



ILLUMINATION

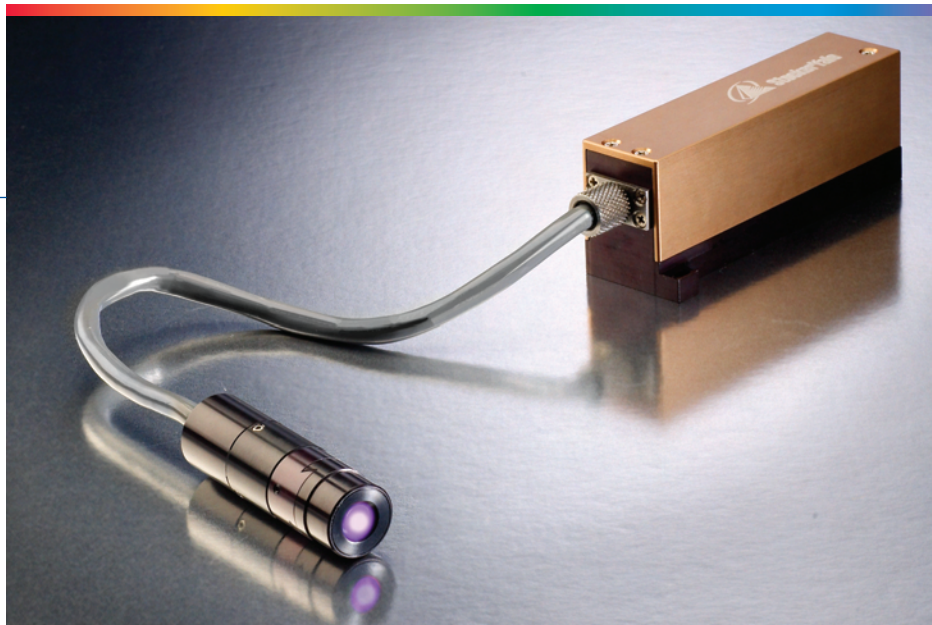
Lasiris™ ColdRay Laser

FEATURES

- Compact thermoelectrically cooled diode head
- 375, 405, 445, 473, 640, 660 nm
- Excellent wavelength and power stability
- Excellent pointing stability
- Focusable
- Compatible with flat-top generator
- Extended lifetime

APPLICATIONS

- Spectroscopy
- Confocal Microscopy
- Flow Cytometry
- Bio-detection
- Machine vision and industrial inspection

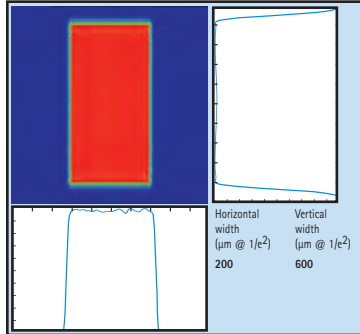


StockerYale's line of Lasiris™ structured light projectors offers long laser lifetime and excellent wavelength, power and pointing stabilities. The laser's thermoelectric system maintains a constant laser diode temperature, allowing the use of these lasers in applications demanding consistency.

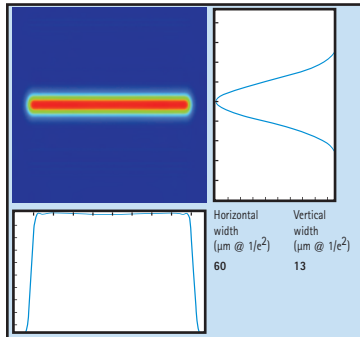
For applications requiring flat-top illumination, the ColdRay can be easily integrated with the Flat-Top² Generator, StockerYale's beam shaper that converts a Gaussian beam into a diverging, focused or collimated flat-top profile.

