

Powerlite™ Precision II 9000



PRECISION II FEATURES & BENEFITS

<5 Minutes to reach full energy
at all wavelengths

<30 Minutes to reach <±30 μrads
beam pointing stability

Can be injection seeded
for narrow bandwidth allowing
pumping of a narrow band OPO,
mixing with a dye laser, or for
high resolution experiments

Laser head can be readily
removed for lamp changes and
replaced without realignment

Incorporates Gaussian optics
pioneered by Continuum®
to provide high spatial
uniformity in the beam

Laser package physically bolts
to tunable laser products such as
ND6000, Panther® EX OPO or
Sunlite™ EX OPO for enhanced
stability and ease of use

Fully CE certified

POWERLITE™ 9000 SPECIFICATIONS

| DESCRIPTIONS | 9010 | 9020 | 9030 | 9050 | PLUS |
|---|----------|----------|----------|----------|----------|
| Repetition Rate (Hz) | 10 | 20 | 30 | 50 | 10 |
| Energy (mJ) | | | | | |
| 1064 nm | 2000 | 1800 | 1600 | 1200 | 3000 |
| 532 ¹ nm | 1000 | 900 | 800 | 600 | 1500 |
| 355 ² nm | 550 | 475 | 400 | 350 | 800 |
| 266 nm | 160 | 110 | 90 | 75 | 160 |
| Pulsewidth ³ (nsec) | | | | | |
| 1064 nm | 5-9 | 5-9 | 5-9 | 5-9 | 5-9 |
| 532 nm | 4-8 | 4-8 | 4-8 | 4-8 | 4-8 |
| 355 nm | 3-7 | 3-7 | 3-7 | 3-7 | 3-7 |
| 266 nm | 3-6 | 3-6 | 3-6 | 3-6 | 3-6 |
| Linewidth ⁴ (cm ⁻¹) | | | | | |
| Standard | 1 | 1 | 1 | 1 | 1 |
| Injection Seeded, SLM | 0.003 | 0.003 | 0.003 | 0.003 | 0.003 |
| Divergence ⁵ (mrad) | 0.45 | 0.45 | 0.50 | 0.50 | 0.45 |
| Beam Pointing Stability ⁶ (±μrad) | 30 | 30 | 30 | 30 | 30 |
| Warm up time ⁷ (<min) | 5 | 5 | 5 | 5 | 5 |
| Jitter ⁸ (±ns) | | | | | |
| Unseeded | 0.5 | 0.5 | 0.5 | 0.6 | 0.5 |
| Seeded | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| Energy Stability ⁹ (±%) | | | | | |
| 1064 nm | 2.5; 0.8 | 2.5; 0.8 | 2.5; 0.8 | 3.0; 1.0 | 2.5; 0.8 |
| 532 nm | 3.0; 1.0 | 3.0; 1.0 | 3.0; 1.0 | 4.0; 1.3 | 3.0; 1.0 |
| 355 nm | 4.0; 1.3 | 4.0; 1.3 | 4.0; 1.3 | 6.0; 2.0 | 4.0; 1.3 |
| 266 nm | 8.0; 2.6 | 8.0; 2.6 | 9.0; 3.0 | 9.0; 3.0 | 8.0; 2.6 |
| Power Drift ¹⁰ (±%) | | | | | |
| 1064 nm | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 |
| 532 nm | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| 355 nm | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| 266 nm | 8.0 | 8.0 | 8.0 | 8.0 | 8.0 |
| Beam Spatial Profile (Fit to Gaussian) ¹¹ | | | | | |
| Near Field (<1m) | 0.7 | 0.7 | 0.7 | 0.65 | 0.7 |
| Far Field (∞) | 0.95 | 0.90 | 0.90 | 0.90 | 0.95 |
| Max Deviation from fitted Gaussian ¹² (±%) | | | | | |
| Near Field (<1m) | 40 | 40 | 40 | 40 | 40 |
| Service Requirements | | | | | |
| 220 or 240 VAC, single Φ | 14A | 21A | 24A | N/A | 21A |
| 208 VAC 3 Φ | 8A | 13A | 15A | 18A | 13A |
| Water GPM at 40-60 PSI | 1-2 | 1-2 | 2-3 | 2-3 | 1-2 |

