

HIGH-WIRE ACT:

Laminators Balance Business Demands in a Shifting Market



Last month, *CircuitTree* published an article that posited the decline of Western laminate manufacturers ["Decline of the Laminate Industry?" October 2003]. To get another perspective, Polyclad Laminates provides a more in-depth look regarding the challenges that suppliers face in this rapidly evolving marketplace.

BY BARRY LEE COHEN

While many OEMs continue to push their suppliers for low-priced PWB components and materials, these same suppliers have risen to the challenge by rethinking and restructuring the way they do business. For many, this means developing programs that offer a lower total cost versus a commodity-driven, per-order price.

But focusing on longer-term goals and results not only requires focus and discipline, it demands managerial skill and financial resources. It means retaining solid technical people on staff, introducing new products and process applications, moving operations closer to key markets, and developing the infrastructures that meet customer supply needs in a cyclical and dynamic marketplace.

In essence, it's a balancing act. It requires suppliers to listen to the market and satisfy its current needs, while simultaneously running forward-looking programs that anticipate future directions and trends—even during extended market downturns.

While prolonged market slowdowns like the recent one pressure OEMs and suppliers to center on cost, industry leaders warn that a relentless focus on price per pound (or liter) will not yield new technologies, supply or production improvements—not to mention new environmentally friendly and green alternatives. In fact, it may have the opposite effect, possibly causing suppliers to reduce their manufacturing

capacity, curb R&D spending, and limit their ability to supply the regions they once served.

In responding to these challenges, Polyclad is not alone. No doubt, all laminate suppliers have been negatively impacted by predatory pricing practices. As OEMs reduce their R&D resources when it comes to PWBs and materials, it's up to the supplier to innovate—and invest—to keep the technology moving forward.

As one of the suppliers battling the commoditization of the PWB industry, Polyclad Laminates has used the market slowdown to bolster its core capabilities and restructure many of its operations worldwide. According to company president Rick Richesin, Polyclad has tried to understand its fabrication customers' manufacturing environment and the stringent requirements of its PWB assemblers, OEMs and EMS customers. "We realize that our success and survival is based on meeting and exceeding customer require-

ments, both short-term and into the future. We continually test ourselves to ensure that interactions with our customers and partners remain positive, thoughtful, and collaborative. The days of the supplier and the fabricator living in two separate worlds is simply unacceptable in this global economy."



Rick Richesin,
Polyclad president.

Richesin also said Polyclad's focus is to provide these customers with programs that offer a total lower cost of ownership, without sacrificing delivery, quality and performance customers expect and require. That's easy to say, but how does one accomplish such lofty goals?

Controlling Costs

It's no revelation that providing quality, competitively priced core products is a given in today's global electronics market. But once established in a market, a laminate supplier must seek ways to remain competitive while adding sustainable long-term value. But how can suppliers maintain that value when purchasers only think of price as the determining factor? This is a question that Richesin has had to address for the past two years. In response, Polyclad has made significant changes, experiencing painful lay-offs and factory closures as the industry contracted. Richesin says that the first order of business was to respond to the actual size and shifting geography of the market.

"Controlling infrastructure costs is a constant battle," he said. "And although Polyclad has substantially reduced its costs through 'right sizing' in the U.S. and Europe while enhancing its Asian and Americas capabilities, costs for materials including petroleum-based products, metals, energy, healthcare, freight, and insurance are all rising. In addition, the demand for faster delivery as well as commitments to distribution channels and customer service programs further challenge us to contain costs." Despite the painful cuts he has been forced to make, Richesin noted the company has invested millions of dollars in operation improvements, facilities modernization, technical service and R&D capabilities.

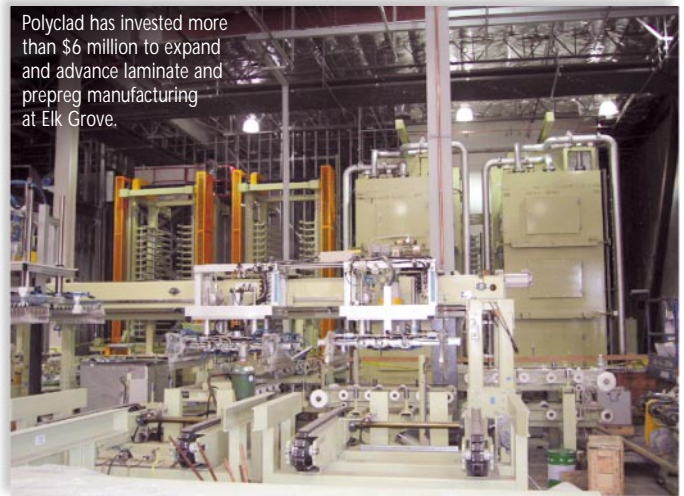
Upgrading Infrastructure

In addition to scaling operations to demand levels and locations, Polyclad Laminates began upgrading its manufacturing capabilities and automating customer-support systems. The company recently invested significant monies and resources in an enhancement to its ERP system to assist quick turn around programs. When the project is complete, the company will have the ability to respond to 80 percent of customer inquiries within 60 seconds via a customized software tool. This capability will be rolled out globally by the end of this year. Soon, the company will open an expanded state-of-the-art manufacturing facility in Elk Grove, California.

Richesin notes, "Polyclad has invested more than \$6 million to expand and advance laminate and prepreg manufacturing at Elk Grove. The expanded manufacturing capabilities will allow for state-of-the-art manufacturing of all our standard epoxy, halogen-free and polyimide laminates, as well as high performance laminate and prepreg systems." According to Richesin, Elk Grove will house state-of-the-art clean rooms meeting Class 1000 standards, vacuum presses, automatic build-up lines and highly automated fabrication equipment. The expansion will be completed in the fourth quarter of 2003 and is intended to further reduce Polyclad's overall operating costs, while improving product quality and consistency. "The new

operation will be automated," said Richesin, "yet flexible to ensure that Polyclad meets customer quality, performance and delivery requirements."

