

# ADDITIVE MANUFACTURING

FROM VISION TO SUCCESS

NEW DESIGN POSSIBILITIES AND  
MANUFACTURING SOLUTIONS

Your Partner: Pankl Additive  
Manufacturing Technologies

The Pankl Additive Manufacturing Competence Center (PAMCC) constitutes so far the largest cooperation of technology enterprises in the fields of:



PANKL ADDITIVE  
MANUFACTURING  
COMPETENCE  
CENTER

Together with globally known brands such as voestalpine Böhler Edelstahl, EOS and Quintus Technologies, Pankl Racing Systems has set up its competence centre with the goal of pushing the limits of AM further and to strengthen its position particularly in the automotive high performance and aerospace fields.

# crossing boundaries together

The cooperation with voestalpine [Böhler Edelstahl](#), a globally leading enterprise in the high-performance metal industry, makes it possible to embark on a joint, customised development process of innovative and optimised metal powders as ideal starting products for the printing process.

With [EOS](#), we were able to gain the support of the pioneering provider of laser sintering machines. EOS not just brings many years of experience with regard to process technology, but also provides us with the latest generation of machines even before they are launched on the market.

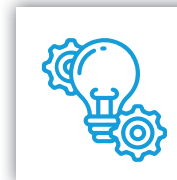
The right thermal after-treatment is the fundamental basis for the functionality of printed components. For this reason, we also installed an HIP-press (Hot Isostatic Press) by our partner and globally leading provider [Quintus Technologies](#).



## UNRIVALLED QUALITY AND LOGISTICS

In combination with the wide ranging development competence and the existing market access of Pankl Racing Systems, this cooperation is the ideal basis for the development of innovative products as well as tailor-made solutions for the racing and the aerospace industries and to support our customers as best we can when it comes to implementing Additive Manufacturing.

The fact that we have full control over the complete added-value chain helps us optimise quality and logistics. We achieve perfect development in all areas, from powder production to process implementation all the way to after treatment.



## 01. POWDER DEVELOPMENT & ATOMIZATION

Chemical composition, particle size  
distribution.

## 02. PRINTING

Print parameter optimization for improved  
part- and surface quality.

## 03. FINAL MACHINING

Combination with Pankl machining  
know-how on High-end components.

## 04. POST TREATMENT

Heat treatment inhouse, HIP process  
development.

## 05. MATERIAL INVESTIGATION

State-of-the-art laboratory inhouse.

## 06. TESTING

Component testing on engine dyno  
and suspension test rig inhouse.



Powder Development  
& Atomization



Printing



Final  
Machining



Post  
Treatment

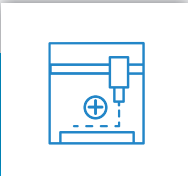


Material  
Investigation



Testing





07. THINK NEW

The entire additive manufacturing (AM) process up to the finished product is handled by Pankl inhouse and supervised by our team of AM specialists. The process involves the development, selection and analysis of the most suitable powder. The design optimization of the component and the ideal positioning are followed by a key process for the later product. After the successful printing process, various processes, such as surface treatment or heat treatment, improve the properties of the component.

The Pankl Additive Manufacturing Competence Center (PAMCC) has a close partnership with EOS and a state-of-the-art machine park for all production steps.

COMPETENCIES

|                |                                                                          |
|----------------|--------------------------------------------------------------------------|
| TECHNOLOGY     | Additive Manufacturing, Machining, Heat Treatment                        |
| PRODUCTS       | High-Tech components for racing, high performance and aerospace industry |
| CERTIFICATIONS | ISO 9001, EN 9100, ISO 14001                                             |

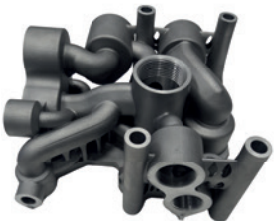
Structural parts

High performance printing parameters ensures a great material strength for structural parts. An optional HIP process improves the fatigue strength for high stress loaded components.



Hydraulic components

Harmonic channel designs result in a reduction of the pressure loss. A combined weight saving also improve the CO<sub>2</sub> footprint and the performance of your hydraulic components.



Individualization

The additive manufacturing process creates new possibilities for the part design. Spectacular features and individual parts are possible.



Engine

New design features can be implemented to improve the engine performance. Short lead times and competitive prices open up new opportunities. Printing engine components enables the option to avoid the casting of small quantities.

