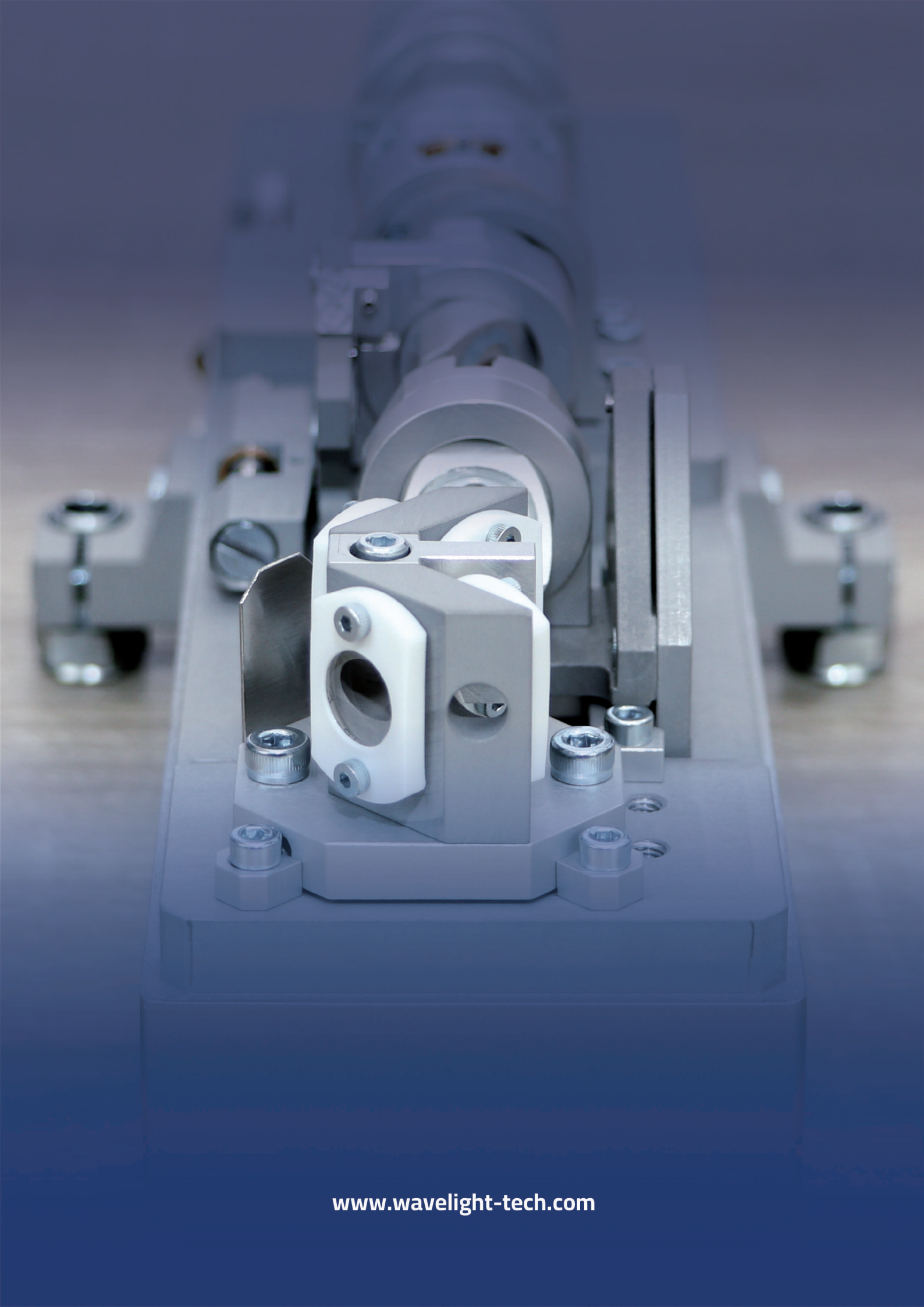




LASER SYSTEMS

www.wavelight-tech.com



ULTRASHORT PULSE PICOSECOND LASERS

For Ultrafast spectroscopy and other advanced applications requiring minimal pulsewidth, Wavelight Technologies offers a range of picosecond lasers. These lasers generate radiation across the IR, VIS, and UV spectral ranges.