NOTES

- Using Type II doubler
- Using Type I doubler
- FWHM full width half max
- FWHM (1cm⁻¹=30 GHz)
- Full angle for 86% (1/e²)
- 99.9% shots will be <±30 μrads with ΔT room <±3°C
- Time to reach full energy
- With respect to external trigger
- The first value represents shot-to-shot for 99.9% of pulses, the second value represents RMS.
- Average for 8 hours with ΔT±3°C
- A least squares fit to a Gaussian profile
A perfect fit would have a coefficient of 1
- Within FWHM points near field at 1 meter

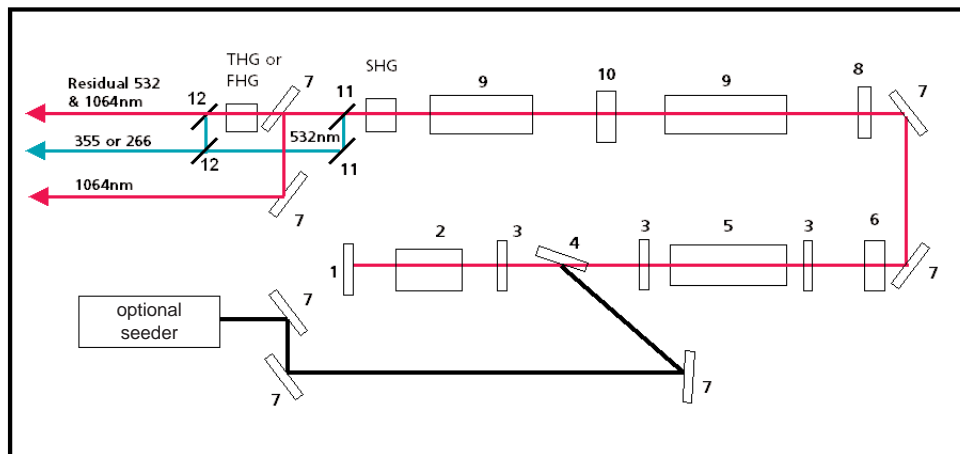
All specifications at 1064 nm unless otherwise noted.
As a part of our continuous improvement program, all specifications are subject to change without notice.

The Powerlite™ Precision II 9000 series is the no compromise laser source for applications where energy and beam quality are required. The Precision II 9000 series is the ideal pump source for OPO's such as Continuum's Sunlite™ EX OPO, or Panther® EX OPO, or a dye laser such as ND6000. The Gaussian mirror coupled resonator is optimally mode filled for maximum energy extraction allowing amplification to >3 J / pulse. The Gaussian mirror coupled resonator can be injection seeded (US Patent # 4,918,704) for narrow bandwidth.

MECHANICAL AND UTILITIES

| | | |
|---------------------------|--------------------------|---|
| Size | Optical Head (L x W x H) | 1190 x 457 x 300 mm (46.8 x 18 x 11.75 in) |
| | Power Supply (L x W x H) | 715 x 622 x 922 mm (28.2 x 24.5 x 36.3 in) |
| Water | Service | 1 - 3 GPM (gallons / minute) at 10 - 40 PSI pressure drop |
| | Temperature | <22° C / 70° F (higher flow rate for higher temperature) |
| Electrical Service | | 220 or 240 VAC, single Φ , 16 to 20 A |
| | | 208 VAC , 3 Φ , 18 A / Φ |
| Room Temperature | | 18 to 30° C / 65 to 87° F |
| Umbilical Length | | 3.81 m (12.5 ft) |

POWERLITE™ PRECISION II 9000 OPTICAL LAYOUT



1. Rear Mirror
2. Pockels Cell
3. 1/4 Wave Plate
4. Dielectric Polarizer
5. Oscillator Head
6. Output Coupler
7. IR Mirror
8. 1/2 Wave Plate
9. Amplifier Head
10. Rotator
11. Dichroics, 532 nm
12. Dichroics, 355 or 266nm

POWERLITE™ PRECISION II 9000 PHYSICAL LAYOUT

All dimensions in mm (inches)
Legs adjustable \pm 12 mm

