3D Metrology Market Poised for Steady Growth Driven by Precision Demands

3D metrology market is experiencing a surge in demand, driven by the increasing need for precise

VANCOUVER, BRITISH COLUMBIA, CANADA, June 24, 2024 /EINPresswire.com/ -- The global 3D metrology market is experiencing a surge in demand, driven by the increasing need for precise and efficient measurement solutions across various industries. According to a recent report by Emergen Research, the market size was estimated at USD

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10.21 billion in 2022 and is projected to reach USD 20.99 billion by 2032, growing at a compound annual growth rate (CAGR) of 7.5%.
Market Overview and Trends

3D metrology refers to the science of measuring 3D objects. It encompasses a wide range of technologies, including coordinate measuring machines (CMMs), optical digitizers, 3D scanners, and X-ray computed tomography (CT). These technologies are used for various applications, including quality control, reverse engineering, and virtual simulation.

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The 3D metrology market is witnessing a significant shift towards automation and integration with Industry 4.0 initiatives. Manufacturers are increasingly deploying automated 3D measurement systems to streamline production processes and improve quality control efficiency. Additionally, the growing adoption of additive manufacturing (3D printing) is fueling the demand for 3D metrology solutions for part inspection and verification.

Key Drivers and Restraints

Several factors are propelling the growth of the 3D metrology market:

Rising Emphasis on Quality Assurance: Strict quality control regulations in manufacturing sectors like automotive, aerospace, and medical devices are driving the demand for accurate and reliable 3D measurement solutions.

Technological Advancements: Continuous advancements in 3D metrology technologies, such as high-speed scanning, improved sensor accuracy, and advanced data analysis software, are enhancing the capabilities and ease of use of these systems.

Growth of Industrial Automation: Increased automation in manufacturing processes necessitates robust and efficient 3D measurement systems for in-line inspection and real-time process control.

However, the market also faces certain restraints:

High Cost of Equipment: The initial investment cost of 3D metrology equipment can be substantial, particularly for high-end systems, which may limit adoption by smaller companies.

Skill Gap: Operating and interpreting data from advanced 3D metrology systems requires skilled personnel, and a shortage of qualified professionals could hinder market growth.

Growth Opportunities

The 3D metrology market presents several exciting growth opportunities:

Emerging Applications: The adoption of 3D metrology is expanding beyond traditional industries, with new applications emerging in fields like medical device development, microelectronics manufacturing, and cultural heritage preservation.

Advancements in AI and Machine Learning: The integration of artificial intelligence (AI) and machine learning (ML) algorithms into 3D metrology systems can further improve data analysis, automate decision-making, and enhance predictive maintenance capabilities.

Rise of the Asia Pacific Market: The Asia Pacific region, particularly China and India, is expected to witness significant growth in the 3D metrology market due to the rapid expansion of manufacturing and infrastructure development activities.

Market Insights and SWOT Analysis

Market Share by Product Type: CMMs are currently the dominant product type in the 3D metrology market, but optical digitizers and 3D scanners are projected to experience faster growth in the coming years.

Market Share by Application: Quality control and inspection remain the primary applications for 3D metrology, but reverse engineering and virtual simulation are gaining traction.

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SWOT Analysis:

Strengths:

High accuracy and precision of measurement

Wide range of applications across various industries

Growing demand for automated solutions

Weaknesses:

High initial investment cost

Skill gap in operating and interpreting data

Opportunities:

Emerging applications in new industries

Advancements in AI and machine learning

Growth potential in the Asia Pacific region

Threats:

