

Complexity of 3D printing to push the global High-Resolution 3D X-ray Microscopy Market

The global high resolution 3D X-ray microscopy market is eyeing for a promising CAGR of 9% over the forecast period of 2016-2027, proclaims Market Research Future (MRF) in a minutely analyzed research report. The high resolution 3D X-ray microscopy market has observed rapid development in the recent years. High-resolution 3D X-ray microscopes (XRM) have gained immense popularity as they solve the inherent challenges associated with 2D methods. In response to the limitations of 2D methods such as inaccuracy and sample consumption during the imaging process, new techniques were developed for 3D characterization. X-ray microscopy (XRM) of additive manufacturing parts is essential in ensuring efficient and effective process development of such components. Defect detection and characterization within metal parts with the help of high resolution 3D x-ray microscopy results in better understanding of interior structures of complex parts.

The development of metal additive manufacturing is progressively moving to the mainstream which necessitates for improved understanding of the process and is a key driver of the growth of the global [High-Resolution 3D X-Ray Microscopy Market](#). Rigorous research and development activities in the field of image solutions and microscopy has spurred the growth of the market. High resolution 3D x-ray microscopes find their application in diverse industries such as oil & gas, material science, semiconductors, metrology, life science, healthcare, and others and growth in end-use industries augments the growth of the global high resolution 3D x-ray microscopy market.

Segmentation

The global 3D X-ray microscopy market has been segmented based on type, application, and end users.

By type, the market has been segmented into [Sub-micron XRM](#), Nanoscale XRM.

By application, the market has been segmented into advanced package development, Mineralogy Discrimination, Failure analysis, and Surface measurements.

By end users, the market has been segmented into Oil & Gas, Material Science, Semiconductors, Metrology, Life Science, and Healthcare.

Regional Analysis

The global 3D X-ray microscopy market spans across the regions of North America, Europe, Asia Pacific, and the Rest of the World (RoW). North America market is well consolidated, US, Canada, and Mexico being the key contributors to the market. The market in this region is flourishing due to soaring demand from end-use industries such as Semiconductors, Oil & Gas, and Material Science. UK and Germany are the leading contributors to the Europe market which is expected to experience an upswing over the forecast period. China, Japan, and India are emerging markets for 3D microscopy and will help Asia Pacific market to emerge as the fastest growing market.

Competitive Landscape

The notable players operating in the global 3D X-Ray microscopy market include Carl Zeiss Microscopy (Germany), Bruker Corporation (U.S), GE Measurement & Control Solutions (U.S), National Center for Biotechnology Information (U.S), TESCAN (Taiwan), Octopus Imaging Software (Belgium), Bruker Corporation (U.S), Thermo Fisher Scientific (U.S), National Resource for Automated Molecular Microscopy (U.S), Helmholtz-Zentrum Berlin (Berlin), Matsusada Precision Inc. (U.S), and Phenom-World (Canada).

Industry Updates

- In September 2018, Rigaku Corporation, an X-ray analytical instrument manufacturer presented its latest XRM and CT technology at an international conference on X-ray microscopy. Rigaku will be conducting several demonstrations, seminars, and presentations during the event.
- In August 2018, Thermo Fisher Scientific, a global leader in 3D x-ray microscopy, showcased various products that have been added to its product portfolio at the Microscopy and Microanalysis 2018 Meeting in Baltimore. The company has also made advancements in its existing portfolio of instruments. Among them is the DualBeam-focused ion beam scanning electron microscopes (FIB-SEMs) which now includes automation software and advanced 3D materials characterization and a Python-based scripting engine to automate experiments.

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