstanding Entrepreneur Award (2012, 2010, 2009), the Singapore Prestige Brand Award SPBA - Established Brand Award (2012, 2011, 2010, 2009), SPBA - Regional Brand Award 2012 and SPBA - Hall of Fame 2012.

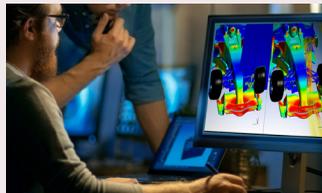
With 14 offices and presence in ASEAN (Singapore, Malaysia, Thailand, Vietnam, Indonesia), China (Shanghai, Beijing, Shenzhen, Chengdu, Suzhou, Hong Kong), Europe (UK, Ireland) and USA as well as a manufacturing plant in China (Suzhou), which are ISO 9001:2008 and ISO TS16949:2002 certified, CAD-IT has since built a customer base of more than 2,000 engineering companies and trained over 10,000 professionals.

CAD-IT's suite of PLM and SLM solutions include ANSYS (System-level, Multiphysics Simulation), PTC (Mathcad, CAD, CAM, PLM, SLM, IoT, AR, Technical Publishing), IHS Goldfire (Innovation Process Management), Autodesk Moldflow (Plastics CAE), Stampack (Sheet Metal Forming CAE), DEFORM (Bulk Metal Forming CAE), SpaceClaim (3D Direct Modeler), Mentor Graphics Valor DFM (Design For Manufacturing), Valor MSS (Complete Manufacturing Execution Suite), Cortona3D (3D Technical Documentation), CaseBank (Guided Diagnostics for Complex Equipment), Flownex (Complex Systems Thermal-Fluid Flow Analysis) and ROCKY DEM (Granular Particle Flow Behavior Simulation).

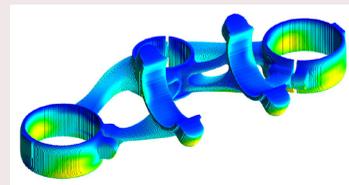
Since February 2010, CAD-IT has partnered with the Singapore Workforce Development Agency (WDA) to offer Advanced Certificate courses in PLM and Engineering Simulation, under the Workforce Skills Qualifications (WSQ) framework, with the charter to upgrade the technological capabilities of organisations in Singapore so as to enable them to undertake high value-add design, engineering, manufacturing and R&D activities.

CAD-IT's foremost priority has been and will continue to be building mutually fulfilling and long-lasting relationships with customers and our partners.

PRODUCTS AND SERVICES



1. Engineering Simulation & 3D Design



2. Additive Manufacturing Simulation



3. Additive workflow



4. X7 3D Printer for Continuous Carbon
Fiber Filament & Kevlar



5. 3d Metal Printing Solution



CELLINK

Business Nature:

AM Machine Manufacturer / OEM

Industry / Sector:

AM Technology (Hardware / Process),
Biomedical/ Healthcare

The first bioink company in the world and the market leader of 3D Bioprinters



CONTACTS

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🌐 www.cellink.com



THE COMPANY

CELLINK is the first bioink company in the world and the leading 3D bioprinter provider that focuses on the development and commercialisation of bioprinting technologies that allow researchers and scientists to 3D bioprint human organs and tissues for the development of pharmaceutical and cosmetic treatments. CELLINK's innovative and patent pending bioinks are biomaterial innovations that enable human cells to grow and thrive such as they would in the human body. Today, the company's disruptive technology platform is being utilised to print tissues such as cartilage, skin, and even fully functional cancer tumors that can then be used to develop new cancer treatments. The company has, in just 24 months, been able to commercialise products into more than 450 prestigious labs such as Harvard, MIT, Princeton, VT, and the FDA in over 45 countries around the world. CELLINK has been awarded many prestigious awards such as Start-up of the Year, Inventors of the Year, and recently, one of the co-founders was placed on the Forbes 30 Under 30 list while the other co-founder had a prestigious TEDx Talk. To read more about CELLINK, please visit: www.cellink.com

PRODUCTS AND SERVICES



BIO X is the most user-friendly yet flexible bioprinter in the world, providing the user with an unparalleled bioprinting experience. The built-in features along with the new BIO X software managed through the large touchscreen display minimises the learning curve, increases effectivity, and ensures you will receive the results you want.



CELLINK developed the world's first universal bioink. Today, hundreds of labs use it in more than 45 countries worldwide. We develop new bioinks with good printability and bioactive properties to guide cellular fate processes. Our goal is to support tissue engineers, cell biologists and clinicians and bring innovative 3D bioprinting technology to the clinic.



CELLCYTE X is the next-generation imaging platform designed to optimise data collection and analysis. CELLCYTE X leverages the full power of CELLINK's cloud-based software to deliver continuous insight to your incubator, enabling high-impact observation without the risk of disturbing an experiment.



MATCOR
a cetim company

CETIM GROUP / MATCOR TECHNOLOGY & SERVICES PRIVATE LIMITED

Business Nature:

Research & Development, Training & Consultancy

Industry / Sector:

Aerospace / Defence, Manufacturing (Others)

Cetim, as an international non-profit organization, is a unique structure for Industry 4.0 innovations & implementations with a regional presence in Singapore

CONTACTS

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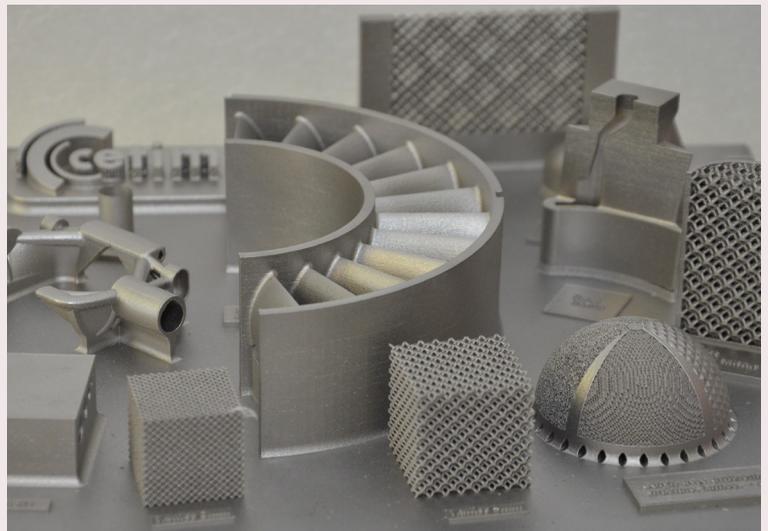
THE COMPANY

Since 1965, the development of Cetim has led to the creation of an international engineering group, which supports your challenges of innovation and competitiveness, by providing the best of mechanical technology expertise. The organisation is also about taking businesses into industry 4.0, in France and around the world.

Multiple skills and expertise:

- Testing and control of materials: Exceeding 100,000 all-material tests, European No. 1 in Composite Testing
- Product and process engineering: support at every stage of the industrial process
- Consulting and training: 200 ISO-integrated experts, 150,000 hours of training provided with more than 7,000 trainees trained per year
- Outsourced R & D: 20 patents, 40 invention deposits per year, 1 co-development service offer

Cetim is the founding member of the Alliance for the Industry of the Future and a reference partner to support your industrial transformation, from the strategic roadmap to the operational deployment of technology.



Additive Manufacturing expertise consultancy and support has become part of CETIM's DNA. CETIM embarks on this journey to serve the mechanical industries throughout the world.



Capacity to deploy a big pool of multidisciplinary expertise relevant throughout the entire value chain of Additive Manufacturing;

- Developed expertise on Laser Beam Melting (LBM) for many years and supported hundreds of companies with successful outcome;
- Recently invested in Metal Binder Jetting (MBJ), a new process providing economic and productive solutions for the manufacture of small complex components;
- Knowledge Transfer to the industries by providing specialised and customised training courses and programs;
- Continuously investing in new technology and resources to meet industry and clients' requirements.

cetimacademy

Your training partner to master Metal Additive Manufacturing

Capability Transfer Program in Singapore

Supported by **NAMIC** and **WSG**

**Control, Post Processing, Qualifications & Consultancy Services -
Laser Beam Melting**

W: <http://www.matcor.com.sg/training/>

E: training@matcor.asia

T: +65 6778 8285



CHEMTRON PTE LTD

Business Nature:

AM Products Distributor, AM Service Bureau

Industry / Sector:

AM Technology (Hardware / Process), Biomedical / Healthcare, Robotics / Automation, Manufacturing

We specialise in providing quality, reliable and industry proven 3D Solutions to our customers



CONTACTS

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📍 Blk 203A Henderson Road, Henderson Industrial Park #02-03, Singapore 159546

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🌐 www.chemtron.asia

THE COMPANY

Inspired by Innovation, Chemtron Pte Ltd was established in 1996 to lead the industry by providing valuable technologies and solutions to our clients. We carry a complete portfolio of solutions that is making rapid head way into various industries such as manufacturing, medical, jewellery, aerospace and dental markets. Through the trust and support of our clients, we have successfully installed our solutions into leading institutions and commercial enterprises across South East Asia. We are passionate about continuously pushing the boundaries of possibilities by embracing key technologies and successfully implementing them.

Vision

Our vision is to empower companies with cutting-edge technologies to remain competitive and relevant in today's business environment.

Mission Statement

Our mission is to help companies adopt and implement new technologies to improve and enhance their traditional practices. We aim to do this by understanding our customers' difficulties and thereby providing effective solutions to overcome this. We seek to educate and train our customers by offering exceptional customer service and support all times.

PRODUCTS AND SERVICES

Bigrep:

With its huge 1m³ volume, the BigRep Solutions opens the gateway to a new dimension of 3D printing and 3D Manufacturing. Engineers, architects and designers now have access to large-dimensional at a much lower price.

BigRep 3D printers are constructed to feel at home anywhere in rugged work environments such as workshops or construction zones, or in tidy offices or studios. Whether it's functional prototypes, composite tooling or end-use products, We want you to envision everything from human scale robot parts, sculptural artworks in all their full-dimensional glory, and dream the impossible world-changing designs of tomorrow while enabling you to print them today using one of our 3D printers.

3D Printing and Consultancy Services:

Chemtron provides a wide range of 3D printing services for our customers ranging from resins, thermoplastics, composites to metal! We also provide consultancy and 3D designing services to assist customers in adopting this upcoming technology.

Markforged:

Markforged is liberating designers and engineers from the long lead times and high costs of traditional manufacturing. Instead of waiting weeks and paying thousands of dollars for a part, with Markforged you can 3D print incredibly high-performance parts on-premise and in under 24 hours, such as carbon fiber parts that are as strong as aluminum and dramatically lighter.

For heat tolerance and overall Isotropic strength, use the Markforged Metal X system that allows you to print with 17-4 stainless steel, tool steel and more! For anything else, print with Titanium, Aluminum, Kevlar, or one of our 11 other materials to fit any functional application. Welcome to the future.

Cellink:

Cellink focuses on the development and commercialization of bioprinting technologies that allow researchers to 3D print human organs and tissues for the development of pharmaceutical and cosmetic products, and in the future, for clinical applications. CELLINK's innovative and patent pending bioink is a biomaterial innovation that enables human cells to grow and thrive such as they would in the natural human body environment.

Envisiontec:

For 15+ years, EnvisionTEC has been delivering desktop and production 3D printers and materials that deliver best-in-class results. We are leaders in the dental, hearing aid, jewelry, entertainment, and industrial markets. Nobody beats EnvisionTEC when it comes to accuracy, surface finish and speed.



CHEMTRON PTE LTD

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Inspired by innovation, Chemtron Pte Ltd was established in 1996 to lead the industry by offering solutions which are making rapid headway into various industries such as manufacturing, medical, jewellery, aerospace and dentistry.

Through the trust and support of our clients, we have successfully installed our solutions into leading institutions and commercial enterprises across South East Asia.

We are passionate about continuously pushing the boundaries of possibilities by embracing key technologies and successfully implementing them.

Brands We Represent :



The World's First Continuous Composite Printer and Most Advanced End to End Metal System. Get functional, ready to use end-use parts overnight!



The Largest Fused Filament Fabrication (FFF) build volume for professional and industrial use. No longer be limited with size when it comes to BIGREP.



From the inventors of the DLP technology, you can now 3D Print your potential with unsurpassed precision, accuracy and speed. Envisiontec, the DLP 3D Printer you need.



Cellink provides the world with the most affordable desktop Bio Printer along with their patented BioInk. A medical researcher's dream come true.

3D Printing Services

Chemtron offers professional 3D Printing in Singapore. We are able to produce high quality parts in multiple materials and finishes with short lead times. Let us assist you with your 3D Printing requirements and we can turn the most complex ideas into physical item in days.



CREATZ3D PTE LTD

Business Nature:

AM Products Distributor, AM Service Bureau

Industry / Sector:

AM Technology (Hardware / Process),
Biomedical / Healthcare, Robotics / Automation,
Manufacturing

**Your partner for industrial
grade 3D Printing Solutions
implementation with dedicated
customer support**



THE COMPANY

Founded in 2012, Creatz3D has established itself in providing professional industrial-grade 3D printers and solutions for high-in-demand manufacturing applications.

Since then, we have accumulated experience and expertise from working on more than 150 professionally-installed bases at commercial companies, research facilities, and more.

Being industry responsible, we contribute, support and drive the acceleration of 3D printing adoption in the local business community.

At Creatz3D, we innovate and present solutions in a collaborative partnership with our clients. Our focus, commitment and passion allow us to not just perform better than our competitors, but also to push boundaries, influence, accelerate and unleash the full potential of AM in all industries.

PRODUCTS AND SERVICES

With revolutionary technologies from brands like Stratasys, Desktop Metal, SISMA, XJET, 3DCeram, and Materialise Software, customers can count on high-quality plastic, metal and ceramic 3D printing solutions to suit any design, engineering or prototyping environment or desired requirements. Creatz3D also offers DLyte Dry Electropolishing systems that grind and polish non-precious and precious metal components for easy post-processing. The wide-ranging portfolio of industry-leading additive manufacturing solutions enables Creatz3D to assist customers in unlocking their full business potential with additive manufacturing.

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🌐 www.creatz3d.com.sg



Redefining Innovation

Reshape and accelerate unrestricted design-to-manufacturing processes. Make the impossible, possible.



Industrial 3D Printing Solutions Provider

3D Printers & Service Divisions



Plastic

Offering leading industrial technologies from Fused Deposition Modeling (FDM), PolyJet to Stereolithography (SLA) for demanding engineering applications.



Metal

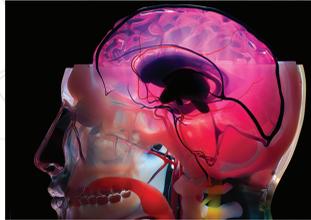
State of the art technologies include Electron Beam Melting, NanoParticle Jetting, Laser Metal Fusion, Single Pass Jetting and the world's first office-friendly Metal 3D Printer which utilises Bound Metal Deposition.



Ceramics Division

With its known unique properties from being chemically inert to withstanding high heat temperatures.

A focused service bureau in pushing manufacturing boundaries that only advanced technical ceramics can execute.



Medical Division

End-to-end solution dedicated to medical applications in the conversion of CT/MRI images to 3D printed models.

Authorized Reseller



Desktop Metal™



Creatz3D Pte Ltd

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Yi Guang Factory Building Singapore 409032

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- Email: info@creatz3d.com -

- Website: www.creatz3d.com.sg -



CONTINENTAL ENGINEERING ENTERPRISE PTE LTD

Business Nature:
Engineering

Industry / Sector:
Marine & Offshore

**Specialises in fabrication and
machining of steel parts**



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THE COMPANY

Continental Engineering Enterprise Pte Ltd (CE) was incorporated in 1989 and specialises in engineering services for the Marine and Offshore industry serving many MNCs and owners. Since the incorporation of Continental Engineering, our reputation was built on our experience in structural fabrication and engineering services in a variety of parts and materials. With over a 25-year track record, Continental Engineering has proven to be among the best in the industry and has an established clientele in the Marine, Offshore and Oil & Gas industries.

Continental Engineering offers comprehensive engineering services under one roof. We provide a **“one-stop solution for all your on-shore and off-shore needs”**. We are capable of delivering manpower, resources, expertise and equipment to our clients over a wide range of industries. Our highly-skilled team, competitively-priced engineering services, structural fabrication and contract labour capabilities have made us a valued partner for a vast range of projects in the industry.

Continental Engineering is proud to be certified to ISO 9001:2015 and has attained the BizSafe Level 3.

Our proven quality workmanship and the ability in delivering products and services within the agreed time-frame have helped Continental Engineering maintain its key competitive position as one of Singapore’s leading companies in structural fabrication and engineering services in this region.

PRODUCTS AND SERVICES



Parts for Trenching Equipment



Parts for Offshore Vessel



Parts for ROV



Parts for Offshore Vessel

CRODA

CRODA SINGAPORE PTE LTD

Business Nature:
AM Material Manufacturer

Industry / Sector:
AM Technology (Hardware/Process)

Speciality raw materials that aid in the production of high performing 3D polymers

THE COMPANY

We are the name behind the high performance ingredients and technologies in some of the biggest, most successful brands in the world: creating, making and selling speciality chemicals that are relied on by industries and consumers everywhere.

Founded in 1925, since the beginning we have understood the important part that science plays in everyday life. We continually build on our heritage with sustainability-centred thinking, turning exciting, often groundbreaking ideas into practical solutions that our customers use to enhance their products.

Our success is driven by our focus on collaboration, proactive attitude and ability to think differently. We achieve this by encouraging our people to be curious and seek out creative ways to satisfy unmet needs. They work together as one global team, empowered to use their collective skill and knowledge to grow our business. We take pride in the synergistic relationships our people have with our customers and their ability to remain close to them through our local operations. Our work with our peers supports this shared approach, influencing advancements in scientific understanding by taking part in regulatory discussions and partnering with world leading universities.

PRODUCTS AND SERVICES



Figure 1: Croda's Pripol™ dimer acid building blocks to improve the performance of 3D polymers



Figure 2: Pripol™ dimer diol building blocks to improve the performance of 3D polymers

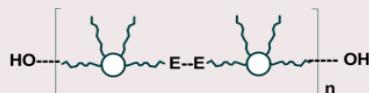


Figure 3: Croda's Priplast™ polyol building blocks to improve the performance of 3D polymers

Our bio-based building blocks (monomers) derived from renewable raw materials offer high performance (flexibility, hydrophobicity, good adhesion) and environmentally friendly solutions in 3D Printing, coatings, adhesives, elastomers and engineering plastics.

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DAZZTECH

Engineering the next breakthrough

DAZZTECH SOLUTIONS SDN BHD

Business Nature:

AM Software Solution Provider

Industry / Sector:

AM Technology (Software)

Our solutions help optimise AM process parameters for better performance and improve AM part testing

THE COMPANY

DAZZTECH SOLUTIONS provides proven and reliable CAE and Design Optimisation solutions, training and support to companies, research institutions and universities across the fields of Aerospace, Automotive, Built-Environment, Civil Engineering / Infrastructure, Defense, Electronics, Renewable Energy, Manufacturing and Transportation in ASEAN countries.

Our products/services include Digital Prototyping (Reverse Engineering, 3D Printing); Metal Casting Simulation Solutions & CT-Scanning systems, Image-to-3D Model Generation, CAE (CFD, FEA, Structure Optimisation), Design Space Exploration & Design Optimisation, Train / Automotive Vehicle Dynamics & Aircraft Design-Analysis.

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PRODUCTS AND SERVICES





Powered by FLOW-3D



Powered by FLOW-3D

SYNOPSYS[®]

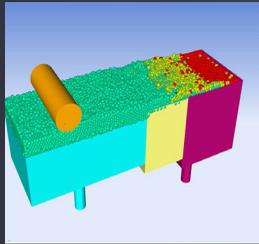
Optimizing AM Part Testing
Verifying Additive Manufactured (AM)
Parts from 3D CT Scans

Lattice Design, Image-to-3D-Model
Generation, Sharp Edges Smoothing

Additive Manufacturing Process Simulation with FLOW-3D

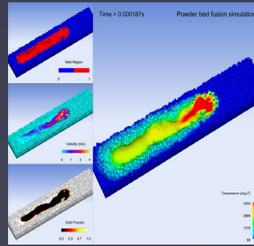
FLOW-3D is a CFD software that simulates and analyzes additive manufacturing processes such as laser powder bed fusion, binder jetting, and direct energy deposition. FLOW-3D's multiphysics capabilities offer highly-accurate simulations of powder spreading and compaction, melt pool dynamics, porosity formation for L-PBF and DED, and resin penetration and spreading for binder jetting processes, for analysis and optimization of process parameters.

POWDER SPREADING



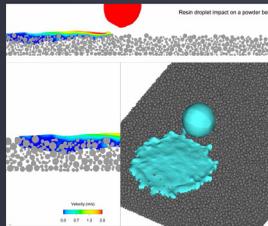
Using the discrete element method, **FLOW-3D** is able to accurately simulate the powder packing and spreading processes. Models to study particle-particle interactions, particle-roller/knife interactions, and full particle-fluid flow coupling for various particle size distributions are available.

LASER POWDER BED FUSION



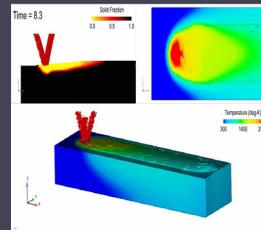
The effect of process parameters (laser power, scan patterns and speed) on underlying physical phenomena (melt pool dynamics, phase change & solidification microstructure evolution, porosity formation in keyhole welding, balling defects & microstructure prediction in L-PBF processes, and crystal growth & orientation in direct energy deposition processes) can be modeled in FLOW-3D.

BINDER JETTING



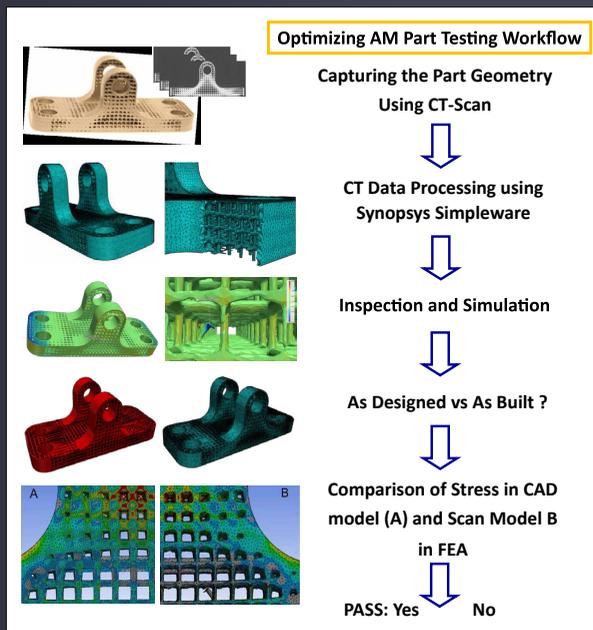
FLOW-3D models resin infiltration and lateral spreading in a powder bed during a binder jetting 3D printing process. Fully and accurately resolving the particles and voids within a particle bed enables analysis.

DIRECT ENERGY DEPOSITION



In direct energy deposition processes, process parameters such as powder injection rate, particle size distribution, laser power and scan speed can influence the printed layer thickness and crystal orientation. **FLOW-3D** can simulate the DED processes in fine detail to achieve better process control of multi-layer deposition.

Optimizing AM Part Testing with Synopsys Simpleware™



Going from a 3D computed tomography (CT) scan of an AM part to a completed simulation is achieved by using Synopsys Simpleware™ software as a crucial bridging technology that generates high-quality meshes from CT Scans. Results from test workflows show the differences between as-designed and as-manufactured parts, catching unexpected defects early in the design stage and saving on long-term costs caused by manufacturing errors.

- Workflow enables validation and inspection of high-value AM parts
- Go from computed tomography imaging to computer simulation
- Compare reality and as-designed part through metrology and multiphysics simulation
- Increase your understanding of AM capabilities for extremely complex designs
- Evaluate impact of manufacturing defects on part performance to better inform design decisions



DASSAULT SYSTÈMES

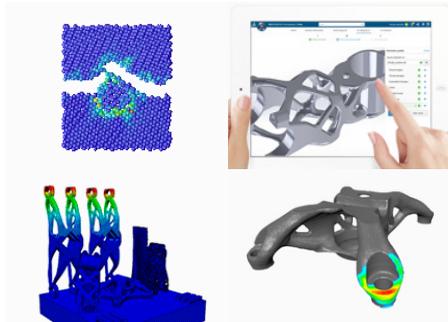
Business Nature:

AM Software Solution Provider

Industry / Sector:

AM Technology (Software)

**End-to-end AM suite
from Material definition to
Manufacturing and Certification**



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THE COMPANY

Dassault Systèmes is a leading software company, offering business solutions on the 3DEXPERIENCE.

The 3DEXPERIENCE platform is a business experience platform. It provides software solutions for every department in your company - from marketing to sales and engineering - that help you in value creation and differentiating customer experiences. With a single, easy-to-use interface, it powers industry solution experiences, in a collaborative interactive environment (on premise and in public or private cloud).

Digital Thread for Additive Manufacturing

Dassault Systèmes offers a full portfolio of integrated applications for additive manufacturing that connect across multiple disciplines - design, manufacturing and simulation.

PRODUCTS AND SERVICES

The 3DEXPERIENCE platform provides a rich set of applications identified within these key themes:

3DEXPERIENCE Marketplace

The most seamless way to get your parts made and collaborate with leading digital manufacturers worldwide.

In-Silico Material Engineering

Materials are core to any additive process - from first principles using molecular dynamics/quantum mechanics to any materials research for additive, whether polymers or metal alloys.

Function-driven Generative Design

Our function-driven design tools, backed by multiphysics simulation-based optimisation and predictive analytics, have led to a new design practice for innovation.

Process Design & Production Plan

Print to Perform focuses on the core theme of Virtual Printing, our powerful general purpose framework for simulating additive manufacturing processes, materials and scales.