COMPATIBLE WITH MICRO FLAT-TOP GENERATORS

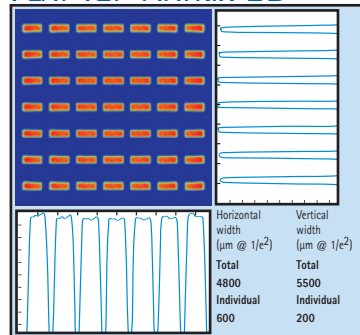
FLAT-TOP 2D



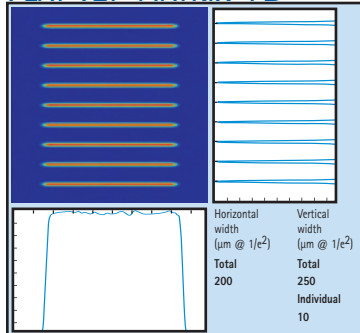
FLAT-TOP 1D



FLAT-TOP MATRIX 2D



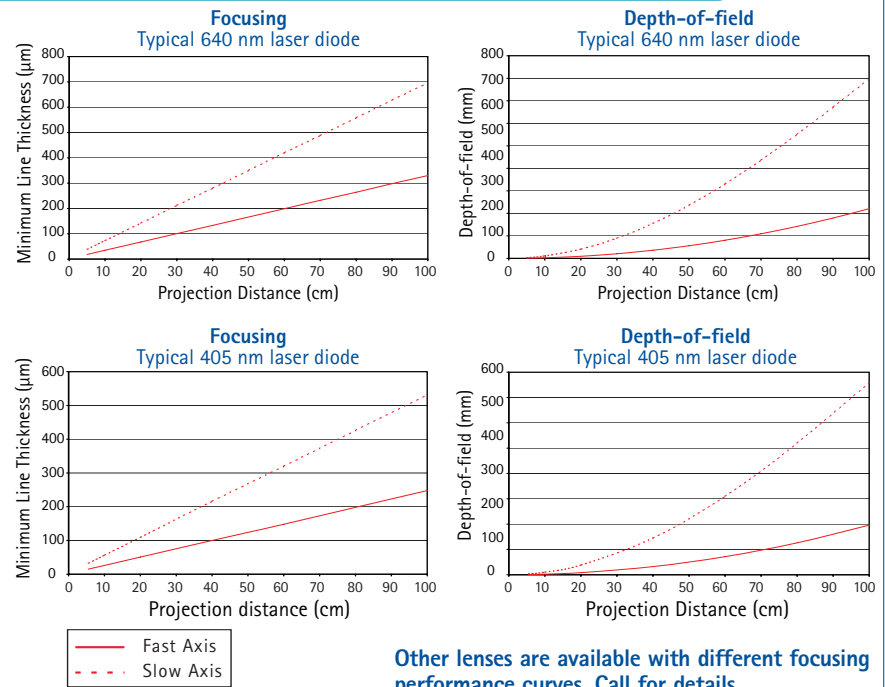
FLAT-TOP MATRIX 1D



FOCUSING PERFORMANCE

The following figures show the typical focusing and depth-of-field performance of the ColdRay laser beam. The focus charts indicate the minimum thickness (at $1/e^2$) achievable for a specific projection distance. The depth-of-field is defined as twice the distance over which the thickness of the line has increased by a factor of $\sqrt{2}$.

FOCUSING AND DEPTH-OF-FIELD PERFORMANCE



LASERS AND EYE SAFETY

Our lasers can comply with CDRH and IEC classifications and fall in different safety classes depending on the output power, wavelength and fan angle. Call us, or visit our website for further details.



CLASS IIIB: "Danger"
Infrared (IR) and high power visible lasers considered dangerous to your retina if exposed.

CAUTION: It is important to follow laser safety rules and wear appropriate protective eyewear when working around lasers. Use of controls, adjustments or performance of procedures other than those specified in the instruction manual may result in hazardous radiation exposure.

