

Krypton Argon Ion Lasers



643 series

Air-cooled, compact, and economical, Melles Griot 643-series krypton argon ion lasers are a convenient source of single, fixed multiple, and all-wavelength output. Their footprint and industry standard mounting holes allow platform, breadboard or easy OEM system integration. A selection of beam delivery systems is available.

- ▶ Wavelengths from 467 to 752 nm
- ▶ Powers to 150 mW
- ▶ Forced-air cooling
- ▶ Low noise
- ▶ TEM₀₀ output
- ▶ CE versions available
- ▶ Custom wavelength selections available
- ▶ Wide operating temperature range
- ▶ Light feedback regulated
- ▶ Tunable versions available

MELLES GRIOT

643 series krypton argon lasers — compact, powerful, economical.

The mixed-gas (argon and krypton) ion laser is an ideal source for many applications, because it combines the availability of wavelengths across the visible spectrum with near-diffraction limited output, high stability, low noise, long life, and unit-to-unit repeatability. Due to their small footprint, forced-air cooling, and low cost, Melles Griot 643-series krypton argon lasers are used in a wide variety of OEM applications, in fields ranging from microscopy and process control to digital imaging. They are particularly suited to biotechnology and photoluminescence applications, because their output wavelengths closely match the absorption peaks of a wide range of dyes (see table below for a partial list).

The 643-series lasers produce low-noise TEM₀₀ output in wavelengths that range from 467 nm to 752 nm. Standard multiline configurations include *red/yellow/blue* and *yellow/blue*. Single-color configurations include *red* (two lines), *yellow*, and *infrared*. Prism-tuned, single-wavelength output is also available.

All 643-series lasers can be operated in either light-regulated or current-regulated mode. In light regulation, power drift is reduced to less than one percent over long periods of time; rms output noise is also significantly reduced. Current regulation can be used to increase plasma-tube life, and to control the balance between laser lines in multiline operation.

The industry-standard packaging and mounting configurations permit easy integration into new and existing OEM designs. Custom configurations, and a variety of beam delivery options (e.g., fiber-optics, and collimators), are also available.

| Fluorochrome (dye) | Peak Excitation Wavelength (nm) | Laser Wavelength (nm) |
|--------------------|---------------------------------|-----------------------|
| Calcium Green | 505 | 488 |
| Cyanine Cy3 | 575 | 568 |
| Cyanine Cy5 | 640 | 647 |
| Fluo 3 | 480 | 488 |
| FITC | 490 | 488 |
| Lucifer Yellow | 428 | 467 |
| Rhodamine | 560 | 568 |
| Texas Red | 590 | 568 |

Specifications: 643 series

Common to All Models

Mode Spacing (c/2L): 349 MHz

Coherence Length (approx): 10 cm

Linear Polarization: Vertical $\pm 5^\circ$

Extinction Ratio: >250:1

Warmup Time from Cold Start: <15 minutes

Recovery from Standby: 1 second

Beam Pointing Stability: < 30 μ rad/ $^\circ$ C

Power Stability over 2 hours: $\pm 0.5\%$

Recommended Power Supply

Model 171B-XXXX or 176B-XXXX

(XXX = 220, 208, 200, 230, 240)

(Y = B for Black, G for Grey)

Environmental Specifications

Cooling: Forced air cooling

Operating Temperature: 5°C to 40°C

Storage Temperature: -30°C to 60°C

Relative Humidity, Operating:

0–90% noncondensing

Laser Head Weight: 25 lbs (11.4 kg)

Shipping Weight w/Cable: 35 lbs (16.0 kg)

Options

- Remote cooling
- Optical table mounting hardware
- Cable configurations
- Beam delivery interface
- Remote RS-232 power supply operation



Most Melles Griot lasers and instruments are designed, tested, and manufactured for compliance with applicable European electrical and laser safety standards.