Our virtual printing solution delivers the following key capabilities:

- Accurate, validated and reliable solutions
- Inherent strain and full thermal-mechanical solutions
- Micro-structure predictions, as-built material properties, and residual stresses
- Failure predictions, process induced (crack initiation and growth) or machine induced (recoater collisions)
- Post-processing effects: build plate removal and heat treatment
- In-service assessment and fatigue life predictions of manufactured parts



DENOVA SCIENCES PTE LTD

Business Nature:

Testing / Inspection / Certification, Research & Development, Contract Research

Industry / Sector:

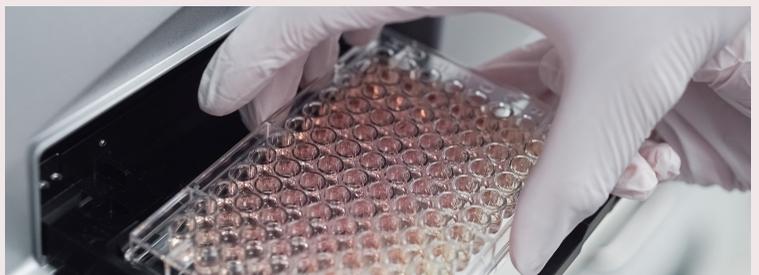
Biotechnology

DeNova specialises in providing Asian In-Vitro Organoid Models

THE COMPANY

DeNova is the premier source of Asian derived Organoid Models to replace animal testing in the cosmetic industry by streamlining and cutting costs in the developmental process. This benefit is applicable to the Pharmaceuticals, Food nutrition and Medical technology sectors by reducing human or animal subjects required during FDA required trials. The Asian derived Organoid Models will be available to the market via two streams. The first is through services (claims validation, efficacy testing, outsourced R&D provided by DeNova which will target companies which do not wish to incur the cost of manpower and asset acquisition. This allows them to tap into DeNova's unique capabilities to fast-track the launch of products to market. The second will be the sales of In-Vitro and Ex-Vivo Organoid kits along with proprietary supplement media to cater to companies which do not wish to out-source but instead perform their product development in-house. This allows coverage of the entire spectrum of companies which will require Asian Organoid models.

PRODUCTS AND SERVICES



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Technology for designing the future

DESIGNTECH TECHNOLOGIES SINGAPORE PTE LTD

Business Nature:

AM Products Distributor

Industry / Sector:

AM Technology (Software), AM Technology (Hardware / Process)

We are a leading CAE software solutions and Additive Manufacturing technologies serving a wide variety of industry segments

CONTACTS

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THE COMPANY

What DesignTech offers:

Today, DesignTech has risen to become a leading CAD / CAM / CAE, PLM solutions and Additive Manufacturing technologies provider with dedicated team members serving a wide variety of industry segments by providing them CAD/CAM/CAE and PLM software and/or services. Our strengths allow us to help industries optimize their mechanical product design / engineering processes, thereby making them more innovative, efficient, cost effective and time saving.

Alliance with top global brands:

Our alliance with world-renowned advanced technology developers like Altair, Stratasys, Rosetta Stone makes us a right choice as a technological partner. DesignTech is a principled company that strictly adheres to its mission and philosophy which dictates the way we operate and conduct business. Commitment to “delivering excellence”, backed by an unwavering and motivated workforce and guided by innovative and effective top management vision, DesignTech is surging ahead to achieve greater heights of success in the domain of CAD / CAM / CAE and PLM.

PRODUCTS AND SERVICES

Mechanical Engineering and Product Design Services





DESKTOP METAL

Business Nature:

AM Machine Manufacturer / OEM

Industry / Sector:

AM Technology (Hardware / Process)

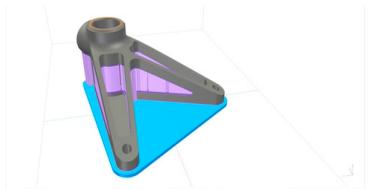
World's first office-friendly metal 3D printing solution



The Studio System - the world's first office-friendly system



Safe-to-handle bound metal rods



Fabricate™ software – simplifies model prep and automates metal 3D printing



The Production System – sinter process to remove remaining binder and densify the metal particles

THE COMPANY

Desktop Metal, Inc., based in Burlington, Massachusetts, is committed to bringing metal additive manufacturing to engineering and design teams around the world. The company's growing team of hardware and software engineers, materials scientists, and designers is addressing the unmet challenges of speed, cost, quality and convenience to make metal 3D printing an essential tool for innovation.

PRODUCTS AND SERVICES

Desktop Metal has launched two end-to-end systems, the Studio System™ and the Production System™, which mark a fundamental shift in how products will be developed and brought to market. Both metal 3D printing technologies change the rules of traditional metal manufacturing solutions with the advent of first-of-its-kind innovative approaches that reduce costs and significantly increase speed, safety, and print quality.

The Studio System is the world's first office-friendly system designed to bring metal 3D printing for the shop floor. 10x less expensive than today's metal 3D printers, the Studio System enables engineering and design teams to produce highly complex parts without leaving the office. The Studio System is based on a new approach to metal 3D printing – Bound Metal Deposition™ (BMD). We eliminated lasers and powders to make metal 3D printing office-friendly. Unlike other systems, there is no 3rd party equipment or special facilities required – just power and an internet connection. Every stage of the process is fully automated, making it easy to go from CAD to part. The Studio System – including the printer, debinder and furnace – is shipping to customers across the United States and Canada.

The Production System is the first metal 3D printing system for mass production, delivering the speed, accuracy, and per-part cost needed to compete with traditional manufacturing. Breakthrough Single Pass Jetting™ (SPJ) technology delivers speeds up to 12,000 cm³/hr – making it the fastest metal 3D printer in the world with the highest capacity. The printer has two full-width print bars containing over 32,000 jets, advanced powder spreaders and anti-ballistic system work to spread powder and print in a single quick pass across the build area - making it the most sophisticated single pass inkjet printhead ever installed in a binder jet system. Use of 32,768 piezo inkjet nozzles enables the broadest range of binder chemistries to print an array of metals - including tool steels, low alloy steels, titanium, and aluminum - at a rate of 3 billion drops per second. The first Production System was installed in early 2019 at a Fortune 500 company which was among Desktop Metal's early Pioneer program. Additional customer installations at major automotive, heavy duty and leading metal parts manufacturers will follow, with broad availability in 2020.

CONTACTS

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🌐 www.desktopmetal.com/

DMG MORI

DMG MORI

Business Nature:

AM Machine Manufacturer / OEM

Industry / Sector:

AM Technology (Hardware/Process)

AM Technology (Software)

AM Process solutions in finished part quality from a single source

THE COMPANY

DMG MORI SEIKI is a worldwide leading manufacturer of machine tools with sales revenue of over €3.8 billion and more than 12,000 employees. Our integrated technology and automation solutions cover turning and milling machines, as well as advanced technologies such as ultrasonic, lasertec and additive manufacturing. With 157 sales and service locations, 14 production factories, as well as 5 Additive Manufacturing Excellence Centers worldwide for offering the best support to our customers.

- Unique: Four process chains in Additive Manufacturing and finishing from a single source
- 20 years' experience in laser and SLM technology
- End-to-end knowledge in the field of additive metal machining

PRODUCTS AND SERVICES



SELECTIVE LASER MELTING (SLM)
LASERTEC 12 SLM
LASERTEC 30 SLM 2nd Gen.



AMOPTOMET*1
Parameter Optimisation Software for
SLM Technology

*1 AMOPTOMET is a software which was developed by INTECH.



LASER DEPOSITION WELDING
LASERTEC 65 3D / hybrid



LASER DEPOSITION WELDING
LASERTEC 4300 3D

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DNV GL

Business Nature:

Testing / Inspection / Certification, Training & Consultancy

Industry / Sector:

Marine & Offshore, Oil & Gas, Environment & Clean Tech

End-to-end certification solutions for additive manufacturing (AM)



THE COMPANY

DNV GL is a global quality assurance and risk management company. Driven by our purpose of safeguarding life, property and the environment, we enable our customers to advance the safety and sustainability of their business. Operating in more than 100 countries, our professionals are dedicated to helping customers in the maritime, oil and gas, power and renewables and other industries to make the world safer, smarter and greener.

As a trusted independent partner, we support our customers with a worldwide network and in-depth knowledge to meet or to overcome the challenges associated with new technologies such as additive manufacturing or 3D printing. We have developed qualification and certification guidelines as recommended practices specifically targeting AM technology, and are involved in a number of Joint Industry Projects.

Our Global Additive Manufacturing Technology Centre in Singapore serves as an incubator and testbed focusing on DNV GL's global competence and service delivery for assurance and advisory services in additive manufacturing for the maritime, offshore and oil and gas industries. The technology center delivers services including additive manufacturing certification, feasibility studies, qualification, verification and approval of design of materials, components and structures and other safety-critical components using additive manufacturing, verification of additive manufacturing and fabrication processes, equipment, personnel and products.

CONTACTS

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🌐 www.linkedin.com/company/dnvgl

🌐 www.dnvgl.com/services/additive-manufacturing-certification-104684

PRODUCTS AND SERVICES

DNV GL's Certification Process Flow





ELH TECH (S) PTE LTD

Business Nature:

AM Service Bureau

Industry / Sector:

Aerospace / Defence, Biomedical /
Healthcare, Precision Engineering,
Semiconductor & Electronics

A complete AM solutions
provider with expertise in industrial
manufacturing with quality finishing



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🌐 www.3duct.com

THE COMPANY

Established in 2009, ELH Tech specialized in manufacturing high-quality fixture and high-complexity tooling for the Aerospace, Oil and Gas and Semiconductor industry. In 2015, ELH Tech venture into the Additive Manufacturing industry as an AM equipment distributor in the APAC region, providing AM equipment and maintenance service for various industries.

Since August 2019, ELH has acquired UCT Additive Manufacturing Center and will continue to lead the commercial 3D printing scene in Singapore. We provide expert rapid prototyping and specialty manufacturing solutions to our customers. At the same time, we use 3d printing in our production processes to accelerate manufacturing of key components.

We understand the value in producing complex geometries that are difficult to manufacture using traditional manufacturing methods and the flexibility of customization for specialty manufacturing requirements. Our experienced team is trained to listen to your requirements, as a customer, and educate you with the best solutions to your needs.

PRODUCTS AND SERVICES







EMERSON AUTOMATION SOLUTIONS

Business Nature:

AM Adopter

Industry / Sector:

Manufacturing (Others), Marine & Offshore, Oil & Gas

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 www.emerson.com

THE COMPANY

Emerson Automation Solutions is a global technology and engineering company helping process, hybrid, and discrete manufacturers to maximise production and protect personnel and the environment, while optimising their energy and operating costs.

Our automation expertise – from projects to operations – is focused on helping manufacturers achieve top quartile business performance through the industry’s broadest portfolio of technologies to measure, control, optimise and power their operations.

Emerson offers the expanded Plantweb™ digital ecosystem, a scalable portfolio of standards-based hardware, software, intelligent devices and services for securely implementing the Industrial Internet of Things (IIoT) with measurable business performance improvement.

With the goal of spurring innovation to address customers’ engineering design challenges and accelerating speed to market for new, rigorously tested products, Emerson opened an advanced additive manufacturing center at its Singapore campus in 2017. This is Emerson’s second location to have additive manufacturing capabilities. The first was launched in Marshalltown, Iowa, USA.

We have the most complete automation portfolio in the industry with the depth of services to back it up. Our network of global industry centres and industry and application experts take on the toughest challenges. Anytime. Anywhere.

Across Asia Pacific, Emerson has a strong mix of capabilities and investments in the region ranging from Manufacturing & Assembly, Systems Integration & Engineering; Research & Development, Technical Services & Support, Customer Support, Consulting Centres, Training Centres, Services Centres and Solutions Centres.

With strong representation in 45 locations across the Asia Pacific region, the 24,000 employees of Emerson Automation Solutions stand ready to mobilise the considerable resources and capabilities at their disposal in response to our customers’ needs and help them solve automation challenges and realise lofty goals.



ENTEGRIS

Business Nature:

AM Adopter

Industry / Sector:

Life sciences, Manufacturing (Others), Semiconductor & Electronics

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www.entegris.com

THE COMPANY

As a global leader in advanced materials science, we have the expertise and determination to help solve your most advanced technology challenges.

Every day, for more than 50 years, our singular mission has been to help customers utilise our advanced, science-based solutions to support a safer workplace; to innovate faster and more efficiently; and ultimately to transform the world.

PRODUCTS AND SERVICES



The F300 AutoPod® wafer carrier is a 25-capacity, 300 mm front-opening unified pod (FOUP) that provides clean and secure wafer transport, and optimum automation integration for your facility.



The ProE-Vap® delivery system is designed for solid precursors used in Atomic Layer Deposition (ALD) and Chemical Vapor Deposition (CVD) processes.



GateKeeper® GPU series of purifiers were designed to improve process gas consistency, lifetime and outlet purity.



1010 Series EUV Pods

Entegris extreme ultraviolet light (EUV) reticle pod is designed to give defect-free protection of reticles and had demonstrates superior defectivity performance.



EOS SINGAPORE PTE LTD

Business Nature:

AM Machine Manufacturer / OEM, AM Material Manufacturer, Training & Consultancy

Industry / Sector:

AM Technology (Hardware / Process), Aerospace / Defence, Biomedical / Healthcare, Automotive / Transport, Robotics / Automation, Semiconductor & Electronics

End-to-end Additive Manufacturing solution with consultancy programs to achieve AM success

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www.eos.info

THE COMPANY

EOS is the world's leading technology supplier in the field of industrial 3D printing of metals and polymers. Formed in 1989, the independent company is a pioneer and innovator for comprehensive solutions in additive manufacturing. Its product portfolio of EOS systems, materials, and process parameters gives customers crucial competitive advantages in terms of product quality and the long-term economic sustainability of their manufacturing processes. Furthermore, customers benefit from deep technical expertise in global service, applications engineering and consultancy.

SYSTEM

Numerous quality-assurance measures ensure the plant's reliable compliance with production standards. The acceptance procedure performed with the EOS machine includes the production of defined reference objects, which are subsequently subjected to testing on the basis of all decisive criteria (e.g. mechanical properties, porosity, surface finish); comprehensive testing of all system components is also performed.

MATERIAL

Multidimensional quality management ensures the uniform composition of all material batches. The quality assurance of all powder batches begins with the delivery of the raw powder material (with a check of chemical characteristics and grain size distribution) and ends with an analysis of manufactured density cubes and tensile bars. All testing and processing steps performed on metal powders are conducted in class 9 cleanrooms.

PROCESS

Tested and secured processes ensure consistent production quality. All parameters (e.g. laser power or layer thickness) that are required for attaining certain chemical or component characteristics are based on more than 25 years of experience at EOS, coupled with a comprehensive series of tests during product development.

EOS Consulting: Additive Minds

Organisations around the world are under increasing pressure to develop new and disruptive products. Integrating additive manufacturing into your organisation is often a challenge because the necessary expertise can be hard to find. Minimize your investment risk and optimize your competitive edge by partnering with us. The EOS Additive Minds portfolio offers a comprehensive range of consulting and training to prepare your path into additive manufacturing. We accelerate your transformation into the champion of additive manufacturing with added value.

PRODUCTS AND SERVICES

Industrial 3D printing of plastic material

EOS P 396

The fastest polymer laser sintering system in the world is equipped with a powerful 70W laser and produces isotropic part properties.



Industrial 3D printing of metal material

EOS M 290

The system with a medium build volume and a 400 W laser manufactures metal parts with proven DMLS quality. Its pro series comprises a more operator friendly material management.



Industrial 3D printing of metal material

EOS M 400 / EOS M 400-4

With its large build volume and the choice for 1000W laser single filed and four 400W lasers, the proven DMLS system allows for the production of large parts and high-throughput manufacturing. The EOSTATE Monitoring Suite enables a comprehensive process monitoring.





EV3DM.COM

Business Nature:

Design & Engineering, Research & Development, Training & Consultancy

Industry / Sector:

Consumer Product, Manufacturing (Others)

CONTACTS

Eve Tan

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✉ eve@ev3dm.com

🌐 www.ev3dm.com/



THE COMPANY

We are wholesale suppliers of 3D Printers and 3D Filaments. Our products are of the highest standards and quality thus ensuring our customers' complete satisfaction.

PRODUCTS AND SERVICES



TRONXY





Eversky S. Steel Pte Ltd
 长天專業特鋼有限公司

EVERSKY S. STEEL PTE LTD

Business Nature:

AM products distributor

Industry / Sector:

AM Technology (hardware and software),
 Marine and offshore/Oil and Gas

**Strong technical support on
 advanced materials**

CONTACTS

Sheldon Ying

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 Harbourfront Centre Singapore 099253

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✉ mail@eversky.com.sg

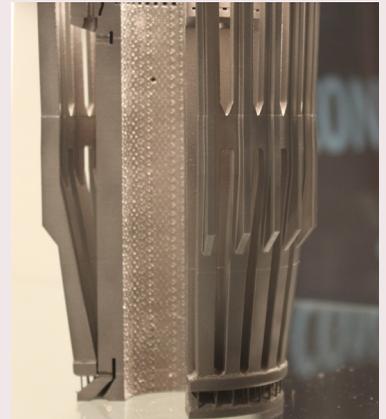
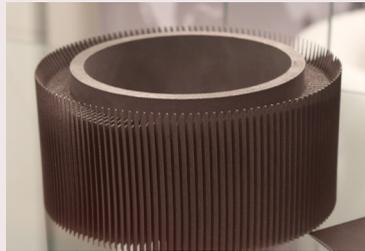
🌐 www.eversky.com

THE COMPANY

Established in 1999, the company is the pioneer in the export of Chinese origin steel material to the region. We now support the leading institutions in China for developing metal powder products and tailored technology for end users.

Our main products are metal powder for 3D printing, cladding and HIPing (Hot Isostatic Pressing) usage. Metal grades available for use include tool steel, stainless steel, super alloy, etc. Meanwhile, Eversky is keen to provide technical support on 3D printing, laser cladding etc. with strong R&D capacity.

PRODUCTS AND SERVICES





EVONIK (SEA) PTE LTD

Business Nature:

AM Material Manufacturer, AM Research Center

Industry / Sector:

Biomedical / Healthcare, Consumer Products, Environment & Clean Tech, Building & Construction, Automotive / Transport, Marine & Offshore, Oil & Gas, Aerospace / Defence



CONTACTS

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info-aps@evonik.com

www.linkedin.com/company/evonik/

3d-printing.evonik.com/product/additive-manufacturing/en/

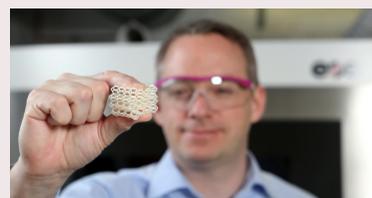
THE COMPANY

Evonik (SEA) Pte Ltd is a wholly owned subsidiary of Evonik Industries AG, one of the world leaders in specialty chemicals and active in over 100 countries around the world with more than 32,000 employees. With a strategic focus on specialty chemicals, customer-focused innovation and a performance-oriented culture, we offer products, technologies and solutions to genuinely create added value for our customers.

The group also pioneers in the development and manufacturing of customised polymer materials and additives for various 3D printing technologies. Evonik is leading in the production of polyamide 12 powders, which have been used in additive manufacturing for over 20 years, and has been setting high quality standards for innovative materials in 3D printing. Additionally, PEEK filaments, nano composites, powders of polyamide 6-series as well as flexible PEBA and a full range of additives such as dispersion agents, flow improvers or reactive modifiers complete the company's product portfolio for applications in additive manufacturing.

In Singapore, Evonik has been active for more than 40 years, starting off with importing a broad range of products and later with productive engagement. Today, Singapore is the headquarters and innovation hub for Evonik in the Asia Pacific South Region. To drive forward our commitment to global innovation, Evonik opened its first Asia Research Hub for resource efficiency topics in Singapore in 2018, internationalising its research into the areas of material development for additive manufacturing, functional surfaces and tissue engineering. Formed with an agile team of scientists and researchers from domain specialties, the research hub is equipped with cutting-edge technologies and flexible setup for both office and lab facilities, while helps cultivate a trusting and collaborative cultures, and enables continuous innovation intelligence while generating sustainable business growth.

PRODUCTS AND SERVICES





EYE-2-EYE COMMUNICATIONS PTE LTD

Business Nature:

AM Software Solution Provider, AM Products
Distributor, AM Service Bureau

Industry / Sector:

Manufacturing, Aerospace / Defence, Marine
& Offshore, Robotics / Automation, AM
Technology (Hardware / Process / Software),
Biomedical / Healthcare, Consumer Product,
Education

**More than 20 years' experience
in working with companies. Offer
key application expertise in a
wide range of vertical markets.**

CONTACTS

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www.eye2eye.com.sg

THE COMPANY

Eye-2-Eye Communications Pte Ltd is a market leader for 3D Printers, Scanners and Software solutions in Singapore, Malaysia, Indonesia, and Vietnam. We are the authorized reseller for Asiga, Admatec, Faro, Formlabs, HP, Netfabb, OR Laser, Raplas and Rize. We have more than 20 years' experience in working with renowned companies, and we offer key application expertise in a wide range of vertical markets. We look forward to being your partner for metal/plastic/ceramic printing, 3D Design and Scanning. Website <http://www.eye2eye.com.sg/> for more information.

PRODUCTS AND SERVICES

ADMATEC

Additive Manufacturing Technologies

A leader in both Ceramic and Metal Printers. Has the unique ability to print 4 metals in the same layer. Patented technique to avoid contamination and zero loss of material with speeds up to 20-25mm per hour. Delivers accurate, fine featured, fully dense parts for high tech applications



HP produces functional parts in full color, black or white – with voxel control – in a fraction of the time. HP 500 series are cost-effective and tailored for small/medium-sized product development teams, design firms and universities. The HP 4200 series caters to mass production and can be a replacement for end-use injection molded parts.

FARO

A world leader in scanning. Provides fast metrology grade accuracy for both inside and outside requirements. Perfect for colour reproduction and shiny surfaces – For uses such as Product Design, Reverse Engineering, Construction Buildings and Computer Graphics.



Provides Direct Energy Deposition Metal systems for both small and large objects via Robots. These systems can be used for cladding, welding or part production, or for mould repair. They also provide powder bed systems for precision components along with award-winning software for all systems.

ASIGA

Provides a wide range of DLP 3D printers which are open systems and have specific advantages for applications such as R&D, Dental, Audiology and Jewellery. They also provide 385nm and 405nm wave lengths.

AUTODESK NETFABB

Streamline your additive workflow and quickly go from a 3D model to successfully printed parts. Designed for production environments and provides efficient build preparation capabilities alongside tools for optimizing designs, simulating metal additive processes to reduce costs and increase efficiency.

formlabs

The world's leading brand of affordable professional desktop SLA 3D printers. A leader in applications for Dental, Engineering, Manufacturing, Jewellery, Medical, Mold Making, and Education. A wide range of materials available for these specific applications.