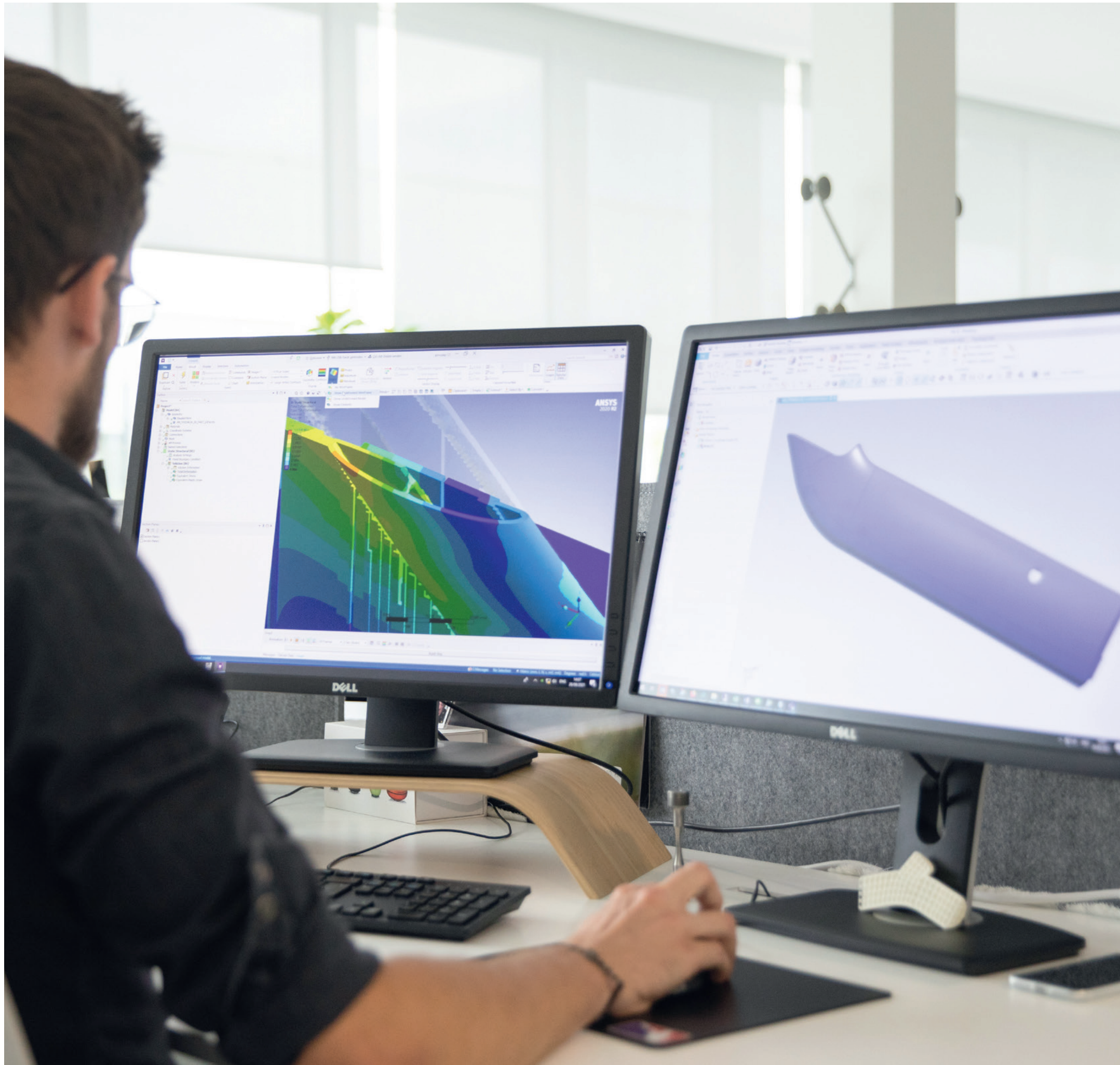


“

The mobility of the future is  
based on new developments and  
innovative technologies

## 08. DESIGN & SIMULATION

When it comes to design, Pankl Additive Manufacturing Technologies offers creative, intelligent solutions that are based on performance, resilience, cost-effectiveness and environmental performance. These activities range all the way from the development of new materials and processes through prototype development and simulation to optimised manufacturing.