Specifications for single-line 643-series ion lasers

| Model | Wavelength | Power (mW) | Beam Diameter (mm) | Beam Divergence (mrad) | M ² (max) | Noise <100 kHz/<1 MHz (max % P-P) |
|------------|------------|------------|--------------------|------------------------|----------------------|-----------------------------------|
| 643-Y-A02 | 568 | 10 | 0.7 | 1.1 | 1.1 | 4/5 |
| 643-Y-A01 | 568 | 20 | 0.7 | 1.1 | 1.1 | 4/5 |
| 643-RS-A01 | 647 | 100 | 0.7 | 1.3 | 1.1 | 5/8 |
| 643-IR-A01 | 752 | 20 | 0.7 | 1.4 | 1.1 | 9/12 |

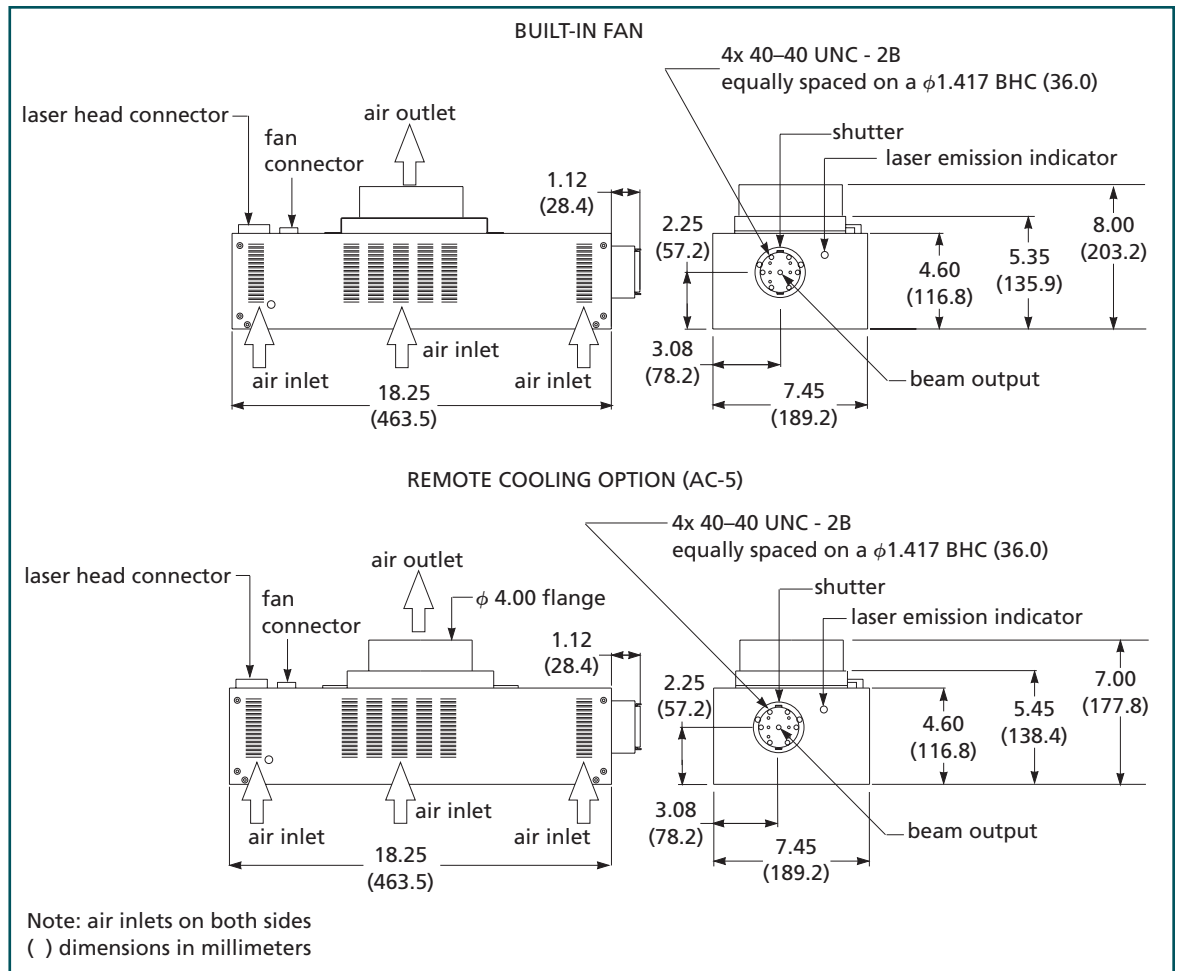
Specifications for multiline 643-series ion lasers