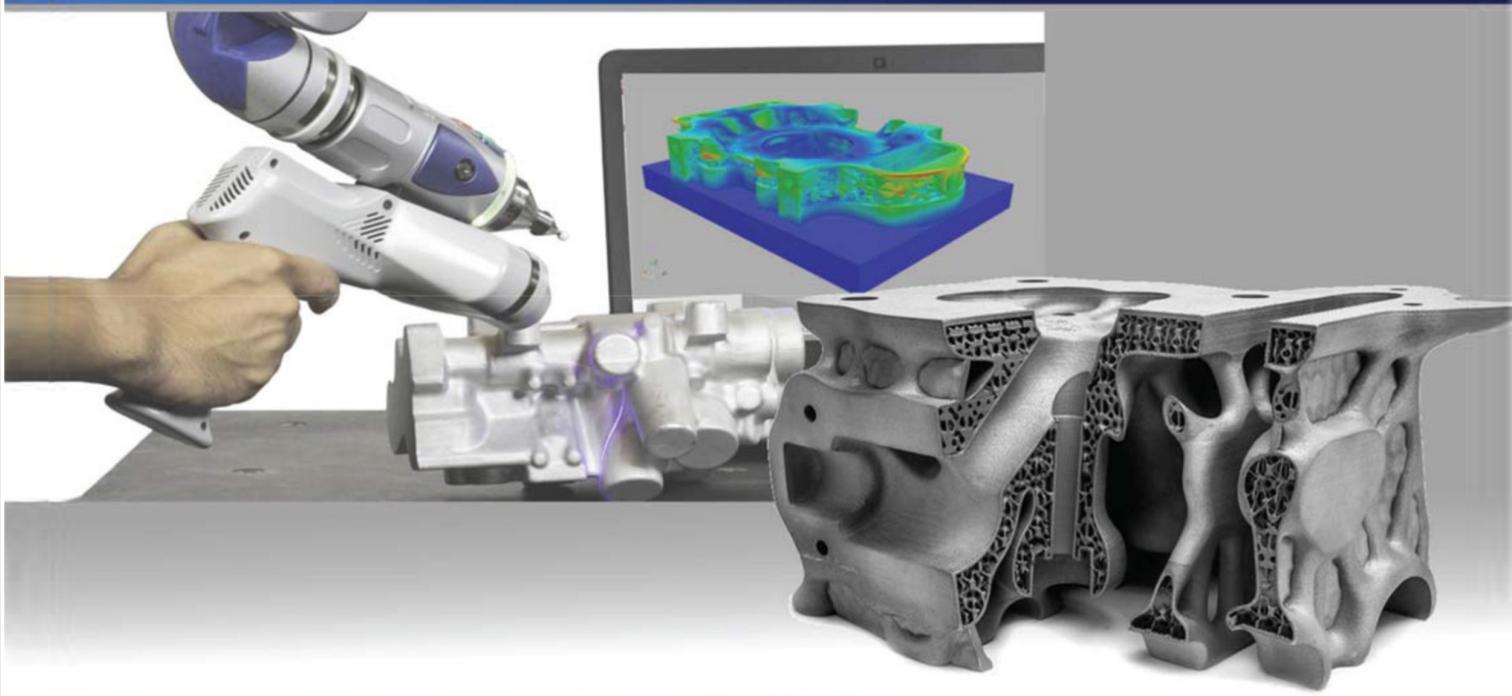
rize

The first hybrid 3D printer that sustainably delivers the highest strength, safety, security and speed, with the lowest cost of ownership. Provides enhanced thermoplastic isotropic parts with colour and almost zero post processing requirements. Office and field safe with zero voc emissions and no toxic post processing chemicals.

eye2eye

Re-Engineer Optimize Create

3D PRINTERS | 3D SCANNERS | SOFTWARE



PLASTICS | METALS | CERAMICS



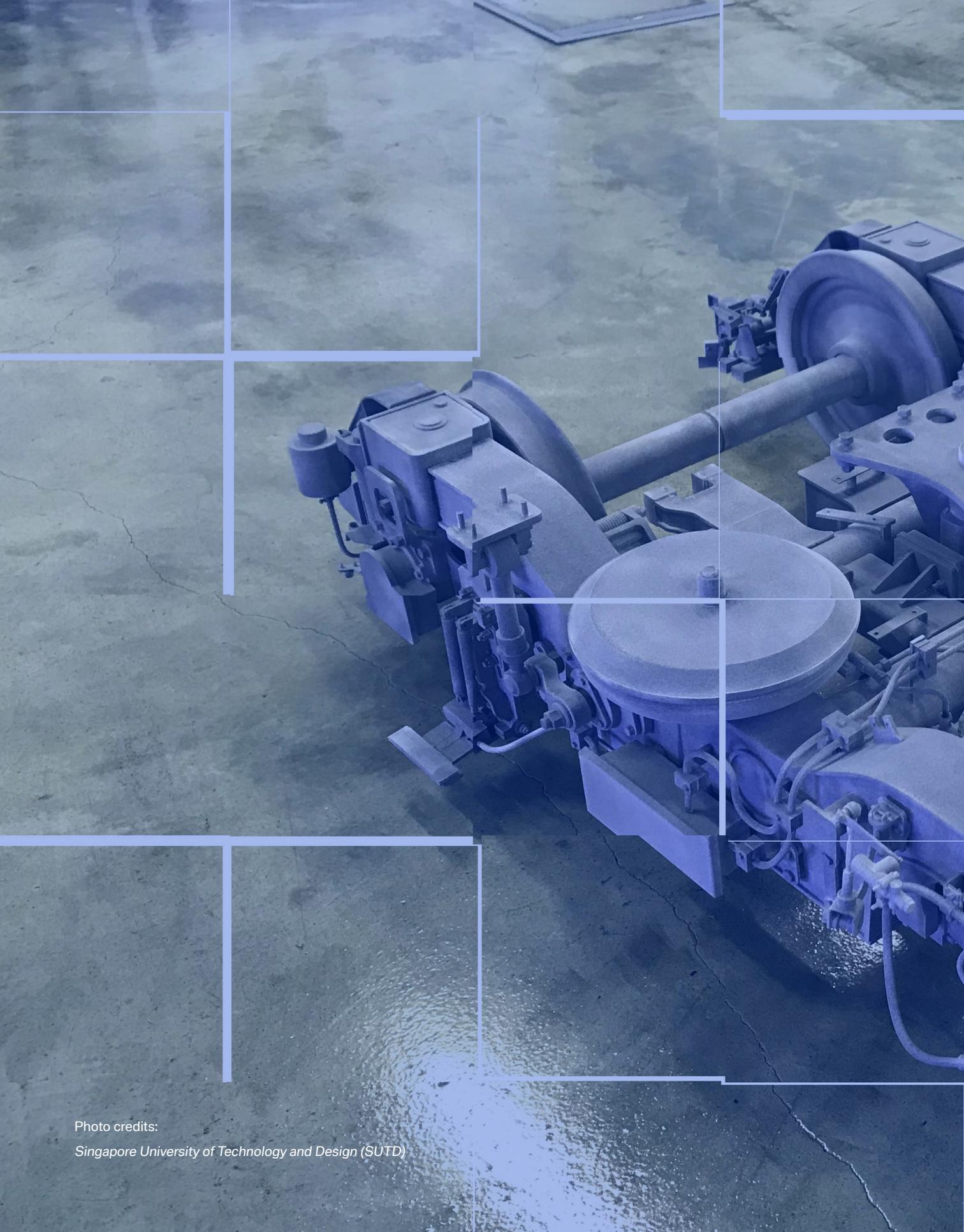
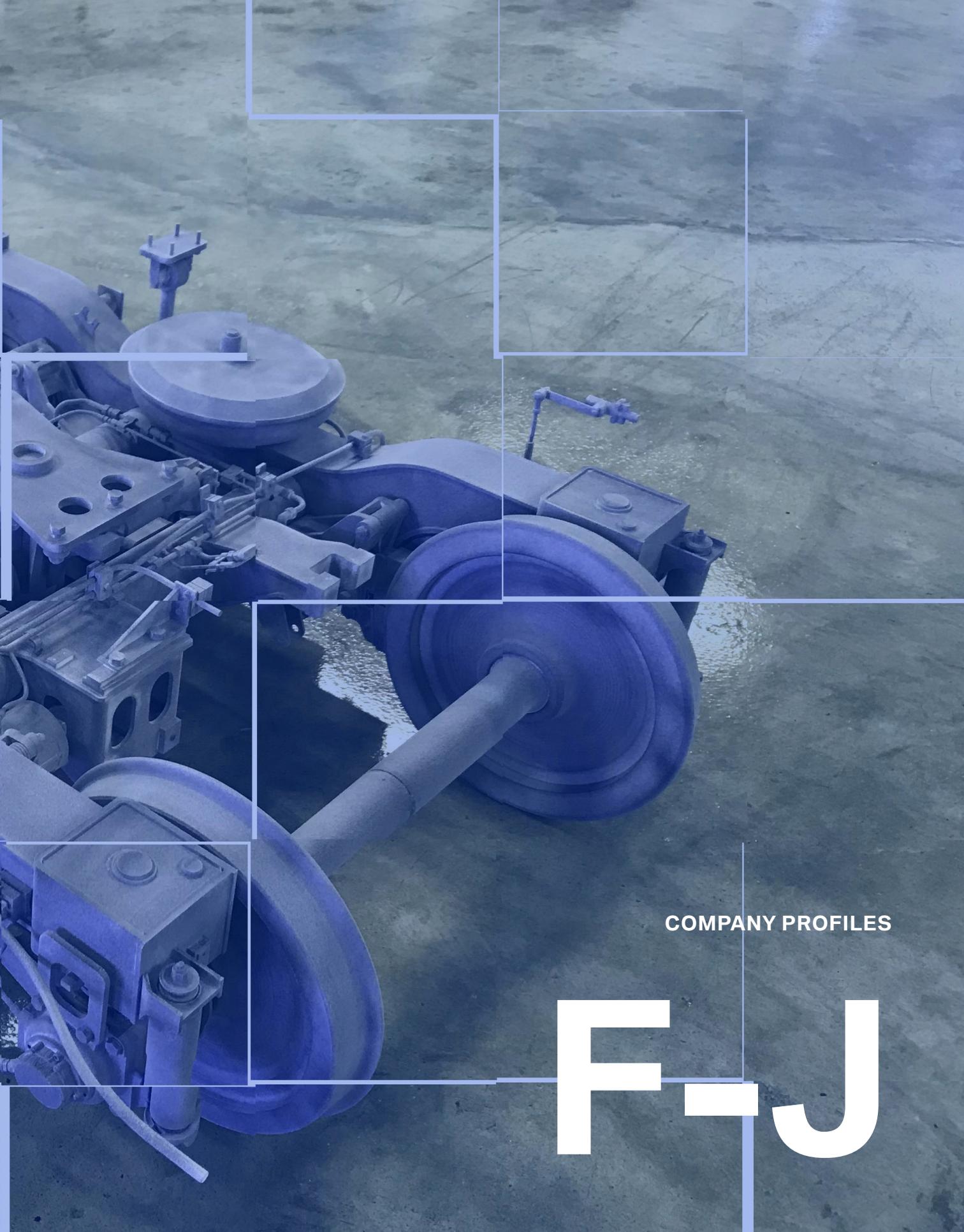


Photo credits:
Singapore University of Technology and Design (SUTD)



COMPANY PROFILES

F. J.



FLARE DYNAMICS PTE LTD

Business Nature:

AM Adopter, Design & Engineering, Training & Consultancy

Industry / Sector:

Aerospace / Defence, Precision Engineering, Robotics / Automation

Flare Dynamics designs and produces turnkey customised unmanned systems and provides innovative engineering solutions

CONTACTS

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 23 Kaki Bukit Road 4, #01-18
(3rd floor), Singapore 417801

 +65 9628 1321

 Lu Weiyao

 Weiyao.lu@flaredynamics.com

 www.flaredynamics.com

THE COMPANY

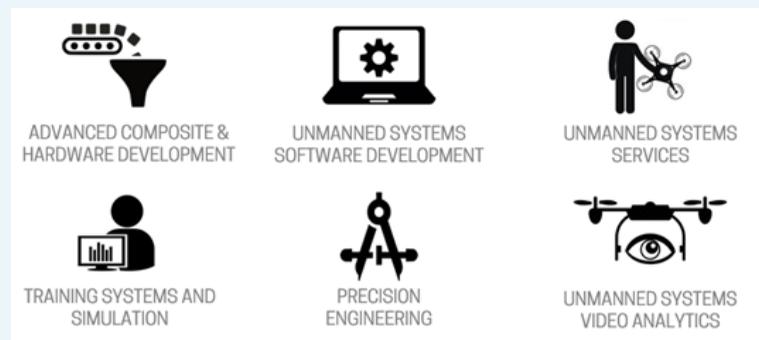
Flare Dynamics Pte Ltd specialises in engineering systems development in the arena of Unmanned Vehicles and Autonomous Control Technology.

Flare Dynamics embodies the objective of delivering dynamic solutions through design and innovation. The engineering and design team has multiple years of experience in both conventional unmanned designs, as well as experimental platforms. The multi-faceted competency in mechanical, electronic, programming and design disciplines allows us to provide the optimum solution for any requirement. The ability for in-house cross disciplinary analysis in all engagements ensures rapid turn-around-times with regards to our specialised services. Flare Dynamics offers turn-key solutions specifically catered to advanced engineering scenarios. The result is a carefully structured service suite for each requirement that maximises the resource availability of both the customer and the service provider. With the specific nature of every project we handle, we strategise and implement an exclusive approach for all our clients. This ensures that all our clients' requests are fulfilled with each solution expressing uniqueness and prominence. With in-depth knowledge in all areas of the industry, Flare Dynamics credits itself to be your premier Unmanned Systems and Precision Engineering partner.

PRODUCTS AND SERVICES

We are professionals in:

- UAV/USV Design and Fabrication
- Unmanned Aerial and Surface Solutions
- Advanced Composite Design and Fabrication
- Educational and Experimental Equipment
- Professional UAS Test Operations Provider and System Integrator



FOREFRONT AM

FOREFRONT ADDITIVE MANUFACTURING PTE LTD

Business Nature:

AM Service Bureau

Industry / Sector:

Biomedical / Healthcare, Manufacturing (Others), Precision Engineering, Semiconductor & Electronics

A global AM service provider for wide range of industries



740585



CONTACTS

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Mack Hee (Business Development)

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10 Tampines North Drive 4, #03-01
JTC Space @ Tampines North,
Singapore 528553

www.forefront-am.com.sg

THE COMPANY

Forefront AM is working in close collaboration with industry partners to offer AM services and solutions right from design to assembly in 3D printed high precision parts, conformal cooling channel inserts, assembly jigs and fixtures, prototypes, and medical devices - orthoses and prostheses.

We enable our customers to gain market share by lowering manufacturing costs and reducing the time to market by our value added functional product design and additive manufacturing products, assemblies and services. We seek to be a top global supplier of AM services and be a recognised leader in Additive Manufacturing technology.

PRODUCTS AND SERVICES



1. Printing Services:

- Medical Devices: Prostheses & Orthoses
- Jigs & Fixtures
- Conformal Cooling Channel Inserts
- Functional Prototypes
- High Precision Parts



2. Reversed Engineering Services

- 3D Scanning
- Create 3D CAD File
- STL File

3. Post-Processing Services

- Final Machining & Finishing
- Surface Treatment
- Quality & Test Services





THE COMPANY

Formlabs is expanding access to digital fabrication, so anyone can make anything. Headquartered in Somerville, Massachusetts with offices in Germany, Japan, China, Singapore, Hungary, and North Carolina, Formlabs is the professional 3D printer of choice for engineers, designers, manufacturers, and decision makers around the globe.

Formlabs products include the Form 3 and Form 3L, powered by Low Force Stereolithography (LFS)[™] 3D printing, Form 2 SLA 3D printer, Form Wash and Form Cure post-processing solutions, Fuse 1 SLS 3D printer, and Form Cell manufacturing solution. Formlabs also develops its own suite of high-performance materials that continue to push the boundaries for 3D printing, as well as best-in-class 3D printing software.

FORMLABS

Business Nature:

AM Machine Manufacturer / OEM

Industry / Sector:

AM Technology (Hardware / Process)

CONTACTS

Simon Mok

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☎ +65 9626 1009

✉ simon@formlabs.com

🌐 www.formlabs.com/

PRODUCTS AND SERVICES



Form 2

Engineered for precision.
Designed for reliability.

The Form 2 is the gold standard for professional desktop 3D printing.

Form 3

Flawless Prints, Every Time.



FREEFORM SOLUTION PTE LTD

Business Nature:

AM Software Solution Provider, Design & Engineering, Training & Consultancy

Industry / Sector:

AM Technology (Software), Education

End-to-end design to manufacturing service

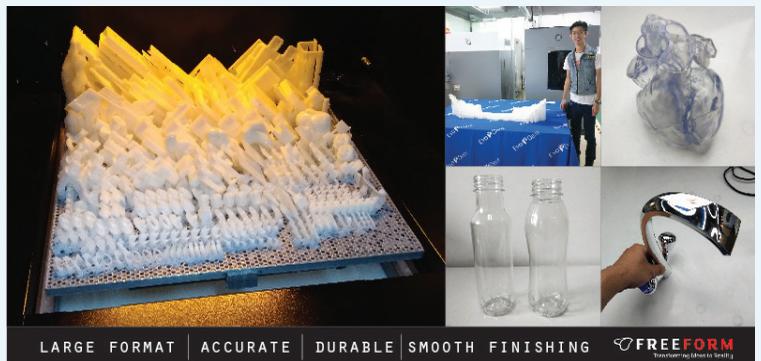
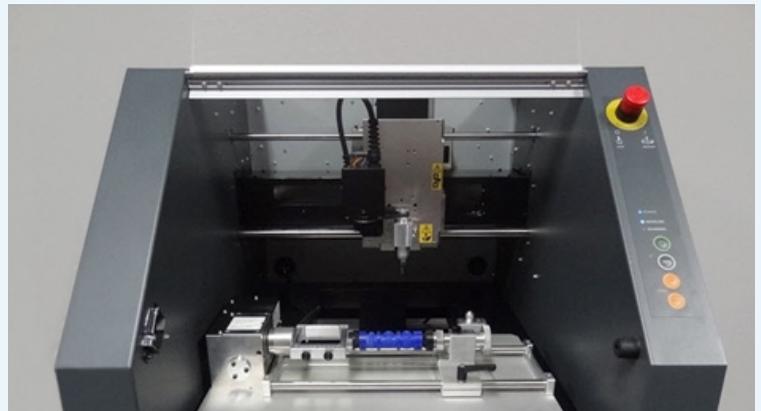
THE COMPANY

FreeForm Solution Pte Ltd was established in 2003 and has been providing 3D printing solutions such as 3D Scanning, 3D Engineering Machine through Design and 3D Printing. We are a team of experienced professionals with engineering and design backgrounds.

We are accredited and officially listed by McNeel as an Authorized Rhino Training Center (ARTC) to conduct Rhino classes in Singapore and in the South East Asia region. We aim to deliver high quality trainings in Rhino and its related plugins to our participants and clients in both commercial and educational sectors. The accreditation, several years of 3D modelling experiences and numerous training classes conducted at FreeForm, this would make us the most definite option for anyone or any organisation to engage us to facilitate their Rhino training requirements.

PRODUCTS AND SERVICES

Industrial 3D Printing, CNC Machining, Laser Cutting, 3D CAD Drafting



CONTACTS

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✉ mark@freeform.sg

🌐 www.freeform.sg

LARGE FORMAT | ACCURATE | DURABLE | SMOOTH FINISHING

FREEFORM
 Transforming Ideas to Reality

FROST & SULLIVAN (SINGAPORE) PTE LTD

Business Nature:

Other Services

Industry / Sector:

Aerospace / Defence, Automotive /
Transport, Biomedical / Healthcare, Building
& Construction, Environment & Clean Tech,
Marine & Offshore, Oil & Gas

We create transformational growth strategies to survive and thrive in a business environment experiencing disruption, collapse and transformation

THE COMPANY

Frost & Sullivan is a growth partnership company focused on helping our clients achieve transformational growth as they are impacted by an economic environment dominated by accelerating change, driven by disruptive technologies, mega trends, and new business models. The research practice conducts monitoring and analysing technical, economic, mega trends, competitive, customer, best practices and emerging markets research into one system which supports the entire “growth cycle”, which enables clients to have a complete picture of their industry, as well as how all other industries are impacted by these factors.

CONTACTS

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📍 100 beach Road, #29-01/11, Shaw Tower, Singapore 189702

📞 +65 6890 0948

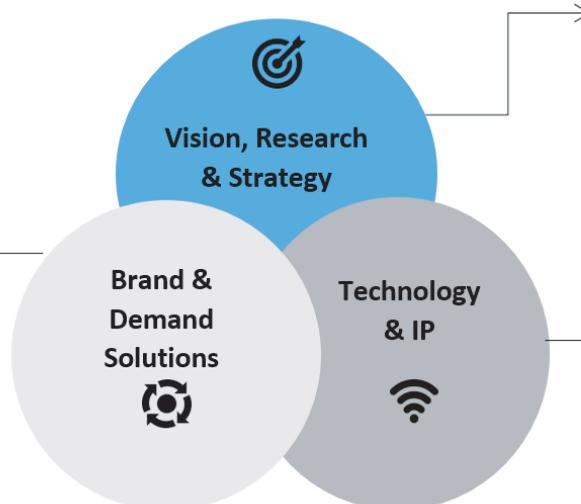
✉️ shujie.tan@frost.com

🌐 www.linkedin.com/company/frost-&-sullivan/

🌐 www.frost.com

PRODUCTS AND SERVICES

- Build great brand story
- Provides brand recognition
- Helps position company as market leader
- Go-To-Market with confidence



- Visualise future state
- Solid, realistic vision & strategy
- Prepare to thrive in disrupted industry
- 360 degree Integrated research to identify opportunities
- Identifying, developing and leveraging innovation
- Best practices to optimise licensing opportunities



GE Additive

GE ADDITIVE

Business Nature:

Metal Additive Manufacturing Solution
AM Machine Manufacturer / OEM

Industry / Sector:

Aerospace / Defence, AM Technology
(Hardware / Process), Automotive / Transport,
Biomedical / Healthcare

Multi-modality (Laser, Electron Beam, Binderjet), High quality powder, GE as super-user of AM

CONTACTS

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The Metropolis, Level 11, Singapore 138589

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czekhaan.tan@ge.com

www.linkedin.com/company/geadditive

www.ge.com/additive

THE COMPANY

GE Additive is part of GE, the world's Digital Industrial Company, transforming industry with software-defined machines and solutions that are connected, responsive and predictive. GE Additive includes additive machine providers Concept Laser and Arcam, along with additive materials provider AP&C. At GE Additive, we are passionate about the transformative power of advanced manufacturing. And as a notable user of additive technologies, we recognise the value and potential it brings to modern design and manufacturing challenges.

We work tirelessly to build an elite network of people who are advancing additive manufacturing every day. Arcam and Concept Laser have complemented GE's existing material science and additive capabilities, enabling the development of new service applications across multiple GE businesses and allowing us to earn numerous patents. GE Additive is committed to leading the industry through world-class machines, materials and services—accelerating innovations across industries and helping the world work smarter, faster and more efficiently.

PRODUCTS AND SERVICES



X LINE 2000R_Vorderansicht



Arcamq10plus_High-Res-NewLogo-noreflection-white



M2 cusing Multilaser_GRAU_



A2x-New Logo-white



M_Line_Renderings_Persp



Arcam EBM_SpectraH_



GF MACHINING SOLUTIONS PTE LTD

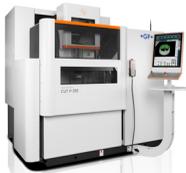
Business Nature:

AM Machine Manufacturer / OEM

Industry/Sector:

Aerospace / Defence, AM Technology
(Hardware/Process), Automotive / Transport,
Biomedical / Healthcare, Precision
Engineering, Semiconductor and Electronics

Optimised & integrated Metal
Additive workflow, utilising world's
leading EDM, WEDM, high-speed
Milling machines, clamping and
Laser surface texturing machines



THE COMPANY

GF Machining Solutions is one of the world's leading providers of machines and automation solutions and services to the tool and mould-making industry and to manufacturers of precision components. Our products range from electric discharge machines and high-speed and high-performance Milling machines - including clamping and palletisation systems - to Metal Additive Manufacturing, 3D Laser surface texturing machines, services, spare and expendable parts, consumables and Automation solutions. Based in Switzerland, GF Machining Solutions, is a part of the Georg Fischer Group and is present in more than 50 countries with its own sales companies. In addition, the division operates production facilities and research and development centers in Switzerland, the US, in Sweden, and China. For a century and a half, GF Machining Solutions has been an innovator and a source of strength to customers.

Our history of technology leadership includes expansion into technologies that have spurred our customers' growth, and with an eye to the future, we continue to innovate in order to advance the success of our customers in particular and the machine tool industry as a whole.

In Milling, EDM, Laser texturing and Automation technologies - from Automotive and Aerospace and Aeronautics to Medtech, electronic components, and Information and Communications Technology (ICT) - GF Machining Solutions' customers worldwide depend on our application know-how and process expertise. Our customers range from small and medium-sized toolmakers to global corporations.

PRODUCTS AND SERVICES

Milling

- High Speed Milling (HSM)
- High Performance Milling (HPM)
- Standard Machining Centres (Mikron VCE Pro)
- High Efficiency Milling (HEM)

Additive Manufacturing

Following the partnership with 3D Systems - aimed at introducing new metal 3D printing solutions - GF Machining Solutions offers manufacturers in Aerospace, Automotive, Motorsports and other high-tech industries increased productivity, part quality and process safety, while significantly reducing Total Cost of Ownership and facilitating seamless integration of metal AM technology into the entire manufacturing workflow.

EDM

- Die sinking EDM
- Hole drilling EDM
- Wire cut EDM

Automation

GF Machining Solutions Automation includes Automation systems and software systems for configuring machine tools and recording and exchanging data between various system components, as well as tooling for fixing work-pieces and tools.

CONTACTS

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🌐 www.linkedin.com/company/gf-machining-solutions/

🌐 www.gfms.com/sg





GINKGO3D

Business Nature:

AM Service Bureau, AM Product Distributor

Industry / Sector:

Consumer Product, Manufacturing (Others),
AM Technology (Hardware / Process)

Where 3D Printing Comes
Together

CONTACTS

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Singapore 339410

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🌐 linkedin.com/company/ginkgo3d

🌐 www.ginkgo3d.com

THE COMPANY

3 Men - The Visionary, The Strategist and The Communicator founded Ginkgo3D in August 2015 with the mission of bringing all 3D printing related activities and news together. It is the bridge to make 3D printing accessible to all. Our goal is that make it easier to turn your ideas into reality.

PRODUCTS AND SERVICES

1. Sell @ Ginkgo3D

Ginkgo3D is the place where designers can upload and share their designs.

<https://the.ginkgo3d.com/sell/>

2. Shop @ Ginkgo3D

You can buy what you like! Browse the 3D-printed products from the shop and select the items you wish to print.

<https://the.ginkgo3d.com/>

3. Press @ Ginkgo3D

Get the juicy highlights from interviews, events and exhibitions, as well as the latest news related to 3D Printing and its technology.

<https://press.ginkgo3d.com/>

4. Teatime @ Ginkgo3D

A place to share articles with you the articles on marketing, inspirations, resources, tips and tricks as well as tutorials.

<https://teatime.ginkgo3d.com/>

5. 3D Printing Services

Contact Ginkgo 3D at enquiry@ginkgo3d.com



BRIDGE THE GAP WITH 3D PRINTING

GLOBALTRONIC AERO PTE LTD

Business Nature:

AM Adopter (Aerospace Manufacturing)

Industry / Sector:

Aerospace / Defence, Automotive / Transport, Biomedical / Healthcare

Complete aerospace value chain integration in an Industry 4.0 factory: Machining, Additive Manufacturing, NDT, Surface Treatment

CONTACTS

Christopher Foo

📍 3 Seletar Aerospace Link, Singapore 797550

☎ +65 9383 9188

✉ chris_foo@globaltronic.com.sg

🌐 <https://www.weare-pacific.com/>

THE COMPANY

Globaltronic Aero Pte. Ltd. is a WEARE Pacific company. The WEARE group is a highly technical parts manufacturer for the aerospace, defence, automotive and medical industries. The group is in the Tier 1 of the Airbus group, and is counted among its strategic suppliers.

The Group has integrated all the processes of the small and detailed parts manufacturing value chain. Its capabilities include material supply, engineering study (DOA holder), machining (Milling & Turning), additive manufacturing (Metal & Plastic Airbus qualified), special processes (NDT & Surface Treatment) and assembly.

Globaltronic Aero's new factory, which will integrate these processes within the Seletar aerospace park, is currently being set up and should be operational by late 2019.

PRODUCTS AND SERVICES



Hamilton Labs
A Division of
Hamilton Holdings



HAMILTON HOLDINGS PTE LTD

Business Nature:
AM Adopter

Industry / Sector:
Building & Construction

**A Collaborative, Co-Working
Eco-System for 3D Printing
in the Real Estate, Building &
Construction Space**

CONTACTS

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Ubi Techpark Singapore 408570

 +65 9836 3998

 willy.ng@hamiltonlabs.co

 Willy Ng

 www.hamiltonlabs.co

THE COMPANY

Our mission is to revolutionise construction technology, by building an eco-system that makes automation easy, scalable and accessible. Our approach is to design access to available excess production capacities through a range of construction technologies with a focus in 3D printing & additive manufacturing.

