

## TECHNOLOGY

FEMTOPRINT® is a 3D printing technology that uses light as a powerful ink source. The beam, focused inside glass, locally modifies the refractive index and density of the material. Depending on exposure parameters, waveguides can be formed to realize complex integrated optical components or three-dimensional structures with additional chemical etching. All of these features are possible with high complexity, precision, and aspect ratio.

FEMTOPRINT® is the sole 3D microfabrication platform capable of material structuring using arbitrary patterns to produce challenging, monolithic 3D shapes in glass with high precision, sub-micron resolution, and with an additional polishing step, optical surface quality.



**PERFORMANCES**

- < 1 µm resolution
- Surface roughness Ra < 100nm
- Aspect ratio > 1:500
- Glass-to-glass seal withstands > 100 bar
- Repeatability & Alignment precision < 1 µm



**ALL-IN-ONE**

- 2D and 3D free-form manufacturing
- Writing of optical patterns
- Glass-to-glass encapsulation
- Drilling and cutting
- Polishing for surface treatment



**GLASS PROPERTIES**

- Optical transparency
- Inert material: biocompatible and resistant to chemical reaction
- Durable: resistant to corrosion, abrasion, and scratches
- Thermally and mechanically stable
- Low conductivity: suitable for electrical isolation
- Low-cost and abundant
- High flexural strength and elasticity



**UNIQUE 3D STRUCTURES**

Combination of 3D microdevices with metal deposition and surface functionalization

PRINT NOW WITH US

**OFFER**

FEMTOprint acts as a Single Source Partner: from R&D and rapid prototyping to serial production of 3D microdevices, or 3D printing



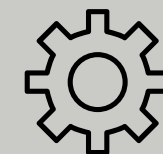
**FEMTOprint SOLUTIONS**

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**FEMTOprint SERVICES**

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**FEMTOprint SYSTEMS**

-

platforms for educational purposes.

#### For Customers looking for R&D solutions

- R&D projects for Customers
- Design of new devices
- EU/Innosuisse/Community projects
- New process engineering

ASK FOR A QUOTE

#### For Customers asking for contract manufacturing services

- Rapid prototyping
- Serial production of 3D microdevices
- Industrial production of 3D microdevices
- Metrology inspections
- Certification of conformity

ASK FOR A QUOTE

#### For Customers interested in our FEMTOPRINT® Platform

- 3D printing platforms for academics
- 3D printing industrial solutions
- Maintenance services
- Training/Tutorials

ASK FOR A QUOTE

## TESTIMONIALS

**Gabriel Jobert**

Laboratoire des Capteurs  
Optiques CEA-LETI

Working with FEMTOprint allowed us to design chip-sized optical systems we believed impossible to manufacture. Our designs showed a significant level of complexity with precise optical grade surfaces as well as fluidic elements integrated monolithically. This way, we were able to scale down a complete 3D optical set-up to be mated with a millimeter sized CMOS chip: allowing us to improve greatly the performances of our air quality sensors 'on-a-chip'. We are thankful for the FEMTOprint team for their implication solving our specific needs.

”

**Prof.dr.ir. Jaap M.J. den Toonder**  
Assistant Prof. Ye Wang  
Dr. Tanveer Ul Islam

Eindhoven University of  
Technology, Netherlands

It is a true pleasure to work with the highly professional team at FEMTOprint, from initial inquiry and technical detailing to the final installation and training. Their in-house scientists and technologists not only ensure the high performance of the machine, but also provide a deep level support to the users. Their thoroughness, passion for their jobs and focus on their customers gave me a high level of confidence that the f200 machine will be a successful addition to our lab.

”