Economic downturns impacting manufacturing investments

Fluctuations in raw material prices
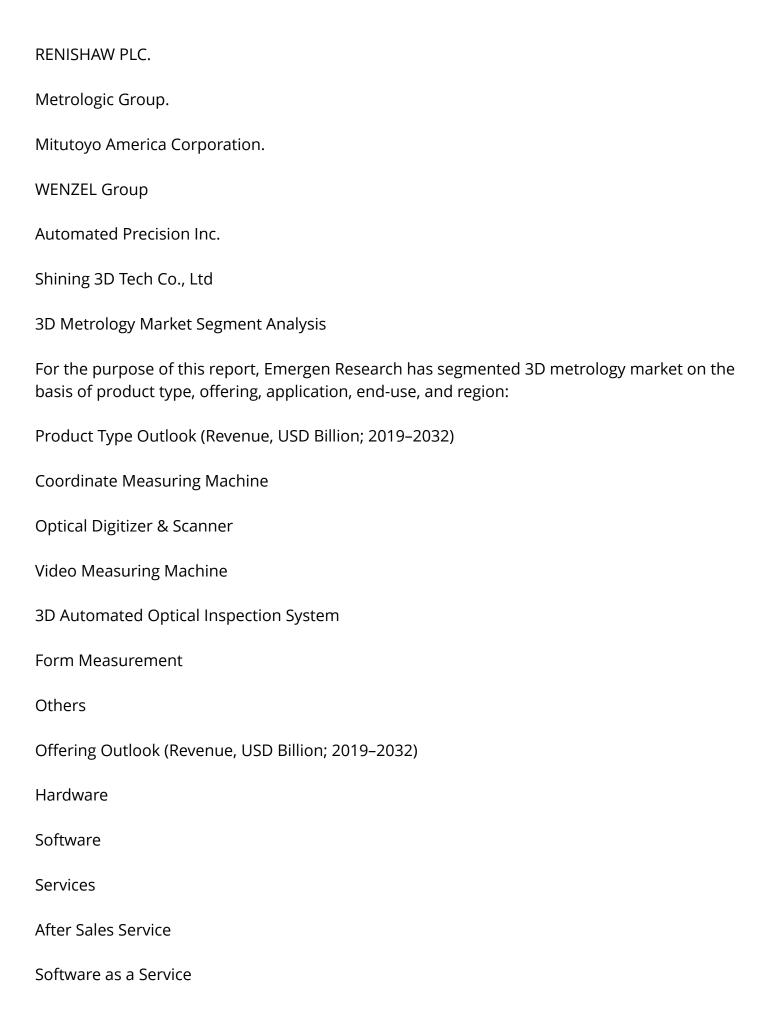
Strategic Developments and M&A Activity

On 5 July 2023, Snowbird Technologies announced a collaboration with Creaform, a developer of 3D measurement tools. Snowbird intends to offer the MetraSCAN 3D Optical CMM scanner, VXinspect software, and Polyworks software solutions, as well as expand on the SAMM Tech

Additive Manufacturing platform, which allows users to reverse engineer obsolete or missing parts to ensure continued operations and mission readiness. The MetraSCAN 3D optical CMM scanner is specifically developed for manufacturing and endure a variety of industrial settings and environmental instability, making it well suited to the needs of people using the transportable SAMM Tech Additive Manufacturing platform.

3D Metrology Top Companies and Competitive Landscape

The global 3D metrology market is fragmented with large and medium-sized market players accounting for the majority of revenue. Major players are deploying various strategies, entering into mergers and acquisitions, strategic agreements and contracts, developing, testing, and introducing more effective in the market.

Some major players included in the market report are:

Hexagon AB.

CARL ZEISS AG.

Nikon Metrology NV.

Applied Materials, Inc.

KLA Corporation.

Waygate Technologies.

Creaform

Perceptron, Inc.

CyberOptics

Zygo Corporation.

JENOPTIK AG.

3D Systems corporation.

Trimble Inc.

FARO TECHNOLOGIES, INC.

RENISHAW PLC.

Metrologic Group.

Mitutoyo America Corporation.

WENZEL Group

Automated Precision Inc.

Shining 3D Tech Co., Ltd

3D Metrology Market Segment Analysis

For the purpose of this report, Emergen Research has segmented 3D metrology market on the basis of product type, offering, application, end-use, and region:

Product Type Outlook (Revenue, USD Billion; 2019–2032)

Coordinate Measuring Machine

Optical Digitizer & Scanner

Video Measuring Machine

3D Automated Optical Inspection System

Form Measurement

Others

Offering Outlook (Revenue, USD Billion; 2019–2032)

Hardware

Software

Services

After Sales Service

Software as a Service

Storage as service

Measurement Services

Application Outlook (Revenue, USD Billion; 2019–2032)

Quality Control & Inspection

Reverse Engineering

Virtual Simulation & Modeling

Surface Analysis

Dimensional Analysis

End-Use Outlook (Revenue, USD Billion; 2019–2032)

Automotive

Aerospace & Defense

Manufacturing

Medical & Healthcare:

Construction & Architecture

Energy & Power

Consumer Electronics

Geospatial & Geographic Information System (GIS)

Others

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Country scope: U.S., Canada, Mexico, Germany, U.K., France, Spain, BENELUX, Rest of Europe, China, India, Japan, South Korea, Rest of APAC, Brazil, Rest of LATAM, Saudi Arabia, UAE, Israel, and Rest of MEA

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