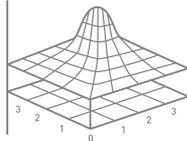


NMW/AUSTECH: Melbourne Exhibition Center 9 – 12 May 2017; **INSIDE 3D PRINTING:** Stefan Ritt from SLM Solutions- presenting. **METAL AM:** Report on AM standards; **WHAT'S IN MY INBOX:** Seaweed!

SLM

SOLUTIONS



9-12 May 2017 Raymax Applications Pty Ltd will be at NMW/AUSTECH with SLM Solutions – Stand 740

Due to the expanding interest in Australia of 3D printing with metals, 2017 sees Raymax again feature **SLM Solutions** on our stand - as right now SLM offers the most significant advances in laser technology for 3D metals printing interrupting manufacturing in a 'good' way.

Laser technology is changing traditional ways to manufacture especially in relation to 3D printing with metals as demonstrated by SLM Solutions. In developing their laser technology, SLM continues to explore possible areas where 3D printing with metals can enhance manufacturing processes. Each exploration provides feed-back for improvements to their laser systems as well as producing example case studies to illustrate usage and demonstrating that 3D printing with metals is impacting a wide range of industries.

Customization can be addressed with both dental and medical parts, for example, **dentists** can build 40 personalised tooth caps in just a few hours using specially developed Medi-Den powders! In the health industry scanning and imaging technology already exists with CT, MRI and ultrasound. Combining these images with CAD/CAM software allows **biomedical engineers** to design a part required for implant that meets the patient's specifications, providing an individualised part. Using 3D printing usually in titanium, a one-off unique part takes only hours to produce and now with optimized design features that encourage cell growth.



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A recent SLM case study highlighted MIMEDIS AG, a Swiss **medical device** company, working in conjunction Luliu Hatieganu University in Romania on a maxillofacial re-construction to achieve wonderful results for a patient.



The opportunity to re-design parts is opening real doors to improved processing. Nurmi Cylinders - now Fiellberg Oy in Finland, manufacture marine and industrial applications. The company teamed up with VTT

Technical Research Centre in Finland to 3D print a **hydraulic valve block** with optimized internal channels enabling a better flow than traditionally achieved with the potential for leakage removed. The optimized design also resulted in a smaller and lighter part that even tested more robust.

Thaletec GmbH in Germany produce **glass-steel compound material** recently developed a glass lined high-pressure reactor with temperature control channels manufactured in one piece using an SLM280^{HL}. Achieving a narrower wall yet enabling increased pressure-holding capacity these high pressure reactors are used in process engineering for carrying out chemical reactions under pressures up to 200 bar. A prototype was achieved with the assistance of JUREC GbmH a SME German engineering specialist company who provided advice and guidance during initial processing of the 3D printed part.



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Supporting changes to the traditional industry of **injection moulding** means this well developed mass-manufacturing sector can only increase with improved efficiencies and greater output by using 3D printed tooling inserts. But ABB Oy Drives and Controls, a world wide supplier looked to improve its output with testing conformal cooling solutions. Using the expertise from VTT the group devised



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and tested six **cooling channel inserts** eventually achieving reduced cooling times by 80% meaning production cycle times were reduced by 75% of the cabling grommet with far less wastage, thereby improving production costs.

The largest free-shape forge industry in Southern Germany, Rosswag Engineering used an SLM 280^{HL} to add value to their 100 year history of forging by developing a **hybrid process** combining respective geometric elements. In the first step the solid component is built using free shape forging processes. The un-machined part is then additively built-up in the SLM machine adding on complex structures such as channels for boundary layer control. The hybrid process optimizes the process chain allowing both new constructive freedom and complex interior structures showing how traditional manufacturing can be enhanced with 3D printing.



Rolf Lenk Werkzeug- und Maschinenbau GmbH was involved in the original development of the SLM laser machines. But this innovative German SME, just like SLM, has looked to how 3D printing can improve manufacturing situations. In 2013 they were asked to make a **replacement part** for a 1967 Cadillac Eldorado. The process required complete 3D scanning, transferring the data into a CAD drawing then 3D printing it in an SLM build chamber using aluminium alloy. Since then Lenk has gone on to make spare parts for a range of products no longer produced by the original manufacturer - a not unusual situation. Lenk says he can't imagine how his company could be innovative today without additive manufacturing using 3D metal printing!



SLM Solutions carry the banner **Future Manufacturing Now** because already they have demonstrated significant improvements can be achieved using 3D metal printing in aerospace, automotive, dental, medical, mechanical, the energy sector and universities and research centers which focus on identifying new innovative solutions. Raymax will be on **Stand 740** for you to meet with us, to answer your questions, offer explanations or suggest directions about how you might enhance your own manufacturing tasks.



INSIDE 3D PRINTING CONFERENCE & EXPO

During this separate event you can listen to Stefan Ritt VP-Head of Global Marketing and Communications for **SLM Solutions Group**, who will present at:



1:30pm Tuesday SLM technology on its way to mainstream production

4:30pm Tuesday – discussion Panel: Is 3D printing part of the new industrial revolution?



METAL AM is fast becoming the lead magazine internationally for those involved in 3D printing with metals. Each month covers trends in usage, updated information about companies, product reviews and insights, all accompanied by excellent feature articles. With this knowledge base METAL AM Magazine published an exclusive report in the Summer 2016 issue reviewing **AM standards** offering some answers as to why standards are so important. The report is available online at [Summer 2016 issue](#). But we would also like to advise all those interested in 3D printing with metals subscribe to this excellent and free online magazine.

WHAT'S IN MY INBOX?

You won't just find seaweed on the sand any longer – it could be in your lunch!



A lunchbox jelly snack made from seaweed and lobster shell (sounds almost like exquisite cuisine?) is being developed in South Australia to help boost children's calcium levels. Researchers in the Centre for Marine Bioproducts Development at Flinders University in collaboration with CSIRO are using biorefinery technology that reconstitutes biological material to make is suitable for human consumption(!) 'SeaNu' as it is to be named, is intended to be a highly nutritious alternative to dairy products. It is aimed for commercial release in Australia in early 2018 and, it might even go well with that Friday afternoon beer ?

Reference:

<http://www.nutritioninsight.com/news/nutritious-seaweed-and-lobster-jelly-snack-is-dairy-free-alternative-for-kids-who-shun-milk.html>