
EKSPLA

Lithuania – country of laser technology

- More than 30 laser companies;
- 11 science and laser technology research centers;
- Most laser field employees per capita in the world;
- 30 years of independence and 28 years of Ekspla;

EKSPLA

Who we are

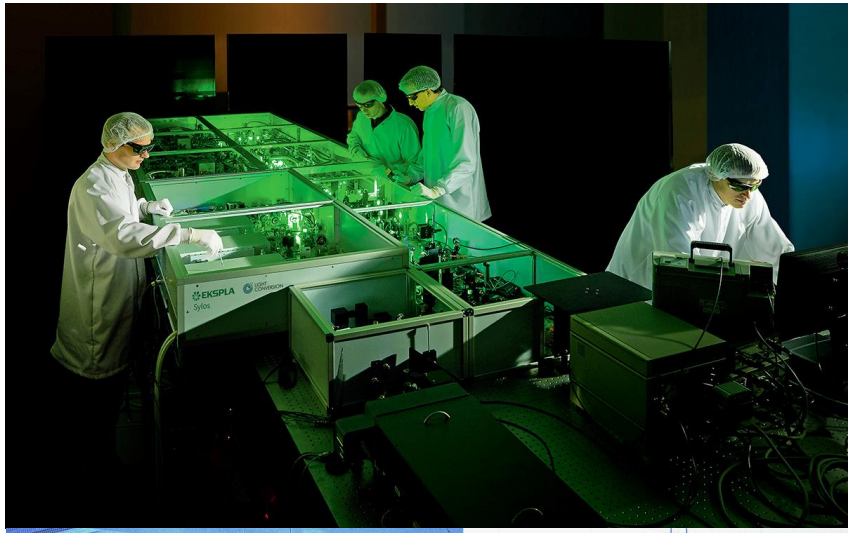
- EKSPLA is manufacturer of lasers, laser systems and laser components
- R&D and industrial applications
- Member of Lithuanian photonics cluster and Baltics photonics cluster
- EKSPLA was officially established in 1992 but traces its roots to the laser division of EKSMA Co. founded in 1983

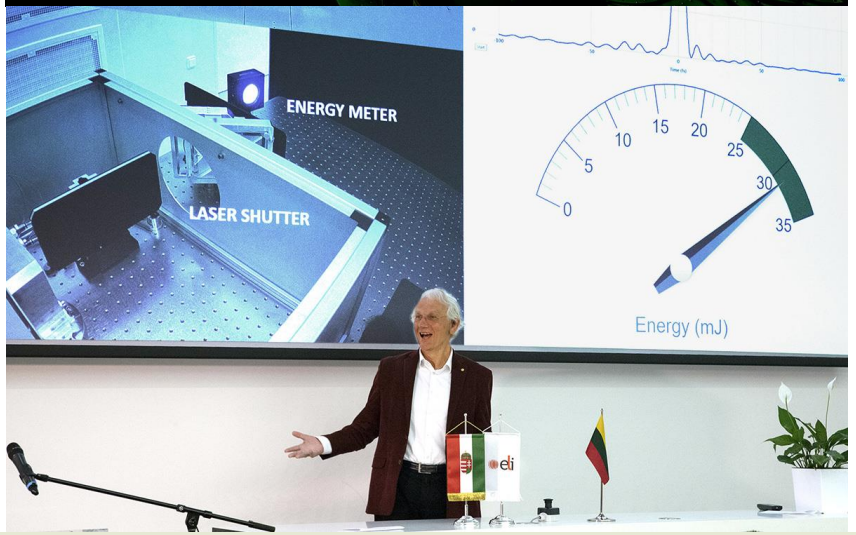
Ekspla

- Major laser manufacturer in Lithuania
- Started as a scientific laser supplier, now working with large scale projects and industry clients
- Scientific ideas transferred to industry application
- Big projects strive for best specifications, while industry application aims for more robust design, ease of use and reliability

Achievements

- Recognized by customers and all photonics community
- 2011, EKSPLA's NT200 series tunable wavelength laser has been announced the World's Best Scientific Laser at the 2011 Prism Awards for Photonics Innovation
- 2014, was successfully won two ELI laser procurement tenders: one for ELI-ALPS (Hungary) and one for ELI Beamlines (Czech Republic)





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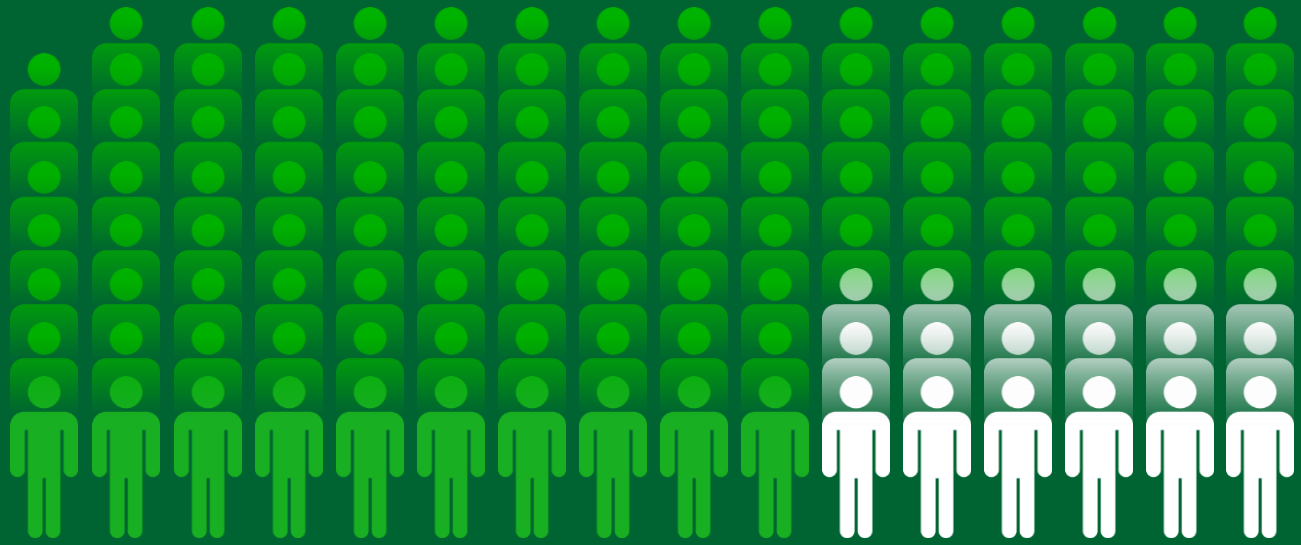
EKSPLA at a glance

