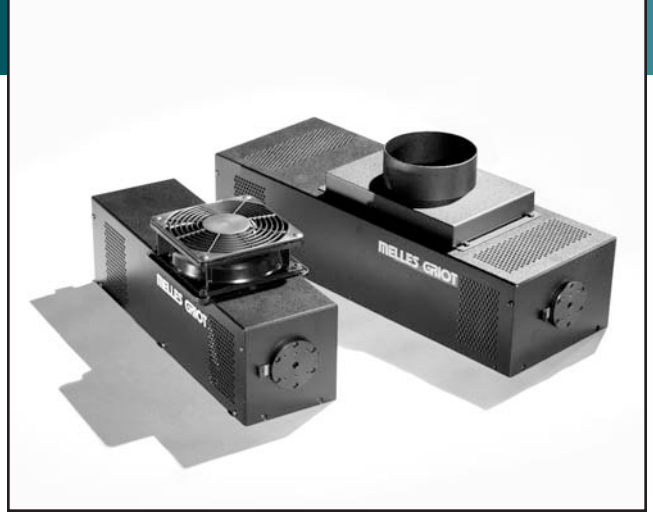


Introduction to Air-Cooled Ion Lasers

- Wavelengths from violet to red
- Output power as high as 300 mW
- High-efficiency switching power supply with power-factor correction
- Multiline, single-line, and line-tunable models
- CE, IEC, and CDRH compliant

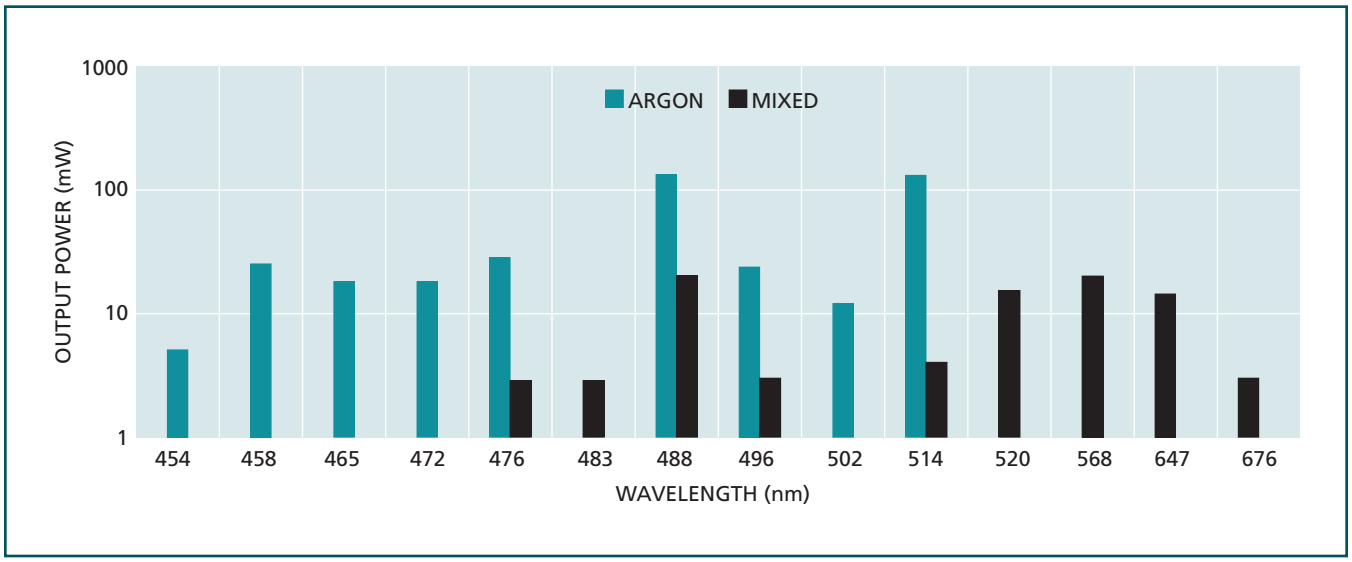
CVI Melles Griot ion lasers; rugged, compact, air-cooled systems that operate from standard single-phase power; are ideal for laboratory or OEM applications. Argon-ion lasers produce many wavelengths in the violet-green spectral region, with principal lines at 458 nm (violet) 488 nm (blue), and 514 nm (green). The main output of krypton-ion lasers is in longer wavelengths, with principal lines at 568 nm (yellow) and 647 nm (red). Argon and krypton gases can be combined to produce blue, green, yellow, and red output from a single laser.

