

R&D technologies and tools for:

- Scribing silicon carbide and other material wafers for microelectronics industry
- Protein purification for biotechnology

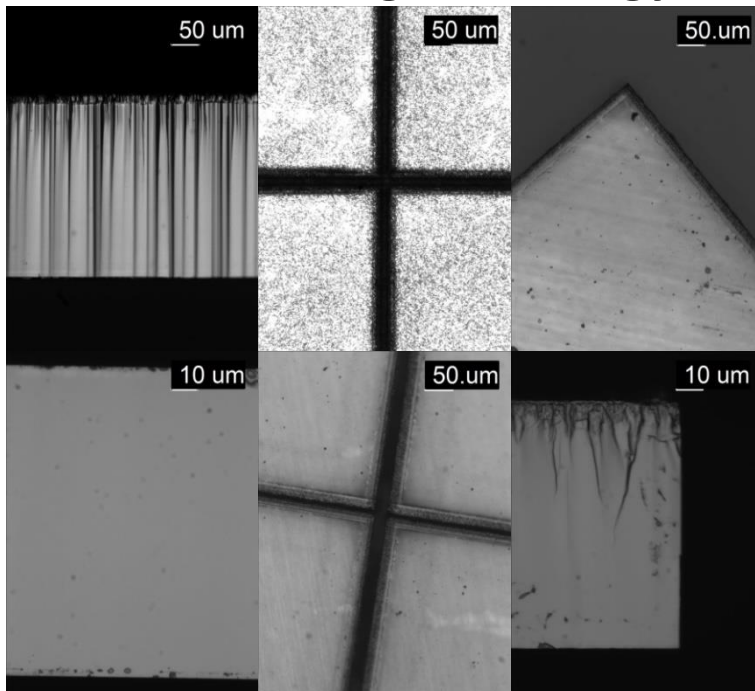


Products: Freezer series optical engines

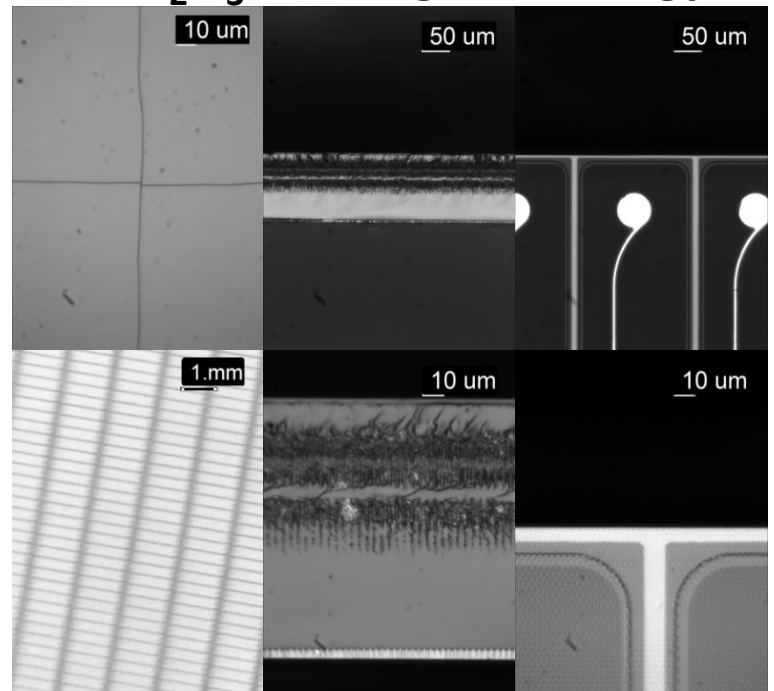
Features:

- Optical systems for different material wafer scribing
- Built-in vertical focal point adjustment
- Built-in sample visualization system
- Highly stable and reliable design
- High versatility – optical power, pulse duration and frequency adjustments.

