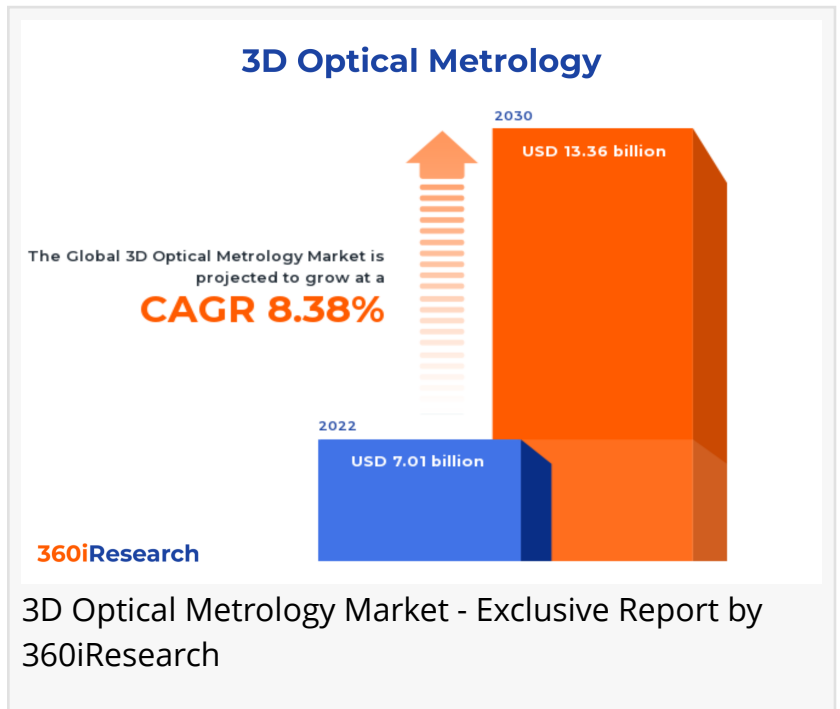


3D Optical Metrology Market worth \$13.36 billion by 2030, growing at a CAGR of 8.38% - Exclusive Report by 360iResearch

The Global 3D Optical Metrology Market to grow from USD 7.01 billion in 2022 to USD 13.36 billion by 2030, at a CAGR of 8.38%.

PUNE, MAHARASHTRA, INDIA,
November 10, 2023 /
EINPresswire.com/ -- The "[3D Optical Metrology Market](#) by Type (3D Automated Optical Inspection System, Coordinate Measuring Machine, Laser Scanning), Component (Hardware, Software), Industry, Application - Global Forecast 2023-2030" report has been added to 360iResearch.com's offering.



The Global 3D Optical Metrology Market to grow from USD 7.01 billion in 2022 to USD 13.36 billion by 2030, at a CAGR of 8.38%.

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3D optical metrology uses light as an information carrier to measure physical properties such as dimensions, distances, and temperatures of manufacturing products and components. The growing focus of the economies worldwide towards Industrial 4.0 and automation across the manufacturing industries is accelerating the use of breakthrough technologies such as 3D optical metrology to measure, analyze accurately, and map manufacturing products with high precision in a three-dimensional space. The use of 3D optical metrology is increasing across the industrial sector as it enables an efficient and cost-effective inspection of complex products, captures detailed data points, and provides accurate measurements to improve product design, manufacturing processes, and quality control. Additionally, it offers valuable insights into process optimization solutions that can assist companies in reducing costs while improving

efficiency, safety, and product quality. However, the high price associated with 3D optical metrology technology setup may adversely impact its use by the end-use sectors. Moreover, the ongoing advancements and emerging use for improved traceability are expected to encourage the adoption of 3D optical metrology technology by the manufacturing sectors worldwide.

Application: Penetration of 3D optical metrology owing to strict quality control measures
3D optical metrology is useful for quality control as it allows for both the detection of dimensional characteristics on the surface of a part and the observation of any irregularities or defects that occur on an internal level. 3D optical metrology is useful for rapid prototyping as it enables complex shapes to be generated quickly compared to traditional methods such as molding or machining. Additionally, it reduces the time involved in producing prototypes since parts can be measured without requiring manual intervention. 3D optical metrology provides accurate measurements without destructive testing techniques such as cutting open components, making it useful for reverse engineering processes. 3D optical metrology is suitable for virtual assembly as objects collected from different sources, such as CAD drawings, can be combined virtually, allowing engineers or manufacturers to evaluate various production outcomes quickly.

