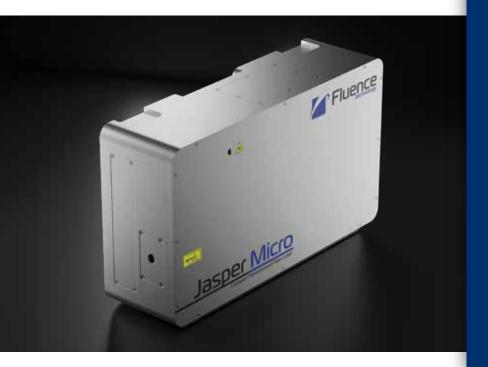
# Jasper Micro

Compact Femtosecond Fiber Laser



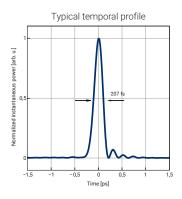
## **Key features:**

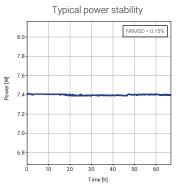
- Proven stability & exceptional lifetime with average power up to 7 W
- Maximum pulse energy of up to 5.0 μJ
- Pulse duration tunability from < 250 fs to 20 ps in an ultra-small footprint
- Passively cooled compact laser head
- Custom Envelope Burst option
- 5-year warranty on the oscillator and 2-year on the complete laser as a standard

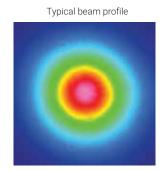
**Jasper Micro** combines all essential features of the most advanced femtosecond laser within a tiny box. It includes a pulse picker, burst mode with envelope adjustment (CEB), and pulse duration tuning ranging from < 250 fs to 20 ps with pulse repetition rate up to 20 MHz for maximum flexibility.

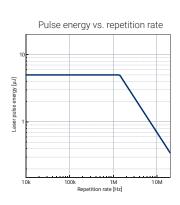
With market-leading peak power from such a compact system, Jasper Micro sets a new standard in femtosecond laser technology.

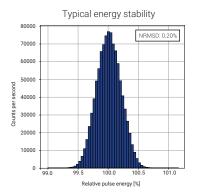
The all-fiber, SESAM-free design ensures long-term, maintenance-free performance, along with superior stability and exceptional beam quality. Jasper Micro is passively cooled and can be mounted in any orientation, enabling easy OEM integration into virtually any workstation.

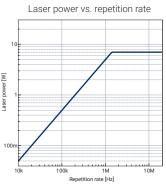












All specifications are subject to change without prior notice due to continuous improvements.



## Reliable ultrafast laser sources for industry

### Light confined in fiber for minimum maintenance and superior stability

#### **Specifications**

Model	JM7 - 5
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#### **Output characteristics:**

