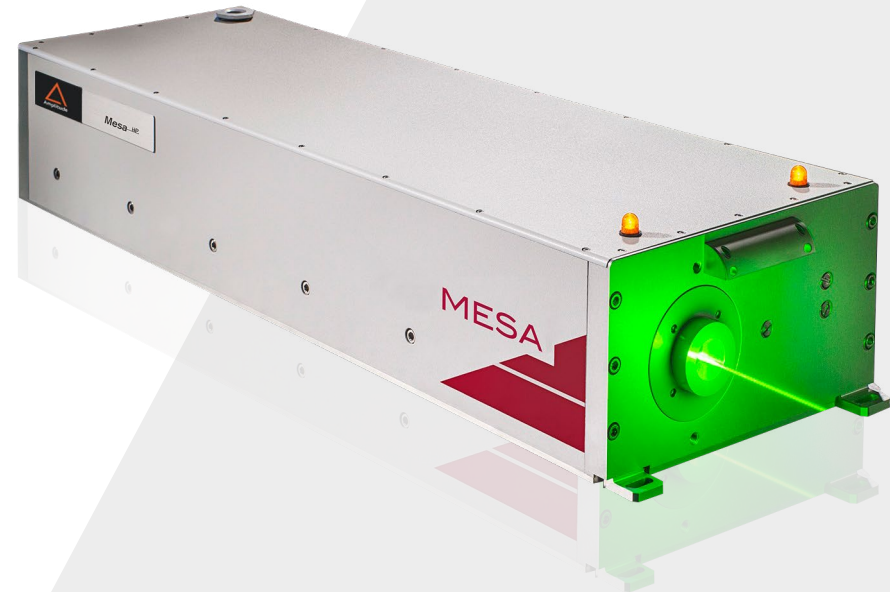


Mesa™ HP

Diode pumped Nd:YAG laser

The Mesa HP Nd:YAG laser is designed to accomplish demanding tasks for a broad range of industrial and OEM applications. Our pumping technology and stable optical resonator design produce a laser beam with uniform energy distribution and high output power.

The high-quality profile, combined with high pulse energy and repetition rates, provide an ideal laser beam for micromachining applications.



Applications

Industry:

- > Stent/Glass/PCB/Fine Metal Cutting
- > LCD/Solar Edge Deletion
- > Marking
- > Wafer Trimming
- > Micro-hole Drilling
- > Ceramics Scribing
- > Fine Wire Stripping
- > Diamond/Gemstone Processing

Science:

- > Ti:Sapphire pumping
- > Particle Image Velocimetry
- > Combustion Analysis
- > Laser Induced Fluorescence
- > LIDAR
- > Resonance Raman Spectroscopy
- > Chemical Analysis of Macromolecules
- > Laser Microprobe Analysis

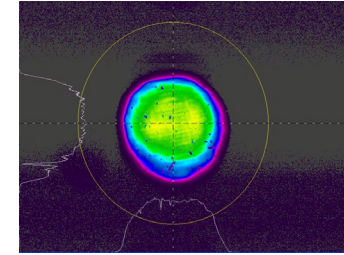
Key Features

- > 1064, 532, 355 nm operation
- > Smooth and symmetrical beam profile
- > Highly efficient wavelength conversion
- > Fast-pulse suppression for consistent material processing
- > Compact & rugged package designed for 24/7 operation
- > Record 3 min. diode module replacement with no realignment necessary
- > Proprietary optical cavity design for optimal beam quality

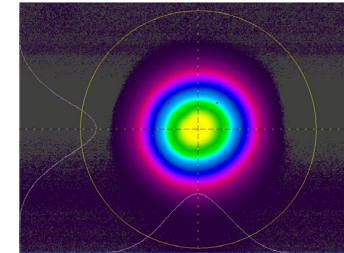
Specifications¹

	1064-220-M	1064-180-L	1064-150-M	532-150-M	532-120-L	532-100-M	355-40-M
Wavelength	1064			532			355
Power CW (W)	220	180	150	n/a			
Power at 10 kHz (W)	180	150	120	150	120	100	32
Power at 6 kHz (W)	150	120	100	120	100	80	40
Repetition Rate (kHz)	1-40			1-30			1-20
Pulse-to-Pulse Stability (% RMS) ¹	< 2	< 3	< 2	< 3	< 3	< 2	
Pulsewidth (ns)	< 130	< 150	< 170	< 120	< 130	< 170	
Beam Pointing Stability (μrad RMS)	< 25						
Beam Diameter (mm) ^{2, 3}	2.5			2.6			
Beam Divergence (mrad) ²	11	9	11	9	8	9	6
Beam Quality (M ²)	< 25	< 12	< 25	< 30	< 15	< 30	< 35
Polarization ⁴	Random			V 100:1			

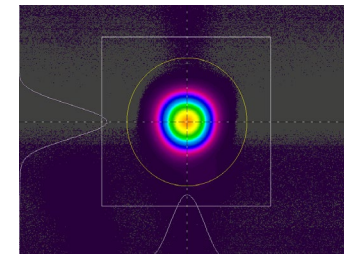
¹ All specifications at 6 kHz unless otherwise noted.
² Typical measurement (±10%)
³ Measured at 1/e² points of Gaussian fit to beam profile
⁴ V=Vertical. Factory default (can be changed upon request)



