

## HNx High Peak Power Amplified Microchip Series

### Key features

- ▶ 1064nm and 532nm
- ▶ Ultra-short pulses down to 550ps@50kHz
- ▶ Peak power over 100kW
- ▶ Excellent beam quality – TEM00,  $M^2 < 1.1$
- ▶ Efficient, air-cooled
- ▶ Sealed package, extremely long life



**The PicoSpark™ series combines multi-watt output level with high repetition rate and exceptional pulse characteristics to provide the best price/quality ratio for micromachining application.**

**Passively Q-Switched (PQS) microchip laser technology and fiber amplification are brought together, delivering pulses with hundreds of kilowatt peak power and hundreds of gigawatt per square centimeter power density in a sealed and air-cooled compact package.**

**This Master Oscillator Fiber Amplifier (MOFA) architecture notably offers a full control over the pulse energy (or peak power) while leaving unchanged the pulse width and pulse shape.**

### Applications

- ▶ Micromachining
  - Selective ablation of  $\mu\text{m}$  to nm scale layers
  - Edge isolation
  - Cutting from PCB to PCD with no heat effect
- ▶ Instrumentation
  - Laser Induced Breakdown Spectroscopy
  - Raman spectroscopy
  - Supercontinuum generation
  - Ranging
  - Differential absorption LIDAR
- ▶ Biophotonics
  - Dense tissue ablation
  - Tattoo removal
  - Micro-surgery

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**Technical specifications:**

	<b>HNP-50F-100<sup>(6)</sup></b>	<b>HNG-50F-100<sup>(6)</sup></b>
<b>Wavelength</b>	1064nm	532nm
<b>Repetition Rate</b>	>45kHz	>45kHz
<b>Constant Pulse width range (FWHM)<sup>(1)</sup></b>	<0.75ns	<0.65ns
<b>Output power<sup>(2)</sup></b>	>5W	>3W
<b>Output energy</b>	>100μJ	>60μJ
<b>Peak Power</b>	>130kW	>100kW
<b>Short term(10min) power stability<sup>(3)</sup></b>	<±2%	<±2%
<b>Long term (6 hrs) power stability<sup>(3)</sup></b>	<±5%	<±5%
<b>Beam profile</b>	Gaussian TEM00	Gaussian TEM00
<b>Beam diameter at output</b>	3mm±0.5mm	0.65mm±0.2mm
<b>Full angle divergence @1/e<sup>2</sup></b>		
<b>Horizontal</b>	<2 mrad	3±1 mrad
<b>Vertical</b>	<2 mrad	3±1 mrad
<b>M<sup>2</sup><sup>(4)</sup></b>	<1.2	<1.2
<b>Beam ellipticity<sup>(5)</sup></b>	<1.20	<1.22
<b>Polarization</b>	Linear PER>20dB	Linear PER>20dB
<b>Energy control function</b>	RS232, Analog 0-5V	RS232, Analog 0-5V
<b>Gating function</b>	TTL 0-5V	TTL 0-5V
<b>Options included</b>	S	S

**Notes**

- (1)** Measured with 1Ghz photodiode and 1GHz/10GS/s oscilloscope.
- (2)** Measurement performed with an OPHIR thermal power sensor (OPHIR 3A-FS-SH)
- (3)** For temperature variation < ± 3°C and < 3°C/hour, stability is measured with calorimeter - detector band [DC, 2Hz]
- (4)** Mean average value  $M = \sqrt{XY}$ , X and Y being respectively the major and minor axis of the ellipse
- (5)** Beam ellipticity is calculated as the ratio of the main axis far field divergence
- (6)** Contact factory for availability

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### Complementary information & options:

#### Environment Parameters

<b>Operating Temperature Range</b>	15-30°C
<b>Maximum Power Consumption</b>	<600W
<b>Storage Temperature</b>	0-50°C
<b>Shock of 11ms according to IEC 68-2-27, non operating</b>	25g
<b>Vibration 5Hz to 500Hz sinusoidal according to IEC 68-2-6</b>	2g

#### Certification

<b>Laser classification according to IEC 60825-1:2007</b>	4
<b>CDRH compliance</b>	Yes
<b>ROHs</b>	Yes

