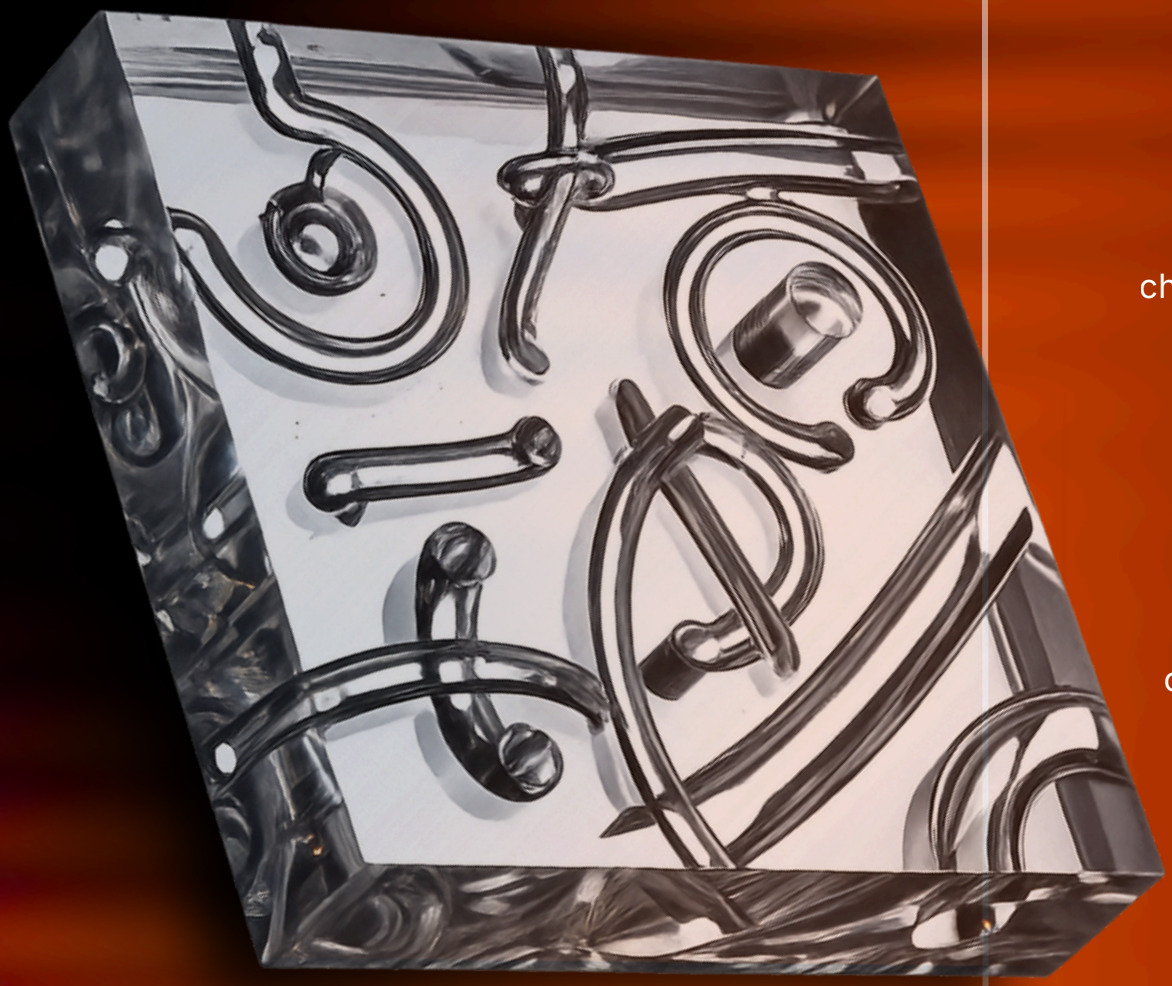
femtika

laser machines
& services

micro-devices nozzles micro-fluidics lab-on-chip micro-reactors

True 3D structures

fabricated
without assembly



Free-form channels

channels down
to ∅ 5 µm

Micro-size features

feature size
down to 1 µm

Inside the glass

channels &
geometries

5 mm

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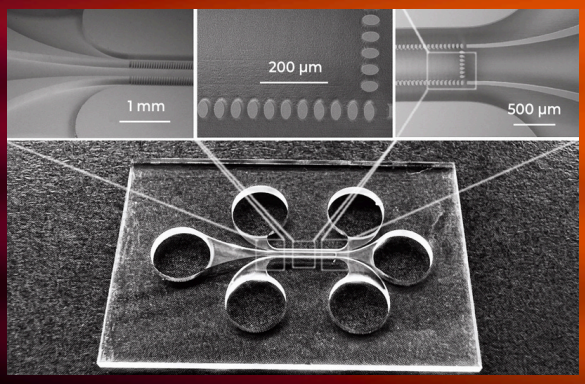
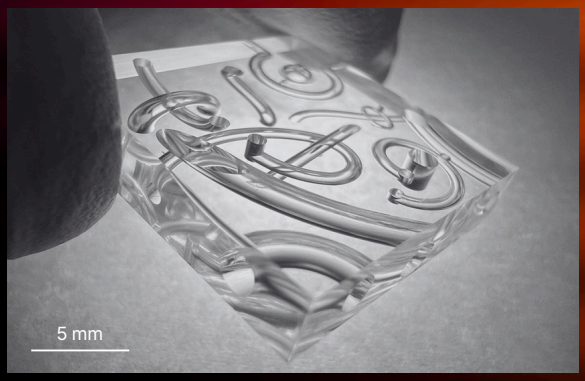
Production Samples

Made using Selective Laser Induced Etching (SLE)