3D printing will make the construction industry more sustainable. 3D printing technology has evolved sufficiently to help construction companies develop materials that are environmentally friendly, cost-effective and efficient.

3D printing will create a revolution in the building & construction industry and can give rise to a new segment of innovative and affordable housing as this construction methodology uses limited labour and construction material.

PRODUCTS AND SERVICES

Technical Specifications

Printable Area - 1500X1500X500 mm

Printer Size (Approx.) - 2000X2000X900 mm



Hitachi Metals, Ltd.

HITACHI METALS, LTD.

Business Nature:

AM Material Manufacturer

Industry / Sector:

Aerospace, Automotive/Transport, Precision Engineering, Semiconductor and Electronics, Oil & Gas, Marine & Offshore

Materials for 3DAM

CONTACTS

Low Beng Huat

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 benghuat.low.tw@hms.hitachi-metals.com

 www.hitachi-metals.co.jp/e/

THE COMPANY

Hitachi Metals promotes medium and long-term advanced material research and development themes that contribute to sustainable growth and social contribution. As one of our activities, we develop and produce metal powders and wires for metal 3D Additive Manufacturing (3DAM). We go beyond producing materials for 3DAM. We develop original materials based on the characteristics of 3D printers and printing recipes for each material by verifying the characteristics and deformation of metals in advance using computer aided engineering simulation. This enables high-quality and quick development of new materials and customised products.

Global Research & Innovative Technology center
(Corporate Research Lab of Hitachi Metals)



PRODUCTS AND SERVICES

Application of high corrosion resistant nickel base alloy MAT21TM to 3DAM

Hitachi Metals has successfully applied the corrosion resistant nickel-base alloy MAT21TM to Metal 3DAM. The 3D printed MAT21TM part has the same corrosion resistance as its forging counterparts, and excellent strength and hardness characteristics. While maintaining the high corrosion resistance of MAT21TM, benefits of 3DAM such as free design, integration with peripheral parts, and near net shape can also be provided. As a result, part reliability improvement, long service life, and cost reduction can be expected for semiconductor manufacturing equipment and chemical plant materials.



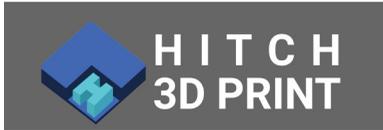
Sample part of 3DAM using MAT21TM

Development and application of High Entropy Alloy for 3DAM

Hitachi Metals succeeded in metal powder production and 3DAM of high-entropy alloy for Laser powder bed fusion technology. The sample produced by 3DAM has high strength, ductility and corrosion resistance. We also confirmed the possibility of using it in harsher operating environments than existing nickel-based alloys. We aim to develop actual applications by promoting demonstration experiments in the future.



Metal powder (High Entropy Alloy)



HITCH 3DPRINT PTE LTD

Business Nature:

AM Service Bureau

Industry / Sector:

AM Technology (Hardware / Process)

Consolidating metal printing demands to reduce cost of printing

CONTACTS

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www.hitch3dprint.com



THE COMPANY

Hitch 3DPrint was established in 2017 to accelerate the adoption of Metal AM technology. We have developed a service based on the concept of hitch where users can now hitch a metal print job at a highly attractive and affordable price. This is set to revolutionise the use of metal AM technology by bringing the ease of manufacturing to every company all around the world. The company provides instant quotations for all 18 commercially available materials for all powder bed fusion operations.

PRODUCTS AND SERVICES

AM Metal Types

Standard Alloys

- **Aluminium Alloy** (AlSi10Mg, Alsi7mg0.6)
- **Steels** Stainless Steel (316L, PH 17-4, PH 15-5, H13, Corax), Maraging steel
- **Nickel Alloys** (Inconel 718, Inconel 625)
- **Titanium Alloys** (Ti6Al4V grade 5, Ti6Al4V grade 23, CP-Ti grade 2)
- **Cobalt Chrome** (MP1)

Non-standard Alloys

Precious Metals, Bronze, Copper (In Development)

AM Metal Infrastructure

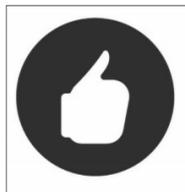
AM Technology

- Laser Melting (SLM, EOS, Reinshaw) - EBM (Arcam)

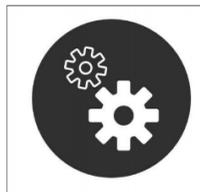
Post Processing

- Inert Gas Furnace - Heat treatment oven - EDM wire cut
- Dry Electropolishing - Surface Grinding

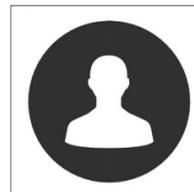
Solutions



Hitch-A-Print system to utilise unused capacity in a distributed network



Enterprise Solution for businesses to control, view and select their parts for printing



Hitch Trust Program that can eliminate the differences in quality of prints

Products

UPLOAD FILE — CHOOSE TECHNOLOGY & MATERIAL — HITCH NOW!

HITACHI

Inspire the Next

Hitachi Sunway Information Systems

HITACHI SUNWAY INFORMATION SYSTEMS (SINGAPORE) PTE LTD

Business Nature:

AM Software Solution Provider

Industry / Sector:

Aerospace / Defence, Biomedical / Healthcare, Biomedical / Healthcare, Consumer Product, Marine & Offshore / Oil & Gas, Precision Engineering, Semiconductor and Electronics

A One-Stop ICT Solutions and Services Provider in Southeast Asia



CONTACTS

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www.hitachisunwaysg.com/

Website QR



Facebook QR



THE COMPANY

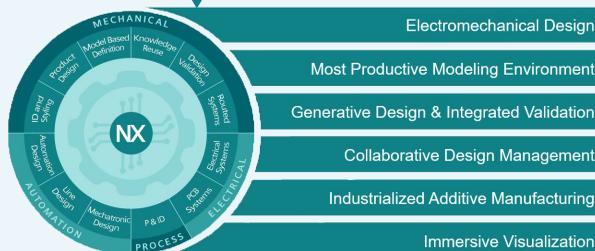
Hitachi Sunway Information Systems is a leading ICT Services Integrator in ASEAN. Engineering Solutions (ES) is a domain and industry specific solution that assists organisations in managing the products and related data throughout the stages of its lifecycle. As a distributor for Product Lifecycle Management (PLM) and Manufacturing Operations Management (MOM) solutions in mould and die, machinery, aerospace, consumer products and electrical industry, our focus is on building solutions and providing services across those solutions. We aim to prepare and assist our customers moving towards Industry 4.0 digitalisation, through our experts originating in various relevant fields.

PRODUCTS AND SERVICES

NX CAD 12 for Product Design:

NEXT GENERATION DESIGN FOR THE AGE OF DISRUPTIVE INNOVATION

Builds on the breakthrough technology of previous releases to deliver a set of refined tools that will help you take innovation to the next level.



NX CAM 12 for Manufacturing:

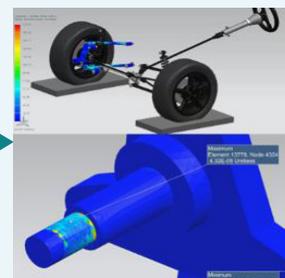
COMPREHENSIVE PORTFOLIO of solutions specifically tailored for part manufacturing.

Increase manufacturing planning, reduce machining time and errors, produce better quality parts.

SIMCENTER 3D V12 NX CAE FOR SIMULATION:

OPTIMISE DESIGN AND DELIVER INNOVATIONS FASTER AND WITH GREATER CONFIDENCE

Predict performance across all critical attributes earlier and throughout the entire product lifecycle.



TEAMCENTER



TEAMCENTER SIMPLIFYING PLM: MANAGE COMPLEXITY WITH SIMPLIFIED PLM

Deliver increasingly complex products while maximizing productivity and streamlining operations.



HP INC.

Business Nature:

AM Machine Manufacturer / OEM

Industry / Sector:

AM Technology (Hardware/Process)

AM Technology (Software)

The heart & energy of a startup.
The brain & muscle of a Fortune
100 company.

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🌐 www8.hp.com/us/en/printers/3d-printers.html

THE COMPANY

HP Inc. creates technology that makes life better for everyone, everywhere. Through our portfolio of personal systems, printers, and 3D printing solutions, we engineer experiences that amaze. More information about HP Inc. is available at www.hp.com/go/3dprint

PRODUCTS AND SERVICES

HP Multi Jet Fusion technology and solutions reinvent design and manufacturing, unlocking the full potential of 3D printing.



HP Jet Fusion 500/300 Series 3D Printers

- Prototyping and short runs, full colour or white



HP Jet Fusion 4200 3D Printing Solution

- Industrial prototyping and final part production



HP Jet Fusion 5200 Series 3D Printing Solution

- Volume production



IDI LASER SERVICES PTE LTD

Business Nature :

AM Product Distributor

Industry / Sector :

Automotive / Transport, Consumer Product,
Education, Manufacturing (Others)



CONTACTS

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www.idilaser.com

THE COMPANY

IDI Laser Services Pte Ltd established in 1999, it is the leading integrator and producer of Laser Systems in South East Asia. IDI has been able to keep abreast with new trends and developments in the emerging and rapidly growing laser Industry. We customise lasers and are quick to respond to customers' needs. We provide full turnkey solutions to customers worldwide. Exporting to over 15 countries globally, IDI has established as the ideal brand for customers and distributors who are searching for the reliable and affordable laser integration company, without compromising on either the quality or the reliability. Today, IDI is distinctive for its development of laser machines, quick translation of technical concepts into user-oriented innovations and high standards of quality and reliable customer service.

Our Mission

To be recognized as the most progressive company in the laser industry by providing total laser solutions that are commercially viable and accessible to all industrial customers.

Our Vision

Product & Service: To make, distribute and sell the most cost-effective laser solutions with a continued commitment to total service and technical support.

Economic

To operate the company on a sustainable financial basis of profitable growth, increasing value for our shareholders and expanding opportunities for development and career growth for our employees.

Social

To promote and create more laser applications as the green and clean way for production.

Company Quality Policy

✓ On-Time Delivery ✓ Good Products & Service

PRODUCTS AND SERVICES



Fusion 3D Metal Series

Our Fusion 3D Metal Printing offers you all the advantages of additive manufacturing. Components and construction in almost every geometric shape that cannot be manufactured using traditional manufacturing techniques can be created easily and quickly – without the need for additional tools.

- ✓ Powder bed type
- ✓ 120Mmx120mmx100mm build size
- ✓ Cost-effective solutions for education, research, consumer jewellery, dental, and industrial sectors



Robotic Laser Cladding System

The Laser Cladding Workcell is used to apply corrosion resistant low-friction or wear-resistant coatings, or used in the re-building of high-value mechanical components. High hardness and wear resistance of the cladding layer are achieved by choosing feed powder composition and process parameters. The system comprises a high-efficiency fiber laser with a process head, powder feed system and powder recovery/debris control module, integrated with robot. To maximize utilization of the fiber laser source, the Cladding Workcell can support cutting or welding functions, with optional automated switching between the functions.

CURTISS - WRIGHT

IMR TEST LABS

IMR TEST LABS - SINGAPORE PTE LTD

Business Nature:

Testing / Inspection / Certification

Industry / Sector:

Aerospace / Defence

Not Just Data, Knowledge



CONTACTS

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☎ +65 6592 5325

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🌐 www.linkedin.com/company/imr-test-labs

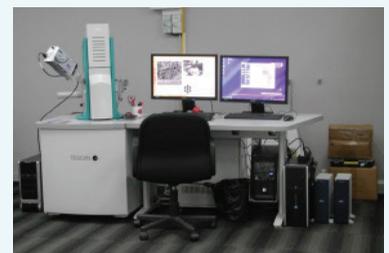
🌐 www.imrtest.com/

THE COMPANY

IMR Test Labs – Singapore is one of Asia’s most highly-accredited independent commercial testing laboratories. Carrying Nadcap, A2LA ISO 17025, GE S-400 and Pratt & Whitney MCL approvals, IMR Singapore offers high-quality, accredited materials testing services to the aerospace, additive manufacturing, medical and other high technology sectors. The services we offer include chemical analysis, tensile testing, stress & creep rupture testing, metallurgical evaluation and failure analysis on metals, thermal spray coatings, welds and much more.

IMR Test Labs, a business unit of Curtiss-Wright Surface Technologies, is a US based materials testing lab with facilities in New York, Kentucky & Oregon and Suzhou, China. Due to the exponential growth of additive manufacturing over the last several years, IMR Test Labs has invested in additional equipment, technology and experienced technicians to meet our customers needs. We’ve expanded our capabilities in powdered metal characterisation and laser-sintered metal testing & analysis to help manufacturers quickly and accurately make important evaluations in their product design, development and production phases. For example, IMR provides comprehensive powder analysis to fully characterise the starting powder via test methods such as chemical analysis (ICP-AES, ICP-MS), percent crystallinity testing, particle size testing (Microtrac) and morphology analysis (XRD, SEM and optical). Additionally, we offer density testing to determine how compact the sample has become after bonding, and compression testing to determine how much force a sample can handle. For a full list of analytical services offered by IMR for Additive Manufacturing, please visit us at www.imrtest.com/markets/additive-manufacturing-testing.

PRODUCTS AND SERVICES





INNOVFUSION PTE LTD

(INCUBATEE OF THE BIOFACTORY PTE LTD)

Business Nature :

AM Adopter

Industry / Sector :

Biomedical / Healthcare

Adaptive infusion pumps that enables individualised and safe control of pain relief especially for childbirth



KKH testing new way to reduce pain in childbirth



PHOTOGRAPH BY SEE EWE PHOENIX

CONTACTS

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THE COMPANY

Innovfusion develops, manufactures, markets and distributes infusion pump for patient labour pain management during childbirth. What makes our infusion pump Intellifuse unique is the adaptive algorithm technology which enables individualized and safe control of pain relief. Adaptive algorithm technology used in Intellifuse can raise or lower pain relief medication dosage according to patients' needs, using built in modules capable of monitoring patient's vital signs, e.g. oxygen levels. By optimizing pain relief medication supply according to oxygen level, patient safety can be enhanced by preventing over sedation, a feature that standard infusion pumps are not capable of monitoring patients' vital signs, e.g. oxygen levels. Our adaptive algorithm technology can optimise pain relief medication supply according to oxygen level to ensure safety by preventing over sedation. Standard infusion pumps are only capable of rigid and passive regimens that are neither effective nor safe.

Unicef estimates that there are 131.4 million births per year. Labour is one of the most painful experiences a women will endure in her lifetime, with 60% of first time mothers describing their pain as severe or unbearable. Insufficient pain relief is a main driver of unnecessary caesarean section. Worldwide caesarean section use has nearly doubled in two decades and has reached "epidemic" proportions in some countries and has caused concern on fertility rates and long-term maternal health. Approximately 37.2% of all women who elect for caesarean section do so because of fear of pain during childbirth. Insufficient pain relief is strongly associated with maternal postpartum depression.

There are limited pain relief options due to concerns over adverse effects to the baby. Traditional options include: nitrous oxide gas, intramuscular pethidine and epidurals. Epidurals are the gold standard but it requires a highly trained specialist to insert epidural catheter. Conventional epidural technique that adopts a rigid and passive approach suffers from frequent episodes (up to 35%) of inadequate pain relief that requires intervention, which includes additional 'rescue' medication ("breakthrough pain incident"). For would be mothers, access to high quality, individualised and safe pain relief is a challenge especially when only anaesthesiologists have the required skill to thread in the epidural catheter. This challenge is projected to become a crisis as most countries are anticipating severe shortages in anaesthesiologists while coping with competing demands to support increasing number of surgeries due to an ageing population

Intellifuse has been shown to address the issues of a standard one-size-fits-all epidural and has the following clinically proven results:

1. Significant reduction of breakthrough pain incidents
2. Significant reduction of complaints about pain in second stage of labour
3. Reduce instrumentation delivery

NAMIC has awarded Innovfusion with project funding for collaboration with SUTD in investigating the use of HP Multi Jet Fusion for Medical Device Production Parts. The next generation infusion pump that is currently under development, will have external casing and inner structures printed using the HP Multi Jet Fusion technology. The pump is in the process of testing, from manufacturability, consistency, to surface finish, strength and durability, with the goal of verifying and optimising the process, so that other medical devices can use the 3D print technology for faster development and deployment.



Intellifuse Infusion Pump



JABIL SINGAPORE

Business Nature:

Contract Manufacturing

Industry / Sector:

Manufacturing (Others)

We have a strategic vision to be the most technologically advanced and trusted manufacturing solutions provider



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www.jabil.com



THE COMPANY

Jabil is a global manufacturing solutions provider providing comprehensive design, contract manufacturing, supply chain and product management services. Headquartered in St. Petersburg, Florida, Jabil operates from over 100 facilities strategically located around the world with a total build-up of 400 million square feet of manufacturing space. We deliver innovative, integrated and tailored solutions to customers across a broad range of industries. In fiscal year 2018, Jabil registered revenue of US\$22.1 billion.

In times of unprecedented complexity and constant change, Jabil's unique combination of innovation acceleration, engineering excellence, manufacturing agility, and supply chain orchestration enables the success of the world's leading brands. Leveraging the power of our people, we transform how our customers design, manufacture and deliver their products, driving agile, cost-effective and low-risk supply chains that help our customers innovate, grow and win.

Our customer list features some of the world's most innovative, competitive and diverse companies in the world.

The Future of Additive Manufacturing

Additive manufacturing is transforming the way things are designed, made and delivered.

With additive manufacturing, companies can be proactive and respond to customer requirements with speed. From prototyping, distributed manufacturing, on-demand production, and accelerated time-to-market – additive manufacturing has revolutionised the product lifecycle. Along with getting products in customer hands faster, additive manufacturing has eliminated dependencies on the tooling and fixtures that are part of traditional manufacturing models. The power of additive manufacturing for design, test, production, and delivery is unlocked when companies can reduce their BOM costs and deliver lighter and more cost-effective parts.

Rely on Jabil to be your trusted partner and leader in your transition to and adoption of additive manufacturing.

PRODUCTS AND SERVICES



With the Jabil Additive Manufacturing Network, companies can connect with and take advantage of the best of Jabil's design, manufacture, and delivery capabilities. Our sophisticated network allows us to leverage critical resources in the right locations to ensure consistency and quality of design and manufacture.

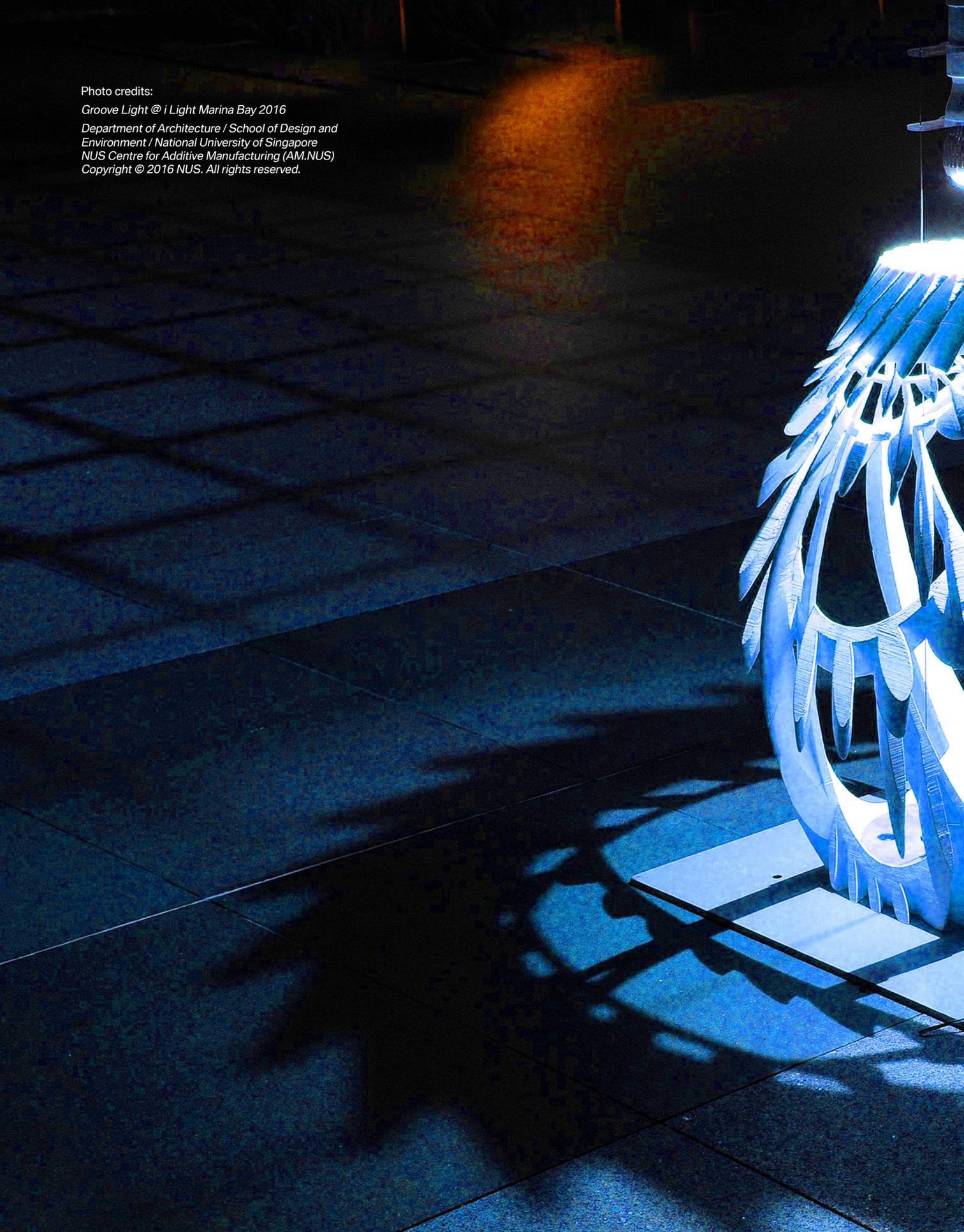


Our global cloud network fuels a growing footprint of 3D printers and additive manufacturing capabilities to move manufacturing workloads to the most ideal geographic markets with speed and agility.

Photo credits:

Groove Light @ i Light Marina Bay 2016

*Department of Architecture / School of Design and
Environment / National University of Singapore
NUS Centre for Additive Manufacturing (AM.NUS)
Copyright © 2016 NUS. All rights reserved.*





COMPANY PROFILES

K-O



KOSMODE HEALTH SINGAPORE PTE LTD

Business Nature:

AM Adopter, Research & Development

Industry / Sector:

Biotechnology, Food Science & Technology

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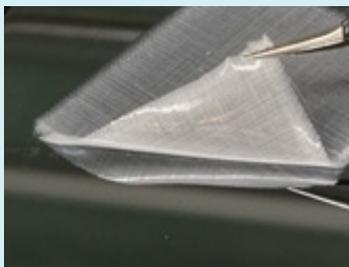
THE COMPANY

KosmodeHealth is the world's only developer of Plant Protein Composite (PPC™) bioink and printer of 3D PPC™ bioscaffold for cell culture for biomedical and meat culture used in food development.

Our core plant extraction technology, which can extract and purify plant proteins from even spent grains, provides an alternative source of natural protein and can be combined with synthetic polymer to develop the world's only PPC™ bioink. Composition of the PPC™ bioink, which is proven to be printable and conducive to cell growth, can be tuned for different 3D bioprinters and biomedical applications.

PPC™ bioscaffolds printed using PPC™ bioink and by our proprietary 3D scaffold printing technology yields PPC™ scaffolds of high resolution/porosity and diverse structure and patterns which can be customised to meet the growth environment required for different types of cells. In addition to a portfolio of off-the-shelf PPC™ bioink and scaffold, Kosmode Health offers PPC™ bioink and scaffold customisation services.

PRODUCTS AND SERVICES





LEARNERS HUB PTE LTD

Business Nature:

AM Service Bureau, Design & Engineering, Training & Consultancy, Repair and Servicing

Industry / Sector:

Education, Automotive / Transport, Building & Construction, Consumer Product, Manufacturing (Others), Robotics / Automation

Learners Hub brings 3D Printing to commercial and lifestyle sectors which require custom solutions for their implementation

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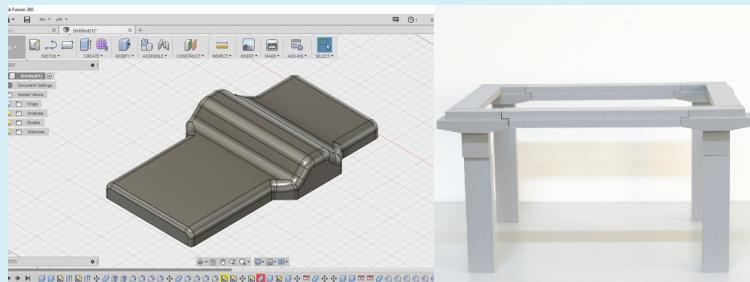
THE COMPANY

Learners Hub Pte Ltd was established in 2002 as a Workplace Safety and Health Auditing Firm. Initially, the core business was training and consulting, and has since branched out to 3D Printing Service, Supply and Sale of related materials.

Learners Hub provides training in 3D printing to companies, individuals and hobbyists. Besides that, customers are able to bring their concepts and ideas to us for a 3D print and consultancy service.

PRODUCTS AND SERVICES

- Skillsfuture provider for 3D printing training
- End-to-end service provider for companies who wish to have a package solution (Supply of printer, materials, training and servicing contract)
- Supply of specialised 3d printing filament (Carbon Fibre, Glass-infused PLA, Food-Safe PP etc.) and resins
- Reseller and service centre for flashforge 3D Printers
- Stockist for Ultimaker, Lemai and A-Net 3D Printers





LIFESTYLE MEDICO PTE LTD

Business Nature:

AM Adopter

Industry / Sector:

Biomedical / Healthcare

We offer tailored additive manufacturing solutions to grow clinicians' practice and patient care



CONTACTS

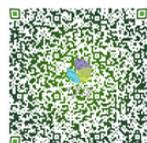
Partnerships

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☎ +65 6493 1777

✉ partnerships@lifestylemedico.com

🌐 www.lifestylemedico.com



THE COMPANY

Lifestyle Medico aims to be the preferred Clinician and Patient Homecare provider of effective technologies for affordable screening, management and treatment of lifestyle related healthcare ailments.

