

FemtoFBG

Laser workstation for fiber
Bragg gratings writing



Direct writing



Up to 160 mm
length FBGs



Variety of optical fibers



Precise fiber tension
control



Easily tunable
FBG parameters



Fiber core autofocus



Femtosecond
FBG writing

sales@wophotonics.com
www.wophotonics.com

FemtoFBG

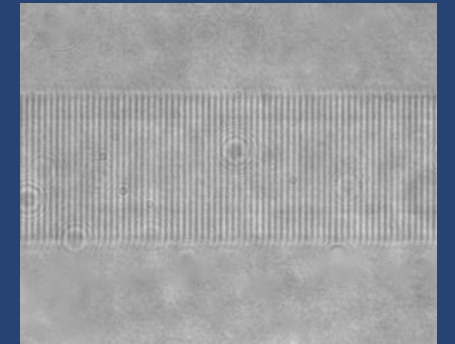
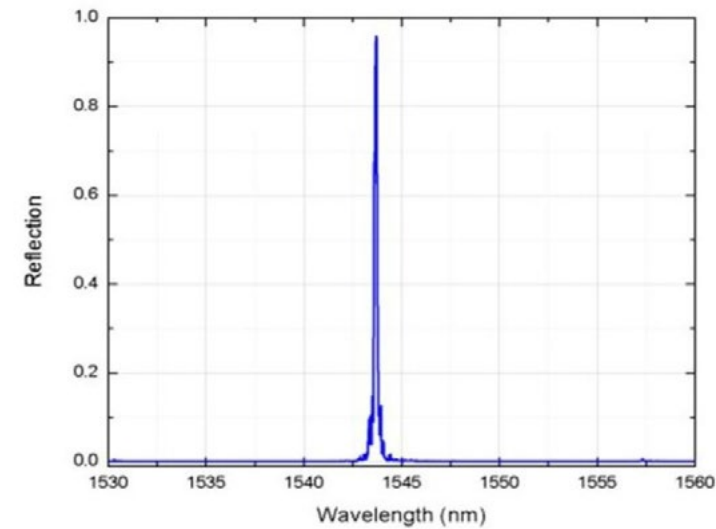
Femtosecond FBG writing is a proven technology for universal Bragg Gratings writing in various optical fibers, including not UV-sensitized fibers.

The main advantage of femtosecond laser writing is the ease of process tuning compared to a process using a UV phase mask.

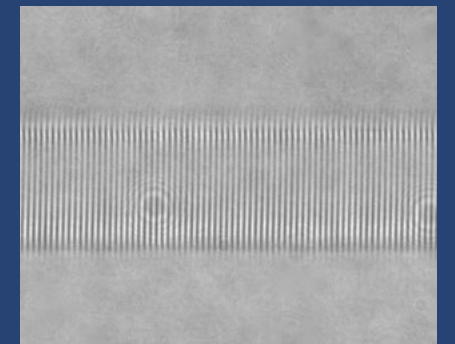
FemtoFBG is a perfect choice for scientific laboratories, R&D centers, and industrial clients working with telecommunications, distributed sensors, and Bragg Grating based devices development.

Main features:

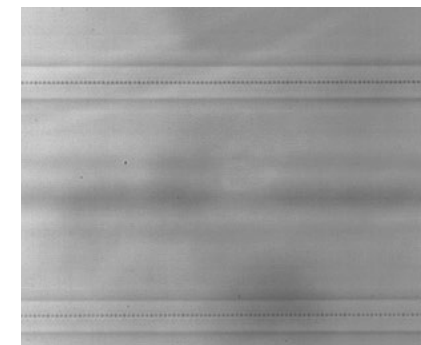
- Direct writing (point-by-point, line-by-line)
- Wide range Reflection / Transmission parameters control
- Variety of standard optical fibers



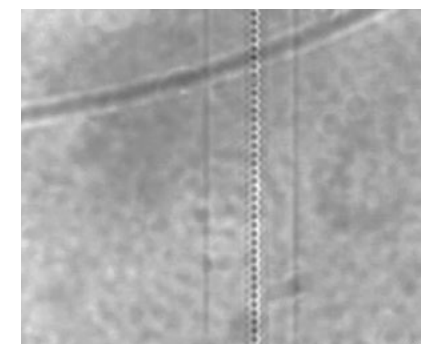
Line-by-Line (LbL) inscribed FBG top view



