

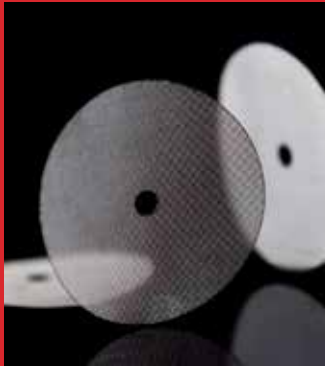
p100 CO₂ Laser

Industrial pulsed laser with more than 400 Watts of peak power for precision marking, drilling and cutting applications

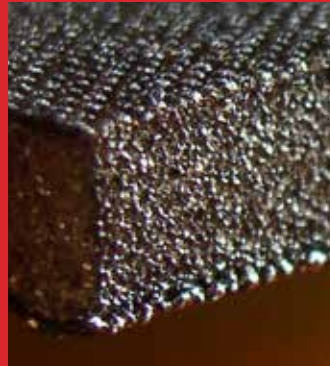


High performance pulsed CO₂ laser engineered for optimal power stability, excellent beam quality, and fastest pulse rise time delivers exceptional quality on the most challenging materials

- 400 watts of peak power delivers energy more efficiently, minimizing heat affected zone (HAZ) to better process sensitive materials such as thin films, glass, and ceramics
- Integrated beam conditioning guarantees a high quality, circular output beam for precise cutting, drilling, and intricate feature details
- Extremely fast pulse rise time of 40 μ s translates to increased throughput capacity and minimal wasted energy
- Small footprint and light weight package saves precious space for compact machine design



Cutting Fine Filter Material



Cutting Multi-Layer Materials

Clean, Precise Cuts on Sensitive Materials

The p100 has high peak power and fast pulse rise/fall times that limit the heat affected zone (HAZ), delivering cuts and perforations with minimal melt lips and discoloration. With zero contact to the target material, the p100 is the perfect solution for precise cutting and processing of sensitive materials.



Specifications

Output Specifications		
Wavelength	10.2 μ m	10.6 μ m
Average Output Power ¹	>90 W	>100 W
Peak Pulse Power (typical) ²	375 W	400 W
Peak Pulse Energy (maximum) ³	180 mJ	190 mJ
Power Stability (cold start) ⁴	\pm 7%	
Power Stability (typical, after 3 min.)	\pm 5%	
Beam Quality (M ²)	<1.2	
Beam Diameter ⁵	7.5 mm \pm 1.1 mm	8.0 mm \pm 1.0 mm
Divergence (full angle)	1.8 mrad \pm 0.4 mrad	2.0 mrad \pm 0.4 mrad
Ellipticity	<1.2	
Polarization	Linear (Vertical)	
Rise/Fall Time ⁶	<40 μ s / <80 μ s	<40 μ s / <100 μ s
Operating Frequency	0 - 100 kHz	
Duty Cycle Range	\leq 37.5%	
Maximum Pulse Length	600 μ s	
Power Supply		
DC Input Voltage	48 VDC	
Maximum Current	40 A	
Pulsed Current	75 A for < 700 μ s	
Cooling		
Maximum Heat Load	2000 W	
Coolant Temperature	18 - 22° C (water)	
Minimum Flow Rate	1.5 GPM, <60 PSI	
Environmental		
Operating Ambient Temperature	15 - 40° C	
Maximum Humidity	95%, non-condensing	
Physical		
Dimensions (LxWxH) mm (inches)	590 x 132 x 155 (23.2 x 5.2 x 6.1)	
Weight	13.6 kg (30.0 lbs.)	

1 - Power level guaranteed for 2 years from date of shipment, regardless of operation hours, within recommended coolant flow rate and temperature range.

2 - Measured at 1 kHz, 10% duty cycle

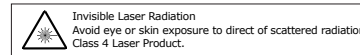
3 - Measured from average power at 625 Hz, 37.5% duty cycle.

4 - Measured as $\pm(P_{max} - P_{min}) / (P_{max} + P_{min})$ from cold start at 5 kHz, 37.5% duty cycle.

5 - Measured 1/e² diameter at laser output

6 - Measured at 1 kHz, 10% duty cycle.

Specifications are subject to change without notice.