Learning the lesson from the technology bubble of 2000, when high inventory levels added to the market glut, Richesin said, "Customers require materials faster than ever as they strive to keep their inventories and costs down. The way this market starts and stops, the last thing anybody wants is to be caught with inventory. Of course, perhaps worse than that would be to get a big order and not have the materials needed for a run. It's a balancing act that we help our customers manage." Recognizing this means a laminator must use lean manufacturing practices that can produce a variety of product lines quickly.



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Thus, for a laminate supplier like Polyclad, speed is more important than ever. Today, the company can deliver one third of its material orders within 24 hours and two thirds within 48 hours versus two to three weeks in 2000. According to Richesin, this was made possible by introducing new lean manufacturing practices and establishing an advanced scheduling and production planning system.

Tug of War: Technology Versus Cost

Since the beginning of the most recent downturn in 2001, OEMs have relentlessly embarked on cost-savings and productivity-improvement initiatives. In a perfect world, a company could cut costs, increase customer service and meet shareholder expectations. However, in the fiercely competitive and ever-shifting electronics industry something had to give, and the target often became cutting or mothballing longer-range research and development capabilities. What's a laminate supplier to do?

For Richesin, the challenge is real. "Having the right technology, controlling cost and being the 'king of delivery' sums up what our customers' needs are today," he explained. "But as OEMs were forced to consolidate operations and shed staff to cut overhead, those who survived were expected to do more with less. Yet, the need for R&D staff and application engineers did not disappear; in many cases the responsibility defaulted to suppliers. Now this means that we as a supplier must have the very best in-house staff that is equipped to share the customer's

experience and develop intelligent solutions in tandem with the customer's team," he said.

On top of product-specific R&D and manufacturing staff, Polyclad and its sister company Enthone employ people with vast experience in electrochemistry, analytical chemistry, materials science, process and applications engineering. These scientists and applications engineers are provided with advanced testing and analysis capabilities to solve their customers' individual problems.

Recently Polyclad's parent company, Cookson Electronics, acquired over \$5 million worth of analytical and diagnostic technology and consolidated it at its new technology center. This new center, called CE Analytics, is based in Jersey City, New Jersey, and houses Cookson's brain trust of industry technology experts and application engineers. According to Richesin, "All suppliers must provide this kind of value to their customers. Despite grappling with today's volume and margin squeeze, laminate suppliers must fund R&D projects. They must develop new technologies and materials, rather than rely on short-term price reductions that offer no long-term, sustainable value."

Going Green

As if market conditions weren't enough to deal with, laminators must also address new environmental regulations. Not only must they address them, but also they must be on the forefront of this electronics manufacturing trend.

Smart suppliers looked ahead and anticipated how environmental legislation would impact their customers' profitability, and they proactively invested in, developed and brought to market materials and technology that would provide the market with a seamless transition to new regulations. These solutions and materials were produced for customer-specific application needs. The new technology eliminates contaminants and improves recyclability without sacrificing quality or yields whether they're used in lead- or halogen-free applications.

"It used to be that a supplier would develop a product and try to sell it," remarked Richesin. "The way it works today is that we have the people, equipment and technology to develop a product for the customer's specific requirements, and that's what we will continue to do with

the next generation of high-performance 'green' products, while ensuring that they meet the needs for CAF-resistant and low-coefficient of thermal expansion applications."

New Alliances Also Shift Balance

Alliances, partnerships and technology licensing are another way for suppliers to bolster and extend their reach and services for customers. For example, Polyclad announced in August that it has entered into an agreement with GE Plastics to manufacture, sell, and distribute GETEK® copper-clad laminates and prepreg technologies worldwide. This move helps Polyclad broaden its product offering in high-end, high-performance component applications.

"The acquisition of the GETEK product line allows Polyclad to strategically strengthen its existing offerings of materials, while enabling GETEK customers to benefit from Polyclad's global manufacturing and service infrastructure," says Richesin. "Our intent is to expand GETEK availability throughout Polyclad's global manufacturing reach, as well as to devote significant R&D resources to both enhance existing products, and develop new products based on the GETEK technology."

Continuing Life on the High Wire

While the current market is showing signs of coming back to life, many of the survival techniques that both OEMs and suppliers had initiated to survive the extended down cycle have taken root and are now considered best practices. Whether it's monitoring current hot spots like China or looking for the next Mecca of low-cost labor, suppliers are leading the industry in developing people, programs, materials and technologies to support the future needs and viability of the industry.

Even if the current cycle is more of a structural change, the future of the industry will be stronger because the survivors will have invested in programs that will yield total lowest cost of ownership and value-added benefits versus slash-and-burn pricing. "I believe that we all have responsibility in helping our industry pull out of the current slump," Richesin says. "And as I see it, the only way to do it responsibly is by maintaining a balance."

But it cannot be done without the total machine behind it. "This requires people with problem-solving skills, equipment, systems to balance capacity with quick turnaround, state-of-the-art facilities in manufacturing and delivery and adequate pricing models that can help sustain the resources to ply into the science of research and development," he said. "After all, it's R&D and technical expertise that will help us create future opportunities for everyone—from suppliers and distributors to assemblers and OEMs—all the way to the end user." Thus, life on the high wire will continue not only for the laminator, but for the entire electronics supply chain. ☺

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One key to success: Polyclad's agreement with GE Plastics enabled it to broaden its product offering.

