Newsletter #2 | August 2016

BOREALIS

Advanced concept of **flexible machine** for new **Additive and Subtractive Manufacturing** processes on next generation of complex **3D metal parts**.

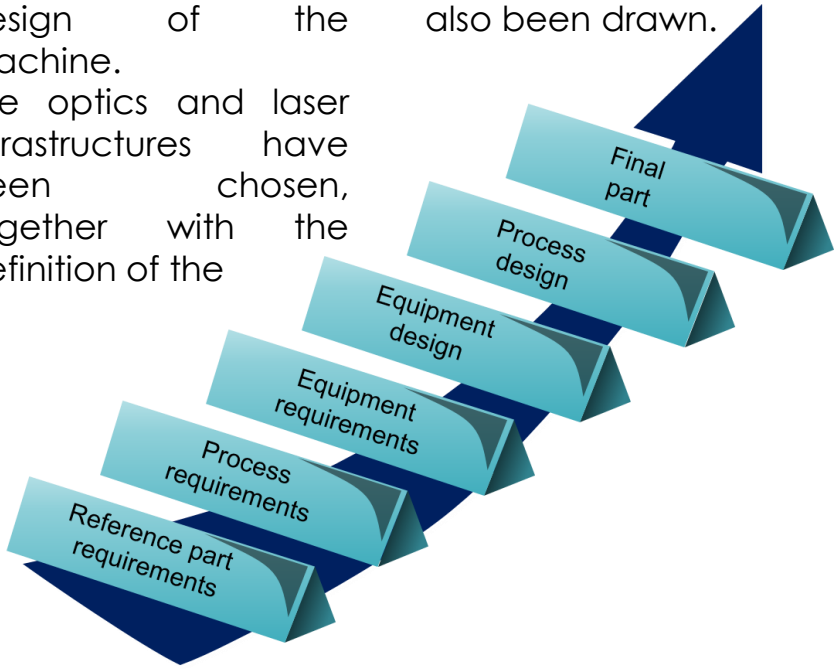
Dear BOREALIS newsletter readers, Welcome!

*This is the second issue of **Borealis** project newsletter which deals with relevant results, achievements and events related to this cutting edge technological project.*

Mid – project summary

The Borealis project is now in its eighteenth month of activity, i.e. half-way towards the realization of the first pilot-scale AM plant prototype. All he information regarding the demonstrator parts have been gathered from the end-users, which have identified the following use-cases: an automotive gearbox and an endo-prosthesis for hand surgery that will be manufactured in Ti6Al4V and an Accessory Drive Train main housing for the aerospace sector made in Aluminium alloy. The design and modelling of the deposition - ablation processes have been performed, together with the mechatronic design of the machine.

The optics and laser infrastructures have been chosen, together with the definition of the vision system setup. Moreover, the basis for the architecture of the CAx chain have been defined. A first version of the final exploitation plan for the commercialization of the Borealis machine after the project has also been drawn.



Horizon 2020
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Machine specs

Borealis portal

Cantilever structure where the arm slides upon the base and the Z head is free to move up and down

Redundant Deposition Head

2 Cartesian DoF and 2 rotational DoF, equipped with 3D galvo scanner

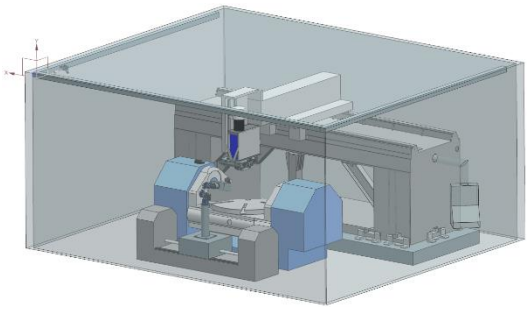
Lasers specifications

3 kW CW ytterbium-doped double cladding fibre laser + Pulsed laser source with MOPA configuration

Vision system

Fixed cameras and sensors for in-axis monitoring of the process + 3D image reconstruction

Fully integrated solution



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