Subscribe to BOREALIS newsletter by sending an email to info@borealisproject.eu

Newsletter 01
May 2015

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

Horizon 2020

Collaborate project
Project No.636992
Program H2020
FoF.2014-2

BOREALIS

The project will develop a prototype of Borealis, a **novel Additive Manufacturing machine** able to produce large and complex metal parts, at **unprecedented throughput** and efficiency, in true net shape, with closed loop controlled and certified quality.

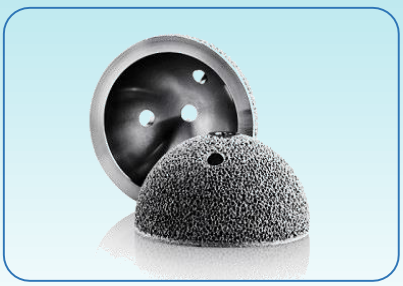
Borealis Applications

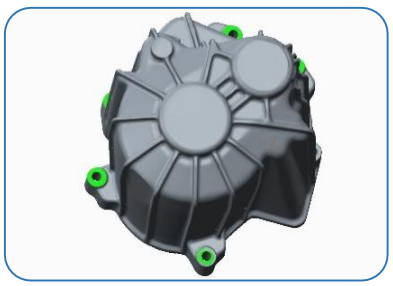
Borealis machine is specifically conceived for industrial sectors that suffer extremely high manufacturing costs because of part complexity and low volumes, and the prohibitive cost of raw materials.

Borealis machine is specifically conceived for industrial sectors that suffer extremely high manufacturing costs because of part complexity and low volumes, and the prohibitive cost of raw materials.

As a result, Borealis project focuses on the **medtech**, **aerospace** and **automotive** sectors as major target.

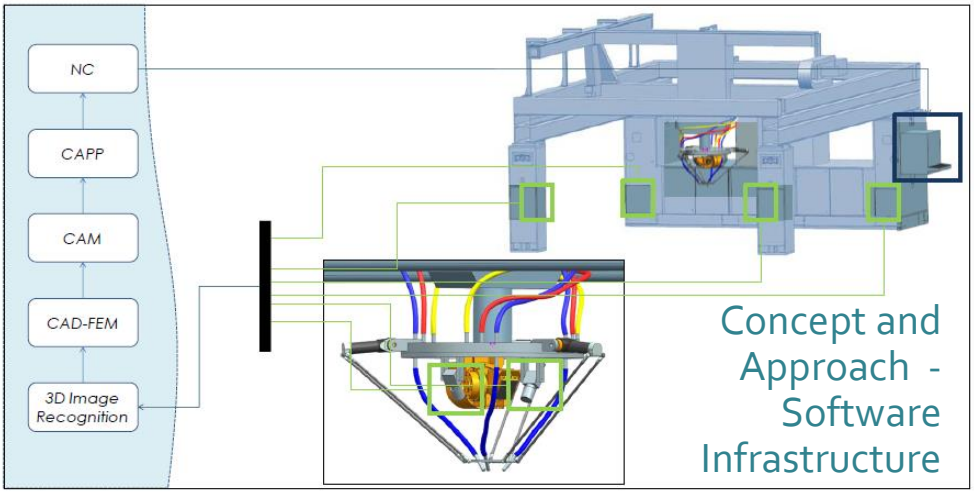
New powder mix
Mid-Large parts
Biomimicry
Multi material
Reconditioning
High quality with low cost powders





Ambition

- achievement of cutting edge manufacturing thresholds of **accuracy, reliability and speed**;
- need to dynamically manipulate and shift the technology, process parameters and manufacturing strategy in real time.



Concept and Approach - Software Infrastructure

Concept and Approach - Machine Architecture

The Borealis machine will be conceived with a redundant structure integrating a large gantry portal with a processing head constituted by a Parallel Kinematic Machine PKM

Technical Impact

Materials: Metals, Focus on Titanium alloys

Unprecedented throughput: up to 2000 cm^3/h

Part dimensions: Up to 1500 x 4000 x 1500 mm

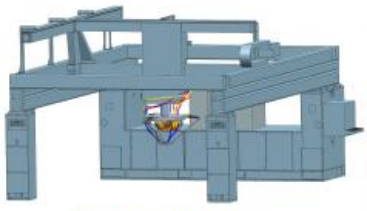
Material usage: -70% with same final functionalities

Cost: -30% with same final functionalities

Energy consumption: in manufacturing - 30%

Quality: 0 faulty manufactured parts

Lab scale demo
2016



Full size Prototype
2017

Industrial solution realization
2018

Market Catalogue Machine
2020

CONSORTIUM

Scuola universitaria professionale della Svizzera italiana
SUPSI

IRIS

OPI Photonics

POLITECNICO DI TORINO 1859 1906

Avio

Prima Power

Prima Electro

TNO innovation for life

DIAD GROUP ES

Fraunhofer ILT

FRAMOS

Synesis

Globotics Industries

LMS Laboratory for Manufacturing Systems & Automation University of Patras

+sintea SMART EXPLOITING MATERIALS INTELLIGENCE