By adopting a diode-pumping architecture, these high-tech lasers achieve significantly enhanced performance and reliability. As a result, they are not only ideal for cutting-edge scientific research but also highly suitable for seamless integration into complex measurement and industrial systems.

Models Guide					
Model	Pulsewidth (FWHM)	Max output	Repetition rate	Features	Page
WP100	410-2500 nm	up to 100 mJ	80 MHz	PICOSECOND DPSS LASER	25
WP500	≤ 30 ps	1 mJ @ 1064 nm	1 kHz	Powerful picosecond laser with regenerative amplifier for micromachining	27

For other parameters of the lasers see their particular specifications.



PICOSECOND DPSS LASER WP100



Wavelight Technologies presents the powerful DPSS laser with picosecond pulsewidth. The high peak and average power and excellent long-term stability of the radiation parameters of this laser make it an ideal tool for a wide range of tasks from scientific research to material processing.

The WP100 of picosecond laser has an original optical scheme with longitudinal pumping and uses advanced SESAM® technology to implement mode synchronization. The use of such solutions ensures high quality and stability of laser radiation parameters. The WP100 laser can be easily integrated into any specialized equipment or complex measuring systems due to their compact size and air cooling. The design of the WP100 laser allows it to be used not only in a clean room, but also in laboratories that do not have special Air purification systems.

All the critical elements of the laser are housed inside thermally stabilized and dustproof enclosures, which allows you to work with the laser 24/7 (around the clock) without carrying out any service maintenance work. In the standard configuration of the WP100 the laser is supplied without built-in harmonic generators. However, if you wish, it can be equipped with harmonic generators that will provide highly efficient conversion of radiation into the VIS and UV regions of the spectrum, thus expanding the possibilities of your research in the field of nonlinear optics and laser spectroscopy.

Features

- Diode-pumped
- Sealed housing
- Air cooled
- Compact design
- Low maintenance cost

Application

- Ultrafast spectroscopy
- Nonlinear spectroscopy
- OPO pumping
- Remote laser sensing
- Micromachining



Specifications

Model	WP100
Average power @ 1064 nm @ 532 nm 1)	≥ 6 $\geq 2,4$
Pulse repetition rate, MHz	80 ± 5
Pulsewidth (FWHM), ps	< 30
Beam quality	$TEM_{00} \quad M^2 < 1,5$
Beam diameter, mm	$1 \pm 0,1$
Cooling	water-air
Electrical service	100...240 V, 50/60 Hz, ≤ 600 W
Dimensions, mm: Laser Head (LxWxH) Power Supply (HxWxD) Second Harmonic Generator (LxWxH)	 384 x 183 x 124 410 x 420 x 170 280 x 170 x 124

* Specifications are subject to change without notice.

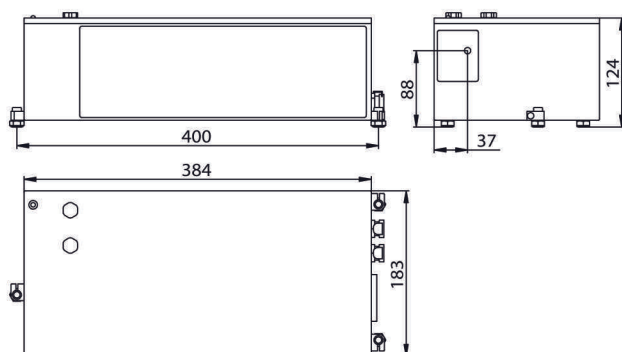
1) With external second harmonic generator WH 500.

Options

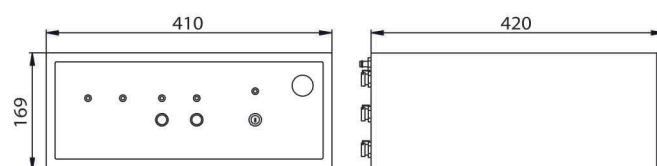
- External harmonic generators
- External attenuators
- Pulse selector (frequency divider)



WP series power supply



The WP100 laser head outline drawing



The WP100 power supply outline drawing



PICOSECOND LASER WITH REGENERATIVE AMPLIFIER WP500 SERIES



WP500 are picosecond lasers combining high energy with short pulsewidth and operating at a pulse repetition rate of 1 kHz.

The WP500 design is optimized for both scientific and industrial applications. The compact, thermostabilized and hermetically sealed design allows the WP500 lasers to be integrated both into various research facilities and into industrial systems or conveyor lines.