Our mission is to play an active role in transforming health care through earlier disease detection, non-invasive solutions and more effective treatments. We exist to create a world where patient-centric healthcare solutions are accessible and affordable for everyone. We support ethical treatment decisions that are based on the best interests of the patient. We constantly challenge ourselves and the conventional supply models by developing creative technology-driven solutions to provide patient-centric products and services.

Lifestyle Medico currently represents market-leading products developed by great companies from around the world. We are always open to discussing cooperation opportunities.

PRODUCTS AND SERVICES

Medical and Dental additive manufacturing solutions, service and supplies.





LINDE GAS SINGAPORE PTE LTD

Business Nature:

AM Material Manufacturer

Industry / Sector:

AM Technology (Hardware/Process)

Linde – the leading gas supplier
for additive manufacturing



THE COMPANY

Linde is a leading industrial gases and engineering company with 2018 pro forma sales of USD 28 billion (EUR 24 billion). The company employs approximately 80,000 people globally and serves customers in more than 100 countries worldwide. Linde delivers innovative and sustainable solutions to its customers and creates long-term value for all stakeholders.

The company is making our world more productive by providing products, technologies and services that help customers improve their economic and environmental performance in a connected world. In Singapore, Linde has production facilities located at Jurong Island (hydrogen/syngas & air separation unit) and Tuas (compressed specialty gases facility).

At our Global Development Centre for Additive Manufacturing in Munich, Germany we are at the forefront of research and development, working together with industrial users, powder producers, equipment manufacturers and research institutes to improve industrial AM solutions for the automotive, aerospace and medical industries among others.

PRODUCTS AND SERVICES

Industrial gases play an essential role in AM across the entire value chain from increasing energy efficiency, boosting productivity, raising product and material quality, to decreasing emissions. Our efficient gas supply solutions and innovative application technologies have already helped many customers in the Powder Metallurgy industry to achieve these benefits. Linde's Argon supply management assists customers with their HIP processes. The ADDvance® powder cabinet protects metal powders from ambient air and humidity and the ADDvance® O2 precision continuously analyses the atmosphere in the printing chamber and defines the perfect oxygen level for the material and application. Our on-going research into the effects of the atmosphere on AM powders and parts, ensures we provide our customers with the best knowledge and service possible to improve their processes.

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LLOYD'S REGISTER SINGAPORE PTE LTD

Business Nature:

Testing / Inspection / Certification, Training & Consulting, Research & Development

Industry / Sector:

Aerospace / Defence, Automotive, Food & Beverage, Marine & Offshore, Manufacturing (Others), Oil & Gas

We can help you move additive manufacturing from theory to reality, with our path to market for certified parts, training and consultancy services



CONTACTS

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lr.org/additive-manufacturing

THE COMPANY

Lloyd's Register (LR) is a world leading Classification Society and Inspection Agency that provides manufacturing inspection and certification services to all sections of the supply chain around the world. We are a diverse business with a core focus on independent assurance services for vendors and operators based on regulatory and/or customer requirements, as well as formal guidance and knowledge sharing through training and workshops. Working with LR gives clients confidence that assets and products meet specified requirements.

With the launch of the LR-TWI Guidance Notes for Additive Manufacturing in 2016, LR became the first global inspection agency to offer certification for metallic parts. LR certifies metal parts through the application of evolving international standards on AM and proving equivalence with existing manufacturing methods, codes and standards. LR is also engaged in a number of joint industry projects and research projects and was the first to certify an additively manufactured component for the Oil & Gas Industry. Our subject matter experts in AM also advise on the ISO/ASTM, ASME, CEN and API additive manufacturing standards committees, working together to update regulations and standards, resolve challenges and accelerate industry adoption.

PRODUCTS AND SERVICES

Building on our world class research, LR can help you operationalise for Additive Manufacturing (AM). We offer complete end-to-end assurance and consultancy services, including:

Parts Certification & Assurance

As the first Inspection Agency to certify 3D printed oil and gas parts and the first to qualify AM facilities in Singapore: we can guide you through the certification process, giving you and your clients confidence in the parts produced. LR AM Guidance Notes provide a tested framework to achieve Certification & Assurance. We assess each stage of the AM process: design, materials, manufacture, post-processing and inspection to provide independent assurance.

Facility Qualification

LR AM Facility Qualification that provides confidence to the supply chain that your facility has the necessary, AM-specific controls and QA. Our auditors and surveyors assess material handling & storage, AM process & build control, personnel competence, health & safety, AM post processing, inspection, corrective & preventative actions, acceptance of deviations and control of non-confirming items. The LR AM Facility Qualification is a globally recognised qualification and a pre-requisite to parts certification.

Consultancy

Our AM team currently advises Governments, Oil Majors and Manufacturers on everything Additive Manufacturing. We can answer your business's AM questions, from supply chain assessments, financial impact assessments, business case development, engineering assessments and more.

Training

LR's industry leading AM Certification and Assurance training courses can help get you up to speed and move beyond R&D into operations. We offer a variety of training course depending on your organisations level of AM readiness:

1-day course – suitable for managers with minimal AM experience who are considering adopting AM.

2-day course – suitable for those with some existing knowledge who are responsible for sourcing AM parts and need an understanding of the capability, variability, risks and opportunities of using AM. This course is also suitable for existing AM service providers who need further understanding of facility qualification and material & part certification requirements.

3-day course – suitable for those responsible for material & part certification who need support in the qualification of their own AM facility, and satisfying the certification requirements for AM materials & parts.



MARKS & CLERK SINGAPORE LLP

Business Nature:

Training & Consultancy, Other Services

Industry / Sector:

Intellectual Property – Patents / Trademarks /
Designs

Over 125 years' global patent
and trademark experience in
IP prosecution and strategy
services



Singapore
Patent Firm of
the Year 2019



SINGAPORE
PROSECUTION
FIRM OF THE YEAR
2014 | 2015 | 2016
2017 | 2019

CONTACTS

Lucille Ong

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www.marks-clerk.com/

THE COMPANY

Marks & Clerk Singapore LLP is a leading firm of Registered Patent and Trade Mark Attorneys. Our technically qualified registered patent attorneys and trade mark attorneys are highly regarded locally as well as globally, and our large team enables us to offer clients a full range of intellectual property expertise. Within Our team of patent attorneys specialises in several areas, empowering us to advise on any kind of technology, from electronics and biochemistry to materials. The size and extent of our international resources empower us to offer expertise across a diverse range of technologies and industry sectors throughout the world.

We have won the Managing Intellectual Property award for 'Singapore Prosecution Firm of the Year' for four consecutive years as an acknowledgement of the superior quality of our work. We are listed in the top tier for patent and trade mark work in the Managing Intellectual Property's IP Stars guide and Asia IP's annual survey. Our patent practice is also listed in the top tier of the Asia Legal Business IP rankings and IAM Patent 1000. The IAM Patent 1000 2016 guide says our office "is stocked with people who have the greatest technical understanding."

PRODUCTS AND SERVICES

With 16 offices across four continents, we work in some of the world's most important and fastest growing markets such as manufacturing and solar power that make significant use of additive manufacturing. We also regularly work with a trusted network of associate firms in other jurisdictions, allowing us to advise on and deliver global IP filing strategies for 3D-printing solutions.

Through our network of Asia offices (Singapore, Kuala Lumpur, Hong Kong and Beijing) and our strong links with associate firms in the region, we can manage and execute filing programmes across the whole region and abroad.



materialise

innovators you can count on

MATERIALISE

Business Nature:

AM Software Solution Provider

Industry / Sector:

AM Technology (Software)

Materialise Magics suites

CONTACTS

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 www.materialise.com



THE COMPANY

When Materialise was founded in 1990, our goal was to enable new uses for the extraordinary potential that 3D printing offers. Since then, we have leveraged our experience to create a range of software solutions and 3D printing services, which together form a backbone for the 3D printing industry.

Our open and flexible platforms enable players in industries such as healthcare, automotive, aerospace, art and design, and consumer goods, to build innovative 3D printing applications that make the world a better and healthier place. Headquartered in Belgium, with branches worldwide, Materialise has combined the largest group of software developers in the industry with one of the largest 3D printing facilities in the world. Ultimately, we empower our customers to transition towards a digital manufacturing process and to launch innovations that have the potential to forever change the faces of their industries.

PRODUCTS AND SERVICES

The software of choice for additive manufacturing. Materialise Magics for data preparation, Materialise 3-matic for design optimisation, Materialise e-Stage for automatic support generation, Materialise Magics Simulation Module.

Create the best designs for 3D Printing	Prepare your files for 3D Printing	Get the most out of your 3D printing machine	Manage your AM production process
			
 Materialise 3-matic Design Optimization	 Materialise Magics Data Preparation	 Materialise Build Processor Machine Communication	 Materialise Streamics Production Management
	 Materialise Magics Reporting Quotes and Measurements	 Materialise Control Platform Machine Control and Steering	
	 Materialise MiniMagics Free File Viewer	 Materialise Inspector Quality and Process Control	
	 Materialise e-Stage Automatic Support Generation		

MEDAIRUM PTE LTD

Business Nature:

AM Service Bureau, AM Adopter

Industry / Sector:

Biomedical / Healthcare

Healthcare 3D printing made accessible

THE COMPANY

Medairum is a service provider based in Singapore that leverages the power of 3D printing to deliver patient-specific solutions and improve patient outcomes. We provide services in printing high quality accurate 3D anatomical models based on real patient scan data (CT, MRI, CBCT) and designing/printing patient-specific medical devices and implants.

PRODUCTS AND SERVICES

- DICOM Segmentation of Medical Images
- 3D printing of Patient Specific Anatomical Models
- Design and Printing of Medical Device and Implant Prototypes



CONTACTS

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podmore@medairum.com

www.linkedin.com/company/medairum/about

www.medairum.com

meiban®

we shape your ideas

MEIBAN MOLD MANUFACTURE PTE LTD

Business Nature:

Design & Engineering, Manufacturing (Others)

Industry / Sector:

Aerospace / Defence, Environment & Clean
Tech, Marine & Offshore, Oil & Gas, Precision
Engineering

Your Preferred Electronics Manufacturing Service Partner

CONTACTS

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information@meiban.com

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🌐 www.meiban.com/



THE COMPANY

Meiban Group is an EMS provider with capabilities ranging from design and development, in-house mold making, plastic injection molding, PCB production and assembly to full product assembly.

Meiban has more than 30 years of experience as one of Singapore's top contract manufacturers based in Singapore, Malaysia and China. Like us, our customers are global brand owners who are committed to excellence and quality. Here at Meiban, we aim to create value-added service with the lowest possible cost, making us a cost leader in our field.

Meiban Capabilities

- Technology Research & Development
- Industrial Design & Mechanical Design
- Electronics Design & Product Development
- Precision Mold Making
- Precision Plastic Injection Molding
- PCB Assembly and Testing
- Thermoset Molding
- Class 100K Cleanroom Molding & Assembly
- Innovative Additive Manufacturing
- iSmart Factory
- Liquid Silicone Rubber Injection Molding
- Compression Silicone Molding Rubber

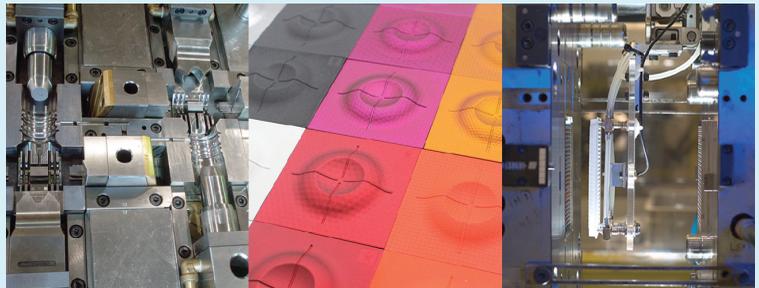
Target Industries

- Aerospace
- Clean Energy
- Marine
- Oil and Gas
- Precision Engineering

Benefits of Meiban's iAM Solutions

1. Ability to incorporate conformal cooling channels in complex geometries.
2. Ability to "repair" an object or component with difficult materials of different properties.
3. Ability to build up an object or component with two different materials.
4. Ability to "coat" an object or component for repair purposes and to enhance its resistance, for example better wear and corrosion resistance.

PRODUCTS AND SERVICES





MOVEON TECHNOLOGIES PTE LTD

Business Nature:

Design, Prototyping & Manufacturing Services,
AM Adopter

Industry / Sector:

Precision Engineering / Optics & Photonics

Market leader in Optics and
Photonics applications. Staying
ahead of the curve.

CONTACTS

Shania Ong

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✉ enquiry@moveon.bz

🌐 www.moveon.bz/contact-us/

THE COMPANY

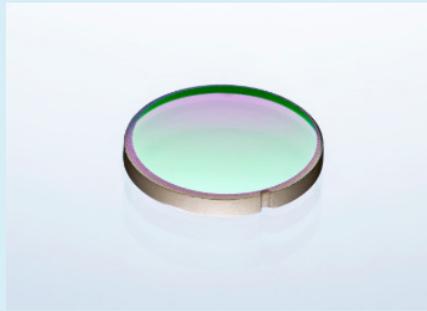
Founded in 2007, Moveon Technologies is a provider of optical solutions serving a wide diversity of industries spanning consumer electronics, automotive, medical, defence and industrial automation.

Based in Singapore, the company engages in design, prototype and volume production services offering cutting edge manufacturing technologies in injection molding, optical replication, optical coating, wafer level optics and Nanoscale 3D Printing. Serial production are based out of 2 plants located in Singapore & Malaysia.

The company employs around 300 staff as of 1H2019.

PRODUCTS AND SERVICES

Our Technologies



Optical Thin Film Coatings
Applications



Ultra Precision Machining
- Diamond Turning



Optical Metrology



MSC SOFTWARE

Business Nature:

AM Products Distributor

Industry / Sector:

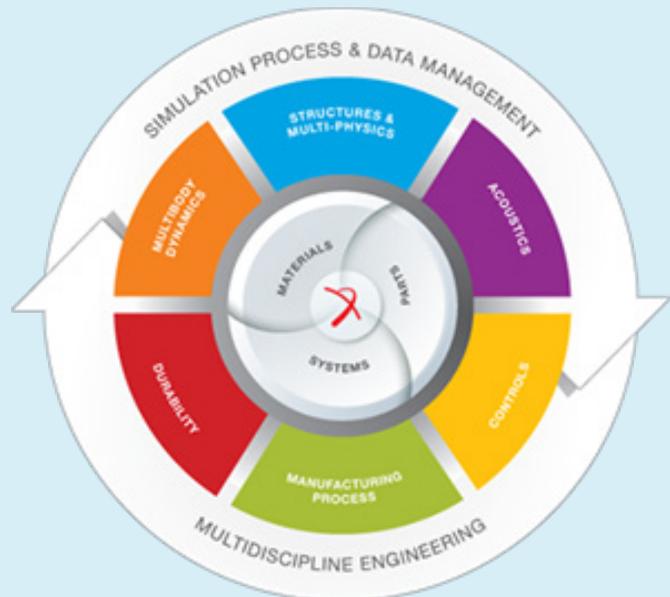
AM Technology (Software)

THE COMPANY

MSC Software develops simulation software technology that enables engineers to validate and optimize their designs using virtual prototypes. Customers in almost every part of manufacturing use our software to complement, and in some cases, even replace the physical prototype “build and test” process that has traditionally been used in product design.

As a trusted partner, MSC Software helps companies improve quality, save time and reduce costs associated with design and testing of manufactured products. Our products accurately and reliably predict how products will behave in the real world to help engineers design more innovative products - quickly and cost effectively. MSC Software's technology is used by leading manufacturers for linear and non-linear finite element analysis (FEA), acoustics, fluid-structure interaction (FSI), multi-physics, optimization, fatigue and durability, multi-body dynamics, and control systems simulation. MSC pioneered many of the technologies that are now relied upon by industry to analyze and predict stress and strain, vibration & dynamics, acoustics, and thermal analysis in our flagship product, MSC Nastran.

PRODUCTS AND SERVICES



CONTACTS

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🌐 MSC Software (Indo-Pacific)

🌐 www.mscsoftware.com

MSC Software®



Engineering Reality Virtually



NANO SUN PTE LTD

Business Nature:

AM Adopter

Industry / Sector:

Environment & Clean Tech

3D Printing Membrane House and Specialisation in Industrial Wastewater Treatment



CONTACTS

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THE COMPANY

Taking the lead in innovation for sustainable solutions

Nano Sun is a Singapore based membrane manufacturing company with its own highly competitive research and development (R&D) team.

With more than 20 years' research experience and technological accumulation in the multifunctional nano-composite membrane and water industry, Nano Sun is one of the only companies that can manufacture a wide range of multifunctional nano-composite membranes for removing micropollutants from drinking water, water re-use and desalination pre-treatment. Specialising in industrial wastewater treatment, Nano Sun has past experiences in managing food processing, textile, semi-conductor, leachate, slaughterhouse, cooling tower, condensate and municipal wastewater treatment projects.

PRODUCTS AND SERVICES

Nano Sun – NSMBR Series

Additive Manufactured Submersible Flat Sheet

Nano Sun's Membranes are manufactured using state-of-the-art 3D additive manufacturing technology. The additive manufactured nanostructure provides interconnected voids which allow significantly higher water permeation than pore-based membranes resulting in superior effluent quality suitable for water reclamation.

Containerized Membrane Bio-Reactor (CMBR) Series

CMBR is modularised in plug-and-operate model. This allows CMBR series to be adopted in a space limited setup and retrofitted into existing wastewater treatment. The CMBR series covers a significantly smaller footprint by more than 50% compared to conventional activated sludge system.





ONEMAKER GROUP PTE LTD

Business Nature:

AM Service Bureau, Training & Consultancy

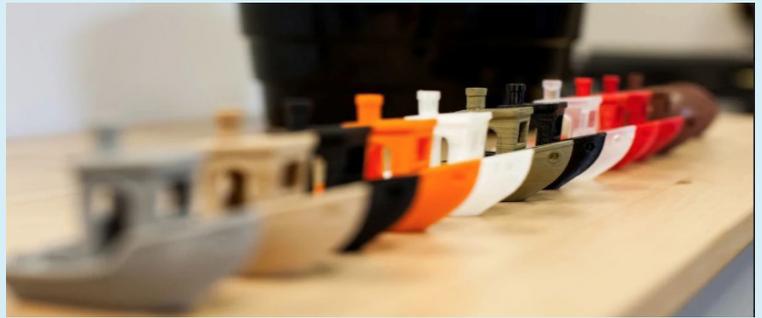
Industry / Sector:

Consumer Product (Design related), Education

THE COMPANY

OneMaker Group Pte Ltd (OMG) is a leading Maker-centric service provider in the region. We have been advocating and supporting the nascent Maker movement in Singapore since our establishment in 2014. Our core business revolves around learning experience (LX) design, digital prototyping services and corporate professional development. Our experience in building, supporting and operating Makerspaces for both educational and corporate institutions allow us to better understand our clients' needs and to serve them well accordingly.

PRODUCTS AND SERVICES



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🌐 onemakergroup.com

OMNI MOLD™

A Sunningdale Tech Company

OMNI MOLD LTD

Business Nature:

Design and Engineering, AM Adopter; AM Service Bureau

Industry / Sector:

Precision Engineering

At Omni Mold, with the dedication of our passionate staff, decades of refined manufacturing practices, proven track record and advanced engineering expertise, we are committed to deliver the best value to our customers

CONTACTS

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sg.linkedin.com/company/omni-mold-ltd

www.omni.com.sg



THE COMPANY

Founded in 1989, Omni Mold Ltd is a premium plastic injection mold making company in Singapore, specialising in ultra-precision, high complexity and high cavitation molds. Through continuous investment, our state-of-the-art facility is equipped with advanced computer software and machine tool hardware which enables us to provide value added services for customers around the globe, starting from design and prototyping to tool fabrication.

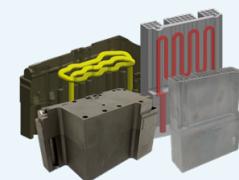
Keeping abreast with Industry 4.0, Omni Mold has embarked on digital manufacturing journey through the adoption of additive manufacturing technology focusing on tooling applications. With the investment of Selective Laser Melting machine, we are able to produce tool inserts with conformal cooling channels which allows uniform cooling across products, thus improving part quality, minimizing distortion and shortening cycle time during production. Through numerous internal testing and development, we are also capable in producing hybrid inserts to cater for our customer's requirement at a shorter lead time with lower cost.

Omni Mold adopts a customer-centric approach to quality, finding ways at every step of the process to reduce lead time and add value for customers, while maintaining highest standard of quality. As a precision engineering industry leader with vast engineering expertise and experience on plastic injection molds (Thermoplastics, Thermoset, High Performance Engineering Material, Liquid Silicon Rubber, Insert Molding, Spin Stack 2K, etc.), we are positioned to meet the requirements of most stringent customers in the global arena, in sectors such as Medical, Pharmaceutical, Healthcare, Nutritious/ Food Packaging, Information Technology, Office Automation, Automotive as well as Consumer Electronics.

With the revolutionary impact that additive manufacturing is bringing to the manufacturing industry, we strive to push the technology boundaries of AM, exploit every possibility that AM can bring for precision engineering, focusing on mold making industry.

PRODUCTS AND SERVICES

Design and Engineering Services; Additive Manufacturing using Selective Laser Melting; Mold Inserts Fabrication





OMYA INTERNATIONAL AG

Business Nature:
Material Manufacturer

Industry / Sector:
Building & Construction

High purity functional fillers
based on Calcium Carbonates



CONTACTS

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THE COMPANY

Omya is a leading global producer of industrial minerals – mainly fillers and pigments derived from calcium carbonate and dolomite – and a worldwide distributor of specialty chemicals.

The company provides a wealth of product solutions that contribute to its customers' competitiveness and productivity in multiple industries such as Construction, Printing & Writing, Technical Polymers, Packaging, Food, Personal & Home Care, Pharmaceuticals, Agriculture and Forestry, Water and Energy. Founded in 1884 in Switzerland, Omya has a global presence extending to more than 175 locations in over 50 countries with 8,000 employees.

As a result of cooperation with trading partners throughout the world, Omya is able to offer not only our calcium carbonate fillers & coating pigments, but also chemical raw materials, intermediates & specialty products for virtually any application.

Omya's commitment is clear: to deliver to each customer a solution appropriate to its area of business. For decades, Omya has been developing and expanding its expertise in all business sectors on this very basis. More than one hundred scientists, engineers and technicians work in applied technology, developing new products and improving established ones, as well as supporting our customers with their help and advice.

Omya also sets standards in production and product delivery with its use of the most modern technology, a worldwide network of engineering hubs, quality control laboratories at every site, and a central analytics and microbiology unit, as well as a premier logistics organisation.

PRODUCTS AND SERVICES

Cement Based Applications

From pure raw material, Omya offers tailor made mineral solutions that address the innovative and sustainable needs of the construction industry. Today, Omya's Ground Calcium Carbonate (GCC) in the form of various Betocarb® and Betoflow® grades is bringing multiple benefits to flooring, technical mortars & concrete, including 3D printing applications.

Focusing on the required characteristics of the final cement-based product, Omya adds value through its range of functional Mineral Plasticizers® which provide strong benefits like improved packing, stability, water-cement ratio and therefore an optimisation of the admixture efficiency. This way Omya covers both, economic and ecological optimisation of the cement-based compositions.



OPTOMECC

Business Nature:

AM Machine Manufacturer / OEM

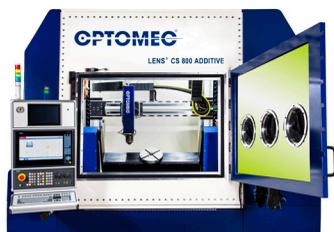
Industry / Sector:

AM Technology (Hardware / Process),
Semiconductor & Electronics

Optomecc is redefining how products come to market with additive manufacturing



Aerosol Jet HD System for Advanced Packaging



LENS CS 800 System for Printed Metals

THE COMPANY

The Optomecc company and its two main product technologies were born from the efforts and investments of the United States research labs and technology programs. Founded in 1997, it has been devoted to transferring leading edge additive manufacturing technology from the laboratory to the production floor. The company currently focuses on two groups of solutions: the LENS® (Laser Engineered Net Shaping) Directed Energy Deposition process for metal additive manufacturing and the Aerosol Jet® process for 3D printed electronics. Optomecc does not simply supply manufacturing hardware; rather, it provides a synthetic solution comprising machinery, training, materials expertise and process recipes. Hundreds of Optomecc systems have been installed in leading manufacturing sites worldwide.

With Optomecc, the promise of high-volume additive manufacturing is a reality today, transforming how companies design, build and maintain critical parts and products, and enabling new manufacturing possibilities.

Optomecc additive manufacturing technology provides compelling advantages over traditional manufacturing approaches.

- It enables customers to not only print full 3D parts, but also to add materials onto existing 3D parts that were produced using conventional manufacturing methods, such as CNC machining or injection molding
- It provides production grade/production scale 3D printing of fully functional end-use devices in specific areas such as printed electronics and metals
- It supports a wide range of functional materials and feature sizes

PRODUCTS AND SERVICES

Aerosol Jet technology is available either in turnkey system configurations or as a modular print engine that can be integrated into automation platforms for high volume production applications. LENS 3D printing technology is also available either in turnkey system configurations or as a modular print engine that can be integrated into CNC machine tools for cost effective production applications. Optomecc has a full product line-up for both 3D printing technologies. Appended are just a couple of our Additive Manufacturing machine offerings.

