



Rapid Damage-Free Precision Surface Engineering

46535 Fremont Blvd.
Fremont, CA 94538
Phone: 510.933.1000
Fax: 510.661.9227
URL: www.raptindustries.com

FOR IMMEDIATE RELEASE
CONTACT: Roman Salij
510-933-1020
rsalij@raptindustries.com

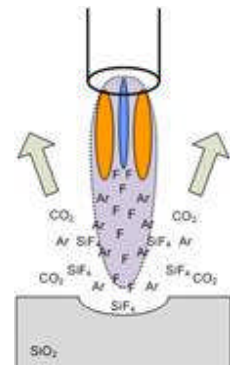
RAPT Industries Announces HELIOS Family of Meter-class Optic Figuring Tools for Sale to Industry

Fremont, CA - June 20, 2008 - RAPT Industries, Inc. announced today its launch of the HELIOS family of optical figuring tools, a line of custom-made, large-scale CNC machines for the production of high-precision optics. Building on a platform developed for the 1.2 meter optical figuring tool recently commissioned at Cranfield University, RAPT will leverage its proprietary RAP™ etching process for equipment to figure meter-class optics that will help enable the production of large-scale, precision optics for high-energy laser and astronomy applications.

Reactive Atom Plasma (RAP™) Process

RAPT Industries grew from the invention of the RAP™ process, developed for use in the National Ignition Facility (NIF) program. Built to investigate the fundamentals of fusion technology, NIF has 192 high energy laser beamlines, all needing a family of large scale optics with little subsurface damage (SSD), a major contributing factor to energy losses in laser experiments. Sub-surface damage is a necessary result of traditional mechanical polishing processes; as material is removed, the force exerted on the optics causes cracks below the top layer of the optic. These cracks tend to absorb energy, creating hot spots that cause the optics to fail.

The RAP™ process was developed as a completely chemical process, with no normal force exerted on the material, eliminating a primary source of SSD. An argon plasma transports free radicals (normally fluorine) to chemically etch the surface. The chemical precursors are matched to the substrate being processed to ensure the byproducts are volatile. This results in material being removed in a sub-aperture, deterministic manner, enabling highly precise figuring of optics without SSD.



The RAP™ Process



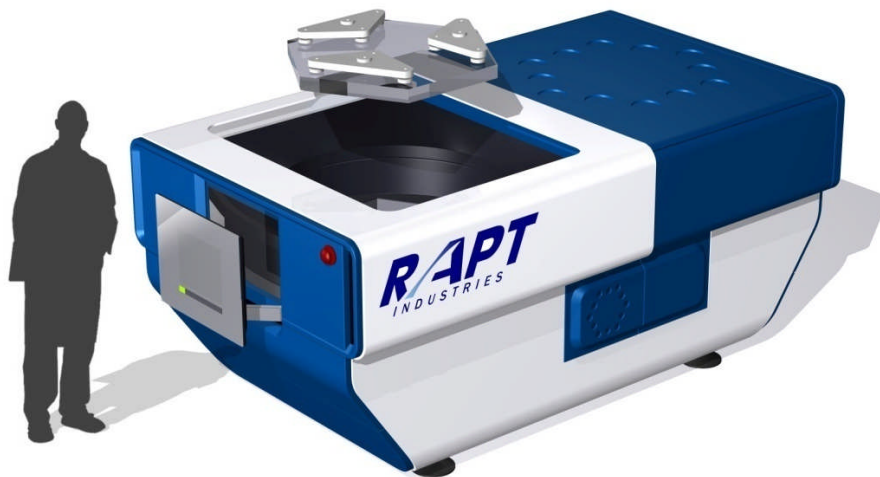
Rapid Damage-Free Precision Surface Engineering

46535 Fremont Blvd.
Fremont, CA 94538
Phone: 510.933.1000
Fax: 510.661.9227
URL: www.raptindustries.com

RAPT has designed the RAP plasma head to be light and nimble, allowing it to be built in a variety of configurations. The Gaussian shape of the plasma leads to a number of design benefits, including a reduction in mid-spatial frequency error often observed in sub-aperture polishing tools. The active chemistry also etches glasses, fused silica, ULE™ and Zerodur™ rapidly, reducing processing times between grinding and final polishing steps. The process is also run at atmospheric pressure, in contrast with the vacuum required for ion beam figuring.

Meter-class Optical Polishing

The benefits of the RAP process – no sub-surface damage, rapid figuring, and flexible and nimble tool – are particularly valuable to large optics, where sub-surface stresses can warp the light-weighted optic, and where the tools to grind, figure and polish optics are large, cumbersome and often slow. Working with the Cranfield University Ultra Precision Machining Laboratory, RAPT Industry developed the HELIOS 1200-3 to polish 1.2 meter optics.



HELIOS 1200-3

In this instance, the top-loading platform hangs the optic face down, while the torch moves across the surface with a 3-axis range of motion. Where necessary, the HELIOS platform can be designed to incorporate additional axes of motion, expanding the range of spheres and aspheres that can be produced by the tool. Because the process is non-contact, there are few



Rapid Damage-Free Precision Surface Engineering

46535 Fremont Blvd.
Fremont, CA 94538
Phone: 510.933.1000
Fax: 510.661.9227
URL: www.raptindustries.com

constraints on the design of the platform, enabling optics of virtually any size to be considered. The HELIOS control software accepts data from standard metrology platforms to calculate the tool path and optimal dwell time to achieve rapid convergence to the target figure. In addition, the HELIOS platform is designed to accommodate multiple torches, further reducing cycle time.

HELIOS is destined to become a valuable tool for the production of large-scale, high-precision optics. RAPT Industries is now accepting inquiries for HELIOS figuring tools for custom development, as well as its EOS platform of standard figuring tools for sub-meter optics. Please contact Roman Salij, rsalij@raptindustries.com or Pradeep Subrahmanyam, pks@raptindustries.com for further information.

ABOUT RAPT INDUSTRIES

RAPT Industries, Inc. was founded in 2001 to commercialize the Reactive Atom Plasma (RAP™) process, invented at the Lawrence Livermore National Labs as a means to obtaining damage-free optics for the National Ignition Facility (NIF). RAPT Industries has pioneered the development and implementation of highly precise plasma-based tools for precision surface engineering. We use our proprietary RAP™ process for precision damage-free shaping of optical and semiconductor materials, selective material removal, and material deposition. We are applying our patented technology in select areas of optics and semiconductor device manufacturing, where rapid damage-free material removal or chemical modification of surfaces improves yields and performance. www.raptindustries.com