

# ti Series High Stability CO<sub>2</sub> Lasers

Compact, highly stable lasers with over 60, 80, or 100 Watts of average power for precision marking, cutting, and 3D printing applications



High performance CO<sub>2</sub> lasers engineered for optimal power stability and integration into compact, industrial systems

- Ensure highly consistent marking, cutting, and printing quality with power stability better than ±2%
- Choose the most effective and economical average power for your system, available in 60, 80, and 100 W models
- Fast rise/fall times minimize wasted heat energy, ensuring higher quality results and faster processing speeds
- Utilize space efficiently with the same compact footprint of the standard ti series lasers
- Maximize design flexibility with consistent beam exit height across all lasers in the ti and vi series
- Patented taper technology delivers a high quality, circular output beam without the need for expensive corrective optics



## SLS 3D Printing

The ti Series High Stability CO<sub>2</sub> lasers are well suited for selective laser sintering (SLS) of various polymers. Excellent power stability combines with 60, 80, and 100 W power levels to enable easy integration into multiple sized machines to accommodate varying sizes of finished parts. The best choice for 3D printing equipment OEMs for maximum design flexibility.

## Specifications

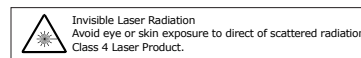
Laser Models	ti60-HS	ti80-HS	ti100-HS
<b>Output Specifications</b>			
Wavelength	10.6 μm		
Output Power <sup>1</sup>	>60 W	>80 W	>100 W
Power Stability (cold start) <sup>2</sup>	±4%		
Power Stability (guaranteed after 3 min.) <sup>3</sup>	±2%		
Beam Quality (M <sup>2</sup> )	<1.2		
Beam Diameter <sup>4</sup>	2.0 mm ± 0.3 mm		
Divergence (full angle)	<7.0 mrad		
Ellipticity	<1.2		
Polarization	Linear (Vertical)		
Rise Time	<75 μs		
Operating Frequency	0 - 160 kHz		
<b>Power Supply</b>			
DC Input Voltage	48 VDC		
Maximum Current	18.0 A	22.0 A	35.0 A
<b>Cooling</b>			
Maximum Heat Load	900 W	1200 W	1700 W
Coolant Temperature	18-22° C (water)		
Minimum Flow Rate	1.0 GPM, <60 PSI		
<b>Environmental</b>			
Operating Ambient Temperature	15 - 40° C		
Maximum Humidity	95%, non-condensing		
<b>Physical</b>			
Dimensions (LxWxH) mm (inches)	544 x 104 x 150 (21.4 x 4.1 x 5.9)		
Weight kg (lbs.)	19.0 (42.0)		

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 from cold start as  $\pm(P_{max}-P_{min})/(P_{max}+P_{min})$

3 - Measured after 3 minutes

4 - Measured 1/e<sup>2</sup> diameter at laser output.