15 million EUR

annual turnover



127 employees

18 PhD's

EKSPLA in projects

1.15
million EUR to
R&D
annual investment

35
international projects

14
national projects

Worldwide presence

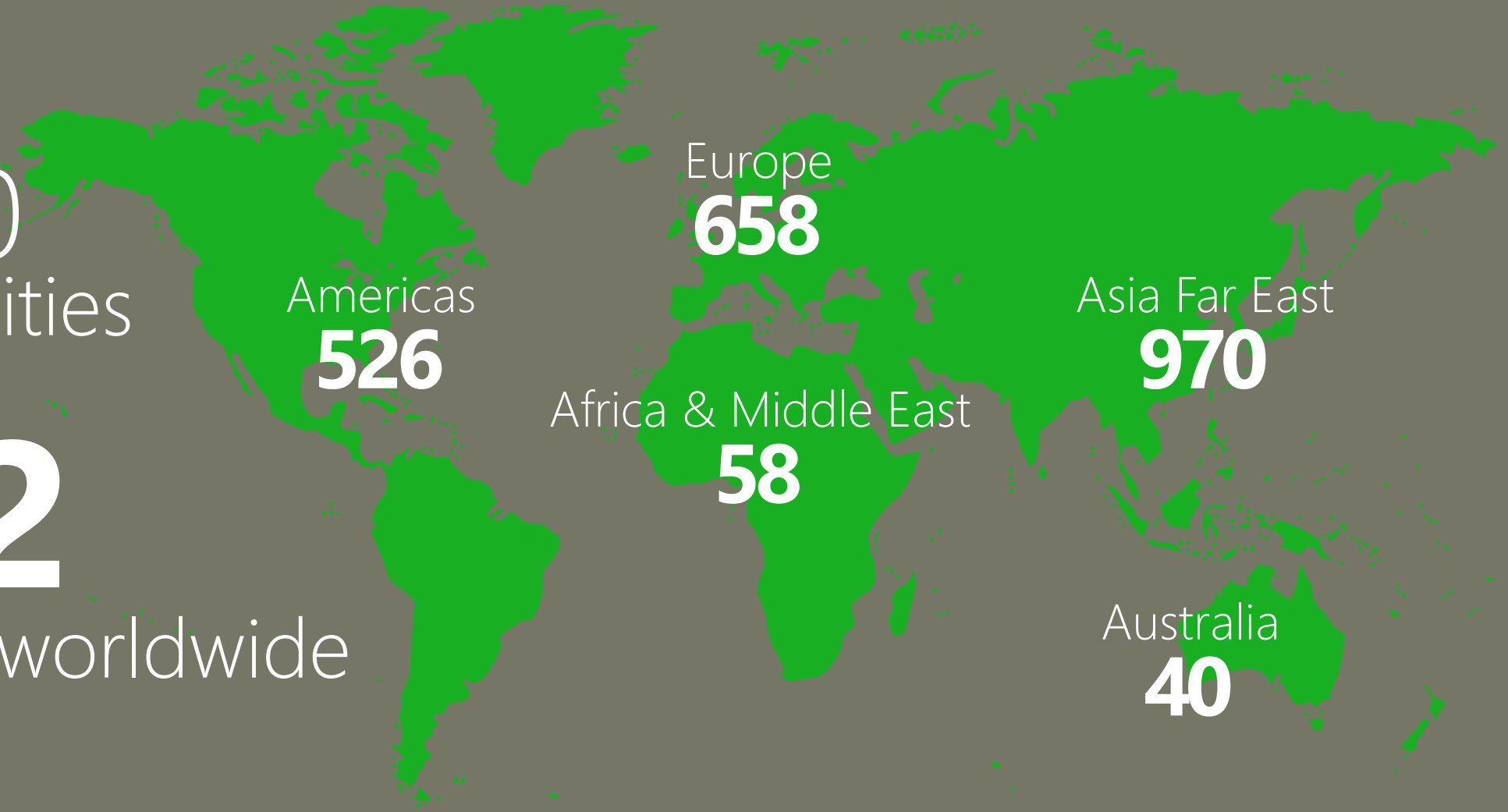
20+
representatives

3
representative offices:
USA, UK, China

Worldwide presence

66/100
top universities

2252
lasers sold worldwide
(up to 2018)



