Our diode-pumped solid-state blue lasers provide high power output in a compact air-cooled package. They are ideal for use in semiconductor, biomedical, spectroscopic, interferometric, and holographic instrumentation applications; laser display devices; photo-plotters; PC board, wafer, and surface inspection equipment; and particle characterization instrumentation. Other wavelengths are available.

- Up to 400 mW at 457 nm
- All solid-state for reliability
- Single transverse and longitudinal mode
- Lightweight and compact
- Coherence length to >5 meters
- Spectral line width down to 200 kHz
- Low power consumption
- Universal power supply
- RS-232 interface
- OEM modules available
Specifications: 58 BLD & BSD series

**Common to All Models**

- **Wavelength:** 457.5 ± 0.5 nm
- **Output Mode:** single transverse mode
- **Beam Quality:** M² <1.3
- **Spectral Linewidth (FWHM):**
  - BSD Series: <0.5 nm
  - BLD Series: <200 kHz single frequency
- **Polarization:** Linear (horizontal)
  - >100:1 extinction ratio
- **Warm-up Time from Cold Start:** <3 minutes
- **Beam Pointing Stability (constant temp.):**
  - <25 μrad
- **With Beam Combiner/Expander:**
  - <7 μrad
- **Power Stability (8 hours):** ± 3%
- **rms Amplitude Noise**
  - BLD Series: <2% (20 Hz to 1 MHz)
- **Number of Beams:** 2 (exit angles are not parallel to mechanical center line)
- **Beam Diameter (1/e² at waist):**
  - Raw Beam: See Table
  - With Beam Combiner/Expander: Approximately 4 × table values
- **Beam Divergence (full angle 1/e², Round):**
  - <5 mrad (each beam)
- **Beam Divergence (full angle 1/e², Elliptical):**
  - <5 mrad vertical (each beam)
- **Beam Divergence (Elliptical) with Beam Combiner/Expander:** <0.7 mrad

**Electrical Parameters**

- **Recommended Power Supply:** 58 PSM 290
- **Electrical Service:** 100 to 240 Vac, 50 to 60 Hz
- **Power Requirements:** 150 W (typical)
- **Cable Length:** 36 inches (914 mm)

**Environmental Specifications**

- **Cooling:** Forced air-cooled with heat sink
- **Operating Temperature:** +10°C to +35°C
- **Storage Temperature:** −10°C to +60°C
- **Relative Humidity, Operating:** 0 to 95% noncondensing
- **Laser Head Weight:** 3.9 kg (8.6 lb)
- **Power Supply Weight:** 3.7 kg (8.1 lb)

**Options**

- Beam combiner/expander 58 ACB 001
- OEM module
- Custom beam delivery
- Custom configurations
- CDRH compliance kit

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**OUTPUT BEAMS AND POLARIZATION**

58 BLD and BSD series lasers have two output beams. In high-power frequency-doubled linear cavities, the forward- and backward-propagating beams in the nonlinear crystal can generate unwanted effects such as depolarization and astigmatism. To avoid these effects, we separated the forward- and backward-propagating beams. The two beams exit the laser at a slight angle with respect to one another. Each beam is linearly polarized and can be treated optically as emanating from two waists located in the cavity. They can be reimaged into a single spot or used independently.

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**Specifications for 58 BLD and BSD Series Diode-Pumped Solid-State Lasers**

<table>
<thead>
<tr>
<th>Model</th>
<th>Output Power (mW)</th>
<th>Beam Shape (both beams)</th>
<th>Beam Dimensions (1/e²; full width at waist)</th>
<th>Beam Dimensions (1/e²; full width at waist)</th>
<th>Beam Divergence (full angle 1/e², mrad)</th>
<th>Coherence Length</th>
<th>Longitudinal Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>58 BLD 001</td>
<td>50</td>
<td>Round</td>
<td>0.16 mm</td>
<td>N/A</td>
<td>N/A</td>
<td>&gt;5 m</td>
<td>Single</td>
</tr>
<tr>
<td>58 BLD 301</td>
<td>100</td>
<td>Round</td>
<td>0.16 mm</td>
<td>N/A</td>
<td>N/A</td>
<td>&gt;5 m</td>
<td>Single</td>
</tr>
<tr>
<td>58 BLD 305</td>
<td>200</td>
<td>Round</td>
<td>0.16 mm</td>
<td>N/A</td>
<td>N/A</td>
<td>&gt;5 m</td>
<td>Single</td>
</tr>
<tr>
<td>58 BLD 601</td>
<td>300</td>
<td>Elliptical</td>
<td>0.15 mm</td>
<td>0.29 mm</td>
<td>&lt;2.5 mrad</td>
<td>&gt;5 m</td>
<td>Single</td>
</tr>
<tr>
<td>58 BLD 605</td>
<td>400</td>
<td>Elliptical</td>
<td>0.15 mm</td>
<td>0.29 mm</td>
<td>&lt;2.5 mrad</td>
<td>&gt;5 m</td>
<td>Single</td>
</tr>
<tr>
<td>58 BSD 001</td>
<td>50</td>
<td>Round</td>
<td>0.16 mm</td>
<td>N/A</td>
<td>N/A</td>
<td>&lt;1 mm</td>
<td>Multimode</td>
</tr>
<tr>
<td>58 BSD 301</td>
<td>100</td>
<td>Round</td>
<td>0.16 mm</td>
<td>N/A</td>
<td>N/A</td>
<td>&lt;1 mm</td>
<td>Multimode</td>
</tr>
<tr>
<td>58 BSD 305</td>
<td>200</td>
<td>Round</td>
<td>0.16 mm</td>
<td>N/A</td>
<td>N/A</td>
<td>&lt;1 mm</td>
<td>Multimode</td>
</tr>
<tr>
<td>58 BSD 601</td>
<td>300</td>
<td>Elliptical</td>
<td>0.15 mm</td>
<td>0.29 mm</td>
<td>&lt;2.5 mrad</td>
<td>&lt;1 mm</td>
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</tr>
<tr>
<td>58 BSD 605</td>
<td>400</td>
<td>Elliptical</td>
<td>0.15 mm</td>
<td>0.29 mm</td>
<td>&lt;2.5 mrad</td>
<td>&lt;1 mm</td>
<td>Multimode</td>
</tr>
</tbody>
</table>
Select from more than 32 wavelengths