Central Wavelength       1030 ± 5 nm         Average Power       > 7 W (1)         Max. Pulse Energy       > 5.0 μJ @1.4 MHz (1)         Pulse Width       < 250 fs @5.0 μJ         Tuning Range       < 250 fs *8 ps (2)         Peak Power       > 20 MW         Pulse Repetition Rate (PRR)       Single-Shot to 20 MHz (2)         Pulse Picker       < 2 MHz         Burst Mode       Optional (4)         Beam Quality, M²       < 1.2 (1.1 typical)         Beam Circularity       > 87%         Beam Divergence       < 1 mrad         Beam Diameter       2.5 ± 0.5 mm (6)         Polarization       Linear Vertical, PER > 28 dB         Beam Pointing Stability - 24h       < 25 μrad (6)         Long Term Power Stability - 72h       < 0.5% (7)		
Max. Pulse Energy   > 5.0 μJ (a)1.4 MHz (f)	Central Wavelength	1030 ± 5 nm
Pulse Width <a href="#">&lt; 250 fs @5.0 µJ</a> Tuning Range <a href="#">&lt; 250 fs -8 ps @</a> Peak Power <a href="#">&gt; 20 MW</a> Pulse Repetition Rate (PRR) <a href="#">Single-Shot to 20 MHz ®</a> Pulse Picker <a href="#">&lt; 2 MHz</a> Burst Mode <a href="#">Optional (4)</a> Beam Quality, M² <a href="#">&lt; 1.2 (1.1 typical)</a> Beam Circularity <a href="#">&gt; 87%</a> Beam Divergence <a href="#">&lt; 1 mrad</a> Beam Diameter <a href="#">2.5 ± 0.5 mm (6)</a> Polarization <a href="#">Linear Vertical, PER &gt; 28 dB</a> Beam Pointing Stability - 24h <a href="#">&lt; 25 µrad (6)</a>	Average Power	> 7 W <sup>(1)</sup>
Tuning Range <a href="#">2 Uning Range</a> Peak Power <a href="#">20 MW</a> Pulse Repetition Rate (PRR) <a href="#">Single-Shot to 20 MHz (®)</a> Pulse Picker <a href="#">2 MHz</a> Burst Mode <a href="#">Optional (*)</a> Beam Quality, M² <a href="#">1.2 (1.1 typical)</a> Beam Circularity <a href="#">&gt;87%</a> Beam Divergence <a href="#">1 mrad</a> Beam Diameter <a href="#">2.5 ± 0.5 mm (®)</a> Polarization <a href="#">Linear Vertical, PER &gt; 28 dB</a> Beam Pointing Stability - 24h <a href="#">&lt; 25 µrad (®)</a>	Max. Pulse Energy	> 5.0 µJ @1.4 MHz <sup>(1)</sup>
Peak Power > 20 MW  Pulse Repetition Rate (PRR) Single-Shot to 20 MHz (3)  Pulse Picker < 2 MHz  Burst Mode Optional (4)  Beam Quality, M² < 1.2 (1.1 typical)  Beam Circularity > 87%  Beam Divergence < 1 mrad  Beam Diameter 2.5 ± 0.5 mm (5)  Polarization Linear Vertical, PER > 28 dB  Beam Pointing Stability - 24h	Pulse Width	< 250 fs @5.0 μJ
Pulse Repetition Rate (PRR)  Single-Shot to 20 MHz (3)  Pulse Picker  < 2 MHz  Burst Mode  Optional (4)  Beam Quality, M²  Seam Circularity  Peam Divergence  Seam Diameter  Polarization  Single-Shot to 20 MHz (3)  A 12 (1.1 typical)  A 1.2 (1.1 typical)  A 1.3 (1.1 typical)  A 1.4 typical  A 1.5 typical  A 2.5 ± 0.5 mm (5)  A 1.5 typical  A 2.5 ± 0.5 mm (5)  A 2.5 ± 0.5 mm (5)  A 3.5 typical  A 3.5 typical  A 4.5 typical  A 5.5 typical  A 6.5 typical  A 7.5 typical  A 7.5 typical  A 8.5 typical  A 9.5	Tuning Range	< 250 fs - 8 ps <sup>(2)</sup>
Pulse Picker < 2 MHz  Burst Mode Optional (4)  Beam Quality, M² <1.2 (1.1 typical)  Beam Circularity > 87%  Beam Divergence <1 mrad  Beam Diameter 2.5 ± 0.5 mm (5)  Polarization Linear Vertical, PER > 28 dB  Beam Pointing Stability - 24h	Peak Power	> 20 MW
Burst Mode Optional (4)  Beam Quality, M² < 1.2 (1.1 typical)  Beam Circularity > 87%  Beam Divergence < 1 mrad  Beam Diameter 2.5 ± 0.5 mm (5)  Polarization Linear Vertical, PER > 28 dB  Beam Pointing Stability - 24h	Pulse Repetition Rate (PRR)	Single-Shot to 20 MHz (3)
Beam Quality, M²  Seam Circularity  Seam Divergence  Seam Diameter  Polarization  Beam Pointing Stability - 24h  Seam Pointing Stability - 24h  Seam Diameter  Seam Diameter  Seam Pointing Stability - 24h	Pulse Picker	< 2 MHz
Beam Circularity> 87%Beam Divergence< 1 mrad	Burst Mode	Optional <sup>(4)</sup>
Beam Divergence     < 1 mrad	Beam Quality, M <sup>2</sup>	< 1.2 (1.1 typical)
Beam Diameter     2.5 ± 0.5 mm <sup>(S)</sup> Polarization     Linear Vertical, PER > 28 dB       Beam Pointing Stability - 24h     < 25 μrad <sup>(6)</sup>	Beam Circularity	> 87%
Polarization Linear Vertical, PER > 28 dB  Beam Pointing Stability - 24h < 25 μrad <sup>(6)</sup>	Beam Divergence	< 1 mrad
Beam Pointing Stability - 24h < 25 µrad <sup>(6)</sup>	Beam Diameter	2.5 ± 0.5 mm <sup>(5)</sup>
· ·	Polarization	Linear Vertical, PER > 28 dB
Long Term Power Stability - 72h	Beam Pointing Stability - 24h	< 25 µrad <sup>(6)</sup>
g	Long Term Power Stability - 72h	< 0.5% (7)
Pulse-to-Pulse Energy Stability - 24 h < 1% (7)	Pulse-to-Pulse Energy Stability - 24 h	< 1% (7)

#### Other characteristics:

Pulse Control	Internal / External Analog Modulation, Pulse Picker, Pulse-on-Demand (8)	
Options	Custom Burst Envelope <sup>(9)</sup> , Harmonic Module - 515 nm, 343 nm, Automated Mechanical Shutter	IEW
Cooling	Air, Passive	
Control Interface	GUI (USB) / SCPI (RS232) / TTL (BNC) / Analog (BNC)	
Umbilical length	2.5 m (more upon request)	
Laser head dimensions (L x W x H)	400 x 230 x 116 mm	IEW
Power supply unit size (L x W x H)	4U 19" rack unit; 495 x 449 x 177 mm	
Operating ambient temperature	15-30°C	
Relative humidity	10 - 80 % (non-condensing)	

- 1. Typical max. power 7.5 W, typical max. pulse energy  $5.5 \mu J$ .
- Extended range < 250 fs 20 ps upon request.</li>
- Max. PRR 20.0 ± 0.5 MHz.
- MHz burst option upon request.
- 1/e², measured at 1 m.
- 6. RMS after 1h warm-up under stable environmental conditions.
- NRMSD under stable environmental conditions.
- 8. Based on pulse picker, with jitter < 750 ns.
- Setting arbitrary burst envelope and adjusting amplitude of individual pulse within a burst.

#### Flexible Power for Demanding Applications:





ting Ophthalmology

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