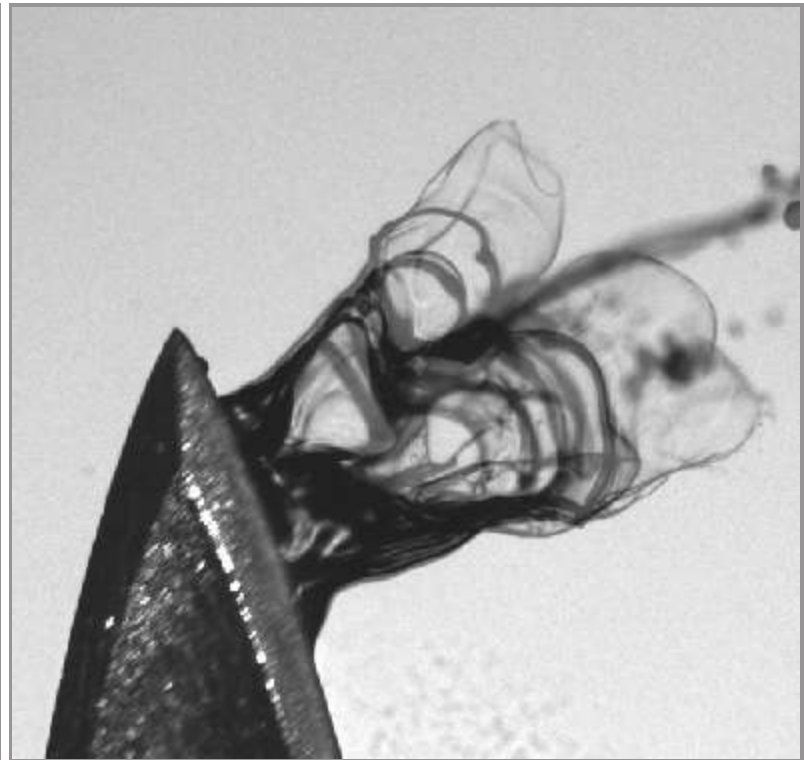


# CAVILUX<sup>®</sup> Smart

Laser light for monitoring and R&D



**CAVITAR**

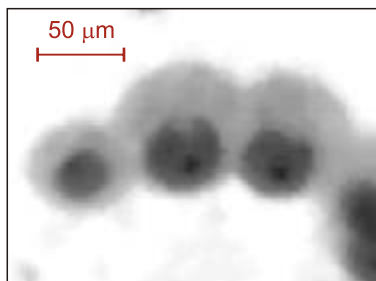
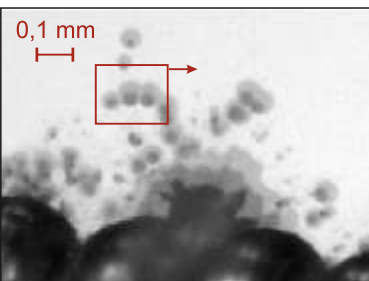
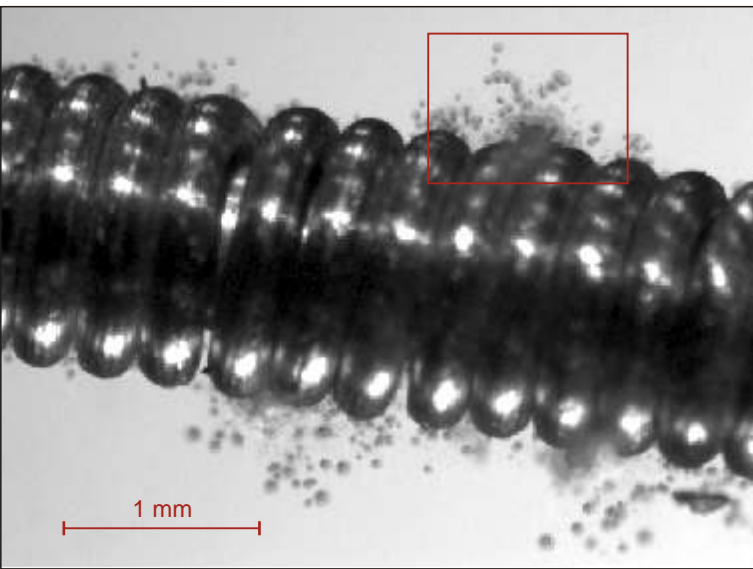
# CAVILUX® Smart

- Laser light for monitoring  
and R&D

CAVILUX Smart is a powerful and versatile pulsed diode laser light source designed especially for scientific and industrial R&D. It is a great tool for the visualization and online monitoring of processes involving small and fast and/or hot and bright objects. With CAVILUX Smart you can freeze even the fastest terrestrial motion and see through heat and blinding brightness.