CONTACTS

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🌐 www.optomecc.com



OSTEOPORE INTERNATIONAL PTE LTD

Business Nature:

Medical Device Manufacturer

Industry / Sector:

Biomedical / Healthcare

Our implants help to regrow skeletal tissue in patients undergoing trauma and reconstruction surgery



THE COMPANY

Osteopore International Pte Ltd, based in Singapore, combines the science of Tissue Engineering and Regenerative Medicine with 3D printing to design, develop and manufacture implantable devices with a biomimetic microarchitecture that enable the body to regenerate skeletal tissue. The devices are made with bioresorbable polymer that will degrade in tandem with regeneration of new tissue, leaving no permanent implant in the patient. We collaborate with clinicians and researchers internationally to develop products that address unmet healthcare needs, reduce healthcare cost, improve patient outcomes and enhance lives. For more information, visit us at www.osteopore.com.

PRODUCTS AND SERVICES

Osteopore has a wide range of off-the-shelf products for craniofacial application. These include Osteoplug for filling bone voids such as burr holes, Osteoplug-C with the added access to shunts or drainage catheter, and Osteomesh for laying over defects, such as orbital floor reconstruction (image on the left) or craniosynostosis, to guide tissue regeneration.

Osteopore also designs and manufactures patient specific implants for craniofacial reconstruction such as cranioplasty (image on the left). These implants, besides providing protection to the underlying structure, support the regeneration of bony tissue for sustainable outcome of the reconstruction.

CONTACTS

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Photo credits:

National University of Singapore
NUS Centre for Additive Manufacturing (AM.NUS)
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COMPANY PROFILES

P-T



PIXEL AUTOMATION PTE LTD

Business Nature:

Design & Engineering, Manufacturing (Others)

Industry / Sector:

Robotics / Automation

Solution Provider for Smart Industrial Automation Systems



CONTACTS

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www.pixel-automation.com.sg

THE COMPANY

Pixel Automation is a Singapore based company which specializes in designing and building customized automation solutions for various industries. From concept design, fabrication, assembly, wiring, programming, final installation, commissioning, training, project management to aftersales service, Pixel Automation provides complete turnkey solutions to meet their customers' automation needs.

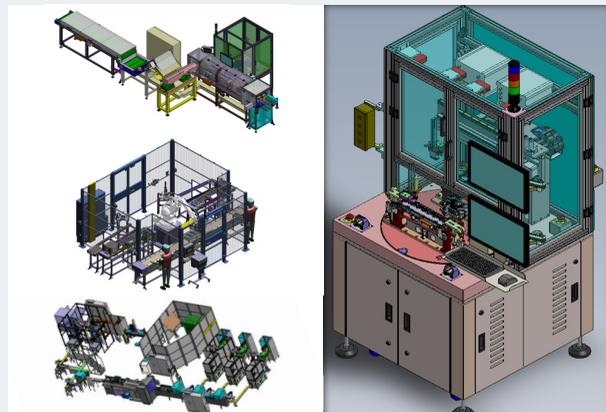
Since its inception in 2011, the company has steadily grown in its market share and become a predominant automation equipment supplier in Singapore and the region. The company has a wide customer base including many MNC companies, and supplied equipment to Singapore, Malaysia, China, Europe, United States of America, Russia and India.

Being forward looking, Pixel Automation has focused their research and development effort in the area of smart manufacturing solutions in line with Industry 4.0 for the last couple of years. In 2017, Pixel Automation launched PixCell – a highly flexible and scalable smart manufacturing cells equipped with SmartMove transportation system which is an IoT-enabled material transfer system. This patented system gives rise to a whole range of benefits from being modular and reusable, fast integration capable, multi-product & lot size one capable to easily scalable. PixCell's revolutionary, scalable design make it suitable for "farm" based manufacturing plant with no restrictions on sequential placement of the machines on the one hand and make it particularly suitable for low volume-high mix, as well as high volume-low mix product manufacturing requirements on the other hand. The modules are designed based on distributed intelligence concept with full IoT capability to provide product traceability. This module level intelligence makes it an ideal candidate for Industry 4.0 manufacturing approach.

Pixel Automation has made it into the Top 15 finalists of Singapore Emerging Enterprise Award 2017 and bagged the Best Innovation Award. The company is constantly seeking creative solutions, innovating to carve out new markets and embracing technology to transform its business.

PRODUCTS AND SERVICES

- Smart Vision Inspection System
- Robotised Vision Assisted Dispensing System
- State of Art Leak Tester
- Laser Measurement System
- Flexible Packaging & Palletising System
- Customised Solution





PROFESSIONAL TESTING SERVICES PTE LTD

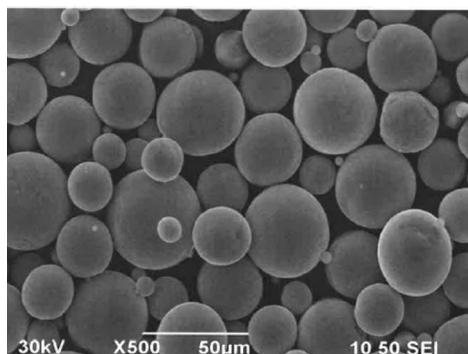
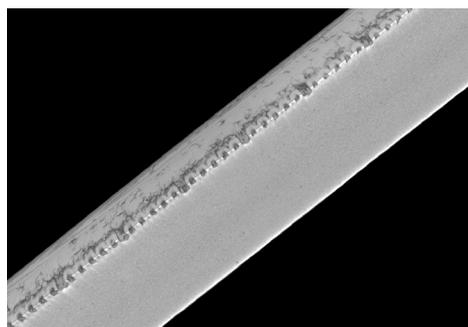
Business Nature:

Testing / Inspection / Certification

Industry / Sector:

Marine & Offshore, Oil & Gas, Building & Construction, Manufacturing (Others)

Providing Test Solutions for Metal AM



THE COMPANY

Professional Testing Services is an independent Test Laboratory, first founded in 1985 in Singapore. Since then, we have gained recognition from the Oil & Gas, Offshore & Marine and Manufacturing industries as a leading provider of quick, reliable, and accurate testing of metals and metal products.

We offer a comprehensive selection of tests and inspection services including mechanical tests, chemical and metallographic analysis, corrosion tests, non-destructive tests, welding consultancy & weld inspection, failure analysis, etc.

Our laboratory in Singapore is accredited to ISO/IEC 17025:2005 by SAC-SINGLAS.

PRODUCTS AND SERVICES

Mechanical Testing

- Tensile Strength
- Hardness / Micro-hardness
- Fatigue
- Charpy Impact

Chemical Analysis

- Material Composition (powders / printed parts)

Non Destructive Tests

- PMI / UT / LPI / MPI / RT
- Portable Hardness
- CT (Computed Tomography)

Powder Characterization

- Particle Size Distribution
- Powder Morphology
- Flowrate
- Apparent Density

Metallographic Analysis

- Microstructure
- Grain Size Determination
- SEM/EDX
- Porosity

CONTACTS

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PRODUCT DEVELOPMENT SOLUTIONS PTE LTD

Business Nature:

AM Software Solution Provider (CAD/CAM/CAE/PLM), AM Products Distributor

Industry / Sector:

AM Technology (Software)

Integrated Software Solutions Provider for engineering and manufacturing companies to gear towards Industry 4.0

THE COMPANY

Founded in 2003, PD Solutions provides a full range of CAD/CAM/CAE/PLM solutions to its customers through value added services, including software deployments, consulting and training. PD Solutions has been a PTC Gold Partner for more than 10 years, and is also an authorized ANSYS Channel Partner. Our team comprises a strong and dynamic group of experts from various fields. With our long experience and expertise in PTC products which include PTC Creo, Windchill and ThingWorx, PD Solutions works closely with our customers to achieve their business objectives, and help them establish and maintain leadership in a competitive marketplace. PD Solutions is also a reseller for ANSYS, Moldex3D and ProTop which are complimentary solutions for PTC Products. Visit us at www.pdsol.com

CONTACTS

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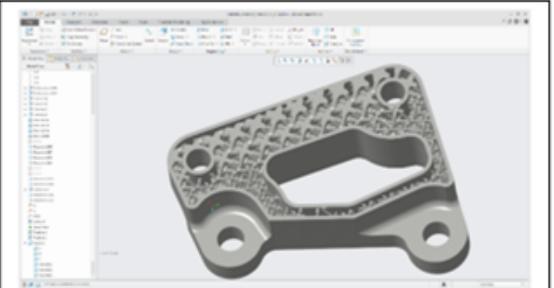
✉ david@pdsol.com

🌐 www.pdsol.com

PRODUCTS AND SERVICES

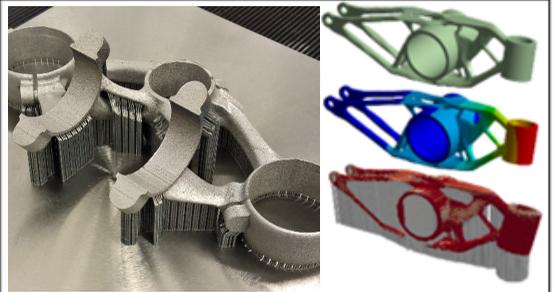
PTC Creo with the Additive Manufacturing Extension

PTC Creo delivers the most scalable range of 3D CAD product development packages and tools in today's market. Its variety of powerful features, capabilities and tools help engineers imagine, design and create your products better. Creo includes breakthrough capabilities for Additive Manufacturing, IoT, Model-Based Definition (MBD) and Augmented Reality (AR) and FEA Simulation.

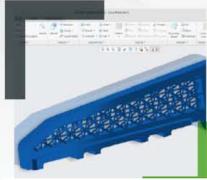


ANSYS Additive Suite

ANSYS Additive Suite delivers the critical insights required by designers, engineers and analysts to avoid build failure and create parts that accurately conform to design specifications. This comprehensive solution spans the entire workflow — from design for additive manufacturing (DfAM) through validation, print design, process simulation and exploration of materials.

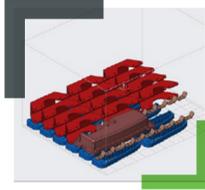


CREO ADDITIVE MANUFACTURING CAPABILITIES:



Lattice Modeling

Create parametrically-controlled lattice structures and fully-detailed parts with accurate mass properties. With variability control, you can optimize the lattices to achieve your engineering goal.



Create, Modify, Manage, and Save Print Tray Assemblies

- Define print tray specific to printer, where the tray assembly is the repository for the 3D print job.
- Add parts at any time, define positioning and rotations, assign materials/ colors, etc.



Automatic Positioning and Nesting in Print Tray Assemblies

- Create parametrically-controlled lattice structures, fully-detailed parts with accurate mass properties.
- Optimize the orientation of parts in print tray according to printer specifications.
- Nest parts in print tray assemblies (assumes printer supports nested parts).
- With variability control you can optimize the lattices to achieve your engineering goal.

ANSYS[®]

Additive Manufacturing Solutions



ANSYS Additive Suite

The most powerful simulation solution for metal additive manufacturing

ANSYS Additive Suite delivers the critical insights required by designers, engineers and analysts to avoid build failures and create parts that accurately conform to design specifications. This comprehensive solution spans the entire workflow — from design for additive manufacturing (DfAM) through validation, print design, process simulation and exploration of materials.



Over
Designed



Topology
Optimized



Validated



Physics Based
Supports



Print Process
Simulation

SINGAPORE | KUALA LUMPUR | PENANG | THAILAND

Product Development Solutions Pte Ltd
305 Alexandra Road #05-02 Vantage Automation Centre
Singapore 159942
Tel: +65 6732 9818





PROTO
KING

PROTOKING PTE LTD

Business Nature:

AM Service Bureau & Design and Engineering

Industry / Sector:

Biomedical / Healthcare / Consumer Product /
Environment and Clean Tech / Automotive /
Transport

We are a one-stop solutions hub
that empowers the bridge from
design to manufacturing

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Singapore 797547

+65 9728 6477

info@protoking.com

www.protoking.com/

THE COMPANY

We Believe...

In working with businesses of all scales – we simply respond to problems wherever they are. As such, this vast network of clients around the world has grown over the years because we do not let limitations constrict us but we challenge existing notions to ensure the client gets the job done as efficiently as possible – it is this value that we are known for.

Besides our track record for pushing boundaries, we recognise the strengths of local design talents and the lack of design opportunities locally. We want to change this and provide a platform to nurture local talents to showcase their abilities across borders. Therefore, we actively welcome companies and professionals in related fields to talk to our in-house designers, where ideas and information are shared.

PRODUCTS AND SERVICES



PROTOKING
www.protoking.com

PLASTIC & WAX 3D PRINTING - SLA, SLS



PROTOKING
www.protoking.com

METAL 3D PRINTING - EBM, TITANIUM



PROTOKING
www.protoking.com

METAL 3D PRINTING - EBM, TITANIUM



PROV3D PTE LTD

Business Nature:

Design & Engineering

Industry / Sector:

Biomedical / Healthcare, Precision Engineering, Robotics / Automation, Semiconductor & Electronics

Design for AM & to bring state-of-the-art applications of 3D printing to augment traditional line manufacturing

CONTACTS

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www.prov3d.com.sg/



THE COMPANY

PROV3D is a product development, engineering and additive manufacturing firm.

Our team has over 15 years of OEM product design and development experience from concept to mass production, and a wealth of know-how in designing for manufacturing and supply chain. In the digital age manufacturing framework, our vision is to bring state-of-the-art applications of 3D printing to augment traditional line manufacturing, specifically in the areas of tooling, jigs and fixtures, robotics end effectors, and functional end-use parts.

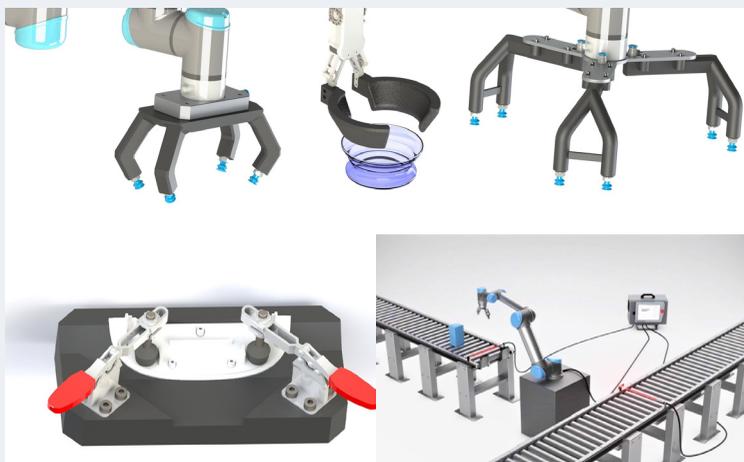
Automation and Robotic are here to stay, and can cut costs, increase productivity and raise competitive advantage. We provide the following services to support the Small & Medium scale Enterprises (SMEs) to embrace Industry 4.0:

- Needs and Gap Analysis
- Workflow redesign proposal
- System design / Vendor selection consultation
- Implementation monitoring and scale up proposals

PRODUCTS AND SERVICES

Our Offerings

- Mechanical product design from concept to completion
- Design for Additive manufacturing
- 3D printing services
- Jigs & Fixtures
- Inspection gauges
- Robotic End of Arm Tooling, Grippers
- Functional Prototypes, Soft tools, Low volume production parts
- Automation system design





RAM SMAG LIFTING TECHNOLOGIES PTE LTD

Business Nature:

Design & Engineering

Industry / Sector:

Robotics / Automation, Manufacturing (Others)

Original and innovative products that meet industry needs



CONTACTS

NG Ghee Hua

📍 160A Gul Circle, Singapore 629635

☎ +65 6716 9422

✉ ngh@ramspreaders.com

🌐 www.ramspreaders.com



THE COMPANY

RAM SMAG Lifting Technologies Pte Ltd (RAM Spreaders) is part of Salzgitter Maschinenbau AG (SMAG) group of companies. The Group's businesses include lifting equipment and accessories for containers, terminals, bulk ports, bulk cargo vessels, waste to energy incineration plants, scrap metal yards, steel mills, marine dredging and mining businesses.

RAM Spreaders is the world's leading independent, dedicated specialist spreader manufacturer. The company has manufacturing facilities in China; service and repair centres in Singapore, UK and Germany; and sales & after-sales service support throughout Asia, Americas, Europe, Middle East and Africa.

RSLT markets its products under the name RAM Spreaders, and offers a full spectrum of bulk cargo and container lifting solutions to port operators and crane manufacturers worldwide with strong marketing, production, design and global after sales service support. Currently, RAM products are present in more than 65 countries across all continents.

PRODUCTS AND SERVICES

RAM has 5 main product lines: Tandem headblock (Singflex), Ship-to-shore (STS) Spreader, yard Spreader, Mobile Harbor crane (MHC) spreader and bulk handling spreader (Revolver).





RENISHAW (SINGAPORE) PTE LTD

Business Nature:
AM Machine Manufacturer, OEM

Industry / Sector:
AM Technology (Hardware / Process)

Over 12 years of vast process
development experience



RenAM 500Q multi laser machine



System software



Healthcare



Automotive



Aerospace



Metal AM systems

THE COMPANY

Renishaw is one of the world’s leading engineering and scientific technology companies, with expertise in precision measurement and healthcare. The company supplies products and services used in applications as diverse as jet engine and wind turbine manufacture, through to dentistry and brain surgery. It is also a world leader in the field of additive manufacturing (also referred to as 3D printing), where it designs and makes industrial machines which ‘print’ parts from metal powder.

Renishaw designs and manufactures additive manufacturing systems for manufacturing components in a variety of metals using a process called metal powder bed fusion (or laser melting). Our expertise in process development and our experience in using the technology in our own manufacturing operations enable us to provide turn-key and optimised additive manufacturing solutions for a broad range of applications in industrial and healthcare sectors.

Renishaw additive manufacturing expertise includes:

- Applications engineers and engineering support
- Design for additive manufacturing support
- Metal powder development, specification and supply
- In-house powder analysis and metallography laboratory
- Research, design, development and manufacture of systems
- End-to-end process chain manufacturing
- Software

PRODUCTS AND SERVICES

Our Offerings

- Mechanical product design from concept to completion
- Design for Additive manufacturing
- 3D printing services
- Jigs & Fixtures
- Inspection gages
- Robotic End of Arm Tooling, Grippers
- Functional Prototypes, Soft tools, Low volume production parts
- Automation system design

CONTACTS

Shaun Lim

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- ✉ singapore@renishaw.com
- 🌐 Renishaw Additive Manufacturing
- 🌐 www.renishaw.com

SCHAEFFLER

SCHAEFFLER AG

Business Nature:

Engineering, Research & Development

Industry / Sector:

Aerospace / Defence, Automotive / Transport,
Manufacturing (Others), Robotics / Automation



THE COMPANY

The Schaeffler Group is a global automotive and industrial supplier. Top quality, outstanding technology, and exceptionally innovative spirit form the basis for the continued success of the company. By delivering high-precision components and systems in engine, transmission, and chassis applications, as well as rolling and plain bearing solutions for a large number of industrial applications, the Schaeffler Group is already shaping “Mobility for tomorrow” to a significant degree.

The technology company generated sales of approximately EUR 14.2 billion in 2018. With around 90,500 employees, Schaeffler is one of the world’s largest family companies and, with approximately 170 locations in over 50 countries, has a worldwide network of manufacturing locations, research and development facilities, and sales companies.

PRODUCTS AND SERVICES

Schaeffler products facilitate and shape mobility - as they have been doing for decades. We have also continued the development of our expertise from “basic” components to complete system solutions. Our high-precision products can be found in automobile drive trains, high-speed trains, wind turbines, and innovative solutions for aviation and aerospace applications.

The Automotive OEM division develops and manufactures groundbreaking products for engine, transmission, and chassis applications based on internal combustion engines as well as for hybrid and electric vehicles. The Automotive Aftermarket division delivers components and complete repair solutions to the automotive spare parts market worldwide. Schaeffler supports garages with overarching system understanding and comprehensive services for complex repairs. The Industrial division supplies products such as rolling and plain bearings, linear and direct drive technology as well as services such as maintenance products and monitoring systems to customers from different industrial sectors, through direct sales and a global network of certified distribution partners.

CONTACTS

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🌐 www.schaeffler.com



SECUR3DP+ PTE LTD

Business Nature:

AM Software Solution Provider

Industry / Sector:

AM Technology (Software)

Trusted 3rd party platform for the AM eco-system through blockchain technology plus proven governance processes

THE COMPANY

Secur3DP+, a subsidiary and creation of the Invention Science Fund (ISF), the startup arm of Intellectual Ventures, is being supported by Singapore’s rich entrepreneurial ecosystem, working in collaboration with NTU, NTUitive, and NAMIC to build the next generation digital manufacturing platform.

Secur3DP+ has a disruptive solution that enables companies to take advantage of 3D printing and other just-in-time manufacturing technologies by providing transaction security, accountability, and intellectual property protection. This initiative has received the NAMIC and MIT-SMART grants.

The company has rights to ISF’s groundbreaking patents in the field of 3D printing and is bringing to market the service of a permissioned Blockchain based transaction platform which simplifies decentralised manufacturing by acting as a trusted service provider that manages vendor compliance, file transfer, payment, and fulfilment.

PRODUCTS AND SERVICES

Secur3DP+ platform is comprised of 3 modules:

SecurMarketPlace – Offers customer the ability to search and place order for relevant 3D product in an easy and secure environment

SecurDesigner – Design owner is able to upload and manage IP-protected 3D designs

SecurPrinter – AM Centre is able to manage the print order they receive from Secur3DP+ platform

CONTACTS

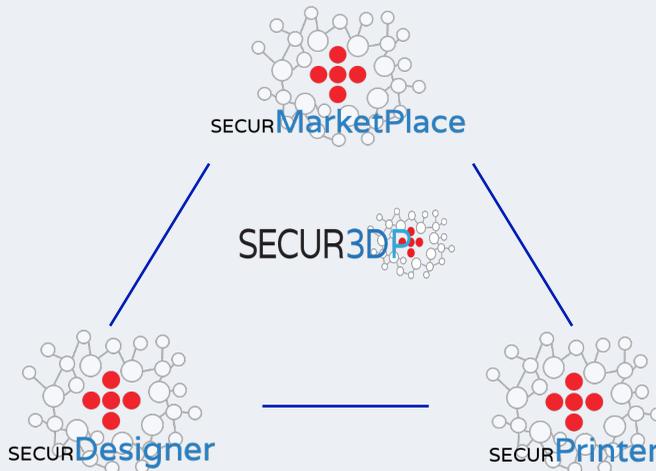
Low Eng Kiat

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🌐 www.secur3dp-plus.io





SEMBCORP MARINE

Business Nature:

AM Adopter

Industry / Sector:

Marine & Offshore, Oil & Gas

Leading provider of engineering solutions for global OM&E sectors

CONTACTS

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joohock.ang@sembmarine.com

www.sembmarine.com

THE COMPANY

SEMBCORP MARINE provides innovative engineering solutions to the global offshore, marine and energy industries. Drawing upon a track record of more than 50 years, an extensive network of facilities and in-depth expertise, the Group focuses on four key capabilities: Rigs & Floaters; Repairs & Upgrades; Offshore Platforms and Specialised Shipbuilding.

Sembcorp Marine's customers include major energy companies, drilling contractors, shipping companies as well as owners and operators of floating production units.

By delivering innovative solutions that often redefine the possibilities of offshore, marine and energy technologies, Sembcorp Marine achieves successful outcomes for its customers regardless of the scale, complexity and location of the projects.

PRODUCTS AND SERVICES

Sembcorp Marine specialises in the design, construction, conversion, repair and upgrade of offshore structures and different ship types. We are active in test-bedding and adopting advanced technology such as additive manufacturing (AM) to improve the reliability, safety and cost-effectiveness of our product offerings. This is in line with our continuing focus on automating and digitising our manufacturing processes. We collaborate closely with technology partners and customers to advance the adoption of AM in the offshore, marine and energy industries and to translate its deployment into products and solutions.





SIEGE ADVANCED MANUFACTURING

Business Nature:

AM Service Bureau, Contract Manufacturing, Design & Engineering, Training & Consultancy

Industry / Sector:

Automotive / Transport, Building & Construction, Consumer Product, Education, Manufacturing (Others), Robotics / Automation

Mass customisation and mass production using 3D printing technology

CONTACTS

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www.siegeadvancedmanufacturing.com/



THE COMPANY

Siege Advanced Manufacturing is a one-stop manufacturing solution, with 3D design, prototyping and mass manufacturing services on offer. We provide 3D design services to optimize designs for 3D printing and prototyping before mass manufacturing.

With an entire fleet of 3D printers, we are able to mass manufacture your designs (up to 20,000 pieces) quickly and at cost efficient rates. The 3D printing technology also allows for mass customisation. With no Minimum Order Quantity (MOQ), one-off 3D prints are also welcome.

PRODUCTS AND SERVICES

3D Design

We provide 3D modelling and design services for both the engineering and creative sectors. Price and timeline vary based on the design.

Prototyping

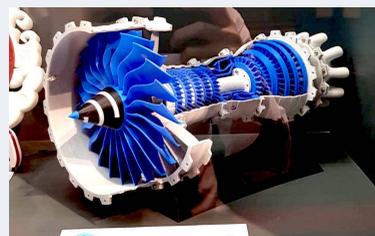
With no Minimum Order Quantity (MOQ), we welcome one-off prints from any industry. Low quantities can expect a quick timeline of 2 working days onwards to speed up the prototyping process. Shorter timelines for urgent prints are possible as well.

Mass Manufacturing

Our assembly of printers allow us to print up to thousands of parts simultaneously, enabling the mass manufacturing of 3D prints quickly and efficiently.

Large Format

Large format 3D printing allows for replicability and the manufacturing of large parts quickly.





SLM SOLUTIONS SINGAPORE PTE LTD

Business Nature:

AM Machine Manufacturer / OEM

Industry / Sector:

AM Technology (Hardware/Process)

Patented multi-laser technology

THE COMPANY

SLM Solutions is an integrated solutions provider and metal additive manufacturing partner. The company takes a vested interest in customers' long-term success with metal additive manufacturing. Robust Selective Laser Melting machines optimise fast, reliable and cost-efficient part production and SLM Solutions' experts work with customers at each stage of the process to provide support and knowledge-sharing that elevate use of the technology and ensure their return on investment is maximised. A publicly traded company, SLM Solutions Group AG is headquartered in Germany with offices in France, Italy, the United States, Singapore, Russia, India and China.

PRODUCTS AND SERVICES

The Selective Laser Melting Machine SLM 280 2.0 provides a 280 x 280 x 365 mm³ build envelope and a patented multi-beam technology. During the build process, up to two fiber lasers expose the build field via a 3D scan optic.

