HIGH ENERGY SINGLE-BOX FEMTOSECOND LASER MODULE

ORIGAMI XP

SWISS MADE

NEW FEATURE
- THE FIRST ALL-IN-ONE, AIR-COOLED, MICROJOULE FEMTOSECOND LASER -

Origami XP is the first all-in-one, single-box, microjoule femtosecond laser available on the market. The laser head, controller and air-cooling system are integrated in one box. Being as small as 280 x 498 x 155 mm it even fits into a hand-luggage. Origami XP is based on the unique low noise ultra-stable Origami femtosecond seed laser. A simple and compact chirped pulse amplification system is capable of > **40 µJ** pulse energy, **4 W** average power and pulse duration below **400 fs**. The laser platform offers remote control capability. Origami XP has been designed for the easiest and most cost-effective possible system integration. It comes with removable handles, offers simple through-hole mounting and contains precise mechanical reference planes for simple drop in applications.

OPTIONS:

+ Up to 60 µJ pulse energy
+ Up to 5 W output power
+ UVC 258 nm
+ Synchronization to external clock
+ Picosecond operation
+ Circular polarization
+ Water cooling

MAIN APPLICATIONS:

+ High precision laser surgery
+ Micromachining
+ Plasma generation
+ Nonlinear optics
+ LIBS
+ THz generation

OUTSTANDING FEATURES :

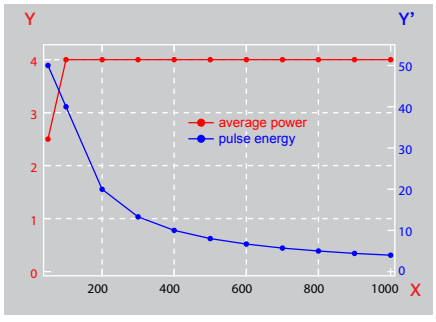
+ Air-cooled, single-box, dust sealed OEM package
+ Mountable in any direction
+ Real-time pulse energy measurement and control
+ Burst mode
+ Excellent pulse quality
+ Outstanding energy and pointing stability
+ Maintenance free – no alignment required
+ Complete remote control
+ 24/ 7 operation

Specifications subject to change without notice, February 2017

ISO 9001 : 2008
ISO 13485 : 2012

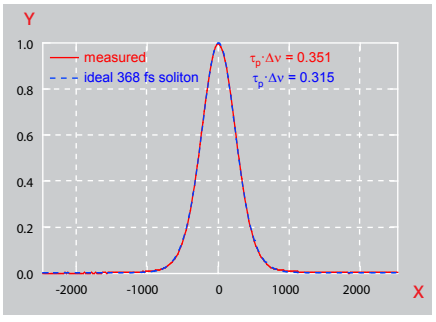
	ORIGAMI - 03 XP	ORIGAMI - 05 XP	ORIGAMI -10 XP
CENTER WAVELENGTH	343 nm	512 nm	1030 nm
PULSE DURATION	<400 fs	<400 fs	<400 fs
AVG. OUTPUT POWER [UP TO]	1 W	2 W	4 W
PULSE ENERGY [UP TO]	10 µJ	20 µJ	40 µJ
PEAK POWER [UP TO]	13 MW	35 MW	100 kW
PULSE REPETITION RATE	single shot – 1 MHz		
SPECTRAL BANDWIDTH	< 1.8 nm	< 2.5 nm	< 4 nm
BEAM QUALITY	M^2 < 1.4, TEM_{00}	M^2 < 1.2, TEM_{00}	M^2 < 1.2, TEM_{00}
ELLIPTICITY	< 1.3	< 1.1	< 1.1
AMPLITUDE NOISE [12 h]	< 4.0 % rms	< 2.0 % rms	< 1.0 % rms
PER	> 23 dB vertical		
ENERGY CONTRAST	23 dB		
POINTING STABILITY	< 30 µrad rms (12 h) const. temp., < 5 µrad/ °C 18-35°C		
LASER OUTPUT	collimated free space		
ENVIRONMENTAL			
WARM-UP TIME	< 10 minutes		
OPERATION TEMPERATURE	18 °C – 32 °C		
STORAGE TEMPERATURE	- 20 °C – 65 °C		
ON/OFF CYCLES	> 10000		
MECHANICAL			
SIZE LASER SYSTEM	280 x 498 x 156 mm^3		
WEIGHT LASER SYSTEM	32 kg		
ELECTRICAL			
POWER SUPPLY	24 VDC / 20 A or 90 – 264 VAC, 47 – 63 Hz		
POWER CONSUMPTION	< 500 W		
COOLING			
LASER SYSTEM	air cooled or water cooled		

OUTPUT POWER VS REPETITION RATE



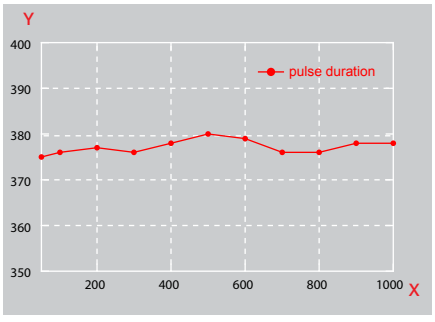
X REPETITION RATE (kHz)
Y AVERAGE OUTPUT POWER (W)
Y' PULSE ENERGY (µJ)

PULSE PROFILE



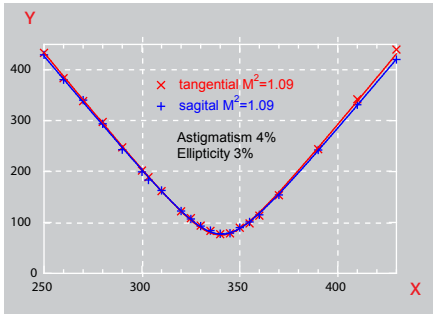
X TIME DELAY (fs)
Y AUTOCORRELATION SIGNAL

PULSE DURATION VS REPETITION RATE



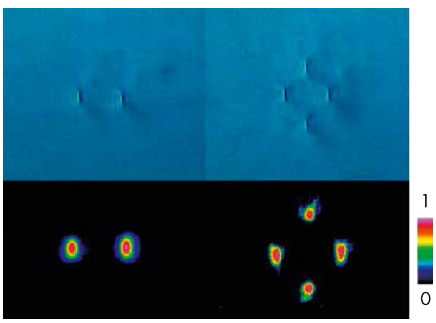
X REPETITION RATE (kHz)
Y PULSE DURATION (fs)

BEAM QUALITY



X DISTANCE (mm)
Y BEAM RADIUS (µm)

APPLICATION



DIRECT LASER INSCRIPTION IN BULK ACRYLIC GLASS USING **ORIGAMI – 10 XP**.
© W. – H. Yuan et al., Optical Materials 49, 110-115, 2015

IEC COMPLIANT PRODUCT
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SHOCK & VIBRATION TEST
IEC 60068-2-27: 2008
IEC 60068-2-6: 2007
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ELECTROMAGNETIC COMPATIBILITY
IEC 61010-1: 2010
IEC 61326-1: 2012
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LASER RADIATION SAFETY
IEC 60825-1: 2014

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