Product range

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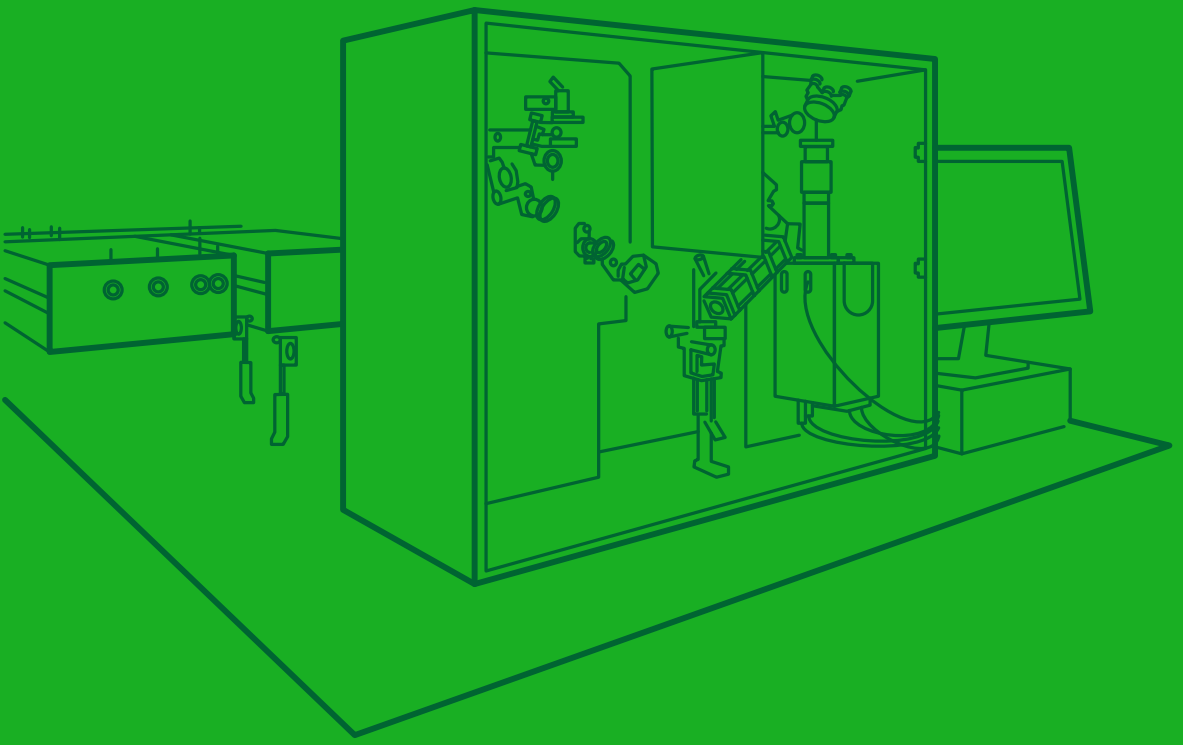
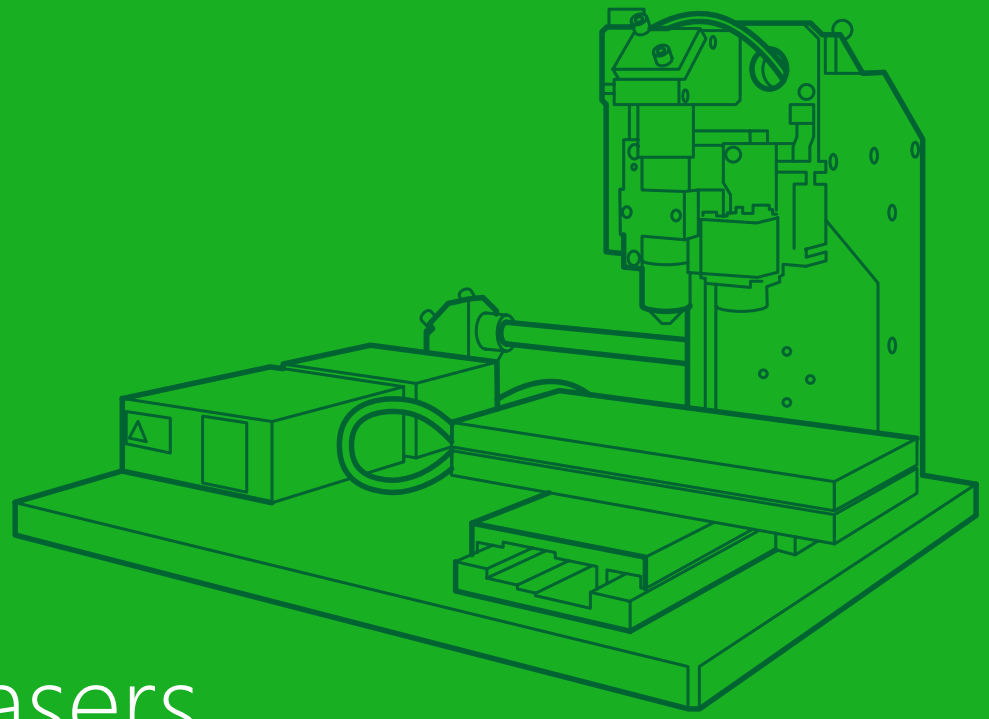
Scientific lasers





Lasers for OEM

Products

- Scientific lasers & systems
- Spectroscopy systems
- Industrial lasers
- Fiber lasers
- Laser electronics

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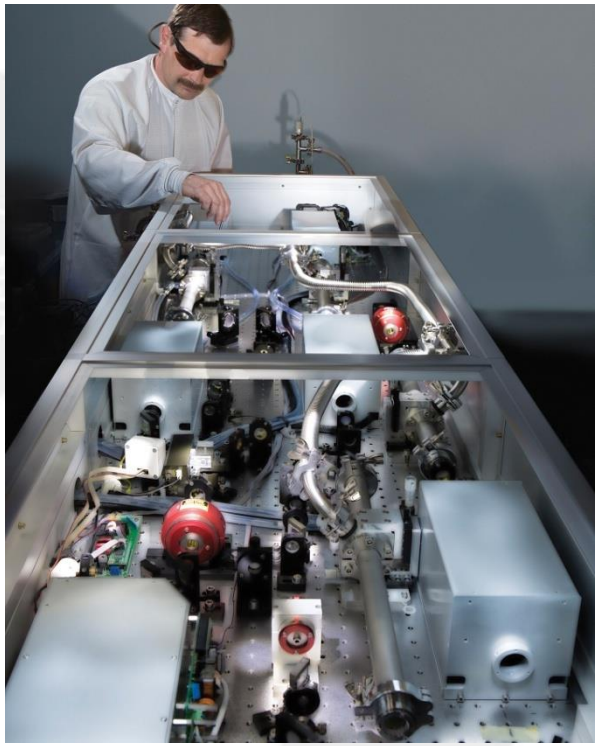
Scientific market

