United States Ndt Equipment Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

Market Report | 2023-01-23 | 120 pages | Mordor Intelligence

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Report description:

The US NDT equipment market is expected to register a CAGR of 8.12% over the forecast period (2022-20276). Due to the COVID-19 pandemic, the US NDT equipment market is witnessing a decline in demand as end-user industries, such as automotive, oil and gas, and construction, have been impacted due to lockdowns and other social distancing norms. According to the report released by the American Road and Transportation Builders Association, infrastructure projects totaling more than USD 9.6 billion have been delayed or canceled due to the pandemic. About 16 US states announced project delays or cancellations worth USD 5 billion, while another 20 local governments and authorities scrapped or put off projects worth USD 4.54 billion.

Key Highlights
The International Code Council (ICC), which engages in the formulation of safety measures, introduced a set of model building codes known as international codes. These codes were devised for use in the United States but are also widely employed in other regions.? The ICC 1704 standard mandates the need for gaining NDT certification in the welding category to ensure structural integrity. However, in the United States, regional bodies are given autonomy for framing their own technical and industrial standards.
According to the Federal Aviation Administration (FAA), 200,000+ aircraft in the United States must undergo periodic safety inspections using NDT. Military equipment is also subjected to the Department of Defense NDT standards, which are often made using the information provided by independent testing associations, such as the American Society for Nondestructive Testing (ASNT).
According to the US Energy Information Administration, US crude oil production averaged 9.9 million b/d in February 2021, down by 1.2 million b/d from January. As per the forecast, US crude oil production was expected to average 11.3 million b/d in the fourth quarter of 2021 and then rise to an average of 11.8 million b/d in 2022. The need for more pipeline transportation capacity and increasing crude oil production propelled the expansion of crude oil pipeline infrastructure. According to EIA, around 23 petroleum

pipeline projects in the United States are currently in the construction phase, including new pipelines, such as the Keystone XL Pipeline Project by TC Energy, and expansions of already existing pipelines. Eight projects reached completion between January and July 2020. Such developments are expected to boost the adoption of NDT testing equipment over the forecast period.
The United States is one of the major markets for NDT when it comes to the manufacturing sector. According to the National Association of Manufacturers (NAM), the country has over 250,000 manufacturing firms and over 14,000 member companies in every industrial sector. The US manufacturers account for 11.39% of the economy's total output.

USA NDT Equipment Market Trends

Ultrasonic Testing to Observe Gradual Growth

Ultrasonic Pulse Velocity (UPV) is an effective nondestructive testing method for quality control of concrete materials and detecting damages in structural components. The US construction sector's growth in the past few years has augmented equipment sales. After the presidential election, a particular emphasis on building new infrastructure and repairing existing capital assets that are raising safety concerns was expected to occur. Additionally, public-private partnerships (PPPs) are expected to increase for large-scale infrastructure projects.?
Pipeline construction projects, such as Pecos Trail Pipeline Project, Penn East Pipeline Project, and Atlantic Coast Pipeline, are some of the projects that are destined to be completed over the next few years. These projects are expected to create considerable demand for ultrasonic nondestructive testing equipment in the country over the next few years.?
The country is the world's largest producer of nuclear power, accounting for more than 30% of the global nuclear electricity generation. According to the World Nuclear Association, the United States has 93 operational nuclear reactors with a combined net capacity of 95.5 GWe. Nuclear power generated about 19.7% of the country's electricity in 2020. ?
In 2020, the Department of Energy (DOE) announced its plan to build two new prototype nuclear reactors within seven years. The reactors would be the centerpiece of DOE's new Advanced Reactor Demonstration Program, which was expected to receive USD 230 million in 2020. Each would be built as a 50-50 collaboration with an industrial partner and ultimately could receive up to USD 4 billion in funding from DOE.
According to the US Census Bureau, the value of new commercial buildings recovered to pre-recession levels, with USD 79.9 billion registered in 2020. In 2022, the value of construction starts in the United States is expected to reach USD 135 billion. Private offices were the most popular form of commercial construction in the country in 2019. Private offices, warehouses, and shopping/retail facilities are expected to be favored over the coming years. The increasing growth in the construction sector may boost the US market for ultrasonic NDT testing equipment.

Automotive and Transportation Observing Significant Increases

New R&D initiatives are transforming the industry to respond better to the opportunities of the 21st century. According to Auto Alliance, the US automotive sector spends USD 18 billion per year on R&D, which is driving companies to invest in R&D to stay competitive in the market.
It is estimated that more than 113 million light automobiles are likely to be produced annually by 2023. The requirement for NDT equipment in the automobile sector is also expected to grow to cater to the increasing demand and supply.
While most R&D activities occur in Europe and North America, the Asia-Pacific region has become the largest producer of automobiles and is consequently driving the regional market. Production and quality measurement techniques play a crucial role in the automotive sector. The need to avoid defects and obtain accuracy in dimensional measurement of complex geometries renders NDT a viable solution. In an automobile, parts that require flaw detection include brakes, driveshafts, steering

components, connecting rods, wheels, engine mounts, pistons, and cylinder blocks. For instance, an innovative x-ray solution, VisiConsult, recently installed several fully automated inline CT systems at an automotive supplier. The solution is expected to offer the benefit of a 100% inspection without wasting time.?
The automotive sector must meet the requirements of increased safety (product liability), tightened regulations concerning environmental protection, and car drivers' requests for more luxury features. Expensive recall actions, ever-increasing demands on quality management, and the changing legal framework drive the sector, especially with the competitive conditions in the automotive sector. NDT technologies such as penetration testing method, radiographic inspection method, eddy current detection method, magnetic particle inspection method, ultrasonic inspection method, and laser holographic inspection method are used in the automotive sector.?
The sector requires new test techniques to determine the current quality of automobile parts, which is expected to influence the whole process by corresponding measured variables.? For instance, Toshiba developed an ultrasonic testing device called Matrixeye, a 3D SAFT (Synthetic Aperture Focusing technique) inspection equipment with a phased array function. Matrixeye allows welds to be inspected non-destructively, and inspection will be performed automatically by robots in the automotive sector.

USA NDT Equipment Market Competitor Analysis

The US NDT equipment market is moderately consolidated, with many players accounting for a very minimal share in the market. The development of regional markets and increasing shares of local players in foreign direct investments are the major factors promoting the market's fragmented nature.

In April 2021, Bureau Veritas acquired Bradley Construction Management, a US-based provider of construction management services for the renewable energy sector. This acquisition will strengthen Bureau Veritas' diversification and growth in the renewable energy sector in the United States.
In March 2021, Waygate Technologies, a Baker Hughes business (formerly GE Inspection Technologies), announced the introduction of its first phased array ultrasonic testing machine for small diameter metal bars and wire in the 6-25mm diameter range. By driving the inspectable diameter down by 40%, the new Krautkramer ROWA Ux 400 mini meets the increasing demand for the inspection of pre-material for lightweight and high-strength steel parts.

Additional Benefits:

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

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