HIGH REPETITION RATE DYE LASER

The Credo high repetition rate dye laser systems build upon the designs of the popular Cobra pulsed dye laser series. German engineered by our partner firm Sirah GmbH for precision, stability, and reliability, the Credo dye laser system has a resonator optimized for low energy, high repetition rate pumping. The Credo system can have an optional built-in pump laser or optional doubling resulting in a sophisticated and compact system-ideal for laser induced fluorescence (LIF) and combustion studies.

The Credo-YHP model is configured with a built-in Spectra-Physics Navigator™ 532-9 pump laser integrated into the laser box, resulting in assured alignment, smaller footprint and portability.

The Credo systems offer:

• Top mount adjusters for easy alignment. The top cover simply flips up and the adjusters can be accessed from both sides of the laser.

• Optimized oscillator design to minimize pump thresholds, including cuvettes with Brewster angle windows, and a high efficiency grating-arm design.

• Newly designed high flow rate cuvettes for efficiently replenishing spent dye in the gain region. Special care was taken to remove any impediment to flow in order to provide the smoothest, fastest transfer of dye.

• Removable cuvettes for rapid dye changes. No need to flush out and clean the dye circulator system. The entire dye circulator system can be removed in seconds without tools and changed out for another autonomous system already filled with the dye for the next wavelength region of interest.

• With the optional integrated doubler, the Credo dye lasers offer coverage at popular wavelengths such as 283, 308 and 353 nm.

Reliability is inherent in the Credo system design. All of the Credo oscillator components are mounted on a solid block of low thermal expansion stainless steel, mechanically and thermally isolated from the outer laser housing. By removing virtually all mechanical and thermal stress and by using opto-mechanics optimized for easy and reproducible operation, Credo lasers achieve a wavelength resettability for the oscillators of <5 pm, a limit set primarily by the laser’s spectral resolution.

Applications

• Laser induced fluorescence
• Combustion and atmospheric studies
• Pump probe for chemical interaction research
• Laser spectroscopy
• CARS

The Credo Advantage

• Wide tunable wavelength coverage from 370 nm to 900 nm
• Built-in optional doubler for wavelength coverage into the DUV
• Built-in optional amplifier for pulse energies of up to 3.3 mJ
• Compact all-in-one box operation with the Credo-YHP model
• User-friendly open source LabView® enabled software

1. 370–545 nm requires a 355 nm pump laser.
2. Requires external pump lasers.

Spectra-Physics
A Newport Company
Credo-YHP Optical Layout

Credo Dimensions

Dimensions in inch (mm)

www.spectra-physics.com
## Specifications

### Linewidth Specifications

<table>
<thead>
<tr>
<th>Dispersion Option</th>
<th>Tuning Range</th>
<th>Linewidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>1800 lines / mm, 90 mm</td>
<td>570–900 nm</td>
<td>0.08 cm⁻¹ @ 595 nm</td>
</tr>
<tr>
<td>2400 lines / mm, 90 mm</td>
<td>545–750 nm</td>
<td>0.06 cm⁻¹ @ 570 nm</td>
</tr>
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### Output Characteristics

<table>
<thead>
<tr>
<th>Absolute Wavelength Accuracy</th>
<th>Credo-YHP</th>
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<tbody>
<tr>
<td>Wavelength Retestability</td>
<td>&lt;5 pm</td>
</tr>
<tr>
<td>Wavelength Stability</td>
<td>&lt;2 pm/°C</td>
</tr>
<tr>
<td>Divergence (typical)</td>
<td>0.5 mrad</td>
</tr>
<tr>
<td>Beam Size (typical)</td>
<td>0.8 mm (horizontal) x 2 mm (vertical)</td>
</tr>
<tr>
<td>Polarization</td>
<td>&gt;98% (vertical)</td>
</tr>
<tr>
<td>ASE</td>
<td>&lt;0.5%</td>
</tr>
<tr>
<td>Repetition Rate</td>
<td>10 kHz</td>
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<tr>
<td>Efficiency (570 nm)²</td>
<td>&gt;15%</td>
</tr>
<tr>
<td>SHG Efficiency (285 nm)²</td>
<td>&gt;10% of fundamental</td>
</tr>
</tbody>
</table>

### Requirements

- **Cooling for Dye Laser**: 300 W, resonator only
- **Voltage**: 110–230 V, single phase, 50 Hz / 60 Hz
- **Computer**: USB
- **Operating System**: Windows XP / Windows Vista / Windows 7

1. Pulse duration shortest at the lowest repetition rates
2. After 100 kHz, efficiency straight line declines to 1.5% for R6G at 200 kHz