- Leader in scientific high energy picosecond market
- Unique spectroscopy systems (Sum Frequency Generation Spectrometer)
- State of the art high energy systems
- Modifications, accessories and options to tailor for specific applications



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Lasers for OEM

FemtoLux series

Microjoule Class Femtosecond Fiber Lasers

Atlantic series

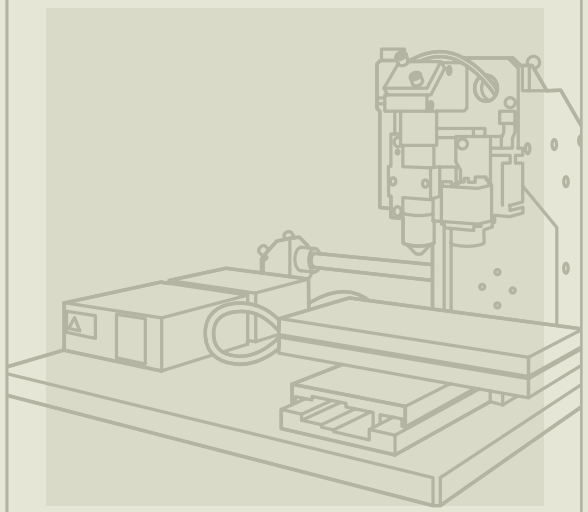
High Power Industrial Picosecond Lasers

LightWire series

Ultrafast Compact Fiber Lasers & Seeders

Custom lasers

Tailored for specific applications



FemtoLux series

FemtoLux 3

Power output

3W

at **1030**nm

3µJ

Pulse energy

Pulse frequency: **300**fs...**5**ps

FemtoLux green

Power output

1,5W

3W

at **515**nm

at **1030**nm

1,5µJ

5µJ

3µJ

10µJ

Pulse/burst energy

Pulse frequency: **300**fs...**5**ps

Atlantic series

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Atlantic UV
UV Laser

Power output

30W

at **355**nm

Atlantic GR
Green Laser

Power output

40W

at **532**nm

Atlantic IR
Infrared Laser

Power output

80W

at **1064**nm

Applications:

Drilling / Cutting / Patterning / Structuring

Ablation / Micromachining

LightWire series

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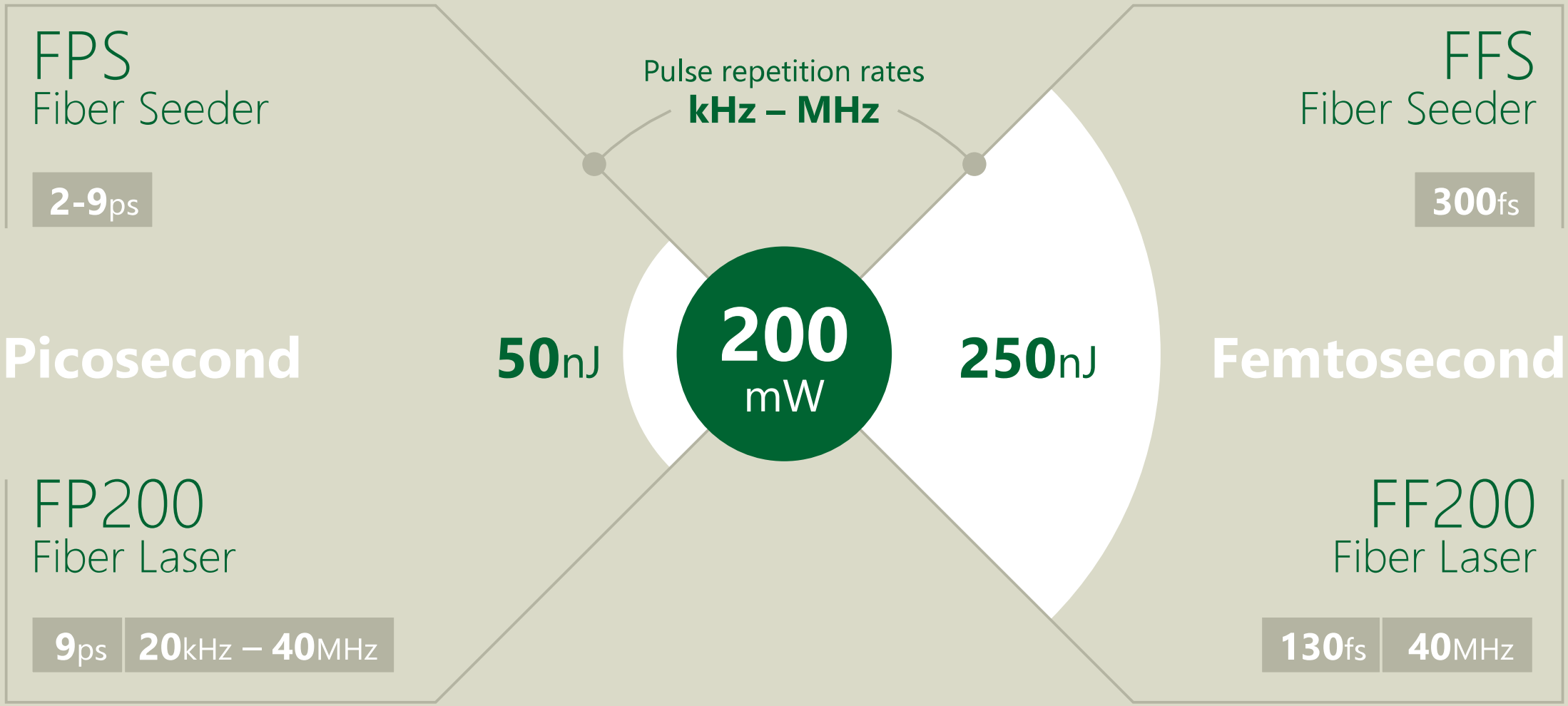
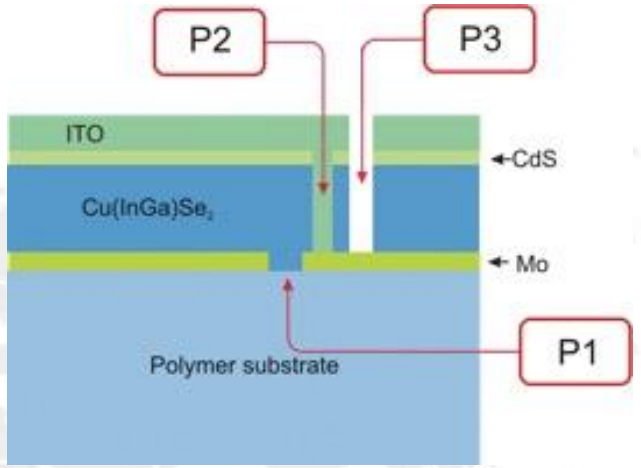
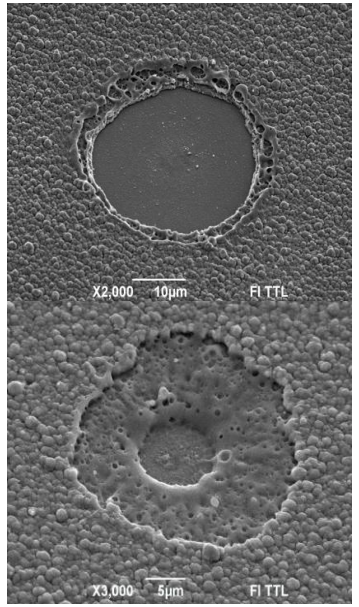