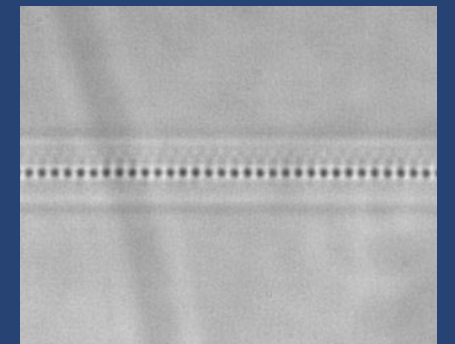
Line-by-Line (LbL) inscribed FBG view rotated by 90°



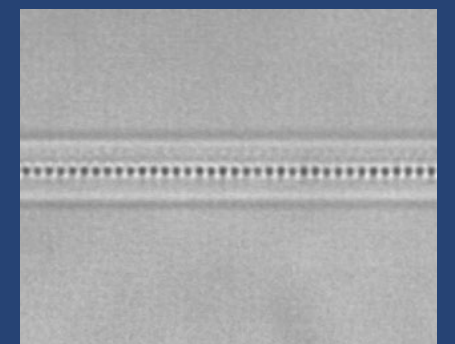
Multicore fiber



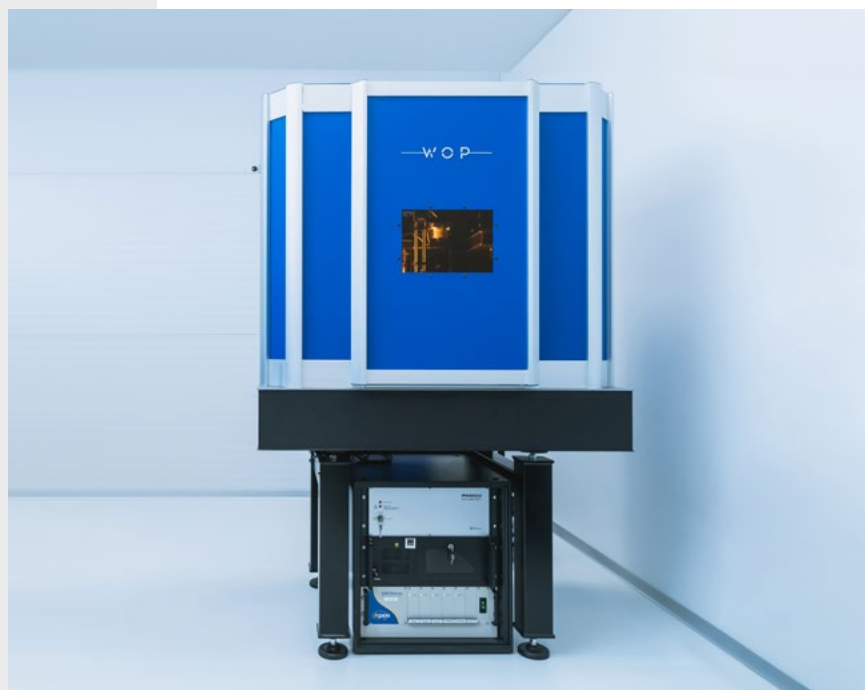
FBG writing in SMF



Point-by-Point (PbP) inscribed FBG top view



Point-by-Point (PbP) inscribed FBG view rotated by 90°



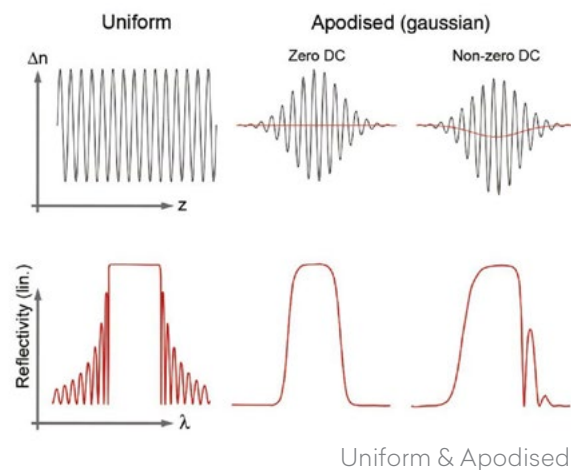
FemtoFBG | Configurations



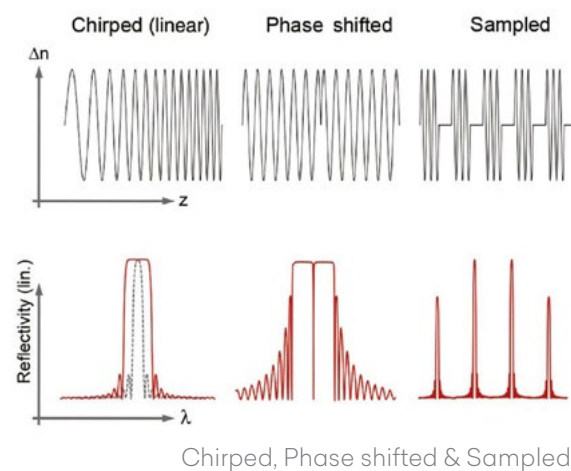
	Standard	Advanced	Custom
Micromachining technologies	Direct laser writing	Direct laser writing	The system can include fiber drilling, marking, phase mask writing, and other functionalities
Laser	Single-wavelength	Dual-wavelength	Design wavelengths wavelengths can be chosen, including integration of customer's provided laser source
FBG writing options	Point-by-Point (PbP) Line-by-Line (LbL)	Point-by-Point (PbP) Line-by-Line (LbL)	Optional inclusion of alternative writing techniques or techniques
Fibers	Single-mode fibers	Single-mode fibers	Multicore fibers, dual-cladding fibers
Maximum FBG length	70 mm	150 mm	Customer's choice
XY working range, mm	160x160x60	160x160x60	Up to 300x300
Flat samples processing	Included	Included	Optional
Fiber core autofocus	–	Included	Digital
Fiber tension control	–	Included	Holder designed according to individual requirements