Melles Griot manufactures a comprehensive line of lasers and laser systems for laboratory and OEM applications. Standard products include helium neon and helium cadmium lasers, diode-pumped solid-state lasers, argon, krypton, and mixed gas ion lasers, and semiconductor laser assemblies. Available wavelengths range from 325 nm in the ultraviolet to 1.52 \( \mu \text{m} \) in the near infrared, with powers from a few milliwatts to several watts, as shown in the chart below.

Spectral output available from Melles Griot lasers
Melles Griot blue single beam diode-pumped solid-state blue lasers provide high power output in a compact air-cooled package. They are ideal for use in semiconductor, biomedical, spectroscopic, interferometric, and holographic instrumentation applications; laser display devices; photo-plotters; PC board, wafer, and surface inspection equipment; and particle characterization instrumentation. Other wavelengths are available.

- Up to 400 mW at 457 nm
- Low power consumption
- Single transverse and longitudinal mode
- Universal input voltage power supply
- Lightweight and compact
- RS-232 interface
- Coherence length up to 5 meters
- Automatic power control
- Single output beam
- CDRH and CE compliant
Specifications (Common to All Models)

Output Specifications

**Wavelength:** 457.5 ± 0.5 nm

**Transverse Mode:** Single

**Longitudinal Mode:** Single

**Beam Quality:** \( M^2 < 1.2 \)

**Coherence Length:** Up to 5 m (ACC mode)

**Polarization:**
- Horizontal: ± 5°
- Extinction Ratio: > 100:1

**Warm-up Time from Cold Start:**<5 minutes

**Beam Pointing Stability (22° ± 1°C):**
- <0.025 mrad
  - With Beam Collimator: <0.007 mrad

**Power Stability (22° ± 2°C over 8 hours):**
- with Automatic Current Control (ACC): ± 5%
- with Automatic Power Control (APC): ± 2.5%

**Amplitude Noise (20 Hz to 2 MHz):**
- <2% rms

**Beam Exit Angle:** 4° ± 1° (horizontal)
  - 0° ± 1° (vertical)

**Beam Diameter (1/e² at waist):**
- See Table Below

**Beam Diameter (1/e²) with Beam Collimator:** Approximately 4 × table values

**Beam Divergence:** See Table Below

**Beam Divergence (Elliptical) with Beam Collimator:** < 1.5 mrad

Environmental Specifications

**Cooling:** Forced-air cooled with heat sink

**Operating Temperature:** +10°C to +35°C

**Storage Temperature:** -10°C to +60°C

**Relative Humidity, Operating:**
- 0 to 95% noncondensing

**Laser Head Weight:** 3.9 kg (8.6 lb)

**Power Supply Weight:** 3.7 kg (8.1 lb)

Options

- Collimator 58 ASB 001
- Custom beam delivery
- Custom configurations

Electrical Specifications

**Input:** 100 to 240 Vac ± 10%, 50 to 60 Hz

**Power:** 150 W (typical)

**Laser Head Cable Length:** 914 mm (36 inches)

Beam Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Output Power (mW)</th>
<th>Beam Shape</th>
<th>Beam Dimensions (1/e²; full width at waist, mm)</th>
<th>Beam Divergence (full angle 1/e², mrad)</th>
<th>IEC/CDRH Laser Class</th>
</tr>
</thead>
<tbody>
<tr>
<td>85 BLS 001</td>
<td>50</td>
<td>Round</td>
<td>0.16/0.16</td>
<td>&lt;5.0/&lt;5.0</td>
<td>3B/IIIb</td>
</tr>
<tr>
<td>85 BLS 301</td>
<td>100</td>
<td>Round</td>
<td>0.16/0.16</td>
<td>&lt;5.0/&lt;5.0</td>
<td>3B/IIIb</td>
</tr>
<tr>
<td>85 BLS 305</td>
<td>200</td>
<td>Elliptical</td>
<td>0.15/0.29</td>
<td>&lt;5.0/&lt;2.5</td>
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<tr>
<td>85 BLS 601</td>
<td>300</td>
<td>Elliptical</td>
<td>0.15/0.29</td>
<td>&lt;5.0/&lt;2.5</td>
<td>3B/IIIb</td>
</tr>
</tbody>
</table>

Melles Griot lasers are designed, tested, and manufactured for compliance with applicable international electrical and laser safety standards.
Select from more than 36 wavelengths

Melles Griot manufactures a comprehensive line of lasers and laser systems for laboratory and OEM applications. Standard products include helium neon and helium cadmium lasers, diode-pumped solid-state lasers, argon, krypton, and mixed gas ion lasers, and semiconductor laser assemblies. Available wavelengths range from 325 nm in the ultraviolet to 1.52 μm in the near infrared, with powers from a few milliwatts to several watts, as shown in the chart below.

Spectral output available from Melles Griot lasers
85 BLS series laser head (top view)

85 BLS series laser head (front view)