

Argon-Ion Lasers



543 and 544
Series

Air-cooled, compact, and economical, Melles Griot 543 and 544 argon-ion lasers are convenient sources of higher power single and fixed multiple wavelength output. Their footprint and industry-standard mounting holes allow platform or breadboard installation, as well as easy integration into OEM systems. A selection of beam delivery systems is available.

- ▶ Wavelengths from 457 to 514 nm
- ▶ Power to 500 mW plus
- ▶ Forced-air cooling
- ▶ Low optical noise
- ▶ CE versions available
- ▶ Custom wavelength selection
- ▶ Wide operating temperature range
- ▶ Light feedback regulated

MELLES GRIOT

Specifications: 543 and 544 Series Argon-Ion Lasers

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 $\mu\text{rad}/^\circ\text{C}$
- Power Stability over 2 hours:** $\pm 0.5\%$

Recommended Power Supply

Model 170B-XXXY or 176B-XXXY

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

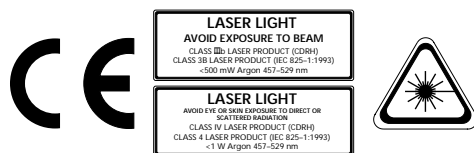
(Y = B for Black, G for Grey)

Environmental Specifications

- Cooling:** Forced air
- 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)

Options

- Beam delivery systems
- Remote cooling
- Custom configurations
- RS-232 computer interface
- Tunable prism assembly
- Remote controller



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

Argon-Ion Lasers – Compact, Powerful, Economical

The 543 and 544 series of line-tunable laser systems are ideal sources for many applications, because they combine the availability of wavelengths across the blue-green 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 543 and 544 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 the table below for a partial list).

543 and 544 series lasers produce low-noise, TEM_{00} output in discrete wavelengths that range from 454 nm to 514 nm. Configurations include single line (457 nm, 488 nm, and 514 nm) or all-line operation. Prism-tuned single-wavelength output is also available (see separate 543-AP and 643-AP data sheets).

These 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.

543 and 544 Series Argon-Ion Lasers

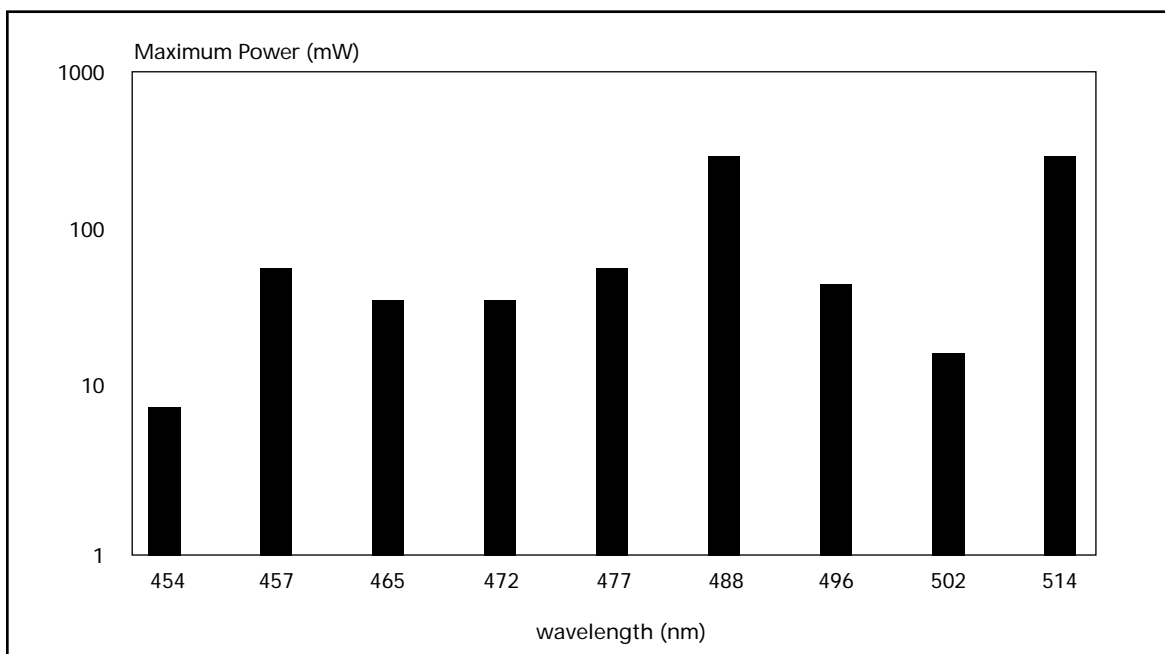
Fluorochrome (dye)	Peak Excitation Wavelength (nm)	Laser Wavelength (nm)	Laser Type
Calcium Green	505	488 or 502	543/544
Fluo 3	480	488	543/544
FITC	490	488	543/544
Lucifer Yellow	428	465	543/544
Rhodamine	560	514	543/544
EGFP	490	488	543-BS
EGFP	513	488 or 514	543-A
EGFP	453	457	543-VS