#### Package

<b>Laser Head dimensions, LxWxH<sup>(7)</sup></b>	429x250x120mm
<b>Laser Head weight</b>	9kgs
<b>Cable length between head and controller</b>	2m
<b>Controller dimensions, LxWxH</b>	483x390x88mm
<b>Controller weight</b>	10kgs

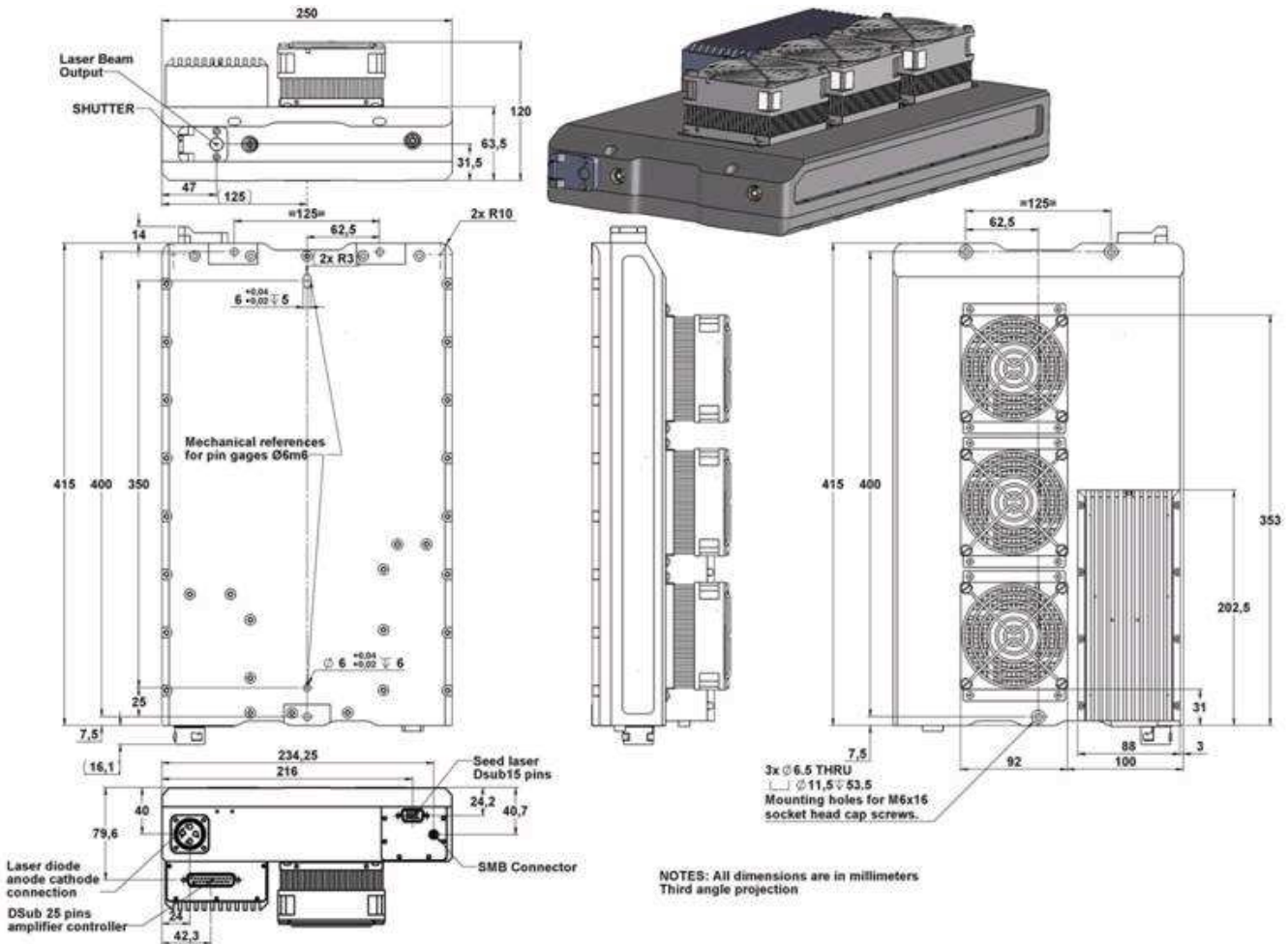
#### Options

<b>Synchronization output (S)</b>	TTL compatible output signal for synchronization/monitoring
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**CDRH Laser Head Mechanical Drawings**



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## CDRH Controller Mechanical Drawings