**Mr Stéphane Von Gunten**

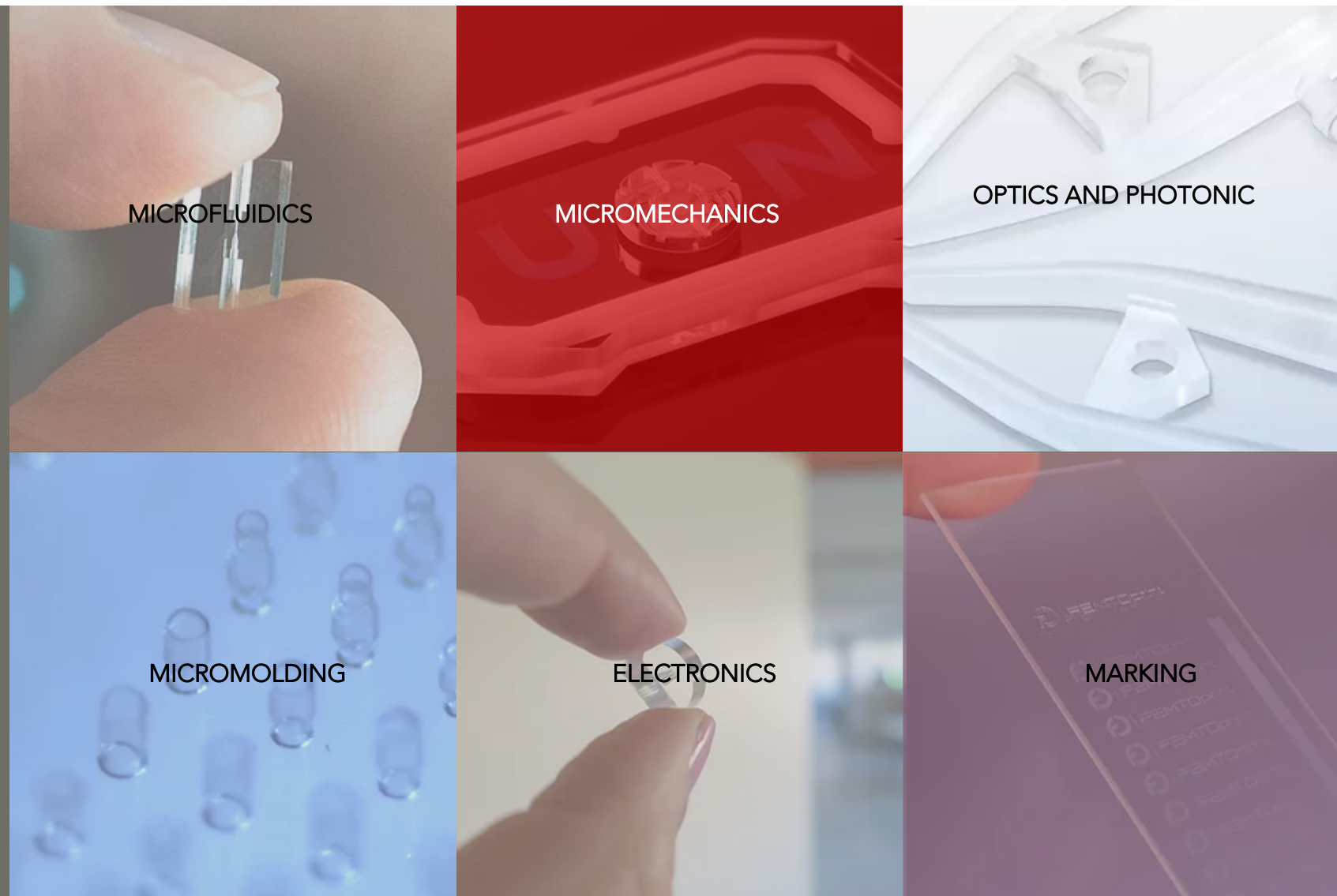
Ulysse Nardin SA, Switzerland

La liberté de conception offerte par FEMTOprint nous permet d'imaginer des géométries 3D totalement inédites. En ce sens, et plus particulièrement dans le cadre de notre nouvelle montre concept FREAK neXt, nous avons développé des composants horlogers complexes, réalisés directement dans le verre par la technologie de FEMTOprint. Grâce à l'extrême précision obtenue, des petits canaux – d'env. 0.4mm de diamètre – ont été prévus de manière à pouvoir y injecter un liquide phosphorescent, à base de Super-LumiNova®. Au centre du mouvement baguette, partie du rouage « en ligne » qui indique les minutes, se trouve par ailleurs une petite lentille en verre, elle aussi réalisée par FEMTOprint, qui affiche le logo Ulysse Nardin de manière très nette et précise.

”

DISCOVER OUR USERS AND WHAT WE REALIZED FOR THEM

## APPLICATIONS



## ABOUT US

FEMTOprint is a Swiss high-tech company dedicated to contract manufacturing of 3D printed microdevices in glass and other transparent materials, as well as development and assembly of 3D micromachining platforms for rapid prototyping and industrial serial production.

Through the innovative, award-winning FEMTOPRINT® process, we are changing the way complex industrial microsystems are designed, manufactured, and used.

The FEMTOPRINT® platform enables the creation of a large variety of 3D microdevices in many different application fields, such as optics and photonics, micro- and opto-mechanics, micro- and opto-fluidics, micromoulding, electronics, and 5D high-density memory.

[MORE ABOUT US](#)

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JOB OFFER

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