PNx High Peak Power Powerchip Series

Key features

- **Peak power up to 200kW**
- **Pulse width down to 350ps**
- **1064nm, 532nm, 355nm and 266nm**
- **Single shot to 1000Hz**
- **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 Vertical	2.0±0.5mrad 2.0±0.5mrad	2.0±0.5mrad 2.0±0.5mrad	5.0±1mrad 4.0±1mrad	3.3±0.5mrad 3.0±0.5mrad	<0.9mrad <0.9mrad
M^2 (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 <±3°C and <3°C/hour
(3)	Mean average value M = √(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 leaser head and electronics package may be available upon request – Contact factory for further details

Complementary information & options:

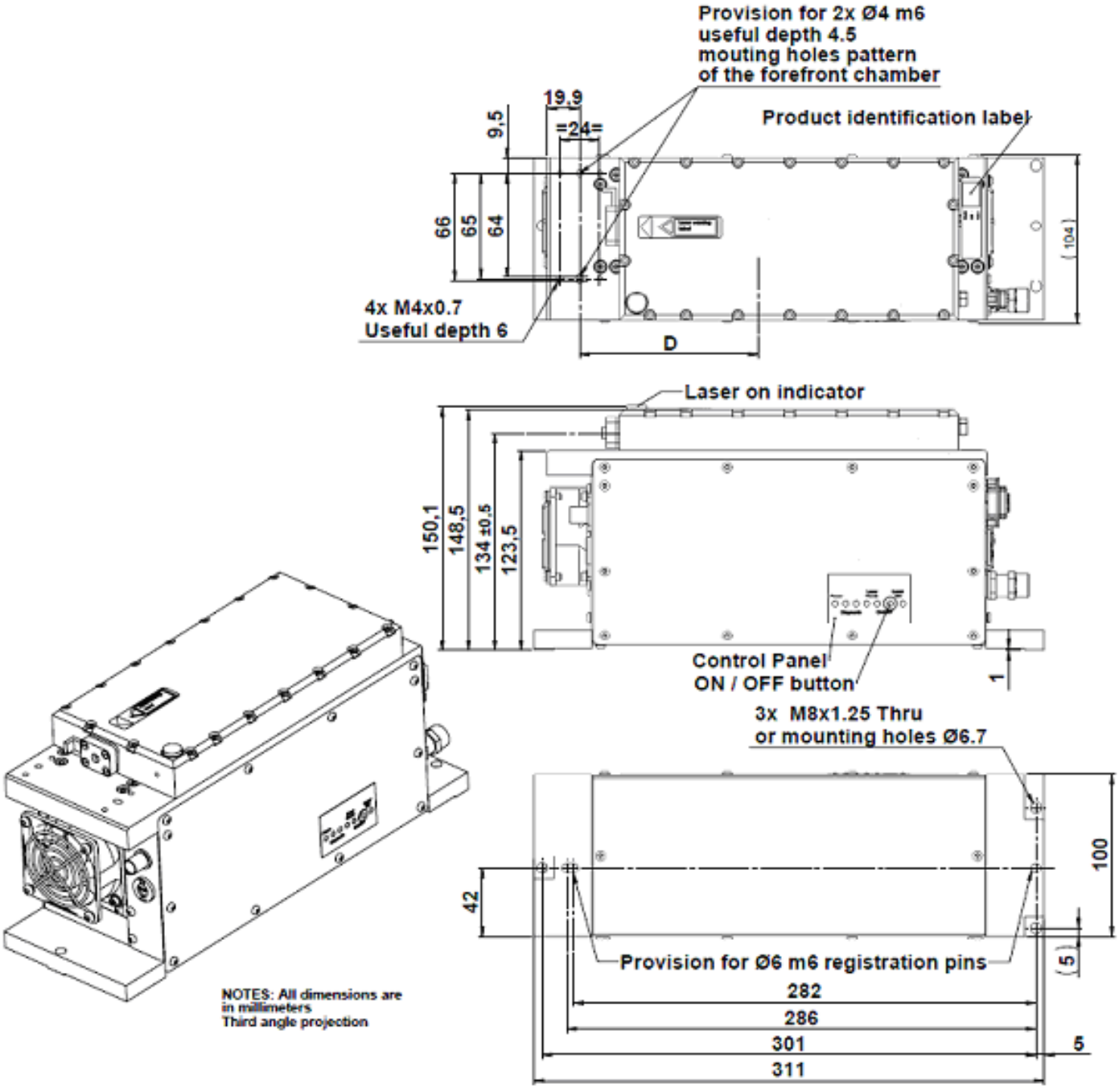
Environment parameters	
Operating Temperature	20-35 °C
Maximum Power Consumption	<75 W
Storage Temperature	0-50 °C
Shock of 11ms according to IEC 68-2-27, non operating	25 g
Vibration 5Hz to 500Hz sinusoidal according to IEC 68-2-6, non operating	2 g

