Inprentus Develops Innovative Curved Gratings To Meet Market Demand

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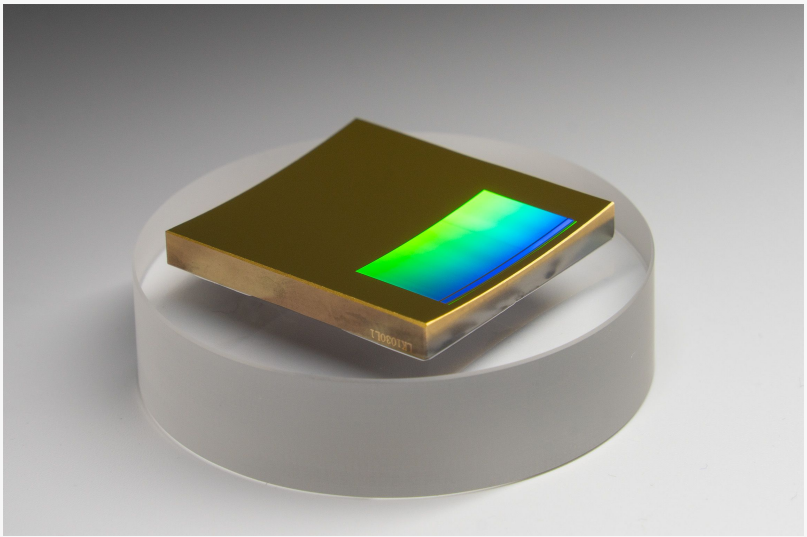

Curved Blazed Diffraction Grating Manufactured to Meet Market Demand in Space and EUV Semiconductor Industries

CHAMPAIGN, IL, UNITED STATES, March 23, 2026 /EINPresswire.com/ -- There is a growing demand for miniaturized optical packages in the space and semiconductor industries. To meet this growing market, Inprentus has developed highly curved diffraction gratings that combine the functions of a lens and a diffraction grating into a single optical element. This 2-in-1 design reduces cost and saves space without sacrificing performance.

Diffraction gratings measure the spectrum of light emitted from a material, enabling analysis of its properties. Inprentus' curved gratings represent a significant technological breakthrough, maintaining focus over a broader wavelength range and providing more accurate spectral measurements. Key applications include space research, EUV lithography for semiconductor manufacturing, and nuclear fusion research in the energy sector.

Inprentus uses premium mechanical ruling technology that allows for high precision in the shape and placement of grating grooves. This technology is uniquely suited for the curved surfaces of spherical gratings, ensuring maximum light throughput and minimal distortion. This technology is key for optics for suborbital sounding rocket missions like NASA's ESIS-II.

For NASA, Inprentus will provide six custom-engineered curved spherical gratings, each featuring a unique dispersion profile for the main mission and an additional six spherical gratings for the initial on-ground alignment phase. These gratings are the "engine" of the ESIS-II instrument, allowing it to capture six simultaneous projections of solar activity. This data is then reconstructed using tomographic techniques to provide a 3D view of solar eruptions and magnetic reconnection events at unprecedented temporal and spatial resolution. “Inprentus’ unique curved grating technology is a critical breakthrough, allowing NASA’s spectrometer to be as compact as possible to meet size limitations required to fit inside a research rocket,” explains Cody Jensen, the company CTO.

Another key application for curved gratings is in EUV lithography for semiconductor manufacturing. Curved gratings allow for the measurement of the spectrum of light in chip fabrication to ensure that this highly complex machinery is working properly. Through improved metrology techniques facilitated by Inprentus curved gratings, semiconductor patterning efficiency and yield can be significantly improved to provide real-time information about the source plasma conditions. Inprentus founder Peter Abbamonte remarked “Inprentus is uniquely positioned to enable unprecedented optimization of plasma light sources, advancing and accelerating all areas of next-generation chip lithography.”

About Inprentus:
Founded in 2012, Inprentus specializes in the manufacturing of blazed diffraction gratings using a novel, nano-scale mechanical ruling technique. The company provides state-of-the-art optical solutions for synchrotrons, free-electron lasers, semiconductor metrology, and space-based imaging systems worldwide.

Inprentus aims to apply 21st century mechanical ruling to solve critical current and future grating-centered challenges. We are committed to excellence, risk, and pushing boundaries by providing state-of-the-art blazed gratings that perform to unprecedented specifications and that enable novel applications. Outcomes include next-generation monochromators, spectrometers, laser systems, and analytical instrumentation in defense applications, as well as ground-breaking consumer experiences enabled by improvements in chip manufacturing and see-through AR waveguides. Inprentus is dedicated to facilitating next-level science and technology by continually enhancing our capabilities with cutting-edge developments, collaborations, and partnerships. For more information, visit Inprentus.com.

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