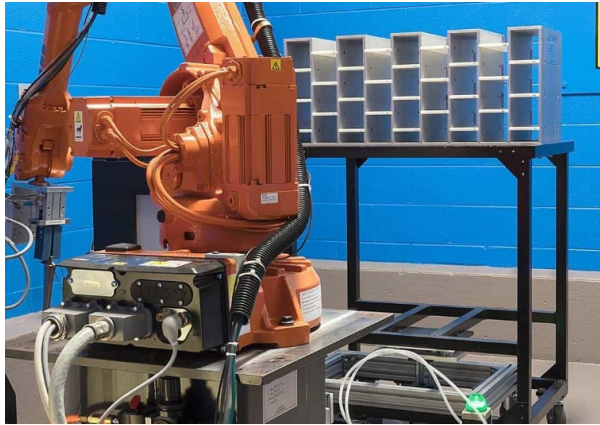


# Radiographic Testing (RT)



Radiographic testing (RT) is one of the most fundamental volumetric testing methods performed in the aerospace industry.

We count with the support of industry experts in the introduction of non-film radiography technologies for non-destructive testing (NDT). From computed radiography (CR) and Digital Detector Array radiography (DDA), our experts from [Applus+ XRI](#) have a portfolio of radiographic testing services includes traditional film and advanced digital technologies.

Thanks to its large processing capacity, we can provide quick turnaround even with high-volume production requirements.

## What is radiographic testing (RT)?

Radiographic testing (RT) is one of the most fundamental volumetric testing methods performed in the aerospace industry. Radiography encompasses a wide range of techniques from film usage to digital, with digital techniques including Computed Radiography (CR), Digital Detector Array (DDA), and Computed Tomography (CT). All of these techniques involve either X-ray or gamma radiation generated from a tube or from an isotope of Iridium-192, Selenium-75 or Cobalt-60.

## Types of radiographic testing

In Radiographic Testing (RT), there are several methods or techniques used to inspect materials for defects or irregularities. These methods can be based on the specific needs of the inspection, the type of material being examined, and the desired level of detail in the results. Here are some common types of radiographic testing techniques:

## **Film Radiography**

Film radiography, which utilises either X-ray or gamma radiation generated from a tube or from an isotope of Iridium-192, Selenium-75 or Cobalt-60, has been the most widely used application for volumetric inspections. RT NDT has the ability to: penetrate wide ranges of material with varying densities to detect internal defects in weld quality; profile in-service systems to determine if corrosion or erosion is present; evaluate castings for fabrication flaws or foreign objects; and detect damage in composites.

## **Computed Radiography**

Computed radiography (CR) NDT uses a filmless process to create digital, 2-dimensional radiographs. Digital radiography NDT provides radiographic images from a computer using the same conventional radiography exposure equipment. Computed radiography eliminates the need for chemical processing, uses lower source strength, enables smaller boundaries and yields quicker results. Computed radiography NDT provides images with a higher resolution and definition, providing greater detail for evaluation. Data storage and retrieval could not be simpler and information can be shared via the Internet.

## **Digital Radiography**

Digital radiography or direct radiography (DR) is the next evolution in inspection of in-service systems with minimal downtime or preparation. DR has the ability to inspect pipelines during operation without having to remove insulation and with no temperature restrictions. This is a filmless radiographic technique that requires no processing, is wireless and yields results instantaneously. Data storage and retrieval could not be simpler and information can be shared via the Internet.

## **Real-time digital radiography - Rayscan and Tankscan**

RTD Rayscan and Tankscan are Applus+ solutions for real-time digital radiographic (RTR) inspection used in radiography NDT, which uses advanced technology in direct radiography (DR) techniques. Real time digital radiography involves the filmless conversion of data into a high-resolution digital image of the entire weld and can be performed within a single scan.

Rayscan is a RTR inspection that can be used as either double-wall single image (DWSI) or single-wall single image (SWSI) and can inspect pipes with a diameter range from 5cm to 142cm (2' to 56'), as well as horizontal and vertical tank weld seams.

## **What are the benefits of radiographic testing?**

Radiography can penetrate wide ranges of material with varying densities to detect internal defects in weld quality, profile in-service systems to determine if corrosion or erosion is present, evaluate castings for fabrication flaws or foreign objects and detect damage in composites.

## Key features of Applus+ Laboratories radiographic inspection services

Our radiographic-inspection services are Nadcap approved and involve:

- 150kV to 420kV cabinets for quick production turnaround
- Versatility in processing a wide variety of shapes and sizes
- Walk-in cells with accessibility for larger parts
- Film and non-film solutions that reduce exposure time
- Highly efficient systems for image archiving, and secure transfer
- Storage of images in raw, unenhanced format
- Powerful, intuitive software for image analysis and enhancement, providing more accurate NDT inspections and image evaluations

## Radiographic Testing (RT) Applications

Radiography has a number of applications within the industry. Whether it be conventional film or digital, RT can be used to verify weld quality or to profile in-service piping to determine the presence of corrosion under insulation (CUI), flow-accelerated corrosion (FAC) or remaining wall thicknesses.

RT has been employed in several industries and for a variety of inspection types, including:

- Petrochemical
- Nuclear
- Fossil
- Chemical
- Military
- Aerospace
- Foundries
- New construction
- Post-construction
- Corrosion monitoring
- LNG fabrication

## Why choose Applus+ Laboratories for radiographic testing (RT)?

[Applus+ Laboratories](#) is an industry leader in the introduction of non-film radiography technologies for non-destructive testing (NDT), offering computed radiography (CR) and Digital Detector Array radiography (DDA) services at most facilities.

As a Nadcap-approved provider, we ensure that our clients are complying with industry requirements.

These are some of the benefits they can receive from our services:

- A significant reduction in NDT inspection-cycle time
- No need for any chemistry
- Reduced quantities of film scrap
- A more accurate interpretation of their NDT results

Our portfolio of radiographic testing services includes traditional film and advanced digital technologies. With our large processing capacity, we provide quick turnaround even with high-volume production requirements.