



### JenLas® femto Series

## New ways in laser micromachining enabled by Jenoptik's industrial ultrafast lasers.

#### Applications

JenLas® femto Series is a class 4 OEM laser source for

- Non-thermal “cold” laser processing
- Extremely clean, precise and damage-free processing, free of melt, bur and debris
- Integration into micromachining systems for micro cutting, drilling, structuring
- Laser machining of nearly all materials, including temperature-sensitive, hard & brittle, transparent materials
- Material-selective ablation in multi-layer systems
- Inner marking of transparent materials
- Nonlinear absorption in transparent materials

#### Features

- 550 femtosecond pulse width
- Free and quickly adjustable pulse repetition rate
- Single pulse to 510 kHz
- Up to 100 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
- Industrially proven thin disk technology made in Germany
- Reliable 24/7 laser operation in production environments
- Long life diodes and oscillator
- CE and FDA approval

# IR & green industrial femtosecond lasers

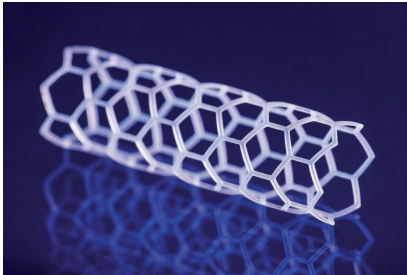
## JenLas® femto Series | Specifications

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	≥ 100 µJ @ ≤ 150 kHz	≥ 50 µJ @ ≤ 150 kHz
Beam diameter	1.6 mm	1.1 mm	1.6 mm	1.1 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 <sup>2</sup>	< 1.3			
Typical pulse width (sech <sup>2</sup> )	550 fs ± 150 fs			
Polarization	linear, > 100:1 (IR: vertical, SHG: horizontal)			
<b>Operating Conditions</b>				
Ambient temperature	15 – 35 °C			
Ambient relative humidity	10 – 80 % (non-condensing)			
Cooling	Chiller included (air/water and water/water versions available)			
<b>Electrical Properties</b>				
Power requirements	Laser: 110 – 240 V AC (50/60 Hz), ≤ 1 kVA Chiller: (208)/230 V AC (50/60 Hz), ≤ 2.2 kVA			
<b>Mechanical Properties</b>				
Dimensions (W x H x L)   Weight	Laser head: 500 mm x 273 mm x 968 mm   100 kg + 15 kg base plate Power supply: 19" x 4 RU x 500 mm   12 kg Chiller: 19" x 7 RU x 640 mm   65 kg			

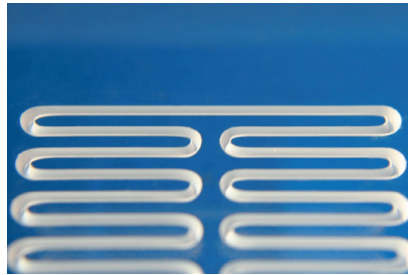
\* preliminary specification

\*\* resonant frequencies disabled

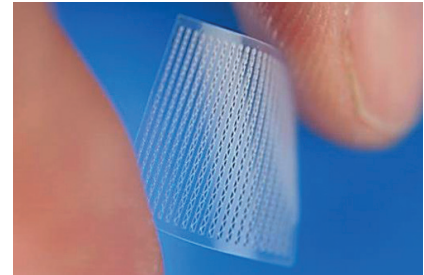
## Application examples



Cutting of medical stents (polymer, nitinol)



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).

It is our policy to constantly improve the design and specifications. Accordingly, the details represented herein cannot be regarded as final and binding.