OEM applications for micromachining

- Scribing of CIGS thin-film solar cells

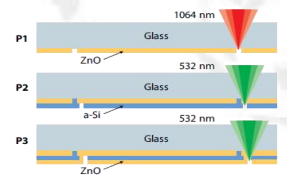
  Main advantages of picosecond pulses:
  P1- efficient Mo removal
  P2, P3 - no influence on the remaining material, no secondary metallic phase formation

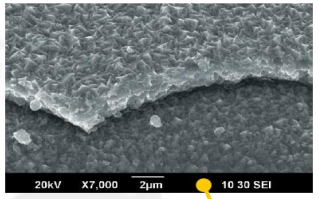


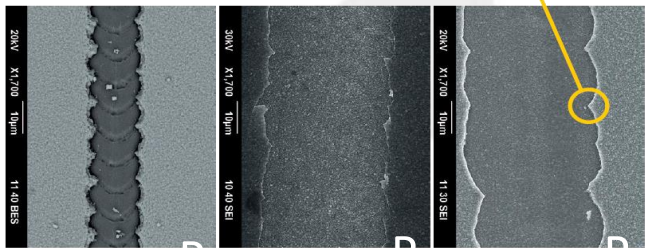


- Scribing of a-Si thin-film solar cells

  Atlantic ps laser
  P1: 1064 nm, 10ps, 0,8 W, 100 kHz, 800 mm/s
  P2: 532 nm, 10ps, 0,2 W, 100 kHz, 900 mm/s
  P3: 532 nm, 10ps, 0,4 W, 100 kHz, 900 mm/s







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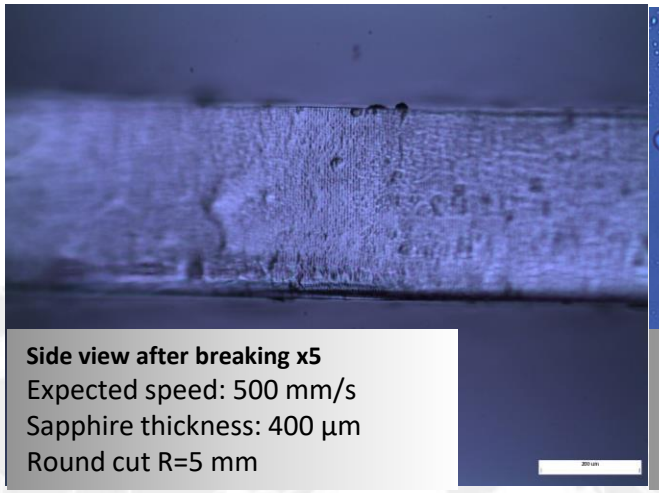
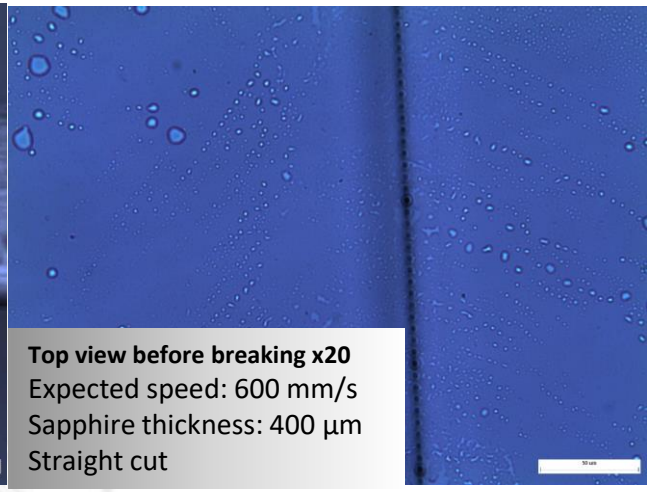
OEM applications for micromachining

