

PNx High Peak Power Powerchip Series



KEY FEATURES

- Peak power up to 200 kW
- Pulse width down to 350 ps
- 1064, 532, 355 and 266 nm
- Single shot to 1000 Hz
- Excellent beam quality, TEM00 $M^2 < 1.1$
- All-in-one package

The PowerChip™ passively Q-switched MicroChip lasers offer the highest peak powers and shortest pulses at kilohertz repetition rates with an excellent beam quality. They feature a completely integrated platform which includes the laser head, power supply and air cooling in a compact, rugged, and turnkey package.

APPLICATIONS

- Materials processing
 - Inscribing glass
 - Via drilling printed circuit boards
 - Micromachining
- MALDI-TOF
- Microdissection
- Laser Induced Fluorescence (LIF)
- Time Resolved Fluorescence
- Laser Induced Breakdown
- Spectroscopy (LIBS)
- Light Detection and Ranging (LIDAR)

TECHNICAL SPECIFICATIONS

| | PNP-M08010 1x0 | PNG-M02010 1x0 | PNG-M04005 1x0 | PNV-M02510 1x0 | PNU-M01210 1x0 ⁽⁶⁾ |
|--|-------------------|-------------------|-------------------|-------------------|----------------------------------|
| Wavelength | 1064nm | 532nm | 532nm | 355nm | 266nm |
| Max Repetition Rate RR_{max}⁽¹⁾ | 1000Hz | 1000Hz | 500Hz | 1000Hz | 1000Hz |
| Constant Pulse width range (FWHM) | <500ps | <400ps | <400ps | < 350ps | <350ps |
| Output energy | >80μJ | >20μJ | >35μJ | > 25μJ | >12μJ |
| Peak Power | >160kW | >50kW | >80kW | > 60kW | >35kW |
| Short term (1min) pulse to pulse stability 1σ | ≤ 1 % | ≤ 3 % | ≤ 3 % | ≤ 3 % | ≤ 3 % |
| Long term (1h) output power stability⁽²⁾ | ± 3% | ± 3% | ± 3% | ± 5% | ± 5% |
| Beam profile | Gaussian TEM00 | Gaussian TEM00 | Gaussian TEM00 | Gaussian TEM00 | See note ⁽⁵⁾ |
| Beam divergence (Full@1/e²) | | | | | |
| Horizontal | 2.0±0.5mrad | 1.8±0.5mrad | 5.0±1mrad | 3.3±0.5mrad | <0.9mrad |
| Vertical | 2.0±0.5mrad | 1.8±0.5mrad | 4.0±1mrad | 3.0±0.5mrad | <0.9mrad |
| M²⁽³⁾ | <1.3 | <1.3 | <1.3 | <1.3 | <1.4 |
| Beam ellipticity⁽⁴⁾ | <1.3 | <1.3 | <1.3 | <1.3 | - |
| Polarization | > 20 dB | > 20 dB | > 20 dB | > 20 dB | > 20 dB |

NOTES

- (1) See options p3
- (2) For temperature variation $\pm 3^{\circ}\text{C}$ and $<3^{\circ}\text{C}/\text{hour}$
- (3) Mean average value $M = \sqrt{XY}$, X and Y being respectively the major and minor axis of the ellipse
- (4) Beam ellipticity is calculated as the ratio of the main axis far-field divergence.
- (5) Beam exhibits different profile in horizontal (Gaussian) and vertical ($(\sin x/x)^2$ in far-field) plans
- (6) Contact factory for availability
- (7) More compact separated laser head and electronics package may be available upon request – Contact factory for further details

COMPLEMENTARY INFORMATION & OPTIONS:

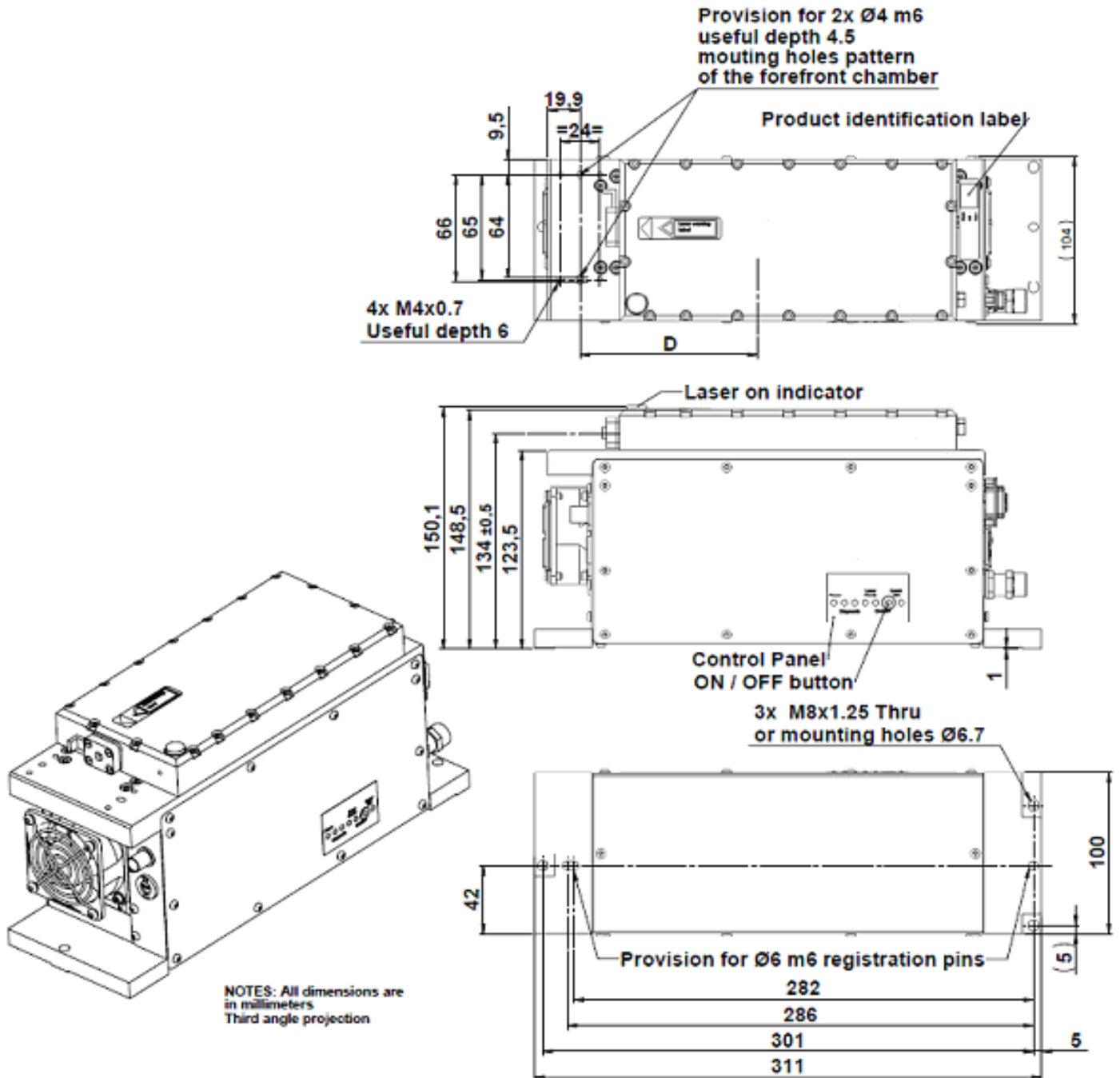
| Environment parameters | |
|--|----------|
| Operating Temperature | 20-35 °C |
| Maximum Power Consumption | <75 W |
| Storage Temperature | 0-50 °C |
| Shock of 11ms according to IEC 68-2-27, non operating | 25 g |
| Vibration 5Hz to 500Hz sinusoidal according to IEC 68-2-6, non operating | 2 g |

| Certification | |
|--|--|
| Laser Classification according to IEC 60825-1:2007 | Class 3B Except PNU : Class 4 |
| CDRH | Yes if used with PCR-240500-100 power supply |
| ROHs | Yes |

| Package | |
|--|----------------|
| Laser Head dimensions, LxWxH ⁽⁷⁾ | 311x100x149 mm |
| Laser Head weight | 5.5 kgs |
| PCR-240500-100 AC/DC converter dimensions, LxWxH | 315x262x77 mm |
| PCR-240500-100 AC/DC converter weight | 3 kgs |

| Options | |
|---|---|
| Fixed Repetition Rate = RR _{max} | -100 version |
| Fixed Repetition Rate ≠ RR _{max} | -110 version ; RR to be chosen over 10Hz-RR _{max} |
| External Variable Repetition Rate | -120 version ; single shot to RR _{max} , 1 optimized RR value |
| External Variable Multi-Repetition Rate | -130 version ; single shot to RR _{max} , 3 optimized RR values |

MECHANICAL DRAWINGS : CDRH LASER HEAD



MECHANICAL DRAWINGS : PCR-240500-100 (CDRH COMPLIANT AC/DC CONVERTER)

