

Tunable Ion Lasers



543 and 643
MAP & AP
Series

Air-cooled, compact, and economical, Melles Griot 543 and 643 MAP and AP tunable-ion lasers are convenient sources of 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 454 to 676 nm
- ▶ Power to 195 mW
- ▶ Forced-air cooling
- ▶ Low optical noise
- ▶ CE versions available
- ▶ Custom wavelength selection
- ▶ Wide operating temperature range
- ▶ Light feedback regulated

MELLES GRIOT

Specifications:
543 and 643 AP & MAP Series
Tunable Ion Lasers

Common to All Models

Mode Spacing (c/2L): 349 MHz
 Coherence Length (approx): 10 cm
 Linear Polarization: Vertical 8 5/8
 Extinction Ratio: >250:1
 Warmup Time from Cold Start: <15 minutes
 Recovery from Standby: 1 second
 Beam Pointing Stability: < 30 mrad/√K
 Power Stability over 2 hours: ± 0.5%

Recommended Power Supply

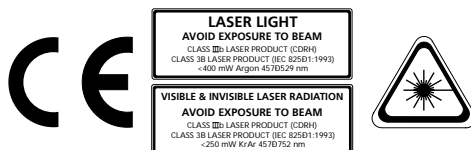
Model 170B-XXXX or 176B-XXXX
 (XXX = 200, 208, 220, 230, 240)
 (Y = B for Black, G for Grey)

Environmental Specifications

Cooling: Forced air
 Operating Temperature: 5°C to 40°C
 Storage Temperature: 4°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
- ¥ Remote controller



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

Tunable Laser Systems Ñ
Compact, Powerful, Economical

The 543-AP (argon) and 643-AP (krypton/argon) series of line-tunable laser systems are ideal sources for many applications, because they combine 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 543-AP and 643-AP 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-AP and 643-AP series lasers produce low-noise, TEM₀₀ output in single, discrete wavelengths that range from 454 nm to 676 nm. Multi-wavelength output is also available (see separate 543-series and 643-series 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 643 AP & MAP Series Tunable Ion Laser

Fluorochrome (dye)	Peak Excitation Wavelength (nm)	Laser Wavelength (nm)	Laser Type
Calcium Green	505	488 or 502	543-AP
Cyanine Cy3	575	568	643-AP
Cyanine Cy5	640	647	643-AP
Fluo 3	480	488	543-AP/643-AP
FITC	490	488	543-AP/643-AP
Lucifer Yellow	428	465	543-AP
Rhodamine	560	568	643-AP
Texas Red	590	568	643-AP
EGFP	490	488	543-AP
EFGP	513	488 or 514	543-AP
EGFP	453	457	543-AP

