Fire*BIRD* Short-Pulsed Laser Illumination
For Ultra High-Speed Imaging Applications

OXFORD LASERS

Powerful 1000 W Laser Light Source for Advanced Imaging Techniques

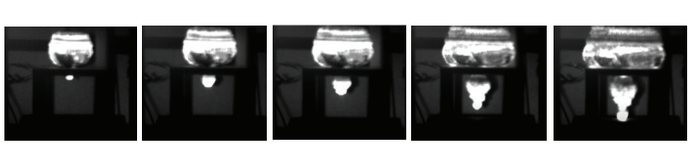
The Fire*BIRD*'s powerful features enable the highest quality images and easily synchronises with high-speed camera systems using a single controller. It allows you to view and optimse your processes over a variety of advanced imaging techniques.

Top Performance Fire*BIRD* Features

- 1000 W Laser Class 4 system
- 500 kHz continuous
- 5000 pulses at 8 MHz
- 10 MHz maximum pulse frequency
- 15 nano second pulse duration
- 1 MHz - 60 seconds (2% duty cycle)
- 2% duty cycle
- Single controller – operates 1 Hz to 10 MHz

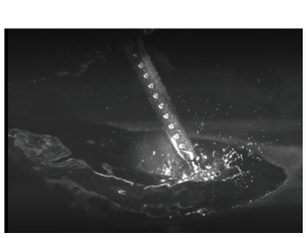
Applications and Imaging Techniques

Energetic, Ballistic and Bright Events

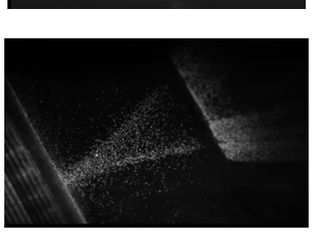


Idaho National Laboratory

Imaging a Shape Charge Detonation
The Fire*BIRD* single wavelength (808 nm) allows you to see through an explosive event and enable never-before seen images of energetic processes as they develop.

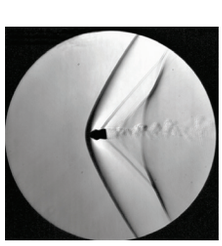


Seeing through the Brightness: Welding
Understand the quality of your welding process. Visualise the melt pool with laser illumination to gain insight into your manufacturing processes.



Additive Manufacturing
Imaging of laser cladding and other techniques are possible with the Fire*BIRD*. Watch and evaluate the powder flow and nozzle focus for understanding the consistency of your coating process.

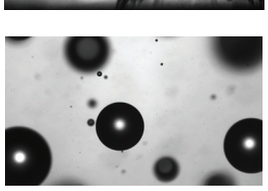
Imaging Dynamic Processes



Schlieren: Flow Visualisation
View flow processes that are invisible to the human eye such as shock waves through the air.

General High-Speed Imaging

High-Speed Particle Imaging
Capture the detail with laser illumination of fast-moving particles. Evaluate the travel of droplets, sprays and projectiles.



Back Illumination
The versatile Fire*BIRD* excels at a range of techniques including back illumination when the high quality of imaging counts.

Fire*BIRD*

Short-pulsed laser illumination for ultra high-quality imaging

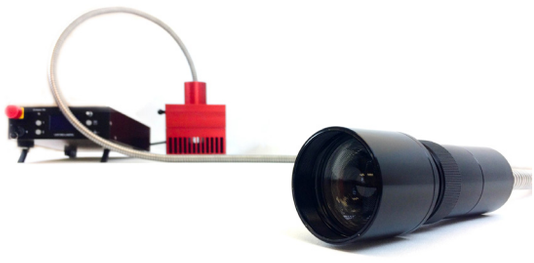
Export Controlled

Technical Specifications

Name	Fire*BIRD* laser
Laser Class	Laser Class 4
Wavelength	808 nm
Laser power	1000 W*
Pulse duration	50 ns 15 ns reduced power
Duty cycle	Up to 1% continuous operation >1% to 2% operation up to 60 s
Maximum pulse Frequency 254 pulses internal trigger 5000 pulses external trigger 60 seconds Continuous	 10 MHz 8 MHz 1 MHz 500 kHz
Voltage	100 to 240 VAC
Frequency	50/60 Hz
Operating system	MS Windows-based Fire*BIRD* control software Single controller for all modes
Dimensions	Laser Head (no optic): 130 x 150 x 150 mm Controller: 310 x 200 x 80 mm
Weight	Laser Head (no optic): 4.7 kg Controller: 2.3 kg
Light delivery options	Direct mounted or Flexible light delivery Range of optics available
Option - Remote operational control	Extended use up to 500 m Longer lengths on request

*at the diode

Direct mounted optic for the most challenging applications



FireBIRD's flexible light delivery option when imaging space and access is difficult

OXFORD LASERS

Contact Us

Oxford Lasers Ltd.
Unit 8, Moorbrook Park
Didcot, Oxon, OX11 7HP
United Kingdom
Tel: +44 (0) 1235 810088

Oxford Lasers Inc.
2 Shaker Road, Unit A101
Shirley, MA 01464
USA
Tel: +1 978 425 0755

www.oxfordlasers.com | enquiries@oxfordlasers.com

version: 10 March 2025