The high-performance machine is available in several configurations, providing single optics (1x 400W or 1x 700W), dual optics (1x 700W and 1x 1000W) and twin optics (2x 400W or 2x 700W). Depending on how the components are arranged, an 80% higher build rate can be achieved. In addition, the patented bidirectional powder coating helps to reduce the manufacturing time of individually manufactured metal build parts.



SLM@125



SLM@280 2.0



SLM@500



SLM@800

CONTACTS

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🌐 www.slm-solutions.com/



**Materials
Solutions**

A Siemens Business

Turning your vision into reality with 3D printing

At Materials Solutions – a Siemens Business – we have more than 10 years of experience supplying complex additively manufactured metal parts to the world's most advanced engineering companies.

With our additive manufacturing expertise, we can help you reduce time to market, shorten supply chains and enable challenging applications with improved functionality.

Our additive manufacturing technologies also enable designs in superalloys.

For enquiries

Email: benjamin.moey@siemens.com

materialsolutions.co.uk

If you can
dream it,
we can
print it!



SIEMENS
Ingenuity for Life

Materials Solutions
A Siemens Business

SIEMENS

Business Nature:

AM Software Solution Provider

Industry / Sector:

Aerospace / Defence, AM Technology (Software), Automotive / Transport, AM Technology (Hardware / Process), Manufacturing (Others)

Materials Solutions – a Siemens Business: More than 150,000 hours fleet experience of 3D printed parts



THE COMPANY

Materials Solutions – A Siemens Business

We are industrializing Additive Manufacturing and moving it out of the laboratory and onto the factory floor. We solve complex engineering challenges for customers across the Power Generation, Aerospace, Automotive, Process and Tooling sectors. For more than ten years, we have specialized in metal AM and are an expert team of engineers and metallurgists in powder bed fusion process and materials development.

As a recognized world leader using the most advanced equipment, we offer engineering and manufacturing services including design and material consultancy, Design for Additive Manufacturing (DfAM), printing prototypes and small lot series, post processing and certification. We create innovations that deliver performance and commercial benefits for world-leading brands.

Our technology has been validated through in-house applications in Siemens Gas and Power business. We have serialized additively manufactured hot rotating parts for application in Siemens gas and steam turbines which have more than 150,000 hours engine experience. We are one of the market leaders offering an integrated solution from software through automation to engineering and manufacturing of final applications. Our production capabilities comprise more than 19 printers with different capabilities. We plan to expand our capabilities up to 50 printers.

If you can dream it, we can print it!

PRODUCTS AND SERVICES

Siemens offers integrated software and automation solutions for industrial use.

Our Digital Enterprise Suite offers end-to-end solutions for only a holistic approach, which incorporates the entire value chain, leading to sustainable competitiveness. Around the world, numerous AM machines are used for industrial applications. With 55 machines, Siemens is a frontrunner in both production and as a service provider.

The Digital Enterprise Suite from Siemens is based on:

- Siemens PL software solutions, including NX™, the integrated CAD/CAM/CAE solution
- Simcenter™ solution portfolio, a robust simulation and testing program
- Teamcenter®, the digital product lifecycle management system
- SIMATIC IT and SIMATIC WinCC, two products from the Siemens Manufacturing Operations Management (MOM) portfolio for production
- MindSphere, the cloud-based, open IoT operating system

Materials Solutions Limited has been assessed and registered by NQA against the provisions of: AS9100D & BS EN ISO 9001:2015 in accordance with the requirements of EN 9104-001:2013.

CONTACTS

Benjamin Moey

 The Siemens Center, 60 MacPherson Road, Singapore 348615

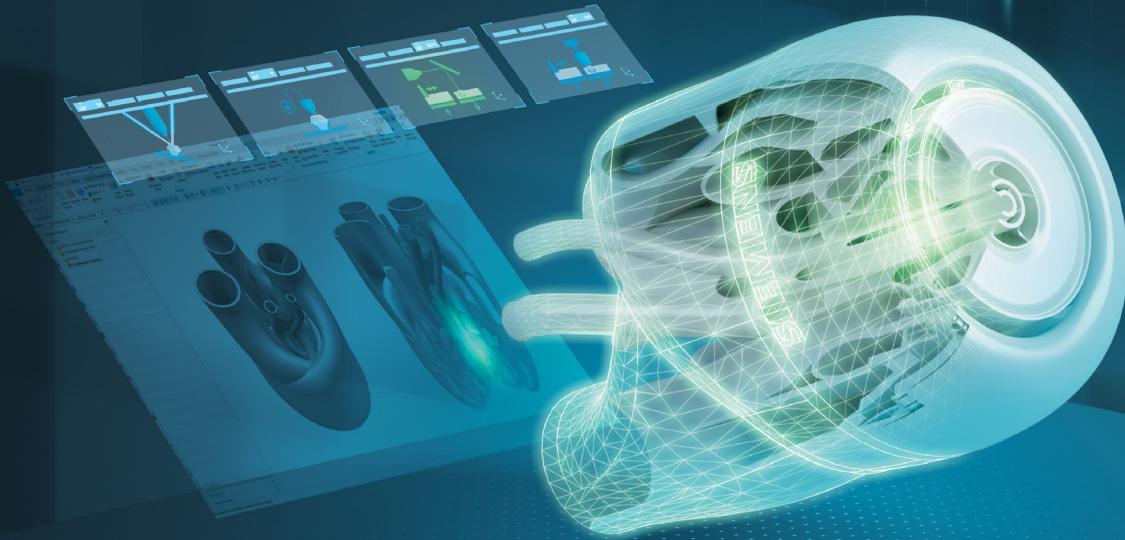
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 www.siemens.com/Additive-Manufacturing / www.materialsolutions.co.uk

SIEMENS
Ingenuity for life



Industrialize Additive Manufacturing

Realize the value of the Digital Enterprise Suite.

Additive Manufacturing is revolutionizing industrial manufacturing. Siemens is the only company in the world to offer integrated software and automation solutions for industrial use.

Create a sustainable competitive edge



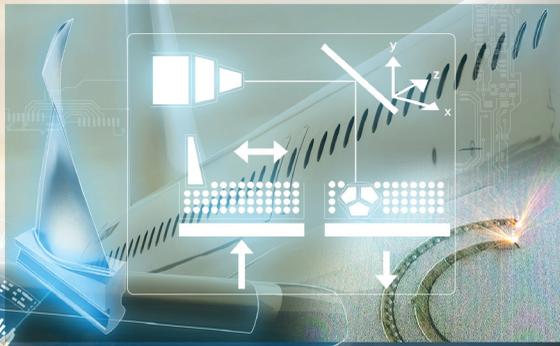
For enquiries

Email: benjamin.moey@siemens.com

[siemens.com/Additive-Manufacturing](https://www.siemens.com/Additive-Manufacturing)



SIEMENS
Ingenuity for life



Produce quality parts with industrial additive manufacturing software

Siemens NX provides all of the necessary capabilities, from design to print to post-print validation, in a single integrated system.

Siemens NX is industrializing additive manufacturing so you can not only prototype, but also manufacture groundbreaking products with this exciting new technology.

This allows you to reimagine your products, reinvent your manufacturing and even rethink your business models with additive manufacturing technology.

Watch our
On-Demand
Webinar!



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[siemens.com/PLM/AdditiveManufacturing](https://www.siemens.com/PLM/AdditiveManufacturing)



SINGAPORE INSTITUTE OF MANUFACTURING TECHNOLOGY

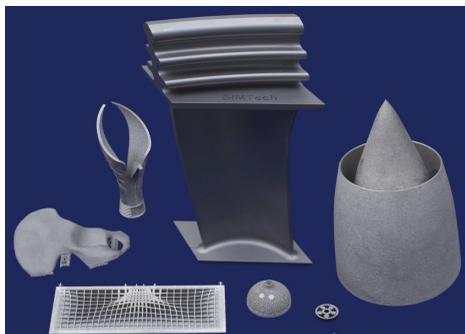
Business Nature:

AM Research Center

Industry / Sector:

Manufacturing (Others)

Develops high value manufacturing technology and human capital to enhance Singapore's manufacturing industry's competitiveness



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THE COMPANY

The Singapore Institute of Manufacturing Technology (SIMTech) develops high value manufacturing technology and human capital to enhance the competitiveness of Singapore's manufacturing industry. It collaborates with various multinational and local companies in the precision engineering, medtech, aerospace, automotive, marine, oil & gas, electronics, semiconductor, logistics and other sectors.

SIMTech is a research institute of the Agency of Science, Technology and Research (A*STAR). With a pool of more than 450 researchers, SIMTech is committed to serve the manufacturing industry with a three-pronged approach to develop the human, intellectual, and industrial capital in Singapore.

This is achieved by:

Industry Assist - Building technology capabilities through individual company-funded projects, Collaborative Industry Projects (CIPs), consortia and sharing of research facilities

Knowledge Transfer - Filling skills or technology gaps via SkillsFuture training courses using the Learn-Practise-Implement model, conferences, lectures, seminars, workshops, customised short courses and master classes

Technology Transfer - Sharing SIMTech-developed technology with industry through Technology Licensing, Open Innovation and Risk Sharing in Commercialisation

Manpower Sharing and Transfer - Providing access to R&D expertise via Technology for Enterprise Capability Upgrading (T-UP), Staff Attachment and Technical Advisors

PRODUCTS AND SERVICES

- Design, Modelling and Simulation for Additive Manufacturing
- Development of Materials for Additive Manufacturing
- Development of Additive Manufacturing Processes
- Development of Additive Manufacturing Equipment for Industrial Applications

There are two AM tracks – metallic and polymeric.

(i) The metallic AM track focuses on powder-bed metallic AM systems, namely selective laser melting (SLM), electron beam melting (EBM) and inkjet metal printing processes, while exploring metal alloys and composite material development. It also has expertise in powder-blown and wire-feed technology (Laser Aided Additive Manufacturing – LAAM) and LAAM system.

(ii) The polymeric AM track focuses on stereolithography (SLA), selective laser sintering (SLS), polyjet and fused deposition modelling (FDM) systems, as well as polymer powder and resin material development.



SINGAPORE TEST SERVICES PTE LTD

Business Nature:

Testing / Inspection / Certification

Industry / Sector:

Others

We help companies across industries meet safety, quality and performance standards



CONTACTS

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www.SingaporeTestServices.com



THE COMPANY

Singapore Test Services (STS) is a pioneer in testing, inspection, calibration and certification services. We help companies across industries meet safety, quality and performance standards. We employ highly reliable and accredited test methods coupled with the latest proven technologies to provide our clients with accurate and reliable test reports.

STS offers certification and auditing services for internationally recognised management system standards:

- ISO 9001 for Quality
- ISO 45001 / OHSAS 18001 for Occupational Health & Safety
- ISO 14001 for Environment
- ISO 50001 for Energy

PRODUCTS AND SERVICES

Our range of solutions includes:

- Material & Mechanical Engineering
- Chemical, Microbiological & Environmental Testing
- Non-Destructive Testing & Inspection
- Product Reliability Testing
- Calibration & Measurement
- Certification of Fire Safety Products
- Management System Certification/ Training



SSTC



SODICK SINGAPORE TECHNO CENTRE PTE LTD

Business Nature:

AM Machine Manufacturer / OEM

Industry / Sector:

Precision Engineering

Showcase the advanced manufacturing technology and Sodick's latest metal 3D printing machines providing one-stop solution methodology

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<https://www.sodick.com/>

THE COMPANY

Sodick Singapore Techno Centre Pte Ltd (SSTC) established in 2017, is located at Cleantech Park, Singapore's first eco-business park in the Jurong Innovation District. Collaborating with JTC and EDB, SSTC will be providing project collaborations and services for the industry, workshops, and training to accelerate adoption for our community.

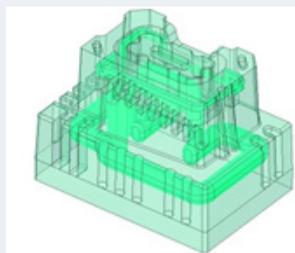
SSTC Intends to transfer metal 3D printing applications and know-how into Singapore's manufacturing industry to drive greater industry AM adoption and develop core capabilities towards Industry 4.0.

PRODUCTS AND SERVICES

SSTC offers turnkey solutions in providing consultancy and supplying for high precision metal parts, conformal cooling channel inserts and various applications in the precision engineering industry.



Additive Manufacturing Laboratory



3D Conformal Cooling



Metal 3D Printing



SPARE PARTS 3D

Business Nature:

AM Service Bureau

Industry / Sector:

Consumer Product, Automotive / Transport, Marine & Offshore, Manufacturing (Others)

Spare Parts 3D supports the digitalisation of your inventory and enables on-demand & distributed production using 3D printing. We leverage our worldwide providers' network to ensure manufacturing locally and quick delivery

CONTACTS

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spare-parts-3d.com

THE COMPANY

3D printing is a very powerful catalyst to cut costs and improve services delivered to customers on targeted business cases. We have specialised in different solutions: Supply Risk Zero, Long-tail Performance and Infinite Lifetime.

With a strong technical expertise in 3D Spare Parts from digitalisation to qualification and manufacturing, Spare Parts 3D's services cover a large scope of the AM value chain:

Consulting

Every part might not fit with 3D printing or be 3D printed with profitability. Therefore, it is a necessity to understand the full extent of your business. Sometimes spare catalogues reach hundreds of thousands of references and data is fragmented between several databases (ERP, PLM). Spare Parts 3D determines for you the most appropriate parts to implement 3D printing in your business no matter what your industry is.

Engineering & Qualification

Our engineering team brings all its competencies to look after your digital spare parts catalogue's creation. The data of your specific digital parts inventory is gathered directly in a secured central cloud to find out all the information for a decentralised production. This online platform provides instantly the best technology and material to produce the part as well as the production cost and lead time for delivery. You can now print any part anytime anywhere at the best quality just by clicking on a button.

On-Demand & Distributed Production

Spare Parts 3D collects orders and supervises production and parts delivery by leveraging on distributed qualified network of 3D Printers around the world. By sending digital instructions directly to the printers, you don't have to manage production and don't have any delivery concern. All data is encrypted to protect your intellectual property and keep you as the sole proprietor of your parts. The quality assessment ensures you get qualified printing of certified parts over various locations. Our local printer allows us to reach your delivery point in as quickly as 48 hours and decrease stocks and transportation. You have a green impact as you reduce your consumption and your carbon footprint!

PRODUCTS AND SERVICES

The collage illustrates the company's services and products. It features a world map with location markers for plastic and metal technology centers. A central diagram shows the AM value chain: Consulting (Support your evolution toward 3D printing), Engineering & Qualification (Digitize your inventory), and On-demand & Distributed Production (Produce locally and deliver upon request). To the right, a diagram depicts the Supply Risk Zero model, highlighting 'On-Demand Production' and 'Infinite Lifetime'. Below these are a photograph of various 3D printed parts, several screenshots of the SpareParts3D software interface showing part details, production status, and analytics, and a photograph of a large quantity of white 3D printed parts.



SPECIAL PROCESS SERVICES

Business Nature:

Testing / Inspection / Certification

Industry / Sector:

Oil & Gas, Manufacturing (Others)

Innovative NDT solution and techniques development supporting advance manufacturing

CONTACTS

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THE COMPANY

We are a young, dynamic, driven and innovation-minded company providing nondestructive services, supplies of NDT equipment, training and consultation. We are experienced in oil and gas manufacturing sector covering downstream, upstream and OEM wellhead, valves and related critical equipment.

Our Nondestructive testing (NDT) services cover Ultrasonic Test, Penetrant Test, Magnetic Particles Inspection, Positive Material Identification, Hardness Testing, Coating Thickness measurement services. NDT can be crucial in manufacturing processes and has proven its value in early detection of defects to avoid wastage of manufacturing hours. It is possible to carry out onsite inspection to additive manufactured parts by different method. Training and consultation services are helpful to develop in-house NDT capability in process and human skill-set to fulfil company manufacturing needs.

PRODUCTS AND SERVICES

NDT Services:

- Ultrasonic Test (Material, Bonding, Thickness)
- Magnetic Particle Test (Surface Crack)
- Penetrant Test (Surface Crack, porosity etc)
- Ferrite Test (Chemical)
- Hardness Test (Property)
- Positive Material Identification (Chemical)
- Coating Thickness Test





SPEE3D

Business Nature:

AM Machine Manufacturer / OEM

Industry / Sector:

AM Technology (Hardware/Process)

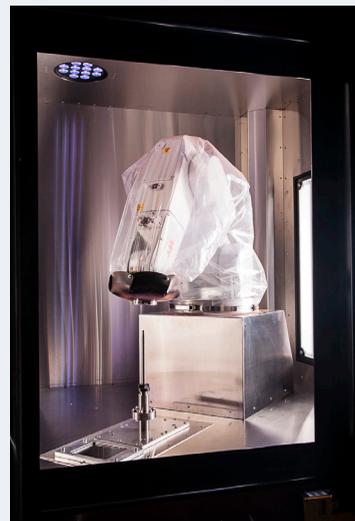
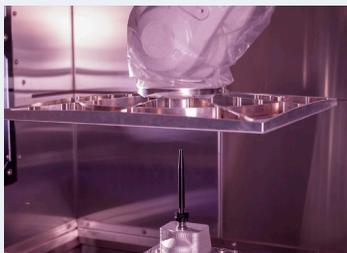
World's first high speed, low cost metal printer using supersonic 3D deposition

THE COMPANY

SPEE3D is focused on making manufacturing easier. SPEE3D provides manufacturers with the world's first metal 3D printer to use supersonic 3D deposition (SP3D), a patented technology that enables significantly faster, cost-effective and more scalable production than traditional metal printing techniques allow. Headquartered in Melbourne, SPEE3D is committed to helping manufacturers print their parts, their way, when they need them.

PRODUCTS AND SERVICES

SPEE3D's unique selling proposition is simple – 3D print metals at production-level speeds and cost. Using a new 3D printing process, supersonic 3D deposition (SP3D) and proprietary algorithms, the company can manufacture metal parts without the use of inert gases, thus greatly reducing cost. Combined with a high-speed printing process, the technology is targeted at 3D printing for production rather than prototyping.



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www.linkedin.com/company/spee3d/



ST ENGINEERING AEROSPACE LTD

Business Nature:
AM Adopter, Design & Engineering

Industry / Sector:
Aerospace / Defence

We provide integrated aerospace services and solutions through a global network of facilities and affiliates



CONTACTS

Zheng Guoying

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guoying@stengg.com

www.stengg.com

THE COMPANY

ST Engineering is a global technology, defence and engineering group specialising in the aerospace, electronics, land systems and marine sectors. Its Aerospace sector provides integrated aerospace services and solutions through a global network of facilities and affiliates in the Americas, Asia Pacific and Europe, supporting a broad customer base that comprises leading airlines, airfreight operators and armed forces. Its wide spectrum of maintenance and engineering solutions include airframe, engine and component maintenance, repair and overhaul, engineering design and technical services, as well as aviation materials and asset management services.

ST Engineering adopted Additive Manufacturing (AM) in 2014 with the acquisition of Stratasys Fortus 900mc and EOS M280 systems. ST Engineering's Aerospace Sector is a holder of European Aviation Safety Agency (EASA) Design Organisation Approval (DOA) for AM systems of Fusion Deposition Modelling (FDM), Polymer Laser Sintering (PLS) and Direct Metal Laser Sintering (DMLS), and EASA Production Organisation Approval (POA) for AM system of FDM. Please visit www.stengg.com/en/aerospace for more information.

PRODUCTS AND SERVICES



Components/Engine total support



Airframe Maintenance & Modification



Passenger to Freighter Conversion



Drone Net/services



Additive Manufacturing for Airworthy Parts & Operation Enhancement

ST ENGINEERING LAND SYSTEMS LTD

Business Nature:

AM Adopter, Contract Manufacturing, Design & Engineering

Industry / Sector:

Automotive / Transport, Aerospace / Defence

ST Engineering's Additive Manufacturing Centre offers pioneering 3D metal printing for the region. As a full turnkey service provider, the centre specialises in additive manufacturing, engineering and process design, modelling and simulation, pre-and-post production as well as testing and certification services. With an in-house team of experienced designers and application specialists, it brings more than 15 years of experience to product development efforts



CONTACTS

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THE COMPANY

ST Engineering is a global technology, defence and engineering group specialising in the aerospace, electronics, land systems and marine sectors. The Group employs about 22,000 people across offices in Asia, the Americas, Europe and the Middle East, serving customers in the defence, government and commercial segments in more than 100 countries. With more than 500 smart city projects across 70 cities in its track record, the Group continues to help transform cities through its suite of Smart Mobility, Smart Security and Smart Environment solutions. Headquartered in Singapore, ST Engineering reported revenue of SGD\$6.7B in FY2018 and it ranks among the largest companies listed on the Singapore Exchange. It is a component stock of the FTSE Straits Times Index, MSCI Singapore, SGX ESG Transparency Index and SGX ESG Leaders Index.

ST Engineering Land Systems is the Land Systems is the arm that provides integrated land systems and security solutions that meet the stringent operational requirements of defence, homeland security and commercial applications. We design, manufacture and distribute armoured, autonomous and specialty vehicles, munitions and weapons, soldier systems as well as robotics and unmanned systems. We are the world leader in niche products such as 40mm munitions.

ST Engineering Land Systems specialises in Mobility Solutions for Defence and Security, Munitions and Weapons, Specialty Vehicles and Automotive Services, Robotics and Autonomous Systems, Testing and Inspection, MRO, Training as well as Engineering Design and Manufacturing solutions. For more information, please visit www.stengg.com.

PRODUCTS AND SERVICES

At ST Engineering, our dedicated engineering teams customise and design end-to-end solutions including verification of designs through FEM simulations. We also offer support for all stages of contract manufacturing, ranging from productivity studies, qualification assessment, establishment and implementation of manufacturing, assembly processes to complete project management.

Our manufacturing setup provides customisation and prototyping of products to clients' requirements right up to the integration, qualification, and commissioning of the final product. Our facilities include Metal Additive Manufacturing & Cold Spray (AS9100D), CNC Milling (AS9100D), Heat Treatment (Nadcap & AS9100D), Chemical-Plating (Nadcap, AS9100D), Singlas-certified Test Services.

In the area of Additive Manufacturing, we are equipped to meet the needs of Industry 4.0 with a range of printers and materials from metals to plastics as well as composites.



Plastic & Composite Printers – Stratasys Objet, Ultimaker, MarkForged



Cold Spray

Metal Printer – EOS M280



STRUCTO

Business Nature:

AM Machine Manufacturer / OEM, AM Material Manufacturer, Design & Engineering

Industry / Sector:

AM Technology (Hardware /Process / Software), Robotics / Automation

We build 3D printers tailored for dental applications using our unique proprietary MSLA technology

THE COMPANY

Dentistry deserves better 3D printing.

It's true. No other industry 3D prints like ours. And yet we're stuck with printers that weren't even meant for dental. That's why we reinvented 3D printing from the ground up.

Our printers are made for mandibles and malocclusion; for making mountains of dental models without breaking the bank. Most importantly, they're built for you, so you can build your dental business.

From one digital dentistry company to another - you deserve better.

PRODUCTS AND SERVICES

Structo offers turn key solutions in providing consultancy and supply for high precision metal parts, conformal cooling channel inserts and various application in the precision engineering industry.



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www.linkedin.com/company/structo-pte-ltd

www.structo3d.com/





thyssenkrupp

THYSSENKRUPP INNOVATIONS PTE LTD

Business Nature:

Design and Engineering, AM Material
Manufacturer, Training & Consultancy

Industry / Sector:

Aerospace/Defence, Automotive/Transport,
Marine & Offshore, Building and Construction

Engineering. Tomorrow. Together.



CONTACTS

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kenlip.ong@thyssenkrupp.com

www.thyssenkrupp.com

THE COMPANY

We are a diversified group with 200+ years of engineering expertise. Our strengths lie in materials, capital goods and the service business, with over €32 billion in sales in 2017-18, as well as in designing and creating components, machinery and complete plants. We have end-to-end Additive Manufacturing process capability, and our solutions are process and material agnostic. We are a one-stop solution provider, offering AM part diagnostics, design optimisation, process definition, printing, post processing, testing and quality assurance.

With successful delivery of 250+ AM projects references across a variety of sectors including aerospace, automotive, marine, cement, infrastructure and other industrial sectors, we create value through a range of levers including design optimisation, weight reduction, use of alternate materials and overall supply chain complexity reduction. We are the first to develop and use 1.3964 material (submarine grade steel) for AM.

We can help de-risk your AM investments by leveraging our deep process expertise to identify and mitigate challenges and risks with AM adoption, using our proprietary tools and processes to ensure certainty of outcome and traceability across the entire value chain. We are also a DNV-GL certified facility with AM process approval for maritime parts.

With a presence in 78 countries worldwide with over 161,000 employees, including AM TechCenter in Germany and Singapore, we are part of the extensive network of qualified printing and post-processing partners.

PRODUCTS AND SERVICES



Training &
Consulting Services

Training: Variety of training formats available to suit your requirements from leadership capability building to joint working sessions with engineering teams on DfAM.

Consulting: Proprietary approach for diagnostics & part suitability screening. We work closely with your sales, production, design and purchasing engineers to identify commercially attractive parts for your AM application.



Engineering
Services

Design: We have an experienced team in DfAM and can create 3D digital models, optimise designs and ensure support structure & topology optimisation.

Process: We pioneer a holistic approach to AM process definition and using our deep technology experience and advanced tools, we can identify and set process parameters to achieve desired quality in printed parts.

Printing: We have capabilities to support all major process technologies and can help you print machine parts to desired surface finish and dimensional accuracy.



Strategic long
term partnerships

We can be your trusted partner in digitising your supply chains and bundle up all our AM services and customise solutions based on your specific needs and requirements.

As a long-term partner, we can support you on:

- Technology consulting
- Engineering design and process solutions
- On demand printing
- Digital spares warehouse solutions



TURBOCHARGER MAINTENANCE
REPAIRS | OVERHAUL | SPARES

TRU-MARINE PTE LTD

Business Nature:

AM Adopter

Industry / Sector:

Marine & Offshore, Automotive / Transport,
Oil & Gas

Leading global turbocharger
Group by maker authorisations and
proprietary R&D achievements



Tru-Marine is certified for
ISO 9001+14001 and OHSAS 18001.