Picosecond lasers model WP500 also have a number of additional options, which expand the possibilities of its application.

Features

- Extended operating temperature range
- Built-in harmonic generators
- Pulse energy control system
- Adjustable PRR

Application

- LCD and PCB repair and restoration
- Micromachining
- Marking of metals, glass and plastics
- PIV
- Nonlinear spectroscopy
- Nonlinear optics
- Remote sensing



Specifications

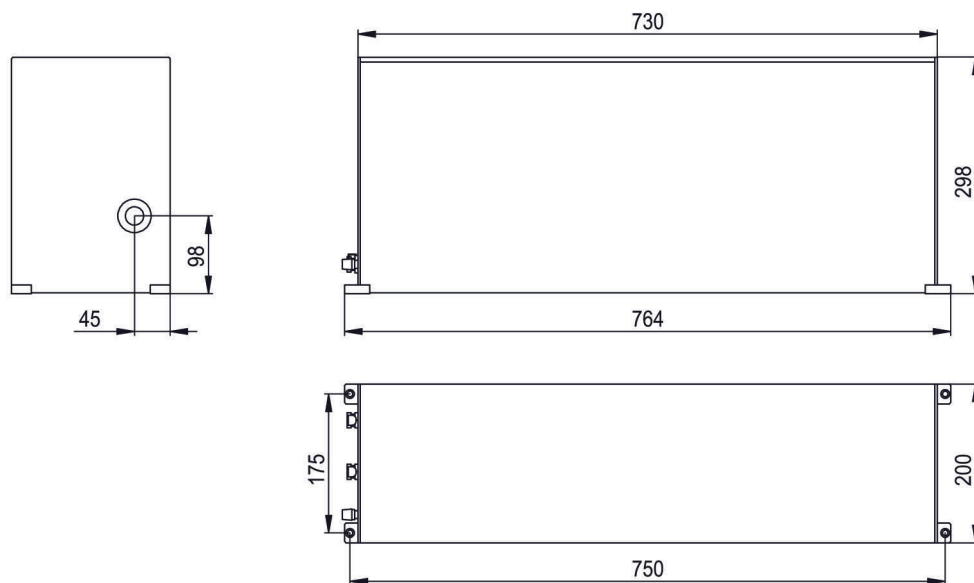
Wavelegth, nm	510, 520, 530, 540
Pulse energy, mJ at 1064 nm at 532 nm at 355 nm at 266 nm	> 1,0 > 0,5 > 0,4 > 0,2
Pulsewidth (FWHM) ¹⁾ , ps	< 30
Pulse energy stability (Std Dev) ¹⁾ , %	± 0,5
Beam diameter at the laser output ¹⁾ , mm	3
Polarization	Linear (>100:1)
Maximum pulse repetition rate, kHz	1
PRR adjustment	PRR reduction by multiples of integers "Burst" mode Single pulse generation
Beam pointing stability ¹⁾ , μrad	≤ 30
Divergence ¹⁾ , mrad	≤ 1
Beam quality ¹⁾ , mrad	≤ 1,3
Dimensions (LxWxH), mm: Laser Head Power Supply	1050 x 460 x 250 2U 19" rack
Electrical service	100-240 V, single-phase, 50/60 Hz

* Specifications are subject to change without notice.

1) With external second harmonic generator WH 500.