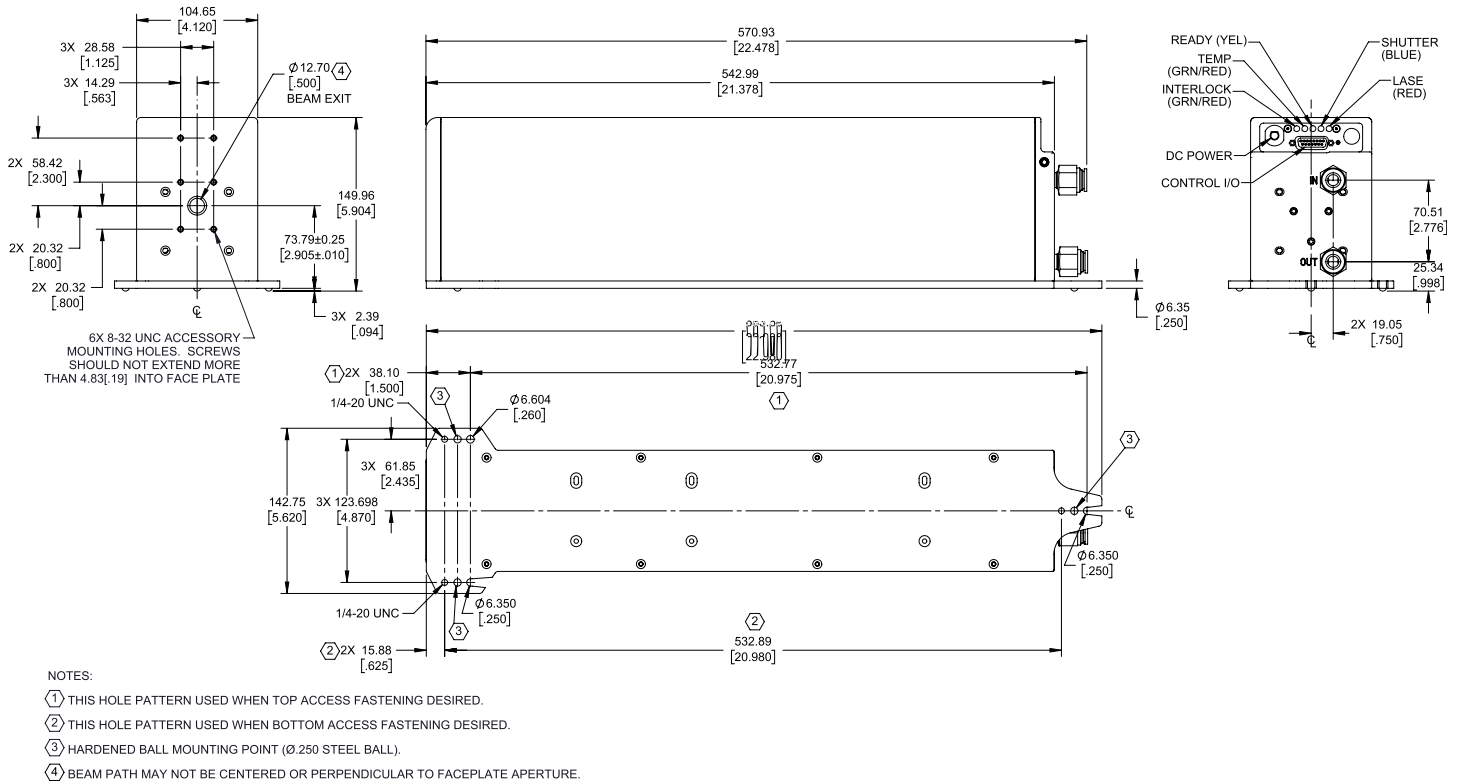


# SYNRAD

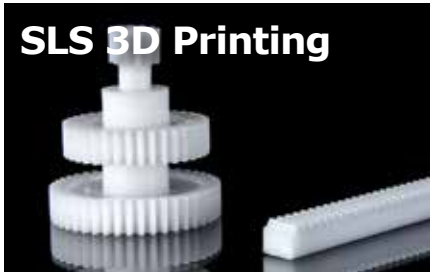
A Novanta Company

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Technical Illustrations dimension are in mm (inches)



## Recommended Applications



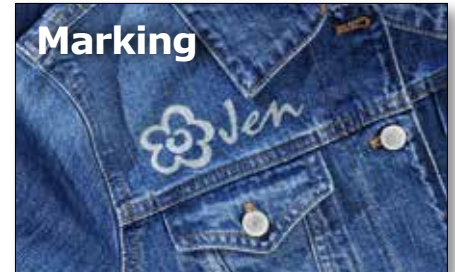
**SLS 3D Printing**

Excellent power density stability and a range of power levels make the ti Series High Stability CO<sub>2</sub> lasers the best choice for 3D printing equipment OEMs.



**Cutting**

Precise cutting and engraving applications benefit from the ti Series High Stability CO<sub>2</sub> lasers, delivering excellent detail and clean cut edges.



**Marking**

High power density stability and fast rise/fall times makes the ti Series High Stability lasers an excellent choice for sensitive marking applications, like denim.

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