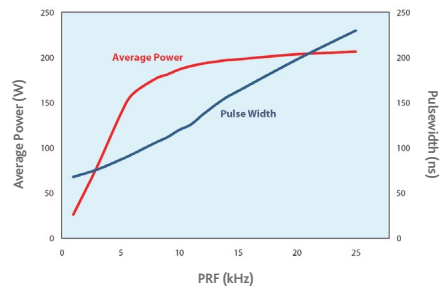
Mesa HP, 1064-220-M



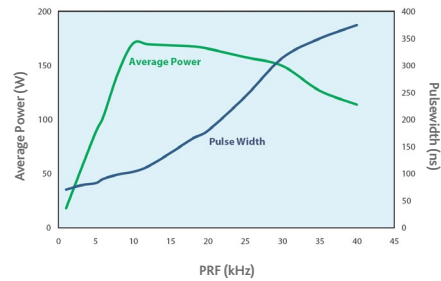
Mesa HP, 532-150-M



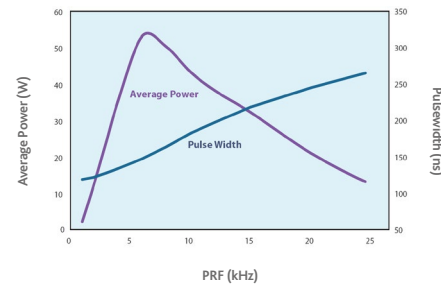
Mesa HP, 355-40-M



Mesa HP 1064-220-M Performance Curves



Mesa HP 532-150-M Performance Curves

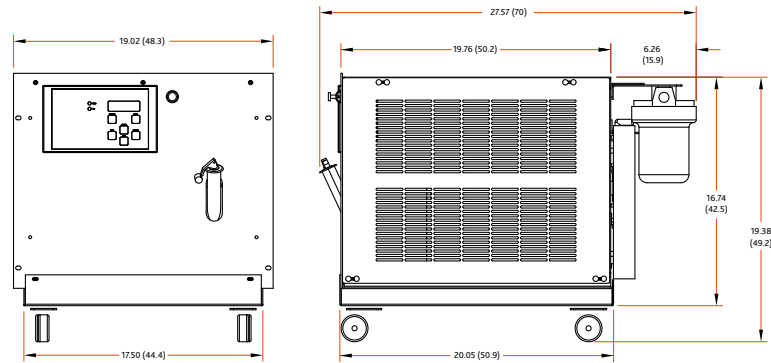
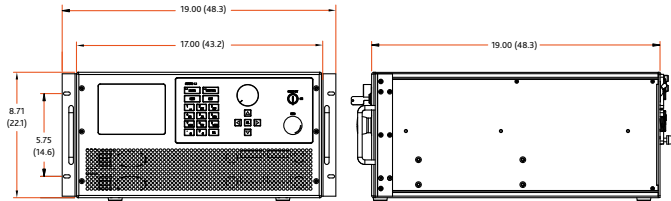


Mesa HP 355-40-M Performance Curves

Mesa HP Physical Layout

All dimensions are in inches (mm).

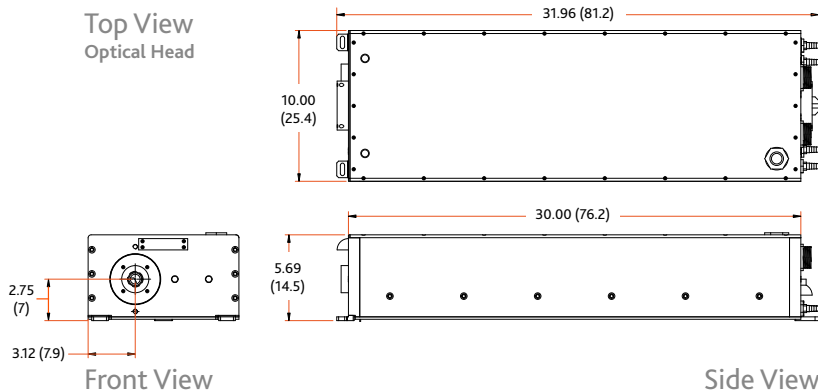
Side View
Power Supply



Side View
Chiller

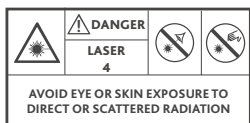
Front View
Chiller

Top View
Optical Head



Front View

Side View



Dimensions

Optical Head (LxWxH)	812 x 254 x 145 mm (31.9 x 10.0 x 5.6 in)
Power Supply (LxWxH)	509 x 483 x 221 mm (20.0 x 19.0 x 8.7 in)
Chiller (LxWxH)	699 x 483 x 492 mm (27.5 x 19.0 x 19.4 in)

Weight

Optical Head	31.5 kg (70 lbs)
Power Supply	27 kg (60 lbs)
Chiller	65 kg (144 lbs)

Electrical Service

Power Supply	Single-phase: 200-240 VAC, 50/60 Hz operating current: 10A, max current: 20A
Chiller	Single-phase: 230 ±10% VAC, 50/60 Hz operating current: 12A, max current: 20A

Temperature & Humidity

Operating Temperature	15 to 35° C
Storage Temperature	-20C to 50° C
Relative Humidity	8-80%, non-condensing

Control Interface

User Interface	Full featured front panel control
Serial Interface	RS-232, ethernet
Rear Connections	External beam enable, external trigger, analog current control, analog RF attenuation control, digital alert output
Control Software	MS Windows-based Laser Commander™

Others

Umbilical Length	3.65 m (12.0 ft); longer available upon request
Cooling	Air-water; water-water cooling option available

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