Specifications for 543 and 643 AP & MAP Series Tunable Ion Laser*

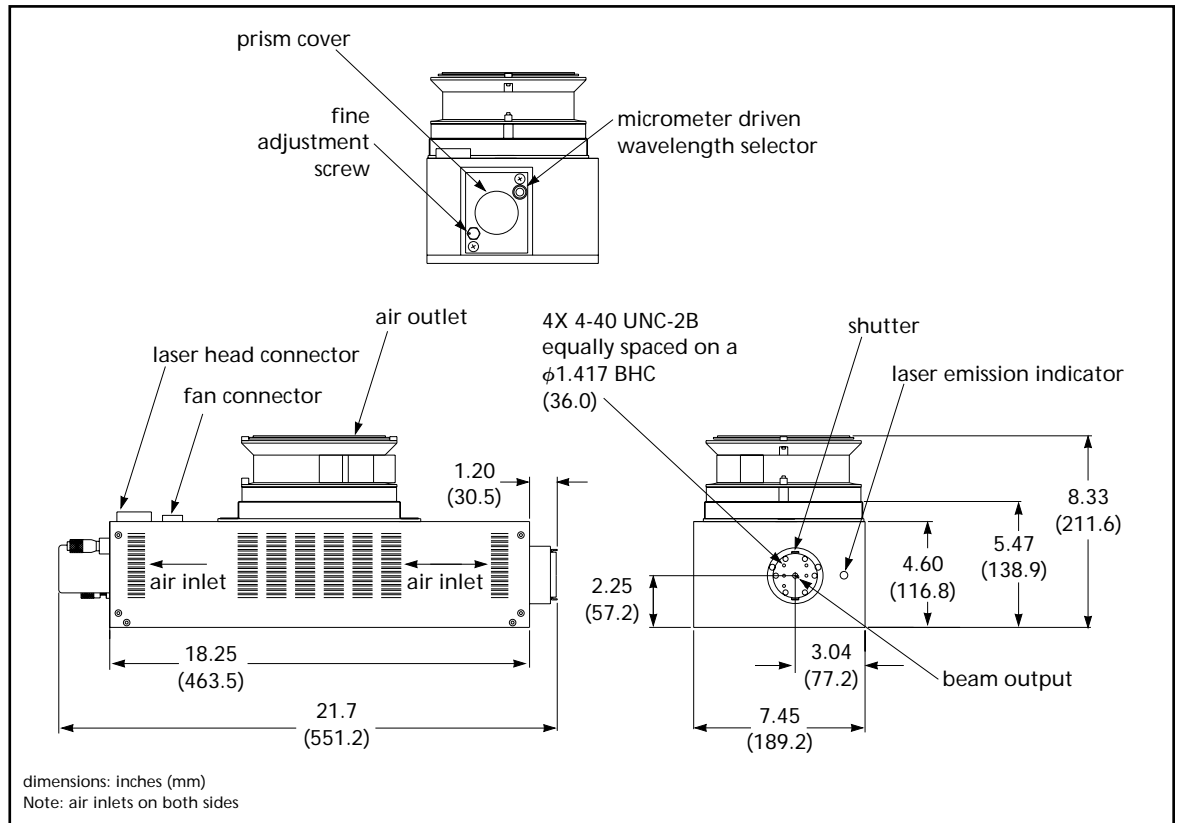
Model	Wavelength (nm)	Power min. (mW)	Beam Diameter (mm)	Beam Divergence (mrad)	M ² (max)	Noise <100 kHz/<1 MHz (max % p-p)
543-AP-A01	454	**	0.72 ± 5%	1.0 ± 5%	1.2	12/16
	457	11	0.72 ± 5%	1.0 ± 5%	1.2	6/10
	465	8	0.72 ± 5%	1.0 ± 5%	1.2	4/6
	472	7	0.72 ± 5%	1.0 ± 5%	1.2	4/6
	477	8	0.72 ± 5%	1.0 ± 5%	1.2	3/5
	488	60	0.72 ± 5%	1.0 ± 5%	1.2	4/6
	496	10	0.72 ± 5%	1.0 ± 5%	1.2	3/4
	502	3	0.72 ± 5%	1.0 ± 5%	1.2	5/7
	514	55	0.72 ± 5%	1.0 ± 5%	1.2	4/6
	529	**	—	—	—	—
543-AP-A02	454	**	0.72 ± 5%	1.0 ± 5%	1.2	12/16
	457	26	0.72 ± 5%	1.0 ± 5%	1.2	6/10
	465	18	0.72 ± 5%	1.0 ± 5%	1.2	4/6
	472	18	0.72 ± 5%	1.0 ± 5%	1.2	4/6
	477	28	0.72 ± 5%	1.0 ± 5%	1.2	3/5
	488	125	0.72 ± 5%	1.0 ± 5%	1.2	4/6
	496	24	0.72 ± 5%	1.0 ± 5%	1.2	3/4
	502	12	0.72 ± 5%	1.0 ± 5%	1.2	5/7
	514	130	0.72 ± 5%	1.0 ± 5%	1.2	4/6
	529	**	—	—	—	—
543-MAP-A01	454	**	1.10 ± 5%	1.8 ± 5%	multimode	12/16
	457	17	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	465	12	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	472	11	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	477	12	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	488	90	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	496	15	1.10 ± 5%	1.8 ± 5%	multimode	5/7
	502	5	1.10 ± 5%	1.8 ± 5%	multimode	5/7
	514	80	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	529	**	—	—	—	—
543-MAP-A02	454	**	1.10 ± 5%	1.8 ± 5%	multimode	12/16
	457	39	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	465	27	1.10 ± 5%	1.8 ± 5%	multimode	6/10
	472	27	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	477	42	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	488	185	1.10 ± 5%	1.8 ± 5%	multimode	4/6
	496	36	1.10 ± 5%	1.8 ± 5%	multimode	5/7
	502	18	1.10 ± 5%	1.8 ± 5%	multimode	5/7
	514	195	1.1 ± 5%	1.8 ± 5%	multimode	4/6
	529	**	—	—	—	—
643-AP-A01	476	4	0.70 ± 5%	1.0 ± 5%	1.3	9/10
	483	10	0.70 ± 5%	1.0 ± 5%	1.2	5/7
	488	20	0.70 ± 5%	1.0 ± 5%	1.2	5/7
	496	4	0.70 ± 5%	1.1 ± 5%	1.2	8/10
	514	10	0.70 ± 5%	1.1 ± 5%	1.2	6/10
	520	20	0.70 ± 5%	1.0 ± 5%	1.1	3/5
	568	20	0.70 ± 5%	1.1 ± 5%	1.1	3/6
	647	20	0.70 ± 5%	1.1 ± 5%	1.1	5/8
	676	6	0.70 ± 5%	1.1 ± 5%	1.1	6/10