Specifications for 543 and 544 Series Argon-Ion Laser

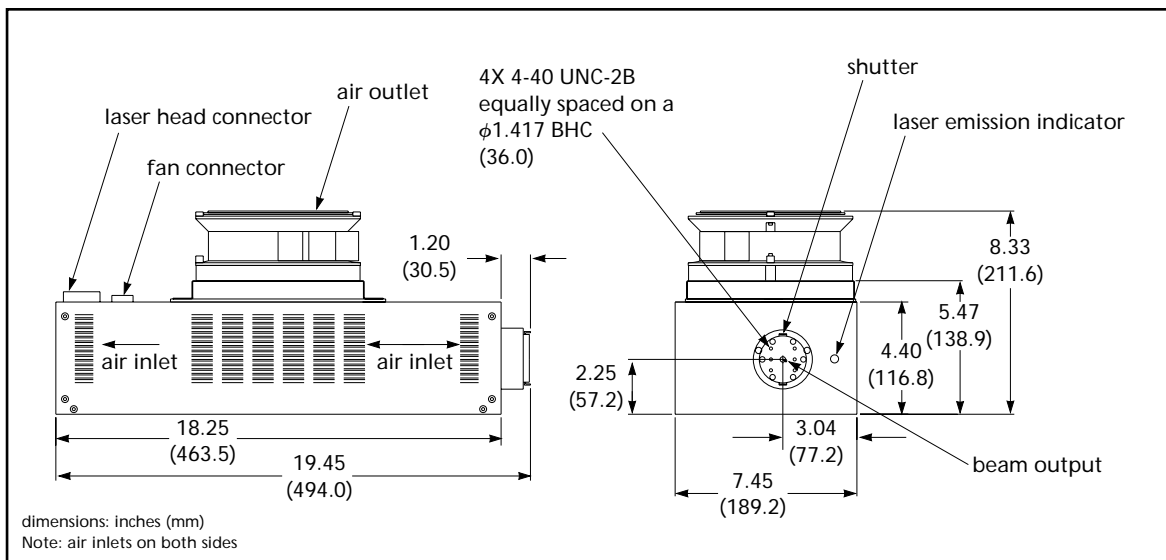
Model	Wavelength (nm)	Power min. (mW)	Beam Diameter (mm)	Beam Divergence (mrad)	M ² (max)	Noise <100 kHz/<1 MHz (max % p-p)
543-VS-A01	457	15	0.68 ± 5%	1.1 ± 5%	1.2	4/8
543-VS-A02	457	25	0.68 ± 5%	1.1 ± 5%	1.2	4/8
543-VS-A03	457	50	0.68 ± 5%	1.1 ± 5%	1.2	4/8
543-BS-A01	488	50	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-BS-A02	488	100	0.68 ± 5%	1.1 ± 5%	1.2	4/6
532-BS-A03	488	150	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-GS-A01	514	50	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-GS-A02	514	100	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-GS-A03	514	150	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-A-A01	457-514	100	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-A-A02	457-514	200	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-A-A03	457-514	300	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-B-A01	457-496	50	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-B-A02	457-496	100	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-B-A03	457-496	150	0.68 ± 5%	1.1 ± 5%	1.2	4/6
543-MVS-A01	457	25	1.20 ± 5%	2.3 ± 5%	multimode	4/6
543-MVS-A02	457	50	1.20 ± 5%	2.3 ± 5%	multimode	4/6
543-MVS-A03	457	75	1.20 ± 5%	2.3 ± 5%	multimode	4/6
543-MA-A01	457-514	200	1.20 ± 5%	2.4 ± 5%	multimode	4/6
543-MA-A02	457-514	400	1.20 ± 5%	2.4 ± 5%	multimode	4/6
543-MB-A01	457-496	100	1.30 ± 5%	2.7 ± 5%	multimode	3/4
543-MB-A02	457-496	200	1.30 ± 5%	2.7 ± 5%	multimode	3/4
543-MBS-A01	488	100	1.30 ± 5%	2.7 ± 5%	multimode	3/4
543-MBS-A04	488	200	1.30 ± 5%	2.7 ± 5%	multimode	3/4
543-MGS-A01	514	100	1.20 ± 5%	2.3 ± 5%	multimode	3/4
543-MGS-A02	514	200	1.20 ± 5%	2.3 ± 5%	multimode	3/4
544-MA-A03*	457-514	500	1.20 ± 5%	2.3 ± 5%	multimode	4/6