Industry: Improving deployment of 3D optical metrology in semiconductor and electronics industry for assessing part dimensions

The use of 3D optical metrology in the aerospace & defense industry is mainly for dimensional inspection and quality control. 3D optical metrology provides helpful information during the construction process by providing precise measurements that help assure the structural integrity of buildings and bridges. 3D optical metrology has numerous applications within the transportation sector, including automotive manufacturing, where it is used for quality control purposes, such as inspecting vehicle body panels for defects or inconsistencies in shape or size. 3D optical metrology is an invaluable tool for the manufacturing and semiconductor sector since it allows companies to accurately assess part dimensions during pre-production design and throughout each production stage. 3D optical metrology offers significant advantages while analyzing pharmaceutical components such as tablets or capsules through its highly accurate scanning ability, ensuring each component meets the desired specifications.

Type: High adoption of automated optical inspection systems across manufacturing sector
3D automated optical inspection (AOI) Systems inspect objects and detect defects quickly, repeatedly, and reliably. AOI systems typically employ one or more cameras to capture images of the object under inspection and then use pattern recognition algorithms to detect any defects from the images. Coordinate Measuring Machines (CMMs) are used to measure the physical geometry of an object and can provide accurate measurements for complex shapes. Laser scanning is used to create 3D models of objects, which can be used for inspection and reverse engineering purposes. An optical digitizer is a tool that captures 3D shape information by measuring points on an object's surface with an optical device such as a camera or scanner. Optical digitizers are commonly employed in reverse engineering processes where they can be used to produce highly accurate CAD models from physical objects with complex surfaces.

Component: Availability of advanced 3D optical metrology hardware products for precise measuring purposes

3D optical metrology systems offering hardware components for dimensional measurement include coordinate measuring machines (CMMs), portable measuring arms, laser trackers, and optical scanners. 3D optical metrology instruments are available in an extensive range of sizes and accuracy classes to cover practically all precision 3D measuring applications. The 3D optical metrology software module is designed to optimize meshes and prepare 3D scans for 3D printing, enabling quality control and quality assurance professionals to perform inspections and generate reports based on particular engineering requirements. 3D optical metrology software architected to interpret complex engineering tasks accurately and rapidly with comprehensive reporting functionality.

Regional Insights:

The ongoing adoption of innovative technologies and shift towards automation by the manufacturing industries, along with highly growing industrial sectors, are encouraging the growth of the 3D optical metrology market in the Americas. 3D optical metrology adoption in the APAC region is accelerating due to the rapid expansion of industrial sectors, government initiatives to promote local production of manufacturing products, and the rising adoption of advanced manufacturing technologies to improve the efficiencies and effectiveness of production areas. The presence of well-established manufacturing sectors and the surge in investments for adopting advanced and innovative technologies across manufacturing sectors are creating significant potential for the growth of the 3D optical metrology technology market in the EMEA region. Additionally, the ongoing research and development to expand the applications of novel 3D optical metrology technology are expected to create immense potential for the growth of the 3D metrology market worldwide.

FPNV Positioning Matrix:

The FPNV Positioning Matrix is essential for assessing the 3D Optical Metrology Market. It provides a comprehensive evaluation of vendors by examining key metrics within Business Strategy and Product Satisfaction, allowing users to make informed decisions based on their specific needs. This advanced analysis then organizes these vendors into four distinct quadrants, which represent varying levels of success: Forefront (F), Pathfinder (P), Niche (N), or Vital(V).

Market Share Analysis:

The Market Share Analysis offers an insightful look at the current state of vendors in the 3D Optical Metrology Market. By comparing vendor contributions to overall revenue, customer base, and other key metrics, we can give companies a greater understanding of their performance and what they are up against when competing for market share. The analysis also sheds light on just how competitive any given sector is about accumulation, fragmentation dominance, and amalgamation traits over the base year period studied.