- Sapphire cutting (dice and break)
  - Atlantic ps laser
  - 1064 nm, 16 W, 10 ps
  - Cutting speed up to 600 mm/s,

  for thickness 0,4 mm, round cut is available

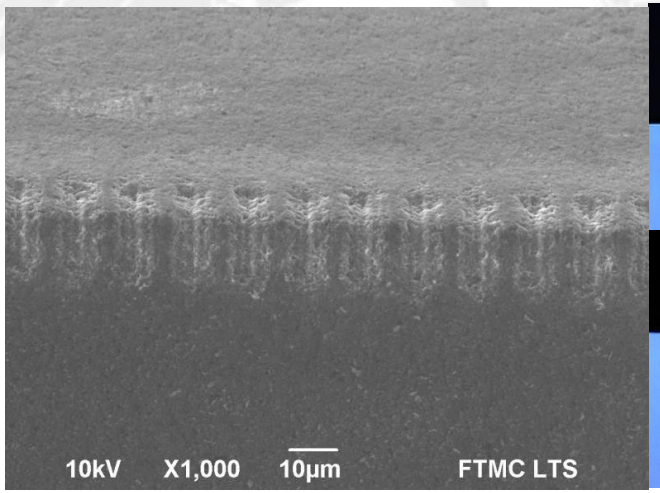


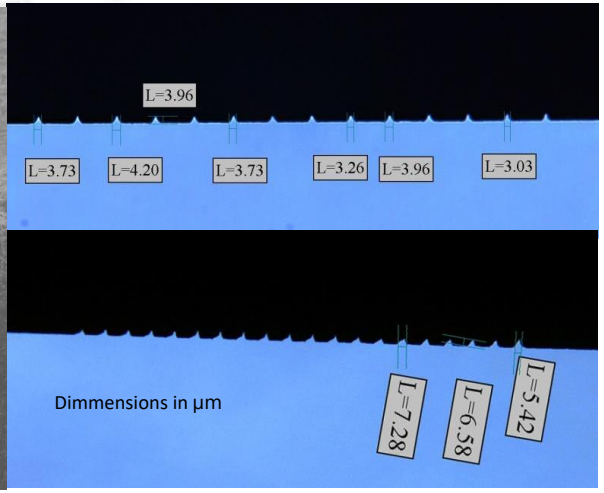
Side view after breaking x5
Expected speed: 500 mm/s
Sapphire thickness: 400 µm
Round cut R=5 mm



Top view before breaking x20
Expected speed: 600 mm/s
Sapphire thickness: 400 µm
Straight cut

- PCB diamond processing
  - Atlantic ps laser
  - 355 nm, 10 ps





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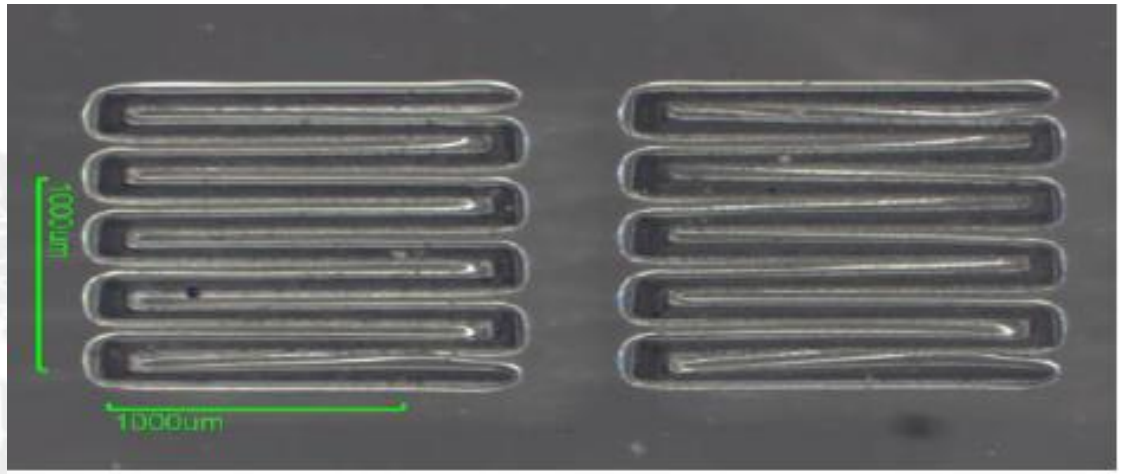
OEM applications for micromachining