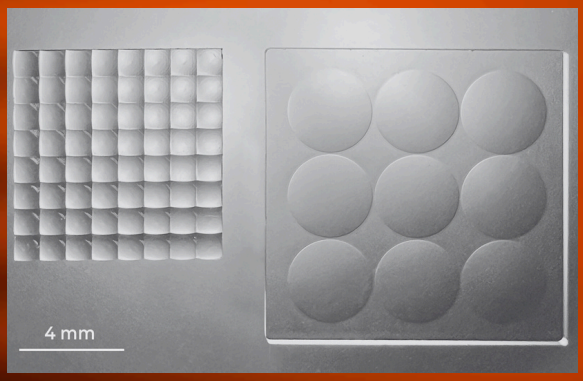


Lab-on-chip

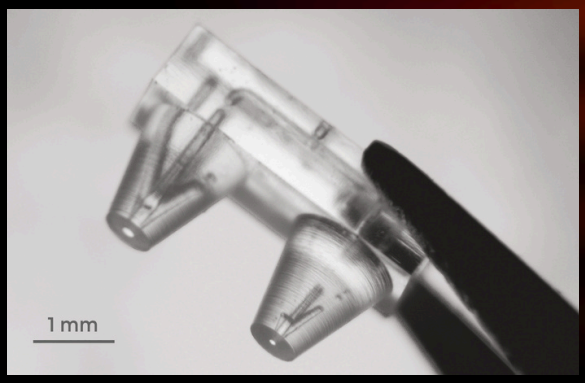
Microchannels



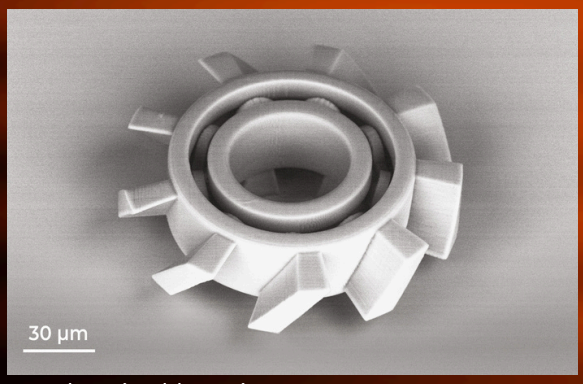
Free form microfluidics



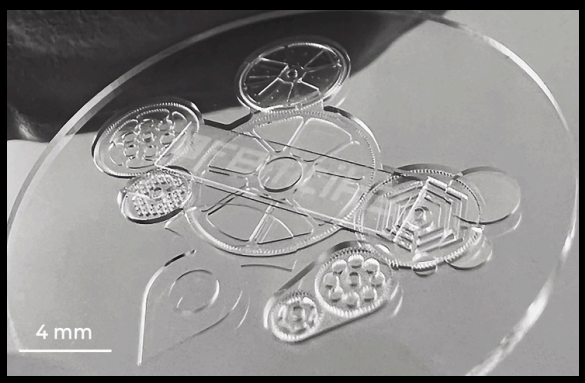
Microoptics, microlenses



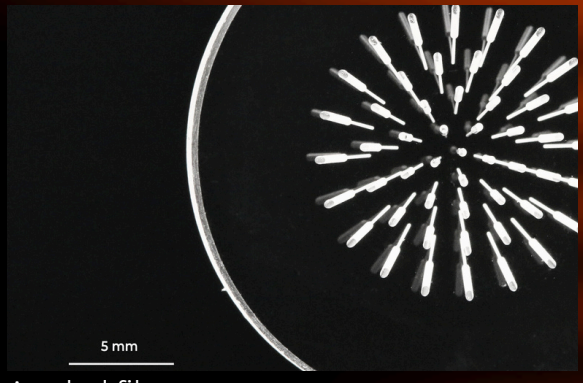
Nozzle



Mechanical bearing



Gear system



Angled fiber array

Glass Laser Machine

Ideal for glass micro-processing tasks

- Automatic surface detection
- Multi-scale glass processing from cm to µm
- Effortless fabrication mode switching
- Real-time process monitoring
- Self-aligning optical system

PROCESS SPECIFICATIONS

Technology	Selective laser induced etching, ablation, welding, refractive index modification
Materials	Glass and other transparent materials
Smallest feature size	> 1 µm
Min. surface roughness	200 nm
Max. object height	20 mm
Aspect ratio	> 1:200
Min. micro hole diameter	5 µm

TECHNICAL SPECIFICATIONS

		Selective Laser Induced Etching
Femtosecond laser source	Wavelength	1030 ± 10 nm
	Max. average power	10 W
	Repetition rate	100 kHz - 1 MHz
	Pulse duration	400 fs - 4 ps
Positioning stages (XYZ)	Travel (XYZ)	120 mm × 120 mm × 60 mm
	Accuracy (XYZ)	± 0.5 µm
	Maximum speed (XY no load)	350 mm/s
Galvano scanners	Scan angle	50 µrad