SiC scribing technology



Al₂O₃ scribing technology



- | | | |
|---------------------------------|-------------------|--|
| • Easy breaking | • High accuracy | • Uncoated samples |
| • Wafer thickness above 330 μm | • High throughput | • Gold coated SiC scribing |
| • Scribing speed above 300 mm/s | • No chipping | • DBR coated Al ₂ O ₃ scribing |

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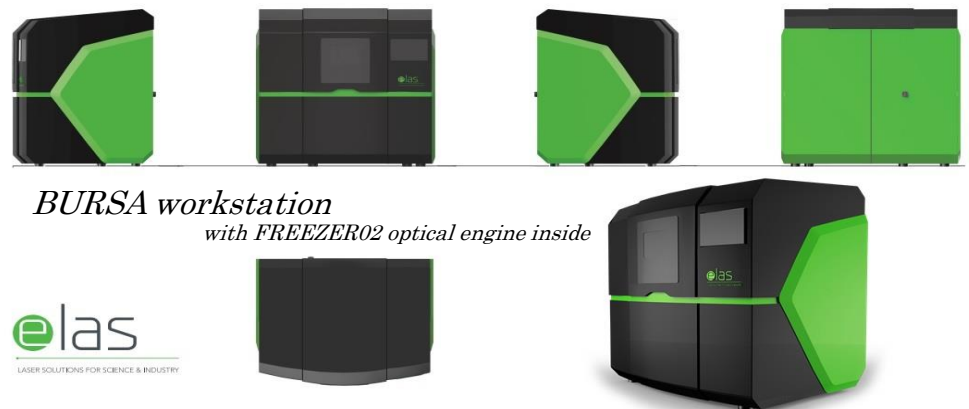
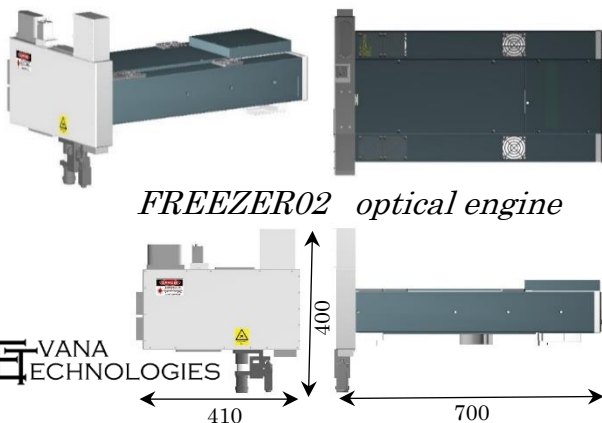
FREEZER02+BURSA

SiC or GaN wafer scribe station

Station BURSA assembled with optical engine FREEZER02 for silicon carbide (SiC) or gallium nitride (GaN) scribing using ICICLE technology (WO2016193786 patent pending)

Main Specifications

1	Wafer size for processing, inch	2"	4"	6"	
2	Wafer thickness, mm	0.05-0.4	0.05-0.4	0.05-0.4	
2	Stages axis travel, mm	X 300	Y 300	Z 6	⊖ 180°
3	Stages maximum velocity, mm/sec	X >300	Y >300	Z 5	⊖ 20 rps
4	Stages resolution, mm	0.0002	0.0002	0.00125	1 arcsec
5	Stage parameters adjustment functions	Speed, acceleration, deceleration			
6	FREEZER02 optical engine dimensions, mm	L 700	W 410	H 400	
7	Laser	DPSS			
8	Laser parameters adjustment functions	Output power, frequency, pls.duration			
9	Wafer surface recognition, z - direction	laser beam focus position on the surface			
10	Alignment function, XY⊖ - directions	wafer alignment to scribing direction			
11	Flexible processing conditions	wide range change of parameters			
12	Scribing speed with ICICLE technology	300 mm/sec or more			
13	Throughput, wafer/h, for 3x3mm ² chip	25	20	15	--
14	Wafer loading and unloading function	Default frame for 6" wafer			
15	BURSA machine dimensions, mm	L 1400	W 1780	H 1750	--
16	Machine weight, kg	1400			
17	Power supply	100-230 VAC, 50/60 Hz, 3KW			



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