The versatility of CAVILUX Smart is achieved by changeable illumination optics and easy creation of desired pulse patterns. You can visualize and monitor fast motions, such as, engine injection sprays, details in a paper web, projectiles, collisions and PIV flow patterns with high temporal resolution.

Possible applications include welding, paper webs, flows as well as materials testing and the study of impacts and explosions.



Cavitation



Schlieren image of a laser welding process

See what you  
have missed

# CAVILUX® Smart

## Laser light for monitoring and R&D

CAVILUX Smart consists of a control unit, laser unit(s), control software and illumination optics.

### Laser unit(s)

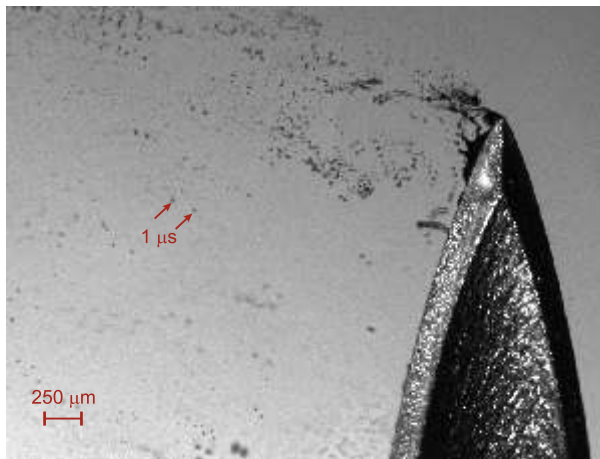
- output power 200–500 W in a typical configuration
- wavelength 690 nm (red, visible) or 810 nm (near-IR)
- monochromatic and incoherent light, ideal for high-quality images (no speckle or chromatic aberrations)
- one control unit can drive 1 ... 4 laser units (including CAVILUX HF and LP units) and synchronize 1 ... 4 cameras

### Generation of any pulse pattern within the limits of

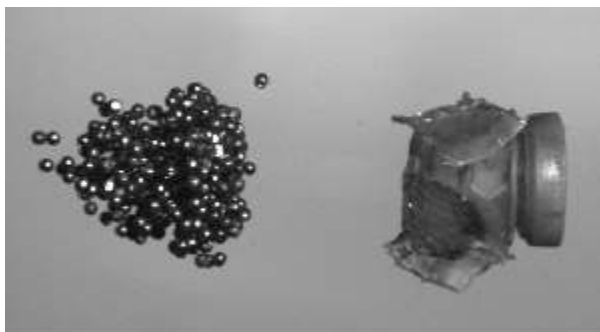
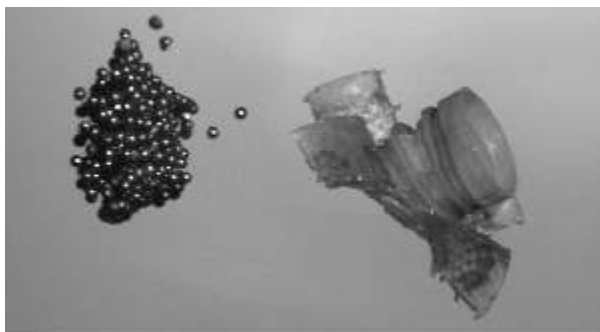
- pulse durations 30 ns ... 10  $\mu$ s
- duty cycle 1 % for max 10 s or 0,3 % continuously
- generation of single pulses or bursts of pulses (max 5 pulses) at high repetition rate
- stand-alone operation

### Fiberoptic illumination

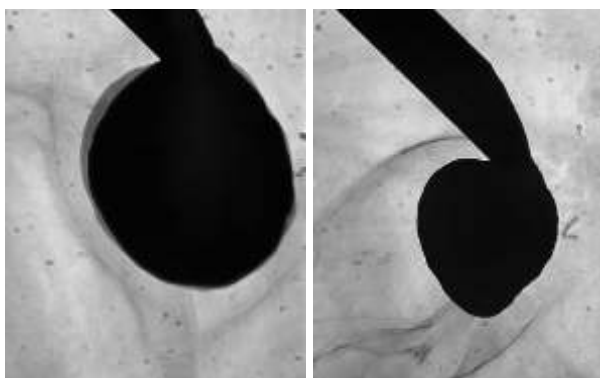
- direct illumination from fiber optics (e.g. Schlieren imaging)
- adjustable illumination with lens (standard solution)
- uniform back illumination (e.g. shadow imaging)
- line profile illumination (e.g. PIV)
- coaxial illumination (e.g. pressurized processes)



Spray generation



Shot crowds



Droplet forming on a filler wire



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