

Industrial Radiography Testing - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The industrial radiography testing market was valued at USD 643.76 million the previous year and is expected to register a CAGR of 8.75%, reaching USD 1.056 million over the forecast period.

Key Highlights

- Industrial radiography testing is widely used in the manufacturing and maintenance of military and civil aircraft and is considered under the scope of the aerospace segment. Radiography applications in aerospace include the detection of internal defects in thick and complex shapes, in metallic and non-metallic shapes, quality of critical aerospace components, structures, and assemblies.
- The growing size of commercial and military aircraft fleets is anticipated to drive opportunities in the studied market. For instance, according to Boeing, about 17,645 commercial aircraft are anticipated to be delivered in the Asia Pacific region between 2021-2040, followed by North America (9,160) and Europe (8,705), among others.
- The demand for industrial radiography solutions is also anticipated to witness stable growth in the petrochemical and gas and energy & power sector as the global energy demand is growing significantly. For instance, according to the International Energy Agency (IEA), the global electricity demand is anticipated to grow at a much faster pace of about 3% per year over the period (2023-2025) compared with the 2022 growth rate. Furthermore, IEA also estimates that around USD 2.8 trillion will be invested in energy in 2023. Such trends are thus anticipated to drive opportunities in the studied market as industrial radiography testing is widely used in the energy industry to identify infrastructure/equipment defects.
- However, the higher cost of radiography testing equipment and solutions, along with a high risk of radiation, are among the major factor challenging the studied market's growth. Furthermore, a lower awareness, especially across developing markets, also challenges the studied market's growth.
- The market studied has witnessed a notable impact of COVID-19 as the major end-user industries, such as automotive,

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aerospace, construction, and petrochemical, were highly impacted by the demand and production vertical. However, with covid-led restrictions lifted from almost all the countries and the market demand gaining traction, the studied market is also anticipated to witness positive growth during the forecast period.

Industrial Radiography Testing Market Trends

Aerospace and Defense to be the Largest End User

- The aerospace industry needs the highest quality standards for its products and demands nondestructive testing (NDT), such as radiography testing, for quality assurance. The exponential rise in demand for air travel worldwide drives tremendous growth in the aircraft industry. Any aircraft component built with defects and inconsistencies can result in catastrophic failures, endangering the operators' health and life as well as a considerable deal of money. As a result, radiography testing has emerged as a crucial industry component to guarantee aviation safety.
- Radiography NDT can penetrate a wide range of materials with varying densities to detect defects in joints using RT weld inspections, profile in-service systems to determine corrosion presence, perform radiography tests for casting to inspect fabrication flaws or foreign objects, and detect damage in composite materials. Radiography testing is anticipated to develop into an efficient technique for nondestructively identifying internal faults in materials and structures used in the industry due to the growing need to ensure safety.
- Additionally, in March 2023, GE Aerospace announced plans to invest more than USD 450 million in its current US manufacturing facilities, including the purchase of state-of-the-art machinery and facility upgrades to better position the business and support assembly improvements, capacity expansion, maintenance, and enhanced safety infrastructure upgrades. The market opportunities for several vendors to improve their radiography testing offerings will be enhanced by such investments in enhancing a company's manufacturing capabilities.
- Furthermore, the demand for manufacturing capabilities is anticipated to increase significantly as air passenger numbers rise, necessitating the need for testing techniques. According to the International Air Transport Association (IATA), for the entire year 2022, global traffic increased by 68.5% over pre-pandemic (2019) levels. Revenue passenger kilometers, or RPKs, or total traffic, increased by 64.4% from 2021 to 2022. December 2022 saw an increase in international traffic of 80.2% over December 2021, reaching 75.1% in December 2019.

Asia Pacific is Expected to Hold Significant Market Share

- The Asia-Pacific region is expected to grow significantly in the industrial radiography testing market as all the major end-user industries of the market studied are witnessing rapid growth. The penetration of advanced manufacturing and product testing solutions is also growing as significant vendors operating in the market are expanding their global footprint, wherein quality and product safety becomes crucial for them to compete with international players.
- The growing manufacturing end-user industries such as petrochemical, oil & gas, automotive, aerospace, defense, and others are set to boost the market growth rate in the region. In February 2022, PetroChina Jilin Petrochemical Company launched its transformation and upgrading project. The project includes constructing 21 new facilities, such as the 1.2Mt/ethylene unit, renovating nine facilities, and shutting down seven facilities. The project is facilitative to the high-quality development of CNPC's petrochemical and refining business, an extension of the local petrochemical industry chain, and the revitalization of Northeast China.
- Furthermore, India Brand Equity Foundation (IBEF) stated that the aerospace industry is growing significantly due to the rising activities from the defense and civil aviation sectors. With the increasing need for large aircraft from Indian carriers such as

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SpiceJet and Indigo and the focus on powered-by-hour contracts (PBH), many of India's aerospace services and manufacturing actions are anticipated to be carried out. Similarly, as India's defense capital expenditure spending continuously grows, there are also many opportunities in defense aerospace. This offers opportunities for start-ups as well as further evolution for existing players. The Indian aerospace & defense (A&D) market is projected to reach around USD 70 billion by 2030, driven by the burgeoning need for advanced infrastructure and government thrust.

- The rise of industrialization in Asian countries, especially India, China, and Japan, will drive the market for industrial radiography testing devices. According to IBEF, India has the potential to become a global manufacturing hub. By 2030, the country can add more than USD 500 billion yearly to the global economy, which will create demand in the studied market.

- The increase in industrial manufacturing and the adoption of Industry 4.0 creates a demand for radiography testing techniques in the region. For instance, according to the data from IBEF, the Government of India has set an ambitious target of increasing manufacturing output contribution to 25% of the GDP by 2025 from 16%. The Smart Advanced Manufacturing and Rapid Transformation Hub (SAMARTH) Udyog Bharat 4.0 initiative aims to enhance awareness about Industry 4.0 within the Indian manufacturing industry. Such initiatives are expected to drive the market.

Industrial Radiography Testing Industry Overview

The industrial radiography testing market is fragmented, with the presence of major players like Fujifilm Corporation (Fujifilm Holdings Corporation), Baker Hughes Nikon Metrology NV (Nikon Corporation), North Star Imaging Inc., and Carestream Health. Players in the market are adopting strategies such as partnerships, innovations, and acquisitions to enhance their product offerings and gain sustainable competitive advantage.

In May 2023, Waygate Technologies, a Baker Hughes company, announced that it is introducing the new flagship computerized tomography (CT) scan solution Phoenix V|tome|X M Omni. A wide range of 3D metrology, research, and evaluation applications in the laboratory environment as well as automatic production quality checks, is made possible by this extremely flexible premium CT solution.

In January 2023, Nikon Corporation launched a new reconstruction algorithm allowing scanning times to be reduced by typically 10-fold. Dual Material CT provides enhanced efficiency on assemblies comprising two materials of different densities. It significantly improves the ability to distinguish between the two materials in the voxel image reconstructed from 2D X-rays taken as the component rotates in the chamber of a Nikon X-ray CT machine. The benefits of X-ray CT for non-destructive inspection and measurement of both the interior and exterior of components are well known.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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