Polarization control	–	Motorized	Motorized Linear Polarization rotation, Circular, Elliptical, Azimuthal, or other
Writing	With positioning system	With a positioning system and/or scanning unit	Positioning and scanning units can be chosen by the customer
Power control	Integrated external control	Integrated external control	Option for single pulse energy measurement
Vibration control	Passive	Passive	Passive/Active
Fiber feeding	Manual	Manual	Reel-to-reel mechanism for writing without immersion oil

Advantages of using FemtoFBG

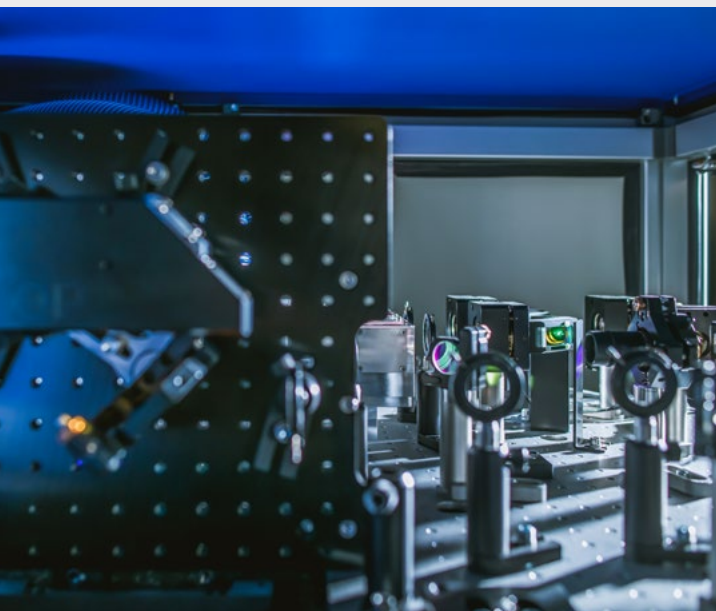
- Writing through the cladding – no need to strip the fibers before FBG inscription.
- All fiber types – no need for UV photosensitivity.
- Easy process tuning for different gratings – the mask is not required.
- Nearly no system maintenance costs compared to excimer laser-based system



Uniform & Apodised



Chirped, Phase shifted & Sampled



20 years of expertise
in femtosecond laser micromachining with a high focus on glass



50+ professionals
6 Ph.D., 40 M.S. and B.S.



Patent family of 13 in-house and 2 licensed patents



R&D studies
continuous projects with academic and research partners

Our FemtoFBG clients:



Politecnico di Torino