Note: Performance characteristics obtained by using Melles Griot 170B-XXXB supply.

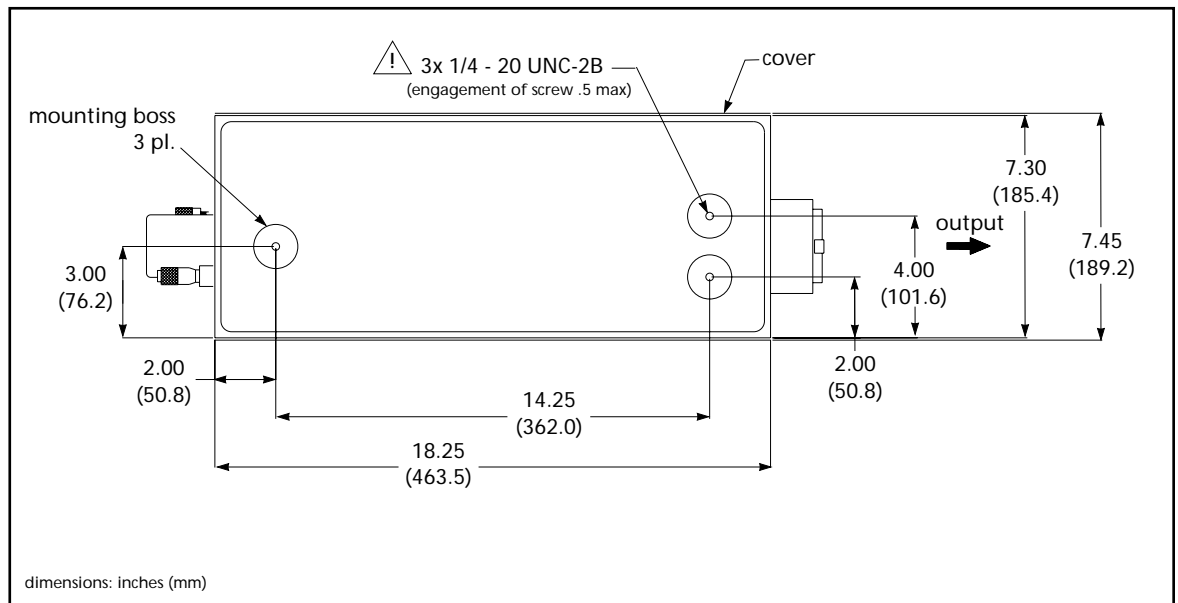
All lines krypton argon laser available upon request.

*Guaranteed output power specified in bold type. Other output indications for reference purpose only.

**May be present, power unspecified.



543 and 643 MAP & AP series tunable ion laser head



543 and 643 MAP & AP tunable ion laser series mounting plate (bottom view)

MELLES GRIOT

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