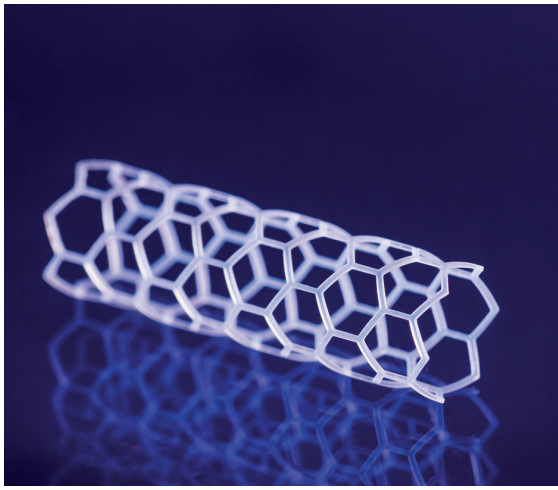
JenLas® *femto Series*

IR & Green Industrial Femtosecond Lasers



Advantages:

- 550 femtosecond pulse width
- Free and quickly adjustable pulse repetition rate
- Single pulse to 510 kHz
- Up to 80 µJ pulse energy
- One beam exit for IR and green
- Optical accessories like circular polarization, beam expanders, F-Theta lenses
- Robust monolithic cavity
- Temperature range up to 35 °C
- Easy system integration
- Industrially proven thin disk technology made in Germany
- Worldwide Jenoptik support

Customer Benefits:

- Non-thermal "cold" laser processing
- Nonlinear absorption in transparent materials
- Extremely clean, precise and damage-free processing, free of melt, bur and debris
- Reduced cost of post-processing
- Reliable 24/7 laser operation in production environments
- Long life diodes and oscillator
- Low maintenance cost
- CE and FDA approval

Applications:

- Integration into micro machining systems for micro cutting, drilling, structuring
- Laser machining of nearly all materials, including temperature-sensitive, hard & brittle, transparent materials, like organics, NiTi, sapphire, glass, etc.
- Material-selective ablation in multi-layer systems
- Inner marking of transparent materials

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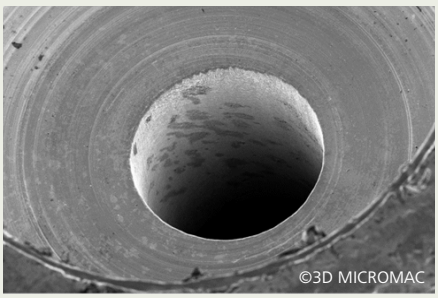
Specifications

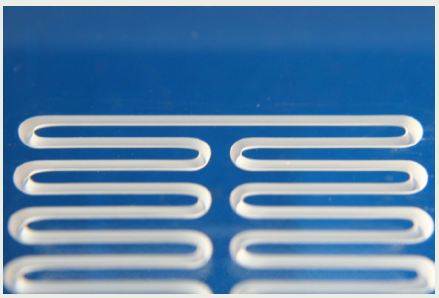
General Properties	JenLas® *femto 10*		JenLas® *femto 16**	
	IR	SHG (option)	IR	SHG (option)
Wavelength	1030 nm	515 nm	1030 nm	515 nm
Maximum output power	≥ 10 W	≥ 5 W	≥ 16 W	≥ 8 W
Maximum pulse energy	≥ 50 µJ @ 200 kHz	≥ 25 µJ @ 200 kHz	≥ 80 µJ @ ≤ 200 kHz	≥ 40 µJ @ ≤ 200 kHz
Beam diameter	1.2 mm	0.8 mm	1.2 mm	0.8 mm
Pulse repetition rate range**	single shot ... 200 – 510 kHz		single shot ... 100 – 510 kHz	
Fast beam modulator	yes (pulse picking, pulse energy attenuation)			
Beam quality M^2	< 1.3			
Typical pulse width ($sech^2$)	550 fs ± 150 fs			
Polarization	linear, > 100:1 (IR: vertical, SHG: horizontal)			
Operating Conditions				
Ambient temperature	15 – 35 °C			
Ambient relative humidity	10 – 80 % (non-condensing)			
Cooling	Chiller included (air/water and water/water versions available)			
Electrical Properties				
Power requirements	Laser: 110 – 240 V AC (50/60 Hz), ≤ 1 kVA Chiller:(208)/230 V AC (50/60 Hz), ≤ 2.2 kVA			
Mechanical Properties				
Dimensions (W x H x L) I weight	Laser head: 500 mm x 273 mm x 968 mm I 100 kg + 15 kg base plate Laser controller: 19" x 4 RU x 500 mm I 12 kg Chiller: 19" x 7 RU x 640 mm I 65 kg			

* preliminary specification
** resonant frequencies disabled

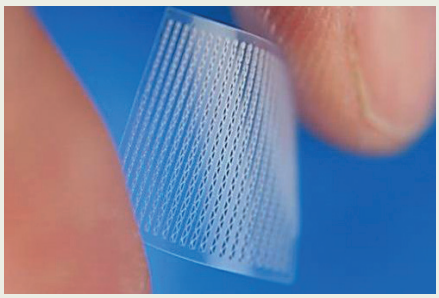
Application Examples



Drilling of precision micro holes in stainless steel (burr-free, high aspect ratios possible, defined taper angles possible).



Engraving of micro channels in glass and other materials (no micro-cracks, no adhering debris).



Cutting of micro structures in bio-resorbable polymers, (no melt or recast).

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