## 09. VALIDATION

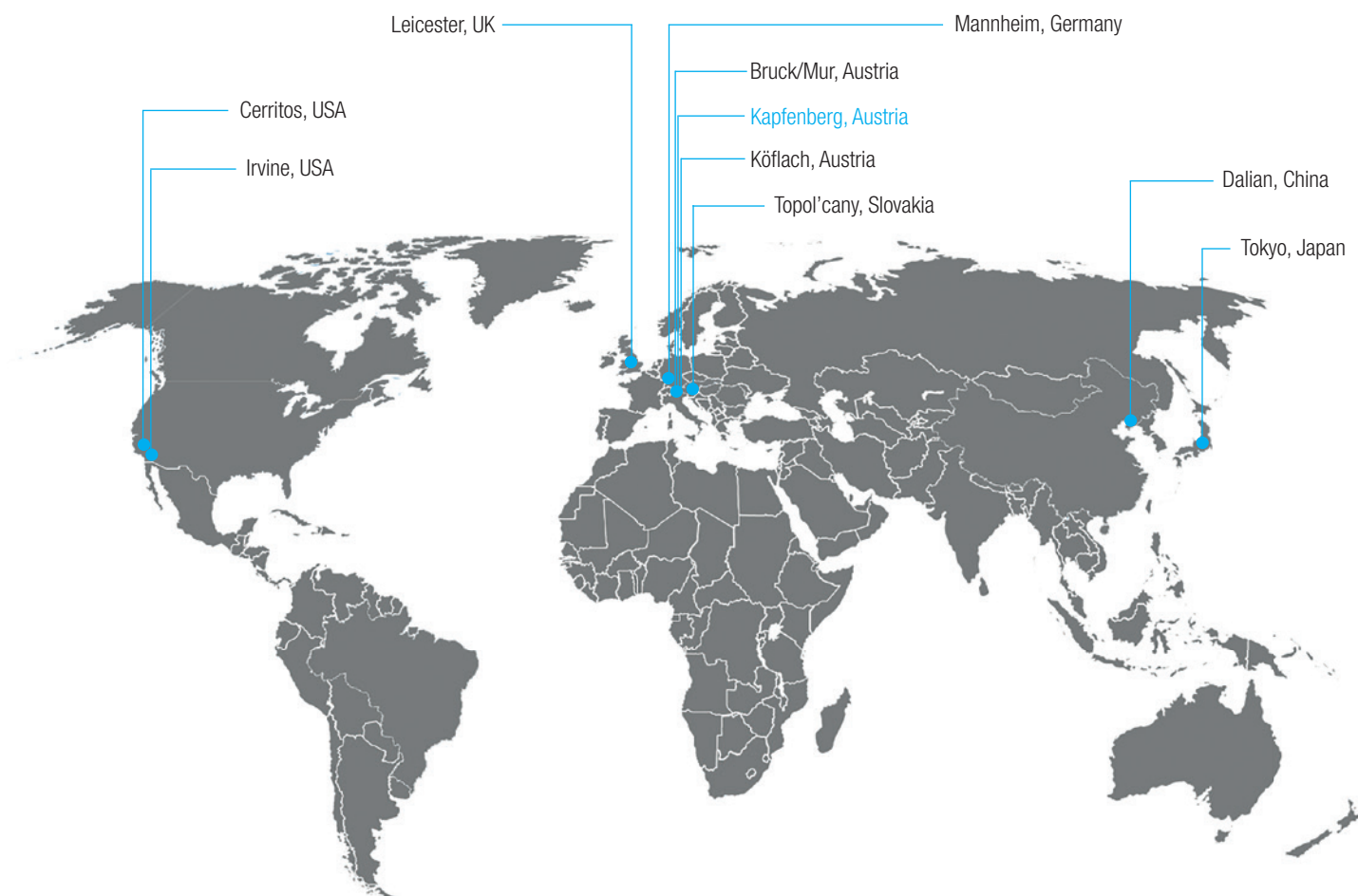


With its state-of-the-art testing equipment and inhouse laboratory Pankl ensures, that throughout the design development process aside from high dynamic specifications, reduced fuel-consumption requirements and security standards are also met.

- Scan data of final component
- Microstructural characterization (EBSD)
- TESCAN MIRA 4 (right picture, new Scanning Electron Microscope)
- Porosity analysis
- NDT characterization (e.g. hardness testing & CT scanning)
- Mechanical testing (e.g. tensile testing)
- Build process monitoring (JQR, PBP, OT monitoring)



## PANKL LOCATIONS



A Member of the Pankl Group

**Pankl Racing Systems AG**

Pankl Additive Manufacturing Technologies

Industriestraße Ost 4  
8605 Kapfenberg | Austria  
Tel: +43 (0) 3862 33999 0  
E-mail: [office@pankl.com](mailto:office@pankl.com)