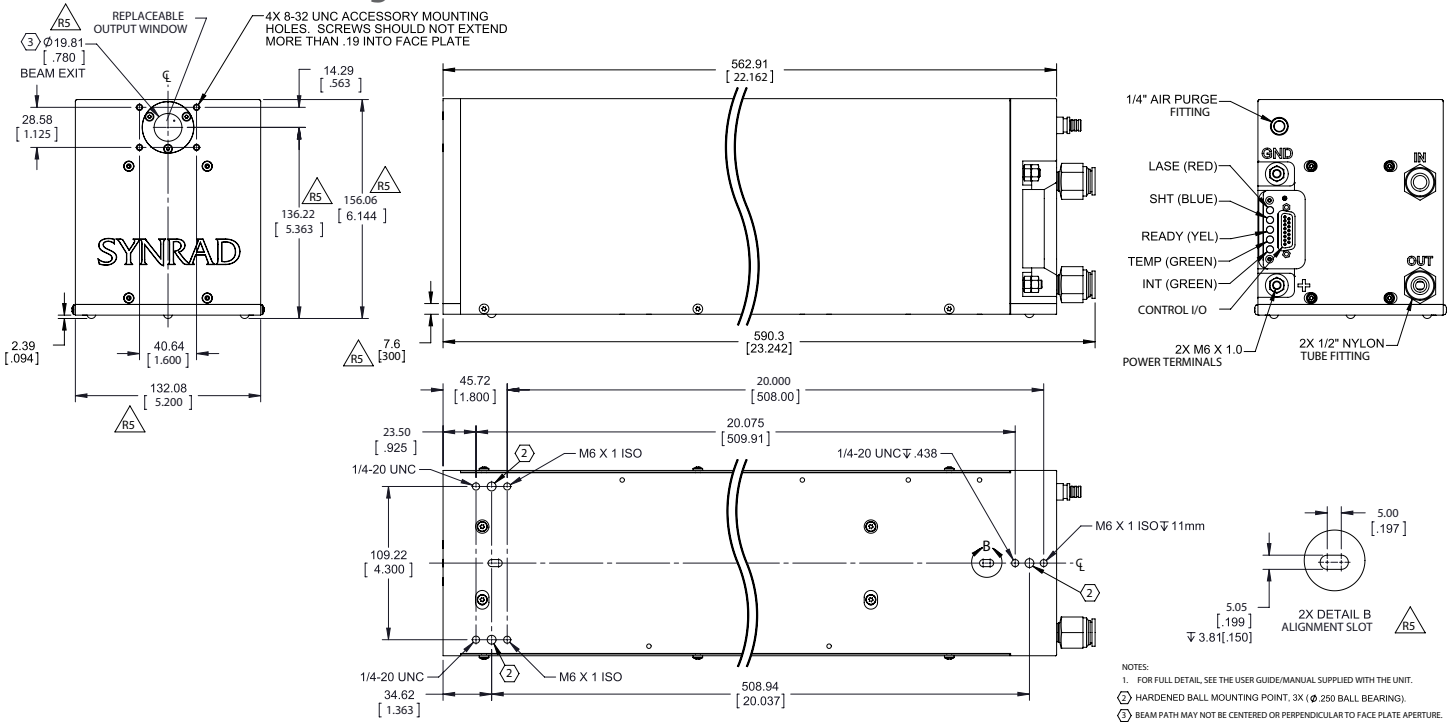


SYNRAD

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p100 CO₂ Laser

Outline and Mounting Illustrations dimensions are in mm (inches)



Recommended Applications



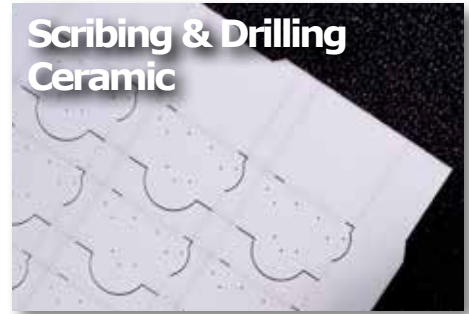
Cutting Textiles

A common issue when cutting many natural and synthetic textile materials is charring or melting of the cut edge due to excessive heat build-up in the material. The high peak power and fast pulse rise time of the p100 laser eliminates this issue and expands the range of materials processed with excellent results.



Processing Packaging Materials

The p100 delivers high-speed non-contact drilling and perforating of packaging films and pouches; perfect for easy-open or breathability of perishables.



Scribing & Drilling Ceramic

The high peak power of the p100 is essential to minimizing heat build-up when processing brittle materials such as alumina, ceramic and quartz glass. Without this, the processed areas are prone to cracking and mechanical degradation. For high speed drilling of these materials, the excellent beam quality of the p100 allows for very small features and symmetric holes.

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