Key Company Profiles:

The report delves into recent significant developments in the 3D Optical Metrology Market, highlighting leading vendors and their innovative profiles. These include Advantest Corporation, AMETEK, Inc., Artec Europe, S.a.r.l., Atlas Copco AB, Baker Hughes Company, Bruker Corporation, Carl Zeiss AG, Cognex Corporation, FARO Technologies, Inc., Hexagon AB, InnovMetric Software Inc., Jenoptik AG, Keyence Corporation, KLA Corporation, Mahr GmbH, Metrologic Group, Micro-Epsilon Messtechnik GmbH & Co. KG, Micro-Vu, Mitutoyo America Corporation, NanoFocus AG, Nikon Corporation, Nordson Corporation, Northern Digital Inc., Olympus Corporation, Omron Corporation, OptiPro Systems, Inc., Polytec GmbH, Quality Vision International, Renishaw PLC, Sensofar Tech, S.L, Shining 3D Tech Co., Ltd., Suruga Seiki Co., Ltd., Trimble Inc., and Wenzel Group GmbH & Co. KG.

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Market Segmentation & Coverage:

This research report categorizes the 3D Optical Metrology Market in order to forecast the revenues and analyze trends in each of following sub-markets:

Based on Type, market is studied across 3D Automated Optical Inspection System, Coordinate Measuring Machine, Laser Scanning, and Optical Digitizer. The 3D Automated Optical Inspection System commanded largest market share of 32.64% in 2022, followed by Coordinate Measuring Machine.

Based on Component, market is studied across Hardware and Software. The Hardware commanded largest market share of 70.94% in 2022, followed by Software.

Based on Industry, market is studied across Aerospace & Defense, Architecture & Construction, Automotive & Transportation, Energy & Utilities, Manufacturing, Medical & Pharmaceuticals, and Semiconductor & Electronics. The Manufacturing commanded largest market share of 19.67% in 2022, followed by Automotive & Transportation.

Based on Application, market is studied across Quality Control, Rapid Prototyping, Reverse Engineering, and Virtual Assembly. The Quality Control commanded largest market share of 32.67% in 2022, followed by Rapid Prototyping.

Based on Region, market is studied across Americas, Asia-Pacific, and Europe, Middle East & Africa. The Americas is further studied across Argentina, Brazil, Canada, Mexico, and United States. The United States is further studied across California, Florida, Illinois, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Texas, and Washington. The Asia-Pacific is further studied

across Australia, China, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam. The Europe, Middle East & Africa is further studied across Denmark, Egypt, Finland, France, Germany, Israel, Italy, Netherlands, Nigeria, Norway, Poland, Qatar, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, and United Kingdom. The Europe, Middle East & Africa commanded largest market share of 39.15% in 2022, followed by Americas.

Key Topics Covered:

1. Preface
2. Research Methodology
3. Executive Summary
4. Market Overview
5. Market Insights
6. 3D Optical Metrology Market, by Type
7. 3D Optical Metrology Market, by Component
8. 3D Optical Metrology Market, by Industry
9. 3D Optical Metrology Market, by Application
10. Americas 3D Optical Metrology Market
11. Asia-Pacific 3D Optical Metrology Market
12. Europe, Middle East & Africa 3D Optical Metrology Market
13. Competitive Landscape
14. Competitive Portfolio
15. Appendix

The report provides insights on the following pointers:

1. Market Penetration: Provides comprehensive information on the market offered by the key players
2. Market Development: Provides in-depth information about lucrative emerging markets and analyzes penetration across mature segments of the markets
3. Market Diversification: Provides detailed information about new product launches, untapped geographies, recent developments, and investments
4. Competitive Assessment & Intelligence: Provides an exhaustive assessment of market shares, strategies, products, certification, regulatory approvals, patent landscape, and manufacturing capabilities of the leading players
5. Product Development & Innovation: Provides intelligent insights on future technologies, R&D activities, and breakthrough product developments

The report answers questions such as:

1. What is the market size and forecast of the 3D Optical Metrology Market?
2. Which are the products/segments/applications/areas to invest in over the forecast period in the 3D Optical Metrology Market?
3. What is the competitive strategic window for opportunities in the 3D Optical Metrology

Market?

4. What are the technology trends and regulatory frameworks in the 3D Optical Metrology Market?

5. What is the market share of the leading vendors in the 3D Optical Metrology Market?

6. What modes and strategic moves are considered suitable for entering the 3D Optical Metrology Market?

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