CONTACTS

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+65 6861 8398

turbo@trumarine.com

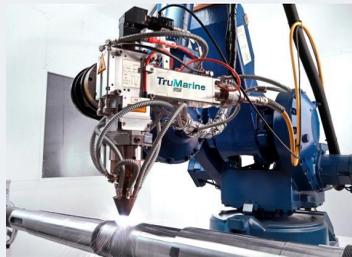
trumarine.com

THE COMPANY

Tru-Marine has more than 40 years of proven track record for delivering relevant, high quality turbocharger maintenance, repair and overhaul solutions for marine, offshore, locomotive and power plant applications. We offer full service from scheduled overhauls, in-situ emergency repairs to spares and technical support.

In addition to long-standing maker authorisations, research and remanufacturing form our core strengths, allowing us to value add with innovative repairs to extend the service life of turbochargers and non-turbo machinery. Our service dedication is grounded in operational excellence, for every delivery to be in full and on time. We offer round-the-clock, integrated service coverage from Singapore, China (Shanghai, Zhoushan, Guangzhou, Tianjin), United Arab Emirates (Dubai) and The Netherlands (Rotterdam).

PRODUCTS AND SERVICES



Laser-aided reclamation

Our service capabilities include:

- Turbocharger overhaul
- Laser-aided reclamation
- Nozzle ring supercoat by HVOF NEW
- Cover ring reclamation
- Turbine blade repairs
- Rotorshaft repairs
- Non-destructive testing
- Reconditioning of bearings
- Reconditioning of lubricating oil pumps
- Dynamic balancing
- Turbocharger spares and technical support
- Customized repairs for non-turbo machinery

Our Laser-aided reclamation extends to other non-turbocharger components:



Supercoat by High Velocity Oxygen Fuel (HVOF)

- Shafts and impellers
- Piston ring grooves
- Piston crowns
- Piston rods
- Exhaust valve spindles
- Exhaust valve seats
- Stern tube liners
- Gearbox housings



TRUMPF PTE LTD

Business Nature:
AM Machine Manufacturer / OEM

Industry / Sector:
AM Technology (Hardware / Process)

Leading company for Laser
Sources and Laser Systems for
Manufacturing

CONTACTS

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 TRUMPF

 www.trumpf.com

THE COMPANY

TRUMPF was founded in 1923 as a series of mechanical workshops and has since developed into one of the world's leading companies for machine tools, laser technology, and electronics for industrial applications. TRUMPF is a complete supplier for additive manufacturing, providing machines, laser beam sources and laser systems from a single source. Our extensive product portfolio equips manufacturing facilities with all the relevant beam sources, developed and produced by our own company, which gives you a clear competitive advantage.

PRODUCTS AND SERVICES



For additive manufacturing, TRUMPF provides you with solutions in both relevant laser technologies: laser metal fusion (LMF) and laser metal deposition (LMD). Depending on the application, we offer the right 3D printer or laser processing machine for your industrial manufacturing processes.

As a pioneer in additive technology with around 20 years of experience, we will pass on our expertise to you, so that you benefit from robust and reliable laser 3D printers, as well as highly productive laser processing machines for industrial series production.





TÜV SÜD

Business Nature:

Testing / Inspection / Certification, Training & Consultancy

Industry / Sector:

Aerospace / Defence, Automotive / Transport, Biomedical / Healthcare, Building & Construction, Chemical Process, Consumer Product, Others

TÜV SÜD inspires trust in a physical and digital world to create a safer and more sustainable future

THE COMPANY

TÜV SÜD is a trusted partner of choice for safety, security and sustainability solutions. It specialises in testing, certification, auditing, certification, training and knowledge services. Since 1866, the company has remained committed to its purpose of enabling progress by protecting people, the environment and assets from technology-related risks.

TÜV SÜD operates globally with a team of more than 24,000 multi-disciplinary experts recognised as specialists in their respective fields. By combining impartial expertise with invaluable insights, the company adds tangible value to businesses, consumers and the environment. The aim of TÜV SÜD is to support customers with a comprehensive suite of services worldwide to increase efficiency, reduce costs and manage risk. By anticipating technological developments and facilitating change, TÜV SÜD inspires trust in a physical and digital world to create a safer and more sustainable future.

PRODUCTS AND SERVICES

- Product Testing
- Inspection
- Auditing
- Certification
- Training
- Knowledge Services

CONTACTS

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enquiries@tuv-sud-psb.sg

www.linkedin.com/company/tuvsud/

www.tuvsud.com





Add value.
Inspire trust.

Industrial additive manufacturing (i AM) solutions

Safety and quality for next-generation
machinery, processes and products

How Additive Manufacturing can avoid a glass ceiling:

i AM Ready, a ground-breaking initiative to ensure industrial additive manufacturing readiness

“The success of AM solutions at industry level will only come about by defining, implementing and complying with manufacturing standards.

Today we are still lacking many of these steps”

- Gregor Reischle, Head of Additive Manufacturing, TÜV SÜD

The Additive Manufacturing industry is growing up fast. According to one 2018 industry report, the AM industry currently exceeds \$7.3 billion worldwide – up from \$5.1 billion just two years ago. However, despite this impressive growth, the future of the additive manufacturing sector faces a range of structural obstacles which will need to be addressed sooner or later. These include fundamental changes to business models, processes, training and standards.

Unless the industry as a whole deals with these issues now, it will run into a ‘glass ceiling’ which will impede further growth.

NOT business as usual: transforming the future of manufacturing

▪ Mass production => personalised production

Manufacturing runs typically produce hundreds or thousands of units in the same way. AM will allow businesses to customise every single unit in a run to the customer’s desires, if required. However, the challenge is that the effort required for quality assurance is much **higher and requires a new approach to certification.**

▪ Centralised supply chain => decentralised supply chain

In traditional manufacturing, most products are made in a central location, before being distributed to customers. AM will allow the small-scale production of goods in smaller ‘brand workshops’ close to customers, however this would mean that these workshops need to build up their manufacturing expertise.

▪ Central storage and waste => low waste, low storage

Manufacturers today must mass-produce products then store them until they are sold, which can result in significant waste. AM will mean manufacturers can produce the exact number of parts required on demand, thereby cutting waste and storage costs. **The challenge here is the assurance of part quality and IP rights which is why TÜV SÜD offer certifications and software solutions.**

Done right, AM clearly provides enormous potential benefits to businesses and their customers, in terms of cost, reduced waste and more reactive production. But, this will also require a significant change in business models and practices. Unless firms make serious structural changes to the way they produce their goods, Additive Manufacturing’s benefits cannot truly be realised.

How to initiate change processes to become “i AM ready” and benefit from AM’s potential

For a manufacturing business to become industrialised Additive Manufacturing ready (i AM-ready), significant changes need to be made throughout the business.

These include:

1. Company Management

AM will only bring limited benefits unless the wider business strategy is changed to accommodate it. You cannot simply ‘add’ an additive manufacturing section to a production plant – the benefits will be minimal. Instead, for AM to achieve its potential, a business must develop a wider strategy for AM, including development of the marketplace and planning for new customer segments and distribution models.

2. Customer Management

For customers to accept goods produced using AM, they will need assurances that those products are of the same (or higher) standard as they have come to expect through traditional manufacturing processes. This will require manufacturers to put their products through testing and certification to gain customer trust. During the early market stage in particular, companies need to consult their clients on the value of AM and to teach additive manufacturing design.

3. Order Management

Producing large numbers of 3D printed items will require very different processes to traditional manufacturing. There will be greater emphasis on CAD and CAM preparation, as well as new methods of

testing and quality assurance especially for regulated industries. Manufacturing centers need to have an agile and structured order management procedure in order to fulfil the demands of high quality, rapid prototyping and small series orders.

4. Production Management

For AM to succeed, the production process itself needs to be adapted according to the pitfalls related to the specific technologies. To assure a reproducible, traceable manufacturing workflow, the task of production managers will be very different to **what was done before; from handling materials, to scheduling and ordering materials, right through to post processes.**

5. 3D Printing

The process of 3D printing itself will also introduce unique new challenges to the factory floor. Staff will **need to be retrained to use and monitor 3D printing hardware, as well as understand how to assess output.** Each system manufacturer and 3D technology comes with its own specific challenge for machine operators, which they will need to learn and supervise.

6. Post-Processing

On completion of a piece, manufacturers will need to develop new processes for unpacking and delivering final parts. The level of automation in this sector needs to increase significantly. For both powder bed fusion metal 3D printing and plastic 3D printing, the support removal processes are major pain points which need to be automated. Powder recycling, sorting and other post processes such as heat treatment, milling, colouring and finishing also need to be seamlessly integrated.

This new approach to manufacturing will require businesses to make significant changes to their processes. Making these changes requires investment and long-term planning -but failure to do so will mean 3D printing cannot reach its full potential. Without these changes there will be inconsistency in output and standards and customers will lack clarity on the right products for AM and its full potential.

Indeed, as the AM sector grows, there have been growing calls for regulation of Additive Manufacturing, to ensure customers get the best end-product – and this is especially so in highly regulated sectors such as healthcare, aerospace and automotive.

Certification will differentiate between AM businesses and industrial AM ready businesses

Manufacturing centres can't shoulder all the responsibility; technological solution providers such as hardware, software and material manufacturers need to adapt their products to the requirements of industrial additive manufacturing.

The industrial AM sector is going through a period of rapid growth. However, as Gregor Reischle, TÜV SÜD's Head of Additive Manufacturing suggests, the sector will run into a 'glass ceiling' unless it begins putting into place processes which can regulate the sector, demonstrate the highest quality, and set standards. Currently, TÜV SÜD bridges the gap of technological readiness and the proof of concept for AM manufactured products.

At present, relatively few 3D printing businesses are certified, and the market is something of a 'Wild West'. For customers, this means confusion and uncertainty – it's almost impossible to know which manufacturer, or which technology is ready for industrial AM, and which will let them down. And for manufacturers themselves, this lack of clarity over standards means they must develop their own quality standards and testing models in-house – which is costly, time-consuming and hard to verify.

Certification, therefore, is not only necessary for the industry, it's also welcome. **It will allow high quality businesses to differentiate themselves, improve customer trust and therefore allow the industry to flourish.**

At TÜV SÜD, we're actively working to improve and enhance global AM standards, and have developed our industrial AM ready initiative (i AM Ready) including training courses to help certify businesses in the sector. We've also launched the first certified industrial additive manufacturing centres for 3D printing in Germany which coincide with the DIN standard and ISO/ASTM standards. **These efforts will help AM firms move the sector beyond its glass ceiling.**

To learn more about the i AM Ready (industrial Additive Manufacturing Readiness initiative) training and services, visit <https://bit.ly/2XJBfKP>



COMPANY PROFILES

U-Z

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Design and photography by Singapore
University of Technology and Design (SUTD)

Ultimaker

ULTIMAKER

Business Nature:

AM Machine Manufacturer / OEM, AM
Material Manufacturer, AM Software Solution

Industry / Sector:

AM Technology (Hardware/Process/
Software)

Reliable printers, material choices,
most trusted 3Dprinting software-
Cura, strong community & support
dedicated to your success



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www.ultimaker.com

THE COMPANY

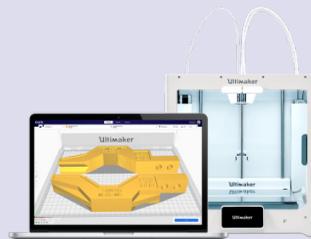
Since 2011, Ultimaker has built an open and easy-to-use solution of 3D printers, software and materials that enable professional designers and engineers to innovate every day. Today, Ultimaker is the market leader in desktop 3D printing. From offices in the Netherlands, New York, Boston, and Singapore – plus production facilities in Europe and US – its global team of over 400 employees work together to accelerate the world's transition to digital distribution and local manufacturing.

PRODUCTS AND SERVICES



Our flagship 3D printer

Ultimaker S5 offers reliable dual extrusion on a larger scale. Create functional prototypes, production tools, and strong end-use parts made from advanced polymers and composite materials – thanks to tested, predefined print settings. The Ultimaker S5 also features advanced active leveling, filament flow sensors, and an intuitive touchscreen to make your 3D printing experience simpler and easier.



Ultimaker Cura

The world's most trusted 3D printing software. First choice for millions of users worldwide, our free Ultimaker Cura software is the advanced slicing engine you can depend on. Prepare your model in a few clicks, send to a printer, and let it do the rest. Ultimaker also provides optional Ultimaker Connect to simplify 3D printers management and operation.



Ultimaker offers the widest material choice on the market (e.g. Nylon and PVA, PLA and PVA, or CPE and PVA). With our **Material open platform**, you can choose the perfect filament for your application – from **advanced polymers to carbon fiber composites**.

VOESTALPINE ADDITIVE MANUFACTURING CENTER SINGAPORE PTE LTD

Business Nature:

AM Material Manufacturer

Industry / Sector:

Aerospace / Defence, Marine & Offshore, Oil & Gas, Precision Engineering

One Stop Shop for Tailored
Expertise to fit your needs

ISO 9001:2015 Certified

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THE COMPANY

voestalpine Additive Manufacturing Center Singapore Pte Ltd. (vAMCS), established in 2016, is a subsidiary of voestalpine AG Group. Its combination of leading steel-making know-how and processing expertise helps create innovative technical solutions and new products.

vAMCS provides an R&D / Manufacturing platform for metal additive manufacturing (AM) using laser deposition. The metal powder is thereby joined to the base material with a high strength metallurgical bond.

Applications:

Coatings; Advanced Remanufacturing; Customised Production with Innovation; More than Prototyping, Rapidly convert 3D modelling to real prototype for part evaluation and testing, minimise the production part design failure

Located in Singapore, however, providing solutions globally with the support from our other AM centers.

PRODUCTS AND SERVICES





WestBison Technologies Pte Ltd

WESTBISON TECHNOLOGIES PTE LTD

Business Nature:

AM Adopter

Industry / Sector:

Robotics and Automation

Delta robot, Industrial 4.0, IoT.

CONTACTS

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THE COMPANY

WestBison Technologies is one of the leading automation companies in Asia, specialising in innovative automation system design and development. We are the 1st company in SEA to design and build new generation delta robots based on PLC platform and industrial 4.0.

We design, fabricate and develop our systems in Singapore. As a young and dynamic company, we have achieved steady growth in the past 8 years.

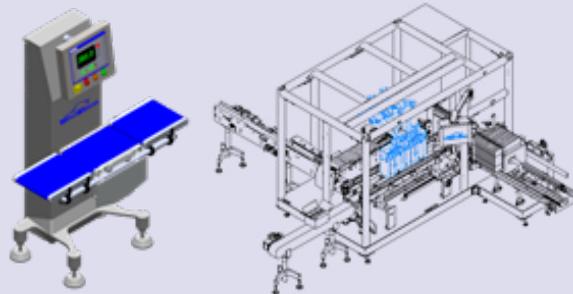
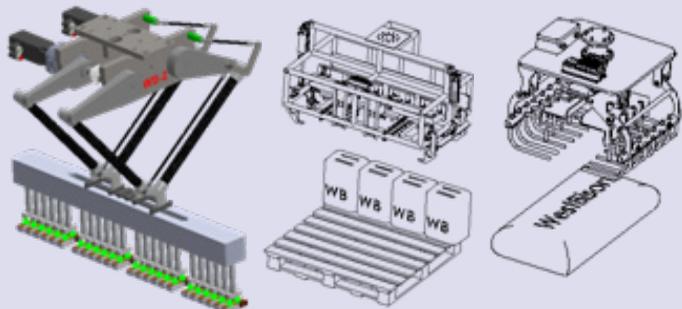
At WestBison, we always embrace new technologies to enhance our capabilities and to provide better solutions / products to our customers. In 2019, we purchased HP MJF 3D printing system to further improve our manufacturing capacity.

PRODUCTS AND SERVICES

Tailor-made automation solutions from small cell to turnkey solutions.

Ready modules:

2-axis delta robot, industrial robot gripper, dynamic checkweigher, modular case packer.





WKK DISTRIBUTION (SINGAPORE) PTE LTD

(A Member of WKK Group)

Business Nature:

AM Products Distributor

Industry / Sector:

AM Technology (Hardware / Process), Semi-conductor & Electronics

CONTACTS

WKK Distribution (Singapore) Pte Ltd

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www.wkkintl.com / www.optomec.com



THE COMPANY

WKK was established in 1975 as a trading and distribution company supplying capital equipment, materials and services to the printed circuit board industry across Asia. The company was a natural extension of the business founded by Mr. Wong Wha San, who in 1962, setup a PCB factory. When the factory's business grew rapidly in 1975, WKK was created as its trading and distribution arm.

In 1989, WKK spun off from Wong's Industrial (Holdings) Ltd. and became a publicly-listed company. As of today, WKK has established a network of offices in The United States, The People's Republic of China, Taiwan, Japan, Thailand, Singapore, Malaysia and Vietnam.

Being one of the largest distribution networks in Asia for the Electronics Industry, WKK is highly committed to customer satisfaction by providing superior products and services to all our customers.

PRODUCTS AND SERVICES



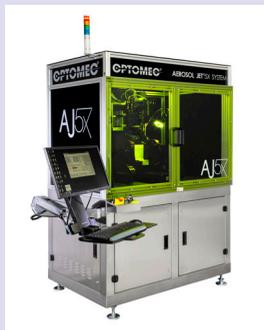
AEROSOL JET 3D PRINTING



AJHD

R&D Process Development to High Volume Production

Optomec is the leading manufacturer of 3D Printing equipment used for functional applications in the Electronics, Energy, Life Science and Aerospace industries. Our solutions are highly differentiated in terms of the breadth of materials they support, from structural metals to conductive metals to biomaterials; and the features they can produce, from microns to meters.



AJ FLEX / 5X

3D Part Printing Capability in a Flexible, Scalable Platform

Optomec has more than 150 customers, with system installations in more than 20 countries. Optomec is a privately-held C Corporation, founded in 1982. The Company is headquartered in a 28,000 sq. ft manufacturing facility in Albuquerque, NM, USA, with an advanced engineering facility in Minneapolis, MN, USA, and a distributor network around the world.

3D Printed Antenna for Smart Phones, Tablets and Mobile Devices

- 3D Printed Sensors for the Industrial Internet and Internet of Things
- 3D Semiconductor Packaging
- 3D Printed Metal for Repair and Coatings



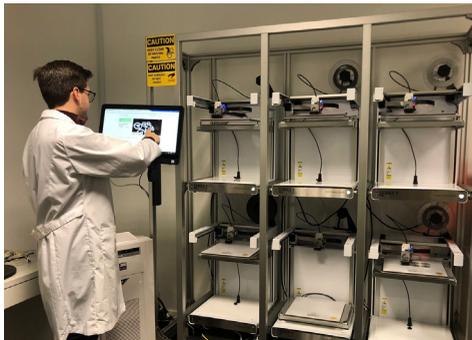
WILHELMSSEN SHIPS SERVICE

Business Nature:

AM Adopter, AM Service Bureau

Industry / Sector:

Marine & Offshore, Oil & Gas



THE COMPANY

With one of the most comprehensive global marine supply systems in the world, Wilhelmsen Ships Service has the ability to deliver to more than 2,200 ports in 125 countries worldwide.

Supplying marine solutions including the Unitor™ brand of products, Timm™ ropes, Unicool™ refrigerants, and Unitor™ and Nalfleet™ marine chemicals, along with a wide range of shipping agency services and maritime logistics. Last year, we made product deliveries to 27,500 vessels and handled 75,000 port calls. Wilhelmsen Ships Service is part of the Wilhelmsen group. For more information, see wilhelmsen.com

PRODUCTS AND SERVICES

Wilhelmsen Ships Service partners with Ivaldi Group to fulfil the vision of disrupting the supply chain for marine parts, whereby the existing supply chain process will be replaced with a customised, on demand, and more efficient process of 3D printing - starting with a 3D printing micro factory in Wilhelmsen's Pandan Loop facility in Singapore.

3D printing technology opens up several new possibilities like:

- Reduced costs associated with marine parts and their delivery
- Shorter transportation and delivery time
- Availability of unobtainable marine parts for ships older than 10 years
- Typical parts procurement can take up to months but 3D printing could take just days
- Improved part design according to customer needs and use on board

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🌐 www.wilhelmsen.com



YAMAZAKI MAZAK SINGAPORE PTE LTD

Business Nature :

AM Machine Manufacturer and Sales & Marketing Office

Industry / Sector:

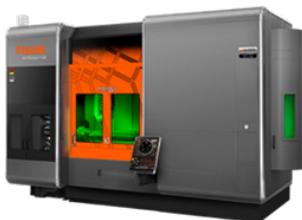
Aerospace / Defence, Automotive / Transport, Marine & Offshore, Oil & Gas, Precision Engineering

The Global Leader in Machine Tools . Turning centers, Machining centers, Multi-tasking, Hybrid multi-tasking, Laser processing, CNC technology, Automation and IoT solutions

INTEGREX i-series

i-200S AM
i-300S AM
i-400S AM

MULTI-LASER
METAL DEPOSITION
LASER METAL
DEPOSITION



VARIAXIS series

j-600/5X

MULTI-LASER
METAL DEPOSITION
LASER METAL
DEPOSITION
WIRE ARC



THE COMPANY

Yamazaki Mazak was established in 1919 and has been contributing to the development of the machine tool industry as a leading global company. Yamazaki Mazak manufactures advanced machine tools such as multi-tasking centers, CNC turning centers, machining centers and laser processing machines, automation systems and the latest Hybrid multi-tasking machines with the concept of DONE IN ONE to support global manufacturing by providing exceptional productivity and versatility. Our goal is to continuously develop new machine tools that meet today's requirements and tomorrow's vision.

PRODUCTS AND SERVICES

Mazak Hybrid Multi-Tasking Machine (Additive Manufacturing Series)

With the hybrid multi-tasking capabilities, manufacturers can generate or clad near-net-shape component features, paired with Mazak's exceptional subtractive capabilities, completing a high-precision finish machining operation, all true to DONE IN ONE® part production.

- Produce parts in minimum amount of time, ideal for prototype component production.
- Deposit a different type of material (of a more expensive and higher quality material e.g. titanium) on a base material for versatility.

Three AM Technologies

Multi-Laser Metal Deposition

DONE IN ONE machining of laser metal deposition processes required to increase the durability and strength of valves used in the aerospace and chemical industries as well as precision machining of molds and turbine blades.

Laser Metal Deposition

Expensive materials used in aerospace, energy and medical industries can be formed into near-net-shapes by laser metal deposition to reduce total production time. Additive manufacturing of different types of metals can be used for increased durability and anti-corrosiveness.

Wire ARC

Wire ARC AM is suitable for a variety of processes, such as component near-net-shapes, repair of molds and others.

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My contact



ZENYUM PTE LTD

Business Nature:

AM Adopter

Industry / Sector:

Biomedical / Healthcare

Affordable Invisible Braces

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THE COMPANY

Founded in 2018 in Singapore, Zenyum is the latest innovation in dental care. As a consumer-focused healthcare brand, we aim to make our customers “Smile More”.

Zenyum provides 3D-printed Invisible Braces, produced under the highest quality standards, that help deliver confidence to our customers. Our cutting-edge technology allows us to offer dental treatment at an unbeatable cost to the rising Asian middle class.

Zenyum is led by a team of experienced tech entrepreneurs and doctors. We bring the highest level of care to our customers by partnering with experienced local dentists across Asia. As of today, Zenyum is active in Singapore, Malaysia, Hong Kong, Thailand and Indonesia.

PRODUCTS AND SERVICES

Zenyum Invisible Braces are custom made clear aligners that straighten front teeth by leveraging 3D visualisation and computer assisted design (CAD) software. By utilising 3D printing and thermoforming technologies, Zenyum is able to offer high quality clear aligners at an affordable cost. Zenyum’s approach to innovative healthcare aims to transform the inequitable nature of the dental landscape - by employing disruptive technology to create a cutting edge, efficient and inexpensive solution to fix smiles across Asia.







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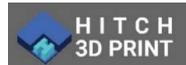
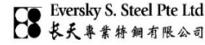
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PARTICIPATING COMPANIES



PARTICIPATING COMPANIES



PARTICIPATING COMPANIES

SCHAEFFLER

SIEMENS
Ingenuity for life

 **sembcorp
marine**

 **Singapore
Test Services**
A member of ST Engineering

SECUR3D


SLM
SOLUTIONS 

 **Singapore Institute
of Manufacturing
Technology**
A*STAR


thyssenkrupp

 **ST Engineering**
Aerospace

 **Sodick**

SPEE3D

TruMarine

TURBOCHARGER MAINTENANCE
REPAIRS | OVERHAUL | SPARES

 **ST Engineering**
Land Systems

 **Structo**
Empowering Dental with 3D

 **WestBison**
WestBison Technologies Pte Ltd

TRUMPF


Ultimaker

WKK

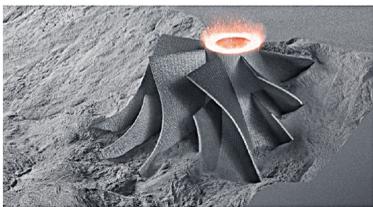
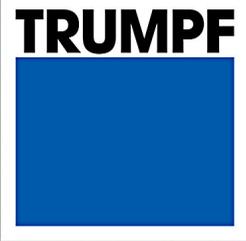
 **Wilhelmsen**



voestalpine
ONE STEEL AND A3D

Mazak

zenyum



Additive Production Systems

For additive manufacturing, TRUMPF provides you with solutions in both relevant laser technologies: laser metal fusion (LMF) and laser metal deposition (LMD). Depending on the application, we offer the right 3D printer or laser processing machine for your manufacturing processes.



For the industrialization of 3D metal printing, we offer you a complete solution comprising digitalization, services and additive production systems. As a pioneer in additive technology with around 20 years of experience, we will pass on our expertise to you, so that you benefit from robust and reliable laser 3D printers, as well as highly productive laser processing machines for industrial series production.

TRUMPF Pte Ltd

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