

Inspection par Thermographie Active

Active Thermographic Inspection













Principle

<u>Principle</u> : Inspection by active thermography consists of using a heat source that sends a thermal wave which penetrates an object being inspected. This thermal wave will interact with any discontinuity present in the object. The thermal pulse is disturbed at each interface and is captured in the form of an image on the surface of the object, using an infrared camera which sends a real time image to a display screen for interpretation by a certified level 2 Infrared test inspector. The inspection technique must be validated by a level 3 IRT.







Application

DEFECTS SEARCHED BY THERMOGRAPHY:

Separation zones Delamination Porosity Fiber breakage Foreign body inclusions Water infiltration into honeycomb structures

Composite Fabrication Inspection





3 inclusions in radius









Composite Maintenance Inspection on Airbus Elevator

Engine Overheat Inspection



Heat loss in building



Delamination/ Porosity on composite

Configuration

Calibration on test tube Representative of the piece

Equipement	Model
FLIR infrared camera, band 8-12 micrometers, NETD 0.03 ° c (30 mK) thermal resolution	FLIR T450 S/N 62114865 Calibrated by FLIR and calibration on Reference Standard before each part inspection
4* 1000 W Lamps	Lightmaxx controller
Computer	DELL PORTABLE 1Tb SSD
Flir Software	Flir ResearchIR Max
Approbation	P. Servais, dr ir, level III IRT

Equipment

Thermography – digital **portable** technique

Inspection

Pulsed thermography

IR video sequence analysis

Advanced post processing phase thermography

4 x 1000 W Heat Pulse

Linescan IRT reconstruction

Calibration – 6 porosity panels

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Capacité

Method	Equipment / Techniques	STAFF
RT	 Digital radiography (from 50KV – 320KV) 	2 RT Level1
Radiographic Testing	 Resolution from 50 μm – 200 μm 	2 RT level 2 and 1 RT3
	 Immersion Testing 	1 UT level 1
UI Illtracopic Tecting	 Thickness measurement 	2 UT level 2
Ultrasonic lesting	 Phased Array Pulse Echo 	1 UT level 3
ΡΤ	 Red Dye or Fluorescent penetrant 	4 PT level 2
Penetrant Testing	 Alkaline or Solvent Degreasing 	1 PT level 3
ΜΤ	Hand yokes	3 MT level 2
Magnetic Particle Inspection	 Stationary MT bench 	1 MT level 3
IRT	 Hot air heater or 4 x 1000 W Halogen heaters 	2 IRT level 2
Infrared Thermography Testing	IR Camera Flir T450sc	1 IRT level 3
ST	 Hot air heater or 4 x 1000 W Halogen heaters 	1 ST level 1
Shearographic Testing	 Optrion Digital Shearographic Camera 	1 ST level 3
ET	 High and low Frequency Eddy Current Testing 	2 ET level 2
Eddy Current Testing	 Rotating Probe ET 	1 ET level 3
VT	 Direct VT of welds, castings and composite parts 	1 VT level 2
Visual Testing	 Indirect VT (endoscopy and digital microscope 220x) 	1 VT level 3

Contact

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