

A large background image showing a laser cutting process. A bright, intense green laser beam is focused on a metal workpiece, creating a large, bright green flame and a shower of sparks. The sparks are bright yellow and orange, falling from the point of contact. The background is dark, making the green laser and sparks stand out.

LASER PROCESSING

Our Services

As a long-time partner of the manufacturing industry, Novika develops performing laser processes, eases their introduction in manufacturing plants and offers an efficient technical support. From the identification of potential applications to troubleshooting in production, our team stays close to your priorities.

Development of Laser Processes

- Production of prototypes
- Development of processing parameters
- Equipment selection

Advisory services for the implementation of laser processes

- Design of laser processing enclosures, automation and laser safety management
- Start-up and training
- Technical support to laser manufacturing activities

Adaptation of products design for laser processing

Laser Welding

In its most common form, this technology allows welding of a wide range of materials, dissimilar or not, without the use of filler material. The energy of the laser beam fuses the parts, maintained in intimate contact by a fixture. The very high concentration of energy on a small surface allows the production of narrow deep welds, at speeds up to several meters per minute.

Previously, laser welding was mostly used for high volume production. Recent decrease in the price of equipment along with the need to improve the productivity of manufacturing companies however eased the introduction of this technology in SME's.

A close-up image of a laser cladding process. A bright red laser beam is focused on the end of a metal pipe. A small, bright red flame is visible at the point of contact. The pipe is dark and has a textured surface.

Laser Cladding

Laser offers high precision for cladding, hardfacing and coating operations for enhancing properties of a part, such as corrosion and wear resistance. Clad alloy, either powder or wire, is fused by the laser to a thin layer of the base material. Properties and dimensions of the base material are minimally affected.

Laser surface Heat Treatment

Using a laser beam, one can harden very precisely regions of metallic products. No cooling agent, no masking, no dedicated tooling: a simple and fast hardening method.



3D Laser Cutting

Laser cutting is a rapid and flexible process that outpaces competing techniques on several aspects. As a non-contact process, it can be used on very hard materials that wear out conventional cutting tools, and on very ductile materials that deform under the pressure of these tools. Moreover, the complexity and the number of different cutting contours is no longer a limit.

Hybrid Laser/GMAW Welding

By combining a high power laser beam with the arc of a welding torch, thick metal plates can be welded in one pass, without part preparation and with minimal distortion.

Novika's hybrid welding system includes an adaptive platform that automatically adjusts welding parameters to maintain high quality welds despite varying gaps between parts.

Laser Cleaning

A spectacular and highly effective process, laser cleaning removes unwanted residues from parts and molds. Oxides, rust, resins, oil, etc. : many substances can be vaporized or fractured under the precise and selective action of a laser beam, without masking or chemicals.

Laser Microtexturing

Laser texturing modifies surface behavior in a significant way. One can control the coefficient of friction, the hydrophobicity, the adhesion of one material to another, optical absorption and reflection, localized aerodynamic behavior, etc.

Laser texturing has many advantages over other texturing techniques: it is a very precise process which does not require masking and does not require a chemical reagent.

Our Equipment

Novika's laser lab is one of North America's best equipped facilities. Novika's four laser processing cells are laser safe, flexible and suited for several laser processes (autogenous and hybrid welding, 3D cutting, cladding, surface heat treatment, straightening, etc.):

Its laser sources cover a broad range of types of emissions: from continuous wave at 15kW to 9 picosecond pulses of 150μJ.

In addition to this equipment, Novika's mechanical lab allows the preparation of parts and the fabrication of fixtures and tooling whilst its metallurgy lab supports the evaluation of the output of laser processes through macro/micrography, microhardness measurement and wear testing.

Financial partners :

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