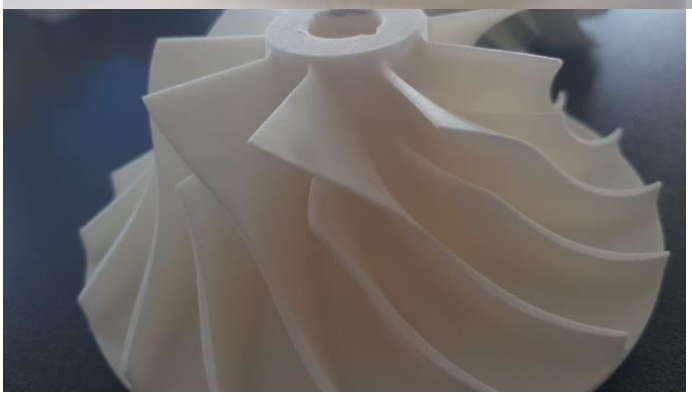
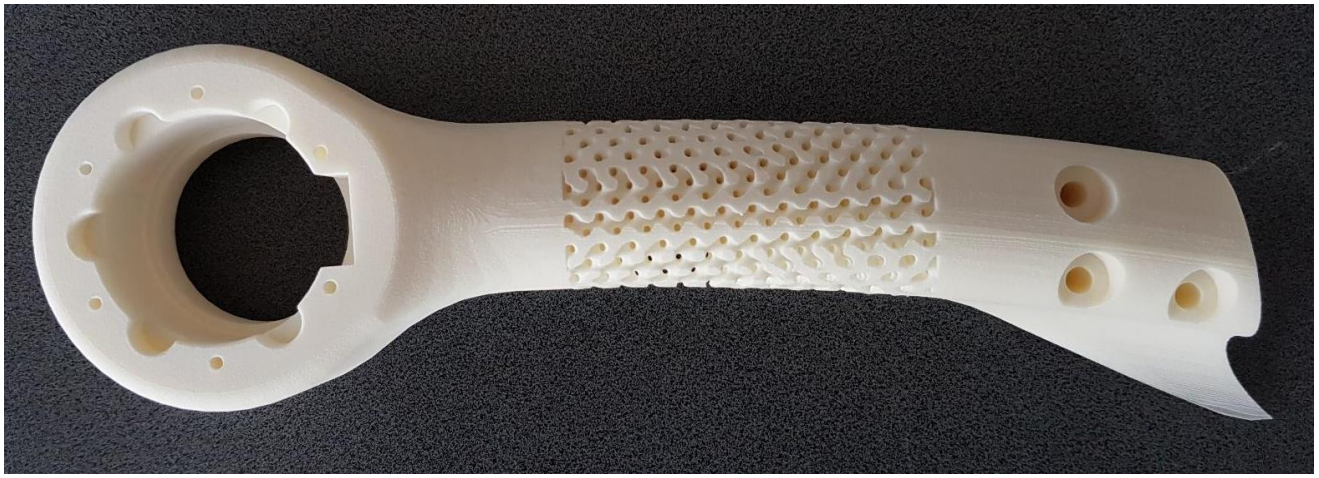
ADDITIVE MANUFACTURING SERVICES BY SELECTIVE LASER SINTERING WITH PLASTIC POWDER





THE AM TECHNOLOGY:

Additive manufacturing is the common name for the "layer by layer" processing technology, using virtual 3D models.

The basic principle of the laser sintering process consists of melting of layers of the raw powders using a CO_2 laser, adding each layer on top of the melted previous layers. During this process, the powder is briefly heated above the melting point by exposure with the laser beam. A solid, 3D part is produced layer by layer by this heating and then subsequent cooling process.

Selective laser sintering uses a wide range of materials: aluminum alloys, corrosion-resistant steel, titanium and cobalt alloys, plastic polymers, in order to obtain products with high geometric complexity and high physical-mechanical properties for fields such as: medical and automotive.

TECHNICAL FEATURES OF EOS FORMIGA P110:

- Building volume: 200 mm(X) x 250 mm(Y) x 330 mm(Z);

- Layer thickness (depending in material): from 0,06 mm to 0,12 mm;
- Laser type: CO_2;
- Laser power: 30 W;
- Scan speed during building process: up to 5 m/s;
- Building rate: up to 1,2 l/h;
- Power supply: 16 A;
- Power consumption: typical 3 kW, maximum 5 kW;

Moreover, the laser sintering processing system for plastics includes accessories for post-processing parts and powder management in order to reuse them and to clean the machine:

- a post surface processing device;
- a vacuum cleaner for removing all the debris left in the
- processing chamber;
- a powder screening sieve;
- a powder mixer.

APPLICABILITY:

- Processing of complex and personalized components for applications in the fields: medical and automotive, but also in other fields;
- Processing experimental models for complex surgical procedures that require geometrical precision and pre-surgical equipment;
- Testing the functionality and the design of mobile assemblies before manufacturing them from other more expensive and demanding materials;
- Processing prototypes of verifying new, innovative solutions.

BENEFICIARY:

- Institutions/centers for research, development, innovation in the medical, automotive and aerospace fields;
- Medical pre-surgical equipment in clinics and hospitals that perform traumatology interventions;
- Production of prototypes in the automotive and medical fields.

FURTHER INFORMATION:

E-mail: laborator_biomecatronica@yahoo.com
Infrastructure direct public link**:** https://erris.gov.ro/biolab