| Model | Wavelength | Power (mW) | Beam Diameter (mm) | Beam Divergence (mrad) | M ² (max) | Noise <100 kHz/<1 MHz (max % P-P) |
|-------------|------------|------------|--------------------|------------------------|----------------------|-----------------------------------|
| 643-RYB-A02 | 467 | <4 | | | | |
| | 472 | <2 | | | | |
| | 476 | <8 | | | | |
| | 483 | <4 | | | | |
| | 488 | 15 | 0.8 | 1.1 | 1.4 | 4/5 |
| | 496 | <4 | | | | |
| | 502 | * | | | | |
| | 568 | 15 | 0.7 | 1.0 | 1.2 | 10/14 |
| | 647 | 25 | 0.7 | 1.1 | 1.1 | 7/12 |
| 676 | * | | | | | |
| 643-RYB-A01 | 467 | <4 | | | | |
| | 472 | <1 | | | | |
| | 476 | <8 | | | | |
| | 483 | <4 | | | | |
| | 488 | 10 | 0.8 | 1.1 | 1.4 | 4/5 |
| | 496 | <4 | | | | |
| | 502 | * | | | | |
| | 568 | 10 | 0.7 | 1.0 | 1.2 | 10/14 |
| | 647 | 15 | 0.7 | 1.1 | 1.1 | 8/12 |
| 676 | * | | | | | |
| 643-YB-A01 | 467 | <4 | | | | |
| | 472 | * | | | | |
| | 476 | <8 | | | | |
| | 483 | <4 | | | | |
| | 488 | 20 | 0.8 | 1.1 | 1.4 | 4/5 |
| | 496 | <4 | | | | |
| | 502 | * | | | | |
| 568 | 20 | 0.7 | 1.0 | 1.2 | 7/12 | |
| 643-YB-A02 | 467 | <4 | | | | |
| | 472 | * | | | | |
| | 476 | <8 | | | | |
| | 483 | <4 | | | | |
| | 488 | 20 | 0.8 | 0.9 | 1.1 | 4/5 |
| | 496 | <4 | | | | |
| | 502 | * | | | | |
| 568 | 20 | 0.7 | 0.9 | 1.1 | 6/8 | |

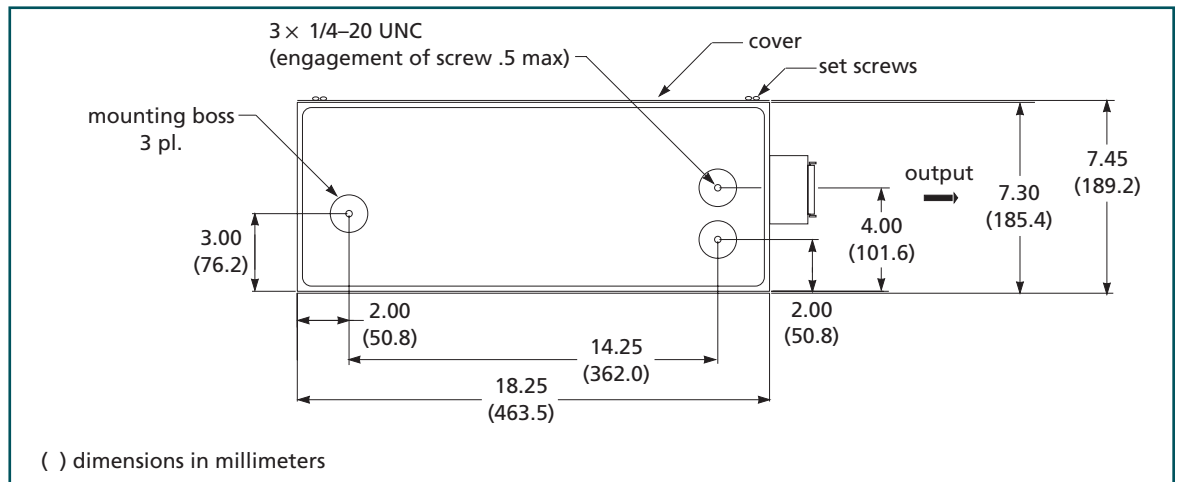
*May be present, power unspecified.

Note: Performance characteristics obtained by using Melles Griot 176B-XXXB supply.

All-wavelength and tunable krypton argon ion lasers available upon request.



Outline drawing



Mounting plate (bottom view)

MELLES GRIOT

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