

## Laser light for high-speed imaging

**Boost your imaging** and monitoring system with high intensity laser light.

**See through heat and blinding brightness** straight to the core of your process.

**Freeze the motion** even in the most demanding of applications.

**High quality imaging** in high-speed and even in ultra-high-speed.

**Versatile** light source for various applications.

**Variability** through fiber coupling and pulse generation.

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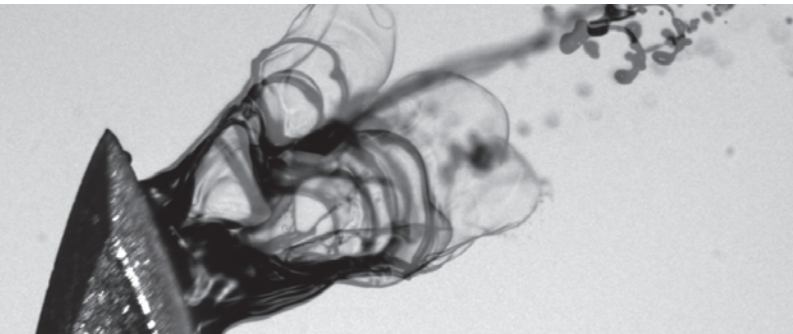
**Want to see what you have missed?**  
Cavitar Ltd is an expert in illumination lasers  
based on diode laser technology.

We offer versatile products, systems and  
solutions for end-users of R&D applications  
and integrators of industrial  
monitoring systems.

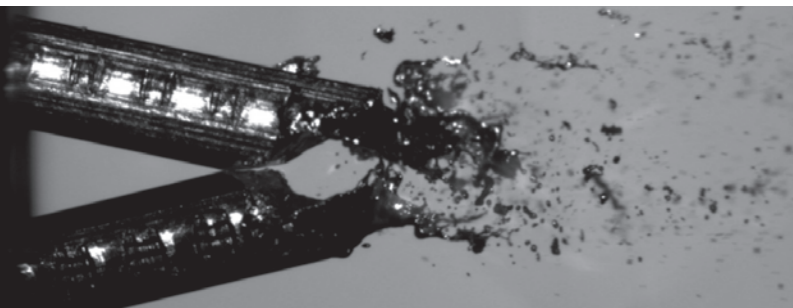
[www.cavitar.com](http://www.cavitar.com)

**CAVILUX<sup>®</sup> HF**  
Laser light for high-speed imaging

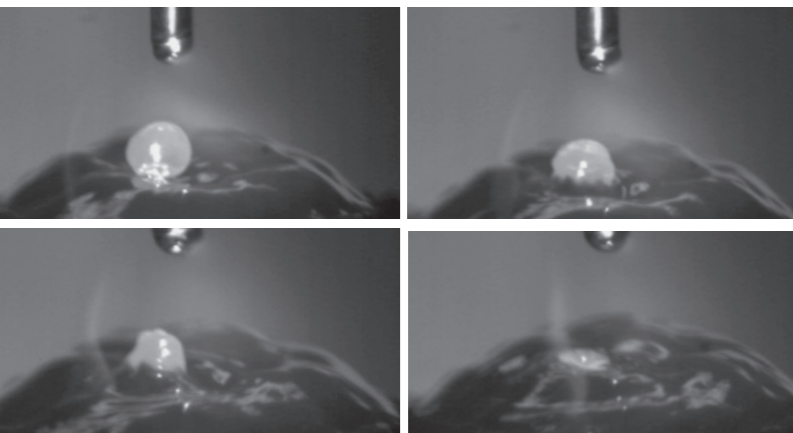
See what you  
have missed



Spray generation at the tip of a needle



Thermal coating – particle generation in wire arc coating



MAG welding

## CAVILUX® HF System

### Boost for high-speed imaging

- › Powerful high-frequency pulsed diode laser light source for visualization of demanding applications
- › For high-temperature processes – see through heat and blinding brightness
- › Accurate imaging of processes involving even extremely small and/or fast objects
- › Ability to generate pulses at high or ultra-high speed
- › Versatility by varying pulse duration and repetition rate
- › Shortness of pulses eliminates motion blur – better and more accurate images for analyzing
- › Possibility to generate up to five pulses per one camera exposure
- › Monochromatic and low-coherence light ensures the best possible image quality – without chromatic aberrations or speckle
- › High flexibility through changeable illumination optics that enable setups even in limited space and with long working distances

### For visualization of various applications:

- › Welding
- › Ballistics and explosions
- › Flows, droplets, sprays and jets
- › Schlieren imaging
- › Materials testing

Pulse duration / frequency		
Pulse duration	Normal mode (1)	High-speed mode (2)
* 50 ns	6.000 Hz	400.000 Hz
100 ns	3.000 Hz	200.000 Hz
500 ns	600 Hz	40.000 Hz
1 µs	300 Hz	20.000 Hz
10 µs	30 Hz	2.000 Hz
With long pulse (LP) extension		
200 µs	1,5 Hz	100 Hz

\*with reduced output power • (1) duty cycle 0,3 ‰ without time limit • (2) duty cycle 2 ‰ for 10 s

## CAVILUX® HF System features

CAVILUX HF System
Consists of a control unit, laser unit(s), control software and illumination optics
One control unit can drive 1...4 laser units (including CAVILUX Smart unit) and synchronize 1...4 cameras
Laser unit(s)
Output power 500 W
Wavelength 810 nm (near-IR)
Laser class 4
Green laser pointer for easier alignment
Variability through generation of pulses and pulse patterns
Pulse duration 100 ns ... 10 µs (also 200 µs by request)
Duty cycle 2 ‰ for max 10 s (also ultra-high speed mode available)
Continuous mode with 0,3 ‰ duty cycle
Generation of single pulses or bursts of pulses (max. 5 pulses / bursts) at high repetition rate
Practical repetition rates up to a few hundred kilohertz
Stand-alone operation
Versatility through changeable fiber optic illumination
Adjustable illumination with lens (standard solution)
Direct illumination from fiber optics
Uniform back illumination (e.g. shadow imaging)
Line profile illumination (e.g. flow, welding)
Light sheet illumination