Global 3D Metrology Market Research Report: Information by Component (Hardware, Software and Service), by Product (Coordinate Measuring Machine (CMM), Optical Digitizer and Scanner (ODS), Video Measuring Machine (VMM), Automated Optical Inspection and Form Measurement), by Application (Quality Control and Inspection, Reverse Engineering, Virtual Simulation and others), by End User (Aerospace & Defense, Automotive, Architecture & Construction, Medical, Electronics, Energy & Power, Heavy Machinery Industry, Mining and others) and by Region (North America, Europe, Asia-Pacific, Middle East & Africa and Central and South America) - Forecast till 2025

Market Synopsis

The global 3D metrology market is expected to grow from USD 8.75 billion in 2018 to USD ~15 billion by 2025, at a compound annual growth rate (CAGR) of ~9% during the forecast period. In the automotive sector, owing to varying international standards and strict safety regulations, it becomes necessary to have a 3D metrology system that is flexible and easy to adapt. The 3D measurement data obtained from 3D metrology helps to conclude safety risks, durability, creep and aging processes, and outer appearance of the product. This results in improved safety and comfort as well as more extended durability and more attractive product design.

Furthermore, 3D metrology provides high measuring accuracy and a significant reduction in the reject rate, thus is considered as the decisive factors in increasing production efficiency. Therefore, the need for 3D metrology in the automotive sector is considered as one of the major factors enhancing the growth of 3D metrology market. For instance, Hexagon AB, measurement and industrial metrology company, has a long track record in delivering measurement systems to the automotive industry and has developed its 360° SIMS robotic 3D Metrology system for automotive plant process control.

Moreover, in manufacturing industries, 3D systems metrology and digital inspection tools assist in increasing the product and manufacturing quality, and rapidly identify process issues, thereby enhancing the productivity process. Also, it has become a mandate to continuously measure the 3D surface roughness during the manufacturing process to ensure adherence to specified roughness tolerances. For instance, P&C Automotive, a European group of companies in the sheet metal forming industry, optimizes its production processes with 3D metrology and thus creates competitive advantages. Thus, the adoption of 3D metrology in the manufacturing industry is driving the growth of this market. Furthermore, the emergence of Industry 4.0 is expected to create a massive opportunity for 3D metrology market during the forecast period. However, the high cost associated with setting up the 3D metrology facility and lack of expertise to efficiently handle 3D metrology systems is expected to hamper the growth of this market.

3D metrology is the study of measurement in three dimensions (x, y, z) which is used to enforce, validate, and verify predefined standards for traceability, accuracy, reliability, and precision. It is mainly used for quality inspection and has become a crucial tool in many manufacturer's measurements and inspection arsenals. Many industries including manufacturing, automotive, and, aerospace & defense have started using 3D metrology for design modification of actual objects to produce customized cars, spare parts, and produce parts whose production had been discontinued.

Segmentation

3D metrology market has been segmented on the basis of component, product, application, end
Based on the component, the market has been segregated into hardware, software, and service.

Based on product, the market has been divided into coordinate measuring machine (CMM), optical digitizer and scanner (ODS), video measuring machine (VMM), automated optical inspection, and form measurement. The coordinate measuring machine (CMM) segment has been further sub-segmented into bridge CMM, gantry CMM, horizontal arm CMM, cantilever CMM, and articulated arm CMM. The optical digitizer and scanner (ODC) are further divided into a 3D laser scanner, structured light scanner, and laser tracker. The video measuring machine (VMM) is further ranked as a vision system, measuring microscope, optical comparator, and multisensory measuring system.

By application, the market has been classified as quality control and inspection, reverse engineering, virtual simulation, and others.

Based on end user, the market has been categorized aerospace & defense, automotive, architecture & construction, medical, electronics, energy & power, heavy machinery industry, mining, and others.

Based on the region, the market separated into North America, Europe, Asia-Pacific and the Middle East & Africa, and Central and South America.

Regional analysis

The global market for 3D metrology is estimated to grow at a significant rate during the forecast period from 2019 to 2024. The geographical analysis of 3D metrology market is studied for North America, Europe, Asia-Pacific, Middle East & Africa, and Central and South America.

Asia-Pacific region holds the largest market share in 3D metrology market as automobile and electronics manufacturers in this region utilize 3D metrology for different applications such as quality control and inspection, reverse engineering, and virtual simulation across various verticals. Moreover, North America followed by Europe is expected to show exponential growth during the forecast period as the demand for 3D metrology equipment from automobile manufacturers and research institutes in these regions are increasing at a reasonable rate. However, the Middle East, Africa, Central, and South America are at a nascent stage and are expected to show significant growth during the forecast period.

Key players

The prominent players in the 3D metrology market are Hexagon AB (Sweden), Carl Zeiss AG (Germany), FARO Technologies (US), Mitutoyo Corporation (Japan) Nikon Corporation (Japan), KLA-Tencor (US), Jenoptik (Germany), Keyence (Japan), Perceptron (US), and Creaform (Canada).

Other players in the 3D metrology market are GoM (Germany), Automated Precision (US), 3D Digital Corp (US), 3D System Corp (US), Applied Materials (US), and Exact Metrology (US).

Intended Audience

- Semiconductor industry
- Automotive industry
- OEM
- Technology investors
- Government
- Value-added resellers
- Distributors
- Investors and venture capitalist
- System integrators
- Research/consultancy firms

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