framatome

Intercontrôle

LTCAM

Active thermography for the detection of surface and underlying defects

LTCAM: a new industrial, performing and safe NDE tool

Challenge

Intercontrôle developed a new NDE tool that can be used as an alternative to penetrant testing (PT) and magnetoscopy (MT) to detect surface and underlying defects.

Working principle

Thermography (TT) is an NDE method based on heat dynamics inside the inspected material to detect and characterize potential defects.
It is a contactless method, measuring the infrared (IR) signal issued from the heated inspected part.
LTCam uses a laser (heating source) and an infrared camera measuring the infrared signal of the part. This device allows for an immediate use of thermography testing:

- The focalized laser beam scans the inspected surface and creates a transitory heat flux.
- This heat flux will be disrupted if a defect is present. The infrared camera measures these disruptions.

An IR image of the inspected surface, showing the potential defects, is generated in real time.

Characteristics

OPTICAL CHARACTERISTICS

- Laser line from 30 to 90 mm
- Class 4 laser
- Laser power up to 200W
- Laser adapted optics
- Homogeneous laser line
- Working distance from 150 to 1500 mm
- High resolution IR sensor
- Different focal lengths can be used

Users benefits

- Evolving and modular device
- Automatic, semi-automatic or manual inspections
- Every type of material or surface
- Contactless testing method
- Suited for lab or production testing
- Surface or underlying defects
- Help for diagnostic and automatic part rejects can be setup
- Automatic reporting and data storage
- Conform to REACH environmental standard
- Conform to laser, electrical, and mechanical safety rules

Your performance,
is our everyday commitment

Characteristics

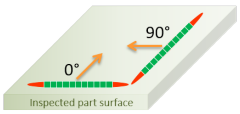
PHYSICAL CHARACTERISTICS

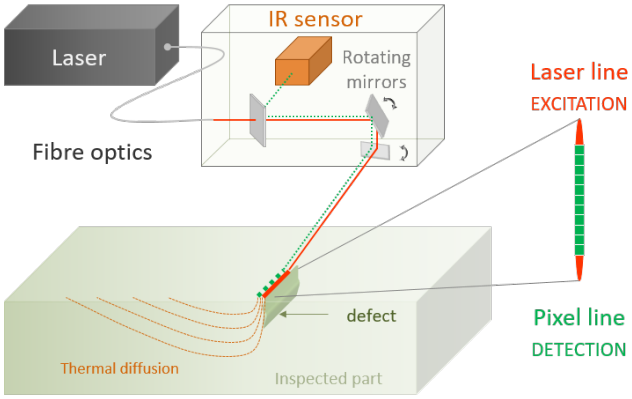
- Dimensions : 160 * 250 * 290 mm
- Weight : max. 15 kg
- Working temperature : 5 to 40°C
- Storage temperature : -40 to 60 °C
- Made for easy transportation
- Modular handles
- Suitable for use on a robot arm

USER INTERFACE

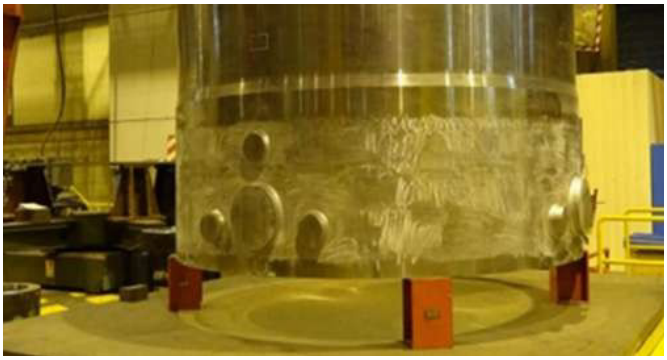
- Industrial interface integrated to the acquisition and analysis software DisplayImg developed by Edevis
- One software for calibration, acquisition and analysis
- Pilot laser and integrated surveillance camera for an easy setup
- Integrated telemeter to measure the working distance
- Data analysis can be performed during acquisition
- Automatic reporting
- Traceability ensured with full data storage

The camera provides automatic two-way scanning to cover a user-defined area





Schema of the operating principleLTCAM



Nuclear Reactor Steam Generator Shell Inspection

Performances

- Control speed : 2m/h (according to the application)
- Detection of surface and underlying defects (opening of a few microns)
- Sensibility demonstrated on a wide range of materials (ferritic steels, Inconel, aluminum) and different surface preparations (rough, polished, machined...)
- Wide surfaces can be inspected without moving the LTCam
- Inspections of difficult access area can be possible with the use of mirrors
- Integration on robot arms
- Wide working distance range

Safety and standards

- Device verified by independents organizations
- Training sessions
- LTCam is conform to the following standards :
  EN60825-1 (laser safety)
  ISO 14121-1 and -2 (machine safety)
  2006/42/CE

edevis®

THERMOCONCEPT

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