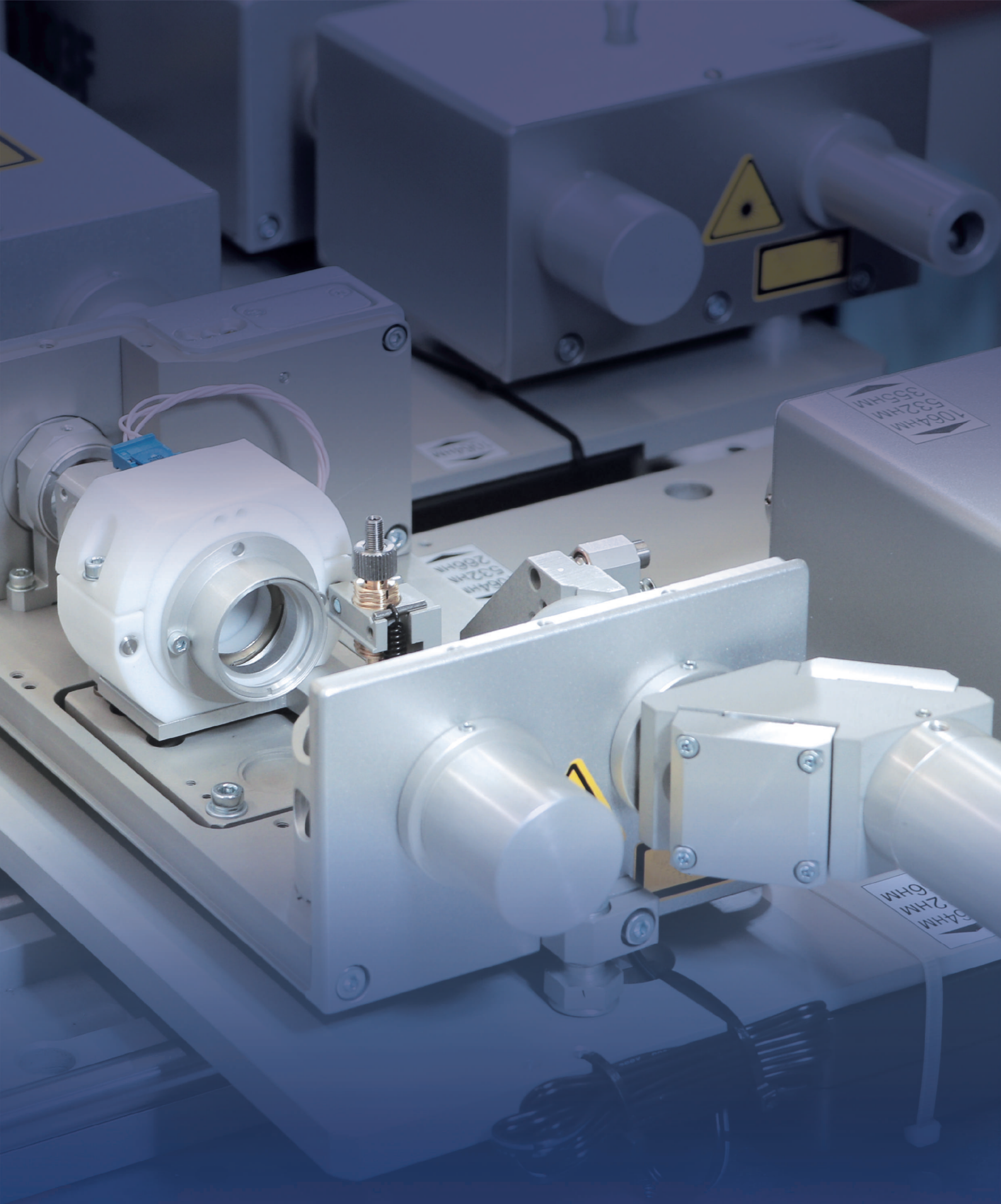
Options

- Built-in harmonic generators
- Built-in attenuators



WP500 laser head outline drawing





ULTRASHORT PULSE FEMTOSECOND LASERS

For Ultrafast spectroscopy and other advanced applications requiring minimal pulsewidth, Wavelight Technologies offers a range of femtosecond lasers. These lasers generate radiation across the IR, VIS, and UV spectral ranges.

By adopting a diode-pumping architecture, these high-tech lasers achieve significantly enhanced performance and reliability. As a result, they are not only ideal for cutting-edge scientific research but also highly suitable for seamless integration into complex measurement and industrial systems.

Models Guide					
Model	Pulsewidth (FWHM)	Max output	Repetition rate	Features	Page
WF105	< 150 fs	5 W @ 1030 nm	70 MHz	Compact femtosecond laser	31
WF107	< 200 fs	7 W @ 1030 nm	70 MHz	Compact femtosecond laser	31

For other parameters of the lasers see their particular specifications.



COMPACT FEMTOSECOND LASERS

WF100 SERIES



WF100 is a series of solid-state femtosecond lasers with high average and pulse power and excellent long-term stability of output radiation parameters.