	Repeatability	0.4 µrad RMS

Laser Nanofactory

Hybrid machine for R&D and custom manufacturing

- Add-ons tailored for diverse applications
- Additive, subtractive & hybrid processing in 1 setup
- Autofocus, self-aligning optics, and high-sensitivity monitoring
- Processes glass, polymers and other materials
- User-friendly software for design and manufacturing

PROCESS SPECIFICATIONS

Technology	Selective laser induced etching, multiphoton polymerization (2MPP), hybrid manufacturing, ablation, welding, refractive index modification
Materials	Polymers, hydrogels, elastomers, epoxy-based photoresist and glassomers and other
Smallest feature size	> 1 µm
Min. surface roughness	≤ 20 nm
Max. object height	20 mm
Aspect ratio	> 1:200
Min. micro hole diameter	5 µm

Selective Laser Induced Etching	**Multiphoton Polymerization (2MPP)**	**Hybrid Fabrication**
1030 ± 10 nm	780 ± 10nm	1030 ± 10 nm & 515 ± 10nm
5 W	>250 mW	from 5 W to 20 W*
Single-shot - 1MHz	>80MHz	Single-shot - 1MHz
250 fs (450 fs) - 10 ps (tunable)	<150 fs	190 fs - 10 ps (tunable)
160 mm × 160 mm × 60 mm*	160 mm × 160 mm × 60 mm*	160 mm × 160 mm × 60 mm*
± 0.3 µm	± 0.3 µm	± 0.3 µm
200 mm/s	200 mm/s	200 mm/s
50 µrad	50 µrad	50 µrad
0.4 µrad RMS	0.4 µrad RMS	0.4 µrad RMS

