



# ITvis

## Induction Thermography

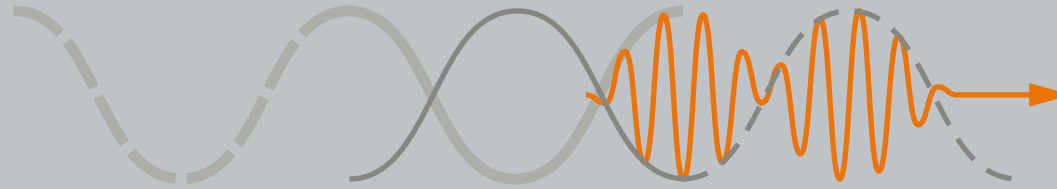
### **Non-destructive test system for joining application and crack detection**

Induction Thermography is a non-contact testing method for defect detection in metallic or electrically conductive structures. The method provides excellent detection capabilities of near-surface cracks at very high testing speeds. Moreover it is useful for quality assurance of joining applications like adhesive, mechanical or welded joints. The pulse-phase evaluation technology results in a method insensitive to environmental influences and surface properties at short measurement times.

For crack detection, the method is highly competitive to color penetrant or magnetic flux testing due to test cycles of far below one second. As well as other thermographic techniques, Induction Thermography has a high potential for automated testing using image processing methods. Therefore, it can be applied to manufacturing lines as an inline quality control tool.

The system design is modular and thus extendable with all other edervis excitation modules like OTvis, UTvis or PTvis.





# APPS/CONCEPT

## Typical applications

### Automotive applications

- Crack detection in metallic components (e.g. casting, forging or punch drawing)
- Detection of flaws in adhesive, riveted or welded joints
- Characterization of metal-polymer compounds
- Detection of double skin in rolled plates

### Aerospace applications

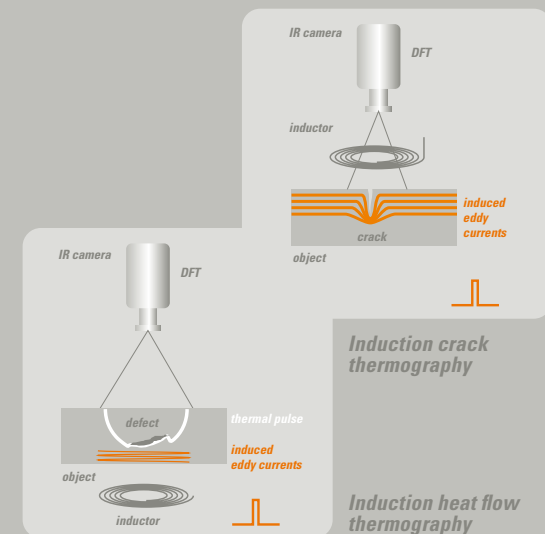
- Crack detection in structural components (fatigue)

### Other applications

- Non-contact crack detection in bolts

## Principle of Induction Thermography

Induction Thermography is charging the specimen locally to eddy currents. Thus a defect selective warming of cracks or interaction of flaws to a heat flow is resulting. Local irregularities of the specimen's surface temperature indicate material defects and can be visualized by the infrared camera. For measurement result, the time difference between inductive excitation and thermal response is evaluated, providing an extremely robust signal, which is insensitive to irregularities of the component surface. For excitation highly accurate industry-proven induction technology is used. Depending on test case detection is done by sensitive and fast cooled detectors or cost efficient uncooled cameras.





# SPECIFICATIONS

*ITvis is available as ITvis3000 / ITvis5000 / ITvis 10000*

## **Induction generator**

Output power	3kW / 5kW / 10kW
Supply	230 V or 400 V, 16 A, 50 Hz
Frequency	MF or HF induction
Cooling system	Water- or air-cooled
Overload protection	√

## **Software**

Real-time Fourier transform	√	Sequential acquisition	P
Offline storing	√	Parameter storing	√
Phase representation	√	Remote control (DDE)	P
Amplitude representation	√	Adjustable induction parameter	√
Live image overlay	P	induction parameter	√

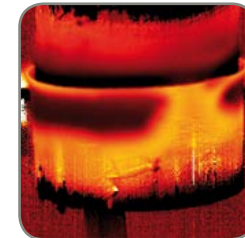
*P= only for PRO version; √= BASIC and PRO version*

## **Inductors**

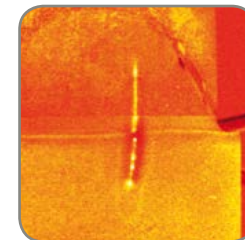
*Copper, water cooled, variable geometry  
Uncooled flexible inductors, quick-changeable  
Pre-optimized geometries for a multitude of applications*

## **Camera (options)**

Detector	InSb, MCT or Bolometer
Resolution	up to 1280 x 1024 Pixel
Spectral sensitivity	MWIR or LWIR
Frame rate	typically 100 Hz / full frame
Interfaces	CamLink or Gigabit Ethernet
Lens	12mm, 25mm, 50mm, 100mm, G1- G5



**Characterization of soldered joint**



**Crack detection in forged component**



**edevis GmbH**

Handwerkstraße 55 · 70565 Stuttgart  
Phone +49 711 93 30 77-20 · [info@edevis.de](mailto:info@edevis.de)  
[www.edevis.de](http://www.edevis.de)