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

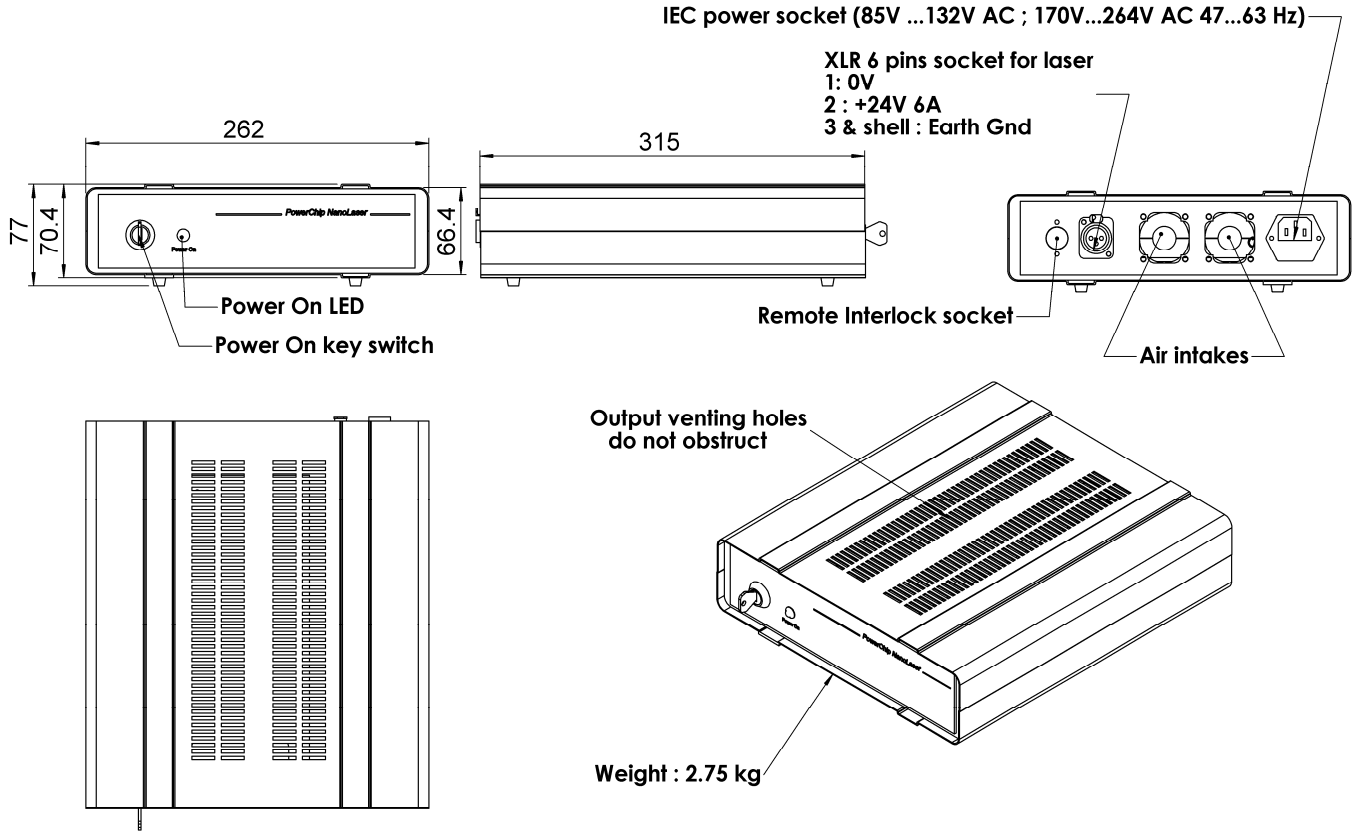
Package	
Laser Head dimensions, LxWxH(7)	311x100x149 mm
Laser Head weight	5.5 kgs
PCR-240500-100 AC/DC converter dimensions, LxWxH	315x262x77 mm
PCR-240500-100 AC/DC converter weight	3 kgs

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)



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GMP SA Main office: Avenue des Baumettes 17 CH-1020 Renens Tél. 021 633 21 21 Fax. 021 633 21 29 info@gmp.ch
GMP SA Büro Zürich: Dübendorfstrasse 11a CH-8117 Fällanden Tel. 044 825 34 00 Fax. 044 825 34 01 info@gmp.ch