WAVELENGTH DEPENDENT PARAMETERS

Wavelength (nm) *	375	405	445	473	640	660
Wavelength tolerance (nm)	+5/-5	+8/-5	+5/-5	+5/-5	+5/-5	+10/-10
Max laser diode power (mW)	20	120	50	20	80	150
Output power after collimating optics	15	90	35	15	60	75
Collimated beam dia. (1/e ²) at exit (mm) ¹	2.6 x 1.0	2.3 x 1.1	2.6 x 1.0	2.8 x 1.1	2.8 x 1.3	2.2 x 1.3
Collimated beam divergence, full angle (mrad) ¹	<0.6	<0.6	<0.7	<0.7	<0.8	<0.8
M2	≤1.2	≤1.2	≤1.2	≤1.2	≤1.2	≤1.2
Transverse mode	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀	TEM ₀₀
Polarization extinction ratio - typ.	≥17dB	≥17dB	≥17dB	≥17dB	≥17dB	≥17dB
Polarization axis	TE	TE	TE	TE	TE	TE

* Other wavelengths available. Please call us for more details.

¹ Dependent on laser diode choice

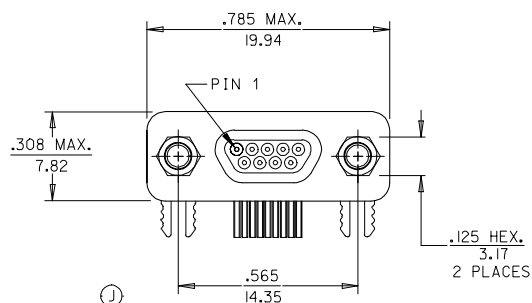
LASER SPECIFICATIONS

Power stability in operation	
1 hour, 25°C	≤ ± 0.5 %
Power stability in operation	
24 hours, 25°C	≤ ± 1 %
Pointing Stability	< 10 μrad/°C
Noise: RMS, 20Hz–20MHz	<0.5%
P-P, 20Hz–20MHz	<1 %

ELECTRICAL SPECIFICATIONS

Input voltage / current	5 V ± 10 % at 3 A max (typical 1A)
Modulation:	Rise/fall time: 5 μs (faster response time upon demand)
Reverse-polarity protection, over-voltage protection	

DB9 PINOUT



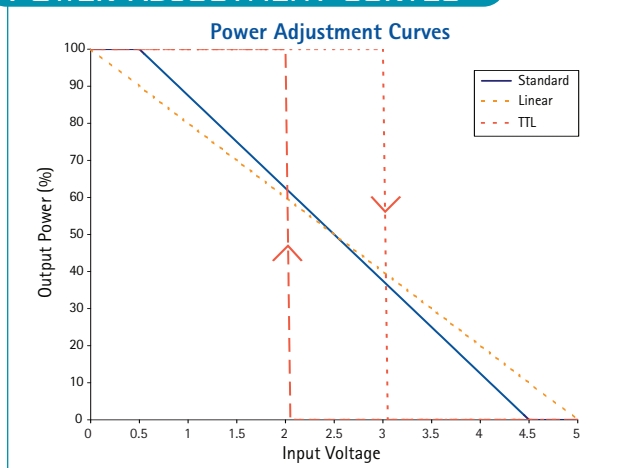
PIN1: TEC Control Voltage
PIN2: Reserved for Calibration
PIN3: Not Connected
PIN4: Current Power Monitoring Output
PIN5: Ground

PIN6: TEC Current Monitoring
PIN7: Modulation Input
PIN8: Reserved for Calibration
PIN9: Diode Temperature Monitoring

ENVIRONMENTAL SPECIFICATIONS

Operating temperature	0 to +45°C
Storage temperature	-10 to 50°C
Operating pressure & humidity	Atmospheric / non-condensing
Over-temperature protection, ESD protection	

POWER ADJUSTMENT CURVES



*Not available on all models.

The standard slope can be modified.