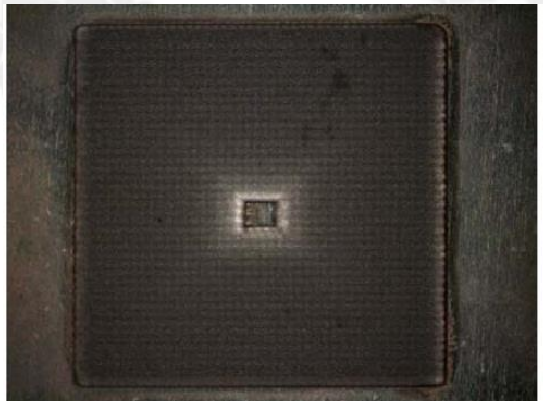
- PMMA for microfluidic applications

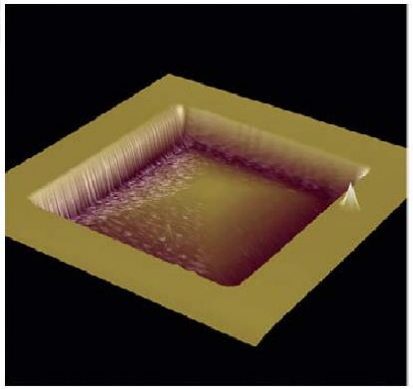


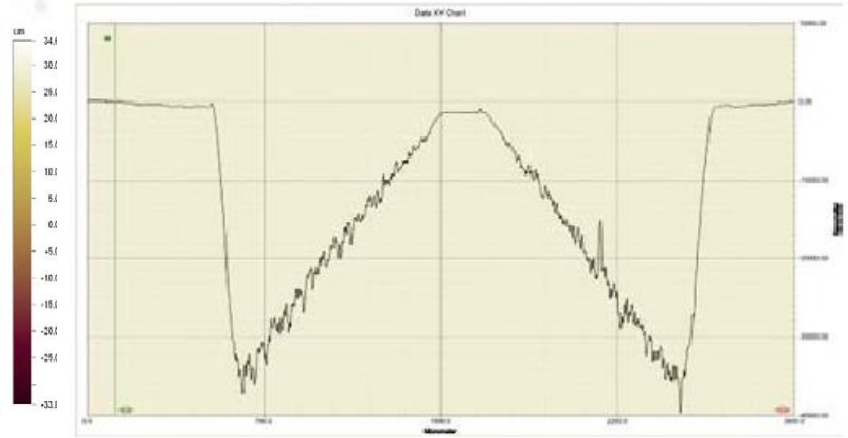
- Atlantic ps laser: 1064 nm, 5 W, 10 ps, 50 kHz
- Cornrows in PMMA, depth 350 µm
- Scanning speed 14 mm/s
- 4 passes left pattern, 8 passes right pattern

- Flexible 3D cavity engraving

Structure depth 50 µm.
Top – down approach.
2000 scans, 10 layers,
100 m/s







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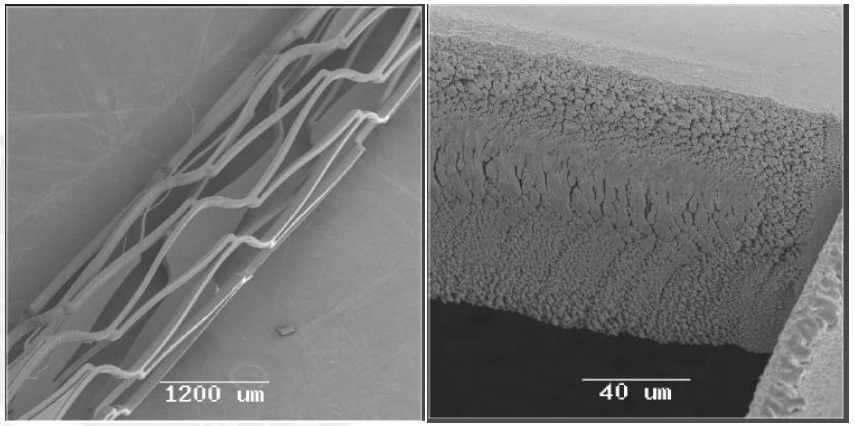
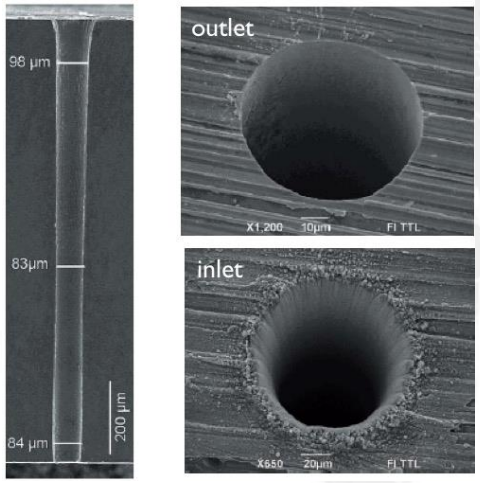
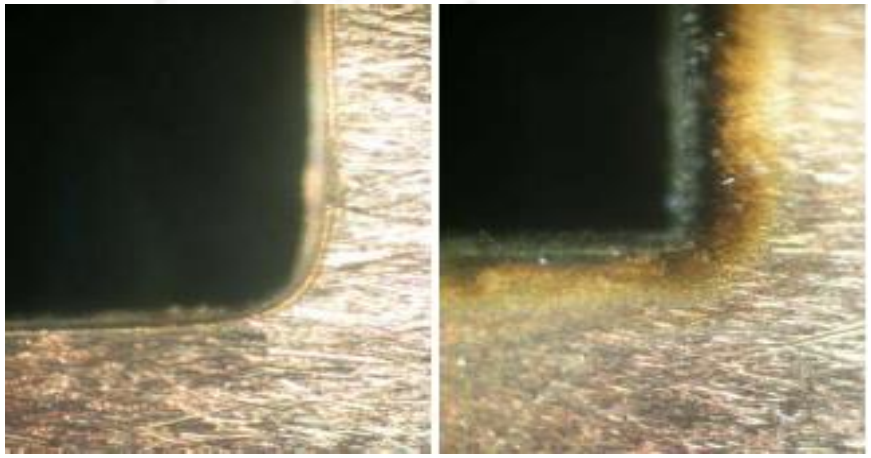
OEM applications for micromachining

- Metals processing – medical stents
  - Atlantic ps laser
  - 1064 nm, 4 W, 10 ps, 100 kHz
  - NITINOL, wall thickness 0,1 mm
  - Up to 2 mm/s cutting speed



- SCM420 steel drilling s
  - Atlantic HE ps laser
  - 532 nm, 1,8 W, 60 ps
  - Thickness 1,2 mm
  - Drilling time 40