The active medium in WF100 lasers is pumped using commercially available and reliable laser diodes, which distinguishes them from the complex and expensive pumping circuits used in traditional Ti:Sapphire femtosecond systems. This is why the WF100 series lasers fully combine the compactness and reliability of fiber systems with the advantages of solid-state lasers. The design of the WF100 series lasers guarantees their longterm and stable operation and virtually eliminates the need for service maintenance. The laser operates on the plug and play principle and can be operated by a user not experienced working with laser equipment. Unpretentiousness of the WF100 series lasers is conditioned by the rigid dustproof design with thermal stabilisation of all the critical cavity components.

These design features, as well as the service interval of more than 10,000 hours, can be appreciated by industrial users. Excellent beam quality will satisfy the most demanding requirements of scientists performing fine experiments. And the SESAM® technology used in lasers automatically ensures the implementation of mode synchronization with ideal long-term stability of radiation parameters, which guarantees you the accuracy of your experiments. If you need to use the laser you already have in your laboratory for applications requiring VIS or UV femtosecond radiation, it can be supplemented with the SHG, THG or FHG.

Features

- Air cooled
- Compact dustproof design
- Pulsewidth (FWHM) down to 120 fs
- Long-term stability of radiation parameters
- Second, third and fourth harmonic generators

Application

- Ultrafast spectroscopy
- Nonlinear spectroscopy
- Harmonics generation
- Nonlinear optics
- Micromachining



Specifications

Model	WF105	WF107
Wavelength ¹⁾ , nm	1030 ± 5	1030 ± 5
Average power ²⁾ , W	≥ 5	≥ 7
Pulse energy, nJ	≥ 70	≥ 100
Pulse repetition rate, MHz	70 ± 5	
Pulsewidth (FWHM) ²⁾ , fs	≤ 150	≤ 200
Spectral width (FWHM), nm	≥ 8	≥ 7
Beam quality	TEM ₀₀ ^M ² ≤ 1,2	
Power stability (Std Dev) ³⁾ , %	± 0,5	
Cooling	water-air	
Electrical service	100-240 V, 50 Hz, ≤ 600 W	
Dimensions, mm:		
Laser Head (LxWxH)	400 x 200 x 110	
Power Supply (HxWxD)	410 x 420 x 170	

* Specifications are subject to change without notice.

1) It is possible to supply a laser with an external second, third or fourth harmonic generator.

2) The required power and pulsewidth are specified when ordering.

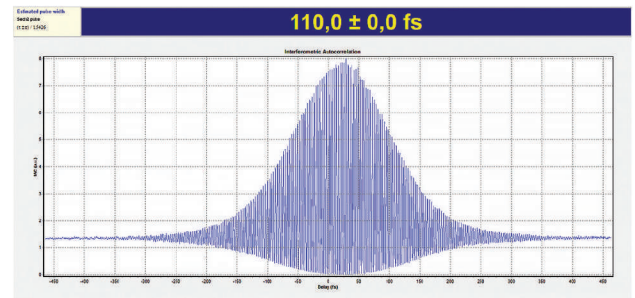
3) Within 12 hours after 30 min warm-up under stable environmental conditions.

Options

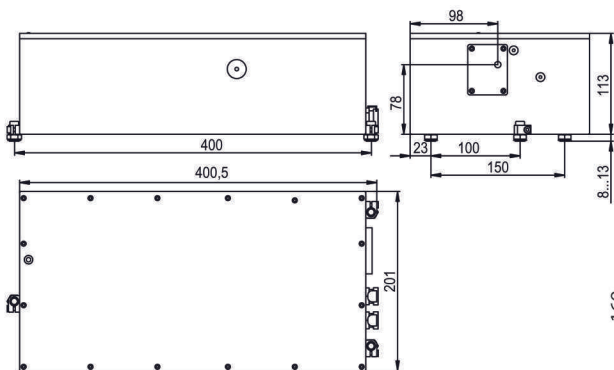
- External harmonic generators
- External attenuators
- Pulse selector (frequency divider)



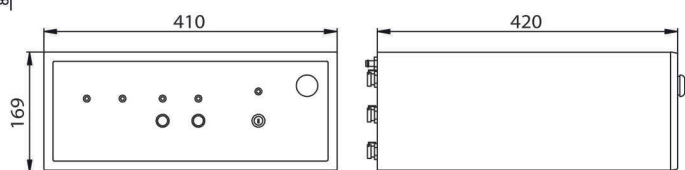
WF series power supply



The WF100 laser autocorrelation curve with pulsewidth (FWHM) of 110 fs



The WF series laser head outline drawing



The WF series power supply outline drawing