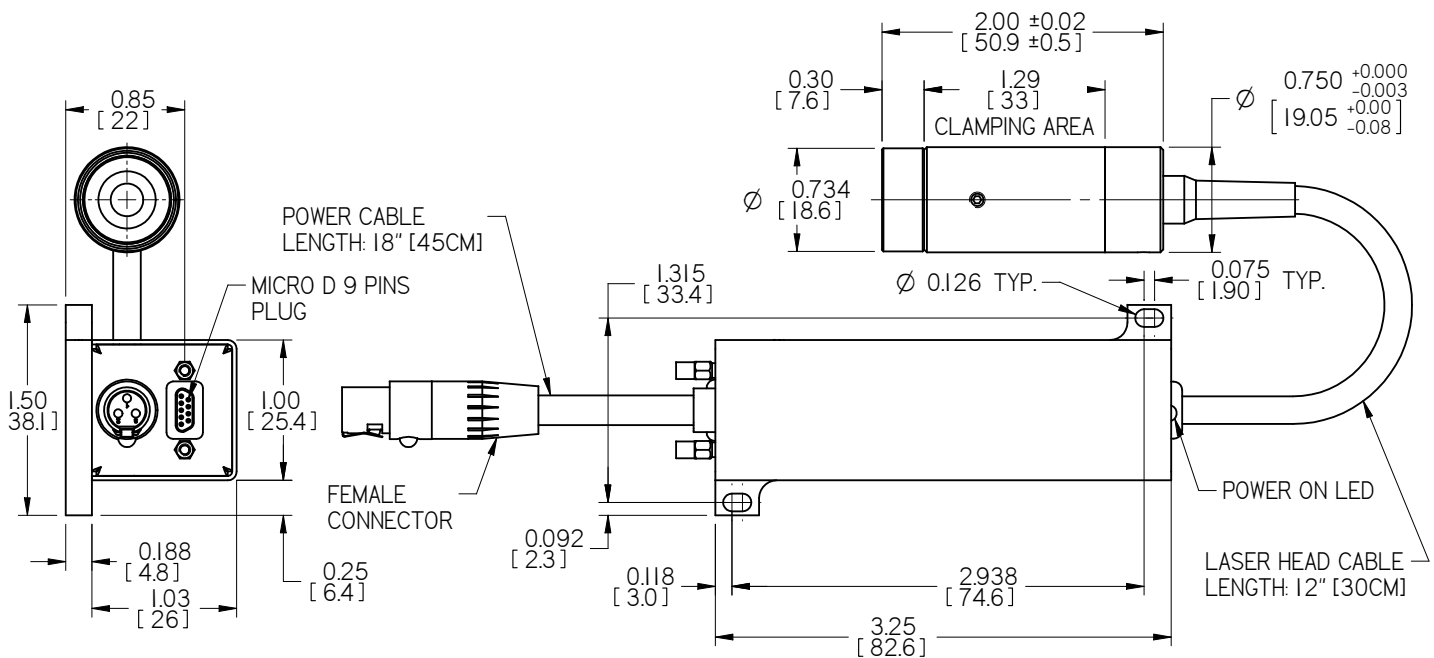
ORDERING INFORMATION

To order, use the following code: CR- Wavelength – Laser Diode Power – Electronics Option. Call us or visit our website for available optical patterns such as Flat-Top and diffractive optics.

MODEL	WAVELENGTH (NM)	LASER DIODE POWER (MW)	ELECTRONICS OPTION
CR	375	20	
	405	5, 10, 20*, 30, 40, 60*, 80, 105*, 120	S
	445	50	T
	473	20	RS
	640	5, 10, 35, 80	RT
	660	35, 50, 100, 150*	

* No internal photodiode

DIMENSIONAL DIAGRAM



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Information and specifications contained herein are deemed to be reliable and accurate. StockerYale reserves the right to change these specifications at any time without notice.



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