

## **RE: STRUCTURAL INFRARED IMAGING AND DEFECTS DIAGNOSTIC**

Fast and easy detecting structural defects, voids, flaws, stress concentrations and similar imperfections in big objects or blocks of solid materials with complex geometry (such as engine heads, motor blocks etc.) can be realized using combination of infrared imaging techniques and, sonic and ultrasonic wideband mechanical excitation.

In practice, the ultrasonic converter should be strongly coupled to the solid object under testing; -producing wideband (MMM) sonic and ultrasonic excitation, making that complete volume of the solid object is uniformly (and structurally) agitated. Certain amount of vibrating energy would start producing internal thermal dissipation (heating the object under testing volumetrically and uniformly).

All internal defects, voids, flaws and non-uniform stress concentrations (inside of the object under testing) would create different thermal conductivity zones, making that internally dissipated heat would propagate being strongly dependent of internal-defects geometry. Using a real-time, fast-speed infrared recording equipment, internal heat distribution would become externally visible, making defects, voids and flaws easily detectable.

This is the field of very promising applications of MMM sonic and ultrasonic, wideband technology.

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