

# RUSAL completes a full cycle of 3D printing at The Institute of Light Materials and Technologies

RUSAL has successfully completed a closed additive manufacturing cycle at the Institute of Light Materials and Technologies (ILM&T). RUSAL's significant investment in resources and facility development at the Additive Technology Centre has so far amounted to €3.5 million.

In the test center of the Institute, metallographic studies are carried out using light and scanning electron microscopy.

The opening of an additive powder manufacturing site and the installation of new equipment including an atomiser and a powder sizing and packaging line, made it possible for RUSAL to launch the complete production cycle at the company's own research and development centre.

Opening the new site will enable the ILM&T to develop unique, high strength and heat-resistant aluminium-based materials specifically designed for additive manufacturing, providing an entire range of turnkey services for RUSAL customers. These services range from material creation and printing technology to engineering and optimising parts for printing technologies. The new equipment also allows for the production of a significant variety of materials, due to its quick changeover capacity.

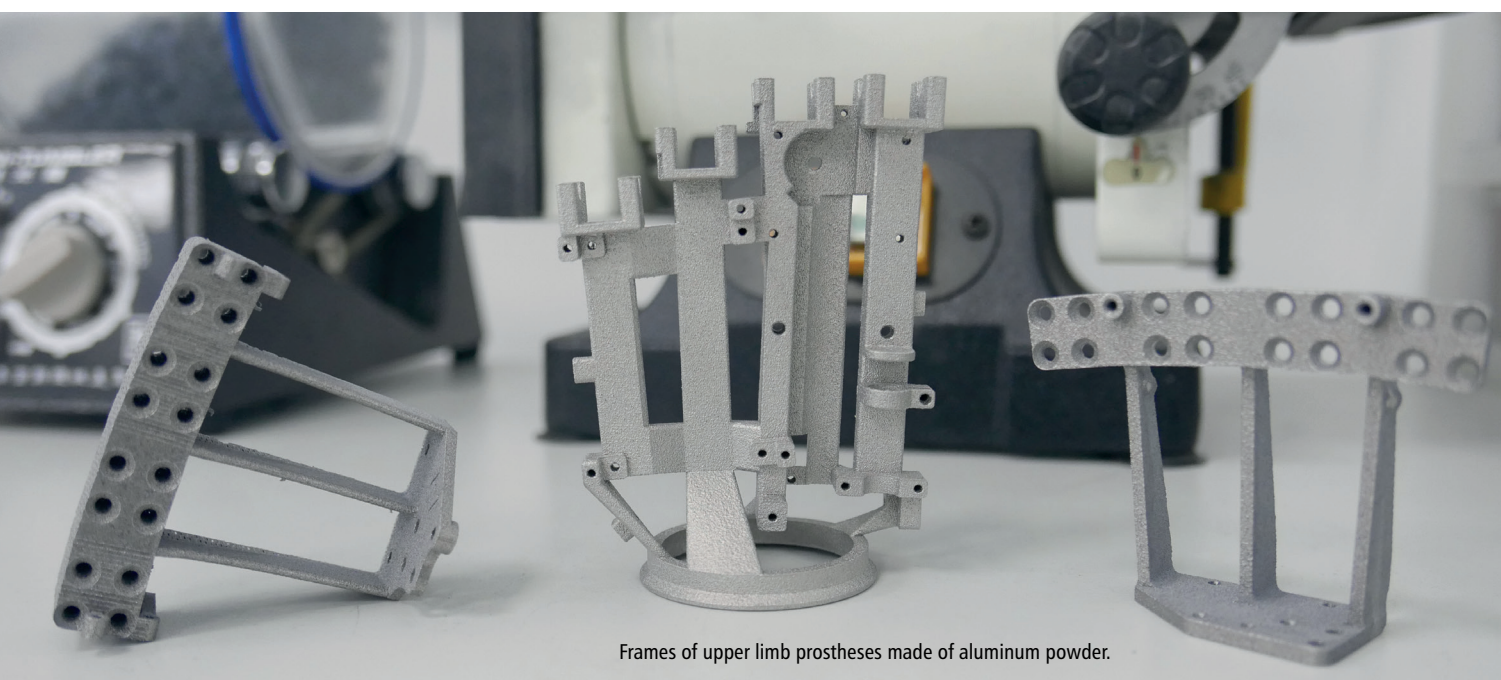
At present, a promising focus area of work at the ILM&T is the creation of a high heat-resistant aluminium alloy, adapted for 3D printing, that will be able to perform at temperatures of up to 400°C.

In 2019, the ILM&T launched a new range of unique aluminium alloys for 3D printing, which performed significantly better when compared to their analogues. These products have since been utilised in the fields of medicine, mechanical

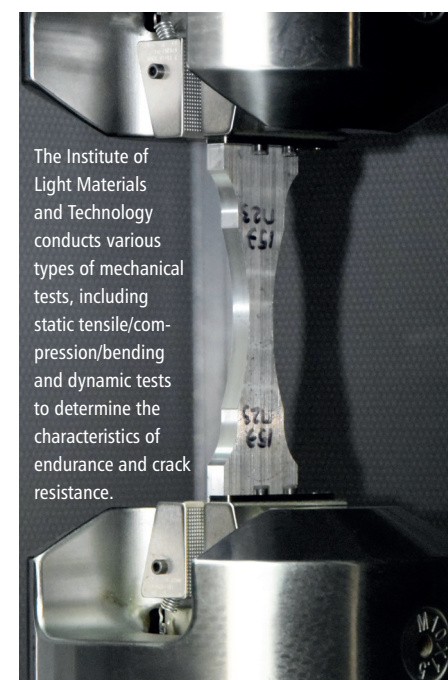
engineering and the space industry.

"In just three years at the ILM&T, we have managed to not only form a team of highly-skilled industry-leading professionals, but also to provide all the necessary resources and facilities to enable the rendering of a full range of services from research to engineering. The Institute's specialists have successfully developed and enhanced the production of innovative solutions in the field of high strength aluminium powders for additive technologies, intended for shipbuilding and the space industry, as well as aluminium alloys with increased corrosion resistance for railway, transport and construction. Now one of the ILM&T's biggest tasks moving forward is to achieve a significant reduction in production costs by recycling and optimising the printing process parameters. This work will make it possible to accelerate the implementation of new developments and to expand their application to more industries in the future," said Victor Mann, Chief Technical Officer at RUSAL.

The ILM&T was founded by RUSAL in 2017. The primary objective of the Institute being to develop, innovate and launch new varieties of aluminium-based products and materials into the market. ■



Frames of upper limb prostheses made of aluminum powder.



The Institute of Light Materials and Technology conducts various types of mechanical tests, including static tensile/compression/bending and dynamic tests to determine the characteristics of endurance and crack resistance.



A specialist of the Institute prepares a 3D printer for a series of operations.