* CDRH Class IV, IEC Class 4

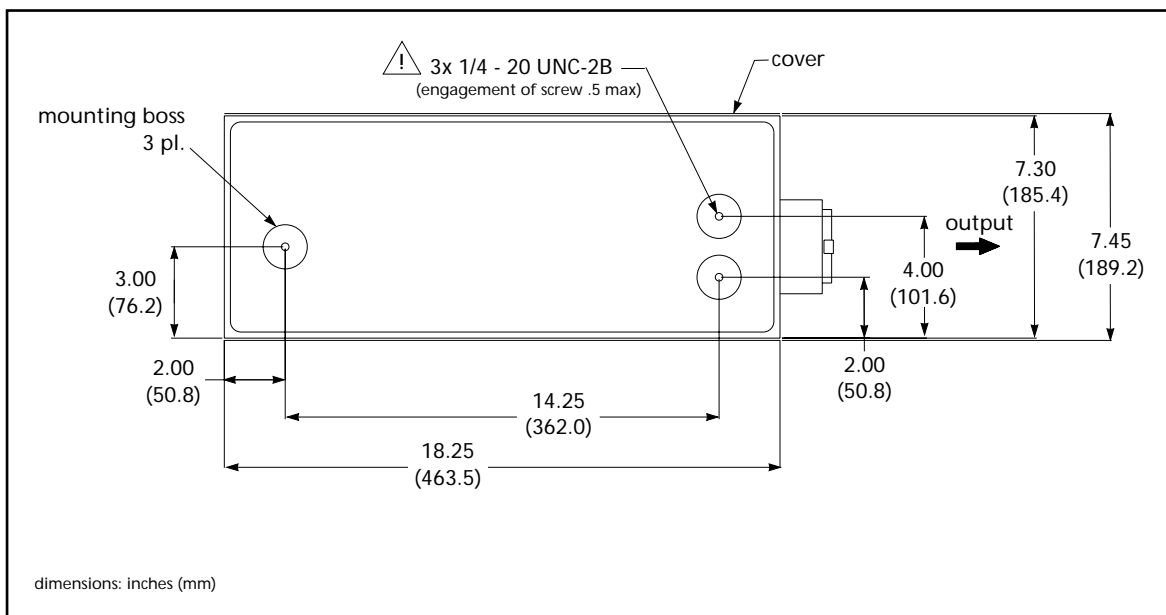
Note: Performance characteristics obtained by using Melles Griot 171B-XXXX supply.



Available output power of laser lines for 543 and 544 argon-ion lasers



543 and 544 series argon-ion laser outline drawing



543 and 544 series argon-ion laser mounting plate (bottom view)

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