

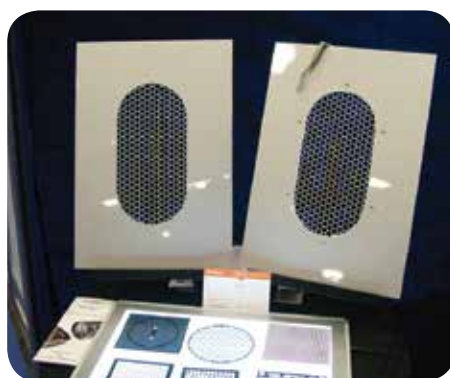
IKONICS Showcases Precision Abrasive Machining Technology

By Mike Musselman
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Want to precisely decorate or perforate your composite part with patterns, holes or geometric shapes? IKONICS Advanced Material Solutions (Duluth, MN) offers a method to do so that bypasses expensive, time-consuming grinding, drilling and cutting. Precision Abrasive Machining (PAM) produces a variety of features/shapes and/or perforations in brittle/challenging materials, including composites, yet ensures low-stress on the part and minimizes compromises to the substrate.

The process employs an updated form of traditional sandblasting, but a proprietary and patented masking system developed by IKONICS, which protects the composite from damage. Perforations can be created in any composite (even Kevlar-reinforced polymers), with high repeatability (within 50 μ m) without the shipping and other defects associated with conventional machining. The resulting perforations have clean edges (no burns or fiber ends to remove).

The PAM is reportedly "gentle" in that the



The decoratively vented opening at left was cut, via PAM, directly from the molded composite part.

stress is applied over a wide area of the part (rather than locally) in a scanning process. According to IKONICS, independent testing laboratory MISTRAS (Princeton, NY) confirms that stress and internal damage to the part are significantly minimized with PAM vs. mechanical drilling. Further, IKONICS maintains that PAM avoids substrate burnishing and distortion associated with laser drilling, and layer delamination associated with waterjet processing.

A secondary, but significant, benefit is the elimination of steps in the customer

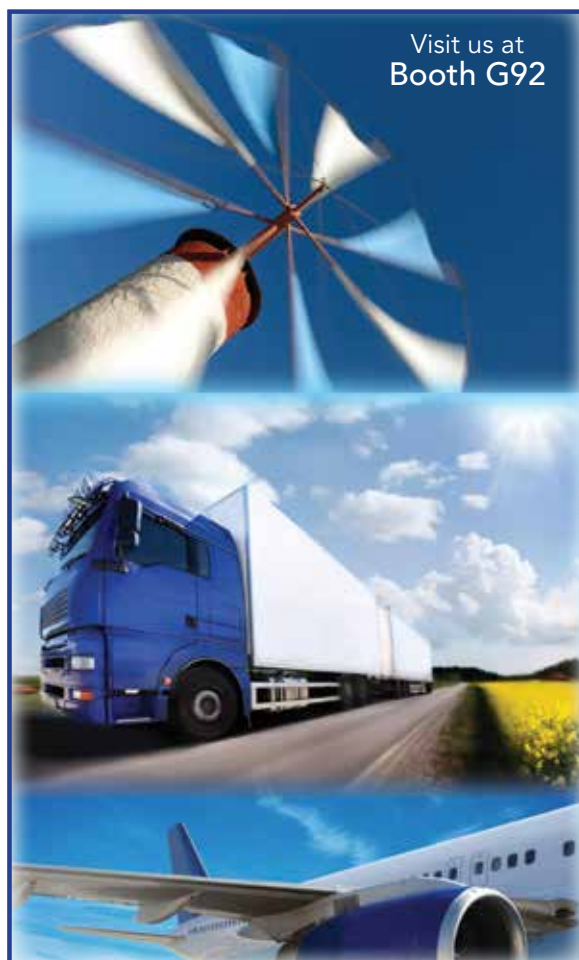
assembly processes. In the accompanying photo, for example, the decoratively vented opening at left was cut, via PAM, directly from the molded composite part. That part replaced one on the right, which was molded, then had the opening machined out, then had a metal grillwork riveted into place in the opening. The grillwork, by the way, required a ground wire—another step.

IKONICS and PAM, Booth H41

CAMX Social Media



Social media is another key outlet to keep an eye on during the show so you don't miss a thing. The CW team will be out in full force covering both the exhibit hall and conference so stay tuned to our Twitter account (@CompositesWrld), which will have all the latest news, photos and videos from the show. Also, on Twitter, check out the hashtag #CAMX15.



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