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sp3 Diamond Technologies Launches New Dual-Chamber CVD Diamond Deposition Reactor

New Model 665 Lowers Cost of Ownership by Doubling Capacity

Santa Clara, Calif. — AUGUST 24, 2010—sp3 Diamond Technologies, Inc. (sp3), a leading supplier of diamond products, equipment and services, today introduced its newest hot-filament chemical vapor deposition (CVD) diamond reactor, the Model 665. The new dual-chamber system can accommodate up to eighteen 100 mm-diameter substrates at a time, representing a 100 percent increase in deposition area over the company's single chamber model. The Model 665 significantly reduces cost of ownership (COO) by doubling system throughput while delivering the identical CVD diamond film characteristics, deposition rate and process uniformity as the company's single-chamber reactor.

Customer demand for efficient, lower COO platforms for volume production drove development of the higher throughput system. Key markets that are rapidly moving towards full commercialization include chemical mechanical planarization (CMP) pad conditioners and diamond-coated electrodes for water treatment. The Model 665 will serve as a platform for the development of even higher volume deposition equipment targeting the use of diamond interlayers on semiconductor wafers.

"CVD diamond films are moving into full commercialization," said Dwain Aidala, president and COO of sp3 Diamond Technologies. "Scale and throughput are now critical as the inherent benefits of diamond have become well-recognized, moving it from the R&D and pilot production stage into volume manufacturing in some high growth areas. With multiple customers ramping manufacturing of products incorporating CVD diamond, our ability to deliver a high productivity deposition platform is a truly unique offering in the marketplace."

CVD diamond is an ideal material for CMP pad conditioners due to its wear characteristics, chemical inertness and range of abrasive characteristics. CMP use is escalating in semiconductor manufacturing in terms of the number of process steps using CMP, the increasing number of metallization layers and the number of materials being polished. These factors are driving the requirement for CVD diamond-based conditioning that delivers finer line widths and compatibility with the increasing complexity of slurries and pad textures.

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Another market that has seen rapid growth in the adoption of CVD diamond is diamond-coated electrodes for water treatment. Increasingly, these electrodes are being implemented in industrial water treatment facilities and filtration systems where diamond's chemical inertness and ability to be selectively doped enable long life, high reliability systems.

About the Model 665

The Model 665's new dual chamber configuration delivers the same features and benefits of sp3's current, proven reactors, including: excellent diamond thickness uniformity, high throughput, exceptional process repeatability, precise process control and low cost operation. The Model 665 costs less than 40 percent more than the Model 650 system while doubling the throughput, significantly decreasing COO.

The two deposition chambers in the Model 665 always run the same process, with the process controller and associated electronics, gas distribution system and pressure (vacuum) control system simultaneously serving the two chambers for diamond deposition. The gas and vacuum plumbing have been designed to accurately balance pressure and gas flow between the chambers, allowing exact replication of deposition processes in each chamber. The new dual chamber system uses existing deposition recipes, with only minor pump down/cool down step-time modifications.

Operation of the dual chamber configuration is identical to that of the Model 650 series except that two chambers are loaded and unloaded for deposition instead of a single chamber and the user interface displays two chambers. All of the process controls – gas control, pressure control, process recipe creation and operation, etc. – are the same, as are the safety features and data logging capabilities.

sp3 Diamond Technologies, Inc.

sp3 Diamond Technologies provides CVD deposition reactors and diamond-based solutions for electronics thermal management and enhanced cutting surfaces to companies worldwide, across a broad spectrum of industries. By supplying wafer-scale diamond-on-substrate products and services utilizing nano and microcrystalline diamond morphology, sp3 is expanding the commercial reach of polycrystalline CVD diamond.

sp3 understands diamond and manufacturing equipment, as well as the cost, reliability and quality needs of its customers. In addition to running its own CVD diamond manufacturing facilities, sp3 is unique in selling its hot filament CVD reactors so customers can manufacture their own CVD diamond in-house.

Founded in 1993 and headquartered in Santa Clara, California, USA, sp3 Diamond Technologies is a subsidiary of sp3 Inc., a privately-owned, full service provider of products and services relating to thin-film diamond deposition and thick-film polycrystalline diamond materials. sp3 Inc. and its operational units have deposited diamond on over one and a half million cutting tools and completed more than 18,000 successful diamond deposition runs.

For more information visit <http://www.sp3diamondtech.com>.