Infrared & Thermography testing involves the use of temperature and heat flow measurement as a means to predict or diagnose failure. This may involve the use of contacting or non-contacting devices, or a combination of both.

Thermography scans using latest IR technology, with a combination of digital cameras has emerged as one of the best techniques in determining the exact locations of hot spots/areas and determination of reasons for their causes and/or source. Infrared thermography is a kind of NDT technology.

Digital pictures recorded from thermography scan are analyzed by a team of our certified engineers to provide detailed study on both the high temperature problem areas as well as normal temperature areas for future trending and comparisons in the form of specially designed report. The trends generated from temperature values are utilized in maintaining software's for predicting the situations that becomes a priority and what proactive solution is necessary to solve that problem.

**Utilization of latest technologies in our organization** and our culture of working in close association with our clients to develop them into world-class maintenance organization has made us a leader in the industry.

**Why SPECTRO?**

SPECTRO has a track record, with proven performance on new construction, pipeline installation, in-service inspection and expansion projects, as the total NDT solution provider in all over India. Our service offering varies from the conventional NDT techniques to advanced methods like Risk Based Inspection, Time of Flight Diffraction, Positive Material Identification, Magnetic Flux Leakage, Leak Testing, Electromagnetic Testing, Digital Radiography etc.

**The Objective**

Vast losses in the industrial sector are caused by malfunctions that could be prevented. Although damages and degradation of isolation materials and other materials are not visible, in most cases they can be solved through preventive measures. The temperature of an object is often a sufficient indicator of the performance of the installation. SPECTRO can offer you inspection technology to make temperature differences visible.

**Primarily Used For**

- Detection of electrical transmission line problems
- Location of Hot spots, corroded connection in electrical panel etc.
- Finds insulation efficiency in refectories and furnaces
- Energy audit for buildings and envelopes.
Infrared Thermography is a fast NDT inspection method, which does not influence the process and maps the temperature differences of any object in a range from -50ºC to 1500ºC.

Instead of detecting the temperature point by point, our camera is able to detect the temperature across a complete surface. This gives an excellent image of local temperature differences.

### We Offer
- Furnace & refractory wall inspection
- Electrical panel inspection
- Transmission line problem identification
- Building insulation & verification
- Energy auditing
- Break line effectiveness inspection in automobiles
- Cryogenic leak detection

### Application Areas
Infrared or thermography testing has emerged as a powerful, versatile, and highly accurate diagnostic tool for uncovering a wide range of problems in building systems and structures, including moisture intrusion, missing or damaged insulation, overloaded circuits, faulty wiring, loose electrical connections, construction defects, and post-fire damage. With over thirty years of experience, we know how to set up and execute the right testing configuration for your building parameters. Our expertise in infrared testing services for commercial and government buildings has earned accolades from facilities managers, plant managers, building maintenance specialists and building owners nationwide.

The technology is used on many applications, housing, offices, paintings, electrical installations of low and high voltage, mechanical installations (brakes, pumps etc) and of course also in the process industry to find leakages, blockages, degraded integrity, insulation and much more.

Infrared thermography cameras produce images of invisible infrared or "heat" radiation and provide precise non-contact temperature measurement capabilities. Nearly everything gets hot before it fails, making infrared cameras extremely cost-effective, valuable diagnostic tools in many diverse applications. And as industry strives to improve manufacturing efficiencies, manage energy, improve product quality, and enhance worker safety, new applications for infrared cameras continually emerge.

### Applicable Industries
- Aerospace
- Medical
- Power plants
- Utility industries
- Process industries
- Insulation breakdown of furnaces
- Boilers

### Our Services for Infrared Thermography
Infrared Thermography is an excellent help in monitoring or optimizing processes. SPECTRO brings the equipment needed during the inspection. All images will be saved digitally and after the analysis you will receive a comprehensive full color report.

Our Non Destructive Testing Services also offer the necessary guarantees when quality, cost savings, business security and safety are needed, for both existing and new installations.
Ultrasonic Testing

UT may be used to determine the extent or existence of cracking in various steel bridge components. Versatile for testing different steel sizes and orientations.

Positive Material Identification

With Positive Material Identification (PMI) the alloy composition, and thus, the identity of materials can be determined.

In-situ Metallography

In-situ Metallography and replication is used for micro structural analysis when examining large components that cannot be easily moved or destructive sample preparation is difficult or not permissible. In-situ Metallography allows for quick on-site evaluation of a component’s metallurgical and heat treatment condition and assist investigators when carrying out a remaining life assessment study or a failure analysis project.

Carbonation test

Chemical test is one of the useful methods to determine the deterioration of concrete and the remaining life of existing concrete structure. It is also used to determine the corrosion of reinforcement bar. Carbonation is a process, which causes deterioration of the concrete due to the action of atmospheric carbon dioxide.

Eddy current testing

Eddy current testing is used to detect surface and near surface irregularities in ferrous and non-ferrous materials by inducing an eddy current field in the part under test.

Liquid Penetrant Testing

Various types of liquid penetrant testing methods are utilized to detect material defects open to the surface or to detect open surface cracks.

Core Cutting

Core sampling may be used to verify the presence of steel corrosion, voids and delamination, and to determine concrete strength directly. Core Provides true indication of concrete’s compressive strength. Provides validation for other NDE techniques.

Helium Leak Test

Leak testing is a non-destructive examination method, which is used, for detection and localization of leaks and for measurement of leakage in systems or objects which is under vacuum or pressure.

Pile Integrity Test

The Pile Integrity test confirms the absence of major cracks and voids on any type of concrete foundations prior to construction of the superstructure.

Residual Life Assessment

Before the renovation and modernization / life extension programme, it is mandatory to conduct Residual Life Assessment study (RLA) of all critical components, which brings into notice for mandatory replacement / modifications necessary to guarantee a minimum 75% plant load factor and 85% plant availability.
Major Activities

- Metals & Alloys
- Non Destructive Testing
- Rubber & Polymers
- Food and Agro Products
- Coal, Solid Fuels & Petroleum
- Electrical & Electronics
- Pharmaceuticals & Drugs

Building Materials
- Minerals & Chemicals
- Leather & Textiles
- Water & Environment
- Paper & Packaging Materials
- Hazardous Substances
- Clean Room Validation

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