



Dedicated to innovation in aerospace

AEROSPACE VEHICLES DIVISION

STRUCTURES TECHNOLOGY

# Metal Additive Manufacturing

## PRODUCTS & SERVICES



Towards bringing your Additive Manufacturing capabilities to a higher level

NLR is the 3D metal printing centre in the Netherlands. We established our Metal Additive Manufacturing Technology Centre (MAMTeC) in 2013. MAMTeC supports your company and increases your competitiveness by technology development and product innovation





#### WHAT YOU NEED:

- Trade-off studies to compare Metal-AM with conventional processes
- Support in making your Metal-AM business case
- Development and optimisation of Metal-AM applications
- Determination of static and dynamic mechanical properties and microstructure of your Metal-AM material
- Support with certification of your Metal-AM product or repair application
- Metal powder analysis and characterisation
- A sparring partner to bring your metal-AM capabilities to a higher level

#### WHAT WE DELIVER:

Advanced Metal-AM knowledge of design rules, build preparation, production process and post-treatments enable us to deliver what you need. Extensive experience in aerospace qualification and certification processes are now applied for certification of your Metal-AM products.

#### CAPABILITIES AT MAMTEC

The core of MAMTeC is our enthusiastic multidisciplinary team. We work in an environment with expertise and facilities that are essential for building up advanced Metal Additive Manufacturing knowledge and skills. More than 45 years of materials experience in aerospace applications is applied to establish optimised process parameters and post-processing methods. Design tools are developed, including topology optimisation for the design to meet specific strength and stiffness requirements. NLR applies the available computational mechanics expertise to predict residual stresses and deformations during the production process. These applications are used to better understand and further optimise the Metal-AM design and manufacturing process. The development of Metal-AM materials and components is supported by making use of advanced inspections, analysis techniques and testing facilities

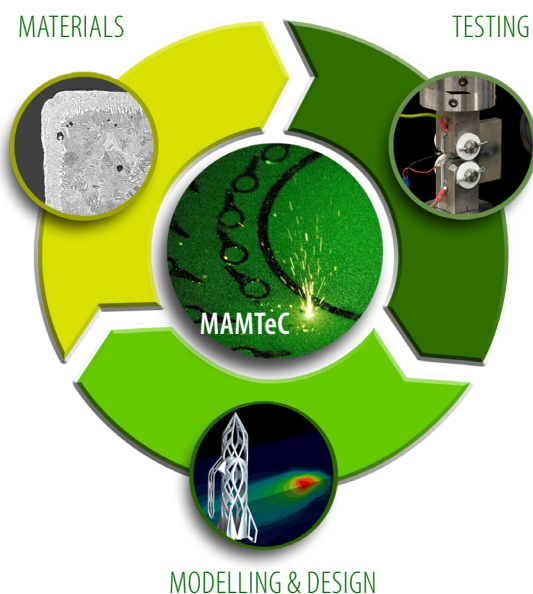
#### NEXT STEPS:

MAMTeC continues to expand Metal-AM capabilities to new technologies and new materials in support of your innovations.

Examples are:

- New materials: High-strength aluminium alloys, Multimaterials and Metal Matrix Composites for high performance in extreme environments
- Application of Metal-AM for repair of large structures

**We challenge you to share your future needs for successful implementation of your Additive Manufacturing innovations.**



#### BOOST YOUR PRODUCT PERFORMANCE WITH:

- Large freedom of design
- Complex internal structures
- Reduction of weight
- Application of high performance materials