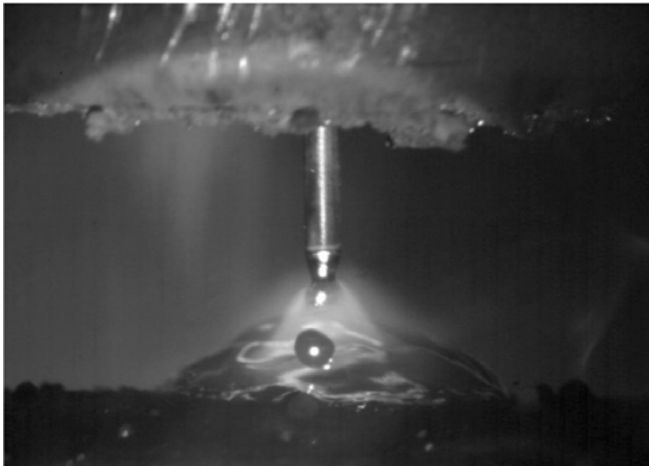


Welding imaging with CAVILUX laser illumination

Benefits and applications

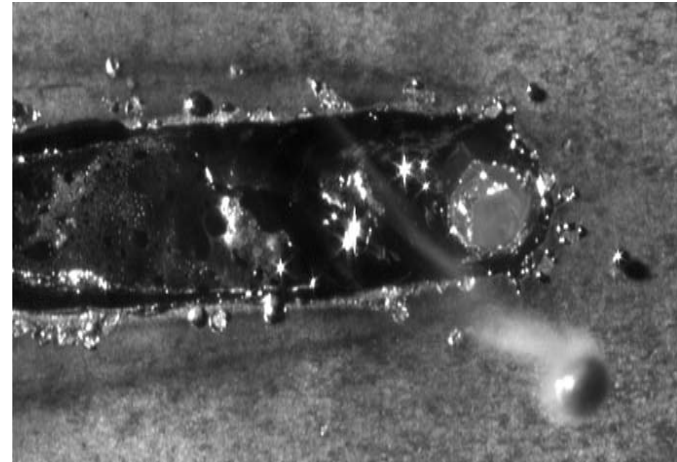
- Easy to use
- See through the blinding process light



Arc welding
(1200 fps)

Visibility of:

- Drop forming
- Melt pool dynamics
- Splatter

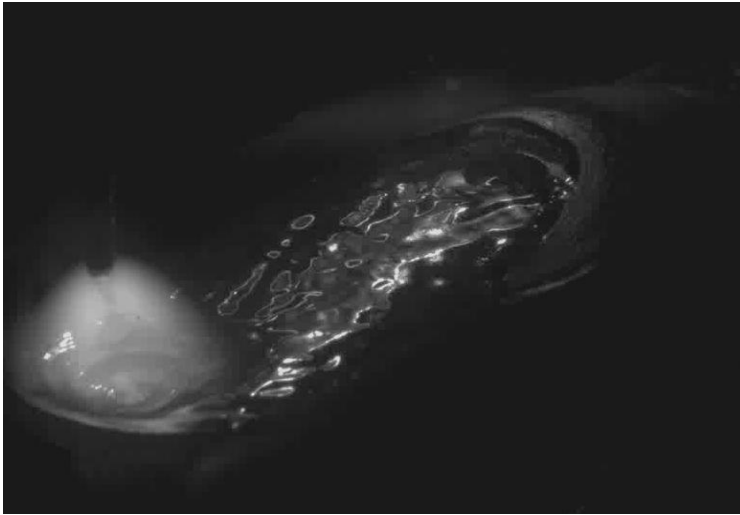


Laser welding
(8000 fps)

Visibility of:

- Keyhole behaviour and dimensions
- Melt pool dynamics
- Splatter

Applications



Arc welding
(5000 fps)

Visibility of:

- Drop forming
- Visibility of weld pool wave behaviour
- Splatter



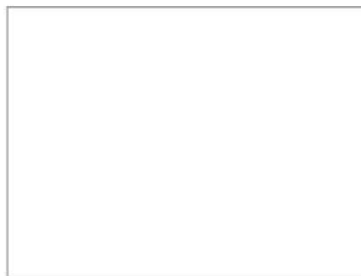
PIV arc welding
(2000 fps)

Visibility of:

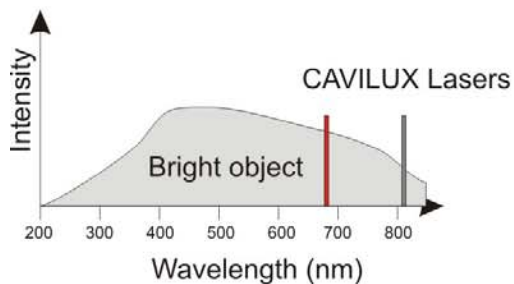
- Tracer particles in protection gas
- Drop forming
- Melt pool dynamics
- Splatter

How to visualize welding 1/2

Process



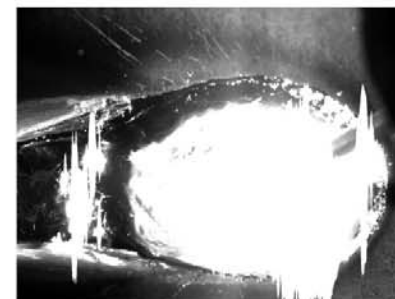
Complete over exposure



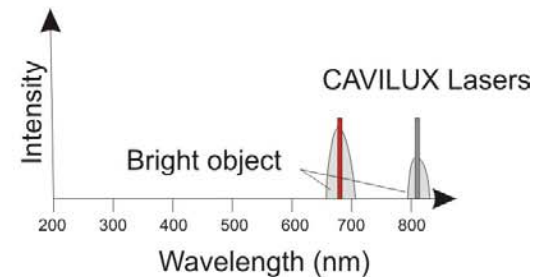
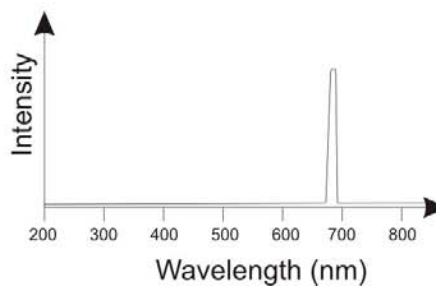
Band pass filter



Process after filtering



Partial over exposure



How to visualize welding 2/2

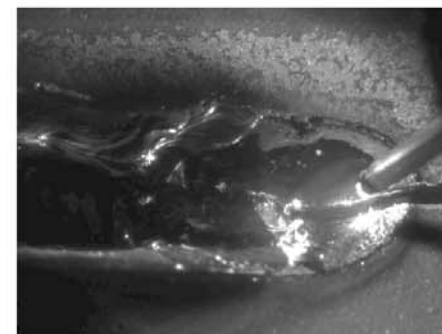
Adjusting pulse duration and camera shutter time with CAVILUX control software

Pulse Pattern			
Camera 1		Laser 1	
0/1	t	0/1	t
0	0,00	1	0,00
1	0,00	1	0,00
0	0,00	1	0,00
1	0,00	1	0,00
0	0,00	1	0,00
1	0,00	1	0,00
0	0,00	1	0,00
1	0,00	1	0,00
0	0,00	1	0,00
1	0,00	1	0,00
0	0,00	1	0,00
1	0,00	1	0,00
T (µs)	0	T (µs)	0
1/T (Hz)	inf	1/T (Hz)	inf

Adjust camera iris as needed



Process after adjustments



Complete elimination of thermal radiation

