Moritex Corporation

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President and CEO

Moritex Corporation is developing projects in diverse fields, including fiber optic illumination, imaging, optical communications, bioscience, and new materials, based on such technologies as fiber optics, machine vision, automatic alignment of optical devices, bio-instrument automation, spheres, optical lenses, and software.

Moritex's involvement in the field of micromachines began shortly after its foundation when it began importing and selling microspheres manufactured by Duke Scientific Corporation. Ten years ago, Moritex joined forces with the Research Development Corporation of Japan (presently the Japan Science and Technology Corporation) to develop laser tweezers called a laser manipulator that uses optical radiation pressure. In 1998 Moritex participated in a photon control project for studying the measurement and processing of submicroscopic matter using light and began conducting research on optical fiber probes for observing near-field optics around objects in high-resolution, on the nano-meter order.

In October 2000, we began forming alliances with domestic and overseas manufacturers having their own processing technologies through commissioned production and sales of microstructure parts. Our company focused on processing using X-ray deep lithography as a departure from semiconductor fabrication. This technology is called a LIGA process. A feature of the LIGA process is its capability for manufacturing three-dimensional parts with a high aspect ratio using X-rays. This technology is one of the most anticipated for future micromachining because of its high precision processing capacity, including minimum dimensions on the order of submicrons and maximum dimensions of several ten micrometer or greater. Many of the processes performed by X-ray deep lithography are described below.

1) Processing resist material by lithography using an X-ray light source obtained by synchrotron radiation (SR)
2) Producing dies by electroforming (electroplating)
3) Processing microparts formed of various materials by precision molding (plastic molding)

Synchrotron radiation is an electromagnetic wave emitted when the paths of electrons accelerated near the speed of light by a synchrotron accelerator bend. The wavelength of synchrotron radiation spans from visible light to the X-ray region and is noted for a high brightness and sharp directivity comparable to laser light. Moritex uses small SR rings developed for industrial use as short electron path rings in the production of microparts. Use of these small SR rings allows us to eliminate the electroforming and precision molding processes and mass-produce (tens of thousands per month) PMMA (resist material) microparts at a low cost.

In addition to the LIGA process, Moritex sells microparts produced by the TIEGA process. This is a micromachining process that effectively uses radiation etching of Teflon (PTFE), which has a particularly high processing rate.

Moritex has already begun sales of LIGA-microspectrometers in conjunction with Germany's Microparts Co. The microspectrometers incorporate a diffraction grating produced through the LIGA process. Developments in our business have been focused on manufacturers of colorimeters, liquid densitometers, thin film measuring instruments, and the like. Currently we are engaged in research on molding technologies for ultrafine nonreflective constructions and glass chip microfabrication technology, and are undertaking commissioned production of micromachined components, including optical switches and VOA (variable optical attenuators), which are key devices for DWDM networks. Future plans call for assembling production equipment to develop our own products, including optical elements, microprisms, and lens arrays.

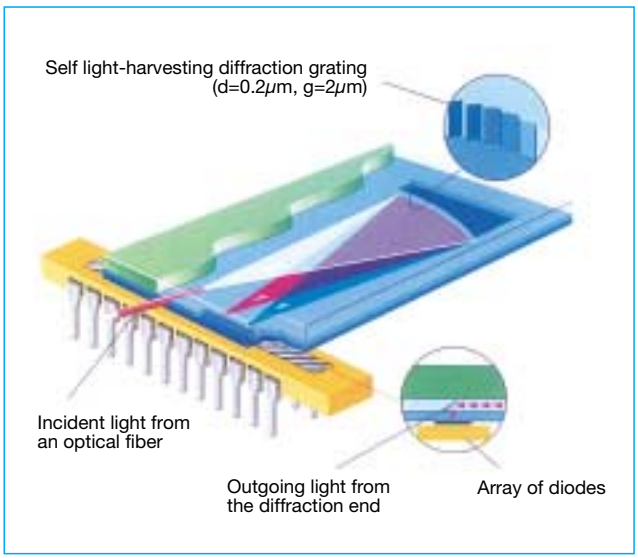

Fig. 1 LIGA-microspectrometer