- Metals processing- copper foil

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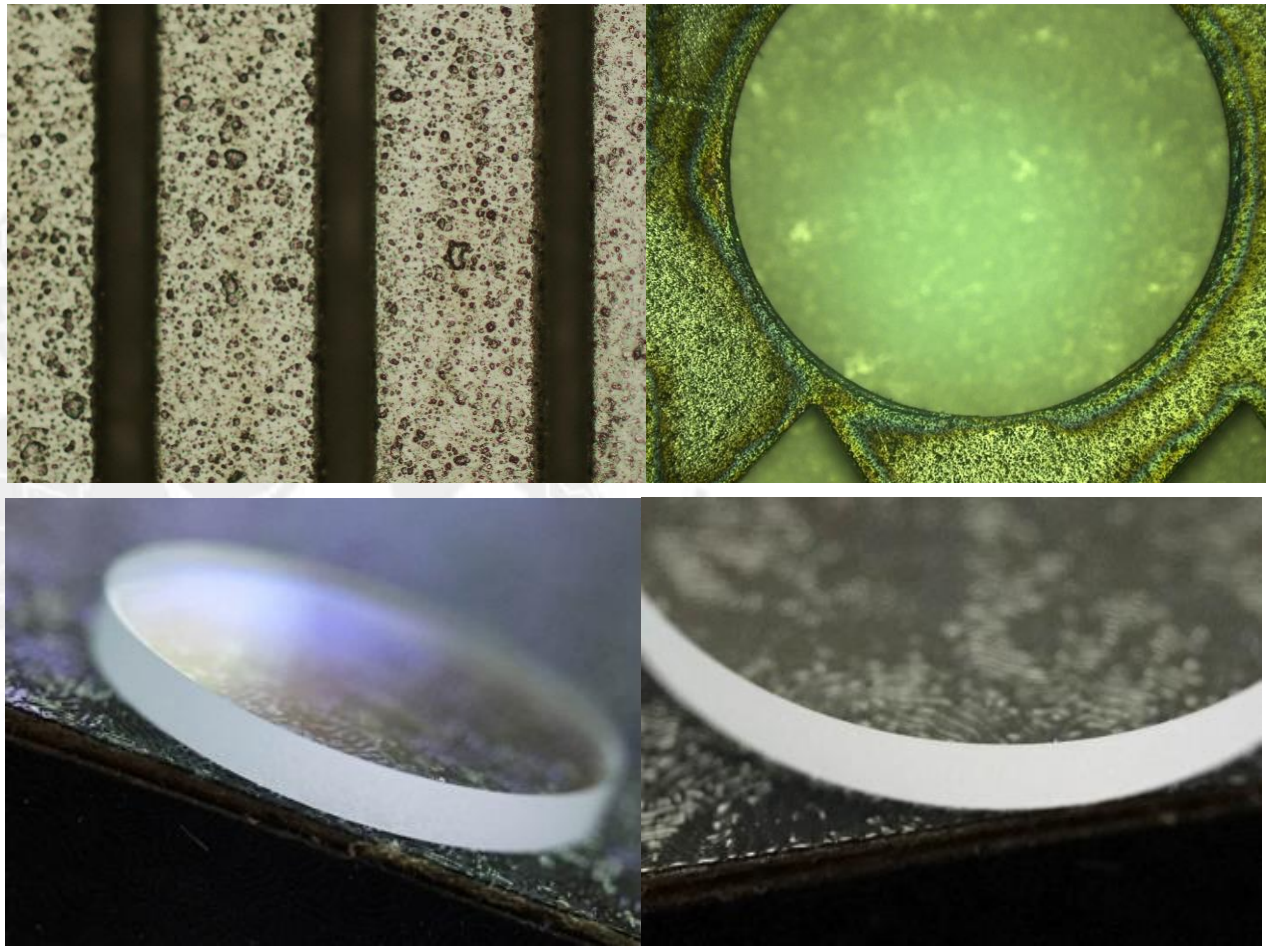
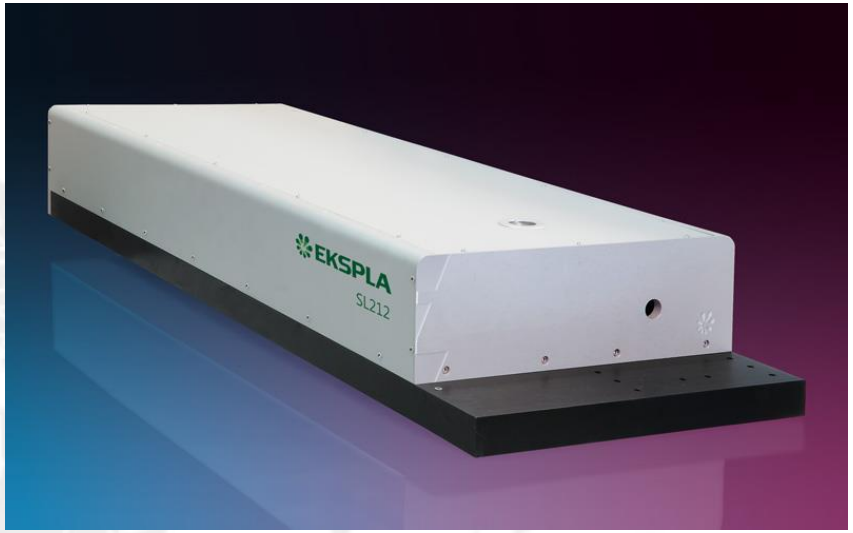
OEM applications for micromachining

- Special thin films cutting
  - Atlantic ps laser: 1064 nm, 10 ps
  - No Heat Affected Zone
  - ns laser
  - Large Heat Affected Zone
- Tempered and regular glass cutting
  - Tempered glass
  - Round shape
  - Smooth cutting edges

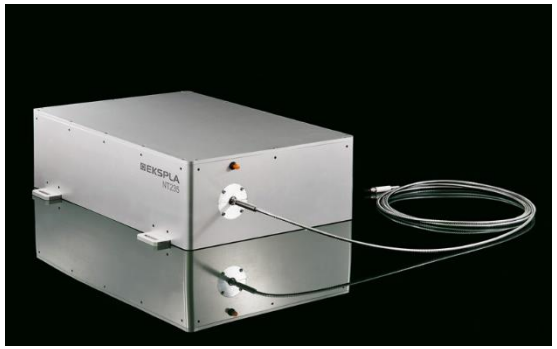


OEM applications for aesthetics

- Tattoo removal
  - Ekspla SL212 laser:
    - **250 mJ @ 1064 nm**
    - **150 mJ @ 532 nm**
    - **150 ps**
    - **“Top Hat” beam profile**



OEM applications for other manufacturers



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Thank You

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