Laser-structured, high-performance polymers are ideal combination for miniaturization

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As the requirements for medical devices become more demanding, accessing new technologies and materials to miniaturize components is essential.

Miniaturization of medical devices is dependent upon the reliability of their assembled components, which is crucial for proper functioning devices. Miniaturization creates material challenges — especially in electronic medical device applications such as implantable cardiac devices.

To create high-precision, tight-tolerance components, the medical device industry is turning to Molded Interconnect Device (MID) technology. MID technology relies on high-performance polymers that allow the surface to be etched with complex, fine-line circuitry followed by plating.

Vectra/Zenite Liquid Crystal Polymers (LCP) can be molded into thin-walled, tight-tolerance components and then processed by Laser Direct Structuring (LDS) to create the circuitry pattern needed in electronic medical device sensors and components. LDS involves a three-step process: First, an LCP component is injection-molded; second, a computer controlled laser “draws” the circuitry pattern on the LCP surface; and third, metal is electroplated on the circuitry pattern to create a three-dimensional electrical board on the LCP surface.

Vectra/ZeniteLCP and LDS are an ideal combination that can support the technical advances and innovations needed for the miniaturization of high-tech medical devices.

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