All of our ion laser systems include light stabilization as a standard feature. In light stabilization, a small portion of the laser beam is monitored by a photoelectric feedback circuit. Discharge current is adjusted to keep the output constant to within one percent over hours of operation.

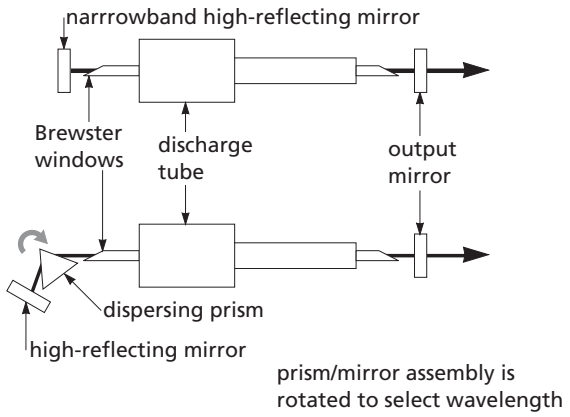
MANY WAVELENGTH CONFIGURATIONS

The output of an ion laser is determined by its mirror configuration. For example, with two broadband mirrors, the output of an argon-ion laser will contain up to nine individual wavelengths, ranging from 454 nm to 514 nm, all lasing simultaneously. By using narrow-band mirrors, output can be limited to a single line (e.g., 488 or 458 nm). Finally, by using broadband mirrors with an intracavity prism, laser output can be tuned from line to line.

Lasers are available in either internal- or external-mirror cavity configurations. In the external-mirror configuration, the laser mirrors are mounted on a stable platform and light passes through the laser discharge tube via Brewster windows. This allows mirrors to be interchanged and for systems to be changed from single-line to multiline operation. In the internal-mirror configuration, the mirrors are mounted directly and permanently to the plasma tube. This results in a robust and highly stable device, which can be mounted in any orientation, and never requires mirror maintenance. Output in either configuration is typically linearly polarized.



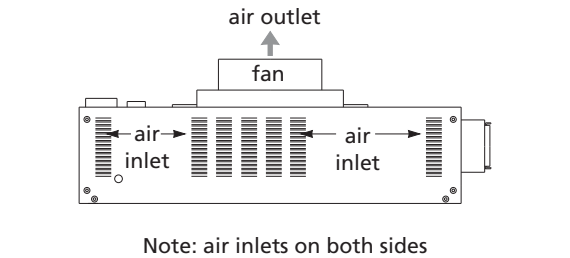
Relative TEM_{00} output power of laser lines for air-cooled ion lasers



Methods of selecting wavelengths in ion lasers

LOCAL REMOTE COOLING

CVI Melles Griot ion laser heads are cooled by negative-pressure forced air. Heated air is pulled from the laser head by an exhaust fan, and fresh cool air is drawn into the laser through strategically located inlets. In the standard configuration, these lasers are cooled by a high-capacity fan attached to the laser housing. For OEM applications, or for laboratory applications where it is desirable to remove exhaust heat from the local area, we offer a remote cooling option. A centrifugal fan is attached to the laser head through ten feet of flexible ducting.



Cooling configuration for typical ion laser head

OPTIONAL ACCESSORIES

Optional accessories for CVI Melles Griot air-cooled ion lasers include laser beam expanders with 3 × , 6 × , and 10 × expansion ratios.

CE CERTIFICATION

All of the ion lasers shown in this catalog are fully compliant with the requirements of the Food and Drug Administration Center for Devices and Radiological Health (CDRH) as well as with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC rules, and European directives 89/336/EEC and 73/23/EEC.

OEM CONFIGURATIONS

The lasers shown on the following pages represent only a fraction of the ion lasers manufactured by CVI Melles Griot. We customize our basic systems to meet a wide variety of volume OEM applications. Customized configurations include cylindrical and rectangular packaging, special mounting and cooling configurations, optimized output for particular laser lines, retrofit tubes, customized power control systems, and custom cabling. If you have a special requirement, contact your nearest CVI Melles Griot sales office.

Do you need . . .

LASER SAFETY EYEWEAR

CVI Melles Griot offers a wide variety of laser-protection eyewear. The following items are specifically designed for ion laser applications, with an optical density of 7 from 193 nm to 532 nm.

- 16 LSK 007 (spectacle style)
- 16 LOG 007 (over the glasses style)