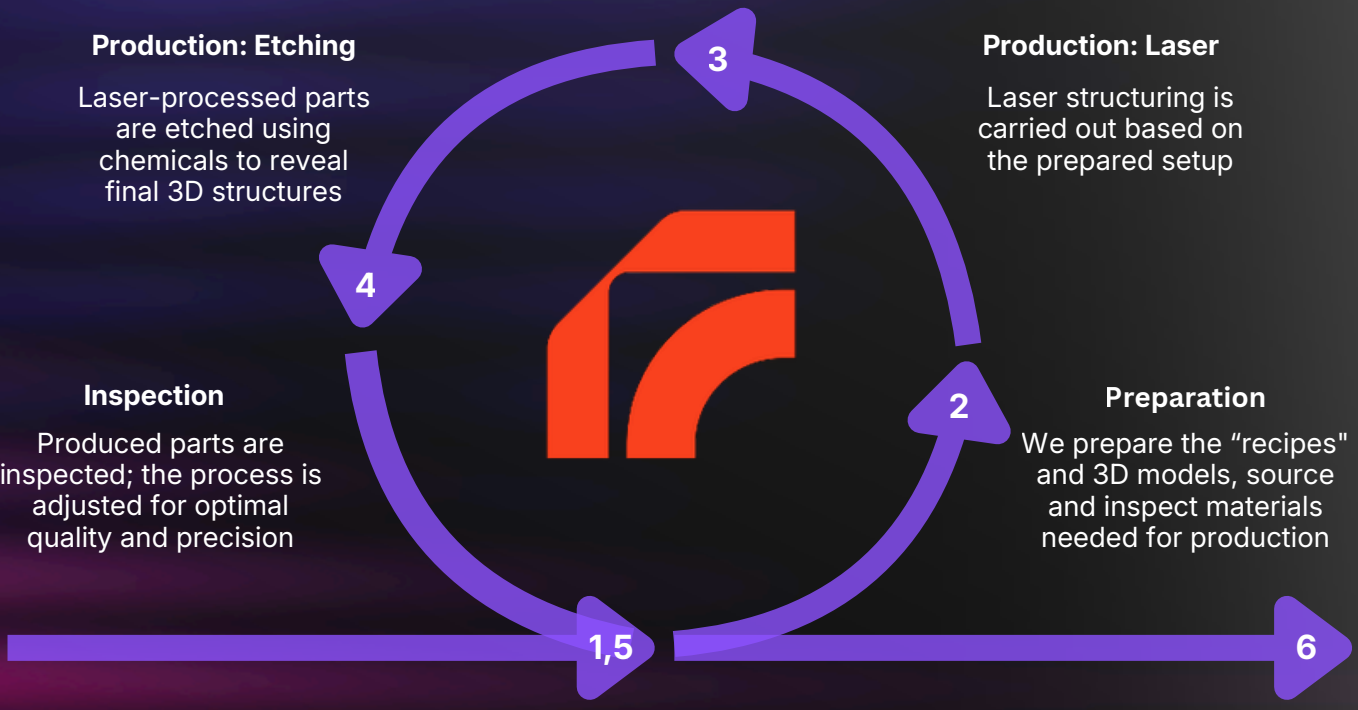
** Custom travel range options: 160x160, 300x300, 600x600*

Contract Manufacturing

Batch production

Produce high-precision micro-structured parts without upfront machine investment. Our contract manufacturing service leverages the same advanced femtosecond laser technology built into our machines — ideal for batch production and a great way to evaluate the technology before investing in your own system.

WORKFLOW



Production: Etching

Laser-processed parts are etched using chemicals to reveal final 3D structures

Production: Laser

Laser structuring is carried out based on the prepared setup

Inspection

Produced parts are inspected; the process is adjusted for optimal quality and precision

Preparation

We prepare the “recipes" and 3D models, source and inspect materials needed for production

Inquiry & Evaluation

Reviewing your enquiry, signing NDA, and conducting technical feasibility assessment.

Packaging & Delivery

Products are safely packed and sent to the customer

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& services

space medical semicon photonics biotech quantum electronics

OR

SIMPLY MAKE IT

Produce micro-parts with your own machine

MAKE IT SIMPLE

Let us produce micro-parts for you

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